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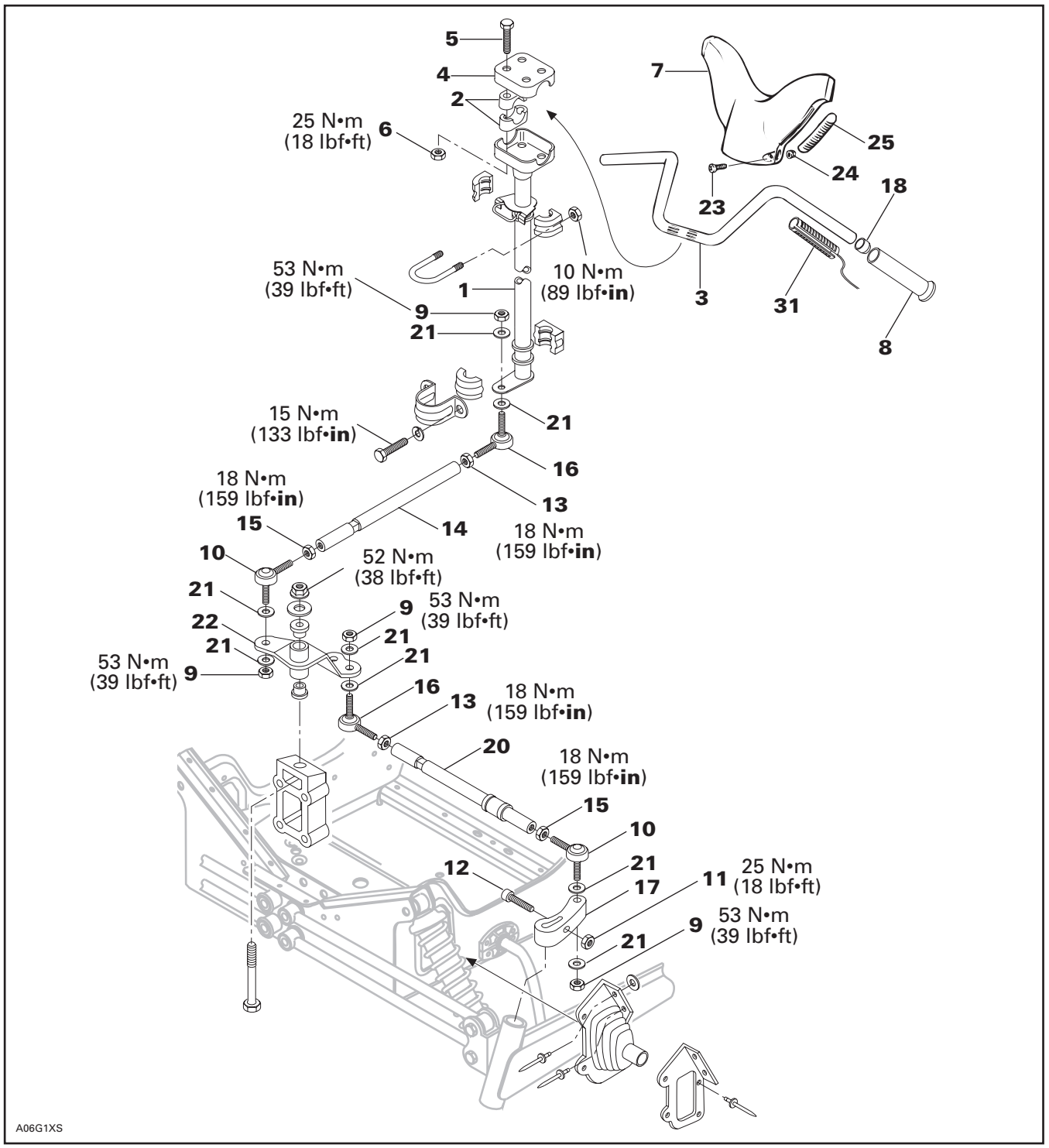
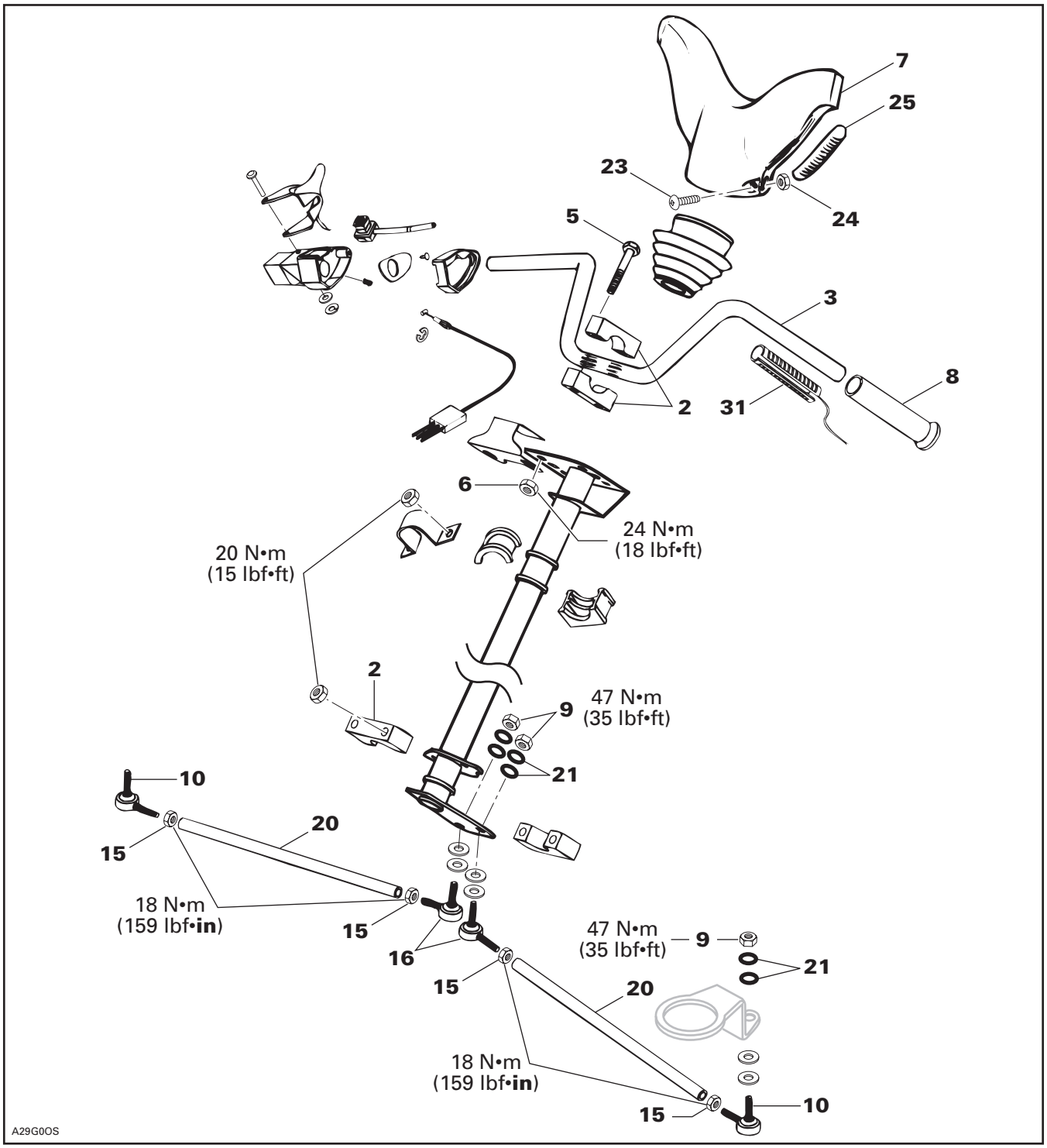
STEERING SYSTEM

S-Series



Skandic WT/SWT/WT LC



TYPICAL

INSPECTION

Check skis and ski runner for wear, replace as necessary. Refer to STEERING SYSTEM.

