

Challenger

MT425B-MT445B-MT455B-MT465B-MT475B AutoPower IV

Agricultural tractors



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1. Tractor identification

1.1	Locating serial numbers	13
1.1.1	Locating serial numbers	13
1.2	Your tractor identification details	15
1.2.1	Your tractor identification details	15

2.3 Safety signs and instructions

2.3.1 Checking and replacing the safety signs and instructions

T000871

2

WARNING: Never remove or obscure the safety signs and instructions.

Replace any safety signs and instructions that are illegible or missing. Replacement signs are available from the dealer in the event of loss or damage. If a second-hand tractor has been purchased, check that all of the safety signs and instructions are correct, legible and in the correct position. To do this, refer to the section on the presentation and location of these signs.

2.6 Specific safety instructions for starting the tractor

2.6.1 Protection of persons other than the operator

T000884



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1. Before starting up, walk all the way around the tractor and any attached equipment. Ensure that no one is under it, on it or close to it.
2. Warn in advance any persons nearby that the tractor is about to start.
3. Only start up if there is nobody in the vicinity of the tractor/implement assembly. Pay particular attention to looking out for children.

2.6.2 Start up safely

T000885

General instructions

-  **WARNING: Before starting the engine, ensure there is plenty of ventilation in the area. Do not operate the engine in an enclosed space. The exhaust fumes may cause asphyxiation.**
- Always start the engine from the operator's seat.
- Adjust the seat.
- For road use, ensure that the tractor brake pedals are locked together.
- Fasten the seat belt.
- Check that the parking brake is applied or that ParkLock is engaged.
- Place the reverse shuttle lever, the transmission levers and the PTO lever in neutral.
- Follow the start-up procedures described in the chapter Operation of this book.
-  **DANGER: Start the engine with the ignition key, from the operator's seat only. Do not attempt to start the engine by short-circuiting the starter terminals: the tractor may start in gear and this could cause serious injury or death to anyone in the vicinity -.**

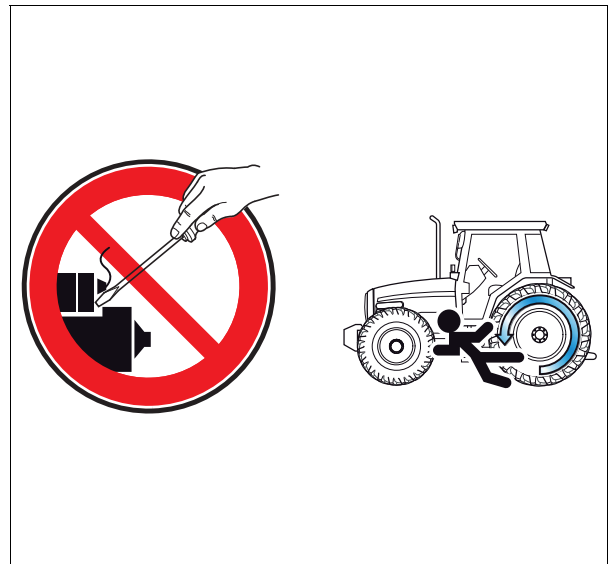


Fig. 1.

1002863

2.8 Specific safety instructions for servicing the tractor

2.8.1 Pollution warning to observe when servicing the tractor

T000889

2

IMPORTANT: It is illegal to pollute drains, water courses or soil. Use authorized waste disposal facilities, dumps or garages providing facilities for the disposal of used oil. If in doubt, contact your local authorities for advice.

2.8.2 General instructions

T000887

- Never service the tractor while the engine is running or hot or if the tractor is in motion [fig. 1](#).



Fig. 1.

I002862

- Before making adjustments to or servicing the electrical system, disconnect the battery cables, negative (-) terminal first.
- To prevent risks of fire or explosion, keep batteries and cold weather starting aids away from open flames.
- To prevent sparks which could cause explosions, use jumper cables according to instructions.
- Consult your Challenger dealer for repairs or adjustments and have the work carried out by trained personnel.
- The implement and/or tractor must be supported on suitable blocks or stands, not on a hydraulic jack.
- Check all nuts and bolts periodically for tightness, especially wheel hub and rim nuts. Tighten to the torque values stipulated.
- Regularly check the brakes.
Ensure that the brakes are uniformly adjusted, especially if a trailer is used.
In case of malfunction, consult your dealer.

2.8.3 Special instructions for cleaning the tractor

T000888

- Before cleaning the tractor, always:
 - follow the "mandatory procedure before dismounting the tractor" [see §2.4.5](#), and
 - remove or put away implements, buckets, chains and hooks.
- Clean steps, pedals and floor. Remove grease or oil. Brush away dust and mud. In winter, scrape away snow and ice. Remember — slippery surfaces are hazardous.
- When washing the tractor with a jet of water, do not direct the jet straight onto electrical components.
- If using a high-pressure cleaning device, maintain a sufficient distance so as not to damage the paintwork and the sealed sections.
- Keep work surfaces and engine compartments clean.
- After washing, grease the lubrication points, the hinged sections and the bearings.

