1 Technical data

	Unit	1504 LC	1604 LC
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4 Adjusting instruction

WARNING

Adjustment work is performed at high pressures. Take appropriate protective action, e.g. wear protective goggles.

WARNING

Before opening any drain plugs etc., relieve the preload pressure from the hydraulic fluid tank.

NOTE

Hydraulic fluid temperature must be 40° - 60° C.

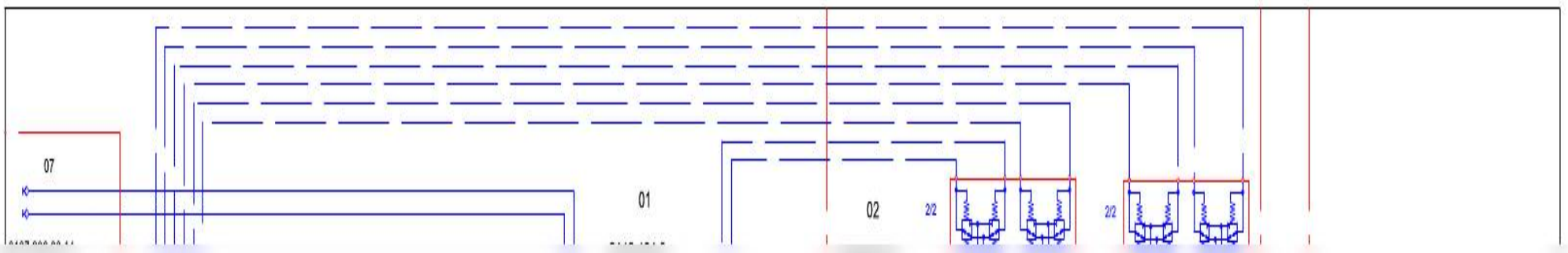
The hydraulic system comes up to operating temperature by normal actuation of the individual operating movements, but the levers must only remain at their limit stops for brief periods to avoid the damage to the excavator.

NOTE

Refer to the pressure adjustment table for relevant adjustment values.

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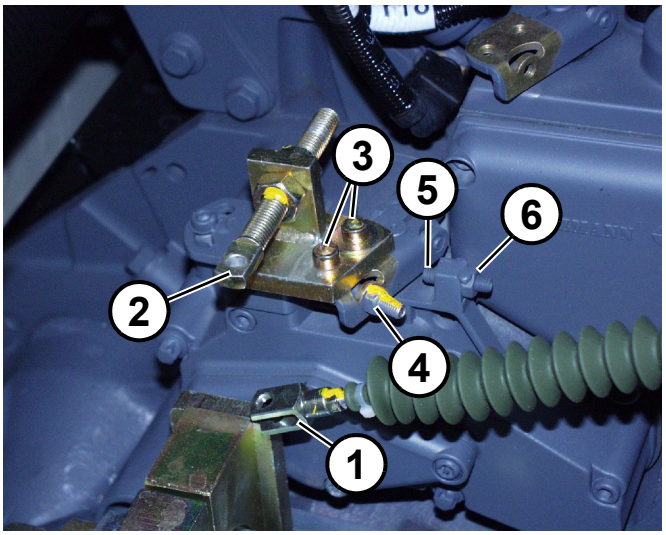


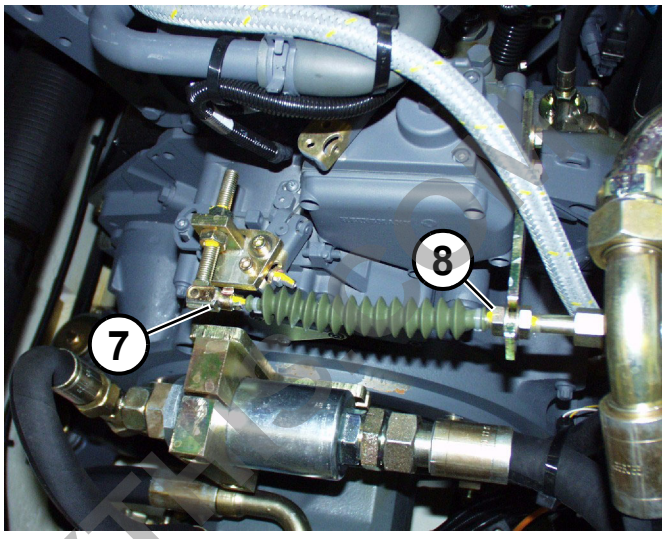
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4.4.1.1 Minimum engine speed





