SERVICE MANUAL

TD65F / TD75F / TD85F

Tractor

Part number 47913163
English
February 2016

AGRICULTURE

HYDRAULIC SYSTEMS

- Some fluid coming out from a very small port can be almost invisible and be strong enough to penetrate the skin. For this reason, NEVER USE YOUR HANDS TO CHECK FOR LEAKS, but use a piece of cardboard or a piece of wood for this purpose. If any fluid is injected into the skin, seek medical aid immediately. Lack of immediate medical attention may result in serious infections or dermatitis.
- Always take system pressure readings using the appropriate gauges.

WHEELS AND TYRES

- Check that the tyres are correctly inflated at the pressure specified by the manufacturer. Periodically check for possible damage to the rims and tyres.
- Stay at the tyre side when inflating.
- Check the pressure only when the tractor is unloaded and tyres are cold to avoid wrong readings due to over-pressure.
- Never cut, nor weld a rim with the inflated tyre assembled.
- To remove the wheels, block both front and rear tractor wheels. Raise the tractor and install safe and stable supports under the tractor in accordance with regulations in force.
- Deflate the tyre before removing any object caught into the tyre tread.
- Never inflate tyres using flammable gases as they may generate explosions and cause injuries to bystanders.

REMOVAL AND INSTALLATION

- Lift and handle all heavy components using lifting equipment of adequate capacity. Ensure that parts are supported by appropriate slings and hooks. Use lifting eyes provided to this purpose. Take care of the persons near the loads to be lifted.

HEALTH AND SAFETY

CONTENT

Safety rules

PRECAUTIONARY STATEMENTS

Personal Safety

Throughout this manual and on machine signs, you will find precautionary statements ("DANGER", "WARNING", and "CAUTION") followed by specific instructions. These precautions are intended for the personal safety of you and those working with you. Please take the time to read them.

FAILURE TO FOLLOW THE "DANGER", "WARNING", AND "CAUTION" INSTRUCTIONS MAY RESULT IN SERIOUS BODILY INJURY OR DEATH.

Machine Safety

The precautionary statement ("IMPORTANT") is followed by specific instructions. This statement is intended for machine safety.

NOTICE: *The word "IMPORTANT" is used to inform the reader of something they need to know to prevent minor machine damage if a certain procedure is not followed.*

Information

NOTE: *Instructions used to identify and present supplementary information.*

LEGAL OBLIGATIONS

This machine may be equipped with special guarding or other devices in compliance with local legislation. Some of these require active use by the operator. Therefore, check local legislation on the usage of this machine.

ACCIDENT PREVENTION

Most accidents or injuries that occur in workshops are the result of a non compliance to simple and fundamental safety regulations. For this reason, IN MOST CASES THESE ACCIDENTS CAN BE AVOIDED by foreseeing possible causes and consequently acting with the necessary caution and care.

Accidents may occur with all types of machines, regardless of how well the machine in question was designed and built.

A careful and informed service technician is the best guarantee against accidents.

Decisive awareness of the most basic safety rule is normally sufficient to avoid many serious accident.

ATTENTION: *Shut down the machine, remove key, be sure all moving parts have stopped and all pressure in the systems is relieved before cleaning, adjusting or lubricating the equipment. Failure to comply will result in death or serious injury.*

SAFETY REQUIREMENTS FOR FLUID POWER SYSTEMS AND COMPONENTS - HYDRAULICS (EUROPEAN STANDARD PR EM 982)

Flexible hose assemblies must not be constructed from hoses which have been previously used as part of a hose assembly.
Do not weld hydraulic piping.
When flexible hoses or piping are damaged, replace them immediately.
It is forbidden to modify a hydraulic accumulator by machining, welding or any other means.
Before removing hydraulic accumulators for servicing, the liquid pressure in the accumulators must be reduced to zero.
Pressure check on hydraulic accumulators shall be carried out by method recommended by the accumulator manufacturer.
Care must be taken not to exceed the maximum allowable pressure of the accumulator. After any check or adjustment there must be no leakage of gas.

O RING BOSS END FITTING OR LOCK NUT

Nom. SAE Dash Size	Thread Size	Newton·meters	lb/in	lb/ft
-6	9/16 - 18	48 to 54	432 to 480	
-8	3/4 - 16	70 to 78	612 to 684	
-10	7/8 - 14	102 to 114		75 to 84
-12	1-1/16 - 12	142 to 160		105 to 117
-16	1-5/16 - 12	237 to 254		175 to 187

37 DEGREE FLARE FITTING (STEEL HYDRAULIC FITTINGS)

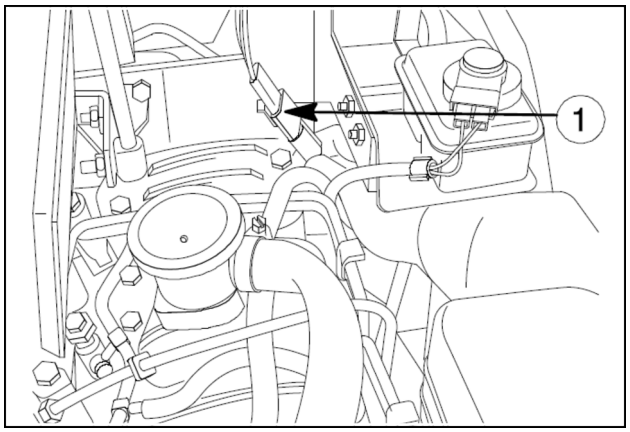
Nom. SAE Dash Size	Tube OD/Hose ID		Thread Size	Newton·meters	lb/in	lb/ft
-2			5/16 - 24	8 to 9	72 to 84	
-3			3/8 - 24	11 to 12	96 to 108	
-4	6.4 mm	1/4 inch	7/16 - 20	14 to 16	120 to 144	
-5	7.9 mm	5/16 inch	1/2 - 20	18 to 21	156 to 192	
-6	9.5 mm	3/8 inch	9/16 - 18	27 to 33	240 to 300	
-8	12.7 mm	1/2 inch	3/4 - 16	46 - 56	408 to 504	
-10	15.9 mm	5/8 inch	7/8 - 14	77 to 85	684 to 756	
-12	19.0 mm	3/4 inch	1-1/16 - 12	107 to 119		79 to 88
-14	22.2 mm	7/8 inch	1-3/16 -12	127 to 140		94 to 103
-16	25.4 mm	1.0 inch	1-5/16 - 12	131 to 156		97 to 117
-20	31.8 mm	1-1/4 inch	1-5/8 - 12	197 to 223		145 to 165
-24	38.1 mm	1-1/2 inch	1-7/8 - 12	312 to 338		230 to 250

37 DEGREE FITTINGS

TUBE NUTS FOR 37 DEGREE FLARED FITTINGS								O RING BOSS PLUGS ADJUSTABLE FITTING LOCKNUTS, SWIVEL JIC-37° SEATS			
				TORQUE				TORQUE			
Size	Tubing OD		Thread Size	Newton· Meters		Foot Pounds		Newton· Meters		Foot Pounds	
	mm	in.		Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
4	6.4	1/4	7/16-20	12	16	9	12	8	14	6	10
5	7.9	5/16	1/2-20	16	20	12	15	14	20	10	15
6	9.5	3/8	9/16-18	29	33	21	24	20	27	15	20
8	12.7	1/2	3/4-16	47	54	35	40	34	41	25	30
10	15.9	5/8	7/8-14	72	79	53	53	47	54	35	40
12	19.1	3/4	1-1/ 16-12	104	111	77	82	81	95	60	70
14	22.2	7/8	1-3/ 16-12	122	136	90	100	95	109	70	80
16	25.4	1	1-5/ 16-12	149	163	110	120	108	122	80	90
20	31.8	1-1/4	1-5/8-12	190	204	140	150	129	158	95	115

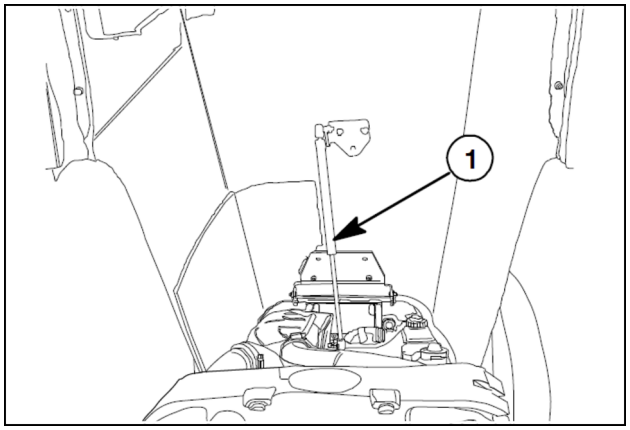
These torques are not recommended for tubes of **12.7 mm** (**0.5 in**) OD and larger with wall thickness of **0.89 mm** (**0.035 in**) or less. The torque is specified for **0.89 mm** (**0.035 in**) wall tubes on each application individually. Before installing and torquing 37° flared fittings, clean the face of the flare and threads with a cleaning solvent or Loctite® brand cleaner, and apply hydraulic sealant Loctite® 569™ to the 37° flare and the threads. Install fitting, and torque to specified torque, loosen fitting and re-torque to specifications.

5. Disconnect the electrical connection **(1)** of bonnet.



CLUTCH3 3

6. Detach the gas strut **(1)** from the bonnet.



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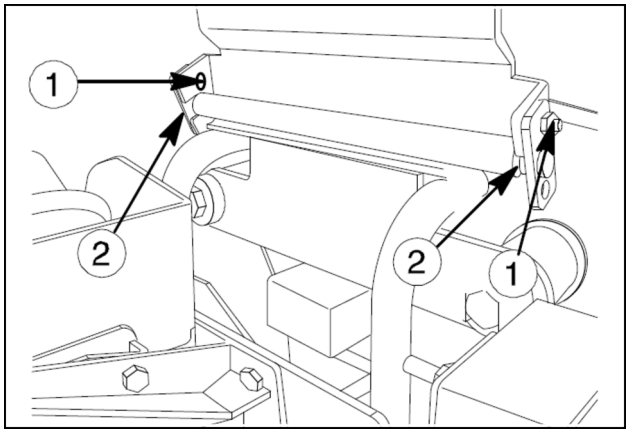
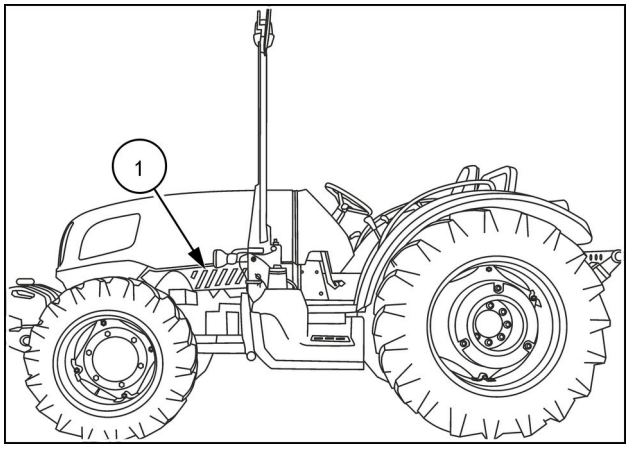
7. Remove the two bonnet hinge bolts **(1)** and take out the spacers **(2)** lift the bonnet clear.



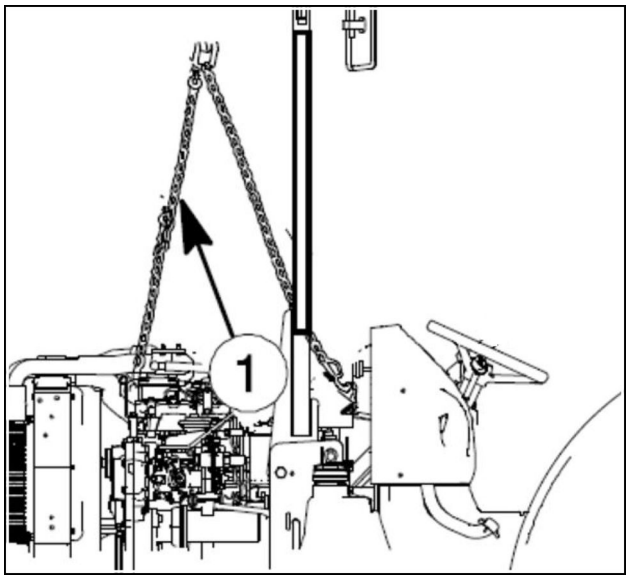
CLUTCH5 5

8. Disconnect the two retaining bolts of the guard **(1)** both on the right and left hand side of the engine.



SOLDAN 6

41. Hitch the engine to the hoist with the chains **(1)** anchouring it to the attachments on the engine.



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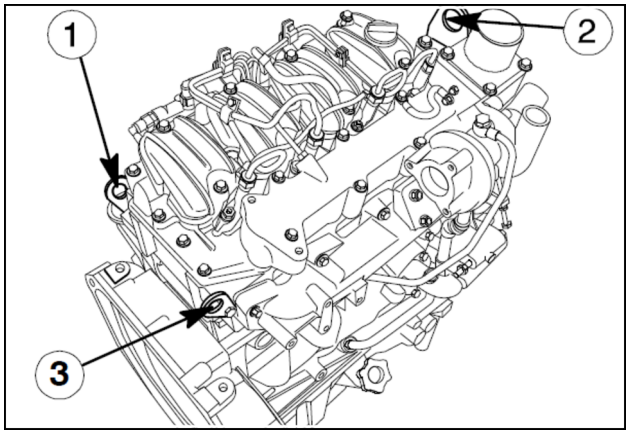
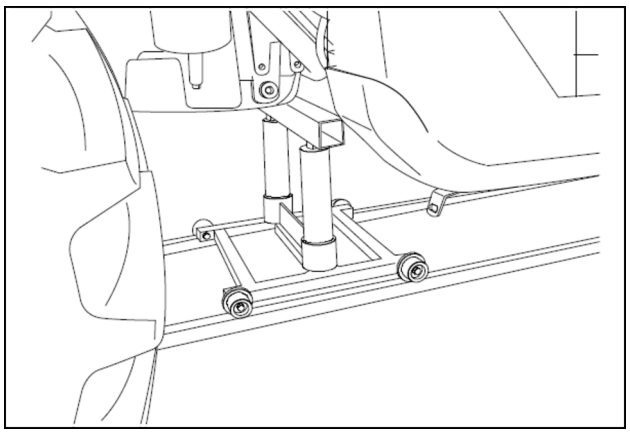
42. Engine lifting points are **(1)** , **(2)** and **(3)** .



CLUTCH40 40

43. Position the movable tool for dismantling tractors 380000569 with the bracket 380000500 and adapter plate 380000844 under the engine and place a wooden block in between the points of contact between the tool and tractor as shown in the fig.



