

GENERAL SPECIFICATIONS : CLUTCH

Clutch type : "push type" clutch with hydraulic control.

1. Application

Vehicle	Engine type	gearbox
2.0 i	EW10A (RFJ)	BE4R
1.6 HDi 16v	DV6UTED4 (9HU)	BE4R
2.0 HDi 16v	DW10UTED4 (RHK)	ML6C
2.0 HDi 16v	DW10BTED4 (RHR)	ML6C

N.B. : The DW10 have a double damping flywheel (DVA).

2. Data

Engine type	Clutch mechanism brand	Clutch mechanism type	Clutch friction plate external diameter (road wheel side) (mm)	Clutch friction plate internal diameter (road wheel side) (mm)	Friction plate type	Thrust bearing brand
EW10A	ValÚo	230 DNG 5100 +	228,6	155	F810 DS	SKF
DV6UTED4	ValÚo	230 DNG 5100 +	228,6	155	F810 DS	SKF
DV6UTED4	LUK	235 P 4800	234	165	F810 DS	SKF
DW10UTED4	LUK	235 SAC 8200	235	150	F810 DS	SKF
DW10BTED4	LUK	235 SAC 8200	235	150	F810 DS	SKF

3. Features of luk (Sac) clutches

LUK (SAC) clutch discs do not have damper hubs. The noise generated by the gearbox is filtered by the double dampin flywheel (DVA) and not by the clutch disc hub.

The LUK clutch mechanism includes an automatic wear adjustment device that requires a special tool for refitting.

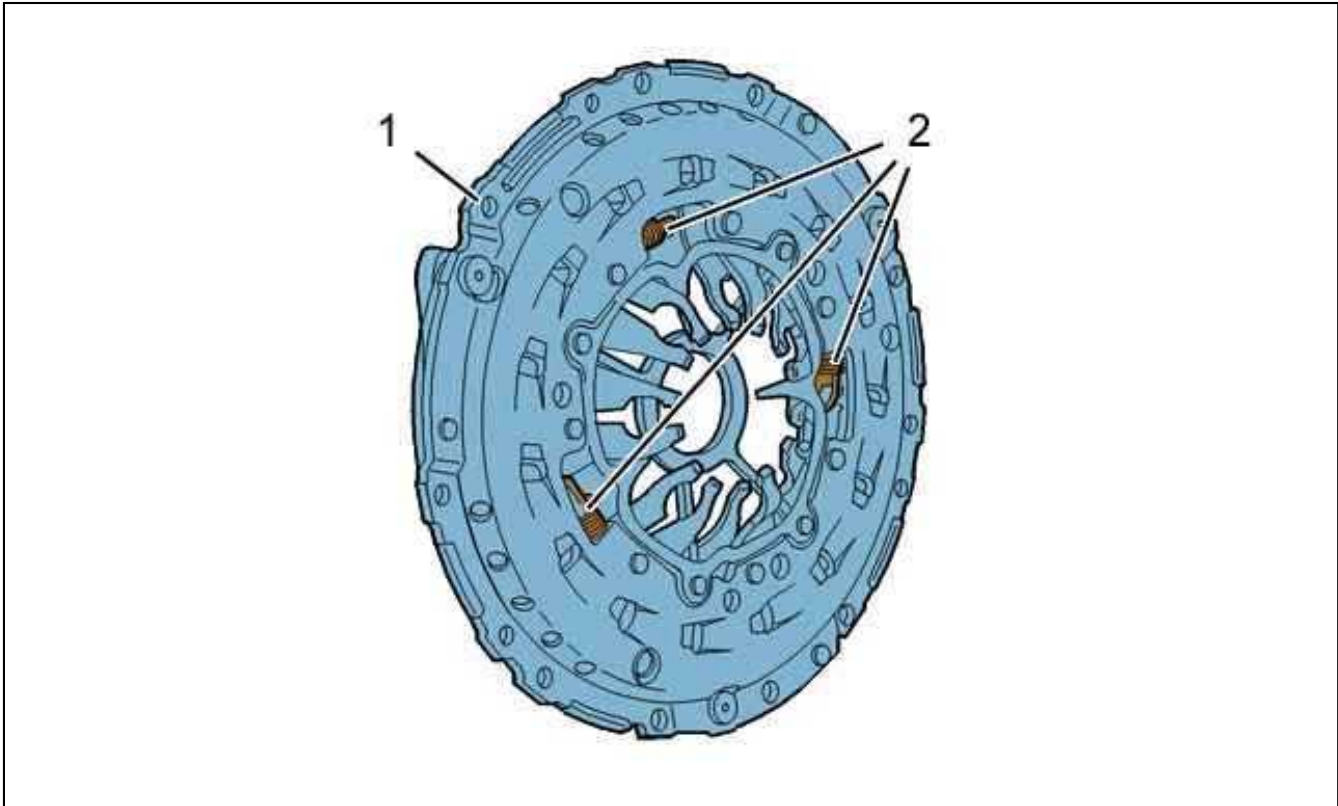


Figure : B2BP2PYD

- (1) Automatic play adjustment mechanism.
- (2) Compensation springs.

N.B. : On refitting, place the face of the clutch disc on which the N° PSA 96 XXX XXX 80 is indicated on the gearbo
side.

TIGHTENING TORQUES : CLUTCH

1. Clutch mechanism

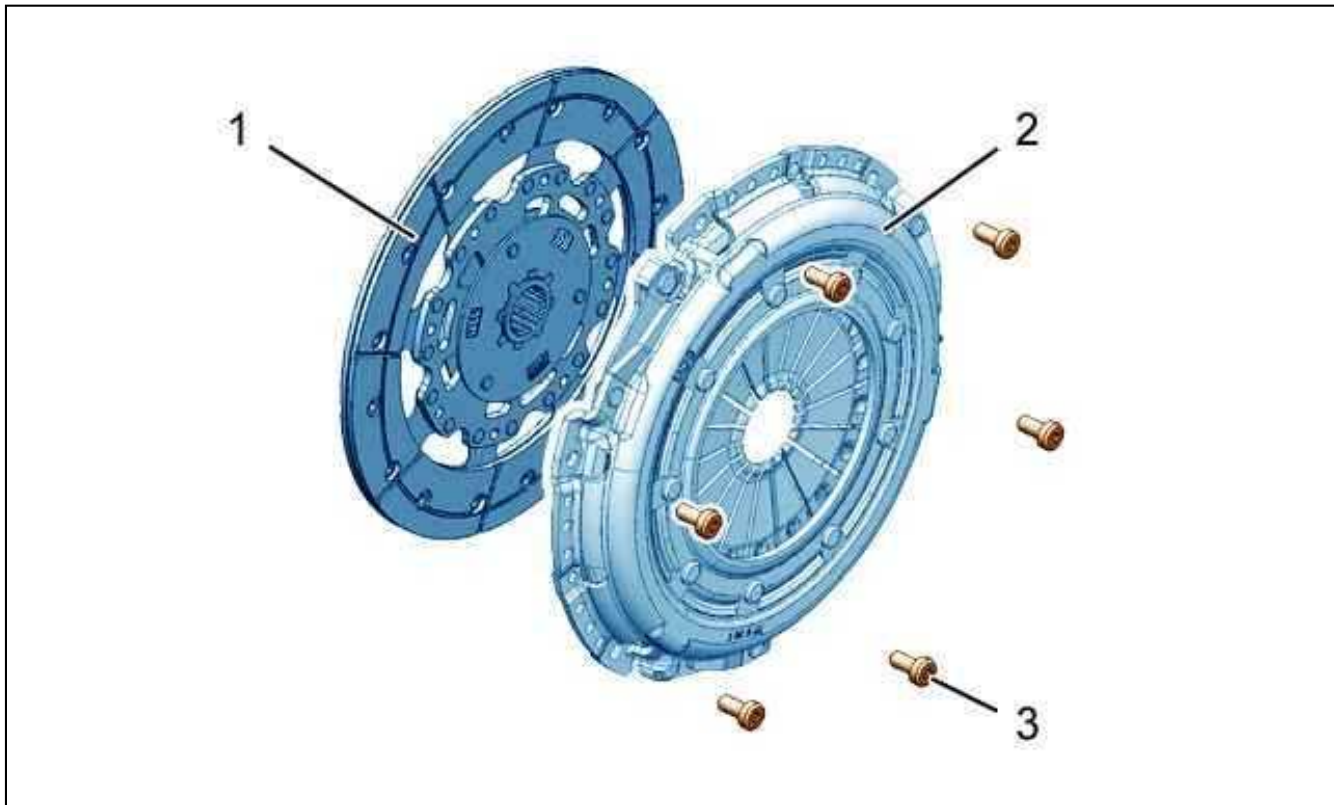


Figure : B2BP2QKD

- (1) Clutch friction plate.
 (2) Clutch mechanism.
 (3) Clutch mechanism fixing screws (2).

Reference	Designation	engine	Tightening torque
(3)	Clutch mechanism fixing screws	EW	2 daNm
		DV	
		DW	

2. Engine flywheel

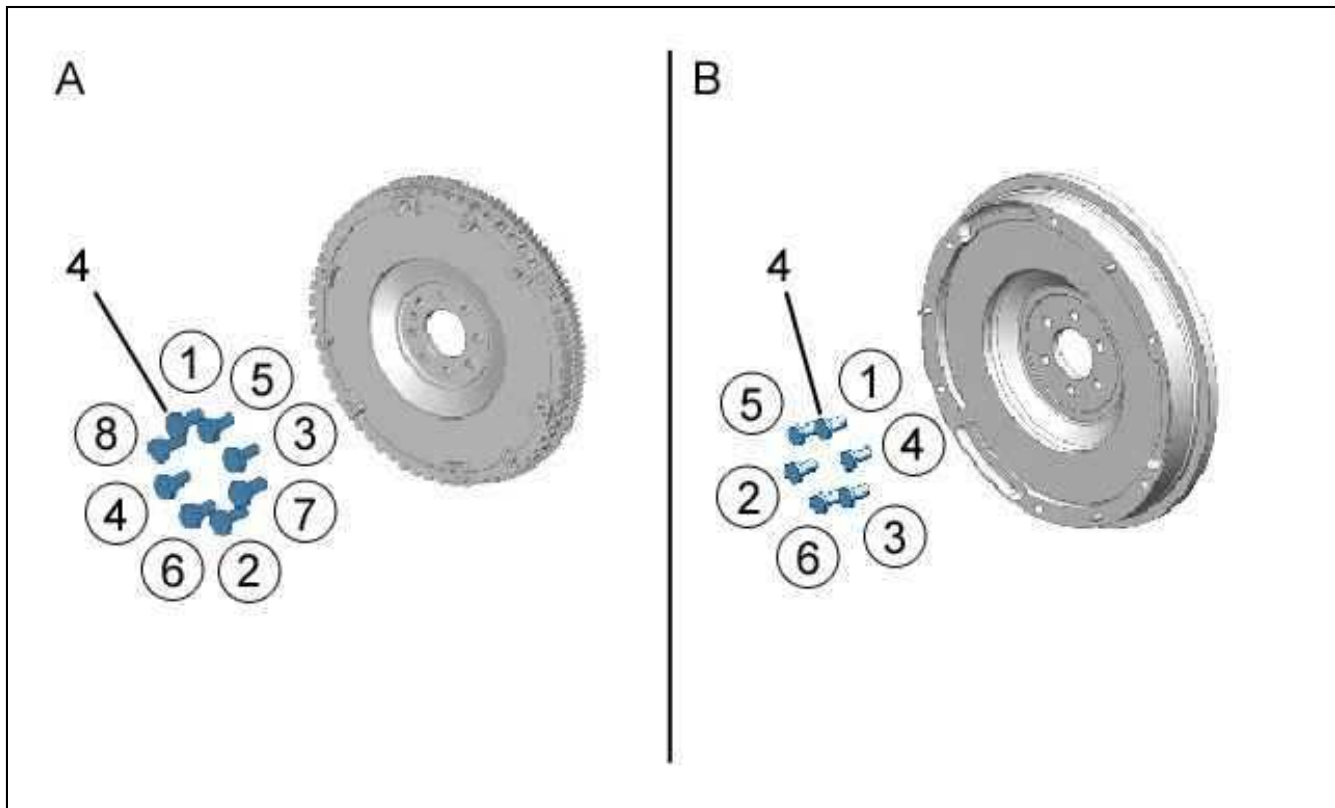


Figure : B2BM004D

(4) Flywheel bolts.

CAUTION : Tighten the bolts in the order indicated.

2.1. Single flywheel

"A" Method of tightening for the flywheel screws (engine version EW) :

- Pre-tighten to 2,5 daNm (None)
- Slackening
- Pre-tighten to 0,8 daNm
- Tightening torque to 2 da.Nm
- Angular tightening of 21 °

"B" Method of tightening for the flywheel screws (engine version DV) :

- Tightening to 3 m.daN
- Angular tightening of 90 °

2.2. Double damped flywheel (DVA)

Reference	Designation	engine	Tightening torque
(4)	Doubledamped flywheel screws	DW	4,8 daNm

REMOVING - REFITTING : HYDRAULIC CLUTCH CONTROL

1. Removing

Put the vehicle on a hoist.

Remove the under engine protection .

Remove the brake fluid reservoir filter .

Drain :

- The brake fluid reservoir (Maximum) ; Using a syringe
- The hydraulic clutch control circuit by means of the bleed screw

1.1. Hydraulic clutch control master cylinder

Uncouple the intermediate union located under the brake servo.

Remove the sound insulation under the instrument cluster.

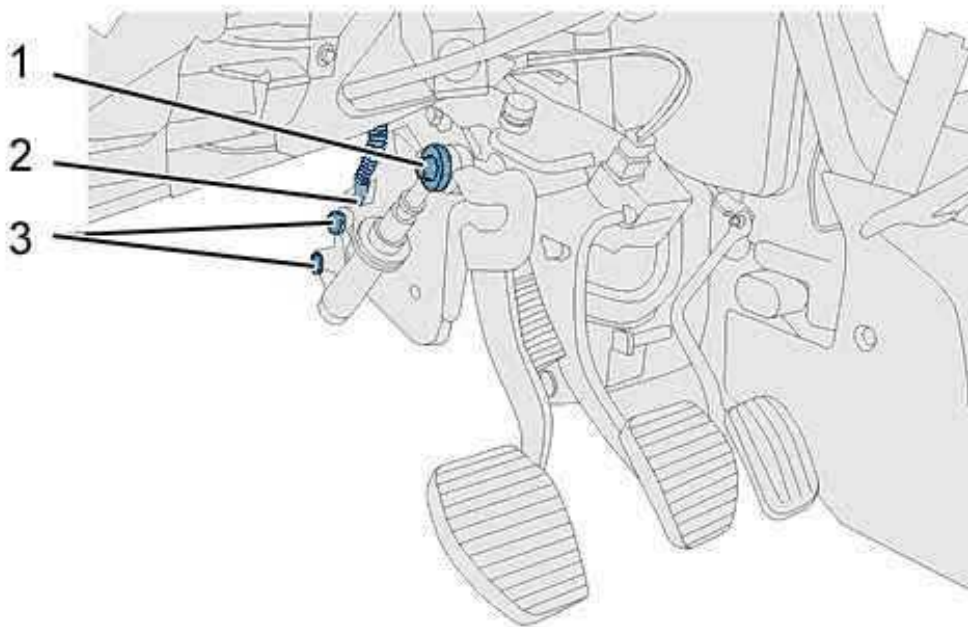


Figure : B2BP2RRD

Remove the bolts (3).

Unclip and disengage the clutch pedal ball joint (1).

Uncouple feed pipe union (2).

N.B. : Prepare for the flow of brake fluid.

Remove the hydraulic clutch control master cylinder.

1.2. Hydraulic clutch control slave cylinder

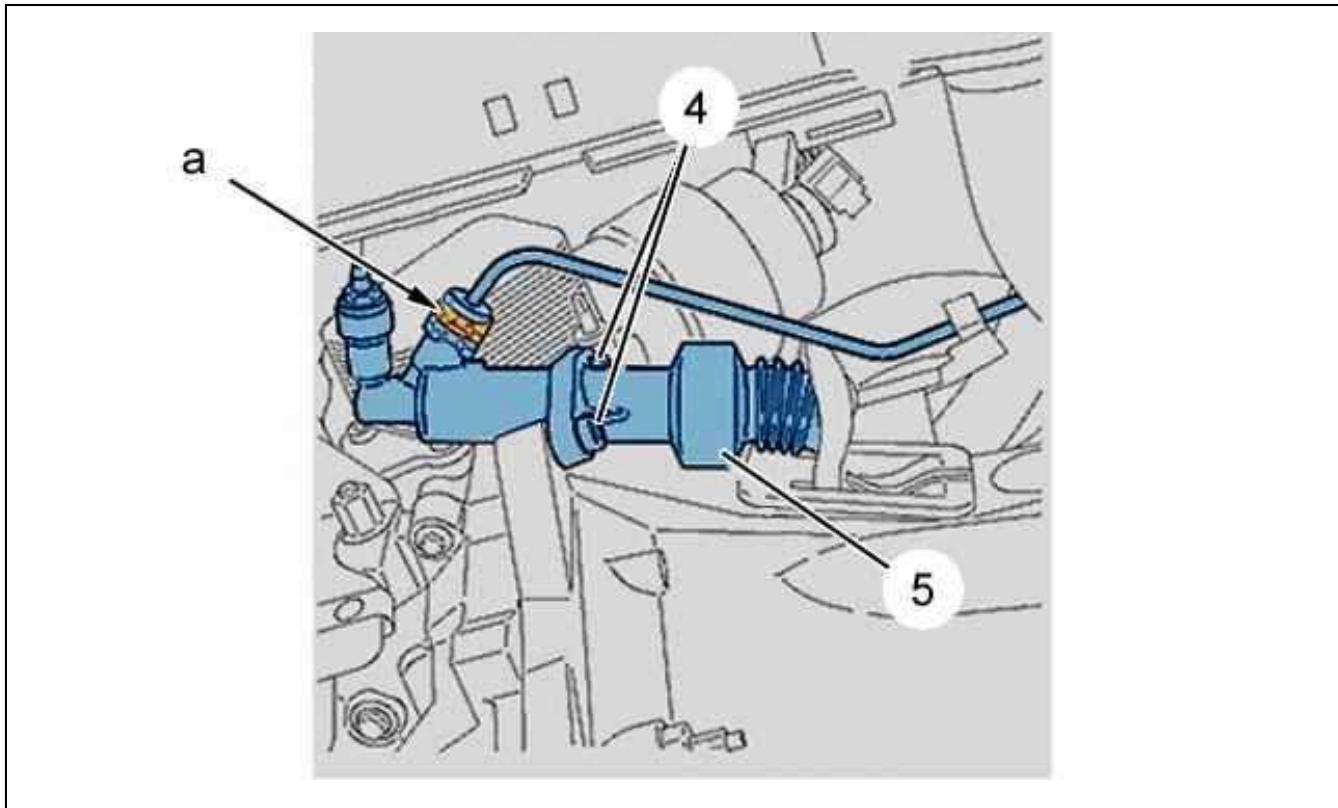


Figure : B2BP2RSD

Unlock the clip at " a " ; Uncouple the pipe .

CAUTION : Disengage the hydraulic clutch control slave cylinder carefully to prevent a rapid release of the rod .

Remove :

- The bolts (4)
- The hydraulic clutch control cylinder (5)

CAUTION : Do not press the clutch pedal with the hydraulic clutch control slave cylinder removed.

2. Refitting

2.1. Hydraulic clutch control slave cylinder

Lightly grease the end piece of the hydraulic clutch control slave cylinder (5) rod With grease MOLYKOTE BR2 PLUS.

Engage the hydraulic clutch control slave cylinder (5) progressively.

Refit the bolts (4) ; Tighten to 2 daN.m.

Couple the hydraulic pipe ; Lock the clip at " a ".

2.2. Hydraulic clutch control master cylinder

Grease the ball joint (1) With grease KLUBERPASTE 46MR401.

Clip the ball joint (1).

Refit :

- The hydraulic clutch control master cylinder
- The bolts (3) ; Tighten to 0,8 daN.m
- The hydraulic supply union (2)
- The sound insulation under the fascia

Couple up the intermediate union located under the brake servo .

2.3. Refitting (continued)

Bleed the clutch hydraulic control  .

Refit the under-engine protection .

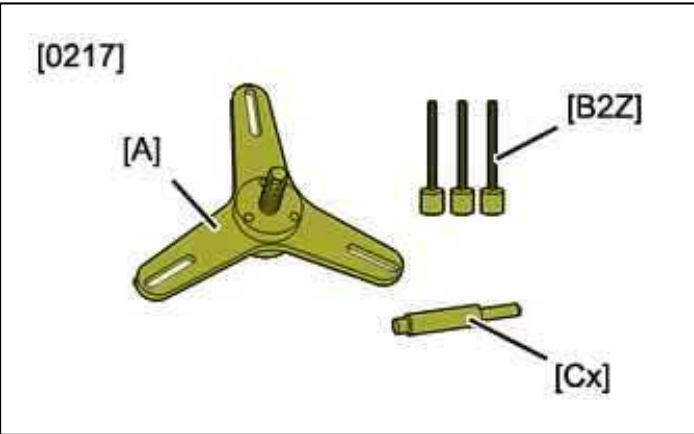
REMOVING - REFITTING : CLUTCH MECHANISM

ESSENTIAL : Observe the safety and cleanliness instructions ⓘ .

CAUTION : In order to improve the centering of the friction plate and to eliminate engine jerks, vibrations and noise compress the clutch mechanism when tightening the fixing bolts ; Using tool [0217].

CAUTION : Always replace the clutch bearing when replacing the clutch mechanism or the clutch disc.

1. Tooling

Tool	Reference	Description
 Figure : E5AG04PT	[0217]	Clutch mechanism compression tool
	[0217-A]	Clutch mechanism compressor
	[0217-B2Z]	Retaining rod (Ø 8 mm)
	[0217-Cx]	Clutch centring drift (According to gearbox (see table below))

Clutch centring drift							
Engine types	[0217-C1]	[0217-C2]	[0217-C3Z]	[0217-C4]	[0217-C5Z]	[0217-C6Z]	[0217-C7]
DV4		BE	MA/MAP				
DV4 C						MA/MAP	
DV6	MCM	BE	MCP				
DV6UC			BE				
DV6DU (M)			BE				
DV6C (M)			MCP/ML		MCP/MCM	BE	
DV6D (M)			BE/MCP		MCP		
DV6E (M)			BE				
DW10	ML/BE		MCP		MCP		
DW12	ML						W6MBA
4B12							W5MBA
EB0			MA				
EB2			MA/MAP				
EB2M			MA/MAP				

EC5			MA			BE	
EP3 - EP3C			BE/MA/MAP				
EP6 - EP6C (M)			BE/MA/MCM/ MCP				
EP6CDTR					MCM		
EP6DTS					MCM		
EP6CDT			MCP		MCM/MCP		
EP6CDTX					MCM		
ES9				ML			
ET3			MA/MAP				
EW10						BE/MCP	
EW12						BE	
EW6						BE	
EW7						BE	
TU1			MA				
TU3			MA/MAP				
TU5			MA/MAP			BE	
SOFIM	MLGU5			M40			
PUMA	MLGU5/MLGU6						
1,3 DTE					MTM/MTA		

2. Removing

Remove the gearbox.

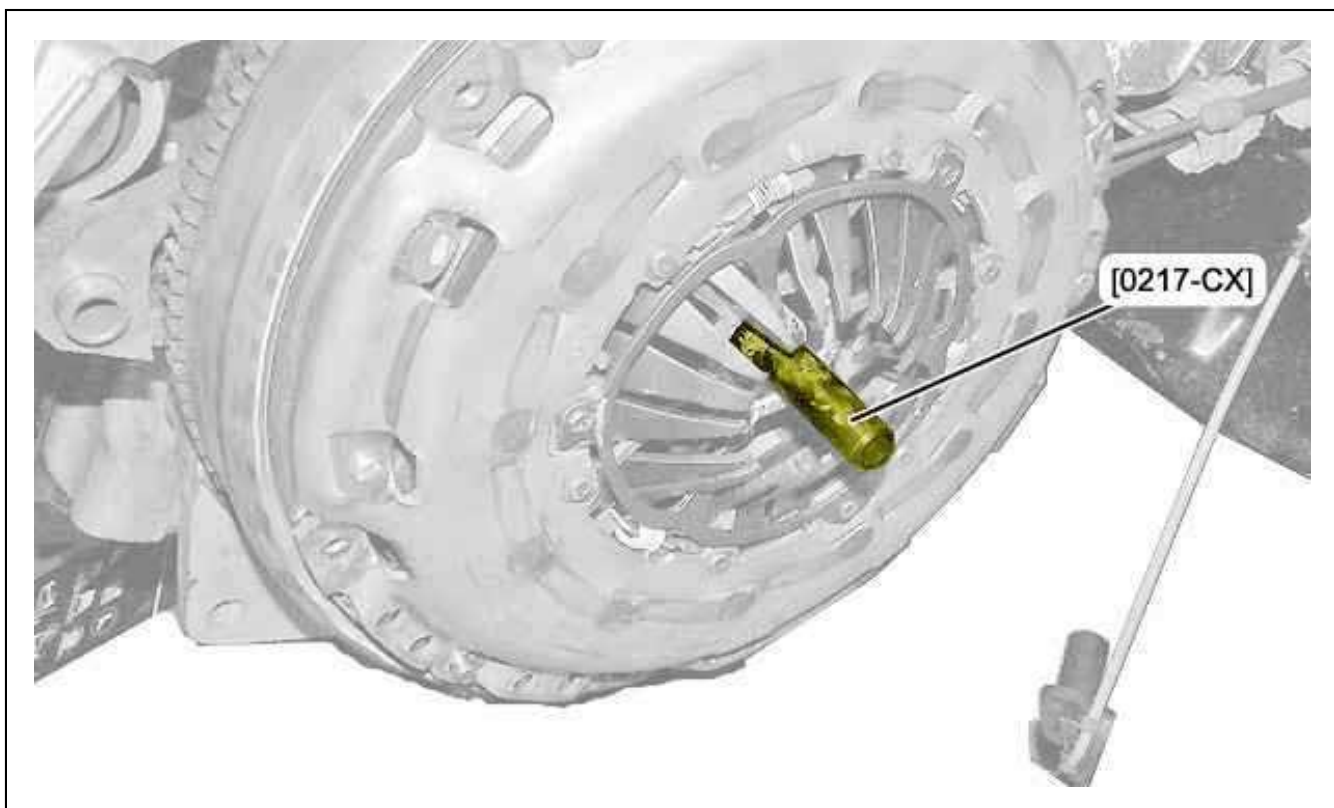


Figure : B2BG01DD

Fit the tool [0217-CX].

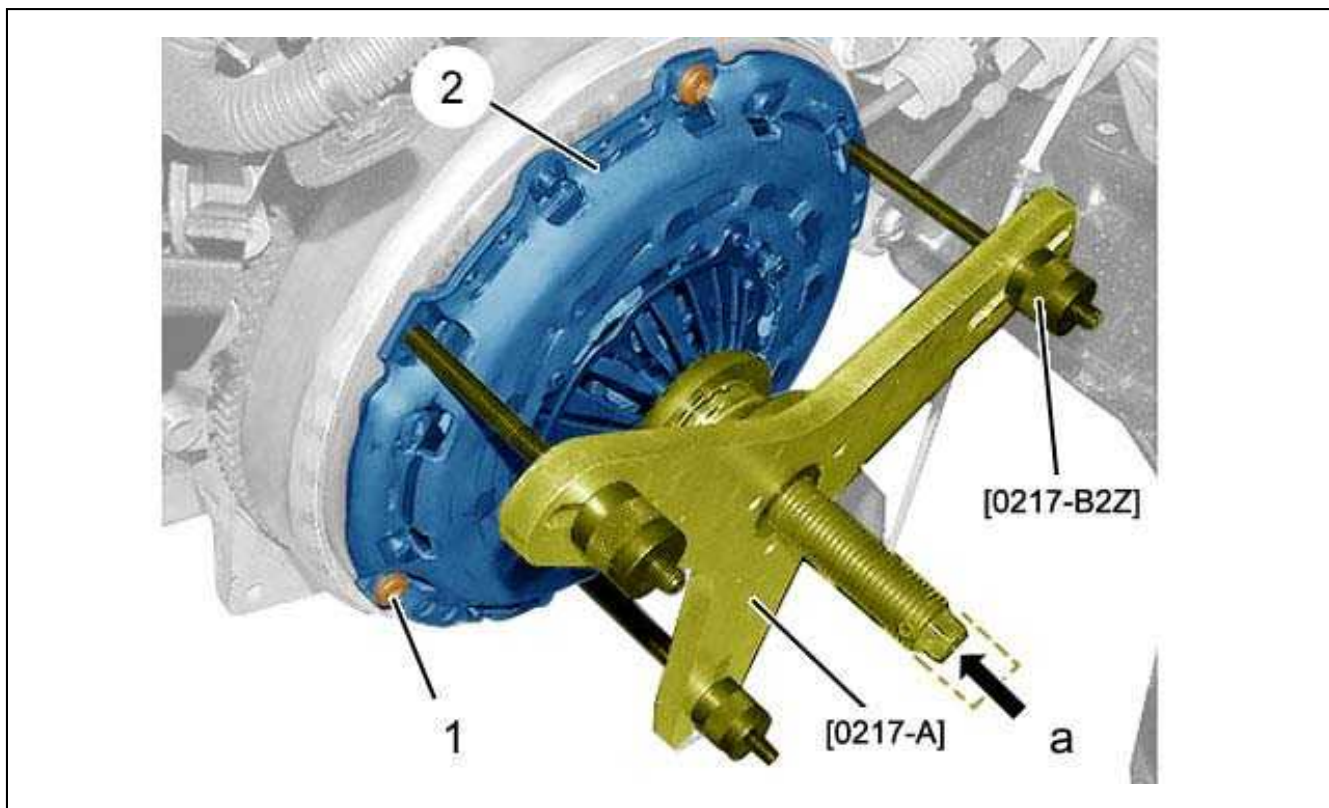


Figure : B2BG08ED

Remove the 3 bolts (1) (Every second bolt).

Position the tools [0217-A] and [0217-B2Z] on the clutch mechanism (2).

CAUTION : Certains volants moteurs comportent des taraudages débouchants. Ne pas faire dépasser les filetages des 3 tiges de maintien lors du vissage; Risque de déformation du volant moteur secondaire.

Screw in the 3 retaining rods [0217-B2Z] in place of the fixing screws (1) ; Ne pas faire dépasser les filetages.

CAUTION : Lors de la compression du mécanisme d'embrayage ; Ne pas franchir de point dur lors du serrage de la vis centrale de l'outil [0217-A]. Le serrage ne doit pas excéder 10 tours dans le sens horaire.

Compress the clutch mechanism (2) with the central bolt of tool [0217-A] (at "a").

Finish removing the remaining bolts (1).

Release the clutch mechanism (2) by moving the central bolt of the tool [0217-A] (at "a").

Remove tools [0217-A] and [0217-B2Z].

Remove :

- The clutch mechanism (2)
- The clutch disc

3. Preparation for removal

3.1. Checking - Cleaning

Visually check :

- The flywheel face for damage or scores
- The flywheel for wear
- The condition of the starter ring gear
- The clutch mechanism (2)

If there is oil in the clutch mechanism (2) :

- Contrôler l'état de la bague d'étanchéité du vilebrequin
- Contrôler l'état de la bague d'étanchéité de l'arbre primaire

CAUTION : Ne pas réutiliser un disque d'embrayage dont le moyeu a des traces d'oxydation ou traces de graisse.

Désoxyder et dégraisser les pièces suivantes ; Using a degreaser **Index "N1"** ⓘ :

- The clutch housing
- The primary shaft
- The clutch bearing guide (according to equipment)
- The clutch fork (according to equipment)

N.B. : En cas de corrosion importante, utiliser une brosse métallique sans détériorer les pièces.

3.2. Greasing

CAUTION : Respecter rigoureusement l'étape du graissage.

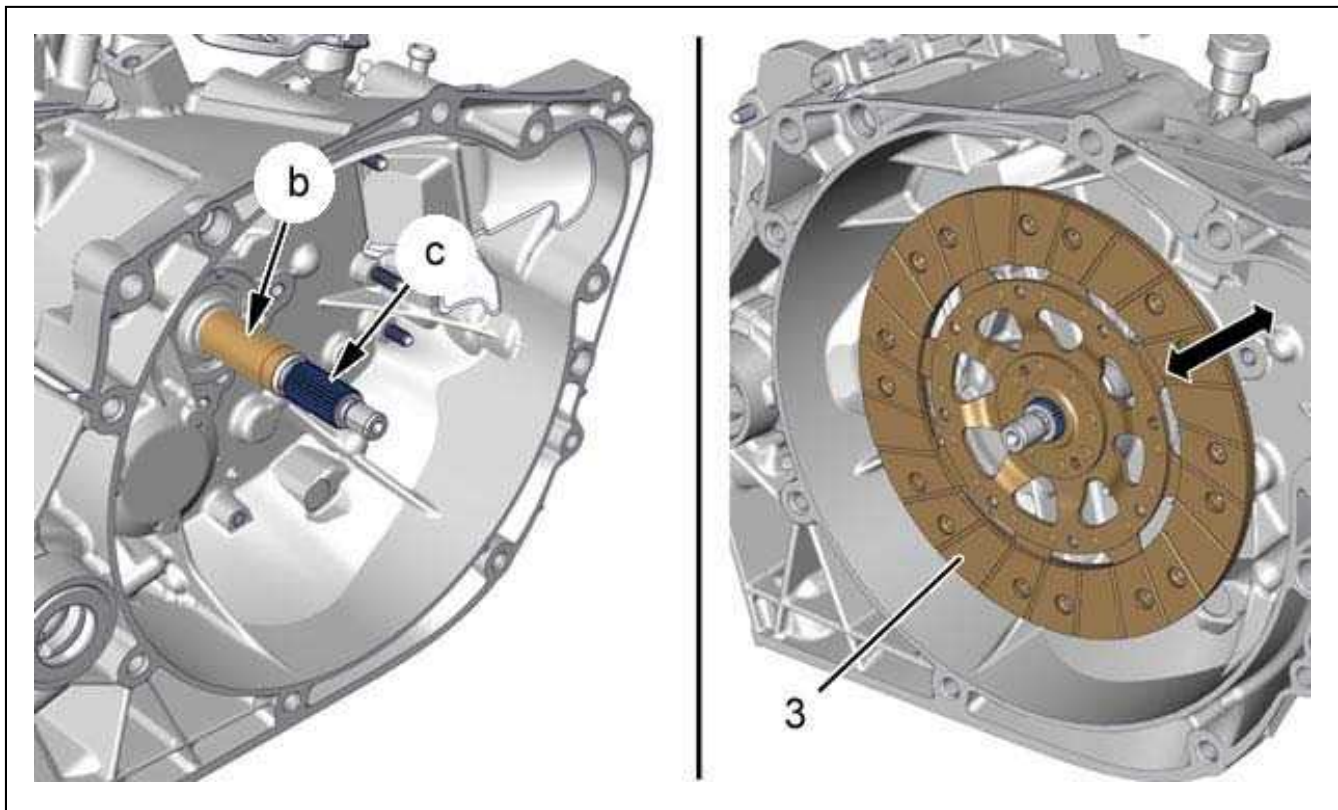


Figure : B2BG08FD

CAUTION : Protect the interior of the clutch housing from splashes of grease.

Vehicles equipped with a gearbox that has a mechanical clutch bearing **Spray a little grease MOLYCOTE G-RAPID PLUS (aerosol) on the splines of the primary shaft and on the clutch bearing guide tube ⓘ** (at "b" and "c").

Vehicles equipped with a gearbox that has a hydraulic clutch bearing : **Grease the splines of the primary shaft with MOLYCOTE G-RAPID PLUS ⓘ** (at "c").

CAUTION : Ne pas souiller la garniture du disque d'embrayage ; Risque de patinage.

Mettre en place le disque d'embrayage (3) sur l'arbre cannelé et effectuer plusieurs translations pour répartir la graisse. Déposer le disque d'embrayage .

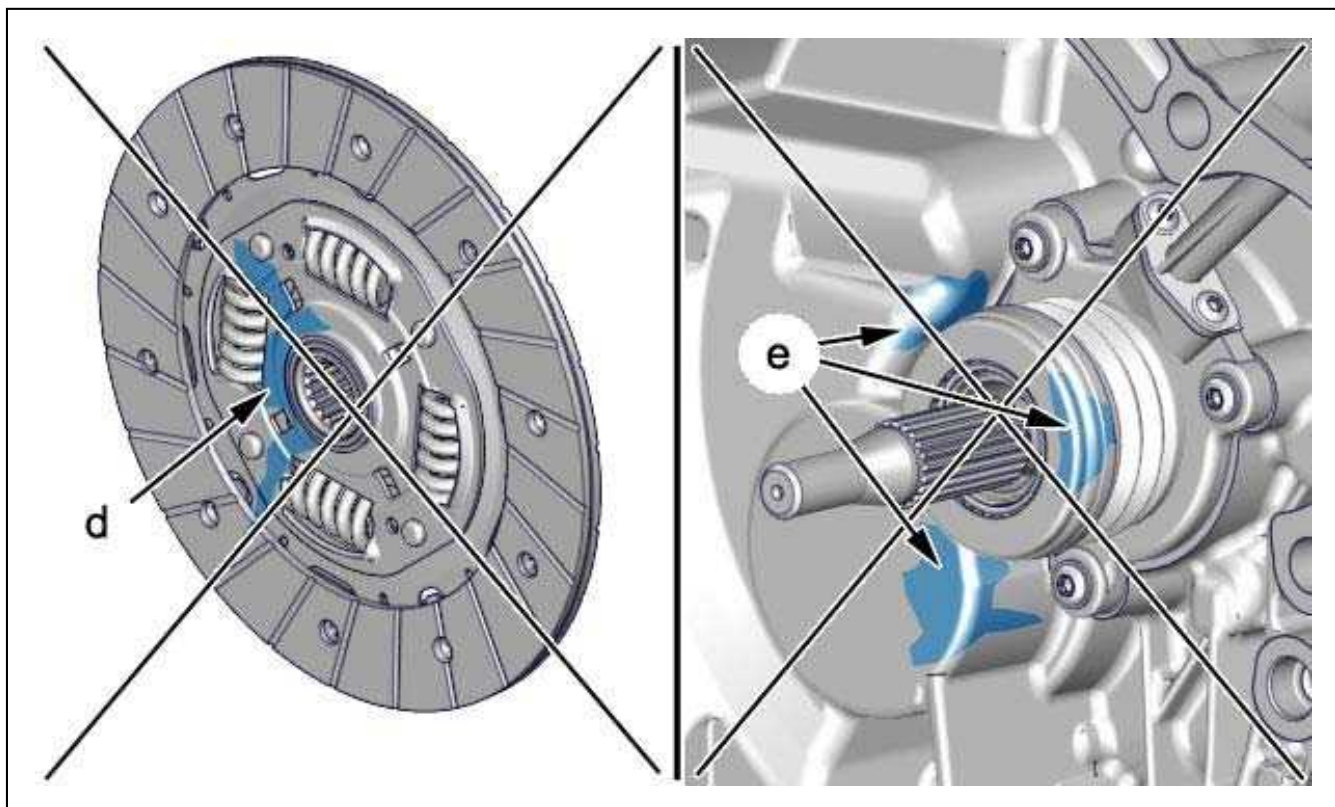


Figure : B2BG08GD

CAUTION : An excess of grease will contaminate the clutch friction plate and cause noise in neutral, slipping or juddering of the clutch.

"d" : Traces de graisse présentes sur un disque d'embrayage pollué suite à un surplus de graisse.

"e" : Traces de graisse présentes sur un carter d'embrayage pollué suite à un surplus de graisse.

CAUTION : Nettoyer toute trace de graisse susceptible d'être projetée sur la friction en rotation.

Remove the surplus grease on the top of the grooves and the end of the input shaft using a cloth.

N.B. : La pellicule de graisse déposée sur les éléments en rotation doit être la plus fine possible afin d'éviter les projections.

4. Refitting

CAUTION : Observe the tightening torque values.

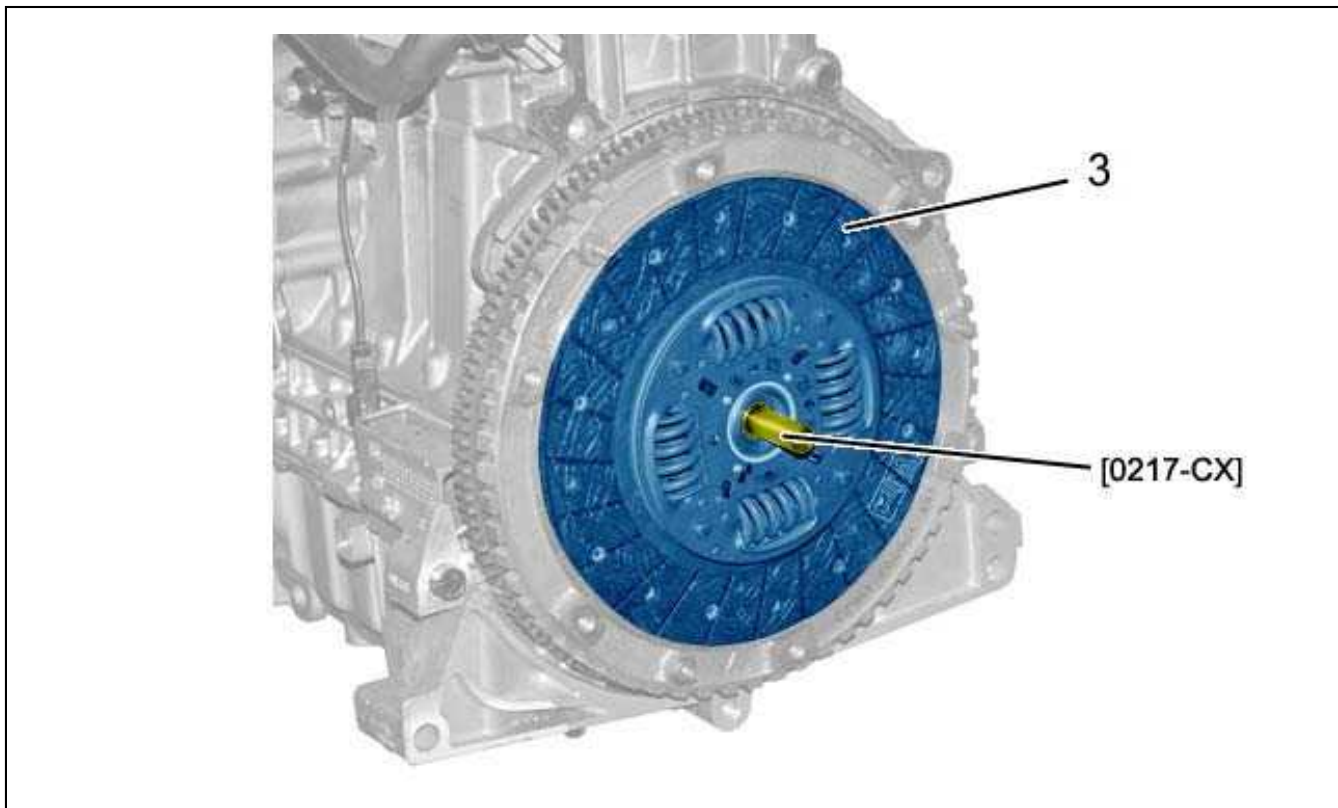


Figure : B2BG08HD

CAUTION : When refitting, place the face of the clutch disc, where the N° PSA 96 XXX XXX 80 is marked, gearbo
end.

Refit the clutch disc (3).

Centre the clutch disc (3) ; Using tool [0217-CX].



Figure : B2BM01JD

CAUTION : The clutch mechanism and disc are paired at the factory and cannot be replaced separately.

CAUTION : Any fitting of a clutch mechanism with automatic free play adjustment (whether new or re-used) must compulsorily be performed using the compression tool [0217].

Refit the clutch mechanism (2).

N.B. : Do not remove the tool [0217-CX].

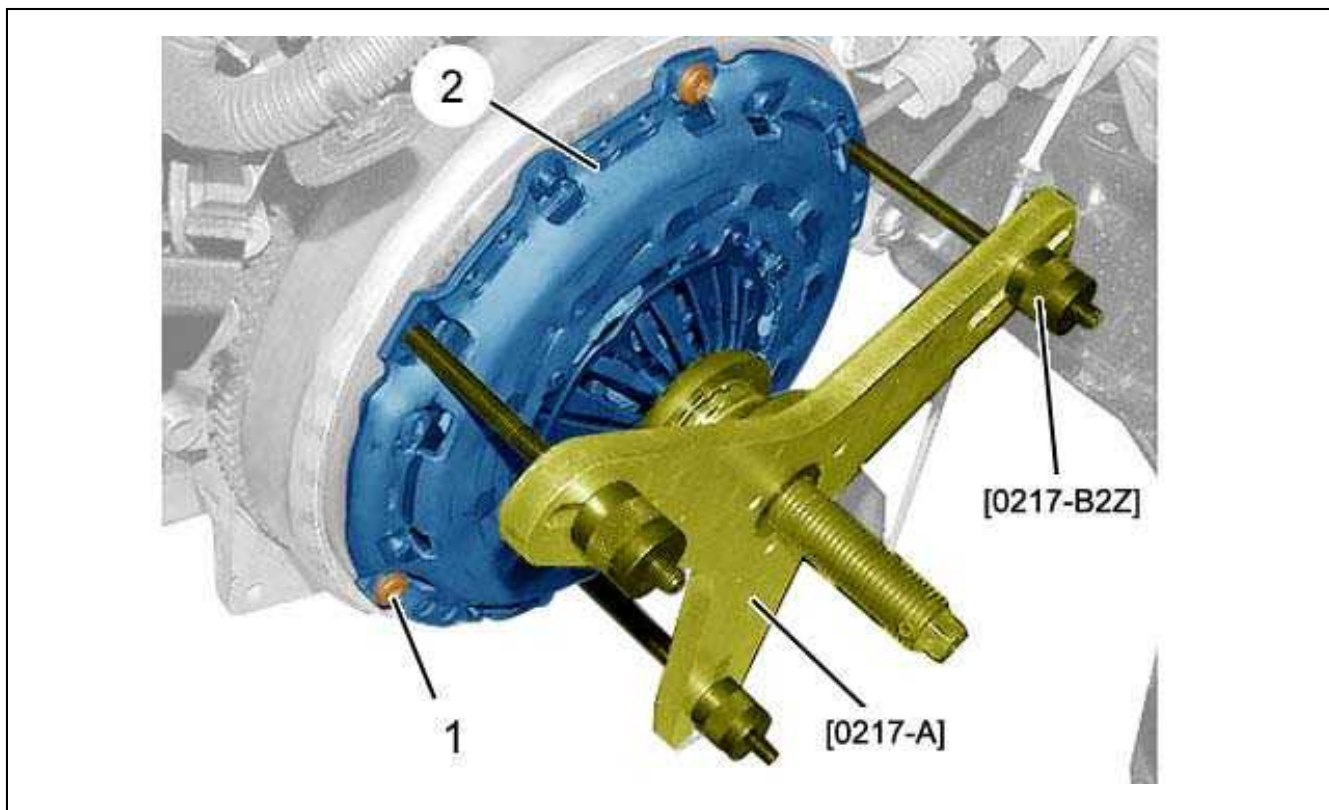


Figure : B2BG08ID

CAUTION : No resetting of the clutch wear adjustment is permitted.

Position the tools [0217-A] and [0217-B2Z] on the clutch mechanism (2).

Screw in the 3 retaining rods [0217-B2Z] in place of the fixing screws (1) ; Ne pas faire dépasser les filetages.
Tighten the 3 bolts (1) by hand.

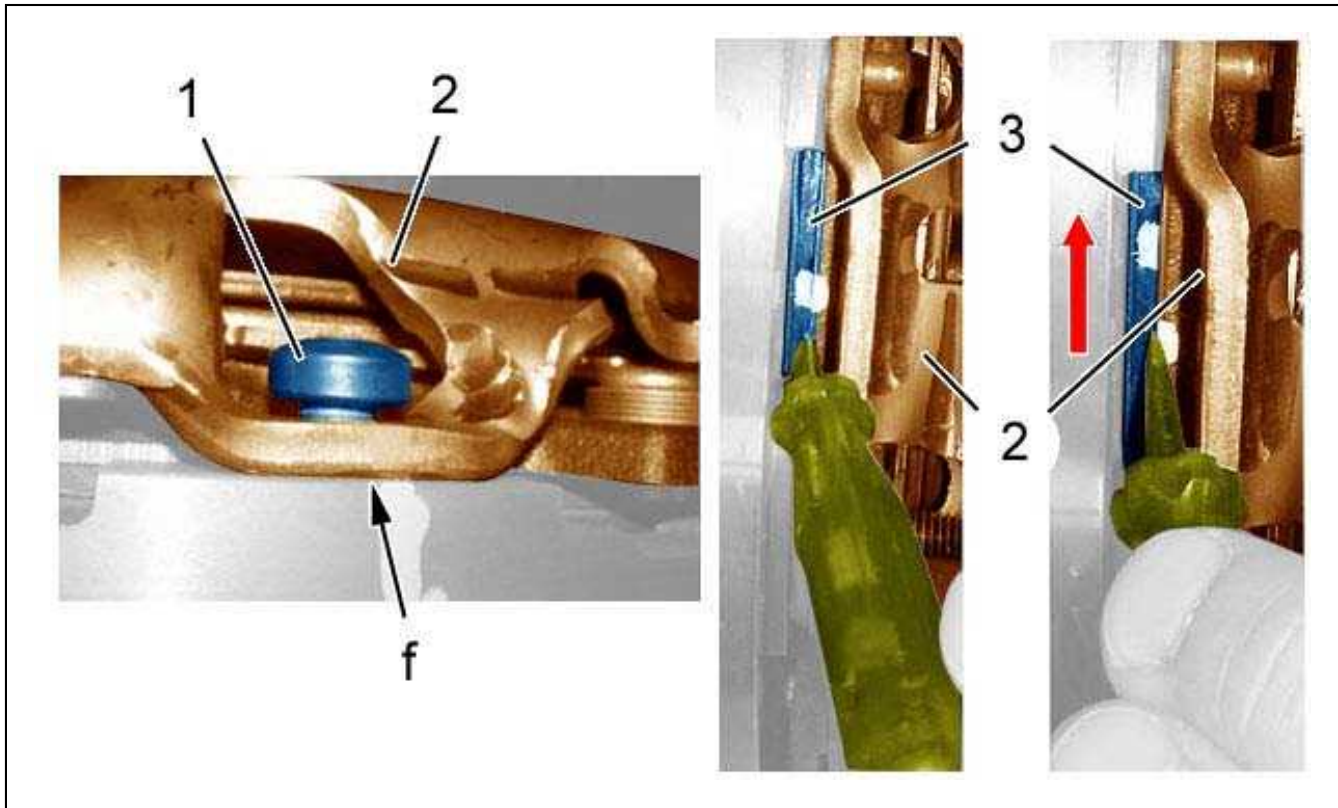


Figure : B2BG08JD

Comprimer progressivement le mécanisme d'embrayage (2) jusqu'au contact sur le volant moteur primaire (at "f").

Contrôler l'absence de friction :

- Appliquer un léger effort sur le disque d'embrayage (3) pour contrôler la rotation ; Using a thin, flat screwdriver
- En cas de rotation difficile ou impossible, poursuivre l'opération de compression du mécanisme d'embrayage très progressivement jusqu'à la rotation (1/8 ème de tour sur la vis de l'outil [0217-B2Z])

En cas d'impossibilité de contrôler l'absence de friction (disque d'embrayage inaccessible), visser la vis centrale de l'ou [0217-B2Z] de deux tours supplémentaires au maximum.

Tighten the 3 bolts (1) to the specified torque.

Unscrew the centre bolt of the tool [0217-A] (at "a") by several turns to detension the clutch mechanism (2).

Remove tools [0217-A], [0217-B2Z] and [0217-CX].

Refit and tighten the remaining 3 bolts (1).

Refit the gearbox.

REMOVING - REFITTING : HYDRAULIC CLUTCH CONTROL

ESSENTIAL : Observe the safety and cleanliness recommendations ⓘ .

ESSENTIAL : Whenever you send any components of the hydraulic clutch control to the guarantee return centre, plug the openings of the components removed, so as to aid the analysis (Use the plugs that are on the new components). There are 2 systems for linking the clutch pedal transmitter: cylindrical link ; ball-joint link.