Indicator light panel

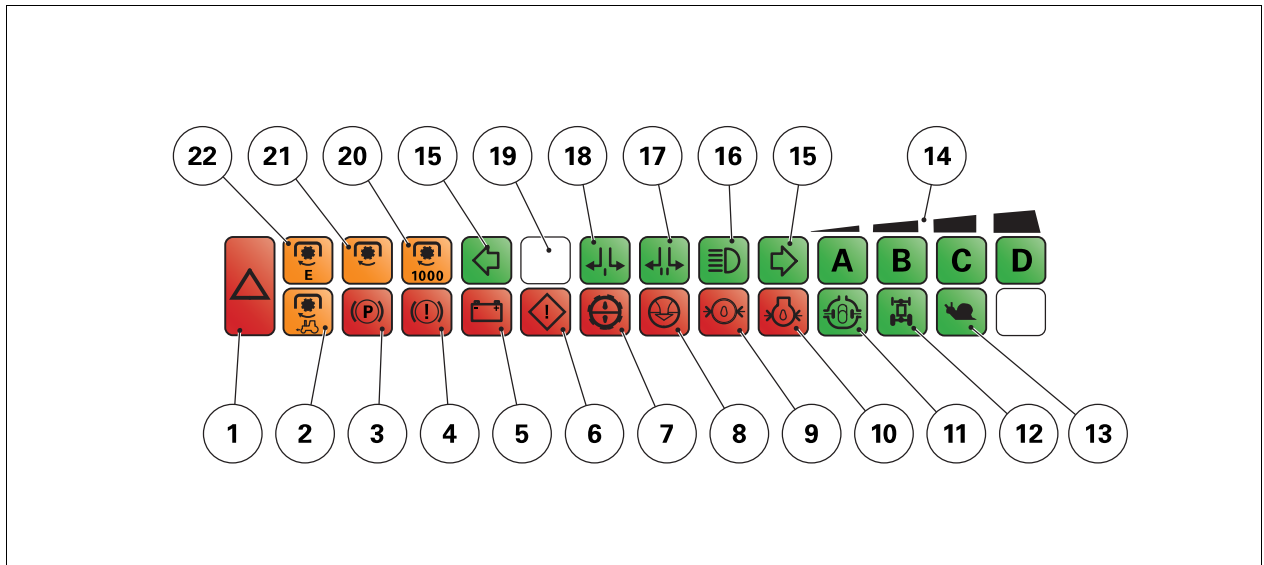


Fig. 3.

I003149

- | | |
|--|---|
| <p>(1) Failure warning light (red).
This lights up at the same time as the warning lights (red). If it comes on, stop the tractor immediately and determine the cause of the failure.</p> <p>(2) Proportional power take-off engaged indicator light (yellow).</p> <p>(3) Parking brake indicator light (red)</p> <p>(4) Not used</p> <p>(5) Alternator charge light (red).
This charge indicator light comes on when the ignition key is in the contact position, but the engine is not running. It should switch off when the engine is running and the ignition key has returned to the contact position. If the indicator light comes on when the engine is running, stop the engine and determine the cause of the failure or consult your dealer.</p> <p>(6) Failure warning light</p> <p>(7) 15-micron transmission oil filter blockage indicator light or 150-micron strainer blockage indicator light (red).
If this indicator light stays on after starting the engine, immediately stop the engine and check the lubrication filter and lubrication system. If the problem persists after replacing the filter, consult your dealer.</p> <p>(8) Air filter blockage indicator light (red).</p> <p>(9) 20 bar (290 psi) low pressure oil pressure indicator light (red)
If this indicator light comes on during operation, consult your dealer.</p> <ul style="list-style-type: none"> - The electronic control unit prevents the hydraulic oil pressure indicator light from illuminating at low speed. - The indicator light comes on for a few seconds when the engine is started. If it comes on after that, there is a problem. | <ul style="list-style-type: none"> - When the indicator light comes on for more than two seconds, the electronic control unit disengages the functions involved to prevent damage. - In the event of a malfunction, the system shifts to D and the 20 bar (290 psi) pressure indicator light comes on. - Depending on the temperature, it is not unusual for the indicator lights to remain on for a few minutes after the ignition is switched off. <p>(10) Engine oil pressure light (red).
This indicator light comes on when the ignition key is in the contact position, but should switch off when the engine is started and is running. If the indicator light stays on when the engine is running, stop the engine and determine the cause of the low pressure or consult your dealer.</p> <p>(11) Differential lock indicator light (yellow).</p> <p>(12) Four-wheel drive indicator light (green)</p> <p>(13) Creeper gear operating indicator light (green) (if fitted).</p> <p>(14) Speed ratio indicator lights (green).</p> <p>(15) Direction indicator lights (green).</p> <p>(16) High beam indicator light (blue)</p> <p>(17) Direction indicator light for the second trailer (green)</p> <p>(18) Direction indicator light for the first trailer (green)</p> <p>(19) Not used</p> <p>(20) 1000 rpm power take-off engaged indicator light (yellow).</p> <p>(21) 540 rpm power take-off engaged indicator light (yellow).</p> <p>(22) Economy power take-off engaged indicator light (yellow) (if fitted).</p> |
|--|---|

