

31 022 – AN – 09.2001

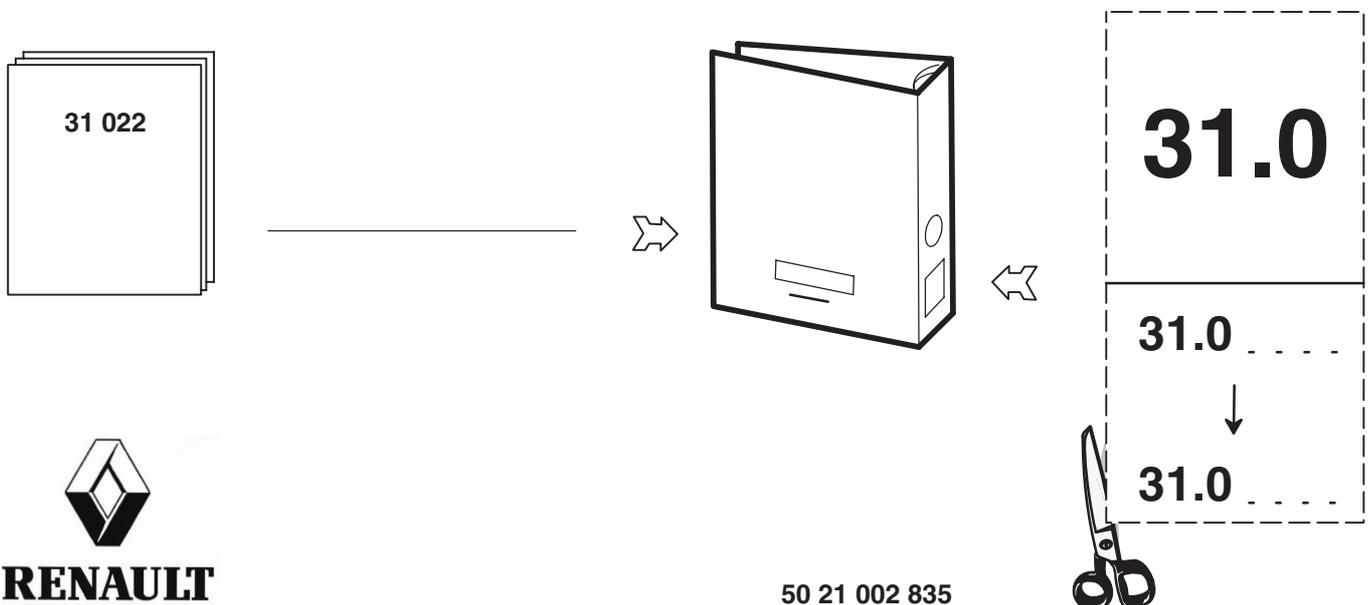
CLUTCH

CLUTCH	VEHICLE
310 DTR 350 DTR MFZ 395 362 DBE 395 DBE	RENAULT MIDLUM

NOTE

The above information may change in the course of time.

Only the "Consult" section of the workshop manuals repertory in standard N° 10320 serves as reference.



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CONVENTIONAL SYMBOLS



Tighten at indicated torque (Nm) (right-hand thread)



Tighten by the indicated value



Weight in kg (e.g.: 275 kg)



Smear (see "Consumables" table)



Dimension to be assured (mm)



Danger for persons, the vehicle or the equipment



Correct



Incorrect



Operation with sequence number



Part to be replaced

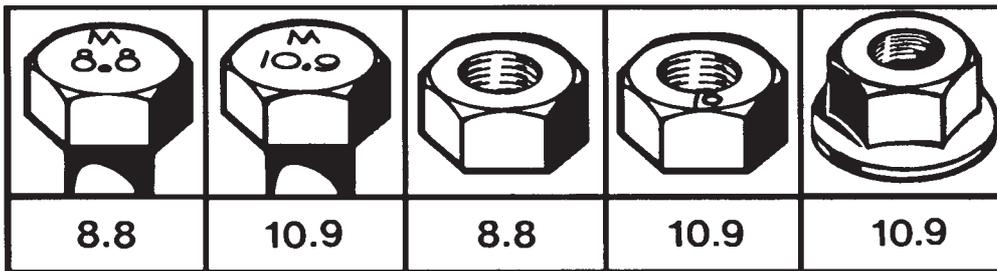


Inspect – Check the condition of parts



Force to be exerted in direction of arrow (hammer-press)

SPECIFICATIONS



21 0122

Tightening torques

There are several types of tightening:

- Tightening to torque (in Nm)
- Tightening to angle (in °)
- Tightening to torque-angle (in Nm + °).

Torques given in Nm are nominal torques (average value calculated on the basis of the minimum torque and the maximum torque).

The tightening accuracy class defines the tolerance of this torque in percent as a function of the nominal torque applied.

Tightening accuracy classes:

- **Class I** : Special threaded hardware (tolerances variable depending on assembly).
- **Class II** : Reserved for precise tightening (tolerance $\pm 10\%$ of the nominal torque).
- **Class III** : Reserved for normal standard tightening (tolerance $\pm 20\%$ of the nominal torque).

For standard threaded hardware indicated in the table below, use tightening class III.

For other torques, see page **A4** → **A8**.

Tightening torques for conventional nut and bolt hardware to "METRIC system" standard 01.504.002		
Ø and pitch of nuts and bolts (in mm)	Quality class 8.8	Quality class 10.9
	Tightening class III ($\pm 20\%$)	Tightening class III ($\pm 20\%$)
6 x 1.00	7.4	10.8
7 x 1.00	12.1	17.8
8 x 1.00	19.2	28.2
8 x 1.25	17.9	26.3
10 x 1.00	39.4	58
10 x 1.25	37.4	55
10 x 1.50	35.4	52
12 x 1.25	67	98
12 x 1.50	64	94
12 x 1.75	61	90
14 x 1.50	105	155
14 x 2.00	98	143
16 x 1.50	161	237
16 x 2.00	151	222
18 x 1.50	235	346
18 x 2.50	210	308
20 x 1.50	328	481
20 x 2.50	296	435
22 x 1.50	444	652
22 x 2.50	406	596

Consumables

Fastening, locking and sealing products	
Industrial reference	Automotive reference
Loctite 542	LT 542 Oil sealing

Oils

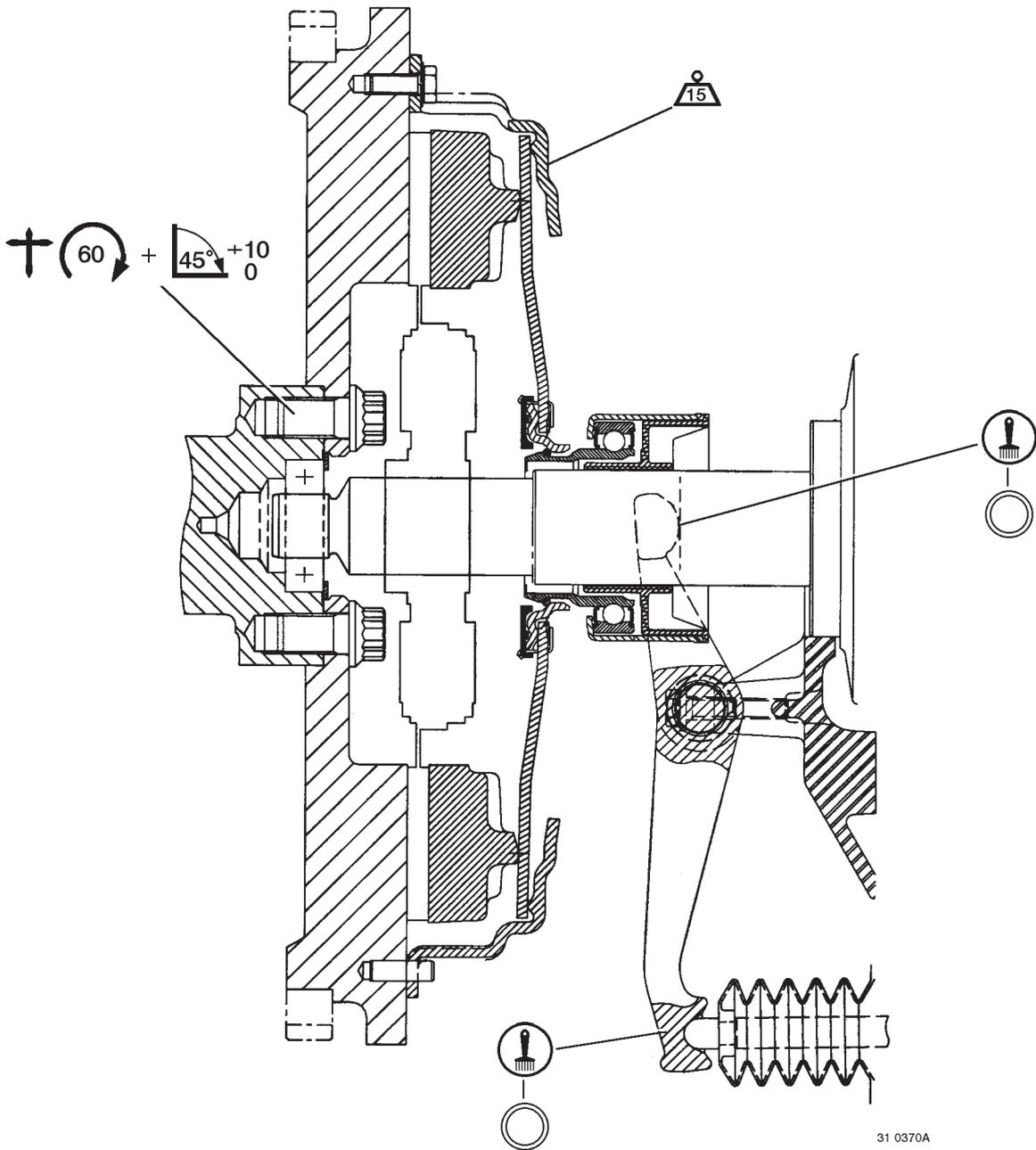
RENAULT V.I. recommend Huiles Renault Diesel

