DRIVE BELT AND REAR WHEEL

SERVICE TOOLS

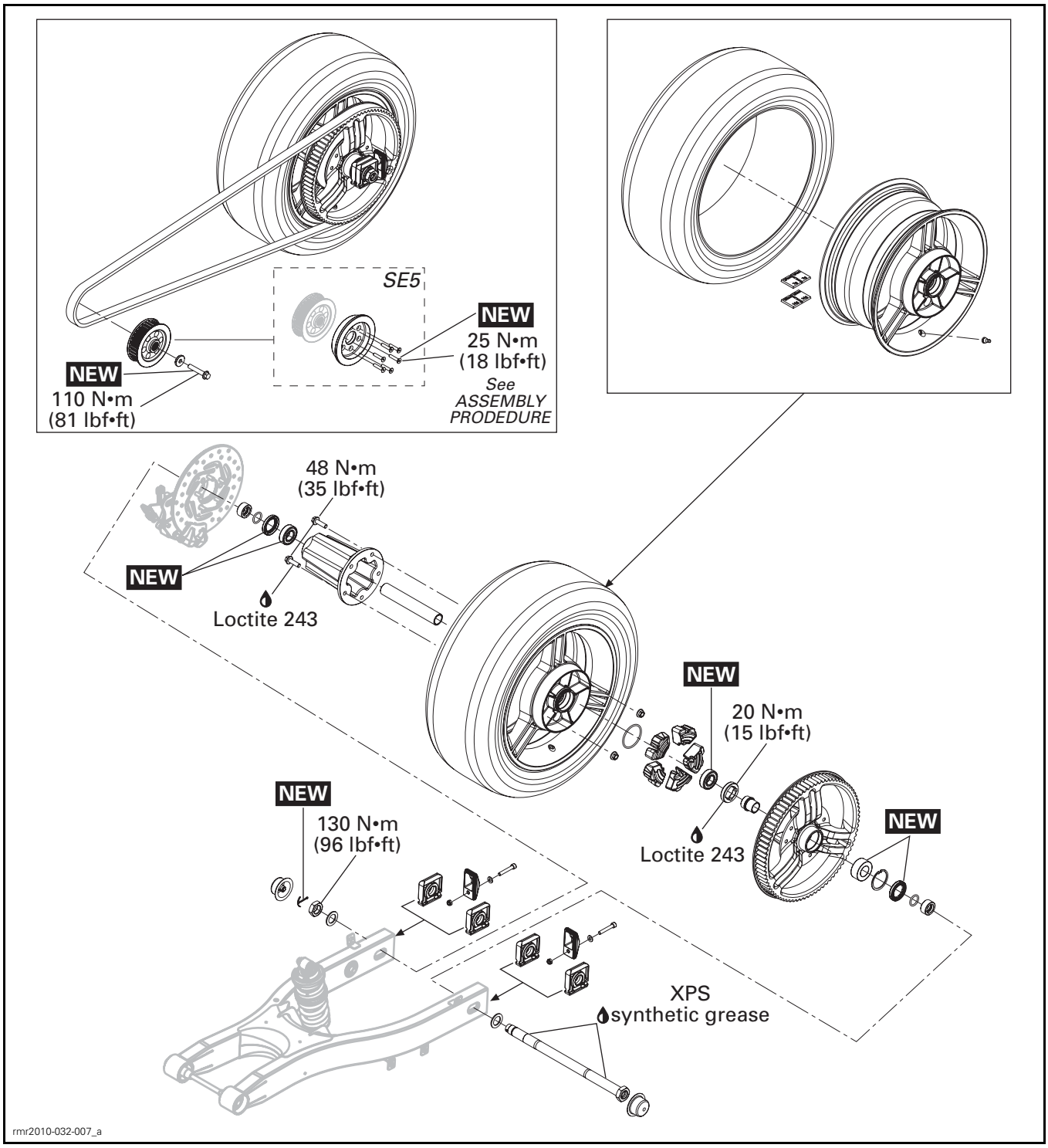
Description	Part Number	Page
BELT TENSION METER	529 036 115	4
BLIND HOLE BEARING PULLER SET	529 036 117	11–12, 15
SOCKET SPANNER	529 036 113	10

SERVICE TOOLS – OTHER SUPPLIER

Description	Part Number	Page
SNAP-ON SEAL PULLER	YA105	15

SERVICE PRODUCTS

Description	Part Number	Page
LOCTITE 243 (BLUE)	293 800 060	11
XPS SYNTHETIC GREASE	293 550 010	11


SE5
NEW
25 N•m
(18 lbf•ft)
See
ASSEMBLY
PRODEDURE
NEW
110 N•m
(81 lbf•ft)
48 N•m
(35 lbf•ft)
NEW
Loctite 243
NEW
20 N•m
(15 lbf•ft)
NEW
130 N•m
(96 lbf•ft)
Loctite 243
NEW
XPS
synthetic grease
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GENERAL

During assembly/installation, use the torque values and service products as in the exploded views.

Clean threads before applying a threadlocker. Refer to *SELF-LOCKING FASTENERS* and *LOCTITE APPLICATION* at the beginning of this manual for complete procedure.

⚠ WARNING

Torque wrench tightening specifications must be strictly adhered to.
Locking devices (e.g.: locking tabs, elastic stop nuts, cotter pins, etc.) must be replaced.

NOTICE **During installation, make sure every part is free from old grease and dirt. This allows for a clean reassembly and will avoid premature wear caused by dirt contamination.**

NOTICE **Hoses, cables and locking ties removed during a procedure must be reinstalled as per factory standards.**

Road test vehicle at moderate speeds a few minutes to ensure normal operation following maintenance or repair (proper drive belt tension and alignment, rear brake operates correctly, etc.).

PROCEDURES

DRIVE BELT

Drive Belt Inspection

Lift the rear of vehicle and install a jack under the frame to support the rear of vehicle off the ground.

Remove the belt guard.

Inspect the full length of the belt. Inspect for the following conditions:

WEAR CONDITION		REQUIRED ACTION
	Good condition	None
	Hairline cracks	Monitor condition
	Minor chipping	Monitor condition
	Opened cracks	Replace belt
	Hook wear	Replace belt
	Missing teeth	Replace belt
	Belt fabric worn, exposing internal components	Replace belt
	Stone damage	Replace belt

NOTE: Hairline cracks do not require the replacement of the belt, but must be monitored closely – they may lead to opened cracks or missing teeth, requiring belt replacement. Damage to the center of belt will eventually require belt replacement, but when cracks extend to the edge of belt, belt failure is imminent.

When a drive belt is replaced, also replace the sprockets to increase the longevity of the new drive belt.

Drive Belt Tension Verification

NOTICE **Always verify drive belt tension with the rear wheel lifted of the ground.**

Place vehicle on a level surface.

NOTE: The area must be protected against wind and must have a low background noise.

Set transmission to NEUTRAL.

Lift rear of vehicle by the frame until rear wheel is off the ground.

NOTICE **Do not lift under rear shock absorber. Always lift by the frame. Refer to illustration.**


rmr2008-030-009

TYPICAL - LIFT BY THE FRAME

To check the drive belt tension use the BELT TENSION METER (P/N 529 036 115).


529036115

Enter the following specifications to program the meter.

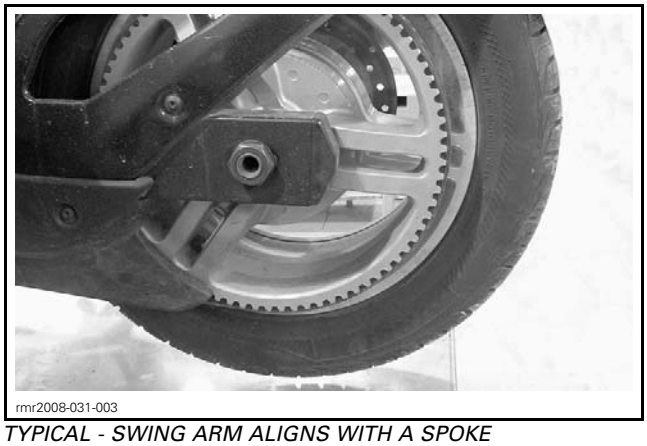
MASS	WIDTH	SPAN
8.4 g/m	28.0 mm/R	1028 mm

rmr2008-031-002

SONIC TENSION METER DISPLAY

NOTE: Refer to the manufacturer's instructions to set the informations into the device.

