1640 and 2040 Tractors (-Serial No. 429,999) and 1840 Tractors

JOHN DEERE

OPERATORS MANUAL

1640 and 2040 Tractors (-Serial No. 429,999) and 1840 Tractors

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John Deere Werke Mannheim
John Deere Ibérica S.A. Getafe
OML34740 Issue B1

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ENGLISH

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OML34740 B1

To the Purchaser

We appreciate the confidence you have shown in John Deere and your John Deere dealer for the purchase of this equipment.

We want you to have the best performance from your new machine. To accomplish this, your dealer will perform a Predelivery Inspection and will familiarize you with the proper and safe operation of this machine.

After the machine has operated the first 50 to 100 hours, you should contact your dealer and arrange an appropriate date at which the After-Sale Inspection will be performed. This inspection should not be done later than 100 operating hours after the machine has been delivered to you. It will be performed most effectively in the workshop of your dealer.

Following this page you will find a Predelivery Inspection check list, while at the end of this manual you will find the After-Sale Inspection check list.

These lists will be completed by your dealer when the inspections are being performed. He will then forward the original and one copy of each inspection list to the John Deere Sales Branch Service Department, retaining the second copy for his files. The dealer will confirm completion of these inspections on that portion of the check list which remains in this manual.

The After-Sale Inspection is an important prerequisit to assure best performance of your new machine. For this reason you should not miss to make proper arrangements with your dealer to get this service done at the proper time.

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

To assure safe operation of this machine, read the Safety Rules on the first pages of this manual.

IMPORTANT! Your operator's manual contains the international standardized SI metric measurement system.

Right-hand and left-hand sides of this machine are determined by facing in the direction of forward travel.

Record the serial numbers of your machine as shown on one of the last pages of this manual and provide this information to your dealer when ordering spare parts.

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All information, illustrations, and specifications contained in this operator's manual are based on the latest information available at the time of publication. The right is reserved to make changes at any time without notice.

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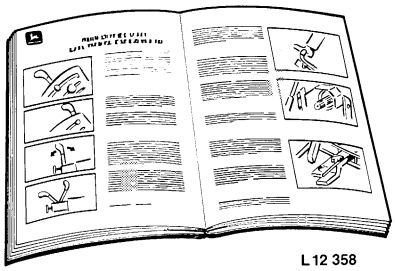


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Safety Rules



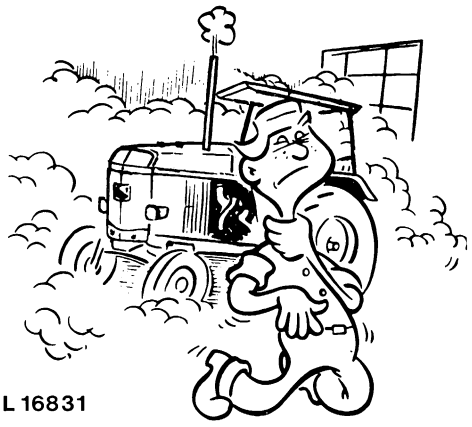
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Do not put this **operator's manual** away unread. Read the manual carefully, regardless of your previous experience. Allow yourself this time, it will save you time and labour later **on.**

Always observe local **traffic regulations** when driving the tractor on public roads.

Become familiar with all **controls, indicators, warning lights,** and **warning plates** before operating the tractor.

Allow only trained operators to **use or adjust** the tractor.



L 16831

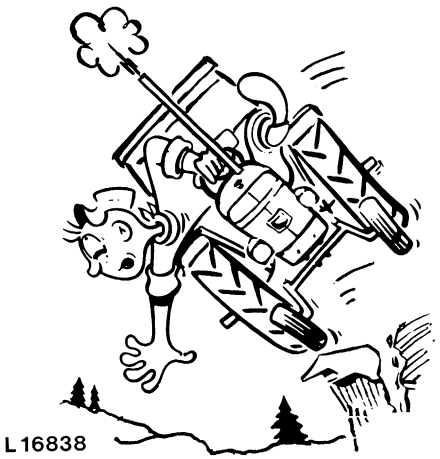
Make sure that all **safety guards** and **shields** supplied with your tractor are serviceable and installed before operating tractor.

Never operate the tractor in a **closed building.** Danger of asphyxiation.

Always maintain **brakes** in excellent condition and adjustment. Brake pedals must be coupled together by means of the pedal coupler when driving on public roads.

Make sure that the tractor can be **safety steered and operated,** especially when driving up a steep hillside or down a slope.

Do not operate the tractor without a **roll guard.**



L 16838

A protective four-post roll-guard is incorporated in each operator's cab. On this construction, as well as on tractor equipped with a roll-guard only, do not, under any circumstances, modify structural members of roll-guard by welding on additional parts, drilling holes etc. Disregarding this instruction can affect the rigidity of the roll-guard and therefore the operator's safety cannot be guaranteed.

The operator should be sure to have sufficient **visibility.**

To make sure that the tractor can be safely steered with rear-mounted implements, install **front weights.**

Drive slowly over rough ground or on hillsides and reduce speed when turning.

Always keep tractor in gear when driving **down steep hills or inclines.**

When **driving out** of a ditch, gully, or **up a steep slope,** engage the clutch slowly. Be prepared to declutch promptly if the front wheels rise off the ground. Use the same care if rear wheels mire in soft ground or drop into a hole. Back the tractor out of these spots if at all possible.

The power demands of **attached or drawn implements** should be well within the tractor's power range.

Trailers attached to the tractor should be equipped with a safely operating brake and lighting system.

Install additional **red tail lights** on rear-mounted implements covering the tractor tail lights or if the implement protrudes laterally.

Do not leave **equipment** raised when tractor is stopped. Always lower it to the ground.

Before starting engine make sure rockshaft control lever **is in** "equipment lowered" position.

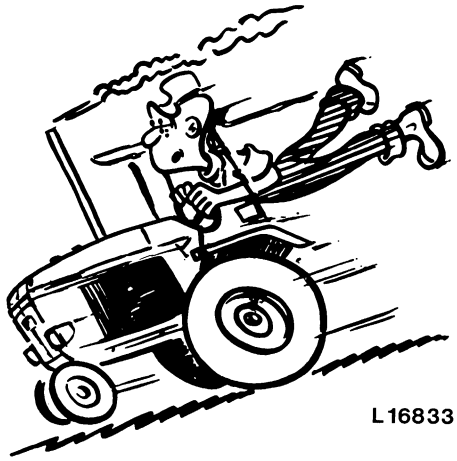
After having **disengaged the PTO,** driven equipment does not become stationary immediately. Do not attempt to make adjustments or repairs while tractor is running unless specifically recommended. Disengage PTO, place transmission in park or apply handbrake, and shut off tractor engine before working on equipment.

Do not wear **loose clothing** near moving parts.

If a PTO-driven implement is attached, make sure **powershaft shields** are installed.

Chock rear wheel when parking on a slope.

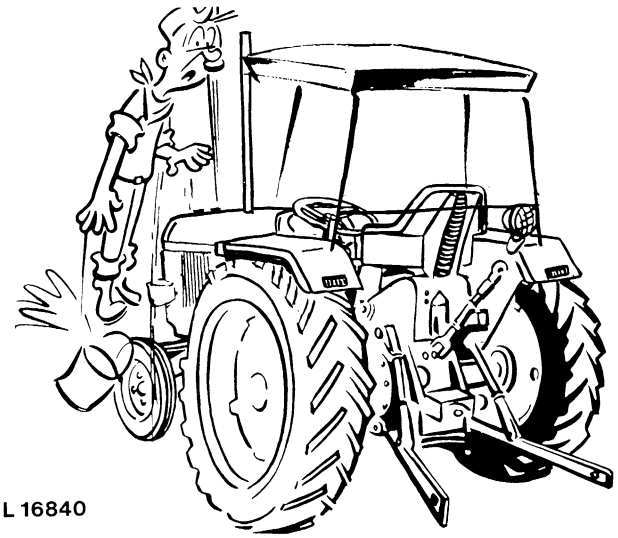
Add coolant only with engine stopped or idling. Turn radiator cap slowly to relieve pressure before removing.



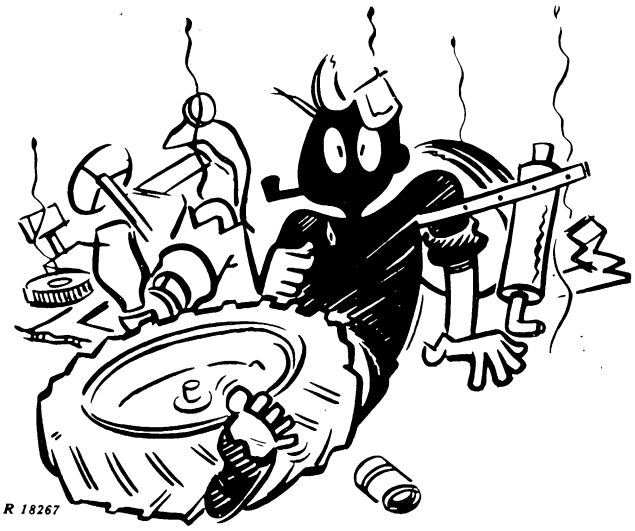
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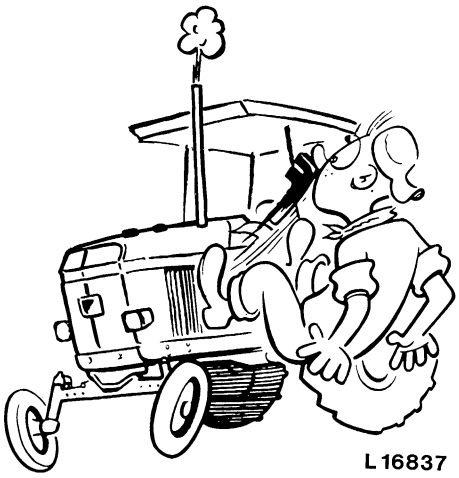
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Use caution in handling any type of **tractor fuel.** Never refuel the tractor when the engine is hot or running. Do not smoke while filling the fuel tank or servicing the fuel system.


L 16837

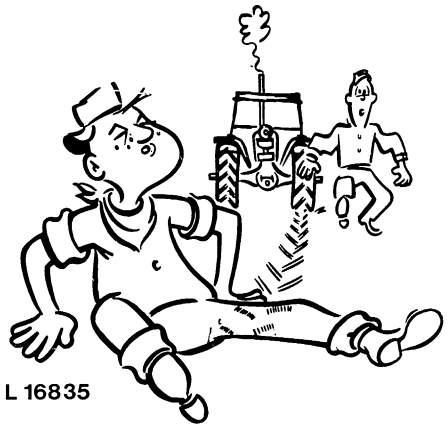
Do not **refuel, grease, or adjust** the tractor while engine is running.

Always disconnect **battery ground straps** before adjusting engine or electrical system.

Escaping **hydraulic oil under pressure** can cause personal injury. Therefore, be sure all connections are tight and that lines and hoses are not damaged. Before disconnecting lines in the tractor hydraulic system, be sure to relieve all hydraulic pressure.

Do not allow **passengers** on the moving tractor unless a second seat is provided.

Provide a **first-aid kit** for use in case of accident.


L 16835

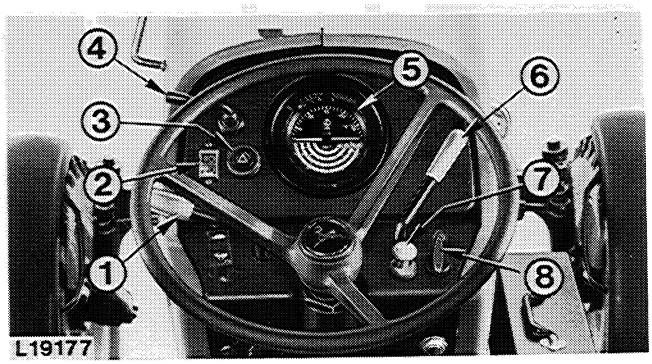
It is a good practice to mount a **fire extinguisher** on the tractor. Be sure that the extinguisher is easily accessible and be familiar with its proper use.

Failure to follow proper procedures when mounting a tire on a wheel or rim can produce an explosion which may result in serious bodily injury. DO NOT attempt to mount a tire unless you have the proper equipment and experience to perform the job safely. Have it done by your John Deere dealer or a qualified tire repair service.

Detailed tire mounting instructions, including necessary safety precautions, are contained in John Deere Fundamentals of Service (FOS) Manual 55, Tires and Tracks, which is available from your John Deere dealer.

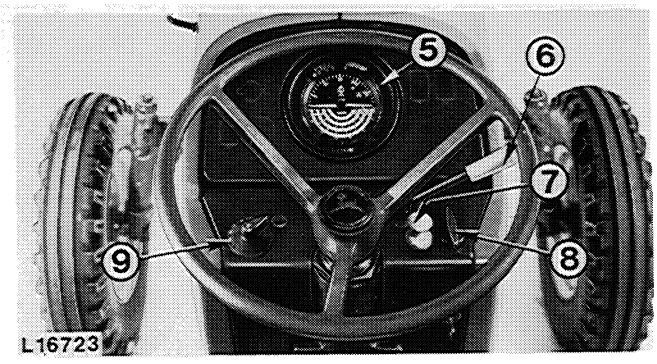
Controls and Instruments
(Tractors without Cab)

"Bilux" Lighting System

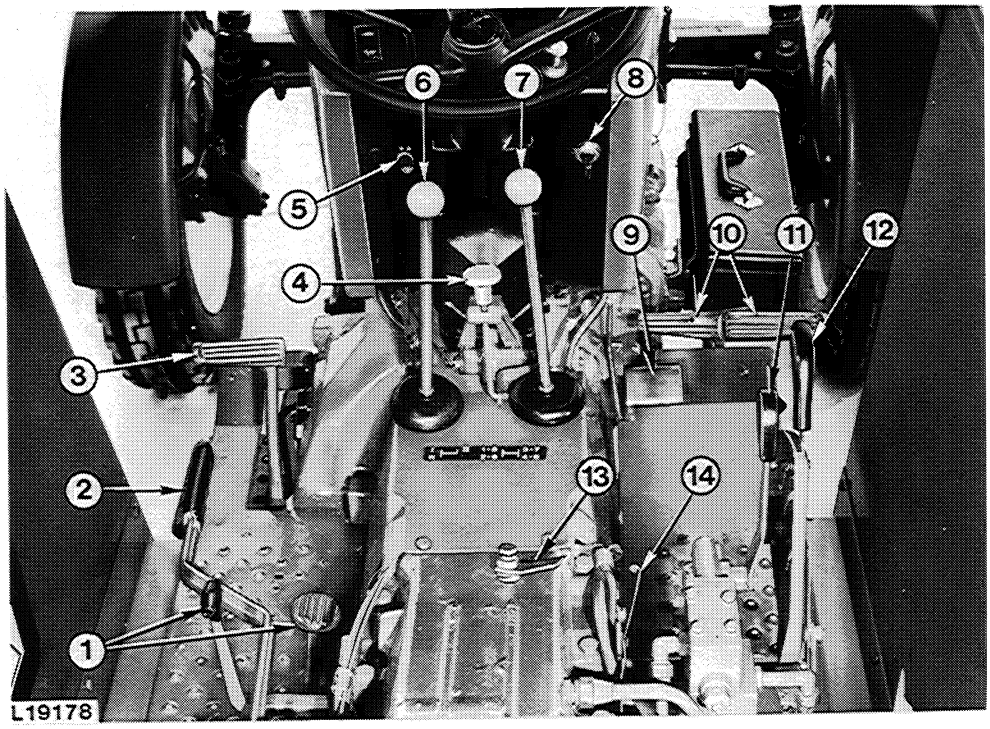


1 Hi-Lo or creeper transmission shift lever (optional eqpt.)
2 Full beam headlight switch
3 Hazard warning light switch
4 Turn signal and horn switch
5 Instrument cluster
6 Hand throttle

"Sealed-Beam" Lighting System

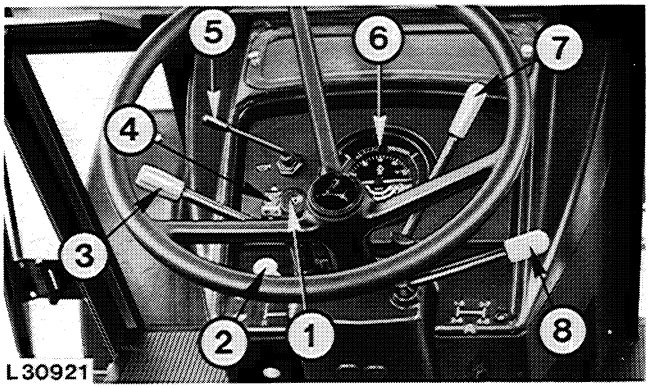


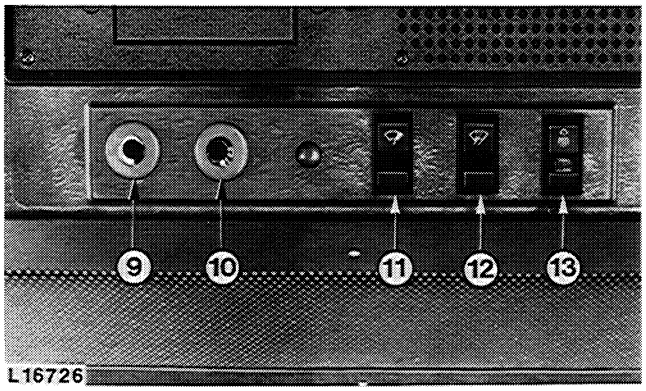
7 Engine shut-off knob
8 Starter switch
9 Light switch



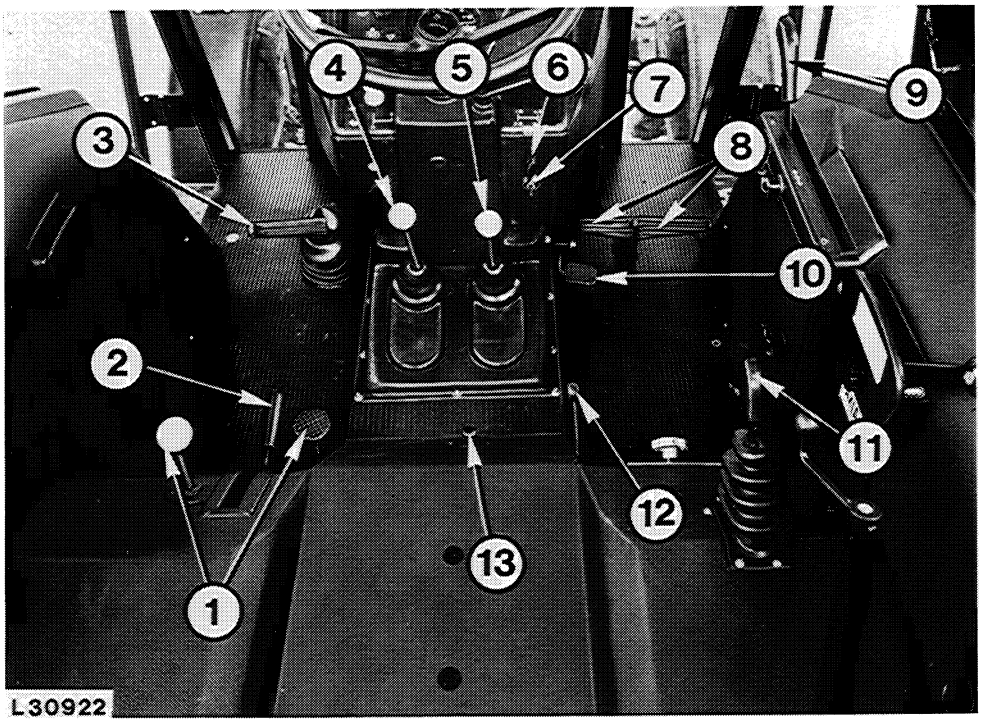
1 Differential lock (lever and pedal)
2 Handbrake lever
3 Clutch pedal
4 PTO control lever
5 Socket for handlamp
6 Range shift lever
7 Gear shift lever
8 Main switch
9 Foot throttle
10 Brake pedals
11 Selective control valve lever
12 Rockshaft control lever
13 Rate-of-drop lever
14 Rockshaft selector lever

Controls and Instruments
(Tractors with Cab)





1 Hazard warning light switch
2 Engine shut-off knob
3 Hi-Lo or creeper transmission shift lever (optional eqpt.)
4 Full beam headlight switch
5 Turn signal and horn switch
6 Instrument cluster
7 Hand throttle
8 PTO control lever
9 Infinitely variable heater switch
10 Three-speed fan switch
11 Windshield wiper switch
12 Windshield washer switch
13 Worklight switch



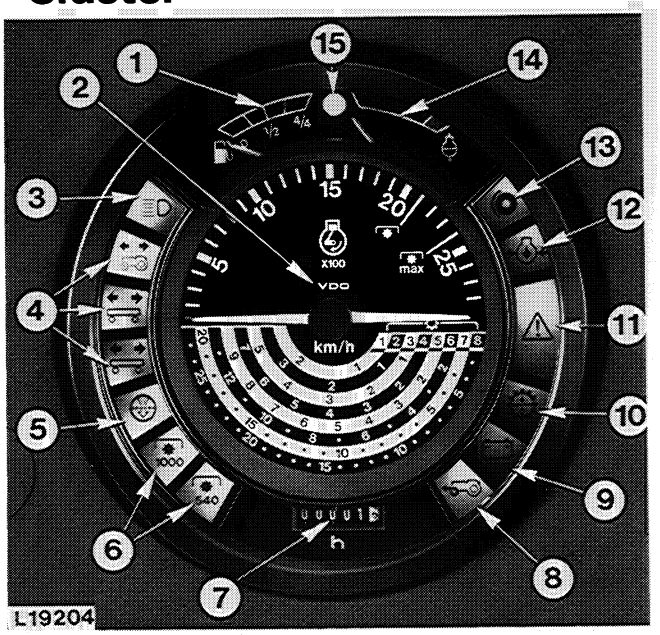
1 Differential lock (lever and pedal)
2 Handbrake lever
3 Clutch pedal
4 Range shift lever
5 Gear shift lever
6 Starter switch
7 Main switch
8 Brake pedals
9 Rockshaft control lever
10 Foot throttle
11 Selective control valve lever
12 Rockshaft selector lever
13 Rate-of-drop lever

Instrument Cluster

Air cleaner, alternator, engine oil pressure and transmission oil pressure* indicator lights should light up as soon as the main switch key is turned on. If this is not the case, a burnt-out bulb or blown fuse may be the cause. Replace defective bulb or blown fuse.

The control lights should go out as soon as the engine is running.

* On tractors equipped with collar-shift transmission: Transmission oil pressure indicator light glows only when a malfunction occurs.



1 The fuel gauge shows amount of fuel in tank, from "full" (4/4) to "empty" (0). Never run fuel tank completely dry, otherwise you will have to bleed the fuel system.

2 The engine and tractor speed gauge shows the engine speed and tractor speed in the gear engaged.

3 The full-beam indicator light will go on as soon as the full-beam headlight switch is turned on.

4 The flashing indicator lights for tractor and trailer start flashing when turn-signal or hazard warning lights are turned on.

5 If air cleaner indicator light goes on with engine running, the air cleaner element must be cleaned or replaced.

6 The PTO speed indicator lights (on machines with PTO hand speed-change only) show the PTO speed engaged.

7 The hour meter shows the number of engine operation hours in full and tenths of hours. The hour meter facilitates close observation of the proper service intervals.

8 The front wheel drive indicator light glows when front wheel drive is engaged.

9 If alternator indicator light goes on with engine running, check for loose alternator connections, condition and tension of V-belt or defective alternator. If necessary have alternator checked by your John Deere dealer.

10 If transmission oil pressure indicator light goes on during tractor operation, stop tractor and check transmission/hydraulic oil level. Should indicator light glow and oil level is correct, then oil filter is clogged. Replace filter.

11 The warning light blinks when indicator light 9, 10 or 12 glows or when range shift lever is moved with handbrake applied.

12 If engine oil pressure indicator goes on with engine running, shut-off engine and check oil level.

13 The handbrake indicator light glows when handbrake is applied and main switch is turned on. Furthermore, an acoustical warning signal can be installed.

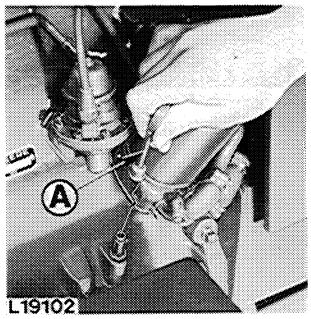
14 Should the coolant gauge needle move into the red zone the engine is overheating. Immediately reduce load or shift to a lower gear. Should the needle remain in the red zone, shut-off engine and determine cause of overheating.

15 This indicator light glows when fog tail light is switched on.

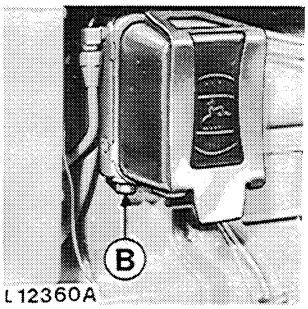
Operation

IMPORTANT! If the engine is to be run for a short time without battery (using a slave battery for starting), do not, under any circumstances, interrupt the circuit by switching off the main switch before stopping the engine by means of the fuel injection pump shut-off cable. Do not raise engine speed above 1000 rpm. Furthermore, use additional current (lights) while engine is running. Insulate battery end of disconnected starter cable properly to avoid damage to both alternator and regulator.

The following items must be checked daily before commencing work:



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Oil level in engine crankcase

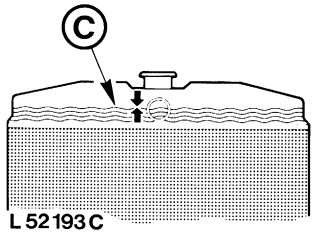
If oil level has sunk to bottom mark on dipstick, add sufficient oil to bring oil level up to top mark on dipstick.

A — Dipstick

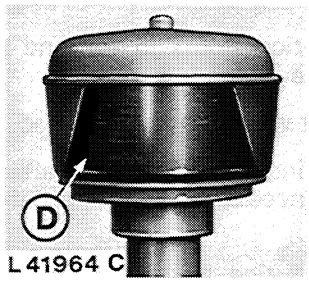
Fuel filter

Drain all water and sediment deposits from filter.

B — Drain plug



L52193C



L41964 C

Radiator coolant level

Coolant should be maintained at a level midway between radiator core and filler neck.

C — Coolant level

Pre-cleaner (when equipped)

Clean collector bowl if dust has risen to mark.

D — Pre-cleaner

STARTING THE ENGINE
(Tractor with "Bilux" lighting system)

CAUTION! Before starting the engine, make sure there is plently of ventilation. Never operate the engine in a closed building.

1 – Rockshaft control lever in "equipment lowered" position and selective control valve lever in "neutral".

2 – Push engine shut-off knob all the way in.

3 – Disengage PTO (continuous-running only).

4 – Place range shift lever in neutral position.

5 – Slide hand throttle approximately one-third of its travel to the rear.

6 – Depress clutch pedal.

7 – Turn main switch key to position "1".

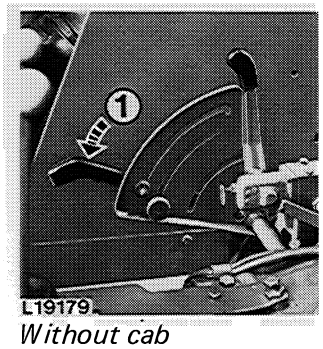
8 – If starting in warm weather or with warm engine, turn starter switch to the right. As soon as engine starts, release starter switch so that it returns to its original position.

If starting in cold weather, turn starter switch to the left (Thermostart) position for 15 to 20 seconds. Then turn starter switch further to end (operating starting motor) position.

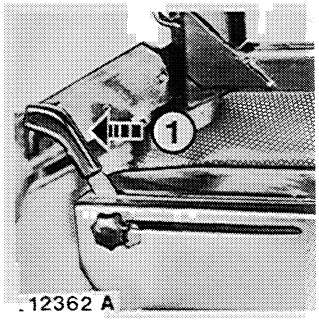
As soon as engine starts turn starter switch back to thermostart position and hold starter switch in this position until engine runs smoothly and then release to original (off) position.

If engine does not start within 20 seconds, turn starter switch to "OFF" position and turn main switch key to position "0". Wait at least one minute before trying again.

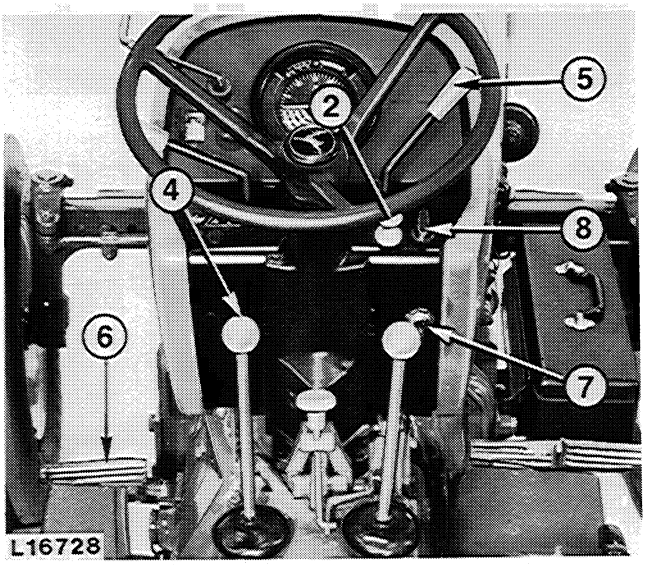
9 – Run engine for one to two minutes, with temperature below zero for two to four minutes, with hand throttle applied as described under point 5.



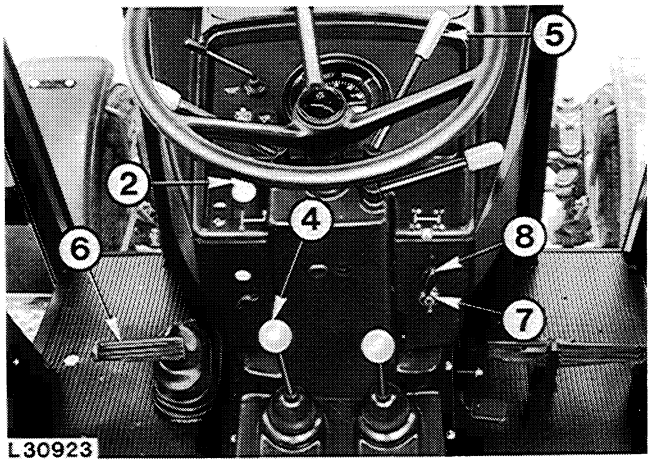
Without cab



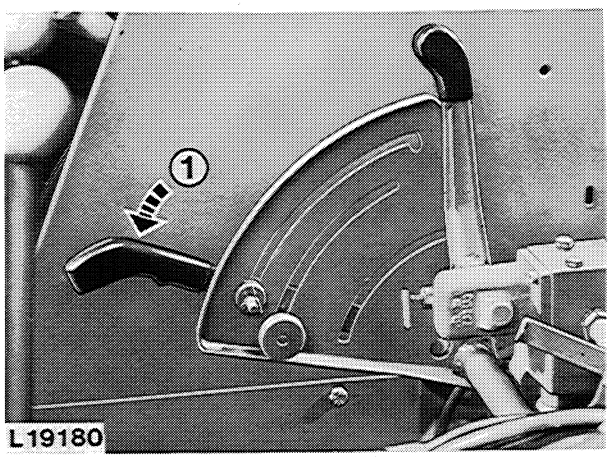
With cab

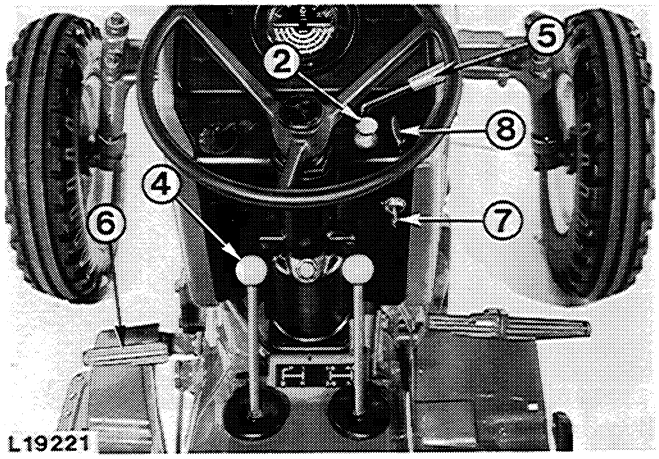


Without cab



With cab





STARTING THE ENGINE
(Tractor with "Sealed-Beam" lighting system)

⚠ CAUTION! Before starting the engine, make sure there is plenty of ventilation. Never operate the engine in a closed building.

1 – Rockshaft control lever in "equipment lowered" position and selective control valve lever in "neutral".

2 – Push engine shut-off knob all the way in.

3 – Disengage PTO (continuous-running only).

4 – Place range shift lever in neutral position.

5 – Slide hand throttle approximately one-third of its travel to the rear.

6 – Depress clutch pedal.

On tractors without starter switch

7 – Turn main switch key clockwise to end (operating starting motor) position. Keep switch engaged until engine starts. As soon as engine starts release main switch key.

On tractors with starter switch

7 – Turn main switch key to position "1".

8 – If starting in warm weather or with warm engine, turn starter switch to the right. As soon as engine starts, release starter switch so that it returns to its original (off)position.

If starting in cold weather, turn starter switch to the left (Thermostart) position for 15 to 20 seconds. Then turn starter switch further to end (operating starting motor) position.

As soon as engine starts turn starter switch back to thermostart position and hold starter switch in this position until engine runs smoothly and then release to original (off) position.

If engine does not start within 20 seconds, turn starter switch to "OFF" position and turn main switch key to position "0". Wait at least one minute before trying again.

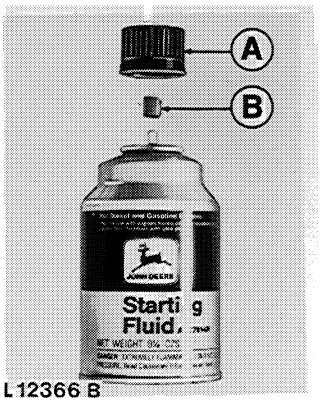
9 – Run engine for one to two minutes, with temperature below zero for two to four minutes, with hand throttle applied as described under point 5.

COLD WEATHER STARTING AIDS

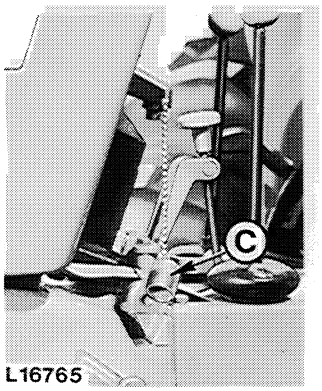
Starting in cold weather with cold engine using diesel starting fluid.

When starting the engine at temperatures below 0°C (+32°F), starting fluid can be injected into the intake manifold. Starting fluid spray cans are available from your John Deere dealer.

CAUTION! Starting fluid is highly flammable.



L12366 B



L16765

A — Remove safety cap and
B — Spray button
C — Remove cap from adapter

Injecting Starting Fluid

IMPORTANT! To avoid damage, turn engine with starter one or two revolutions before injecting starting fluid.

Inject starting fluid only while engine is turning. Inject starting fluid intermittently, not continuously.

Position can onto adapter and inject fluid by pushing up on can for a short period.

Relax pressure on the can between "shots" of fluid. Stop injecting fluid as soon as the engine starts. If engine begins to die during the first few minutes of operation, inject another "shot" of fluid. When the engine is running smoothly, remove the can from the adapter and replace the safety cap on the can. Be sure to put the cap back on the adapter when not in use. This prevents dust from being drawn into the engine.



L16766

Store starting fluid cans where they will not be subject to extreme cold or heat. For best results, store fluid at room temperature.

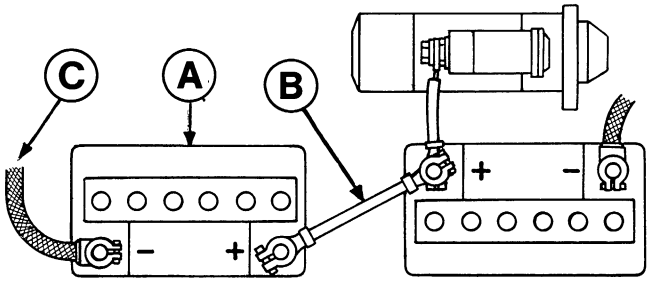
CAUTION! Before discarding used starting fluid containers, empty them completely in a well ventilated area, at a good distance from sparks or open fire.

Starting in cold weather with an auxiliary battery

Starting the engine in cold weather can be made easier by connecting an additional 12-volt battery in parallel with the 12-volt batteries on the tractor.

Use jumper cables to connect the positive (+) terminal of the booster battery to the positive (+) terminal of a tractor battery and the negative (—) terminal of the booster battery to negative (—) terminal of the tractor battery. See your JOHN DEERE dealer for booster batteries.

IMPORTANT! The batteries on your tractor are NEGATIVE grounded only. Reversed polarity in battery or alternator connections will result in damage to electrical system.



L 64703 B

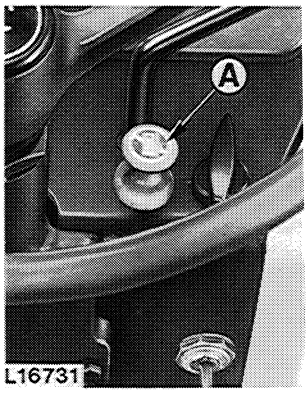
A — Auxiliary battery
B — Connect both positive battery terminals
C — Connect negative terminal to ground

TOWING THE TRACTOR TO START

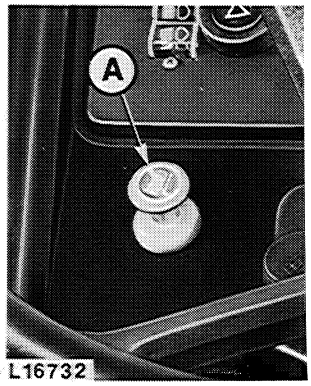
Should the tractor be started by towing or pushing, then use 6th, 7th or 8th gear only. Tow or push the tractor at a speed equivalent to the gear engaged.

ENGINE WARM-UP PERIOD

The engine must have attained the correct operating temperature before putting the unit under full load. To warm up the engine, run it for a few minutes with the hand throttle halfway open. Thus excessive wear on piston rings, cylinders and bearings is avoided.



Without cab



With cab

STOPPING THE ENGINE

Stop tractor and engage parking lock or apply handbrake firmly.

Push hand throttle lever forward to stop and run engine for one to two minutes in slow idle.

A – Pull shut-off knob.
Push the knob back in after the engine has stopped. Turn main switch to "off" position.

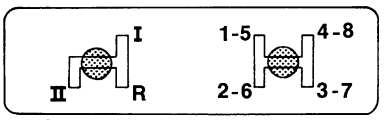
Before leaving the tractor lower any equipment to the ground and make sure all switches are in "Off" position.

CAUTION! Remove switch key to prevent accidents and battery discharge.

IMPORTANT! When engine is not running make sure exhaust stack flap is closed. This will prevent water and dirt from entering the engine.

TOWING THE TRACTOR

When towing the tractor, move both the gear and range shift levers to the neutral position.

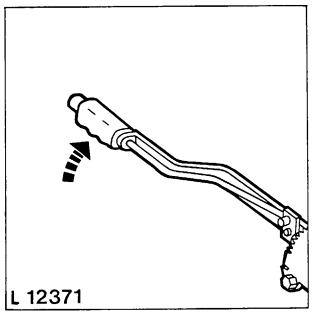


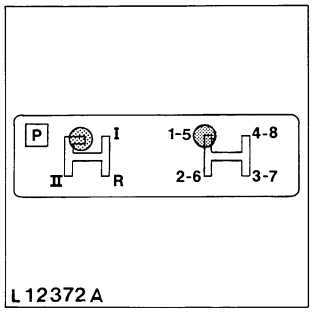
L12370

CAUTION! Never tow the tractor at a speed greater than 25 km/h (15 mph).

PARKING THE TRACTOR

If the tractor has a handbrake, it should be well applied when the tractor is parked or when it operates stationary.

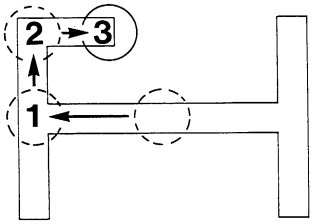

L 12371
With handbrake



L 12372 A
With parking lock

If the tractor is provided with a parking lock, first engage 1st gear and then move range shift lever in park (P) position as follows:

1. Move range shift lever to the left
2. Move range shift lever forward
3. Move range shift lever to the right

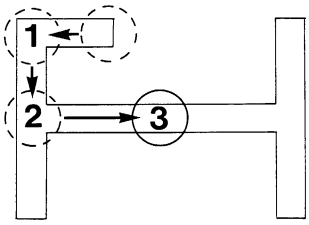


L 14659

To disengage parking lock:

When disengaging the parking lock, apply foot brakes and move range shift lever out of park (P) position as follows:

1. Move range shift lever to the left
2. Move range shift lever to the rear
3. Move range shift lever to the right



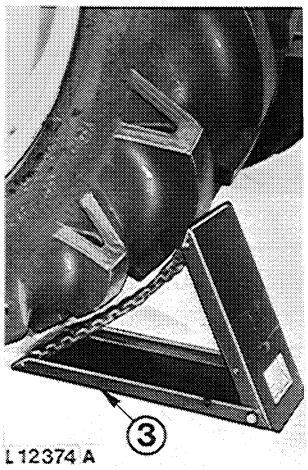
L 14657

CHOCK BLOCK

For maximum safety, place chock in front or behind driving wheel when parking on slopes. Make sure tires are not underinflated to prevent chock from being "rolled-over". To avoid chock being forced into the ground, always use chock block on a firm surface.



L19105



L 12374 A

1 — Press chock block together and
2 — Pull upward and remove
3 — Chock block ready for use

BREAK-IN PERIOD

During the first 100 hours of operation refer to the following chart:

ITEM	SERVICE	LUBRICANT/SPECIFICATON
After first 4 and 8 hours:		
Wheel retaining bolts*	Retighten	**Rear wheels** Wheel disk to axle flange: 400 Nm (300 ft-lb) Rim to wheel disk with steel disks: 250 Nm (185 ft-lb) Rim to wheel disk with cast disks and rack and pinion axle: 230 Nm (170 ft-lb) **Front wheels (without MFWD)** 180 Nm (130 ft-lb) **Front wheels (with MFWD)** Wheel disk to axle flange: 300 Nm (220 ft-lb) Rim to wheel disk (rack and pinion axle): 200 Nm (145 ft-lb) **Front axle adjusting bolts** 400 Nm (300 ft-lb)
After first 50 hours:		
Transmission oil filter	Renew	.....
Front axle oil	Drain and refill	EP Transmission Oil SAE 90 according to MIL-L-2105 B
After first 100 hours:		
Front axle tie rod outer clamping bolts (see illustration on page 33)	Retighten	110 Nm (82 ft-lb)
Front axle tie rod inner clamping bolts (see illustration on page 37)	Retighten	40 Nm (30 ft-lb)
Engine crankcase oil	Drain and refill	John Deere Torq-GARD Supreme Engine Oil or equivalent
Engine crankcase oil filter	Renew	.....
During the first 100 hours:	1. Operate at normal loads. 2. Avoid light loads. 3. Avoid excessive engine idling. 4. Check engine crankcase oil level periodically. *5. Check wheel retaining bolts frequently.	
NOTE: An increase in oil consumption during the break-in period should be considered as normal.		

