



Technical manual

Gearbox

ST90-17 CUPRA TCR

Version: 11/03/2024



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1. GENERAL DETAILS

The kit SADEV transmission ST90-17 CUPRA sequential is composed of 6 front speed + 1 reverse gear.

The weight of the complete gearbox is 36kg.

The kit includes:

- Self-locking differential
- Quick release» system to remove the differential cassette.
- External preload: Quick adjustment
- Retractable input shaft: easy maintenance
-
- Inspection bungs
- Oil pump.
- Slave cylinder.

1. RATIO CHARTS

The staging is approved by the manufacturer:

	1 st	2 nd	3 rd	4 th	5 th	6 th
Primary	13 (F9067187)	16 (F9067151)	18 (F9067174)	20 (F9067172)	25 (F9067179)	25 (F9067184)
Secondary	28 (F9067287)	28 (F9053223)	26 (F9067274)	24 (F9067272)	25 (F9067279)	21 (F9067284)
	Ref. E9014P1328915F	Ref. C9017P1628915F	Ref. C9017P1826915F	Ref. C9017P2024915F	Ref. C9017P2525915F	Ref. C9014P2521915F

Reverse gear		
Primary	15	F9067101
Idler	25	F9046059
Secondary	44	F9052204

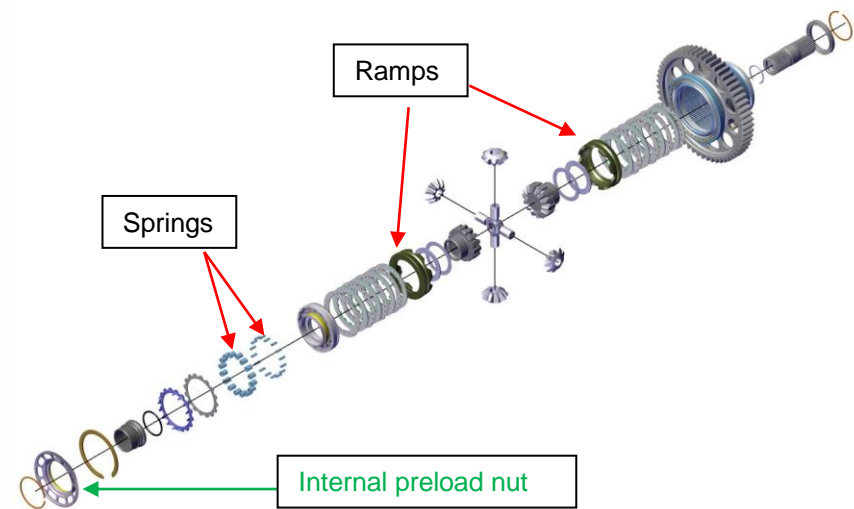
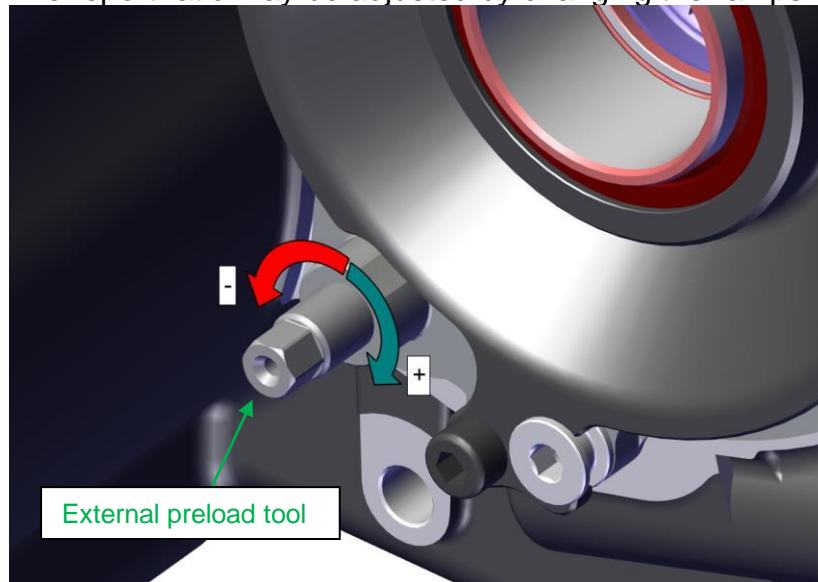
FINAL DRIVE			
Ref	CPL15589067011	15	x 58

2. DIFFERENTIAL SET-UP

The differential is a self-locking type, with 6 frictions faces on each side and pressure plates with ramps, acting either for driving or braking phasis. The running clearance in the differential = $0.1 \pm 0.05\text{mm}$.

The preload may be adjusted by tightening / untightening the preload nut (internal or external) or by changing the springs. (16 small springs and 16 big springs).

The report ratio may be adjusted by changing the ramps: contact us for the available list of the ramps.



At delivery, the preload of the differential is adjusted at your request, with no running-in and the cold measured preload.

- If the run-in and hot measured preload decreases between 30 to 40Nm, it will be necessary to change all springs.
- If the run-in and hot measured preload decreases than 40 Nm, it will be necessary to change all springs and the friction/plate disks.



Note Bene: Preload decrease from approximately 15% after 50 kilometers of running.



Note Bene: the cold measured preload (workshop) is approximately 15% higher than warm measure.

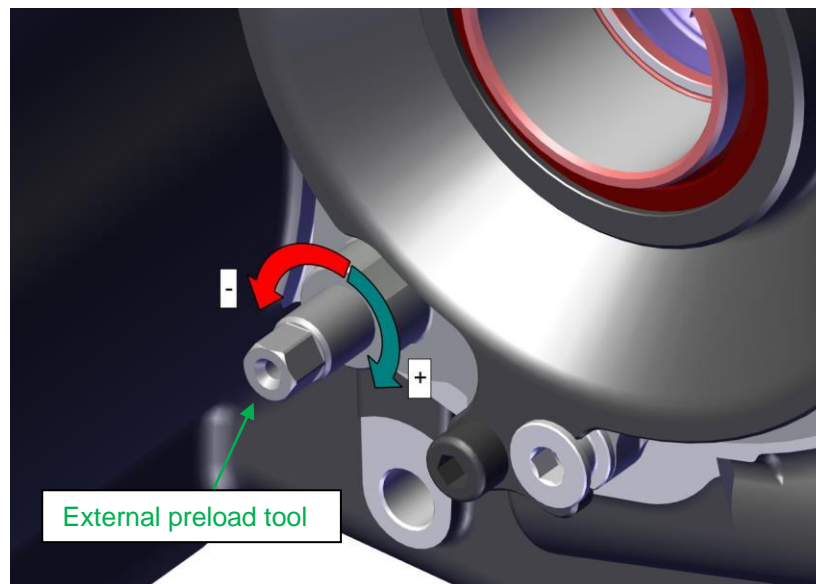
3. PRINCIPLE OF DIFFERENTIAL PRELOAD ADJUSTMENT ON THE CAR:



It is important to note that the lock nut is made by "clicks" (32 "clicks" per revolution). Then, it is therefore to stop on a "click" to be sure of the good lock nut desired position.

Using a hexagonal socket, press and turn the knob to change the preload of the self-locking device:

More preload = Turning clockwise 
Less preload = Turning ant-clockwise 



4. LUBRICATION

Oil capacity: 1,5 L (without the cooling circuit)
Lubrication: integrated pump

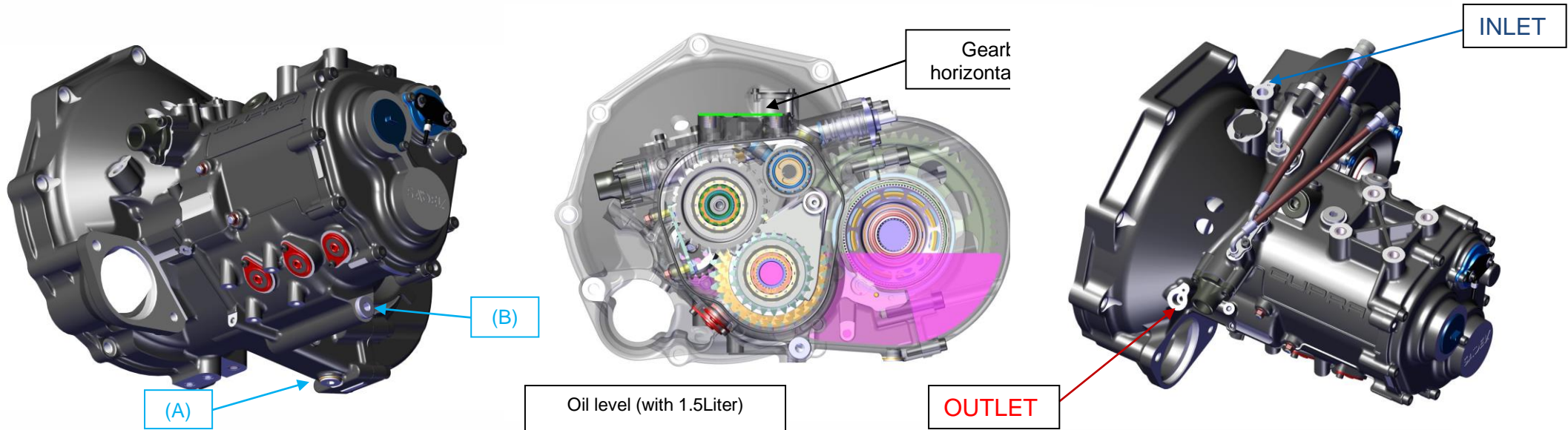
1 st oil change	Oil change	Viscosity
After a 50 km running-in + clean the suction screen	After each meeting or 150km of special stage	75w140

Gearbox cooler:

- Not delivered with the gearbox, add **oil matching the cooling circuit capacity**

TO DRAIN THE GEARBOX:

- Disassemble the drain magnet plug (A), and clean it up
- Pump suction screen: SADEV suction screen (B) → **CLEAN THE SUCTION SCREEN AT EVERY OIL CHANGE**



WASHING UNDER PRESSURE:

- When the gearbox is removed, seal correctly all the openings, to prevent any water getting into the gearbox.
- GEARBOX TEMPERATURE: SADEV recommends use in operation between 100°C - 110°C above this temperature, the life of the gearbox parts may be affected.

5. SENSORS

CONTACTLESS ANGLE SENSOR FOR BARREL: +0.5V to +4.5V

SENSOR: F0089072

Nota Bene: Sensor adjusted in our factory = 2.767V \pm 0.05 in 3rd gear

- A: +5Vdc
- B: Ground
- C: Output signal terminal (0.5V to 4.5V) (\pm 1%)
- temperature range: -40 ° C to 140 ° C Max. current: 25mA



Calibration tables

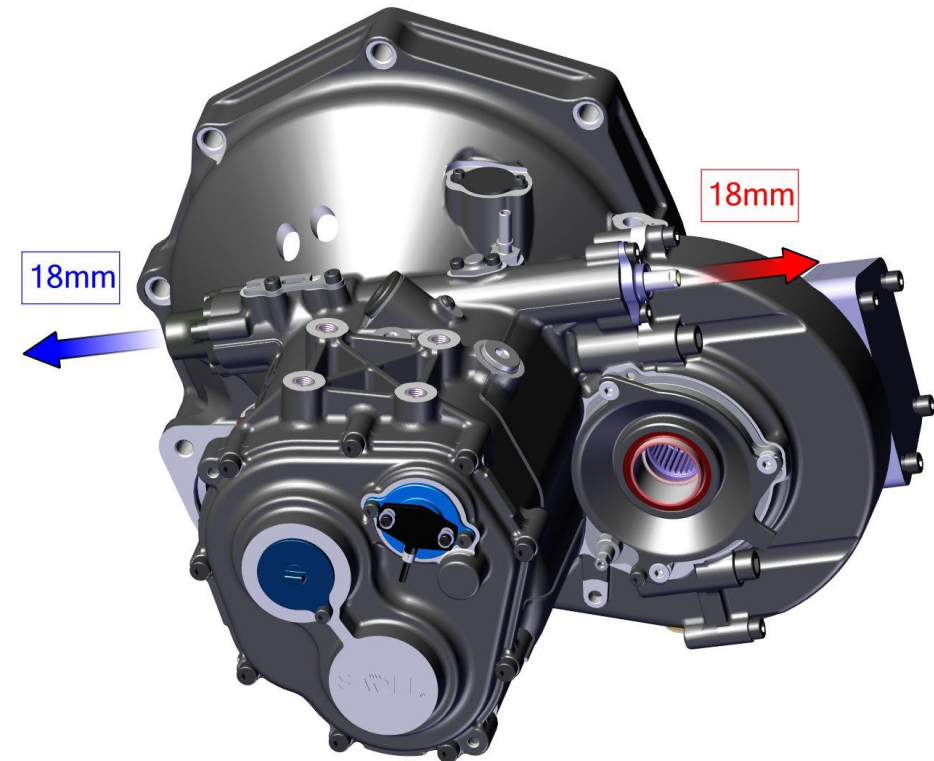
Gears	voltage (V)
R	0.633
N	1.167
1	1.70
2	2.223
3	2.767
4	3.30
5	3.833
6	4.367

GEAR SHIFTING

GRID: R-N-1-2-3-4-5-6

SELECTOR SHAFT THROW: 18mm




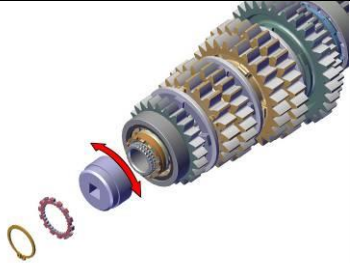

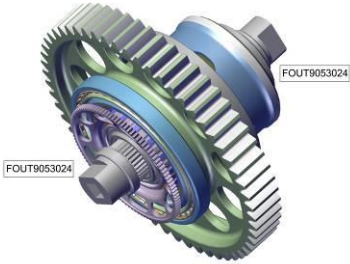
- From Reverse gear to Neutral
- From Neutral to 1st
- Each gear from 1st to 6th


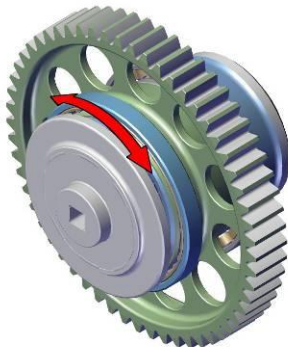

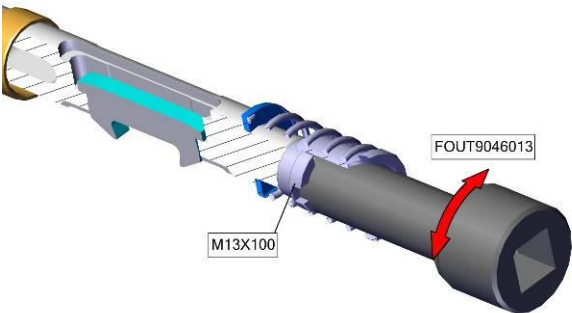


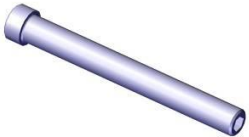

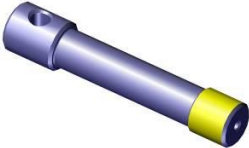
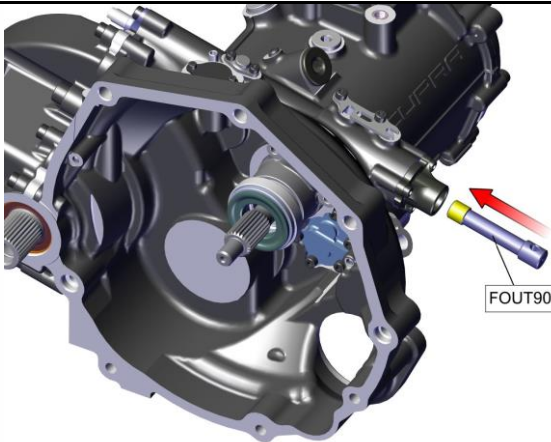
REVERSE GEAR LOCKING SYSTEM:

- From N to 1st => push the button on the lock rod (on the steering wheel or on the gear level)
- From N to R => push the button on the lock rod (on the steering wheel or on the gear level)
- From R to N => push the button on the lock rod (on the steering wheel or on the gear level)
- From 1st to N => push the button on the lock rod (on the steering wheel or on the gear level)

6. SPECIAL TOOLS

PICTURE	PART NUMBER	NAME	
	FOUT9055110	Slot socket	
	FOUT9045200	Secondary nut socket	
	FOUT9053024 X2	31-splines assembled socket	

PICTURE	PART NUMBER	NAME	
	<p>FOUT9067003</p>	<p>Preload tool</p>	
	<p>FOUT9046013</p>	<p>Screwing socket (M13x100) manual selector</p>	

PICTURE	PART NUMBER	NAME	
	<p>FOUT9046006</p>	<p>Selector axle clamping sleeve "only paddle shift"</p>	
	<p>FOUT9046001</p>	<p>Selector axle actuator "Only paddle shift"</p>	

7. INFORMATION ABOUT DISASSEMBLY

1) Before any intervention

Unless otherwise stated, all interventions are done with gearbox in neutral, drained and disassembled of the car.

Arrange you a clean and large enough surface to put parts during disassebly.

It is very important to mark the mounting direction of each part during disassembly. When they were run in a direction of rotation, reuse them in the opposite direction may cause premature damage.

For the same reason, sets Fork/Dog ring/Dog ring hub, must always be kept together.

During each disassembly, remove the oil and grease, clean and check state of each part; replace it if necessary.

During assembly, lightly lubricate the bearings, needle bearings and oil pump (if disassembled) with gearbox oil.

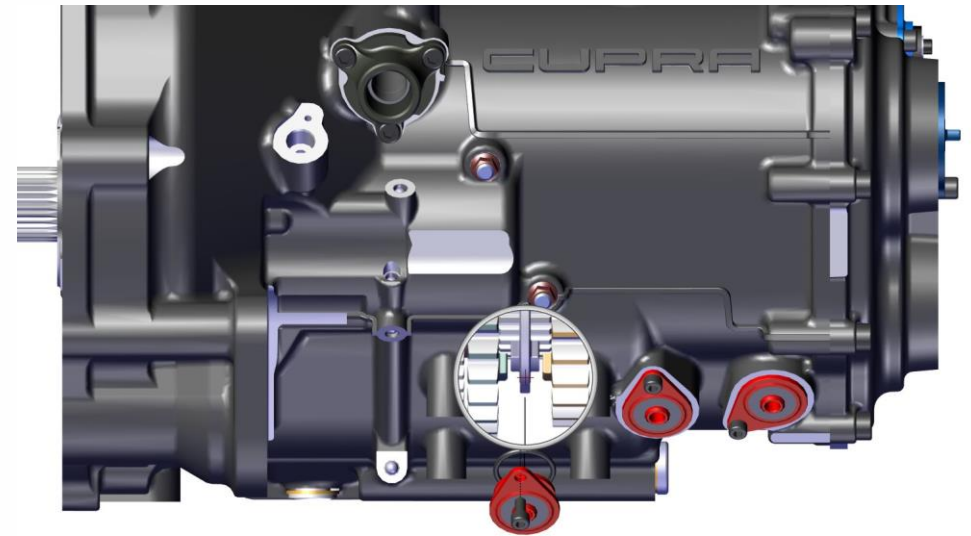
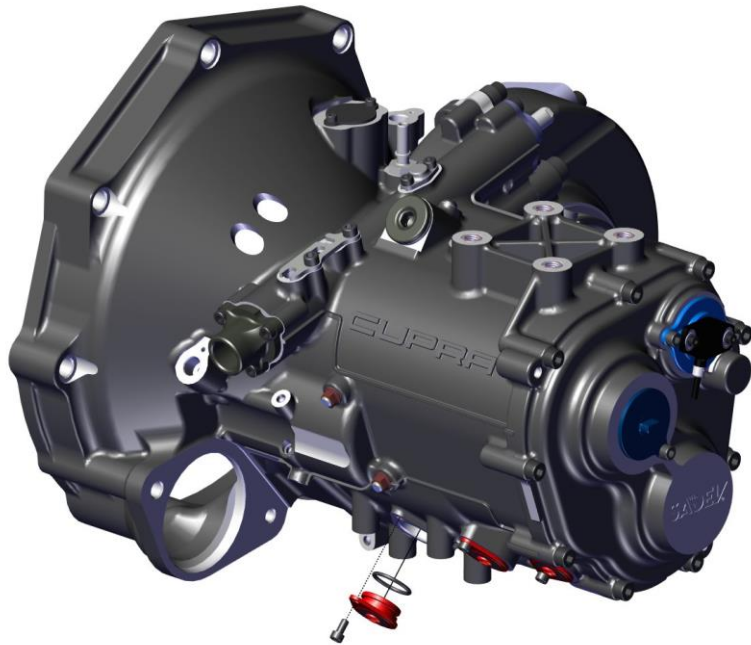
Like for all mechanical system, we advise you to use white pen on all elements subject to loosen.

