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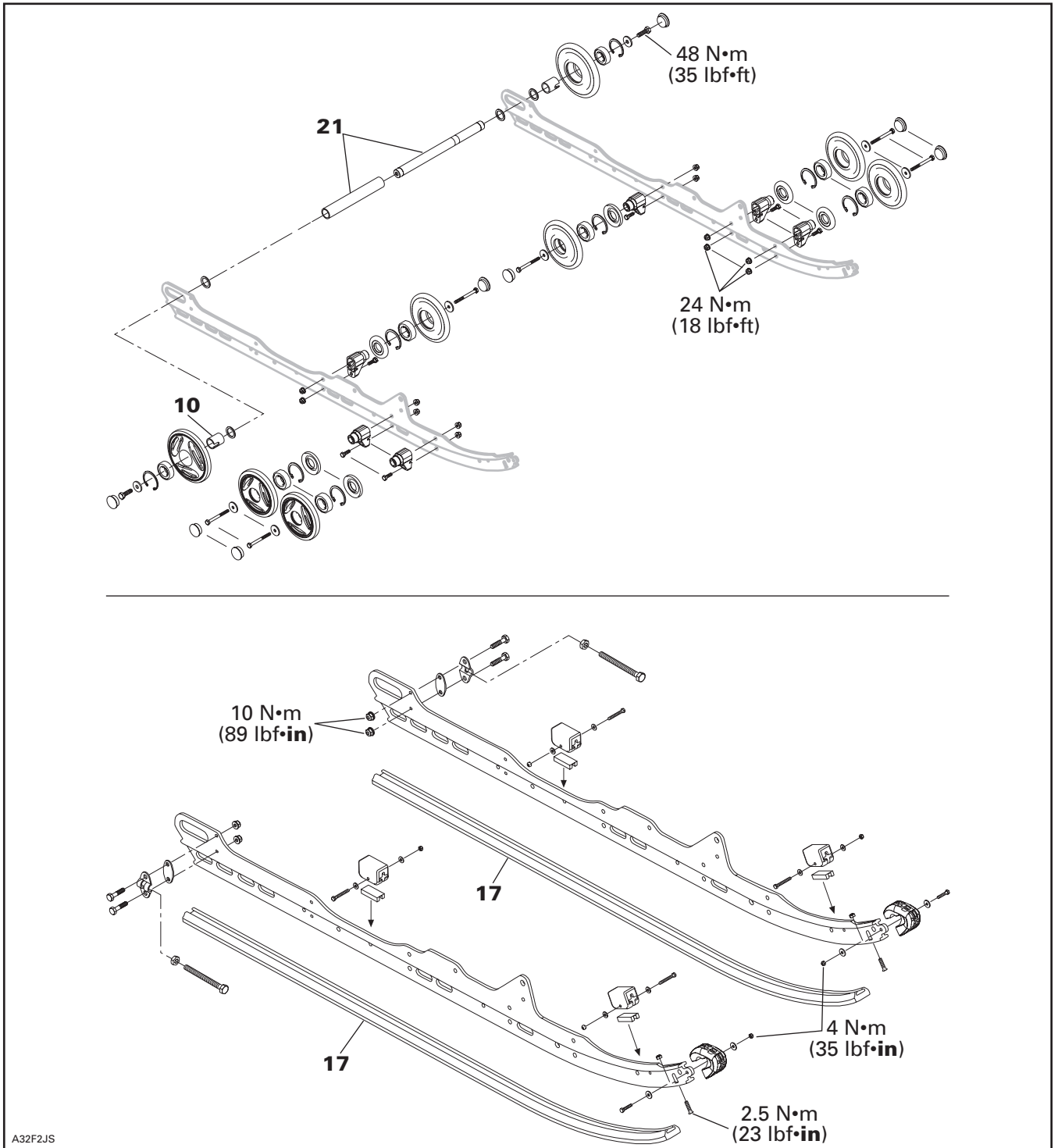
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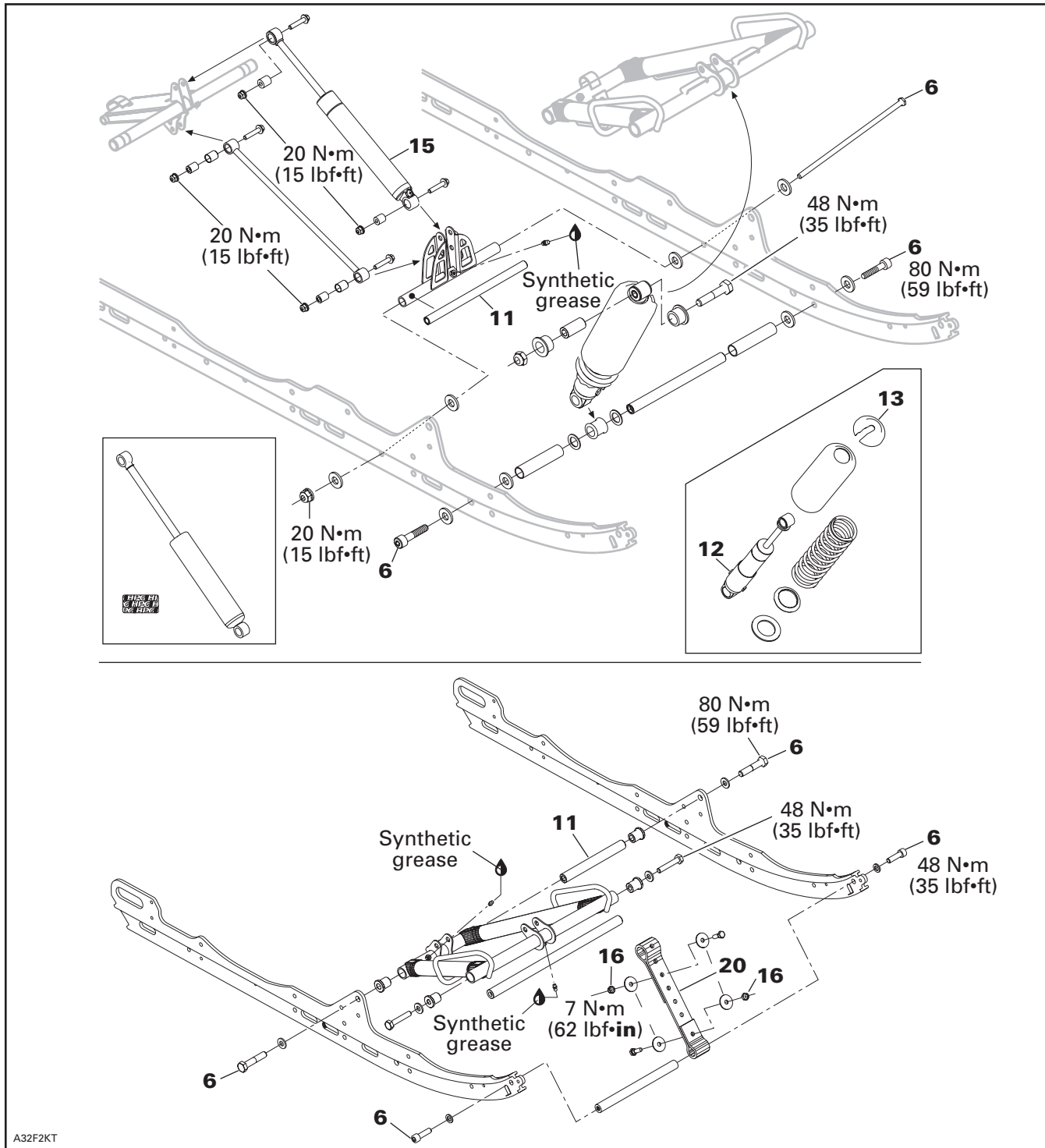
# SC-10 SUSPENSION

*Grand Touring Fan 380/550, Skandic Sport 500 and Summit Fan 550*



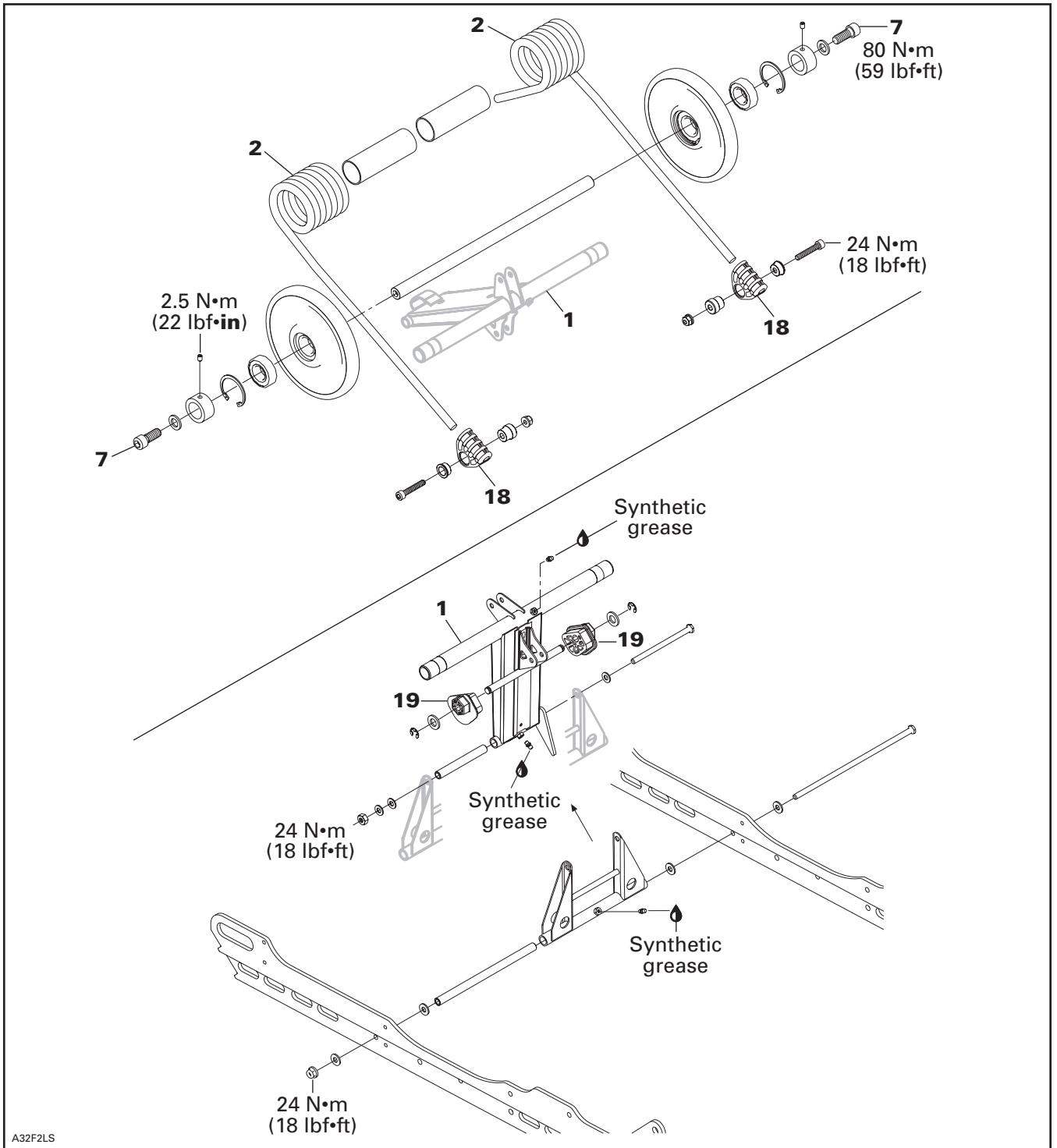
# Section 07 REAR SUSPENSION

## Subsection 02 (SC-10 SUSPENSION)



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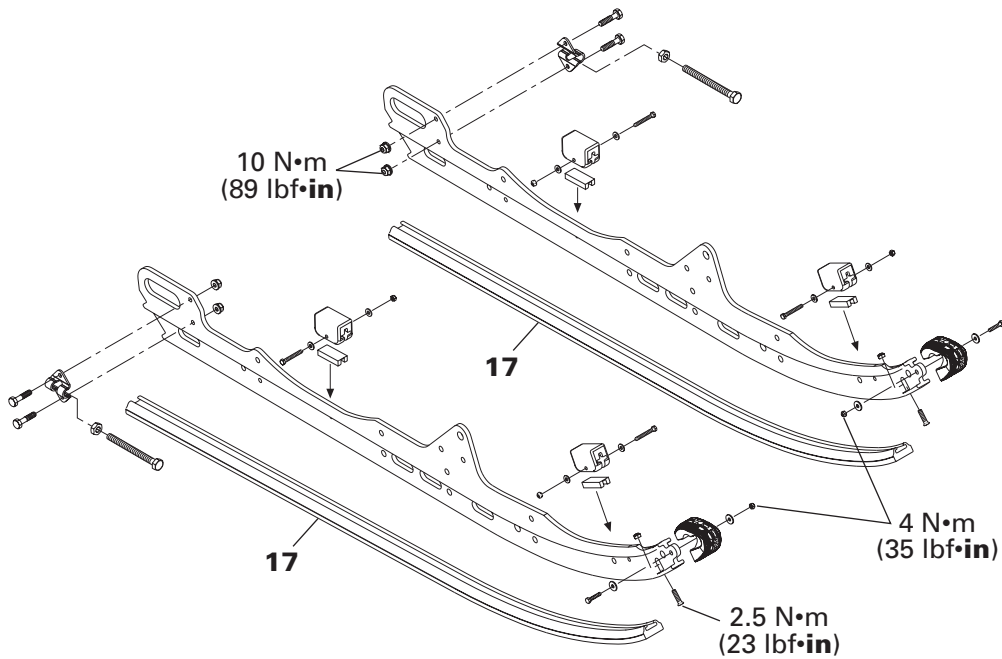
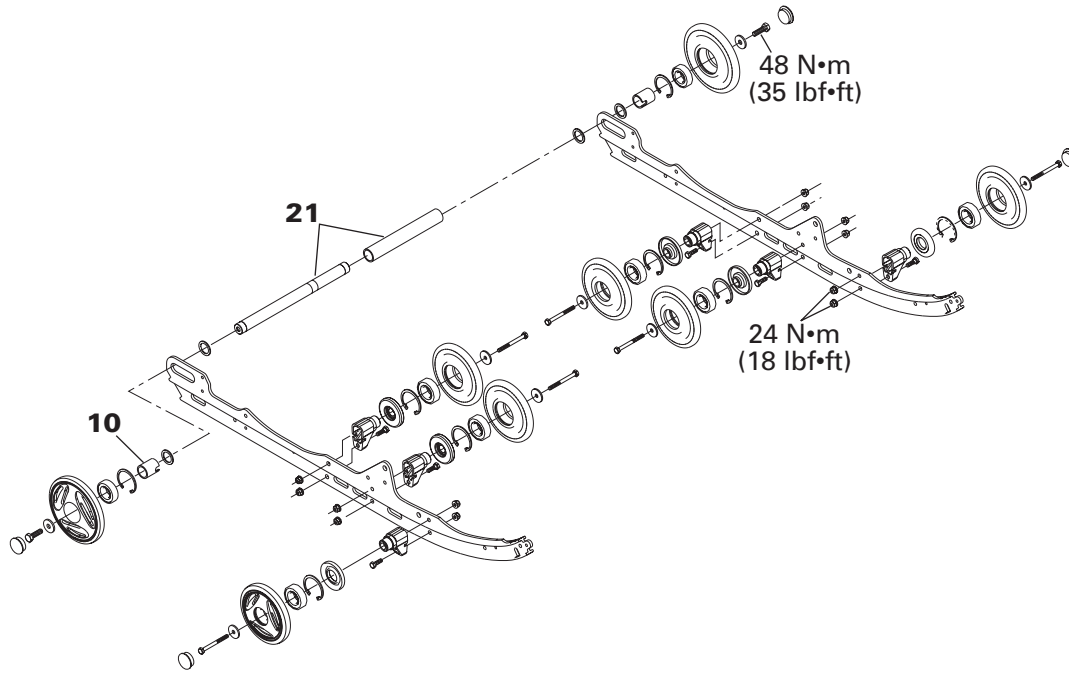
**Section 07 REAR SUSPENSION**  
Subsection 02 (SC-10 SUSPENSION)