SELECTING TRAVEL SPEEDS

The tractor has eight forward gears and four reverse gears. On tractors with Hi-Lo transmission sixteen forward gears and eight reverse gears and on tractors with creeper transmission, twelve forward gears and eight reverse gears.

Gears should be selected so as to avoid a permanent overloading of the engine.

Ground travel speeds with engine running at a speed different to the rated speed (2500 rpm) can be worked out as follows:

$$\frac{\text{Desired engine speed}}{2500\ \text{rpm}} = \text{Conversion factor}$$

The conversion factor multiplied by the speed shown in the table below gives the ground travel speed at the desired engine speed.

Example:
Ground travel speed at rated speed (2500 rpm) according to table below 9.3 km/h; Desired engine speed: 1300 rpm

$$\frac{1300\ \text{rpm}}{2500\ \text{rpm}} = 0.52$$

$$9.3\ \text{km/h} \times 0.52 = 4.8\ \text{km/h}$$

Should you wish to determine engine speed at a desired ground travel speed, proceed as follows:

$$\frac{\text{Desired ground travel speed}}{\text{Ground travel speed in table below}} = \text{Conversion factor}$$

The conversion factor multiplied by the rated speed (2500 rpm) gives you the desired engine rpm.

Example:
Ground travel speed at rated speed (2500 rpm) according to table below: 9.3 km/h; Desired ground travel speed: 5 km/h

$$\frac{5\ \text{km/h}}{9.3\ \text{km/h}} = 0.54$$

$$2500\ \text{rpm} \times 0.54 = 1350\ \text{rpm}$$

Travel Speeds for 1640 and 2040 Tractors with Collar Shift Transmission at 2500 Engine rpm up to 25 km/h (15.5 mph)

Tire Size		13.6 - 36		13.6 - 38		14.9 - 38		15.5 - 38		16.9 - 30	
Gear		km/h	mph	km/h	mph	km/h	mph	km/h	mph	km/h	mph
1	Low	1.7	1.0	1.7	1.1	1.8	1.1	1.7	1.1	1.6	1.0
	High*	2.1	1.3	2.2	1.4	2.3	1.4	2.2	1.4	2.0	1.3
2	Low	2.4	1.5	2.4	1.5	2.5	1.6	2.5	1.5	2.3	1.4
	High*	3.0	1.9	3.1	1.9	3.2	2.0	3.1	1.9	2.9	1.8
3	Low	3.5	2.2	3.6	2.3	3.8	2.3	3.7	2.3	3.4	2.1
	High*	4.5	2.8	4.6	2.9	4.8	3.0	4.6	2.9	4.3	2.7
4	Low	4.9	3.0	5.1	3.2	5.2	3.3	5.1	3.2	4.8	3.0
	High*	6.2	3.9	6.5	4.0	6.7	4.1	6.5	4.0	6.1	3.8
5	Low	6.5	4.0	6.7	4.2	6.9	4.3	6.8	4.2	6.3	3.9
	High*	8.3	5.1	8.5	5.3	8.8	5.5	8.6	5.3	8.0	5.0
6	Low	9.3	5.8	9.6	6.0	9.9	6.2	9.7	6.0	9.0	5.6
	High*	11.8	7.3	12.2	7.6	12.6	7.8	12.3	7.6	11.5	7.1
7	Low	13.8	8.5	14.2	8.8	14.7	9.1	14.3	8.9	13.4	8.3
	High*	17.5	10.9	18.1	11.3	18.7	11.6	18.2	11.3	17.0	10.6
8	Low	19.2	11.9	19.9	12.4	20.6	12.8	20.0	12.5	18.7	11.6
	High*	24.5	15.2	25.3	15.7	26.2	16.3	25.4	15.8	23.8	14.8
R 1	Low	1.9	1.2	2.0	1.2	2.1	1.3	2.0	1.2	1.9	1.2
	High*	2.4	1.5	2.5	1.6	2.6	1.6	2.5	1.6	2.4	1.5
R 2	Low	2.7	1.7	2.8	1.8	2.9	1.8	2.9	1.8	2.7	1.7
	High*	3.5	2.2	3.6	2.2	3.7	2.3	3.6	2.3	3.4	2.1
R 3	Low	4.1	2.5	4.2	2.6	4.4	2.7	4.2	2.6	4.0	2.5
	High*	5.2	3.2	5.4	3.3	5.5	3.4	5.4	3.4	5.0	3.1
R 4	Low	5.7	3.5	5.9	3.7	6.1	3.8	5.9	3.7	5.5	3.4
	High*	7.2	4.5	7.5	4.7	7.8	4.8	7.6	4.7	7.0	4.4

* Speeds shown under "High" also apply to tractors not equipped with Hi-Lo shift unit

Travel Speeds for 1640 and 2040 Tractors with Synchronized Transmission at 2500 Engine rpm

up to 25 km/h (15.5 mph)

Tire Size		13.6 - 36		13.6 - 38		14.9 - 38		15.5 - 38		16.9 - 30	
Gear		km/h	mph	km/h	mph	km/h	mph	km/h	mph	km/h	mph
1	Low	2.1	1.3	2.1	1.3	2.2	1.4	2.1	1.3	2.0	1.2
	High*	2.6	1.6	2.7	1.7	2.8	1.7	2.7	1.7	2.5	1.6
	Creeper	0.55	0.34	0.57	0.35	0.59	0.37	0.57	0.35	0.53	0.33
2	Low	2.8	1.7	2.9	1.8	3.0	1.9	3.0	1.9	2.8	1.7
	High*	3.6	2.2	3.8	2.4	3.9	2.4	3.8	2.4	3.5	2.2
	Creeper	0.76	0.47	0.79	0.49	0.81	0.50	0.79	0.50	0.74	0.46
3	Low	4.1	2.5	4.2	2.6	4.4	2.7	4.3	2.7	4.0	2.5
	High*	5.2	3.2	5.4	3.4	5.6	3.5	5.4	3.4	5.1	3.2
	Creeper	1.09	0.68	1.13	0.70	1.17	0.73	1.14	0.71	1.06	0.66
4	Low	5.5	3.4	5.7	3.5	5.9	3.7	5.7	3.5	5.4	3.4
	High*	7.0	4.3	7.3	4.5	7.5	4.7	7.3	4.5	6.8	4.2
	Creeper	1.47	0.91	1.53	0.94	1.57	0.98	1.53	0.95	1.43	0.89
5	Low	7.1	4.4	7.3	4.5	7.6	4.7	7.4	4.6	6.9	4.3
	High*	9.0	5.6	9.3	5.8	8.6	6.0	9.4	5.8	8.7	5.4
6	Low	9.8	6.1	10.1	6.3	10.4	6.5	10.2	6.3	9.5	5.9
	High*	12.4	7.7	12.9	8.0	13.3	8.3	12.9	8.0	12.1	7.5
7	Low	14.0	8.7	14.5	9.0	15.0	9.3	14.6	9.1	13.6	8.5
	High*	17.8	11.1	18.5	11.5	19.1	11.9	18.6	11.6	17.3	10.7
8	Low	18.9	11.7	19.6	12.2	20.2	12.6	19.7	12.2	18.4	11.4
	High*	24.1	15.0	24.9	15.5	25.7	16.0	25.1	15.6	23.4	14.5
R 1	Low	3.2	2.0	3.3	2.1	3.4	2.1	3.3	2.1	3.1	1.9
	High*	4.0	2.5	4.2	2.6	4.3	2.7	4.2	2.6	3.9	2.4
	Creeper	0.84	0.52	0.87	0.54	0.90	0.56	0.88	0.55	0.82	0.51
R 2	Low	4.4	2.7	4.5	2.8	4.7	2.9	4.6	2.9	4.3	2.7
	High*	5.6	3.5	5.8	3.6	6.0	3.7	5.8	3.6	5.4	3.4
	Creeper	1.16	0.72	1.21	0.75	1.25	0.78	1.22	0.76	1.13	0.70
R 3	Low	6.3	3.9	6.5	4.0	6.7	4.2	6.5	4.0	6.1	3.8
	High*	8.0	5.0	8.3	5.2	8.6	5.3	8.3	5.2	7.8	4.8
	Creeper	1.68	1.04	1.74	1.08	1.79	1.11	1.75	1.09	1.63	1.01
R 4	Low	8.5	5.3	8.8	5.5	9.1	5.6	8.8	5.5	8.2	5.1
	High*	10.8	6.7	11.2	7.0	11.5	7.2	11.2	7.0	10.5	6.5
	Creeper	2.26	1.40	2.34	1.45	2.42	1.50	2.35	1.46	2.20	1.37

* Speeds shown under "High" also apply to tractors not equipped with Hi-Lo shift unit

Travel Speeds for 1640, 1840 and 2040 Tractors with Synchronized Transmission at 2500 Engine rpm over 25 km/h (15.5 mph)

Tires		13.6-16		13.6-38 15.5-38		14.9-38		16.9-30		16.9-34		18.4-30		23.1-26	
Gear		km/h	mph	km/h	mph	km/h	mph	km/h	mph	km/h	mph	km/h	mph	km/h	mph
1	Low	2.5	1.6	2.6	1.6	2.7	1.7	2.4	1.5	2.3	1.5	2.3	1.4	2.4	1.5
	High*	3.2	2.0	3.3	2.1	3.4	2.1	3.1	1.9	3.0	1.9	2.9	1.8	3.0	1.9
	Creeper	0.67	0.42	0.70	0.43	0.72	0.45	0.65	0.41	0.63	0.39	0.60	0.38	0.63	0.39
2	Low	3.5	2.2	3.6	2.2	3.7	2.3	3.4	2.1	3.2	2.0	3.1	1.9	3.3	2.0
	High*	4.4	2.8	4.6	2.9	4.7	2.9	4.3	2.7	4.1	2.6	4.0	2.5	4.2	2.6
	Creeper	0.93	0.58	0.96	0.60	0.99	0.62	0.90	0.56	0.86	0.54	0.84	0.52	0.88	0.54
3	Low	5.0	3.1	5.2	3.2	5.4	3.3	4.9	3.0	4.7	2.9	4.5	2.8	4.7	2.9
	High*	6.4	4.0	6.6	4.1	6.8	4.2	6.2	3.8	5.9	3.7	5.7	3.6	6.0	3.7
	Creeper	1.34	0.83	1.39	0.86	1.43	0.87	1.30	0.81	1.24	0.77	1.20	0.75	1.26	0.78
4	Low	6.7	4.2	7.0	4.4	7.2	4.5	6.6	4.1	6.3	3.9	6.1	3.8	6.4	4.0
	High*	8.6	5.3	8.9	5.5	9.2	5.7	8.3	5.2	8.0	5.0	7.7	4.8	8.1	5.0
	Creepr	1.80	1.12	1.87	1.16	1.93	1.20	1.75	1.09	1.67	1.04	1.62	1.00	1.70	1.05
5	Low	8.6	5.4	9.0	5.6	9.2	5.7	8.4	5.2	8.0	5.0	7.8	4.8	8.1	5.1
	High*	11.0	6.8	11.4	7.1	11.8	7.3	10.7	6.6	10.2	6.4	9.9	6.1	10.4	6.4
6	Low	11.9	7.4	12.4	7.7	12.8	7.9	11.6	7.2	11.1	6.9	10.7	6.7	11.2	7.0
	High*	15.2	9.4	15.8	9.8	16.2	10.1	14.8	9.2	14.1	8.8	13.7	8.5	14.3	8.9
7	Low	17.1	10.7	17.8	11.1	18.3	11.4	16.7	10.4	16.0	9.9	15.4	9.6	16.2	10.0
	High*	21.8	13.6	22.7	14.1	23.3	14.5	21.2	13.2	20.3	12.6	19.6	12.2	20.6	12.8
8	Low	23.1	14.4	24.0	14.9	24.7	15.4	22.5	14.0	21.5	13.4	20.8	12.9	21.8	13.5
	High*	29.4	18.3	30.5	19.0	31.5	19.6	28.6	17.8	27.4	17.0	26.4	16.4	27.7	17.2
R 1	Low	3.9	2.4	4.0	2.5	4.1	2.6	3.8	2.3	3.6	2.2	3.5	2.2	3.6	2.3
	High*	4.9	3.1	5.1	3.2	5.3	3.3	4.8	3.0	4.6	2.8	4.4	2.8	4.6	2.9
	Creeper	1.03	0.64	1.07	0.67	1.10	0.67	1.00	0.62	0.96	0.60	0.93	0.58	0.97	0.60
R 2	Low	5.3	3.3	5.6	3.5	5.7	3.6	5.2	3.2	5.0	3.1	4.8	3.0	5.0	3.1
	High*	6.8	4.2	7.1	4.4	7.3	4.5	6.6	4.1	6.3	3.9	6.1	3.8	6.4	4.0
	Creeper	1.43	0.89	1.48	0.92	1.53	0.95	1.39	0.86	1.33	0.82	1.28	0.80	1.35	0.84
R 3	Low	7.7	4.8	8.0	5.0	8.2	5.1	7.5	4.6	7.2	4.4	6.9	4.3	7.2	4.5
	High*	9.8	6.1	10.2	6.3	10.5	6.5	9.5	5.9	9.1	5.7	8.8	5.5	9.2	5.7
	Creeper	2.05	1.27	2.13	1.32	2.19	1.36	1.99	1.24	1.91	1.19	1.84	1.15	1.93	1.20
R 4	Low	10.4	6.4	10.8	6.7	11.1	6.9	10.1	6.3	9.6	6.0	9.3	5.8	9.8	6.1
	High*	13.2	8.2	13.7	8.5	14.1	8.8	12.8	8.0	12.3	7.6	11.9	7.4	12.4	7.7
	Creeper	2.76	1.72	2.87	1.78	2.96	1.84	2.69	1.67	2.57	1.60	2.48	1.54	2.6	1.62

* Speeds shown under "High" also apply to tractors not equipped with Hi-Lo shift unit

Travel Speeds for 1640 Tractors with Collar Shift Transmission at 2500 Engine rpm over 25 km/h (15.5 mph)

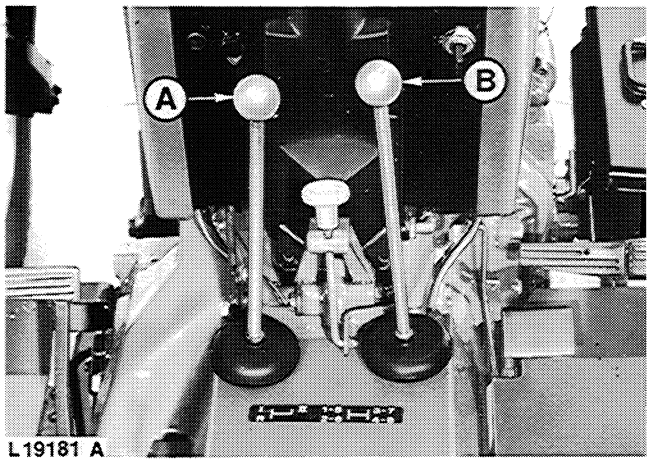
Tires		13.6-36		13.6-38		15.5-38		16.9-24		16.9-30		16.9-34		21.5 L-16.1	
Gear		km/h	mph	km/h	mph	km/h	mph	km/h	mph	km/h	mph	km/h	mph	km/h	mph
1	Low	2.0	1.2	2.0	1.3	2.1	1.3	1.7	1.1	1.9	1.2	1.8	1.1	1.3	0.8
	High*	2.5	1.6	2.6	1.6	2.6	1.6	2.2	1.4	2.4	1.5	2.3	1.5	1.7	1.1
2	Low	2.8	1.8	2.9	1.8	2.9	1.8	2.4	1.5	2.7	1.7	2.6	1.6	1.9	1.2
	High*	3.6	2.2	3.7	2.3	3.7	2.3	3.1	1.9	3.5	2.2	3.3	2.1	2.4	1.5
3	Low	4.2	2.6	4.3	2.7	4.4	2.7	3.6	2.3	4.1	2.5	3.9	2.4	2.8	1.8
	High*	5.3	3.3	5.5	3.4	5.6	3.5	4.6	2.9	5.2	3.2	5.0	3.1	3.6	2.2
4	Low	5.9	3.6	6.1	3.8	6.1	3.8	5.1	3.2	5.7	3.5	5.5	3.4	4.0	2.5
	High*	7.5	4.6	7.7	4.8	7.8	4.8	6.5	4.0	7.2	4.5	6.9	4.3	5.1	3.1
5	Low	7.8	4.8	8.0	5.0	8.1	5.0	6.7	4.2	7.5	4.7	7.2	4.5	5.3	3.3
	High*	9.9	6.1	10.2	6.4	10.3	6.4	8.6	5.3	9.6	6.0	9.2	5.7	6.7	4.2
6	Low	11.1	6.9	11.5	7.1	11.6	7.2	9.6	6.0	10.8	6.7	10.3	6.4	7.5	4.7
	High*	14.1	8.8	14.6	9.1	14.7	9.1	12.2	7.6	13.7	8.5	13.1	8.2	9.6	5.9
7	Low	16.5	10.3	17.0	10.6	17.1	10.7	14.3	8.9	16.0	9.9	15.3	9.5	11.2	6.9
	High*	20.9	13.0	21.7	13.5	21.8	13.6	18.2	11.3	20.4	12.7	19.5	12.1	14.2	8.8
8	Low	23.0	14.3	23.8	14.8	24.0	14.9	19.9	12.4	22.4	13.9	21.4	13.3	15.6	9.7
	High*	29.3	18.2	30.3	18.8	30.5	18.0	25.4	15.8	28.4	17.7	27.2	16.9	19.9	12.3
R 1	Low	2.3	1.4	2.4	1.5	2.4	1.5	2.0	1.2	2.2	1.4	2.1	1.3	1.6	1.0
	High*	2.9	1.8	3.0	1.9	3.0	1.9	2.5	1.6	2.8	1.8	2.7	1.7	2.0	1.2
R 2	Low	3.3	2.0	3.4	2.1	3.4	2.1	2.8	1.8	3.2	2.0	3.1	1.9	2.2	1.4
	High*	4.2	2.6	4.3	2.7	4.4	2.7	3.6	2.3	4.1	2.5	3.9	2.4	2.8	1.8
R 3	Low	4.9	3.0	5.0	3.1	5.1	3.2	4.2	2.6	4.7	2.9	4.5	2.8	3.3	2.1
	High*	6.2	3.9	6.4	4.0	6.5	4.0	5.4	3.3	6.0	3.7	5.8	3.6	4.2	2.6
R 4	Low	6.8	4.2	7.0	4.4	7.1	4.4	5.9	3.7	6.6	4.1	6.3	3.9	4.6	2.9
	High*	8.7	5.4	9.0	5.6	9.0	5.6	7.5	4.7	8.4	5.2	8.1	5.0	5.9	3.7

* Speeds shown under "High" also apply to tractors not equipped with Hi-Lo shift unit

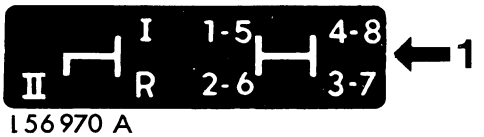
Travel Speeds for 1840 and 2040 Tractors with Collar Shift Transmission at 2500 Engine rpm over 25 km/h (15.5 mph)

Tires		13.6-36		13.6-38 15.5-38		14.9-38		16.9-30		16.9-34		18.4-30		23.1-26	
Gear		km/h	mph	km/h	mph	km/h	mph	km/h	mph	km/h	mph	km/h	mph	km/h	mph
1	Low	2.0	1.2	2.!	1.3	2.1	1.3	1.9	1.2	1.8	1.1	1.8	1.1	1.9	1.2
	High*	2.5	1.6	2.6	1.6	2.7	1.7	2.4	1.5	2.3	1.5	2.3	1.4	2.4	1.5
2	Low	2.8	1.8	2.9	1.8	3.0	1.9	2.7	1.7	2.6	1.6	2.5	1.6	2.7	1.7
	High*	3.6	2.2	3.7	2.3	3.8	2.4	3.5	2.2	3.3	2.1	3.2	2.0	3.4	2.1
3	Low	4.2	2.6	4.4	2.7	4.5	2.8	4.1	2.5	3.9	2.4	3.8	2.3	4.0	2.5
	High*	5.3	3.3	5.5	3.4	5.7	3.5	5.2	3.2	5.0	3.1	4.8	3.0	5.0	3.1
4	Low	5.9	3.6	6.1	3.8	6.3	3.9	5.7	3.5	5.5	3.4	5.3	3.3	5.5	3.4
	High*	7.5	4.6	7.7	4.8	8.0	5.0	7.2	4.5	6.9	4.3	6.7	4.2	7.0	4.4
5	Low	7.8	4.8	8.1	5.0	8.3	5.2	7.5	4.7	7.2	4.5	7.0	4.3	7.3	4.5
	High*	9.9	6.1	10.3	6.4	10.6	6.6	9.6	6.0	9.2	5.7	8.9	5.5	9.3	5.8
6	Low	11.1	6.9	11.5	7.2	11.9	7.4	10.8	6.7	10.3	6.4	10.0	6.2	10.5	6.5
	High*	14.1	8.8	14.7	9.1	15.1	9.4	13.7	8.5	13.1	8.2	12.7	7.9	13.3	8.3
7	Low	16.5	10.2	17.1	10.6	17.6	10.9	16.0	9.9	15.3	9.5	14.8	9.2	15.5	9.6
	High*	20.9	13.0	21.7	13.5	22.4	13.9	20.4	12.7	19.5	12.1	18.8	11.7	19.7	12.3
8	Low	23.0	14.3	23.9	14.8	24.6	15.3	22.4	13.9	21.4	13.3	20.7	12.8	21.7	13.5
	High*	29.3	18.2	30.4	18.9	31.3	19.5	28.4	17.7	27.2	16.9	26.3	16.4	27.6	17.1
R 1	Low	2.3	1.4	2.4	1.5	2.5	1.5	2.2	1.4	2.1	1.3	2.1	1.3	2.2	1.3
	High*	2.9	1.8	3.0	1.9	3.1	1.9	2.8	1.8	2.7	1.7	2.6	1.6	2.8	1.7
R 2	Low	3.3	2.0	3.4	2.1	3.5	2.2	3.2	2.0	3.1	1.9	3.0	1.8	3.1	1.9
	High*	4.2	2.6	4.3	2.7	4.5	2.8	4.1	2.5	3.9	2.4	3.8	2.3	3.9	2.4
R 3	Low	4.9	3.0	5.1	3.1	5.2	3.2	4.7	2.9	4.5	2.8	4.4	2.7	4.6	2.9
	High*	6.2	3.9	6.4	4.0	6.6	4.1	6.0	3.7	5.8	3.6	5.6	3.5	5.8	3.6
R 4	Low	6.8	4.2	7.1	4.4	7.3	4.5	6.6	4.1	6.3	3.9	6.1	3.8	6.4	4.0
	High*	8.7	5.4	9.0	5.6	9.3	5.8	8.4	5.2	8.1	5.0	7.8	4.8	8.2	5.1

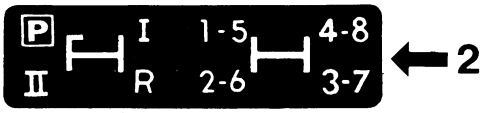
* Speeds shown under "High" also apply to tractors not equipped with Hi-Lo shift unit



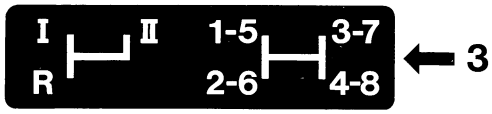
L19181 A



L 56970 A



L 56971 A



L 16963

SHIFTING GEARS

Gear shifting is controlled by a range shift lever and a gear shift lever.

A – Range shift lever
B – Gear shift lever

The left-hand side of the decal shows range shift lever positions; on the right-hand side gear shift lever positions are illustrated.

1 – Shift lever positions – tractor with collar shift transmission and handbrake

2 – Shift lever positions – tractor with collar shift transmissiond and parking lock

3 – Shift lever positions – tractor with synchronized transmission

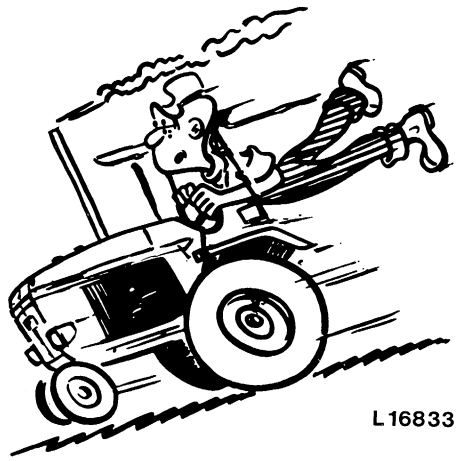
Range Shift Lever Positions

I – Low range
II – High range
P – Park position
R – Reverse range

Selecting Gears

The gear shift lever can be used to select 1st, 2nd, 3rd, and 4th gears when the range shift lever is in low range position, it can be used to select 5th, 6th, 7th, and 8th gears when the range shift lever is in high range position..

When the range shift lever is in reverse range, reverse gears comparable to 1st, 2nd, 3rd, and 4th can be obtained.


L16833

Shifting from neutral

1. Depress clutch pedal.
2. Move range and gear shift levers in the position required.
3. Gradually release clutch pedal, however, do not allow clutch to slip longer than necessary to take up load smoothly.

Shifting to another range

To shift to another range, fully stop the unit, disengange the clutch and then change gear range as required.

IMPORTANT! Do not allow tractor to coast in gear. This will result in overspeeding and damage to the clutch.

HI-LO SHIFT UNIT



If the tractor has a Hi-Lo shift unit, the operator can decrease or increase tractor speed without using the clutch.

Shifting from High to Low decreases the ground travel speed by 21 % and provides up to 27 % increase in pulling power in any of the travel speeds.


L12488

1 — Low speed

2 — High speed

When shutting off the engine, the Hi-Lo shift unit shifts automatically to low speed.

CREEPER TRANSMISION

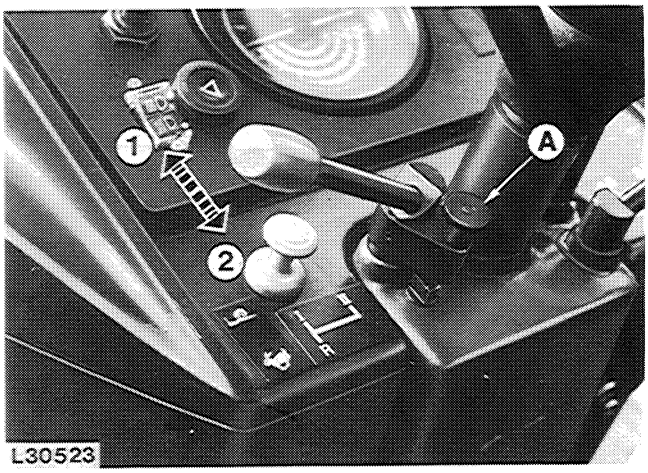
The creeper transmission may be engaged in all gears of I (Low) range and reverse range.

CAUTION! Engage creeper transmission in I (Low) range or reverse range only.

Depress clutch pedal and raise shifter lock before shifting creeper control lever to engage or disengage creeper transmission.

Never engage creeper transmission with engine speed higher than 1000 rpm.

Maximum permissible load is the same as for a tractor with standard transmission.

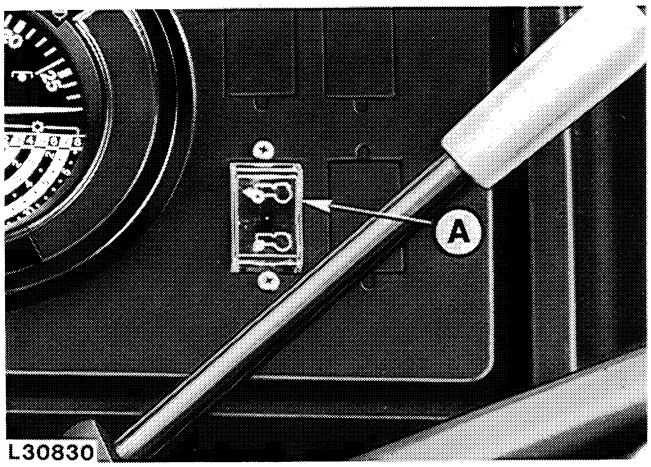


A — Shifter lock


L 14797

1 — Creeper speed

2 — High speed



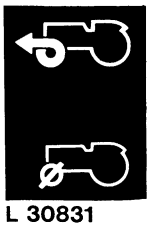
L30830

ENGAGING FRONT WHEEL DRIVE

The mechanical front wheel drive can be engaged and disengaged in all gears (forward and reverse) during operation and under full load.

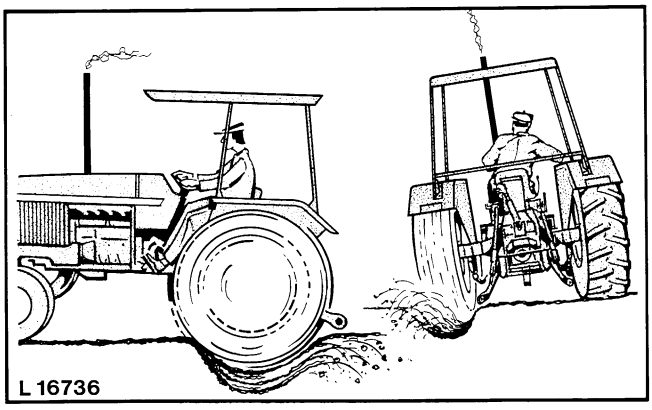
It is recommended not to engage the front wheel drive when travelling at high speeds on public roads.

A — Tumbler switch


L 30831

1 — Front wheel drive engaged

2 — Front wheel drive disengaged

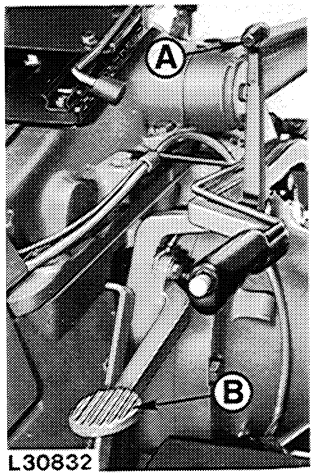

L 16736

DIFFERENTIAL LOCK

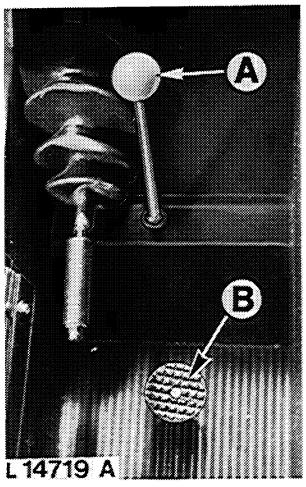
When slippery conditions are encountered with unequal wheel slip, engage differential lock (lever or pedal).

Depress clutch pedal to engage differential lock if wheel slip varies greatly between both wheels or if one wheel has become stationary. Engage differential lock as clutch is re-engaged. The differential lock will disengage automatically as soon as traction has equalized.

CAUTION! Do not attempt to turn the tractor with the differential lock engaged.



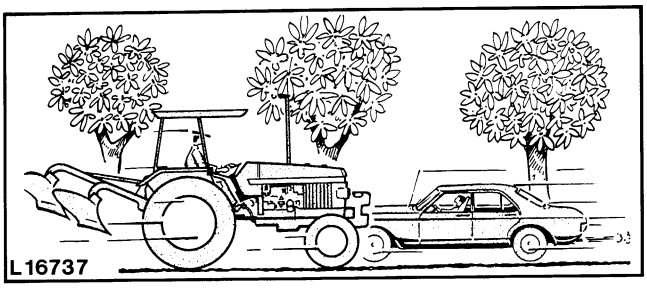
L30832



L 14719 A

A — Hand lever
B — Pedal

HYDRAULIC FOOT BRAKES



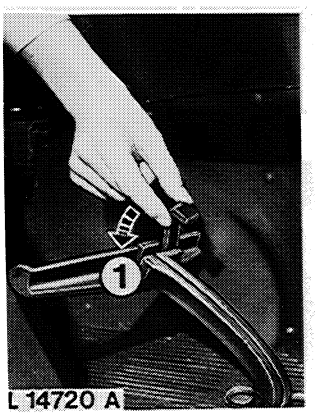
CAUTION! Brake pedals must be coupled together by means of the pedal coupler when driving on public roads.

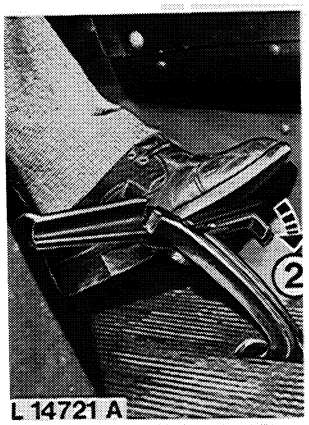
To assist steering when turning the tractor, press down on a single brake pedal. Use the left pedal to turn left and the right pedal to turn right. When negotiating sharp turns, press brake pedal down more sharply as the steering wheel is being turned.

Use brake for steering purpose at low speed only!

When stopping the tractor, press down on both brake pedals.

1 – Coupling brake pedals together
2 – Using foot brake to make a sharp left-hand turn





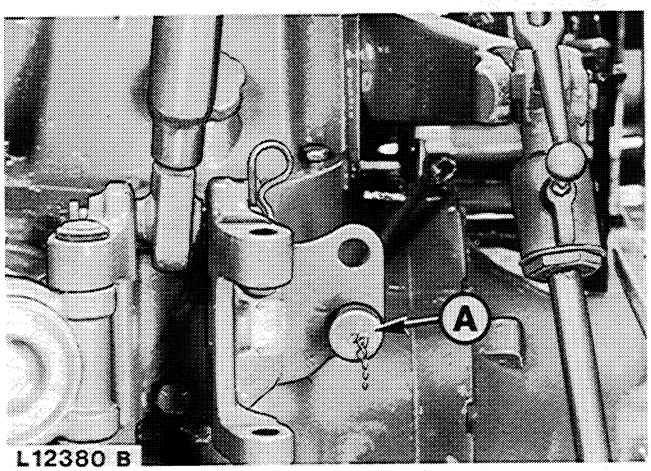
CAUTION! Your safety depends on efficient brakes.
Always maintain brakes in excellent condition and adjustment.

Hydraulic Trailer Brake

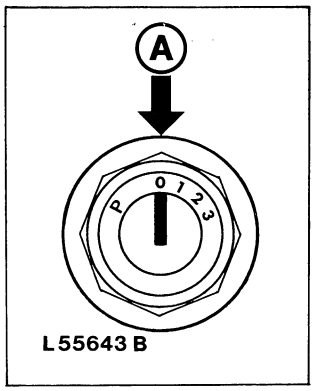
The tractor can be equipped with a hydraulic trailer brake coupler.

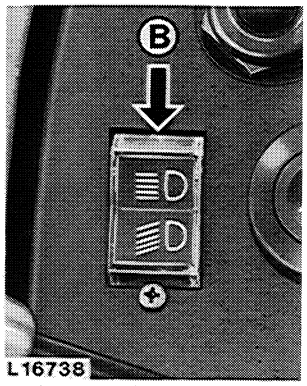
When connecting pressure hose, make sure connections are absolutely clean.

Press down on brake pedals to operate hydraulic trailer brake. Braking action depends on the pressure exerted on brake pedals.



A – Trailer brake coupler

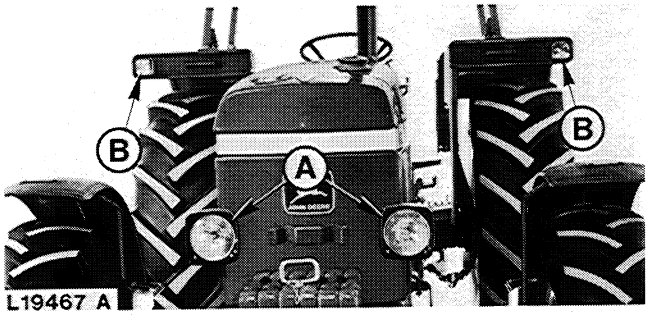




"BILUX" LIGHTING SYSTEM

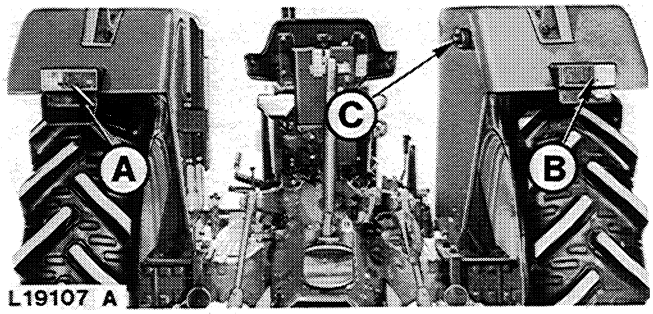
A – Main switch
B – Full-beam headlights switch
O – "Off" position (key can be removed)
P – Parking lights (key can be removed)
1 – Lights switch off
2 – Parking lights
3 – Dimmed headlights

B – Full-beam headlights switch



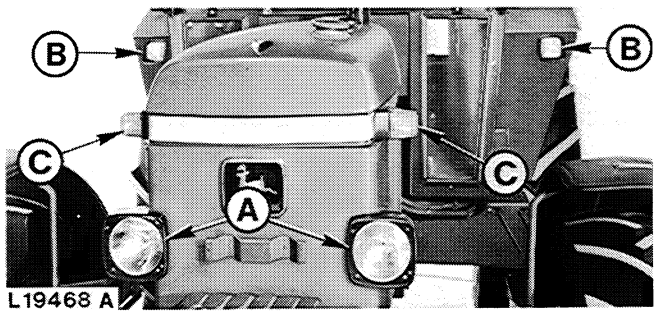
Front Lighting (without Cab)

A – Headlights
B – Turn signal and clearance lights



Rear Lighting (without Cab)

A – Tail, stop, turn signal and registration plate lights
B – Tail, stop and turn signal lights
C – Socket for trailer lighting



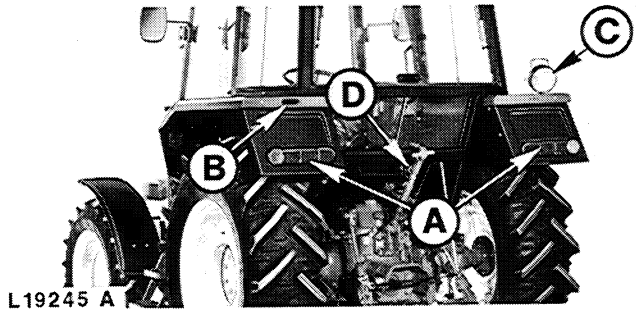
Front Lighting (with Cab)

Depending on type:

A – Headlights
B – Clearance lights
C – Turn signal lights

or

A – Headlights
B – Turn signal and clearance lights

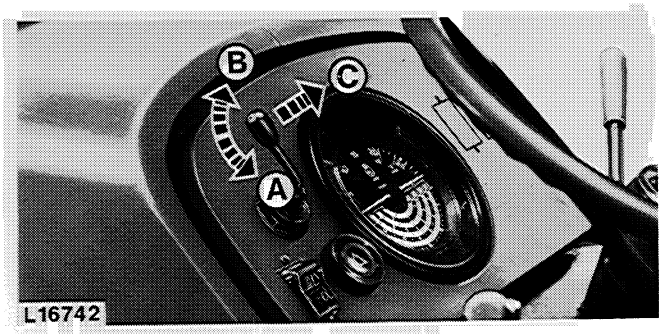


Rear Lighting (with Cab)

A – Tail, stop and turn signal lights
B – Registration plate light
C – Work light
D – Socket for trailer lighting

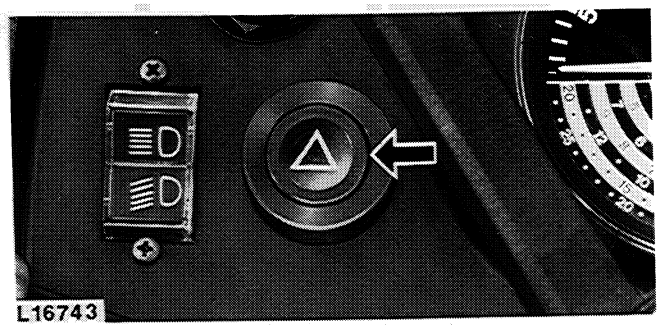
Switch for Turn Signal Lights and Horn

A – Turn signal, left-hand turn
B – Turn signal, right-hand turn
C – Horn (pull upward to sound horn)



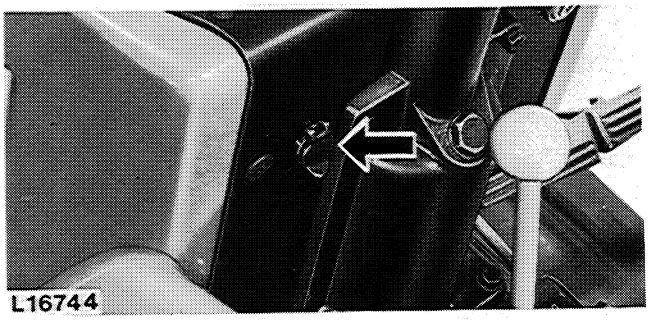
Hazard Warning Light Switch

Whenever encountering any trouble on the tractor during road travel, turn on the flashing hazard warning lights. Do not turn off warning lights until tractor is again in proper operating condition.

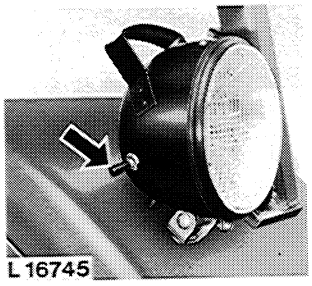


Socket for Handlamp

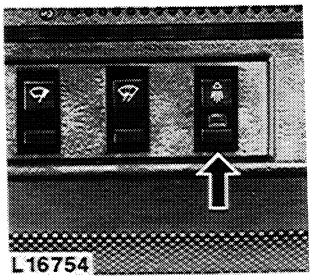
After inserting the plug into the socket, the handlamp goes on.



