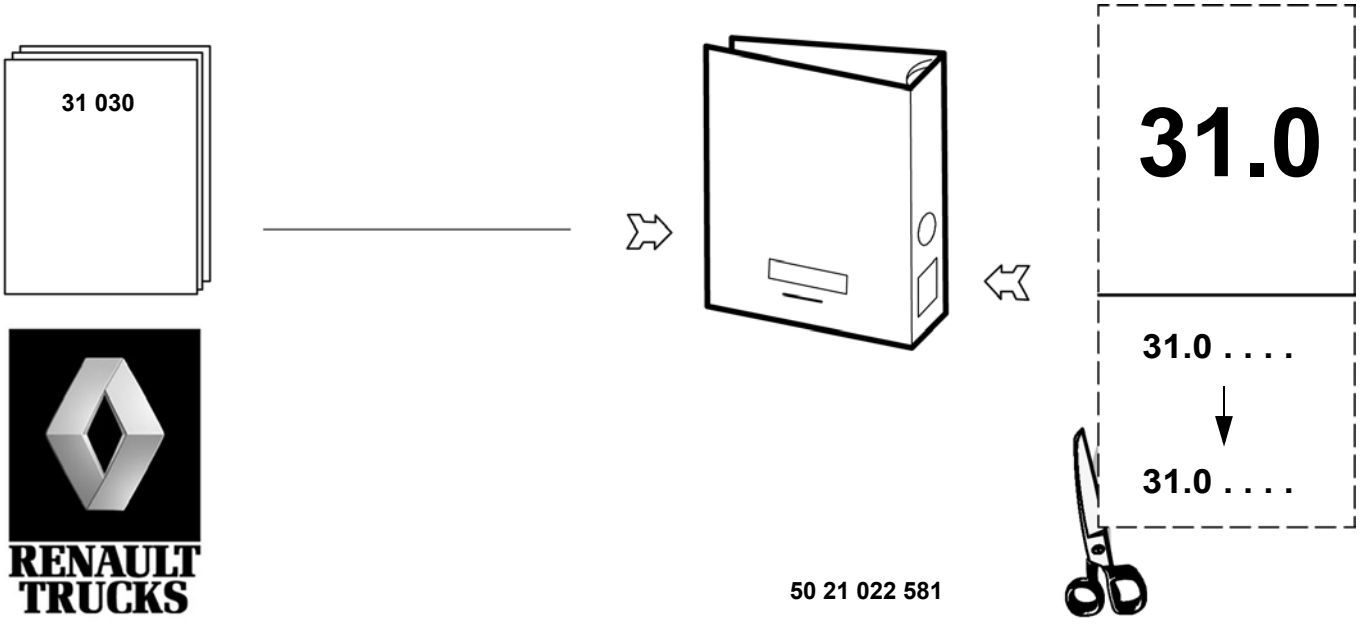
# 31 030 - GB - 07/2005

## CLUTCH VALEO 430 DTE / SACHS MFZ 430 / SACHS MFZ 2.400

| RANGE | FAMILY | VARIANT |
|---|---|---|
| RENAULT PREMIUM DXi 11 EURO 3 | 27BC - TR 4X2 LC | 120AR+25524/25 |
| | 27JC - TR 6X2 Pusher | |
| | 27RC - PR 6x2 | |
| | 27SC - PR 4x2 | |
| | 27TC - TR 4x2 | |

*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.*



# CONTENTS



# GENERALITIES

# APPLICABILITY

| Range | Family | Title | Variant | Applicability date | | Updating | Page N° |
|---|---|---|---|---|---|---|---|
| | | | | Start | End | | |
| RENAULT PREMIUM DXi 11 EURO 3 | 27BC - TR 4X2 LC | Warnings | 120AR+25524/25 | | | 31/03/2003 | A-3 |
| | 27JC - TR 6X2 Pusher | | 120AR+25524/25 | | | | |
| | 27RC - PR 6x2 | | 120AR+25524/25 | | | | |
| | 27SC - PR 4x2 | | 120AR+25524/25 | | | | |
| | 27TC - TR 4x2 | | 120AR+25524/25 | | | | |
| RENAULT PREMIUM DXi 11 EURO 3 | 27BC - TR 4X2 LC | Conventional symbols | 120AR+25524/25 | | | 23/05/2002 | A-4 |
| | 27JC - TR 6X2 Pusher | | 120AR+25524/25 | | | | |
| | 27RC - PR 6x2 | | 120AR+25524/25 | | | | |
| | 27SC - PR 4x2 | | 120AR+25524/25 | | | | |
| | 27TC - TR 4x2 | | 120AR+25524/25 | | | | |

## Warnings

In this document, safety instructions are symbolized as follows:

**DANGER! NON-OBSERVANCE OF THE PROCEDURE DESCRIBED OR LACK OF CARE OR ATTENTION, RISK CAUSING SERIOUS INJURY OR EVEN DEATH.**

**WARNING! Any different or inappropriate working method risks causing damage to the product.**

*NOTE! Draws attention to particular or important points of the method.*

***Comply without fail with the regulations in force relative to the recovery and treatment of used parts and waste.***

## Conventional symbols

### Fitting

| | | | |
|---|---|---|---|
|  | Tighten to torque (Nm) (left-hand thread) |  | Tighten by indicated value |
|  | Tighten to torque (Nm) (right-hand thread) |  | Loosen by indicated value |
|  | Tightening torque with lubricated threaded hardware | | |

### Dimensioning

| | | | |
|---|---|---|---|
|  | Tightening |  | ... Greater than or equal to ... |
|  | Equal to |  | Wear limit |
|  | ... Less than ... |  | Machining limit or dimension |
|  | ... Greater than ... |  | Maximum out-of-true |
|  | ... Less than or equal to ... |  | Maximum parallelism error |

### Repair

| | | | |
|---|---|---|---|
|  | Force to be exerted in the direction shown (hammer - press) |  | Smear or coat (see "Consumables" table) |
|  | Heat or cool: Temperature in degrees Celsius (e.g. + 80 °C) |  | Fill to level (see "Technical Data" and "Consumables" table) |
|  | Weld bead |  | Grease or oil (see "Consumables" table) |
|  | Repair time - Heating time |  | Mark - Assemble according to marking |

**Adjustment**

| | | | |
|---|---|---|---|
|  | Rotating friction torque |  | Turn anti-clockwise |
|  | Turn in alternate directions |  | Turn anti-clockwise<br>(the figure shows the number of turns) |
|  | Turn clockwise |  | Turn clockwise<br>(the figure shows the number of turns) |
|  | Place in contact |  | Move in the direction shown |
|  | Dimension to be assured (mm) | | |

**Various information**

| | | | |
|---|---|---|---|
|  | Exhaust - Outlet |  | Operation with a sequence |
|  | Intake - Inlet |  | Involves |
|  | Weight in kg (example: 275 kg) |  | Return to numbered operation -<br>Connected with numbered operation |
|  | Depending on versions or options |  | Withdraw - Delete |
|  | Wrong |  | Direction of disassembly<br>(the arrow shows the direction) |
|  | Correct |  | Direction of assembly<br>(the arrow shows the direction) |
|  | Injection |  | ... to ... |
|  | Repair dimension |  | Inspect - Check condition of part |
|  | Part to be replaced |  | Danger for persons, vehicle or equipment |

# TECHNICAL DATA

# APPLICABILITY

## Standard tightening torques

| Range | Family | Title | Variant | Applicability date | | Updating | Page N° |
|---|---|---|---|---|---|---|---|
| | | | | Start | End | | |
| RENAULT PREMIUM DXi 11 EURO 3 | 27BC - TR 4X2 LC | Definitions | 120AR+25524/25 | | | 27/02/2003 | B1-5 |
| | 27JC - TR 6X2 Pusher | | 120AR+25524/25 | | | | |
| | 27RC - PR 6x2 | | 120AR+25524/25 | | | | |
| | 27SC - PR 4x2 | | 120AR+25524/25 | | | | |
| | 27TC - TR 4x2 | | 120AR+25524/25 | | | | |
| RENAULT PREMIUM DXi 11 EURO 3 | 27BC - TR 4X2 LC | Standard nut and bolt tightening torques table | 120AR+25524/25 | | | 06/06/2003 | B1-6 |
| | 27JC - TR 6X2 Pusher | | 120AR+25524/25 | | | | |
| | 27RC - PR 6x2 | | 120AR+25524/25 | | | | |
| | 27SC - PR 4x2 | | 120AR+25524/25 | | | | |
| | 27TC - TR 4x2 | | 120AR+25524/25 | | | | |

## Specific tightening torques

| Range | Family | Title | Variant | Applicability date | | Updating | Page N° |
|---|---|---|---|---|---|---|---|
| | | | | Start | End | | |
| RENAULT PREMIUM DXi 11 EURO 3 | 27RC - PR 6x2 | Clutch type(s): SACHS MFZ 2.400 | 120AR+25524 | | | 22/09/2004 | B2-1 |
| | 27SC - PR 4x2 | | 120AR+25524 | | | | |
| | 27TC - TR 4x2 | | 120AR+25524 | | | | |
| RENAULT PREMIUM DXi 11 EURO 3 | 27RC - PR 6x2 | Clutch type(s): VALEO 430 DTE | 120AR+25525+ 150GM/GN/GP/ GQ/GR | | | 22/09/2004 | B2-2 |
| | 27SC - PR 4x2 | | 120AR+25525+ 150GM/GN/GP/ GQ/GR | | | | |
| | 27TC - TR 4x2 | | 120AR+25525+ 150GM/GN/GP/ GQ/GR | | | | |
| RENAULT PREMIUM DXi 11 EURO 3 | 27RC - PR 6x2 | Clutch type(s): SACHS MFZ 430 | 120AR+25525+ 150FX | | | 22/09/2004 | B2-3 |
| | 27SC - PR 4x2 | | 120AR+25525+ 150FX | | | | |
| | 27TC - TR 4x2 | | 120AR+25525+ 150FX | | | | |

## Consumables

| Range | Family | Title | Variant | Applicability date | | Updating | Page N° |
|---|---|---|---|---|---|---|---|
| | | | | Start | End | | |
| RENAULT PREMIUM DXi 11 EURO 3 | 27BC - TR 4X2 LC | Oils | 120AR+25524/25 | | | 10/06/2003 | B3-1 |
| | 27JC - TR 6X2 Pusher | | 120AR+25524/25 | | | | |
| | 27RC - PR 6x2 | | 120AR+25524/25 | | | | |
| | 27SC - PR 4x2 | | 120AR+25524/25 | | | | |
| | 27TC - TR 4x2 | | 120AR+25524/25 | | | | |
| RENAULT PREMIUM DXi 11 EURO 3 | 27BC - TR 4X2 LC | Grease | 120AR+25524/25 | | | 25/06/2002 | B3-1 |
| | 27JC - TR 6X2 Pusher | | 120AR+25524/25 | | | | |
| | 27RC - PR 6x2 | | 120AR+25524/25 | | | | |
| | 27SC - PR 4x2 | | 120AR+25524/25 | | | | |
| | 27TC - TR 4x2 | | 120AR+25524/25 | | | | |

# Standard tightening torques

## Definitions

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 precision class defines the tolerance of this torque in percent as a function of the nominal torque applied.

**Tightening precision classes:**
- **Class I:** Special threaded hardware (tolerances ± 10% of the final torque).
- **Class II:** Reserved for precise tightening (tolerance ± 10% of the nominal torque).
- **Class III:** Reserved for normal standard tightening (tolerance ± 20% of the nominal torque)

For standard threaded hardware indicated in the table below, use tightening class **III**.
For other torques, see the following page(s).

***"FIH" type (Nylstop) locknuts must be replaced whenever removed. "DRH" type (oval) locknuts can be re-used. If locknuts (DRH, FIH or other) are re-used, make absolutely certain that the screw-thread of the bolt protrudes least two threads above the top edge of the nut.***

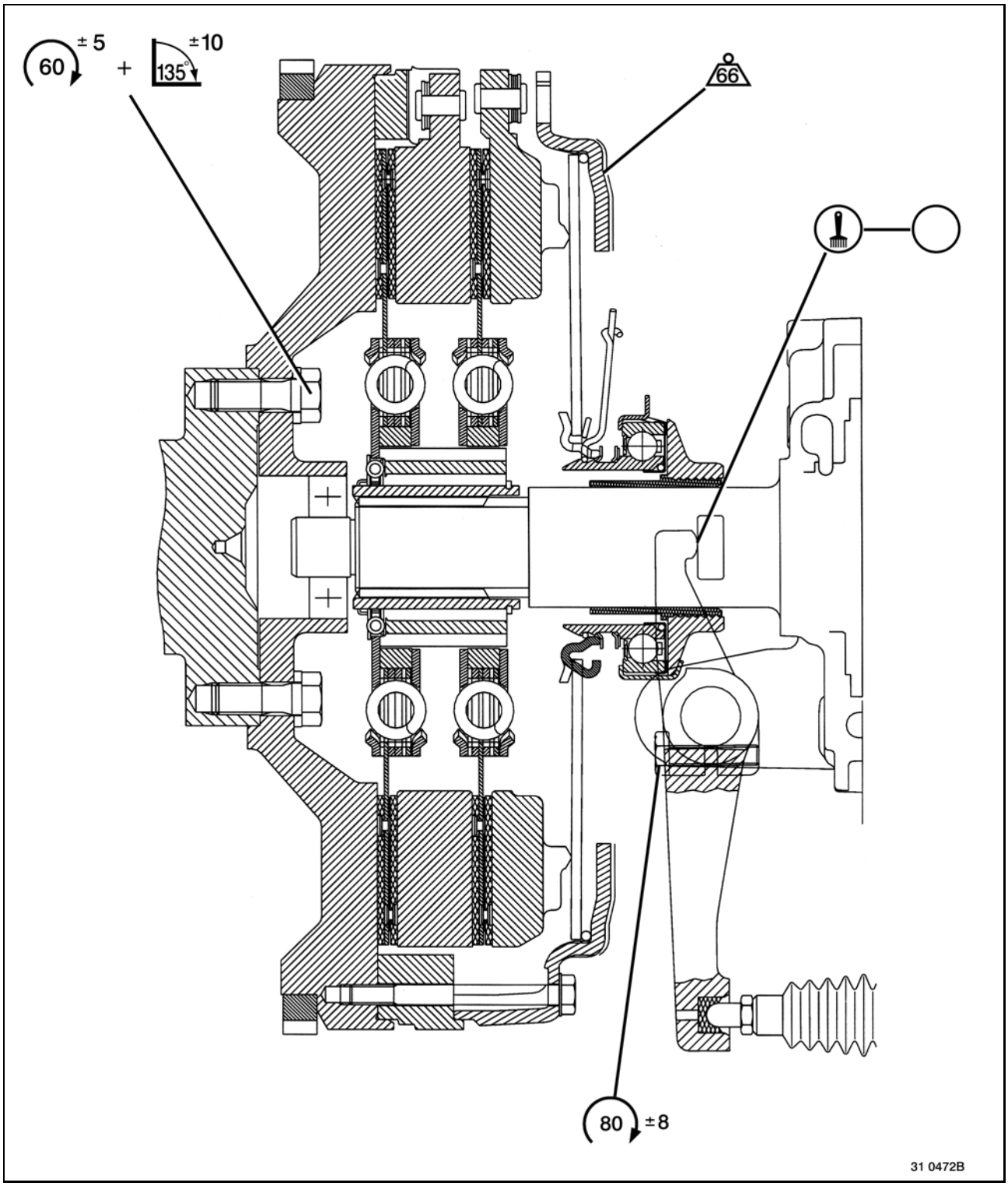
## Standard nut and bolt tightening torques table

