8600 series tractors

Models 8650-8660-8670-8680-8690

AGCO S.A. - Beauvais - France - RC B562 104 539
MASSEY FERGUSON is a worldwide brand of AGCO

Original Operator's Manual

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8600 - EAME
English

2.1 Introduction

2.1.1 Introduction - Safety instructions

T000867

Operator Instruction Book

NOTE: *This Operator Instruction Book is widely published and distributed and the availability of the attachments indicated, whether fitted to the basic tractor or as an accessory, may vary depending on the country or region in which the tractor is used. To find out which attachments are available in a given region, contact a Massey Ferguson dealer.*

The purpose of this book is to enable the owner and the operator to operate the tractor appropriately under normal conditions of use. Providing they follow the instructions carefully, the tractor will give many years of service in the Massey Ferguson tradition.
The commissioning of equipment by the Massey Ferguson dealer on the user's premises enables the dealer to ensure that these operating and servicing instructions are properly understood. Always consult the Massey Ferguson dealer if there is any part of this book that you do not understand. It is important that these instructions are understood and followed.
This book does not cover all operation and safety instructions relevant to the implements and accessories that may be fitted at the time of tractor delivery or later. It is essential that operators use and understand the Operator Instruction Books relating to these implements and accessories.

IMPORTANT: *This book must always be kept with the tractor. For extra copies, contact your Massey Ferguson dealer.*

This chapter in the Operator Instruction Book highlights certain basic safety-related situations which may be encountered during normal operation and servicing of the tractor and provides the information needed to handle these situations.
This chapter supplements any safety instructions given in other chapters of this book.
It may be necessary to take additional precautions, depending on the implements and accessories used and the working conditions on-site or in the servicing area. Massey Ferguson can under no circumstances exercise direct control over the commissioning, operation, inspection, lubrication or servicing of the tractor. It is therefore YOUR responsibility to take suitable safety precautions in such areas.

WARNING:
It is your responsibility to read and understand the instructions that appear in this chapter before using the tractor. They must then be strictly adhered to throughout the working day.

Servicing, spare parts, accessories and conditions of use

Daily servicing should become a routine, and a logbook of operating hours should be kept.
When spare parts are required, it is important to use only genuine Massey Ferguson parts. Massey Ferguson dealers supply genuine parts and can offer advice concerning their fitting and use. The use of lower quality parts may cause serious damage. Customers are advised only to purchase their spare parts from an approved Massey Ferguson dealer. In the same way, you must only use accessories specifically adapted to your tractor.
Owing to the considerable variation in operating conditions, it is not possible for the manufacturer to formulate complete or absolute assertions in its publications concerning the performance or operating methods of its machines or to accept liability for any loss or damage which may result from such assertions or possible errors or omissions.
If the tractor is to be used in abnormal conditions which could cause damage (use in deep water or in paddy fields for instance), you should consult your Massey Ferguson dealer to obtain special instructions to prevent the warranty from becoming void.
These tractors are designed only for usual farming activities (intended use). Use for any other activity is considered to be contrary to the intended use.
Strict compliance with the repairs, servicing and operating conditions as specified by Massey Ferguson is also an essential component of the intended use.

IMPORTANT: *Massey Ferguson accepts no responsibility in the event of damage to equipment or personal injury resulting from improper use.*

The tractor must only be used, serviced and repaired by personnel who have full knowledge of their specific features and who are aware of the applicable safety measures (prevention of accidents).
Customers are strongly advised to contact a Massey Ferguson dealer in the event of after-sales problems and for any adjustments which may be necessary.

– ***WARNING:***
In poor conditions, slow down and be extra careful, and engage 4-wheel drive if fitted.

It is important to have good knowledge of the operation of the tractor as well as all of its accessories and attached implements.
Remember that rain, snow, ice, loose gravel or soft ground can change the performance of the tractor.

2.4.3 Filling the fuel tank

T001555

– Always switch off the engine before filling up.
– Do not smoke while refuelling the tractor. Keep away from naked flames *fig. 2*.

Fig. 2. I005000

Filling with AdBlue/DEF

Avoid all contact with the eyes, skin and clothing.

– If swallowed. If large quantities of this product are swallowed, seek medical advice immediately. Do NOT induce vomiting unless indicated to do so by medical staff. Do not administer liquid to a person who is unconscious.
– In case of contact with skin, rinse with plenty of water and remove contaminated clothing.
– In case of contact with the eyes, rinse immediately under running water. In the event of irritation, seek medical advice.
– If fumes are inhaled, breathe in fresh air and seek medical advice, if necessary.
– Prevent AdBlue/DEF from coming into contact with other chemical products.
– Urea spillages must not be discharged into the drains.

Fig. 3. I006195

2.8 Specific safety instructions for using the tractor

2.8.1 General instructions

T000875

- Tractors and implements are not toys. Always comply with the conditions of use defined by the manufacturers.
- Never exceed the tractor total permissible weight.
- Always consider the way in which the tractor is to be used and the fact that the centre of gravity of the tractor/implement assembly changes according to the load being transported or towed.
- ***WARNING:***
  An unbalanced tractor could overturn and cause serious injury or death. Ensure that front frame counterweights, wheel weights and wheel ballasts are used as recommended by the manufacturer. Do not add extra counterweights to compensate for an overloaded tractor; the load must be reduced instead.

  Check to ensure that the tractor is correctly balanced.
- Check that the PTO output speed is in keeping with the implement PTO input speed.
- Keep all parts of your body inside the safety zone defined by the cab or by the protective structure for platform tractors.
- Operate the controls smoothly — do not jerk the steering wheel or other controls.
- Always operate the controls from the operator's seat.
- Keep a firm grip on the steering wheel at all times, with your thumbs clear of the spokes when driving the tractor.
- Operate the tractor smoothly — avoid jerky turns, starts or stops.
- Do not turn at high speed.
- Avoid driving close to ditches and banks.
- Avoid taking slopes that are too steep.
- Reduce speed when negotiating turns and slopes and on rough, slippery or muddy surfaces.
- Carefully observe the areas surrounding the route.
- Ensure you have adequate clearance in all directions for the tractor and the implement.
- When using chemicals, follow the chemical manufacturer's instructions for use and storage carefully.
- Adapt the tractor speed according to visibility, weather conditions and the type of terrain.
- ***WARNING:***
  If a part breaks, loosens or does not operate correctly:
  - ***stop work***
  - ***switch off the engine***
  - ***check the machine and make the necessary adjustments and repairs before resuming work.***

- ***DANGER:***
  Do not attempt to unplug the hydraulic connections or adjust an implement with the engine running or the PTO in operation. To do so may result in serious injury or death.

- 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

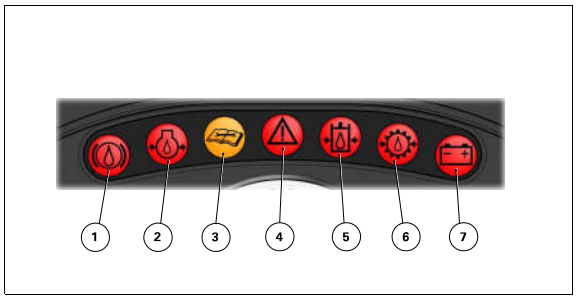

Fig. 3. I004253

(1) Pressure light for brake (ParkLock) and pneumatic brake (red).
(2) Engine oil pressure light (red).
This indicator light comes on when the ignition key is in the ON position (3) *fig. 12*, 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.
(3) Service indicator light (yellow).
This lights up when a service is due. To switch off this indicator light, go to the Diagnostics screen 1 of the Dash Control Center *fig. 9* and press button (15) of the menu access controls *fig. 10* for 5 seconds
(4) General failure alert light (red).
This lights up at the same time as the other alert lights (red).
(5) Steering supply pressure (red).
(6) Transmission oil pressure light (red).
If this indicator light comes on during operation, consult your Distributor or Dealer.
(7) Alternator charge light (red).
If the indicator light comes on or flashes at a speed above 1000 rpm when the engine is running, determine the cause of the failure *see §4.14.2, page 242* or consult your dealer.

