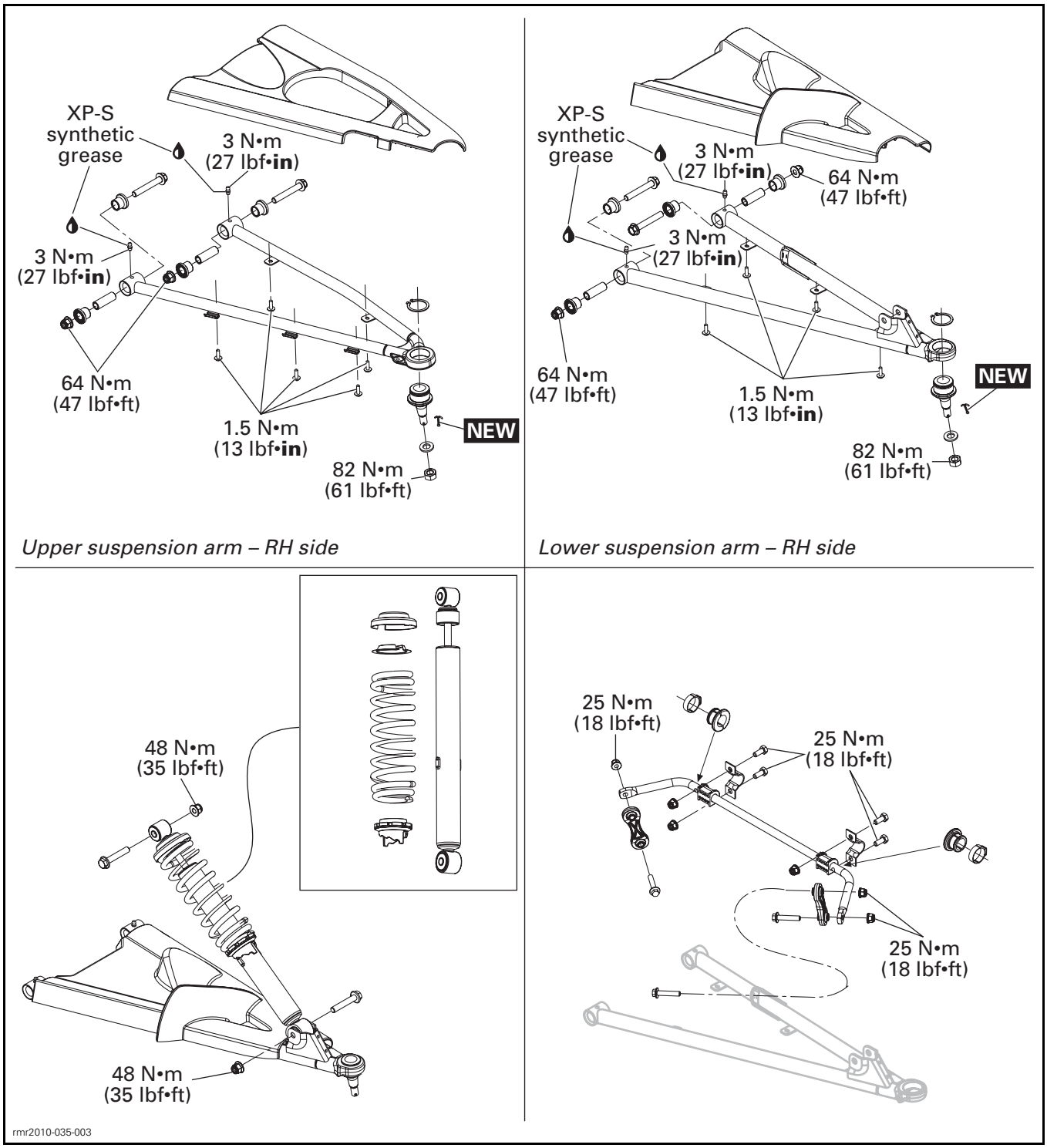
FRONT SUSPENSION

SERVICE TOOLS

Description	Part Number	Page
BALL JOINT EXTRACTOR	529 035 827	7
BALL JOINT INSTALLER	529 035 975	7, 9
BALL JOINT REMOVER SUPPORT	529 036 121	7, 9
SPRING REMOVER	529 036 007	4

SERVICE PRODUCTS

Description	Part Number	Page
XPS SYNTHETIC GREASE	293 550 010	4, 7, 9



Upper suspension arm – RH side

Lower suspension arm – RH side

rmr2010-035-003

GENERAL

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

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

ADJUSTMENT

SPRING PRELOAD

Place vehicle on a level surface.

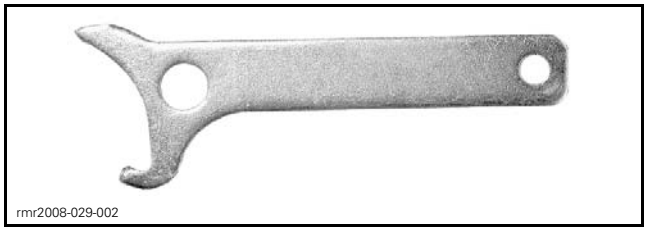
Install a jack under the front portion of frame.

Lift the front of vehicle until shock absorbers are fully extended.

⚠ WARNING

Adjust both springs to the same load. Uneven adjustment can cause poor handling and loss of stability, and/or control, and increase the risk of an accident.

Adjust spring preload by turning adjusting cam accordingly, with the adjusting wrench in vehicle tool kit.