1. Preliminary operation

Put the vehicle on a hoist.

Disconnect the ancillaries battery.

Remove parts as necessary for removing the component(s) of the hydraulic clutch control.

2. Drain : Clutch control circuit

CAUTION : Mark the level of brake fluid in the reservoir before carrying out the operation.

There is more than one bleed system :

- Single-clip bleed system
- Double-clip bleed system
- Screw bleed system

2.1. Single-clip bleed system

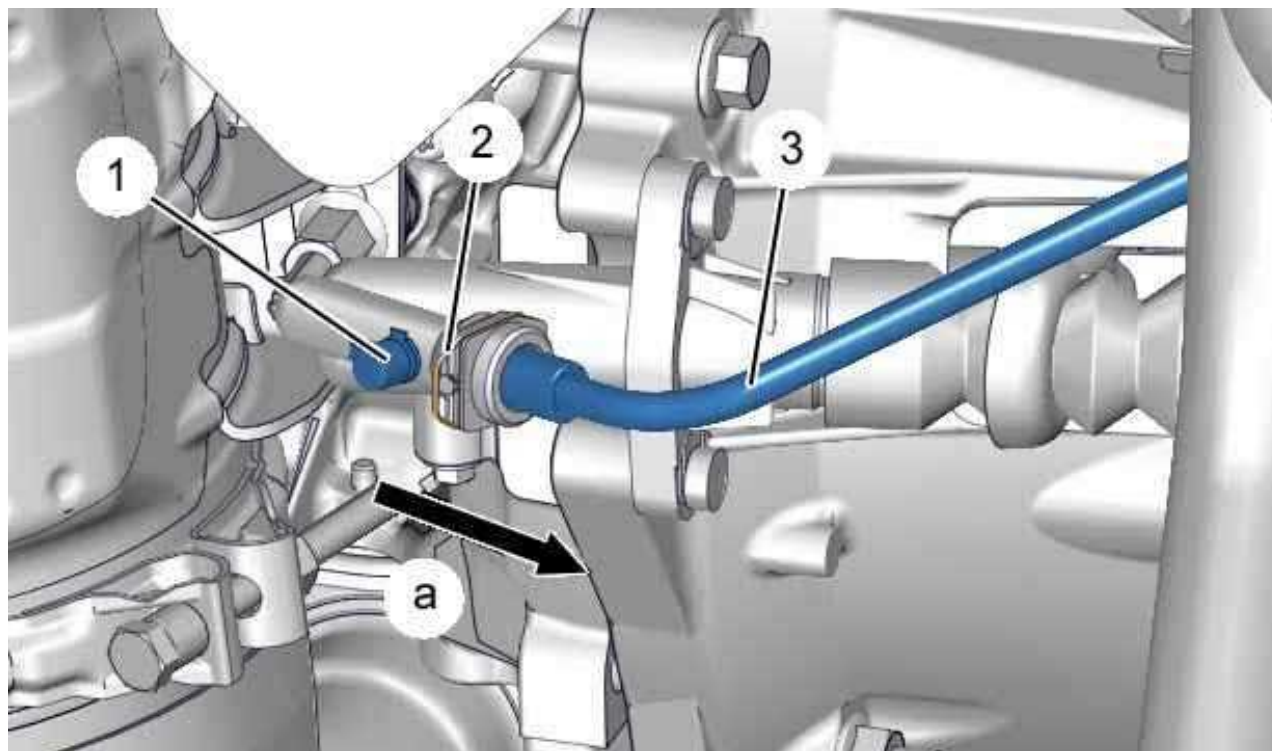


Figure : B2BG07HD

CAUTION : When reconnecting and disconnecting it, handle the hydraulic pipe (3) keeping it straight and do not leverage it to prevent any break.

CAUTION : The use of pliers and screwdrivers to act as a lever on the clip is prohibited, risk of loss of the clutch function.

Remove the protection cap (1) from the bleed orifice .

Store the protection cap in a clean place.

Connect a transparent tube onto the bleed orifice .

CAUTION : The end of the transparent pipe must be submerged into the brake fluid.

N.B. : The press on the clip (2) may require considerable force.

Press on the clip (2) and pull on the hydraulic pipe (3) over approximately 5 mm to free the bleed aperture (In the direction of the arrow "a").

Allow the brake fluid to flow out by gravity.

Push down on the hydraulic pipe (3) to block the bleed aperture (In the opposite direction to the arrow "a").

Refit the brake fluid reservoir cap .

Uncouple the transparent pipe.

Refit the protection cap on the bleed aperture .

2.2. Double-clip bleed system

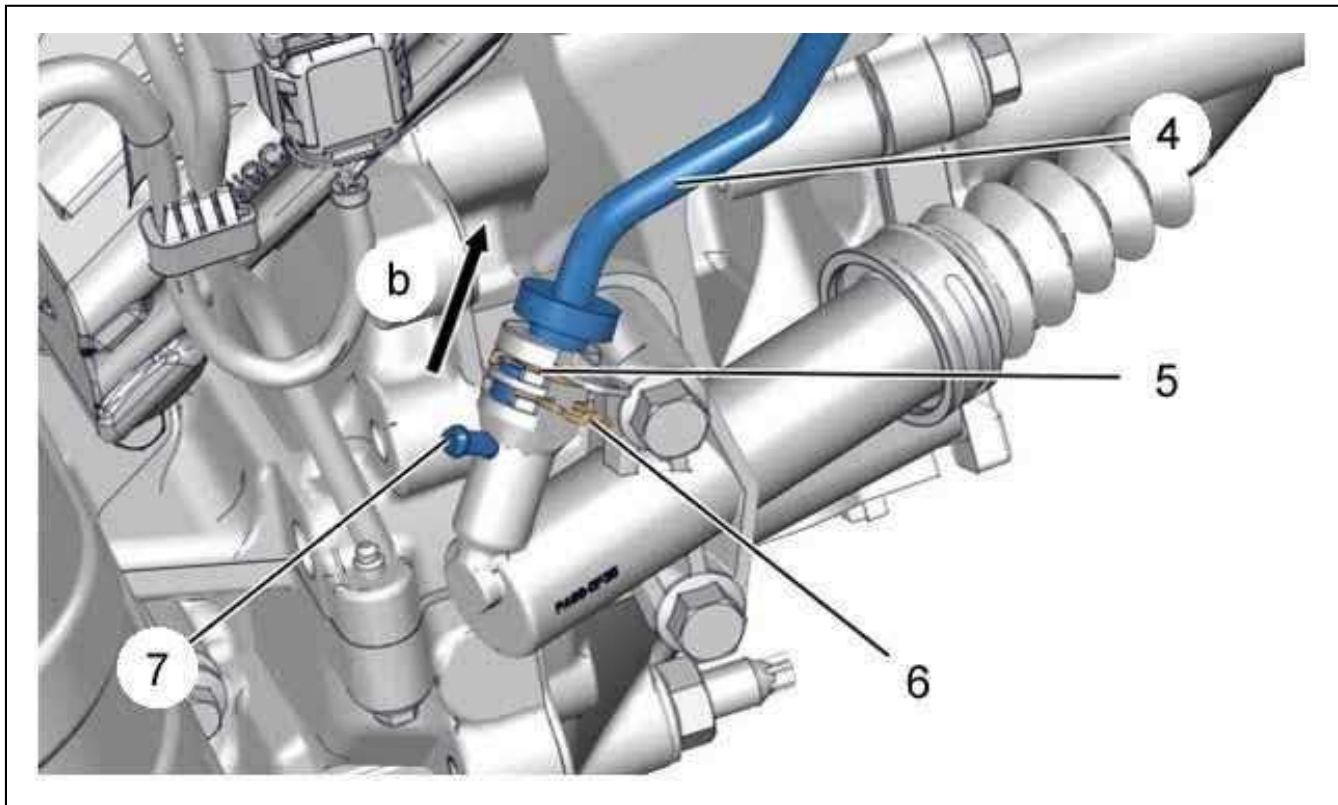


Figure : B2BG07ID

CAUTION : When reconnecting and disconnecting it, handle the hydraulic pipe (4) keeping it straight and do not leverage it to prevent any break.

Remove the protection cap from the bleed orifice (7).

Store the protection cap in a clean place.

Couple a transparent pipe onto the bleed orifice (7).

CAUTION : The end of the transparent pipe must be submerged into the brake fluid.

Clamp the clip (5).

CAUTION : The clip (5) must always remain clipped in position on the hydraulic clutch slave cylinder during the bleed.

Unclip the clip (6).

Pull on the hydraulic pipe (4) to free the bleed aperture (7) (following the arrow "b").

Allow the brake fluid to flow out by gravity.

Clamp the clip (6).

Push down on the hydraulic pipe (4) to block the bleed aperture (7) (In the opposite direction to the arrow).

Unclip the clip (5) (without removing it).

Uncouple the transparent pipe.

Refit the protection cap on the bleed aperture (7).

2.3. Screw bleed system (Quarter turn system)

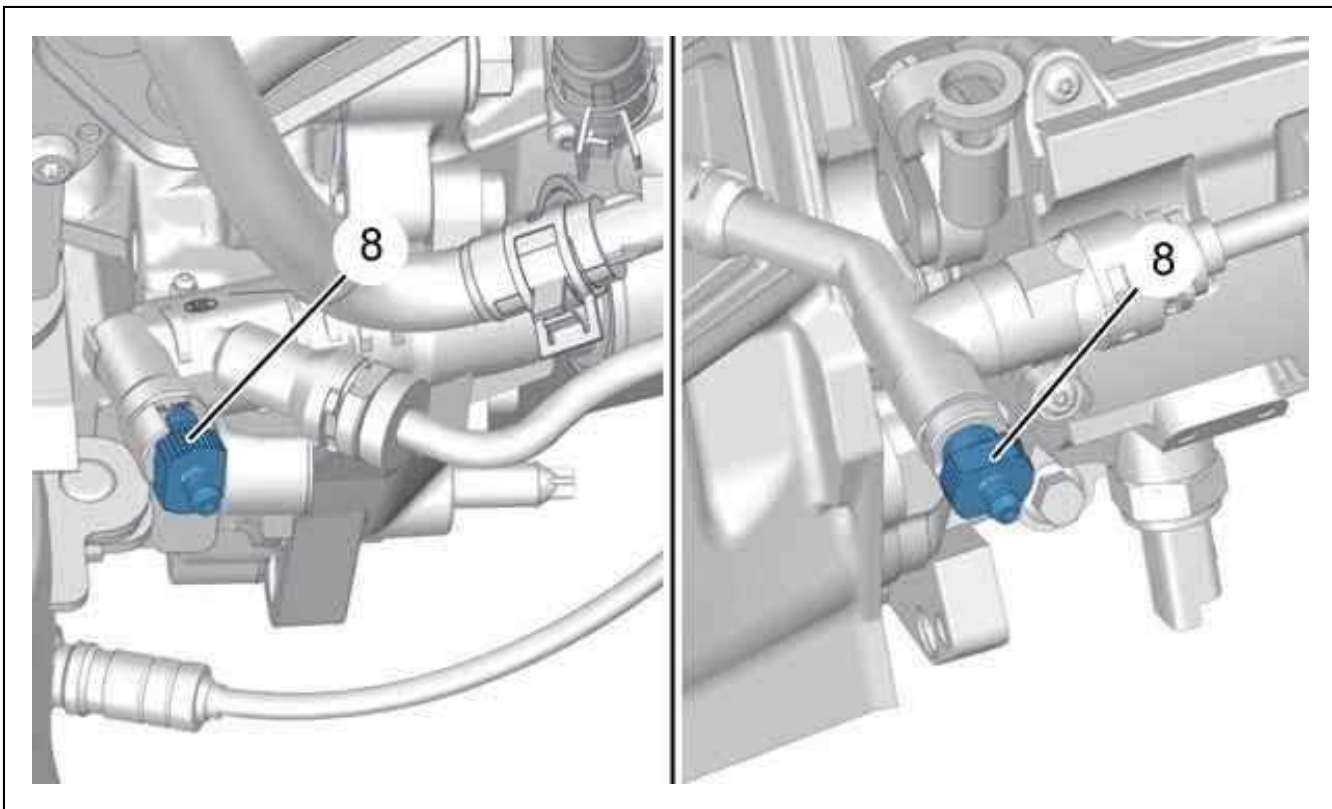


Figure : B2BG07JD

Remove the bleed screw (8) protection cap.

Store the protection cap in a clean place.

Couple a transparent tube on the bleed screw (8).

CAUTION : The end of the transparent pipe must be submerged into the brake fluid.

Rotate the bleed screw (8) a quarter turn (Clockwise).

Allow the brake fluid to flow out by gravity.

Close the bleed screw (8) (Anti-clockwise).
 Uncouple the transparent pipe.
 Refit the protection cap on the bleed screw (8).

2.4. Screw bleed system (6-sided screw system)

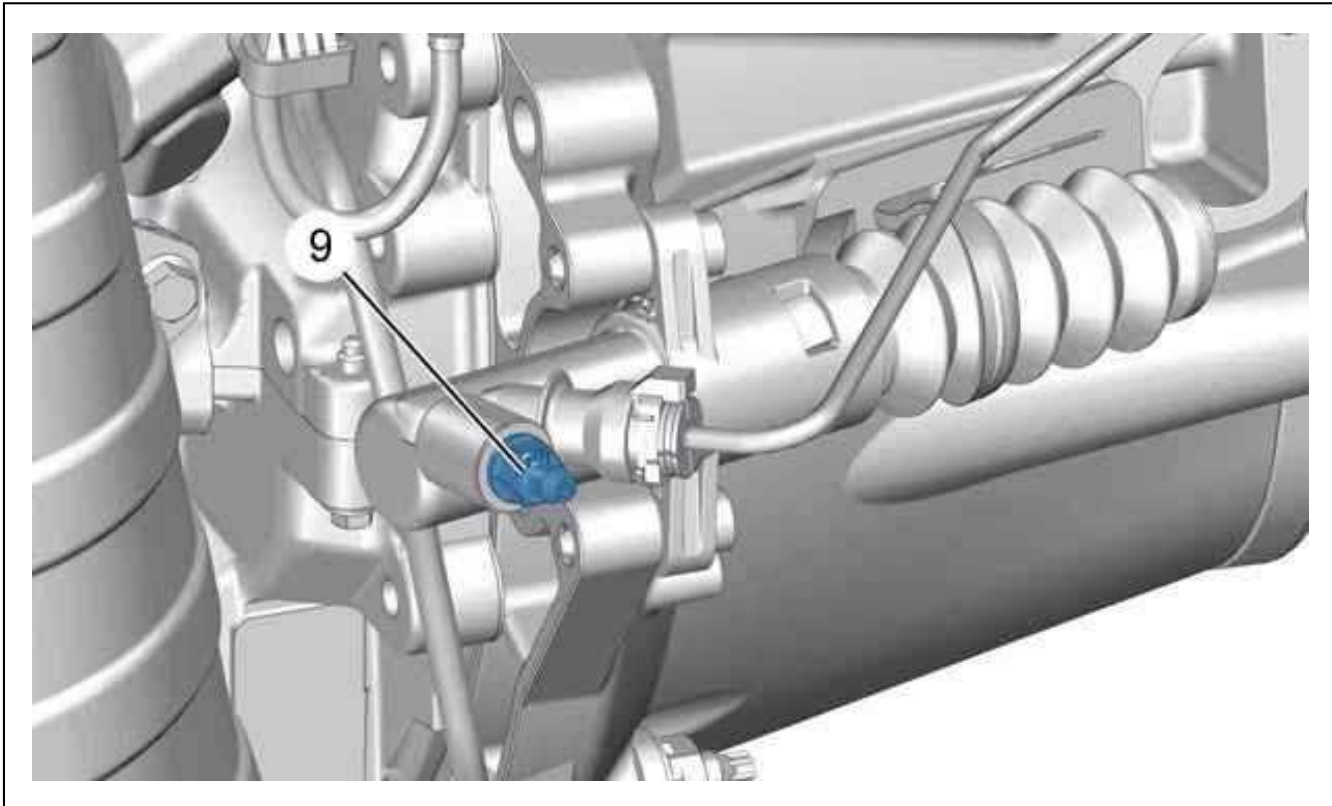


Figure : B2BG07KD

Remove the bleed screw (9) protection cap.
 Store the protection cap in a clean place.
 Couple a transparent tube on the bleed screw (9).

CAUTION : The end of the transparent pipe must be submerged into the brake fluid.

Turn the bleed screw (9) (Anti-clockwise).
 Allow the brake fluid to flow out by gravity.
 Close the bleed screw (9) (Clockwise).
 Uncouple the transparent pipe.
 Refit the protection cap on the bleed screw (9).

3. Hydraulic control master cylinder with cylindrical link on the clutch pedal

3.1. Removing

CAUTION : When reconnecting and disconnecting it, handle the hydraulic pipe keeping it straight and do not lever it to prevent any break.

CAUTION : Do not break the lugs on the head of the rod on the hydraulic clutch control master cylinder.

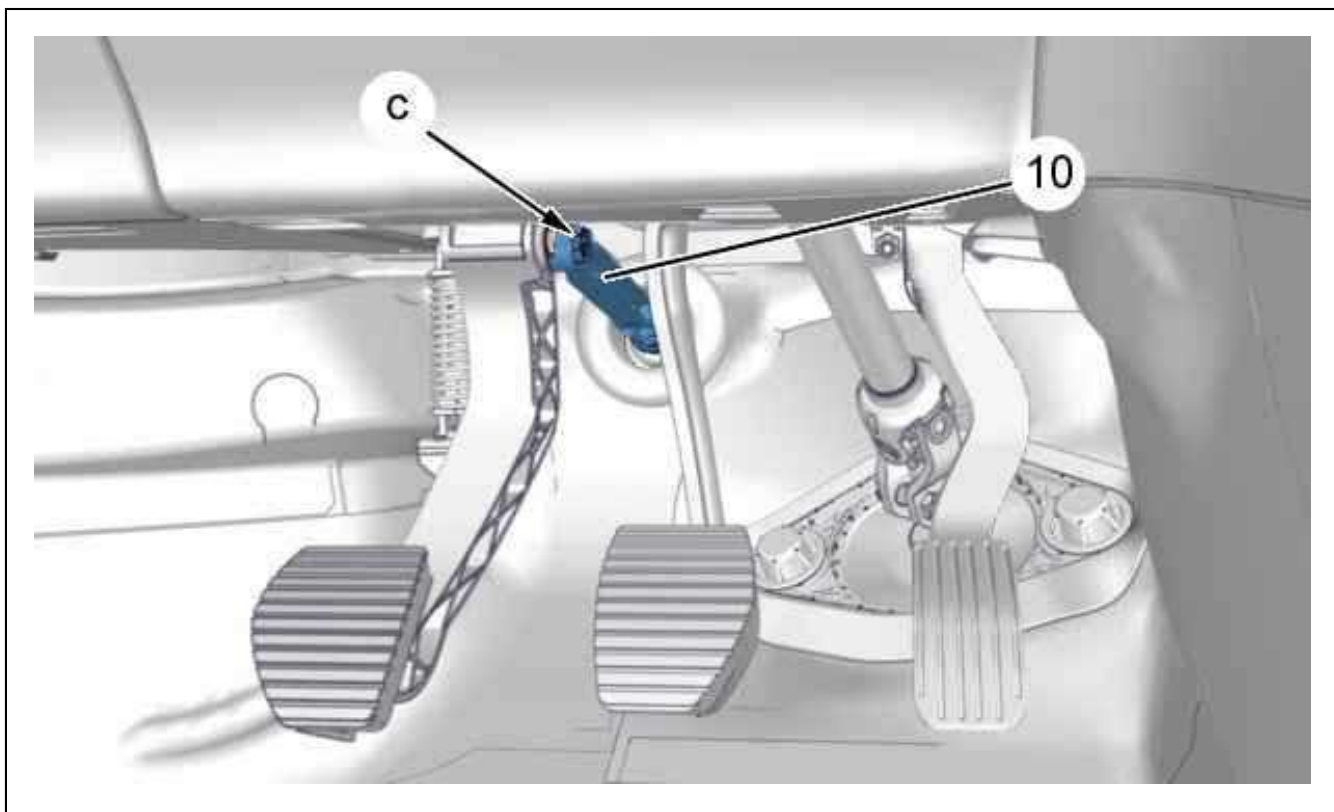


Figure : B2BG07LD

Unclip the rod (10) from the hydraulic clutch master cylinder (at "c").

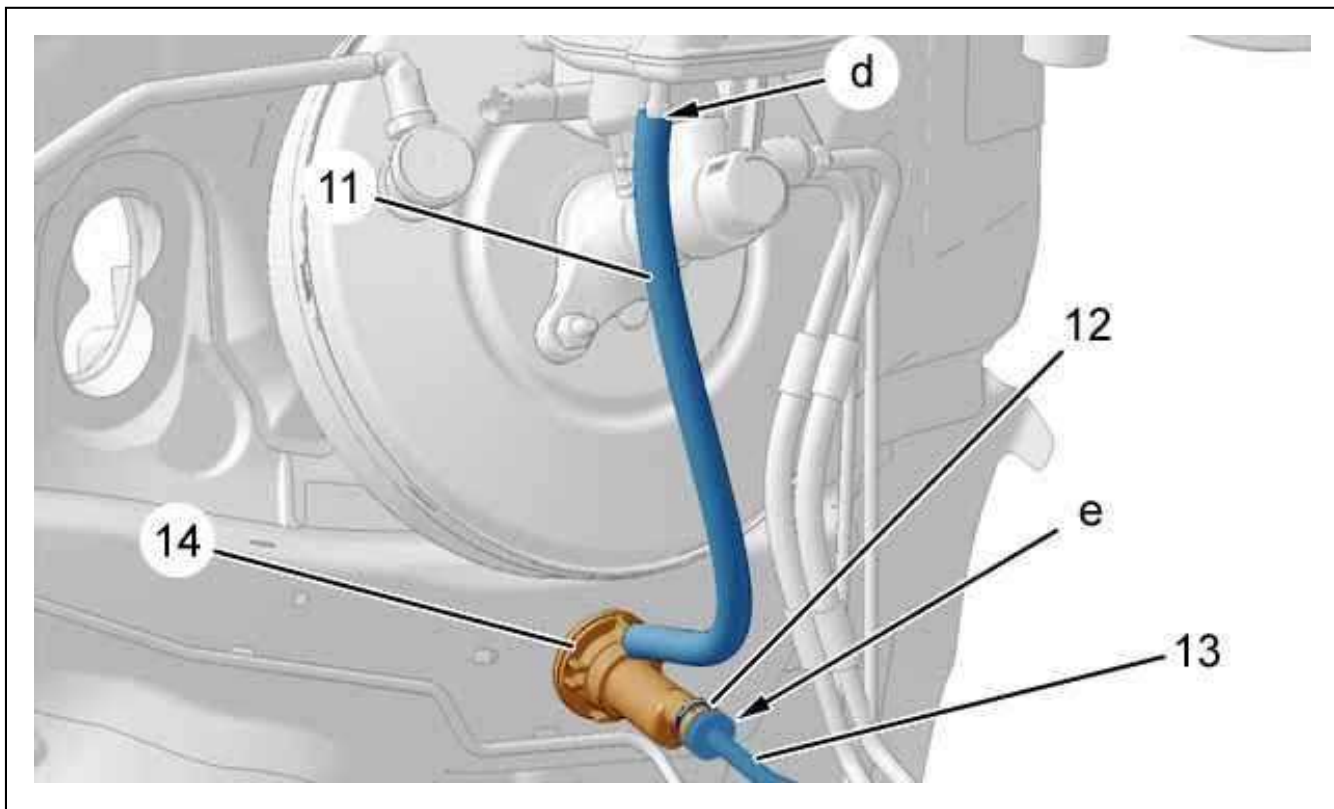


Figure : B2BG07MD

CAUTION : Prepare for the flow of brake fluid. Use a cloth.

Uncouple the supply pipe (11) (at "d").

Plug the opening of the brake fluid reservoir (at "d") ; With a clean cap.

Unclip the clip (12).

Uncouple the hydraulic pipe (13) (at "e").

Unlock the hydraulic clutch control master cylinder (14) (Rotate an eighth turn clockwise).

Remove the hydraulic clutch control master cylinder (14).

3.2. Refitting

CAUTION : When coupling it, handle the hydraulic pipe (13) keeping it straight and not levering it to prevent any break

Lightly lubricate the connection between the rod (10) of the hydraulic clutch master cylinder (14) and the pedal bracket ;
Using G7 grease.

Refit the hydraulic clutch control master cylinder (14).

Lock the hydraulic clutch control master cylinder (14) (Rotate an eighth turn anti-clockwise).

Clamp the clip (12).

Couple up :

- The hydraulic pipe (13) (at "e")
- The supply pipe (11) (at "d")

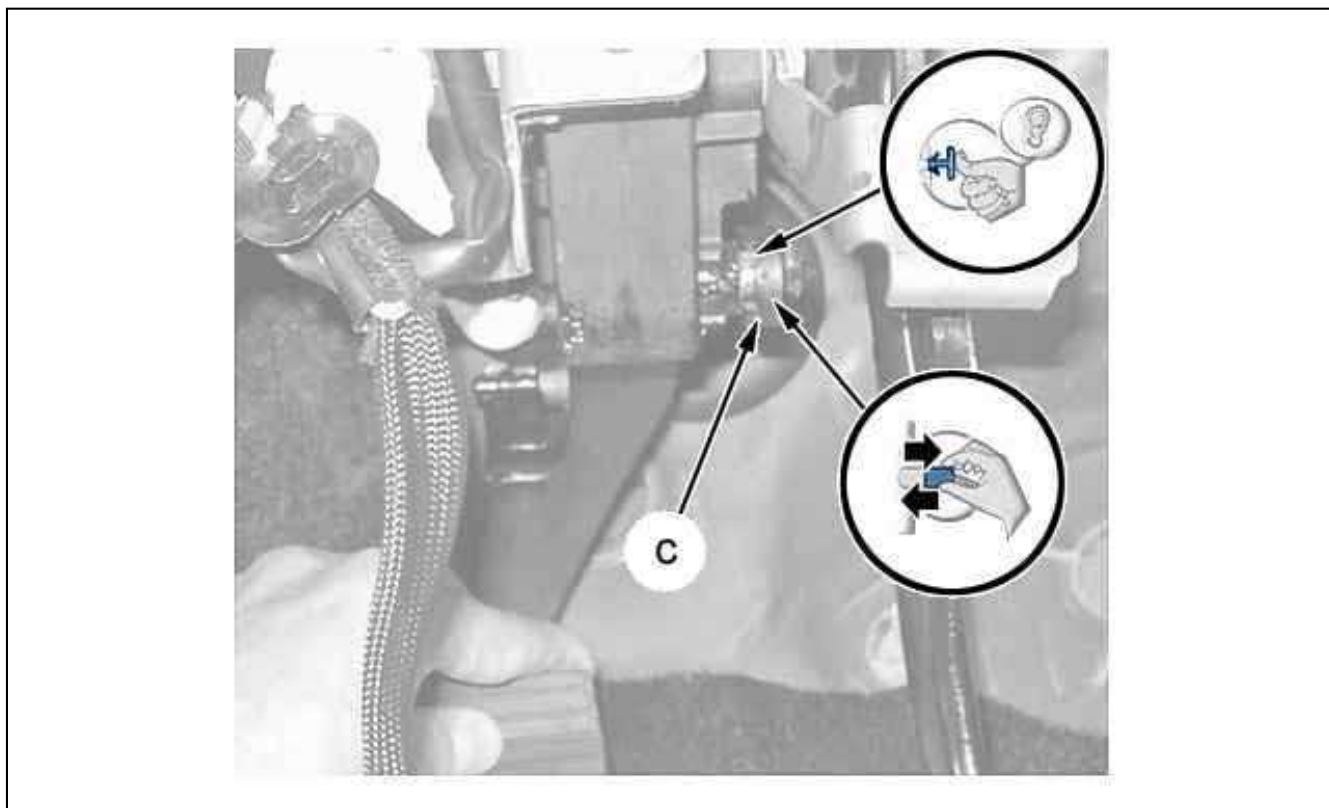


Figure : B2BG07ND

Clip the rod (10) of the hydraulic clutch master cylinder (14) (at "c").

Check the clipping of the rod (10) of the hydraulic clutch control master cylinder (14) (at "c") (Pull-push).

4. Hydraulic control master cylinder with ball-joint link on the clutch pedal

4.1. Removing

N.B. : First assembly.

CAUTION : When reconnecting and disconnecting it, handle the hydraulic pipe (13) keeping it straight and do not leave it to prevent any break.

CAUTION : Do not break the lugs on the head of the rod on the hydraulic clutch control master cylinder (14).

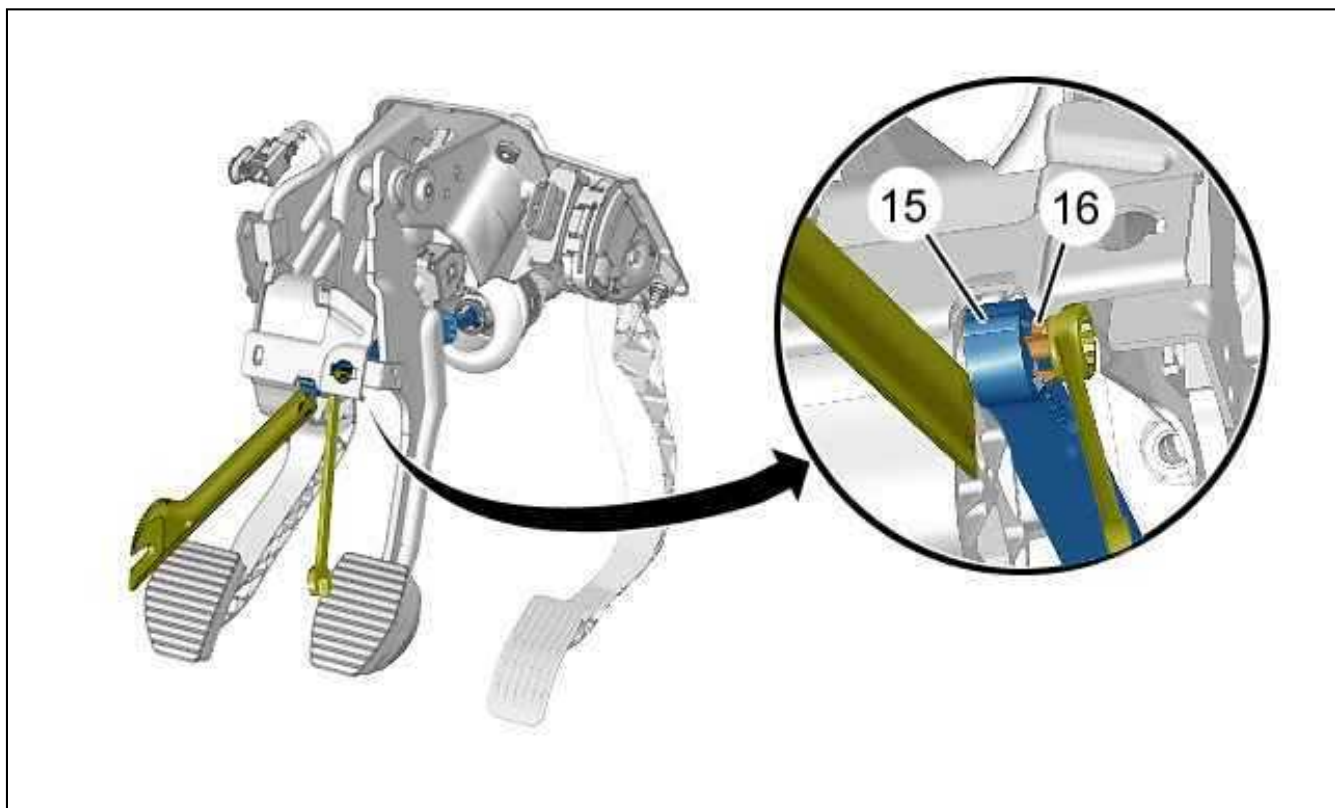


Figure : B2BG07OD

Carry out the following operations simultaneously :

- Pinch together the lugs of the locking clip (16) ; Using a ring spanner no. 10
- Move aside the rod (15) from the pedal gear ; Using a plastic pallet

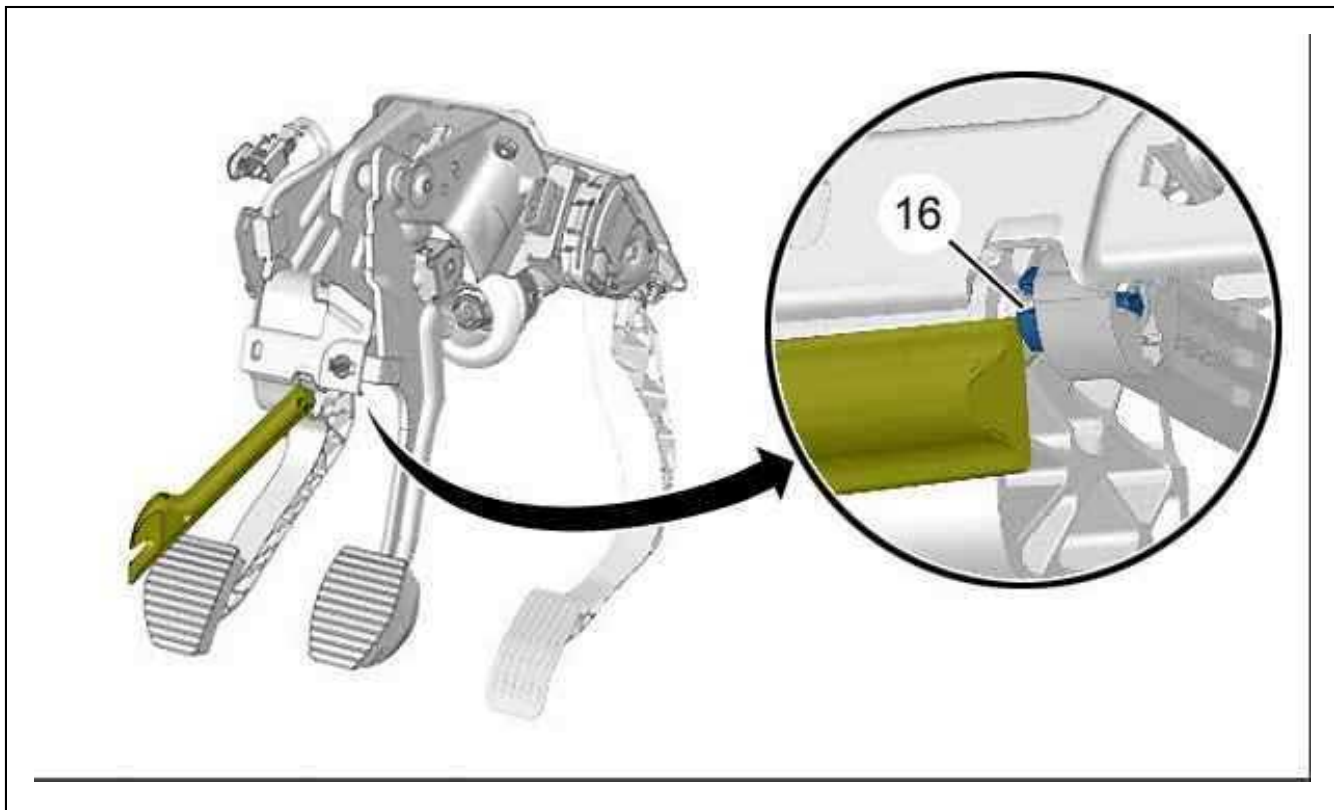


Figure : B2BG07PD

Release the locking clip (16) from the pedal bracket ; Using a plastic pallet.

N.B. : Second assembly.

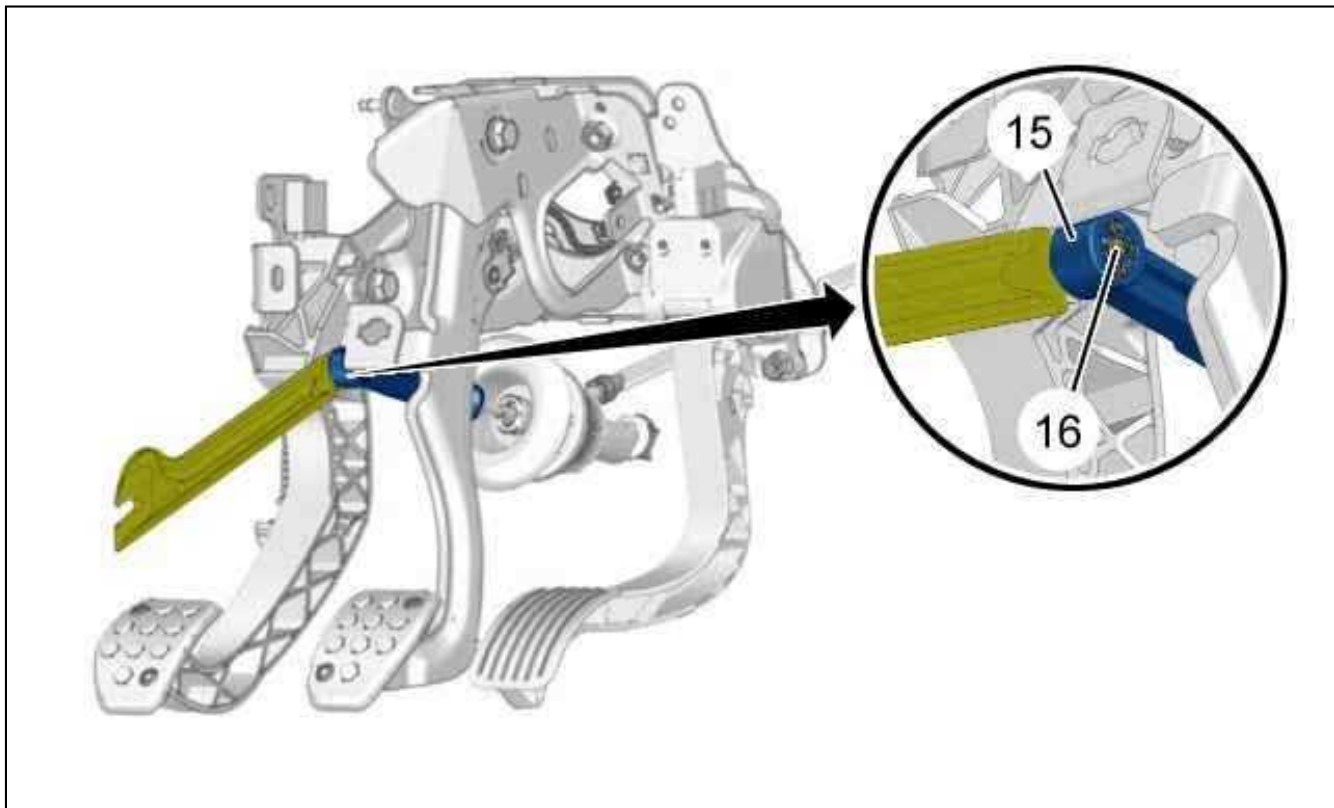


Figure : B2BG07QD

Press on the locking clip (16).

Disconnect the rod (15) of the hydraulic clutch control master cylinder from the pedal bracket ; Using a plastic pallet.

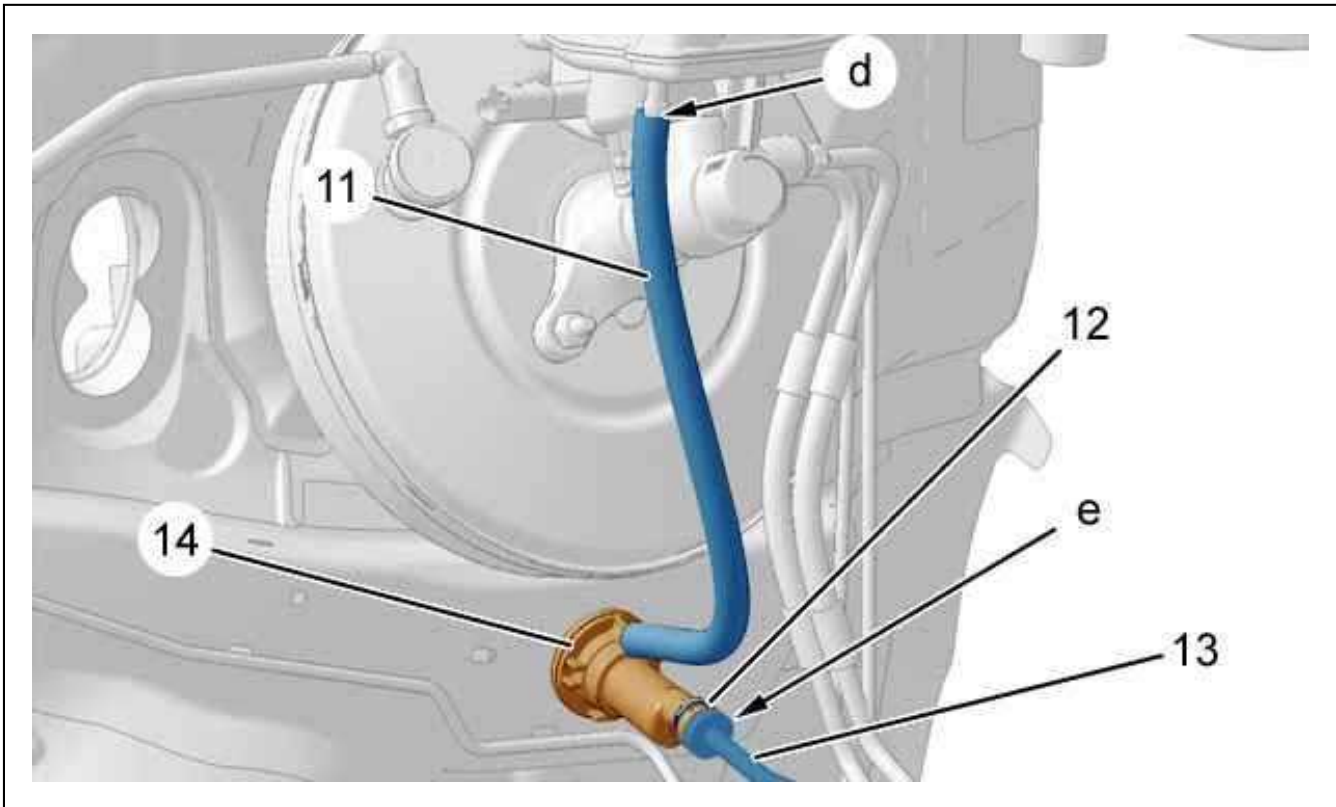


Figure : B2BG07MD

CAUTION : Prepare for the flow of brake fluid. Use a cloth.

Uncouple the supply pipe (11) (at "d").

Plug the opening of the brake fluid reservoir (at "d") ; With a clean cap.

Unclip the clip (12).

Uncouple the hydraulic pipe (13) (at "e").

Unlock the hydraulic clutch control master cylinder (14) (Rotate an eighth turn clockwise).

Remove the hydraulic clutch control master cylinder (14).

N.B. : Third assembly.

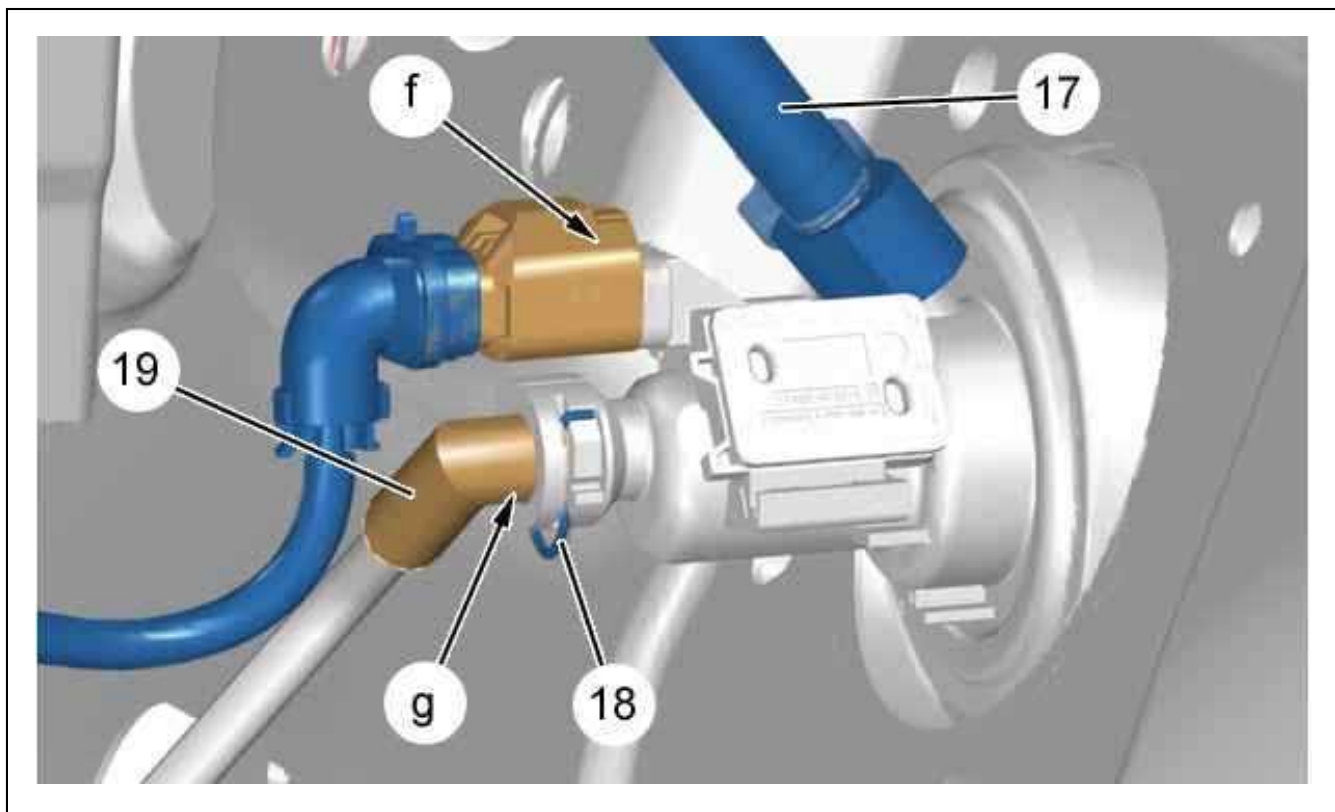


Figure : B2BG07RD

Disconnect the connector (at "f").

Uncouple the supply pipe (17) from the brake fluid reservoir.

Plug the opening of the brake fluid reservoir ; With a clean cap.

Unclip the clip (18).

Uncouple the hydraulic pipe (19) (at "g").

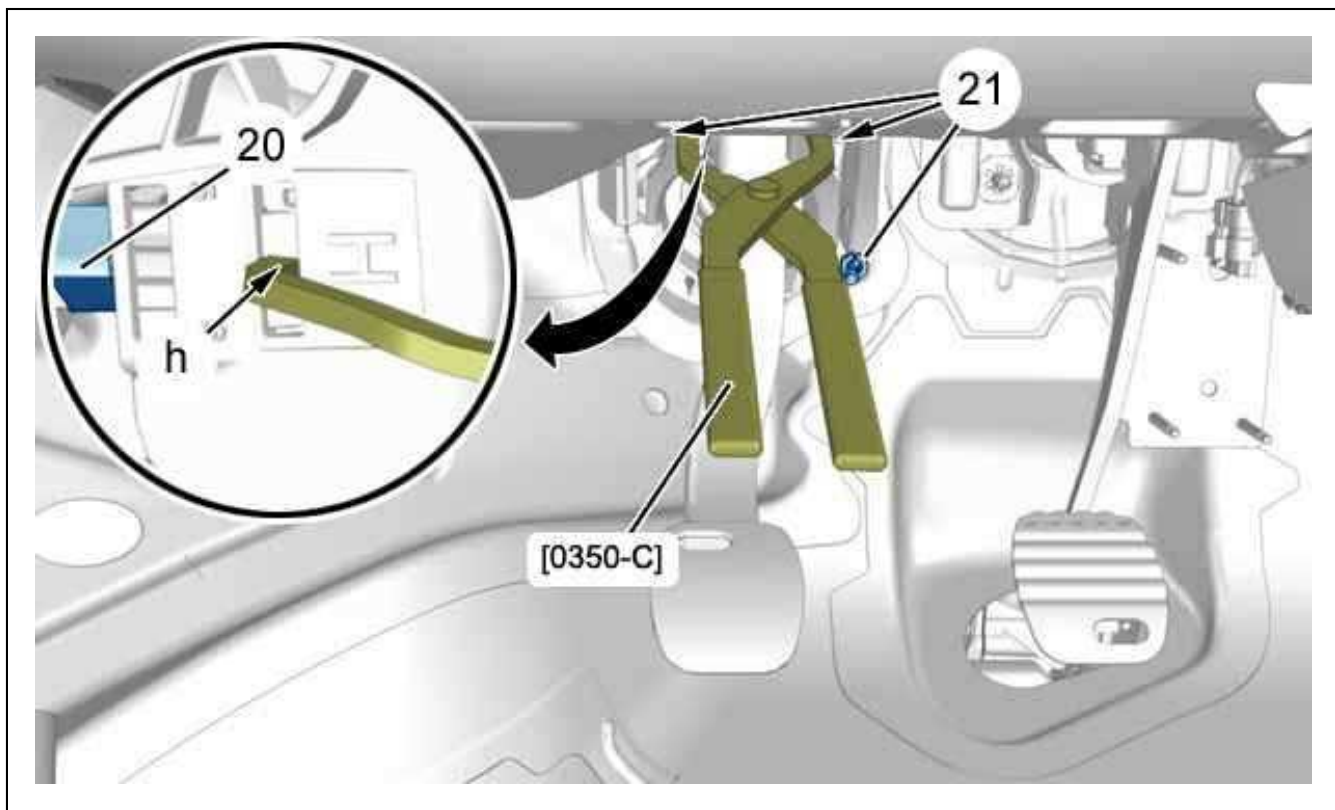


Figure : B2BG07SD

Unclip the hydraulic clutch control master cylinder (20) ; Using tool [G-0350-C] (at "h").
Move the hydraulic clutch control master cylinder (20) rod away from the pedal bracket.
Remove the nuts (21).
Remove the clutch pedal support and hydraulic clutch control master cylinder assembly .

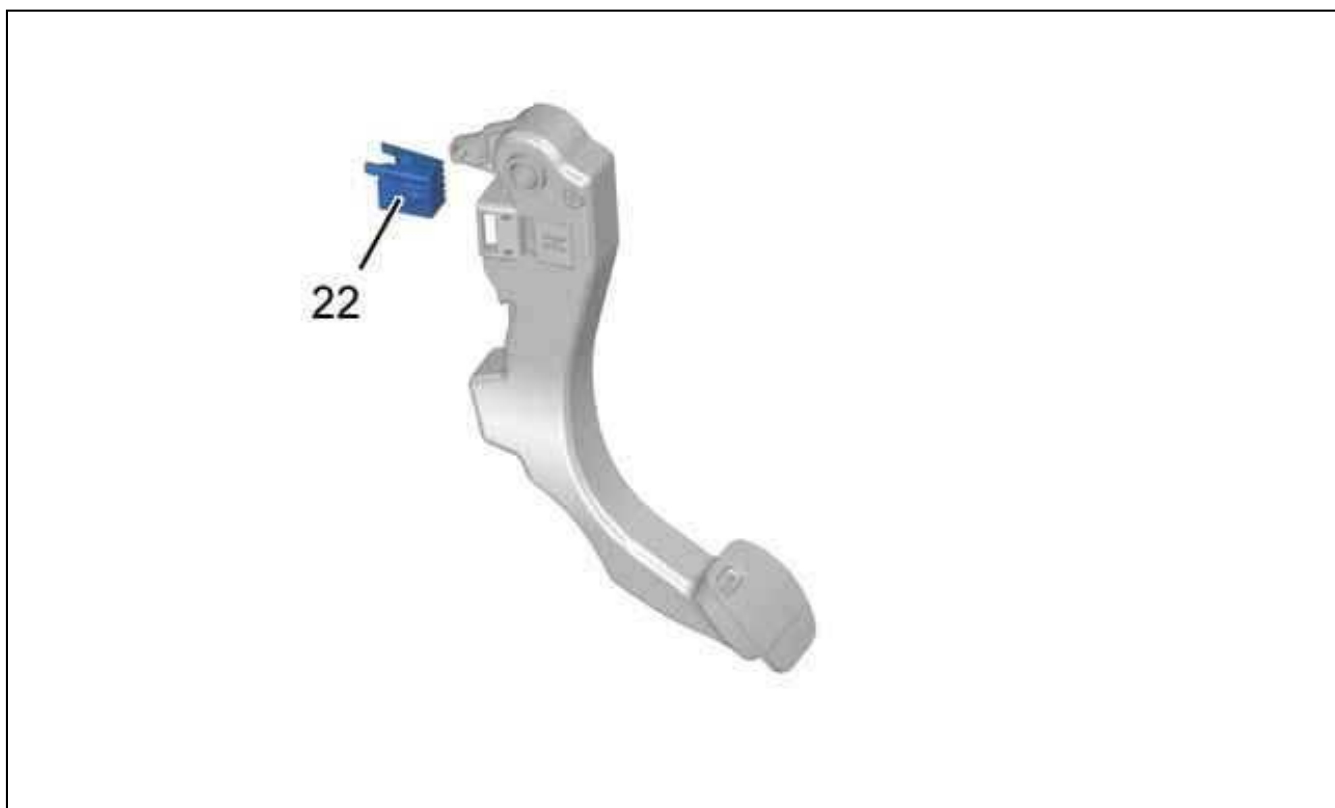


Figure : B2BG07UD

CAUTION : Mark the direction of fitting of the clip (22) ; During removal.