Left-hand indicator light panel

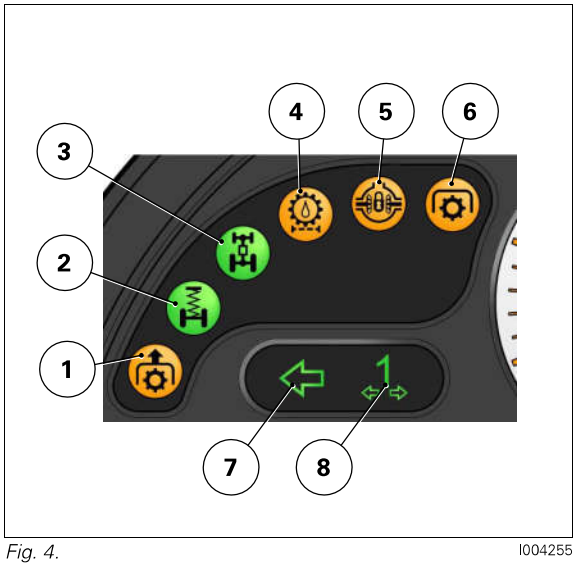

Fig. 4. I004255

(1) Front PTO engaged indicator light (yellow).
(2) Suspended front axle engaged indicator light (green).
(3) Four-wheel drive indicator light (green).
(4) High-pressure transmission oil filter blockage indicator light (yellow).
(5) Differential lock indicator light (yellow).
(6) Rear PTO engaged indicator light (yellow).
(7) Left-hand direction indicator light (green).
(8) Direction indicator light for the first trailer (green).

3.1.8 Right-hand console

T001279

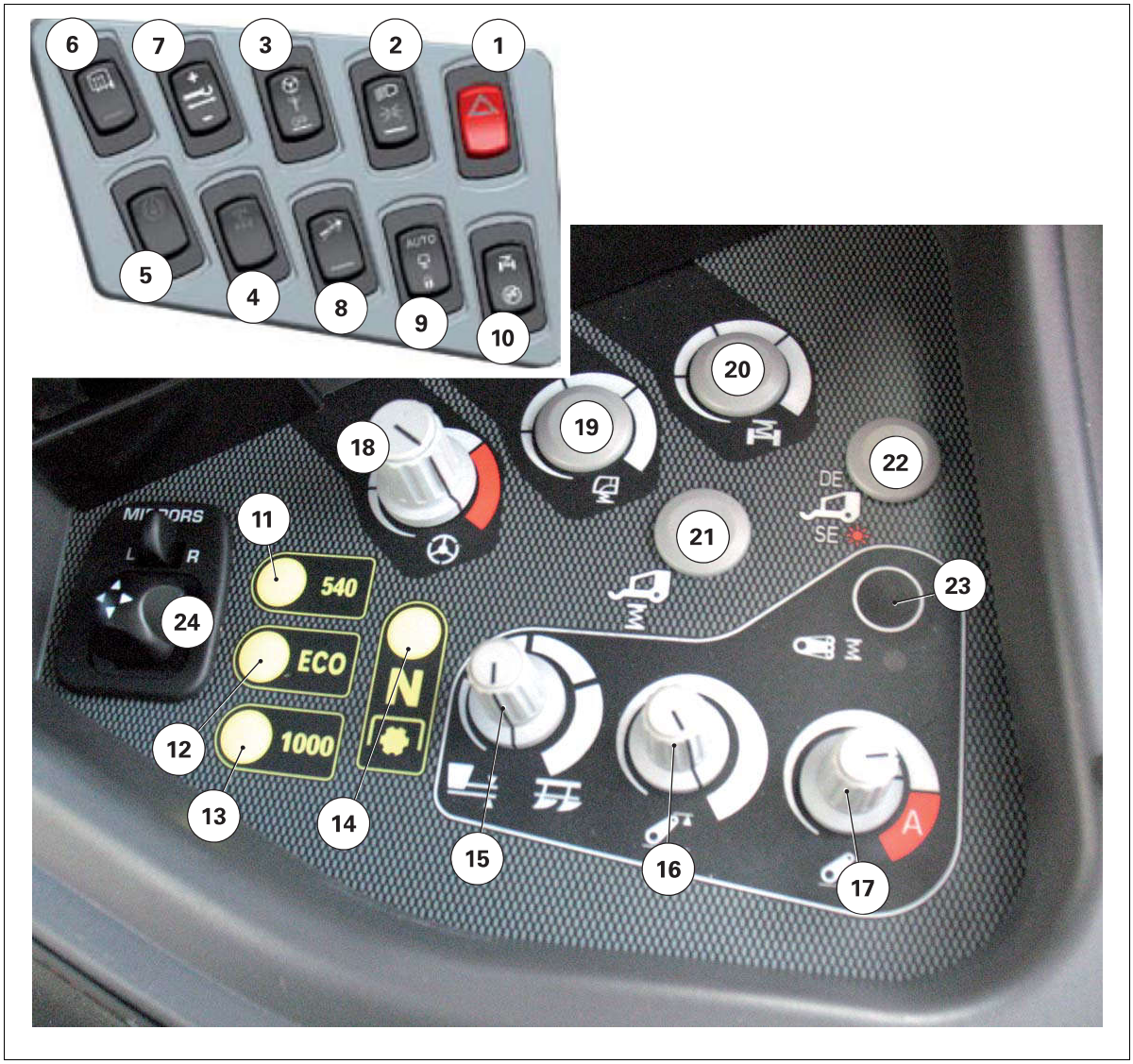

Fig. 16.

I004397

(1) Hazard warning lights indicator light and switch
(2) Main lighting, sidelight/dipped light activation switch
(3) Variable steering switch (with the Auto-Guide option fitted)
(4) Front axle engagement switch
(5) Differential lock switch
(6) External rear-view mirror defroster switch
(7) Auto-hitch extension and retraction switch
(8) Quick steering switch (SpeedSteer)
(9) Cab suspension switch.
(10) Front axle suspension switch.
(11) 540 rpm rear power take-off switch
(12) Economy rear power take-off switch
(13) 1000 rpm rear power take-off switch
(14) Power take-off neutral position (N) switch
(15) Draft control and position control knob (Intermix)
(16) Linkage height control knob
(17) Linkage lowering speed control knob
(18) Quick steering setting potentiometer (SpeedSteer)
(19) Cab suspension setting potentiometer (if option fitted)
(20) Front axle suspension setting potentiometer (if option fitted)
(21) Front linkage active transport control system indicator light and switch
(22) Front linkage single/double acting indicator light and switch
(23) Rear linkage active transport control system indicator light and switch
(24) Right and left-hand rear-view mirror electrical adjustment

3.1.15 Accessories sockets

T001739

Rear right-hand pillar sockets.

(1) 12 volt electrical connector for connecting monitoring screens, control units and other accessories.

(2) Tractor signal transmittal socket as per ISO 11786 standard.
Used to transmit signals such as: engine speed, theoretical and actual forward speed and PTO speed.

(3) Control switch for + 12 volt APC for the socket ((1)).
- 12 volt position pressed: +12 V power supply Ignition On
- Headland position pressed: no +12 V power supply Ignition On
  In this position, the +12 V power supply Ignition On can be controlled by an icon in the Datatronic CCD headland mode.

(4) Cigarette lighter socket.

Fig. 35. I006064

Front right-hand fender sockets.

(1) 12 volt electrical connector for connecting monitoring screens, control units and other accessories.

(2) Isobus connection as per ISO 11783 standard. For example, to connect a joystick or an Isobus control unit.

