

WORKSHOP MANUAL

EXPLORER 3 85
EXPLORER 3 100

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SAME

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30.1 - ENGINE

30.1.1 - Engine - Separation from the transmission (B0.00.02)

Previous operations:

See para. 30.6.2 - Front hoods - Page 30-268 - (G0.01.01)

See para. 30.2.6 - Exhaust pipe - Tra... - Page 30-31 - (C0.06.01)

Separating the engine from the transmission

1

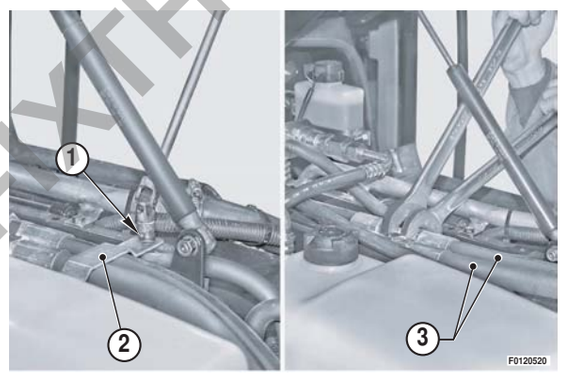
DANGER

Disconnect the lead from the negative terminal (–) of the battery and apply the parking brake.

2 Remove screw (1) and remove bracket (2).

Disconnect pipes (3).

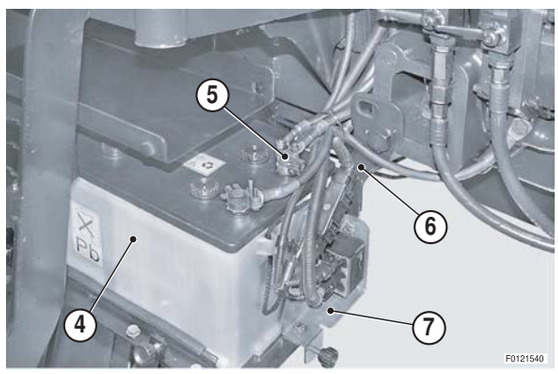
- Label the pipes to avoid confusion on refitting.



3 **For versions with front PTO**

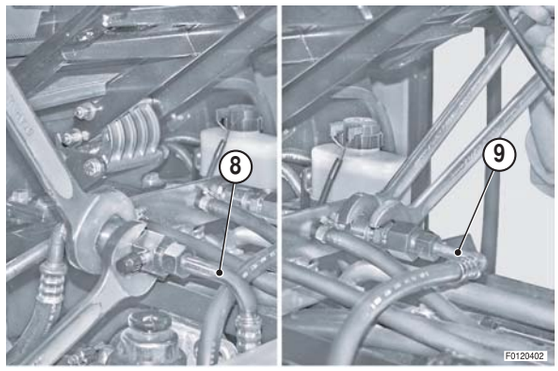
Disconnect cable clamp (5) from battery positive terminal (4).

Disconnect relay support assy (7) from battery support (6).



4 **For versions with air conditioning**

Disconnect air conditioning pipes (8) and (9).



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10.3 - HYDRAULIC SYSTEM

10.3.1 - Hydraulic system (Explorer 3 85)

Description

The tractors in this series are equipped with a hydraulic system that comprises two main circuits:

- Steering and services circuit.
- Lift and auxiliary services control valve circuit.

Each of these circuits is supplied with oil by a hydraulic gear pump that converts the power supplied by the engine into hydraulic energy. The oil flow generated by the pumps is sent to the devices which control the distribution of the oil pressure to the actuators, where the hydraulic energy is converted into mechanical energy.