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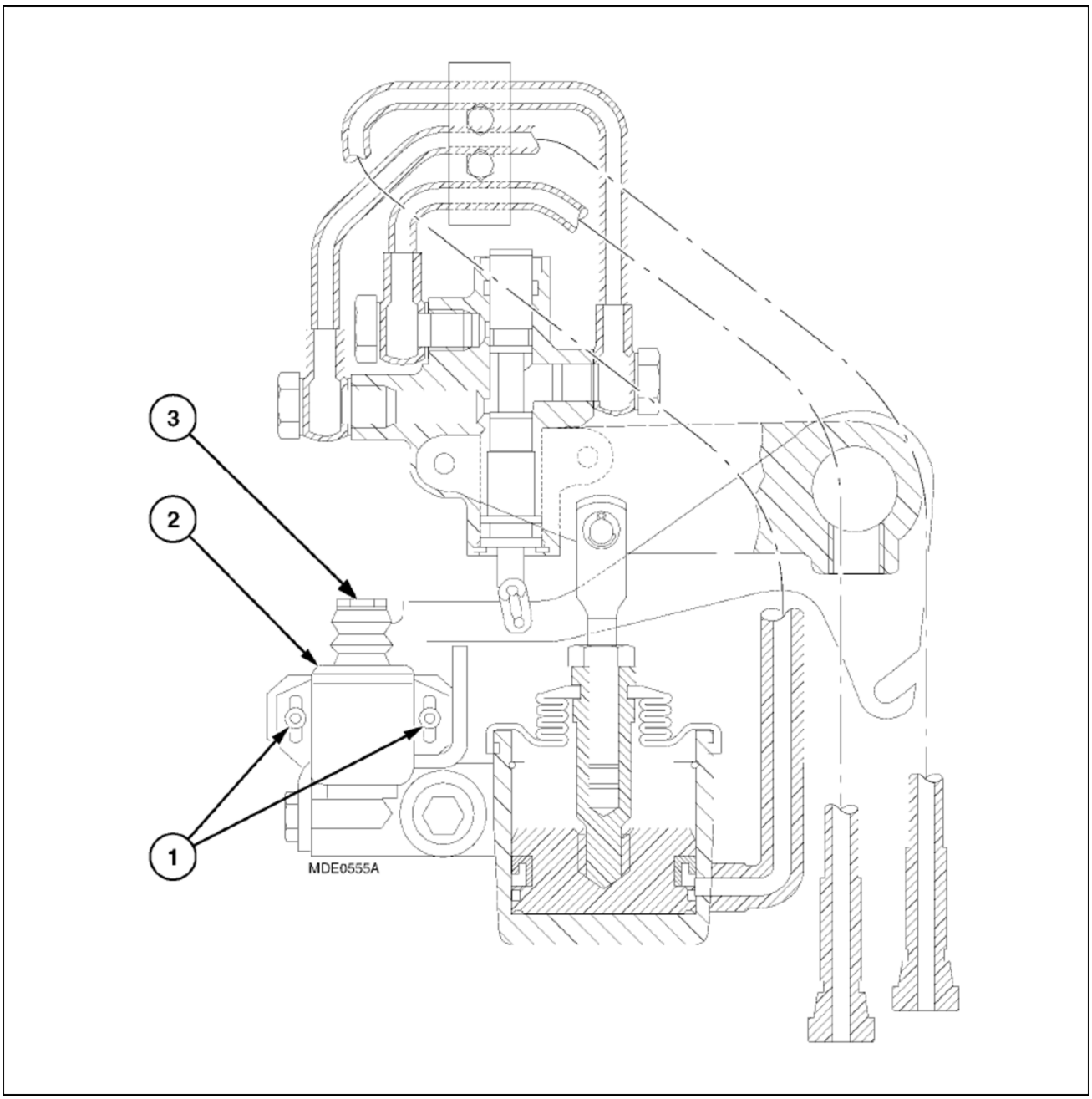
Clutch - Sectional view ADJUSTING THE PTO SWITCH

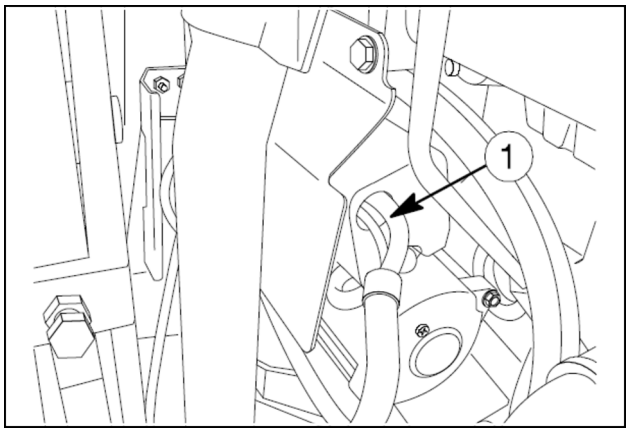


CLUTCPTO5 1

ATTENTION: *Use suitable tools to align the holes. NEVER USE FINGERS OR HANDS.*

1. Check that the PTO clutch is disengaged.
2. Unscrew the screws **(1)** retaining the PTO engaged switch **(2)** and move away from the control valve lever **(3)** .
3. Move the switch **(2)** to wards the control valve lever **(3)** until the switch trips.
4. Lock the switch **(2)** in this last position with the screws **(1)** .

34. Disconnect the electrical connections from starter motor **(1)** .



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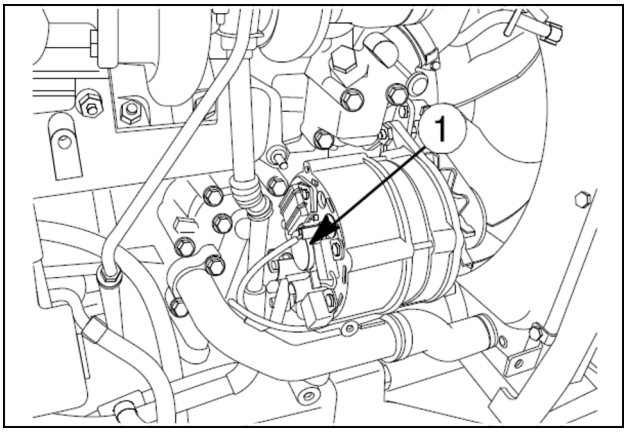
35. Disconnect the electrical connections from alternator **(1)** .



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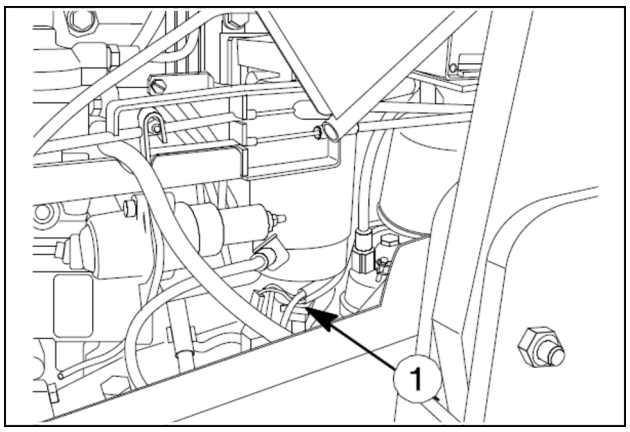
36. Disconnect the electrical connection of water in fuel sensor **(1)** .



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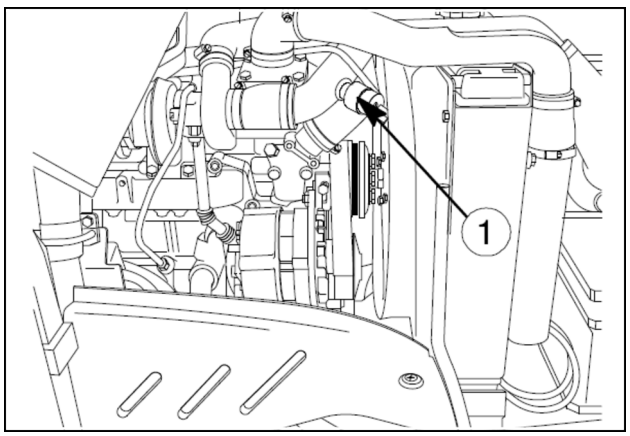
37. Remove the electrical connection of air filter clogging sensor **(1)** .



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Clutch - Assemble

1. Refit the lever pivot pins and the relative springs.
2. Refit the main clutch disk in the clutch housing.
3. Install the main clutch pressure plate, securing to the pins with the bolts.
4. Install the Belleville spring disk, carefully position the three clamps and evenly and progressively compress the spring. Insert the six pins, making sure that they are securely inserted in their respective seats, then remove the clamps.
5. Install the PTO clutch disc; fit the three washers and helical springs in the articulation pins, tightening them with the three nuts.

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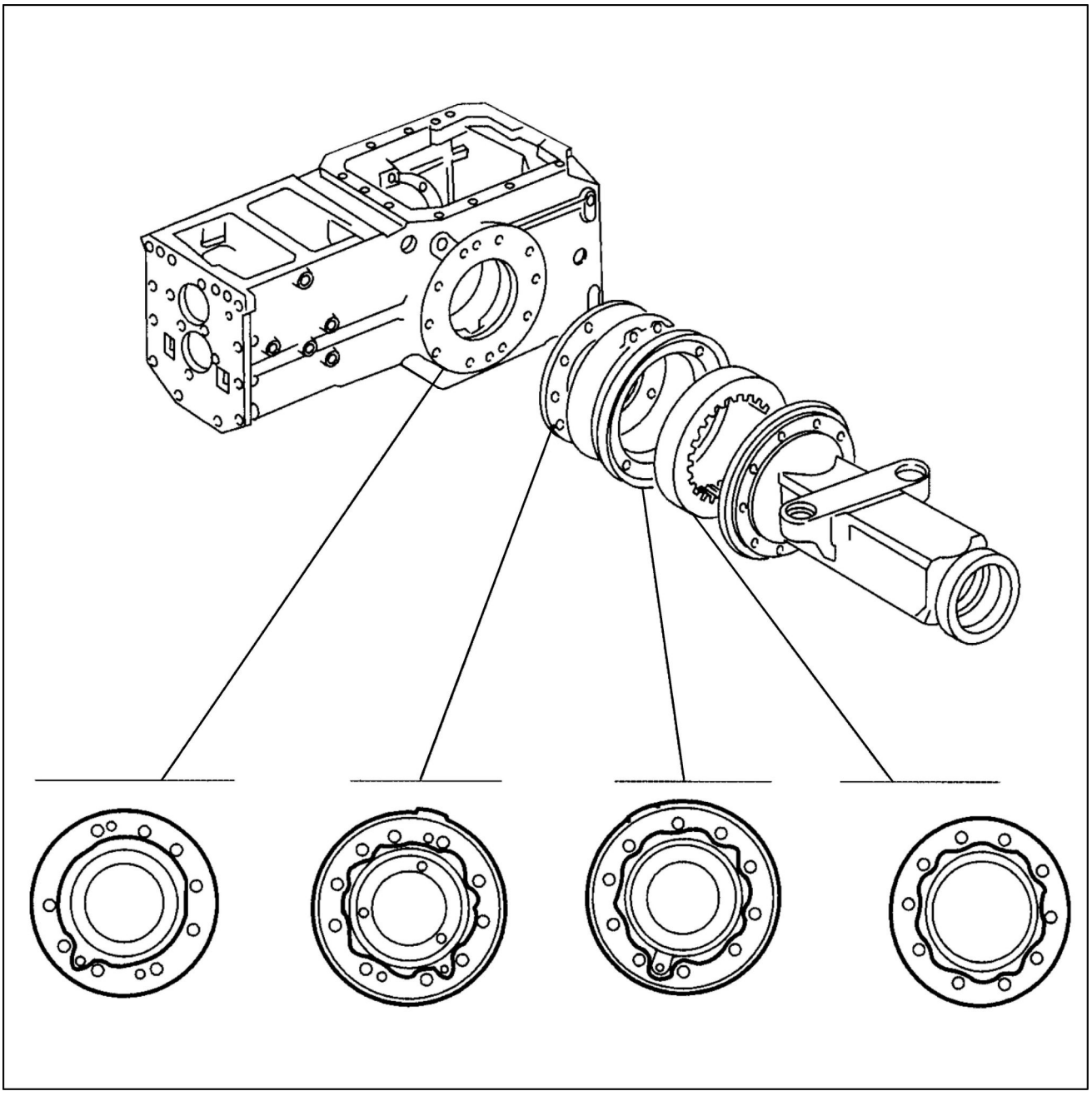
Mechanical transmission - Exploded view

Diagram for application of anaerobic sealant in the installation of brake assembly and side final drives in the transmission box.



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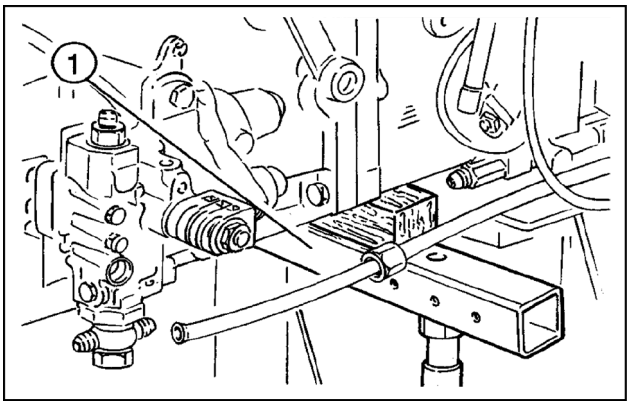
The use of anaerobic sealant is recommended **LOCTITE® 515™**.

21. Position one of the mobile trolleys **(1)** of tool 292320 under the front section of the transmission - gear box and move the other mobile trolley to the rear part of this section of the box.



