WORKSHOP MANUAL

EXPLORER II Special
70 - 75 HP
80 - 85 - 90 - 95 HP

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SAME

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SECTION 10

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SAFETY NOTES

To ensure that machines entrusted to Authorised Service Centres for repair or overhaul continue to function correctly, it is very important that all repair work is carried out in the prescribed manner.

The procedures for checks and repairs indicated in this manual are safe and effective.

Some of the operations described require the use of special tools and equipment; these tools have been specifically designed for the intended purpose and may be ordered directly from the Manufacturers.

DO NOT USE MAKESHIFT TOOLS; not only is there a risk of personal injury, but such tools are rarely suited to the purpose for which they are used.

To prevent injury to operators, the symbols ⚠ and ⚠ are used in this manual to indicate the safety precautions required. The warnings accompanying these symbols must always be adhered to carefully.

In potentially hazardous situations, always give priority to personal safety and take the necessary actions to eliminate the danger.

GENERAL SAFETY RULES

1 - Even if you have a thorough knowledge of the machine as regards its components, operation and controls, always take particular care when carrying out manoeuvres; remember that the machine you are working on is in need of repair or overhaul and consequently may not always behave as expected.

2 - Before starting work, clean the machine thoroughly to remove all mud, dust and road dirt. Also clean the cab to remove all traces of oil, snow and ice from the access steps and grab rails.

3 - When climbing up to or down from the cab, always ensure you maintain three points of contact at a time (foot or handholds) in order to keep your balance and prevent accidental falls.

4 - Always take special care when carrying out fault diagnosis operations; these operations often require two persons, who must never stand in front of the wheels when the engine is running.

5 - When carrying out checks and repairs, wear close-fitting clothing, safety goggles and protective gloves that are suitable for the task (cleaning, draining fluids, repairs).
When working near moving parts, long hair should be gathered up and secured safely under a cap to prevent the risk of entanglement and severe injury.

6 - Do not allow anyone who is not directly involved in the work to approach the machine; ensure that they remain at a safe distance.

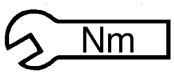
7 - Keep well clear of moving parts; when the engine is running, some moving parts are not easily visible and therefore present a risk of entanglement, even if protected by safety guards.

8 - Ensure that the area is well ventilated before starting the engine in order to avoid the formation of dangerous concentrations of toxic gases; always connect suitable fume extraction equipment to the exhaust pipe.

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TIGHTENING TORQUES



1. BOLTS AND NUTS

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

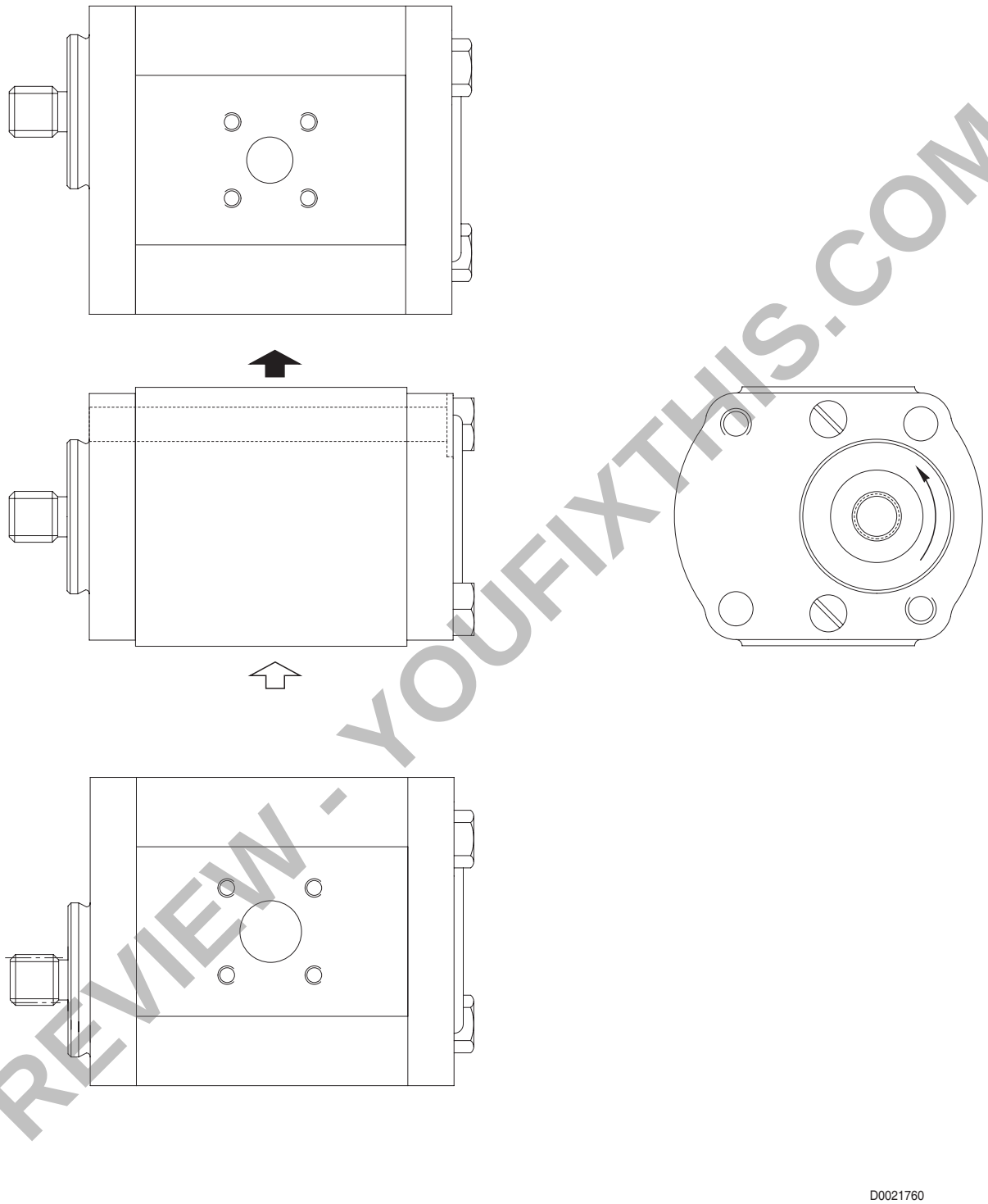
★ The tightening torques indicated below refer to bolts and nuts assembled without lubrication and, where applicable, with anaerobic threadlocking compound.
The values apply to tightening on steel or cast iron components; for soft materials such as aluminium, copper, plastic, sheet metal or panels, the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