## Section 07 REAR SUSPENSION

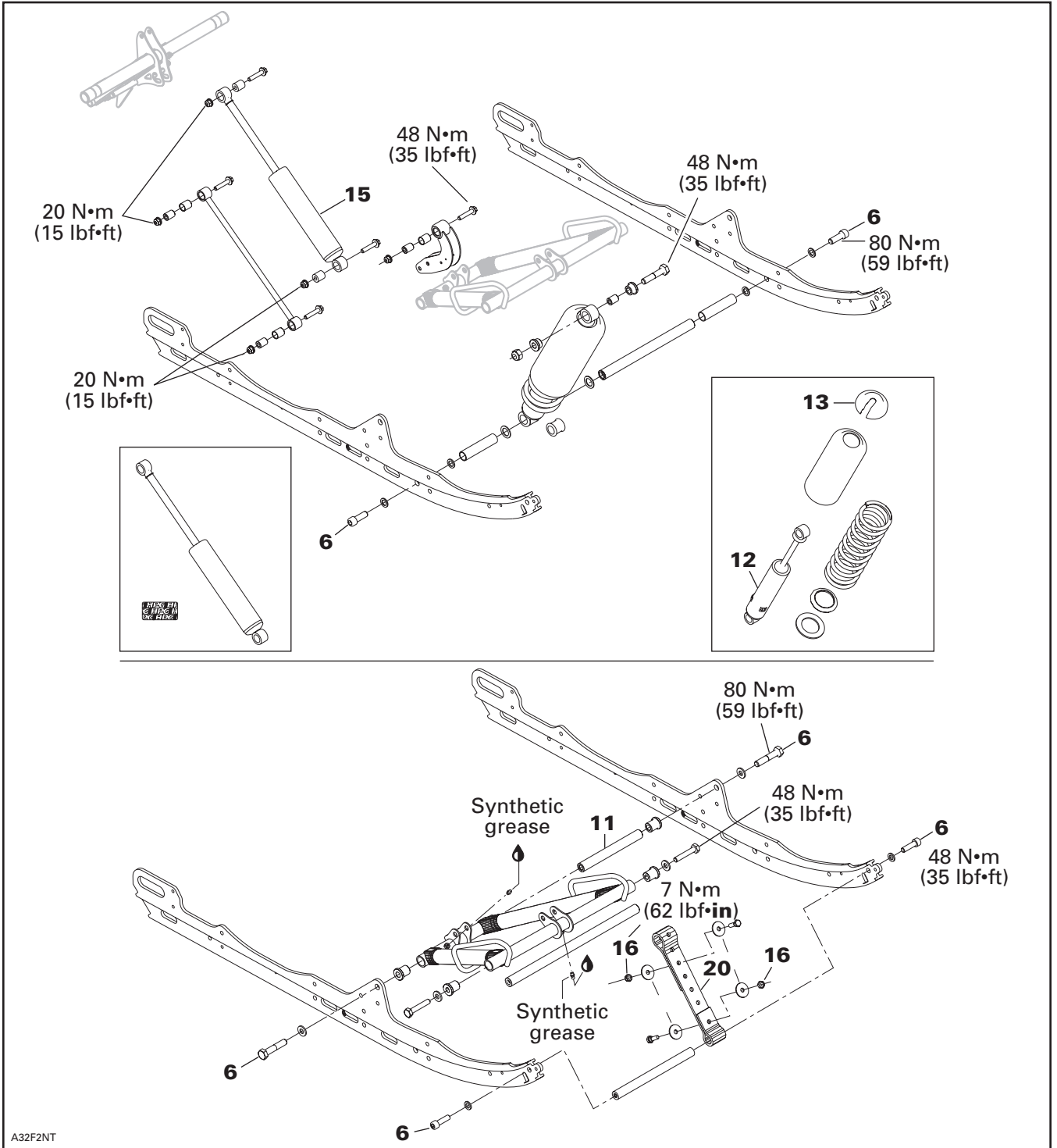
### Subsection 02 (SC-10 SUSPENSION)

#### MX Z Fan 380/550 and Legend Fan 380/550



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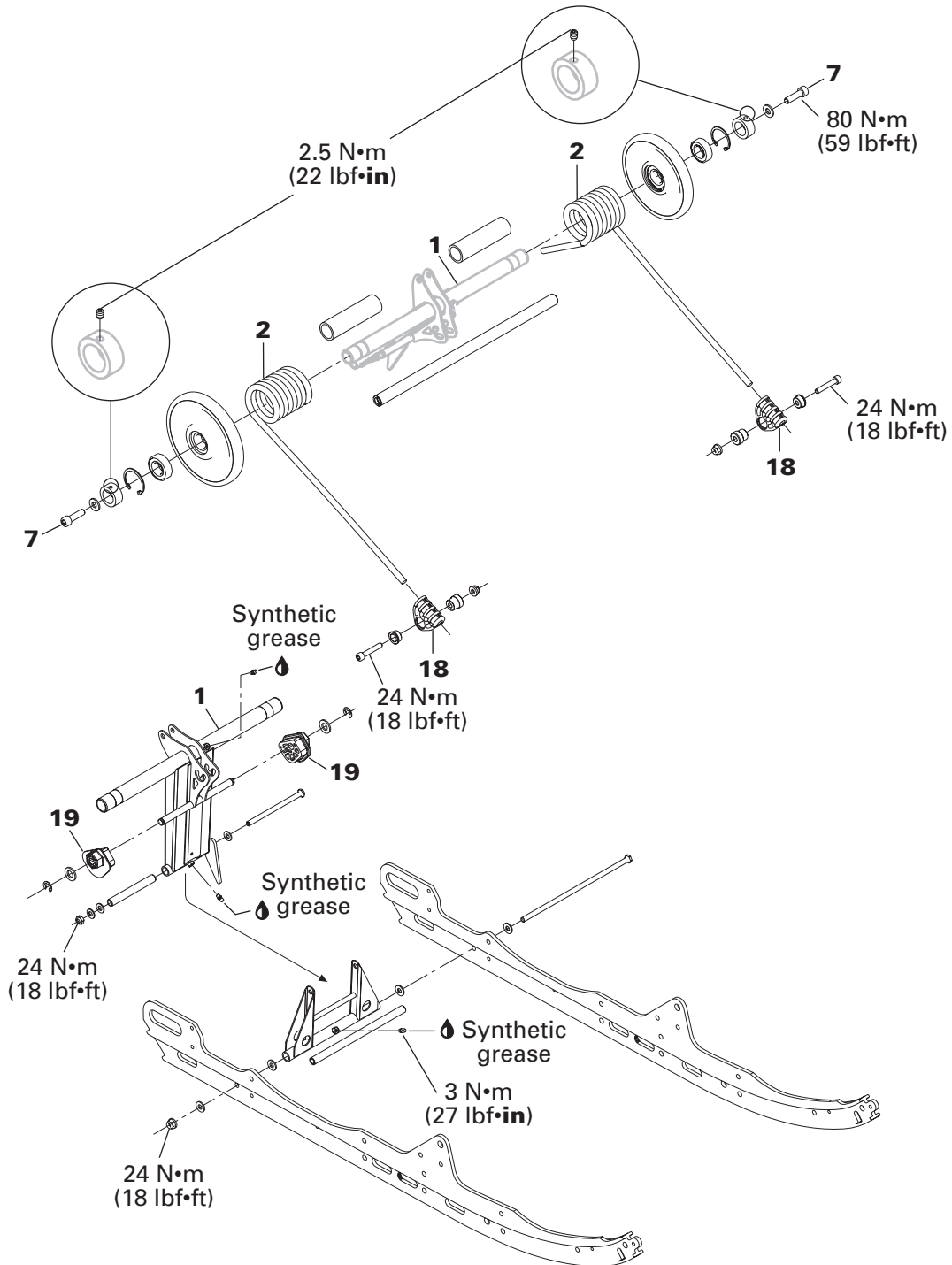
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## Section 07 REAR SUSPENSION

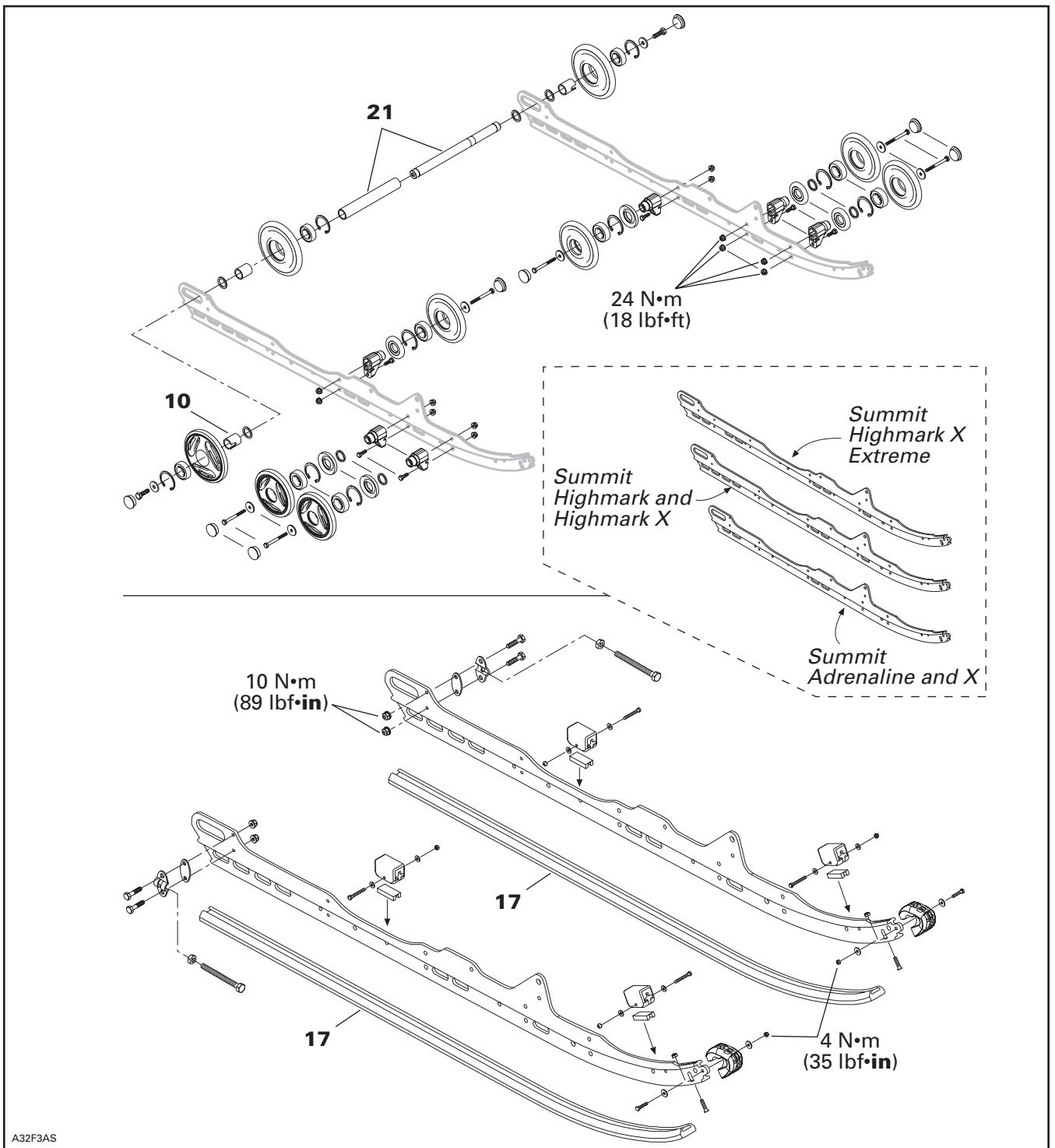
### Subsection 02 (SC-10 SUSPENSION)



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**Section 07 REAR SUSPENSION**  
Subsection 02 (SC-10 SUSPENSION)

