Checking procedure

4. Battery

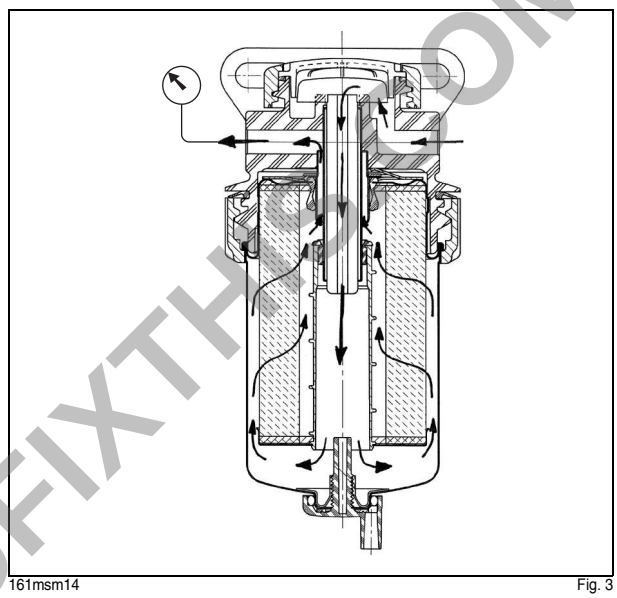
Check the voltage with the engine off (between 12 and 13 V). Alternator-generated power consumption can reach 1,5 kW.

5. Radiators/coolers

Check that all radiators/coolers are clean.

6. Diesel filters

Change the filters. Fit the pressure gauge. Unit reference: 60 05 00 55 21. See "measurement and checking points" sheet.



161msm14 Fig. 3



161msm15 Fig. 4

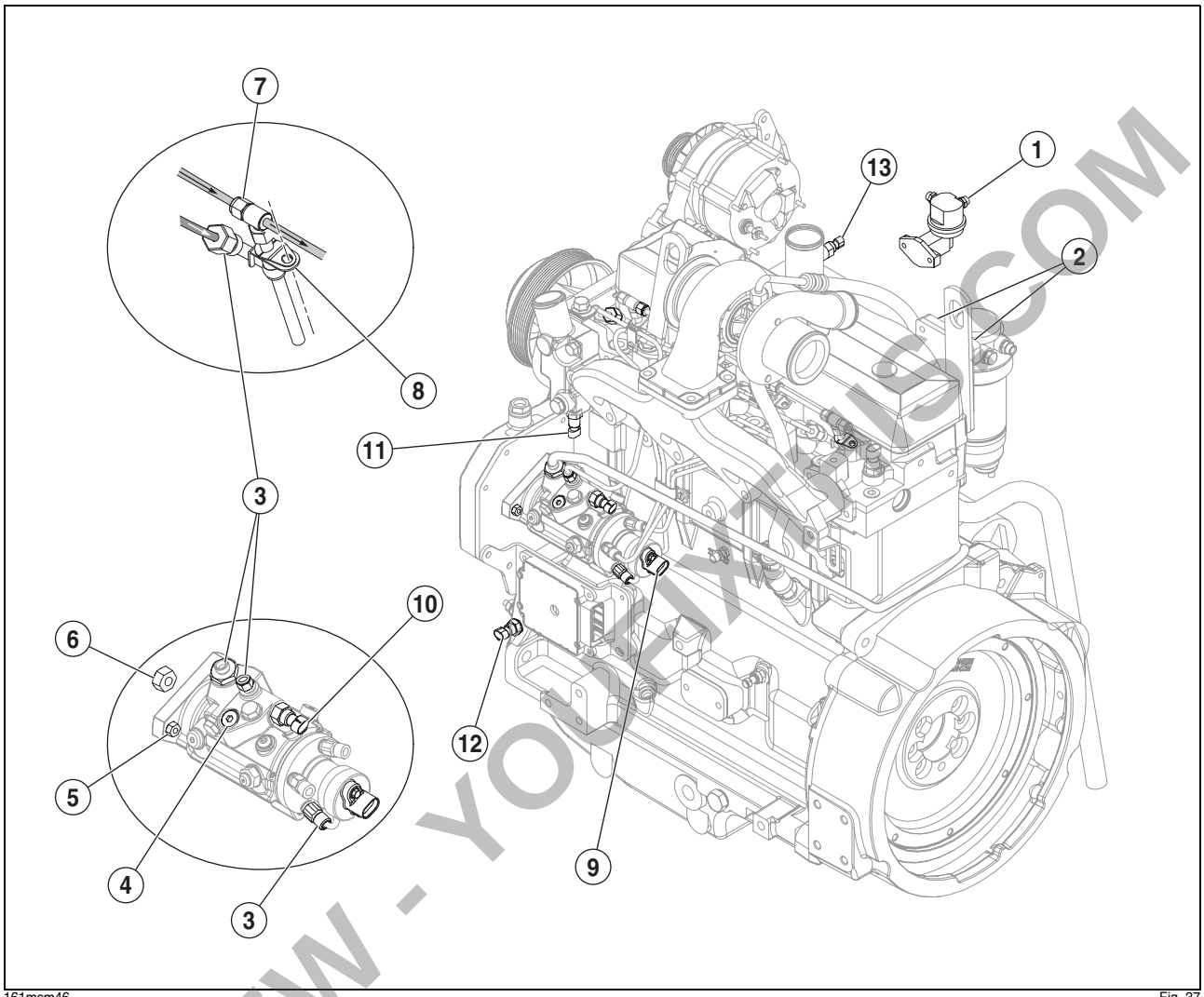
7. Air filters

Check condition and replace if necessary.

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Tightening torques



161msm46 Fig. 37

Nomenclature

1 Fuel pump: 3 daN.m.
2 Fuel filtres: 7,3 daN.m.
3 Fuel pipe: 2,7 daN.m.
4 Injection pump plug: 1 daN.m.
5 Injection pump securing nut: 2,7 daN.m.
6 Injection pump pinion nut: 19,5 daN.m.
7 Fuel return pipe: 0,5 daN.m.
8 Injector attachment flange: 4 daN.m.
9 Injection pump control solenoid.
10 Fuel temperature sensor: 1,5 ± 0,3 daN.m.
11 Crankshaft position sensor: 1,4 daN.m.
12 Engine coolant temperature sensor: 1,5 daN.m.
13 Manifold air temperature sensor: 1 daN.m.

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Check

Compression

N.B.: before starting the test, make sure that the battery is fully charged and that the injector area is perfectly clean.

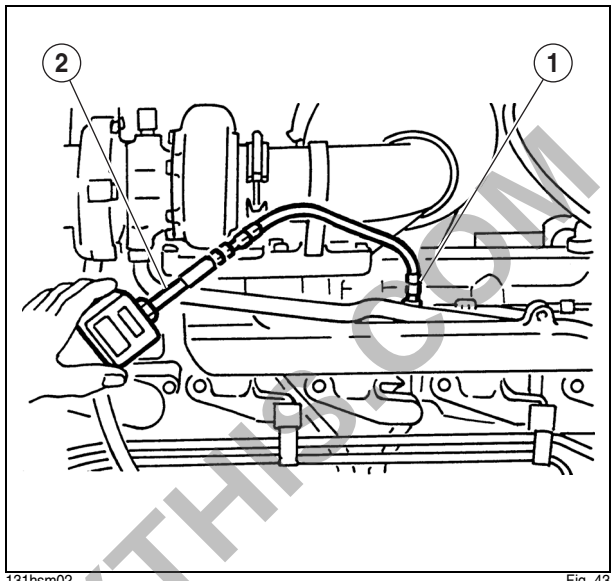
– Start the engine, and run it at nominal speed to heat it.

– Disconnect the injection pump electric connector, and remove the injectors.

– Fit tooling n° 60 05 005 516 (1) (Fig. 43, 44) with gasket (3) on a compressor gauge.

– Run the engine using the starter for 10 to 15 seconds.

The compression value should be 24 bar minimum. It must be measured on each cylinder The difference between the min. and the max. value should be inferior to 3,5 bar.



131hsm02 Fig. 43

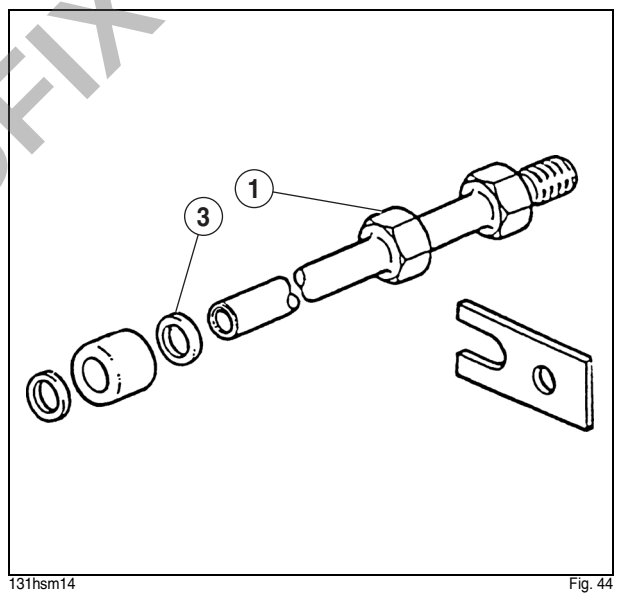
Engine oil pressure

Remove the oil pressure probe and fit pressure gauge n° 77 01 388 204 (1) (Fig. 45).

Before checking the pressure, run the engine.

At idle speed and with a temperature of 93°C, the pressure gauge should indicate a minimum pressure of 1 bar.