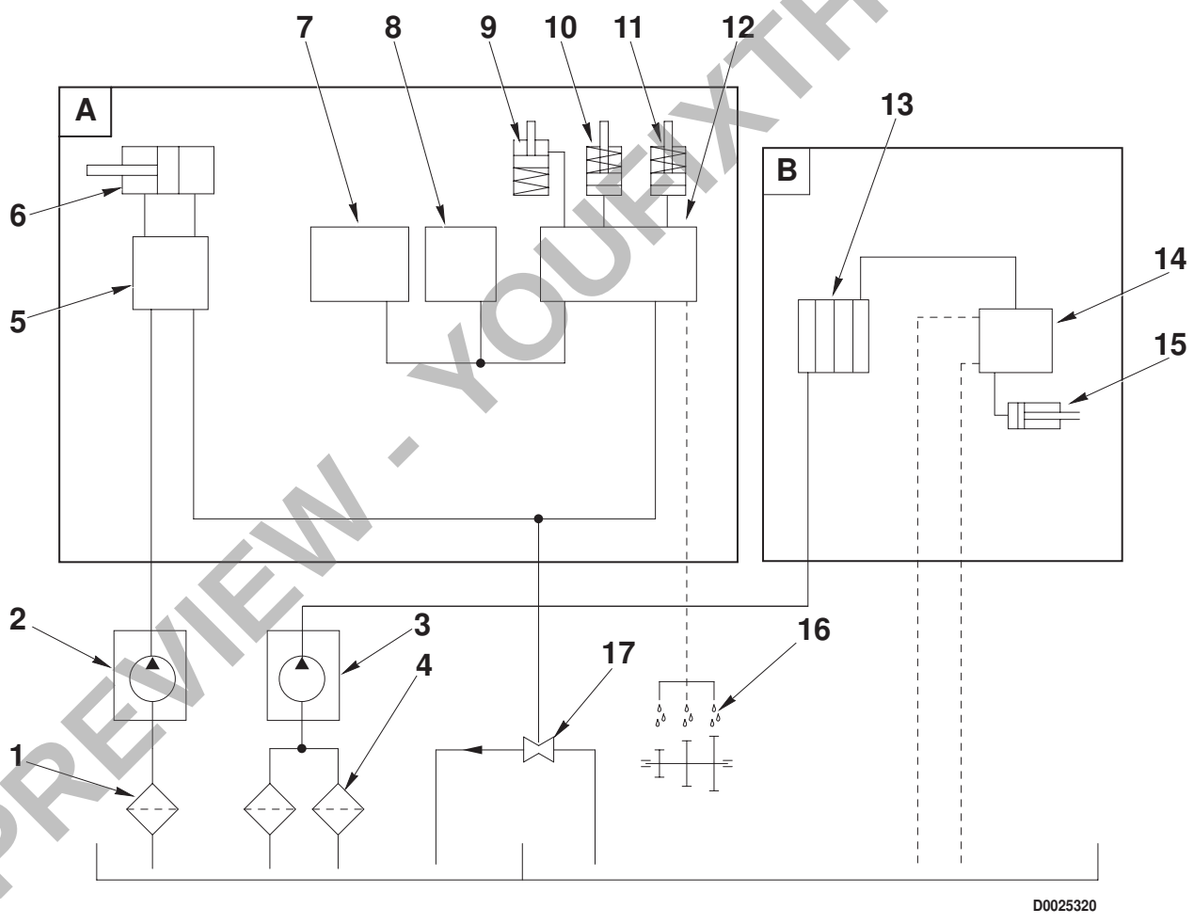


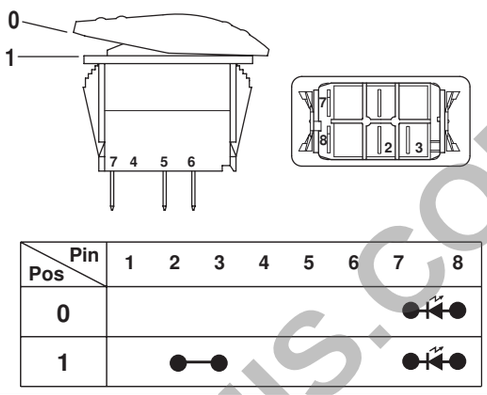
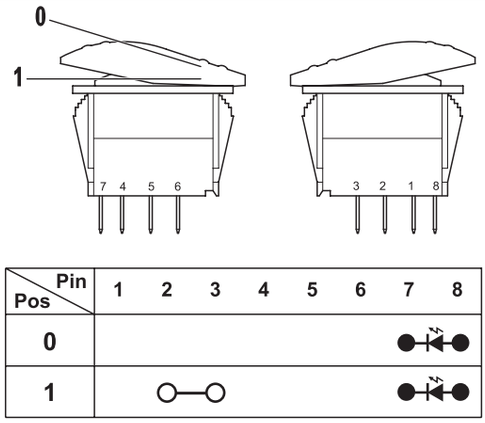
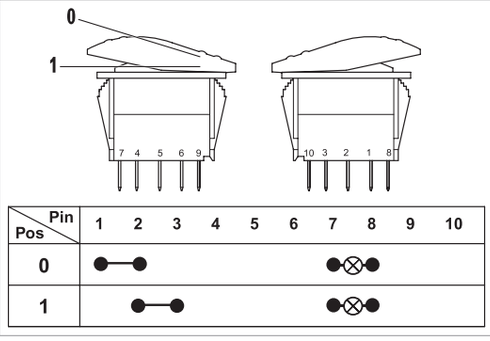
Fig.28 - Hydraulic system diagram

1. Suction line filter
2. Steering circuit gear pump
3. Lift gear pump
4. Suction line filter
5. Power steering
6. Steering cylinder
7. HML solenoid valve assembly

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WIRING DIAGRAMS

NO	DESCRIPTION	CODE	CHARACTERISTICS	CON-NECTOR
33	Corner lights switch	2.7659.156.0		X110
34	Wheel speed sensor	0.010.5612.0/10	Pin1 = 12V DC power supply; Pin2 = output signal; Pin3 = earth Between pin 2 and pin 3: 0.02V with sensor far from metals 12.0V with sensor near to metals (if kept near to metal, after 5 seconds it must return to 0V)	X19
35	4WD control solenoid valve	2.3729.697.0/10	See solenoid 0.010.2831.1	X20
36	Rear PTO control solenoid valve	2.3729.250.0/50	See solenoid 0.010.2831.1	X21
37	differential lock control solenoid valve	2.3729.697.0/10	See solenoid 0.010.2831.1	X22
38	H/L travel control solenoid valve	2.3729.697.0/10	See solenoid 0.010.2831.1	X24
39	Front PTO switch	2.7659.277.0		X48
40	Differential lock switch	2.7659.152.0/10		X50

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0.1.5 - Tightening torques

Bolts and nuts

DANGER

The tightening torques for certain specific components and special tightening methods are indicated in the relative assembly paragraphs.

The tightening torques indicated below refer to screws and nuts assembled without lubrication and, where applicable, with anaerobic threadlocking compound. the values apply to tightening on steel or cast iron components; for soft materials such as aluminium, copper, plastic, sheet metal or panels, the indicated tightening torques must be reduced by 50%.

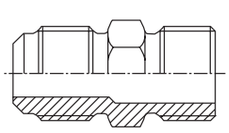
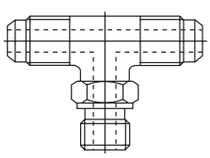
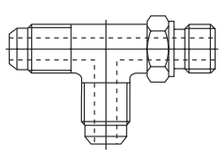
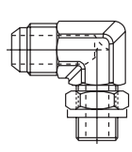
Tab.2

BOLT SIZE		BOLT CLASS					
		8.8		10.9		12.9	
		Nm	lb.ft.	Nm	lb.ft.	Nm	lb.ft.
COAR-SE	M6x1	8.0 – 8.8	5.9 – 6.5	11.8 – 13.0	8.7 – 9.6	13.8 – 15.2	10.2 – 11.2
	M8x1.25	19.4 – 21.4	14.3 – 15.8	28.5 – 31.5	21.0 – 23.2	33.3 – 36.9	24.5 – 27.2
	M10x1.5	38.4 – 42.4	28.3 – 31.2	56.4 – 62.4	41.6 – 46.0	67.4 – 74.4	49.7 – 54.8
	M12x1.75	66.5 – 73.5	49.0 – 54.2	96.9 – 107	71.4 – 78.9	115 – 128	84.8 – 94.3
	M14x2	106 – 117	78.1 – 86.2	156 – 172	115.0 – 126.8	184 – 204	135.6 – 150.3
	M16x2	164 – 182	120.9 – 134.1	241 – 267	117.6 – 196.8	282 – 312	207.8 – 229.9
	M18x2.5	228 – 252	168.0 – 185.7	334 – 370	246.2 – 272.7	391 – 432	288.2 – 318.4
	M20x2.5	321 – 355	236.6 – 261.6	472 – 522	347.9 – 384.7	553 – 611	407.6 – 450.3
	M22x2.5	441 – 487	325.0 – 358.9	647 – 715	476.8 – 527.0	751 – 830	553.5 – 611.7
	M24x3	553 – 611	407.6 – 450.3	812 – 898	598.4 – 661.8	950 – 1050	700.2 – 773.9
	M27x3	816 – 902	601.4 – 664.8	1198 – 1324	882.9 – 975.8	1419 – 1569	1045.8 – 1156.4
FINE	M8x1	20.8 – 23.0	15.3 – 17.0	30.6 – 33.8	22.6 – 24.9	35.8 – 39.6	26.4 – 29.2
	M10x1.25	40.6 – 44.8	29.9 – 33.0	59.7 – 65.9	44.0 – 48.6	71.2 – 78.6	52.5 – 57.9
	M12x1.25	72.2 – 79.8	53.2 – 58.8	106 – 118	78.1 – 87.0	126 – 140	92.9 – 103.2
	M12x1.5	69.4 – 76.7	51.1 – 56.5	102 – 112	75.2 – 82.5	121 – 134	89.2 – 98.8
	M14x1.5	114 – 126	84.0 – 92.9	168 – 186	123.8 – 137.1	199 – 220	146.7 – 162.1
	M16x1.5	175 – 194	129 – 143	257 – 285	189.4 – 210.0	301 – 333	221.8 – 245.4
	M18x1.5	256 – 282	188.7 – 207.8	375 – 415	276.4 – 305.9	439 – 485	323.5 – 357.4
	M20x1.5	355 – 393	261.6 – 289.6	523 – 578	385.5 – 426.0	611 – 676	450.3 – 498.2
	M22x1.5	482 – 532	355.2 – 392.1	708 – 782	521.8 – 576.3	821 – 908	605.1 – 669.2
	M24x2	602 – 666	443.7 – 490.8	884 – 978	651.5 – 720.8	1035 – 1143	762.8 – 842.4

Fittings

The tightening torques indicated below refer to fittings assembled on any material.

