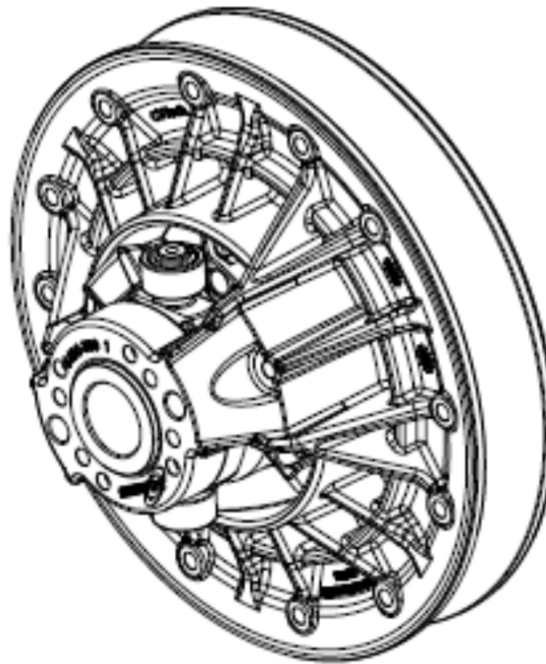




# INSTALLATION AND MAINTENANCE GUIDE FOR A CONTINUOUSLY VARIABLE DRIVEN PULLEY INVANCE MP (69)



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# IMPORTANT NOTICE

Only qualified personnel should perform maintenance and repair operations on this continuously variable pulley.



Means there is a risk of serious injuries if the instructions are not followed as described.



Means that, when performing this step, there is a risk of damaging a part or may cause components malfunction.

**CVTech shall not be liable for any damage or injury resulting from misunderstanding of the text**, improper use of the transmission system or improper use of the recommended tools.

It is very important to always use the indicated tightening torque.

# MAINTENANCE FREQUENCY



This continuous variable pulley does not require any lubrication. It is designed to work without any lubricant. Given this, certain rules of cleanliness must be applied when handling the system to avoid having any lubricants come into contact with its components.



To increase the life of the continuously variable pulley, it is strongly recommended that you respect the following recommendations:

- Perform maintenance according to the table below
- Replace the worn parts. This ensures correct operation and will prevent any warranty from being excluded from the continuously variable pulley.

Description	Maintenance interval	
	Every 5 000 Km or 250 h	Every 10 000 Km or 500 h
<b>Driven pulley</b>	Visual inspection	Disassemble and Clean
Fixed sheave	Visual inspection	Clean
Sliding sheave	Visual inspection	Clean
Roller	Dimension / Visual	Dimension / Visual
<b>Drive belt</b>	Dimension / Visual	Dimension / Visual