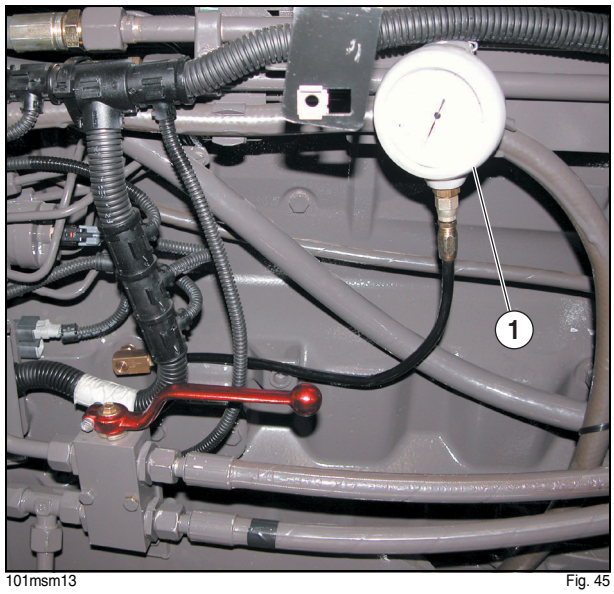
At full load nominal speed, and with an operating temperature of 105 °C, the pressure gauge must show a minimum pressure of 2,75 bar.



131hsm14 Fig. 44

Checking the turbocharger pressure

See chapter "A1".



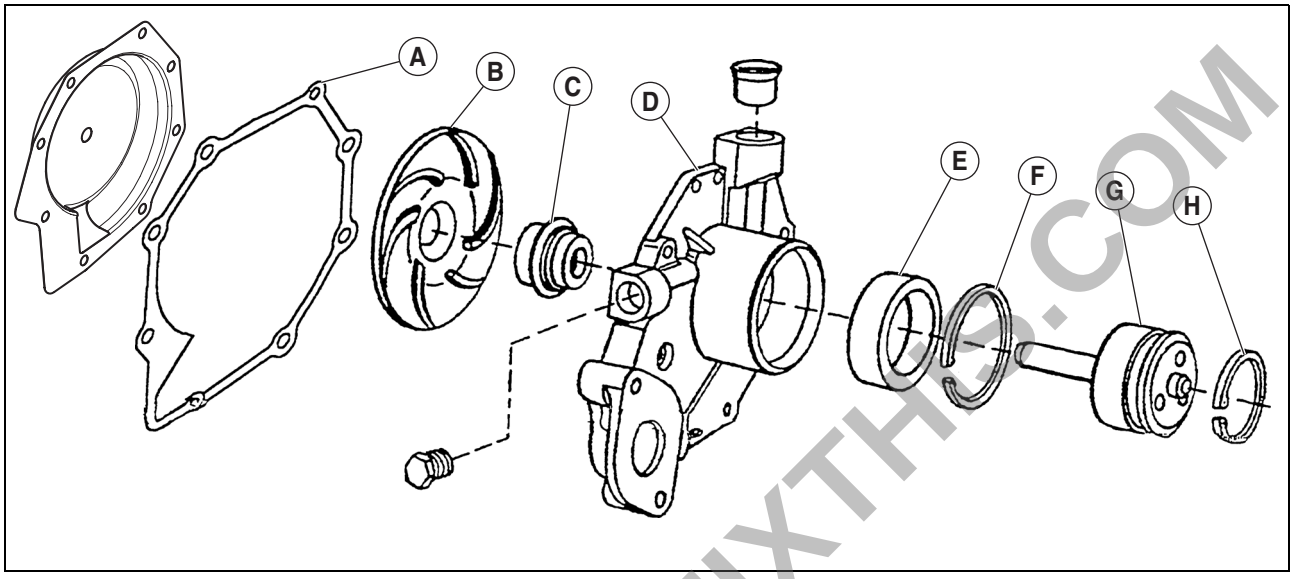
101msm13 Fig. 45

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Removal/refitting

Water pump



251hsm04 Fig. 182

Nomenclature

A crankcase.
B Turbine.
C Seal.
D Body.
E Bearing.
F Outside stop ring.
G Shaft.
H Inside stop ring.
I Cover.

Disassembly of the water pump

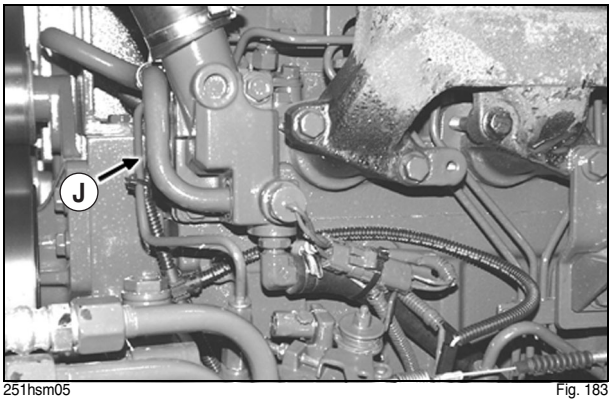
– Drain the coolant.

– Remove the piping (J) connecting the thermostat casing to the water pump.

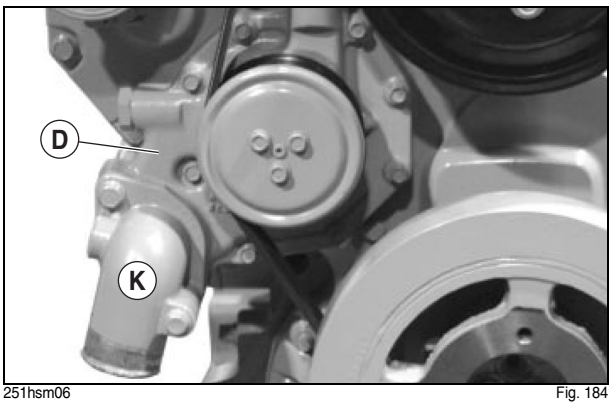
– Remove the inlet elbow (K).

– Remove the water pump (D).

– Remove the water pump pulley.



251hsm05 Fig. 183

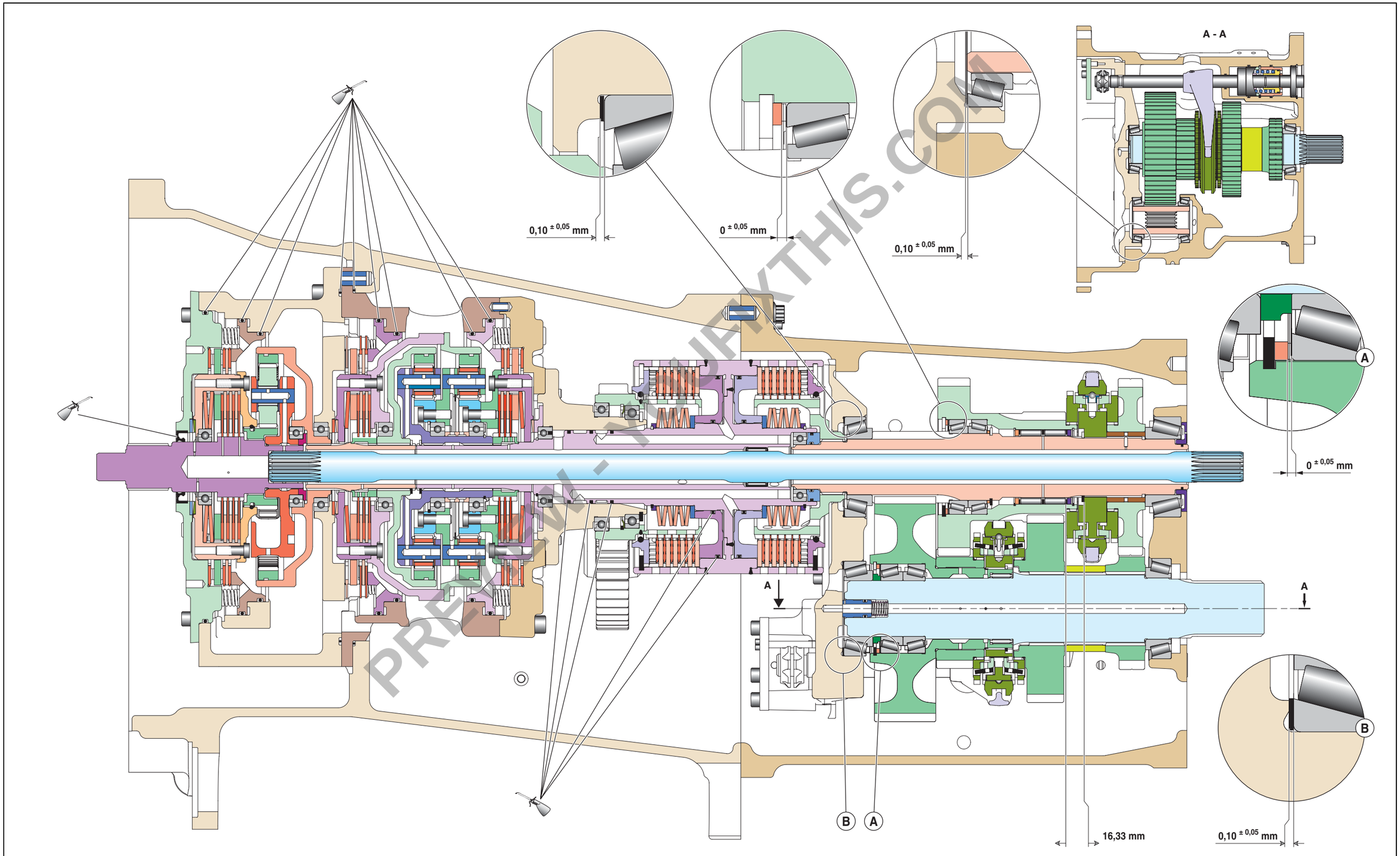


251hsm06 Fig. 184

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Main adjustments



326msm01r

Fig. 60

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Notes

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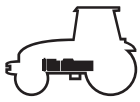
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Electronic transmission control

Name	Pin N°	Type	Specification
HSD7	10	Output	2 A
HSD8	24	Output	2 A
HSD9	11	Output	2 A
HSD10	25	Output	2 A
HSD11	12	Output	2 A
HSD12	26	Output	2 A
HSD13	13	Output	2 A
HSD14	27	Output	2 A
CAN H	40	Communication	CAN 2.0B, 250 kbaud
CAN L	39	Communication	CAN 2.0B, 250 kbaud
10VRF	2	Output	10 V for sensor
SGND	41	Output	0 V for sensor
BAT –	15/28	Power supply	0 V battery (31)
BAT +	29	Power supply	12 V battery (30)
APC +	14/42	Power supply	12 V after contact (15)
IGN sw	1	Power supply	12 V
12VHSD6	9	Power supply	12 V

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Modification of forward/reverse progressivity

Entering the mode

The transmission temperature must be between 15 °C and 60 °C (lift the reverser paddle and hold down the 4-wheel drive engagement button for the temperature to be shown on the transmission display).

