

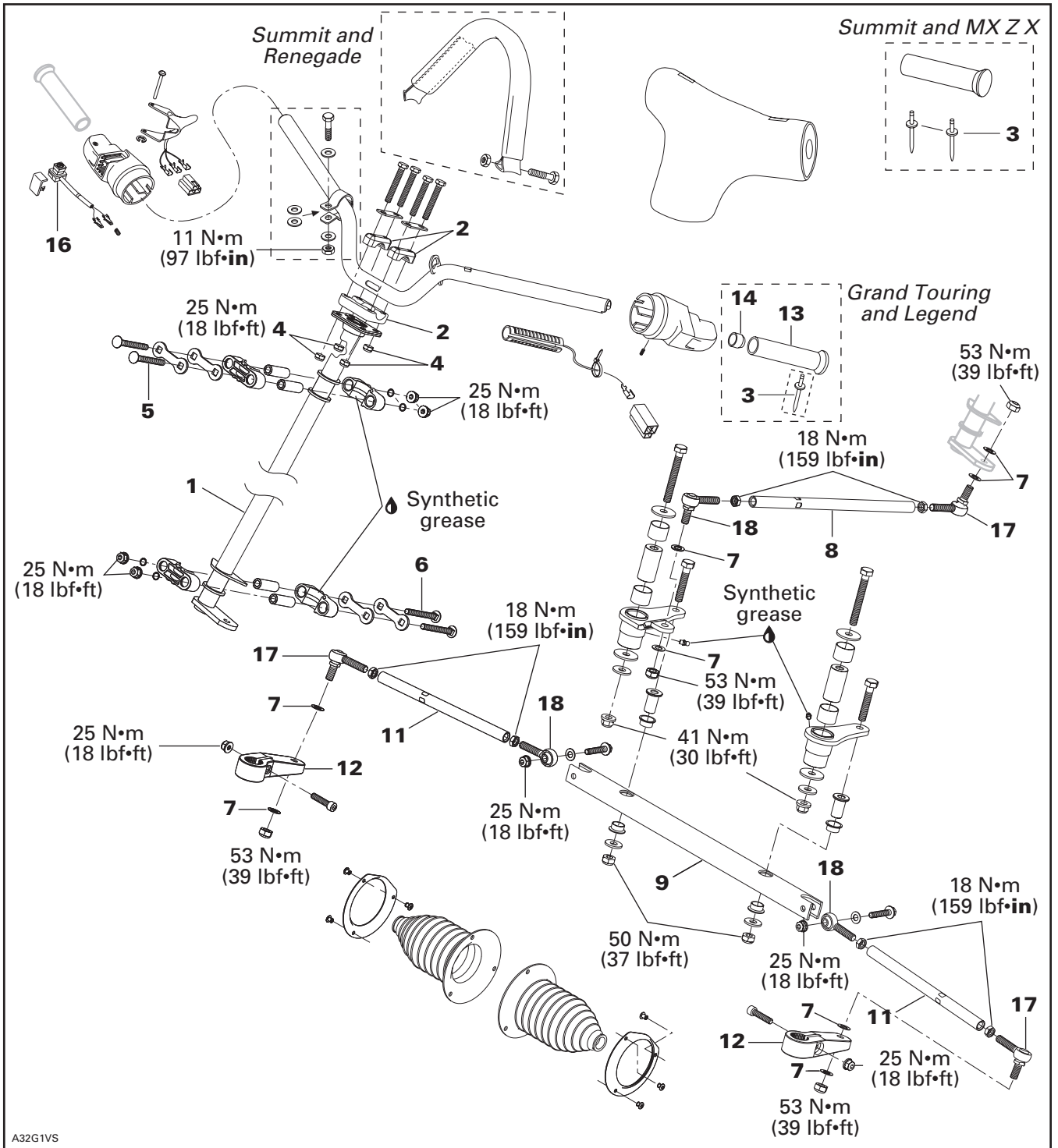
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STEERING SYSTEM

All ZX Series except MX Z X and Summit X

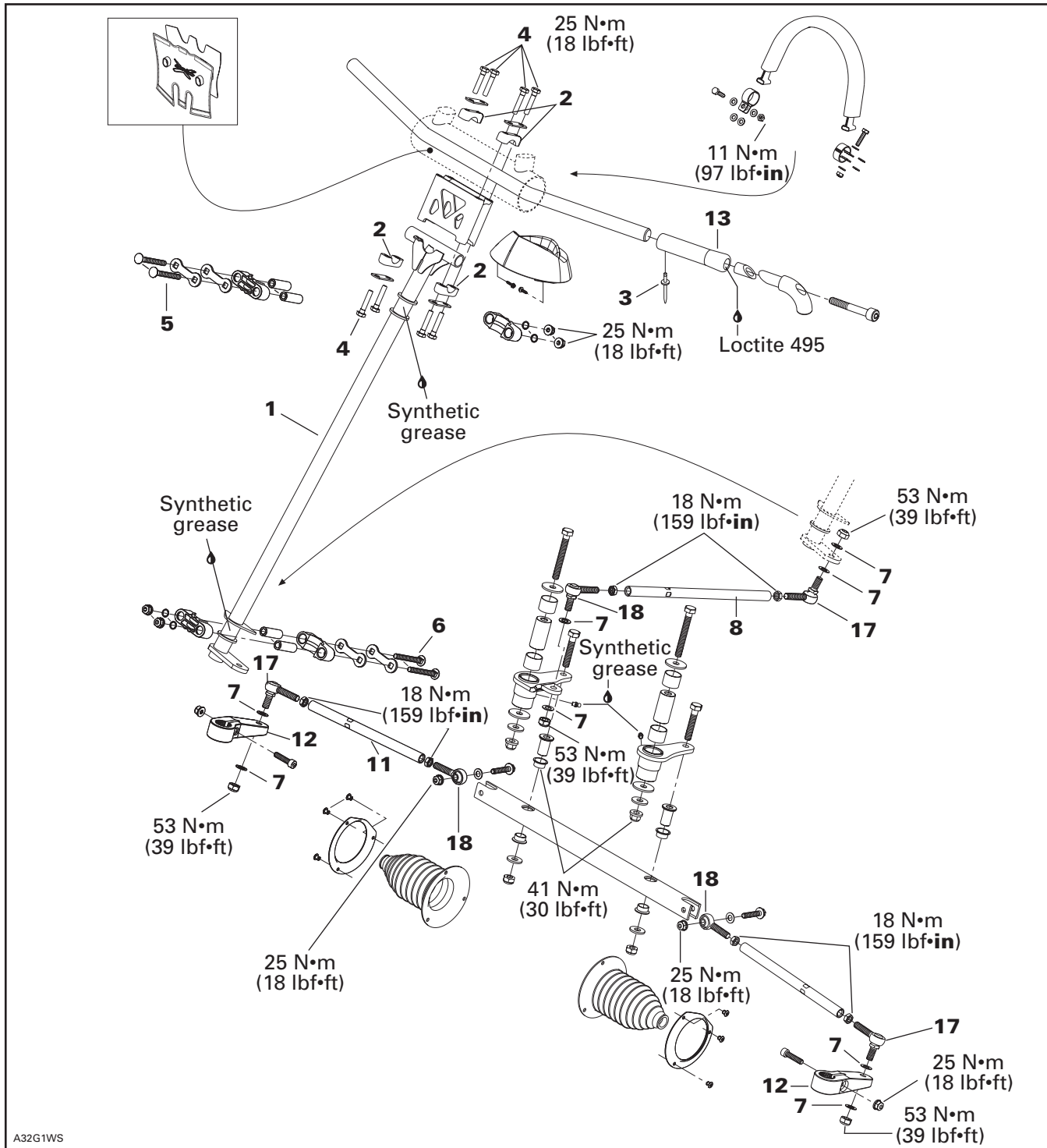


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Section 08 STEERING/FRONT SUSPENSION