# NECESSARY HANDLING TOOLS

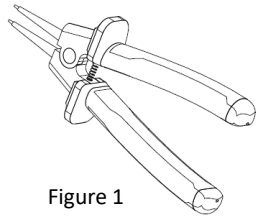


Figure 1

*Snap ring pliers*

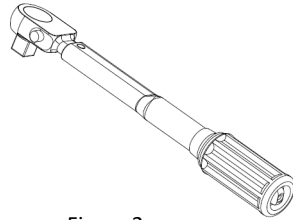


Figure 2

*Torque wrench*

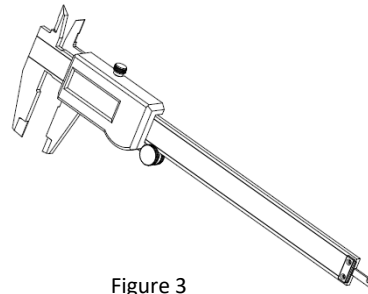


Figure 3

*Caliper*

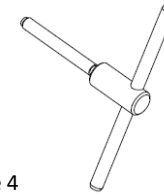


Figure 4

*\*Flange spreader*

*Refer to owner's manual  
for part number*

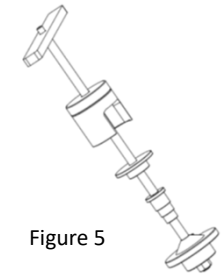


Figure 5

*\*Pulley disassembly tool*

*(5055-0002)*

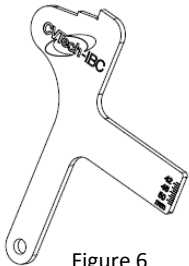


Figure 6

*\* Alignment tool*

*Refer to owner's manual  
for part number*

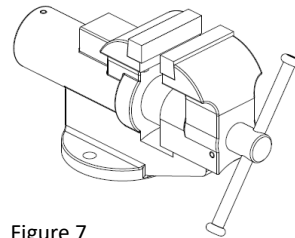


Figure 7

*Vice*



Figure 8

*Appropriate sockets for  
removing pulley fixation  
bolt*

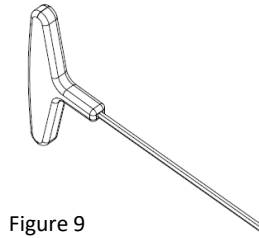


Figure 9

*3mm hex. key*



***Important: Using impact tools  
is not recommended.***

***\* Tool available from CVTech***

# PULLEY INSTALLATION AND TIGHTENING ON THE VEHICLE

## Driven pulley installation

- Assemble the driven pulley onto the gearbox shaft

## Recommended torque: Refer to owner's manual

- To tighten the driven pulley, engage the transmission on a gear and prevent the vehicle from moving using the vehicle brakes.

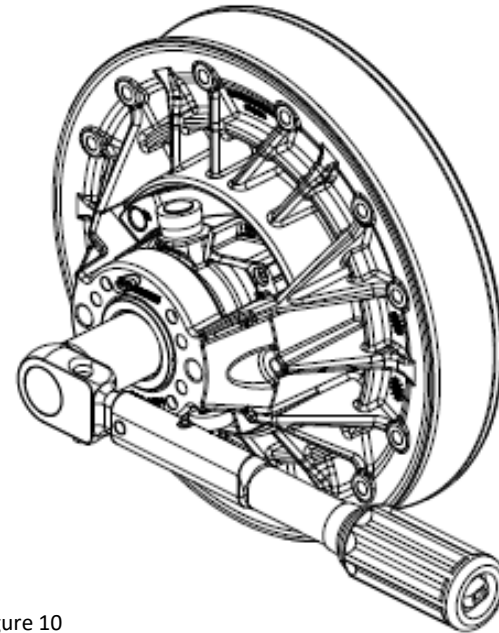


Figure 10



Do not forget to remove the tools from the driven pulley once the installation is completed.



Before you start the engine :

- Make sure all the components are clean, without any trace of oil, dust and contaminant.
- Do not use any lubricant.

# PULLEYS GEOMETRICAL SPECIFICATIONS

## Alignment between pulleys

- After completing the installation, check the alignment between the pulleys with the alignment tool. Make sure to obtain dimension A (figure 11) and the proper alignment tool part number (refer to owner's manual for both).
- If dimension A is out of tolerance, you can add or remove shims from the gearbox shaft to help reach it.

