

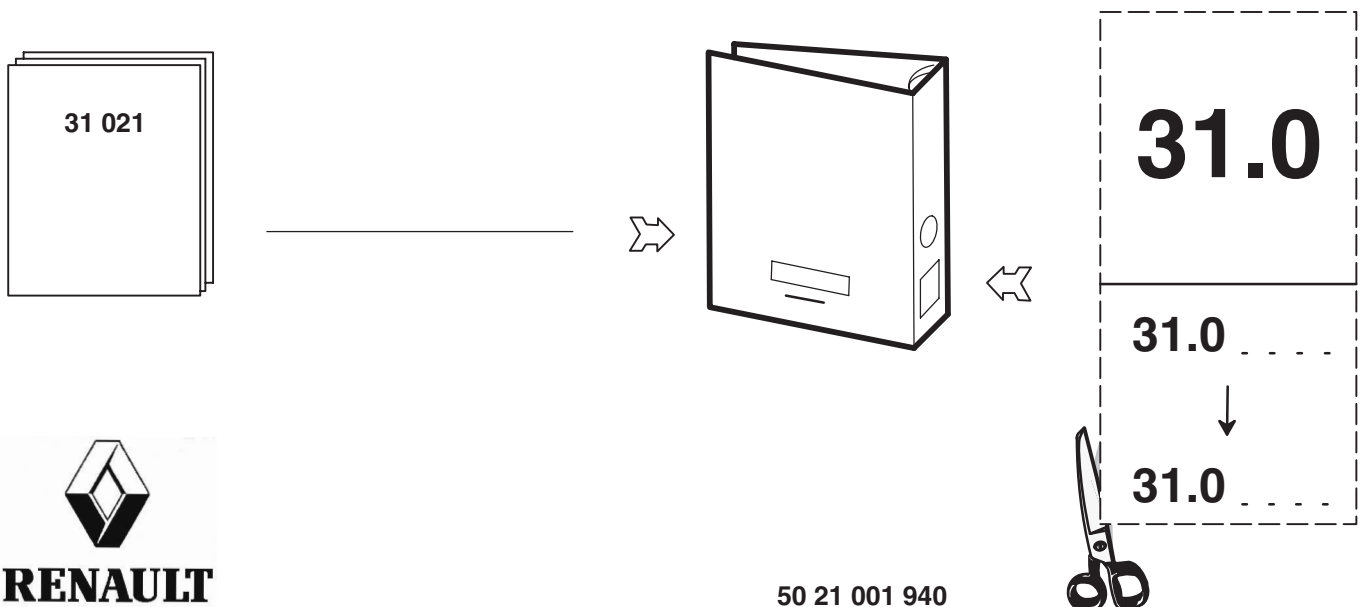
31 021 – AN – 09.2001

CLUTCH

CLUTCH	VEHICLE
ALL TYPES	RENAULT MAGNUM RENAULT PREMIUM RENAULT KERAX RENAULT MASCOTT ILIADE ARES

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)



Depending on versions or options



Mark – Assemble as per marking



Dimension to be assured (mm)



... to ...



Equal



Part to be replaced



Inspect – Check the condition of parts



Correct



Incorrect



Operation with sequence number

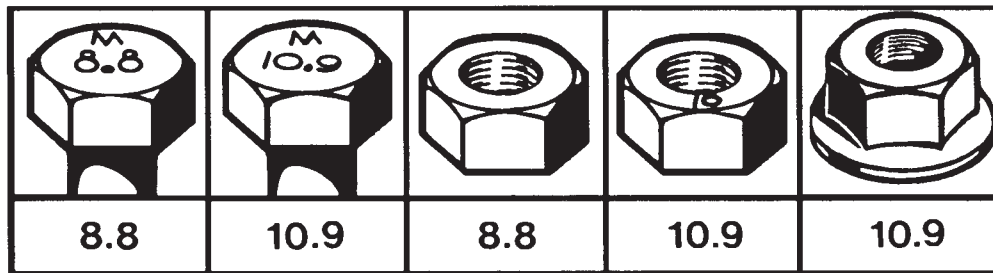


Danger for persons, the vehicle or the equipment



Implique

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 → A14.

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

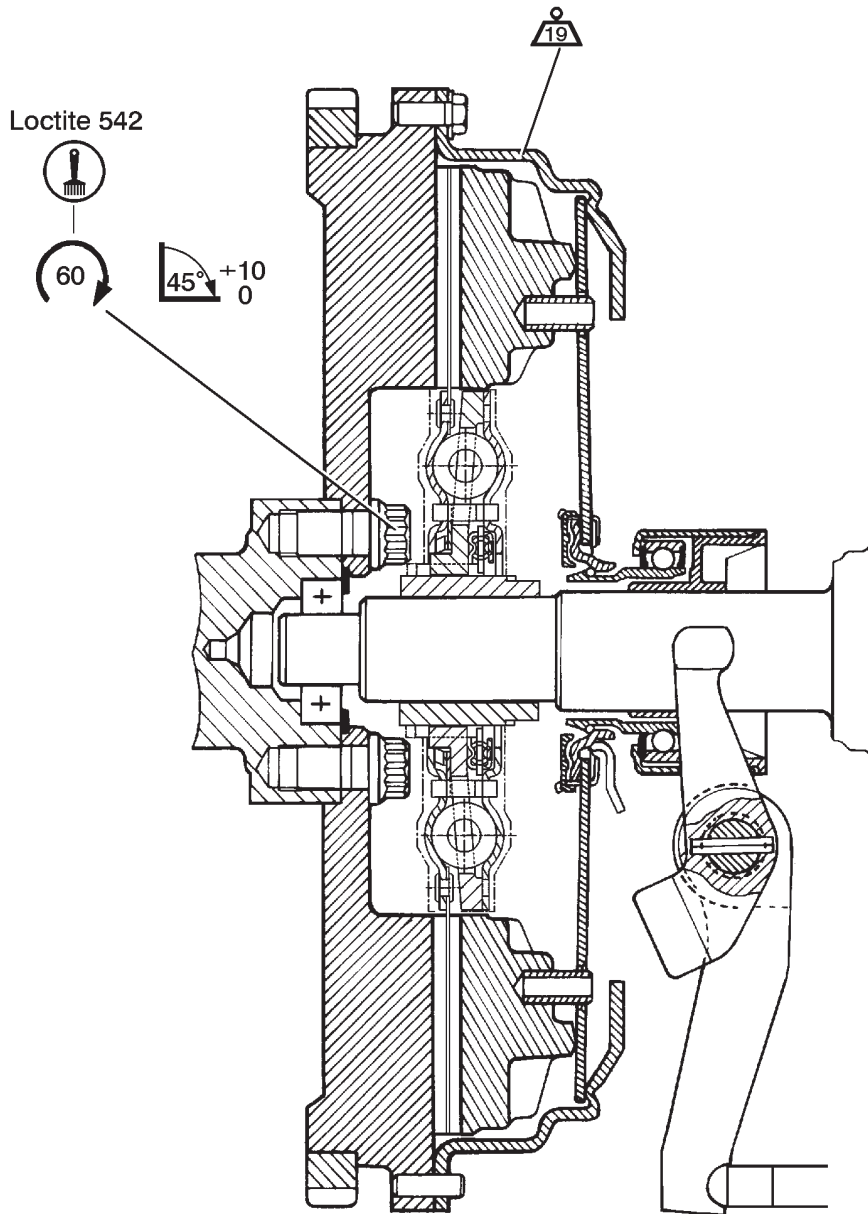
RENAULT V.I. recommend Huiles Renault Diesel

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

Grease

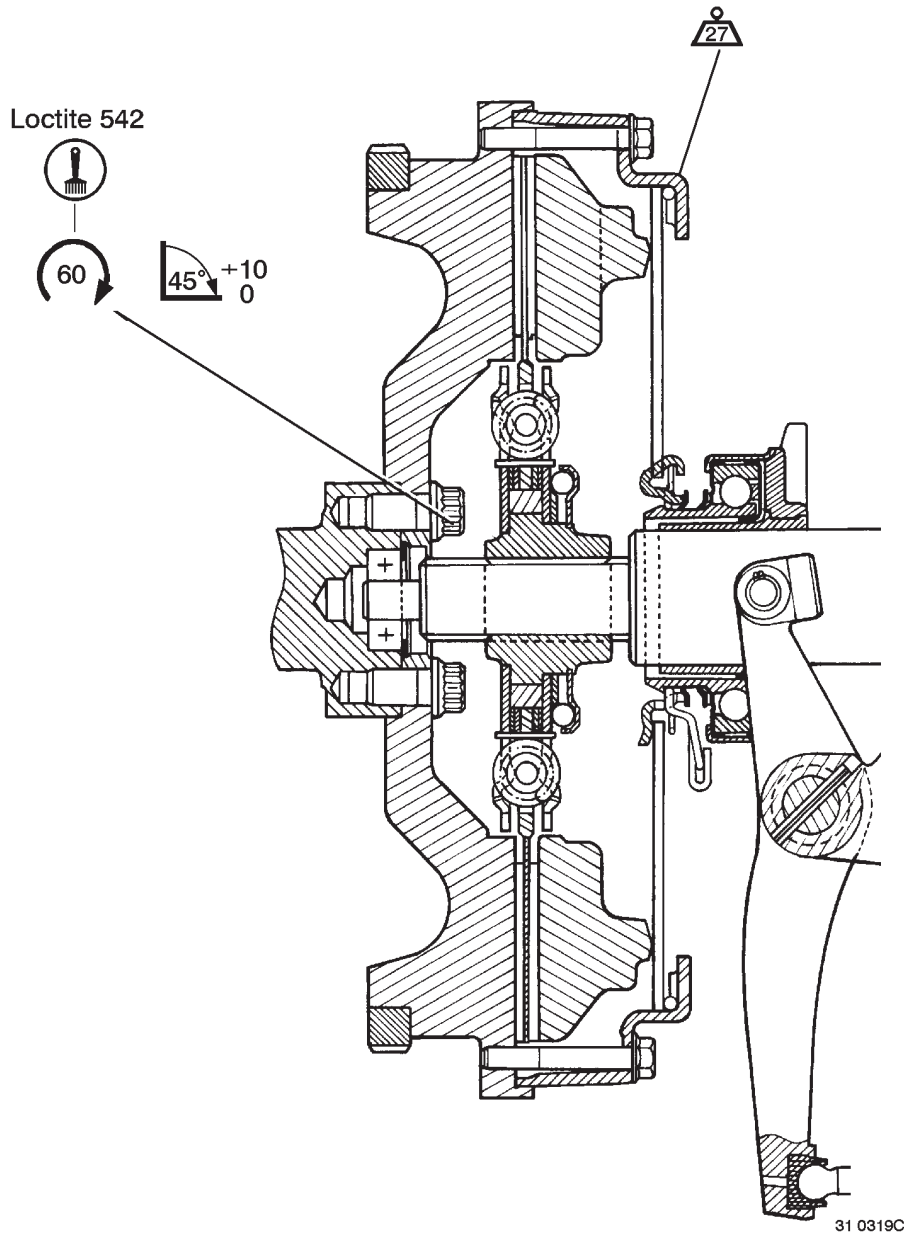


..... RAM NLGI 2 grease – lithium soap
molybdenum bisulphide

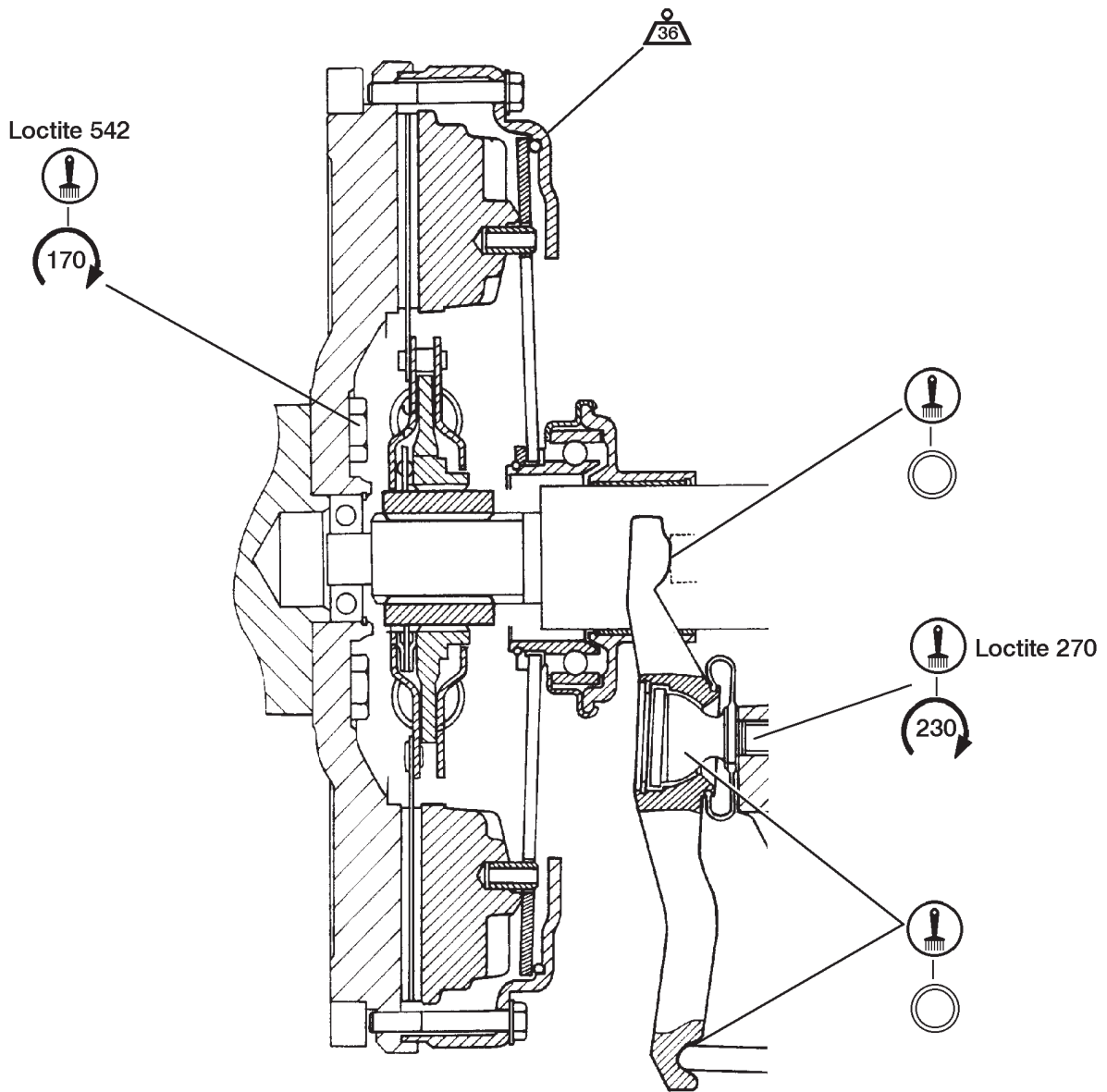


31 0318B

Engine	Clutch			Gearbox
MIDR 06.02.26	VALEO 350 DTR			EATON 4106
Engine flywheel (see pages)	Mechanism (see pages)	Thrust bearing (see pages)	Control system (see pages)	Operating fork (see pages)
D2→D4	C2-C3	B5→B7	F1-F3 / G1-G3	E4

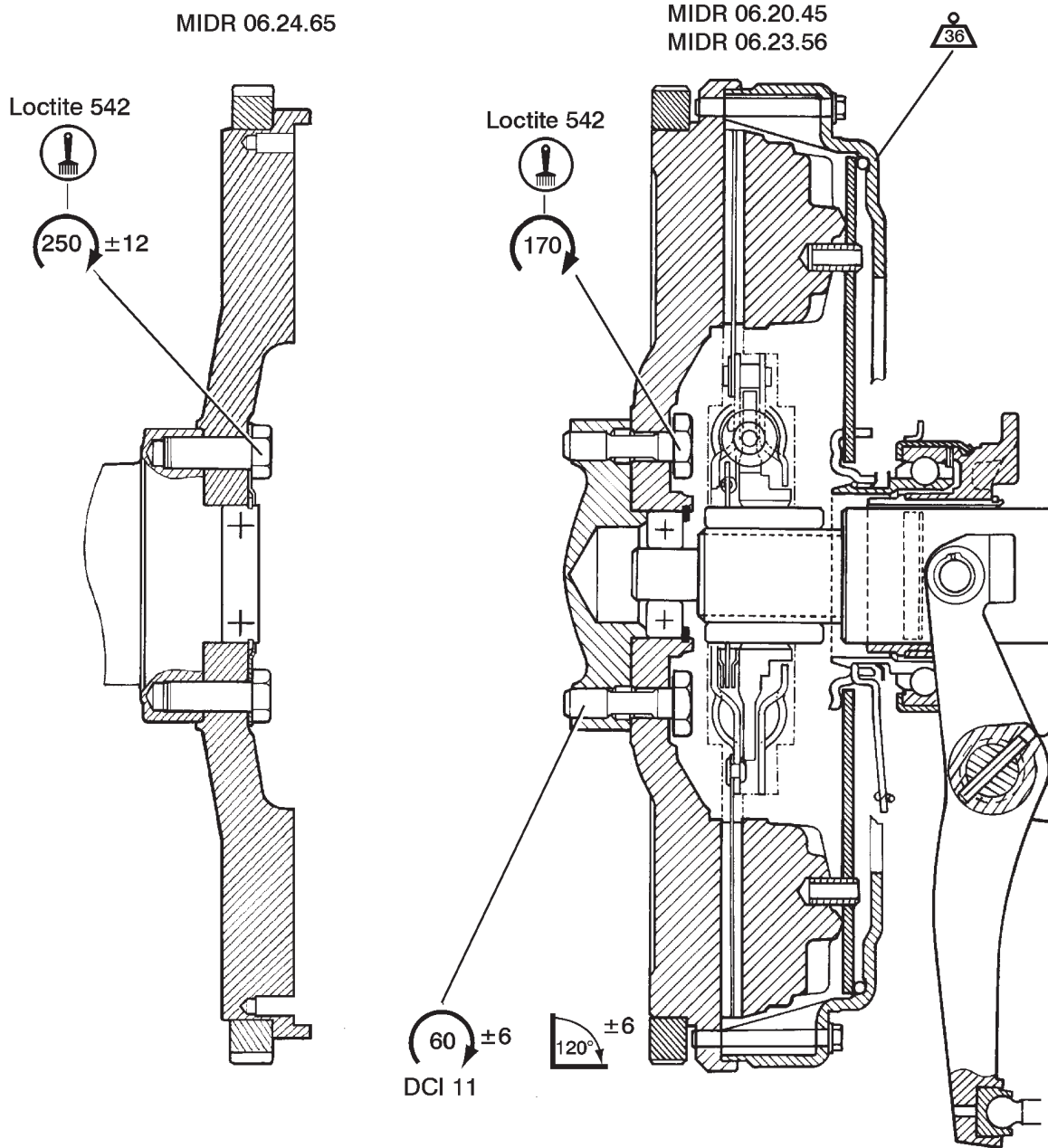


Engine	Clutch			Gearbox
MIDR 06.02.26	F & S MFZ 395			EATON 8209
Engine flywheel (see pages)	Mechanism (see pages)	Thrust bearing (see pages)	Control system (see pages)	Operating fork (see pages)
D2→D4	C2-C3	B5→B7	F1→F3 G1-G3 / H3	E4