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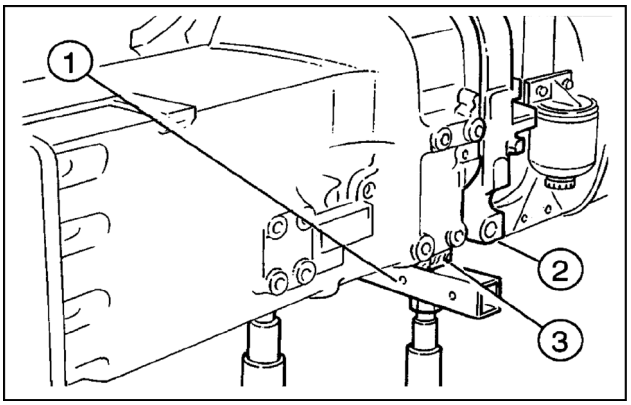
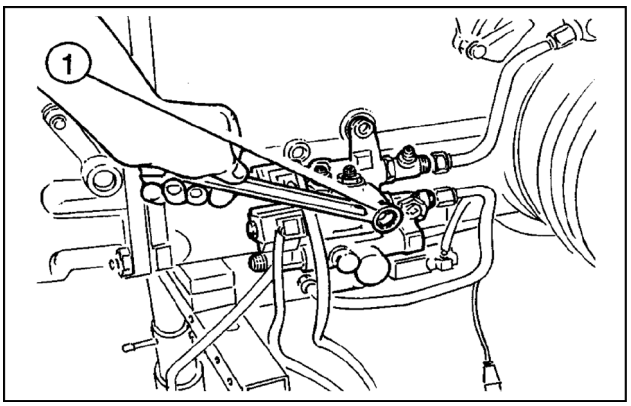
22. Position the fixed trolley **(1)** from tool 292320 insert a wooden block under the clutch box **(3)**. Loosen the fixing bolts and if required, remove the rear wheels placing two fixed trestles under the ends of the side shafts.



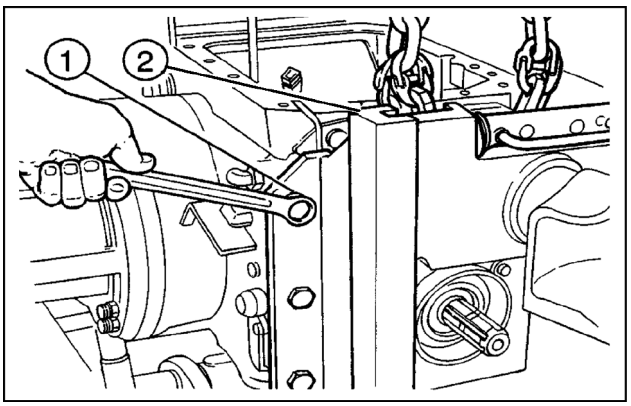
LAIL11TL0607A0A 21

23. Loosen the bolts **(1)** which fasten the valve with the solenoid to the transmission/gear box and remove it.



LAIL11TL0608A0A 22

24. Use a chain to fasten the connection hook to the winch, loosen the six fixing bolts **(1)** and remove the towing support **(2)**.



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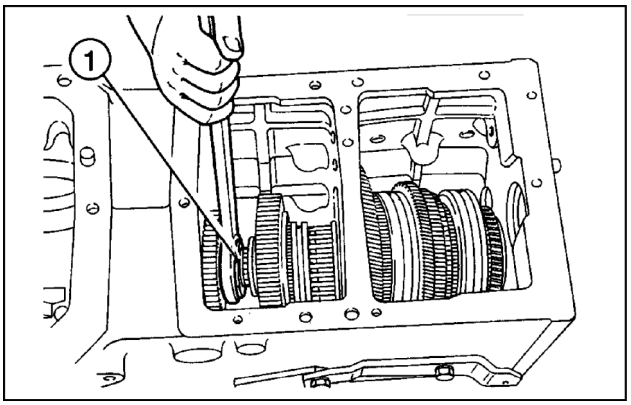
16. Unlock the washer that securing the nut **(1)** and loosen the nut.



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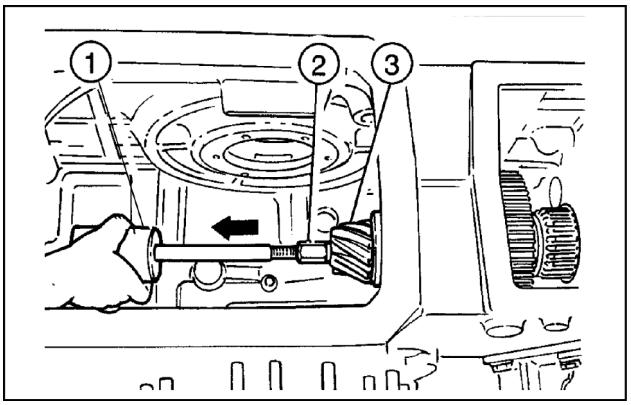
17. Bolt the adapter 380000838 **(2)** on the pinion **(3)** and use the sliding hammer **380000549 (1)** to move the pinion a few millimeters in the direction shown.



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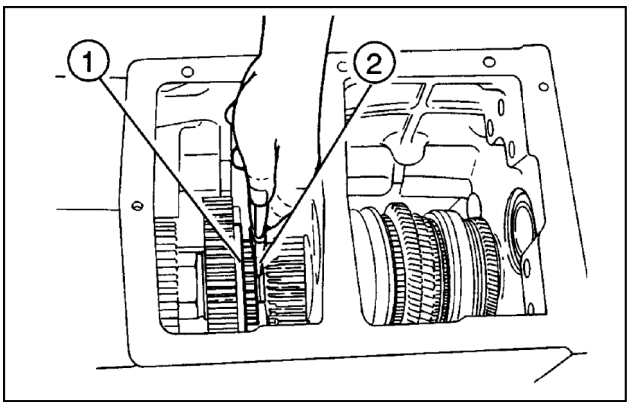
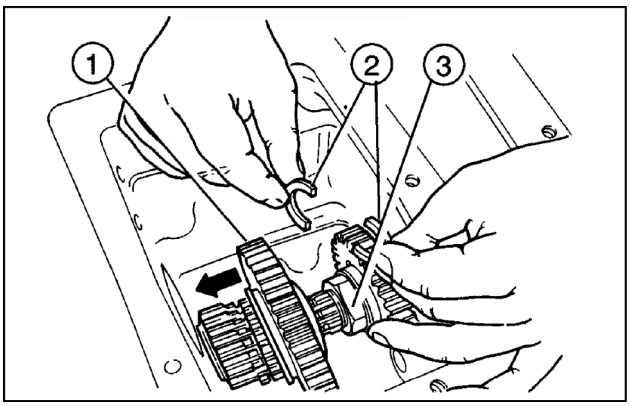
18. Move the engagement sleeve **(1)** until it is possible to gain access with a pair of pliers **(2)** and remove the lock ring.



LAIL11TL0501A0A 18

19. Move the gear **(1)** in the direction shown and remove the two locking semi-rings **(2)**. Loosen the nut **(3)** fully, remove the pinion and disassemble all the parts.



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DISASSEMBLY

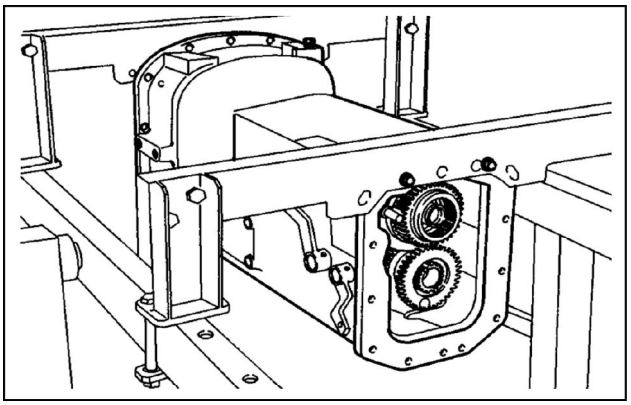
⚠ WARNING

Avoid injury!
Handle all parts carefully. Do not place your hands or fingers between parts. Use Personal Protective Equipment (PPE) as indicated in this manual, including protective goggles, gloves, and safety footwear.
Failure to comply could result in death or serious injury.

W0208A

In order to be able to work on the supplementary inverter-reducer group, you will have to remove the platform following the instructions described in section **Mechanical transmission - Remove (21.114)** and remove the clutch box, then proceed as follows.

1. Fix the casing to the rotating stand 380000301 using the brackets 380000271 and 380000272.



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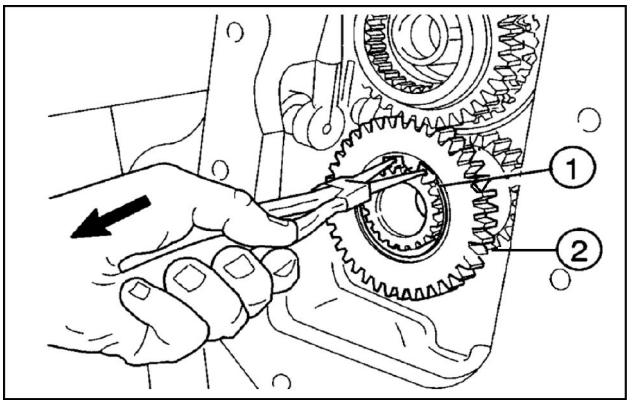
2. Remove the lock ring **(1)** and the gear **(2)**.



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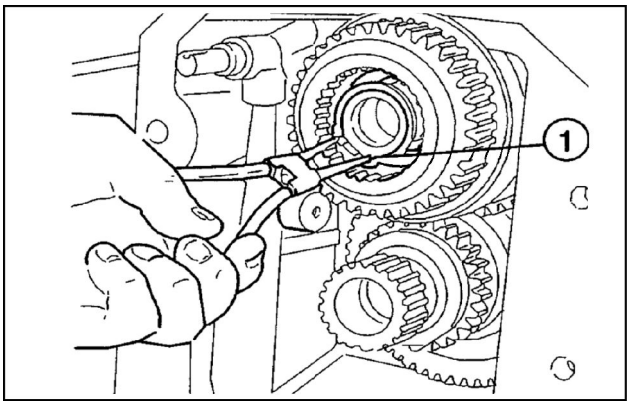
3. Remove the lock ring **(1)**.



LAIL11TL0448A0A 3

Reverser - General specification

Synchroniser reverser main data

Type	Mechanical type spur gear unit, located between the main clutch and the gearbox. Comprises 1 driving gear, 1 intermediate gear and 1 idle gear
Control	Hand lever located on left–hand side of the operator

Gearbox main data

Gearbox	4 speed, constant–mesh, with synchronisers on all gears
Gearing type	helical
Reduction unit	Ordinary gear train with 3 ranges providing a total of 12 gears
Gearing type	spur
Gearbox and reduction unit controls	Independent, with two hand levers located on right–hand side of the operator

Reverser - Torque

Tightening torques

Parts	Thread	Torque value
Bolts or nuts securing the clutch box/inverter to the engine C_1	M12 x 1.25	**98 N·m** (**72 lb ft**)
Nuts securing the cover C_2	M8 x 1.25	**17 N·m** (**13 lb ft**)
Nuts securing the controlled shaft support cover of the inverter C_3	M8 x 1.25	**28 N·m** (**21 lb ft**)
Bolts securing the controlled shaft plate of the inverter C_4	M10 x 1.25	**64 N·m** (**47.2 lb ft**)
Bolts securing the clutch box/inverter to the rear transmission box/gearbox C_5	M12 x 1.25	**98 N·m** (**72 lb ft**)

Reverser - Assemble

Clutch box - inverter

Assembly

Assemble the inverter considering the following:

1. Follow the illustrations shown in **Reverser - Sectional view (21.162)** for the orientation of the various components.
2. Observe the tightening torques indicated in **Reverser - Torque (21.162)**
3. Assemble the idler gear pin, complete from the various pieces, and the inverter's control gear pin and secure it through the appropriate plate and its bolt.
4. Assemble the control forks of the clutch collar sleeves on the respective clutch control shafts and secure them to these.
5. Assemble the cover support of the sleeves on the clutch collars.
6. Assemble the group of clutch collar sleeves on the related support and fasten it with the appropriate springs.
7. Assemble on the back side the inverter control shaft and attach it to the clutch box/inverter with its respective lock ring.
8. Place the inverter control gear with its bearings on the control shaft.
9. Assemble the inverter's driven gear with its bearings and spacers.
10. Assemble the synchronizer group with its control forks, rod, thrust washer and bearing, and lock it with its respective lock ring.
11. Assemble the ball, spring and fixing bolt using **LOCTITE® 515™** or Silastic.
12. Set the internal lever in place and assemble the transmission lever and secure it with its roll pin.
13. Take the clutch/inverter box off the trestle 380000301..

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Gearbox - Assemble

⚠ CAUTION

Pinch hazard!
Always use suitable tools to align mating parts. DO NOT use your hand or fingers.
Failure to comply could result in minor or moderate injury.

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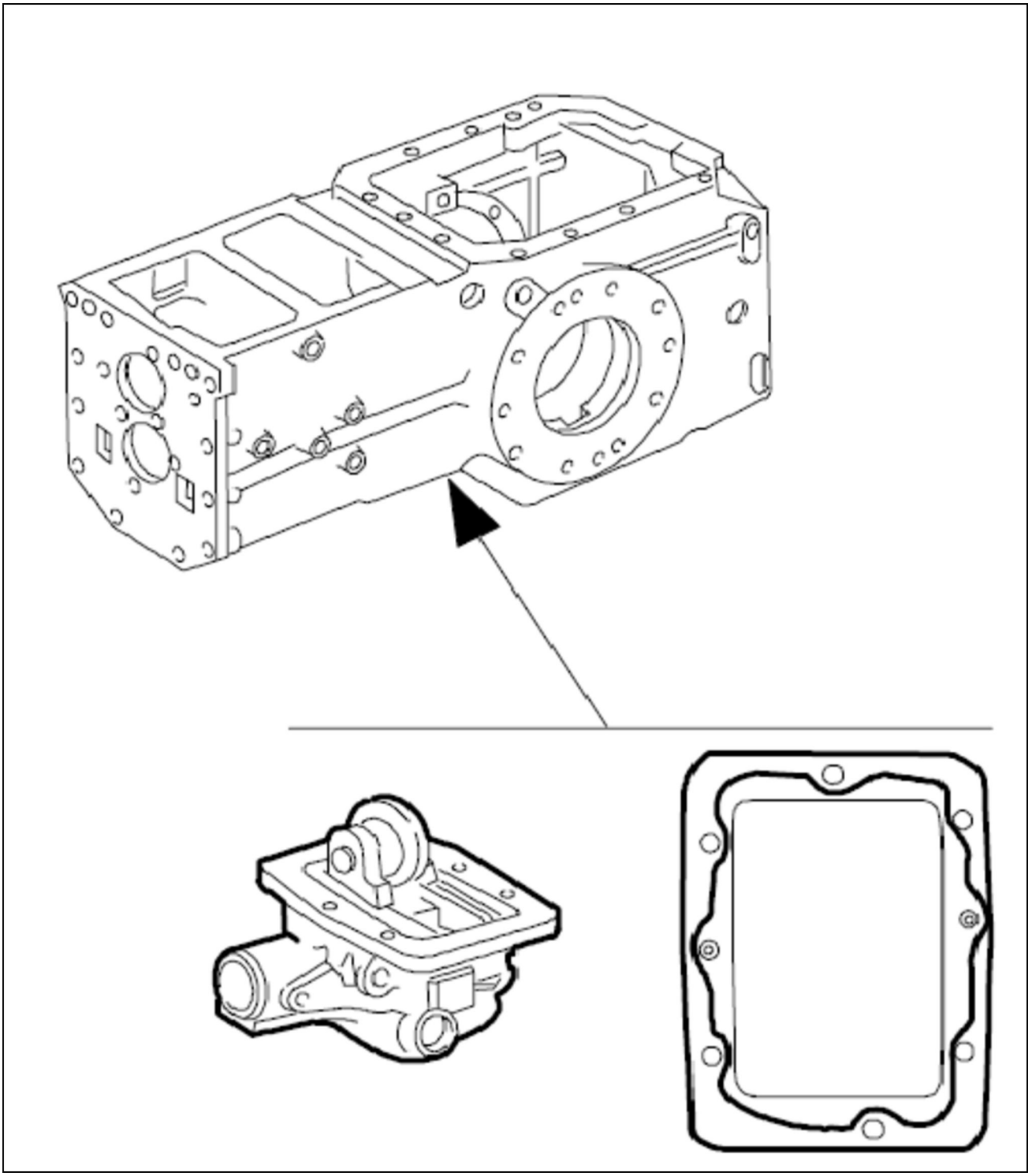