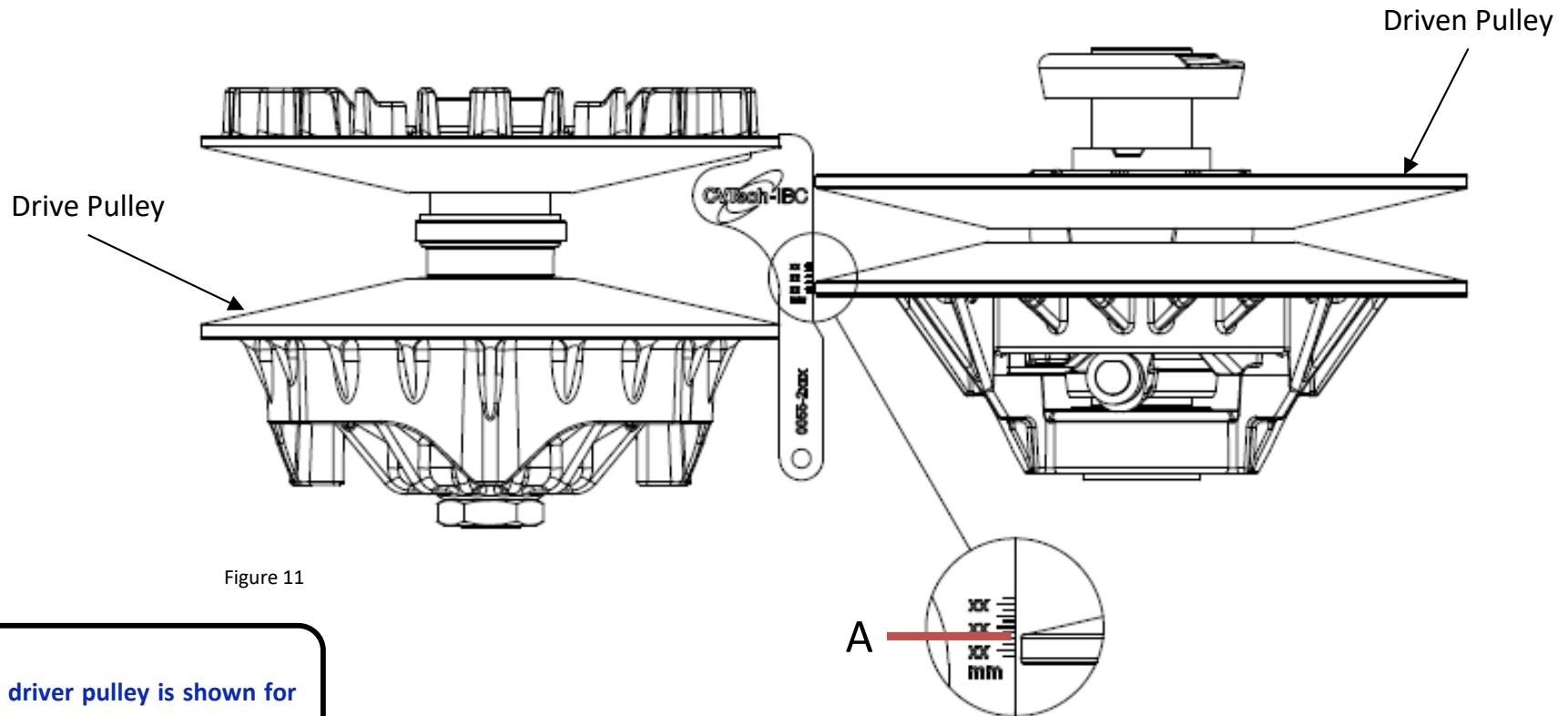


Figure 11



The driver pulley is shown for illustration purposes only

# PULLEY REMOVAL FROM THE VEHICLE

## Removing the driven pulley:

- If the drive belt is installed, screw the flange spreader "A" in the one of threaded holes, as shown in figure 12, to remove the drive belt.
- Lock the pulley rotation by engaging in gear and apply the vehicle brakes.
- Remove the bolt or nut from the driven pulley.

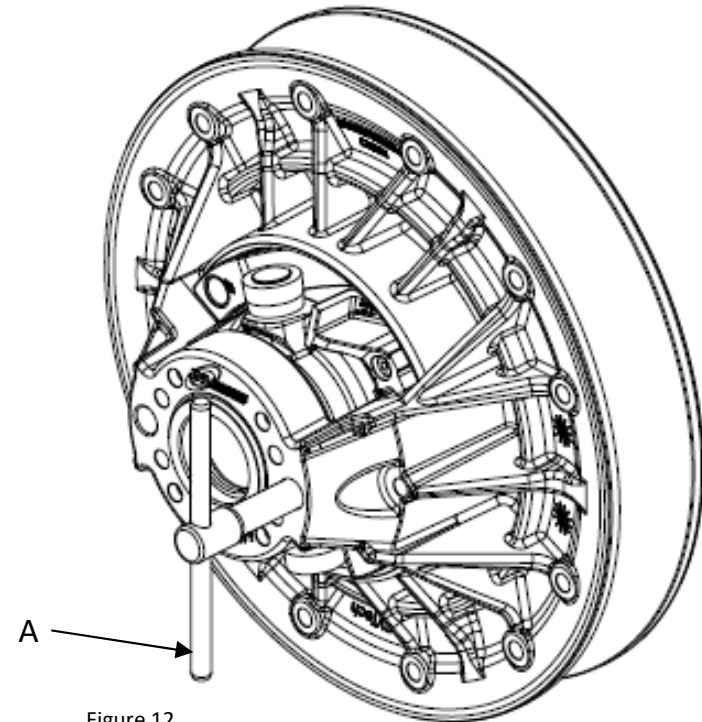


Figure 12



Before disassembling the CVT belt, identify drive belt rotation direction so that it will be the same when reassembling.



# DRIVE BELT INSPECTION



The drive belt must be inspected in order to avoid any risk of personal injury and/or material damage.

- The drive belt must be replaced if cracks are seen when turning it inside out.

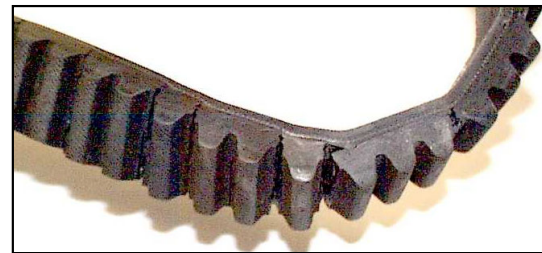


Figure 13

- The drive belt must be replaced when the width at the cord level is approximately 2 mm less than it is on a new belt (refer to owner's manual).