Work Light Switch



Without cab

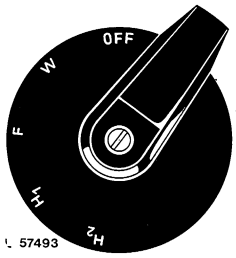


With cab

"SEALED-BEAM" LIGHTING SYSTEM

Light Switch

Switch positions are marked on the light switch plate. Turn switch clockwise until position required is in uppermost (vertical) position.



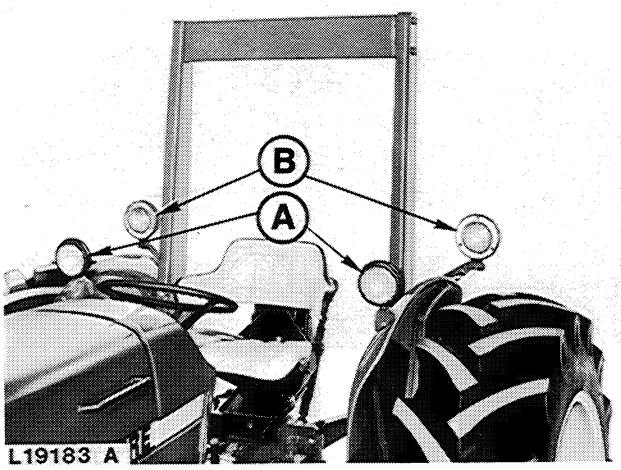
Light switch positions are as follows:

Off

W Warning lamps
F Bright headlights and work light
H1 Bright headlights
H2 Dim headlights, tail lights and warning lamps

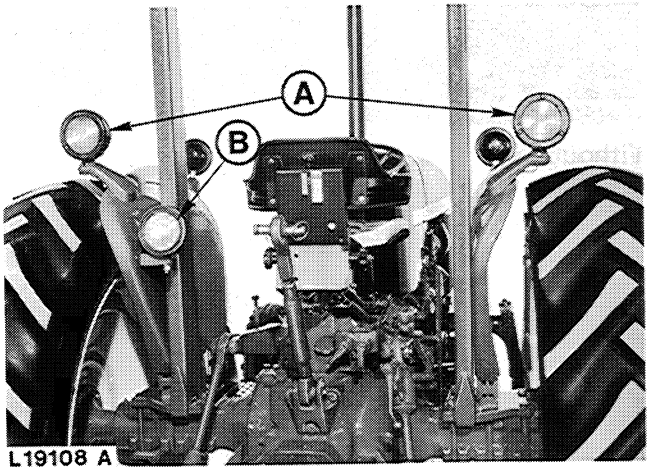
When driving the tractor on public roads always comply with local traffic lighting regulations.

Front Lighting



A – Headlights
B – Tractor warning lights (front)

Rear Lighting

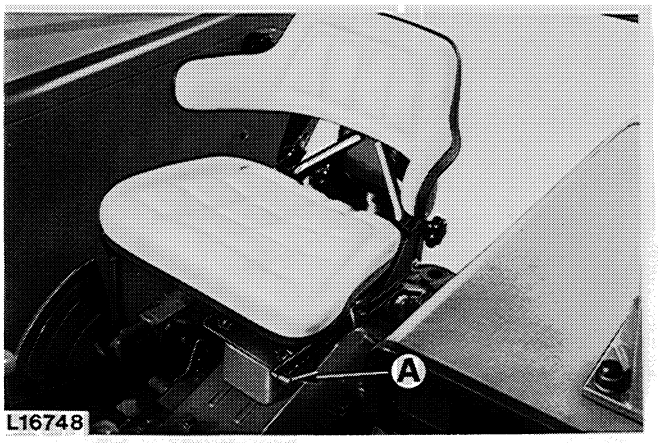


A – Tractor warning lights (rear)
B – Work light and tail light

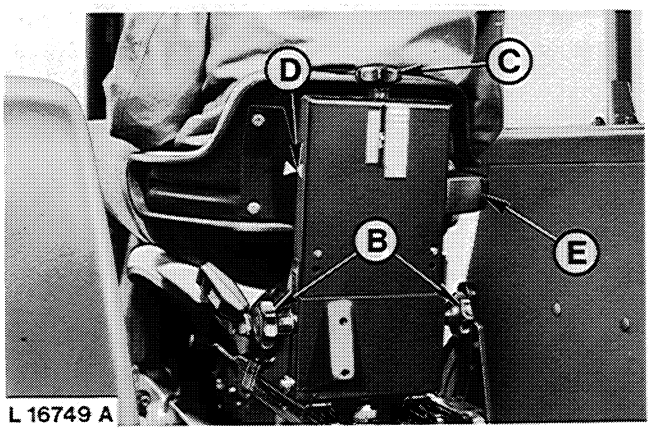
De Luxe Seat

This seat is adjustable for the operator's height and weight and folds back for standing.

A — Catch for horizontal adjustment



B — Handwheels for height adjustment
C — Handwheel for seat adjustment according to operator's weight
D — Arrows
With operator's seated, both arrows must be in line
E — Release button for seat safety belt





L16751

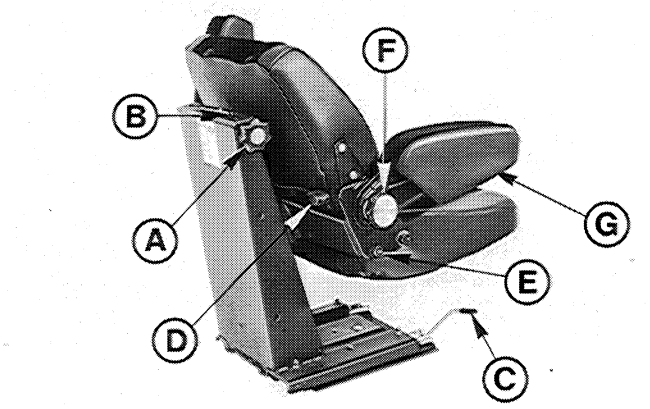
Standard Seat

This seat is adjustable for the operator's height and weight.

A — Attaching screws (2 used)

Loosen both screws and adjust seat according to operator's height.

Seat adjustment for operator's weight is similar to the de luxe seat.



L19236 A

Super Deluxe Seat

This seat is adjustable both horizontally and vertically and for the operator's weight. The seat base, back rest and arm rests are adjustable and the seat folds back for standing.

A — Handwheel for seat adjustment according to operator's weight
B — Weight scale (from 50 to 130 kp; 110 to 285 lb)
C — Length adjustment
D — Height adjustment
E — Adjustment of seat base plate angle (can be adjustment up to 5°)
F — Back rest adjustment (10 to 25°)
G — Arm rest adjustment

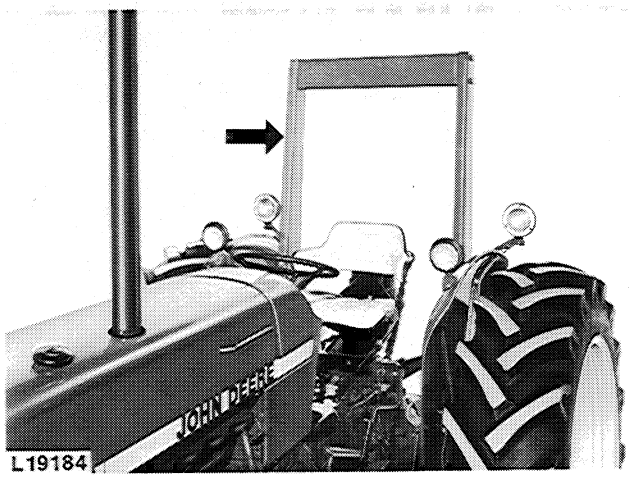
ROLL GUARD

CAUTION! Do not, under any circumstances modify structural members of roll-guard by welding on additional parts, drilling holes, grinding etc. Disregarding this instruction can affect the rigidity of the roll-guard and therefore the operator's safety cannot be guaranteed.

A tractor roll-over may place a severe stress on the cab structure. Therefore, replace cab if structural members have been bent, buckled or otherwise damaged.

Two Post Roll Guard

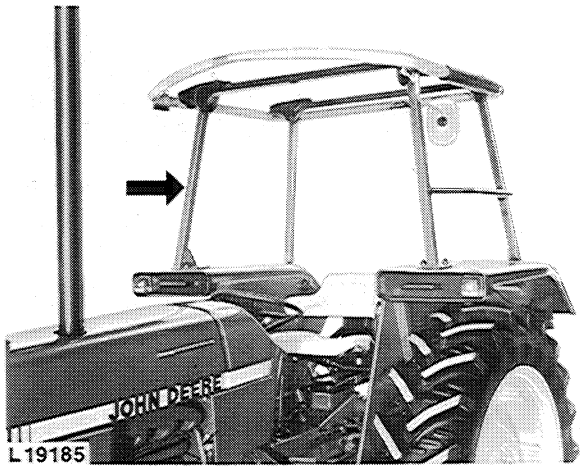
Periodically check all roll guard attaching cap screws for tightness, including those on crossbar. Tighten to 230 Nm (170 ft-lb) torque.



Four Post Roll Guard

Periodically check all roll guard attaching cap screws and hex. nuts. Specified torques are:

Axle U-bolt hex. nuts	—	130 Nm (95 ft-lb)
Roll guard to fender cap screws	—	120 Nm (85 ft-lb)
Remaining cap screws	—	70 Nm (50 ft-lb)



SEAT BELT

CAUTION! Always use a seat safety belt when a roll guard is installed or when tractor is equipped with an operator's cab.



OPERATOR'S CAB

CAUTION! A protective four-post roll-guard is incorporated in each operator's cab. On this construction, do not, under any circumstances, modifiy structural members of roll-guard by welding on additional parts, drilling holes, grinding etc. Disregarding this instruction can affect the rigidity of the roll-guard and therefore the operator's safety cannot be guaranteed.

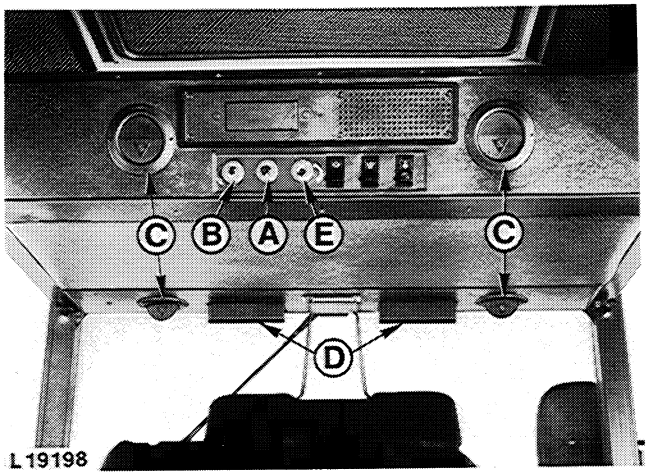
A tractor roll-over may place a severe stress on the cab structure. Therefore, replace cab if structural members have been bent, buckled or otherwise damaged.

Ventilation and Heating

When fresh air is required, turn three-speed fan switch to position desired. Air flow can be directed by means of swiveling air outlets.

To switch on heating, turn heater switch to the left (anti-clockwise). To increase warm air flow, switch on fan. Quicker heating of the cab is obtained by opening air flaps.

Air Conditioning System (Special Equipment)



The blower switch must be turned on before switching on the air conditioning system. The air flaps must be open. The air conditioning switch is infinitely variable. For maximum cooling turn switch clockwise to end position.

Turning the heater on for a short period when operating the air conditioning system will help to control humidity. However, under normal conditions the heater temperature control switch should be in "Off"" position when operating the air conditioning system.

A – Three speed fan switch
B – Infinitely variable heater switch
C – Swiveling outlets for fresh and warm air
D – Air flaps (for quicker heating of cab)
E – Air conditioning switch (special eqpt.)

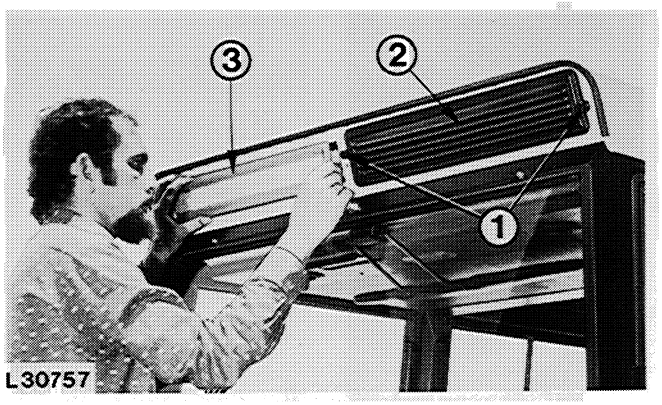
Cab Fresh Air Filters

The two fresh air filters located in the top front of the operator's cab must be cleaned periodically, depending on working conditions (dust and frequency of use of the ventilation system). Depending upon condition of filters, clean as follows:

Tap filter on a level surface, blow out with compressed air (max. pressure 700 kPa; 7 bar; 10 psi) or wash in water. Never install a damp element.

1 – Remove retainer screws
2 – Remove screen
3 – Remove fresh air filter

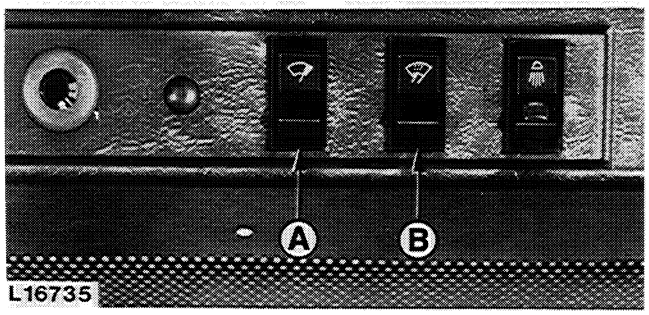
When reinstalling filter make sure it is seated correctly so that no unfiltered air enters cab.



Windshield Wiper and Washer System

The windshield washer operates as long as switch (B) is pressed downward.

A – Windshield wiper switch
B – Windshield washer switch



Windshield Washer Reservoir

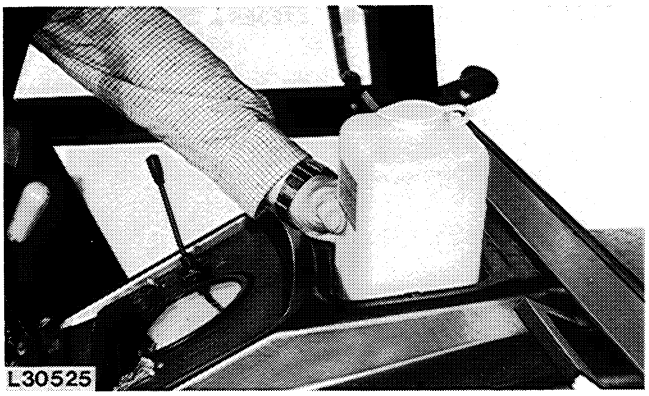
The windshield washer reservoir is located under the dash.

Refilling Reservoir

Add a suitable anti-freeze solution if temperature is liable to drop below freezing point.

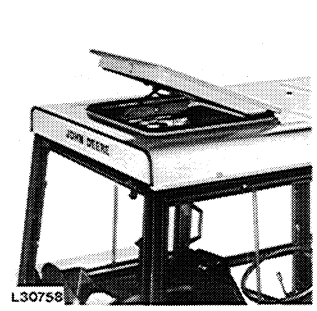
To remove reservoir:

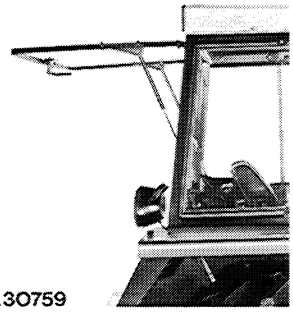
Remove cover and lift reservoir at an angle upward out of its support.

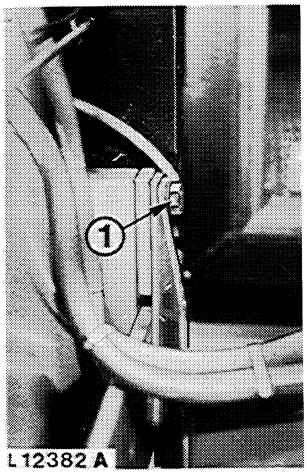


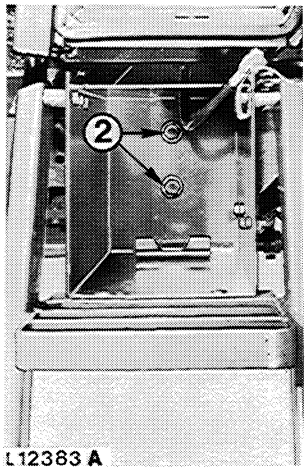
Hinged Cab Roof Emergency Hatch and Rear Window

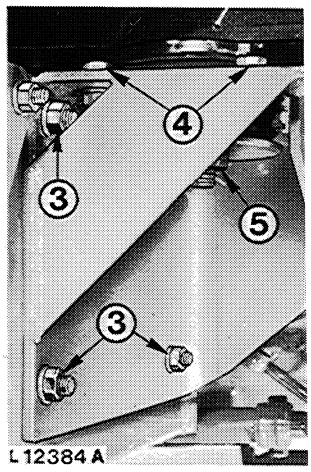
The emergency hatch above the operator's seat and rear window can be swung open for additional ventilation.

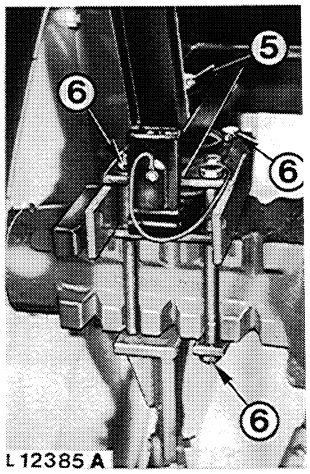












TORQUES FOR OPERATOR'S CAB MOUNTING CAP SCREWS

CAUTION! Periodically check all cab attaching cap screws for tightness.

The torques are as follows:

1 – Battery box to tractor
200 Nm (145 ft-lb)

2 – Battery box to tractor
50 Nm (35 ft-lb)

3 – Support bracket to battery box
50 Nm (35 ft-lb)

4 – Rubber bearing block to support bracket
50 Nm (35 ft-lb)

5 – Rear rubber bearing block to cab frame
15 Nm (11 ft-lb)

6 – Rear bearing bracket to final drive housing
100 Nm (72 ft-lb)

Wheel Treads

ADJUSTABLE FRONT AXLE (Tractors without Front Wheel Drive)

The front axle can be adjusted at each end in increments of 50 mm (2 in.). Maximum wheel tread is obtained by reversing the wheels on the axle.

NOTE: Wheel tread on tractors equipped with a front loader must not exceed 1.70 m (67 in.). With 6.00-16 tires maximum wheel tread with front loader is reduced to 1.60 m (63 in.).

IMPORTANT! To avoid excessive stress on axle bolts, do not separate axle halves beyond the specified limits.

Adjusting Front Wheel Tread

Block up front end of tractor.

Do not place jack under engine oil pan!

Loosen tie rod outer clamp bolt (tractor with cab only).

Remove tie rod inner clamp bolts and axle bolts. Re-position axle ends to the desired front wheel tread. Reinsert axle bolts and tighten to 400 Nm (300 ft-lb) torque.

Adjust tie rods to front wheel tread, reinsert inner clamp bolts and tighten to the following torques:

Tractor with cab — 50 Nm (35 ft-lb)

Tractor without cab — 110 Nm (82 ft-lb)

Tighten outer clamp bolt to 110 Nm (82 ft-lb) torque.

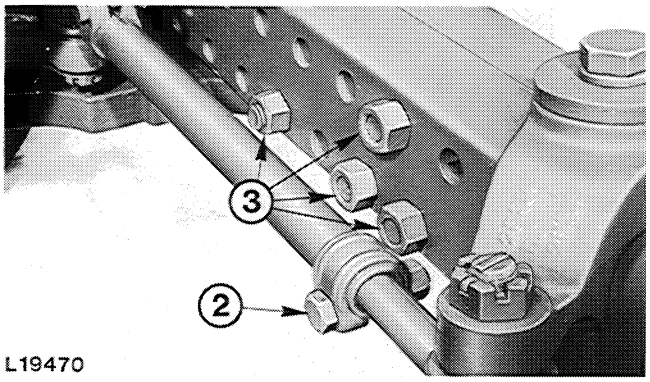
1 — Tie rod outer clamp bolt
2 — Tie rod inner clamp bolt
3 — Axle bolts

Check toe-in and adjust, if necessary.

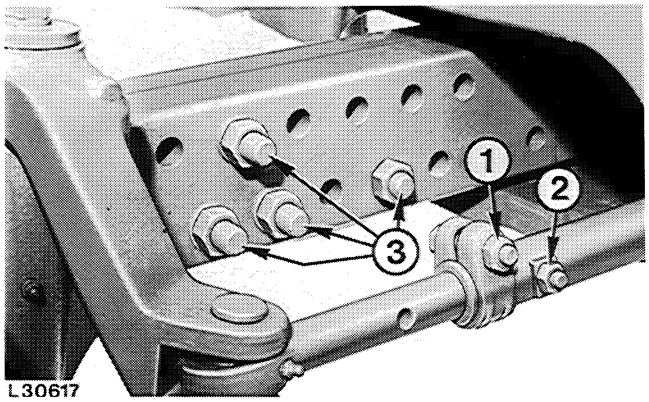
Front Axle Limits

Tires	Wheel Disk Inward	Wheel Disk Outward
6.00-16	1.25 m - 1.92 m (49.6 in. - 75.6 in.)	1.39 m - 2.06 m (54.7 in. - 81.1 in.)
7.50-15 7.50-18	1.36 m - 1.87 m (53.5 in. - 73.6 in.)	1.50 m - 2.00 m (59.0 in. - 78.7 in.)
* 7.50-16 7.50-18	1.46 m - 1.87 m (57.5 in. - 73.6 in.)	1.60 m - 2.00 m (63.0 in. - 78.7 in.)
*10.00-16	1.51 m - 1.92 m (59.4 in. - 75.6 in.)	1.55 m - 1.96 m (61.0 in. - 77.2 in.)

* With hydrostatic steering



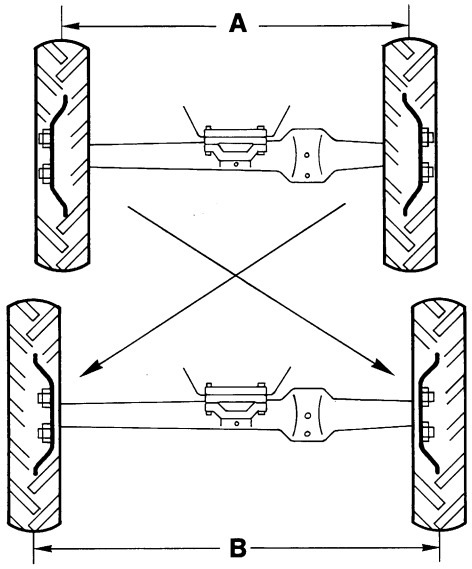
L19470



L30617

ADJUSTING FRONT WHEEL TREAD (Tractors with MFWD)

The tractor can be equipped with reversible or adjustable wheel rims.



L 19151

Adjusting Front Wheel Tread With Reversible Rims

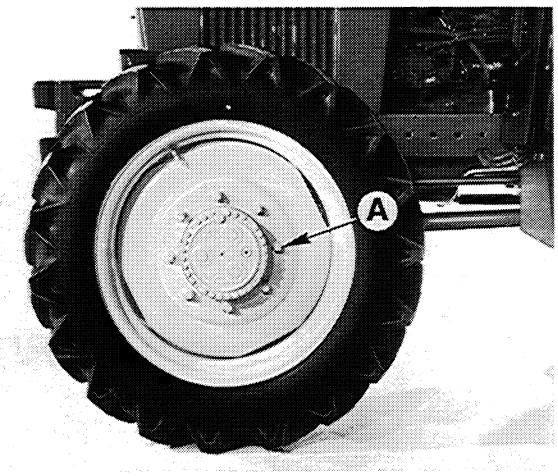
By reversing the complete front wheel and installing on opposite side of tractor two different wheel treads can be obtained. These are obtained by means of the cupped shape wheel disk. The cupped wheel disk facing outward gives the narrow tread and when facing inward the wider tread (see illustration opposite).

The arrow on the tire sidewall must point in direction of forward travel.

A – Narrow tread:
1.50 m (59 in.) with 11.2-24 tires
1.60 m (63 in.) with 13.6-24 tires

B – Wide tread:
1.80 m (71 in.) with 11.2-24 tires
1.70 m (67 in.) with 13.6-24 tires

NOTE: Narrow tread only when operating with front loader.



L19152

Front Wheel Attaching Nuts

After having adjusted front wheel tread, tighten front wheel attaching hex. nuts to 300 Nm (220 ft-lb) torque.

A – Hex. nuts

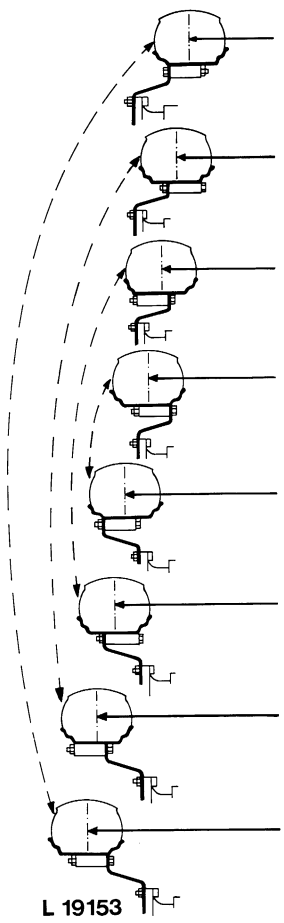
IMPORTANT! After the first 4 hours and 8 hours of operation retighten all front wheel hex. nuts. Check tightness of these nuts frequently during the first 100 hours of operation.

Adjusting Front Wheel Tread with Adjustable Rims

Front wheel tread can be adjusted by re-positioning or reversing the wheel rims.

In addition the complete wheel can be reversed and installed on opposite side of tractor. The arrow on side wall of tire must then point in direction of forward travel. The dashed lines show tread widths obrained by changing complete wheels.

NOTE: Wheel tread on tractors equipped with a front loader must not exceed 1.70 m (67 in.)



Tires				
11.2-24		11.2-28 and 13.6-24	
m	in.	m	in.
1.35	53	1.30*	51*
1.40	55	1.40*	55*
1.50	59	1.50	59
1.55	61	1.60	63
1.75	69	1.70	67
1.80	71	1.80	71
1.90	75	1.90	75
1.95	77	2.00	79

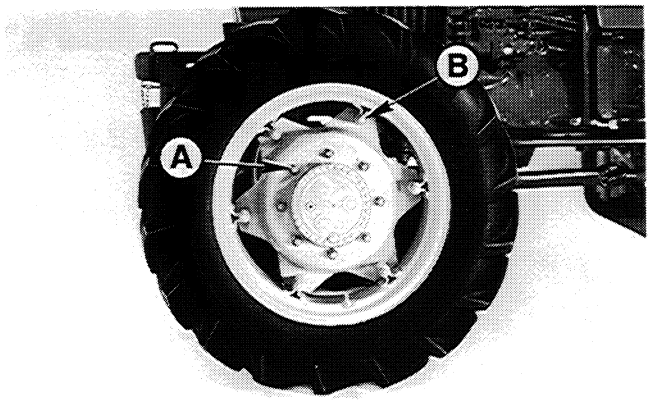
* These front wheel treads can be obtained but do not allow full steering angle.

Front Wheel Attaching Nuts

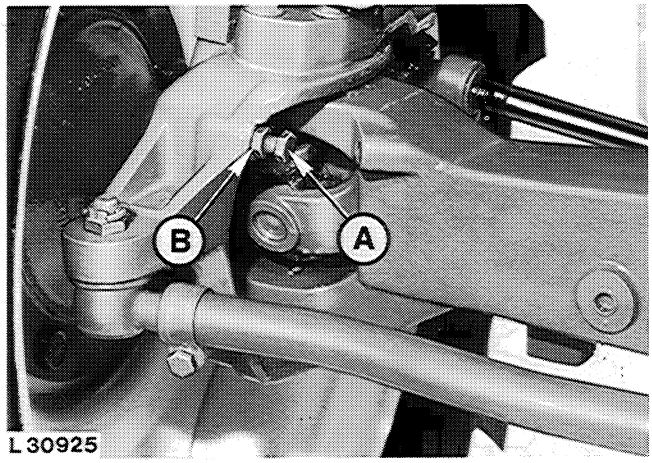
After having adjusted front wheel tread, tighten front wheel attaching nuts to the following torques:

A – 300 Nm (220 ft-lb)
B – 200 Nm (145 ft-lb)

IMPORTANT! After the first 4 hours and 8 hours of operation retighten all front wheel attaching nuts. Check tightness of these nuts frequently during the first 100 hours of operation.



L19154

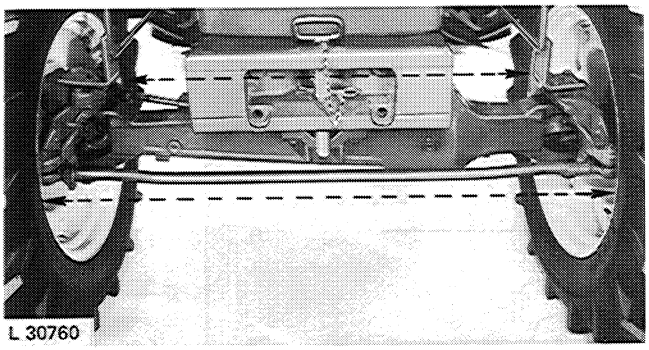


Front Wheel Steering Angle

On tractors with mechanical front wheel drive the front wheel steering angle must be limited to 39° and equal on both wheels. With full steering lock and oscillating front axle there should be a clearance of at least 15 mm (1/2 in.) between tire and side of tractor.

A – Steering angle adjusting screw
B – Lock nut

NOTE: If the tractor is equipped with front wheel fenders these must be removed when installing a front end loader.

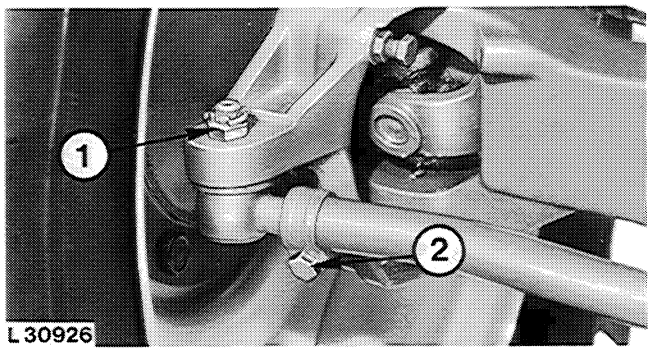


Checking Front Wheel Toe-In

Measure front and rear of front wheels from rim flange to rim flange at hub height.

Correct toe-in is:

Tractors with MFWD – 0 to 3 mm (0 to 1/8 in.)
Tractors without MFWD – 3 to 7 mm (1/8 to 1/4 in.) less in front than in rear.



Adjusting Front Wheel Toe-In (Tractors with MFWD)

1 – Remove slotted nut and disconnect tie-rod at steering knuckle housing.
2 – Slacken clamping screw and turn tie-rod tube in or out.

After toe-in adjustment is completed, tighten clamp bolt to 40 Nm (30 ft-lb) torque. Secure tie rod end to steering knuckle and tighten slotted nut to 200 Nm (145 ft-lb) torque.

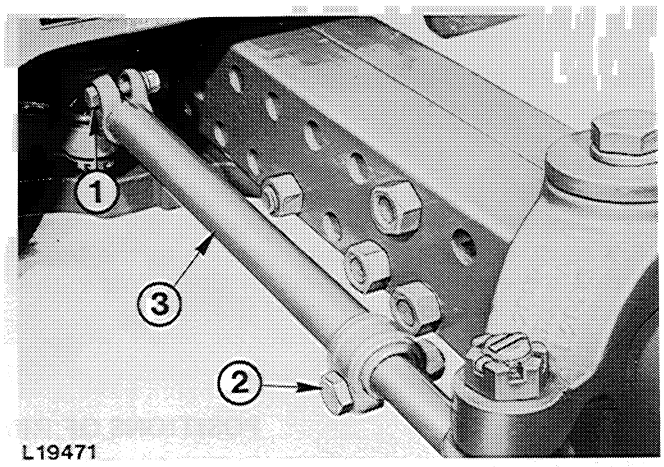
Adjusting Front Wheel Toe-In (Tractors without cab, without MFWD)

Front wheels must be in straight-ahead position.

1 – Loosen inner clamp bolt
2 – Remove outer clamp bolt
3 – Turn tie-rod tube in or out

Turn each tie-rod an equal amount so that front wheels remain in straight-ahead position.

After toe-in adjustment is completed, tighten inner clamping bolts to 40 Nm (30 ft-lb) torque. Insert and tighten outer clamping bolts to 110 Nm (82 ft-lb) torque.

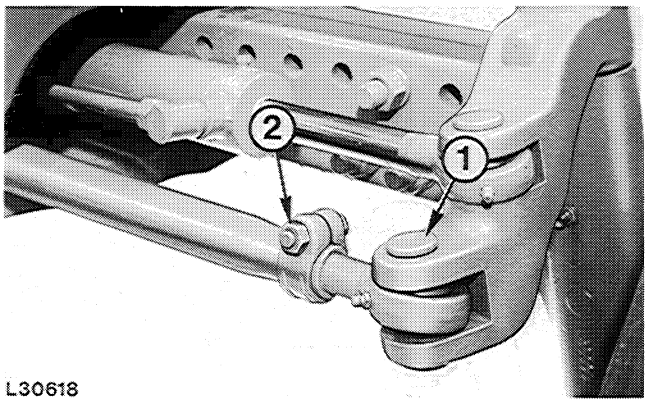


L19471

Adjusting Front Wheel Toe-In (Tractors with cab, without MFWD)

1 – Remove clevis pin and remove tie rod end from steering knuckle.
2 – Slacken clamp bolt and adjust tie rod end as necesary.

Having obtained correct toe-in, retighten clamp bolt to 110 Nm (82 ft-lb) torque and secure tie rod end to steering knuckle.



L30618

REAR WHEEL TREADS

Rear wheel tread can be adjusted by re-positioning or reversing the rims or by reversing the wheel disks.

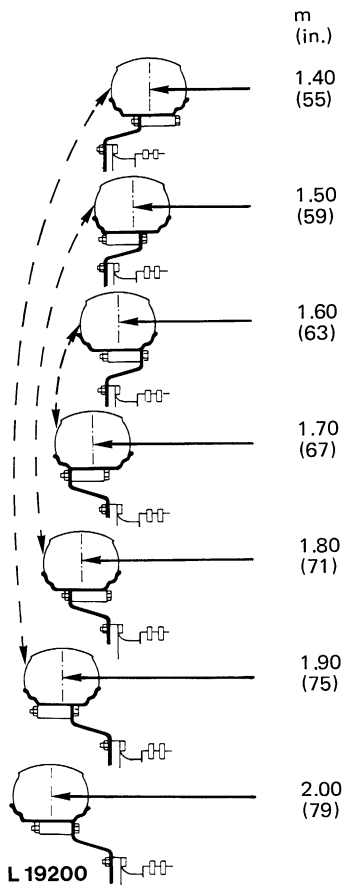
Rear wheel tread can also be adjusted by reversing the complete wheels. When reversing the wheels, they must be changed from one side to the other so that the arrow on side wall of tire points in the direction of forward rotation of tire.

After adjustment has been completed, tighten wheel retaining bolts to specified torque (see "Break-In-Period", page 14).

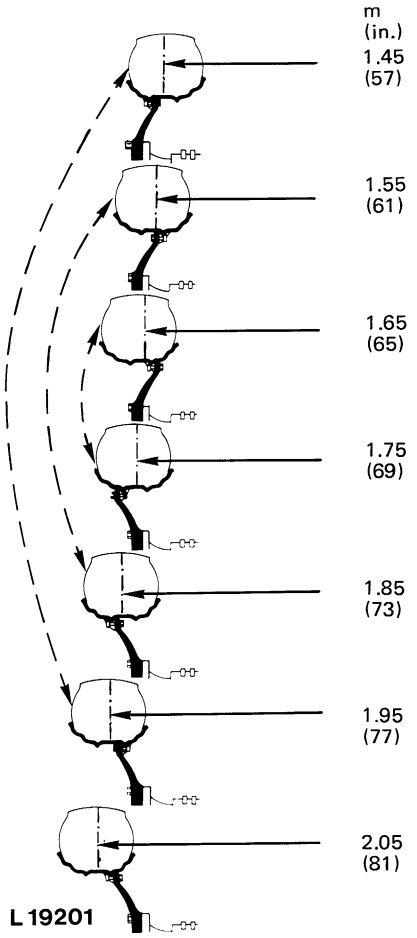
The relationship of the rear wheel disk and rim in obraining the different tread settings is shown in the following drawings. A study of these drawings before attempting to change tread settings will save time and unnecessary labour.

POSITIONS OF RIMS AND WHEEL DISKS

With Steel Disk Wheels



With Cast Disk Wheels

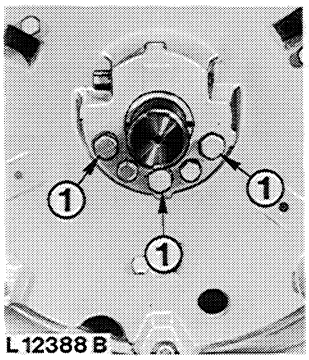


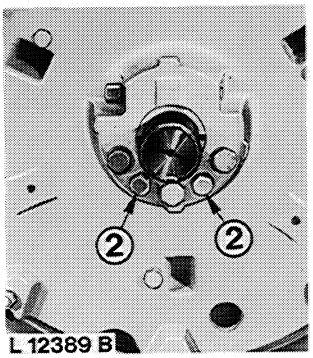
The dashed line shows the tread width obtained by reversing the entire wheel and installing on opposite side of tractor. The arrow on the side wall of each tire must then point in the direction of forward travel. Therefore, wheels must be installed inversely on opposite side of tractor.

Wheels with Steel Disks	Tire Sizes	1640	1840	2040	Tractors without Operator's Cab				Tractors with Operator's Cab	
					Wide Fenders		Shell-Type Fenders			
					m	in.	m	in.	m	in.
	13.6-36	x		x	1.50-2.00	59-79	1.40-2.00	55-79	1.50-2.00	59-79
	13.6-38	x		x	1.50-2.00	59-79	1.40-2.00	55-79	1.50-2.00	59-79
	14.9-38	x		x	1.50-2.00	59-79	1.40-2.00	55-79	1.50-2.00	59-79
	15.5-38	x	x	x	1.50-2.00	59-79	1.40-2.00	55-79	1.60-2.00	63-79
	16.9-24	x			-	-	1.40-2.00	55-79	-	-
	16.9-30	x	x	x	1.60-2.00	63-79	1.40-2.00	55-79	1.60-2.00	63-79
	16.9-34			x	1.60-2.00	63-79	1.40-2.00	55-79	1.60-2.00	63-79
	18.4-30			x	1.60-2.00	63-79	1.50-2.00	59-79	1.60-2.00	63-79
	21.5-16.1	x			-	-	1.60-1.70	63-67	-	-
	23.1-26			x	-	-	1.70	67	-	-
Wheels with Cast Disks	16.9-30	x		x	1.55-2.05	61-81	1.45-2.05	57-81	1.55-2.05	61-81
	15.5-38			x	1.55-2.05	61-81	1.45-2.05	57-81	1.55-2.05	61-81

ADJUSTING WHEEL TREAD ON RACK-AND-PINION AXLE

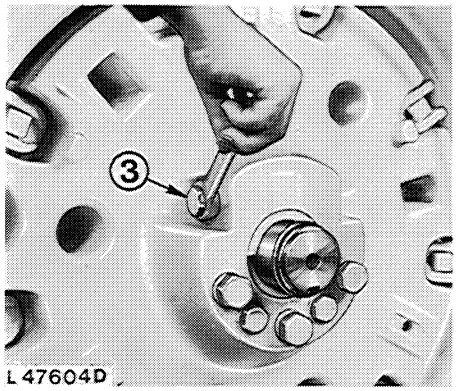
1 – Loosen attaching cap screws completely.
2 – Turn jack screws clockwise until screw heads are flush against face of wheel hub.





Jack up tractor so that rear wheel is raised off the ground. Turn wheel so that rack on axle faces upward.

3 – Turn adjusting screw to slide wheel in or out.



Measure the distance from center of tractor to center of tire.

When tread is correct, back jack screws all the way out against the stop. Do not use force!

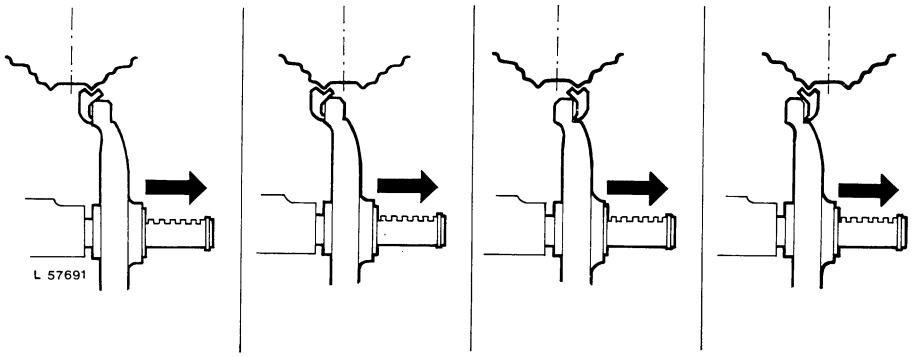
Lubricate attaching screw threads and alternately tighten all screws. Finally tighten to 400 Nm (300 ft-lb) torque.

IMPORTANT! When setting smallest tread width, avoid adjusting wheels too close to the rear axle housing. This can damage the pinion when the hub is tightened. To avoid this, adjust the wheel to the innermost position until the pinion contacts the end of the rack. Then back out until the wheel has moved outward at least 6 mm (1/4 in.).

After adjusting make sure tire or wheel weights do not rub against the tractor.

After a few hours of service, retighten attaching screws to 400 Nm (300 ft-lb) torque. Check cap screws periodically for proper torque.