1. Disengage fork head (1).
2. Position the threaded rod (2) of the speed adjustment parallel to the crankshaft.
3. Correct if necessary at the adjusting screws (3).
4. Start the engine.
5. The minimum engine speed displayed must be (1050 +100 / -50) rpm.
6. Correct if necessary at the adjusting screws (4).

4.4.1.2 Maximum engine speed

1. Move the speed adjustment at the threaded rod (2) towards the stop (5) by hand.
2. The maximum engine speed displayed must be (2470 +50 / -100) rpm.
3. Correct if necessary at the adjusting screws (6).
4. Switch off the engine.

4.4.2 Bowden-cable play

1. Connect the fork head (1) without any play. The bowden-cable should **not hang down slack**.

NOTE

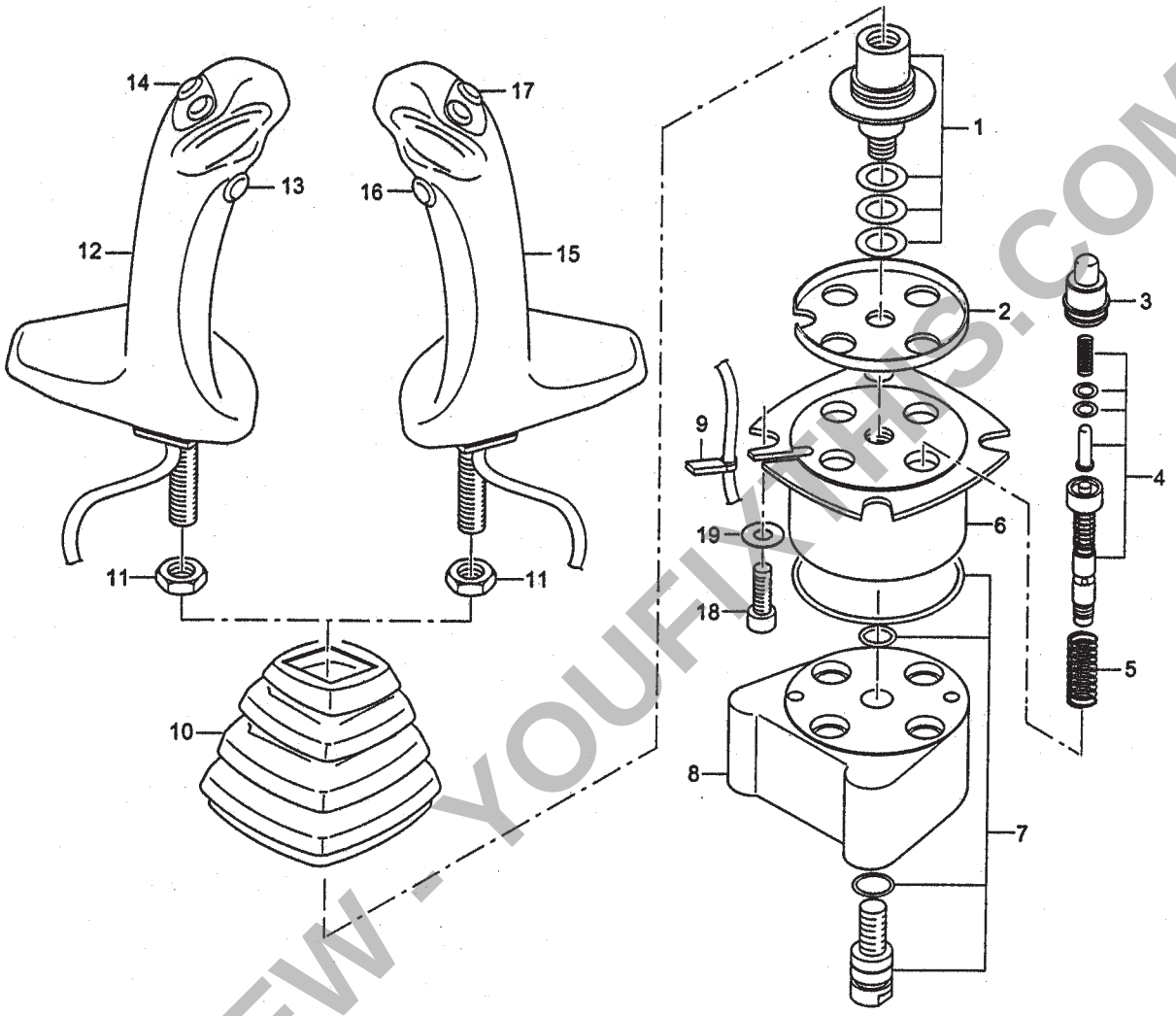
Ensure that the split pin (7) is in the correct position.