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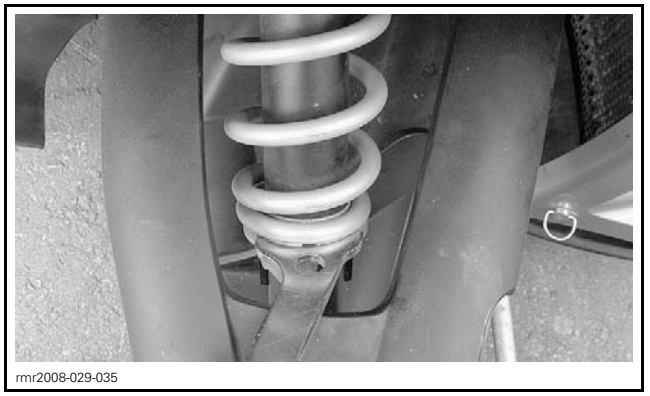

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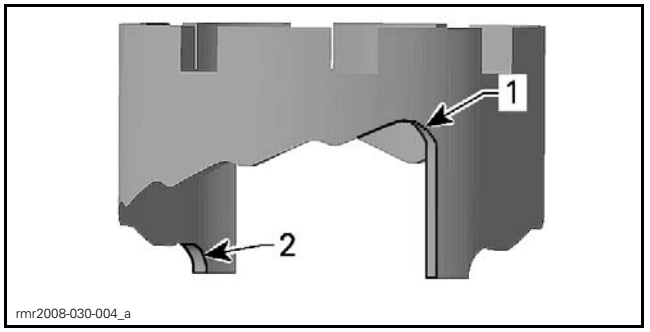
Turn the adjusting cams clockwise to increase spring preload.

Turn the adjusting cams counterclockwise to decrease spring preload.



rmr2008-030-004_a

1. Softest adjustment (position 1)
2. Hardest adjustment (position 5)

RECOMMENDED SPRING PRELOAD	
LOAD	CAM POSITION
68 kg (150 lb) rider	1, 2
91 kg (200 lb) rider	3
68 kg (150 lb) rider with cargo	3
91 kg (200 lb) rider with cargo	4
Rider with passenger and cargo	5

MAINTENANCE

SUSPENSION LUBRICATION

Place vehicle on a level surface.

Apply parking brake.

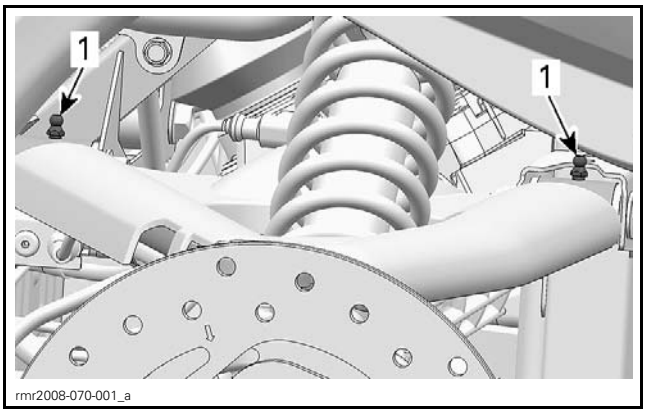
Loosen wheel lug nuts.

Lift the front of the vehicle.

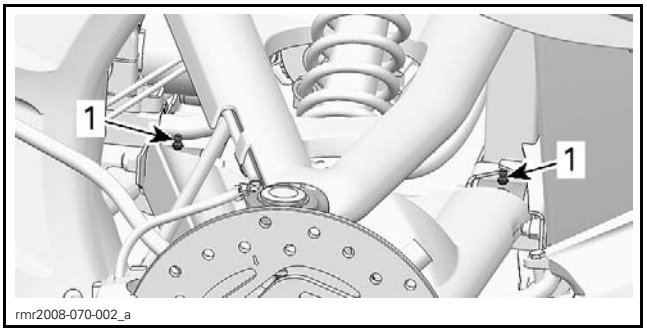
Secure vehicle on jack stands.

Remove wheel.

Use XPS SYNTHETIC GREASE (P/N 293 550 010) to lubricate suspension arms. There are two grease fittings per arm.



UPPER ARM
1. Grease fittings



LOWER ARM
1. Grease fittings

PROCEDURES

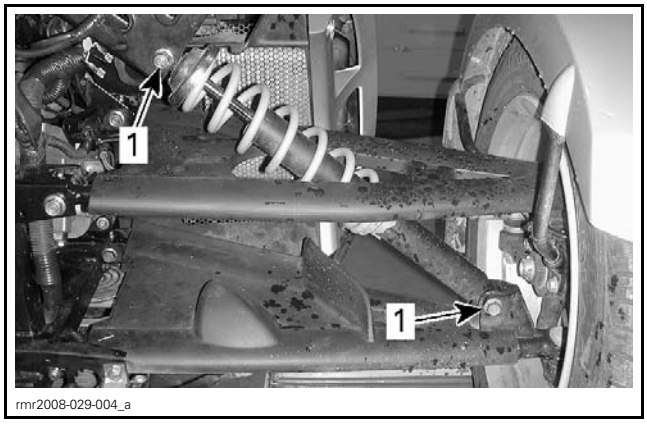
SHOCK ABSORBER

Shock Absorber Removal

Remove body parts as required to access to the shock absorber. Refer to *BODY* subsection.

Lift the front of vehicle.

Unscrew shock absorber bolts.

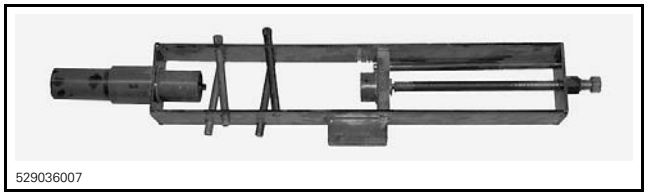


FRONT CARGO MODULE REMOVED FOR CLARITY
1. Shock absorber bolts

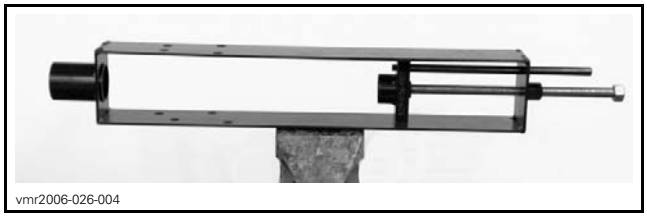
Remove shock absorber from vehicle.