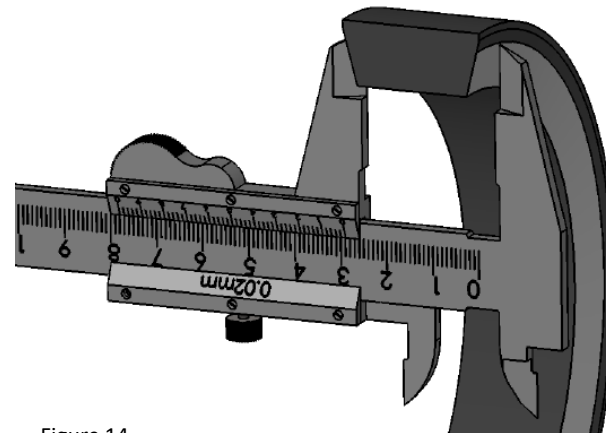


Figure 14

- Make sure to take the measurement at the cord level of the belt.

# PULLEY DISASSEMBLY

1	Fixed Sheave
2	Sliding Sheave
3	Roller
4	Washer
5	External Retaining Ring
6	Spring
7	Spring Seat
8	External Retaining Ring
9	Forward Ramp
10	Helix
11	Screw
12	Washer (If Applicable)
13	Screw (If Applicable)

