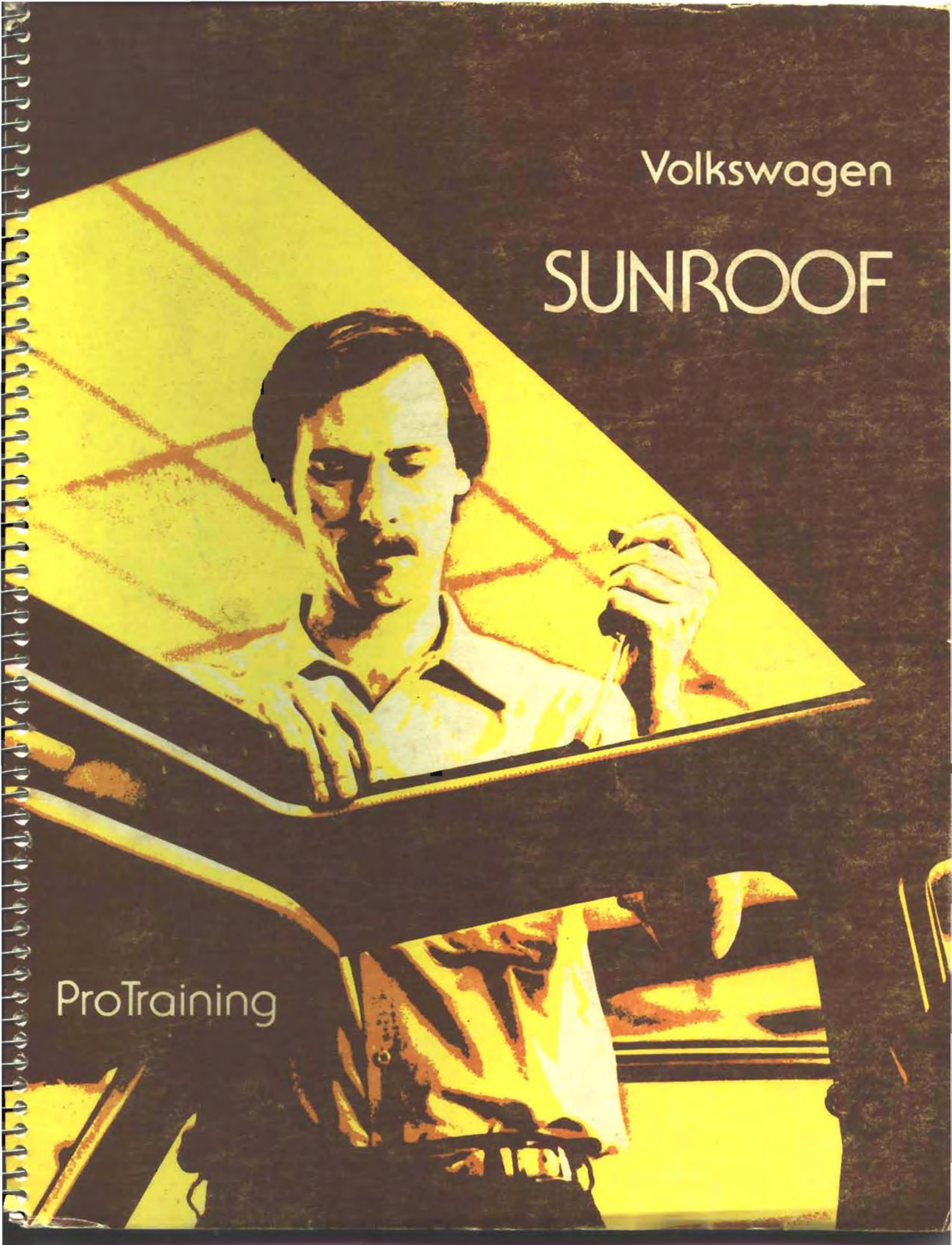


Volkswagen

SUNROOF



ProTraining

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Introduction

The ProTraining booklets and training courses were designed for the professional technician. The ProTraining program was designed to help you understand how Sunroofs work and how to fix them. Our goal is to help you to be able to fix the customer's car right . . . the first time.

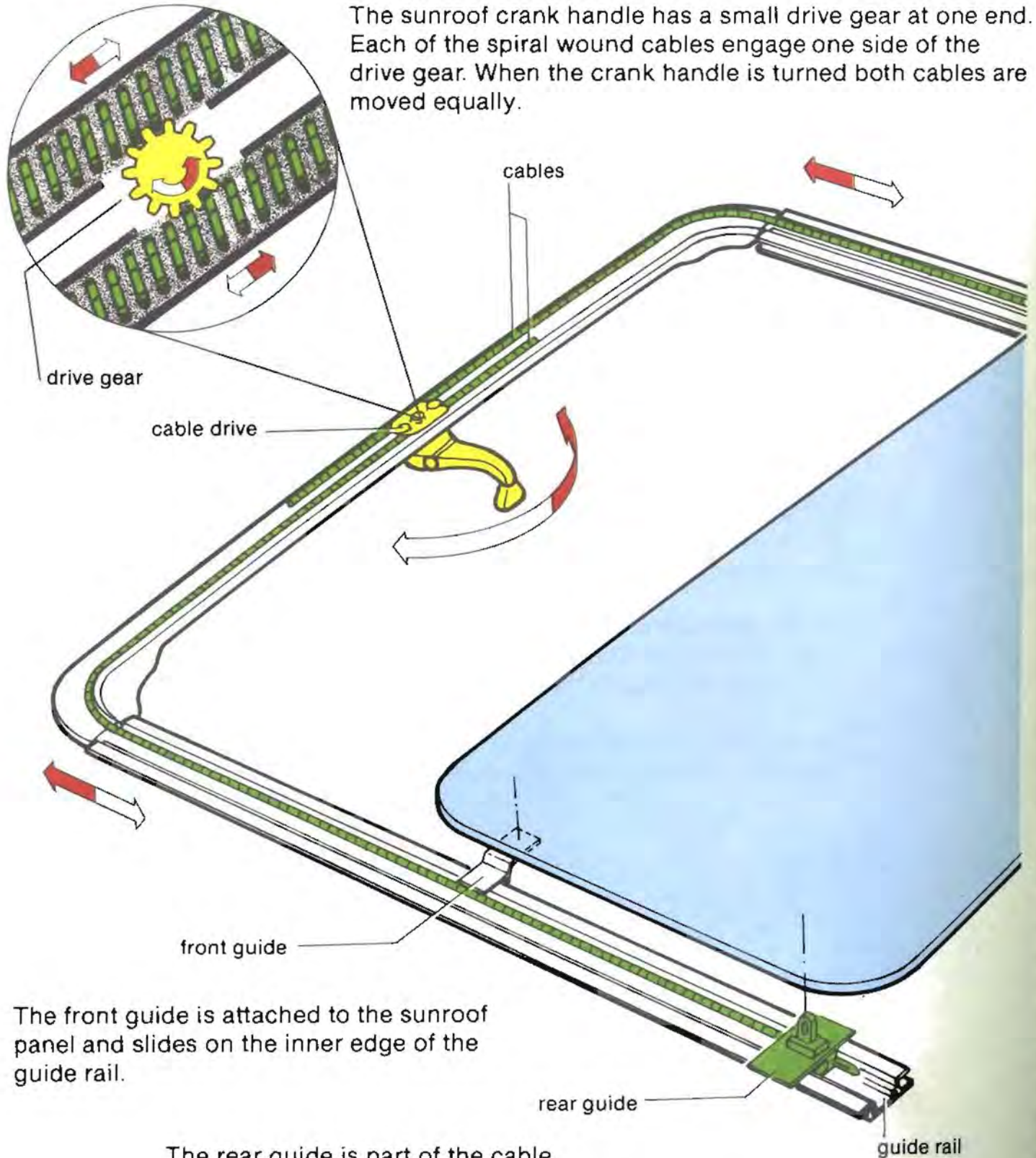
This booklet is divided into four sections. The first section explains how each of the three types of Sunroofs work. The other sections contain the diagnosis, repair and quality check procedures for each Sunroof.

Sunroofs should be repaired by the following step-by-step procedures shown in each section of this book.

- Diagnose the problem. Make sure you understand the customers complaint.
- Identify the symptoms as you follow the diagnosis procedure. Try to find the problem. For example: Is the headliner loose? Does the Sunroof close completely?
- Repair the problem after you have identified the symptom. Some symptoms can be fixed by just making a few adjustments. Other symptoms will require complete Sunroof disassembly.
- Quality check. After completing the repairs, always check the operation of the Sunroof before returning the car to the customer.

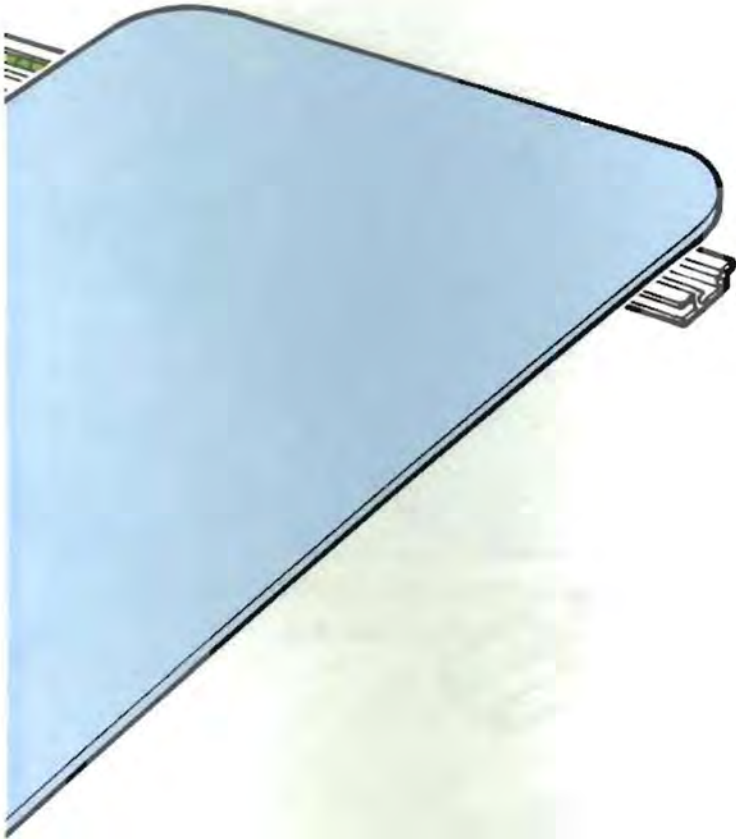
Sunroof Operation

The sunroof crank handle has a small drive gear at one end. Each of the spiral wound cables engage one side of the drive gear. When the crank handle is turned both cables are moved equally.



The front guide is attached to the sunroof panel and slides on the inner edge of the guide rail.

The rear guide is part of the cable assembly and slides in the center of the guide rail. The cables are attached to the rear guides so that movement of the cables is transmitted to the sunroof panel.



There are two types of cables.

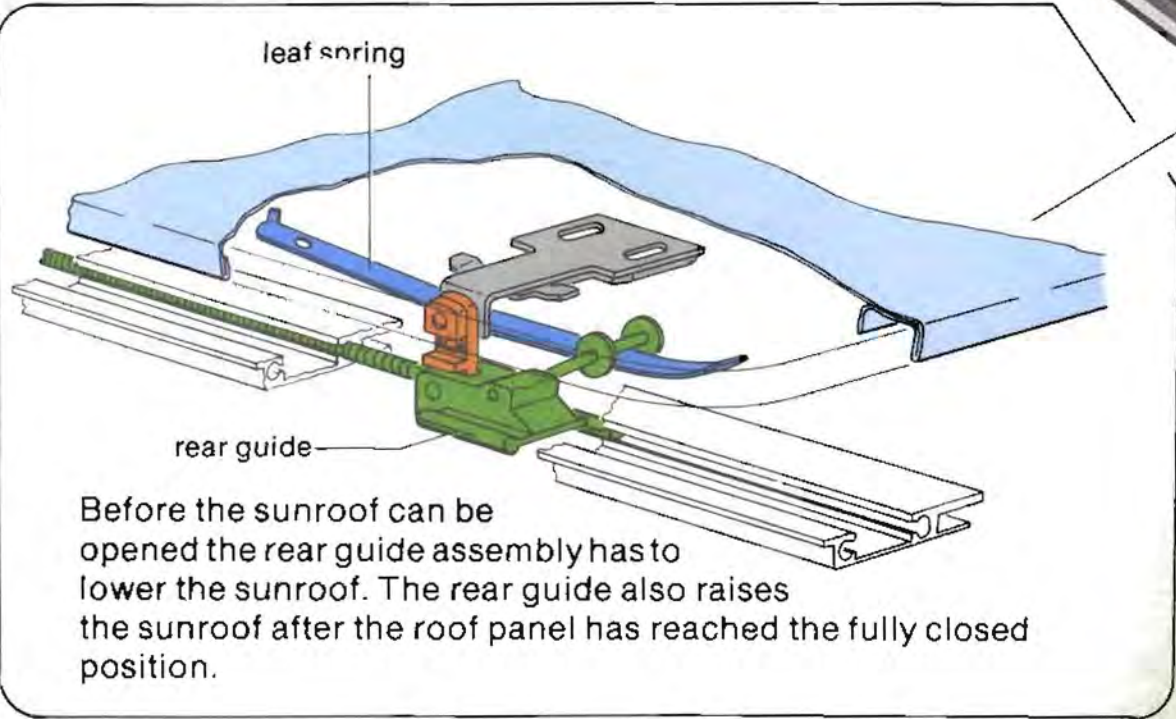
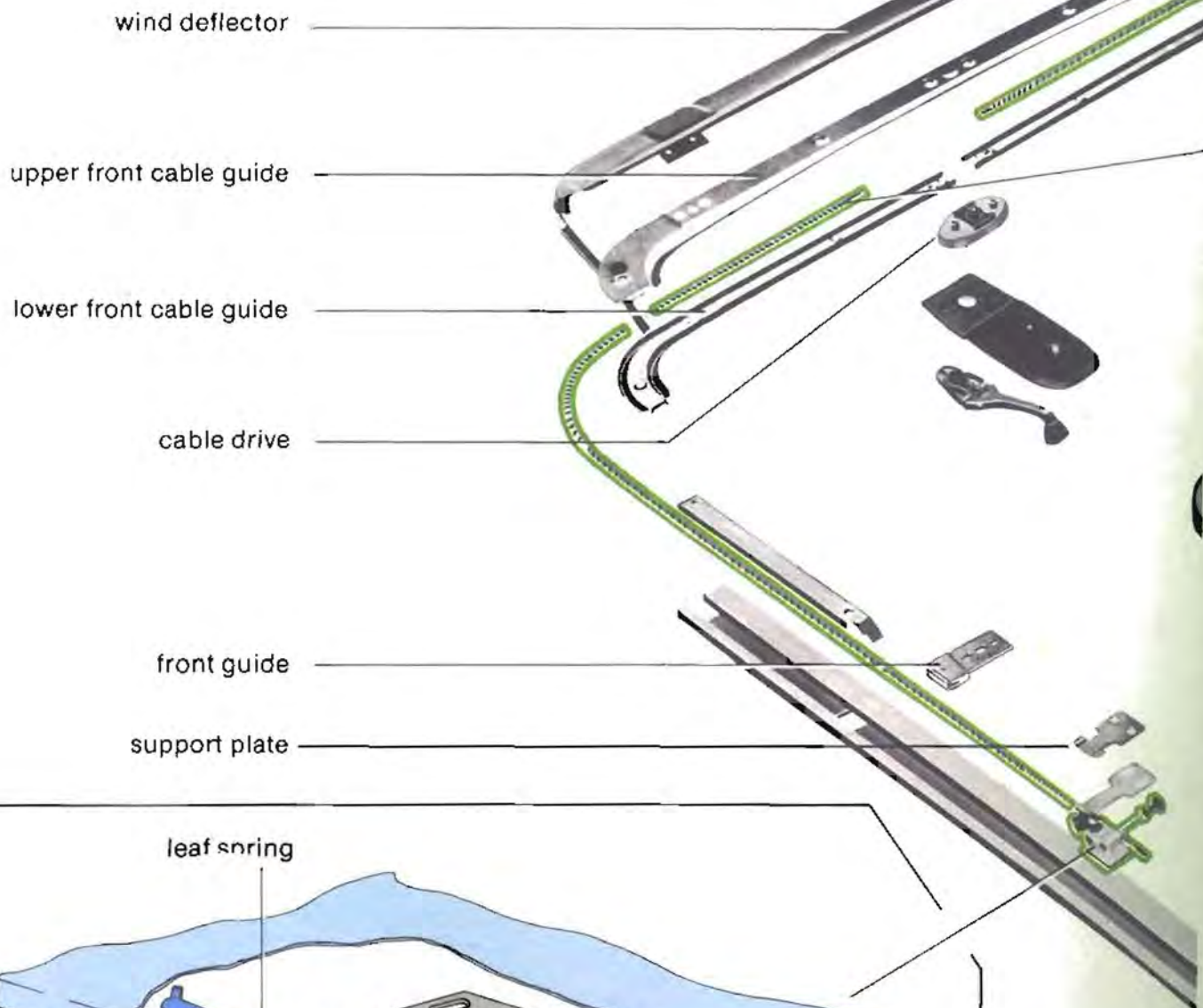


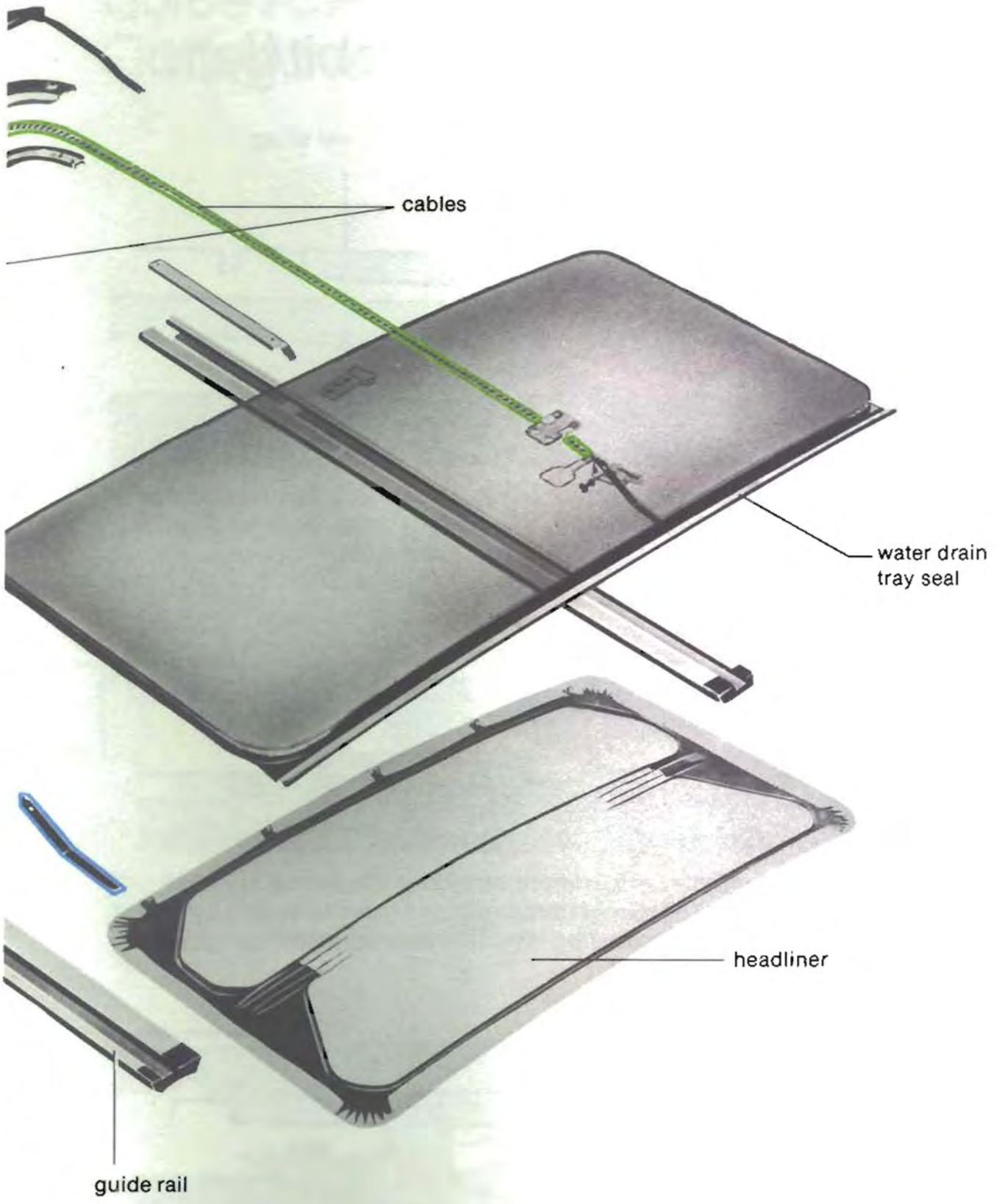
Cables with brush type material are lubricated with oil.



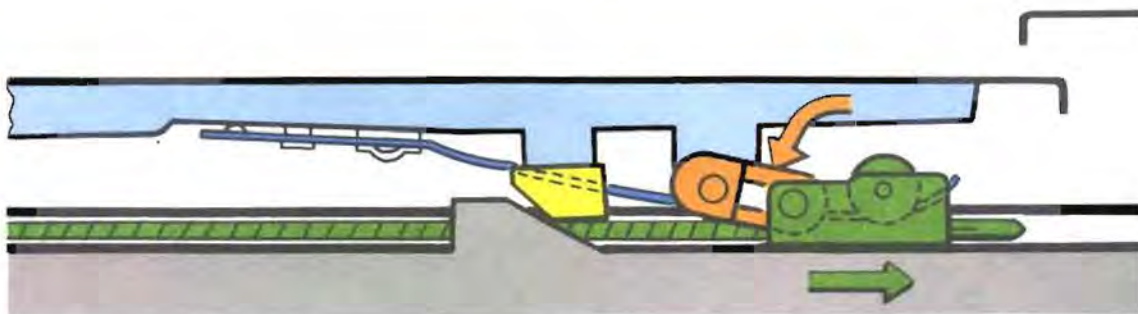
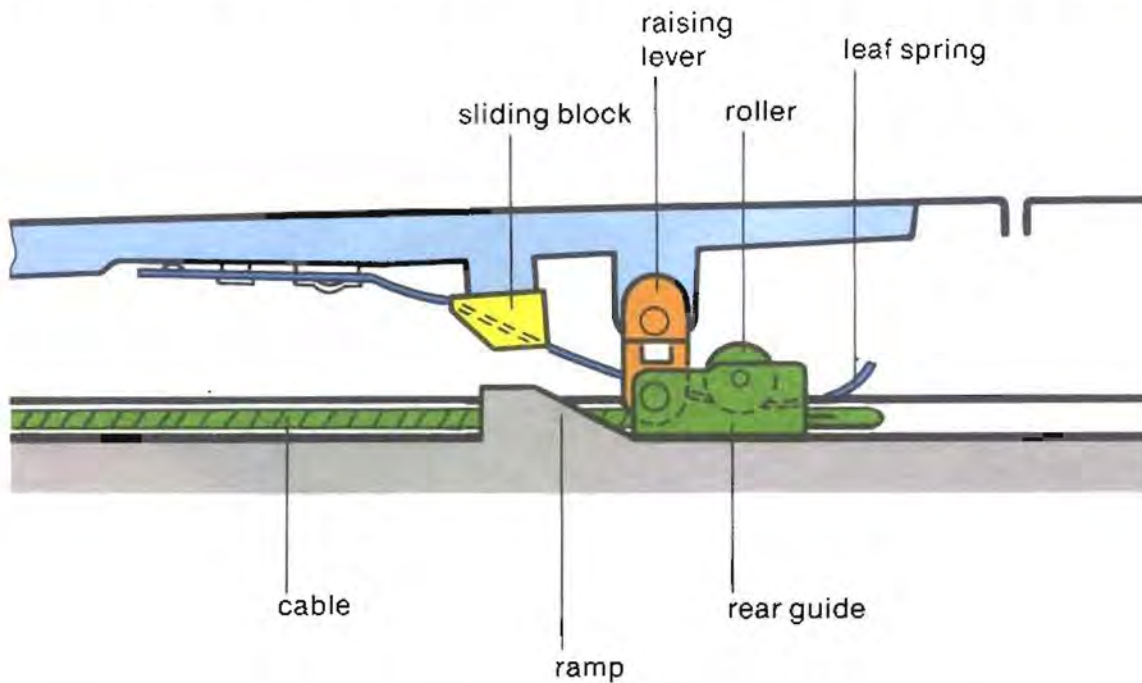
Cables which are all steel must be lubricated with grease.

Rabbit/Jetta Sunroof

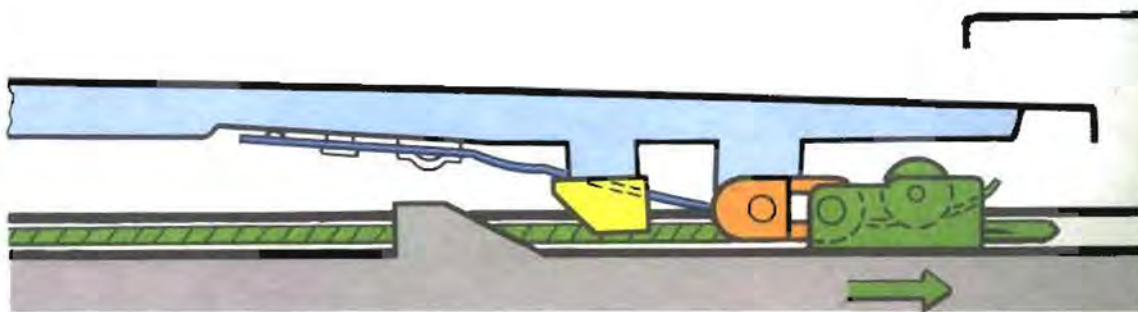




Guide Assembly Operation – Opening The Sunroof – Rabbit/Jetta

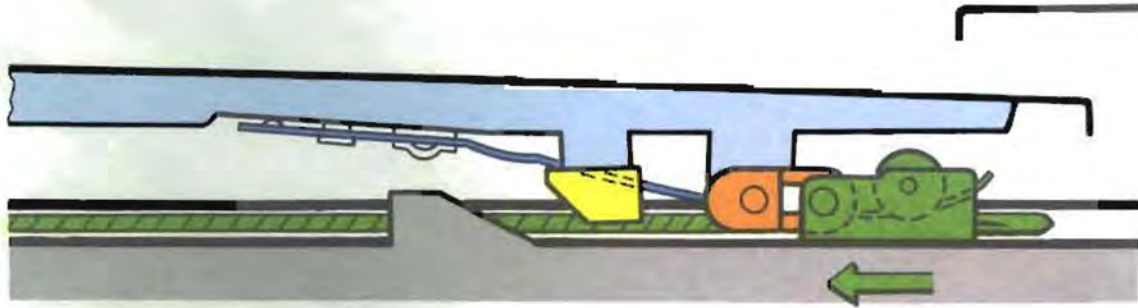


When the sunroof crank is turned counter clockwise, the cables push the rear guides toward the rear of the car. This causes the sliding block to move down the ramp. The raising lever flips down and the roof panel is lowered by the leaf spring.

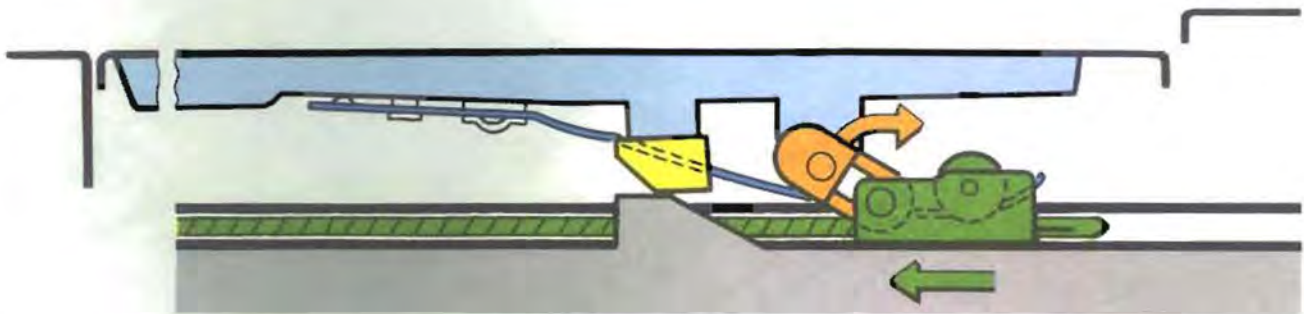


Now that the roof panel has been lowered the cables can push the sunroof into the open position. The sunroof is held down by its own weight and by the leaf spring.

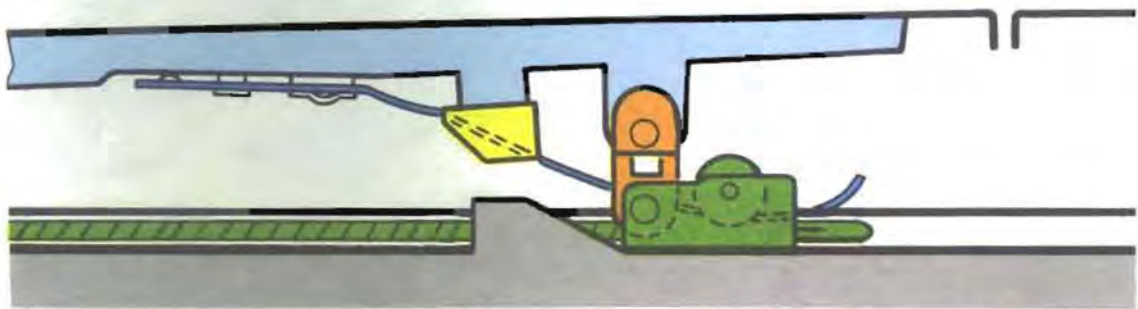
Guide Assembly Operation – Closing the Roof



When the sunroof crank is turned clockwise the cables pull the rear guide toward the front of the car.