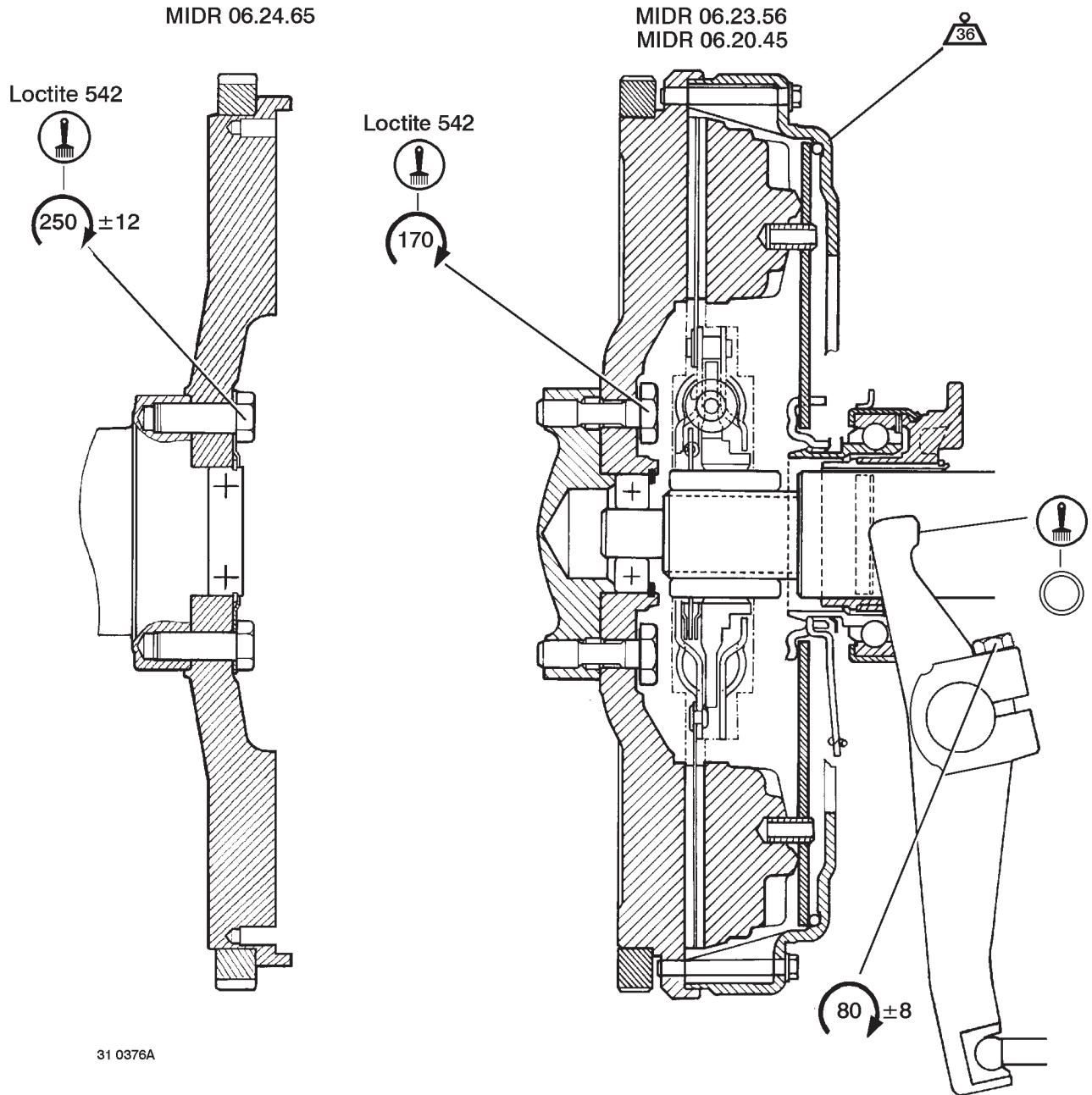
31 0337A

Engine	Clutch			Gearbox
MIDR 06.20.45 MIDR 06.23.56	VALEO 430 DTE			ZF 6S.85 ZF 8S.180 B8 TBV
Engine flywheel (see pages)	Mechanism (see pages)	Thrust bearing (see pages)	Control system (see pages)	Operating fork (see pages)
D2→D4	C2-C3	B8	F1→F3 G6-G7 / H7-H8	E2



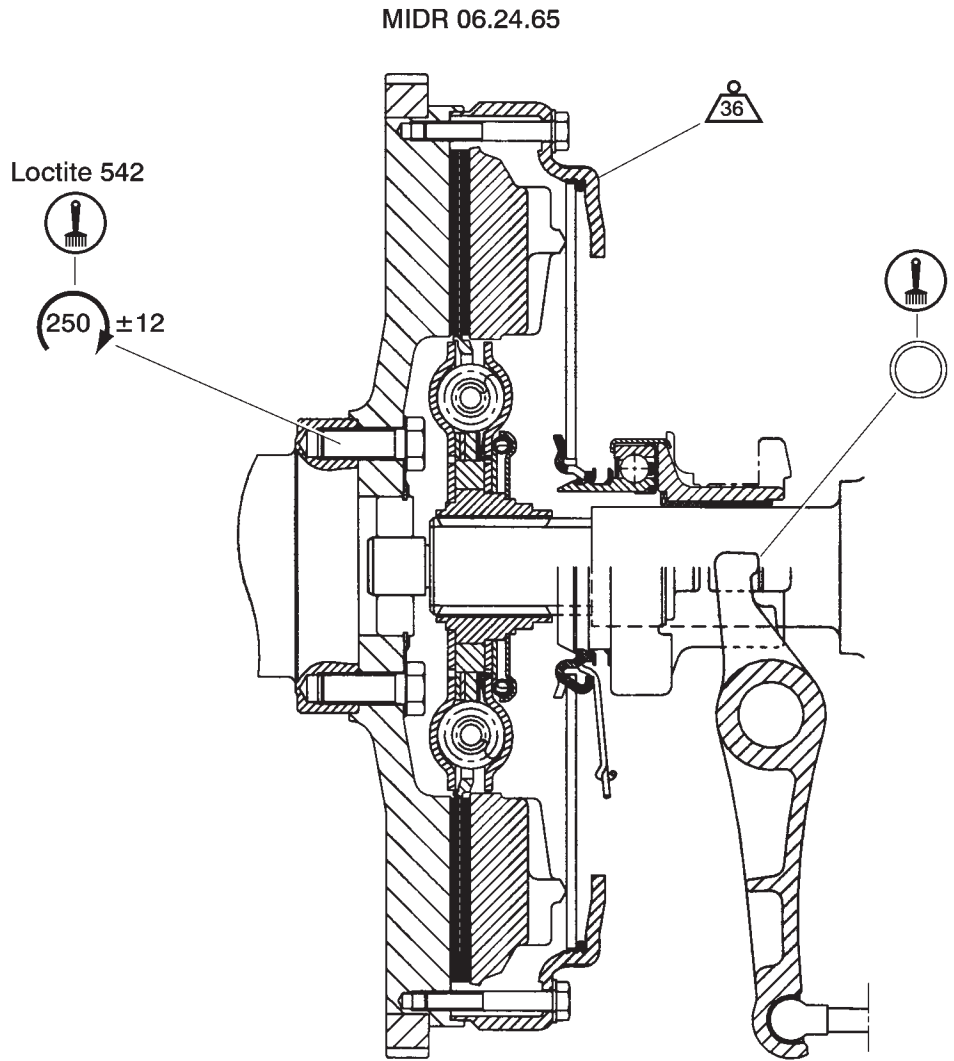
31 0320B

Engine	Clutch			Gearbox
MIDR 06.20.45 MIDR 06.23.56 DCI 11 MIDR 06.24.65 E TECH	VALEO 430 DTE F & S MFZ 430			B8 – B9 – B18 / TBV EATON 8209 ZF 6S.85 ZF 8S.151/180 ZF 9S.109 ZF16S.109/151 ZF 16S.181/221/251
Engine flywheel (see pages)	Mechanism (see pages)	Thrust bearing (see pages)	Control system (see pages)	Operating fork (see pages)
D2→D4	C2–C3	B1→B7	F2–F3 / G1→G5 H1→H6	E3→E5/E7



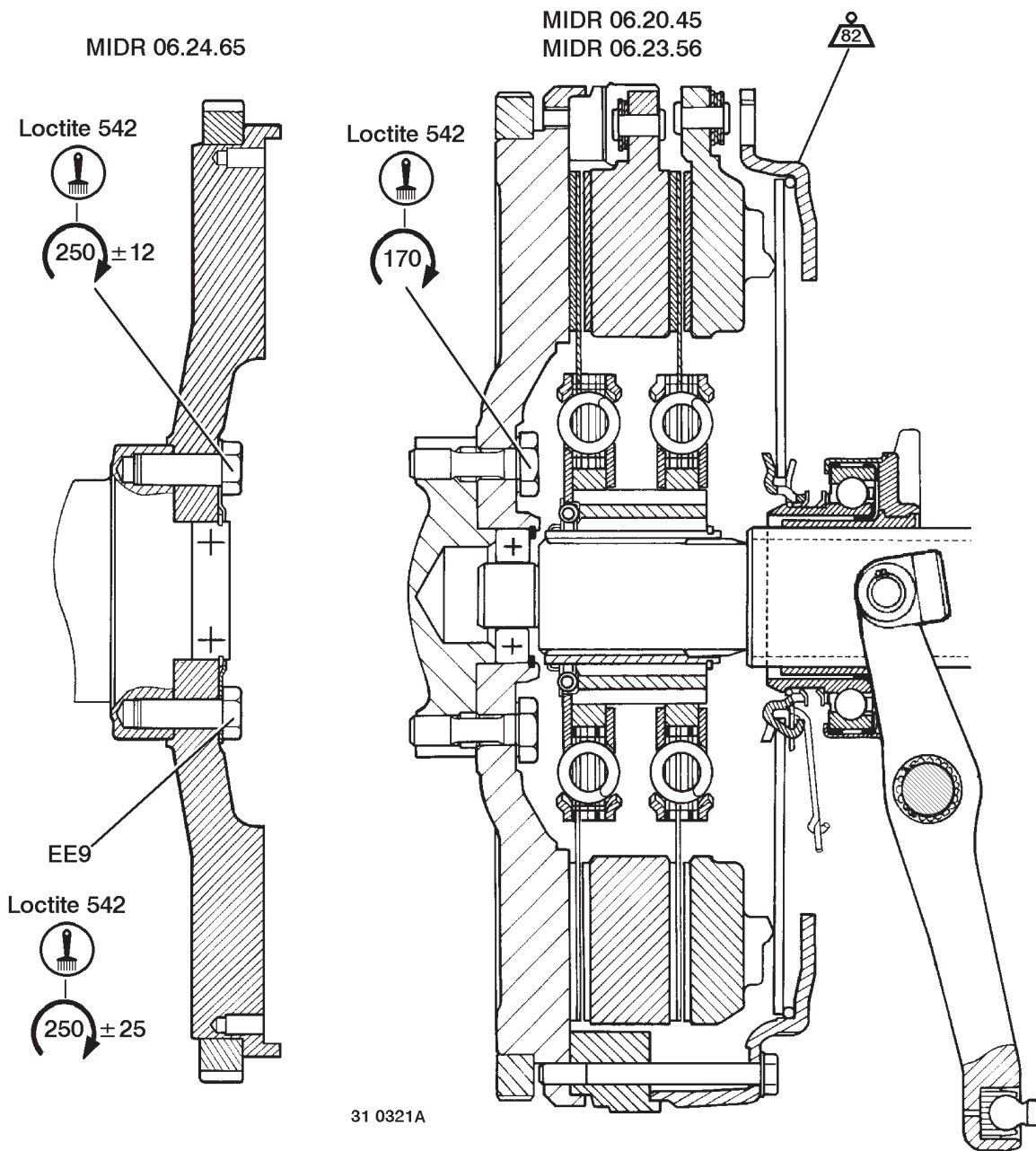
31 0376A

Engine	Clutch			Gearbox
MIDR 06.20.45 MIDR 06.23.56 MIDR 06.24.65	VALEO 430 DTE			ZF 8S.151 ZF16S.151/181/221
Engine flywheel (see pages)	Mechanism (see pages)	Thrust bearing (see pages)	Control system (see pages)	Operating fork (see pages)
D2→D4	C2-C3	B1→B7	F1→F3 G1→G5	E6



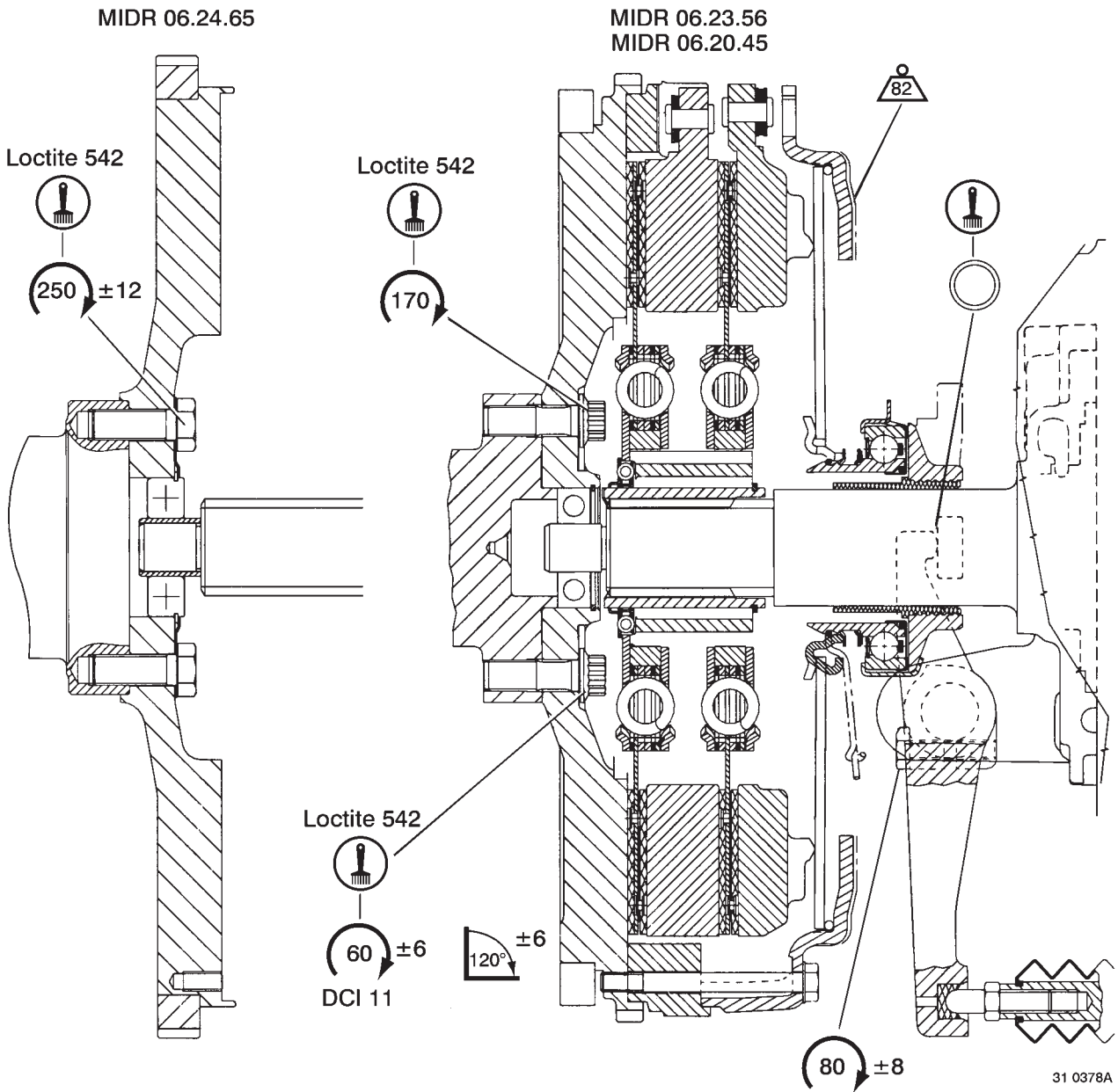
31 0377A

Engine	Clutch			Gearbox
MIDR 06.24.65 E TECH	F & S MFZ 430			ZF AS.2601
Engine flywheel (see pages)	Mechanism (see pages)	Thrust bearing (see pages)	Control system (see pages)	Operating fork (see pages)
D2→D4	C2-C3	B1→B7	F1→F3 G1→G5	E8

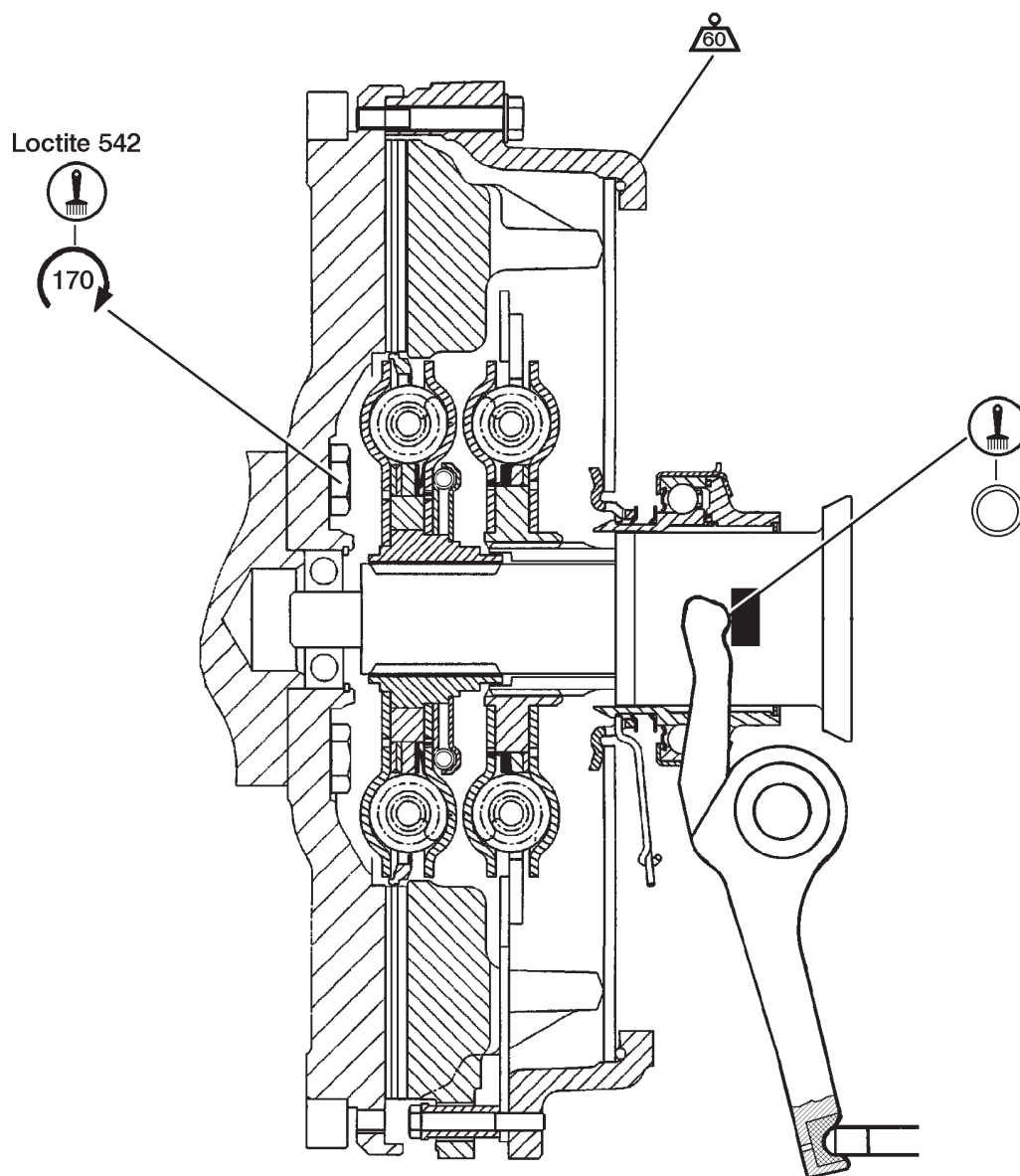


31 0321A

Engine	Clutch			Gearbox
MIDR 06.20.45 MIDR 06.23.56 MIDR 06.24.65 EE9	MFZ 2.400			B9 – B9 TBV B18 – B18 TBV
Engine flywheel (see pages)	Mechanism (see pages)	Thrust bearing (see pages)	Control system (see pages)	Operating fork (see pages)
D2→D4	C2–C3	B1→B4	F1→F3 G1→G3 H4→H6	E3