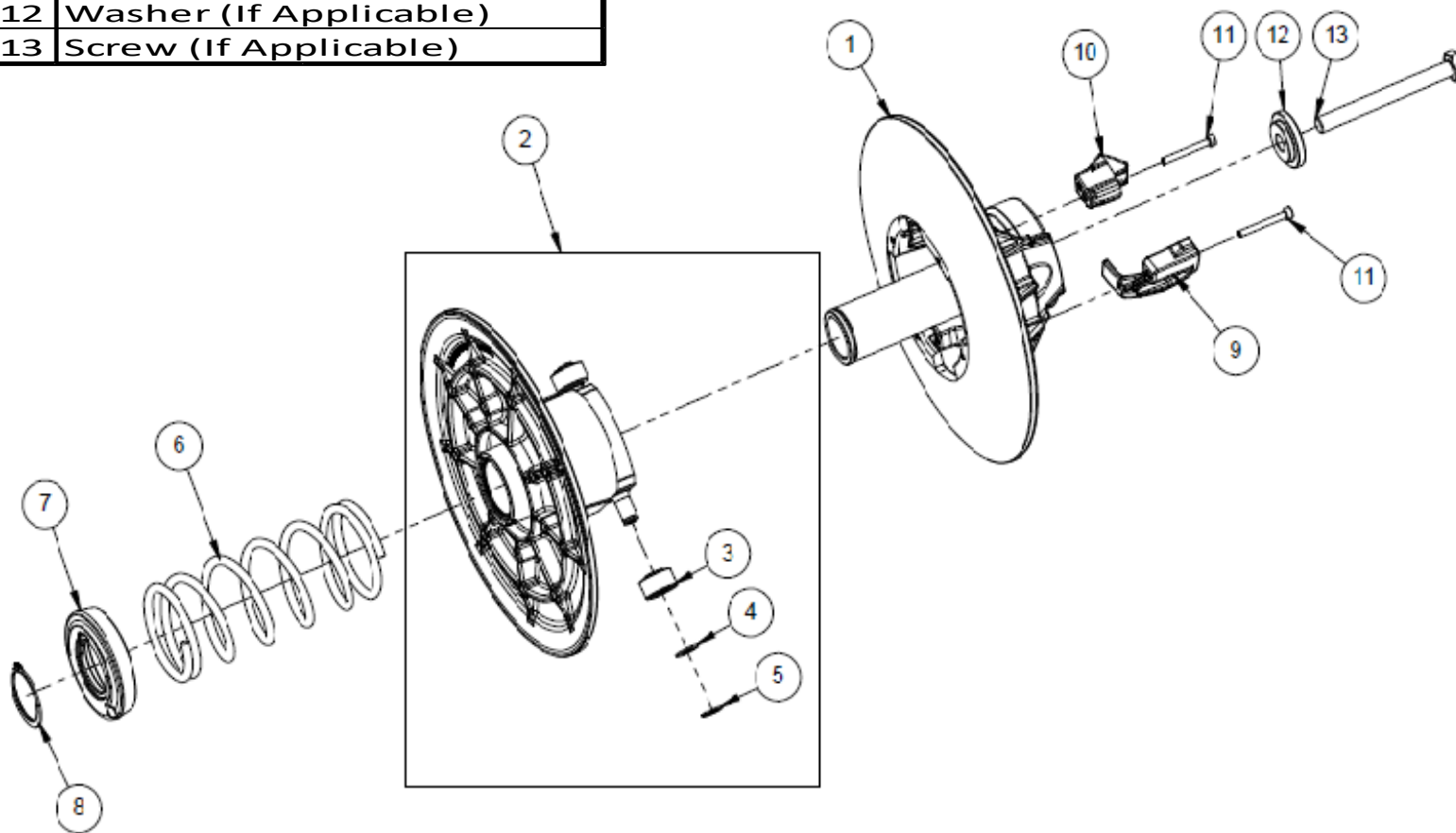


Figure 15

# PULLEY DISASSEMBLY

## Spring disassembly

- Using a vice, mount the disassembly tool as shown in figure 16.
- Install the pulley on the disassembly tool as shown in figure 17.
- By screwing the bar on the threaded rod, press down the spring seat ⑦ (3 to 4 mm max.) in order to free up the external retaining ring ⑧.
- Remove the external retaining ring ⑧ using the snap ring pliers (figure 18).
- Slowly unscrew the bar on the threaded rod to release the spring ⑥ tension (figure 19).

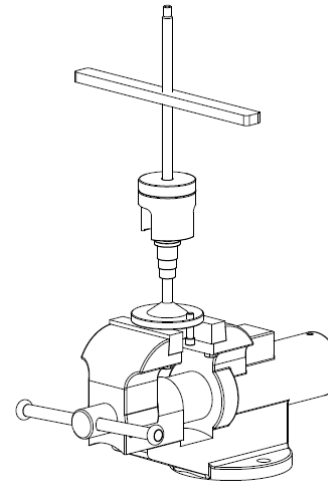


Figure 16

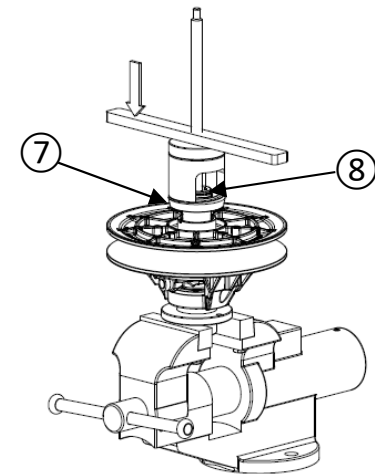


Figure 17

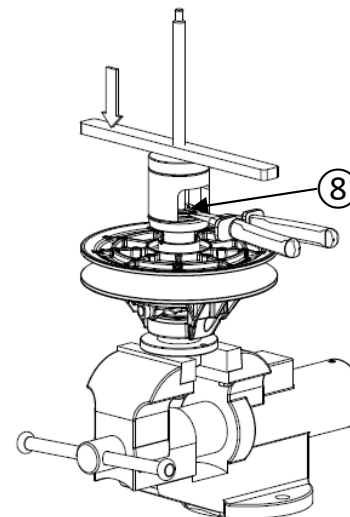


Figure 18

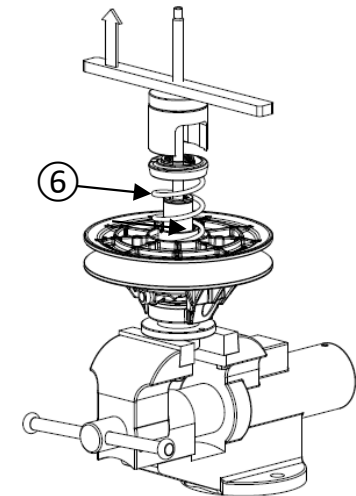


Figure 19

**i** Use the disassembly tool to disassemble the spring seat ⑦. The pulley is spring loaded with significant amount of force; the use of the disassembly tool will keep the pulley compressed.

**i** Slowly lift the spring seat ⑦ to free it from the shaft by unscrewing the disassembly tool once the external retaining ring ⑧ is removed.

# PULLEY DISASSEMBLY

## Forward ramps (9) and helix (10) disassembly

- Using the 3mm hexagonal key, remove the 4 retaining screws (11) of the 2 forward ramps (9) and the 2 helix (10) from the fixed sheave (1) (figure 20).
- Remove the 2 forward ramps (9) and the 2 helix (10).
- Disassemble the 2 sheaves (1) and (2).

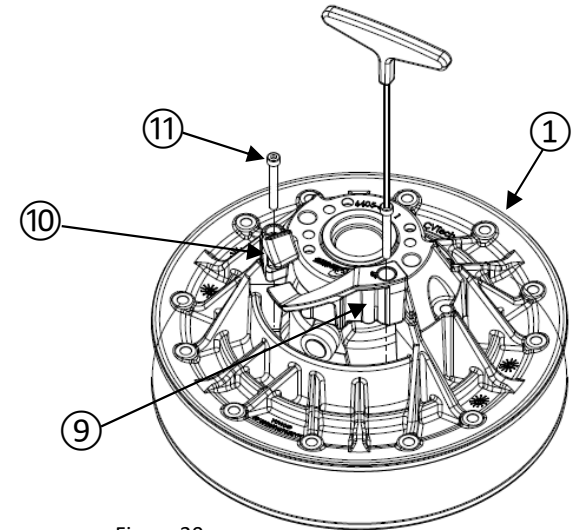


Figure 20

## Rollers (3) disassembly

- Using the snap ring pliers, remove the external retaining ring (5) from the sliding sheave (2) (figure 21).
- Remove the 2 washers (4) and the 2 rollers (3) from the sliding sheave (2) (figure 22).