There are 3 rebuild kits according to technical definition of ST90-17 (see page 33).

8. Information about disassembly

1) Visual inspection dog clutch

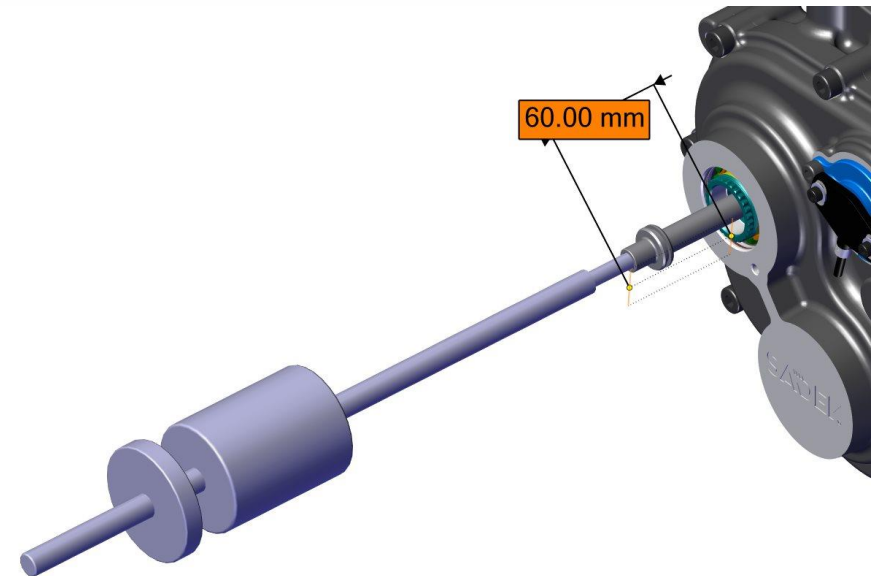
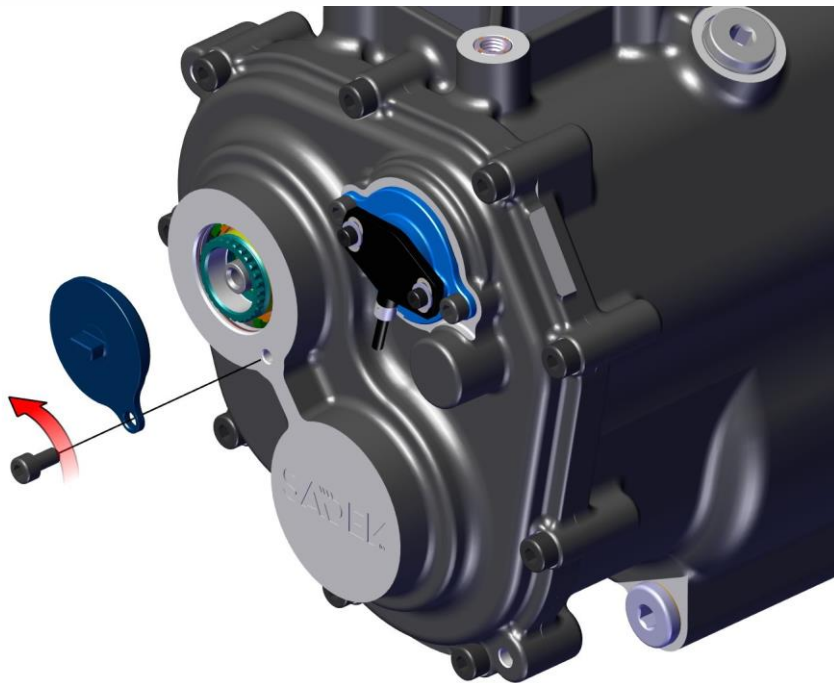
Use the dog inspection caps (A) located on the cluster housing.
Remove the bolt (M5 CHC), the cap and check the dogs. Be careful with O-ring.
The screws are tightened to 10 Nm. and glued with Loctite 222.



2) Retractable clutch shaft.

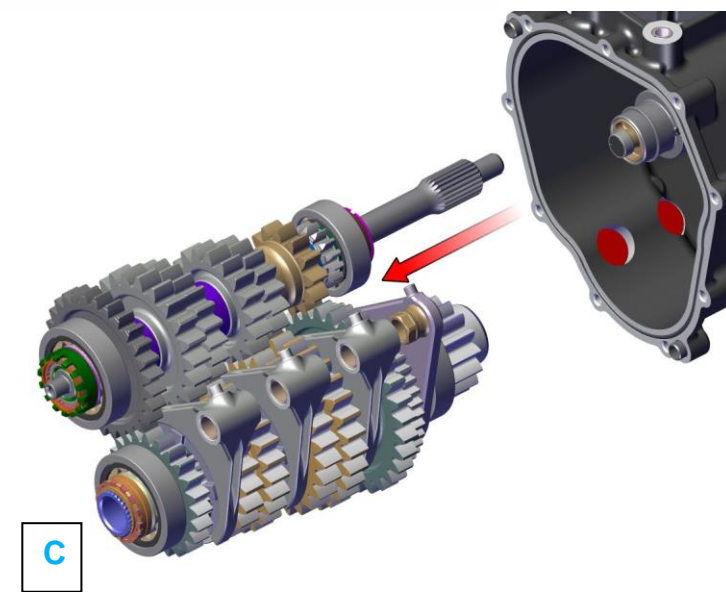
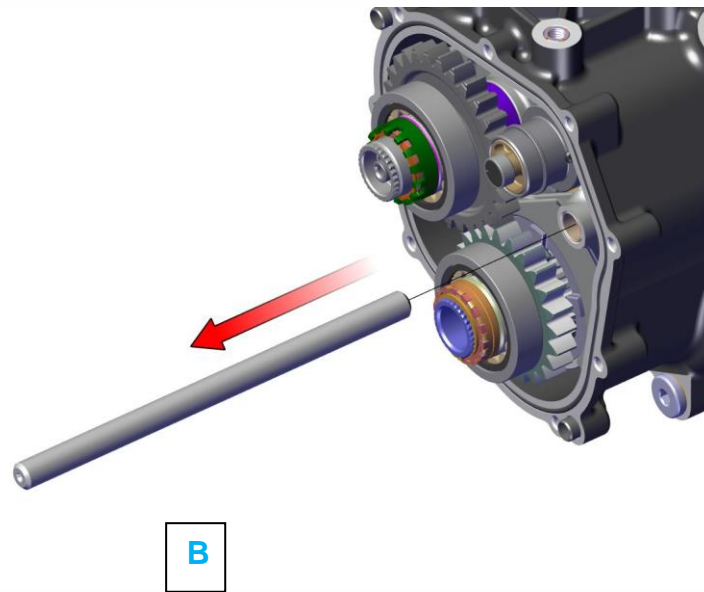
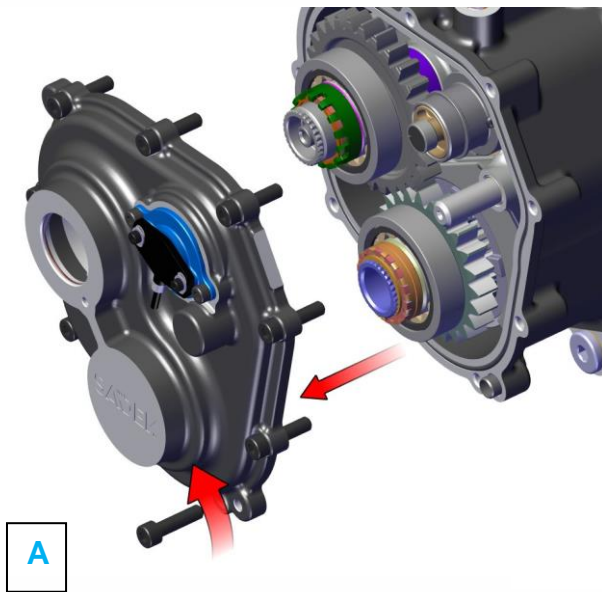
PURPOSE: To facilitate the disassembly of the gearbox on the car.

1. Remove the closing plate from the primary line (1 M6X12 screw)
2. Using an inertia extractor (M8 male tip) retract the clutch shaft about 60mm.



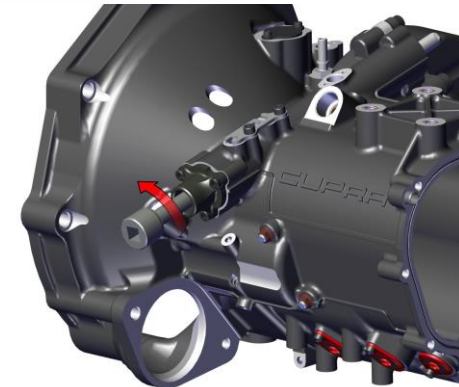
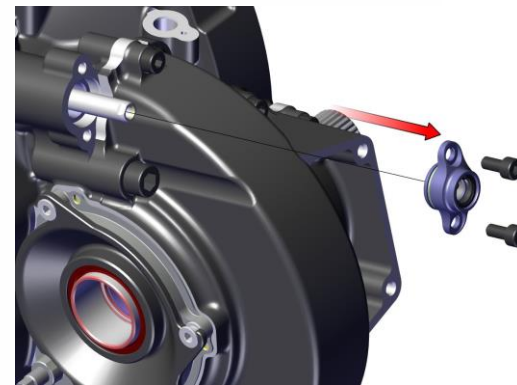
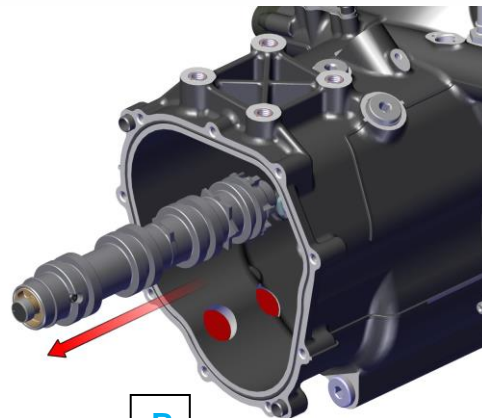
3) *Disassembly the geartrains*

1. Unscrew the 9 M8x30 screws and gently remove the rear housing. **(A)**
2. Remove the fork axis so as to release the pin from the barrel forks. **(B)**
3. Remove the primary and secondary lines simultaneously. **(C)**



4) Disassembly the selector

1. Remove the complete indexer, as well as the dual pin rock pusher. **(A)**
2. Remove the barrel. **(B)**
3. Unscrew the 2 M7X16 screws and remove the control flange. **(C)**
4. Using the tool FOUT9046006 loosen the M7 nut. **(D)**
5. Remove the nut and piston spacer. **(E)**
6. Turn the control axis 90° counterclockwise and remove the assembly. **(F)**

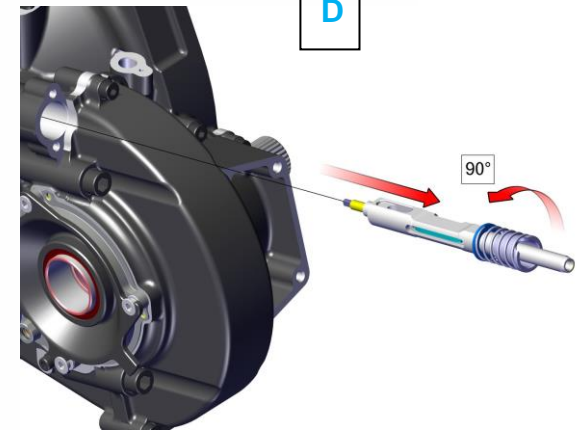
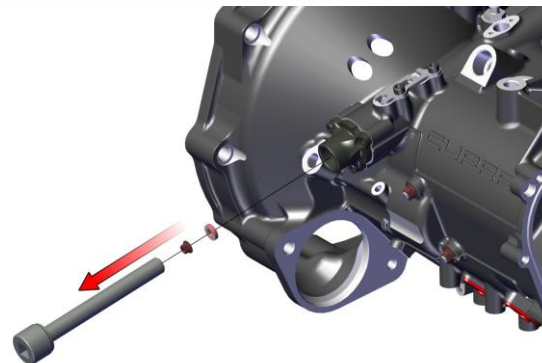
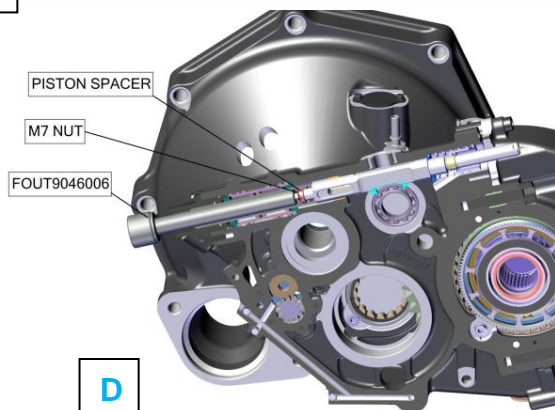


A

B

C

D



D

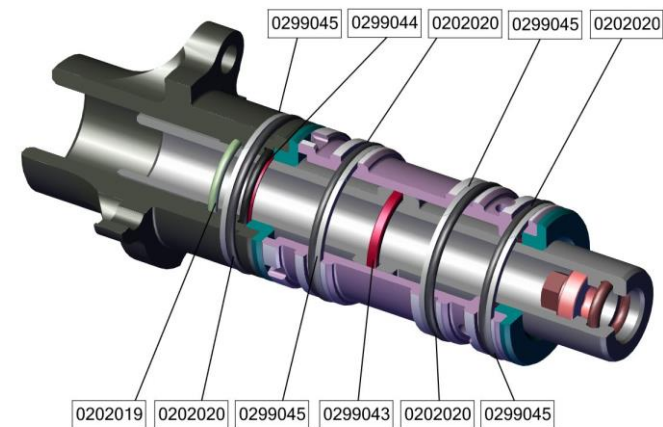
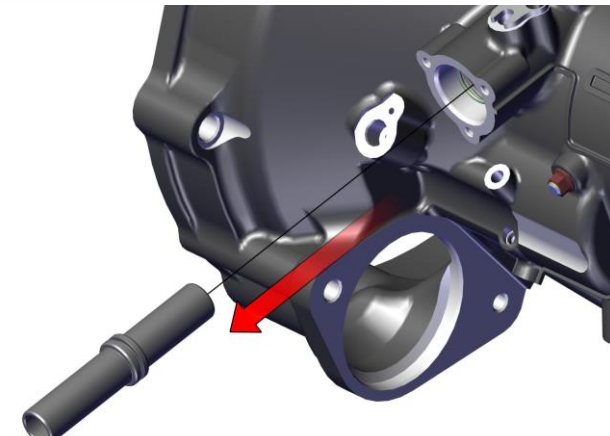
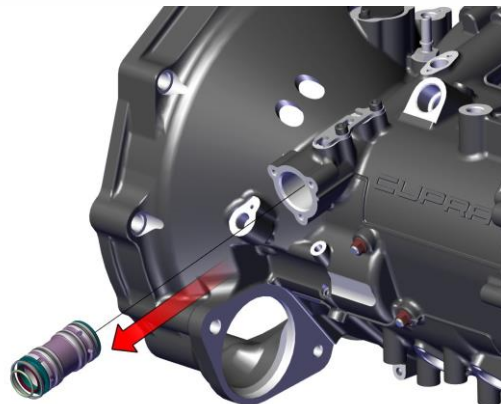
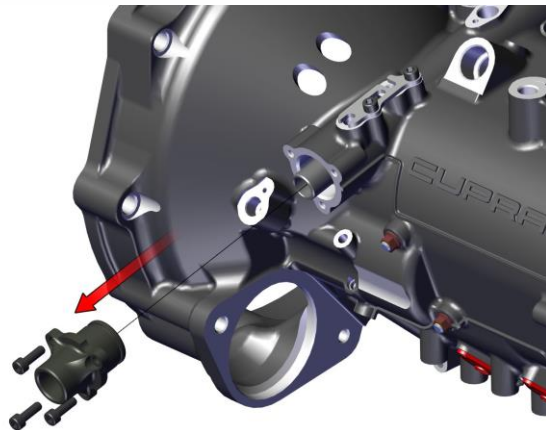
E

F



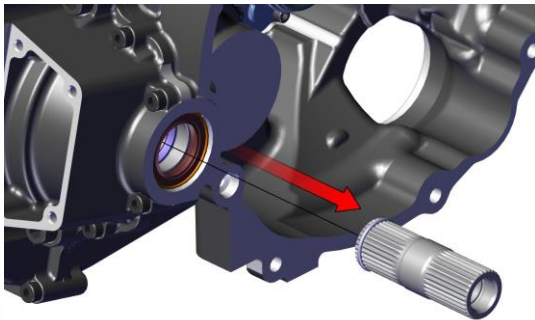
5) Disassembly the piston

1. Unscrew the 3 M6 X18 screws and remove the closing flange.
2. Remove the piston, then with an extractor remove the sleeve and o'rings assembly.
3. Check all parts and reassemble with the KITREVPDBVSLR82142 (See KIT page 33)

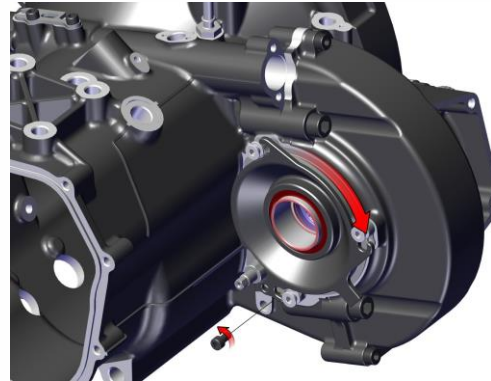


Disassembly the differential

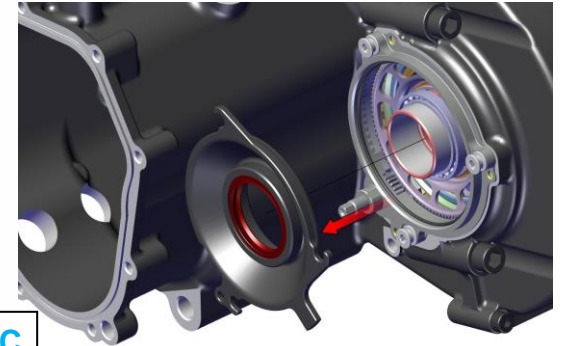
1. Extract the output shaft. **(A)**
2. Remove the M6 x1 2 screw, flange lock, and make a clockwise rotation of the differential closing flange so as to release the lugs. **(B)**
3. Remove the closing flange assembly. **(C)**
4. **CAUTION:** Play with the preload tool to avoid tooth-to-tooth contact when extracting the differential case. **(D)**
5. Extract the differential case. **(E)**
6. Remove the SW60 expander snap ring and unscrew the preload nut. **(E)**
7. Compress the differential cap and remove the differential case circlip. **(F)**
8. Remove all parts from the differential housing by locating the mounting direction of all parts. **(G)**



