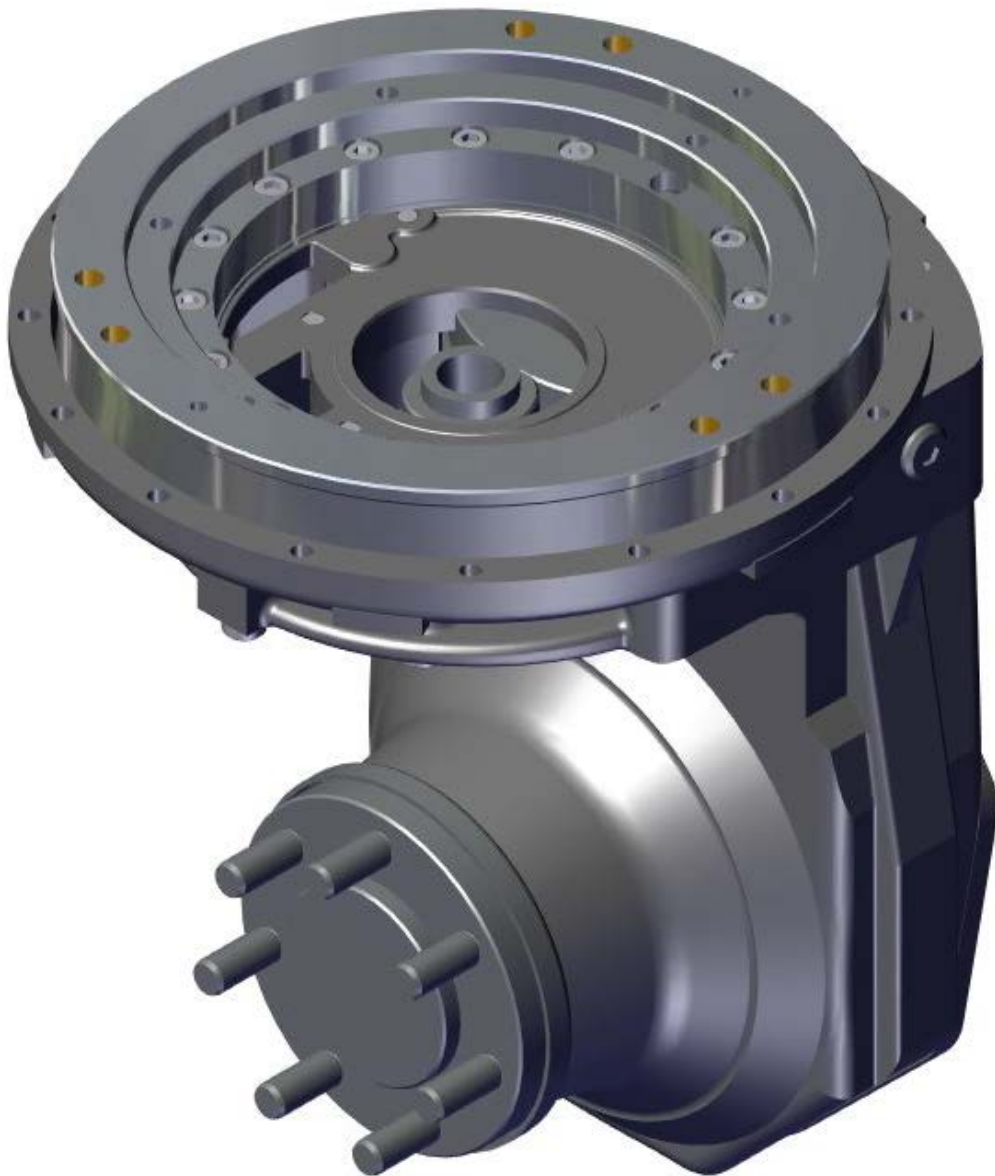


SERVICE INSTRUCTION & MAINTENANCE FOR TRANSMISSION 15001602

Breakdown and parts kits are shown in the parts section.



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NOTE 1- Where screw tightening torques are unspecified in the text, apply M8 = 23 Nm