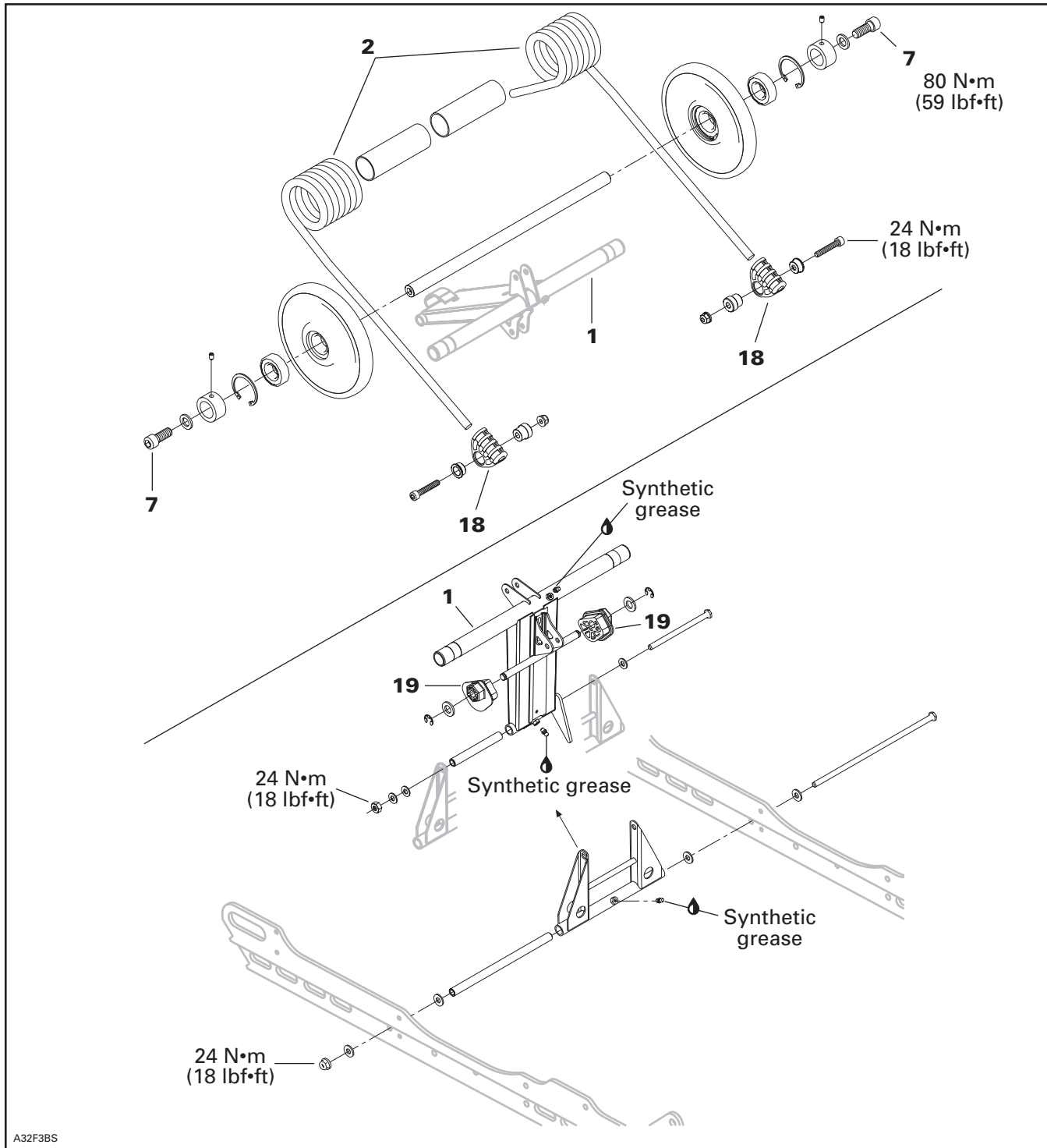
**Summit 600/700/800**



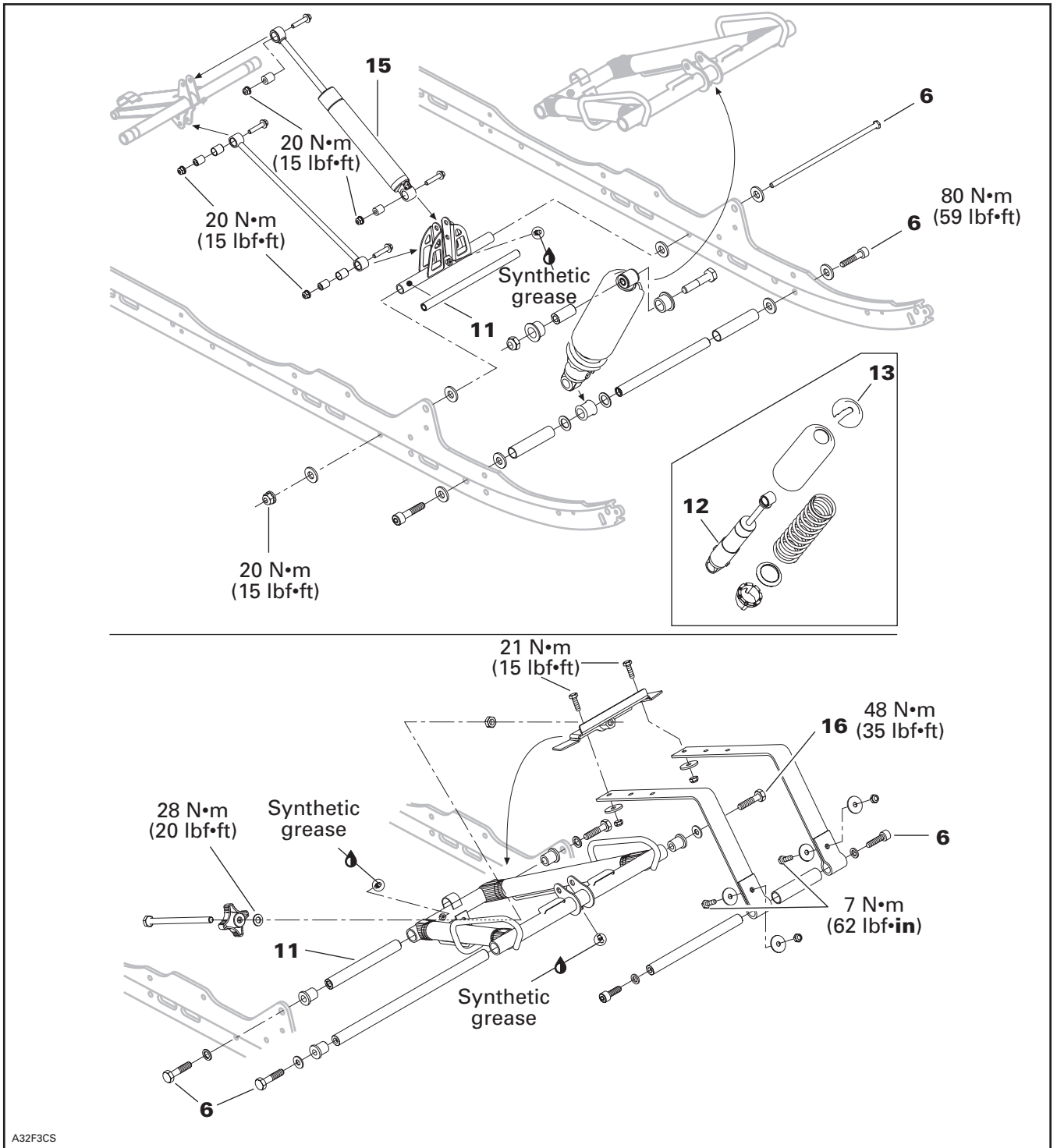


## Section 07 REAR SUSPENSION

### Subsection 02 (SC-10 SUSPENSION)



**Section 07 REAR SUSPENSION**  
Subsection 02 (SC-10 SUSPENSION)



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## Section 07 REAR SUSPENSION

### Subsection 02 (SC-10 SUSPENSION)

## COMPONENT REMOVAL AND INSTALLATION

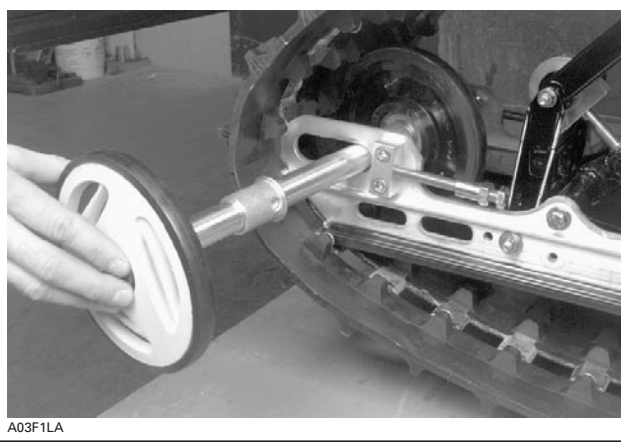
Lift rear of vehicle and support it off the ground.

### 21, Rear Axle

Remove screw on rear axle on side of offset wheel. Completely loosen track tension.

Pull out rear axle from opposite side of offset inner wheel.

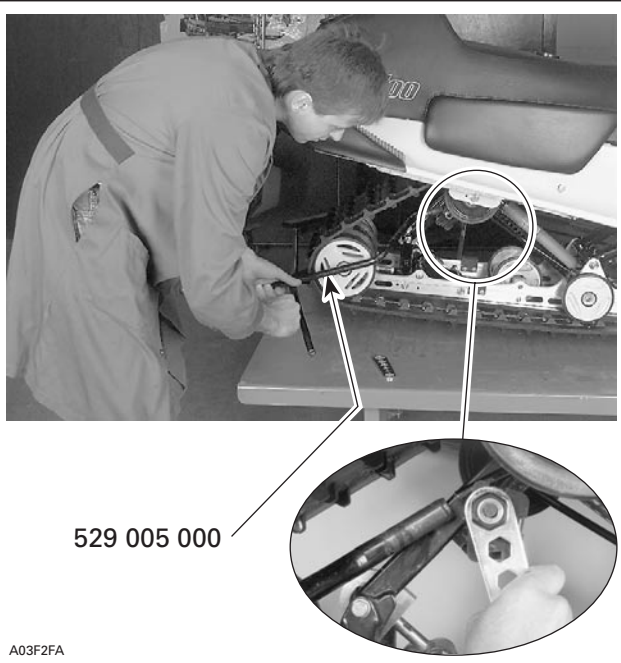
At assembly, align spacer hole with adjusting bolt. Make sure to reinstall washer on each side of runner.



TYPICAL

### 15, Rear Shock

Lift rear of vehicle.

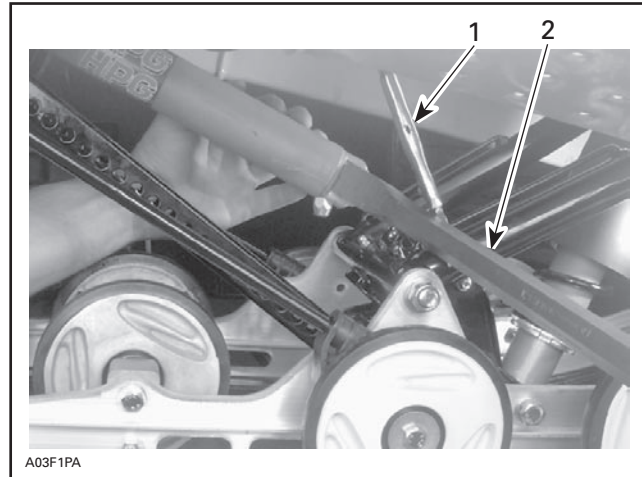


Remove nut on top end of shock.

Remove nut on bottom end of shock. Pry up shock bottom end to ease removing bolt (gas shock only). See installation illustration below.

Installation is reverse of removal procedure. To easily compress gas shock absorber, use a pry bar and locking pliers as a stopper.

**CAUTION:** Take care not to damage grease fitting.



TYPICAL

1. Locking pliers
2. Pry bar

### 12, Front Shock

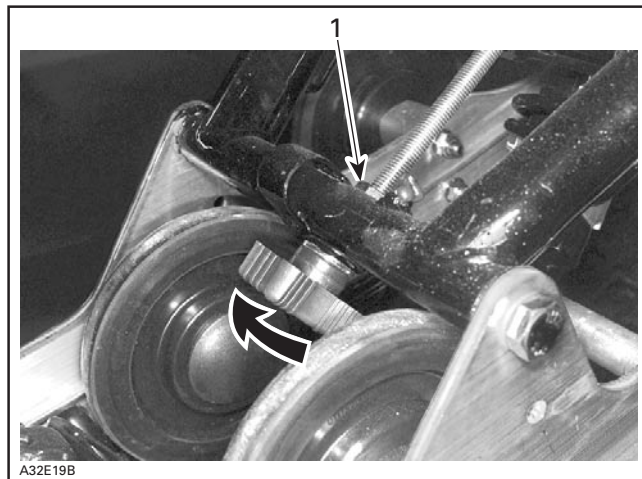
#### All Models

Unfasten one end of stopper strap(s).

Unbolt shock from the top.

#### Summit Liquid Cooled Models

Loosen the adjuster knob to release shock pressure.



1. Loosen lock nut, turn adjuster knob counterclockwise

**All Models**

Remove the front idler wheels to gain access to the axle retaining self-locking screws **no. 6**. Follow the instructions provided in this section to unfasten these screws. Slide out the axle and remove the shock.

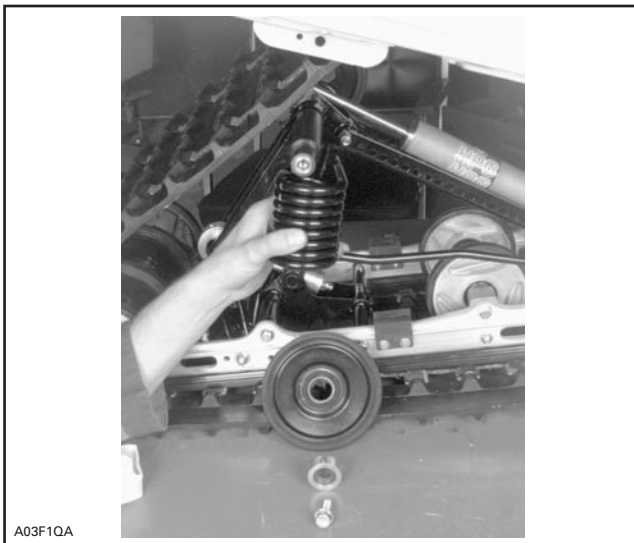
**2, Rear Spring**

**All Models**

Remove spring ends from adjusting cams.  
Unbolt rear arm top axle from chassis.

**All Liquid Cooled Models**

Unscrew set screws from locking ring at each end of top axle.  
Remove spacers and top idler wheels.  
Remove springs.



TYPICAL

At reassembly, respect THIS SIDE OUT inscription on wheel.

**SUSPENSION ASSEMBLY  
REMOVAL**

**19, Cam**

Decrease spring preload by turning cams accordingly.

Lift rear of vehicle and support it off the ground.  
Loosen track tension.

Remove rear arm top axle screws **no. 7** from chassis.

**6,7, Self-Locking Screws**

**CAUTION:** These self-locking screws must always be replaced by new ones every time they are removed.

**NOTE:** To prevent axle from turning when unscrewing self-locking screws, proceed as follows:

- Remove one self-locking screw then install a 10 mm shorter non-self-locking one in place. Torque as specified in exploded view.
- Remove the opposite self-locking screw.
- Remove the temporary installed non-self-locking screw.
- If it doesn't work, heat screw head to melt threadlocker.

Lift rear of vehicle at least 1 m (3 ft).



TYPICAL

A. At least 1 m (3 ft)

Remove screws **no. 6** retaining front arm to tunnel.  
Remove suspension.

## Section 07 REAR SUSPENSION

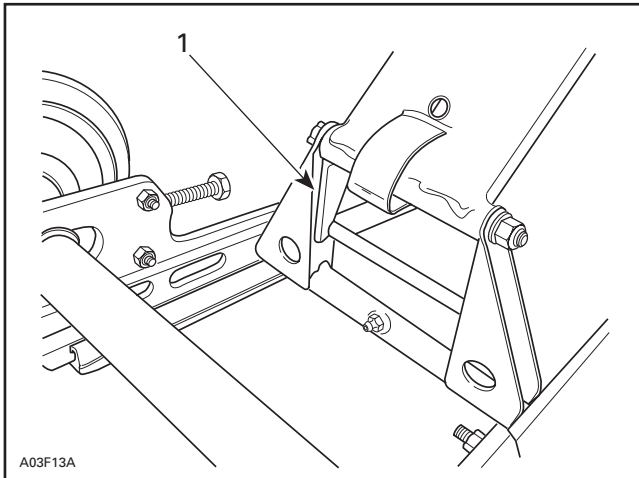
### Subsection 02 (SC-10 SUSPENSION)

## DISASSEMBLY AND ASSEMBLY

Inspect track thoroughly before reinstalling suspension. Refer to TRACK.

### 1, Rear Arm

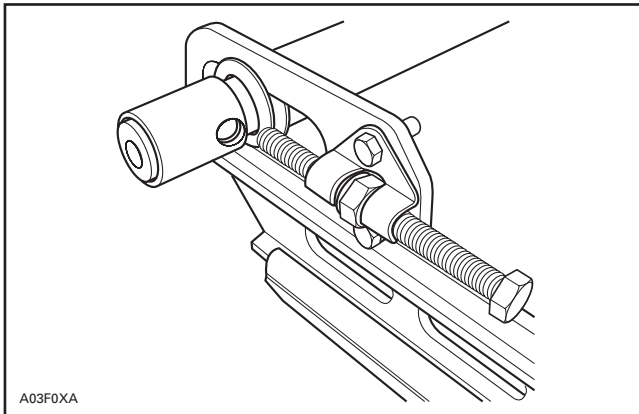
At installation, rear arm stroke limiter must be on rear side.



1. Stroke limiter on rear side

### 10, Outer Bushing

At installation, hole must face adjustment screw.



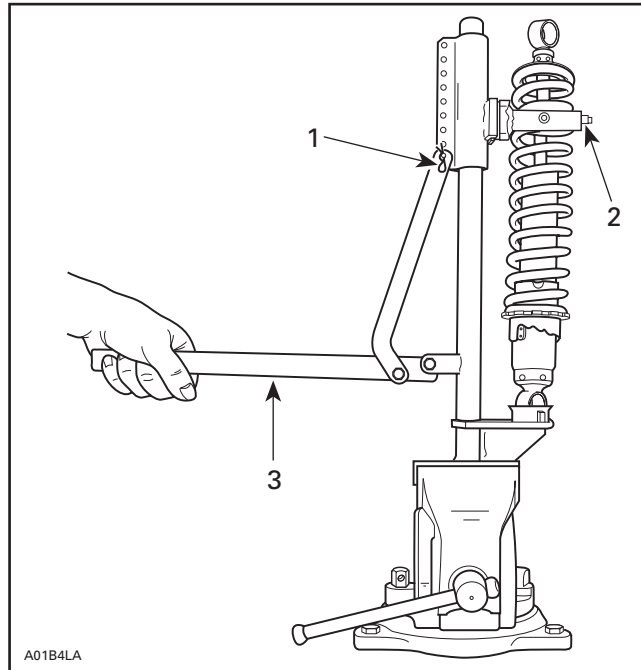
A03F0XA

### 12,13,14, Front Shock, Spring Stopper and Cap

Use shock spring remover (P/N 529 035 504) and put it in a vise. Mount shock in it and turn shock so that a spring coil rests against spring compressor jaw.

Close and lock bar. Place handle horizontally by changing position of clevis pin.

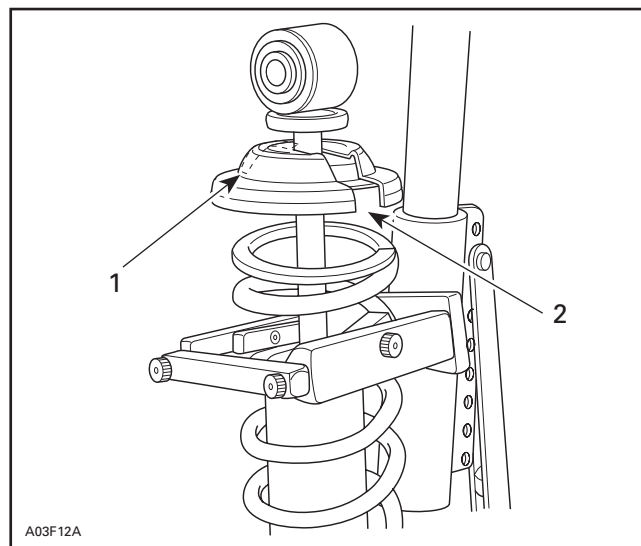
Push down on handle until it locks. Remove spring stopper and cap then release handle.