*The tightening torque values given in the table are based on standard 01.50.4002 and apply to new nuts and bolts fitted dry and re-used nuts and bolts with oil applied to the screw-threads. If any nuts and bolts are replaced,* ***it is absolutely essential to use nuts and bolts recommended by the RENAULT TRUCKS Spare Parts Department (coefficient of friction in compliance with standard 01.50.4002)****.*

| **Tightening torque values in Nm for conventional "metric system" threaded hardware based on standard 01.50.4002 (H: normal and HE: with flange)** | | |
|---|---|---|
| **Diameter and pitch of nuts and bolts** | **Quality class III** | |
| | **Quality class 8.8** | **Quality class 10.9** |
| 6 x 1.00 | 7.5 ± 1.5 | 11 ± 2.2 |
| 7 x 1.00 | 15 ± 3 | 20 ± 4 |
| 8 x 1.00 | 20 ± 4 | 30 ± 6 |
| 8 x 1.25 | 20 ± 4 | 27 ± 5.4 |
| 10 x 1.00 | 40 ± 8 | 60 ± 12 |
| 10 x 1.25 | 40 ± 8 | 60 ± 12 |
| 10 x 1.50 | 40 ± 8 | 50 ± 10 |
| 12 x 1.25 | 70 ± 14 | 100 ± 20 |
| 12 x 1.50 | 65 ± 13 | 95 ± 19 |
| 12 x 1.75 | 60 ± 12 | 90 ± 18 |
| 14 x 1.50 | 105 ± 21 | 155 ± 31 |
| 14 x 2.00 | 100 ± 20 | 145 ± 29 |
| 16 x 1.50 | 160 ± 32 | 220 ± 44 |
| 16 x 2.00 | 150 ± 30 | 220 ± 44 |
| 18 x 1.50 | 240 ± 48 | 340 ± 68 |
| 18 x 2.50 | 210 ± 42 | 310 ± 62 |
| 20 x 1.50 | 330 ± 66 | 480 ± 96 |
| 20 x 2.50 | 300 ± 60 | 435 ± 87 |
| 22 x 1.50 | 450 ± 90 | 650 ± 130 |
| 22 x 2.50 | 410 ± 82 | 595 ± 119 |
| 24 x 2.00 | 560 ± 112 | 820 ± 164 |
| 24 x 3.00 | 510 ± 102 | 750 ± 150 |

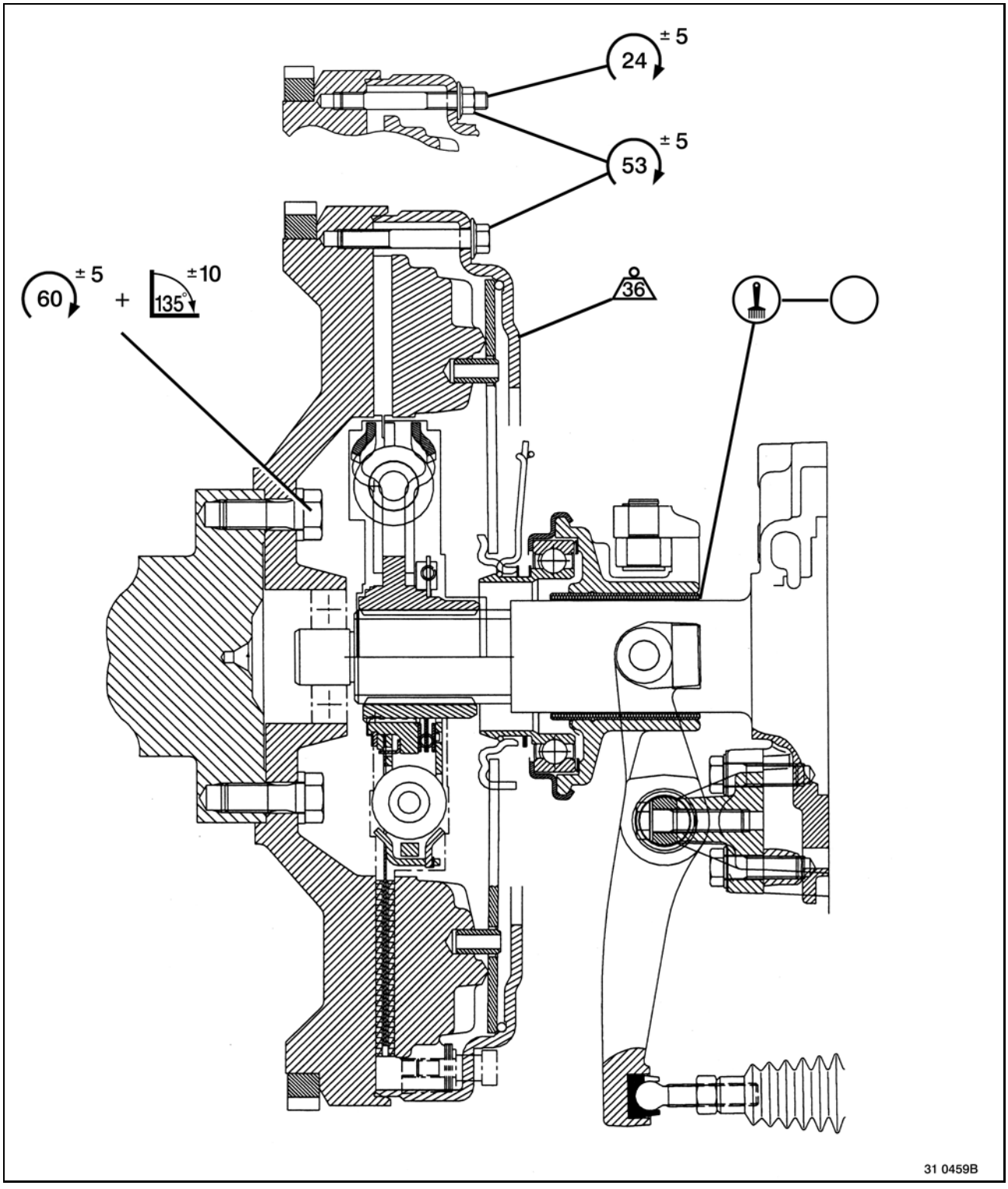
## Specific tightening torques

## Clutch type(s): SACHS MFZ 2.400



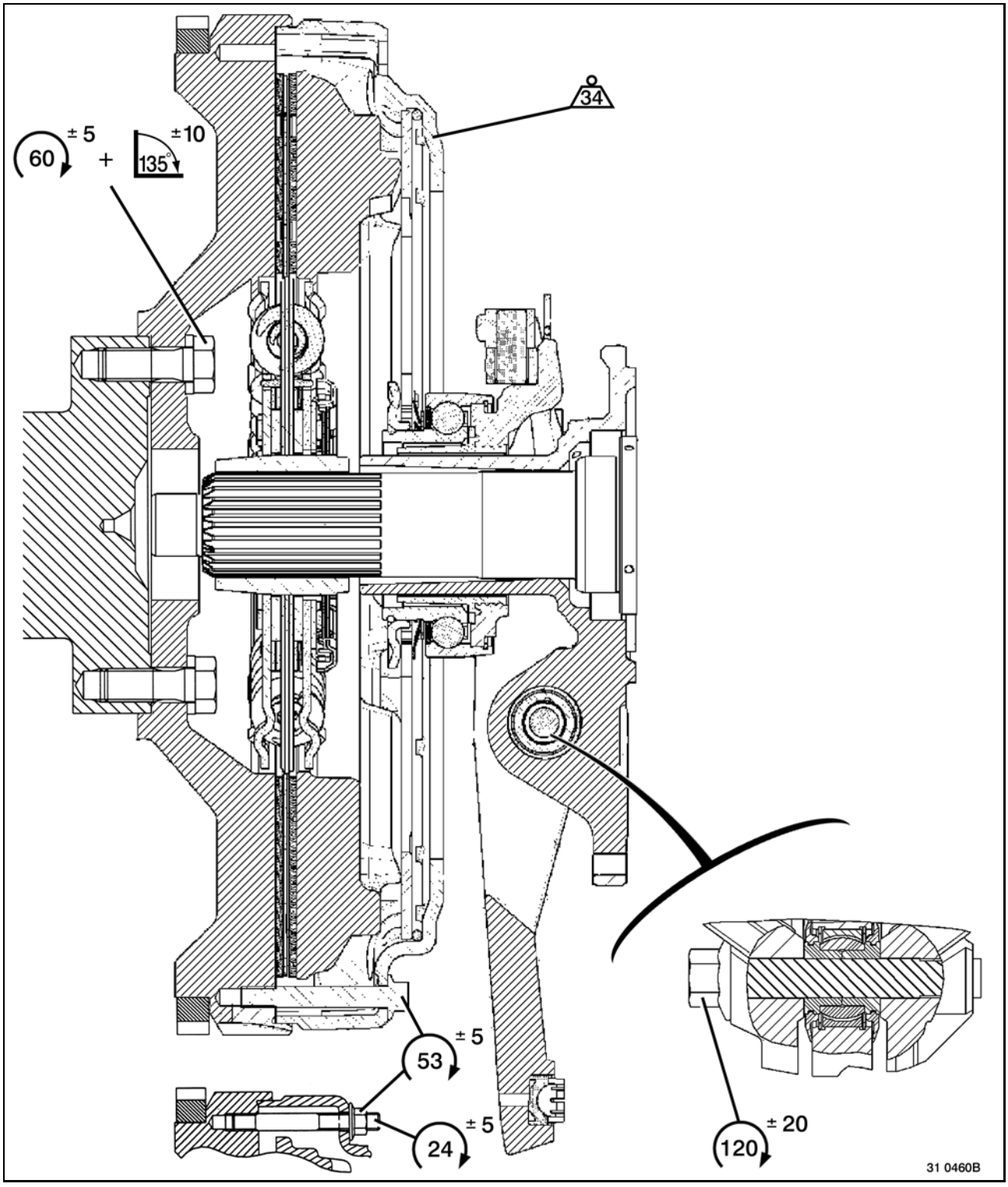

| Engine | Clutch | Gearbox |
|---|---|---|
| DXi 11 | SACHS MFZ 2.400 | ZF 16S.1620 TD/1820 TO/1920 TD<br>ZF 16S.2220 TO/2220 TD |

## Clutch type(s): VALEO 430 DTE




| Engine | Clutch | Gearbox |
|---|---|---|
| DXi 11 | VALEO 430 DTE | ZF 16S.1620 TD/1820 TO/1920 TD<br>ZF 16S.2220 TO/2220 TD |

## Clutch type(s): SACHS MFZ 430




| Engine | Clutch | Gearbox |
|---|---|---|
| DXi 11 | SACHS MFZ 430 | Optidriver 2 |

## Consumables

## Oils

**We recommend: Renault Trucks Oils**

| Circuit Circuit | Renault Trucks Oils | Standards |
|---|---|---|
| Clutch hydraulic system | Fluid FE4 | SAE J 1703F / DOT4 |

## Grease

| | | |
|---|---|---|
|  | Superol HP2 | NLGI 2 lithium soap grease<br>calcium lead-free EP additive |

# TOOLS

# APPLICABILITY

| Range | Family | Title | Variant | Applicability date | | Updating | Page N° |
|---|---|---|---|---|---|---|---|
| | | | | Start | End | | |
| RENAULT PREMIUM DXi 11 EURO 3 | 27BC - TR 4X2 LC | Generalities | 120AR+25524/25 | | | 24/11/2004 | C-3 |
| | 27JC - TR 6X2 Pusher | | 120AR+25524/25 | | | | |
| | 27RC - PR 6x2 | | 120AR+25524/25 | | | | |
| | 27SC - PR 4x2 | | 120AR+25524/25 | | | | |
| | 27TC - TR 4x2 | | 120AR+25524/25 | | | | |

## Generalities

**RENAULT TRUCKS** divides tools into three categories:

- **General-purpose tools**: proprietary tools
  - **50 00 26 .... reference number** (possibility of purchasing through the RENAULT TRUCKS Spare Parts department).
  - **4-figure reference number** (tools classified by RENAULT TRUCKS but available from the supplier).

- **Special tools**: specifically created tools distributed by the RENAULT TRUCKS Spare Parts Department
  - To be ordered according to the reference numbers appearing in the list of tools on the following pages.

- **Locally manufactured tools**:
  - **4-figure reference number** (represented by a drawing): tools that are simple to make without need for special qualification.

**Three levels (or echelons)** determine their assignment:
- **Level 1**: tools for servicing, maintenance and minor tasks

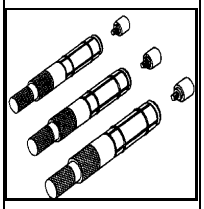
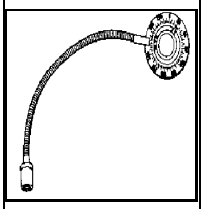
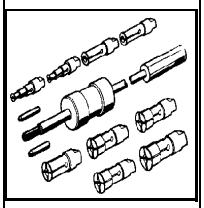
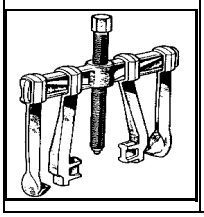
- **Level 2**: tools for major repairs

- **Level 3**: tools for refurbishment

*Proprietary tools mentioned in this manual do not appear in the tools list.*
*These tools are identified in the standard tools manual (MO) by a 4-figure number.*

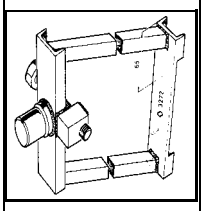
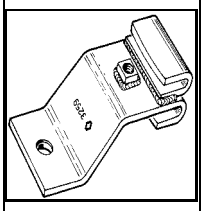
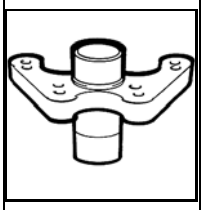
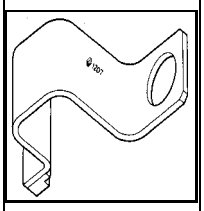
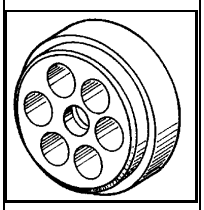
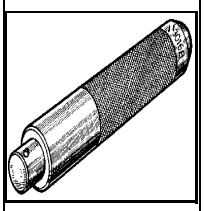
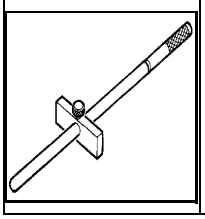
# LIST OF TOOLS

**General-purpose tools**

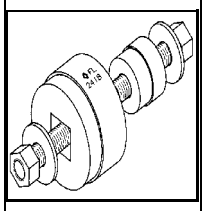
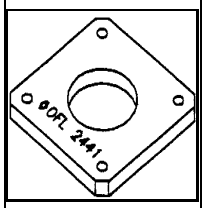
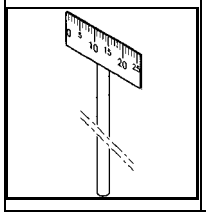
| Illustration | RENAULT TRUCKS Ref. | Designation | Manufacturer reference | Manufacturer code | Level | Qty |
|---|---|---|---|---|---|---|
|  | **5000262437** | CLUTCH CENTRING TOOL | | | 1 | 1 |
|  | **9366** | RAM | | BB | 1 | 1 |
|  | **5000269776** | ANGULAR DIAL | | | 1 | 1 |
|  | **5000260978** | PULLER | | | 1 | 1 |
|  | **5000260833** | PULLER | | | 1 | 1 |

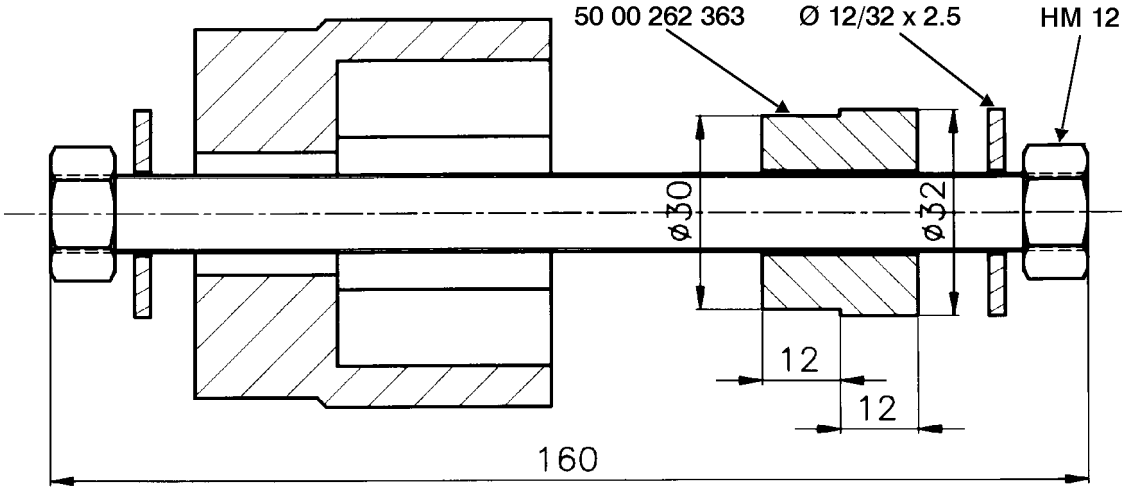
| | | | | |
|---|---|---|---|---|
| BB | **SEFAC S.A.** | | | |
| | 1 rue André Compain<br>BP 101 | | | |
| | 08800<br>MONTHERME | | | FRANCE |
| | 03.24.53.01.82 | | 03.24.53.29.18 | |