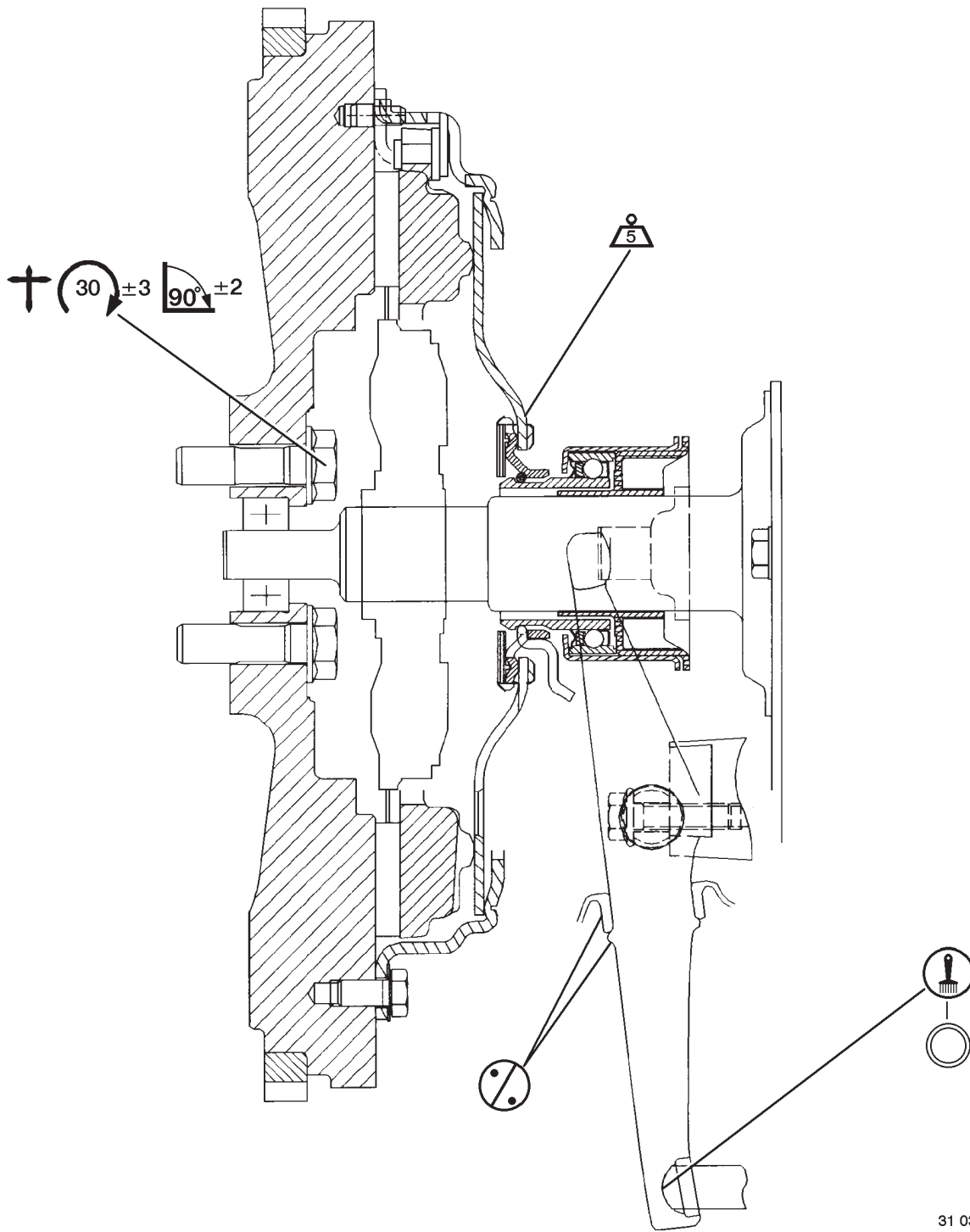


Engine	Clutch			Gearbox
MIDR 06.20.45 MIDR 06.23.56 DCI 11 MIDR 06.24.65 E TECH	MFZ 2.400			ZF 8S.151 ZF 16S.151/181 ZF 16S.221/251 ZF AS.2601
Engine flywheel (see pages)	Mechanism (see pages)	Thrust bearing (see pages)	Control system (see pages)	Operating fork (see pages)
D2→D4	C2-C3	B1→B7	F1→F3 G1-G4→G5 H4→H6	E6-E8



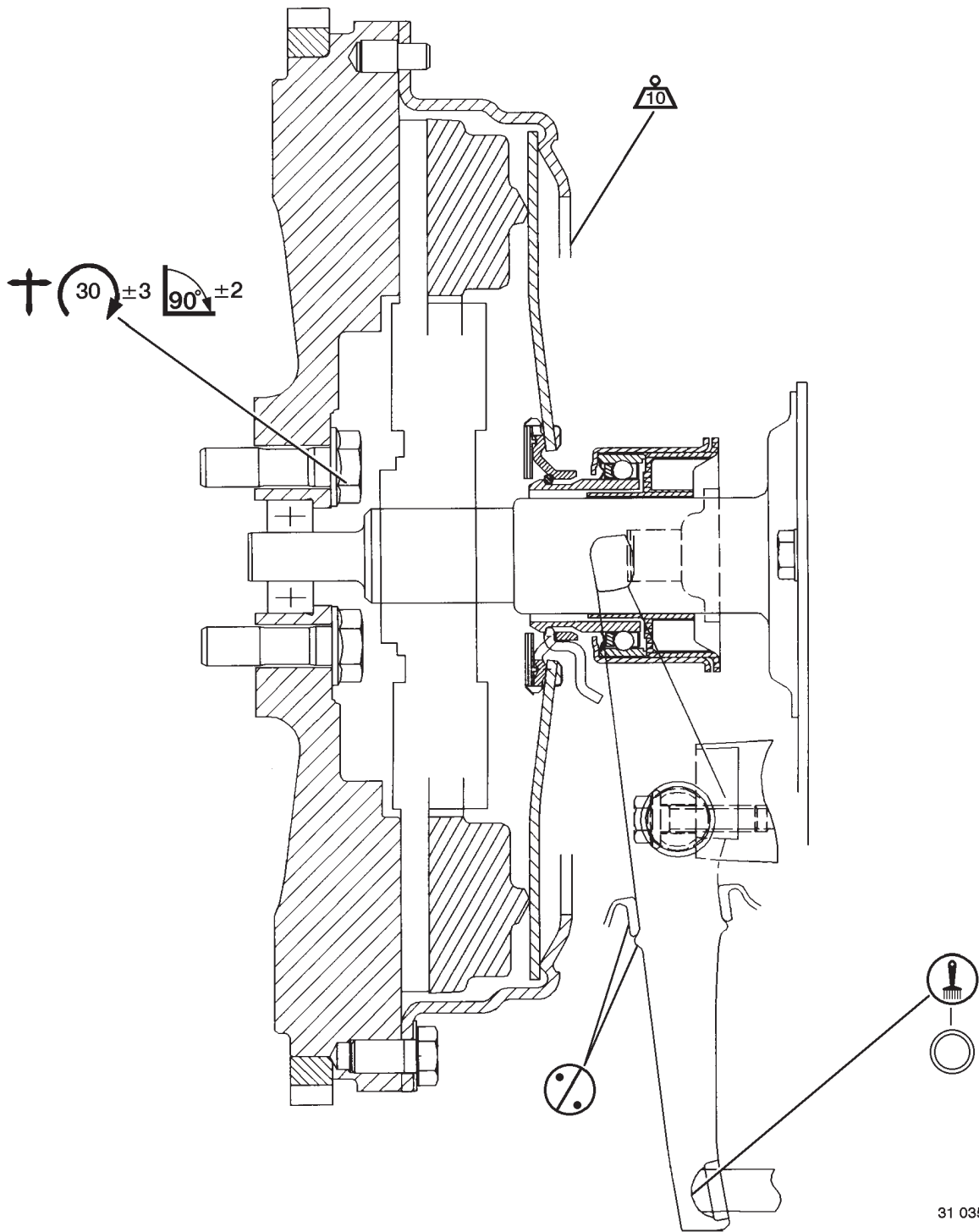
31 0322A

Engine	Clutch			Gearbox
MIDR 06.20.45 MIDR 06.23.56	GMFZ 430 N			ZF + NMV
Engine flywheel (see pages)	Mechanism (see pages)	Thrust bearing (see pages)	Control system (see pages)	Operating fork (see pages)
D2→D4	C2-C3	B1→B4	F1→F3 G1→G5	E5



31 0351 A

Engine	Clutch			Gearbox
8140 – 63	VALEO 235 DTR			ZF S5.200
Engine flywheel (see pages)	Mechanism (see pages)	Thrust bearing (see pages)	Control system (see pages)	Operating fork (see pages)
D3–D4	C2–C3	B5→B7	F3 / G8	E9



31 0352A

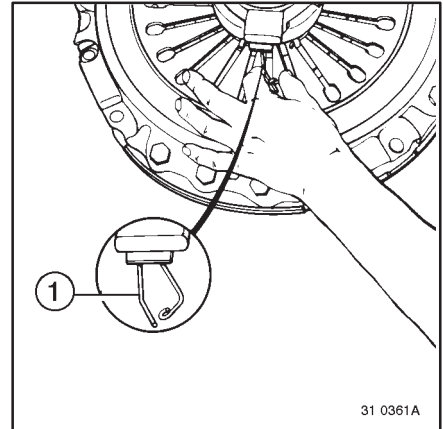
Engine	Clutch			Gearbox
8140 - 43C 8140 - 43S 8140 - 43K	VALEO 267 DTR			ZF S5.200 ZF S6.300
Engine flywheel (see pages)	Mechanism (see pages)	Thrust bearing (see pages)	Control system (see pages)	Operating fork (see pages)
D3-D4	C2-C3	B5→B7	F3 / G8	E9

CARRIER-MOUNTED RELEASE THRUST BEARING

Removal

Before removing the gearbox:

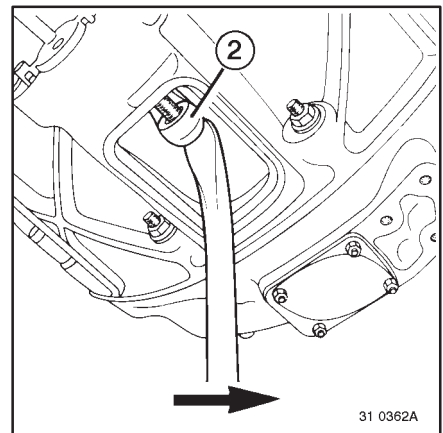
- Take off the inspection plate.
- Open out the retaining ring (1).



Move the operating fork (2) rearwards to separate the release thrust bearing from the clutch mechanism.

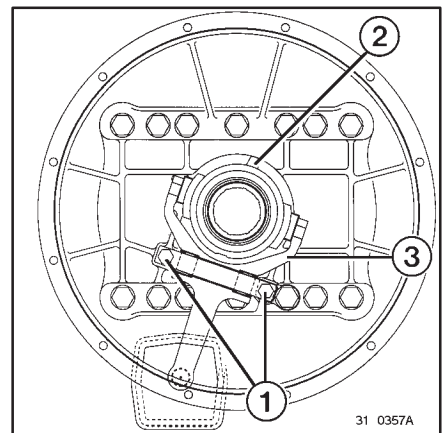
Remove the gearbox.

Take out the release thrust bearing following the sequence of disassembly indicated by marks on the drawings of the different gearbox assemblies.



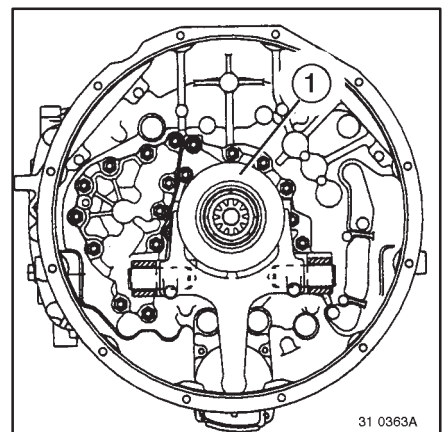
Gearbox

“ZF 6S.85 / ZF 8S.180”

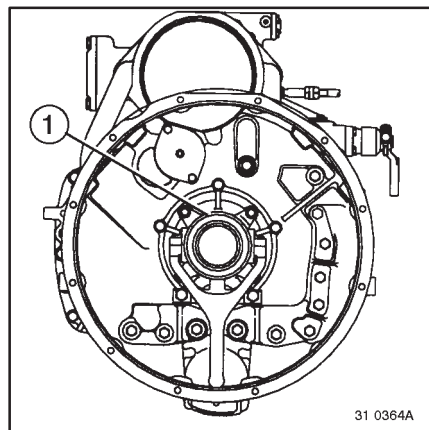


Gearbox

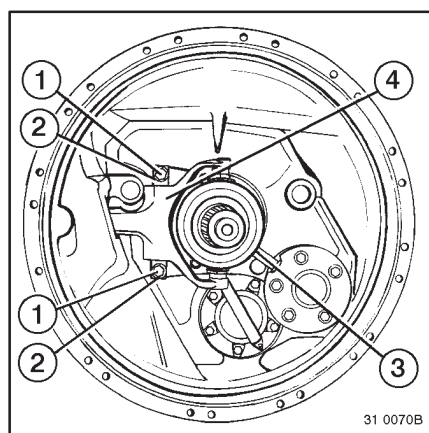
“ZF 8S.151” – “ZF 16S.151/181/221/251”



Gearbox
"ZF 16S.151 + NMV"

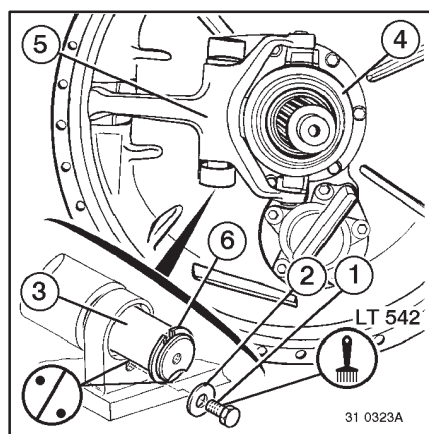


Gearbox
"B9 / B8 TBV"



Gearbox
"B18 / TBV"

Withdraw pin (3).
Use tool(s) 0978.

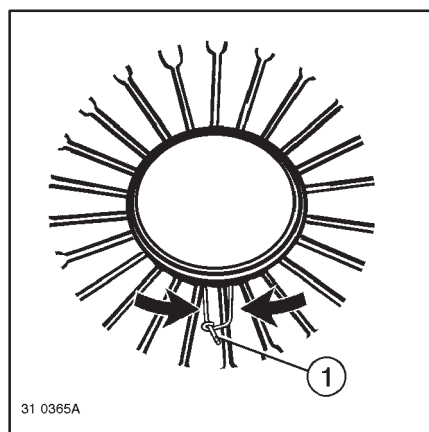


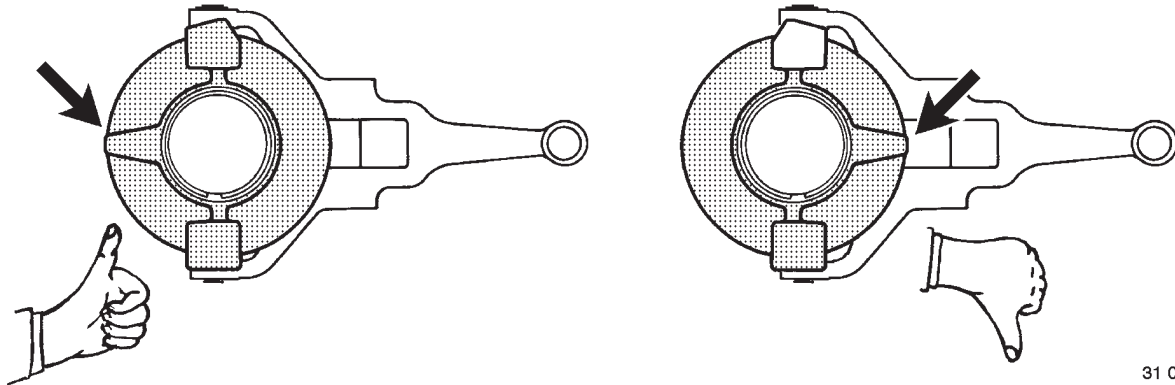
Fitting

For fitting, proceed in the reverse sequence to removal.
Remove dust from the bearing-carrier and from the release thrust bearing.
Do not use any degreasing product.

WARNING

The release bearing thrust ring is made from plastic. Upon assembly, do not grease either the thrust ring or the thrust bearing-carrier.
Close the retaining ring (1).

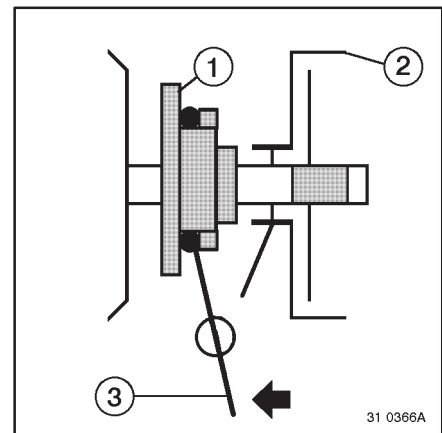




Depending on the assembly.
Respect the orientation.

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).



MECHANISM-MOUNTED RELEASE THRUST BEARING

Removal

Gearbox

“EATON 4106 / EATON 8209 – ZF 5S.200 – ZF6S.300 – ZF 8S.151 – ZF 9S.109
ZF 16S.109” /.151 /.181 /.221 /.251

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 **B7**). 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.

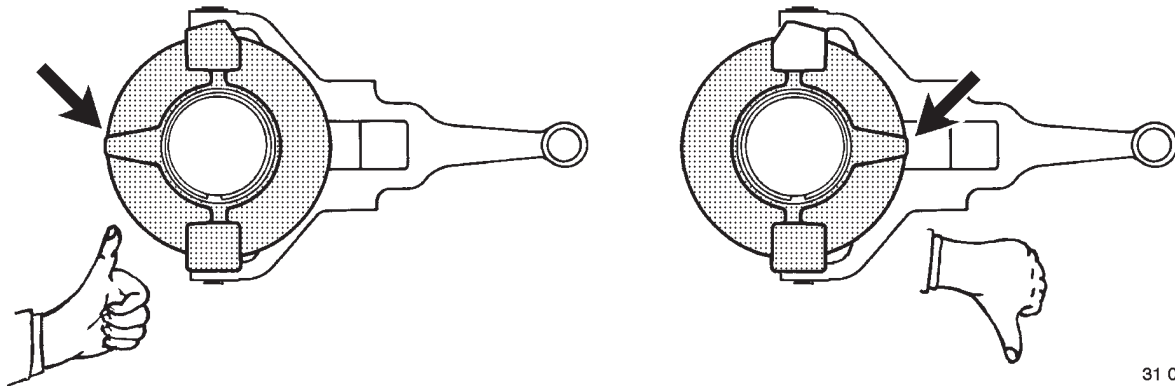
WARNING

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

Assembly A

Close the retaining ring (1).

See page(s) **B7**.



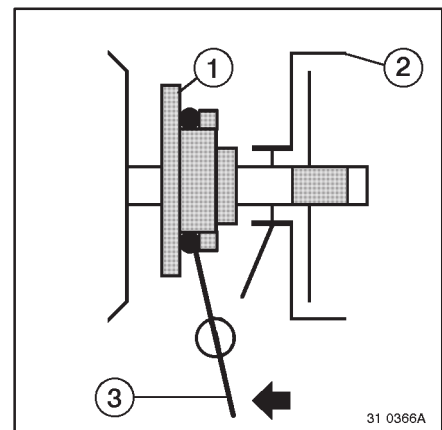
31 0326A

Depending on the assembly.
Respect the orientation.