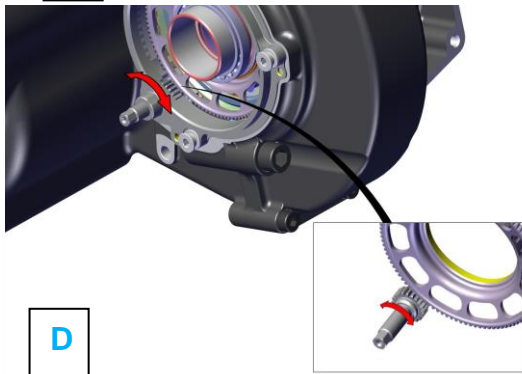
A



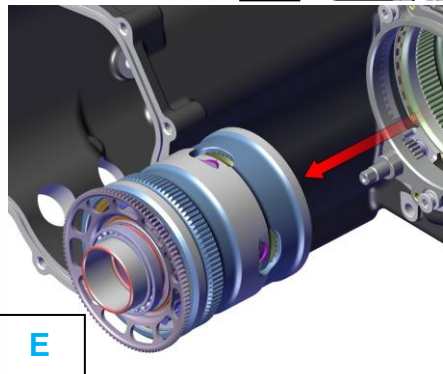
B



C



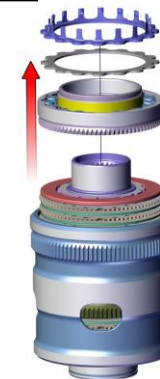
D



E



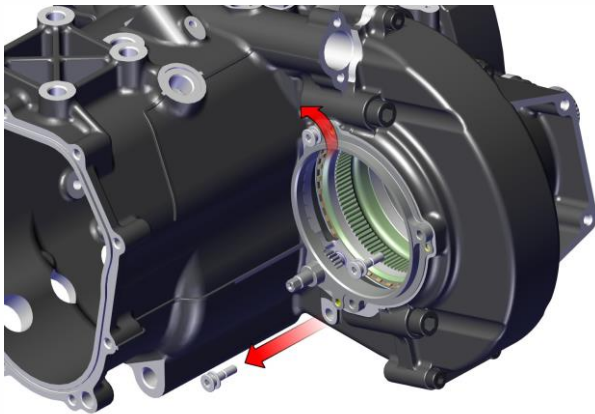
F



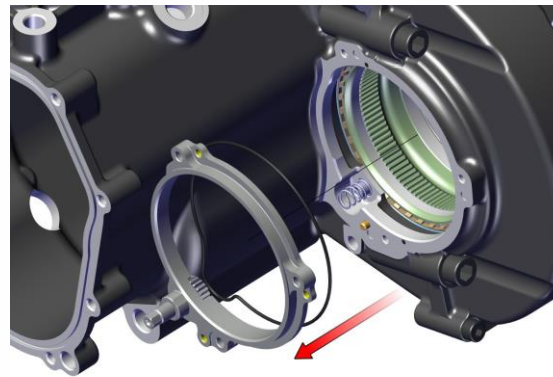
G

6) Disassembly the differential closing housing « crown »

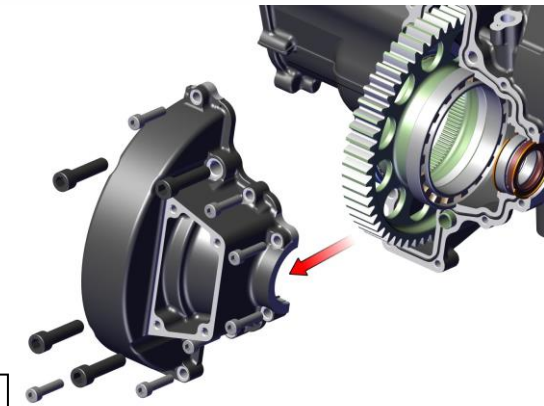
1. Remove the 3 retaining screws « Quick release » (A)
2. Remove the preload tool holder assembly. (B)
3. Remove the 7 M8 x35 screws and the 4 M12x50 screws, gently remove the differential closing housing. (C)
4. Extract the crown and bearing and the bearing 0101054. Remove and change bearings if necessary (D)
5. Remove snap ring, bearing and double lip seal. (E)



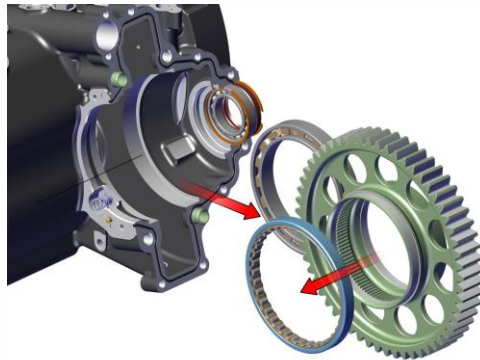
A



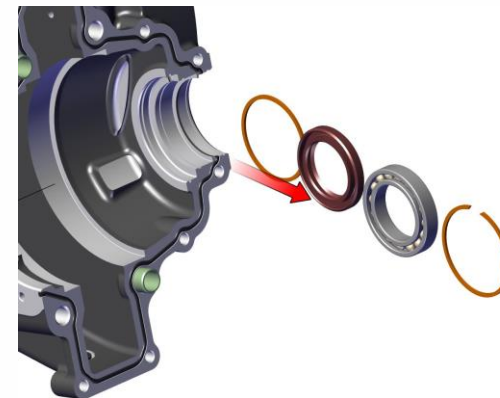
B



C



D



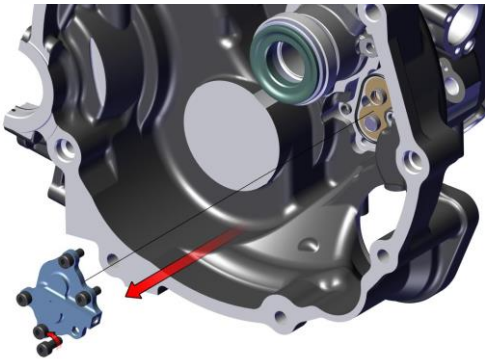
E

7) Disassembly of the pump and drive mechanism

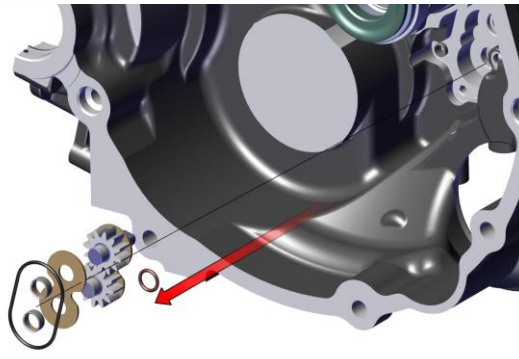
1. Remove the 5 M6x16 screws and remove the pump cover. **(A)**
2. Remove the entire pump mechanism. **(B)**
3. Remove the 2 pump seals. **(B)**
4. Clean the entire mechanism and change the parts if necessary.

Disassembly pump drive wheel

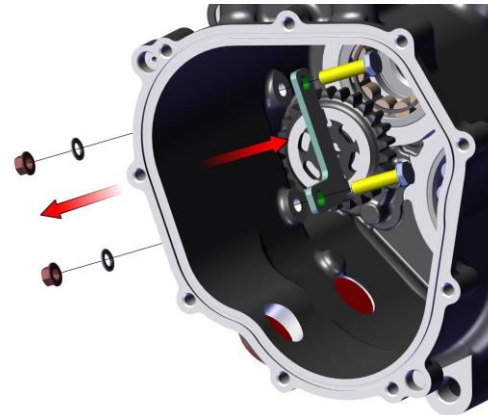
1. Remove the 2 M8x125 nuts and the 2 reverse stop screws and remove the stop plate. **(C)**
2. Remove the drive wheel. **(D)**



A



B



C



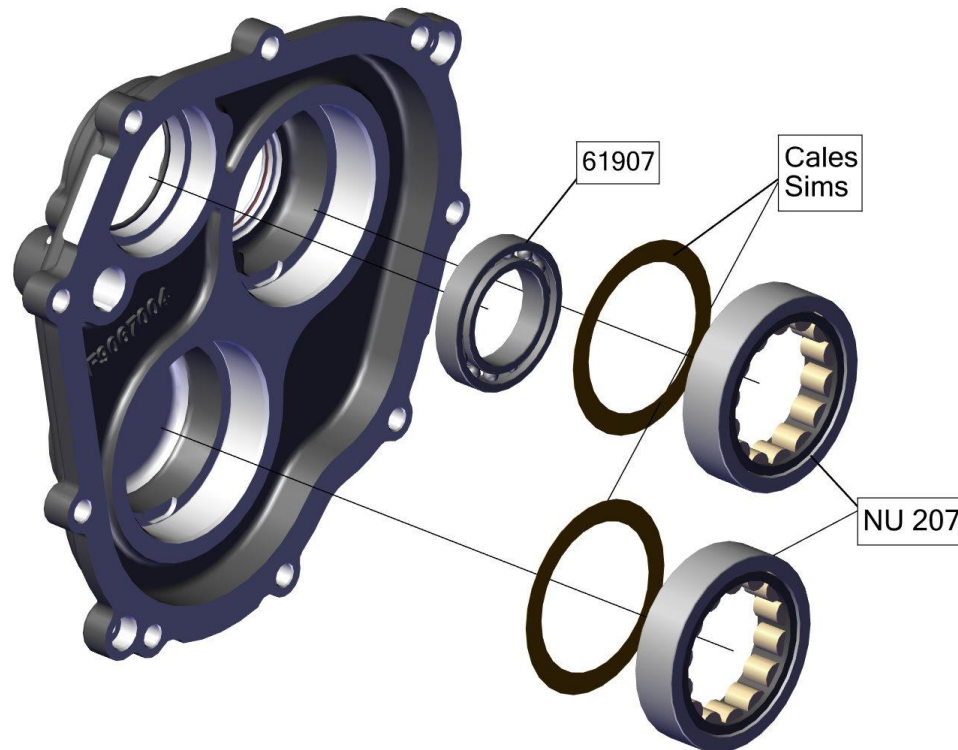
D

8) Extraction of the different bearings

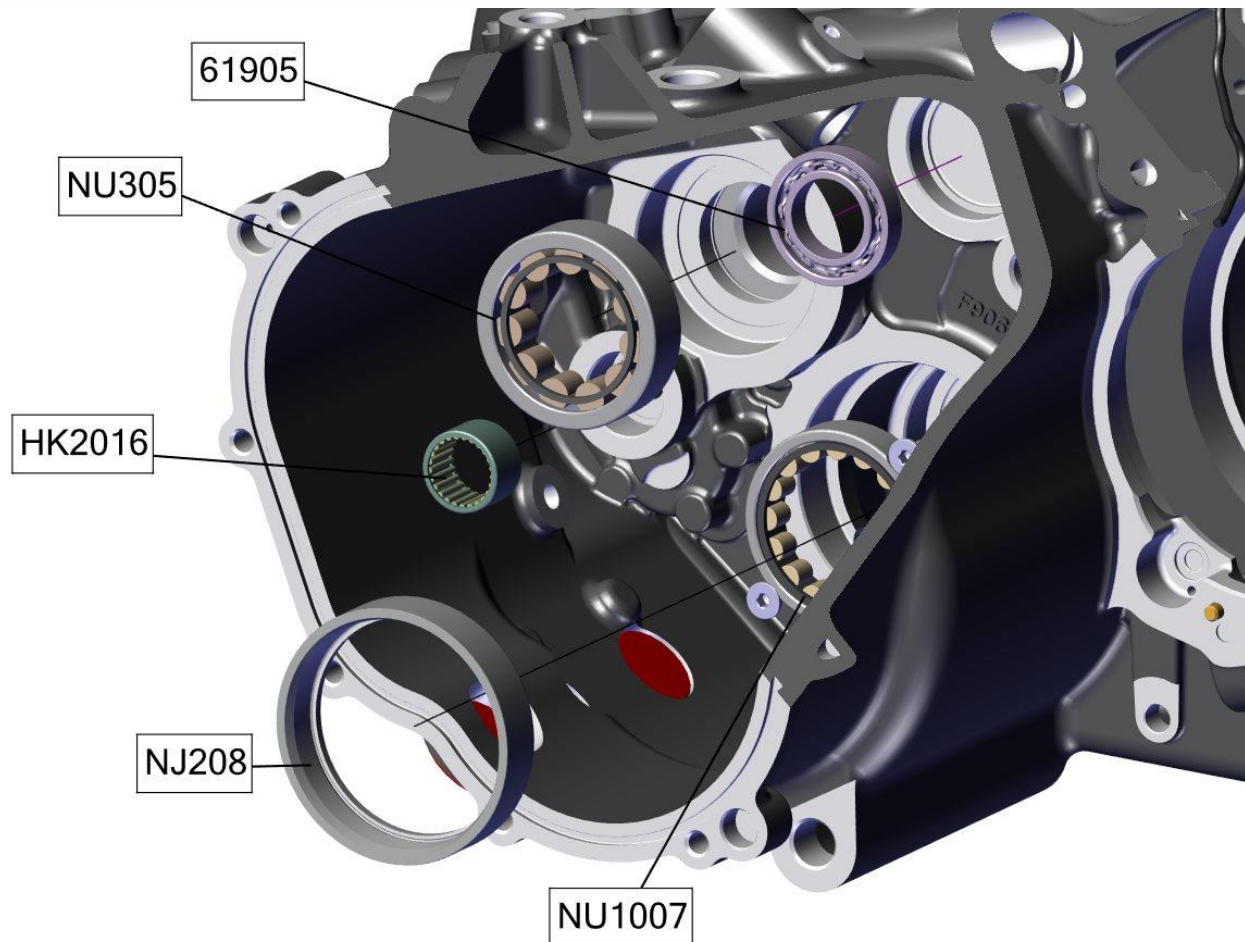
For the rear housing the barrel bearing "61907" can be removed without heating.
To remove 2 NU207 bearings, heat to 80 ° C if necessary and then using an extractor remove them.

CAUTION: Behind the bearings of the primary, secondary and barrel, sometimes washers may be present.
Clean and reposition them identically before any reassembly of the bearings.

The clearance on the primary and secondary line must be between 0.15mm and 0.2mm



For the main housing, the barrel bearing "61905" can be removed without heating.
The bearing of the NU305 primary line, the outer ring NJ208 and the needle bearing HK2016, heat to 80 ° C if necessary and then using an extractor remove them.
The bearing NU1007, remove the 2 screws M6x100 heat and extract the bearing.



9) Reassembly of bearings

When reassembling, lightly lubricate bearings, needle cages with gearbox oil.

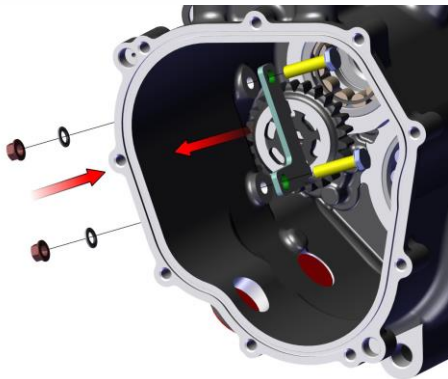
Reposition the different bearings of the main housing as well as those of the rear housing.

10) Reassembly of the pump and drive mechanism

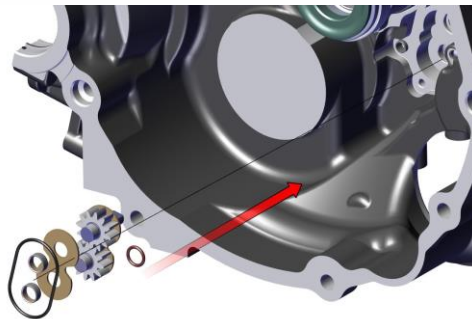
Reposition the drive wheel of the pump, then the stopper with the 2 stop screws and the 2 nuts M8x125 "glued to the loctite243 and tightened to the torque of 35N.m. (A)

Reposition the 2 pump seals and reassemble the pump mechanism. (B)

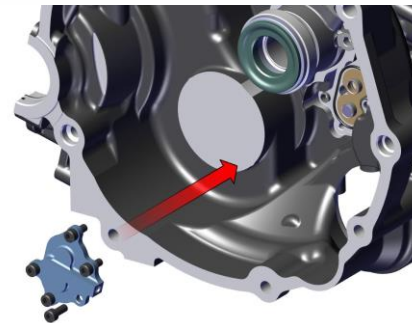
Then the cover with the 5 M6x16 screws glued to the loctite 243 and tightened to the torque of 15N.m. (C)



A



B



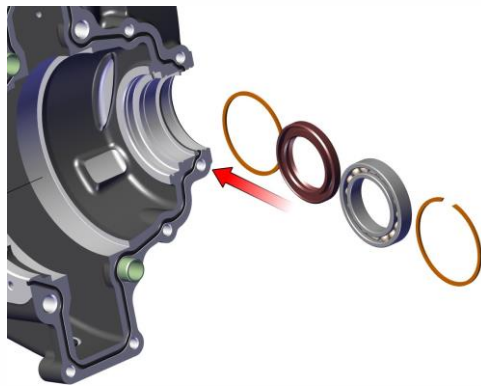
C



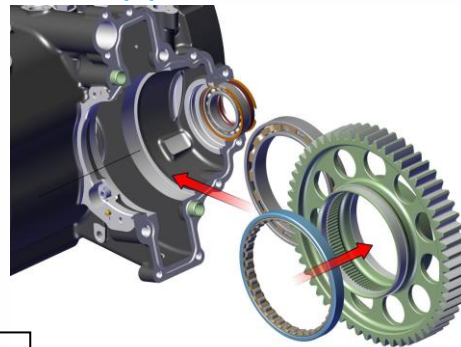
C

11) Reassembly of the rear housing and crown

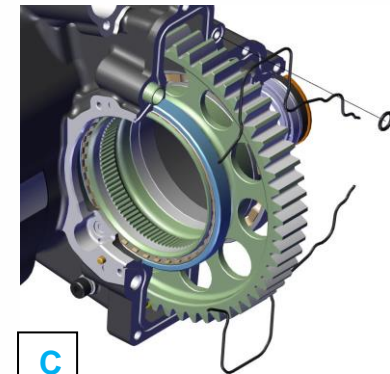
1. Replace the snap ring, bearing and double lip seal. (A)
2. Replace the 0101054 bearing and the crown bearing assembly. (A)
3. Change the main housing o'ring. (C)
4. Reposition the differential housing gently on the main housing with the 4 M12x50 screws glued to loctite 222 tightened to 75N.m torque, and 7 M8x35 screws glued to loctite 222 and tightened to 25N.m. (D)
5. Once cleaned, reassemble the equipped preload tool, change the O'ring. (E)
6. Screw the 3 retaining screws. "Quick release" (F)



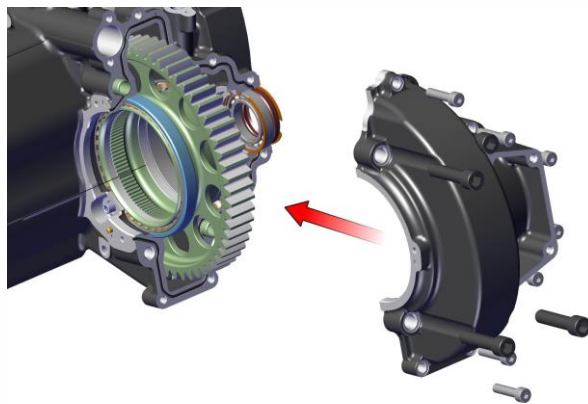
A



B



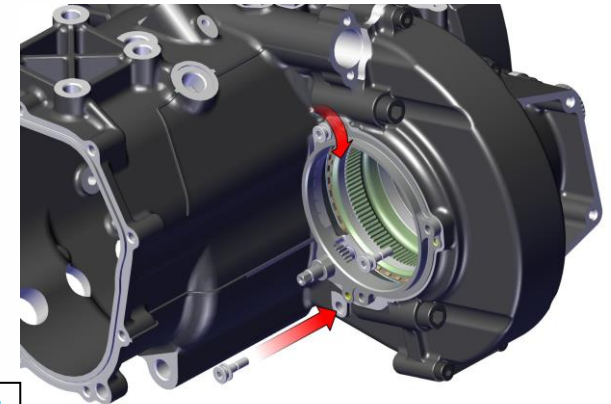
C



D



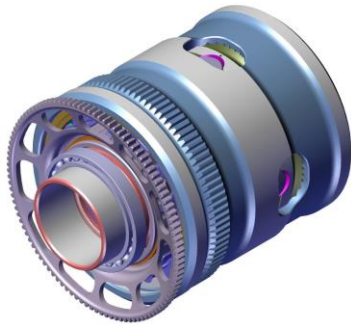
E



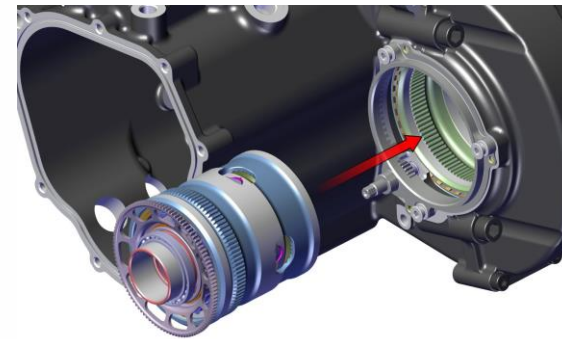
F

12) Reassembly of the differential

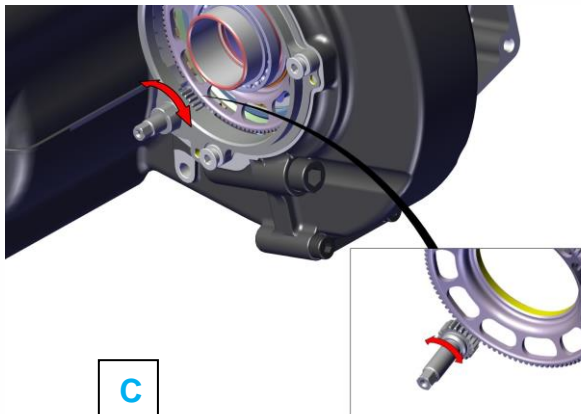
1. Once the differential case is serviced and the internal parts of the differential changed if necessary. (A)
2. Reposition the differential case in its compartment. (B)
- CAUTION:** Play with the preload tool to avoid tooth-to-tooth contact when repositioning the cassette. (C)
3. Reassemble the closing flange, after changing the bearing and the double lip seal on the left side as well Viton o'ring. (D)
4. Rotate a "counterclockwise" rotation of the closing flange so as to lock the lugs. (E)
5. Replace the M6x12 screw tightened to 15N.m.(E)