BOLT SIZE		BOLT CLASS					
		8.8		10.9		12.9	
		Nm	lb.ft.	Nm	lb.ft.	Nm	lb.ft.
COARSE THREAD	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 THREAD	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

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4.3 STEERING CIRCUIT GEAR PUMP



D0021760

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CHARACTERISTICS

- **Versions 70 - 75**
  Displacement: 8 cc/rev
  Maximum operating pressure: 155 bar (2248 psi)
- **Versions 80 - 85 - 90 - 95**
  Displacement: 11 cc/rev
  Maximum operating pressure: 155 bar (2248 psi)

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4. HYDRAULIC SYSTEM

DESCRIPTION

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

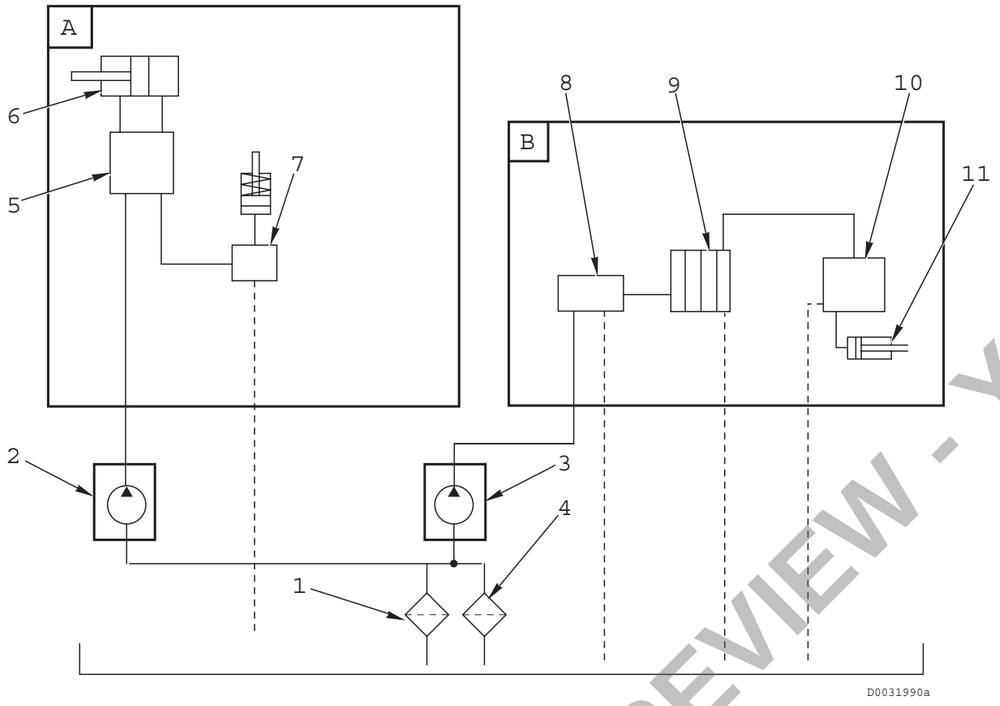
A - Steering circuit.

B - -Lift and auxiliary services 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

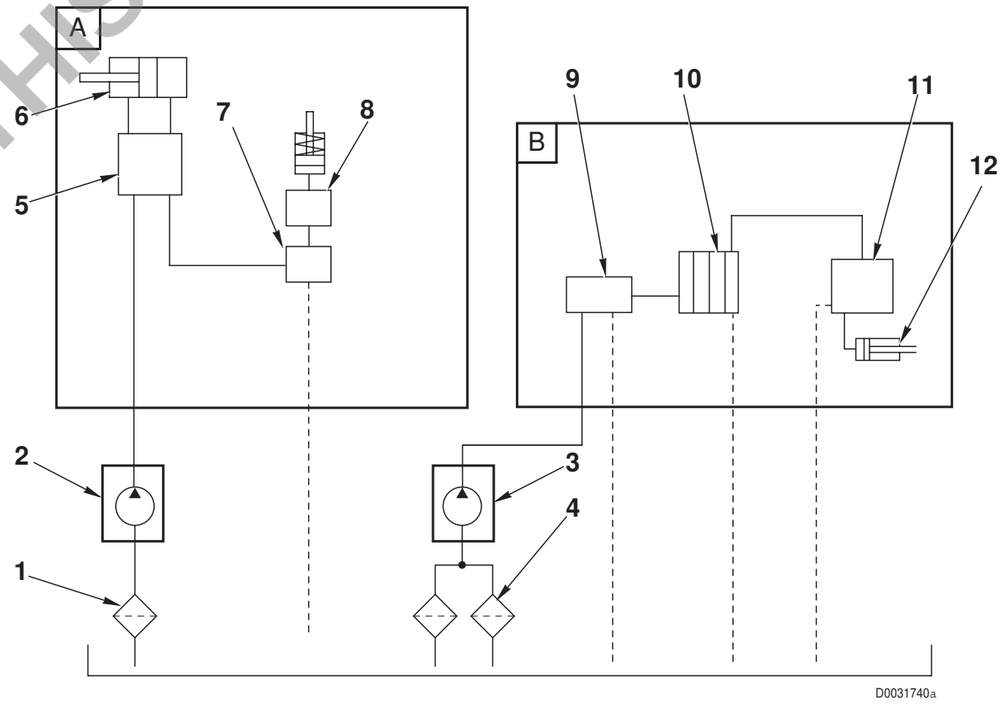
The oil delivered by the pumps is distributed to devices that control and direct the flow under pressure to the actuators, which in turn convert hydraulic energy into mechanical energy.