– Position the tractor on a flat horizontal surface.

– Start the tractor.

– Change out of transmission neutral.

– Lift the shuttle reverser paddle and press the differential lock button until you hear an audible beep.

The "Auto 5" automatically selects ratio "B4".

The bargraphs of the last recorded configuration are shown in the display.

Modification of forward progressivity

N.B.: Adjust the progressivity with the clutch pedal depressed. Then test the effectiveness by operating the reverser without disengaging.

– Place the paddle in the forward position.

The tractor symbol will flash in the top left-hand window of the display.

The current progressivity is given by the graph.

– Modify the progressivity by pressing the "+" or "–" switches that are visible on the graph.

Modification of reverse progressivity

N.B.: Adjust the progressivity with the clutch pedal depressed. Then test the effectiveness by operating the reverser without disengaging.

– Place the paddle in the reverse position.

The tractor symbol will flash in the top right-hand window of the display.

The current progressivity is given by the graph.

– Modify the progressivity by pressing the "+" or "–" switches that are visible on the graph.

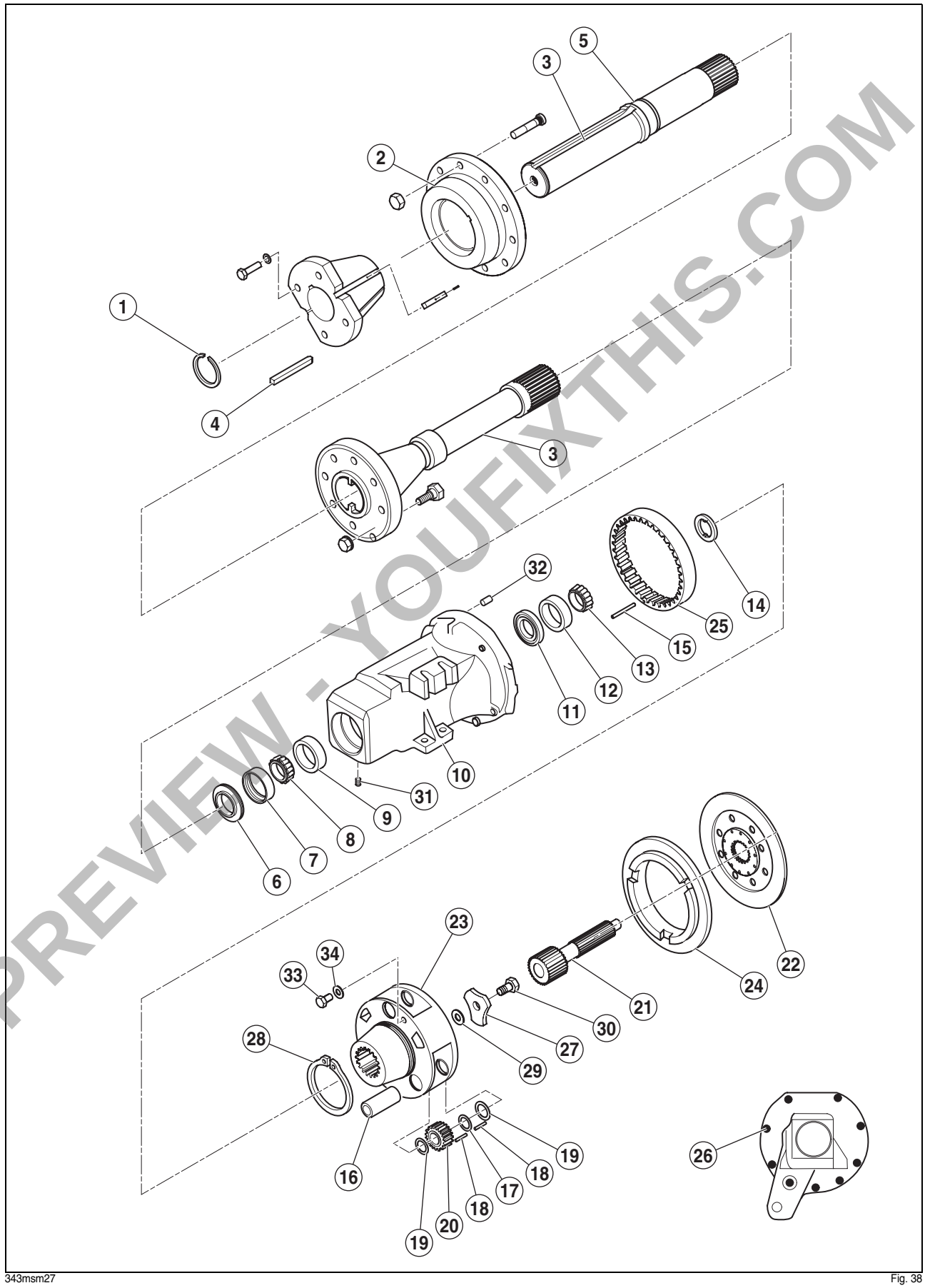
Validating and exiting mode

Press briefly on "shift".

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"SHD" axle tube



343msm27

Fig. 38

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Foot brake

Technical specifications

GTA transmission	2522	2523
Service brakes (type)	Oil immersed disk brakes	
Number of disks per wheel	1	
Disc dia. (mm)	343	354
Friction disc thickness	4,9 mm	
Type of slave	Tubular piston	
Type of control	Hydrostatic	
Type of axle tube	HD	SHD
Brake control fluid	Liquid (type LHM)	
Position of the reservoir (sight gauge)	In engine compartment on right-hand front side of cab	
Circuit capacity	1 litre	
Capacity between maximum and minimum	300 cm^3	
Level detection	With indicator in the cab	
Handbrakes: (type)	Oil-bath disc brakes	
Number of discs	3	
Disc dia. (mm)	165 mm	
Selection	Mechanical	
Oil type	API GL4, GIMA M 1143, ISO HV 68	
Capacity (Gearbox + Rear axle)	63 litres minimum – 70 litres minimum	

HD = Heavy Duty.
SHD = Super Heavy Duty.

The use of an inappropriate oil can cause damage on seals and serious brake malfunctions.

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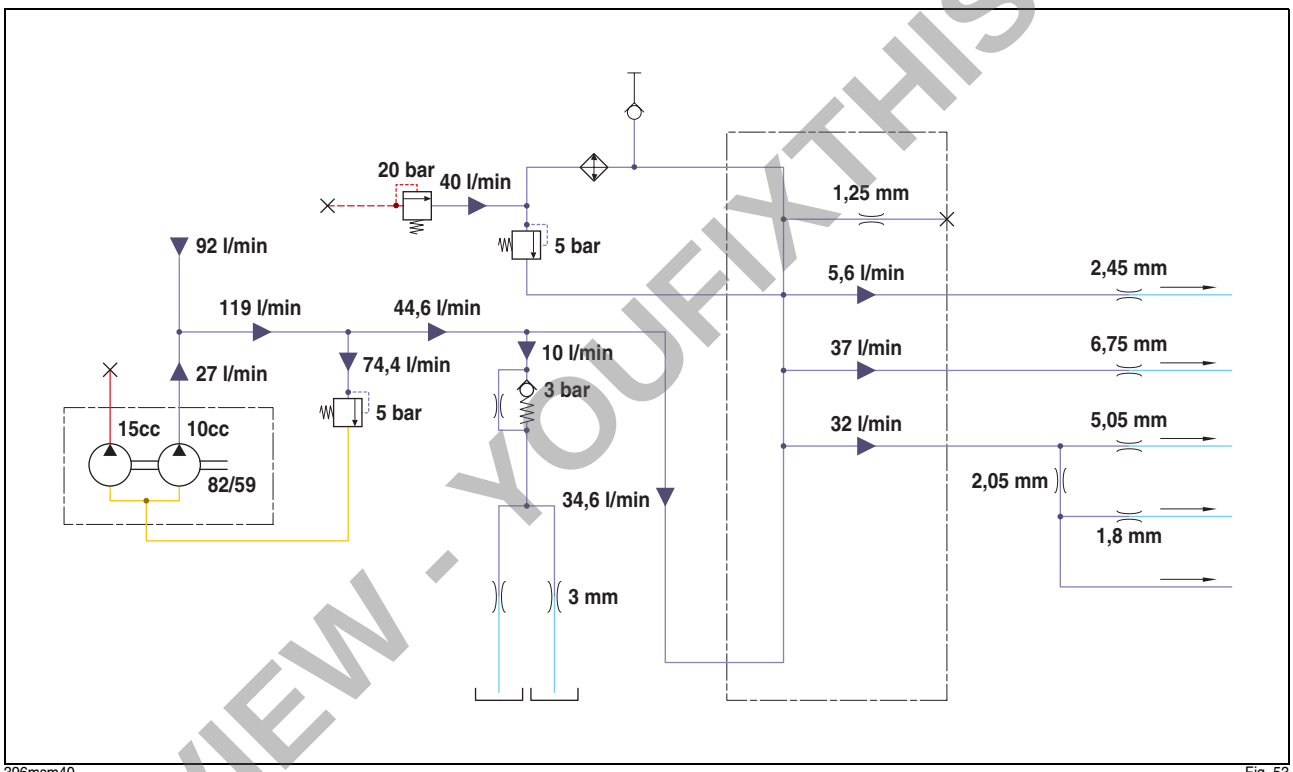
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"Load sensing" 100 l/min measuring and checking points

Test conditions:
– Engine at 2 000 rpm.
– Oil temperature at 60°C.

Lubrication flow rates at diffrent points of the circuit

These flow rates are given as an indication in l/min.
Test conditions:
– Transmission engaged (tractor made safe on stands).
– No actuator activated (spool valves, steeering, PTO, etc.).