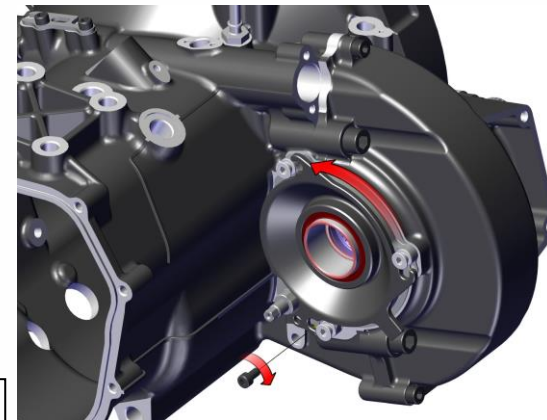
A



B



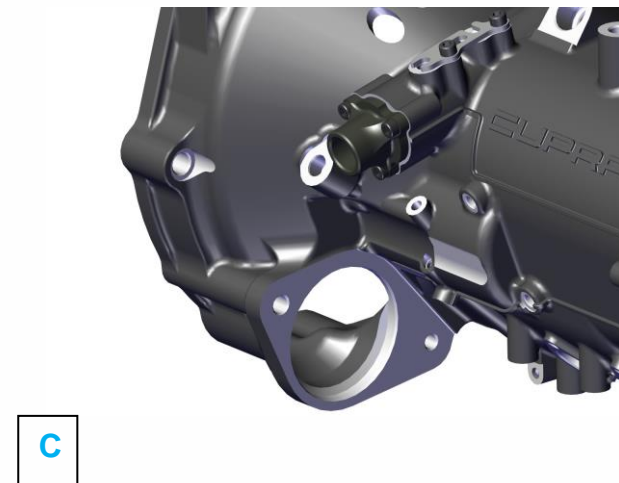
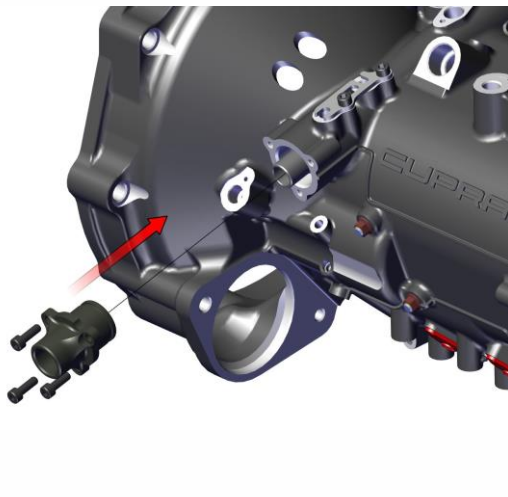
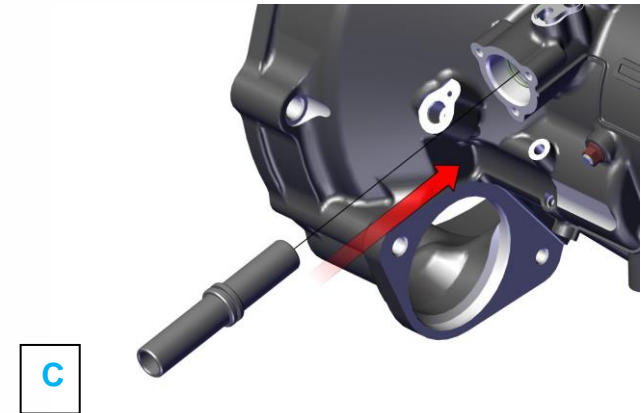
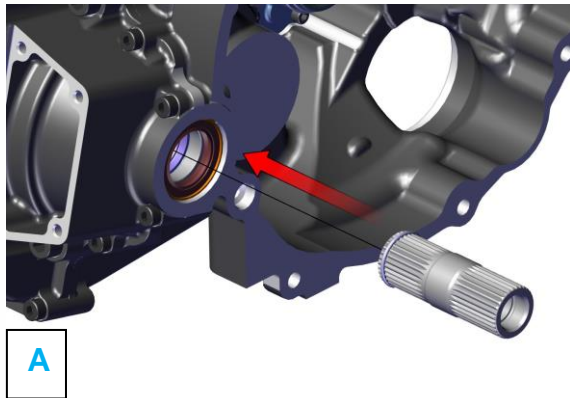
C



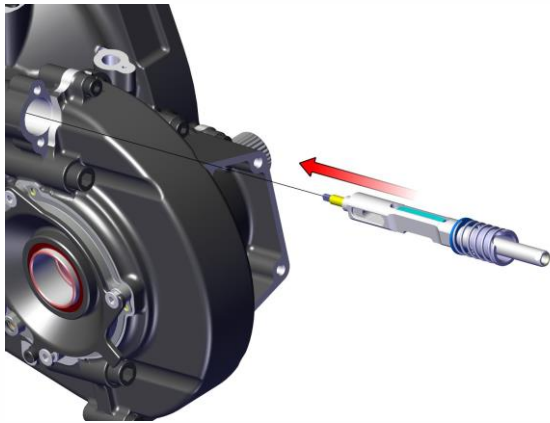
D/E

13) Reassembling the selection

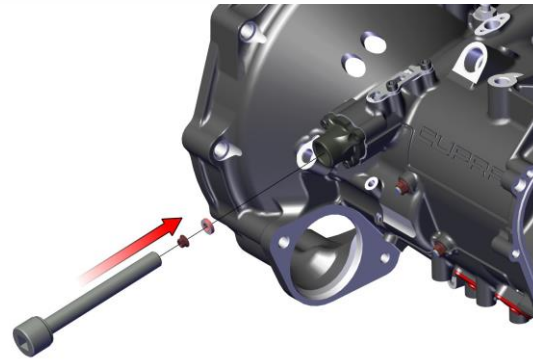
1. Replace the output shaft. **(A)**
2. After replacing the various seals of the Control Axis Sealing Kit.
3. Replace the sleeve assembly in the main housing. **(B)**
4. The piston. **(C)**
5. The piston closing plate equipped with the anti-extrusion ring and its o'ring "M6 screws glued to loctite 222 and torque 15 N.m." **(D)**



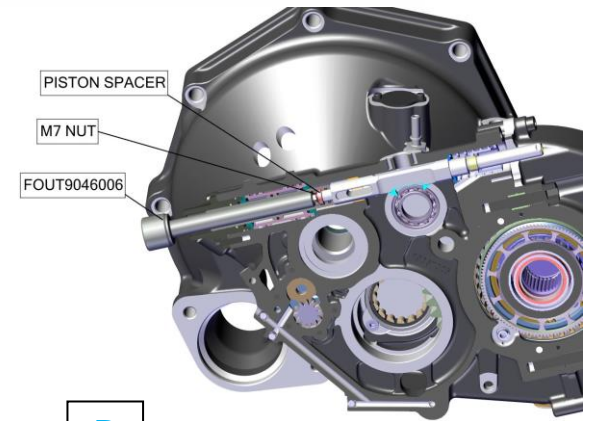
1. After changing the defective parts of the control axis, reposition the control axis **(A)**
2. Using the FOUT9046005 tool screw the M7 nut onto the stud of the control axis "nut glued to loctite 243 and tightened to 25N.m".do not forget the piston spacer. **(B)**
3. Reassemble the selector closing block with 2 M7X16 screws. "Glue loctite 222 torque 22N.m". **(C)**



A



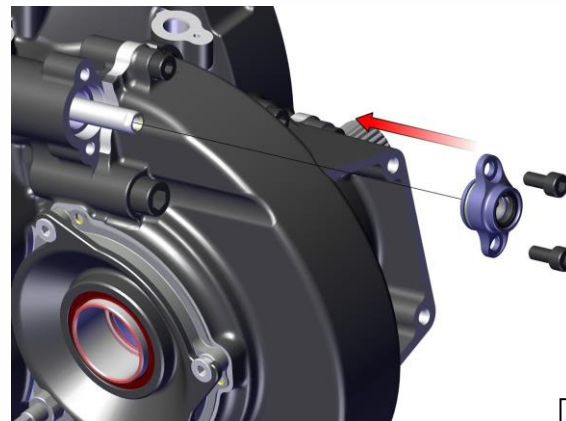
B



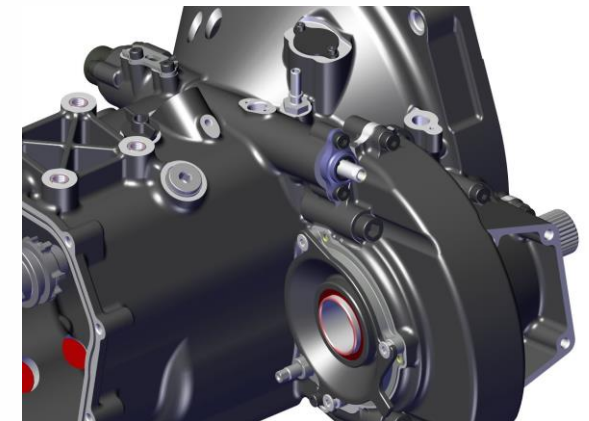
B



B

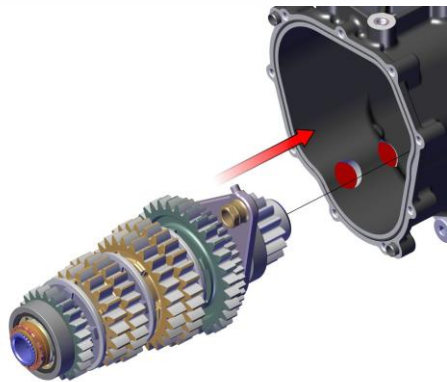


C

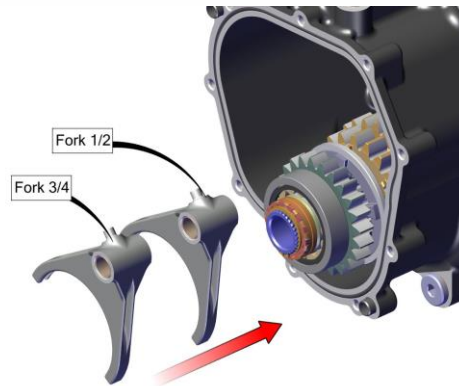


14) Reassembly of the pinion

1. Reassemble the secondary with the reverse gear fork. **(A)**
2. Reassemble the 1-2 and 3-4 gear forks. **(B)**
3. Mount the primary line, then the 5-6 forks. **(C)**
4. Reposition the barrel. **(D)**



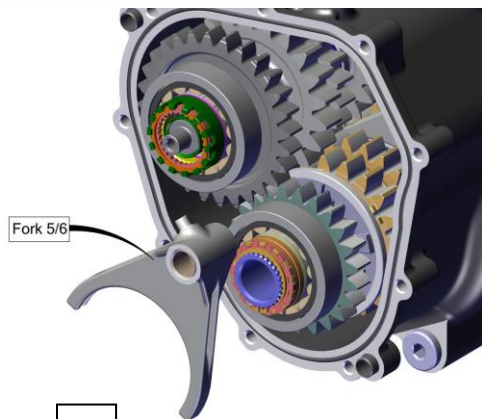
A



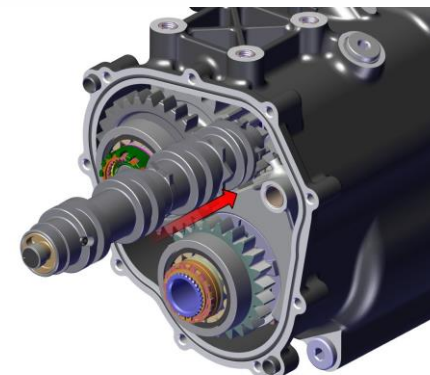
B



C

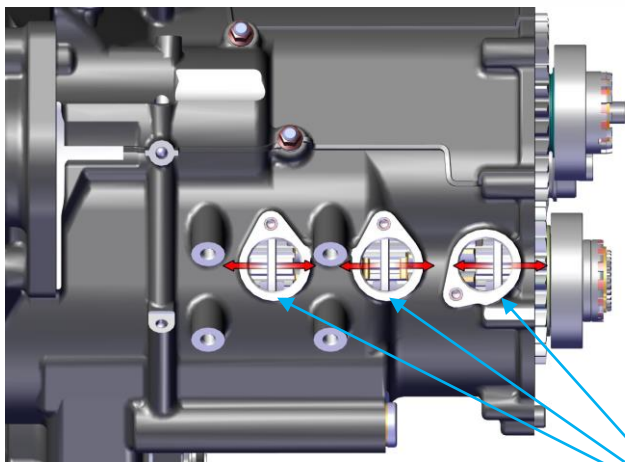


C

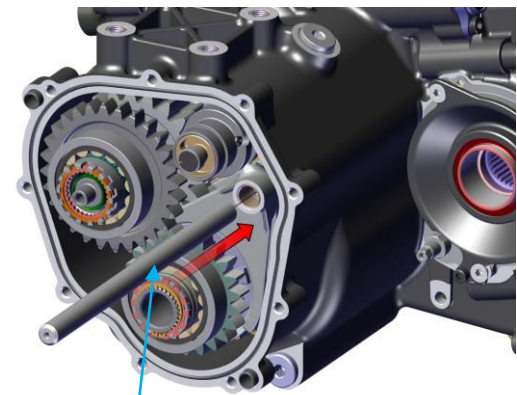
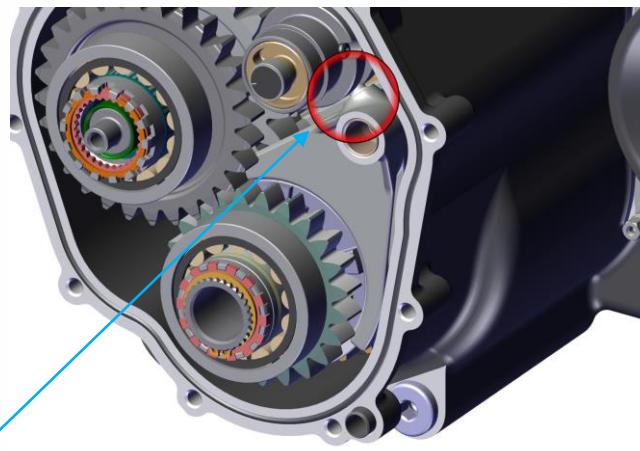


D

5. Align the dogs ring with the fingers "axial play" through the dog traps to position the fork fingers in the tracks of the barrel. **(A)**
6. Reposition the fork axis. **(B)**



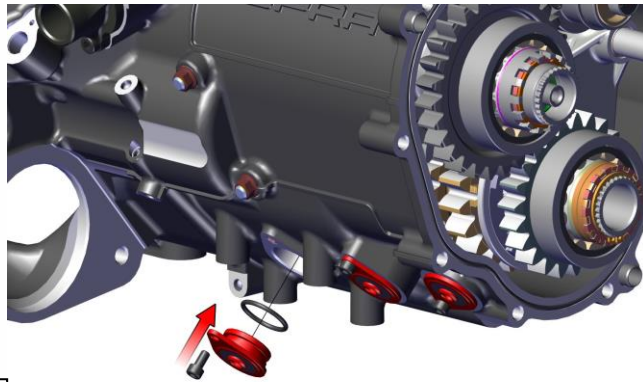
A



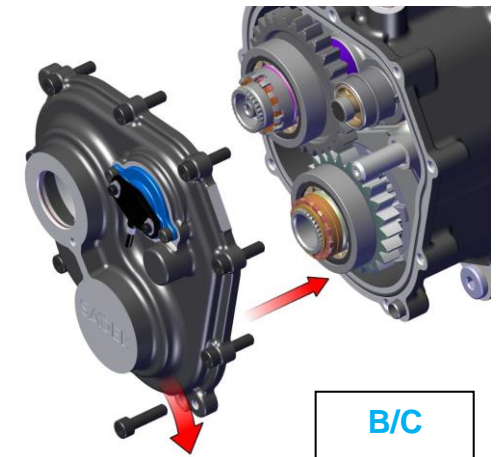
B

15) Reassembling the rear housing

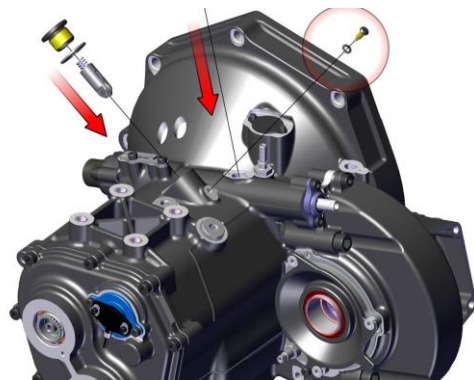
1. Reposition the 3 dog traps. **(A)**
2. After changing the rear housing bearings and the "0201110 Ø200X3" seal of the main housing. **(B)**
3. Reassemble the rear housing on the main housing with the 9 M8X30 screws glued to loctite 222 and tightened to 25 N.m. **(C)**
4. Then reassemble the complete indexor and the complete dual pin rock pusher. **(D)**



A



B/C



D



9. SERVICE PLANNING

The service plan of the gearbox is based on SADEV experiences. The information given about service plan can be updated in the near future.

ELEMENT	PART NUMBER	ACTION	FREQUENCY
<i>Gearbox check-up</i>	<i>All</i>	<i>Complete rebuilding in order to check all the gears. and the differential</i>	<i>800-1000 km, its depends on that you use the category (Rallye/Rallycross) 2000 km for an application on the circuit</i>

10. SERVICE PLANNIG

PART NUMBER KITREVST901702	DESCRIPTION	Qty	Attribution
9907079	Seeger SB37 Snap ring	1	Primary line
0202075	Ø 17 x 2 Viton O'ring	1	Primary line
F9046602	Ø 19,5 x 2 Stop ring	1	Primary line
9907054	Anneau expansif Seeger SB40	1	Primary line
0206008	Ø 30 x 40 x 7 Viton double lip seal	1	Primary line
0601008	Ø32 Outer circlip	1	Secondary line
0599061	BS-6 (6,6 x 11 x 1) Seal washer	1	Selector
0203059	BS-24 (24,7 x 33 x 2) Seal washer	1	Selector
0202096	Ø 23 x 2 Viton O'ring	1	Selector
0204036	Ø 12 x 18 x 4 Viton lip seal	1	Selector
0602049	Ø19 Inner circlip	1	Selector
0201017	Ø 10 x 2,5 O'ring	1	Selector
0801026	0,6 x 5,5 x 15,5 Spring	1	Selector
0599002	16,1 x 23 x 1 Copper washer	2	Main housing
0202080	Ø 11 x 1,5 O'ring	1	Main housing
0201110	Ø 200 x 3 O'ring	1	Main housing
0202165	Ø 200 x 3 Viton O'ring	1	Main housing
0206030	Ø 35 x 52 x 7 viton lip seal	1	Main housing
0599059	BS-8 (8,6 x 13 x 1) Seal washer	2	Main housing
0499003	M8 Nut	2	Main housing
0201329	Ø 65 x 1,5 O'ring	1	Main housing
0205081	Ø 45 x 58 x 7 nitrile lip seal	1	Left flange
0201259	Ø 125 x 2 O'ring	1	Left flange
0201087	Ø 41 x 1,5 O'ring	1	Rear housing
0201282	Ø 44 x 2 O'ring	2	Rear housing / lubrif

PART NUMBER KITREVST901702	DESCRIPTION	Qty	Attribution
0201135	Ø 10 x 2 O'ring	1	Lubrication
0203055	Ø 10 x 14 x 3 Lip seal	1	Lubrication
0201135	Ø10 x 2 O'ring	1	Left flange
0202144	Ø 105 x 2 - 80 shores - viton o'ring seal	1	Left flange
0201084	Ø 43 x 3 nitrile o'ring seal	1	Differential
F9045309	Spring ring Ø34 x 2.5	1	Differential
5002026	Filler plug seal	1	Main housing
0599088	BS-18 seal	1	Selector
9907060	BR52 Seeger snap ring	1	Differential
9907135	SW58 Seeger Spring ring	1	Left flange

PART NUMBER KITRLTST901702	DESCRIPTION	Qty	Attribution
0105045	47 x 52 x 17 Needle bearing	6	Secondary line
0106027	HK 50/20 Bearing	1	Secondary line
F9067310	Ø 111,5 x 130 x 13 Bearing	1	Differential
0101054	SNR / AB12458 Bearing	1	Differential
0199045	AXK4565 Thrust needle ring	2	Differential
0106021	HK 20/16 Needle sleeve	1	Main housing
0101128	61905 Bearing	1	Main housing
0103029	NU 305 ECP Bearing	1	Main housing
F9053102	NU1007 inner race	1	Main housing
F9053104	M6x100 Stop screw	1	Main housing
0101088	61908 Bearing	1	Left flange
0103024	NU 207 ECP bearing	2	Rear housing
0101088	61907 Bearing	1	Rear housing
F9046204	NJ208 Bearing	1	Secondary line
0101121	61810 2RS1 Bearing	1	Differential
0101126	61809 Ball ring	1	Left flange

PART NUMBER KITREVST821402	DESCRIPTION	Qty	Attribution
0202019	Ø 20 x 2 O'ring	1	Selector semi-auto
0202020	Ø 29,87 x 1,78 O'ring	4	Selector semi-auto
0202021	Ø 11 x 2,5 O'ring	1	Selector semi-auto
0299043	Ø 25 x 20,1 x 2,2 piston composite seal	1	Selector semi-auto
0299044	Ø19,9 x 24,8 x 2,2 piston composite seal	2	Selector semi-auto
0299045	Ø 30 P10 right-hand anti-extrusion bushing (BAU type)	4	Selector semi-auto
0499004	M7 Simmonds nut	1	Selector semi-auto

1) SADEV factory rebuild

- The gearboxes are delivered plumbed and numbered.
- SADEV will adopt a careful attitude when receiving a gearbox without any 'SADEV' seals. This will also be valid if the gearbox shows minor or major damages.