1 ASSEMBLY INSTRUCTIONS

1.1 Preparation and initial assembly of the housing (10)

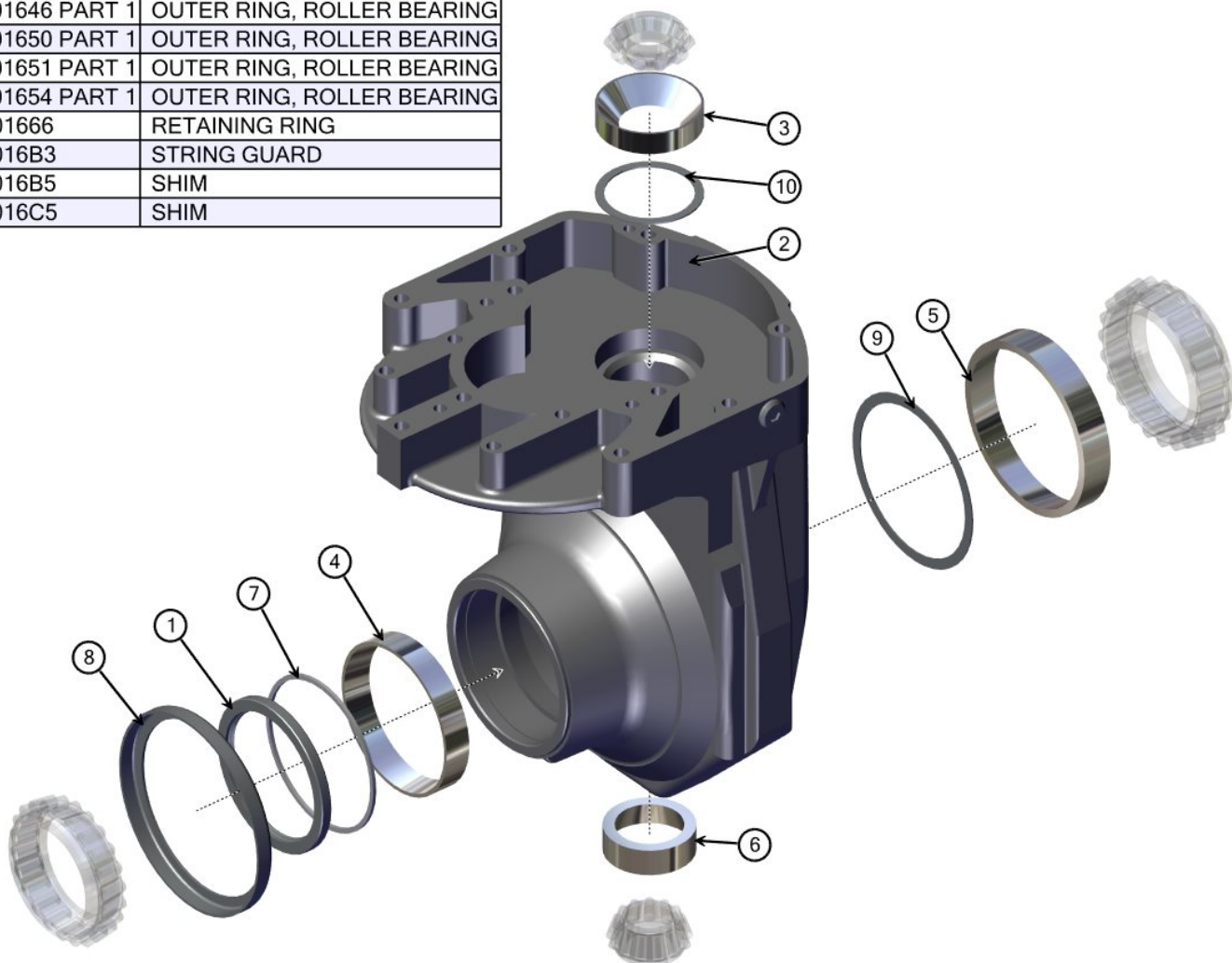
After cleaning the housing (2), locate the shims (9, 10) into their respective bearing bores in the housing.

Install the bearing cups of taper roller bearings (3, 4, 5, & 6) into the housing. Apply

Loctite 307 to housing and install the twine shield ring (8). Peen it to secure.

Install retaining ring (7) into the gearbox housing. Apply **Loctite 574** to the housing location for seal (1) and install the seal until seated against the retaining ring.

BOM ID	Qty	PART NO.	DESCRIPTION
1	1	15001628	SEAL
2	1	15001632	GEARBOX HOUSING
3	1	15001646 PART 1	OUTER RING, ROLLER BEARING
4	1	15001650 PART 1	OUTER RING, ROLLER BEARING
5	1	15001651 PART 1	OUTER RING, ROLLER BEARING
6	1	15001654 PART 1	OUTER RING, ROLLER BEARING
7	1	15001666	RETAINING RING
8	1	150016B3	STRING GUARD
9	1	150016B5	SHIM
10	1	150016C5	SHIM

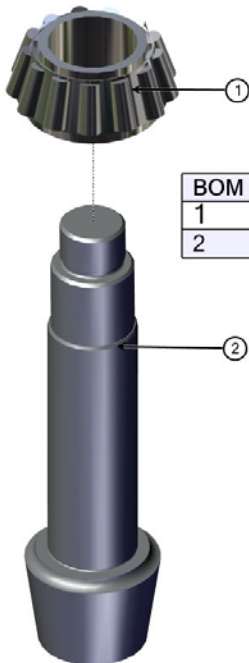
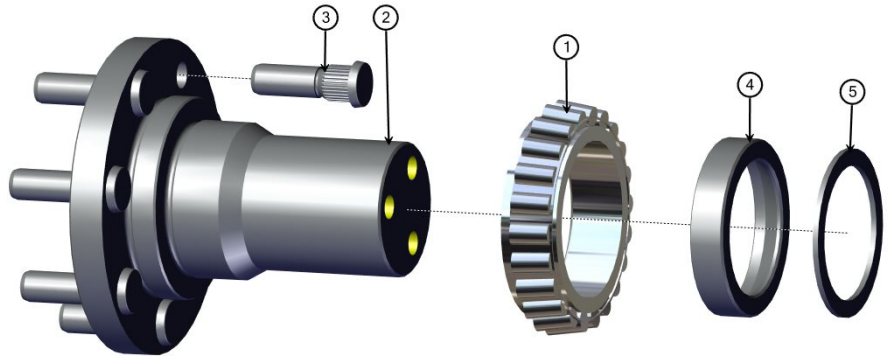


1.2 Flange Shaft (60) sub-assembly

Press the wheel studs (3) into the shaft (2).

Press the inner race of bearing (1) onto the shaft and place spacer ring (4) and shim (5) onto the shaft against bearing (1).