Unlock the hydraulic clutch control master cylinder (20) (Rotate an eighth turn clockwise).
Remove the hydraulic clutch control master cylinder (20).

4.2. Refitting

CAUTION : When coupling it, handle the hydraulic pipe keeping it straight and not levering it to prevent any break.

Refit the hydraulic clutch control master cylinder (20).
Lock the hydraulic clutch control master cylinder (20) (Rotate an eighth turn anti-clockwise).

N.B. : First assembly.

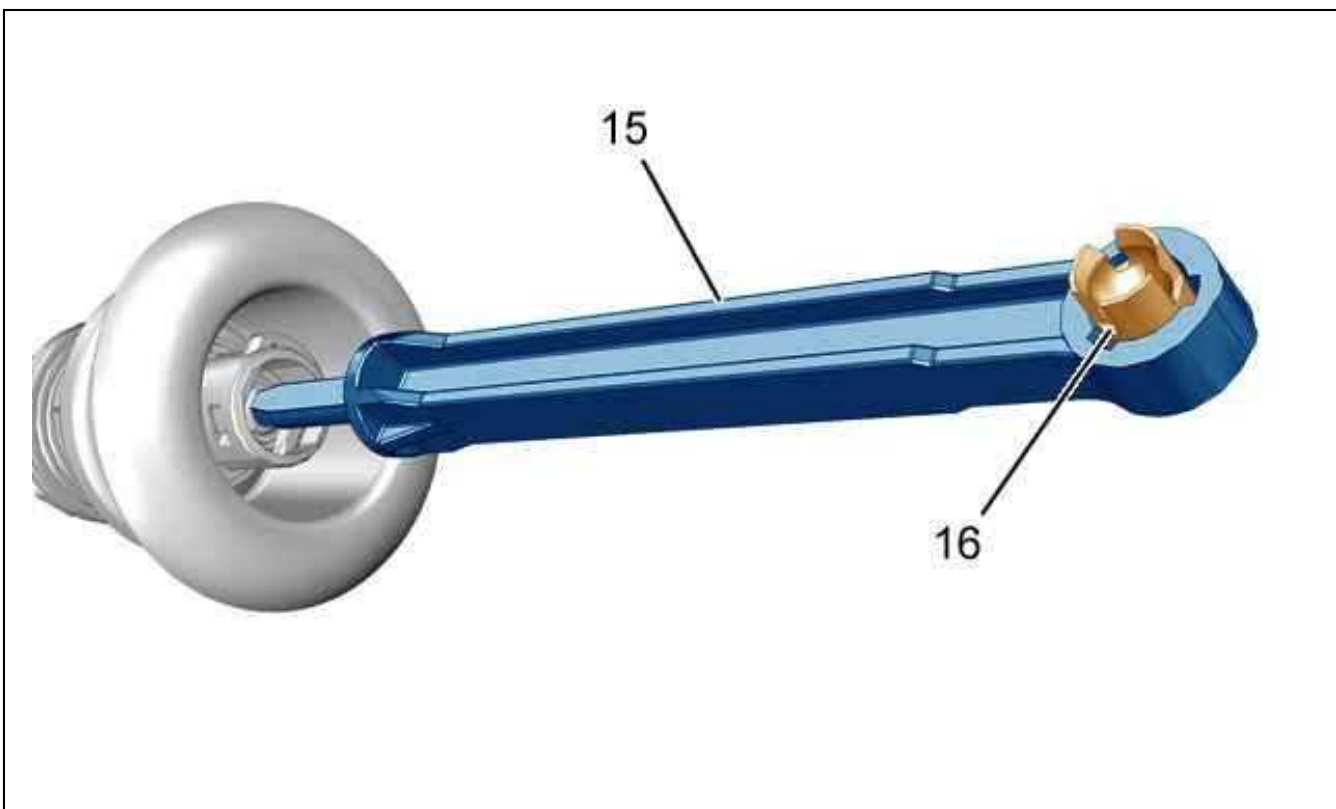


Figure : B2BG07VD

N.B. : Check that the locking clip (16) of the new clutch hydraulic master cylinder (14) is in the position above.

N.B. : Second assembly.

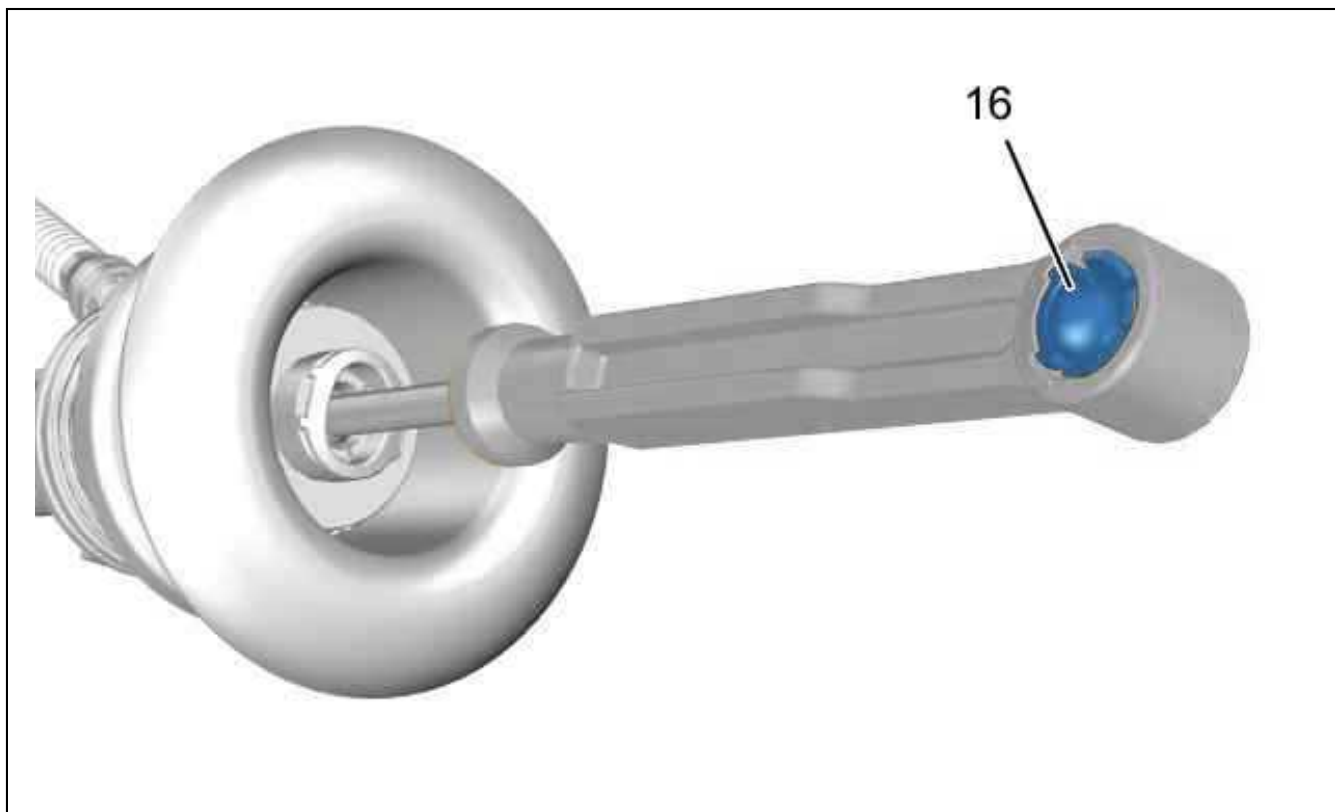


Figure : B2BG07WD

N.B. : Check that the locking clip (16) of the new clutch hydraulic master cylinder (14) is in the position above.

Clamp the clip (12).

Couple up :

- The hydraulic pipe (13) (at "e")
- The supply pipe (11) (at "d")

Clip :

- The locking clip (16) on the pedal bracket
- The rod (15) of the clutch hydraulic master cylinder (14) onto the locking clip (16)

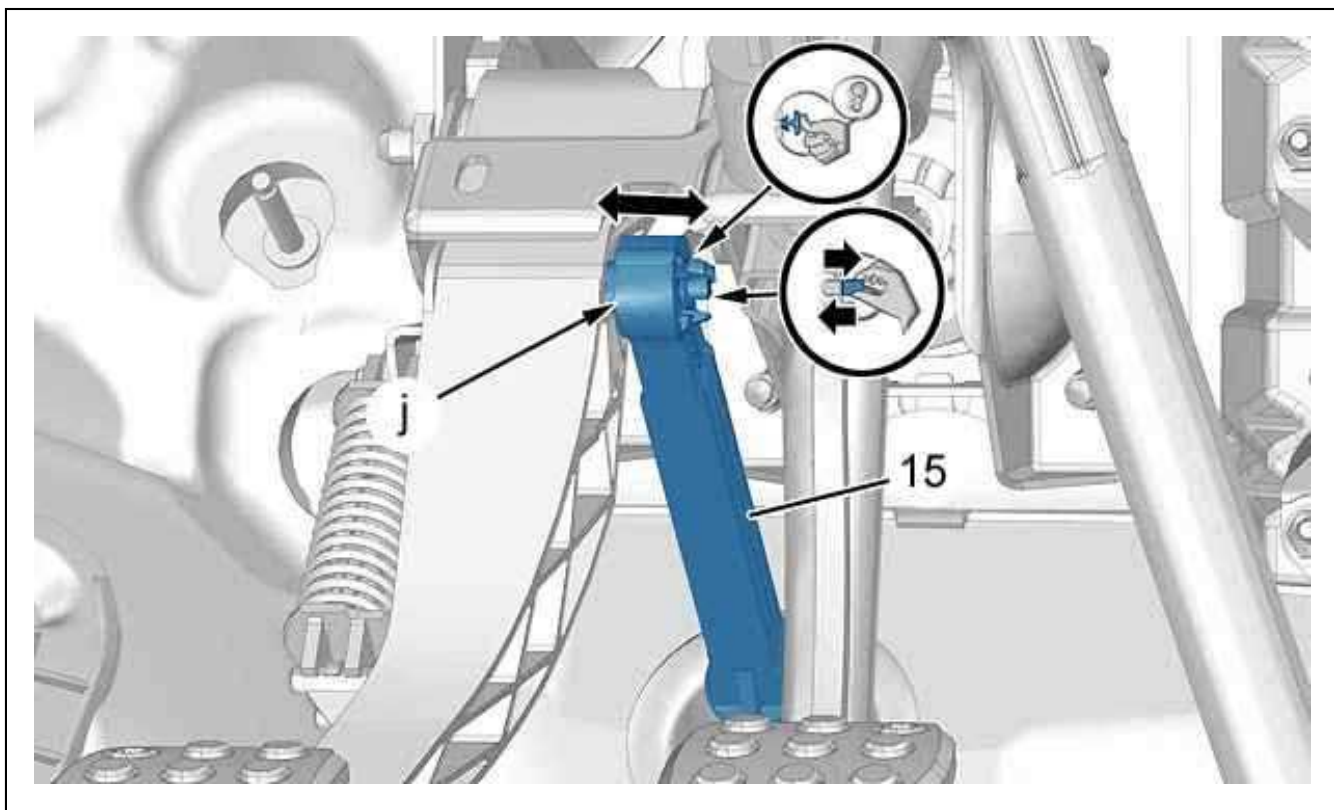


Figure : B2BG07XD

Check the clipping of the rod (15) of the hydraulic clutch control master cylinder (14) (at "j") (Pull-push).

N.B. : Third assembly.

Refit the hydraulic clutch control master cylinder (20) on the clutch pedal support.

Refit the clutch pedal support and hydraulic clutch control master cylinder assembly .

Fit the nuts (21).

Clamp the clip (22).

Couple up :

- The hydraulic pipe (19) (at "g")
- The supply pipe (17)

Clamp the clip (18).

Connect the connector (at "f").

5. Hydraulic clutch control slave cylinder (Bleed system with clip)

5.1. Removing the single-clip bleed system

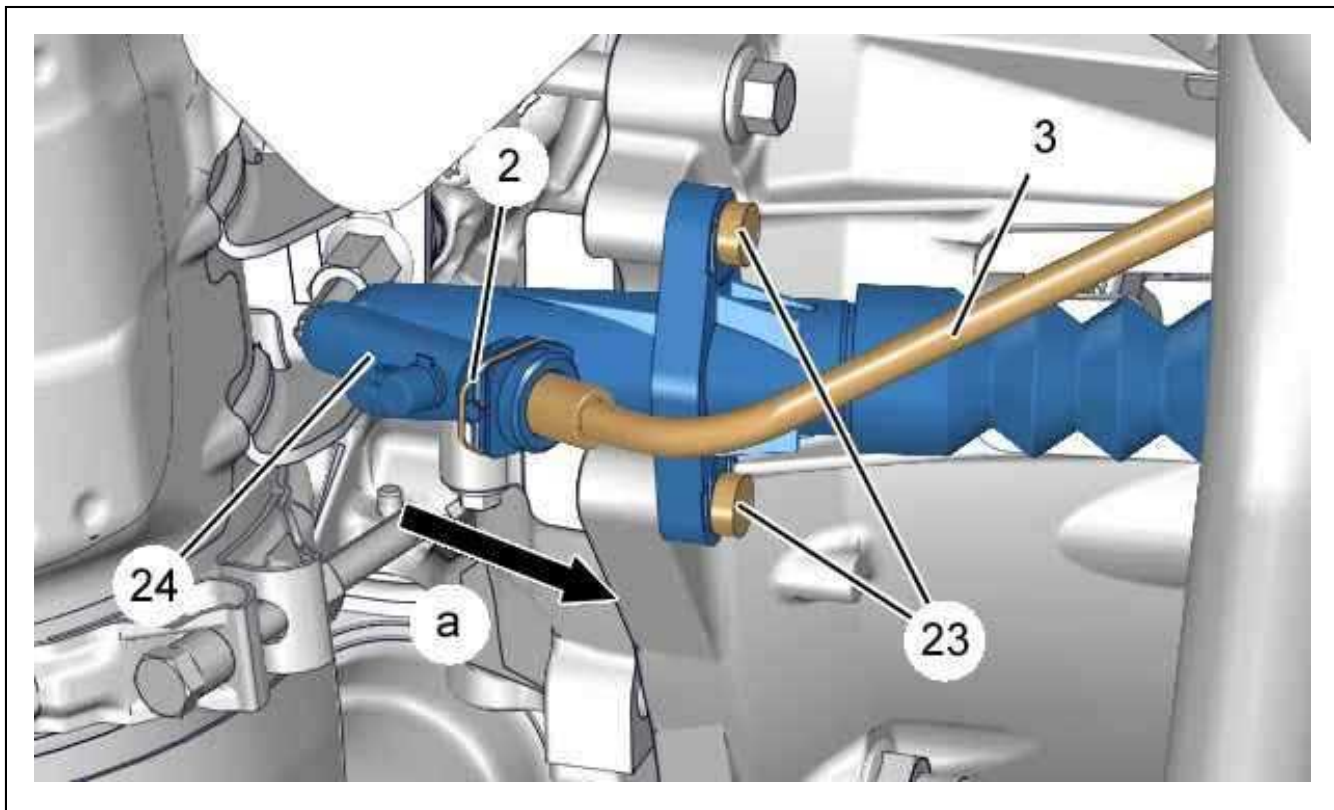


Figure : B2BG07YD

CAUTION : When reconnecting and disconnecting it, handle the hydraulic pipe (3) keeping it straight and do not level it to prevent any break.

CAUTION : Prepare for the flow of brake fluid. Use a cloth.

Press on the clip (2) and uncouple the hydraulic pipe (3)(In the direction of the arrow "a").

Remove :

- The bolts (23)
- The hydraulic clutch control slave cylinder (24)

5.2. Removing the double-clip bleed system

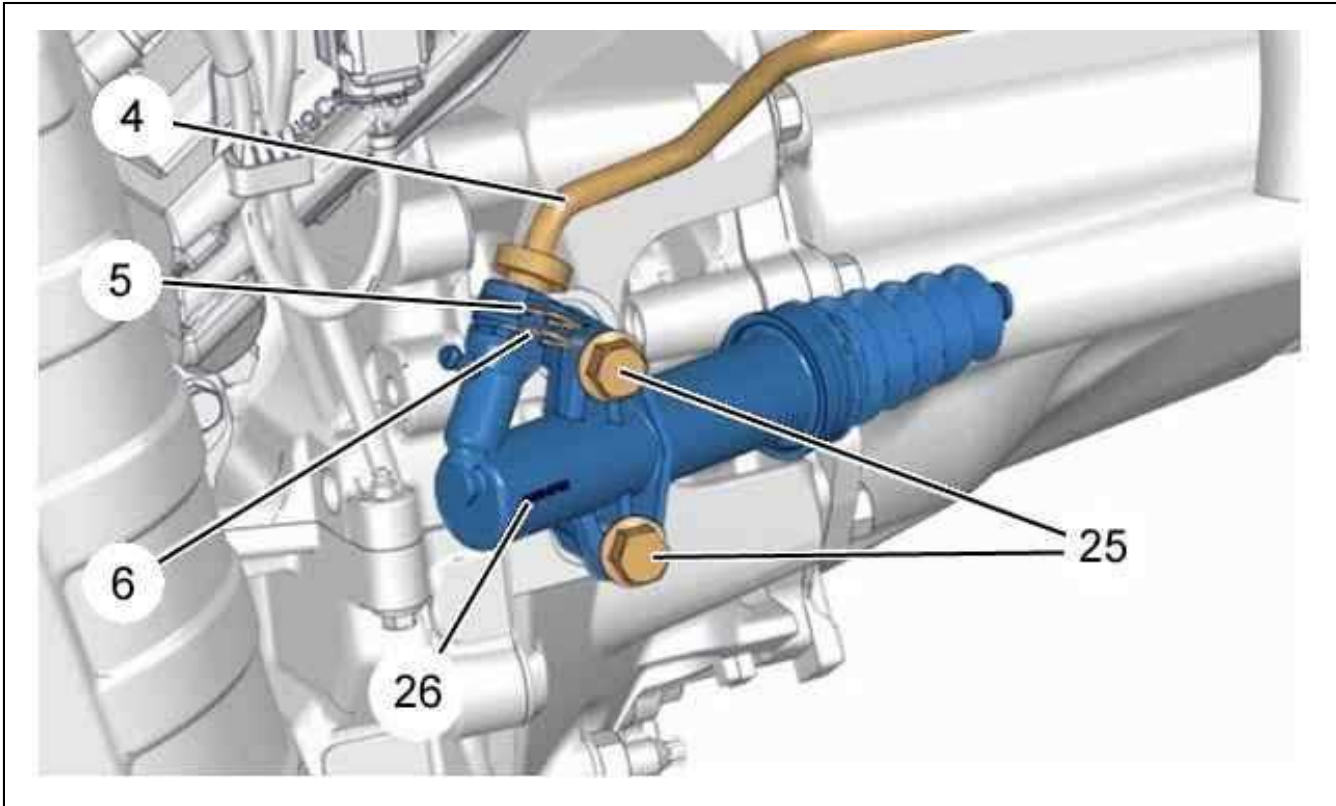


Figure : B2BG07ZD

CAUTION : When reconnecting and disconnecting it, handle the hydraulic pipe (4) keeping it straight and do not lever it to prevent any break.

CAUTION : Prepare for the flow of brake fluid. Use a cloth.

Unclip the clips (5), (6) (Without removing).

Uncouple the hydraulic pipe (4).

Remove :

- The bolts (25)
- The hydraulic clutch control slave cylinder (26)

5.3. Refitting the single-clip bleed system

CAUTION : Adhere to the tightening torques.

CAUTION : When coupling it, handle the hydraulic pipe (4) keeping it straight and not levering it to prevent any break.

Lightly lubricate the connection between the rod of the hydraulic clutch slave cylinder (26) and the clutch fork ; Using G12 grease.

Refit :

- The hydraulic clutch control slave cylinder (24)
- The bolts (23) (New bolts)

Connect the hydraulic pipe (3).

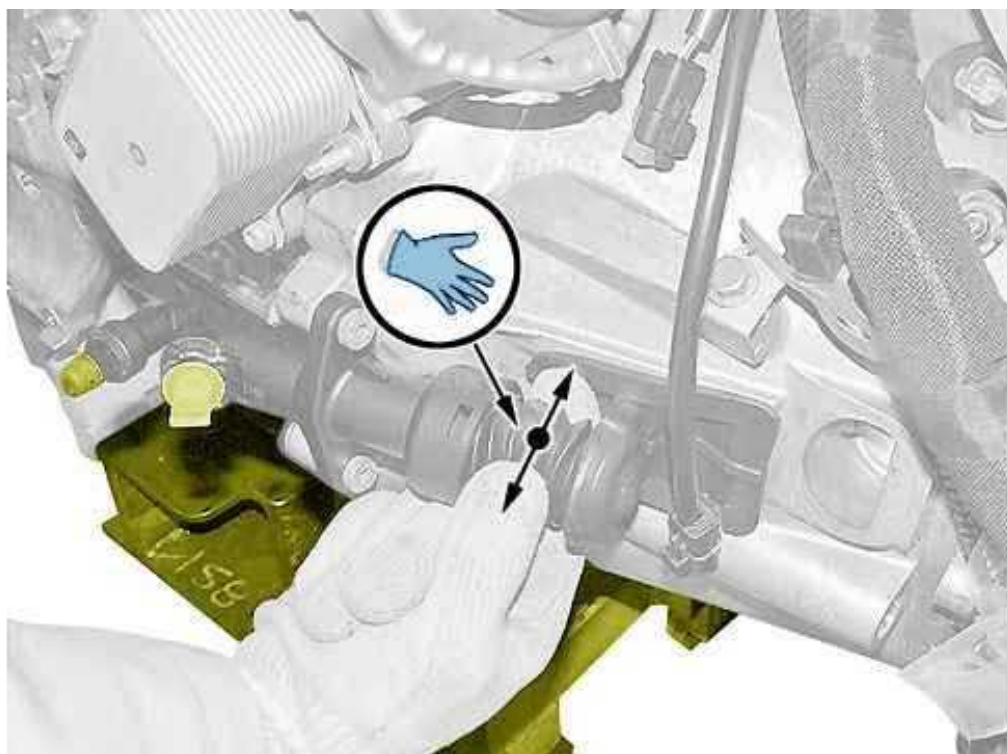


Figure : B2BG00VD

Check the positioning of the rod of the hydraulic clutch control slave cylinder in the clutch fork.

5.4. Refitting the double-clip bleed system

CAUTION : Adhere to the tightening torques.

CAUTION : When coupling it, handle the hydraulic pipe (4) keeping it straight and not levering it to prevent any break.

Lightly lubricate the connection between the rod of the hydraulic clutch slave cylinder (26) and the clutch fork ; Using G12 grease.

Refit :

- The hydraulic clutch control slave cylinder (26)
- The bolts (25) (New bolts)

Refit the clips (5), (6).

Connect the hydraulic pipe (4).

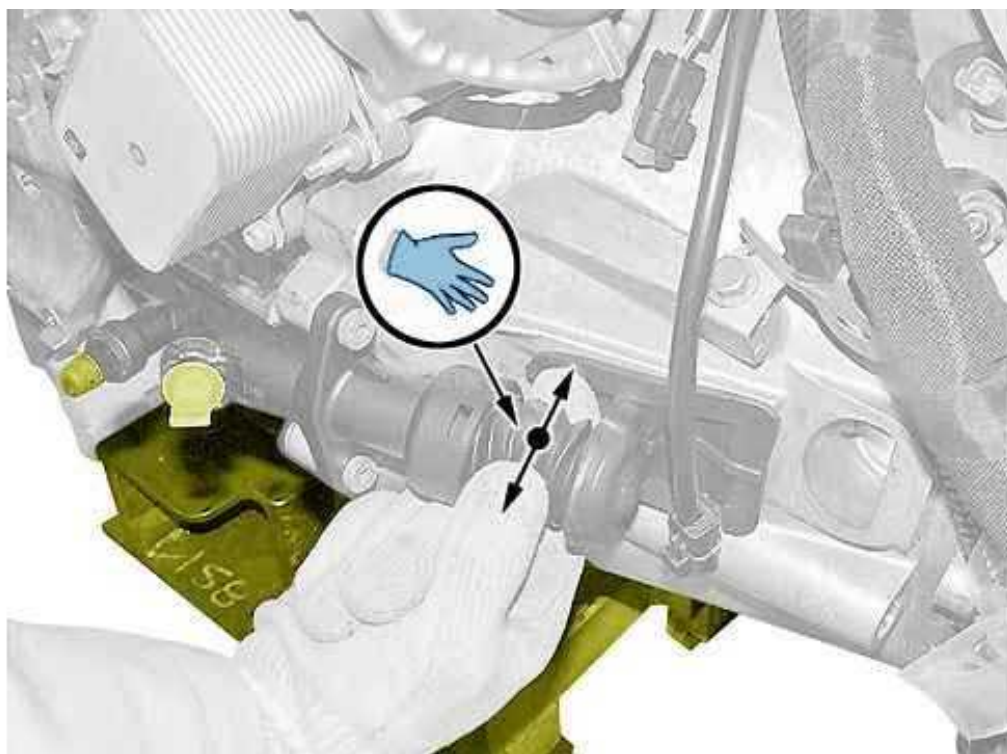


Figure : B2BG00VD

Check the positioning of the rod of the hydraulic clutch control slave cylinder in the clutch fork.

6. Hydraulic clutch control slave cylinder (Screw bleed system)

6.1. Removing

CAUTION : When reconnecting and disconnecting it, handle the hydraulic pipe keeping it straight and do not lever it to prevent any break.

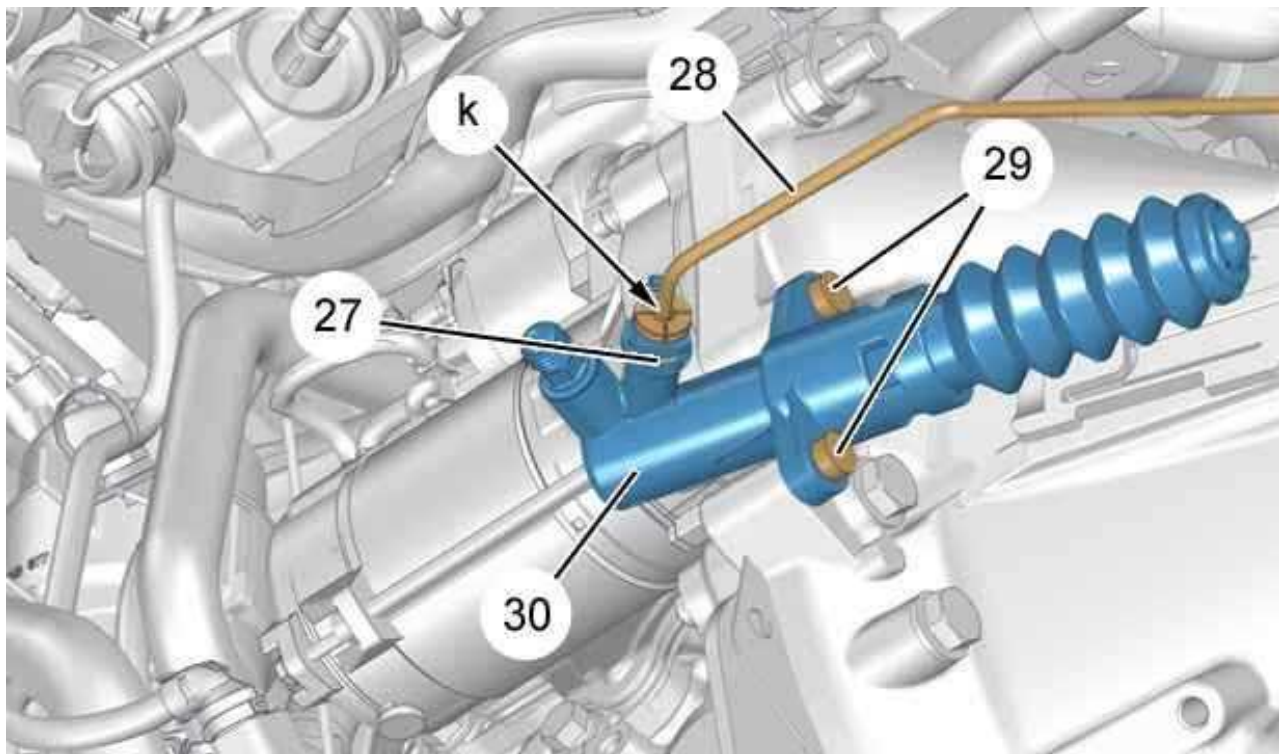


Figure : B2BG080D

CAUTION : Prepare for the flow of brake fluid .Use a cloth.

Unclip the clip (27) (Without removing).

Uncouple the hydraulic pipe (28) (at "k").

Remove :

- The bolts (29)
- The hydraulic clutch control slave cylinder (30)

6.2. Refitting

CAUTION : Adhere to the tightening torques.

CAUTION : When coupling it, handle the hydraulic pipe (28) keeping it straight and not levering it to prevent any break

Lightly lubricate the connection between the rod of the hydraulic clutch slave cylinder (30) and the clutch fork ; Using G12 grease.

Refit :

- The hydraulic clutch control slave cylinder (30)
- The bolts (29) (New bolts)

Clamp the clip (27).

Connect the hydraulic pipe (28) (at "k").

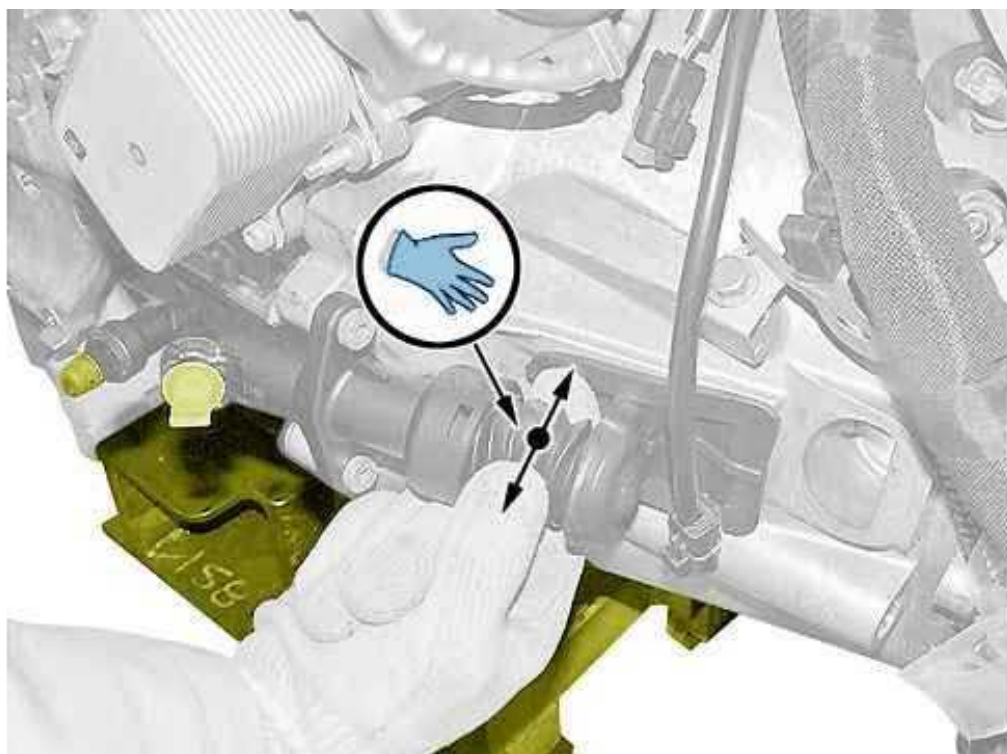


Figure : B2BG00XD

Check the positioning of the rod of the hydraulic clutch control slave cylinder in the clutch fork.

7. Fitting with hydraulic stop

7.1. Removing

CAUTION : When reconnecting and disconnecting it, handle the hydraulic pipe keeping it straight and do not lever it to prevent any break.

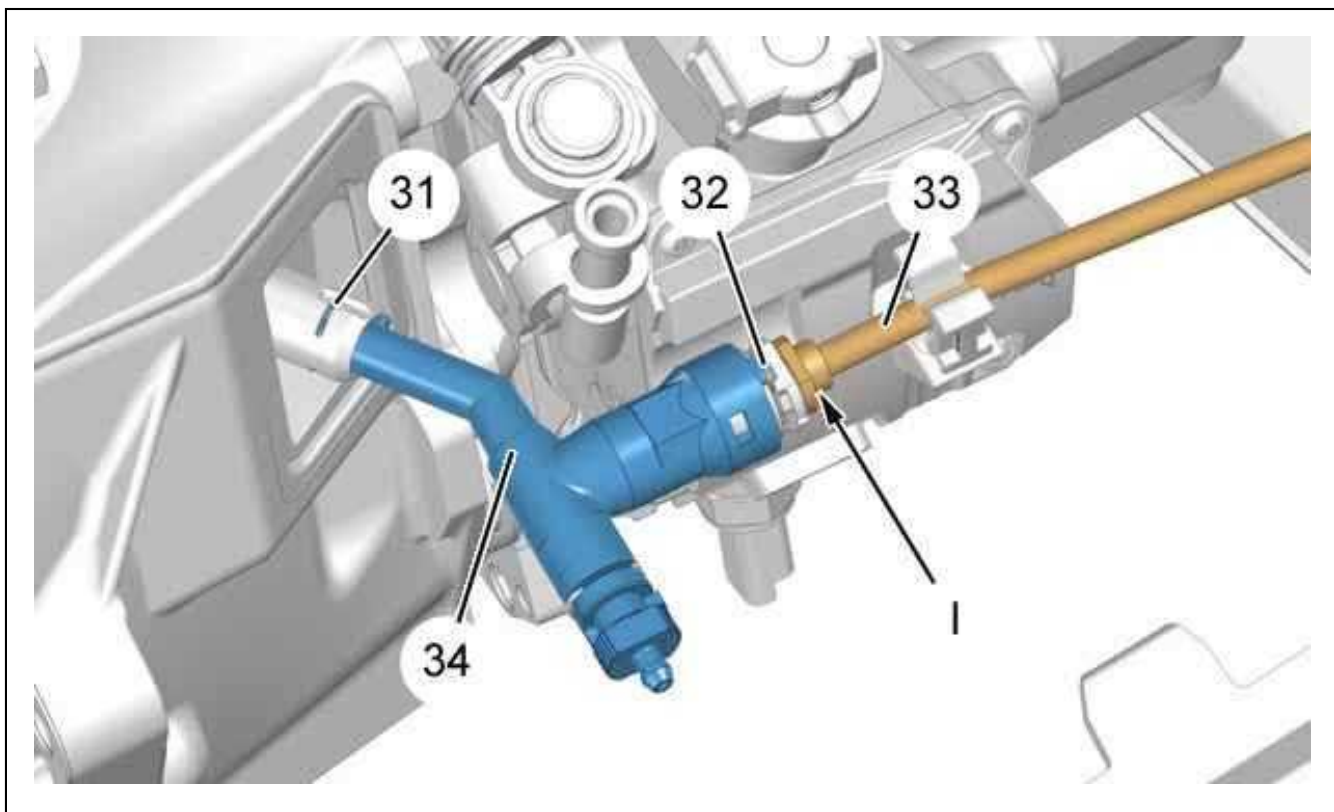


Figure : B2BG081D

Unclip the clip (32) (Without removing).

Uncouple the hydraulic pipe (33) (at "I").

Remove :

- The clip (31)
- The bleed union (34)
- The gearbox

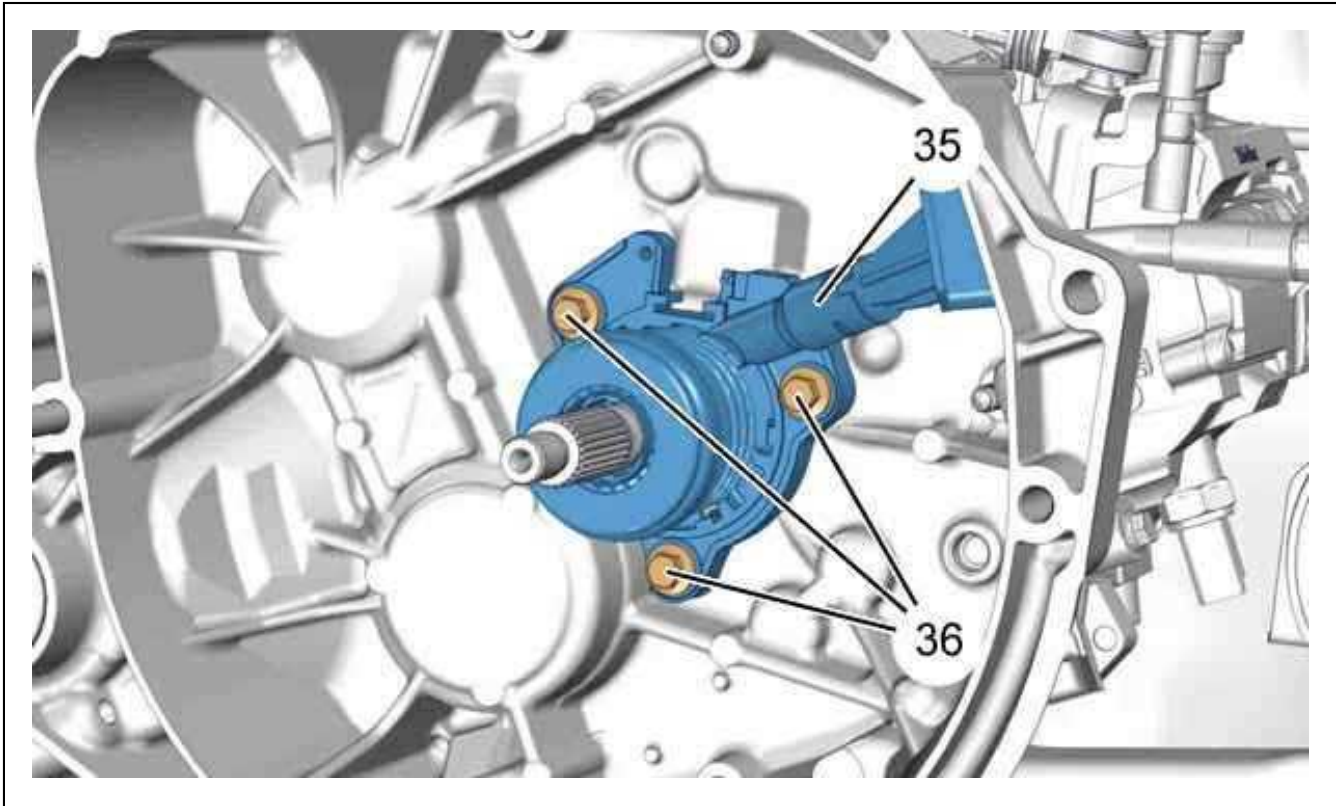


Figure : B2BG082D

Remove :

- The bolts (36)
- The hydraulic stop (35)

7.2. Refitting

CAUTION : Adhere to the tightening torques.

CAUTION : When coupling it, handle the hydraulic pipe (28) keeping it straight and not levering it to prevent any break

Refit :

- The hydraulic stop (35)
- The bolts (36)
- The gearbox
- The bleed union (34)
- The clip (31)

Clamp the clip (32).

Connect the hydraulic pipe (33) (at "I").

8. Hydraulic clutch pipe

CAUTION : When reconnecting and disconnecting it, handle the hydraulic pipe keeping it straight and do not lever it to prevent any break.

N.B. : There are 3 connection systems between the hydraulic pipe and the hydraulic clutch slave cylinder (14).

8.1. Removing : Hydraulic clutch control master cylinder end

N.B. : First assembly - Second assembly.

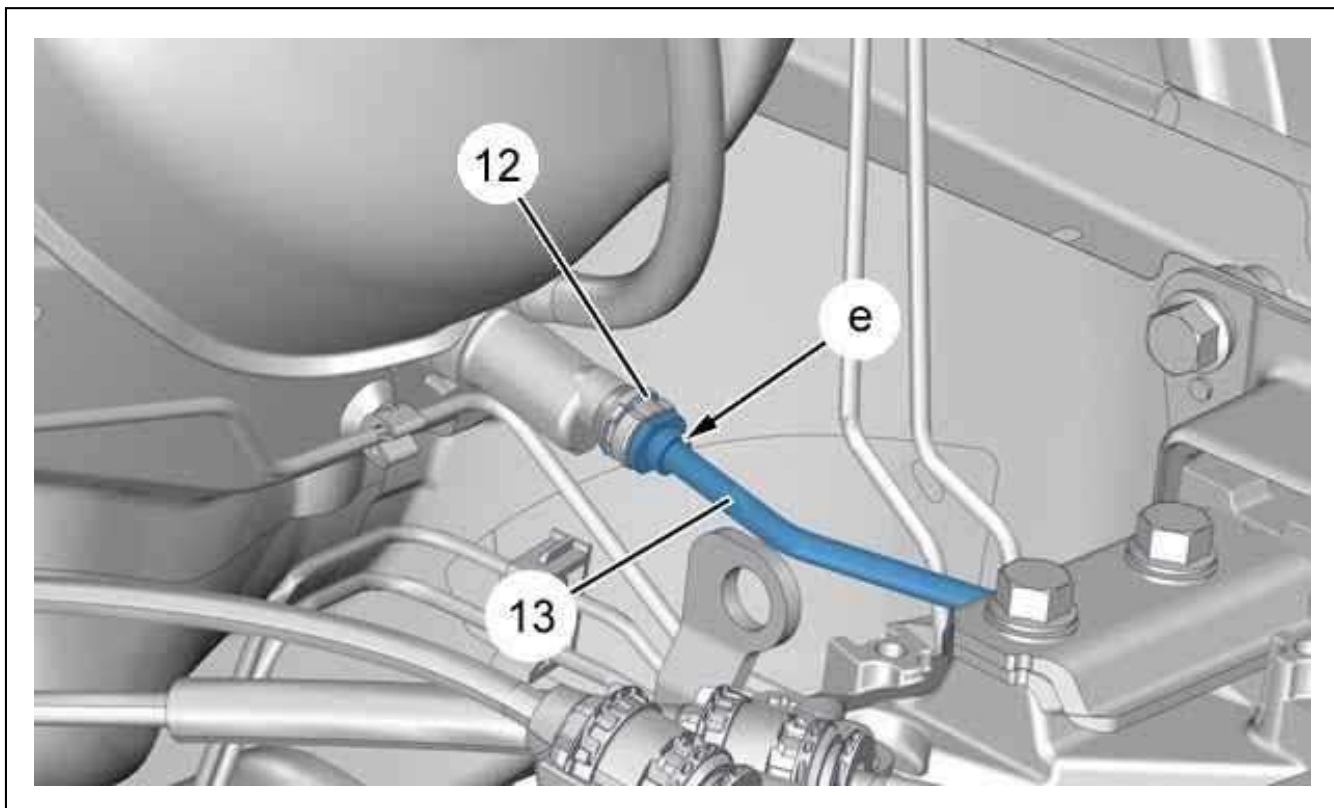


Figure : B2BG084D

Unclip the clip (12) (Without removing).
Uncouple the hydraulic pipe (13) (at "e").

N.B. : Third assembly.

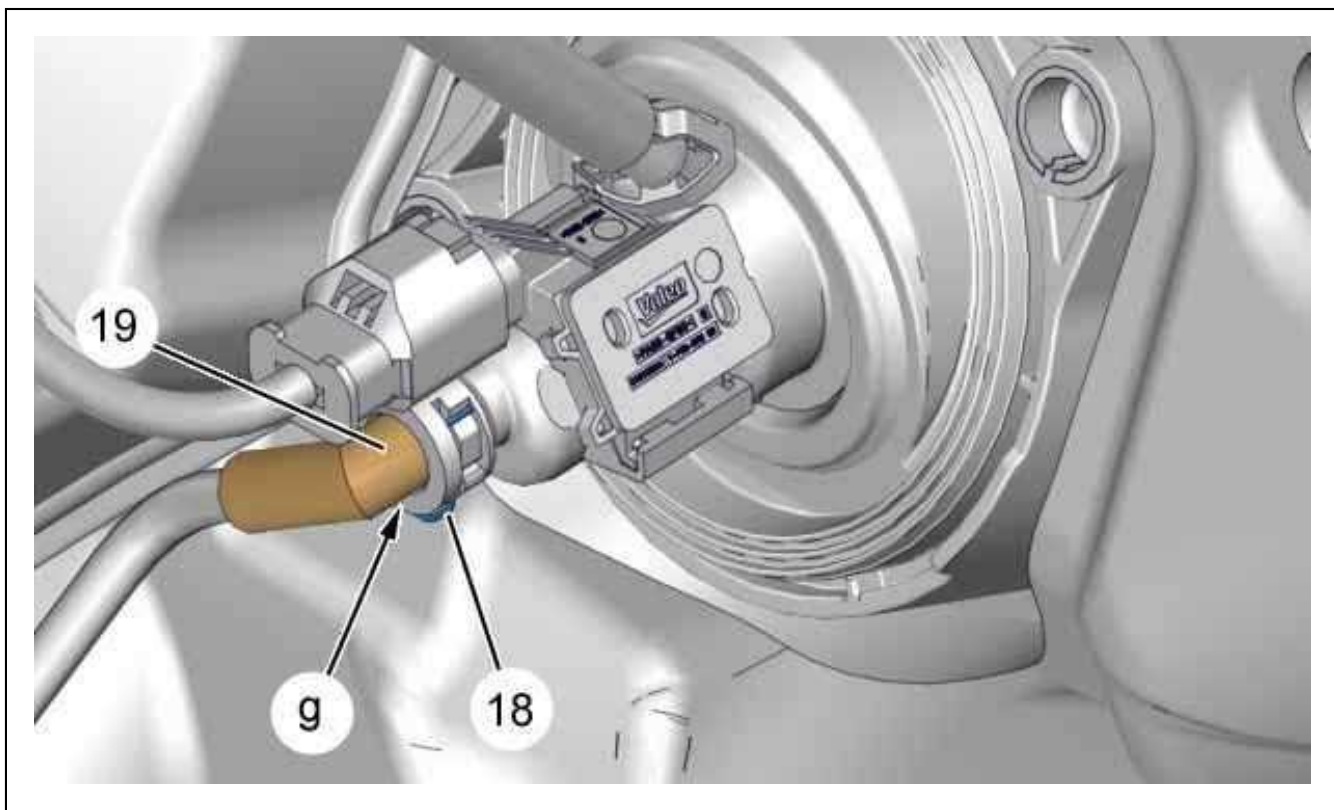


Figure : B2BG085D

Unclip the clip (18).

Uncouple the hydraulic pipe (19) (at "g").

8.2. Removing : Hydraulic clutch control slave cylinder end (Single-clip bleed system)

CAUTION : When reconnecting and disconnecting it, handle the hydraulic pipe (3) keeping it straight and do not lever it to prevent any break.

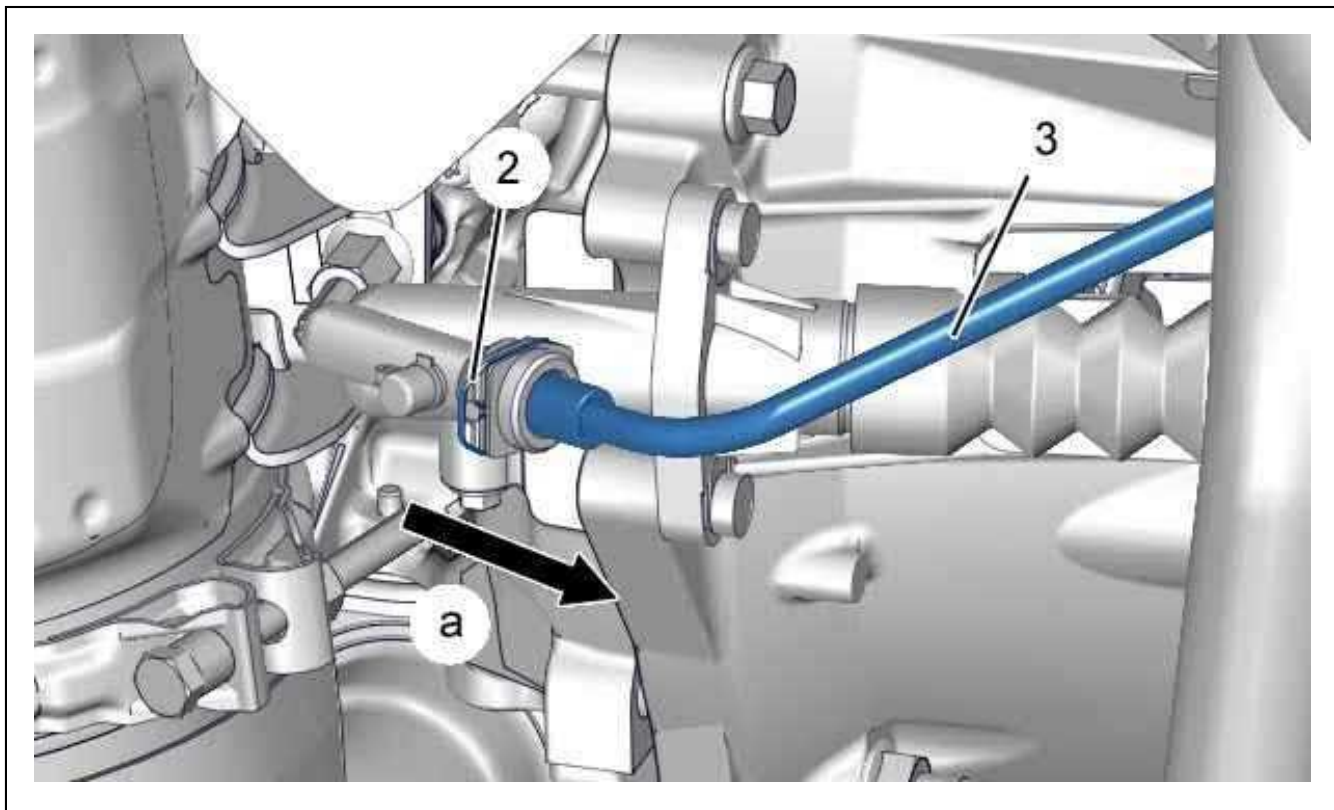


Figure : B2BG086D

CAUTION : Prepare for the flow of brake fluid. Use a cloth.

Press on the clip (2) and uncouple the hydraulic pipe (3)(In the direction of the arrow "a").

8.3. Removing : Hydraulic clutch control slave cylinder end (Double-clip bleed system)

CAUTION : When reconnecting and disconnecting it, handle the hydraulic pipe (4) keeping it straight and do not level it to prevent any break.