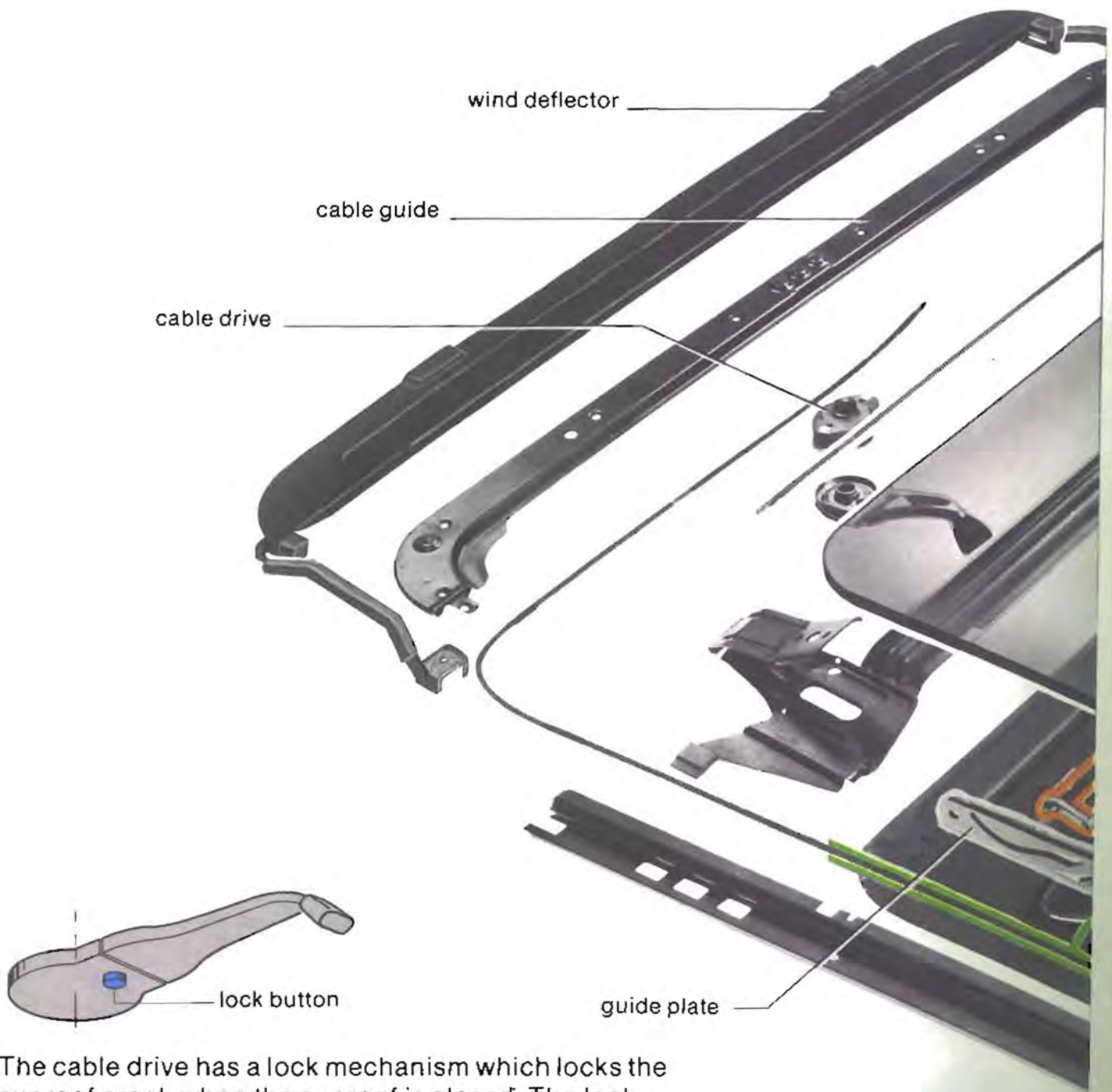


The sliding block moves up the ramp and raises the sunroof panel. The raising lever is lifted slightly and the front edge of the sunroof panel contacts the roof opening.



The rear guide is pulled forward until it contacts the ramp. At the same time the lifting lever is moved to a vertical position and closes the roof.

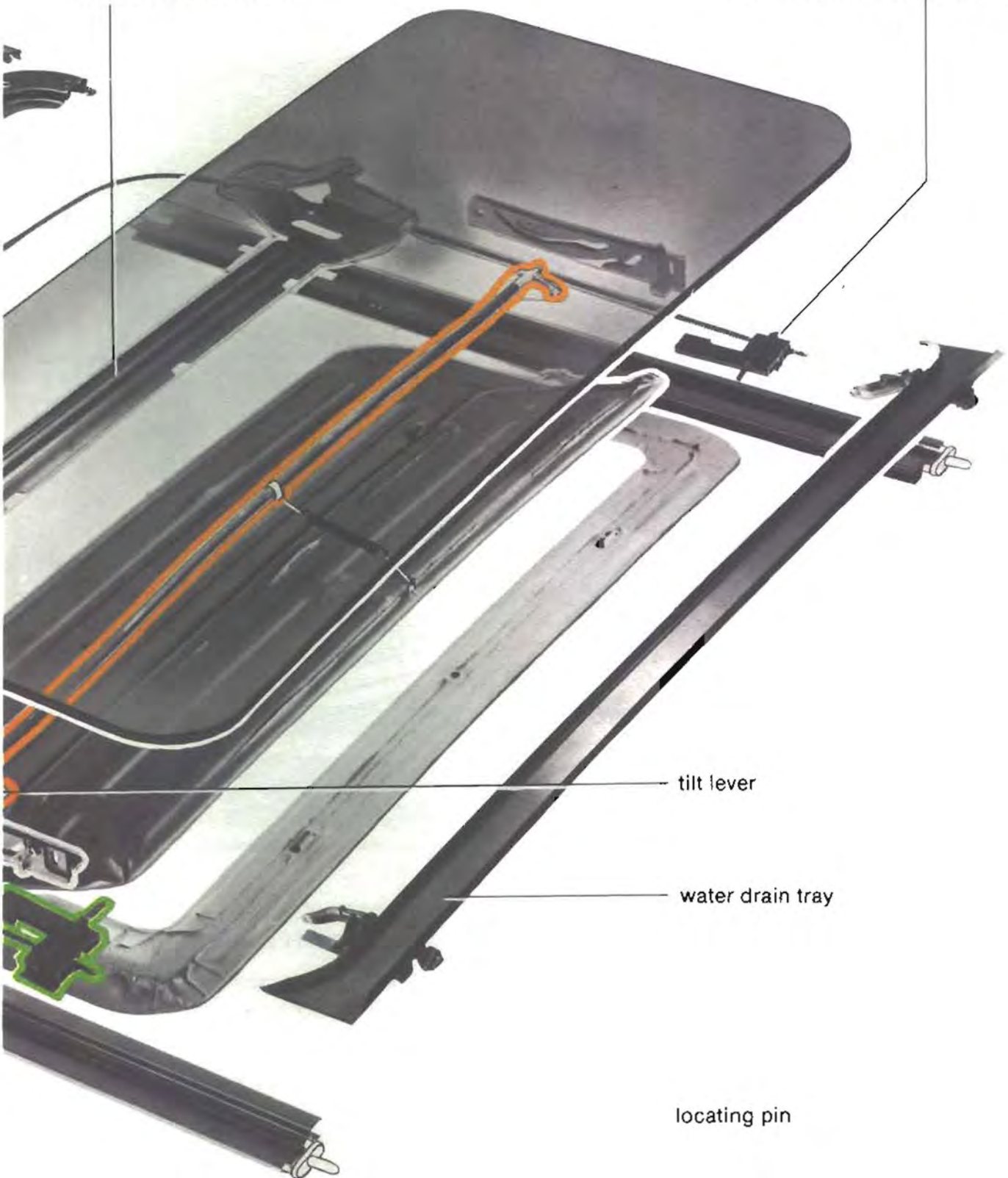
Two-way Sunroof – Dasher



The cable drive has a lock mechanism which locks the sunroof crank when the sunroof is closed. The lock button has to be pressed in before sunroof can be opened or tilted.

Front guide — The front guide is attached to the sunroof panel. The front guide is hinged to allow the sunroof panel to tilt.

Rear guide — The rear guide includes a pin which rides in the guide plate. This pin will raise and lower the sunroof panel.



tilt lever

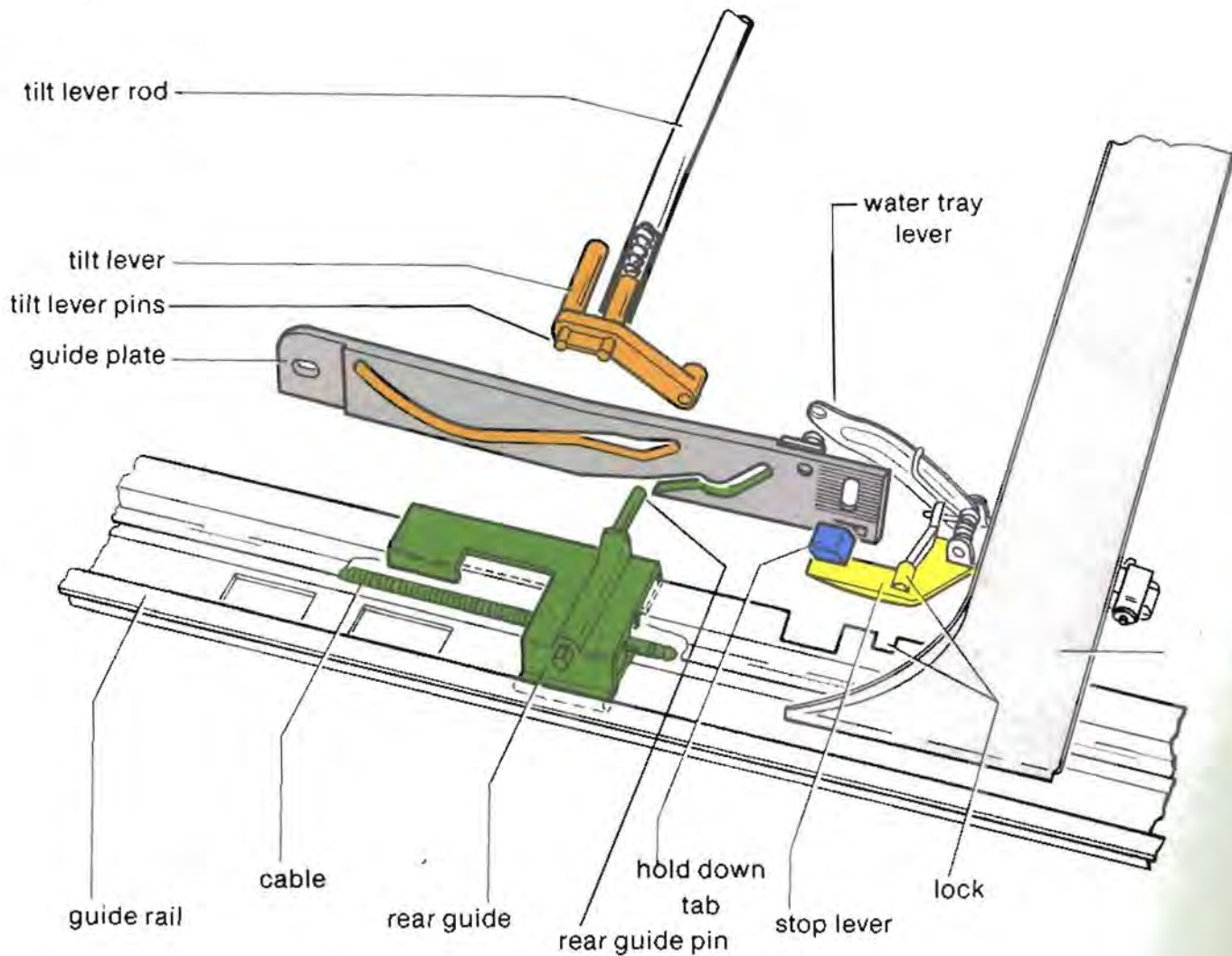
water drain tray

locating pin

Rear Guide Components – Dasher

The rear guide components:

- lower the sunroof panel as the sunroof is opened
- raise the sunroof panel as the sunroof is closed
- tilt the sunroof panel



Guide plate

The guide plate is attached to the sunroof panel and controls the movement of the panel. The hold down tab is part of the guide plate and releases the stop lever.

Rear guide

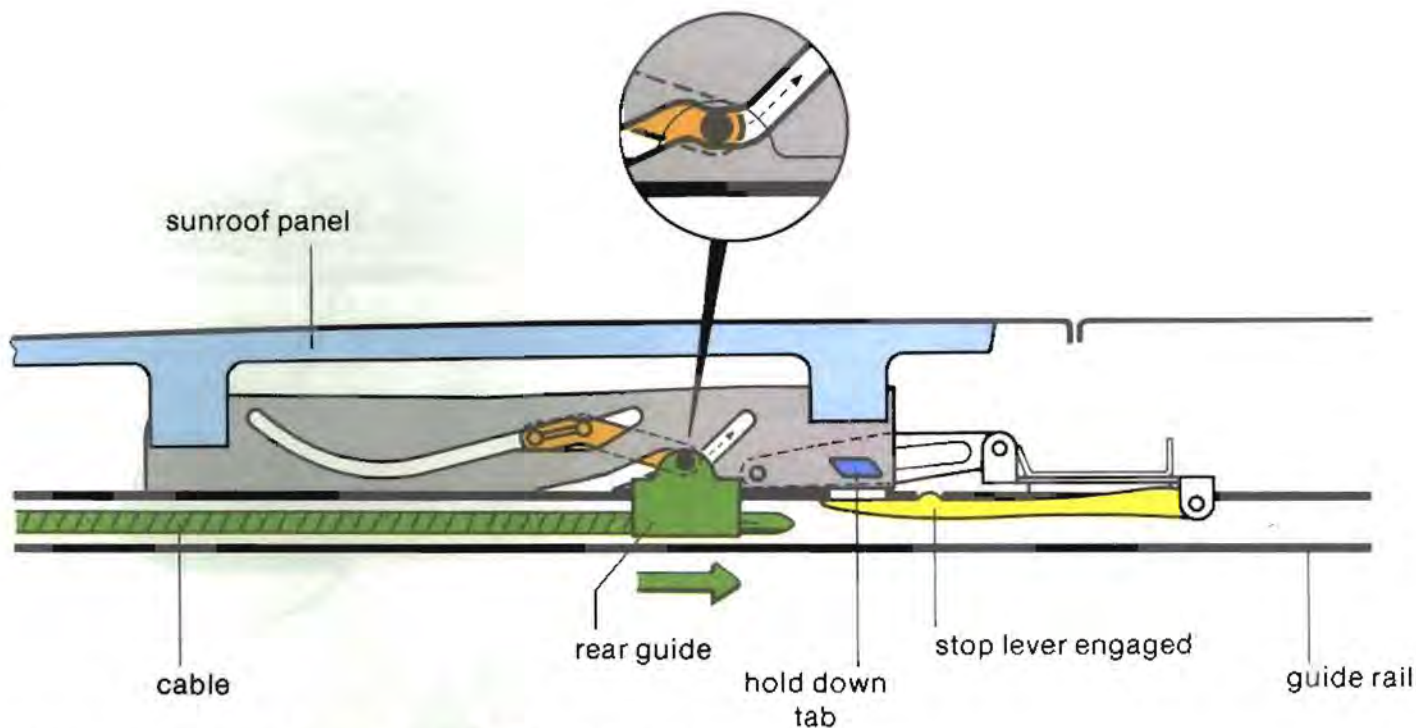
The rear guide pin rides in the rear slot of the guide plate and is attached to the lower end of the tilt lever.

Tilt lever

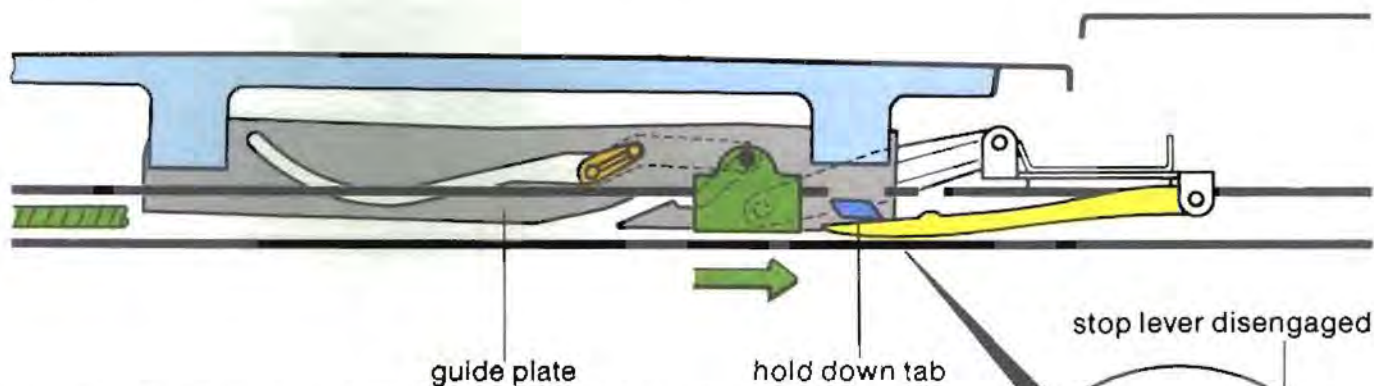
The tilt lever pins ride in the front slot of the guide plate.

Opening The Roof

Before the sunroof can be opened the rear of the sunroof panel must be lowered.



When the sunroof crank is turned, the cable pushes the rear guide toward the back of the car. The sunroof panel can not yet move back because it is held in place by the stop lever.



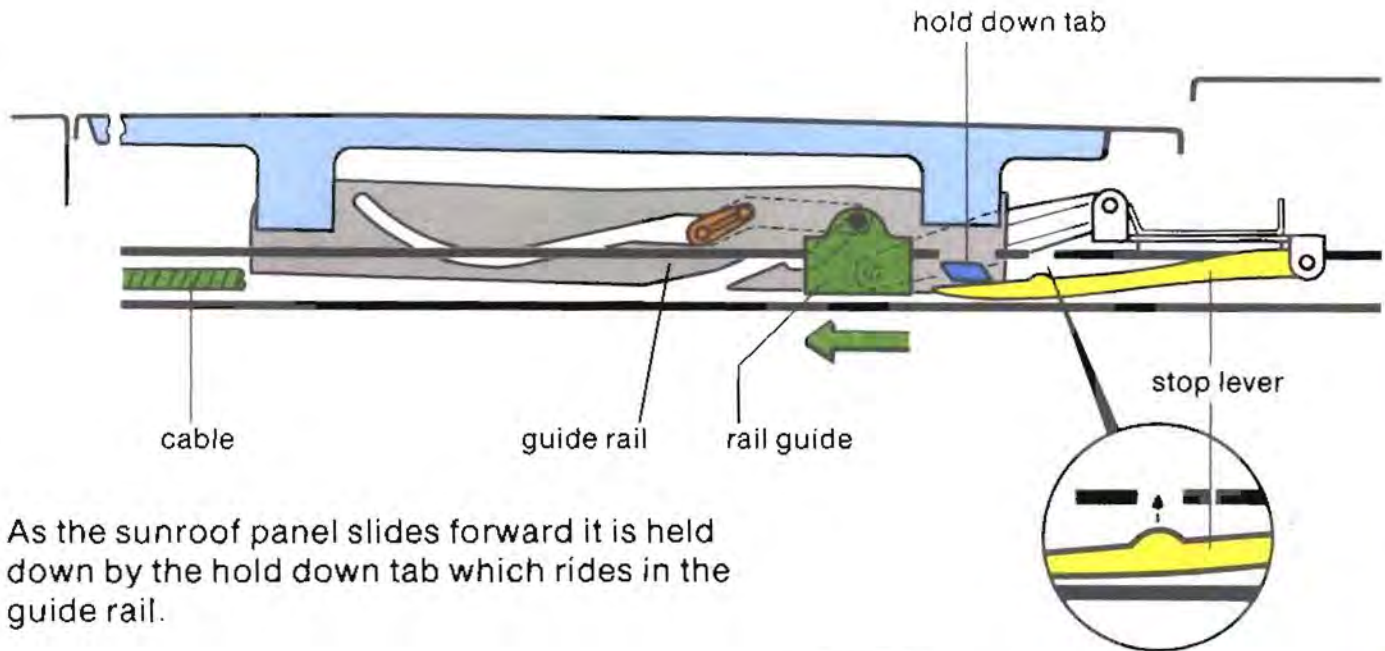
As the pin on the rear guide travels to the rear of the slot in the guide plate, the back of the sunroof panel is pulled down

When the sunroof panel has been lowered, the hold down tab on the guide plate releases the stop lever and allows the sunroof panel to slide back.

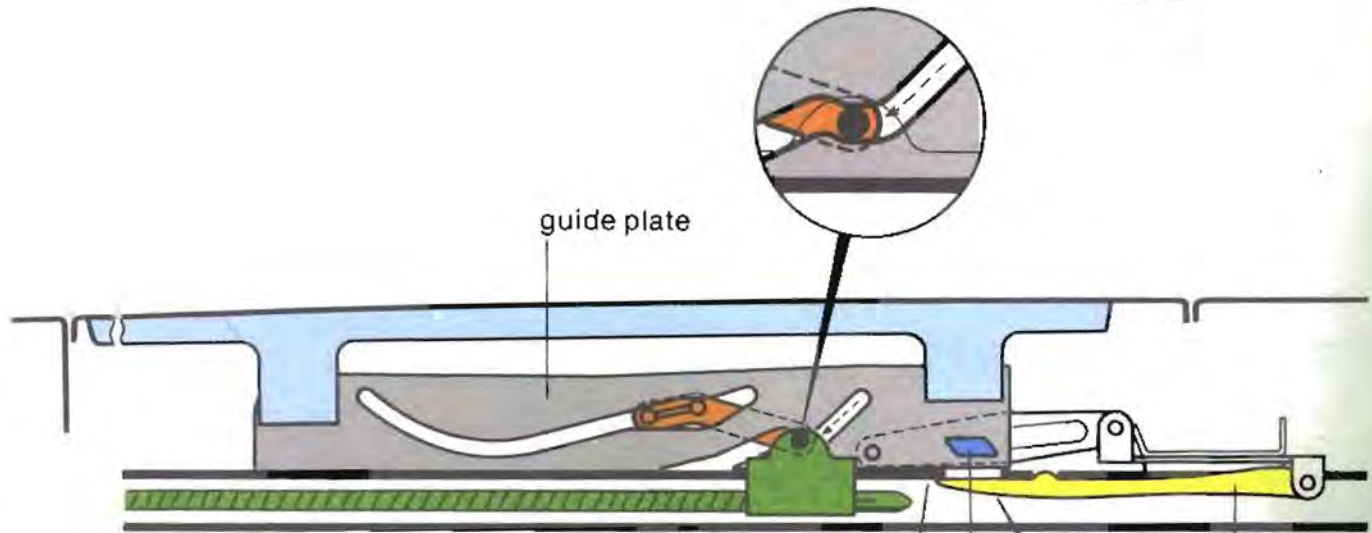
The sunroof panel is held down by the hold down tab which rides under the top lip of the guide rail.

Closing The Roof – Dasher

When the sunroof crank is turned, the cable pulls the rear guide forward.



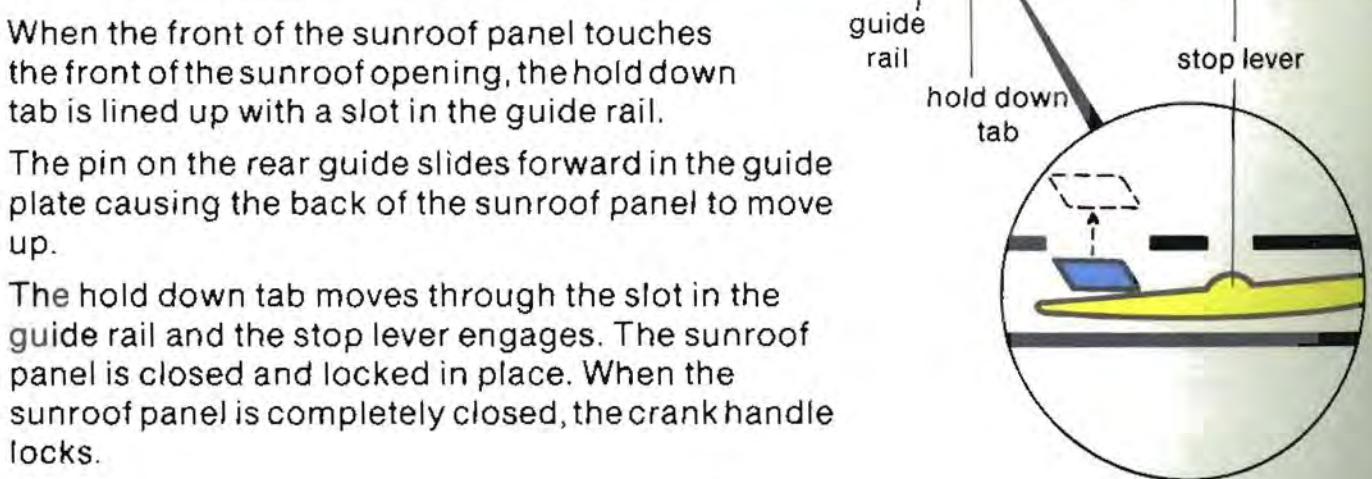
As the sunroof panel slides forward it is held down by the hold down tab which rides in the guide rail.



When the front of the sunroof panel touches the front of the sunroof opening, the hold down tab is lined up with a slot in the guide rail.

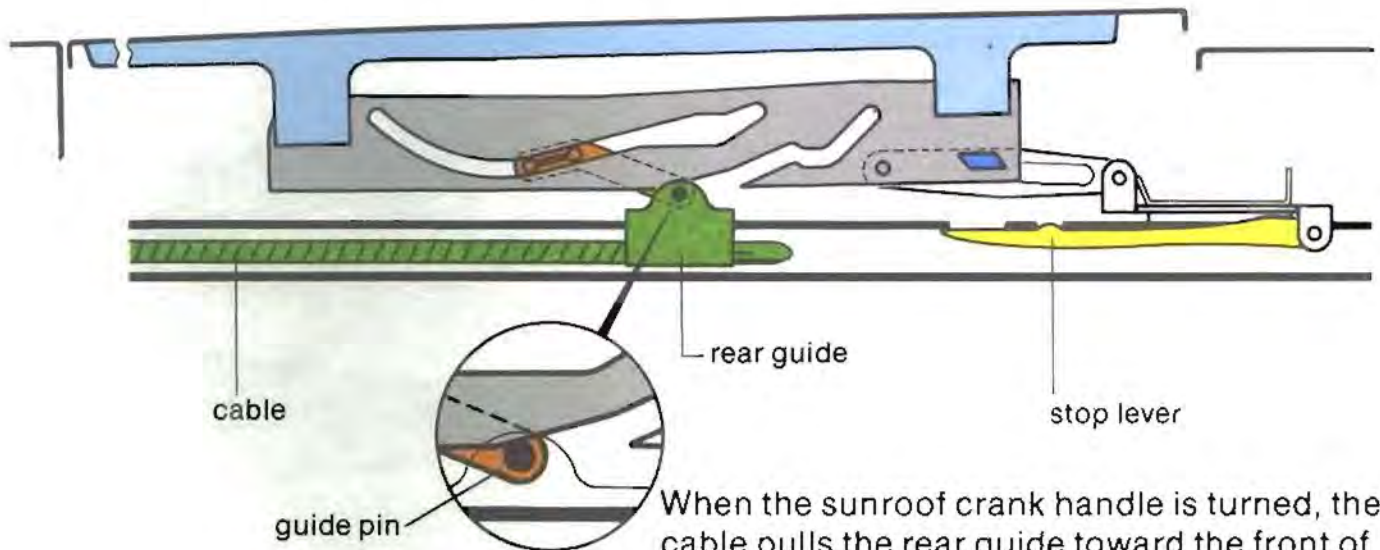
The pin on the rear guide slides forward in the guide plate causing the back of the sunroof panel to move up.

The hold down tab moves through the slot in the guide rail and the stop lever engages. The sunroof panel is closed and locked in place. When the sunroof panel is completely closed, the crank handle locks.

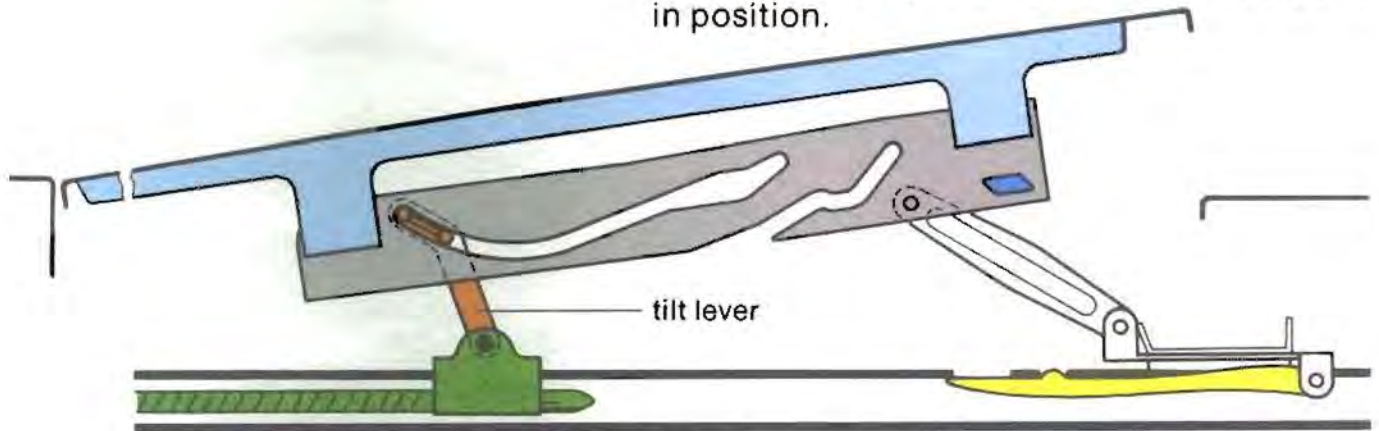


Tilting The Roof

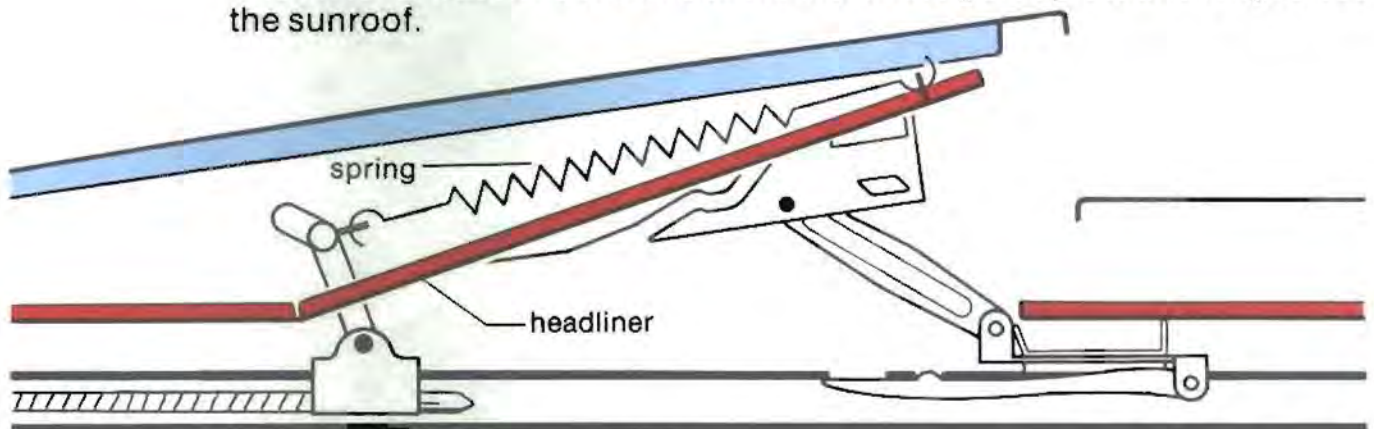
The sunroof can be tilted by pressing in the lock on the sunroof crank handle and turning the handle clockwise.