POSITIONS OF RIMS AND WHEEL DISKS WITH RACK-AND-PINION AXLE



1640	1840	2040	Tires	Position of Wheel Disks	Tractors without Operator's Cab				Tractors with Operator's Cab	
					Wide Fenders		Shell-Type Fenders			
					m	in.	m	in.	m	in.
	x	x	15.5-38	Wheel Disk Inward						
				A	1.51-1.75	59-69	1.38-1.75	54-69	1.54-1.75	61-69
				B	1.51-1.95	59-77	1.44-1.85	57-77	1.54-1.95	61-77
				C	1.51-1.92	59-76	1.41-1.92	56-76	1.54-1.92	61-76
				D	1.61-2.12	63-83	1.61-2.12	63-83	1.61-2.12	63-83
				Wheel Disk Outward						
				A	1.63-2.06	64-81	1.63-2.06	64-81	1.63-2.06	64-81
				B	1.84-2.27	72-89	1.84-2.27	72-89	1.84-2.27	72-89
				C	1.80-2.24	71-83	1.80-2.24	71-88	1.80-2.24	71-88
				D	2.01-2.44	79-96	2.01-2.44	79-96	2.01-2.44	79-96
x		x	16.9-30	Wheel Disk Inward						
				A	1.55-1.75	61-69	1.41-1.75	56-69	1.58-1.75	62-69
				B	1.55-1.95	61-77	1.44-1.95	57-77	1.58-1.95	62-77
				C	1.55-1.92	61-76	1.41-1.92	56-76	1.58-1.92	62-76
				D	1.61-2.12	63-83	1.61-2.12	63-83	1.61-2.12	63-83
				Wheel Disk Outward						
				A	1.63-2.06	64-81	1.63-2.06	64-81	1.63-2.06	64-81
				B	1.84-2.27	72-89	1.84-2.27	72-89	1.84-2.27	72-89
				C	1.80-2.24	71-88	1.80-2.24	71-88	1.80-2.24	71-88
				D	2.01-2.44	79-96	2.01-2.44	79-96	2.01-2.44	79-96

TIRES

Tire Pressures

Long life and satisfactory performance of the tires depend on proper tire inflation. Under-inflation of tires leads to rapid wear. Over-inflated tires reduce traction and increase wheel slippage.

Low inflation pressure will avoid deep tread marks harmful to the soil and will also reduce resistance to motion. With low inflation pressure traction may be increased by up to 20% as compared to road inflation pressure. In difficult soils engine power can be more efficiently utilized with low inflation pressure in the tires.

Even though it is recommended to use low inflation pressure for heavy plowing and similar jobs, it will be harmful to use the same inflation pressure for extended road travel.

As correct tire pressures depend on the one side from what type of working conditions and load, and on the other side from tractor model, tire size and manufacturer, we recommend you approach your John Deere dealer or tire company for advice. This tire pressures shown opposite should therefore be considered as a standard guide only.

The tire pressures quoted are for operating in the field, increase pressures if tractor is working 20% or more on roads.

Rear Wheels

13.6-36 13.6-38 14.9-38 15.5-38 16.9-24 16.9-30 16.9-34 18.4-30 21.5 L-16.1	130 kPa (1.3 bar; 19 psi)
23.1-26	110 kPa (1.1 bar; 16 psi)

Front Wheels

6.00-16 7.50-16 7.50-18 10.00-16 11.2-24 11.2-28 13.6-24	150 kPa (1.5 bar; 22 psi)

Direction of Tire Rotation

When mounting or changing tires, make sure arrow on flank of tires points in the direction of forward rotation.

CAUTION! Failure to follow proper procedures when mounting a tire on a wheel or rim can produce an explosion which may result in serious bodily injury. DO NOT attempt to mount a tire unless you have the proper equipment and experience to perform the job safely. Have it done by your John Deere dealer or a qualified tire repair service.

Detailed tire mounting instructions, including necessary safety precautions, are contained in John Deere Fundamentals of Service (FOS) Manual 55, Tires and Tracks, which is available from your John Deere dealer.

When on tractors with front wheel drive the main function is transport or front loader operation turn tires against usual rolling direction of tire lugs. Tire life is increased by 25 to 30% and better traction achieved.

Because of reduced traction and tire self-cleaning effect this arrangement is not recommeded for field work under wet conditions.

Front Wheels	Rear Wheels					
	13.6-36	13.6-38	14.9-38	15.5-38	16.9-30	16.9-34
11.2-24	x	–	–	–	x	–
11.2-28	–	x	x	x	–	x
13.6-24	–	x	–	x	–	x

Tire Combinations (Tractors with MFWD)

In order to achieve maximum drawbar pull and to maintain proper steerability it is absolutely necessary to comply with the tire combination shown opposite. Apart from this, correct tire combinations reduce tire wear and fuel consumption.

Should front wheel tires show excessive wear in comparison with the rear tires they must be replaced in order to maintain the predetermined tire ratio.

BALLAST

IMPORTANT! When determining front and rear axle ballast, make sure maximum permissible axle loads as well as maximum permissible machine weight are not exceeded (see Specifications).

Comply with local government regulations regarding installation and maximum permissible number of weights which can be installed.

Safety and performance of your tractor depend upon correct ballasting of front and rear axle.

Ballasting the rear axle can be made by installing rear wheel weights, filling rear tires with a liquid solution or hitching implements.

Ballast should never exceed the weight required to provide traction for loads within the 4th gear operating capacity of the tractor. Do not add too much ballast. Remove ballast if tractor engine labors when pulling heavy loads in 3rd gear.

Rear Axle Ballast

Rear wheel ballast should be chosen so as to give 10 to 15 % wheel slippage when operating. Field tests have shown that maximum horsepower available at the drawbar occurs in this range.

Too much weight on the rear wheels can easily be recognized by the clear outline of the tread marks. The result will be a loss of horsepower as more power is needed to overcome rolling resistance plus unnecessary soil compaction and overloading of tires.

If rear wheels have too little ballast, tread marks will be eliminated through excessive wheel slippage, indicating a waste of power and creating excessive tire wear.

A compromise in ballasting may be necessary when the tractor is used to pull loads having different draft requirements.

For example, if the tractor is being used mainly for heavy work which requires plenty of pulling power (such as plowing), use ballast for this type of work.

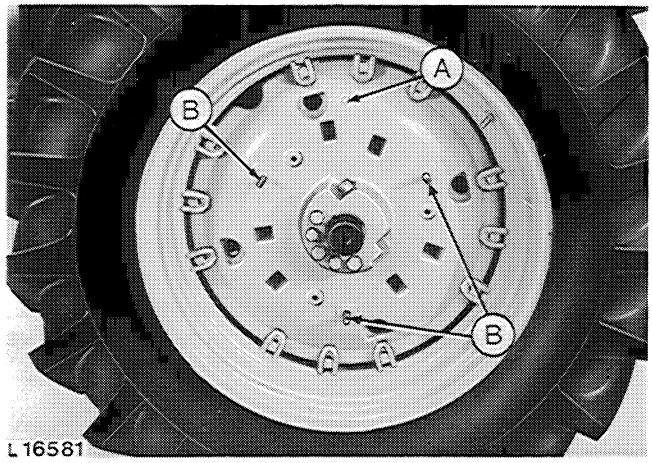
However, if a large amount of time is being spent on light-load type work in higher gears, ballast for this type of work.

The following rear wheel weights are available, depending upon type of rear wheel and size of tires:

Rear wheel weights: A 1 set (2 used) = 77 kg (170 lb)
B 1 set (2 used) = 110 kg (242 lb) } Quick-tatch weights

C 1 Set (2 used) = 110 kg (242 lb)
D 1 set (2 used) = 136 kg (296 lb) } For rack-and-pinion axle

Tire Size	1640	1840	2040
13.6 - 36	A, B	–	A, B
13.6 - 38	A, B	–	A, B
14.9 - 38	–	–	A, B
15.5 - 38	A, B	A, B, –, D	A, B, –, D
16.9 - 24	A	–	
16.9 - 30	A, –, C	A	A, –, C
16.9 - 34	A, B	–	A, B
18.4 - 30	A	–	A
23.1 - 26	–	–	A



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Weights for Rack-and-Pinion Axle

Up to three weights may be attached to each rear wheel.

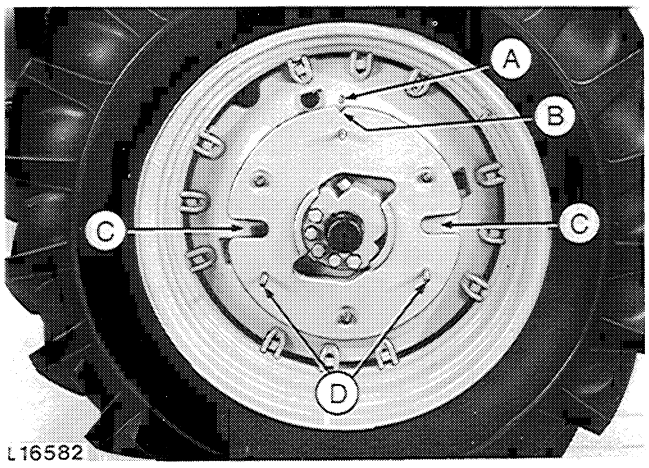
Installing rear wheel weights

1. Park tractor with reference mark on wheel at the top.

2. Insert the three special attaching bolts in bores from inner side of rim and drive outward.

A – Reference mark
B – Special bolts

NOTE: When installing more than one weight proceed as follows: Drive three special screws through square countersunk bores from the inside of first weight to be installed. Install second weight so that notch on this weight is opposite notch on the first weight. Install third weight in same position as the first.



L 16582

3. Install weight on wheel rim so that notch on outer side is facing upward. When installed both notches should be aligned.

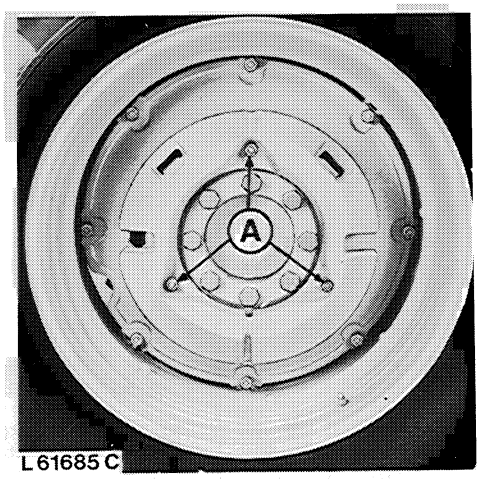
For easier handling of weights there are two recesses in each weight.

A – Reference mark
B – Notch
C – Recesses
D – Special screws for second weight

4. Tighten special attaching screw nuts securely. Retighten after a few hours service and keep them tight.

Rear Axle Quick Tatch Weights

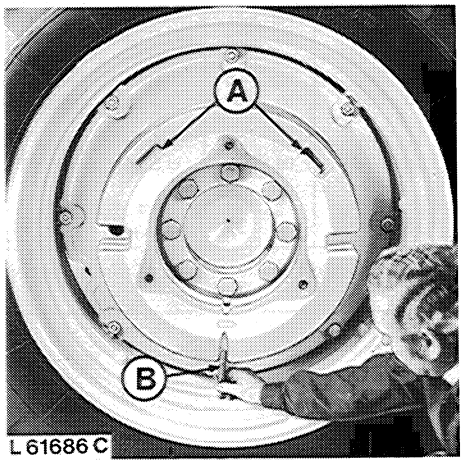
The first weight is attached to the wheel rim by means of three cap screws.



A— Attaching cap screws

When installing further weights, position wheel so that retainer jaws are at the top. Hang weight in retainer jaws and secure with cap screw.

⚠ CAUTION! When installing and removing quick-tatch weights, always position wheels so that retainer jaws are at the top. Thus weights are prevented from falling when cap screw is removed.



A — Retainer jaws
B — Attaching cap screw

MEASURING REAR WHEEL SLIP

Rear wheel slip can be measured as follows:

1. Make a chalk mark pointing toward axle hub on the side of tire. Drive tractor forward with implement lowered into the ground.Place a marker in the ground as soon as chalk mark reaches the ground.

2. Again place a marker in the ground as soon as 10 revolutions of the wheel have been made.

3. Now raise implement and drive again between the two markers, marking the tire at point where it passes the first marker (on the ground). Note the number of revolutions required by the rear wheels to travel marked distance.

4. Determine the percent of slip from the revolutions obtained in step 3 and the following table.

Wheel Revolutions (Tractor not under load	Wheel Slip in %	Wheel Revolutions (Tractor not under load)	Wheel Slip in %
10	0	8	20
9-1/2	5	7-1/2	25
9	10	7	30
8-1/2	15		

Best working conditions are obtained with 10 to 15 % slip. If slip is more, weights must be added. If it is less, ballast should be removed.

When plowing, better results are obtained if more weight is added to the land wheel than to the furrow wheel.

Tire Size	Increase in weight per 1 tire with water ballast	Information for preparing anti-freeze solution up to -20°C (-40°F) Magnesium chloride required	Quantity of water required	Increase in weight with anti-freeze per tire
13.6-36	kg 205 lb 452	kg 87 lb 192	liters 149 U.S.gals. 39	kg 236 kg 520
13.6-38	kg 215 lb 474	kg 91 lb 201	liters 156 U.S.gals. 41	kg 247 lb 545
14.9-38	kg 265 lb 584	kg 113 lb 249	liters 193 U.S.gals. 51	kg 306 lb 675
15.5-38	kg 250 lb 551	kg 108 lb 238	liters 184 U.S.gals. 49	kg 292 lb 644
16.9-24	kg 230 lb 507	kg 98 lb 216	liters 167 U.S.gals. 44	kg 265 lb 584
16.9-30	kg 275 lb 606	kg 117 lb 258	liters 200 U.S.gals. 53	kg 317 lb 679
16.9-34	kg 308 lb 679	kg 131 lb 289	liters 224 U.S.gals. 59	kg 355 lb 783
18.4-30	kg 340 lb 750	kg 145 lb 320	liters 247 U.S.gals. 65	kg 392 lb 864
21.5L-16.1	kg 285 lb 628	kg 122 lb 269	liters 208 U.S.gals. 55	kg 330 lb 728
23.1-26	kg 485 lb 1069	kg 206 lb 454	liters 352 U.S.gals. 93	kg 558 lb 1230
Up to -30°C (-22°F) add 25 % Magnesium Chloride and reduce water by 10 %				

LIQUID BALLAST (FILLING TIRES WITH WATER AND ANTI-FREEZE)

A water and magnesium chloride solution is recommended by the tire companies. Plain water may be used when there is no danger of freezing.

The weight ballast listed in the chart opposite is based on a filling with liquid up to the tire valve in top center position.

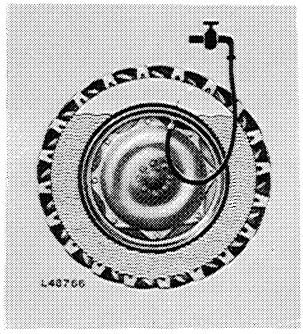
Weights shown refer to one tire.

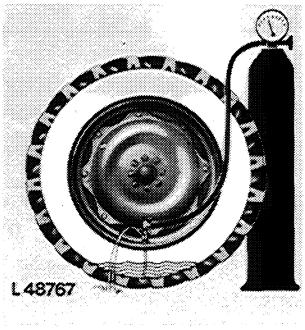
FILLING OF TIRES

To fill a tire, jack up the wheel and turn it to that the tire valve is in top position. Remove the valve insert and turn water valve on valve stem. While the water enters, air escapes through the lateral bore in the water valve. Stop filling tire when water drains from the vent hole of the valve. Filling a tire takes 15 to 30 minutes, depending on tire size. Then screw in air valve and pump tire to normal inflation pressure.

If low temperatures are expected, an anti-freeze solution should be used.

The anti-freeze solution may be sucked from an elevated tank. To speed up the filling operation, a pump may be used (flush pump with clear water afterwards). The quantities of water and magnesium chloride required are given in the chart opposite. Put magnesium chloride into the water - not vice versa. Do not fill this anti-freeze solution into the radiator.





DRAINING OF TIRES

Jack up wheel. Remove the air valve and let the water run out.

In order to clear the remainder of the water from the tire, insert the drain tube with the hose extension and pump air into the tire. The air pressure will push the remainder of the water out of the tire.

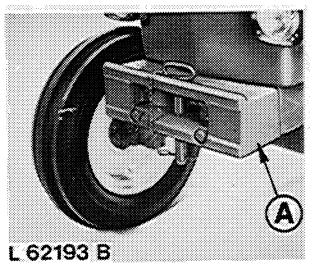
FRONT-END WEIGHTS

Use front weights to improve steerability when using a heavy rear mounted implement or pulling a heavy load.

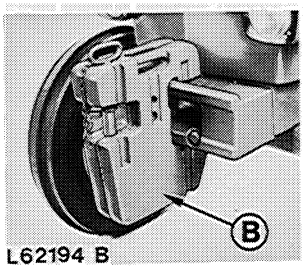
One basic weight and up to eight front weights may be added.

IMPORTANT! Tighten basic weight to carrier attaching cap screws to 400 Nm (300 ft-lb) torque.

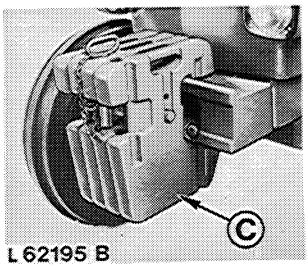
A – Basic weight 80 kg (176 lb) increases front axle load by 94 kg (207 lb).



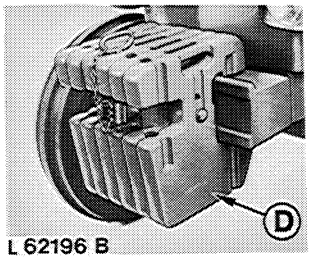
B – Basic weight plus 2 additional weights 164 kg (362 lb) increases front axle load by 198 kg (436 lb).



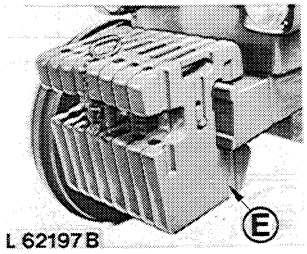
C – Basic weight plus 4 additional weights 248 kg (547 lb) increases front axle load by 302 kg (666 lb).



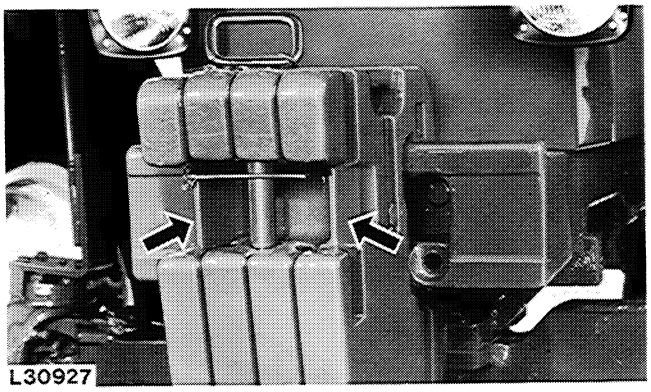
D – Basic weight plus 6 additional weights 332 kg (732 lb) increases front axle load by 406 kg (895 lb).



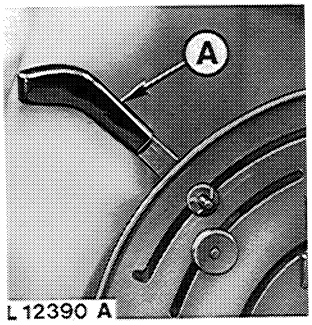
E – Basic weight plus 8 additional weights 416 kg (917 lb) increases front axle load by 510 kg (1124 lb).

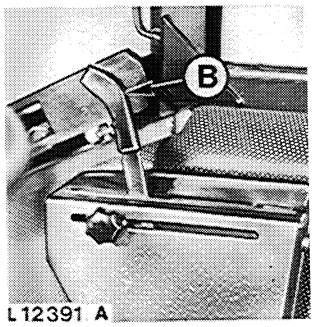


NOTE: When installing four or more weights they must be installed to form a jaw as shown opposite.



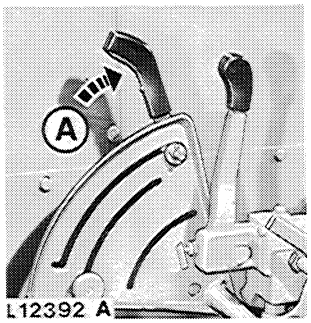
Rockshaft

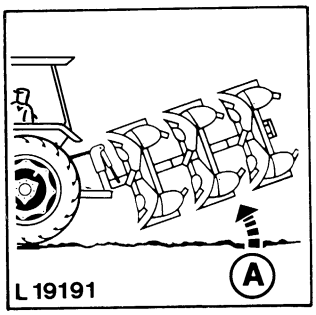




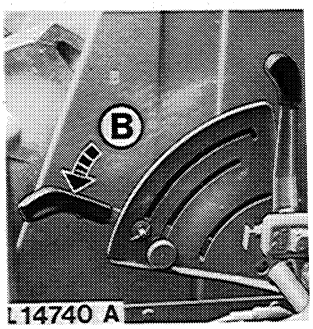
The rockshaft gives precision control of mounted implements.

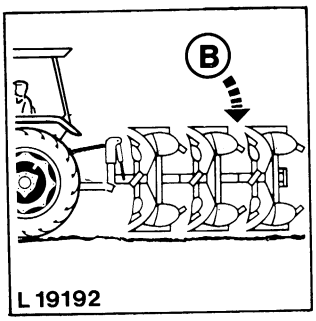
A – Rockshaft control lever (tractor without cab)
B – Rockshaft control lever (tractor with cab)



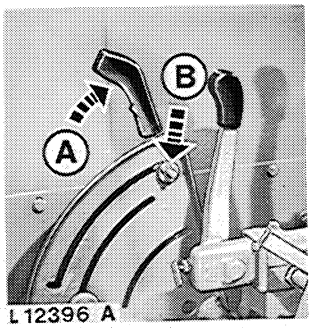


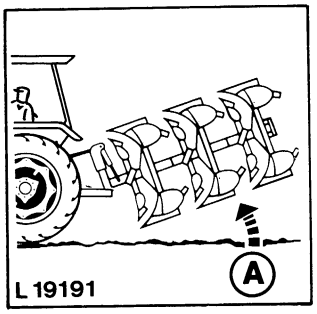
A – Raise implement





B – Lower implement



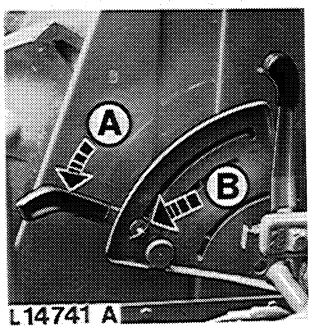


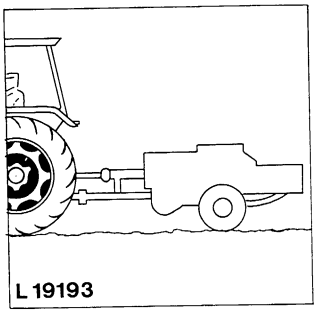
Transporting Mounted Implements (without Cab)

CAUTION! Be sure to secure implement attached to three-point hitch by means of control lever to avoid unintentional lowering or raising of implement.

A – With a fully mounted implement, raise implement fully.
B – Press guide pin down into recess.

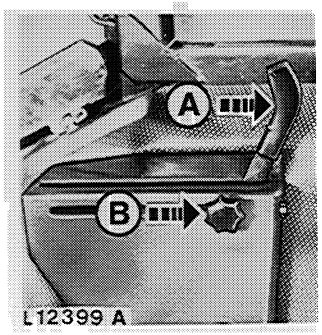
With towed equipment connected to 3-point hitch:

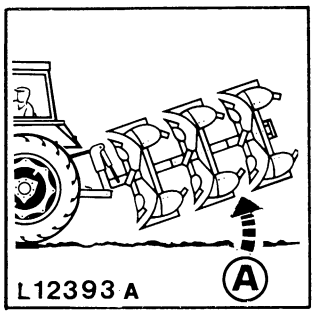




A – Control lever in "lower" position
B – Press guide pin upward into recess

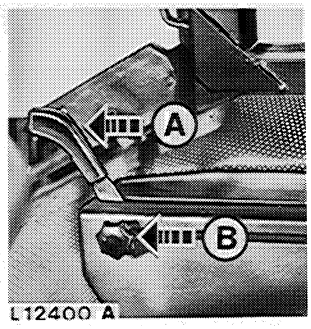
Transporting Mounted Implements (with Cab)

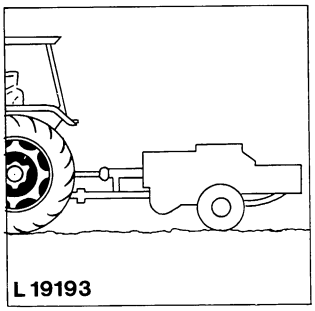




A — With a fully mounted implement, raise implement fully.
B — Slide adjustable stop against control lever and secure.

With towed equipment connected to 3-point hitch:

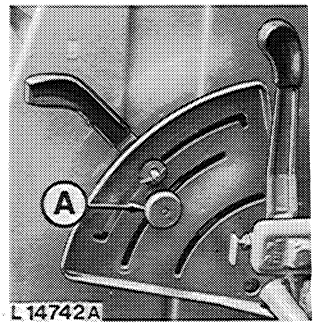


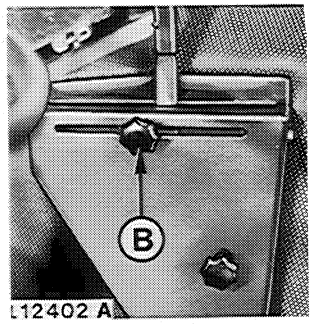


A — Control lever in "lower" position.
B — Slide adjustable stop against control lever and secure.

Adjusting Working Depth

Move rockshaft control lever so as to obtain required working depth. Set adjustable depth stop against control lever and tighten. Then each time the control lever is pushed forward to the stop, the implement will return to the exact depth chosen.



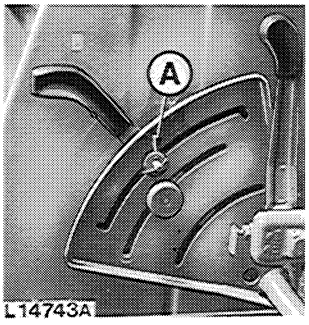


A — Adjustable depth stop (tractor without cab)
B — Adjustable depth stop (tractor with cab)

Adjusting Rockshaft Control Lever

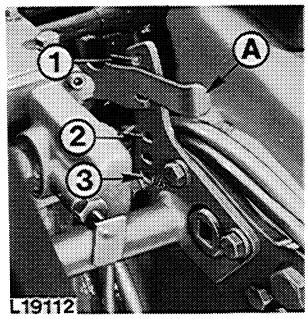
During operation, the rockshaft control lever must stay in the chosen position. If this is not the case, add a shim to the guide pin (on tractors without operator's cab).

On tractors with operator's cab, the rockshaft control lever can be adjusted by means of clamping screw.

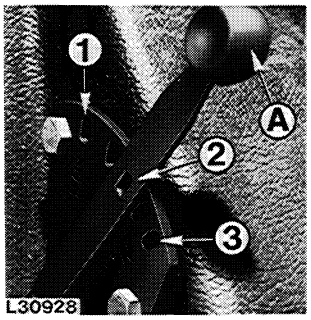




A — Guide pin
B — Clamping screw



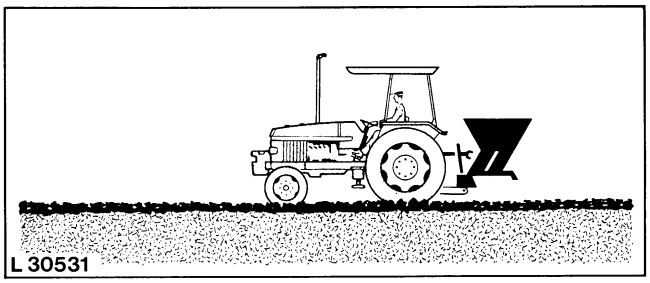
Without cab



With cab

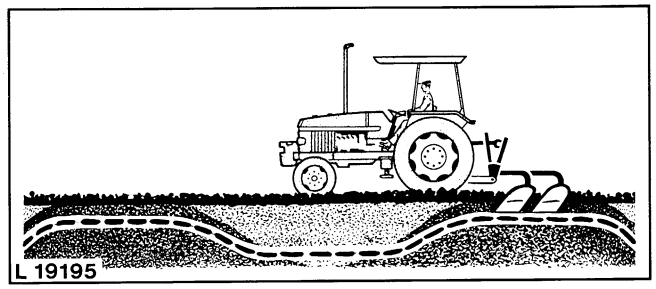
ROCKSHAFT SELECTOR LEVER

A – Selector lever
1 – "MIN" = Depth control
2 – Center position = Load-and-depth control
3 – "MAX" = Load control



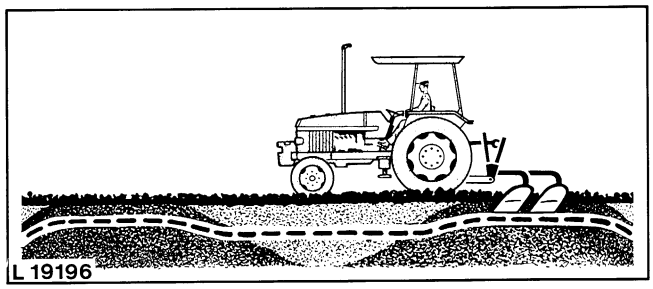
"MIN" – Depth Control

In "Depth" control, the implement attached to the 3-point hitch will work at the depth selected by the rockshaft control lever regardless of the amount of pull required.



"MAX" – Load Control

In "Load" control, the rockshaft automatically raises the implements when the load, due to soil density or ground contour, increases, and lowers it, when the load decreases to maintain a constant load.



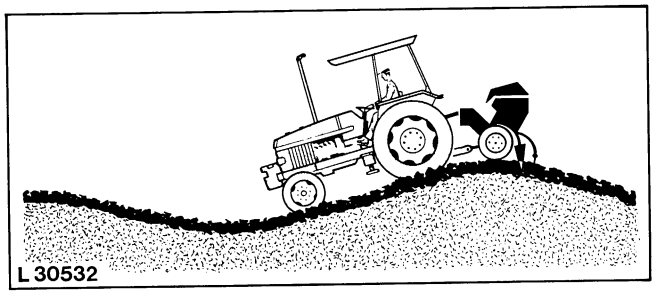
Center Position – Load-and-Depth Control

In "Load-and-Depth" control, the effect of both load control and depth control will be halved. With varying soils, the load and depth control affects the load control only slightly, i.e. it boosts traction with only a slight change in working depth, and with light soil, the load control prevents the implement from moving down beyond its required depth.

Additional notches for the rockshaft slelector lever are provided on the quadrant. These extra notches are located between the notches for "depth control" and "load and depth control" and between "load and depth control" and "load control". They make it possible to control the implement's operation as the soil condition requires it: in one case more to "load", in another, more to "depth".

"Float" Position

In "Float" position (for rockshaft controlled implements with gauge wheel) the implement can move freely up and down and thus follow the ground contours independent of the tractor. To obtain a "floating" action, place rockshaft selector lever in depth control ("MIN") position and push rockshaft control lever all the way forward.

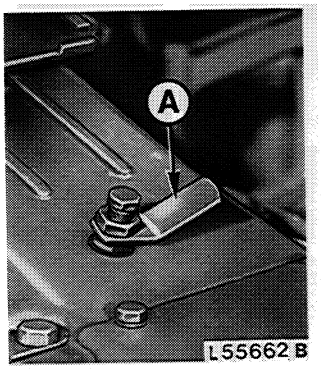

L30532

ADJUSTING RATE OF IMPLEMENT DROP

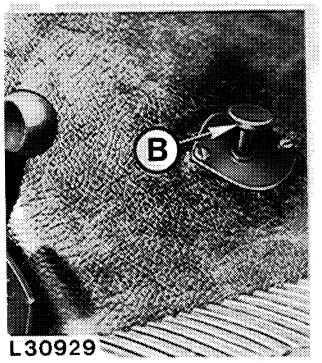
The rate at which the rockshaft and implement will drop is controlled — independent of the control lever — by adjusting the rate-of-drop lever or rate-of-drop screw.

The rate of drop should not be less than 2 seconds.

A — Rate-of-drop lever (tractors without cab)
B — Rate-of-drop screw (tractors with cab)



L55662B

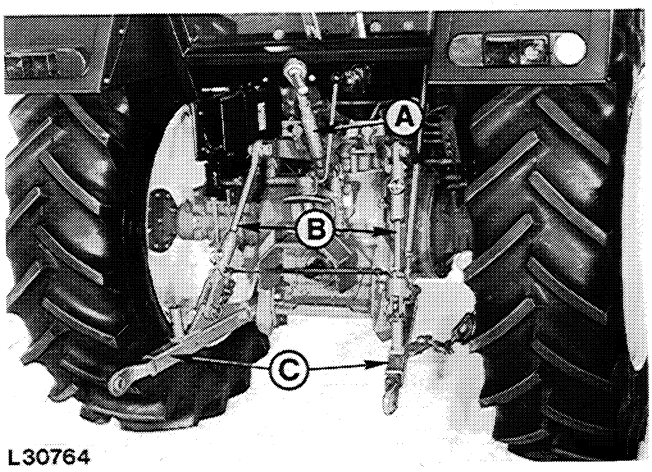


L30929

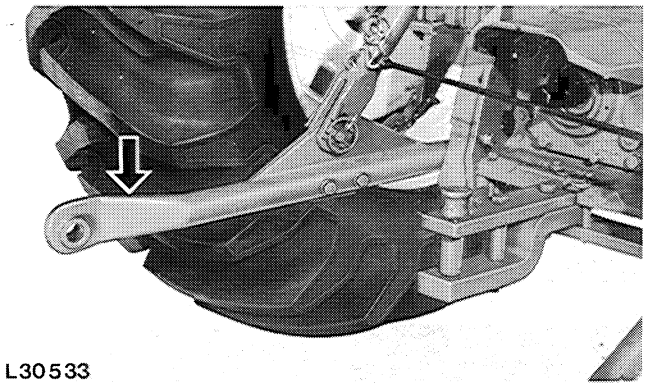
3-Point Hitch

Rear-mounted implements can be attached and controlled precisely by means of the three-point hitch.

A — Center link
B — Lift links
C — Draft links



L30764



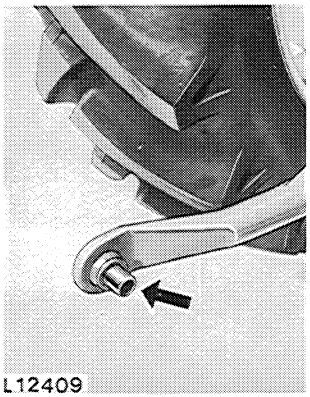
L30533

DRAFT LINKS

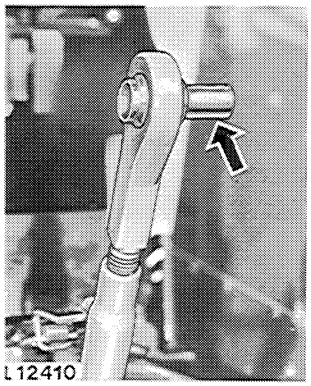
Tractors can be equipped with reversible draft links, telescopic draft links or quick-coupling (hook type) draft links.

Reversible Draft Links

Reversible draft links can be used for category I or II implements. Reverse the draft links if you wish to change from category I to II or vice versa.

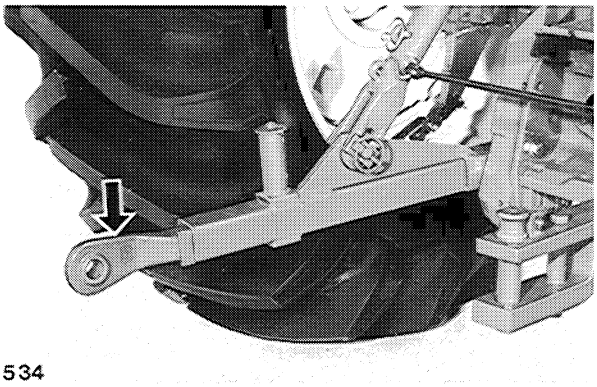


L12409



L12410

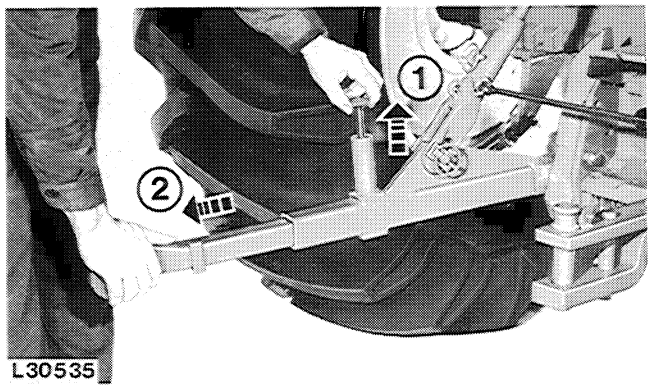
When installing category I implements, install adapter bushings in draft links and center link.



L30534

Telescopic Draft Links

Telescopic draft links can be used for category II implements only.



L30535

To facilitate hitching of implements, telescopic draft links can be extended to the rear.

1 – Lift lock pin
2 – Pull telescopic draft links to the rear

After attaching and securing implements to draft links, reverse tractor until the lock pins snap into place.

Quick-Coupling (Hook-Type) Draft Links

Using quick-coupling draft links, implements can be attached and removed from the draft links from the operator's seat.

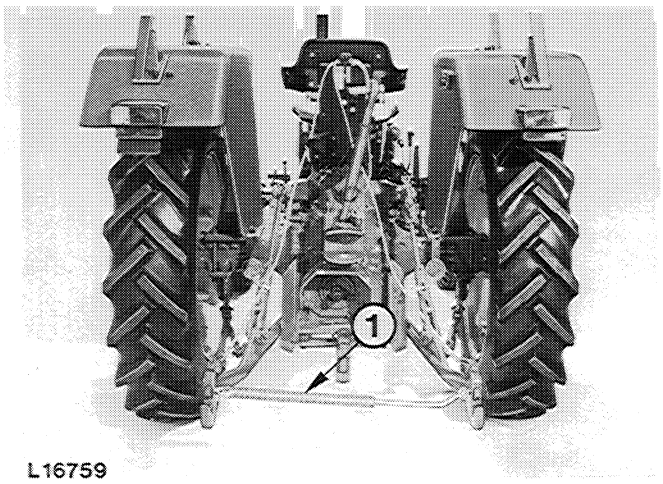
Attaching Implement

1 – Adjusting draft links to the dimension required for category II implements.

2 – With draft links lowered, reverse tractor until coupler hooks are below implement hitch pins.

3 – Slowly raise lift links until pins are engaged in coupler hooks and locked into position.

4 – Adjust center link to the required length and attach to top attaching point of implement mast.



L16759

IMPORTANT! Make sure that implement is correctly locked to coupler hooks.

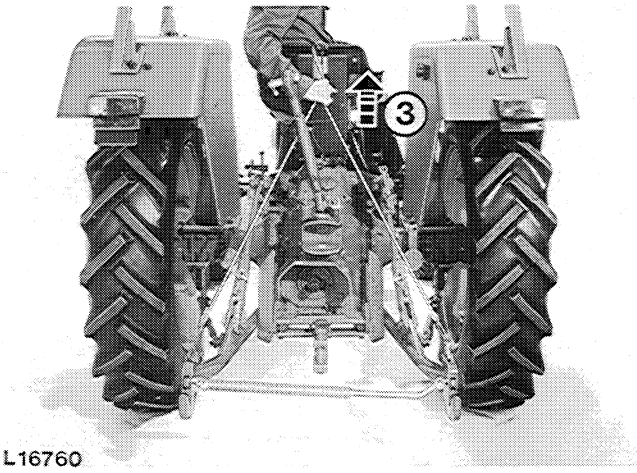
Removing Implement

1 – Lower implement to the ground.

2 – Disconnect center link from implement and secure by means of transport hook.

3 – Pull release cable and lower draft links until coupler hooks are clear of implement hitch pins.

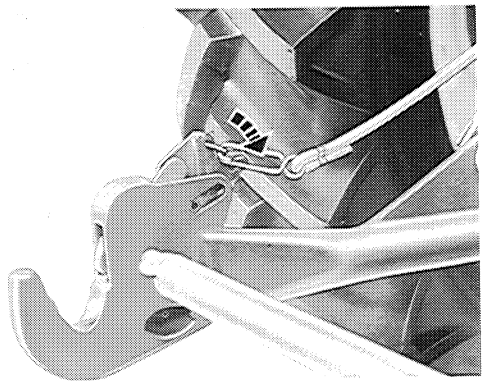
4 – Drive tractor forward away from implement.



L16760

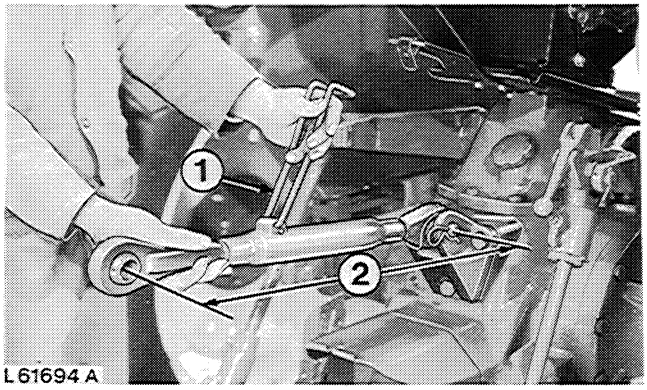
The draft link coupler hooks can also be locked in the open position when removing an implement.

To lock press grip fully to the rear.


L16761

LEVELING IMPLEMENT

To level implement from side-to-side, adjust the right-hand lift link. Adjust the center link to level fore-and-aft.



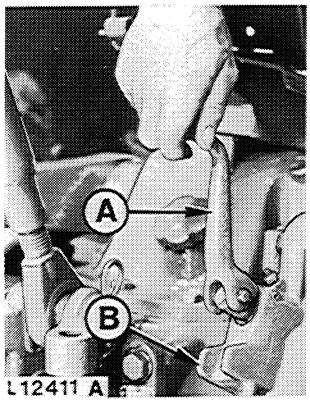
CENTER LINK ADJUSTMENT

Length of center link can be adjusted by means of the adjusting handle.

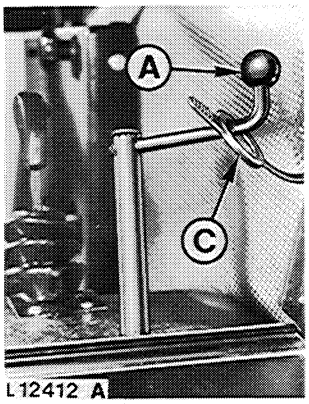
A – Raise adjusting handle and turn to obtain the required length
B – Minimum length 540 mm (21-1/4 in.)
Maximum length 780 mm (30-23/32 in.)

Length of center link must be kept within the limits as shown.

After adjusting, push handle down again over center link. Insert attaching pin through implement mast and center link and secure.



Without cab



With cab

LIFT LINK ADJUSTMENT

A greater transport clearance is obtained by shortening the links. Extra working depth is obtained by lengthening the links.

A – Adjusting handle
B – Handle lock (without cab)
C – Handle lock (with cab)

After adjustment is completed, lock handle.

To level implement from side to side, only the right-hand link need be adjusted.