2. Correct the bowden-cable play, if necessary at the adjusting screw (8).

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1 Servo control unit



1	Cardan joint
2	Plate
3	Repairing set
4	Valve Case
5	Spring Set
6	Upper part
7	Repairing set
8	Lower part
9	Clip
10	Gaiter
11	Nut A3C
12	Servo control handle L
15	Servo control handle R
16	Att part switch
17	Att part switch
18	Allen screw A3C
19	Disk A3C

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2 Bolt pre-loadings and tightening torques

To ensure reliable connections, always comply with the prescribed tightening torques when installing bolts.

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4.6.2 Troubleshooting table

NOTE

The troubleshooting table display for LED in the electronic box is shown from top to bottom. The downmost is LED 1, the upmost is LED 8.

LED	Component	GLR indicator lamp
8	Electronic box teach-in phase not completed or faults occured during the teach-in phase[1]	flashes
7	Connection between electronic box and computer circuit board broken or pressure switch on	-
6	LS-magnet in load-limit regulating valve	lights up
5	Electronic box	lights up
4	Voltage supply of potentiometer for speed adjusting lever and Δp-lowered (delta p)	lights up
3	-	-
2	Pressure switch "driving"[2] and "kickdown"[2] switch	-
1	Speed sensor	lights up

1 see section 4.6.2.2
2 see section 4.6.2.1

4.6.2.1 LED 2

LED 2 comes on for about 3 seconds, when the appropriate contacts "driving" or "kickdown" are opened or closed.

4.6.2.2 LED 8

LED 8 indicates various faults. The following faults are displayed by flashing in different ways:

LED 8 flashes:	Faults
1 flash	Minimum engine speed outside tolerance range
2 flashes	Maximum engine speed outside tolerance range
3 flashes	Engine speed - potentiometer voltage outside tolerance range
4 flashes	Engine speed - potentiometer faulty

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6 Maintenance schedule

		Daily **10** Oh	Every **50** Oh	Every **100** Oh	Every **500** Oh	Every **1000** Oh	Every **2000** Oh	Every **3000** Oh	
Lubricate	Lubrication points	➡	⇨	⇨	➡				
	Slewing ring			✱⇨					
Engine	Engine oil	👁	(1. 🛢)		🛢				
	Engine oil filter		(1. 🛢)		🛢				
	Coolant				👁		🛢		
	Mesh strainer fuel filter		💧		🛢				
	Fuel filter		(1. 🛢)			🛢			
✱	Air cleaner					🛢			
	V-belts		(1. 👁)		👁				
✱	Radiator	👁							
Hydr. system	Hydraulic fluid							🛢	
	Hydraulic fluid filter element		(1. 🛢)		🛢				
✱	Hydraulic fluid cooler	👁							
Transmission	Crawler gearbox		(1. 👁)	👁	(1. 🛢)		🛢		
Travel gear	Crawler tracks			👁					
Elec. system	Batteries			👁					
Heating and ventilation system ✱	Air suction filter			🧹					