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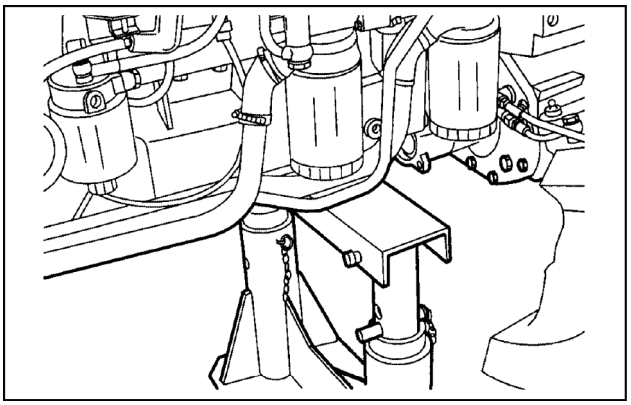
8. Raise the tractor using the lifting hook (or using a hydraulic jack beneath the tractor) and place a support under the engine sump.



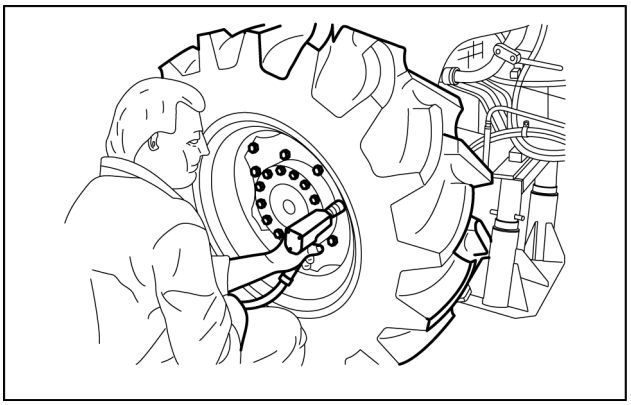
LAIL11TL0491A0A 8

9. **⚠ WARNING**

   Avoid injury!
   Handle all parts carefully. Do not place your hands or fingers between parts. Use Personal Protective Equipment (PPE) as indicated in this manual, including protective goggles, gloves, and safety footwear.
   Failure to comply could result in death or serious injury.

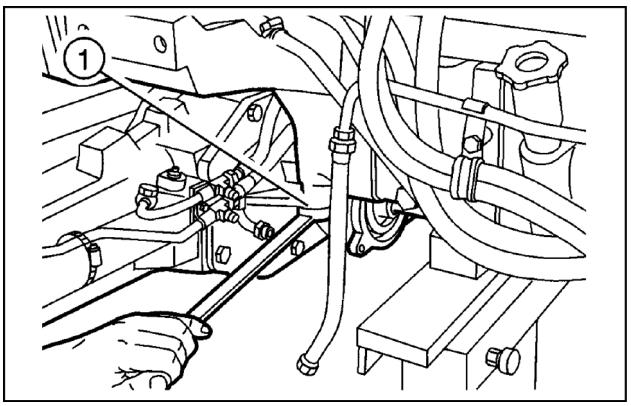
   W0208A

   Loosen the bolts and remove the front wheels.



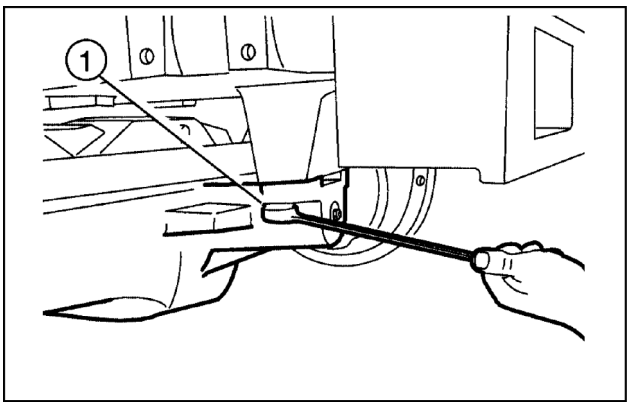
LAIL11TL0043A0A 9

10. Loosen the fixing bolts **(1)** of the rear axle support.



LAIL11TL0492A0A 10

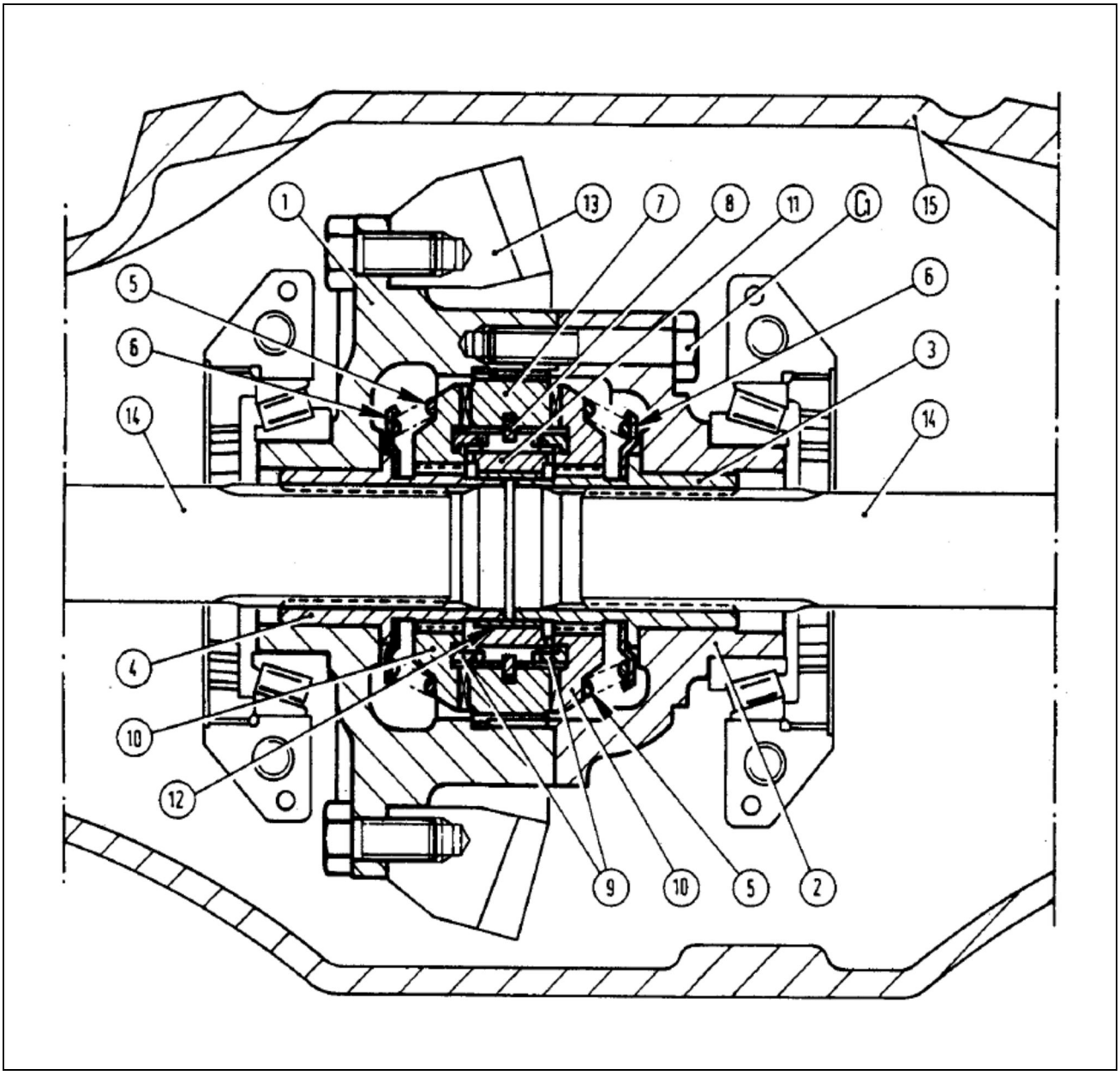
11. Loosen the fixing bolts **(1)** of the front wheel drive support.



LAIL11TL0493A0A 11

Differential - Dynamic description

Sectional view of the self-locking differential



BRAG12TRALL0159 1

C_1 = Casing safety screw, torque adjustment from **56 – 62 N·m** (**41.3035 – 45.7289 lb ft**)

1. Casing, middle flange.
2. Casing, middle end cap.
3. Side gear.
4. Side gear.
5. Springs.
6. Retainer spring.
7. Central drive assembly.
8. Fastening ring
9. Eccentric retaining rings
10. Driven clutch.
11. Central eccentric.
12. Backrest.
13. Ring gear.
14. Drive shaft.
15. Front axle housing.

Advantages of the self-locking system

The differential control performs the following key functions:

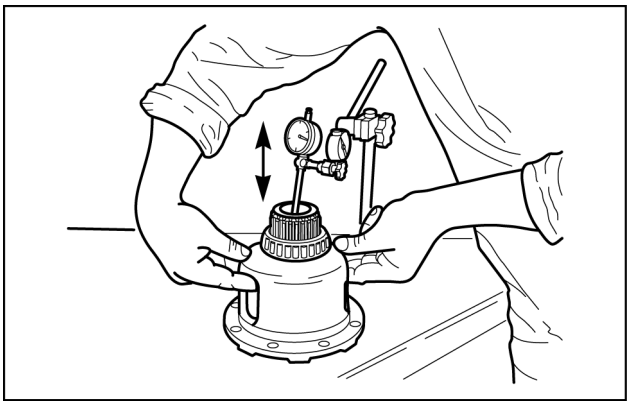
Differential - Gear tooth contact

Front wheel drive differential

Service

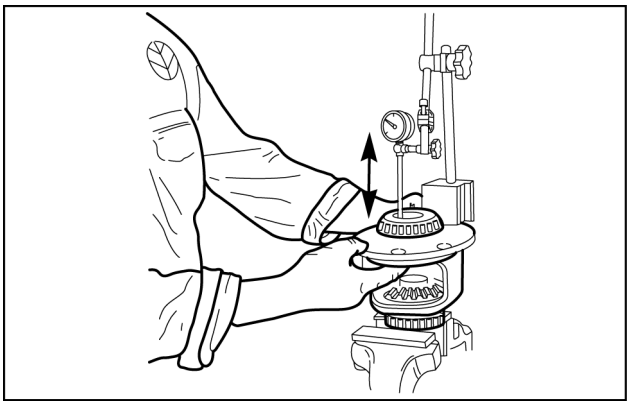
When the differential assembly needs to be serviced, it will be necessary to adjust the gap between the teeth of the planetary gears and satellite gears.
Proceed as follows:

1. Clean the differential components very well and carefully, and remove all the vestiges of oil that may prevent the correct measurement of clearance.



LAIL11TS0058A0A 1

2. Install the planetary gears without the friction shims (self-locking system).
3. Fit in the two satellite gears complete with backing shims and fix the pin with the fixation bolt, turning it to keep the pin in place.
4. Place a calibrator gauge into the differential housing.
5. Move the planetary gear on the left-hand side in order to establish perfect contact with the satellite and then push against the differential housing and take the gap reading on the calibrator gauge “Gs”.
6. Repeat the above operation to measure the gap on the right-hand side in the other planetary gear “Gd”.



LAIL11TS0059A0A 2

The shim to be installed in the differential housing is therefore determined by.

Ss = Gs - **0.25 mm** for the planetary gear on the LH side.

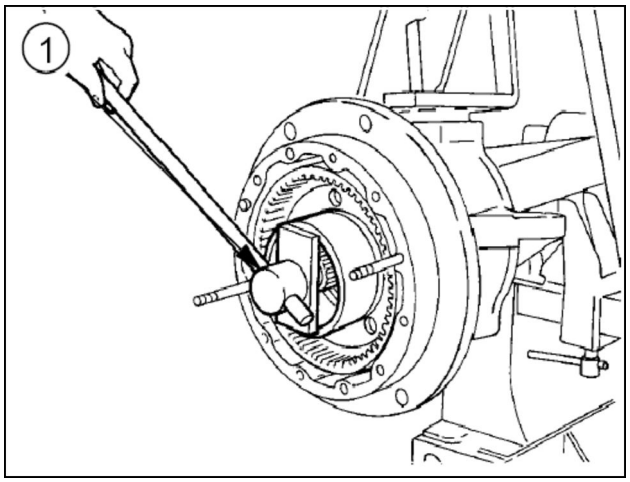
Sd = Gd - **0.25 mm** for the planetary gear on the RH side.

7. Install the shims as closely as possible to the calculated values and using the calibration gauge, follow the procedures described above, checking that the gap of the planetaries on the right and left sides is approximately **0.25 mm**.

Wheel hub - Adjust

Proceed as follows:

1. Install wheel hub and fixed gear unit onto the steering knuckle;
2. Using a torque wrench **(1)** and lock ring wrench 293837, progressively tighten the lock ring to **147 – 196 N·m** (**108.4 – 144.6 lb ft**). While tightening the lock ring, rotate the hub to settle the bearings.
3. Fully slacken the lock ring and retighten to **59 N·m** (**43.5 lb ft**) while rotating hub.
4. Secure the lock ring by bending over a lockwasher tab (if necessary, further tighten the lock ring to align a slot with the tab)
5. Turn the hub by hand to check for excessive play or binding.