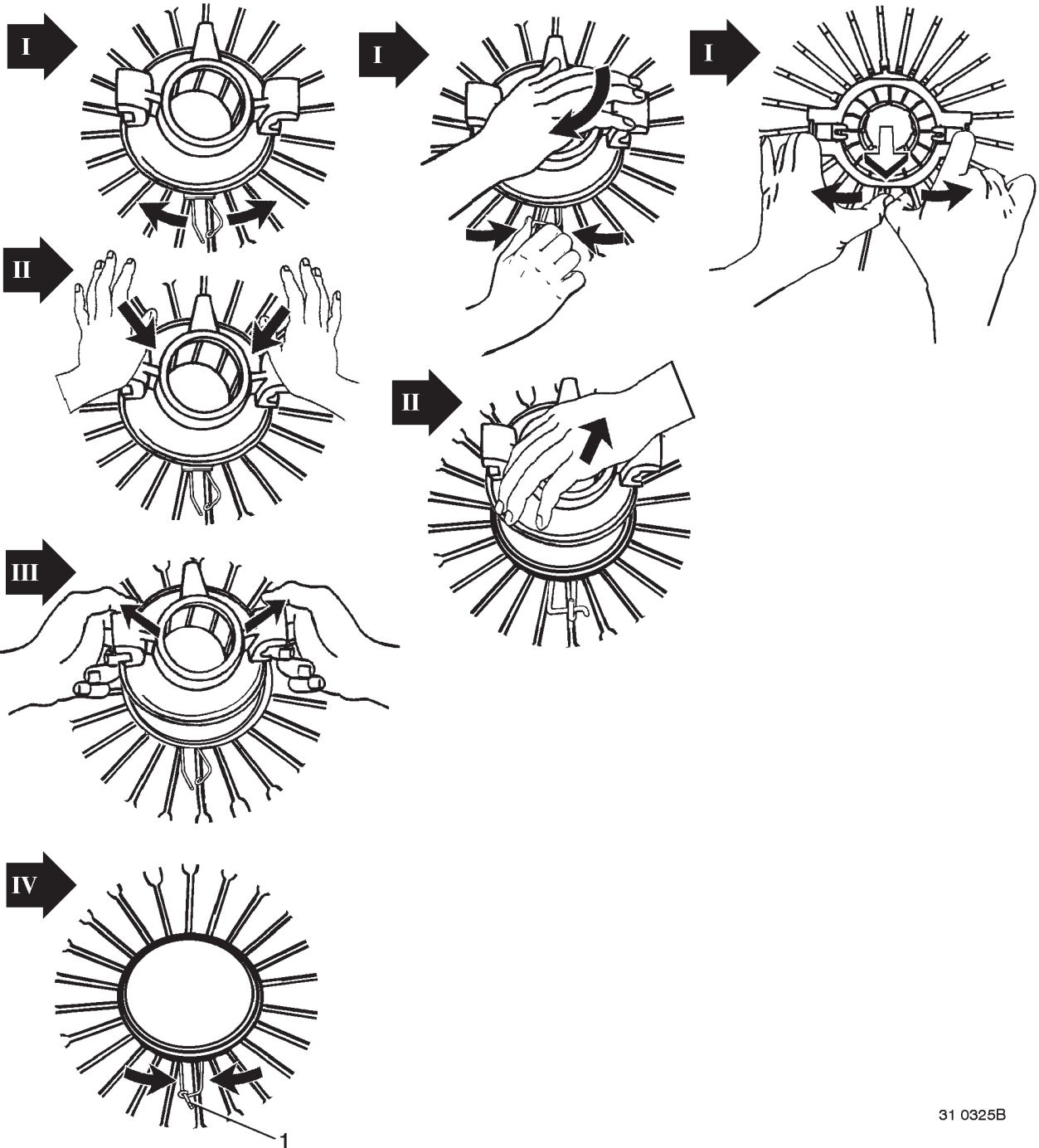
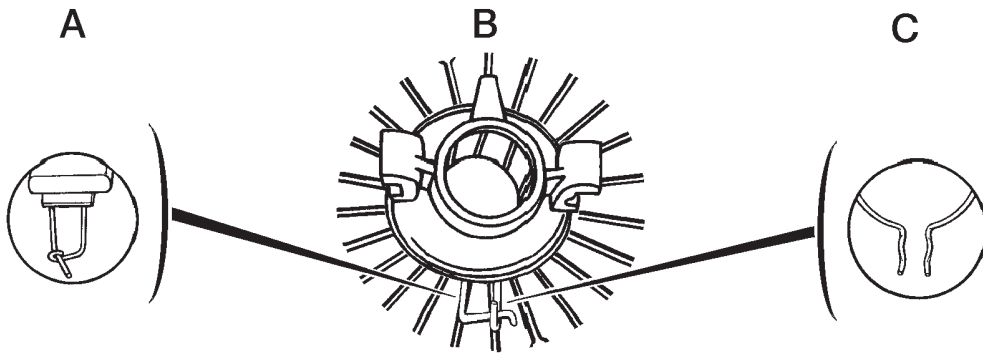
Fit the gearbox.

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

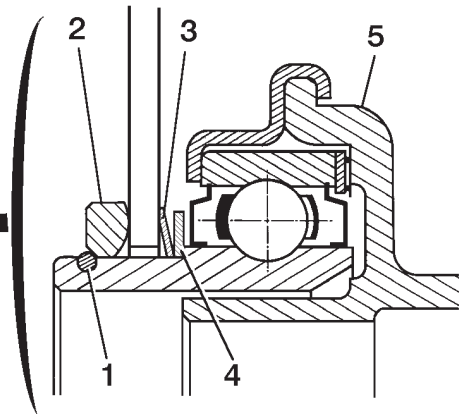
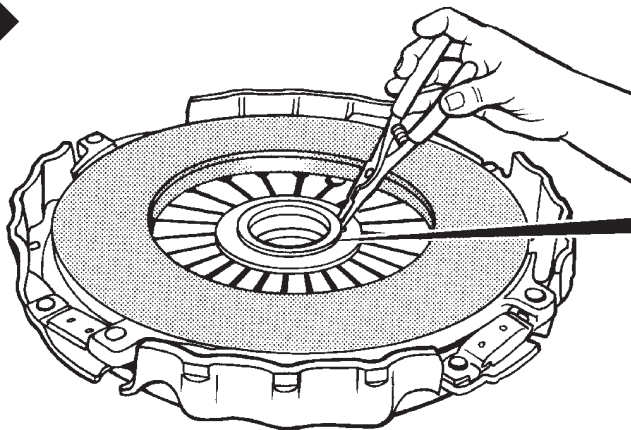
Move the operating fork (3) forwards to check correct locking of the release thrust bearing (1).



31 0366A



31 0325B



31 0339A

Gearbox "ZF 6S.85 / ZF 8S.180 – B8 TBV"

Removal

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

Fitting

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

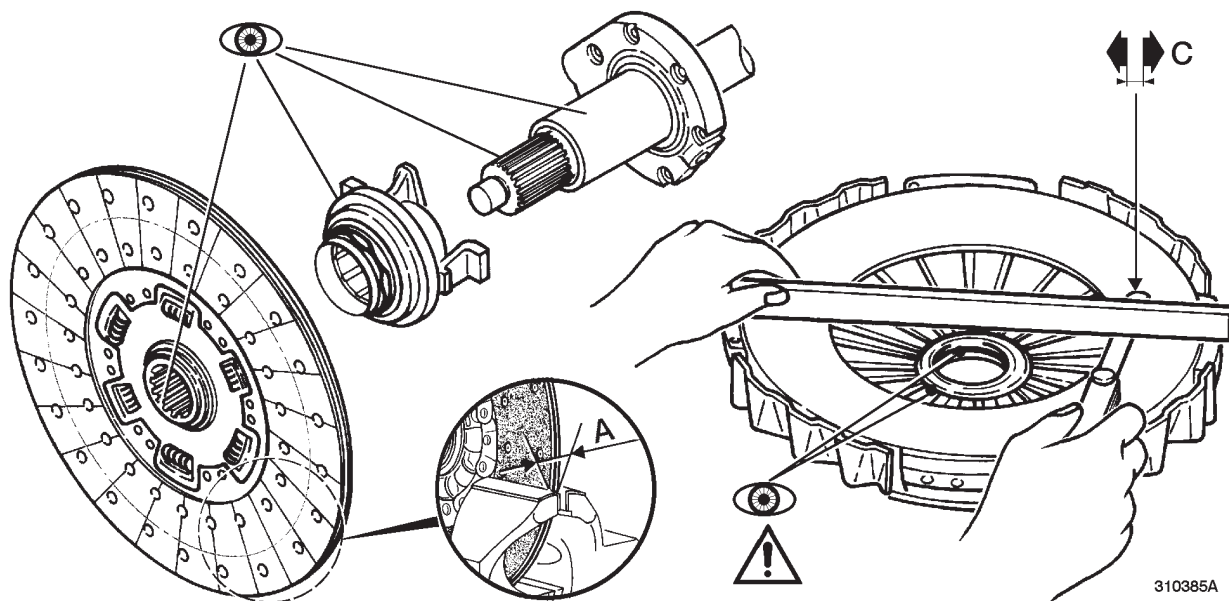
Do not use any degreasing product.

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



310385A

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.

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)
235	5.2	–
267	5.5	–
350	6.4	0.7
395	7	0.7
430	7	0.8
2.400	7	–

Clutch “MFZ 2.400”

(see workshop manual section MR 31 611).

Fitting

Clutch "235 DTR / 267 DTR / 350 DTR – 395 MFZ"

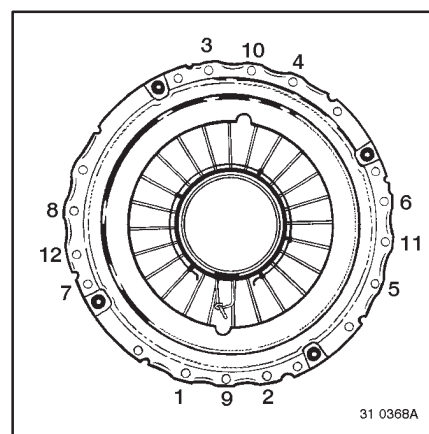
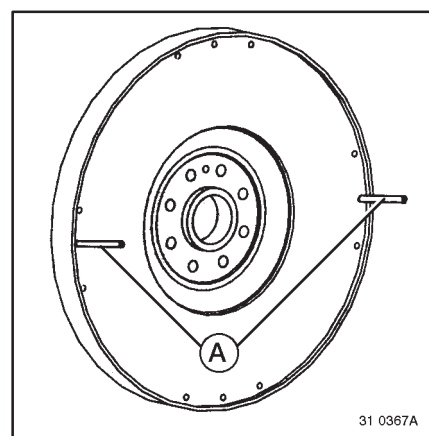
Upon assembly

- Remove dust from the clutch casing.
- Degrease the flywheel friction track.
- Assemble the clutch plate using a centring tool, checking the direction of assembly of the plate.
- Progressively tighten the diametrically opposed to the recommended tightening torque (see page **A2**), (the diaphragm must sink in progressively).
- Make sure that the centring tool slides freely in the hub of the clutch plate.
- Make sure that the height of the diaphragm fingers is constant.
- Make sure that the support ring and the retaining ring locking the release thrust bearing are correctly in place.

Clutch "430 DTE – 430 MFZ – GMFZ 430 N"

Upon assembly

- Remove dust from the clutch casing.
- Degrease the flywheel friction track.
- To position the mechanism, screw two headless screws (**A**) (**A = Ø10 x 150 x 68**)
- Assemble the clutch plate using a centring tool, checking the direction of assembly of the latter.
- Assemble the mechanism and position the flywheel so that the screw (**9**) is at 6 o'clock.
- Screw up and progressively tighten the 12 setscrews in three successive phases, respecting the sequence in the drawing, to the recommended tightening torque (see page **A2**).
- Make sure that the centring tool slides freely in the hub of the clutch plate.
- Make sure that the height of the diaphragm fingers is constant.
- Make sure that the support ring and the retaining ring locking the release thrust bearing are correctly in place.



Nickel-plated splines : shiny colour.

IMPORTANT

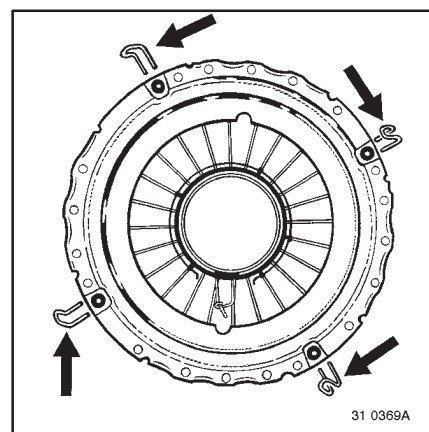
Do not grease splines.

Clutch "430 DTE"

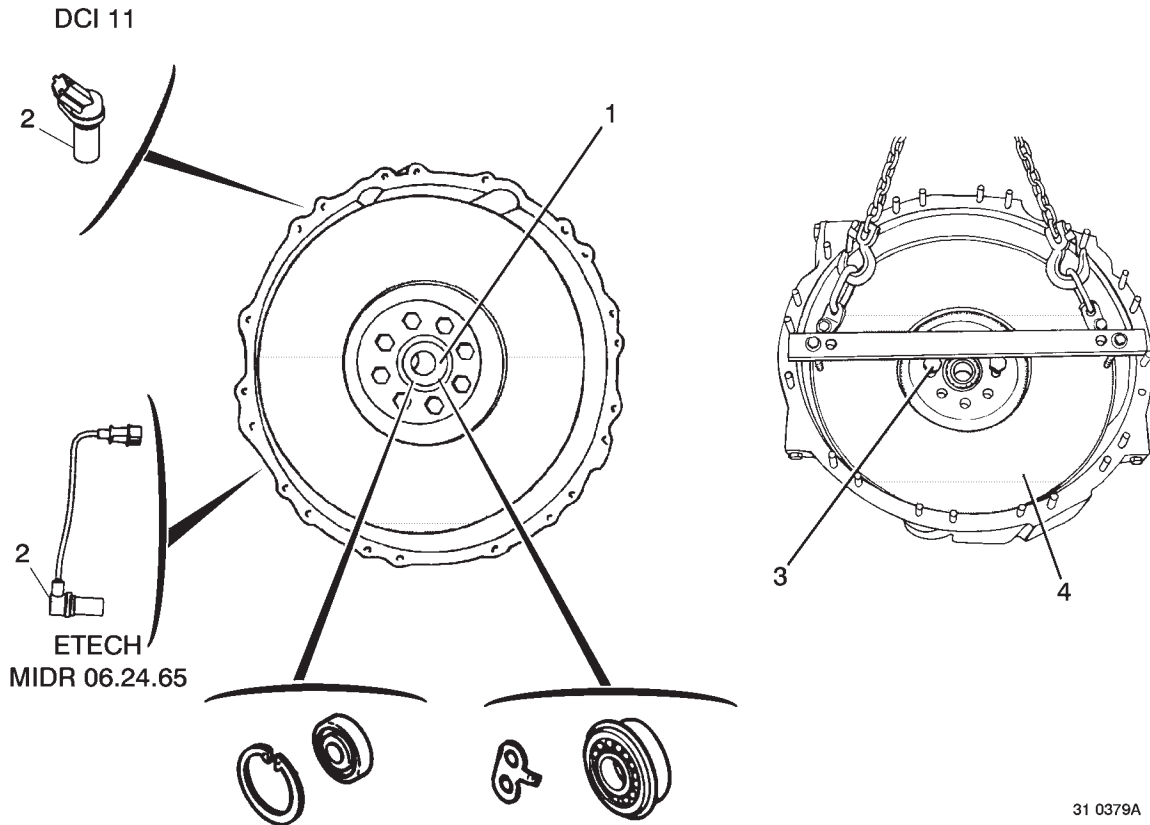
After installing the mechanism, withdraw the clips.

Clutch "MFZ 2.400"

(see workshop manual section MR 31 611).



ENGINE FLYWHEEL



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

Engine DCI 11

IMPORTANT

*The setscrews can be re-used no more than once. Whenever you re-use them, mark the head of the setscrew with a blow using a centre punch and apply **threadlocking Loctite (Frenétanch)** to the screw-threads.*

Do not apply this product to new setscrews, which are already pre-coated, and do not re-use setscrews that are already marked with a punch mark.

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 **D4**).
- 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

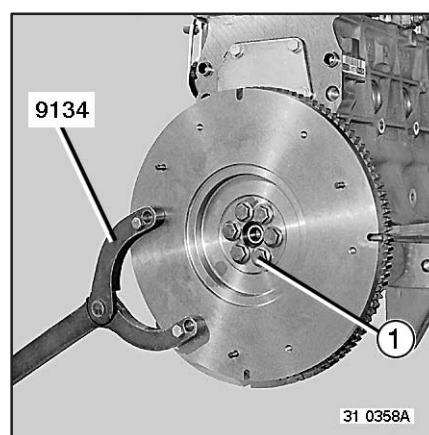
Progressively tighten the diametrically opposed setscrews at the recommended tightening torque (see page **A4** → **A14**).

Engine "SOFIM 8140"

Engine flywheel

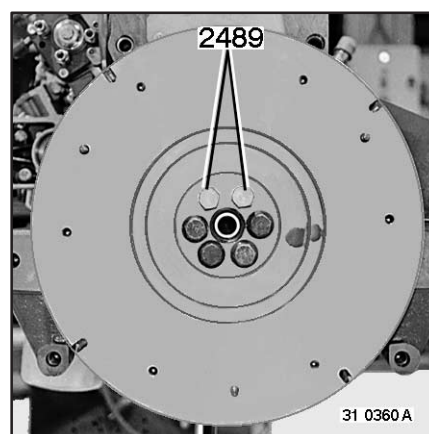
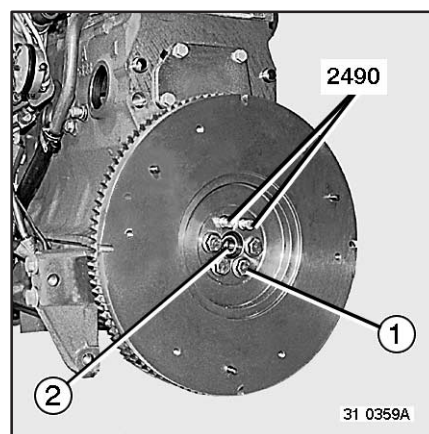
Removal

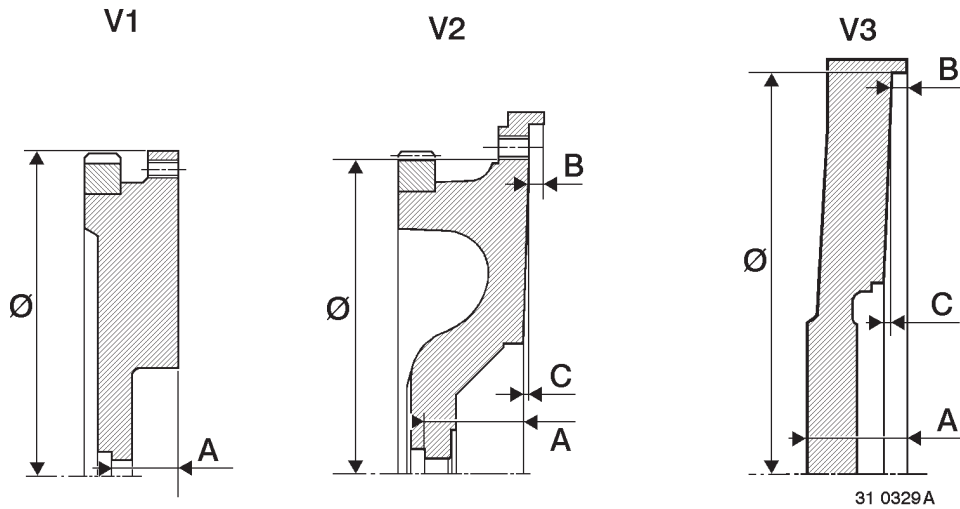
Loosen the setbolts (1).
Use tool(s) **9134**.



Precautions for removal/fitting of the engine flywheel:

- Remove dust from the flywheel.
- Take out two setbolts (1) and replace them with tool **2490**.
- Remove the other setbolts (1).
- Remove the flywheel.
- Replace the bearing (2), if necessary.
- When fitting the flywheel, use tool **2490** to install it.
- Screw up the setbolts (1) without tightening them.
- Mount tool **2489** in place of tool **2490** and tighten to centre the flywheel.
- Tighten the setbolts (1) to the recommended torque (see page(s) **A11** → **A14**).
- Withdraw tool **2489**, fit two setbolts (1) and tighten to torque.



