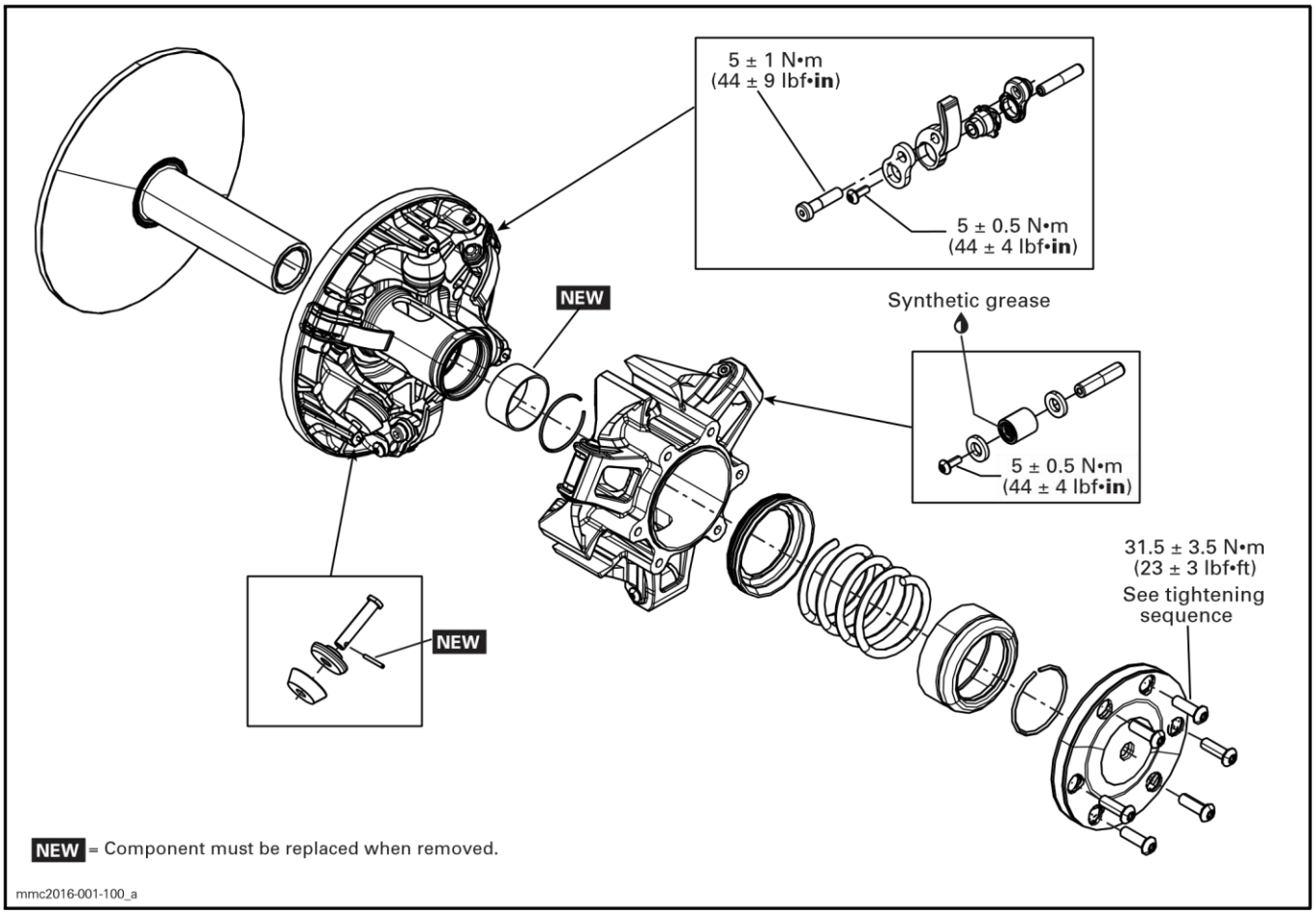
pDRIVE PULLEY WITH CLICKER

SERVICE TOOLS

Description	Part Number	Page
CIRCLIP INSTALLER/REMOVER	420-664	4–5
CLUTCH HOLDER	420-660	3, 12
DRIVE PULLEY OPENING TOOL	420-665	4, 8
DRIVE PULLEY SUPPORT	529 036 371	4–5, 7
GREASE INJECTOR	529 036 376	10
PDRIVE PULLER	420-661	3–4
PULLEY SPRING COMPRESSOR TOOL	420-663	4–5, 7–8
REMOVING AXLE TOOL	420-662	4, 6–8

SERVICE PRODUCTS

Description	Part Number	Page
ISOFLEX GREASE TOPAS NB 52	293 550 021	10
PULLEY FLANGE CLEANER	413 711 809	9



GENERAL

The pDrive pulleys are lubrication-free drive pulleys. Only the needle bearings inside the rollers need to be lubricated when replaced.

Always refer to appropriate PARTSCATALOGfor replacement parts.

NOTICE Never use any type of impact wrench for drive pulley removal and installation. The use of impact wrench could damage the drive pulley and modify the calibration.

Some drive pulley components (like the spring and ramps) can be changed to improve vehicle performance in high altitude regions. A Service Bulletin provides information about calibration according to altitude.

NOTICE Such modifications should only be performed by experienced mechanics since they can greatly affect vehicle performance. Verify spring specifications before installation. Do not only refer to the spring color code.

⚠ WARNING

Any drive pulley repairs must be performed by an authorized Ski-Doo dealer. Subcomponent installation and assembly tolerances require strict adherence to procedures detailed.

During assembly/installation, use torque values as in the exploded view.

Clean threads before applying a threadlocker. Refer to SELF-LOCKINGFASTENERSand LOCTITE APPLICATIONat the beginning of this manual for complete procedure.

⚠ WARNING

Torque wrench tightening specifications must be strictly adhered to.

Locking devices must be replaced with new ones when removed (e.g.: locking tabs, elastic stop nuts, cotter pins, etc.).

ADJUSTMENT

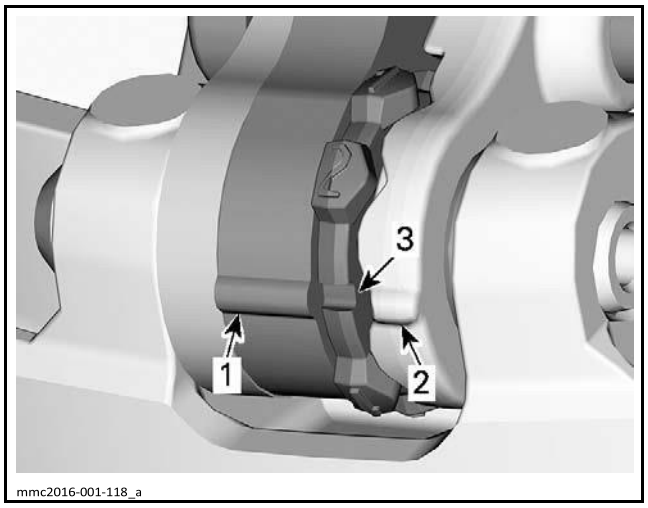
The drive pulley is factory calibrated to transmit maximum engine power at a predefined RPM. Factors such as ambient temperature, altitude or surface condition may vary this critical engine RPM thus affecting snowmobile efficiency.

This adjustable drive pulley allows setting maximum engine RPM in the vehicle to maintain maximum power. The adjustment has an effect on high RPM only.

Ramp cam should be adjusted so that actual maximum engine RPM in vehicle matches the maximum horsepower RPM given in TECHNICAL SPECIFICATIONS.

To adjust, modify ramp end position by turning ramp cams (3x).

The ramp and the right lever have a notch while ramp cam has 5 positions numbered 1 to 5.