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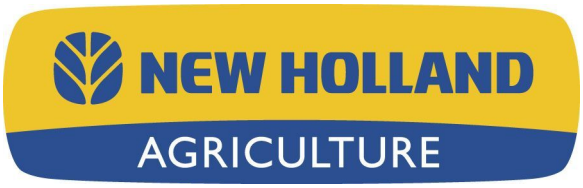

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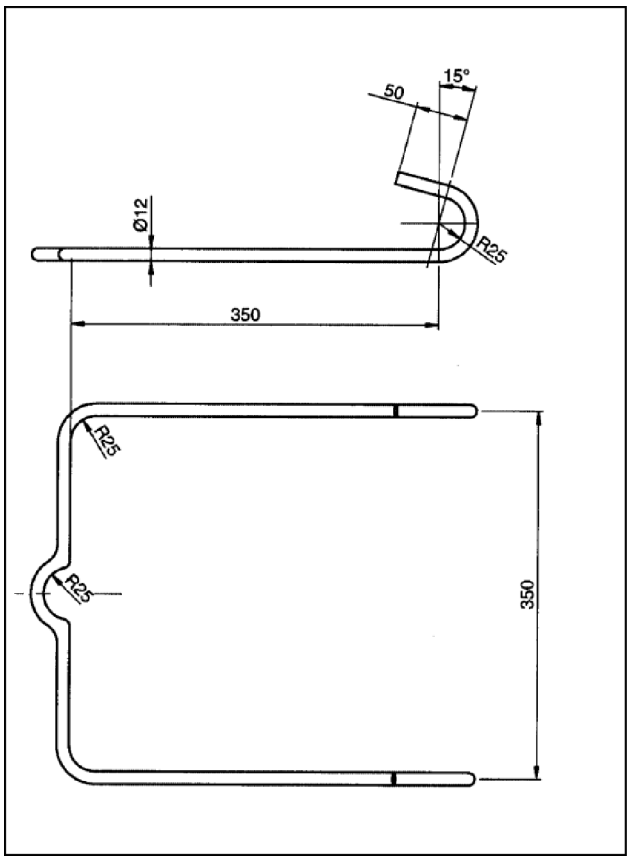
Hook to support the front hood (number 50132 - inscribed. Values in mm)

Build using UNI C40.



LAIL11TL0945B0A 6

Powered rear axle - General specification

MAIN SPECIFICATION OF BEVEL GEAR PAIR AND DIFFERENTIAL

		All Models
Bevel gear pair gear ratio		10/44 = 1:4.4 (40 kph (24.9 mph))
Bevel gear pair tooth clearance	mm (in.)	0.18 – 0.23 (0.0071 – 0.0091)
Type of differential		with two planet gears
Elektrohydraulically controlled differential lock		controlled by switch on control panel
Release for electrohydraulically controlled differential lock		controlled by foot brake pedals
Differential pinion internal seat diameter	mm (in.)	25.040–25.061 (0.9858 – 0.9867)
Differential pinion pin diameter	mm (in.)	24.939–24.960 (0.9818 – 0.9823)
Clearance between differential pinions and their pins	mm (in.)	0.080 – 0.122 (0.0031 – 0.0048)
Diameter of side gear hub seats on differential box	mm (in.)	51.100 – 51.146 (2.0118 – 2.0136)
Diameter of side gear hubs	mm (in.)	50.954 – 51.000 (2.0061 – 2.0079)
Clearance between side gears and their seats	mm (in.)	0.100 – 0.192 (0.0039 – 0.0076)
Bevel pinion positioning adjustment		see pages 39
Adjuster shims for bevel pinion positioning	mm (in.)	1.85 – 1.90 – 1.95 – 2.00 – 2.05 2.10 – 2.15 – 2.20 – 2.40 – 2.45 2.50 – 2.55 – 2.60 – 2.65 – 2.70 (0.0728 – 0.0748 – 0.0. 768 – 0.0787 0.0807 – 0.0827 – 0.0846 –0.0866 0.0945 – 0.0965 – 0.0984 – 0.1004 0.1024 – 0.1043 – 0.1063)
Adjusting ring bevel gear bearings and bevel gear pair coupling clearance		see page 201
Differential pinion and side gear backlash	mm (in.)	0.18 (0.0071)
Thickness of differential side gear clearance adjustment shims	mm (in.)	1.5–1.6 (0.0591–0.0630)
Thickness of differential pinion thrust bearings	mm (in.)	1.47–1.53 (0.0579–0.0602)

Clearance between planetary and satellite (gear) teeth	**0.15 – 0.18 mm**
Thickness of planetary adjustment shims **(16)**, **Mechanical transmission - Sectional view (21.114)** and **(17)**, **Mechanical transmission - Sectional view (21.114)**	- **1.5 mm** - **1.6 mm** -
Thickness of satellite shims **(4)**, **Mechanical transmission - Sectional view (21.114)** and **Mechanical transmission - Sectional view (21.114)**	**1.470 – 1.530 mm**
Adjustment of the gap between the planetary teeth and the satellites	see **Differential - Adjust (27.106)**
Differential lock adjustment	see **Differential lock - Adjust (27.106)** and
Differential lock fork adjustment shim	**0.5 mm**
Spring to unlock the differential (Mechanical control):	
free length of the spring	**220 mm**
length of spring under a pressure of **177 – 195 N** (**40 – 44 lb**)	**157.5 mm**

Contents

Power Take-Off (PTO) - 31

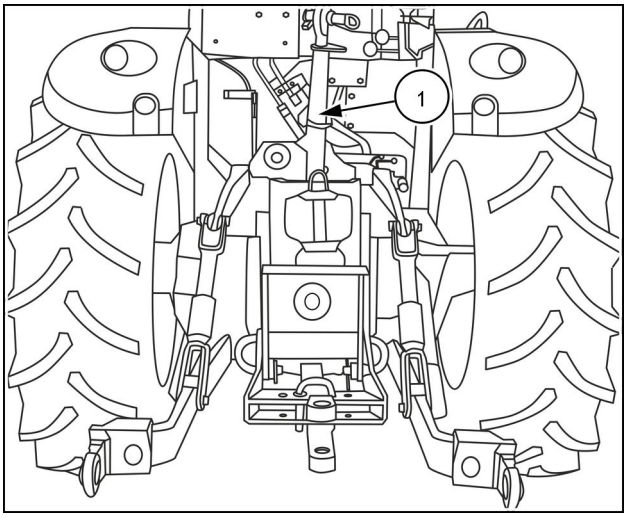
Rear mechanical control - 101

Rear mechanical control - Remove (PTO 540/750 RPM)

ATTENTION: *Handle all parts very carefully. Do not put hands or fingers between two parts. Always wear the referred safety equipment, including protection goggles, gloves and shoes.*

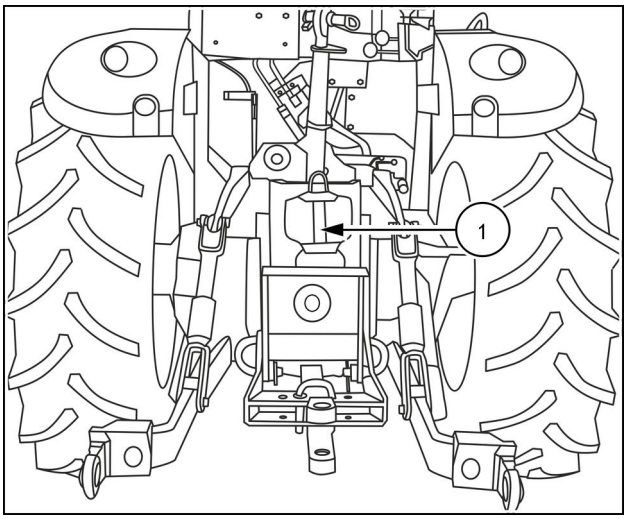
Proceed as follows:

1. Disconnect the negative battery cable.
2. Remove the top link **(1)**.of the three-point linkage.



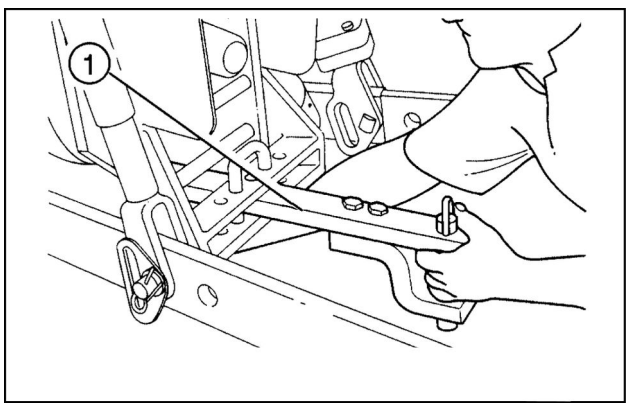
SAM_0518_1 1

3. Remove the tow hook **(1)** , if fitted.



SAM_0518_1 2

4. Remove the draw bar **(1)**



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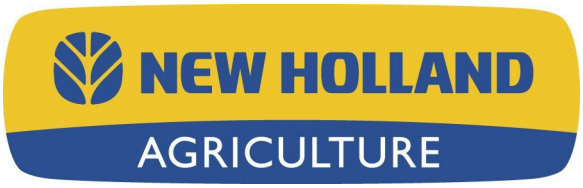

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Hydraulic service brakes - Remove

Removal

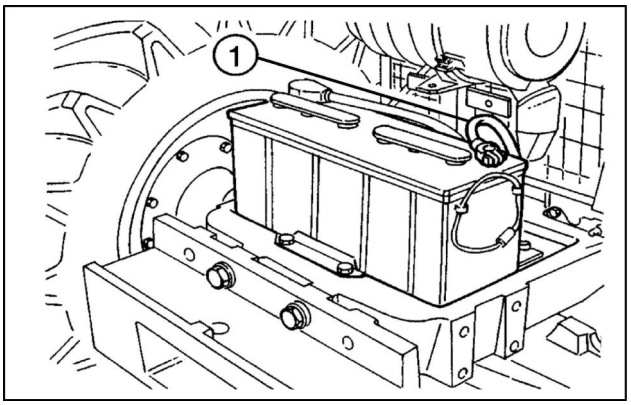
⚠ DANGER

Heavy objects!
Lift and handle all heavy components using lifting equipment with adequate capacity. Always support units or parts with suitable slings or hooks. Make sure the work area is clear of all bystanders. Failure to comply will result in death or serious injury.

D0076A

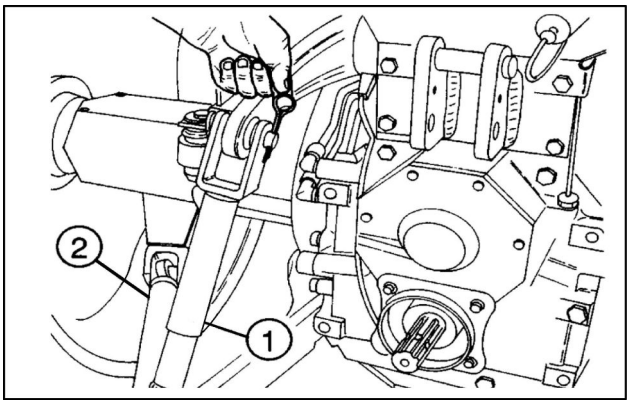
Proceed as follows to remove the side end drive casing:

1. Disconnect the negative battery cable **(1)**.
2. Lock the front wheels with shims.



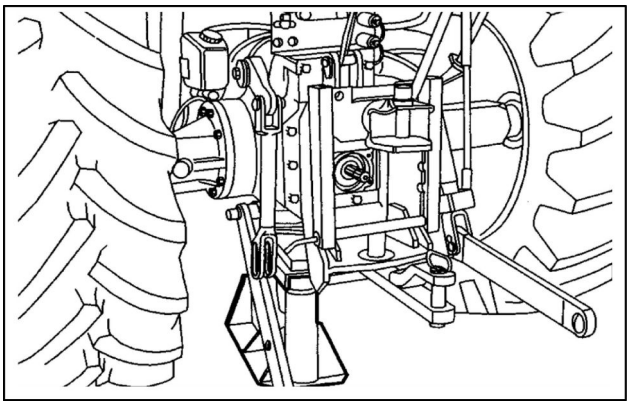
LAIL11TL0001A0A 1

3. Remove the arm **(1)** and the left stabiliser support **(2)**.



LAIL11TL0002A0A 2

4. Lift the rear part of the tractor and place a fixed trestle under the flexing bar support.



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Parking brake or parking lock - 110

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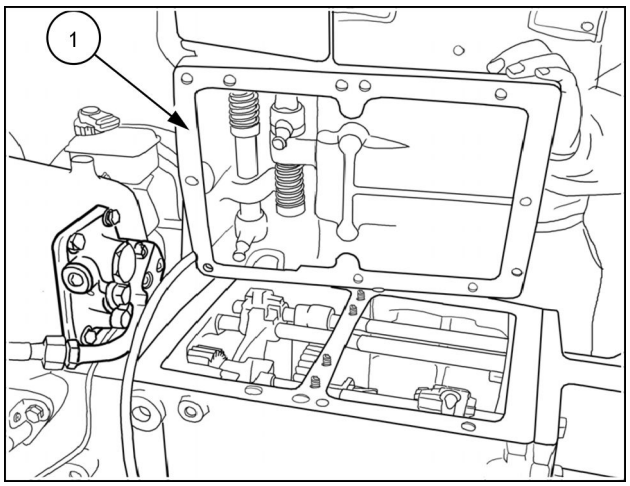
Remote control valves - 204

To lower the implement, move the lever forward. The spool **(2)** moves and the detent balls **(26)** fit into the spline, where they are kept in position by the bracket **(28)** and the spring **(24)**. The oil from the lower chamber flows to the exhaust **(T)** through the line **(B)**, while the upper chamber is connected to the pressure line **(A)**. When the lowering operation is completed, the detent is automatically released as described above.

