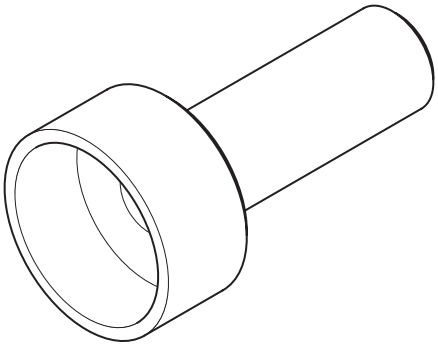
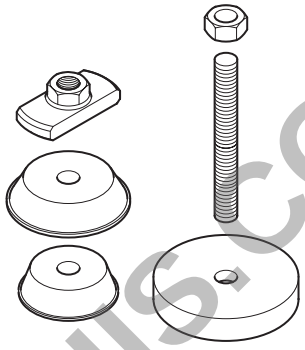
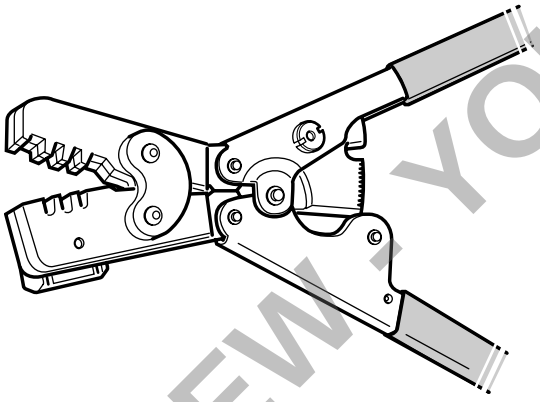
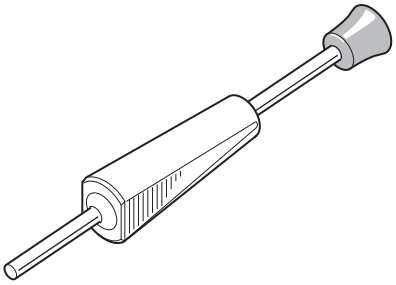
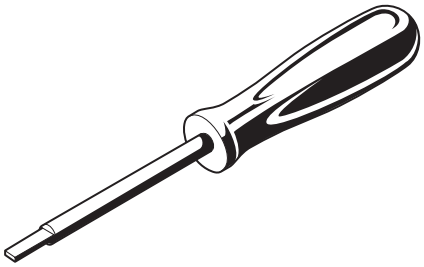
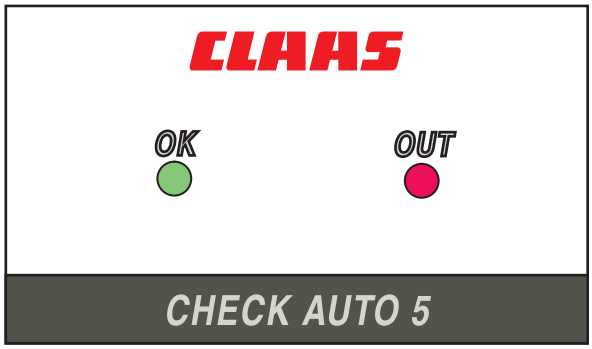
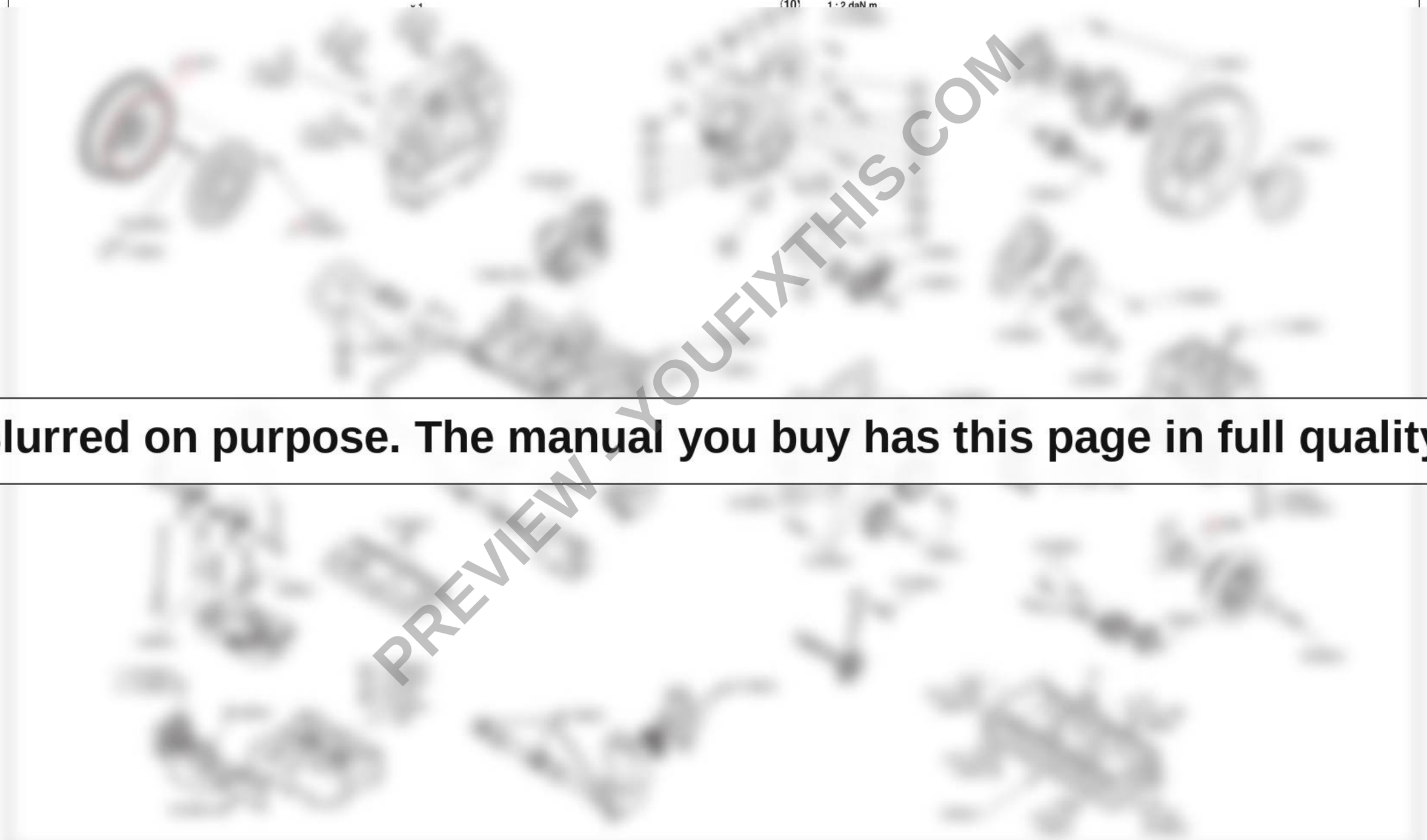
Tools

60 05 006 576	60 05 006 579
	
Axle bevel gear seal press tool 750.102 (ø 36)	**Bearing bushing press tool.**
60 05 006 703	60 05 006 704
	
Crimping pliers.	**Extractor for connection between transmission control wiring and transmission or TCE.**
60 05 006 758	60 05 033 249
	