Circuit	Huiles Renault Diesel	Standards
Hydraulic clutch circuit	Fluid FE4	SAE J 1703F / DOT4

Grease

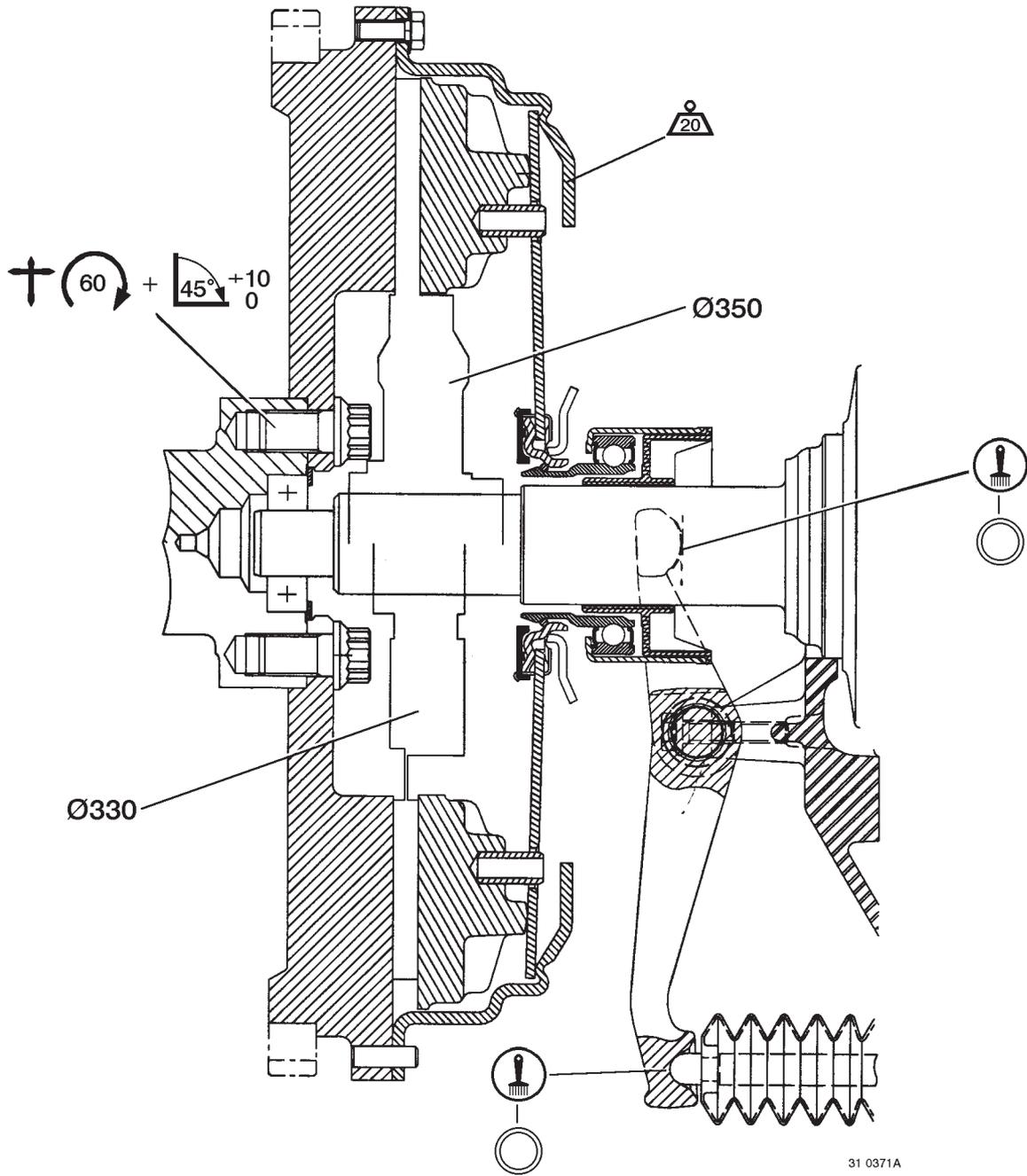


..... RAM NLGI 2 grease – lithium soap
molybdenum bisulphide

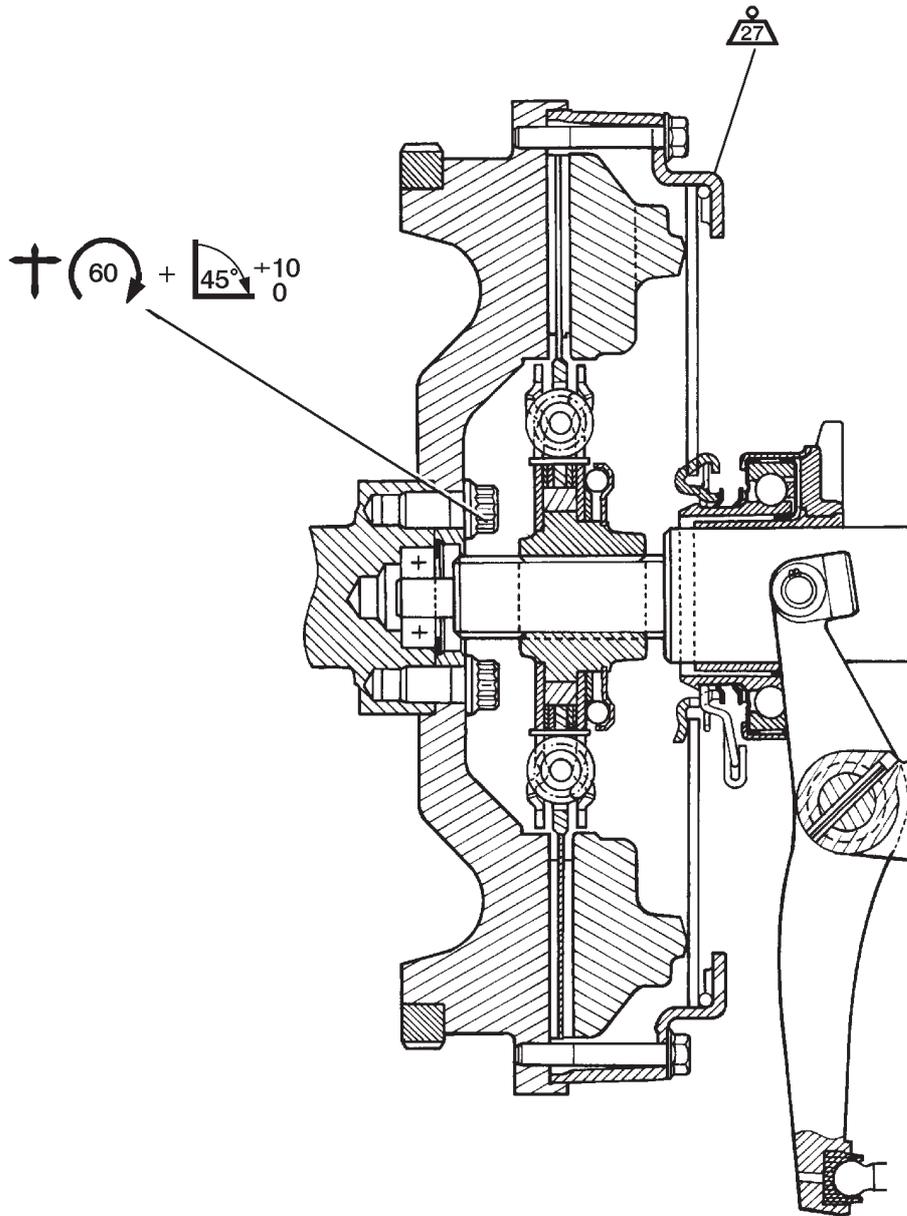


31 0370A

Engine	Clutch			Gearbox
MIDR 06.02.26 MIDR 04.02.26	310 DTR			EATON 4106 ZF S5 42
Engine flywheel (see pages)	Mechanism (see pages)	Thrust bearing (see pages)	Control system (see pages)	Operating fork (see pages)
D1 → D3	C1 → C3	B1 → B3	F1 → F2 G1 → G2	–

