Operator's Manual

Rubber Track Tractor

1149MT
TABF11xxxJxxx1001-
1154MT
1159MT
1165MT

North America
4205 River Green Parkway, Duluth GA 30096 USA
FENDT is a worldwide brand of AGCO
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Original Operator's Manual

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English

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1.1.18 Cut and crush prevention

Support the equipment correctly when performing work below the equipment. Do not rely on the hydraulic cylinders to hold up the equipment. An implement can fall if a control lever is moved or if a hydraulic line breaks.

Never start the machine engine by shorting across the starter solenoid terminals. Machine movement can occur causing runovers .

Never make adjustments while the machine is moving or while the engine is operating.

Whenever there are attachment control linkages, the clearance in the linkage area will change with movement of the attachment.

Stay clear of all rotating parts and all moving parts.

Keep objects away from moving fan blades. The fan blades will throw objects and the fan blades can cut.

Do not use a wire tow cable that is kinked or frayed. Wear gloves when touching wire cable.

When hitting a retainer pin, the retainer pin can fly out causing personal injury. Make sure that there are no people in the area when hitting a retainer pin. To prevent eye injury, wear protective glasses when hitting a retainer pin.

Chips or other debris can fly off objects when hitting the objects. Make sure that others are clear of the area before hitting any object.

1.1.19 Rollover protective structure

Do not make any modifications to the rollover protective structure (ROPS) as this will change protection provided. Do not change structure by welding, cutting, adding weight, or drilling holes into structure.

Any change not specifically authorized by AGCO invalidates AGCO certification for ROPS. The protection offered by ROPS will be impaired if ROPS has structural damage or alteration. Damage to structure can be caused by a turn over or by falling objects.

Do not mount items (fire extinguishers, first aid kits, work lights, etc.) by welding brackets or drilling holes in ROPS. See dealer for mounting guide lines.

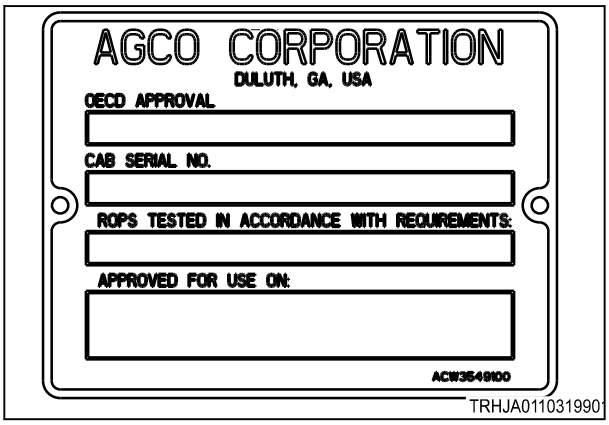


Fig. 6

1.3.8 Entanglement

Entanglement	
	Stay out of the engine compartment while the engine is on. Keep all body-parts clear of the fan. Injury or death can occur. Stop the engine and remove the key before maintenance or repair work.

1.3.9 Entanglement

Entanglement	
	Stay out of the engine compartment while the engine is on. Keep all body-parts clear of the belts. Injury or death can occur. Stop the engine and remove the key before maintenance or repair work.

1.3.10 Run over hazard

Run over	
	Never bypass start the engine by making a connection across the starter terminals. The engine can start and the machine can move if the normal circuits are bypassed. Never start the engine while standing on the ground. Start the engine only from the operator's seat with the seat belt on. The drive lever must be in neutral and the park brake engaged.

1.3.11 Fuel filter

Fuel filter	
	The decal is located on the fuel filter housing.

1.5.5 Park brake

Park brake	
	Use the secondary park brake for an emergency stop, if there is a failure of the service brakes while operating the machine.

1.5.6 Installation date

Installation date	
	The installation date sign is located to the left of the operator on the seat belt.

1.5.7 Alternate exit

Alternate exit	
	In an emergency, use the rear window as an exit. Open the window. Disconnect the connector at the end of the rod that is in the struts. Remove the struts from the window.

2.1 Machine identification information

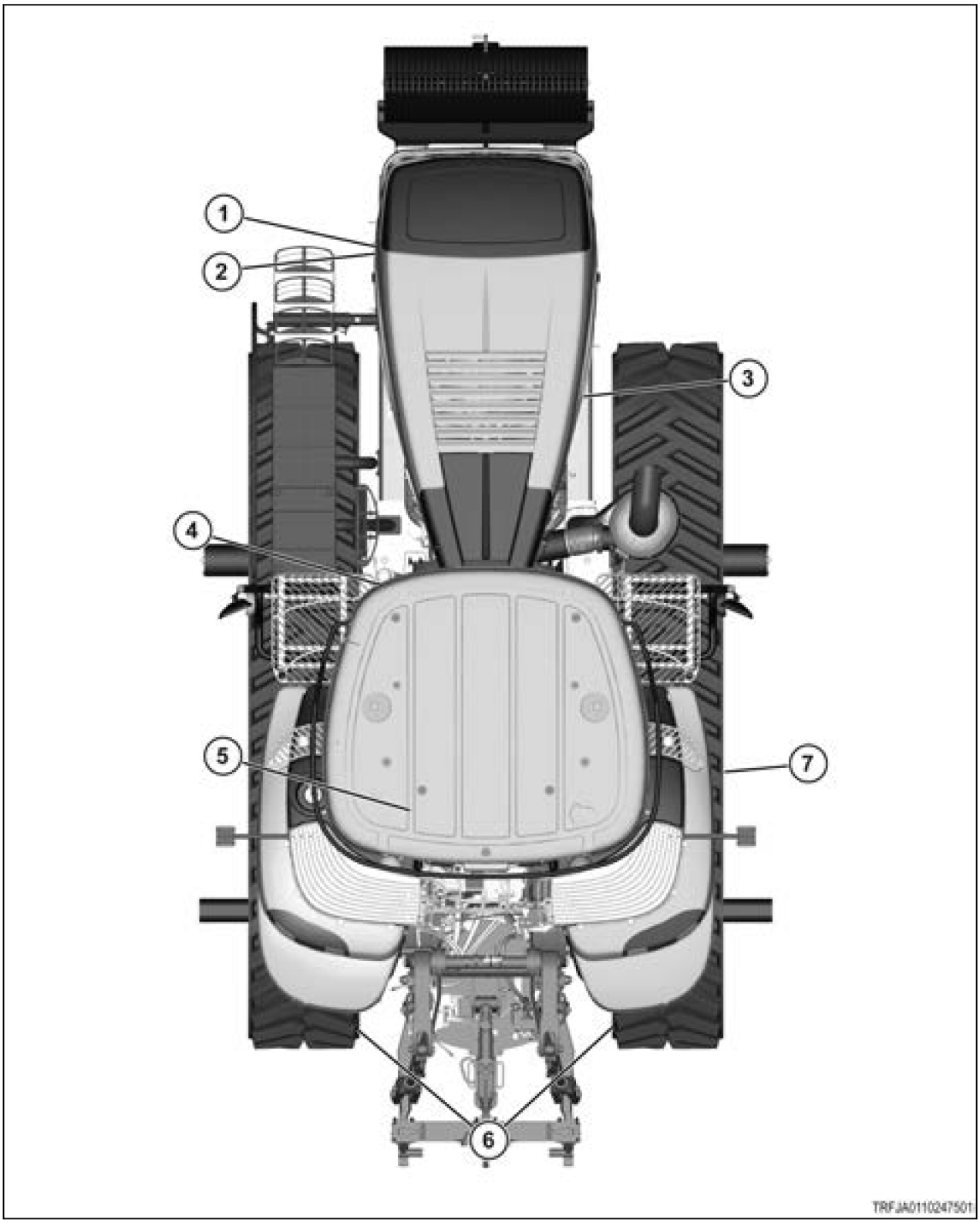


Fig. 1

3.5 Lamp switches

3.5.1 Multifunction light switch on the steering column

WARNING:
Use of work lamps when traversing public roads and accesses may cause an accident and personal injury by impairing the vision of approaching traffic and obscuring the flashing hazard lights. Only the headlight position on the multifunction switch must be used when traversing on roads.

The multifunction light switch twists to the following positions:

(1) Off turns off all exterior lights

(2) Shutdown delay

(3) Turn signals - Push up on the multifunction light switch to engage the right turn signal. Push down on the multifunction light switch to engage the left turn signal . The turn signals work in all multifunction light switch positions.

(4) Headlights - To engage the low beam headlights, pull the multifunction light switch to the operator. In this mode, the flash to pass high beams can turn on. Use the hazard lights along with this position while roading the machine. High beam headlights To engage the high beam headlights, push the multifunction light switch away from the operator. This position also activates the night breaker lighting (optional equipment).