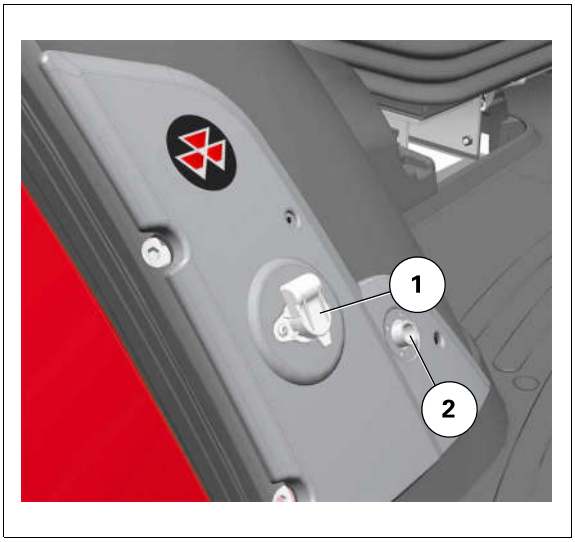

Fig. 36. I006073

Adjusting the arm extensions (depending on model)

1. The length of the rear-view mirror arms can be adjusted to improve rear visibility according to the size of the implements hitched to the tractor.
2. Loosen the notched thumb wheel (2) and move the extension in the direction required.
3. Retighten the notched thumb wheel to lock the arm extension in place.

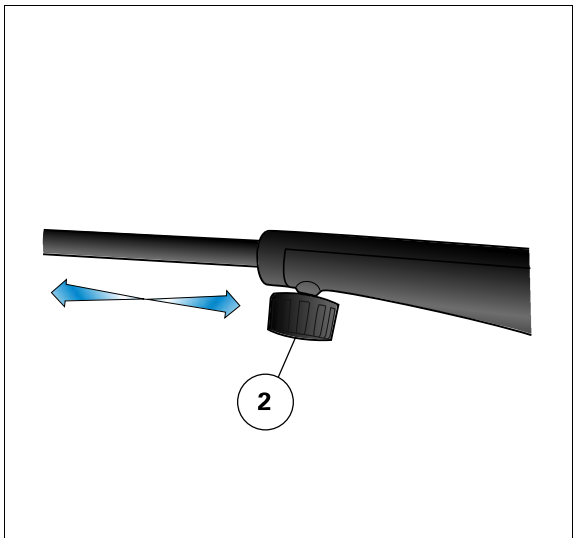

Fig. 4. I022675

Adjusting the rear-view mirrors (depending on model)

1. Manual rear-view mirror adjustment Loosen the notched thumb wheel (1) or the screws (3) in order to move the rear-view mirror.
2. Retighten the notched thumb wheel or the screws to lock the rear-view mirror in place.
3. The rear-view mirror can be manually adjusted on mirrors not fitted with an electric control: Use both hands, diagonally opposed, to turn the rear-view mirror in the direction required.
   NOTE: *Depending on the model, it may be necessary to loosen the notched thumb wheel (1) or the screws (3) to make the adjustment.*

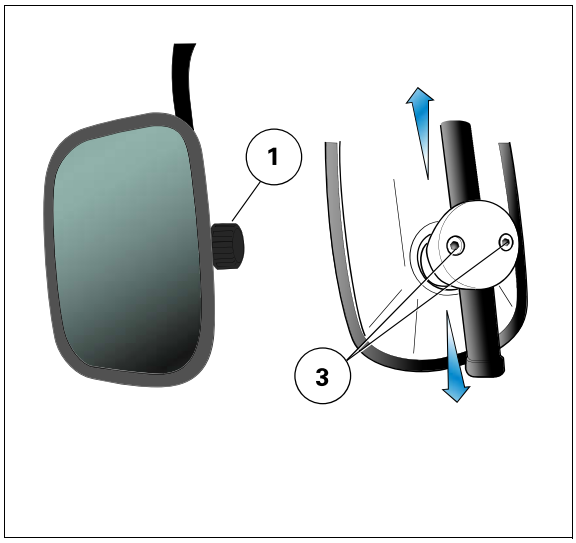

Fig. 5. I022693

3.4.8 Engine speed

T001525

Hand throttle

Using the hand throttle allows you to vary the engine speed and to maintain a constant speed. To do this, simply push or pull the lever to select a speed. The lever remains in this position to maintain the selected speed. The lever in rear position corresponds to idle speed.

Fig. 9. I004883

Foot throttle

The foot throttle is used to control the engine speed as well as the forward speed. When the pedal is released, the engine rpm returns to that preset by the hand throttle.

CAUTION:
When using the foot throttle, the hand throttle should be placed in the idle position.

Choosing the correct gear ratio

Select the ratio which gives the optimum fuel consumption without overloading the engine and the transmission. Bear in mind that soil conditions can vary within a matter of a few yards in the same field. Select a ratio which allows the engine to operate comfortably at about 75% of its maximum power.

Storing engine speeds

This function allows the operator to have permanent access to two stabilised engine speeds. This means he can activate stored engine speed B when working (e.g. 2150 rpm) and he can activate stored engine speed A when carrying out manoeuvres (e.g. 1350 rpm).

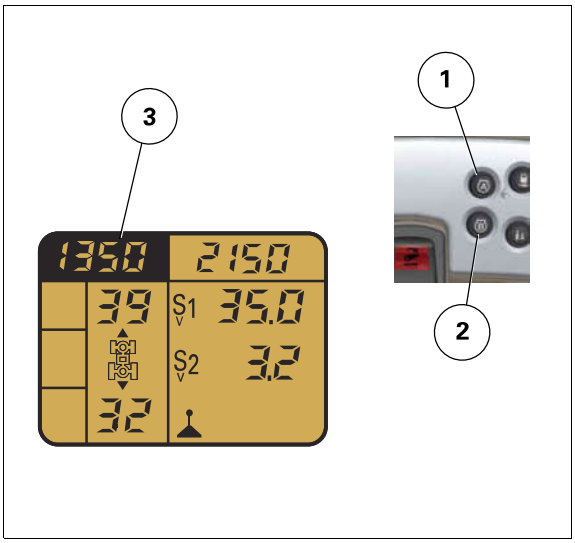

Fig. 10. I004900

Preselecting the speeds *fig. 10*

– Select the required engine speeds using the foot or hand throttle.
– Keep the memory switch A ((1)) or B ((2)) pressed down for 1 to 2 seconds. The speed is stored and is activated. It is highlighted on the Dash Control Center screen (3).

3.5.9 pedal mode

T001791

When the tractor is started, it is necessary to release the throttle pedal and press the pedal/lever mode switch (1) on the armrest; the selected mode appears on the screen *fig. 15*.

Transmission is controlled exclusively by the throttle pedal.

The maximum forward speed setting is set using the SV2 potentiometer (B) *fig. 14*

– 0 km/h to 50 km/h [1] in high speed range (B, hare).

– 0 km/h to 30 km/h in slow speed range (A, tortoise).

1. maximum permissible speed according to the legislation in force in the different countries

It is also possible to set the maximum engine speed to between 1400 rpm and 2260 rpm using the SV1 potentiometer (A) *fig. 14*.

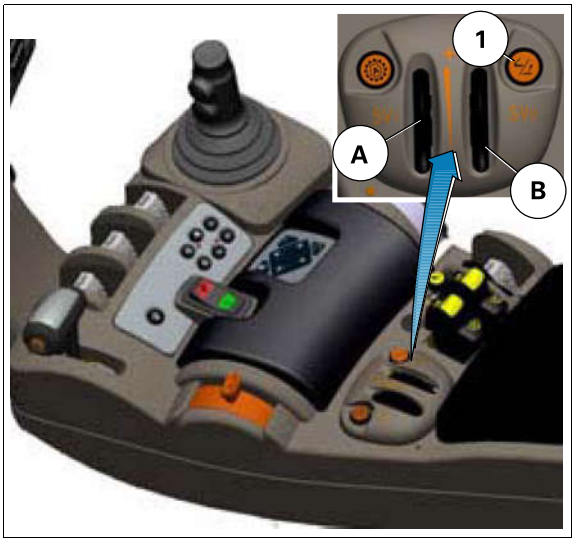

Fig. 14. I005757

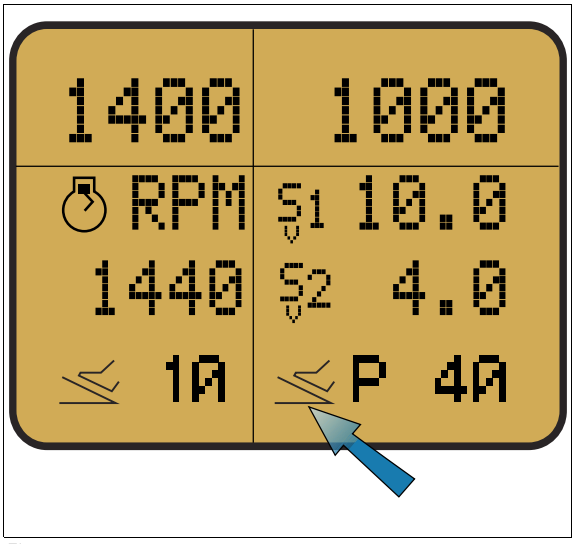

Fig. 15. I005756

NOTE: *When you change to pedal mode, a user help screen for this mode is displayed on the Dash Control Center.*
All of these settings may be different, depending on the range engaged.