VERSIONS 70 - 75



1 - Suction line filter
2 - Steering circuit gear pump
3 - Lift gear pump
4 - Suction line filter
5 - Power steering
6 - Steering cylinder
7 - Rear PTO clutch and pressure holding valve
8 - Hydraulic trailer braking valve
9 - Auxiliary services control valve
10 - Lift control valve
11 - Lift control cylinder

VERSIONS 80 - 85 - 90 - 95



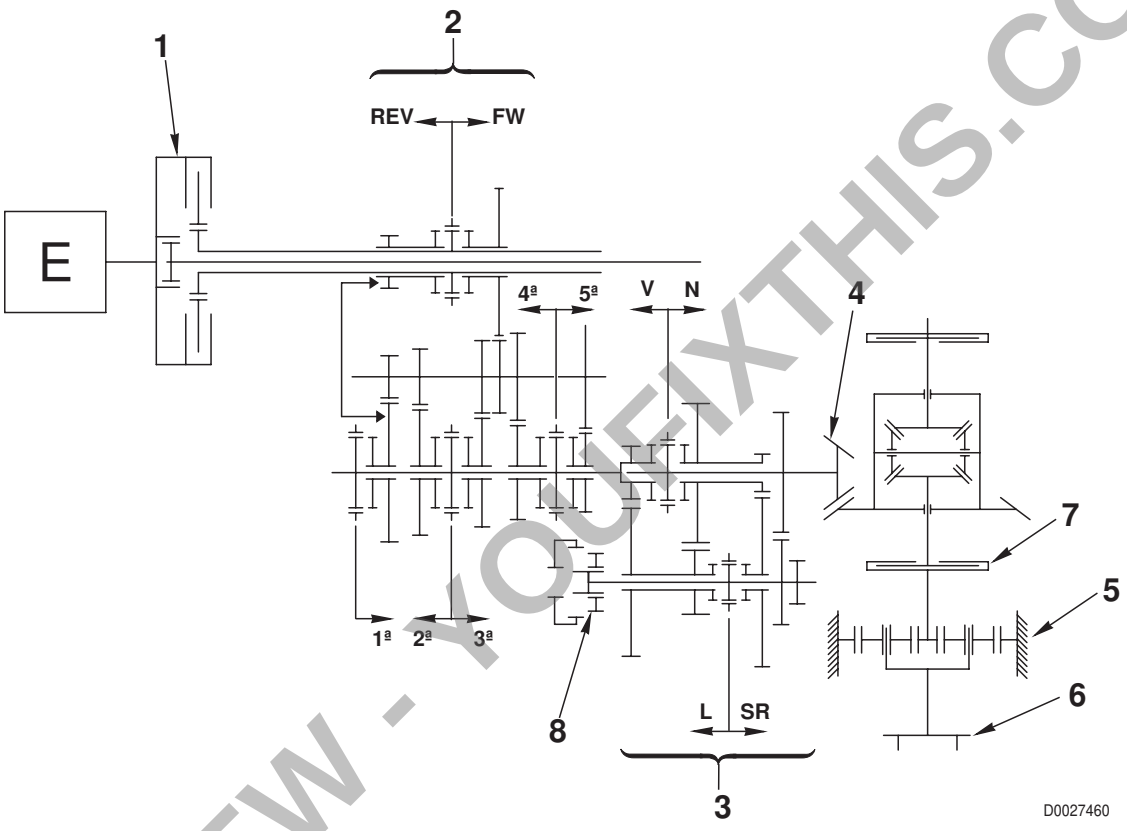
1 - Suction line filter
2 - Steering circuit gear pump
3 - Lift gear pump
4. Suction line filter
5 - Power steering
6 - Steering cylinder
7 - Pressure holding valves unit
8 - Rear PTO engagement clutch
9 - Hydraulic trailer braking valve
10 - Auxiliary services control valve
11 - Lift control valve
12 - Lift control cylinder

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DESCRIPTION

- The transmission receives drive from the engine and transmits it through the clutches assembly (1), gearbox and reverse shuttle unit (2), "mini-reduction" underdrive (3), range gearbox control assembly (5) to bevel drive gears (6). The drive is transmitted to final drive reduction units (7) and to wheels (8).
  There is a braking device (9) fitted between bevel drive gears (6) and final drive reduction unit (7) having the function of service brake while the parking brake is mounted on 4WD output shaft (10).



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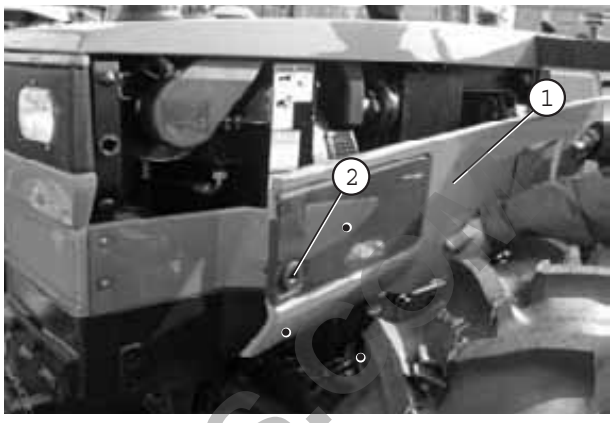
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FRONT HOODS

Removal

Remove the key from the starter switch and apply the parking brake.

1 - Remove two knobs (2) and remove side panel (1). Operation to be carried out on both sides (rh-lh).

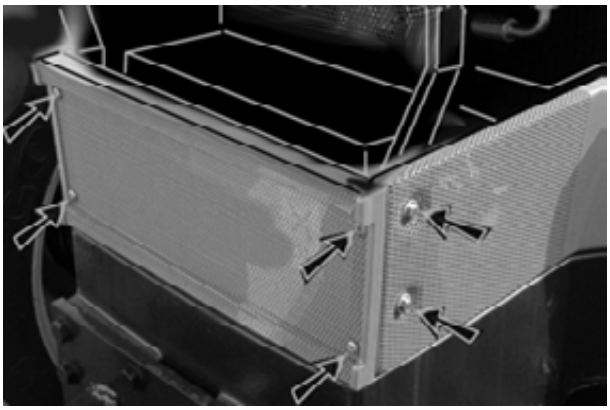


2 - Remove the 4 screws securing the front part of the hood to the support frame (the 4 screws are located at the rear of the front grille). Disconnect the electrical wiring from the headlights and remove the front grille.



3 - Detach side and front partitionsremoving the screws shown in the figure.
To remove the side partitions you need to remove also the 2 screws located internally for fixing to the front support of the tractor.

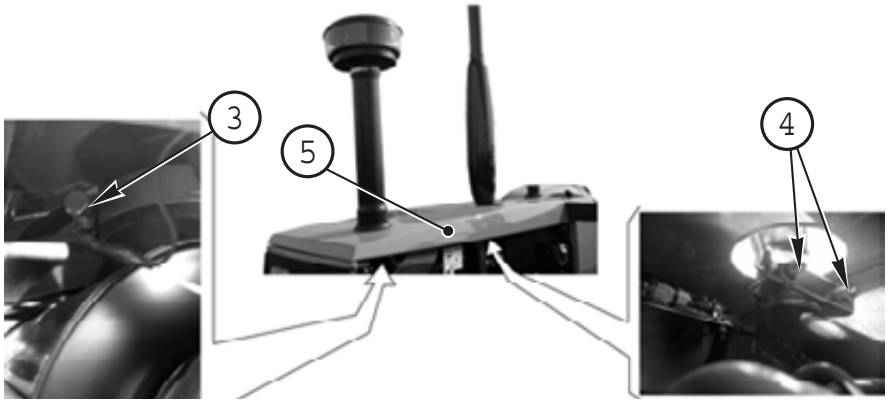
.



