Z4 Top Process

ACCESSORIES AND BODY, CAB

Retractable Hardtop - Z4

RETRACTABLE HARDTOP

The retractable hardtop consists of two aluminum roof panels. They are operated by means of an internal linkage. The retractable hardtop and the rear module are driven hydraulically. The hydraulic system consists of 6 hydraulic cylinders that are supplied with pressure by the hydraulic unit via the hydraulic lines. The cylinders are always actuated in pairs. The retractable hardtop is equipped with a headliner without tensioning cables.

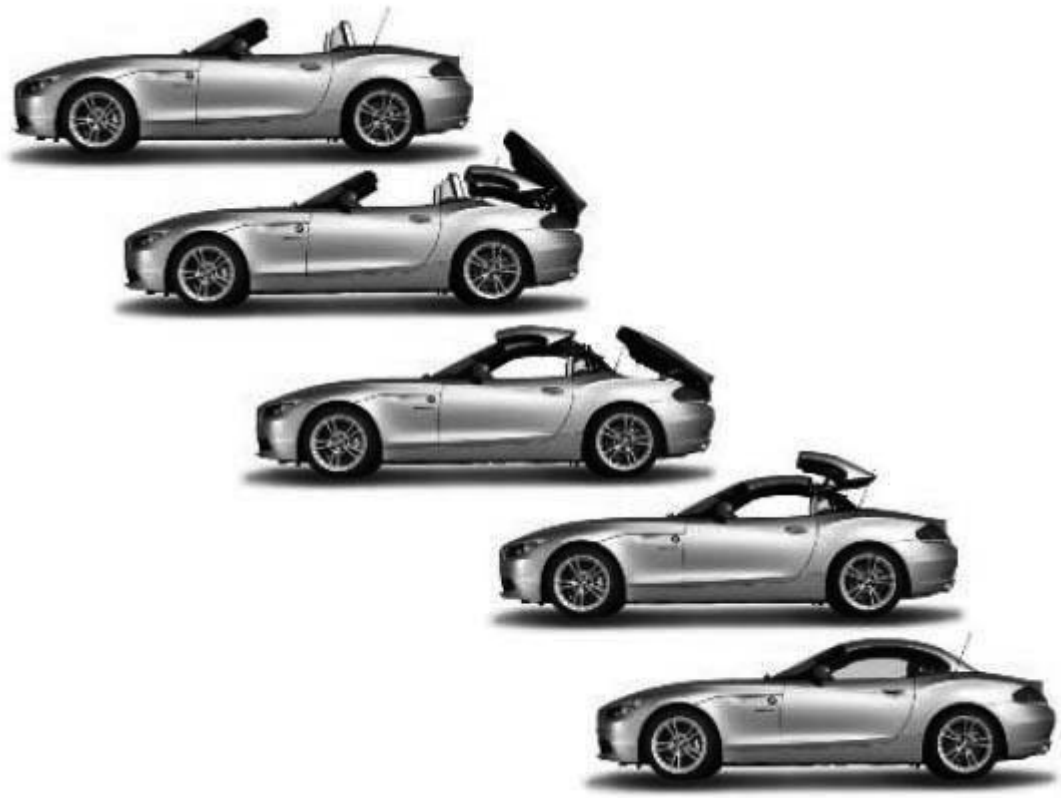


Fig. 1: Identifying Retractable Hardtop Operation
Courtesy of BMW OF NORTH AMERICA, INC.

HYDRAULIC SYSTEM CIRCUIT SCHEMATIC

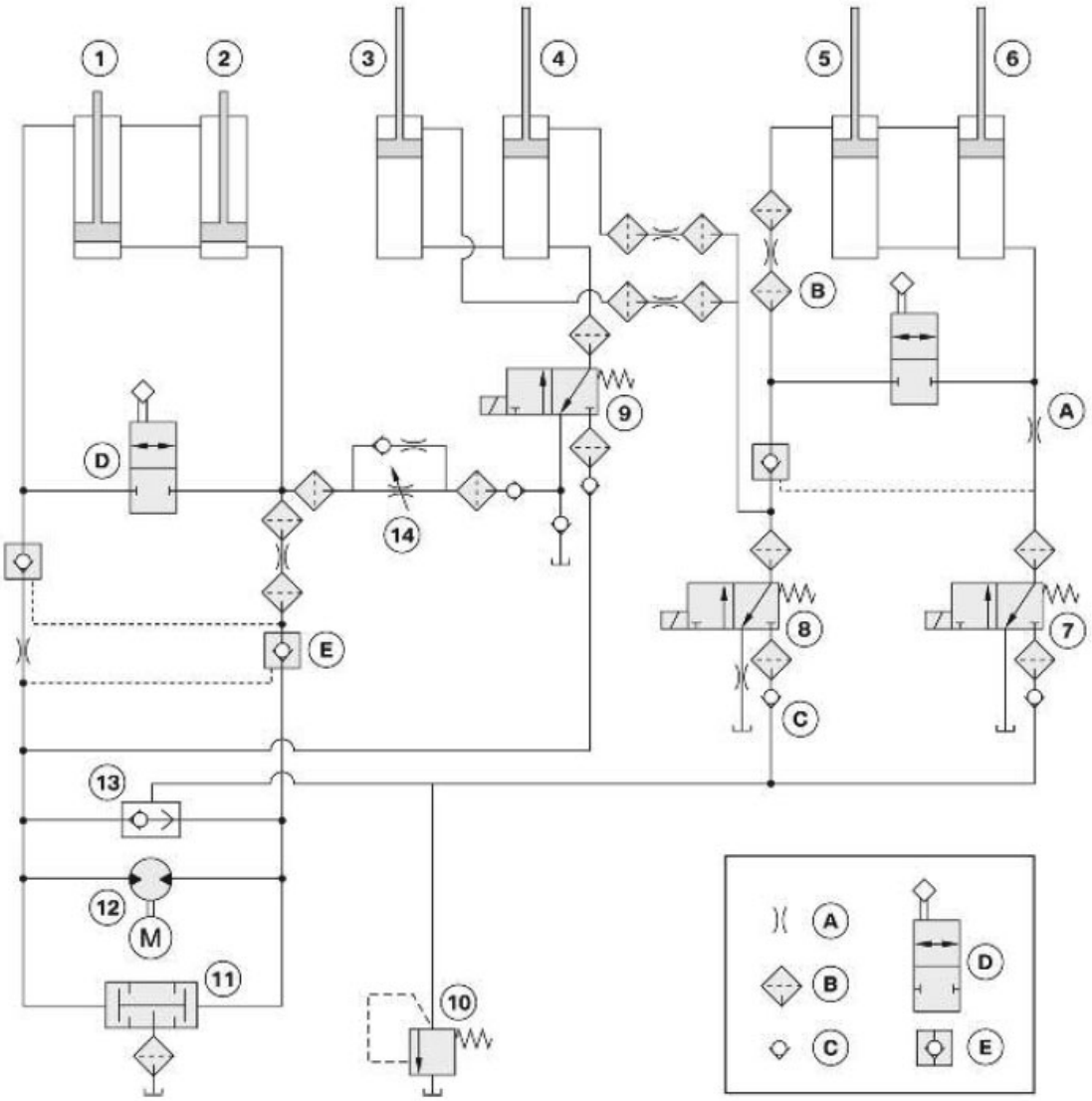


Fig. 2: Hydraulic System Circuit Diagram
Courtesy of BMW OF NORTH AMERICA, INC.

INDEX EXPLANATION REFERENCE CHART

Index	Explanation
A	Throttle
B	Filter
C	Non-return valve
D	Emergency operating valve
E	Pilot-controlled non-return valve
1	LH hydraulic cylinder, main pillar
2	RH hydraulic cylinder, main pillar
3	LH hydraulic cylinder, roof panel

4	RH hydraulic cylinder, roof panel
5	LH hydraulic cylinder, rear module
6	RH hydraulic cylinder, rear module
7	Valve for rear module
8	Valve for roof panel and rear module
9	Valve for main cylinder and roof panel
10	Pressure relief valve
11	Changeover valve
12	Hydraulic pump
13	Changeover valve
14	Two-way flow control valve

HYDRAULICS AND LOCKING MECHANISM

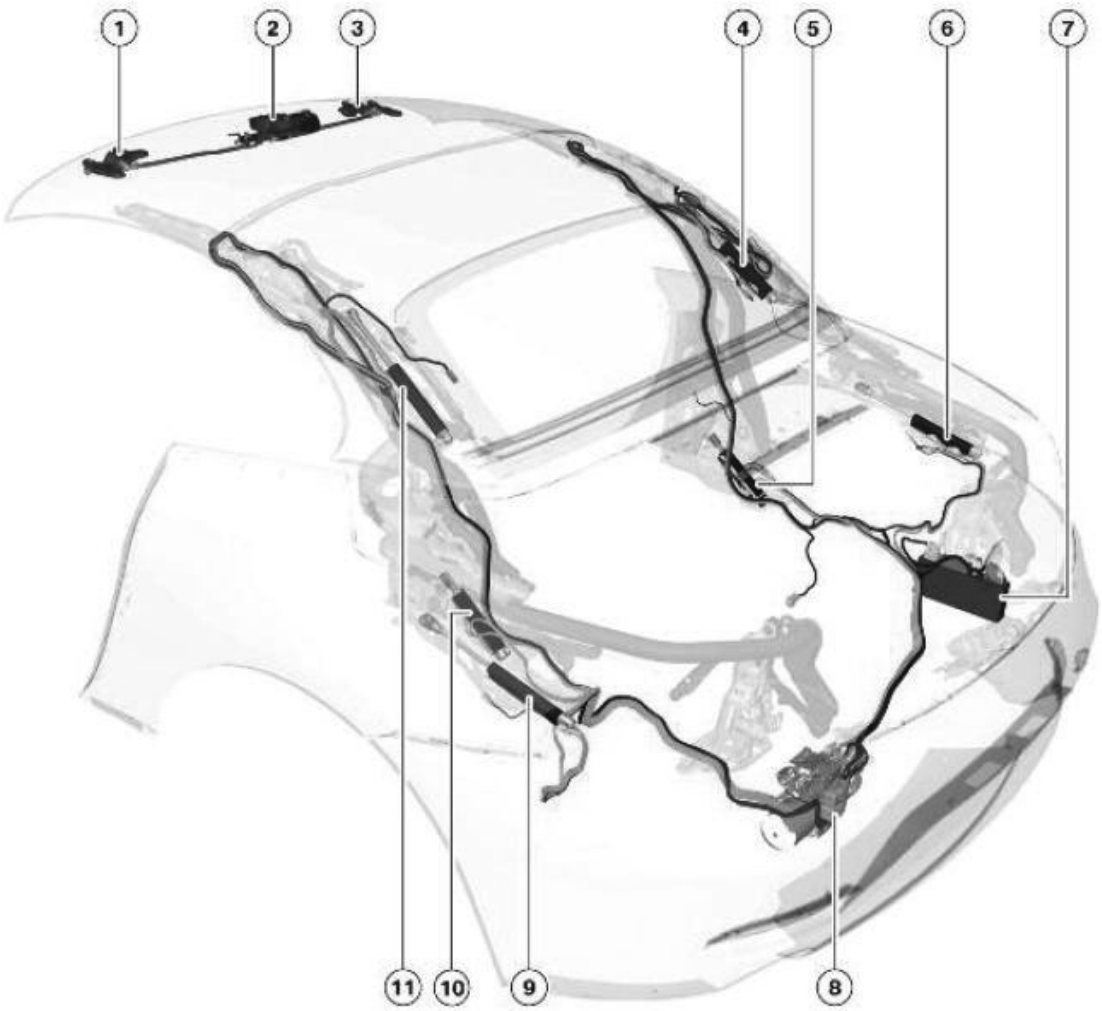


Fig. 3: Identifying Hydraulics And Locking Mechanism

Courtesy of BMW OF NORTH AMERICA, INC.

INDEX EXPLANATION REFERENCE CHART

Index	Explanation
1	LH latch, windscreen cowl panel
2	Drive for locking retractable hardtop
3	RH latch, windscreen cowl panel
4	RH hydraulic cylinder, roof panel
5	RH hydraulic cylinder, main pillar
6	RH hydraulic cylinder, rear module
7	Convertible top module
8	Hydraulic unit
9	LH hydraulic cylinder, rear module
10	LH hydraulic cylinder, main pillar
11	LH hydraulic cylinder, roof panel

MECHANICAL SYSTEM OVERVIEW

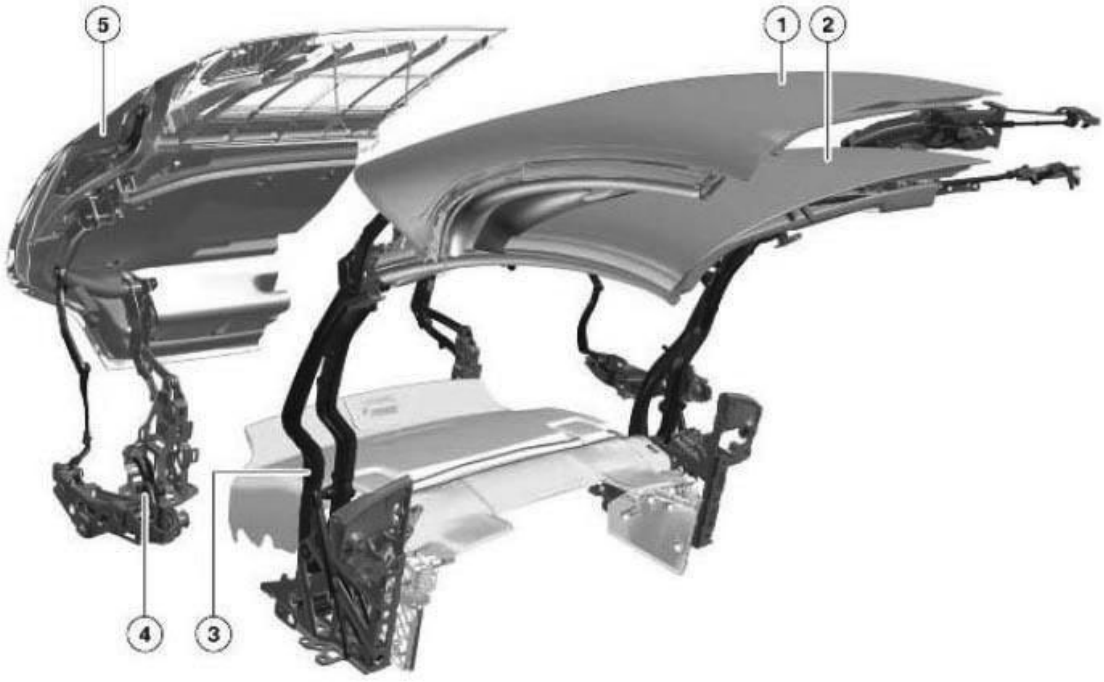


Fig. 4: Mechanical System Overview
Courtesy of BMW OF NORTH AMERICA, INC.

INDEX EXPLANATION REFERENCE CHART

Index	Explanation
1	Roof panel 2
2	Roof panel 1
3	Main pillar mechanism
4	Rear module mechanism
5	Rear module

SENSORS

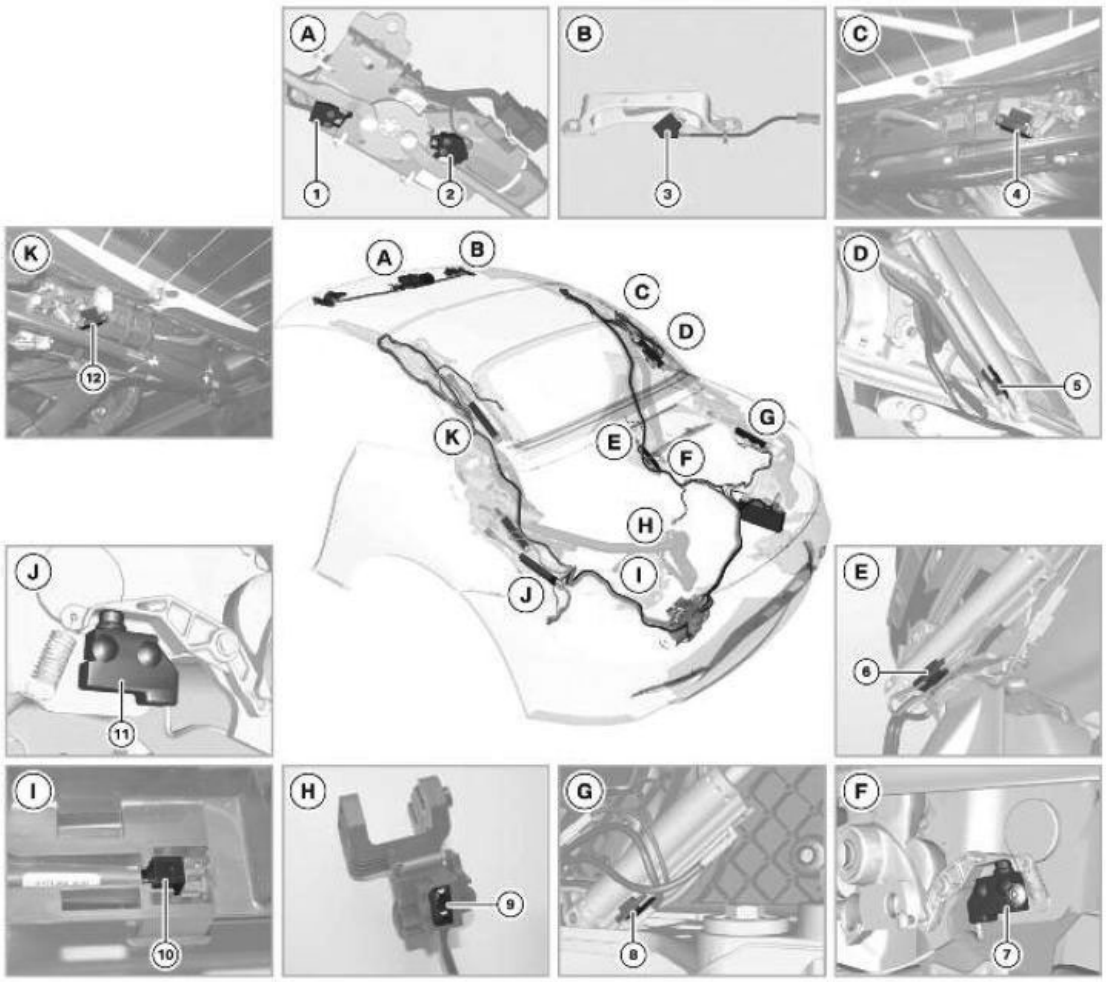


Fig. 5: Identifying Sensor Locations
Courtesy of BMW OF NORTH AMERICA, INC.

INDEX EXPLANATION REFERENCE CHART

Index	Explanation
A - K	Locations
1	Microswitch, cowl panel unlocked

2	Microswitch, cowl panel locked
3	Microswitch, cowl panel reached
4	RH microswitch, roof panel closed
5	Hall sensor, roof panel packed
6	Hall sensor, roof panel opened
7	RH microswitch, rear module closed
8	Hall sensor, roof package extended
9	Microswitch, roof module compartment locked
10	Hall sensor, luggage compartment partition
11	LH microswitch, rear module closed
12	LH microswitch, roof panel closed

CIRCUIT DIAGRAM - CONVERTIBLE TOP MODULE

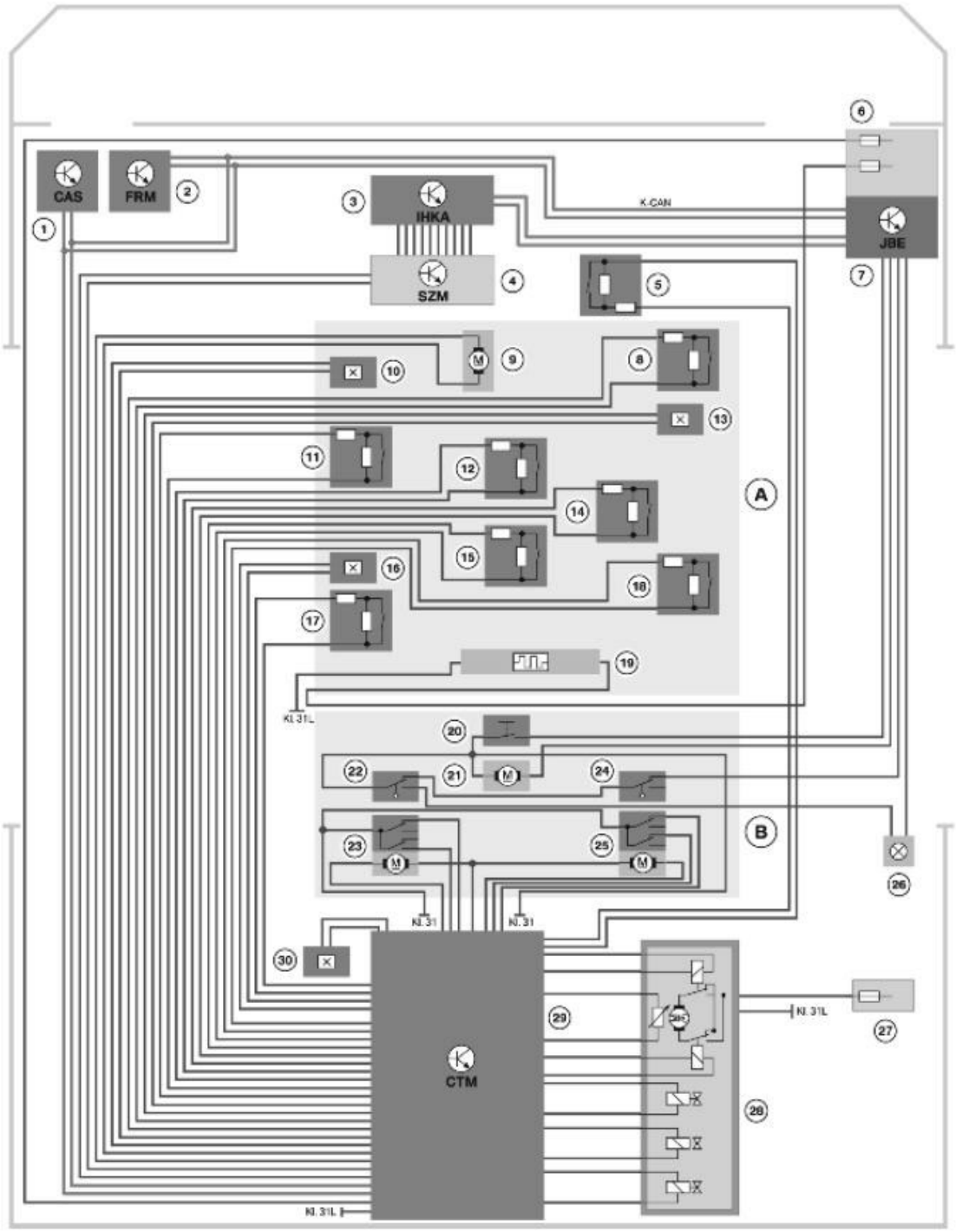


Fig. 6: Convertible Top Module - Circuit Diagram
Courtesy of BMW OF NORTH AMERICA, INC.