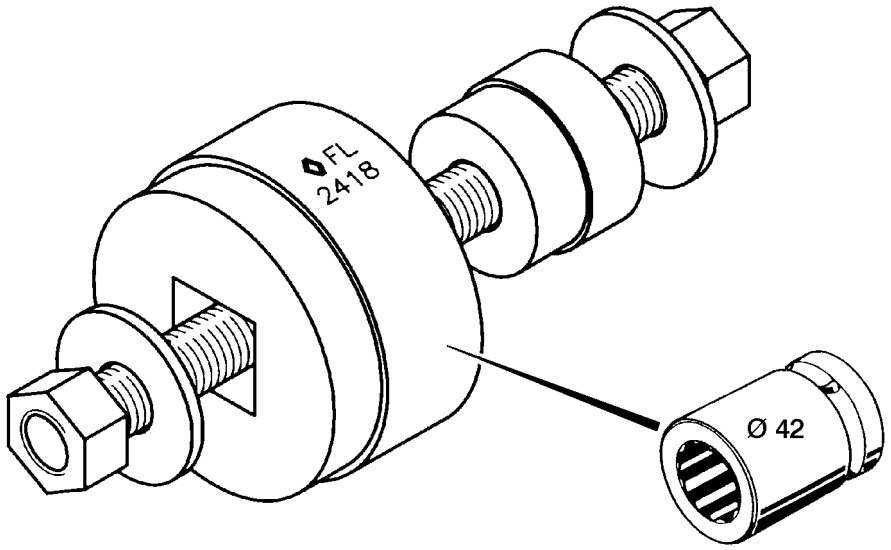
**Special Tools**

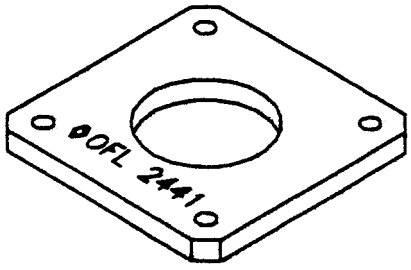
| Illustration | RENAULT TRUCKS Ref. | Designation | Manufac-turer reference | Manufac-turer Code | Level | Qty |
|---|---|---|---|---|---|---|
|  | **5000263272** | FITTING | | | 1 | 1 |
|  | **5000263259** | HOOK | | | 1 | 1 |
|  | **7409996956** | ENGINE CRANKING BAR | | | 1 | 1 |
|  | **5000261207** | HOOK | | | 1 | 1 |
|  | **5000262363** | SET OF PUSHERS | | | 1 | 1 |
|  | **5000263016** | HANDLE | | | 1 | 1 |
|  | **5000263231** | GAUGE ROLLER | | | 1 | 1 |

**Locally manufactured tools**

| Illustration | RENAULT TRUCKS Ref. | Designation | Manufacturer Reference | Manufacturer Code | Level | Qty |
|---|---|---|---|---|---|---|
|  | **2418** | PULLER | | | 1 | 1 |
|  | **2441** | SPACER | | | 1 | 1 |
|  | **2488** | RULER | | | 1 | 1 |

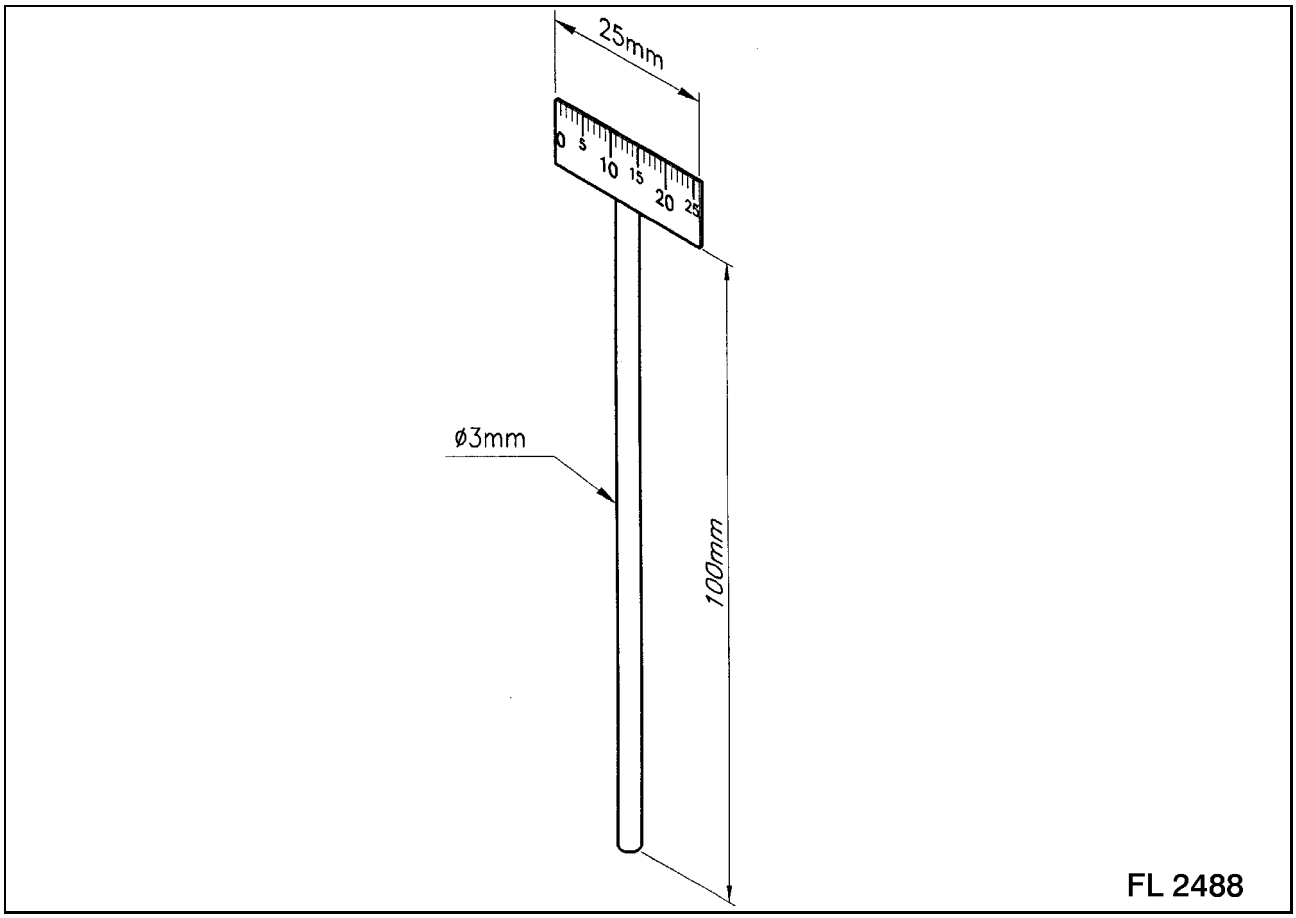



REF. Renault Trucks 50.01.843.152

FL 2441


25mm
0 5 10 15 20
ø3mm
100mm
FL 2488

# CLUTCH MECHANISM

# APPLICABILITY

## Mechanism

| Range | Family | Title | Variant | Applicability date | | Updating | Page N° |
|---|---|---|---|---|---|---|---|
| | | | | Start | End | | |
| RENAULT PREMIUM DXi 11 EURO 3 | 27RC - PR 6x2 | Removal | 120AR+25525 | | | 22/09/2004 | D1-7 |
| | 27SC - PR 4x2 | | 120AR+25525 | | | | |
| | 27TC - TR 4x2 | | 120AR+25525 | | | | |
| RENAULT PREMIUM DXi 11 EURO 3 | 27BC - TR 4X2 LC | Removal/Fitting/ Inspection | 120AR+25524/ 25 | | | 20/04/2005 | D1-8 |
| | 27JC - TR 6X2 Pusher | | 120AR+25524/ 25 | | | | |
| | 27RC - PR 6x2 | | 120AR+25524/ 25 | | | | |
| | 27SC - PR 4x2 | | 120AR+25524/ 25 | | | | |
| | 27TC - TR 4x2 | | 120AR+25524/ 25 | | | | |
| RENAULT PREMIUM DXi 11 EURO 3 | 27RC - PR 6x2 | Fitting | 120AR+25525+ 150GM/GN/GP/ GQ/GR | | | 22/09/2004 | D1-9 |
| | 27SC - PR 4x2 | | 120AR+25525+ 150GM/GN/GP/ GQ/GR | | | | |
| | 27TC - TR 4x2 | | 120AR+25525+ 150GM/GN/GP/ GQ/GR | | | | |
| RENAULT PREMIUM DXi 11 EURO 3 | 27BC - TR 4X2 LC | Fitting | 120AR+25524/ 25 | | | 22/09/2004 | D1-11 |
| | 27JC - TR 6X2 Pusher | | 120AR+25524/ 25 | | | | |
| | 27RC - PR 6x2 | | 120AR+25524/ 25 | | | | |
| | 27SC - PR 4x2 | | 120AR+25524/ 25 | | | | |
| | 27TC - TR 4x2 | | 120AR+25524/ 25 | | | | |

| Range | Family | Title | Variant | Applicability date | | Updating | Page N° |
|---|---|---|---|---|---|---|---|
| | | | | Start | End | | |
| RENAULT PREMIUM DXi 11 EURO 3 | 27RC - PR 6x2 | Inspection | 120AR+25525+150GM/GN/GP/GQ/GR | | | 22/09/2004 | D1-14 |
| | 27SC - PR 4x2 | | 120AR+25525+150GM/GN/GP/GQ/GR | | | | |
| | 27TC - TR 4x2 | | 120AR+25525+150GM/GN/GP/GQ/GR | | | | |
| RENAULT PREMIUM DXi 11 EURO 3 | 27RC - PR 6x2 | Inspection | 120AR+25525+150FX | | | 22/09/2004 | D1-15 |
| | 27SC - PR 4x2 | | 120AR+25525+150FX | | | | |
| | 27TC - TR 4x2 | | 120AR+25525+150FX | | | | |

## Flywheel

| Range | Family | Title | Variant | Applicability date | | Updating | Page N° |
|---|---|---|---|---|---|---|---|
| | | | | Start | End | | |
| RENAULT PREMIUM DXi 11 EURO 3 | 27BC - TR 4X2 LC | Removal / Fitting | 120AR+25524/25 | | | 22/09/2004 | D2-1 |
| | 27JC - TR 6X2 Pusher | | 120AR+25524/25 | | | | |
| | 27RC - PR 6x2 | | 120AR+25524/25 | | | | |
| | 27SC - PR 4x2 | | 120AR+25524/25 | | | | |
| | 27TC - TR 4x2 | | 120AR+25524/25 | | | | |
| RENAULT PREMIUM DXi 11 EURO 3 | 27BC - TR 4X2 LC | Inspection | 120AR+25524/25 | | | 22/09/2004 | D2-3 |
| | 27JC - TR 6X2 Pusher | | 120AR+25524/25 | | | | |
| | 27RC - PR 6x2 | | 120AR+25524/25 | | | | |
| | 27SC - PR 4x2 | | 120AR+25524/25 | | | | |
| | 27TC - TR 4x2 | | 120AR+25524/25 | | | | |

## Pilot bearing

| Range | Family | Title | Variant | Applicability date | | Updating | Page N° |
|---|---|---|---|---|---|---|---|
| | | | | Start | End | | |
| RENAULT PREMIUM DXi 11 EURO 3 | 27BC - TR 4X2 LC | Removal / Fitting | 120AR+25524/25 | | | 22/09/2004 | D3-1 |
| | 27JC - TR 6X2 Pusher | | 120AR+25524/25 | | | | |
| | 27RC - PR 6x2 | | 120AR+25524/25 | | | | |
| | 27SC - PR 4x2 | | 120AR+25524/25 | | | | |
| | 27TC - TR 4x2 | | 120AR+25524/25 | | | | |

## Thrust release bearing

| Range | Family | Title | Variant | Applicability date | | Updating | Page N° |
|---|---|---|---|---|---|---|---|
| | | | | Start | End | | |
| RENAULT PREMIUM DXi 11 EURO 3 | 27BC - TR 4X2 LC | Removal | 120AR+25524/25 | | | 13/04/2005 | D4-1 |
| | 27JC - TR 6X2 Pusher | | 120AR+25524/25 | | | | |
| | 27RC - PR 6x2 | | 120AR+25524/25 | | | | |
| | 27SC - PR 4x2 | | 120AR+25524/25 | | | | |
| | 27TC - TR 4x2 | | 120AR+25524/25 | | | | |
| RENAULT PREMIUM DXi 11 EURO 3 | 27RC - PR 6x2 | Fitting | 120AR+25525+150GM/GN/GP/GQ/GR | | | 22/09/2004 | D4-2 |
| | 27SC - PR 4x2 | | 120AR+25525+150GM/GN/GP/GQ/GR | | | | |
| | 27TC - TR 4x2 | | 120AR+25525+150GM/GN/GP/GQ/GR | | | | |
| RENAULT PREMIUM DXi 11 EURO 3 | 27RC - PR 6x2 | Fitting | 120AR+25524 | | | 22/09/2004 | D4-3 |
| | 27SC - PR 4x2 | | 120AR+25524 | | | | |
| | 27TC - TR 4x2 | | 120AR+25524 | | | | |
| RENAULT PREMIUM DXi 11 EURO 3 | 27BC - TR 4X2 LC | Removal | 120AR+25524/25 | | | 20/04/2005 | D4-4 |
| | 27JC - TR 6X2 Pusher | | 120AR+25524/25 | | | | |
| | 27RC - PR 6x2 | | 120AR+25524/25 | | | | |
| | 27SC - PR 4x2 | | 120AR+25524/25 | | | | |
| | 27TC - TR 4x2 | | 120AR+25524/25 | | | | |
| RENAULT PREMIUM DXi 11 EURO 3 | 27RC - PR 6x2 | Fitting | 120AR+25525+150FX | | | 22/09/2004 | D4-5 |
| | 27SC - PR 4x2 | | 120AR+25525+150FX | | | | |
| | 27TC - TR 4x2 | | 120AR+25525+150FX | | | | |

## Operating fork

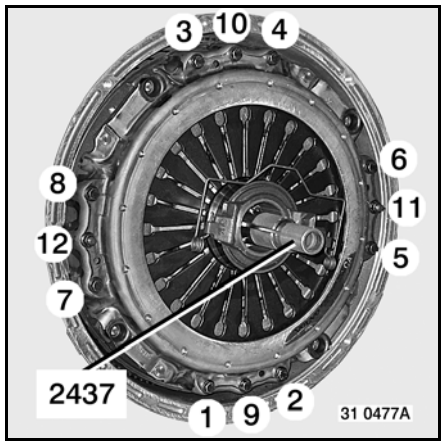
| Range | Family | Title | Variant | Applicability date | | Updating | Page N° |
|---|---|---|---|---|---|---|---|
| | | | | Start | End | | |
| RENAULT PREMIUM DXi 11 EURO 3 | 27RC - PR 6x2 | Removal / Fitting | 120AR+25524 | | | 22/09/2004 | D5-1 |
| | 27SC - PR 4x2 | | 120AR+25524 | | | | |
| | 27TC - TR 4x2 | | 120AR+25524 | | | | |
| RENAULT PREMIUM DXi 11 EURO 3 | 27RC - PR 6x2 | Removal / Fitting | 120AR+25525+ 150GM/GN/GP/ GQ/GR | | | 22/09/2004 | D5-2 |
| | 27SC - PR 4x2 | | 120AR+25525+ 150GM/GN/GP/ GQ/GR | | | | |
| | 27TC - TR 4x2 | | 120AR+25525+ 150GM/GN/GP/ GQ/GR | | | | |
| RENAULT PREMIUM DXi 11 EURO 3 | 27BC - TR 4X2 LC | Removal | 120AR+25524/ 25 | | | 13/04/2005 | D5-3 |
| | 27JC - TR 6X2 Pusher | | 120AR+25524/ 25 | | | | |
| | 27RC - PR 6x2 | | 120AR+25524/ 25 | | | | |
| | 27SC - PR 4x2 | | 120AR+25524/ 25 | | | | |
| | 27TC - TR 4x2 | | 120AR+25524/ 25 | | | | |
| RENAULT PREMIUM DXi 11 EURO 3 | 27RC - PR 6x2 | Fitting | 120AR+25525+ 150FX | | | 22/09/2004 | D5-4 |
| | 27SC - PR 4x2 | | 120AR+25525+ 150FX | | | | |
| | 27TC - TR 4x2 | | 120AR+25525+ 150FX | | | | |