Returning gearboxes to revision for servicing:

At the time the gearboxes return to us, we follow a strict Receiving procedure, so that we can do a full service complete with bench testing of the gearbox. We must receive the complete product as described below:

- Gear box drained and cleaned.
- Release bearing in place.
- Oil pump in place.
- Lubrication ports closed with the proper plugs.
- Shifters and reverse gears locking, in place.
- Drain plug and drain plug seal in place.
- Differential in place
- A card specifying the kilometres of the special stages and road stages since the last service, available at the end of the technical manual.

Administrative procedure:

1. Contact our sales department.
2. APPROXIMATELY 2 TO 3 WEEKS OF DELIVERY LEAD TIME MUST BE CONSIDERED, [please confirm with our sales department](#).

2) Personal revision

After sale parts for customers who want to proceed with a service by themselves, are delivered only by SADEV sales service.

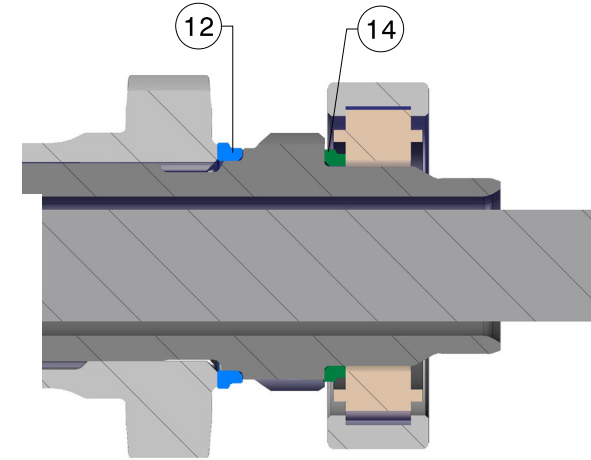
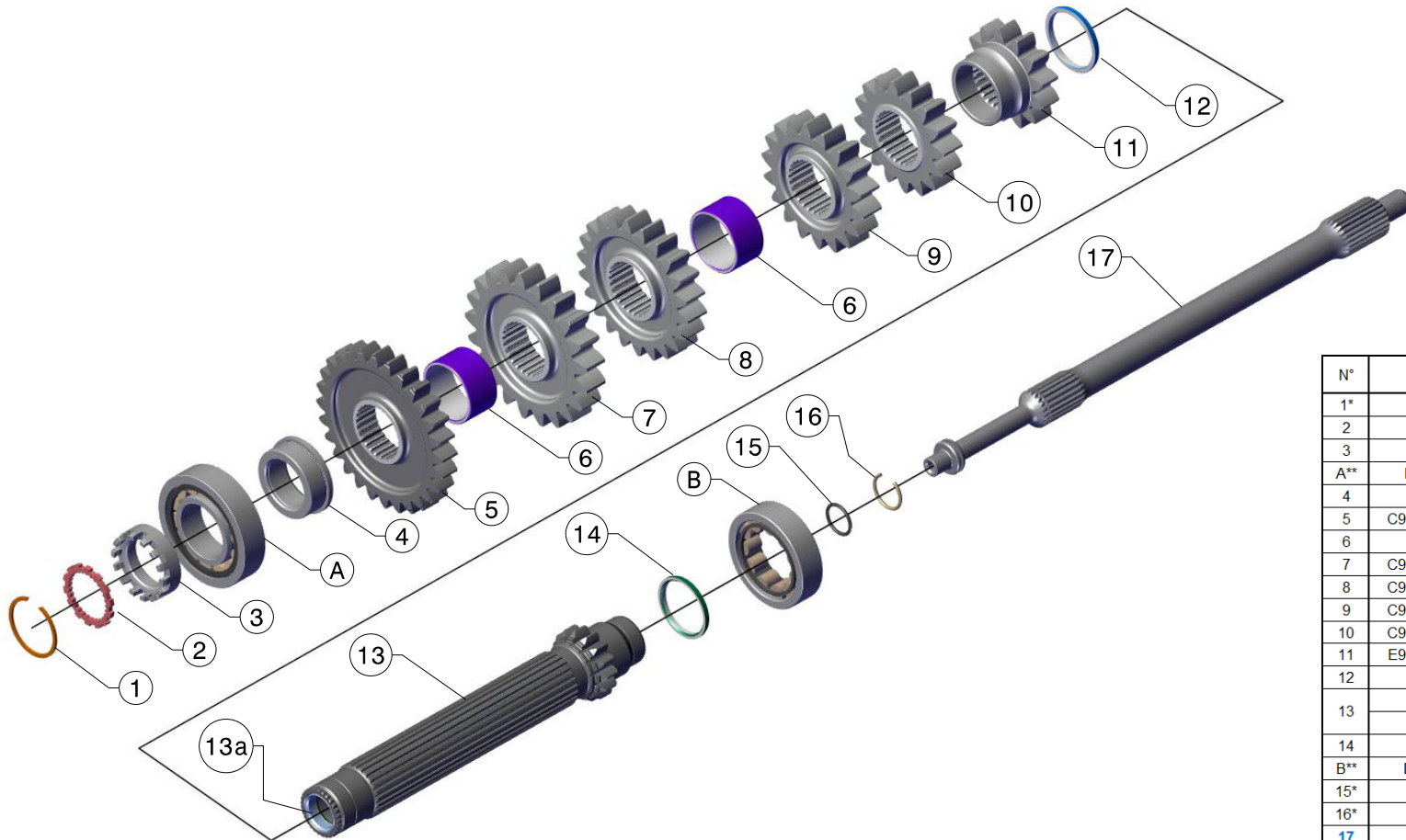
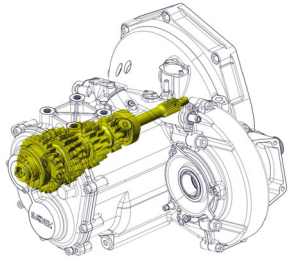
SADEV IS NOT RESPONSIBLE FOR ANY DAMAGE FOLLOWING A SERVICE NOT DONE AT A SADEV APPROVED AGENT/DEALER

FICHE DE REVISION à imprimer et joindre à vos envois

SERVICING FILE – to be printed and put with the product sent

INFORMATIONS CLIENT / CUSTOMER DETAILS				INFORMATIONS PRODUIT / INFORMATION OF RETURN PRODUCT			
Nom client <i>Customer's name</i>				Type de produit <i>Type of product</i> <i>Ex: SL924 ,SP03, Paddle shift...</i>			
N° Téléphone <i>Phone nb</i>				N° de Produit <i>Product Serial Number</i>			
Email				Discipline <i>Application</i>			
Adresse / Pays <i>Address / Country</i>				Pour les limiteurs de couple uniquement, veuillez sélectionner: <i>For Disconnect unit only, please select :</i>	Fonctionnement avec Peal <i>Working with PEAL system</i>		Fonctionnement avec Frein à main <i>Working with handbrake</i>
Date d'envoi <i>Date of shipment</i>				Date de retour souhaitée <i>Expected delivery date</i>			
INFORMATIONS REVISION / SERVICING DETAILS							
Marque et type d'Huile utilisé <i>Brand & model of oil used</i>				Kilométrage ou Nombre d'heure d'utilisation <i>Mileage or hours of use</i>	Depuis la 1^{ère} mise en service <i>Since 1st use</i>		Depuis la dernière révision <i>Since the last rebuild</i>
Informations complémentaires (ex: comportement du différentiel, Bruits anormaux, problème durant utilisation... <i>Further information - i.e : Differential performance, wrong noise, problem while in use</i>							
MODIFICATIONS SOUHAITEES / DESIRED CHANGES							
Changement de rapports <i>Gear ratio amendment</i>	Oui Yes		Non No		Etagement souhaité <i>Wished gear ratio chart</i>		
Changement de réglage de différentiel <i>Differential set up amendment</i>	Oui Yes		Non No		Réglages souhaités <i>Diff set up choice</i>		
Retour pièces usées ? <i>Worn parts to be sent back ?</i>	Oui Yes		Non No		Signature		

1 Primary Geartrain

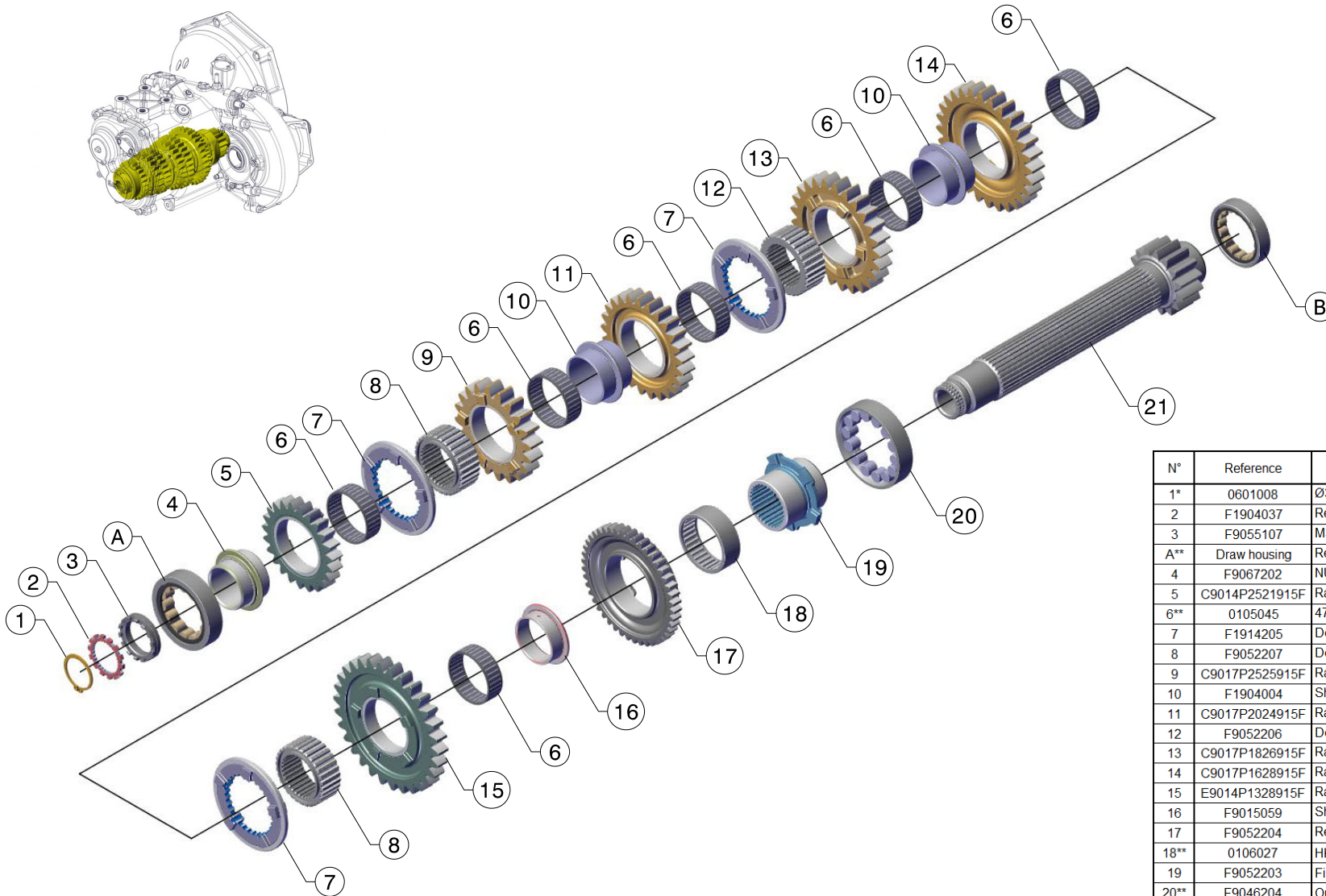


WARNING: direction of shim N° 12 and 14

N°	Reference	Description	Qty.	Glue	Torque (N.m)
1*	9907079	BR37 spring ring	1		
2	F9037105	Primary retaining washer	1		
3	F9052227	M32 X150 Nut	1	C.G	180
A**	Draw housing	Fitting rear housing	1		
4	F9052112	Ring bushing	1		
5	C9014P2521915F	Ratio 25 / 21 "6th"	1		
6	F9033002	Primary spacer	2		
7	C9017P2525915F	Ratio 25 / 25 "5th"	1		
8	C9017P2024915F	Ratio 20 / 24 "4th"	1		
9	C9017P1826915F	Ratio 18 / 26 "3rd"	1		
10	C9017P1628915F	Ratio 16 / 28 "2nd"	1		
11	E9014P1328915F	Ratio 13/28 "1st"	1		
12	F9046103	Shim	1		
13	F9067101	Primary shaft	1		
	F9067103	a Shrink ring	1		
14	F9046102	NU305 shim	1		
B**	Draw housing	Fitting main housing	1		
15*	0202075	Ø 17 x 2 Viton o'ring	1		
16*	F9046602	Ø 19,5 x 2 Snap ring	1		
17	F9067600	Clutch shaft	1		

(*) parts included in the rebuilt kits :KITREVST901702
 (**) parts included in the kits bearing :KITRLTST901702

2 Secondary Geartrain

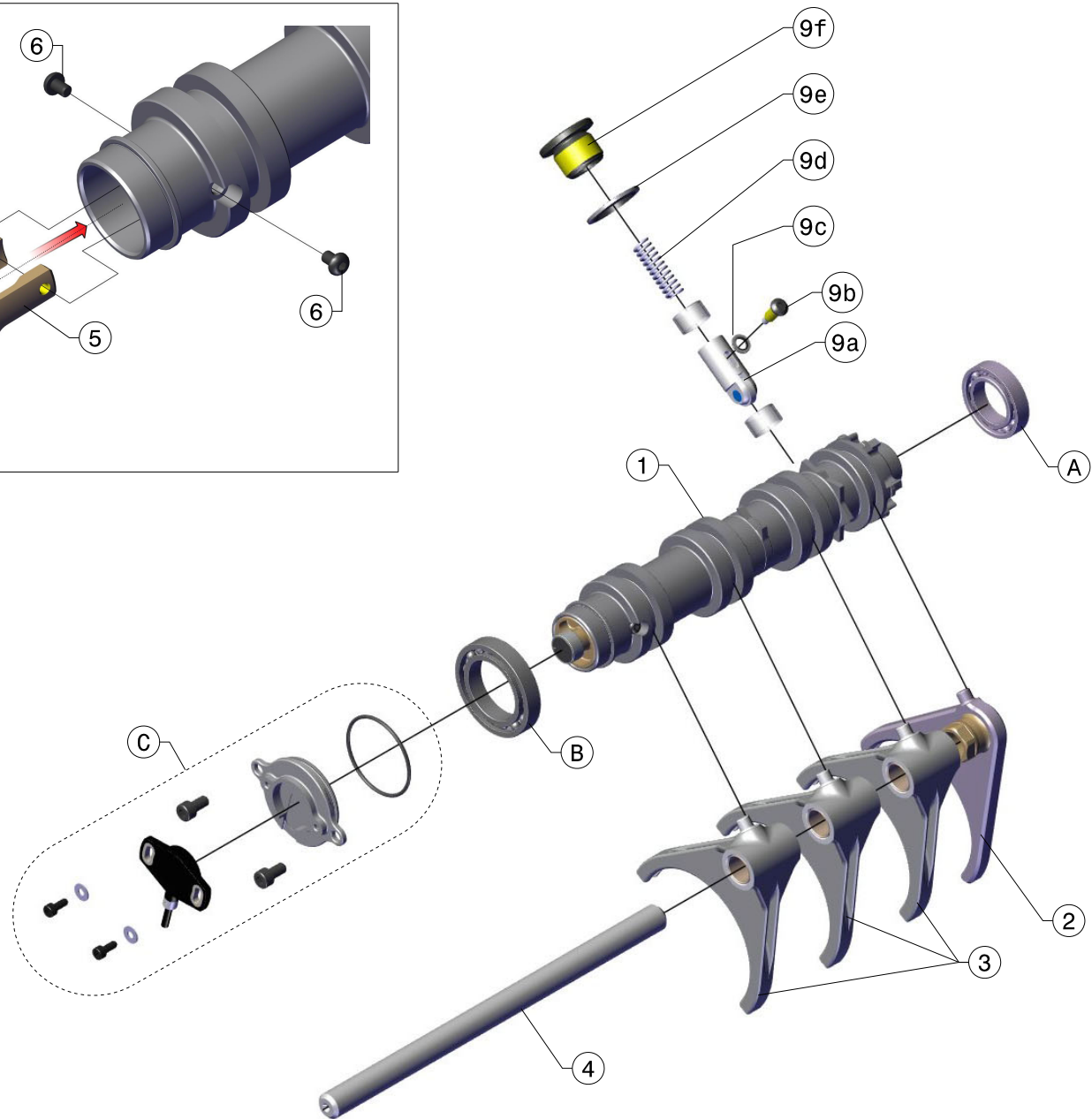
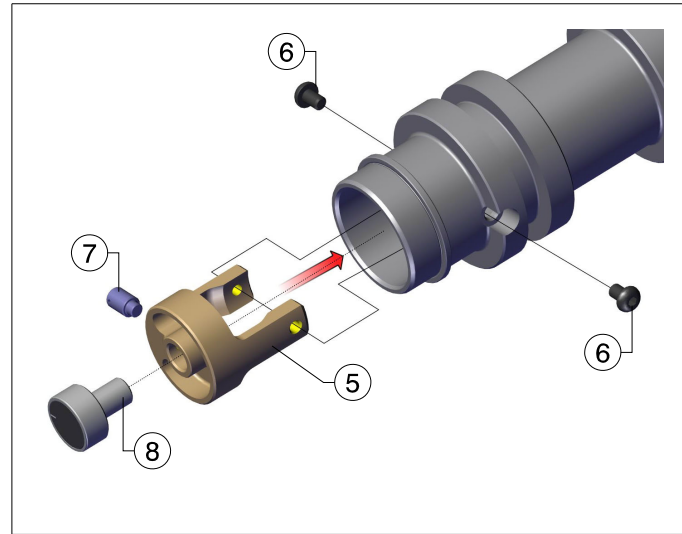
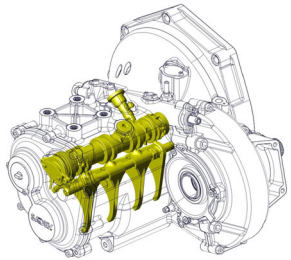