17, Steering Arm and Ski Leg

Make sure steering arm and ski leg splines interlock without excessive play.

⚠ 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.

31, Heating Grip Element

To test heating elements, refer to TESTING PROCEDURE.

10,16, Ball Joint (left hand and right hand threads)

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

DISASSEMBLY AND ASSEMBLY

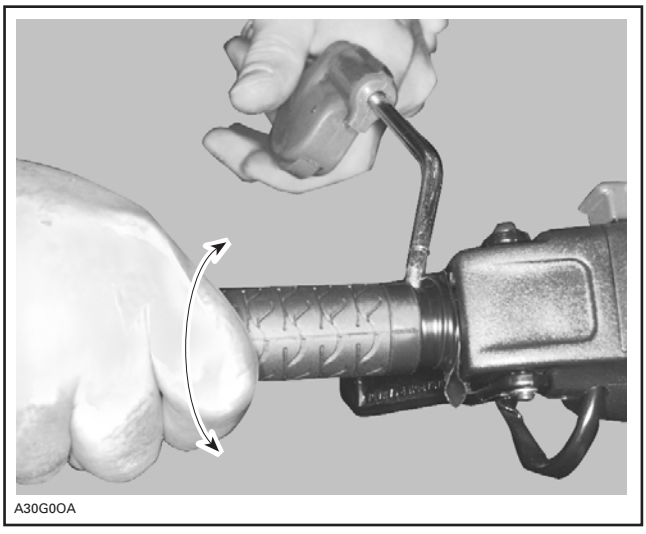
8, Grip

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

Heat grip with a heat gun.

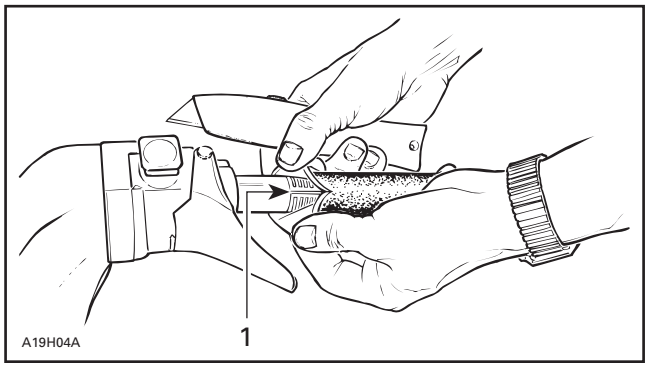
Apply tape to handlebar near the grip to protect paint.

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.

Start cutting and immediately peel it open to locate the gap in the heating element, as shown.



TYPICAL

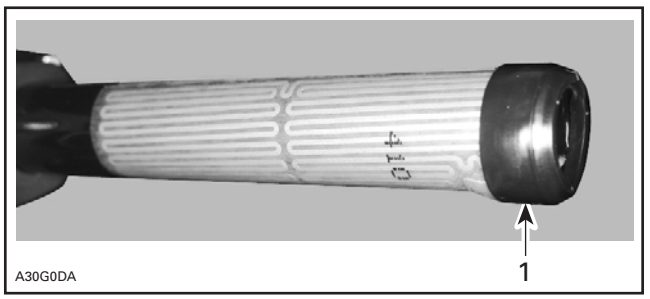
1. Gap in the heating element opposite the wires

Continue cutting along the gap and remove the grip.

If required, slowly peel heating element **no. 31** 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. 18**.



1. Heating element protector

⚠ WARNING

Never use lubricants (e.g. oil, grease, etc.) to install the handlebar grip. Only use a mix of soap and water. Mix 40 parts of water with one part of dish washing soap (recommended: Ultra Joy, Sunlight or Palmolive).

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


A30G0NA

1, Steering Column

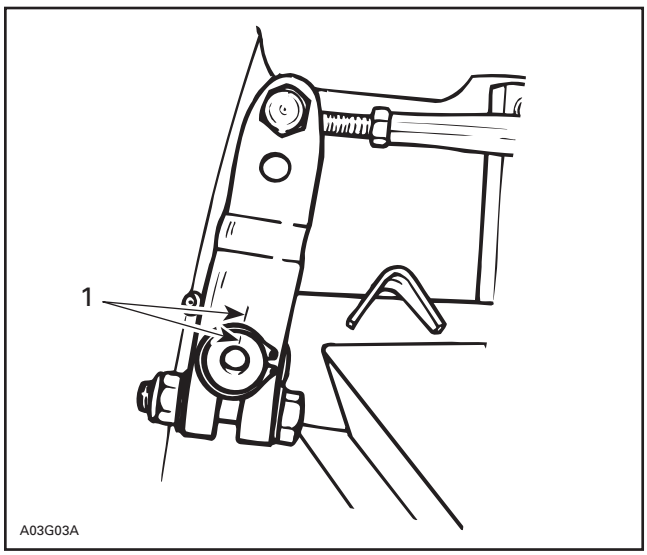
Remove steering pad then handlebar ass'y.

Detach the short tie rod (under the engine) from the steering column.

To gain access to lower U-clamp, remove the air intake silencer and carburetor(s). Remove U-clamps then steering column.

17, Steering Arm

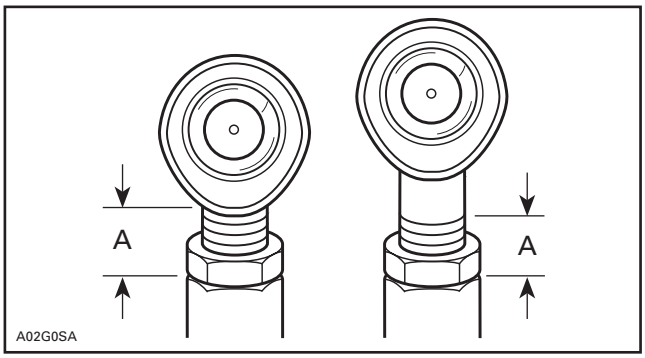
To maintain correct steering geometry for reassembling, punch mark the steering arm and ski leg before disassembly.



TYPICAL
1. Punch marks

10,16, Ball Joint (left hand and right hand threads)

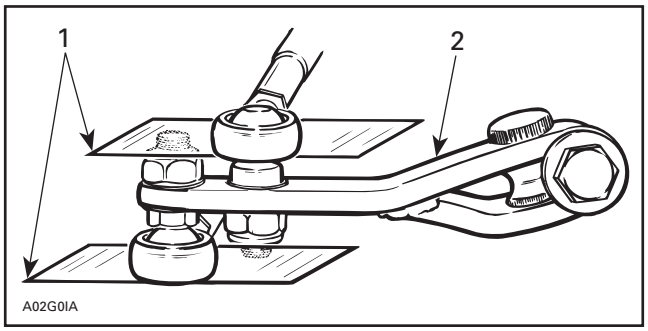
Screw threaded end of the ball joint into the tie rod. The maximum external threaded length not engaged in the tie rod must not exceed 20 mm (25/32 in).



TYPICAL
A. 20 mm (25/32 in) maximum

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.