## Mechanism

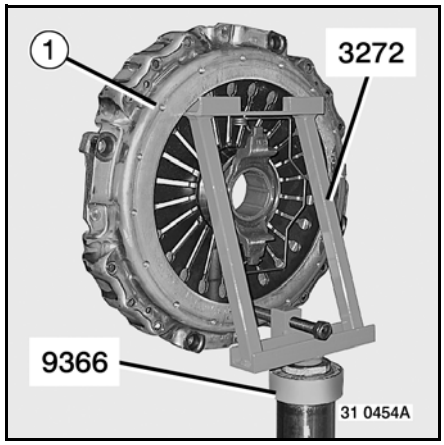
## Removal

**Clutch type(s): VALEO 430 DTE / SACHS MFZ 430**

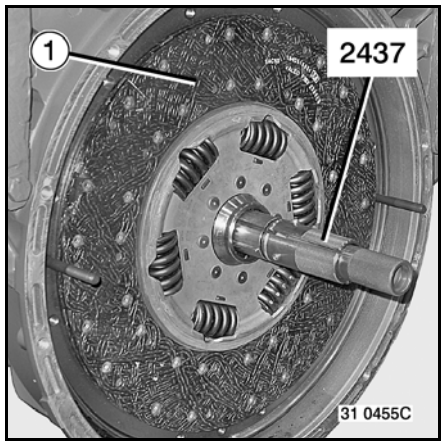
Mount tool **2437**.
Loosen the nuts and bolts securing the mechanism progressively and in diametrically opposed sequence to avoid placing any strain on the clutch.
Follow the loosening sequence.



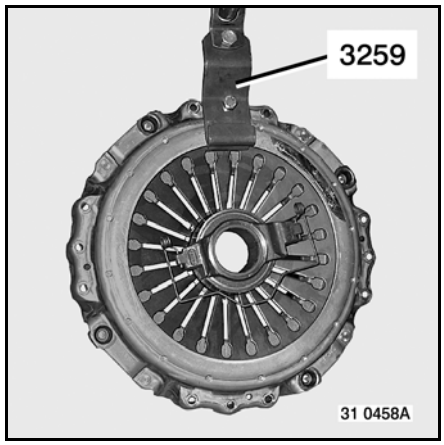

Remove clutch mechanism **(1)**.
Use tool **3272** + **9366**




Remove clutch plate **(1)**.
Withdraw tool **2437**.



Handle the clutch mechanism using tool **3259**.




## Removal/Fitting/Inspection

**Clutch type: SACHS MFZ 2.400**
(See MR **31 611**)

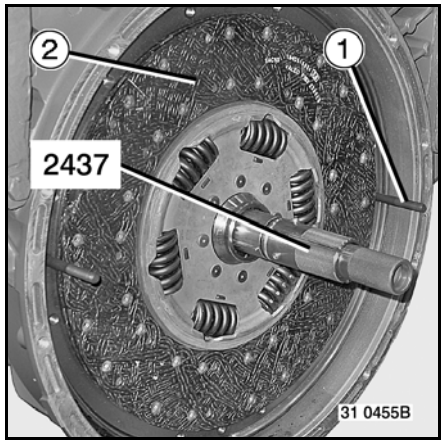
## Fitting

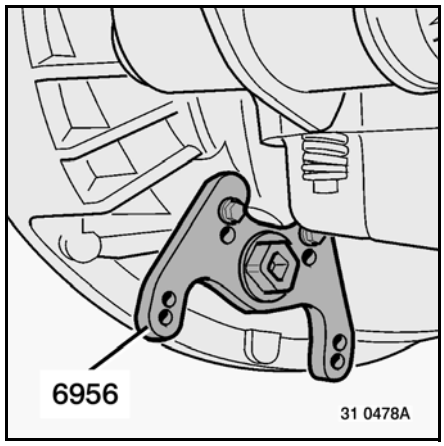
**Clutch type: VALEO 430 DTE**

- Remove dust from the clutch casing.
- Check there are no oil leaks.
- Degrease the flywheel friction track.

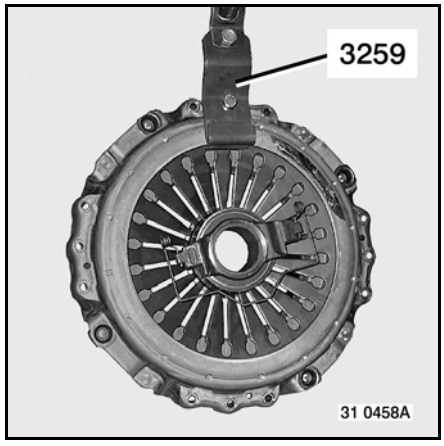
**Do not grease the splines.**

Position stud **(1)** at **3** o'clock.
Turn the flywheel using tool **6956**.
Position clutch plate **(2)** correctly.
See page(s) B-2-2.
Retain clutch plate **(2)** against motion.
Use tool **2437**.

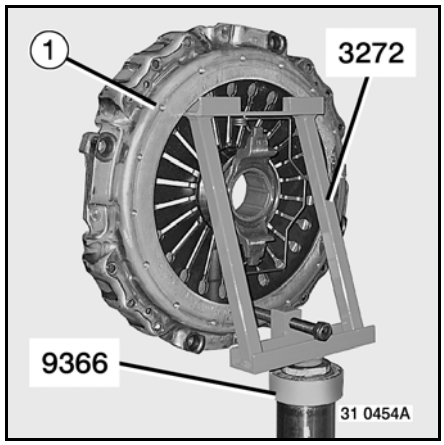


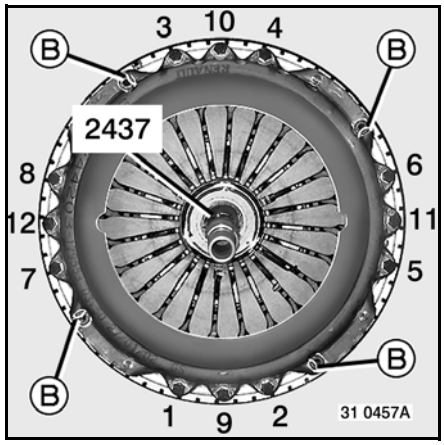

Handle the clutch mechanism using tool **3259**.



Install the clutch mechanism **(1)**.
Use tool **3272** + **9366**
Start the bolts and nuts.
Withdraw tool **3272** + **9366**.




Screw up and tighten the 12 bolts and nuts in 3 successive phases.
Follow the tightening sequence.
Tighten to torque.
See page(s) B-2-2.
After tightening the clutch mechanism nuts and bolts to torque, withdraw clips **(B)**.
Withdraw tool **2437**.
Ensure that the height of the diaphragm fingers is constant.
Check that the support ring and the thrust release bearing retaining ring are correctly in place.



## Fitting

**Clutch type: SACHS MFZ 430**

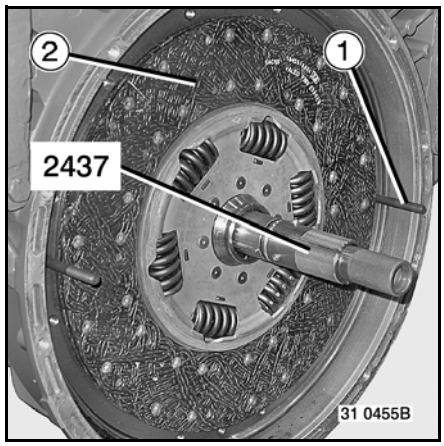
*The thrust release bearing is installed before the clutch mechanism is fitted.*

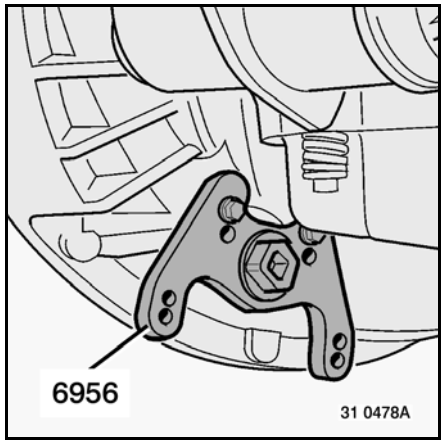
See page(s) D-4-5.

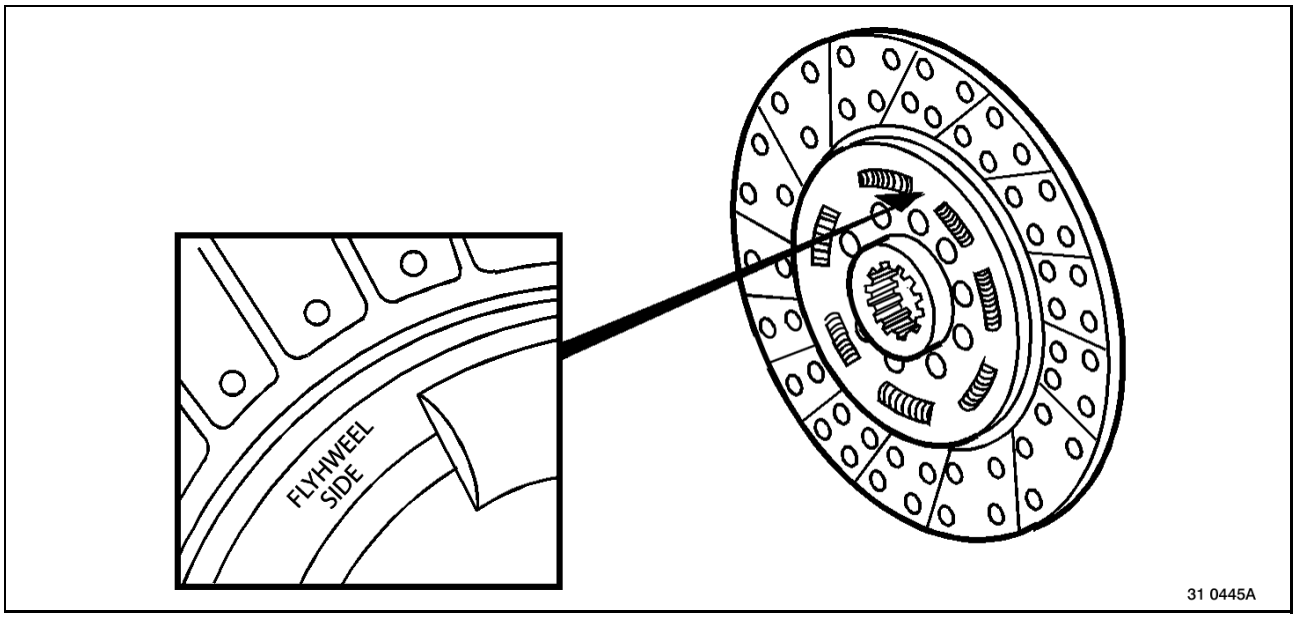
- Remove dust from the clutch casing.
- Check there are no oil leaks.
- Degrease the flywheel friction track.

**Do not grease the splines.**

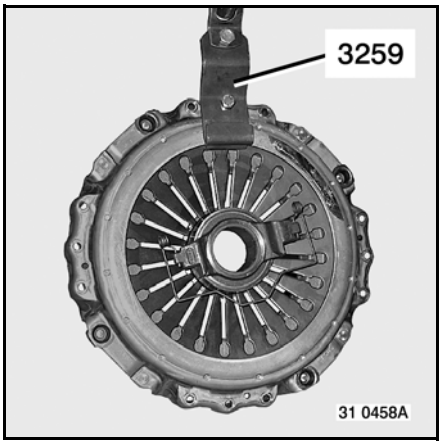
Position stud **(1)** at **3** o'clock.
Turn the flywheel using tool **6956**.
Position clutch plate **(2)** correctly.
Position the marking **"FLYWHEEL SIDE"** on the flywheel side.
Retain clutch plate **(2)** against motion.
Use tool **2437**.



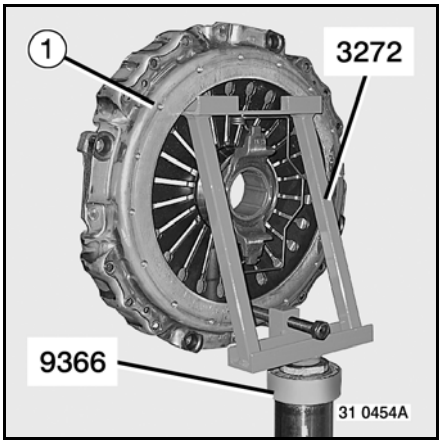





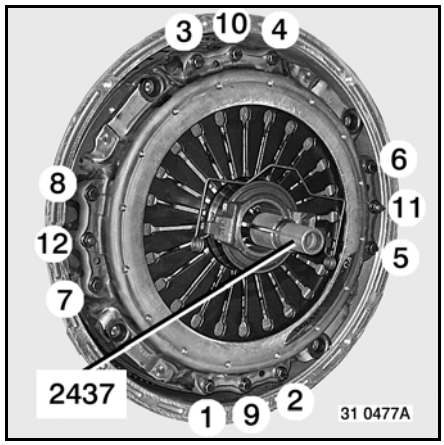

Handle the clutch mechanism using tool **3259**.




Install the clutch mechanism **(1)**.
Use tool **3272** + **9366**
Start the bolts and nuts.
Withdraw tool **3272** + **9366**.

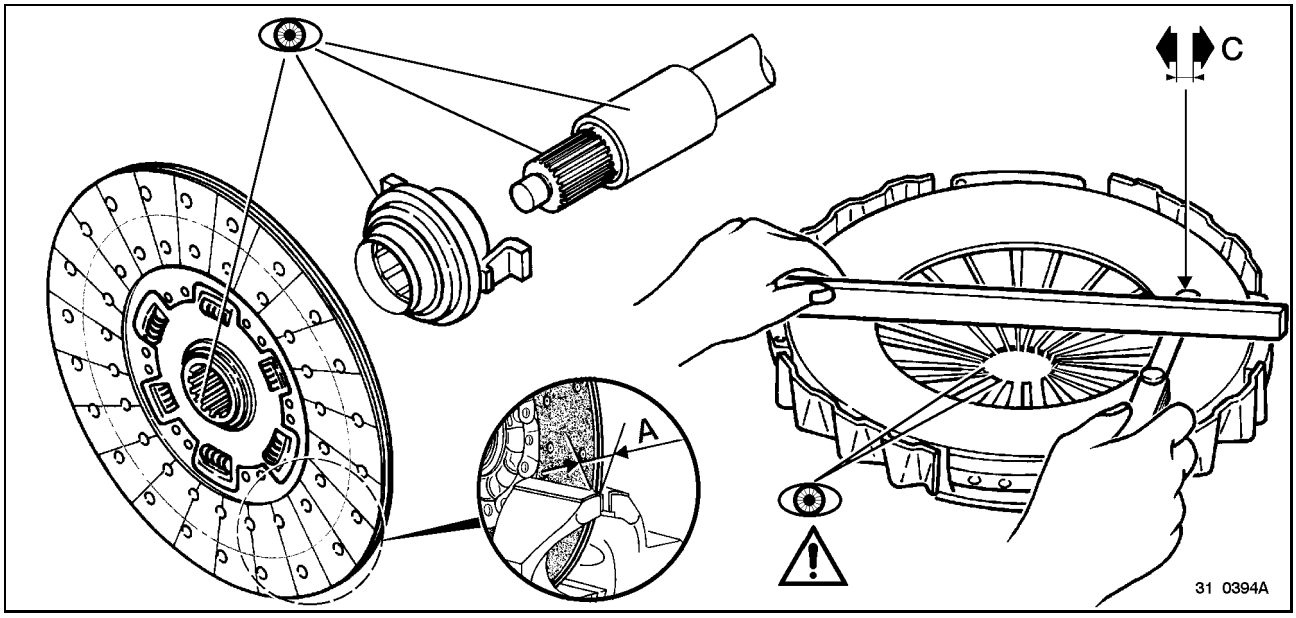


Screw up and tighten the 12 bolts and nuts in 3 successive phases.
Follow the tightening sequence.
Tighten to torque.
See page(s) B-2-3.
Withdraw tool **2437**.
Ensure that the height of the diaphragm fingers is constant.
Check that the support ring and the thrust release bearing retaining ring are correctly in place.