BOM ID	Qty	PART NO.	DESCRIPTION
1	1	15001650 PART 2	INNER RING, ROLLER BEARING
2	1	15001656	AXLE SHAFT
3	7	150016A6	WHEEL BOLT
4	1	150016B2	SPACER RING
5	1	150016C3	SHIM



BOM ID	Qty	PART NO.	DESCRIPTION
1	1	15001654 PART 2	INNER RING, ROLLER BEARING
2	1	15001670 PART1	SPIRAL GEAR

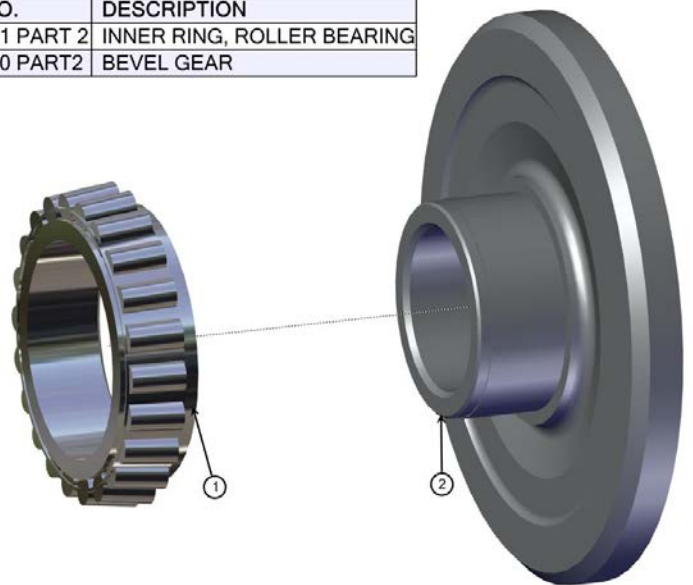
1.3 Spiral Bevel Pinion (75) sub-assembly

Apply **Loctite 603** to the bearing diameter of the Spiral Gear (2) and press the inner race of bearing (1) into position.

1.4 Spiral Bevel Gear sub-assembly

Press the inner race of bearing (1) onto the Bevel gear (2).

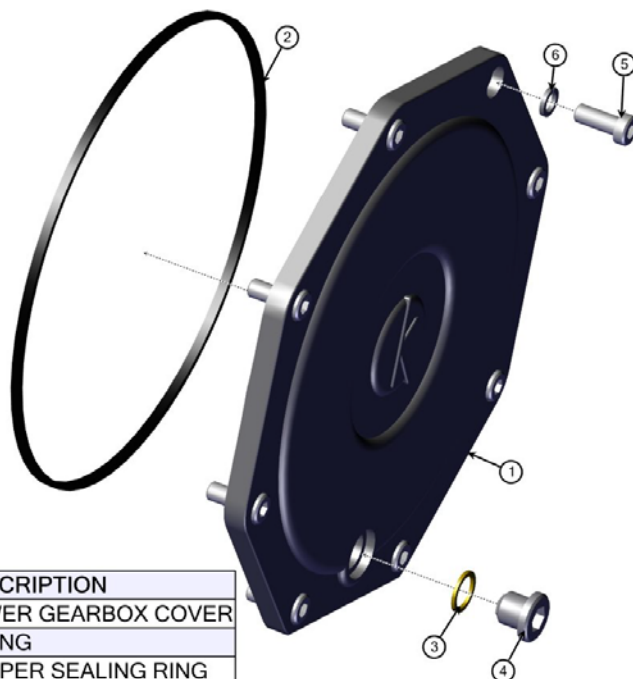
BOM ID	Qty	PART NO.	DESCRIPTION
1	1	15001651 PART 2	INNER RING, ROLLER BEARING
2	1	15001670 PART2	BEVEL GEAR



1.5 Lower Cover (40) sub-assembly

Lubricate "O" Ring (2) and insert it into its groove in the cover (1). Install the oil plug (4)

with copper sealing ring (3) into the cover.