1. *Ramp notch*
2. *Right lever notch*
3. *Cam position (here #3 - factory setting, no number)*

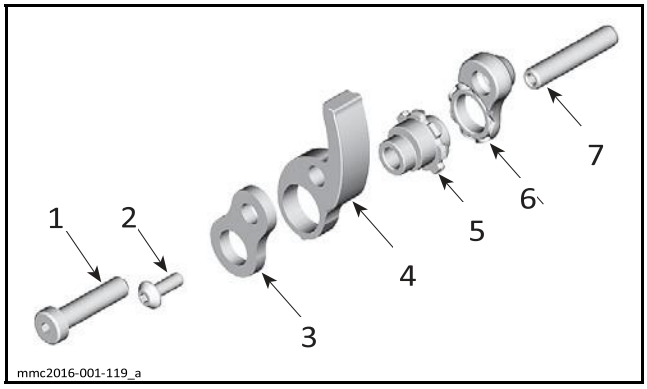
Each number modifies maximum engine RPM by about 200 RPM.

Lower numbers decrease engine RPM in steps of 200 RPM and higher numbers increase it in steps of 200 RPM.

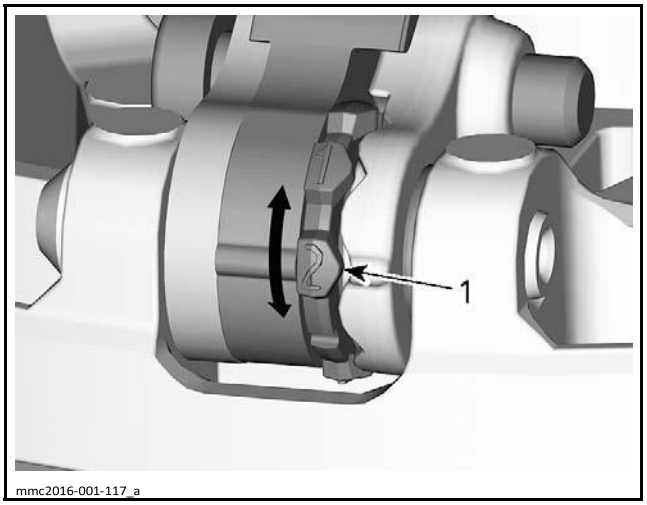
For example: Ramp cam is set at position 3 and is changed to position 5. So maximum engine RPM is increased by about 400 RPM.

TIGHTENING TORQUE	
Pivot	5 N•m ± 1 N•m (44 lbf•**in** ± 18 lbf•**in**)

MODIFYING THE RAMP CAM SETTING

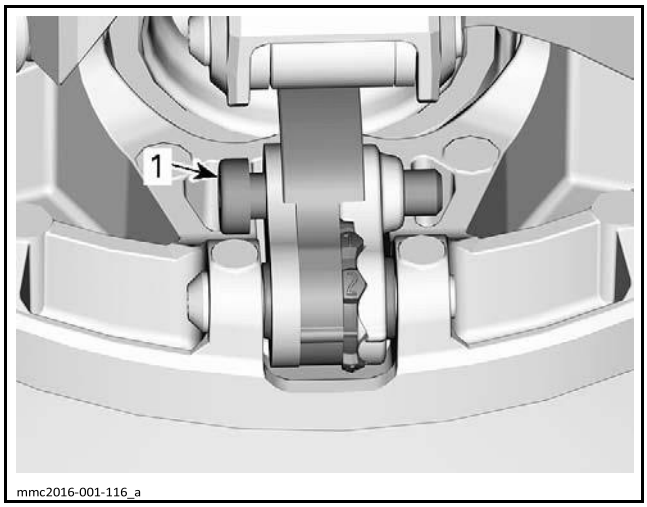


1. *Pivot*
2. *Axle retaining screw*
3. *Left lever*
4. *Ramp*
5. *Cam*



1. *Desired cam position (here #2)*

6. *Right lever*
7. *Axle*



1. *Pivot*

NOTICE 1. Loosen the pivot.Always adjust all 3 cams and make sure they are all set at the same number.

PROCEDURES

DRIVE PULLEY

Removing the Drive Pulley

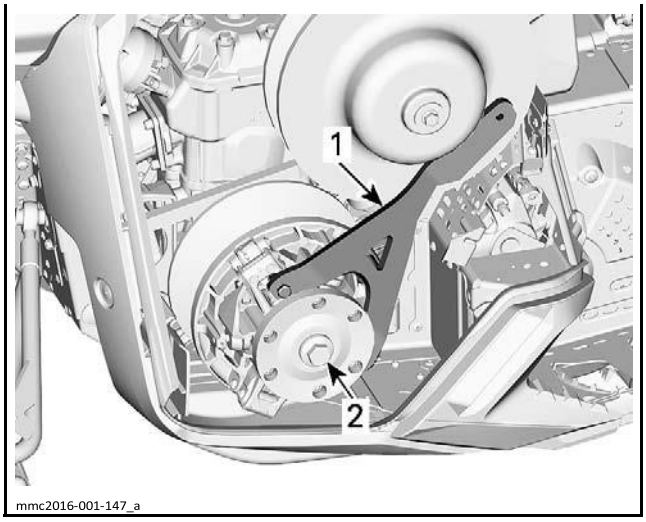
REQUIRED TOOLS	
CLUTCH HOLDER (P/N 420-660)	
PDRIVE PULLER (P/N 420-661)	

1. Remove drive belt. Refer to DRIVEBELTsub-section.
2. Move right lever aside to be able to turn the cam.
3. Turn cam to the desired position.

2. Remove the drive pulley bolt.

2.1 Secure the drive pulley with the clutch holder.

2.2 Using a breaker bar, remove the drive pulley bolt and its conical spring washer.



1. Clutches holder
2. Drive pulley bolt

3. Remove the drive pulley from engine.
   3.1 Make sure the clutches holder is properly installed.
   3.2 Screw the pDrive puller in place of the drive pulley bolt.
   3.3 Tighten the pDrive puller until pulley is disengaged from the crankshaft end.

NOTICE These pulleys have metric threads. Do not use a puller with ANS (American National Standard) or IS (International Standard) type threads. Always tighten puller by hand to ensure that the drive pulley has the same type of threads (metric vs ANS or IS) prior to fully tightening.

Disassembling the Drive Pulley

REQUIRED TOOLS	
PDRIVE PULLER (P/N 420-661)	

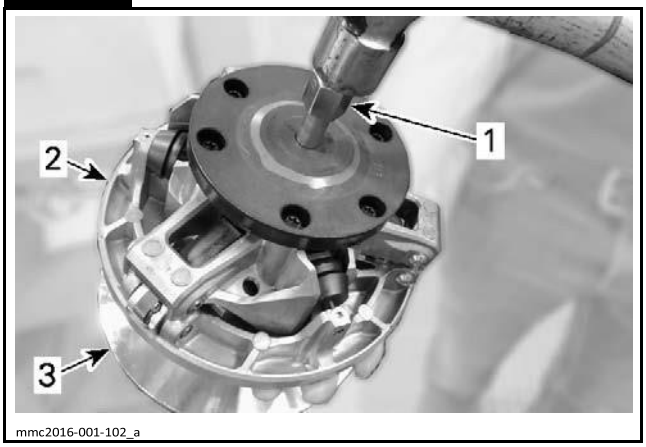
PULLEY SPRING COMPRESSOR TOOL (P/N 420-663)	
REQUIRED TOOLS	
CIRCLIP INSTALLER/REMOVER (P/N 420-664)	
REMOVING AXLE TOOL (P/N 420-662)	
DRIVE PULLEY OPENING TOOL (P/N 420-665)	

Separating Fixed and Sliding Sheaves

To separate fixed sheave from sliding sheave, screw puller into fixed sheave shaft about 13 mm (1/2 in).