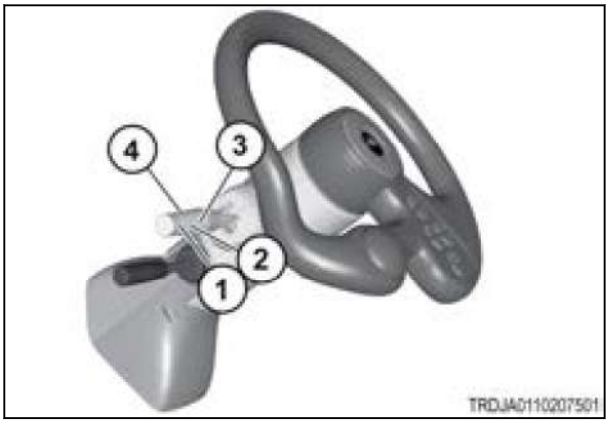


Fig. 5

NOTE:
Always return the switch to the center position when the turn is complete. After turning the machine, the switch will not automatically return to the center position. Make sure the switch is in the neutral position. The turn signals will stay active with the key in the off position.

3.9 Radio

The cab comes pre-wired to accept:

- AM/FM weatherband
- Deluxe AM/FM weatherband single-CD/MP3, Blue-tooth, USB
- Deluxe AM/FM weatherband single-CD/MP3, Blue-tooth, USB, XM

Refer to radio operator manual.

Fig. 21

3.9.1 Steering wheel controls

Additional controls for the XM/CD, Sirius/CD, or CD are on the steering wheel. The standard radio does not have the functionality to use the controls on the steering wheel.

Fig. 22

3.9.2 Blue tooth microphone

The machine has a built in blue tooth microphone in the headliner (1) for hands free mobile device communication. During a blue tooth call, the blue tooth audio will be heard in the front left-hand speaker. The rest of the speakers will be muted.

Fig. 23

3.13 Exterior tool box

Located under the step is the storage area.

Unhook the latches (1) on both sides of the storage area to lift the step section lid.

Inside the step section is the prop rod. Insert the prop rod in the slot available to hold the step section lid.

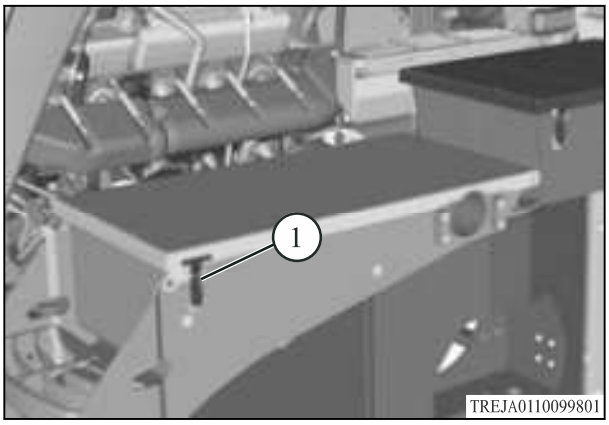


Fig. 35

4. Use the scroll wheel to set the audio level of the machine management center speaker. Press the scroll wheel button or the hard key adjacent to the checkmark icon (1) to select the setting. Press the hard key adjacent to the X icon (2) to cancel the selection.

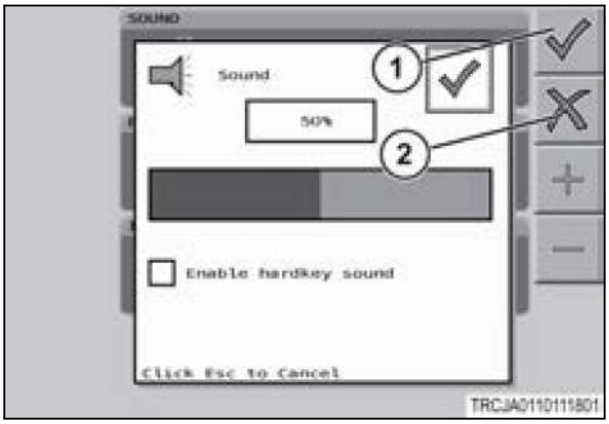


Fig. 54

5. Select the set brightness by scrolling to the set brightness box (1) to highlight the selection. Press the scroll wheel button to select the selection.

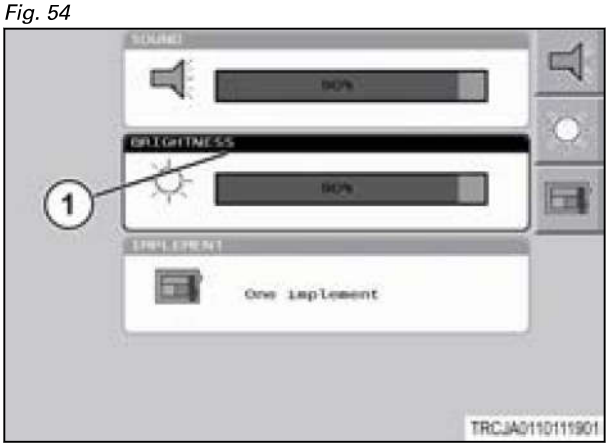


Fig. 55

6. Use the scroll wheel to set the brightness level of the machine management center display. Press the scroll wheel button or the hard key adjacent to the checkmark icon (1) to select the setting. Press the hard key adjacent to the X icon (2) to cancel the selection.

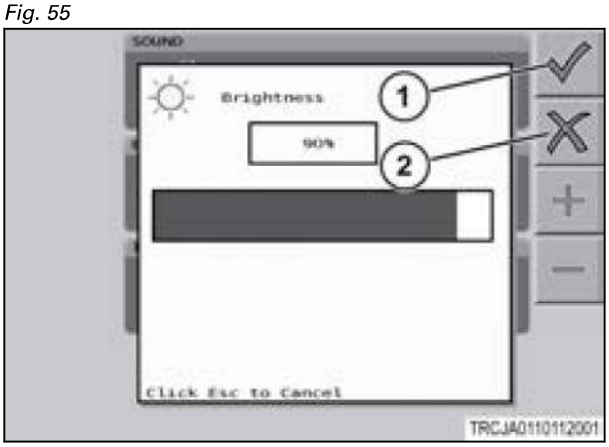


Fig. 56

7. Select the implement layout by scrolling to the implement layout box (1) to highlight the selection. Press the scroll wheel button to select the selection.

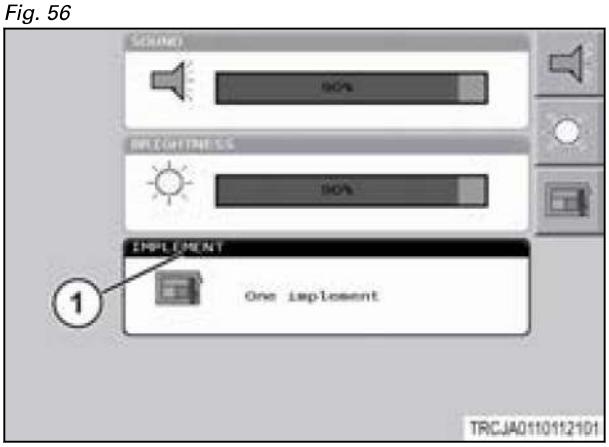


Fig. 57

5. Use this screen to select the required characters to name your implement. After each selection, press the scroll wheel button to confirm the selection.

The following options are on this screen:

- (1) Validate
- (2) Cancel
- (3) To delete a character
- (4) Space
- (5) To clear all the characters
- (6) Shift

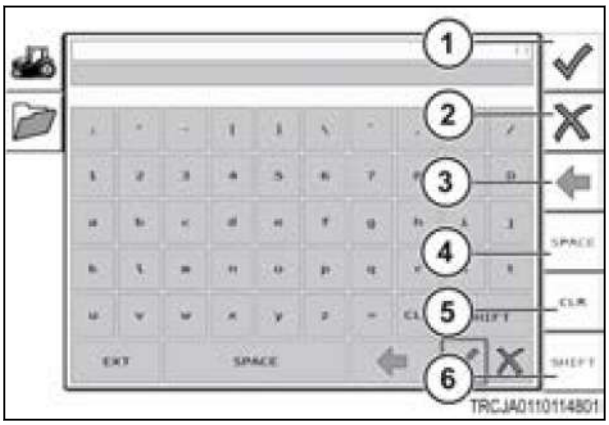


Fig. 84

6. Use the scroll wheel to highlight the work trigger field (1).

7. Push the scroll wheel button to select the trigger field. Scroll forward or rearward to select the appropriate work trigger icon.

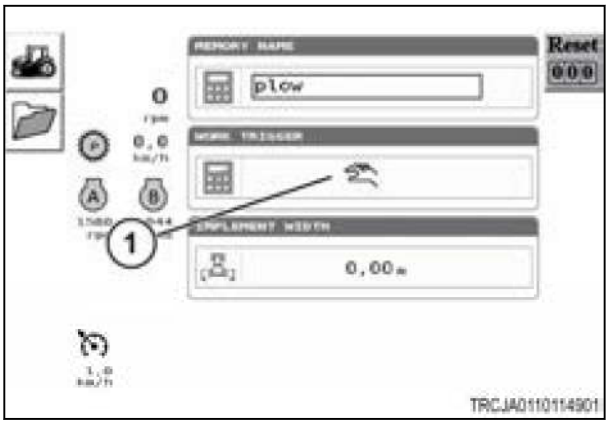
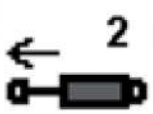
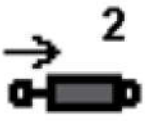


Fig. 85

8. Work trigger icons

Work trigger icons					
	Linkage in the lower position		PTO active		Positive flow rate spool valve 1
	Negative flow rate spool valve 1		Floating position spool valve 1		Positive flow rate spool valve 2
	Negative flow rate spool valve 2		Floating position spool valve 2		Manual control

11. To add or change hours for the user interval, highlight the hours and press the scroll wheel button. Scroll and select the hours and press the scroll wheel button to select the selection.