Hitch control valve - Disassemble

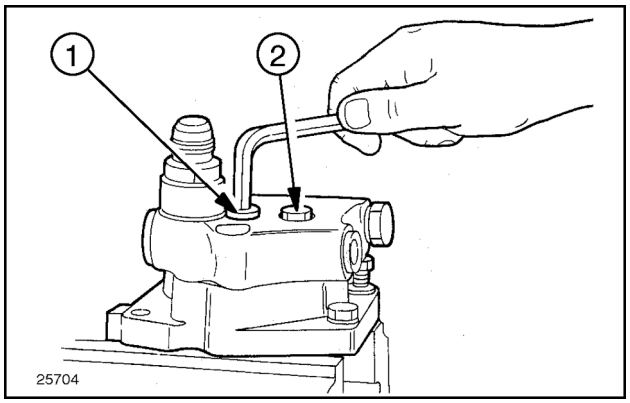
with removed control valve

1. Remove the transmission cover **(1)** before removing the control valve.



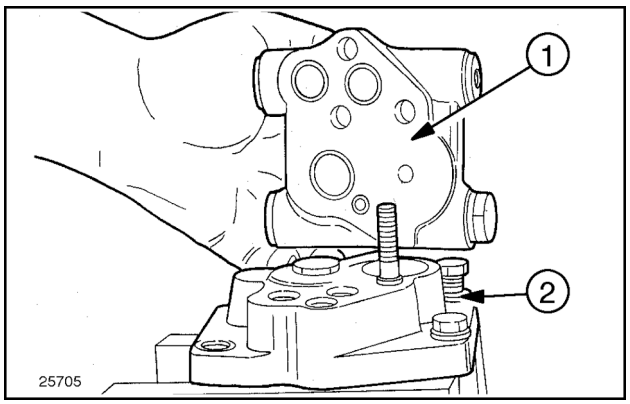
BRAG12TRALL0215 1

2. Before removal, clean the surfaces of the control valve completely, hold the control valve in a bench clamp and loosen bolts **(1)** and **(2)**.



SEZ35CAP1A-87 2

3. Remove the cover **(1)** from the control valve body **(2)**.



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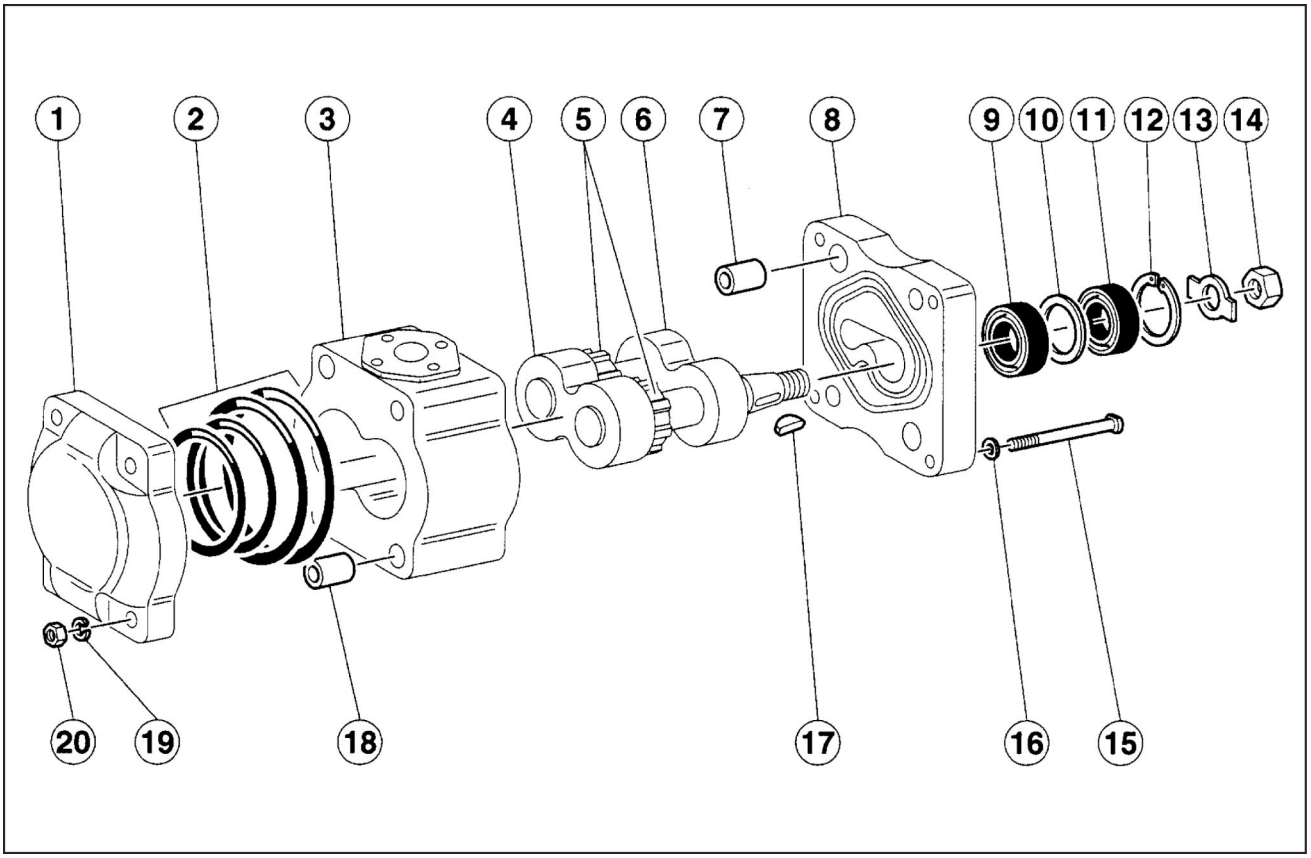
Hitches, drawbars, and implement couplings - 37

Rear three-point hitch - 110

Rear three-point hitch - Exploded view

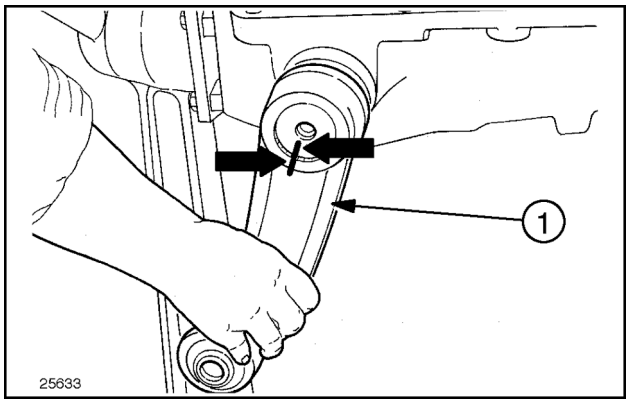
Hydraulic components of the lift control pump



LAIL11TL0996F0A 1

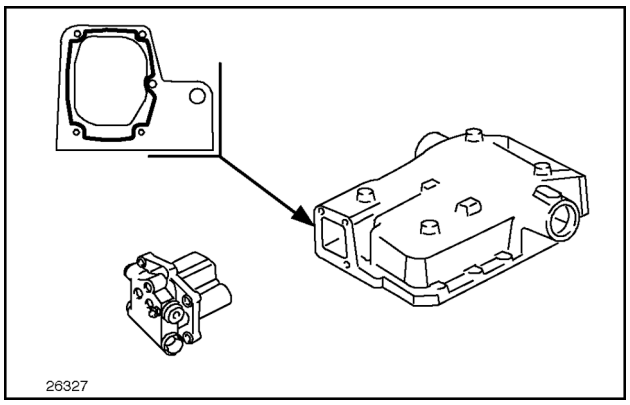
1. Rear cover
2. Cover sealants
3. Pump body
4. Gear bushing
5. Drive and driven gear shafts
6. Gear bushing
7. Guide
8. Front cover
9. Drive shaft retainer
10. Spacer
11. Drive shaft retainer
12. Locking ring
13. Lock
14. Nut
15. Bolt
16. Washer
17. Key
18. Guide
19. Lock washer
20. Nut

5. Fit the lift arms **(1)** on the shaft, matching up the reference marks. Secure in position with the bolts.



SEZ35CAP1A-69 5

6. Assemble the internal levers and the eccentric pin, and secure with the grub-screw.



SEZ35CAP1A-10 6

7. Carry out the assembly sequences described in the operation, see **Cab hitch controls - Adjust (55.523)** , for the REAR LIFT EXTERNAL CONTROLS.
8. Fit the internal position control lever.
9. Assemble the internal levers and the Lift-O-Matic lever.
10. Assemble and secure the cylinder and piston.
11. Assemble the internal levers and secure to the cylinder.
12. Carefully clean and degrease the mating surfaces, then apply sealing compound (approx. **2 mm** (**0.079 in**)) along the marked line shown in the drawing.
13. The types of sealing compounds to be applied are specified in **Basic instructions - Shop and Assembly** .
    Fit the hydraulic lift on the lift box and secure in position with the relative retaining bolts.
    Carry out the adjustments described below.

NOTE: *The adjustments must be carried out in the order specified.*

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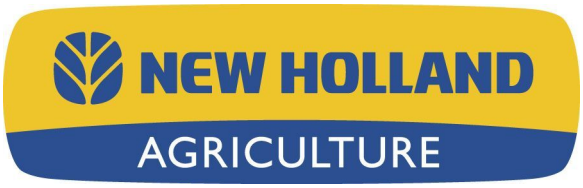

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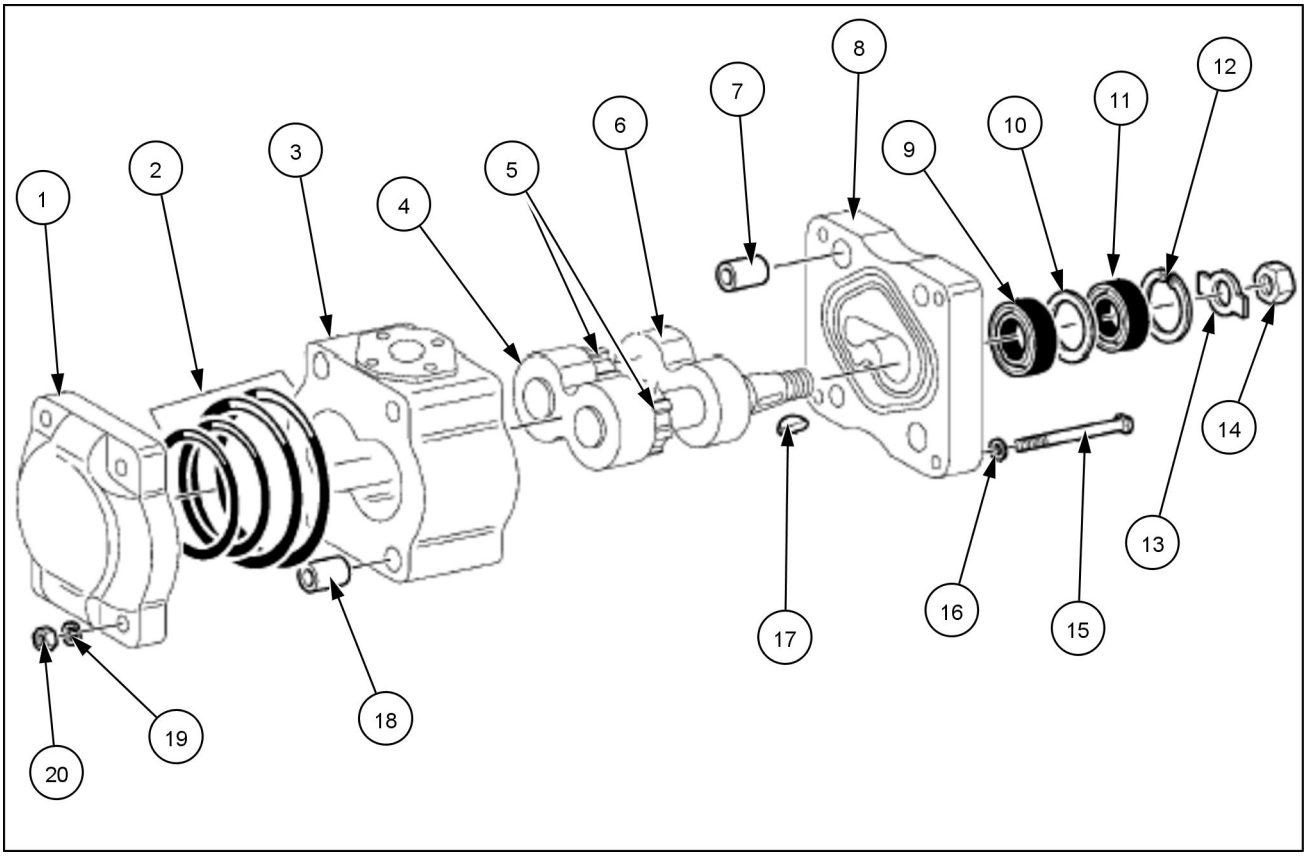
Power steering pump - Exploded view

Hydrostatic steering oil pump components



LAIL11FT0142F0A 1

(1) Front cover
(2) Cover seals
(3) Pump body
(4) Gear bracket
(5) Drive gear shafts and driven gear shafts
(6) Gear bracket
Bush **(7)**
(8) Control side cover
(9) Drive shaft seal
(10) Spacer
(11) Drive shaft seal
(12) Lock ring
(13) Safety washer
Nut **(14)**
Screw **(15)**
(16) washer
Wrench **(17)**
Bush **(18)**
(19) Safety washer
Nut **(20)**

Steering cylinder - Remove

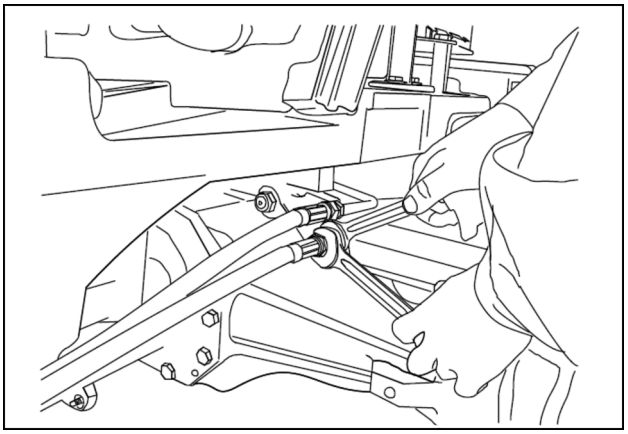
⚠ WARNING

Avoid injury!
Handle all parts carefully. Do not place your hands or fingers between parts. Use Personal Protective Equipment (PPE) as indicated in this manual, including protective goggles, gloves, and safety footwear.
Failure to comply could result in death or serious injury.

W0208A

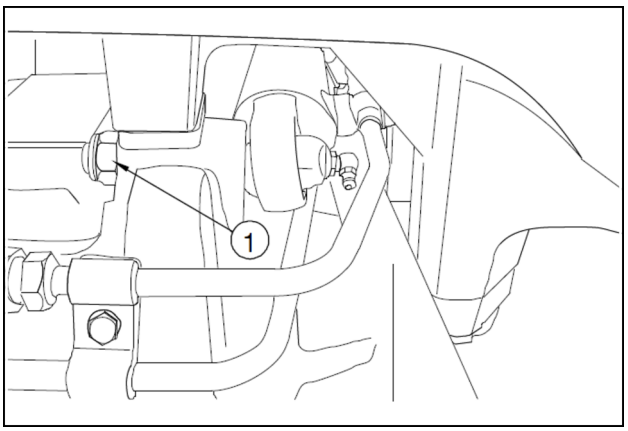
To remove the front axle steering cylinder, proceed as follows:

1. Disconnect the negative cable from the battery.
2. Unscrew the unions securing the delivery and return hoses to the steering cylinder.