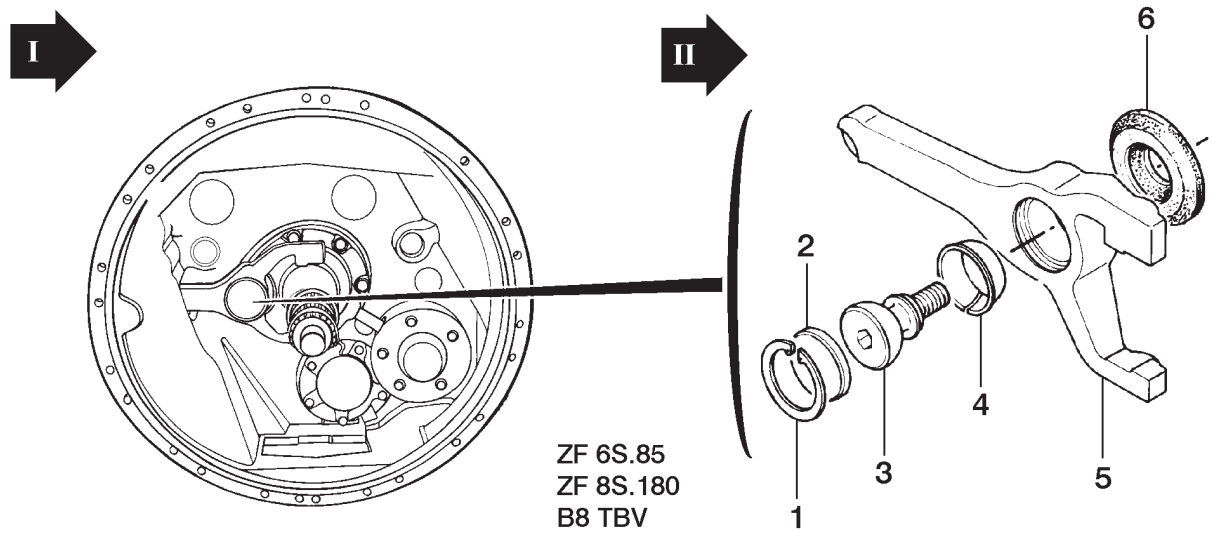


Engine flywheel grinding values

Engine	Clutch	Flywheel	A (mm)	B (mm)	Taper C	Ø (mm)
SOFIM 8140	235DTR	V1	–	–	–	328
SOFIM 8140	267DTR	V1	–	–	–	328
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
MIDR 06.20.45	430 DTE	V3	51.3 → 52	8 → 8.7	0.5 % = 20 ′	470
MIDR 06.23.56	430 DTE	V3	51.3 → 52	8 → 8.7	0.5 % = 20 ′	470
DCI 11	430 DTE	V3	51.3 → 52	8 → 8.7	0.5 % = 20 ′	470
MIDR 06.24.65	430 DTE	V3	51.3 → 52	8 → 8.7	0.5 % = 20 ′	470
MIDR 06.24.65 ETECH	430 DTE	V3	59.3 → 60	7.7 → 8.4	0.5 % = 20 ′	470
MIDR 06.20.45	MFZ 2.400	V3	51.3 → 52	8 → 8.7	0.5 % = 20 ′	470
MIDR 06.23.56	MFZ 2.400	V3	51.3 → 52	8 → 8.7	0.5 % = 20 ′	470
DCI 11	MFZ 2.400	V3	51.3 → 52	8 → 8.7	0.5 % = 20 ′	470
MIDR 06.24.65	MFZ 2.400	V3	51.3 → 52	8 → 8.7	0.5 % = 20 ′	470
MIDR 06.24.65 ETECH	MFZ 2.400	V3	59.3 → 60	7.7 → 8.4	0.5 % = 20 ′	470
EE9	MFZ 2.400	V3	59.4 → 60.1	8 → 8.7	0.5 % = 20 ′	470

Surface finish : **CLA 3.2.**

OPERATING FORK



31 0338A

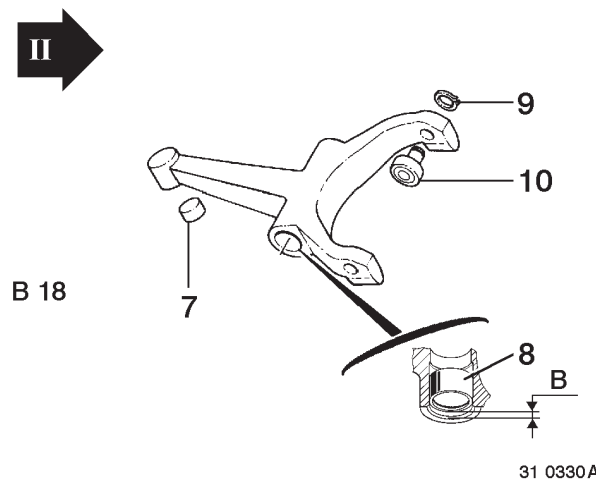
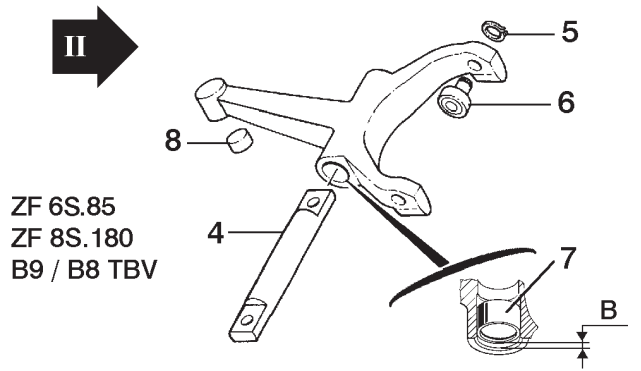
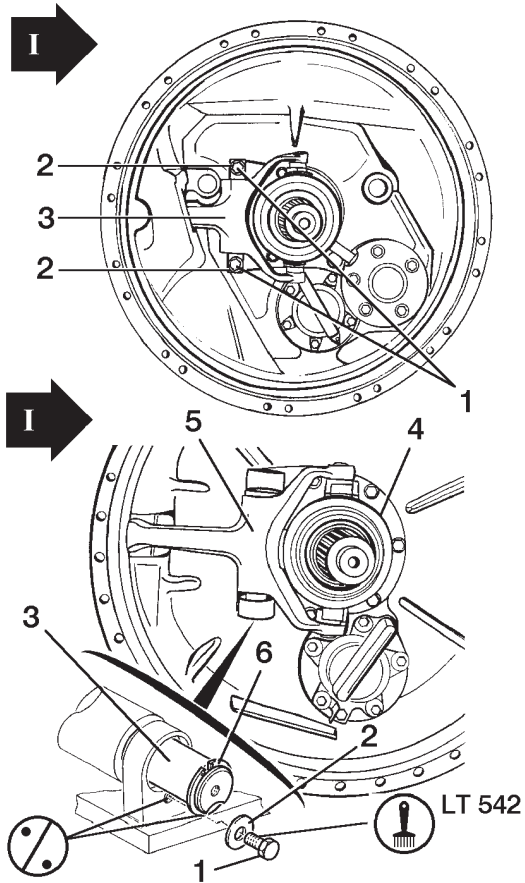
Removal

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.

Tighten setscrew (3) at the recommended torque.
See page(s) **A6**.



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 “B9 / B8 TBV – ZF 6S.85 / ZF 8S.180”

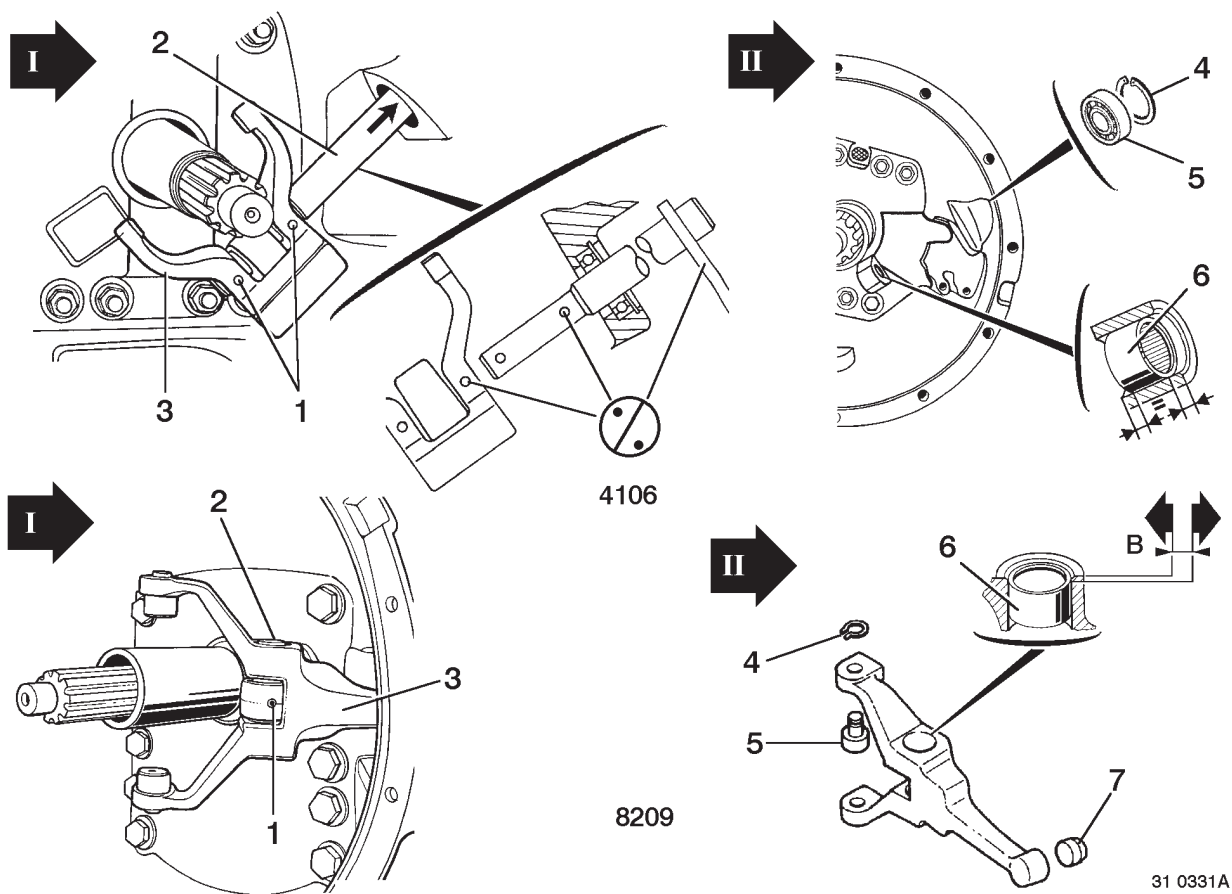
Item	Tool designation	Reference N°	Assembly	Disassembly
7	Puller	0978		X
7	Set of pushers	2363 Ø 25–28	X	
7	Handle	3016	X	

**Gearbox
“B18 / TBV”**

Item	Tool designation	Reference N°	Assembly	Disassembly
3 – 8	Puller	0978		X
8	Set of pushers	2363 Ø 25–28	X	
8	Handle	3016	X	

Fitting

For fitting, proceed in the reverse sequence to removal.
Respect dimension **B = 2 ±0.5 mm**.



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 4106"

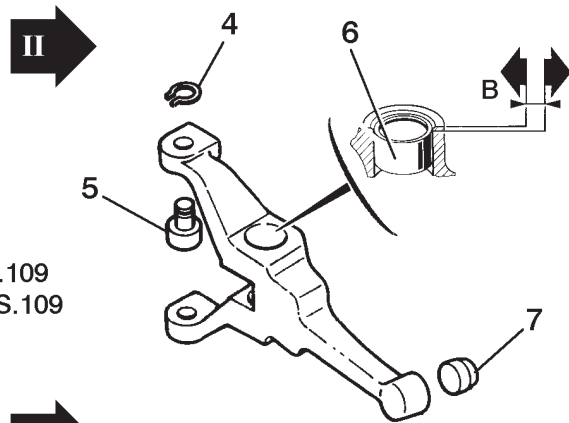
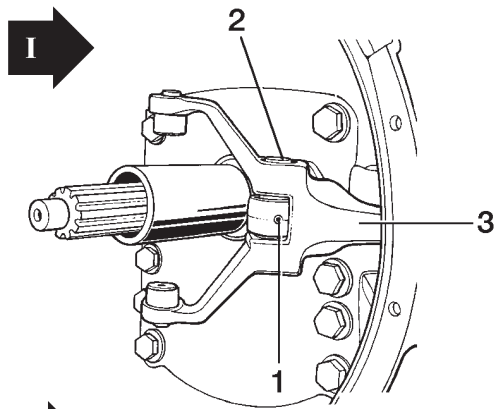
Item	Tool designation	Reference N°	Assembly	Disassembly
5 – 6	Puller	0978		X
5	Set of pushers	2363 Ø 45	X	
6	Set of pushers	2363 Ø 25–28	X	
5–6	Handle	3016	X	

Gearbox "EATON 8209"

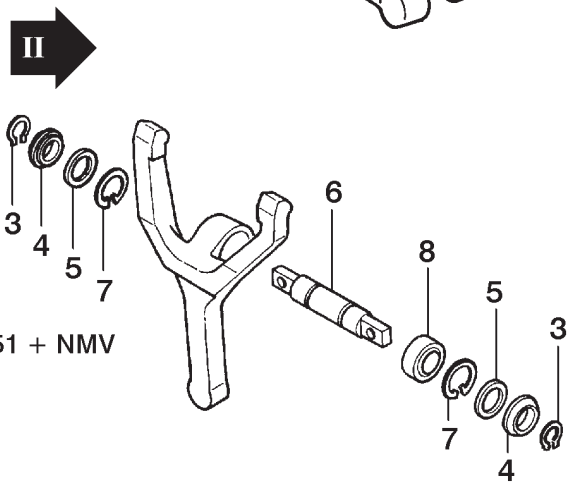
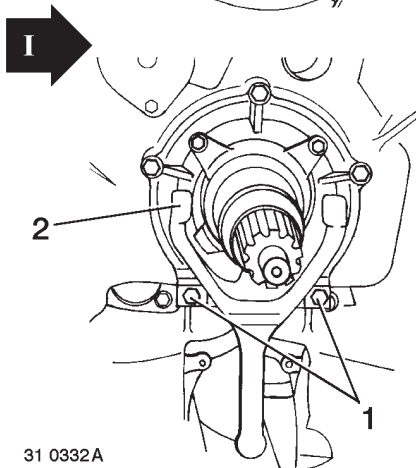
Item	Tool designation	Reference N°	Assembly	Disassembly
6	Puller	0978		X
6	Set of pushers	2363 Ø 25–28	X	
6	Handle	3016	X	

Fitting

For fitting, proceed in the reverse sequence to removal.
Respect dimension **B = 4 ± 0.5 mm**.



ZF 9S.109
ZF 16S.109



ZF 16S.151 + NMV

31 0332A

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 “ZF 9S.109 / ZF 16S.109”

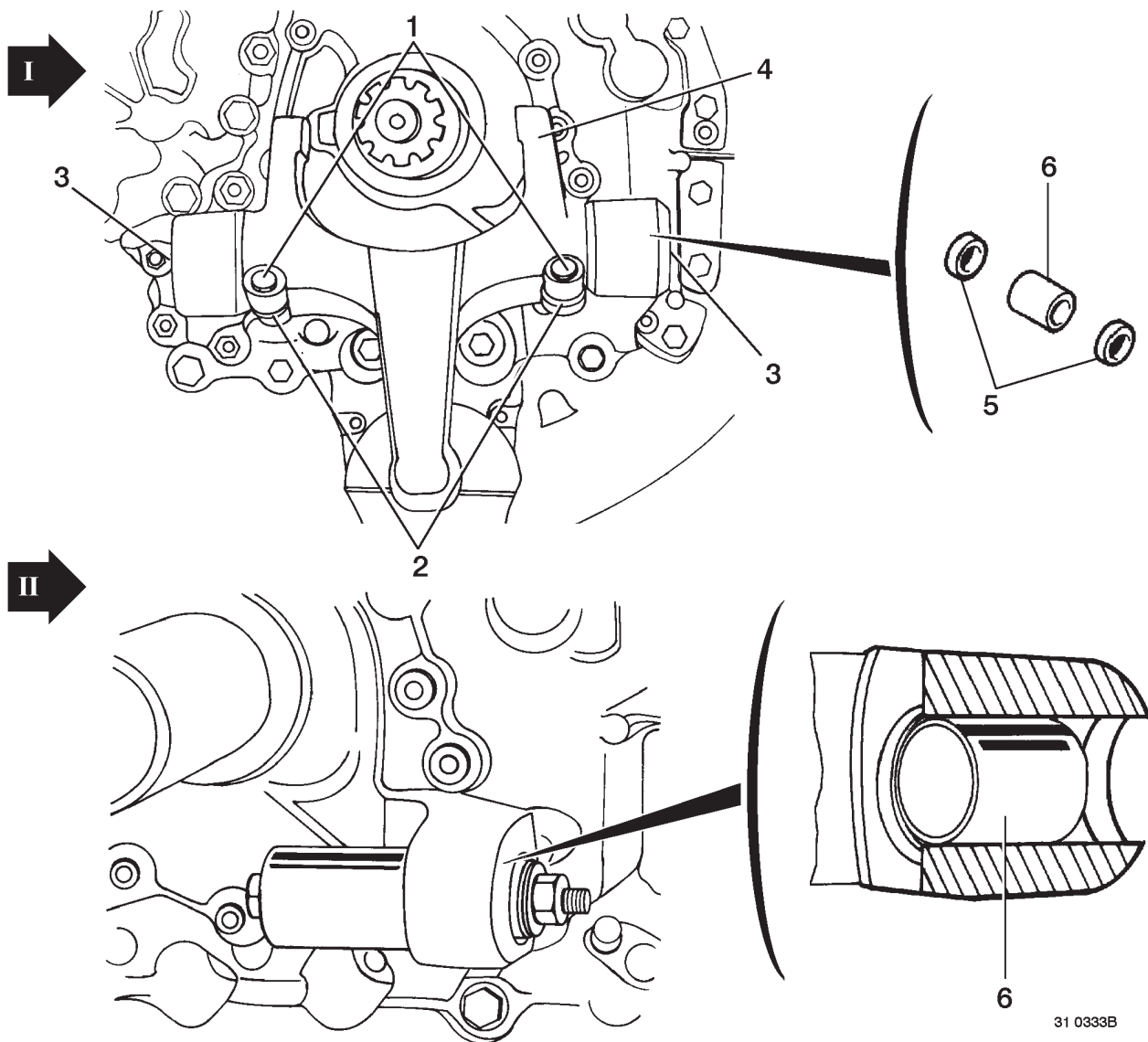
Item	Tool designation	Reference N°	Assembly	Disassembly
6	Puller	0978		X
6	Set of pushers	2363 Ø 25–28	X	
6	Handle	3016	X	

**Gearbox
“ZF 16S.151 + NMV”**

Item	Tool designation	Reference N°	Assembly	Disassembly
8	Set of pushers	2363 Ø 37–40	X	X
8	Handle	3016	X	X

Fitting

For fitting, proceed in the reverse sequence to removal.
Respect dimension **B = 4 ±0.5 mm**.
Tighten setscrews (1) at the recommended torque : **110 Nm ± 20**.



31 0333B

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.

Depending on the assembly.

Gearbox

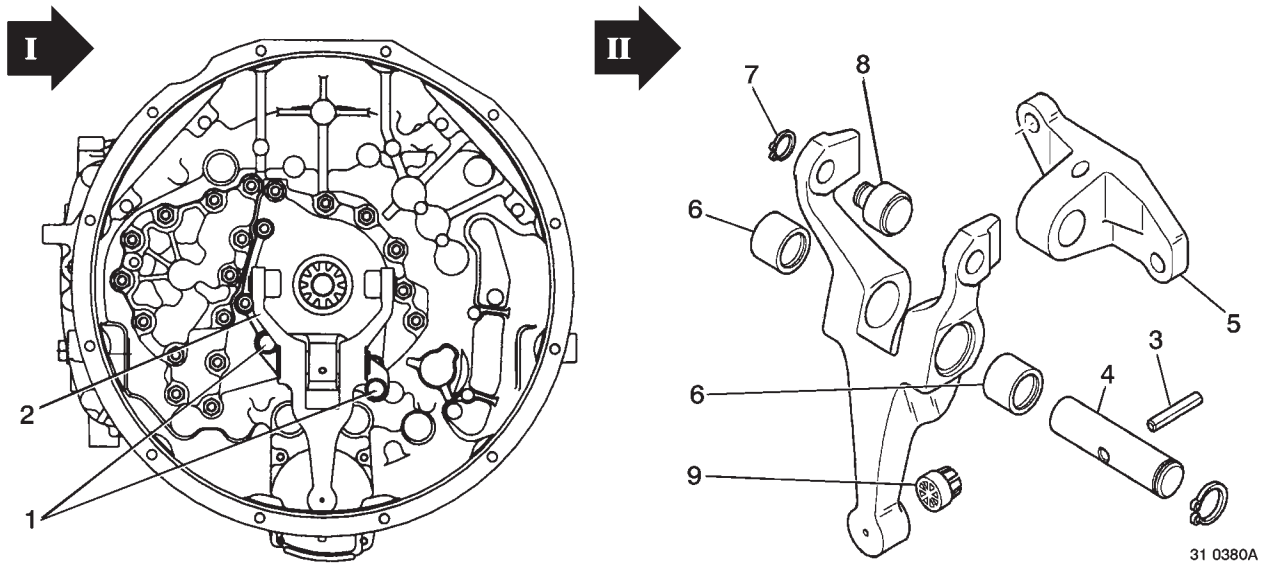
“ZF 8S.151” – “ZF 16S.151/.181/.221/.251”

Item	Tool designation	Reference N°	Assembly	Disassembly
6	Puller	2418	X	X

Fitting

For fitting, proceed in the reverse sequence to removal.

Tighten setscrews (1) at the recommended torque : **79 Nm ± 15**.



31 0380A

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.

Depending on the assembly.