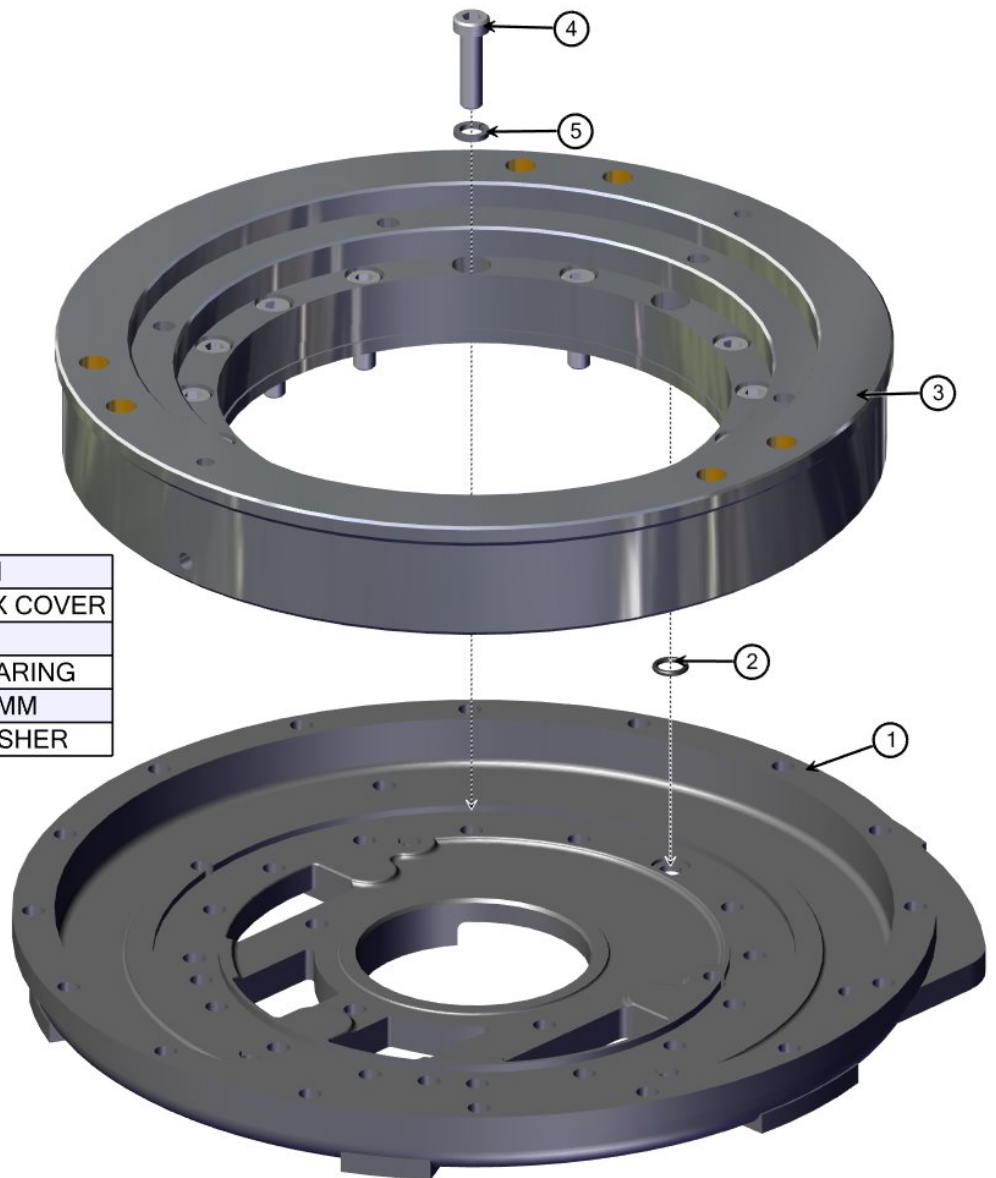


BOM ID	Qty	PART NO.	DESCRIPTION
1	1	15001638	LOWER GEARBOX COVER
2	1	15001660	O-RING
3	1	15001663	COPPER SEALING RING
4	1	15001692	DRAIN PLUG, MAGNETIC
5	8	H1879	SHCS M8 X 20MM
6	8	H1885	8MM LOCKWASHER

1.6 Steering bearing (270).

Assemble the steering bearing (3) to the top cover (1) with 15 screws (4) and spring washers (5). Use **DELO 5249** (Blue Loctite) to secure and seal the screws.

Note: Breather must be aligned with hole in the top cover and sealed with O-ring (2) which is placed between the steering bearing and top cover prior to assembly.



BOM ID	Qty	PART NO.	DESCRIPTION
1	1	15001640	TOP GEARBOX COVER
2	1	15001657	O-RING
3	1	150016D1	STEERING BEARING
4	15	H1880	SHCS M8 X 30MM
5	15	H1885	8MM LOCKWASHER

1.7 Assembly of the gearbox

Feed the spiral bevel pinion gear sub-assembly with the spacer sleeve (3, 4 & 6) through the lower cover opening.

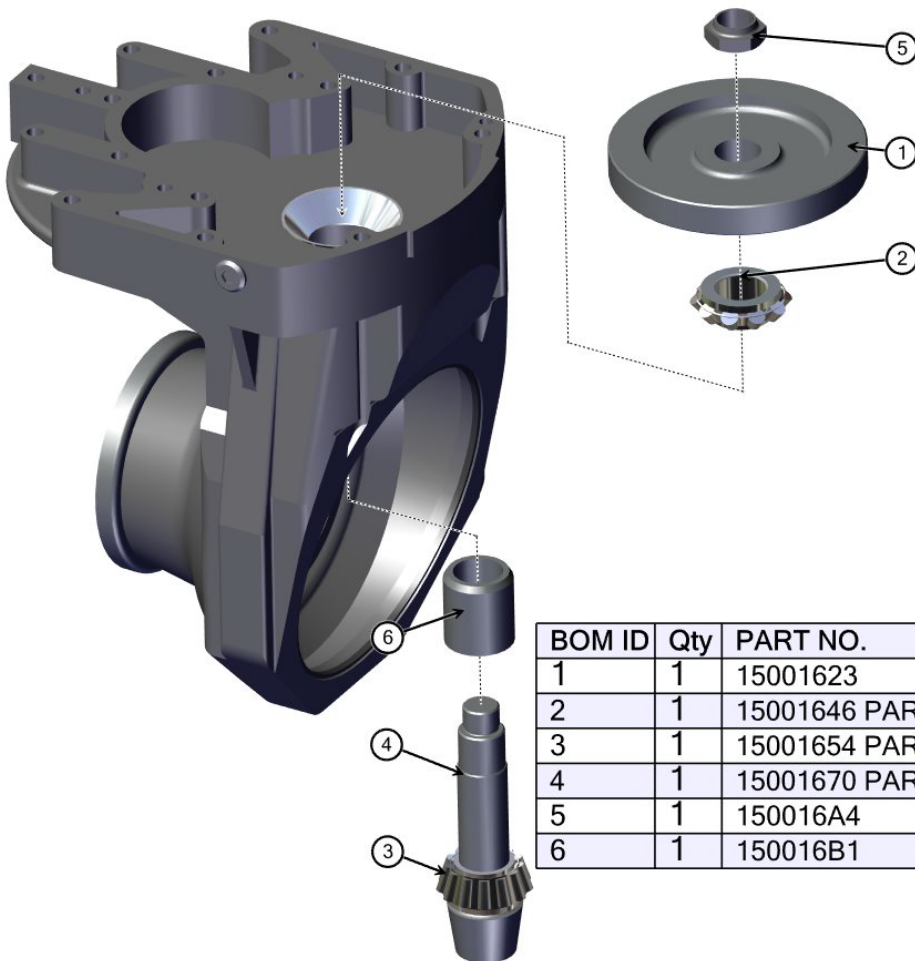
Install the Bearing cone (2) onto the spur gear (1) and assemble onto the spiral bevel pinion and secure with nut (5).