Interior light

Standard roof

3 positions:

- (0): Off
- (1) Light comes on when opening the left-hand door
- (2) Permanently on

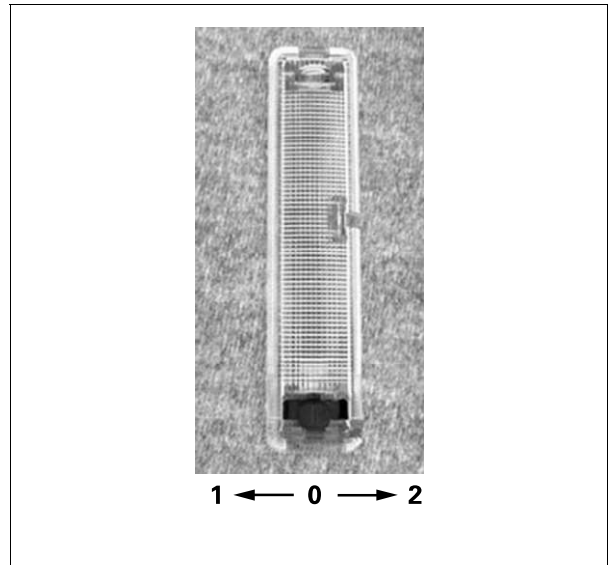


Fig. 13.

I003302

3

High-visibility roof

3 positions:

- (0): Off
- (1) Light comes on when opening the left-hand door
- (2) Permanently on



Fig. 14.

I003303

- Release button (D) *fig. 4* and the clutch pedal.

Selecting the start-up ratio with preselection: Selecting with the shuttle lever

At start-up and after the transmission has been engaged, the gearbox is automatically placed in the ratio stored in the memory. The preselected ratio is stored in the controller's memory and this ratio is used whenever the engine is started up (in forward or reverse travel) until the preselection is changed.

The ratio at start-up can be preselected while the engine is running and the tractor is travelling slower than 5 km/h (3 mile/h (mph)).

Procedure

- Check that the transmission is engaged.
- Press down on the clutch pedal.
- Place shuttle lever (E) *fig. 5* in forward or reverse travel.
- Keep button (D) *fig. 4* pressed down.
- Move shuttle lever (E) *fig. 5* to select the range and the desired Powershift ratio.
- Release button (D) *fig. 4*.
- Move shuttle lever (E) back *fig. 5* to neutral.
- Release the clutch pedal.

3.3.5 Power Shuttle

T000961

The shuttle control (E) *fig. 2* is located to the left of the steering wheel.

It is used for quickly changing the direction of travel (forward or reverse, *Selecting direction of travel*).

It is also used for quickly changing the Powershift ratios (*Shifting Powershift ratios*) or controlling the tractor clutch (*Tractor clutch control*). The reverse shuttle tempo may be adjusted according to user preference (*Shuttle tempo*).



DANGER: Before leaving the seat, you must move the shuttle control (E) *fig. 2* into neutral position. Apply the hand brake.

Selecting direction of travel

Place shuttle control (E) *fig. 2* in the desired direction of travel; the corresponding indicator light on the instrument panel will come on. When the tractor is in motion, each change to the direction is made using the control without disengaging the clutch.

Shifting Powershift ratios:

When the lever is positioned in forward or reverse travel, push or pull the lever in pulses to increase or reduce the Powershift ratio according to the + and - symbols on the lever. Shifting can be carried out in pulses or by holding the lever in position and changing ratios one after the other.

Tractor clutch control

Pull the lever upwards to disengage the clutch; release the lever to engage it. The clutch control is proportional to the reverse shuttle lever.

NOTE: *It is advisable to use the clutch pedal when the tractor is loaded and for all precise maneuvering (coupling of implements, etc.).*

Shuttle tempo:

Use rotary knob (C) *fig. 1*, to adjust the shuttle tempo. The adjustment range is from +5 to -5.

3.3.6 Creeper gears and super creeper gears

T000962

If the tractor is fitted with a creeper gearbox, normal speeds are obtained when the lever is placed in "Hare/Tortoise" position and reduced speeds (4:1 for creeper or 14:1 for super creeper) when the lever is moved to "Snail" position.