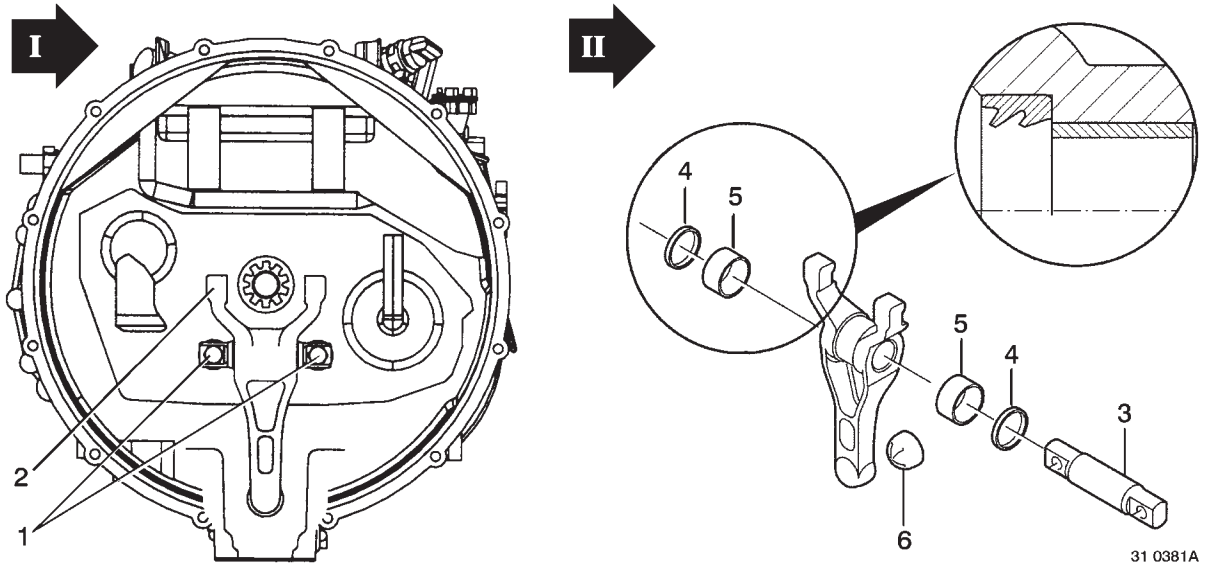
Gearbox

ZF 8S.151 – “ZF 16S.151/.181/.221/.251

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

Fitting

For fitting, proceed in the reverse sequence to removal.



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.

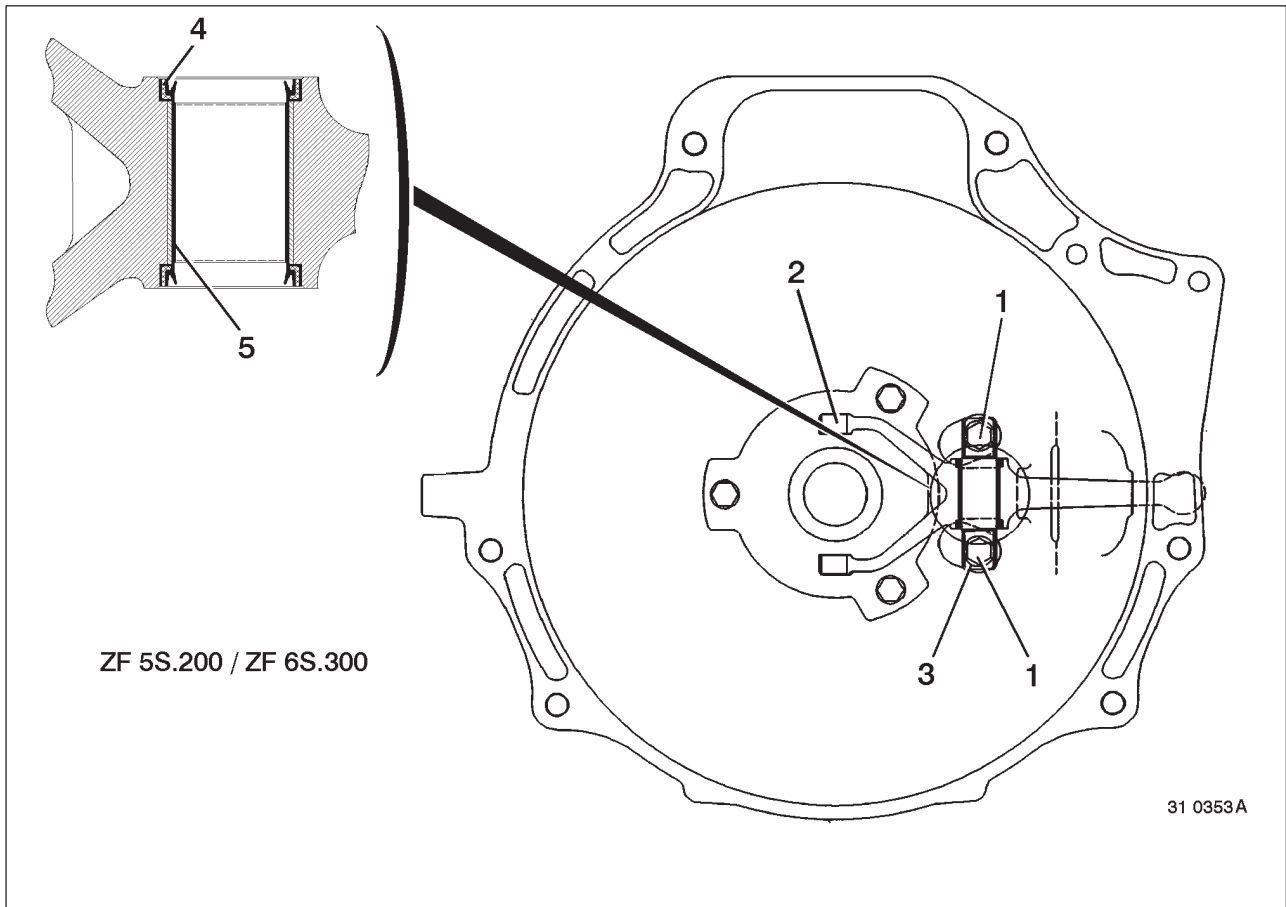
Gearbox ZF AS.2601

Item	Tool designation	Reference N°	Assembly	Disassembly
6	Set of pushers	2363 Ø30-32	X	X
6	Handle	3016	X	X

Fitting

For fitting, proceed in the reverse sequence to removal.

Tighten setscrews (1) at the recommended torque **80 Nm ± 8**.



Gearbox "ZF 5S.200 / ZF 6S.300"

Removal

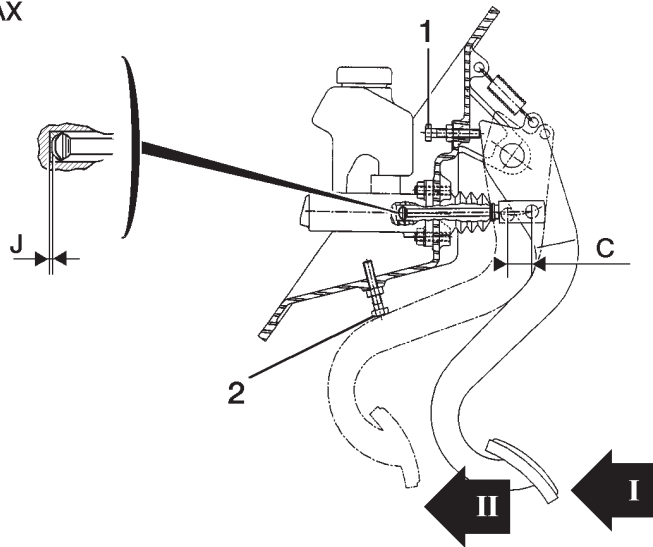
The item numbers indicated in the drawing on the page correspond to the **sequence of disassembly**.
Replace bush (5).
Use a suitable tube.

Fitting

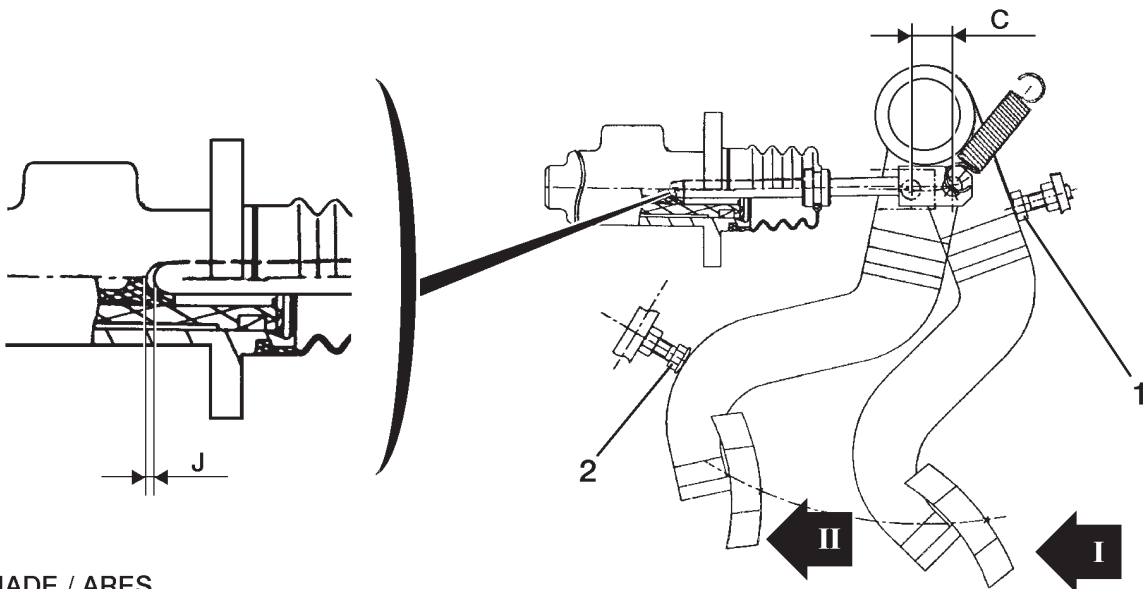
For fitting, proceed in the reverse sequence to removal.

CLUTCH MASTER CYLINDER

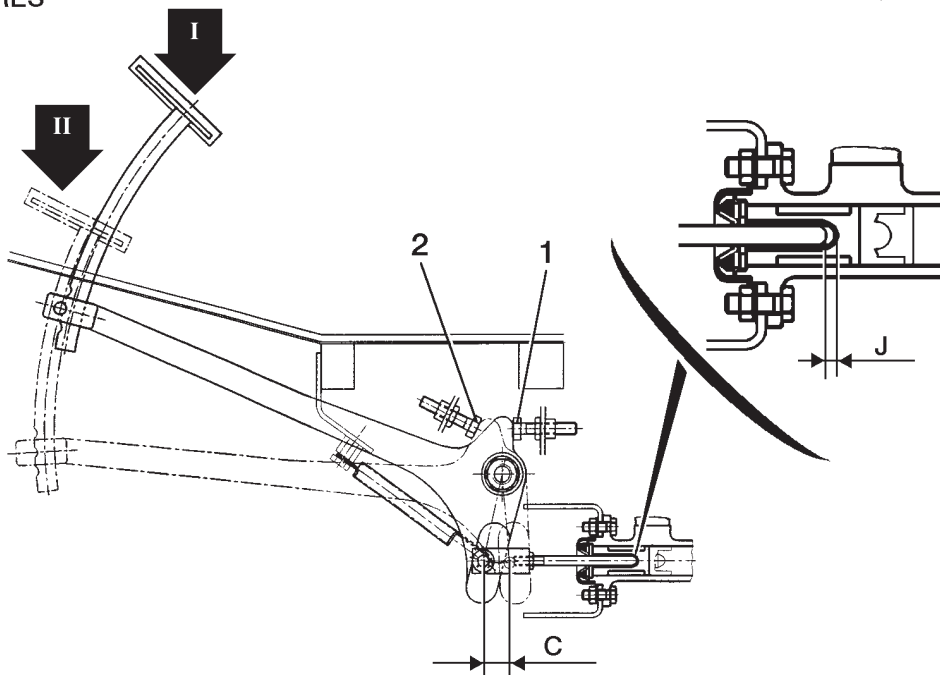
PREMIUM / KERAX



MAGNUM



ILIADÉ / ARES



Adjustment

The item numbers indicated in the text correspond to the figure on page **F2**.

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.

Vehicle(s) "MAGNUM – PREMIUM – KERAX"

Adjusting the clearance "J" :

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

Tighten the locknut.

Adjusting the travel "C" :

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

Tighten the locknut.

Vehicle(s) "ILIADE – ARES"

Adjusting the clearance "J" :

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

Tighten the locknut.

Adjusting the travel "C" :

Turn screw (2) to obtain dimension $C = 24^{-1}$ mm.

Tighten the locknut.

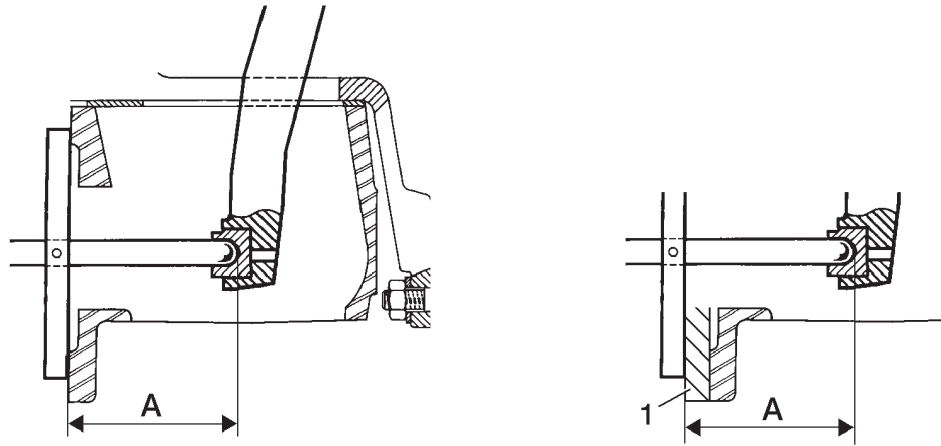
Vehicle(s) "MASCOTT"

The clutch release control (master/slave cylinder) is not provided with an adjustment feature. In the event of replacement of the control, a setting into service procedure is explained on page **G8**.

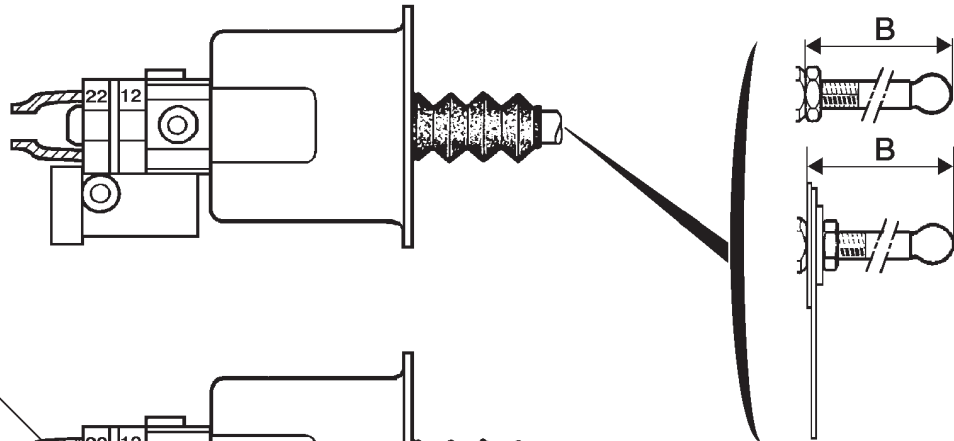
CLUTCH SLAVE CYLINDER

Manufacturer's reference	Renault V.I. reference	Adjustment (see page)
Kongsberg Assy 625384	50 10 244 208	G3
Kongsberg Assy 625524	50 10 244 224	G3
Kongsberg Assy 625445	50 10 244 209	G3
K.Dahl 109 1995 000	50 10 244 343	–
K.Dahl 109 1996 000	50 10 244 344	–
Wabco 970 051 2190	50 10 244 113	G3
Wabco 970 051 2180	50 10 244 109	G3
Wabco 970 051 4020	50 10 244 401	G3
Wabco 970 051 3030	50 10 244 220	G3
Wabco 970 051 4090	50 10 245 221	G3
Wabco 970 051 4100	50 10 245 488	G5
Wabco 970 051 2160	50 10 690 163	G7
Wabco 970 051 1240	50 10 787 875	G7
YFT FA FP 641 A CD	50 10 245 965	G8
YFT FA FP 642 A CD	50 10 245 742	G8
Wabco 970 051 4220	50 10 452 038	G5
Wabco 970 051 4150	50 10 245 868	G5

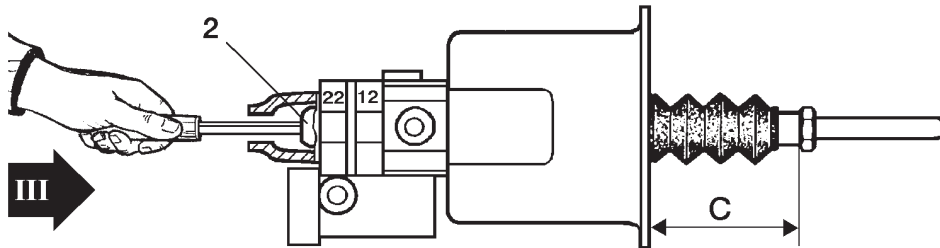
I



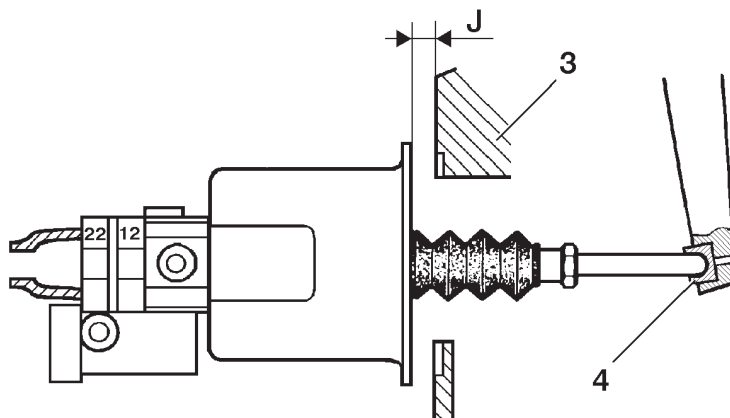
II



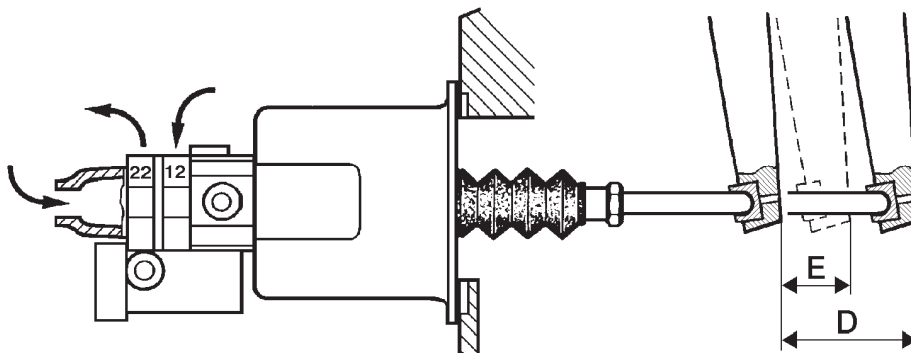
III



IV



V



31 0335B

Adjustment

The item numbers indicated in the text correspond to the figure on page **G2**.
Depending on the assembly, not all the operations are to be performed.

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.

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

NOTA

Hold the fork in support during the reading.
Depending on the assembly, take the spacer (1) into account when measuring the dimension **A**.

Adjust dimension **B** so that :

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

$$B = A - 61 \pm 1 \text{ mm (ILIADE - ARES)}$$

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

Gearbox "EATON 4106"

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

Clutch slave cylinder with oil inlet at rear

Adjustment of slave cylinder valve

This operation is absolutely essential whenever the gearbox or the clutch slave cylinder is removed.

- 1 – Slave cylinder removed : push piston (1) through the rear opening to obtain "**C ≥ 83 mm**".
- 2 – Offer up the slave cylinder pre-set in this way on its support bracket (3). Put the push-rod into place in its housing (4).

In the event of clutch replacement : in this position "**J ≥ 26 mm**".

- 3 – Push the slave cylinder into abutment on its support bracket. Attach the slave cylinder. The push-rod is in its final position.

Do not push the push-rod back, even for a moment, or else the above procedure is to be repeated.

- 4 – Connect the pipes, bleed the hydraulic circuit.

Inspection

Measure the displacement of the push-rod to check the effective slave cylinder travel (**D = 22 ±1 mm** see page **G2**).

Check on microvalve travel

Slowly depress the clutch pedal and measure the displacement of the slave cylinder push-rod until the moment when the synchronizer begins to move (engaging noise in gearbox).

This dimension should correspond to: **E = 16 ±0.5 mm**.