4 - Loosen screw (3) and remove the cyclone filter.

Loosen screws (4) and remove the exhaust pipe.

These operations are necessary in order to remove hood (5)



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2. WIRING LOOMS

FRONT AND CENTRAL WIRING LOOM (1/6)

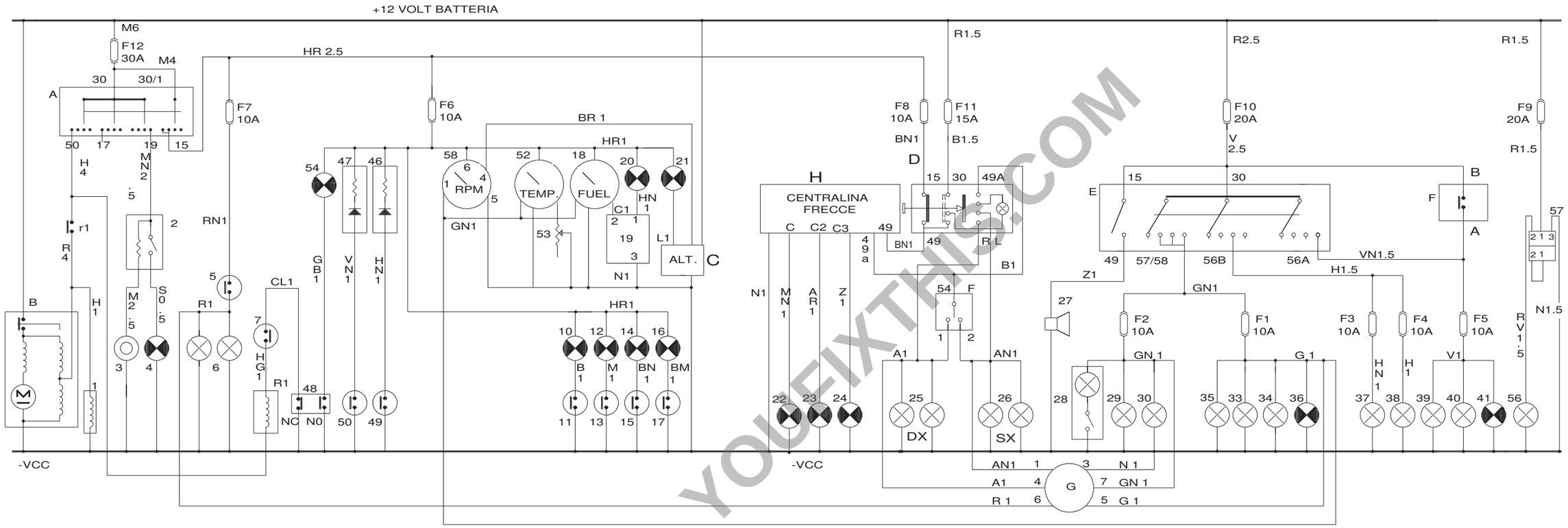
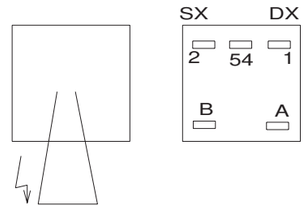


TABELLA COLORI / COLOURS TABLE			
M	Marrone/Brown	C	Arancio/Orange
V	Verde/Green	A	Azzurro/Blue
Z	Viola/Violet	B	Bianco/White
N	Nero/Black	L	Blu/Dark Blue
S	Rosa/Pink	G	Giallo/Yellow
R	Rosso/Red	H	Grigio/Gray



List of components

1 - preheater solenoid valve
2 - thermostarter heating element
3 - thermostarter
4 - thermostarter indicator light
5 - STOP sensor
6 - brake lights
7 - starting enable
9 - rear PTO indicator light
10 - clogged air cleaner warning light
11 - pressure switch - air cleaner clogging sensor
12 - engine oil warning light
13 - engine oil pressure switch
14 - gearbox lubrication oil warning light
15 - gearbox lubrication oil pressure switch
16 - handbrake warning light
17 - handbrake sensor
18 - fuel gauge
19 - fuel level sensor
20 - low fuel warning light
21 - battery charging warning light
22 - direction indicators warning light
23 - 1st trailer direction indicators warning lamp
24 - 2nd trailer direction indicators warning lamp
25 - RH direction indicators
26 - LH direction indicators
27 - horn
28 - rear worklight
29 - front LH sidelight
30 - rear RH sidelight
33 - front RH sidelight
34 - rear LH sidelight
35 - number plate light
36 - sidelights indicator light
37/38 - RH/LH low beam headlight
39/40 - RH/LH low beam headlight
41 - full beam headlights indicator light
46 - 540 rpm PTO LED
47 - 1000 rpm PTO LED
48 - PTO enable sensor and warning light
49 - 540 rpm PTO sensor
50 - 1000 rpm PTO sensor
52 - engine oil temperature transmitter
53 - engine oil temperature gauge
56 - warning beacon - flashing light
57 - 12 Volt prearrangement
58 - crankshaft speed gauge
A - STARTER SWITCH
B - STARTER MOTOR
C - ALTERNATOR
D - HAZARD LIGHTS CONTROL
E - LIGHTS SWITCH
F - DIRECTION INDICATORS CONTROL - FLASHES
G - TRAILER SOCKET
H - DIRECTION INDICATORS CONTROL UNIT
R - 70A RELAY

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INTRODUCTION

The purpose of this workshop manual is to provide instruction for repair technicians and a practical guide for improving the quality of repairs.

This manual enables repair technicians to acquire a thorough knowledge of the machine, indicating the correct methods for fault diagnosis, for working in safety and for accurate dimensional checks and visual inspections. The instructions also indicate the products to use, the tightening torques and the adjustment data.

The technical material contained in this manual is reserved for Authorised Dealers and Service Centres which will be duly informed of any technical changes to the machines in question through the issue of documents regarding modifications, updates and supplements for optional equipment.