## Inspection

**Clutch type: VALEO 430 DTE**




| Mechanism | Lining thickness min. dimension A (mm) | Pressure plate Taper C (mm) |
|---|---|---|
| 430 DTE | $7^{\pm 0.3}$ | 0.1 → 0.2 |

**Inspection of the centre plate**
- Change centre plates with broken, torn, burnt or greasy linings.
- Inspect the linings for wear.
- Check the condition of the hub and gearbox shaft splines.
- Check the condition of the centre plate springs.

**Inspection of the clutch mechanism**
- Check that the pressure plate does not present any cracks.
- Check the taper.
- Check the tips of the diaphragm or the support ring for wear.
- Check that driving lugs are neither blued, distorted nor torn apart.
- Check the thrust release bearing retaining ring for wear and distortion.

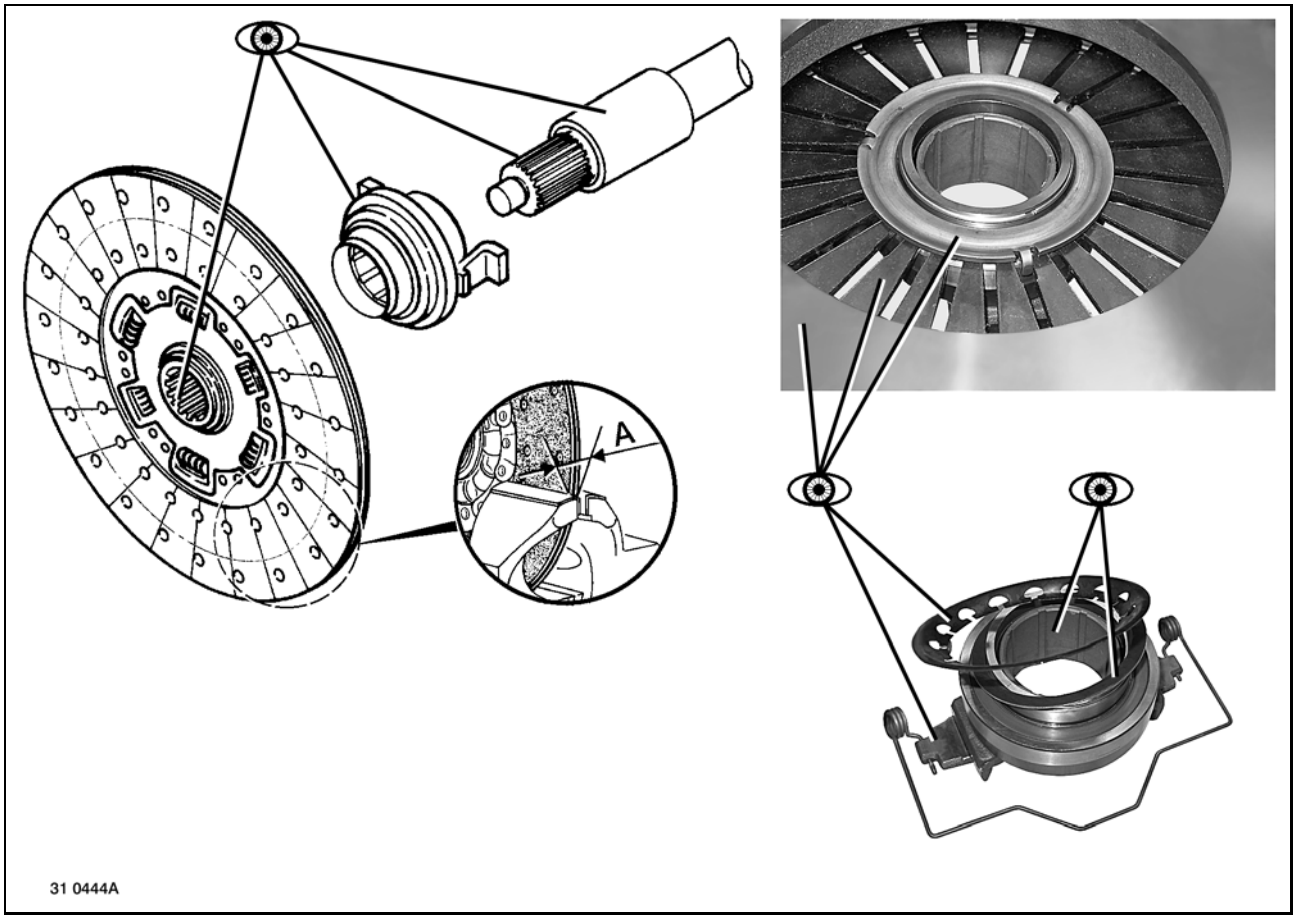
**Inspection of the thrust release bearing**
- Check that the thrust release bearing is not seized.
- Check the contact surface of the retaining ring.
- Check the state of the spring washers.
- Check the plastic sleeve for wear.

*Never dip the thrust release bearing in degreasing product or spray any on it.*

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

## Inspection

**Clutch type: SACHS MFZ 430**




| Mechanism | Lining thickness min. dimension A (mm) | Pressure plate Taper C (mm) |
|---|---|---|
| SACHS MFZ 430 | $7^{\pm 0.3}$ | - |

**Inspection of the centre plate**

- Change centre plates with broken, torn, burnt or greasy linings.
- Inspect the linings for wear.
- Check the condition of the hub and gearbox shaft splines.
- Check the condition of the centre plate springs.

**Inspection of the clutch mechanism**

Remove the thrust release bearing (see page D-4-4).

- Check that the pressure plate does not present any cracks.
- Check the tips of the diaphragm or the support ring for wear.
- Check that driving lugs are neither blued, distorted nor torn apart.
- Check the thrust release bearing retaining ring for wear and distortion.

**Inspection of the thrust release bearing**

- Check that the thrust release bearing is not seized.
- Check the contact surface of the retaining ring.
- Check the state of the spring washers.
- Check the plastic sleeve for wear.

*Never dip the thrust release bearing in degreasing product or spray any on it.*

**Inspection of the thrust release bearing carrier**

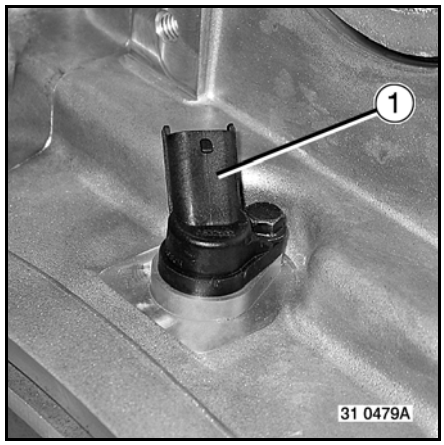
- If the thrust release bearing carrier presents signs of wear or seizure, replace it.

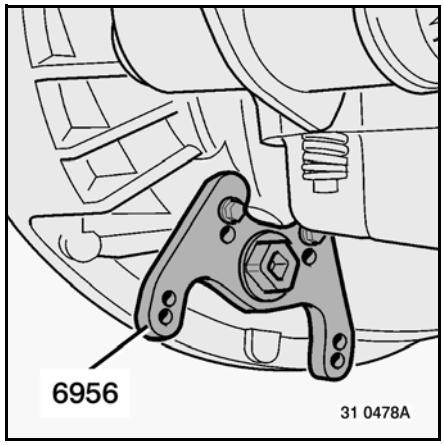
# Flywheel

## Removal / Fitting

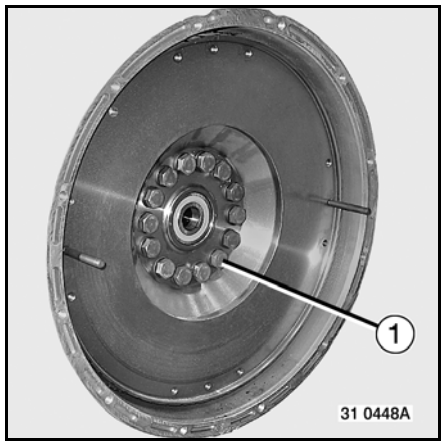
### Removal

Remove engine speed sensor **(1)**.
Retain the flywheel against motion using tool **6956**.



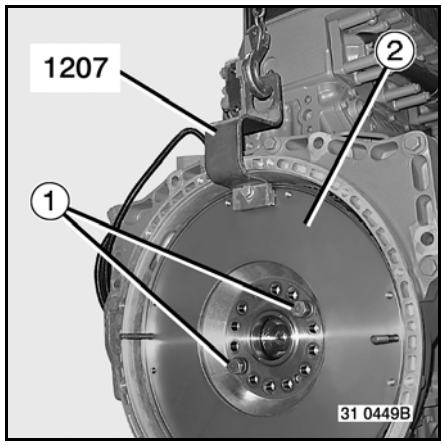




Loosen bolts **(1)**.
Remove bolts **(1)**.



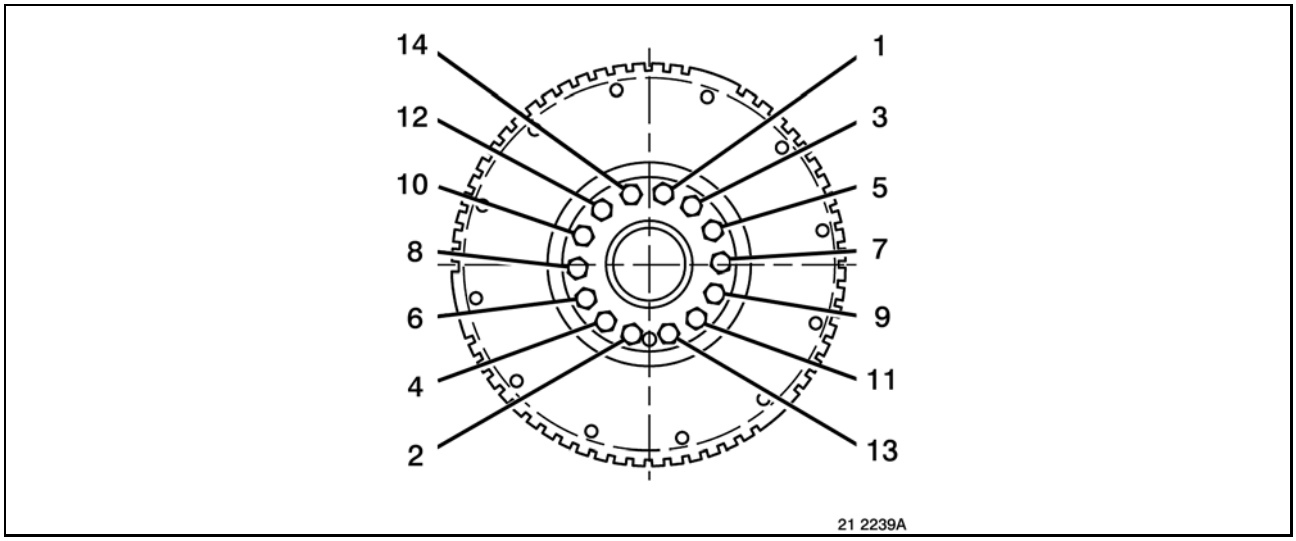
**LEAVE 2 BOLTS (1) IN PLACE TO HOLD THE FLYWHEEL.**

Mount tool **1207**.
Remove bolts **(1)**.
Remove flywheel **(2)**.




**Fitting**
To fit, proceed in the reverse sequence to removal.
Withdraw tool **1207**.

Tighten bolts **(1)** to torque, following the tightening sequence.
See pages B-2-1**,** B-2-2**,** B-2-3.
Use tool **9776**.
Fit engine speed sensor.
Check the air gap.
Air gap: **1.0** → **2.0 mm**

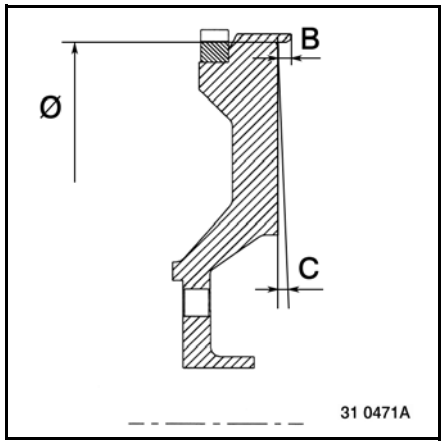



## Inspection

**Inspection of 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 table).
- Check the state of the pilot bearing.

**Engine flywheel grinding values**




| Engine | Clutch | Flywheel | A (mm) | B (mm) | C (mm) | dia. (mm) |
|---|---|---|---|---|---|---|
| DXi 11 | 430 DTE<br>MFZ 430<br>MFZ 2.400 | - | - | 7.8 → 8.2 | 0.2 | 475 |

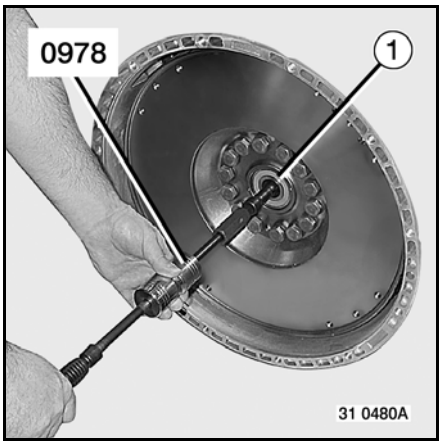
Surface finish: **CLA 3.2**.

# Pilot bearing

## Removal / Fitting

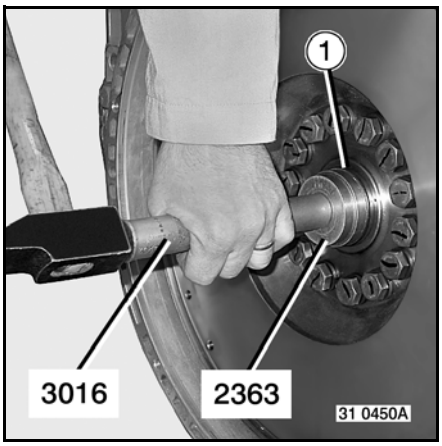
### Removal

Remove pilot bearing **(1)**.
Use tool **0978**.




### Fitting

Fit pilot bearing **(1)**.
Make pilot bearing **(1)** flush in its housing.
See pages B-2-1, B-2-2.
Use tool **2363** + **3016**

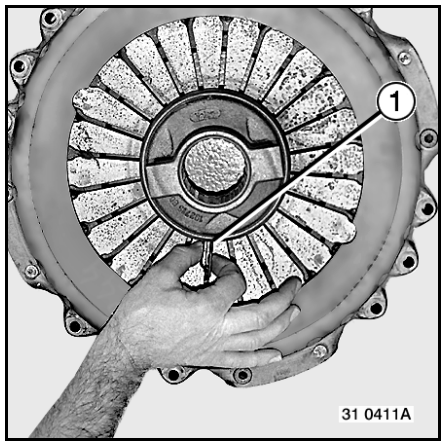


# Thrust release bearing

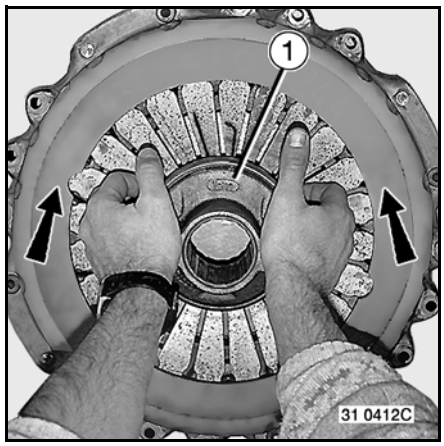
## Removal

**Clutch type(s): VALEO 430 DTE / SACHS MFZ 2.400**

The thrust release bearing retaining ring is opened out after the gearbox has been removed.
The thrust release bearing remains on the mechanism.
Open out retaining ring **(1)**.