Note: To achieve the correct bearing pre-load, the break-away torque at the nut must be **0.5 to 0.8 Nm**.

See note 1.8 for adjusting the spiral bevel tooth contact pattern.

Tighten the nut (5) - tightening torque **280Nm** - Secure the nut with **DELO 5249** (Blue Loctite) and peen after the bearing preloads and bevel gear tooth contact pattern have been correctly set.

Note: It is important not to apply radial force to the pinion when peening the nut.



BOM ID	Qty	PART NO.	DESCRIPTION
1	1	15001623	SPUR GEAR
2	1	15001646 PART 2	INNER RING, ROLLER BEARING
3	1	15001654 PART 2	INNER RING, ROLLER BEARING
4	1	15001670 PART1	SPIRAL GEAR
5	1	150016A4	HEX NUT
6	1	150016B1	SPACER SLEEVE

Pass the bevel gear sub-assembly through the lower cover opening and locate its bearing cone into cup, previously installed in the housing.

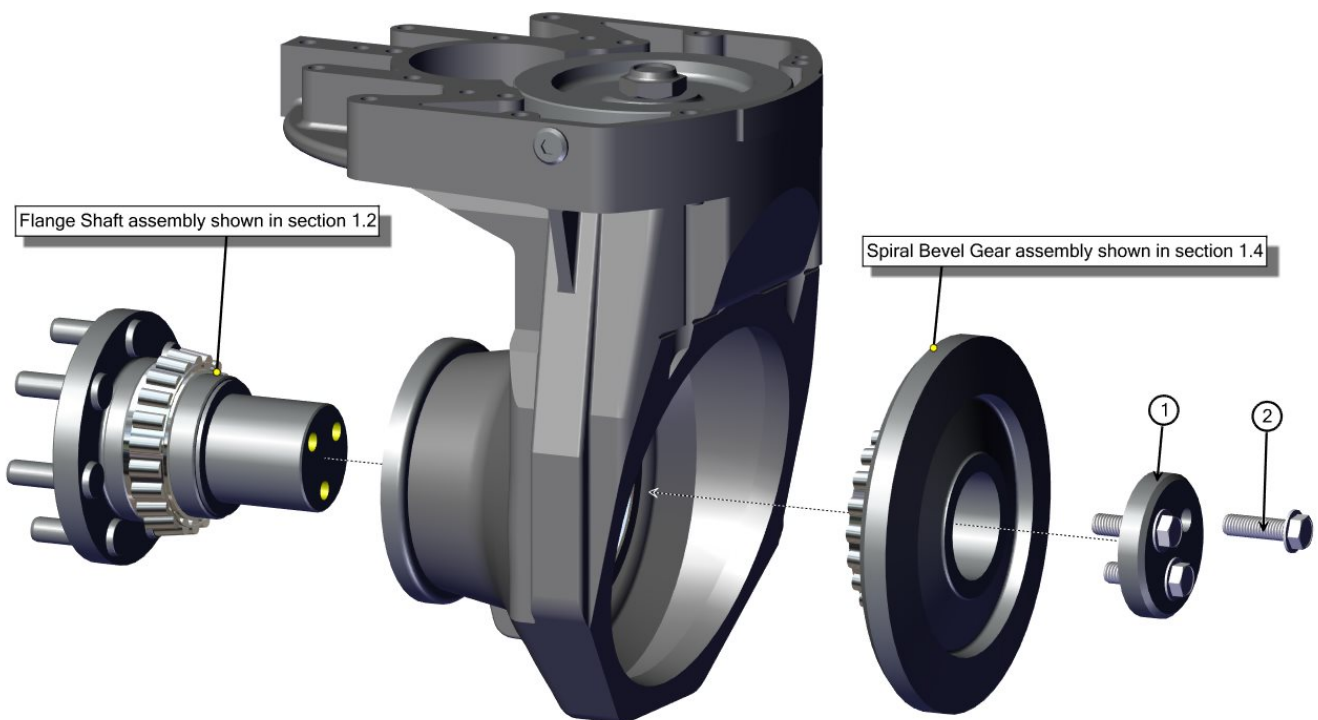
Locate the assembled flange shaft with spacer ring and shim into position through bearing cup and spiral bevel gear sub-assembly.

Install the washer plate (1) and secure with three screws (2). Use **DELO 5249** (Blue Loctite) and torque to **130Nm**.

Re-check the breakaway torque at nut (5) shown in the previous picture. It must now be **1.0 to 1.5 Nm**.