INDEX EXPLANATION REFERENCE CHART

Index	Explanation
A	Roof module
B	Rear module

1	Car Access System (CAS)
2	Footwell module (FRM)
3	Integrated automatic climate control (IHKA)
4	Center console control panel (SZM)
5	"Cowl panel reached" microswitch
6	Front power distribution box
7	Junction box electronics (JBE)
8	RH microswitch, roof panel closed
9	Drive for locking retractable hardtop
10	Hall sensor, roof package extended
11	LH microswitch, roof panel closed
12	Microswitch, cowl panel unlocked
13	Hall sensor, roof panel packed
14	Microswitch, cowl panel locked
15	Microswitch, roof module compartment locked
16	Hall sensor, rear module opened
17	LH microswitch, rear module closed
18	RH microswitch, rear module closed
19	Heated rear window
20	Rear lid button
21	Release drive
22	Rear lid lock switch
23	LH automatic soft close drive
24	Rear lid lock switch
25	RH automatic soft close drive
26	Luggage compartment light
27	Battery power distribution box
28	Hydraulic unit
29	Convertible top module (CTM)
30	Hall sensor, luggage compartment partition

SYSTEM COMPONENTS

Microswitches and Hall Sensors

The various positions of the retractable hardtop and of the rear module are detected by 8 microswitches and 4 Hall sensors and signalled to the convertible top module CTM. All microswitches and Hall sensors receive their voltage supply from the convertible top module and have diagnostic capabilities.

After loss of terminal 30 or after emergency operation, the retractable hardtop can still be operated without the need for re-initialization. The microswitches and Hall sensors ensure the convertible top module reliably detects the position of the retractable hardtop.

Buttons for Operating the Hardtop

Two buttons are provided in the center console for the purpose of operating the retractable hardtop. These buttons are wired to the convertible top module. When a button is pressed, the convertible top module receives the information and executes the corresponding command. Movement of the retractable hardtop or side windows stops if the button is released while the hardtop is moving. Operation is indicated by a red LED in one button and a green LED in the other. The convertible top module actuates the LEDs via the K-CAN.

Fig. 7: Identifying Hardtop Buttons
Courtesy of BMW OF NORTH AMERICA, INC.

The green LED in the button lights up during the opening/closing operation. The red LED signals an operating error or incorrect conditions (e.g. luggage compartment partition not in lower position). The red LED flashes as soon as the retractable hardtop is in an intermediate position and not operated. The LED

flashing does not indicate a fault. The flashing LED draws attention to the fact that the vehicle cannot be driven in this situation.

A fault code that cannot be read out is stored under following conditions:

- Terminal R On while the button is pressed
- When the button is pressed for longer than 20 seconds after roof operation has concluded.

The retractable hardtop is then temporarily inoperative. The retractable hardtop can be operated again after pressing the Open button once.

Convertible Top Module

The Convertible top module (CTM) is the central electronic control unit for all functions of the retractable hardtop. The convertible top module is installed on the right in the luggage compartment. The convertible top module controls the retractable hardtop, the rear module, the automatic soft close system and the drive unit for locking the hardtop.

The CTM also controls the hydraulic pump and the six hydraulic cylinders by way of the three valves in the hydraulic unit. The K-CAN connects the convertible top module to other control units. Information on outside temperature, driving speed and rear lid status etc., is received via the K-CAN. The convertible top module ends a signal to the car access system (CAS) when the retractable hardtop is opened or closed. The car access system is the master for the power windows. In certain situations, the convertible top module outputs information in the form of check control messages in the instrument cluster.

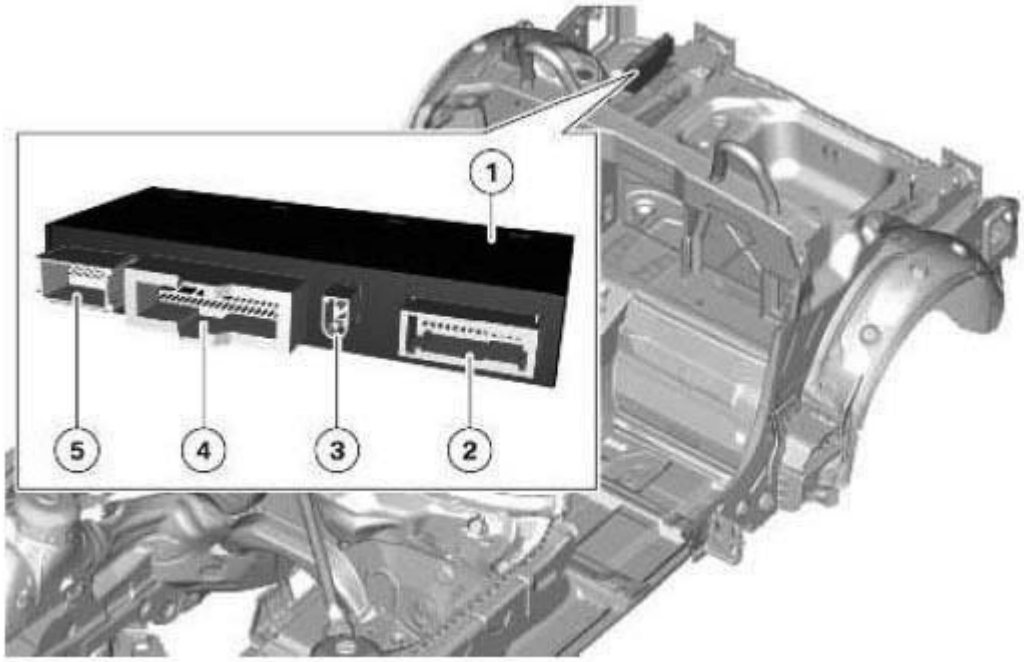


Fig. 8: Identifying Convertible Top Module Location And Connections
Courtesy of BMW OF NORTH AMERICA, INC.

INDEX EXPLANATION REFERENCE CHART

Index	Explanation
1	Convertible top module
2	26-pin connector for Hall sensors and microswitches
3	2-pin connector to drive unit for locking retractable hardtop
4	41-pin connector for voltage supply, automatic soft close system, and K-CAN
5	18-pin connector for actuating hydraulic unit

NOTE: ISTA-P must be used to encoded the new module after replacement.

Drive for Locking the Retractable Hardtop

The drive unit, consisting of an electric motor with gear mechanism, locks and unlocks the retractable hardtop with the cowl panel at the upper windscreen frame. The convertible top module actuates the electric motor. The drive unit is

arranged in the middle. The retaining hooks on the right and left are moved by a rotary plate and push rods. The two Hall sensors 'cowl panel locked and unlocked' monitor the locking procedure.

When the retractable hardtop is opened, the drive unit locks the hardtop on the base plate in the rear module. This is a crash-lock function, which prevents the retracted hardtop from folding forward in the event of a crash.

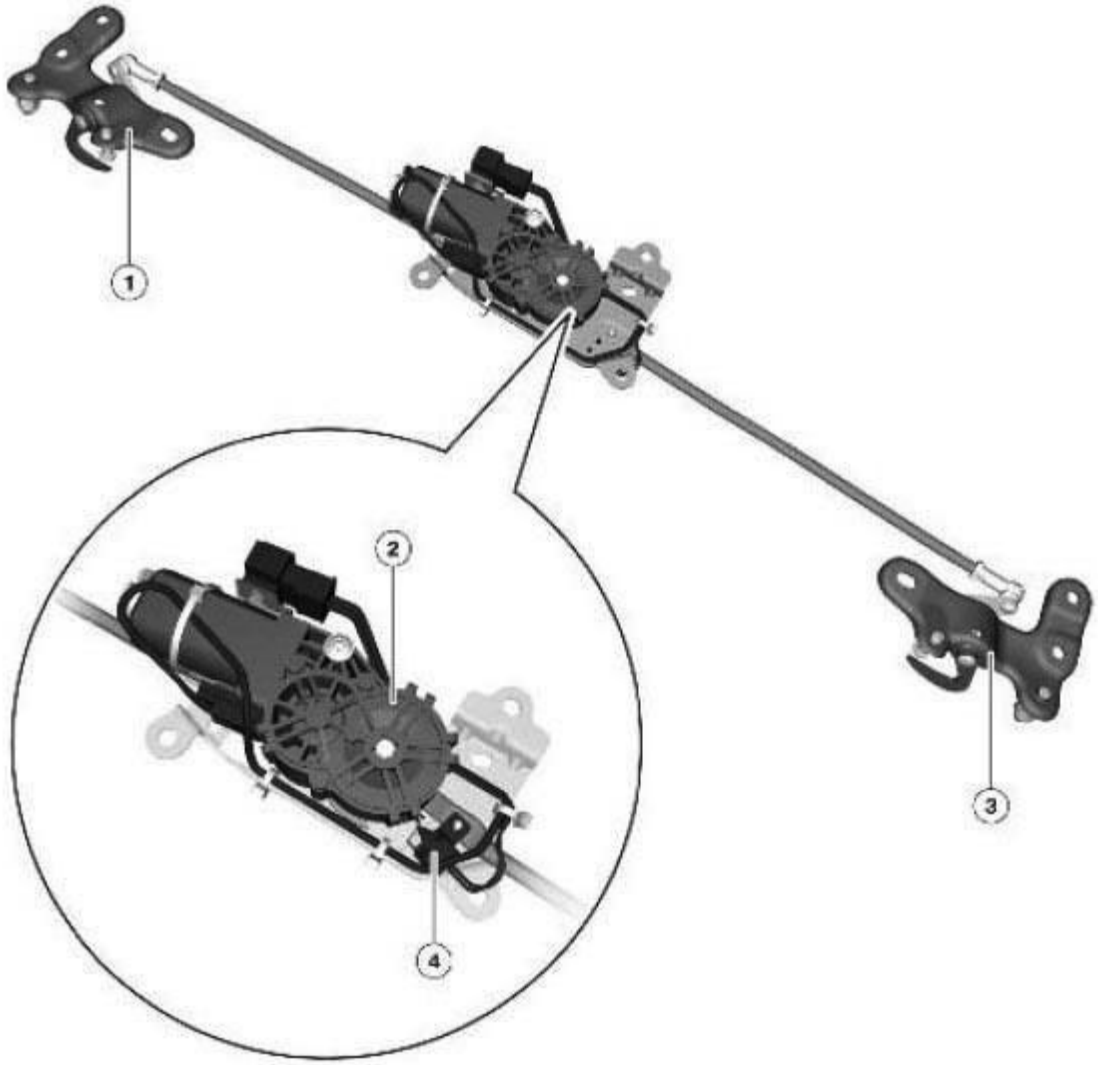


Fig. 9: Identifying Drive For Locking Retractable Hardtop
Courtesy of BMW OF NORTH AMERICA, INC.

INDEX EXPLANATION REFERENCE CHART

Index	Explanation
1	Retaining hook, left
2	Drive for locking retractable hardtop

3	Retaining hook, right
4	'Cowl panel unlocked' microswitch and 'cowl panel locked' microswitch

Hydraulic Unit

The hydraulic unit is located in a pan in the luggage compartment floor. The movement direction of the retractable hardtop and rear module are determined by corresponding valve positions and the direction of rotation of the hydraulic pump. The direction of rotation of the hydraulic pump is controlled by two relays.

The hydraulic pump generates an operating pressure from 150 to 200 bar.

The temperature in the hydraulic pump is measured to avoid the pump overheating during frequent use of the retractable hardtop. Two cables connect the temperature sensor ground-free to the convertible top module. A line break (open circuit) results in a fault code being entered in the fault code memory. At from a temperature of 90°C, hardtop closing movement already started is continued up to the secure end position. The movement of the retractable hardtop is stopped immediately at a temperature of 105°C.

The movement can be continued after the temperature has dropped below 90°C. The hydraulic unit is protected by a 50 amp slow-blow fuse.

Other than topping the hydraulic system off, the hydraulic fluid does not require any servicing. Add only the approved hydraulic fluid to the mark on the reservoir.

Fig. 10: Identifying Hydraulic Unit Location
Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: Excessive noise during top operation may be due to aerated hydraulic lines. If excessive operating noise is heard during operation, the retractable hardtop should be opened and closed several times in order to automatically bleed the hydraulic system via the fluid reservoir.

Instrument Cluster - KOMBI

The instrument cluster provides the outside temperature (bus signal). The instrument cluster uses the check control symbol to show check control messages relating to the retractable hardtop.

Footwell Module - FRM

The footwell module FRM actuates the front power window regulators. The side windows must be lowered in order to open the retractable hardtop (bus signal to convertible top module).

Junction Box Electronics - JBE

The junction box electronics JBE actuates the rear power window regulators. The side windows must be lowered in order to open the retractable hardtop (bus signal to convertible top module). The junction box electronics provides the

signal indicating whether the rear lid is closed (bus signal).

The power distribution box in the junction box supplies terminal 30g to the convertible top module. The convertible top module additionally receives terminal 15 from the car access system. This still enables adequate communication with the BMW diagnosis system when, for example, the voltage supply from the junction box is interrupted.

Car Access System - CAS

The car access system is the master control unit for the power window regulators. On request of the convertible top module, the car access system lowers or raises the side windows. In addition, the car access system prevents the rear lid from being opened and movement of the power windows when the retractable hardtop is in an intermediate position. The car access system controls the auto-remote opening function for the retractable hardtop. The signals from the remote control are received by the remote control receiver and sent to the car access system.

Antenna Diversity

The convertible top module sends a corresponding signal to the antenna diversity module depending on whether the retractable hardtop is closed or open. The antenna diversity function then correspondingly switches over the antennas.

PRINCIPLES OF OPERATION

The following options are available for operating the hardtop:

- Using the button (close and open)
- Using the key in the lock cylinder in the driver's door handle (close and open)
- Using the remote control (open only)
- Using the ID transmitter with Comfort Access option (close, as long as the ID transmitter is within range of the comfort access antennas and open as with the remote control).

Operating Pre-Conditions

The retractable hardtop can be opened and closed using the button in the center console only if the following conditions are met:

- Terminal R ON
- Outside temperature above -12°C
- Boot lid closed
- Vehicle stationary (driving speed < 0.7 km/h)
- Luggage compartment partition in lowest position
- Lateral inclination of vehicle < 11°
- Power windows initialized
- Battery voltage > 11.5 V
- Less than five successive opening/closing operations
- Hydraulic fluid temperature for opening < 90°C and for closing < 105°C
- Electrical system check successful
- Production, transport and workshop mode (FeTraWe) not set.

It is not possible to open and close the retractable hardtop while driving. Due to the high current consumption of the retractable hardtop of up to 40 amps, the hardtop should only be operated when the battery charger is connected or the engine is running.

NOTE: The rear power window regulators do not have an anti-trap system. There is also no one-touch function for closing the rear windows.

Opening the Retractable Hardtop

The retractable hardtop is normally operated by pressing the open or close button in the center console. The hardtop moves for as long as the button is pressed. The green LED in the button lights up while the retractable hardtop is moving. Movement of the retractable hardtop, rear module or side windows is stopped immediately if the button is released while the retractable hardtop is moving. The red LED then flashes in the button.

Movement of the hardtop can be resumed by pressing the button again. Movement of the side windows can be resumed within 10 seconds. If one of the conditions is not met, the red LED will light continuously.

The convertible top module checks the conditions for opening the retractable hardtop when the Open button in the center console is pressed. If the check is

successful, the hardtop is opened as follows:

- Lower side windows (if closed or in intermediate position)
- Release hardtop at cowl panel
- Switch off heated rear window (takes place via junction box electronics)
- Unlock and open rear module
- Roof panel 2 is released and packed over roof panel 1
- Stow roof panel package in rear module and lock
- Close and lock rear module
- Close side windows.

The hardtop is closed automatically in the reverse order.

Operating Conditions with Comfort Access

The following functions can be performed only when the ID transmitter is less than 4 m away:

- Open
- Close
- Easy Load feature

Automatic Soft Close System

The automatic soft close function is installed as standard to conveniently close the rear [trunk] lid. The automatic soft close system consists of two drive units. The drive units lock the rear lid on the left and right on the rear module carrier. This increases the stability of the rear end.

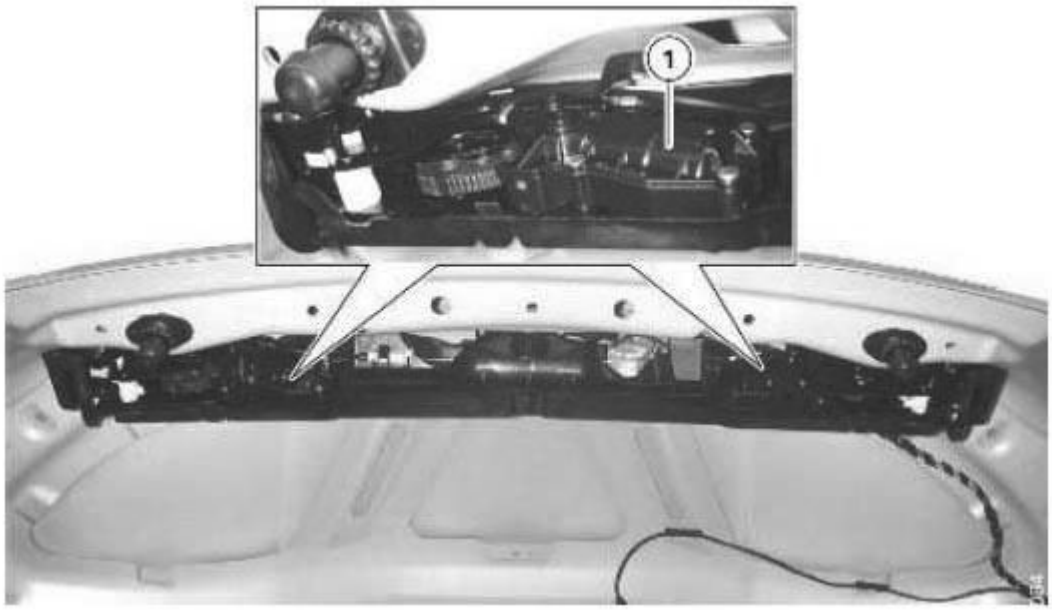


Fig. 11: Identifying Automatic Soft Close Drive
Courtesy of BMW OF NORTH AMERICA, INC.

Each trunk lid latch assembly has a microswitch. These two microswitches are operated when the rear lid locks on the left and right have reached the lock strikers. The signals are hard wired to the junction box electronics which then makes the signal available to the convertible top module via the K-CAN-bus. The convertible top module then actuates the two drive units of the automatic soft close system until the rear lid is locked.

Manually shutting the rear lid would make closing via the automatic soft close system unnecessary. For safety reasons, steps must be taken to ensure that the rear lid is completely closed. For this reason, the drive units of the automatic soft close system are still actuated.

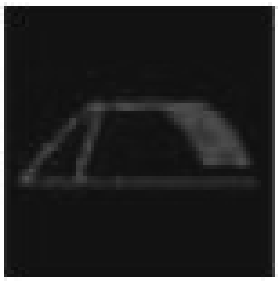
Both drive units feature a repeat interlock to avoid overheating. The repeat interlock allows the automatic soft close system to be actuated up to 20 times (counter up to 20 increments). The automatic soft close system is then inhibited electrically for approximately 2 minutes.