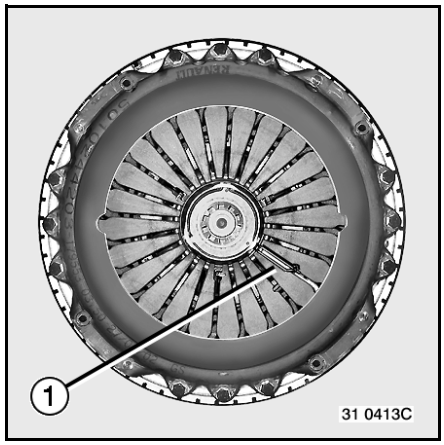

To free the retaining ring press on thrust release bearing **(1)**.
Remove thrust release bearing **(1)**.



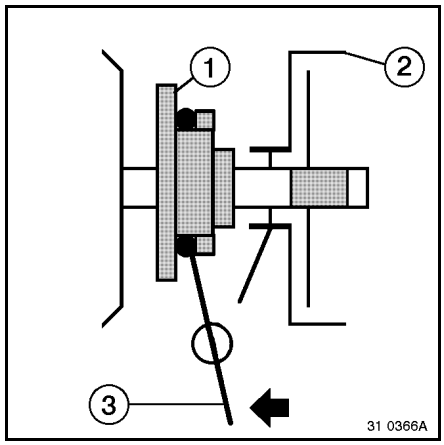
## Fitting

**Clutch type: VALEO 430 DTE**
Remove dust from the bearing carrier and from the thrust release bearing.
Do not use any degreasing product.
Grease the thrust release bearing and the bearing carrier.
See page(s) B-2-2.
Install the thrust release bearing  to the bearing carrier .

Close retaining ring **(1)**.




Fit the gearbox.
Move operating fork **(3)** rearwards to lock thrust release bearing **(1)** to the clutch mechanism **(2)**.
Move operating fork **(3)** forwards to check correct locking of thrust release bearing **(1)**.



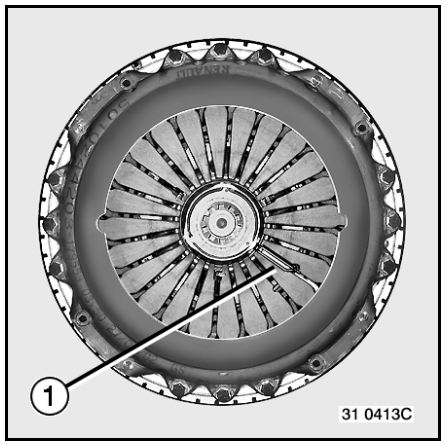
## Fitting

**Clutch type: SACHS MFZ 2.400**

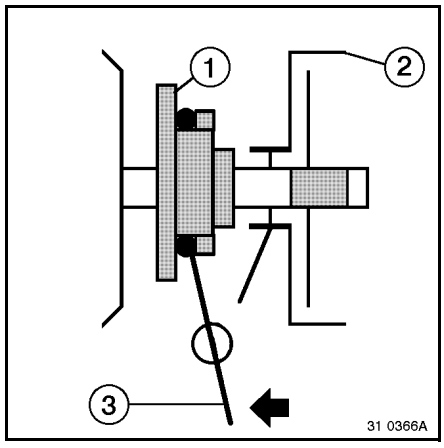
**Upon assembly, do not grease the ring or the bearing carrier.**

Grease the supports of operating fork and thrust release bearing.
See page(s) B-2-1.
Install the thrust release bearing  to the bearing carrier .

Close retaining ring **(1)**.




Fit the gearbox.
Move operating fork **(3)** rearwards to lock thrust release bearing **(1)** to the clutch mechanism **(2)**.
Move operating fork **(3)** forwards to check correct locking of thrust release bearing **(1)**.

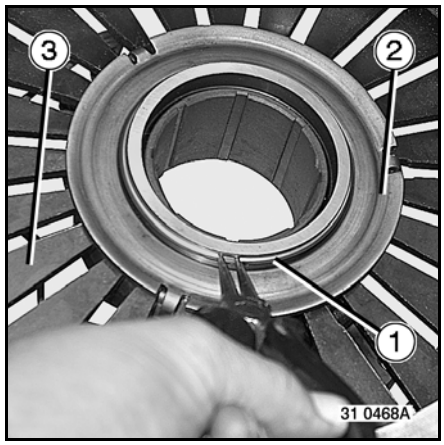


## Removal

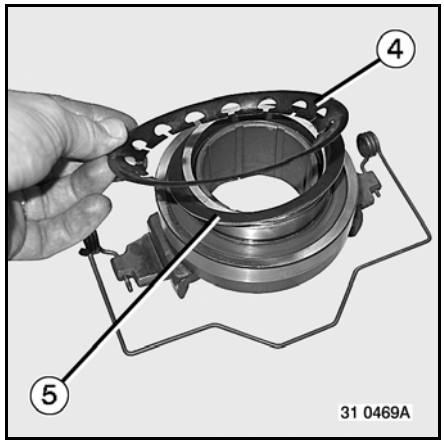
**Clutch type: SACHS MFZ 430**

*The thrust release bearing is removed and installed with the clutch mechanism removed.*

Lay the clutch mechanism flat on the release bearing side, press on the mechanism to compress spring washer **(4)**, which is located under the diaphragm.
Remove retaining ring **(1)**.
Remove washer **(2)**.
Remove clutch mechanism **(3)**.




Save washers **(4 - 5)**.

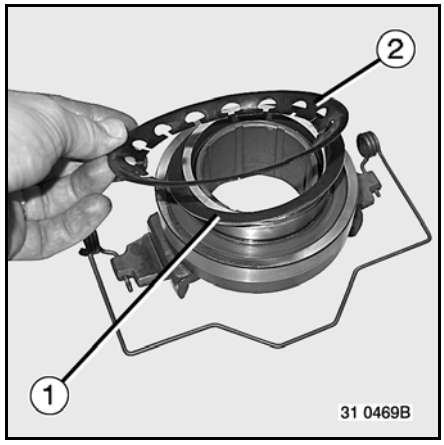


## Fitting

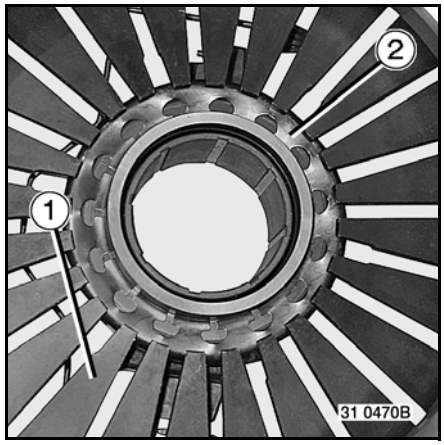
**Clutch type: SACHS MFZ 430**
Remove dust from the bearing carrier and from the thrust release bearing.
Do not use any degreasing product.

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

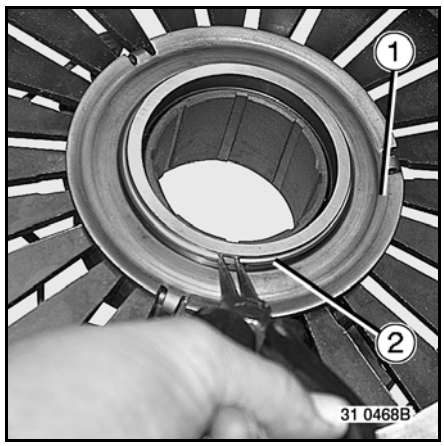
Fit washer **(1)**.
Fit spring washer **(2)** ensuring its direction of assembly.

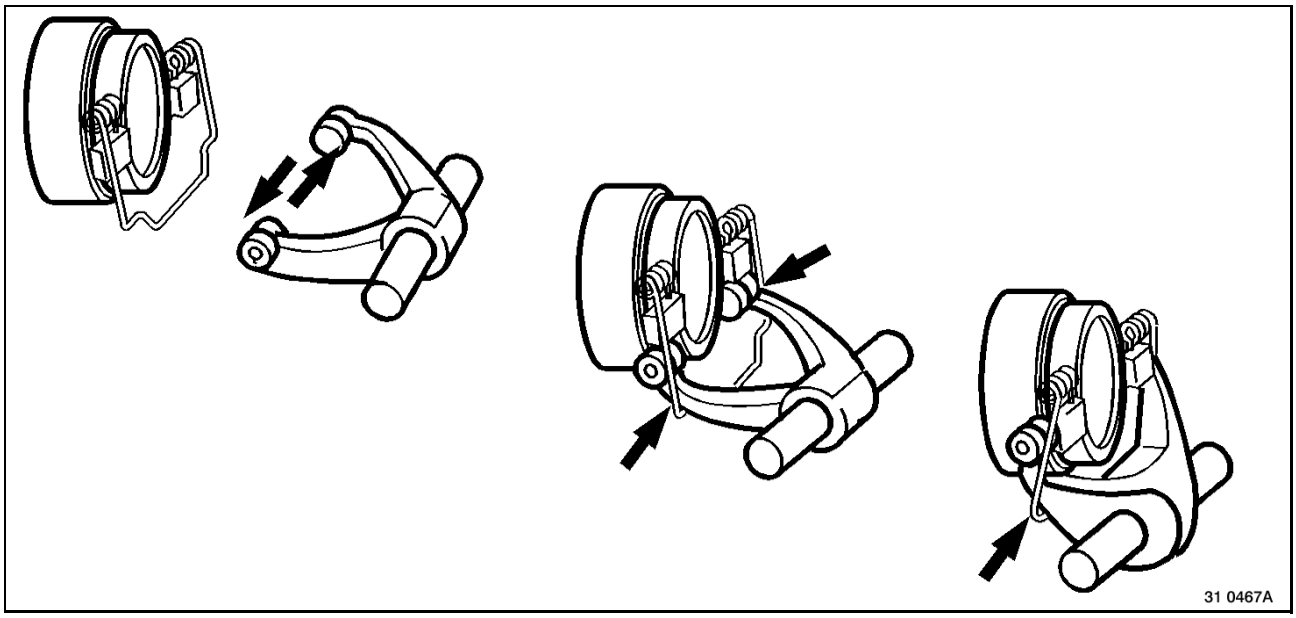



Fit clutch mechanism **(1)** and centre it on spring washer **(2)**.
Press on the mechanism to compress spring washer **(2)**.




Fit washer **(1)**.
Install retaining ring **(2)**.
Install the clutch mechanism.
See page(s) D-1-11.
Fit the gearbox.





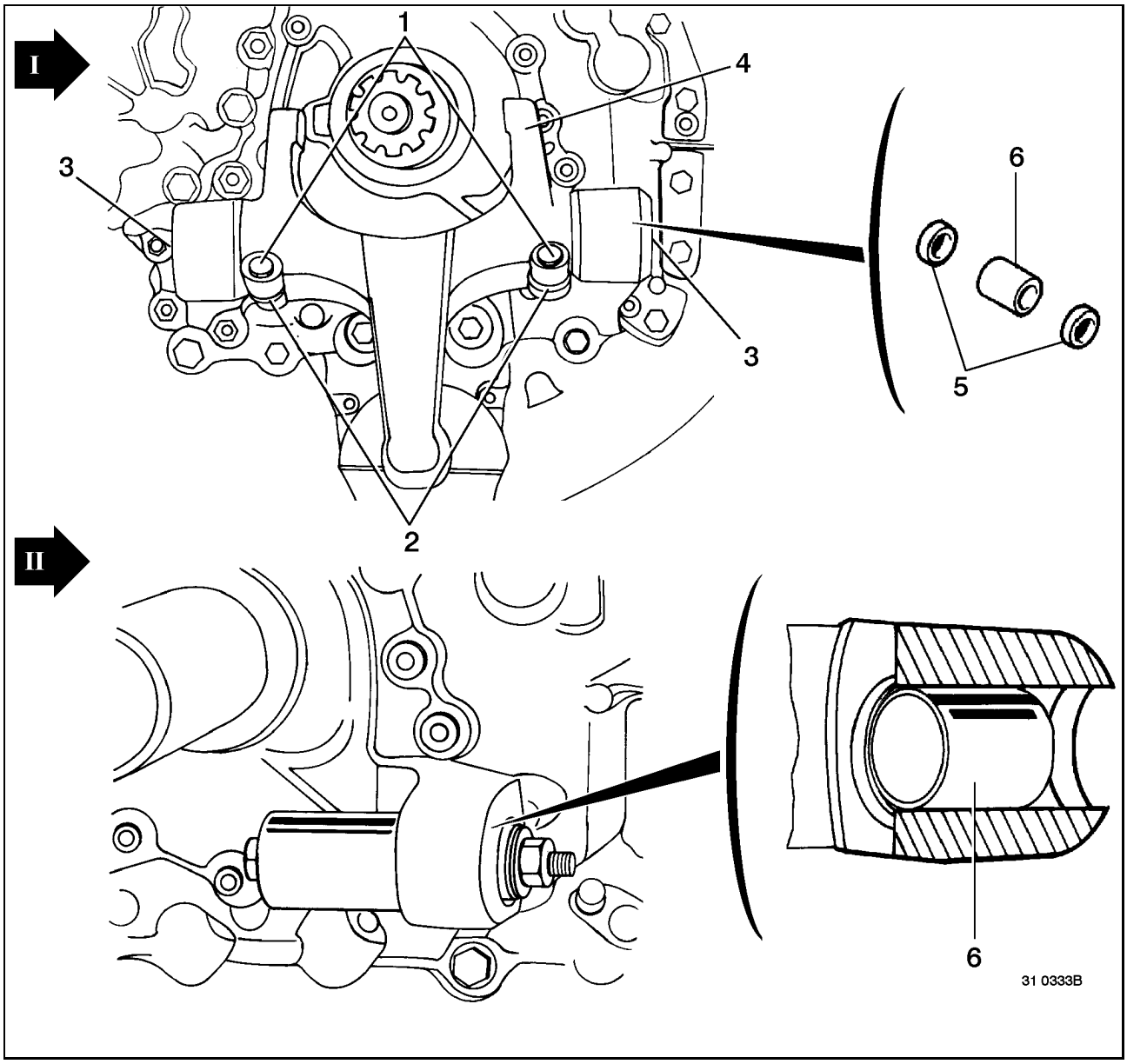

**While fitting the gearbox, position the thrust release bearing correctly on the clutch operating fork.**

(refer to workshop manual **32 069**).