Extractor to unlock clips and tabs of MIC type.	**"Auto 5" control unit.**

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Specific torque



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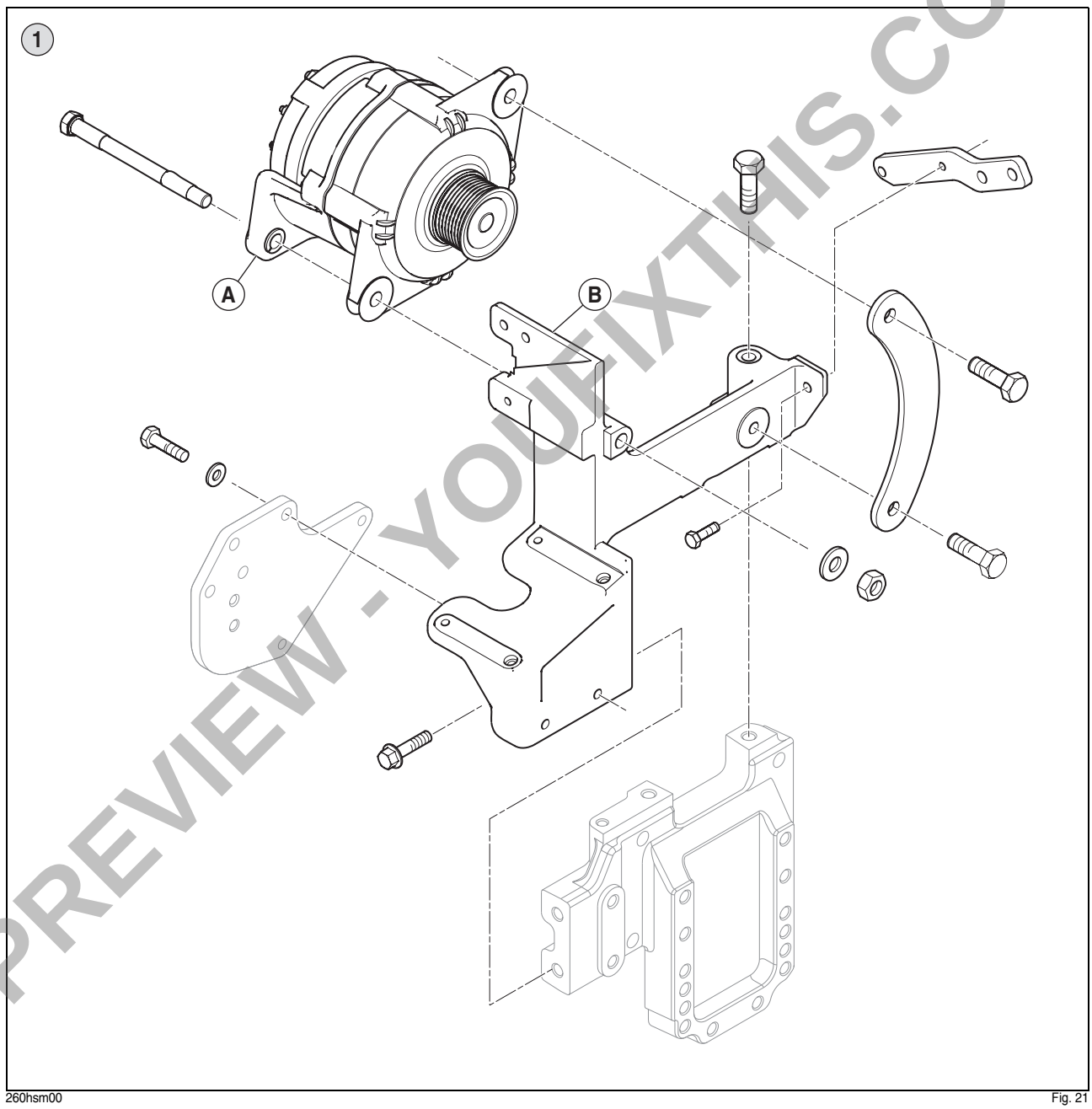
Removing the alternator and alternator bracket

– Disconnect the battery.

– Disconnect the alternator connections.

– Remove the alternator (A).

– Loosen the fastening screws on the bracket (B) and pull it.



260hsm00 Fig. 21

Description

1 Pneumatic braking version.

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Timing and balancing shaft.

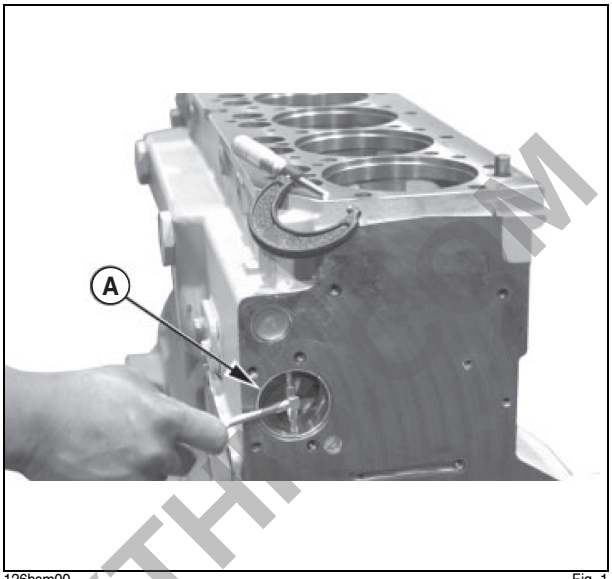
Measuring the bore of the camshaft bush.

Replaceable bushes (A) are fitted only in the bore of the front camshaft. The other bores of the cylinder block act as camshaft bushes.

– If the bush does not comply with the values prescribed, change them.

Specified value.

Inner diameter of the pin ring.....55,96 - 55,987 mm



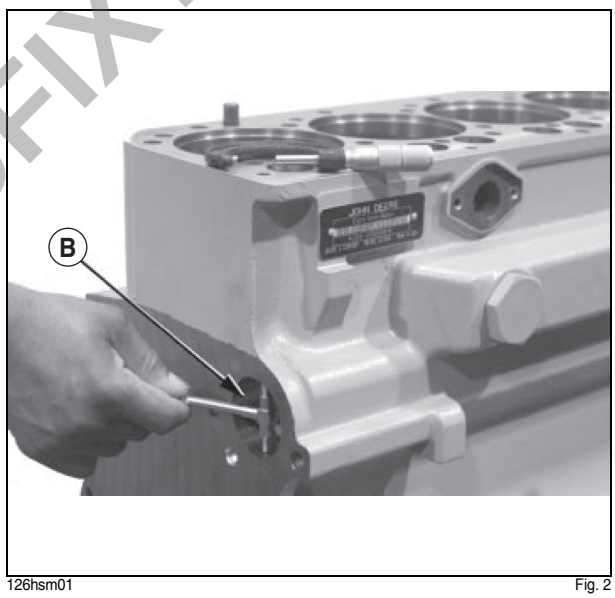
126hsm00 Fig. 1

– If the bush must be changed, remove it and measure the bore diameter in the block. If the bore (B) in the block does not comply with the values prescribed, repair or change the cylinder block.

Specified value.

Diameter of the front bore in the block.....59,961 - 59,987 mm

Diameter of bores in the block.....55,986 - 56,012 mm



126hsm01 Fig. 2

Measuring axial clearance of the camshaft.

– Measure axial clearance of the camshaft.

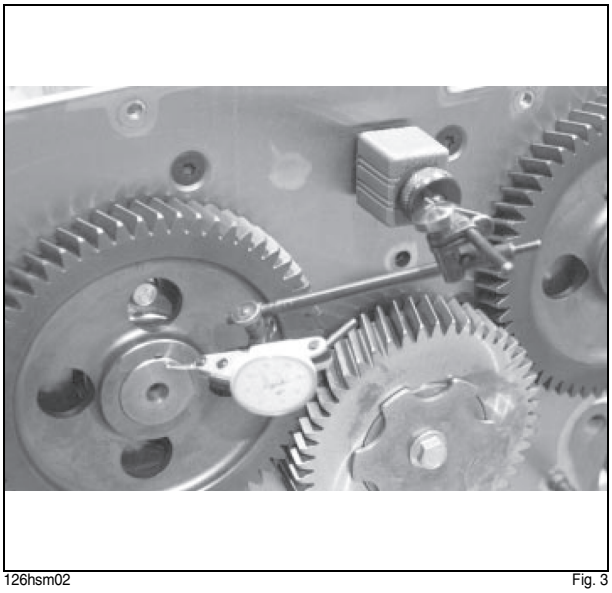
If axial clearance is excessive, check the thickness of the camshaft arrester plate.

Specified value

Axial clearance.....0,08 - 0,23 mm

Note : The clearance of the stop plate determines axial clearance of the camshaft.

Thickness of the arrester plate.....3,96 - 4,01 mm



126hsm02 Fig. 3

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Cylinder head and valves

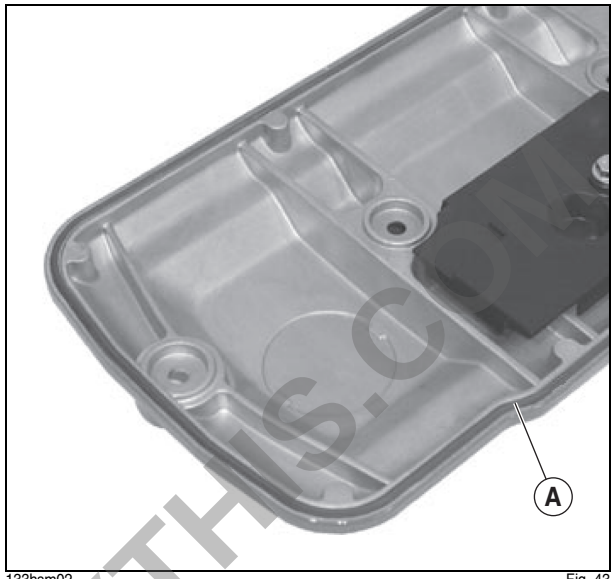
Refitting the cylinder head cover

Important: change the sealing gasket (A) whenever removing the cylinder head cover.