NOTE: *If the 14:1 super creeper gears are engaged while the tractor is in range 3 or 4, the electronic transmission control automatically shifts to range 2 without changing the Powershift ratio.*

Changing speeds

The PTO speed is engaged using the lever (2) located outside on the rear left-hand side of the center housing or by using the lever (1) located inside the cab.

CAUTION: PTO must be disengaged during the procedure.



3



Fig. 4.

I017979

Select the display of the speed chosen on the instrument panel using the switch (3).



Fig. 5.

I017984

3.10 Linkage

3.10.1 Three-point linkage: General information

T000996

The tractor is supplied with either category 2 or 3 ball joint linkage or optional category 2 or 3 fast linkage hitches, depending on the country.

IMPORTANT: To prevent linkage damage when operating trailed attachments, care should be taken when turning to prevent the drawbar from fouling the linkage.

3

3.10.2 Three-point linkage Lower links

T001000

- (1) Fixed ball joint type
- (2) Hook and ball type
The hooks engage automatically in the ball joints which are fitted to the hitch pins. The normal balls are used for clevis-end linkage; the balls with guide cones are used for single pin linkage. Ensure the linkage is properly locked.
The hooks can be unlocked for uncoupling from the cab, using cables (accessory).
- (3) Telescopic lower links
Unlock the pin (A) to adjust the telescopic end. Remember to lock it when hitched.

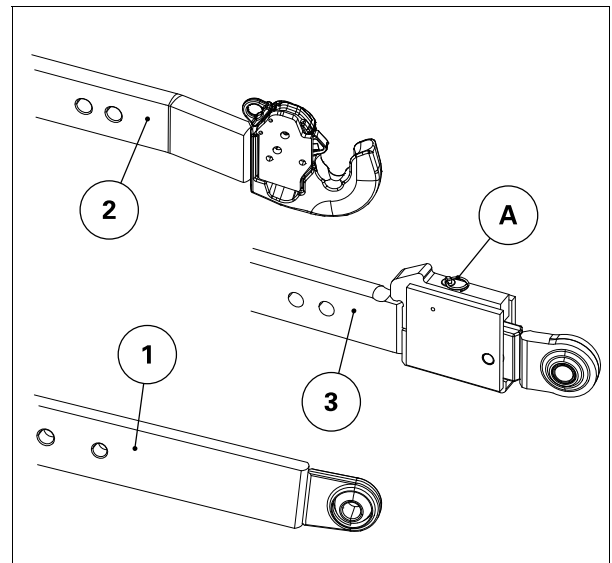


Fig. 1.

I003471

3.10.3 Three-point linkage Top link

T001001

The top link is fitted on ball joints. It should be adjusted according to the type of implement to be hitched. To adjust the length of the top link, pull and turn the handle.

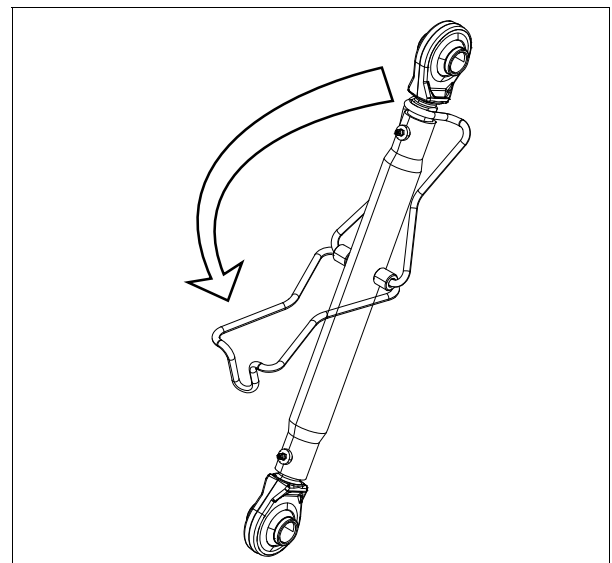


Fig. 2.

I003484

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Pump uncoupling

1. Press the pump coupling switch (1) *.fig. 6* The corresponding indicator light goes out. The pumps are no longer coupled.
2. To use the linkage, unlock it using the Lift/Lower switch (E) *.fig. 6* The indicator light (I) goes out.

