

2250, 2450, 2650, 2650N and 2850 Tractors

TECHNICAL MANUAL
2250, 2450, 2650, 2650N
and 2850 Tractors (Repair)
TM4440 (JAN-91)

John Deere Werke Mannheim
European Edition
Printed in Germany

Supplement (Jan-91) for Technical Manual TM4440

(2250 - 2850 Tractors)

Please insert the revised and new pages in the correct sequence in your Technical Manual, discarding the corresponding original pages which have been revised.



SUMMARY OF MOST IMPORTANT SPECIFICATIONS FOR 2250, 2450, 2650, 2650N and 2850 TRACTORS

NOTE: For further specifications, see relevant Technical Manual.

ENGINE

Valve clearance
(engine hot or cold):

Intake valves	0.35 mm (0.014 in.)
Exhaust valves	0.45 mm (0.018 in.)

Minimum engine oil pressure
at 800 rpm and normal operating
temperature 100 kPa
(1 bar; 14 psi)

Compression 2100 kPa
(21 bar; 300 psi)

Maximum difference in pressure
between cylinders 350 kPa
(3.5 bar; 50 psi)

Maximum blow-by at crankcase
vent tube 80 liter/kWh
(2.8 cu.ft./kWh)

Minimum pressure of turbocharger
in intake manifold at
rated engine speed 60 kPa
(0.6 bar; 9 psi)

Rocker arm shaft to cylinder head 50 Nm (35 ft-lb)
Cylinder head to cylinder block
(cap screws dipped in oil)

1st step	85 Nm (65 ft-lb)
2nd step	135 Nm (100 ft-lb)
3rd step	+ 60°

Rocker cover to cylinder head 10 Nm (7 ft-lb)

Connecting rod cap screws
(dipped in oil) 65 to 75 Nm (50 to 55 ft-lb)

Main bearing caps to
cylinder block 120 Nm (85 ft-lb)

Flywheel to crankshaft 160 Nm (120 ft-lb)

Front axle carrier to engine
without increased lifting capacity 230 Nm (170 ft-lb)
with increased lifting capacity

- Cap screws	230 Nm (170 ft-lb)
- TORX screws	250 Nm (185 ft-lb)

Oil pan to front axle carrier 400 Nm (300 ft-lb)

Oil pan to clutch housing 230 Nm (170 ft-lb)

Clutch housing to engine 230 Nm (170 ft-lb)

Side frames to front axle carrier 230 Nm (170 ft-lb)

Side frames to flywheel housing 230 Nm (170 ft-lb)

FUEL INJECTION NOZZLES

Opening pressure of a new or re-
conditioned nozzle with new spring

- Engine without turbocharger	21700 to 22400 kPa (217 to 224 bar; 3150 to 3250 psi)
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- Engine with turbocharger	25100 to 25800 kPa (251 to 258 bar; 3650 to 3750 psi)
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Minimum opening pressure with
used nozzle

- Engine without turbocharger	20700 kPa (207 bar; 3000 psi)
- Engine with turbocharger	24100 kPa (241 bar; 3500 psi)

Maximum difference in
opening pressure 700 kPa
(7 bar; 100 psi)

Fuel injection nozzle to
cylinder head 30 Nm (23 ft-lb)

BATTERIES

Cold state testing current

- 55 Ah battery	255 amps.
- 66 Ah battery	300 amps.

ENGINE SINGLE-STAGE CLUTCH

Thickness of a new disk 10 mm (0.39 in.)

Wear limit 7 mm (0.26 in.)

Maximum permissible warpage

of clutch disk 0.5 mm (0.02 in.)

Flywheel to crankshaft 160 Nm (120 ft-lb)

Clutch to flywheel 50 Nm (35 ft-lb)

Clutch pedal free play
(mechanical clutch) 25 mm (approx. 1 in.)

ENGINE DUAL-STAGE CLUTCH

Thickness of a new disk

- Engine clutch	9.0 to 9.6 mm (0.35 to 0.38 in.)
- PTO clutch	7.7 to 8.3 mm (0.30 to 0.33 in.)

Wear limit of a clutch disk

- Engine clutch	6 mm (0.24 in.)
- PTO clutch	4.7 mm (0.18 in.)

Maximum permissible warpage

of clutch disk 0.5 mm (0.02 in.)

Flywheel to crankshaft 160 Nm (120 ft-lb)

Clutch to flywheel 50 Nm (35 ft-lb)

Clutch pedal free play 25 mm (approx. 1 in.)

HI-LO SHIFT UNIT

Operating pressure at 1500 rpm 1050 kPa
(10.5 bar; 150 psi)

Operating pressure of
automatic shift valve 500 to 700 kPa
(5 to 7 bar; 75 to 100 psi)

Hi-Lo shift unit to
clutch housing 50 Nm (35 ft-lb)

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SUMMARY OF MOST IMPORTANT SPECIFICATIONS FOR 2250, 2450, 2650, 2650N and 2850 TRACTORS

SYNCHRONIZED TRANSMISSION

Differential Drive Shaft

Rolling drag torque with

New bearings 0.75 to 1.5 Nm (6.5 to 13 in-lb)

Used bearings 0.4 to 0.75 Nm (3.5 to 6.5 in-lb)

Special hex. nut or special nut

of differential drive shaft 140 Nm (100 ft-lb)

Range Shaft

Preload of taper roller bearings 0.05 to 0.10 mm
(0.002 to 0.004 in.)

Countershaft

Preload of transmission

hollow drive shaft 0.05 to 0.10 mm
(0.002 to 0.004 in.)

Rolling drag torque 1 to 2 Nm (9 to 18 in-lb)

End play of differential

drive shaft 0.03 to 0.13 mm
(0.001 to 0.005 in.)

Hex. nut of transmission

hollow drive shaft 140 Nm (100 ft-lb)

Countershaft bearing quill 120 Nm (85 ft-lb)

Intermediate Shaft

Preload of bearings 0.05 to 0.10 mm
(0.002 to 0.004 in.)

Grooved nut 140 Nm (100 ft-lb)

Clutch housing to

transmission case 160 Nm (120 ft-lb)

COLLAR SHIFT TRANSMISSION

Differential Drive Shaft

Total thickness of shim pack

to adjust cone point 0.5 mm (0.02 in.)

Maximum permissible end play before

adjusting preload 0.05 mm (0.002 in.)

Dimension to be added to

measured end play 0.15 mm (0.006 in.)

Preload of taper roller bearings 0.15 mm (0.006 in.)

Rolling drag torque with

specified preload 0.6 to 1.7 Nm
(5 to 15 in-lb)

Hex. nut of differential

drive shaft 220 Nm (160 ft-lb)

Transmission Drive Shaft

End play 0.10 to 0.15 mm
(0.004 to 0.006 in.)