Turn rear wheel to align a wheel spoke with the swing arm.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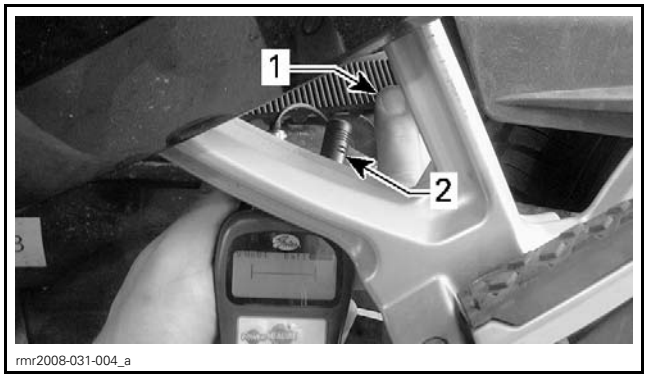
TYPICAL - SWING ARM ALIGNS WITH A SPOKE

Behind the LH passenger footrest, hold the sonic tension meter sensor approximately 1 cm (1/2 in) from the top run of belt or closer without touching the belt.

Tap the belt to make the belt vibrate.



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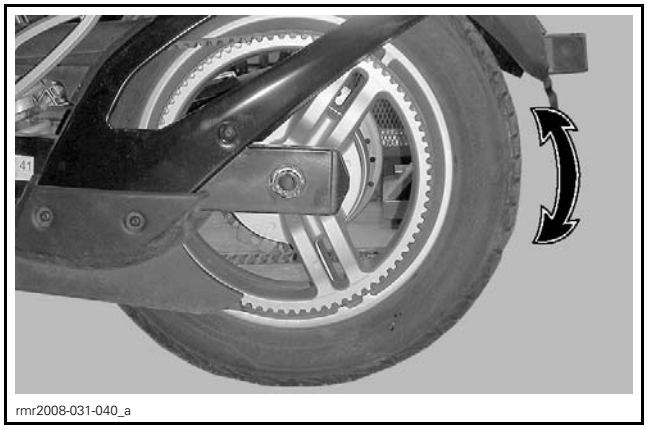
TYPICAL
1. *Tap the belt*
2. *Sonic tension meter sensor*

Read the measurement.

Repeat measurement at every spokes and at midway of every spokes (6 measurements total).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TYPICAL - SWING ARM ALIGNS AT MIDWAY OF SPOKES

Obtained values (lowest and highest) must be in the following range:

DRIVE BELT TENSION (REAR WHEEL LIFTED)
750N ± 250N

If the tension of drive belt is out of specification, adjust drive belt as per *DRIVE BELT TENSION ADJUSTMENT*.

Drive Belt Tension Adjustment

Lift rear of vehicle by the frame until rear wheel is off the ground.

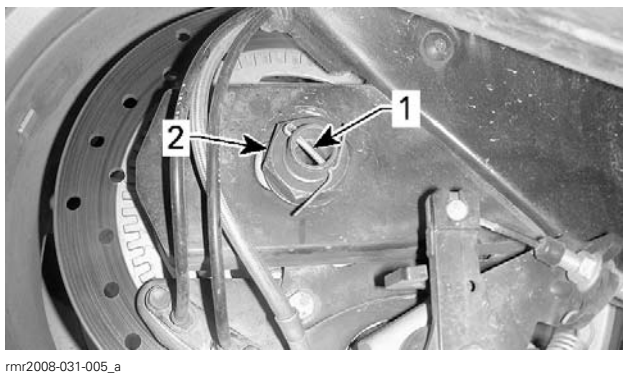
NOTICE Do not lift under rear shock absorber. Always lift by the frame. Refer to illustration.


rmr2008-030-009

TYPICAL - LIFT BY THE FRAME

Remove both rear axle caps.

From RH side of vehicle, remove and discard cotter pin locking the rear axle nut.



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REAR RH SIDE OF VEHICLE
1. *Cotter pin*
2. *Rear axle nut*

Using a 36 mm socket, loosen rear axle nut.


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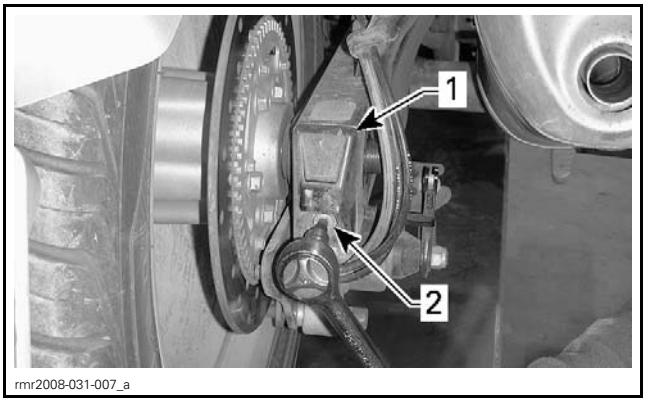
Adjust tensioner screws as following:
- Tighten screws 1/4 turn to increase belt tension.
- Loosen screws 1/4 turn to decrease belt tension.

NOTE: Always turn both tensioner screws evenly to keep drive belt aligned.



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1. *Rear axle tensioner*
2. *Tensioner screw*

Tighten rear axle nut enough to avoid rear axle movement.

Adjust drive belt tension as per specification, refer to *DRIVE BELT TENSION VERIFICATION*.

When recommended tension is obtained, torque rear axle nut to 130 N•m (96 lbf•ft).

Install a NEW cotter pin and both axle caps.

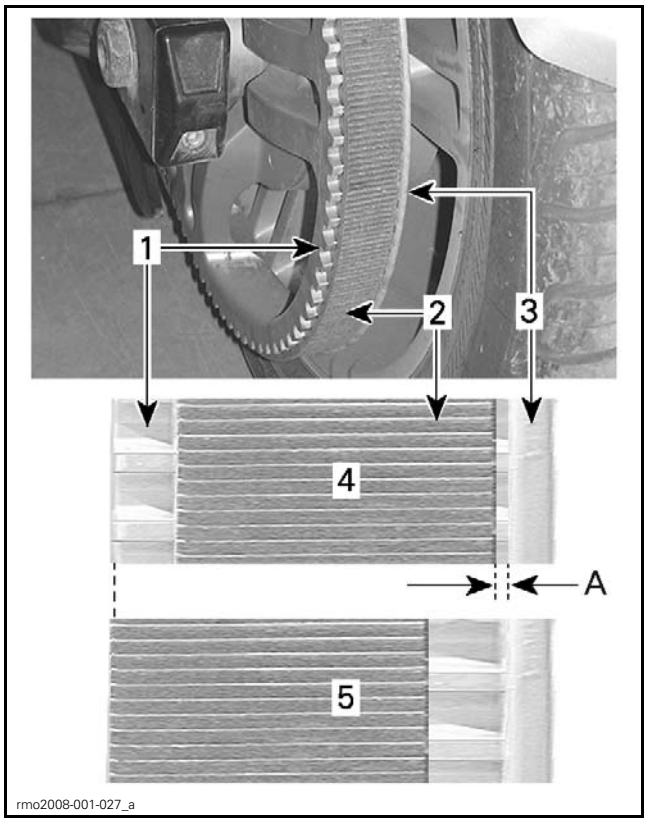
⚠ WARNING

Always install a NEW cotter pin on rear axle.

Drive Belt Alignment

Drive Belt Alignment Verification

The gap between drive belt and rear sprocket internal flange should be a minimum of 1 mm (1/32 in) and a maximum of 5 mm (3/16 in).



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BELT ALIGNMENT
1. *Rear sprocket*
2. *Belt*
3. *Sprocket internal flange*
4. *Proper belt alignment*
5. *Belt exceeding external edge — realign belt*

A. MIN. 1 mm (1/32 in) — MAX. 5 mm (3/16 in)

Drive Belt Alignment Procedure

If drive belt needs to be aligned, proceed as follows.

Lift rear of vehicle by the frame until rear wheel is off the ground.

NOTICE Do not lift under rear shock absorber. Always lift by the frame. Refer to illustration.


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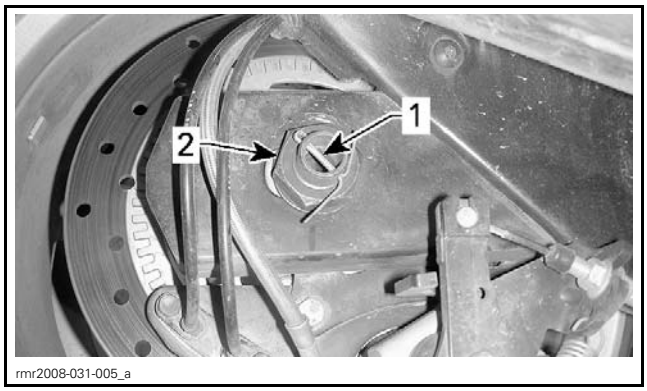
TYPICAL - LIFT BY THE FRAME

Remove both axle caps.

From RH side of vehicle, remove and discard cotter pin locking the rear axle nut.