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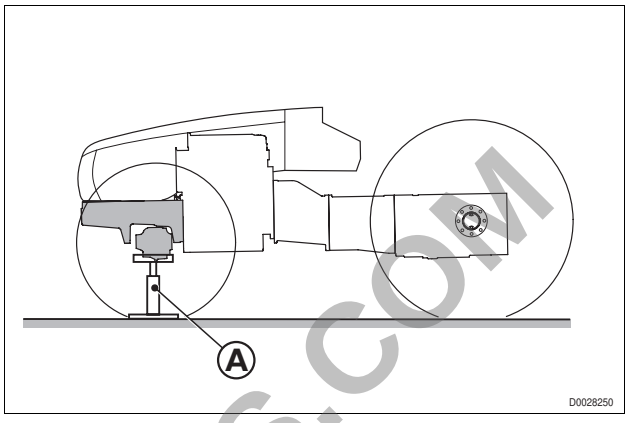
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FRONT AXLE DRIVE SHAFT

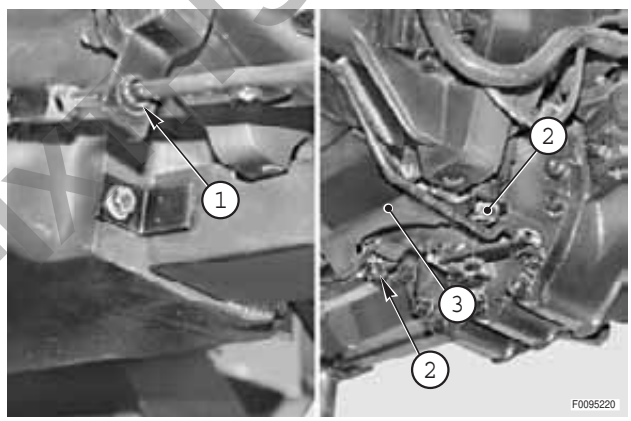
Removal

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

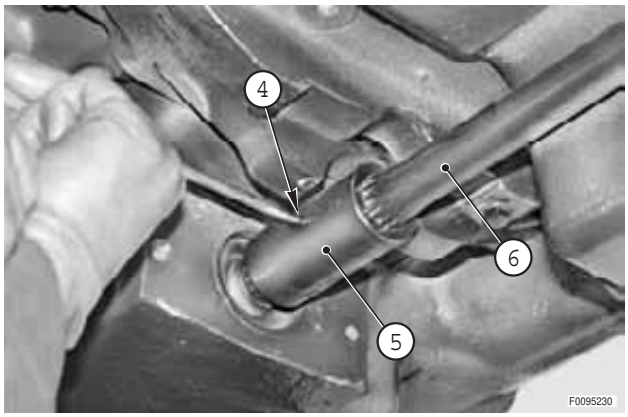
1 - Lift the front of the tractorand position two stands *"A"* under the front axle.



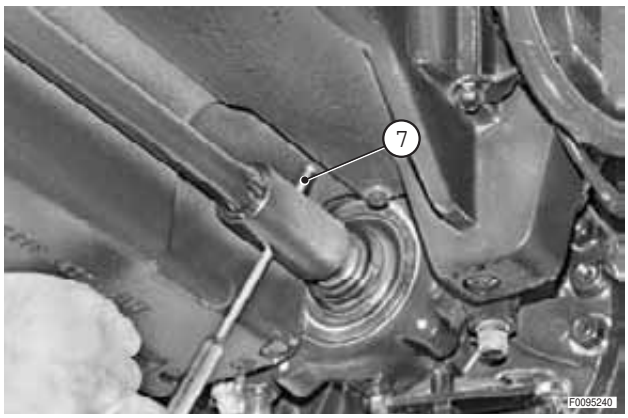
2 - Remove screws (1) and nuts (2) and remove guard (3).



3 - Remove rear spring pin (4) and slide sleeve (5) along the front axle drive shaft (6).



4 - Partially remove front spring pin (7).
★ Take care not to extract it excessively.

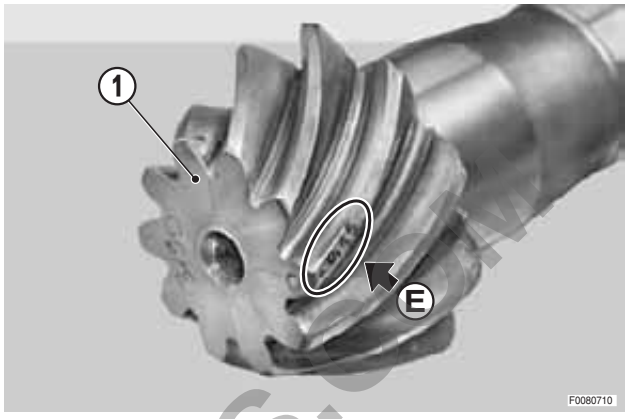


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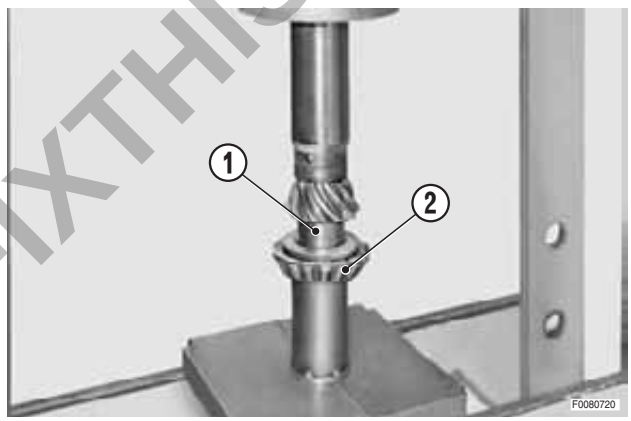
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1 - Note the dimension *"E"* stamped on the crest of a tooth of pinion (1).