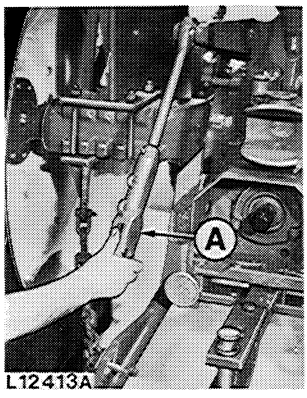
To adjust left-hand link, remove it from draft link and screw yoke end of lift link in or out.

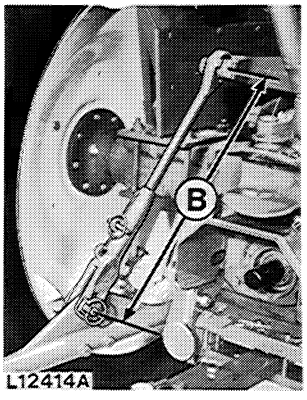
A – Yoke

Length of links must be kept within the following limits:

B – Minimum length: 566 mm (22-9/32 in.)
Maximum length: 648 mm (26-15/16 in.)

NOTE: The lift link dimensions quoted above are with float locked out (no lateral float).



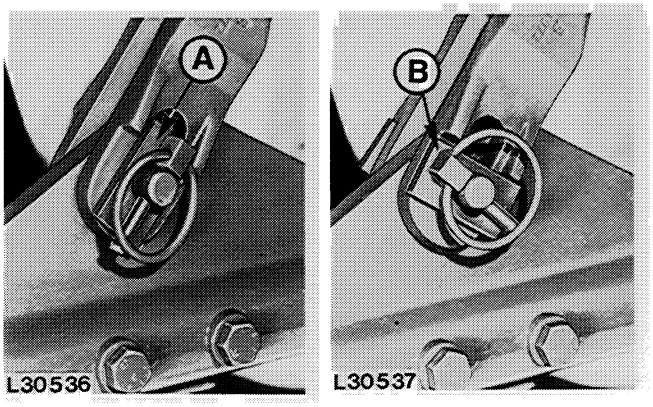


ADJUSTING FOR LATERAL FLOAT

Depending on the position of the steel plate, draft links can be adjusted to allow for lateral float or to lock out float.

Lateral float is necessary in draft links so that implements, such as those equipped with gauge wheels can follow ground contours.

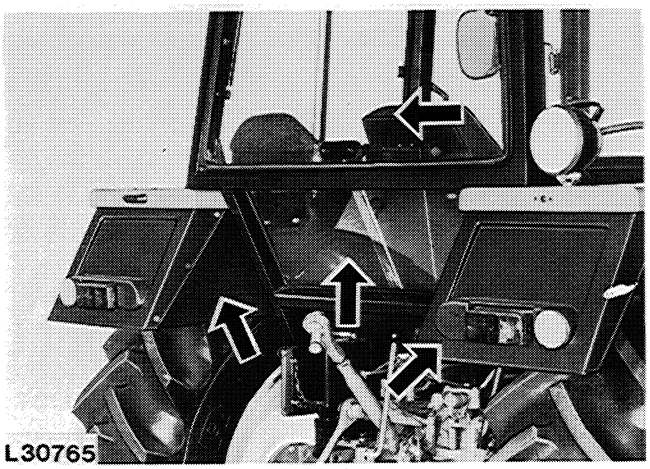
A – Steel plate in position for lateral float
B – Steel plate in position for no lateral float



ATTACHING 3-POINT HITCH AND DRAWN IMPLEMENTS (Tractor with Cab)

Be sure not to damage exposed parts of cab (see arrows) when attaching 3-point hitch mounted or drawn implements.

IMPORTANT! When attaching 3-point hitch mounted or drawn implements for the first time, make a trial to be sure the cab will not be damaged in any position of the implement. With hitch-mounted implements pay attention to the highest lift position, with drawn implements be careful when driving sharp turns.

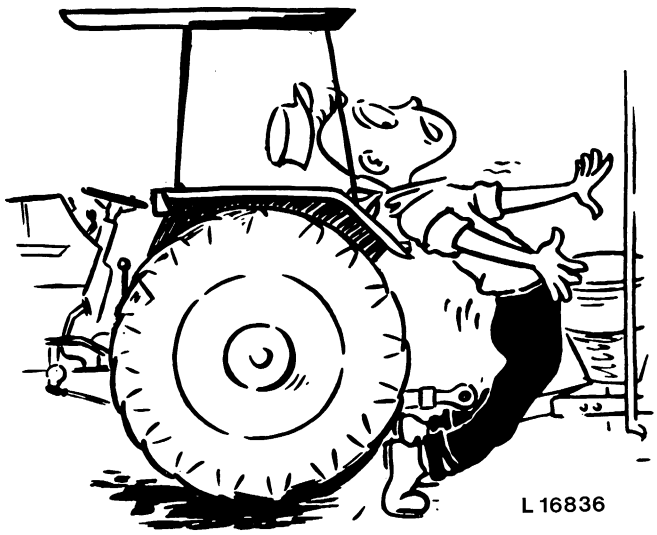


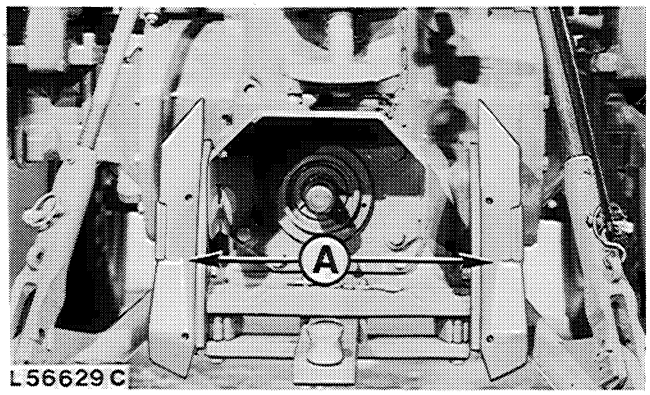
ATTACHING IMPLEMENTS

CAUTION! Do not stand between tractor and implement unless range shift lever is in park (P) position or handbrake is applied.

If a swinging drawbar is installed, set it in the front, short position. It can also be swung to the left or right and secured.

When attaching an implement, be sure rockshaft selector lever is set in depth control (Min) position.



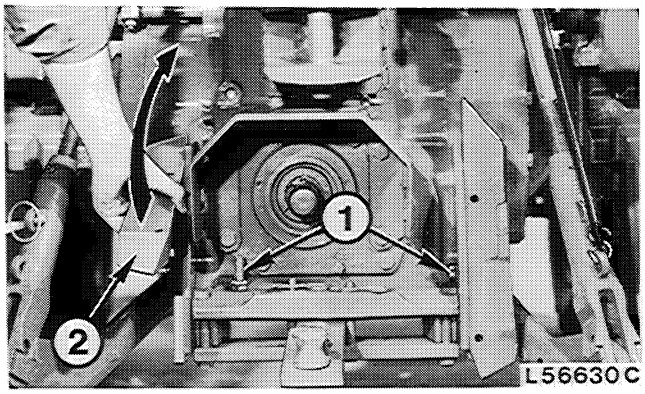


POSITIONING SWAY BLOCKS

The sway blocks are used to limit sideways motion of draft links during operation and transport.

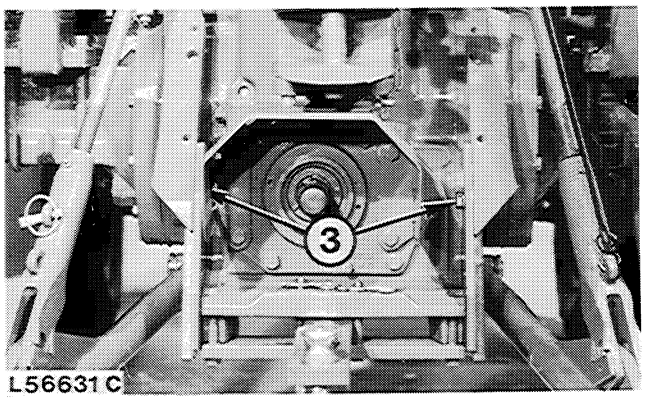
Attach sway blocks in lower position when connecting or attaching implements (planters, row crop cultivators etc.) which are to follow exactly the tracks of the tractor. In this position the sway blocks lock out draft link sway during transport and operation.

A — Sway blocks



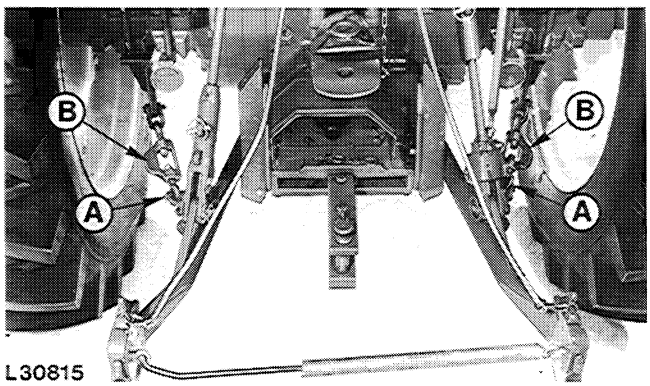
Move sway blocks into upper position if more sideways motion is desired for the attached implement (plow, disk harrow) during operation.

1 — Remove cap screws
2 — Lift sway block slightly from dowel pin, rotate upward and reinsert in dowel pin.



3 — Insert cap screws in top bores and secure sway blocks to support.

With sway blocks in this position, the draft links will sway in operating position. However, sway is locked out in transport position.



STABILIZER CHAINS

These chains, which are available for both reversible and telescopic draft links, can be adjusted to prevent lateral play of draft links, chain adjustment can be carried out without using any tools.

A — Stabilizer chains
B — Tensioners

Selective Control Valves (Spool Type)

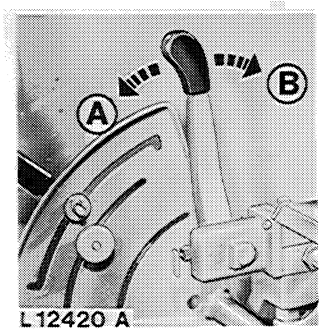
Single or dual selective control valves may be installed as required.

CONTROL LEVER

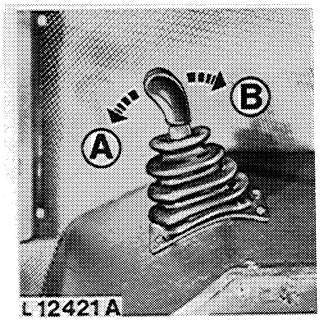
The less movement on the control lever, the slower the raise or lower movement. Hold control lever until required position has been reached, then return it to neutral.

If control lever is moved fully forward or backward so that it is locked in position, move it back to neutral when operation is completed.

A — Lower implement
B — Raise implement



Without cab



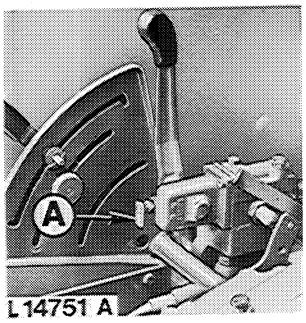
With cab

TRANSPORT LOCK FOR CONTROL LEVER

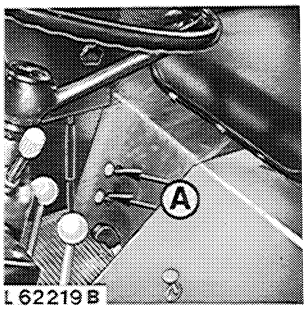
⚠ CAUTION! When traveling on public roads with implement raised, the control lever must be locked in neutral position to prevent accidental lowering of implement.

Turn transport locking screw into control valve until resistance is felt and control lever is locked. To release transport locking screw, turn counterclockwise 2-1/2 to 3 turns.

A — Transport locking screw



Without cab



With cab

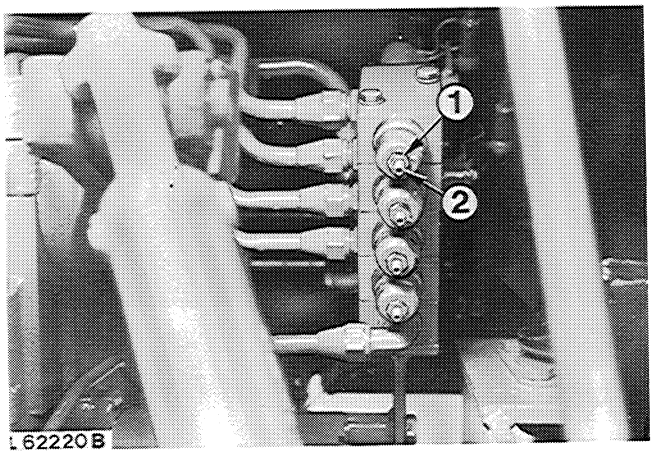
ADJUSTING RATE OF CYLINDER OPERATION

On single selective control valves the implement drop can be adjusted, on dual selective control valves both rate of drop and rate of lift can be adjusted.

1 — Loosen lock nut
2 — Turn adjusting screw counterclockwise to increase and clockwise to slow down speed

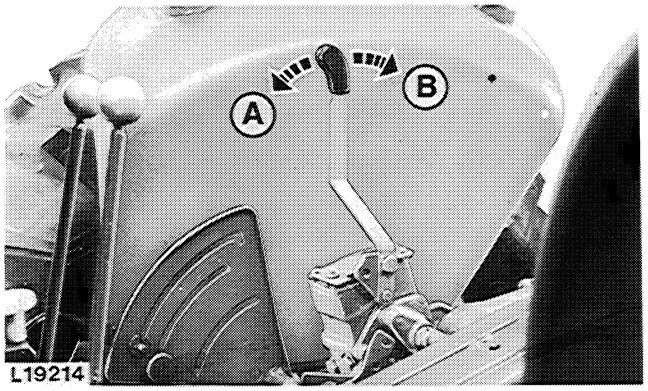
Tighten lock nut as soon as adjustment has been completed.

IMPORTANT! Full extension or retraction of a 63.5 mm dia. x 203 mm (2.5 in. x 8 in.) remote cylinder should require at least 1-1/2 to 2 seconds. Faster speeds may cause damage.



Selective Control Valves (Poppet Valve Type)

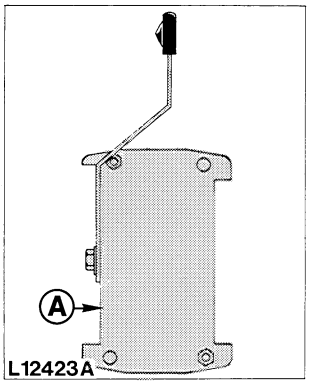
The tractor may be equipped with one or two dual selective control valves.

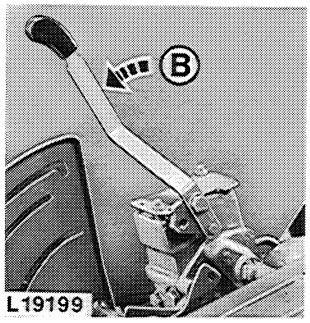


CONTROL LEVER

The less movement on the control lever, the slower the raise or lower movement. Hold control lever until required position has been reached, then let it go. Control lever will return automatically to the neutral position.

A – Lower implement
B – Raise implement





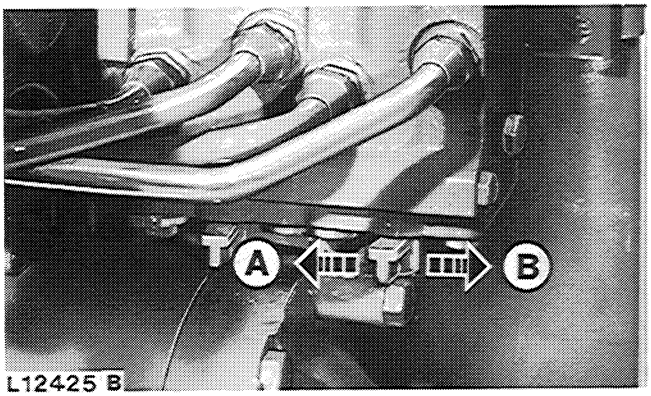
Float Position

To obtain float position, reposition lever stop plate so that large recess faces control lever.

A – Lever stop plate

Move control lever of first selective control valve forward to float position. The lever will lock in forward position until moved to a new position.

B – Control lever



RATE OF CYLINDER OPERATION

IMPORTANT! Full extension or retraction of a 63.5 mm dia. x 203 mm (2.5 in. x 8 in.) remote cylinder should require at least 1-1/2 to 2 seconds. Faster speeds may cause damage.

A – Slow extend
B – Fast extend

HYDRAULIC HOSE COUPLERS

The tractor may be equipped with disconnect or breakaway couplers.

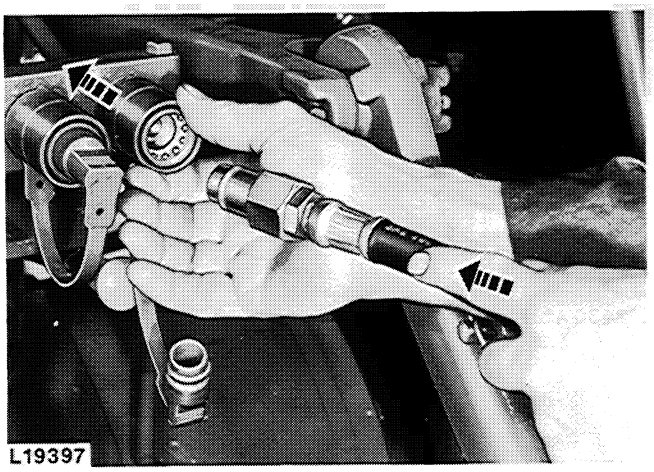
DISCONNECT COUPLERS

JD or ISO disconnect couplers are available. JD disconnect couplers are equipped with conical, ISO disconnect couplers with cylindrical coupler rings.

Connecting Hydraulic Hoses

Shut off the engine before connecting hoses to disconnect couplers, lower any mounted implement and move control lever forward and backward. This will relieve the disconnect couplers.

1 – Slide coupler ring forward, remove dust cap and check connections for cleanliness.
2 – Press hose connector into disconnect coupler and release coupler ring.

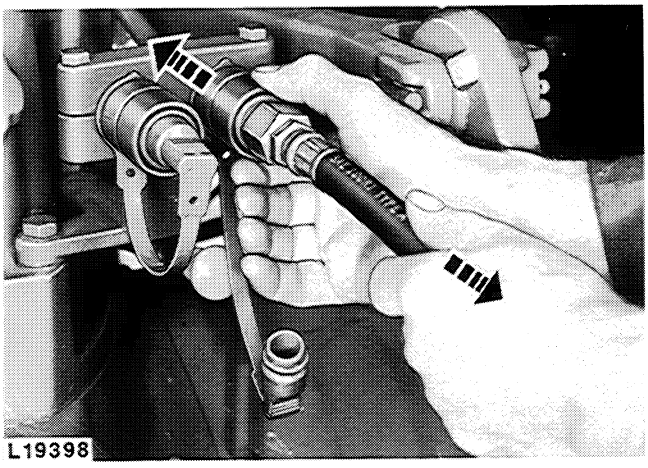

L19397

NOTE: When the remote cylinder control lever is pushed to the rear, the implement will normally rise if the hoses are properly attached.

Removing Hoses from Disconnect Couplers

Relieve the pressure on the coupler by stopping the engine, lowering implement, and moving the remote cylinder control lever back and forth.

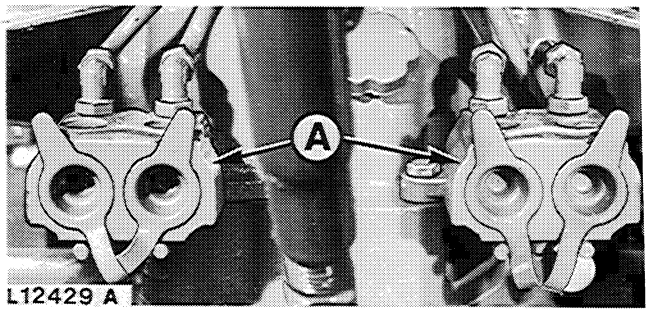
1 – Slide coupler ring forward.
2 – Pull hose from coupler.


L19398

After the remote cylinder hoses are removed, insert the dust plugs in the receotacles and on the hose ends.

CAUTION! The hydraulic system has a stand-by pressure of 19000 kPa (190 bar; 2760 psi)*. For your own protection and to assure proper functioning of the system, use only genuine JOHN DEERE parts.

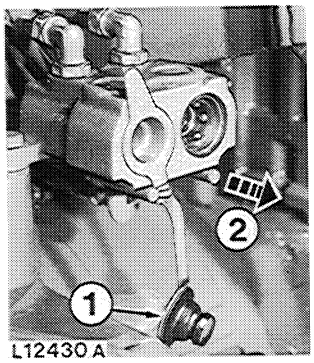
*** CANADA ONLY: 15 500 kPa (155 bar; 2250 psi)**

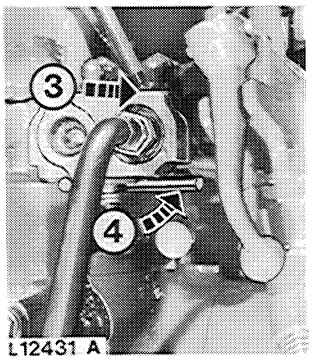


BREAKAWAY COUPLERS

Breakaway couplers are used to couple or uncouple remote cylinder hoses under pressure without loss of oil, regardless of whether or not the tractor engine is running. They also safeguard the hoses by permitting them to be pulled loose from the tractor without damage if a drawn implement should become disconnected from the tractor.

A — Breakaway couplers





Connecting Hydraulic Hoses

1 — Remove dust plug and make sure that hose end and coupler receptacle are free from dirt.
2 — Move coupler operating lever to the rear.
3 — Press hose connector into breakaway coupler.
4 — Move coupler operating lever outward.

In this position valve is opened and permits oil to flow.

NOTE: When the remote cylinder control lever is pushed to the rear, the implement will normally rise if the hoses are connected correctly.

Removing Hydraulic Hoses

Pull hose out of receptacle. The coupler operating lever will now move in direction of travel, shutting off the oil flow.

After the remote cylinder hoses are removed, insert the dust plugs in the receptacles and on the hose ends.

CAUTION! The hydraulic system has a stand-by pressure of 19000 kPa (190 bar; 2760 psi)*. For your own protection and to assure proper functioning of the system, use only genuine JOHN DEERE parts.

*** CANADA ONLY: 15 500 kPa (155 bar; 2250 psi)**

MAXIMUM PERMISSIBLE OIL WITHDRAWAL

For operating large hydraulic cylinders such as used on tipping trailers, the following oil quantity may be drawn from the transmission case through the connecting lines:

Without Hi-Lo shift unit:	14 liters (3.7 U.S. gal.)
With Hi-Lo shift unit:	12 liters (3.2 U.S. gal.)

If required, 4 liters (1.1 U.S.gals.) of oil may be added to the transmission case. This additional quantity may also be used for this purpose.

The specified quantity of oil may be drawn from the transmission case for a short period only. In that case, however, the tractor should not be inclined in any direction by more than 10°. If the tractor inclination is more than 10°, only a correspondingly lower quantity of oil may be drawn.

For re-filling, use only JOHN DEERE Hy-GARD Transmission and Hydraulic Oil or its equivalent.

Implements with Hydraulic Motor

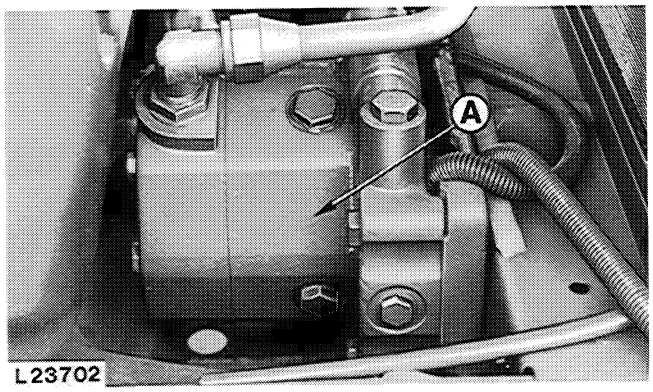
Maximum oil flow of transmission/hydraulic oil is depsndent upon the type of hydraulic pump installed on the tractor.

4 – piston hydraulic pump –	22 liters/min. (5.8 U.S. gals/min.)
8 – piston hydraulic pump –	31 liters/min. (8.2 U.S.gals./min.)

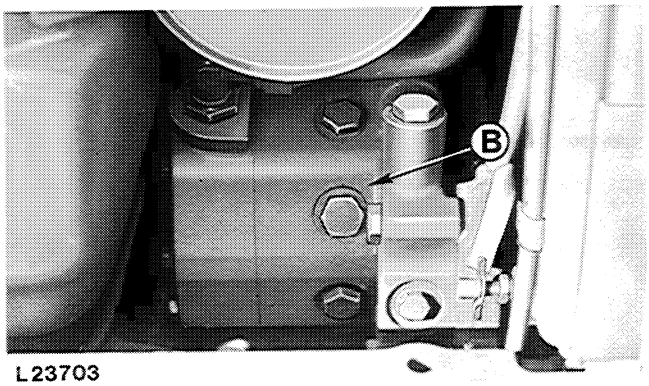
NOTE: Maximum oil withdrawal is 45 liters/min. (11.9 U.S. gals./min.) on tractors equipped with 8-piston hydraulic pump and return flow connection to transmission/hydraulic oil filter.

A – 4-piston hydraulic pump

B – 8-piston hydraulic pump

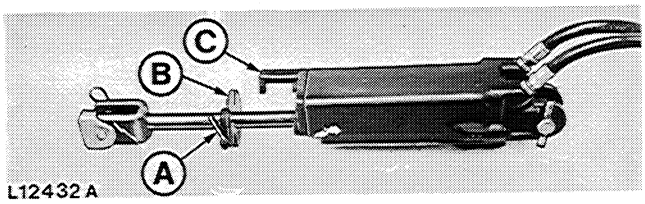


L23702

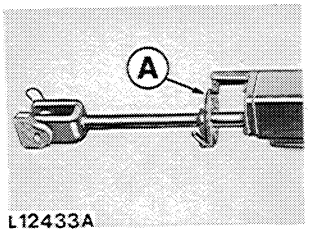


L23703

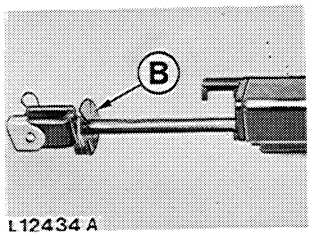
Double-Acting Remote Hydraulic Cylinders



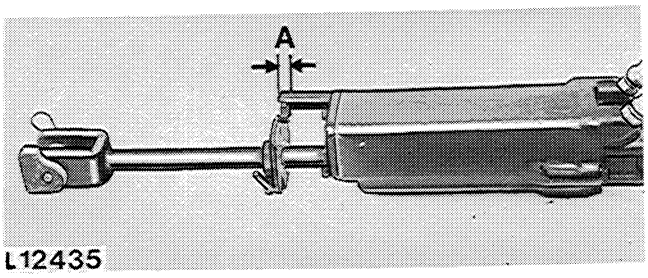
L12432 A



L12433A



L12434 A



L12435

REMOTE HYDRAULIC CYLINDER

A – Stop lever
B – Adjustable stop
C – Stop rod arm

The total retract stroke may be varied from 0 to 203 mm (0 to 8 in.) by means of the adjustable stop.

A – Retract stroke 0 mm (0 in.)
B – Retract stroke 203 mm (8 in.)

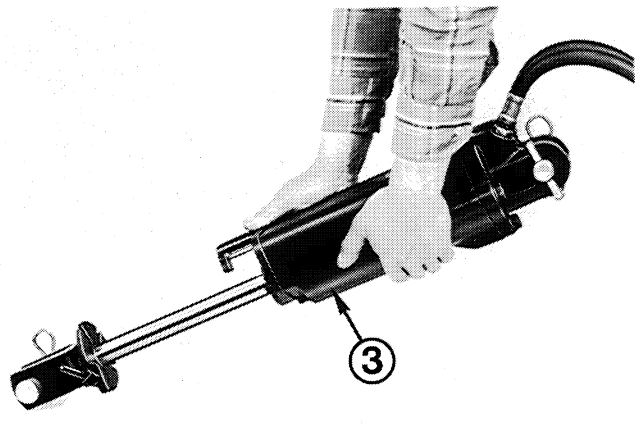
NOTE: Turn adjustable stop so that stop rod arm does not contact stop lever.

After the adjustable stop contacts the stop rod arm, a further 38 mm (1.5 in.) of slow travel is gained if remote cylinder control lever is held in retract position.

A – 38 mm (1.5 in.)

Connecting Hoses to Couplers

Insert hose on stop rod arm side into left-hand coupler (facing direction of travel).



L30750

Bleeding Remote Hydraulic Cylinder

1 – Connect remote hydraulic cylinder to couplers.
2 – Start engine.
3 – Lift remote cylinder upward at an angle (piston downward).
4 – In this position move remote cylinder control lever back and forth seven or eigth times to bleed the system.

When bleeding the remote cylinder, also check for leaks.

IMPORTANT! If the implement has a locking device to hold it raised during transport, be sure to disengage the lock before operating cylinder. See your implement operator's manual.

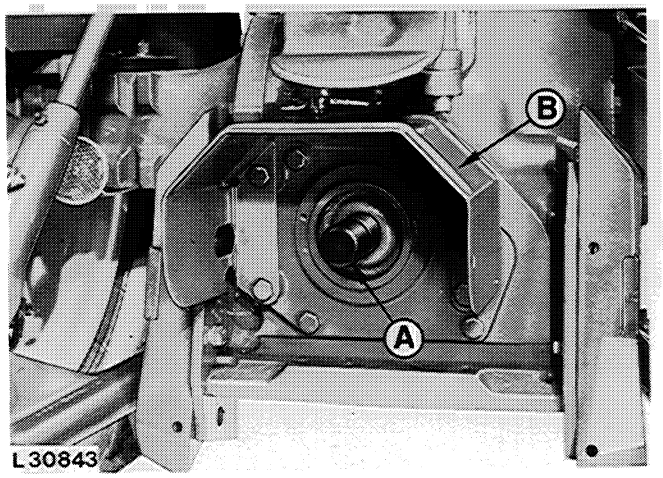
Power Take-Off

PTO GUARD

CAUTION! Remove PTO guard only when the PTO is to be used. As soon as PTO-driven implement has been removed, reinstall guard over PTO stub shaft.

Master shield may have to be removed when attaching certain implements to the PTO. Reinstall shield as soon as the implement is attached.

CAUTION! Do not engage PTO until the master shield has been installed.



A — PTO guard
B — Master shield

PTO OPTIONS

The tractor may be equipped with continuous-running PTO, independent PTO or with handshift independent PTO.

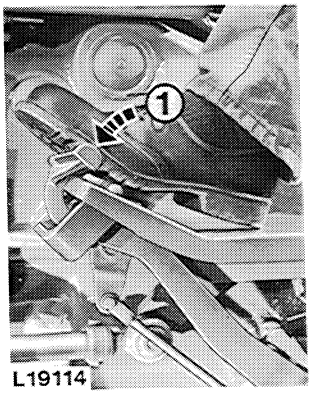
PTO speed is obtained with an engine speed of 2400 rpm.

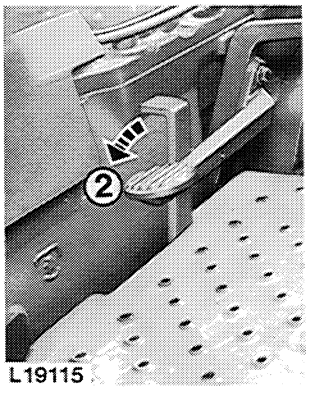
OPERATION OF PTO (Continuous Running PTO)

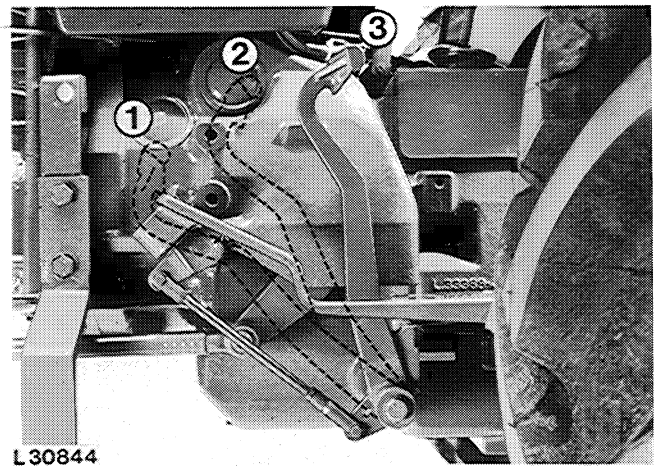
1 — Depress clutch pedal completely (momentarily waiting for tractor motion to stop).
2 — Move the PTO control lever completely forward and slowly re-engage the clutch pedal.

To disengage the PTO, completely depress the clutch pedal and move the PTO control lever to the rear.

CAUTION! High-inertia implements do not become stationary immediately when PTO control lever is moved to disengaged position. Allow sufficient time for implement to "coast down" to a halt after having disengaged the PTO.





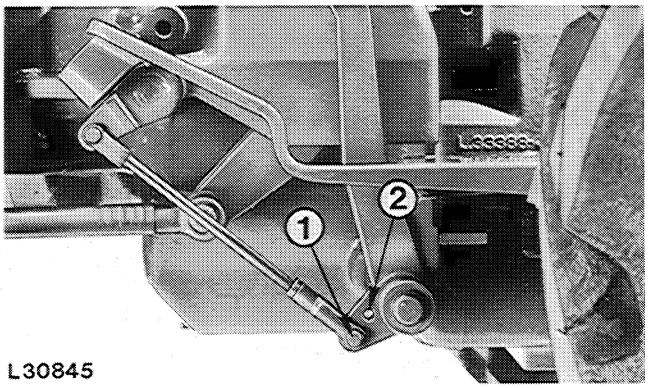


L30844

POSITIONING CLUTCH PEDAL FOR PTO OPERATION (Continuous Running)

Depressing the clutch pedal to no. 2 position disengages the transmission and leaves the PTO shaft in operation. If PTO operation must be stopped as well, depress clutch pedal to no. 1 (PTO disengaged) position.

1 – PTO disengaged
2 – PTO operating; transmission disengaged
3 – Transmission engaged; PTO operating



L30845

Locking Out PTO Clutch

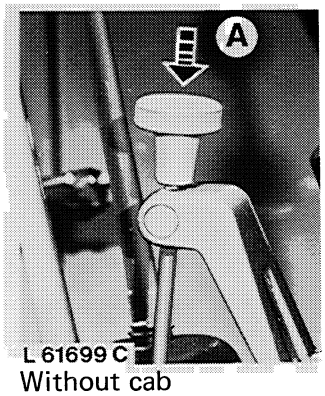
When there is no requirement for power take-off operation for long periods of time, the continuous running PTO clutch may be locked out to save wear on the clutch.

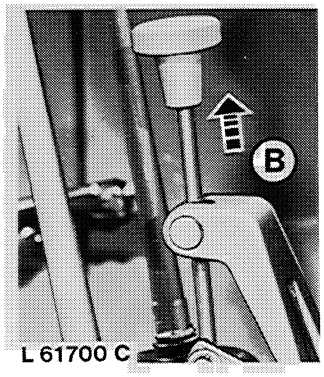
1 – Remove clutch rod from lower bore on pedal
2 – Connect clutch rod to upper bore

OPERATION OF PTO (Independent PTO)

PTO can be engaged and disengaged directly by means of hydraulic PTO control lever, without declutching and on the go.

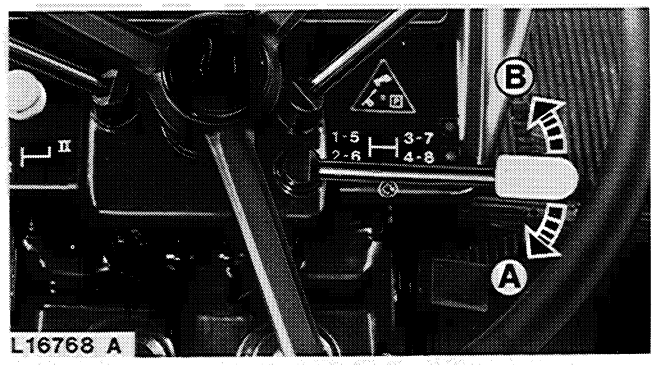
A – PTO disengaged
B – PTO engaged





Without cab

A – PTO disengaged
B – PTO engaged



With cab

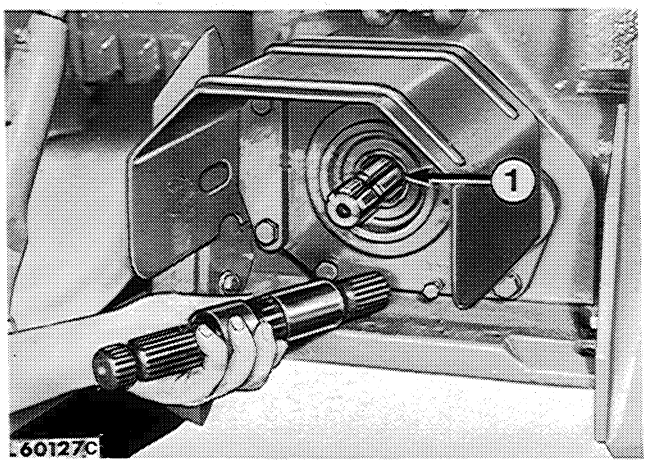
CAUTION! Always disengage PTO when not required.

CHANGING PTO SHAFTS (Independent PTO)

The replaceable PTO stub shafts differ in the numer of splines. The 540 rpm shaft has 6 splines; the 1000 rpm shaft has 21 splines.

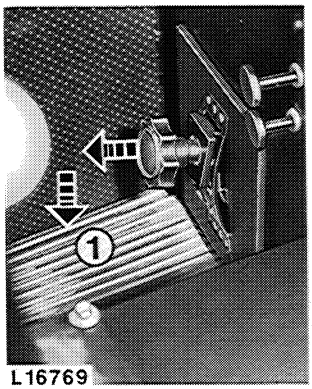
Clean stub thoroughly before installing.

1 – Remove snap ring

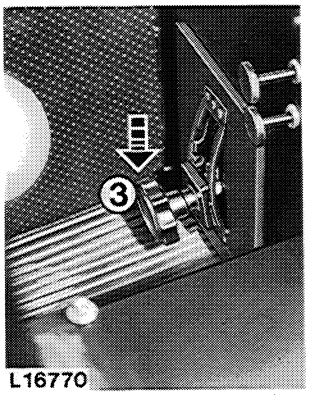


Interchange PTO stub shaft quickly so that little oil is lost. Secure installed stub shaft with snap ring.

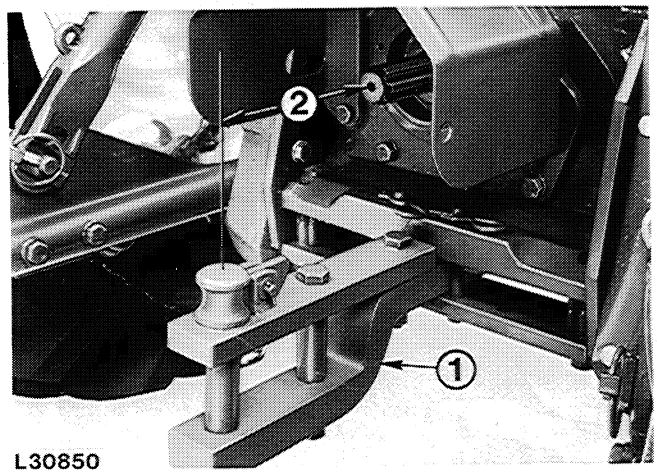
CAUTION! High-inertia implements do not become stationary immediately when PTO control lever is moved to disengaged position. Allow sufficient time for implement to "coast down" to a halt after having disengaged the PTO.



L16769



L16770



L30850

HANDSHIFT PTO SPEED CHANGE (Independent PTO)

The independent PTO with handshift speed change is engaged and disengaged as described on page 65.

With the handshift speed change the operator can change PTO speed from the operator's seat.

Changing from 1000 rpm to 540 rpm

1 – Pull out shifter knob and move to center position.
2 – Turn shifter knob 180° and
3 – Engage in 540 rpm position.

Changing from 540 rpm to 1000 rpm is carried out in a similar manner.

⚠ CAUTION! Before engaging the PTO make sure that selected PTO speed is correct for the implement attached. Otherwise incorrect speed can result in serious damage to the implement.

AVOID ACCIDENTS!

ATTACHING PTO DRIVEN EQUIPMENT

⚠ CAUTION! Shut off engine and disengage PTO before attaching PTO driven equipment.

1 – Align swinging drawbar with PTO shaft and lock in position
2 – Distance from end of PTO shaft to hole in drawbar end should be: PTO for 540 rpm = 355 mm (14 in.), PTO for 1000 rpm = 406 mm (16 in.)

If PTO splines do not align, engage and disengage PTO control lever several times to relieve hydraulic pressure so that the PTO shaft may be turned and aligned by hand.

⚠ CAUTION! High-inertia implements do not become stationary immediately when PTO control lever is moved to disengaged position. Allow sufficient time for implement to "coast down" to a halt after having disengaged the PTO.

⚠ CAUTION! Always make sure the tractor engine is stopped, equipment lowered to the ground, and PTO control lever is in disengaged position before attempting to clean out, adjust or lubricate a PTO driven machine, hitch or universal joint.

BELT PULLEY (Special Equipment)

A belt pulley is available for application with the 540 rpm PTO.

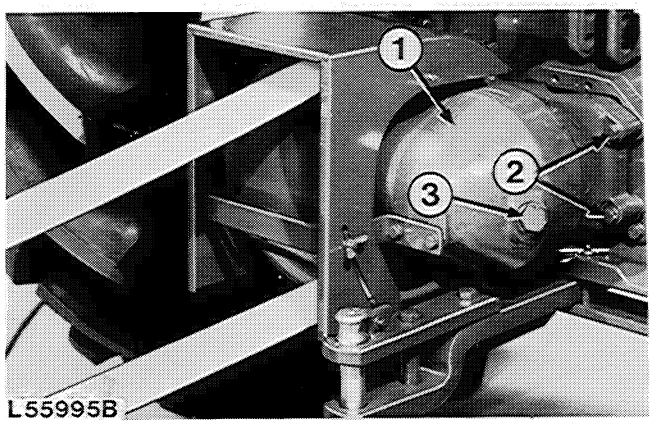
When the engine is at rated PTO speed (2400 rpm), the belt pulley rotates at 970 rpm.

Before installing belt pulley, remove the following parts:

1 – Left-hand draft link
2 – Left-hand lift link
3 – Left-hand sway block with support
4 – PTO guard and master shield

Installing Belt Pulley

1 – Slide belt pulley drive onto PTO shaft.
2 – Secure with four cap screws.
3 – Remove oil filler plug and fill housing with JOHN DEERE Hy-GARD Transmission and Hydraulic Oil or its equivalent. Capacity is 1 liter (0.3 U.S.gal.). Reinstall oil filler plug.