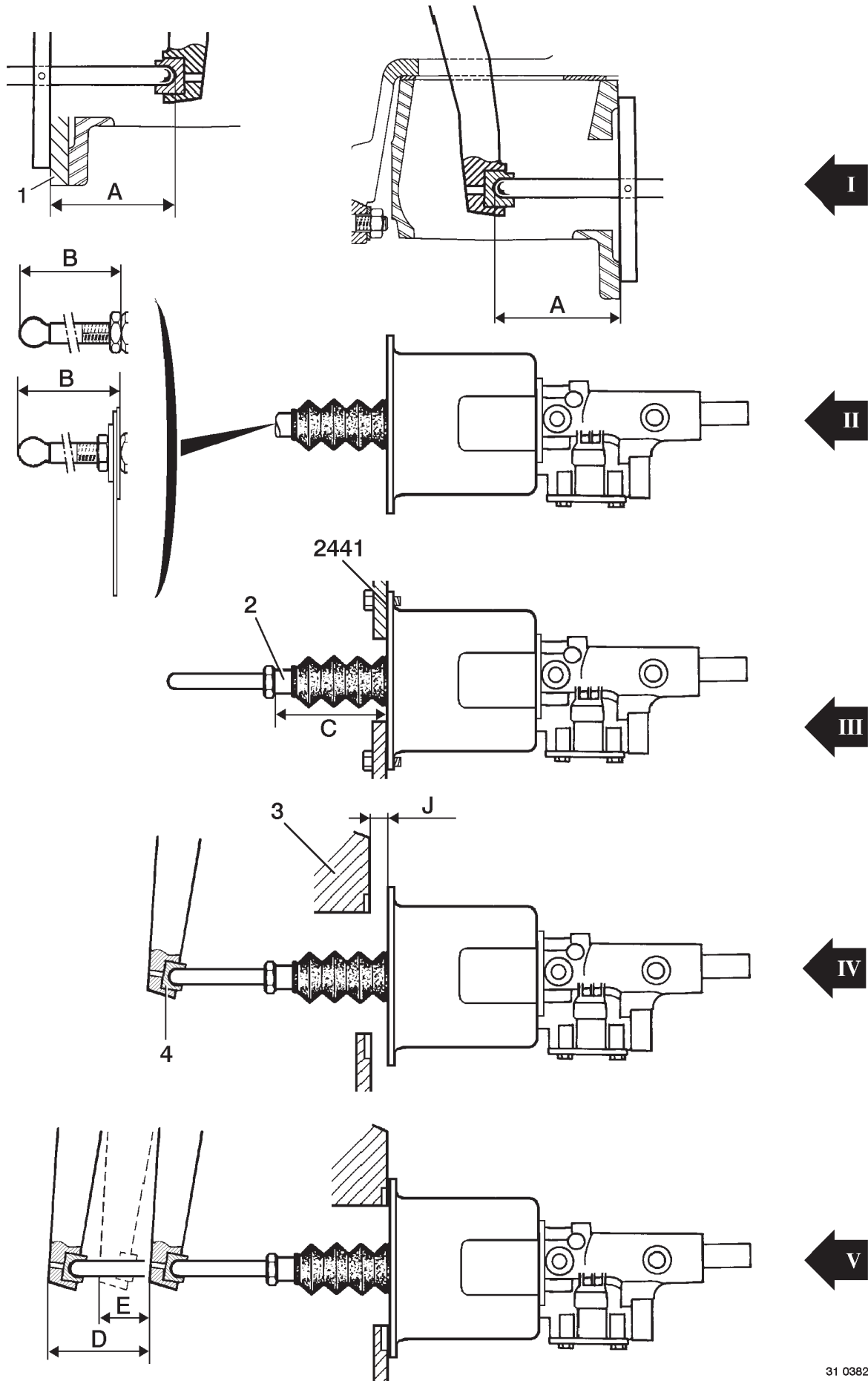
If the opening dimension of the valve is not obtained at the slave cylinder, repeat the above operations.

Gearbox "B9 TBV / B18 TBV"

- 1 – Check that the gear lever is in the neutral position "**N**".
- 2 – Switch on the ignition.
- 3 – Press vertically on the lever to move it to the drive position "**D**". At that moment, the gear preselected becomes first.
- 4 – Slowly depress the clutch pedal and measure the displacement of the slave cylinder push-rod until the moment when the synchronizer begins to move (engaging noise in gearbox).

This dimension should correspond to: **E = 16 ±1 mm**.

If the opening dimension of the valve is not obtained at the slave cylinder, repeat the above operations.



31 0382A

Adjustment

The item numbers indicated in the text correspond to the figure on page **G4**.
Depending on the assembly, not all the operations are to be performed.

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.

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

NOTA

Hold the fork in support during the reading.
Depending on the assembly, take the spacer **(1)** into account when measuring the dimension **A**.

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 slave cylinder with oil inlet at side

Adjustment of slave cylinder valve

- 1 – Slave cylinder removed: Mount tool N° **2441** on the slave cylinder.
- 2 – Connect the pipes, bleed the hydraulic system (slave cylinder in a horizontal position).
- 3 – Actuate the clutch pedal until it becomes hard to move control rod **(2)** forwards, "**C ≥ 96 mm**".
- 4 – Withdraw plate **(1)** and offer up the slave cylinder pre-set in this way on its support bracket **(3)**. Put the push-rod into place in its housing **(4)**.

In the event of clutch replacement: In this position "**J ≥ 26 mm**".

- 5 – Push the slave cylinder into abutment on its support bracket. Attach the slave cylinder. The push-rod is in its final position.

Do not push the push-rod back, even for a moment, or else the above procedure is to be repeated.

- 6 – Connect the air pipes.

Inspection

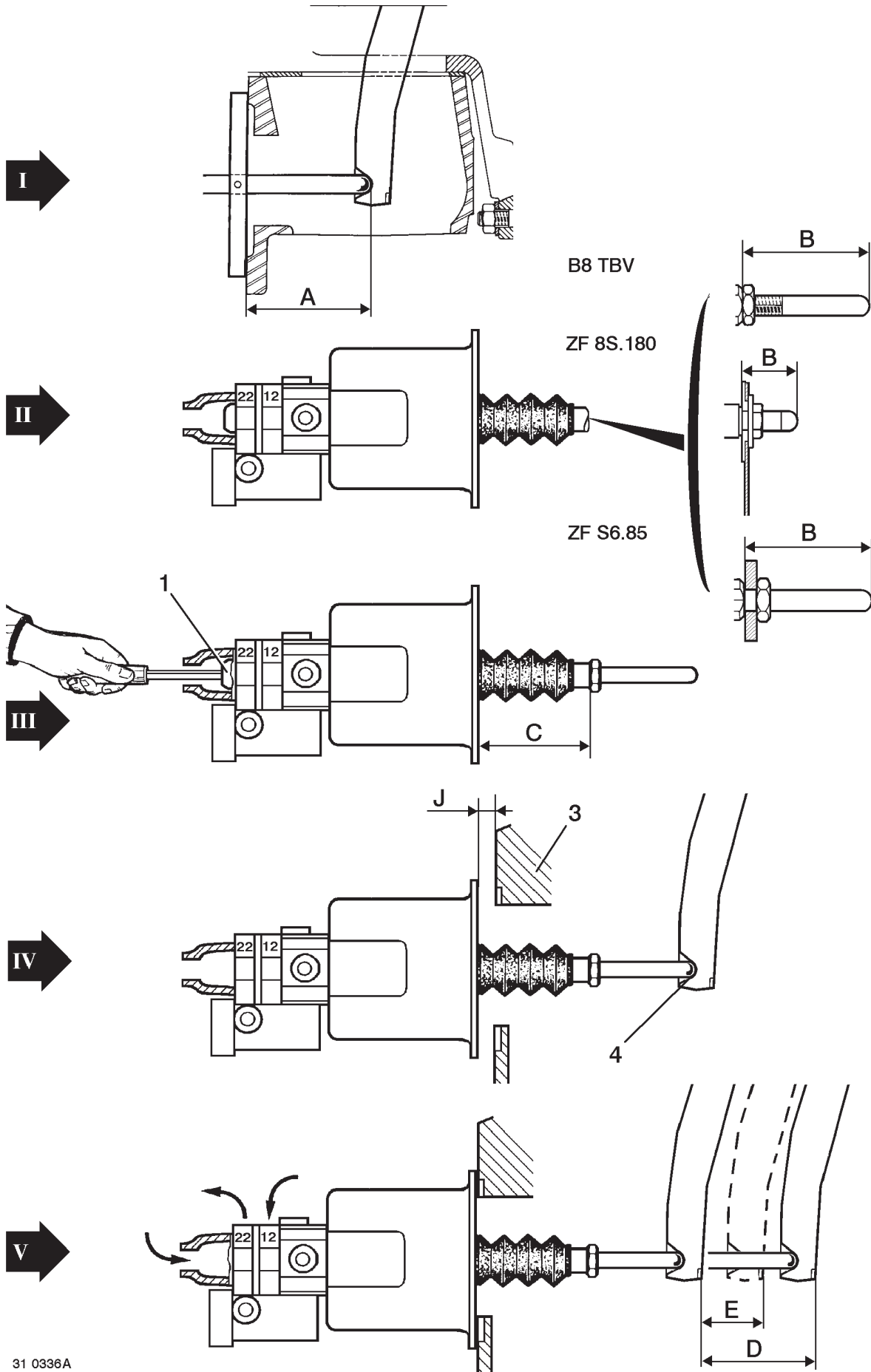
Measure the displacement of the push-rod to check the effective slave cylinder travel (**D = 22 ±1 mm** see page **G4**).

Check on microvalve travel

Slowly depress the clutch pedal and measure the displacement of the slave cylinder push-rod until the moment when the synchronizer begins to move (engaging noise in gearbox).

This dimension should correspond to: **E = 16 ±0.5 mm**.

If the opening dimension of the valve is not obtained at the slave cylinder, repeat the above operations.



31 0336A

Adjustment

The item numbers indicated in the text correspond to the figure on page **G6**.
Depending on the assembly, not all the operations are to be performed.

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.

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 :

$$B = A - 59.5 \pm 1 \text{ mm}$$

$$B = A - 61^{+1} \text{ mm (ZF)}$$

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

Clutch slave cylinder with oil inlet at rear

Adjustment of slave cylinder valve

This operation is absolutely essential whenever the gearbox or the clutch slave cylinder is removed.

- 1 – Slave cylinder removed : push piston (1) through the rear opening to obtain "**C ≥ 83 mm**".
- 2 – Offer up the slave cylinder pre-set in this way on its support bracket (3). Put the push-rod into place in its housing (4).

In the event of clutch replacement : in this position "**J ≥ 26 mm**".

- 3 – Push the slave cylinder into abutment on its support bracket. Attach the slave cylinder. The push-rod is in its final position.

Do not push the push-rod back, even for a moment, or else the above procedure is to be repeated.

- 4 – Connect the pipes, bleed the hydraulic circuit.

Inspection

Measure the displacement of the push-rod to check the effective slave cylinder travel (**D = 22 ± 1 mm** see page **G6**).

Gearbox "B8 TBV"

- 1 – Check that the gear lever is in the neutral position "**N**".
- 2 – Switch on the ignition.
- 3 – Press vertically on the lever to move it to the drive position "**D**". At that moment, the gear preselected becomes first.
- 4 – Slowly depress the clutch pedal and measure the displacement of the slave cylinder push-rod until the moment when the synchronizer begins to move (engaging noise in gearbox).

This dimension should correspond to: **E = 16 ± 1 mm**.

If the opening dimension of the valve is not obtained at the slave cylinder, repeat the above operations.

Vehicle(s) "MASCOTT"**Fitting**

Before proceeding with replacement of the master cylinder / slave cylinder unit, it is recommended to immobilize the clutch pedal (risk of damage to the slave cylinder).

Assemble the slave cylinder to the gearbox while ensuring that the push-rod is properly in place in the operating fork.

Release the clutch pedal, then fully depress it.

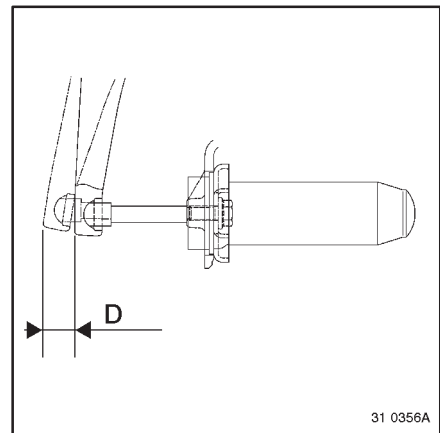
Slowly bring the pedal to the "engaged" position. Wait for 10 seconds. The control is operational.

NOTE

The master cylinder and the slave cylinder form an assembly. It is not possible to separate these elements nor bleed the hydraulic circuit.

Inspection

Measure the movement of the push-rod to check the effective slave cylinder travel (**D = 12 → 14 mm**).



31 0356A

LINING WEAR INDICATOR

Inspection

Check the wear of the centre plate ("clutch engaged" position).

A = new plate

B = worn plate

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) (1)

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

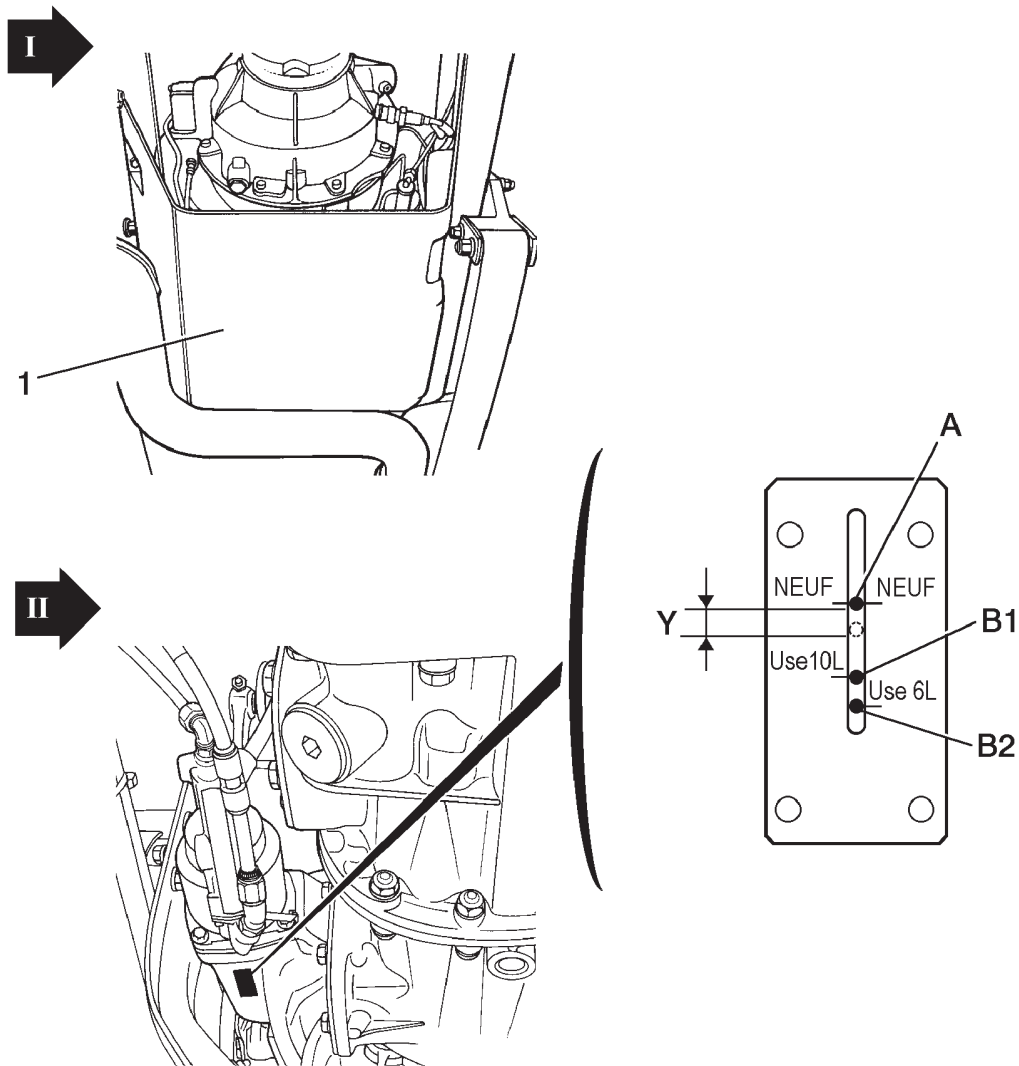
See that no flammable products are applied to the screen protective films.

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 **Y** of the pointer prior to disassembly and put it back into the same position upon assembly.*



31 0340A

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

Vehicle(s) "MAGNUM – PREMIUM – KERAX"

Gearbox "EATON 8209 – ZF 9S.109 / ZF 16S.109"

Clutch "430 DTE – MFZ 395"

The position of pointer signifies :

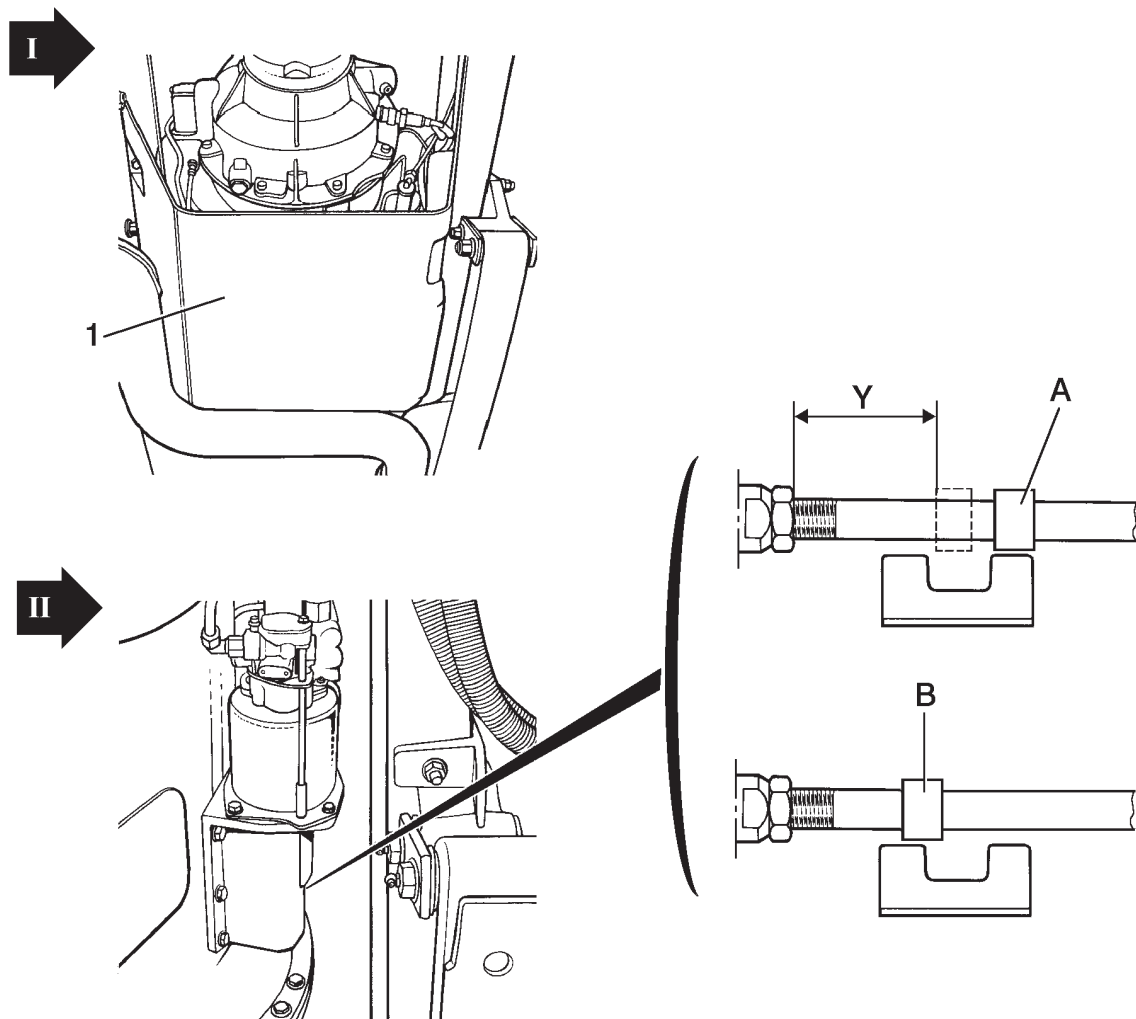
A = new lining

B1 = worn lining (to be replaced) **(MIDR 06.20.45)**

B2 = worn lining (to be replaced) **(MIDR 06.02.26)**

Y = setting before disassembly

For fitting, proceed in the reverse sequence to removal.