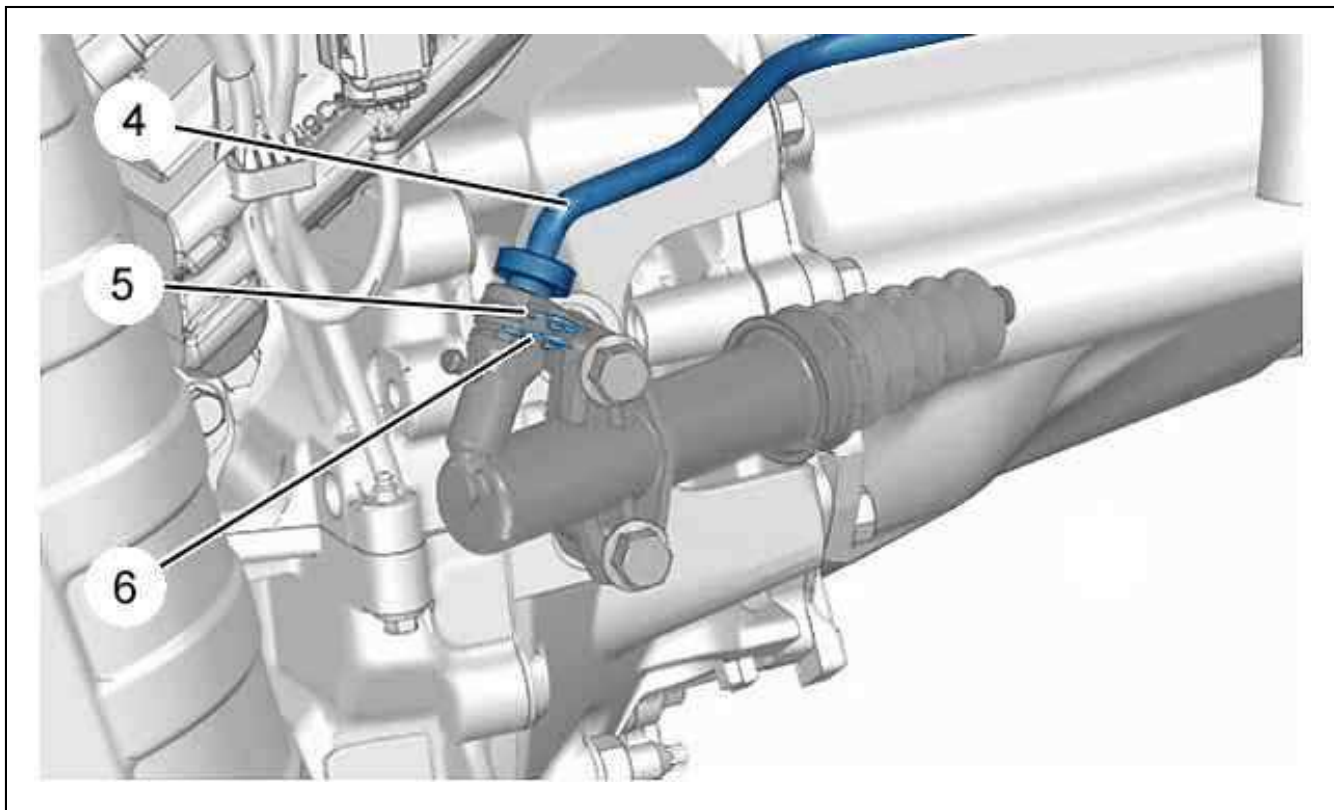


Figure : B2BG087D

CAUTION : Prepare for the flow of brake fluid. Use a cloth.

Unclip the clips (5), (6) (Without removing).

Uncouple the hydraulic pipe (4).

8.4. Removing : Hydraulic clutch control slave cylinder end (Screw bleed system)

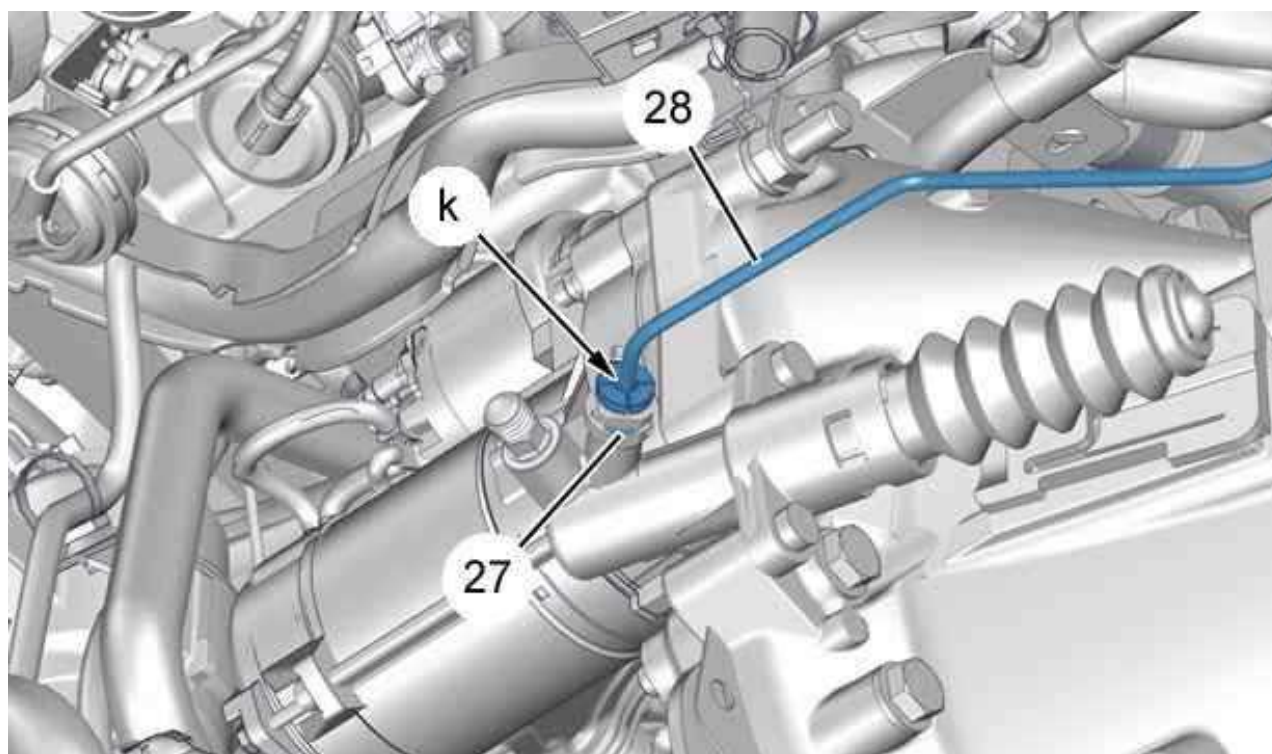


Figure : B2BG088D

CAUTION : Prepare for the flow of brake fluid. Use a cloth.

Unclip the clip (27) (Without removing).
Uncouple the hydraulic pipe (28) (at "k").

8.5. Removing : Hydraulic stop bleed union end

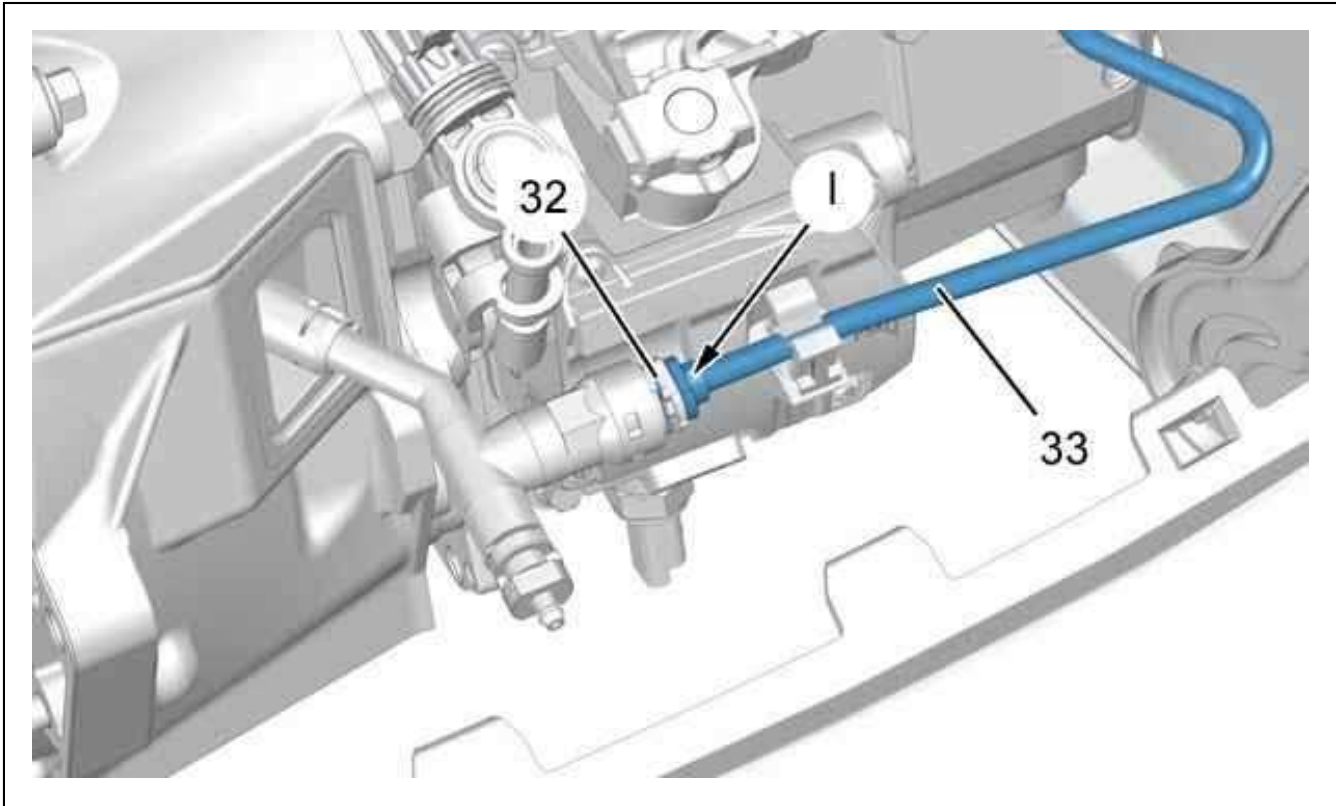


Figure : B2BG089D

Unclip the clip (32) (Without removing).
Uncouple the hydraulic pipe (33) (at "I").

8.6. Refitting

CAUTION : When coupling it, handle the hydraulic pipe keeping it straight and not levering it to prevent any break.

On the bleed union for hydraulic stop (34) :

- Connect the hydraulic pipe (33) (at "I")
- Clamp the clip (32)

Hydraulic clutch control slave cylinder end (30) (Screw bleed system) :

- Connect the hydraulic pipe (28) (at "k")
- Clamp the clip (27)

Hydraulic clutch control slave cylinder (24) side (Single-clip bleed system) : Connect the hydraulic pipe (3).

Hydraulic clutch control slave cylinder end (26) (Double-clip bleed system) :

- Connect the hydraulic pipe (4)
- Clamp the clip (6)

Hydraulic clutch control master cylinder end (14) ; First assembly - Second assembly :

- Connect the hydraulic pipe (13) (at "e")
- Clamp the clip (12)

Hydraulic clutch control master cylinder end ; Third assembly :

- Connect the hydraulic pipe (19) (at "g")
- Clamp the clip (18)

9. Refitting (continued)

Bleed the clutch hydraulic control.

Refit the parts that were removed for removal of the component(s) of the hydraulic clutch control.

Return the vehicle to its wheels.

CAUTION : Perform the operations that are required following a reconnection of the ancillaries battery.

Reconnect the ancillaries battery.

CAUTION : Check that the bleed opening is correctly closed by operating the clutch pedal several times and checking that there are no leaks or seeping (risk of vehicle fire in the event of a leak).

BLEEDING : NON-PILOTED MANUAL GEARBOX HYDRAULIC CLUTCH CONTROL

ESSENTIAL : Observe the safety and cleanliness recommendations ⓘ .

CAUTION : Use only clean fluid free from bubbles. Take care not to allow impurities to get into the hydraulic circuit.

There is more than one bleed system :

- Double-clip bleed system
- Screw bleed system

1. Preliminary operation

Put the vehicle on a hoist.

Remove components as necessary for bleeding the hydraulic clutch control.

N.B. : Use exclusively the hydraulic fluid(s) approved by the manufacturer.

ESSENTIAL : During the bleed operations, take care to maintain the level of brake fluid in the reservoir by topping it up (If necessary).

Before any operations :

- Mark the level of brake fluid in the reservoir
- Remove the brake fluid reservoir cap
- Fill the brake fluid reservoir to its maximum capacity

2. Bleeding : Hydraulic clutch control (Double-clip bleed system)

CAUTION : When coupling and uncoupling, maintain the hydraulic pipe in its axis and do not lever it, so as to prevent any rupture.

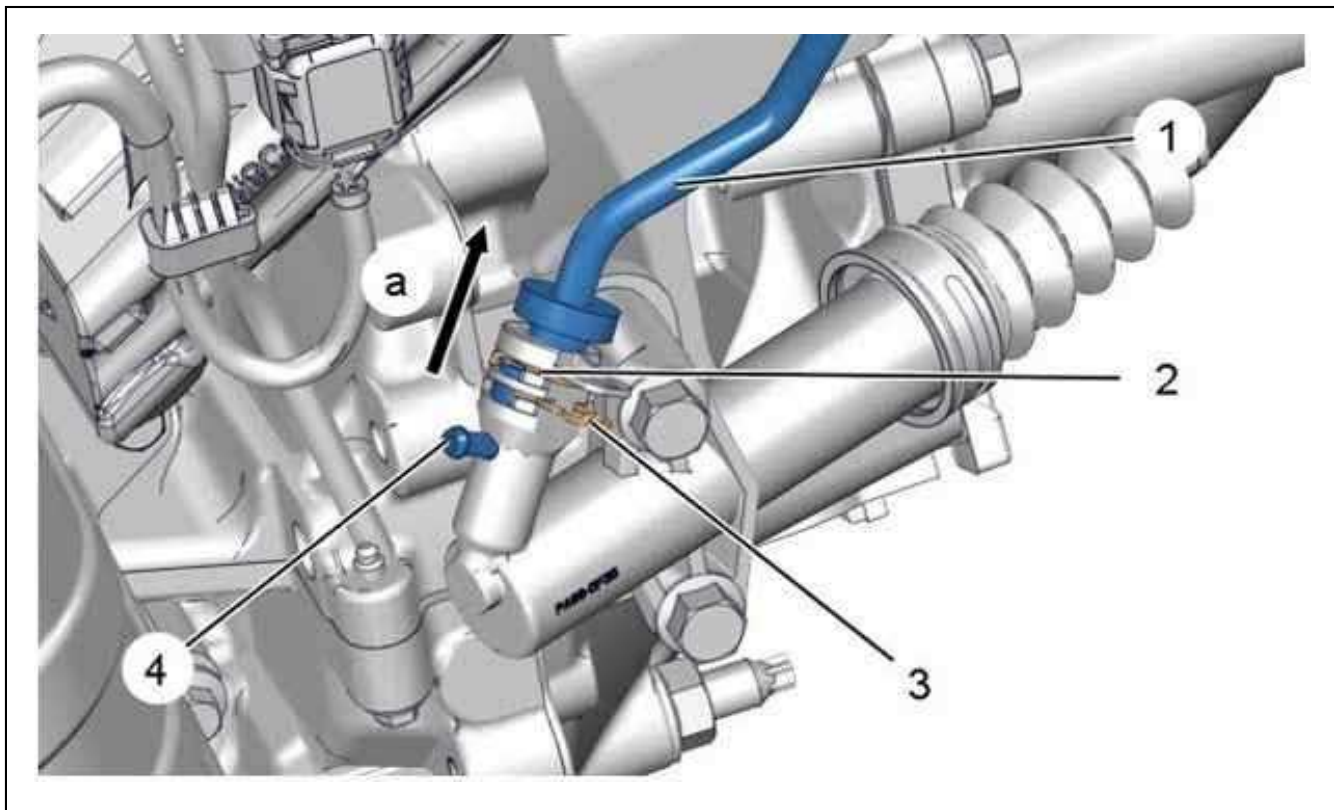


Figure : B2BG007D

Remove the protection cap from the bleed orifice (4).

Store the protection cap in a clean place.

Connect a transparent tube onto the bleed orifice (4).

CAUTION : The end of the transparent pipe must be submerged into the brake fluid.

Clamp the clip (2).

CAUTION : The clip (2) must always remain clipped in position on the hydraulic clutch slave cylinder during the bleed.

Unclip the clip (3).

Pull on the hydraulic pipe (1) to free the bleed orifice (4) (In the direction of the arrow "a").

Allow the brake fluid to flow out by gravity until there are no air bubbles.

Clamp the clip (3).

Push in the hydraulic pipe (1) to close the bleed orifice (4) (In the opposite direction to the arrow).

Fill the brake fluid reservoir to its maximum capacity.

N.B. : Two people are required to perform the following operation.

Unclip the clip (3).

Pull on the hydraulic pipe (1) to free the bleed orifice (4)(In the direction of the arrow "a").

Press the clutch pedal slowly down to the floor.

Clamp the clip (3).

Push in the hydraulic pipe (1) to close the bleed orifice (4) (In the opposite direction to the arrow "a").

Unclip the clip (2).

N.B. : Manually refit the clutch pedal in its high position.

Repeat the operation until the fluid running out is clean and free from air bubbles (20 times minimum).

Top up the brake fluid to the level marked previously.

Refit the brake fluid reservoir cap .

Uncouple the transparent pipe.

Refit the protection cap on the bleed aperture (4).

Check the travel of the hydraulic clutch control slave cylinder (see corresponding chapter).

CAUTION : Check that the bleed opening (4) is correctly closed by operating the clutch pedal several times. Check there are no leaks or seeping (risk of vehicle fire in the event of a leak).

3. Bleeding : Hydraulic clutch control (Screw bleed system)

3.1. Quarter turn system

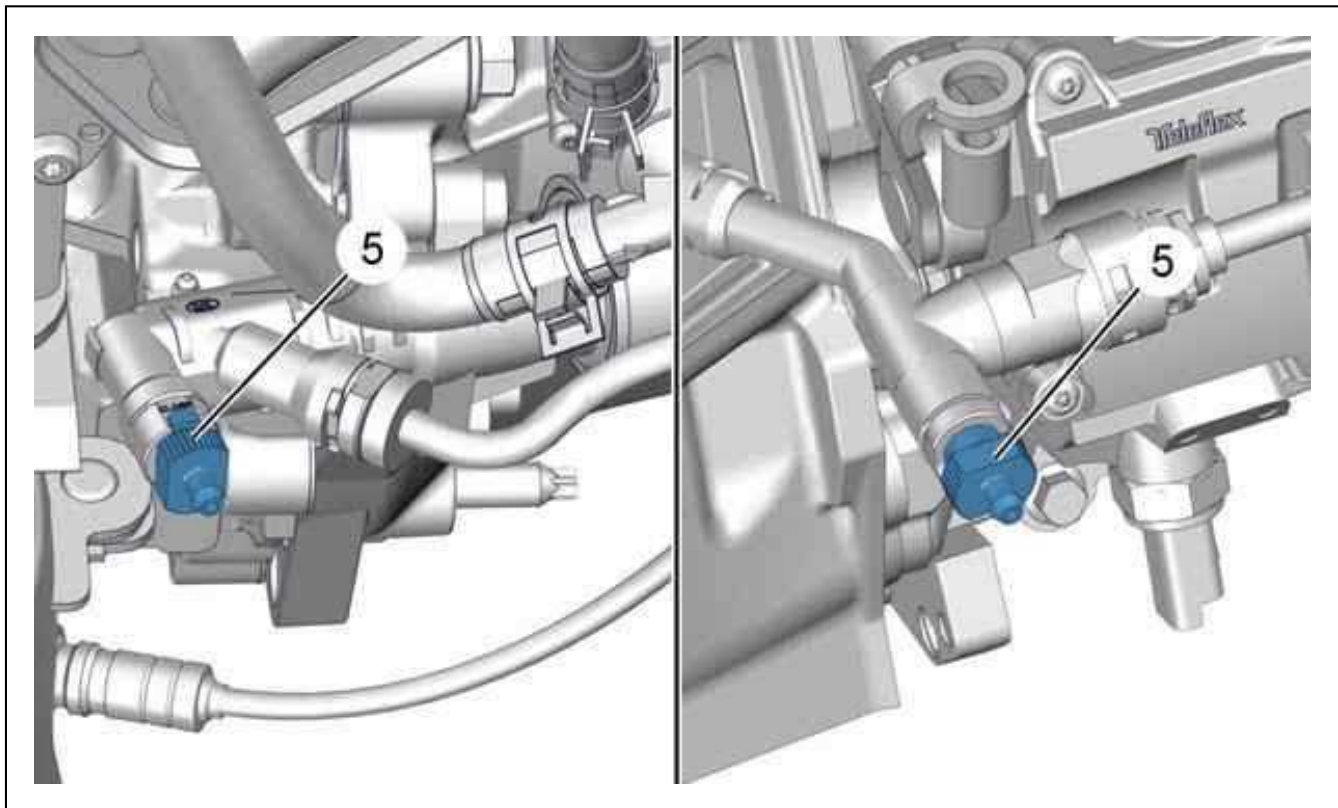


Figure : B2BI006D

Remove the bleed screw (5) protection cap.

Store the protection cap in a clean place.

Couple a transparent tube on the bleed screw (5).

CAUTION : The end of the transparent pipe must be submerged into the brake fluid.

N.B. : Two people are required to perform the following operation.

Retain the clutch pedal in the lowest position (end of travel).

Open the bleed screw (5) :

- A half-turn anti-clockwise for a hydraulic clutch control slave cylinder
- A half-turn anti-clockwise for a bleed union

Allow the brake fluid to flow out by gravity.

Close the bleed screw (5) :

- A half-turn clockwise for a hydraulic clutch control slave cylinder
- A half-turn clockwise for a bleed union

N.B. : Manually refit the clutch pedal in its high position.

Repeat the operation until the fluid running out is clean and free from air bubbles (20 times minimum).

Top up the brake fluid to the level marked previously.

Refit the brake fluid reservoir cap .

Disconnect the transparent pipe from the bleed screw (5).

Refit the protection cap on the bleed screw (5).

Check the travel of the hydraulic clutch control slave cylinder (See paragraph 4).

CAUTION : Check there are no leaks or seeping (risk of vehicle fire in the event of a leak).

3.2. 6-sided screw system

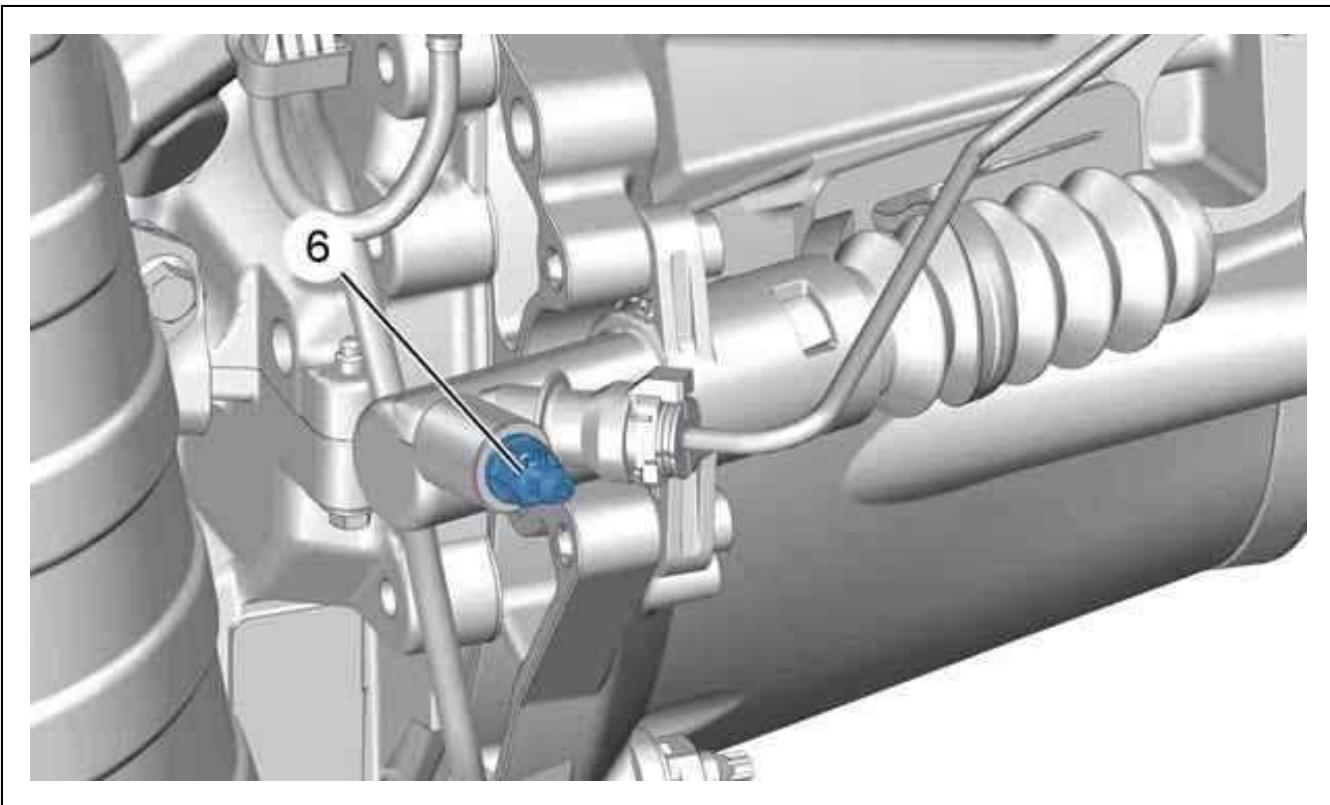


Figure : B2BI007D

Remove the bleed screw (6) protection cap.

Store the protection cap in a clean place.

Couple a transparent tube on the bleed screw (6).

CAUTION : The end of the transparent pipe must be submerged into the brake fluid.

N.B. : Two people are required to perform the following operation.

Retain the clutch pedal in the lowest position (end of travel).

Turn the bleed screw (6) (Anti-clockwise).

Allow the brake fluid to flow out by gravity.

Close the bleed screw (6) (Clockwise).

N.B. : Manually refit the clutch pedal in its high position.

Repeat the operation until the fluid running out is clean and free from air bubbles (20 times minimum).

Top up the brake fluid to the level marked previously.

Refit the brake fluid reservoir cap .

Uncouple the transparent pipe.

Refit the protection cap on the bleed screw (6).

Check the travel of the hydraulic clutch control slave cylinder (See paragraph 4).

CAUTION : Check there are no leaks or seeping (risk of vehicle fire in the event of a leak).

4. Checking : Travel of the hydraulic clutch control slave cylinder

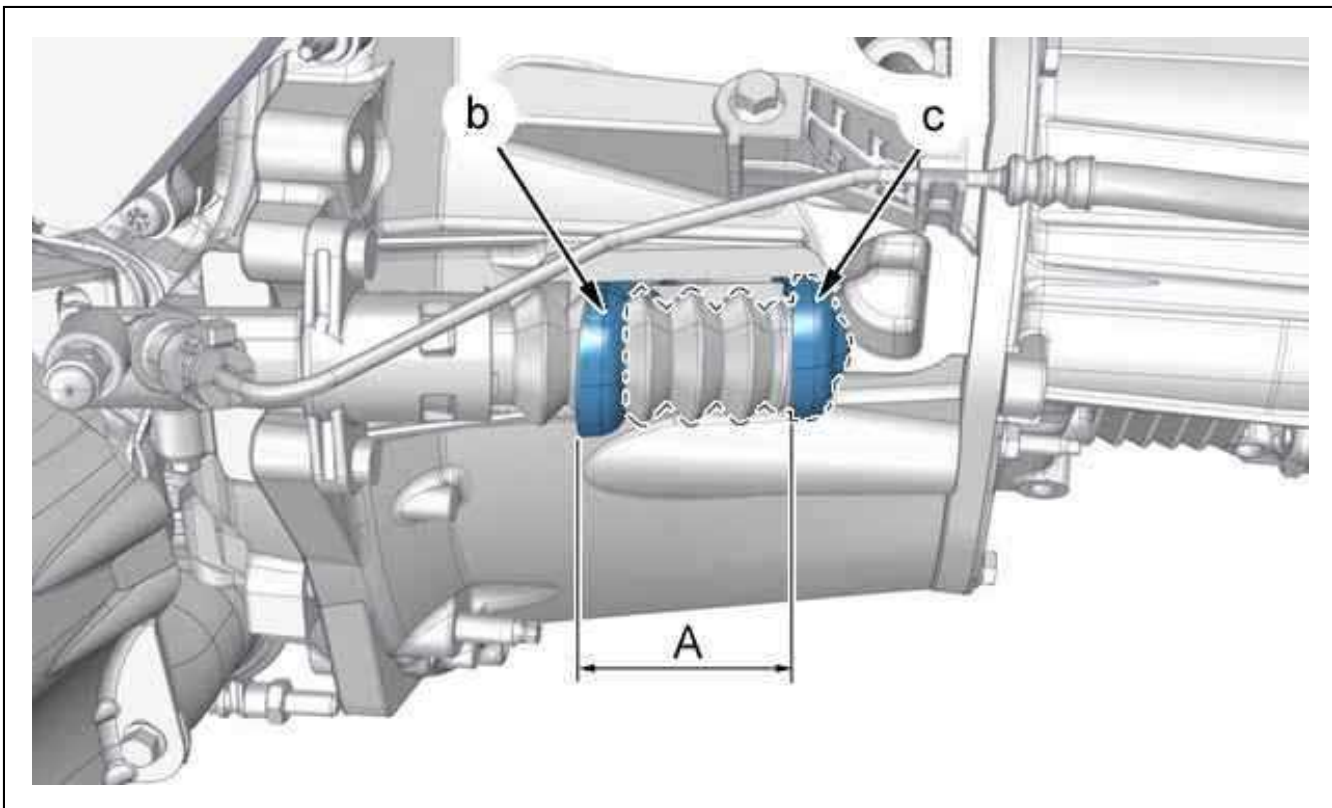


Figure : B2CI008D

Measure the travel "A", from the clutched position "b" to the declutched position "c".

The travel "A" should be between 18 and 22 mm.

If the value is incorrect : Repeat the bleed operations.

IDENTIFICATION - DATA : MANUAL GEARBOX ML6C

1. Identification

1.1. Exterior presentation

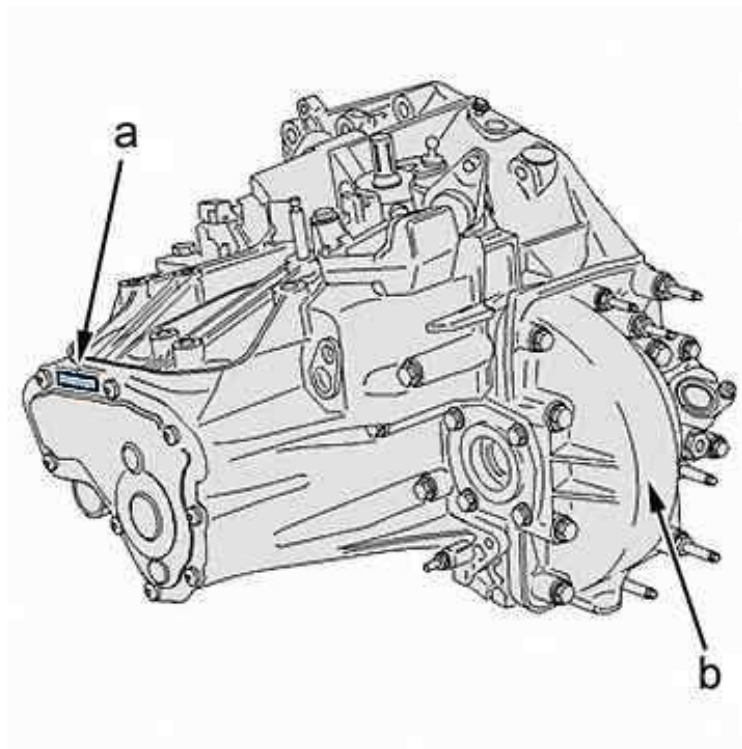


Figure : B2CP4TTD

"a" : Identification label location.

"b" : Serial no. marking zone.

N.B. : This gearbox has a reverse gear locking device.

1.2. Interior presentation

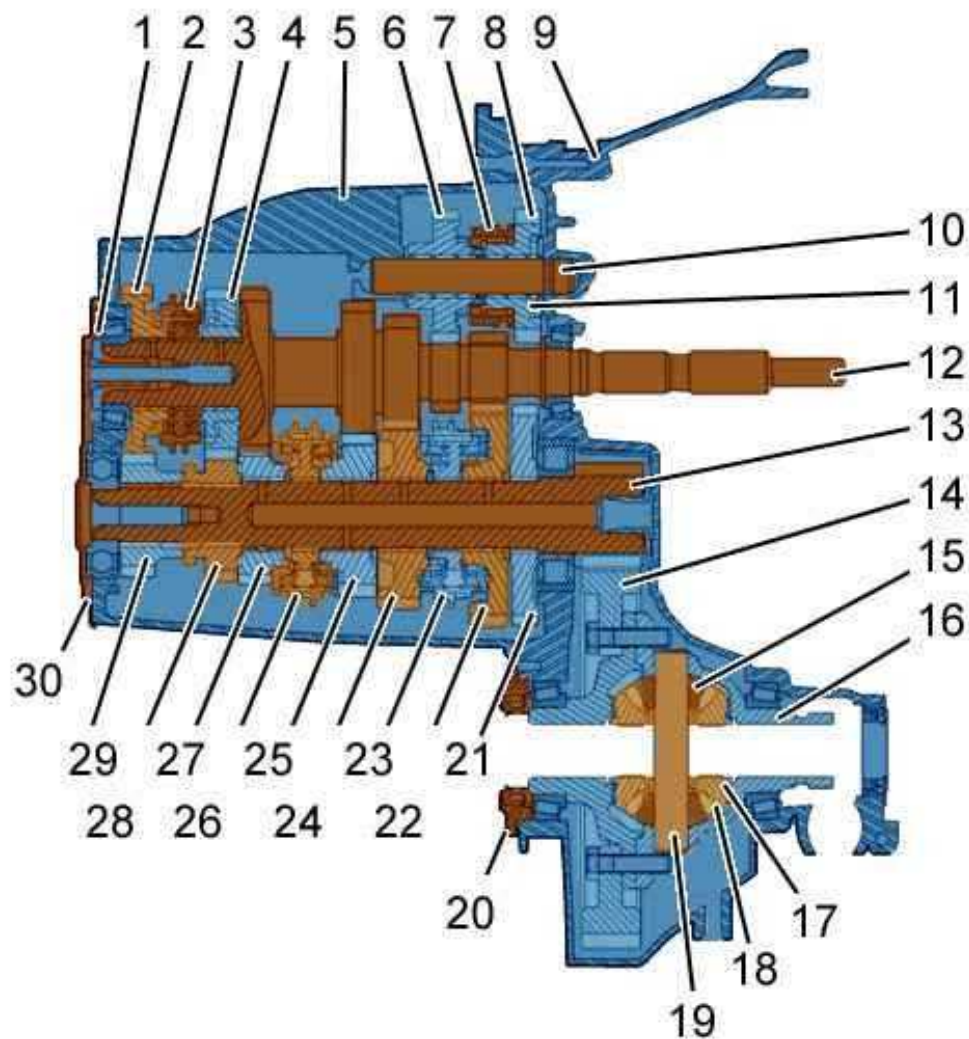


Figure : B2CP3SCP

- (1) Primary shaft bearing clearance adjusting shim.
- (2) 6th gear drive pinion.
- (3) 5th gear/6th gear synchronisation.
- (4) 5th gear.
- (5) gearbox casing.
- (6) Reverse gear intermediate pinion.
- (7) Reverse gear synchronizer.
- (8) Reverse gear sliding pinion.
- (9) clutch housing.
- (10) Reverse gear shaft.
- (11) Reverse gear needle thrust bearing.
- (12) input shaft.
- (13) output shaft.
- (14) Differential crown wheel .

- (15) planet wheels.
- (16) differential box.
- (17) Planet gear adjustment shims.
- (18) sun wheels.
- (19) Planet wheels shaft.
- (20) differential bearing retaining plate.
- (21) Reverse gear driven pinion.
- (22) 1st gear driven pinion.
- (23) 1st/2nd gear synchronizer.
- (24) 2nd gear driven pinion.
- (25) 3rd gear driven pinion.
- (26) 3rd/4th synchronizer.
- (27) 4th gear driven pinion.
- (28) 5th speed driven gear.
- (29) 6th gear driven pinion.
- (30) 6th gear housing.

2. Adjustments

2.1. differential

The differential comprises 4 planetary pinions.

The adjustment of the play in the meshing between planet gear pinions and satellites is by means of friction washers of different thicknesses.

Maximum axial meshing play : 0,10 mm .

2.2. input shaft

Play between the outer bearing face on the 5th gear side and the upper face of the gearbox casing (There should be a 0,06 to 0,15 mm clearance).

Conditions for checking :

- Apply a load of $5 \pm 0,2$ m.daN on the bearing face
- Rotate the primary shaft by 10 turns, at least

2.3. output shaft

The secondary shaft has no adjustment.

3. Repair

The following must be replaced :

- The 6th gear housing each time it is removed (deformation caused by dismantling)
- The input and output shaft bolts

4. Data

4.1. Application

engine		
Research type	Legislation type	Type of gearbox/Stages
DW10BTED4	RHR	ML6C/L
DW10UTED4	RHK	
	RHG	
DW10CTED4	RHH	

4.2. Gearbox ratios

Type of gearbox	1st	2nd	3rd	4th	5th	6th	Reverse gear
ML6C/L	12/41	23/41	33/37	44/35	51/33	58/31	12/23

4.3. Speeds per 1000 rpm (km/h)

engine	RHR		RHK-RHG	RHH	
crown wheel and pinion	14x67		15x67	14x67	
speedometer drive	Without				
tyres	215/60 R16	215/65 R15	215/60 R16	215/60 R16	215/65 R15
Rolling circumference	2,017	2,013	2,017	2,017	2,013
1st	7,40	7,39	7,93	7,40	7,39
2nd	14,19	14,16	15,20	14,19	14,16
3rd	22,55	22,51	24,16	22,55	22,51
4th	31,79	31,73	34,06	31,79	31,73
5th	39,08	39,00	41,87	39,08	39,00
6th	47,31	47,22	50,69	47,31	47,22
Reverse gear	7,06	7,04	7,97	7,06	7,04

5. Lubrication

5.1. Oil capacity after emptying

For engines DV :

- 1,9 litre (Gearbox casing with fins)
- 2,6 litres (Gearbox casing without fins)

5.2. Oil capacity after overhaul

For engines DV :

- 2,2 litres (Gearbox casing with fins)
- 2,9 litres (Gearbox casing without fins)

Check the oil level : No check of level (*).

Lubricated for life.

N.B. : (*) Make a visual check of the sealing at each engine draining operation.

CAUTION : It is essential to drain the gearbox and refill it with the exact quantity of oil in the event of an external leak and after a repair.

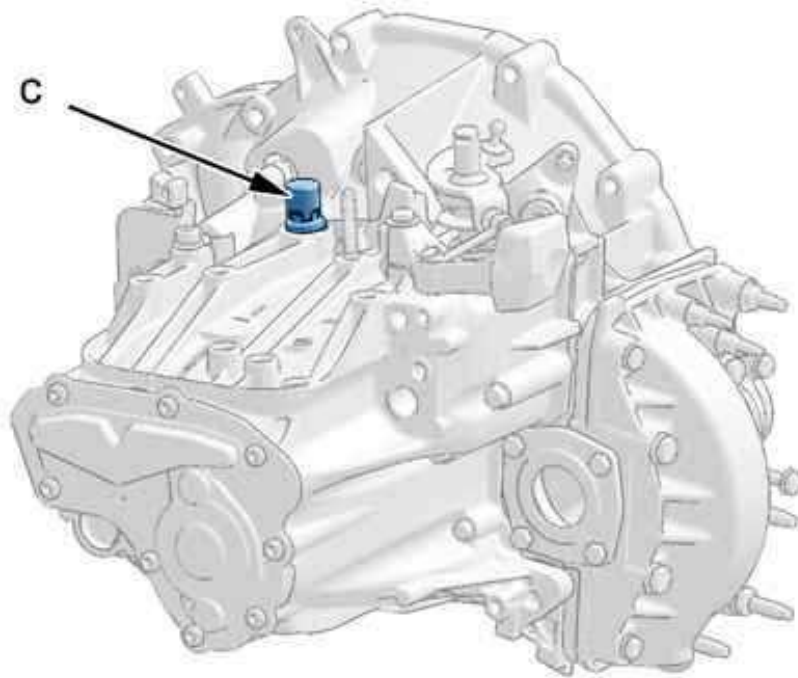


Figure : B2CP468D

Gearbox filled with oil through the air vent (as "c").

PRESENTATION : RECOMMENDED TOOLS

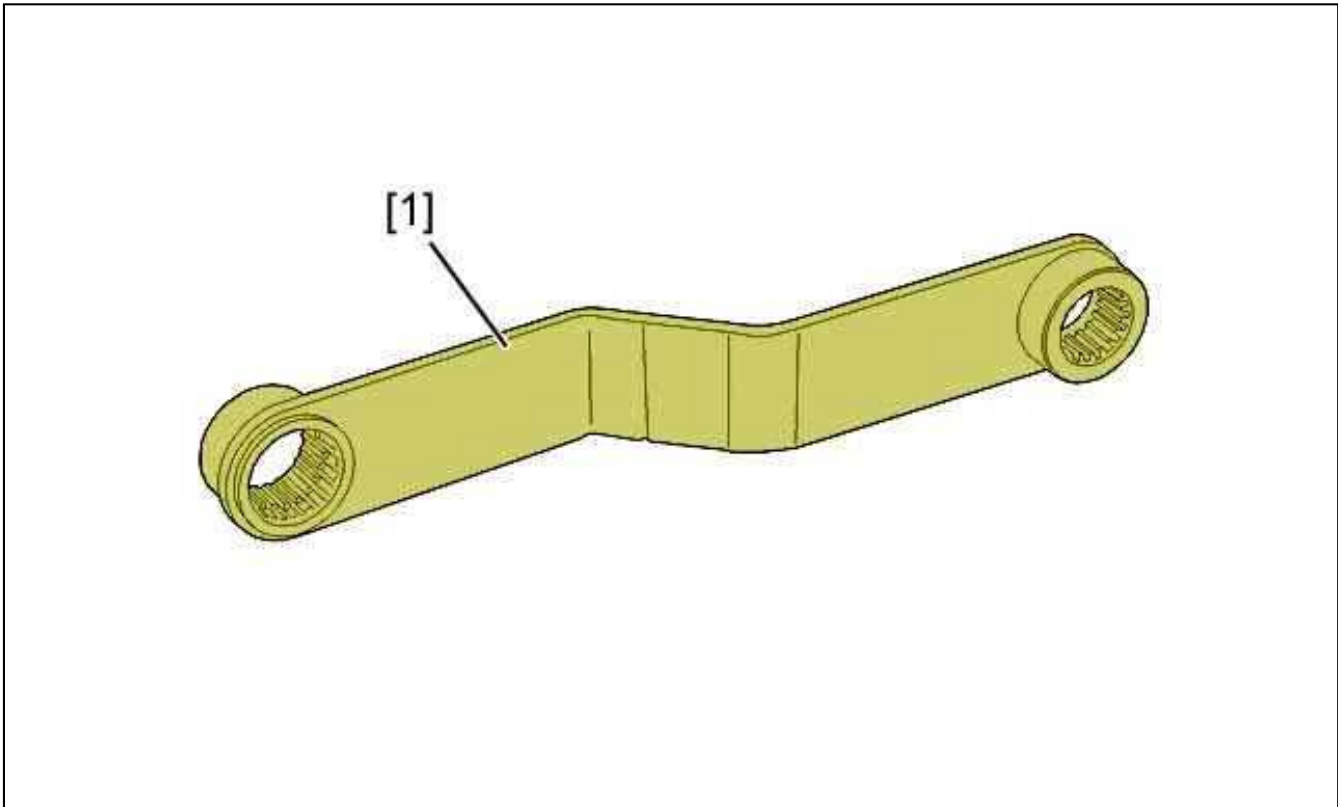


Figure : E5AM09RD

Reference	Designation	Reference
[1]	Input shaft lock ring	(-).0343

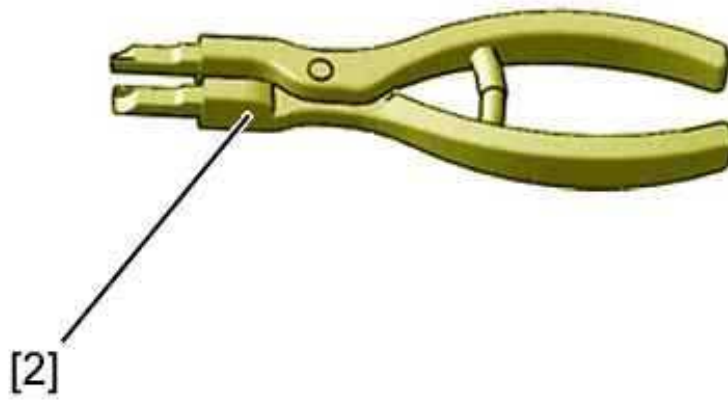


Figure : E5AB00BD

Reference	Designation	Reference
[2]	Exterior stop ring pliers FACOM	411.A-17

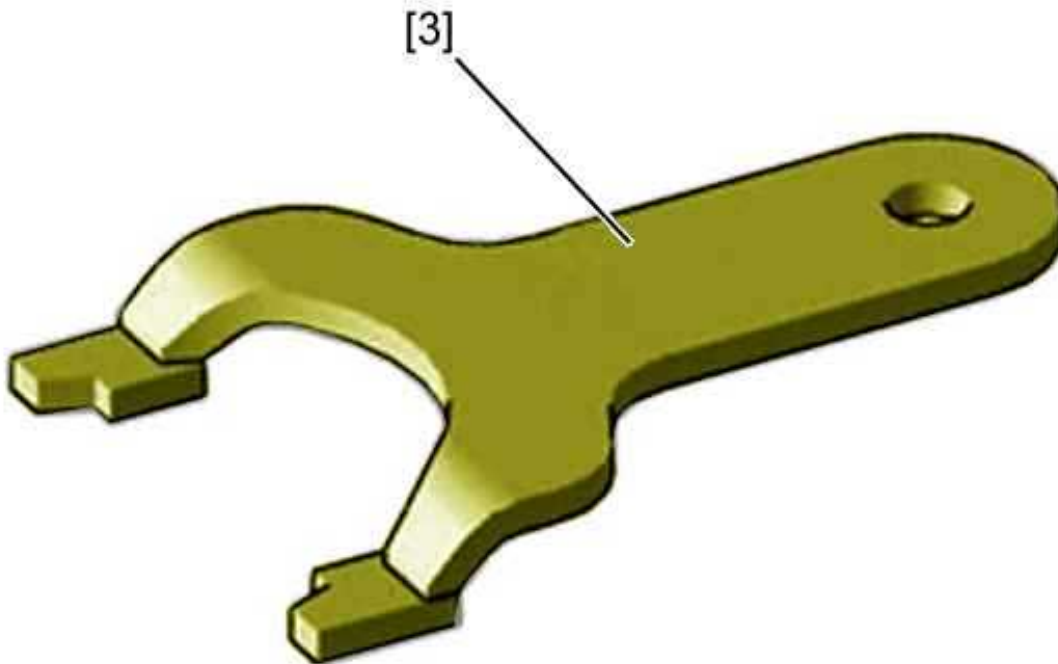
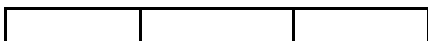


Figure : E5AP3NPD



Reference	Designation	Reference
[3]	Circlip push (-).0332-T	

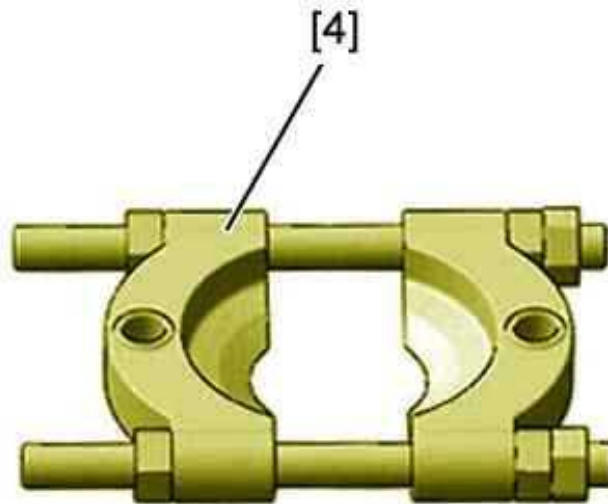


Figure : E5AB00CD

Reference	Designation	Reference
[4]	[/] universal extractor FACOM	U53 - Stripping device T2

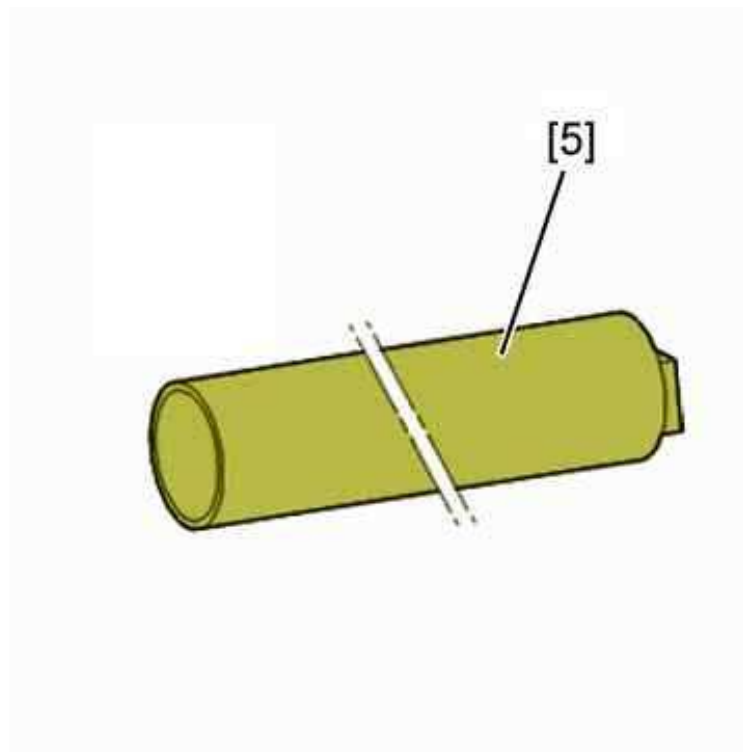


Figure : E5AB00ED

Reference	Designation	Reference
[5]	Input shaft bearing inner race fitting tube 1st gear end)	(-).0332-J (5708-T.R)

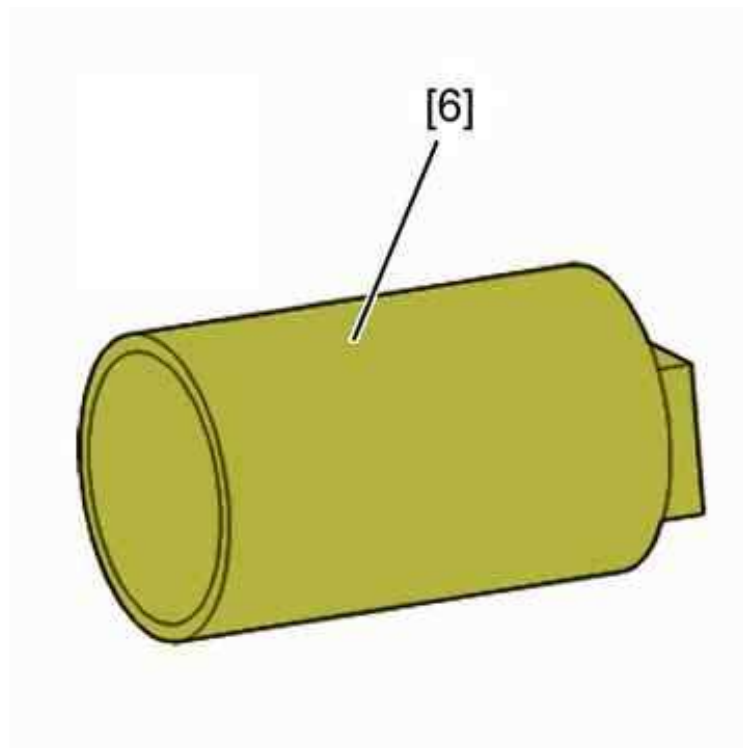


Figure : E5AB00FD

Reference	Designation	Reference
[6]	Input shaft bearing inner race fitting tube (5th gear end)	(-).0332-H (5708-T.Q)