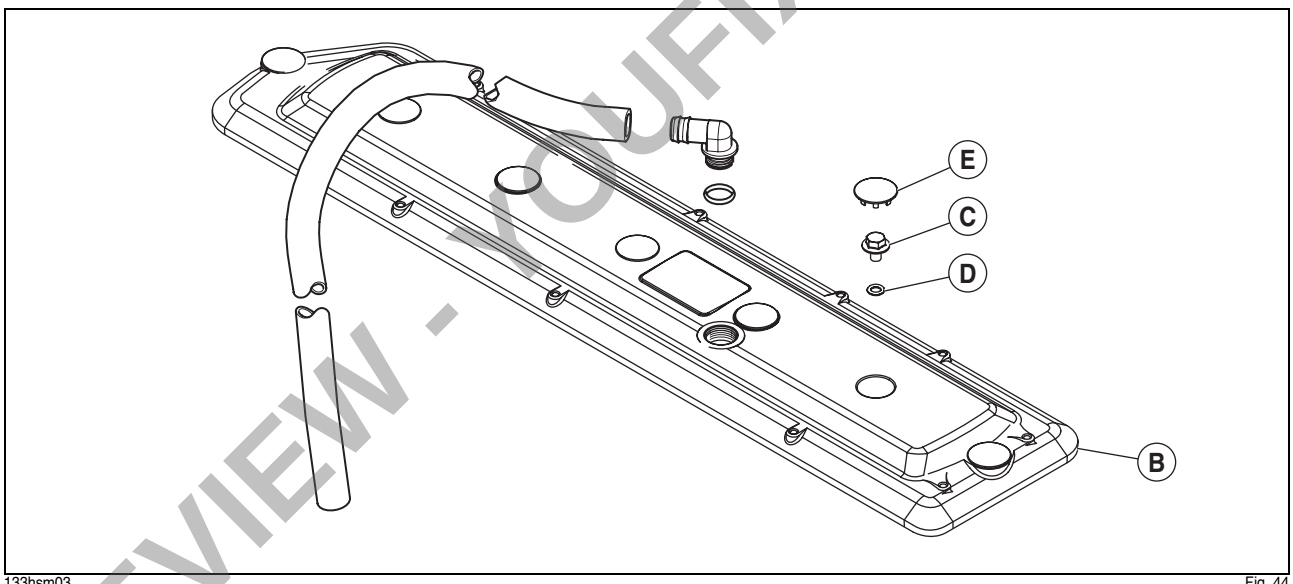
– Fit the cylinder head cover (B).

– Fit the screws (C) and the O-rings (D). Tighten to 0,7 daN.m.

– Fit the caps (E).



133hsm02 Fig. 43



133hsm03 Fig. 44

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TOOLING PER CHAPTER

A

00 11 341 430
00 11 341 450
00 11 341 460
00 11 361 380
60 05 005 504
60 05 005 507
60 05 005 509
60 05 005 510
00 11 354 520
60 05 005 517
60 05 005 520
60 05 005 528
60 05 005 531
60 05 005 532
60 05 005 573
60 05 005 576
60 05 005 577
60 05 005 594
60 05 005 595
77 11 132 517
77 01 388 047
77 01 388 084
77 01 388 110
77 01 388 111
77 01 388 127
77 01 388 180

B

00 01 783 100
00 01 783 200
00 11 360 810
00 11 368 360
00 11 372 810
00 11 372 820
60 05 005 310
60 05 005 734
60 05 006 153
60 05 006 155
60 05 033 249
60 05 033 250
77 01 388 031

C

00 01 783 200
60 05 006 309
60 05 006 310
60 05 006 311
60 05 006 319

D

00 11 315 000
00 11 315 120
00 11 360 200
00 11 360 210
00 11 360 240
00 11 360 860
00 11 360 870
60 05 006 561
60 05 006 564
60 05 006 568
60 05 006 576
60 05 006 579
60 05 706 306
77 01 388 547
77 01 388 907

E

00 01 783 100
00 01 783 200
60 05 005 718
60 05 005 726
60 05 712 800
60 05 712 971

F

00 11 350 950
60 05 006 703
60 05 006 704
60 05 006 758
77 00 003 898
77 00 029 665
77 00 029 666
77 00 029 667
77 00 054 361
77 00 065 236

G

00 11 350 950
60 05 005 734
77 00 034 484
77 00 034 485

H

77 01 388 907

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Cylinder head and valves

Locally made tool

Injector socket extractor

A = 23 mm

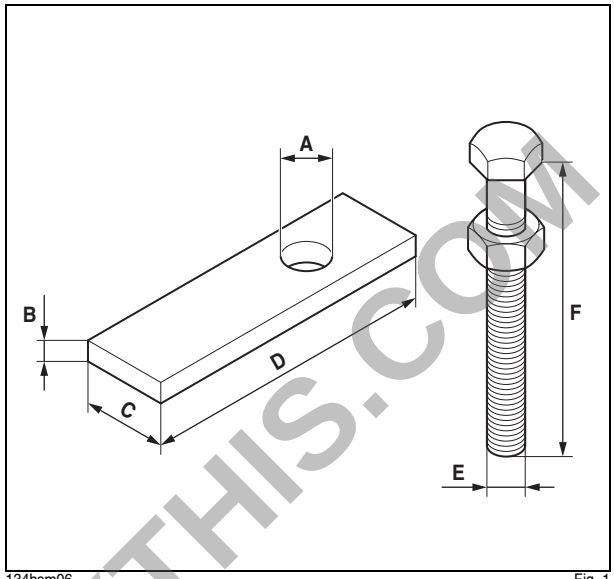
B = 15 mm

C = 50 mm

D = 20 mm

E = 22 x 250 mm

F = 180 mm (Subhead)



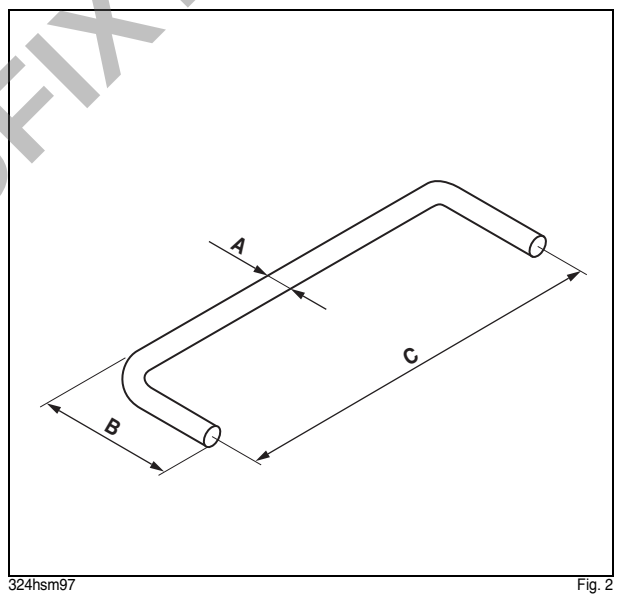
134hsm06 Fig. 1

Rocker caliper

A = 3 mm

B = 15 mm

C = 50 mm



324hsm97 Fig. 2

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Cylinder head and valves

To perform the tightening of step 4:

– Use a torque angle gauge or the linear mark method.

1

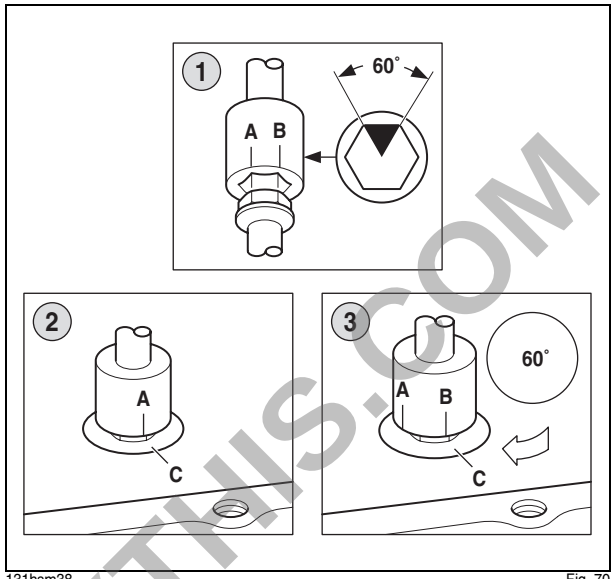
– Make 2 marks (A) and (B) on the socket, spaced by a 6th of a turn (60° ± 10°).

2

– Place the socker on a screw and make a mark (C) on the cylinder head while aligning with mark (A) on the socket.

3

– Tighten all screws (in sequence) until the mark B on the socket is aligned with the mark on the cylinder head (C).



131hsm38 Fig. 70

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Notes

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Timing and balancing shaft

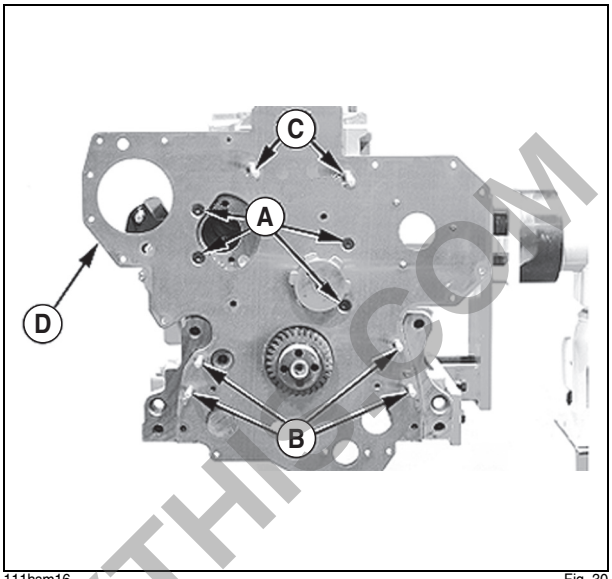
Removing the front plate

Note : to be able to remove the front plate, first remove the timing gears.

– Remove the 4 Torx® countersunk head screws (A) from the front plate.