Check Control Messages

It is not possible to open or close the retractable hardtop in certain situations. In such cases, corresponding messages are shown in the instrument cluster in the form of check control messages.

A short message and additional information are shown on vehicles equipped with a central information display (CID). The check control messages provide explanatory information relating to the red LED in the button that lights up in the case of fault. An active check control message is shown every 5 seconds.

CHECK CONTROL MESSAGES REFERENCE CHART

Check Control Symbol	Check Control Message	Additional Information
	Luggage compartment open!	-
	Roof malfunction!	No roof movement possible. If the retractable hardtop does not lock, contact the nearest BMW dealer.
	Roof operation!	Roof movement not completed. Check whether roof movement is blocked. Then press button again.
	Roof control failed!	Roof position and roof locking are not detected. Trip can be continued if roof is locked securely.
	Roof not locked!	Roof not locked. First open or close roof completely before continuing trip.
		No roof movement

	Luggage compartment partition!	possible. Move luggage compartment partition into required position.
	Roof drive overheated!	Roof drive overheated.
	Roof operation not possible!	Roof operation only possible when vehicle is stationary.
	Vehicle not parked on level ground!	Vehicle not parked on level ground. No roof movement possible.

SENSOR STATUS

SENSOR STATUS REFERENCE CHART

	Retractable hardtop open	**Intermediate position1**	**Intermediate position2**	**Retractable hardtop closed**
"Roof package stowed" Hall sensor	• On	o Off	o Off	o Off
LH microswitch, roof panel closed	o Off	o Off	o Off	• On
RH microswitch, roof panel closed	o Off	o Off	o Off	• On
Hall sensor, roof panel packed	• On	• On		o Off
Microswitch,	• On	o Off	• On	• On

cowl panel locked				
Microswitch, cowl panel unlocked	o Off	• On	o Off	o Off
LH microswitch, rear module closed	• On	o Off	• On	• On
"Rear module open" Hall sensor	o Off	• On	o Off	o Off
RH microswitch, rear module closed	• On	o Off	• On	• On
Microswitch, roof module compartment locked	• On	o Off	o Off	o Off
"Cowl panel reached" microswitch	o Off	o Off	• On	• On
"Luggage compartment divider" Hall sensor	• On	• On	• On	• On

Convenient Loading Function of Rear Lid

The retractable hardtop can be opened and closed using the ID transmitter on vehicles equipped with the Comfort Access option.

The new auto-remote function for loading and unloading provides fast access to the luggage compartment when the retractable hardtop is down. This function makes it easier to load larger items of luggage for instance. The auto-remote function is activated as follows:

- Briefly press the rear lid button on the remote control
- Then, press and hold the rear lid button on the remote control (no more than one second may pass between releasing and pressing the rear lid button).

Initially, the rear module is unlocked and fully opened. The roof package is swivelled out of the luggage compartment. The rear module is then closed and locked. The rear lid is unlocked by the automatic soft close system. The boot lid opens a little. The auto-remote functions via the remote control conform to national market specifications.

Emergency Opening of Rear Lid

As there is no lock cylinder and Bowden cable assembly, the rear lid cannot be released in the event of the rear lid lock being defective. At the same time, movement of the retractable hardtop is inhibited by the unknown status of the rear lid.

The lid can be opened if the Bowden cable (emergency glow in the dark) handle can be reached from the through load compartment.

The rear lid can also be forced to open by using the diagnostic tester. The rear lid activation via the JBE component activation function. This activation request ignores all status that would typically inhibit rear lid operation such as top position.

Emergency Actuation of the Retractable Hardtop

An emergency actuation facility for releasing the retractable hardtop by the customer is not possible. Emergency actuation is, however, possible in the service workshop. The emergency actuation procedure is described in detail in the repair instructions.

Z4 Top Specifics

Fig. 27: Checking Gap Dimensions
Courtesy of BMW OF NORTH AMERICA, INC.

Move the rear roof shell (1) into the position shown. Secure the roof shell against being moved accidentally.

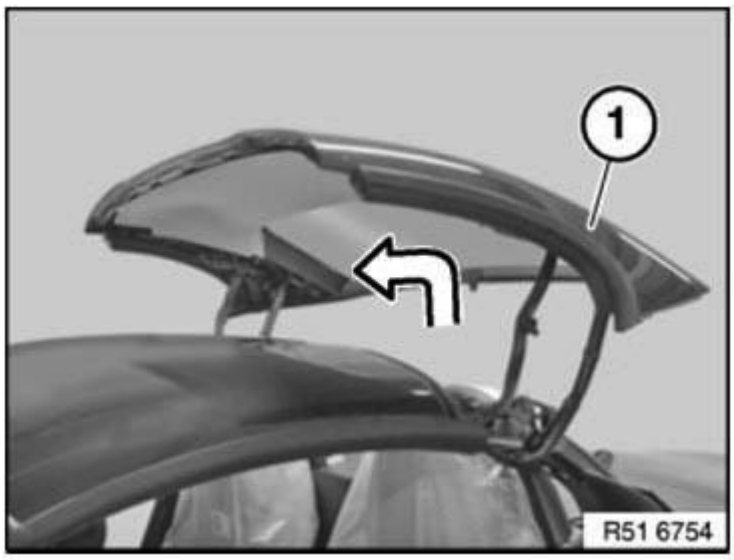


Fig. 28: Moving Rear Roof Shell
Courtesy of BMW OF NORTH AMERICA, INC.

Check the control rod (1) in the front area up to the clamping nut (2) for bending. If the control rod is damaged in this area, the soft top must be replaced.

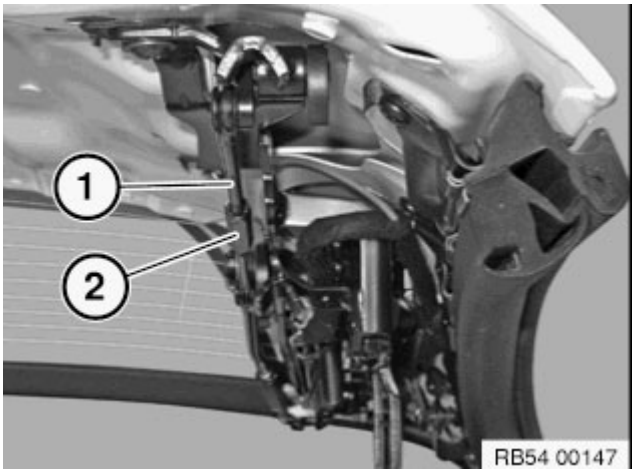


Fig. 29: Checking Control Rod
Courtesy of BMW OF NORTH AMERICA, INC.

54 37 625 REPLACING THE LEFT OR RIGHT CONTROL ROD

Necessary preliminary tasks

- Check the **control rod**

Move the rear roof shell (1) into the position shown.

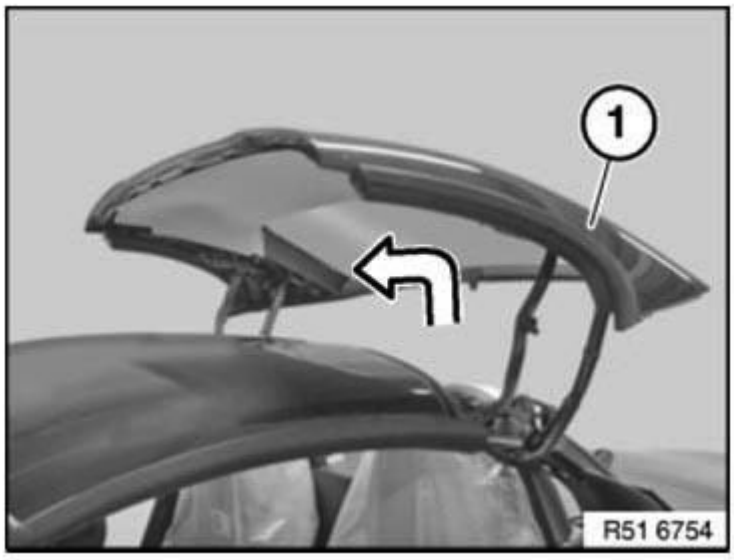


Fig. 30: Moving Rear Roof Shell
Courtesy of BMW OF NORTH AMERICA, INC.

Secure rear roof shell against sinking. Insert auxiliary tool on left and right in gap

(2) below soft top linkage (1). Roof shell is blocked when hydraulic system is depressurized.

IMPORTANT: Be sure to remove auxiliary tool again before moving roof. Risk of damage! Cover roof outer skin and rollover protection.

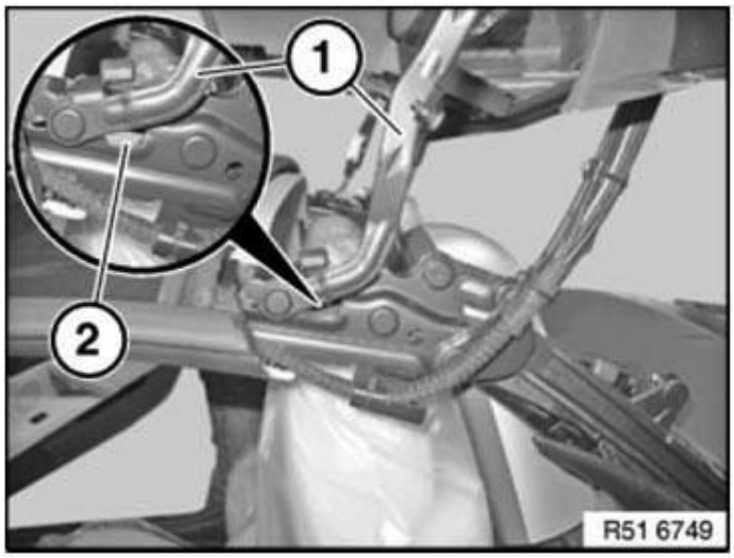


Fig. 31: Identifying Frame On Openings
Courtesy of BMW OF NORTH AMERICA, INC.

Slacken nut (1). Remove washer.

Tightening torque **54 37 16AZ.**

Release screw (2). Remove spring (3).

Tightening torque **54 37 17AZ.**

Important! Left-hand thread!

Slacken lock nut (4). Do not change position of lock nut. Dimension is used for pre-adjustment of the new control rod.

Tightening torque **54 37 18AZ.**

Unscrew clamping nut (5) together with control rod.

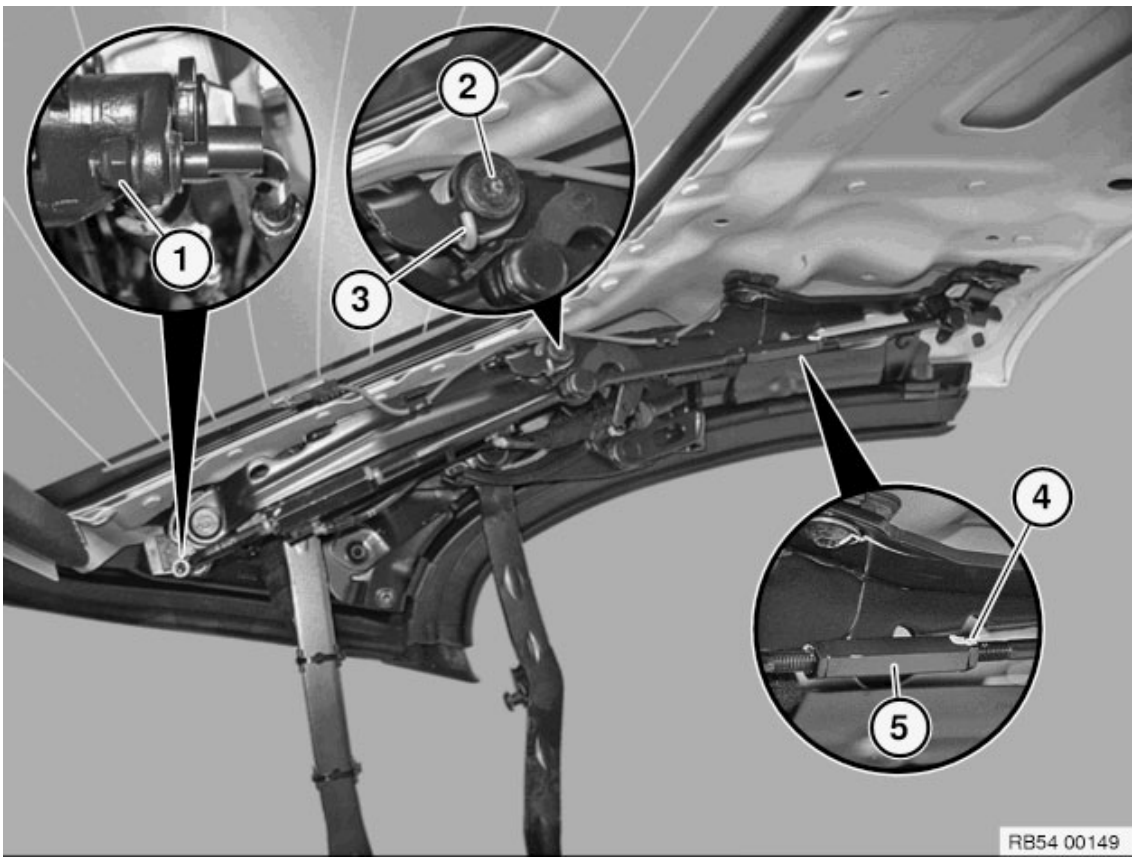


Fig. 32: Removing Control Rod
Courtesy of BMW OF NORTH AMERICA, INC.

Pull off connector (1) for heated rear window and unclip cable from clamp (2).

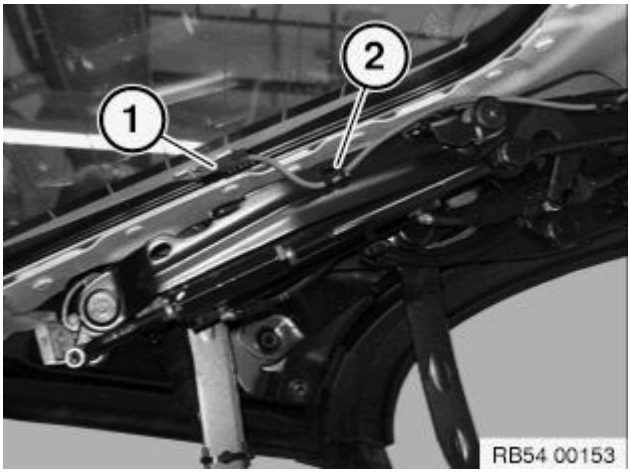


Fig. 33: Unclipping/Clipping Cable At Clamp
Courtesy of BMW OF NORTH AMERICA, INC.

Installation of control rod

New control rod is pre-adjusted.

IMPORTANT: Left-hand thread!

Remove front section (1) of control rod. Screw control rod to soft top linkage.

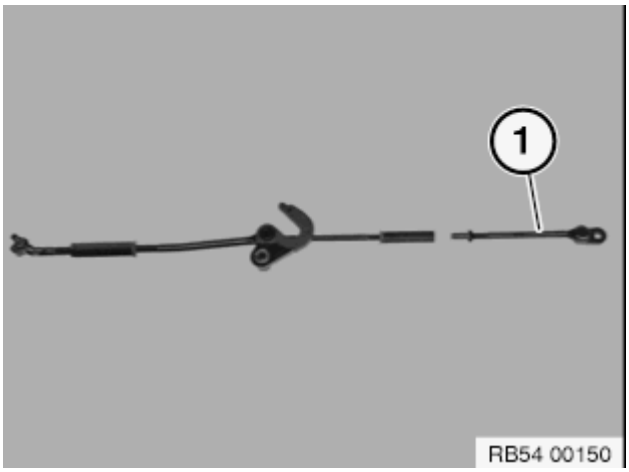


Fig. 34: Removing Front Section Of Control Rod
Courtesy of BMW OF NORTH AMERICA, INC.

Position spring (1) on retaining hook of control rod (2). Check that spring is correctly positioned (arrow) in bore hole.

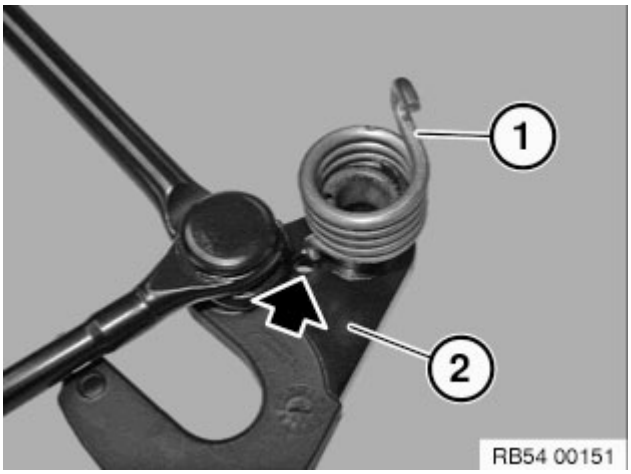


Fig. 35: Positioning Spring On Retaining Hook Of Control Rod
Courtesy of BMW OF NORTH AMERICA, INC.

Attach special tool 2 294 573 (3) to soft top frame. Centre retaining hook (1) with bore hole (2) and screw in screw.

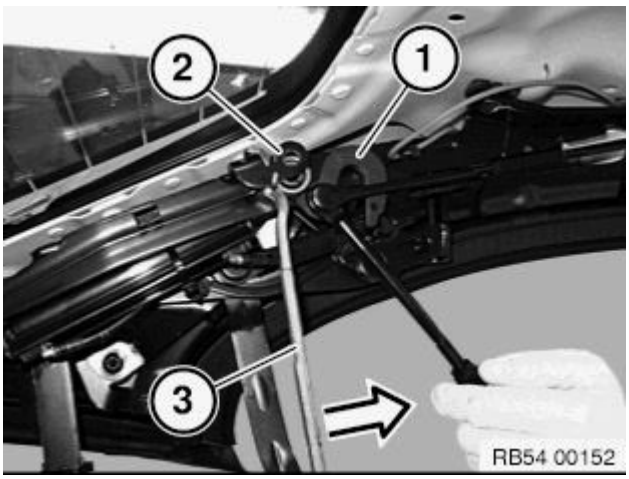


Fig. 36: Centering Retaining Hook With Bore Hole
Courtesy of BMW OF NORTH AMERICA, INC.

Tighten screw (2). See **Fig. 37**.

Tightening torque **54 37 17AZ** .

Tighten nut (1) with washer. See **Fig. 37**.

Tightening torque **54 37 16AZ** .

Tighten the lock nut (4). See **Fig. 37**.

Tightening torque **54 37 18AZ** .

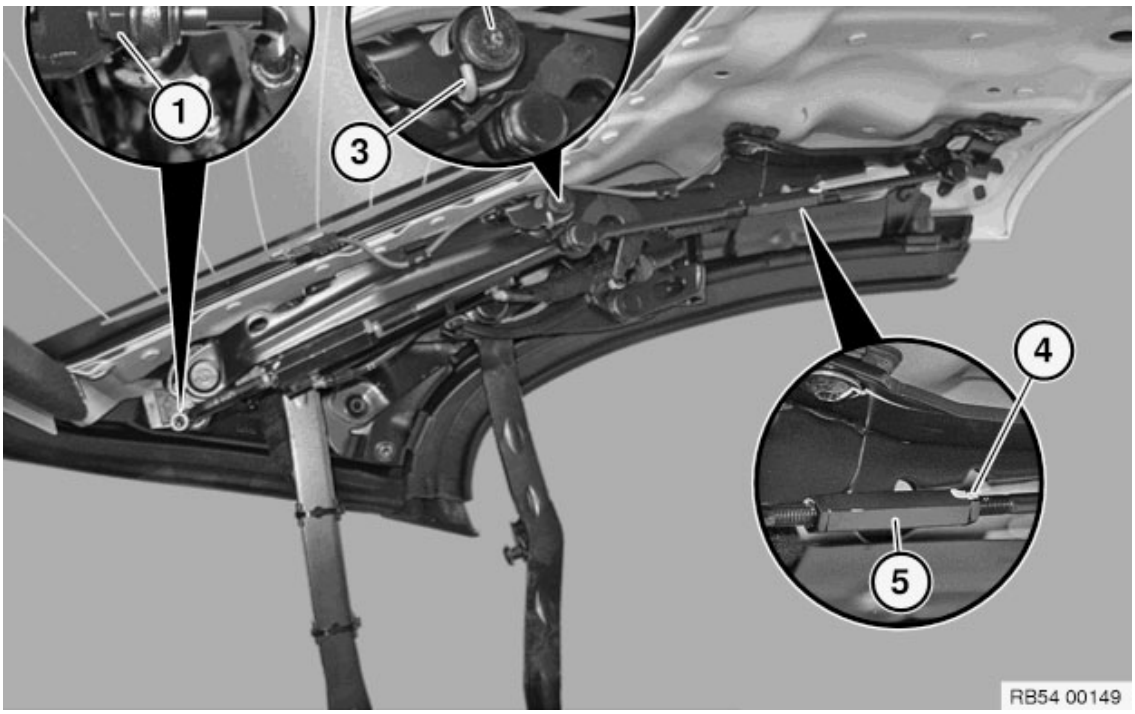


Fig. 37: Identifying Specific Nuts And Bolts Locations
Courtesy of BMW OF NORTH AMERICA, INC.