Return to the main menu viewing screens.

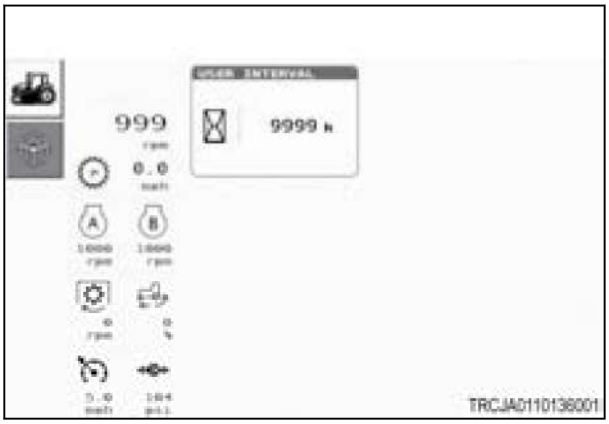


Fig. 111

3.16.24 Headland management

1. At the main menu, select the headland management screen (1). To select the icon, push the scroll wheel button.

The headland management lets the operator record operations that occur at the headland turn, and combine them so the operations can occur at one time by pressing a single button.

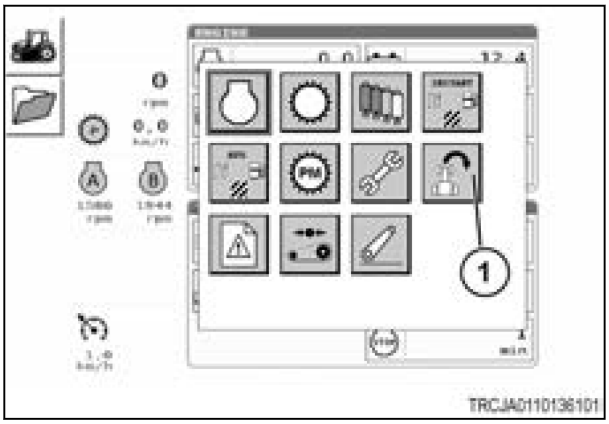


Fig. 112

2. Press the hard key adjacent to the icon(1) to continue to the machine sequence viewing screen.

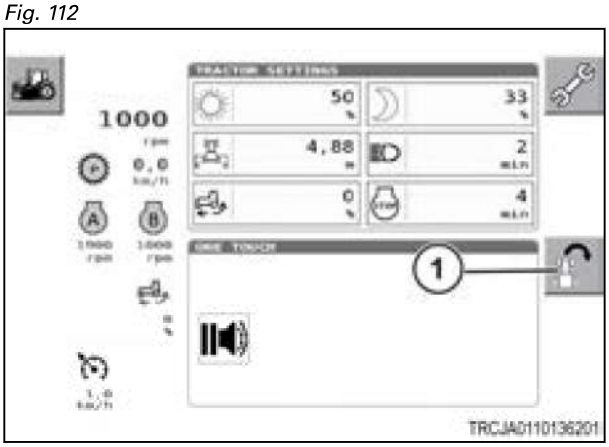


Fig. 113

2. Press the hard key (1) to select the configuration menu.

Fig. 175

3. Press the hard key (1) to select calibration menu,

Fig. 176

4. Use the scroll wheel to highlight the slip calibration start button (1). Press the scroll wheel button to select the selection.

Fig. 177

5. The slip calibration shows:

- During the calibration make sure there is no tire to ground slipping.
- Set the tractor speed to a forward speed of 8kph (5 mph)
- Press the hard key next to the checkmark icon (1) to accept the setting and start the calibration.
- Drive tractor at a constant ground speed for four seconds.
- If calibration needs to be aborted press the hard key next to the X (2).

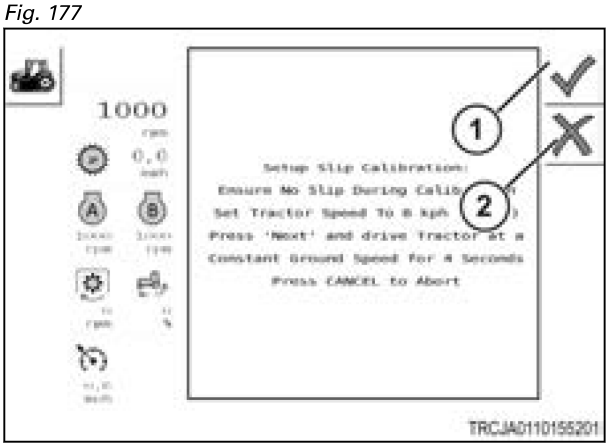


Fig. 178

3.18 Machine control

3.18.1 Throttle control

Use the throttle control lever (1) to control the engine speed. Push the throttle forward to increase and to decrease the engine speed push the throttle rearward.

Fig. 202

3.18.2 Decelerator - if equipped

Push down on the pedal (1) to override throttle control lever. The decelerator decelerates the engine until the set point is reached. When releasing the pedal, the engine speed returns to the setting of the throttle control lever. The operator can use the decelerator pedal to even out the deceleration of the engine. The engine deceleration is proportional to the range of travel of the decelerator pedal.

The operator can adjust the set point for decelerator. The set point for decelerator has a minimum of 1200 rpm to a maximum of 2300 rpm.

NOTE:
Do not use the decelerator while roading the machine. The roading lockout switch is to disable the decelerator while roading the machine.

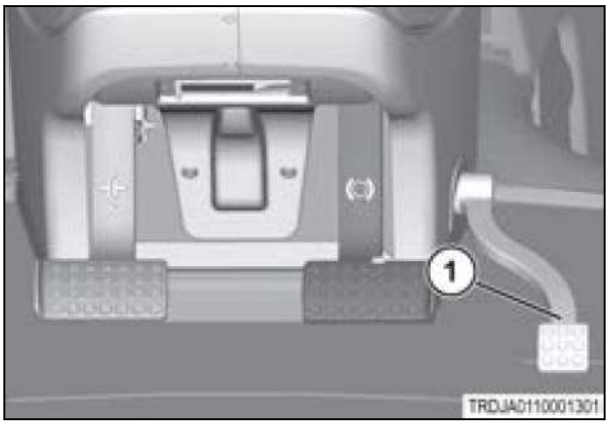


Fig. 203

3.18.3 Power management

Power management system lets the machine automatically shift the transmission and/or change the engine throttle under certain circumstances. The power management button has two options, the maximum output and constant ground speed.

The maximum output mode (1) will let the machine automatically downshift into a lower gear if the engine starts to lug down under load and the rpm falls below the power band. Once the draft load decreases and the engine's rpm recovers, the transmission will up shift back to the original gear to maximize productivity.

The constant ground speed mode (2) lets the operator set a ground speed that will remain constant. When engaged, the control system will

Fig. 204

3.22 Hydraulic controls

3.22.1 Hydraulic control valve operation

WARNING: *Personal injury or death can result from unexpected movement of an implement. Extension or retraction of a hydraulic cylinder depend on how implement hose connections are made. Make sure hoses for implement are connected to machine correctly and operate as expected. Clear area around machine of personnel and obstructions before operating implement.*

The hydraulic control valves are controlled by the hydraulic control levers on the right side console.

The hydraulic control valve No. 1, is located at the bottom of the hydraulic valve bank, which is located at the rear of the machine.

Each hydraulic control valve contains a load check valve in extend position and retract position. The load check valves are installed to limit drift of the implement. If the implement is in a raised position and the engine is disabled, the load check valves will prevent an implement from being lowered.

The hydraulic control levers have the following positions:

- Hold position is used to hydraulically lock implement circuit when implement circuit is not in use.
- Pull back the hydraulic control lever for extend position to extend a hydraulic cylinder.
- Pull back the hydraulic control lever through extend position until a higher point of resistance is felt. Continue to pull lever through this point of resistance. This will start cycle for extend detent. Release lever. Lever will return to hold position. The hydraulic control valve continues to operate in detent function until cycle is complete.
- Push the hydraulic control lever forward to retract position to retract a hydraulic cylinder.
- Push the hydraulic control lever through retract position until the first point of higher resistance is felt. Continue to push lever through first point of resistance. This begins cycle for retract detent. Release lever.
- Lever returns to hold position. Implement control valve continues to operate in detent function until cycle is complete.
- Move the hydraulic control lever fully forward to put the hydraulic control valve in float position. When the hydraulic control lever is in float position, the hydraulic cylinder extends or retracts to follow the ground contour. The hydraulic control lever will not automatically return to hold position. Use float position to retract a single-acting cylinder. Use float position as off position for hydraulic motors.