Raise drive pulley and hold it by the sliding sheave while knocking on puller head to disengage fixed sheave.

NOTICE NEVER tap on spider.



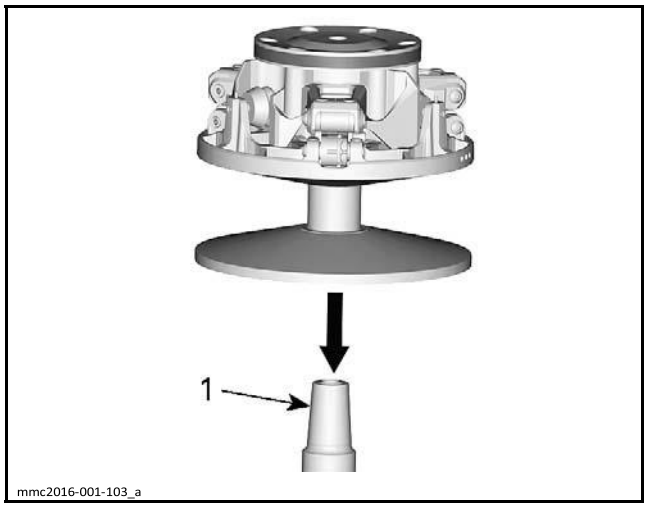
1. Puller screwed 13 mm (1/2 in) in fixed sheave
2. Sliding sheave
3. Fixed sheave

NOTE: No component marking is required before disassembly. This drive pulley features factory apposed index marks as references.

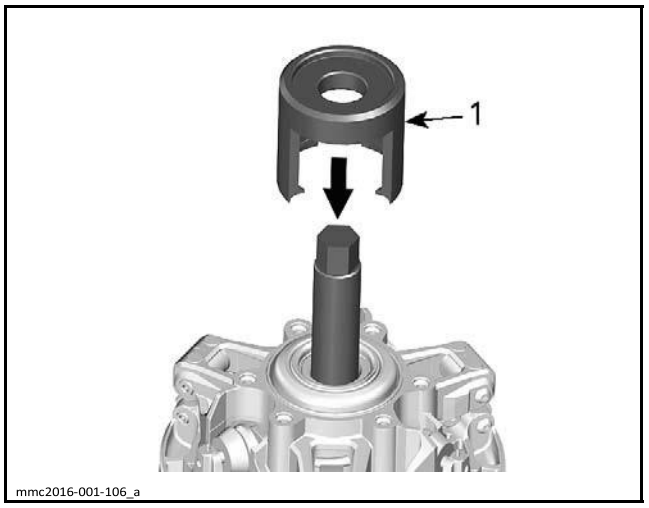
NOTICE Never use any type of torch to heat spider.

Removing the Damper 1. Secure the drive pulley support in a vice.

2. Install the drive pulley over the support.

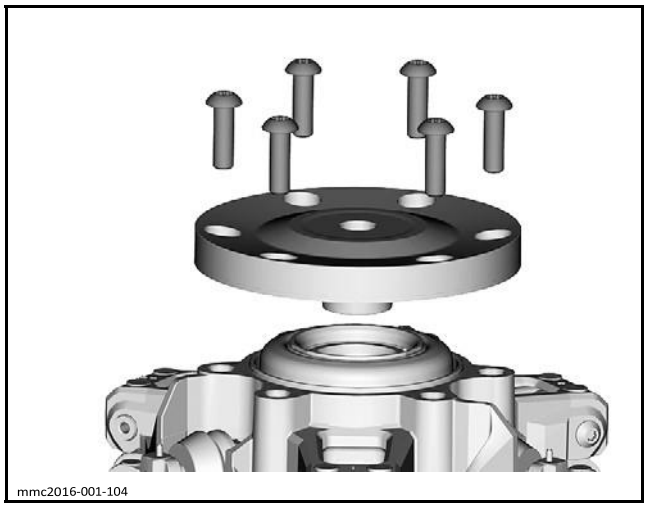


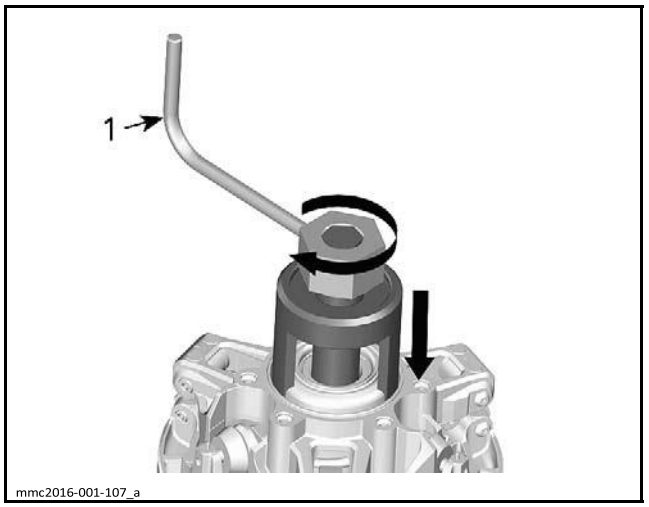
1. DRIVE PULLEY SUPPORt 529-036-371



1. CIRCLIP INSTALLER/REMOVER (P/N 420-664)

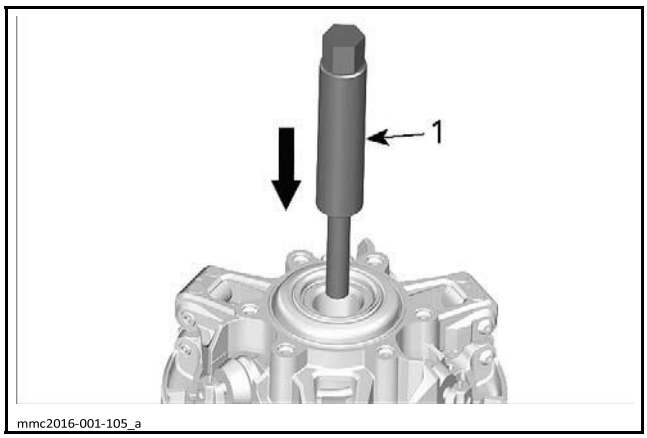
3. Remove the damper.