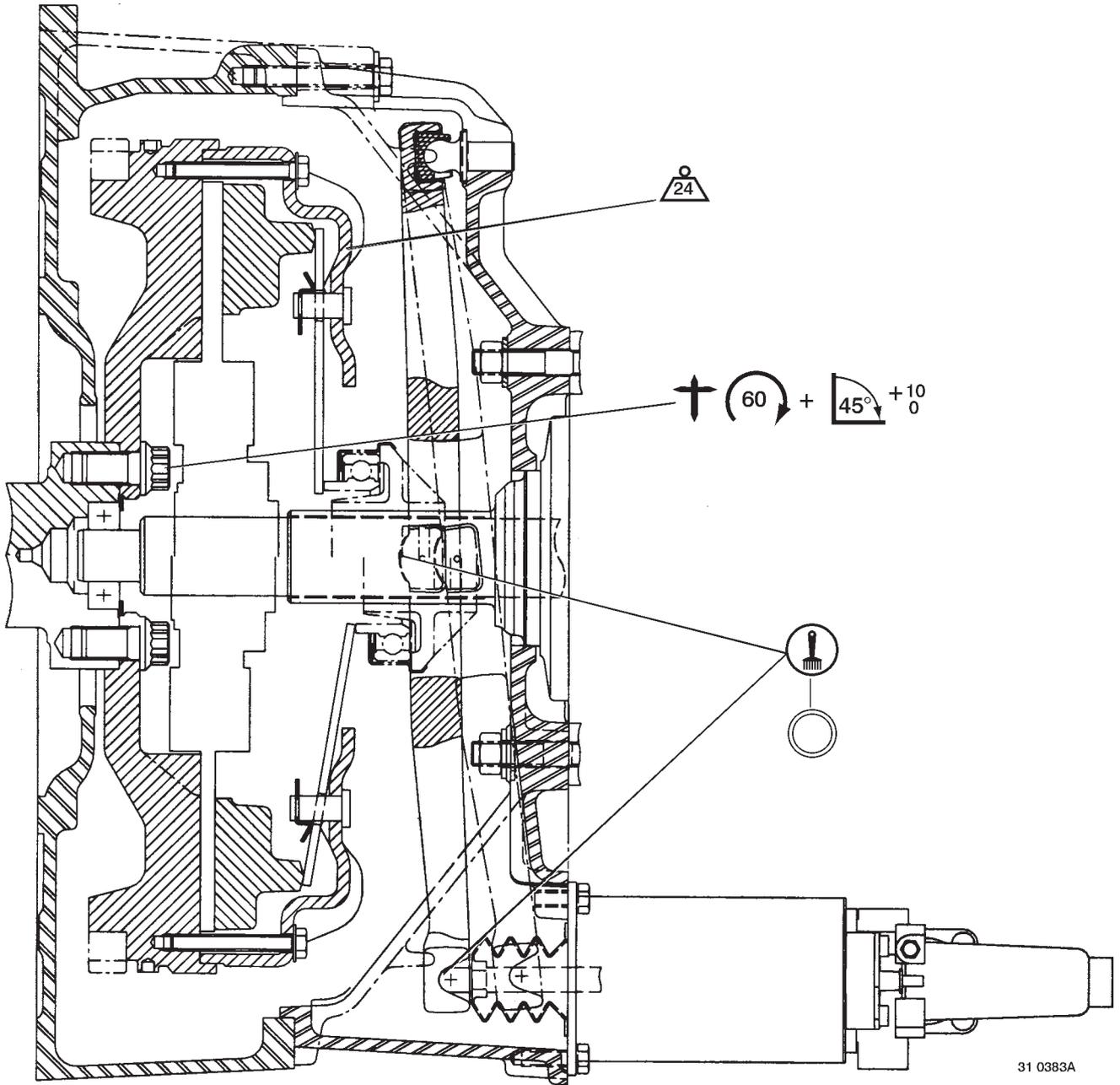


Engine	Clutch			Gearbox
MIDR 06.02.26 MIDR 04.02.26	350 DTR			EATON 4106 ZF S5 42
Engine flywheel (see pages)	Mechanism (see pages)	Thrust bearing (see pages)	Control system (see pages)	Operating fork (see pages)
D1 → D3	C1 → C3	B1 → B3	F1 → F2 G1 → G2	–

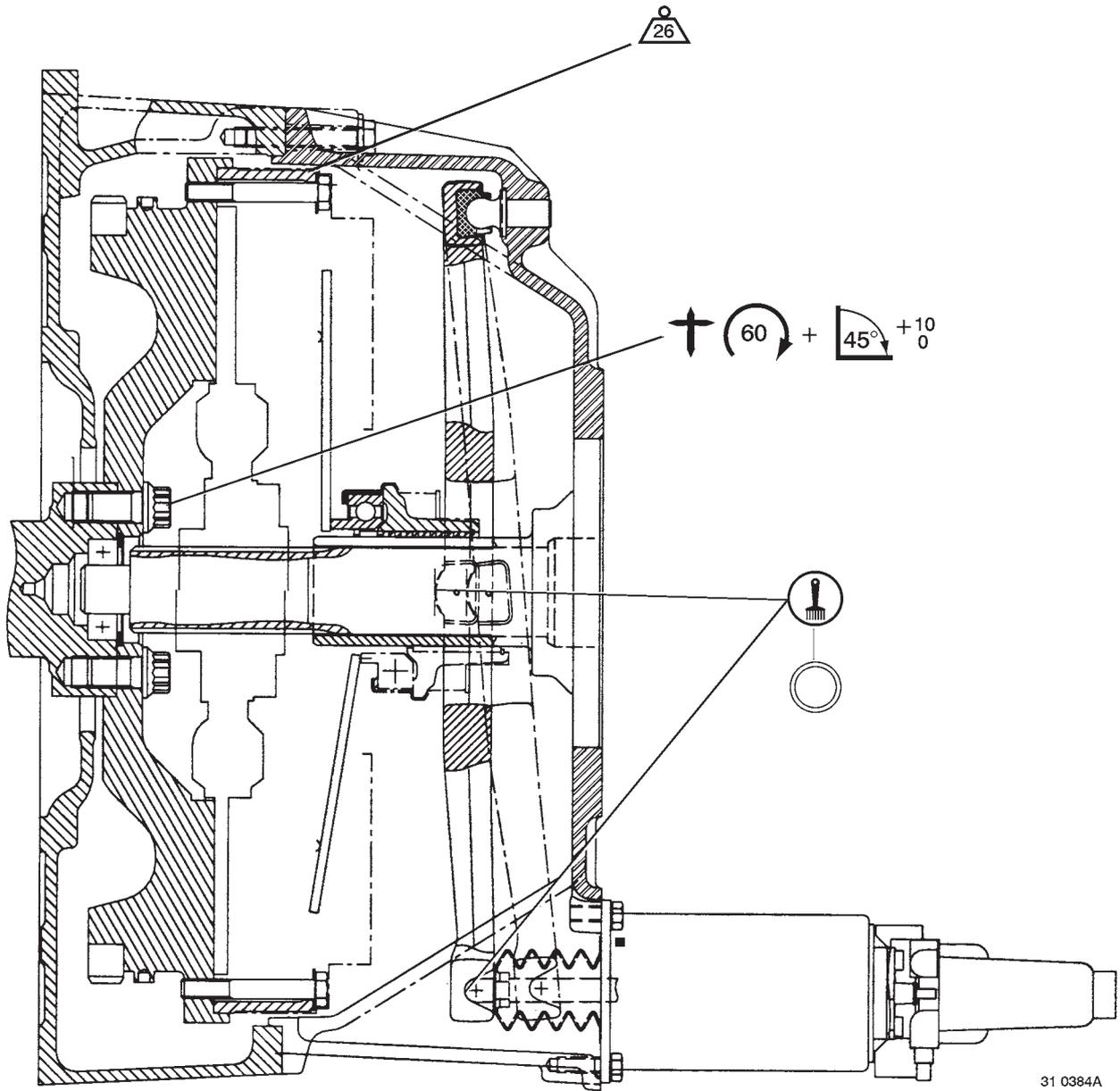


31 0319B

Engine	Clutch			Gearbox
MIDR 06.02.26	F & S MFZ 395			EATON 8209
Engine flywheel (see pages)	Mechanism (see pages)	Thrust bearing (see pages)	Control system (see pages)	Operating fork (see pages)
D1 → D3	C1 → C3	B1 → B3	F1 → F2 G1 → G2 H1 → H2	E1 → E2



Engine	Clutch			Gearbox
DCI 4 DCI 6	362 DBE			ZF S5 42 EATON 4106 / 5206
Engine flywheel (see pages)	Mechanism (see pages)	Thrust bearing (see pages)	Control system (see pages)	Operating fork (see pages)
D1 → D3	C1 → C3	B4	F1/F3 G1/G3 H1/H3	E3



Engine	Clutch			Gearbox
DCI 6	395 DBE			EATON 6406 / 8309
Engine flywheel (see pages)	Mechanism (see pages)	Thrust bearing (see pages)	Control system (see pages)	Operating fork (see pages)
D1 → D3	C1 → C3	B4	F1/F3 G1/G3 H1/H3	E3

RELEASE THRUST BEARING

Clutch 310 DTR / 350DTR / 395 MFZ**Gearbox**

ZF S5 42

EATON 4106 / EATON 8209

Removal

The release thrust bearing retaining ring is opened out after the gearbox has been removed.

The release thrust bearing remains on the mechanism.

Withdraw the release thrust bearing. There are three possible assemblies (see page **B3**). Respect the sequence of operations.