Transmission drive shaft

bearing quill 50 Nm (35 ft-lb)

TRANSMISSION OIL PUMP

Minimum delivery of transmission
oil pump at 2000 rpm:

Oil temperature 40°C (100°F)

– 2250 and 2450

without Hi-Lo 34 liters/min. (9 gpm)

– 2250 to 2850

with Hi-Lo and

2650 to 2850

without Hi-Lo 42 liters/min. (11 gpm)

Oil temperature 65°C (150°F)

– 2250 and 2450

without Hi-Lo 30 liters/min. (8 gpm)

– 2250 to 2850

with Hi-Lo and

2650 to 2850

without Hi-Lo 38 liters/min. (10 gpm)

Minimum flow to hydraulic pump
at 2000 rpm with:

Oil temperature 40°C (100°F)

– 2250 to 2850

without Hi-Lo 30 liters/min. (8 gpm)

– 2250 to 2850

with Hi-Lo and

2650 to 2850

without Hi-Lo 36 liters/min. (9.5 gpm)

Oil temperature 65°C (150°F)

– 2250 and 2450

without Hi-Lo 26 liters/min. (7 gpm)

– 2250 to 2850

with Hi-Lo and

2650 to 2850

without Hi-Lo 32 liters/min. (8.5 gpm)

Transmission oil pump

cap screws 55 Nm (40 ft-lb)

Transmission oil pump

to clutch housing 55 Nm (40 ft-lb)

DIFFERENTIAL

Preload of taper roller bearings 0.05 to 0.13 mm
(0.002 to 0.005 in.)

Backlash between ring gear and

differential drive shaft pinion 0.30 mm (0.012 in.)

FINAL DRIVES

To measured rolling drag torque

of final drive housing (before

tightening 12-point screw) add:

Standard final drives 8 to 12.5 Nm
(6 to 9 ft-lb)

Heavy-duty final drives 10 to 13.5 Nm
(7.5 to 10 ft-lb)

Final drives to transmission case 120 Nm (85 ft-lb)



SUMMARY OF MOST IMPORTANT SPECIFICATIONS FOR 2250, 2450, 2650, 2650N 2850 TRACTORS

INDEPENDENT PTO

Operating pressure at 1500 rpm 1050 kPa
(10.5 bar; 150 psi)

Preload of taper roller bearings
in bearing quill (at 540 rpm,
heavy-duty type) 0.05 mm (0.002 in.)
Drive gear to clutch drum 75 Nm (55 ft-lb)
Bearing quill to transmission case 120 Nm (85 ft-lb)

CONTINUOUS RUNNING PTO

Preload of taper roller
bearings in bearing quill
(heavy-duty version) 0 to 0.05 mm (0 to 0.002 in.)
Bearing quill to
transmission case 120 Nm (85 ft-lb)

FRONT PTO

Operating pressure at 1500 rpm 1050 kPa
(10.5 bar; 150 psi)
Preload of taper roller
bearings 0 to 0.05 mm (0 to 0.002 in.)
Front PTO to front
axle carrier 400 Nm (300 ft-lb)

FRONT WHEEL DRIVE

Operating pressure at 1500 rpm 1050 kPa
(10.5 bar; 150 psi)
Disk clutch slips at a torque of:
2250, 2450, 2650 and 2650N 880 Nm (650 ft-lb)
2850 1000 Nm (740 ft-lb)
Front axle to front
axle carrier 300 Nm (220 ft-lb)
Front axle axial play 0 to 0.5 mm (0 to 0.02 in.)
Universal-jointed drive shaft
to drive hub 75 Nm (55 ft-lb)

HYDROSTATIC STEERING

Adjustment pressure of
double-acting safety valves 21000 kPa
(210 bar; 3050 psi)
Steering valve to
steering column 50 Nm (35 ft-lb)

BRAKES

Return travel of pressure ring
(within 15 seconds) 0.28 to 0.35 mm
(0.011 to 0.014 in.)

Test pressure for leakage test
of pressure ring 300 kPa
(3 bar; 44 psi)

Maximum pressure drop
within 10 seconds 10 kPa
(0.1 bar; 1.5 psi)

Retraction pin assembly
to pressure ring 15 Nm (11 ft-lb)

HYDRAULIC PUMPS

Pump stand-by pressure 19000 kPa
(190 bar; 2760 psi)

Minimum delivery
at 2000 rpm and 17000 kPa
(170 bar; 2450 psi)
operating pressure:
12 cm³ (0.7 cu.in.) pump 19 liters/min. (5 gpm)
23 cm³ (1.4 cu.in.) pump 34 liters/min. (9 gpm)
40 cm³ (2.4 cu.in.) pump 68 liters/min. (18 gpm)
Hydraulic pump to front
axle carrier 120 Nm (85 ft-lb)

ROCKSHAFT

Opening pressure of pressure
relief valve (with 100 mm; 3.94 in.
diameter piston) 21000 to 23000 kPa
(210 to 230 bar; 3050 to 3340 psi)

Opening pressure of thermal
relief valve (with 92 mm; 3.67 in.
diameter piston) 24200 to 31000 kPa
(242 to 310 bar; 3500 to 4500 psi)

Rockshaft to transmission case 120 Nm (85 ft-lb)

Adjusting Load Control Arm

Turn in control arm adjusting
screw until it contacts arm
and then back off 1/3 to 1/2
a turn



SUMMARY OF MOST IMPORTANT SPECIFICATIONS FOR 2250, 2450, 2650, 2650N and 2850 TRACTORS

Adjusting Valve Clearance

At commencement of lift, turn
adjusting screw clockwise 1/4 turn

Control lever play between
raising and lowering:

With SG2 cab 12 to 15 mm
(0.5 to 0.6 in.)

With MC1 cab

– Up to Tractor Serial No. 637 600L* 4 to 10 mm
(0.16 to 0.4 in.)

– From Tractor Serial No. 637 601L* 12 to 15 mm
(0.5 to 0.6 in.)

*Without cab** 2 to 4 mm
(0.08 to 0.16 in.)

On narrow tread tractors 3 to 6 mm
(0.12 to 0.24 in.)

Adjusting Rockshaft Control Lever

With SG2 cab

Front edge of rockshaft control
lever in position 7 to 7.5

With MC1 cab (up to Tractor Serial No. 637 600L)

Clearance from front end position to
front edge of rockshaft control lever* 10 + 6 mm
(0.4 + 0.24 in.)

With MC1 cab (from Tractor Serial No. 637 601L)

Front edge of control lever in position 7 to 7.5

Without cab

Front edge of rockshaft control
lever to front end of quadrant* 12 + 1/-2 mm
(0.47 + 0.04/-0.08 in.)

On narrow tread tractors

Front edge of rockshaft control
lever to front edge of quadrant* 15 + 10/-5 mm
(0.6 + 0.4/-0.2 in.)

Adjusting commencement of lift
with load control

With SG2 cab

Front edge of control lever in position 2 to 2.5

With MC1 cab (up to Tractor Serial No. 637 600L)

Clearance from rear end position to
rear edge of rockshaft control lever* 45 + 6 mm
(1.8 + 0.24 in.)

With MC1 cab (from Tractor Serial No. 637 601L)

Front edge of control lever in position 2 to 2.5

Without cab

Rear edge of control lever to
rear end of quadrant* 50 ± 3 mm
(2 ± 0.12 in.)

On narrow tread tractors

Clearance from rear end position
to rear edge of rockshaft control lever* 90 + 10/-5 mm
(3.54 + 0.4/-0.2 in.)

* Measured at upper edge of quadrant

FRONT AXLE

Maximum permissible axial
play of knuckle and spindle

assy. in axle knee 0.76 mm (0.03 in.)

Front axle axial play 0 to 0.4 mm (0 to 0.015 in.)

Bearing pin to front axle carrier 100 Nm (75 ft-lb)

Axle knees to axle center 400 Nm (300 ft-lb)

Steering arm to knuckle
and spindle assy.