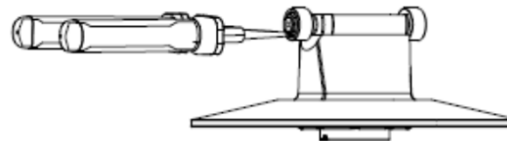


Figure 21

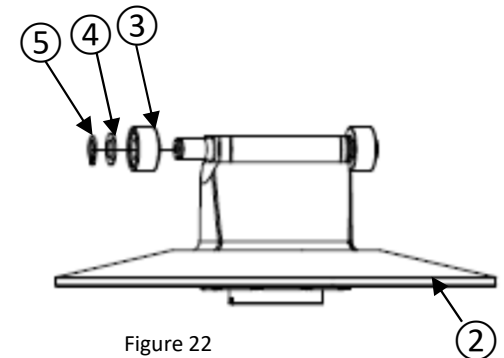


Figure 22

# SLIDING FLANGE MAINTENANCE

## Recommended inspection

- Check for wear marks on the forward ramps ⑨ and helix ⑩.
- Check for wear marks on the spring ⑥.
- Perform a visual inspection of the components.
- Check the wear of the sliding sheave ② bushings (visual inspection only, figure 23). If there is excessive wear, you must replace the whole sheave assembly ②.

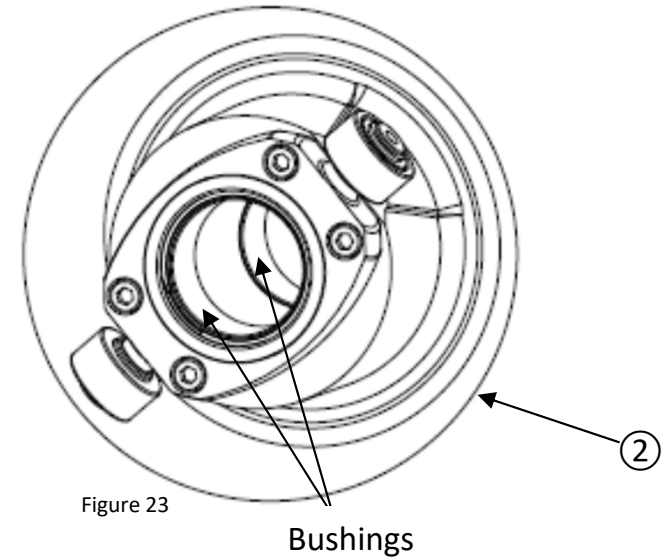


Figure 23



The bushings cannot be removed from the sliding sheave ② (figure 23).



The shaft cannot be disassembled from the fixed sheave ① (figure 24).



To maintain the performance of the pulley, make sure the sliding sheave ② bushings are cleaned with a microfiber towel or dry cloth. CAUTION: do not use acetone to clean the bushings.

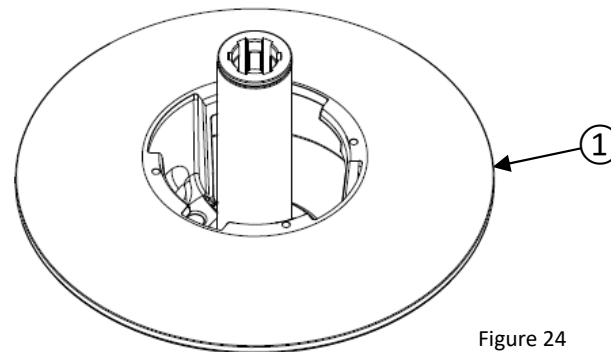


Figure 24

# SLIDING FLANGE MAINTENANCE

## Check for wear on the outside surface of the rollers ③

- No flat spot on the outside surface
- The external diameter must be bigger than 21 mm (see figure 26)

## Check for wear on the inside surface of the rollers ③

- The internal diameter must be smaller than 10.5 mm (see figure 26)