Tab.3

ME-TRIC		Straight end fittings	T" end fittings	L" end fittings	90° end fittings
					

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20.4 - ECU ALARMS

20.4.1 - Instrument panel alarms

The instrument panel signals any malfunctioning of the components it manages to the operator with the display on the right-hand side. Faults are indicated using a system of coded flash sequences that identify the device affected.

List of alarms signalled on the “ALARM” light

Tab.12

CODE ON INSTRU-MENT PANEL	DISPLAY ON ART	ALARM DESCRIPTION
I18	18	The instrument panel indicates that the coolant temperature sensor is short-circuiting to ground.
I19	19	The instrument panel indicates that the coolant temperature sensor is shorting to a positive feed.
I20	20	The instrument panel indicates that the fuel level sensor is short-circuiting to battery positive.
I21	21	The instrument panel indicates that the alternator is faulty or disconnected (does not receive the “W” signal).
I22	22	Alarm available but not utilized
I23	23	The instrument panel indicates that the preheating control relay is disconnected.
I24	24	The instrument panel indicates that the preheating control relay is short-circuiting to ground.
I25	25	The instrument panel indicates that the preheating control relay is short-circuiting to battery positive.
I26	26	The instrument panel indicates that the preheating control relay is short-circuiting to battery positive or disconnected.
I32	32	Alarm available but not utilized
I33	33	Alarm available but not utilized
I34	34	Alarm available but not utilized
I35	35	Alarm available but not utilized
I36	36	The instrument panel indicates that the preheating device is on, even though it should be off.
I37	37	The instrument panel indicates that the preheating device is off, even though it should be on.
I38	38	Alarm available but not utilized
I39	39	Alarm available but not utilized
I40	40	Alarm available but not utilized

List of alarms displayed on the ART@

Tab.13

DISPLAY ON ART	CODE ON INSTRU-MENT PANEL	ALARM DESCRIPTION
18	I18	The instrument panel indicates that the coolant temperature sensor is short-circuiting to ground.
19	I19	The instrument panel indicates that the coolant temperature sensor is shorting to a positive feed.
20	I20	The instrument panel indicates that the fuel level sensor is short-circuiting to battery positive.
21	I21	The instrument panel indicates that the alternator is faulty or disconnected (does not receive the “W” signal).
22	I22	Alarm available but not utilized
23	I23	The instrument panel indicates that the preheating control relay is disconnected.
24	I24	The instrument panel indicates that the preheating control relay is short-circuiting to ground.
25	I25	The instrument panel indicates that the preheating control relay is short-circuiting to battery positive.

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Differential unit

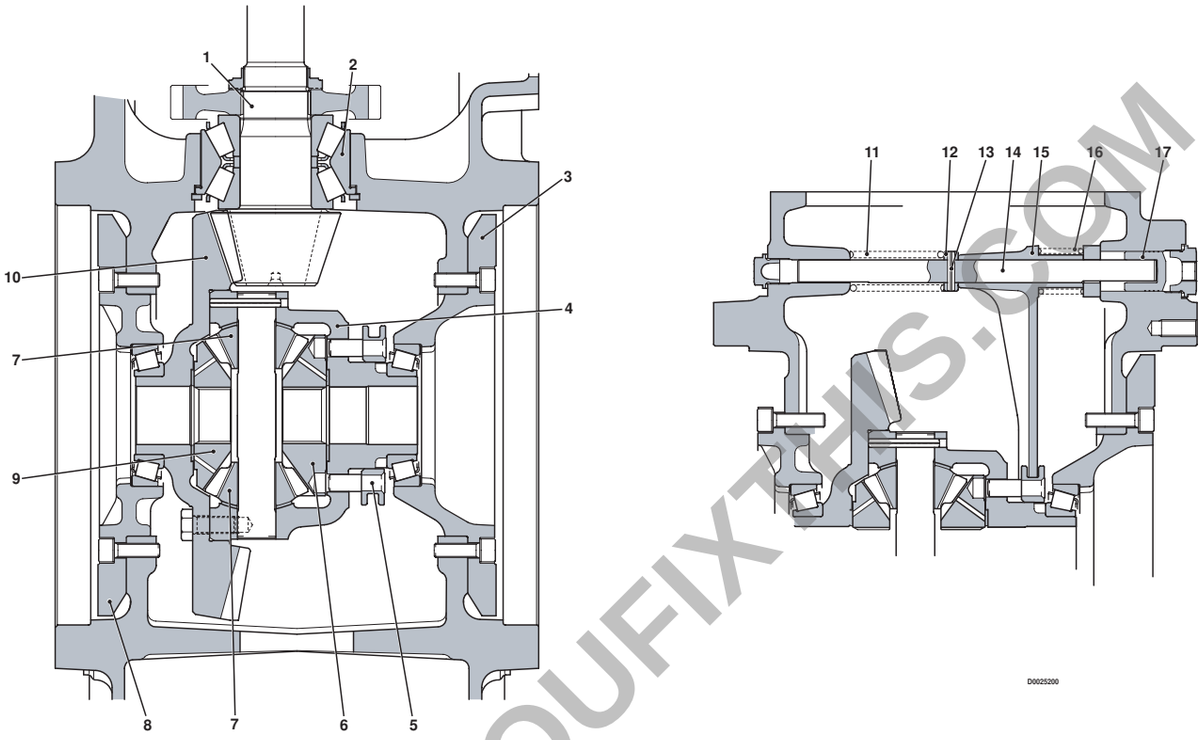


Fig.16 - Differential unit

1. Pinion
2. Pinion bearing
3. Differential carrier
4. Differential casing
5. Differential lock sleeve
6. Sun gear
7. Planet gear
8. Differential carrier
9. Sun gear
10. Bevel crown wheel
11. Spring
12. Spacer
13. Spring pin
14. Rod
15. Differential lock fork
16. Spring
17. Piston

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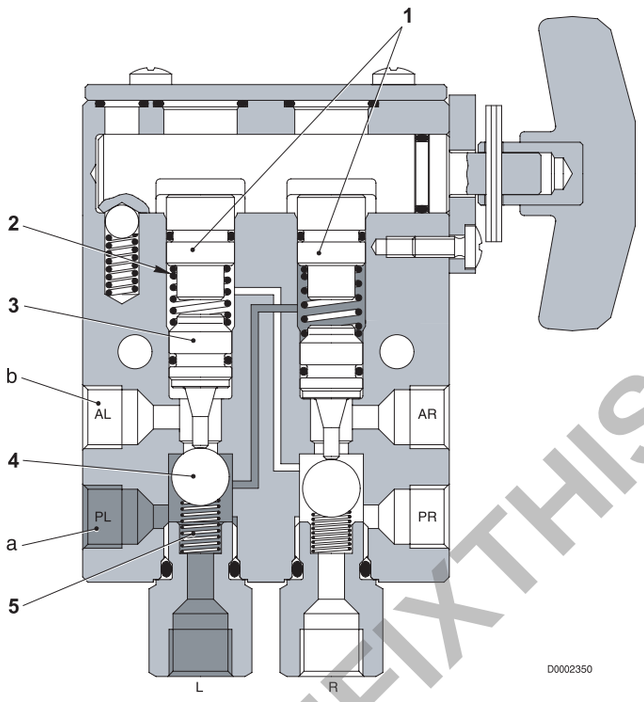


Fig.56

- When the valve is activated, pistons (1) are in their high position.
- When one of the brake pedals is pressed (e.g. the LH pedal), the oil pressure pushes plunger (3) upwards, overcoming the force of spring (2).
- At the same time ball (4) is pushed upwards by spring (5) so that it closes the connecting passage between chambers a and b.
- As a result, the oil flow from the pump is directed only towards the rear wheel brake.