Shock Absorber Disassembly

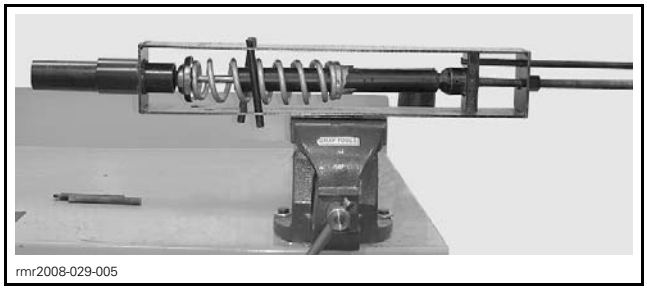
To remove spring from the shock absorber, use the SPRING REMOVER (P/N 529 036 007).



Place the tool in a vise.

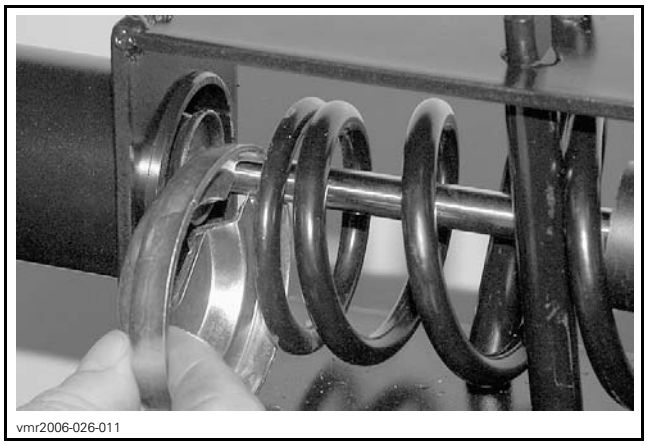


Position the shock absorber in the tool and install the spring compressor pins.



Tighten the spring compressor tool screw until the spring is sufficiently compressed to remove spring locking devices.

Remove spring stopper then release the spring compressor tool screw.


vmr2006-026-011

TYPICAL

Shock Absorber Inspection

Examine shock for leaks.

Extend and compress the piston at least 5 complete strokes with its rod upward.

Check that rod moves smoothly and with uniform resistance over its entire stroke.

NOTE: During compression motion, it is normal to feel a small resistance only.

Pay attention to the following conditions that will denote a defective shock:

– A very weak rebound.
– A skip or a hang back when reversing stroke at mid travel.
– Seizing or binding condition except at extreme end of either stroke.
– Oil leakage.
– A gurgling noise, after completing one full compression and extension stroke.

Check piston rod for excessive wear or pitting.

Inspect the spring for damage. Replace if necessary.

On both ends, check the bushings for excessive wear or other damages.

Replace shock absorber or spring if any faults are present.

Shock Absorber Assembly and Installation

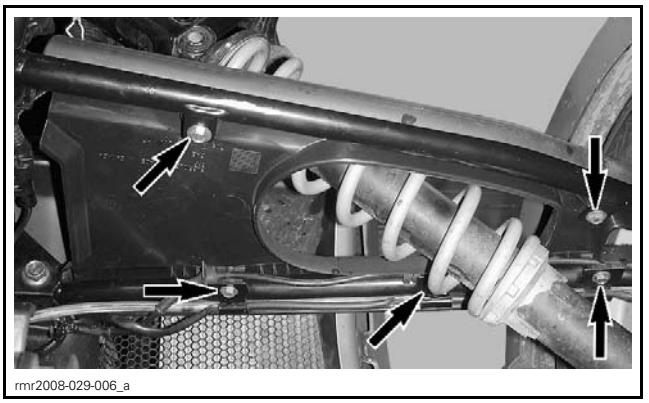
For assembly and installation, reverse the disassembly and removal procedures.

AIR DEFLECTOR (UPPER ARM)

Air Deflector Removal

Remove body parts as required to access to the air deflector. Refer to *BODY* subsection.

Underneath suspension arm, remove air deflector screws.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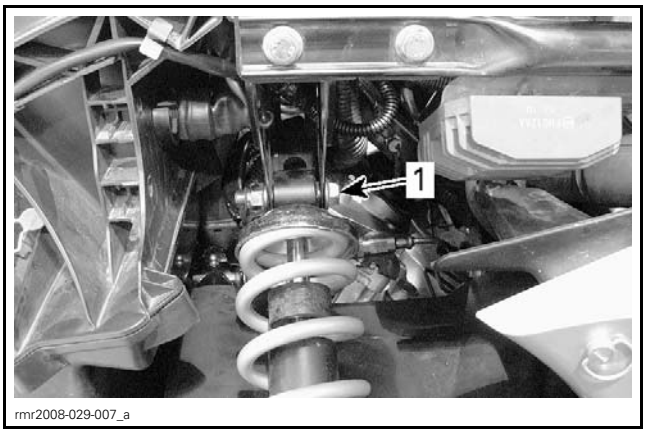
Remove the upper shock absorber bolt.



rmr2008-029-007_a

1. Upper shock absorber bolt

Detach flexible brake hose and speed sensor wire from air deflector.

Remove the air deflector.

Air Deflector Installation

The installation is the reverse of the removal procedure.

UPPER SUSPENSION ARM

Upper Suspension Arm Inspection

Check upper suspension arms for bending or other damage. Replace suspension arms if necessary.

Move upper suspension arm from side to side and up and down. There should be no noticeable play in bushings.

If necessary, remove suspension arm and inspect pivot bushings and sleeves for wear or damages. Replace bushings and/or sleeves if necessary.

Upper Suspension Arm Removal

Place vehicle on a level surface.