4. Maintenance

4.1	Service guide	113
4.1.1	SERVICE GUIDE	113
4.2	Cab	117
4.2.1	Air-conditioning system: Condenser	117
4.2.2	Air-conditioning system: Checking the air conditioning system	117
4.2.3	Cab air filters	117
4.2.4	ROPS or cab attachment	118
4.2.5	Windshield washer	118
4.2.6	Hinge and lock lubrication	119
4.3	Engine	120
4.3.1	Recommended products	120
4.3.2	Perkins 4-cylinder engine	120
4.3.3	Perkins 6-cylinder engine	121
4.3.4	Engine oil level check	121
4.3.5	Draining the engine oil	122
4.3.6	Replacing the engine oil filter	122
4.3.7	Breather system	122
4.3.8	Fuel system: Fuel prefilter	122
4.3.9	Fuel system: Fuel filter	123
4.3.10	Fuel system: bleeding	123
4.3.11	FUEL SYSTEM Fuel injection pump, regulator and injectors	123
4.3.12	FUEL SYSTEM Fuel tank	123
4.3.13	Air filter	124
4.3.14	Cooling system	128
4.3.15	Checking the fan/alternator belt	129
4.3.16	Fuel	129
4.4	Transmission	131
4.4.1	Recommended products	131
4.4.2	Checking the hydraulic system level	131
4.4.3	Draining the hydraulic system	131
4.4.4	Filtering the hydraulic system	133
4.4.5	Transmission oil cooler (according to version)	133
4.4.6	Lubricating the rear wheel bearings	133
4.5	Brakes	134
4.5.1	Bleeding the brake system	134
4.6	Front axle and steering	135
4.6.1	Recommended products	135
4.6.2	Four-wheel drive front axle lubrication	135
4.6.3	Four-wheel drive front axle: checking the oil level in the final drives	136
4.6.4	Four-wheel drive front axle: draining the oil in the final drives	137
4.6.5	Four-wheel drive front axle: Checking the front axle oil level	137
4.6.6	Four-wheel drive front axle: Draining the oil from the front axle	138
4.6.7	Four-wheel drive front axle: lubrication	139
4.7	Linkage	142
4.7.1	Recommended products	142
4.7.2	Three-point linkage lubrication	142
4.7.3	Auto-hitch: lubrication	143
4.7.4	Front linkage: lubrication	145
4.8	Auxiliary hydraulics	146
4.8.1	Filtering the auxiliary hydraulic system	146
4.9	Electrical equipment	148
4.9.1	Batteries	148
4.9.2	Alternator	148
4.9.3	Socket (ASAE)	148
4.9.4	Adjusting the headlights	149
4.9.5	Fuses	150

4.3.3 Perkins 6-cylinder engine

T001036

- (1) Engine oil drain plug
- (2) Engine oil filter
- (3) Engine oil dipstick
- (4) Oil filler plug
- (5) Fuel prefilter
- (6) Fuel filter

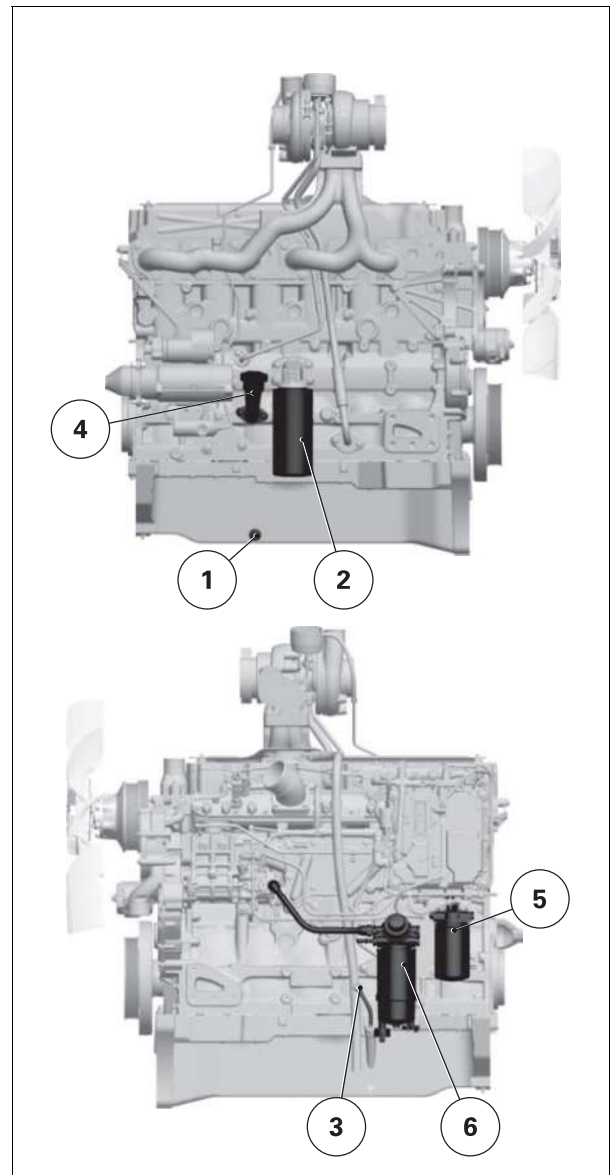


Fig. 2.

I003588

4.3.4 Engine oil level check

T001562

Frequency

Check engine oil level daily.

Procedure

NOTE: This operation is to be carried out when the engine is cold.