– Remove the 6 threaded studs (B) and (C).

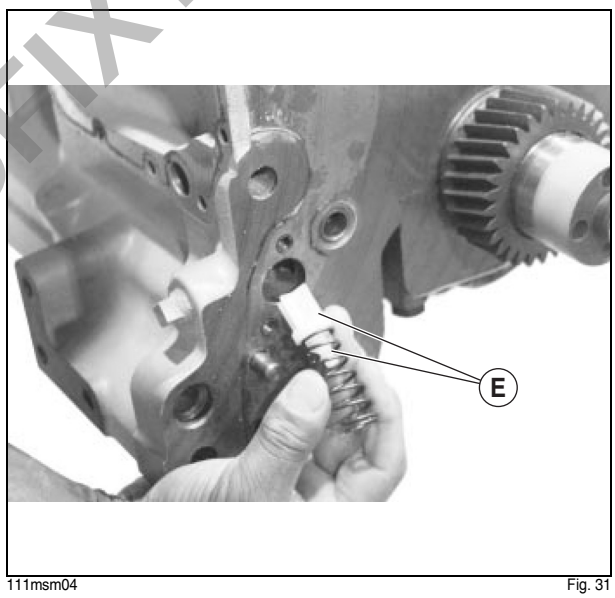
– Remove the front plate (D).



111hsm16 Fig. 30

– Remove the oil by-pass valve and the spring (E).

– Remove the pin of the upper intermediate shaft and lower gear intermediate shaft.



111msm04 Fig. 31

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B1
GENERAL

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Refitting the "Hexashift" module

– Grease the seal (A).

– Assemble in the reverse removal sequence.

– Fit the "Hexashift" module into the casing while aligning on the mark made during removal.

– Coat the screws with Loctite (243). Tighten the screws to 6,7 daN.m.



326hsm1c Fig. 39

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Robot-driven ranges

Description

1 Cover.
2 Range "D" stop nut.
3 Range "C" stop nut.
4 Range "B" stop nut.
5 Range "A" stop nut.
6 Stop covers.
7 Stop screw.
8 Screw.
9 Prevention lock.
10 Cam followers.
11 Locating pin.
12 Locating pin.
13 Shims.
14 Bearing cup.
15 Bearing cone.
16 Reverse gear pinion.
17 Bearing cone.
18 Bearing cup.
19 Shims.
20 Bearing cup.
21 Bearing cone.
22 Primary shaft.
23 Retaining ring.
24 Washer.
25 Shims.
26 Bearing cup.
27 Bearing cone.
28 Bearing cone.
29 Bearing cup.
30 Washer.
31 Retaining ring.
32 Range "C" driving pinion and range "A" driven pinion.
33 Locking ring.
34 Washer.
35 Roller bearing.
36 Retaining ring.
37 Range "C" and "D" single cone synchroniser.
38 Bush.
39 Range "D" driving pinion.
40 Bearing cone.
41 Bearing cup.
42 Locking ring.
43 Sealing ring.
44 Retaining ring.
45 O-rings.
46 Cover.
47 O-ring.
48 Piston.
49 Retaining ring.
50 Guide rod.
51 O-ring.
52 Piston.
53 O-ring.
54 O-ring.
55 Fork for ranges "C" and "D".
56 Pin.
57 Plug.
58 Shims.
59 Lubrication tube.
60 O-ring.
61 Spring.
62 Bearing cup.
63 Bearing cone.
64 Retaining ring.
65 Washer.
66 Shims.
67 Shouldered bushing.
68 Bearing cup.
69 Bearing cone.
70 Bearing cone.
71 Bearing cup.
72 Range "A" and "B" driven pinion.
73 Range "A" driving pinion.
74 Needle bearing.
75 Secondary shaft.
76 Range "A" and "B" double cone synchroniser.
77 Locking ring.
78 Range "A" and "C" driven pinion.
79 Spacer.
80 Range "D" driven pinion.
81 Bearing cone.
82 Bearing cup.
83 Guide rod.
84 Fork for ranges "A" and "B".
85 Locking ring.
86 Inner piston.
87 O-rings.
88 Retaining ring.
89 Spring.
90 Supply tube.

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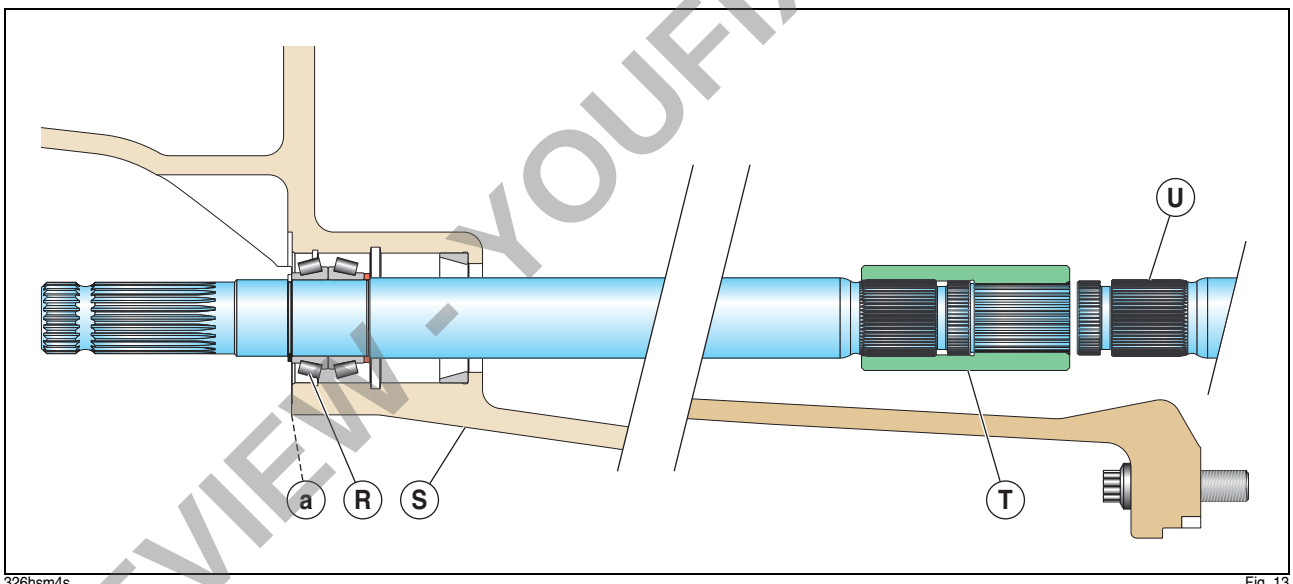
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Procedure for shimming the 4 wheel drive shaft

• Position the shaft in the casing using the local manufacturing tool (B), (see page B5.2).



326hsm85 Fig. 12



326hsm4s Fig. 13

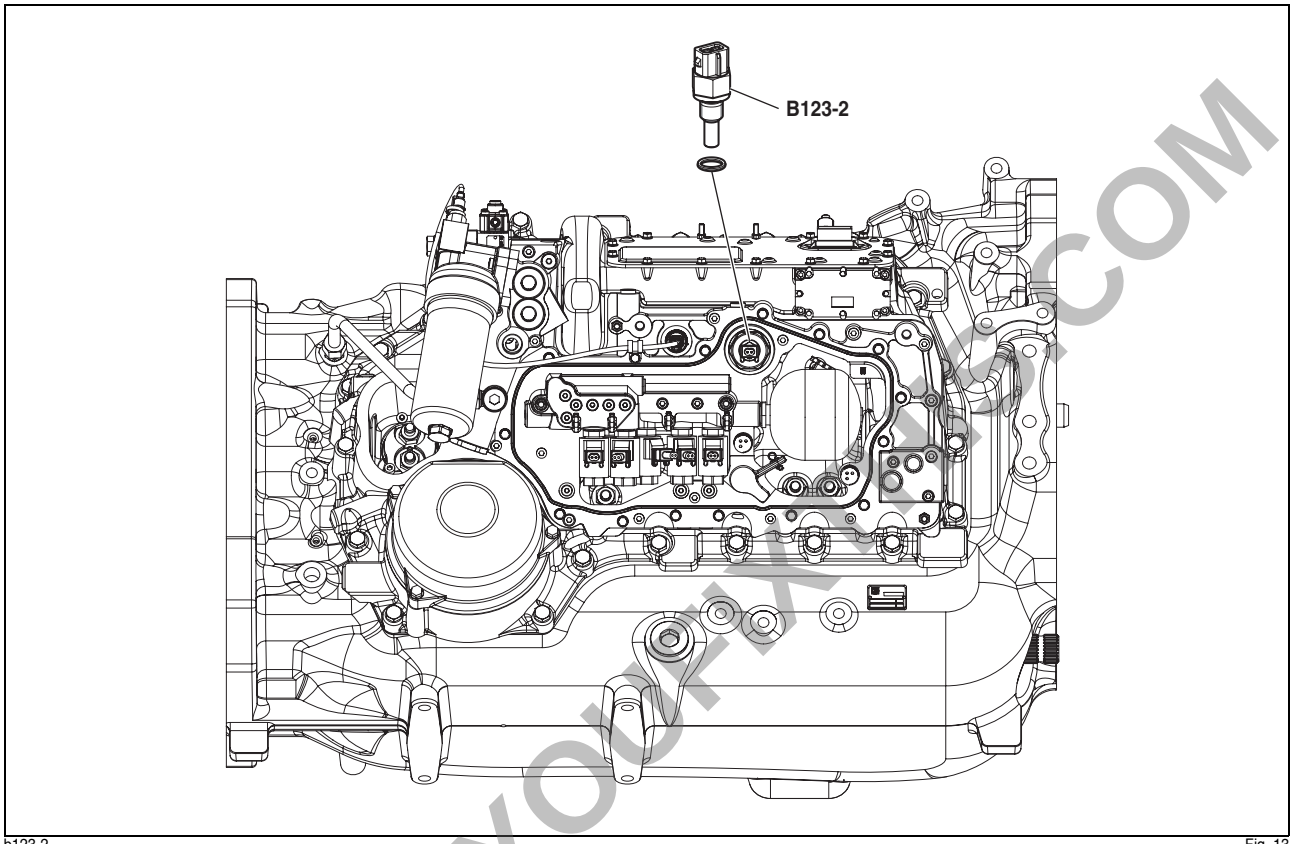
Note: To help engage the shaft, position the bearing (R) in alignment (a) of the casing (S) and the sleeve (T) must be opposite the shaft (U) of the 4 wheel drive housing.