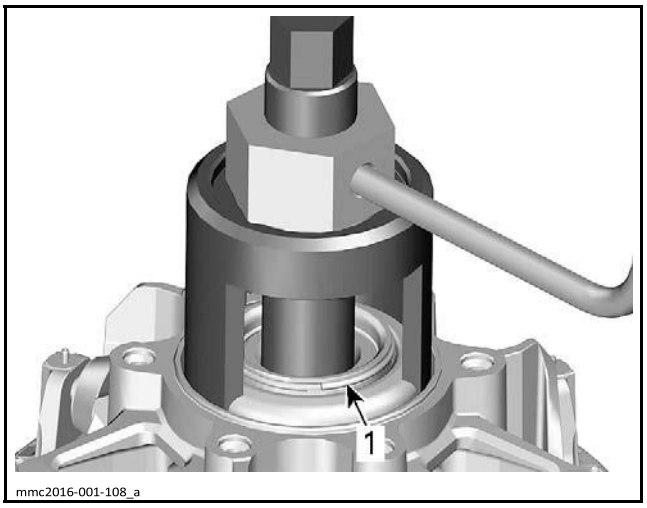


1. Handle of the PULLEY SPRING COMPRESSOR TOOL (P/N 420-663)

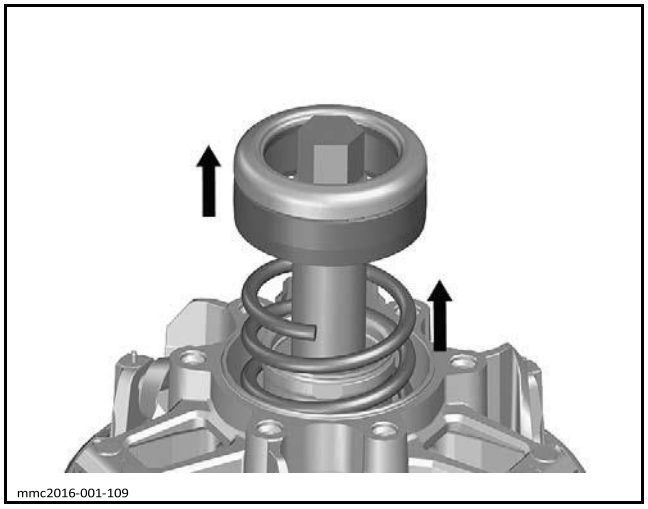
Removing the Spring



1. *Threaded shaft of the PULLEY SPRING COMPRESSOR TOOL (P/N 420-663)*



1. *Remove the circlip*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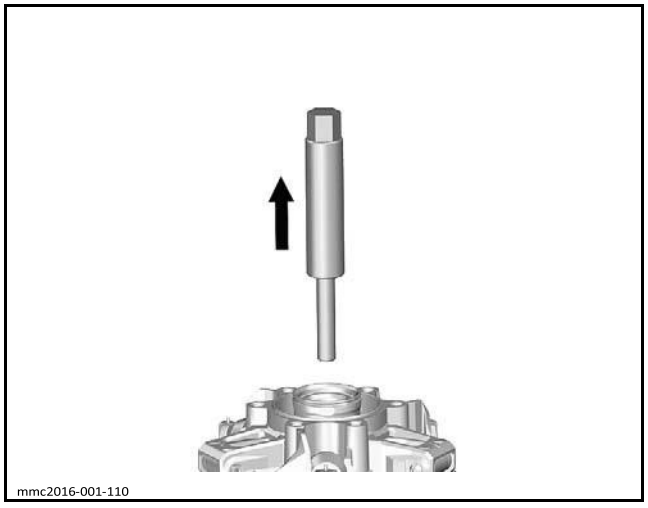
Removing the Spider

1. Remove the threaded shaft.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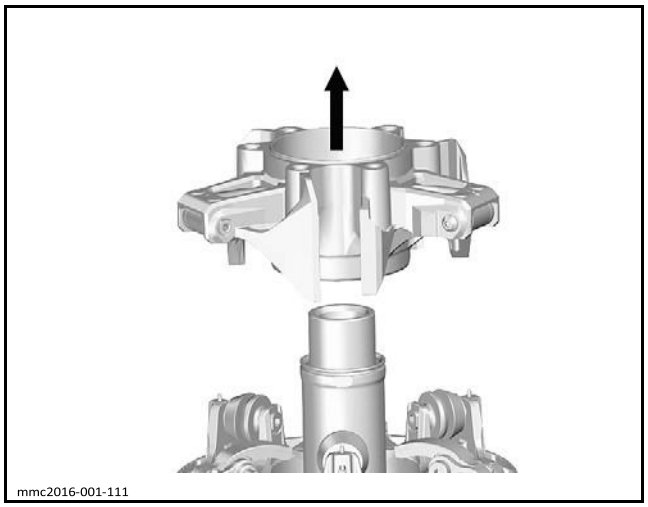
NOTICE Remove the threaded shaft to avoid damaging the bushings inside the spider.

2. Remove the spider.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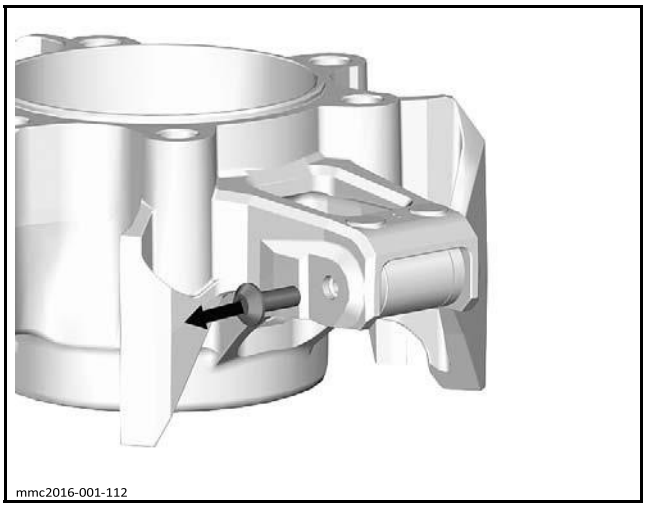
Removing the Roller

1. Remove axle retaining screw.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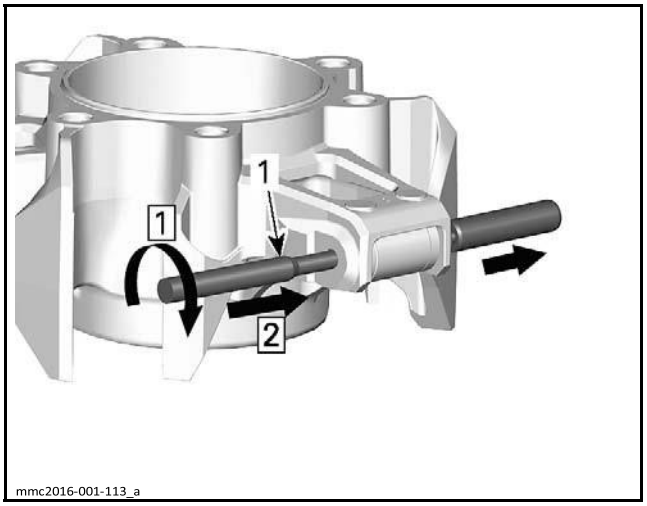
2. Remove the axle.



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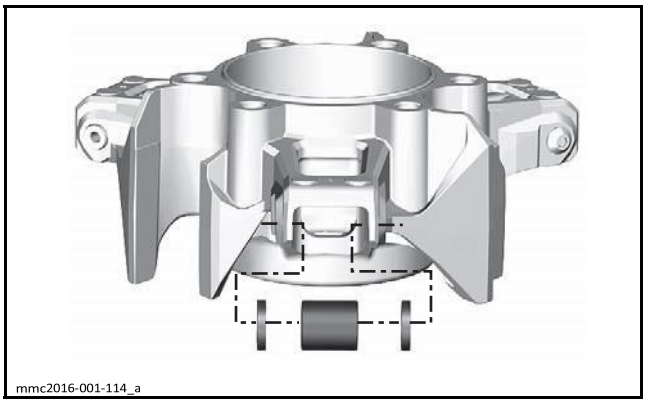
1. REMOVING AXLE TOOL (P/N 420-662)
Step 1: Screw the tool into the axle
Step 2: Push axle to the right side