Fitting

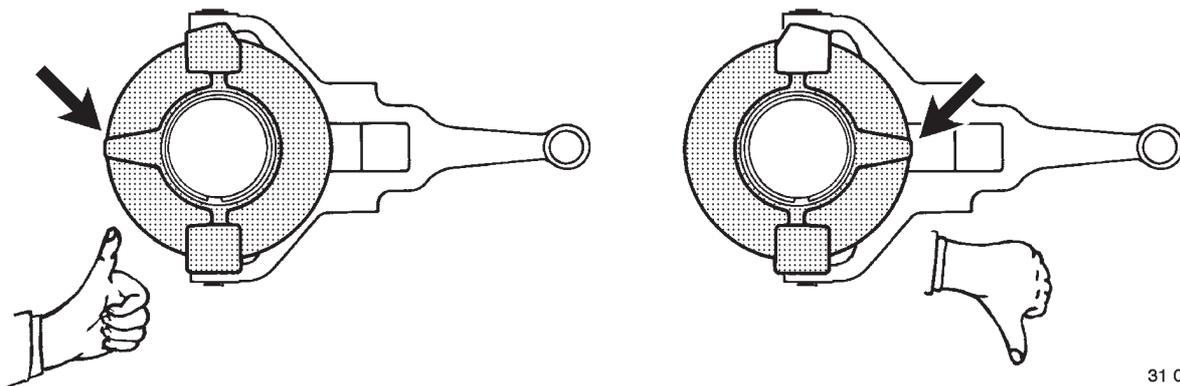
Remove dust from the bearing-carrier and from the release thrust bearing.

Do not use any degreasing product.

Install the thrust bearing to the bearing-carrier.

WARNING

The release bearing thrust ring is made from plastic. Upon assembly, do not grease either the thrust ring or the thrust bearing-carrier.



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Assembly

Depending on the assembly.

Close the retaining ring (1).

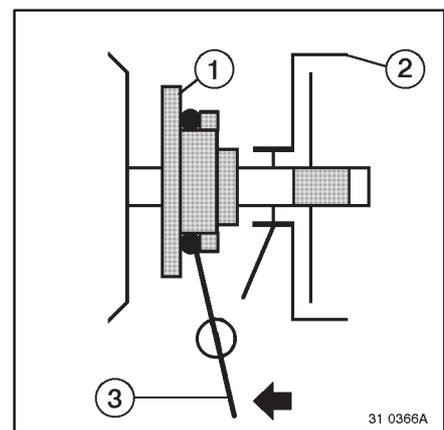
Respect the orientation.

See page(s) **B3**.

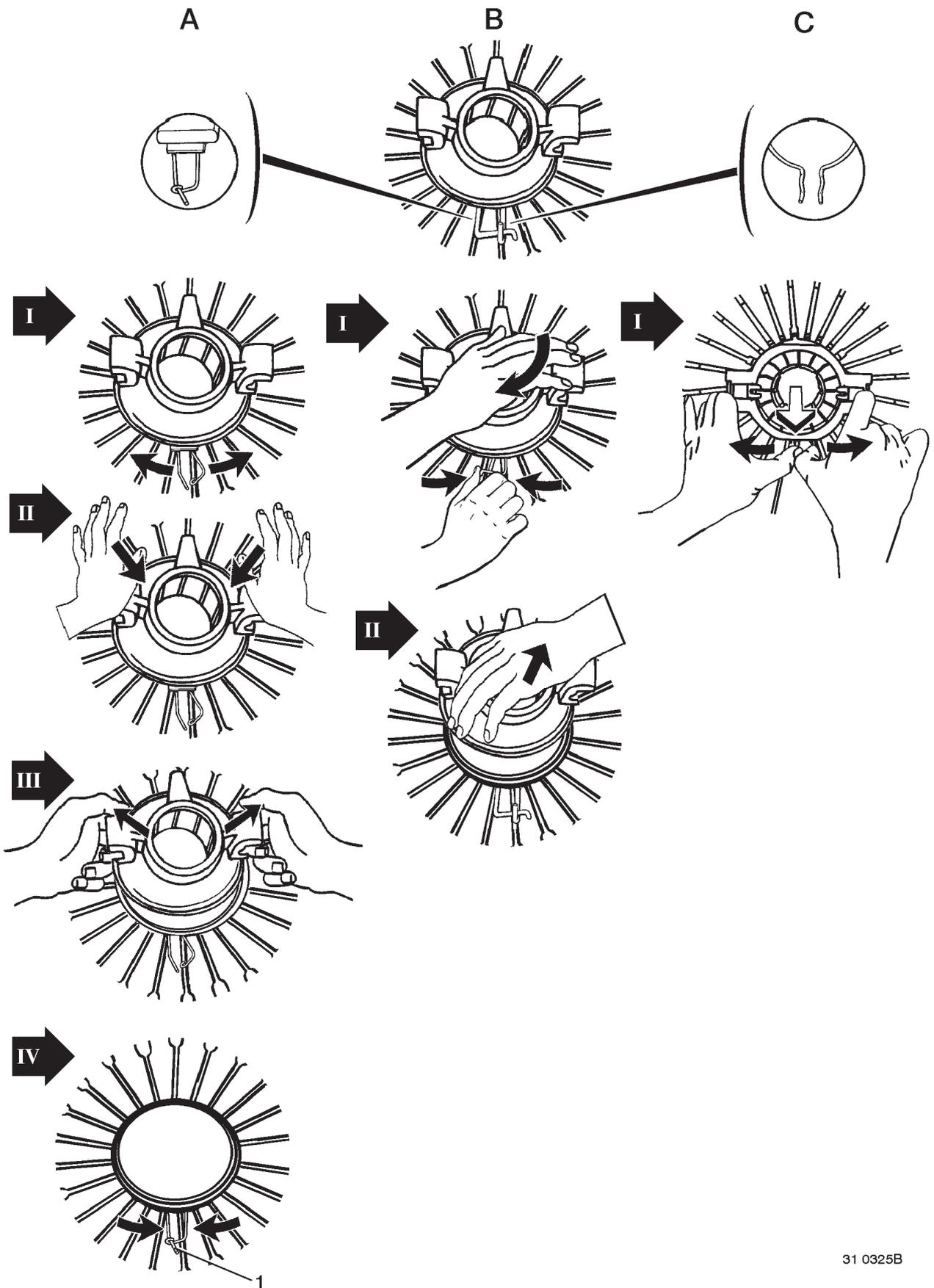
Fit the gearbox.

Move the operating fork (3) rearwards to lock the release thrust bearing (1) to the clutch mechanism (2).

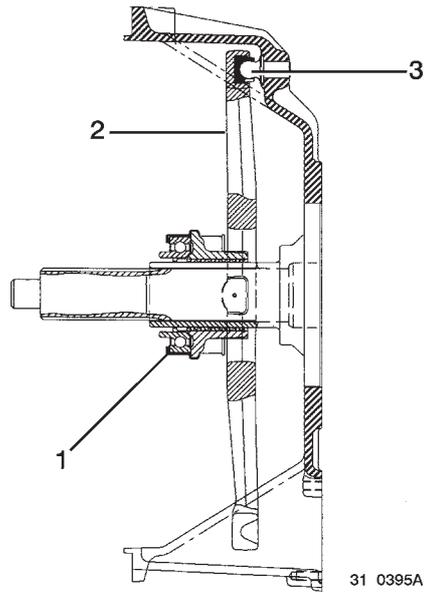
Move the operating fork (3) forwards to check correct locking of the release thrust bearing (1).



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Clutch VALEO 362 DBE / 395 DBE

Gearbox

ZF S5 42

EATON 4106 / 5206 / 6406 / 8309

Removal

To remove the release thrust bearing (1), dislodge the operating fork (2) from the ball-joint (3).

Fitting

Check the wear of the ball-joint (3).

Remove dust from the bearing-carrier and from the release thrust bearing.

Do not use any degreasing product.

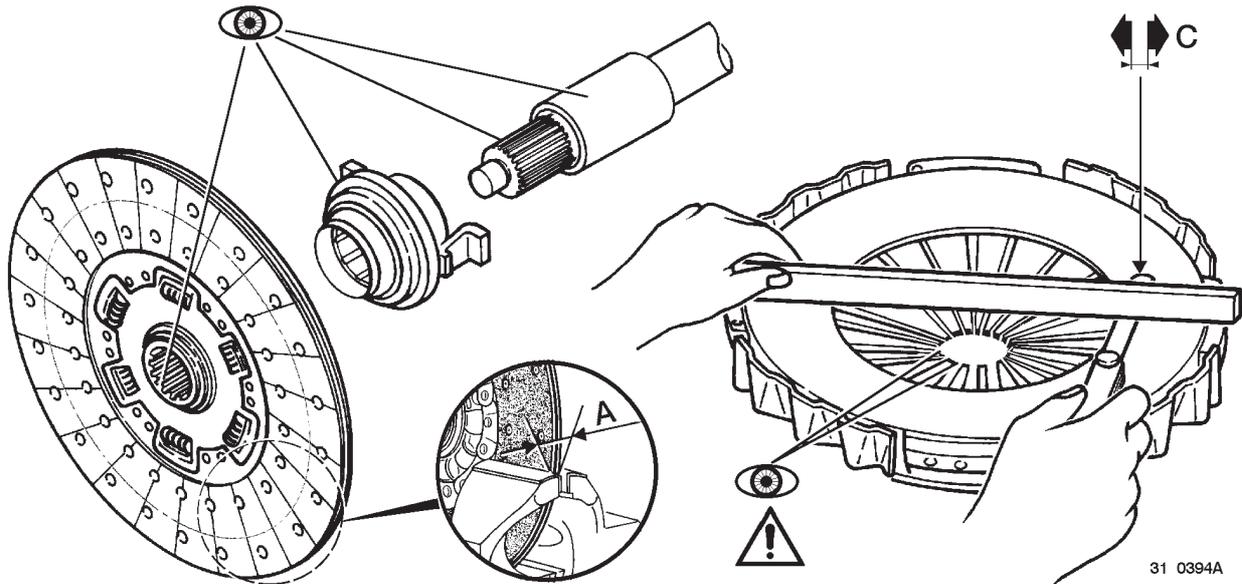
Grease the fork and thrust bearing supports.