Connect connector (1) for heated rear window and clip cable into clamp (2).

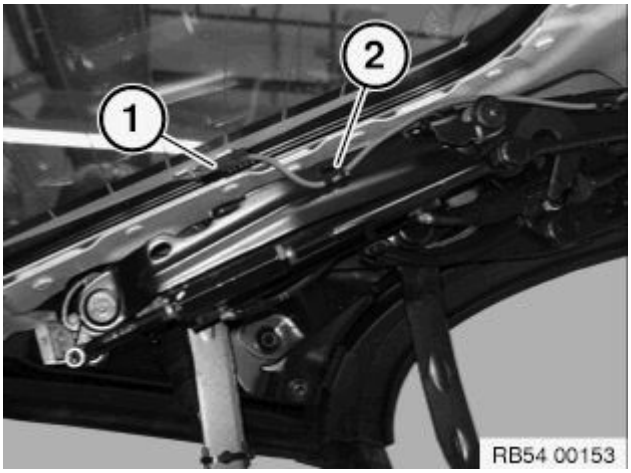


Fig. 38: Unclipping/Clipping Cable At Clamp
Courtesy of BMW OF NORTH AMERICA, INC.

Carefully close soft top.

IMPORTANT: Risk of damage! Fin must slip into the provided recess when the roof shell is lowered.

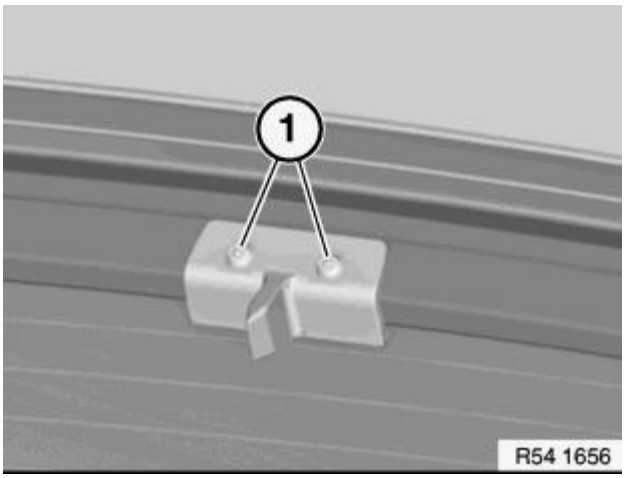


Fig. 39: Ensure Fin Fits Into Provided Recess When Roof Shell Is Lowered
Courtesy of BMW OF NORTH AMERICA, INC.

Check the control rod: Close the roof. Roofliner has been removed.

Measure the gap between the rear retaining hook (1) and roller (2) using a drill (3). Nominal dimension 3±0.5 mm. Visually check the gap between the front

retaining hook (4) and the roller (5) (difficult to see). Nominal dimension approx. 0.5 mm.

Fig. 40: Identifying Gap Measurement Locations
Courtesy of BMW OF NORTH AMERICA, INC.

If the dimensions differ, the control rod needs to be adjusted. First, loosen the rear clamping nut and adjust it until nominal dimension 3 mm is reached. Then check the front gap for nominal dimension 0.5 mm and adjust using the front clamping nut if necessary. Tighten all nuts with the specified torque. Carry out procedure on both vehicle sides.

54 37 295 EMERGENCY CLOSING HARDTOP

Necessary preliminary tasks

- Open rear lid
- **REMOVE TRUNK FLOOR**

IMPORTANT: Always perform the emergency closing procedure with the aid of an assistant.

The applied force must always be even on the left and right otherwise the linkage will bend.

Always execute all movements of the roof module with the assistance of a second person.

Risk of injury by trapping!

Remove foam cover.

Open screws on hydraulic unit 1.5 turns.

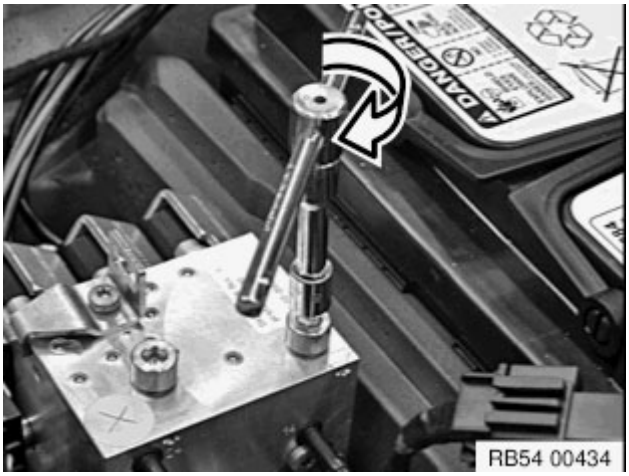


Fig. 41: Opening Screw Of Hydraulic Unit
Courtesy of BMW OF NORTH AMERICA, INC.

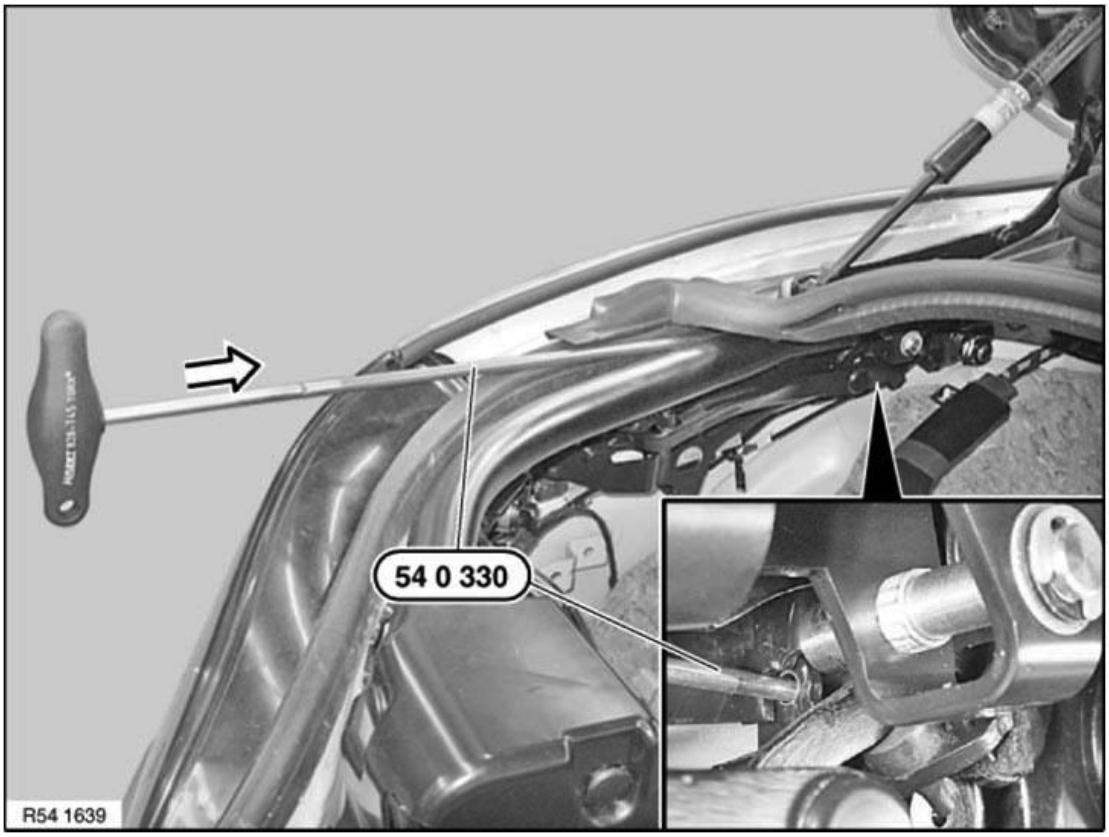


Fig. 42: Inserting Special Tool 54 0 330 Between Convertible Top Compartment Lid Frame And Side Panel
Courtesy of BMW OF NORTH AMERICA, INC.

Insert special tool 54 0 330 at rear left and right between convertible top compartment lid frame and side panel.

Feed in tip of special tool through bore hole.

NOTE: Bore hole is visible from direction of special tool with a torch.

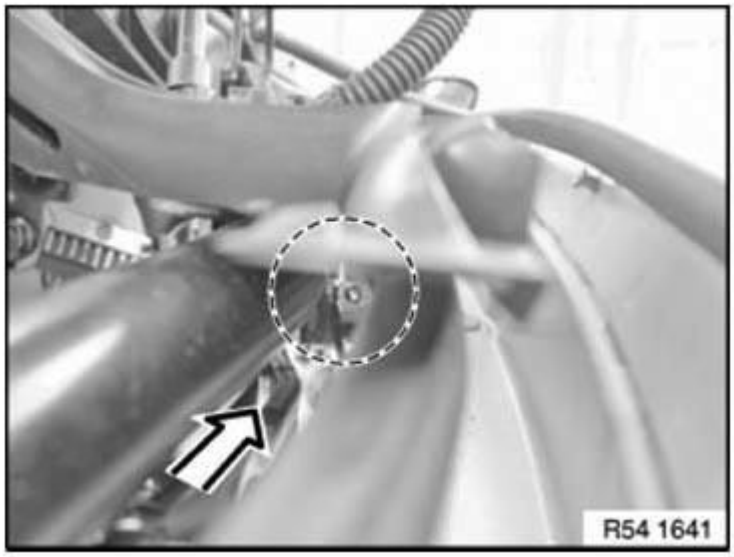


Fig. 43: Installing Tip Of Special Tool Through Bore Hole
Courtesy of BMW OF NORTH AMERICA, INC.

Tip of special tool 54 0 330 must butt against joint for hydraulic cylinder (1).

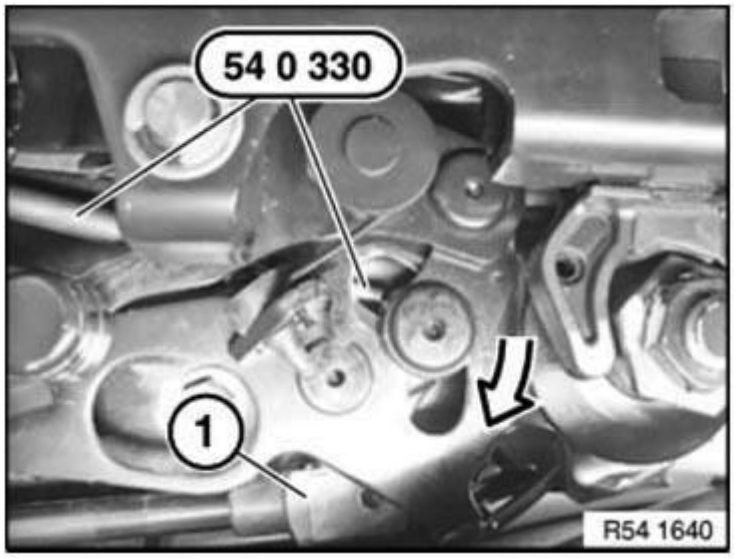


Fig. 44: Identifying Hydraulic Cylinder
Courtesy of BMW OF NORTH AMERICA, INC.

For the ideal pressure point of special tool on joint, proceed as follows:

1. Press outwards
2. Pull tool upwards
3. Press tool to unlock convertible top compartment lid latch

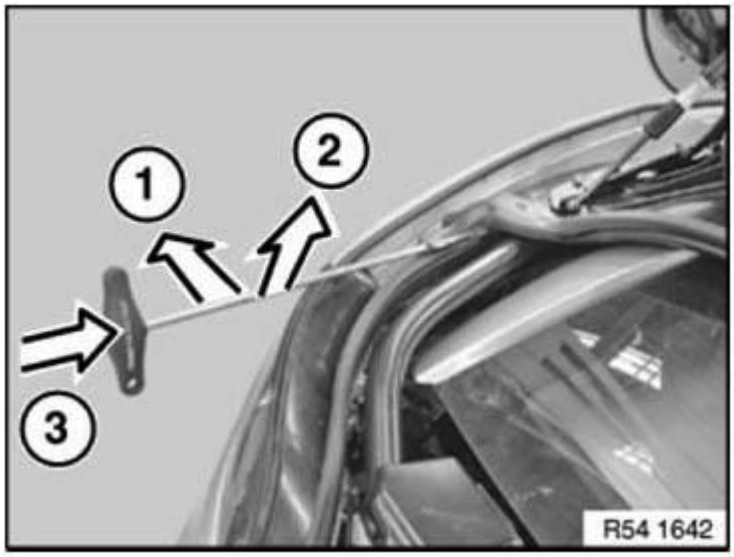


Fig. 45: Pressing Tool To Unlock Convertible Top Compartment Lid Latch
Courtesy of BMW OF NORTH AMERICA, INC.

Open convertible top compartment lid.

IMPORTANT: Convertible top compartment lid may tilt forwards and must be supported with suitable apparatus.

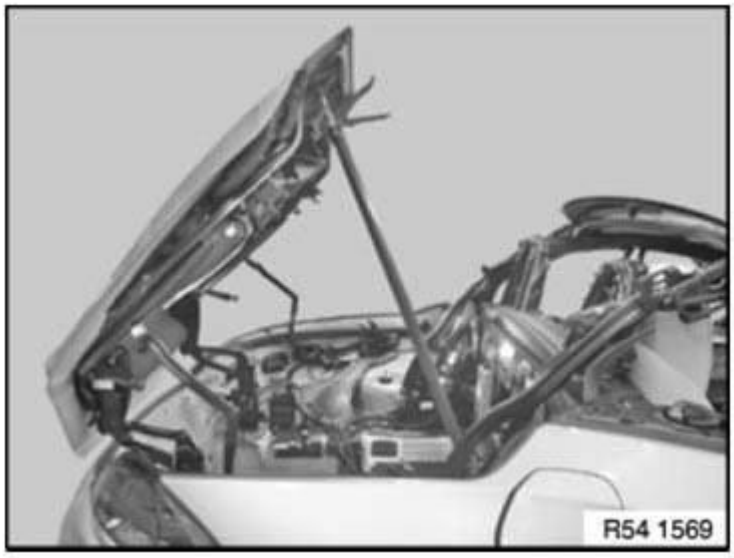


Fig. 46: Opening Convertible Top Compartment Lid
Courtesy of BMW OF NORTH AMERICA, INC.

Release screws (1) on left and right from holder.

Z4 Top All Details

E36 sliding sunroof seal only:

NOTE: Firm thumb pressure has approx. 35 N/cm^2

3. Checking rubber seal

- Check the bonded seals for correct positioning and perfect adhesion. The bonding can be checked by pressing back the sealing lip.
- The force required to peel off the seal immediately after gluing must be greater than 10 N/cm.

5431 CONVERTIBLE TOP LINKAGE/OPERATION

54 34 001 CHECKING FUNCTION OF ELECTRO-HYDRAULIC CONVERTIBLE TOP

WARNING: You are exposed to the risk of trapping body parts when working on the installed or removed convertible top.

Convertible top is centered by pin (2) during insertion into guide and locked by rotary striker (1).

Carefully close convertible top until rotary striker (1) has retracted by approx. 1/3 into striker.

Rotary striker (1) and pin (2) must close correctly and virtually silently.

Open and close convertible top at least 3 times.

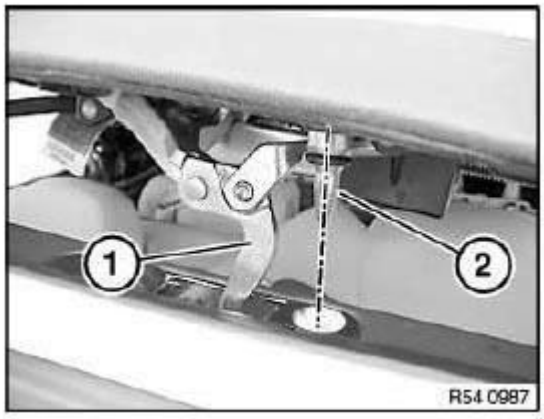


Fig. 1: Identifying Rotary Striker And Pin
Courtesy of BMW OF NORTH AMERICA, INC.

Check all line connections for fluid leaks.

If necessary, **CHECK FLUID LEVEL**.

NOTE: The drive has an additional function.

With the hardtop opened, the drive locks the hardtop on the base plate in the rear module.

The purpose of this function is crash locking.

In the event of a crash, the stored hardtop cannot fold forwards.

Function actuation, convertible top:

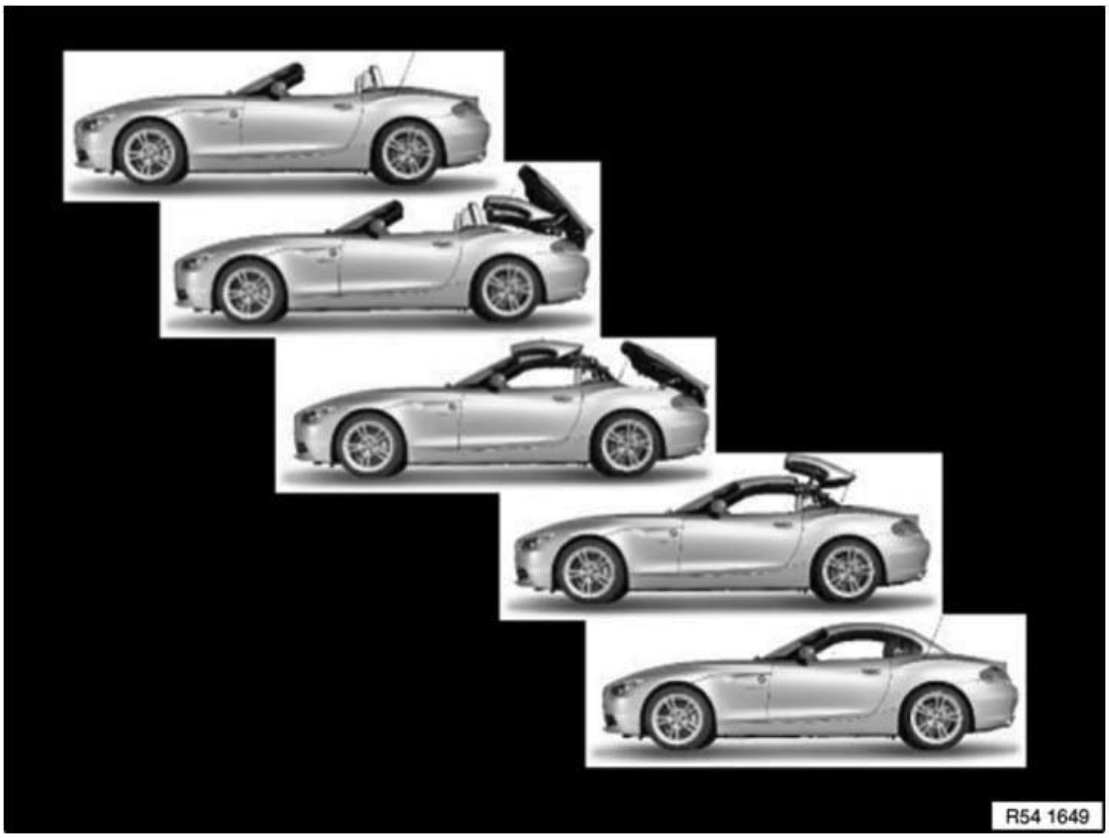


Fig. 2: Function Actuation, convertible top
Courtesy of BMW OF NORTH AMERICA, INC.

Closing convertible top is only possible under following conditions:

- from ignition lock position "R" (radio setting)

- outside temperature is above -20 °C
- rear lid (rear module) closed
- vehicle stationary (driving speed 0 kph)
- luggage compartment partition is in lower position
- lateral inclination of the vehicle less than 11°
- power windows are initialized
- battery voltage greater than 11.5 volts
- fewer than 5 opening and closing operations in succession (pump protection inactive)
- temperature of hydraulic fluid for opening max. 90 °C and for closing max. 105 °C
- hydraulic pump motor is not overheated
- control switch is pressed

Automatic opening runs as follows:

- Side windows are lowered
- Unlock hardtop at the cowl panel
- Switch off heated rear window (via the junction box electronics)
- Unlock and open rear module
- Pack rear roof shell on front roof shell
- Store roof panel package in the rear module and lock
- Close and lock rear module
- Close side windows

Check-control messages

It is not possible to open and close the convertible top in certain situations.

Corresponding Check Control messages are displayed in the instrument cluster for this purpose.

The Check Control messages serve to explain in closer detail the red or yellow LED on the button which lights up in the event of a fault.