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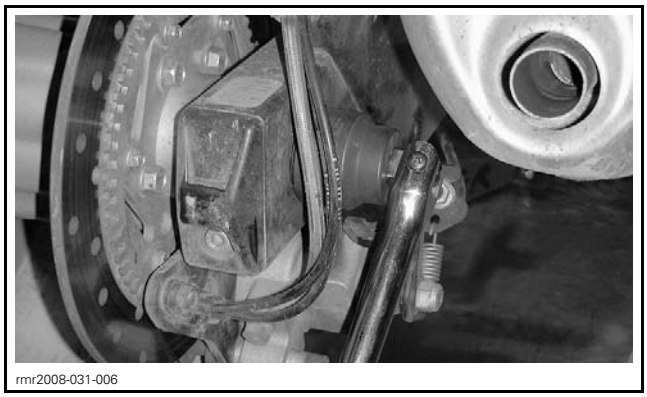
TYPICAL - REAR RH SIDE OF VEHICLE
1. *Cotter pin*
2. *Rear axle nut*

Using a 36 mm socket, loosen rear axle nut.

NOTE: Loosen axle nut just enough to slide wheel using axle tensioner screws.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Adjust tensioner screws as follows:
– If drive belt is on the outside edge of rear sprocket, tighten the LH tensioner screw.
– If drive belt is on the rear sprocket flange, tighten the RH tensioner screw.

Clear rear wheel area.

Ask somebody to start engine and select the first gear.

Carefully release clutch lever and check drive belt alignment.

Stop rear wheel and repeat in reverse.

Stop engine.

If an adjustment is necessary, tighten the appropriate axle tensioner screw and recheck the alignment.

When alignment is good, check drive belt tension. Refer to *DRIVE BELT TENSION VERIFICATION*.

Torque rear axle nut to 130 N•m (96 lbf•ft) when proper tension is reached.

Install a NEW cotter pin and the both axle caps.

Check wheel speed sensor adjustment. Refer to *VEHICLE STABILITY SYSTEM* subsection.

⚠ WARNING

Always install a NEW cotter pin on rear axle.

Drive Belt Removal

NOTE: If drive belt is removed but not replaced, mark the direction of rotation. Drive belt must be reinstalled in the same direction to obtain the maximum drive belt life span.

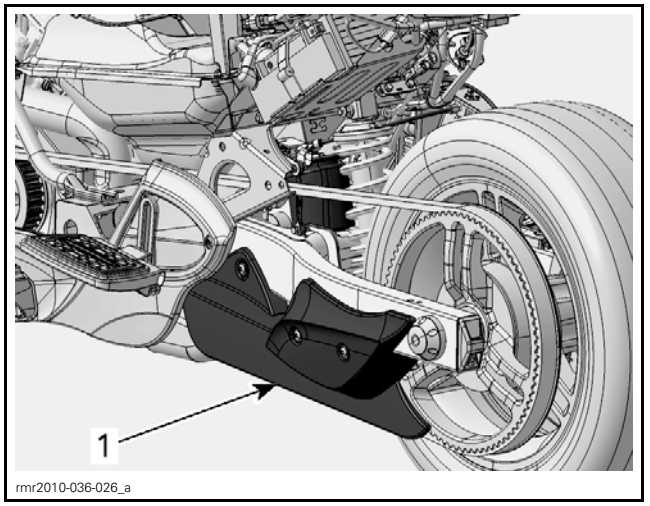
Lift rear of vehicle by the frame until rear wheel is off the ground.

NOTICE **Do not lift under rear shock absorber. Always lift by the frame. Refer to illustration.**

TYPICAL - LIFT BY THE FRAME

Remove body parts as required to access to the front sprocket. Refer to *BODY* subsection.

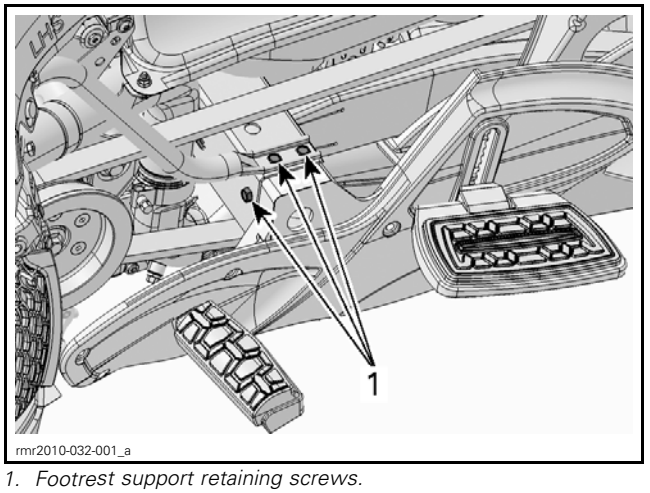
Remove belt guard from swing arm.



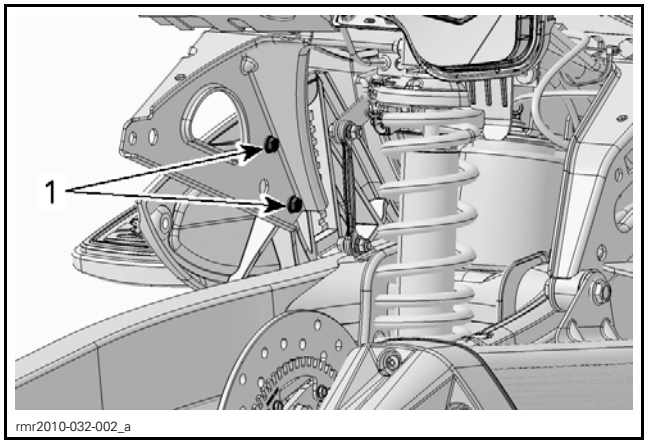
TYPICAL
1. Belt guard

Remove belt tension, refer to *DRIVE BELT TENSION ADJUSTMENT* and completely loosen tensioner screws to remove belt from rear sprocket.

Remove LH footrest support from vehicle by unscrewing retaining screws.



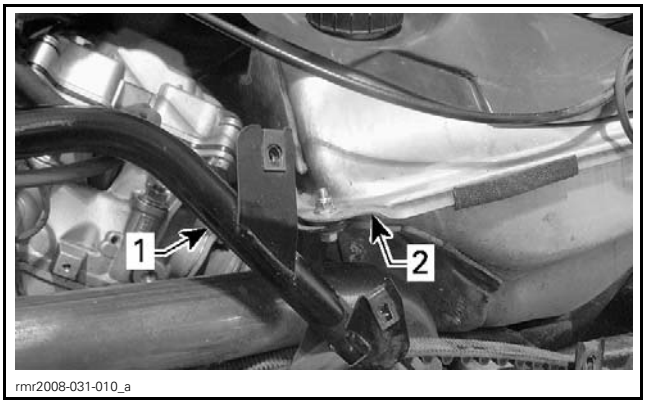
1. Footrest support retaining screws.



1. Footrest support retaining screws.

NOTE: For SM5 model, detach shifter lever before removing LH footrest support.

Unscrew bolt securing LH lateral support to fuel tank.



TYPICAL
1. *Lateral support*
2. *Fuel tank*

Lift end of lateral support.

Slide drive belt between lateral support and the footrest support bracket.

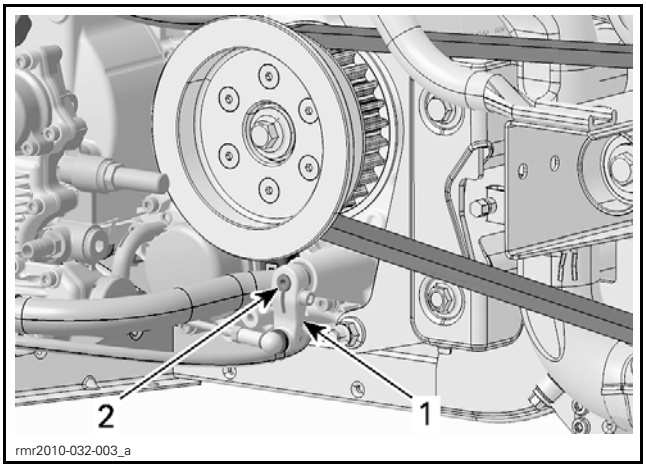
SM5 Model

Remove drive belt from front sprocket.

SE5 Model

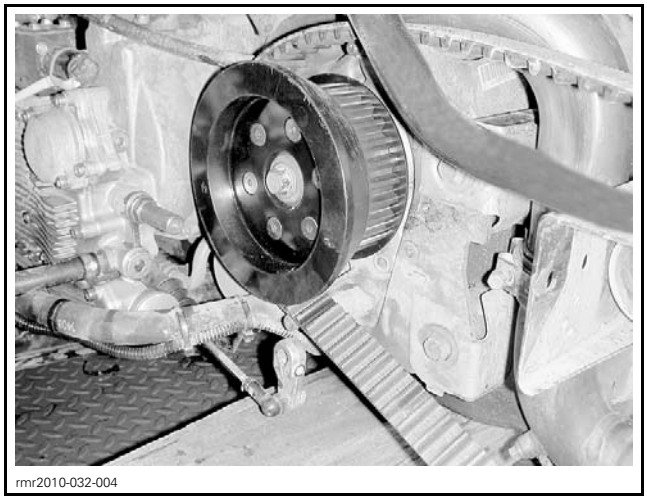
Remove Allen screw securing gear shift lever to shifter shaft.