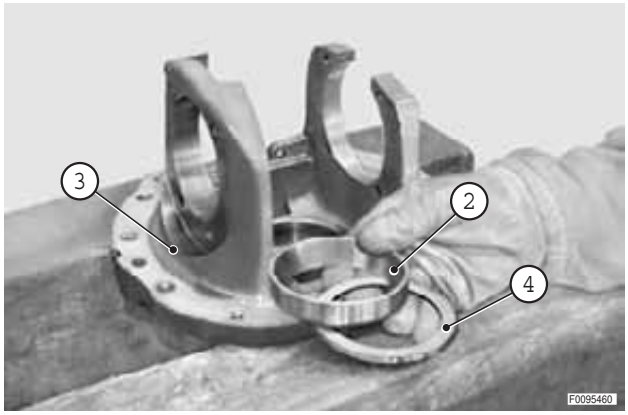
★ In the example described: *E* = –0.15 mm



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



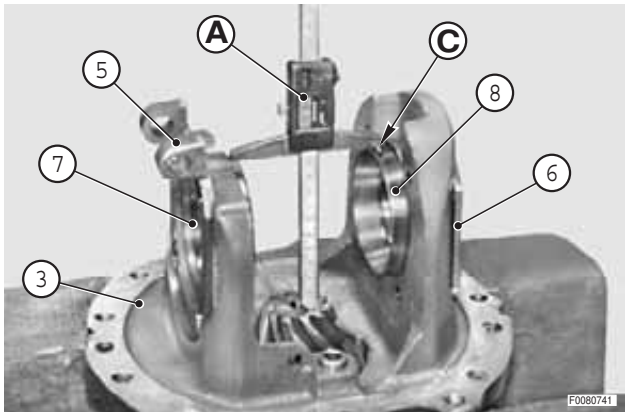
3 - Install bearing outer race (2) and spacer (4) in differential carrier (3).



4 - Install pinion (1) and flanges (5) and (6) complete with outer bearing races (7) and (8) in differential carrier (3) and, using a depth gauge "*A*" measure the distance "*X*".

★ Rotate pinion (1) in both directions to seat bearing (2).

★ Position a 2.5 mm cylindrical pin "*C*" (P/N 2.1651.109.0) on bearing outer race (8) to make up the difference between the outside diameters of bearings (7) (Ø90) and (8) (Ø85).



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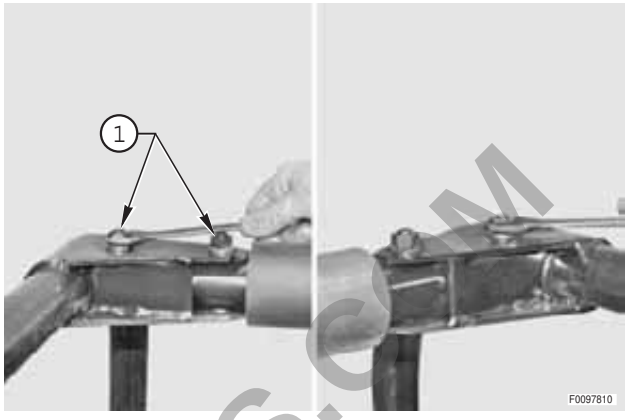
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ROPS FRAME (Version with T58 - T62 type fenders)

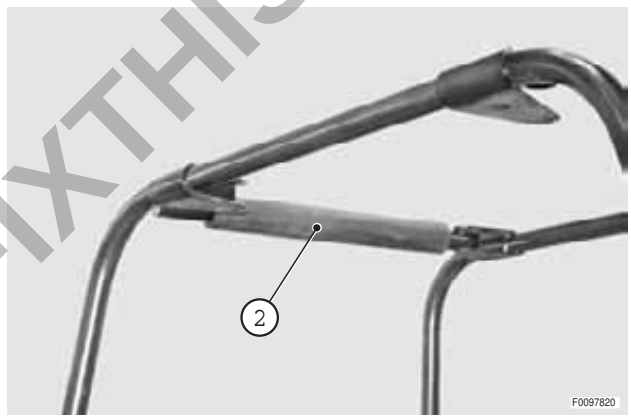
• *NOTE: For version with T45 type fenders, loosen the two clamps securing the ROPS to the fender*

Removal

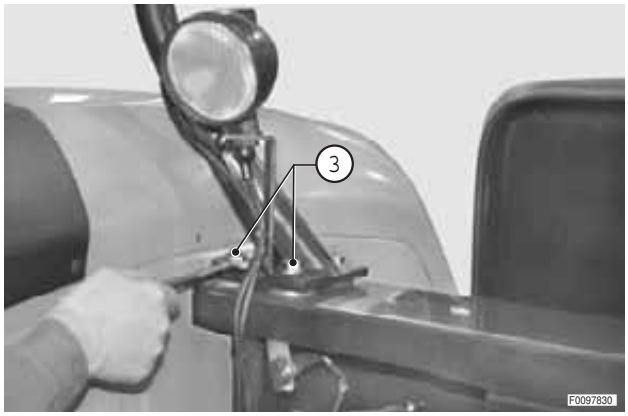
1 - Remove the four nuts (1) and the relative front and rear bolts.



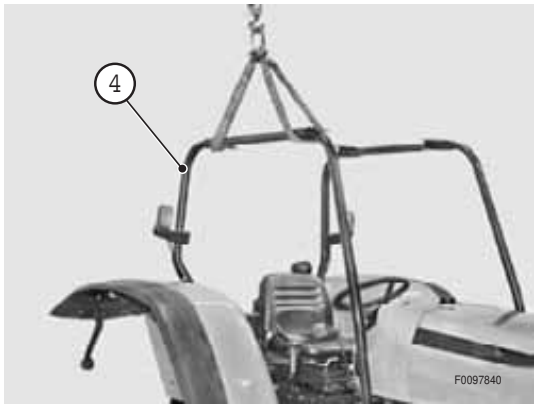
2 - Remove front and rear bars (2).



3 - Remove the four rear screws (3).



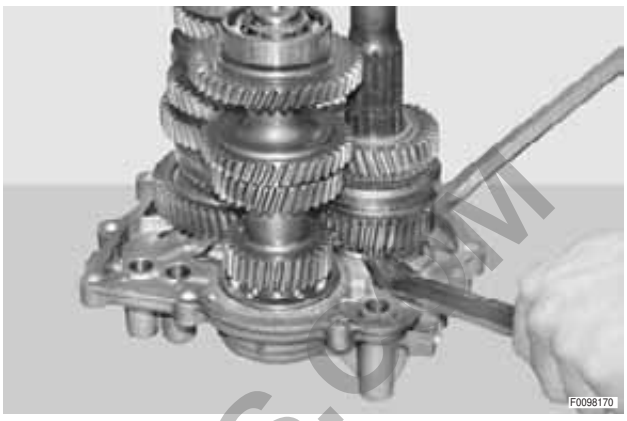
4 - Attach half frame (4) to a hoist and take up the slack in the lifting rope.



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10 - Remove the shafts completely using two levers.



Assembly

- To assemble, follow the disassembly steps in reverse order.