– Clamping screw 120 Nm (85 ft-lb)

– Cap screw 230 Nm (170 ft-lb)

FRONT WHEELS

Wheel hub to axle spindle 50 Nm (35 ft-lb)

Steel disk to rim

– M16x120 attaching screws 250 Nm (180 ft-lb)

– M16x74 attaching screws 280 Nm (210 ft-lb)

Wheel rim to hub

Without front wheel drive 150 Nm (110 ft-lb)

With front wheel drive 300 Nm (220 ft-lb)

Front wheel toe-in

Without front wheel drive 3 to 6 mm (1/8 to 1/4 in.)

With front wheel drive 0 to 3 mm (0 to 1/8 in.)

REAR WHEELS

Flanged Rear Axle

Steel disk to rim

– M16x120 attaching screws 250 Nm (185 ft-lb)

– M16x74 attaching screws 280 Nm (210 ft-lb)

– 9/16 in. attaching screws 200 Nm (145 ft-lb)

Cast disk to rim 230 Nm (170 ft-lb)

Rear wheels to rear axle 400 Nm (300 ft-lb)

Rack-and-Pinion Axle

Wheel hub to rim 230 Nm (170 ft-lb)

Pinion sleeve halves to

wheel hub 215 Nm (160 ft-lb)

Sleeve attaching screws to

wheel hub 400 Nm (300 ft-lb)

SG2 CAB

SG2 cab to mounting

brackets or final drives 200 Nm (145 ft-lb)

Studs in final drive housings 35 Nm (25 ft-lb)

MC1 CAB

MC1 cab to mountings 245 Nm (180 ft-lb)

2-POST ROLL-GUARD

Supports to final drives 230 Nm (170 ft-lb)

Supports to crossmember 230 Nm (170 ft-lb)

4-POST ROLL-GUARD

Roll-guard to fender 120 Nm (85 ft-lb)

Fender to final drive 230 Nm (170 ft-lb)

2250, 2450, 2650, 2650N AND 2850 TRACTORS TECHNICAL MANUAL TM-4440 (Jan-91)

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SECTION CONTENTS IN GROUPS – REPAIR

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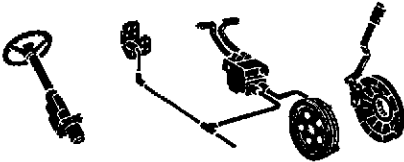
- 05 – Valves
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FX 100006 19

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SAFETY AND YOU

This is the safety-alert symbol. When you see this symbol on the machine or in this manual, be alert to the potential for personal injury.



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IMPORTANT

The **IMPORTANT** message identifies potential problems which may cause consequential damage to machine. Following recommended procedure will instruct technician how to avoid problem.

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NOTES

The word **NOTE** is followed by a statement that identifies a qualification or exception to a previous statement. A "**NOTE**" may also identify nice-to-know information pertinent to, but not directly related to previous statement.

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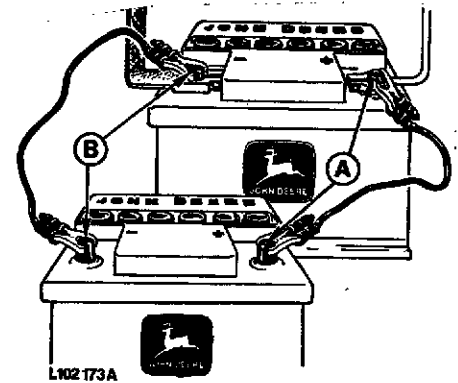
IMPORTANT NOTES

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 this circuit by switching off the main switch before stopping the engine by means of the fuel pump shut-off cable. An additional load (lights) must also be switched on. Do not run engine above 1000 rpm. Insulate battery end of disconnected starter cable properly to avoid damage to alternator and regulator.

On tractors equipped with an operator's cab, do NOT connect ground strap of slave battery to cab frame.

Observe proper polarity when connecting batteries and chargers. Improperly connected batteries ("+" and "-") result in immediate destruction of rectifier diodes.

A-Positive terminals
B-Negative terminals



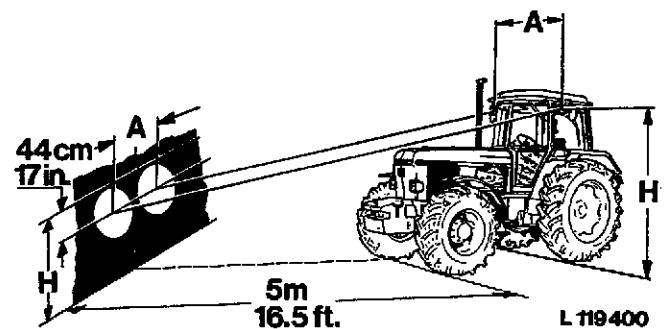
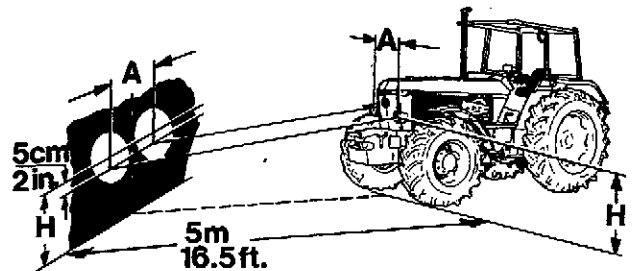
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CHECKING LIGHTING SYSTEM

See Operator's Manual.

Check adjustment of headlights and adjust, when necessary.

When equipped, check adjustment of roof headlights and adjust, when necessary.

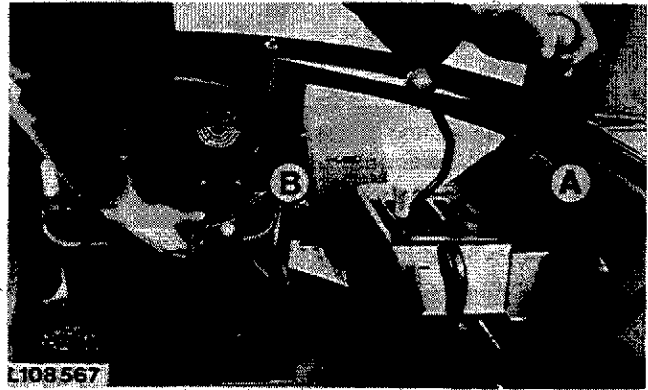


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CHECKING START SAFETY SWITCH

Operate starter switch (B).

NOTE: Starting motor should turn only with the range shift lever (A) in neutral position.

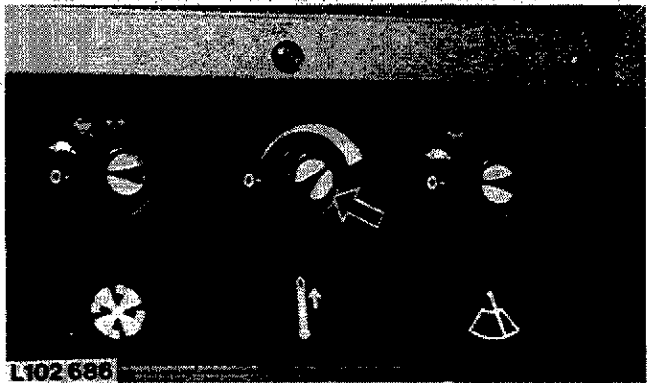


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CHECKING HEATER CONTROL SWITCH

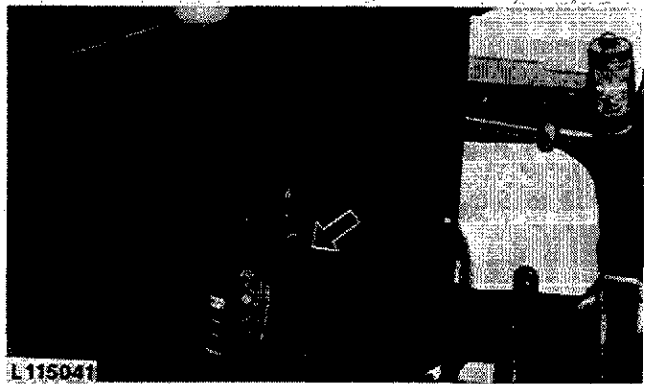
Tractors With SG2 Cab

With engine running at operating temperature, turn control switch to the right and wait until warm air enters cab through the air louvers.