Subsection 02 (STEERING SYSTEM)

MX Z X and Summit X/HM X



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DISASSEMBLY AND ASSEMBLY

13, Grip

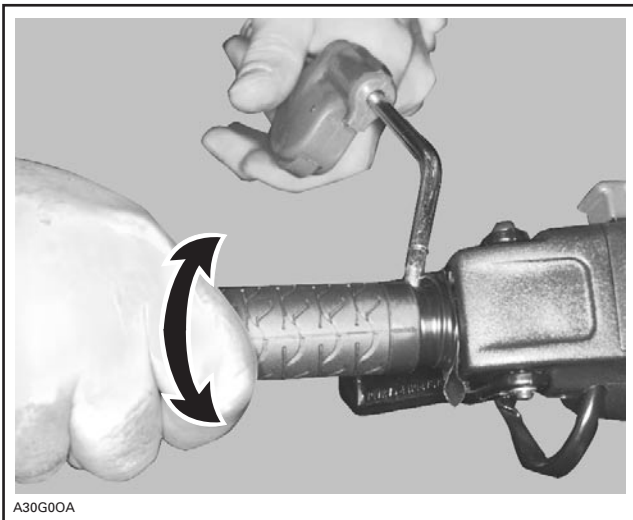
Grips must be carefully removed to prevent damaging the heating elements.

Remove rivet **no. 3** on so equipped models.

Heat grip with a heat gun.

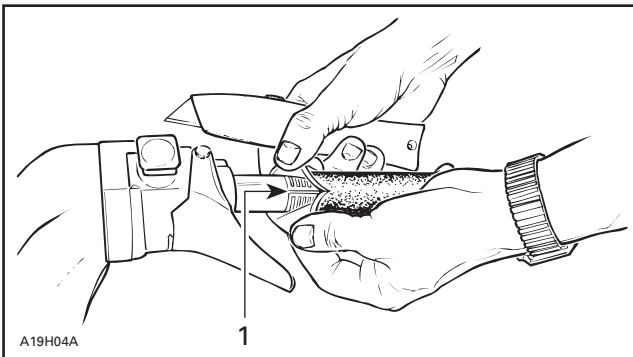
Apply tape to handlebar near the grip to protect paint.

Inject compressed air into the handlebar and twist grip as pulling it out.



The grips might be unremovable as explained above, in this case, carefully proceed as follows to prevent damaging the heating elements.

Locate the element wires inside the handlebar; look through end of grip. Start cutting the grip exactly opposite the element wires and immediately peel it open to locate the gap in the heating element, as shown.



TYPICAL

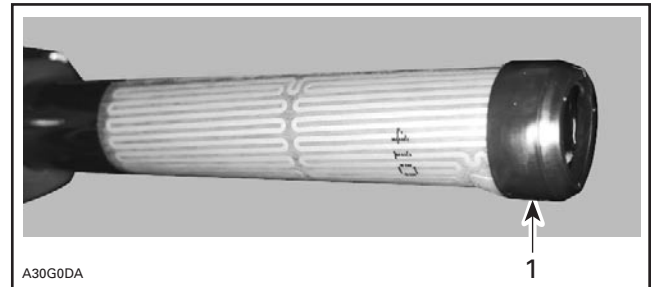
1. Gap in the heating element opposite the wires

Continue cutting along the gap and remove the grip.

If required, slowly peel heating element **no. 15** from handlebar and remove it.

To install, stick the heating element to the handlebar making sure the wires do not interfere with operation of the accelerator or brake handle.

Prior to install grips, position heating element protector **no. 14**.



1. Heating element protector

⚠ WARNING

Never use lubricants (e.g. oil, grease, soap etc.) to install the handlebar grip.

Heat the grip with a heater gun or a spot light to ease installation. Insert new grip with compressed air.



TYPICAL

Section 08 STEERING/FRONT SUSPENSION

Subsection 02 (STEERING SYSTEM)

Summit X

After grip installation apply few drops of Loctite 495 (P/N 293 800 021) 10 mm (3/8 in) deep between grip and handlebar.

Locate former rivet hole in handlebar then, drill 4.8 mm (3/16 in) dia. hole through grip in this position. Install rivet no. 3.

All Models Except Summit X

Locate former rivet holes in handlebar then, drill 4.8 mm (3/16 in) dia. hole through grip in this position. Install 2 rivets no. 3 both sides of handle.

Tilt Handlebar Mechanism

Grand Touring SE Only

Move handlebar to its higher position.

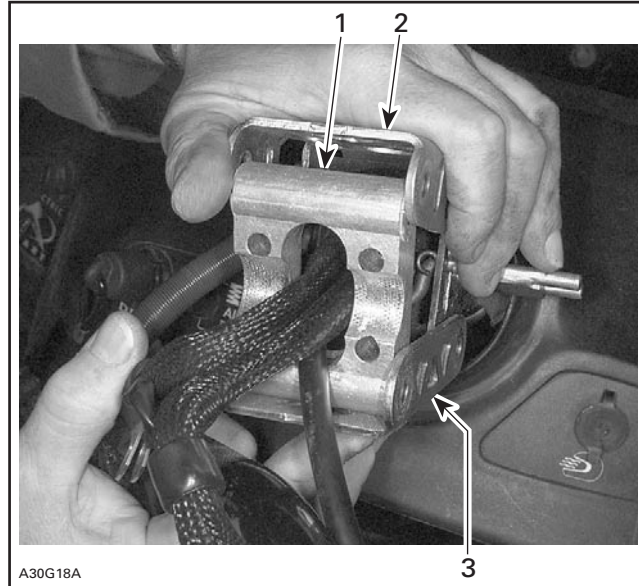
Remove Allen screw retaining locking lever. Pull out locking lever.

Remove steering pad. Unhook throttle cable from throttle lever.

Unscrew all 4 nuts and bolts securing handlebar.

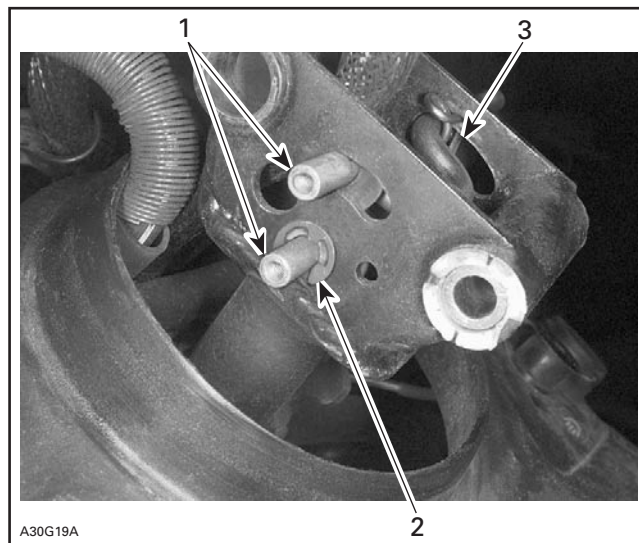
NOTE: Do not unbolt master cylinder needlessly. Move handlebar apart, keeping master cylinder reservoir in upward position.

Unbolt 4 nuts and bolts retaining clamp, front and rear arms.