Detach gear shift lever from shifter shaft.



1. *Gear shift lever*
2. *Shifter shaft*

Carefully slide drive belt between sprocket flywheel and shifter shaft.



NOTICE Do not remove flywheel from front sprocket for the drive belt removal.

Drive Belt Installation

Installation is the reverse of the removal. However, pay attention to the following.

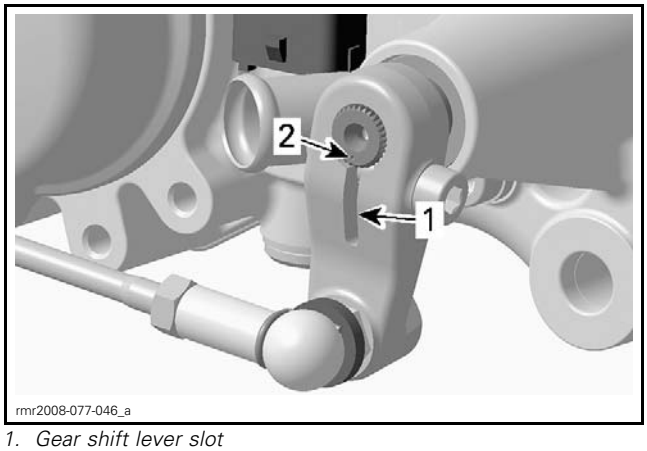
When using the same drive belt, reinstall it in the same direction of rotation. For a new drive belt, no specific direction is required.

Align drive belt. Refer to *DRIVE BELT ALIGNMENT*.

Adjust drive belt tension. Refer to *DRIVE BELT TENSION ADJUSTMENT*.

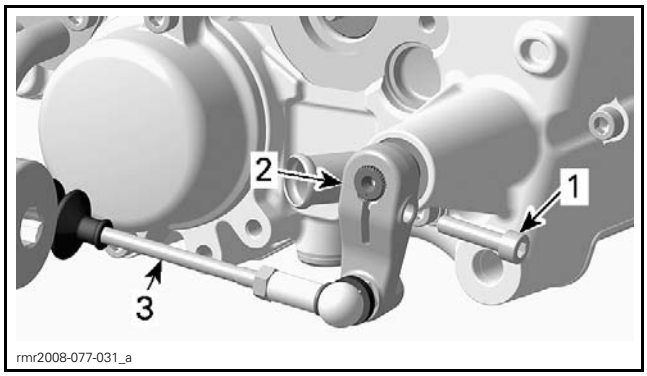
SE5 Model

Install the gear shift lever and align its slot with the dot on the end of shifter shaft.



1. *Gear shift lever slot*
2. *Shifter shaft dot*

Torque Allen screw securing gear shift lever on shifter shaft to 11 N•m (97 lbf•**in**).



1. Allen screw
2. Gear shift lever
3. Shift linkage

Make sure that gear shift lever works properly.

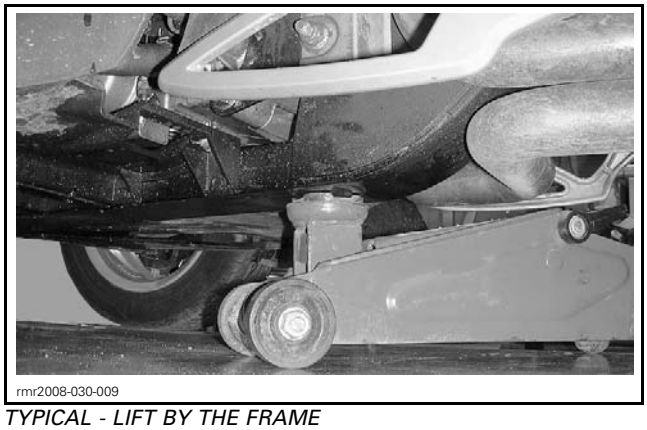
REAR WHEEL

Rear Wheel Removal

Place vehicle on a level surface.

Lift rear of vehicle by the frame until rear wheel is off the ground.

NOTICE Do not lift under rear shock absorber. Always lift by the frame. Refer to illustration.



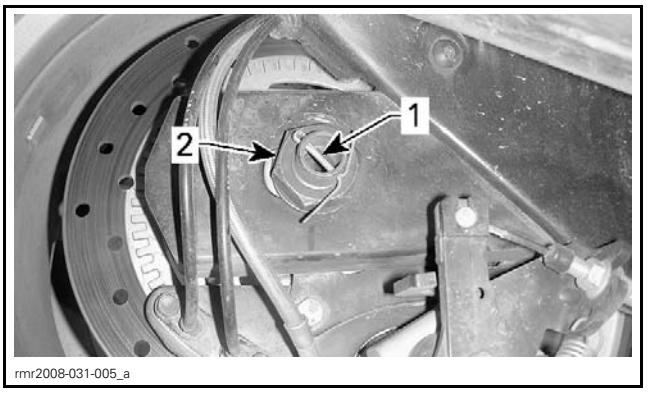
TYPICAL - LIFT BY THE FRAME

Remove the following body panels, refer to *REAR CARGO MODULE DISASSEMBLY* in *BODY* subsection.

– Rear panel
– Rear fender.

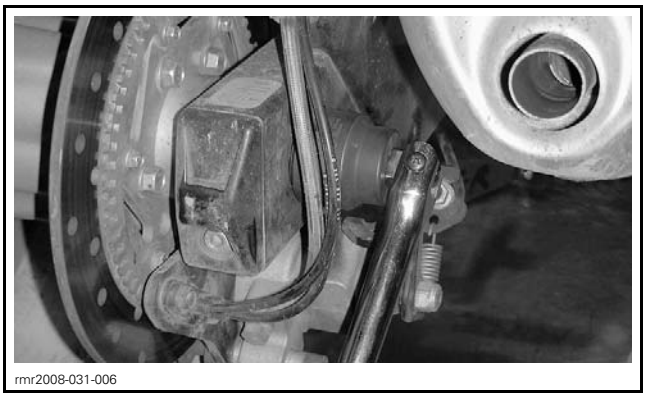
Remove both axle caps.

From RH side of vehicle, remove and discard cotter pin locking the rear axle nut.

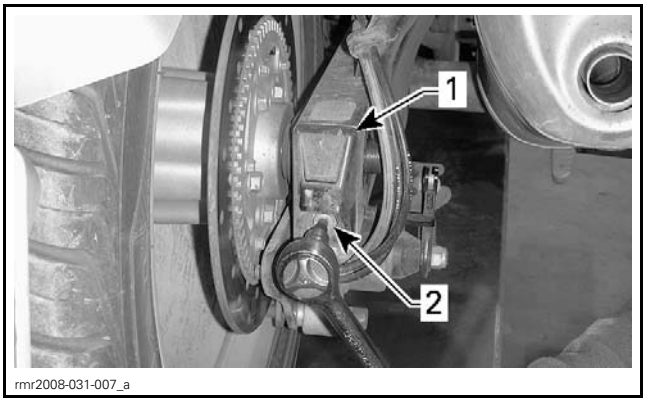


TYPICAL - REAR RH SIDE OF VEHICLE
1. Cotter pin
2. Rear axle nut

Using a 36 mm socket, loosen rear axle nut.

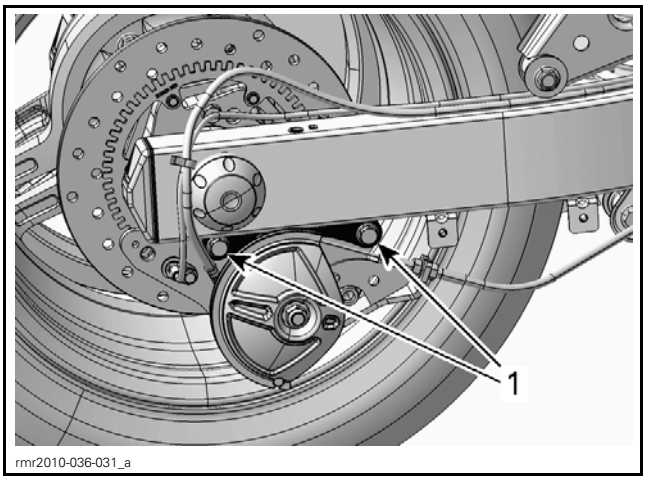


Loosen rear axle tensioner screws. Be careful not to unscrew tensioner screws completely.



1. Rear axle tensioner
2. Screw

Remove and discard both caliper screws.