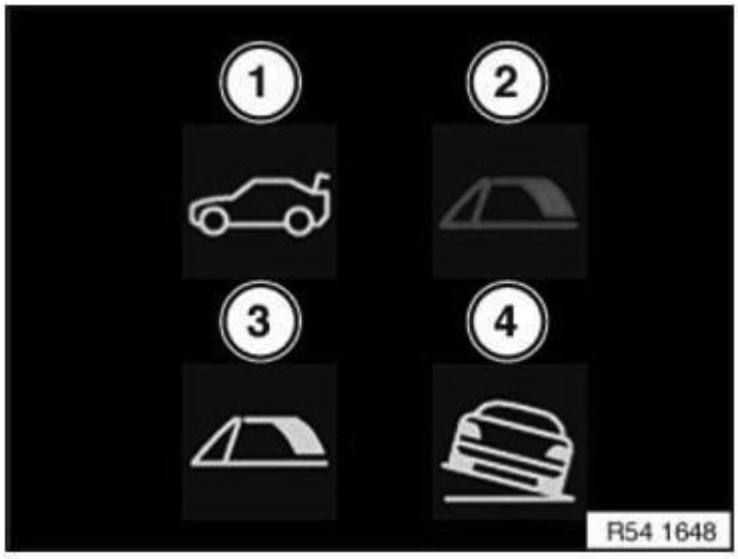


Fig. 3: Identifying Check Control Messages
Courtesy of BMW OF NORTH AMERICA, INC.

CHECK CONTROL MESSAGES REFERENCE CHART

No.	Color:	ID	Check Control message	Supplementary note:
1	yellow	19	Boot open!	
2	Red	401	Roof mechanism function failure!	Roof mechanism No roof movement possible. If the soft hardtop is not locked, contact the nearest BMW Service.
		447	Roof mechanism!	Roof mechanism Roof movement not completed. Please check whether roof movement is blocked. Then press button again.
		558	Roof control failure!	Roof control Roof position and interlock cannot be detected. If the roof locks safely, driving can continue. For information on checking the interlock, see Owner's Handbook.
		562	Roof not locked!	Roof Roof not locked. First open or close the roof completely, then continue driving.
			Luggage-	Luggage compartment partition

3	yellow	416	compartment partition!	No roof movement possible. Move luggage compartment partition to the position required, refer to Owner's Handbook.
		432	Roof drive overheating!	Roof mechanism Roof operation overheated. Temporarily only closing function available.
		516	No roof operation possible!	Roof Roof operation only possible with vehicle at a standstill.
4	yellow	445	Vehicle not standing on level surface!	Roof mechanism Vehicle not standing on level surface! No roof movement possible.

Only when you have excluded the function conditions as fault sources can you start convertible top diagnosis.

5434 MOTOR-OPERATED CONVERTIBLE TOP

54 34 001 CHECKING FUNCTION OF ELECTRO-HYDRAULIC CONVERTIBLE TOP

WARNING: You are exposed to the risk of trapping body parts when working on the installed or removed convertible top.

Convertible top is centered by pin (2) during insertion into guide and locked by rotary striker (1).

Carefully close convertible top until rotary striker (1) has retracted by approx. 1/3 into striker.

Rotary striker (1) and pin (2) must close correctly and virtually silently.

Open and close convertible top at least 3 times.

Check all line connections for fluid leaks.

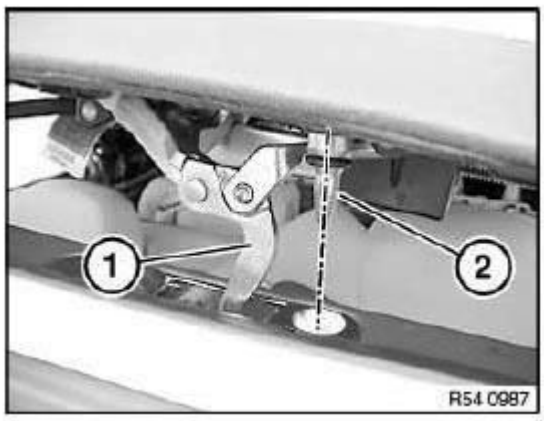


Fig. 4: Identifying Rotary Striker And Pin
Courtesy of BMW OF NORTH AMERICA, INC.

If necessary, **CHECK FLUID LEVEL**.

NOTE: The drive has an additional function.

With the hardtop opened, the drive locks the hardtop on the base plate in the rear module.

The purpose of this function is crash locking.

In the event of a crash, the stored hardtop cannot fold forwards.

Function actuation, convertible top:

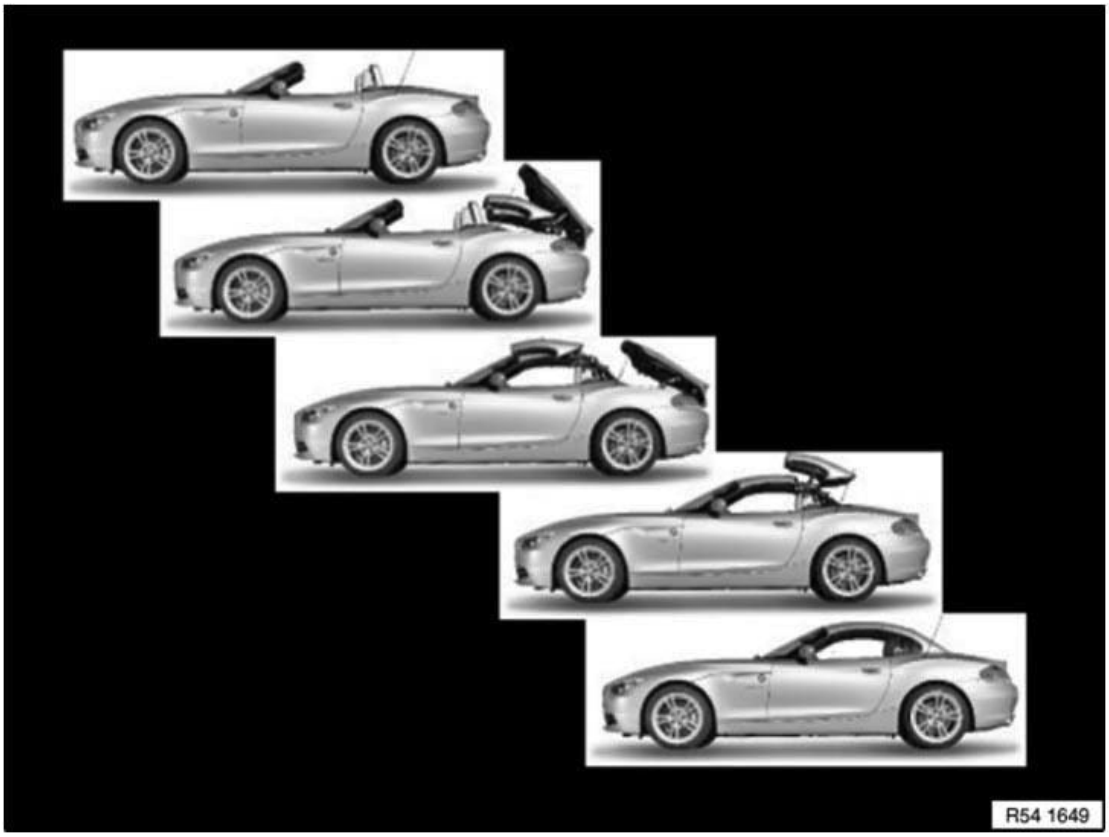


Fig. 5: Function Actuation, Convertible Top
Courtesy of BMW OF NORTH AMERICA, INC.

Closing convertible top is only possible under following conditions:

- from ignition lock position "R" (radio setting)
- outside temperature is above -20 °C
- rear lid (rear module) closed
- vehicle stationary (driving speed 0 kph)
- luggage compartment partition is in lower position
- lateral inclination of the vehicle less than 11°
- power windows are initialized
- battery voltage greater than 11.5 volts
- fewer than 5 opening and closing operations in succession (pump protection inactive)
- temperature of hydraulic fluid for opening max. 90 °C and for closing max. 105 °C
- hydraulic pump motor is not overheated

- control switch is pressed

Automatic opening runs as follows:

- Side windows are lowered
- Unlock hardtop at the cowl panel
- Switch off heated rear window (via the junction box electronics)
- Unlock and open rear module
- Pack rear roof shell on front roof shell
- Store roof panel package in the rear module and lock
- Close and lock rear module
- Close side windows

Check-control messages

It is not possible to open and close the convertible top in certain situations.

Corresponding Check Control messages are displayed in the instrument cluster for this purpose.

The Check Control messages serve to explain in closer detail the red or yellow LED on the button which lights up in the event of a fault.

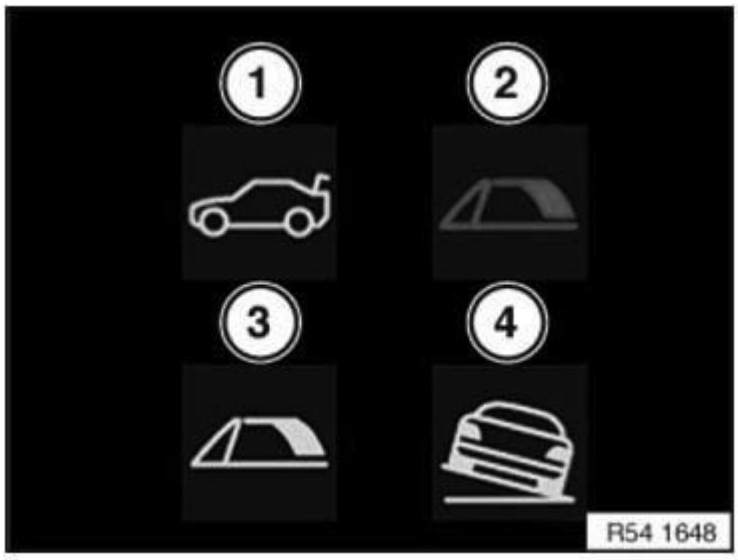


Fig. 6: Identifying Check Control Messages
Courtesy of BMW OF NORTH AMERICA, INC.

CHECK CONTROL MESSAGES REFERENCE CHART

No.	Color:	ID	Check Control message	Supplementary note:
1	yellow	19	Boot open!	
2	Red	401	Roof mechanism function failure!	Roof mechanism No roof movement possible. If the soft hardtop is not locked, contact the nearest BMW Service.
		447	Roof mechanism!	Roof mechanism Roof movement not completed. Please check whether roof movement is blocked. Then press button again.
		558	Roof control failure!	Roof control Roof position and interlock cannot be detected. If the roof locks safely, driving can continue. For information on checking the interlock, see Owner's Handbook.
		562	Roof not locked!	Roof Roof not locked. First open or close the roof completely, then continue driving.
3	yellow	416	Luggage-compartment partition!	Luggage compartment partition No roof movement

				possible. Move luggage compartment partition to the position required, refer to Owner's Handbook.
		432	Roof drive overheating!	Roof mechanism Roof operation overheated. Temporarily only closing function available.
		516	No roof operation possible!	Roof Roof operation only possible with vehicle at a standstill.
4	yellow	445	Vehicle not standing on level surface!	Roof mechanism Vehicle not standing on level surface! No roof movement possible.

Only when you have excluded the function conditions as fault sources can you start convertible top diagnosis.

54 34... REMOVING AND INSTALLING/REPLACING GAS PRESSURIZED PROP ON LEFT OR RIGHT MAIN MOUNT

Open convertible top compartment lid.

IMPORTANT: Convertible top compartment lid may tilt forwards and must be supported with suitable apparatus.

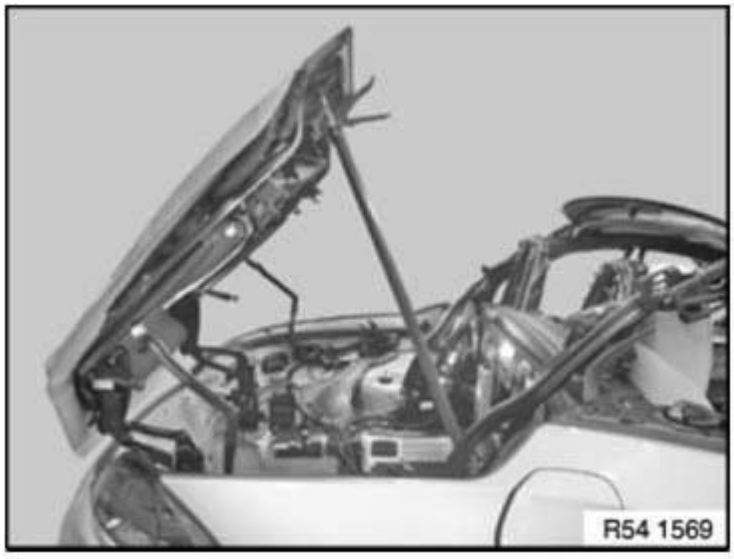


Fig. 7: Identifying Top Compartment Lid
Courtesy of BMW OF NORTH AMERICA, INC.

Make a written record of the alignment of gas pressure spring (1) before removing.

Slide retaining spring (2) to end of gas pressurized prop (1) and lever gas pressurized prop (1).

Repeat procedure at other end of gas strut (1).

Installation:

Check that retaining spring is fitted correctly and replace if necessary.

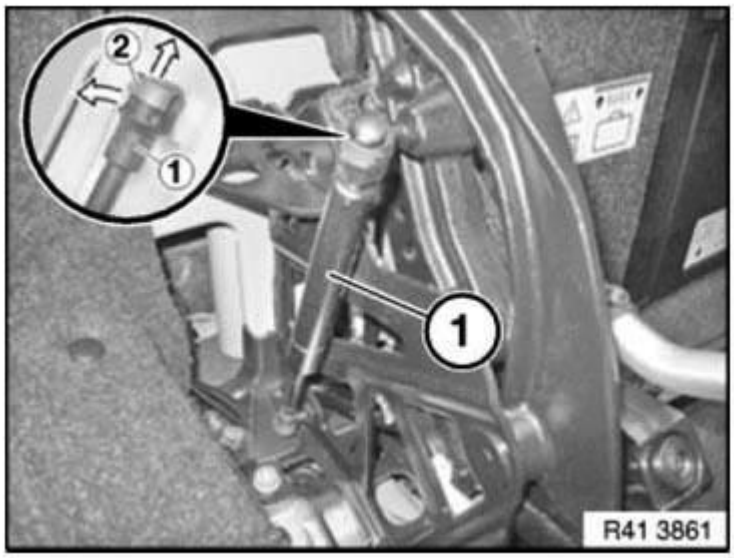


Fig. 8: Sliding Retaining Spring To End Of Gas Pressurized Prop
Courtesy of BMW OF NORTH AMERICA, INC.

Place special tool 54 0 210 on both ends of gas pressurized prop (1) and lightly tighten screw (2).

Remove gas pressurized prop from the ball heads.

Mark length of tensioned gas pressurized prop with felt pen on special tool 54 0 210.

The tension in the gas pressurized prop can be completely relieved by releasing screw (2).

Repeat procedure on right-hand side of car.

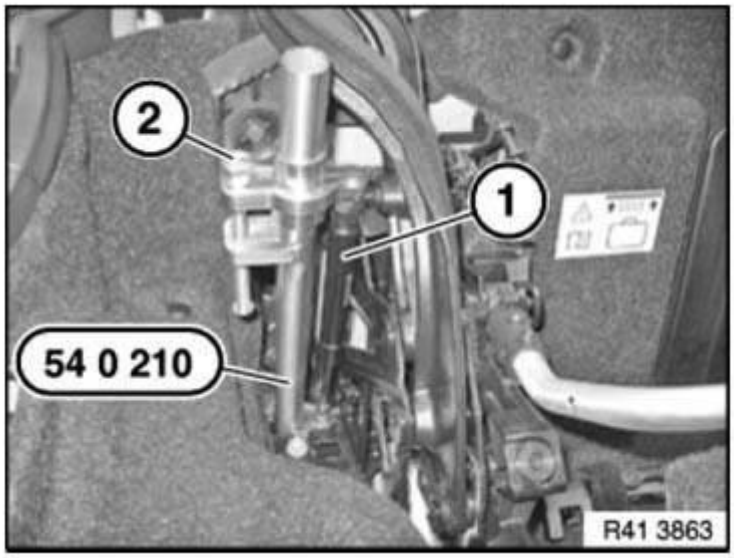


Fig. 9: Positioning Special Tool 54 0 210 On Both Ends Of Gas Pressurized Prop
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Always replace gas pressurized props in pairs.

Tension gas pressurized prop up to marking and install.

54 37 185 REMOVING AND INSTALLING/REPLACING HYDRAULIC UNIT (DRIVE) FOR RETRACTABLE HARDTOP

Necessary preliminary work

- Remove **LUGGAGE COMPARTMENT FLOOR TRIM PANEL**

IMPORTANT: Hydraulic fluid may emerge from the disconnected lines and the open connections on the hydraulic unit (drive).
Protect components and work area with suitable materials (e.g. cloths).
Follow REPAIR INSTRUCTIONS for hydraulic system.
Do not fit hydraulic lines in kinked, crushed or transposed condition.

Release screws (1).

Tightening torque **54 37 09AZ** .

Remove battery rollover protection (2).

Remove insulating mat (3).

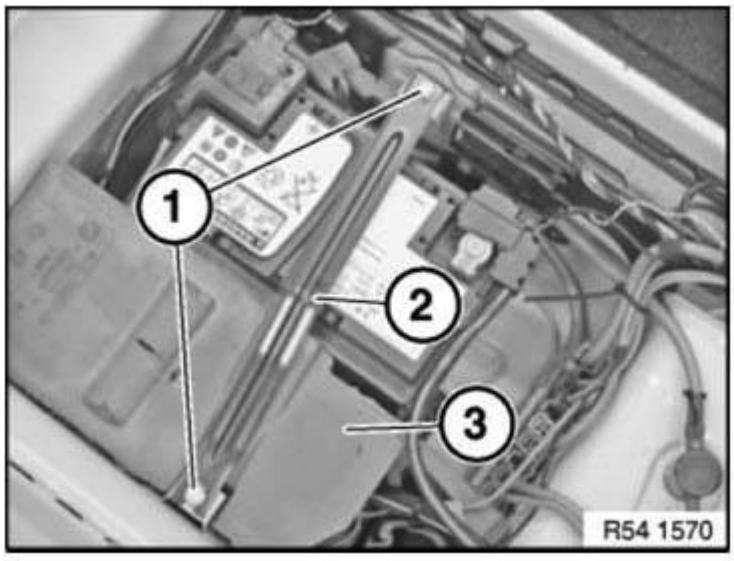


Fig. 10: Identifying Insulating Mat And Battery Rollover Protection With Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Unfasten plug connection (1) and disconnect.

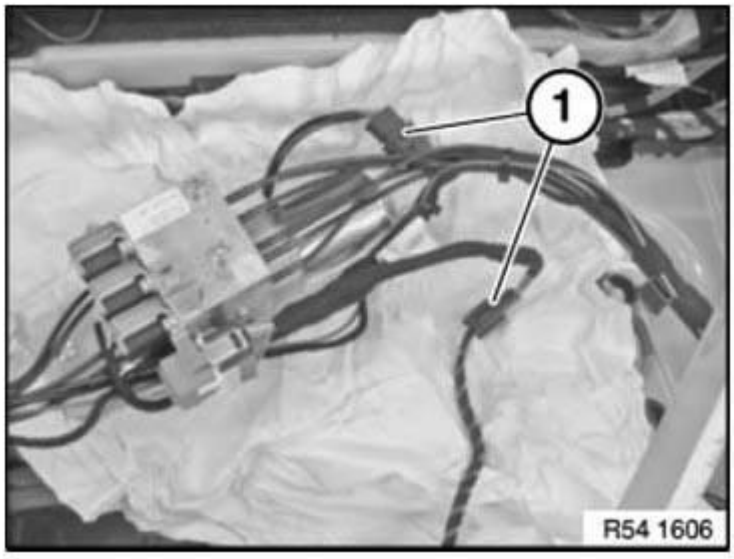


Fig. 11: Identifying Plug Connection
Courtesy of BMW OF NORTH AMERICA, INC.

Press release and detach relay (1) from holder.

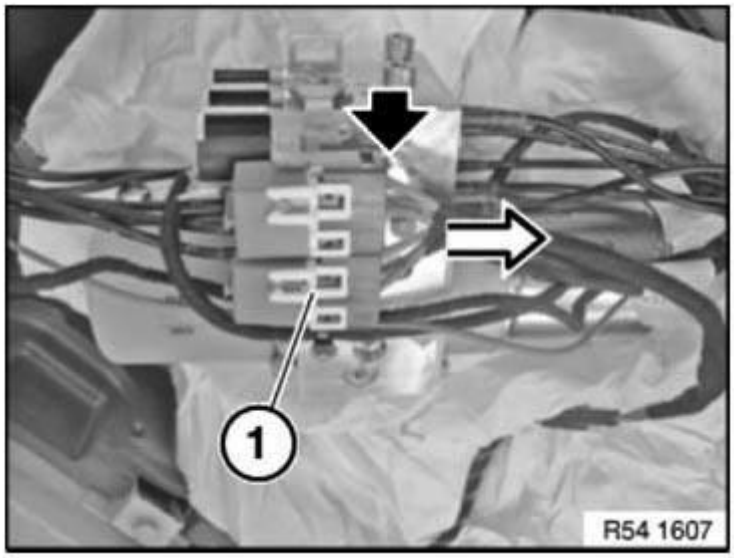


Fig. 12: Disconnecting Relay From Holder
Courtesy of BMW OF NORTH AMERICA, INC.