When the valve is activated and both brake pedals are pressed

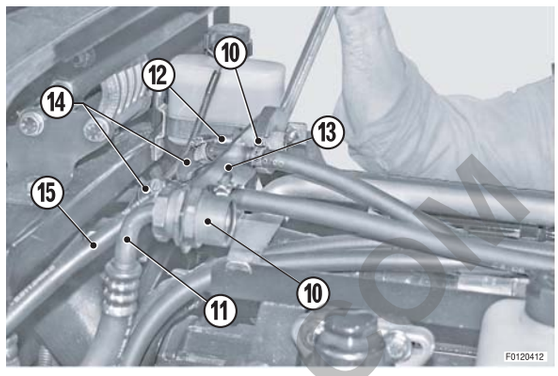
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4 For versions with cab

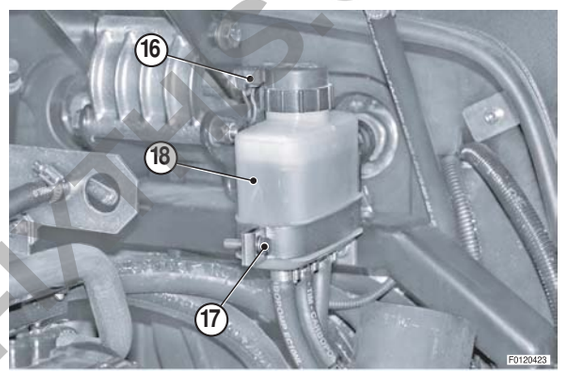
Remove nuts (10) and disconnect pipes (11) and (12) from bracket (13).

Loosen clamps (14) and disconnect heater pipes (15).

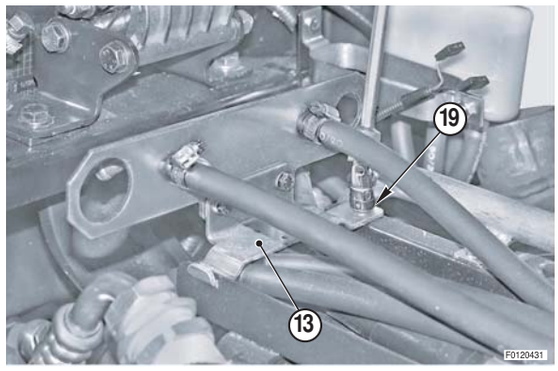


5 For all versions

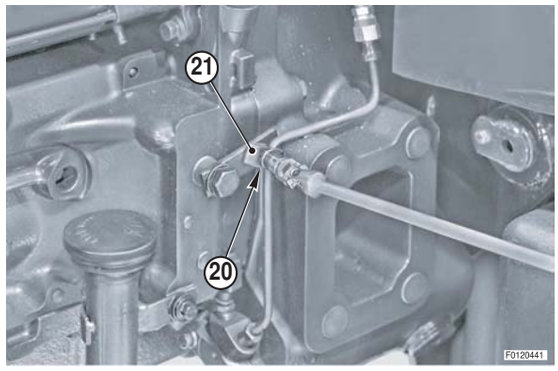
Disconnect connectors (16), remove screw (17) and move brake and clutch fluid compensation tank (18) towards the rear of the tractor.



6 Remove screw (19) and move bracket (13) forwards.



7 Loosen nut (20) and remove clamp (21).



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30.3.6 - Gearbox and shuttle assy. - complete unit (D0.09.03)

Previous operations:

See para. 30.6.2 - Front hoods - Page 30-268 - (G0.01.01)

See para. 30.11.2 - Rear wheels - Page 30-405 - (S0.02.01)

See para. 30.2.4 - Fuel tank - Page 30-26 - (C0.03.01)

See para. 30.3.4 - Clutch housing - a... - Page 30-37 - (D0.02.01) - (Explorer 3 85)

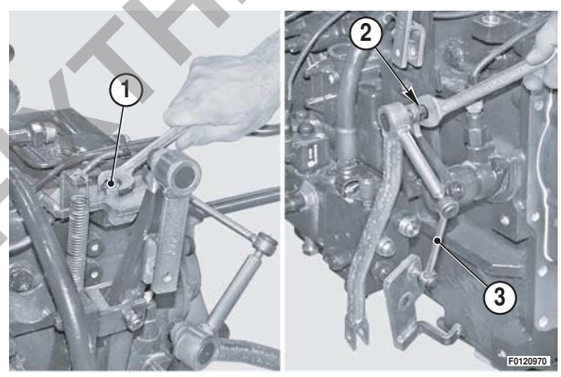
See para. 30.3.5 - Clutch housing - a... - Page 30-42 - (D0.02.01) - (Explorer 3 100)

See para. 30.2.6 - Exhaust pipe - Tra... - Page 30-31 - (C0.06.01)

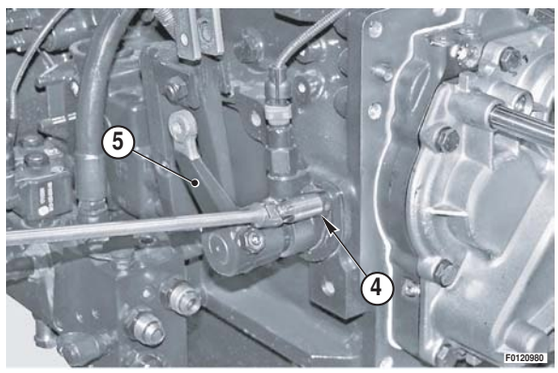
See para. 30.3.29 - Changing transmis... - Page 30-127 - (D0.00.01)

Removal

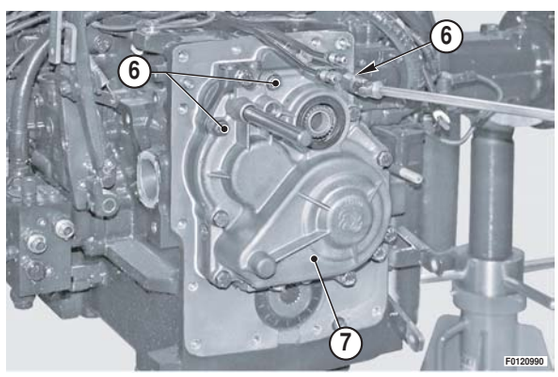
1 Remove screw (1) and nut (2) and remove lever (3).