Apply parking brake.

Remove front cargo module. Refer to *BODY* subsection.

Loosen wheel lug nuts.

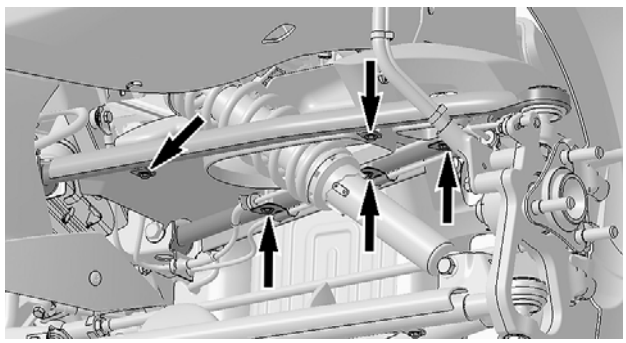
Lift the front of the vehicle.

Secure vehicle on jack stands.

Remove wheel.

Remove brake disc and encoder wheel. Refer to *BRAKES* subsection.

Remove screws securing the air deflector on upper suspension arm.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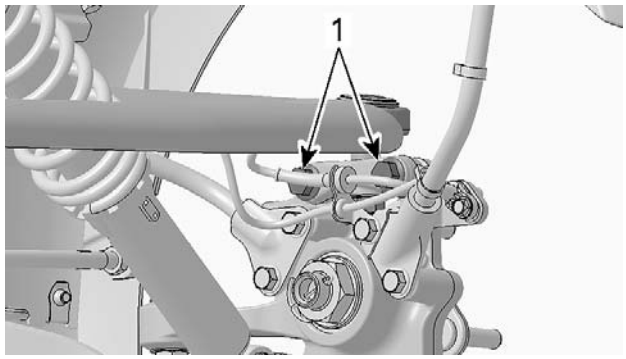
Remove screws securing the upper ball joint support.



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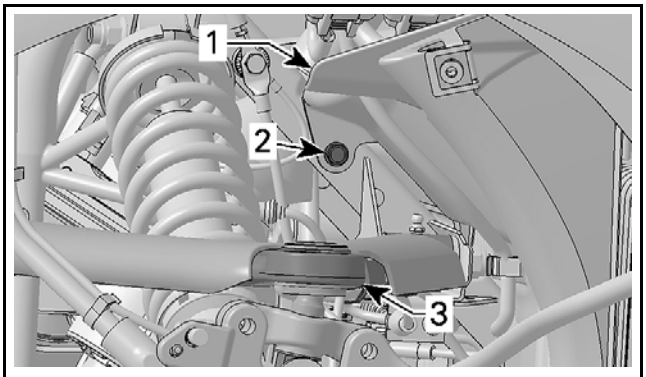
1. Ball joint support screws

Remove upper screw retaining oil cooler air duct (LH side) or radiator air duct (RH side).



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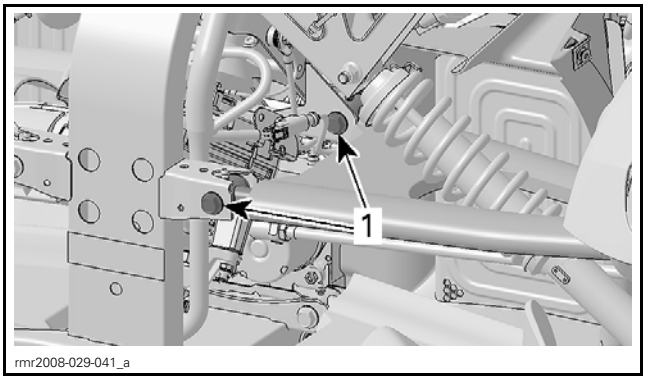
LH SIDE SHOWN
1. Oil cooler air duct
2. Screw to remove
3. Upper suspension arm

Unscrew upper suspension arm bolts.



rmr2008-029-041_a

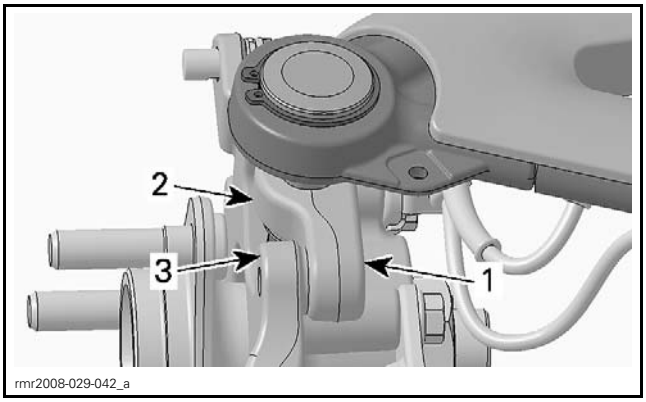
1. Upper suspension arm bolts

Remove the upper suspension arm without its air deflector.

Upper Suspension Arm Installation

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

Position the rounded side of the upper ball joint support toward knuckle.



rmr2008-029-042_a

1. Ball joint support
2. Rounded side of ball joint support
3. Knuckle

Use XPS SYNTHETIC GREASE (P/N 293 550 010) to lubricate upper suspension arm. There are two grease fittings per arm.

Perform the steering angle reset. Refer to *STEERING ANGLE SENSOR* in *STEERING (DPS) AND WHEELS* subsection.

Perform the torque offset reset. Refer to *TORQUE OFFSET RESET* in *STEERING (DPS) AND WHEELS* subsection.

UPPER BALL JOINT

Upper Ball Joint Inspection

Inspect ball joint end for damage. Ensure it is moving freely without play. Replace ball joints as required.