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Cartridge "CMatic"

Removing the oil temperature sensor "B123-2"



b123-2 Fig. 13

– Disconnect the sensor harness.

– Remove the sensor.

Refitting the sensor

– Change the sealing bush when fitting a new sensor.

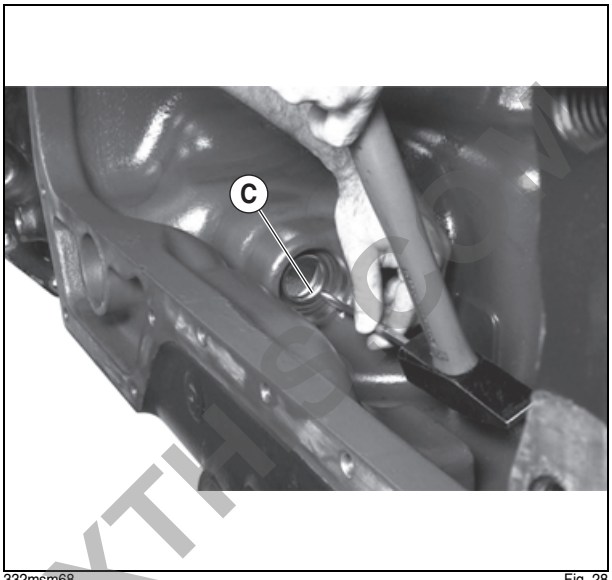
– Tighten to 3 daN.m.

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Overhauling the line shafting in the gearbox casing "CMatic"

• Push the 2 sealing bushes (C).



332msm68 Fig. 28

Refitting the 4 wheel drive shaft

• Refit in reverse order to removal.

Note:

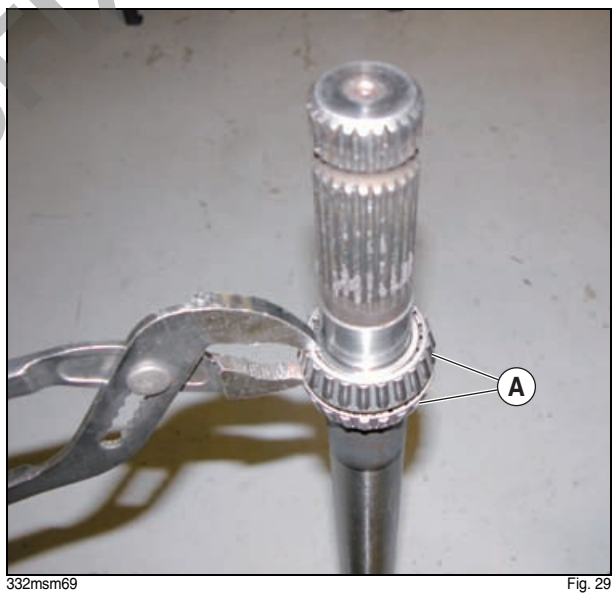
– Always change any bearing cones and cups removed.

– The bearings shall be heated in a bath of boiling oil or on an induction heater.

• Fit the bearing cones on the shaft (A).

• Check that the bearings are in the correct position after cooling.

• Fasten the stop ring .



332msm69 Fig. 29

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Differential

General

The ring gear is screwed onto the differential case or rivets. The differential assembly rotates on 2 tapered bearings held by 2 side supports and screwed onto the housing. The differential assembly consists of 2 half-cases containing 4 planet gears and 2 sun gears. Preload of the differential assembly is achieved by means of blocks inserted between the left-hand bearing cone and the left-hand bearing. Clearance between the teeth of the drive pinion and the crown gear is obtained using blocks inserted between the right-hand side cup and the differential half-housing.

Differential lock

The multidisc locking device located on the left-hand side of the half-case comprises:

– A unit containing the discs and the backplates .

– A hub connected by splines to the sun gear of the LH axle tube.

– An assembled cover for the piston supported by a tapered bearing.

The piston chamber housed in the cover communicates with a duct in the bearing , enabling low pressure (21 bar) to act on the piston. The duct is sealed by two rings .

Clutched position

When the differential locking solenoid valve is activated, oil flows into the piston chamber. The piston compresses the intermediate plates and the discs connected to the hub and case respectively. In this clutched position, the input sun gear of the RH and LH axle tubes rotate at the same speed.

Declutched position

When power is turned off, the piston withdraws and the discs and intermediate plates are decompressed, enabling the sun gears and planets gears to fulfil their differential function.

Key

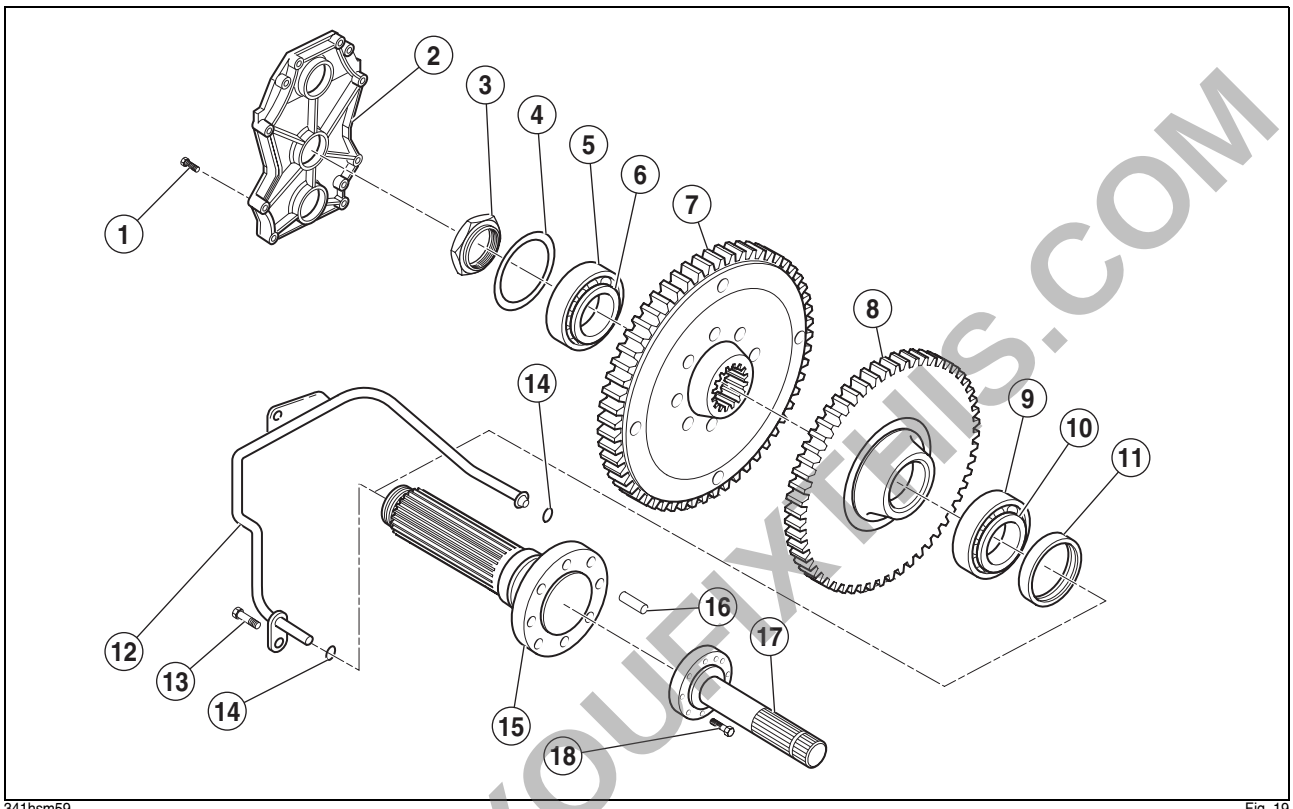
1 Friction washer.
2 Differential housing.
3 Screw.
4 Tapered roller bearing.
5 Shim.
6 Ring.
7 O-ring.
8 Bracket.
9 Pipes.
10 O-ring.
11 Pin.
12 Screw.
13 Backplate.
14 Disc.
15 O-ring.
16 Piston.
17 O-ring.
18 Screw.
19 Pin.
20 Bracket.
21 O-ring.
22 Tapered roller bearing.
23 Shim.
24 Screw.
25 Differential housing.
26 Crown wheel and pinion.
27 Plain bush.
28 Pinion.
29 Spider.
30 Pin.
31 Planet gear.
32 Washer.
33 Needle.
34 Screw.
35 Pinion.