✱ Reduce this period in very dusty conditions
➡ Lubrication points, every 10 Oh
⇨ Lubrication points, every 50 Oh
⇨ Lubrication points, every 100 Oh
✱⇨ Lubricate gear teeth with special grease, (Order No. 3620153), every 100 Oh
⇨ Lubrication points, every 500 Oh

(1.) First time only
👁 Check
🧹 Clean
🛢 Renew
💧 Drain water
Oh Operating hours

Have this maintenance work performed by TEREX-ATLAS Service after 50 hours of operation and then every 500 hours of operation.

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Table of contents

1 Technical data
2 General information on hydraulics
3 Cab Serial 935
4 Hydraulics
5 Adjusting instructions and tables for 1504 LC
6 Adjusting instructions and tables for 1604 LC
7 Electric
8 Engine
9 Ball rotation connection
10 Slewing gear
11 Gear box
12 Cylinder
13 Air condition system
14 Maintenance
15 Miscellaneous

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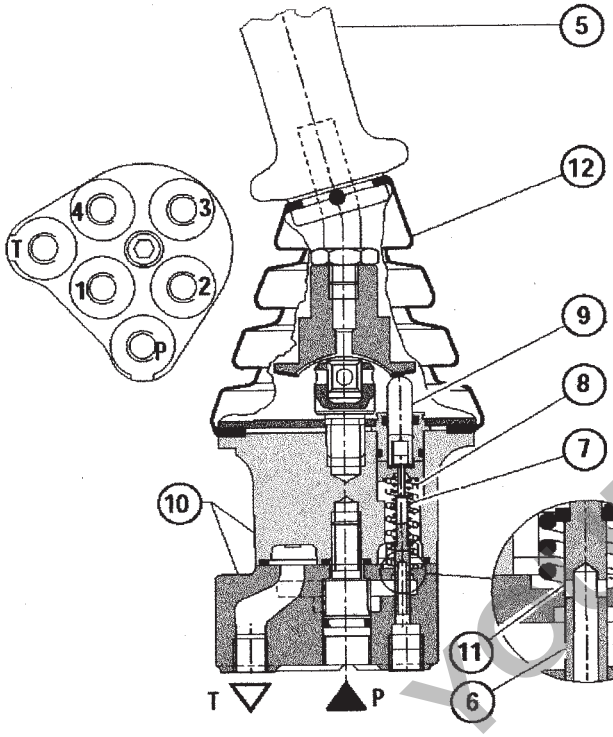
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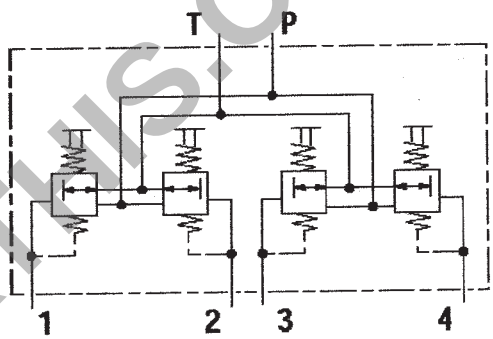
4.5 Servo unit (Folding jib, slewing, lifting/lowering, bucket/grab)

Unions

P	Supply
T	Tank
1,2,3,4	Control unions



Symbol, hydraulic



4.5.1 Structure

Pilot control equipment is mainly composed of an operation lever (5), four pressure adjusting valves and a housing (10). Each pressure adjusting valve consists of a variable piston (6), a variable spring (7), a restoring spring (8) and a tappet (9).