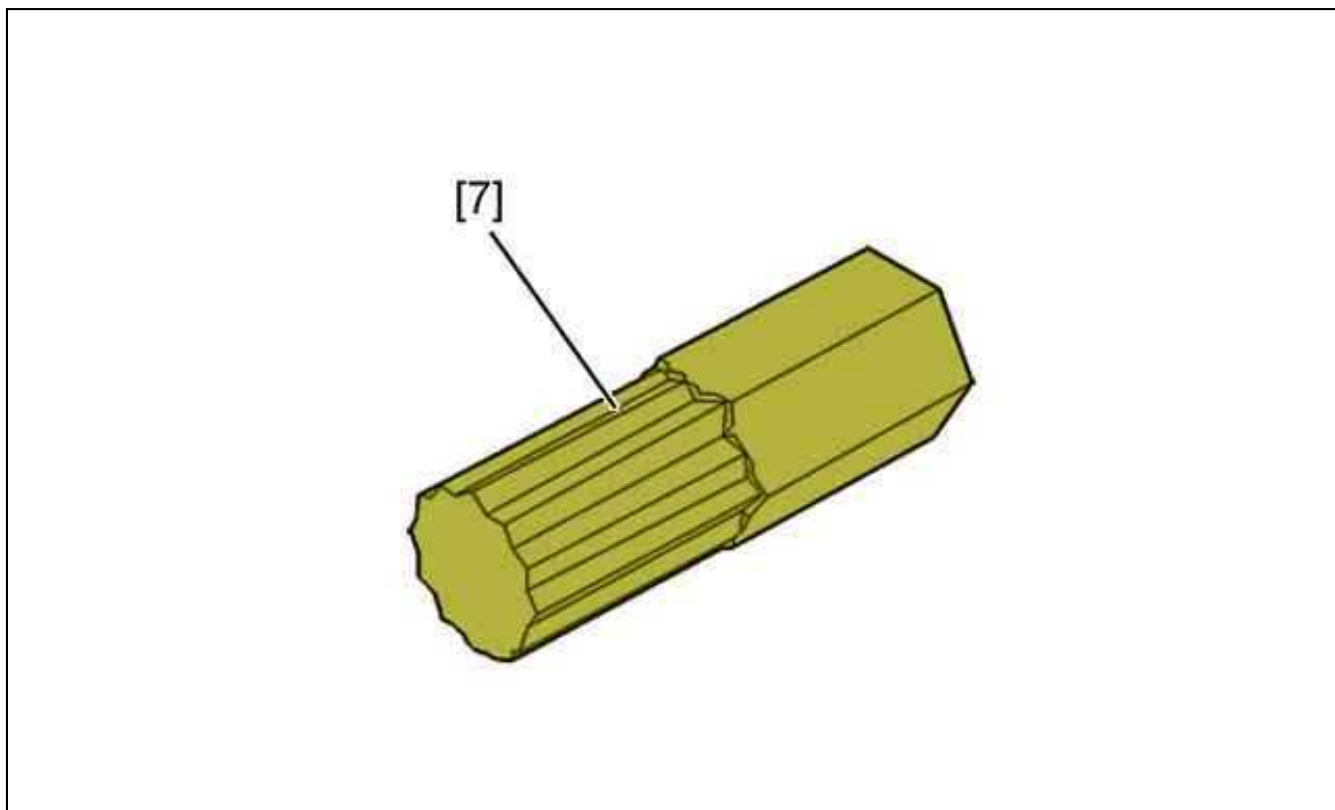


Figure : E5AB00GD

Reference	Designation	Reference
[7]	Input shaft locking bolt screwing adaptor	(-).0332-U

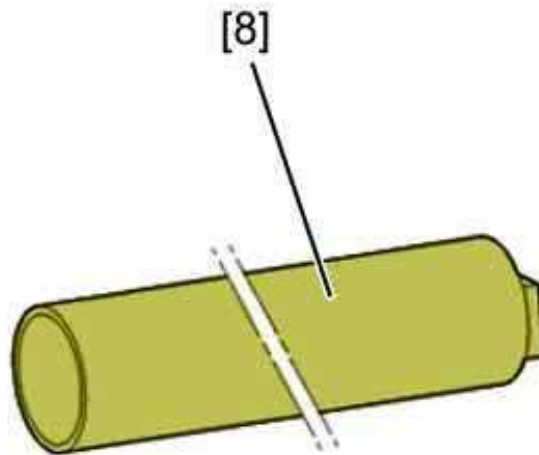


Figure : E5AB00ID

Reference	Designation	Reference
[8]	Output shaft bearing fitting tube (differential end)	(-).0332-G (5708-T.P)

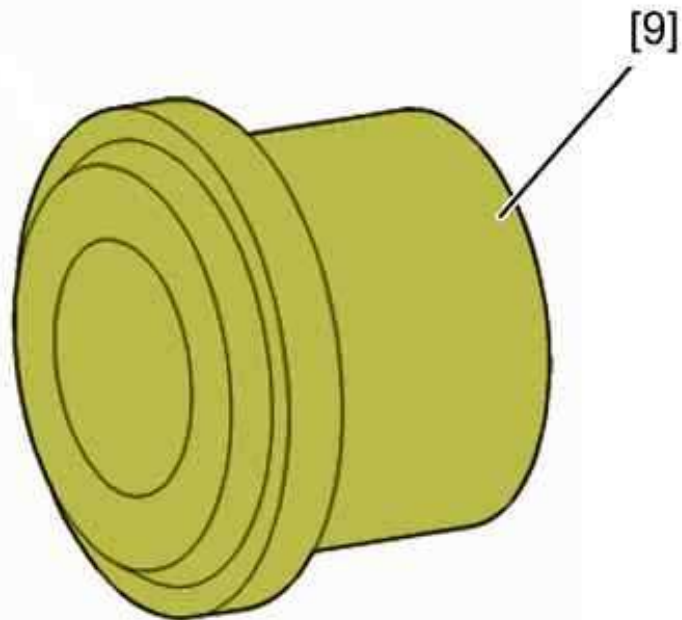


Figure : E5AB00JD

Reference	Designation	Reference
[9]	Primary shaft bearing exterior cage mounting tube (5th gear end)	(-).0332-S

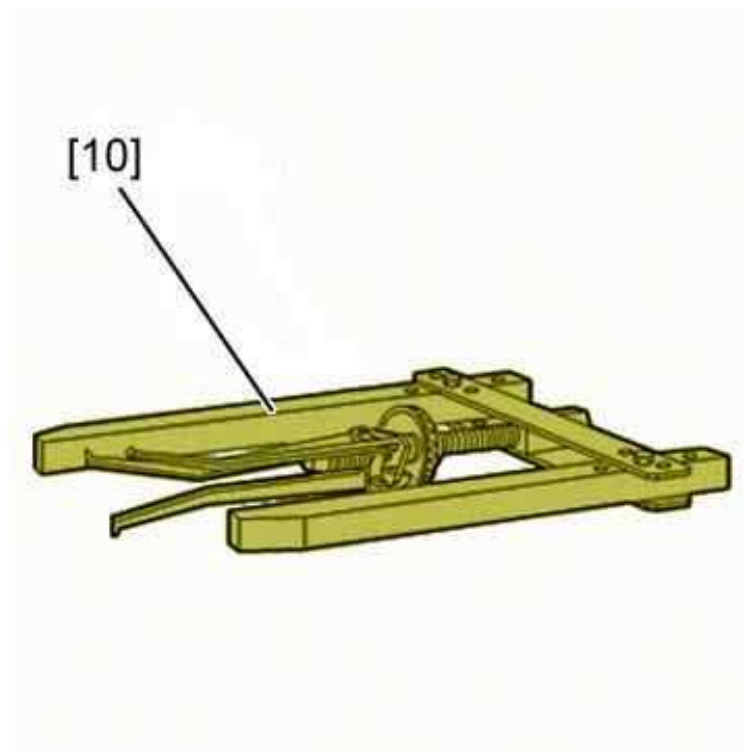


Figure : E5AB00KD

Reference	Designation	Reference
[10]	Differential bearing outer race extractor	5703-T and (-).0330-F

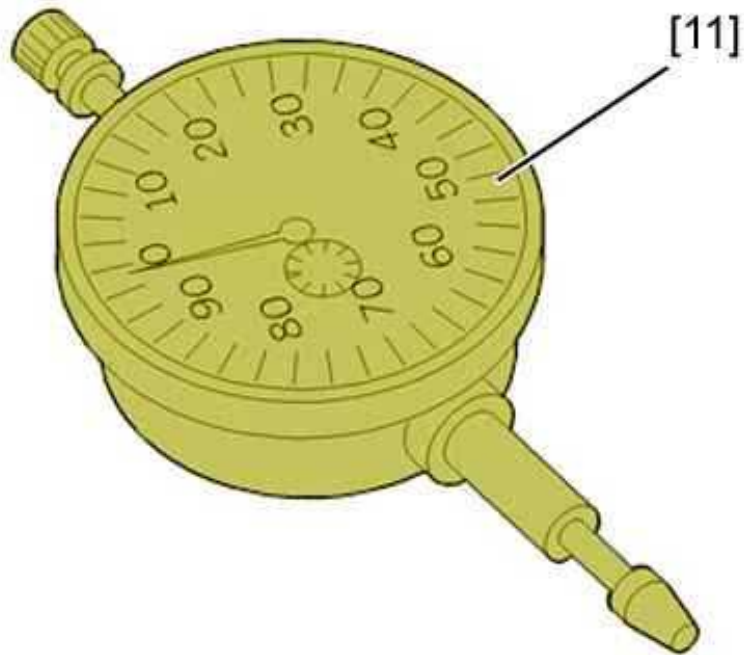


Figure : E5AB00LD

Reference	Designation	Reference
[11]	dial gauge	2437-T ((-).1504)

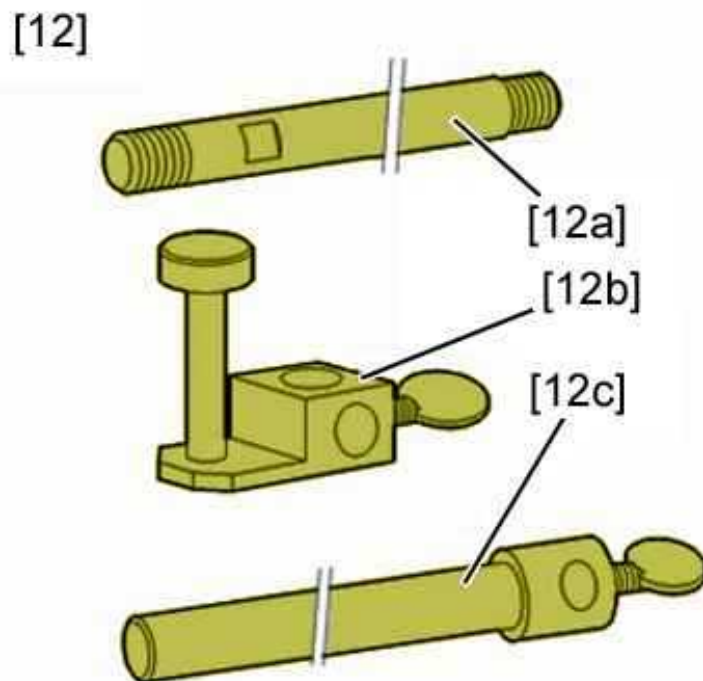


Figure : E5AB00MD

Reference	Designation	Reference
[12]	Dial gauge support assembly	(-).0330-V (5708-T.V)
[12a]	Dial gauge bracket rod	(-).0330-V1 (5708-T.V1)
[12b]	dial gauge support	(-).0330-V2 (5708-T.V2)
[12c]	Dial gauge bracket rod	(-).0330-V3 (5708-T.V3)

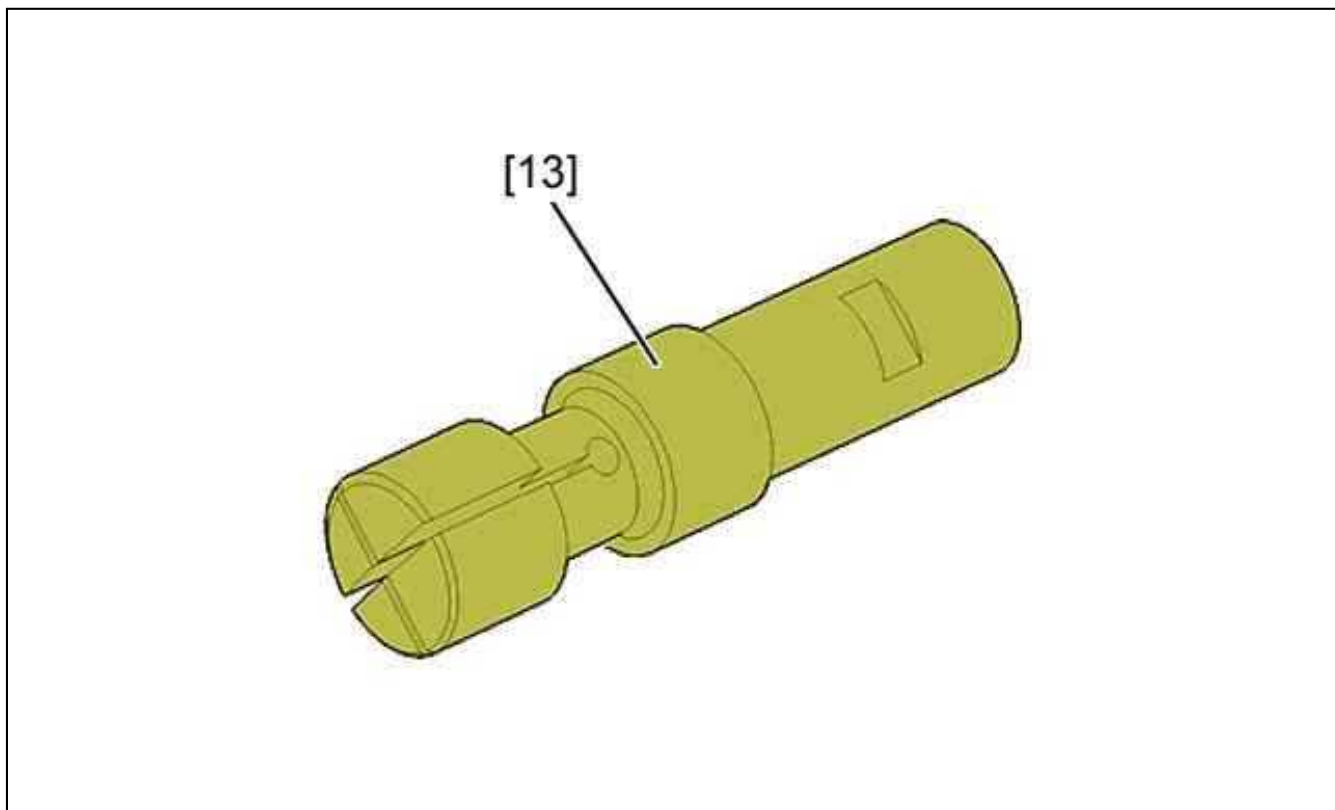


Figure : E5AB00ND

Reference	Designation	Reference
[13]	Expanding mandrel	(-).0327-AA (5701-T.C)

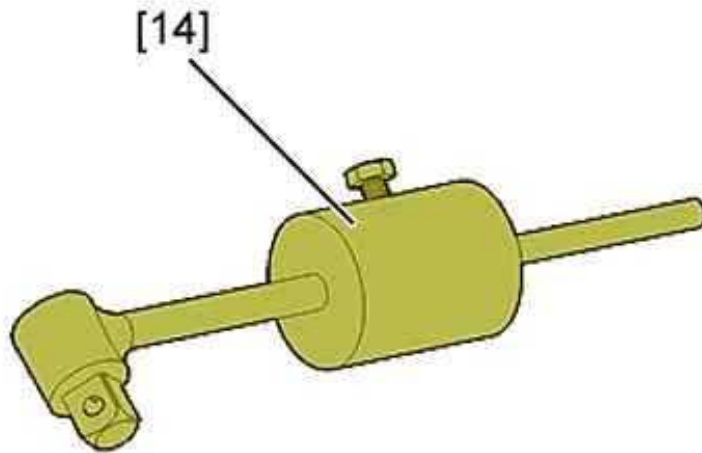


Figure : E5AB00OD

Reference	Designation	Reference
[14]	Drag torque checking tool (ME5TU)	(-).0327-AB (5701-T.E)

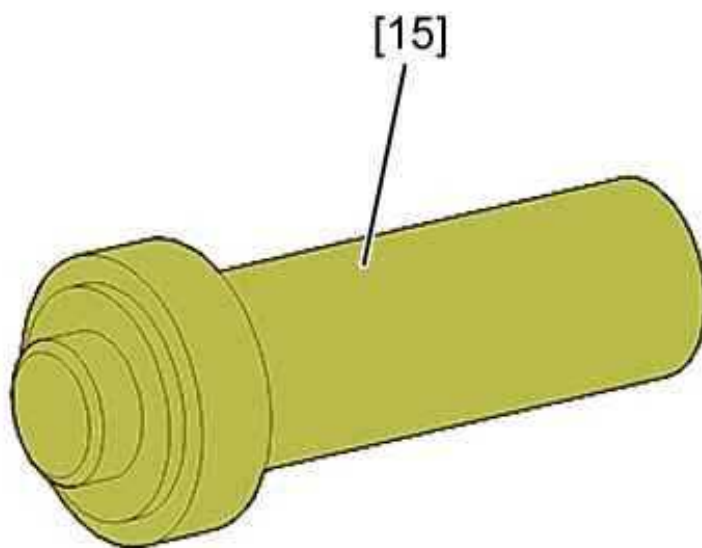


Figure : E5AB00PD

Reference	Designation	Reference
[15]	Differential seal fitting drift (right hand side)	(-).0332-B (9017-T.C)

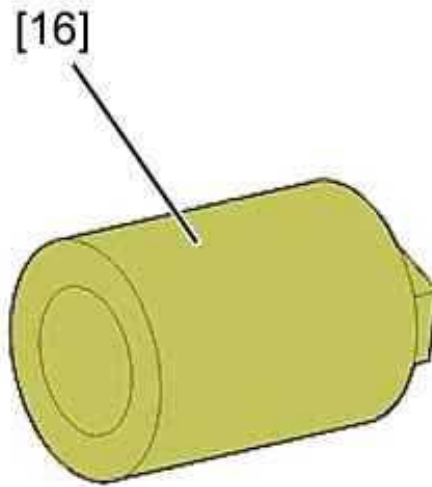


Figure : E5AB00QD

Reference	Designation	Reference
[16]	Differential bearing fitting tube	(-).0332-C (9017-T.G)

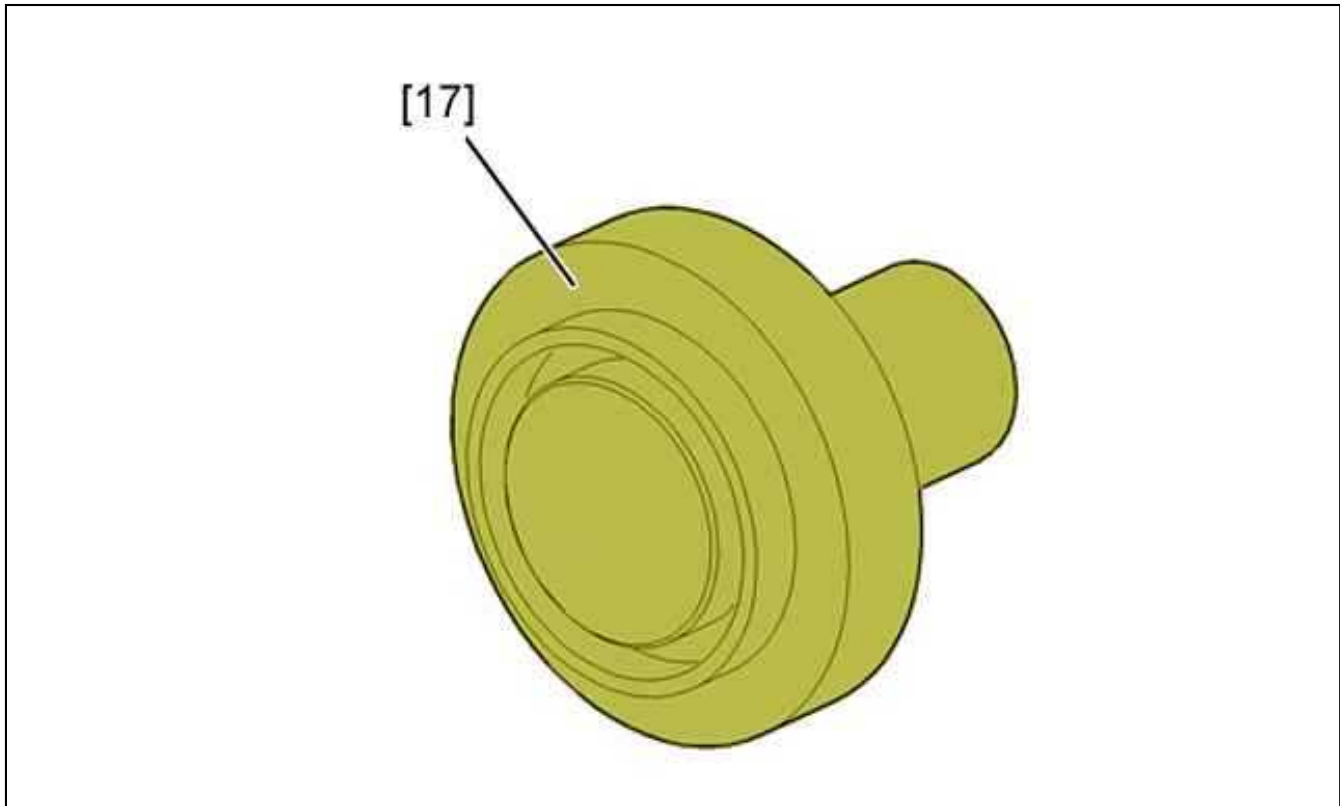


Figure : E5AB00RD

Reference	Designation	Reference
[17]	Differential seal fitting drift (On the left-hand side)	(-).0332-A (5701-T.A)

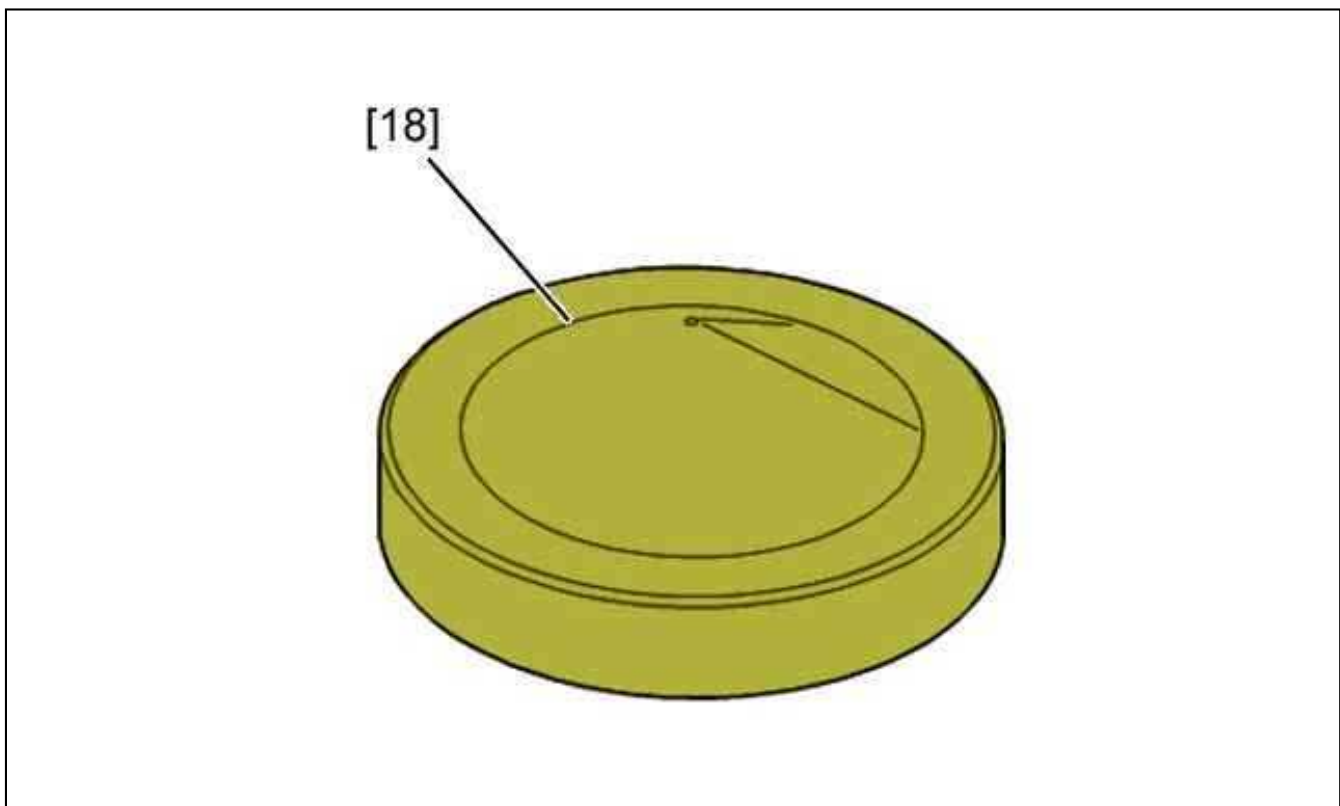
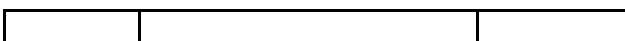


Figure : E5AB00SD



Reference	Designation	Reference
[18]	Secondary shaft thrust pad	(-).0332-D2

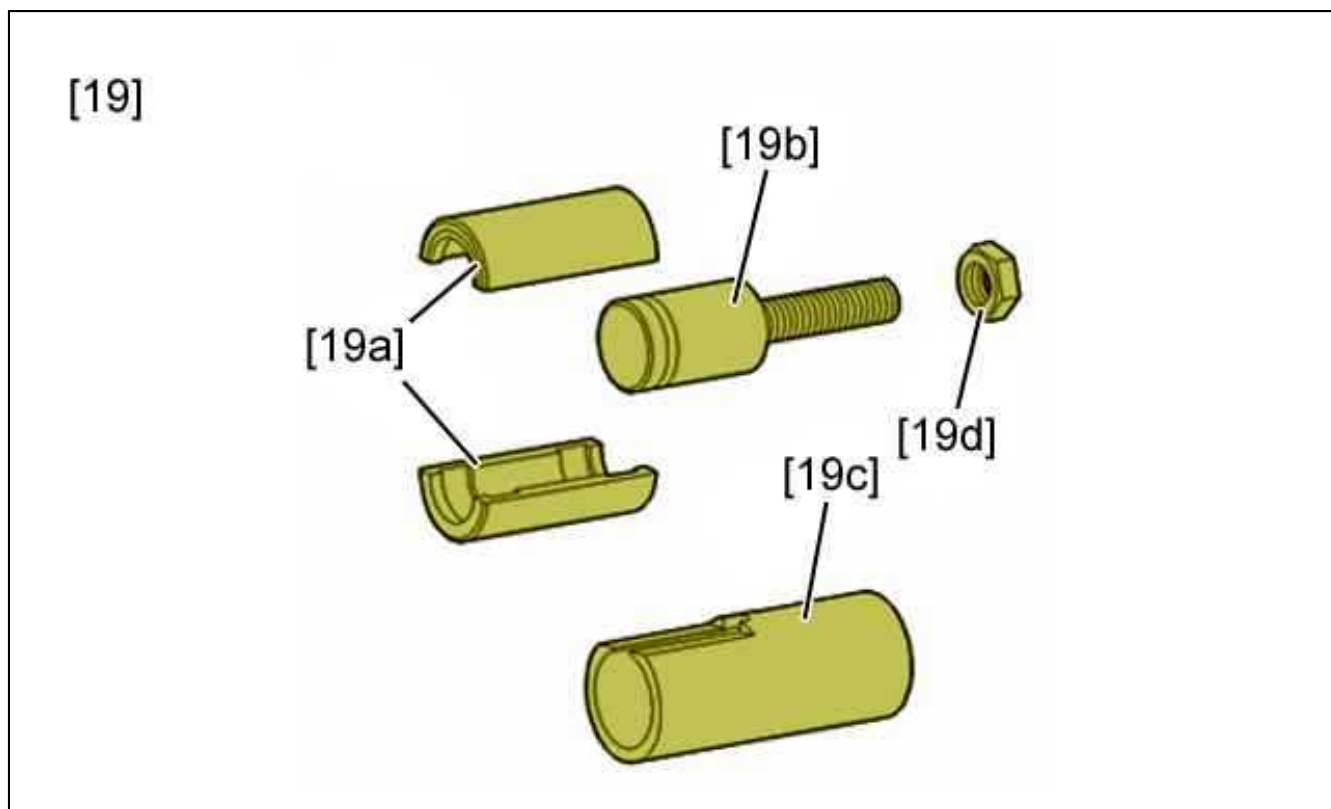


Figure : E5AB00TD

Reference	Designation	Reference
[19]	De-clutching fork pin extraction tool	(-).0332-R
[19a]	Half-shell	-
[19b]	Extraction pin	-
[19c]	Extractor tube	-
[19d]	nut	-

TIGHTENING TORQUES : ML6 MANUAL GEARBOX

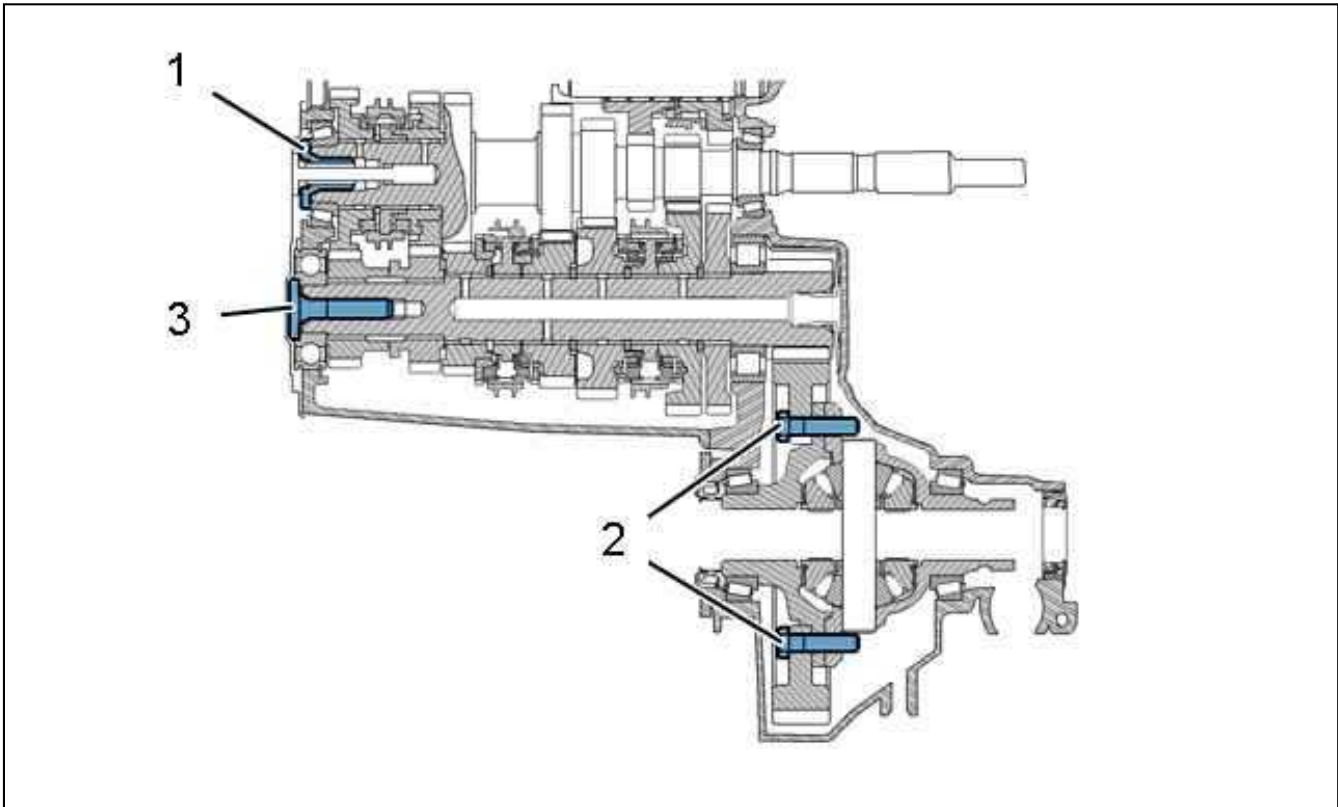


Figure : B2CP469D

Reference	Designation	Tightening torque
(1)	Primary shaft screw	8 daNm
(2)	differential gearwheel screw	10,5 daNm
(3)	Secondary shaft screw	13 daNm

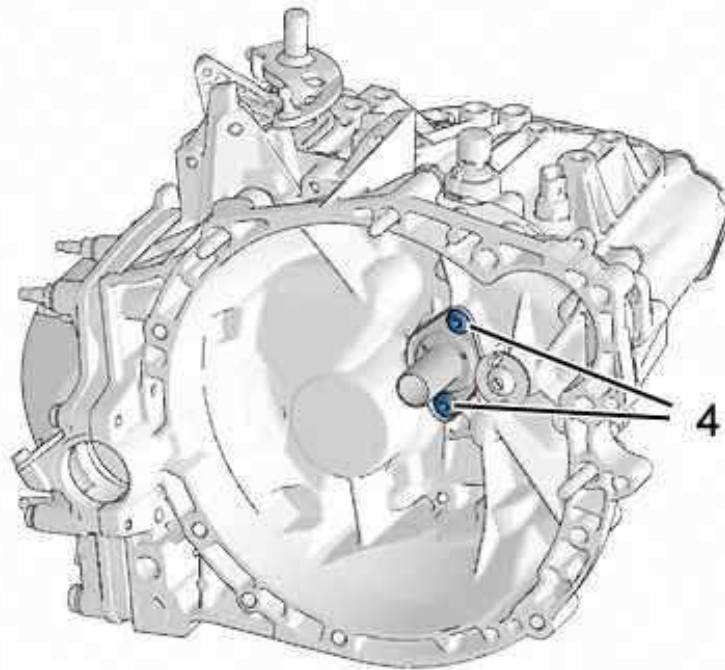


Figure : B2CM05PD

Reference	Designation	Tightening torque
(4)	Stop guide screw	4 daNm

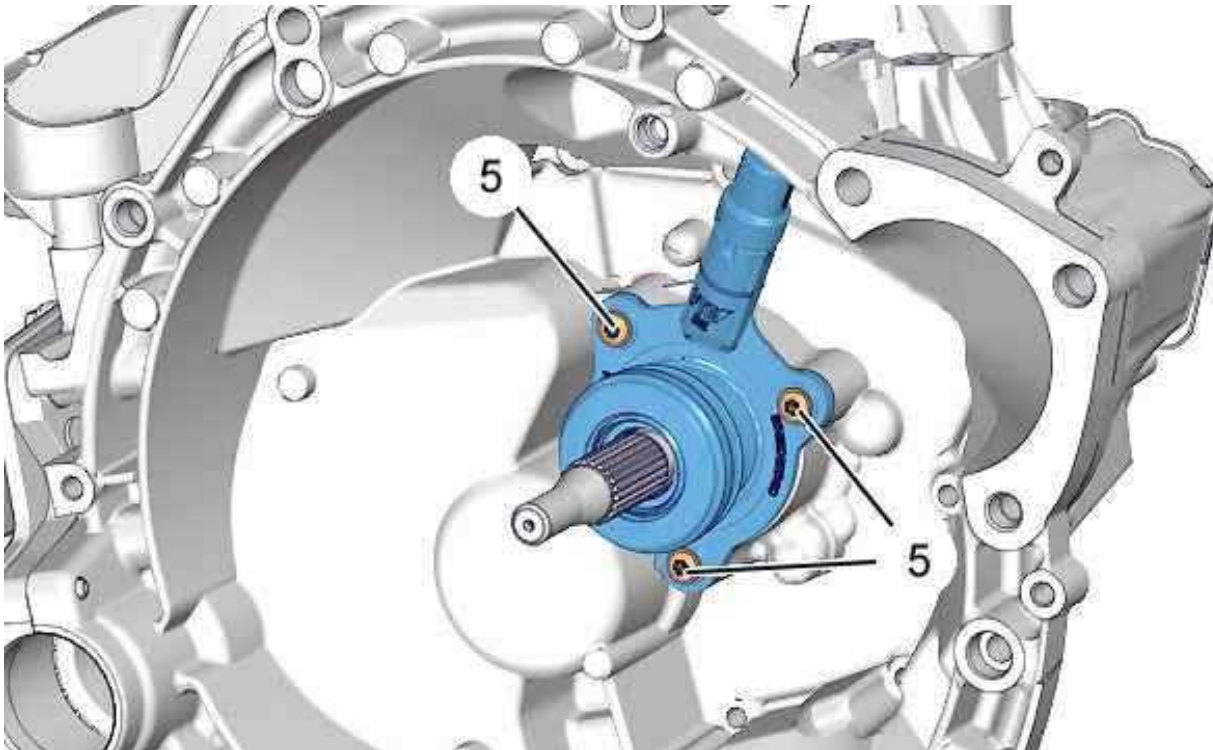


Figure : B2BM02LD

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Reference	Designation	Tightening torque
(5)	bolts (Stop)	0,9 daNm

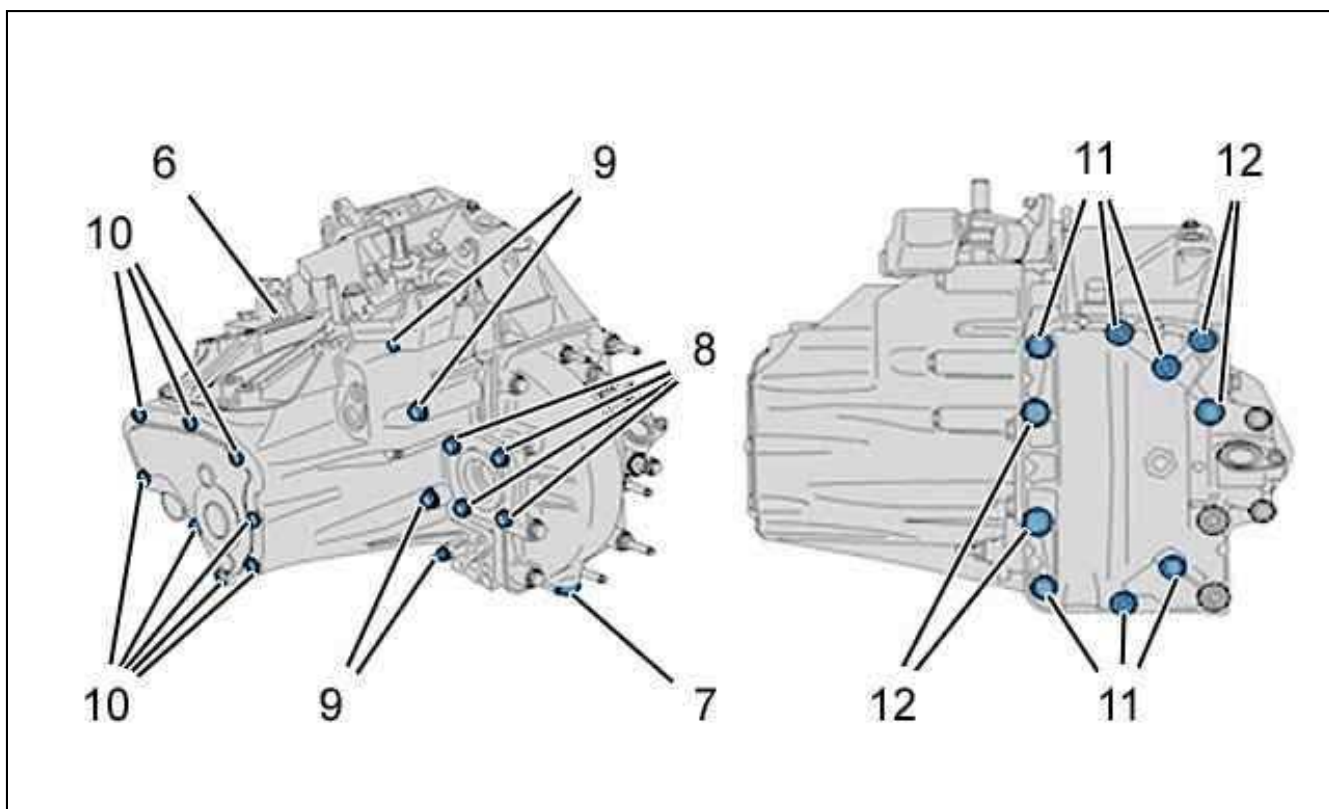


Figure : B2CM0KPD

Reference	Designation	Tightening torque
(6)	Reversing lamp switch	2,5 daNm
(7)	drain plug	3 daNm
(8)	Differential bearing locking plate screw	2 daNm
(9)	Gearbox housing fixing screw - clutch housing	2,3 daNm
(10)	6th gear cover fixing screw	2 daNm
(11)	Differential housing fixings (screws M8)	2,2 daNm
(12)	Differential housing fixings (screws M10)	4 daNm

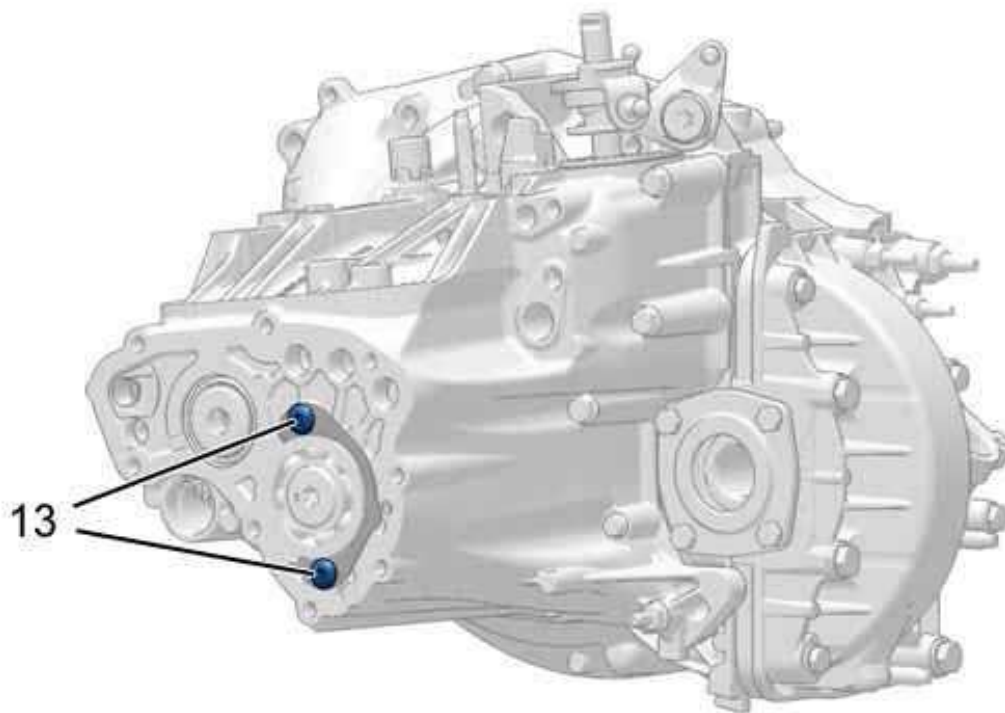


Figure : B2CM0KQD

Reference	Designation	Tightening torque
(13)	6th gear bearing stop ring fixing	2,4 daNm

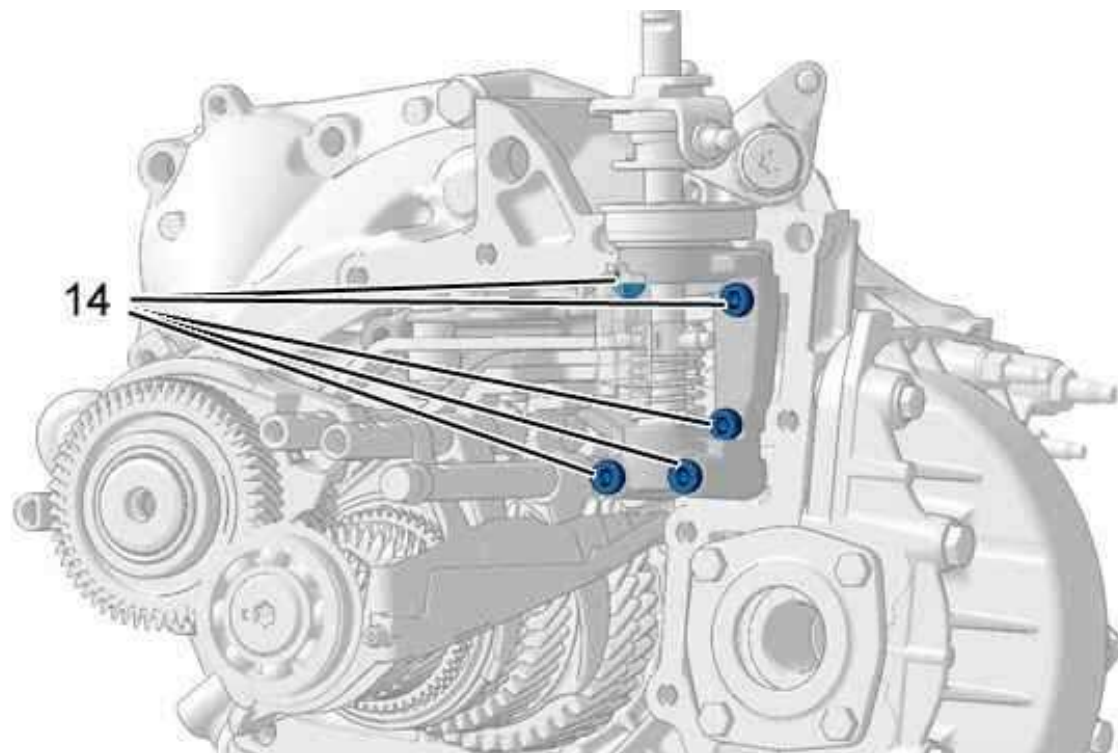


Figure : B2CM0KRD

Reference	Designation	Tightening torque
(14)	Fixing of internal gear control shaft	1,8 daNm

IDENTIFICATION - DATA : GEAR CONTROLS

1. Description - Gearbox controls

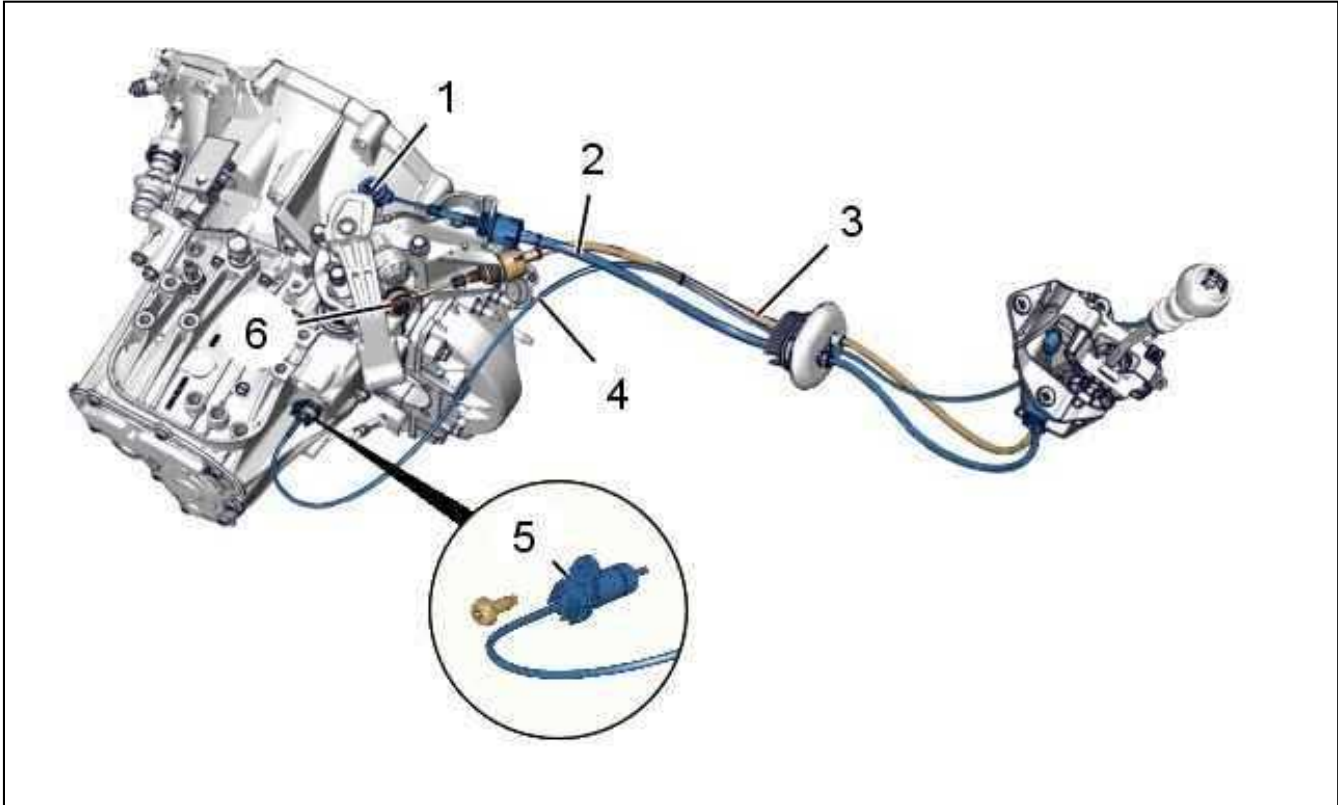


Figure : B2CB084D

- (1) Gear selection ball-joint : Ø 10 mm.
- (2) Gear engagement control cable .
- (3) Gear selection control cable .
- (4) Release cable for reverse gear .
- (5) Reverse gear unlocking device.
- (6) Gear selection ball-joint : Ø 10 mm.