When the sunroof crank handle is turned, the cable pulls the rear guide toward the front of the car. As the rear guide moves forward in the guide plate slot the sunroof panel is raised slightly. The stop lever locks the sunroof panel in position.



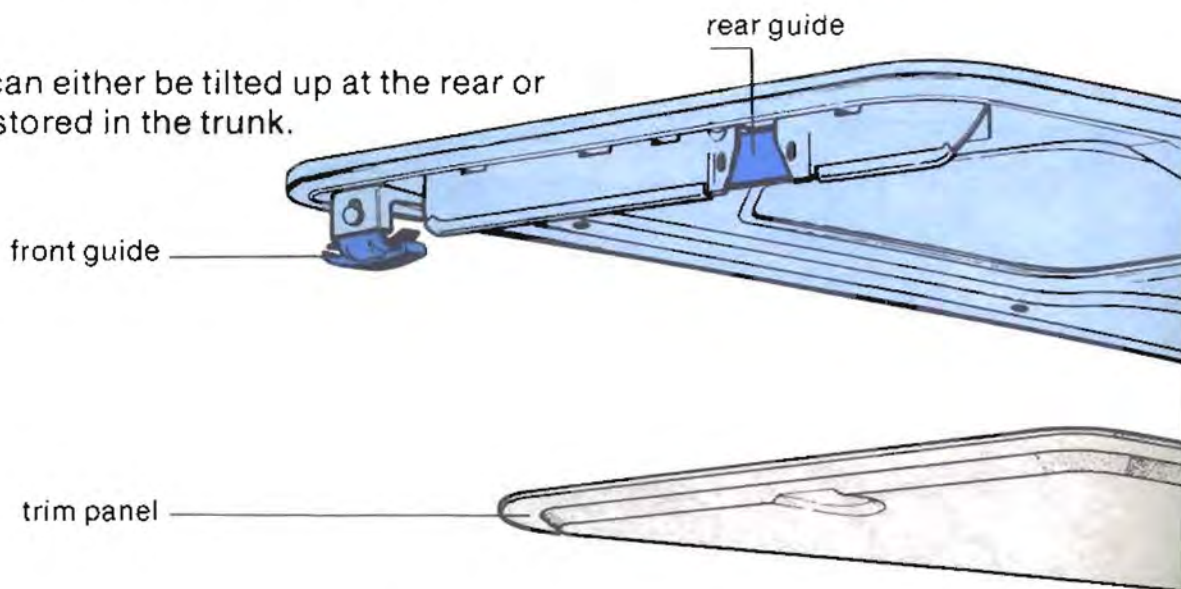
The tilt lever travels to the end of the slot in the guide plate and fully raises the sunroof.



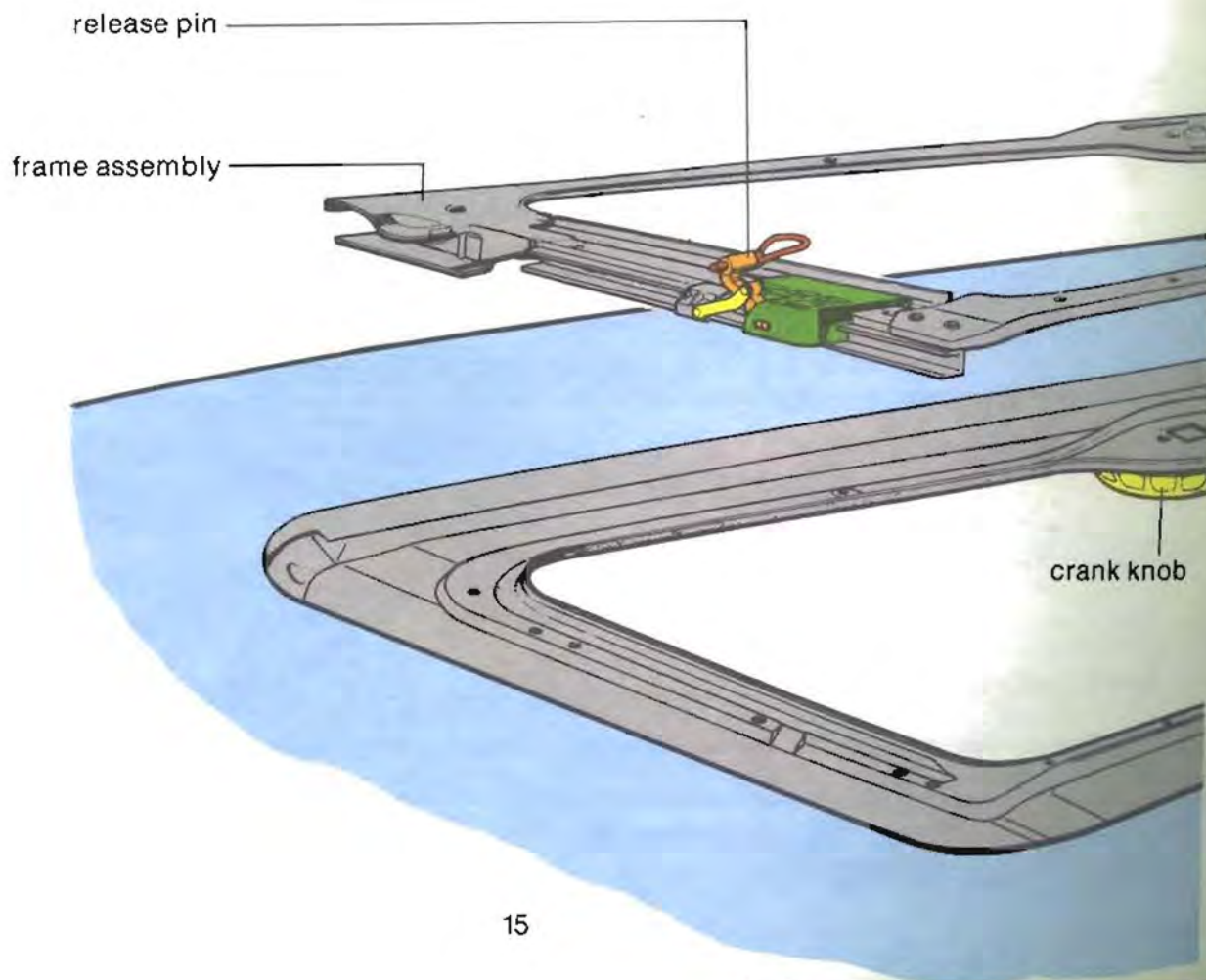
When the sunroof panel is raised, the hinged trim panel is also raised by a spring.

Removable/Tilting Roof – Scirocco

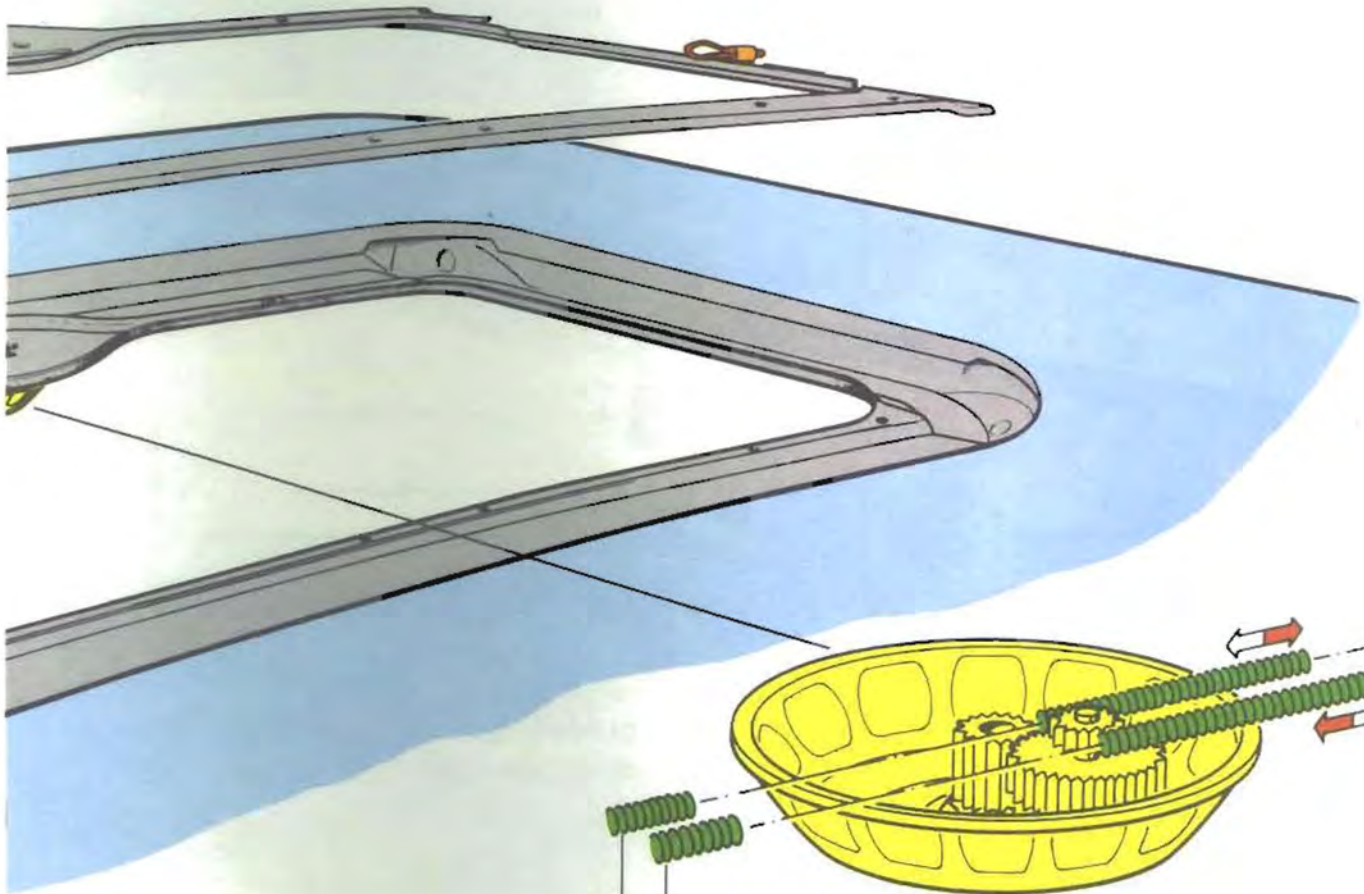
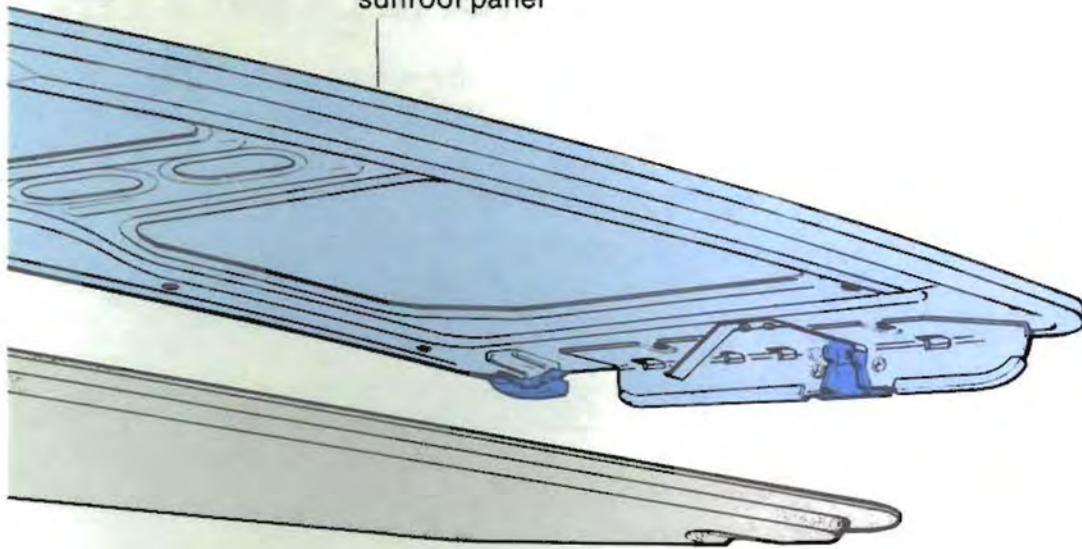
This sunroof can either be tilted up at the rear or removed and stored in the trunk.



The frame assembly cannot be disassembled and is bolted to the body. The cables and tilting mechanism are part of the frame assembly.

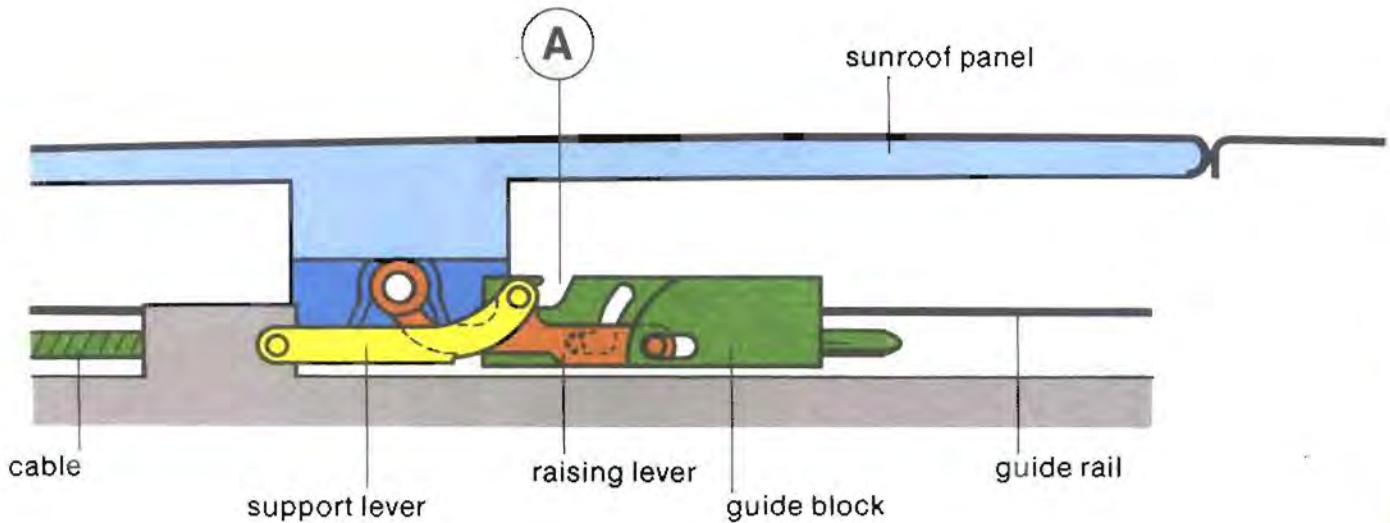


sunroof panel

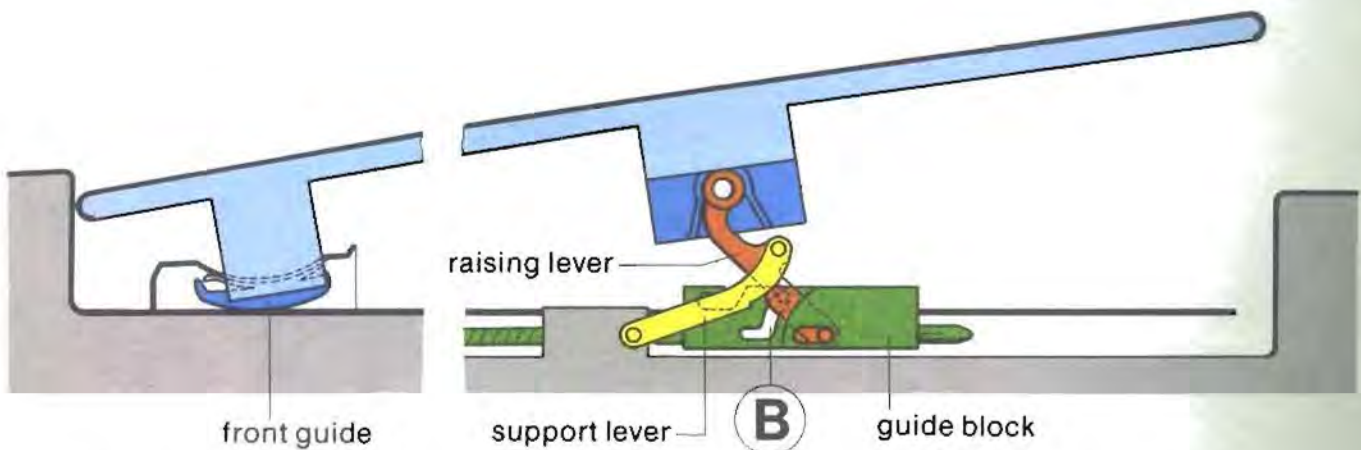


cables

Tilting The Sunroof – Scirocco



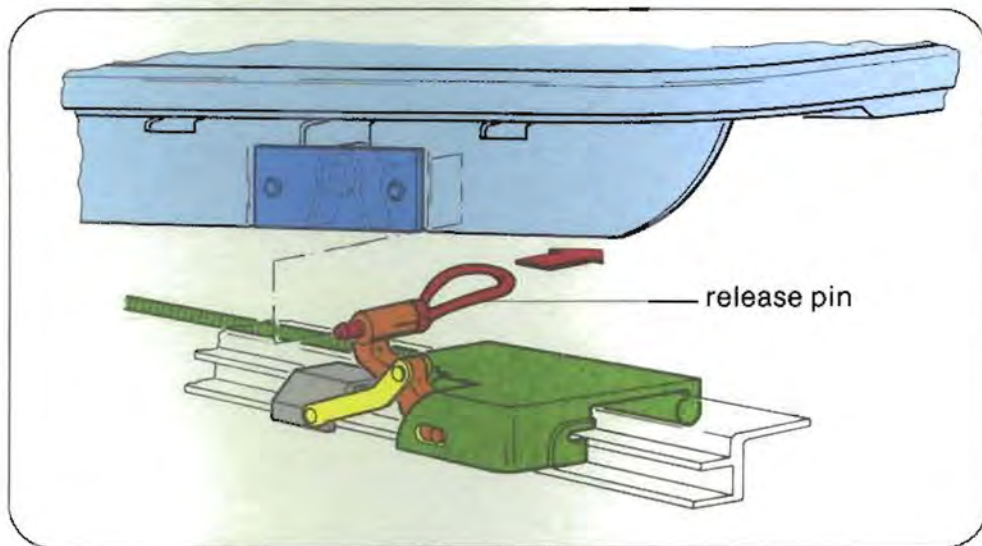
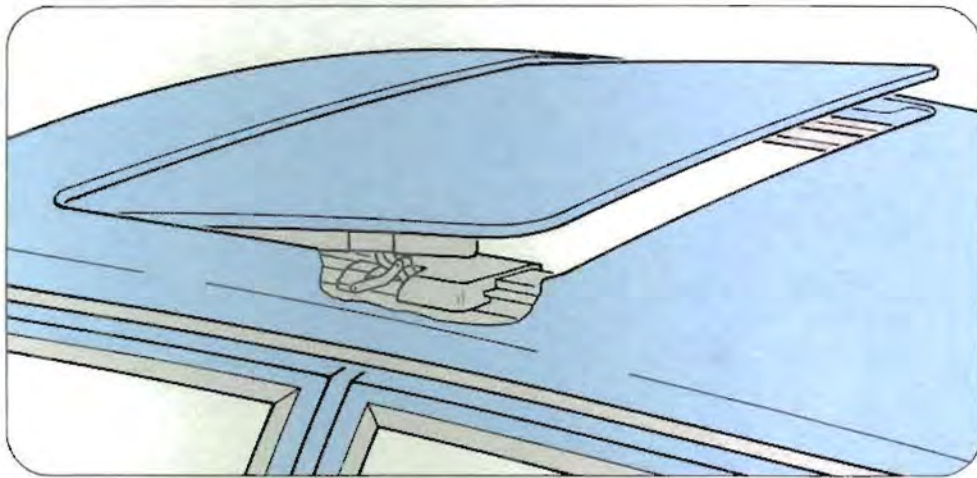
The support lever is attached to the body so that it can pivot. The raising lever connects the guide block to the sunroof panel. Recess (A) locks the sunroof panel in place when the roof is closed.



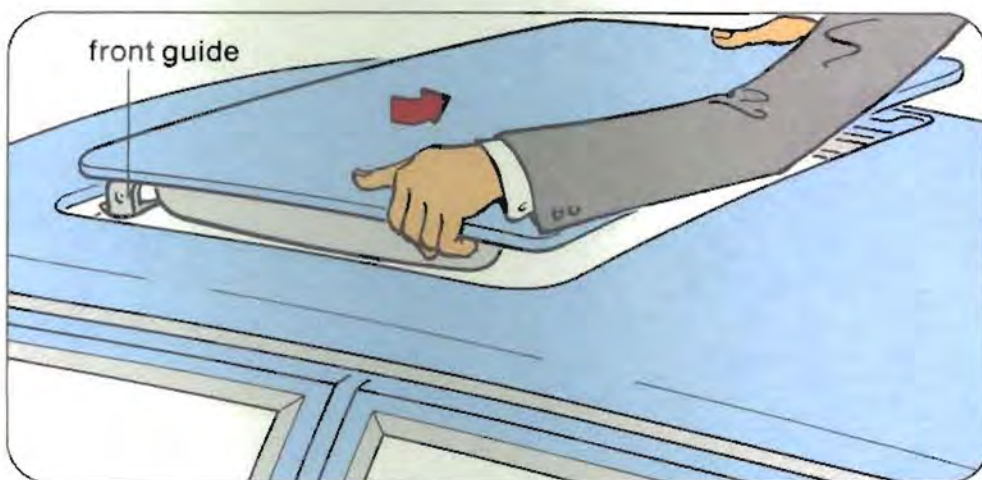
When the crank knob is turned the cables pull the guide blocks forward. The support lever lifts the raising lever and the front guide acts as a pivot. Recess (B) limits the opening angle.

Removing The Roof

The sunroof can be removed after releasing the rear guides. There's a pouch, for storing the sunroof, in the trunk.



When the release pin is pulled, the rear guide is disengaged from the raising lever.



After the rear guide has been disengaged, the sunroof can be lifted up and pulled back to release the front guides.

Rabbit/Jetta

Dasher

Scirocco

Diagnosis Procedure and Quality Check Procedure – Rabbit/Jetta

Outside the car

- Check the height of the sunroof. The sunroof panel should be even with the contour of the roof.
(If the height of the sunroof is not adjusted correctly, there may be wind noise when the sunroof is closed or there may be a water leak).
- Turn the sunroof crank handle counter clockwise about one turn. The back of the sunroof panel should be lowered before the roof panel moves open.
- Before opening the sunroof, shine a flashlight into the roof opening and make sure there's enough clearance between the roof and the sunroof panel.
(If the sunroof panel doesn't lower enough, the sunroof panel may get scratched. Common causes are misadjusted cables, worn or broken guide plates and improper height adjustment. Another cause of a scratched sunroof could be a loose roof bow or paint drips inside the roof.)

Inside the car

- Open the sunroof slowly, making sure the headliner material doesn't bunch up.
(If the headliner bunches up or is torn, the cause is usually a loose headliner.)
- When you open the sunroof, it should move evenly and smoothly. The sunroof should move all the way into the roof opening.
(If the sunroof handle skips or clicks that's usually a sign that the cables are either worn, stretched or not adjusted properly. If the sunroof binds or won't open completely, the front guides could be misaligned or worn. Worn or broken rear guides could also be the problem.)
- The wind deflector should be all the way up when the roof is open.
(If the wind deflector sticks, it can cause a loud buffeting noise when the sunroof is open. The wind deflector could also cause a rattle if it's loose.)

Inside the car

- Turn the sunroof crank handle slowly clockwise. The sunroof panel should move forward evenly and smoothly.

(If the sunroof handle skips or clicks, that's usually a sign that the cables are worn or stretched. If the sunroof binds, the guides may be misaligned or worn.)

- The wind deflector should lower completely and should not touch the sunroof panel.

(If the wind deflector sticks the sunroof may be hard to close. If it touches the sunroof panel, it may cause a rattle when the sunroof is closed.)

Outside the car

- As soon as the sunroof panel touches the roof opening, make sure that both sides of the sunroof panel touch the front of the roof opening at the same time.

(If the sunroof doesn't close evenly, it may bind or not close completely. Usually, the cables just need to be adjusted.)

- Turn the crank handle slowly. The handle should turn smoothly with no loud clicking. The sunroof should be raised to the fully closed position on both sides.

(If the sunroof does not raise all the way up on both sides, the cables and sunroof height need to be adjusted. If a raising block is broken, it could also cause the problem.)

Rabbit/Jetta

Symptoms Group 1:

- Sunroof is not even with the roof
- Wind noise when the sunroof is closed
- Crank handle skips or clicks
- Sunroof does not lower completely
- Sunroof does not close evenly

..... page 24

Symptom Group 2:

- Sunroof will not close
- Sunroof will not open

..... page 27

Symptom Group 3:

- Sunroof hard to open or close
- Sunroof won't open or close all the way
- Headliner bunches up or is torn
- Sunroof binds

..... page 30

Rabbit/Jetta

Symptom Group 1:

- Sunroof is not even with the roof
- Wind noise when the sunroof is closed
- * Crank handle skips or clicks
- * Sunroof does not lower or raise completely
- * Sunroof does not close evenly

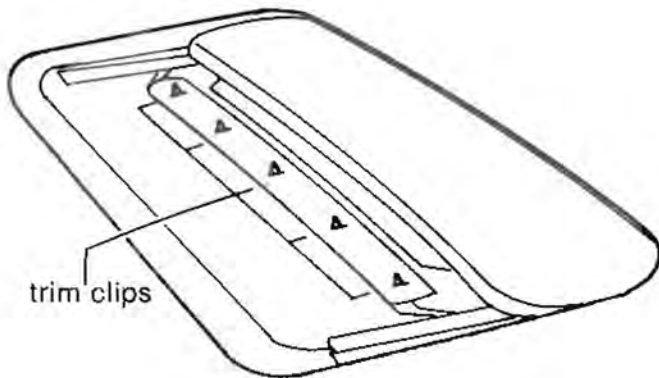
Repair:

- Diagnose Complaint page 19
Suggested repair time 20 time units (includes set-up time).
- Adjust cables, drive gear and sunroof height page 25
Suggested repair time 40 time units.
- Perform Quality check procedure page 19
Suggested repair time 5 time units.

- * If these symptoms are not eliminated by the adjustment procedure see page 30.

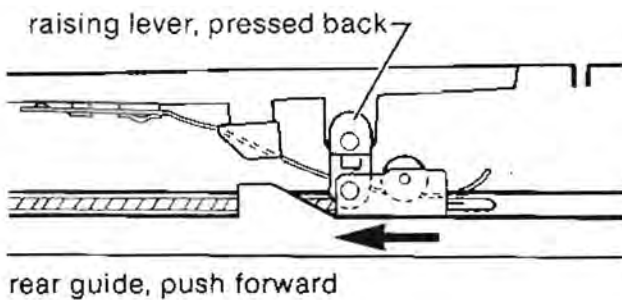
Adjust Sunroof Height and Cables

Rabbit/Jetta



Detach the headliner

Open the sunroof about 1/3 of the way. Carefully pull down on the front of the headliner and pull loose the trim clips. Close the sunroof and push the headliner back into the roof.



Check the raising levers

Remove the crank handle and the sunroof cable drive. Push the rear guides forward with a screw driver. The raising levers must be flipped up and back as far as they will go.

Reinstall cable drive



Check sunroof height

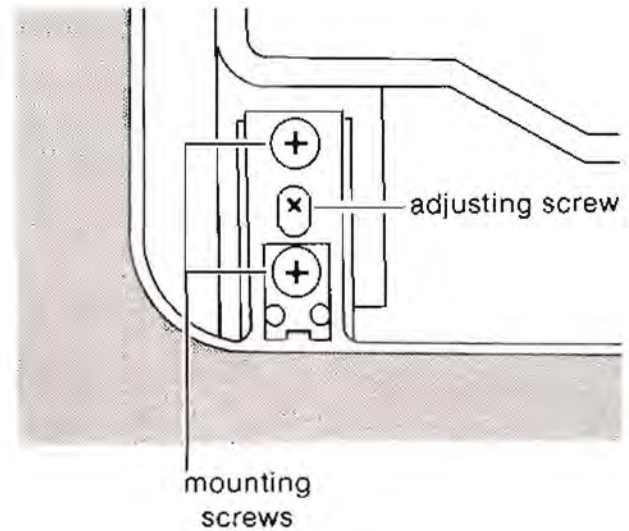
The front of the sunroof panel should be even with or 1 mm lower than the roof.

The rear of the sunroof panel should be even with or 1 mm higher than the roof.

Adjust sunroof height

To raise the front of the sunroof, loosen mounting screws, turn the adjusting screw counter clockwise, then tighten the front guide mounting screws.

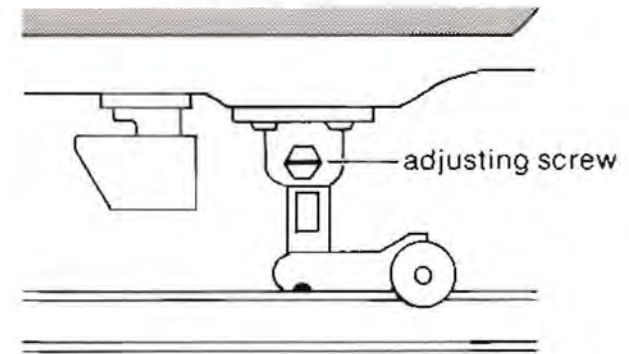
To lower the front of the sunroof, loosen the front guide mounting screws and turn the adjusting screw clockwise. Retighten the front guide mounting screws.



Rear adjustment

Remove the leaf springs and loosen the adjusting screw. Raise or lower the sunroof by hand and retighten the adjusting screw.

Re-attach the leaf spring.