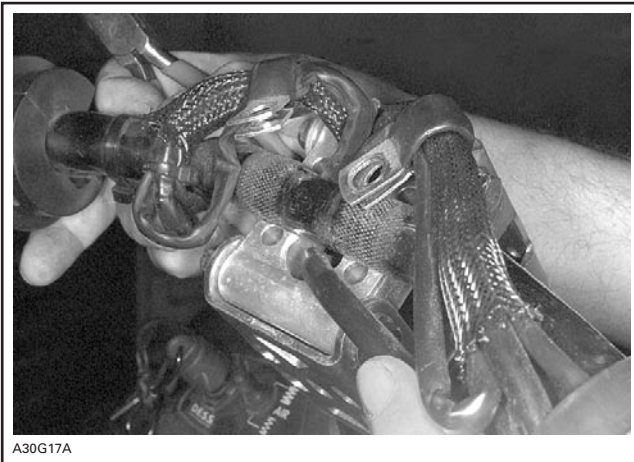


1. Clamp
2. Front arm
3. Rear arm

Remove plate, circlip on left side then, plastic washer on right side.



1. Plate removed
2. Circlip to be removed
3. Plastic washer on right side



HANDLEBAR READY TO BE MOVED

Section 08 STEERING/FRONT SUSPENSION

Subsection 02 (STEERING SYSTEM)

Using a hook, pull spring right side end to allow removing welded lock.

WARNING

Spring will be ejected upon welded lock removal.

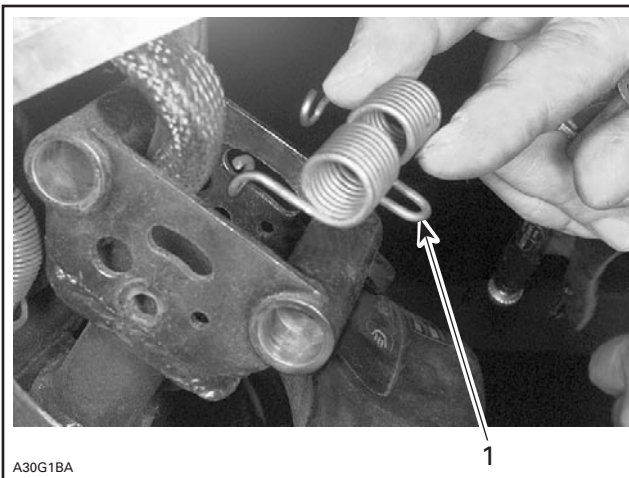


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WELDED LOCK REMOVAL

To reassemble tilt handlebar mechanism, reverse disassembly procedure. However, pay attention to the following:

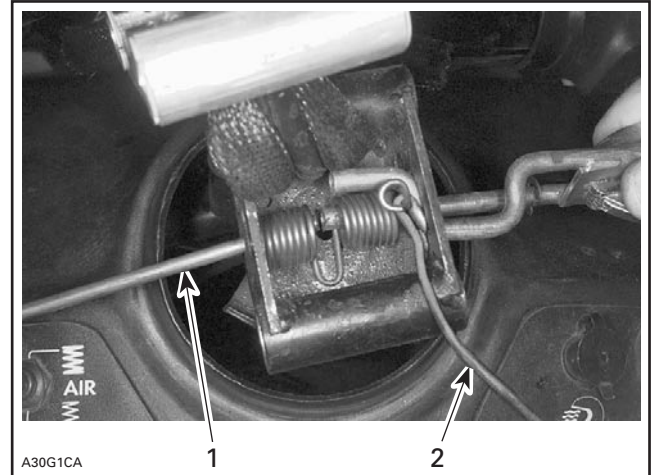
Install spring with its locking tab facing bottom and rear.



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1. Spring tab

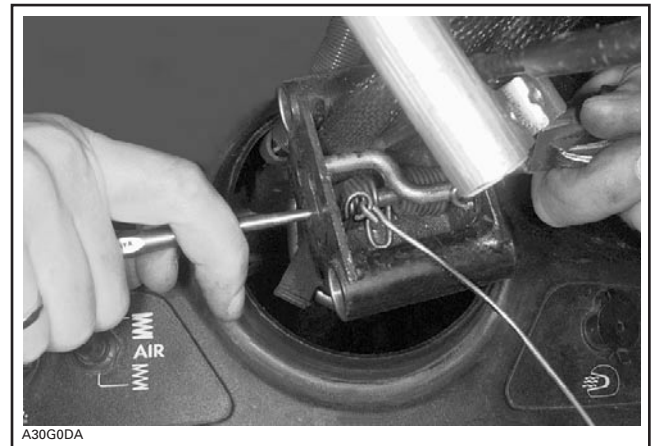
Hold left side portion of spring with a punch inserted in lower bracket. Pull right side spring end with a hook during welded lock insertion.



A30G1CA

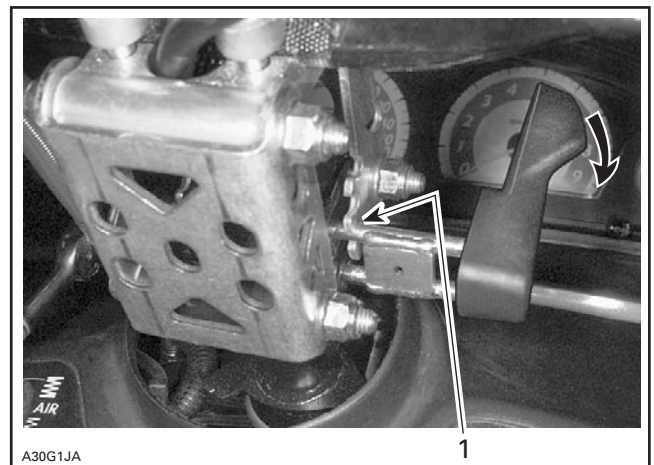
1. Punch
2. Hook to pull spring end

Proceed the same with left side spring end.



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Temporary install locking lever. Push it forward in order to maintain locking rod fully engaged. Tighten screws retaining plate while keeping locking rod fully engaged.



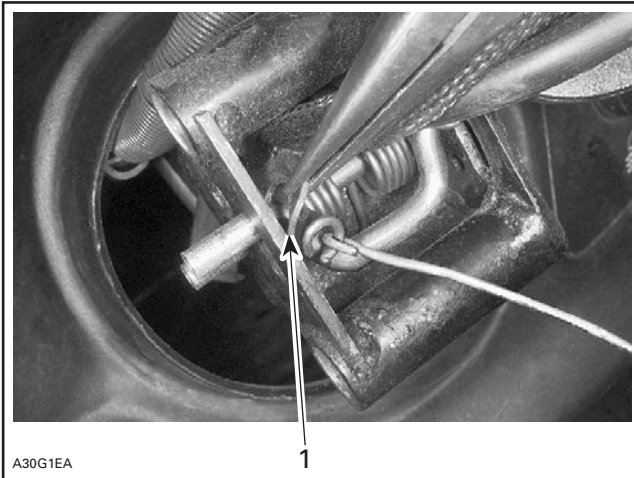
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1. Locking rod fully engaged

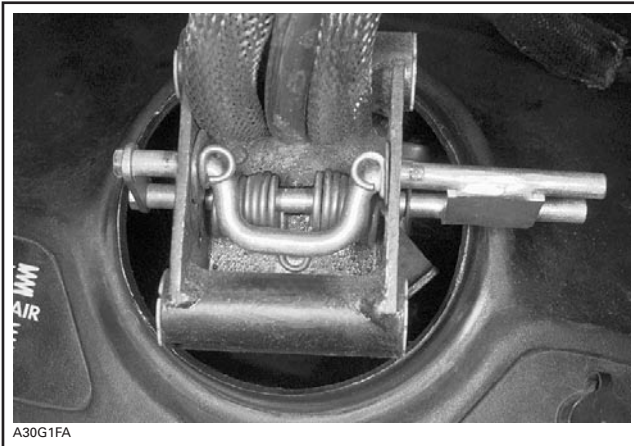
Section 08 STEERING/FRONT SUSPENSION

Subsection 02 (STEERING SYSTEM)

Install a new plastic washer on each end of spring.