NOTE:

To avoid unnecessarily heavy oil consumption:

- Do not exceed the MAX mark on the dipstick.
 - Do not refill until the level reaches the MIN mark on the dipstick.
1. Stand the tractor on level ground, with the front axle suspension disengaged. Stop the engine.
 2. Check the oil level every day using the dipstick.
 3. Fill up with oil if necessary.

4.4 Transmission

4.4.1 Recommended products

T001052

IMPORTANT: *The warranty remains valid only as long as the lubricants used comply with the following classifications, and no other products are used.*

Hydraulic clutch and transmission oil

- Transmission/gearbox/axle/hydraulics: AGCO Power Fluid 821 XL corresponding to MF specifications CMS1145
- Front axle (4-wheel drive only): AGCO Gear Lub 715
- Lubrication accessories: Super Lithium AGCO No.2

Grease

AGCO M.1105 or lithium multi-purpose grease in accordance with the N.L.G.I. indices

- N.L.G.I. number 1: Temperature often drops below 7 °C (45 °F)
- N.L.G.I. number 2: Temperature often ranges between 7 °C (45 °F) and 27 °C (81 °F)
- N.L.G.I. number 3: Temperature often exceeds 27 °C (81 °F)

4

4.4.2 Checking the hydraulic system level

T001054

Frequency

Check the transmission oil level every 100 hours.

Procedure

1. Use the dipstick (1) located above the tractor rear axle.
2. Check that the level is between the marks indicated on the dipstick.
3. Fill up if necessary.

NOTE: *When using hydraulic implements taking a large quantity of oil out of the transmission (hydraulic motors, large capacity cylinders), top off the oil to the maximum level.*

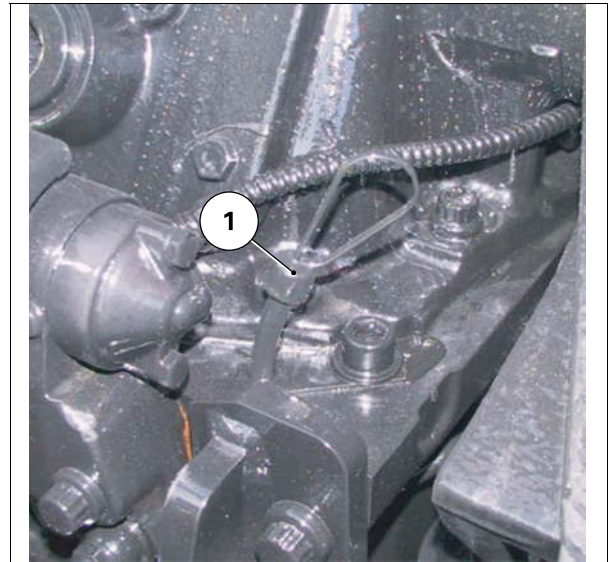


Fig. 1.

I003533

4.4.3 Draining the hydraulic system

T001053

Frequency

Drain and replace the transmission oil every 1200 hours.

(2) Front axle bearings

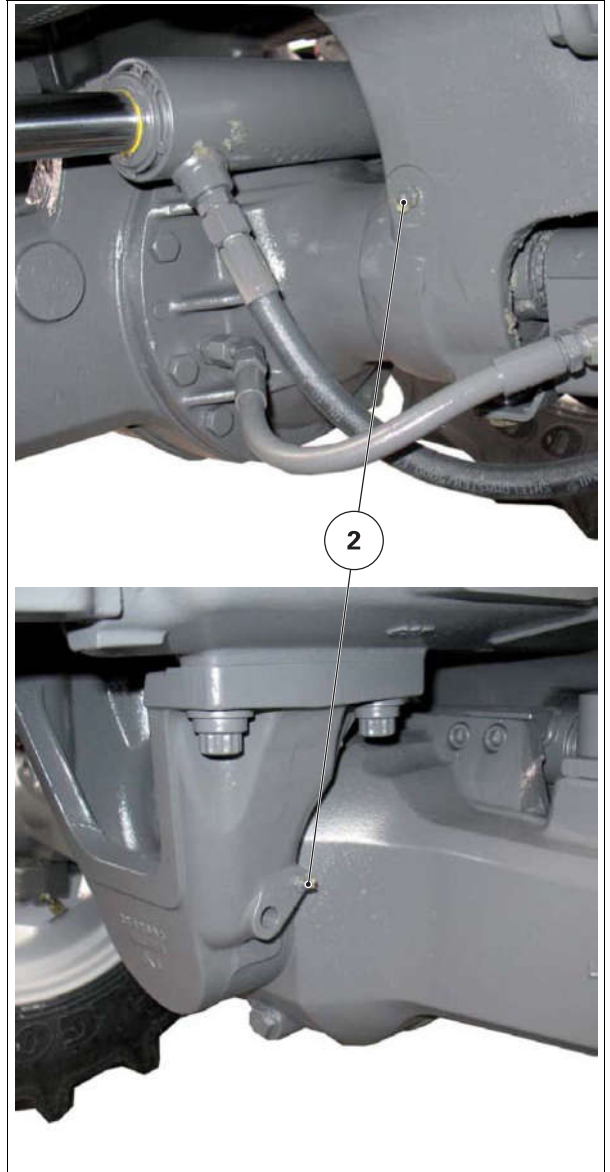


Fig. 9.