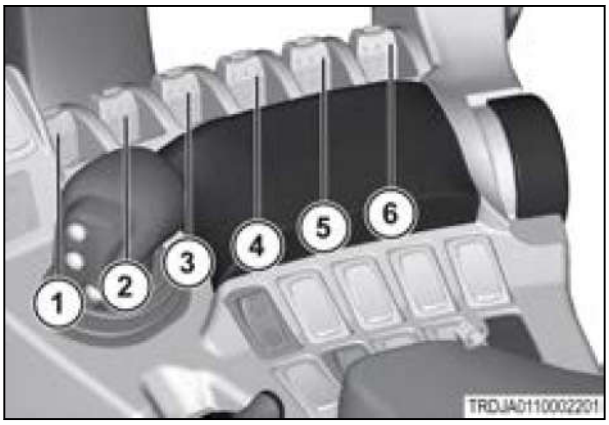


Fig. 215

3.23.14 Connect the spray system pump

Procedure

1. Connect the spray system pump pressure hose to the coupler (2) on the desired hydraulic control valve.
2. Connect the return hose to the coupler (1) on the same hydraulic control valve.

   NOTE:
   If the machine is equipped with a hydraulic power beyond, connect the return hose to the coupler (3) *on the hydraulic power beyond.*
3. Open the needle valve (8). The flow rate to the pump must be controlled by the terminal display.

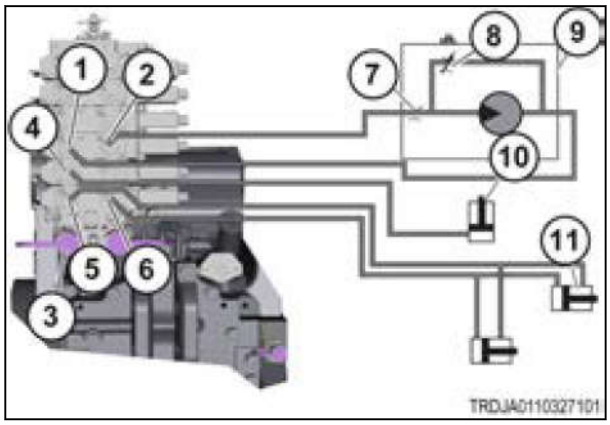


Fig. 228

4. Remove the inlet orifice (7).
5. Connect the cylinder for raising the boom (10).
6. Connect the pressure hose to the coupler (4) on the desired hydraulic control valve.
7. To fold the booms (11), connect the cylinder pressure hose to the coupler (5) on the desired hydraulic control valve.
8. Connect the return hose to the coupler (6) of the same hydraulic control valve.

3.23.15 Connect the auxiliary implement controls

Procedure

1. Connect the pressure hose to the + coupler (1).

   NOTE: *Auxiliary implement control valves can be connected to any hydraulic control valve.*

   NOTE: *For auxiliary implement controls to function, the implement must be set to extend and be commanded on.*
2. Connect the return hose to the return coupler (2) on the hydraulic power beyond.

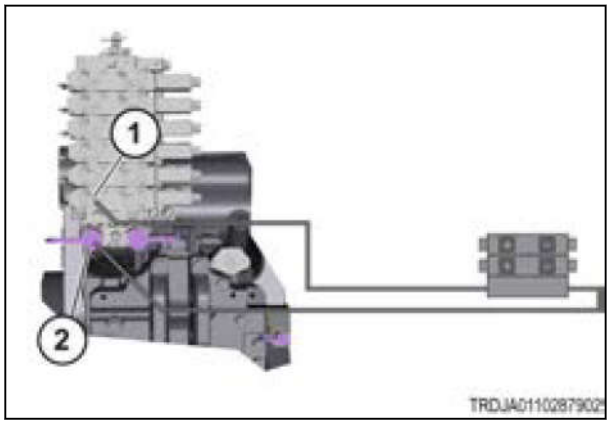


Fig. 229

the hitch. The two extremes of the draft sensitivity setting are given below, and a linear relationship can be assumed between the two extremes.

- Maximum draft setting set to (100 percent):
  - 7.62 cm (3 in) vertical hitch movement
  - 90 percent desired engine speed
- Minimum draft setting set to (0 percent, disabled):
  - 0 inches vertical hitch movement
  - 80 percent desired engine speed

If either the constant ground speed or the maximum power is engaged, the draft control is disabled. The draft control is automatically enabled when constant engine speed mode is engaged, primarily through the use of the engine A/B switch.

The following conditions must be met for Draft Control to operate:

- The 3-point linkage is locked on.
- Calibration mode is not selected.
- The desired engine speed is more than 1400 rpm.
- The setting for Draft Control is more than zero.
- Power Management is in the Off position or in the Constant Engine Speed mode.
- The tractor is moving in a forward gear.
- The inching clutch control is not depressed.

The hydraulic system will respond to changes in the draft load with large movements of the implement.

The rate of linkage movement will also decrease.

When the hitch is in the control mode position, set the Draft Control to zero.

Monitor the implement while pulling the implement through the ground. If the reaction from the hydraulic system is too great, reduce the sensitivity.

To reduce the sensitivity, rotate dial in the counterclockwise direction by a few degrees. Continue this process until the amount of implement movement is satisfactory.

3.25.5 Slip sensitivity

To change item selections, scroll to highlight box (1) and press scroll wheel button. Push hard key next to steer position icon to select next screen (2).

The raise limit will limit the maximum height for the 3-point linkage. Use the raise limit to prevent large implements from hitting the rear of the cab.

The raise rate is used to vary the speed of raising the 3-point linkage.

The lower rate is used to vary the speed in lowering the 3-point linkage.

Slip Sensitivity adjusts the response of the hitch during severe conditions.

This feature lets the operator adjust the amount of response from the 3-point linkage in relation to the track slippage.

When the threshold for the tack slippage has been exceeded, the 3-point linkage will raise until the track slippage falls below the threshold.

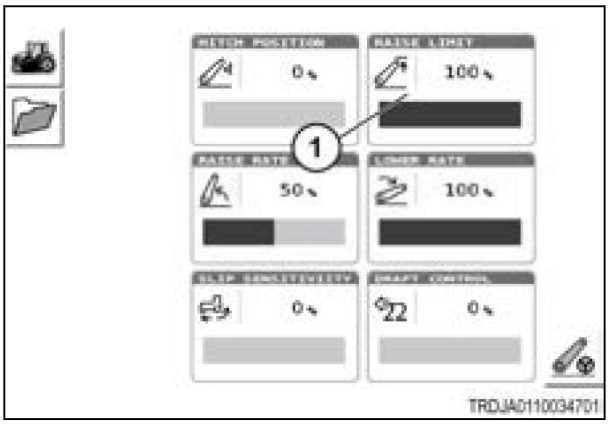


Fig. 249

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3.29 Connect the implements

3.29.1 Connect the implements to the 3-point linkage

Before you connect implements to 3-point linkage, it is necessary to do a check of these items:

- Adjust draft sensitivity to set control detent.
- Position machine so draft arm hitch points are lined up with the implement hitch pins.
- Put the transmission control lever in the park position and stop the engine
- Connect the draft arms to the implement.
- Adjust the top link to an initial position of 762 mm .
- Connect all other equipment. Implement hydraulics or PTO drive shaft can be other equipment.

IMPORTANT:
Make sure that no interferences are between machine and implement. Make sure that minimum 100 mm of clearance is between implement and cab when raising linkage.

Check PTO driveshaft. Make sure that these conditions are not present:

- Driveshaft is extended too far.
- Driveshaft is in a bottom these.
- Too much angle while the implement is raised or lowered.
- Driveshaft contacts guard for PTO.
- Driveshaft contacts drawbar

3.29.2 Connect the implements to the quick hitch

NOTE: *Check clearance between the quick hitch and accessory hydraulic hoses. This can require routing some hoses over the quick hitch and routing other hoses under the quick hitch.*

Before connecting the implements to the quick hitch, the following items need to be checked.

Decrease or remove the drawbar (1) if the equipment is mounted near machine, and can cause interference.

Adjust draft sensitivity to set control detent.

Put latch handles (2) in down position.

Back up machine to implement. Make sure lower hooks are below pins on implement and that 3-point linkage frame is parallel to implement.

Put lower hooks (3) directly below pins on implement. Put upper hook (4) below center pin of implement. Raise 3-point linkage slowly to lock on implement. Make sure that both lower latches and center hook of quick hitch fully engage pins of implement.

Fasten any auxiliary equipment. Auxiliary equipment includes implement hoses or PTO drive shaft.