N°	Reference	Description	Qty.	Glue	Torque (N.m)
1*	0601008	Ø32 outer circlips	1		
2	F1904037	Retaining washer	1		
3	F9055107	M34 x 150 nut "left thread "	1	C.G	180
A**	Draw housing	Rear housing	1		
4	F9067202	NU207 inner bushing	1		
5	C9014P2521915F	Ratio 25 / 21 "6th"	1		
6**	0105045	47 x 52 x 17 Bearing	6		
7	F1914205	Dog ring "5 claw"	3		
8	F9052207	Dog ring hub	2		
9	C9017P2525915F	Ratio 25 / 25 "5th"	1		
10	F1904004	Shoulder bushing	2		
11	C9017P2024915F	Ratio 20 / 24 "4th"	1		
12	F9052206	Dog ring hub	1		
13	C9017P1826915F	Ratio 18 / 26 "3rd"	1		
14	C9017P1628915F	Ratio 16 / 28 "2nd"	1		
15	E9014P1328915F	Ratio 13/28 "1st"	1		
16	F9015059	Shoulder bushing 1st gear	1		
17	F9052204	Reverse gear	1		
18**	0106027	HK 50/20 Bearing	1	648	
19	F9052203	Fixed dog ring for reverse gear shaft	1		
20**	F9046204	Outer ring NJ208	1		
21	F9067205	Secondary shaft 15 teeth (15x58)	1		
B**	Draw housing	Fitting main housing	1		

(*) parts included in the rebuilt kits :KITREVST901702

(**) parts included in the kits bearing :KITRLTST901702

3 Internal selector

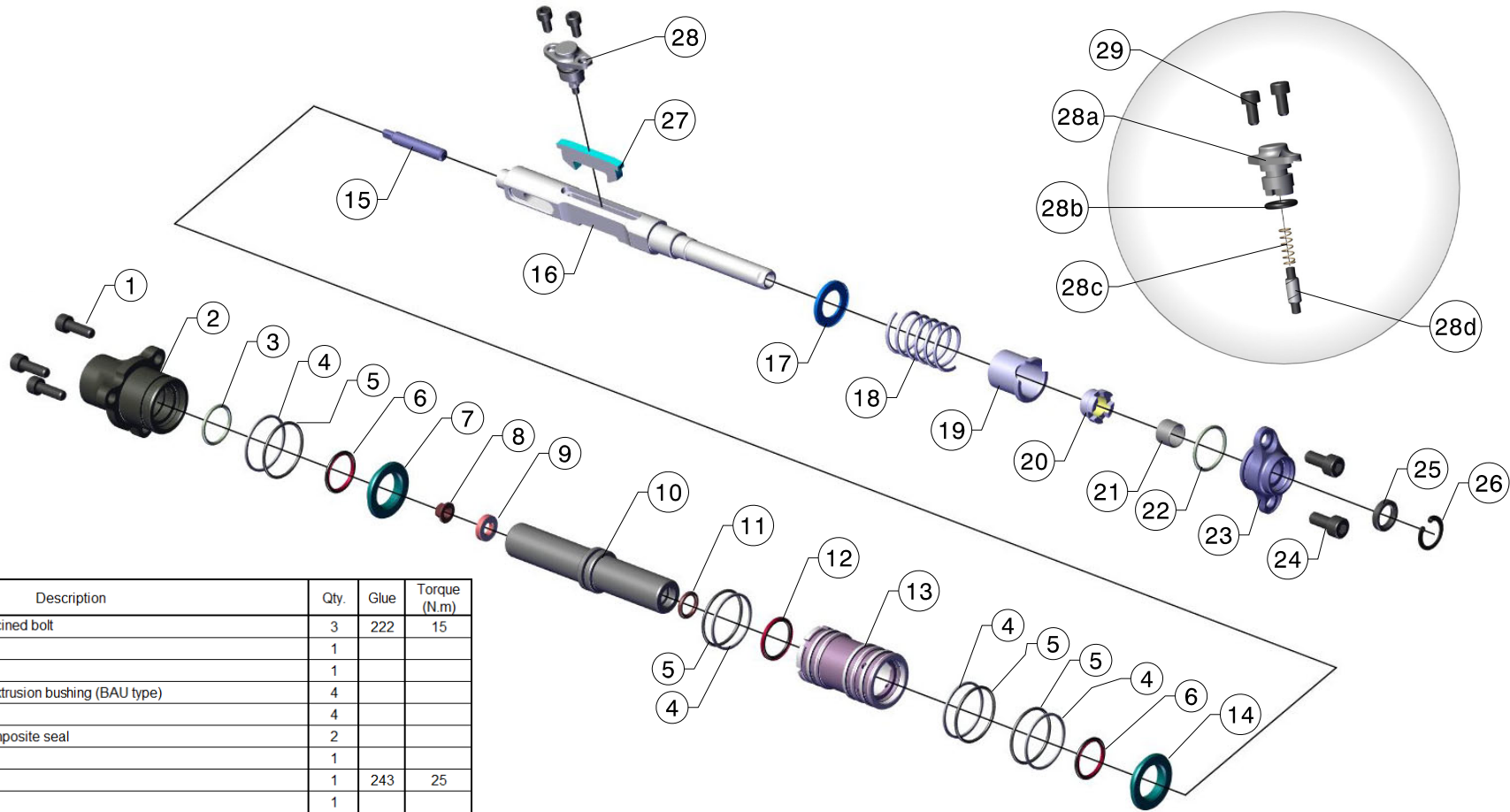
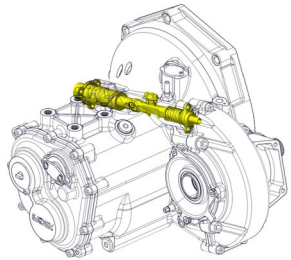


N°	Reference	Description	Qty.	Glue	Torque (N.m)
A**	Draw housing	Fitting main housing	1		
1	F9067400	Barrel	1		
B**	Draw housing	Fitting rear housing	1		
2	F9067409	Reverse fork	1		
3	F9067413	Forks	3		
4	F1910408	Forks axle	1		
5	F9058407	Potentiometer support	1		
6	0308055	BHC M4 x 6 cl 10.9 Bolt	2	243	10
7	0302068	HC M6 x 10 dog point screw	1	243	
8	F0089072	Sensor magnet (Not dissociable the sensor)	1		
	F90464171	Complete indexor	1		
	F90464172	a Indexor	1		
	F9046418	b Rotation stop bolt	1	577	
9	0599061	c* BS-6 (6,6 x 11 x 1) Seal washer	1		
	0801046	d 1,5 x 9,7 x 47 Spring	1		
	0203059	e* BS-24 (24,7 x 33 x 2) Seal washer	1		
	F9046419	f Indexor plug	1	C.G	55
C	Draw housing	Fitting rear housing	1		

(*) parts included in the rebuilt kits :KITREVST901702

(**) parts included in the kits bearing :KITRLTST901702

3a Selector axle



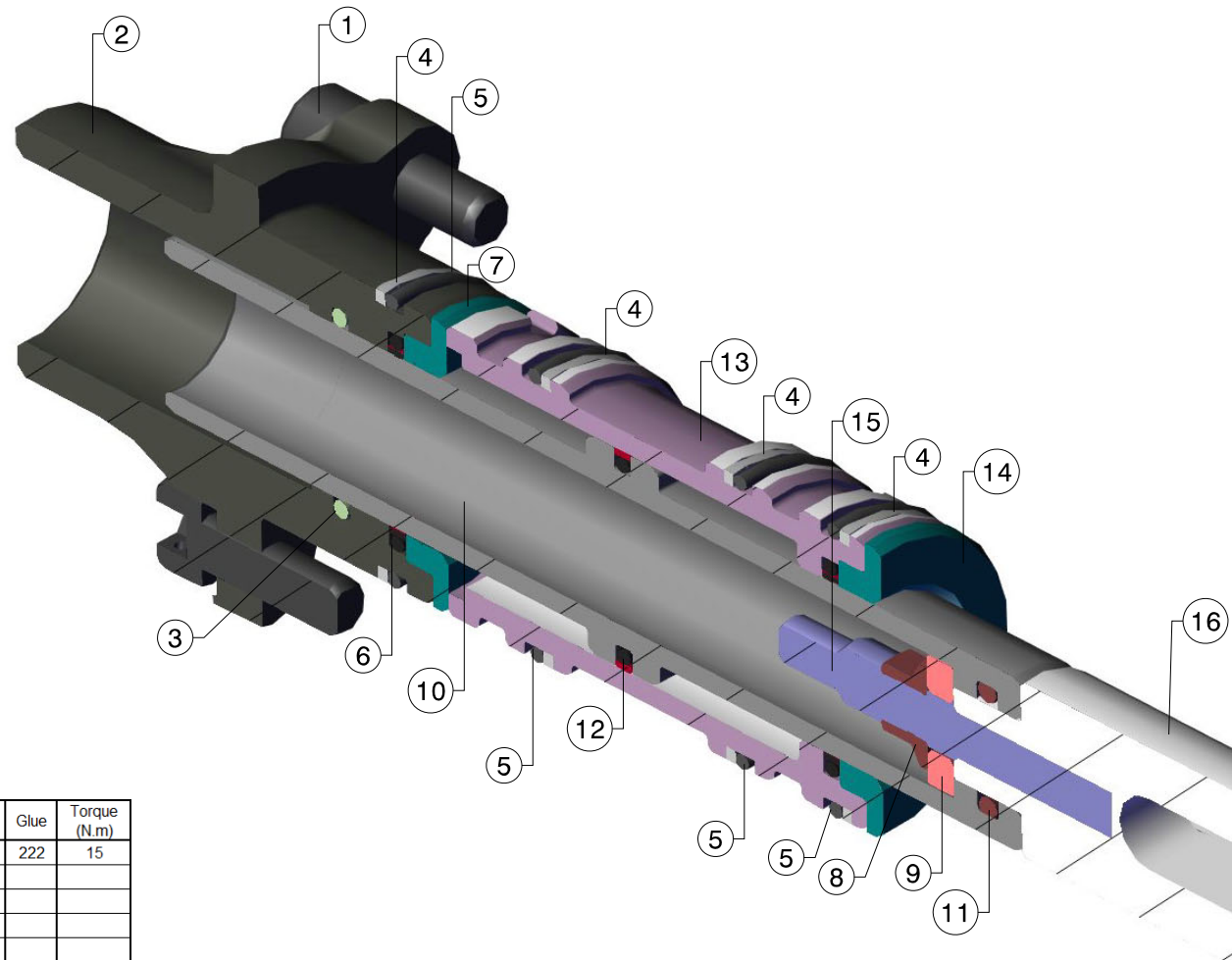
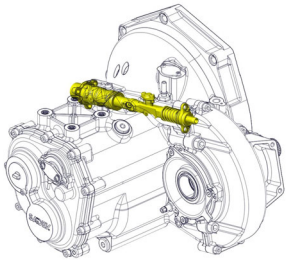
N°	Reference	Description	Qty.	Glue	Torque (N.m)
1	F9046431	CHC M6x18 cl12,9 ZN macined bolt	3	222	15
2	F9046411	Piston closing plate	1		
3***	0202019	Ø 20 x 2 Viton O'ring	1		
4***	0299045	Ø 30 P10 right-hand anti-extrusion bushing (BAU type)	4		
5***	0202020	Ø 29,87 x 1,78 Viton o'ring	4		
6***	0299044	Ø 19,9 x 24,8 x 2,2 bar composite seal	2		
7	F9046410	closing plate	1		
8***	0499004	M7 Simmonds nut	1	243	25
9	F9046405	Piston spacer	1		
10	F9046407	Piston	1		
11***	0202021	Ø 11 x 2,5 Viton O'ring	1		
12***	0299043	Ø 25 x 20,1 x 2,2 piston composite seal	1		
13	F9046408	Sleeve	1		
14	F9046409	closing plate	1		
15	F9046402	Command shaft stud	1		
16	F9046434	Selector axle	1		
17	F9058408	Selector washer	1		
18	0801086	ST82-14 - 9,89 DaN Spring	1		
19	F9046443	Selector shoulder bushing	1		
20	F9046440	Screw M13 x 100	1	243	55
21	1202015	EGB1210-E40 Permaglide Bushing	1		
22*	0202096	Ø 23 x 2 Viton O'ring	1		
23	F9067405	Selector closing block	1		
24	0301373	CHC M7 x 16 cl 10.9 Bolt	2	222	22

N°	Reference	Description	Qty.	Glue	Torque (N.m)
25*	0204036	Ø 12 x 18 x 4 Viton o'ring	1		
26*	0602049	Ø19 Inner circlip	1		
27	F9046403	Dual pin rock	1		
28	F14044032	Complete dual pin rock pusher	1		
	F1404403	a Dual pin rock pusher	1		
	0201017	b* Ø 10 x 2,5 O'ring	1		
	0801026	c* 0,6 x 5,5 x 15,5 Spring	1		
	F9049071	d Pusher	1		
29	0301513	CHC M5 x 10 cl 12.9 Bolt	2	222	8

(*) parts included in the rebuilt kits :KITREVST901702

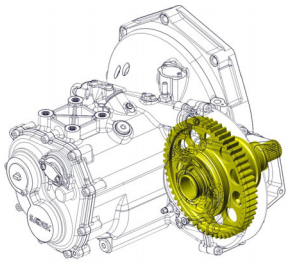
(***) parts included in the rebuilt kits :KITREVST821402

3a Selector axle section



N°	Reference	Description	Qty.	Glue	Torque (N.m)
1	F9046431	CHC M6x18 cl12,9 ZN macined bolt	3	222	15
2	F9046411	Piston closing plate	1		
3	0202019	Ø 20 x 2 Viton O'ring	1		
4	0299045	Ø 30 P10 right-hand anti-extrusion bushing (BAU type)	4		
5	0202020	Ø 29,87 x 1,78 Viton o'ring	4		
6	0299044	Ø 19,9 x 24,8 x 2,2 bar composite seal	2		
7	F9046410	closing plate	1		
8	0499004	M7 Simmonds nut	1	243	22
9	F9046405	Piston spacer	1		
10	F9046407	Piston	1		
11	0202021	Ø 11 x 2,5 Viton O'ring	1		
12	0299043	Ø 25 x 20,1 x 2,2 piston composite seal	1		
13	F9046408	Sleeve	1		
14	F9046409	closing plate	1		
15	F9046402	Command shaft stud	1	270	
16	F9046434	Selector axle	1		

4 Differential



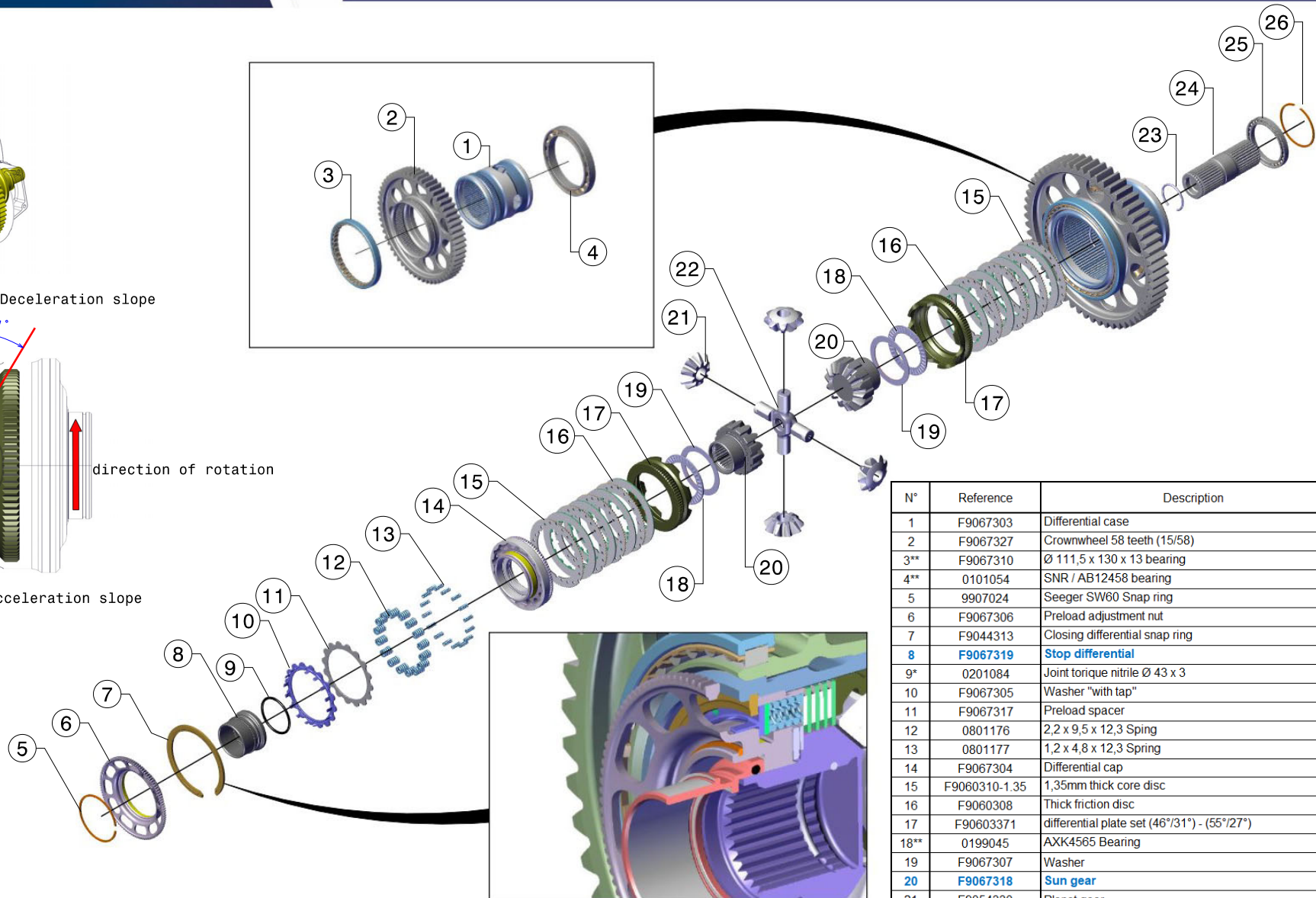
Deceleration slope

31°

direction of rotation

Acceleration slope

46°



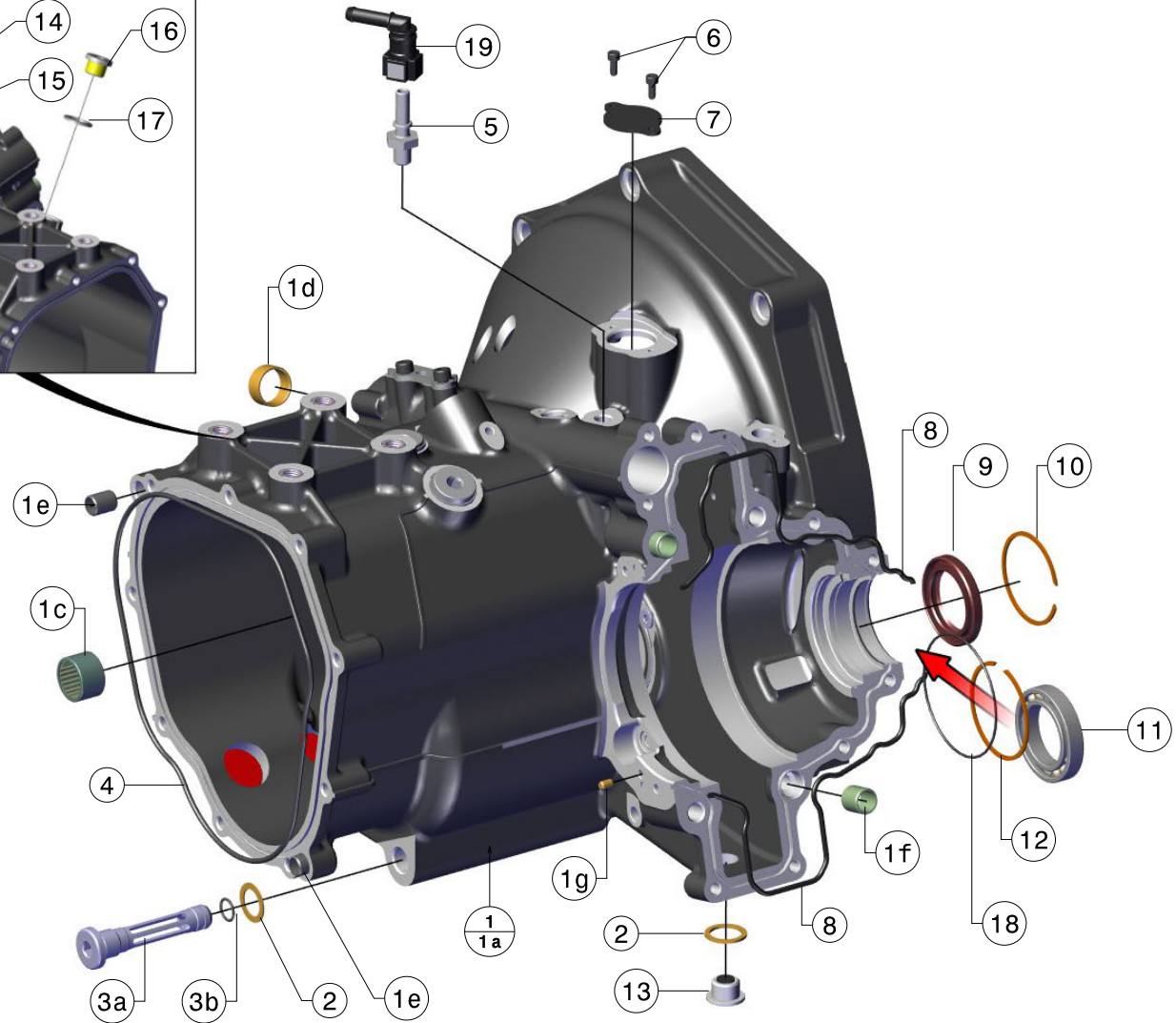
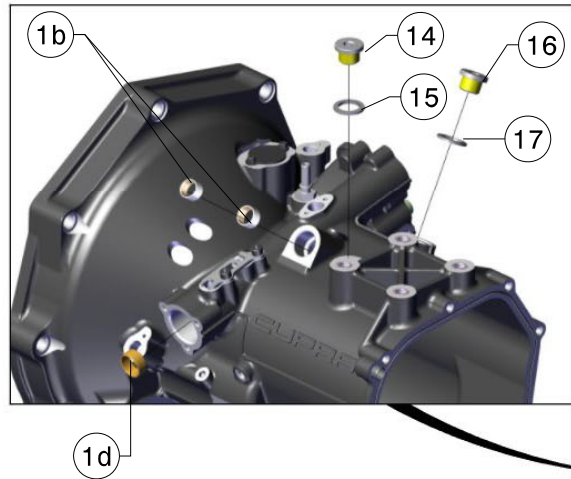
Rep7: sens de montage du circlips