# Operating fork

## Removal / Fitting

**Removal**



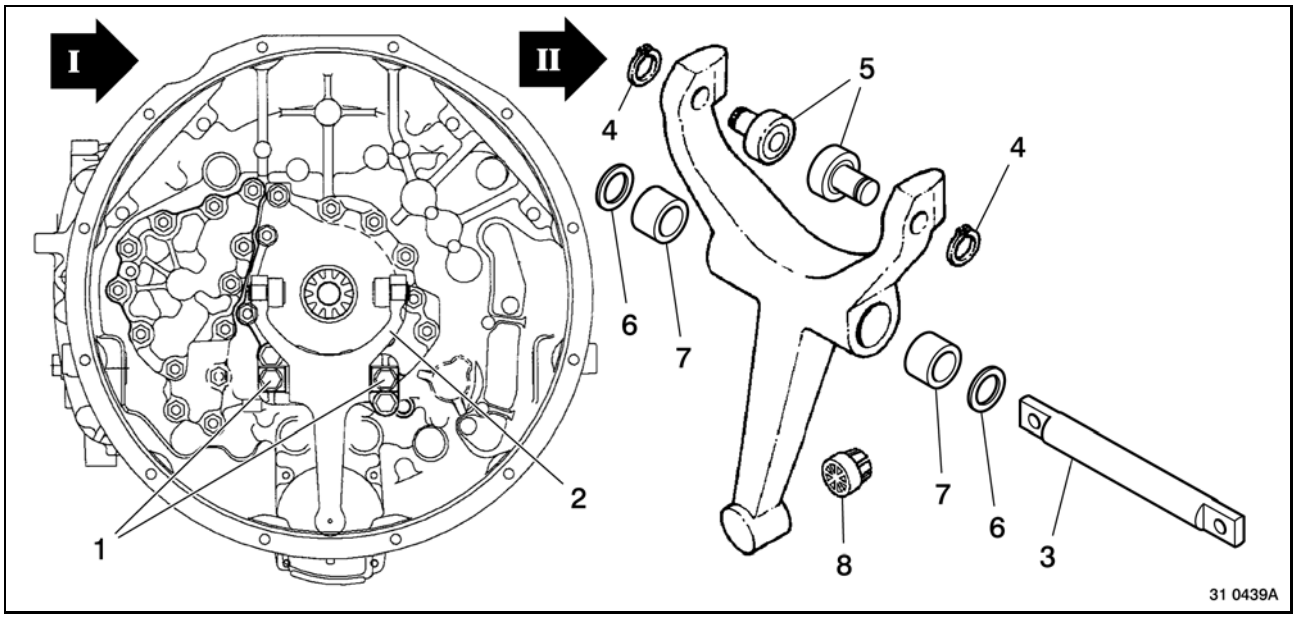

**Gearbox ZF 16S. 1620 TD/1820 TO/1920 TD/ 2220 TO/2220 TD**
**Clutch type: MFZ 2.400**
The item numbers indicated in the drawing on page correspond to the **sequence of disassembly.**
The table indicates the designation and reference number of the tools required for assembly/disassembly of the itemized parts.

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

**Fitting**
To fit, proceed in the reverse sequence to removal.
Tighten bolts **(1)** to a torque of **$80^{\pm 8}$ Nm**.

## Removal / Fitting

**Removal**




**Gearbox ZF 16S. 1620 TD/1820 TO/1920 TD/2220 TO/2220 TD**
**Clutch type: VALEO 430 DTE**
The item numbers indicated in the drawing on 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.

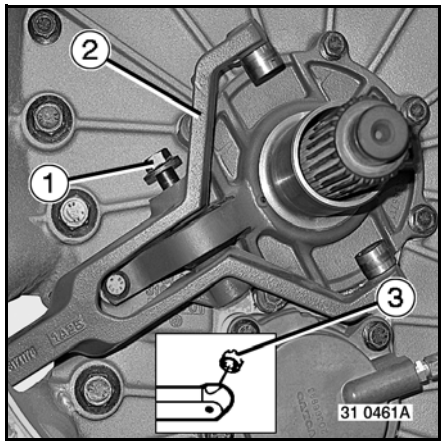
| Item | Tool designation | Reference N° | Assembly | Disassembly |
|---|---|---|---|---|
| **7** | Press | | **X** | **X** |
| **7** | Tube dia.**31** | | **X** | **X** |

Drill cup **(8)**, to extract it, without damaging the operating fork.

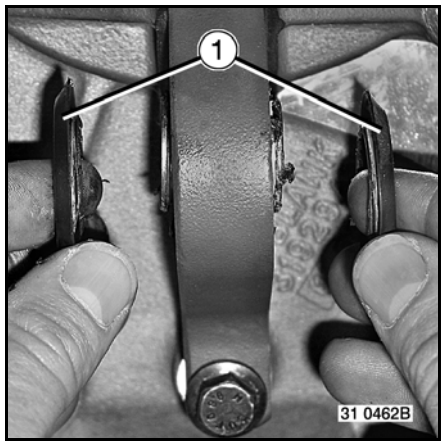
**Fitting**
To fit, proceed in the reverse sequence to removal.
Tighten the nuts and bolts to torque.
See page(s) B-1-6.

## Removal

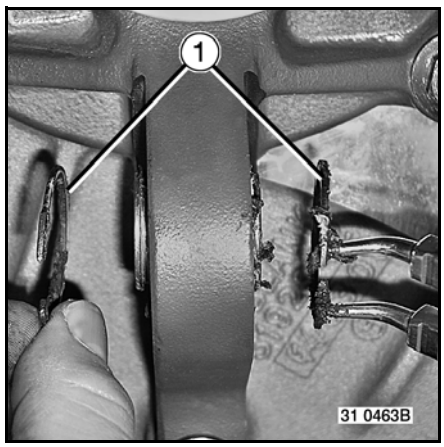
**Gearbox Optidriver 2**
**Clutch type: SACHS MFZ 430**
Remove bolt **(1)**.
Remove the operating fork **(2)**
Withdraw cup **(3)**.



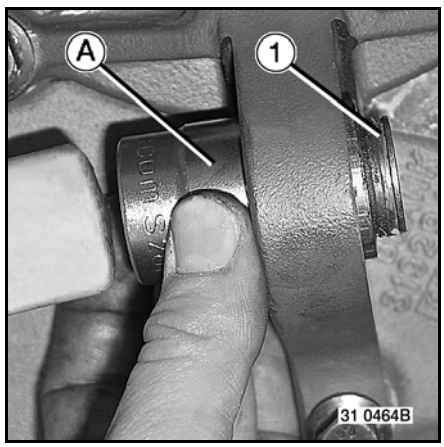

Remove gaskets **(1)**.




Remove circlips **(1)**.



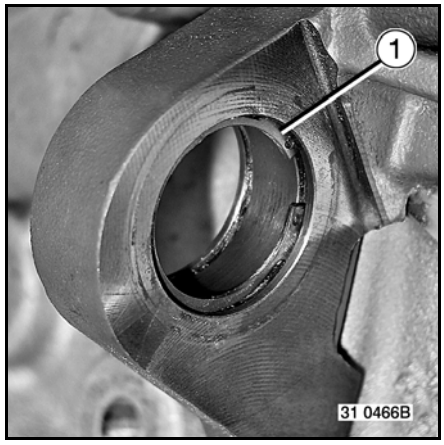

Remove ball-joint **(1)**.
Use a socket **(A)**.



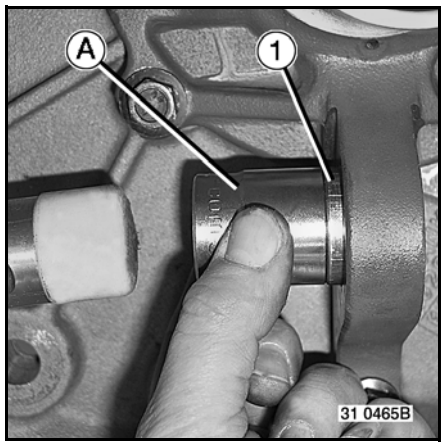
## Fitting

Carefully clean and check all parts.

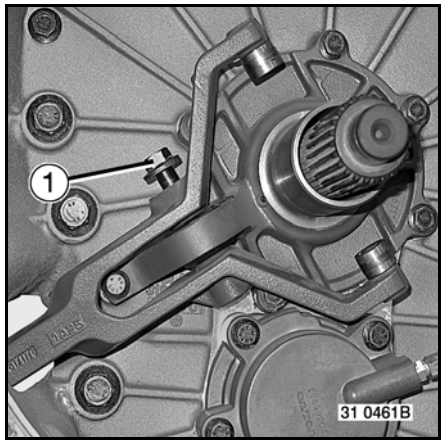
Fit circlip **(1)**.




Lubricate.
Fit ball-joint **(1)**.
Use a socket **(A)**.
For the rest of the fitting operations, proceed in the reverse sequence to removal.




Tighten bolt **(1)** to torque.
See page(s) B-2-3.



# CLUTCH CONTROL

# APPLICABILITY

## Hydraulic circuit

| Range | Family | Title | Variant | Applicability date | | Updating | Page N° |
|---|---|---|---|---|---|---|---|
| | | | | Start | End | | |
| RENAULT PREMIUM DXi 11 EURO 3 | 27BC - TR 4X2 LC | Bleeding | 120AR+25524/25 | | | 16/04/2004 | E1-5 |
| | 27JC - TR 6X2 Pusher | | 120AR+25524/25 | | | | |
| | 27RC - PR 6x2 | | 120AR+25524/25 | | | | |
| | 27SC - PR 4x2 | | 120AR+25524/25 | | | | |
| | 27TC - TR 4x2 | | 120AR+25524/25 | | | | |

## Master cylinder

| Range | Family | Title | Variant | Applicability date | | Updating | Page N° |
|---|---|---|---|---|---|---|---|
| | | | | Start | End | | |
| RENAULT PREMIUM DXi 11 EURO 3 | 27RC - PR 6x2 | Removal / Fitting | 120AR+25524/25+150GM/GN/GP/GQ/GR | | | 22/09/2004 | E2-1 |
| | 27SC - PR 4x2 | | 120AR+25524/25+150GM/GN/GP/GQ/GR | | | | |
| | 27TC - TR 4x2 | | 120AR+25524/25+150GM/GN/GP/GQ/GR | | | | |

## Slave cylinder

| Range | Family | Title | Variant | Applicability date | | Updating | Page N° |
|---|---|---|---|---|---|---|---|
| | | | | Start | End | | |
| RENAULT PREMIUM DXi 11 EURO 3 | 27BC - TR 4X2 LC | Generalities | 120AR+25524/25 | | | 19/04/2005 | E3-1 |
| | 27JC - TR 6X2 Pusher | | | | | | |
| | 27RC - PR 6x2 | | | | | | |
| | 27SC - PR 4x2 | | | | | | |
| | 27TC - TR 4x2 | | | | | | |
| RENAULT PREMIUM DXi 11 EURO 3 | 27BC - TR 4X2 LC | Removal / Fitting | 120AR+25524/25 | | | 19/04/2005 | E3-1 |
| | 27JC - TR 6X2 Pusher | | | | | | |
| | 27RC - PR 6x2 | | | | | | |
| | 27SC - PR 4x2 | | | | | | |
| | 27TC - TR 4x2 | | | | | | |
| RENAULT PREMIUM DXi 11 EURO 3 | 27BC - TR 4X2 LC | Testing/adjustment | 120AR+25524/25 | | | 19/04/2005 | E3-2 |
| | 27JC - TR 6X2 Pusher | | | | | | |
| | 27RC - PR 6x2 | | | | | | |
| | 27SC - PR 4x2 | | | | | | |
| | 27TC - TR 4x2 | | | | | | |
| RENAULT PREMIUM DXi 11 EURO 3 | 27BC - TR 4X2 LC | Removal / Fitting | 120AR+25524/25 | | | 19/04/2005 | E3-5 |
| | 27JC - TR 6X2 Pusher | | | | | | |
| | 27RC - PR 6x2 | | | | | | |
| | 27SC - PR 4x2 | | | | | | |
| | 27TC - TR 4x2 | | | | | | |
| RENAULT PREMIUM DXi 11 EURO 3 | 27BC - TR 4X2 LC | Testing/adjustment | 120AR+25524/25 | | | 19/04/2005 | E3-6 |
| | 27JC - TR 6X2 Pusher | | | | | | |
| | 27RC - PR 6x2 | | | | | | |
| | 27SC - PR 4x2 | | | | | | |
| | 27TC - TR 4x2 | | | | | | |

## Lining wear indicator

| Range | Family | Title | Variant | Applicability date | | Updating | Page N° |
|---|---|---|---|---|---|---|---|
| | | | | Start | End | | |
| RENAULT PREMIUM DXi 11 EURO 3 | 27BC - TR 4X2 LC | Inspection | 120AR+25524/25 | | | 19/04/2005 | E4-1 |
| | 27JC - TR 6X2 Pusher | | 120AR+25524/25 | | | | |
| | 27RC - PR 6x2 | | 120AR+25524/25 | | | | |
| | 27SC - PR 4x2 | | 120AR+25524/25 | | | | |
| | 27TC - TR 4x2 | | 120AR+25524/25 | | | | |
| RENAULT PREMIUM DXi 11 EURO 3 | 27BC - TR 4X2 LC | Inspection | 120AR+25524/25 | | | 19/04/2005 | E4-1 |
| | 27JC - TR 6X2 Pusher | | 120AR+25524/25 | | | | |
| | 27RC - PR 6x2 | | 120AR+25524/25 | | | | |
| | 27SC - PR 4x2 | | 120AR+25524/25 | | | | |
| | 27TC - TR 4x2 | | 120AR+25524/25 | | | | |

## Hydraulic circuit

## Bleeding

**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.**

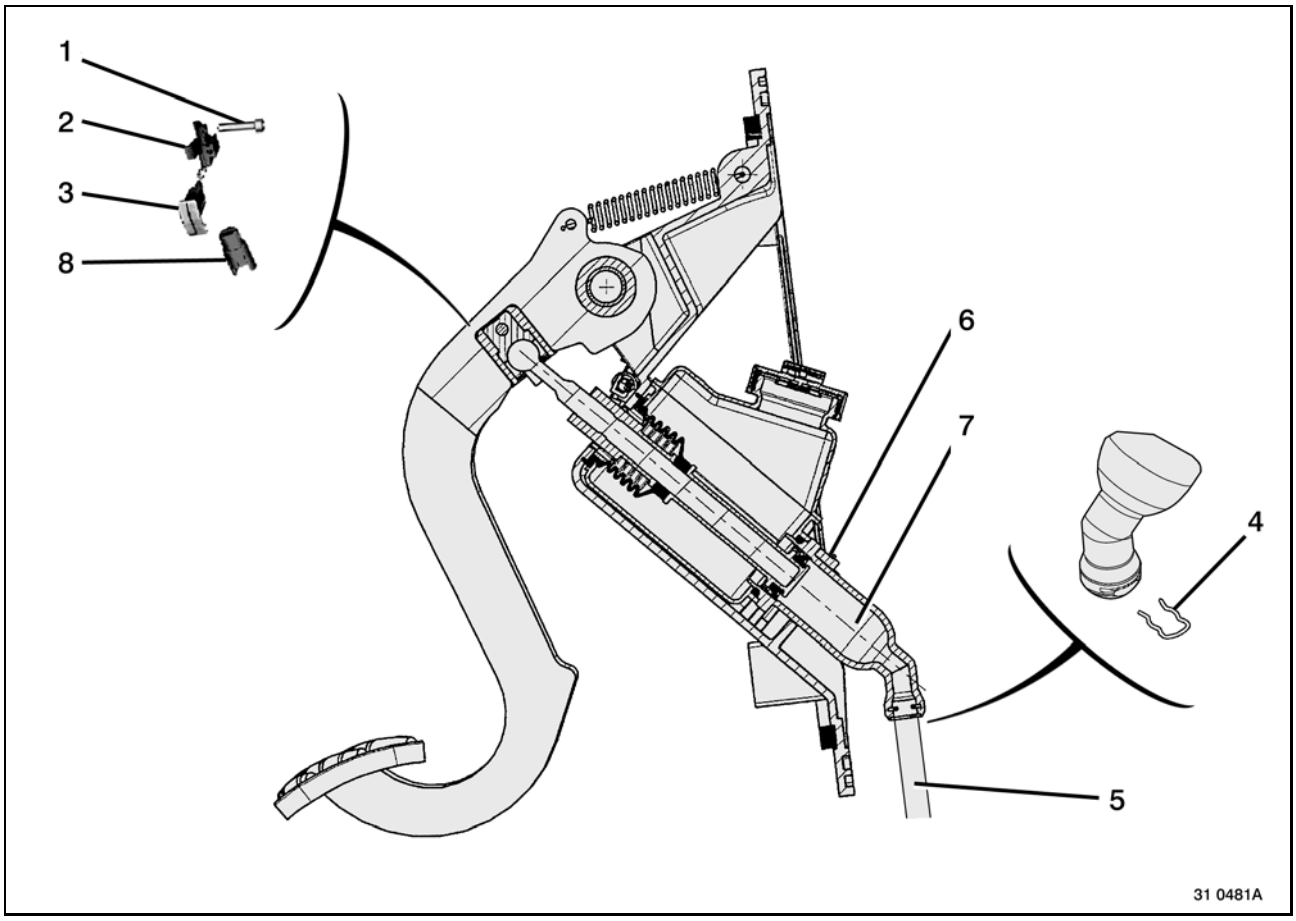
**Bleeding the circuit**
Using a pressure bleeder, pressurize the air tank (2 bars environ). Bleed the slave cylinder through the bleed screw.
The slave cylinder must be in a horizontal position.