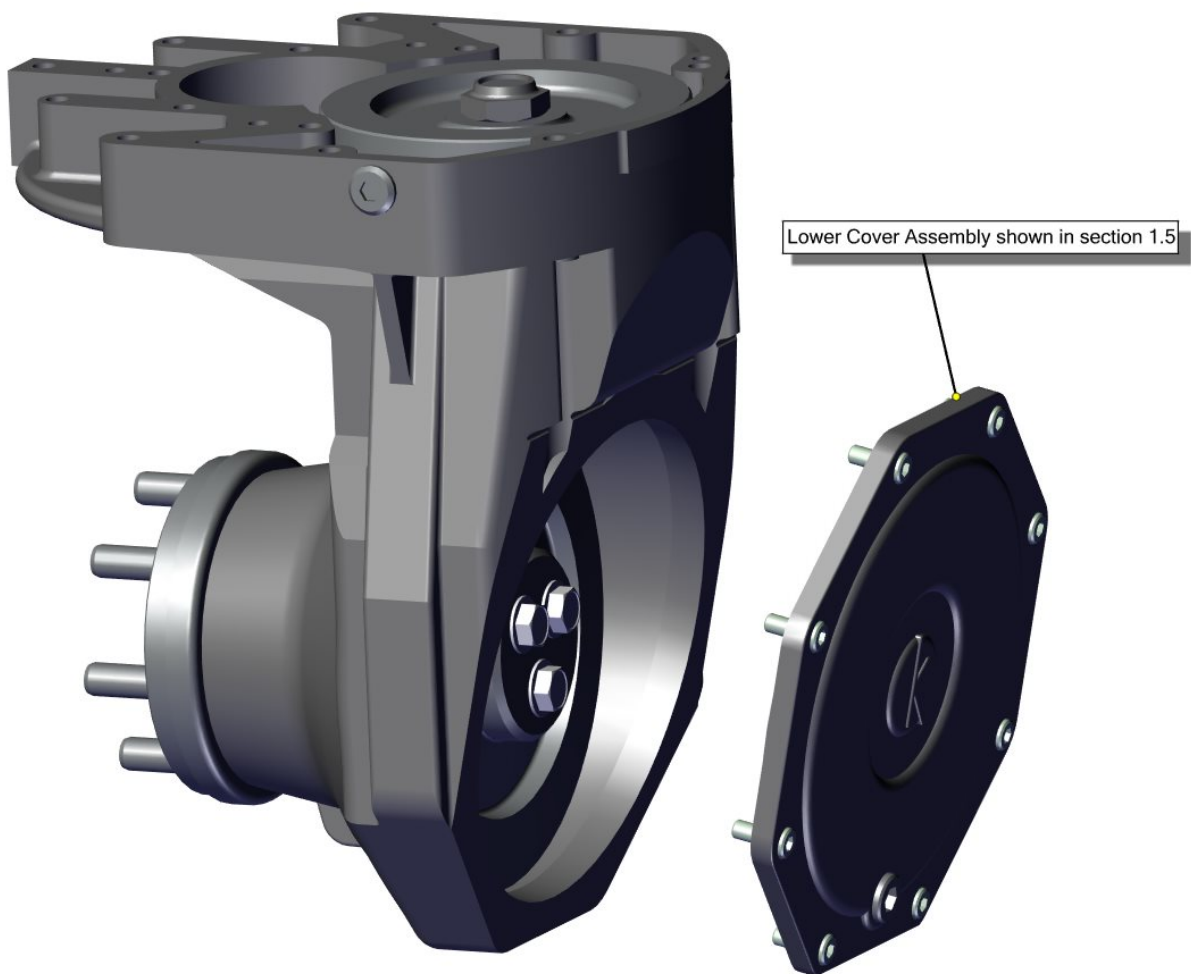
Also check, if it is necessary to adjust the tooth contact pattern of the bevel gear set. **See note 1.8.**

BOM ID	Qty	PART NO.	DESCRIPTION
1	1	150016B9	WASHER PLATE
2	3	H1887	HHCS M12X40 - SERRATED FLANGE



1.7.5 Final Housing Assembly

Mount the lower gearbox cover onto the gearbox housing so that the oil hole is at the lowest point when the gearbox is mounted in the truck. Fix the cover in position with the screws and spring washers.