N°	Reference	Description	Qty.	Glue	Torque (N.m)
1	F9067303	Differential case	1		
2	F9067327	Crownwheel 58 teeth (15/58)	1		
3**	F9067310	Ø 111,5 x 130 x 13 bearing	1		
4**	0101054	SNR / AB12458 bearing	1		
5	9907024	Seeger SW60 Snap ring	1		
6	F9067306	Preload adjustment nut	1		
7	F9044313	Closing differential snap ring	1		
8	F9067319	Stop differential	1		
9*	0201084	Joint torique nitrile Ø 43 x 3	1		
10	F9067305	Washer "with tap"	1		
11	F9067317	Preload spacer	1		
12	0801176	2,2 x 9,5 x 12,3 Spring	16		
13	0801177	1,2 x 4,8 x 12,3 Spring	16		
14	F9067304	Differential cap	1		
15	F9060310-1.35	1,35mm thick core disc	8		
16	F9060308	Thick friction disc	8		
17	F90603371	differential plate set (46°/31°) - (55°/27°)	1		
18**	0199045	AXK4565 Bearing	2		
19	F9067307	Washer	2		
20	F9067318	Sun gear	2		
21	F9054330	Planet gear	4		
22	F9053309	planet gear axle	2		
23*	F9045309	Ø 34 x 2,5 Snap ring	1		
24	F9067320	Arbre de sortie VW TCR 2020	1		
25**	0101121	61810 2RS1 Bearing	1		
26	9907028	Seeger SW50 Snap ring	1		

(*) parts included in the rebuilt kits :KITREVST901702

(**) parts included in the kits bearing :KITRLTST901702

5a Main housing

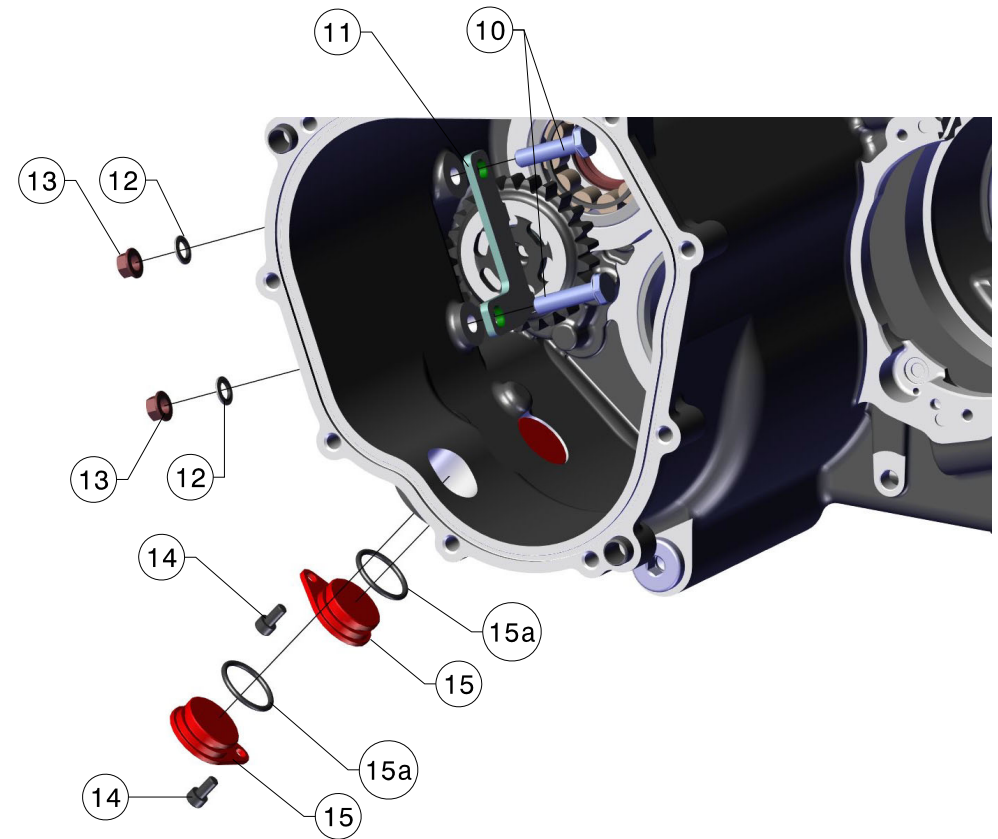
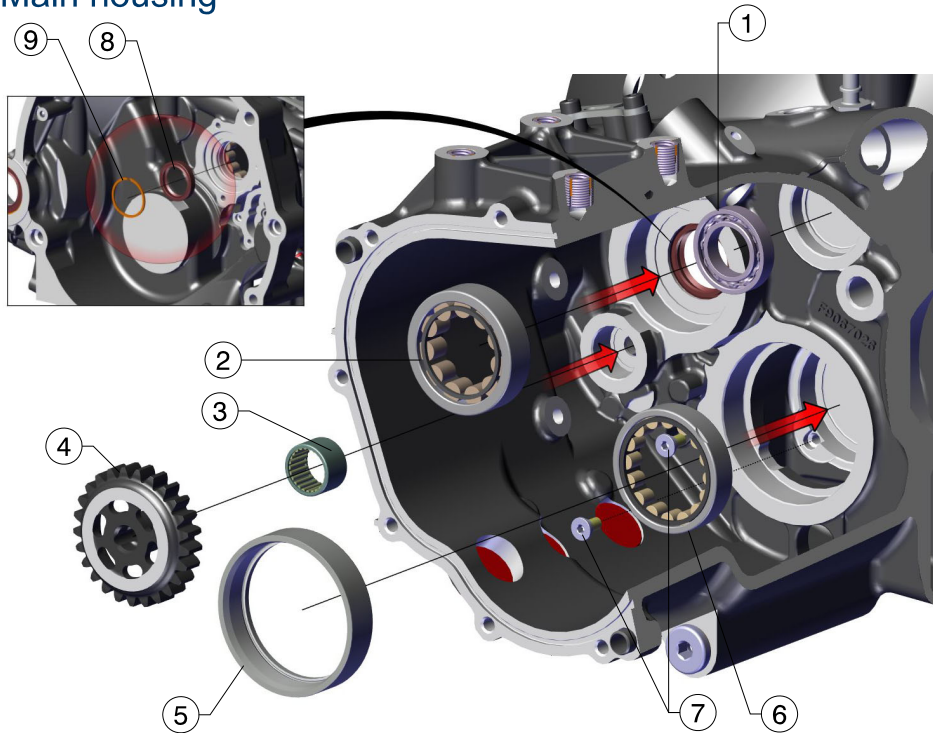


N°	Reference	Description	Qty.	Glue	Torque (N.m)
1	F90670271	Main housing assembly	1		
	F90670271	a Main housing assembly	1		
	1202030	b EGB1610-E40 Permaglide bushing	2	648	
	0106021	c** HK 20/16 Needle bearing	1	648	
	1202028	d EGB2010-E40 permaglide bushing	1	648	
	F0077229	e Ø12 x 15 Center pin	2		
	F9004306	f Ø15 x 16 Center pin	2		
	F9002035	g Ø5 Center pin	1		
2*	0599002	16,1 x 23 x 1 Copper washer	1		
3	F90460131	Suction screen assembly	1		
	F9046013	a Suction screen	1		
	0202080	b* Ø 11 x 1,5 Viton o'ring	1		
4*	0201110	Ø 200 x 3 O'ring	1		
5	F9022106	Venting fitting	1	542	
6	0301512	CHc M4 x 10 cl 12.9 ZN HK screw	2		
7	F9067010	Bouchon capteur embrayage	1		
8*	0202165	Ø 200 x 3 Viton o'ring	1		
9*	0206030	Ø 35 x 52 x 7 Viton double lip seal	1		
10	9907060	Seeger SB52 Snap ring	1		
11**	0101088	61907 Bearing	1		
12	9907030	Seeger SB55 Snap ring	1		
13	F1402058	Magnet plug	1		
14	F9054053	oil filling plug M18x150	1		
15*	0599088	BS-18 seal	1		
16	F9054053	oil filling plug M18x150	1		
17*	0599088	BS-18 seal	1		
18*	0201329	Ø 65 x 1,5 O'ring	1		
19	9999683	Venting plug	1		

(*) parts included in the rebuilt kits :KITREVST901702

(**) parts included in the kits bearing :KITRLTST901702

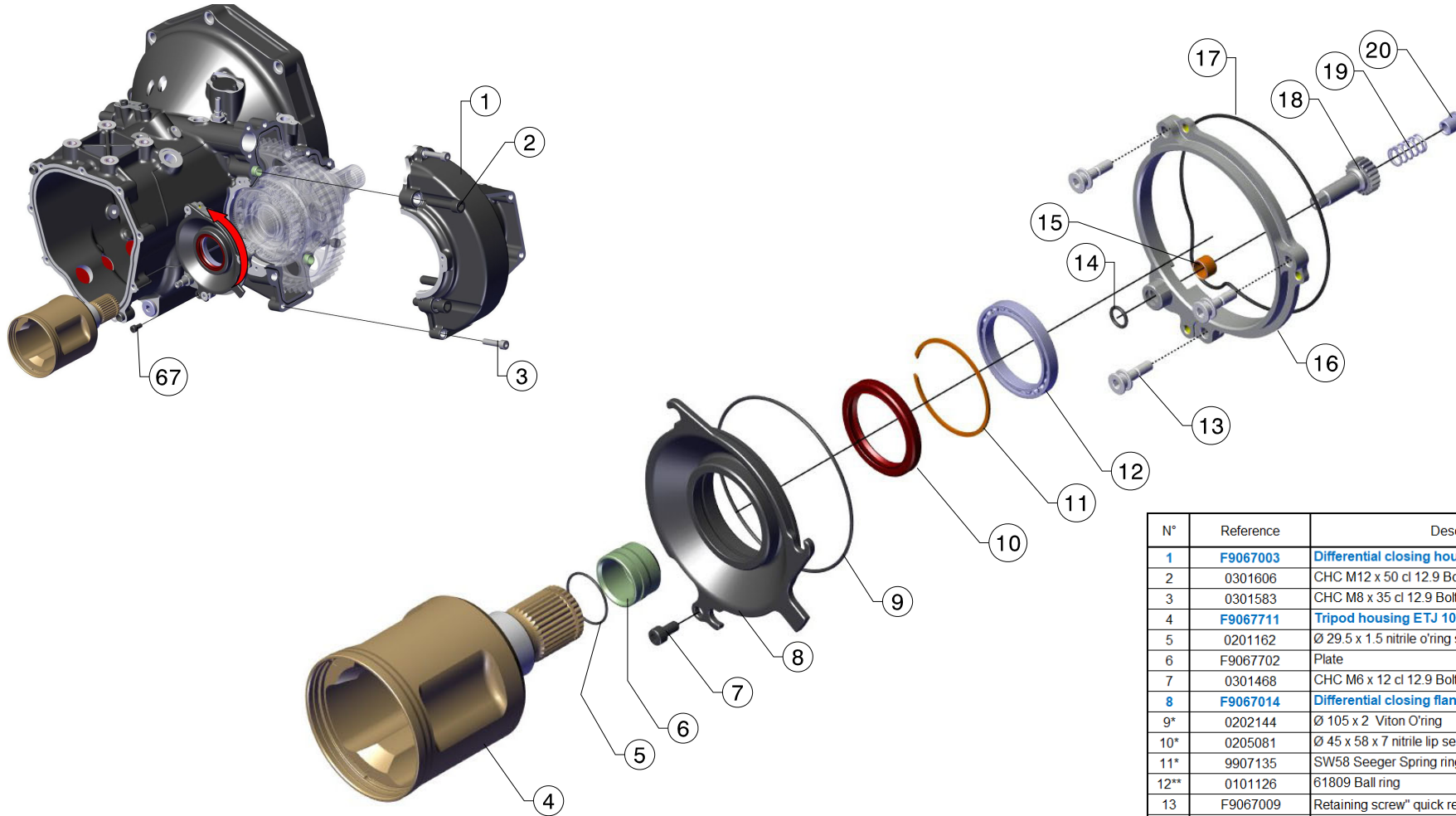
5b Main housing



N°	Reference	Description	Qty.	Glue	Torque (N.m)
1**	0101128	61905 Bearing	1		
2**	0103029	NU 305 ECP Bearing	1	648	
3**	0106021	HK 20/16 Needle sleeve	1	648	
4	F9046059	Power wheel pump	1		
5**	F9046204	N208 ring outer bushing	1	648	
6**	F9053102	NU1007 inner race	1		
7**	F9053104	M6 x 100 Bolt	2	270	15
8*	0206008	Ø 30 x 40 x 7 Viton double lip seal	1		
9*	9907054	Seeger SB40 Snap ring	1		
10	F9067410	Stop bolt "reverse gear"	2		
11	F9067403	Stop plate "reverse gear"	1		
12*	0599059	BS-8 (8,6 x 13 x 1) Seal washer	2		
13*	0499003	M8 Screw	2	243	35
14	0301513	CHc M5 x 10 cl 12.9 ZN HK screw	3	222	8
15	F90540361	Complete dog trap	3		
	0202037	a Ø 23,5 x 2,5 Viton O'ring	3		

(*) parts included in the rebuilt kits :KITREVST901702
 (**) parts included in the kits bearing :KITRLTST901702

5c Drive housing + closing flange

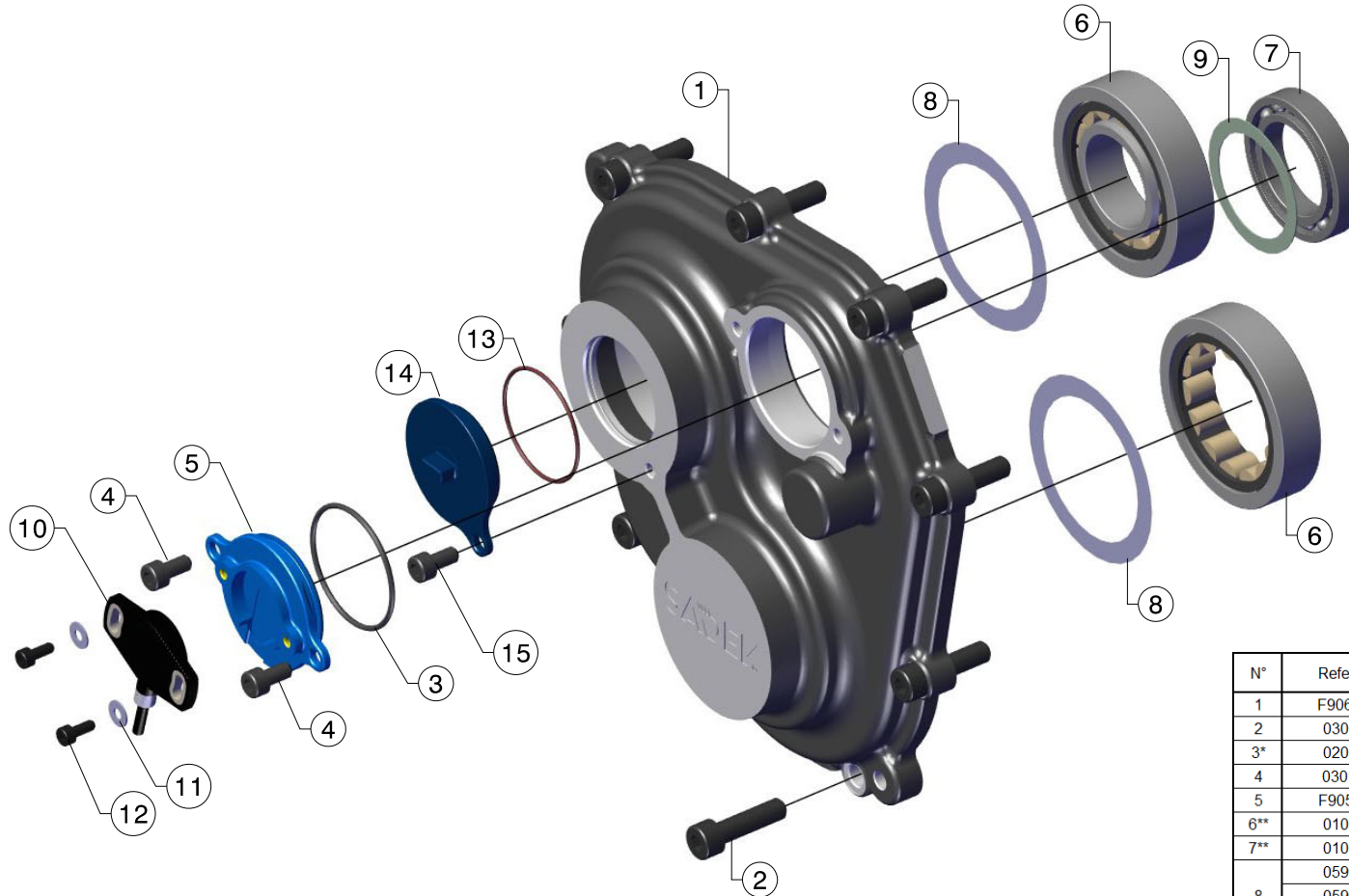


N°	Reference	Description	Qty.	Glue	Torque (N.m)
1	F9067003	Differential closing housing	1		
2	0301606	CHC M12 x 50 cl 12.9 Bolt	4	222	75
3	0301583	CHC M8 x 35 cl 12.9 Bolt	7	222	25
4	F9067711	Tripod housing ETJ 104assembly	1		
5	0201162	Ø 29.5 x 1.5 nitrile o'ring seal	1		
6	F9067702	Plate	1		
7	0301468	CHC M6 x 12 cl 12.9 Bolt	1		15
8	F9067014	Differential closing flange 'left'	1		
9*	0202144	Ø 105 x 2 Viton O'ring	1		
10*	0205081	Ø 45 x 58 x 7 nitrile lip seal	1		
11*	9907135	SW58 Seeger Spring ring	1		
12**	0101126	Ø1809 Ball ring	1		
13	F9067009	Retaining screw" quick release"	3	222	15
14*	0201135	Ø 10 x 2 O'ring	1		
15	1202027	EGB1008-E40 Permaglide bushing	1		
16	F9067007	Support "preload tool"	1		
17*	0201259	Ø 125 x 2 O'ring	1		
18	F9067314	Preload tool	1		
19	0801126	1,2 x 11,6 x 20 Spring	1		
20	F9052325	Shoulder bushing " preload tool"	1		