3. Remove the roller and its thrust washers.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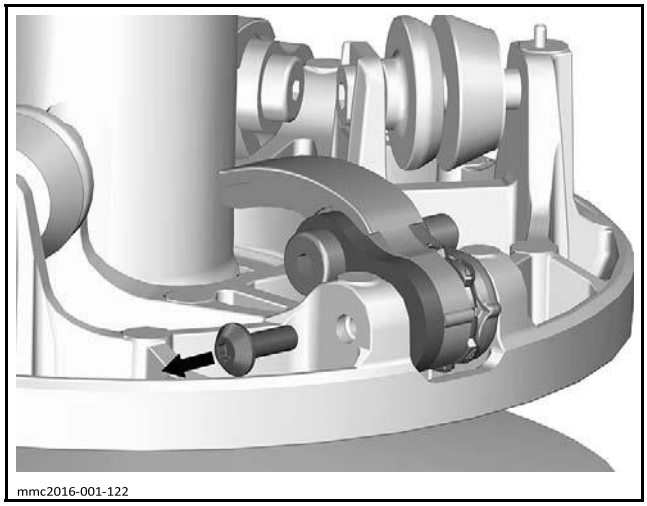
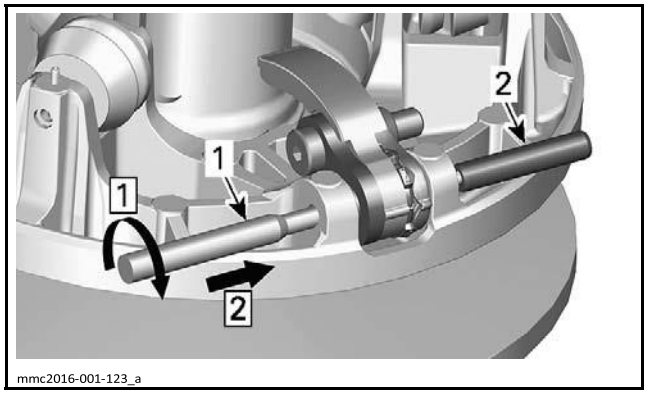
Removing the Ramp (without Spider) 1. Remove axle retaining screw.



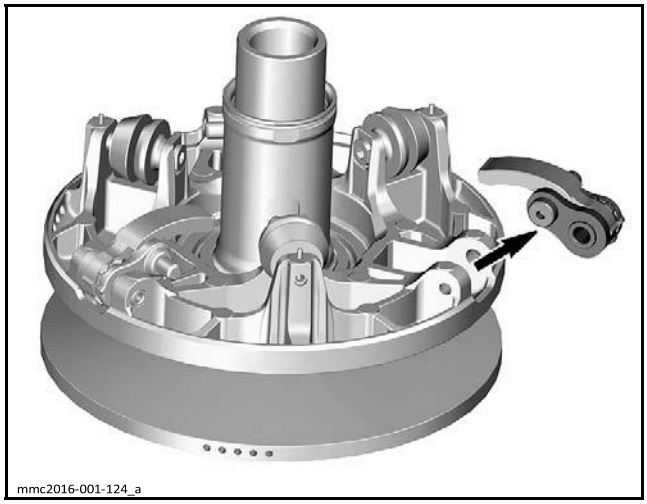
2. Remove the axle.



1. REMOVING AXLE TOOL (P/N 420-662)
2. Axle

Step 1: Screw the tool into the axle
Step 2: Push axle to the right side

3. Remove ramp assembly.

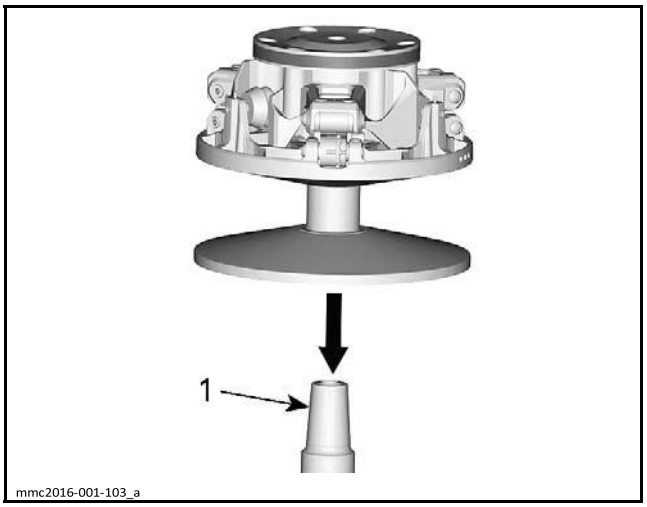


Removing the Ramp (Spider Installed) 1. Lower the sliding sheave.

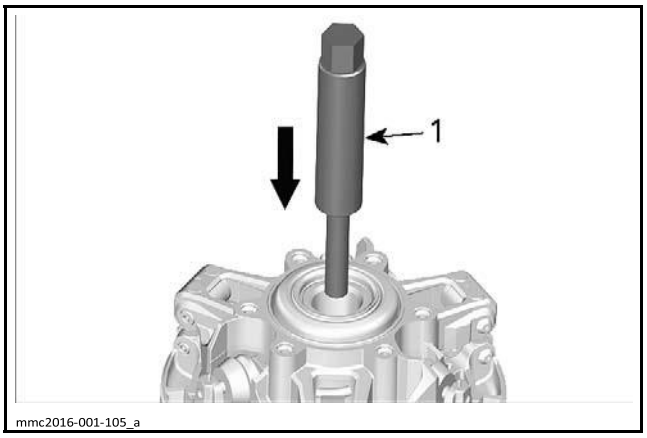
1.1 Secure the drive pulley support in a vice.

1.2

1.3



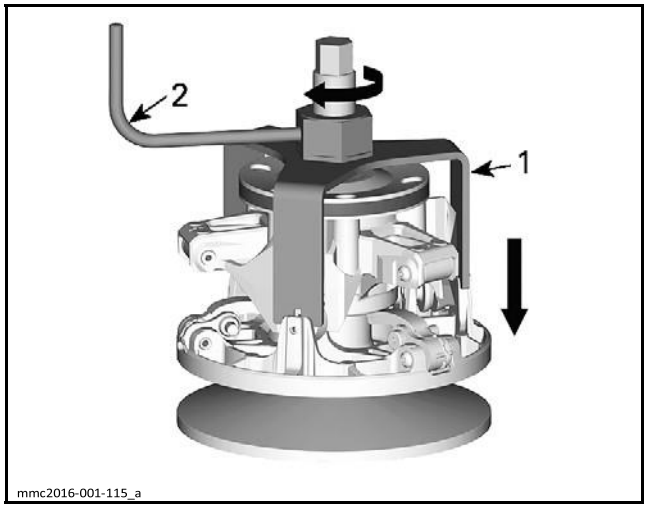
1.



1. Threaded shaft of the PULLEY SPRING COMPRESSOR TOOL (P/N 420-663)

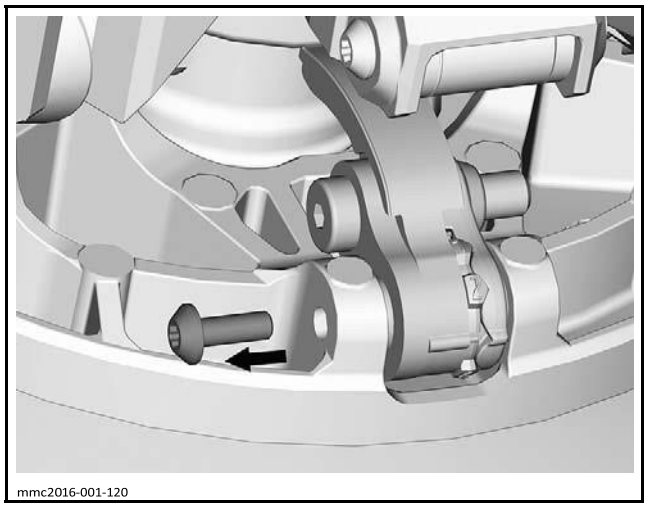
Install the drive pulley over the support.

Install the drive pulley opening tool.