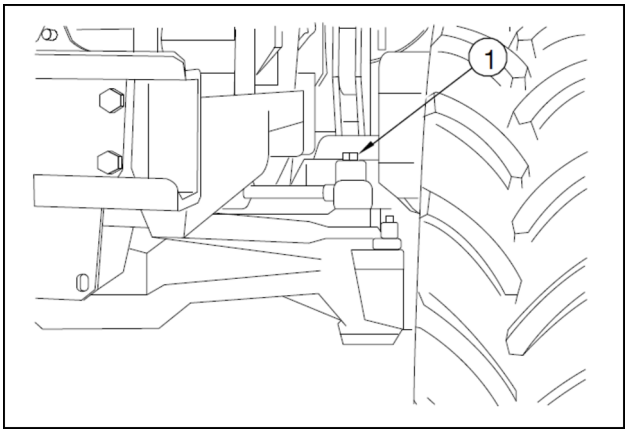
STEE77 1

3. Remove the retaining nut **(1)** of cylinder to the stub axle housing.



STEE78 2

4. Remove the retaining screw and extract the pin **(1)** securing the steering cylinder to the axle. Remove the steering cylinder.



STEE79 3

Power steering control valve - Remove

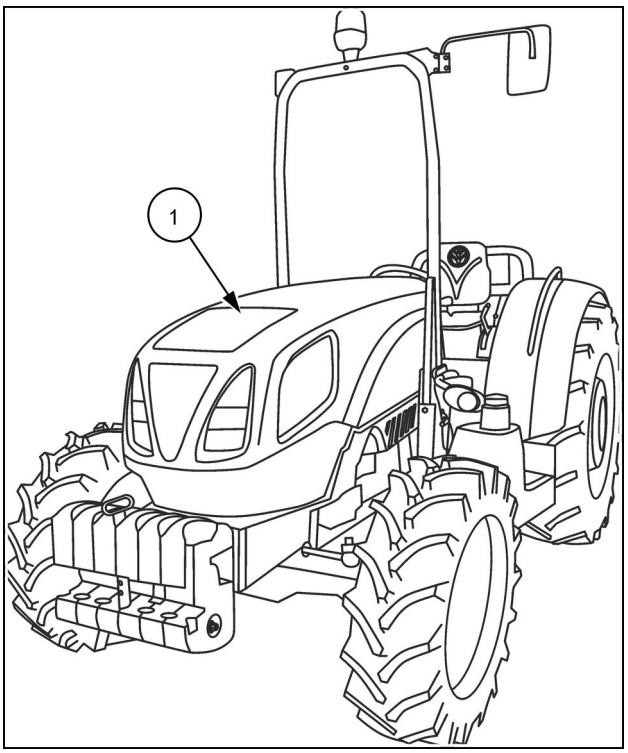
⚠ WARNING

Avoid injury!
Handle all parts carefully. Do not place your hands or fingers between parts. Use Personal Protective Equipment (PPE) as indicated in this manual, including protective goggles, gloves, and safety footwear.
Failure to comply could result in death or serious injury.

W0208A

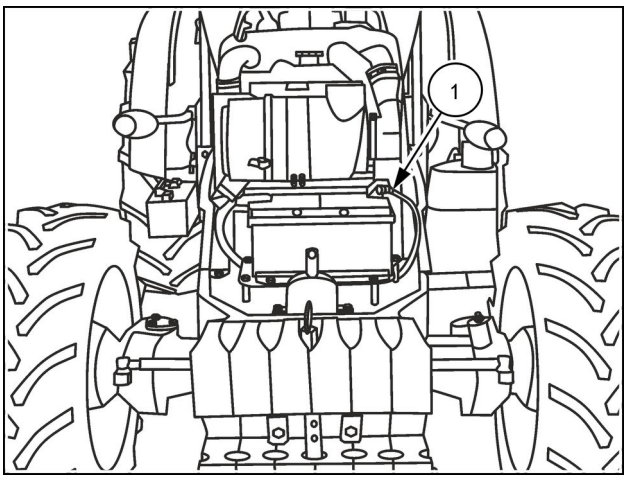
To remove the hydrostatic steering control valve, proceed as follows:

1. Hood must be opened to access the engine.
2. Open the bonnet **(1)**.



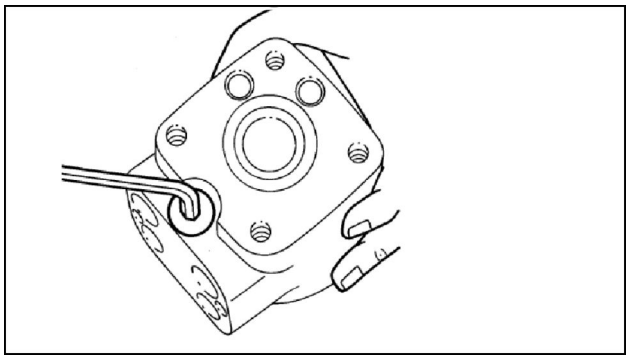
SAM_0119 1

3. Disconnect the negative cable **(1)** from the battery.



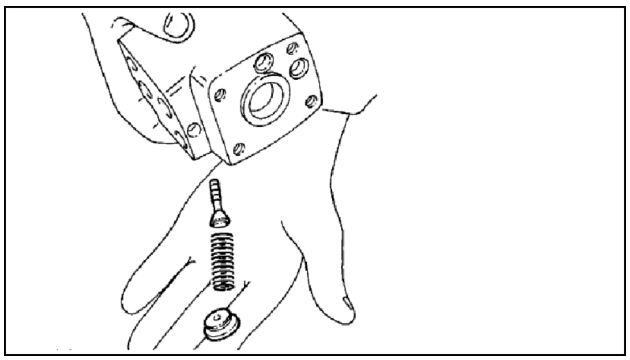
AKU 2

20. Using a **6 mm** Allenwrench, remove the threaded plug on the pressure relief valve and extract the seal.



BRAG12TRALL0246 17

21. Remove the pressure relief valve adjuster screw.
22. Turn the control valve body over and complete disassembly by extracting the spring and the pressure relief valve piston.



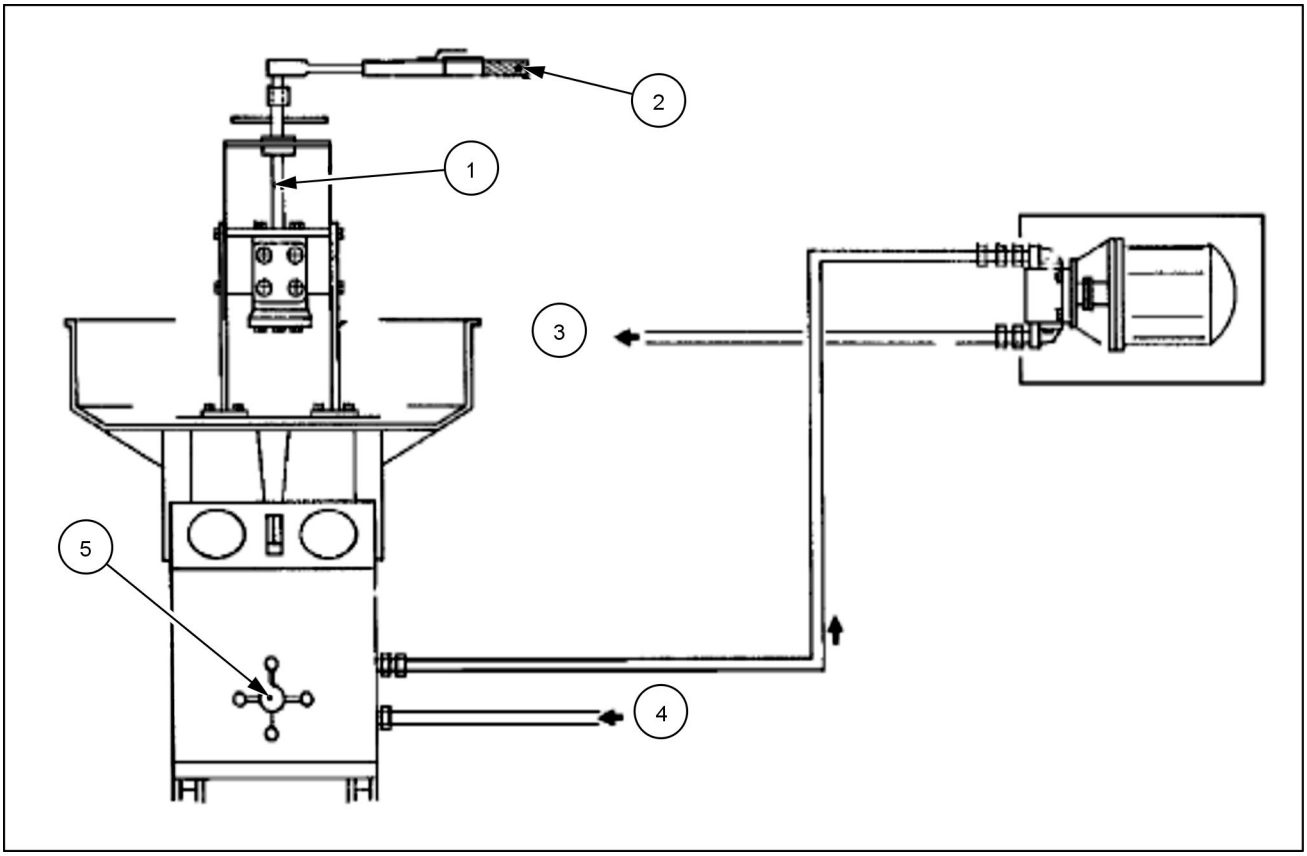
BRAG12TRALL0247 18

Power steering control valve - Test

control valveHydrostatic Steering

Condições de teste

- Oil Type: IDRAULICAR AP51 .
- Oil viscosity: **SAE 20 W**
- Oil temperature: **60 °C** (**140 °F**)
- Hydraulic pump capacity: **12 l/min**
- Electric engine speed: **1450 RPM**



LAIL11FT0141F0A 1

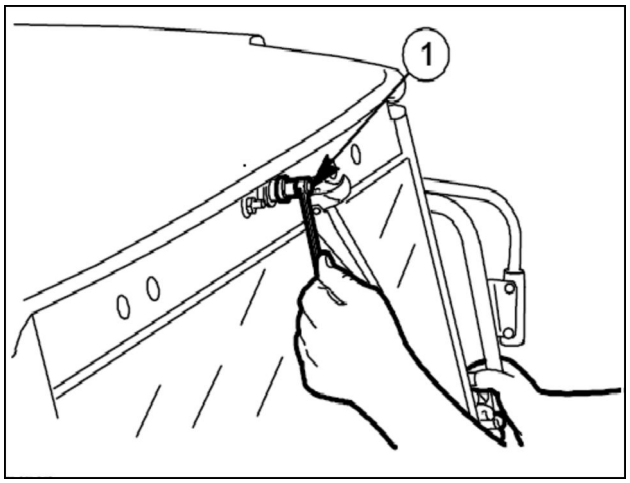
Installation diagram of the equipment for testing the rotary valve and seals and for installing the pressure relief valve

1. Control shaft spline
2. Torque wrench
3. Discharge line coupler
4. Restriction
5. Pressure adjustment flywheel

A. Checking the rotary valve

1. Make the connections and complete the circuit as shown in Fig. **1**. Use control shaft spline **(1)**, hold the steering control valve in the steering position (right or left).
2. Using the steering wheel **(5)**, increase the circuit pressure until it is similar to the pressure relief valve opening pressure (pg. 1) without it actually being open.

4. Unscrew the wiper blade retaining screw **(1)** .



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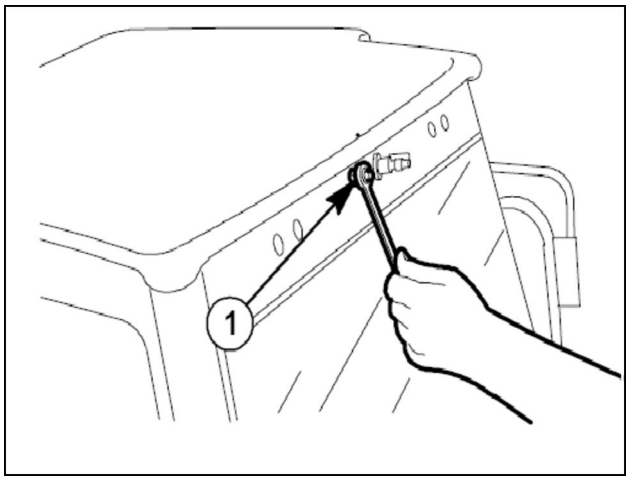
5. Unscrew the small nut **(1)** securing the wiper motor unit.



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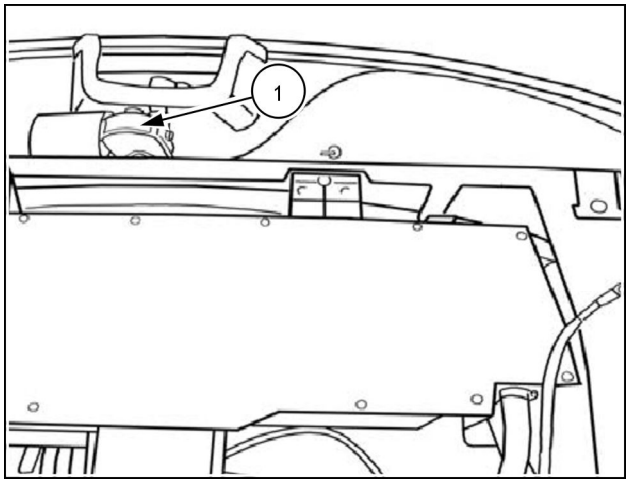
6. Unscrew the large nut and remove the wiper motor unit **(1)** from top the cab.