A01B4LA

1. Clevis pin
2. Bar
3. Handle placed horizontally

At installation, cap opening must be 180° from spring stopper opening.

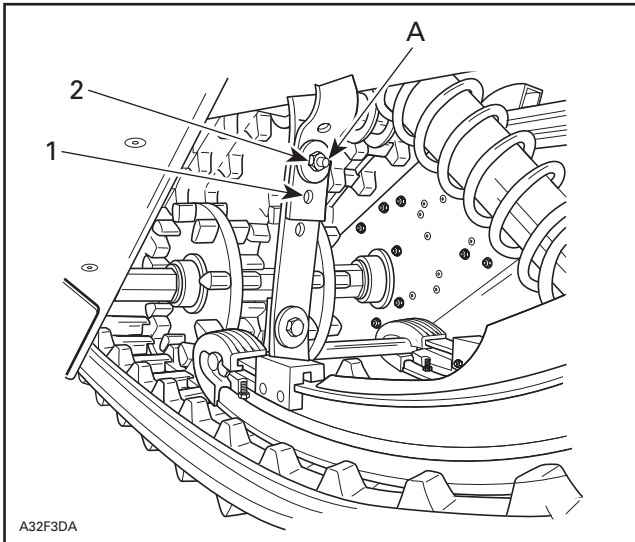


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1. Cap opening
2. Spring stopper opening

### 20, Stopper Strap

Inspect strap for wear or cracks, bolt and nut for tightness. If loose, inspect hole for deformation. Replace as required. Make sure it is attached through proper hole from the end. Torque nut to 7 N•m (62 lbf•in).

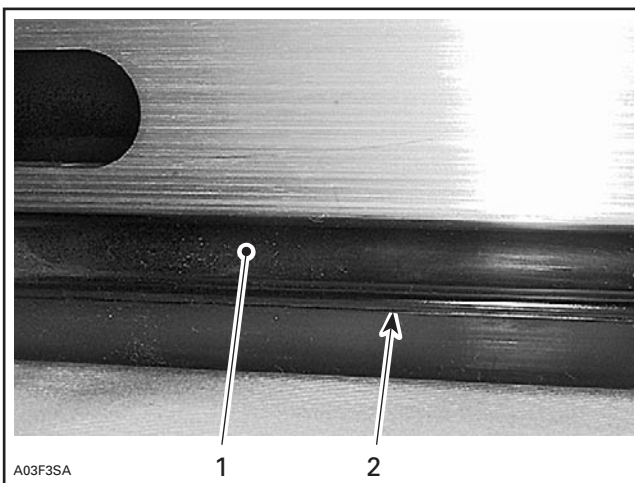


ALL MODELS EXCEPT SUMMIT LIQUID COOLED MODELS

1. 1<sup>st</sup> hole
2. 2<sup>nd</sup> hole
- A. 7 N•m (62 lbf•in)

### 17, Slider Shoe

Molding line is the wear limit indicator.



TYPICAL

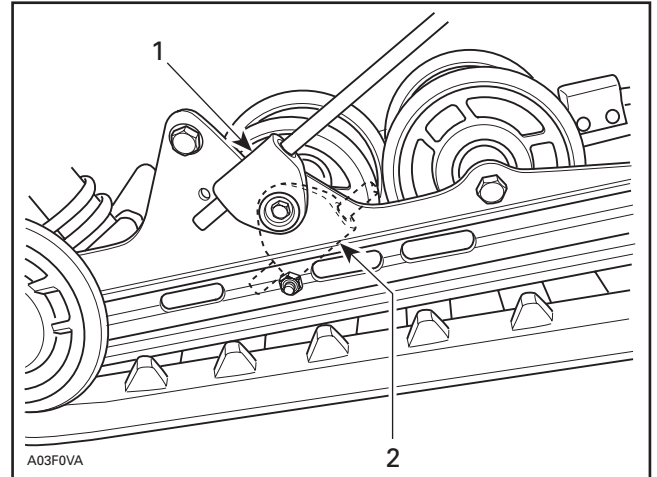
1. Slider shoe
2. Molding line (wear limit indicator)

Replace slider shoes when wear limit is reached.

**CAUTION:** Slider shoes must always be replaced in pairs.

### 18, Spring Support

**CAUTION:** To avoid track damage, spring supports must be mounted upward.



RIGHT SIDE SHOWN

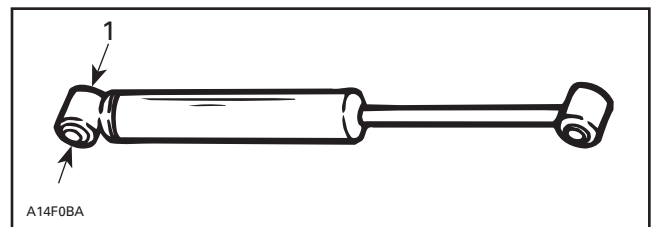
1. Right position: upward
2. Wrong position

### SHOCK ABSORBER INSPECTION

**All Models Equipped with Hydraulic Shock**

NOTE: Hydraulic shocks are painted black.

Secure the shock body end in a vise with its rod upward.



1. Clamp

**CAUTION:** Do not clamp directly on shock body.

Examine each shock for leaks. Extend and compress the piston several times over its entire stroke. Check that it moves smoothly and with uniform resistance with its rod upward.

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

- 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.

## Section 07 REAR SUSPENSION

### Subsection 02 (SC-10 SUSPENSION)

- A gurgling noise, after completing one full compression and extension stroke.

Renew if any faults are present.

#### **All Models Equipped with Gas Pressurized Shock**

**NOTE:** Gas pressurized shocks are painted light gray, purple or bare aluminum.

Gas shock can be inspected as follows:

Because of gas pressure, strong resistance is felt when compressing the shock. When released, the shock will extend unassisted. Renew as required.

If an internal gas leak is suspected, between oil chamber and gas chamber, check shock as follows:

Install shock in a vise clamping on its bottom eye-let with its rod upward.

Let it stand for 5 minutes.

Completely push down the shock rod then release.

Rod must come out at a steady speed. If speed suddenly increases particularly at end of extension, replace shock.

#### **All Types of Shock**

If a gas shock is suspected to be frozen, proceed as follows:

Place shock in a freezer (temperature below 0°C (32°F)) for 4 hours.

Push down rod and note its resistance, compare to a new shock. If shock is frozen it will be much more difficult to compress than the new one.

## INSTALLATION

Install assembled suspension into track with front portion first.

Insert rear section of suspension into track.

Bolt front arm, rear arm then center top idler wheel axle.

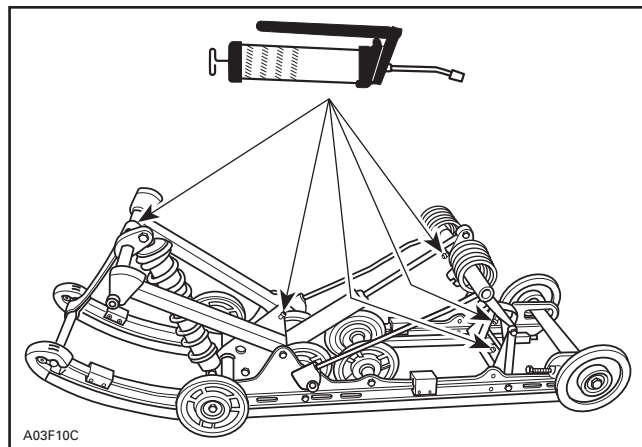
Adjust track tension.

## RIDE ADJUSTMENT

Refer to *Operator's Guide*.

## LUBRICATION

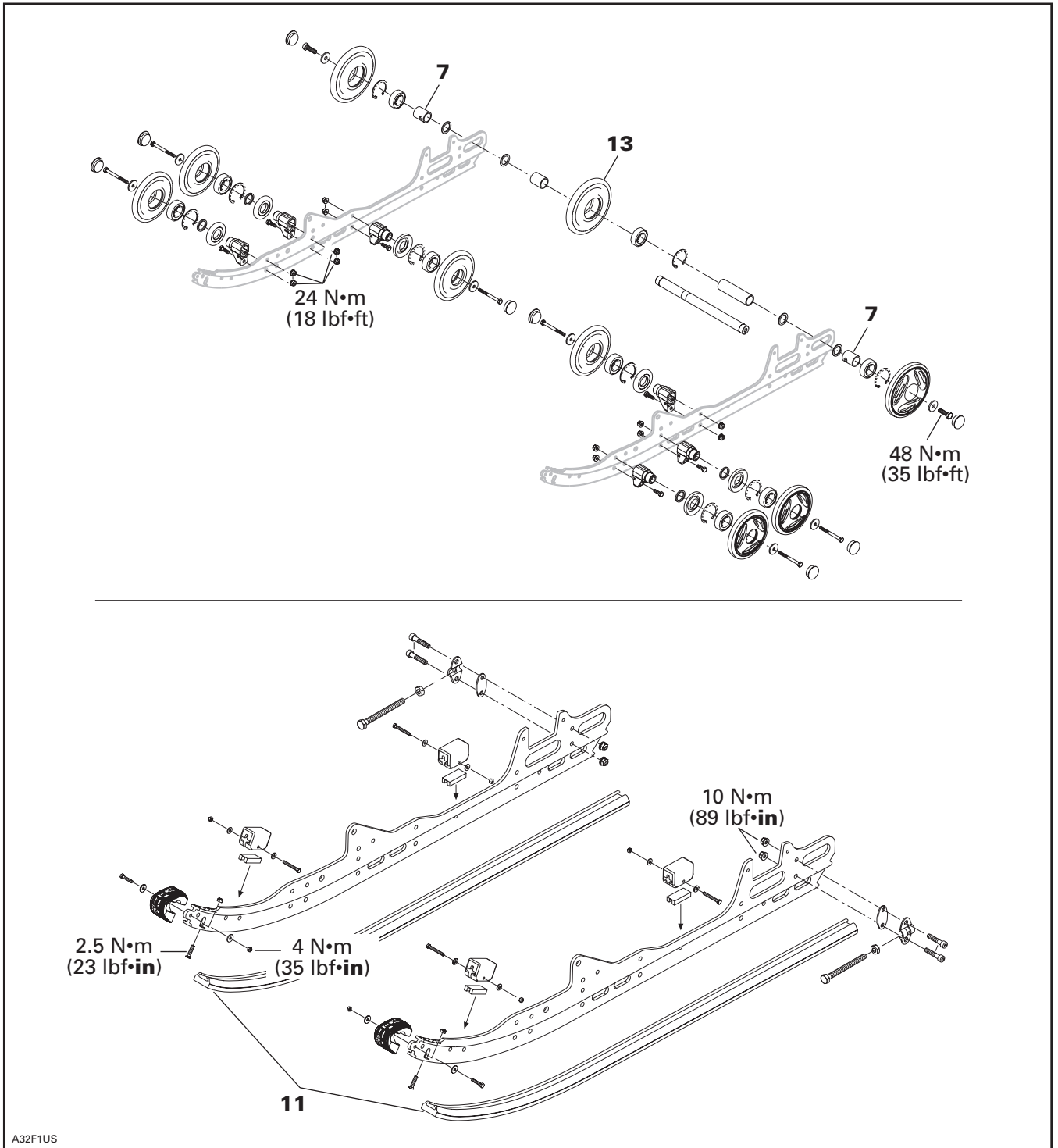
Lubricate front and rear arms at grease fittings using synthetic grease (P/N 413 711 500).



SC-10 SPORT, MOUNTAIN AND TOURING: 5 GREASE FITTINGS

# SC-10 III SUSPENSION

## SC-10 III

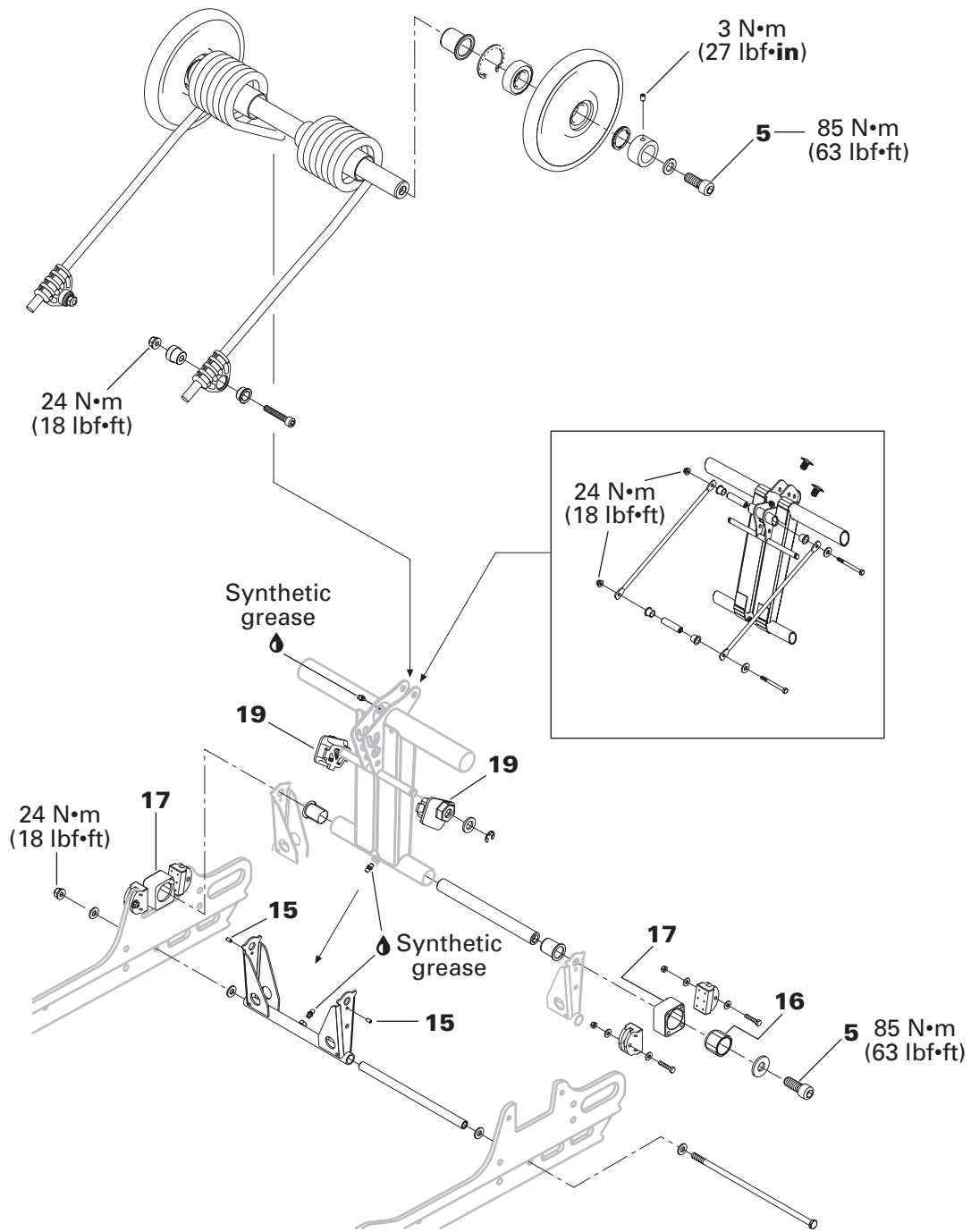


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# Section 07 REAR SUSPENSION

## Subsection 03 (SC-10 III SUSPENSION)



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## Section 07 REAR SUSPENSION

### Subsection 03 (SC-10 III SUSPENSION)

## SUSPENSION ASSEMBLY REMOVAL

### 19, Cam

Decrease spring preload by turning cams accordingly.

Slightly turn adjusting cam to expose spring end. Using spring installer (P/N 529 005 000), remove both springs from adjusting cams.

- Remove the opposite self-locking screw.
- Remove the temporary installed non-self-locking screw.
- If it doesn't work, heat bolt head to melt thread-locker.

Remove rear arm top axle self-locking screws **no. 5** from chassis.

Lift rear of vehicle at least 1 m (3 ft).



529 005 000



A03F2FB

#### TYPICAL

Lift rear of vehicle and support it off the ground.  
Loosen track tension.