I018822

4.9.6 Relay

T001075

Reference	Function	Location
(1)	Earth authorization (work lights)	Pedal support: Left-hand side
(2)	Front work lights	Pedal support: Left-hand side
(3)	Rear work lights	Pedal support: Left-hand side
(4)	Air conditioning compressor	Pedal support: Left-hand side
(5)	Stop lights	Pedal support: Left-hand side
(6)	Rotary beacon	Pedal support: Left-hand side
(7)	Grille panel work lights (depending on model)	Pedal support: Left-hand side
(8)	Fuel supply pump, Sisu engine	Pedal support: Left-hand side
(9)	Air conditioning	Pedal support: Right-hand side
(10)	Flashing warning light unit	Pedal support: Right-hand side
(11)	Accessories power supply	Pedal support: Right-hand side
(12)	Reversing light	Pedal support: Right-hand side
(13)	Windshield wiper timer	Pedal support: Right-hand side
(14)	High beams on hand rails	RH console

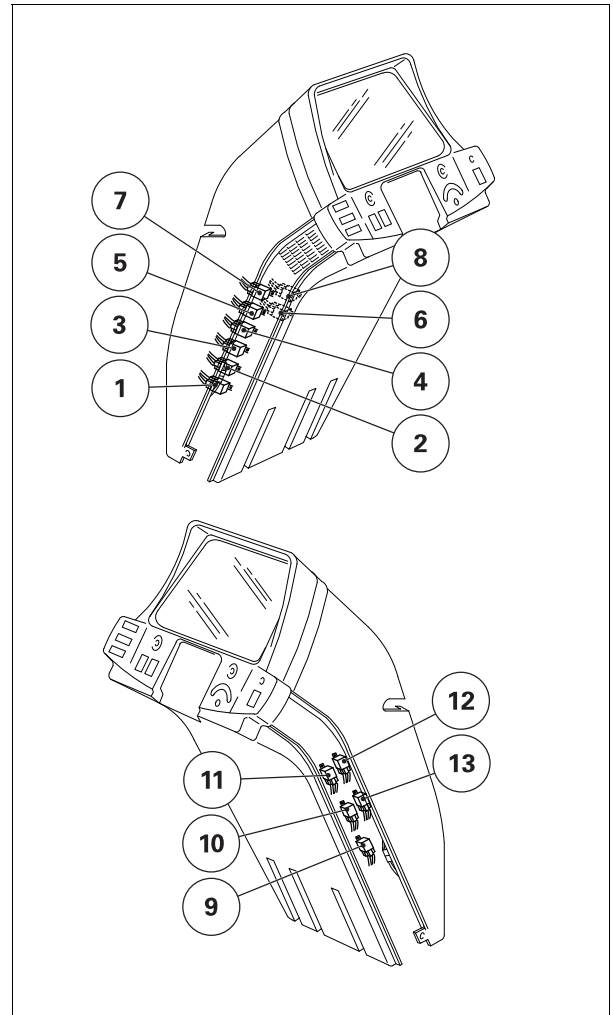


Fig. 4.

1009627

4

Front axle	
Front axle type	DANA 720
Synchronization ratio	1.335

Hydraulics	
Hydraulic type	Open Center/Closed Center
Number of spool valves	0-4

Electronics	
Transmission control	Autotronic 5
Linkage control	Autotronic 5

Cab	
Air conditioning	Manual
Windshield	Standard / Opening (optional)
Roof	Standard/High Visibility (optional)

5

5.1.4 Model MT465B

T001078

Engine	
Brand	Caterpillar
Type	1104D-E44TA
Number of cylinders	4

Transmission	
Gearbox type	GBA25
Rear axle type	GPA20
Final drive type	Heavy Duty

Power take-off	
PTO type	Interchangeable/shiftable shaft
Speeds	540/1000/eco

Front axle	
Front axle type	DANA 730
Factor K	1.346

Hydraulics	
Hydraulic type	Open Center/Closed Center
Number of spool valves	0-4

Electronics	
Transmission control	Autotronic 5
Linkage control	Autotronic 5

5.6 Front axle and steering

5.6.1 Four-wheel drive front axle

T001098

Clutch mechanism	Electrohydraulic, electric control via button in cab
Differential lock	Coupler, electrohydraulic control

5.6.2 Steering

T001099

Steering type	Hydrostatic, controlled by a steering unit
Assistance	Hydraulics

5

Theoretical turning radius

	2WD	4WD
Front tire dimensions	14.9R28	16.9R28
Track width	-	1750 mm (68.9 in)
Interior angle	51.5°	55°