4.5.2 Function

When the control level is not Operated, it is kept in zero position by the four restoring springs (8). Control unions (1 , 2, 3, 4) are linked to tank union T by means of the bore hole (11).
On excursion of control lever (5) the tappet (9) presses against restoring spring (8) and variable spring (7). Variable spring (7) first displaces the variable piston (6) down, closing the link between the concerned union and the tank union T. At the same time, bore hole (1 1) is used to link the concerned union to union P. The variable control phase starts once the variable piston (6) has found the balance between the force of the variable spring (7) and the force resulting from hydraulic pressure in the concerned union (union 1 , 2, 3 or 4). The combined action of variable piston (6) and variable spring (7) has the effect that pressure in the concerned unions is proportional to the stroke of tappet (9) and thus to the position of control lever (5). Rubber collar (12) protects the mechanical components of the hydraulic pilot control equipment against pollution from the outside.

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Chapter 5

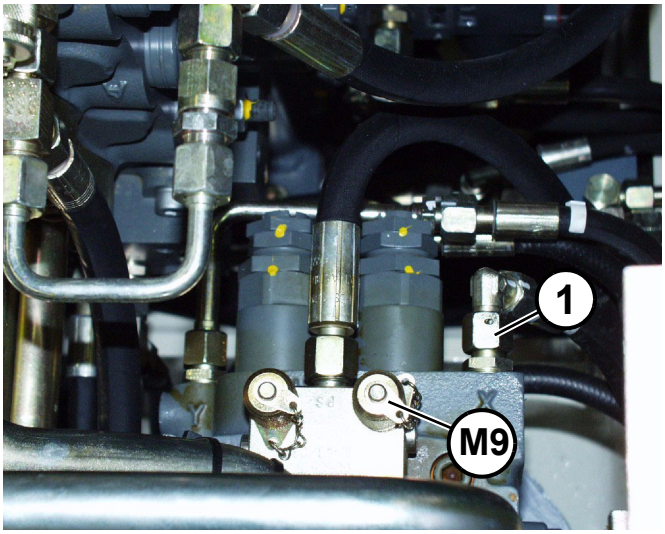
Adjusting instructions and tables for 1504 LC

Contents

1	Safety instructions for adjustment work	3
2	Adjustment table 1504, part 1	6
3	Adjustment table 1505, part 2	7
4	Adjusting instruction	8
4.1	Measuring unions	9
4.2	Bleeding the system	12
4.2.1	Bleeding hydraulic fluid tank	12
4.2.2	Bleeding hydraulic pump	14
4.2.3	Bleeding valve caps	15
4.3	Fuel admission pressure	16
4.4	Engine speed control	17
4.4.1	Speed measurement	18
4.4.1.1	Minimum engine speed	19
4.4.1.2	Maximum engine speed	19
4.4.2	Bowden-cable play	19
4.4.3	Mechanical stop	20
4.4.4	Speed adjusting lever	21
4.4.4.1	Checking	21
4.4.4.2	Setting	22
4.4.5	Testing speed	23
4.5	Teach-in the electronic box	24
4.5.1	Load-limit regulating valve	25
4.5.2	Engine speed	26
4.5.2.1	Maximum engine speed	26
4.5.2.2	Minimum engine speed	26
4.5.2.3	Four points on the speed characteristic	27

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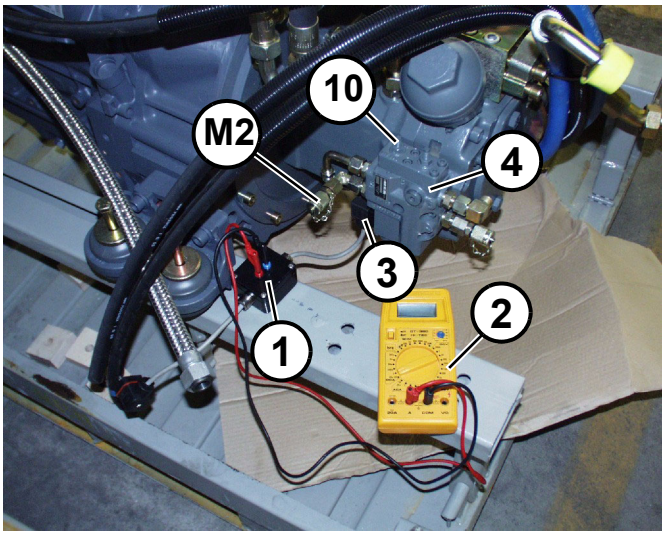