2 Remove screws (4) and remove gear control lever (5).



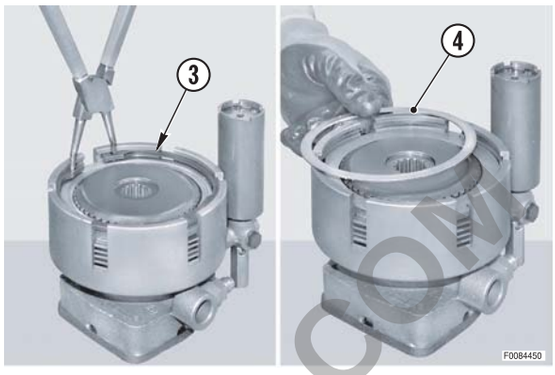
3 Remove screws (6) (n°10) and remove gearbox assembly (7).



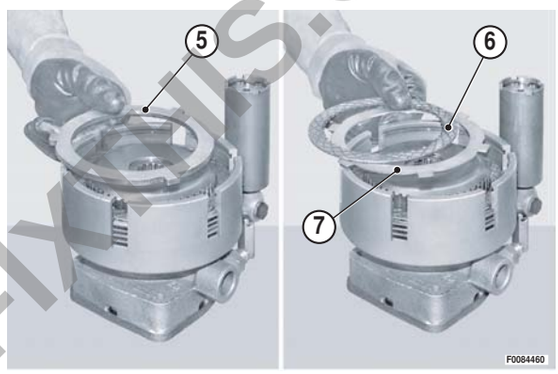
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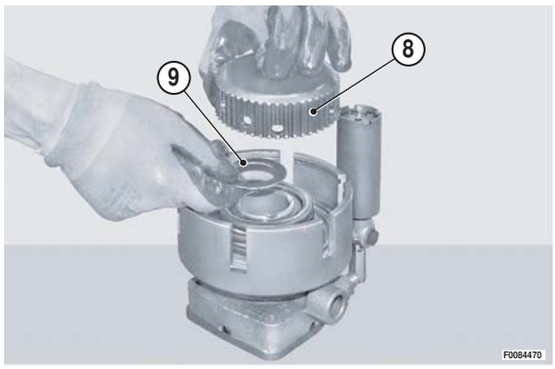
3 Remove circlip (3) and remove spacer (4).



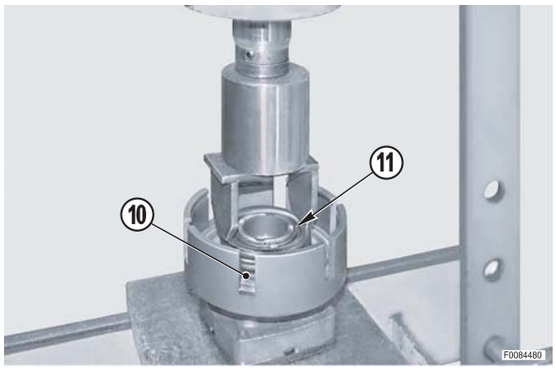
4 Remove steel disc (5) and then remove all friction discs (6) and steel discs (7).



5 Remove hub (8) and shim (9).



6 Using a press and a suitable tool, lightly compress spring (10) and remove circlip (11).

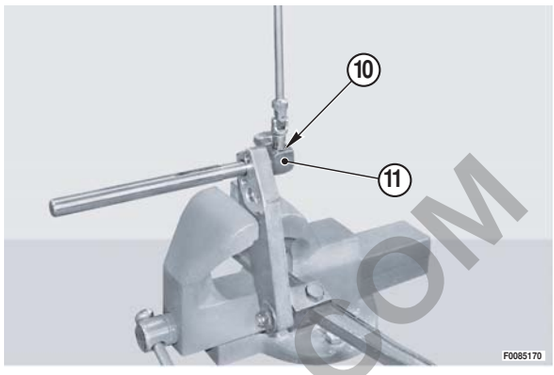


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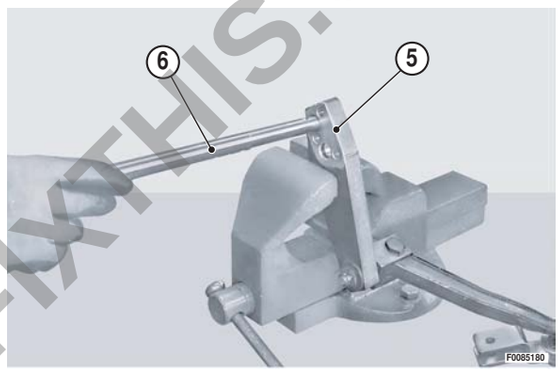
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5 Remove screw (10) and remove yoke (11).

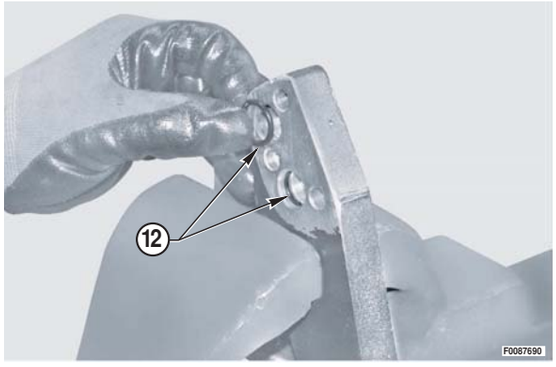
- Renew the screw on reassembly.



6 Remove rod (6) from lever support (5).



7 Remove O-rings (12).



Assembly

To assemble, follow the disassembly steps in reverse order and use caution in relation to the following procedures:

Procedure 3

- Mating face: Silastic

Procedure 2

- Screw: 20 Nm (14.7 lb.ft.)

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METHOD

Procedure 2

- Lubricate the roller cages (4).
- Roller cages: oil

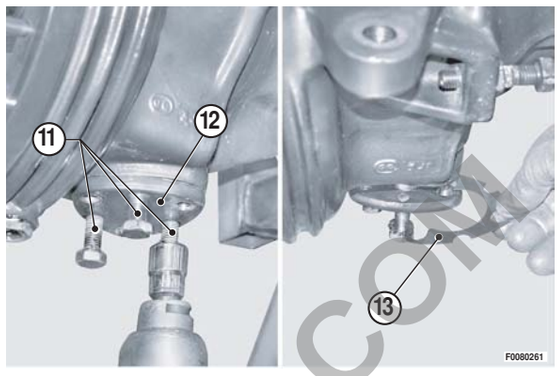
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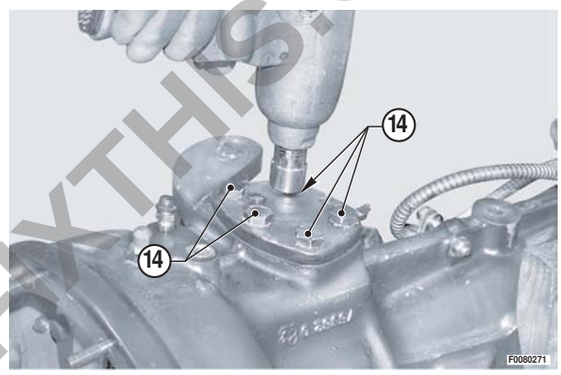
METHOD

7 Tighten screws (11) into the three threaded holes and withdraw pin (12).

Recover shim (13).