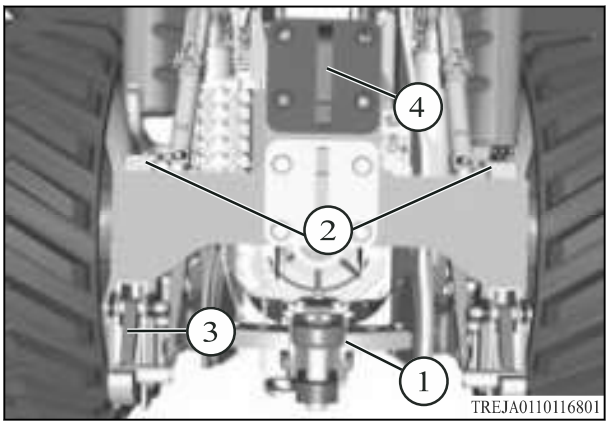

Fig. 262

3.33 Tow and transport

3.33.1 Operate the machine on the road

WARNING: *Failure to operate the hazard lights can cause incorrect identification of machine, and can result in an accident and personal injury. Always use flashing hazard lights when traveling on public roads and accesses to inform traffic of a slow-moving machine.*

Check all fluid levels before roading machine.

Check travel route for overhead clearance and travel route for correct width.

Install a slow moving vehicle sign on rear of machine. Only install sign if local regulations permit installation.

Before roading machine, make sure the following equipment is visible and works correctly:

- Brake lights
- Hazard lights
- Turn signals
- Tail lamps

WARNING: *Use of the work lamps when traversing public roads and accesses can cause an accident and personal injury. Work lamps can decrease vision of the approaching traffic and obscure flashing hazard lights. Only head lamp position of the master light switch must be used when traversing roads.*

Move multifunction switch to position for low beam headlights.

Use the hazard lights along with the low beam headlights while roading the machine.

Engage the roading lockout switch to disable the following functions:

- Hydraulic control valve bank
- Decelerator pedal
- 3-Point linkage
- VarioGuide
- Steerable 3-point linkage
- Power Take-Off (PTO)

Reduce speed when roading a machine equipped with a full set of front counterweights.

Reduce speed if direction stability of machine is noticeably reduced.

Reduce speed if road surfaces change from one type of surface to another type of surface.

When towing drawbar implements, adjust stops to prevent swing.

IMPORTANT: *When roading machine, throttle back and then reduce speed by downshifting the transmission. Do not reduce machine speed by reducing engine speed. Higher engine speeds maximize steering response.*

When roading with trailers not equipped with brakes following guidelines need to be followed:

- Trailer weight cannot exceed 1.5 times machine weight.
- Combined machine and trailer weight cannot exceed 56750 kg .
- Maximum machine speed cannot exceed 32 km/h .

When roading with trailer equipped with brakes following guidelines need to be followed:

- Trailer weight cannot exceed 4.5 times machine weight.
- Combined machine and trailer weight cannot exceed 124850 kg .
- Maximum machine speed cannot exceed 40 km/h .

3.37 Machine ballast

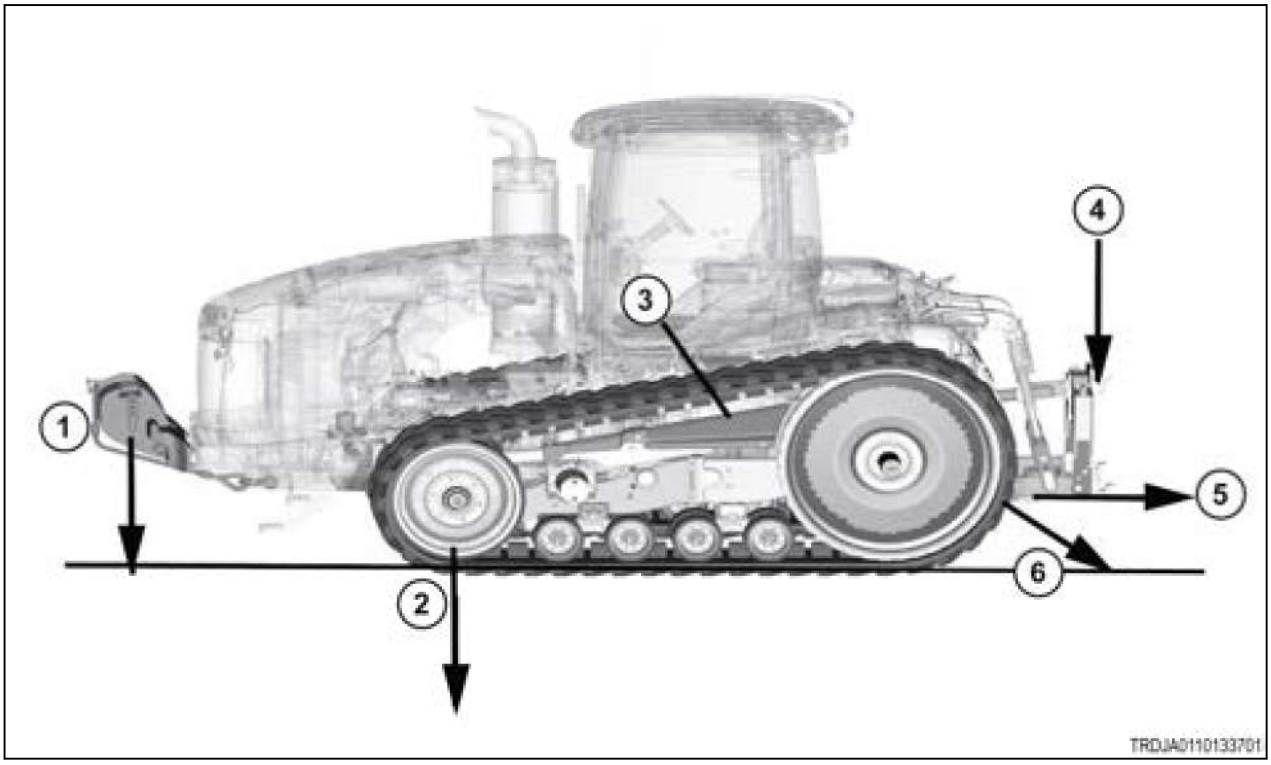

Fig. 289

Machine performance and ride is best when machine is balanced.

Correct balance maximizes performance of machine and correct balance minimizes compaction. Fore/aft balance will change tractive performance while machine is under load.

The best performance of the machine will be achieved when minimum ballast required is used. Amount of ballast must be adjusted for each application.

A machine too heavy for an application will cause compaction and fuel consumption. Slippage and belt wear can increase, if machine is too light.

Always use guidelines for track ballast as a starting point, and make adjustments for the specific operation.

First understand the basic principles of dynamics behind optimal performance of machine in field.

Machine is subject to some form of dynamic loading when an implement is attached to the machine. A three-point implement causes a downward vertical force (4) on the machine when implement is lifted. Draft caused by the implement will cause a rearward horizontal force (5) on the machine.

Result of two forces is usually in the down direction and to the rear (6). These forces cause machine to rotate around pivot point. Pivot point for machine is directly below the rear axle at the point of ground contact.

A machine equipped with correct weight have the following characteristics:

- Good track to ground contact:
  - A visual check of machine during operation reveals the full length of the undercarriage system in contact with the soil. When a mounted implement is lifted, there is no gap under the front idler.
- The best levels of track slippage:
  - Remove ballast from machine if slippage is less than two percent. If slippage continuously exceeds eight percent, add ballast to machine.

8. Remove the hardware (1) that secures the flagpin.

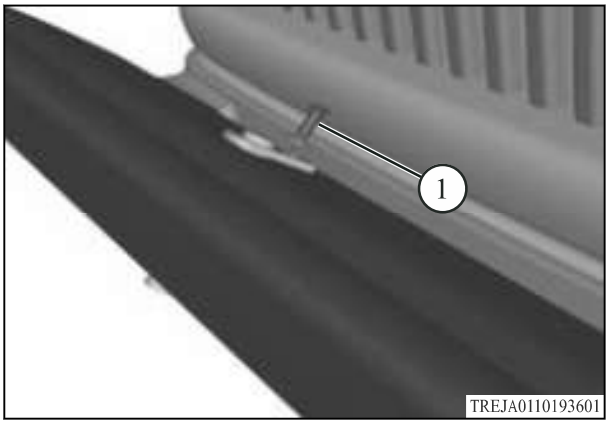

Fig. 304

9. Remove the flagpin (1).

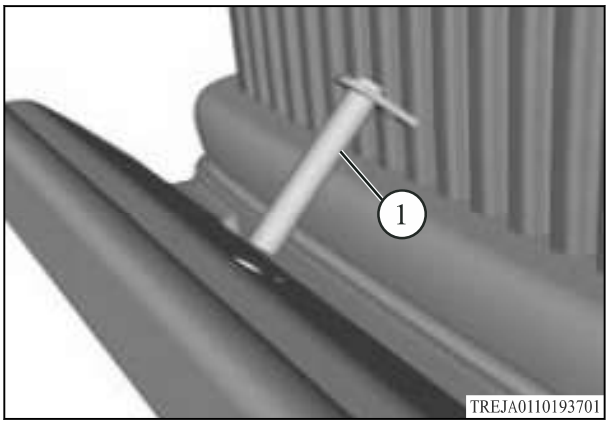

Fig. 305

10. **NOTE:**
The weight of the mounting bracket is approximately 499 kg (1099 lb)

Use a suitable lifting device to support mounting bracket (1). Loosen and remove the hardware (2) that secure the mounting bracket (1) to the machine. Remove the mounting bracket.