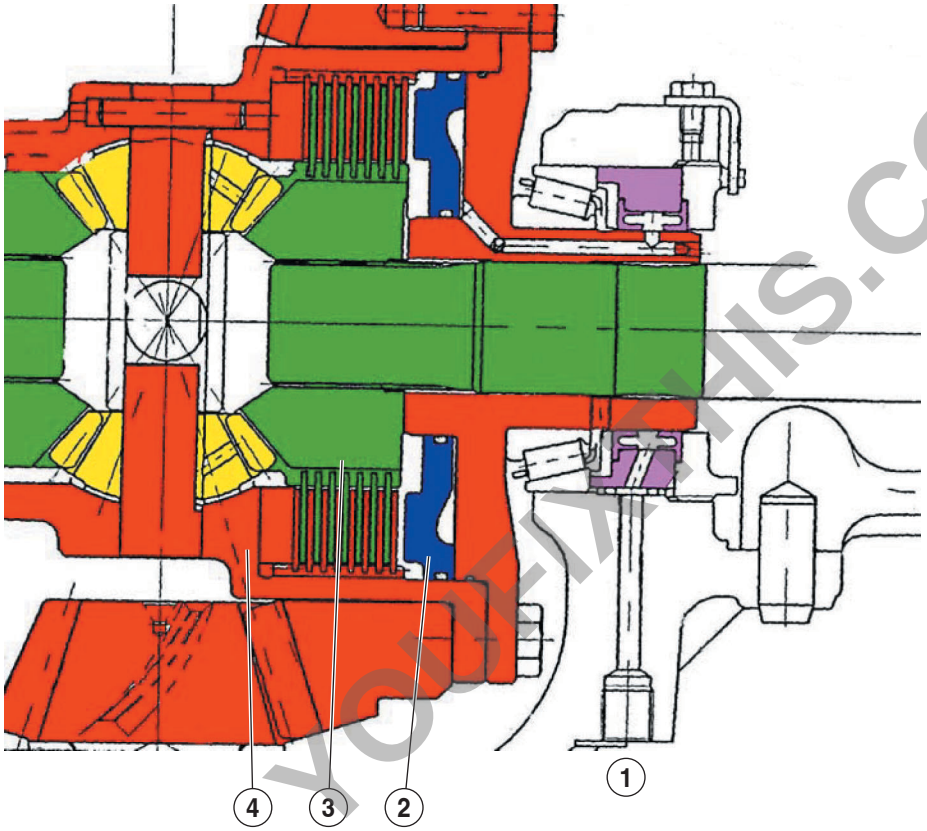
396msm40 Fig. 53

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General

Principle of controlled engagement of front axle



451msm03 Fig. 4

The centre hub contains a differential locking system controlled simultaneously with that in the rear axle. The actuation pressure of 20 bar enters via pipe (1). The piston (2) compresses the multi-disk clutch locking together the sun gear (3) and the casing (4). As the planet/sun gear assembly is then linked to the drive ring gear, the device transmits a torque that is proportional to the adhesion of each wheel.

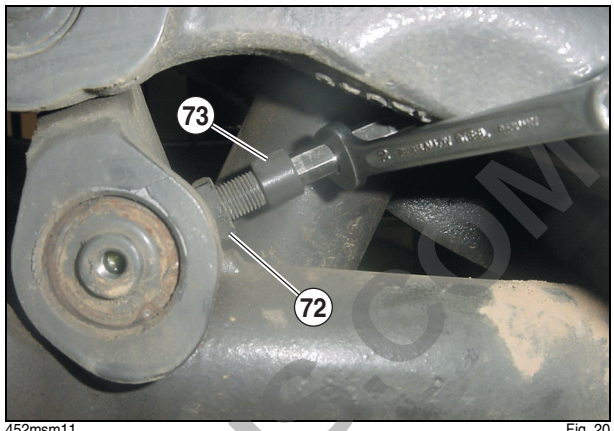
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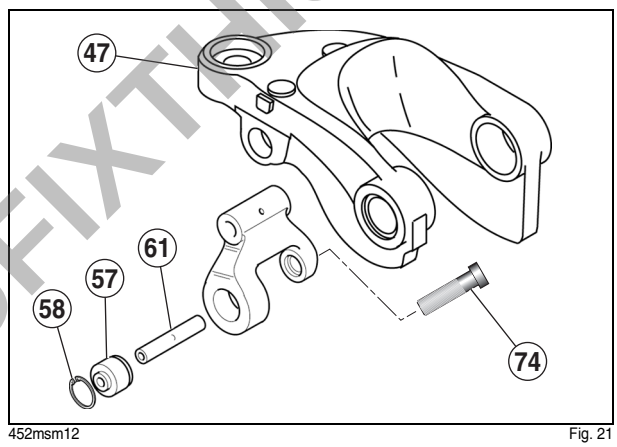
Wheel pivot and upper arm

Removing the wheel pivot

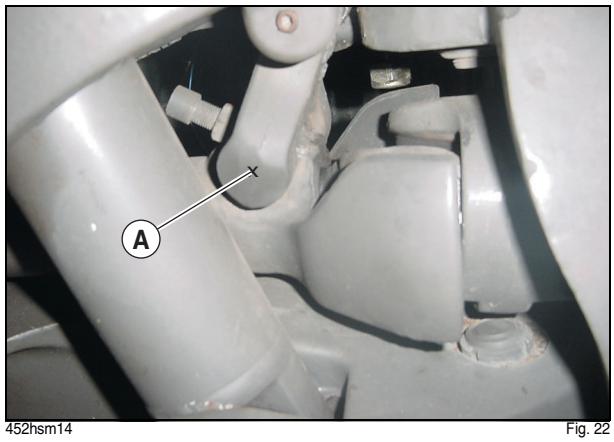
– Immobilise the tractor (see "Preliminary operations prior to working on the front axle").
– Remove the epicylic reduction gear.
– Remove the upper nut (34) from the upper arm.
– Remove the lower nut (37) from the lower arm.
– Loosen the locknut (72) and remove the locking screw (73) from the fork shaft of the universal joint protector.
– Remove the circlip (58).
– Remove the grease nipple (74).
– Using a drift punch, push on the shaft at point (A) and on the centring bush (57) to remove them.



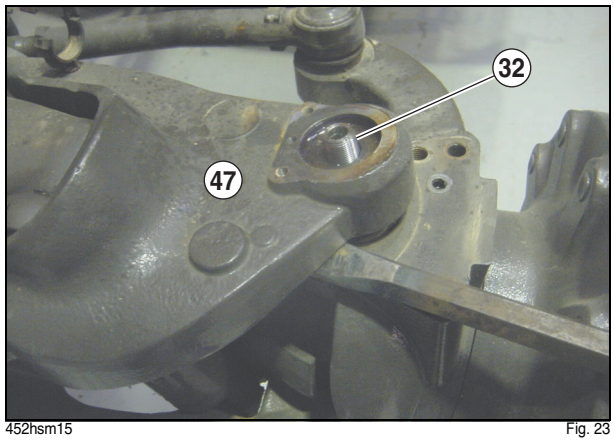
452msm11 Fig. 20



452msm12 Fig. 21



452hsm14 Fig. 22



452hsm15 Fig. 23

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Measurement and checking points

Test conditions.
- Transmission oil temperature: 60°C.
- Engine running at nominal speed.
- Suspension disabled.

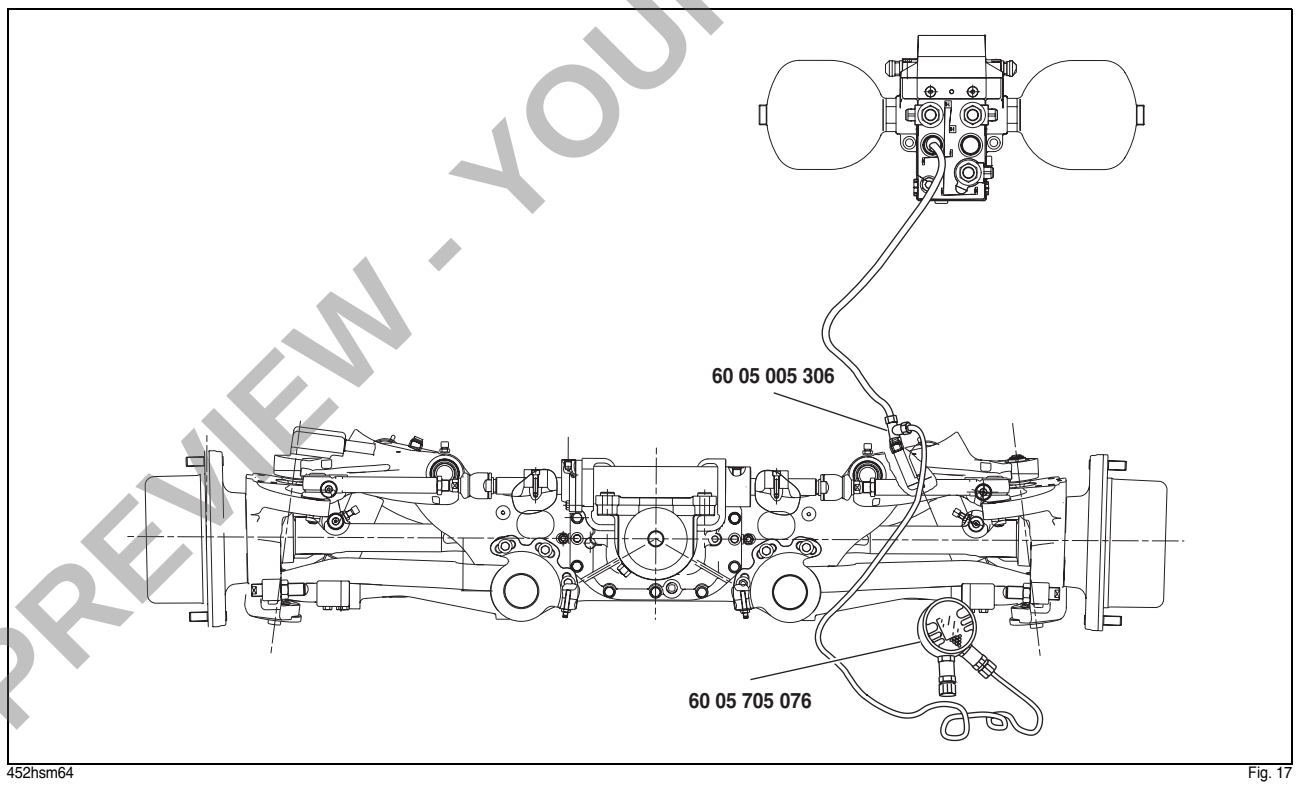
Suspension cylinder pressure check

N.B.: Check that the tractor's hydraulic functions are working properly before testing the axle hydraulic circuit.