2. Description : Gear engagement and selection control cables

2.1. Cable stops

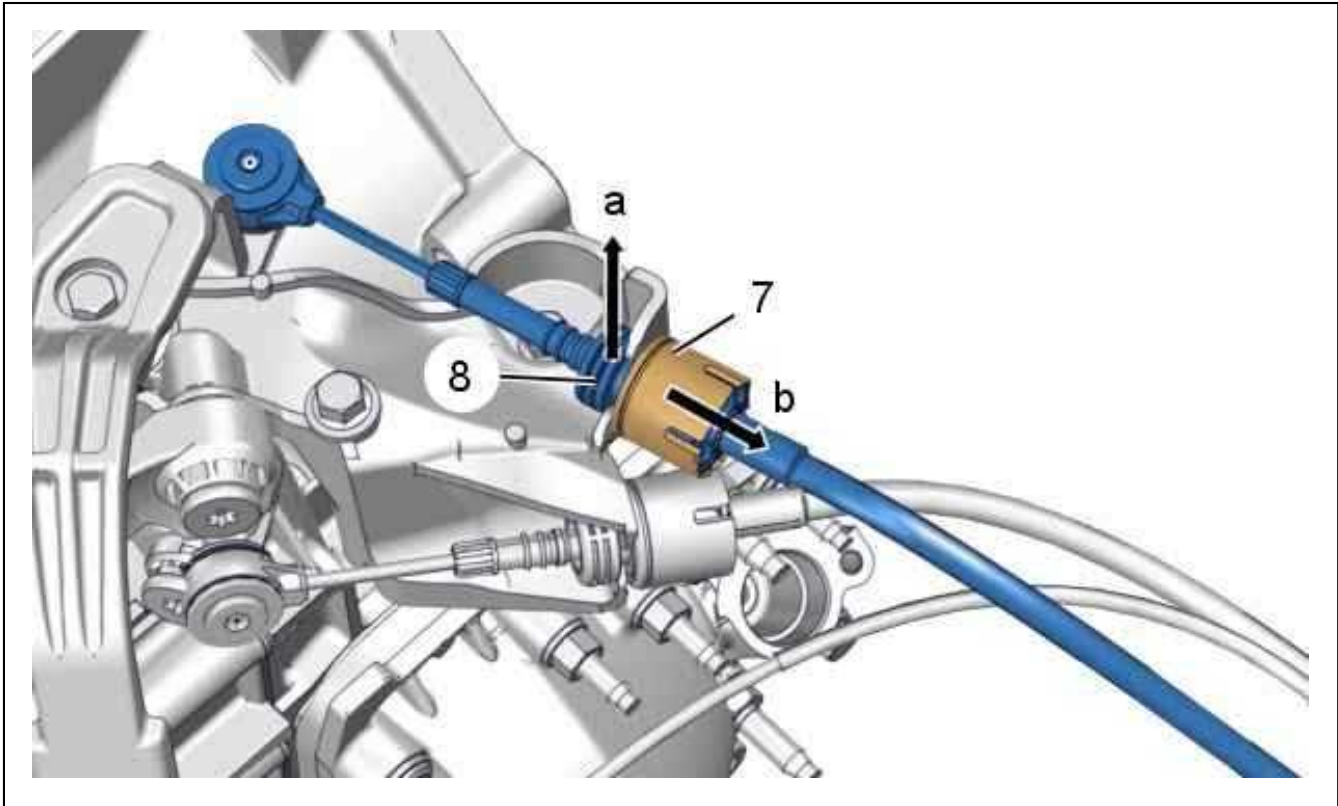


Figure : B2CB087D

Unlocking a cable stop :

- Pull the cylinder (7) (In the direction of the arrow "b")
- Detach the sleeve stop (8) from its support by pulling upwards(In the direction of the arrow "a")

2.2. Ball joints

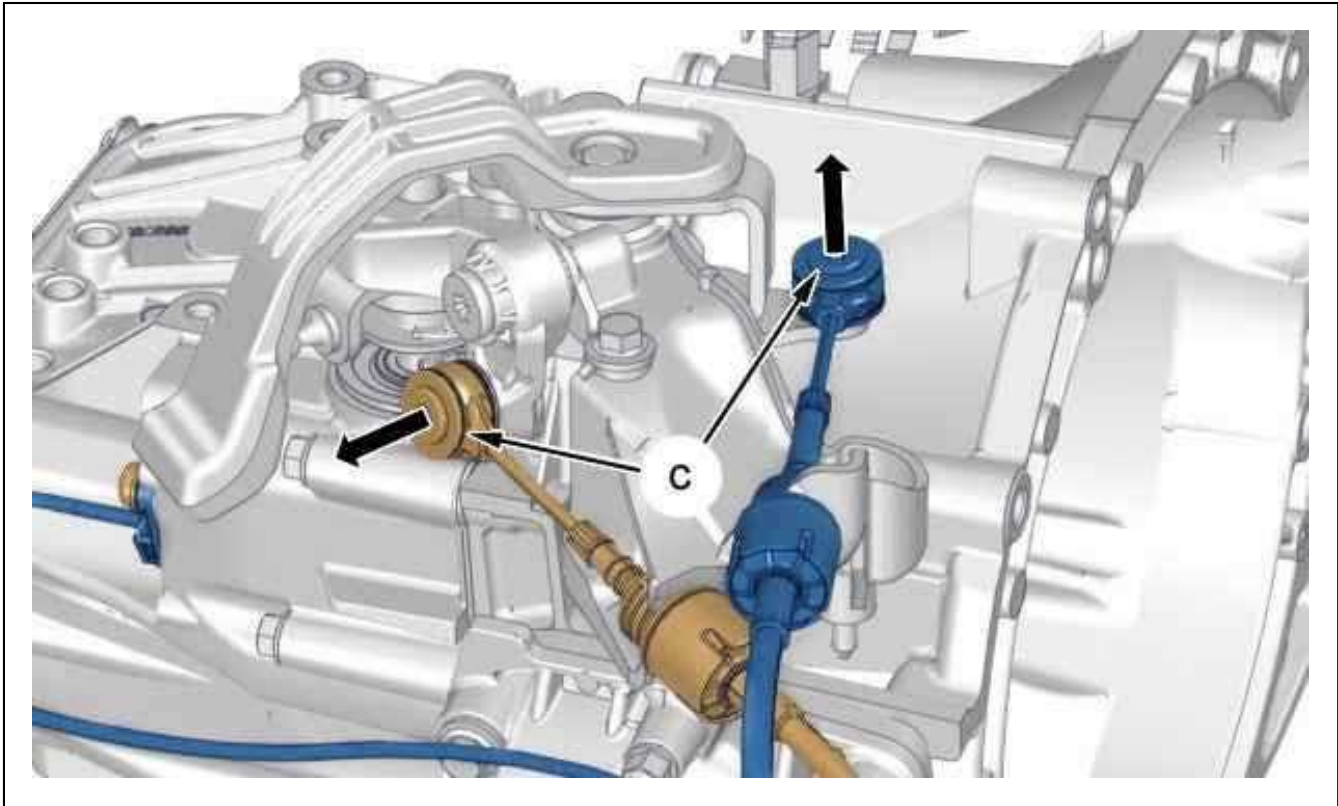


Figure : B2CB08AD

Uncouple the gear engagement and selection ball-joints "c" (as per arrows).

CHECKING AND ADJUSTING VALUES : BE MANUAL GEARBOX

1. Identification

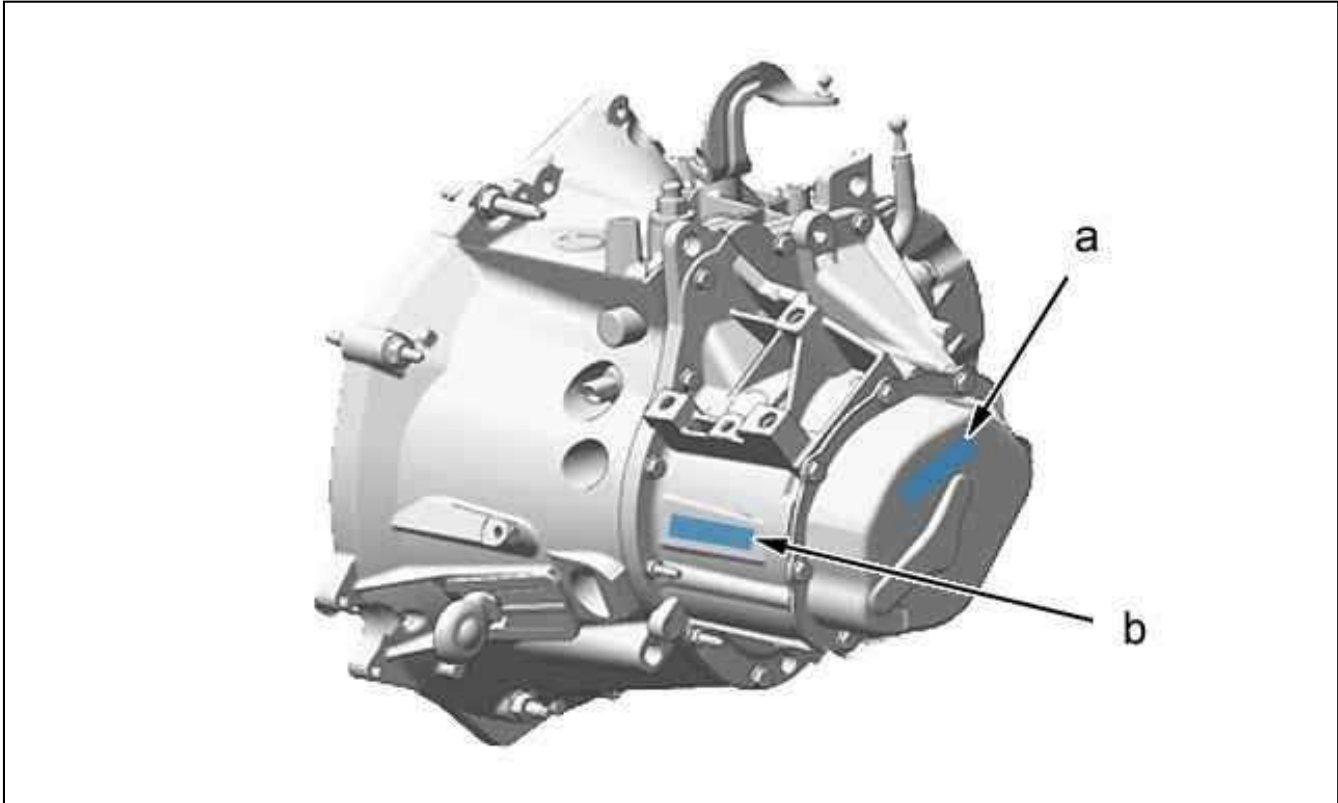


Figure : B2CP4KND

"a" location of engraving of serial and gearbox numbers.

"b" Identification label.

2. Characteristic

2.1. Gear ratio

Stages Gearbox	1st	2nd	3rd	4th	5th	Reverse gear
BE4/5N	11/38	15/28	31/40	41/39	47/35	12/40
BE4/5J	11/38	15/28	31/40	41/39	44/35	12/40
BE4/5S	11/38	15/28	30/40	37/39	43/37	12/40
BE4/5T	13/38	15/28	30/40	37/39	43/37	12/40
BE4/5P	13/38	15/28	31/40	41/39	47/35	12/40
BE4/5L	11/38	15/28	32/37	45/37	50/33	12/40
BE4/5V	11/38	15/28	30/41	37/39	44/35	12/40
BE4/50	11/38	15/28	35/39	46/35	54/31	12/40

2.2. Application

DISPATCH (G9)					
engine	Legislation type	Stages	Final drive	differential	speedometer drive
EW10A	RFJ	BE4/5L	17x71	84	Without
DV6UTED4	9HU	BE4/5N	15x73		
DV6UC	9HM	BE4/5L	15x76		
DV6DU M	9HH				

3. Lubrication

Oil capacity gearbox empty : $1,9 \pm 0,15$ litres.

Oil quality : ESSO 75W80 EZL 848 or TOTAL 75W80 H 6965.

Ingredients bulletin ⓘ .

Check the oil level : No check of oil level.

Lubrication interval : Lubricated for life.

N.B. : Make a visual check of the sealing at each engine draining operation.



Figure : B2CB03AD

Refill the gearbox via the air vent hole (29).

CHECK - ADJUSTMENT : SET OF PRIMARY SHAFT BEARINGS

ESSENTIAL : Observe the safety and cleanliness recommendations ⓘ .

1. Recommended tools

Presentation : **Recommended tools** ⓘ .

2. Preliminary operations

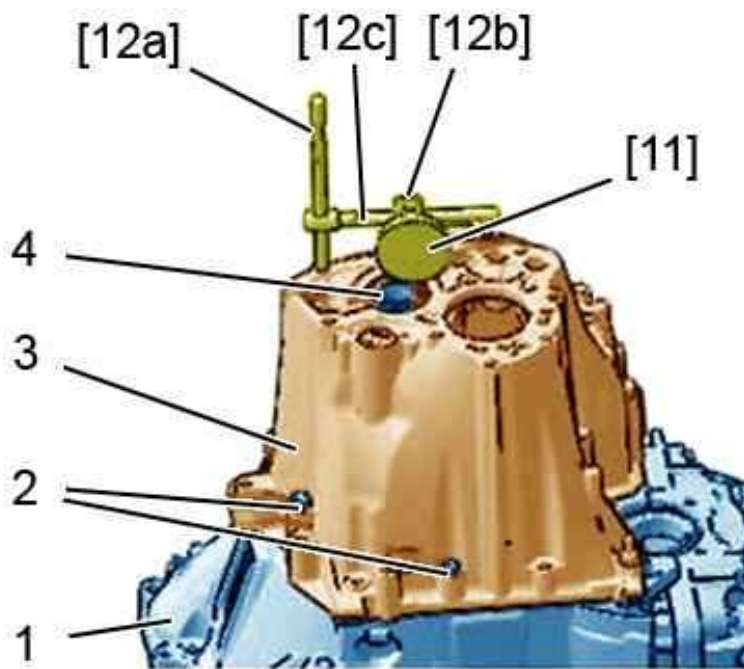


Figure : B2CE001D

Refit on the clutch housing (1) :

- The assembled input shaft (4)
- The gearbox casing (3)
- The bolts (2) (one screw out of two)

3. Check - Adjustment

Position (on the gearbox housing) :

- The dial gauge [11]
- The tools [12a], [12b], [12c]

Position the sensor on the primary shaft (4).

Rotate the primary shaft a few turns.

Push the primary shaft downwards.

Set the dial gauge to zero.

Push the primary shaft upwards.

Check the value at 4 points.

CAUTION : The play should be between 0,06 and 0,15 mm.

If the value read on the dial gauge is not correct, repeat the setting ⓘ.

N.B. : Adjustment shims between 0,8 and 1,4 mm with a variation of 0,05 mm.

Remove all of the parts before continuing with the operation.

DISMANTLING : MANUAL GEARBOX

ESSENTIAL : Observe the safety and cleanliness recommendations ⓘ .

1. Recommended tools

Presentation : **Recommended tools** ⓘ .

2. Removing : gearbox casing

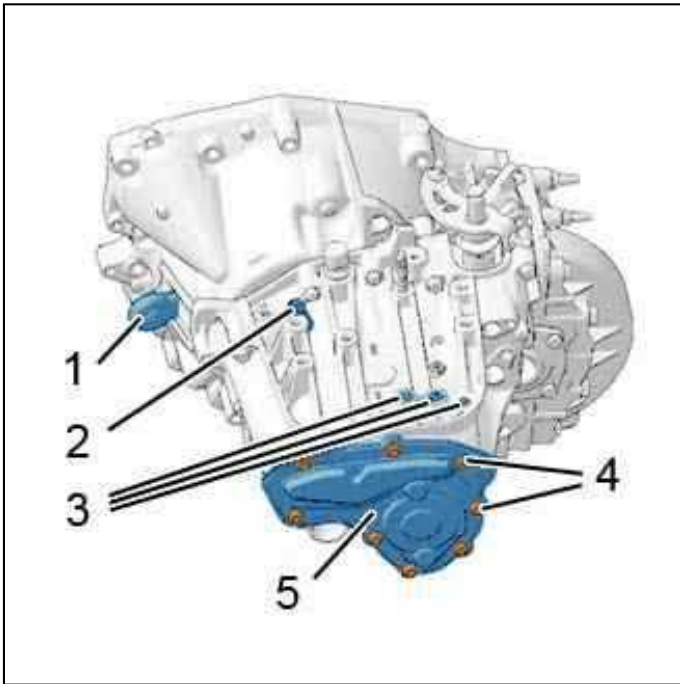


Figure : B2CP436C

Remove :

- The release fork (1)
- The clutch thrust bearing
- The clutch bearing guide
- The reverse switch (2)
- The 3 locking caps (3) (save the springs and the balls)
- The bolts (4)
- The sheet metal casing (5) (not to be re-used)

N.B. : Depending on version, the declutch fork (1) is mounted either on the ball-joint or on the shaft ; In the second case : Use tool [6].

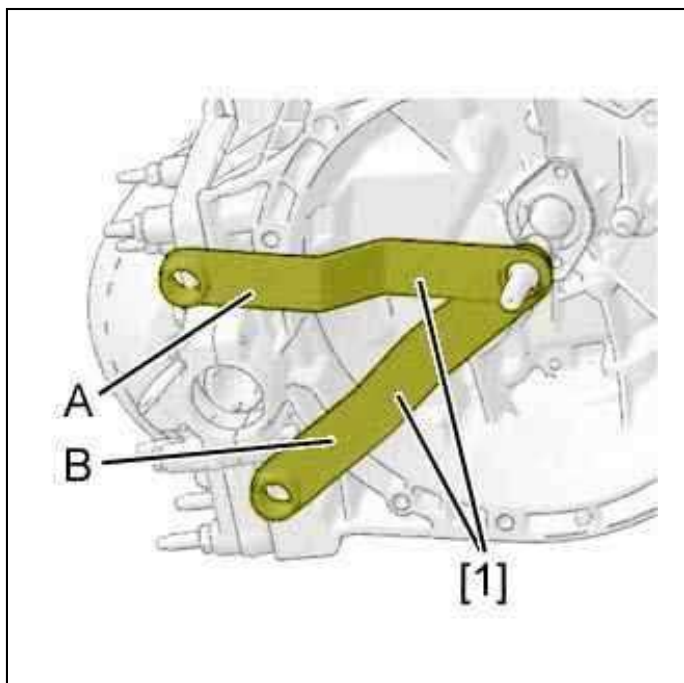


Figure : B2CP437C

Place tool [1] on the input shaft (Position "A").
Engage a gear.

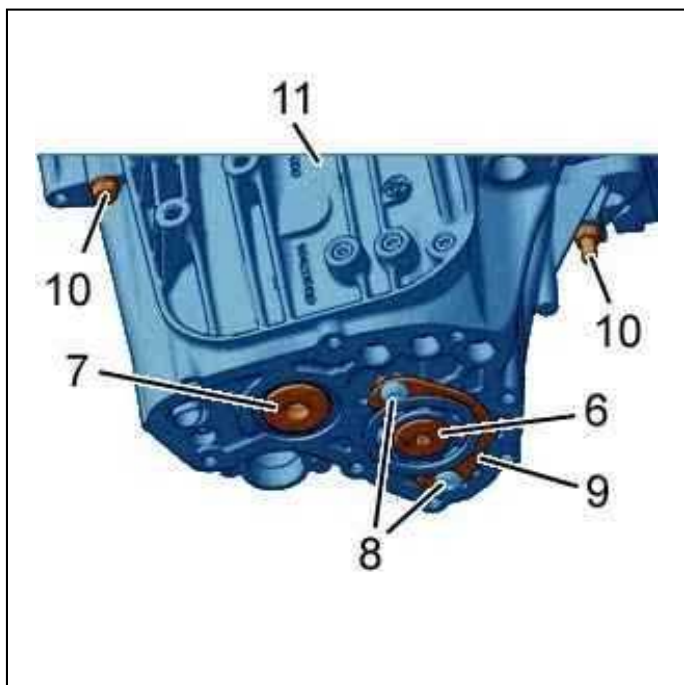


Figure : B2CP438C

Remove the secondary shaft screw (6).
Place tool [1] on the input shaft (Position "B").
Remove the primary shaft screw (7) ; Using tool [7].
Set the gearbox in neutral.
Remove :

- The tool [1]
- The bolts (8)

- Bearing stop ring (9)
- The bolts (10)
- The gearbox casing (11)

N.B. : Detach the gearbox casing, using a non-cutting lever in the locations provided.

CAUTION : Recover the magnetic disc.

3. Removing : Primary and secondary shafts

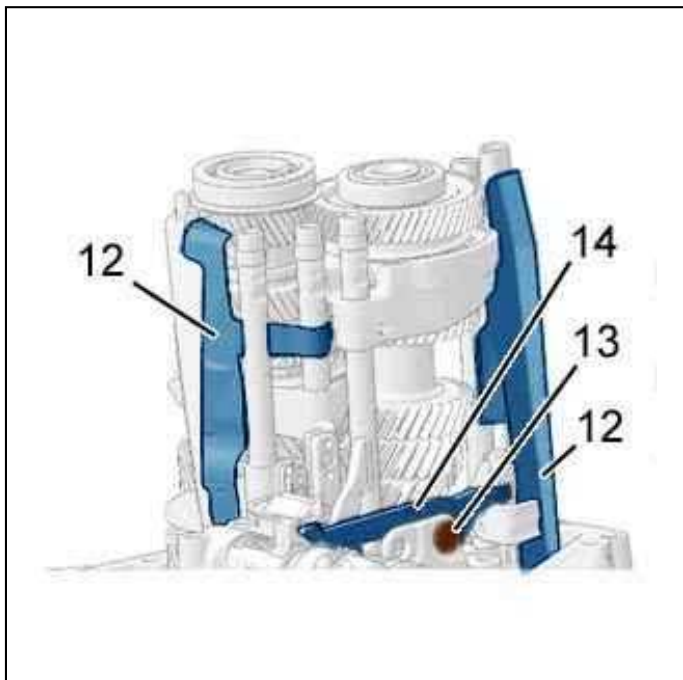


Figure : B2CP439C

Remove :

- The lubrication spouts (12)
- The reverse gear rocker lever shaft (13)
- The reverse gear sliding gear (14)

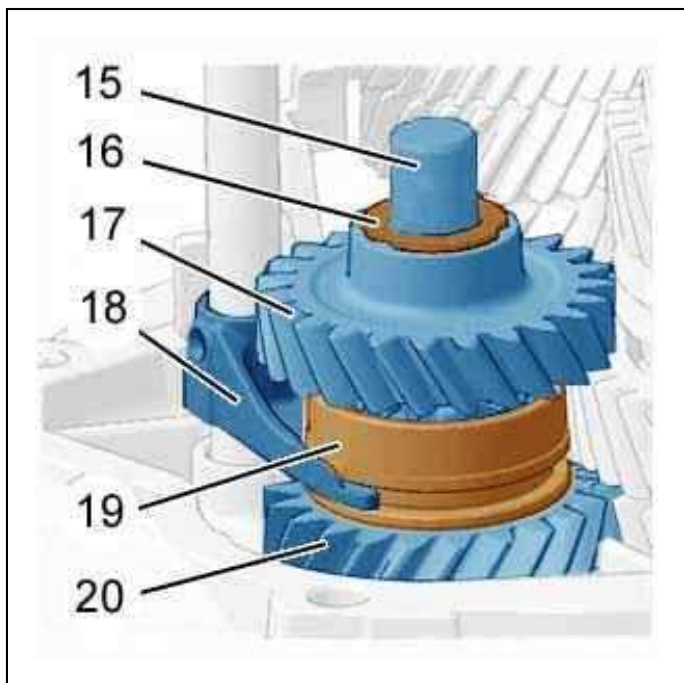


Figure : B2CP43AC

Remove :

- The reverse gear shaft (15)
- The thrust washer (16)
- The reverse gear intermediate pinion (17) and its needle cage (mark to distinguish the elements of the reverse gear synchronizer)
- The reverse gear fork (18) and the synchronizer sleeve (19)
- The reverse gear return pinion (20) and its needle cage
- The thrust stop under the reverse idling gear

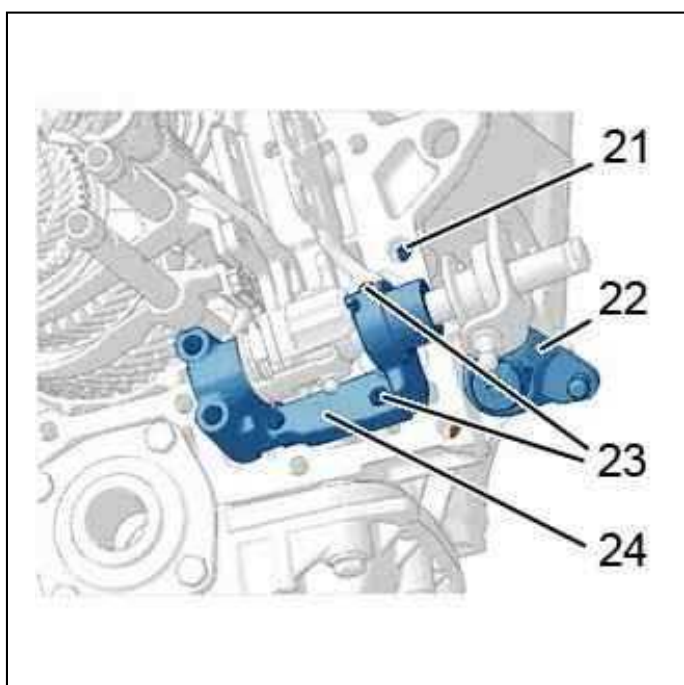


Figure : B2CP43BC

Remove :

- The casing centring pin (21)
- The external lever and its shaft (22)
- The bolts (23)

Engage 2nd, 4th and 6th gears.

Lift the gear control plate (24) and disengage the centring pins.

Remove the gear control plate (24).

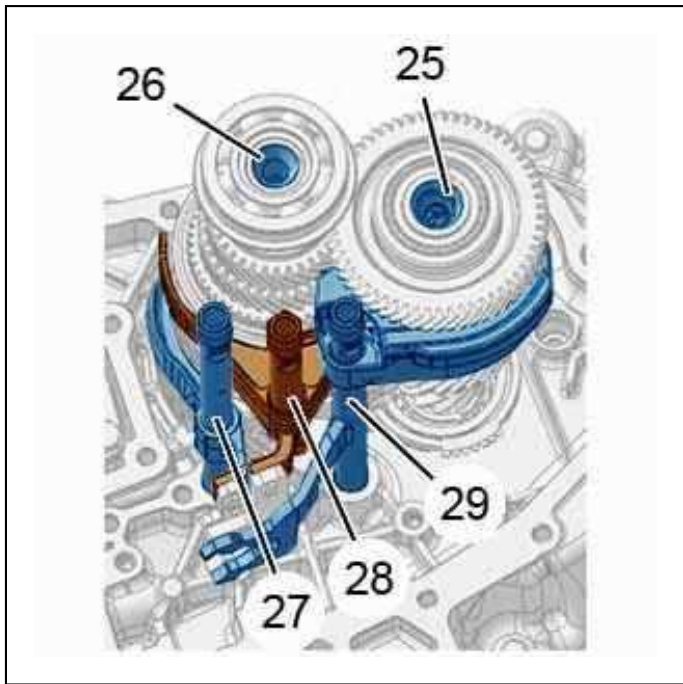


Figure : B2CP43CC

Remove the assembly of the following components :

- Primary shaft (25)
- Secondary shaft (26)
- Pin and fork (27) (1st and 2nd gears)
- Pin and fork (28) (third and fourth gear)
- Pin and fork (29) (fifth and sixth gear)

4. Removing : Differential housing

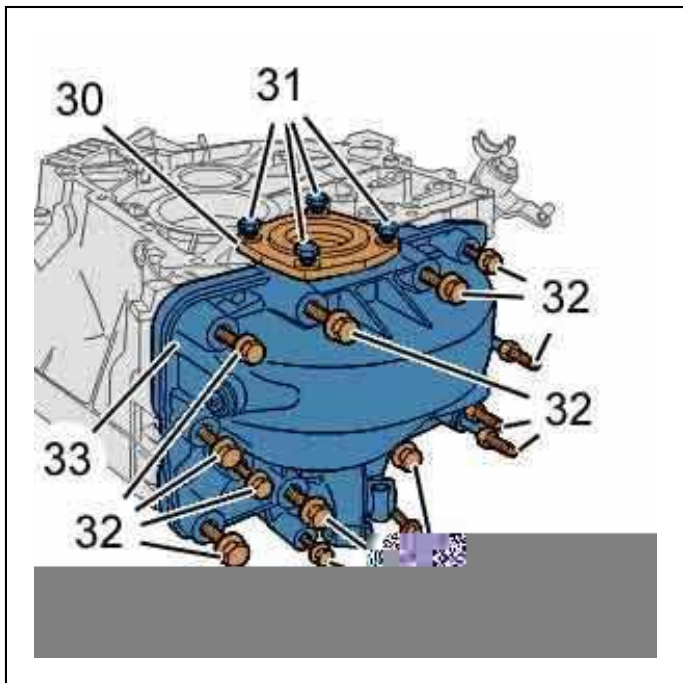


Figure : B2CP3TUC

Remove :

- The bolts (31)
- The bearing thrust plate (30)
- The bolts (32)
- Differential housing half (33)

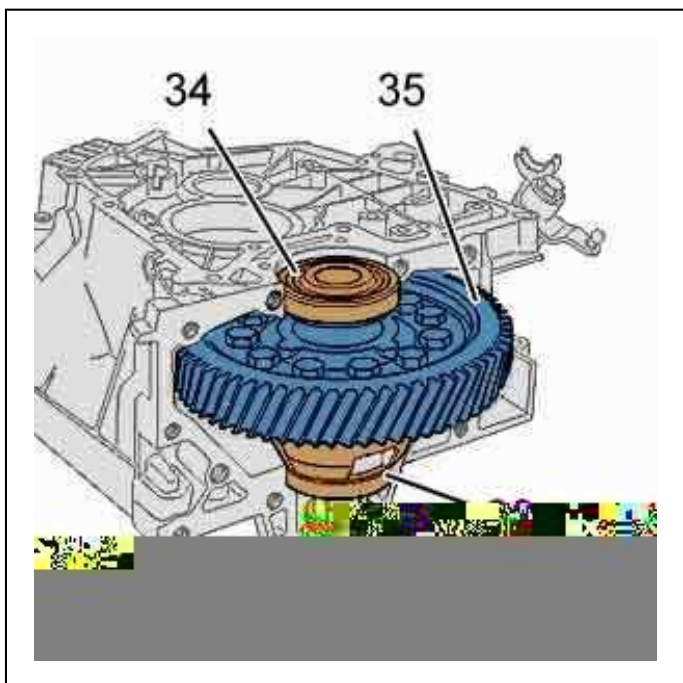


Figure : B2CP3TVC

Remove :

- The gearbox output seal (37) (speedometer drive end)
- The differential (35)
- The external bushes of the (34) and (36) bearings

5. Stripping : Gearbox control plate

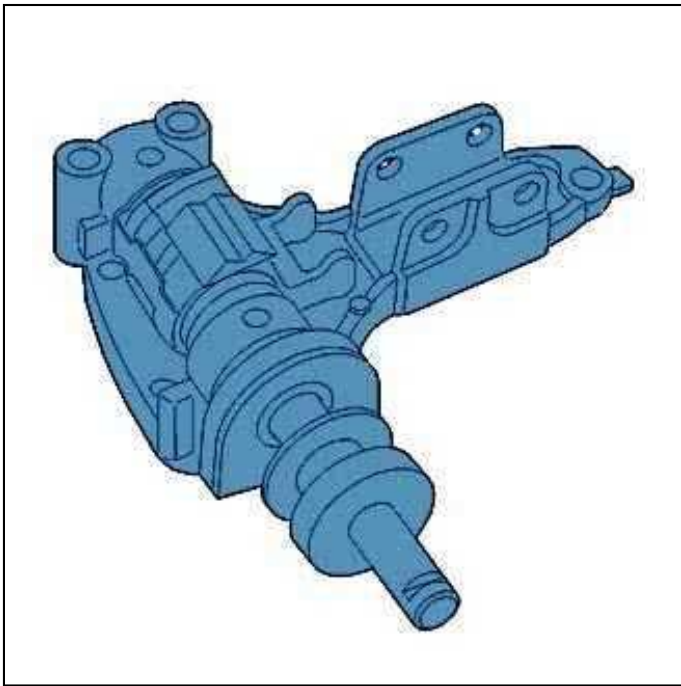


Figure : B2CP43DC

5.1. Description

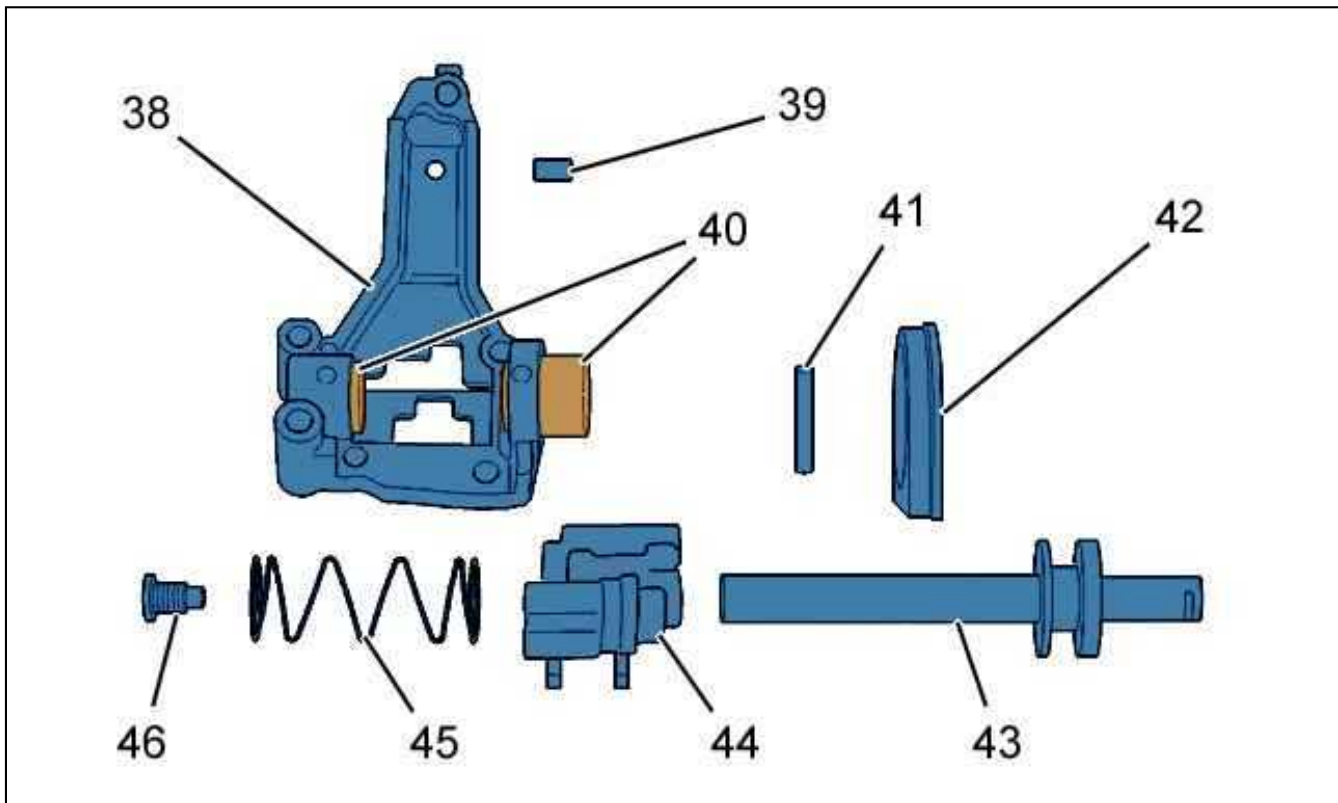


Figure : B2CP43ED

(38) Plate .

- (39) Centralising pin.
- (40) Bearing .
- (41) Pin .
- (42) seal.
- (43) Gear engagement shaft.
- (44) Gear engagement eye.
- (45) spring .
- (46) bolts .

5.2. Stripping

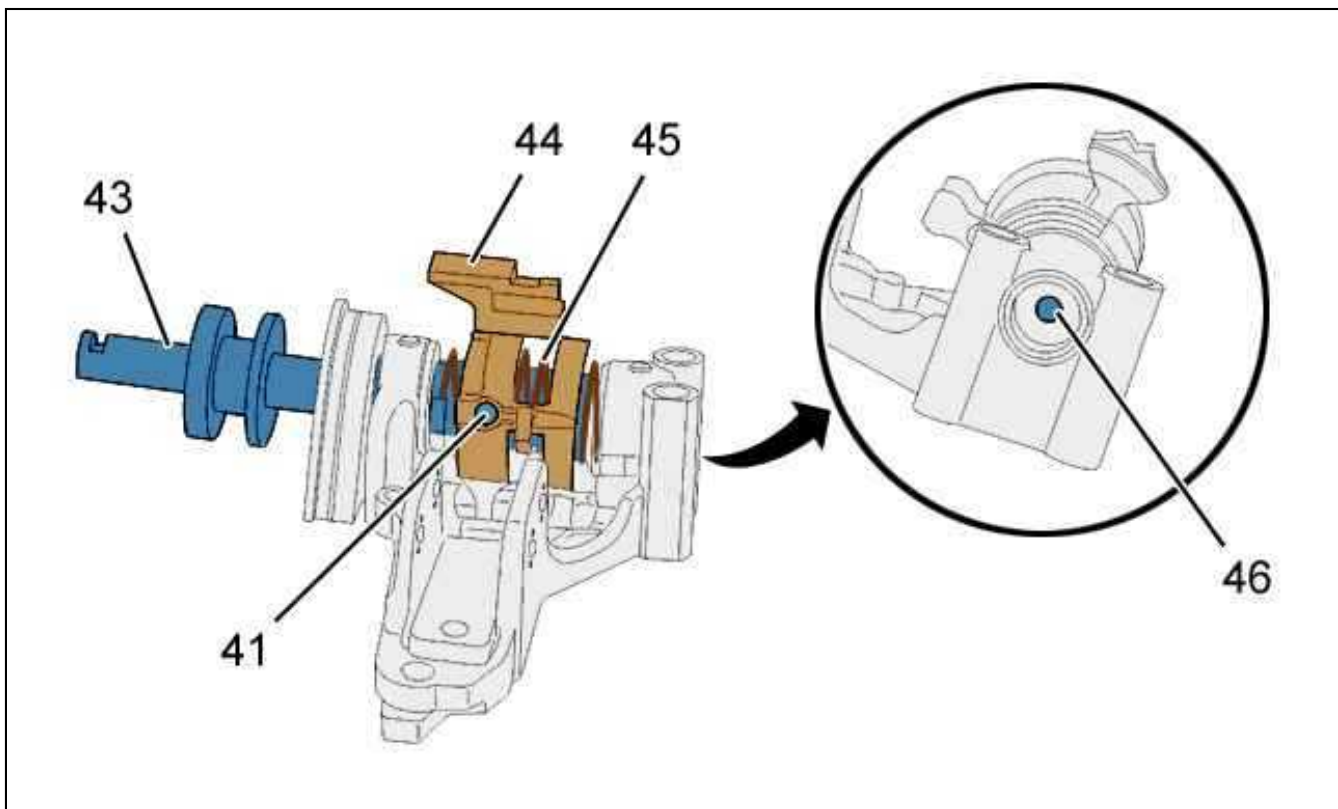


Figure : B2CP43FD

Remove :

- The pin (41)
- The (46) bolt
- The gear selection shaft (43)
- The gear engagement eye (44) (retain the spring)
- The centring pin (39)
- The plate (38)
- The bearings (40)
- The spring (45)

REFITTING : MANUAL GEARBOX

ESSENTIAL : Observe the safety and cleanliness recommendations ⓘ .

CAUTION : Adhere to the tightening torques ⓘ .

1. Tooling

Presentation : **Tooling** ⓘ .

2. Refitting : differential box

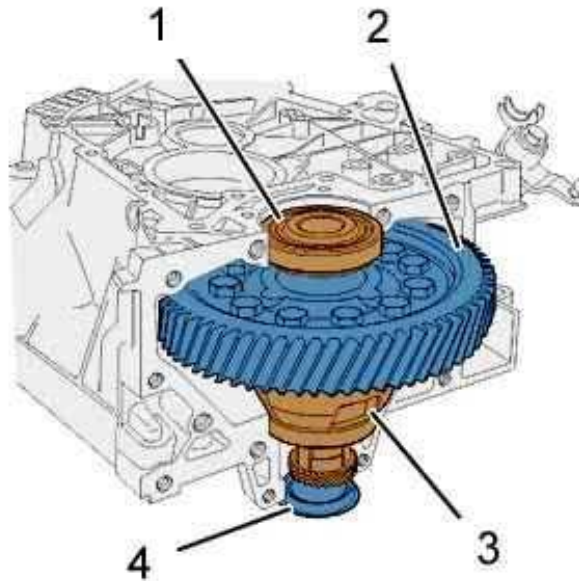


Figure : B2CG089D

Refit :

- The differential (2)
- The external bushes of the (1) and (4) bearings

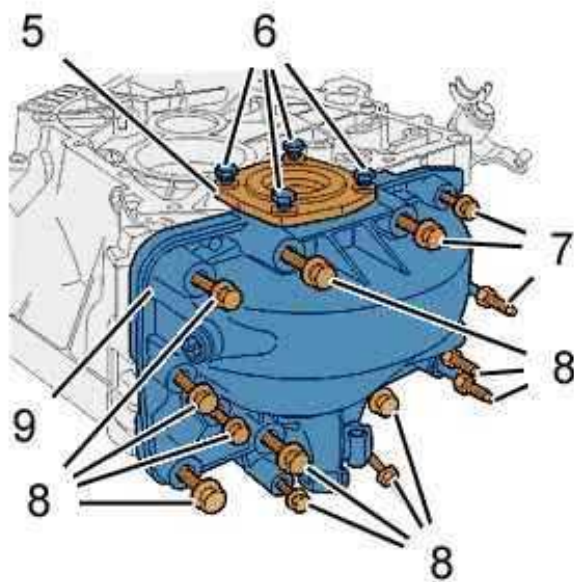


Figure : B2CG08AD

Refit :

- Differential housing half (9)
- The bolts (7), (8)
- The bearing thrust plate (5) fitted with a new seal ; Using tool [17]
- The bolts (6)

Tighten :

- The bolts (/)M8 (7), (8)
- The bolts (/)M10 (7), (8)
- The bolts (6)

Refit the gearbox seal (4), RH side ; Using tool [15].

3. Re-assembling : Control plate**3.1. Description**

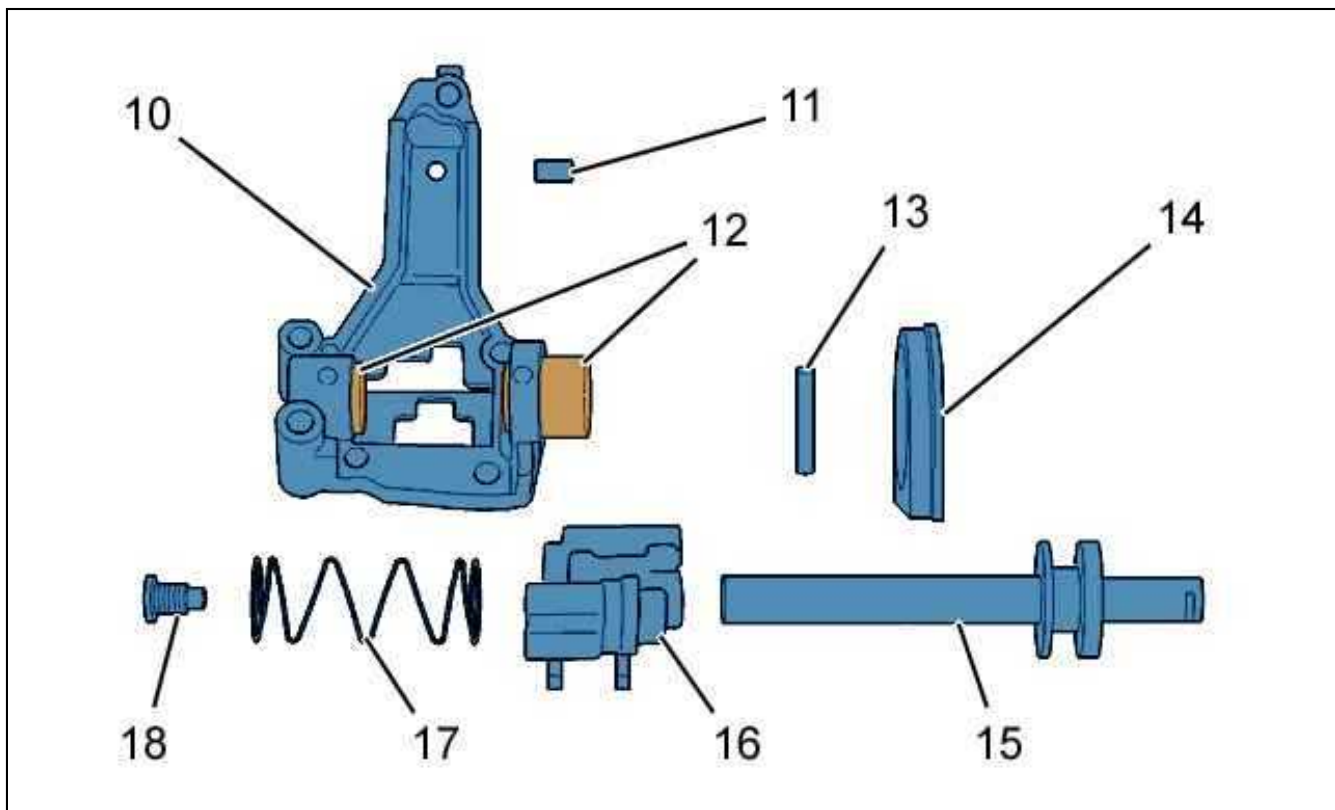


Figure : B2CG08BD

- (10) Plate .
- (11) Centralising pin.
- (12) Bearing .
- (13) Pin .
- (14) seal.
- (15) Gear engagement shaft.
- (16) Gear engagement eye.
- (17) spring .
- (18) bolts .

3.2. Re-assembling

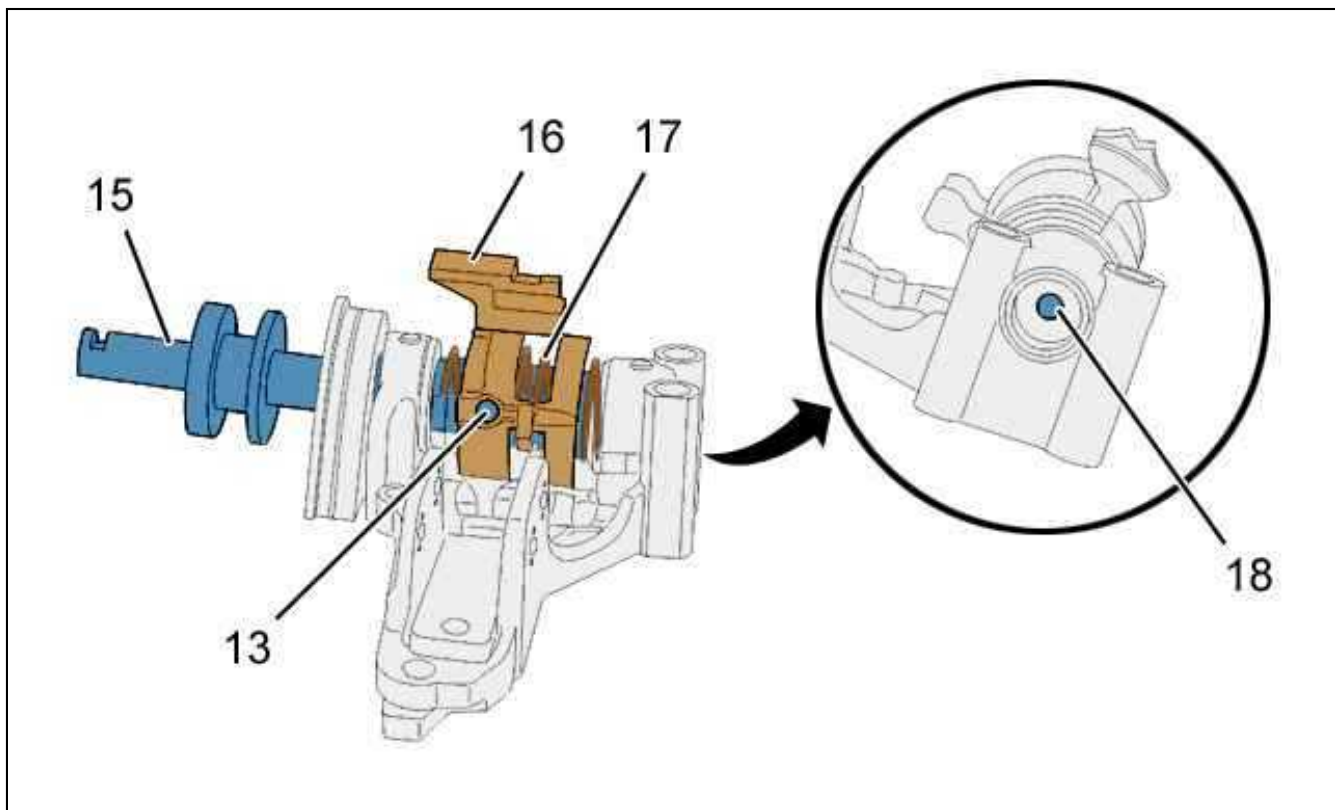


Figure : B2CG08CD

Refit :

- The spring (17)
- The bearings (12)
- The plate (10)
- The centring pin (11)
- The gear engagement eye (16) (Retain the spring)
- The gear selection shaft (15)
- The (18) bolt
- The pin (13)

4. Refitting : Primary and secondary shafts

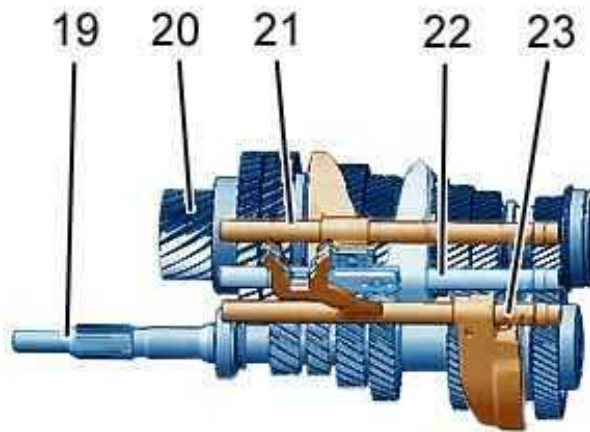


Figure : B2CG08DD

Assemble the following components :

- Primary shaft (19)
- Secondary shaft (20)
- 1st and 2nd gear shaft and fork (21)
- 3rd and 4th gear shaft and fork (22)
- 5th and 6th gear shaft and fork (23)

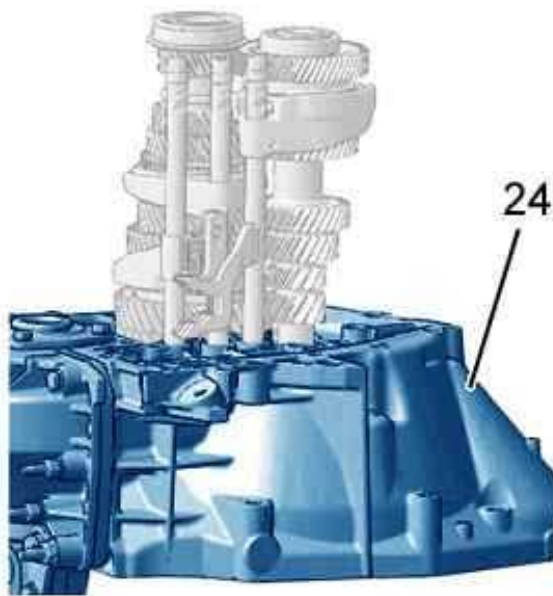


Figure : B2CG08ED

Position the prepared assembly in the gearbox casing (24).

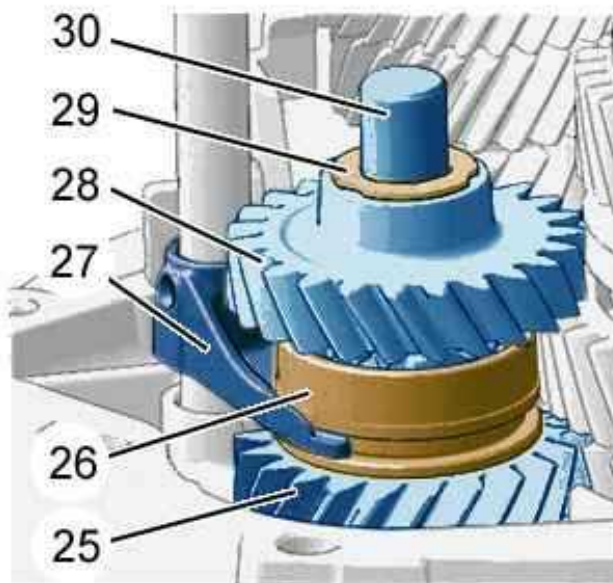


Figure : B2CG08FD

Position :

- The thrust washer under the reverse gear pinion

- The reverse gear (25) and its needle roller bearing cage
- The reverse gear fork (27) and the synchronizer sleeve (26)
- The reverse gear intermediate pinion (28) and its needle cage
- The reverse gear shaft (30)
- The thrust washer (29)

CAUTION : When refitting the reverse gear shaft (30), take care to place its anti-rotation nipple in the slot on the clutch housing.

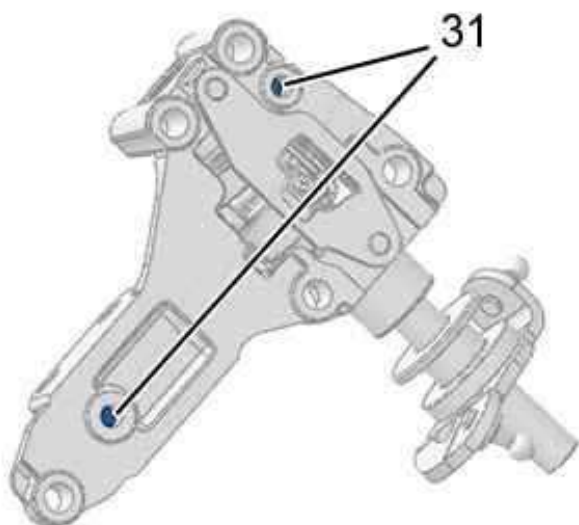


Figure : B2CG08GD

Press in the two centring needles (31) until they contact with the face of the gear control plate.
Fit the gear control plate.