Reverse tractor a little. This will provide the necessary slack when installing the belt.

CAUTION! Never put on or take off a belt while the pulley is in motion. Never use a stick or metal bar to force a belt on or off a revolving pulley.

As soon as belt has been put on, drive tractor slowly forward until correct tension has been achieved. Then set range shift lever in park ("P") position or apply handbrake firmly.

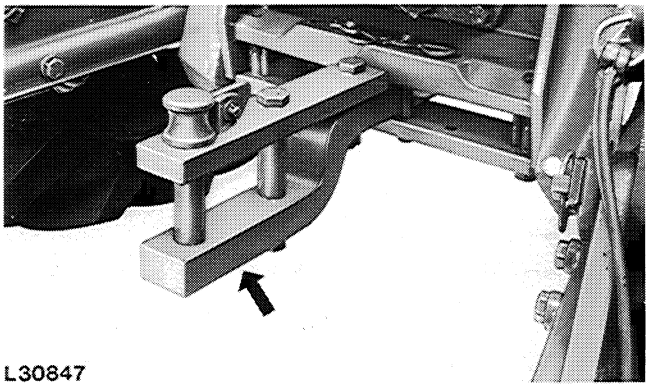
NOTE: Static electricity from belt pulley operation can be prevented by hanging a chain from the drawbar, allowing it to contact the ground.

Finding the Size of Driven Pulley

Use the opposite chart to find size of the driven pulley necessary for the required speed of the driven equipment. If possible, operate the tractor engine at 2400 rpm for maximum economy.

Desired Speed of Driven Pulley	Diameter of Driven Pulley to Use
480 rpm	610 mm (24 in.)
640 rpm	457 mm (18 in.)
820 rpm	356 mm (14 in.)
1150 rpm	254 mm (10 in.)
1440 rpm	203 mm (8 in.)
1770 rpm	165 mm (6-1/2 in.)
2100 rpm	140 mm (5-1/2 in.)
2560 rpm	114 mm (4-1/2 in.)
2880 rpm	102 mm (4 in.)

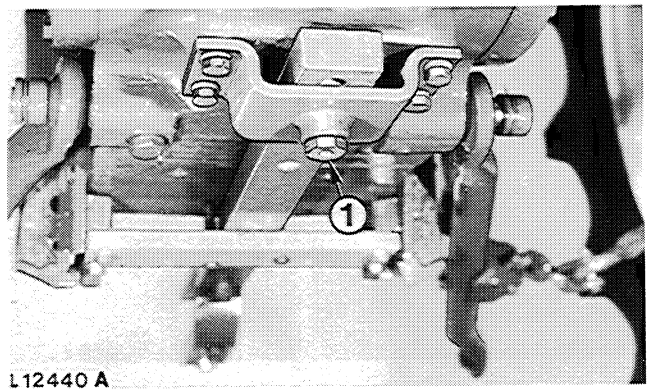
Hitches and Drawbars



L30847

SWINGING DRAWBAR

The swinging drawbar is used for pulling drawn equipment of all types. It facilitates attaching PTO-driven implements such as combines, low, medium and high-density balers in a favorable way. By using the swinging drawbar, the standard distances between drawbar hitch point and PTO connection can be best adhered to. Through the favorable position of the drawbar hitch point an increase of rear axle load is obtained with a minimum decrease of front axle load. The swinging drawbar can be adjusted lengthwise as well as swinging range.



L12440 A

Lengthwise Adjustment

The swinging drawbar can be adjusted to three positions.

This allows for selection of the most suitable hitch point position relative to the PTO shaft connection.

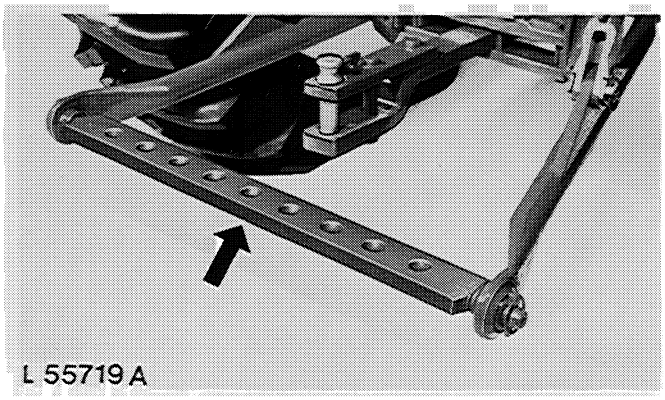
1 — Remove special plug

Remove locking pin from the bottom side and shift swinging drawbar to desired position. Reinstall locking pin and plug.

DRAWBAR FOR 3-POINT HITCH

Drawbars for implements of category I and II are available for your tractor.

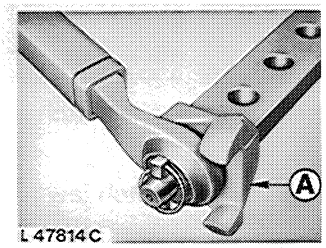
The drawbar shown opposite is approved only for drawing light implements.


L 55719 A

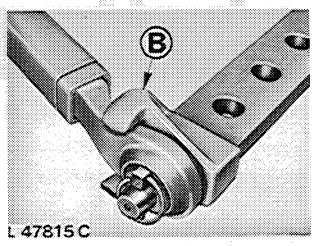
CLAMP TO PREVENT ROTATING OF DRAWBAR

By reserving the clamps, the drawbar can be attached to the draft links in a rotating or fixed position. The drawbar must be in a rotating position when used with hydraulically lifted implements and fixed, when pulling trailers.

A — Clamp installed for rotating drawbar
B — Clamp installed for fixed drawbar



L 47814 C

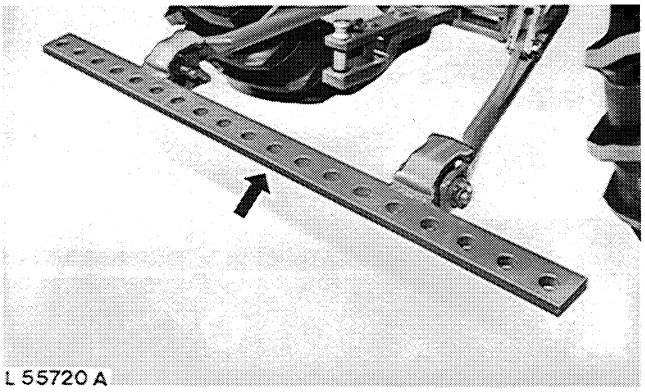


L 47815 C

EXTENDED DRAWBAR

The extended drawbar, locked against rotation, may be used for implements of category I and II.

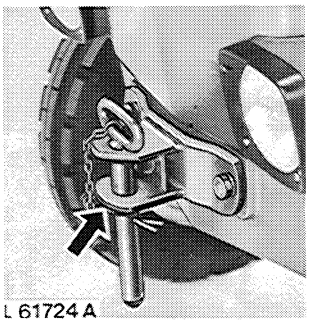
The drawbar shown is approved only for implements which cannot be lifted hydraulically.

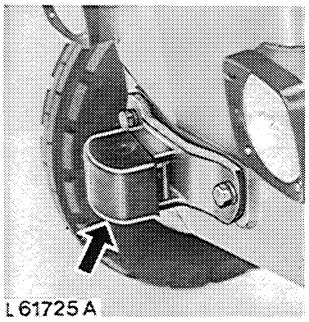

L 55720 A

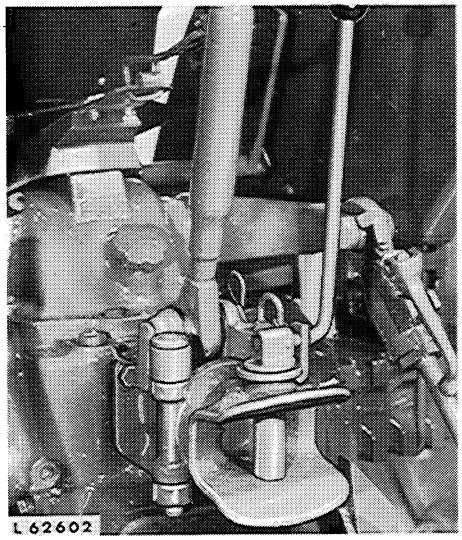
FRONT HITCH

The front hitch can be used for pushing purposes when driving forward, and for pulling in reverse.

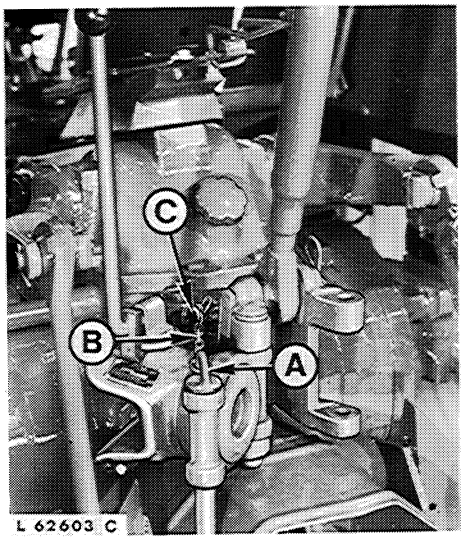
If the front weights have been removed and the front hitch is not used, remove the hitch pin and put into the tool box. For safety, push the hitch guard over the front hitch.


L 61724 A


L 61725 A



Trailer hitch in operating position

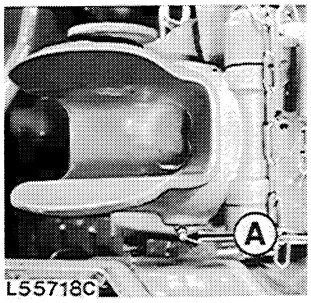


Trailer hitch swung back

SWINGING TRAILER HITCH

This trailer hitch can be swung back after removing the lock-in pin if the center link is required for use. To prevent the trailer hitch from swinging forward again, hook locking pin chain into locking hook.

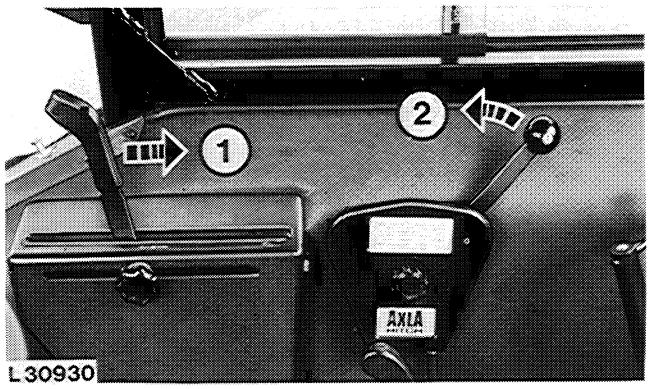
A – Locking pin shifted
B – Locking pin chain
C – Locking hook

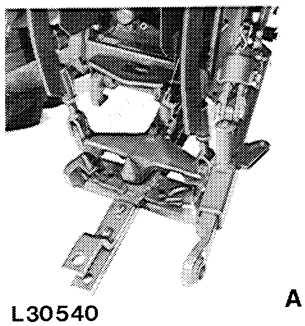


Lubricate hitch jaw periodically.

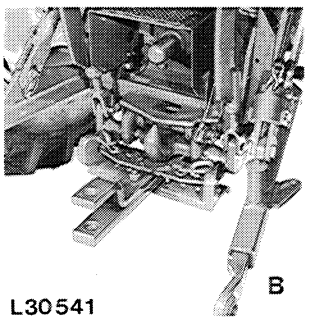
To make sure that hitch jaw bearing is thoroughly greased, turn hitch jaw 180° before greasing.

A – Grease nipple





A



B

HYDRAULIC TRAILER HITCH

This type of hitch can be operated by the rockshaft.

1 – Raise draft links to maximum height. This will relieve locking device.

2 – Press release lever to the rear.

3 – Lower draft links and therefore hitch to desired height.

4 – Reverse tractor and raise draft links so that hitch engages trailer towing eye.

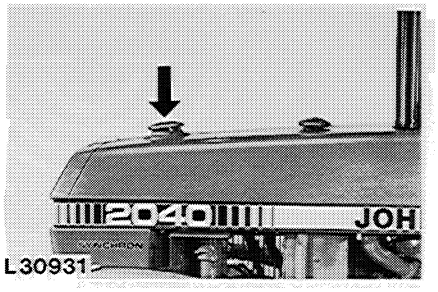
5 – Raise draft links until lock engages.

A – Lower hitch
B – Hitch in operating position.

Fuel and Lubricants

Fuel

The quality and cleanliness of fuel is an important factor in obtaining dependable performance and satisfactory engine life.
Fill the fuel tank at the end of each day's operation to prevent condensation and freezing during cold weather.
In winter use special winter fuel or add some anti-gelling compound to the fuel to maintain its proper viscosity.



L30931

⚠ CAUTION! Be careful when handling fuel. Never fill tank when engine is running. During filling of tank, smoking is strictly prohibited!

Engine Lubricating Oil

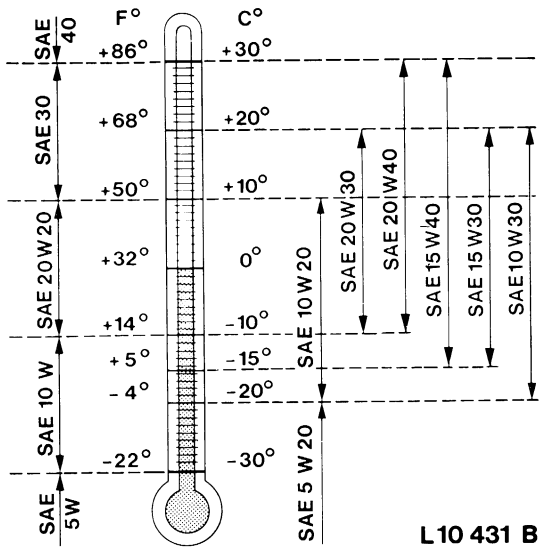
Choice of oils is first determined by the operating conditions (see chart below).

Oil Specifications

Operating Conditions	API Specification SAE J 183 a	MIL Specification
For light and medium operating conditions and when using fuel with less than 0.5% sulphur content	CC	MIL-L-46152 MIL-L-2104B
For heavy operating conditions and when using fuel with more than 0.5 % sulphur content	CD	MIL-L-2104C

Oil Viscosity

SINGLE VISCOSITY MULTI VISCOSITY



L10 431 B

NOTE: Use of SAE 5 W or SAE 5 W-20 may cause some increase in oil consumption. Check oil level more frequently when using these oils.

Depending on the lowest expected atmospheric temperature at start for the fill period, use oil of viscosity as shown in the chart opposite.



L12122

John Deere TORQ-GARD-SUPREME engine oil or other noted brands of oil that meet the specifications are recommended for use in the engine crankcase.

Transmission and Hydraulic Oil

Use *JOHN DEERE Hy-GARD Transmission and Hydraulic Oil* (JDM J 20 A) or equivalent oil in the transmission and hydraulic system.

Other types of oil will not give satisfactory service and may result in eventual damage.

Oil for Mechanical Front Wheel Drive

Use an EP-transmission oil (SAE 90) according to specification MIL-L-2105 B.

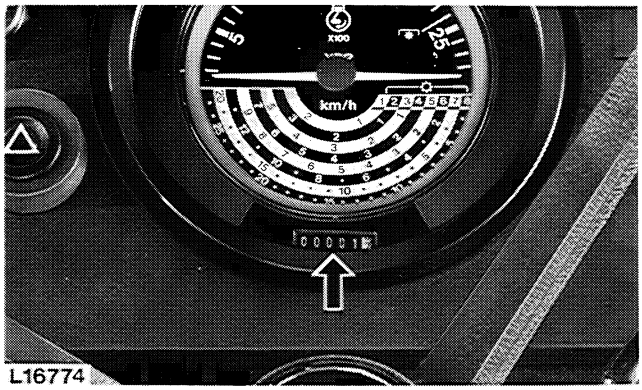
Grease

Lithium saponified multipurpose grease (JDM J 13 C3) or equivalent grease is recommended for all grease fittings. Grease must be free of dust and other contamination.

Grease your machine only when the engine is not running!

Clean grease fittings prior to greasing!

Lubrication and Periodic Service



L16774

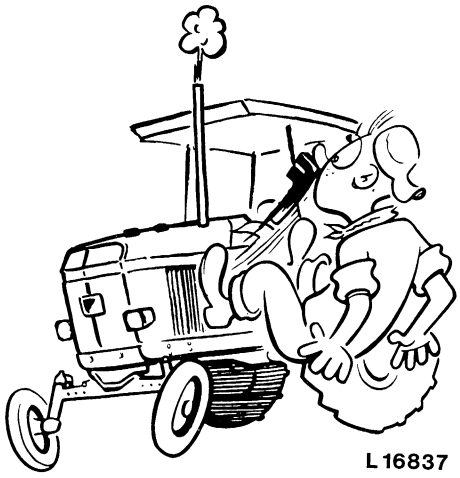
Speed-Hour-Meter

The intervals at which the various parts should be checked, lubricated, serviced or adjusted are based on the actual hours of operation as shown on the speed-hour meter. The meter operates whenever the engine is running and shows the accumulated hours of engine operation.

Always check to make sure that the speed-hour meter is serviceable.

Break-In Period

The break-in period is important to long life and satisfactory performance of the machine. During the break-in period comply with the instructions given on page 14.


L16837

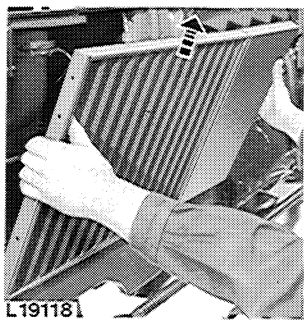
Lubrication and Service Intervals

The timeable for lubrication and periodic service intervals on page 74 is for normal working conditions. The time period should be shortened when operating under adverse conditions.

⚠ CAUTION! Do not lubricate or adjust the tractor while the engine is running unless recommended.

IMPORTANT! After having serviced, cleaned or repaired your tractor, always reinstall any safety guards or shields removed before operating.


L19117


L19118

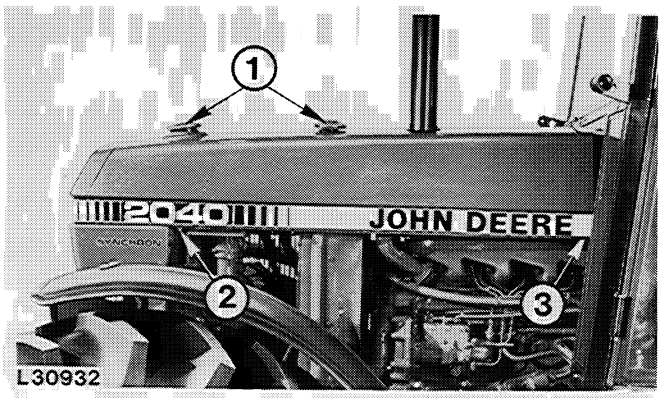
REMOVING GRILLE SCREENS

Pull out slightly at top edge of each grille screen, lift screens from machine and allow them to hang by the springs.

REMOVING HOOD

1 – Remove radiator cap and fuel tank cap (if need be, remove muffler extension).
2 – Remove hex. nuts at the front on both sides.
3 – Remove hex. nuts at the rear on both sides.

After having removed hood, install radiator cap and fuel tank cap to prevent dirt from entering system.



SERVICE INTERVALS

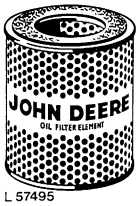
When to Replace Filters



L 57494

Engine Oil Filter

After the first 100 hours, the first 200 hours and thereafter every 200 hours of operation. See page 87.



L 57495

Transmission/Hydraulic Oil Filter

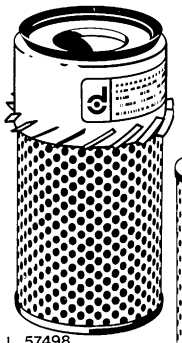
After the first 50 hours, the first 500 hours and thereafter every 500 hours of operation. See page 89.



L 57496

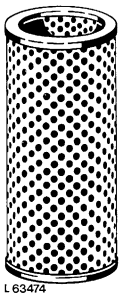
Fuel Filter

After every 1000 hours of operation.
See page 93.


L 57498

Air Cleaner (Primary Element)

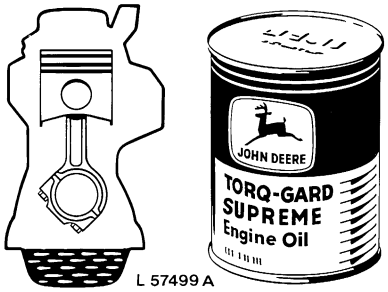
Annually or after six cleanings (whichever occurs first).


L 63474

Secondary (Safety) Element

Annually or when clogged or damaged and with every third service of air cleaner primary element. See page 78.

When to Drain and Refill Oil

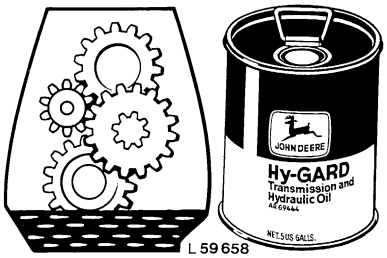


L 57499 A

Engine Oil

After every 100 hours of operation.

See page 86.



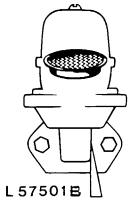
L 59658

Transmission/Hydraulic Oil

After every 1000 hours of operation.

See page 92.

When to Clean Strainers

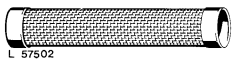

L 57501B

Fuel Transfer Pump

Clean after every 500 hours of operation.

See page 89.

Transmission Oil Intake Strainer


L 57502

Clean after every 1000 hours of operation.

See page 92.

Lubrication and Periodic Service Timetable

Item	Component	Description of Service	Description of Lubricant
		AS REQUIRED	
AR-1	Air cleaner	Clean primary element	
AR-2	Brakes	Bleed foot brakes and adjust handbrake	
AR-3	Clutch	Check pedal free travel	
AR-4	Operator's seat	Lubricate swivel and sliding surfaces	LM [1)]
AR-5	Air pre-cleaner (when equipped)	Clean	
		DAILY OR EVERY 10 HOURS	
10-1	Engine crankcase	Check oil level	EO [2)]
10-2	Radiator	Check coolant level	
10-3	Fuel filter	Drain sediment and water deposits	
10-4	Rear axle bearings	Lubricate (only necessary when operating in extremely wet and muddy conditions)	LM [1)]
10-5	Front axle and front wheels	Lubricate	LM [1)]

1) LM = Lithium saponified multipurpose grease JDM J 13 C 3 or its equivalent

2) EO = Engine oil (see page 71)

Item	Component	Description of Service	Description of Lubricant

EVERY 50 HOURS

50-1	Air cleaner unloading valve	Clean and check	
50-2	Transmission and hydraulic system	Check oil level and replace filter element after first 50 hours of operation	JDHG[1)]
50-3	Batteries	Check level of electrolyte, clean cable connections and batteries	
50-4	Tires	Check air pressures and condition of tires	
50-5	Front axle (with MFWD)	Check axle oil level. Drain and refill with fresh oil after the first 50 hours of operation.	EP[2)]

EVERY 100 HOURS

100-1	Engine crankcase	Drain and refill	EO[3)]
Replace filter element after the first 100 and 200 hours of operation. Thereafter replace filter element after every 200 hours of operation.			

EVERY 200 HOURS

200-1	Engine crankcase filter*	Replace filter element Replace with a JOHN DEERE element	
200-2	Alternator fan belt	Check belt tension	
200-3	3-point-hitch	Lubricate grease fittings	LM[4)]
200-4	Belt pulley (special equipment)	Check oil level	JDHG[1)] or SAE 80 transmission oil

* *Replace crankcase filter element after the first 100 hours of operation. Thereafter replace filter element after every 200 hours of operation.*

1) JDHG = John Deere Hy-GARD oil (see page 71)
2) EP = EP transmission oil (SAE 90) according to MIL-L-2105 B
3) EO = Engine oil (see page 71)
4) LM = Lithium saponified multipurpose grease JDM J13 C3 or its equivalent

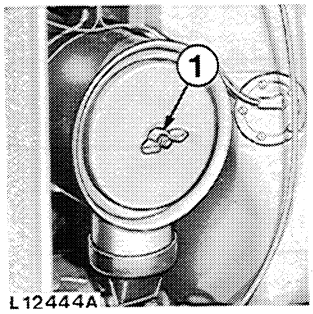
Item	Component	Description of Service	Description of Lubricant
		EVERY 500 HOURS	
500-1	Fuel transfer pump	Clean strainer	
500-2	Transmission/hydraulic oil filter*	Replace filter element	
500-3	Hydrostatic steering (when equipped)	Replace filter in steering return line circuit	
500-4	Air intake hoses	Check connections	
500-5	Rear axle bearings	Lubricate grease fittings	LM 1)
500-6	Engine speeds	Have engine speeds checked and if necessary, adjusted by your John Deere dealer	
500-7	Belt pulley (special equipment)	Drain, flush and refill	JDHG 2) or SAE 80 transmission oil
500-8	Engine valves	Have valve tappet clearances checked	
		EVERY 1000 HOURS	
1000-1	Transmission and hydraulic system	Drain and refill with fresh oil.	JDHG 2)
1000-2	Fuel filter	Replace filter element	
1000-3	Front axle (with MFWD)	Drain and refill with fresh oil	EP 3)
1000-4	Cooling system	Drain, flush and refill Clean radiator screen	
	Drain and refill cooling system after 750 hours of operation, or after 6 months, whichever occurs first. Thereafter drain and refill every 1000 hours of operation or each year, whichever occurs first.		
1000-5	Front wheel bearings	Have bearings cleaned, repacked and adjusted by your John Deere dealer	
1000-6	Starting motor	Have starting motor checked by your John Deere dealer	
1000-7	Hydraulic pump	Have stroke control valve filter cleaned by your John Deere dealer	

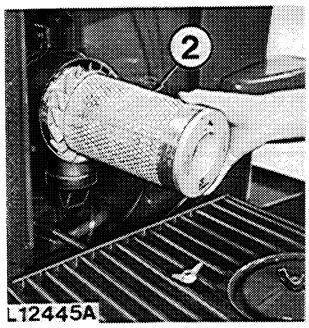
* *Replace transmission/hydraulic filter element after the first 50 hours of operation.*
1) LM = Lithium saponified multipurpose grease JDM J13 C3 or its equivalent
2) JDHG = John Deere Hy-GARD oil (see page 71)
3) EP = EP transmission oil (SAE 90) according to MIL-L-2105 B

Item	Component	Description of Service	Description of Lubricant
		EVERY SPRING AND AUTUMN	
SA-1	Engine crankcase	Drain and refill with fresh oil. Replace filter element	EO [1]
		ANNUALLY	
A-1	Air cleaner Primary element	Replace element annually or after six cleanings, whichever occurs first	
	Secondary (safety) element	Replace annually	

1) EO = Engine oil (see page 71)

Detailed Periodic Services



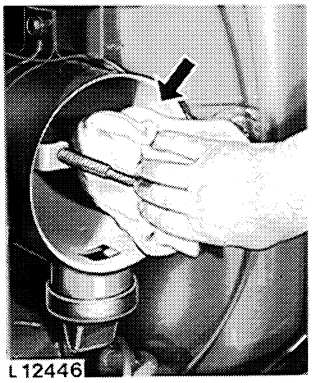


AS REQUIRED

AR-1. Air Cleaner

If the air cleaner restriction indicator light glows during operation, remove and clean filter element.

1 – Remove air cleaner cover
2 – Unscrew wing nut and remove filter element.





Clean inside of air cleaner body with a clean, damp cloth.

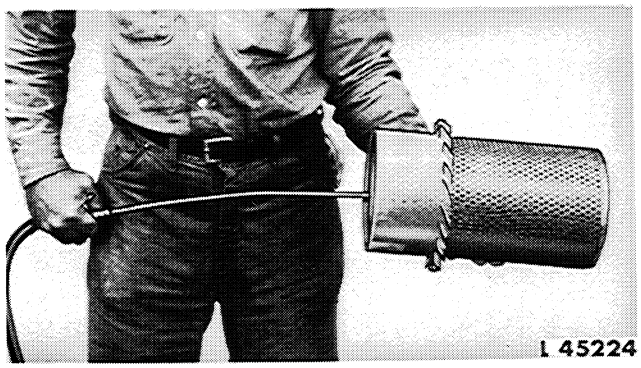
When the element must be serviced in the field, tap it on the palm of your hand as a temporary measure. Then thoroughly clean when you return to your service area.

Dusty Element

If tapping element does not remove dust, blow out dust with compressed air (not to exceed 6 kPa (6 bar; 85 psi) by inserting nozzle inside of element and blowing from the inside of the filter to the outside.

Oily or Sooty Element

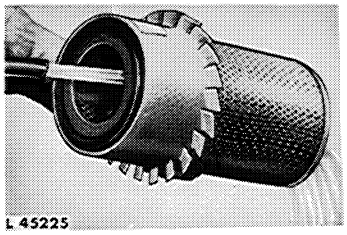
IMPORTANT! Never wash element in fuel oil, gasoline or strong cleaning agent. Never use compressed air to dry element. Compressed air will rupture a wet element.



Wash element in a solution of lukewarm water and John Deere filter cleaner (R 36757).

Rinse element thoroughly as shown with clean water from hose having maximum water pressure of 300 kPa (3 bar; 43 psi). Shake excess water from element and allow it to dry approximately 24 hours at a temperature not above 80°C (176°F).





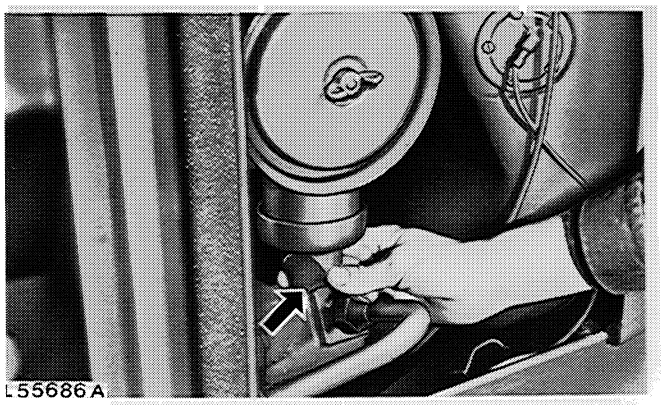
After cleaning the element, inspect it for damage by placing a bright light inside the filter. Discard any filter that shows the slightest rupture, indicated by light through the hole. Make sure gasket is in a serviceable condition.

IMPORTANT! Replace filter element after six cleanings or one year of service, whichever occurs first.

When servicing the air cleaner always remove and clean the rubber dust unloading valve.

The valve must always be installed with slot facing direction of travel.

IMPORTANT! Do not operate engine without air cleaner element or rubber dust unloading valve installed.

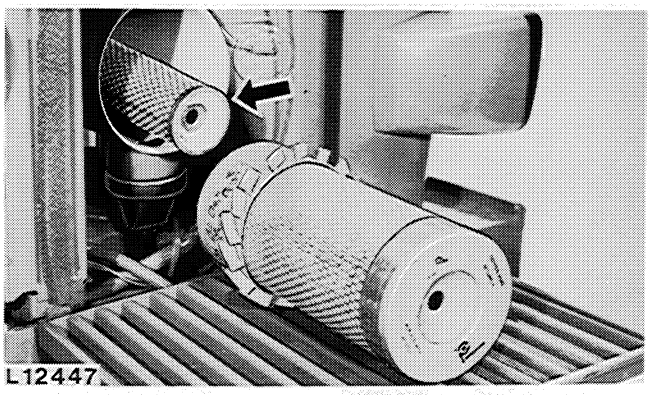


Air Cleaner Secondary (Safety) Element

This filter element must be changed annually, when clogged or damaged and with every third service of air cleaner primary element.

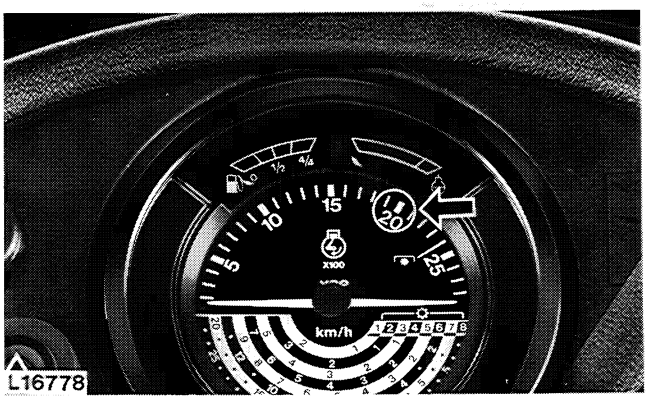
Should it become necessary to clean primary filter element more often than usual, this is a sign that the secondary (safety) filter must be replaced.

IMPORTANT! Always replace secondary (safety) filter element, do not attempt to clean.



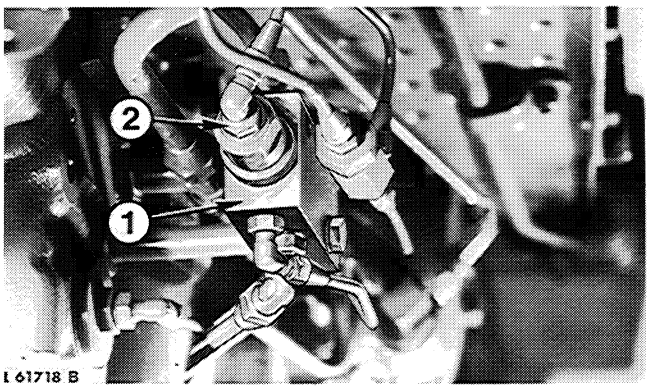
AR-2 Bleeding Brakes

Bleed brakes whenever braking is poor or uneven, or pedal action feels spongy. Before bleeding the brakes, start engine and run at 2000 rpm for 2 minutes. Thus making sure that brake reservoir is filled with oil.

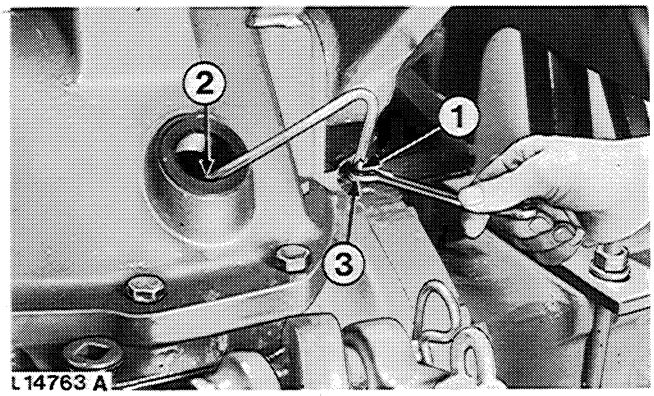


Bleed trailer brake valve first on tractors equipped with a hydraulic trailer brake.

1 — Brake valve
2 — Loosen hex. nut slightly



This opens bleeding orifice which is sealed by means of an O-ring. Operate right-hand brake pedal until oil being discharged is free of air bubbles. With brake pedal depressed, tighten hex. nut.

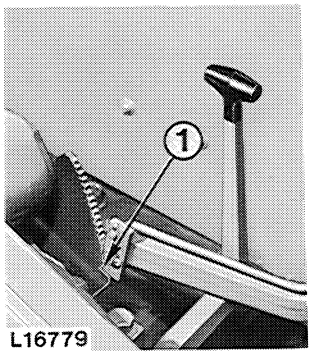


1 – Attach a transparent bleed tube to the brake bleed screw.
2 – Remove transmission oil filter cap and submerge other end of bleed tube in transmission oil.
3 – Unscrew bleed screw 3/4 turn, slowly depress brake pedal on brake being bled and allow it to return slowly. Continue operating pedal until oil in tube is free of air bubbles.

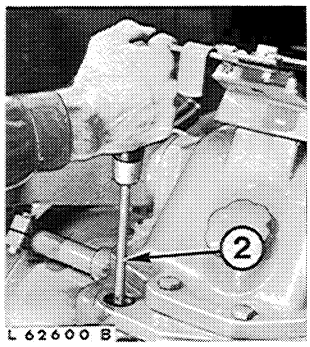
With brake pedal depressed, close bleed screw. Remove bleed tube and repeat bleeding operation on other brake.

If in any doubt, have brakes checked and bled by your John Deere dealer.

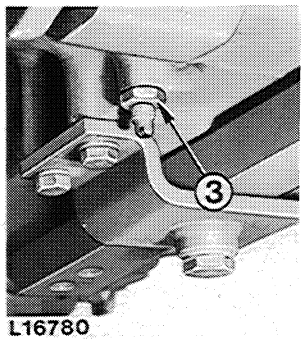
AR-2 Adjusting Handbrake



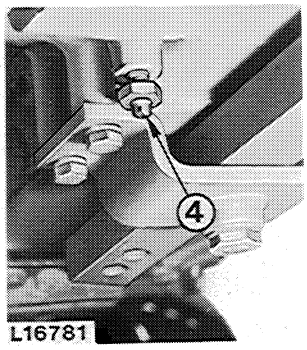
1 – Before adjusting handbrake set brake lever in the first notch of segment.



2 – Remove plug and using a screwdriver, adjust screw handtight. Then back off one turn. Reinstall plug.



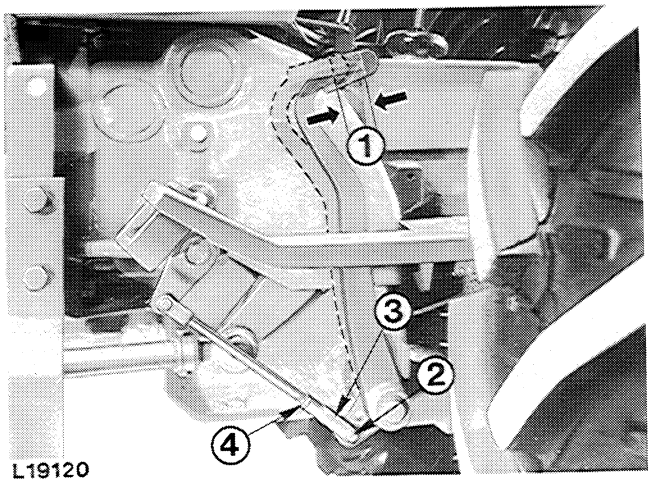
3 – Loosen lock nut.



4 – Tighten brake band stop screw and then back off two turns. Tighten lock nut with stop screw in this position.

AR-3 Adjusting Clutch Pedal Free Travel

Periodically check the clutch pedal free travel.



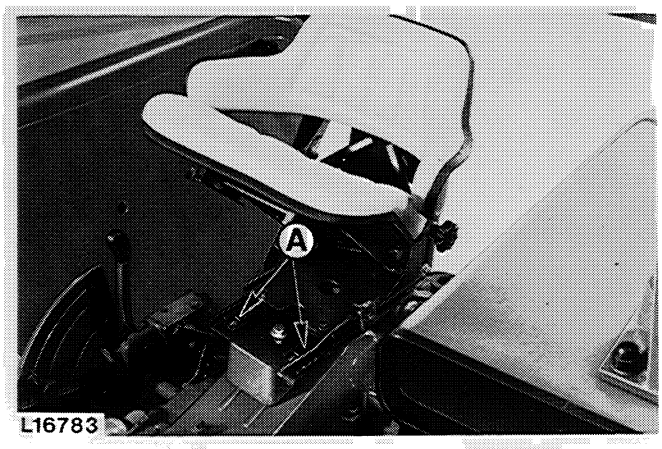
1 – Clutch pedal free travel should never be less than 13 mm (0.5 in.).
2 – Remove clevis pin.
3 – Turn yoke on clutch operating rod anti-clockwise until a clutch pedal free travel of 25 mm (1 in.) has been obtained.
4 – Tighten lock nut to yoke after correct clutch pedal adjustment has been obtained.

Make sure that clutch is fully disengaged before pedal contacts clutch pedal stop bracket.

AR-4 Operator's Seat

Lubricate slide rails with lithium saponified multi-purpose grease or SAE-No. 2 multipurpose grease.

A — Slide rails



AR-5 Air Pre-Cleaner (when equipped)

Empty pre-cleaner bowl if dust accumulation is up to the mark. When operating under extremely dusty conditions, check pre-cleaner bowl several times daily.



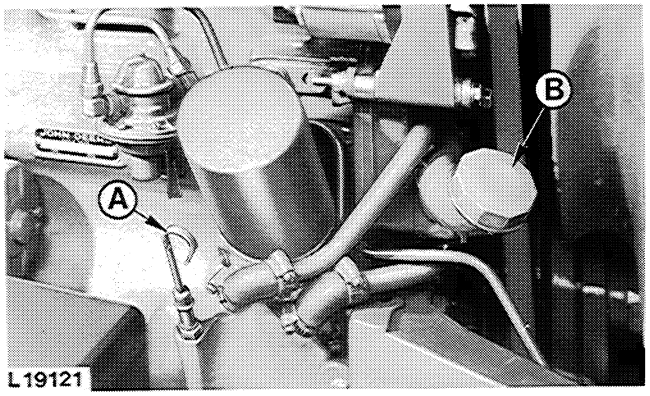
DAILY OR EVERY 10 HOURS

10-1 Checking Engine Crankcase Oil Level

If oil level is at or below bottom mark on dipstick, add sufficient oil to bring level to top mark on dipstick. See page 71 for correct oil.

Do not operate engine with oil level below bottom mark on dipstick.

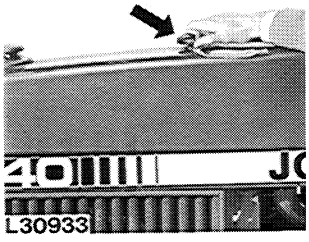
A — Dipstick
B — Oil filler cap

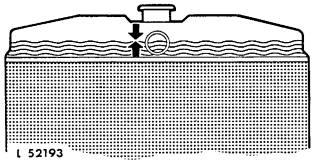


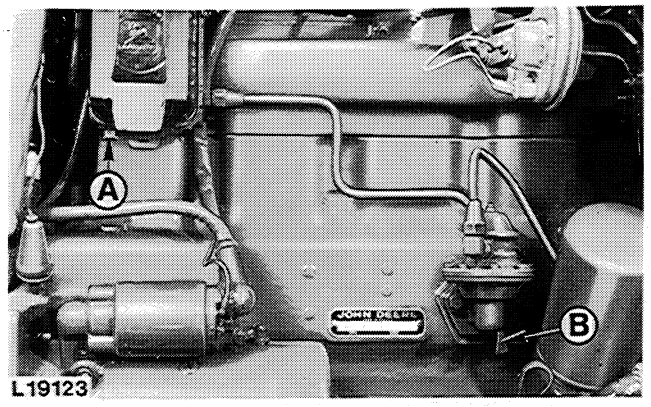
10-2 Radiator

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

Coolant should be maintained at a level midway between radiator core and filler neck. For correct coolant mixture, see page 98. Check cooling system for leaks and clean radiator and grille screens.