To check the suspension cylinder pressure, connect pressure gauge n° 60 05 705 076 and adapter n° 60 05 005 306 directly to the cylinder outlet.

- The pressure at the start of the suspension rising phase should be 130 bar for a tractor equipped with a front lift.
- The pressure at the end of the rising phase should reach 150 bar (depending on the weight of the masses or the lift).
- The accumulators should take 20 seconds to inflate. The suspension system should take 6 seconds to rise.

Nominal value	Measured value	Nominal value	Measured value
Start pressure	Pressure	End pressure	Pressure
130 bar		150 bar	

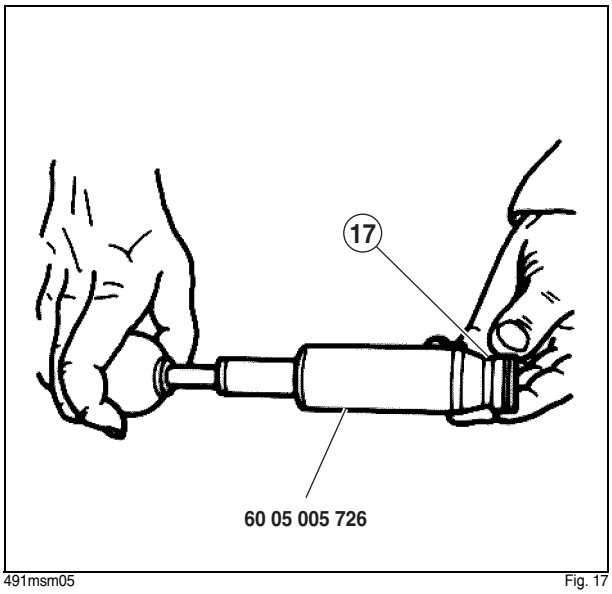


452hsm64 Fig. 17

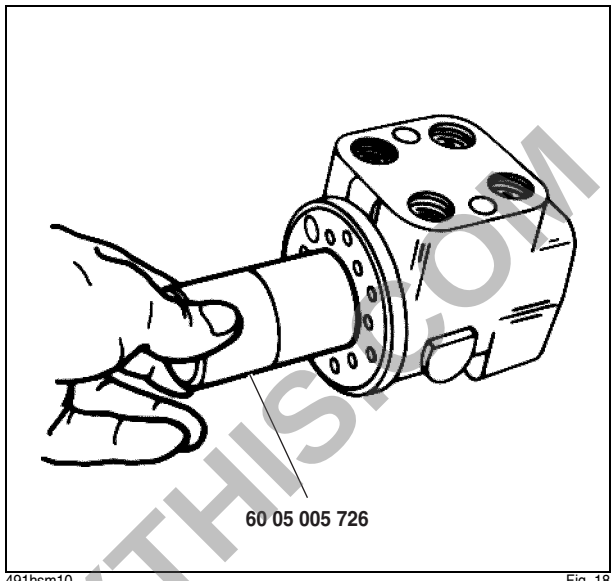
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Steering unit



491msm05 Fig. 17



491hsm10 Fig. 18

Specific points relating to removal/refitting

Always change all seals and gaskets whenever the unit is removed.

– Check the surface conditions of the parts (slide, sleeve, bores in the body, etc.).

Fitting the ring seal

– Fit the ring seal (17) onto the end of tool n° 60 05 005 726 (Fig. 17).

– Oil the seal.

– Place the fitting sheath of tool n° 60 05 005 726 on the body (Fig. 18).

– Insert the seal holder into the sheath (Fig. 19).

– Push fully in.

– Remove the sheath and the fitting tool (leaving the gasket in place).

Ensure that the roller thrust bearing (16a) is fitted the right way round.

– Position the inner thrust washer (16b) with the chamfer facing the sleeve (12 (Fig. 20).

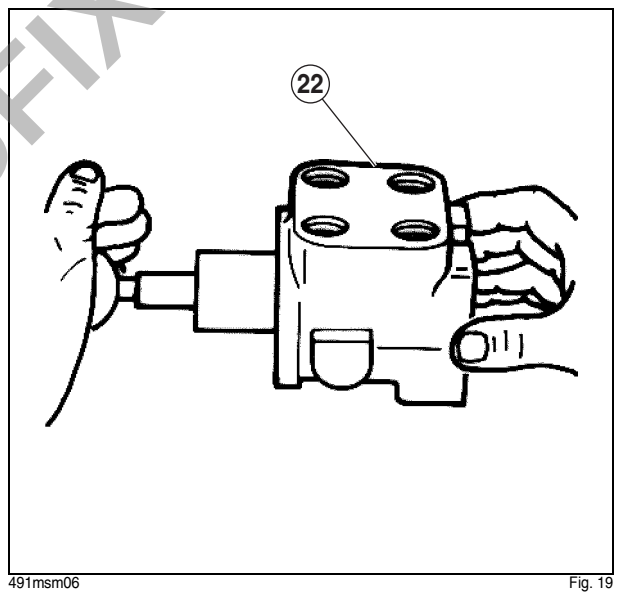
12. Distribution sleeve.

14. Rotary slide.

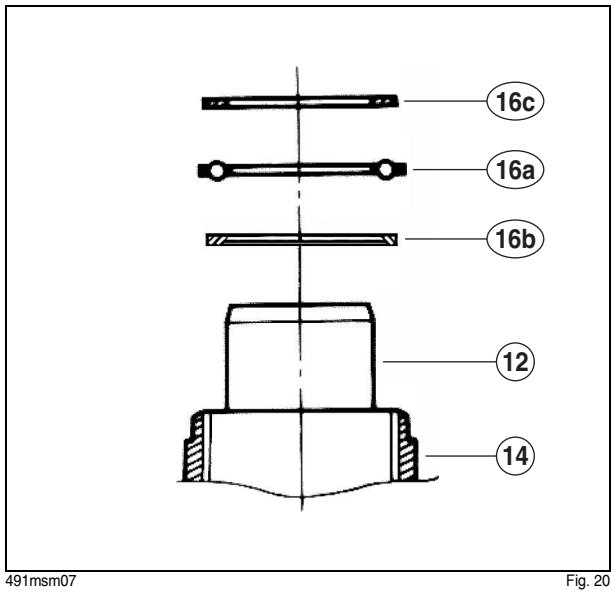
16a. Roller bearing.

16b. Inner thrust washer.

16c. Outer thrust washer.



491msm06 Fig. 19



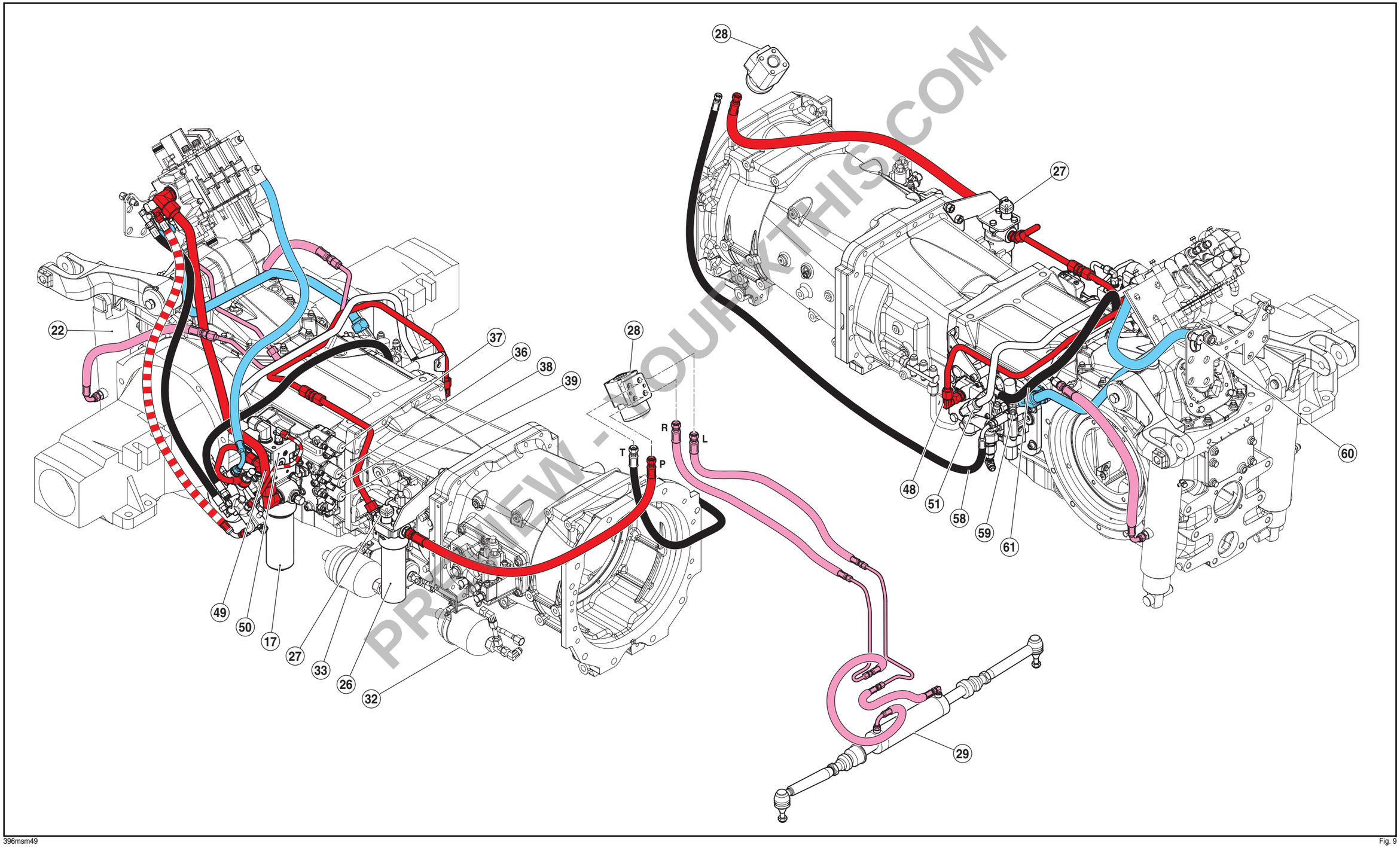
491msm07 Fig. 20

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Component layout

Circuit layout on beam



396msm49

Fig. 9

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Hydraulic measurement and checking points