### 1,2,3,4,5,6, Self-Locking Screws

**CAUTION:** These self-locking screws must always be replaced by new ones everytime they are removed.

**NOTE:** To prevent axle from turning when unscrewing self-locking screws, proceed as follows:

- Remove one self-locking screw then install a 10 mm shorter non-self-locking one in place. Torque as specified in exploded view.



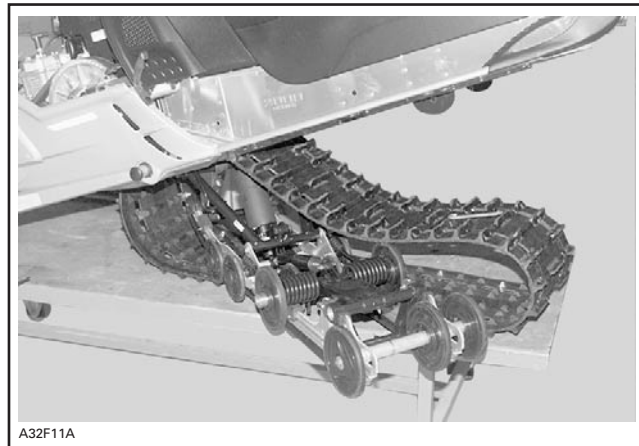
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#### TYPICAL

A. At least 1 m (3 ft)

Remove both self-locking screws **no. 2** retaining front arm to tunnel.

Remove suspension.



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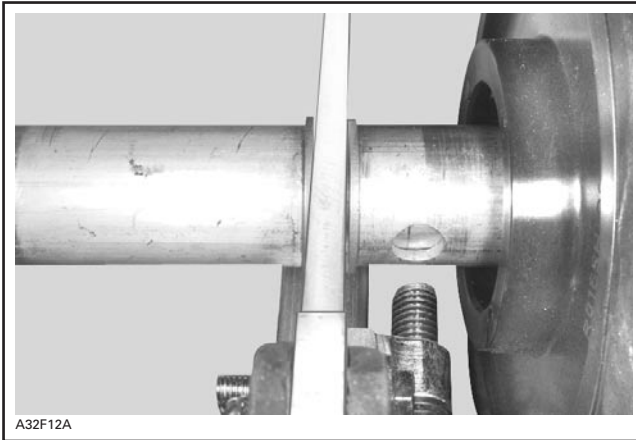
**Section 07 REAR SUSPENSION**  
Subsection 03 (SC-10 III SUSPENSION)

**DISASSEMBLY AND ASSEMBLY**

Inspect track thoroughly before reinstalling suspension. Refer to TRACK.

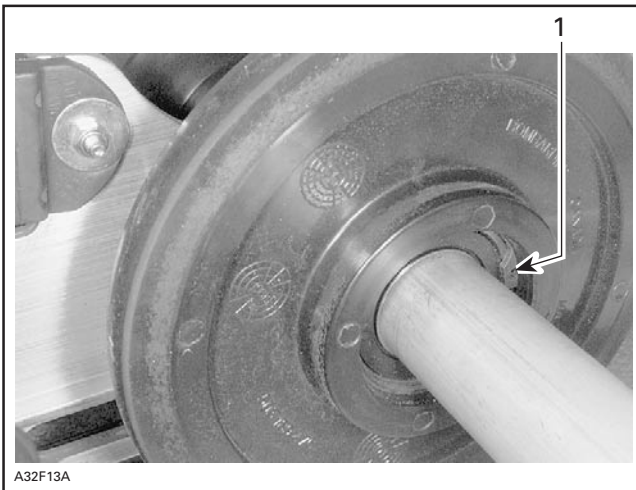
**7, Outer Bushing**

At installation, hole must face adjustment screw.



**13,14, Center Rear Wheel and Top Idler Wheels**

At installation, circlip must face inner side.

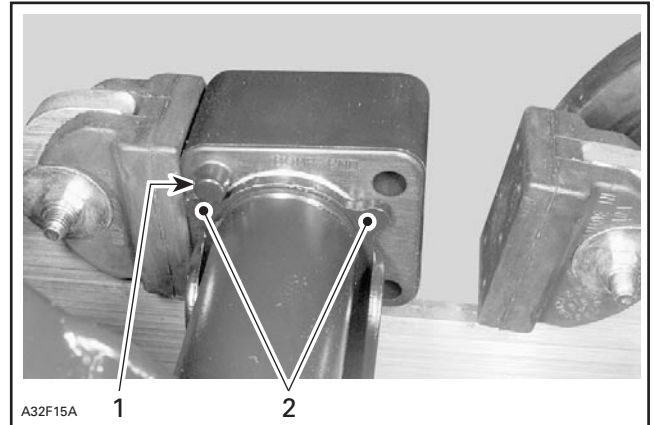


1. Circlip facing inner side

**17, Block**

Both blocks are identified R or L (right or left), see second following photo. At installation, make sure to install proper block on proper side.

Also, note that protrusion must be positioned above stoppers.

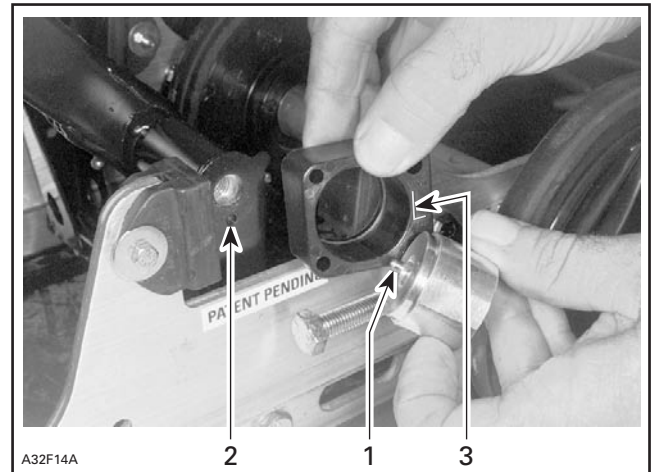


1. Protrusion  
2. Stoppers

**15,16, Dowel Pin and Block Guide**

Dowel pin must exceed block guide by 2 to 2.3 mm (.079 to .091 in).

At installation, insert dowel pin into pivot arm hole.



LEFT SIDE SHOWN

1. Dowel pin  
2. Pivot arm hole  
3. "L" identification for left side

## Section 07 REAR SUSPENSION

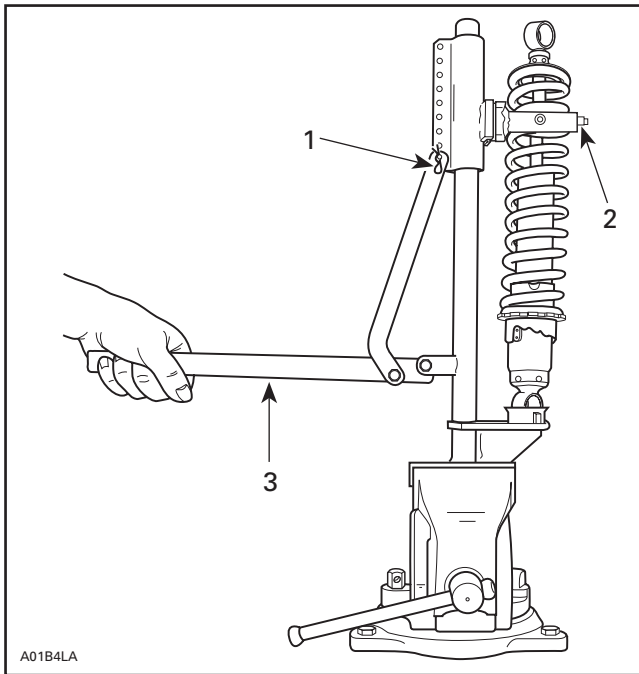
### Subsection 03 (SC-10 III SUSPENSION)

#### 8,9, Front Shock and Spring Stopper

Use shock spring remover (P/N 529 035 504) and put it in a vise. Mount shock in it and turn shock so that spring coils matched spring compressor.

Close and lock bar. Adjust handle horizontal by changing position of clevis pin.

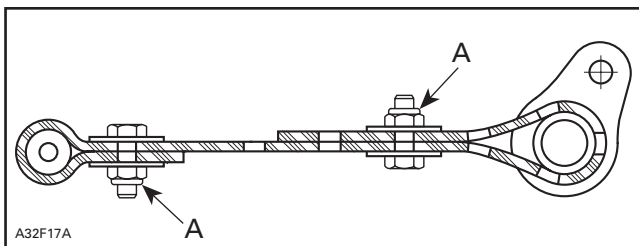
Push down on handle until it locks. Remove spring stopper then release handle.



1. Clevis pin
2. Bar
3. Handle horizontal

#### 10, Stopper Strap

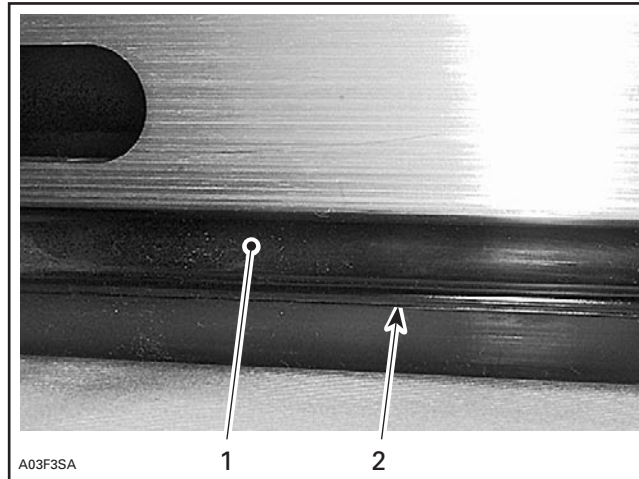
Inspect strap for wear or cracks, bolt and nut for tightness. If loose, inspect hole for deformation. Replace as required. Make sure it is attached through proper holes. Torque nut to 7 N•m (62 lbf•in).



- A. 7 N•m (62 lbf•in)

#### 11, Slider Shoe

Molding line is the wear limit indicator.



TYPICAL

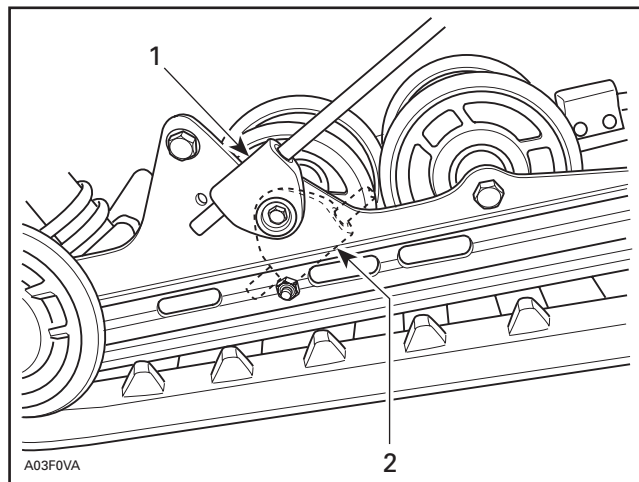
1. Slider shoe
2. Molding line (wear limit indicator)

Replace slider shoes when wear limit is reached.

**CAUTION:** Slider shoes must always be replaced in pairs.

#### 12, Spring Support

**CAUTION:** To avoid track damage, spring supports must be mounted upward.



TYPICAL — RIGHT SIDE SHOWN

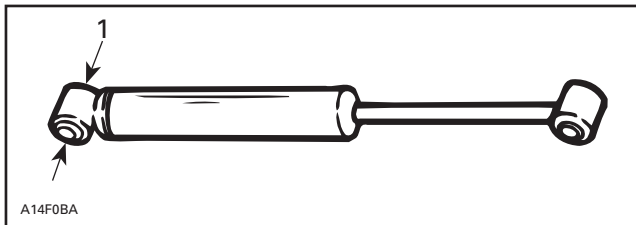
1. Right position: upward
2. Wrong position

## SHOCK ABSORBER INSPECTION

### **All Models Equipped with Hydraulic Shock**

**NOTE:** Hydraulic shocks are painted black or dark gray.

Secure the shock body end in a vise with its rod upward.



1. Clamp

### **CAUTION:** Do not clamp directly on shock body.

Examine each shock for leaks. Extend and compress the piston several times over its entire stroke. Check that it moves smoothly and with uniform resistance with its rod upward.

After at least 5 complete strokes, pay attention to the following conditions that will denote a defective shock:

- 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.

Renew if any faults are present.

### **MC VR Shock**

For the verification of stroke, install shock in vise keeping the rod upward. Verify the stroke compression when the rod is fully extended.

The feeling will be stiff for around first 25 mm (1 in), soft up to 25 to 50 mm (1 to 2 in) and stiff after that. This stiff, soft and stiff phenomenon shows the normal operation of shock.

### **All Models Equipped with Gas Pressurized Shock**

**NOTE:** Gas pressurized shocks are light gray or purple painted, or bare aluminum.

Gas shock can be inspected as follows:

Because of gas pressure, strong resistance is felt when compressing shock. When released, the shock will extend unassisted. Renew as required.

If suspecting an internal gas leak between oil chamber and gas chamber, check shock as follows:

Install shock in a vise clamping on its bottom eyelet with its rod upward.

Let it stand for 5 minutes.

Completely push down the shock rod then release.

Rod must come out at a steady speed. If speed suddenly increases particularly at end of extension, replace shock.

### **HPG VR Shock**

**NOTE:** Gas pressurized shocks are light gray or purple painted, or bare aluminum.

Gas shock can be inspected as follows:

Because of gas pressure, strong resistance is felt when compressing shock. When released, the shock will extend unassisted. The rod speed coming out will go slow - faster and slow again due to the VR zone. Renew as required.

For the verification of stroke, install shock in vise keeping the rod upward. Verify the stroke compression when the rod is fully extended.

The feeling will be stiff for around first 25 mm (1 in), soft up to 25 to 50 mm (1 to 2 in) and stiff after that. This stiff, soft and stiff phenomenon shows the normal operation of shock.

### **All Types of Shock**

If suspecting a frozen shock proceed as follows:

Place shock in a freezer (temperature below 0°C (32°F)) for 4 hours.

Push down on rod and note its resistance. If shock is frozen it will be much more difficult to compress than for the new one.

## HPG T/A SHOCK SERVICING

### **Disassembly and Assembly**

There are two types of high pressure gas take apart (HPG T/A) shock. One type has a tire valve and the other has a needle valve.

SHOCK TYPE	INFLATION TOOL
Tire valve type	529 035 570
Needle valve type	503 190 102

## Section 07 REAR SUSPENSION

### Subsection 03 (SC-10 III SUSPENSION)

T/A shocks come in two sizes. C-36 shock is 36 mm (1.417 in) in diameter and C-46 shock is 46 mm (1.811 in).

SHOCK SIZE	SERVICING TOOL	(P/N)
C-36	Piston guide	529 026 600
	Seal guide	529 026 500
	Shock wrench	529 035 727
C-46	Piston guide	529 035 608
	Seal guide	529 035 728
	Shock wrench	529 035 727

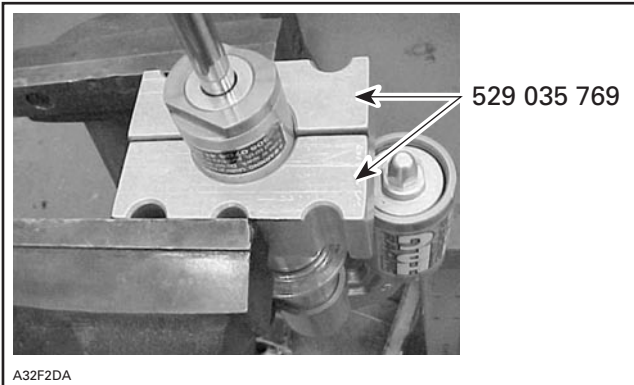
Release N<sub>2</sub> (nitrogen) pressure on any HPG T/A shock with internal floating piston (IFP).

#### WARNING

Nitrogen gas is under extreme pressure. Use caution when releasing this gas volume. Protective eye wear should be used.