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

# Master cylinder

## Removal / Fitting

**Removal**




The item numbers indicated in the drawing on page  correspond to the **sequence of disassembly**.
Remove the pedal gear cover under the steering wheel.
Remove bolt **(1)**.
Remove the bracket **(2)** pad **(3)** assembly from the clutch pedal switch.
Remove clip **(4)** and take out coupling **(5)**.
Remove clamp **(6)**, then master cylinder unit **(7)**.
Remove clip **(8)**.

**Fitting**
To fit, proceed in the reverse sequence to removal.
Fit bolt **(1)**.
Tighten to a torque of **4** $^{\pm 0.6}$ **Nm**.
Bleed the hydraulic system.

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

**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.**

# Slave cylinder

## Generalities

| Manufacturer's reference number | RENAULT TRUCKS reference number | Setting (see page) |
|---|---|---|
| **KONGSBERG 629300** | **50 10 545 581** | E-3-2 |
| **KNORR 0483 005 007** | **74 08 171 512** | E-3-6 |

Depending on the assembly.
To gain access to the underside of the gearbox, remove the soundproofing screen.
After finishing your work, put the soundproofing screen properly back into place.

**Soundproofing screens**
Any damage to the interior protective film of the screen requires replacement of the screen.
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).
The application of any solvent or paint on the inner and outer faces of soundproofing screens is strictly forbidden.

## Removal / Fitting

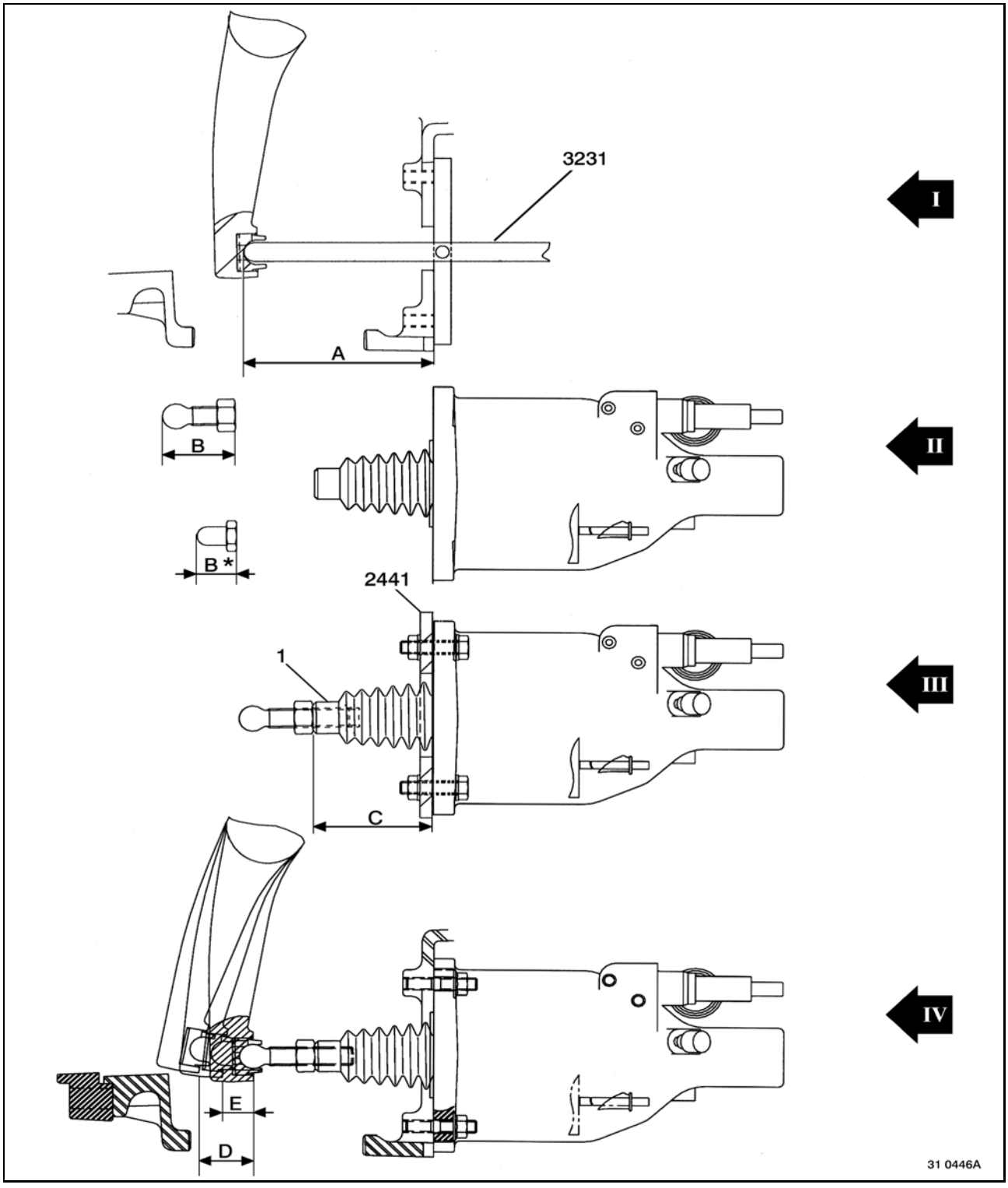
**Clutch type(s): VALEO 430 DTE / SACHS MFZ 2.400**

**Removal**
Before commencing removal, refer to "Generalities".
See page(s) E-3-1.
Exhaust the auxiliary equipment air circuit.
Remove unions.
Remove slave cylinder.

**Fitting**
See page(s) E-3-2.
To fit, proceed in the reverse sequence to removal.
Tighten the bolts securing the slave cylinder to a torque of **$24^{\pm 2}$ Nm**.

## Testing/adjustment

**Clutch type(s): VALEO 430 DTE / SACHS MFZ 2.400**




The item numbers indicated in the text refer to the drawing on page E-3-2.
Dimension **B** and the slave cylinder valve must be re-adjusted whenever any clutch component is changed.
Note down dimension **A** between the fork impression and the clutch servo unit mounting face using tool **3231** and a depth gauge.

*Keep the fork in support during the reading.*

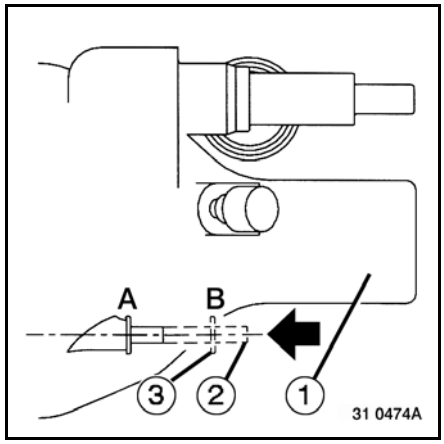
**Clutch type: VALEO 430 DTE**
Adjust dimension **B = A - 69 mm**.
**Clutch type: SACHS MFZ 2.400**
Adjust dimension **B* = A - 64 mm**.

**Adjustment of clutch slave cylinder valve**

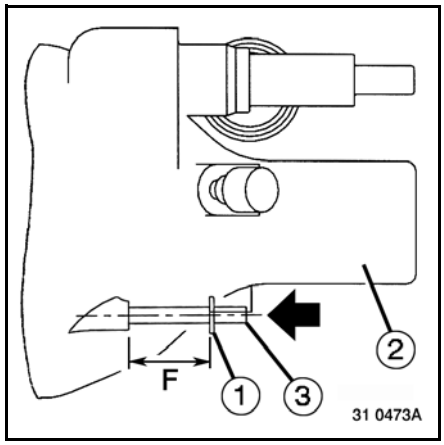
1° Slave cylinder removed: fit tool **2441** to the slave cylinder.
2° Connect up the pipes, bleed the hydraulic system (slave cylinder in the horizontal position).
3° Move control rod **(1)** forwards while actuating the clutch pedal until it becomes hard "**C ≥ 96 mm**".
4° Withdraw tool **2441** and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

Tighten to torque.
See page(s) B-1-6.

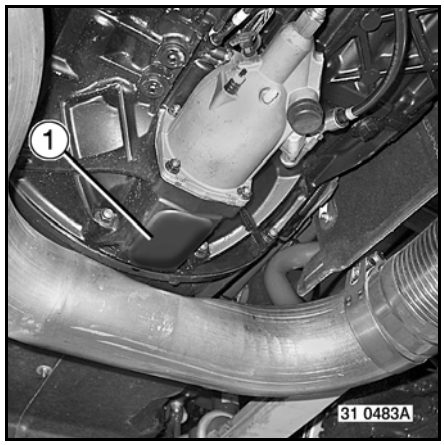
**In case of replacement of the clutch plate:**
Fit and attach slave cylinder **(1)**.
See page(s) E-3-2.
Push rod **(2)** as far as abutment and move pointer **(3)** from position **B** to position **A**.



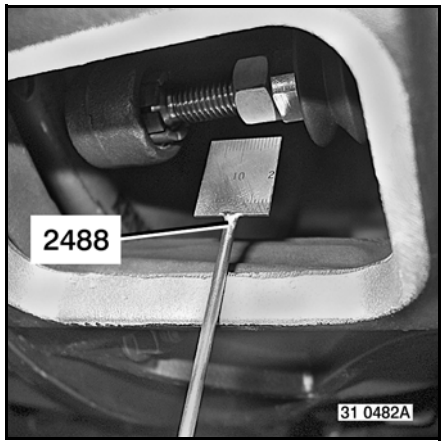

**In case of replacement of the clutch servo:**
To locate the position of pointer **(1)** measure dimension **F**.
Fit and attach slave cylinder **(2)**.
See page(s) E-3-2.
Push rod **(3)** as far as abutment and reposition the pointer **(1)** while ensuring dimension **F**.



**Checking the clutch travel**
Remove cover **(1)**.
Check the effective travel at the slave cylinder (**D = 22$^{\pm 1}$ mm** - see page E-3-2).
Use tool **2488**.



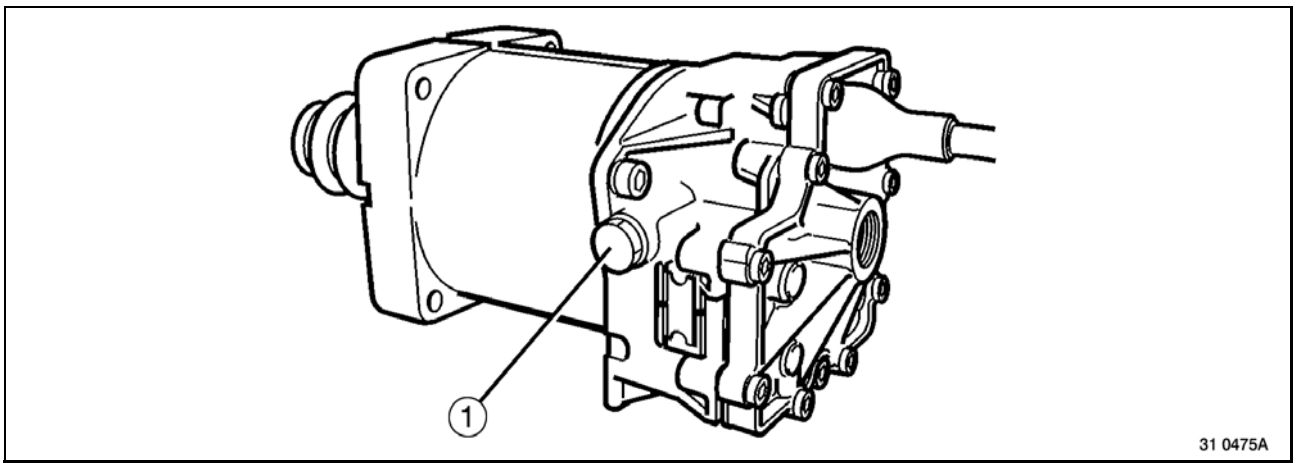

**Testing the range change control**
Check the slave cylinder micro-valve travel.
Disconnect the plastic tube at valve outlet **22**.
Slowly depress the clutch pedal and measure the amount of movement of the slave cylinder push-rod until the moment when air begins to escape from valve outlet **22**.
This dimension should correspond to **E = 16$^{\pm 0.5}$ mm**.
If the opening dimension of slave cylinder valve is not obtained, repeat the adjusting operations (see page E-3-3).
Use tool **2488**.
Fit cover **(1)**.



## Removal / Fitting

**Clutch type: SACHS MFZ 430**

**Removal**
Before commencing removal, refer to "Generalities".
See page(s) E-3-1.
Exhaust the auxiliary equipment air circuit.
Remove the union.
Unplug connector.




**REMOVE PLUG (1) TO DISCHARGE THE AIR REMAINING IN THE SLAVE CYLINDER. PLUG (1) MAY BE PRESSURIZED.**

Remove slave cylinder.

**Fitting**
To fit, proceed in the reverse sequence to removal.
Tighten plug **(1)** to a torque of **$22^{\pm 3}$ Nm.**
Tighten the bolts securing the slave cylinder to a torque of **$24^{\pm 4}$ Nm**.
Calibrate the clutch travel (see page E-3-6).

## Testing/adjustment

**Clutch type: SACHS MFZ 430**

**Calibrating the clutch travel**
Plug the RENAULT TRUCKS test tool into the vehicle diagnostic socket.
**Test N° 4320 - 07 - 03 - 01**.

*To perform calibration, connect the test tool to the RENAULT TRUCKS network.*

**There are 2 possible cases:**
**Calibration must be performed whenever a mechanical clutch component is replaced. For this case, the value X1 is changed and must be brought up to date in the after-sales fleet file.**
**Calibration must be performed whenever the clutch slave cylinder, gearbox, gearbox management ECU or software is replaced. For this case, the value X1 is not changed and can be recuperated from the after-sales fleet file in order to perform calibration.**

**Conditions for performing calibration**
- Pressurize the auxiliary equipment air circuit.
- Apply the parking brake.
- Battery voltage higher than **20 V**.
- Gearbox temperature higher than **+15 °C**.
- Engine shut-down.

**Clutch slipping point**

**The clutch slipping point is to be calibrated whenever the clutch travel is calibrated.**

Start the engine to perform the calibration.

**Checking the clutch travel**
Stroke: **$24^{\pm 2}$ mm**

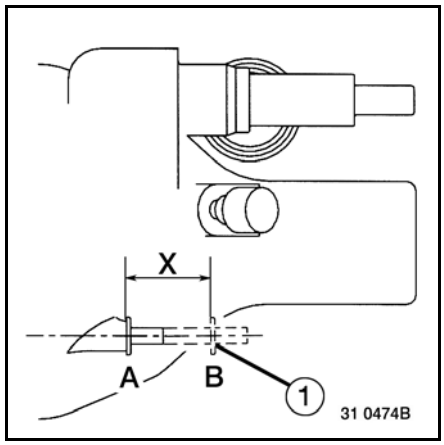
# Lining wear indicator

## Inspection

**Clutch type(s): VALEO 430 DTE / SACHS MFZ 2.400**
Before performing calibration, refer to "Generalities" page E-3-1).

**In the event of removal of the slave cylinder, without replacement of the clutch plate, mark the position of pointer (1) before dismantling and put it back in the same position upon assembly.**

The position of pointer **(1)** corresponds to:
**A** = new lining.
**B** = worn lining.
**X = 25 $^{\pm 1}$ mm**.




## Inspection

**Clutch type: SACHS MFZ 430**
Plug the RENAULT TRUCKS test tool into the vehicle diagnostic socket.
**Test N° 4111 - 08 - 02 - 03**.

*To perform calibration, connect the test tool to the RENAULT TRUCKS network.*

**Fault code**
**PID 36 00**: clutch worn.

**Conditions for conducting the test**
- Pressurize the auxiliary equipment air circuit.
- Apply the parking brake.
- Battery voltage higher than **20 V**.
- Gearbox temperature higher than **+15 °C**.
- Engine shut-down.

The clutch plate must be replaced when **X1 - X2 = 34 mm**.
The value **X1** corresponds to a new clutch plate.
The value **X2** corresponds to the clutch plate wear at the moment the measurement is made.