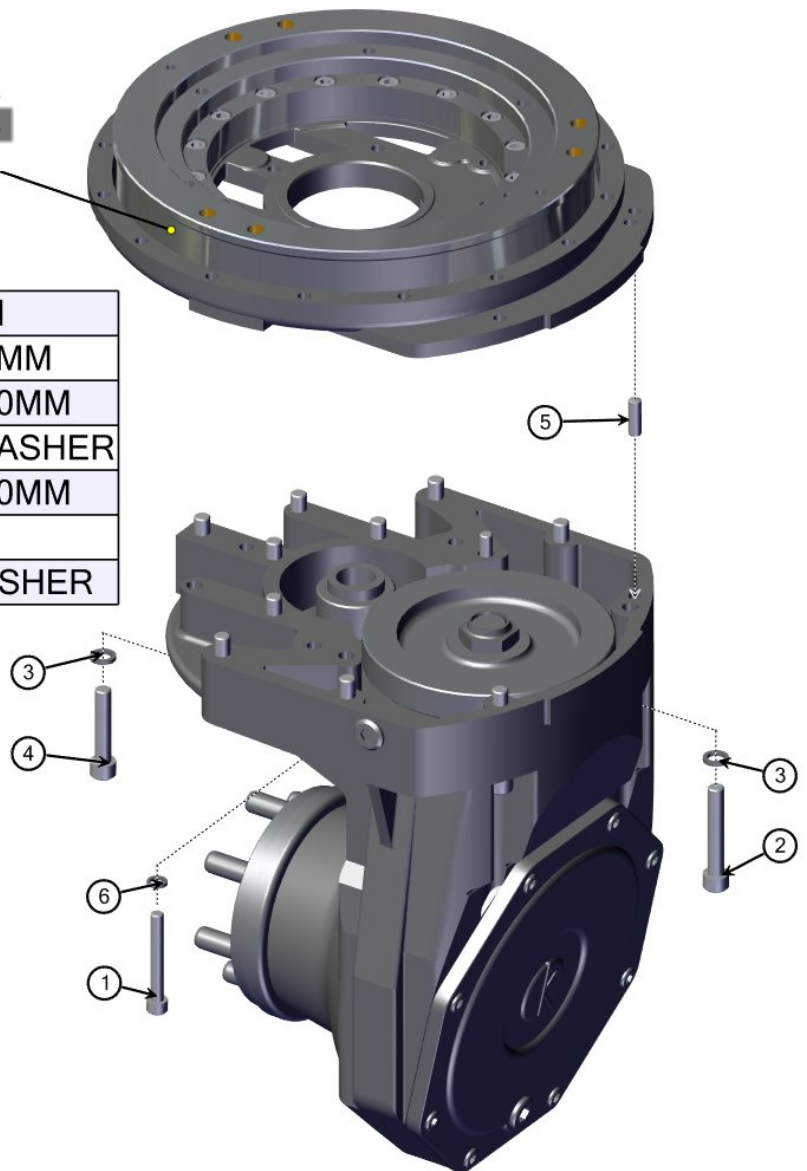


Assemble steering bearing and top cover sub-assembly, from Step 1.6 to the gearbox housing locating and mounting it using the dowel pin, M10 screws (570 & 580), spring washers (610) M8 screws (560) and spring washers (600). Use **DELO 5249** (Blue Loctite) and torque the M10 hardware to **33Nm**.

Note: Clean and remove any oil from the mounting faces of the upper gearbox cover and the gearbox housing. Apply **Loctite 574** to the mounting faces and fit the upper cover sub-assembly to the housing.

Steering Bearing, Top Cover assembly shown in section 1.6

BOM ID	Qty	PART NO.	DESCRIPTION
1	2	15001678	SHCS M8 X 60MM
2	2	H1877	SHCS M10 X 60MM
3	12	H1886	10MM LOCKWASHER
4	10	H273	SHCS M10 X 50MM
5	1	150016A3	DOWEL PIN
6	2	H1885	8MM LOCKWASHER

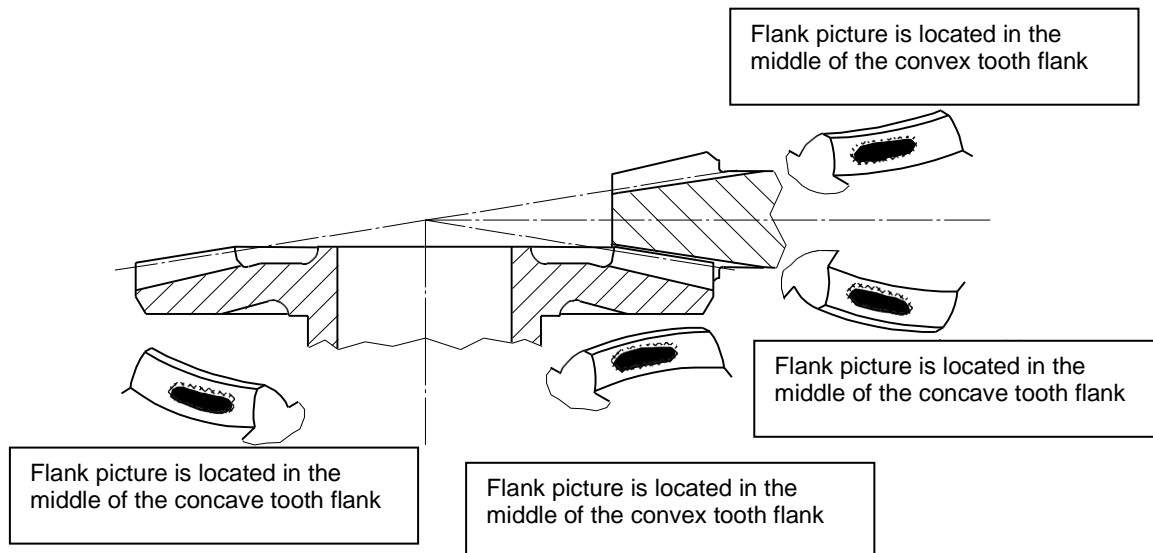


1.8 Adjusting the spiral bevel gear set

It is very important that the flank picture of the bevel gear set is correct. An incorrect adjustment results in noise or, in the worst case, in damages to the gearing.

For a control of the flank picture the flanks of the gears are painted with white oil color. Then, after some turnings, the flank picture is visible as shiny spots on the flanks.