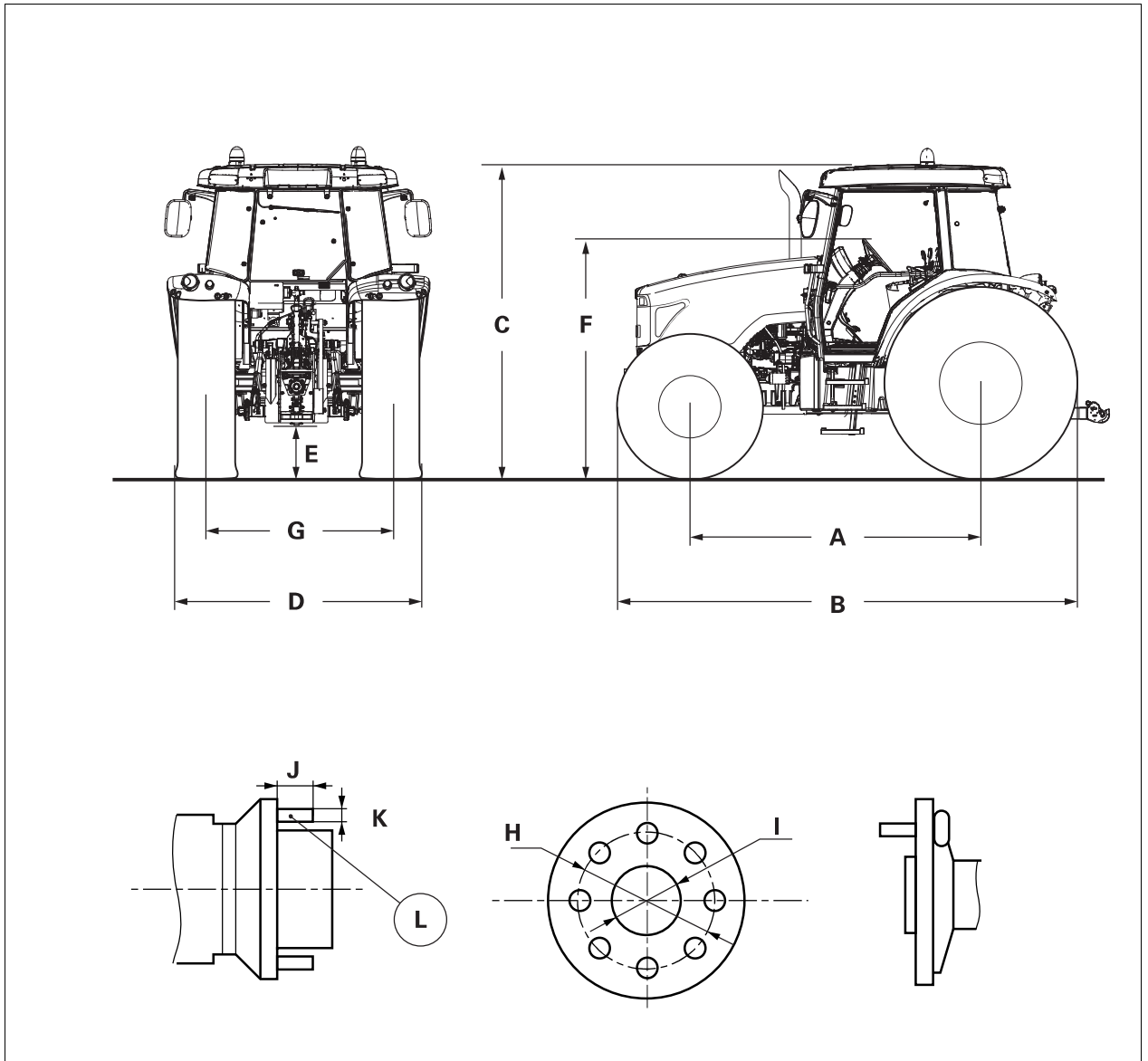
5.6.3 Tightening torques

T001100

Telescopic arms (2WD)	220 Nm (162 lbf ft) - 260 Nm (192 lbf ft)
Ball joints on steering ram (2WD)	180 Nm (133 lbf ft)
Ball joints on steering ram (4WD)	120 Nm (89 lbf ft) - 150 Nm (111 lbf ft)
Ball joints on wheel pivot (2WD)	120 Nm (89 lbf ft)
Ball joints on wheel pivot (4WD)	120 Nm (89 lbf ft) - 140 Nm (103 lbf ft)

5.12.2 Dimensions and weights

T001115



5

Fig. 1.

I018812

6.1 Cab accessories

6.1.1 Cab accessories

T001018

- Radio fittings (loudspeakers, aerial and wiring).
- Radio
- Rear windshield wiper and washer.

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