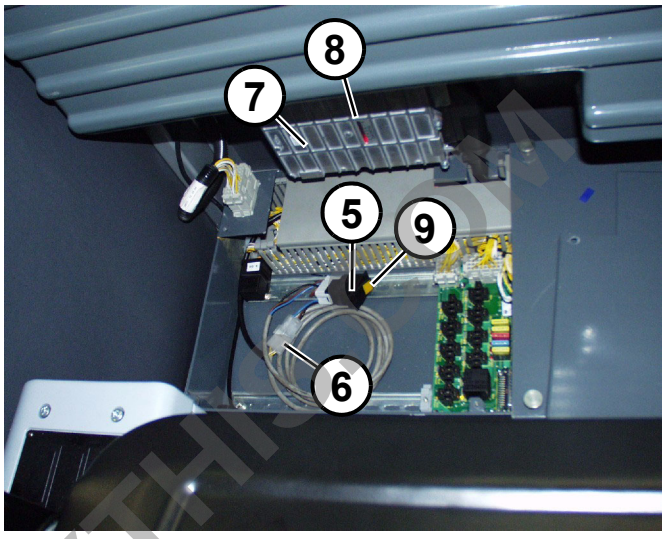
8. Switch off the engine, ignition key in position "**0**" (the ignition is switched off).
9. Remove the pressure gauge from the measuring union "slew to right" (M9).
10. Remove the T-connector and the pressure gauge from the "pilot control, slewing" line (1) and connect the "pilot control, slewing" line (1) back again.

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4.5.1 Load-limit regulating valve





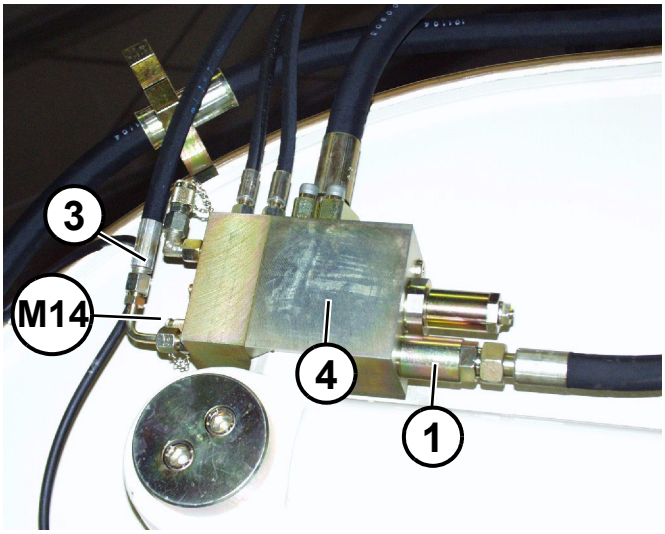
1. Connect a pressure gauge to the measuring union "load-limit regulating valve" (M2).
2. Connect the electronic measuring instrument (2) between the plug (3) and the connecting line of the load-limit regulating valve (4) via an appropriate adapter (1).
3. Connect the teach-in switch (5) into plug (6) to the electronic box (7).
4. Switch on the ignition, ignition key in position "**I**". The red LEDs 1 - 8 (8) in the electronic box (7) must come on for about 3 seconds (bulb test). After that the LED 1 ("speed sensor") remains on. If the electronic box (7) has been exchanged, the LED 8 ("teach-in phase") lights up additionally, see troubleshooting table, see section 4.6.2 on page 29.
5. Start the engine. The LED 1 ("speed sensor") must go out.
6. Move the engine speed adjusting lever to the minimum speed position (to its stop).
7. Press the teach-in switch (5) for about 5 seconds. Telltale (9) in teach-in switch lights up (permanently). A control current (300 +/- 5) mA now emitted by the electronic box (7) energises the load-limit regulating valve (4). The control pressure shown in the pressure gauge display falls to about 2 to 5 bar, then slowly rises to the set value of (8.5 +/- 0.2) bar plus the tank delivery pressure.
8. Correct this value at the adjusting screw (10) if necessary.
9. Quit the teach-in procedure by pressing the teach-in switch (5) for about 1 second. Telltale (9) starts flashing.