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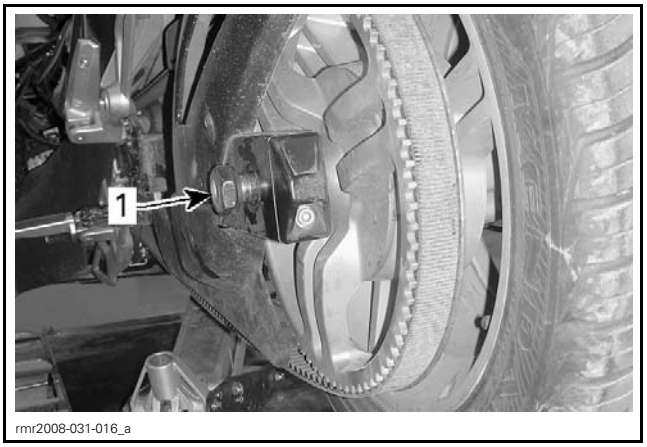
1. Caliper screws

From the LH side of vehicle, support rear wheel and remove the rear axle.



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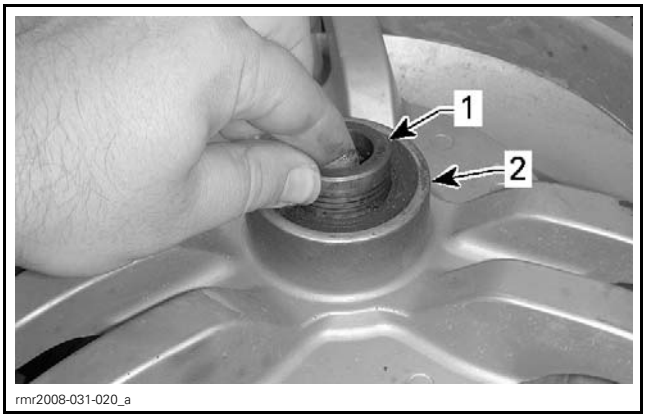
1. Rear axle

Remove drive belt from rear sprocket.

Remove wheel from vehicle.

Rear Wheel Disassembly

Remove the external spacer.



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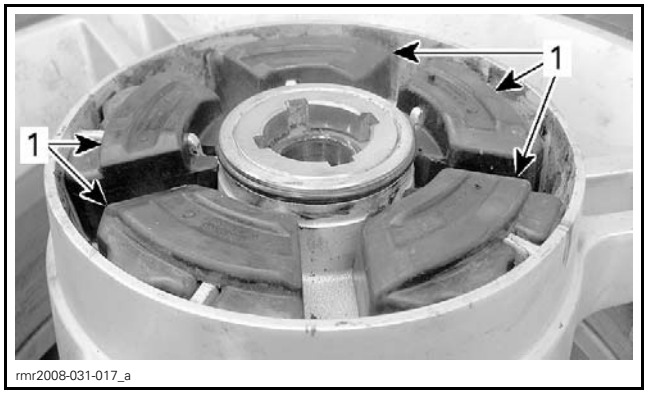
1. External spacer
2. Rear sprocket

Remove *REAR SPROCKET*, see procedure in this subsection.

Remove rear sprocket dampers.



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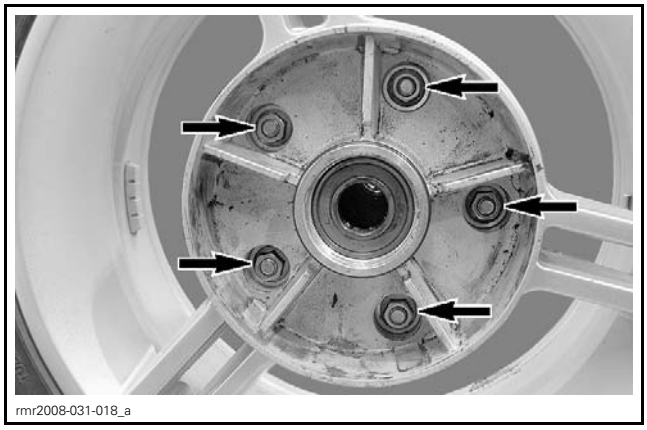
1. Rear sprocket damper

Unscrew wheel hub bolts.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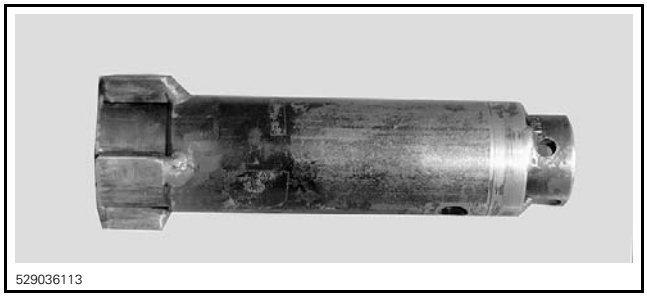
Remove wheel hub and spacer.

Using the SOCKET SPANNER (P/N 529 036 113), unscrew the wheel bearing nut.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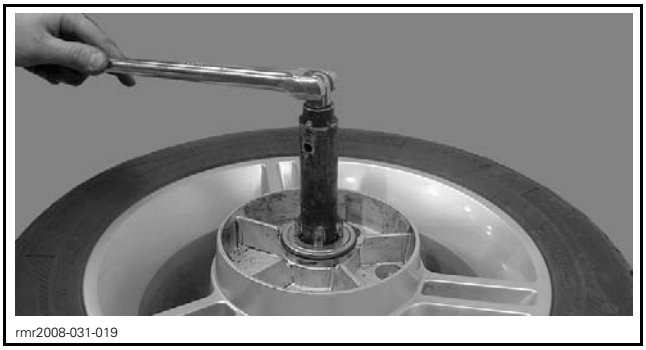
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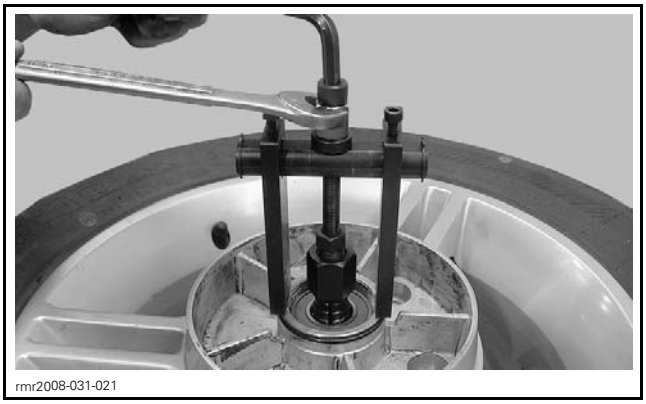
Using the BLIND HOLE BEARING PULLER SET (P/N 529 036 117), remove and discard wheel bearing.


529036117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Rear Wheel Inspection

Verify condition and wear of the following wheel components:
- External spacer
- Seals
- O-ring (inside external spacer)
- O-ring (around nave)
- Rim.

Replace any components as required.

Rear Wheel Assembly

The assembly is the reverse of the disassembly procedure. However, pay attention to the following.

Install a **NEW** wheel bearing.

Apply LOCTITE 243 (BLUE) (P/N 293 800 060) on threads of wheel bearing nut.

Torque wheel bearing nut to 20 N•m (15 lbf•ft).

Install the rear sprocket and wheel hub on rear wheel. Refer to *REAR SPROCKET* and *WHEEL HUB*.

Make sure rear sprocket spokes are aligned along with rear wheel spokes.

Rear Wheel Installation

Install caliper bracket with **NEW** caliper screws.

Torque caliper screws to 25 N•m (18 lbf•ft).

Apply XPS SYNTHETIC GREASE (P/N 293 550 010) on rear axle.

Install the drive belt on rear sprocket.

Align holes of the following components:
- Swing arm
- Rear adjusters
- Caliper support
- Wheel.

Insert the rear axle from the LH side.

On RH side, install a washer and the rear axle nut.

Pull rear wheel backward and tighten rear axle nut slightly.

Using a ruler, measure the distance between washer and the swing arm end.


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Tighten rear adjuster screws to same length on both sides of swing arm.

Align drive belt. Refer to *DRIVE BELT ALIGNMENT*.

⚠ WARNING

Always install a NEW cotter pin on rear axle.

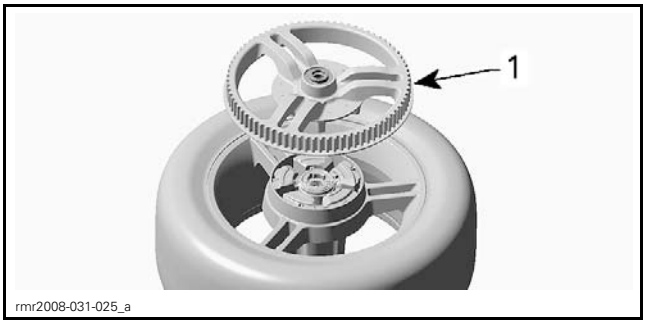
NOTE: The Spyder RT uses a heavy duty rim with a load rating of 400 kg (882 lb) to match with the tire. Always check the load rating on rim spoke to ensure that the rim meets the proper specification.

REAR SPROCKET

Rear Sprocket Removal

Remove rear wheel. Refer to *REAR WHEEL* in this subsection.