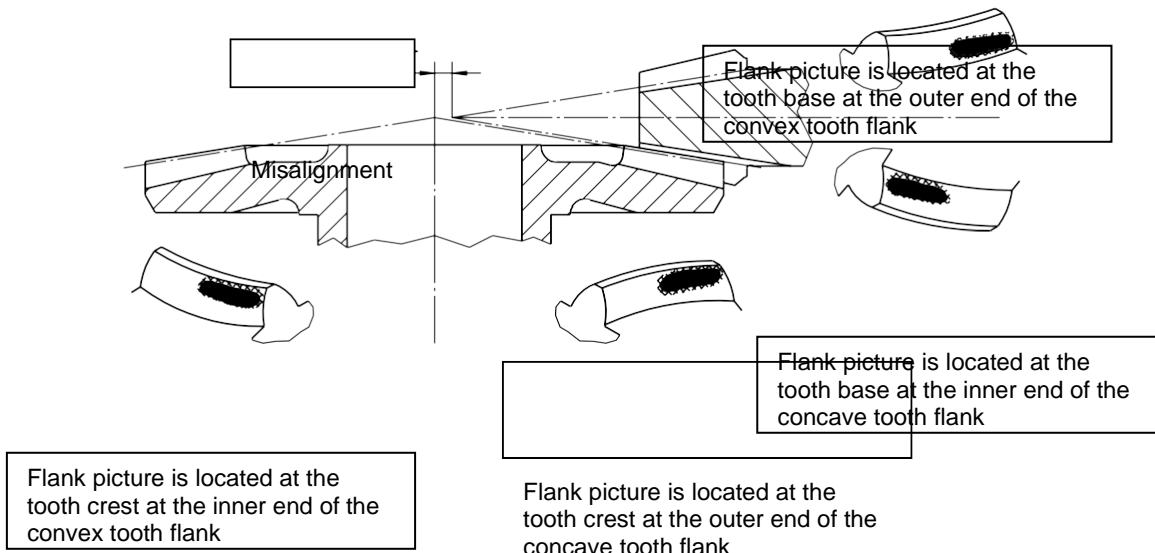
The recommended flank picture looks like as follows:



If there are some differences between your flank picture and the standard flank picture above, there are some possibilities for correction. The adjustment is to be done by means of supporting rings which are laid under bearing cup (320) after being ground to the right measurement or by shims in the corresponding thickness.

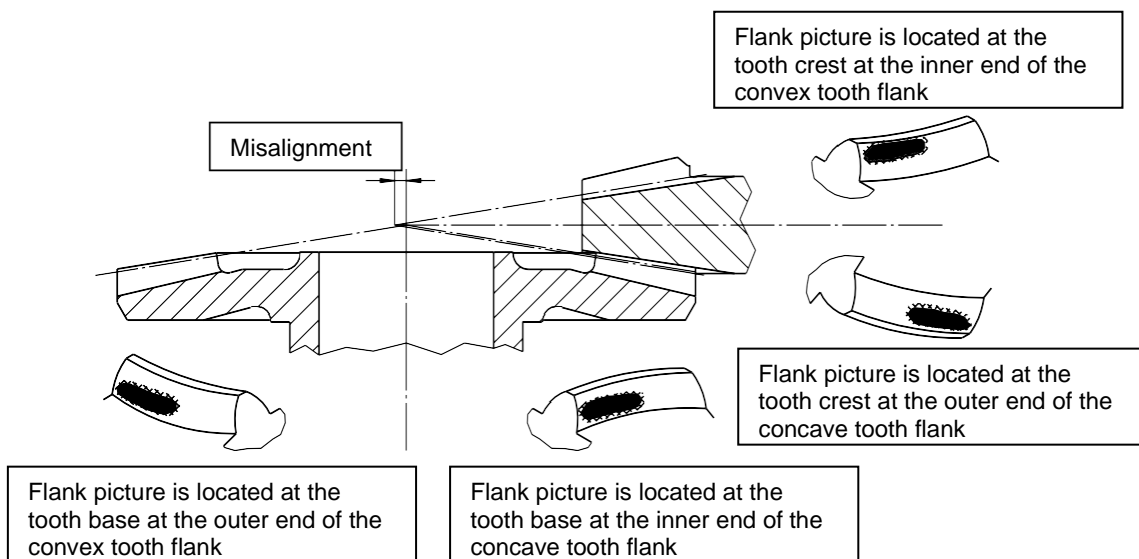
Possibility 1: Assembly distance reduction of the bevel pinion

For correction of the flank picture the assembly distance of the bevel pinion must be reduced.



Possibility 2: Assembly distance enlargement of the bevel pinion

For correction of the flank picture the assembly distance of the bevel pinion must be enlarged.



2. MAINTENANCE AND OPERATING INSTRUCTIONS

2.1 GEARBOX OIL

2.1.1 OIL TYPES

For normal use oil SAE 80-90 must be used

ATTENTION: The maximum allowable temperature is 80 °C.

Please consult the manufacturer if the gearbox is to be subjected to extreme operating temperatures.

2.1.2 OIL LEVEL

The gearbox must be filled with oil up to the under-edge of the filler-screw (460).

2.1.3 OIL CHANGES

The first oil change is to be carried out after approximately 200 hours of operating time. Subsequently, the oil must be changed after 2000 operating hours or once a year, whichever comes first.

2.2 GREASING THE STEERING BEARING

The steer-bearing must be greased at least once a year.

Note: Turn bearing during greasing.

Note: Grease must be re-applied after any thorough cleaning (e.g. steam cleaning) of the transmission.

Please use corresponding flow grease (e.g. ARAL ARALUB 2024 or a similar product).

3. SHIPPING PROTECTION

All shipping protection items must be removed before a new gearbox is put into commission.

The M6x8 threaded pins must be removed from the gearbox cover (steering bearing) and replaced by the grease nipples, which are supplied loose with the gearbox.

Remove the protective plastic cap (690) from the 82 mm dia. bore.

The motor pinion (110) is supplied with plastic cap (700) for protection during shipment.

THE GEARBOX IS DELIVERED EMPTY OF OIL. IT MUST THEREFORE BE FILLED PRIOR TO USE.