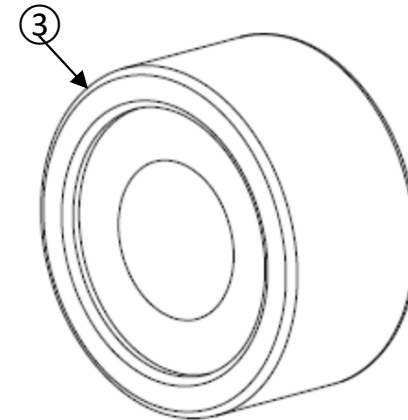


Figure 25

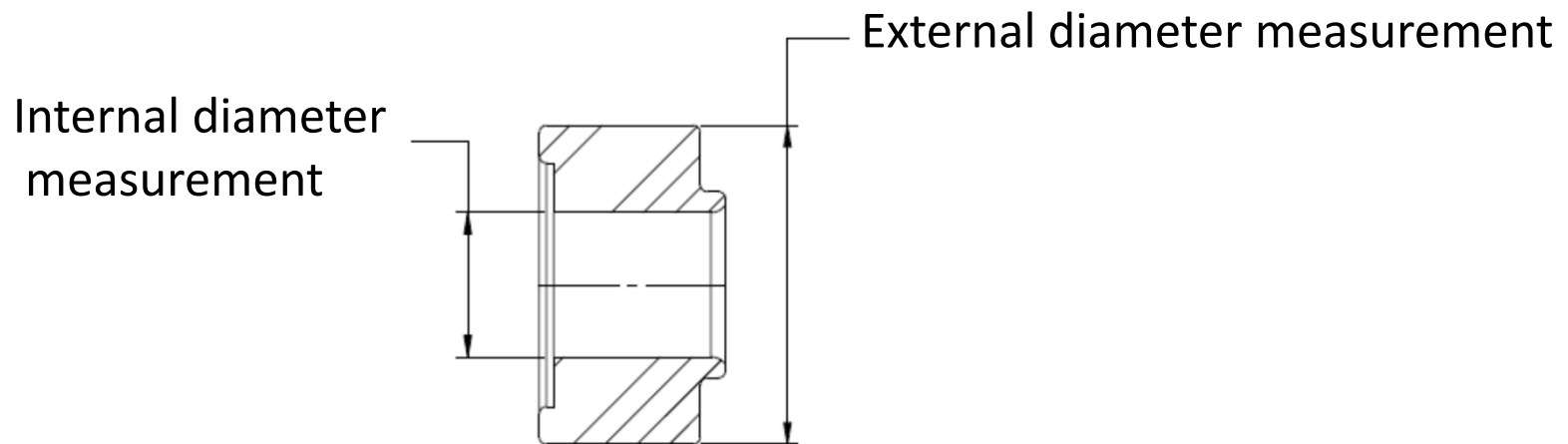


Figure 26

# PULLEY RE-ASSEMBLY

## Rollers ③ re-assembly

- Insert the 2 rollers ③, the 2 washers ④ and the 2 external retaining rings ⑤ on the roller pins of the sliding sheave ②, using the snap ring pliers (see figures 27 and 28).

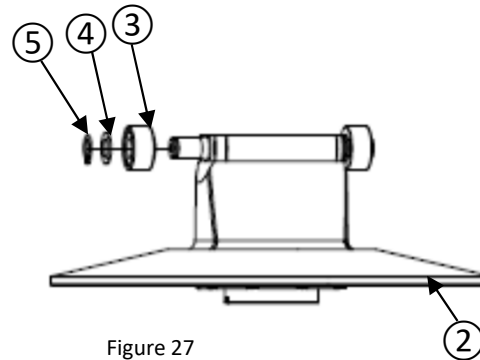


Figure 27

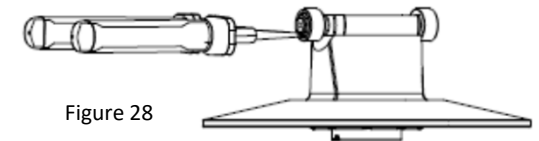


Figure 28

## Forward ramps ⑨ and helix ⑩ re-assembly

- Insert the sliding sheave ② on the fixed sheave ① and make sure that the alignment notches are aligned (see figure 29).
- Insert the 2 forward ramps ⑨ and the 2 helix ⑩ in the fixed sheave ①.
- Torque the 4 screws ⑪ to 3,5 Nm (see figure 30).