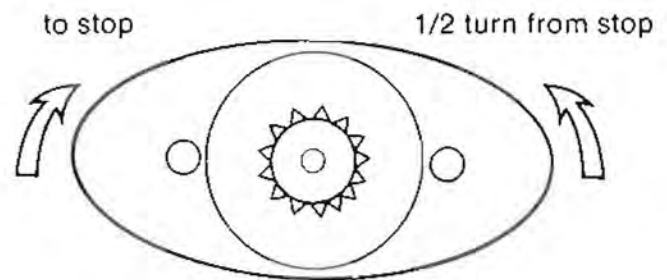
Adjust the drive gear

Turn the sunroof crank counter-clockwise about 2 turns to open the sunroof. Remove the cable drive.

Push the sunroof forward by hand until it touches the front of the roof opening all the way across.

Turn the drive assembly clockwise until it stops; then turn it half a turn counter clockwise.

After adjusting the drive, install the drive and install the crank handle so that it points to the rear of the car.



Final reassembly

Open the sunroof about 1/3 of the way.

Attach headliner to sunroof panel.

Close sunroof fully.

Reposition crank handle if it does not line up with recess.

Check sunroof operation, page 19.

Rabbit/Jetta

Symptom Group 2:

Sunroof will not open
Sunroof will not close

Repair — Sunroof will not open:

- Remove drive assembly open sunroof page 28
Suggested repair time 20 time units.
- Dissassemble sunroof page 31
- Check sunroof components page 35
- Reassemble sunroof page 39
Suggested repair time 130 time units.
- Perform Quality Check procedure page 19
Suggested repair time 5 time units.

Repair — Sunroof will not close:

- Dissassemble sunroof page 31
- Check sunroof components page 35
- Reassemble sunroof page 39
Suggested repair time 130 time units.
- Perform Quality Check procedure page 19
Suggested repair time 5 time units.

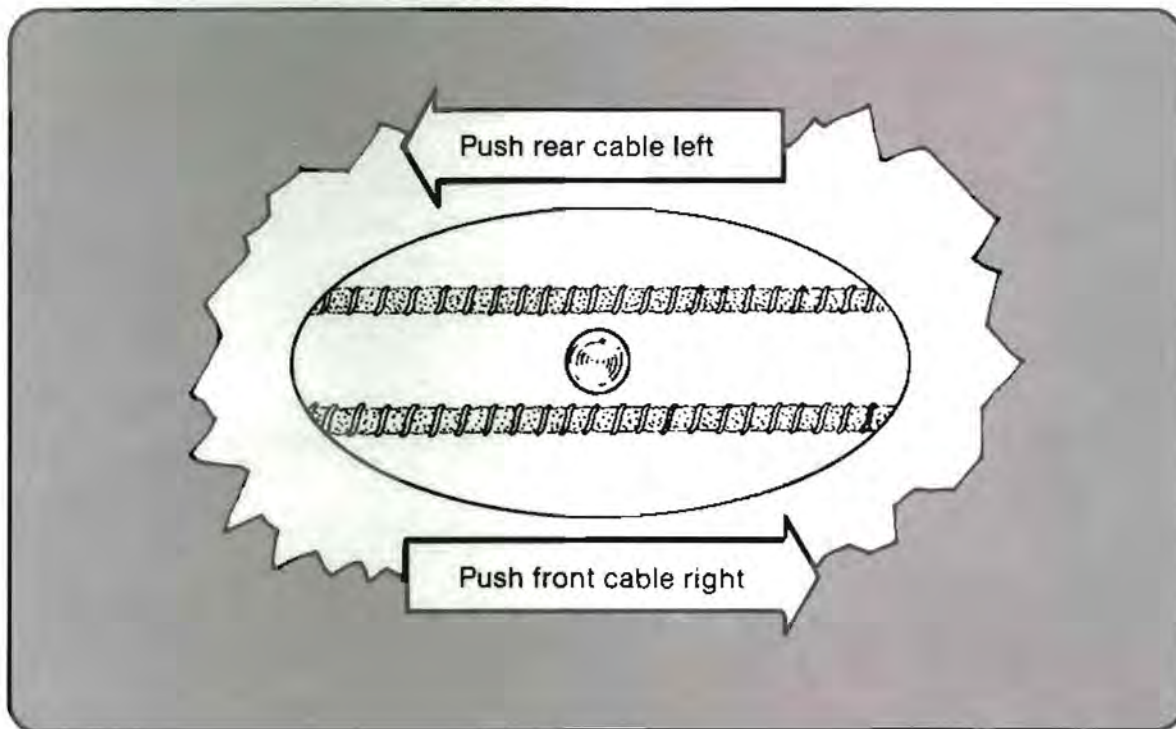
Sunroof Will Not Open

If the sunroof is stuck completely closed, remove the crank handle and cable drive. Use a screwdriver, carefully and evenly, to

- push the rear cable to the left
- push the front cable to the right

Push the cables just enough to lower the rear of the roof, then push the roof open by hand about a third of the way.

Proceed to "Disassemble Sunroof" page 31.



Rabbit/Jetta

Symptom Group 3:

- Sunroof hard to open or close
- * Crank handle skips or clicks
- * Sunroof does not raise or lower completely
- * Sunroof does not close evenly
- Sunroof will not open or close all the way
- Headliner bunches up or is torn
- Sunroof binds
- Sunroof will not close

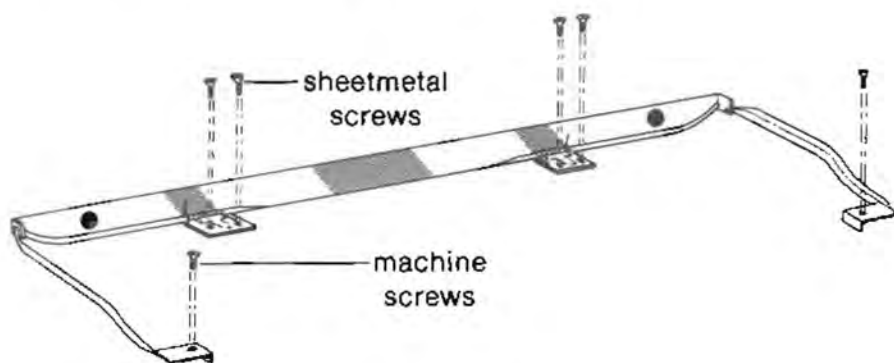
Repair:

Diagnose complaint	page 19.
<i>Suggested repair time 20 time units (includes set-up time).</i>	
Disassemble sunroof	page 31
Check sunroof, components	page 35
Reassemble sunroof	page 39
<i>Suggested repair time 130 time units.</i>	
Perform Quality Check procedure	page 19
<i>Suggested repair time 5 time units.</i>	

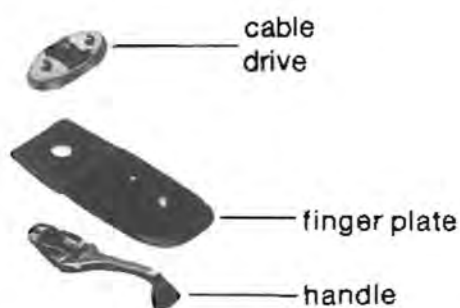
- * adjust the sunroof height and cables before disassembling sunroof
see page 24.

Disassemble Sunroof – Rabbit/Jetta

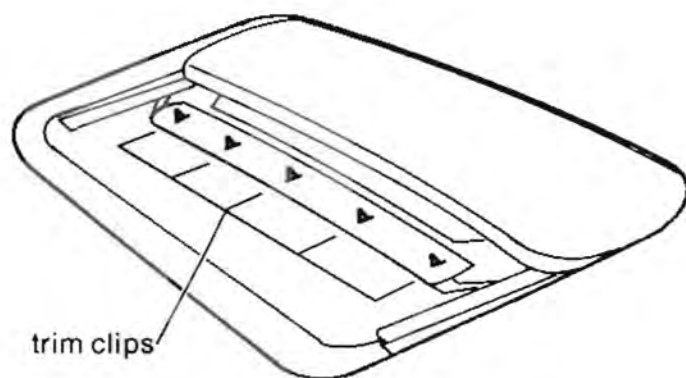
Open sunroof about one-third.



Remove wind deflector ①

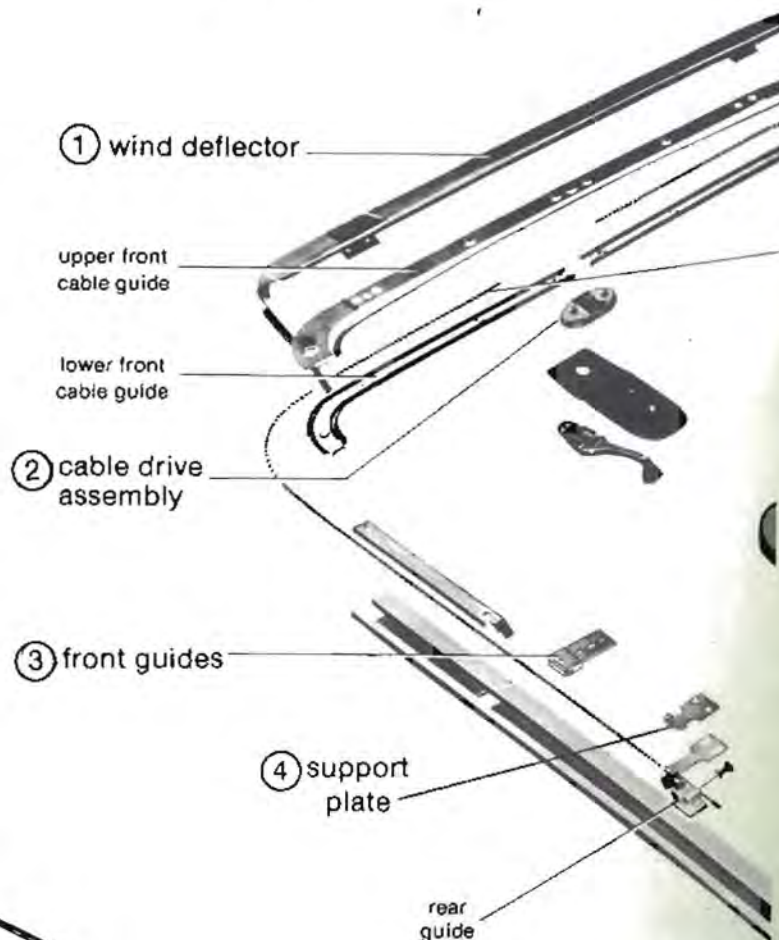


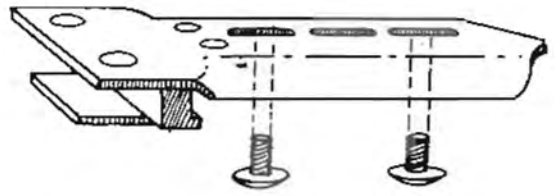
Remove handle, finger plate and cable drive ②



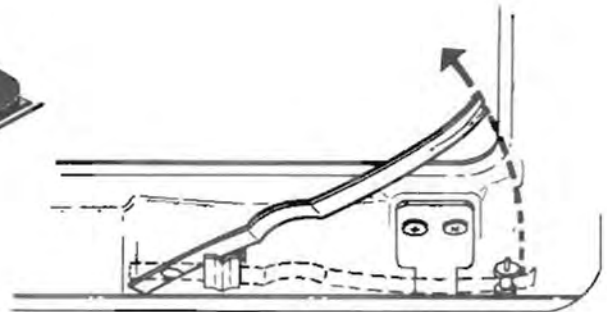
Carefully pull the headliner down at the front and pull loose the trim clips.

Close the sunroof by hand and push the headliner back into the roof.

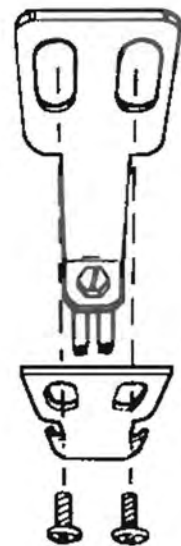
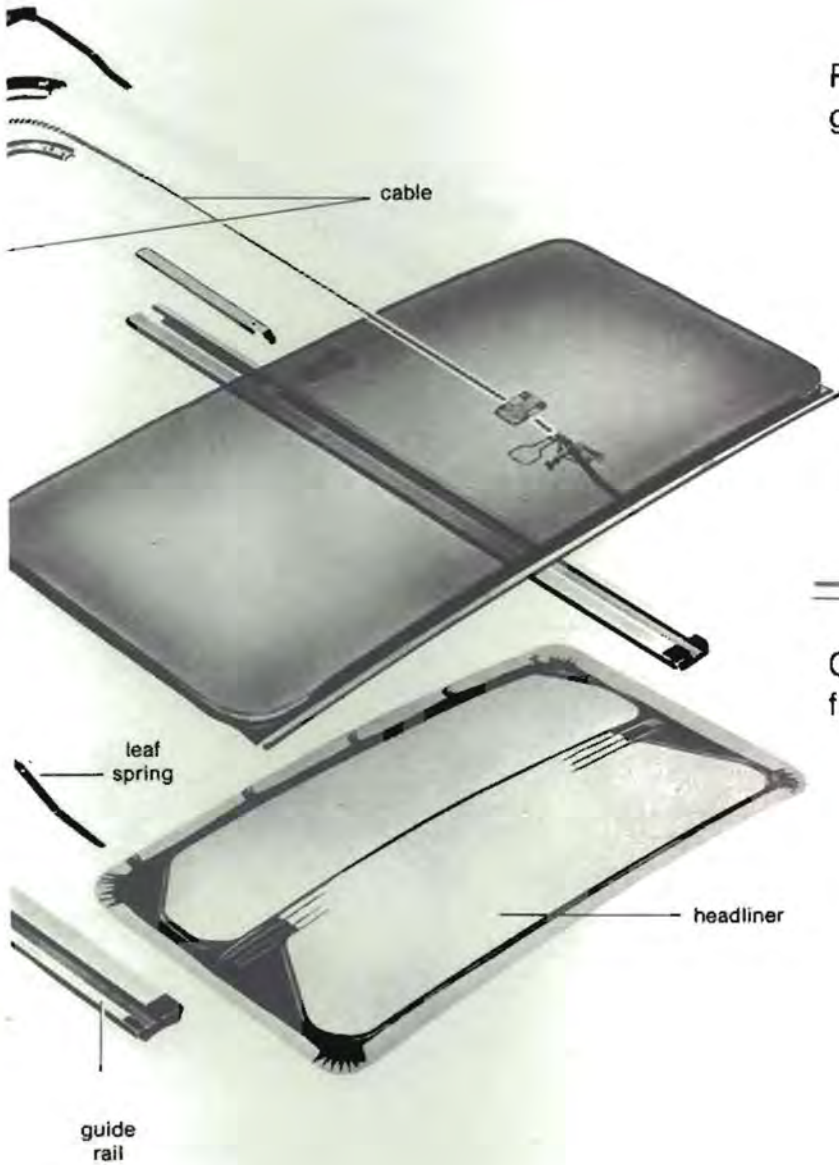




Remove both left and right front guides ③

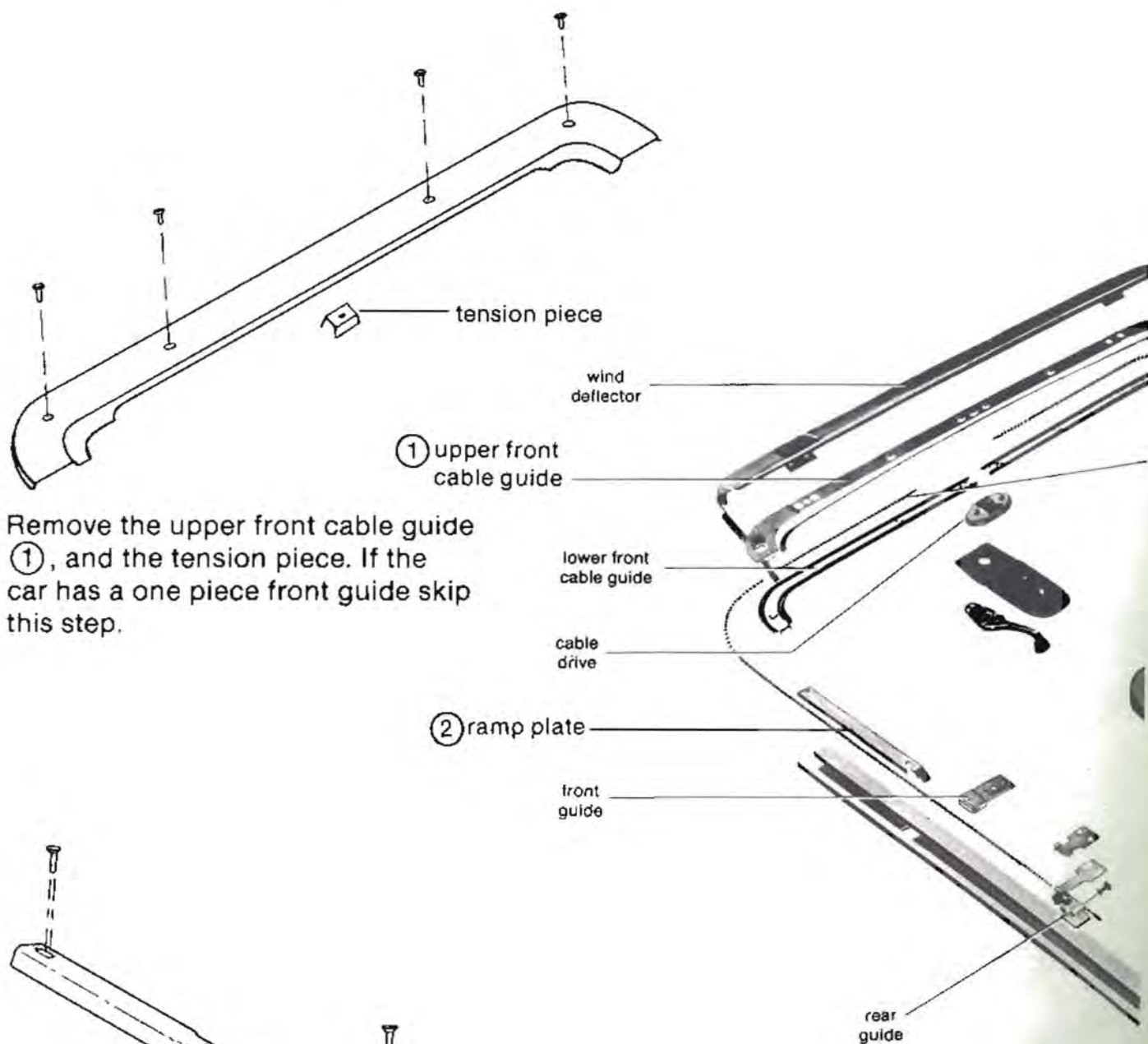


Carefully remove both leaf springs from the rear guides.

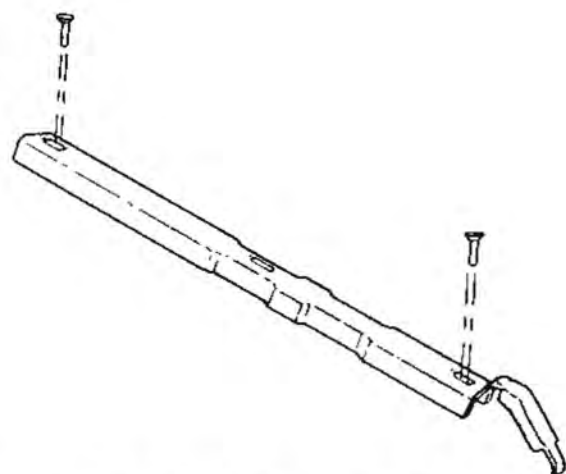


Remove the rear guide screws and both support plates ④. Carefully lift out the roof.

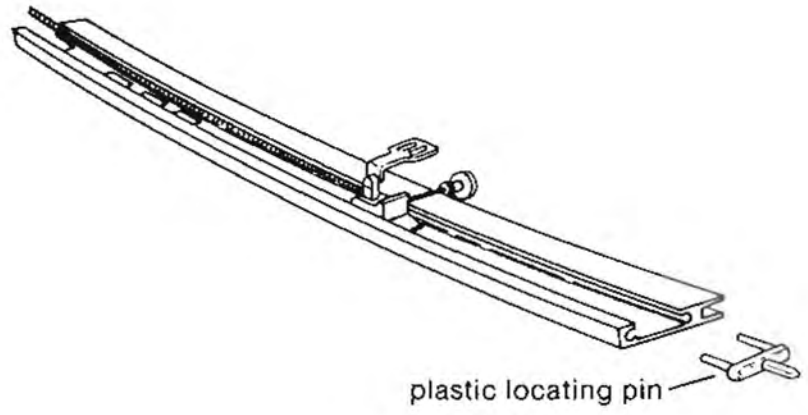
Disassemble Sunroof – Rabbit/Jetta (continued)



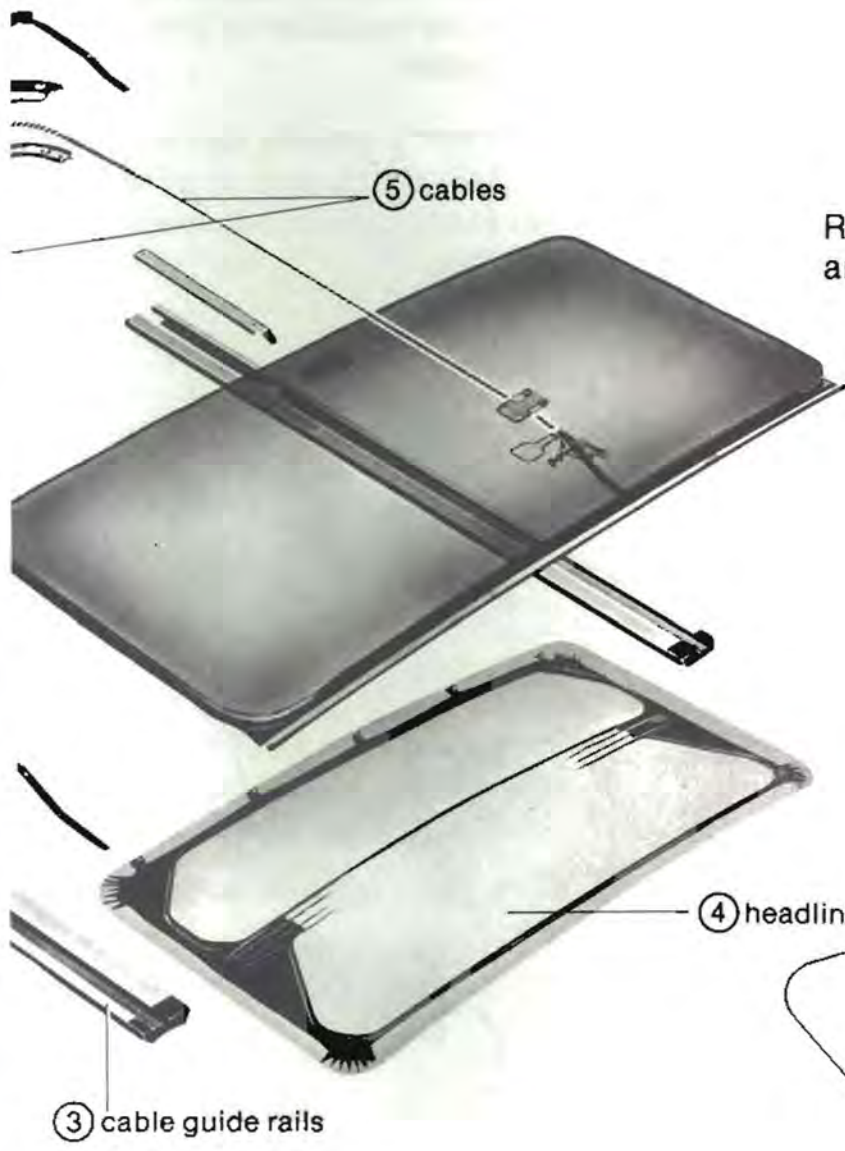
Remove the upper front cable guide ①, and the tension piece. If the car has a one piece front guide skip this step.



Remove the ramp plates ②



plastic locating pin

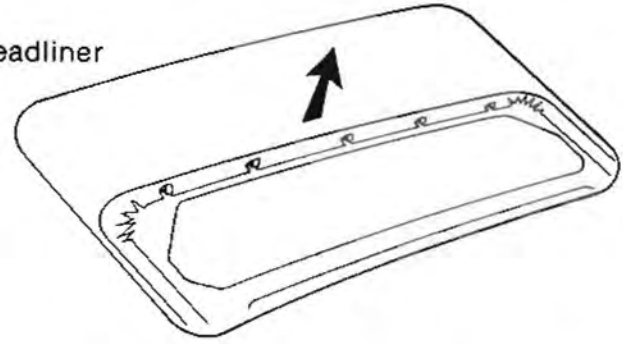


⑤ cables

③ cable guide rails

④ headliner

Remove the cable guide rails ③ and cables ⑤.



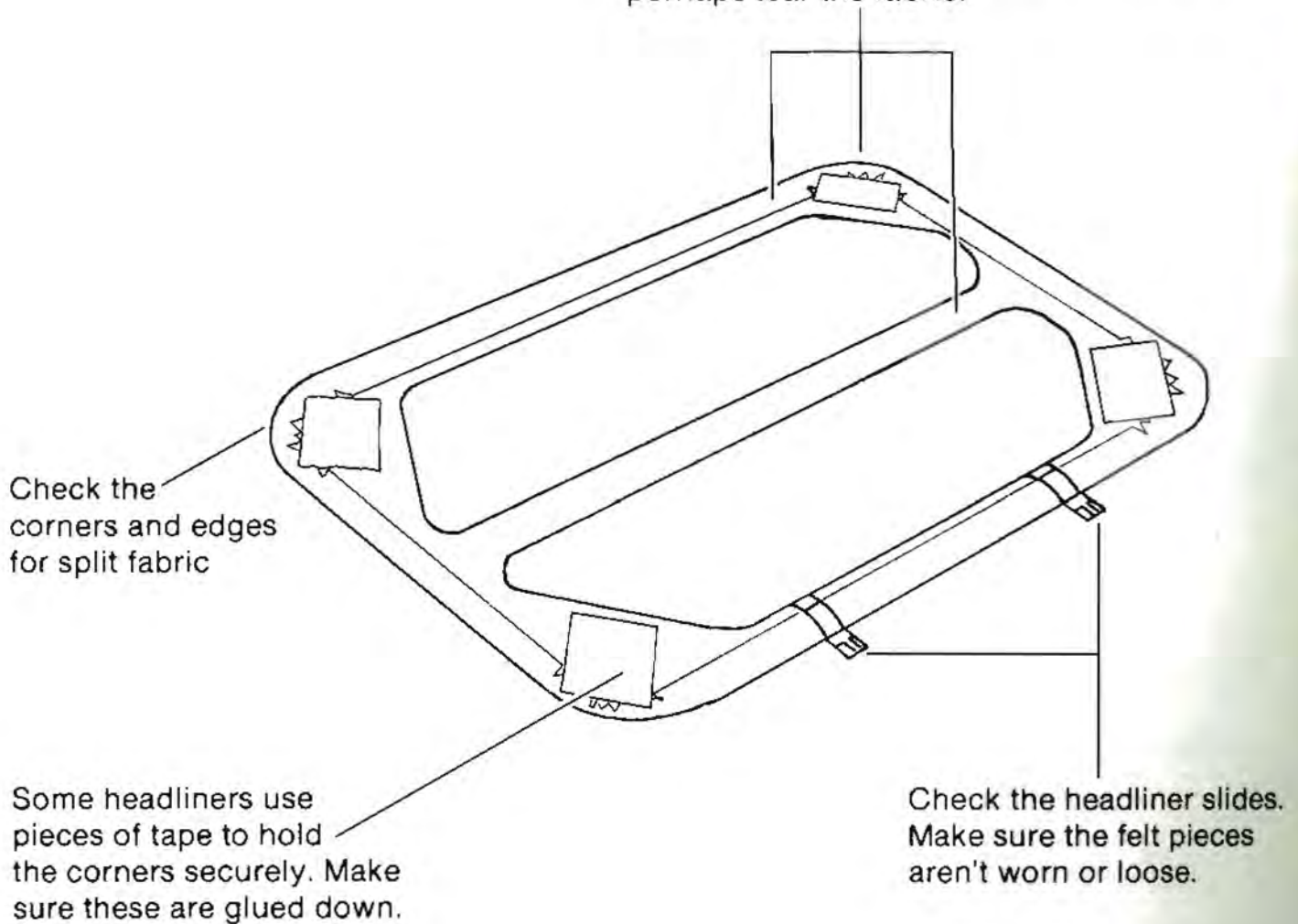
Pull the headliner panel ④ out of the roof.

Sunroof Checks – Rabbit/Jetta

Check headliner

Check inside the roof for any rust or dirt. Clean the roof cavity if necessary.

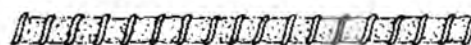
Make sure the headliner is securely glued down at all corners, edges and the center bow. Any loose headliner fabric or loose felt pieces will cause the headliner to bind and perhaps tear the fabric.



Check the cables

If the cables are stretched or worn the crank handle will skip or click when you turn it.

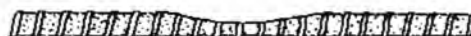
new cable



stretched cable

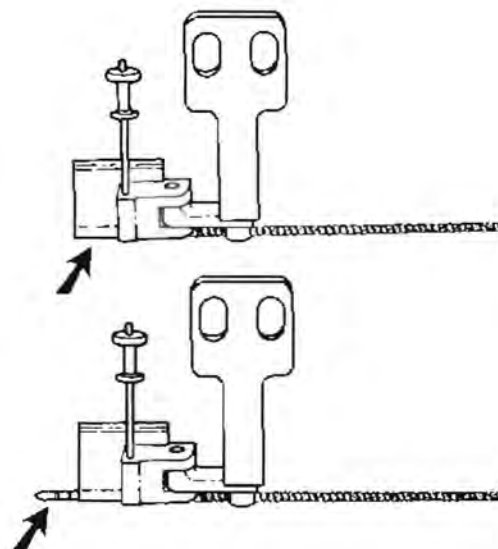
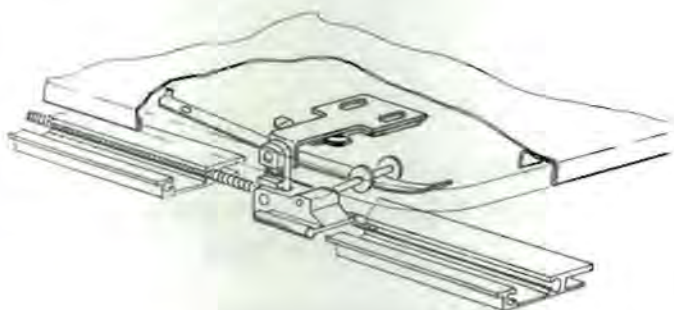


worn cable



Check the rear guides

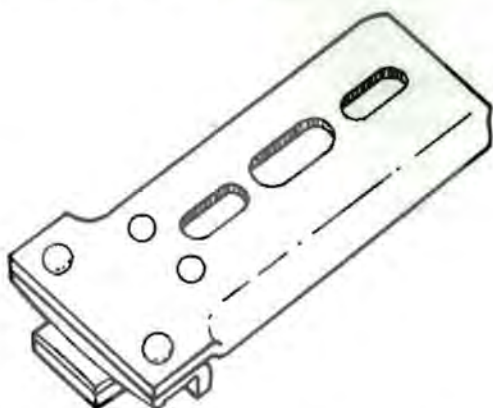
Any cracks or wear on the rear guide will cause the sunroof to bind or operate hard.