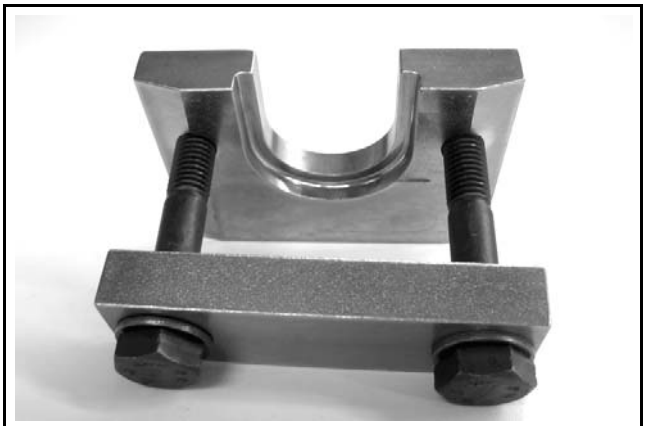
Upper Ball Joint Removal

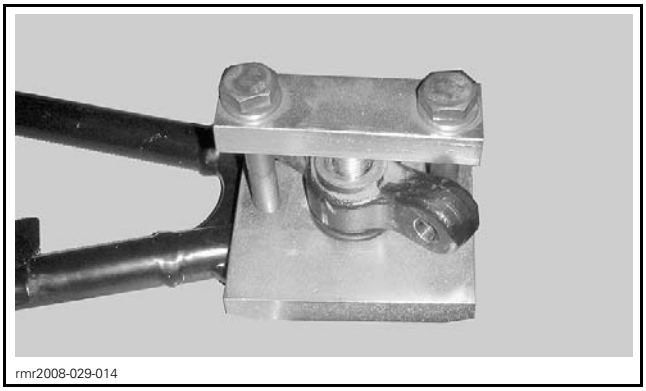
Remove the *UPPER SUSPENSION ARM*, see procedure in this subsection.

Remove and discard the cotter pin from ball joint.

Unscrew the ball joint nut.

Install the BALL JOINT EXTRACTOR (P/N 529 035 827) and detach ball joint support from ball joint.

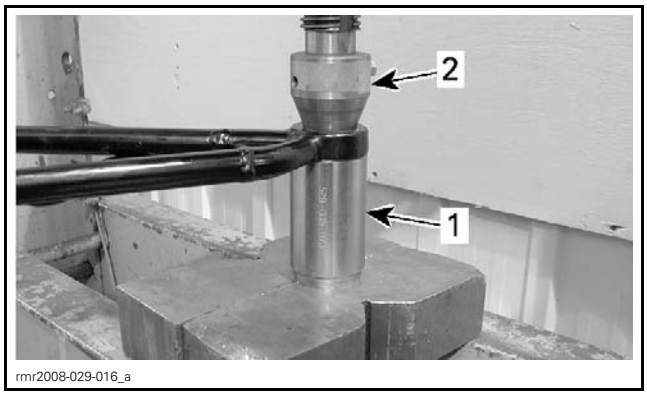

529035827


rmr2008-029-014

Remove circlip securing ball joint to suspension arm.


rmr2008-029-015

Using a press and the BALL JOINT REMOVER SUPPORT (P/N 529 036 121), press ball joint out of the upper suspension arm.

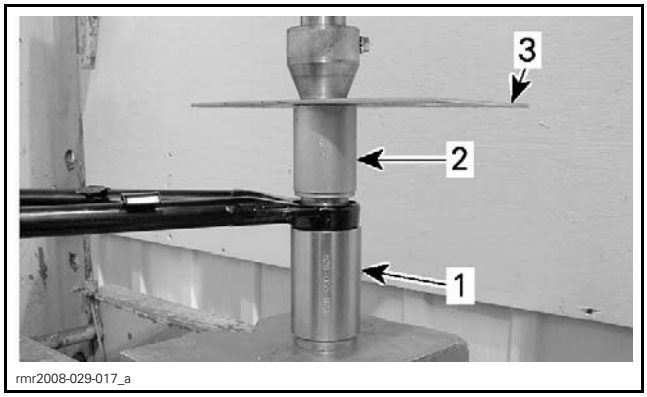


rmr2008-029-016_a

1. *Ball joint remover*
2. *Press*

Upper Ball Joint Installation

Using a press, the BALL JOINT REMOVER SUPPORT (P/N 529 036 121) and the BALL JOINT INSTALLER (P/N 529 035 975), press ball joint into the suspension arm.



rmr2008-029-017_a

1. *Ball joint remover*
2. *Ball joint installer*
3. *Steel plate*

Install suspension arm on vehicle. Refer to *UPPER SUSPENSION ARM* in this subsection.

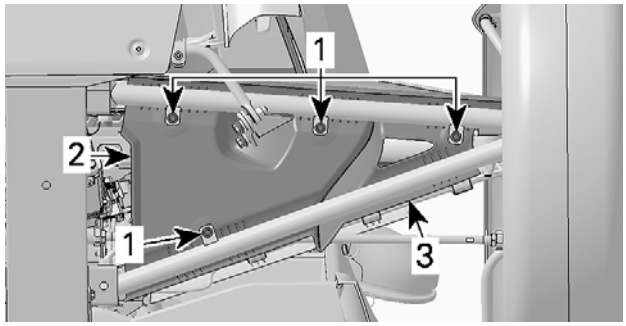
Perform the steering angle reset. Refer to *STEERING ANGLE SENSOR* in *STEERING (DPS) AND WHEELS* subsection.

Perform the torque offset reset. Refer to *TORQUE OFFSET RESET* in *STEERING (DPS) AND WHEELS* subsection.

AIR DEFLECTOR (LOWER ARM)

Air Deflector Removal

Underneath suspension arm, remove air deflector screws.



UNDERNEATH LH LOWER SUSPENSION ARM
1. *Air deflector screws*
2. *Air deflector*
3. *Suspension arm*

Remove the air deflector.

Air Deflector Installation

The installation is the reverse of the removal procedure.

LOWER SUSPENSION ARM

Lower Suspension Arm Inspection

Check lower suspension arms for bending or other damage. Replace suspension arms if necessary.