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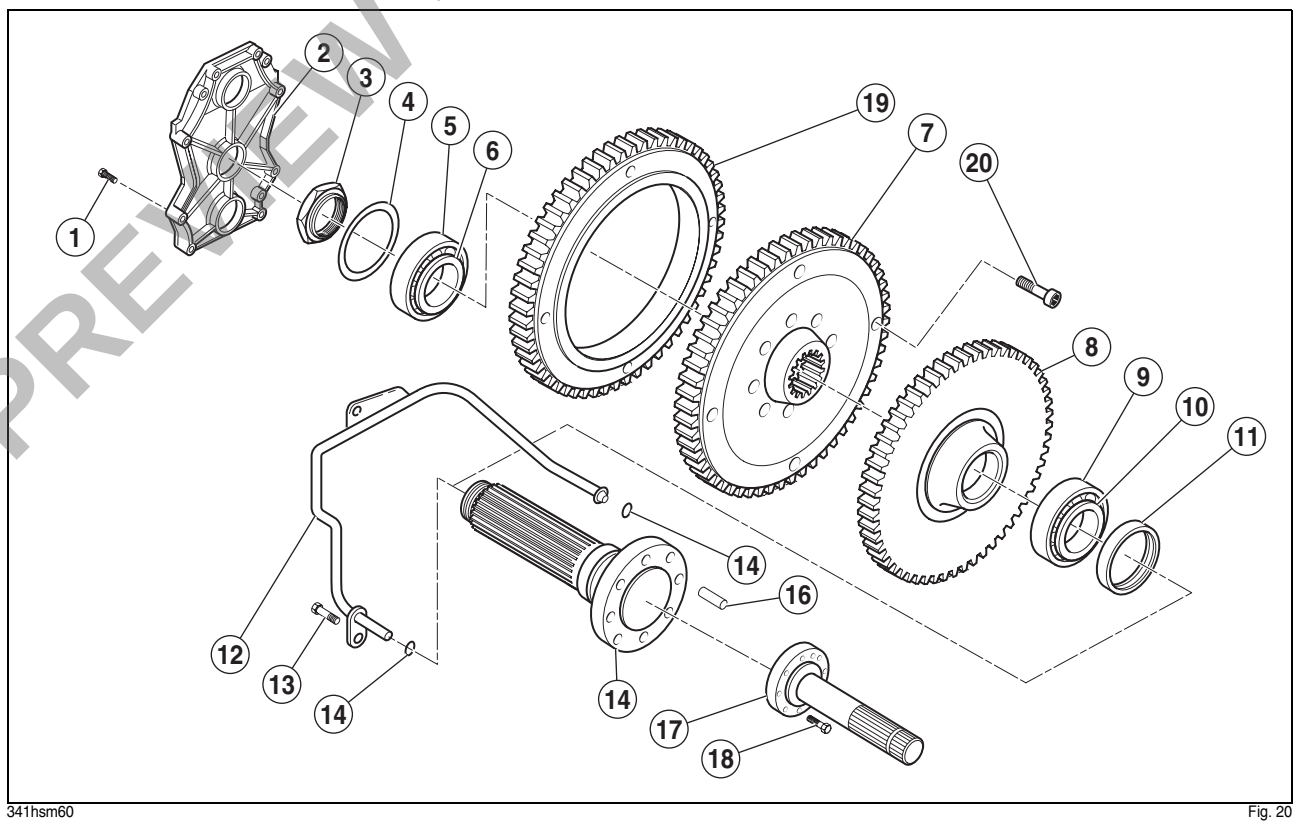
Power take-off lower shaft

Exploded view of 540/1 000 rpm version



341hsm59 Fig. 19

Exploded view of 540/1 000 and 750 rpm version



341hsm60 Fig. 20

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Adjustment of the brake pedals

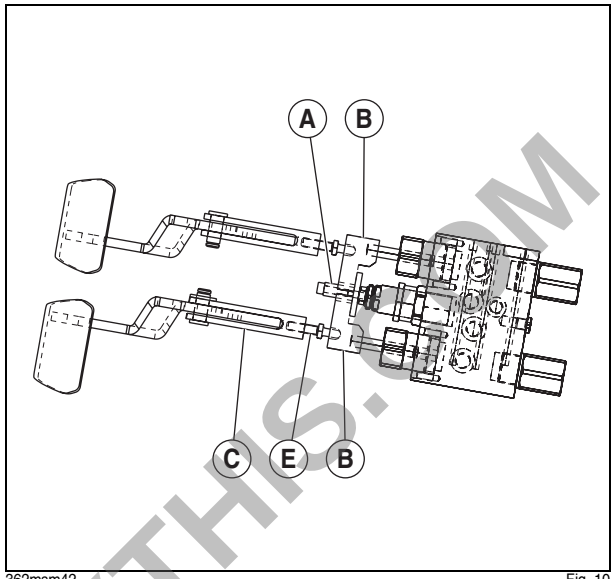
High pressure braking

– Screw the push button (A) onto the central rod of the valve taking care to assemble it in the right direction.

– Position the two sprockets (B) on the valve.

– Screw the stop contacts onto the structure while leaving a gap of 7 mm.

– Tighten the lock-nut.