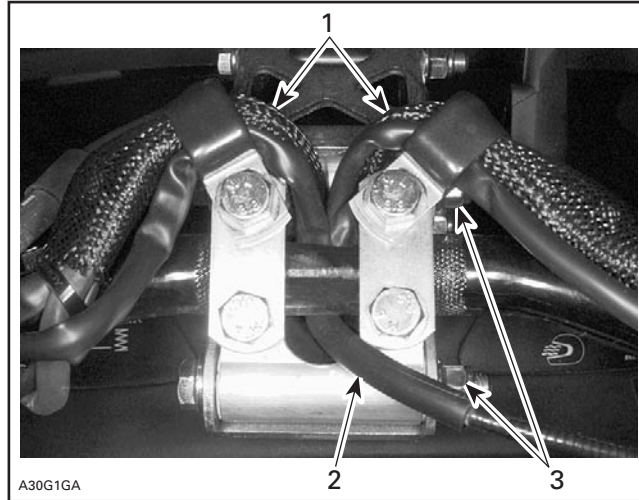
1. Plastic washers



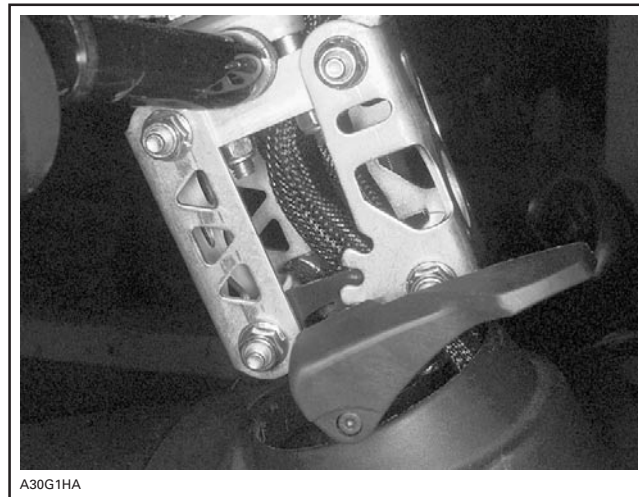
WELDED LOCK INSTALLED

Throttle cable must be under handlebar and wiring harnesses above.

All 4 nuts retaining front and rear arms must be on right side.



1. Wiring harnesses
2. Throttle cable
3. Nuts on right side



HANDLEBAR IN UPPER POSITION



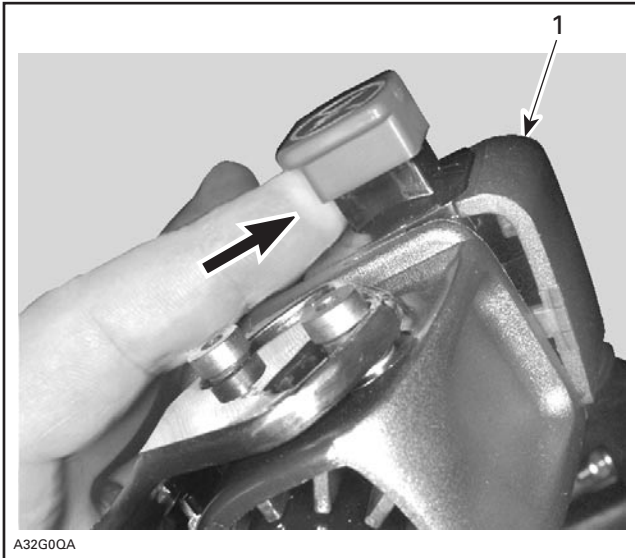
HANDLEBAR IN LOWER POSITION

Section 08 STEERING/FRONT SUSPENSION

Subsection 02 (STEERING SYSTEM)

16, Cut-Out Switch

Push on switch to remove plastic cover.



1. Plastic cover

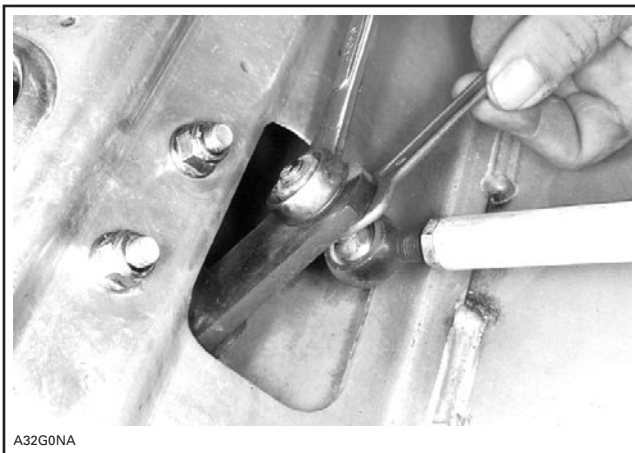
1, Steering Column

Remove steering pad, remove master cylinder from handlebar and put it aside. Remove circlip retaining throttle cable to throttle housing. Unplug all connector housings of handlebar switches. Remove handlebar ass'y.

Remove the air intake silencer.

Unbolt console.

Detach the short tie rod **no. 8** (engine has to be removed) from the steering column. Note that a hardened flat washer **no. 7** goes on each side of steering column lever.



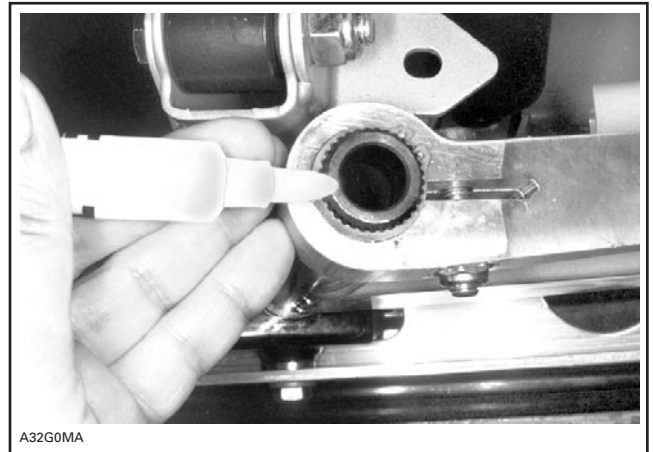
Disengage carriage bolts **no. 6** from chassis.

Disengage carriage bolts **no. 5** from steering support then, pull steering column from top.

Plastic U-clamps will come out along with steering column.

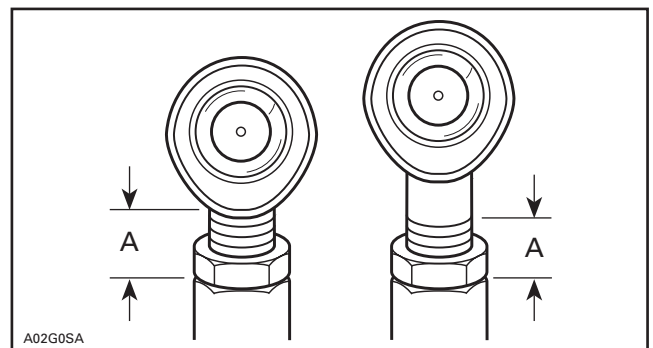
12, Steering Arm

To maintain correct steering geometry for reassembling, scribe mark the steering arm and ski leg before disassembly.