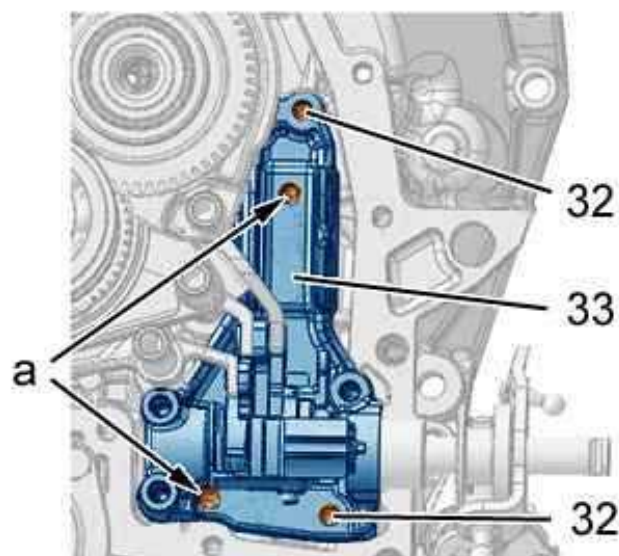


Figure : B2CG08HD

Engage 2nd, 4th and 6th gears.

Position the gear control plate (33) on the gear engagement fingers at "a".

Set the gearbox in neutral.

Position the gear control plate by means of the two screws (32).

CAUTION : Use a punch to press in the two centring pins at "a".

Tighten the 5 bolts (32).

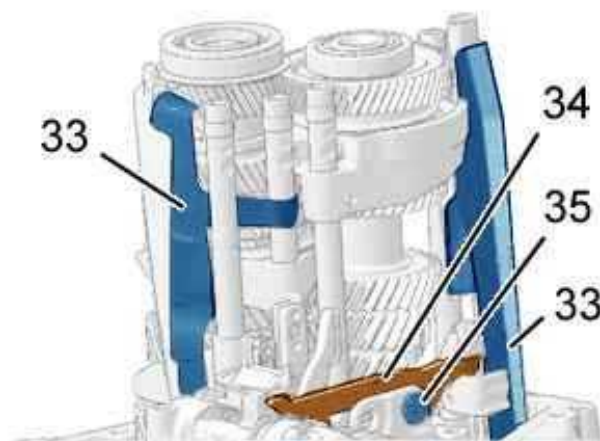


Figure : B2CG08ID

Refit :

- The reverse gear sliding gear (34)
- The rocking lever shaft (35)
- The lubrication spouts (33)

CAUTION : After fitting the gear control plate and then the reverse gear rocker lever, check that the 1st/2nd, 3rd/4th 5th/6th and reverse gear forks are correctly positioned in the grooves of the gears. Before continuing with the refitting check the engagement of each gear.

5. Refitting : Gearbox casing

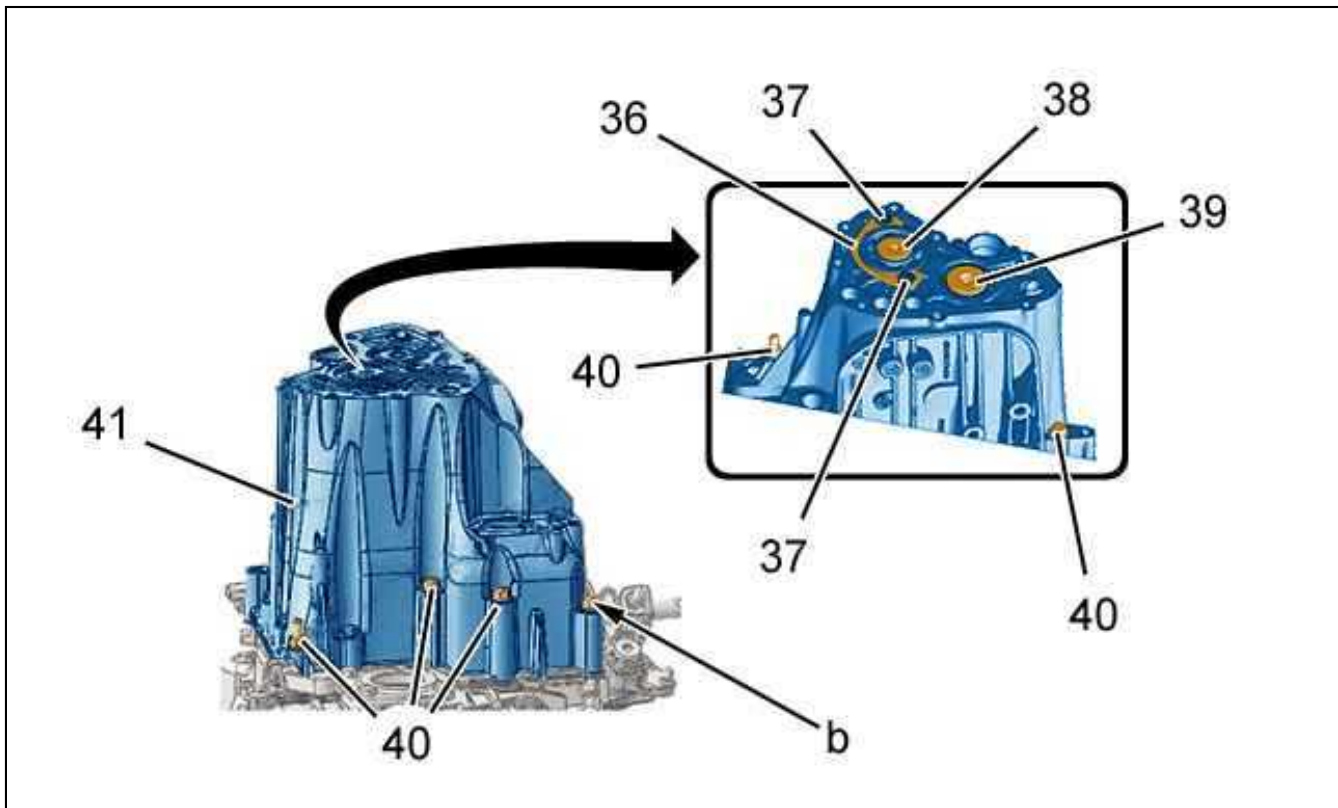


Figure : B2CG08JD

Check that the gearbox casing centring pins are present and that the magnetic disc is in its location.

Coat the joint face with a thin, even layer of sealing paste "E10".

Fit the gearbox casing (41) on the clutch housing.

Fit : The gear selector shaft seal (as "b").

Tighten the bolts (40).

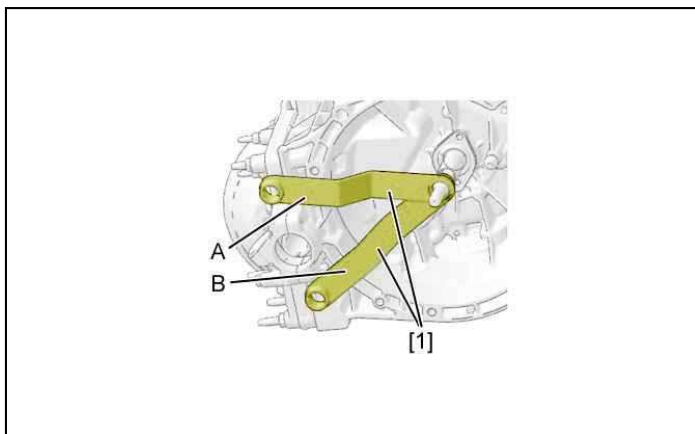


Figure : B2CG08LT

Fit tool [1] on the gearbox input shaft (Position B).

Engage a gear.

Tighten the primary shaft fixing screw (39) to 8 m.daN ; Using tool [7].

Fit tool [1] on the gearbox input shaft (Position A).

Tighten : The secondary shaft fixing screw (38).

Reposition the gearbox to neutral.

Remove the tool [1].

Refit :

- The bearing locking ring (36)
- The securing bolts (37)

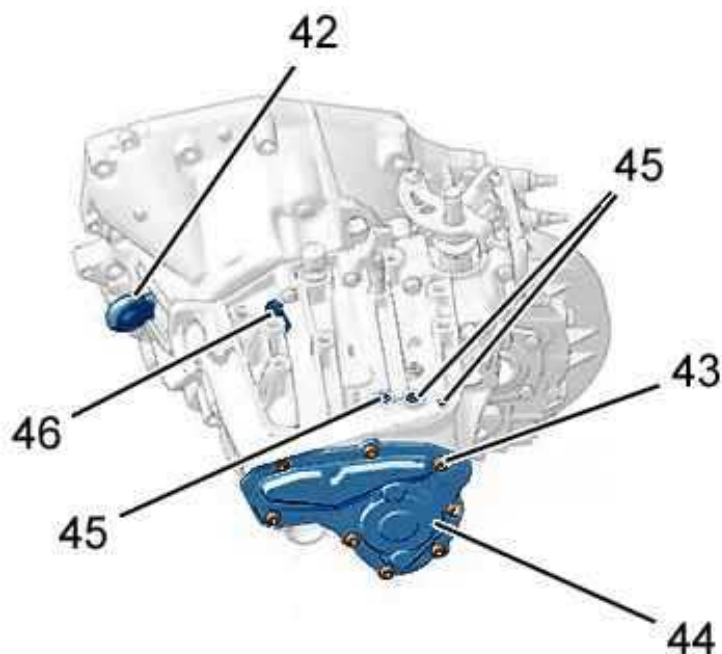


Figure : B2CG08KD

Refit :

- The locking balls and springs
- The locking caps (45)

Coat the joint face with a thin, even layer of sealing paste "E10".

Refit :

- The sheet metal casing (44) (new)
- The bolts (43)
- The reverse switch (46)
- The release fork (42) : Fitting on shaft or ball joint (depending on the version)
- The hydraulic clutch stop (depending on the version)
- The bearing guide

STRIPPING - RE-ASSEMBLING : COMPONENTS INTERNAL TO THE GEARBOX

ESSENTIAL : Observe the safety and cleanliness recommendations ⓘ .

CAUTION : Bearings removed must not be re-used.

1. Recommended tools

Presentation : Recommended tools ⓘ .

2. input shaft

2.1. Stripping

N.B. : Identify the direction of fitting of the bearings, gears and synchronizers before removal. Mark them (if necessary).

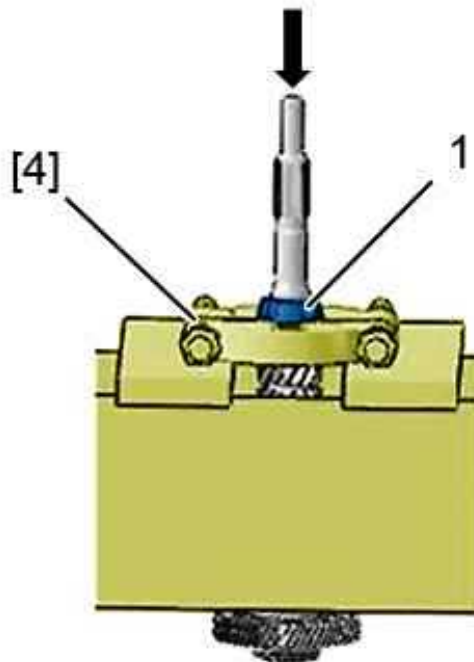


Figure : B2CG061D

Remove the inner cage (1) of the bearing at 1st gear end ; By means of tool [4] and a press.

CAUTION : Do not use the bearing stop flange as a support.

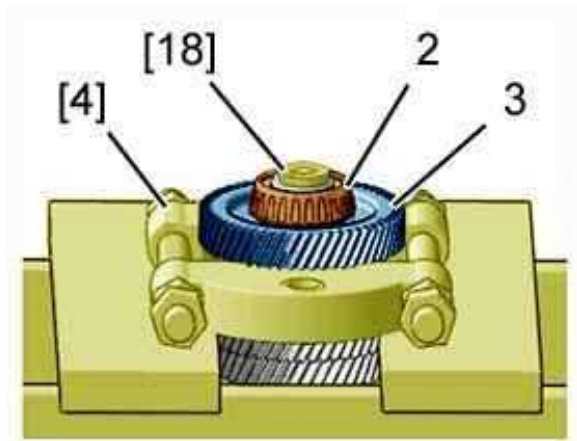


Figure : B2CG063D

Remove :

- The bearing (2)
- The 6th gear pinion (3) ; Using the tools [4], [18] and a press

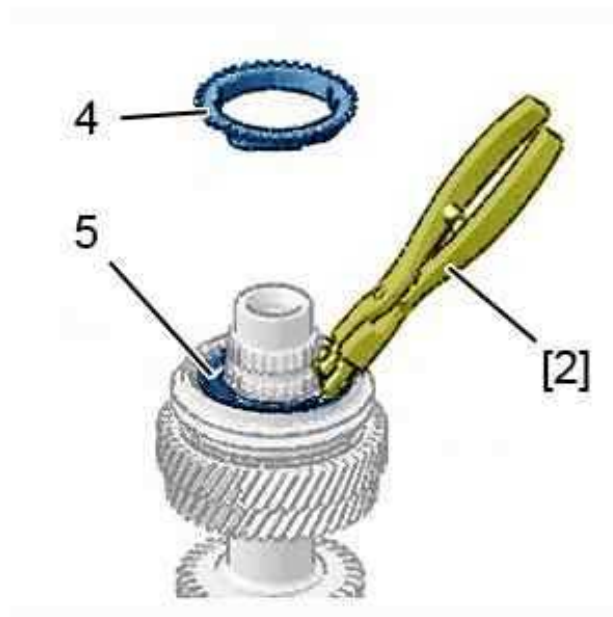


Figure : B2CG065D

Remove :

- The synchronizer ring (4) of the 6th gear pinion
- The stop ring (5) ; Using tool [2]

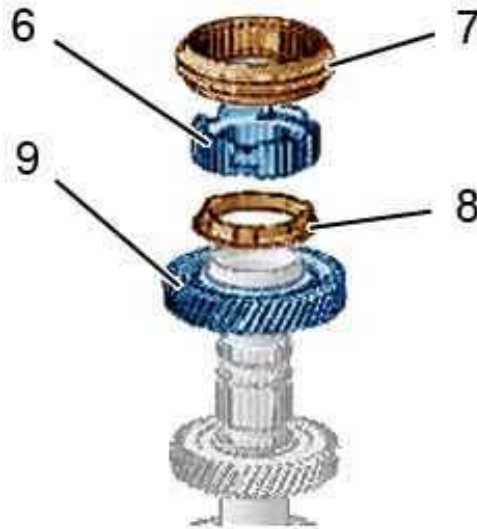


Figure : B2CG06ID

Remove :

- The dog clutch sleeve (7) (5th - 6th)
- The hub-synchroniser (6) (5th - 6th)
- The synchronizer ring (8) of the 5th gear pinion
- 5th speed gear (9)

2.2. Re-assembling

CAUTION : Oil the pinion gears and the synchronizer rings with 75W80 transmission oil.

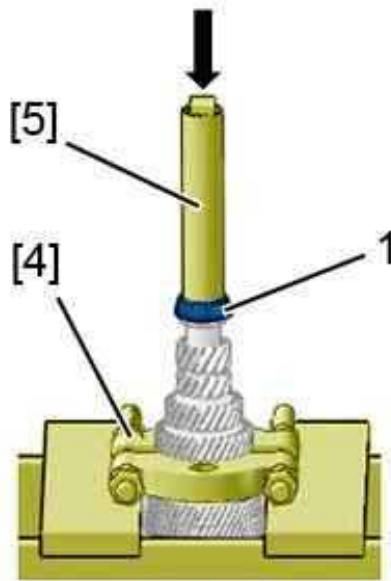


Figure : B2CG06ND

Refit the inner bearing cage (46), 1st gear end ; Using the tools [4], [5] and a press.

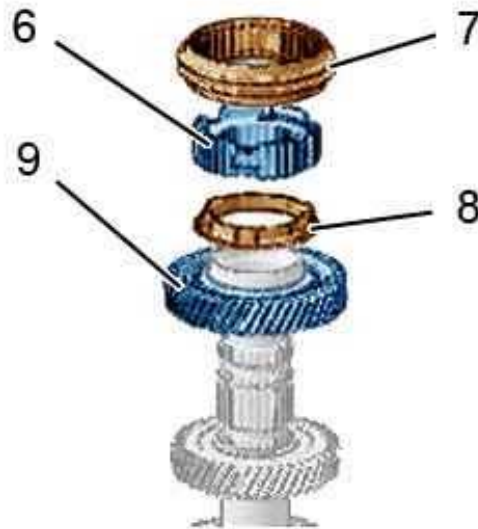


Figure : B2CG06OD

Refit on the primary shaft :

- 5th speed gear (9)

- The synchronizer ring (8) of the 5th gear pinion
- The hub-synchroniser (6) (5th and 6th gear)
- The dog clutch sleeve (7) (5th and 6th gear)

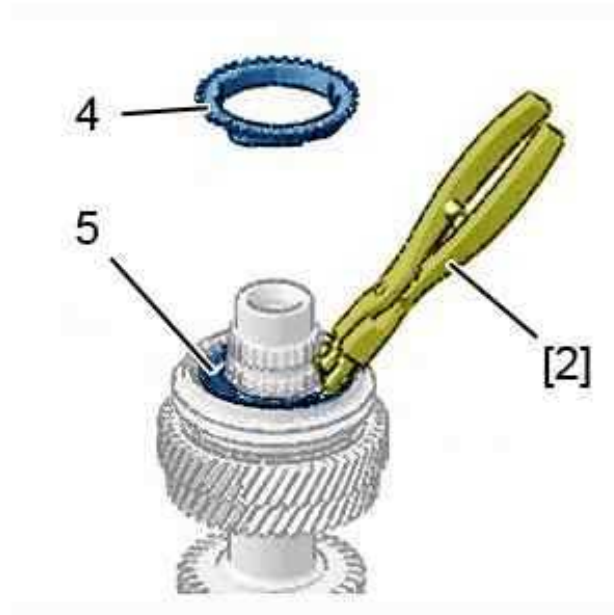


Figure : B2CG06QD

Refit :

- The stop ring (5) ; Using the pliers [2]
- The synchronizer ring (4) of the 6th gear pinion

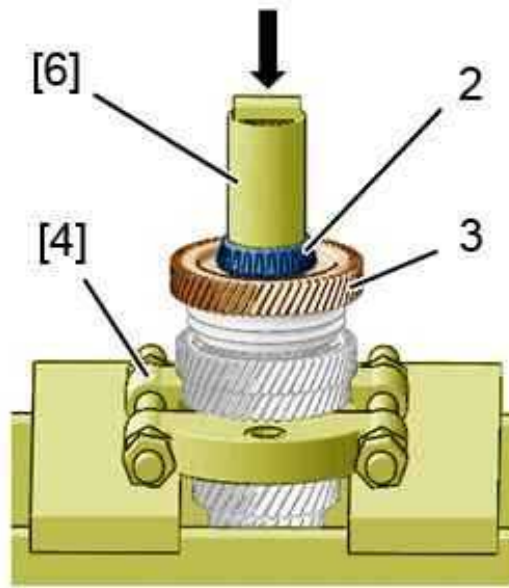


Figure : B2CG06SD

Refit :

- The 6th gear pinion (3)
- The inner race (2) of the bearing on the 6th gear side on a hydraulic press ; Using tools [4] and [6]

3. output shaft

3.1. Stripping

N.B. : Identify the direction of fitting of the bearings, gears and synchronizers before removal. Mark them (if necessary).

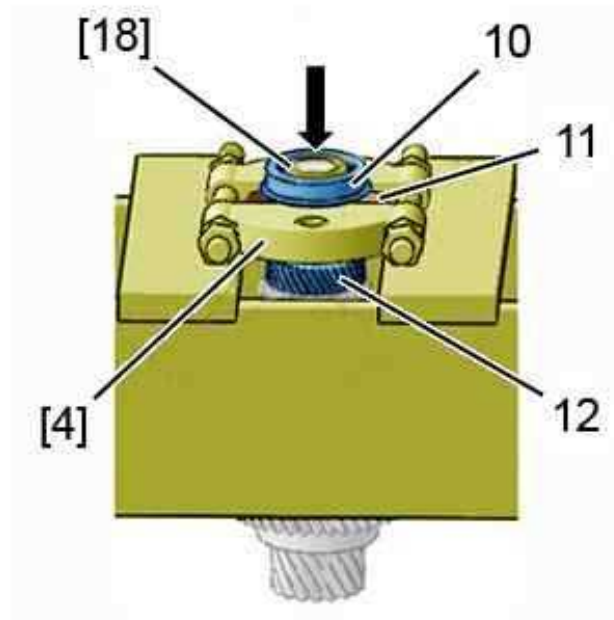


Figure : B2CG06XD

Remove in succession ; Using a press and tools [4] and [18] :

- The lower cage of the bearing (10) (6th gear end)
- The 6th gear pinion (11)
- 5th speed gear (12)

CAUTION : Replace the components if there is any rust between the secondary shaft and the 5th and 6th gear pinions.

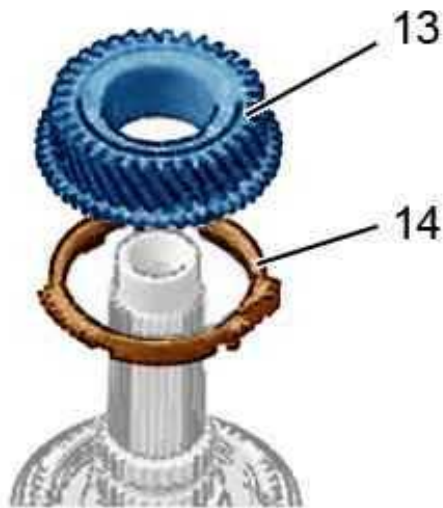


Figure : B2CG06YD

Remove (on the work bench) :

- The 4th speed gear (13)
- 4th speed gear synchronizer ring (14)

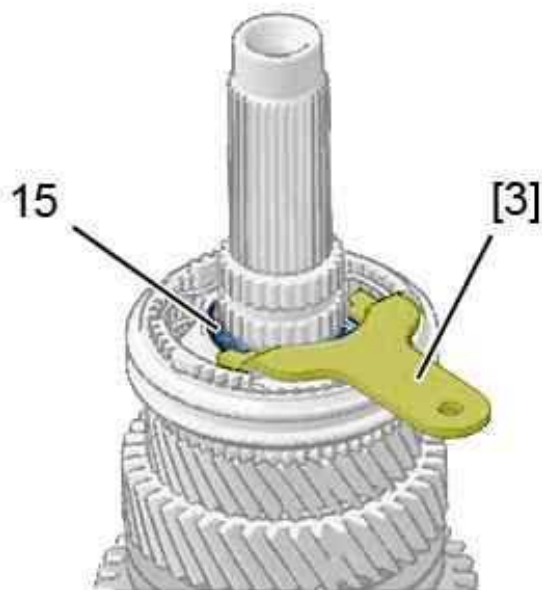


Figure : B2CG071D

Remove the locking ring (15) ; Using tool [3].

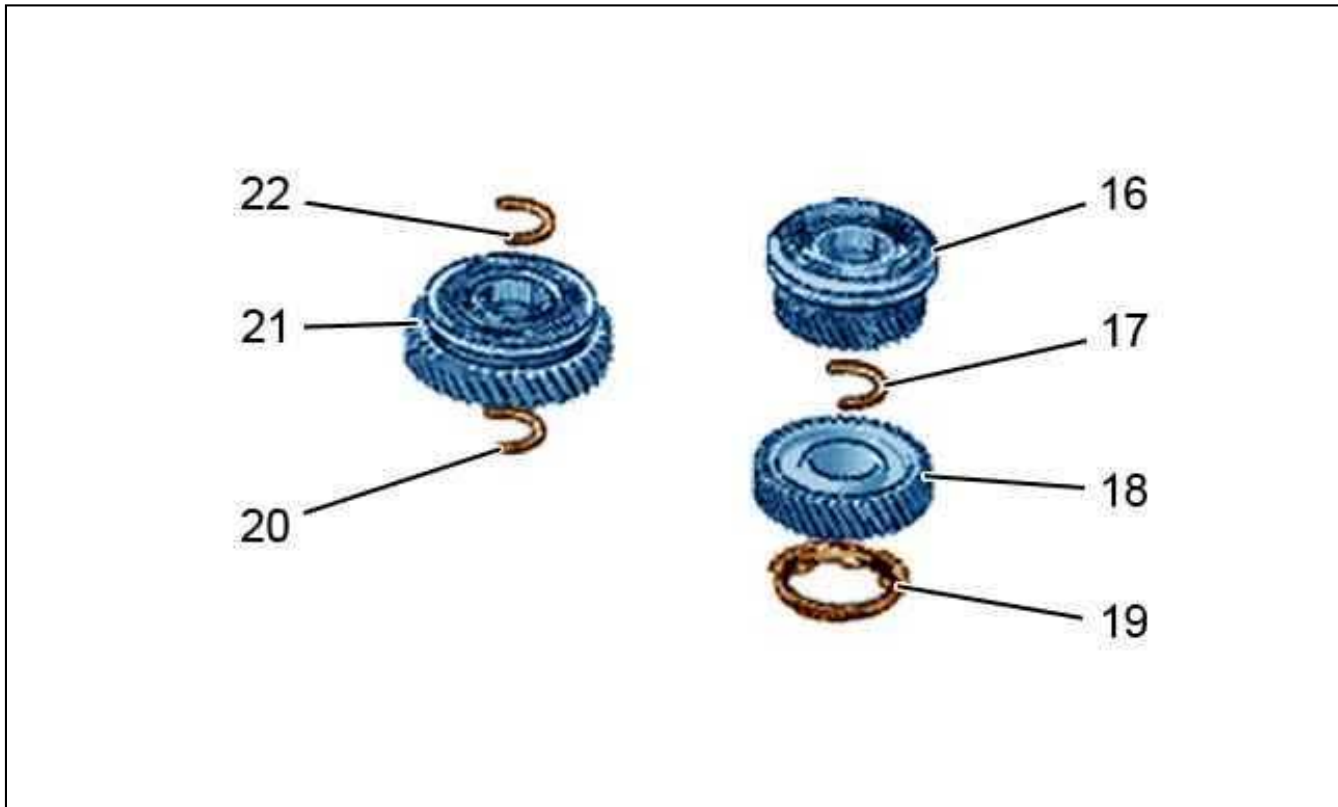


Figure : B2CG073D

Remove the assembly (16) comprising the following components :

- 3rd and 4th gear dog clutch sleeve
- 3rd gear pinion synchronizer ring
- 3rd gear pinion

Remove :

- The stop ring (17) ; Using tool [3]
- 2nd speed gear (18)
- 2nd speed gear synchronizer ring (19)
- The stop ring (22) ; Using tool [3]

Remove the assembly (21) comprising the following components :

- 2nd and 1st gear dog clutch sleeve
- 1st gear pinion synchronizer ring
- 1st gear

Remove the locking ring (20) ; Using tool [3].

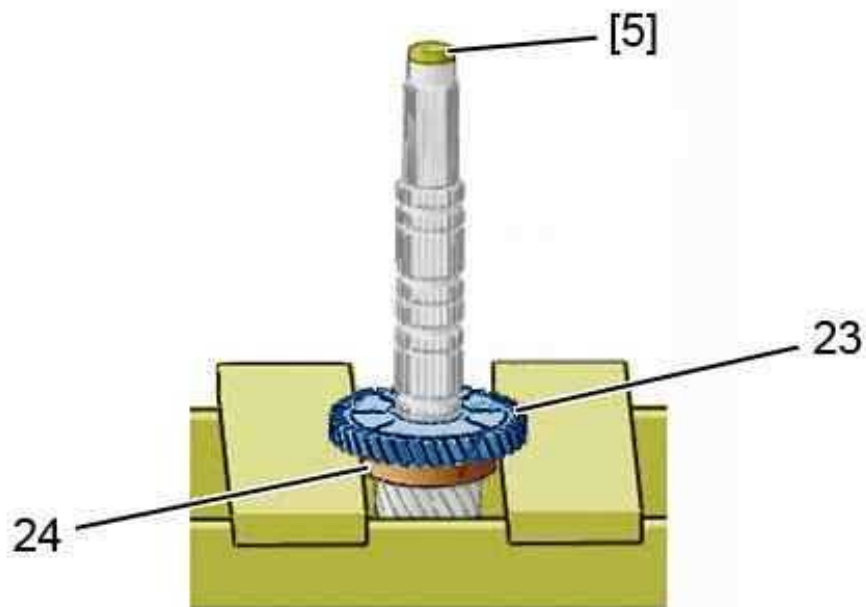


Figure : B2CG075D

Remove in succession ; Using a press and tool [5] :

- The reverse gear (23) (mark the direction of fitting)
- The roller bearing (24)

N.B. : Respect the order of removal.

3.2. Re-assembling

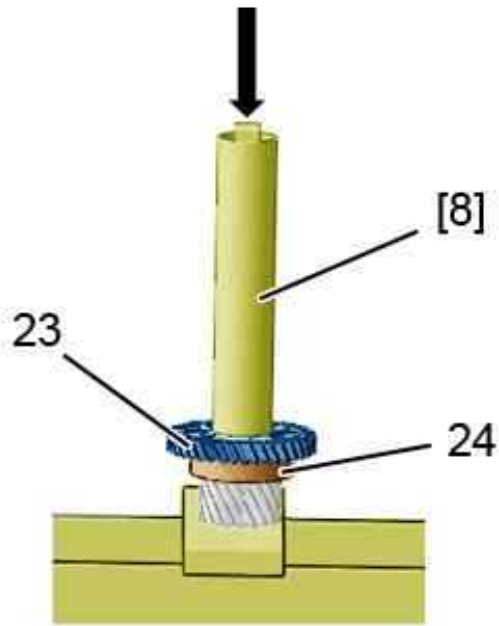


Figure : B2CG077D

Refit ; Using a press and tool [8] :

- The roller bearing (24)
- The reverse gear (23) (respect the direction of fitting)

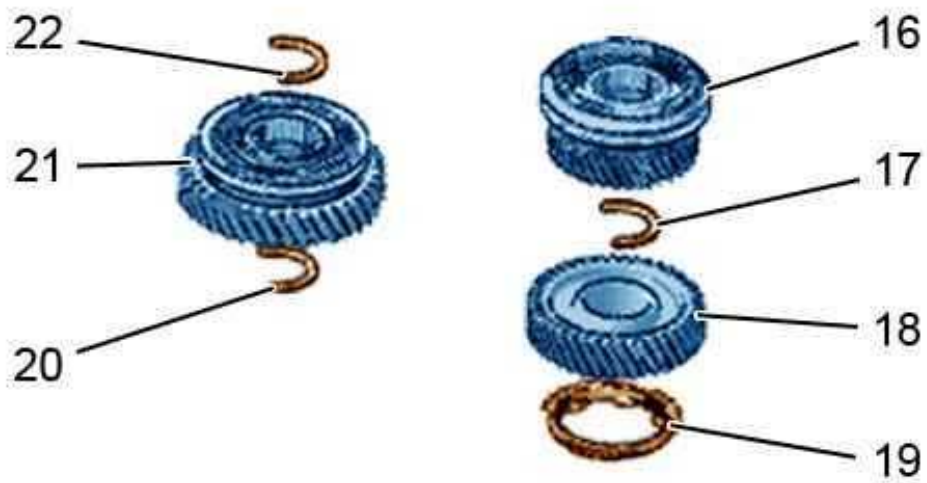


Figure : B2CG079D

Refit the stop ring (20) ; Using tool [3] (on the work bench).

Refit the assembly (21) comprising the following components (on the work bench) :

- 2nd and 1st gear dog clutch sleeve
- 1st gear pinion synchronizer ring
- 1st gear

Refit (on the work bench) :

- The stop ring (22) ; Using tool [3]
- 2nd speed gear synchronizer ring (19)
- 2nd speed gear (18)
- The stop ring (17) ; Using tool [3]

Refit the assembly (16) comprising the following components (on the work bench) :

- 3rd and 4th gear dog clutch sleeve
- 3rd gear pinion synchronizer ring
- 3rd gear pinion

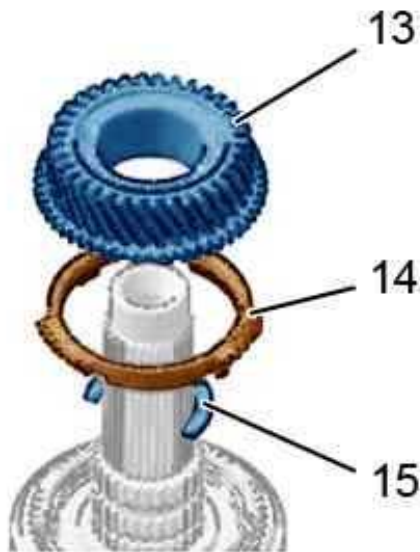


Figure : B2CG07ED

Refit :

- The stop ring (15) ; Using tool [3]
- 4th speed gear synchronizer ring (14)
- The 4th speed gear (13)

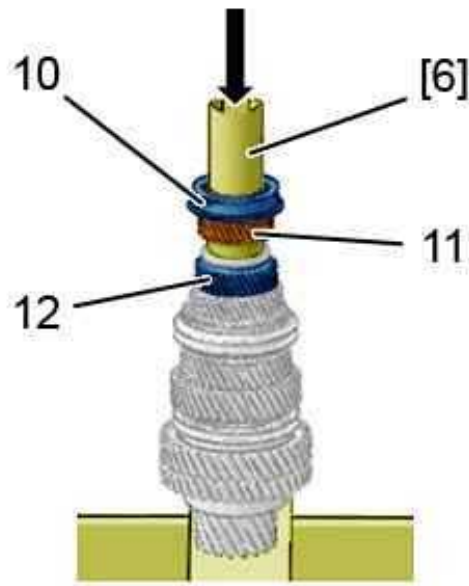


Figure : B2CG07ID

Use a press and tool [6], to refit (in the order indicated) :

- 5th speed gear (12)
- The 6th gear pinion (11)
- The ball bearing (10) (Follow the direction of fitting : Free groove opposite the gears)

N.B. : If the force required to fit the 5th and 6th gear pinions is less than 500 daN Remove the parts.

4. differential

4.1. Stripping

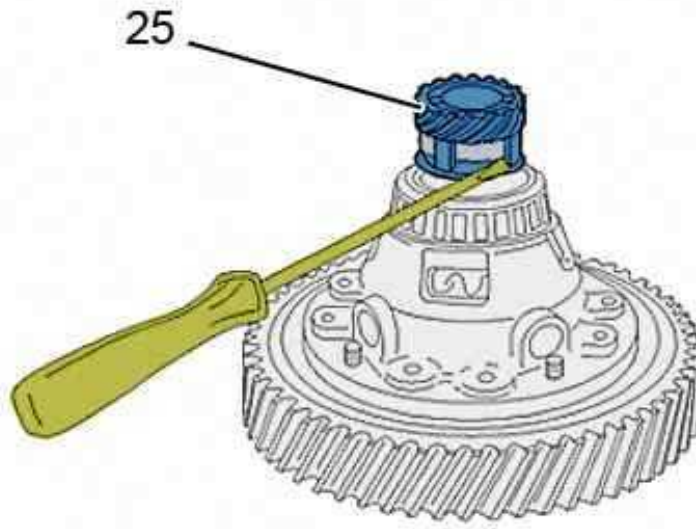


Figure : B2CG07MD

Unclip the speedometer drive bolt (25) (according to equipment).

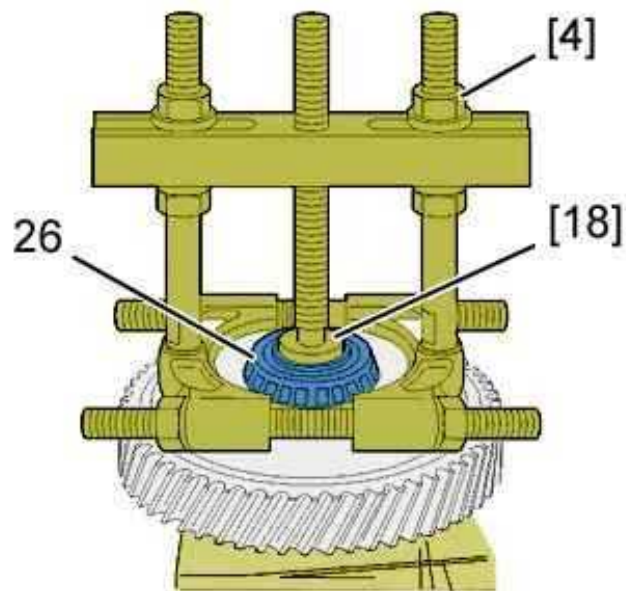


Figure : B2CG07OD

Remove the bearings (26) ; Using tools [18] and [4].

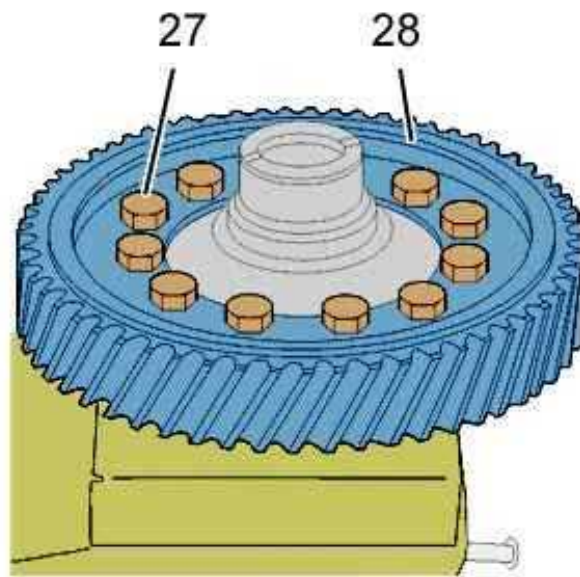


Figure : B2CG07SD

Remove :

- The bolts (27)
- The crown wheel (28)

Open the differential housing.

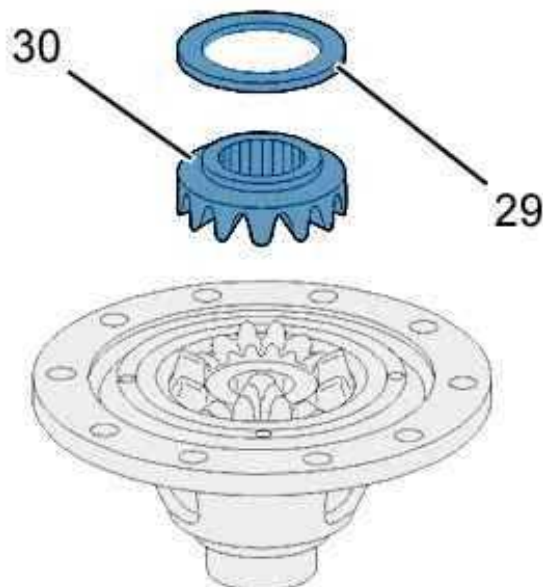


Figure : B2CG07VD

Remove :

- The friction washer (29)
- The sun wheel (30)

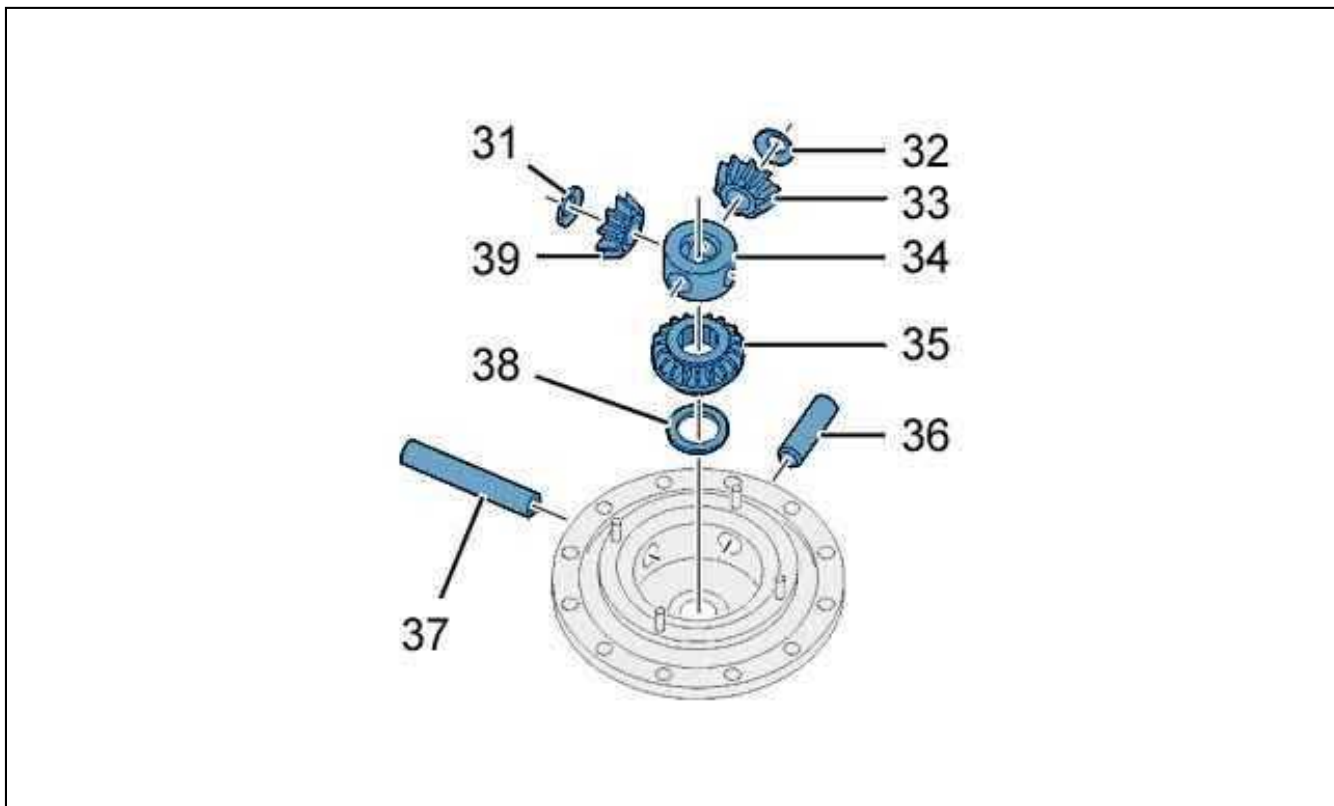


Figure : B2CG07WD

Remove :

- The shaft (37)
- The planet cage (39)
- The cups (31)
- The half shafts (36)
- The gear selector shaft lug (34)
- The planet cage (33)
- The cups (32)
- The sun wheel (35)
- The friction washer (38)

CAUTION : Do not separate the planet gears from their thrust washers and the sun wheels from their friction washers.

4.2. Re-assembling

CAUTION : Adhere to the tightening torques.

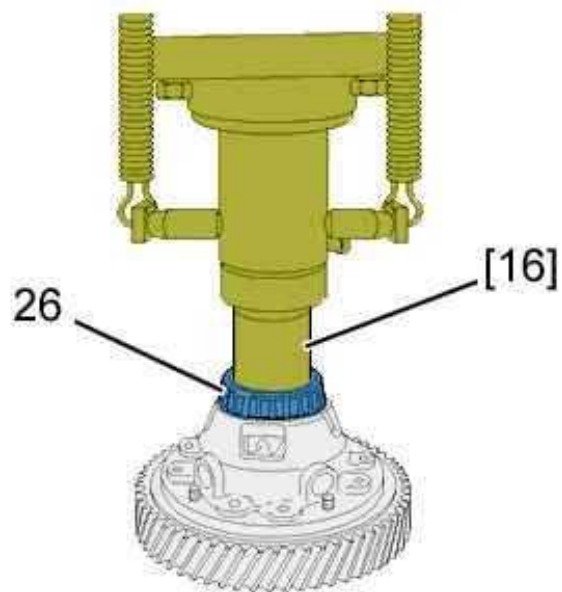


Figure : B2CG07XD

Refit the inner bearing cage (26) ; Using a press and tool [16].

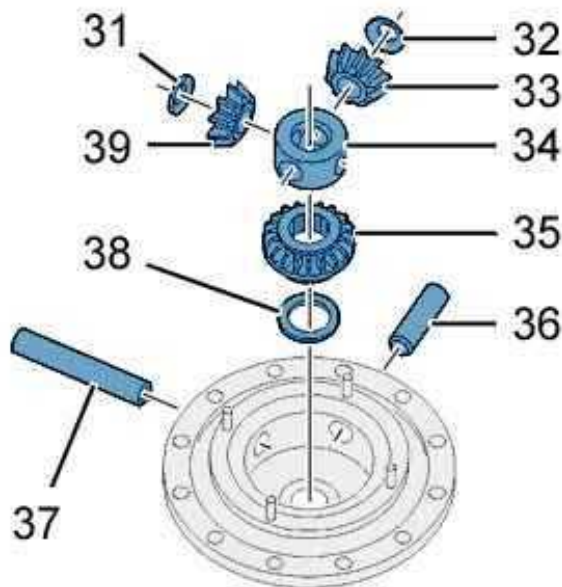


Figure : B2CG07YD

Refit :

- The friction washer (38) (Lubrication channel : The sun wheel side)

- The sun wheel (35)
- The gear selector shaft lug (34)
- The shaft (37)
- The planet cage (39)
- The cups (31)
- The half shafts (36)
- The planet cage (33)
- The cups (32)

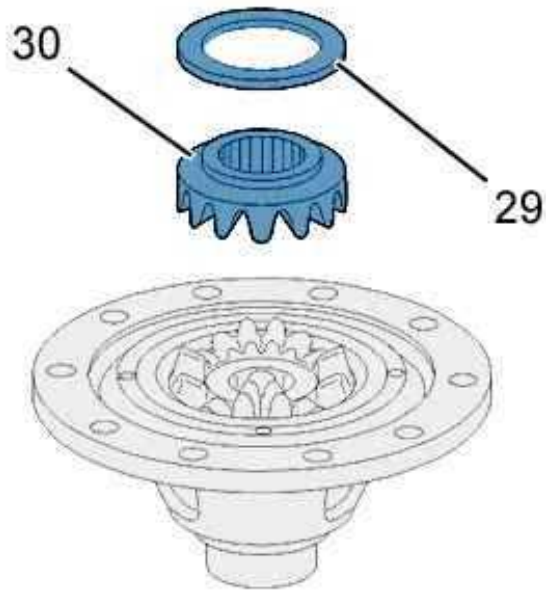


Figure : B2CG07ZD

Refit :

- The sun wheel (30)
- The friction washer (29)

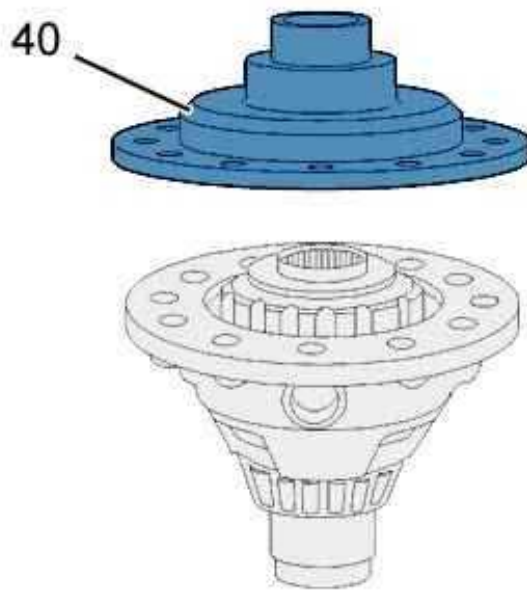


Figure : B2CG080D

Refit the flange (40).

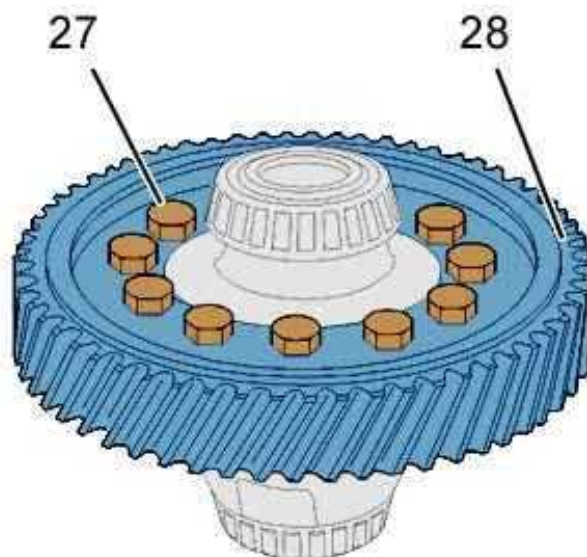


Figure : B2CG081D

Refit :

- The crown wheel (28)

- The bolts (27)

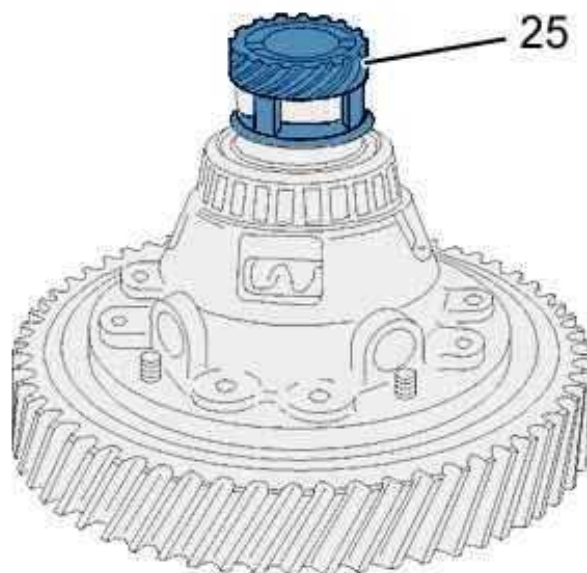


Figure : B2CG082D

Clip the speedometer drive gear (25) (according to equipment).

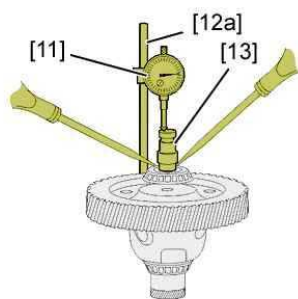


Figure : B2CG086T

Fit :

- The tool [13] on the sun wheel in line with the teeth
- The dial gauge support [12b]
- The support rod [12a]
- The dial gauge [11]

Set the dial gauge to zero.

With the aid of two screwdrivers, measure the sun wheel end float.

Take 4 measurements at 90°.

CAUTION : The maximum end float must not be more than 0,10 mm. If one of the measurements is above this value, replace the appropriate friction washer.

N.B. : The friction washers are available in 8 thicknesses : 1,94 - 1,87 - 1,80 - 1,73 - 1,66 - 1,59 - 1,52 - 1,45 mm .

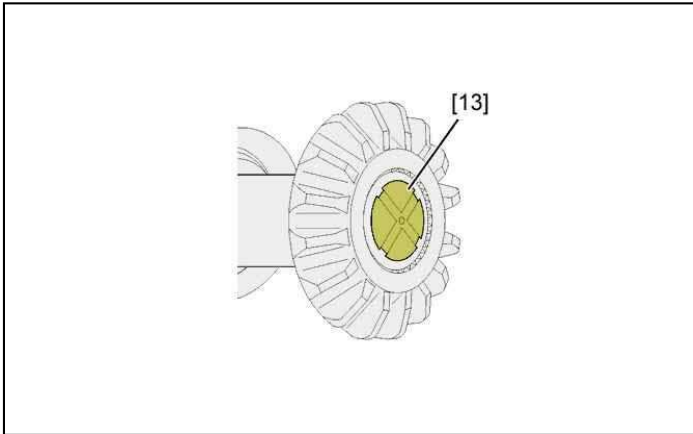


Figure : B2CG087T

Fitting of the tool for adjusting the play of the planet wheels (13).

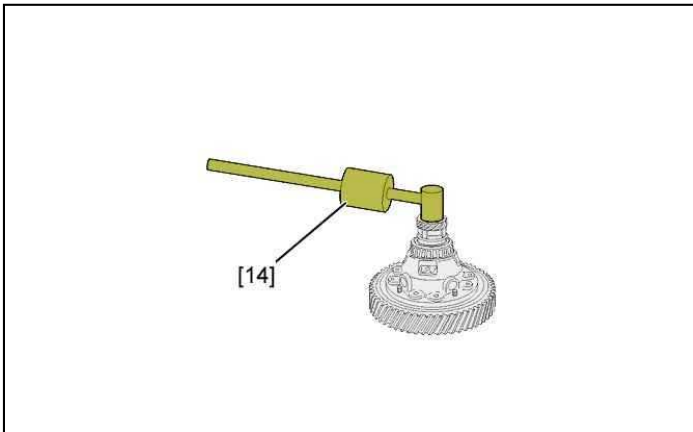


Figure : B2CG088T

CAUTION : After final assembly, check the drive torque of the differential, using tool [14]. If the differential drive torque is greater than 1,5 m.daN, increase the play of the planet wheel relative to the minimum play.