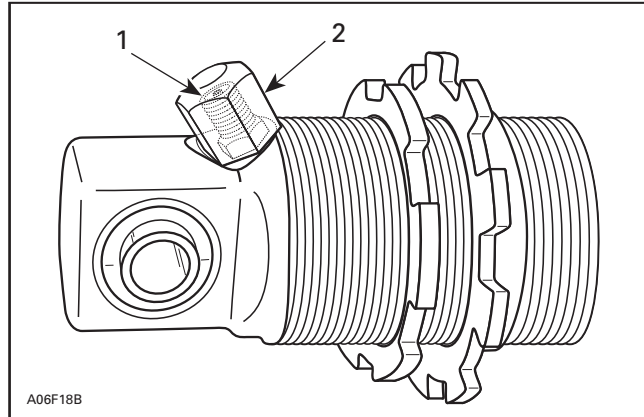
#### All T/A Shock Types

Mount shock in a vise with HPG shock holding tool (P/N 529 035 769).



#### Tire Valve Type Shock

Remove tire valve cap and push on center rod of valve to release gas pressure.



1. Tire valve
2. Tire valve cap

#### Needle Valve Type Shock

Remove screw on top of valve. Place the needle guide of gas refill needle type shock tool (P/N 503 190 102) on the shock valve. Press the detent pin and push forward the needle assembly very slowly towards rubber of needle valve. Push on shock tool valve center rod to release gas pressure.



Remove tool from shock.

## Section 07 REAR SUSPENSION

### Subsection 03 (SC-10 III SUSPENSION)

#### All Types of Shock

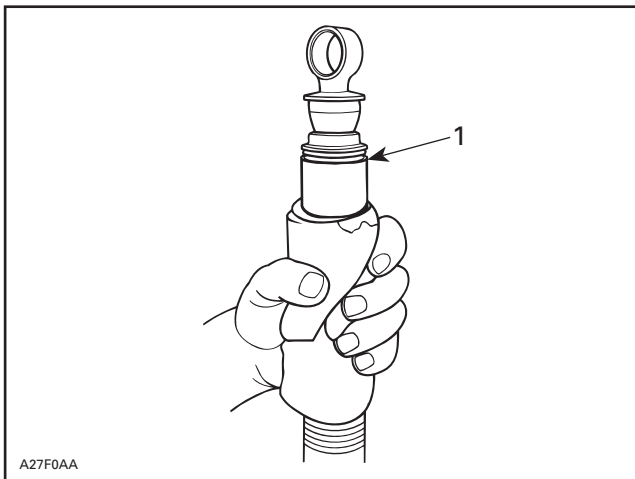
Using appropriate size of shock wrench (P/N 529 035 727) unscrew seal carrier.



TYPICAL

With the seal carrier removed, slowly lift and remove damper rod assembly from the damper body.

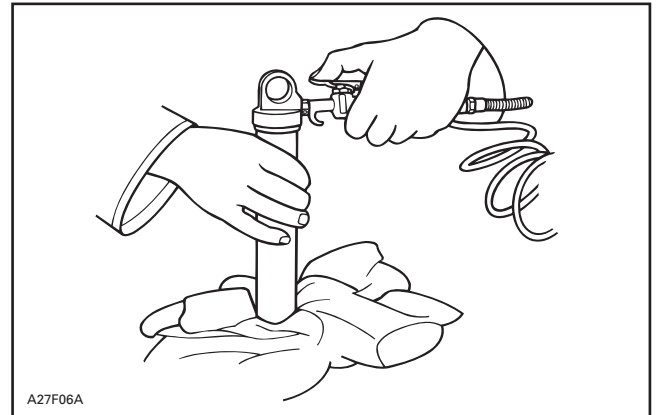
**NOTE:** Remove damper rod assembly slowly to reduce oil spillage and prevent piston seal damage by damper body threads. Wrap the damper body with a shop cloth to capture possible overflow oil while removing the damper piston.



1. Oil flows

Discard old oil into storage container. Never reuse damper oil during shock rebuild.

Remove valve core. Using compressed air pressure, carefully remove floating piston from damper body. Hold shop cloth over damper body opening to catch released floating piston. Allow room for floating piston to leave damper body.



TYPICAL

#### **WARNING**

Whenever using compressed air, use an O.S.H.A. approved air gun and wear protective eye wear.

Thoroughly clean, with a typical cleaning solution, and blow dry using low pressure air. Carefully inspect the damper body for any imperfections or signs of wear in the damper bore.

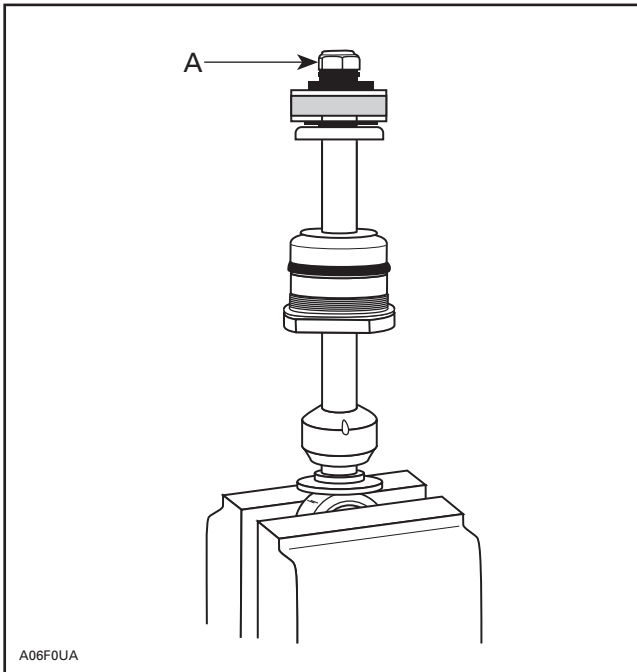
Replace damper body if wear is identified.



## Section 07 REAR SUSPENSION

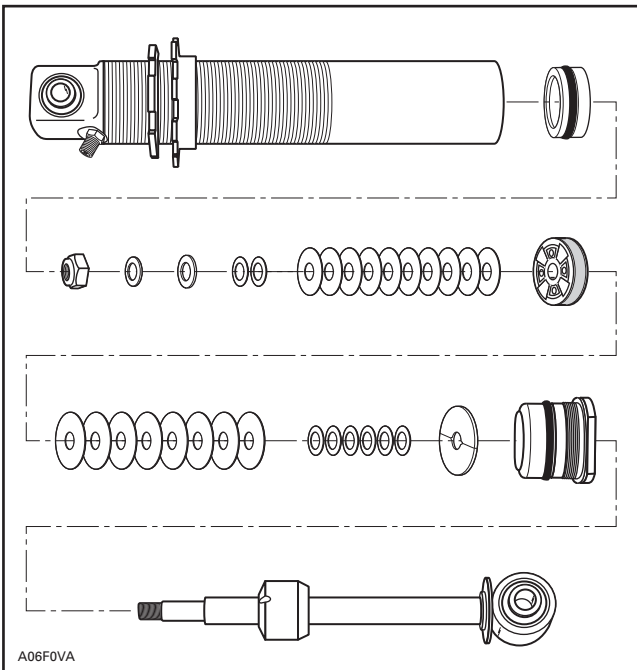
### Subsection 03 (SC-10 III SUSPENSION)

Holding the damper rod assembly in a bench vise, begin piston and valve removal.



A. Remove damper nut

Always arrange parts removed in the sequence of disassembly.



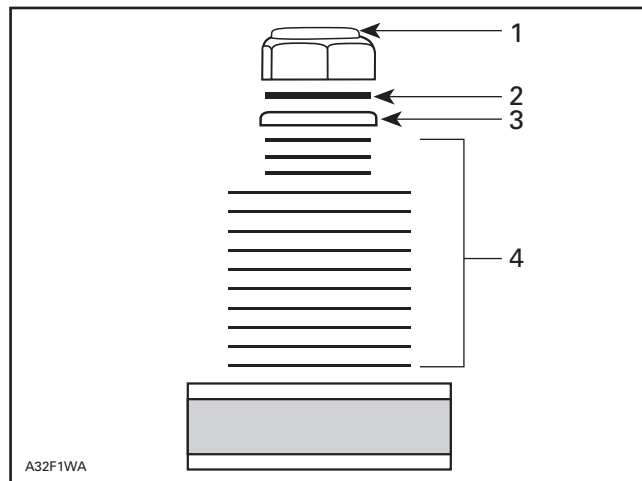
**NOTE:** As a general rule we suggest replacing the damper rod lock-nut after 4 rebuilds to ensure good locking friction and use Loctite 271 each time.

**NOTE:** If revalving is to be done, it is imperative that you identify the original shim pack (size and number of shims). The seal carrier need not be removed if only revalving is to be done.

Shims can be measured by using a vernier caliper or a micrometer.

**NOTE:** All shims should be carefully inspected and any bent or broken shims must be replaced for the shock to function properly.

After the new or replacement shim pack has been selected, reassemble in the reverse order of disassembly. Torque piston nut 27 - 29 N•m (20 - 21 lbf•ft).



1. Damper nut
2. Spacer
3. Stopper with its round edge facing nut
4. Shim pack

**CAUTION:** The damper rod nut can only be re-used 4 times, then, must be replaced. Do not substitute this part for non - O.E.M. use Loctite 271 on nut each time.

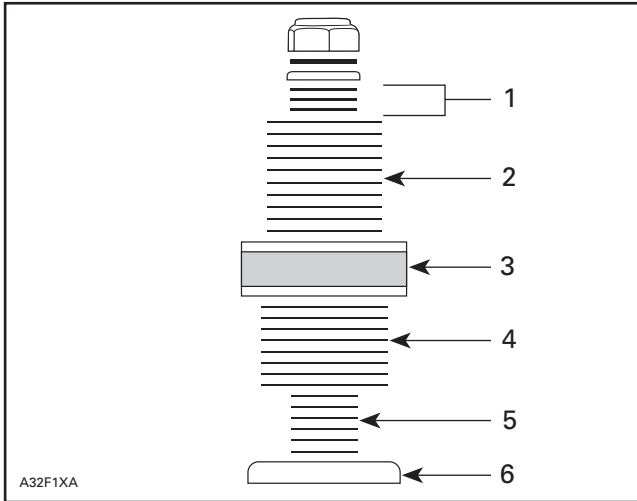
This (these) spacer washer(s) must be used as shown to ensure damper rod nut does not bottom out or contact shaft threads.

Rebound valve stopper with round edge facing nut.

**NOTE:** Rebound shim stack must not reach into threads of damper shaft. Spacer under damper shaft nut is used to prevent damper shaft nut from bottoming on threads.

## Section 07 REAR SUSPENSION

### Subsection 03 (SC-10 III SUSPENSION)

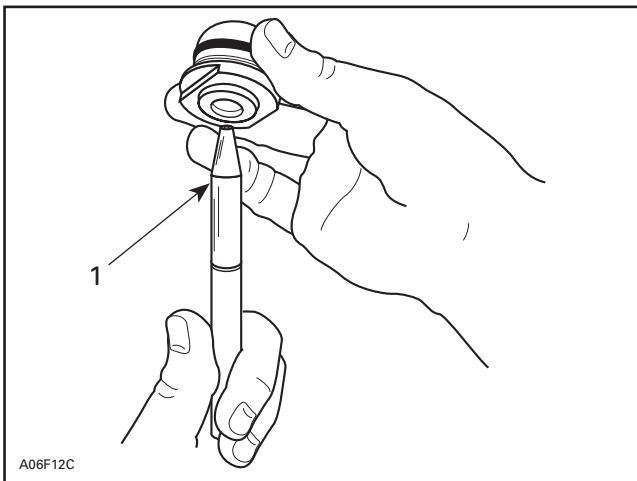


1. Rebound dampening shim pack
2. Rebound dampening shim pack
3. Piston
4. Compression dampening shim pack
5. Compression dampening shim pack
6. Stopper

If the seal carrier assembly is replaced, use seal pilot to guide seal over damper shaft. Lubricate seal carrier guide pilot before use.

**CAUTION:** Failure to use seal pilot will result in seal damage.

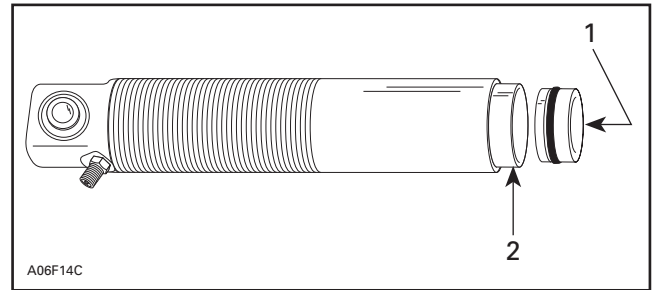
Reassemble damper rod assembly, taking care to properly assemble shim packs as required for your dampening needs. Ensure that the shaft piston is installed with the slits/larger intake holes facing the rebound shim stack.



1. Seal guide

If floating piston has been removed, reinstall floating piston into damper body (ensure that valve core has been removed). Use Molykote G-n paste (P/N 711 297 433) to ease O-ring past damper body threads with floating piston guide.

**CAUTION:** Failure to install IFP correctly could result in shock damage.

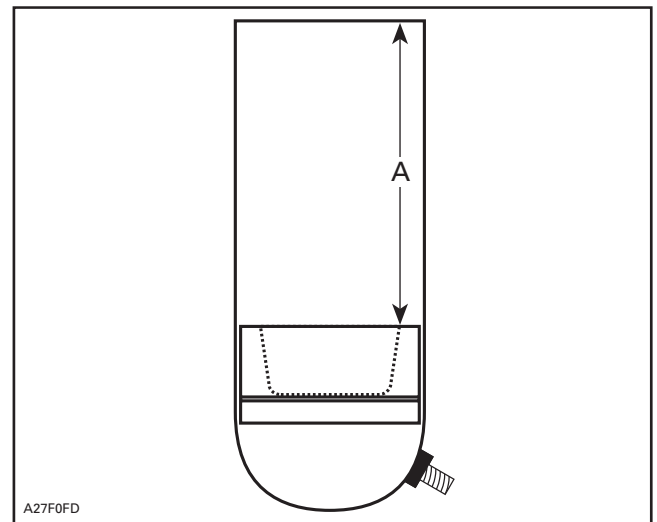


1. Push (slowly) by hand
2. Floating piston guide

**NOTE:** Lubricate inside of piston guide with Molykote G-n paste (P/N 711 297 433).

Install floating piston to the proper depth refer to following the table.

On all HPG take apart shocks, the floating piston is installed hollow side up.



- A. Installation distance for floating piston installation

## Section 07 REAR SUSPENSION

### Subsection 03 (SC-10 III SUSPENSION)

SHOCK P/N	INSTALLATION DISTANCE OF FLOATING PISTON mm
505 070 903	44.5
505 070 904	44.5
505 070 937	44.5
505 070 938	44.5
503 190 016	128
503 190 247	128
503 190 289	130
503 190 008	132
503 190 019	132
503 190 201	132
503 190 015	134
503 190 017	134
503 190 226	134
505 070 753	176
503 190 007	185
503 190 205	185
503 190 290	185
505 070 966	186
505 071 111	186
503 190 020	187
503 190 024	187
503 190 013	188
503 190 248	188

**NOTE:** If the floating piston is installed too far into the damper body, light air pressure through valve (with core removed) will move piston outward.

**NOTE:** Reinstall tire valve core after IFP has been installed at correct height and before adding oil.

#### **⚠ WARNING**

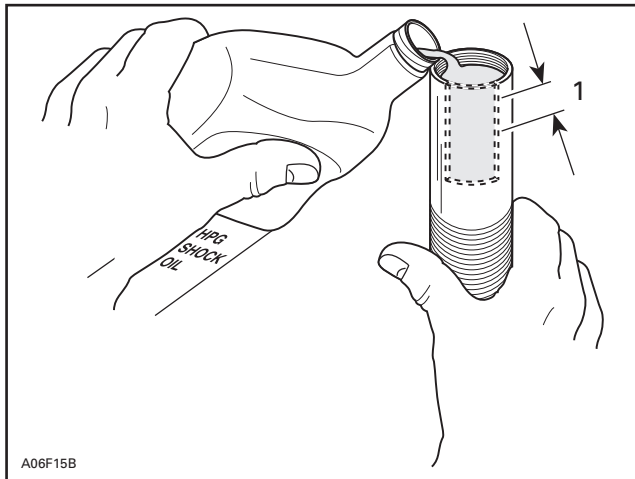
Whenever using compressed air exercise extreme caution, cover damper opening with shop cloth to reduce chance of possible injury.