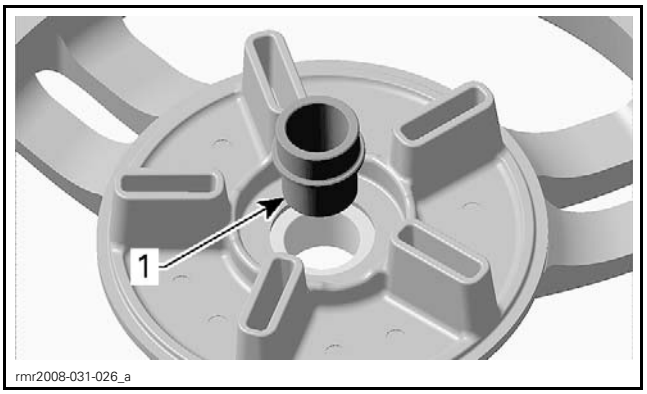
Pull rear sprocket.



1. Rear sprocket

Rear Sprocket Inspection

Verify sprocket as follows:
- Sprocket teeth for wear.
- Sprocket bearing turns smoothly and freely.
- Bearing spacer for wear.

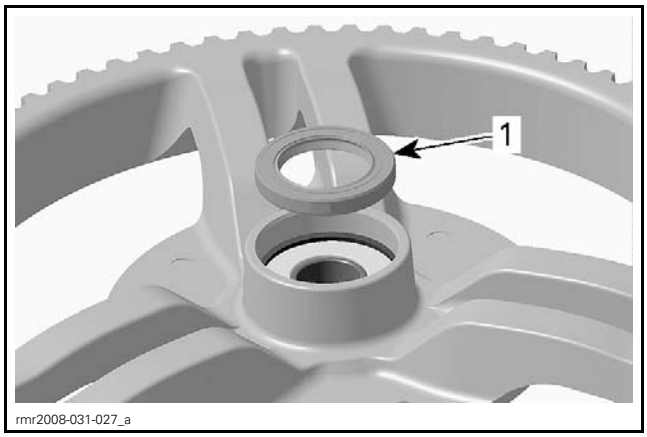


1. Bearing spacer

Replace components as required.

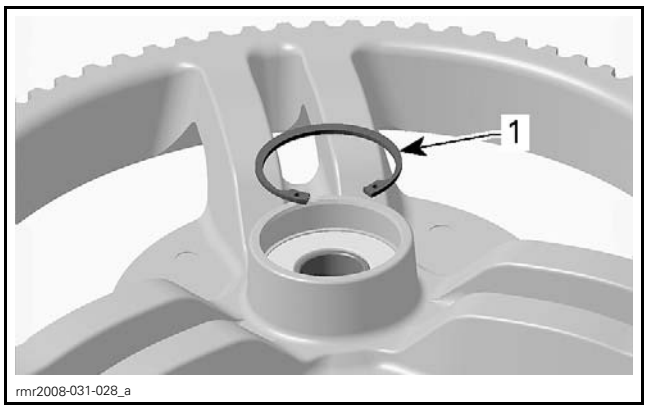
Rear Sprocket Disassembly

Remove seal.



1. Seal

Remove circlip.



1. Circlip

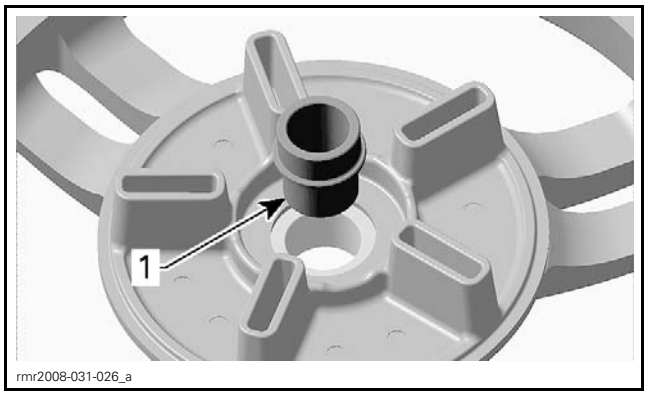
Using the BLIND HOLE BEARING PULLER SET (P/N 529 036 117), remove and discard sprocket bearing.

Rear Sprocket Assembly

The assembly is the reverse of the disassembly procedure. However, pay attention to the following.

When installing the sprocket bearing, make sure to insert the bearing very straight to avoid damaging sprocket hub and to press the bearing from its outer race.

Install the long side of bearing spacer inside rear sprocket bearing.



1. Long side of bearing spacer

Rear Sprocket Installation

The installation is the reverse of the removal procedure. However, pay attention to the following.

An approximate gap of 1.6 mm (1/16 in) between rear sprocket and rear wheel is normal. If the gap is higher, remove the rear sprocket and check the condition of the nave O-ring.

Make sure rear sprocket spokes are aligned along with rear wheel spokes.

FRONT SPROCKET

Front Sprocket Removal

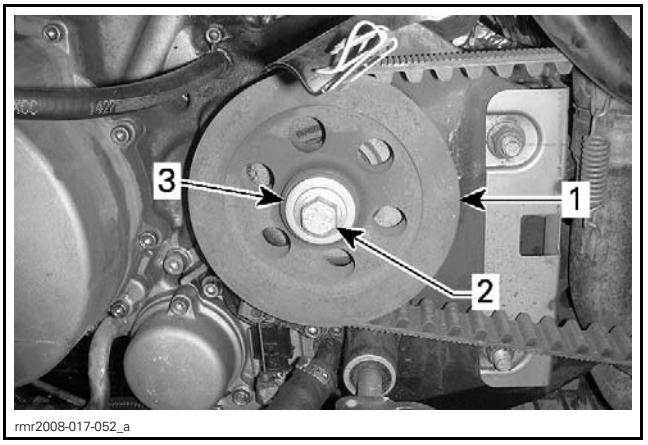
⚠ CAUTION **Apply parking brake before removing front sprocket to avoid vehicle movement.**

Remove body parts as required to access to the front sprocket. Refer to *BODY* subsection.

Loosen drive belt tension. Refer to *DRIVE BELT* in this subsection.

Remove and discard the front sprocket screw.

NOTICE **For SE5 model, do not remove flywheel from front sprocket for its removal.**



TYPICAL
1. Front sprocket
2. Sprocket screw
3. Washer

Remove front sprocket from main shaft.

Front Sprocket Inspection

NOTICE **For SE5 model, do not remove flywheel from front sprocket for the inspection.**

Inspect splines of main shaft for wear or other damages. If necessary replace main shaft (gearbox disassembly is required).

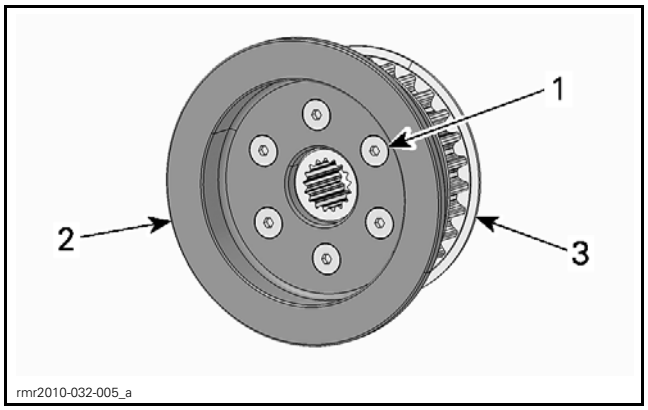
Check inner splines and teeth of sprocket for wear or other damages. Replace sprocket as required.

Check inner flange of sprocket to ensure it is not warped or worn out.

Front Sprocket Disassembly (SE5 Model)

NOTICE **Remove flywheel from front sprocket only if the sprocket needs to be changed. If disassembly is required, make sure to strictly follow assembly procedure. Refer to *FRONT SPROCKET ASSEMBLY (SE5 MODEL)*.**

Unscrew flywheel retaining screws from front sprocket.



1. Flywheel retaining screws
2. Flywheel
3. Front sprocket

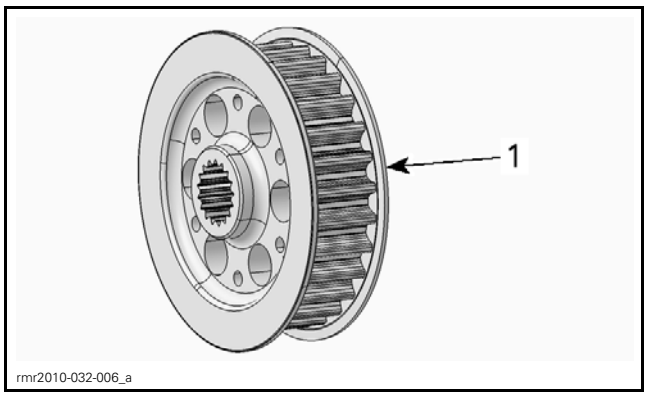
Front Sprocket Assembly (SE5 Model)

Clean front sprocket threads using a metric tap M8 x 1.25.