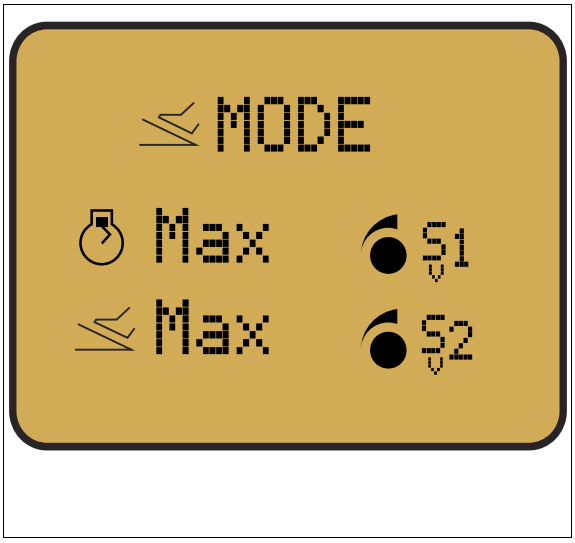

Fig. 16. I005759

Identification of coupling heads:

Black	5 bar to 0 bar, used in a single brake line (as used on older trailers).
Red	7 bar, brake assistance line, used for dual braking (as used on new trailers).
Yellow	0 bar to 7 bar, used in a double brake line (as used on new trailers).

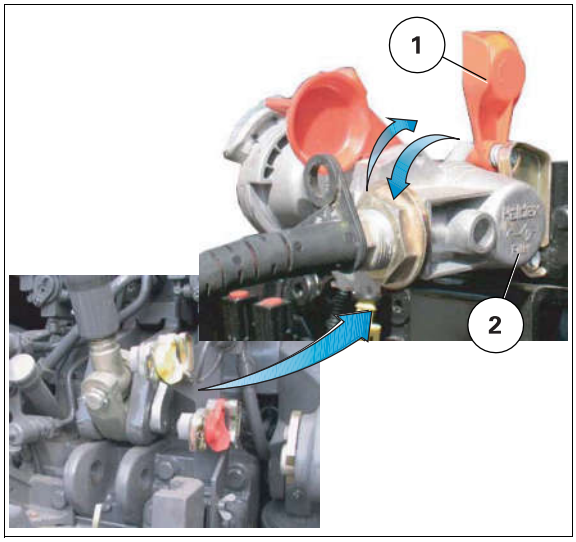

Fig. 3. I004829

Pressure available depending on type of braking

Brake pedals/hand brake not used	Full braking with brake pedal or hand brake lever	Colour of coupling heads
5 bar	0	Black
7 bar	7 bar	Red
0	7 bar	Yellow

Coupling the trailer to the tractor:

Remove the cover ref. (1) and connect the head of the trailer connection hose ref. (2), turning it downwards until it engages correctly.

IMPORTANT: *Connect the yellow coupling head before the red one in order to avoid an excess of pressure in the system.*

Uncoupling the trailer:

Carry out the operation in reverse, turning the coupling head upwards and refitting the cover ref. (1) to prevent any possible clogging and damage to the contact faces.

IMPORTANT: *Disconnect the red coupling head before the yellow one in order to avoid an excess of pressure in the system.*

Driving the tractor/trailer assembly

When driving, it is advisable to activate the corresponding display on the Dash Control Center screen *fig. 4* to monitor the display of pressure in the system (in bar) *see §3.1.2, page 60*, monitoring display panel.

WARNING:

When starting, wait for the brake control indicator light to switch off before starting to move. If the pressure drops below 4 bar, trailer braking is no longer operational, and the brake indicator light will light up on the instrument panel fig. 4. Stop the tractor carefully and consult your dealer.

IMPORTANT: *The system must be protected by antifreeze at the start of each cold season (temperatures below +5 °C).*
See the chapter on maintenance.