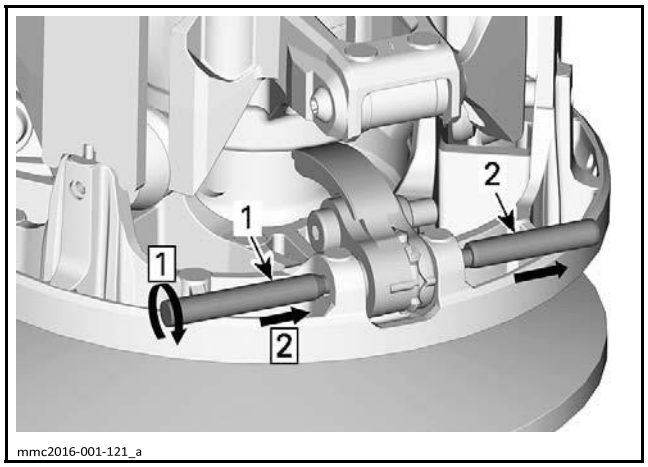


1. *DRIVE PULLEY OPENING TOOL (P/N 420-665)*
2. *Handle of the PULLEY SPRING COMPRESSOR TOOL (P/N 420-663)*

2. Remove axle retaining screw.



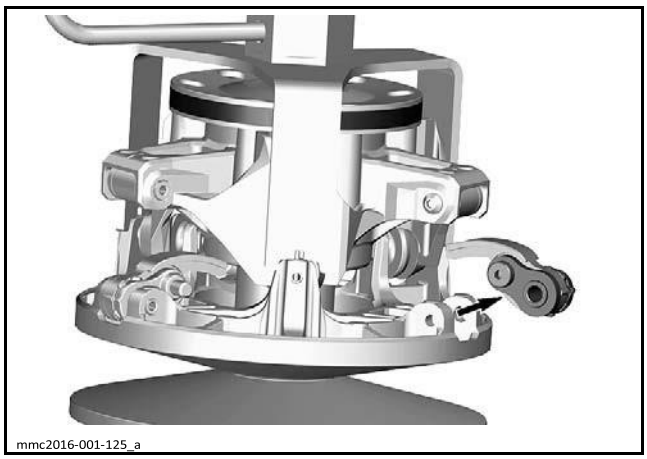
3. Remove the axle.



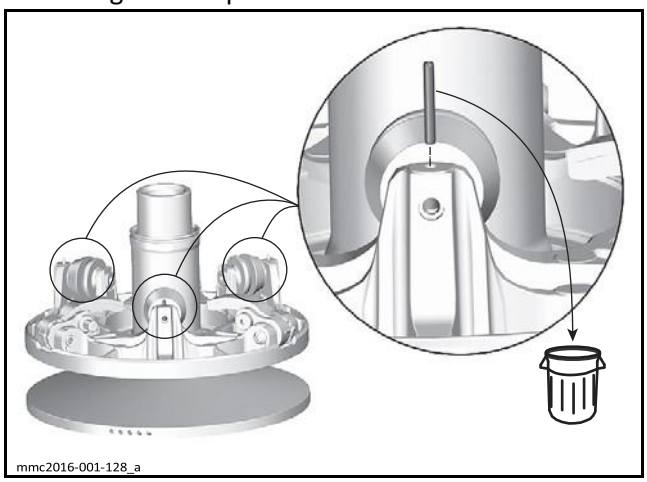
1. *REMOVING AXLE TOOL (P/N 420-662)*
2. *Axle*

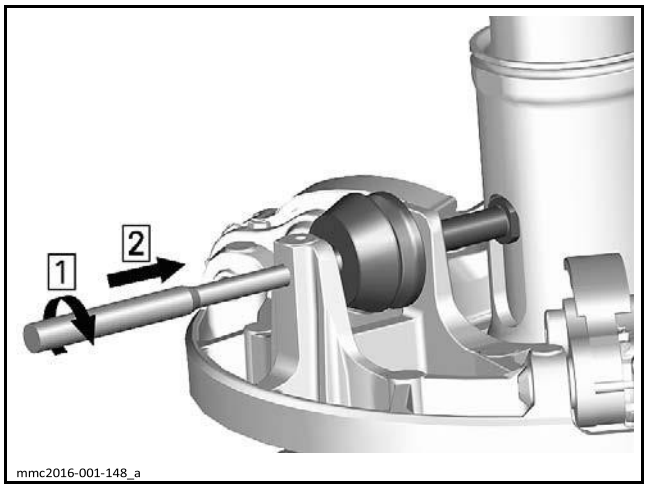
Step 1: Screw the tool into the axle
Step 2: Push axle to the right side

4. Remove ramp assembly.

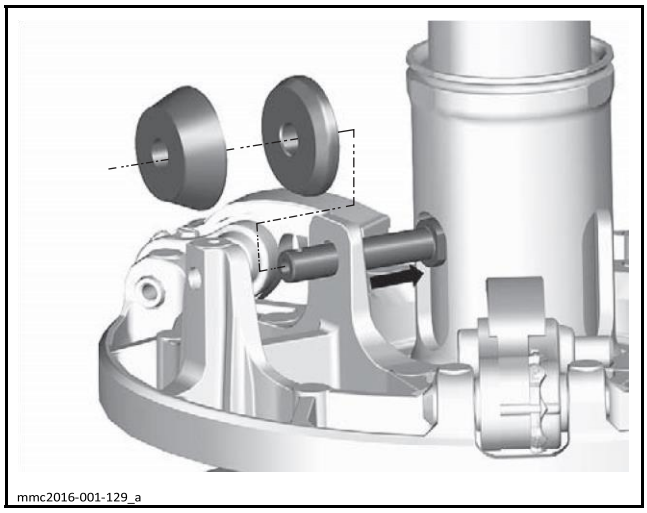


Removing the Torque Rollers





Step 1: Screw the tool into the axle
Step 2: Push axle towards the center of the pulley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Replacing the Sliding Sheave Bushing

In case of worn out bushing, it is advisable to replace whole sliding sheave assembly as replacing just the bushing may reduce drive pulley performance.

Cleaning the Drive Pulley

NOTE: Parts must be at room temperature before cleaning.

Clean pulley sheaves and shaft with fine steel wool and dry cloth.

Using a paper towel with PULLEY FLANGE CLEANER (P/N 413 711 809), clean the following components.

– Crankshaft tapered end

– Taper inside fixed sheave of drive pulley

– Crankshaft threads– Retaining screw threads.

NOTICE Avoid contact between cleaner and crankshaft seal because damage may occur.

Remove all hardened oil deposits that are baked on crankshaft and pulley tapered surfaces with coarse or medium steel wool and/or sand paper no. 600.

NOTICE Do not use any other type of abrasive.

Reclean mounting surfaces with paper towel and cleaning solvent.

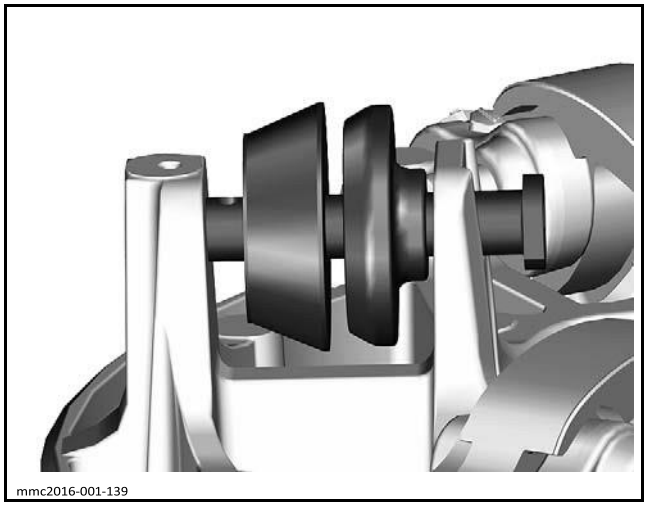
Wipe off the mounting surfaces with a clean, dry paper towel.

NOTICE Mounting surfaces must be free of any oil, cleaner or towel residue.