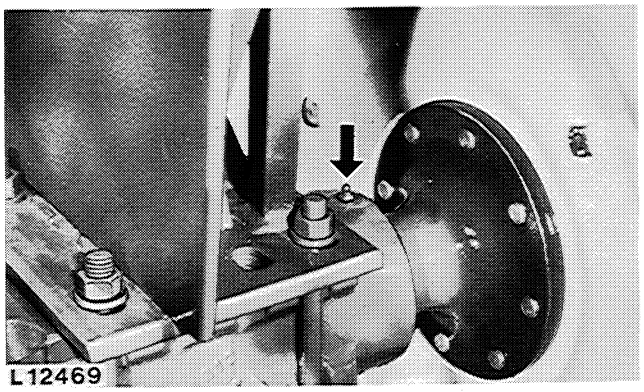




10-3 Checking Fuel Filter

Check lower portion of fuel filter for water or sediment deposits. If necessary, loosen drain plug and pump fuel pump primer lever until filter is free of water and sediment. Tighten drain plug.

A — Drain plug
B — Pump primer lever



10-4 Lubricating Rear Axle Bearings

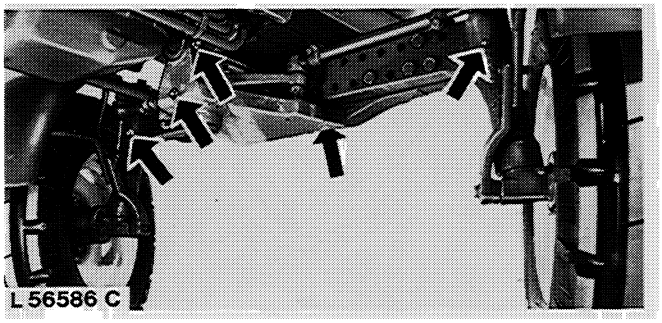
Lubricate every 10 hours only when operating in extremely wet and muddy conditions.

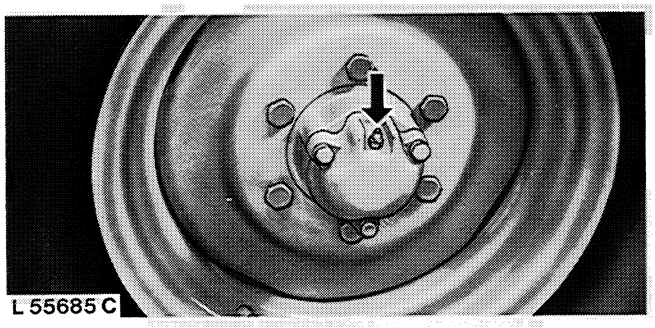
Lubricate both bearings with 6 to 8 strokes of lithium-saponified multi-purpose grease JDM J13 C3 or its equivalent.

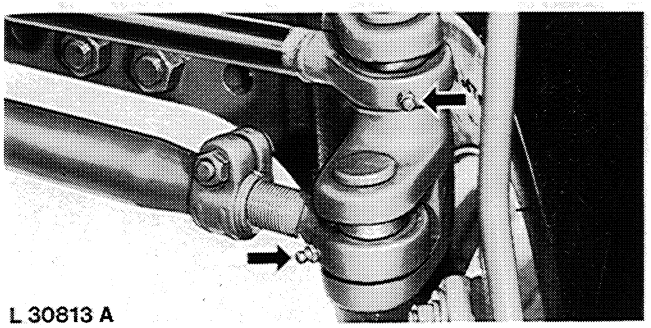
10-5 Lubricating Front Axle and Front Wheels

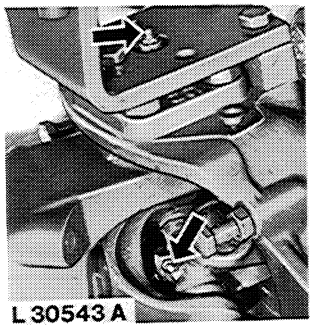
Lubricate front axle and front wheel grease fittings as shown opposite (different, depending upon type of axle) daily or every 10 hours of operation. Use lithium saponified multipurpose grease JDM J13 C3 or its equivalent.

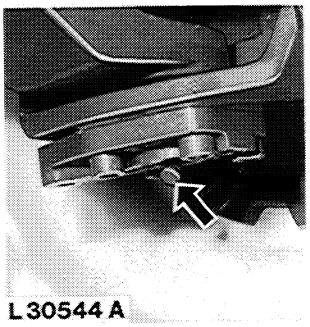
IMPORTANT! Thoroughly clean all grease fittings prior to greasing and replace damaged grease fittings immediately.

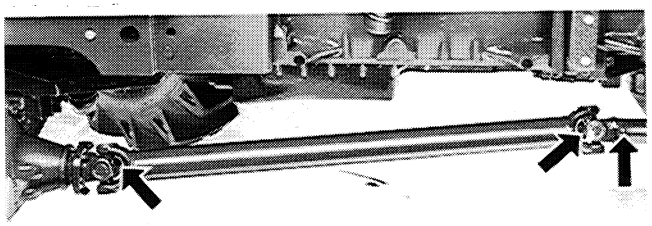

L 56586 C


L 55685 C

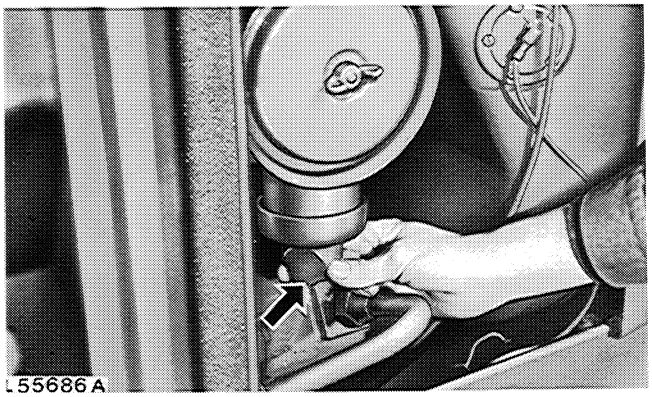

L 30813 A


L 30543 A


L 30544 A


L 19220 A

EVERY 50 HOURS



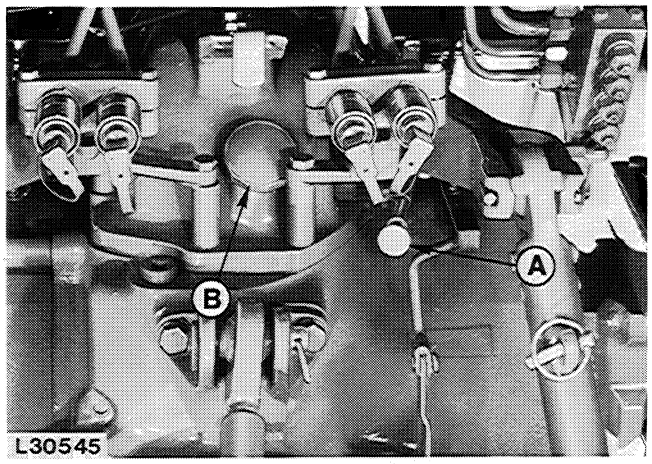
50-1 Air Cleaner Rubber Dust Unloading Valve

Remove rubber dust unloading valve and clean. Replace, if damaged.

Always replace unloading valve with slot facing direction of travel.

IMPORTANT! Never operate engine without air cleaner element and rubber dust unloading valve installed.

50-2 Checking Transmission/Hydraulic System Oil Level

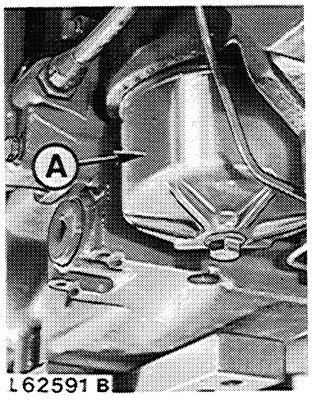


Run engine for two to three minutes.

Check oil level with:

1 – Tractor on level ground.
2 – Engine running at slow idle (800 rpm).
3 – Range shift lever in "Park" position or handbrake applied.
4 – Draft links lowered.
5 – Clutch engaged.
6 – Pull out dipstick and wipe clean.
7 – Insert dipstick. Remove dipstick and check oil level.

A – Dipstick
B – Filler cap



If oil level is down to bottom mark or below on dipstick add oil. See page 71 for correct oil.

NOTE: Replace the transmission/hydraulic oil filter after the first 50 hours of operation. Then replace filter after the first 500 hours of operation and regularly every 500 hours thereafter.

See page 89 for details regarding replacement of filter.

A – Transmission-hydraulic oil filter

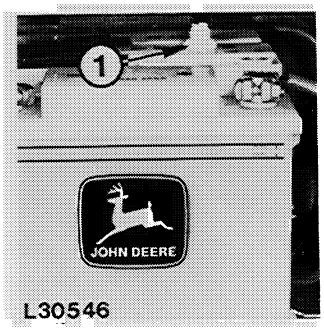
50-3 Servicing the Batteries

1 — Remove filler caps

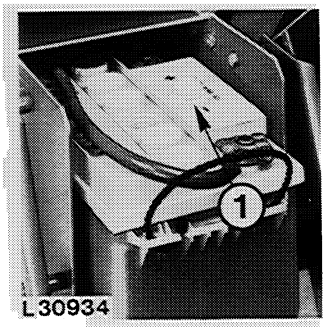
Fill battery cells to bottom of filler neck. Always use distilled water. Check vent holes in battery caps making sure they are free.

If battery terminal connections are corroded, remove corrosion with a stiff bristle brush and then coat terminals with petroleum jelly.

See page 100 for removal of batteries.



Without cab



With cab

50-4 Checking Tire Pressures

See page 41.

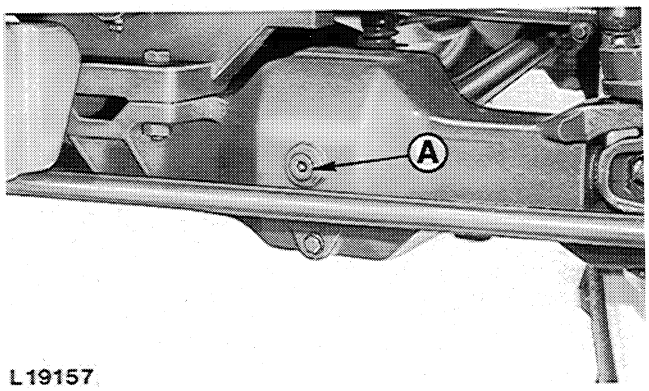
Check tires for damage.

50-5 Checking Axle Oil Levels (Tractors with MFWD)

Axle Housing Oil Level

Remove level plug. Oil should be level with plug bore. If necessary, top up with oil, using EP-transmission oil (SAE 90) according to specification MIL-L-2105 B.

A — Oil level plug

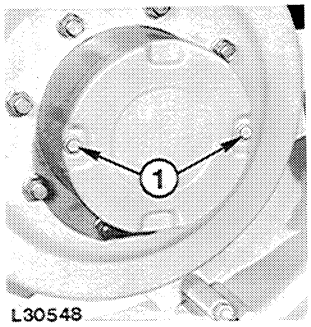


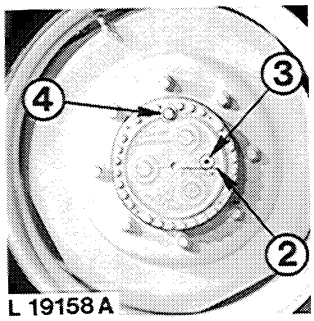
Final Drives Oil Level

1 — Remove cap screws and lift off cover (when equipped).
2 — Turn wheel until mark "ÖLSTAND" is in level position.
3 — Remove level plug. Oil should be level with plug bore.
4 — If necessary, top up with oil, using EP-transmission oil (SAE 90) according to specification MIL-L-2105 B.

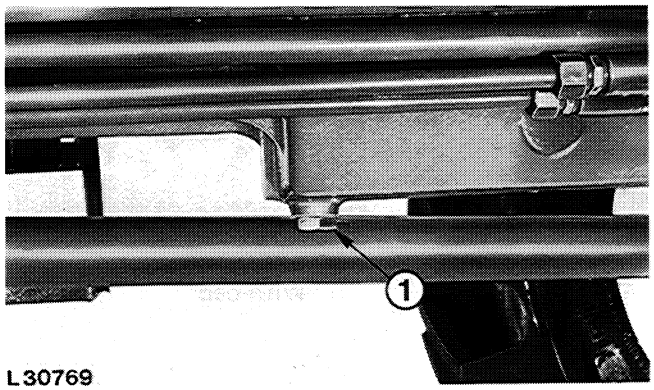
NOTE: Replace oil in axle bridge housing and final drives after the first 50 hours of operation. Then replace after every 1000 hours of operation, however at least once a year.

Oil change, see page 93.





EVERY 100 HOURS



L30769

100-1 Draining and Filling Engine Crankcase

Drain oil with engine shut-off, however with engine oil warm.

1 – Remove crankcase drain plug.
2 – While crankcase is draining, replace filter element (every 200 hours).
3 – Install drain plug.
4 – Fill crankcase with fresh oil of proper viscosity (see page 71).
Crankcase capacity
without filter change: 8.0 liters
2.1 U.S. gals.
with filter change: 8.5 liters
2.25 U.S. gals.
5 – Run engine for a short time and check for leaks at filter base and drain plug.
6 – Stop engine.
7 – Check oil level.

IMPORTANT! During cold weather operation with temperature below freezing point, change oil every 100 hours or every six weeks, whichever occurs first. Also change oil at any seasonal change in temperature when oil of a new viscosity is required.

EVERY 200 HOURS

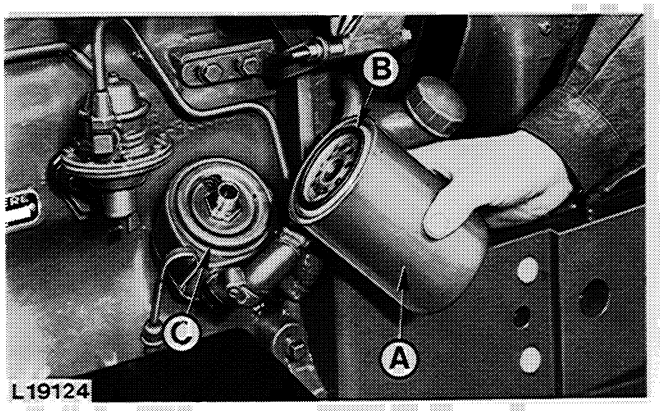
200-1 Changing Engine Crankcase Filter Element

Remove filter element (turn counterclockwise) and clean mounting surface.

Apply a thin film of oil to sealing ring of new filter. Tighten filter element until sealing ring touches mounting surface and then turn an additional 3/4 to 1-1/4 turns. Do not overtighten!

Start engine and check filter seat for leaks.

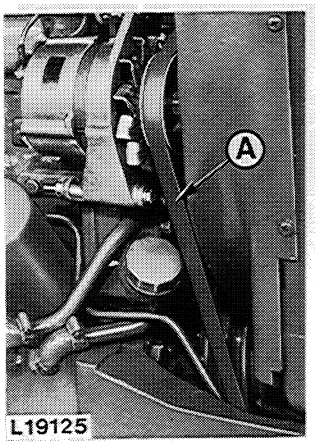
A — Engine oil filter
B — Sealing ring
C — Mounting surface

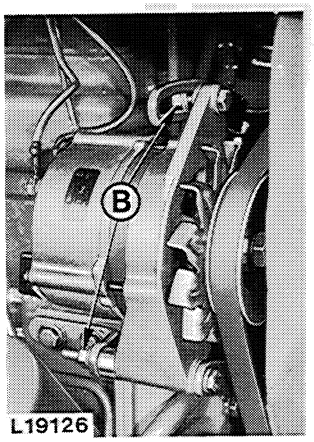


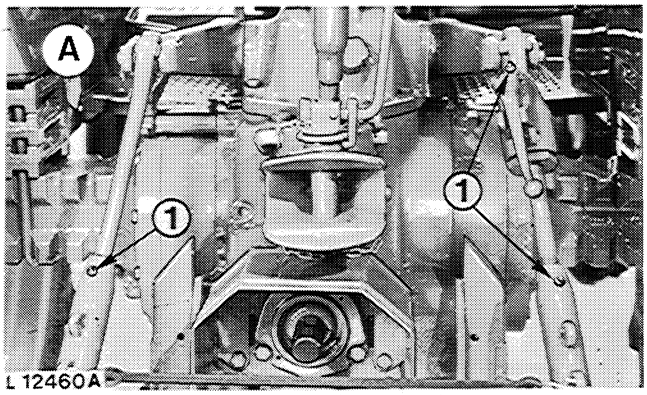
200-2 Adjusting Alternator — Fan Belt Tension

A — Adjust so that 90 N (20 lb) pull midway between pulleys will deflect belt 20 mm (3/4 in.)
B — To adjust, loosen both cap screws and swing out alternator from the top outward. Retighten cap screws.

New belts must be run in for at least 10 to 15 minutes. Then recheck belt tension and adjust if necessary.





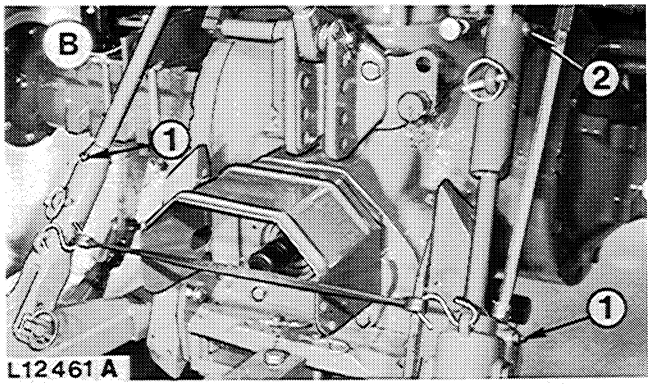


200-3 Lubricating 3-Point Hitch

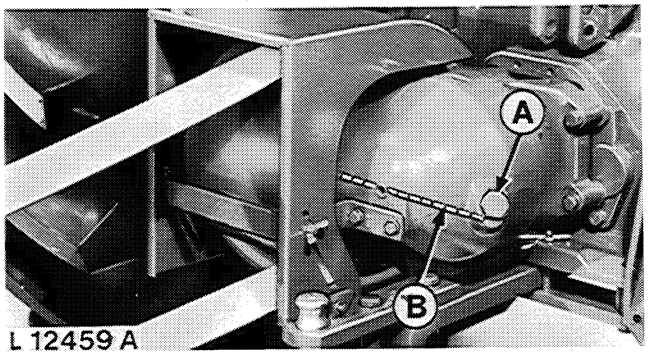
A — Tractor without cab

1 — Lubricate grease fittings with several strokes of grease gun, using lithium saponified multi-purpose grease JDM J13 C3 or its equivalent.

2 — Lubricate lift link oilers using engine oil.



B — Tractor with cab



200-4 Checking Belt Pulley (Special Equipment) Oil Level

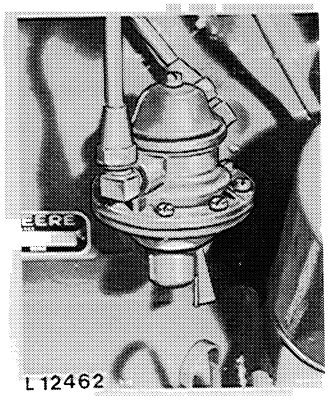
Oil level must be up to level of filler plug hole. Use John Deere Hy-GARD transmission and hydraulic oil or its equivalent or SAE 80 transmission oil.

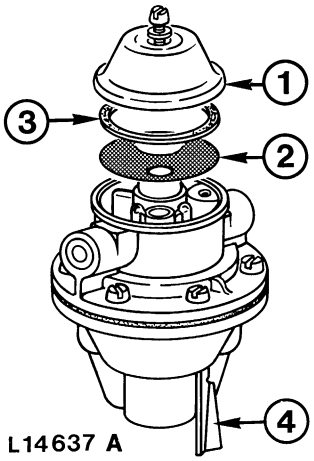
A — Filler plug
B — Oil level

EVERY 500 HOURS

500-1 Cleaning Fuel Transfer Pump Strainer

1 – Remove bowl.
2 – Remove strainer and wash in fuel.
3 – If damaged, replace bowl gasket.
Clean bowl.
Replace strainer and install bowl (loosely).
4 – Work transfer pump primer lever until bowl is filled with fuel. Tighten bowl.
Leave primer lever at lowest point of stroke.

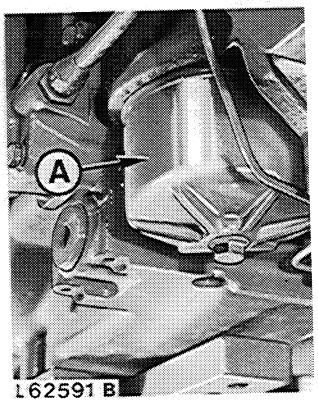

L12462



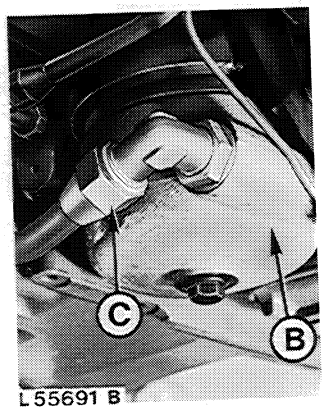
L14637 A

500-2 Replacing Transmission/Hydraulic System Filter Element

NOTE: Replace the transmission/hydraulic system filter element after the first 50 hours of operation. Then replace after the first 500 hours and regularly every 500 hours thereafter.



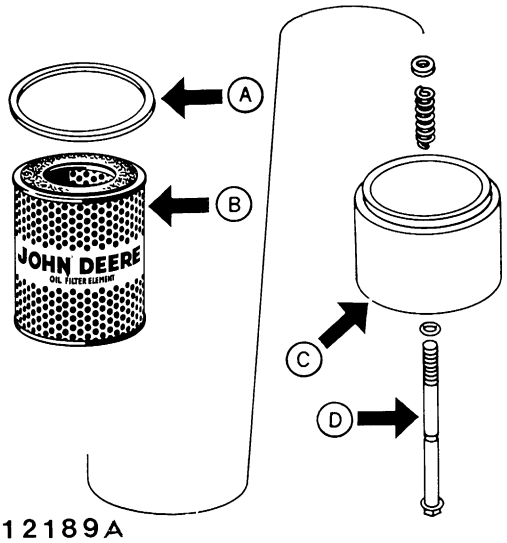
L62591 B



L55691 B

A – Filter without hydraulic motor connection
B – Filter with hydraulic motor connection
C – Remove return line before removing filter

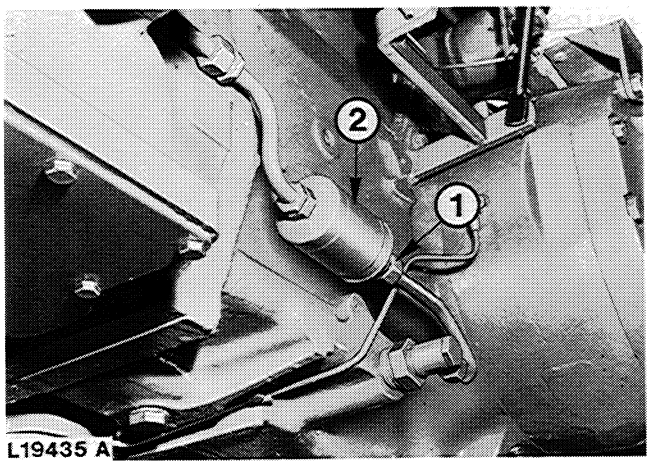
1 – Remove retaining screw and lift out filter cover.
2 – Remove element and packing.
3 – Carefully install new packing coated with grease in transmission case groove.
4 – Insert new element and reinstall filter cover
5 – Tighten retaining screw to 75 Nm (55 ft-lb) torque.



L12189A

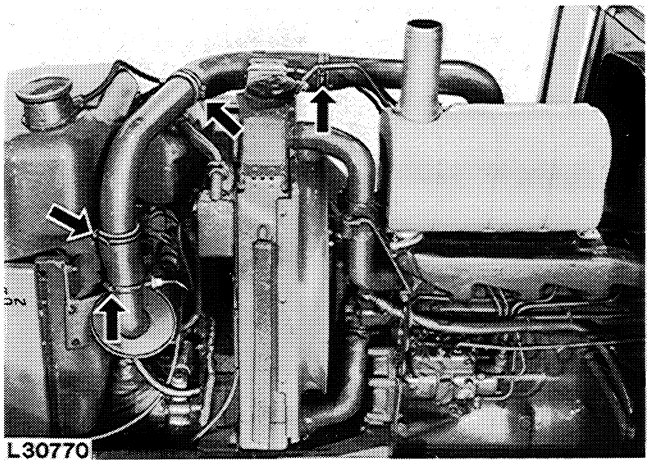
Only use JOHN DEERE filter elements!

A – Packing
B – Filter element
C – Filter cover
D – Retaining screw



500-3 Replacing Hydrostatic Steering Return Oil Filter

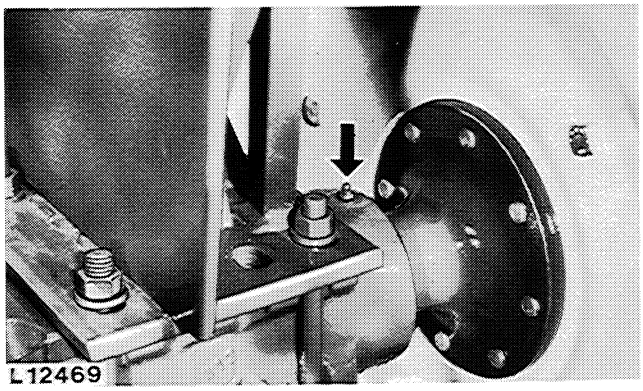
1 – Disconnect oil return line union.
2 – Unscrew filter out of return line. Install new filter and reconnect oil return line to filter.



500-4 Checking Air Intake Hoses and Clamps

Check hoses and tighten clamps.

Leaking or damaged hoses are the cause of dirt entering the engine.



500-5 Lubricating Rear Axle Bearings

Lubricate both bearings with 6 to 8 strokes of lithium-saponified multi-purpose grease JDM J13 C3 or its equivalent.

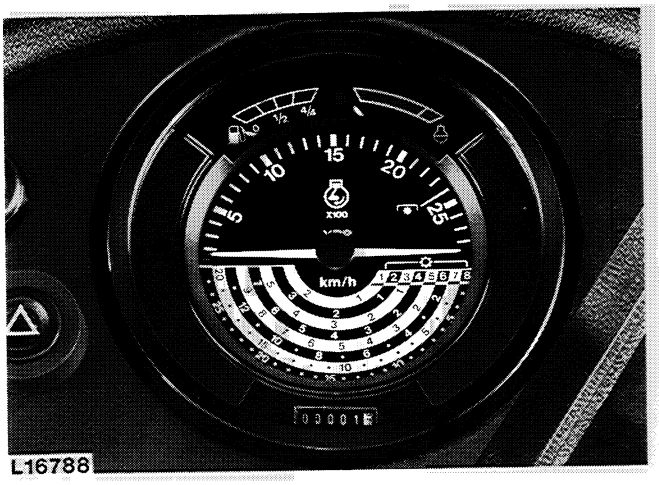
500-6 Checking Engine Speeds

Warm up engine and use speed-hour meter to check speeds. Refer to the following chart:

If engine speeds need adjustment or if you doubt the accuracy of the speed-hour meter, consult your dealer.

ENGINE SPEEDS

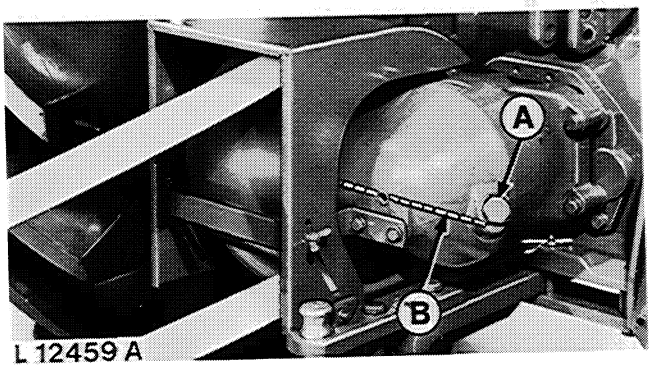
Throttle Position	Load Speed	No Load Idle Speed
Forward to stop	. . . . .	800 rpm
Rearward to stop	2500 rpm	2660 rpm



500-7 Belt Pulley (Special Equipment)

Drain the old oil from belt pulley by removing it from tractor and tilting it to the side to permit oil to drain from filler opening. Flush out housing with fuel. Reinstall belt pulley and fill to level of filler hole using JOHN DEERE Hy-GARD transmission and hydraulic oil or SAE 80 transmission oil.

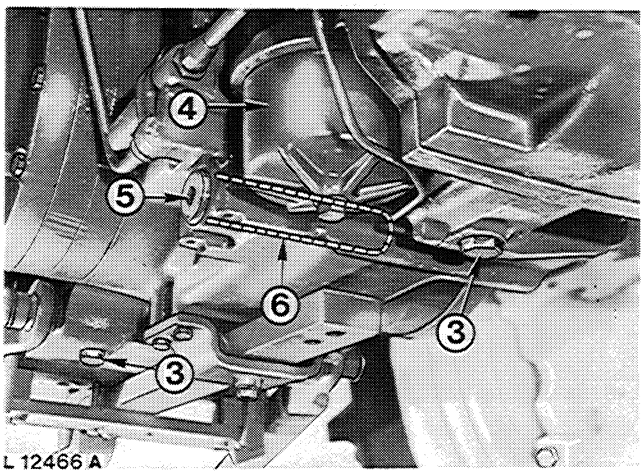
A — Filler plug
B — Oil level



500-8 Adjusting Engine Valve Tappets

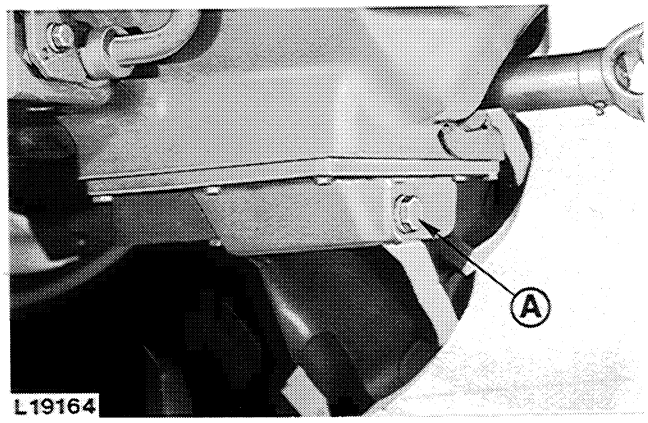
Have your dealer check engine valve tappet clearance and adjust, if necessary.

EVERY 1000 HOURS



1000-1 Draining and Filling Transmission/Hydraulic System

1 – Start engine and operate hydraulic functions to heat transmission oil to operating temperature.
2 – Stop engine.
3 – Remove both transmission case drain plugs.
4 – Replace transmission and hydraulic system filter element.
5 – Remove plug.
6 – Pull out intake screen and wash in fuel.



When draining transmission/hydraulic oil on tractors equipped with front wheel drive you must also remove drain plug in clutch housing.

A – Drain plug in clutch housing

Before filling with fresh oil, reinstall clean intake screen and plugs.

Refill system with transmission/hydraulic oil (see page 71) to top mark on dipstick.

Run engine for 2 to 3 minutes, then recheck oil level.

Check oil level with engine running at slow idle, tractor standing on level ground, transmission in neutral, rockshaft lowered and clutch engaged.

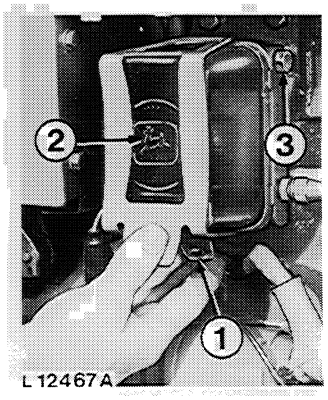
1000-2 Replacing Fuel Filter Element

1 – Disengage filter retaining spring and remove filter.

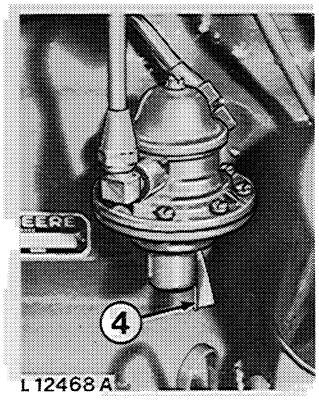
2 – Place new filter element against filter body and install retaining spring.

3 – Loosen bleed screw.

4 – Work fuel primer lever until fuel flows free of air bubbles. Tighten bleed screw.



L 12467 A



L 12468 A

NOTE: If the primer lever will not pump fuel and no resistance is felt at upper end of stroke, turn engine with starter to change position of fuel pump drive lobe on camshaft. When bleeding is completed, be sure to leave primer lever at lowest point of stroke.

Only use genuine 

L 57496 **filter elements!**

1000-3 Front Axle Oil Change (MFWD only)

Replace oil in axle housing and final drives after the first 50 hours of operation. Then replace regularly every 1000 hours thereafter, however at least once a year, whichever occurs first. Use EP transmission oil (SAE 90) according to specified MIL-L-2105 B.

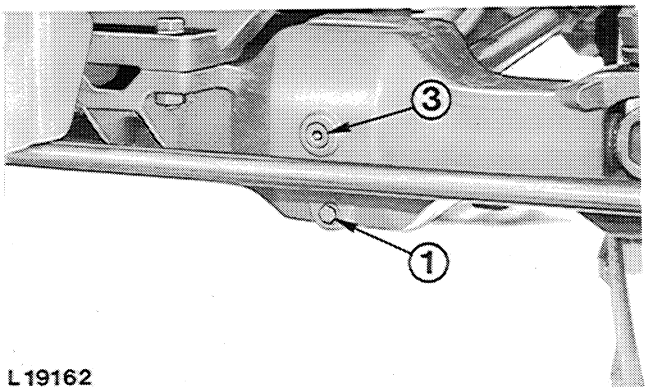
Drain oil immediately after having operated the tractor when the oil is still warm.

Draining and Filling Axle Housing

1 – Remove drain plug and drain oil into a suitable container.

2 – Reinstall drain plug and tighten securely.

3 – Remove oil level/filler plug. Fill with fresh up to level of plug bore (approx. 5.25 liters; 1.4 U.S.gals).
Reinstall plug.



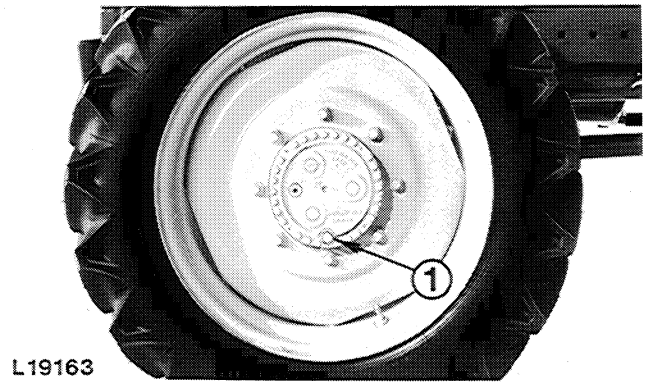
L 19162

Draining and Filling Final Drives

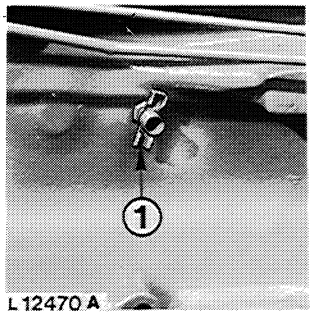
1 – Turn wheel until drain plug is at the bottom. Remove drain plug and drain oil into a suitable container.

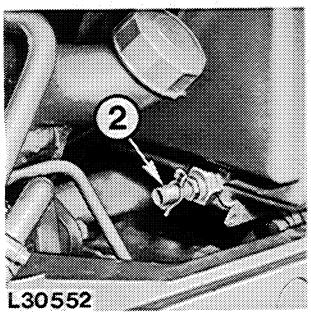
2 – Turn wheel 180° and fill with fresh oil through drain plug bore (approx. 0.75 liters; 0.2 U.S. gals.).

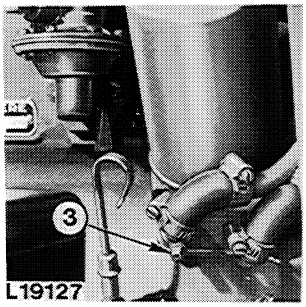
3 – Check oil level as described on page 85. Reinstall plug and tighten securely.

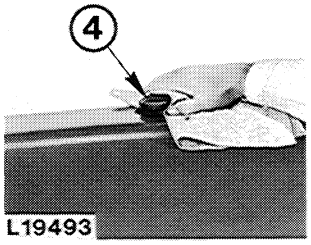


L 19163









1000-4 Servicing Cooling System

CAUTION! Remove radiator filler cap only when coolant temperature is below boiling point. Then loosen cap slightly to stop to relieve pressure before removing cap completely.

1 – Open cylinder block drain cock.
2 – Open radiator drain cock.

3 – Remove engine oil cooler drain plug.
4 – Remove radiator filler cap.

See page 98 for cleaning and flushing cooling system and correct coolant mixture.

1000-5 Adjusting Front Wheel Bearings*

1000-6 Checking Starting Motor*

1000-7 Cleaning Hydraulic Pump Stroke Control Valve Filter*

* Have your JOHN DEERE dealer perform this service.

EVERY SPRING AND AUTUMN

SA-1 Draining and Filling Engine Crankcase

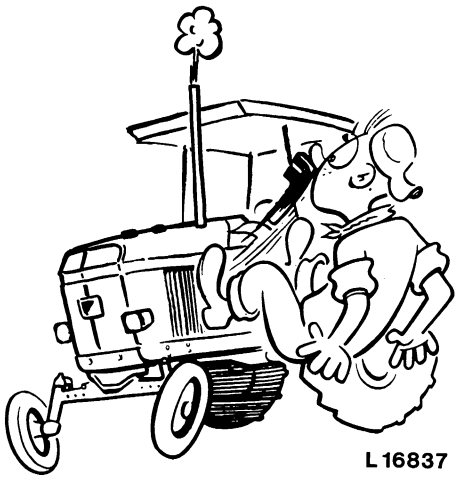
See page 86.

Fill with oil of correct viscosity, depending upon the time of year. See page 71.

ANNUALLY

A-1 Servicing Air Cleaner

Once each year or after cleaning element 6 times, replace the air cleaner element. Replace secondary (safety) filter annually.



L16837

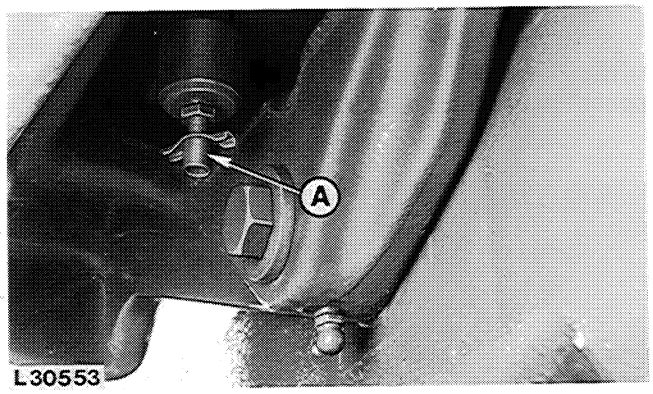
CAUTION! Do not lubricate or adjust the tractor while the engine is running unless specifically recommended.

Service

Fuel System

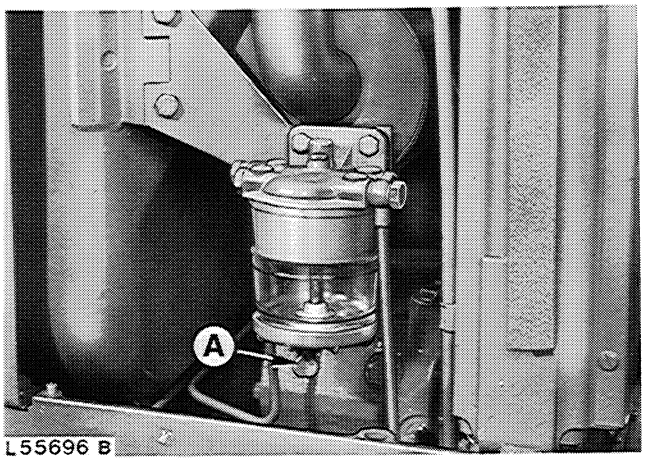
Proper servicing of the fuel system is important for fuel economy, smooth operation and long engine life.

Fill the fuel tank at the end of each day's operation to prevent moisture from condensing in the fuel tank.



If water was present in fuel filter (see page 82), drain water deposits from fuel tank. A sump at the bottom of fuel tank traps water in the tank. To drain the sump, open drain tap and close securely after having drained water and sediment deposits from tank.

A — Drain tap



Water Trap (Special Equipment)

When draining the fuel filter sediment bowl, also drain any water collected in the water trap.

Loosen small drain plug (do not remove) until water and dirt deposits have drained off. Then tighten plug finger tight.

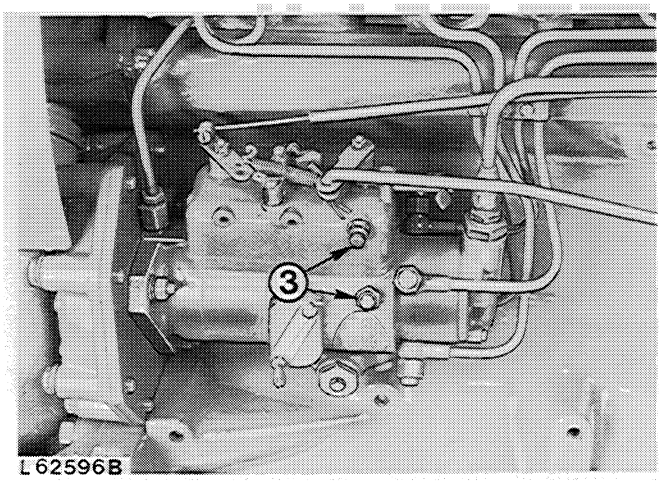
It is advisable to check water trap for deposits when refilling tank with fuel.

A — Drain plug

Bleeding Diesel Fuel System

Whenever the fuel tank has been run dry or air has been sucked into the system through loose connections, the entire fuel system must be bled.