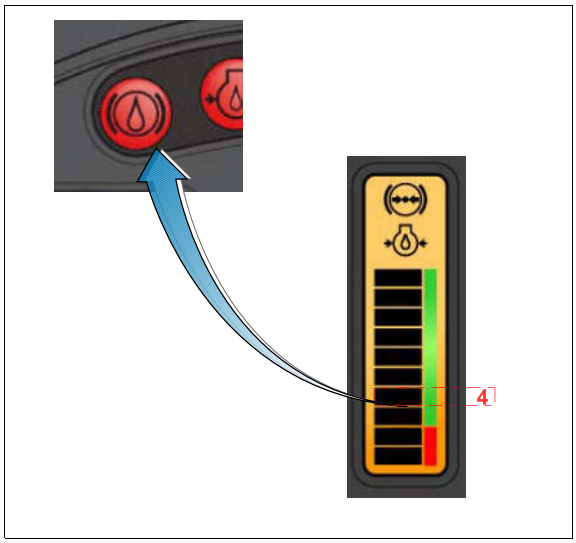

Fig. 4. I005781

Loaded weight/front track width of tractor/maximum speed

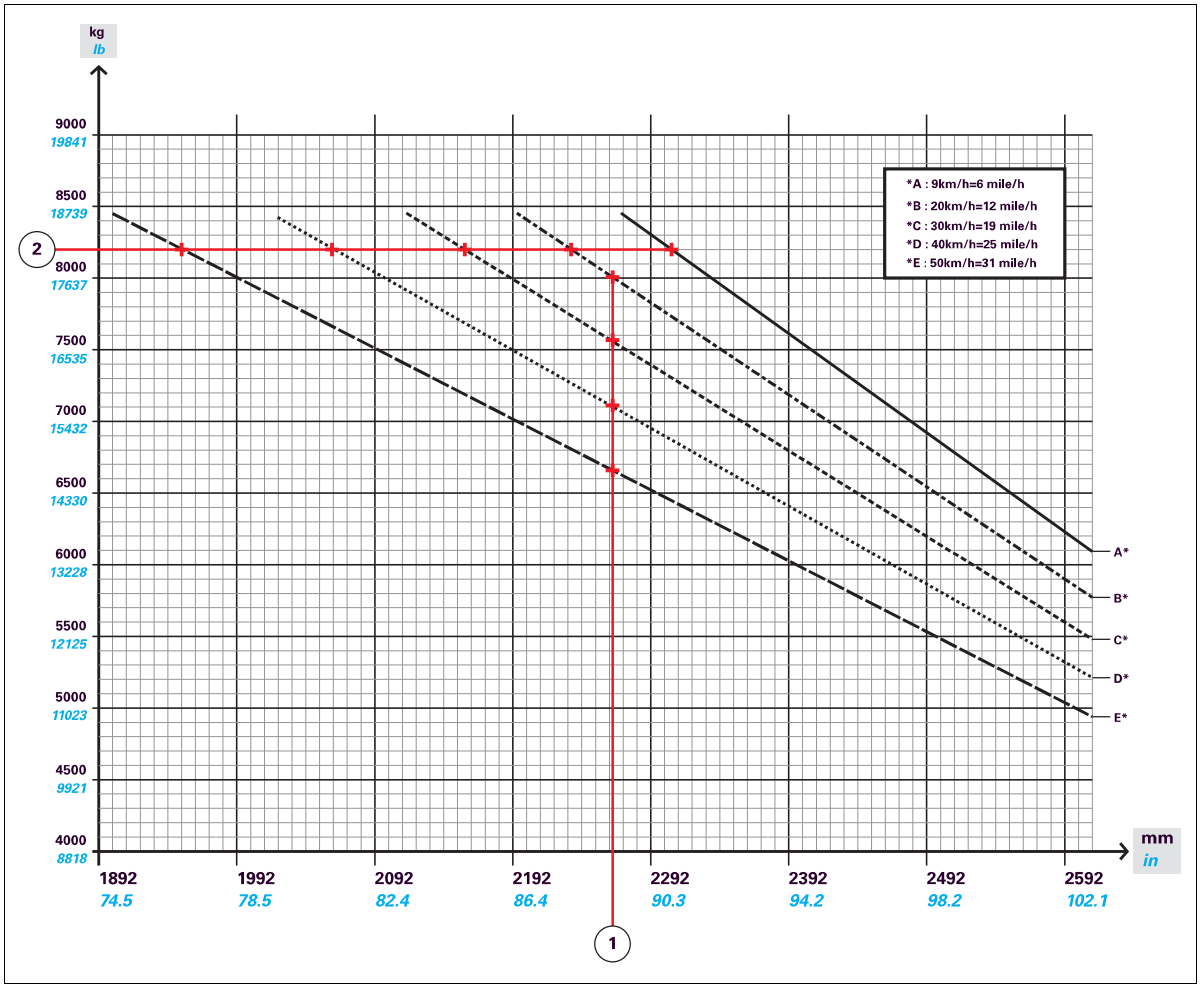

Fig. 4. I011589

Example 1
The front track width of the tractor is set to 2264 mm

Maximum forward speed	Maximum loaded weight on the front
50 km/h	6500 kg
40 km/h	7000 kg
30 km/h	7500 kg
20 km/h	8000 kg
9 km/h	8500 kg

Example 2
The loaded weight on the front of the tractor is 8000 kg

Maximum forward speed	Adjusting the front wheel track width
50 km/h	between the minimum and 1952 mm
40 km/h	between 1952 mm and 2062 mm
30 km/h	between 2062 mm and 2155 mm
20 km/h	between 2155 mm and 2232 mm
9 km/h	between 2232 mm and 2305 mm
lower than 9 km/h	greater than 2305 mm

3.11.2 Rear linkage operation

T001890

Lifting/lowering in the cab

When the tractor engine is started, the rear linkage is locked.
The rear linkage is controlled by the lifting/lowering switch ((I)) located on the armrest.
Use of the rear linkage requires deactivation of the safety device. This is done by first toggling the lifting/lowering switch to the lowering position and then toggling the switch to the lifting position.

Fig. 2. I006033

Active suspension

The rear linkage has an active suspension function when the linkage is in the transport position.
To engage this function, simply press the switch located on the linkage console ((D)).
A red LED lights up in the centre of the switch to confirm activation of the active suspension.

Fig. 3. I006034

3.12.7 Swinging drawbar

T001311

ISO standard

Model available:	Trailed weight:
Category 3 drawbar	25000 kg

Fig. 6. I006086

Category 2 drawbar

CAUTION:

40 km/h maximum speed authorised (in compliance with local regulations).

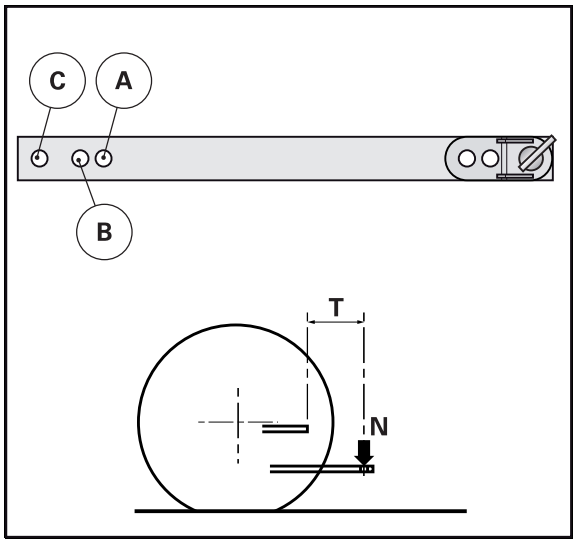

Fig. 7. I016329

Category 2 drawbar	Length T	Position *fig. 7*	PTO speed (rpm)	Number of splines	Vertical static load N
Min.	350 mm ± 10 mm	A	540 or 1000	6 or 21	2300 kg
Standard	400 mm ± 10 mm	B	540 or 1000	6 or 21	2000 kg
Max.	500 mm ± 10 mm	C	540 or 1000	6 or 21	1600 kg
Ø of pin	30 mm				
Width of drawbar	80 mm				
Thickness of drawbar	50 mm				

Hydraulic motor and flow regulator

(1) Direct outlet pressure
(2) Tank return
(3) Connection to the LS load signal
(4) Valve and flow rate control valve

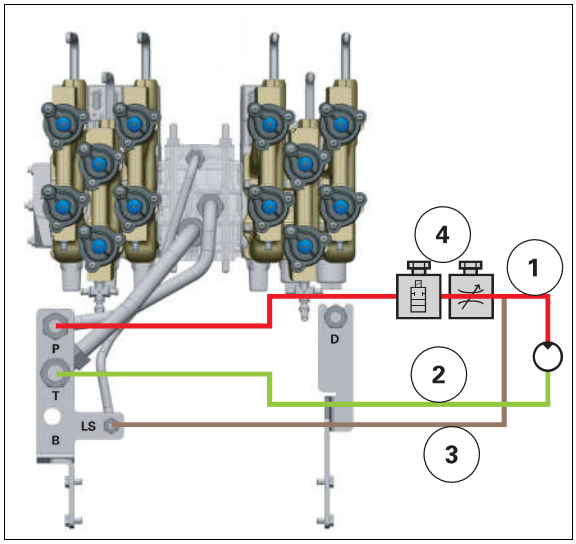

Fig. 10. I006156

Implements fitted with two hydraulic rams at the front of the tractor

(1) Ram 1
(2) Ram 2

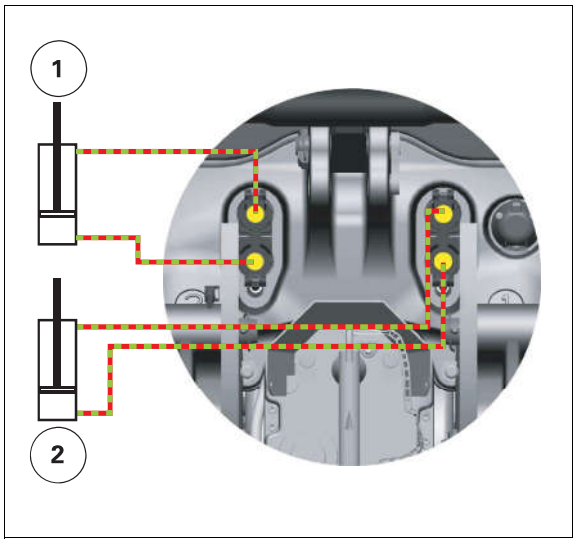

Fig. 11. I006173

Arm suspension

NOTE: *The arm suspension function position is stored by the tractor's electronic system when the engine is stopped.*

1. Open the relevant Dash Control Center screen.
2. Using the down arrow on the control keypad, activate the suspension
3. "ON" appears on the screen when the suspension is active
4. Press the down arrow on the control keypad again to stop the arm suspension
5. "OFF" appears on the screen

Fig. 9. I022740

Locking and unlocking accessories

NOTE: *This is a temporary function.*
The function is deactivated as soon as the "OK" button is released

1. Open the relevant Dash Control Center screen.
2. Press "OK" and keep the button pressed down "ON" appears on the screen.
3. At the same time, press (F3) and move the joystick to the right or left to lock or unlock the accessories
4. Once the accessory has been locked or unlocked, release the joystick and the "OK" button.