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



TYPICAL
1. Parallel with steering arm
2. Steering arm

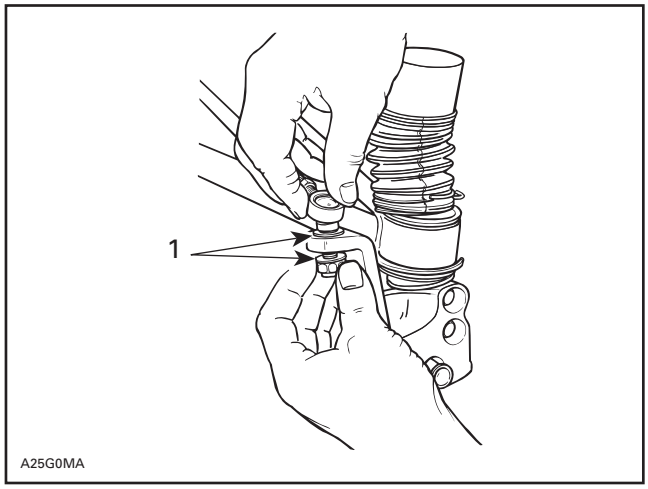
⚠ WARNING

The cut off section of the ball joint must run parallel with the steering arm. 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).

21, Hardened Washer on Ball Joint Stud

S-Series and Skandic LT

Install a hardened washer on each side of the arm.

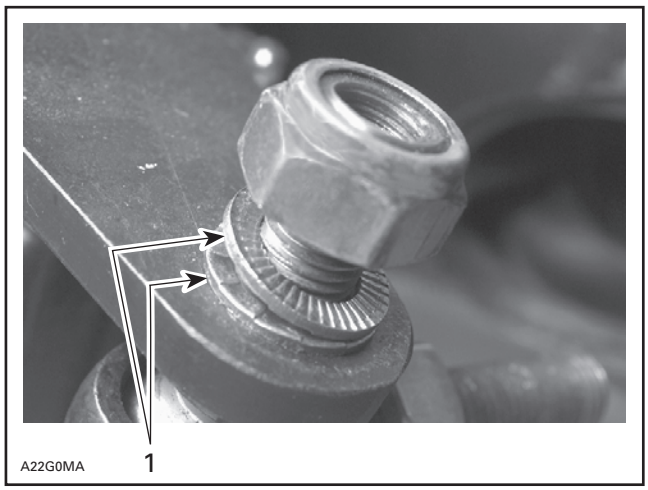


TYPICAL

1. Hardened washers

Skandic WT/SWT/WT LC Only

Install special washers (locking disks) with teeth facing each others.

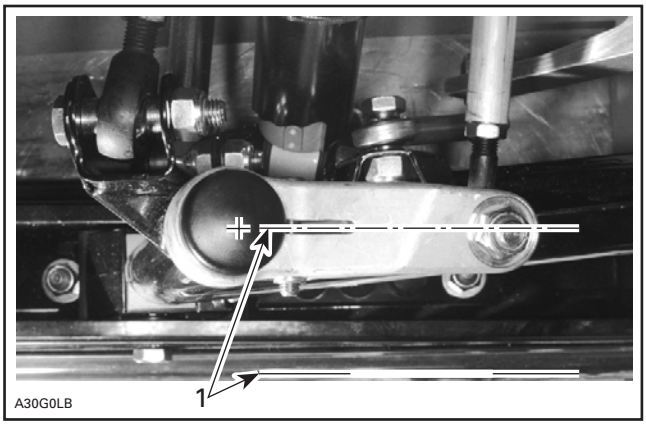


1. Large teeth

S-Series

17, Steering Arm

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



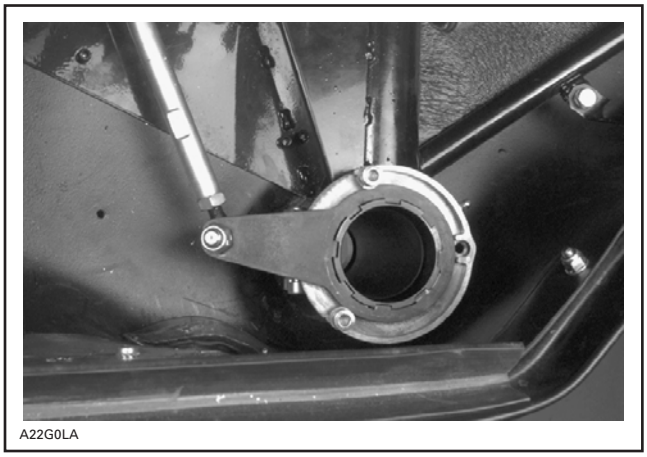
TYPICAL

1. Parallel

Tighten the steering arm nut no. 11 to the torque specified in the exploded view.

Skandic LT/WT/SWT/WT LC Only

Install steering arm at mid-travel position when handlebar and skis are facing straight ahead.



TYPICAL

9,13,15, Ball Joint Nut and Jam Nut

Tighten ball joint, nuts and jam nuts to specified torque (see exploded view).

HANDLEBAR POSITION ADJUSTMENT

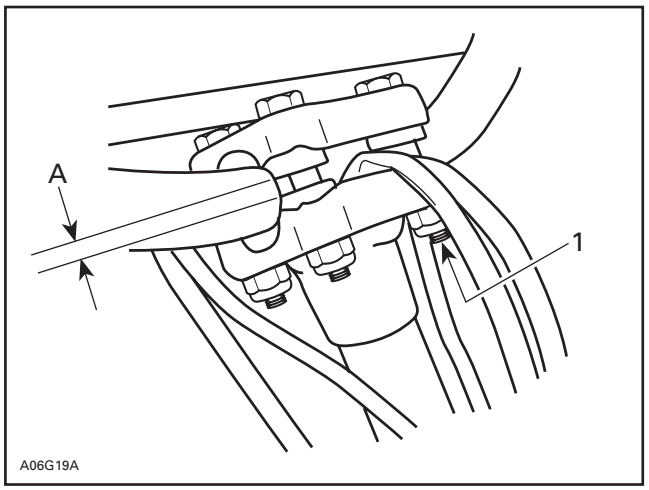
All Models

Remove steering pad. Loosen 4 nuts on 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.

CAUTION: Tighten the nuts equally in a criss-cross sequence and ensure there is an equal gap on each side of the clamps **no. 2.**



TYPICAL

1. Torque to 26 N•m (19 lbf•ft)
A. Equal gap all around

⚠ WARNING

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

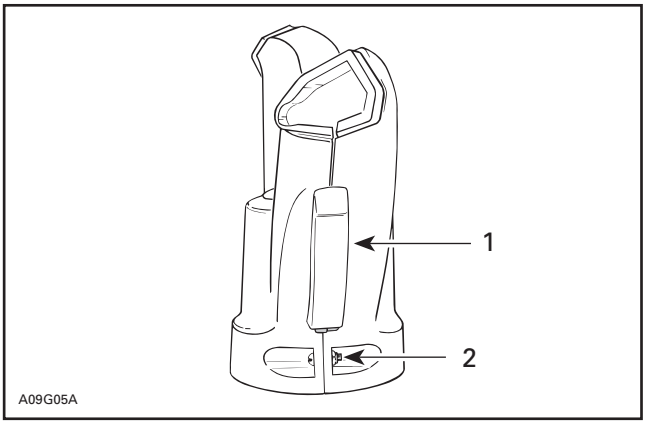
⚠ WARNING

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

Properly fit the steering pad to the handlebar. Assemble using the 2 rubber attachments, nuts and bolts where applicable.