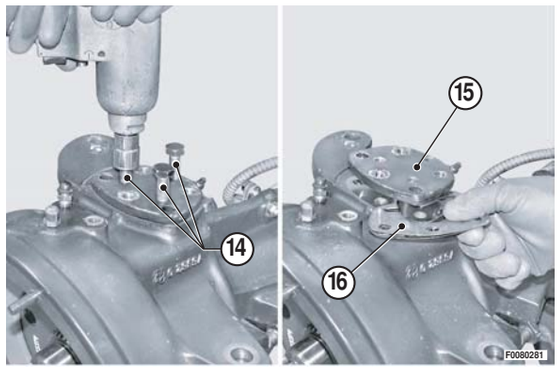
8 Remove screws (14).



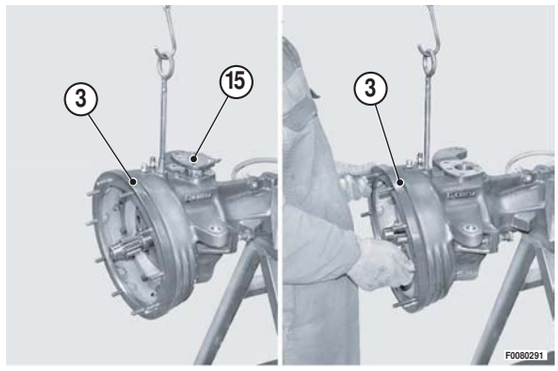
9 Tighten the three screws (14) into the threaded holes and partially withdraw pin (15).

Recover shims (16).

- Note the quantity of shims (16) installed under the upper pin (15).



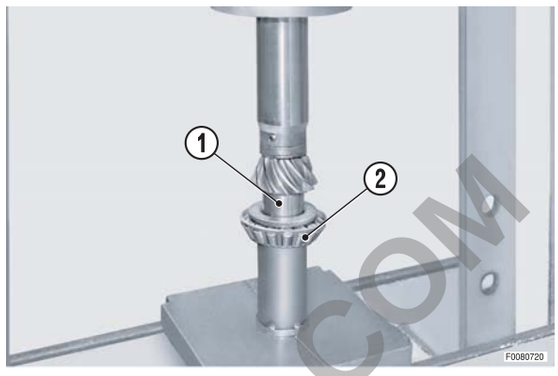
10 Attach the steering knuckle housing (3) to a hoist, remove pin (15) and lift steering knuckle housing (3) clear of the tractor.



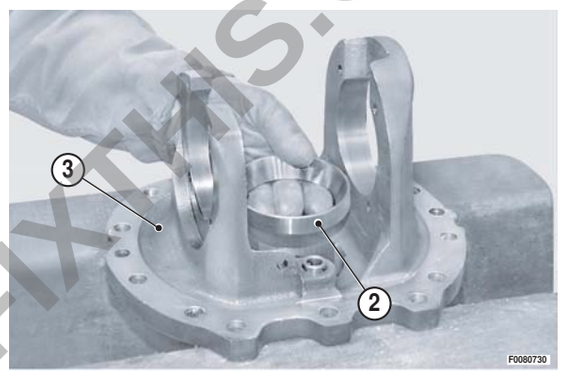
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2 Install bearing inner race (2) on pinion shaft (1).



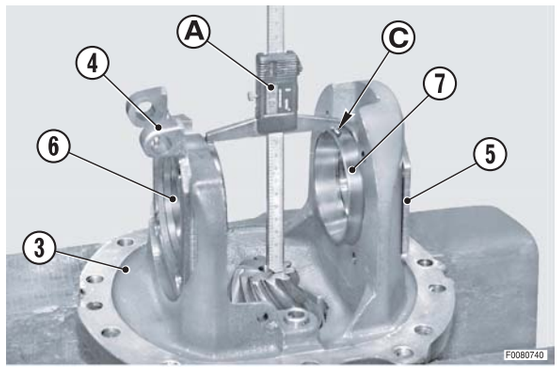
3 Install bearing outer race (2) in differential carrier (3).



4 Install pinion (1) and flanges (4) and (5) complete with outer bearing races (6) and (7) in differential carrier (3) and, using a depth gauge “A”, measure distance “X”.

- Rotate the pinion in both directions to seat the bearing.

  Place onto the outer bearing race (7) on the crown wheel side a cylindrical pin “C” 2.5 mm (code 2.1651.109.0) in diameter, to make up the difference between the outside diameters of the bearings (7) (Ø90) and (6) (Ø85).



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30.6.10 - Brake master cylinders

Removal

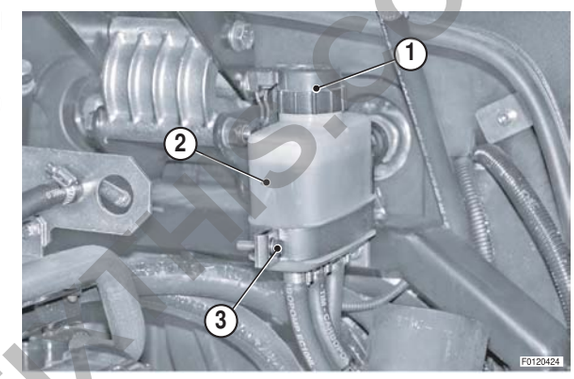
1

DANGER

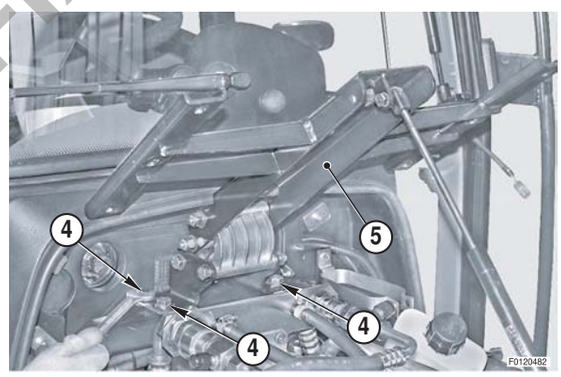
Disconnect the lead from the battery negative terminal (-) and apply the parking brake.

2 Remove cap (1) and draw off the fluid contained in brake fluid reservoir (2).

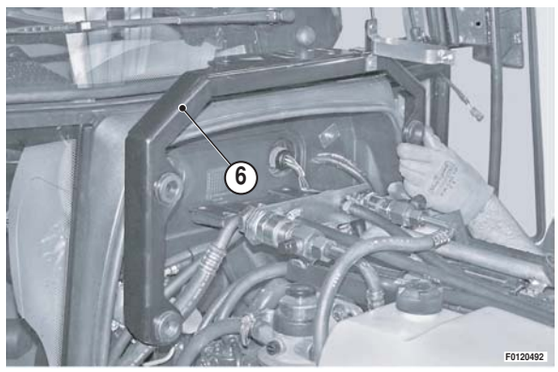
Remove screw (3) and move brake fluid compensation tank (2) towards the rear of the tractor.



3 Remove screws (4) and tilt hood support (5) towards the front of the tractor.



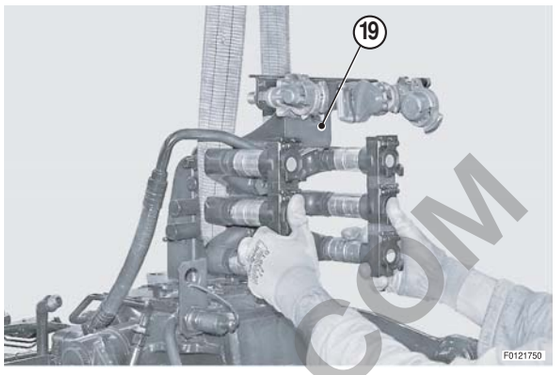
4 Remove surround (6).