Tractors With MC1 Cab

With engine running at operating temperature, turn control switch to the right and wait until warm air enters cab through the air louvers.



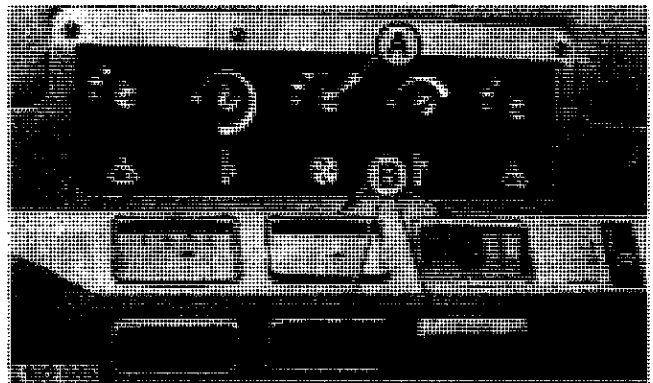
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CHECKING FAN SWITCH

Tractors With SG2 Cab

Open air louvers (B).

Check function of three-stage cab ventilation and heater fan switch (A).



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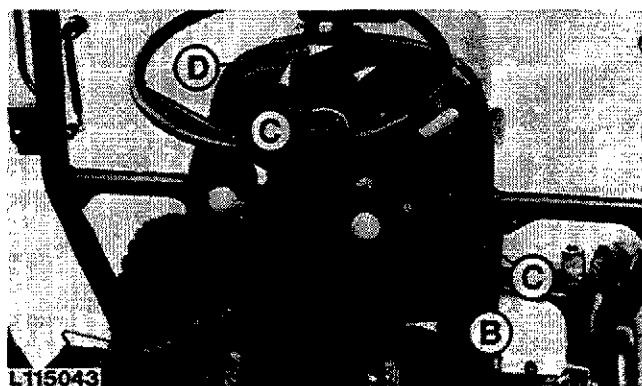
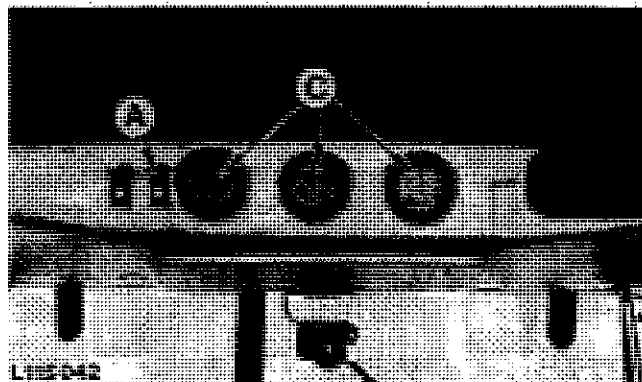
Tractors with MC1 Cab

Open air louvers (C).

Check function of switch (A) for fan in roof and switch (B) for fan in dash.

- A-Switch (roof fan)
- B-Switch (dash fan)
- C-Air louvers
- D-Air flow selector switch

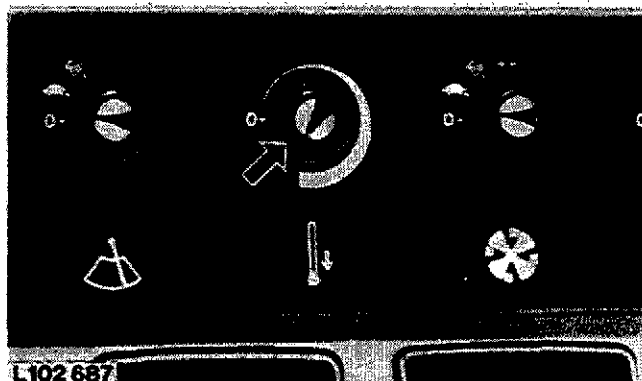
Also check function of air flow selector switch (D). This switch allows to change from fresh air intake to recirculating cab air.



L115042, L115043-LB31010AE-010287

CHECKING THERMOSTAT SWITCH (Tractors with Air Conditioning System)

With fan switched on, turn infinitely adjustable switch to the right and wait until cool air enters cab through the air louvers.



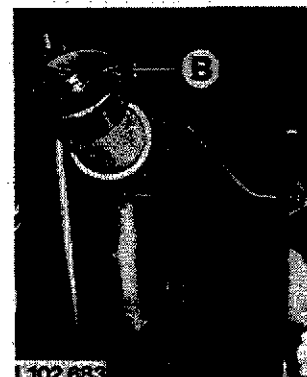
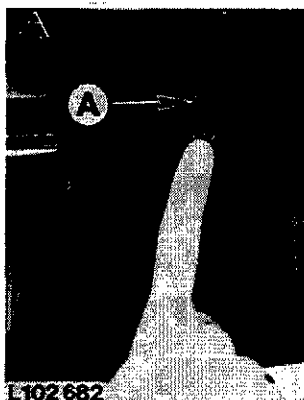
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CHECKING WINDSHIELD WASHER SYSTEM

Tractors With SG2 Cab

Operate tumbler switch (A) of washer system.

Add a suitable commercially available anti-freeze solution to reservoir (B) if temperature is liable to drop below freezing point.

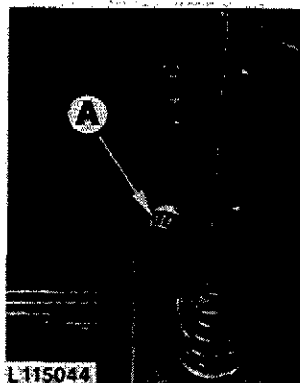


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Tractors with MC1 Cab

Operate hand pump (A) of washer system.

Add a suitable commercially available anti-freeze solution to reservoir (B) if temperature is liable to drop below freezing point.



L115044



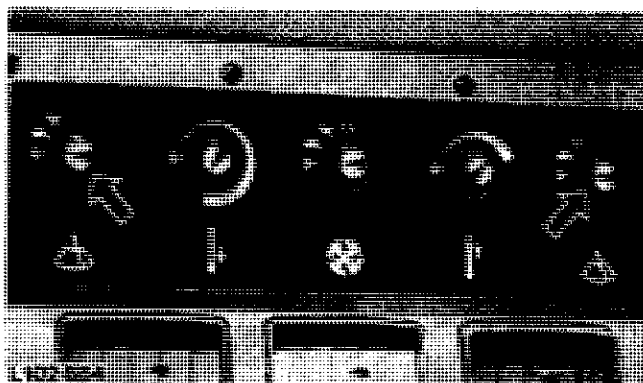
L115045

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CHECKING FUNCTION OF WINDSHIELD WIPERS

Tractors With SG2 Cab

Check both windshield wiper speeds by turning both two-speed switches.