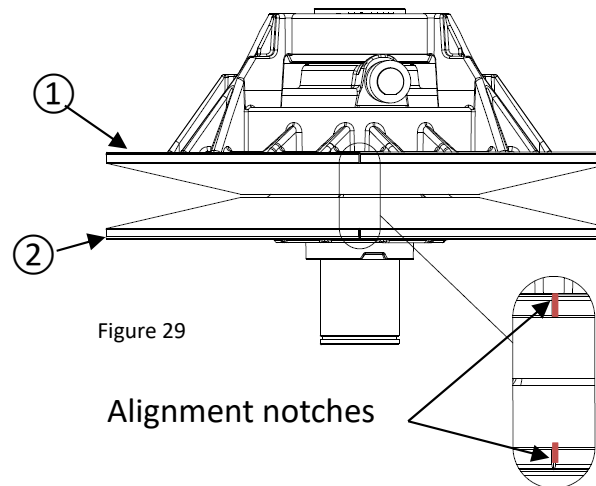


Figure 29

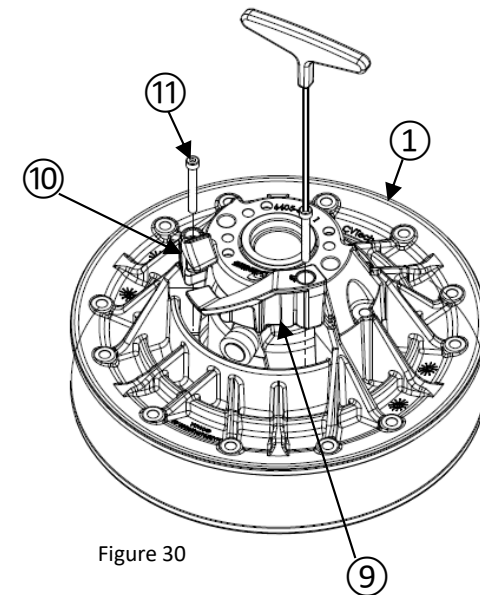


Figure 30

# PULLEY RE-ASSEMBLY

## Pulley re-assembly

- Install the pulley on the disassembly tool as shown in figure 31.
- Insert the spring ⑥ in the sliding sheave ②.
- Put the spring seat ⑦ on the spring ⑥ and turn it clockwise until it comes to a stop in rotation; maintain the spring ⑥ by hand during the operation.
- Put the external retaining ring ⑧ on the spring seat ⑦.
- Make sure that the external retaining ring ⑧ is in the notch made for that purpose (figure 32).
- With the compression tool, lower the spring ⑥ and spring seat ⑦ until they clear the retaining ring groove in the shaft.
- Install the external retaining ring ⑧.

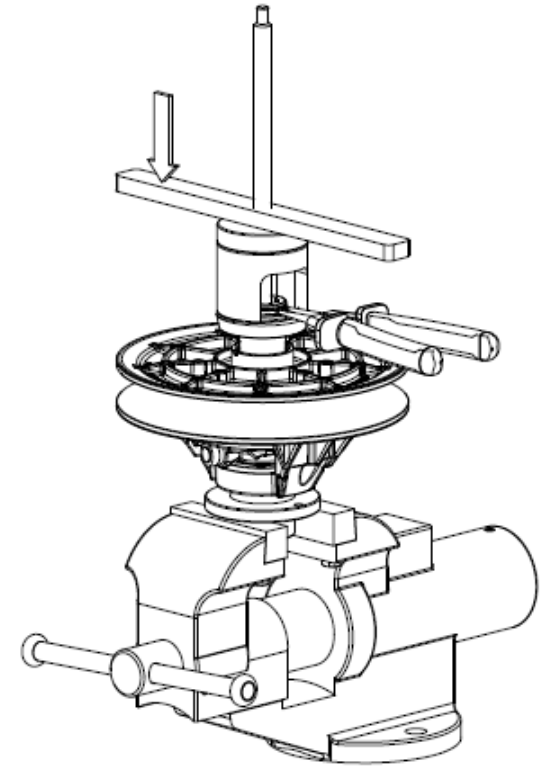


Figure 31

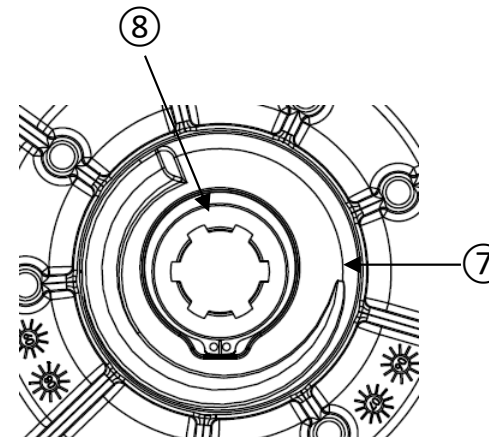


Figure 32

**i** Slowly lift the spring seat ⑦ to free it from the shaft by unscrewing the disassembly tool.

**i** The use of the disassembly tool is required in order to assemble the sliding sheave ②.