Release plug connections (1) and disconnect.

Cut cable straps.

Installation note:

Plug connections are coded against incorrect assembly.

Replace defective cable strap.

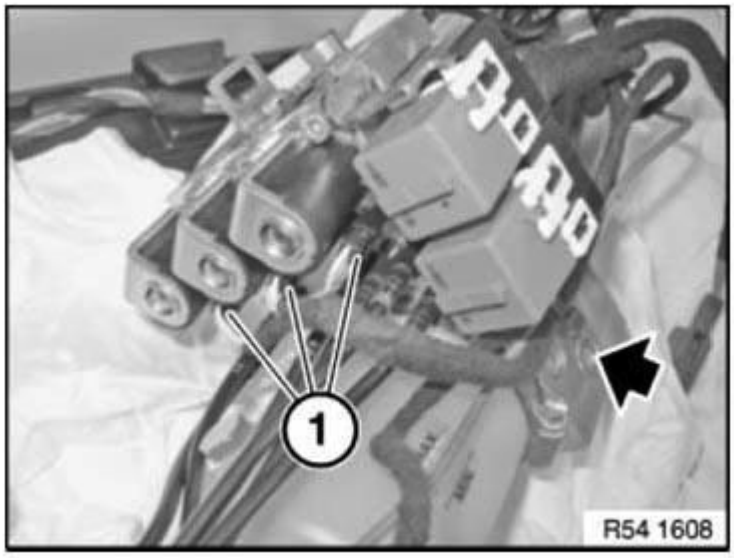


Fig. 13: Identifying Plug Connection
Courtesy of BMW OF NORTH AMERICA, INC.

IMPORTANT: Protect joints (lines and hydraulic unit) against dripping fluid, e.g. with a cleaning cloth.

Disconnect hydraulic lines from hydraulic unit:

- Release screws.
- Detach hydraulic lines

Installation note:

Hydraulic lines and connections are marked with numbers to prevent mix-ups.

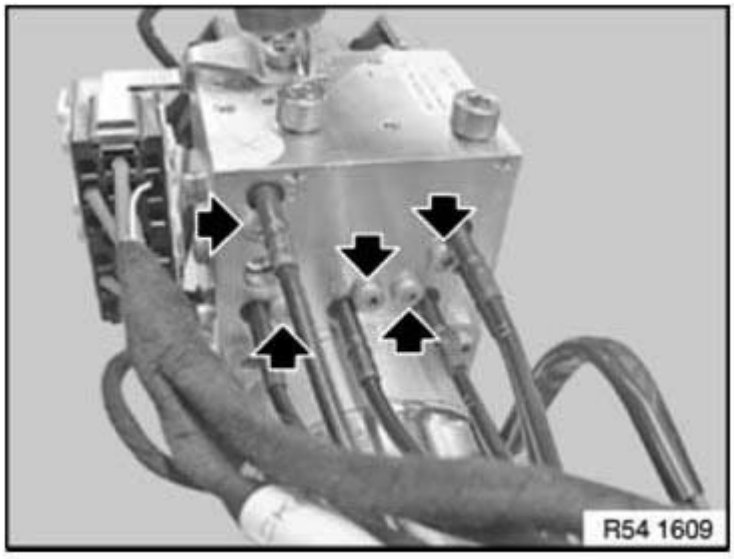


Fig. 14: Locating Screws Of Hydraulic Lines
Courtesy of BMW OF NORTH AMERICA, INC.

Disconnect hydraulic lines from hydraulic unit:

- Release screws.
- Detach hydraulic lines
- Remove hydraulic unit (drive).

Installation note:

Hydraulic lines and connections are marked with numbers to prevent mix-ups.

Check **FLUID LEVEL** or top up if necessary.

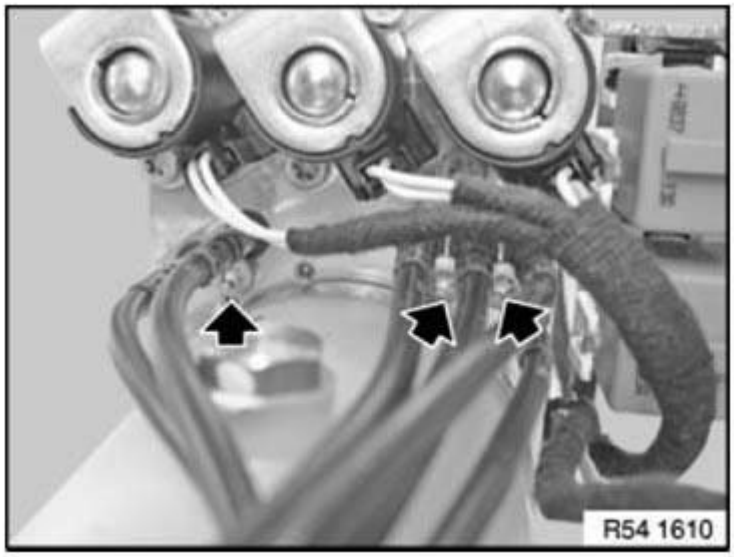


Fig. 15: Locating Screws Of Hydraulic Lines
Courtesy of BMW OF NORTH AMERICA, INC.

Replacement only:

Use Allen key to close shutoff valve on hydraulic unit.

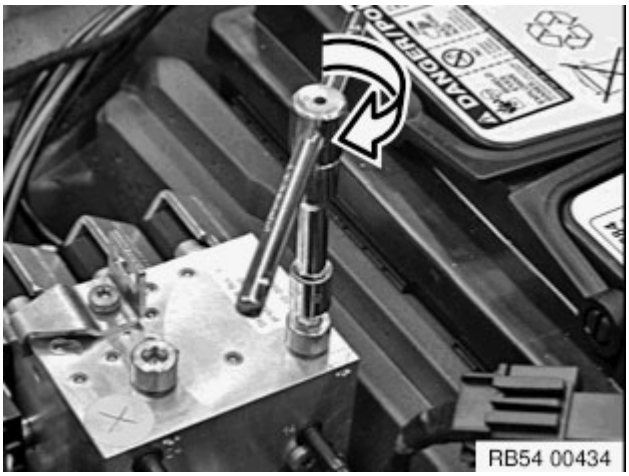


Fig. 16: Closing Shutoff Valve On Hydraulic Unit Using Allen Key
Courtesy of BMW OF NORTH AMERICA, INC.

54 34 503 REMOVING AND INSTALLING/REPLACING HYDRAULIC VALVE (SOLENOID VALVE)

Necessary preliminary tasks

- Remove **LUGGAGE COMPARTMENT FLOOR TRIM PANEL**

IMPORTANT: Hydraulic fluid may emerge from the open

connections on the hydraulic unit.
Protect components and work area with suitable materials (e.g. cloths).
Make sure that dirt cannot get into the hydraulic circuit.
Follow REPAIR INSTRUCTIONS for hydraulic system.
Do not fit hydraulic lines in kinked, crushed or transposed condition.

Release screws (1).

Tightening torque **54 37 09AZ** .

Remove battery rollover protection (2).

Remove insulating mat (3).

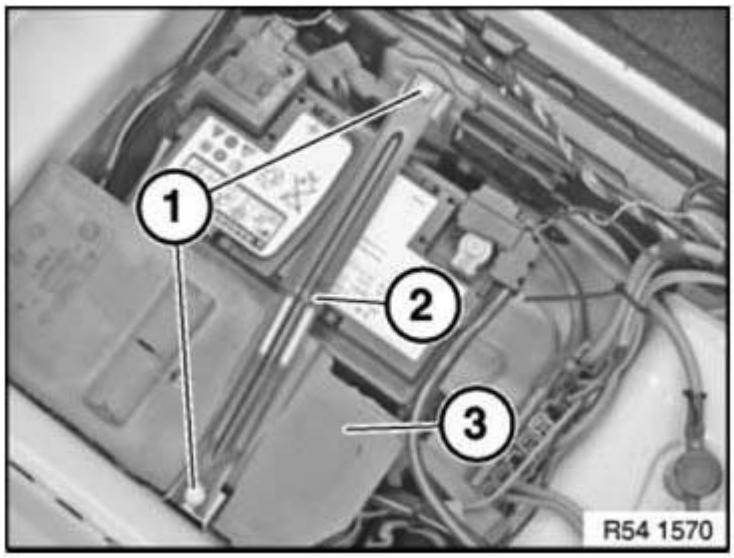


Fig. 17: Identifying Battery Rollover Protection And Insulating Mat
Courtesy of BMW OF NORTH AMERICA, INC.

Overview, hydraulic valves F1, F2 and F3:

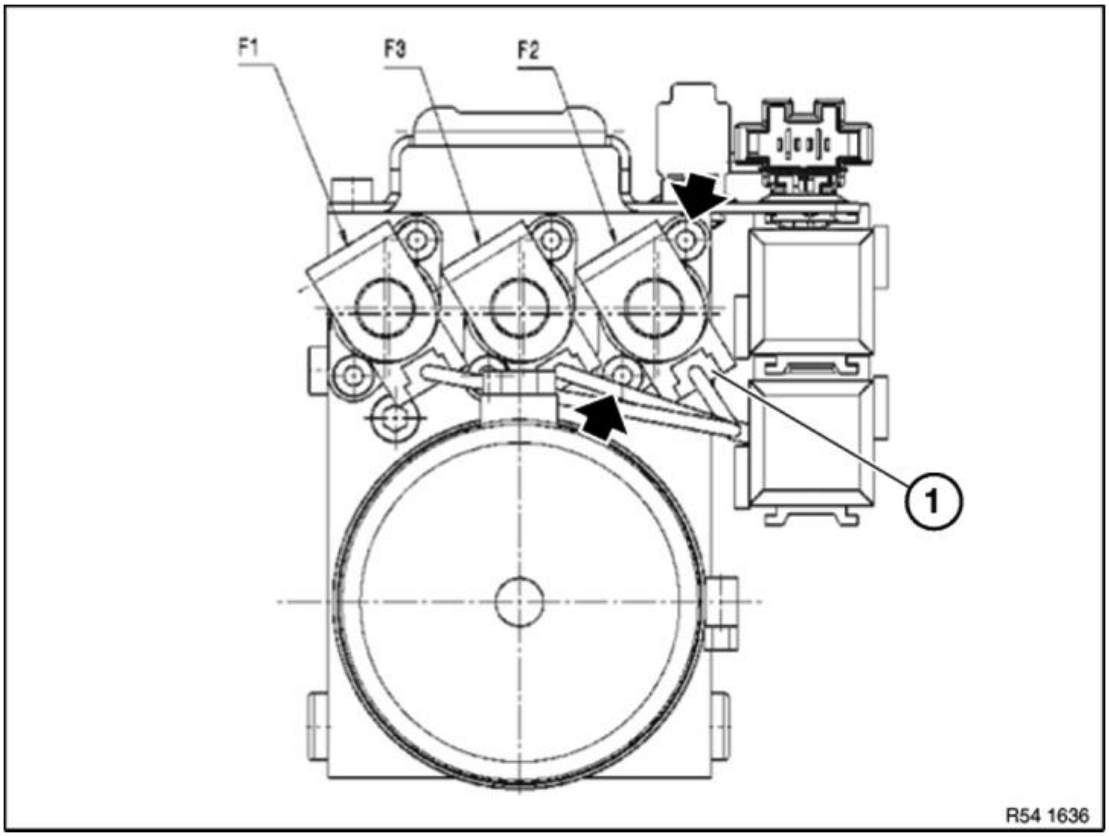


Fig. 18: Overview Of Hydraulic Valves F1, F2 And F3
Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: Hydraulic unit must be held in the vertical position, otherwise fluid will escape.
Change shown on hydraulic valve F2. Analogous procedure for hydraulic valve F1 and F3.
When removing several hydraulic valves, mark the plugs at the respective slots.
Unfasten plug connection (1) and disconnect.
Release screws.
Tightening torque 54 37 15AZ .
Detach hydraulic valve.

IMPORTANT: Protect exposed bores against dirt contamination.
Do not mix up plug connections.

Check **FLUID LEVEL** or top up if necessary.

Check function.

Fully open and close convertible top a minimum of 3 times in order to bleed the hydraulic system.

54 34... REPAIR INSTRUCTIONS FOR HYDRAULIC SYSTEM OF CONVERTIBLE TOP AND CONVERTIBLE TOP COMPARTMENT LID

1. Definitions of terms

REPAIR INSTRUCTIONS FOR HYDRAULIC SYSTEM OF SOFT TOP AND SOFT TOP COMPARTMENT LID

Hydraulic system at zero pressure or Untensioned state:	• Turn ignition lock to "0" position. • E46c: Wait 15 secondsE52: Wait 2 minutesE85: Emergency operation or wait 2 minutesE64: Wait 5 seconds.	Hydraulic system has no or only very low pressure
Mechanical operation: Emergency operation:	• Soft top is opened or closed by hand • Always move soft top with aid of a second person	Observe Point 3
Closed system:	• All lines are connected	Even "short circuiting" of lines is possible
Function check:	• Open and close soft top several times (min. 3 times) • Check fluid level in hydraulic unit; if necessary, top up fluid	Refer to Operating Instructions
Short circuit (E46c only):	• Unfastening of quick-release couplings • Connection of supply and return lines	Hydraulic system cannot build up pressure Soft top can be moved
Function check:	• Checking of soft top function if possible on removed soft top	Soft top must be secured! Move 2-3 times
Soft top stowed:	• Soft top fully open (folded together)	When the soft top is installed, it is in the closed soft top compartment

2. When working on hydraulic system, observe the following

- Once it has been removed, the convertible top must be safely stowed or tensioned (e.g. with screw clamps to workbench).

  On some models, the special tool must be used.

  The **UNIVERSAL LEVER** is required here.

- When the hydraulic system is open (unscrewing of lines, topping up of fluid, etc.), always provide sufficient cloths to catch leak-off fluid.

  Also provide an adherent protective cover to cover/protect fittings.

- Hydraulic system must be at zero pressure.
- E46c only: The disconnected supply and return lines to the convertible top can be connected to each other (establish "short circuit"). The system is thereby closed again. The clutches are protected against damage. The hydraulic system cannot build up a high pressure. The convertible top can be moved.
- Disconnect or unscrew feed and return lines if possible at a later stage, when the convertible top is stowed and untensioned (check fluid, see also Point 3).
- Once the hydraulic system has been opened, first check the fluid level after completing the tasks before carrying out a function test.
- After disconnecting the hydraulic lines from hydraulic components, do not move the convertible top if at all possible (fluid can escape from joints).
- Piston rods must not be damaged (e.g. scratches). Even paint mist and welding spots are harmful.

  When working in the vicinity of hydraulic cylinders, cover the cylinders with suitable materials.

- If the hydraulic unit or the lines stay removed for an extended period of time, the bores on the hydraulic unit and the hose connections must be sealed off (observe installation instructions).

3. Mechanical operation of convertible top

- E46c: only with ignition switched off.

If lines are disconnected, connect them to each other if at all possible.

- E52/E85: Emergency operation
- In the event of repeated operation, the system fluid is pumped into the supply tank of the hydraulic unit. If hydraulic components are now replaced, there will be too much fluid in the system. This may cause damage to the system in event of operation. (Checking fluid level, see Points 4 and 5).

4. Check oil level

- E46c: only when convertible top is stowed and convertible top compartment lid is closed. E52, E85: with closed convertible top only
- Observe brief instructions.
- Fluid level must be within the markings (circle/cross).
- Fluid is supplied with the repair kits (e.g. banjo bolts/seals, hoses, cylinders) and is available separately (refer to BMW Parts Department).

5. Topping up/extracting fluid

- E46c: only when convertible top is stowed and convertible top compartment lid is closed. E52E85only with convertible top closed
- E64 The hydraulic fluid does not have to be changed because the system is filled with life-time fluid. Only the approved hydraulic fluid may be used in the event of leaks.
- Observe brief instructions.
- Remove hydraulic unit without detaching lines.
- Fluid is supplied with the repair kits (e.g. banjo bolts/seals, hoses, cylinders) and is available separately (refer to BMW Parts Department).
- Pour in fluid with bottle through filler opening.
- Hydraulic unit must be removed if overfilled. Allow fluid to escape through filler opening and collect.

6. Bleeding hydraulic system

- E64if there is a significant build-up of noise while the convertible top is moving, the convertible top must be opened and closed several times. The hydraulic system is automatically bled in the fluid reservoir in the process.

54 34... TOPPING UP/EXTRACTING FLUID, CHECKING FLUID LEVEL

NOTE: No changing of the hydraulic fluid necessary.

- The hydraulic fluid does not have to be changed because the system is filled with life-time fluid.
- Only the approved hydraulic fluid may be used in the event of leaks.
- All hydraulic cylinders must be completely extended.

Checking fluid level:

Fluid level must be within the markings (arrow) when the unit is horizontal.

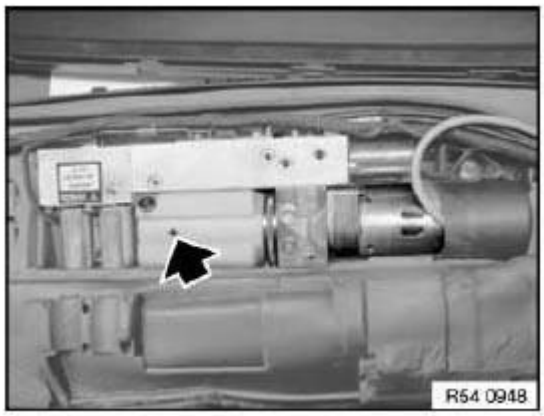


Fig. 19: Locating Fluid Level Marking
Courtesy of BMW OF NORTH AMERICA, INC.

Topping up fluid:

Align hydraulic unit horizontally.

Open oil filler plug.

Pour in required amount of fluid from fluid bottle.

Installation:

Check fluid level in the meantime.

Pour in hydraulic fluid only up to marking on fluid reservoir.

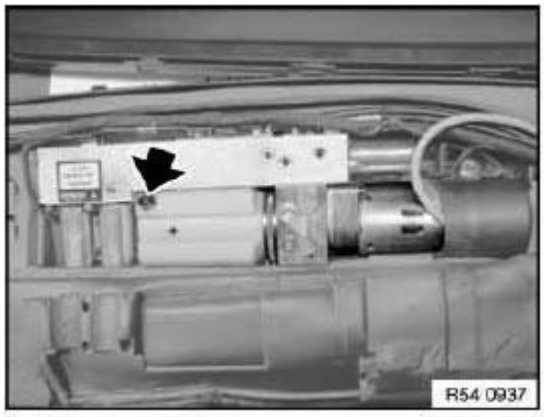


Fig. 20: Locating Oil Filter Plug
Courtesy of BMW OF NORTH AMERICA, INC.

IMPORTANT: Protect components and work area with suitable materials (e.g. cloths).

Extracting fluid:

Open oil filler plug.

Tilt hydraulic unit and let fluid flow out or draw off with a suitable auxiliary apparatus.

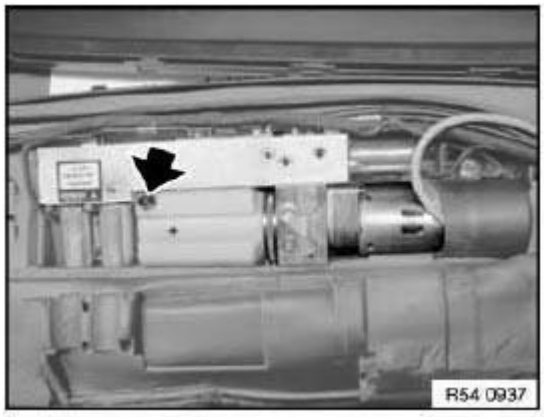


Fig. 21: Locating Oil Filter Plug
Courtesy of BMW OF NORTH AMERICA, INC.

5437 FOLDING ROOF

54 37... ADJUSTING ROOF SHELLS

Necessary preliminary tasks

- Remove **roofliner** for roof shell at rear
- Close soft top.

IMPORTANT: The roof shells may only be adjusted when the soft top is closed. The retaining hooks must be locked!

Release screws (1) on both sides of vehicle. Adjust roof shell with spacer plates (2).

Installation note: The difference in compensation must not exceed 2.5 mm. Tighten down screws (1) on both sides of vehicle.

Tightening torque **54 37 11AZ.**

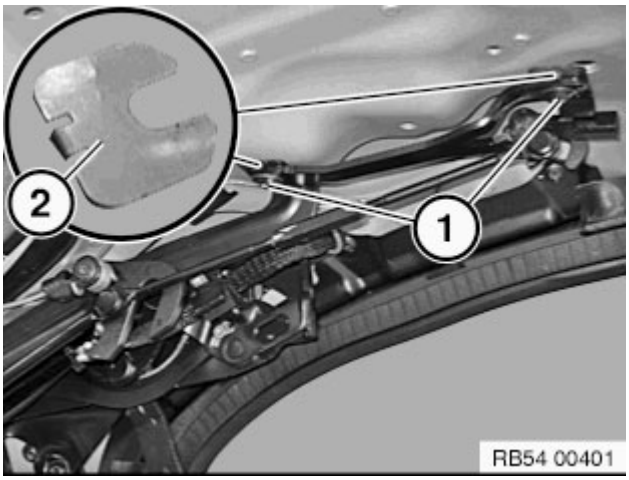


Fig. 22: Identifying Spacer Plates
Courtesy of BMW OF NORTH AMERICA, INC.