If the raising lever does not move freely, the sunroof will not lower or close completely.

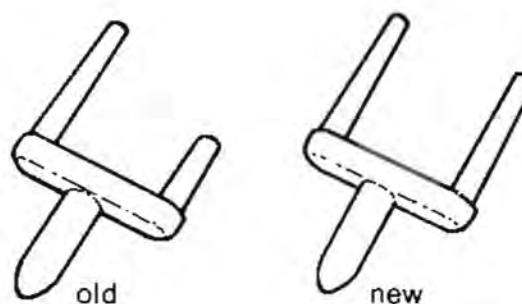
There are two types of rear guides. The same type must be on both sides of the car.

Check the front guides



Worn or misaligned front guides will cause the sunroof to bind or operate hard.

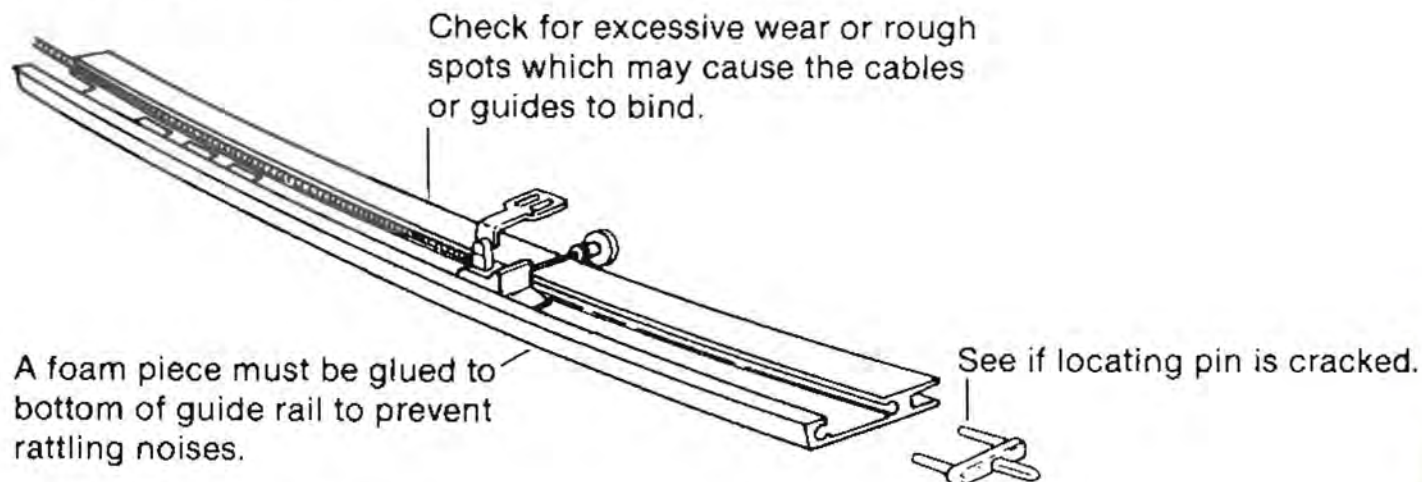
Check the locating pins



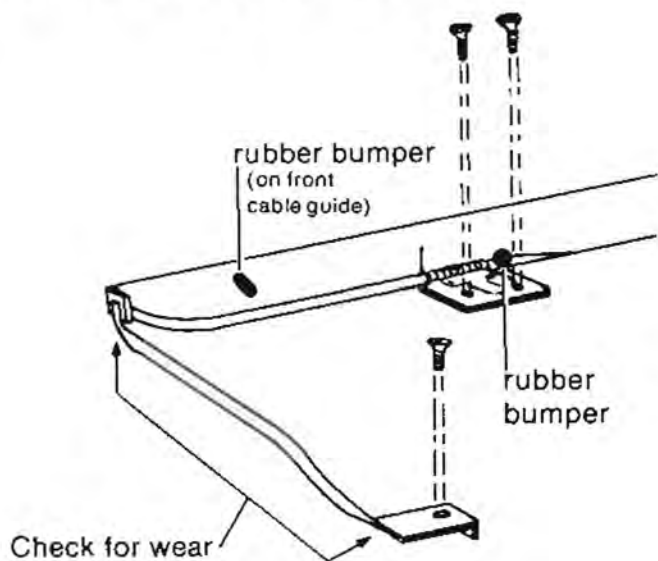
Always install the new version of locating pin.

Sunroof Checks – Rabbit/Jetta (continued)

Check the guide rail



Check the wind deflector

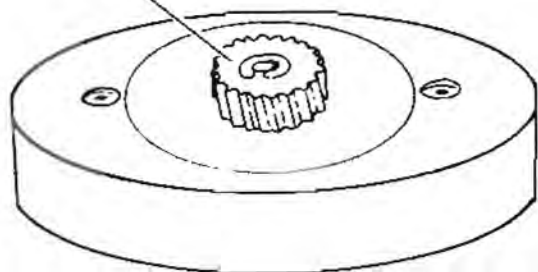


Wind deflector problems can cause rattling noises; if they are bent, they can cause the roof to close hard.

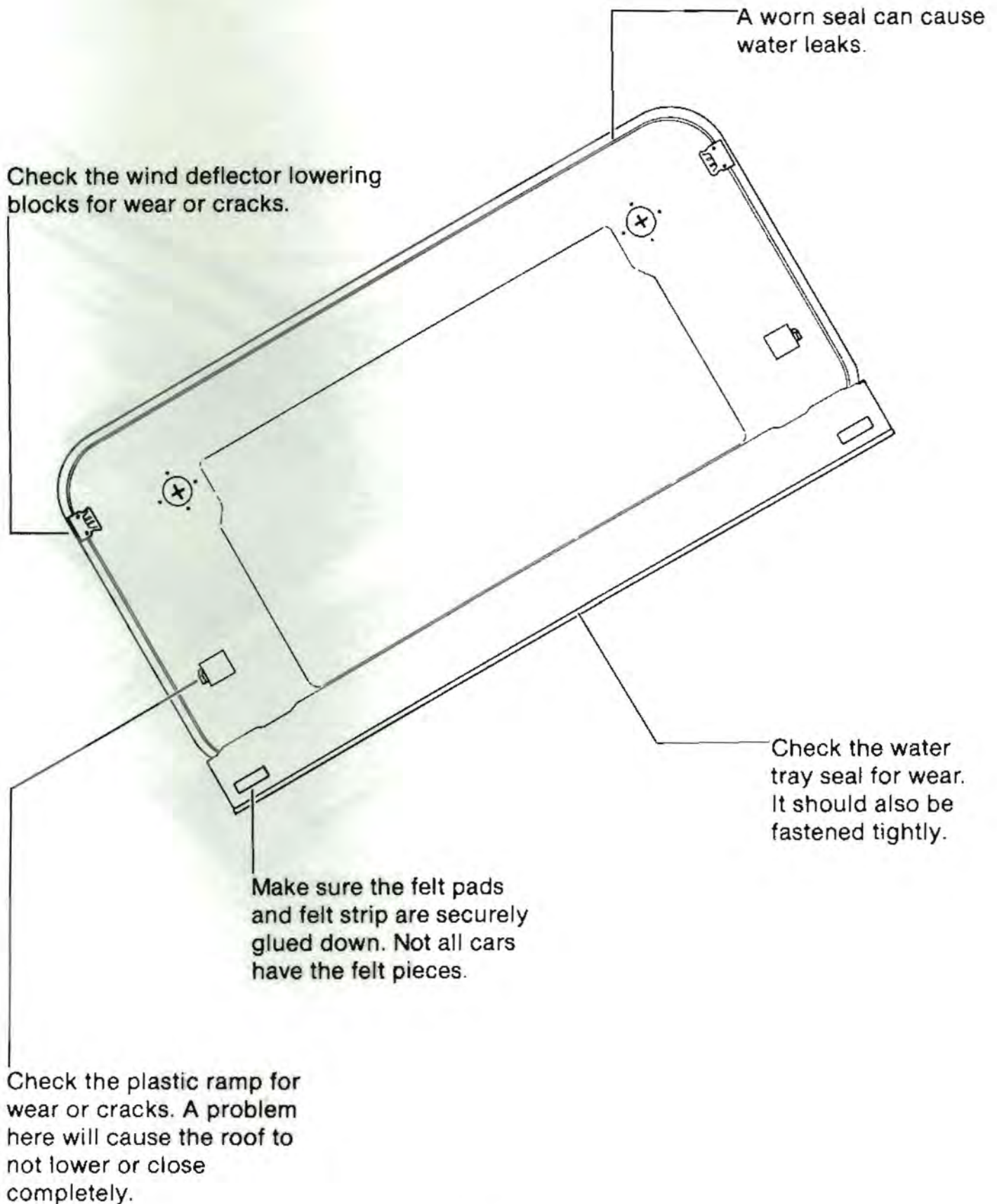
There should be a round bumper at the end of each hinge pin to prevent rattles.

Check the cable drive

Check the gear for binding, wear or damage.



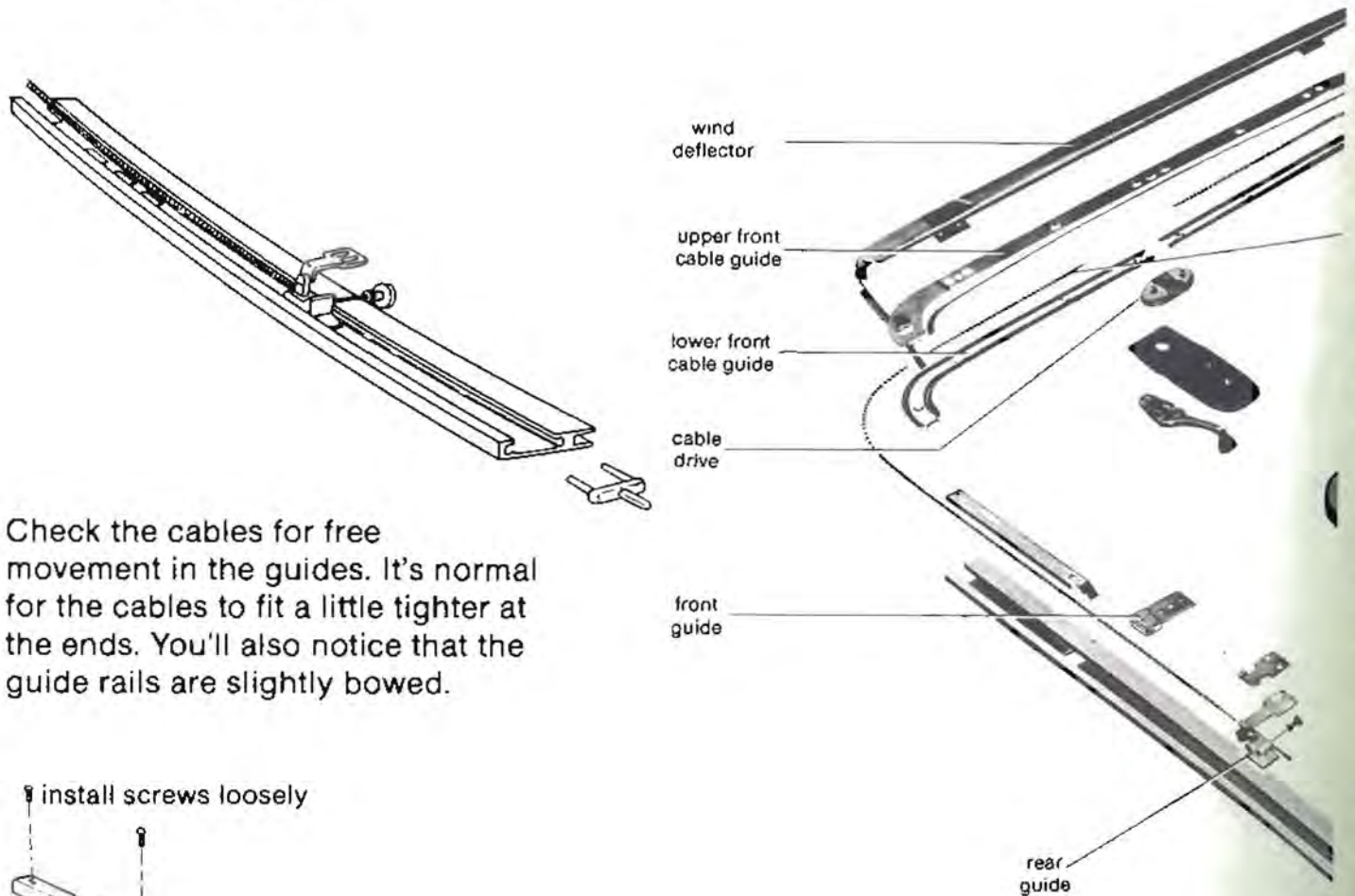
Check the sunroof panel



Installing The Sunroof – Rabbit/Jetta

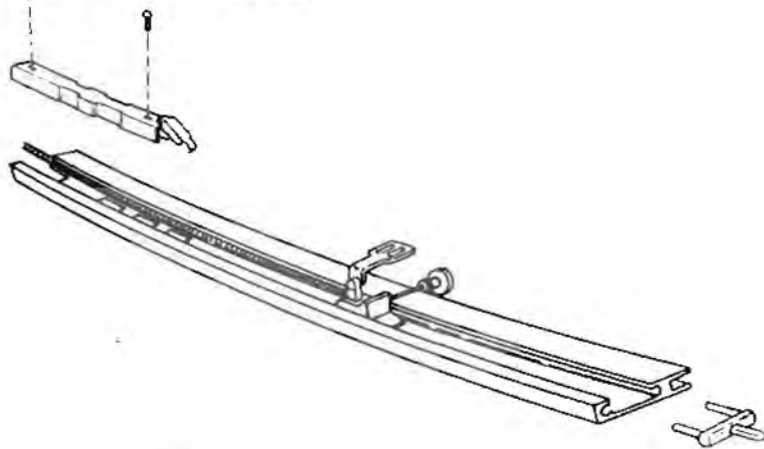
Lubricate the cables and install them in the guide rails.

- for steel cables, use a small amount of high temperature grease.
- for brush type cables, use a small amount of oil.

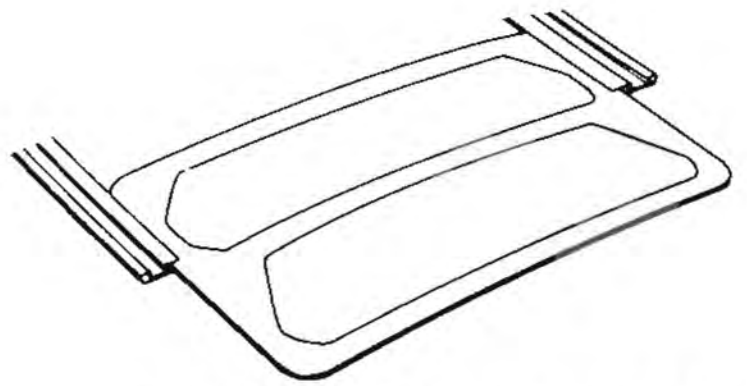


Check the cables for free movement in the guides. It's normal for the cables to fit a little tighter at the ends. You'll also notice that the guide rails are slightly bowed.

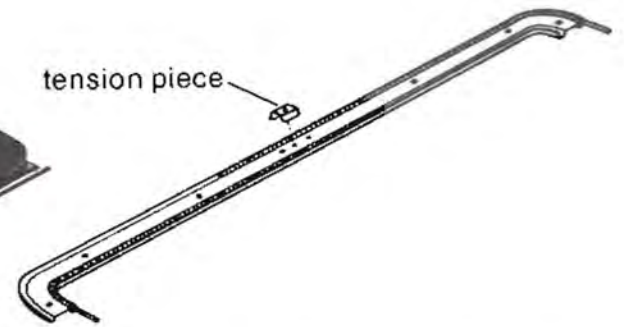
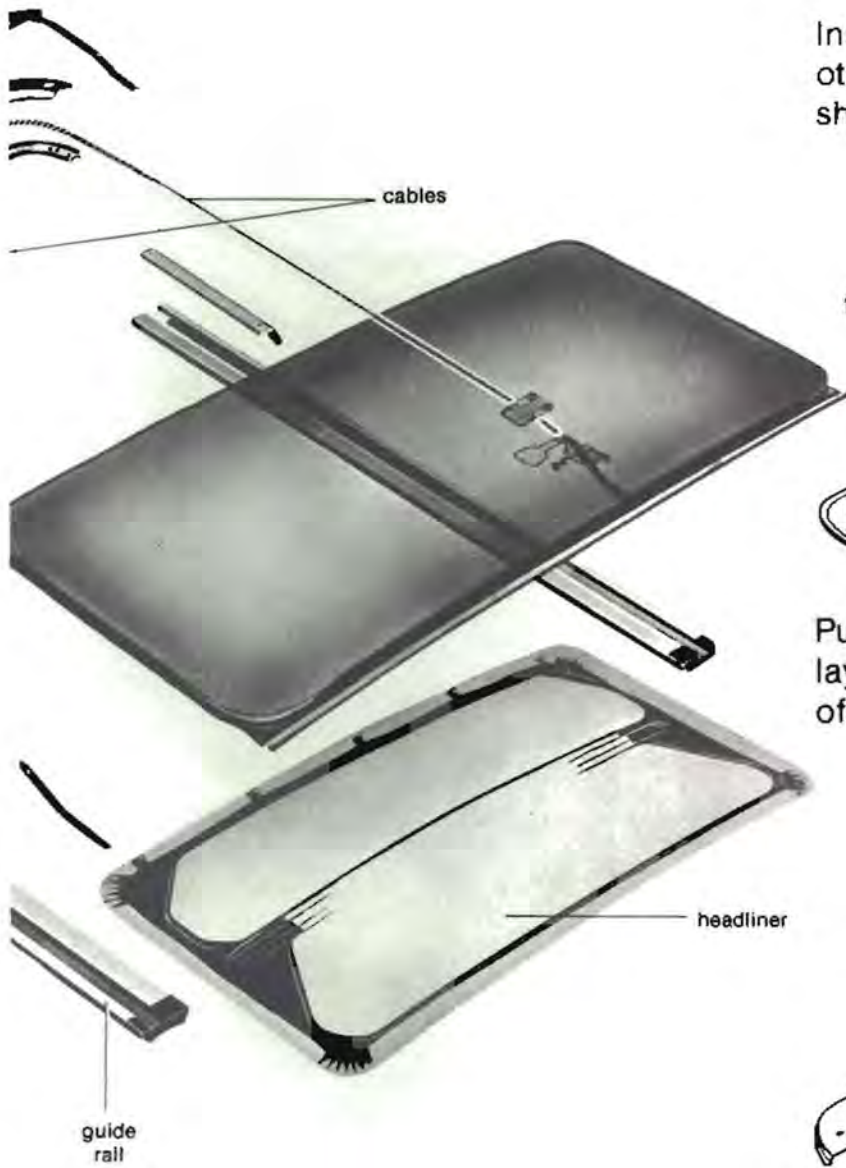
install screws loosely



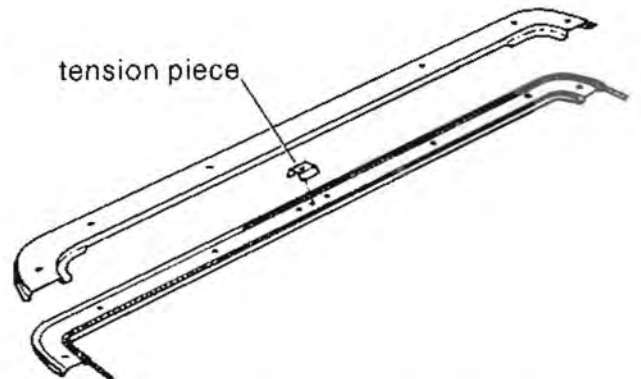
Loosely install the cable guide and ramp plate screws on one side. Make sure the locating pin fits into the hole inside the roof.



Install the headliner then install the other guide rail. The headliner should fit in the guide rail slots.

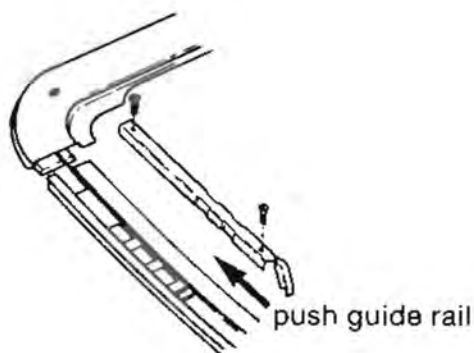


Push the rear guides to the rear and lay the cables in the lower section of the front cable guide.

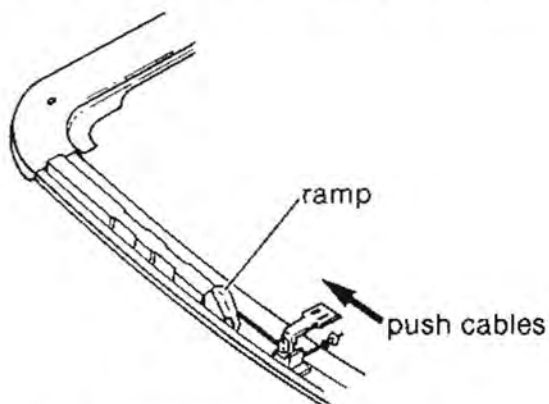


Install the tension piece and the upper guide housing. Use a putty knife to help keep the cables in place. This step is unnecessary on cars with a one-piece front cable guide.

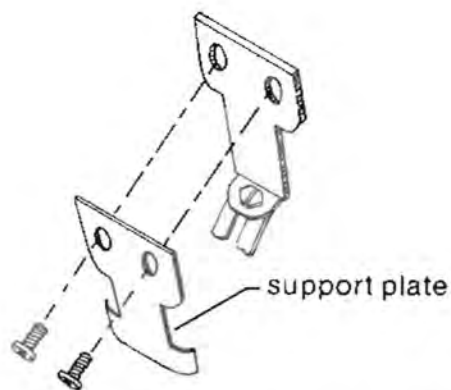
Installing The Sunroof – Rabbit/Jetta (continued)



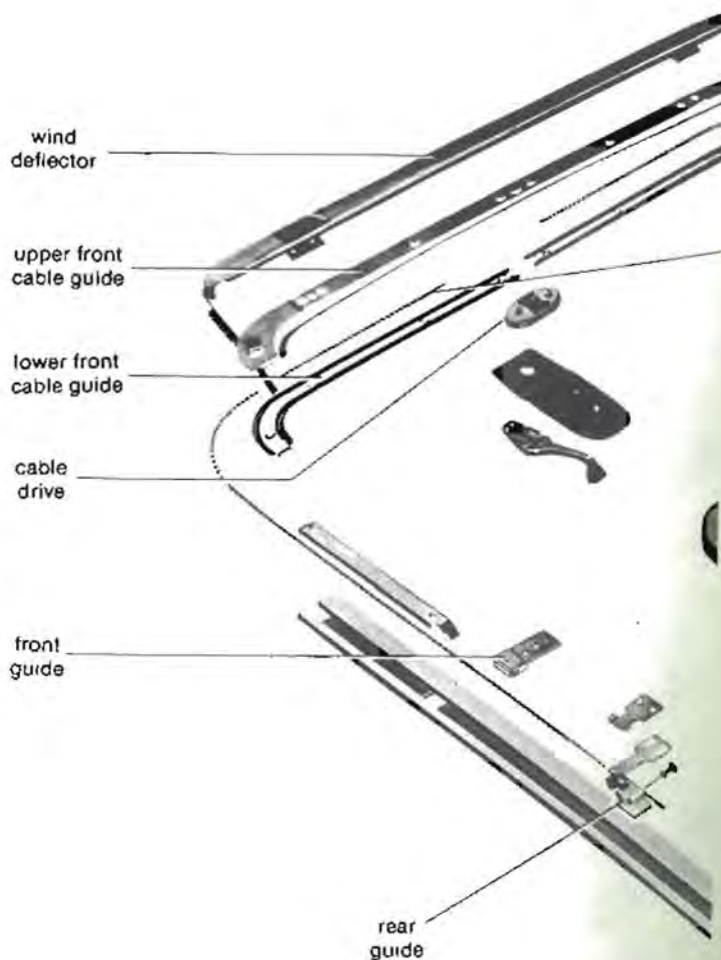
Tighten the front cable guide screws. Push the guide rails forward and tighten the screws.

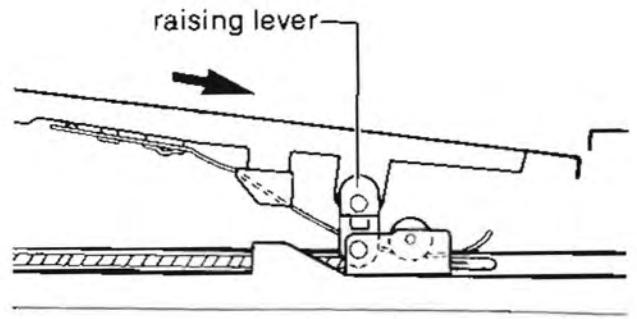


Push the cables forward so that they are against the ramps.

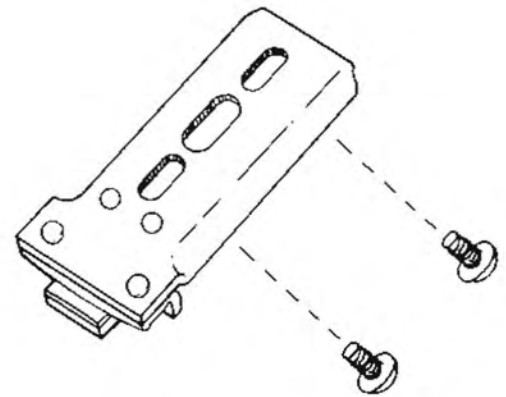
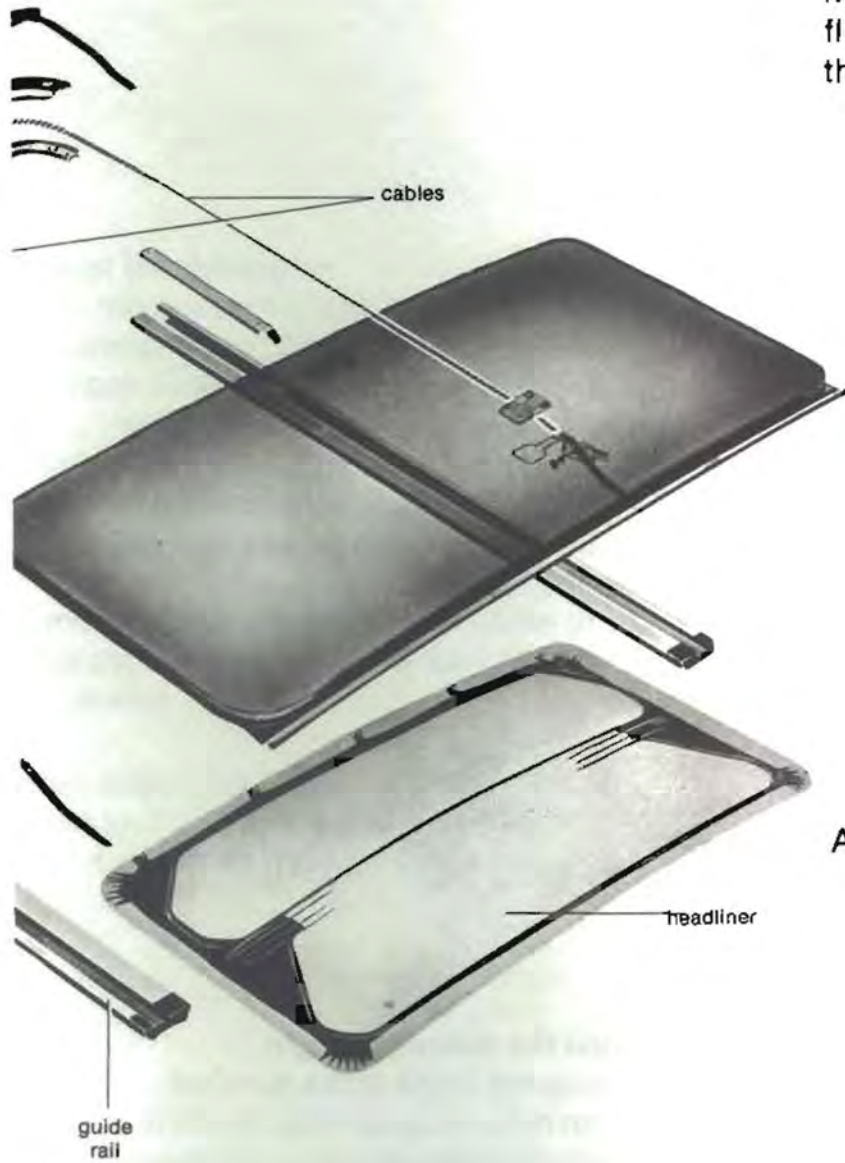


Lay the rear of the sunroof panel in place and install the rear guide support plates. Tighten the mounting screws.



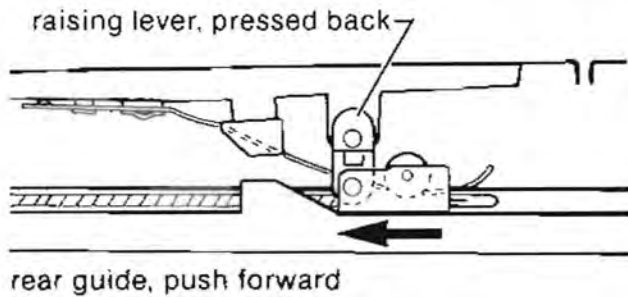


Make sure the raising levers are flipped up. Push back slightly on the roof panel and lay it in position.



Attach the front guides.

Installing the Sunroof – Rabbit/Jetta (continued)



Check the raising levers

Push the rear guides forward with a screw driver. The raising levers must be flipped up and back as far as they will go.