⚠ WARNING

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



TYPICAL

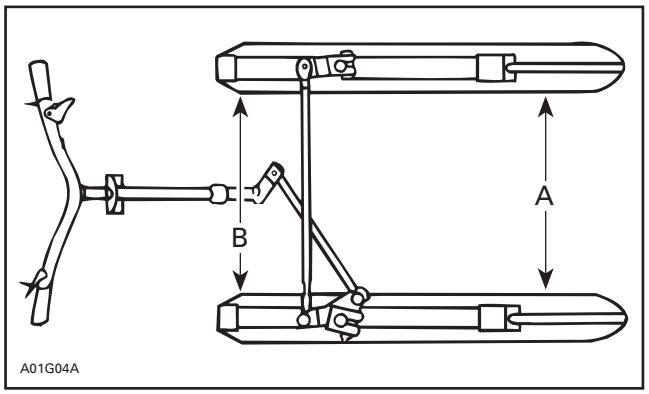
1. Rubber attachment
2. Nut and bolt (where applicable)

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.



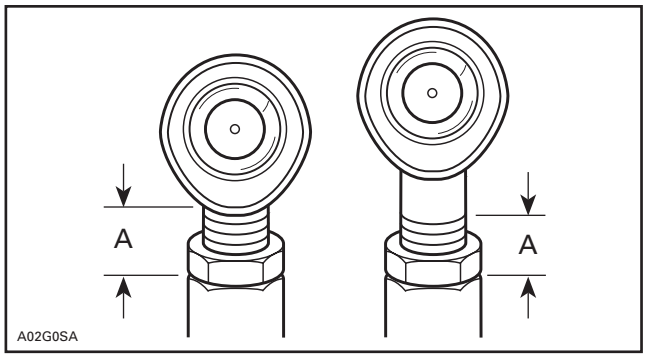
CAMBER:

A specific inward or outward tilt angle of ski leg compared to a vertical line when viewing the vehicle from front. **This angle is not adjustable on any models.**

Adjustments

⚠ WARNING

Maximum ball joint external threaded length not engaged in the tie rod end must not exceed 20 mm (25/32 in). Torque lock nut to 18 N•m (159 lbf•**in**).



A. 20 mm (25/32 in) maximum

S-Series

Adjustments should be performed following this sequence:

– Handlebar/pivot arm centering.

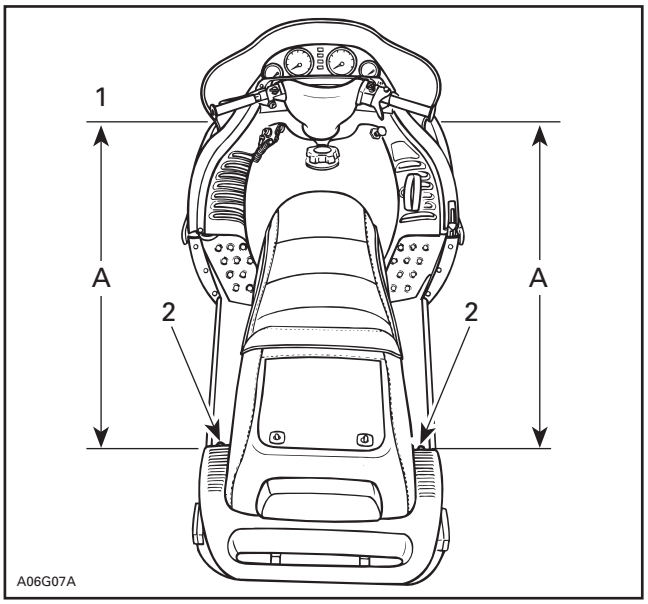
– Toe-out adjustment.

HANDLEBAR/PIVOT ARM CENTERING

13,14,15,22, Jam Nut, Tie Rod and Pivot Arm

Turn handlebar in a way that both grip ends are at equal distance from reference point.

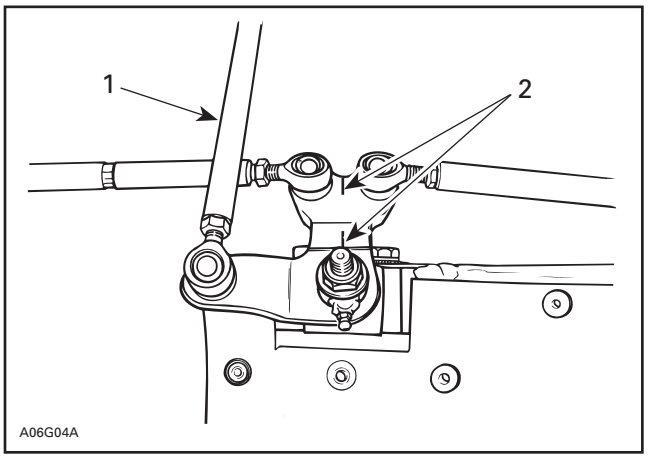
NOTE: The reference point must be the same relative to each side.



TYPICAL

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

With handlebar in that straight-ahead position, the center of the pivot arm must be in line with the end of the bolt. Loosen the jam nuts on tie rod **no. 14** (LH threads on steering column end) and turn tie rod accordingly. Align and retighten the jam nuts to 18 N•m (159 lbf•**in**).



TYPICAL

*1. Tie rod **no. 14***
2. Center of pivot arm in line with bolt end

This adjustment will provide same turning radius for each side.

After this adjustment, skis may not be in straight-ahead position. This situation will be corrected when adjusting toe-out.

⚠ WARNING

Do not attempt to adjust skis straight-ahead position by turning ball joint on tie rod **no. 14**.

TOE-OUT ADJUSTMENT

Make sure that handlebar is horizontal as explained above.

Toe-out adjustment is performed by adjusting length of left and right tie rods no. 20.

Procedure:

– Loosen jam nuts no. 13 and no. 15 of both tie rods no. 20.

⚠ WARNING

Never lengthen tie rod making threaded portion of ball joint exceed 20 mm (25/32 in).

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

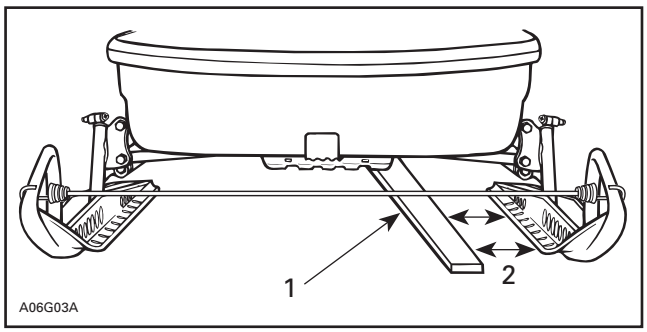
NOTE: A rubber cord must be hooked in front of skis to keep them closed.

Toe-out is 0 mm (0 in) when skis are in a straight-ahead position and the front of vehicle is lifted off the ground.

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. After the ski toe-out adjustment, rear and front distances must be equal.

To adjust turn tie rods then retorque jam nuts.

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



TYPICAL

1. Straight edge
2. Measure here

Skandic LT/WT/SWT/WT LC

Skis should have a toe-out of 10 mm (3/8 in) when they are in a straight-ahead position and the vehicle is resting on the ground.

Proceed the same as S-Series above. Measurements are taken 250 mm (10 in) at front and rear of ski pivot bolt.

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. Distances should be equal. After the ski toe-out adjustment, distance at front of ski must be 5 mm (3/16 in) more than at rear on both sides for a total toe-out of 10 mm (3/8 in).

LUBRICATION

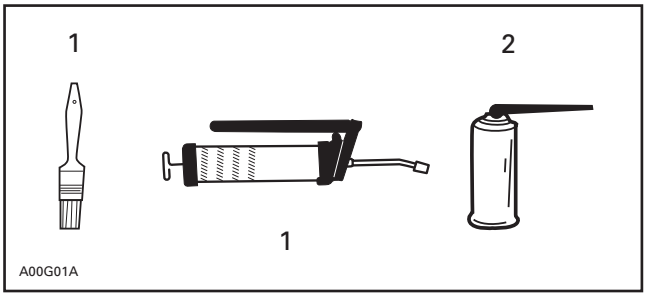
⚠ WARNING

Do not lubricate throttle and/or brake cable nor their housing.