Move lower suspension arm from side to side and up and down. There should be no noticeable play in bushings.

If necessary, remove suspension arm and inspect pivot bushings and sleeves for wear or damages. Replace bushings and/or sleeves if necessary.

Lower Suspension Arm Removal

Place vehicle on a level surface.

Apply parking brake.

Remove front cargo module. Refer to *BODY* subsection.

Loosen wheel lug nuts.

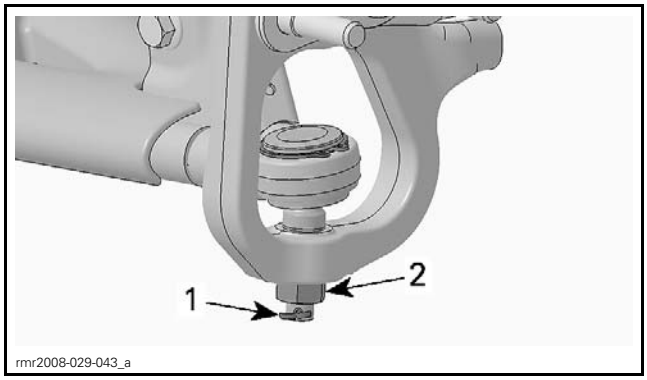
Lift the front of the vehicle.

Remove wheel.

Remove brake disc and encoder wheel. Refer to *BRAKES* subsection.

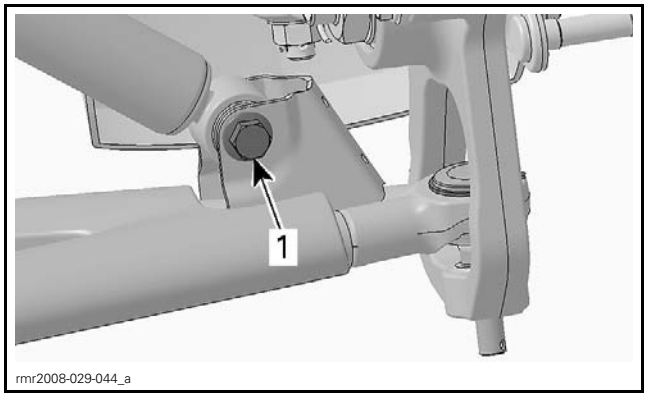
Remove and discard cotter pin from ball joint.

Unscrew ball joint nut.



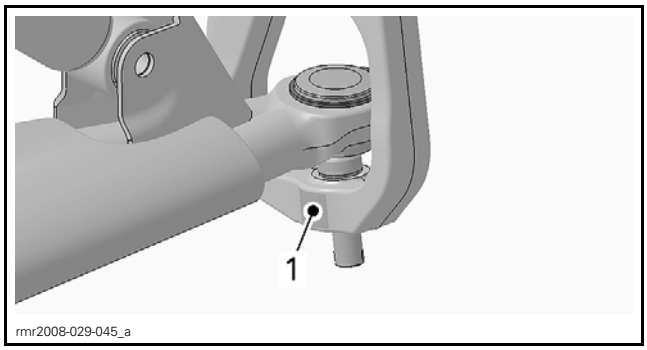
1. *Cotter pin*
2. *Ball joint nut*

Remove the lower shock absorber bolt.



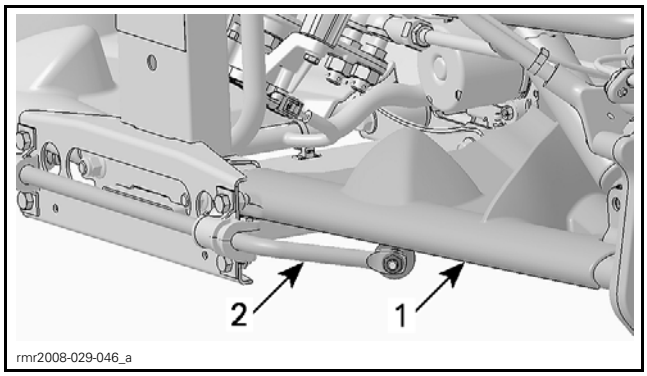
1. *Lower shock absorber bolt*

Hit the bottom of knuckle to separate ball joint.



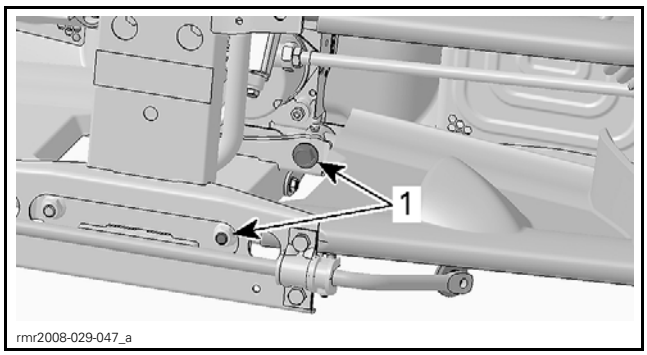
1. *Hit here*

Underneath lower suspension arm, remove stabilizer bar bolt.



1. *Lower suspension arm*
2. *Stabilizer bar*

Unscrew lower suspension arm bolts.



1. *Lower suspension arm bolts*

Remove the lower suspension arm with its air deflector.

Turn suspension arm upside down and remove the air deflector.

Lower Suspension Arm Installation

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

Use XPS SYNTHETIC GREASE (P/N 293 550 010) to lubricate lower suspension arm. There are two grease fittings per arm.

Perform the steering angle reset. Refer to *STEERING ANGLE SENSOR* in *STEERING (DPS) AND WHEELS* subsection.

Perform the torque offset reset. Refer to *TORQUE OFFSET RESET* in *STEERING (DPS) AND WHEELS* subsection.