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13 Remove directional control valve assy (19).



Installation

Refitting is the reverse of removal. Use caution in relation to the following procedures:

Procedure 10

- Screws: Loctite 542

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Procedure 4

- Nut: 200±10 Nm (147.4±7.4 lb.ft.)

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30.10.14 - 3-point linkage

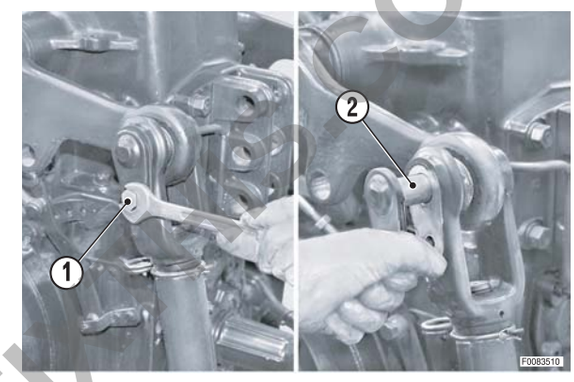
Removal

1

DANGER

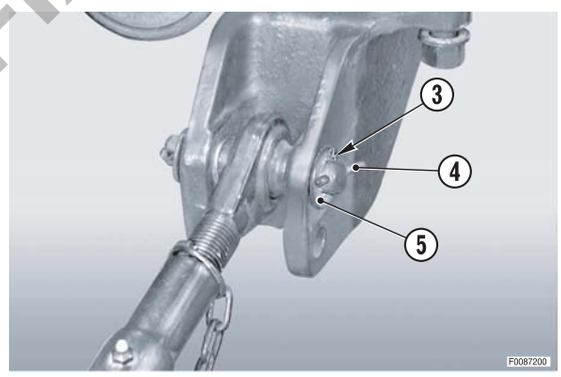
Disconnect the lead from the negative terminal (-) of the battery and apply the parking brake.

2 Remove screw (1) and pin (2).



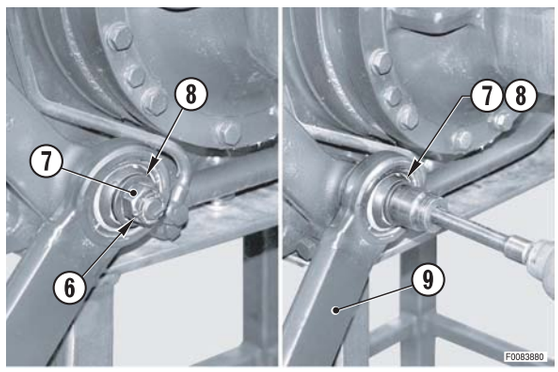
3 Remove split pin (3) and remove pin (4) and washer (5).

- Always renew the split pin.



4 Remove split pin (6), nut (7) and washer (8).

Remove 3-point linkage assembly (9).



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40.3 - SYSTEMS

40.3.1 - Earthing points

Version with front battery

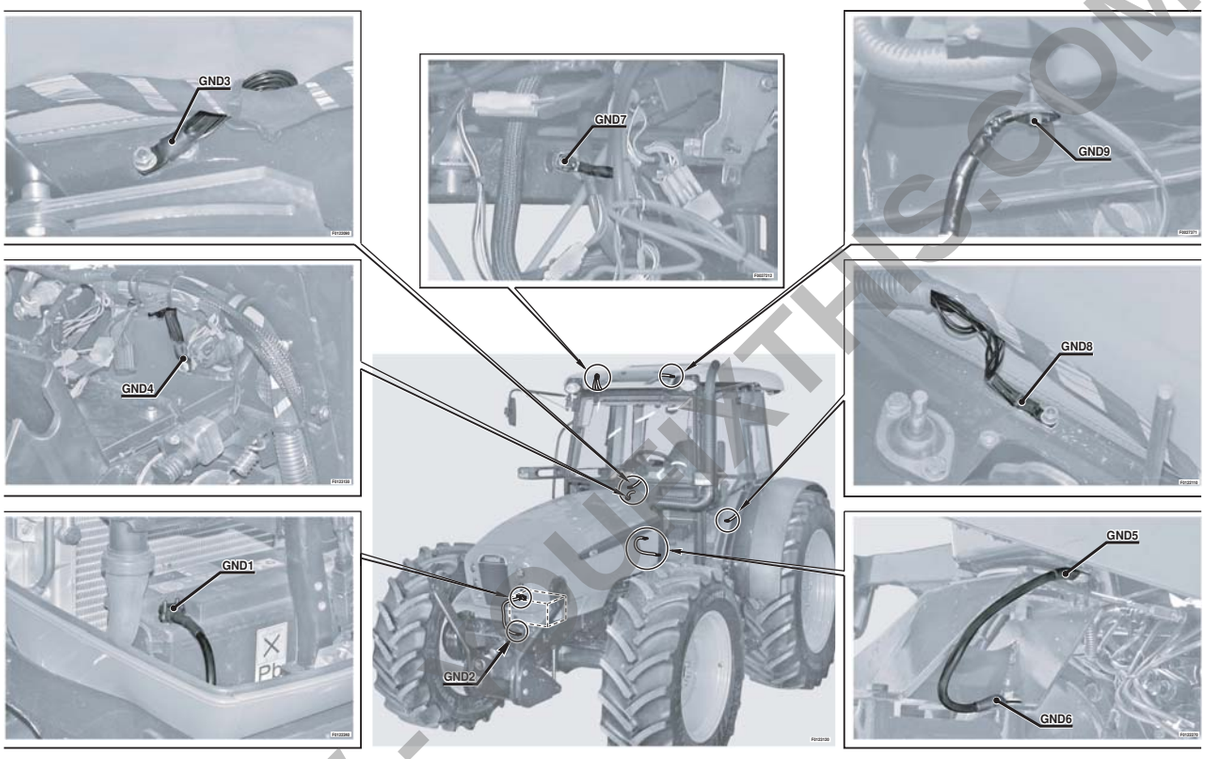


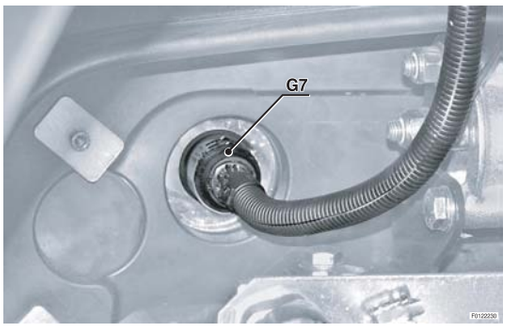
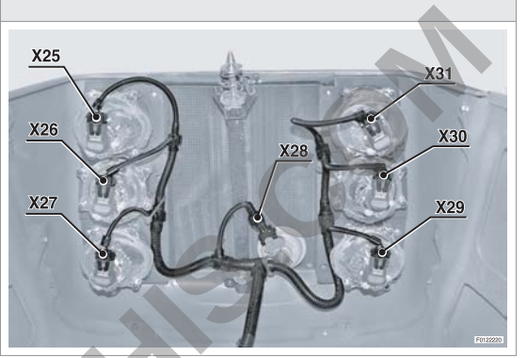
Fig.121