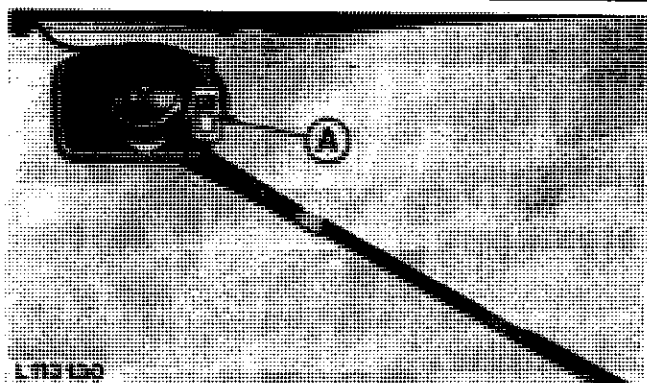


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Tractors with MC1 Cab

Check windshield wiper operation by means of tumbler switch (A).



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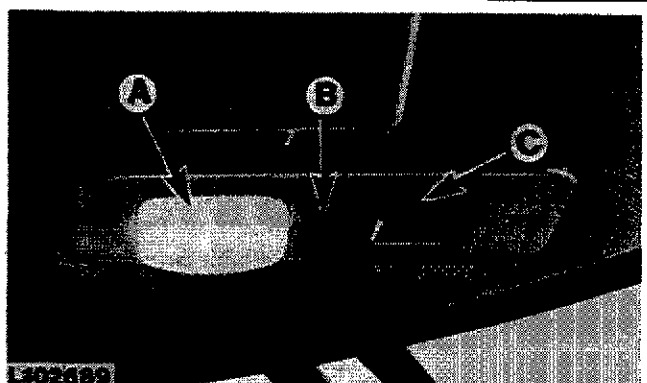
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CHECKING CAB INTERIOR LIGHTS

Tractors With SG2 Cab

Turn switch (B) to position 1, lamp (A) glows continuously and, in position 2, it glows as long as cab door is open.

Lamp (C) illuminates transmission shift levers as soon as headlights are switched on.

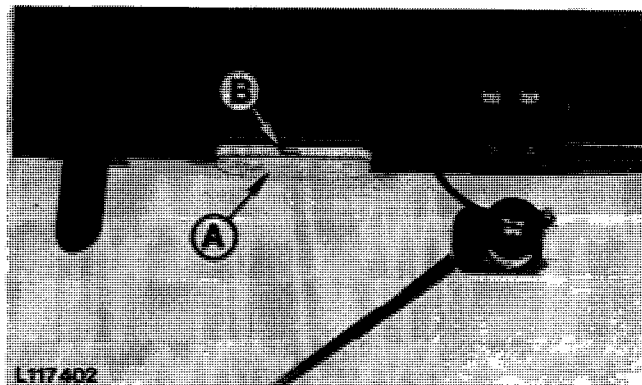


L102689

L102689-LB31010AE-010287

Tractors with MC1 Cab

With switch (B) in right-hand position, lamp (A) should glow continuously.



L117402-LB31010AE-010888

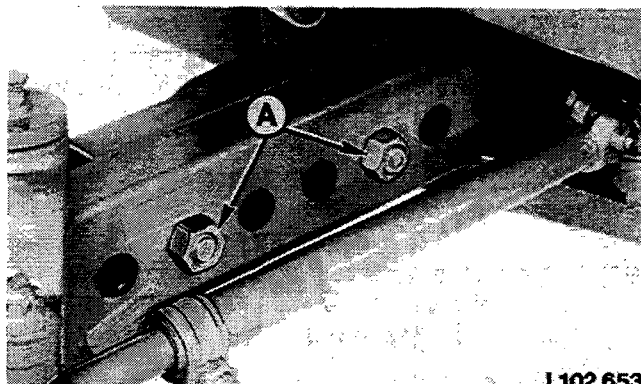
CHECKING INSTRUMENTS AND INDICATOR LIGHTS

See Operator's Manual.

INSPEK-LB21010FE-010886

CHECKING TORQUE OF ADJUSTABLE FRONT AXLE BOLTS (When Equipped)

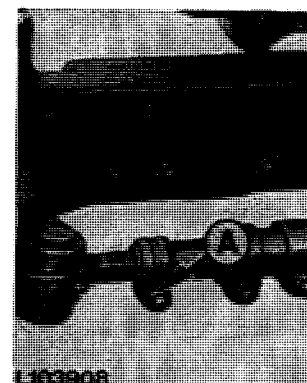
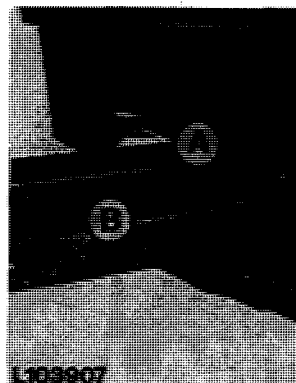
Tighten axle bolts (A) to 400 Nm (300 ft-lb).



L102653-LB31010AE-010287

CHECKING TIE ROD BOLTS (Tractors Without Front Wheel Drive)

Tighten clamping screws (A) to 55 Nm (40 ft-lb) and clamping screw (B) to 90 Nm (65 ft-lb).

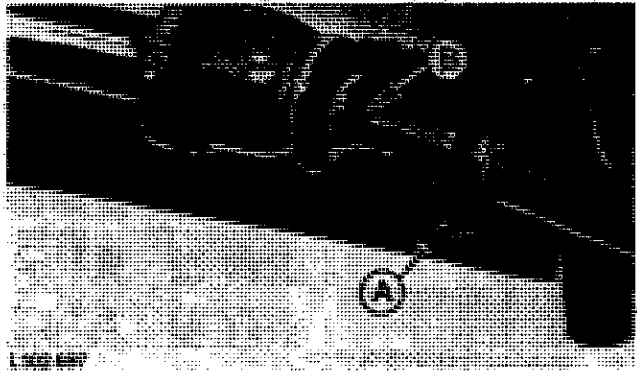


L103907,L103908-LB31010AE-010888

CHECKING TIE ROD BOLTS (Tractors With Front Wheel Drive)

Tighten clamping screw (A) to 55 Nm (40 ft-lb).

A—Clamping screw
B—Threaded rod



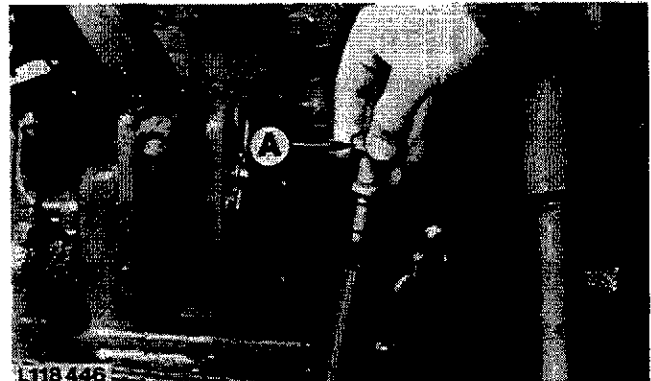
L102697-LB21010AE-010488

CHECKING TRANSMISSION/HYDRAULIC SYSTEM OIL LEVEL

IMPORTANT: Check oil level when oil is cold.

Park tractor on level ground. Completely lower rock-shaft. When equipped, fully lower front hitch. Pull out dipstick (A) and wipe clean. Reinsert dipstick, again pull out and check oil level.