For fitting, proceed in the reverse sequence to removal.

WARNING

The release bearing thrust ring is made from plastic. Upon assembly, do not grease either the thrust ring or the thrust bearing-carrier.

CLUTCH MECHANISM



Removal

Loosen the screws securing the mechanism progressively and in diametrically opposed sequence to avoid placing any strain on the clutch.

Remove the clutch mechanism.

Inspection

Checking the clutch plate

- Replace any clutch plates with broken, torn, burnt or greasy linings.
- Check the lining wear.
- Check the condition of the hub and gearbox shaft splines.
- With damped centre plates, check the condition of the springs.

Depending on the assembly.

To inspect the mechanism

- Check that the pressure plate is free from cracks.
- Check the taper.
- Check the wear on the diaphragm spring fingers.
- Check that the connecting straps are neither blued, distorted or torn apart.
- Check the snap ring retaining the thrust bearing for wear and distortion.

To inspect the thrust release bearing

- Check that the thrust bearing is not seized.
- Check the contact surface of the snap ring.
- Check the condition of the spring washers.

NEVER SOAK THE BEARING IN, NOR SPRAY IT WITH DEGREASING PRODUCTS.

To inspect the thrust bearing carrier

- If the thrust bearing carrier presents signs of wear or seizure, replace it.

Mechanism	Lining thickness min. dimension A (mm)	Pressure plate Taper C (mm)
310 DTR	6	-
350 DTR	6.4	0.7
362 DBE	7	0.7
395 MFZ/DBE	7	0.7

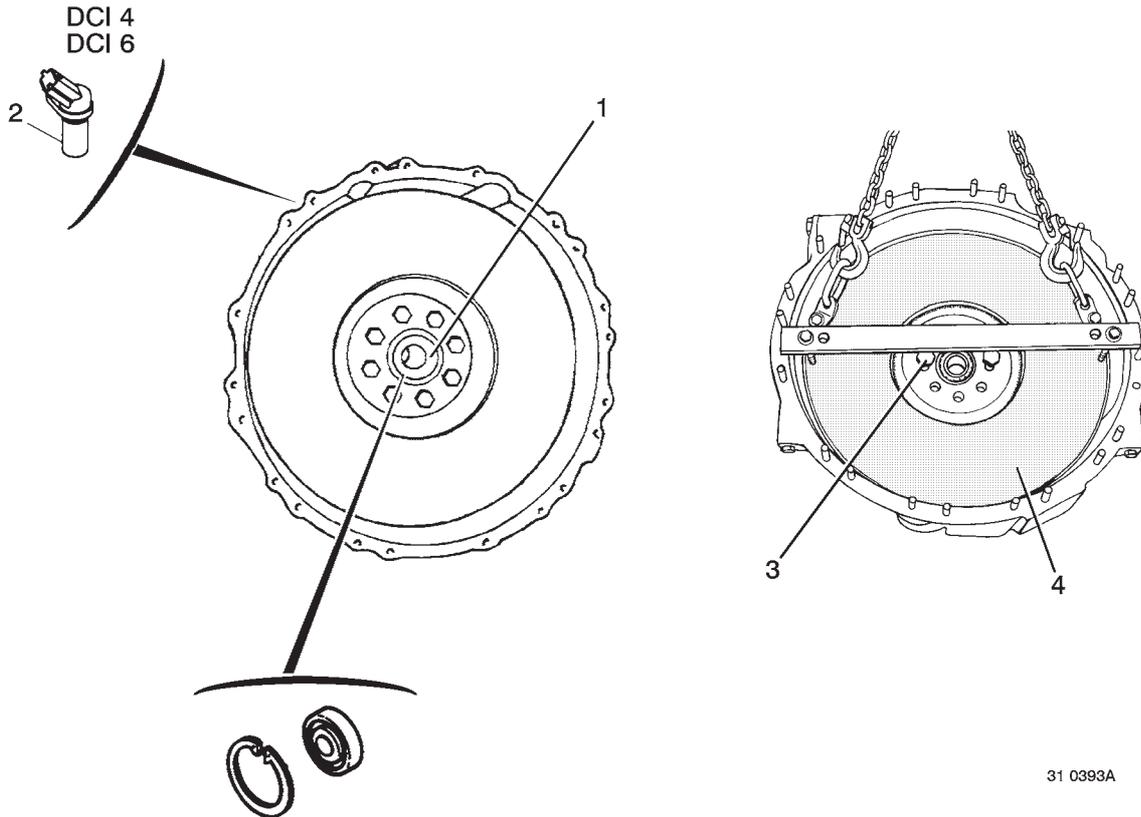
Fitting

Depending on the assembly.

Upon assembly

- Degrease the flywheel friction track.
- Install the centre plate, using a centring tool, ensuring that it is fitted the right way round.
- Progressively tighten the diametrically opposed setscrews at the recommended tightening torque (see page **A2**) (the diaphragm spring should gradually sink in).
- Ensure that the centring tool slides freely in the hub of the centre plate.
- Ensure that the height of the diaphragm spring fingers is constant.

ENGINE FLYWHEEL



31 0393A

Removal

The item numbers indicated in the drawing on the page correspond to the **sequence of disassembly**.

The table indicates the designation and reference number of the tools required for assembly / disassembly of the itemized parts.

Item	Tool designation	Reference N°	Assembly	Disassembly
1	Puller	0978		X
3	Torque multiplier	9774	X	X
3	Angular dial	9777	X	
4	Puller	1291		X

Inspection

To inspect the flywheel

- Check for oil leaks at the rear of the engine and at the front of the gearbox.
- Check the surface condition of the flywheel (cracks, significant distortion, friction track wear).
- Grind or replace, as necessary (for values, see page **D3**).
- Check the condition of the pilot bearing or guide ring.

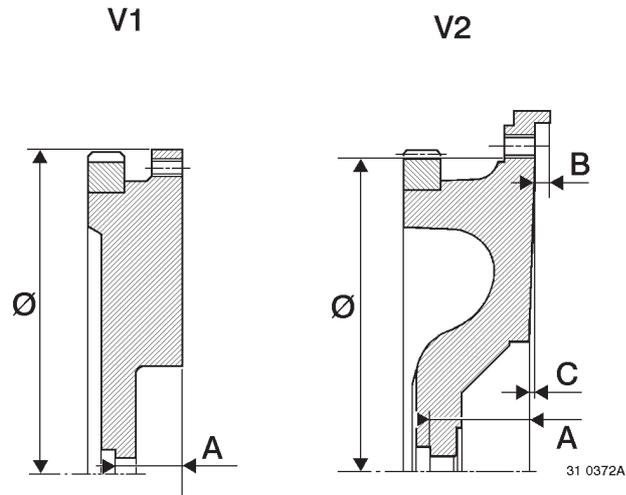
Fitting

Remove dust from the flywheel.

For fitting, proceed in the reverse sequence to removal.

Engine flywheel screws

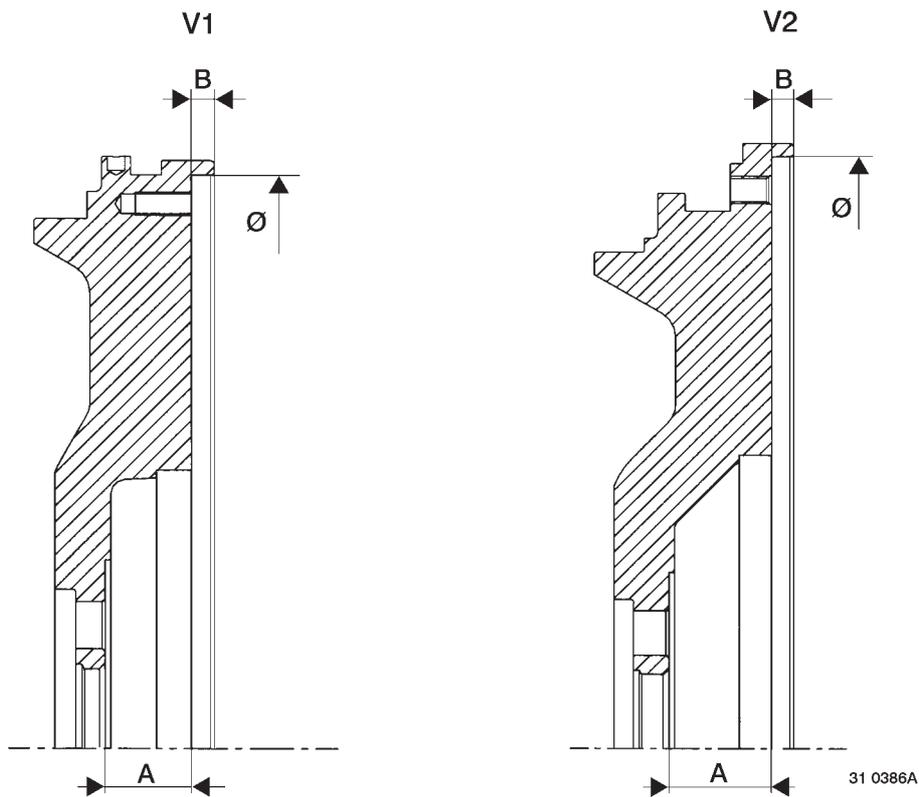
Progressively tighten the diametrically opposed setscrews at the recommended tightening torque (see page **A4** → **A8**).