⚠ WARNING

To ensure good clamping of flywheel screws, it is imperative to clean front sprocket threads using a metric tap M8 x 1.25.

Use a NEW front sprocket (with an internal flange).

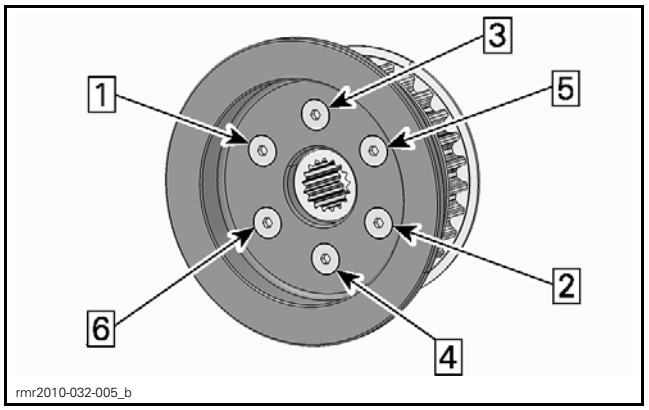


1. Internal flange

Install flywheel on front sprocket.

Install NEW flywheel retaining screws (with scotch grip on threads).

Tighten flywheel retaining screws as per the following sequence.



Torque flywheel retaining screws to 25 N•m (18 lbf•ft).

⚠ WARNING

Make sure to install NEW flywheel screws with scotch grip on threads.

Front Sprocket Installation

The installation is the reverse of the removal procedure. However, pay attention to the following.

Install a NEW front sprocket screw.

Torque front sprocket screw to 110 N•m (81 lbf•ft).

⚠ WARNING

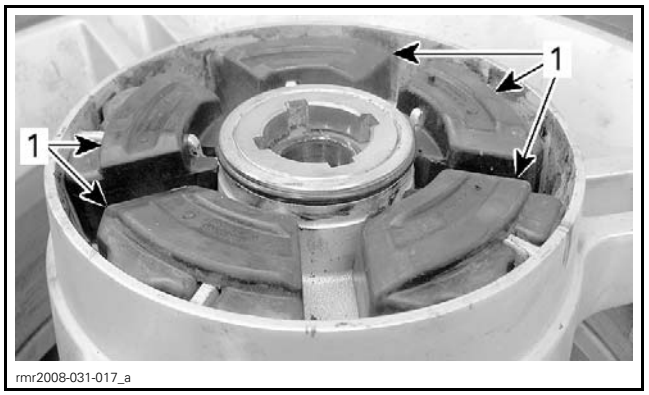
Make sure to install a NEW sprocket screw with scotch grip on threads. Screw must be torqued as specified.

WHEEL HUB

Wheel Hub Removal

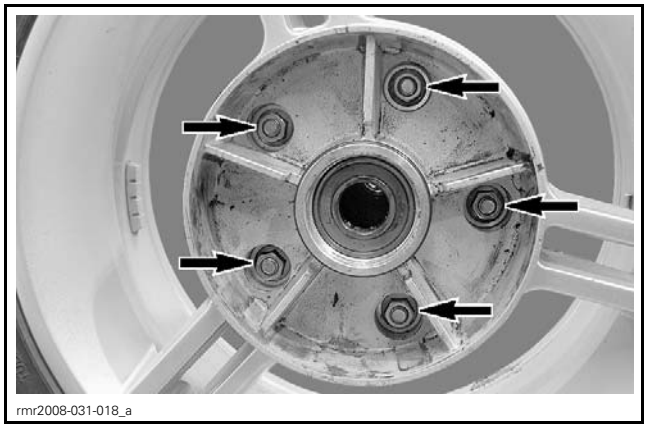
Remove rear wheel. Refer to *REAR WHEEL* in this subsection.

Remove rear sprocket dampers.



1. Rear sprocket damper

Unscrew wheel hub bolts.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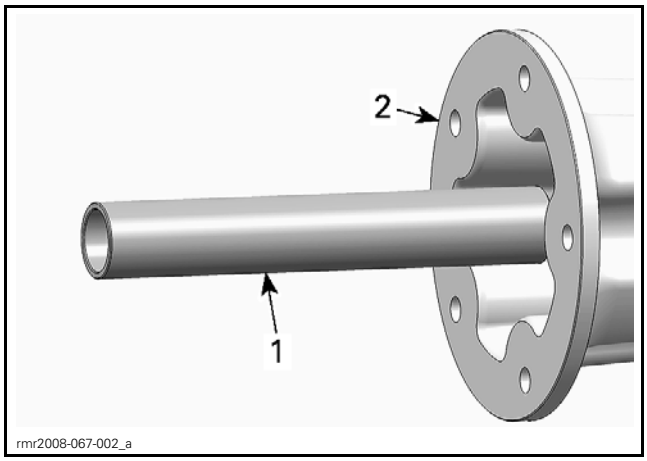
Remove wheel hub and spacer.

Wheel Hub Bearing Replacement

Remove the wheel hub inner spacer.



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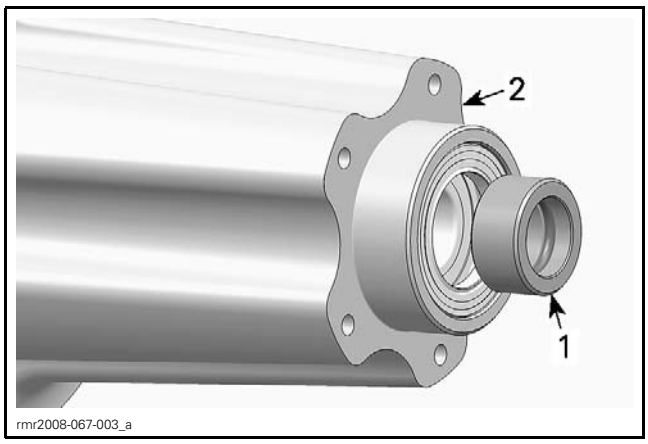
1. *Inner spacer*
2. *Wheel hub*

Remove the outer spacer.



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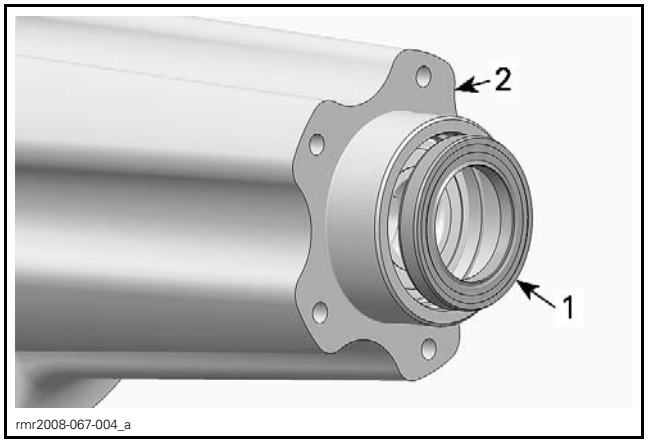
1. *Outer spacer*
2. *Wheel hub*

Using a seal puller such as the SNAP-ON SEAL PULLER (P/N YA105) or a screwdriver, drive the seal out of the wheel hub.



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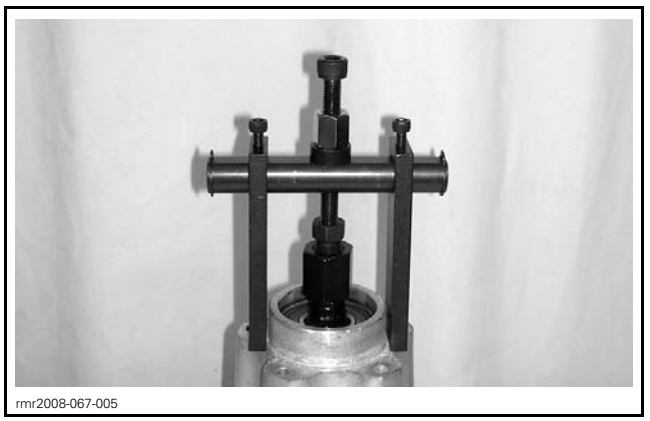
1. *Seal*
2. *Wheel hub*

Using the BLIND HOLE BEARING PULLER SET (P/N 529 036 117), remove and discard sprocket bearing.


529036117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Clean bearing area.

Install the **NEW** bearing, make sure to insert the bearing very straight to avoid damaging wheel hub and to press bearing from its outer race.

Install a **NEW** seal.

Wheel Hub Installation

The installation is the reverse of the removal procedure. However, pay attention to the following.

When installing wheel hub, ensure inner spacer is properly seated against both inner races (wheel bearing and wheel hub bearing).