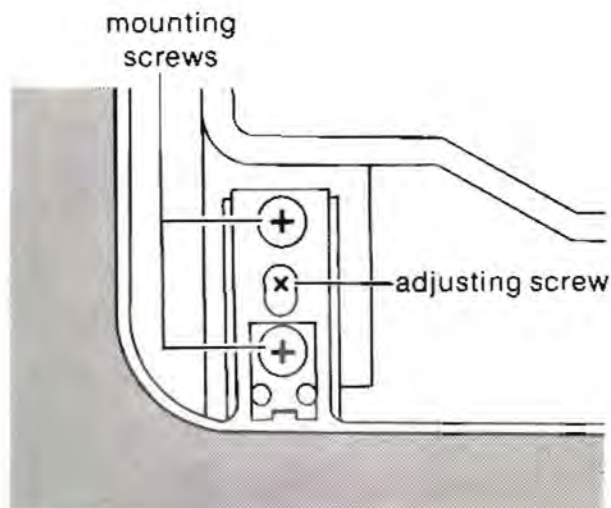
Reinstall cable drive



Check sunroof height

The front of the sunroof panel should be even with or 1 mm lower than the roof.

The rear of the sunroof panel should be even with or 1 mm higher than the roof.



Adjust the sunroof height

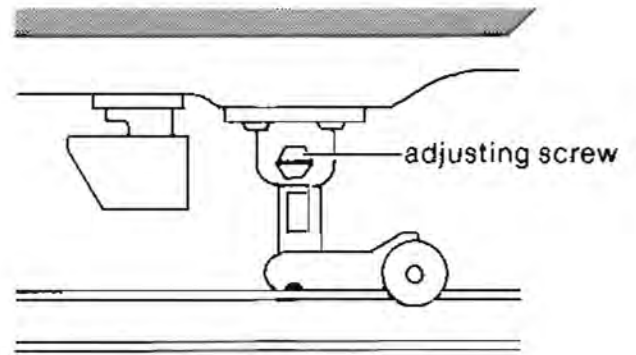
To raise the front of the sunroof, loosen mounting screws, turn the adjusting screw counter clockwise, then tighten the front guide mounting screws.

To lower the front of the sunroof, loosen the front guide mounting screws and turn the adjusting screw clockwise. Retighten the front guide mounting screws.

Rear adjustment

Remove the leaf springs and loosen the adjusting screw. Raise or lower the sunroof by hand and retighten the adjusting screw.

Re-attach the leaf spring.



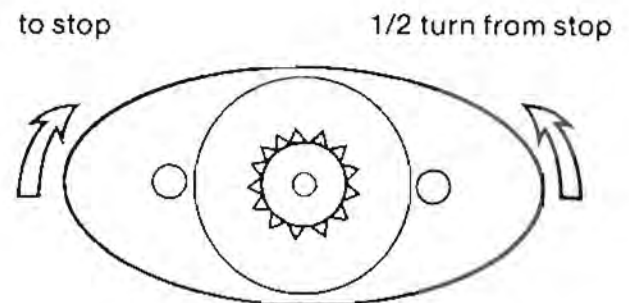
Adjust the drive gear

Turn the sunroof crank counter-clockwise about 2 turns to open the sunroof. Remove the cable drive.

Push the sunroof forward by hand until it touches the front of the roof opening all the way across.

Turn the drive assembly clockwise until it stops; then turn it half a turn counter clockwise.

After adjusting the drive, install the drive and install the crank handle so that it points to the rear of the car.



Final reassembly

Open the sunroof about 1/3 of the way.

Attach headliner to sunroof panel.

Close sunroof fully.

Reposition crank handle if it does not line up with recess.

Check sunroof operation, page 19.

Rabbit/Jetta

Dasher

Scirocco

Diagnosis Procedure and Quality Check Procedure – Dasher

Outside the car

- Check the height of the sunroof. The sunroof panel should be even with the contour of the roof.
(If the height of the sunroof is not adjusted correctly, there may be wind noise when the sunroof is closed or there may be a water leak.)
- Press the lock button in and turn the sunroof crank handle counter clockwise about one turn. The back of the sunroof panel should be lowered before the roof panel moves open.
(If the crank handle won't turn, it could mean that the lock pin on the sunroof drive is sticking. If the sunroof won't lower, the problem could be caused by worn or broken guide plates, broken or misadjusted hold down tabs or a stuck stop lever.)
- Before opening the sunroof, shine a flashlight into the roof opening and make sure there's enough clearance between the roof and the sunroof panel.
(If the sunroof panel doesn't lower enough, the sunroof panel may get scratched. Common causes are misadjusted cables, worn or broken guide plates and improper height adjustment. Another cause of a scratched sunroof could be a loose roof bow or paint drips inside the roof.)

Inside the car

- Open the roof slowly, make sure the headliner material doesn't bunch up.
(If the headliner bunches up or is torn, the cause is usually a loose headliner. Another cause is not enough clearance between the sunroof flange and the roof.)
- When you open the sunroof, it should move evenly and smoothly. The sunroof should move all the way into the roof opening.
(If the sunroof handle skips or clicks that's usually a sign that the cables are either worn, stretched or not adjusted properly. If the sunroof binds or won't open completely the front guides could be misaligned or worn. Worn or broken rear guides, stop levers or hold down tabs could also be the problem.)
- The wind deflector should be all the way up when the roof is open.
(If the wind deflector sticks, it can cause a loud buffeting noise when the sunroof is open. The wind deflector could also cause a rattle if it's loose.)

Inside the car

- Turn the sunroof crank handle slowly clockwise. The sunroof panel should move forward evenly and smoothly.
(If the sunroof handle skips or clicks, that's usually a sign that the cables are worn or stretched. If the sunroof binds, the guides may be misaligned or worn.)
- The wind deflector should lower completely and should not touch the roof panel.
(If the wind deflector sticks the sunroof may be hard to close. If it touches the roof panel, it may cause a rattle when the sunroof is closed. If the rubber bumpers on the front guides are worn, they could also cause the roof to stick when closing.)

Outside the car

- As soon as the roof panel touches the roof opening, make sure that both sides of the sunroof panel touch the front of the roof opening at the same time.
(If the sunroof doesn't close evenly, it may bind or not close completely. Usually, the cables just need to be adjusted.)
- Turn the crank handle slowly. The handle should turn smoothly without clicking loudly. The sunroof should be raised to the fully closed position on both sides and the crank handle should lock. The crank handle should also line up with the recess in the roof.
(If the sunroof does not raise all the way up on both sides, the cables and sunroof height need to be adjusted. Worn or broken guide plates or a misadjusted hold down tab could also cause the problem.)

Inside the car

- Press the lock button in and turn the crank handle clockwise. The sunroof should raise to the tilt position and the crank handle should line up with the recess in the roof.
(If the roof does not raise to the tilt position, the guide plates could be worn or broken. If the front guide hinge binds, it could cause the sunroof to be hard to raise. If the crank handle doesn't line up with the recess, the cables and cable drive probably need to be adjusted.)
- Turn the crank handle counter clockwise. The sunroof should close completely and the crank handle should lock.

Dasher

Symptom Group 1:

- Sunroof is not even with the roof
- Wind noise when the sunroof is closed
- Crank handle skips or clicks
- Sunroof does not lower or raise completely
- Sunroof does not close evenly
- Crank handle locks before or after it reaches the closed position
- Crank handle will not lock
- Crank handle does not line up with roof recess

..... page 50

Symptom Group 2:

- Sunroof will not close
- Sunroof will not open

..... page 55

Symptom Group 3:

- Sunroof hard to open or close
- Sunroof will not open or close all the way
- Headliner bunches up or is torn
- Sunroof binds

..... page 58

Dasher

Symptoms Group 1:

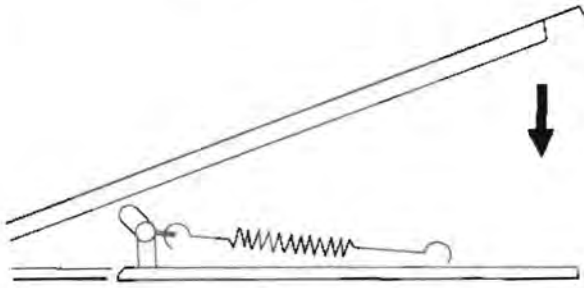
- Sunroof is not even with the roof
- Wind noise when the sunroof is closed
- * Crank handle skips or clicks
- * Sunroof does not lower or raise completely
- * Sunroof does not close evenly
- Crank handle locks before or after it reaches the closed position
- Crank handle will not lock
- Crank handle does not line up with roof recess

Repair:

- Diagnose Complaint page 45
Suggested repair time 20 time units (includes set-up time).
- Adjust cables, drive gear and sunroof height page 51
Suggested repair time 30 time units.
- Perform quality check procedure page 45
Suggested repair time 5 time units.

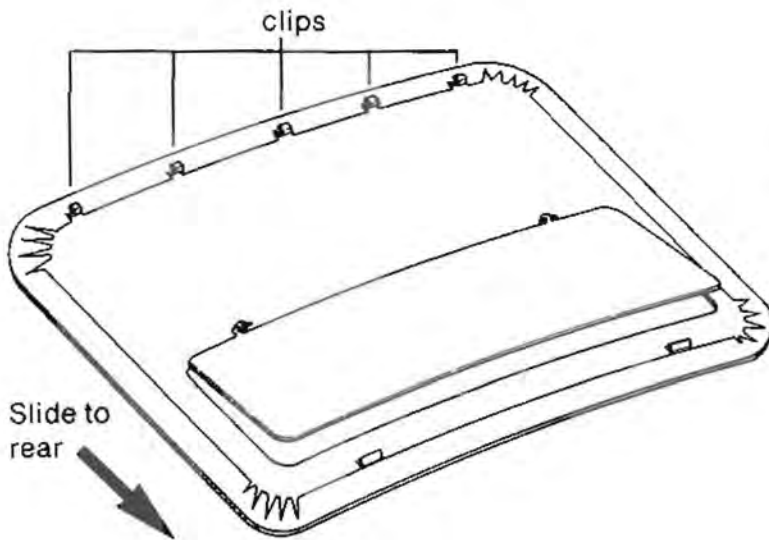
- * If these symptoms are not eliminated by the adjustment procedure see page 58.

Adjust Cables Drive Gear and Sunroof Height – Dasher

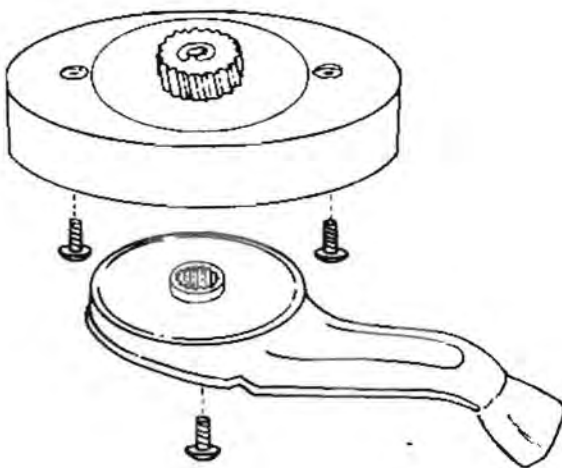


Tilt the sunroof; push the tilt section of the headliner down and unhook the headliner spring.

You'll have to make a hooked tool out of welding rod in order to unhook the spring.



Slide the headliner toward the rear. Don't pull down on the headliner it just slides into place.

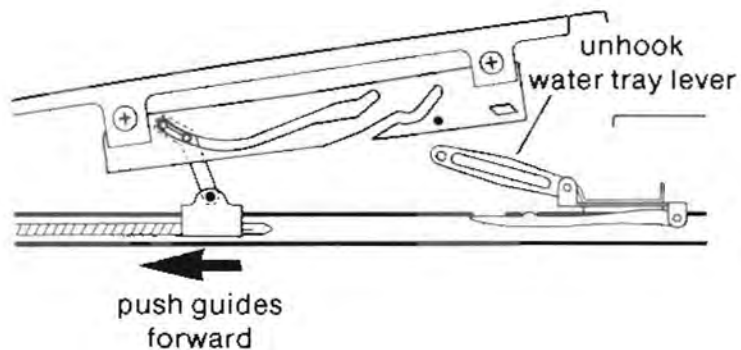


Remove the cable drive assembly.

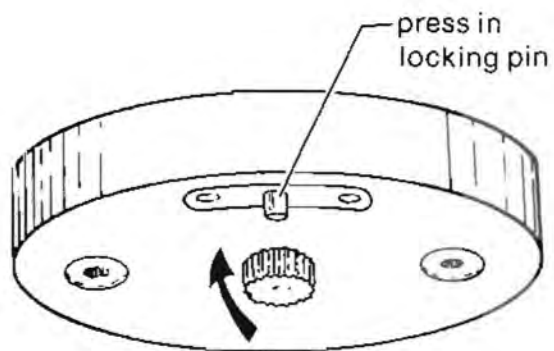
Adjust the Cables and Cable Drive

Take the circlips off of the guide plate pins and carefully pry off the water tray levers.

Push the rear guides all the way forward.



With the cable drive out of the car, push the lock pin in and turn the drive clockwise until it stops.



Install the cable drive.
Install the crank handle so that it is facing forward.

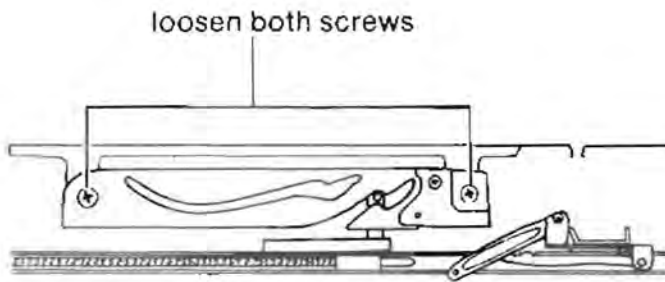
Close the sunroof.

Adjust Sunroof Height – Dasher



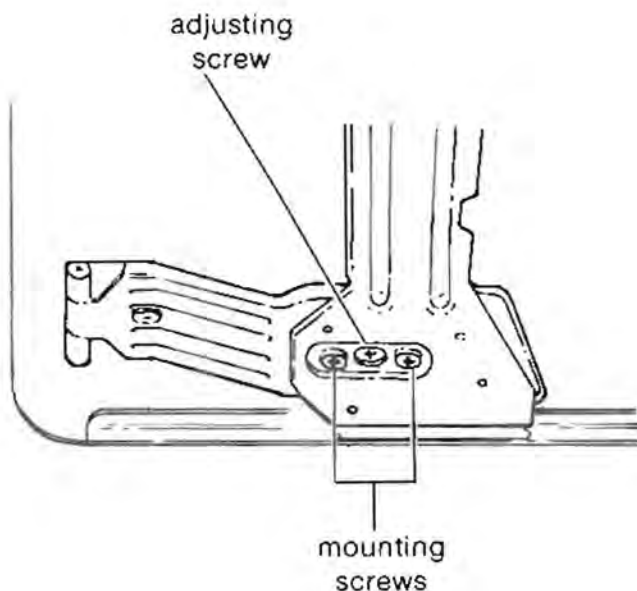
The front of the sunroof panel should be even with or 1 mm lower than the roof.

The rear of the sunroof panel should be even with or 1 mm higher than the roof



Rear height

To adjust the rear height, loosen both screws on the rear guide. Raise or lower the roof as necessary. The water tray levers cannot be installed yet.



Front height

To adjust the front height, loosen both of the front guide mounting screws. Turn the adjusting screw to raise or lower the roof, then retighten the mounting screws.

Adjust Hold Down Tab

Loosen the hold down tab bracket screw.

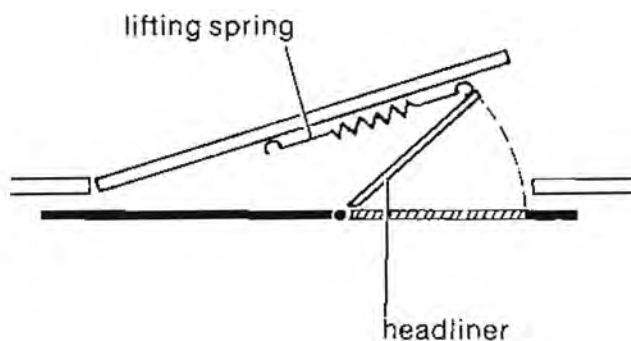
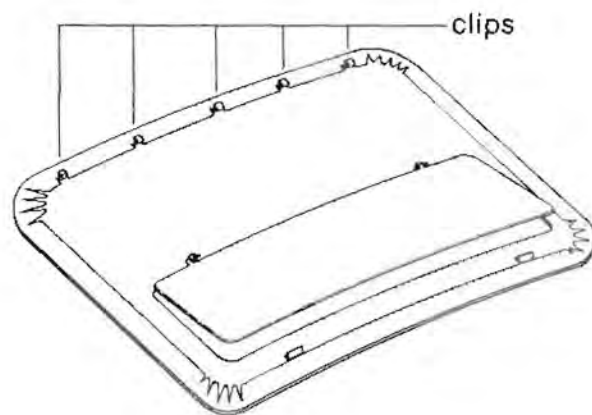
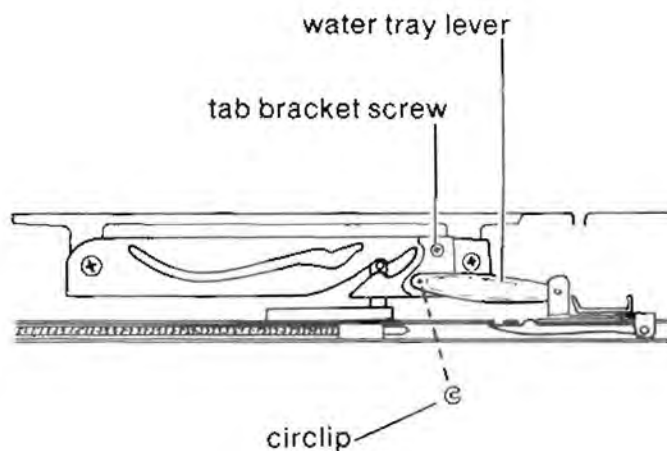
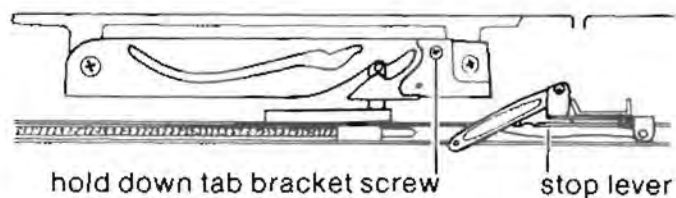
Make sure the water tray is forward and the stop levers are locked.

Attach the water tray levers and install the circlips. Make sure that sunroof panel is centered in roof opening, then tighten the screws for the tab brackets.

Tilt sunroof.
Tape the lifting spring to the sunroof panel.
Slide the headliner forward and engage the clips.

Lift up rear section of the headliner and attach the lifting spring.

Check sunroof operation, see page 45.



Dasher

Symptom Group 2:

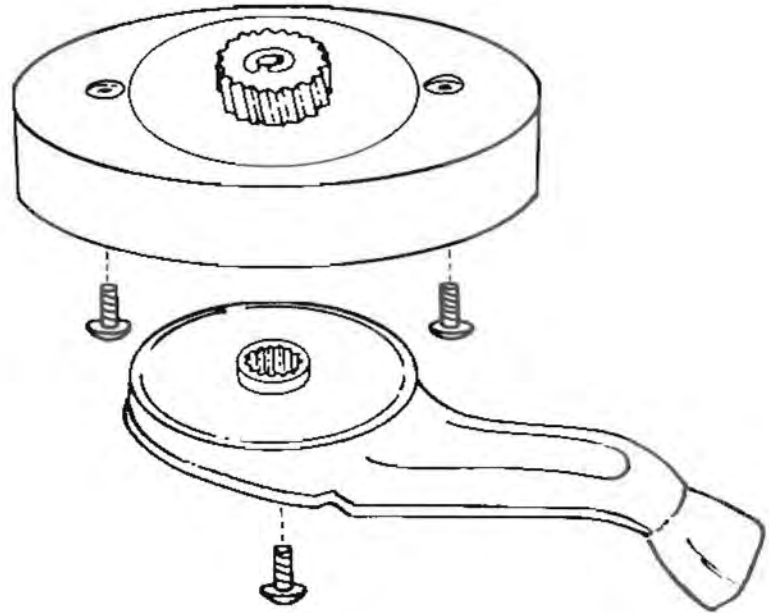
Sunroof will not close
Sunroof will not open

Repair — Sunroof will not close/open:

- Remove drive assembly — open sunroof page 56
Suggested repair time 20 time units (includes set-up time).
- Dissassemble sunroof page 59
- Check sunroof components page 63
- Reassemble sunroof page 67
Suggested repair time 150 time units.
- Perform Quality Check procedure page 45
Suggested repair time 5 time units.

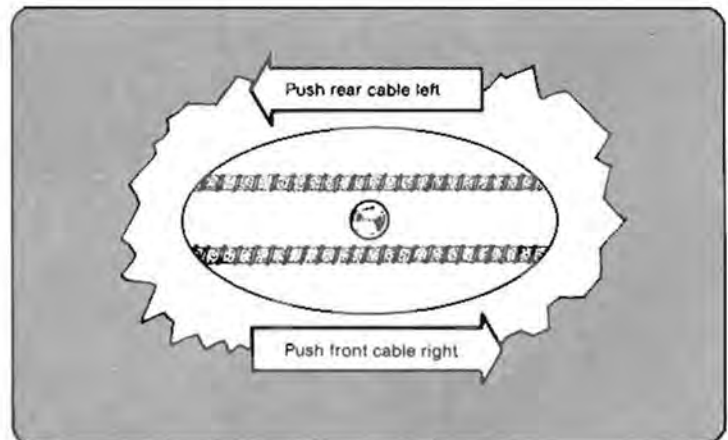
Sunroof Will Not Close Or Open

Remove the cable drive assembly.
If the sunroof is stuck open, just
pull the sunroof forward by hand.



To tilt the sunroof using a
screwdriver, carefully and evenly:
— push the rear cable to the right.
— push the front cable to the left.
Push the cables until the sunroof
tilts open slightly.

Disassemble sunroof page 59.



Dasher

Symptom Group 3:

- Sunroof hard to open or close
- * Crank handle skips or clicks
- * Sunroof does not raise or lower completely
- * Sunroof does not close evenly
- Sunroof will not open or close all the way
- Headliner bunches up or is torn
- Sunroof binds
- Sunroof will not close

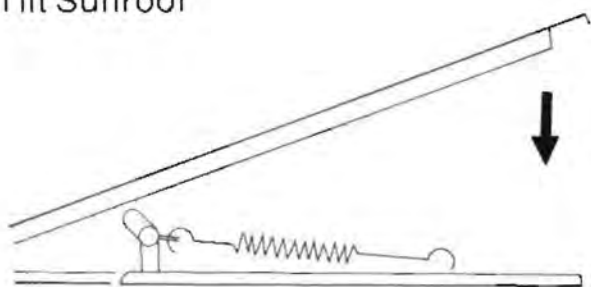
Repair:

Diagnose complaint	page 45
<i>Suggested repair time 20 time units (includes set-up time).</i>	
Disassemble sunroof	page 59
Check sunroof components	page 63
Reassemble sunroof	page 67
<i>Suggested repair time 150 time units.</i>	
Perform quality check procedure	page 45
<i>Suggested repair time 5 time units.</i>	

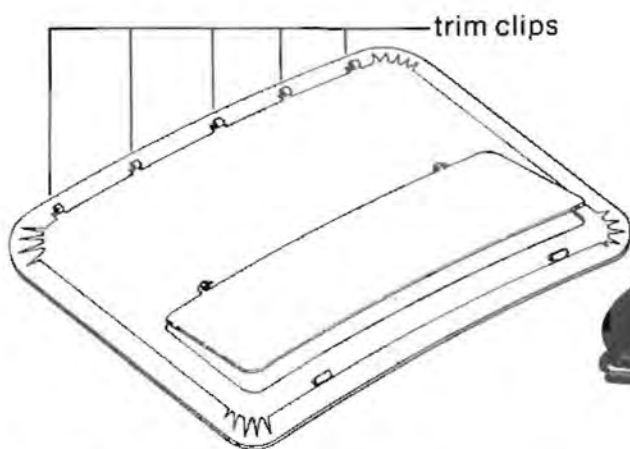
- * adjust the sunroof height and cables first see page 50.

Disassemble Sunroof – Dasher

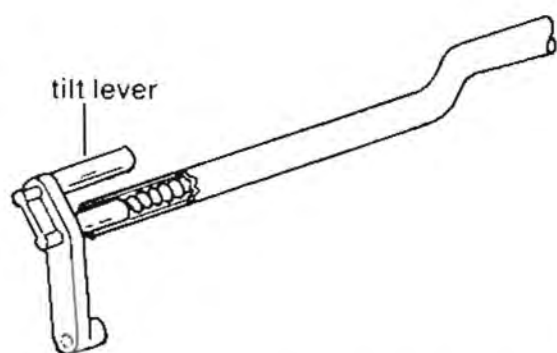
Tilt Sunroof



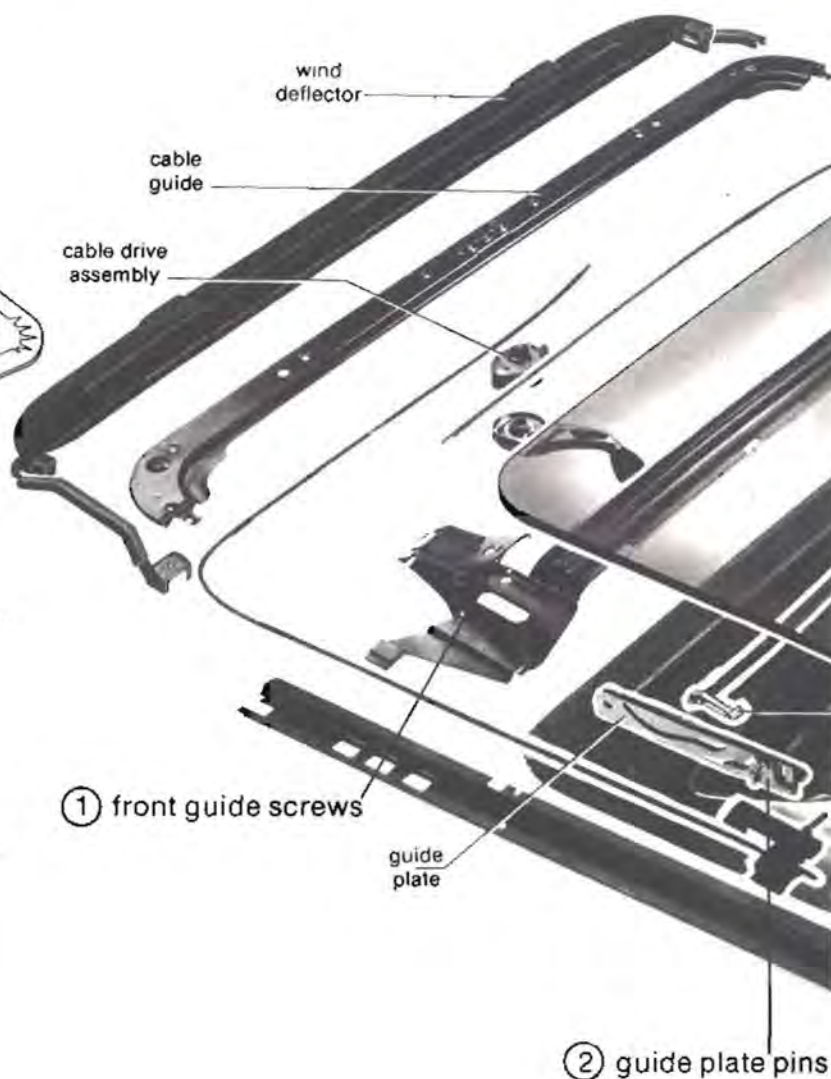
Push the trim down and unhook the headliner spring ⑥. You'll have to make a hooked tool out of welding rod.

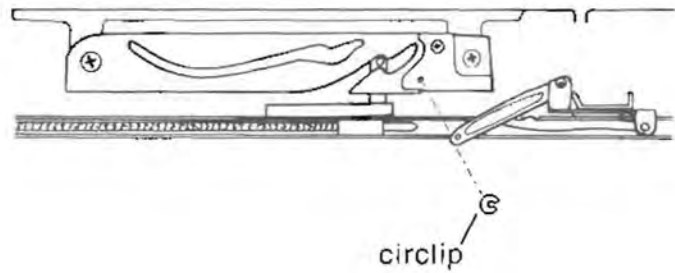


Slide the headliner toward the rear. Don't pull down on it; it just slides into place.

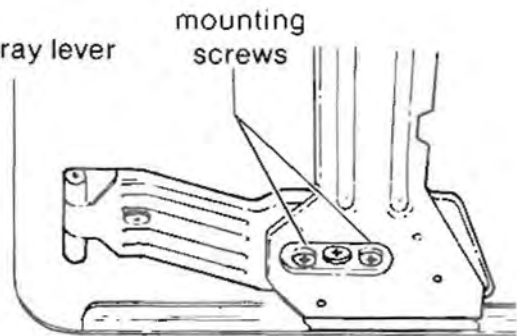
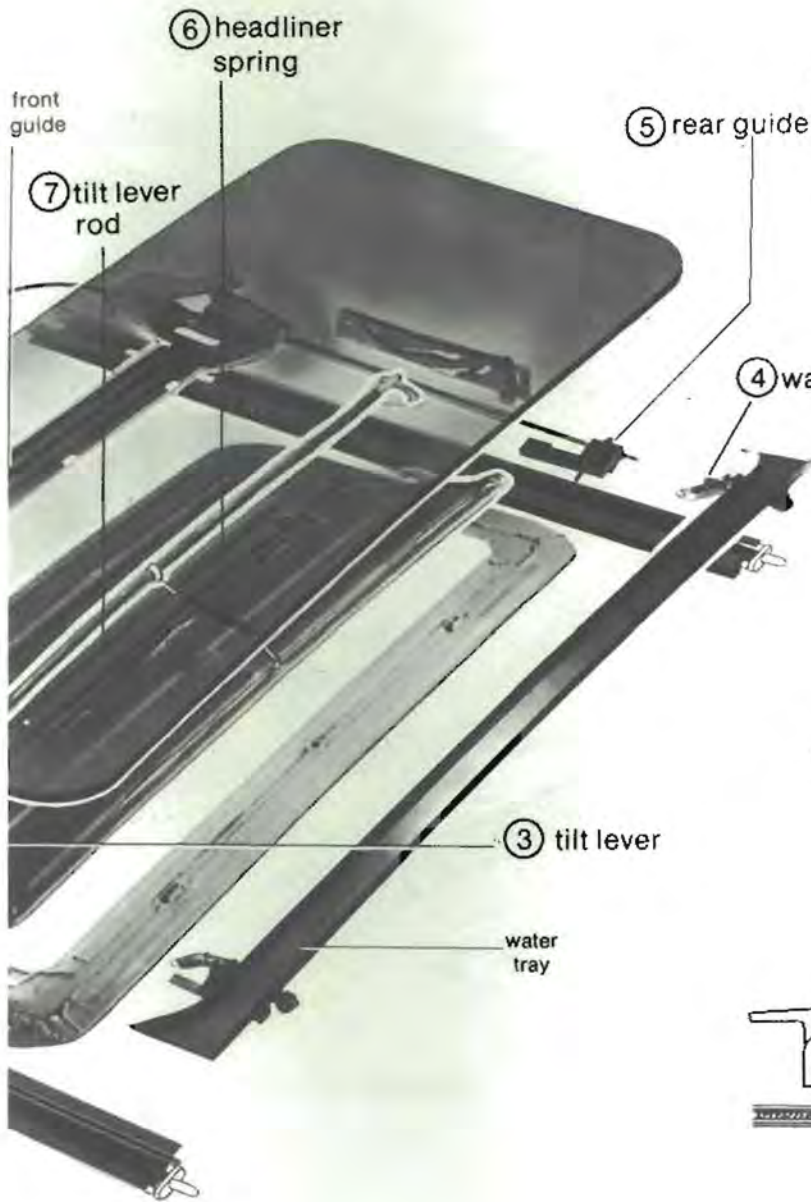


Push the tilt lever rod ⑦ to the left and take the rod out. Next, remove the tilt levers ③.