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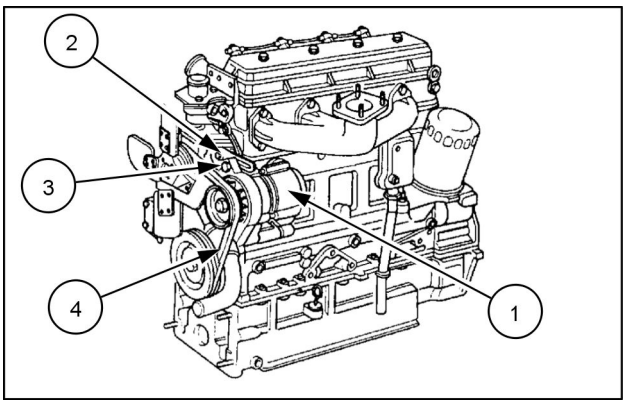
Alternator drive system Belt tensioner - Hydraulic symbol

Fan tensioning belt

Belt for models without air conditioning



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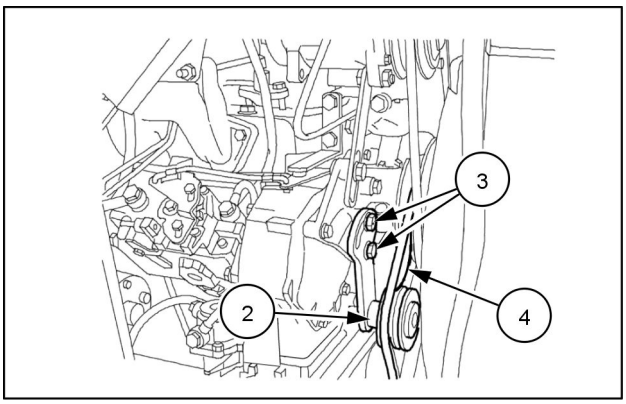
Belt for models with air conditioning



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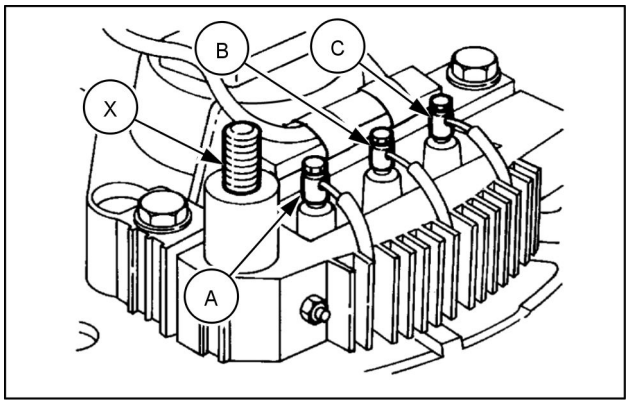
1. Alternator
2. Tensioning belt
3. Safety nut on the tensioning belt
4. Belt

Positive diode test

Place an ohmmeter connection point in contact with the alternator's positive terminal **(X)** and the other with each of the three terminals in succession (**(A)**- **(B)**- **(C)**, Fig. **8**).
Repeat the three measurements after reversing the connection points of the instrument.



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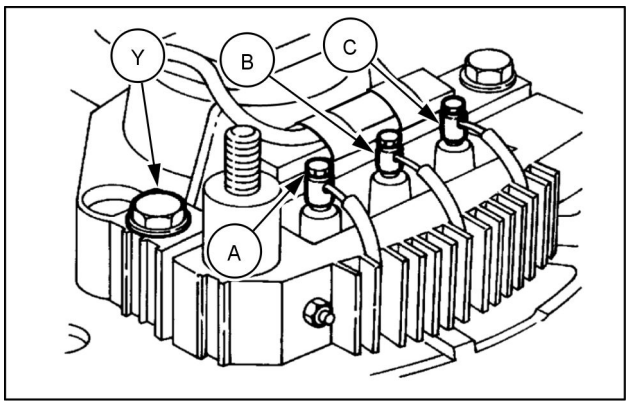
Negative diode test

Place an ohmmeter connection point in contact with the negative diode plate **(E)** and the other with each of the three terminals in succession (**(A)**- **(B)**- **(C)**, Fig. **9**).
Repeat the three measurements after reversing the connection points of the instrument.
In the three previously described tests, the instrument should show resistance on each terminal (**(A)**- **(B)**- **(C)**). When you reverse the instrument's connection point, there should be no resistance (Fig. **9**). If there is resistance in both cases, this indicates a short circuit in the diodes. If not, with a value of R=0 (interrupted diode), replace the entire rectifier bridge.



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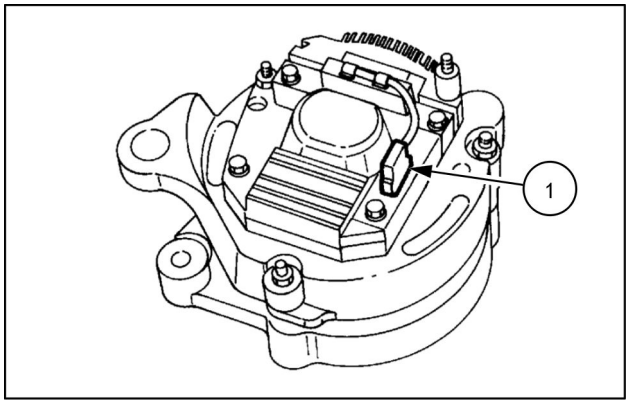
Rotor

Checking the resistance of the rotor coil measured between pins connected to the brushes

Disconnect the exciter diodes' terminal cable connector **(1)** from the pin that is connected to the positive brush. Place both ends of the ohmmeter (set to the Ωx1 scale) in contact with the two mounting pins of the voltage regulator brushes. If the resistance reading is different from the indicated value or reads as infinite (circuit broken), check the rotor. Replace the rotor if necessary (Fig. **10**).



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Engine starting system - 201

6. At this stage of the procedure, check the brushes and the switch. Check that the brushes are not stuck together and, if necessary, clean both the brushes and the respective channels with a cloth soaked in kerosene. Also check that the brushes are not worn. If the minimum length is less than that shown in the technical data, the starter motor will need to be replaced.

NOTE: *The brushes cannot be serviced separately. They are welded to their support and do not require replacement during the entire operating life of the starter motor.*

7. Extract the motor casing from the armature, **(10)** and the bracket on the control side.
8. Extract the control lever knuckle pin from the control side of the casing.
9. Remove the circlip that holds the control unit and the inner plate to the armature shaft, by first removing the circlip retaining collar perpendicularly using a suitably sized piece of piping. Then lever the circlip from the groove.
10. Extract the armature, **(10)** and control unit.

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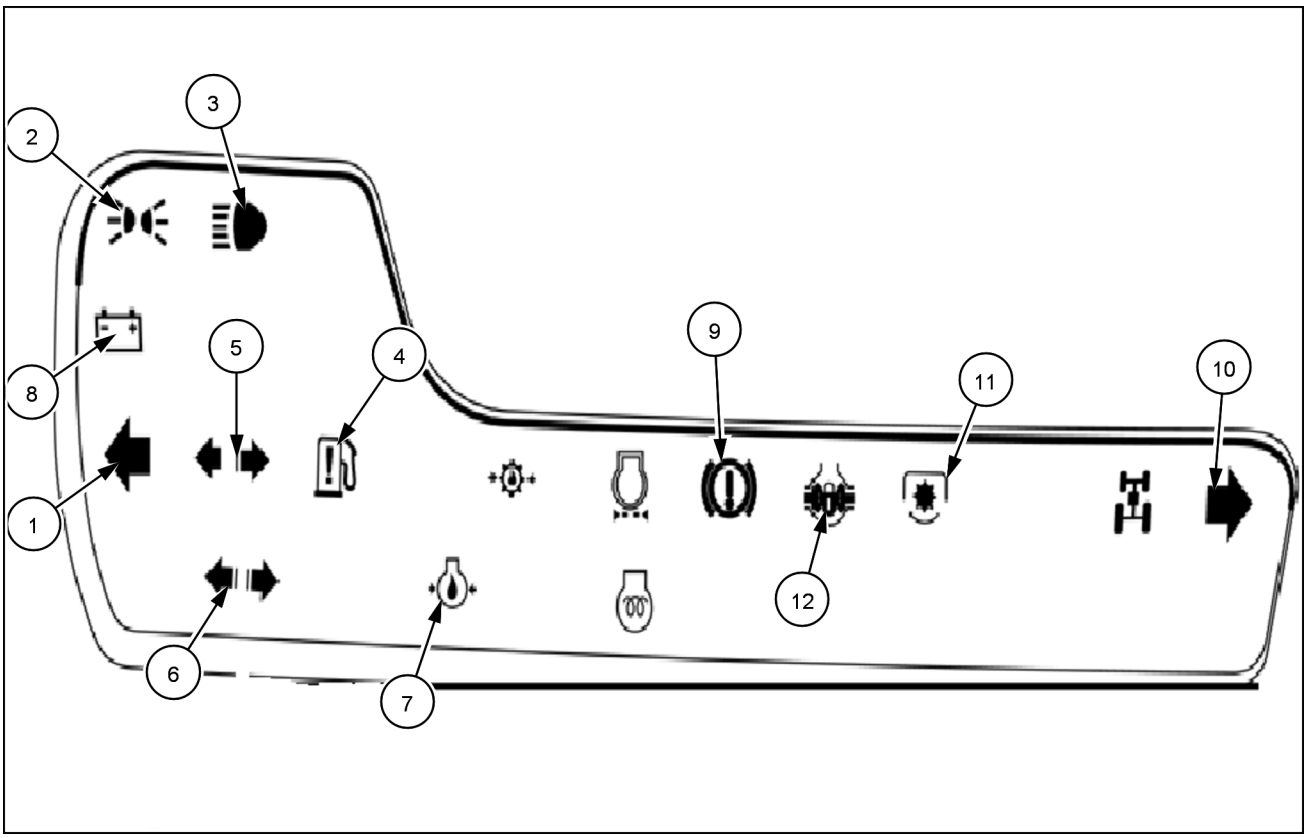

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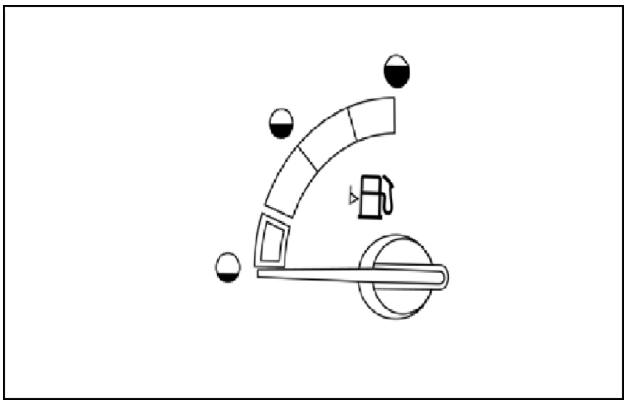
	Condition	Indicator
(1)	Left direction indicator	Intermittent (green)
(2)	Position lights	Fixed (green)
(3)	Headlight high beams	Fixed (blue)
(4)	Water in fuel.	Fixed (red)
(5)	1st towing unit direction indicator	Flashing (green)
(6)	2nd towing unit direction indicator	Flashing (green)
(7)	Low engine oil pressure	Fixed (amber)
(8)	Low battery charge	Fixed (red)
(9)	Hand brake on	Fixed (red)
(10)	Right direction indicator	Flashing (green)
(11)	Power take off activated	Fixed (amber)
(12)	Differential Lock	Fixed (amber)

Fuel level sensor

This instrument shows the fuel level in the tank.

When the tank is full, the needle moves completely to the right.

When the tank is less than ¼ full, the needle moves into the yellow area.



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If the battery was left to charge and rest, the electrolyte will be denser at the base of the elements. Periodically shake the battery to mix the electrolyte. This will improve charge amperage and will give more accurate readings.

Wiring harnesses - Electrical schematic sheet 07

DT-DL circuit

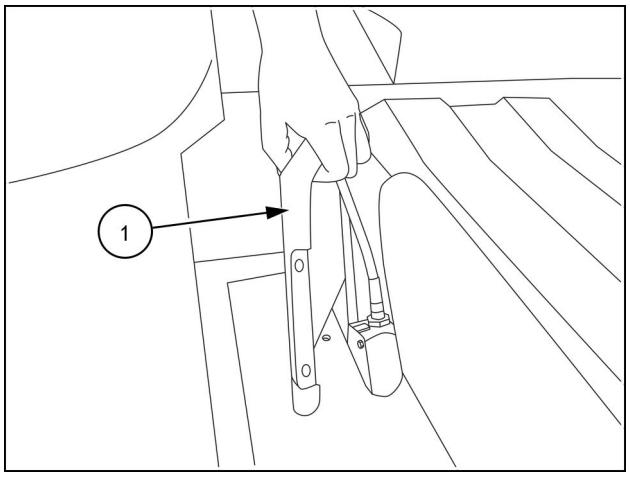
Wiring harnesses - Electrical schematic sheet 03

Head and parking lamps, number plate lamp circuit

Contents

Platform, cab, bodywork, and decals - 90

23. Remove the cover **(1)** to reach the forward and reverse control cable.



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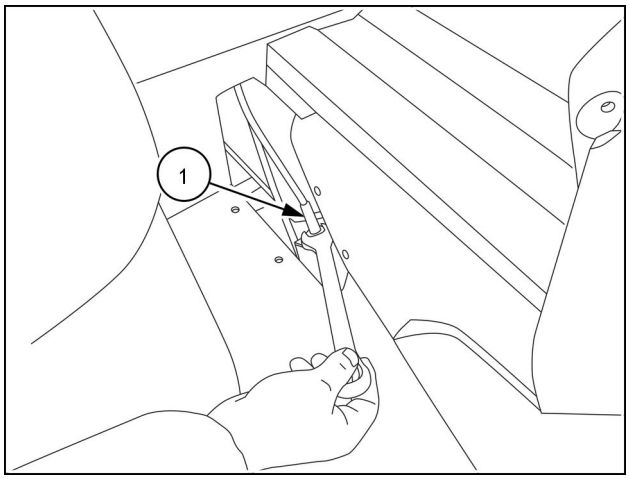
24. Unscrew the retaining cable bolt **(1)**.



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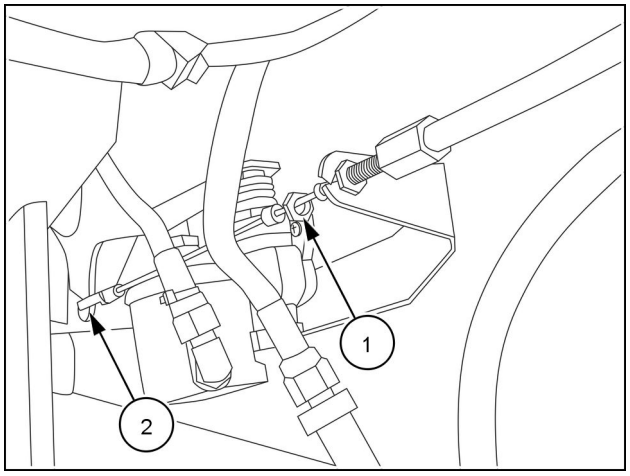
25. Unscrew the bolt **(1)** from the supporting bracket and take off the pin **(2)**.



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