**CAUTION:** Moisture laden compressed air will contaminate the gas chamber and rust floating piston.

#### **⚠ WARNING**

Always wear protective eye wear whenever using compressed air.

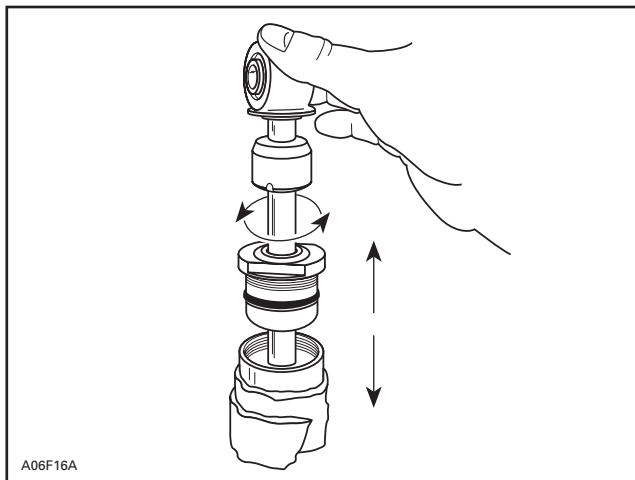
Fill the shock with Bombardier HPG shock oil (P/N 293 600 035) to approximately 10 mm (.393 in), from the base of seal carrier threads.



1. Fill to 10 mm (.393 in)

**NOTE:** Although we do not measure the exact amount of oil added to the damper, approximately 252 mL (8.52 oz. U.S.) will be used.

Carefully insert damper rod into the damper body. Lightly oil damper piston seal ring with shock oil to ease installation.



**NOTE:** Some shock oil will overflow when installing damper. Wrap damper with shop cloth to catch possible overflow oil.

**CAUTION:** Use care when passing piston into damper body at damper body threads.

Slight oscillation of damper rod may be required to allow piston to enter damper body bore.

## Section 07 REAR SUSPENSION

### Subsection 03 (SC-10 III SUSPENSION)

Slowly push piston into damper body. Slight up and down movement may be required on short stroke to allow all air to pass through piston assembly. The gentle tapping of a small wrench, on the shock eye, may help dislodge air trapped in the submerged piston. Be careful not to drive the shaft any deeper into the oil than is necessary to just cover the shim stack.

**NOTE:** Fast installation of the damper rod may displace the floating piston from its original position. This must not occur if the damper is expected to perform as designed.

With damper rod piston into oil, TOP OFF damper oil volume. Oil level should be to damper body thread base.

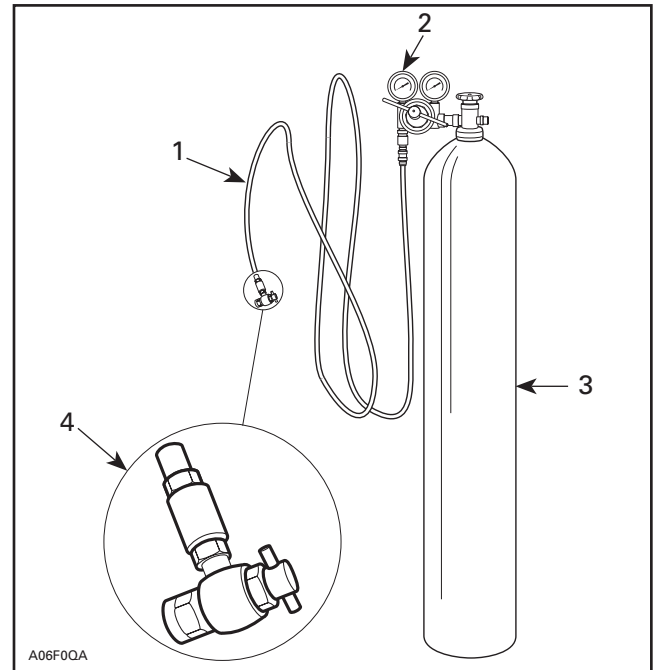
Seal carrier assembly can now be threaded into damper body. This should be done slowly to allow weepage of oil and to minimize IFP displacement. Torque seal carrier to 90 to 100 N•m (66 to 74 lbf•ft). After the seal carrier is fully in place avoid pushing the shaft into the body until the nitrogen charge is added.



When removing and retightening the tire valve acorn nut use minimal torque. When the cap is over tightened and subsequently removed it may prematurely break the seal of the tire valve to the shock body and cause a loss of nitrogen charge without being noticed. If you suspect this has happened then recharge the shock as a precaution. Inspect the tire valve cap before installation to ensure that the internal rubber gasket is in its proper position.

### Adding Gas Pressure

Nitrogen (N<sub>2</sub>) can now be added to damper body.



1. High pressure hose
2. 2 stage regulator, delivery pressure range 2070 kPa (300 PSI)
3. High pressure cylinder filled with industrial grade nitrogen
4. Valve tip (P/N 529 035 570) permanently installed

**NOTE:** Never substitute another gas for nitrogen. Nitrogen has been selected for its inert qualities and will not contaminate the gas chamber of the shock.

Preset your pressure regulator to 2070 kPa (300 PSI) nitrogen (N<sub>2</sub>), this gas pressure will restore the correct pressure for your damper.

**CAUTION:** Do not exceed the recommended pressure values.

### **⚠ WARNING**

Whenever working with high pressure gas, use eye wear protection. Never direct gas pressure toward anybody.

Use appropriate inflation tool.

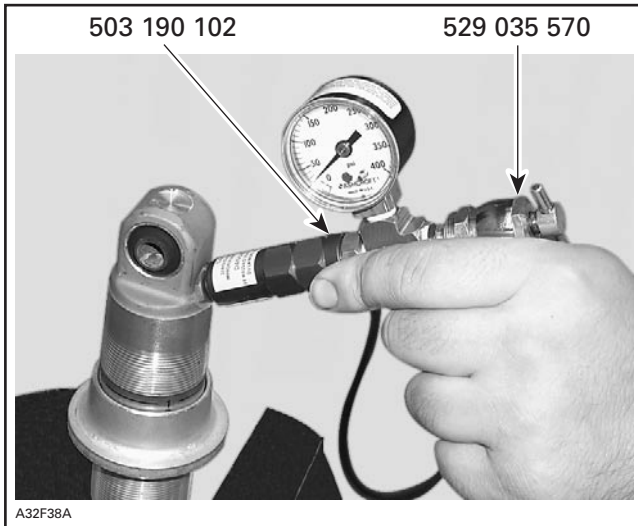
### **Needle Valve Type Shock**

Install the gas refill needle type shock tool (P/N 503 190 102) on valve tip (P/N 529 035 570). Set the regulator pressure on the nitrogen cylinder as per the shock requirement.

## Section 07 REAR SUSPENSION

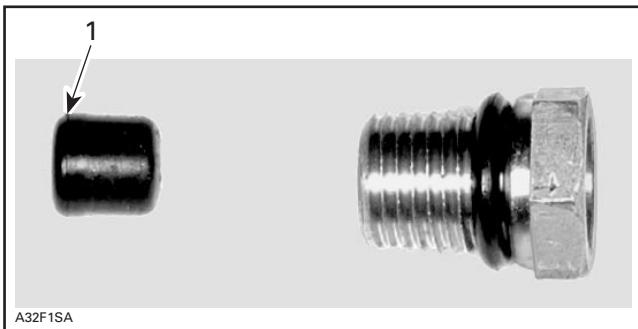
### Subsection 03 (SC-10 III SUSPENSION)

Mount the shock on vise. Remove screw on top of valve. Place the needle guide of gas refill tool on the shock valve. While depressing the detent pin of the gas refill tool and pushing forward the needle assembly, insert the needle through the rubber core of the pressure valve assembly of the shock.



**NOTE:** For replacement of the needle or filling the shock, carefully follow the instructions provided with the gas refill needle type tool kit (P/N 503 190 102).

On some models, rubber may pop out of needle valve when inserting tool needle. If so, remove valve core and rubber then, reinstall rubber with its larger diameter last.



1. Larger diameter

#### All Shock Types

**NOTE:** Carefully inspect damper for gas or oil leaks. Any leaks must be corrected before continuing.

Damper gas pressure cannot be confirmed by using a pressure gauge. The volume of gas in the shock is very small, and the amount lost during gauge installation will lower the pressure too much and require refilling.

After recharging is complete the rebuilt shock should be bench-tested. Stroke the shock to ensure full travel and smooth compression and rebound action. If the shaft moves in or out erratically this could indicate too much air is trapped inside. If the shaft will not move or has partial travel then it may be hydraulically locked. In either event the shock must be rebuilt again. Pay particular attention to the placement of the IFP, quantity of oil and shim stack/piston assembly.

## INSTALLATION

Install assembled suspension into track with front portion first.

Insert rear portion of suspension into track.

Bolt front arm and rear arm.

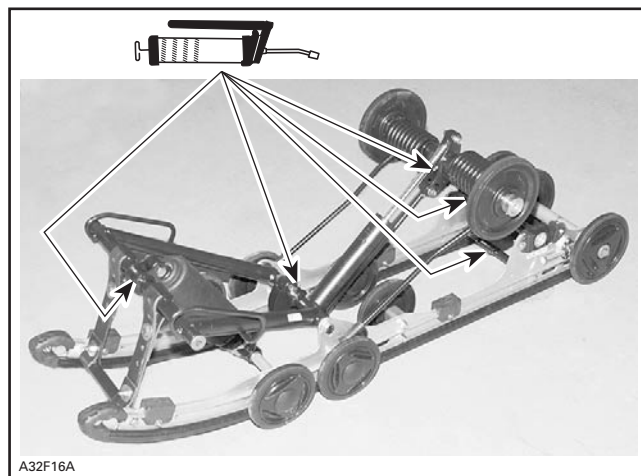
Adjust track tension.

## RIDE ADJUSTMENT

Refer to *Operator's Guide*.

## LUBRICATION

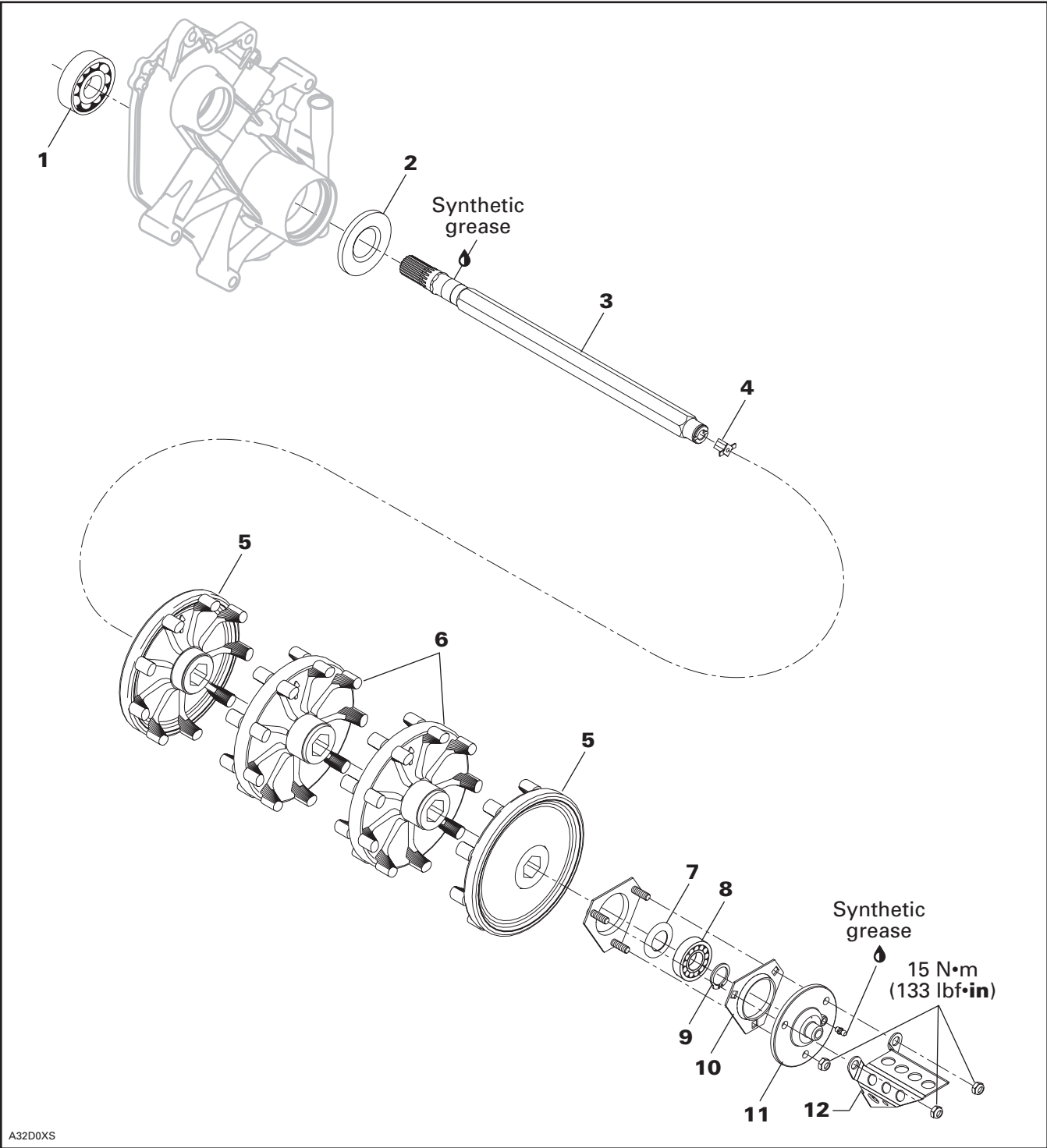
Lubricate front and rear arms at grease fittings using synthetic grease (P/N 413 711 500).



SC-10 III: 5 GREASE FITTINGS

# DRIVE AXLE

ZX Fan Cooled Models





## Section 07 REAR SUSPENSION

### Subsection 04 (DRIVE AXLE)

## REMOVAL

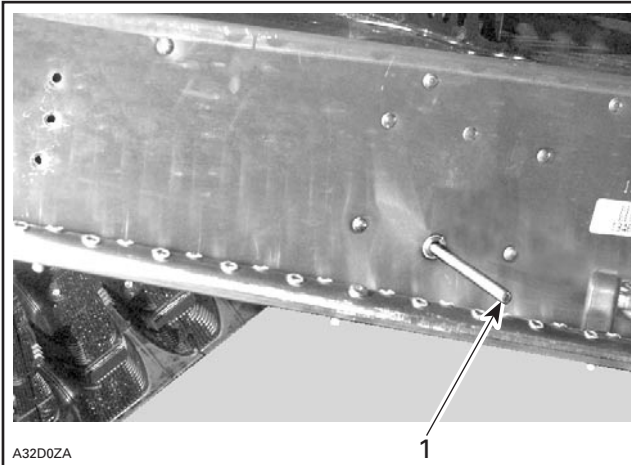
According to model, drain oil from chaincase or gearbox. Remove chaincase or gearbox cover. Release drive chain tension.



Raise and block rear of vehicle off the ground.

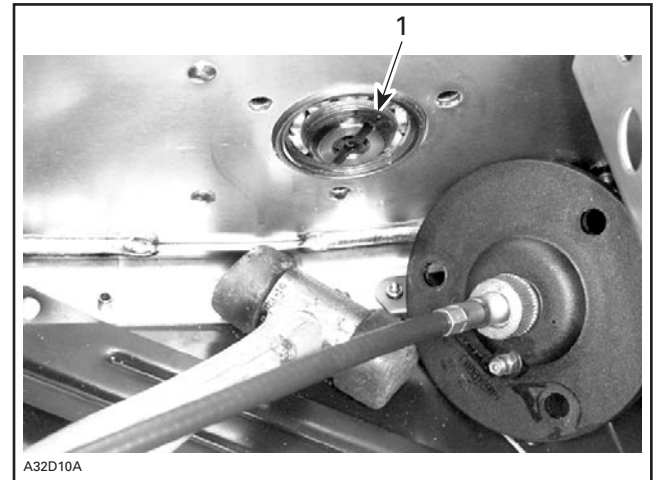
Remove suspension. Refer to proper subsection.

Track can be held in tunnel using a rod in place of center idler wheel axle.