Clutch 310 DTR / 350DTR / 395 MFZ
Engine flywheel grinding values

Engine	Clutch	Flywheel	A (mm)	B (mm)	Taper C	Ø (mm)
MIDR 04.02.26	310 DTR	V1	32 → 33± 0.1	–	0	408
MIDR 04.02.26	350 DTR	V1	32 → 33± 0.1	–	0	408
MIDR 06.02.26	350 DTR	V1	32 → 33± 0.1	–	0	408
MIDR 06.02.26	MFZ 395	V2	49.3 → 50	8 → 8.7	0.5 ‰ = 20 ′	395

Surface finish : **CLA 3.2.**



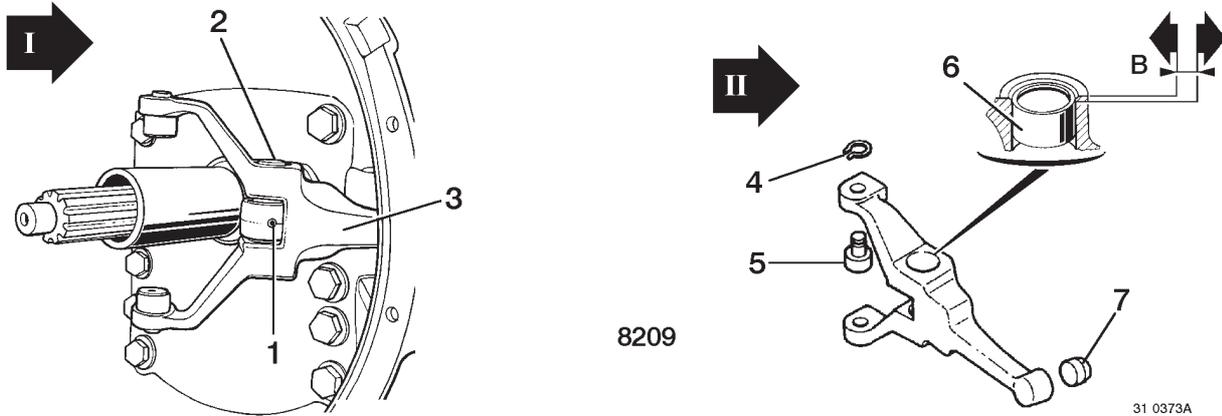
Clutch VALEO 362 DBE / 395 DBE

Engine flywheel grinding values

Engine	Clutch	Flywheel	A (mm)	B (mm)	Taper C	Ø (mm)
DCI 4	362 DBE	V1	29.5 → 28.8	8 → 8.7	0	395
DCI 6	395 DBE	V2	37 → 36.3	8 → 8.7	0	435

Surface finish : **CLA 3.2.**

OPERATING FORK



Clutch MFZ 395

Gearbox EATON 8206

Removal

The item numbers indicated in the drawing on the page correspond to the **sequence of disassembly**.

The table indicates the designation and reference number of the tools required for assembly / disassembly of the itemized parts.

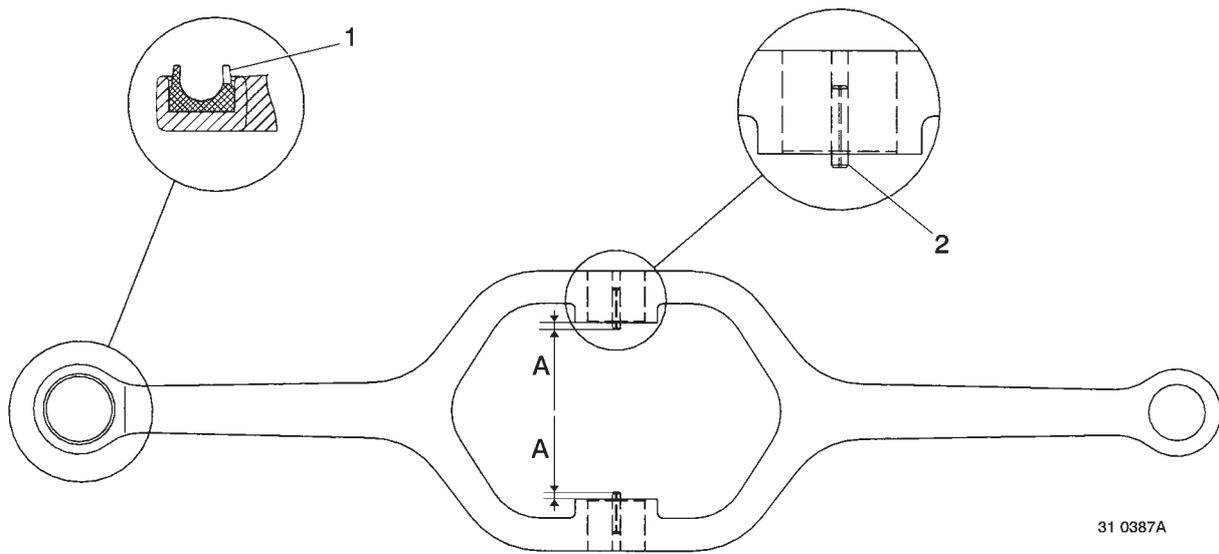
Gearbox EATON 8209

Item	Tool designation	Reference N°	Assembly	Disassembly
6	Puller	0978		X
6	Set of pushers	2363 Ø 25–28	X	
6	Handle	3016	X	

Fitting

For fitting, proceed in the reverse sequence to removal.

Respect dimension **B = 4 ± 0.5 mm**.



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Clutch VALEO 362 DBE / 395 DBE

Gearbox

ZF S5 42

EATON 4106 / 5206 / 6406 / 8309

Removal

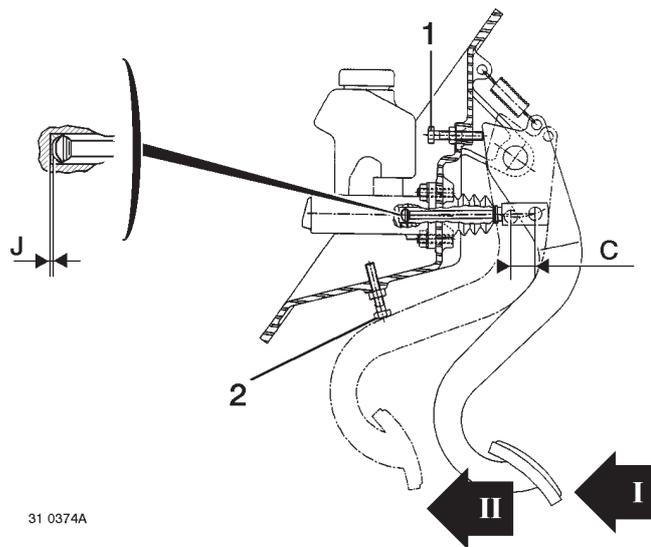
The item numbers indicated in the drawing on the page correspond to the **sequence of disassembly**.

Fitting

For fitting, proceed in the reverse sequence to removal.

Respect the dimension **A = 2.5 ± 0.3 mm**.