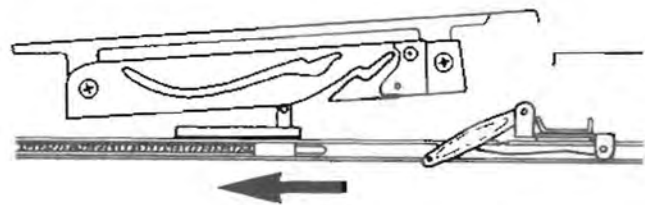




Take the circlips off the guide plate pins ② and carefully pry off the water tray levers ④.



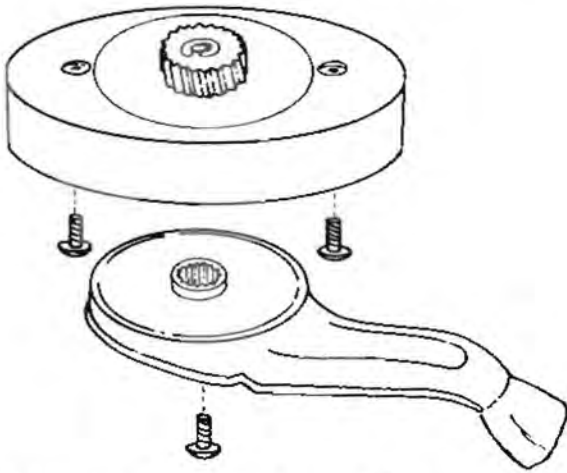
Remove the front guide screws ①



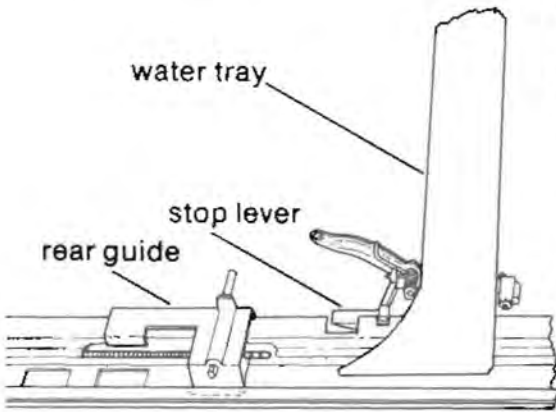
If necessary, crank the rear guides ⑤ forward until the guide pins move out of the slots.

Remove the sunroof panel

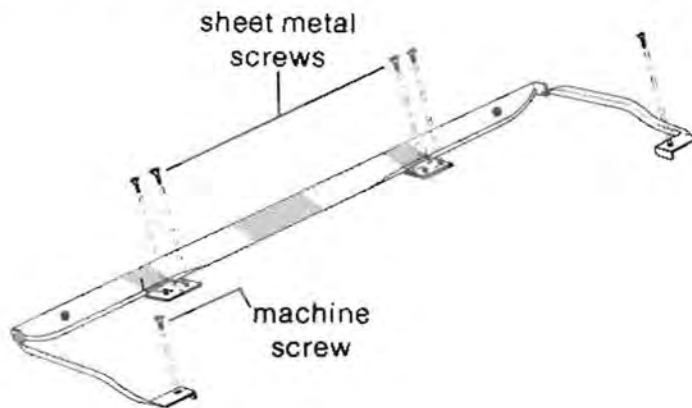
Disassemble Sunroof – Dasher (continued)



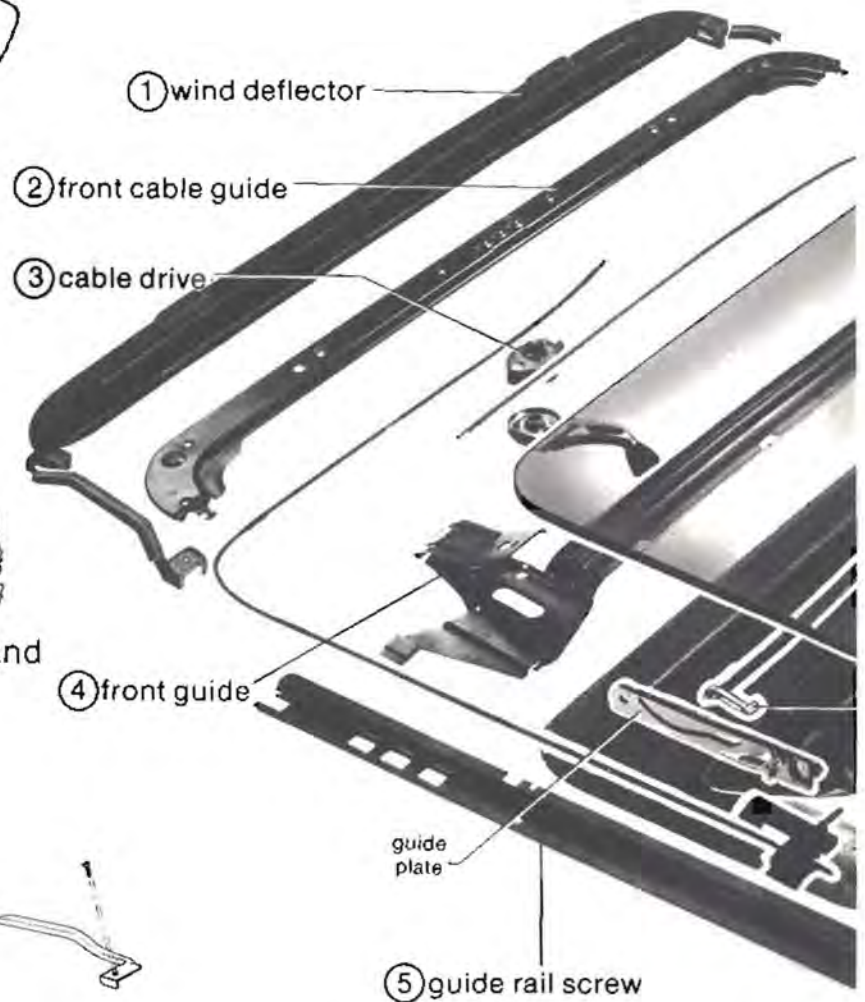
Remove the cable drive ③.



Press down on the stop lever ⑥ and push the water drain tray ⑦ to the rear. Push the rear guides ⑧ to the rear.



Remove the wind deflector ①.
Slide the front guide ④ to the rear.



① wind deflector

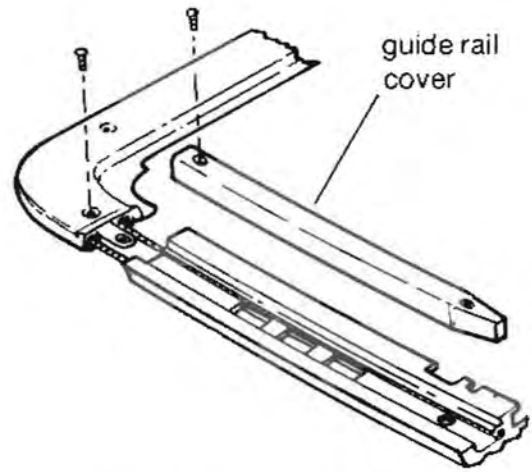
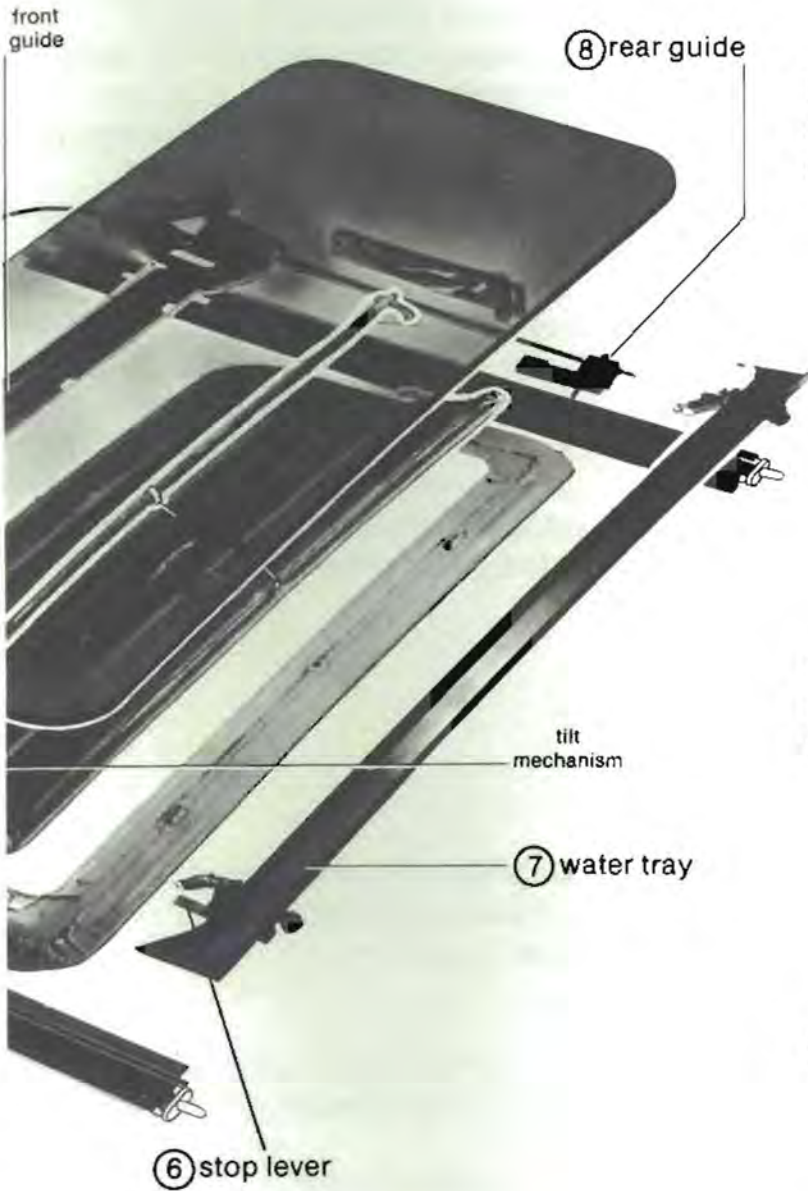
② front cable guide

③ cable drive

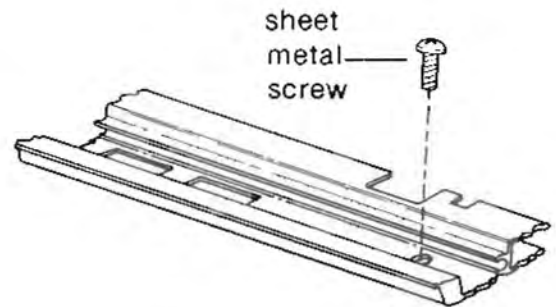
④ front guide

guide plate

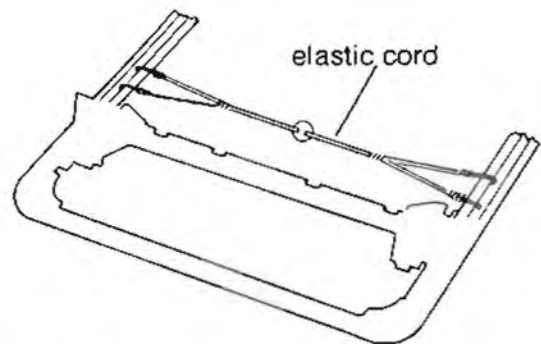
⑤ guide rail screw



Remove the screws from the front cable guide ②. Remove the guide rail covers.

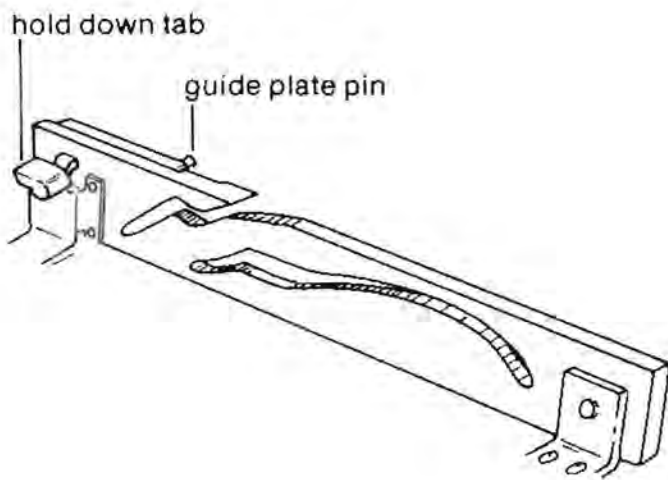
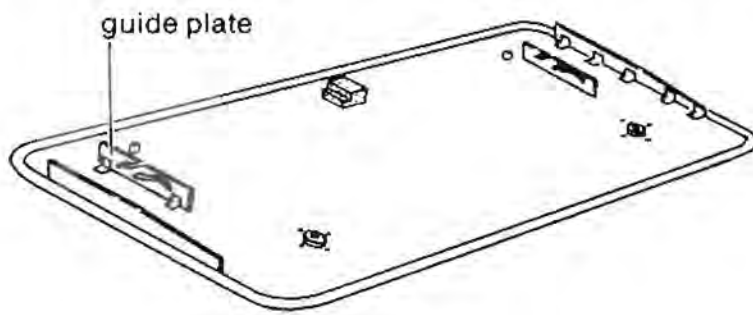


Remove guide rail screws ⑤. Put a strip of masking tape across the front edge of the roof opening



Attach an elastic cord between the guide rails. Lift the entire sunroof assembly up and carefully pull it forward. Be careful not to scratch the paint.

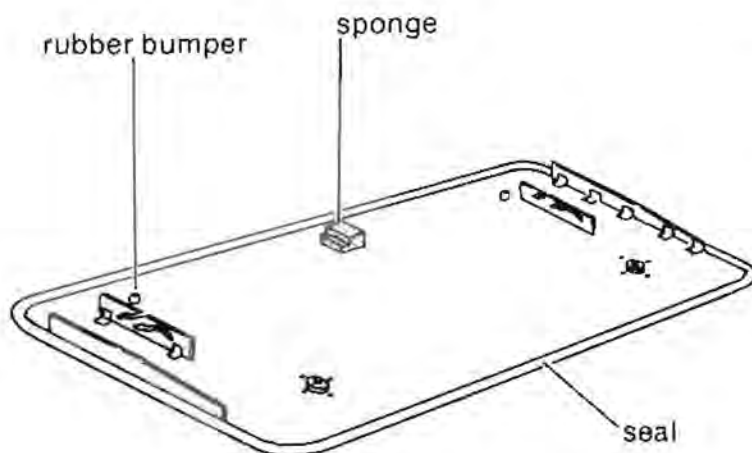
Checking Procedure – Dasher



The hold down tab is used to disengage the stop levers. If they are broken, the sunroof will not open. The hold down tab rides inside the guide rail. If it has a rough surface, it might cause the sunroof to stick.

Misaligned guide plate mounting brackets can cause the sunroof to bind or chatter in operation.

Look for chatter marks in the guide plate channels and look for cracks in the guide plate



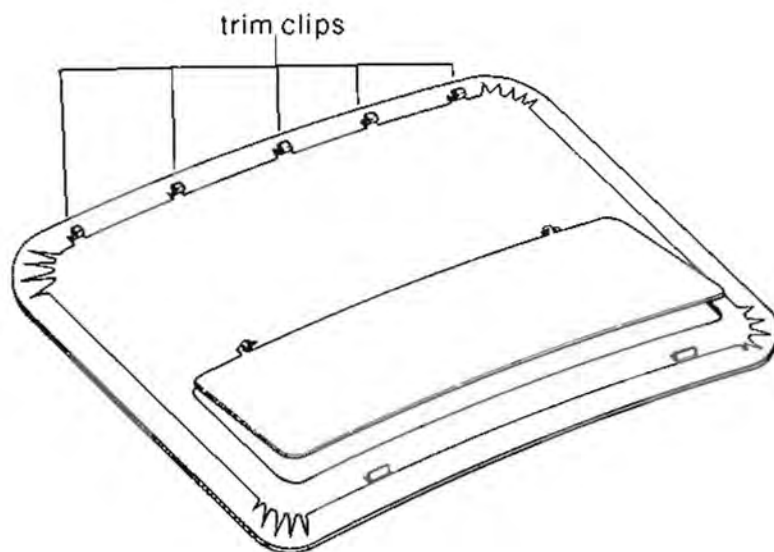
Make sure the seal is in good condition. A worn seal can cause water leaks.

The rubber bumpers and the sponge cushion help prevent rattling noises.

Headliner

Any loose or torn headliner material may cause the headliner to bind. Bent or wavy edges on the headliner may also cause it to bind.

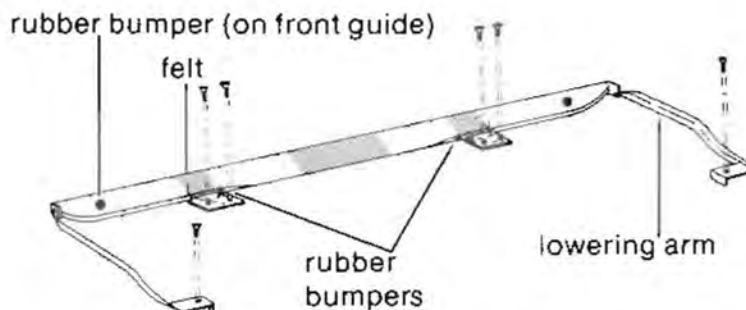
If the mounting clips are loose, there may be rattling noises.



Wind deflector

The felt pads and rubber bumpers on the wind deflector help to prevent rattling noises.

A lowering arm which binds may cause the sunroof to be hard to close.



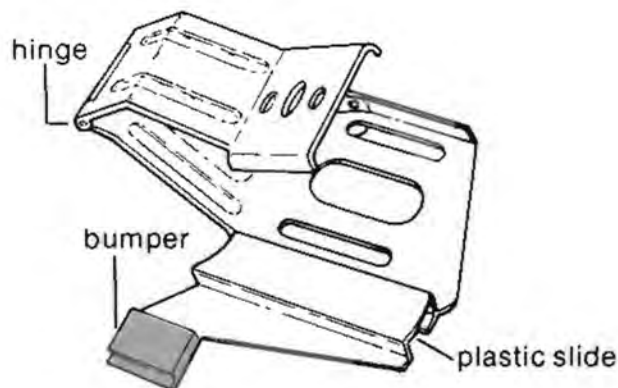
Front guide

The bumpers on the front guide ride on the wind deflector lowering arms. If they are worn, they may cause the roof to close hard.

Sometimes the bumpers fall off and cause the sunroof to bind.

The hinge has to move freely to prevent binding or hard operation when tilting the roof.

A worn or broken plastic slide may cause rattling noises or hard operation.



Checking Procedure – Dasher (continued)

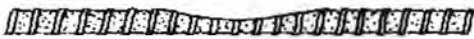
new cable



stretched cable

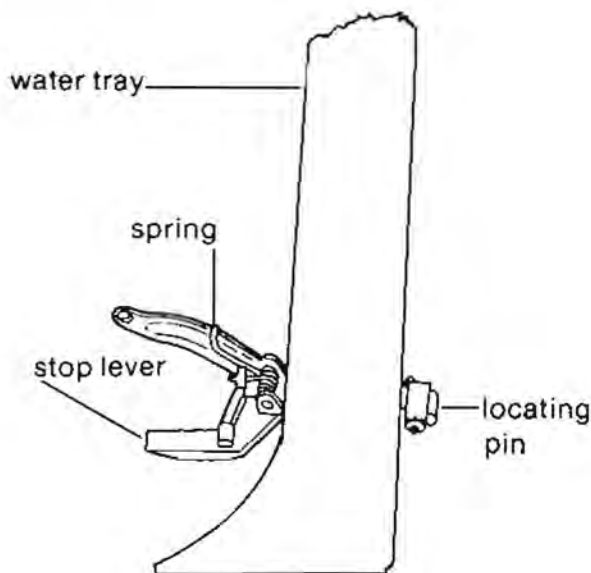


worn cable



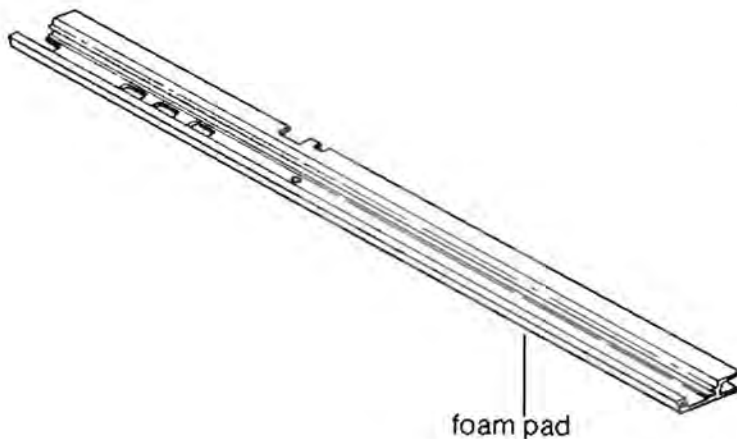
Check cables

Worn or stretched cables will cause a loud clicking noise when operating the sunroof. They could also be the problem if the roof won't open or close.



Check water tray

If the stop levers, springs or water tray levers are broken, the sunroof won't lock



Check the guide rails

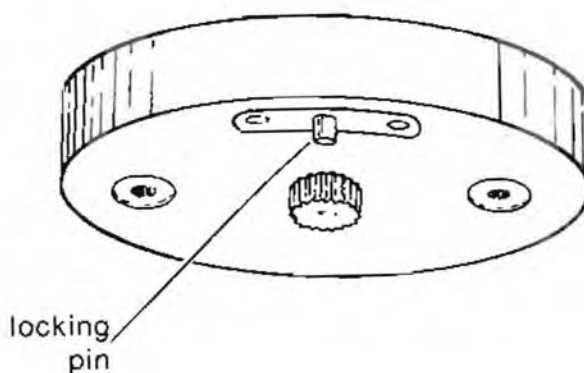
Check the guide rails for scoring or wear which will make the sunroof hard to operate

A foam pad is glued on the bottom of the guide rail to prevent rattling noises

Cable Drive

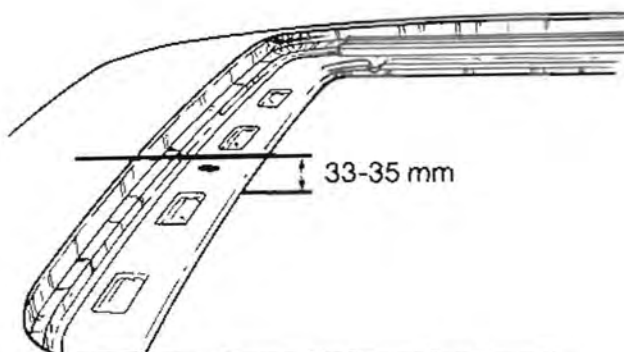
The locking pin must move freely, otherwise the crank handle will not lock or unlock.

Check the drive gear for wear, especially if the cables are worn or stretched.



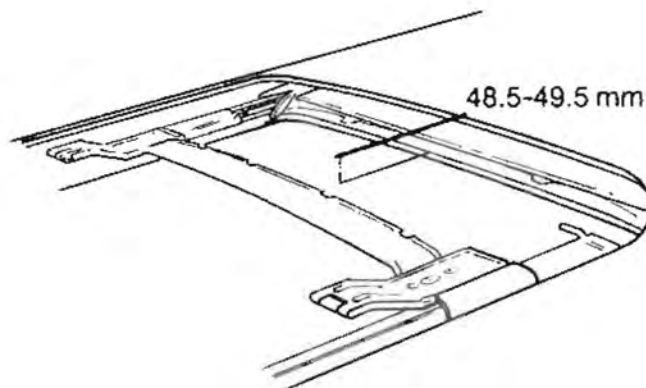
Roof seal and roof opening

If the headliner is wavy or torn, check the distance from the top of the roof to the top of the sunroof flange, with the seal removed. The distance should be 33-35 mm.



A wavy or torn headliner can also be caused by a narrow gap in the roof opening at the rear.

The distance from the top edge of the roof to the sunroof flange, with the seal removed, should be 48.5-49.5 mm.



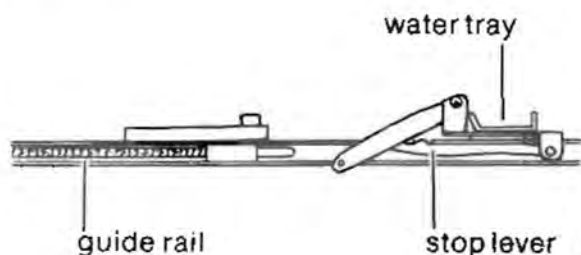
Sunroof Installation – Dasher

The entire sunroof assembly has to be re-assembled on a clean work bench and installed in the car as one unit.

Lubricate the cables and install them in the guide rails.

- brush type cables, use a small amount of oil
- steel cables, use a small amount of high temperature grease

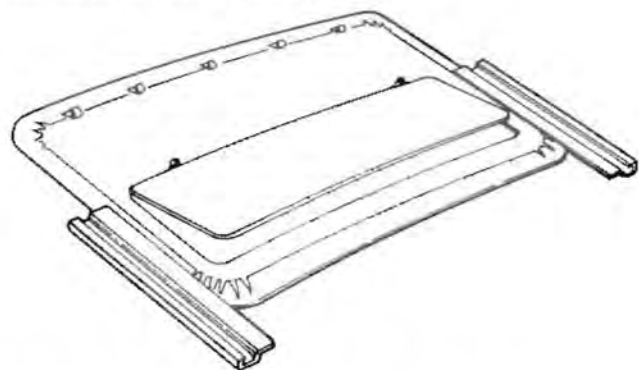
Check the cables for free movement in the guides.



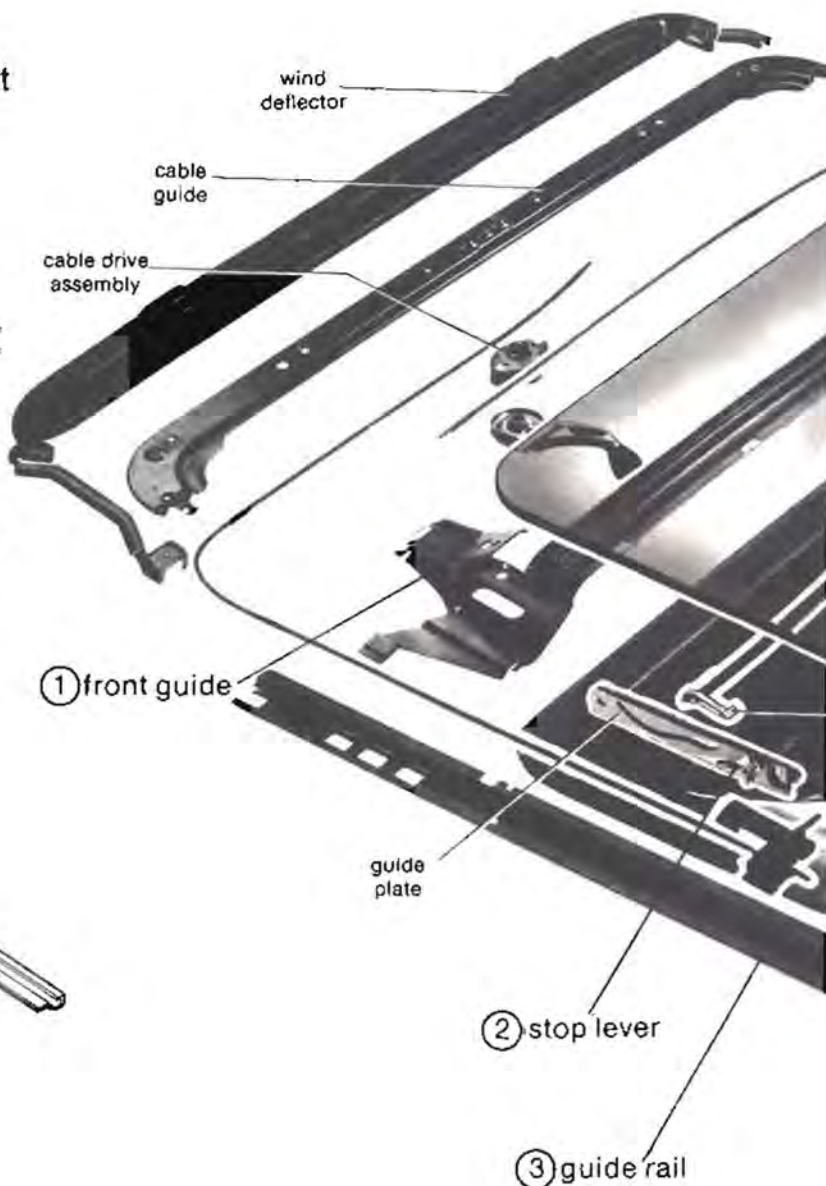
Lubricate the stop levers ② with a little high temperature grease.

Push the water tray ④ onto the guide rails from the rear.