31 0341A

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

Vehicle(s) "MAGNUM – PREMIUM – KERAX"

Gearbox "B18"

Clutch "MFZ 430 / MFZ 2.400"

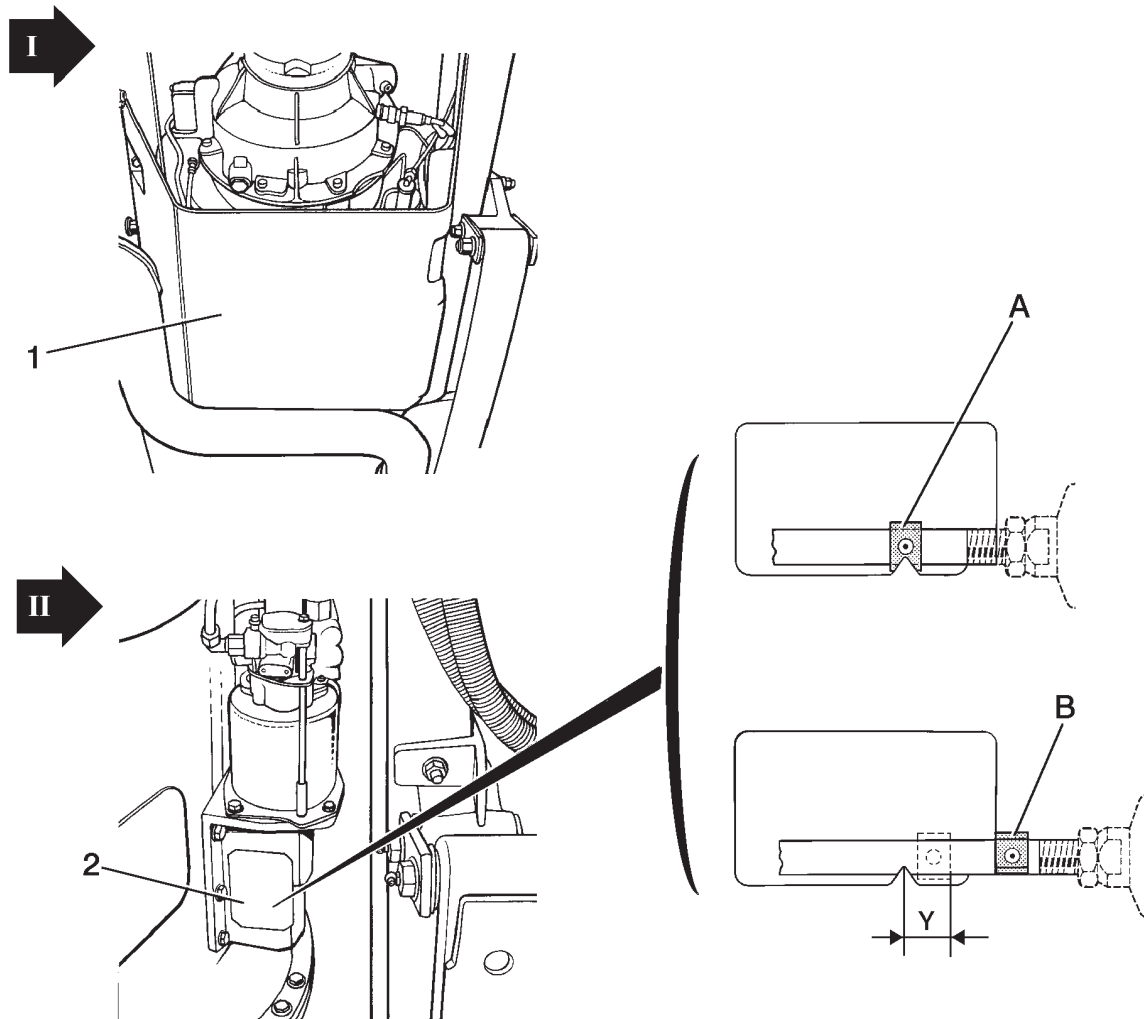
The position of pointer signifies :

A = new lining

B = worn lining (to be replaced)

Y = setting before disassembly

For fitting, proceed in the reverse sequence to removal.



31 0342A

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

Vehicle(s) "MAGNUM (B9 / B18 / B9 TBV / B18 TBV) – PREMIUM (B9 / B9 TBV) – KERAX (B9)"
Clutch "MFZ 2.400"

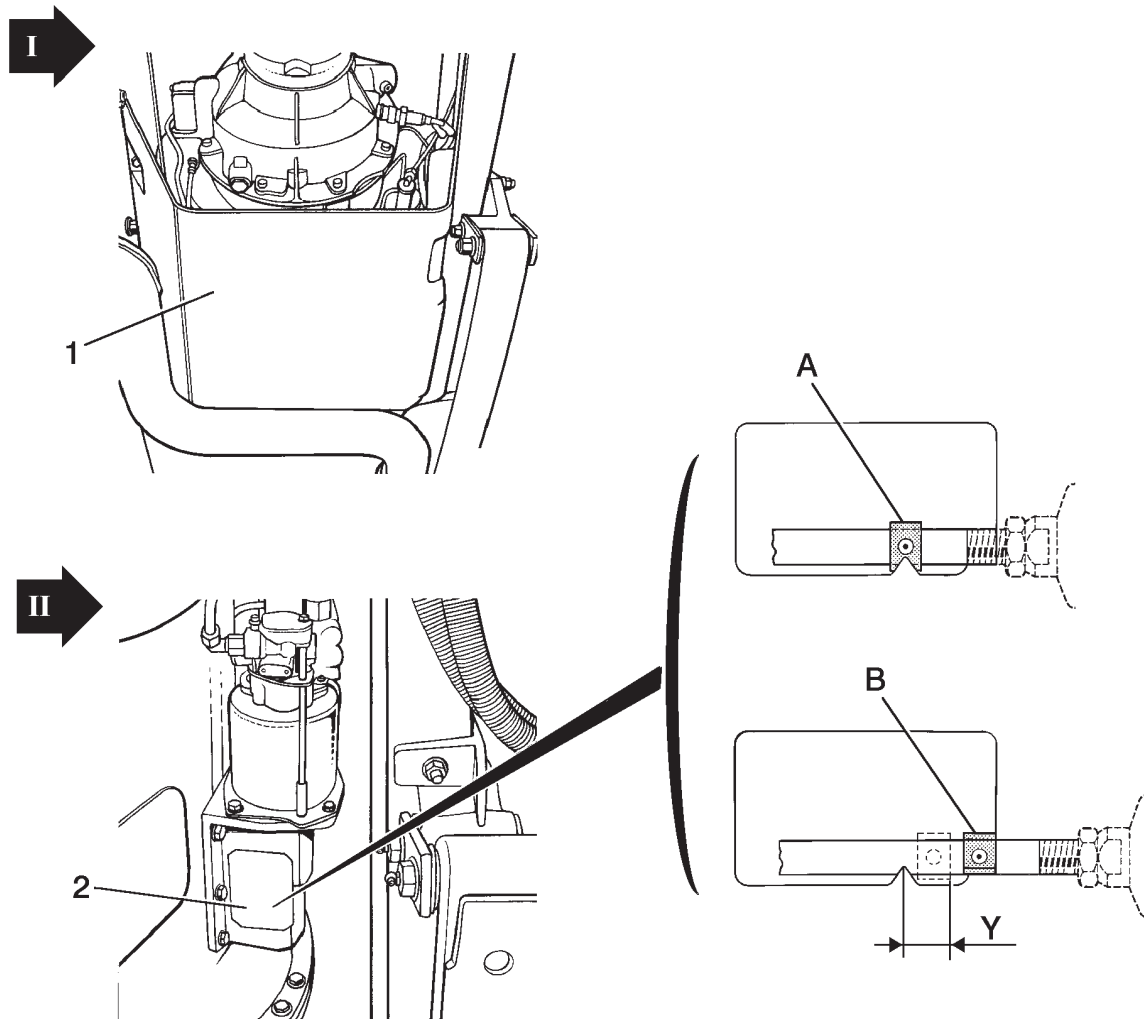
The position of pointer signifies :

A = new lining

B = worn lining (to be replaced)

Y = setting before disassembly

For fitting, proceed in the reverse sequence to removal.



31 0343A

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

Vehicle(s) "PREMIUM (B18 / B18 TBV → MFZ 2.400) – KERAX (B18 → MFZ 2.400 – B9 / B18 → MFZ 430)"
Clutch "MFZ 430 / MFZ 2.400"

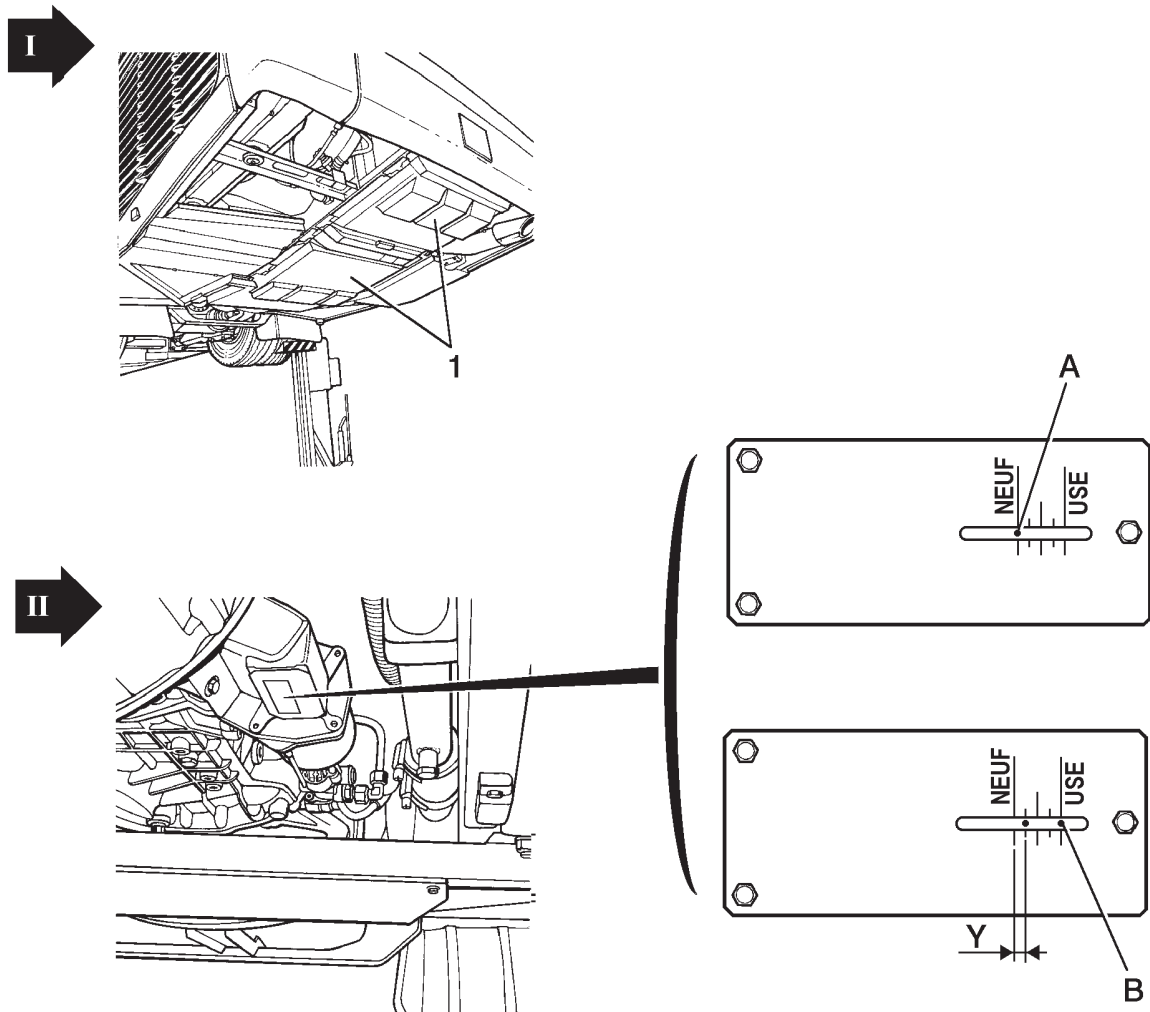
The position of pointer signifies :

A = new lining

B = worn lining (to be replaced)

Y = setting before disassembly

For fitting, proceed in the reverse sequence to removal.



31 0344A

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

Vehicle(s) "ILIADE – ARES"

Gearbox "ZF 6S.85 / ZF 8S.180"

Clutch "430 DTE"

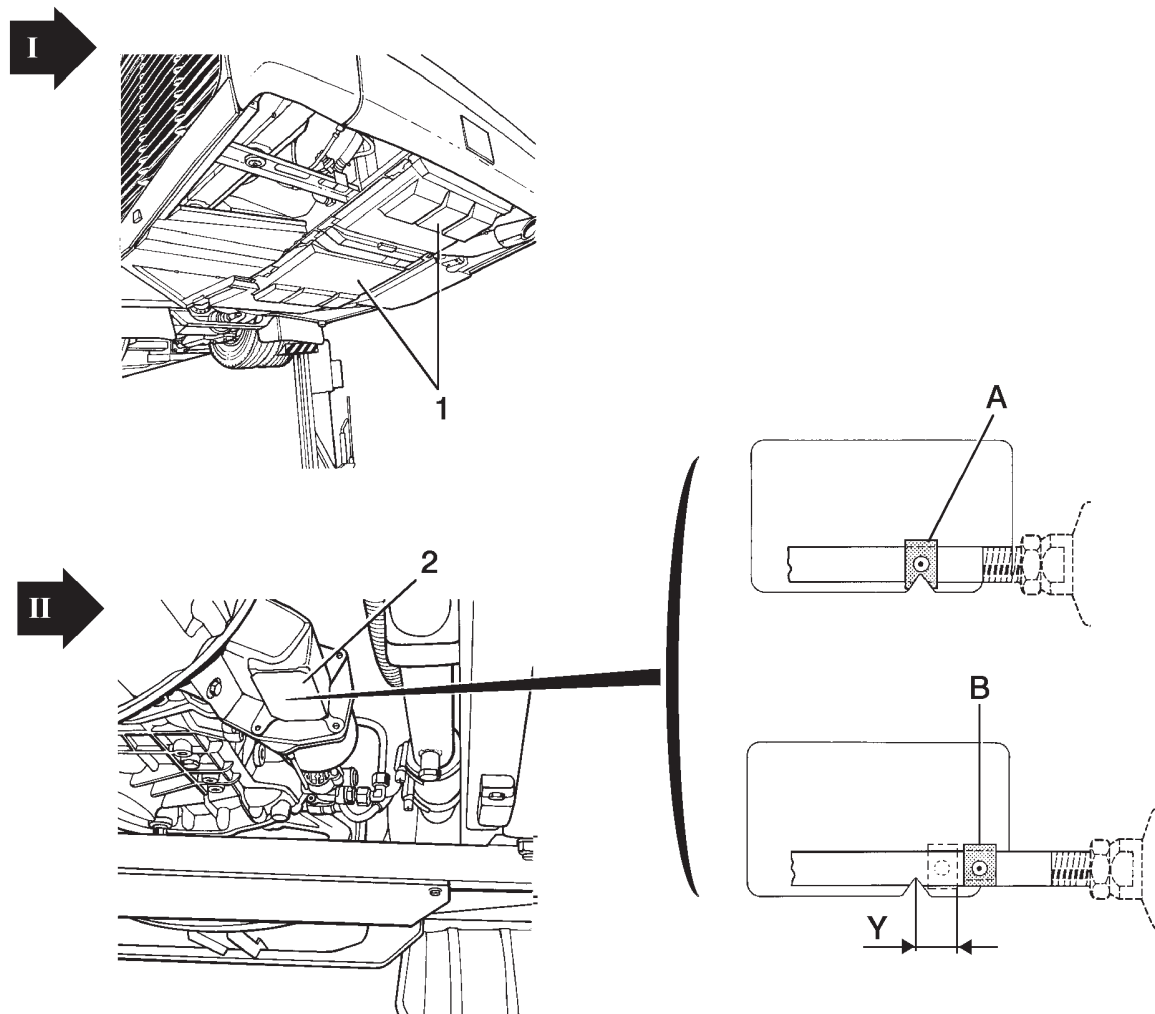
The position of pointer signifies :

A = new lining

B = worn lining (to be replaced)

Y = setting before disassembly

For fitting, proceed in the reverse sequence to removal.



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

Vehicle(s) "ILIADE"

Gearbox "B8 TBV"

Clutch "430 DTE"

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.

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

“**EATON 4106**” : 2437 + 0978 + 1291 + 2363 + 3016 + 9774 + 9777

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

“**B8 /B9 /B18**” : 2437 + 0978 + 1291 + 2363 + 3016 + 3231 + 9774

“**ZF 6S.85**” – **ZF 8S.180** : 2437 + 0978 + 1291 + 2363 + 3016 + 3231 + 9774

“**ZF 9S.109 / ZF 16S.109**” : 2437 + 0978 + 1291 + 2363 + 3231 + 9774

“**ZF16S.151/181/221/251**” : 2437 + 0978 + 1291 + 3231 + 2418 + 2363 + 3016 + 2441 + 9774 + 9777

“**ZF16S.151 + NMV**” : 2437 + 0978 + 1291 + 2363 + 3016 + 3231 + 9774 + 2441

“**ZF 5S.200**” : 2437 + 9134 + 2490 + 2489 + 9774 + 9777

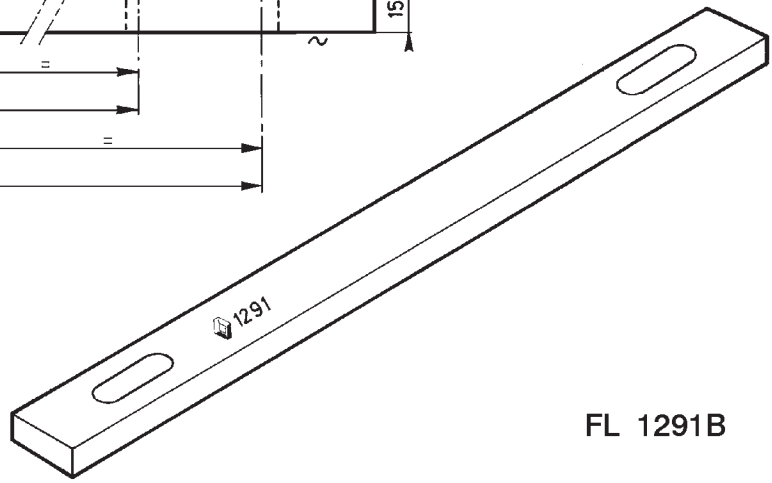
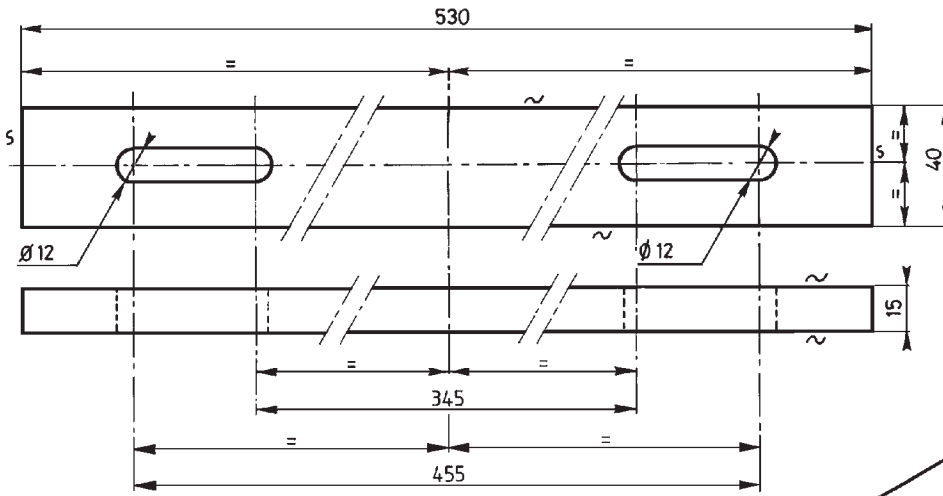
“**ZF 6S.300**” : 2437 + 9134 + 2490 + 2489 + 9774 + 9777

General-purpose tools				
Renault V.I. Ref.	Description	Level	Quantity	Page
50 00 26 0978	Puller	1	1	D2 / E3 → E8
50 00 26 2363	Set of pushers	1	1	E3 → E8
50 00 26 3016	Handle	1	1	E3 → E8
50 00 26 2437	Centring tool	1	1	C3
50 00 26 9774	Torque multiplier	1	1	D2
50 00 26 9777	Angular dial	1	1	D2

Special tools				
Renault V.I. ref.	Description	Level	Quantity	Page
50 00 26 2489	Centring tool	1	1	D3
50 00 26 3231	Gauging pin	1	1	G3 / G5 / G7
50 00 26 9134	Holding wrench	1	1	D3

Locally manufactured tools				
Renault V.I. ref.	Description	Level	Quantity	Page
1291	Puller	1	1	D2
2418	Puller	1	1	E6
2441	Spacer	1	1	G2 → G5
2490	Guide	1	1	D3

Locally manufactured tools



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