5. clutch housing

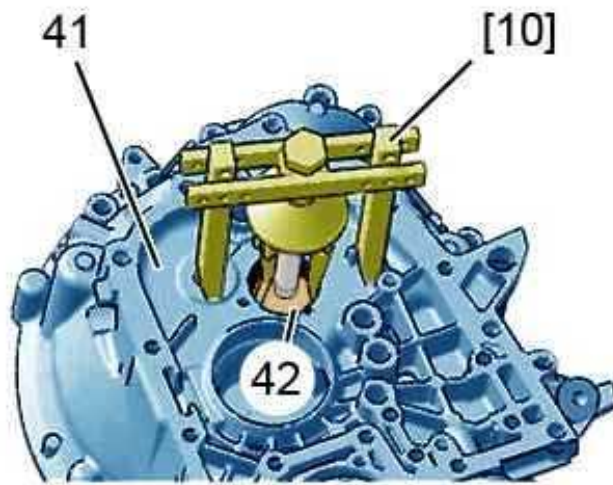


Figure : B2CG083D

Remove the primary shaft outer bearing cage (42) located on the clutch housing (41) ; Using tool [10].
Fit a new outer bearing cage (42).

6. gearbox casing

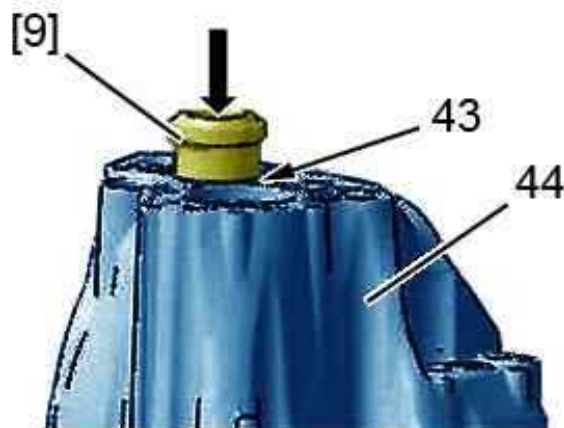


Figure : B2CG084D

Remove the primary shaft outer bearing cage (43) located on the gearbox casing (44) ; Using a press and tool [9].

N.B. : Retrieve the adjusting shim (45).

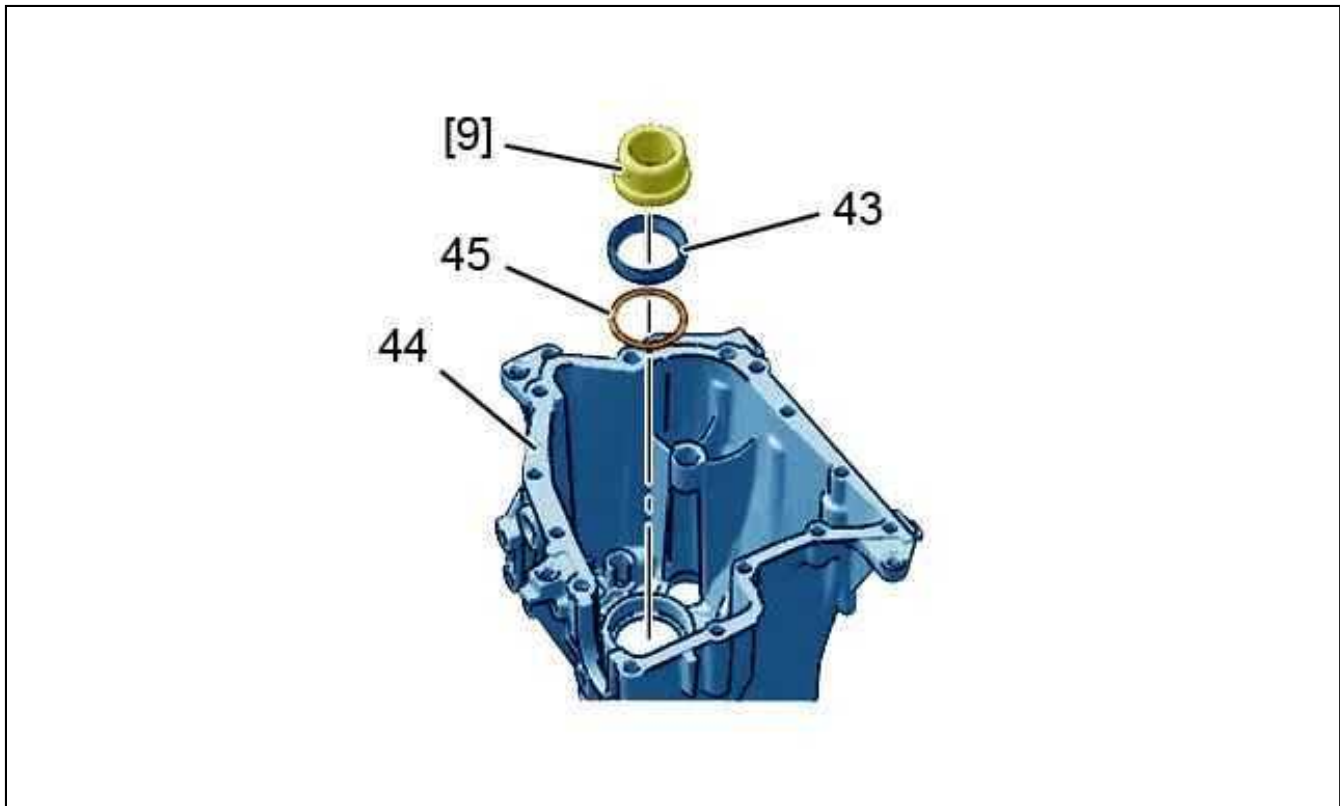


Figure : B2CG085D

Check - Adjustment : **Bearing play** ⓘ (input shaft).

Fit on the gearbox casing (44) :

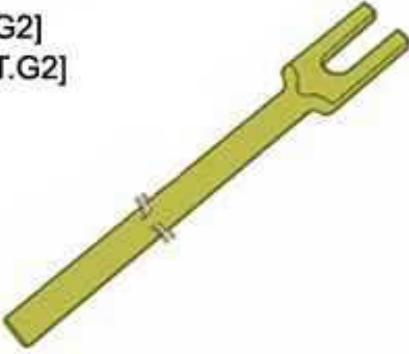
- An adjustment shim (45) in the housing of the 6th gear bearing, 0,40 mm less thick than the shim that was removed
- A new primary shaft outer bearing cage (43) ; Using tool [9]

Re-assemble the gearbox ⓘ .

REMOVING - REFITTING : GEARBOX CONTROLS

ESSENTIAL : Observe the safety and cleanliness recommendations  .

1. Tooling

tool	Reference	Designation
 [0216-G2] [9040-T.G2] Figure : E5AB0ZMT	[0216-G2] [9040-T.G2]	ball-joint extractor

2. Removing

2.1. Additional operations

Put the vehicle on a hoist.

Place the gear lever in neutral.

Remove the front right-hand wheel.

2.2. Engine compartment

Remove the air filter housing .

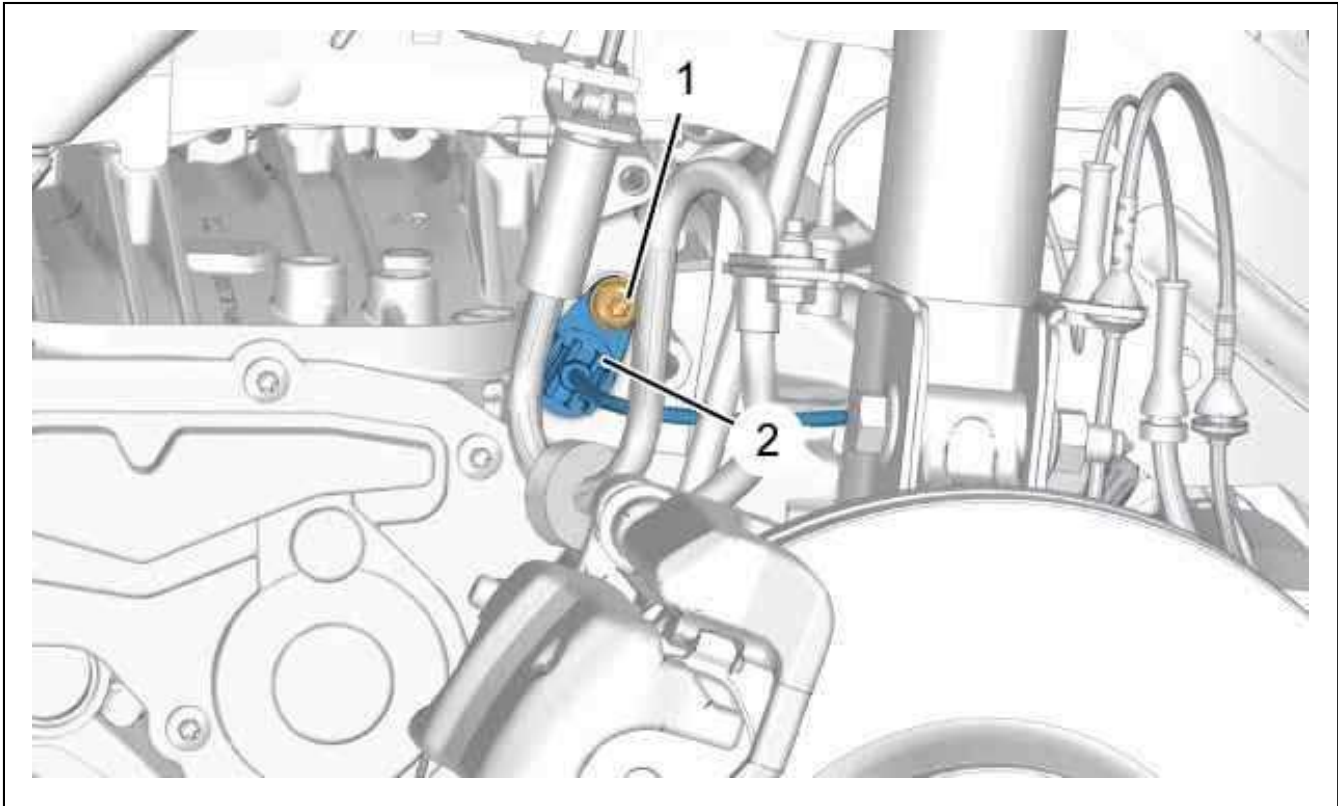


Figure : B2CG2CKD

Remove :

- The fixing (1)
- The reverse gear device (2)

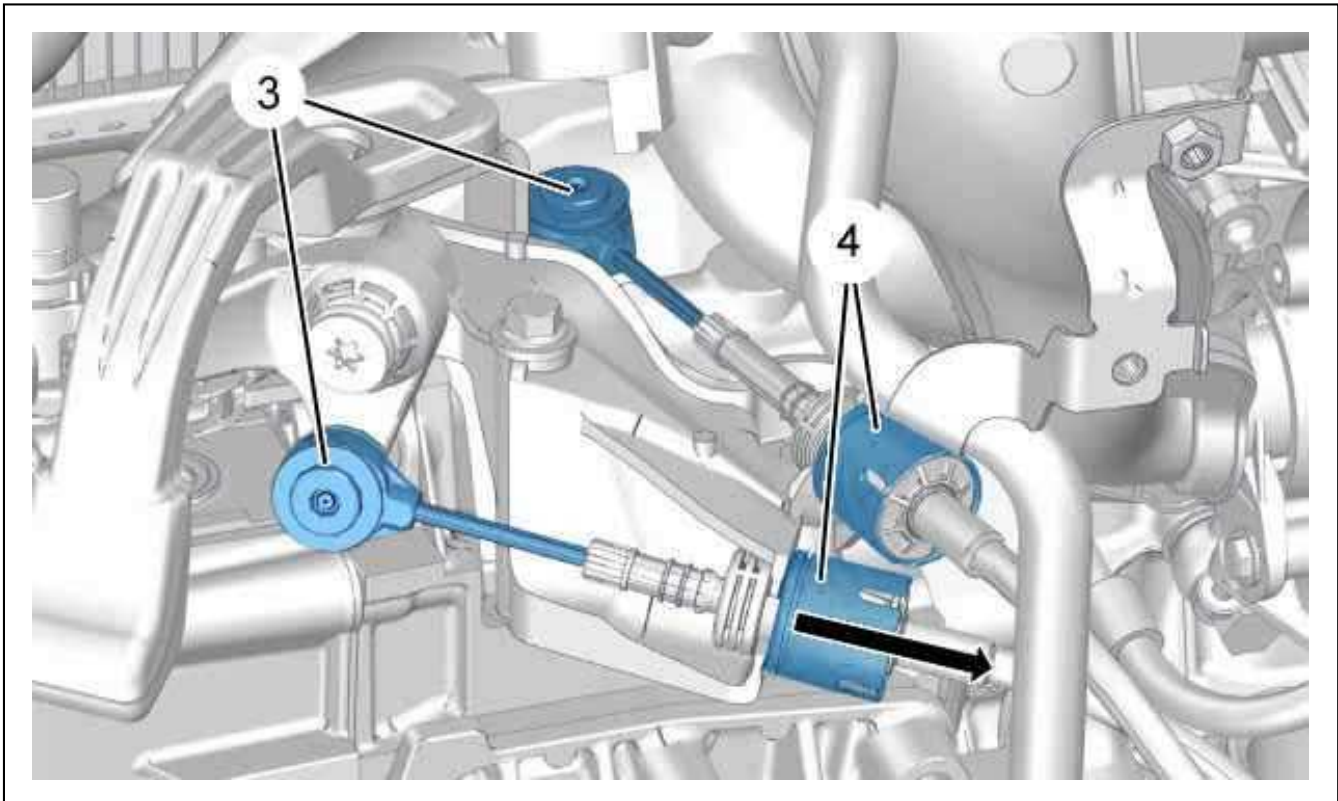


Figure : B2CG2CLD

Uncouple the ball-joints (3) ; Using tool [216-G2 / 9040-T.G2].

Release the sleeve stops from their support :

- Push the locking keys (4) (In the direction of the arrow)
- Detach the sleeve stop from its support (pull upwards)

Raise the vehicle.

Unclip the gear control cables retaining spacer on the body floor and push it towards the passenger compartment.

Return the vehicle to its wheels.

2.3. Passenger compartment

Remove the central console .

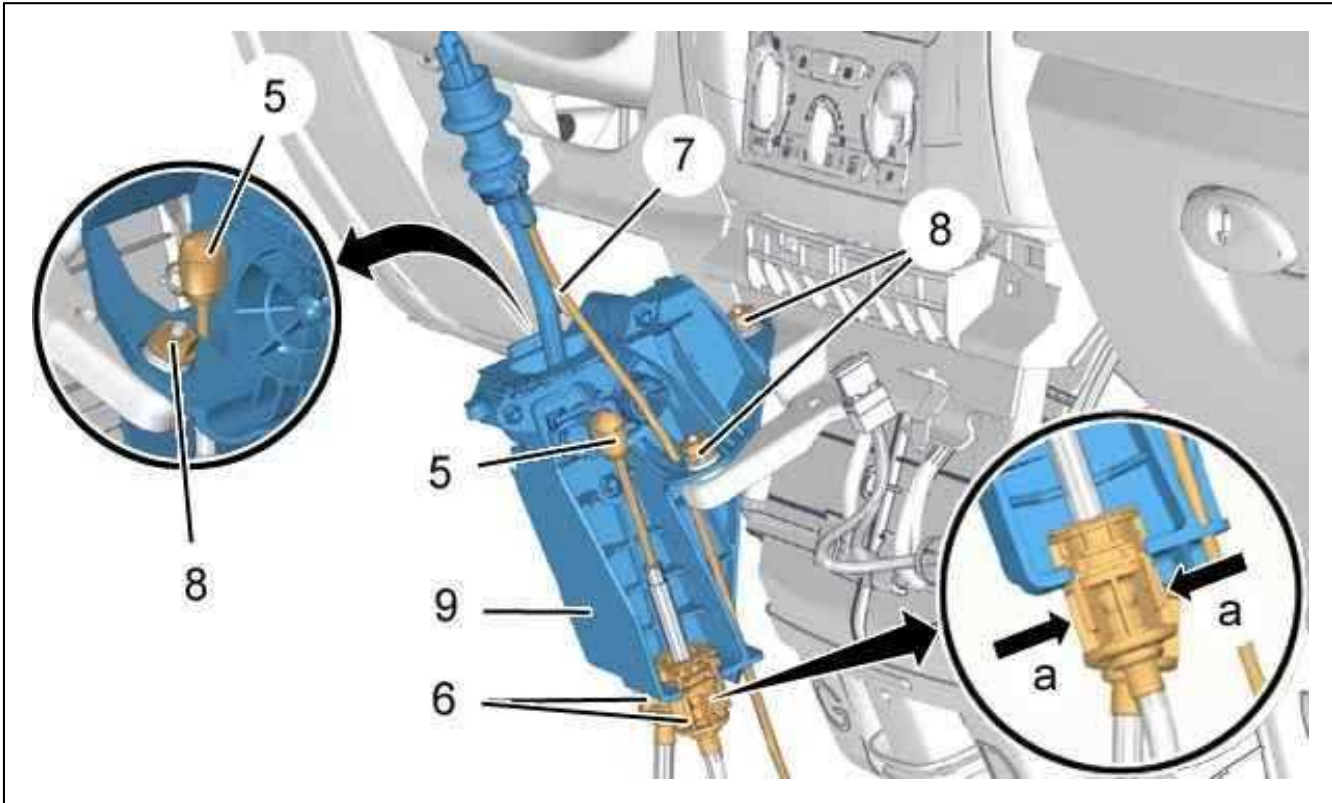


Figure : B2CG2CMD

Uncouple the ball-joints (5) ; Using a flat spanner.

Unlock : The cable stops (6) :

- Press on the 2 tabs simultaneously (in direction "a")
- Pull the sleeve stop (6) towards the outside

Remove :

- The cable (7) from the reverse gear device (2)
- The gear control cables
- The 3 nuts (8)
- The selection lever (9)

3. Refitting

CAUTION : Check the gear control cables are correctly routed.

Pass the gear control cables into the body floor ; Through the interior of the vehicle.

3.1. Engine compartment

Connect the ball joints (3).

Clip the sleeve stops .

Check that the sleeve stops are locked correctly.

N.B. : The sleeve stops are locked automatically on refitting.

Refit :

- The reverse gear device (2)
- The fixing (1)

3.2. Passenger compartment

Put in place and clip the gear control cables retaining spacer on the body floor .

Refit :

- The selection lever (9)
- The 3 nuts (8)

Put the gear control cables in place.

Refit : The cable (7) from the reverse gear device (2).

Connect the ball joints (5).

Clip the sleeve stops (6).

Check that the sleeve stops (6) are locked correctly.

N.B. : The sleeve stops (6) are locked automatically on refitting.

Check that you can shift through all the gears without running into any tight spots.

Refit the central console  .

Refit the air filter housing.

3.3. Additional operations

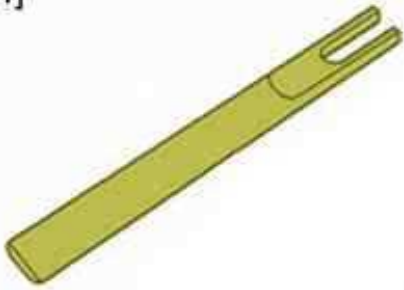
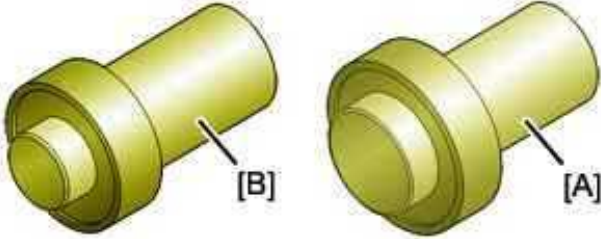
Refit :

- The front right wheel
- The vehicle to its wheels

REMOVING - REFITTING : ML6 GEARBOX

ESSENTIAL : Observe the safety and cleanliness recommendations ⓘ .

1. Tooling

tool	Reference	Designation
[0216-G1]  Figure : E5AB0BTT	[0216-G1]	Forks for removing gearbox control rods
[0332]  Figure : E5AB06ZT	[0332-A]	Fitting drift for the final drive output lip seal (left side)
	[0332-B]	Fitting drift for the final drive output lip seal (right hand side)
	[0102-M]	Workshop crane assembly

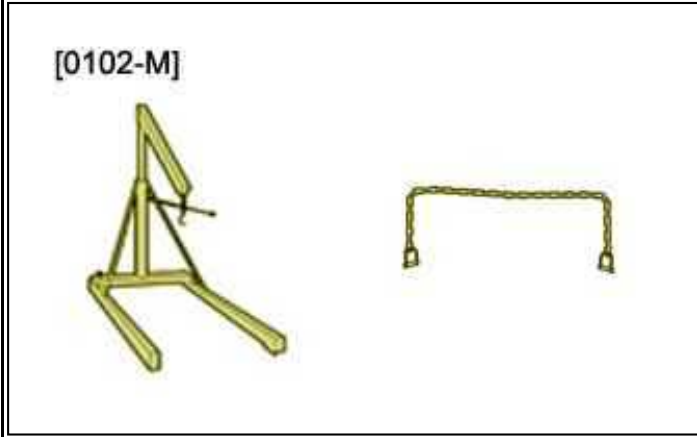


Figure : E5AG058T

2. Preliminary operations

Place the vehicle on a 2-post lift.

CAUTION : After switching off the ignition: wait 15 minutes before disconnecting the battery, to ensure that the initialisations of the various ECUs are memorised.

Disconnect the battery.

Drain the gearbox .

Remove :

- The drive shafts
- The front sub-frame

3. Removing

Disconnect connector of the air flowmeter.

Remove :

- The air filter box
- The air flow meter
- The air inlet duct
- The fixing screws of the starter

Move aside the starter without disconnecting it.

Support the starter motor .

Disconnect the reverse gear switch.

Remove :

- The reverse gear unlocking device
- The gearbox earth cable

Disconnect, unclip and move aside the electrical harnesses which are connected to the gearbox.

Remove and move aside : The hydraulic clutch control slave cylinder (Without opening the hydraulic circuit).

CAUTION : Do not action the clutch pedal with the hydraulic clutch control slave cylinder removed.

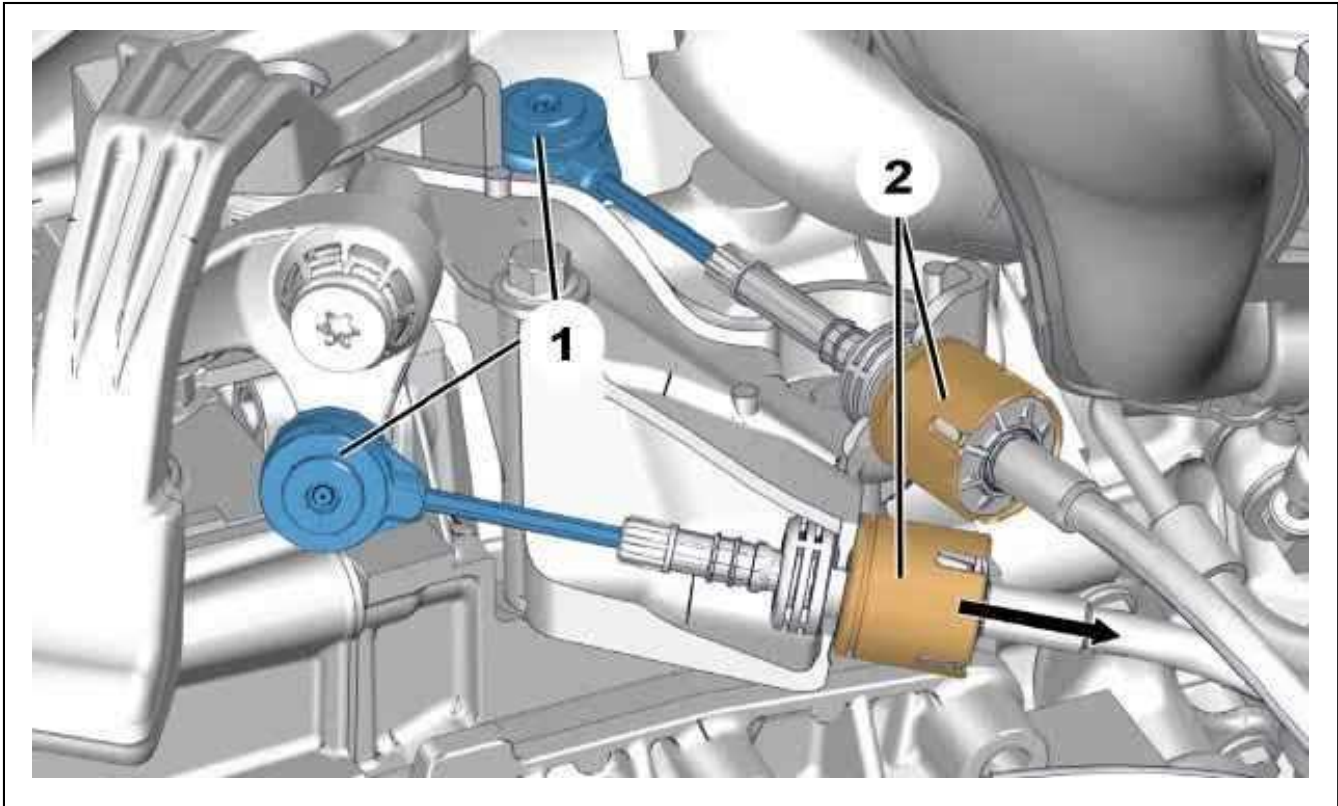


Figure : B2CP4TKD

Uncouple the ball-joints (1) ; Using tool [0216-G1].

Unlock the sleeve stops from the support on the gearbox :

- Push the locking keys (2) (following the arrow)
- Detach the sleeve stop from its support pulling upwards

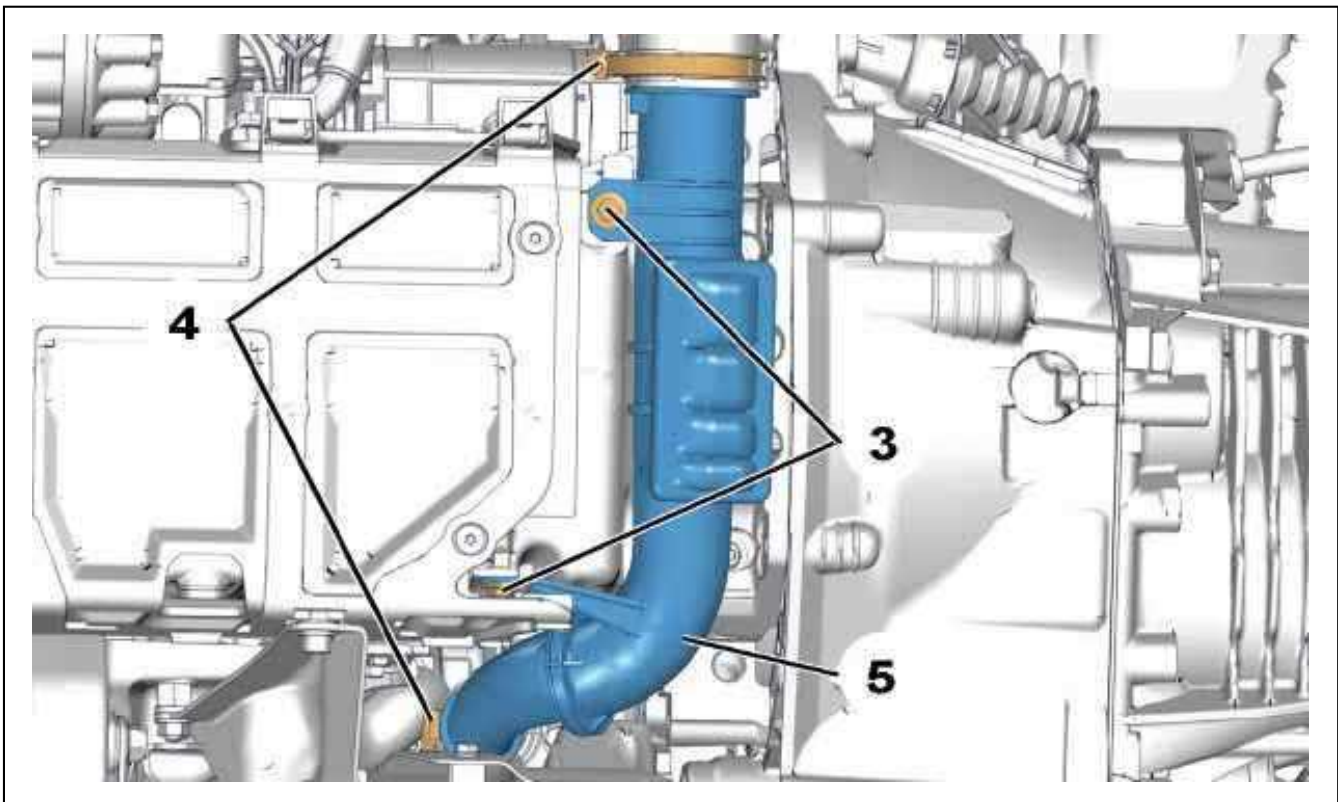


Figure : B2CP4TLD

Remove :

- The bolts (3)
- The clips (4)
- Refit the lower air duct (5)
- The lower fixing bolts coupling the engine-gearbox

Sling the gearbox ; Using the tools [0102-M].

Position a roller jack under the sump.

CAUTION : Use a rubber pad to avoid damaging the oil sump .

Move aside the electrical harness under the coolant outlet housing .

Remove the engine-gearbox upper coupling fixings .

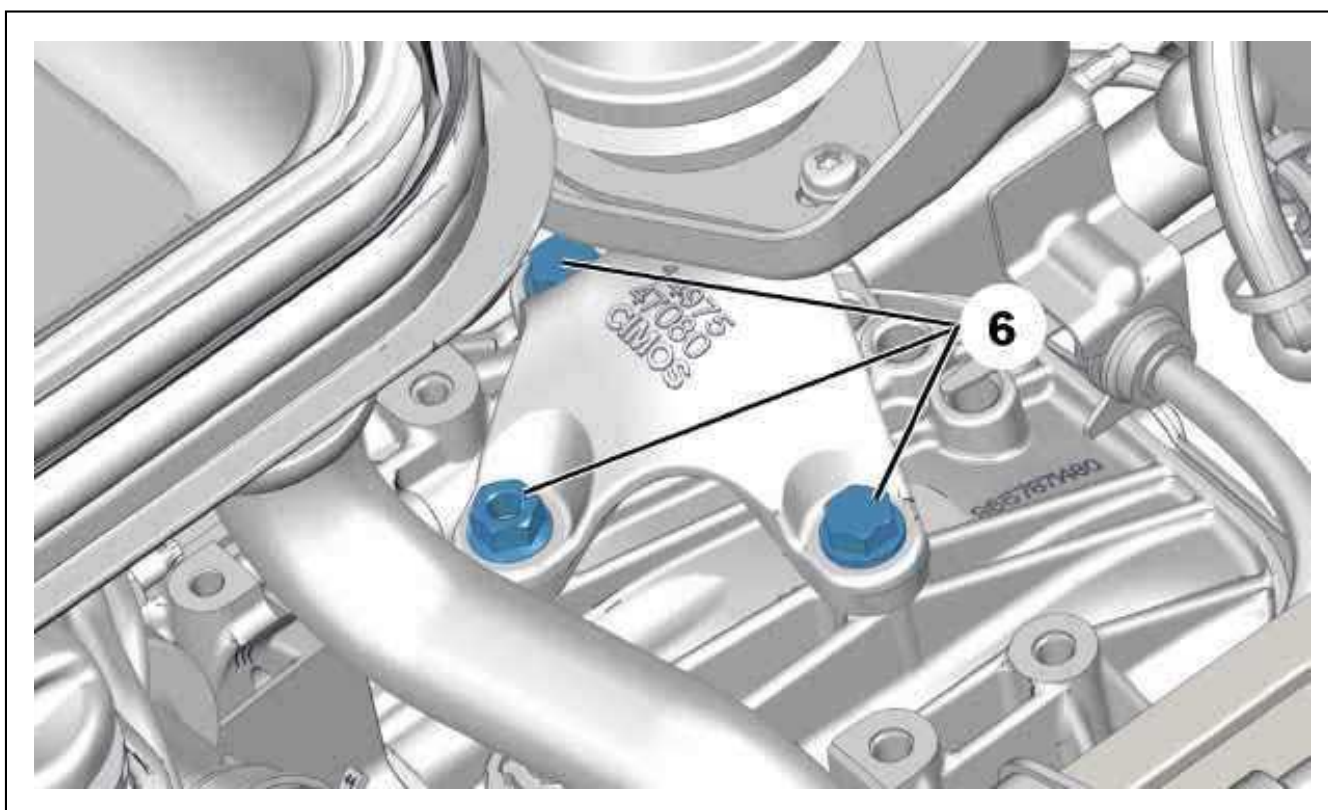


Figure : B2CP4TMD

Remove the mountings (6).

Slowly lower the engine and gearbox assembly.

Remove the gearbox.

4. Refitting

CAUTION : Adhere to the tightening torques ⓘ .

CAUTION : Replace the final drive output lip seals with the aid of mandrels [0332-A] and [0332-B], having grease between the lips.

Check :

- That there is no leak at the hydraulic bearing guide

- That there is no leak at the crankshaft seal
- The state of wear of the clutch

Rectify (if necessary).

Clean the primary shaft using a metal brush in order to eliminate any traces of corrosion.

Grease the splines of the primary shaft with KLUBER PASTE 46MR 401.

Remove the surplus grease on the top of the grooves and the end of the input shaft using a cloth.

Check that the centring pins are present on the gearbox and on the engine .

Attach the gearbox to the engine.

Refit :

- The mountings (6)
- The engine-gearbox upper coupling fixings

Remove the tools [0102-M].

Remove the trolley jack.

Refit :

- The lower fixing bolts coupling the engine-gearbox
- Refit the lower air duct (5)
- The clips (4)
- The bolts (3)

Connect the ball joints (1).

Clip in the locking keys (2).

N.B. : The sleeve stops are locked automatically on refitting ; Check that the sleeve stops are locked correctly.

Put in place, clip and reconnect the electrical harnesses attached to the gearbox .

Refit :

- The electrical harness under the coolant outlet housing
- The electrical harness attached to the gearbox
- The gearbox earth cable
- The hydraulic clutch control slave cylinder (Without opening the hydraulic circuit)
- The reverse gear unlocking device

Reconnect the reverse gear switch .

Refit :

- The starter motor
- The fixing screws of the starter
- The air inlet duct
- The air flow meter
- The air filter box

Reconnect the air flow sensor switch .

CAUTION : Perform the operations to be carried out following reconnection of the battery.

Reconnect the battery.

Refit :

- The front sub-frame
- The drive shafts

Refill the gearbox via the air vent hole .

N.B. : The gearboxes are lubricated for life (No need to check the level).

DRAIN AND REFILL - REFILLING : MANUAL GEARBOX ML6C

ESSENTIAL : Observe the safety and cleanliness recommendations  .

1. Tooling

tool	Reference	Description
 [0344] Figure : E5AI00BT	[0344]	Manual gearbox filling cylinder

N.B. : The gearbox is lubricated "for life" and does not have a top-up cap : Visually check the sealing at each service visit.

CAUTION : It is necessary to drain the gearbox and put back the exact quantity of oil, in the event of an external leak or a repair.

2. Drain and refill

Put the vehicle on a hoist.

Remove the under engine protection .

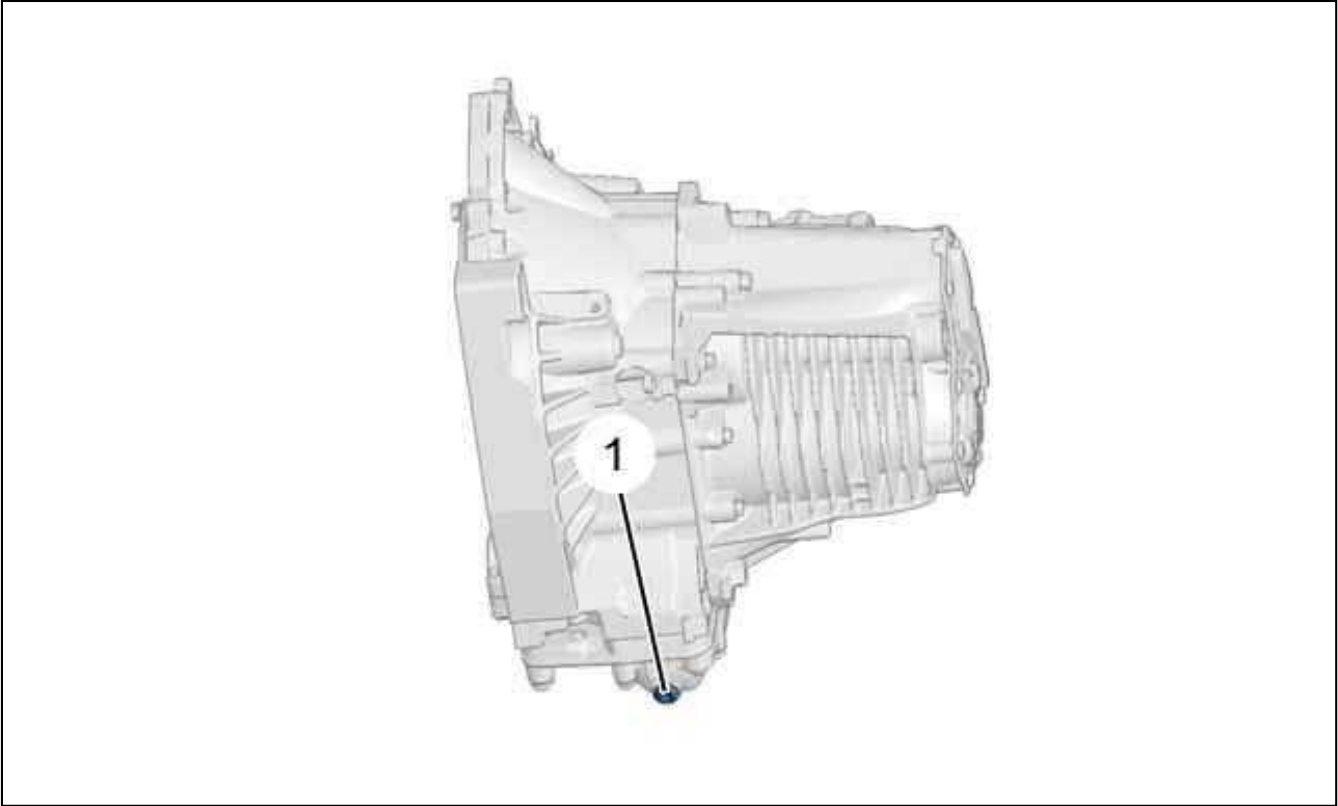


Figure : B2CP4ACD

Remove the drain plug (1) Fitted with its seal.

3. Refilling

CAUTION : Adhere to the tightening torques ⓘ.

Refit : The drain cap (1) fitted with a new seal.

Fit the cap.

Remove the air filter housing (if necessary).

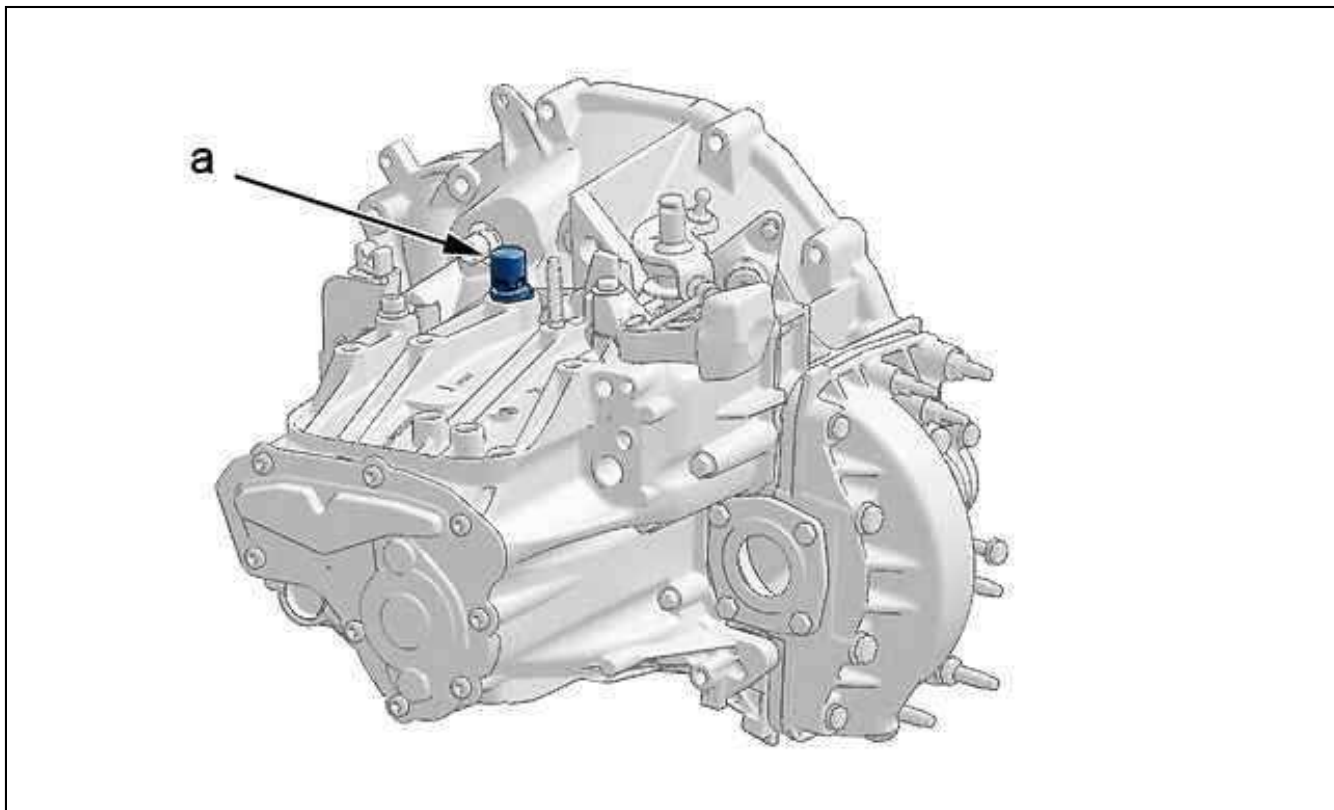


Figure : B2CP46HD

Refill the gearbox via the air vent hole (as "a") ; Using tool [0344].

Quantity of oil to fill after draining		
Engines:	EW	DW
Gearbox casing with fins	1.7 l	1.9 l
Gearbox casing without fins	2.4 l	2.6 l

Quantity of oil to fill after an overhaul		
Engines:	EW	DW
Gearbox casing with fins	2.0 l	2.2 l
Gearbox casing without fins	2.7 l	2.9 l

Type of oil : ESSO 75W80 EZL 848 or TOTAL 75W80 H6965.

Refit :

- The air filter housing (if necessary)
- The protective panel under the engine

OVERHAUL : ML6 MANUAL GEARBOX (SUMMARY)

ESSENTIAL : Observe the safety and cleanliness recommendations ⓘ .

Cleaning and refitting conditions : gearbox ⓘ .

Presentation : Tooling ⓘ .

Dismantling : gearbox ⓘ .

Stripping - Re-assembling : Components internal to the gearbox ⓘ .

Check - Adjustment : Bearing play ⓘ (input shaft).

Refitting : gearbox ⓘ .

Tightening torques : ML6 manual gearbox ⓘ .

CLEANING AND REFITTING CONDITIONS : ML6 MANUAL GEARBOX

Do not use abrasives or sharp tools on the joint faces.

Clean the threads and taps.

Fit only parts which are clean and free from faults (scores, burrs, knocks).

Oil the parts as they are refitted.

Systematically replace the following parts :

- The seals
- The pins
- The bearings
- The screws of the lines of the primary and secondary shafts
- The differential gearwheel screws
- The gearbox cover plate
- The 5th - 6th gear synchronizer stop ring

Respect the matching of the following components :

- clutch housing - gearbox casing - Differential housing
- Forks and fork shafts
- Hubs and synchronizers

MODIFICATION : MANUAL GEARBOX

1. Foreword

Modification of the primary shafts greasing procedure.

CAUTION : Excessive greasing of the primary shaft may damage the clutch system as a result of splashes of grease.

2. Procedure to be followed : Greasing method

CAUTION : Clean and remove all traces of corrosion of the primary shaft along its entire length, over its entire periphery and in the splines using a metal hand brush.

N.B. : Protect the interior of the clutch housing from splashes of grease.

CAUTION : An excess of grease will contaminate the clutch friction plate and cause noise in neutral, slipping or juddering of the clutch. Remove the excess grease from the splines of the primary shaft using a clean cloth.

2.1. Vehicles equipped with a gearbox that has a mechanical clutch bearing

Spray a little grease MOLYCOTE G-RAPID PLUS (aerosol) on the splines of the primary shaft and on the clutch bearing guide tube .

2.2. Vehicles equipped with a gearbox that has a hydraulic clutch bearing

Grease the splines of the primary shaft with Kluberpaste 46 MR 401.

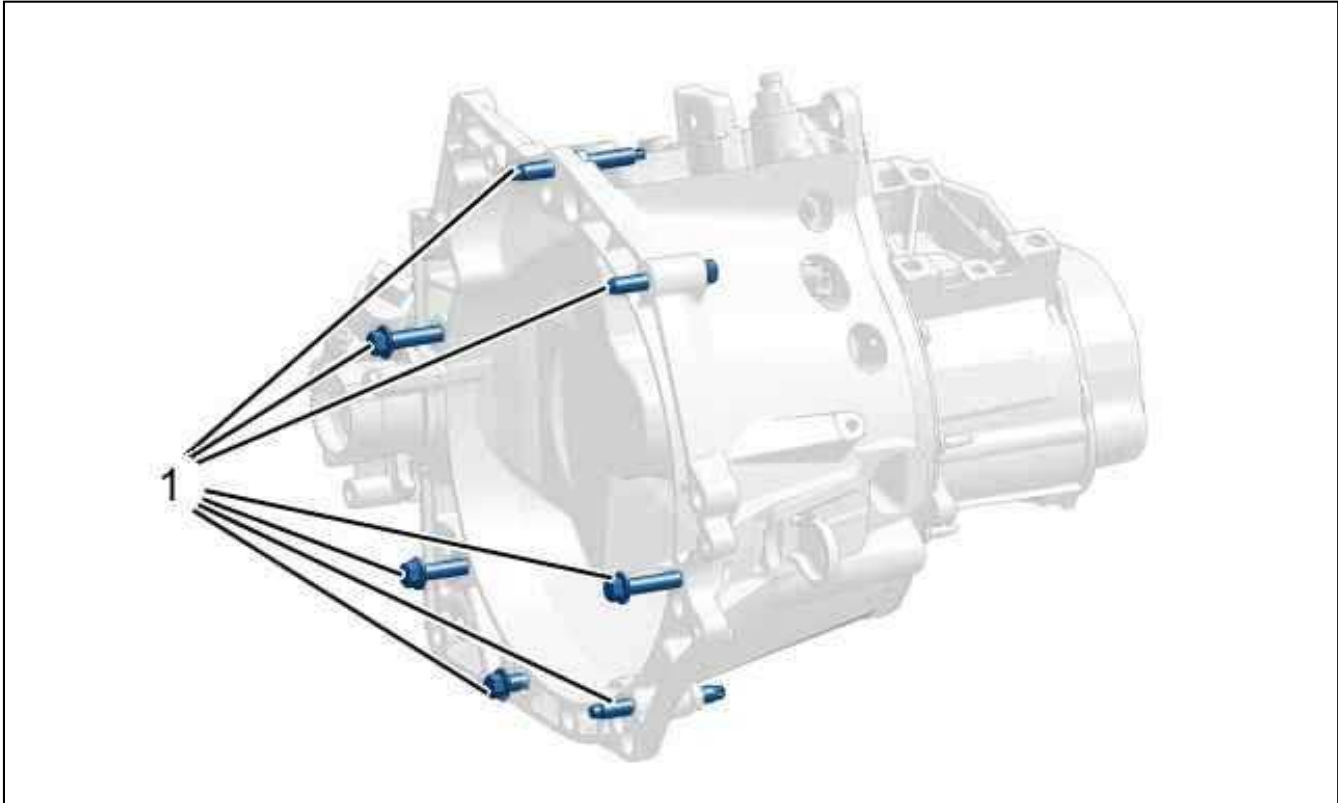
TIGHTENING TORQUES : ENGINE/GEARBOX COUPLING**1. Gearbox coupling (be) On engine**

Figure : B2CB06BD

Reference	Designation	Tightening torque
(1)	Gearbox coupling - engine	5,4 daNm

2. Gearbox coupling (mL) On engine

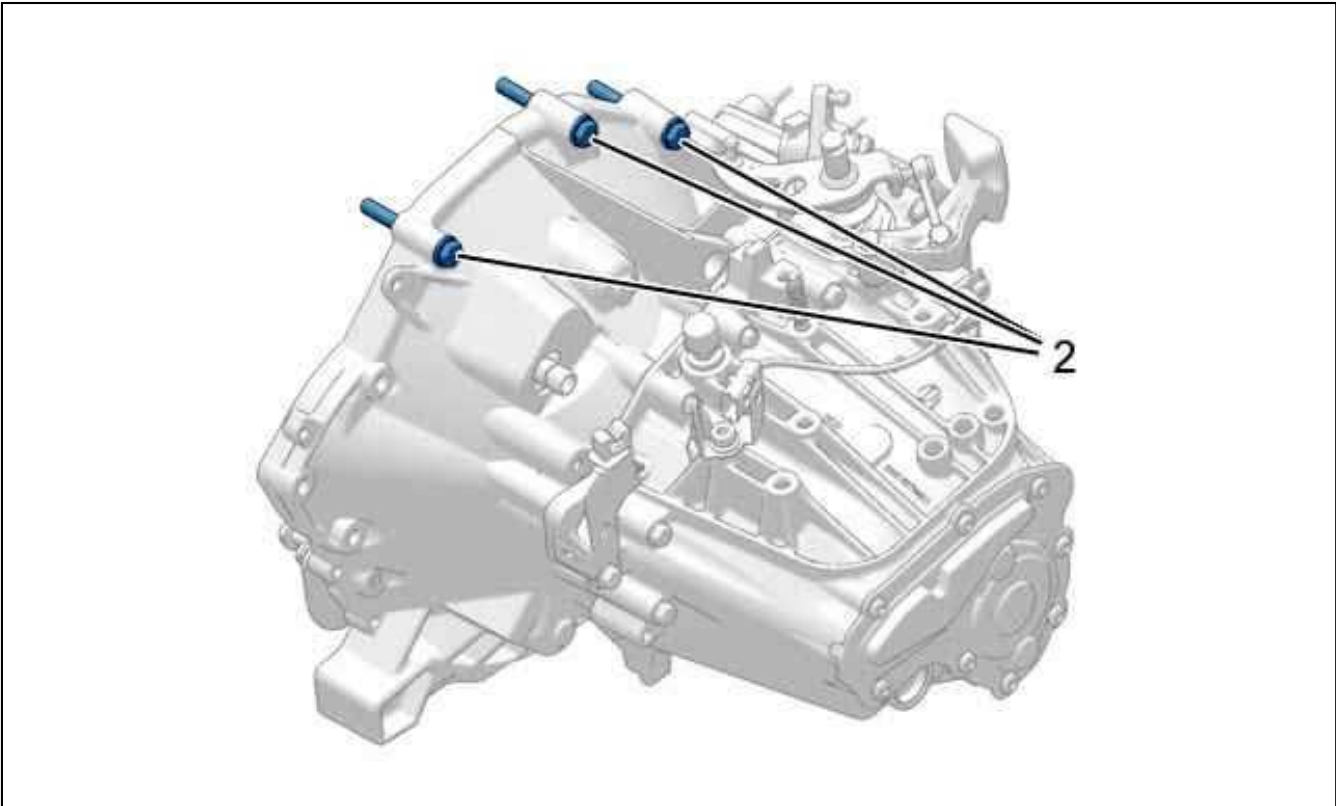


Figure : B2CB06CD

Reference	Designation	Tightening torque
(2)	Gearbox coupling - engine	5,5 daNm