26, Grease Fittings

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

The following symbols will be used to show what type of lubricant should be used at the suitable locations.



1. Synthetic grease
2. Penetrating lubricant (P/N 293 600 016)

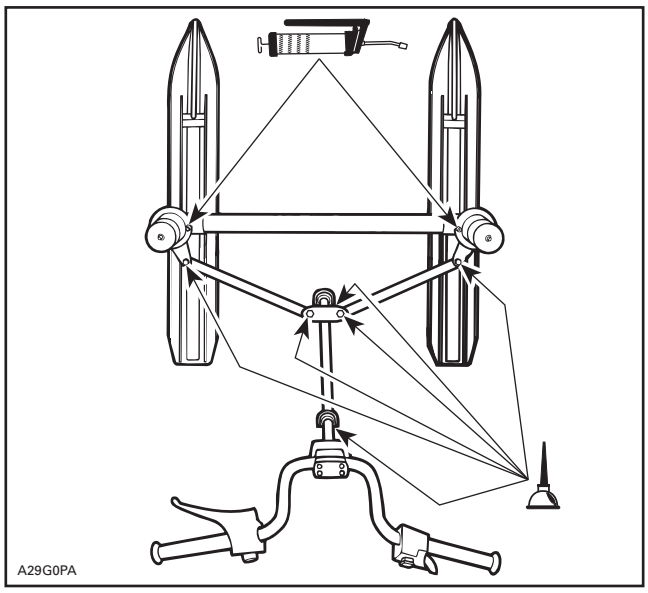
Skandic LT/WT/SWT/WT LC

Lubricate front suspension posts. Pump five strokes of grease gun on each post.

NOTE: There are 2 grease fittings.

Oil ball joints and steering column bushings.

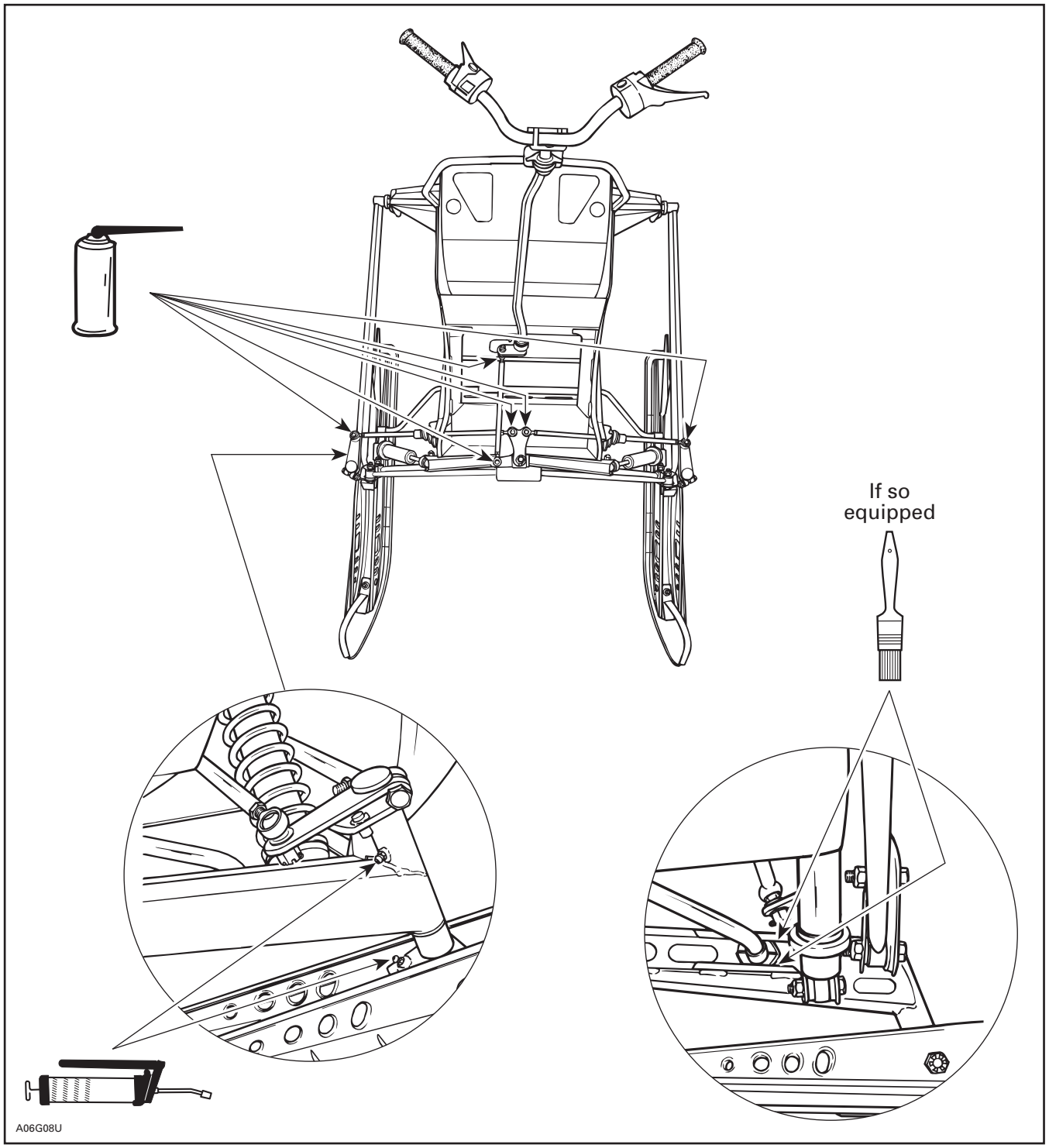
NOTE: There are 6 lubrication points.



S-Series

Lubricate:

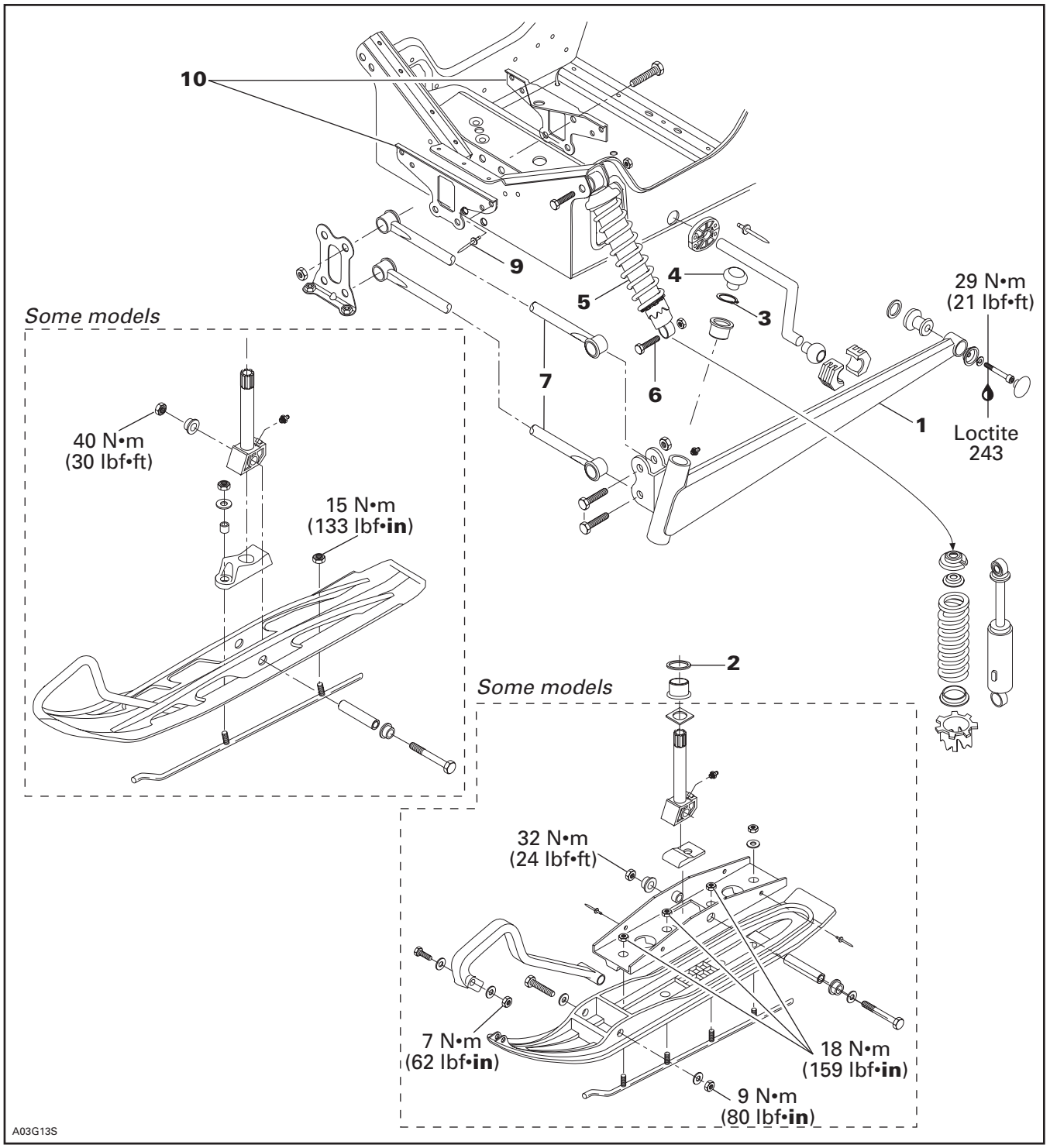
– Grease ski legs and ski pivots.
– Coat stabilizer sliders with grease, and oil their ball joints if so equipped.



TYPICAL — S-SERIES

SUSPENSION AND SKI SYSTEM

S-Series

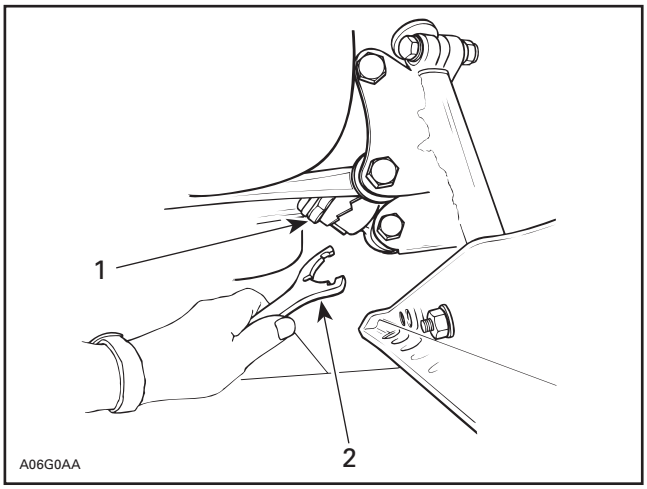


DISASSEMBLY

5, Shock

Lift front of vehicle and support it off the ground.

Reduce spring preload by turning adjusting ring accordingly with the adjustment wrench in vehicle tool box.



1. Shock cam
2. Adjustment wrench

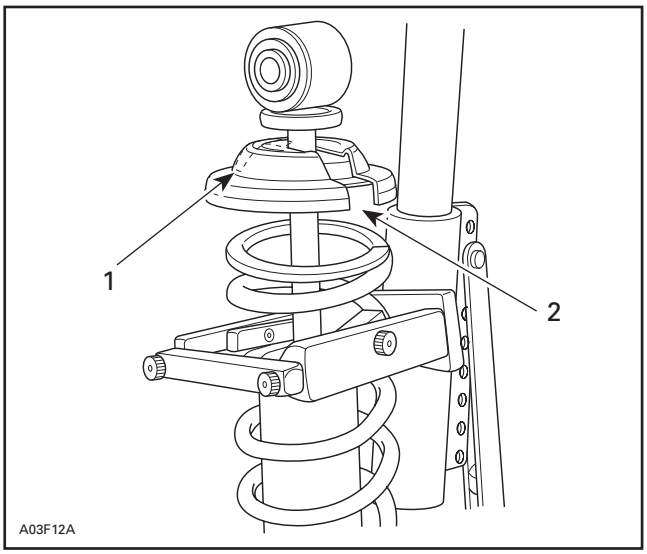
Remove lower bolt then upper bolt of shock.

For shock spring disassembly use shock spring remover (P/N 529 035 504) in a vise. Mount shock in it and turn shock so that spring coils match spring compressor.

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

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

When installing the cap opening must be 180° from the spring stopper opening.



1. Cap opening
2. Spring stopper opening

1, Swing Arm

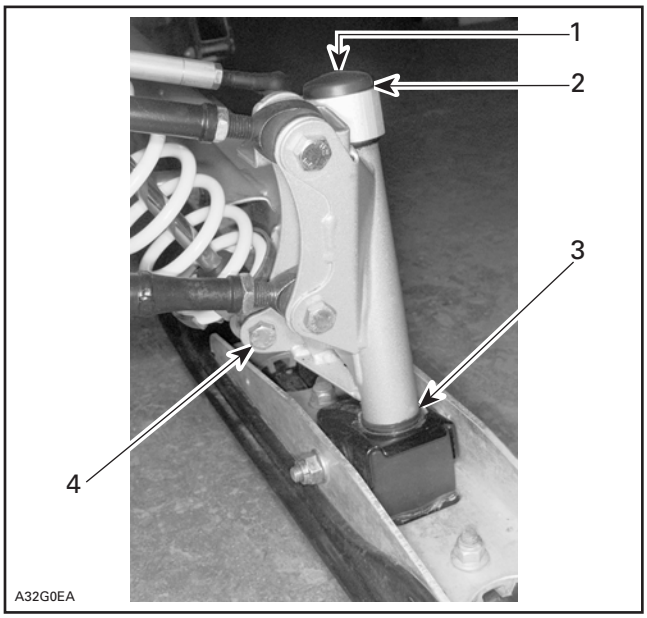
Lift front of vehicle and support it off the ground.

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

Unbolt lower end of shock from swing arm.

Unbolt both radius rods.

Unbolt swing arm from footrest.



TYPICAL

*1. Cap **no. 4***
*2. Circlip **no. 3***
*3. Washer **no. 2***
*4. Bolt retaining lower end of shock **no. 6***

INSPECTION

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

Check straightness of splines and proper 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 for proper action of sliding blocks in swing arm.

Check skis and runners for wear, replace as necessary.

Check condition of ski stopper. Replace it when deteriorated.

To check condition of shock, refer to SC-10 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.