REAR TIRE

Rear Tire Inspection

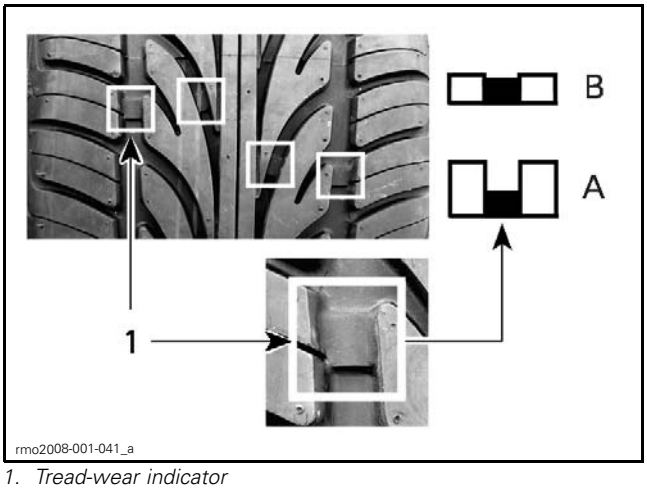
Check tire pressure. Check for air leaks (hissing sound) caused by an ill-fitting rim or a faulty tire valve.

Check tire for:
– Cuts
– Slits
– Cracks.

Check sides of tire for:
– Bumps
– Bulges
– Nails
– Other foreign objects.

Check minimum tread depth by using the tread-wear indicators. Check in three locations across the tire tread:
– Outer edge
– Center
– Inside edge.

The tread-wear indicators will appear across the treads that have been worn down to the minimum tread depth. When at least one tread-wear indicator appears across the tread, have the tire replaced as soon as possible.



1. Tread-wear indicator

A. Appropriate tread depth
B. Minimum tread depth, replace tire

It is normal to see uneven wear on tire depending on how the vehicle is driven and road conditions. The rear tire center tread will wear unevenly depending on if the vehicle is driven smoothly or aggressively.

Recommended Tire

⚠ WARNING

It is imperative to follow the proper *MAX LOAD RATING* of the tire relating to the model of vehicle serviced. Always check on the tire sidewall to ensure that the load rating is in accordance with the following table.

REAR TIRE LOAD RATING		
MODEL	MAX LOAD RATING	DESIGNATION
Spyder RT	400 kg (882 lb)	MC 225/50R15 **76H**

NOTE: The Spyder RT uses a heavy duty rim with a load rating of 400 kg (882 lb) to match with the tire. Always check the load rating on rim spoke to ensure that the rim meets the proper specification.

Rear Tire Replacement

⚠ WARNING

The VSS on the vehicle has been calibrated to perform best with a tire of a specific size, material, and tread pattern. Replacing the tire with one not approved by BRP can cause the VSS to be ineffective.

To replace the rear tire, do the following:

Remove rear wheel from vehicle. Refer to *REAR WHEEL* in this subsection.

Using an automotive tire changer (rim clamp type), remove the old tire and install the new one.

⚠ WARNING

The tire is only designed to rotate in one direction. If a tire is mounted on the incorrect side, you will have less traction and could lose control.

⚠ WARNING

It is imperative to follow the proper *MAX LOAD RATING* of the tire relating to the model of vehicle serviced. Always check on the tire sidewall to ensure that the load rating is in accordance with the specification. Refer to *RECOMMENDED TIRE*.

NOTE: Refer to manufacturer's instructions for tire changer operation.

Remove the old balancing masses from rim.

Clean inner side of wheel with alcohol to remove grease and dust.

Balance wheel using a wheel balancer.

See directive in table below depending which wheel balancer type is used.

WHEEL BALANCER	
Motorcycle type balancer	Do not remove wheel hub or wheel bearing
Automotive type balancer	Remove wheel hub and wheel bearing

NOTE: Refer to manufacturer's instructions for wheel balancer operation.

Install the new balancing masses inside wheel. Position them in the center of the flat inner surface of the rim.

NOTICE **Improperly positioned weights can cause interference.**

Install a NEW wheel bearing if it has been removed.

Reinstall wheel. Refer to *REAR WHEEL* in this subsection.

⚠ WARNING

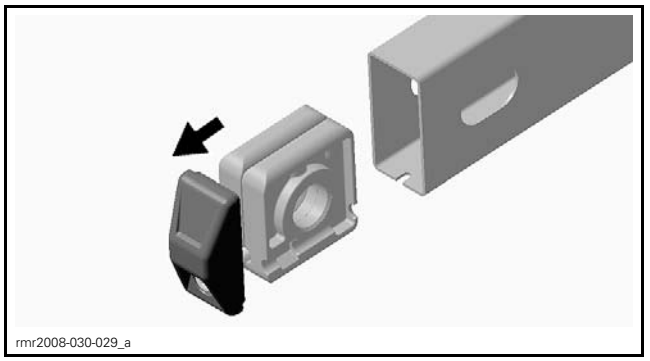
When installing a new tire, always observe a break-in period of 300 km (200 mi). During this time, the tire and the VSS will not operate at their maximum efficiency. You could lose control and crash – use extra caution.

REAR WHEEL TENSIONER

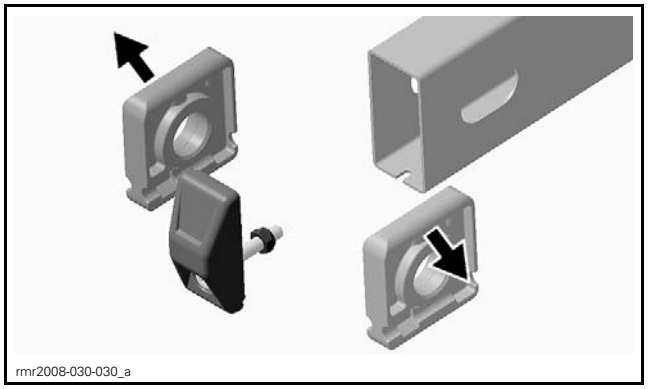
Rear Wheel Tensioner Removal

Remove rear wheel. Refer to *REAR WHEEL* in this subsection.

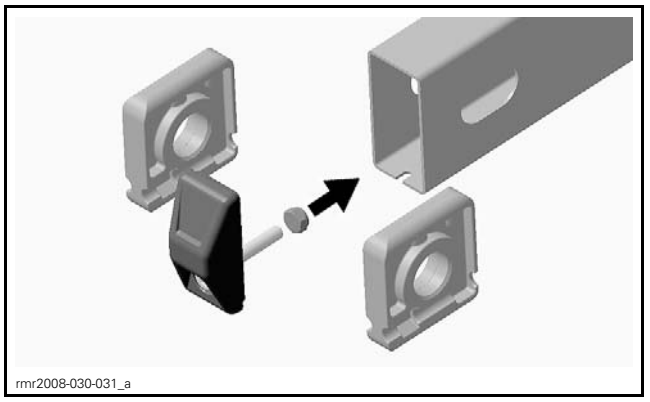
Pull tensioner out of swing arm end.



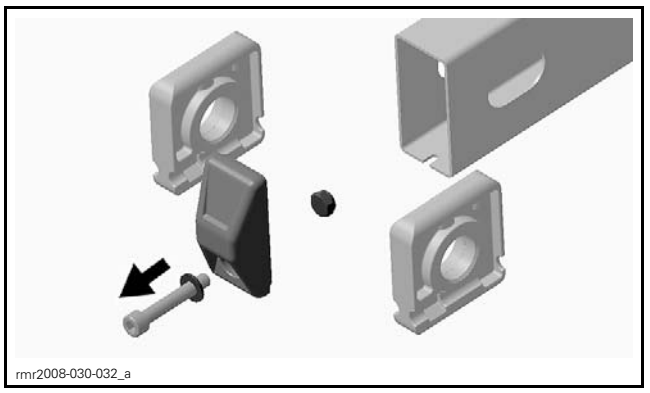
Separate both sliding blocks.



Unscrew nut completely.

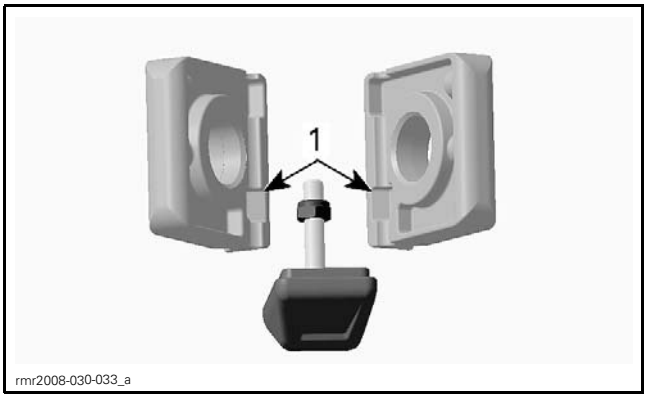


Remove tensioner bolt with its washer.



Rear Wheel Tensioner Installation

Install nut into sliding blocks recesses.



1. Sliding blocks recesses

Insert tensioner into swing arm end.
Install and adjust all other removed parts.