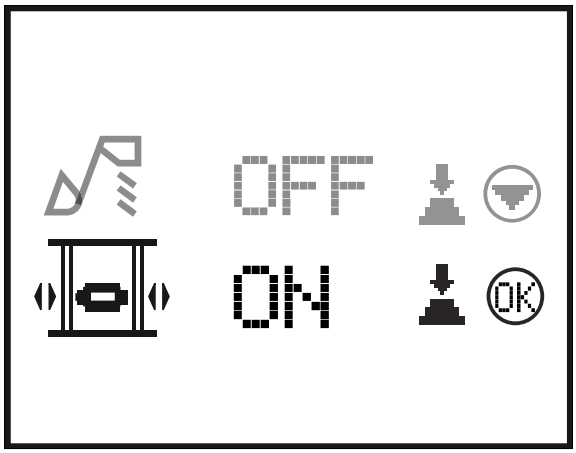

Fig. 10. I022741

3.14.3 Front-end loader

T006905

WARNING:

The programmable features of the joystick or other control MUST NOT be used to operate a loader. In order to prevent involuntary loader motion, the loader joystick controller must be a self neutralising type. When the operator releases his grip on the joystick, the joystick must return to a non-operational neutral position - except for float detent position in the loader lower direction.

4.1 Service guide

4.1.1 Maintenance

T001320

Interpretation of the table:
Initial 50-hour service marked °°: this maintenance instruction is to be carried out by your dealer as part of the 50-hour service defined in the Service Record Book.
Intervals marked °: regular service intervals marked ° are to be carried out at regular intervals (for example: every day, every 50 hours, every 400 hours etc.).
Intervals marked *: For variable intervals marked *, refer to the relevant chapter in this book.

Service guide	50 hrs	400 hrs	800 hrs	1200 hrs	2000 hrs	Every day
General						
Lubricate all points as specified in the Operator Instruction Book*.	°°	*				
Check the accumulator pressures.		Once a year				
Check that all guards are in place and that the safety decals are secure and legible.	°°	°				
Road test the tractor to check all instruments and systems for correct operation.	°°	°				
Road test the tractor to check the steering and brakes for correct operation.	°°	°				
After the road test, check for any leaks of oil, fuel or coolant.	°°	°				
Enquire if the operator has any operational difficulties and correct or demonstrate the solution as necessary.	°°	°				
Complete the owner's Service Record Book.	°°	°				
Cab						
Check and top up the windscreen washer bottle.						°
Clean the cab air filter element.	°°	°				
Change the cab filter elements.				°		
Check the air conditioning system for correct operation.	°°	°				
Check the cab tightening torque.	°°	°				
Replace the cab dampers.		4800 hours				
Engine						
Check the engine oil level.						°
Change the engine oil(2).		°				
Change the engine oil filter(2).		°				
Change the centrifugal oil filter (EGR engines)(2).		°				
Change the fuel prefilter(2).	°°	°				
Change the fuel filter(2).	°°	°				
Bleed the water from the fuel prefilter		*				
Change the filter element of the fuel/water separation centrifugal prefilter(2).	°°	°				
Drain any water from the fuel tank		°				
Adjust/set the valve clearances.		° (the 1st time)		°		

- If the tractor needs to remain immobilised for at least 4 weeks, use pure diesel during the last hour of operation to avoid clogging various components and filters or damaging seals with a weaker resistance to biodiesel.
- As biodiesel is a very powerful solvent, any residue in the fuel system may become dislodged after using biodiesel. The fuel filters must therefore be replaced promptly after the first few times the tank is filled with biodiesel.
- The low combustion value of biodiesel may lead to a drop in performance of 5% or an increase in fuel consumption of approximately 10%.
- All older models must be carefully inspected by an approved dealer before using biodiesel. Low compression, a leak from the injectors and coolant temperatures that are too low may lead to dilution of the engine oil. All the hoses and pipes must be checked at least once a year by an approved dealer.

Potential consequences of using biodiesel

To protect the engine and the fuel system, the tractor must be serviced at the recommended intervals or at shorter intervals if recommended.

- Loss of power and reduced performance
- Fuel leaks from the seals and hoses
- Corrosion of the additive injection equipment
- Reduced lubrication of the injection pump
- Carbonisation/obstruction of the injectors, leading to diminished additive spraying
- Filter blockage
- Coating/seizing of the internal injection system components
- Build-up of mud and sediments
- Reduced operating life

Warranty application

The normal warranty for the machine remains the same on condition that the information and standards given above are complied with and the machine is serviced by an approved dealer according to the servicing schedule.

Warranty claims are not accepted for paint damage caused by biodiesel. All claims regarding exhaust fume emissions, increased fuel consumption or reduced performance due to the use of biodiesel are also excluded.

Faults caused by the use of any type of fuel are not considered to be manufacturing or materials faults and are not covered by the warranty.

4.3.4 AdBlue/DEF additive:

T001271

Recommended additive

The recommended additive is a urea-based fluid sold under the brand name AdBlue/DEF.
AdBlue/DEF must comply with standard ISO 22241-1 or DIN 70070.

AdBlue/DEF is not a hazardous product, but it must be handled with care. In the event of spillage of AdBlue/DEF on the vehicle, rinse off with water and wipe with paper or a cloth.

Low temperatures: AdBlue/DEF freezes at -11 °C.
Take the necessary storage precautions to avoid the product freezing and to ensure the vehicle can be topped up at all times.

Constant ambient temperature	Retention limit/months
Below or equal to 10 °c	36
Below or equal to 25 °c (1	18
Below or equal to 30 °c	12

4.3.18 Cooling system

T001428

Coolant quality

– The coolant quality can have a great effect on the efficiency and life of the cooling system (*see §4.3.1, page 188*).

– ***IMPORTANT:*** *Never use pure water as a coolant.*
If an incorrect mixture is used, AGCO cannot be held responsible for damage caused.
Precautions against freezing: Check the protection level of the mix before the cold season.

The antifreeze/water ratio must always be 40-50% antifreeze to 60-50% water.
The minimum 40% antifreeze/60% coolant mixture must be used even in "non-cold" regions to raise the boiling point and protect the system against corrosion.
The water used should be clean, soft and non acidic.
Avoid the addition of pure water to the system, as this will dilute the mixture.

Checking the level and quality of the coolant

1. **Cold engine**, visually check the coolant level daily.
2. ***CAUTION:***
   The quality of the coolant must be checked when the engine is cold.

   Check the quality of the mixture regularly, especially before the cold season.

Filling to top up the coolant level

CAUTION:
If the engine is very hot, loosen the plug to the first notch before removing it to lower the expansion tank pressure.

IMPORTANT: *If the correct procedures are not used, AGCO cannot be held responsible for damage caused.*

1. Lift the bonnet to access the expansion tank.
2. Open the expansion tank plug.
3. Fill the expansion tank with coolant up to mid-way between the max/min witness marks .
4. After filling, open the heater tap fully and run the engine at 1000 rpm for several minutes.
5. Switch off the engine, check the level and top up if necessary, without exceeding the mid-way point on the tank.
   Refit the plug.

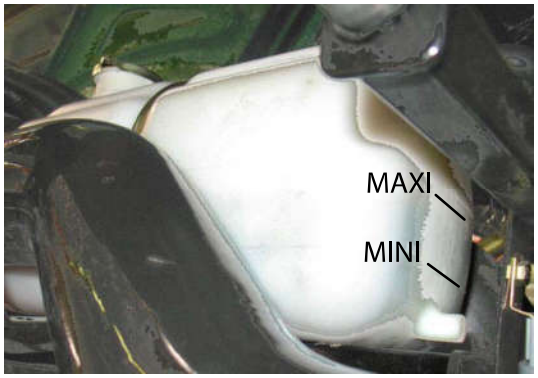

Fig. 16. I004092

Draining the cooling system

Drain the system every 1200 hours according to the following procedure.

CAUTION:
Wait until the system has completely cooled before draining.

4.5 Brakes

4.5.1 Bleeding the brake system

T001058

Frequency

Bleed the brake/piston system every 1200 hours and after every servicing operation.