1 – Fill tank with fuel.
2 – Bleed fuel filter. See page 93.
3 – Loosen lower bleed screw. Pump primer lever on fuel transfer pump until fuel flow is free of air bubbles. Then tighten bleed screw to 3.5 Nm (2.5 ft-lb) torque.
Loosen upper bleed screw and bleed as described above.
When bleeding is completed, return primer lever to lowest point of stroke.



CAUTION! Escaping diesel fuel under pressure can have sufficient force to penetrate the skin, causing serious personal injury. Before disconnecting lines, be sure to relieve all pressure. Before applying pressure to the system, be sure all connections are tight and that lines, pipes, and hoses are not damaged. Diesel escaping from a very small hole can be almost invisible. Use a piece of cardboard or wood, rather than hands, to search for suspected leaks.

If injured by escaping diesel, see a doctor at once. Serious infection or reaction can develop if proper medical treatment is not administered immediately.

Fuel Injection Nozzles

Occasionally the fuel injection nozzles may require removal for inspection or service. The frequency of this service will be determined by type of operation, fuel cleanliness and fuel quality.

IMPORTANT! Do not attempt to remove and disassemble fuel injection nozzles as special tools are required. See your dealer for this service.

Cooling System

CAUTION! Remove radiator filler cap only when coolant temperature is below the boiling point. Then loosen cap slightly to the stop to relieve pressure before removing the cap completely.

An antifreeze solution, containing a rust inhibitor, was added to the coolant before shipment of the machine. This solution sufficiently protects the engine up to temperatures of -37°C (-35°F).

Drain coolant after 750 hours of operation or after 6 months at the latest and then at least once each year.

Replace it by a fresh solution consisting of 50 % antifreeze/rust inhibitor agent and 50 % of pure soft water.

IMPORTANT! Never pour hot water into a cold engine or cold water into a hot engine. You may crack the cylinder head or block. Do not operate the machine without water for even a few minutes.

NOTE: Good antifreeze is made of ethylene glycol. But this product is not a rust inhibitor agent. Therefore use only ethylene glycol antifreeze containing also a rust inhibitor agent. At very low temperatures, the percentage of the antifreeze agent must be increased in compliance with the instructions given by the manufacturer of the agent Since the above agent should also contain a rust inhibitor, the machine may never be used or stored without having this agent in its cooling system.

If no antifreeze agent is required due to hot climate, add a can of JOHN DEERE Summer Coolant Conditioner Type T 19566, available from your dealer, in place of the antifreeze.

IMPORTANT! Summer Engine Coolant Conditioner (T 19566) is NOT AN ANTIFREEZE or a cooling system sealer. If winter protection is required, drain system and fill with recommended antifreeze solution. When antifreeze solution is in the system it should not be necessary to use the conditioner. However, in severely corrosive water conditions, the conditioner may be used as it is compatible with antifreeze solution.

Cleaning and Filling Cooling System

Draining the cooling system, see page 94.

As soon as system is empty, close cylinder block, radiator drain cocks and oil cooler drain plug. Fill system with clean water.

Run the engine until it reaches operating temperature to stir up possible rust or sediment. Stop the engine and drain the coolant from the system before the rust or sediment settles.

Again, close the drain cocks. Fill the cooling system with a solution composed of John Deere Cooling System Cleaner (or its equivalent) and water. Follow the instructions with the cleaner.

After cleaning the cooling system, fill it with water. To FLUSH the system, install the filler cap and run the engine until it reaches operating temperature. Then stop the engine and drain out this flushing water.

Again close the drain cocks and fill system with coolant. The antifreeze agent must be added to the water before filling system.

Run the engine until it reaches operating temperature. This will allow thermostats to open and will assure that the solution is circulated throughout the entire cooling system.

Recheck coolant level. It should be approx. 40 mm (1.5 in.) below the filler cap.

For efficient operation, the radiator screen must be kept clean. Remove any dust or oil and carefully straighten any bent fins.

On tractors with air conditioning system: Clean condenser.

Electrical System

Alternator

1 – If the engine is to be run for a short time without battery (using a slave battery for starting), do not, under any circumstances, interrupt the circuit by switching off the key switch before stopping the engine by means of the fuel pump shut-off cable. Further it is recommended to use additional current (lights) while engine is running. Do not run engine at a speed above 1000 rpm.

2 – With battery removed and starting by means of a slave battery, insulate battery end of disconnected starter cable properly to avoid damage to alternator and regulator.

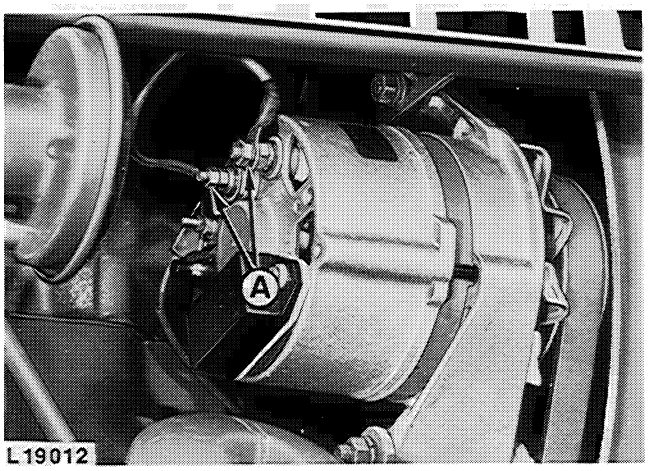
On machines equipped with an operator's cab, do not connect negative pole of slave battery to the cab.

3 – With the engine running, do not short-circuit or ground (even momentarily) alternator and regulator terminals.

4 – Connect battery or battery charger in the proper polarity. If they are improperly connected ("+" and "–"), the rectifier diodes will be immediately destroyed.

5 – Before carrying out electric welding jobs on the tractor, disconnect both cables at alternator. Connect ground terminal of welding apparatus directly to the part being welded.

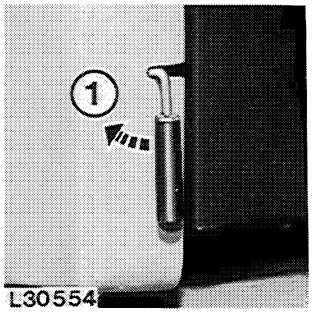
6 – Before carrying out repairs on electrical system, disconnect battery ground strap. This will avoid the danger of a short circuit.

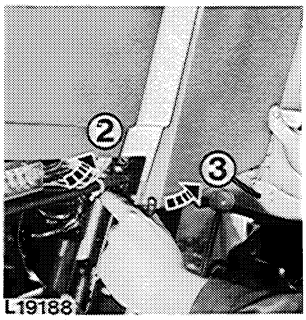


A – Cable connections – red cable to B^+
– blue cable to D^+

Batteries

CAUTION! Gas from battery electrolyte is flammable. Keep battery away from all sparks and fires.



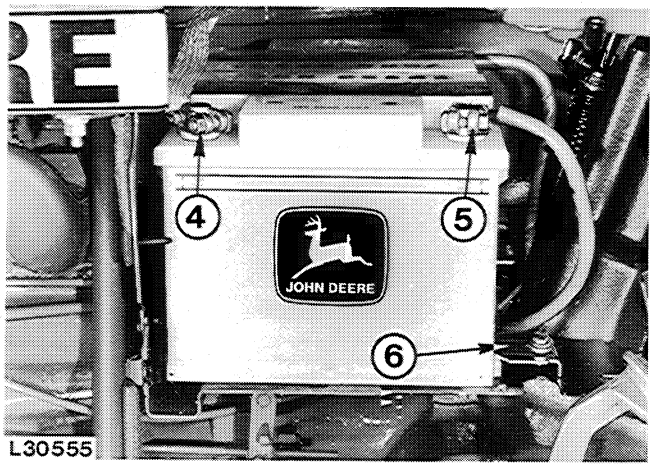


Removing batteries (tractors without cab)

1 – Turn locking lever outward.

2 – Swing battery cover upward.

3 – Swing out stay and support battery cover in upward position.



4 – Disconnect ground strap.

5 – Disconnect positive (+) cable and insulate end of cable.

6 – Remove securing bracket and lift out battery from the side.

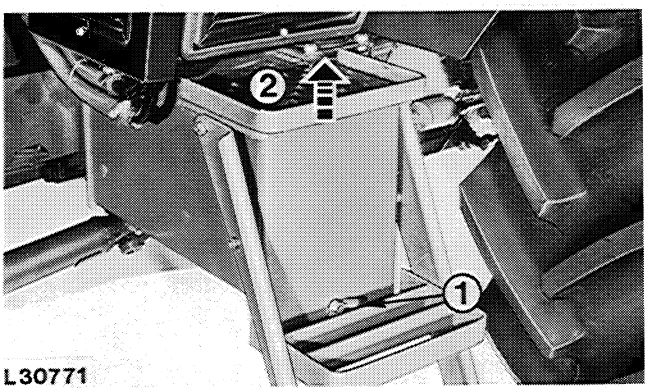
Proceed similarly to remove the second battery.

Install batteries, reversing removal procedure.

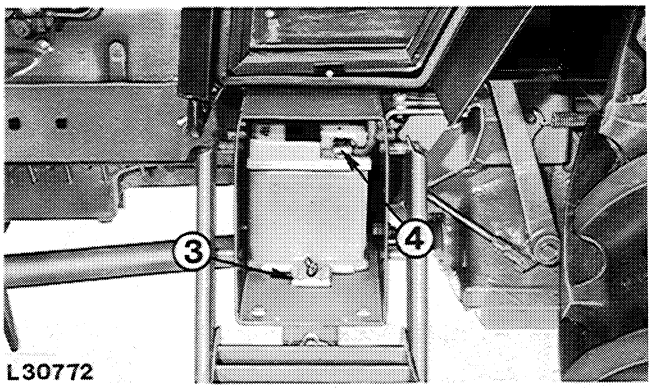
Removing batteries (tractors with cab)

The batteries are installed under the top left and right-hand step.

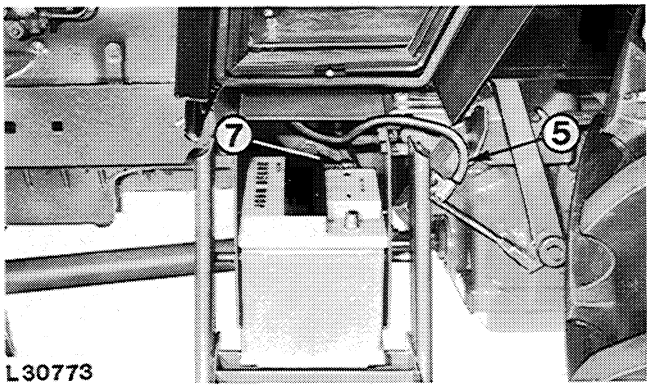
1 — Remove winged screw and
2 — Lift step upward and remove



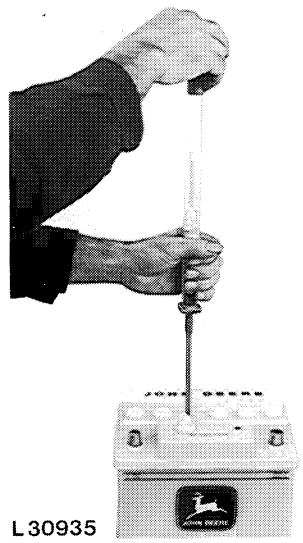
3 — Remove battery clamp
4 — Disconnect ground cable



5 — Position ground cable so that is does not contact positive pole when battery is being removed
6 — Pull battery outward
7 — Disconnect battery starter cable and lift out battery



When installing batteries, reverse removal procedure.


L30935

Checking Specific Gravity of Battery Cells

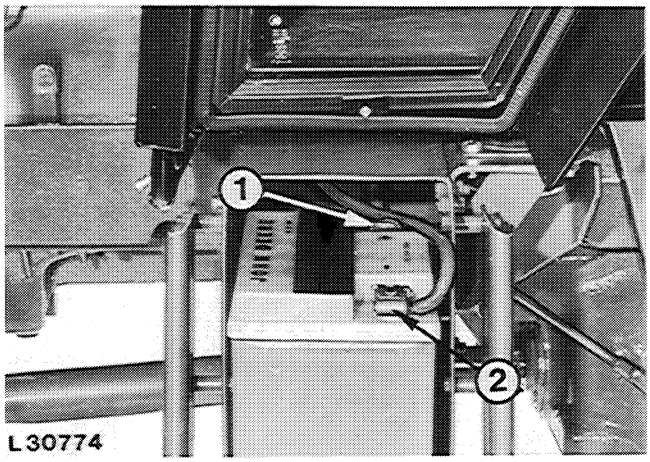
When checking, the electrolyte temperature should be +20°C (68°F).

Specific gravity of electrolyte sinks with rising temperatures and rises with falling temperatures approx. 0.01 kg/dm^3 for every 14°C (25°F) alteration in temperature. A fully charged battery should have a specific gravity of 1.28. Recharge battery if reading drops below 1.10.

NOTE: Prevailing temperatures affect the potency of battery electrolyte. Therefore, make allowance for extreme climates. In tropical areas, use a 1.230 full charge reading.

Checking Electrolyte Level of Battery Cells

Every 50 hours of operation, check the level of the electrolyte solution in each battery cell. See page 85.



L30774

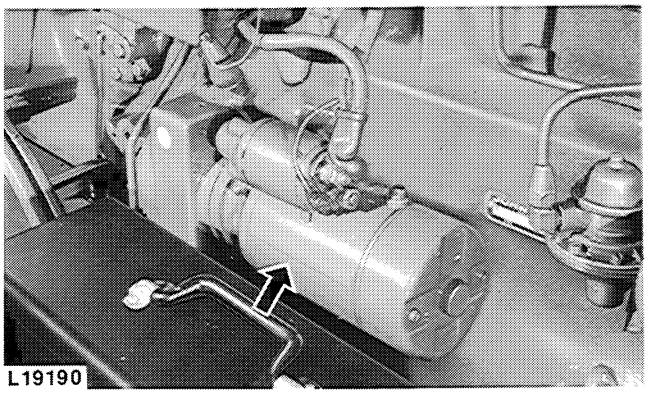
Installing the Batteries

Before installing the batteries, make sure terminals and connectors are thoroughly clean. If necessary, clean thoroughly with a wire brush. Coat battery terminals and connectors with petroleum jelly as a prevention against corrosion.

1 — Starter cable to positive pole
2 — Ground strap or cable to negative pole

Connect ground strap or cable last so as to prevent any short circuit.

IMPORTANT! Make sure batteries are connected to the proper poles. Reversed polarity will result in permanent damage to the electrical system.


L19190

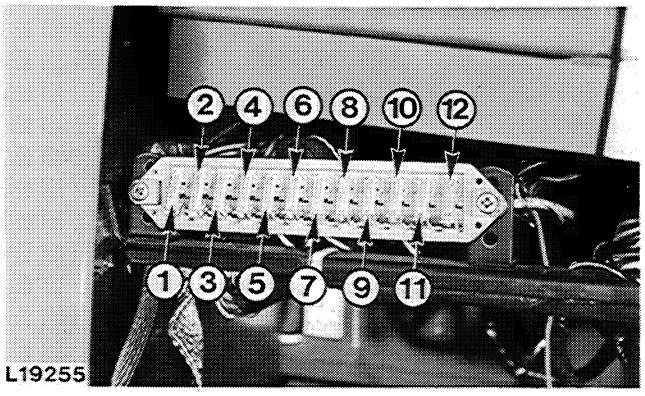
Starting Motor

If the starter fails to operate after the starter switch has been operated, the whole starter system must be thoroughly checked. Check the specific gravity of the battery with a hydrometer and make sure that no cable is broken, or chafed through and that no cable connection is loose or corroded.

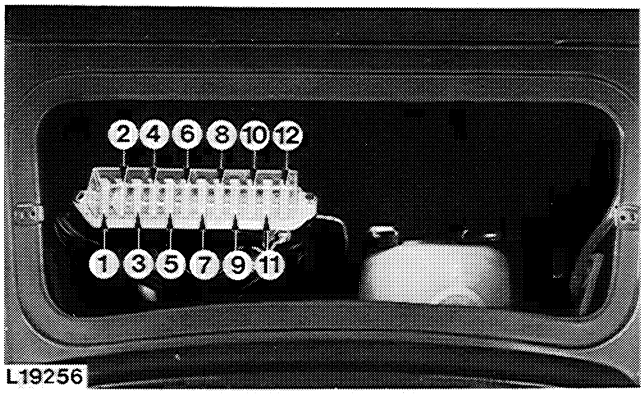
If the above checks fail to improve the operation of the starter, see your JOHN DEERE dealer.

FUSES

Fuses on Tractors Equipped with "Bilux" Lighting System



Tractor without cab



Tractor with cab

The fuses marked 1 to 12 on fuse box cover protect the following circuits:

1 – Both headlights – full beam
Full beam indicator light

2 – Both headlights – dipped

3 – Parking lights (when equipped)
Tail light, left-hand
Clearance light, right-hand
Registration plate light

4 – Work light
Instrument cluster lighting
Socket for trailer lighting

5 – Tail light, right-hand
Clearance light, left-hand
Socket for trailer lighting

6 – Acoustic warning signal for handbrake (when equipped)

7 – Front wheel drive (when equipped)

8 – Instrument cluster

9 – Horn
Heater fan
Windshield wiper and windshield washer
Cab interior lighting

10 – Hazard warning light switch
Turn-signal lights and switch
Socket for handlamp

11 – Stop lights
Hazard warning light switch

12 – Relay for cab fresh air and heater blower fan (16 amp.), when equipped with air conditioning system

Circuit Protection on Tractors Equipped with "Sealed-Beam" Lighting System

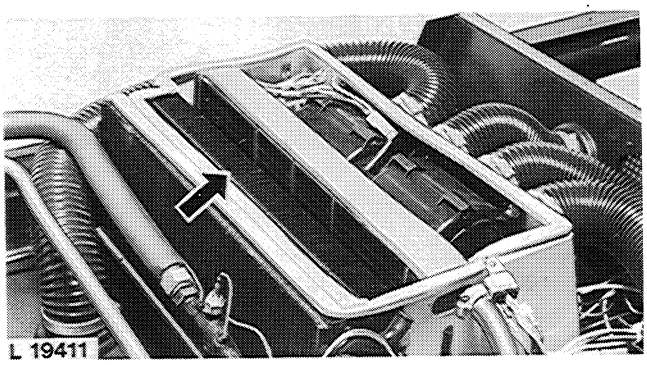
A circuit breaker protects the lighting circuit on tractors equipped with "Sealed-Beam" lighting system.

If a circuit is overloaded and trips the circuit breaker, turn light switch to "Off" position and wait approximately one minute before turning light switch back on. Within this period the circuit breaker will reset itself.

Heater and Air Conditioning System

Heater Core

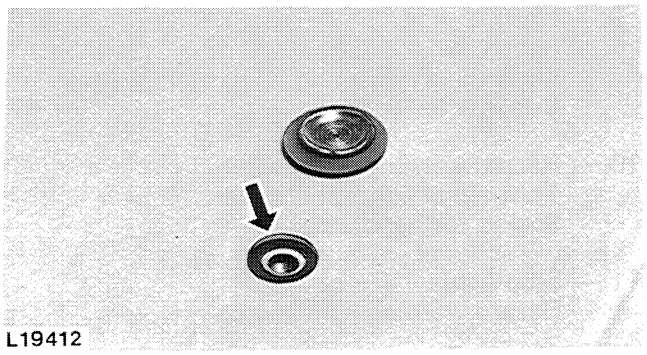
For satisfactory heater operation, be sure heater core is not plugged with dirt. To gain access to the heater core, open the roof and remove the heater and evaporator housing cover. Use compressed air to clean the heater core.


L 19411

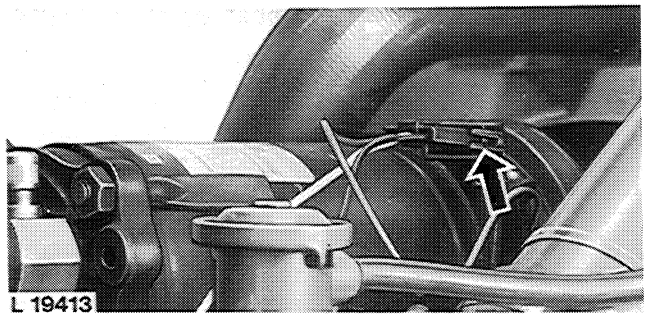
Air Conditioning System

1. If air conditioner capacity is reduced, evaporator core may be plugged with dirt. To clean evaporator core remove cab roof and clean as instructed for heater core.

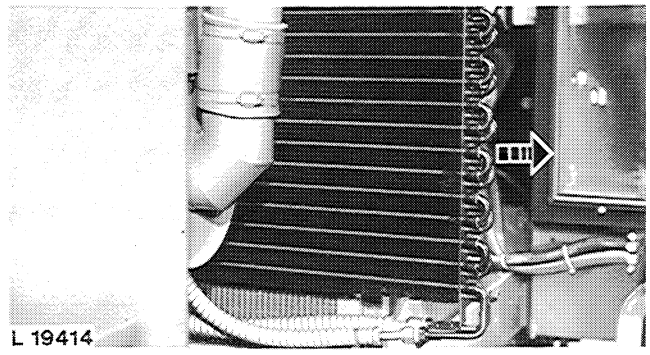
2. If moisture is collecting in cab roof, evaporator drain hoses may be plugged. Pry rubber holder from bottom of cab post (one on each side of tractor). Remove loop from drain hose, and use a wire to clean out hose.


L19412

3. If air conditioner is not cooling, check sight glass. Run engine at 1900 rpm, and turn blower and air conditioner on high. Remove plugs in cab roof and observe sight glass. If bubbles do not disappear within a few minutes, system may be low on refrigerant. Replace plugs to keep glass clean, and see your John Deere dealer.


L 19413

4. If compressor will not run with blower and air conditioner turned on high, superheat fuse may be blown. This indicates a problem in air conditioning system (usually low refrigerant). See your John Deere dealer.


L 19414

5. From time to time it will become necessary to clean the condenser. Remove radiator screen and pull out condenser from the side.

Tractor Storage

If your store the tractor for several months, follow these tips to prevent damage to the tractor.

Drain, flush and refill the cooling system with fresh coolant. For proper composition of coolant see page 98.

Do not store the tractor with the crankcase or transmission case filled with dirty oil. If necessary, drain oil and replace filter element. Drain the oil when hot. Operate engine for a few minutes before adding rust inhibitor.

To protect engine, fuel system, transmission and hydraulic system, use the AR 41785 rust inhibitor available from your JOHN DEERE dealer. The above part no. includes one can of rust inhibitor, masking tape and protective caps to cover all engine openings.

Protect the engine as follows:

1. Add 255 c.c. (9 oz.) of rust inhibitor to the engine oil.
2. Add rust inhibitor to oil in transmission hydraulic system:
   With collar shift transmission — 130 c.c. (6 oz.)
   With synchronized transmission — 185 c.c. (6.5 oz.)
3. Drain fuel tank, pour 170 c.c. (6 oz.) of rust inhibitor into the empty tank and add approx. 10 liters (2.6 U.S.gals.) of fuel. Start engine and operate it in fast idle for 15 to 20 minutes to distribute the mixture through the whole fuel system. While the engine is idling, operate the complete hydraulic system several times. Shut off engine in time to leave some fuel in the tank. Then allow the engine to cool down for 15 to 20 minutes.
4. Prepare 15 c.c. (0.5 oz.) of rust inhibitor for each cylinder. Remove plug of intake manifold or connecting pipe of starting fluid adapter at the intake manifold, whatever applies. Inject rust inhibitor into the intake manifold. Pull out shut-off knob, move hand throttle in slow idle position and crank engine with starter several times.

   However, do not allow the engine to start. Otherwise the whole procedure must be repeated.

After the rust inhibitor has been added, the engine may not be started again.

IMPORTANT! Rust inhibitor agents evaporate very easily. For this reason, seal all openings after the inhibitor has been added. Also, keep the inhibitor container always closed.

Fill the fuel tank.

Remove and clean the batteries and add distilled water, if necessary (page 85). Charge the batteries and store in a cool, dry place where they will not freeze. Keep batteries fully charged during storage (page 102). Seal all openings such as the vent tube and exhaust outlet.

Wash the exterior and painted surfaces of the tractor, using clear, cold water. Wipe them dry with a soft cloth.

Replace or repair worn or damaged parts. Between working seasons is a good time to paint your tractor.

Store the tractor in a dry, protected place. If the tractor is stored outside, cover it with a waterproof tarpaulin.

Block up the tractor so that tires do not touch the ground. Protect tires from heat and sunlight.

Removing the Tractor from Storage

Remove all protective coverings. Check tire inflation (page 41) and remove blocks.

Install batteries and connect cable and ground straps (negative terminals grounded). Check alternator belt tension (page 87).

Check transmission and hydraulic system oil level.

See that fuel tank is filled.

Check coolant level in radiator.

Check crankcase oil level.

Carry out 500-hour check (page 89). With engine shut-off knob pulled out, turn engine with starter for several seconds so that engine oil pressure builds up.

Push in engine shut-off knob and start engine.

CAUTION! Before starting the tractor engine, be sure there is plenty of ventilation. Never operate the tractor in a closed building. Danger of asphyxiation!

Trouble Shooting

The following pages list difficulties that might possibly be encountered and their possible remedies. If after properly performing the listed remedies, the difficulty still exists, see your John Deere dealer. He has been factory trained and possesses the latest technical literature and equipment to put your tractor back in operating condition.

Hydraulic System

HYDRAULIC SYSTEM FAILS TO FUNCTION

Low oil supply
Fill system with proper oil to mark on dipstick.
See page 84.

Restricted filter
Replace filter. See page 89.

Possible dirt in hydraulic pump.
Check filter for clogging. See page 89.

HITCH FAILS TO LIFT LOAD

Excessive load on hitch.
Adjust auxiliary springs on implement or reduce load.

HITCH DROPS SLOWLY

Rate-of-drop lever not properly adjusted.
Adjust rate-of-drop. See page 51.

NO HITCH RESPONSE TO DRAFT LOAD

Selector lever in Depth or Load and Depth Control position.
Place selector lever in Load Control position.

HITCH TOO ACTIVE

Selector Lever in Load Control position.
Place selector lever in Load and Depth Control position.

DIRECTION OF REMOTE CYLINDER TRAVEL IS REVERSED

Improper hose connections.
Reverse hose connections.

REMOTE CYLINDER WILL NOT LIFT LOAD

Excessive load.
Adjust auxiliary springs on implement or reduce load.

Disconnect coupler not completely engaged.
Attach hoses to coupler correctly.

Air in remote cylinder.
Bleed cylinder. See page 62.

REMOTE CYLINDER RATE-OF-TRAVEL INCORRECT

Incorrect rate-of-lift adjustment.
Adjust rate of operation.
See pages 57 and 58.

Engine

ENGINE HARD TO START OR WILL NOT START

No fuel.
Fill tank with proper fuel.

Restricted fuel filter.
Replace filter element. See page 93.

Crankcase oil too heavy.
Use oil of proper viscosity. See page 71.

Low ambient air temperature.
Use cold weather starting aids. See pages 9 to 12.

ENGINE KNOCKS

Insufficient oil.
Add oil. See page 82.

Fuel injection pump incorrectly timed.
See your dealer.

ENGINE OVERHEATS

Low coolant level.
Fill radiator to proper level. See page 82. Check radiator and hoses for loose connections and leaks.

Loose or defective fan belt.
Adjust belt tension. See page 87.

Cooling system needs flushing.
Flush cooling system. See page 94.

ENGINE OIL PRESSURE TOO LOW

Low engine oil level
Add engine oil. See page 82.

HIGH OIL CONSUMPTION

Oil of too low viscosity.
Drain and refill with oil of correct viscositiy. See page 71.

Oil leaks
Check for leaks in lines and around gaskets.

HIGH FUEL CONSUMPTION

Improper type of fuel.
Use proper fuel.

Improper valve clearance.
See your dealer.

Fuel injection nozzles dirty or damaged.
See your dealer.

Engine incorrectly timed.
See your dealer.

ENGINE EMITS BLACK OR GREY EXHAUST SMOKE

Improper type of fuel.
Use proper fuel.

Restricted air cleaner.
Service air cleaner. See page 78.

Defective muffler.
Replace muffler.

Fuel injection nozzles dirty or damaged.
Have your John Deere dealer check the injectors.

ENGINE EMITS WHITE SMOKE

Improper type of fuel.
Use proper fuel.

Cold engine
Warm up engine to normal operating temperature.

Engine incorrectly timed.
See your John Deere dealer.

Defective thermostat.
Remove and check thermostat.

Electrical System

BATTERIES WILL NOT CHARGE

Loose or corroded connections.
Clean and tighten battery connections.

Sulfated or worn-out batteries.
Check specific gravity of each battery.
Check electrolyte level of each battery. See page 102.

Loose or defective alternator belt.
Adjust belt tension. See page 87.
Replace belt.

STARTER INOPERATIVE

Loose or corroded connections.
Clean and tighten loose connections.

Low battery output.
Check specific gravity of each battery.
Check electrolyte level of each battery.
See page 102.

STARTER CRANKS SLOWLY

Low battery output.
Check specific gravity of each battery.
Check electrolyte level of each battery.
See page 102.

Crankcase oil too heavy.
Use proper viscosity oil. See page 71.

Loose or corroded connections.
Clean and tighten loose connections.

Specifications

ENGINE

		1640	1840, 2040
Engine power at rated engine speed			
Net (acc. to DIN 70020)	kW (HP)	46 (62)	51 (70)
Maximum PTO power at rated engine speed			
Measured acc. to DIN 70020	kW (HP)	41 (56)	46 (63)
Measured acc. to SAE J 816 b	kW (HP)	40 (54)	45 (60)
Maximum torque at 1200 rpm		205 Nm (150 ft-lb)	–
Maximum torque at 1300 rpm		–	230 Nm (170 ft-lb)
Number of cylinders		4	4
Bore		106.5 mm (4.19 in.)	106.5 mm (4.19 in.)
Stroke		110 mm (4.33 in.)	110 mm (4.33 in.)
Displacement		3920 c.c. (239 cu.in.)	3920 c.c. (239 cu.in.)
Compression ratio		16.8 : 1	16.8 : 1
Firing order		1-3-4-2	1-3-4-2
Intake valve clearance		0.35 mm (0.014 in.)	0.35 mm (0.014 in.)
Exhaust valve clearance		0.45 mm (0.018 in.)	0.45 mm (0.018 in.)
Slow idle	rpm	800	800
Fast idle	rpm	2660	2660
Rated speed	rpm	2500	2500
Working speed range	rpm	1200 to 2500	1300 to 2500

ELECTRICAL SYSTEM

Batteries	2 x 12 volts, 55 ampere-hours or 2 x 12 volts, 66 ampere-hours
Alternator – Tractor without operator's cab	14 volts, 33 amps. or 55 amps.
– Tractor with operator's cab	14 volts, 55 amps.
Starter	12 volts, 3 kW (4 HP)
Battery terminal grounded	negative

CAPACITIES

	Liters	U.S.gals.
Fuel tank	95.0*	25.1*
Cooling system — Tractor without operator's cab	13.0	3.4
— Tractor with operator's cab	18.0	4.75
Crankcase		
without filter change	8.0	2.1
with filter change	8.5	2.25
Transmission/hydraulic system, with collar shift transmission	33.0	8.7
with synchronized transmission	49.0	12.9
with heavy-duty final drives an extra	5.0	1.3
Belt pulley	1.2	0.3

* Tractors with metal tank — 90 liters (23.8 U.S.gals.)

CLUTCH ..... Single dry disk

COLLAR SHIFT TRANSMISSION

Optional equipment ..... Hi-Lo shift unit

SYNCHRONIZED TRANSMISSION

Optional equipment ..... Hi-Lo shift unit or Creeper transmission

FINAL DRIVE ..... Planetary reduction drive

DIFFERENTIAL LOCK ..... Hand or foot operated mechanical lock, spring-loaded out of engagement

CONTINUOUS RUNNING PTO

Rear ..... 540 rpm

INDEPENDENT PTO

Rear ..... 540 rpm single or 540 and 1000 rpm interchangeable

HANDSHIFT INDEPENDENT PTO ..... 540 and 1000 rpm

HYDRAULIC SYSTEM ..... Closed center, constant pressure of 19000 kPa (190 bar; 2760 psi)*

FOOT BRAKES ..... Hydraulically actuated, wet-disk type, one each per rear wheel

HANDBRAKE ..... Band-type brake, acting on differential

or

PARKING LOCK ..... Range shift lever in park (P) position

* CANADY ONLY: 15500 kPa (155 bar; 2250 psi)

WEIGHTS

	1640	1840 and 2040
Tire Sizes	7.50-18/16.9-30	7.50-18/15.5-38
Stability Weight (Total)	2695 kg (5940 lb)	2750 kg (6060 lb)
Front	935 kg (2060 lb)	935 kg (2060 lb)
Rear	1760 kg (3880 lb)	1815 kg (4000 lb)

The above weights will vary, depending upon equipment. The weights quoted should be considered as a guide only.

To rear weights:
Add 85 kg (185 lb) on machines equipped with four-post roll guard.
Add 95 kg (210 lb) on machines equipped with two-post roll guard.
Add 60 kg (130 lb) on machines with cast rear wheels and 16.9-30 tires.
Add 110 kg (245 lb) on machines with cast rear wheels and 15.5-38 tires.
Add 390 kg (860 lb) on machines equipped with rack-and-pinion axle and 16.9-30 tires.
Add 420 kg (925 lb) on machines equipped with rack-and-pinion axle and 15.5-38 tires.
Add 230 kg (505 lb) to rear and 140 kg (310 lb) to front on machines equipped with cab.

Maximum Permissible Static Vertical Load

a. on drawbar (standard length) ..... 680 kg (1500 lb)

b. on drawbar (fully retracted) ..... 1000 kg (2205 lb)

c. on swinging trailer hitch ..... 1000 kg (2205 lb)

d. on hydraulic trailer hitch ..... 1300 kg (2865 lb)

Maximum Permissible Axle Loads

a. front tires:	6.00-16	1120 kg (2470 lb)	2240 kg (4940 lb)*
	7.50-16	1490 kg (3285 lb)	2980 kg (6570 lb)*
	7.50-18	1540 kg (3395 lb)	3240 kg (7145 lb)*
	10.00-16	1540 kg (3395 lb)	3500 kg (7715 lb)*

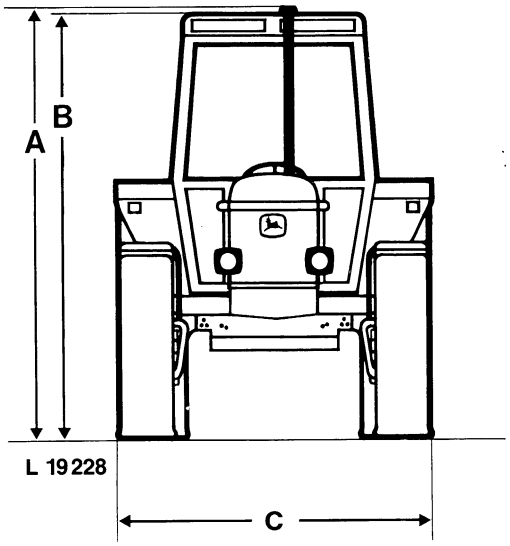
* With front loader, maximum permissible travel speed in this case 8 km/h (5 mph)
Maximum front wheel tread 1.70 m (67 in.). With 6.00-16 tires maximum front wheel tread reduced to 1.60 m (63 in.).

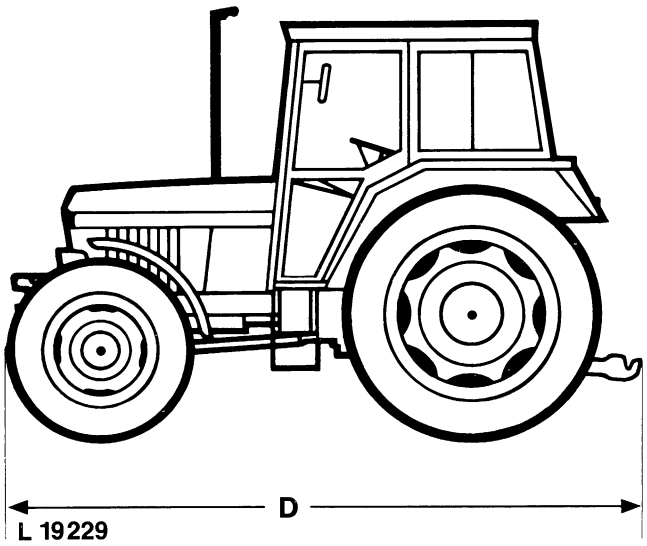
b. rear tires:	13.6-36	3230 kg (7120 lb)
	13.6-38	3320 kg (7320 lb)
	14.9-38	3500 kg (7715 lb)
	15.5-38	3500 kg (7715 lb)
	16.9-24	3500 kg (7715 lb)
	16.9-30	3500 kg (7715 lb)
	16.9-34	3500 kg (7715 lb)
	18.4-30	3500 kg (7715 lb)
	21.5-16.1	3500 kg (7715 lb)
	23.1-26	3500 kg (7715 lb)
	13.6-38 (8 PR)	3500 kg (7715 lb)

Maximum Permissible Total Weight — 1640 ..... 4500 kg (7715 lb)
1840, 2040 ..... 4600 kg (10140 lb)

NOTE: Traffic regulations in certain countries may reduce the axle loads and maximum permissible total weights quoted above.

DIMENSIONS





Measurements shown are for tractor equipped with 16.9-30 rear tires. With other sized rear tires installed, height and width measurements will vary slightly.

A — Overall height to top of muffler stack cover flap (open)		
Without operator's cab	2.85 m	112.2 in.
With operator's cab	2.98 m	117.3 in.
B — Overall height to top of 4-post roll guard	2.53 m	99.6 in.
Overall height to top of operator's cab	2.61 m	102.8 in.
C — Width		
— with roll guard and wide fenders	2.06 m	81.1 in.
— with operator's cab	2.07 m	81.5 in.
— with rack-and-pinion axle	2.27 m	89.4 in.
D — Overall length from front edge of basic weight to rear edge of draft links	3.74 m	147.0 in.
Turning radius, without steering brake	3.80 m	150 in.
Turning radius, with steering brake	3.40 m	134 in.

All information, illustrations, and specifications contained in this operator's manual are based on the latest information available at the time of publication. The right is reserved to make changes at any time without notice.

Front Wheel Drive

WEIGHTS

	1640	1840 and 2040
Tire Sizes	11.2-28/16.9-30	11.2-28/15.5-38
Stability Weight (Total)	2980 kg (6750 lb)	3035 kg (6690 lb)
Front	1150 kg (2535 lb)	1150 kg (2535 lb)
Rear	1830 kg (4035 lb)	1885 kg (4155 lb)

Maximum Permissible Front Axle Load

With tires:	11.2-24	2200 kg (4850 lb)	3430 kg (5760 lb)*
	11.2-28	2200 kg (4850 lb)	3120 kg (6880 lb)*
	13.6-24	2200 kg (4850 lb)	3700 kg (8155 lb)*

* With front loader, maximum permissible travel speed 8 km/h (5 mph)
Maximum front wheel tread 1.70 m (67 in.)

DIMENSIONS

Turning Radius

Without steering brake and front wheel drive disengaged	4.80 m	189 in.
Without steering brake and front wheel drive engaged	5.10 m	201 in.
With steering brake and front wheel drive disengaged	4.10 m	161 in.
With steering brake and front wheel drive engaged	4.40 m	173 in.

CAPACITIES

Front axle housing	5.25 liters	1.4 U.S.gals.
Final drive housing	each 0.75 liters	0.2 U.S.gals.

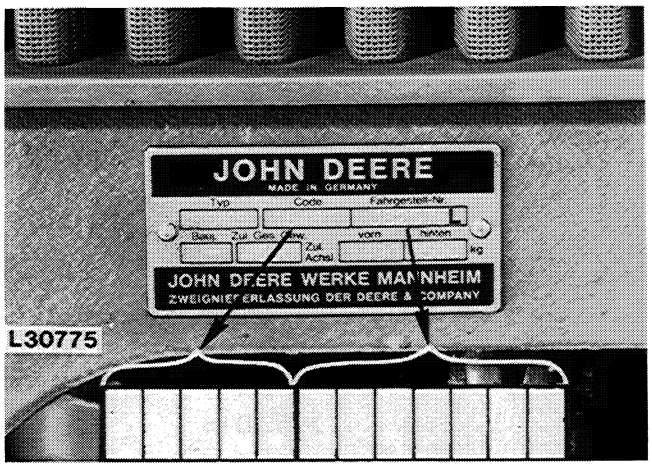
NOTE: Specifications not quoted separately are the same as those given for tractors without front wheel drive.

All information, illustrations, and specifications contained in this operator's manual are based on the latest information available at the time of publication. The right is reserved to make changes at any time without notice.

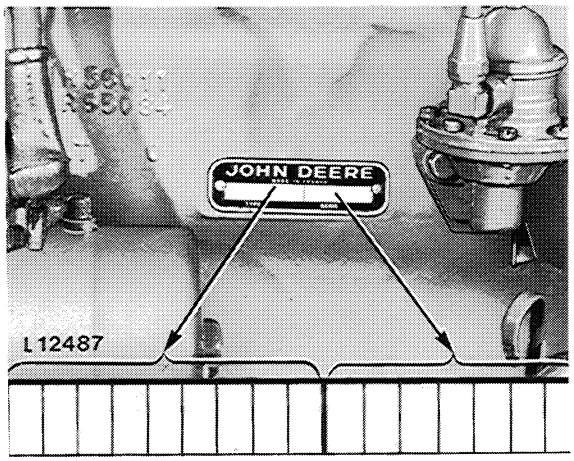
Serial Numbers

The following illustrations show the serial number plates for engine and tractor.

For ready reference, locate and record these serial numbers in the spaces provided below each illustration. Your JOHN DEERE dealer requires this information for warranty claims* and to give you prompt, efficient service when you order replacement parts**



Record Tractor Serial Number Here



Record Engine Serial Number Here

* It is extremely important to quote complete serial number group together with all letters of both machine and engine on all warranty claims or correspondence pertaining to this tractor. This point cannot be overemphasized.

** When ordering new parts, only state the number group – without letters – of the tractor and engine serial numbers.

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NOTES

NOTES

NOTES

NOTES

Service to keep you on the job

We, at your John Deere dealer's, pride ourselves in having what it takes to help keep you on the job . . . .

John Deere Parts.
We help minimize downtime by putting the right parts in your hands in a hurry. That's why we maintain a large and varied inventory — to stay a jump ahead of your needs.



The right tools.
Precision tools and testing equipment enable our Service Department to locate and correct troubles quickly. . . . . to save you time and money.





Well-trained technicians.
School is never out for John Deere service technicians. Training schools are held regularly to be sure our personnel know your equipment and how to maintain it. Result? Experience you can count on!



Prompt service.
Our goal is to provide prompt, efficient care when you want it and where you want it. We can make repairs at your place or at ours, depending on the circumstances. See us. Depend on us.

John Deere Service Superiority: We'll be around when you need us