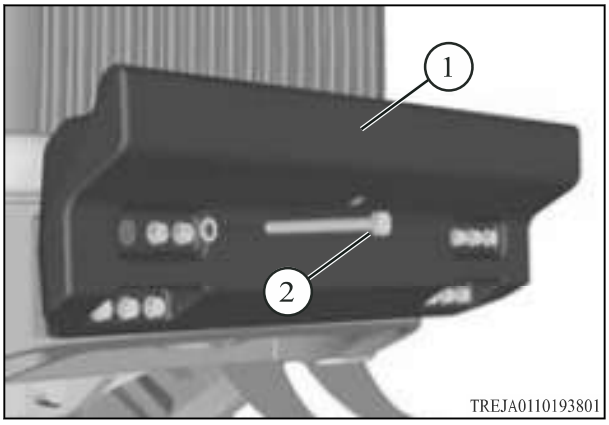

Fig. 306

3.39.2 Turn performance

Turning radius and large amounts of contact area under tracks can cause machine to need more power to turn. Pulling a heavy load during a turn is most common cause of reduced performance for a track-type machine.

Machine can do a spot left turn and a spot right turn.

Operator's take advantage of this function to significantly reduce turning time at the ends of the field. Decreased turning time with implements mounted on 3-point linkage.

Amount of soil displaced increases as turning radius decreases.

More soil disturbed can be trade for increased productivity.

Increasing turning radius can help minimize objectionable amount of soil disturbed. Operator can also keep turning radius tight for increased productivity. To remove ridges, complete ends of field last.

If the performance during a turn is not satisfactory, see the following guidelines.

Setup and operation of the machine	
Increase gauge spacing	Machines equipped with a wide gauge spacing, turn more easily than the narrow track gauge.
Install wider tracks	Wide tracks reduce ground pressure. Wide tracks reduce required power for turns. Wider tracks will skim ground while turning machine. For a minimum amount of soil to be over turned when turning, use low profile tracks.
Balance machine for same distribution of weight	An out of balance machine can turn poorly. A machine not balanced can move a large amount of soil while turning machine. Soil disturbed is a result of higher ground pressure at heavier end of machine.
Increase amount of ballast	Performance during turns can be reduced by slippage between ground and tracks. Increasing weight of machine can improve performance during turns.
Implements mounted to the three point hitch - adjust the sway blocks to let hitch pivot during the turns	Set the draft arms for maximum float. The draft arms float with the contour of the ground to better the implement to follow rough terrain.
Implements mounted to drawbar - let drawbar to move during turns	Remove the stop plates. Removing the stop plates lets the load to move from center line of machine when turning machine. This decreases amount of effort required to turn machine. If machine has a wide swinging drawbar, let the drawbar use the full range of movement.

4.1 Lubricant viscosities and refill capacities

4.1.1 Lubricant viscosities for ambient temperatures

Proper oil viscosity grade is determined by the minimum outside temperature while the machine is started and while operated.

To determine the proper oil viscosity grade, refer to the minimum column in the following table.

This information reflects the coldest ambient temperature condition for starting and for operating a cold machine.

Refer to the maximum column in the table to select the oil viscosity grade for operating the machine at the highest temperature anticipated.

Use the highest oil viscosity allowed for ambient temperature when starting the machine.

Machines operated continuously, should use oils having higher oil viscosity in final drives and in differentials.

Oils with higher oil viscosity will maintain the highest possible oil film thickness.

Consult a dealer if additional information is needed.

4.1.1.1 Lubricant viscosities

AGCO® Genuine Lubricants are the recommended products for this machine. Using other lubricants may not provide the same level of required performance.

Lubricant Viscosities for Ambient Temperatures						
Compartment or System	Oil Type and Class	Oil Viscosities	Celsius		Fahrenheit	
			Min.	Max	Min.	Max
Engine Crankcase	AGCO® Multiguard® API grade CK-4 ACEA grade E9	SAE 10W-40	-25	40+	-13	104
		SAE 15W-40	-20	40+	-4	104
Front Idler Hub Midwheel Hub Drive Wheel Hub	AGCO® Synthetic Final Drive and Axle Oil TO-4	SAE 50 synthetic	-30	50	-22	122
Hydraulic System Transmission Final Drive	AGCO ® Permatran® 821XL	SAE 10W-30	-25	40	-13	104

4.1.1.2 Refill capacities

AGCO Genuine lubricants are the recommended products for this machine. The use of other lubricants may not provide the same level of necessary performance.

IMPORTANT: *Capacities listed are approximate. Check the fluid levels after filling.*

4.3.7 Main fuse

The two main fuses for the cab power and the alternator are located inside the frame rail.

(1) Alternator, 300 Amps

(2) ECM, Starter relay and Auxiliary Relay, 100 Amps

(3) Cab stud, 175 Amps

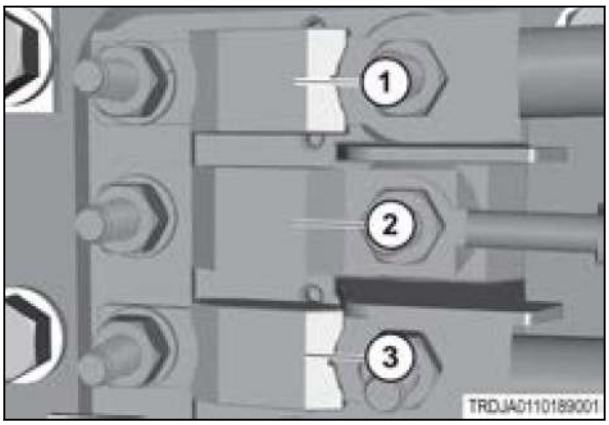

Fig. 8

4.6 Fuel system

WARNING: Fire risk.

Flames or sparks can cause ignition to fuel and cause a fire or burns.

Add fuel only in an area that has a free movement of fresh air and no open flames or sparks. Do not smoke when you add fuel.

IMPORTANT: *When you service the fuel system, the work area and all parts must be fully clean.*

IMPORTANT: *Small quantities of AdBlue® in diesel fuel will cause fuel system failure. If there is a question about AdBlue® contamination in the fuel, do not start the engine before you empty and clean the fuel tank.*

Fuel with a Biodiesel mixture of more than 5% is not approved at the time this material was printed.

When you add fuel to the machine, keep the fuel tank cap clean.

4.6.1 Fuel cap

WARNING: Fire risk.

Personal injury or death can result from a fire. A fuel leak or spill on hot surfaces or electrical components can cause a fire.

Cleanup all fuel leaks or spills. Do not smoke while you do work on the fuel system. Turn the disconnect switch to off or disconnect the battery when you change fuel filters.

The fuel system uses a vented fuel cap.

4.6.2 Fill the fuel system

Before starting the procedure

WARNING: Explosion hazard.

Ultra Low Sulfur Diesel (ULSD) poses a greater static ignition hazard than earlier diesel formulations with higher sulfur content.

Consult with your fuel or fuel system supplier to ensure the delivery system is in compliance with fueling standards for proper grounding and bonding practices.

IMPORTANT: *The removal of sulfur and other compounds in ULSD fuel decreases its conductivity and increases its ability to store static charge. Refineries may have treated the fuel with a static dissipating additive. However, there are many factors that can reduce the effectiveness of the additive over time. Static charges can build up in ULSD fuel while it is flowing through fuel delivery systems. Static electricity discharge when combustible vapors are present could result in a fire or explosion. Therefore, it is important to ensure that the entire system used to refuel your machine (fuel supply tank, transfer pump, transfer hose, nozzle, and others) is properly grounded and bonded. Consult with your fuel or fuel system supplier to ensure the delivery system is in compliance with fueling standards for proper grounding and bonding practices.*

4.9 Hydraulics - check and change system oil

4.9.1 Do a check of the hydraulic system oil

WARNING: *Hot oil and components can cause personal injury. Do not let hot oil or components to touch skin.*

Procedure

1. Park the machine on a level surface.
2. Before starting machine, make sure that the sight gauge is completely full of oil, in a cold start.
3. If the oil level is not at or above the top of the sight gauge, fill with the recommended oil until the oil level is present at the top of the sight gauge (1).

   NOTE: *3.8 liter (1 gal) of hydraulic fluid added will raise the level in the sight glass 10 mm (.39 in) .*

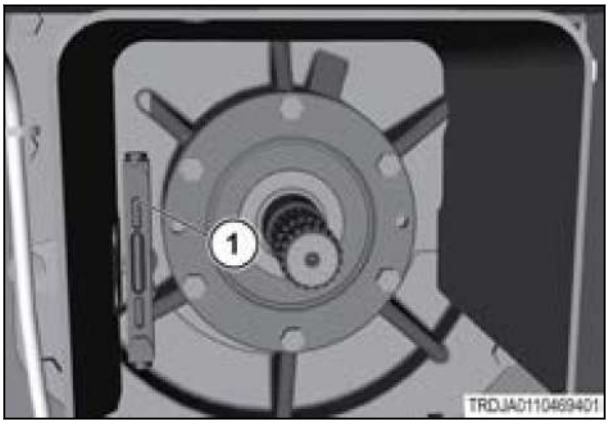

Fig. 50

4. Start machine and warm the oil until the powertrain temperature reaches a minimum of 50° C (122° F) .
5. You may need to install the hydraulic loop lines at the implement valve or drive the machine to achieve this temperature.
6. See the Machine Management Center screen (MMC) - (2) for determining the powertrain temperature.