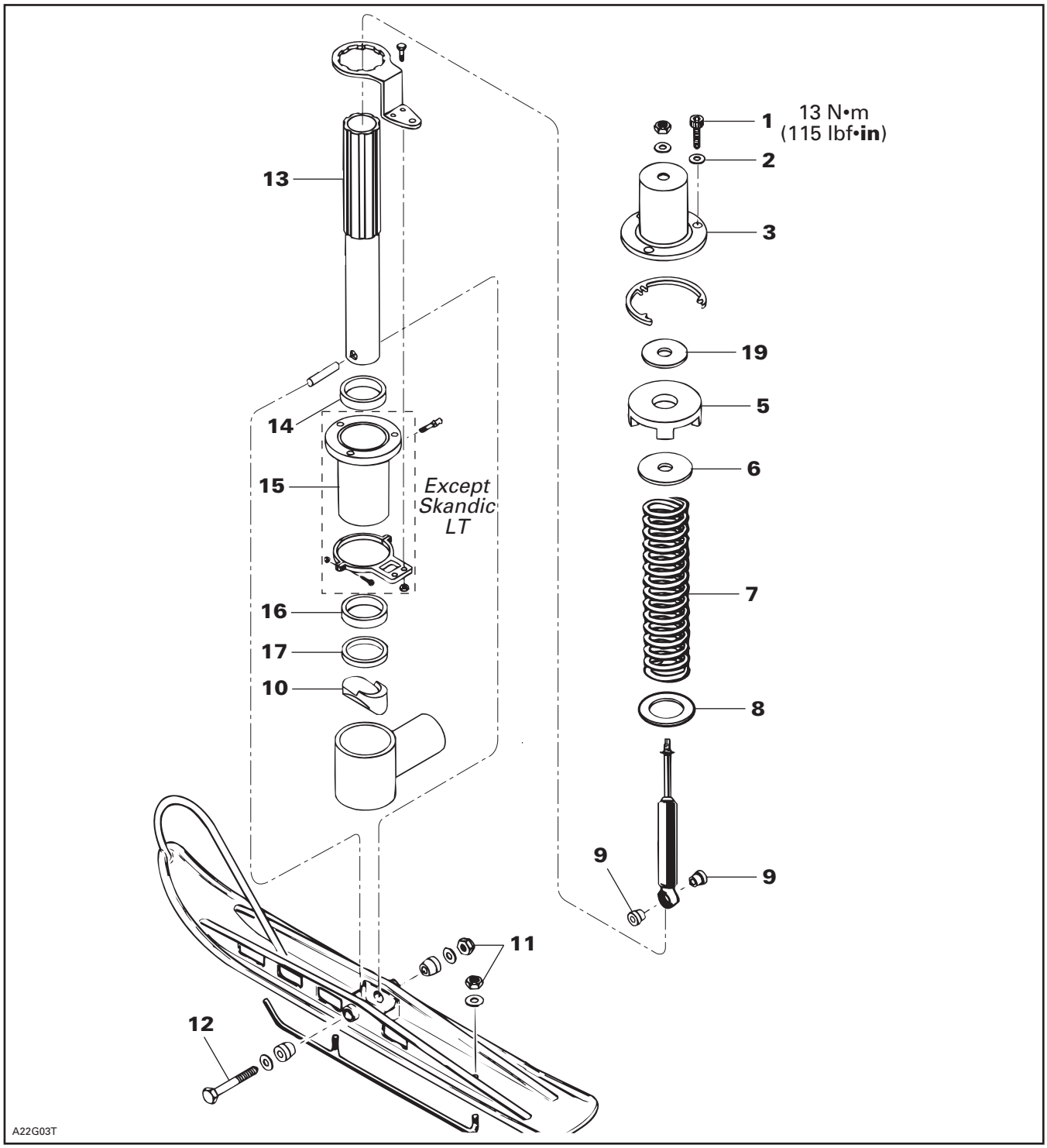
7,8, Upper and Lower Radius Rods

Position radius rods and tie rods horizontally before tightening nuts.

9,10, Rivet and Link Plate

Attach link plate to frame with rivets, if applicable.

Skandic LT/WT/SWT/WT LC



TYPICAL

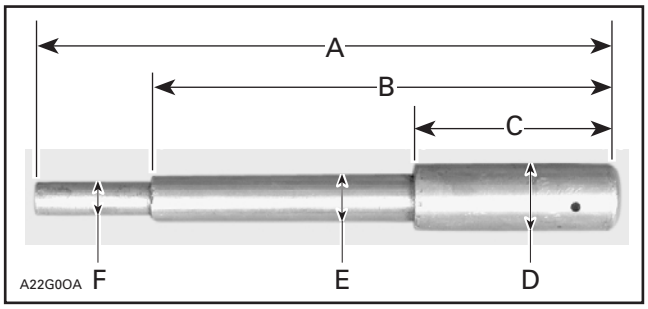
ON-VEHICLE COMPONENT VERIFICATION

8, Shock

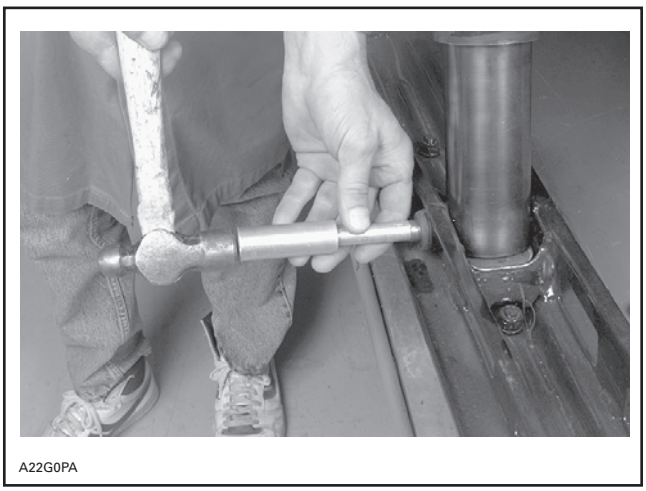
Lift front of vehicle and support off the ground.

Remove ski bolt and nut.

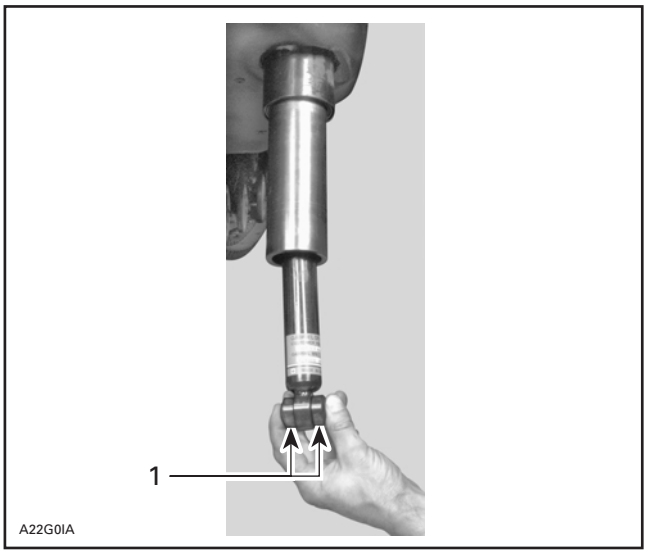
Remove steel bushing from ski using a pusher. See pusher dimensions below.