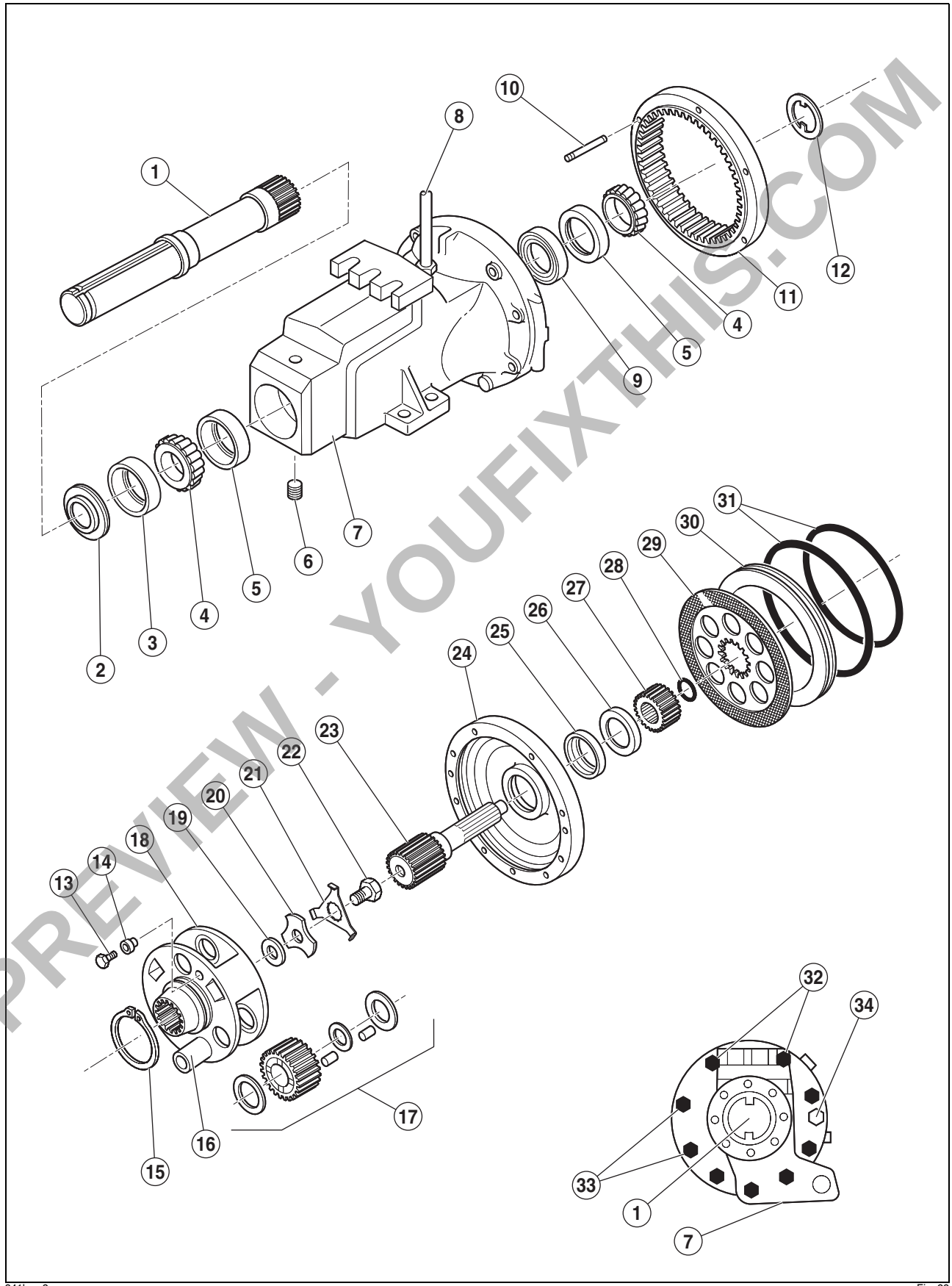
362msm42 Fig. 10

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HDE axle tubes

Exploded view



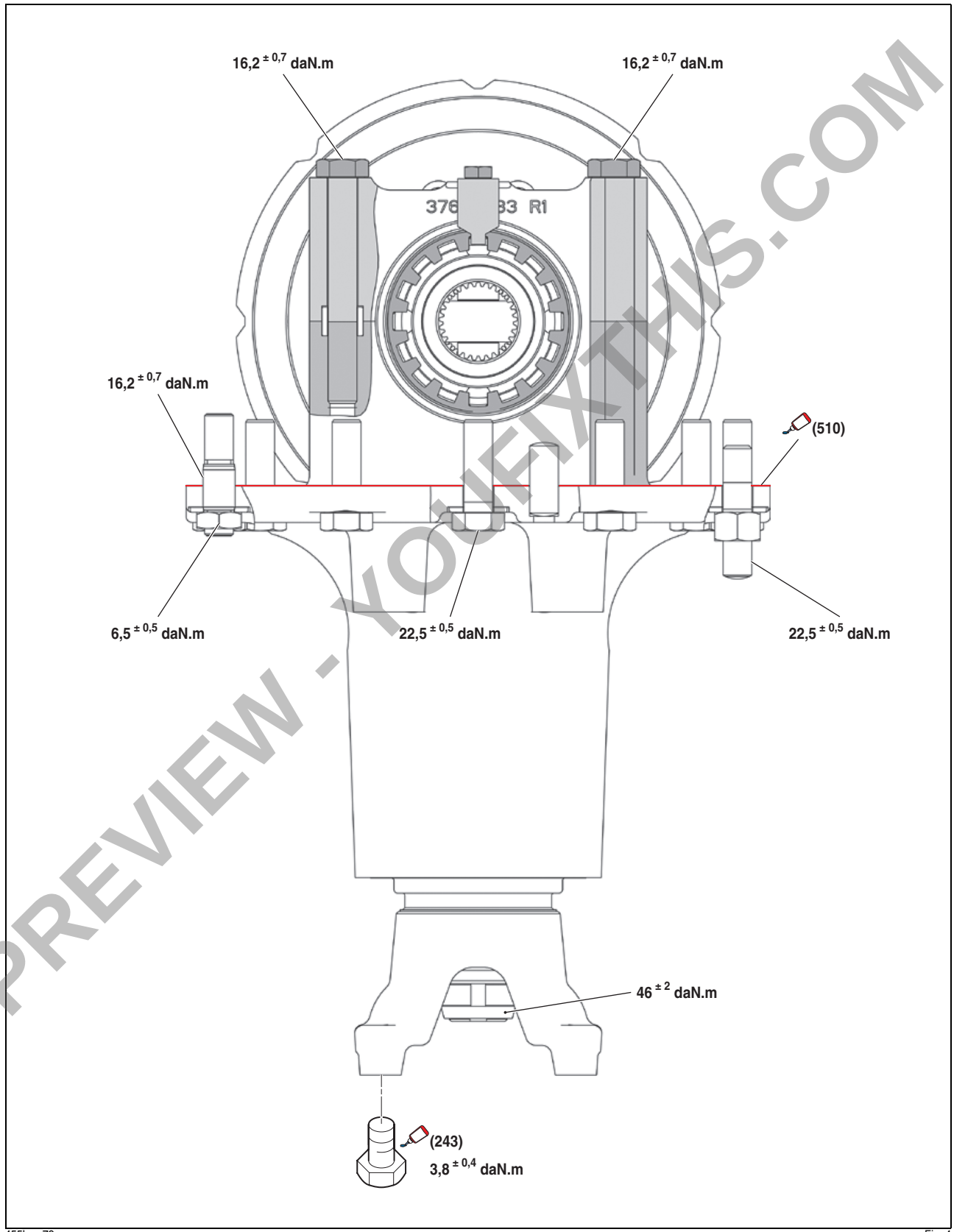
341hsm3y

Fig. 28

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Specific torque and sealing products of the differential



455hsm79 Fig. 4

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Refitting the support

– Sling the support (C).

– CHeck the condition of the O-rings.

– Present the support (C) aligned with the holes in the lower lever.

– Engage the axis while aligning the pin housing with the hole in the support (C).

– Grease the bearings and their housings.

– Engage the bearings on the axis, then fit the outer cages using tool n°00 11 315 120.

– Fit the pin and tighten the (D) plug.

– Shim the lower lever/support.

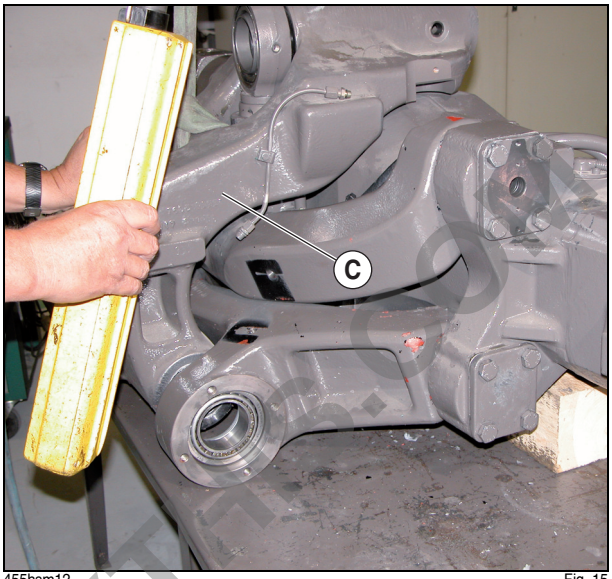
Caution ! The shims are always on the right side.

– Grease and fit the covers while applying Loctite (510) on their circumference.

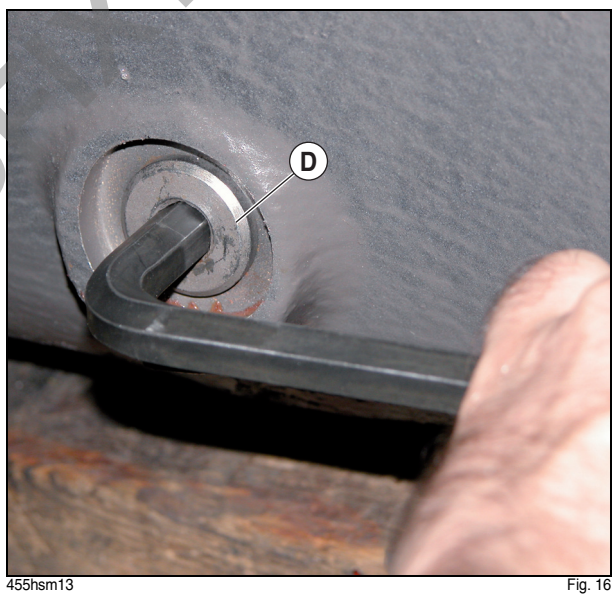
– Coat the screws with Loctite (242).

– Tighten to 12,2 ± 0,6 daN.m.

– Present the support (C) aligned with the holes in the lower lever.



455hsm12 Fig. 15



455hsm13 Fig. 16

– Relieve the assembly then engage the axis of the upper arm/support (E).

– Place the axis' safety shim (F), smear the fastening screws with Loctite (242), and tighten at 25 +/- 1 daN.m.

– Fit the greaser (G).