• Connect tester n° 60 05 705 076 to each diagnostic socket located:

– On the pump regulator: Pressure XLS = P2

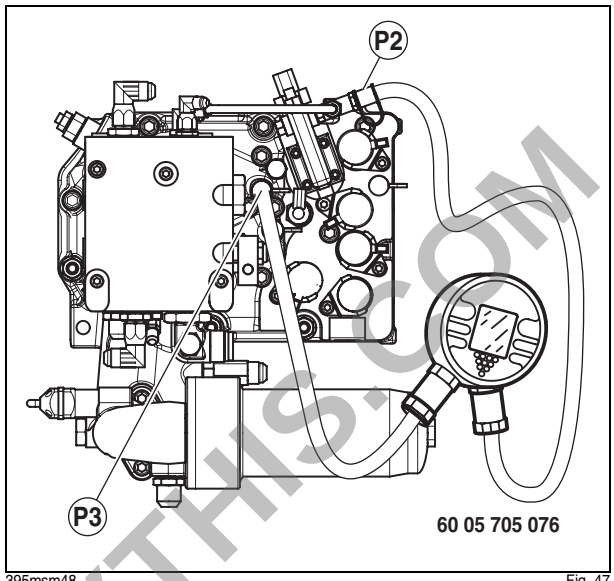
– On the right-hand cover: Pump pressure = P3.

• Set the flow regulator control for the auxiliary spool valve concerned to maximum flow.

• Actuate the auxiliary spool valve and gradually close the flowmeter valve to read the flow rate and increase the pressure.

Engine speed (rpm)	Q1 (l/min)	P2 (bar)	P3 (bar)
2 200	100 ± 10	P2 = P3 22 ± 1	110
			130
			150
			170
			180
—	0	—	190

N.B.: If the flowmeter is equipped with a pressure gauge, ignore the pressure indicated on this gauge.

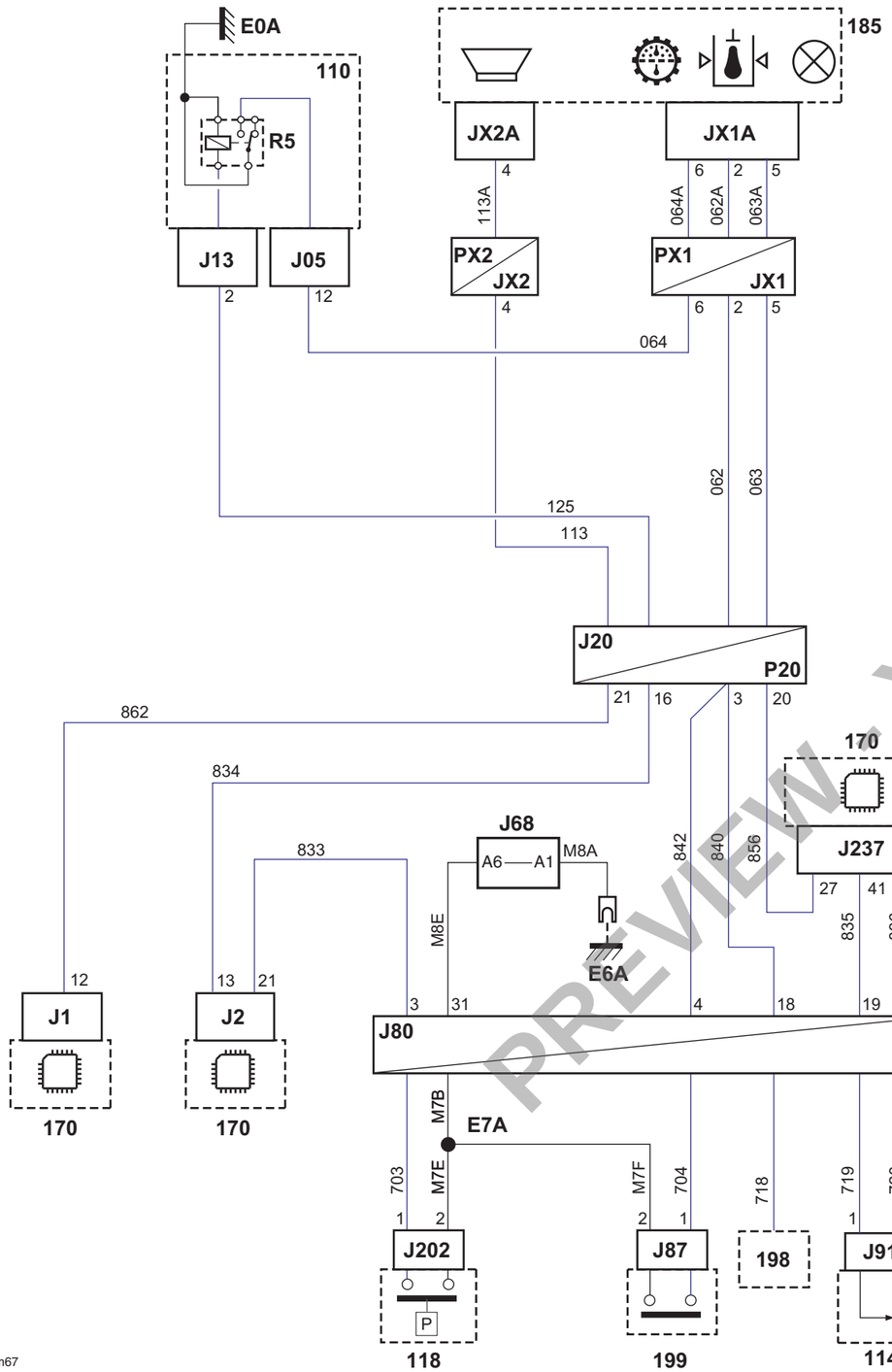


395msm48 Fig. 47

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Transmission hydraulic pressure - Transmission oil temperature - Oil filter blocked (100 litres circuit closed)

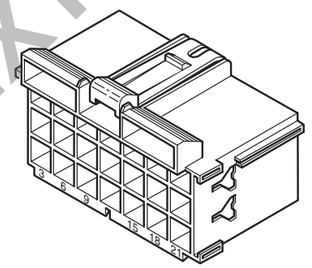


605msm67

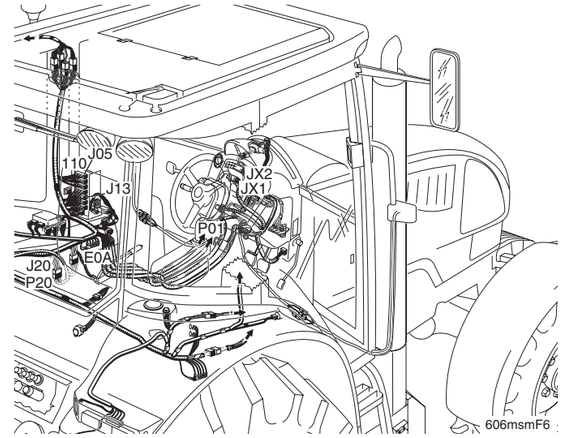
Ref	Item
110	Fuse box
114	Transmission oil temperature sensor
118	Transmission oil pressure switch
170	"Auto 5" electronic central unit
185	Instrument panel
198	Suction oil filter
199	High-pressure oil filter

	Wire markers	2	J20	Ending	
3	062	0,6	Transmission oil filter	JX1	2
16	125	0,6	Hydraulic pressure	J13	2
20	063	0,6	Transmission oil temperature	JX1	5
21	113	0,6	Outside buzzer	JX2	4

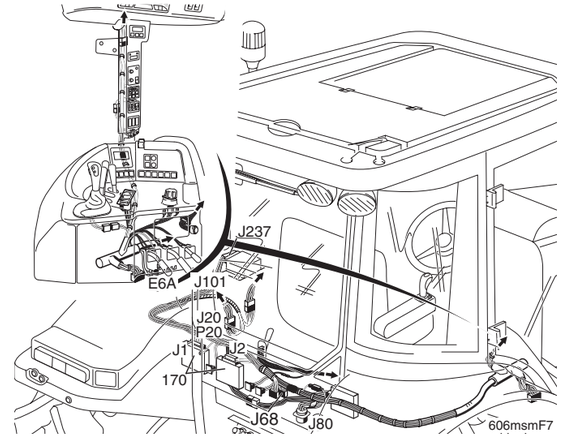
	4	7	10	13	16	19	
1	159	136	154	164	024	125	069	
2		099	153		070	126	063	20
3	062	198	105	026	083	061	113	
	6	9	12	15	18	21		