17,18, Ball Joint (left hand and right hand threads)

The maximum external threaded length not engaged in the tie rod must not exceed 20 mm (25/32 in).



TYPICAL

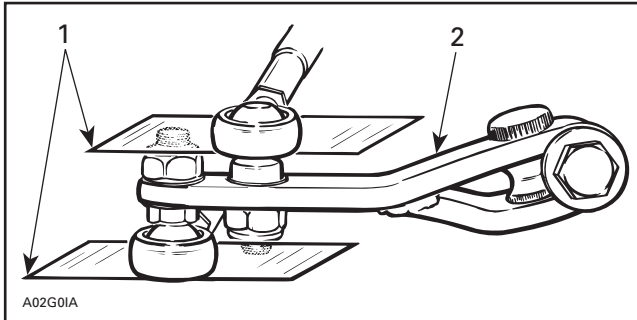
A. 20 mm (25/32 in) max.

The ball joint should be restrained when tightening the tie rod end lock nut. Align it so the tie rod end is parallel to the steering arm when assembled on the vehicle, refer to the following illustration.

Section 08 STEERING/FRONT SUSPENSION

Subsection 02 (STEERING SYSTEM)

For proper torque specifications refer to the specific exploded view for the vehicle being serviced.

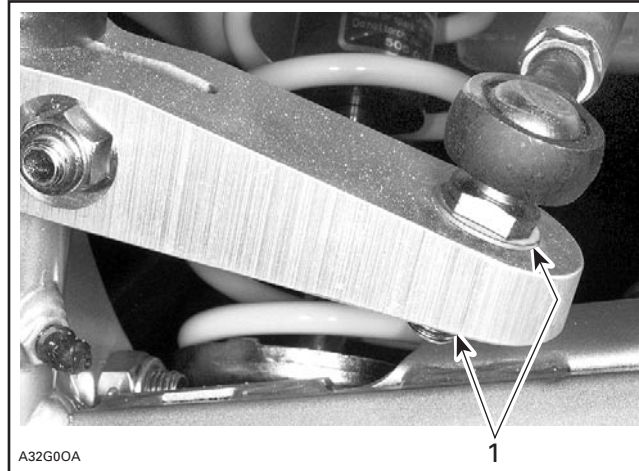


TYPICAL

1. Parallel with steering arm
2. Steering arm

7, Hardened Washer

Install a hardened washer on each side of the arm.



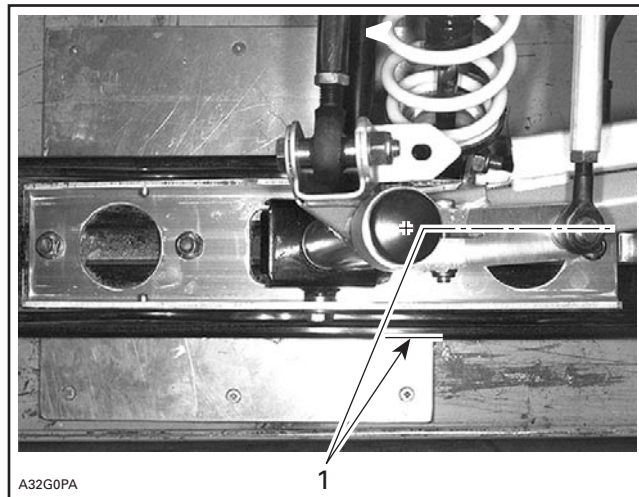
TYPICAL

1. Hardened washers

12, Steering Arm

The steering arm angles should be equal on both sides when skis are parallel with vehicle.

Steering arm axis (from plastic cap center to ball center of ball joint) must run parallel to ski.



TYPICAL

1. Parallel

Tighten the steering arm pinch bolt and nut to the torque specified in the exploded view.



TIE ROD BALL JOINT PARALLEL TO SWIVEL BAR BEFORE TIGHTENING

⚠ WARNING

The cut off section of the ball joint must run parallel with the swivel bar **no. 9**. When tightening lock nuts, restrain ball joint with appropriate size wrench. The maximum external threaded length not engaged in the tie rod must not exceed 20 mm (25/32 in).

INSPECTION

Check skis and runner shoes for wear, replace as necessary. Refer to FRONT SUSPENSION.

12, Steering Arm

Make sure steering arm and ski leg splines interlock.

⚠ WARNING

Any parts having worn splines have to be replaced with new ones.

Check the general condition of the steering system components for wear. Replace if necessary.

15, Heating Grip Element

Refer to TESTING PROCEDURE.

17,18, Ball Joint (left hand and right hand threads)

Inspect ball joint ends for wear or looseness, if excessive, replace them.

HANDLEBAR ADJUSTMENT

All ZX Series except MX Z X and Summit X

Loosen all 4 nuts **no. 4** retaining steering clamps **no. 2**.

Adjust the steering handlebar to the desired position.

Lock the handlebar in place by tightening the 4 nuts as specified in the illustrations.

MX Z X and Summit X

Loosen all 8 nuts **no. 4** from 4 retaining steering clamps **no. 2** at the top and the bottom of handlebar extension.

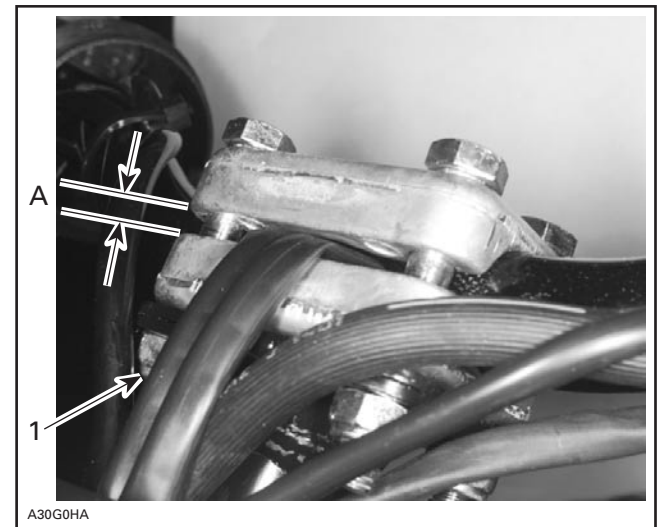
Adjust the handlebar extension to the desired position.

Lock the handlebar extension in place by tightening the bottom end (handlebar extension) 4 nuts **no. 4** with bottom clamps **no. 2**.

Now adjust the handlebar to the desired position.

Lock the handlebar in place by tightening the top end (handlebar extension) 4 nuts **no. 4** with top clamps **no. 2**.

CAUTION: Tighten the nuts equally in a criss-cross sequence and ensure there is an equal gap on each side of the clamps.



TYPICAL

1. Torque to 25 N•m (18 lbf•ft)
- A. Equal gap all around

⚠ WARNING

Avoid contact between the brake handle and the windshield by NOT adjusting the handlebar too high.

⚠ WARNING

Make sure that the steering pad and all controls are properly fixed to their normal location on the handlebar.