NOTE: If oil level is below top mark, top up with oil through filler neck (B) to bring level up to top mark on dipstick.



L118 446

IMPORTANT: After having topped up transmission with oil, wait for a period of five minutes before rechecking oil level with dipstick.

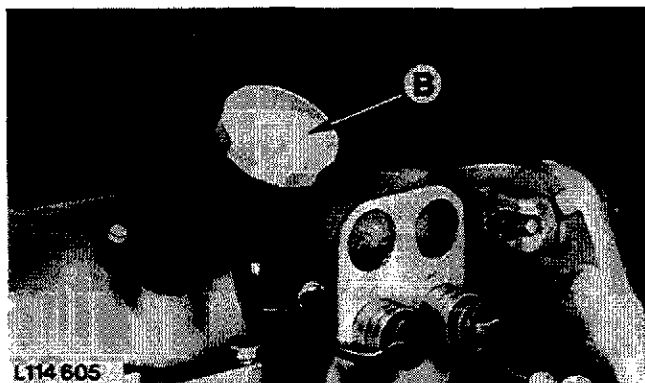
If necessary, add JOHN DEERE Hy-Gard transmission and hydraulic oil or equivalent (see Group 15) to bring oil level to top mark on dipstick.

NOTE: Types of oil not meeting JOHN DEERE specifications will not give satisfactory service and may result in damage.



L113094

IMPORTANT: Make sure that transmission oil filter element and oil return flow filter were changed after first 50 hours of operation.



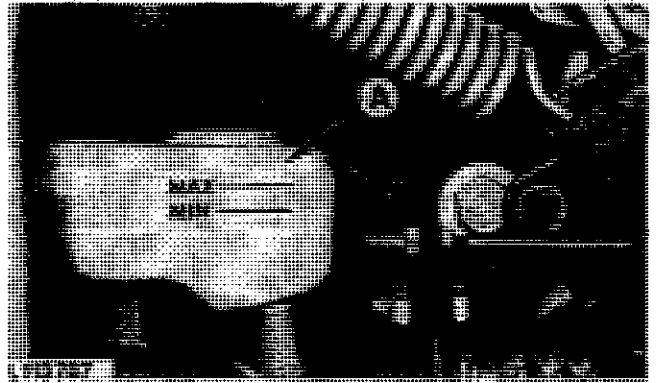
L114 605

L118446, L113094, L114605-LB31010AE-010888

CHECKING BRAKE FLUID LEVEL (With Hydraulically Operated Clutch)

Level of fluid should be between the marks "MIN" and "MAX". Add brake fluid type FMVSS 116 DOT 4, when necessary.

A—Reservoir



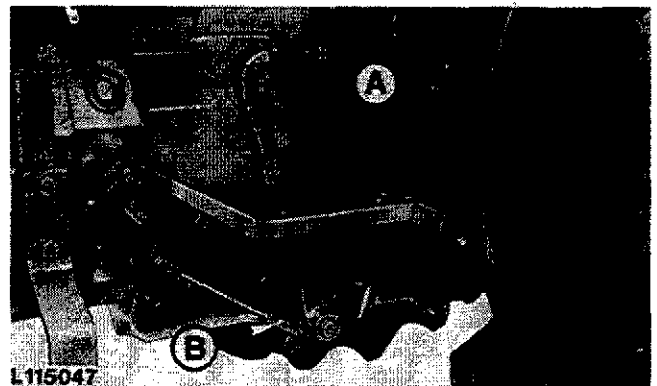
L113787-LB31010AE-010888

CHECKING CLUTCH PEDAL FREE TRAVEL (With Mechanically Operated Clutch)

Clutch pedal free travel (A) should be 25 mm (1 in.).

When necessary, adjust clutch pedal free travel by turning yoke (B).

IMPORTANT: Clutch pedal free travel should never be less than 13 mm (approx. 1/2 in.). Should clutch pedal free travel be less than specified minimum, do not operate tractor until clutch pedal free travel has been adjusted to specifications.

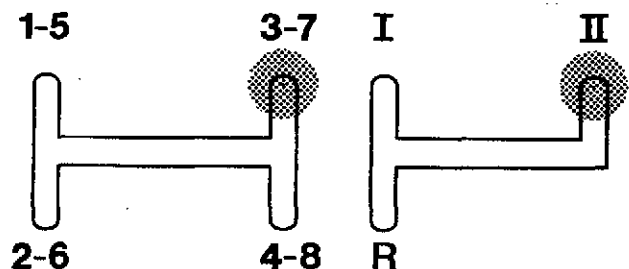


L115047

L115047-LB31010AE-000287

CHECKING TRANSMISSION

Drive tractor on trial run, shifting transmission through all gears. Remedy any defects.



L106 549

L106549-LB31010AE-010287

CHECKING DIFFERENTIAL LOCK

Drive tractor, checking functions of differential lock by operating hand lever (A) or pedal (B).

IMPORTANT: Never turn the tractor with differential lock engaged.



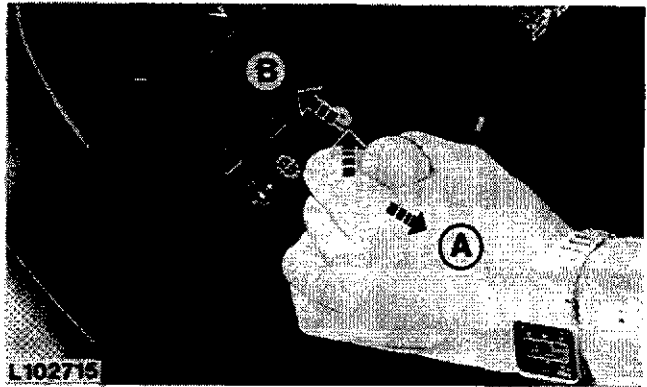
L114575, L32030A-LB31010AE-010287

CHECKING REAR PTO

Run engine.

Tractors With Cab

Raise shift lever and push forward.

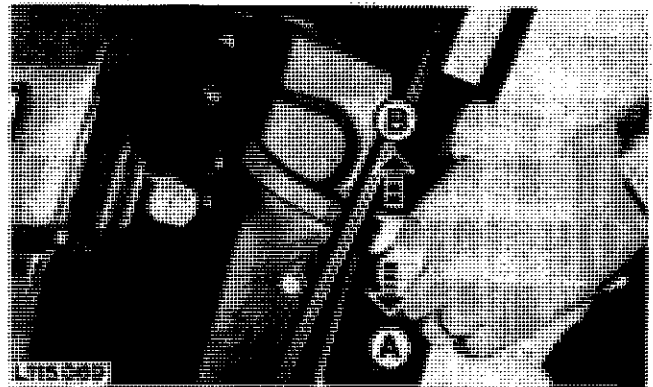


Tractors Without Cab

Up to tractor Serial No. 618 706L: Raise shift lever and push forward.

From tractor Serial No. 618 707L: Raise shift lever.