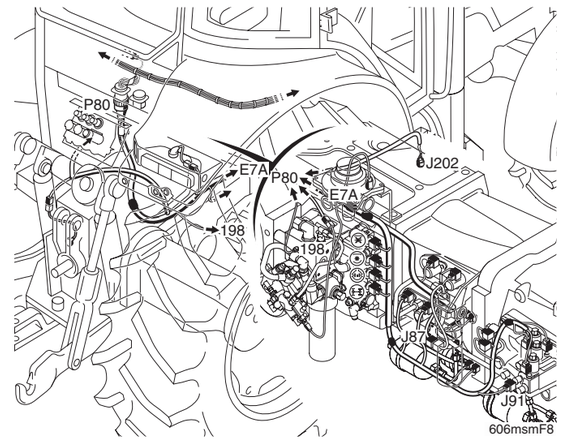
604msmB5



606msmF6



606msmF7



606msmF8

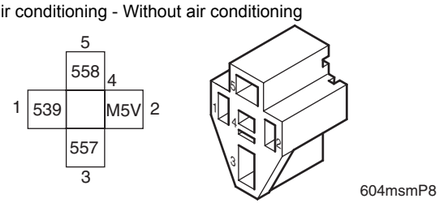
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5a - Cab top harness

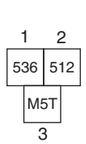
	Wire markers	2	J169	Ending	
1	539	0,5	Side light relay controls (on standby)	J291	B7
2	M5V	0,5	Side work light relay earth (on standby)	J60	A2
3	557	3	+ Side work lights (on standby)	P286	21
4	—	—	—		
5	558	3	+ Side work lights (on standby)	J292	2

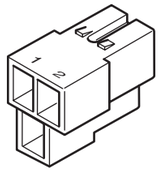
manual air conditioning - Without air conditioning



604msmP8

	Wire markers	2	J191	Ending	
1	536	1	Safety solenoid valve (off)	P286	4
2	512	1	+ APC Electrohydraulic spool valve (DEH)	P286	8
3	M5T	1	DEH earth	J60	B5

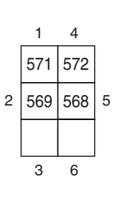


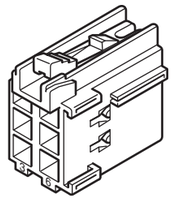


604msmP9

	Wire markers	2	J275	Ending	
1	571	0,6	CAN-Low	P137	6
2	569	0,5*	CAN-Low	J150A	5
3	—	—	—		
4	572	0,6	CAN-High	P137	3
5	568	0,6	CAN-High	J150A	4
6	—	—	—		

* Section = 0,6 for climate control version



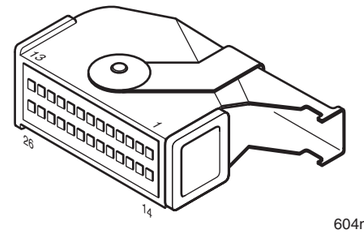


604msmR1

	Wire markers	2	J278	Ending	
1	573	0,6	Ventilation speed 1	P279	1
2	574	0,6	Earth	P279	2
3	575	0,6	+APC	P279	3
4	576	0,6	Sensor REF	P279	4
5	—	—	—		
6	577	0,6	Pressure switch	P279	6
7	578	0,6	Ventilation setpoint	P279	7
8	579	0,6	Power unit	P279	8
9	580	0,6	Defrosting thermostat	P279	9
10	581	0,6	Hood grille temperature sensor	P279	10
11	582	0,6	LH cover sensor	P279	11
12	583	0,6	By-pass valve	P279	12
13	584	0,6	Air-conditioning unit outlet temperature sensor	P279	13
14	585	0,6	Overhead instrument panel temperature sensor	P279	14
15	—	—	—		
16	586	0,6	Engine control	P279	16
17	587	0,6	Engine control	P279	17
▼	—	—	—		
22	588	0,6	Recirculation control	P279	18
23	589	0,6	Recirculation control	P279	19
24	590	0,6	Air conditioning compressor	P279	20
25	595	0,6	Line K	P279	5
26	591	0,6	Pilot	P279	21

With climate control option only

1	573	585	14
2	574		15
3	575	586	16
4	576	587	17
5			18
6	577		19
7	578		20
8	579		21
9	580	588	22
10	581	589	23
11	582	590	24
12	342C	595	25
13	583	591	26

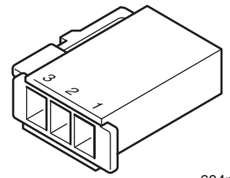


604msmR2

	Wire markers	2	J289	Ending	
1	—	—	—		
2	546	0,6	+ AVC spotlight	P61	5
3	M5X	0,5*	Spotlight earth	**E5A**	

* Section = 0,6 for climate control version

3	2	1
M5X	546	



604msmR3

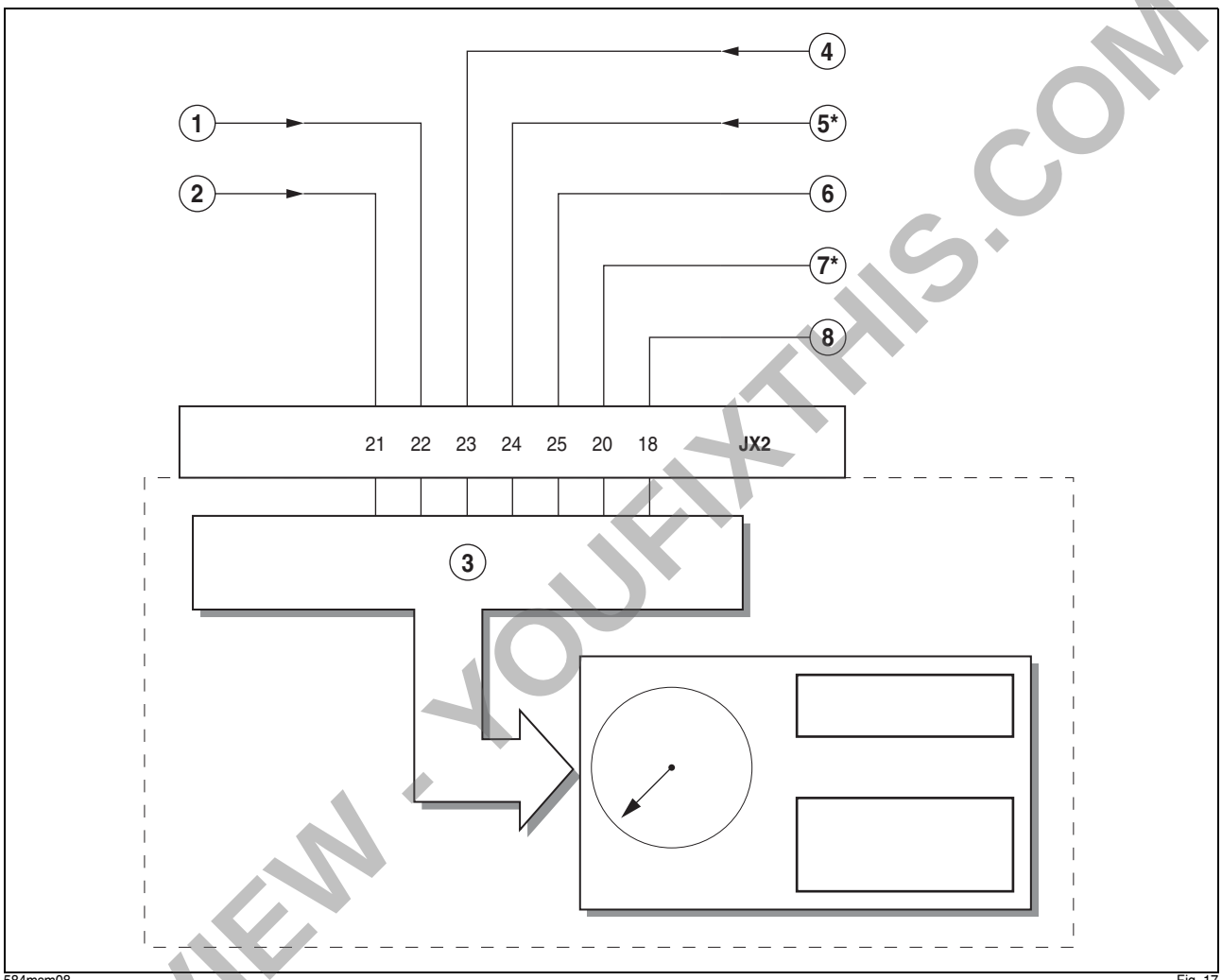
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Characteristics

Input/output by function

Input/output by function (rev counter, various speeds and hour counter)



584msm08 Fig. 17

Nomenclature

1 Rear power take-off speed.
2 Alternator signal (engine speed).
3 Dashboard electronic control unit.
4 Theoretical speed sensor signal.
5 Actual speed radar signal*.
6 Speed calibration control.
7 Front PTO signal*.
8 Display selection control.

Nature of signal or electrical level

1, 2, 4, 5*: AC signal measured on frequency indicator.
6, 8: Earth contact.
7*: 12 V DC voltage if front PTO control engaged.

** Option depending on model.*

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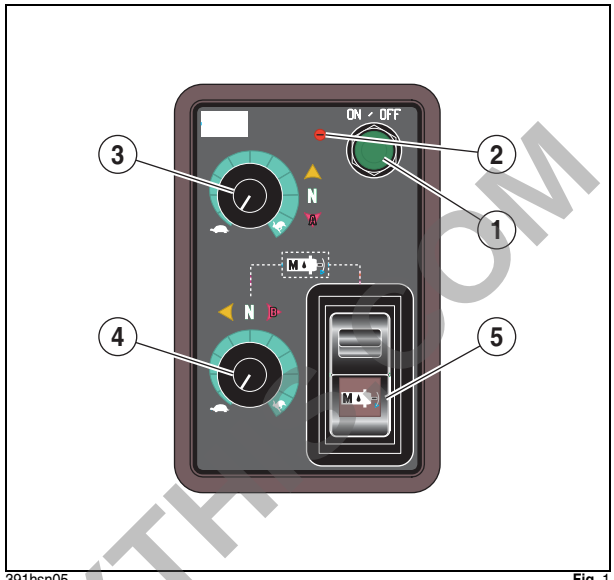
Description

Controls

Console

Nomenclature

1 On/Off pulse button.
2 Warning light (see chapter "G6").
3 Flow rate control of spool valve (8).
4 Flow rate control of spool valve (9).
5 DC power switch of spool valve (9).
6 Pulse buttons (see next paragraph).
7 Floating position pulse button.
X Control shaft of spool valve (9).
Y Control shaft of spool valve (8).