LOWER BALL JOINT

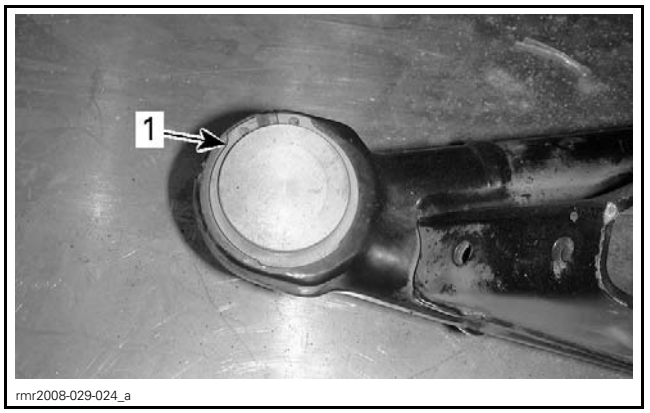
Lower Ball Joint Inspection

Inspect ball joint end for damage. Ensure it is moving freely without play. Replace ball joints as required.

Lower Ball Joint Removal

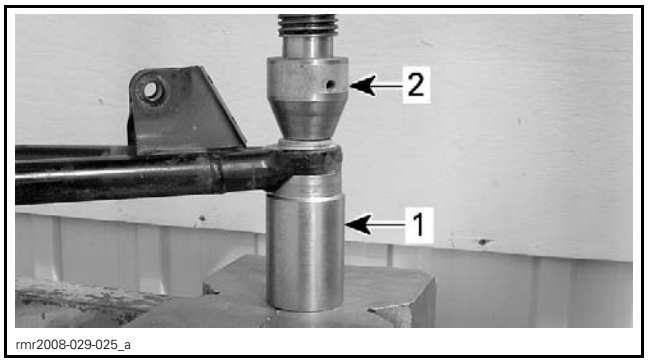
Remove the *LOWER SUSPENSION ARM*, see procedure in this subsection.

Remove circlip securing ball joint to suspension arm.



1. *Circlip*

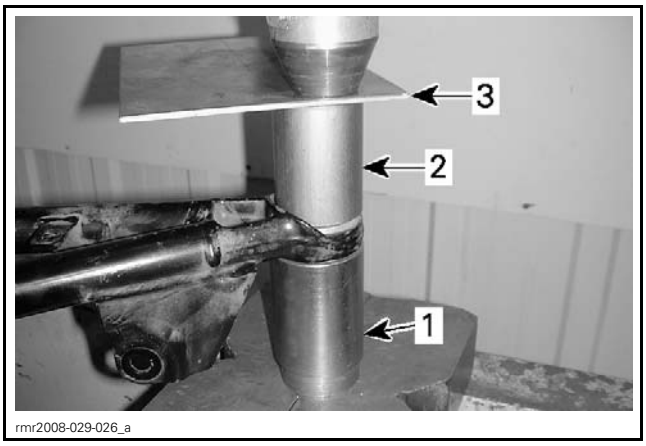
Using a press and the BALL JOINT REMOVER SUPPORT (P/N 529 036 121), press ball joint out of the lower suspension arm.



1. *Ball joint remover*
2. *Press*

Lower Ball Joint Installation

Using a press, the BALL JOINT REMOVER SUPPORT (P/N 529 036 121) and the BALL JOINT INSTALLER (P/N 529 035 975), press ball joint into the suspension arm end.



1. Ball joint remover support
2. Ball joint installer
3. Steel plate

Install suspension arm on vehicle. Refer to *LOWER SUSPENSION ARM*.

Perform the steering angle reset. Refer to *STEERING ANGLE SENSOR* in *STEERING (DPS) AND WHEELS* subsection.

Perform the torque offset reset. Refer to *TORQUE OFFSET RESET* in *STEERING (DPS) AND WHEELS* subsection.

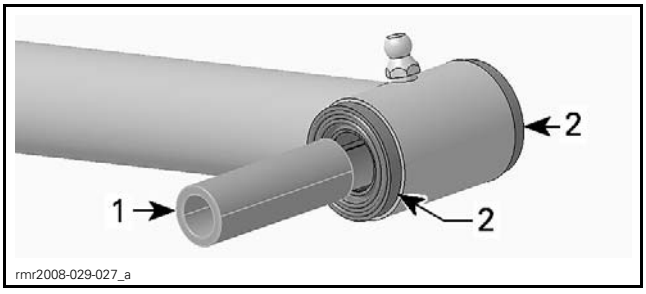
PIVOT BUSHINGS

NOTE: The following procedure is the same for all suspension arms.

Pivot Bushings Removal

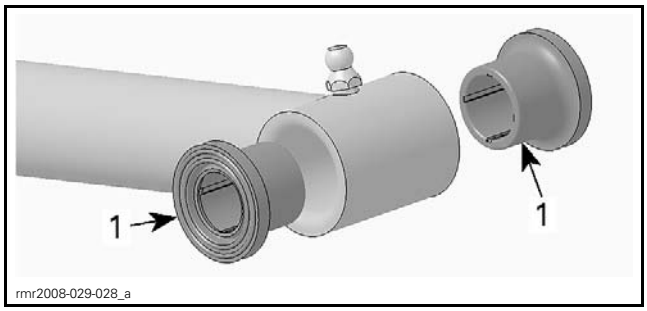
Remove appropriate suspension arm. Refer to *UPPER SUSPENSION ARM* or *LOWER SUSPENSION ARM* in this subsection.

Remove sleeve from pivot bushings.



1. Sleeve
2. Pivot bushings

Using a punch, remove pivot bushings.