(*) parts included in the rebuilt kits :KITREVST901702

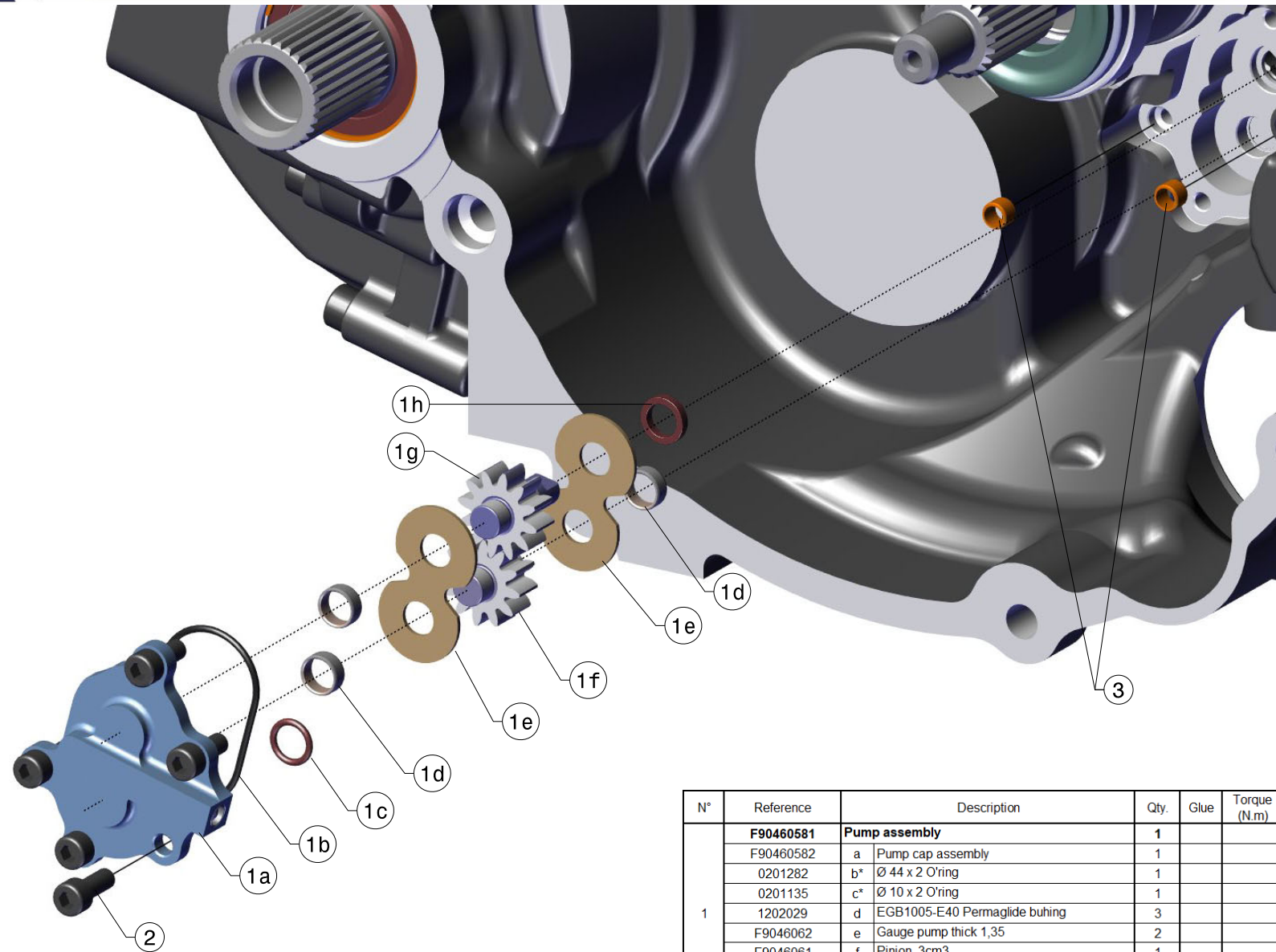
(**) parts included in the kits bearing : KITRLTST901702

5d Rear housing



N°	Reference	Description	Qty.	Glue	Torque (N.m)
1	F9067005	Flange housing	1		
2	0301293	CHC M8 x 30 cl 10.9 Bolt	9	222	25
3*	0201282	Ø 44 x 2 o'ring	1		
4	0301573	CHC M6 x 10 cl 12.9 ZN Bolt	2	222	8
5	F9058027	Barrel closing flange	1		
6**	0103024	NU 207 ECP Bearing	2		
7**	0101088	61907 Bearing	1		
8	0599067	Shim Ø 71 x 55 th. 0.05	2		
	0599033	Shim Ø 71 x 55 th. 0.10	2		
	0599034	Shim Ø 71 x 55 th. 0.20	2		
9	0599103	Shim Ø 54,5 x 48 ép. 0,05	1		
	0599104	Shim Ø 54,5 x 48 ép. 0,10	1		
	0599105	Shim Ø 54,5 x 48 ép. 0,20	1		
10	F0089079	Rotary sensor	1		
11	0502023	M4Plate washer	2		
12	0301512	CHC M4 x 10 cl 12.9 Bolt	2		
13*	0201087	Ø 41 x 1,5 O'ring	1		
14	F9067102	Plug " Clutch shaft"	1		
15	0301468	CHC M6 x 12 cl 12.9 Bolt	1		
(*) parts included in the rebuilt kits :KITREVST901702					
(**) parts included in the kits bearing : KITRLTST901702					

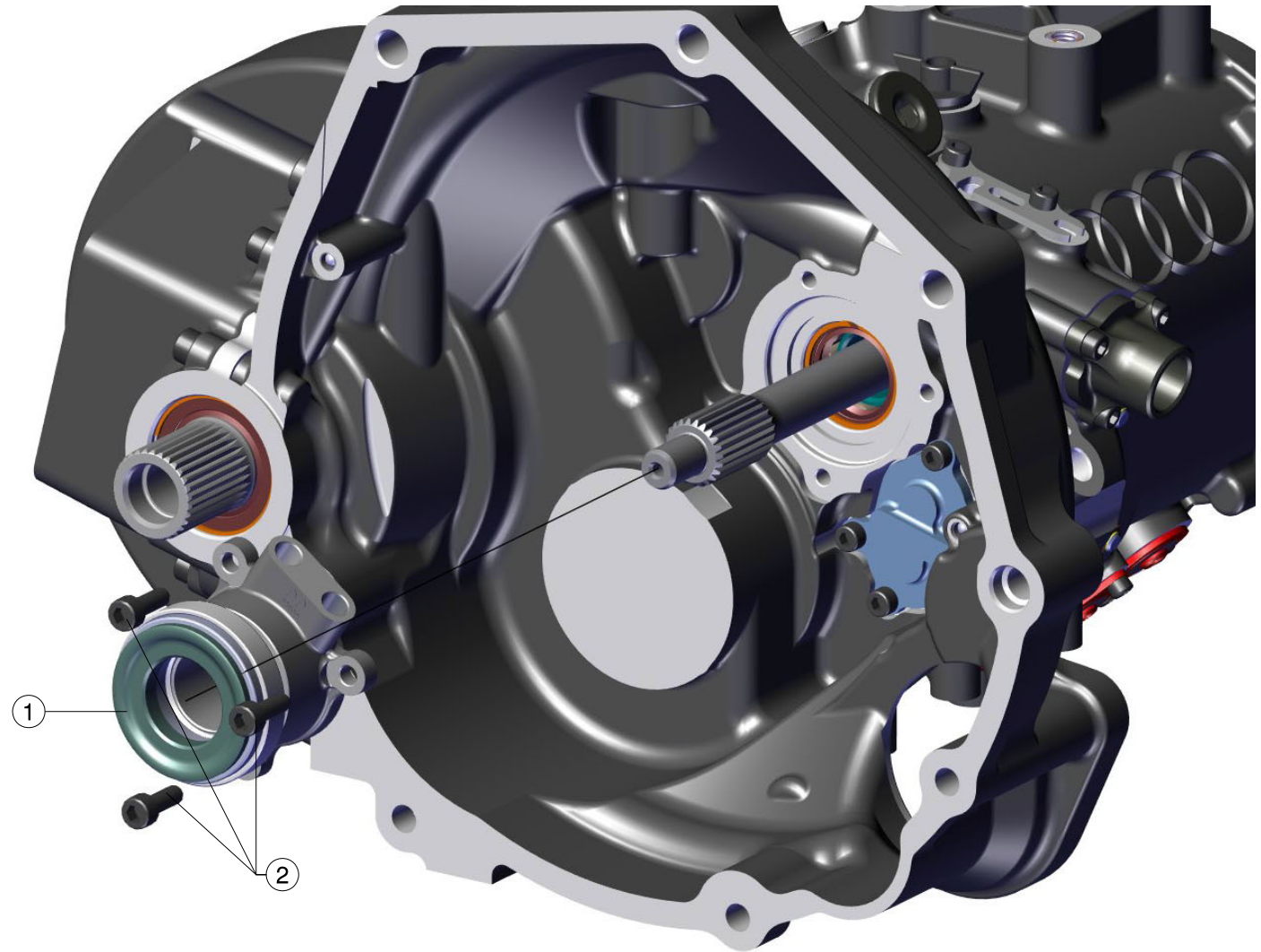
6 Lubrication



N°	Reference	Description	Qty.	Glue	Torque (N.m)
1	F90460581	Pump assembly	1		
	F90460582	a Pump cap assembly	1		
	0201282	b* Ø 44 x 2 O'ring	1		
	0201135	c* Ø 10 x 2 O'ring	1		
	1202029	d EGB1005-E40 Permaglide buhing	3		
	F9046062	e Gauge pump thick 1,35	2		
	F9046061	f Pinion 3cm3	1		
	F9046060	g main pinion 3cm3	1		
	0203055	h* Ø 10 x 14 x 3 Lip seal	1		
	0301422	CHC M6 x 16 cl 10.9 Bolt	5	243	15
2					
3	F1404429	Center pin	2		

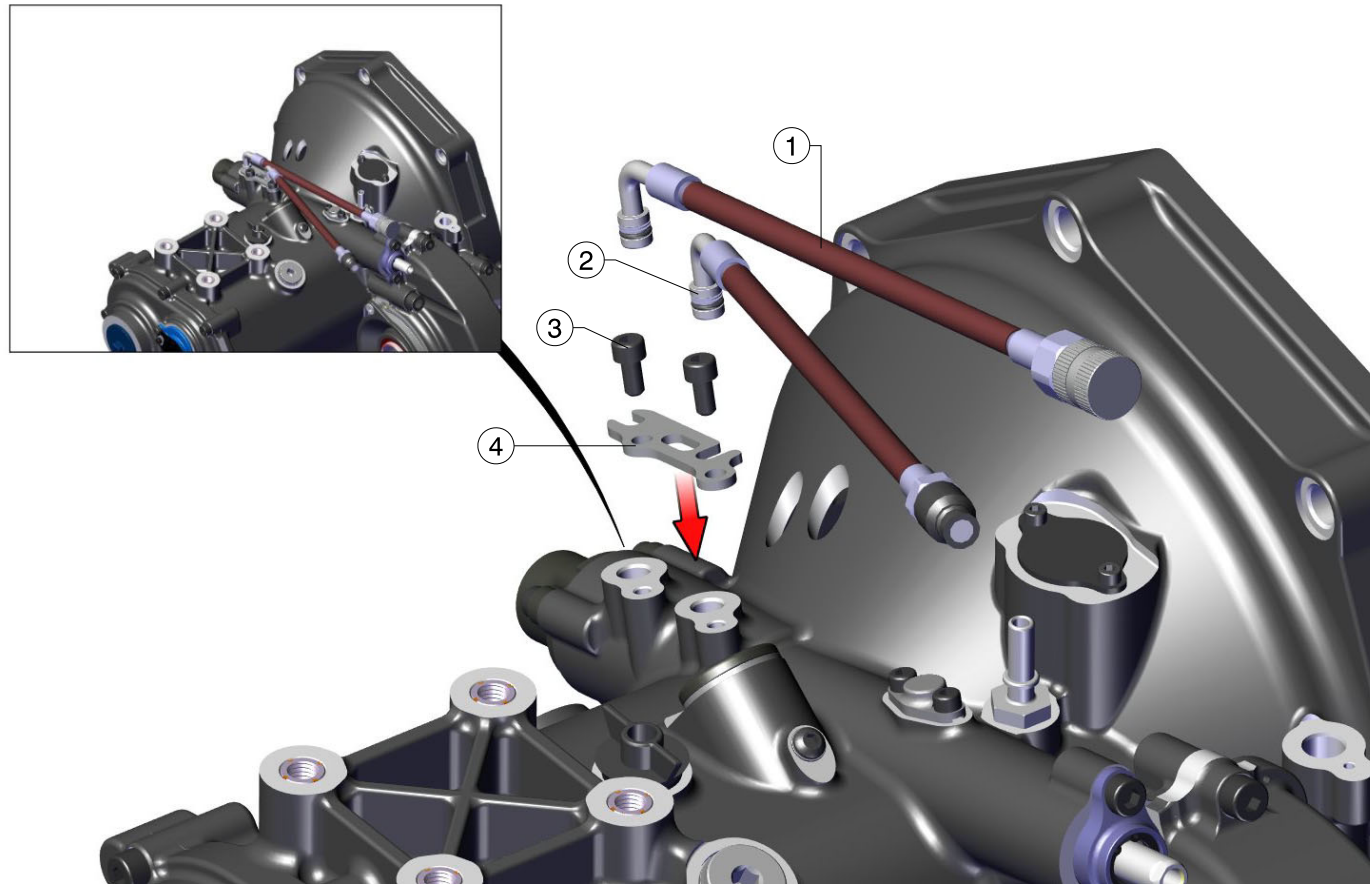
(*) parts included in the rebuilt kits : KITREVST9017012
 (**) parts included in the kits bearing :KITRLTST901702

7 Clutch bearing AP



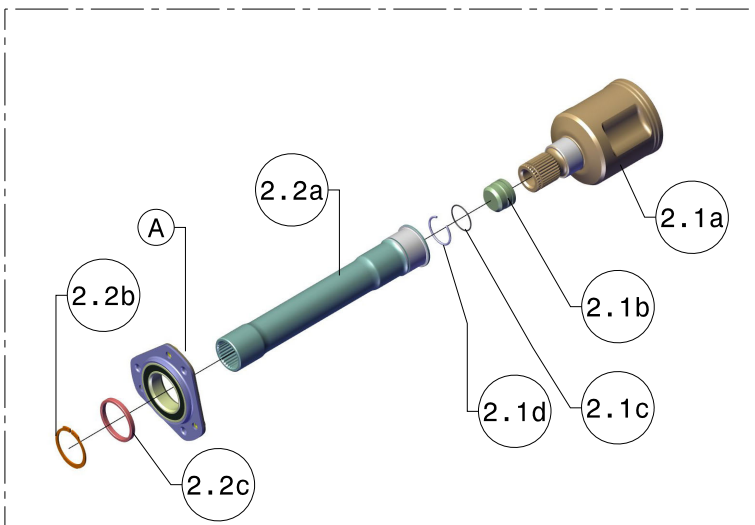
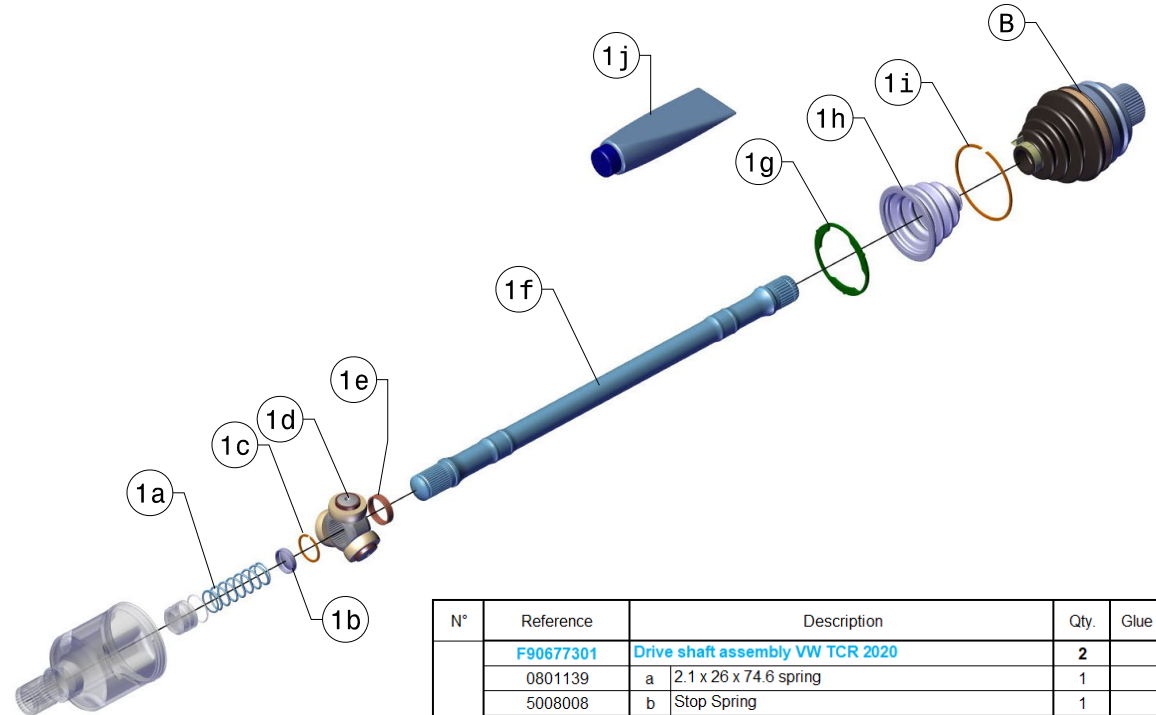
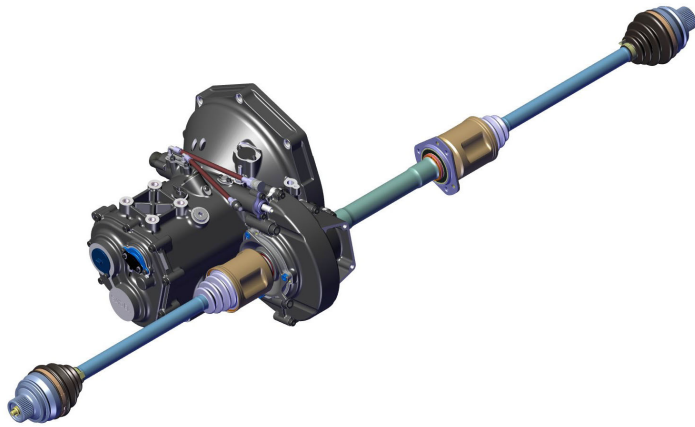
N°	Reference	Description	Qty.	Glue	Torque (N.m)
1	3099127	Hydraulic Stop Ø54 PORT M10	1		
2	0301522	CHc M7 x 20 cl 12.9 ZN screw	3	222	25
(*) parts included in the rebuilt kits :KITREVST901701					
(**) parts included in the kits bearing :KITRLTST901701					

8 Hydraulic hose



N°	Reference	Description	Qty.	Glue	Torque (N.m)
1	F9049587	Female hose assembly Dash 04 plug-in 90° lg 180 mm	1		
2	F9049586	Male hose assembly Dash 04 plug-in 90° lg 100 mm	1		
3	0301377	CHc M6 X 12 cl 8,8 ZN screw	2	222	6
4	F9067029	U-clip	1		
(*) parts included in the rebuilt kits :KITREVST901701					
(**) parts included in the kits bearing :KITRLTST901701					

9 Drive shaft



N°	Reference	Description	Qty.	Glue	Torque (N.m)
1	F90677301	Drive shaft assembly VW TCR 2020	2		
	0801139	a 2.1 x 26 x 74.6 spring	1		
	5008008	b Stop Spring	1		
	9907012	c SW29 Seeger spring ring	1		
	5099196	d Tripod	1		
	F9052718	e Ø33 spacer	1		
	F9067730	Drive shaft	1		
	F9067703	g Retaining plate	1		
	F9058704	h Rubber	1		
	9907134	i Seeger SB86 ring	1		
	1099017	j Grease tub (90 gr)	1		
	2	F90677152	AUDI CUPRA WTCR relay shaft and tripod housing kit	1	
F90677111		Tripod housing ETJ104 assembly	1		
2.1	F9067711	a Tripod housing ETJ104	1		
	F9067702	b Spring support	1		
	0201162	c Ø 29.5 x 1.5 nitrile o'ring seal	1		
	F9045309	d Spring ring Ø34 x 2.5	1		
2.2	F90677151	Relay shaft assembly	1		
	F9067715	a Relay shaft	1		
	0601011	b Ø45 outer circlips	1		
	F9067708	Spacer	1		
A		Customer supply	1		
B		Customer supply	1		