Section 08 STEERING/FRONT SUSPENSION

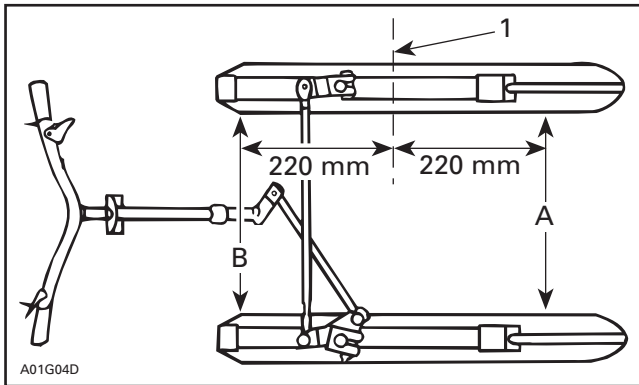
Subsection 02 (STEERING SYSTEM)

STEERING ADJUSTMENT (skis)

Definitions

TOE-OUT:

A difference measured between the front edge of the skis "A" and rear edge "B" as viewed from the top. It is adjustable. For all ZX series models, toe-out is measured at 220 mm (8-21/32 in) from ski pivot bolt axis.



TYPICAL

1. Ski pivot bolt axis

CAMBER:

A specific inward or outward tilt angle of ski leg compared to a vertical line when viewing the vehicle from front.

Adjustments

Adjustments should be performed following this sequence:

- Pivot arm centering.
- Set camber angle.
- Check for a horizontal handlebar.
- Set toe-out.

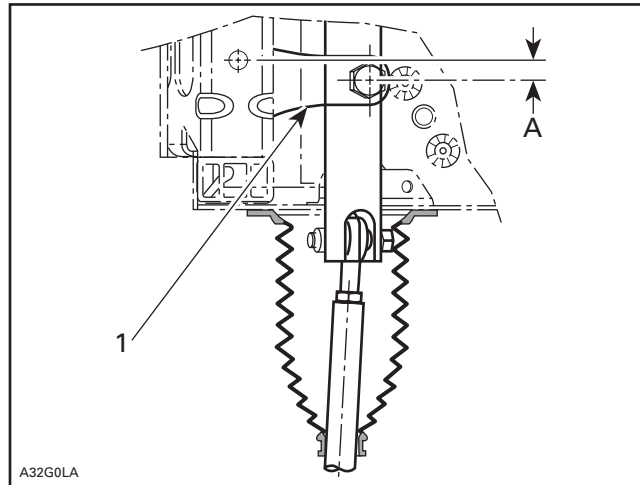
PIVOT ARM CENTERING

⚠ WARNING

Do not attempt to adjust straight ahead ski position by turning the ball joint on tie rod **no. 8**.

8,17,18, Tie Rod and Ball Joint

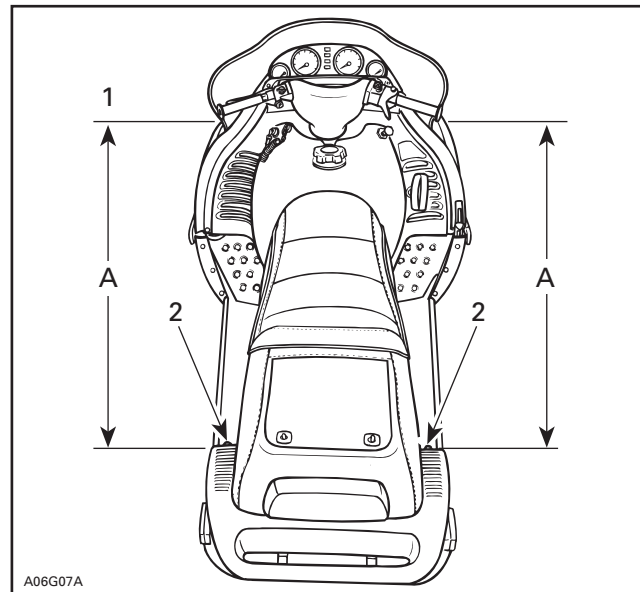
Turn handlebar until bolt center of left side swivel arm is 11 mm (.443 in) from chassis hole center.



1. Left side swivel arm
- A. 11 mm (.443 in)

Check that handlebar is horizontal by measuring from the extremities of the grips to the rearmost edge of the tunnel, as shown.

NOTE: The reference point must be the same relative to each side.



TYPICAL

1. Equal distance "A" on each side
2. Same reference point

Remove engine.

Section 08 STEERING/FRONT SUSPENSION

Subsection 02 (STEERING SYSTEM)

Loosen the jam nuts on tie rod no. 8 (LH threads on steering column end) and turn tie rod accordingly. Retighten the jam nuts to 18 N•m (159 lbf•in).

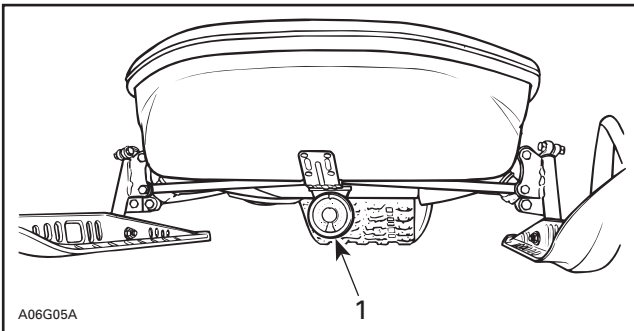
⚠ WARNING

Never lengthen this tie rod so that threaded portion of ball joint exceeds 20 mm (25/32 in).

CAMBER

NOTE: Identical adjustments are required on both sides of the vehicle.

- Make sure the vehicle is leveled by placing an angle finder under the main frame member as shown on the following illustration.
- Vehicle skis must be off the ground.

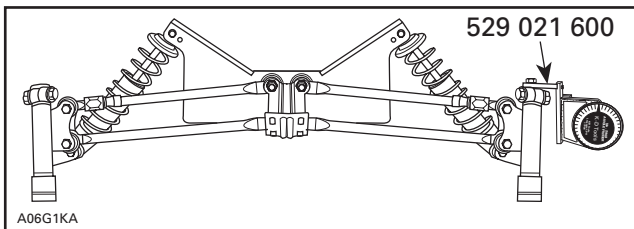


TYPICAL

1. Angle finder

Using special tool (P/N 529 021 600) mounted to the ski leg, position the angle finder on the tool as shown in the following illustration. An alternate location for the angle finder if the special tool is not available is the outside of the ski leg housing.

CAUTION: Angle finder must sit square against swing arm. Positioning angle finder against weld bead or decal may result in false reading.



TYPICAL — CAMBER ADJUSTMENT SET-UP

Adjusting

- Loosen lock nut on both upper control arms.
- Unbolt both upper control arms at ski leg housing. Turn tie rod half turn at a time to obtain the specified value when skis are not touching ground. Bolt upper control arms.

MODEL	CAMBER $\pm 1.0^\circ$
MX Z Trail	- 1
MX Z STD/X/Adrenaline	- 2
Grand Touring	0
Summit	0
Legend	0

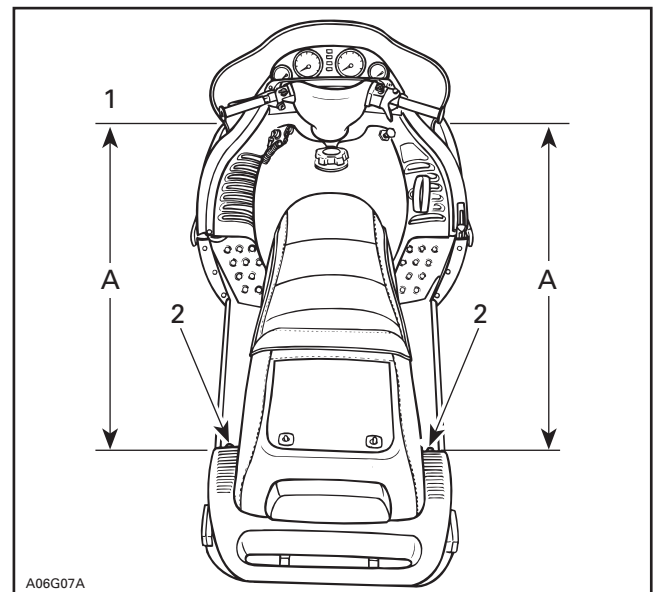
NOTE: Because of a negative camber, skis will lean toward center of vehicle.