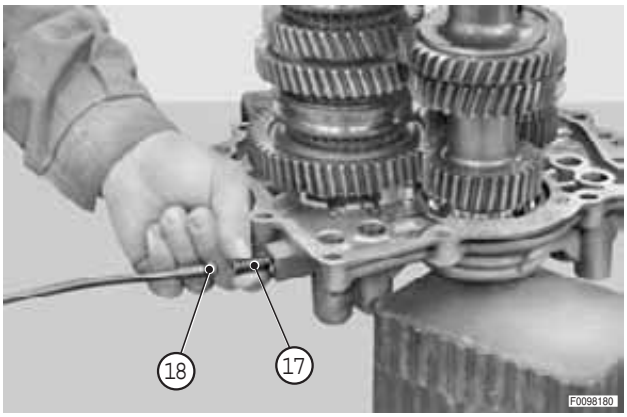
※ 1

Nm Screw: 25 Nm (18.4 lb.ft.)

Screw: Loctite 270

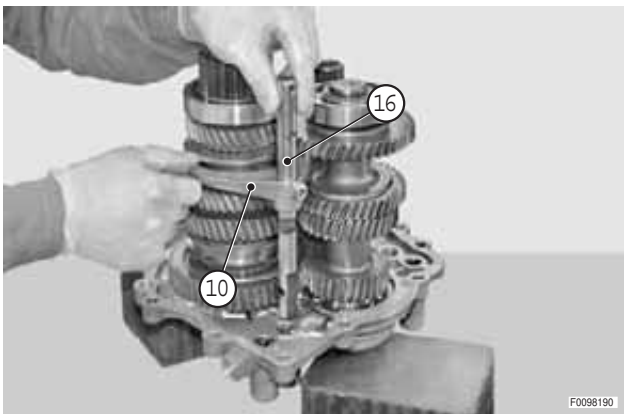
※ 3

1 - Fit spring (17) and ball (18) in the gearbox support.



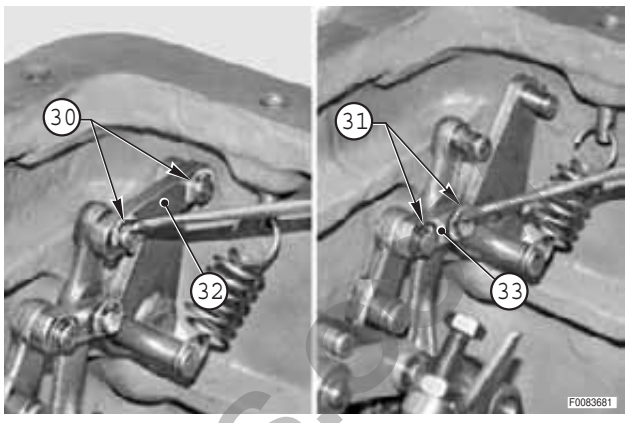
2 - Position 3rd and 4th speed selector rod (10) and insert rod (16) in the gearbox support.

★ Take care to install rod (16) the right way round.

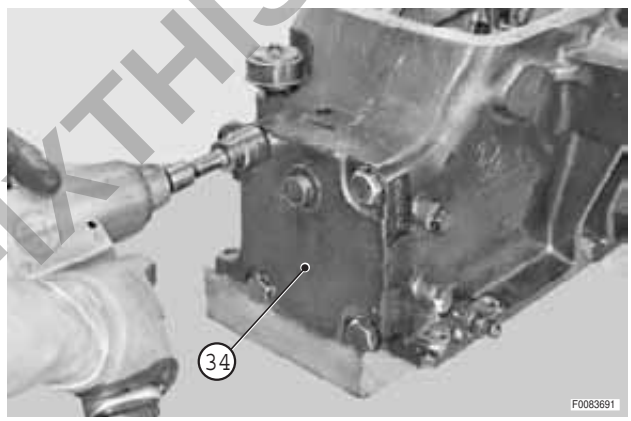


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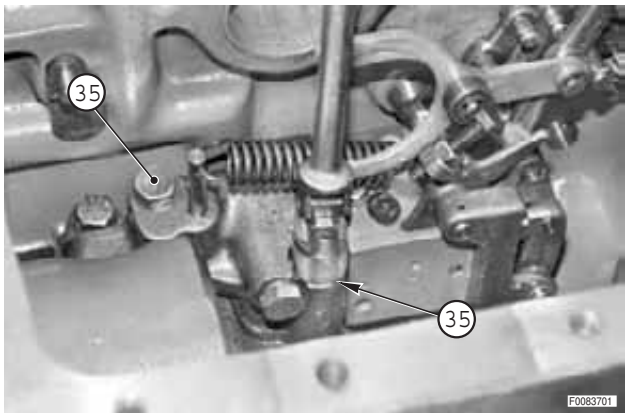
13 - Remove circlips (30) and (31) and remove tie-rods (32) and (33).
★ Label the tie-rods to avoid confusion on reassembly.



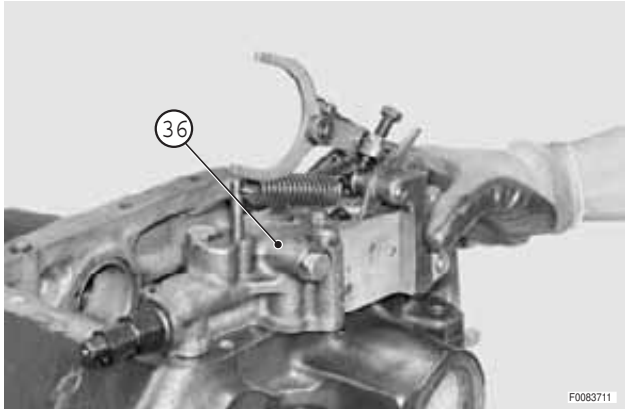
14 - Remove complete cylinder (34).
(For details, see "LIFT CYLINDER (VERSION FOR 80 - 85 - 90 - 95)").



15 - Remove the two screws (35).