CLUTCH MASTER CYLINDER



Clutch 310 DTR / 350 DTR / 395 MFZ

Gearbox ZF S5 42 / EATON 4106 / 8209

Adjustment

IMPORTANT

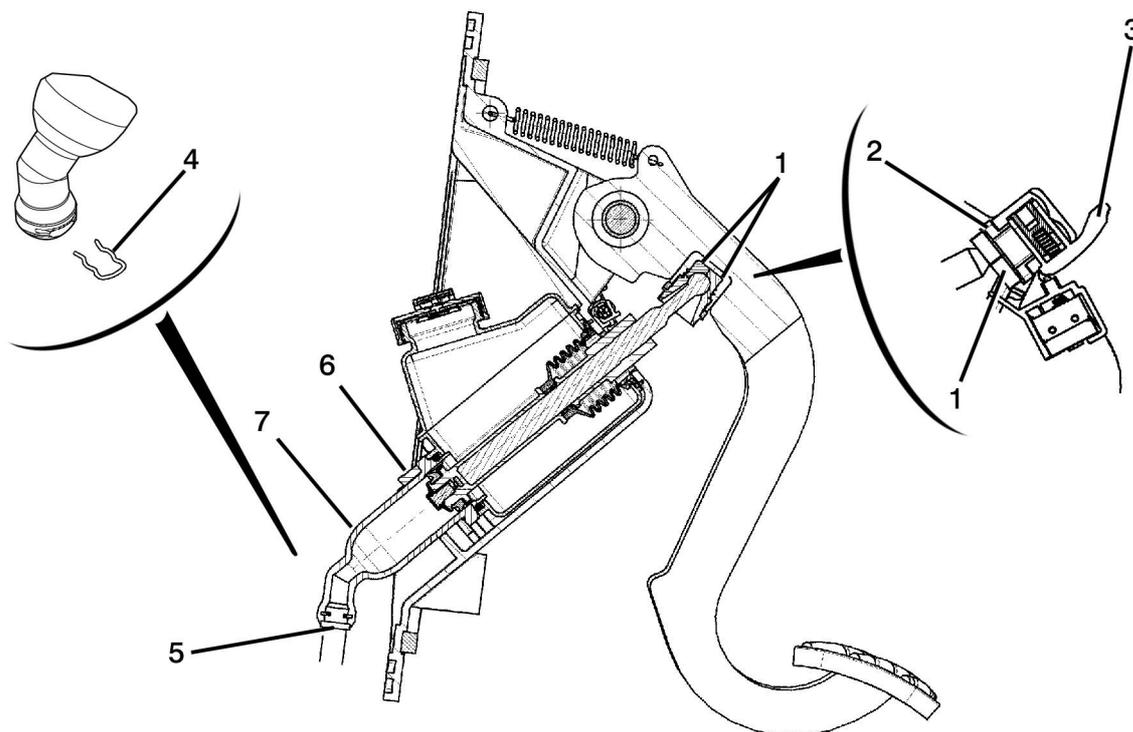
It is essential to bleed the power-assisted clutch circuit before checking the effective slave cylinder travel and before implicating the different units making up the clutch function.

Adjusting the clearance :

Turn screw (1) to obtain a clearance $J = 0.5^{+0.5}$ mm.
Tighten the locknut.

Adjusting the travel :

Turn screw (2) to obtain dimension $C = 21 \pm 0.5$ mm.
Tighten the locknut.



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Clutch VALEO 362 DBE / 395 DBE

Gearbox

ZF S5 42

EATON 4106 / 5206 / 6406 / 8309

Removal

Remove the pedal gear cover under the steering wheel.

Remove the two half-shells (1).

Remove the clutch pedal switch bracket (2) and pad (3)

Remove the clip (4) and take out the coupling (5).

Remove the clamp (6) then the master cylinder unit (7).

Fitting

For fitting, proceed in the reverse sequence to removal.

Bleed the hydraulic system.

There is no adjustment to be made for the master cylinder travel.

IMPORTANT

It is essential to bleed the power-assisted clutch circuit before checking the effective slave cylinder travel and before implicating the different units making up the clutch function.

CLUTCH SLAVE CYLINDER

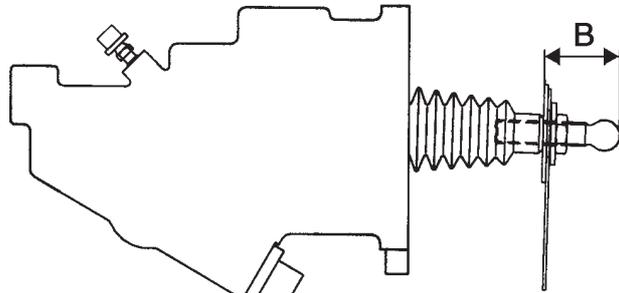
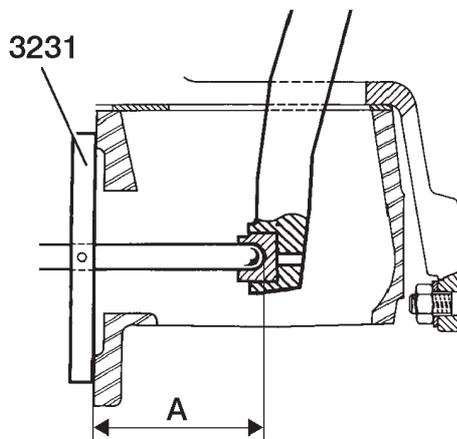
Manufacturer's reference	Renault V.I. reference	Adjustment (see page)
Kongsberg Assy 626853	50 10 245 752	G2
Kongsberg Assy 625524	50 10 244 224	G2
Wabco 970 051 4300	50 10 452 472	G3
Wabco 970 051 4290	50 10 452 429	G3

IMPORTANT

It is essential to bleed the power-assisted clutch circuit before checking the effective slave cylinder travel and before implicating the different units making up the clutch function.

NOTA

Do not actuate the clutch control if the slave cylinder is not fastened to its bracket.



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Clutch 310 DTR / 350 DTR / 395 MFZ

Gearbox EATON 4106 / ZF S5 42

Adjustment

Dimension **B** does not need to be readjusted whenever a clutch component is exchanged.

Note down dimension **A** from the bottom of the fork impression to the mounting face of the clutch release servo, using tool **3231** and a depth gauge.

NOTE

Keep the fork in support during the reading.

Adjust dimension **B** so that :

$$\mathbf{B = A - 69 \pm 1 \text{ mm}}$$

Dimension **B** needs to be readjusted whenever a clutch component is exchanged.

Clutch VALEO 362 DBE / 395 DBE**Gearbox**

ZF S5 42

EATON 4106 / 5206 / 6406 / 8309

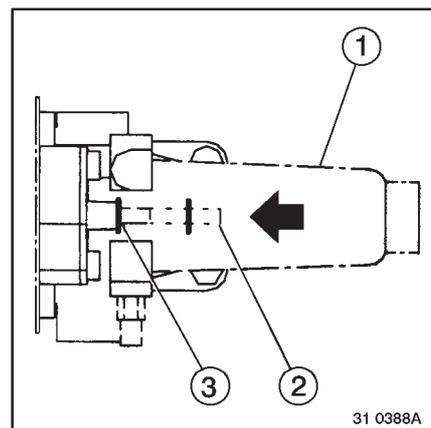
Adjustment

There is no adjustment to be made upon assembly of the clutch servo.

In case of replacement of the clutch plate:

Fit and attach the slave cylinder (1).

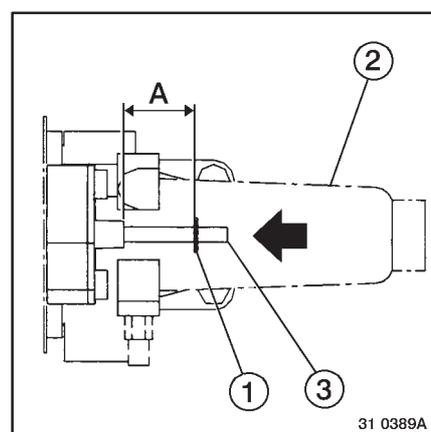
Push the push-rod (2) as far as abutment and put the pointer (3) in that position.

**In case of replacement of the clutch servo:**

Note down dimension **A** and mark the position of the pointer (1).

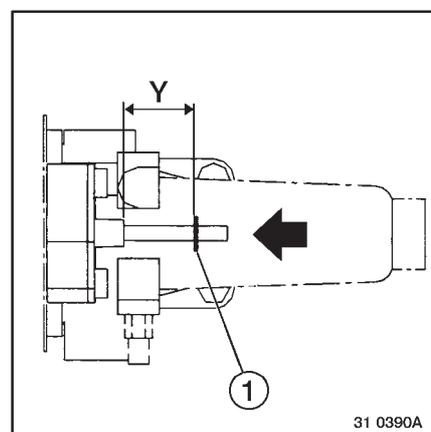
Fit and attach the slave cylinder (2).

Push the push-rod (3) as far as abutment and reposition the pointer (1) while respecting dimension **A**.

**Checking the clutch travel**

Measure dimension **Y** and mark the position of the pointer (1)

Remove the pointer (1).



Measure the dimension **A**.

Fully release the clutch.

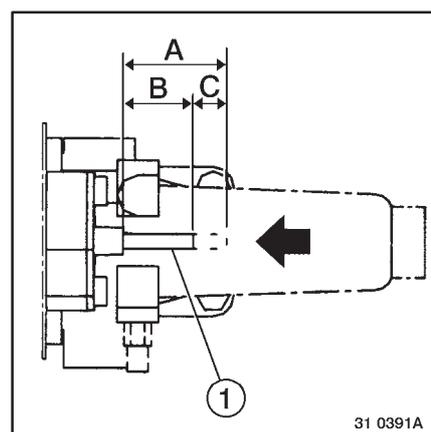
Push the push-rod (1) as far as abutment.

Measure the dimension **B**.

The clutch travel **C** is equal to **A-B**.

C = 22±1 mm

Reposition the pointer (1) while respecting dimension **Y**.



LINING WEAR INDICATOR

Depending on the assembly.

Inspection

To gain access to the underside of the gearbox, remove the soundproofing screen.
After taking action, put the soundproofing screen properly back into place.

Soundproofing screen(s)

Any damage to the interior protective film of the screen requires replacement of the film.