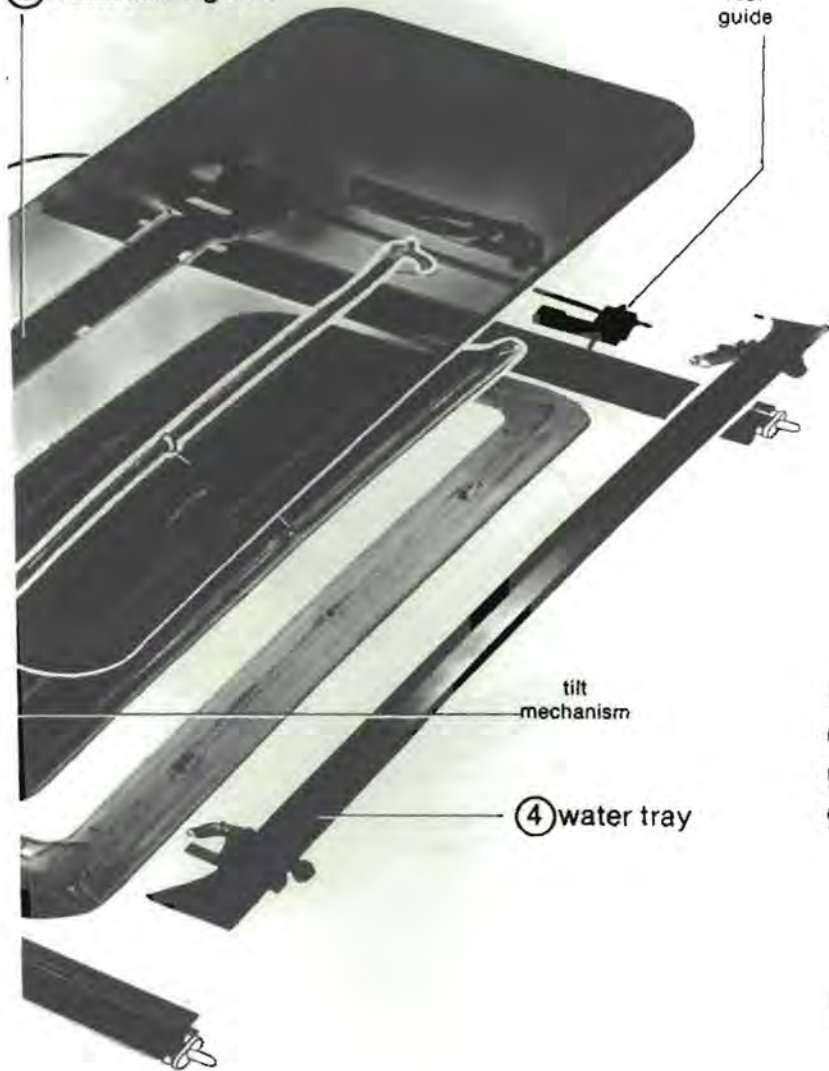
Slide the water tray forward until the stop levers engage.



Install the headliner from the front. The tilt section should be toward the water tray. Slide the headliner back until it is under the stop levers.



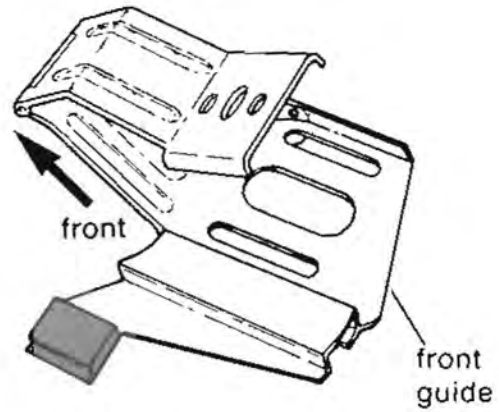
⑤ front cable guide



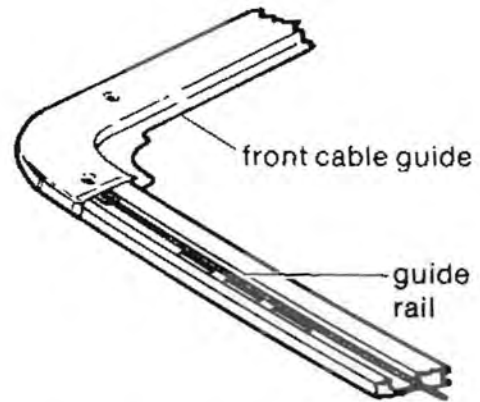
rear guide

tilt mechanism

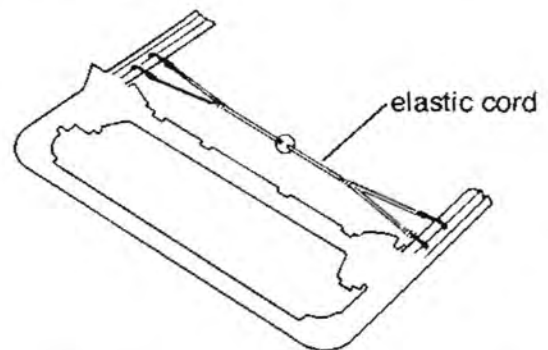
④ water tray



Slide the front guide ① onto the guide rails ③.

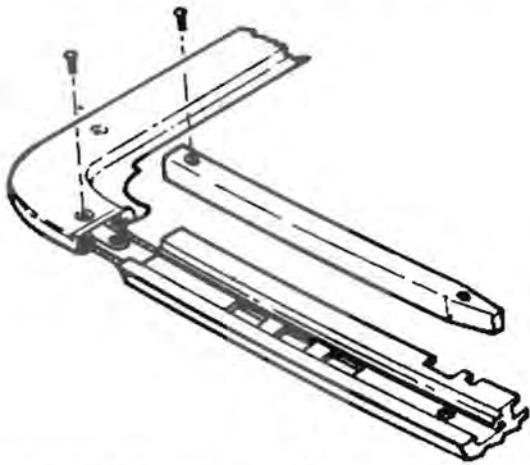


Install the cables into the front cable guide ⑤. The front cable guide should butt up against the guide rails.

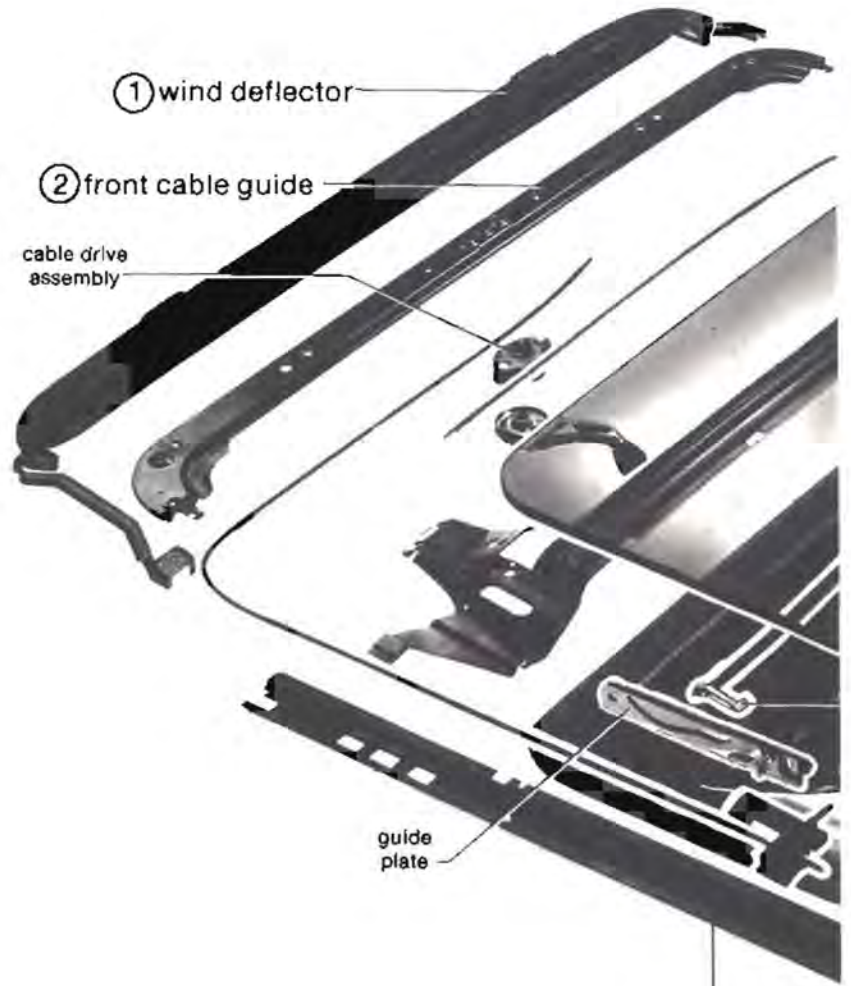


Attach an elastic cord between the guide rails, and install the sunroof assembly. Usually 2 people are needed. Be careful not to scratch the paint.

Sunroof Installation – Dasher (continued)



Install the screws in the front cable guide ② and tighten them. Install the guide rail ③ and ramp plate screws loosely.



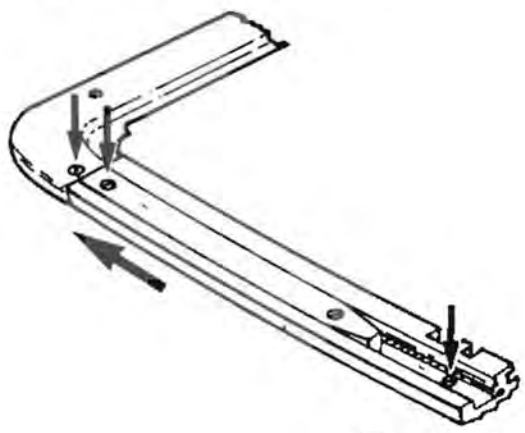
① wind deflector

② front cable guide

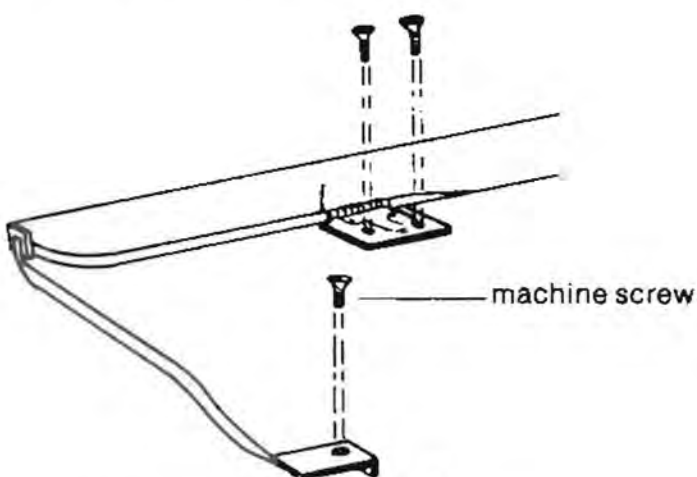
cable drive assembly

guide plate

③ guide rail

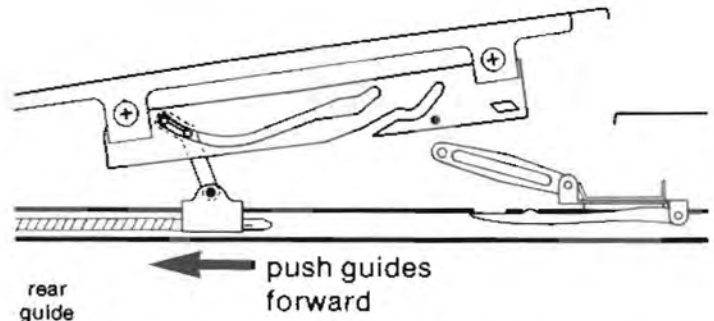


Push the guide rails ③ forward against the front cable guide and tighten the screws (arrows).



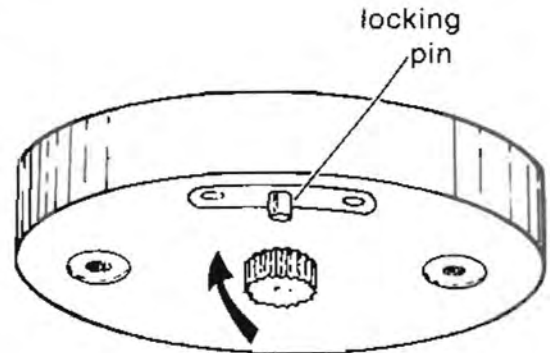
Install the wind deflector ①.

cable guide



rear guide

Push the front and rear guides fully forward. Lay the sunroof panel in place. Install the front guide mounting screws.



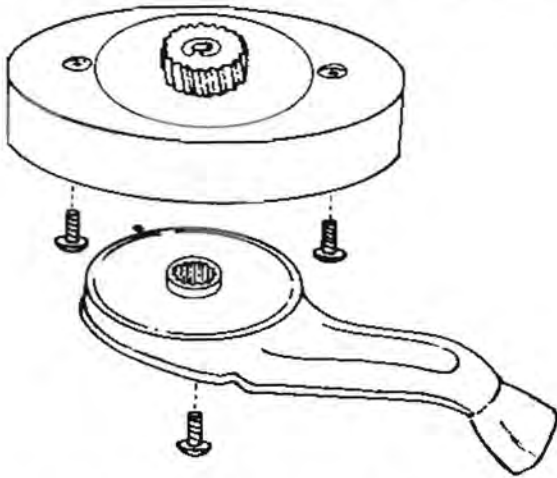
locking pin

With the cable drive out of the car, push the lock pin in and turn the gear clockwise until it stops.

tilt mechanism

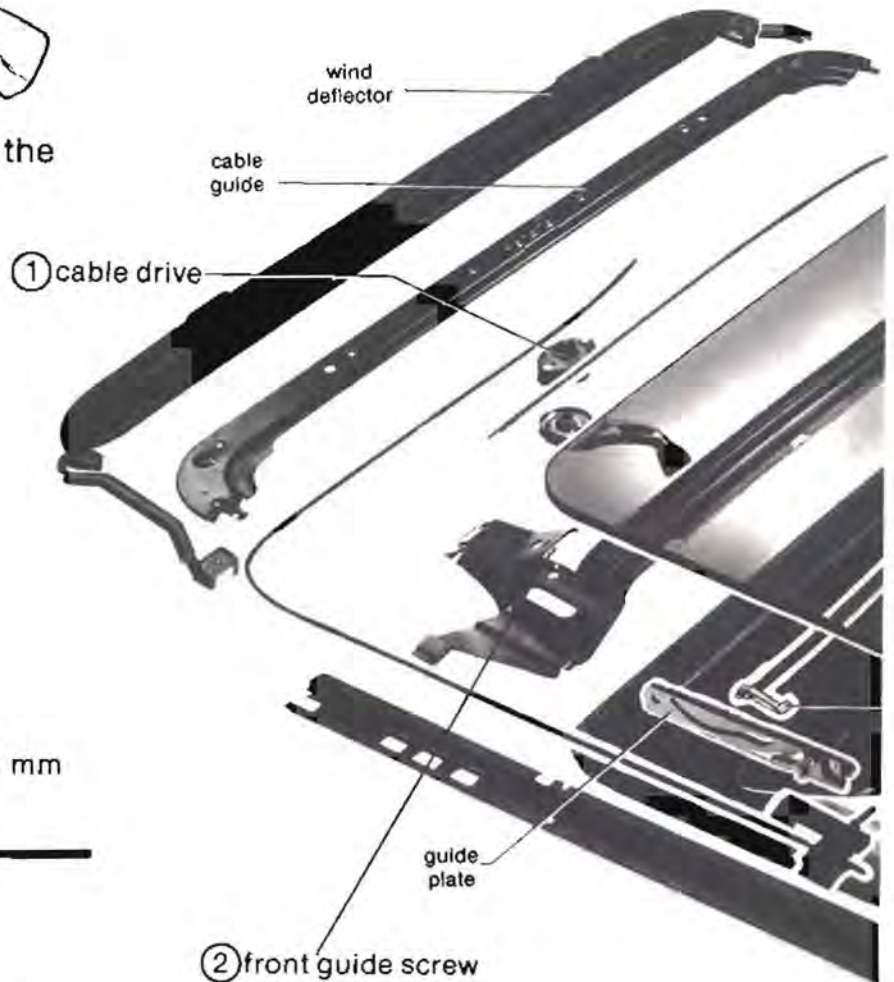
water tray

Sunroof Installation – Dasher (continued)



Install the drive gear ①. Install the crank handle so that it is facing forward.

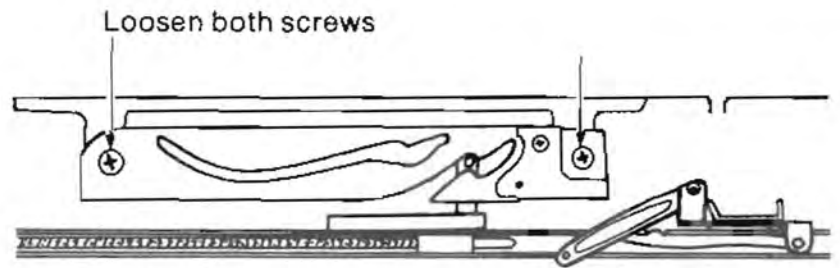
Close the sunroof.



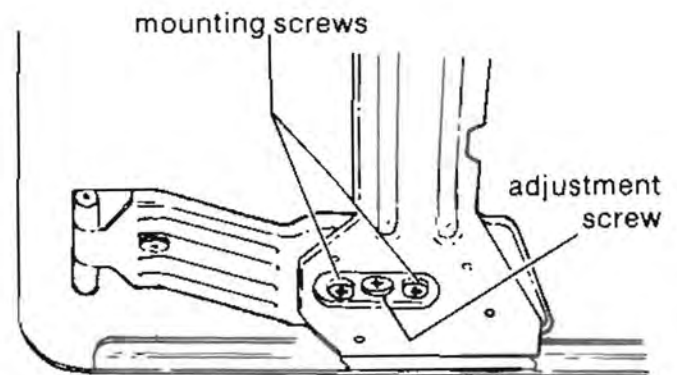
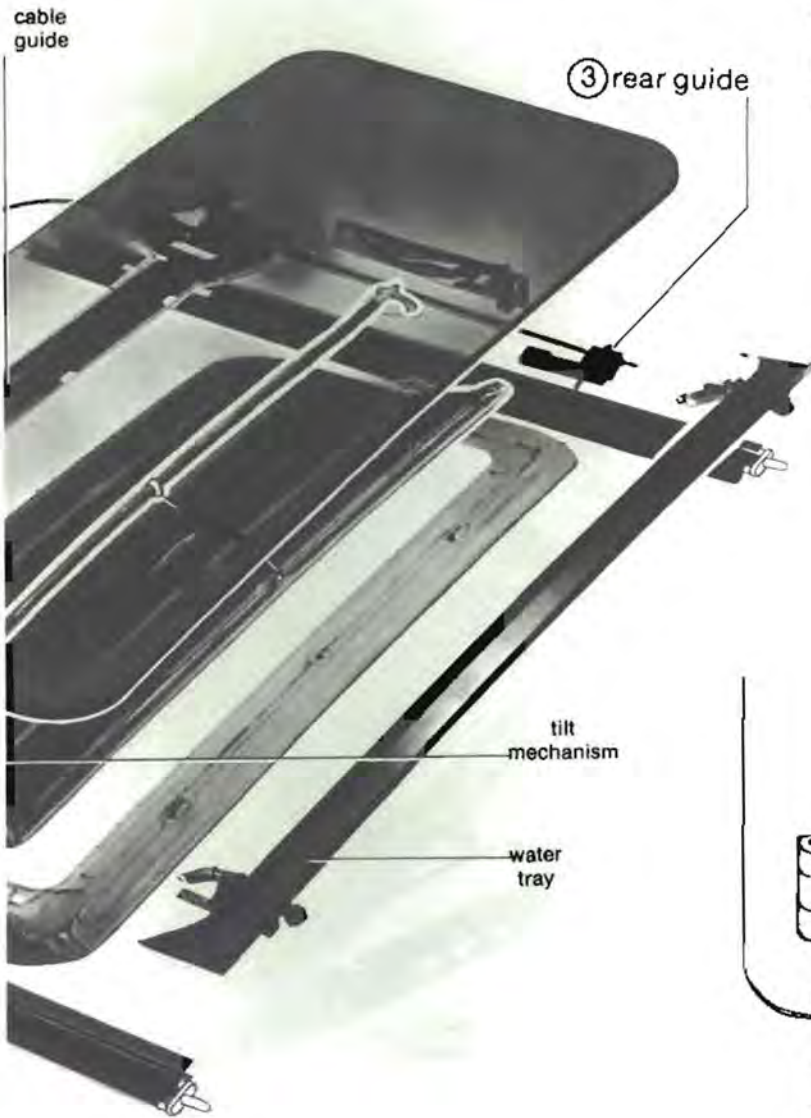
Check sunroof height

Front—The sunroof panel should be even with or 1 mm lower than the roof

Rear—the sunroof panel should be even with or 1 mm higher than the roof.

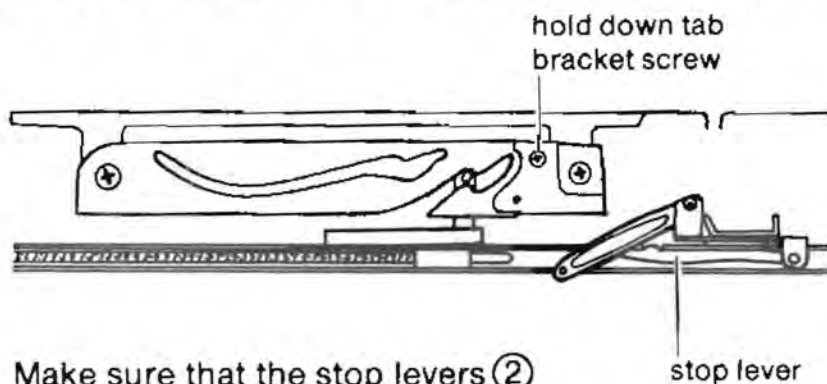


To adjust the rear height, loosen both screws on the rear guide ③. Raise or lower the roof as necessary. The water tray levers cannot be installed yet.

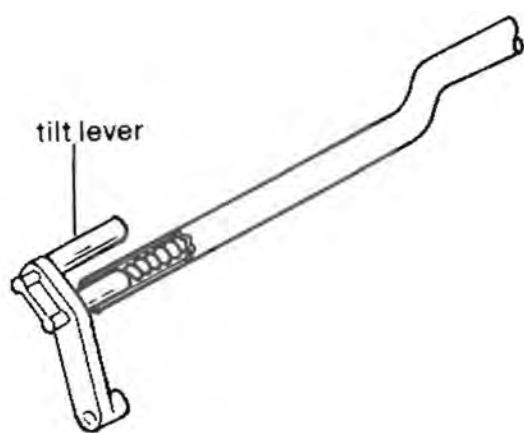


To adjust the front height, loosen both of the front guide ② mounting screws. Turn the adjusting screw to raise or lower the roof; then retighten the mounting screws.

Sunroof Installation – Dasher (continued)

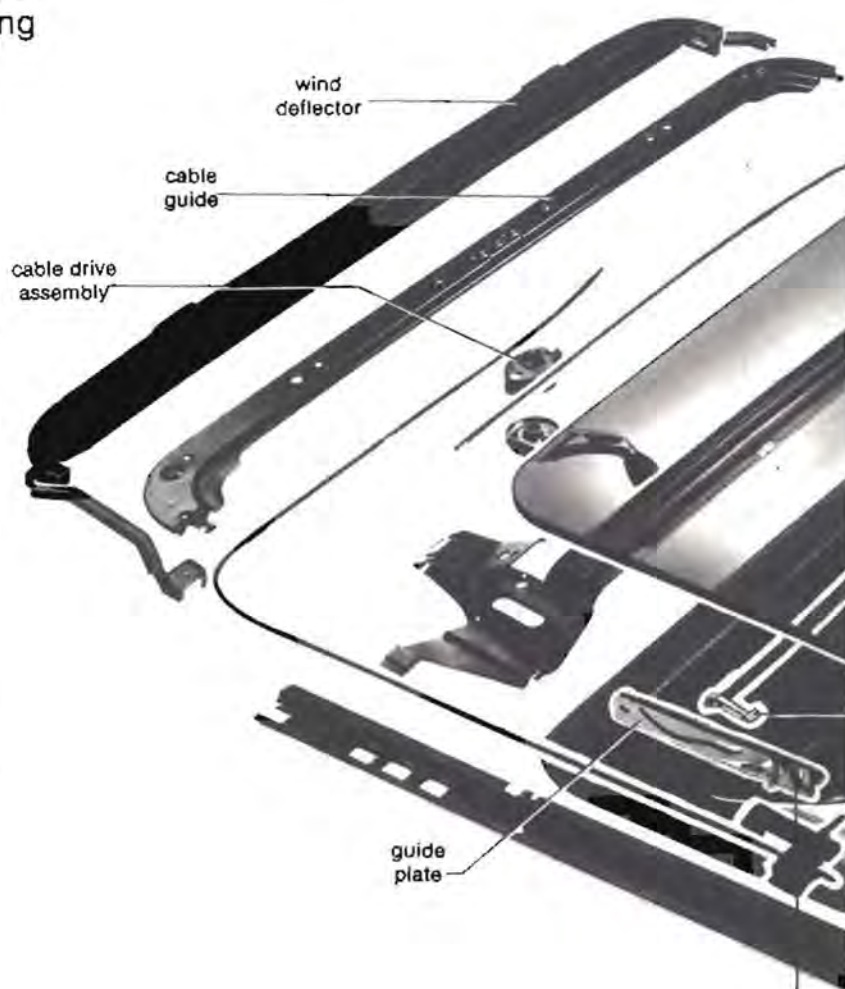


Make sure that the stop levers ② are engaged. Loosen the hold down tab brackets ① and attach the water tray levers ④. Make sure the sunroof panel is centered in the roof opening then retighten the hold down tab bracket screws.

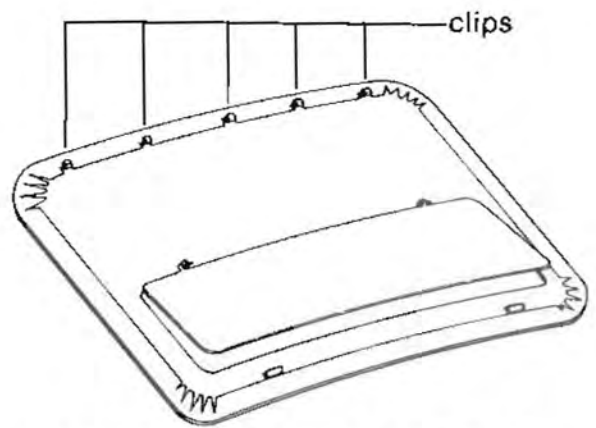


Install the tilt lever rod ⑤ and the tilt levers ③. The bow in the tilt lever rod should be toward the sunroof panel.

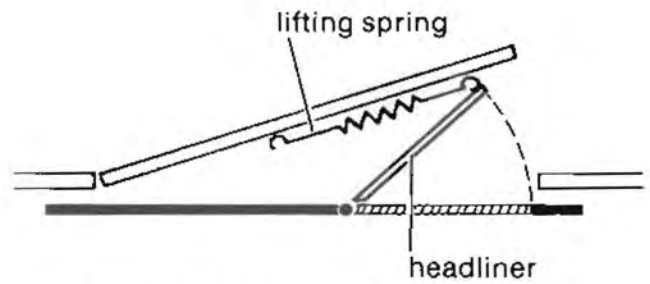
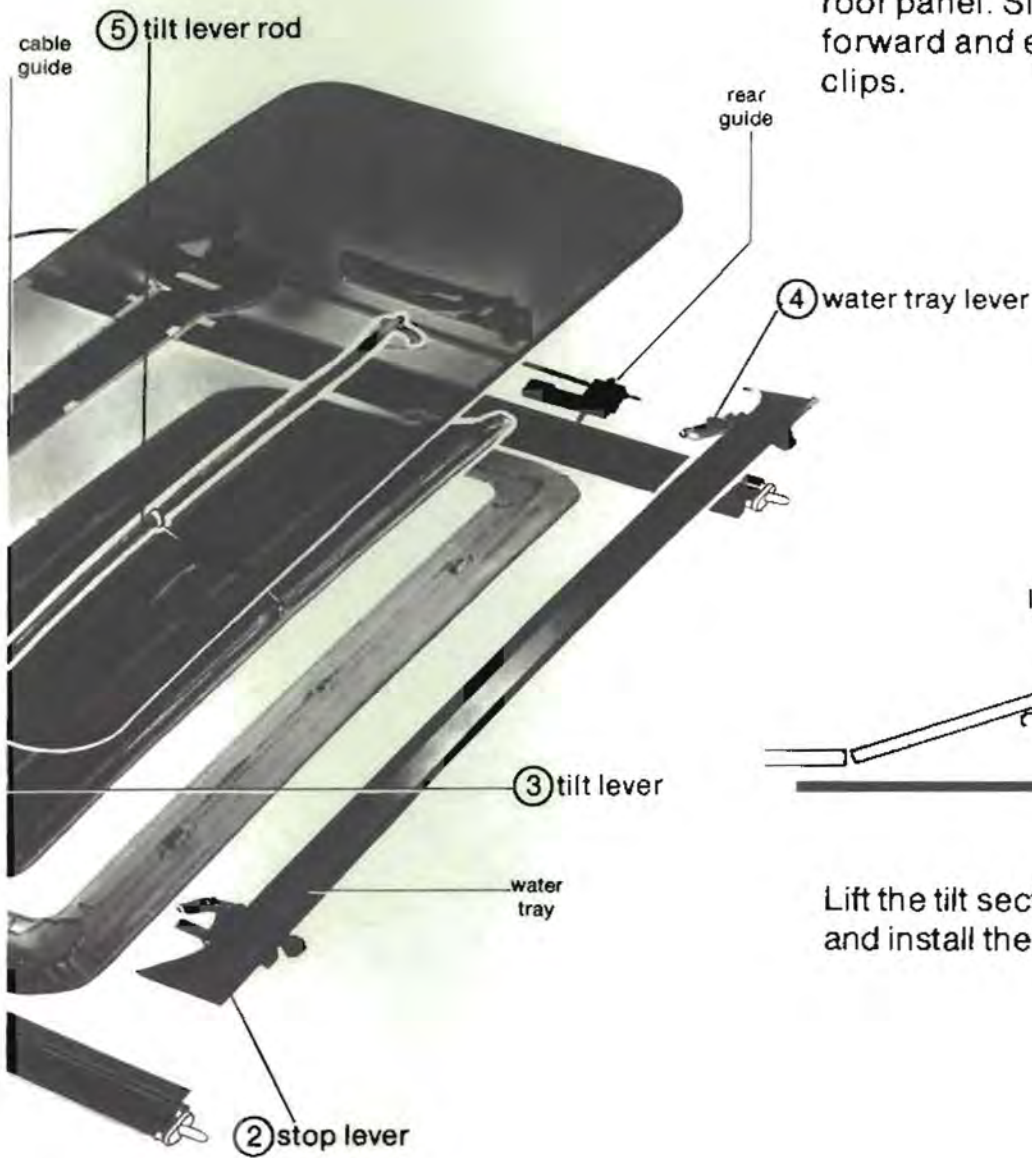
Tilt the sunroof.



① hold down tab
on guide plate



Tape the headliner spring to the roof panel. Slide the headliner forward and engage the headliner clips.



Lift the tilt section of the headliner up and install the headliner spring.

Check the operation of the sunroof page 45.