A-PTO disengaged
B-PTO engaged



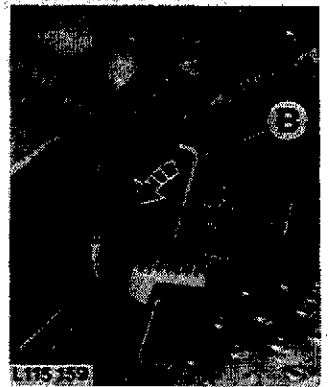
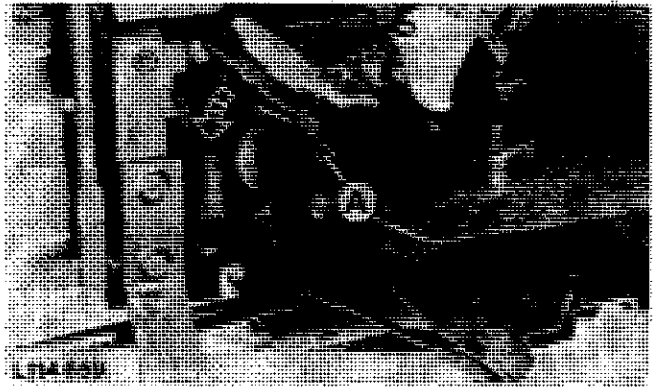
L102715, L115089-LB31010AE-010888

CHECKING CONTINUOUS-RUNNING PTO (Tractors With Collar Shift Transmission)

Engage PTO by means of lever (B) only when clutch pedal (A) is fully depressed.



CAUTION: Never engage PTO with tractor in motion.

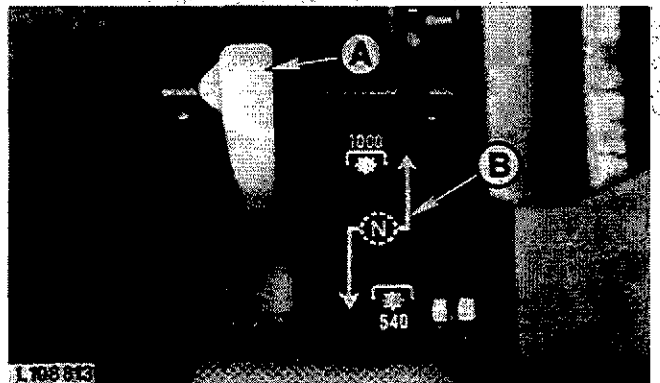


L114659,L115159-LB31010AE-000287

CHECKING PTO SPEED SHIFT LEVER (When Equipped)

With PTO disengaged, check that shift positions of lever (A) correspond to the positions on decal (B).

NOTE: Center position is neutral position.



L108813-LB31010AE-000287

CHECKING FRONT PTO (When Equipped)

With engine shut-off, engage front PTO transmission by means of lever (A).

CAUTION: Engage PTO transmission with engine shut-off only.

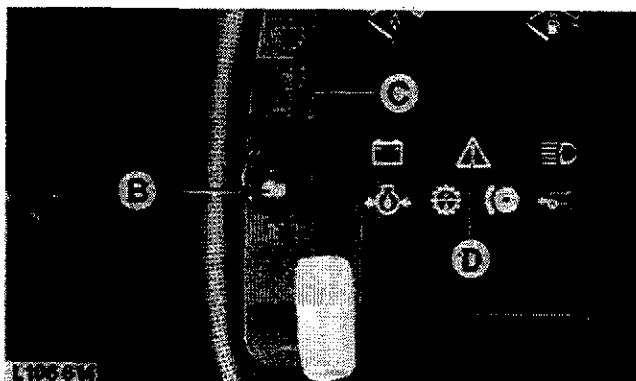
Engage and disengage front PTO clutch with tumbler switch (B) with engine running.

Control light (C) glows when front PTO is engaged.

NOTE: Control light (D) flashes when front PTO has been engaged with tumbler switch (B) before engine has been started.

A—Lever
B—Tumbler switch

C—Control light
D—Control light



L106613, L106614-LB31010AE-010287

CHECKING HI-LO SHIFT UNIT (When Equipped)

Drive tractor and operate Hi-Lo shift unit, i.e. move Hi-Lo shift unit lever to both reduced and normal speed position several times, precisely observing Hi-Lo shift unit operation each time.

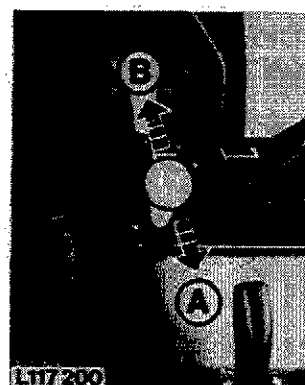
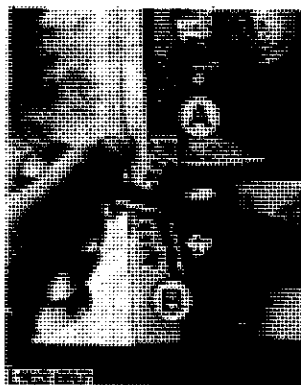
Simulate tractor working under load by applying brakes.

Low oil pressure will be indicated by disk pack slippage, causing the clutch pack to become noisy.

Mechanical failure in the Hi-Lo shift unit will also be indicated by unusual noise.

A—Reduced speed
B—Normal speed

IMPORTANT: On tractors equipped with an SG2 cab, Hi-Lo shift unit cannot be shifted with clutch pedal depressed.

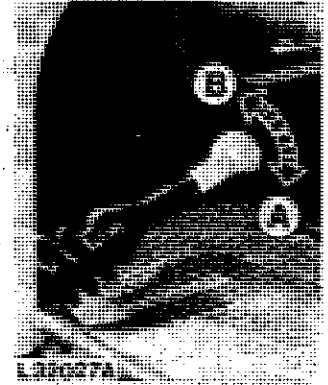
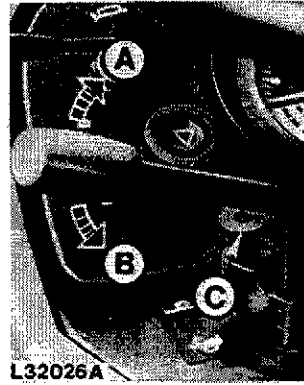


L102667, L117200-LB31010AE-010888

CHECKING CREEPER TRANSMISSION (When Equipped)

IMPORTANT: Engage creeper transmission only in I
(Low) or reverse range and with clutch
pedal depressed.

A-Reduced speed
B-Normal speed
C-Control lever lock



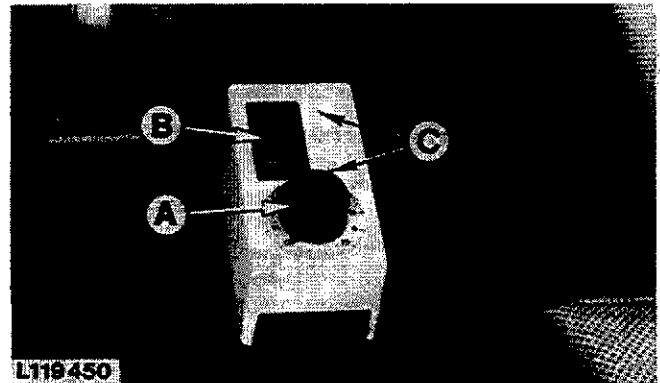
L32026A, L32027A, L14797A-LB31010AE-000287

CHECKING HYDROSTATIC CREEPER TRANSMISSION (When Equipped)

IMPORTANT: Engage creeper transmission only with
range shift lever in neutral and front-
wheel drive engaged.

A-Rotary switch for engaged,
disengaged and ground travel
speed

B-Switch for travel direction
C-Indicator lights for travel
direction



L119450-LB31010AE-010888

CHANGING FRONT WHEEL DRIVE AXLE OIL (When Equipped)

NOTE: Only change oil directly after having operated tractor for some time.

Fill with an EP transmission oil as specified in Group 15 of this section.