Assembling the Drive Pulley

Torque Rollers

Position torque rollers as illustrated.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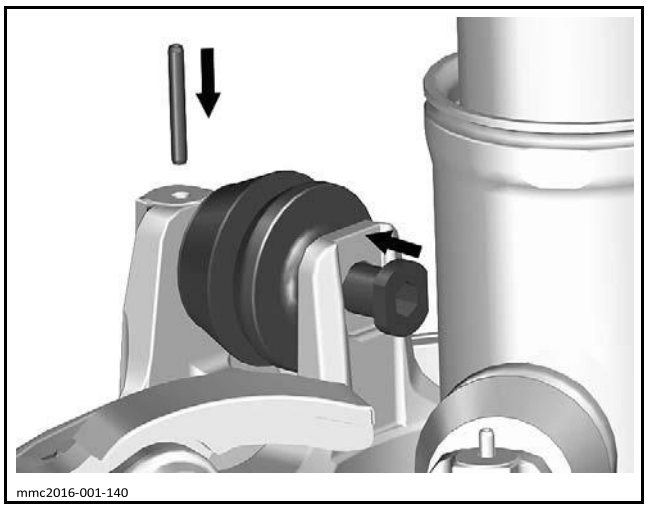
Position the flat sides of the axle head inside the slot of the mounting lug.

Install a new spring pin.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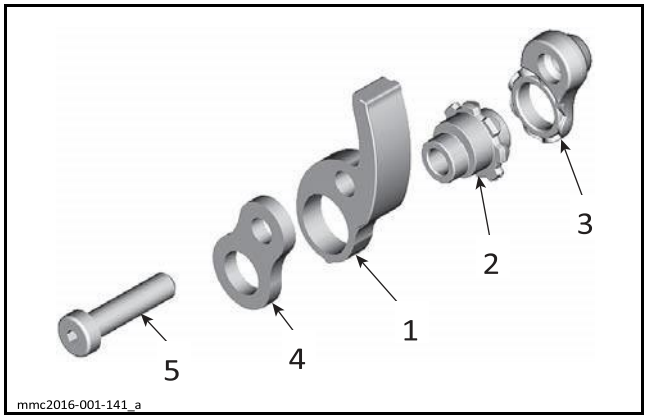
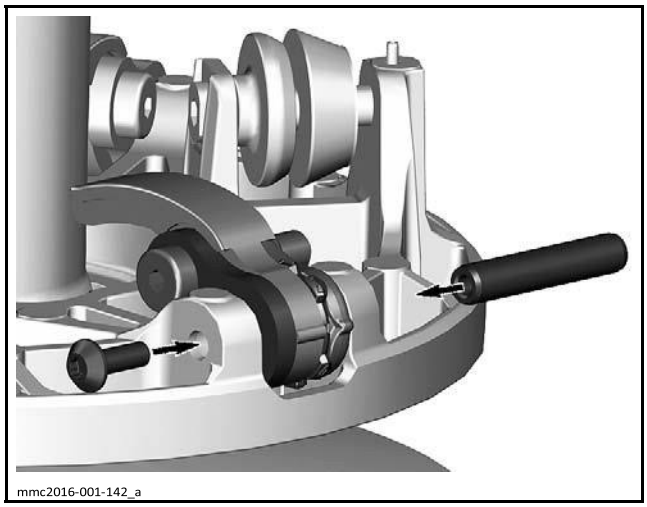
Ramp

Assemble the ramp as illustrated. Do not torque the pivot yet.



1. *Ramp*
2. *Cam*
3. *Right lever*
4. *Left lever*
5. *Pivot*

Install the ramp assembly on the sliding sheave.



TIGHTENING TORQUE	
Axle screw	5 N•m ± 0.5 N•m (44 lbf•**in** ± 4 lbf•**in**)

Position the cam to factory setting or to the desired position.

NOTICE Make sure all cams are set at the same number.

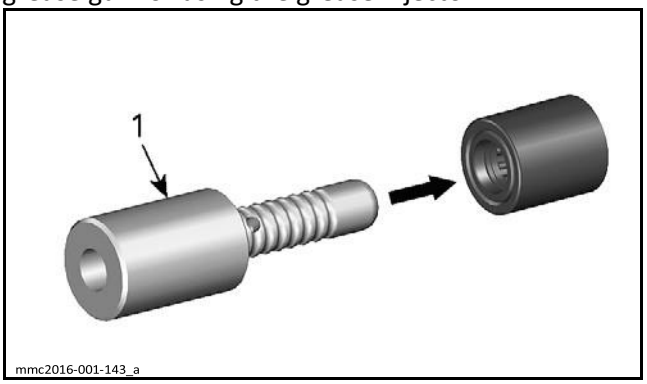
FACTORY SETTING	
Cam number	3 (position without number)
TIGHTENING TORQUE	
Pivot	8 N•m ± 2 N•m (71 lbf•**in** ± 18 lbf•**in**)

Roller

Lubricate the roller bearing.

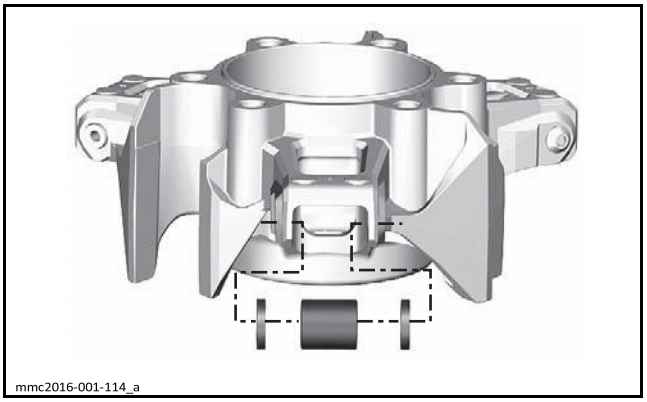
REQUIRED SERVICE PRODUCT	
ISOFLEX GREASE TOPAS NB 52 (P/N 293 550 021)	
REQUIRED TOOL	
GREASE INJECTOR (P/N 529 036 376)	

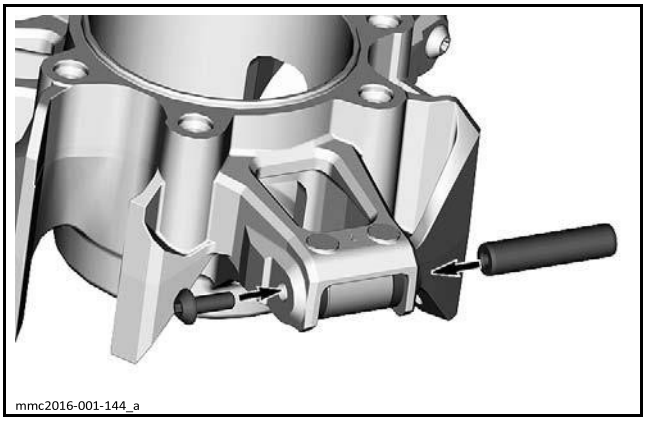
NOTE: A threaded end is required on the grease gun for using the grease injector.



1. GREASE INJECTOR (P/N 529 036 376)

Install roller.