A. 220 mm (8.66 in)
B. 180 mm (7.09 in)
C. 70 mm (2.75 in)
D. 25 mm (1.0 in)
E. 15 mm (.59 in)
F. 9 mm (.35 in)



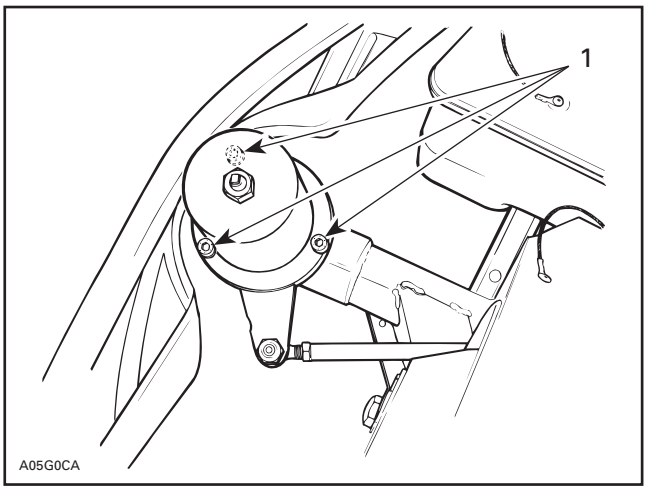
Unfasten rod nut then pull out shock from bottom. Check shock as described below in INSPECTION. At installation, make sure bushings are in place.



1. Bushings

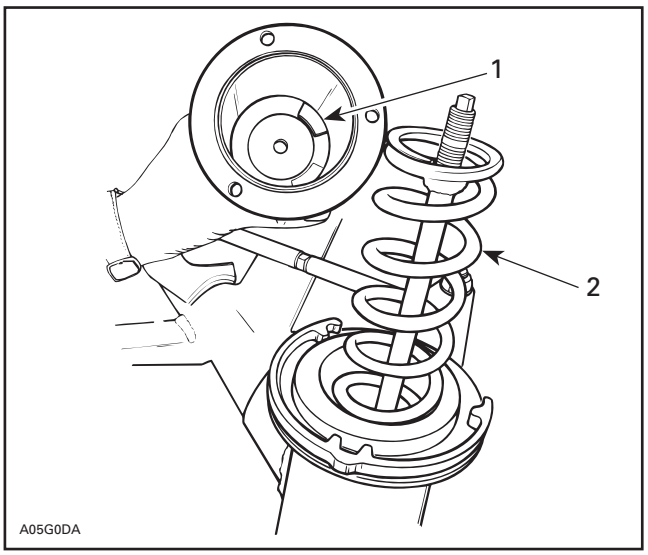
7, Spring

Unscrew shock rod nut then remove washer. Unscrew 3 Allen screws retaining cover **no. 3**, then remove stopper **no. 5**, washers **no. 6**, washer **no. 19**.



1. Allen screws

NOTE: These washers and stopper can be wedged in cover.



1. Washers and stopper wedged in cover
2. Spring

Pull out spring.

DISASSEMBLY

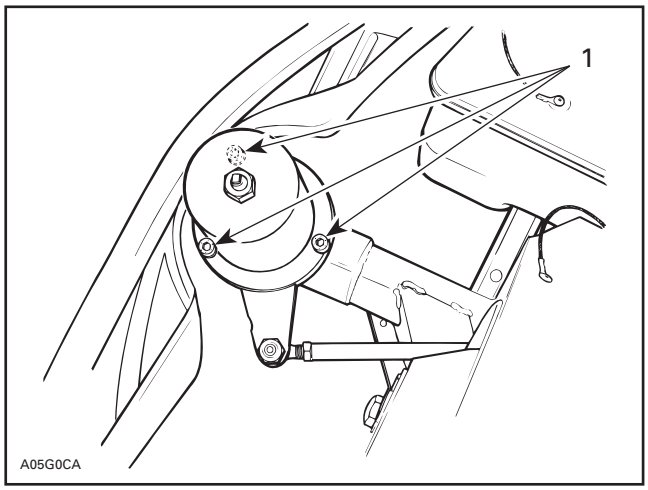
Lift front of vehicle and support off the ground.

1,2,3,5,6,9,11,12, Bolt, Lock Washer, Cover, Stopper, Bushing and Nut

Remove ski bolt, nut, bushings and ski.

Unscrew shock rod nut then remove washer. Shock will fall off the ski leg.

Unscrew 3 Allen screws retaining cover, then remove stopper and washers.

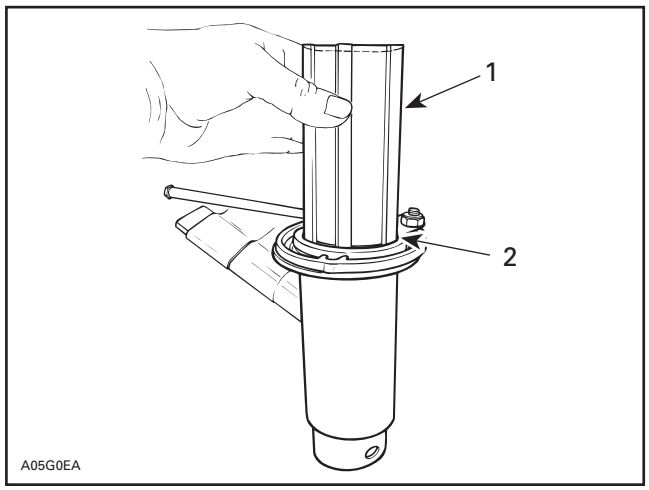


1. Allen screws

NOTE: These washers and stopper can be wedged in cap.

13,14,16,17, Ski Leg, Bushing and Seal

Pull up ski leg. Steering arm will not interfere.



1. Pull up ski leg
2. Steering arm in place

Remove seal. Drive out bushing if worn out.

INSPECTION

All Models

Suspension Free Operation

Remove cover and check for free movement of ski leg by lifting end of ski.

13, Ski Leg

Check straightness of ski leg. Check for scored or scratched surface. Replace as required.

Check that splines on ski leg and steering arm interlock properly with no excessive free play. Renew as necessary.

5, Stopper

Check condition of stopper. Replace it when deteriorated.

Grease Fitting

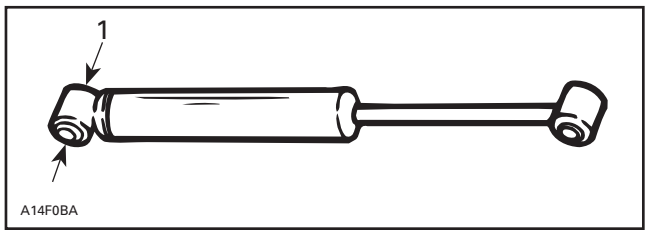
Ensure that grease fittings are not clogged.

10, Ski Stopper

Check stopper for crack or deterioration. Replace as required.

8, Shock Absorber

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 with its rod upward. Check that it moves smoothly and with uniform resistance.

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.

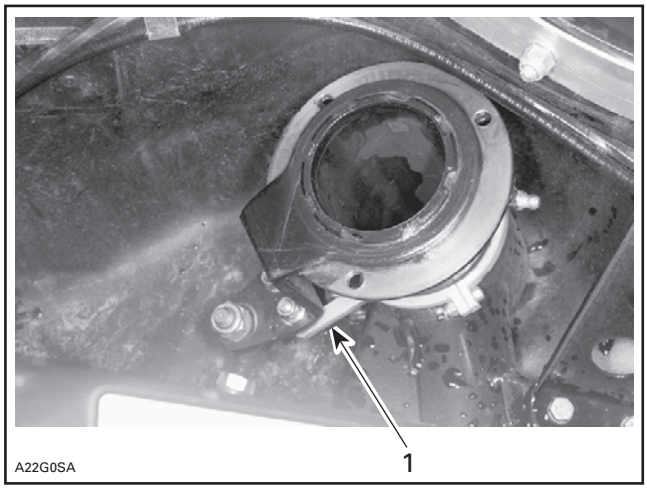
INSTALLATION

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

Apply synthetic grease (P/N 413 711 500) as illustrated in exploded view above.

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

Reinstall steering arm reinforcement when removed.



1. Reinforcement

16,17, Seal

Install seal before reinstalling ski leg.