Bleed screw locations

(1) Trailer brake bleed (if option fitted)

(2) Left-hand brake bleed

(3) Right-hand brake bleed

(4) Clutch bleed

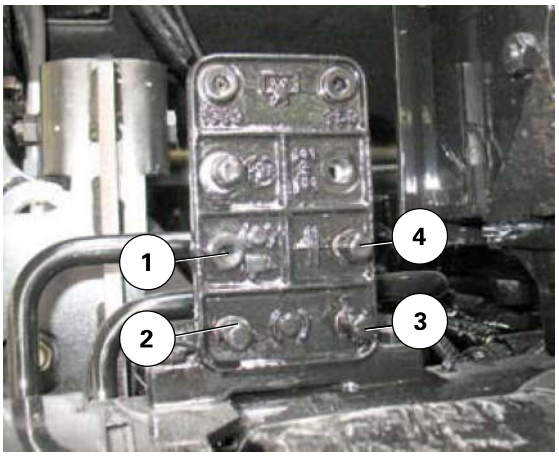

Fig. 1. I006754

(4) (5) Linkage unit joints

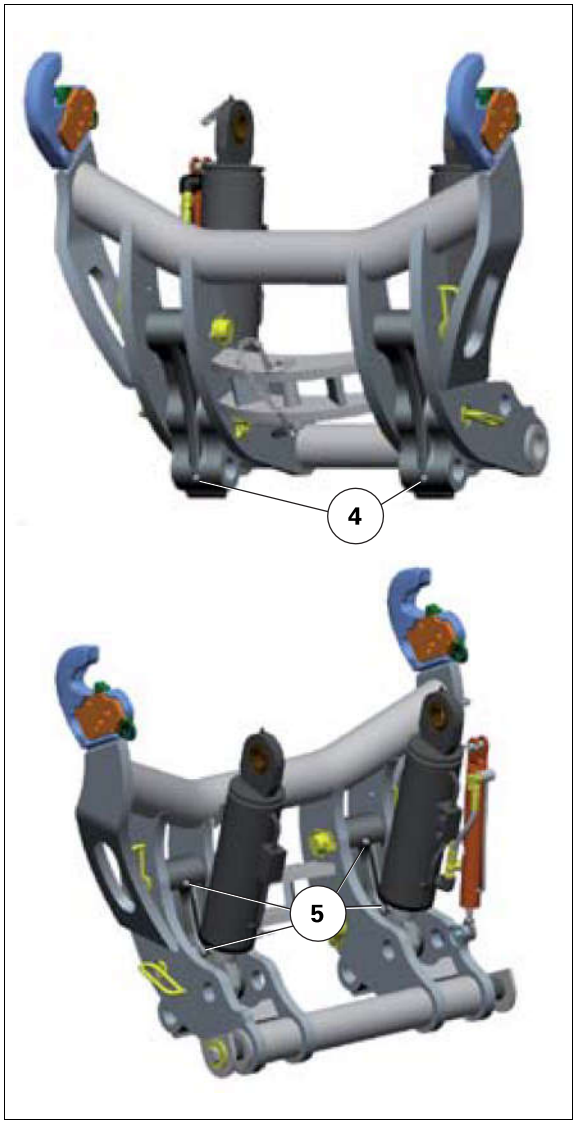

Fig. 6. I014654

4.9.5 Ball hitch: lubrication

T007346

Frequency

Check/lubricate the hitch ball once a week.

WARNING:
Stop the PTO before lubricating.

Num.	Amp	Size	Protected function
F1	25 A	STD	Windscreen wiper control unit
F2	25 A	STD	Main beams
F3	15 A	Min.	Dipped lights on grille
F4	10 A	Min.	Implement connector on right-hand pillar without Isobus
F5	3 A	Min.	Start switch + ACC(1
F6	3 A	Min.	K19 relay control circuit
F7	5 A	Min.	Lighting module + APC(2
F8	10 A	Min.	Air conditioning compressor
F9	3 A	Min.	K21 relay control circuit
F10	5 A	Min.	instrument panel + APC(2
F11	3 A	Min.	Brake switch
F12	10 A	Min.	instrument panel + APC(2
F13	3 A	Min.	Not used
F14	3 A	Min.	Limp home mode switch
F15	7.5 A	Min.	Horn
F16	5 A	Min.	Fuse board earth
F17	10 A	Min.	Front connector + ACC(1
F18	25 A	Min.	Not used
F19	7.5 A	Min.	Autotronic 5 linkage, Autotronic 4 and diagnostic connectors + APC(2
F20	5 A	Min.	Auto-Guide + APC(2
F21	5 A	Min.	Autotronic 4 + APC(2
F22	3 A	Min.	K13 relay control circuit
F23	3 A	Min.	K12 relay control circuit
F24	3 A	Min.	Alternator + APC(2
F25	10 A	Min.	Backlighting for console, cigarette lighter, lighting module, front right-hand and rear left-hand side lights
F26	5 A	Min.	Starter solenoid
F27	5 A	Min.	Electric battery isolator + APC(2
F28	3 A	Min.	K10 and K24 relay control circuit
F29	5 A	Min.	Lighting module + BAT(3
F30	15 A	Min.	Electric battery isolator + BAT(3
F31	10 A	Min.	Radio + BAT(3
F32	15 A	Min.	Rear windscreen wiper switch, rear windscreen wiper motor, extreme cold weather pump + BAT(3
F33	50 A	Max.	Fuse board + APC(2
F34	30 A	STD	Engine controller + BAT(3
F35	10 A	Min.	Fuse board + ACC(1
F36	7.5 A	Min.	Autotronic 5 linkage and Autotronic 5 suspended front axle/ParkLock + BAT(3
F37	5 A	Min.	Auto-Guide + BAT(3
F38	5 A	Min.	instrument panel + BAT(3
F39	10 A	Min.	Transmission actuator + BAT(3
F40	15 A	Min.	Linkage + BAT(3

Transmission oil too hot	
Cause	**Solution**
Radiator blocked.	Clean the radiator.
Too much force in range II.	Change to range I.
Coupler activated for too long.	Couple completely.
Turbo coupler function activated for too long.	Increase engine speed.
Other	Contact the dealer.

The tractor does not reach maximum speed	
Cause	**Solution**
Fuel filter blocked.	Replace the cartridge.
Charge pressure too low.	Check the intake air pressure and check the air filter for blockages.
Other	Contact the dealer.

Zero pressure and hydraulic flow	
Cause	**Solution**
Auxiliary tank empty	Top up with oil
Other	Contact the dealer.

Charge indicator light comes on	
Cause	**Solution**
Defective alternator.	Check the alternator. Contact the dealer.
Belt slack.	Check the belt tension.
Other	Contact the dealer.

No display on the digital display	
Cause	**Solution**
Electrical failure.	Check the fuses and connections. Replace the fuses.
Other	Contact the dealer.

Significant noise from the hydraulic system	
Cause	**Solution**
The hydraulic oil is still cold.	Operate the engine at average speed for several minutes before operating the hydraulics.
No oil inside the hydraulic system.	Top up in accordance with the specifications.
Other	Contact the dealer.

Heater air-blowing function not working	
Cause	**Solution**
The air is not delivered to the fan.	Check the condition of the cab air filters.
Other	Contact the dealer.