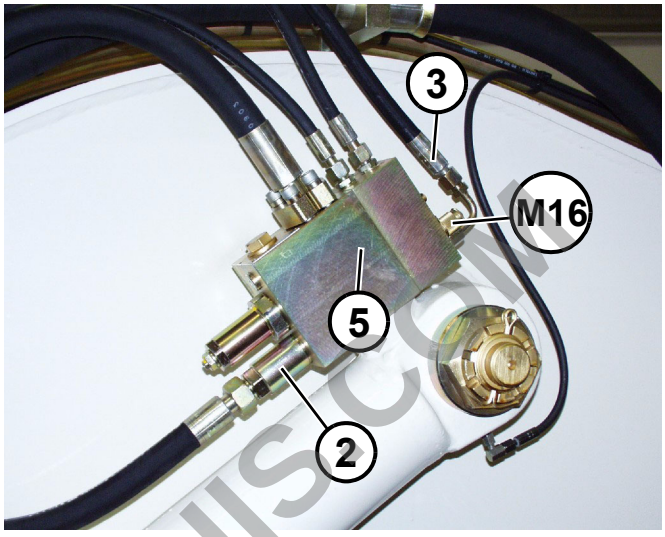
NOTE

If only the load-limit regulating valve is to be adjusted, press the teach-in switch (5) until telltale (9) goes out and continue with step 24 on page 27.

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3. Start the engine.
4. Move the engine speed adjusting lever to the maximum speed position (to its stop).

WARNING

Ensure that no one is remaining within the slewing area of the boom/jib, before moving the boom/jib.

5. Extend the lifting cylinder fully.
6. Switch off the engine, ignition key in position "**0**" (the ignition is switched off).
7. Build up pressure using the hand pump until no further pressure change occures. The pressure indicated is the setting pressure of the secondary valve (1) and/or (2).

WARNING

Before carrying out the adjustment make sure, that the secondary valves (1) and (2) are unpressurized and the boom/jib is lowered.

8. Correct by using the adjusting pads for the secondary valve (1) and/or (2).

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Chapter 8

Engine

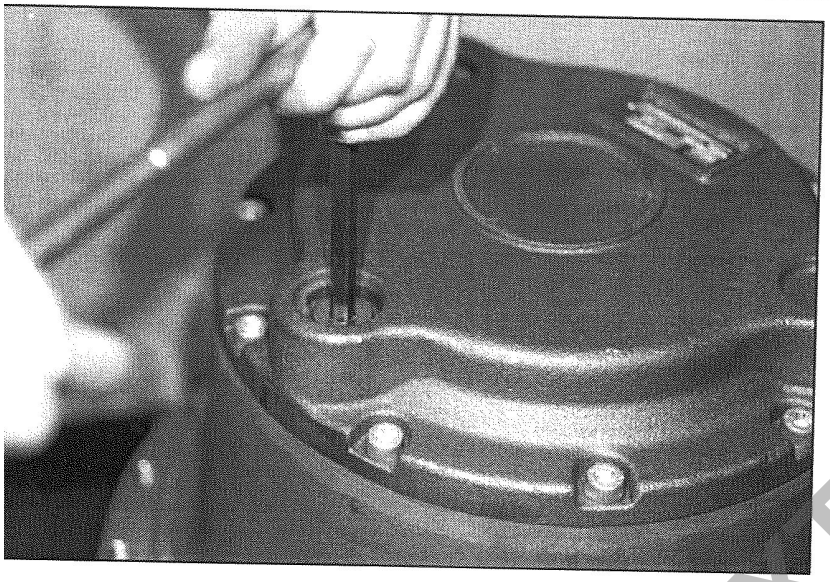
Contents

1 Setting of valves 2
1.1 Adjusting instruction 2
1.2 Valve free-play scheme 4

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-SMONTAGGIO / *DISASSEMBLING*-



FASE 9

Capovolgere il riduttore, svitare e sfilare i due tappi di sfiato M22x1,5 (pos.4) e le relative rondelle (pos.3) dal coperchio di chiusura (pos.2).