Check gap dimensions. Use special tool 00 9 340.

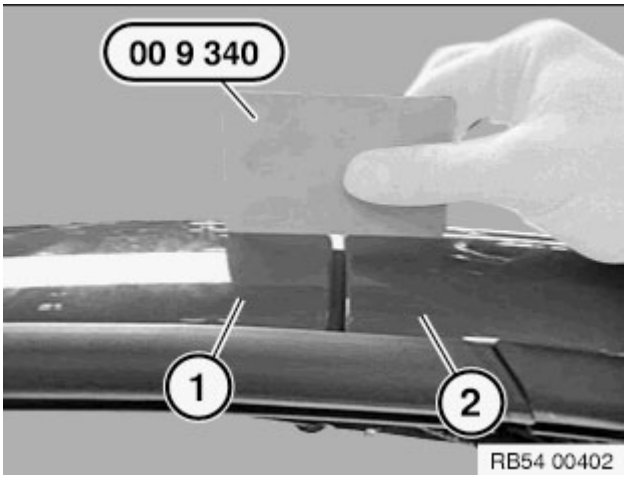


Fig. 23: Checking Gap Dimensions Using Special Tool (00 9 340)
Courtesy of BMW OF NORTH AMERICA, INC.

54 37... GENERAL NOTES REGARDING REPAIR AND TROUBLESHOOTING ON THE HARDTOP

The hardtop is a complex mechanical system. Proper function is achieved through precise adjustments of all components at the works.

Not all components can be adjusted at the works.

To avoid secondary problems after repairs, only repairs and adjustments that are explicitly approved by BMW may be performed.

Thorough troubleshooting must always be completed prior to beginning with hardtop repairs.

In addition to the diagnosis system and repair instructions, video sequences are available on DVD.

VHT E93 Analysis and repair instructions Part 1 (01 69 0 038 434).

VHT E93 Analysis and repair instructions Part 2 (01 69 0 038 662).

NOTE: Troubleshoot in the event of water penetration according to the specifications on the DVD.

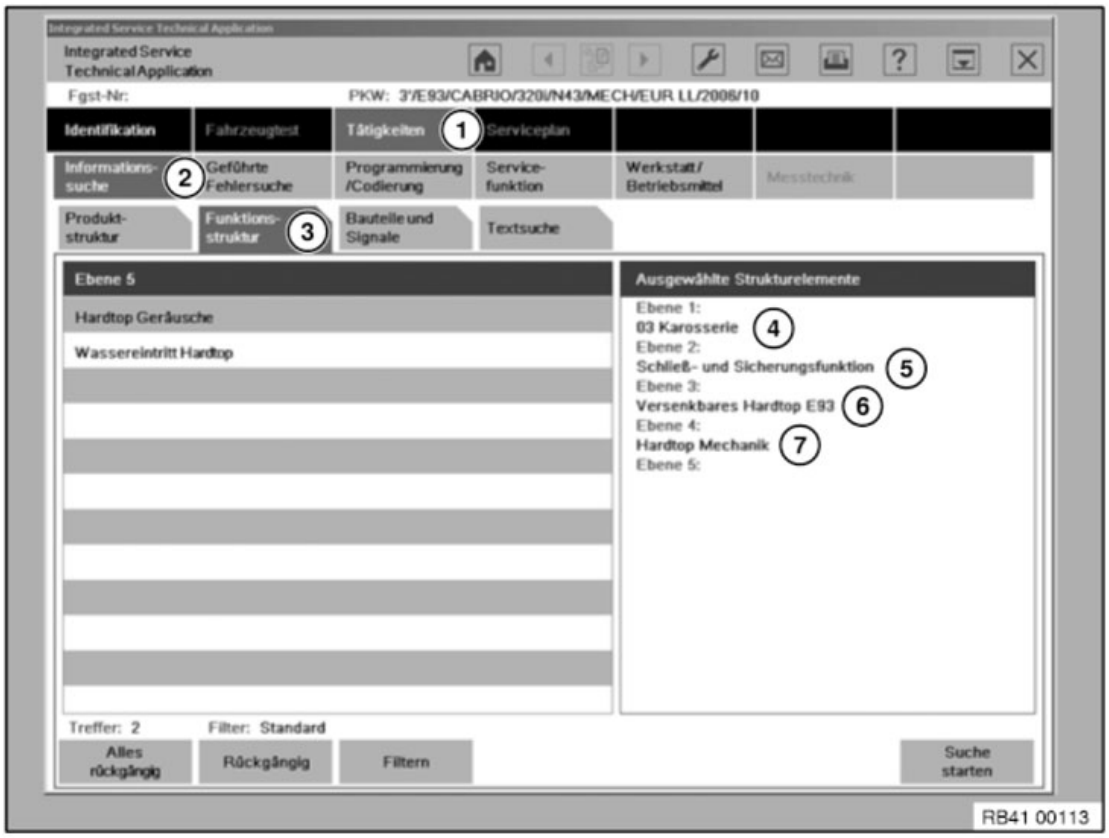


Fig. 24: Display - Repair And Troubleshooting On Hardtop
Courtesy of BMW OF NORTH AMERICA, INC.

The required procedures in the diagnosis system are found under:

1. **Activities**
2. **Information search**
3. **Function structure**
4. **Level 1: 03 Body**
5. **Level 2: Locking and security functions**
6. **Level 3: Retractable hardtop**
7. **Level 4: Hardtop mechanism (E93 only)**

54 37... REMOVING AND INSTALLING/REPLACING HYDRAULIC VALVE (SOLENOID VALVE)

Necessary preliminary work

- Remove **LUGGAGE COMPARTMENT FLOOR TRIM PANEL** .

IMPORTANT: Hydraulic fluid may emerge from the open connections on the hydraulic unit.

Protect components and work area with suitable materials (e.g. cloths).

Make sure that dirt cannot get into the hydraulic circuit.

Do not fit hydraulic lines in kinked, crushed or transposed condition.

Release screws (1). Tightening torque **54 37 09AZ** . Remove battery rollover protection (2). Remove insulating mat (3).

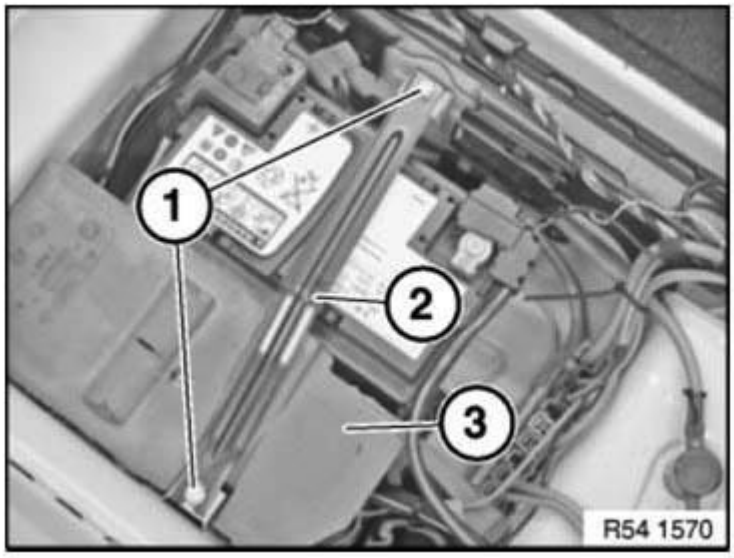


Fig. 25: Identifying Insulating Mat And Battery Rollover Protection With Screws
Courtesy of BMW OF NORTH AMERICA, INC.

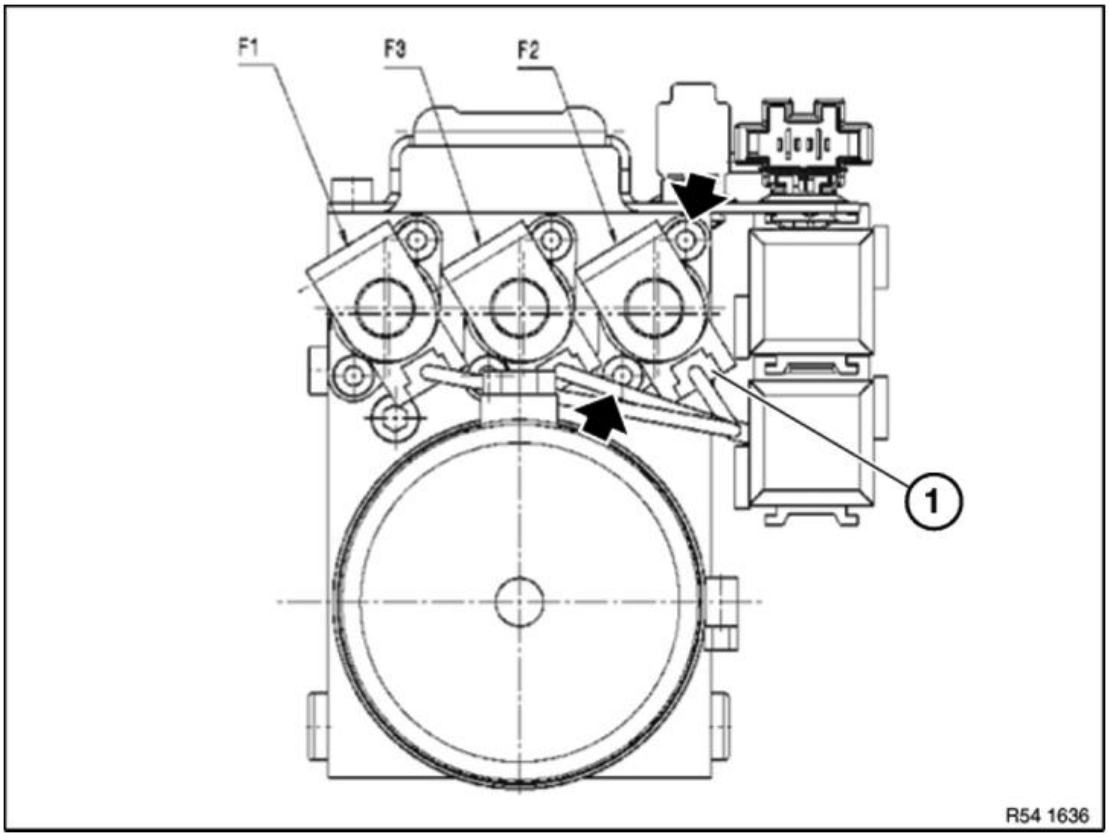


Fig. 26: Overview Of Hydraulic Valves F1, F2 And F3
Courtesy of BMW OF NORTH AMERICA, INC.

Hydraulic unit must be held in the vertical position, otherwise fluid will escape.

Change shown on hydraulic valve F2. Analogous procedure for hydraulic valve F1 and F3.

When removing several hydraulic valves, mark the plugs at the respective slots.

Unfasten plug connection (1) and disconnect.

Tightening torque **54 37 15AZ** .

Detach hydraulic valve

Important! Protect exposed bores against dirt contamination.

Do not mix up plug connections.

Check fluid level or top up if necessary.

Run a function check.

Fully open and close soft top a minimum of 3 times in order to bleed the hydraulic system.

54 37 125 CHECKING THE CONTROL RODS

Necessary preliminary tasks

- Remove **ROOFLINER FOR ROOF SHELL AT REAR**
- Adjust both seats toward the rear
- Close the roof

Measure the gap between the rear retaining hook (1) and roller (2) using a drill (3).

Nominal dimension 3±0.5 mm.

Visually check the gap between the front retaining hook (4) and the roller (5) (difficult to see).

Nominal dimension approx. 0.5 mm.

If the dimensions differ, the **control rod needs to be replaced**.

Fig. 27: Checking Gap Dimensions
Courtesy of BMW OF NORTH AMERICA, INC.

Move the rear roof shell (1) into the position shown. Secure the roof shell against being moved accidentally.

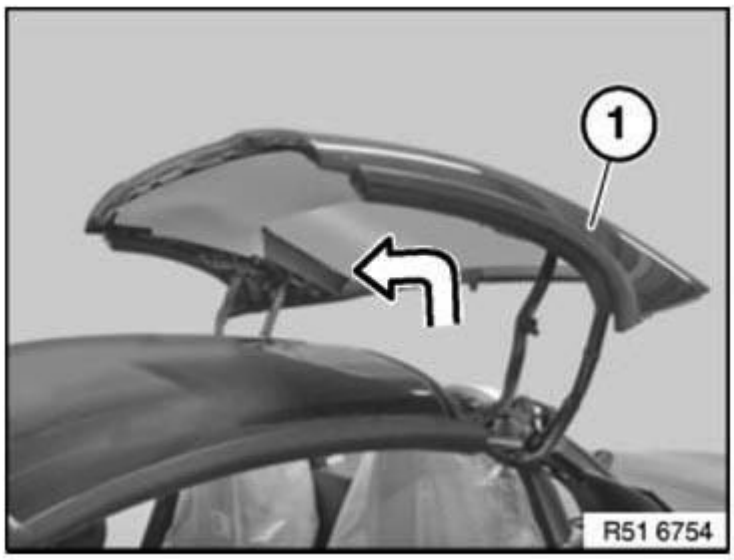


Fig. 28: Moving Rear Roof Shell
Courtesy of BMW OF NORTH AMERICA, INC.

Check the control rod (1) in the front area up to the clamping nut (2) for bending. If the control rod is damaged in this area, the soft top must be replaced.

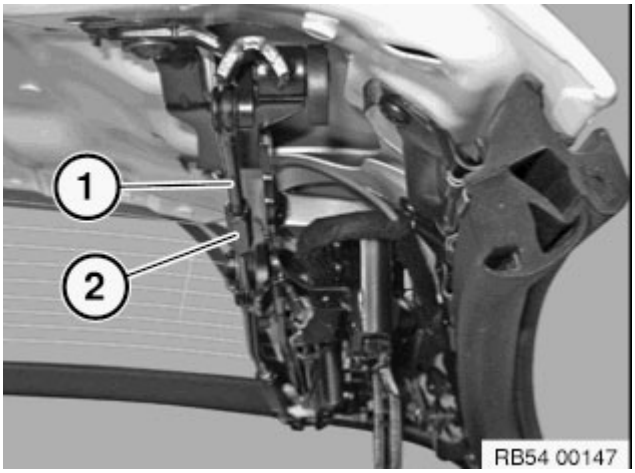


Fig. 29: Checking Control Rod
Courtesy of BMW OF NORTH AMERICA, INC.

54 37 625 REPLACING THE LEFT OR RIGHT CONTROL ROD

Necessary preliminary tasks

- Check the **control rod**

Move the rear roof shell (1) into the position shown.

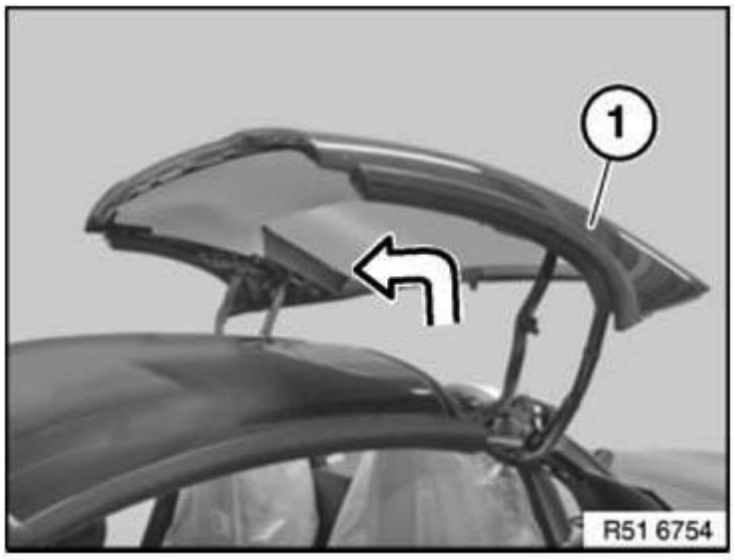


Fig. 30: Moving Rear Roof Shell
Courtesy of BMW OF NORTH AMERICA, INC.

Secure rear roof shell against sinking. Insert auxiliary tool on left and right in gap

(2) below soft top linkage (1). Roof shell is blocked when hydraulic system is depressurized.

IMPORTANT: Be sure to remove auxiliary tool again before moving roof. Risk of damage! Cover roof outer skin and rollover protection.

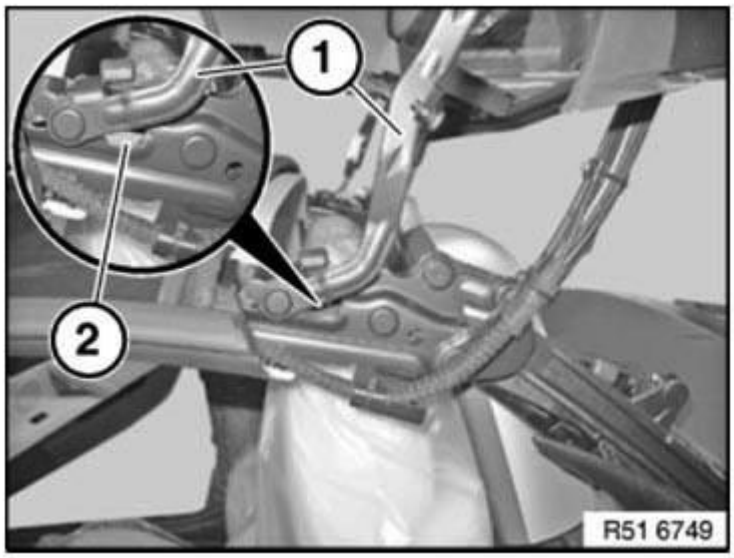


Fig. 31: Identifying Frame On Openings
Courtesy of BMW OF NORTH AMERICA, INC.

Slacken nut (1). Remove washer.

Tightening torque **54 37 16AZ.**

Release screw (2). Remove spring (3).

Tightening torque **54 37 17AZ.**

Important! Left-hand thread!

Slacken lock nut (4). Do not change position of lock nut. Dimension is used for pre-adjustment of the new control rod.

Tightening torque **54 37 18AZ.**

Unscrew clamping nut (5) together with control rod.

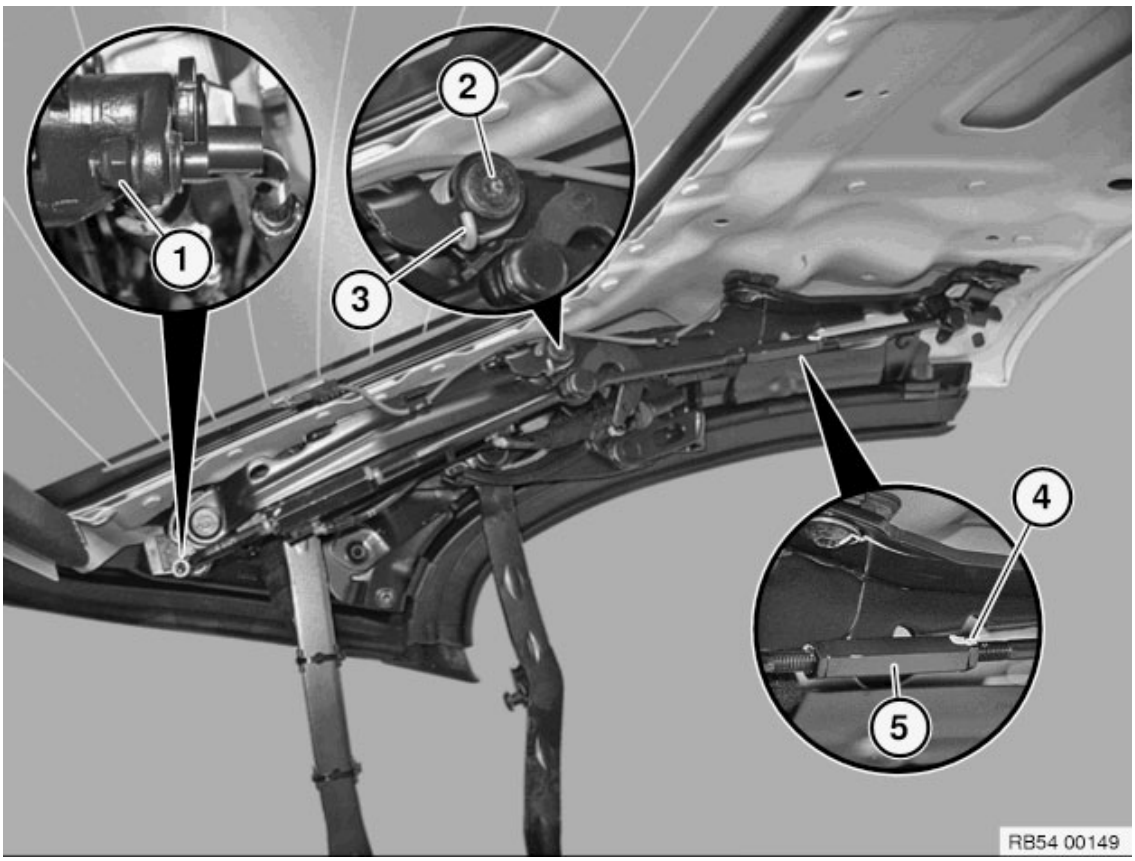


Fig. 32: Removing Control Rod
Courtesy of BMW OF NORTH AMERICA, INC.