455hsm14 Fig. 17

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4 WD power take-off housing

Refitting the shaft

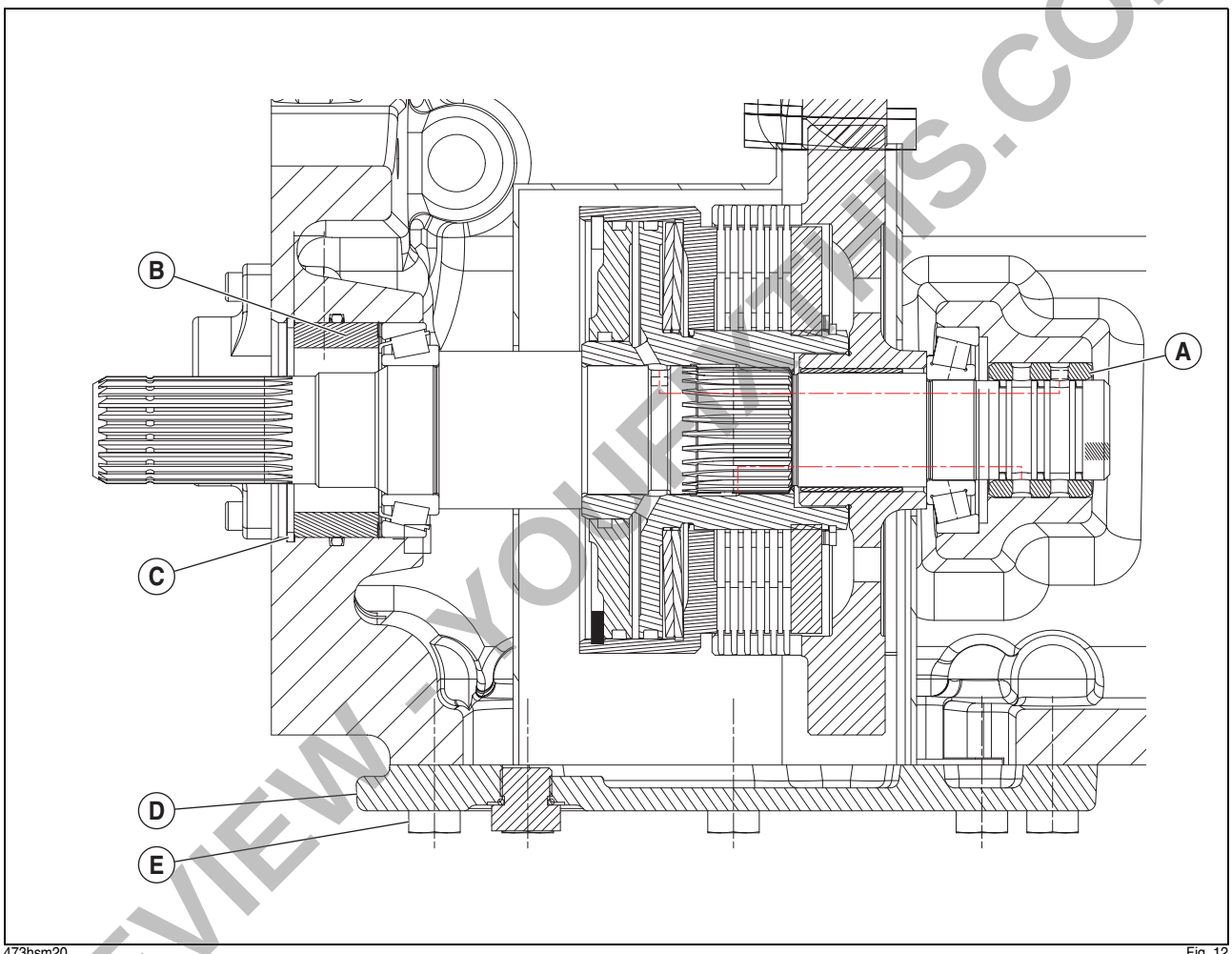
Note: All seals must be changed and lubricated on refitting.

– Fit the bushing (A) while taking care not to damage the new rings.

– Fit the spacer (B).

– Mount the full power take-off unit permanently in the rear axle housing.

– Fit the circlip (C).



473hsm20

Fig. 12

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Refitting the booster pump

– Clean the pump and cover bearing surfaces.

– Check that the studs (H) are present.

– Inside the cover, apply a bead (A) of Loctite Formajoint (J) around the screw holes. The bead must be thin so that it does not reach the groove of the gasket (K). Fit a new gasket.

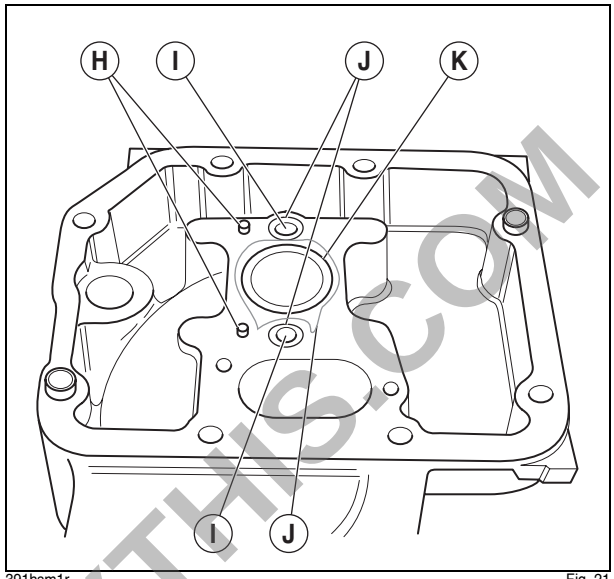
– If removed, position the key (B) and refit the pinion. Smear the screw (Loctite (243) with Loctite 5 and torque at 6 daN.m (Fig. 20).

– Position the pump on the centring studs (H).

– Coat the screws (I) with Loctite (243) and torque tighten to 4 to 5 daN.m.

– Check pump rotation by hand.

– Refit the left-hand cover.



391hsm1r Fig. 21

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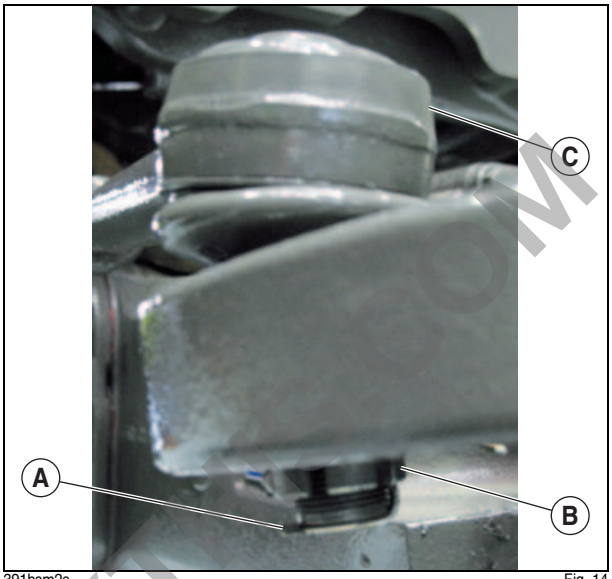
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Removing the steering jack

– Remove the safety pin (A) from the steering rods.

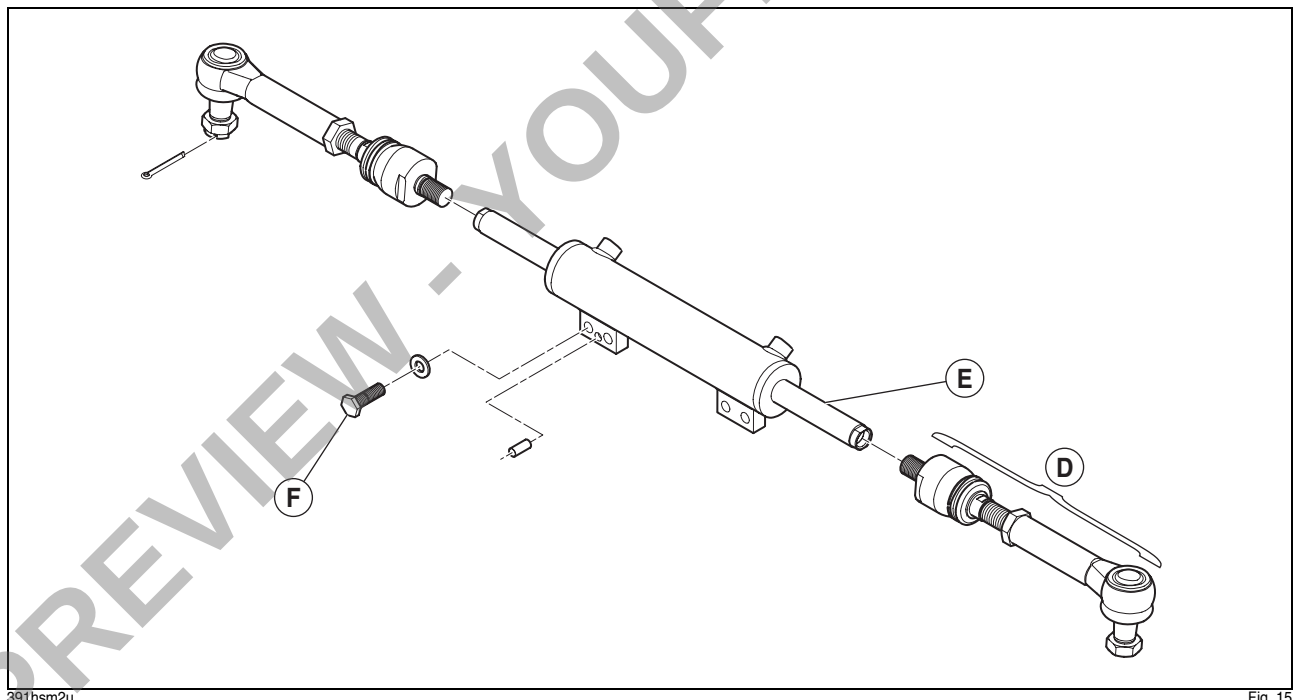
– Remove the fastener nuts (B) from the steering rods.

– Using a puller, remove the steering box conical pivots (C).



391hsm2s Fig. 14

– Remove the steering rods (D) from the piston rod (E).



391hsm2u Fig. 15

– Untighten the fastening screws (F) from the steering jack.

– Remove the steering actuator.

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