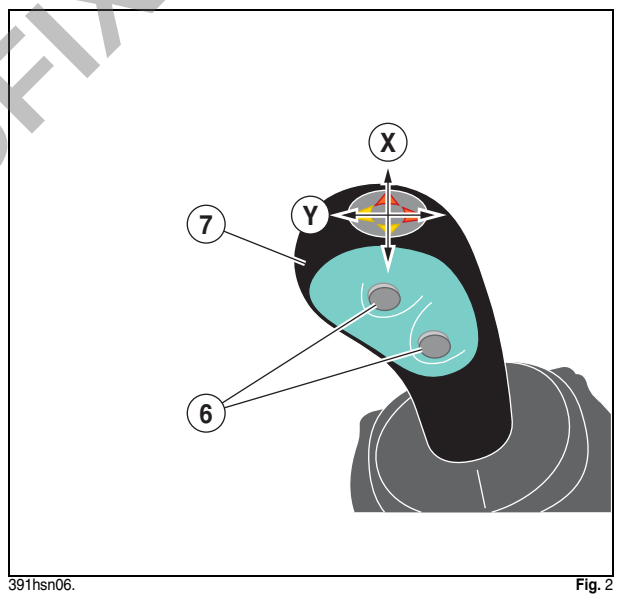


391hsn05. **Fig.** 1

Pulse buttons (6)

N.B.: The pulse buttons (6) are used to control the relays that control an (on-off) solenoid selector valve for an elevator or a gripper on a loader. The socket connecting the relays is ready under the right console (it is identical to the holding socket of the mechanical cross control). This control is not processed by the electronics of the joystick.

Important: The relays must be fitted with a free-wheel diode to neutralise the high-voltage surge.



391hsn06. **Fig.** 2

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Engine application

Anomaly code SPN 620 FMI 4
Sensor feed voltage low

Sensor feed voltage

The engine control unit feeds voltage to different sensors depending on the application. It monitors the drop in voltage caused by the sensor and compares it with the values pre-programmed in its memory in order to determine the value of the parameter measured by the sensor. Moreover, the control unit checks the exact voltage of the feed circuit of 5 V to ensure that the records are accurate.

Code SPN 620 FMI 4 is declared if

The engine control unit detects a voltage lower than 4,44 V on its sensor feed circuit of 5 V.

This is what happens if the SPN 620 FMI 4 code is in force

The engine control unit uses default values for the sensors supplied by the input feed voltage.

1. Check the connection Carry out a preliminary inspection of the UCE unit connector. Find any dirty, worn or badly positioned terminals.	**No defective connection** Go to 2. **Defective connection(s)** Repair the defective connection(s).
2. Possible causes – Short circuit at the earth at the sensor input. – The temperature sensor is faulty. – The engine control unit is defective.	

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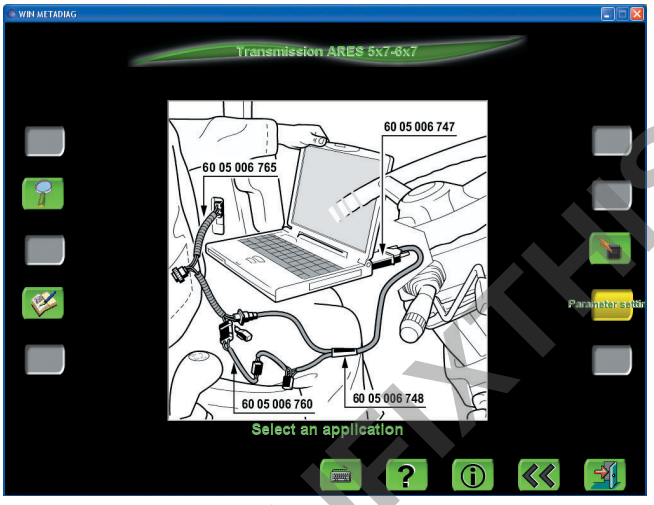
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Setting "Auto 5" parameters

Important: The parameters of the units must be set after every programming operation.

Parameter setting provides information on the tractor equipment.

– Connect to the tractor and switch on the ignition.

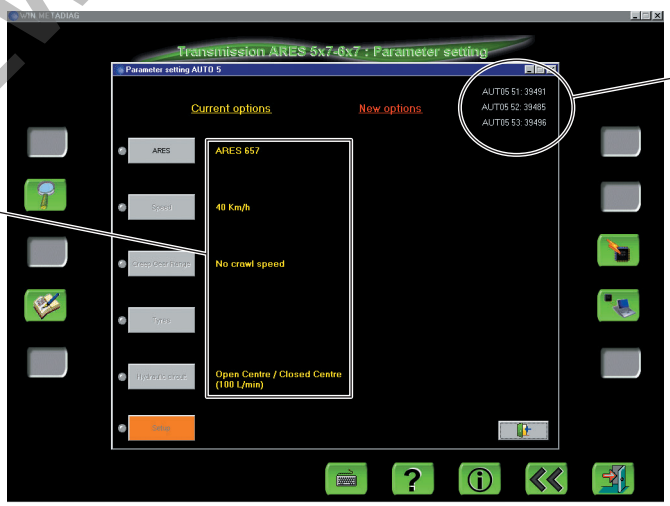


586msm46 Fig. 76

– Select the "Parameter setting" icon.

When the parameter setting window opens, Win Métadiag© displays the options which are currently saved (1). For information, each unit is mentioned (serial number with corresponding function) at the top right of the window (2).

Important: Before setting the parameters, check that the 3 units are recognised (3 units displayed). If not, exit the application, switch off the ignition and start the procedure again.



586msm47 Fig. 77

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Removal/refitting of glazing

Applying primer

– Shake the bottle with the green cap (7) until you hear the balls rattling and for at least one minute.

– Use a round brush to paint the black edge of the windscreen (where the bead of sealant will be applied).

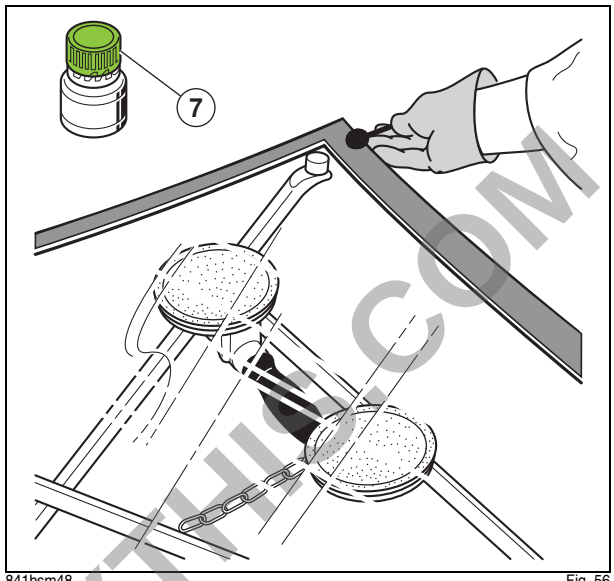
N.B.: This product is beneficial to sealant adhesion and protects the metal parts stripped bare on cutting away the old sealant against rust. It will also protect the two-pack sealant from the sun's ultraviolet rays.

– Coat the rebate of the cab windscreen frame with the same product at the points where the paint has been removed on cutting away the old seal.

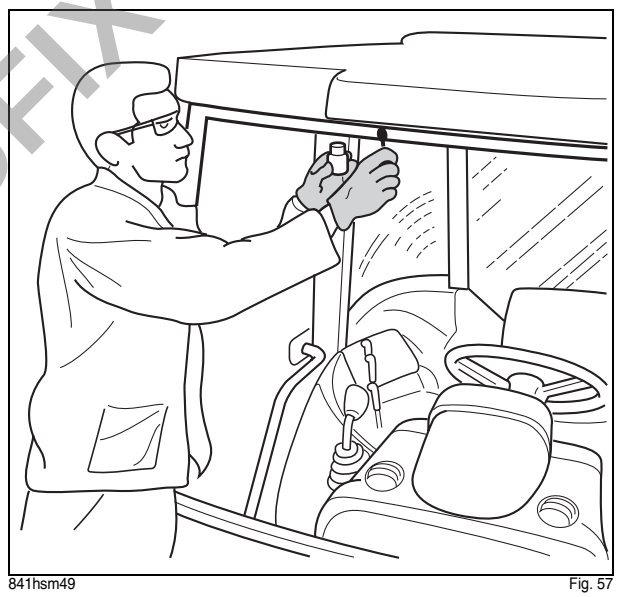
– Leave to dry for approximately 15 minutes.

– Dry with a hot air blower if the temperature is too low.

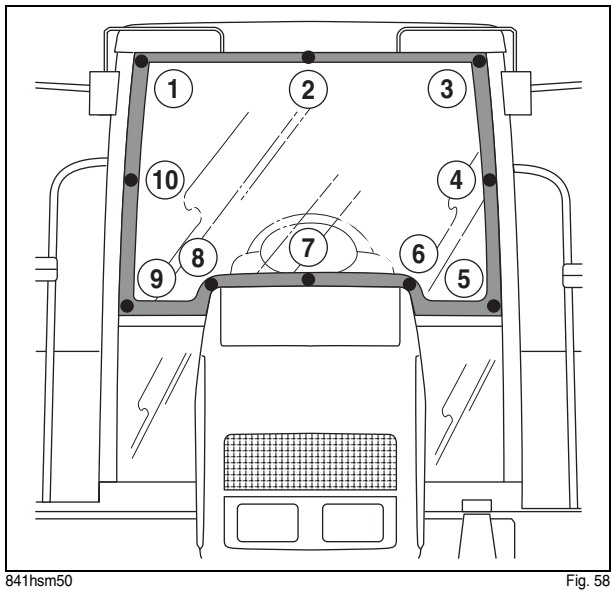
– Stick the cushion pads (P/N 60 05 020 197) to the frame rebate (Fig. 57).



841hsm48 Fig. 56



841hsm49 Fig. 57



841hsm50 Fig. 58

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Notes

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