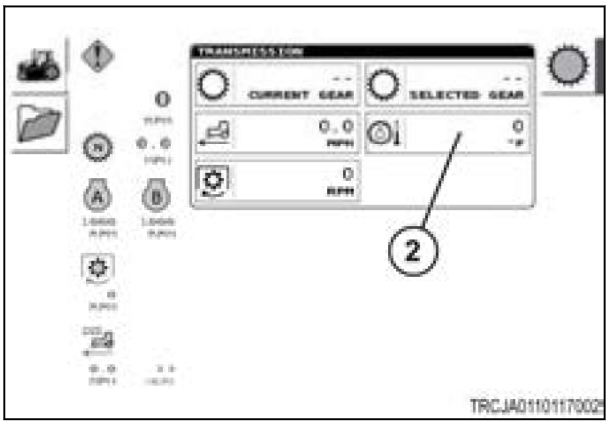

Fig. 51

7. After the machine powertrain temperature has reached the minimum 50° C (122° F) :
   - Park the machine on level ground.
   - Put the machine into park, and remove the keys.
   - Raise the three point hitch, if equipped.
   - Move the engine throttle to the idle position.
   - The machine must run at idle in the stationary position for a minimum of five minutes prior to checking the oil level.

4.11.4 Clean the filter

To remove the filter of dust, hold the filter and tap on a flat surface with the dirty side down.

NOTE: *Tapping too hard can cause damage.*

The operator can use compressed air also. Blow air through the element in the direction opposite of the normal air flow.

IMPORTANT: *Keep the nozzle a minimum of 25.4 mm (1 in) from the surface. Too much air pressure can cause damage.*

WARNING:
To avoid personal injury, always wear eye and face protection when using pressurized air.

4.11.5 Install the primary air filter

1. Slide the primary air filter (1) into position.

   IMPORTANT: *Make sure the airflow arrows on the filter are pointing up for correct operation.*

2. Lift the panel (2) into position and tighten the thumb screw to attach the panel in to position.

   NOTE: *The seals must come in contact with the surface to prevent air bypass.*

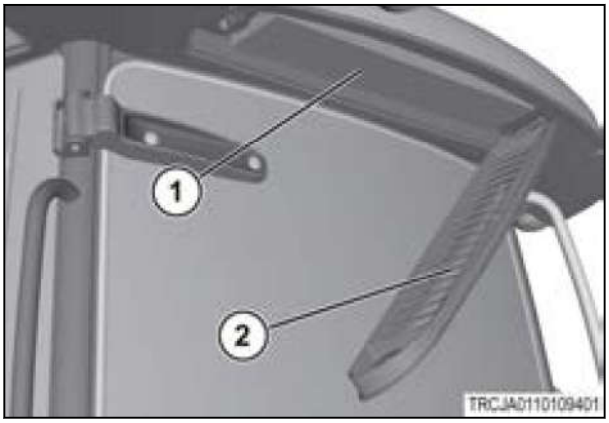

Fig. 73

4.11.6 Remove the recirculation filter

Procedure

1. Loosen the thumb screw (1) to remove the filter cover (2).

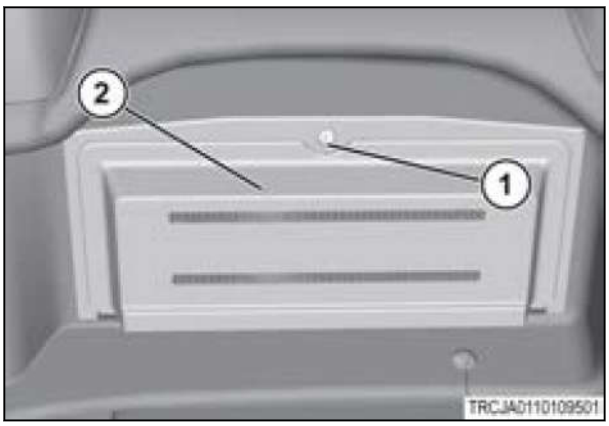

Fig. 74

17. Temporarily hold the bracket (1) in position. This identifies the hole for installing the threaded rod.

18. Make sure a washer (4) is located on each side of the bracket (1).

19. Install the pin (5)

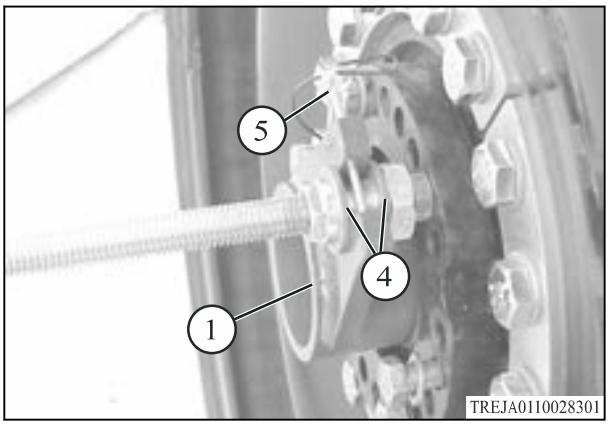

Fig. 100

20. Install the threaded rod (2) and tighten the jam nut (3).

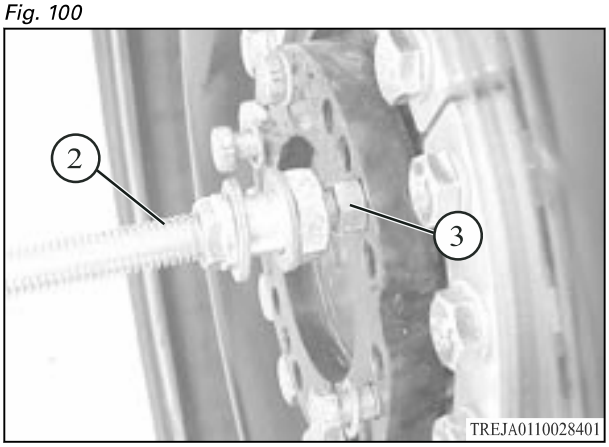

Fig. 101

21. Turn the adjustment nut (1) to move the undercarriage on the rear axle.

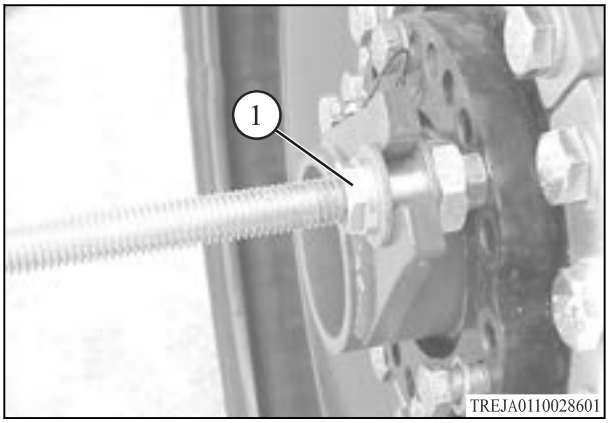

Fig. 102

22. Turn the adjustment nut (2) to move the undercarriage on the hard bar.

Make sure adjustment is performed evenly to prevent the undercarriage from binding on the hard bar or the rear axle.