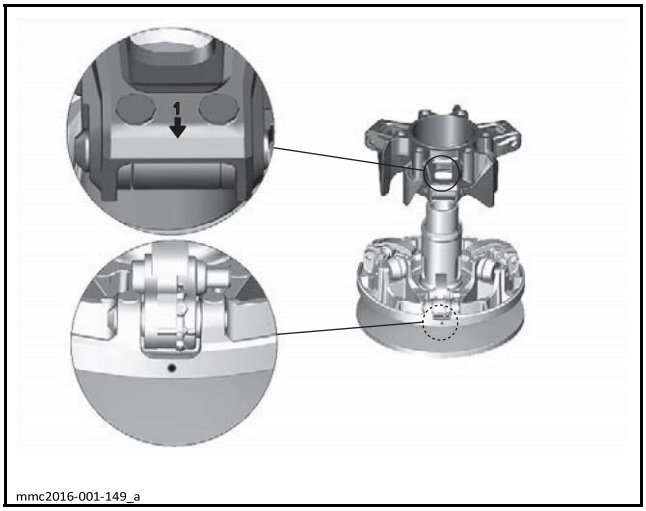


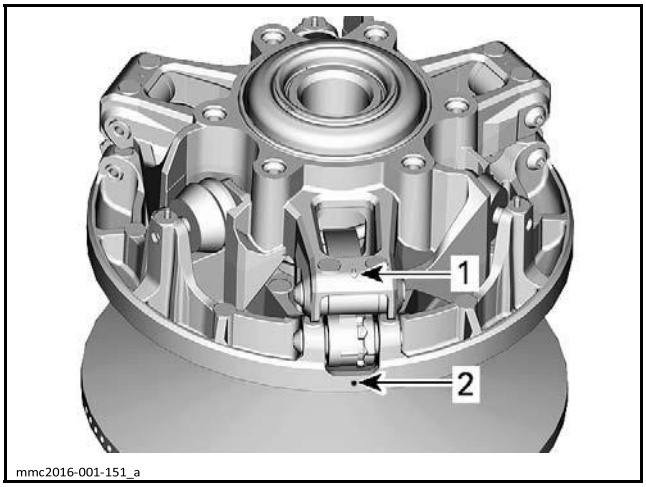
TIGHTENING TORQUE	
Roller axle screw	5 N•m ± 0.5 N•m (44 lbf•**in** ± 4 lbf•**in**)

Spider

Install the spider on the sliding sheave by aligning the indexing marks.

– Spider - the arrow on the arms #1, just above the roller.
– Sliding sheave - the dot on the external side ofthe sheave.

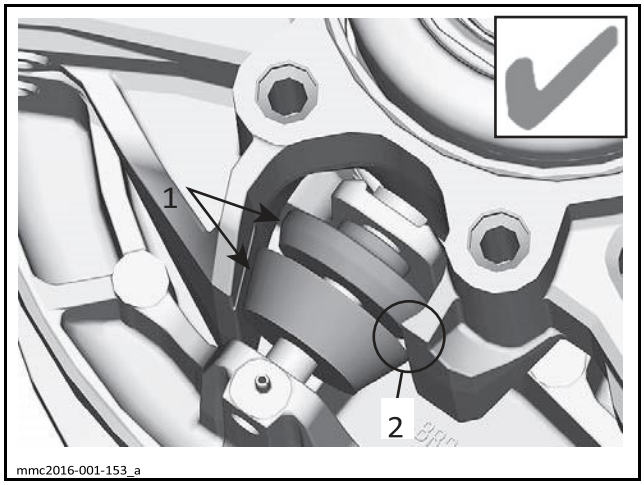




FINAL POSITION

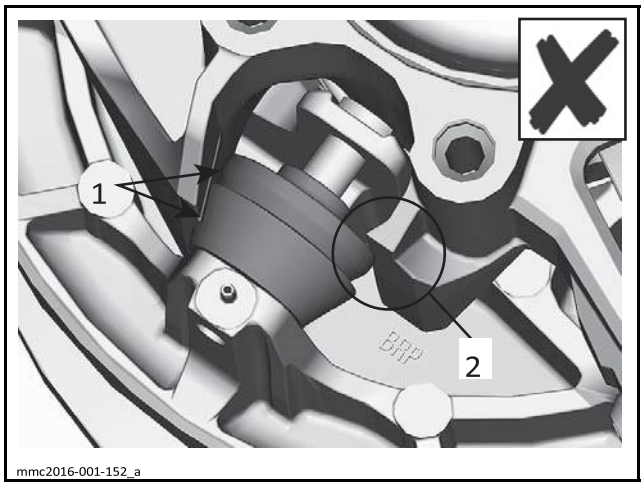
1. *Arrow - spider arm*
2. *Dot - sliding sheave*

NOTICE During installation of the spider, make sure to position the three spurs of spider legs between torque rollers and ensure that ramps are positioned inside the openings of the spider.



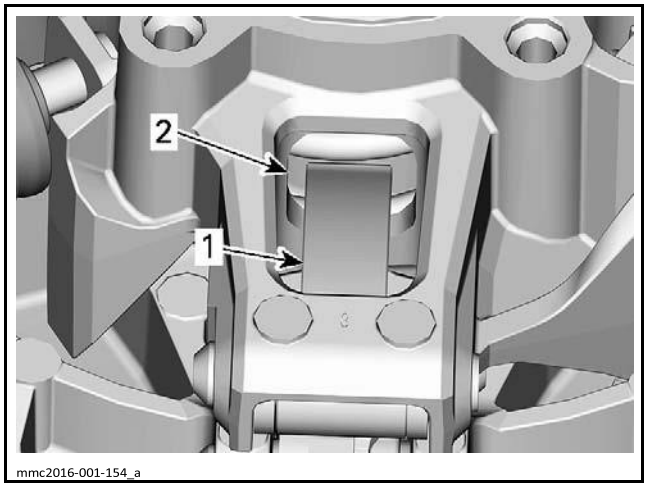
ROLLER - GOOD INSTALLATION

1. *Torque rollers*
2. *Spur of the spider leg*



ROLLER - WRONG INSTALLATION

1. *Torque rollers*
2. *Spur of the spider leg*



RAMP POSITIONING

Damper

Install the damper using the following sequence.

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TIGHTENING TORQUE	
Damper screws	31.5 N•m ± 3.5 N•m (23 lbf•ft ± 3 lbf•ft)

Sliding Sheave and Fixed Sheave Assembly

Index sliding sheave with fixed sheave by aligning index marks.

– Sliding sheave - the arrow on the spider arms#1, just above the roller.
– Fixed sheave- the dot on the external side of the sheave.

Drive Pulley Installation

REQUIRED TOOLS	
CLUTCH HOLDER (P/N 420-660)	

1. Clean mounting surfaces as described inDRIVE PULLEYCLEANINGabove.

NOTICE Do not apply antiseize or any lubricant on crankshaft and drive pulley tapers.

2. Install drive pulley on crankshaft end.

NOTE: The drive pulley can be installed in one position only. Drive pulley and crankshaft are indexed.

3. Install a NEW conical spring washer with its concave side towards drive pulley.
4. Install drive pulley bolt.

NOTICE Always use BRP genuine parts for conical spring washer and bolt.

5. Secure the drive pulley with the clutch holder.
6. Using a torque wrench, tighten the drive pulleybolt. Refer to TIGHTENINGTHEDRIVEPULLEYfor the completed procedure.

Tightening the Drive Pulley Tighten the drive pulley bolt.

TIGHTENING TORQUE		
Drive pulley bolt	First torque	120 N•m (89 lbf•ft)

Before starting engine, perform drive pulley adjustment. Refer to ADJUSTMENT, at the beginning of this subsection. Install drive belt and guard.

Raise the rear of the vehicle and support it with a mechanical stand.

⚠ WARNING

Ensure that the track is free of particles which could be thrown out while track is rotating. Keep hands, tools, feet and clothing clear of track. Ensure nobody is standing near the vehicle.

Accelerate the vehicle at low speed (maximum 32 km/h (20 MPH) and apply the brake, repeat 5 times.

Tighten the drive pulley bolt again.

TIGHTENING TORQUE		
Drive pulley bolt	Final torque	120 N•m (89 lbf•ft)

⚠ WARNING

After 10 hours of operation the transmission system of the vehicle must be inspected to ensure drive pulley bolt is still properly torqued.