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Connector positions

Tab.24

POS.		POS.	
1		2	

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40.4.22 - Roof line wiring connector positions - Tractor with standard cab

View of wiring

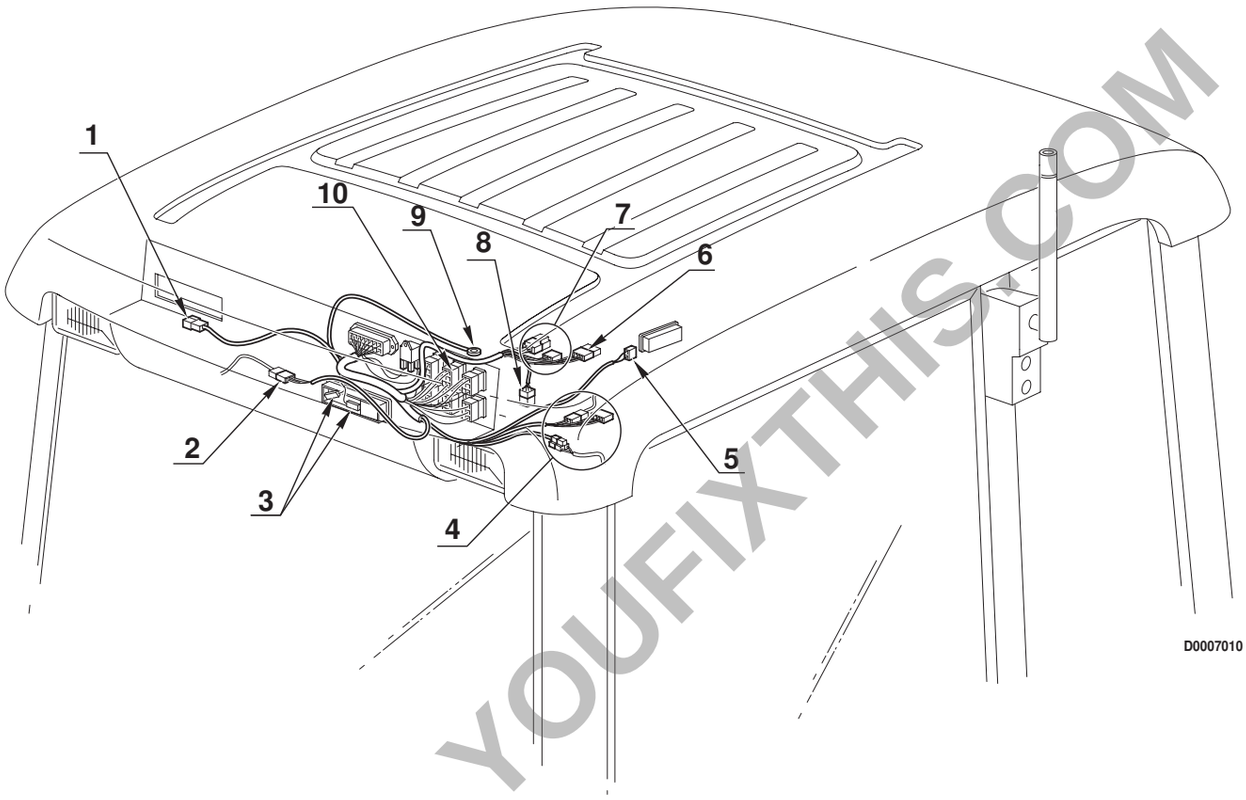


Fig.169

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40.4.43 - Air conditioning wiring - Tractor with high-visibility cab - 0.010.2560.0

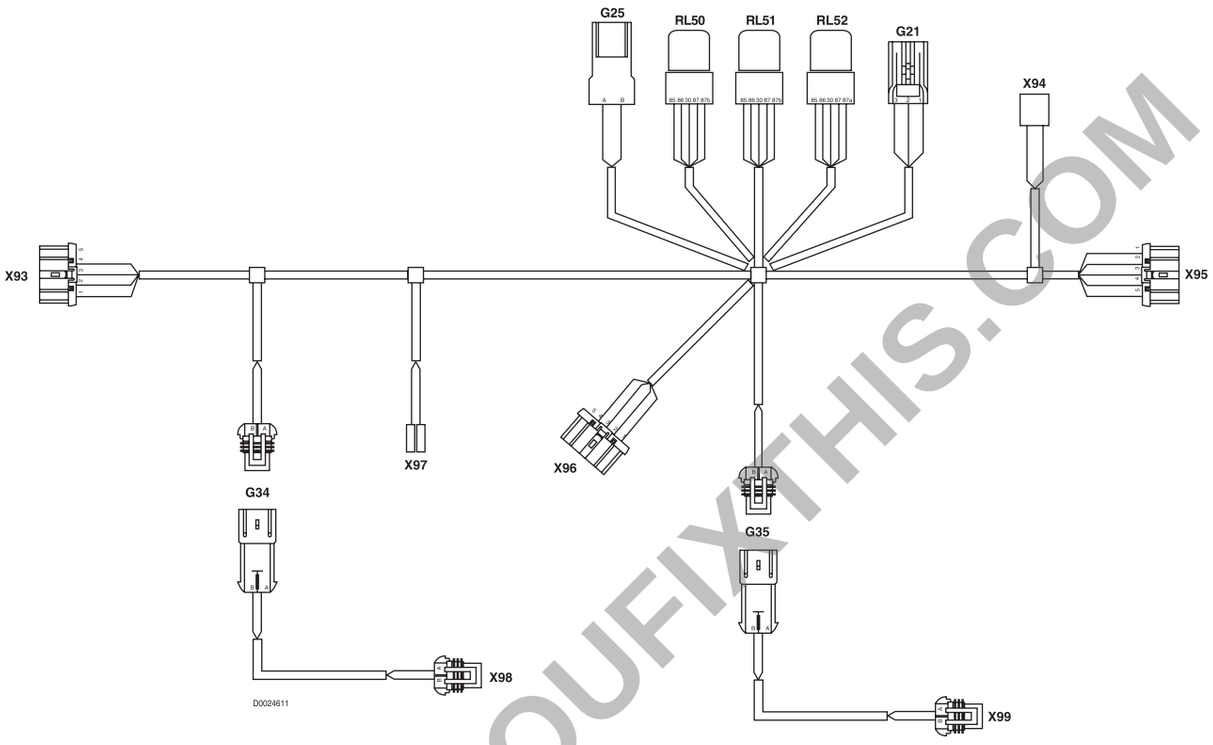


Fig.194 - Air conditioning wiring - Tractor with high-visibility cab (1/2)

Connectors list

- G21 - To roof line wiring
- G25 - To roof line wiring
- G34 - Wiring connector
- G35 - Wiring connector
- RL50 - 3rd fan speed relay
- RL51 - Max. fan speed relay
- RL52 - Compressor and A/C 1st speed start relay
- X93 - LH resistor
- X94 - A/C switch
- X95 - Fan speed selector switch
- X96 - RH resistor
- X97 - Air conditioning temperature thermostat
- X98 - LH fan
- X99 - RH fan

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