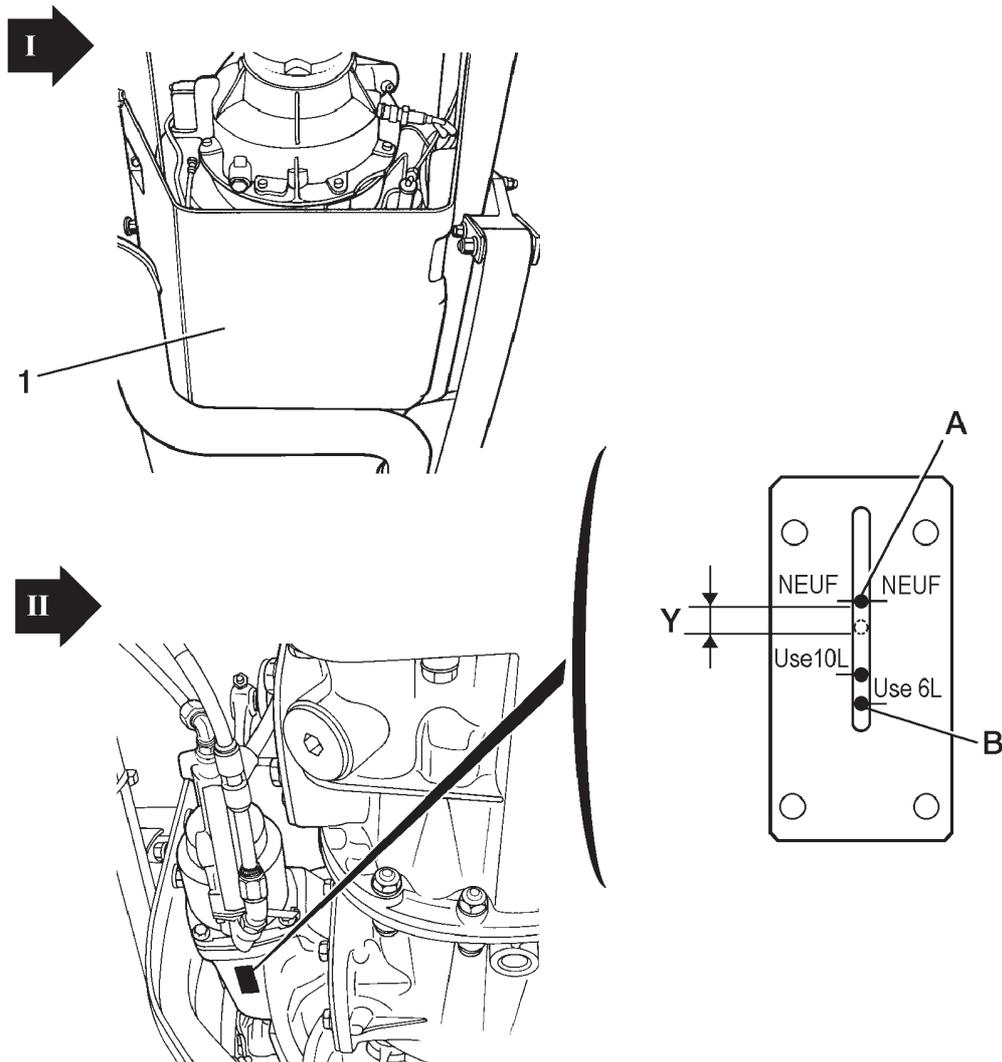
See that no flammable products are applied to the screen protective films.

The screens are to be cleaned using a cloth.

If necessary, use soapy water (any other product is strictly forbidden).

IMPORTANT

If the clutch slave cylinder is to be removed without replacement of the centre plate, mark the position of the pointer prior to disassembly and put it back into the same position upon assembly.



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The item numbers indicated in the drawing on the page correspond to the **sequence of disassembly**.

Gearbox EATON 8209

Clutch MFZ 395

The position of pointer signifies :

A = new lining

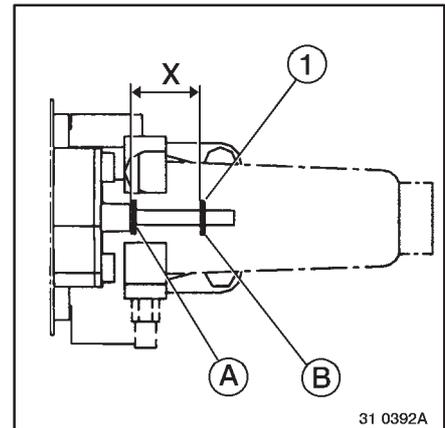
B = worn lining (to be replaced)

Y = setting before disassembly

For fitting, proceed in the reverse sequence to removal.

Gearbox**ZF S5 42****EATON 4106 / 5206 / 6406 / 8309****Clutch VALEO 362 DBE / 395 DBE**

The position of the pointer (1) corresponds to:

A = new lining**B** = worn lining**X** = 26 ± 1 

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TOOLS

RENAULT V.I. divide tools into 3 categories :

- **General-purpose tools** : Commercially available tools.
 - . **50 00 26 reference number** (possibility of purchasing through the Renault V.I. Spare Parts department).
 - . **4-figure reference number** (tools with Renault V.I. reference number, but available from the supplier).
- **Special tools** : Specially created tools, distributed by the RENAULT V.I. spare parts division.
- **Locally manufactured tools** : these tools are classified differently according to their degree of sophistication :
 - . **4-figure reference number** (represented by a drawing) : tools that are simple to make without need for special qualification.
 - . **50 00 26 reference number** (possibility of purchasing through the Renault V.I. Spare Parts department) : a certain skill is needed to make these tools.

Three levels (or echelons) determine their assignment :

- **LEVEL 1** : Tools for servicing and minor tasks.
- **LEVEL 2** : Tools for major repairs.
- **LEVEL 3** : Tools for refurbishment.

NOTE

Tools mentioned in this manual no longer appear in the tools list on account of the new tools classification.

List of tools according to major unit type

ZF S5.42 : 2437+0978+1291+9774+9777

EATON 4106 / 5206 / 6406 / 8309 : 2437+0978+1291+9774+9777

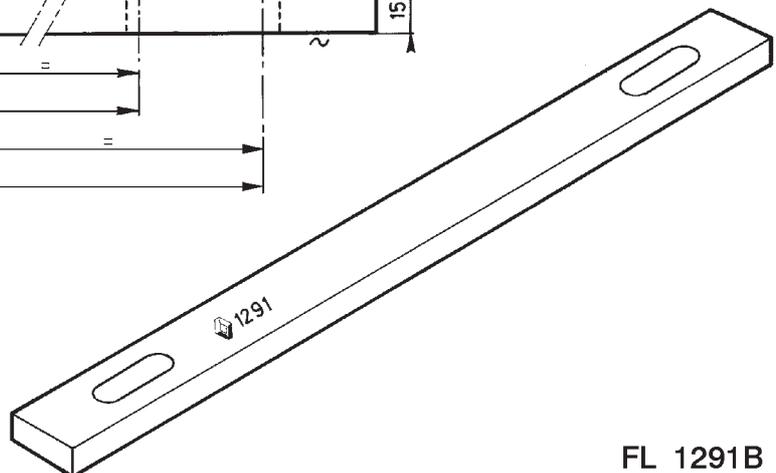
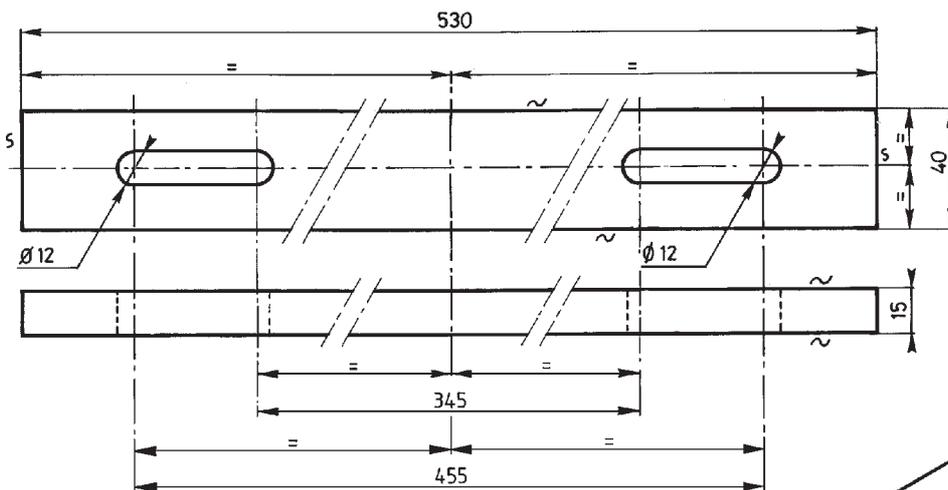
EATON 8209 : 2437+0978+1291+9774+2363+3016+9777+3231

General-purpose tools				
Renault V.I. Ref.	Description	Level	Quantity	Page
50 00 26 0978	Puller	1	1	D2 / E2
50 00 26 2363	Set of pushers	1	1	E2
50 00 26 9774	Torque multiplier	1	1	D2
50 00 26 9777	Angular dial	1	1	D2
50 00 26 2437	Centring tool	1	1	C3

Special tools				
Renault V.I. ref.	Description	Level	Quantity	Page
50 00 26 3231	Gauging pin	1	1	G2
50 00 26 3016	Gauging pin	1	1	E2

Locally manufactured tools				
Renault V.I. ref.	Description	Level	Quantity	Page
1291	Puller	1	1	D2

Locally manufactured tools



FL 1291B