Front Axle Housing

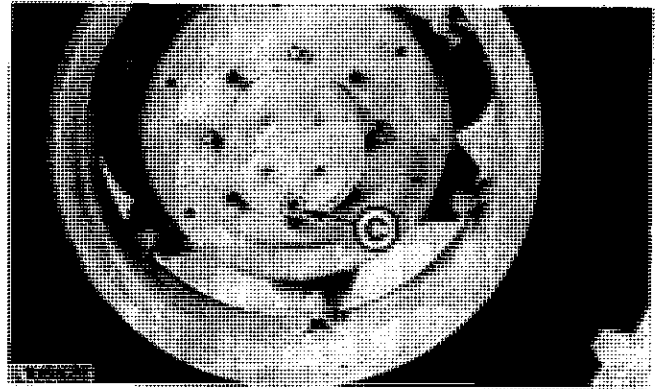
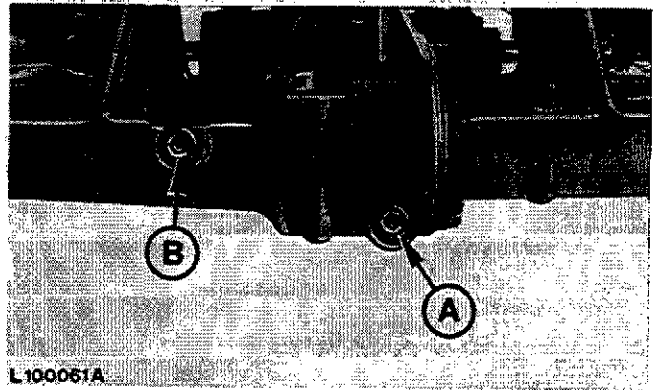
Capacity:
– 5.3 liters (1.4 U.S. gal.)

Wheel Hub Housing

After draining oil, turn wheel until oil level mark is horizontal.

Capacity (Each):
– 0.75 liters (0.2 U.S. gal.)

A—Drain plug
B—Level plug
C—Drain and level plug

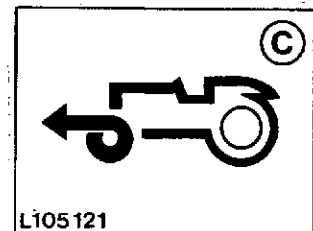
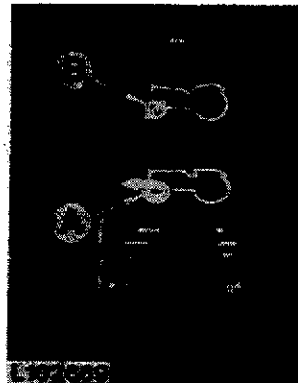


L100061A, L106626-LB31010AE-010287

CHECKING FUNCTION OF FRONT WHEEL DRIVE (Tractors With Front Wheel Drive)

Drive tractor, engaging and disengaging front wheel drive by operating tumbler switch.

A—Front wheel drive engaged
B—Front wheel drive disengaged
C—Control light glows when front wheel drive is engaged

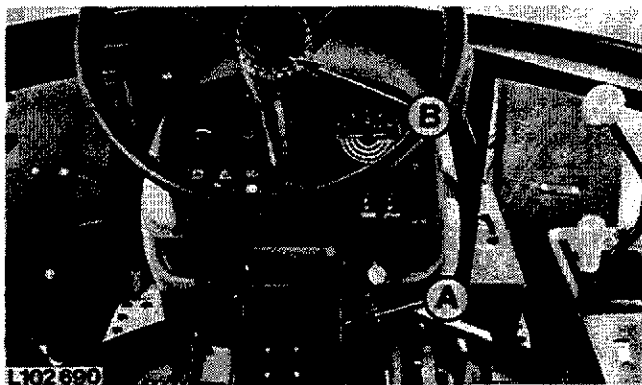


L102669, L105121-LB21010AE-010886

CHECKING HYDROSTATIC STEERING SYSTEM

Start engine and turn steering wheel to left and right.

A-Steering wheel tilt adjustment
B-Steering wheel height adjustment



A-Steering wheel tilt adjustment



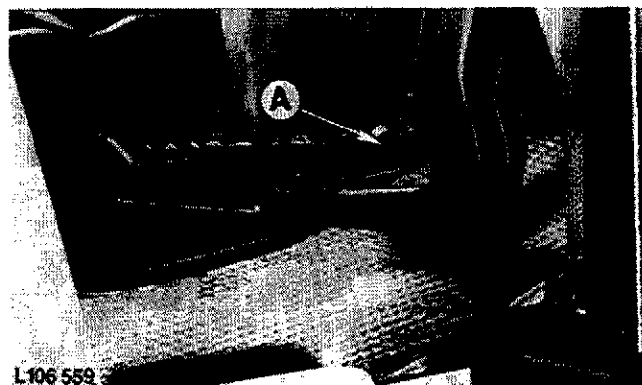
L102690, L113774-LB21010AE-010886

CHECKING FUNCTION OF FOOT BRAKES

Load each brake pedal with 270 N (60 lb) for one minute. Loaded pedal should drop approx. 25 mm (1 in.) only during this time.

NOTE: Do not check both brake pedals simultaneously, but each pedal individually.

A-Pedal coupler



L106559, L114574-LB31010AE-010287



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CHECKING HANDBRAKE ADJUSTMENT

Tighten brake band support screw on underside of transmission case hand-tight, then back of half-a-turn and lock in position by means of hex. nut.

NOTE: The brake band support screw is backed off two turns at the factory. After approximately 100 hours of operation, tighten support screw hand-tight and back off half-a-turn.

Pull handbrake lever to third or fourth notch with a force of 110 N (25 lb).

When necessary, adjust handbrake (see Section 60, Group 30).

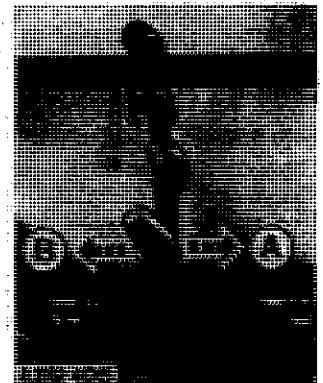


L106957, L112619-LB31010AE-010888

CHECKING ROCKSHAFT FUNCTIONS

See Operator's Manual.

A—Raise implement
B—Lower implement

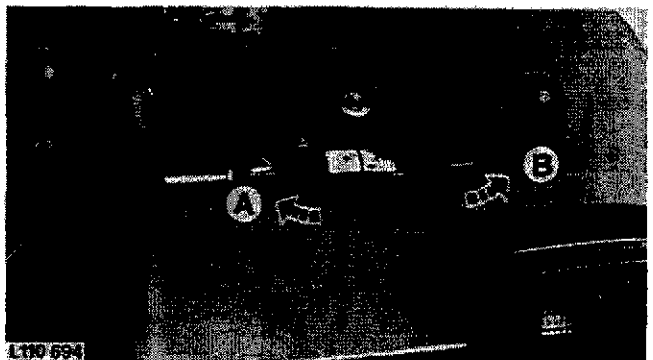


L119404, L112619-LB31010AE-010888

CHECKING FUNCTION OF ROCKSHAFT REMOTE CONTROL (When Equipped)

IMPORTANT: Operating rockshaft with the remote control is only effective with rockshaft selector lever in "MIN" position.

A—Lower rockshaft
B—Raise rockshaft



L110694-LB31010AE-010888

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