1. Rod

Remove cable protector **no. 12**, plastic cover **no. 11** (speed sensor for liquid cooled models), outer flange **no. 10** and circlip **no. 9** from left side.



1. Circlip

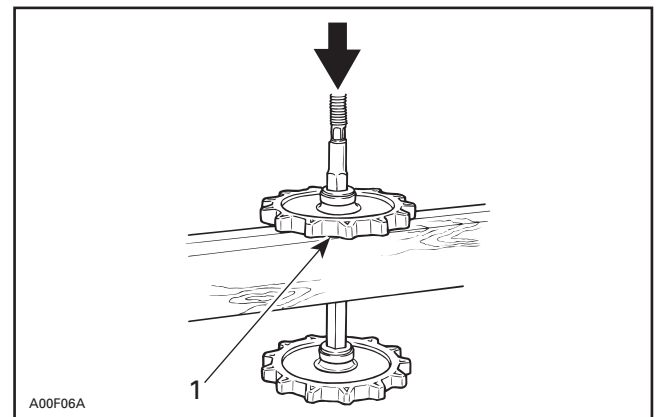
Apply parking brake.

Remove chain and sprockets then circlip from right side.

Release drive axle sprocket from track and at the same time, push the drive axle **no. 3** toward the right side. Drive axle bearing **no. 1** in chaincase or gearbox will fall off.

## 5,6, Sprocket and Half-Sprocket

To remove press fit sprockets, use a press and a suitable support as illustrated.



TYPICAL

1. Support sprocket near hub



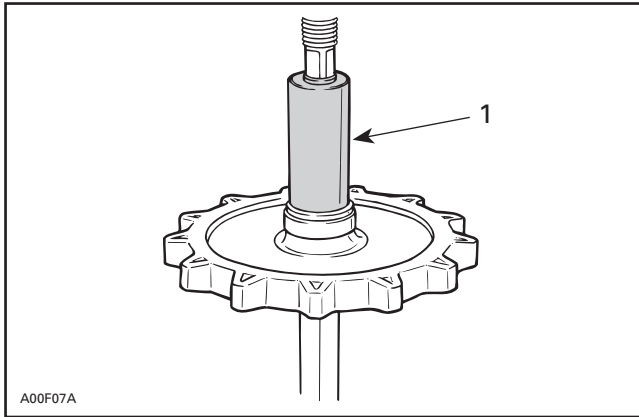
## Section 07 REAR SUSPENSION

### Subsection 04 (DRIVE AXLE)

## ASSEMBLY

### 3,5,6, Drive Axle and Sprocket

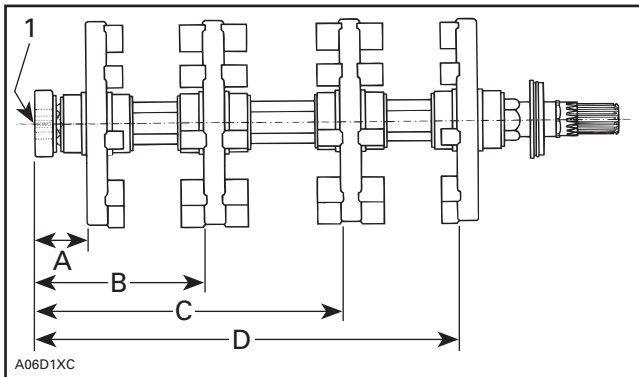
To assemble press fit sprockets, use a press and a suitable pipe as illustrated. Sprockets must be assembled according to the following dimensions.



TYPICAL

1. Pipe

### ZX Series



1. Measure from end of drive axle

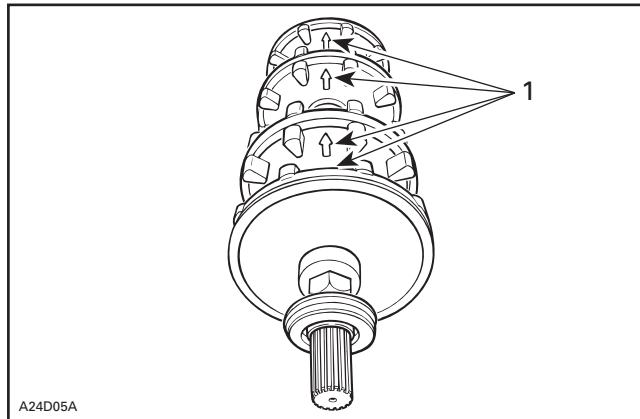
A. 47.3 mm (1.862 in)

B. 149.8 mm (5.898 in)

C. 272.8 mm (10.740 in)

D. 375.3 mm (14.776 in)

Ensure to align indexing marks of each sprocket when assembling.

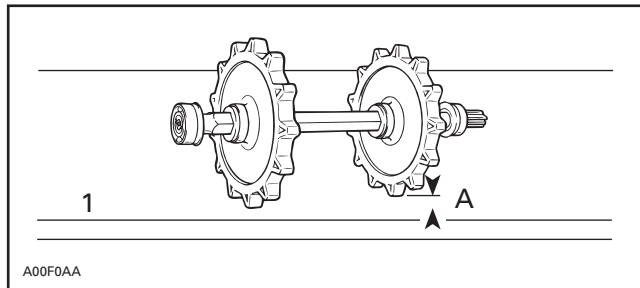


TYPICAL

1. Indexing marks aligned

The maximum desynchronization for the sprockets is 1.5 mm (1/16 in).

To check this tolerance, place axle assembly on a plane surface and measure the gap between sprocket tooth and surface.



TYPICAL

1. Plane surface

A. 1.5 mm (1/16 in) MAXIMUM

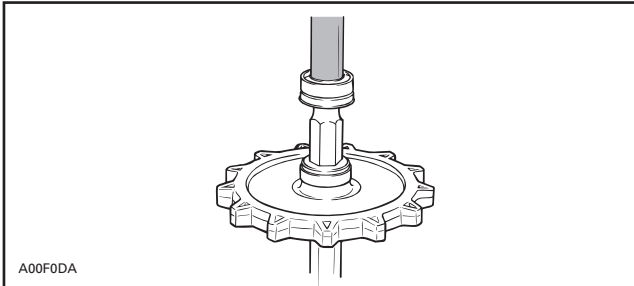
**CAUTION:** The same sprocket must not be pressed twice on the axle. If synchronization is found to be defective, use a new sprocket.

### 7, Bearing Protector

At assembly, flat side of bearing protector must be against bearing.

## 8, Bearing

Always push bearing by inner race.



*TYPICAL*

The bearing no. 8 must have its shield facing the sprocket.

The bearing no. 1 must have its shield facing right side (cover).

## LUBRICATION

Lubricate end housing bearing with synthetic grease (P/N 413 711 500).

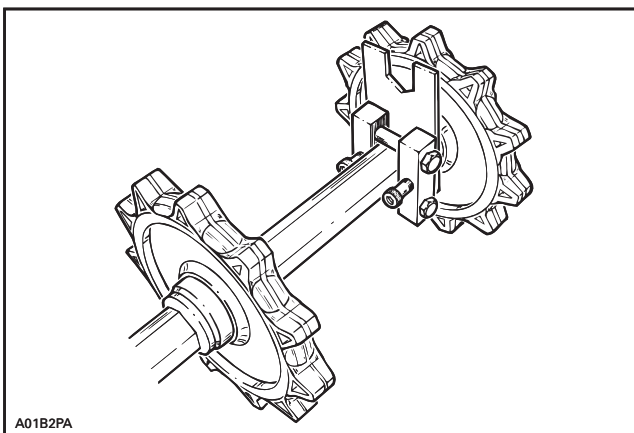
## ADJUSTMENT

### Sprocket/Track Alignment

**CAUTION:** Do not temper with sprocket/track alignment if frame or suspension is damaged.

Sprockets might be repositioned to fit lugs without removing drive axle.

Use drive axle sprocket adjuster kit (P/N 861 725 700).



*TYPICAL*

# TRACK

## TRACK TYPE APPLICATION

Refer to TECHNICAL DATA.

## GENERAL

This section gives guidelines for track removal. Some components require more detailed disassembly procedures. In these particular cases, refer to the pertaining section in this manual.

## INSPECTION

Visually inspect track for:

- cuts and abnormal wear
- broken rods
- broken or missing track cleats.

If track is damaged or rods are broken, replace track. For damaged or missing cleats, replace by new ones, using cleat remover (P/N 529 028 700). Use narrow-cleat installer (P/N 529 008 500).

### **WARNING**

**Do not operate a snowmobile with a cut, torn or damaged track.**

## REMOVAL

Remove the following parts:

- speedometer cable
- driven pulley
- end bearing housing
- muffler
- chaincase or gearbox cover
- sprockets and chain
- rear suspension
- drive axle seal
- drive axle
- track.

## INSTALLATION

Reverse the removal procedure.

**NOTE:** When installing the track, respect rotation direction indicated by an arrow on track thread.

Check sprocket/track alignment as described in DRIVE AXLE.

## ADJUSTMENT

### Track Tension and Alignment

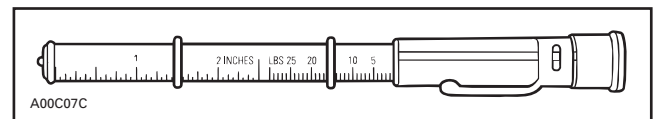
Track tension and alignment are inter-related. Do not adjust one without checking the other. Track tension procedure must be carried out prior to track alignment.

### Tension

Lift rear of snowmobile and support it with a wide-base snowmobile mechanical stand (P/N 529 020 000).

Allow the rear suspension to fully extend and check gap half-way between front and rear idler wheels. Measure between slider shoe bottom and inside of track. The gap should be as given in SPECIFICATIONS. If the track tension is too loose, track will have a tendency to thump.

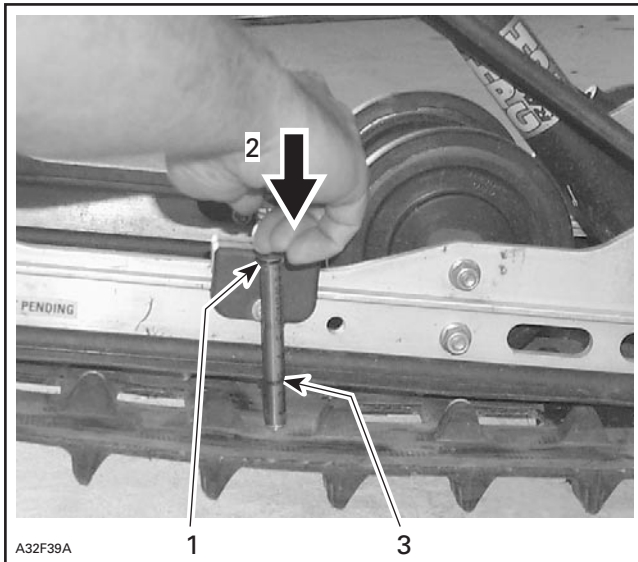
**NOTE:** A belt tension tester (P/N 414 348 200) may be used to measure deflection as well as force applied.



**BELT TENSION TESTER**

## Section 07 REAR SUSPENSION

### Subsection 05 (TRACK)

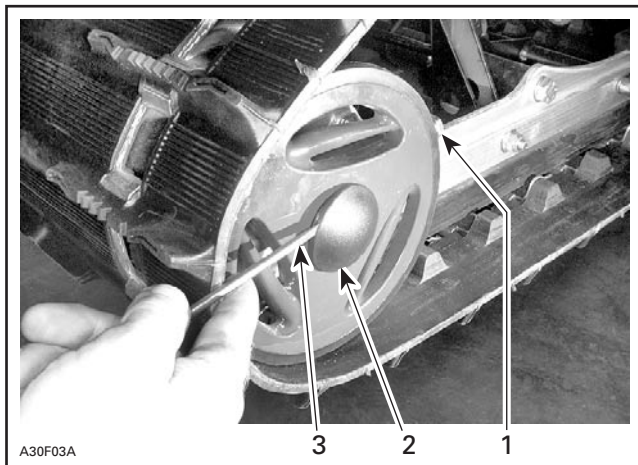


1. Top tool O-ring positioned at 7.3 kg (16 lb)
2. Push on top portion of tool until it contacts the top O-ring
3. Measured track deflection

**CAUTION:** Too much tension will result in power loss and excessive stresses on suspension components.

#### To adjust tension:

- Remove wheel caps.
- Loosen the rear idler wheel retaining screws.
- Turn adjustment screws to adjust.



#### TYPICAL

1. Adjustment screw
2. Retaining screw
3. Wheel cap removing

## Alignment

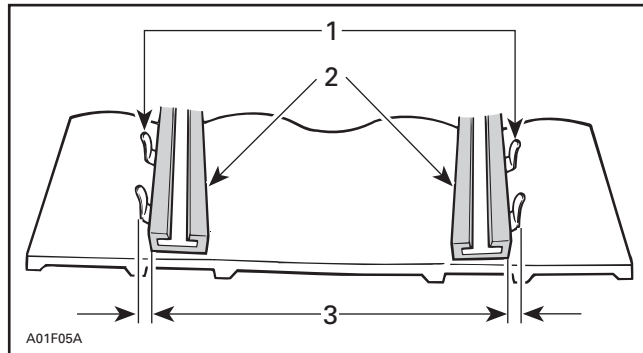
### **WARNING**

Before checking track alignment, ensure that the track is free of all particles which could be thrown out while track is rotating. Keep hands, tools, feet and clothing clear of track. Ensure no one is standing in close proximity to the vehicle. Never rotate at high speed.

#### All Models

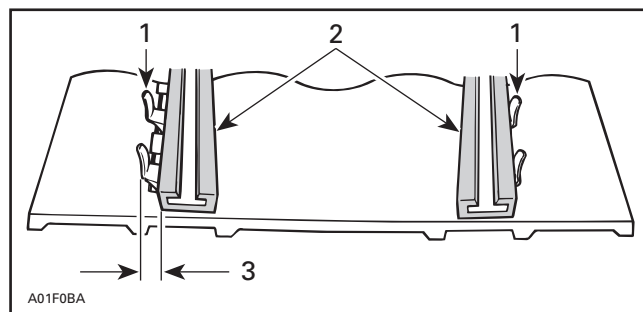
Start the engine and accelerate slightly so that track barely turns. This must be done in a short period of time (1 to 2 minutes)

Check that the track is well centered; equal distance on both sides between edges of track guides and slider shoes.



1. Guides
2. Slider shoes
3. Equal distance

To correct, stop engine, loosen rear wheel screws, then tighten the adjustment screw on side where the slider shoe is the farthest from the track insert guides.



1. Guides
2. Slider shoes
3. Tighten on this side

Restart engine, rotate track **slowly** and recheck alignment. If the satisfactory alignment is achieved, then tighten the idler wheel retaining screws to 48 N•m (35 lbf•ft). Reinstall the wheel caps.

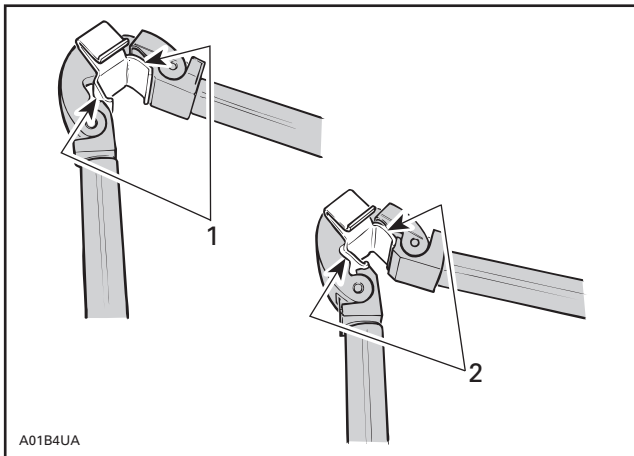
## Track Cleat

### Removal

- Raise rear of vehicle off the ground and lift snow-guard then hand rotate track to expose a cleat to be replaced.
- Using track cleat remover (P/N 529 028 700) for all models.

### Installation

- Place new cleat in position on the track and using narrow track cleat installer (P/N 529 008 500) bend cleat then push tabs into rubber.
- Re-open installer, then position cleat tabs on open end of tool and squeeze tabs until they are indented in rubber.



### TYPICAL

1. First step
2. Second step (to push tabs into rubber)