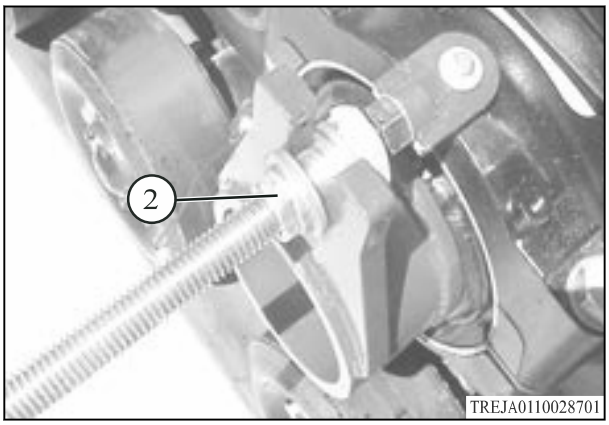

Fig. 103

4. Remove the rubber cap (1) from nipple. Connect the hose coupler of the track tensioner hose assembly to the nipple.

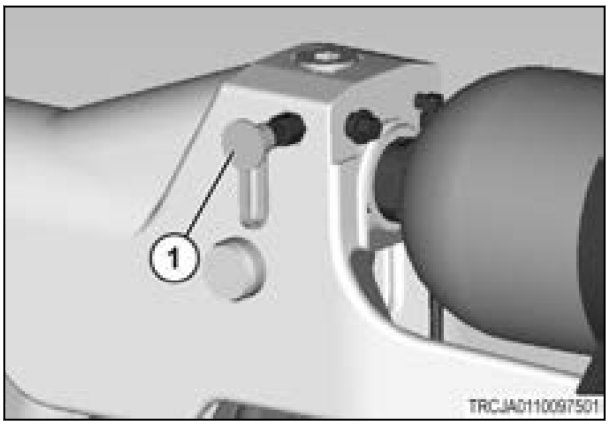

Fig. 118

5. Make sure that the fill valve (1) is fully closed (tightened).

6. Open the bleeder (2) valve a ½ turn.

7. Direct the oil drain hose into a suitable container. Add additional hose, if needed.

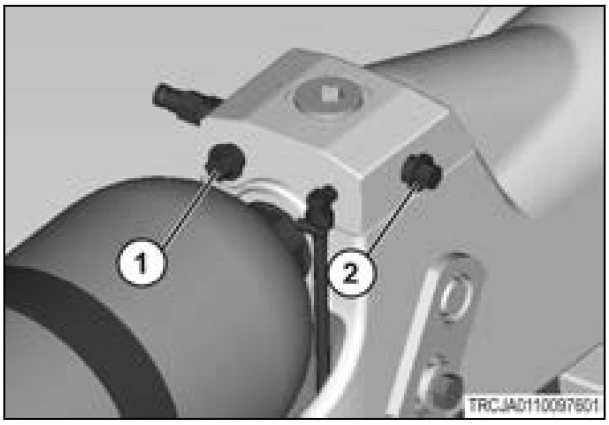

Fig. 119

8. Set the implement hydraulic circuit #1 for continuous operation.

9. Start the engine.

Fig. 120

10. Put the implement control lever (1) in the EXTEND position.

5 Troubleshooting

Engine oil pressure is too low	
Cause(s)	**Solution(s)**
The oil level is too low.	Check the oil level. Add the engine oil, as required.
Plugged oil filter.	Install a new oil filter.
Air in the oil.	Check for foaming.
Diesel fuel is mixed with the engine oil.	Check the lip type seals on drive shaft for fuel transfer pump. Drain the crankcase. Refill the crankcase with clean engine oil.
The pickup tube is damaged.	Replace the pickup tube.
Oil pressure gauge and/or oil pressure sender are malfunctioning.	Install a new oil pressure gauge and/or install a new oil pressure sender.
The oil pump relief valve is stuck.	Clean the oil pump relief valve and clean housing. Replace the components, if necessary.
Crankshaft bearings have excessive clearance.	Replace the crankshaft bearings and/or replace the crankshaft. Check operation of the oil filter.
Bearings for timing gear have too much clearance.	Inspect bearings. If necessary, replace the components.
Bore of the rocker arm is too large or the rocker arm has too much wear.	Check lubrication. Replace the components if necessary.
A damaged oil pump.	Repair the oil pump or replace the oil pump. See your dealer. Dealer has the tools and the trained personnel for this service.

Engine uses too much fuel	
Cause(s)	**Solution(s)**
Internal Fuel Leakage	Internal leaks can cause large changes in fuel consumption. Low oil pressure and high oil level in engine oil sump can follow with internal leaks. Replace the components that leak.
Operating engine at higher speed than required for load.	Reduce engine speed
Engine knock results from unsatisfactory combustion.	Small increases in fuel consumption can be from a damaged fuel injection nozzle, or misfiring, or low engine power.
Fuel injection timing is not correct.	See your dealer.

Turning radius is unusually wide	
Cause(s)	**Solution(s)**
	Low charge pressure can be because of: • leakage in the piston seals of the transmission clutches • leakage in the crossover relief valve • pressure override relief valve in the steering pump
Too much wear in the steering pump or in the steering motor.	Replace steering pump or steering motor.
Crossover relief valves and the pressure override relief valve in the steering pump are malfunctioning.	See your dealer.
Electro-proportional control in steering pump is malfunctioning.	See your dealer.

Steering performance is unsatisfactory in one direction	
Cause(s)	**Solution(s)**
Slippage between belt and drive wheel.	Mud and low belt tension between belt and drive wheel can cause slippage. Repair the slippage immediately, so damage to the machine does not occur.
Charge pressure is low.	Low charge pressure can be because of too much wear in the: • steering pump • steering motor • charge pump See your dealer.
	Low charge pressure can be because of: • leakage in the piston seals of the transmission clutches • leakage in the crossover relief valve • pressure override the relief valve in the steering pump
Too much wear on the port plate in the steering motor or on the port plate in the steering pump.	See your dealer.
Crossover relief valve and the pressure override relief valve in the steering pump are malfunctioning.	See your dealer.
Electro-proportional control in steering pump is malfunctioning.	See your dealer.
Control spool for steering pump is not delivering correct pressure.	See your dealer.

Diagnostic codes for transmission			
		05	Differential lock solenoid open circuit
		06	Differential lock solenoid shorted to ground
03	598	02	Inching pedal switch erratic, intermittent, or incorrect
		07	Inching pedal switch mechanical system not responding
		14	Inching pedal switch
03	617	03	Parking brake solenoid 2 shorted to high source
		05	Park brake solenoid 2 open circuit
		06	Park brake solenoid 2 shorted to ground
03	618	03	Park brake solenoid 1 shorted to high source
		05	Park brake solenoid 1 open circuit
		06	Park brake solenoid 1 shorted to ground
03	625	09	Proprietary network abnormal update rate
		12	Proprietary network malfunction
03	639	09	Controller area network abnormal update rate
03	677	03	Engine starter motor relay shorted to high source
		05	Engine starter motor relay open circuit
		06	Engine starter motor relay shorted to ground
03	678	03	DC supply: - 8 volt DC supply shorted to high source
		04	DC supply: - 8 volt DC supply shorted to ground
03	684	00	Inching pedal position above normal operating range - most severe
		01	Inching pedal position below normal operating range - most severe
		08	Inching pedal position abnormal sensor frequency
03	734	03	Transmission clutch solenoid 1 shorted to high source
		05	Transmission clutch solenoid 1 open circuit
		06	Transmission clutch solenoid 1 shorted to ground
03	735	03	Transmission clutch solenoid 2 shorted to high source
		05	Transmission clutch solenoid 2 open circuit
		06	Transmission clutch solenoid 2 shorted to ground
03	736	03	Transmission clutch solenoid 3 shorted to high source
		05	Transmission clutch solenoid 3 open circuit
		06	Transmission clutch solenoid 3 shorted to ground
03	737	03	Transmission clutch solenoid 4 shorted to high source
		05	Transmission clutch solenoid 4 open circuit
		06	Transmission clutch solenoid 4 shorted to ground
03	738	03	Transmission clutch solenoid 5 shorted to high source
		05	Transmission clutch solenoid 5 open circuit

5.10.7 Auxiliary valve four ECM error codes

SA (Source Address), SPN (Suspect Parameter Number), FMI (Fault Mode Identifier)

SA Diagnostic codes for Auxiliary valve four ECM			
SA	SPN	FMI	Description
164	158	00	Key switch battery voltage, above normal operating range - most severe
164	158	18	Key switch battery voltage, below normal operating range - moderately severe
164	628	12	Program memory, malfunction
164	639	19	Controller area network, not communicating
164	701	05	Auxiliary valve proportional solenoid, open circuit
164	701	06	Auxiliary valve proportional solenoid, shorted to ground
164	702	05	Auxiliary valve directional solenoid, open circuit
164	702	06	Auxiliary valve directional solenoid, shorted to ground

5.10.8 Auxiliary valve five ECM error codes

SA (Source Address), SPN (Suspect Parameter Number), FMI (Fault Mode Identifier)

SA Diagnostic codes for Auxiliary valve five ECM			
SA	SPN	FMI	Description
165	158	00	Key switch battery voltage, above normal operating range - most severe
165	158	18	Key switch battery voltage, below normal operating range - moderately severe
165	628	12	Program memory, malfunction
165	639	19	Controller area network, not communicating
165	701	05	Auxiliary valve proportional solenoid, open circuit
165	701	06	Auxiliary valve proportional solenoid, shorted to ground
165	702	05	Auxiliary valve directional solenoid, open circuit
165	702	06	Auxiliary valve directional solenoid, shorted to ground

6.4 Noise vibration level

Noise level data		
Model	Internal Sound level (windows/ doors closed dB(A) according to European Directive 2009/76/EC Annex II	External Sound level dB(A) according to European Directive 74/262/EEC Annex VI
1149MT	86	89
1154MT	86	89
1159MT	86	89
1165MT	86	89

Vibration declaration according to council directive 78/764/EEC		
	For active suspension seats	
Vibration Damping		
	Maximum Amplitude ratio	Frequency
40 kg load	0.668	1.17 Hz
80 kg load	0.82	1.17 Hz
	For active suspension seats	
Vibration Transmission Category A Class III		
	Driver	Corrected Vibration Level on Seat
	Heavy (95 kg)	0.481 m/s2
	Light (59 kg)	0.750 m/s2
	For air suspension seats	
Vibration Damping		
	Maximum Amplitude ratio	Frequency
40 kg load	1.18	1.36 Hz
80 kg load	1.1	1.18 Hz
	For air suspension seats	
Vibration Transmission Category A Class III		
	Driver	Corrected vibration level on seat
	Heavy (98 kg)	0.95 m/s2
	Light (59 kg)	1.18 m/s2

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