1. Pivot bushings

Pivot Bushings Installation

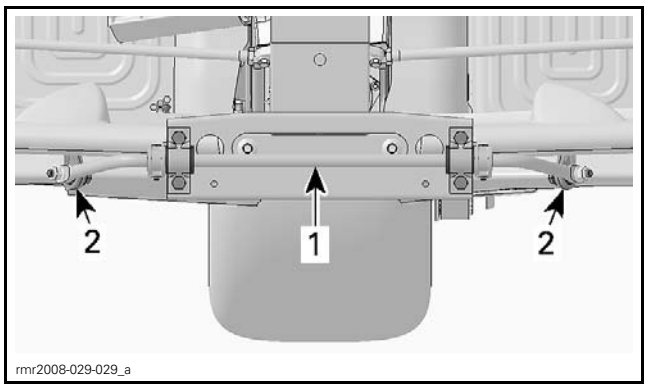
The installation is the reverse of the removal procedure.

STABILIZER BAR

Stabilizer Bar Removal

Remove front cargo module. Refer to *BODY* subsection.

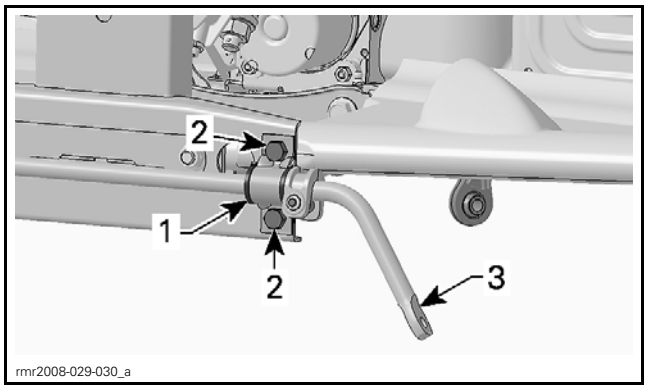
Unscrew stabilizer bar from link rods.



TYPICAL
1. Stabilizer bar
2. Link rods

Turn stabilizer bar downward.

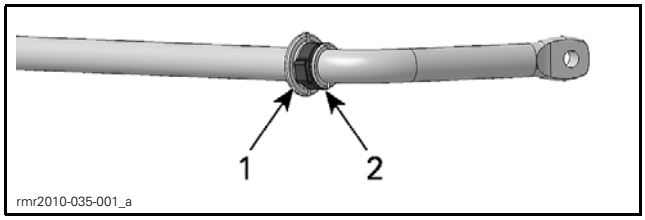
Remove stabilizer bar bushings.



TYPICAL
1. Stabilizer bar bushing
2. Remove these bolts
3. Stabilizer bar

Remove stabilizer bar from vehicle.

Remove oetiker clamps and stabilizer bar stoppers.



1. Stopper
2. Oetiker clamp

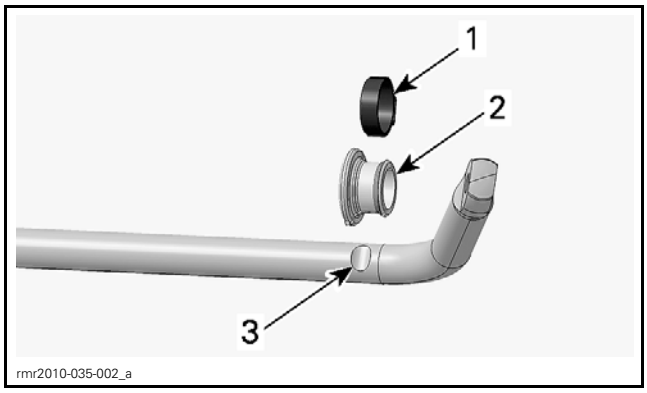
Stabilizer Bar Installation

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

Before installing stabilizer bar, verify if all ball joints of link rods move smoothly and freely. Replace link rod if necessary.

Check stabilizer bar bushings for cracks or other damages. Replace if necessary.

Install stoppers. Align stopper with stabilizer bar groove.



1. Oetiker clamp
2. Stabilizer bar stopper
3. Stabilizer bar groove

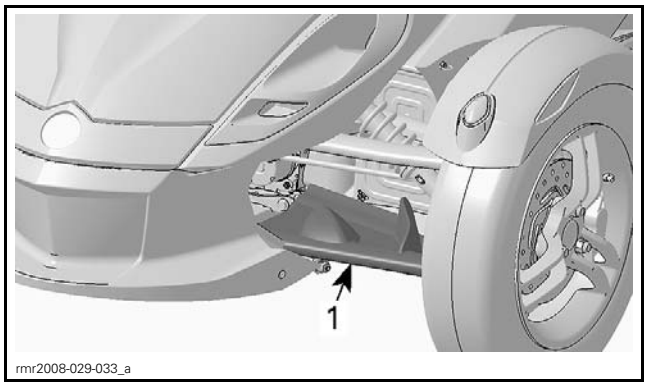
Install all other removed parts.

LINK ROD

Link Rod Removal

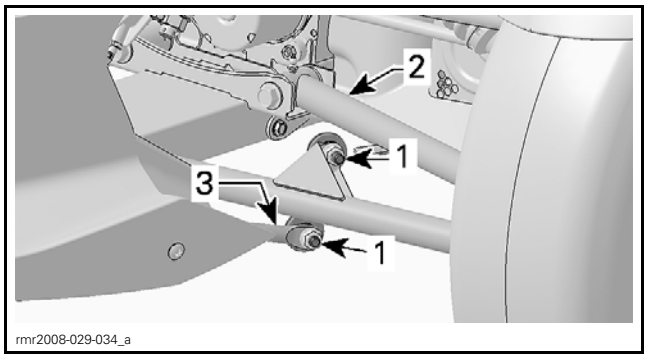
Lift the front of vehicle.

Remove the air deflector from lower suspension arm.



TYPICAL - LH SIDE SHOWN
1. Air deflector

Unscrew the bolts securing link rods.



LH SIDE SHOWN
1. Link rod bolts
2. Lower suspension arm
3. Stabilizer bar

Link Rod Installation

The installation is the reverse of the removal procedure.