STEP 9

Overturn the gearbox, unscrew and remove the 2 plugs M22x1,5 (pos.4) and the 2 washers (pos.3) from the end cover (pos.2).

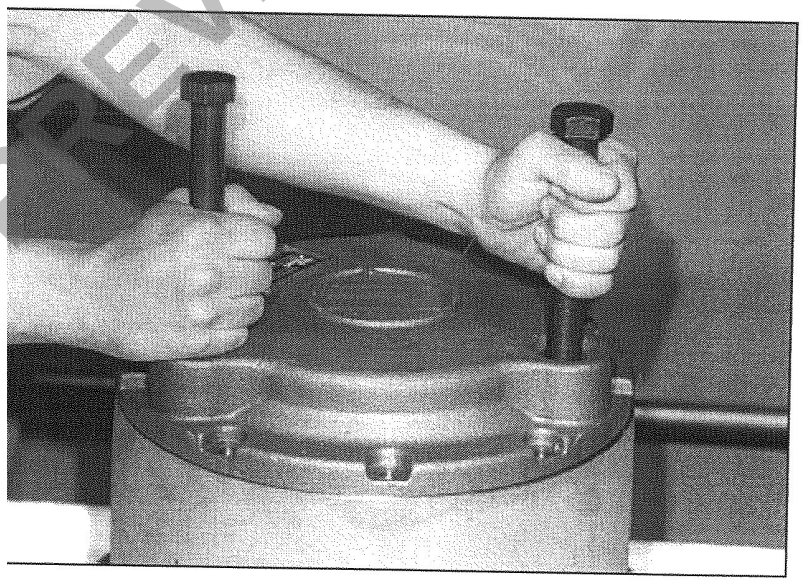


FASE 10

Svitare e sfilare le 10 viti TCEI M10x25 (pos.1), classe di resistenza 12.9, dal coperchio di chiusura (pos.2).

STEP 10

Unscrew and remove the 10 socket head screws M10X25 (pos.1), grade 12.9, from the cover (pos.2).



FASE 11

Sfilare il coperchio di chiusura (pos.2) con l'ausilio di 2 viti M22x1,5 avvitate nei fori dei tappi olio.

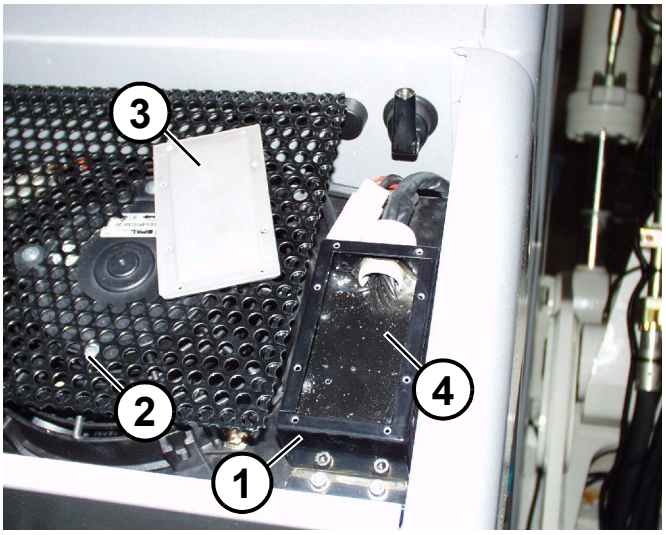
STEP 11

Remove the end cover (pos.2) using 2 screw M22x1,5 tightened to the oil plugs holes.

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3.5 Connection box



The connection box (1) is mounted near the condenser (2).
To avoid corrosion and other moisture related problems the connection box (1) is potted.
The cover (3) of the connection box (1) is removed here to show the potting resin (4).

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