Tighten lock nut on both upper control arms.

HANDLEBAR AND SKI TOE-OUT

Check that handlebar is horizontal when skis are in straight ahead position by measuring from the extremities of the grips to the rearmost edge of the tunnel, as shown.

NOTE: The reference point must be the same relative to each side.



TYPICAL

1. Equal distance "A" on each side
2. Same reference point

Section 08 STEERING/FRONT SUSPENSION

Subsection 02 (STEERING SYSTEM)

Adjustment is performed by adjusting length of left and right tie rods no. 11.

⚠ WARNING

Do not attempt to adjust skis straight ahead position by turning ball joint on tie rod no. 8.

Procedure:

- Loosen jam nuts of both tie rods no. 11.
- Turn the tie rod on one side to shorten its length.
- Lengthen the other one by turning it exactly the same amount, so that toe-out is not changed.

⚠ WARNING

Never lengthen tie rod so that threaded portion of ball joint exceeds 20 mm (25/32 in).

- Close front of skis manually to take all slack from steering mechanism.

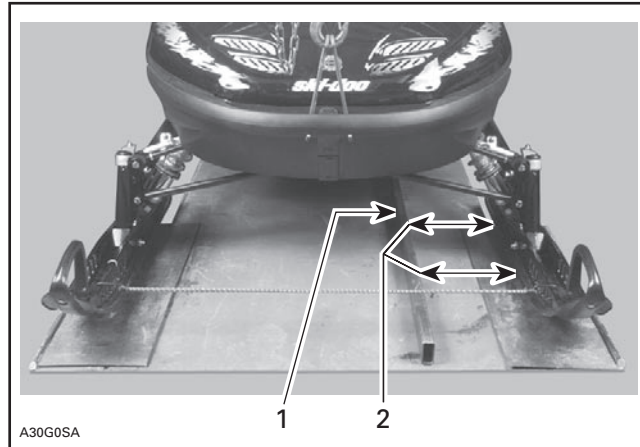
NOTE: A rubber cord must be hooked in front of skis to keep them closed.

Toe-out must be as specified when skis are in a straight-ahead position and the front of vehicle is lifted off the ground.

MODEL	TOTAL TOE-OUT + 3 mm (+ 1/8 in) - 0 mm (- 0 in)
MX Z Renegade/ Summit	8.0 (5/16)
MX Z Legend Grand Touring	3.0 (1/8)

NOTE: To make sure skis are in a straight-ahead position, place a straight edge against pre-adjusted track and measure the distance between front and rear of skis and straight edge. Measuring points are 220 mm (8-21/32 in) at front and rear of ski pivot axis.

To reduce tolerance when measuring, set one ski to proper toe-out (half the total toe-out) then measure from that ski to the opposite ski.



TYPICAL

1. Straight edge
2. Measure at 220 mm (8-21/32 in) from ski pivot axis

LUBRICATION

⚠ WARNING

Do not lubricate throttle cable or housing.

26, Grease Fittings

Only use synthetic grease (P/N 413 711 500).

- Grease ski legs.
- Grease LH and RH swivel arms.
- Grease stabilizer blocks in swing arm.

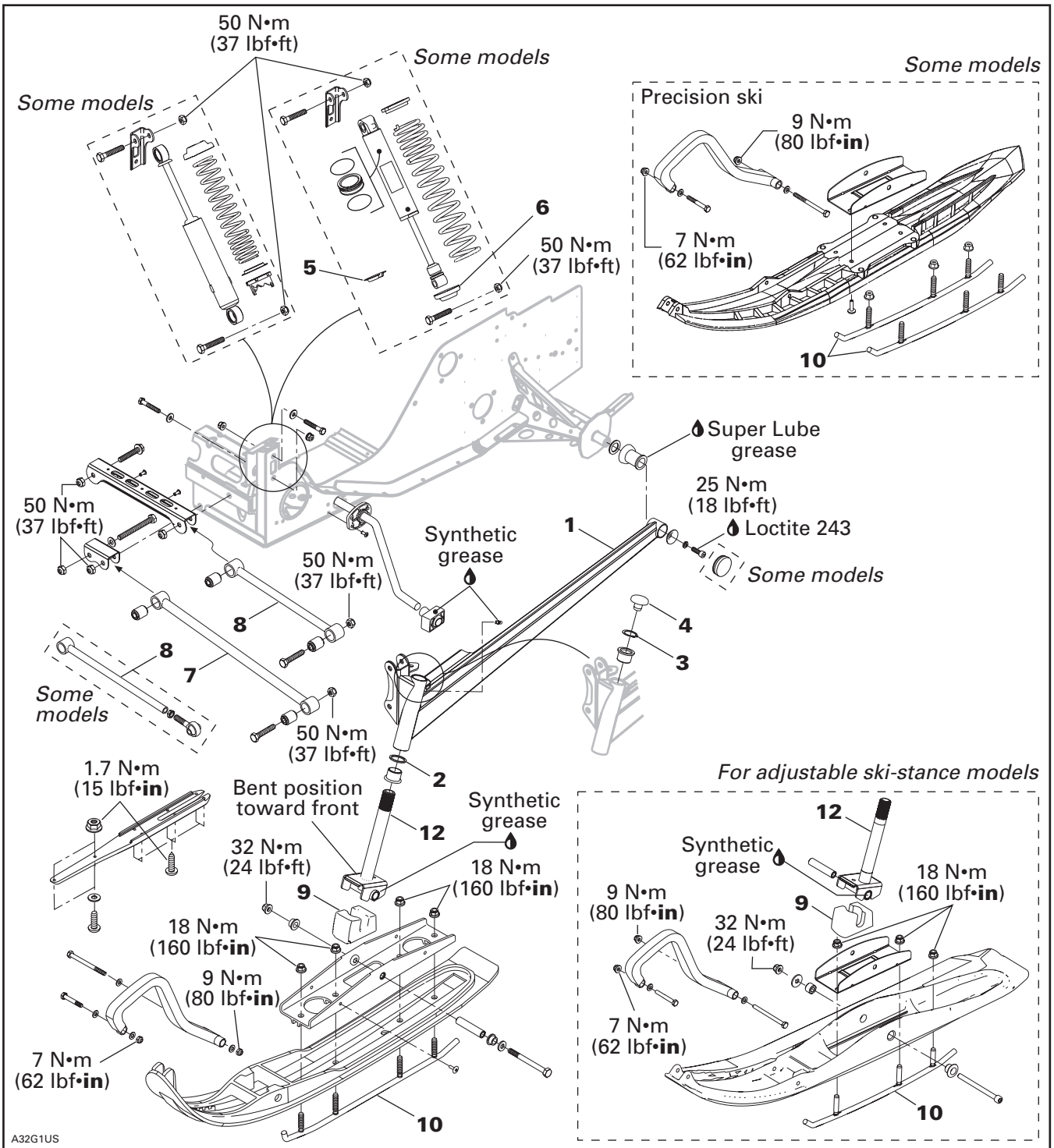
For all others lubrication points use BOMBARDIER LUBE (P/N 293 600 016).

Lubricate:

- Steering column bushings.
- Long tie rod ends.
- Short tie rod ends.
- Upper arm ball joint on so equipped models.