Code	Description	Solutions
E9025	Self-test cut-off paths	Contact the dealer.
E9026	Self-test cut-off paths	Contact the dealer.
E9027	Self-test cut-off paths	Contact the dealer.
E9030	Short circuit ECU main relay 1	Contact the dealer.
E9031	Short circuit ECU main relay 2	Contact the dealer.
E9032	Short circuit ECU main relay 3	Contact the dealer.
E9033	ECU cut-off does not work	Contact the dealer.
E9034	ECU cut-off did not work last time	Contact the dealer.
E9035	Normal recovery	Contact the dealer.
E9036	Total restart after 3 recoveries in 2 seconds	Contact the dealer.
E9070	Crankshaft speed signal	Contact the dealer.
E9071	Crankshaft speed signal	Contact the dealer.
E9072	Crankshaft speed sensor	Contact the dealer.
E9080	Cam speed sensor	Contact the dealer.
E9081	Cam speed sensor	Contact the dealer.
E9082	Cam speed sensor	Contact the dealer.
E9083	Cam speed sensor	Contact the dealer.
E9090	Engine speed signal evaluation error	Contact the dealer.
E9100	Protection upgrade fault	Contact the dealer.
E9107	Invalid ECU source address selection	Contact the dealer.
E9131	Injector no. 1 error	Contact the dealer.
E9132	Injector no. 2 error	Contact the dealer.
E9133	Injector no. 3 error	Contact the dealer.
E9134	Injector no. 4 error	Contact the dealer.
E9135	Injector no. 5 error	Contact the dealer.
E9136	Injector no. 6 error	Contact the dealer.
E9150	Rail pressure	Contact the dealer.
E9151	Rail pressure limiter	Contact the dealer.
E9152	Fuel filter pressure	Check tank level. Check whether a pipe is pinched. Contact the dealer.
E9153	Fuel filter pressure	Check tank level. Check whether a pipe is pinched. Contact the dealer.
E9170	Lift pump control (ECU)	Contact the dealer.
E9171	Preheater control	Contact the dealer.
E9172	Starter relay control	Contact the dealer.
E9173	Starter relay control	Contact the dealer.
E9174	MPROP pump control	Contact the dealer.
E9230	Engine specification mismatch	Contact the dealer.
E9231	Engine serial number mismatch	Contact the dealer.
E9233	ID module	Contact the dealer.
E9234	ID module	Contact the dealer.
E9235	ID module	Contact the dealer.
E9236	ID module	Contact the dealer.
E9237	ID module	Contact the dealer.

5.1 General specifications

5.1.1 Model 8650

T001358

Engine	
Brand	SisuDiesel
Type	84CTA
Number of cylinders	6

Transmission	
Gearbox type	Dyna-VT ML260
Rear axle type	HA260
Final drive type	HA260

Power take-off	
PTO type	Flanged shaft
Speeds	540/540 Eco/1000 rpm 540/1000 Eco/1000 rpm

Front axle	
Front axle type	DANA 770/504 (fixed) DANA 770/612 (suspended)
Synchronisation ratio (value id displayed on the name plate)	1.331

Hydraulics	
Hydraulic type	Closed centre: 175 l per min
Number of spool valves	6 maximum

Electronics	
Transmission control	Autotronic 4
Linkage control	Autotronic 5

Cab	
Air conditioning	Standard or automatic
Roof	Standard/High Visibility (optional)

5.1.2 Model 8660

T001359

Engine	
Brand	SisuDiesel
Type	84CTA
Number of cylinders	6

	High speed range (Hare)			Slow speed range (Tortoise)			Creeper range (Snail)		
Reverse travel	800 rpm	1900 rpm	2200 rpm	800 rpm	1900 rpm	2200 rpm	800 rpm	1900 rpm	2200 rpm
9 R	4,5 km/h	10,8 km/h	12,5 km/h	2,3 km/h	5,4 km/h	6,3 km/h	0,8 km/h	1,8 km/h	2,1 km/h
10 R	5,2 km/h	12,4 km/h	14,4 km/h	2,6 km/h	6,2 km/h	7,2 km/h	0,8 km/h	2,0 km/h	2,3 km/h
11 R	6,0 km/h	14,2 km/h	16,4 km/h	2,9 km/h	7,0 km/h	8,1 km/h	0,9 km/h	2,2 km/h	2,5 km/h
12 R	6,8 km/h	16,2 km/h	18,8 km/h	3,4 km/h	8,0 km/h	9,3 km/h	1,0 km/h	2,4 km/h	2,8 km/h
13 R	7,7 km/h	18,4 km/h	21,3 km/h	3,9 km/h	9,2 km/h	10,7 km/h	1,2 km/h	2,8 km/h	3,2 km/h
14 R	8,8 km/h	21,0 km/h	24,3 km/h	4,5 km/h	10,6 km/h	12,3 km/h	1,4 km/h	3,4 km/h	3,9 km/h
15 R	10,0 km/h	23,8 km/h	27,6 km/h	5,1 km/h	12,2 km/h	14,1 km/h	1,7 km/h	4,0 km/h	4,6 km/h
16 R				5,9 km/h	14,0 km/h	16,2 km/h	2,0 km/h	4,8 km/h	5,6 km/h
17 R				6,7 km/h	16,0 km/h	18,5 km/h	2,4 km/h	5,6 km/h	6,5 km/h
18 R				7,7 km/h	18,2 km/h	21,1 km/h	2,7 km/h	6,4 km/h	7,4 km/h
19 R							3,0 km/h	7,2 km/h	8,3 km/h
20 R							3,5 km/h	8,4 km/h	9,7 km/h
21 R							4,2 km/h	10,0 km/h	11,6 km/h

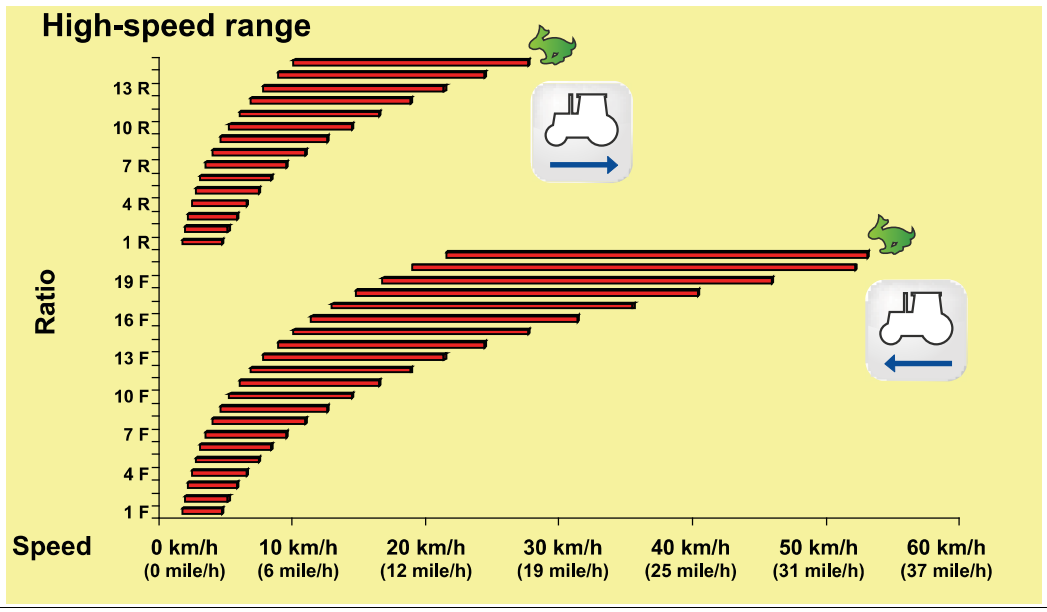

Fig. 2. I004784

5.11 Wheels and tyres

5.11.1 Rim

T001347

Four-wheel drive front axle	Welded steel rim/disc (2 settings depending on the position of the rim on the hub). Mobile steel rim/disc (8 settings depending on the position of the disc on the rim and on the hub).
Rear wheels	Welded steel rims/disc (setting depending on the position on the straight shaft). Steel rims/cast iron disc (setting of the disc position on the rim and depending on the position on the straight shaft).

5.11.2 Tyres

T001348

On an unequal 4-wheel drive tractor, the front wheels are smaller than the rear wheels, so they have to turn slightly faster than the rear wheels.
The synchronisation ratio K specifies the difference between the rotation of the front and rear wheels.
For total compatibility between the front and rear tyres, apply the synchronisation ratio K (the value is displayed on the name plate).

The following formula is used to check that your choice of front/rear tyre is correct.
The result should be between 1 and 1.05.
Calculation formula:
1<K x (rolling circumference of the front tyre/rolling circumference of the rear tyre)<1.05

5.11.3 Tightening torques

T001375

	Disc on hub	Rim on disc	Hub on axle shaft
Fixed steel rim	640 Nm to 680 Nm	350 Nm to 460 Nm	350 Nm to 460 Nm
Rim with cast iron disc	640 Nm to 680 Nm	250 Nm to 350 Nm	350 Nm to 460 Nm