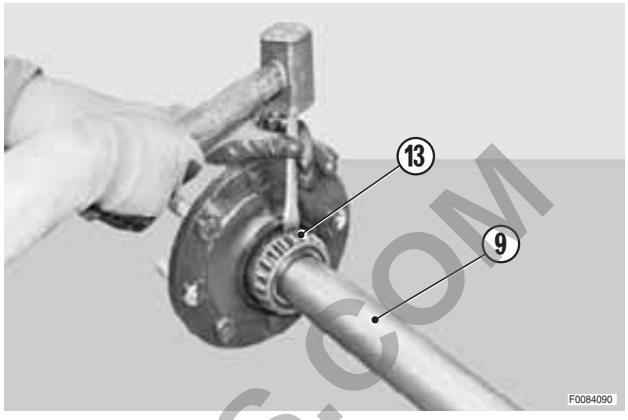
16 - Remove complete lift control valve (36). ⁘ 6



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12 - Remove bearing inner ring (13) from axle shaft (9).
※ 5

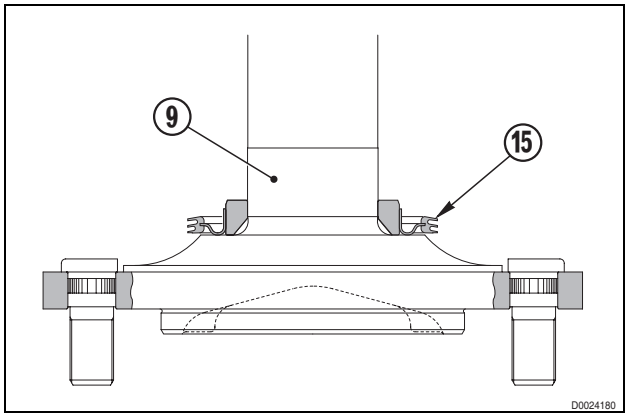


• *Only if necessary*

13 - Remove the back-up ring of oil seal (15) from the axle housing.
★ Renew the oil seal on reassembly.



14 - Remove dust seal (15) from axle shaft (9).
★ Renew the oil seal on reassembly.
★ Note which way round the oil seal is installed.

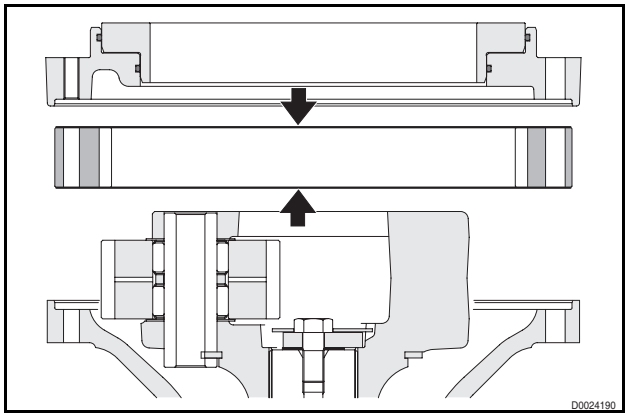


Assembly

- To assemble, follow the disassembly steps in reverse order.

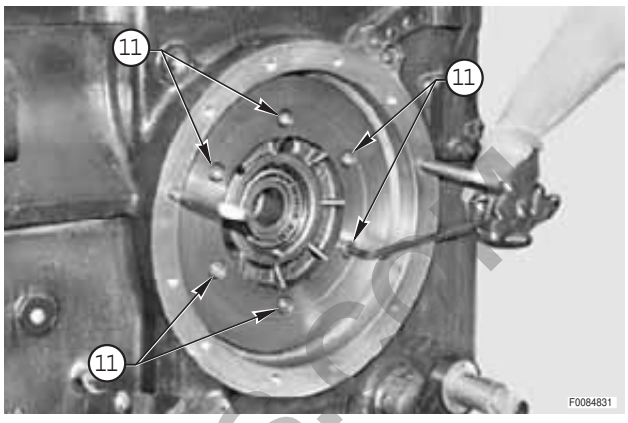
※ 1

Mating faces: Loctite 510

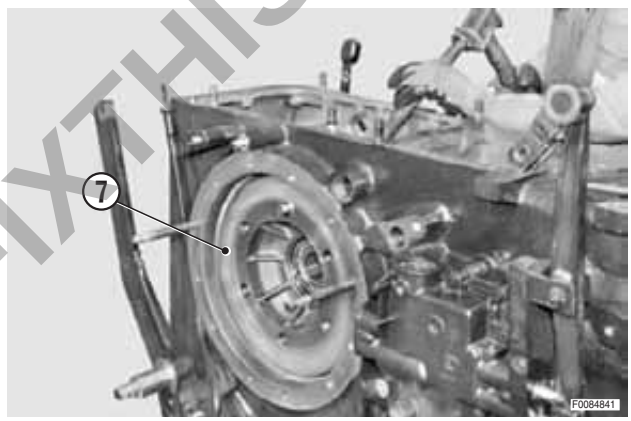


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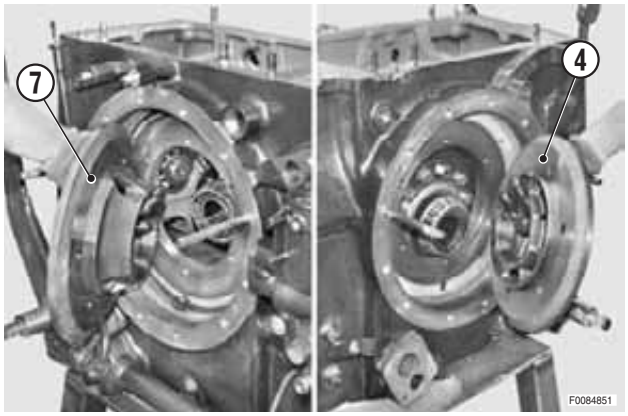
6 - Remove screws (11) on both sides, leaving just one in position for safety.



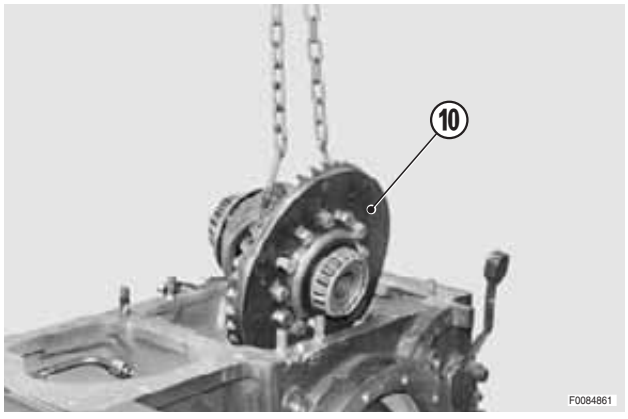
7 - Using a suitable drift made of soft material, separate differential flanges (4) and (7) from the transmission casing.



8 - Remove last screw (11) and remove flanges (4) and (7).



9 - Attach differential (10) to a hoist and remove it.



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