SUSPENSION AND SKI SYSTEM

ZX Series



Section 08 STEERING/FRONT SUSPENSION

Subsection 03 (SUSPENSION AND SKI SYSTEM)

DISASSEMBLY

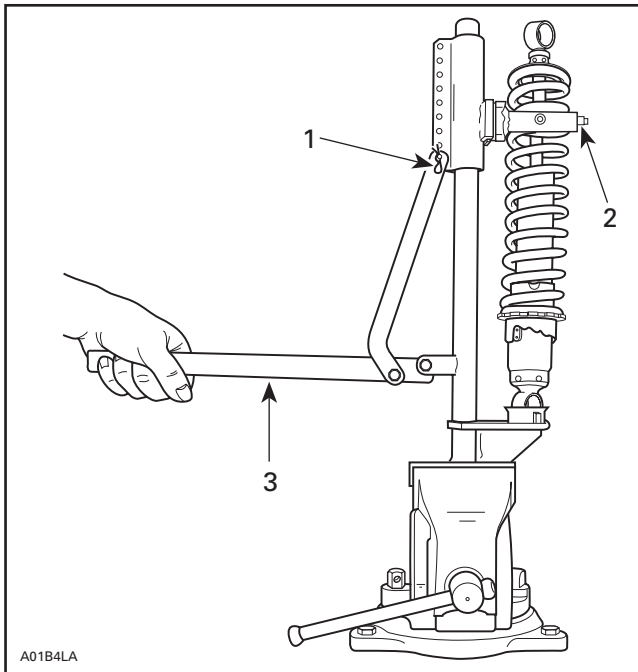
5, Shock

Lift front of vehicle and support it off the ground. Reduce spring preload by turning adjusting ring accordingly.

Remove lower bolt then upper bolt of shock.

For shock spring disassembly use shock spring remover (P/N 529 027 100) in a vise. Mount shock in it and turn shock so that spring coils matched spring compressor.

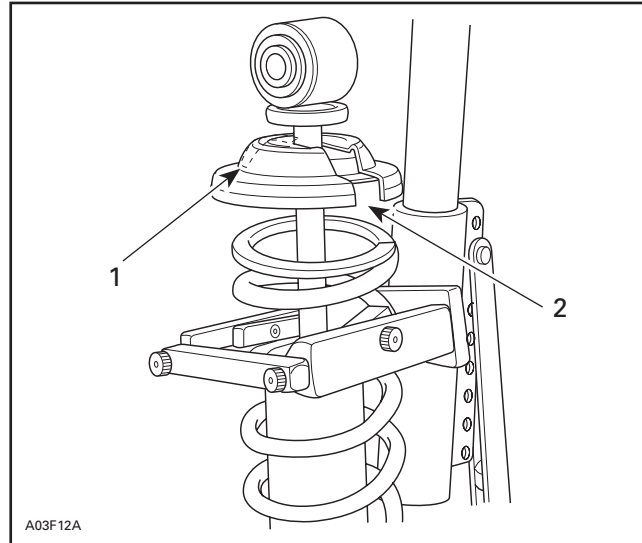
Close and lock the bar. Adjust the handle at horizontal position by changing the position of the clevis pin.



1. Clevis pin
2. Bar
3. Handle horizontal

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

At installation, cap opening **no. 6** must be 180° from spring stopper **no. 5** opening.

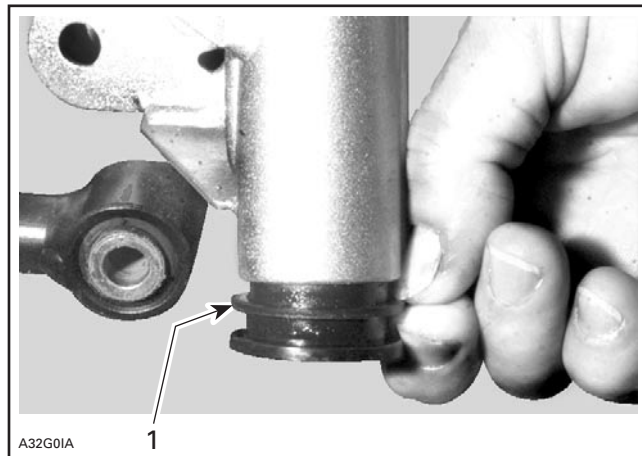


1. Cap opening
2. Spring stopper opening

1, Swing Arm

Lift front of vehicle and support it off the ground.

Remove cap **no. 4**, circlip **no. 3** then loosen steering arm bolt and pull up steering arm. Ski leg may fall off from swing arm. Note shim **no. 2** position.



1. Shim **no. 2**

Unbolt lower end of shock from swing arm.

Unbolt upper and lower arms.

Unbolt rear of swing arm from frame.

Pull swing arm off the vehicle.

INSPECTION

Check all rubber cushions for crack and wear. Replace as required.

Check straightness of ski leg **no. 12** and make sure that splines are properly interlocking with steering arm. Replace as required.

Check for straightness of swing arm. Replace as required.

Check for clogged grease fittings. Clean or replace as required.

Check skis and runners **no. 10** for wear, replace as necessary.

Check condition of ski stopper **no. 9**. Replace it when deteriorated.

To check condition of shock, refer to SC-10 MOUNTAIN SUSPENSION then look for **Shock Absorber Inspection**.

INSTALLATION

For assembly, reverse the disassembly procedure. However, pay attention to the following.

Apply synthetic grease (P/N 413 711 500) to ski leg components.

Tighten nuts and screws to proper torque as mentioned in exploded view.

7,8, Upper and Lower Arms

Position arms and tie rods horizontally before tightening nuts.

8, Adjustable Arm

Some Models Only

Refer to STEERING SYSTEM for proper camber adjustment using these arms.

All Models

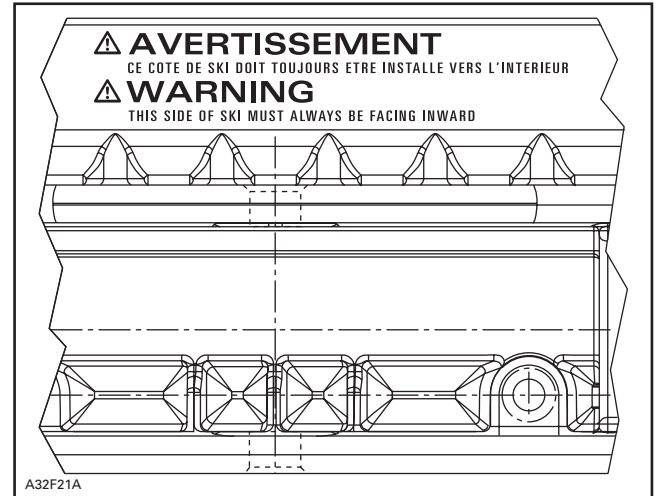
Proceed with toe-out adjustment, refer to STEERING SYSTEM.

Ski

Summit Models Only

⚠ WARNING

Make sure the raised side of ski is always facing inward.



CONVERTIBLE SKI STANCE

Summit and MX Z Renegade Only

Convertible models are always fitted with offset ski legs. To change the ski stance from narrow to wide or vice versa follow the procedure as given below.

Remove the connecting bolt of ski and ski leg.

Remove the ski.

Disconnect the steering arm from ski leg.

Rotate ski leg to 180° to change from narrow to wide or wide to narrow.

Connect steering arm to the ski leg.

Install ski.

Repeat the same procedure on the opposite ski.

⚠ WARNING

Both ski legs should always be adjusted to narrow or wide position together.