Pull off connector (1) for heated rear window and unclip cable from clamp (2).

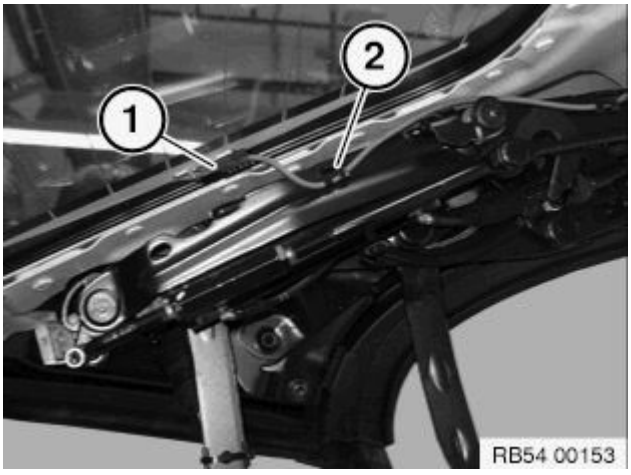


Fig. 33: Unclipping/Clipping Cable At Clamp
Courtesy of BMW OF NORTH AMERICA, INC.

Installation of control rod

New control rod is pre-adjusted.

IMPORTANT: Left-hand thread!

Remove front section (1) of control rod. Screw control rod to soft top linkage.

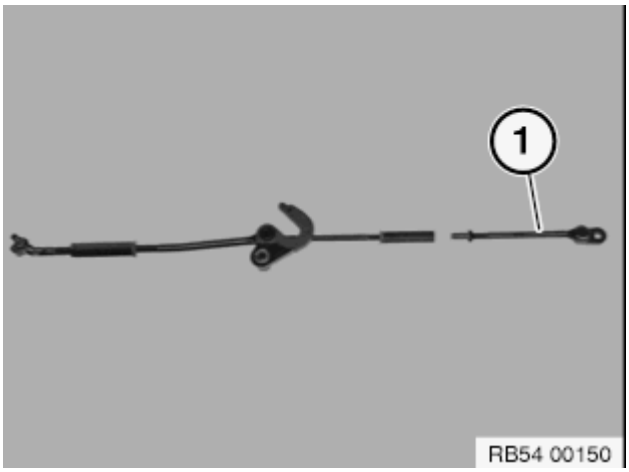


Fig. 34: Removing Front Section Of Control Rod
Courtesy of BMW OF NORTH AMERICA, INC.

Position spring (1) on retaining hook of control rod (2). Check that spring is correctly positioned (arrow) in bore hole.

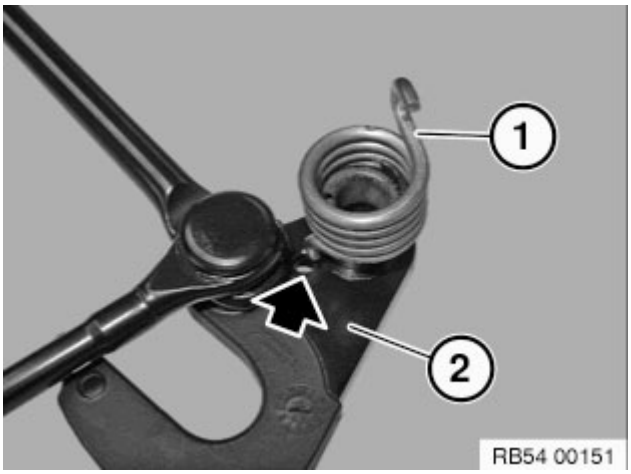


Fig. 35: Positioning Spring On Retaining Hook Of Control Rod
Courtesy of BMW OF NORTH AMERICA, INC.

Attach special tool 2 294 573 (3) to soft top frame. Centre retaining hook (1) with bore hole (2) and screw in screw.

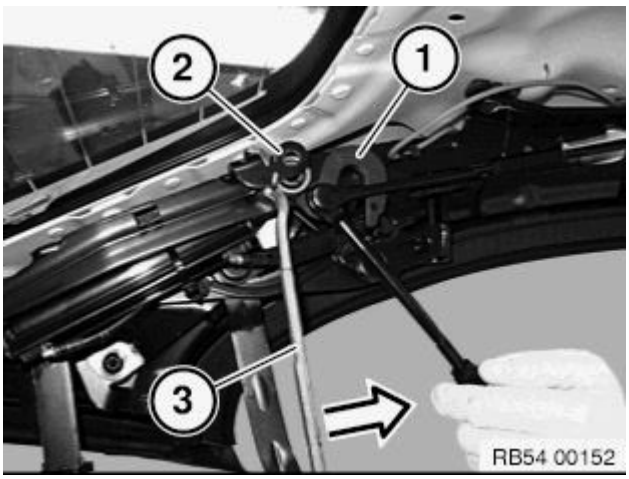


Fig. 36: Centering Retaining Hook With Bore Hole
Courtesy of BMW OF NORTH AMERICA, INC.

Tighten screw (2). See **Fig. 37**.

Tightening torque **54 37 17AZ** .

Tighten nut (1) with washer. See **Fig. 37**.

Tightening torque **54 37 16AZ** .

Tighten the lock nut (4). See **Fig. 37**.

Tightening torque **54 37 18AZ** .

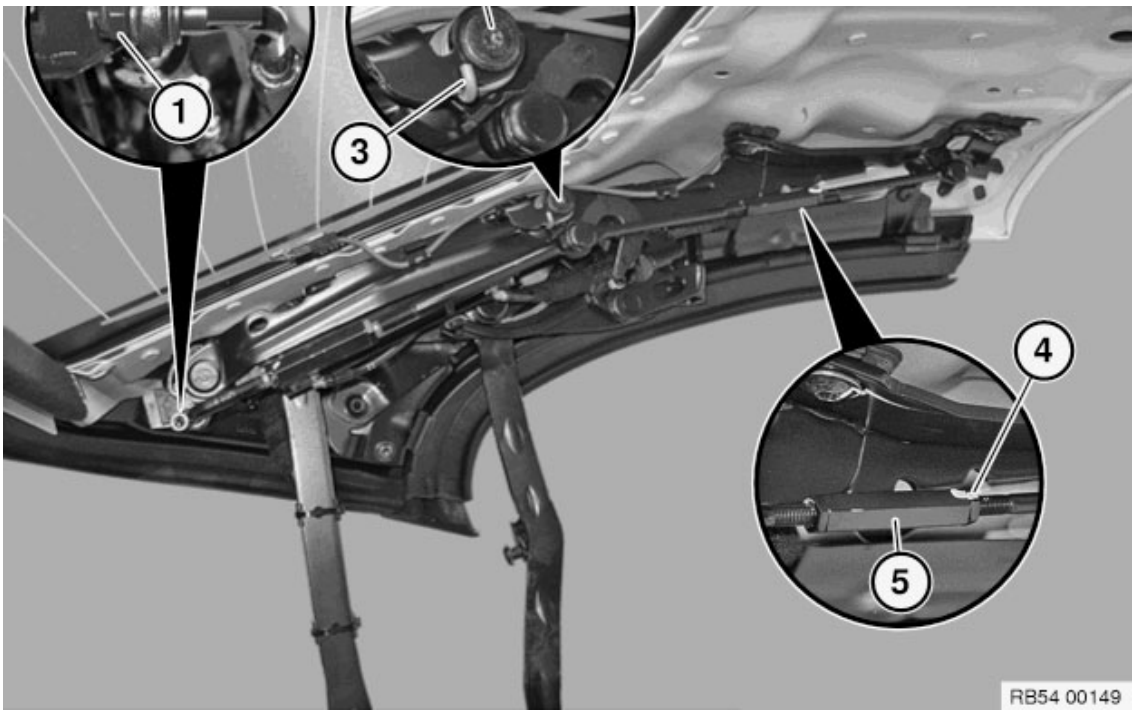


Fig. 37: Identifying Specific Nuts And Bolts Locations
Courtesy of BMW OF NORTH AMERICA, INC.

Connect connector (1) for heated rear window and clip cable into clamp (2).

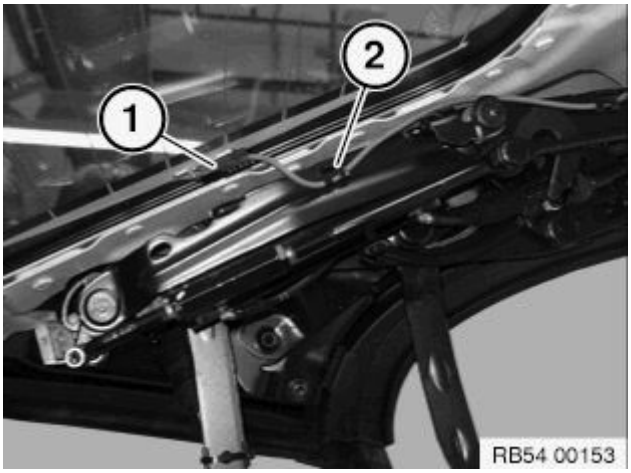


Fig. 38: Unclipping/Clipping Cable At Clamp
Courtesy of BMW OF NORTH AMERICA, INC.

Carefully close soft top.

IMPORTANT: Risk of damage! Fin must slip into the provided recess when the roof shell is lowered.

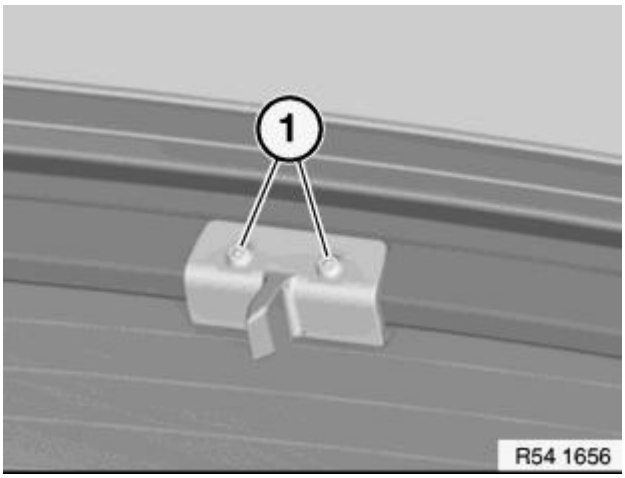


Fig. 39: Ensure Fin Fits Into Provided Recess When Roof Shell Is Lowered
Courtesy of BMW OF NORTH AMERICA, INC.

Check the control rod: Close the roof. Roofliner has been removed.

Measure the gap between the rear retaining hook (1) and roller (2) using a drill (3). Nominal dimension 3±0.5 mm. Visually check the gap between the front

retaining hook (4) and the roller (5) (difficult to see). Nominal dimension approx. 0.5 mm.

Fig. 40: Identifying Gap Measurement Locations
Courtesy of BMW OF NORTH AMERICA, INC.

If the dimensions differ, the control rod needs to be adjusted. First, loosen the rear clamping nut and adjust it until nominal dimension 3 mm is reached. Then check the front gap for nominal dimension 0.5 mm and adjust using the front clamping nut if necessary. Tighten all nuts with the specified torque. Carry out procedure on both vehicle sides.

54 37 295 EMERGENCY CLOSING HARDTOP

Necessary preliminary tasks

- Open rear lid
- **REMOVE TRUNK FLOOR**

IMPORTANT: Always perform the emergency closing procedure with the aid of an assistant.

The applied force must always be even on the left and right otherwise the linkage will bend.

Always execute all movements of the roof module with the assistance of a second person.

Risk of injury by trapping!

Remove foam cover.

Open screws on hydraulic unit 1.5 turns.

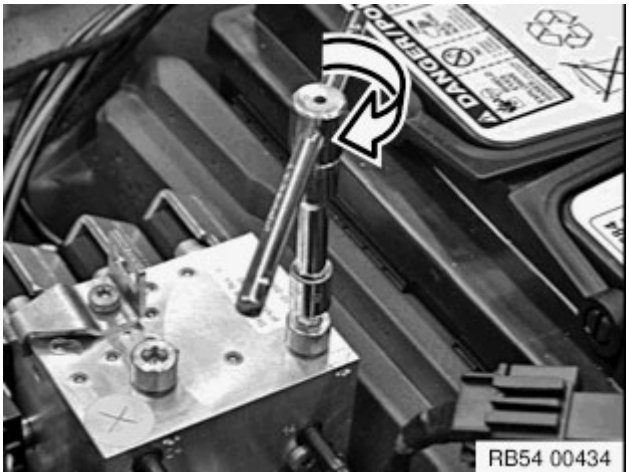


Fig. 41: Opening Screw Of Hydraulic Unit
Courtesy of BMW OF NORTH AMERICA, INC.

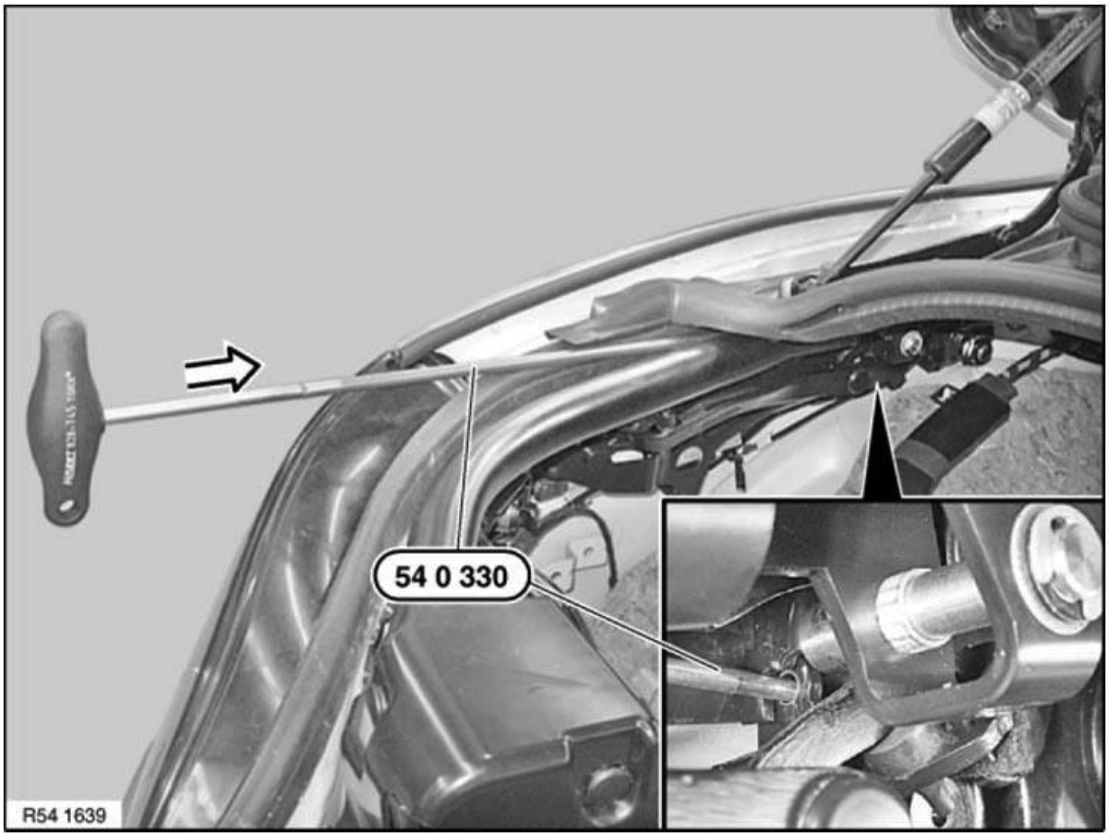


Fig. 42: Inserting Special Tool 54 0 330 Between Convertible Top Compartment Lid Frame And Side Panel
Courtesy of BMW OF NORTH AMERICA, INC.

Insert special tool 54 0 330 at rear left and right between convertible top compartment lid frame and side panel.

Feed in tip of special tool through bore hole.

NOTE: Bore hole is visible from direction of special tool with a torch.

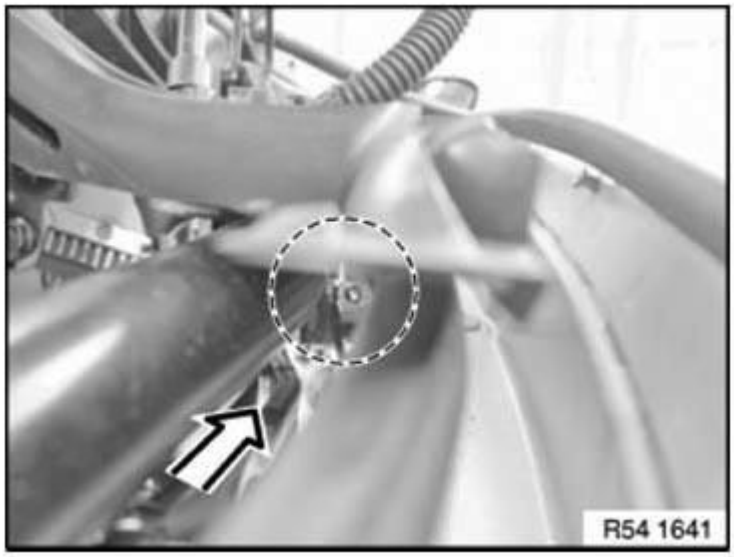


Fig. 43: Installing Tip Of Special Tool Through Bore Hole
Courtesy of BMW OF NORTH AMERICA, INC.

Tip of special tool 54 0 330 must butt against joint for hydraulic cylinder (1).

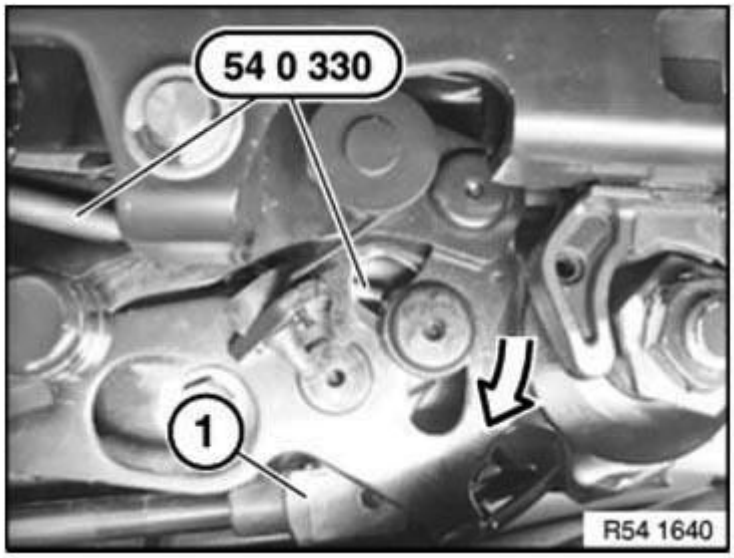


Fig. 44: Identifying Hydraulic Cylinder
Courtesy of BMW OF NORTH AMERICA, INC.

For the ideal pressure point of special tool on joint, proceed as follows:

1. Press outwards
2. Pull tool upwards
3. Press tool to unlock convertible top compartment lid latch

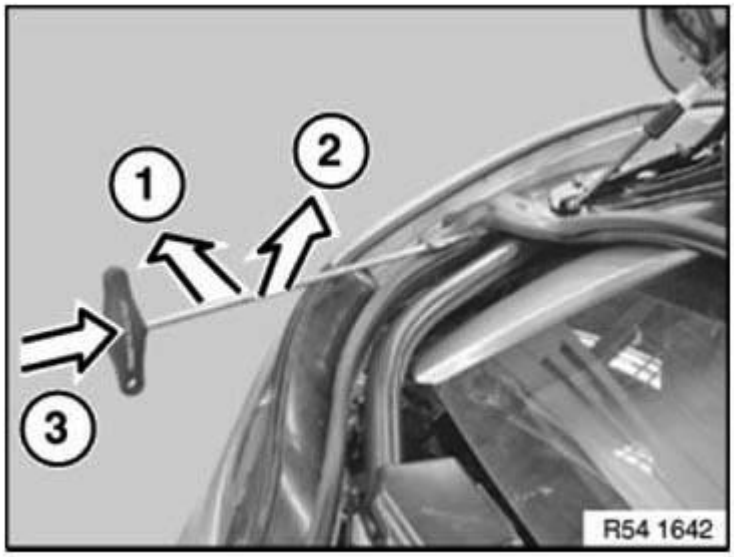


Fig. 45: Pressing Tool To Unlock Convertible Top Compartment Lid Latch
Courtesy of BMW OF NORTH AMERICA, INC.

Open convertible top compartment lid.

IMPORTANT: Convertible top compartment lid may tilt forwards and must be supported with suitable apparatus.

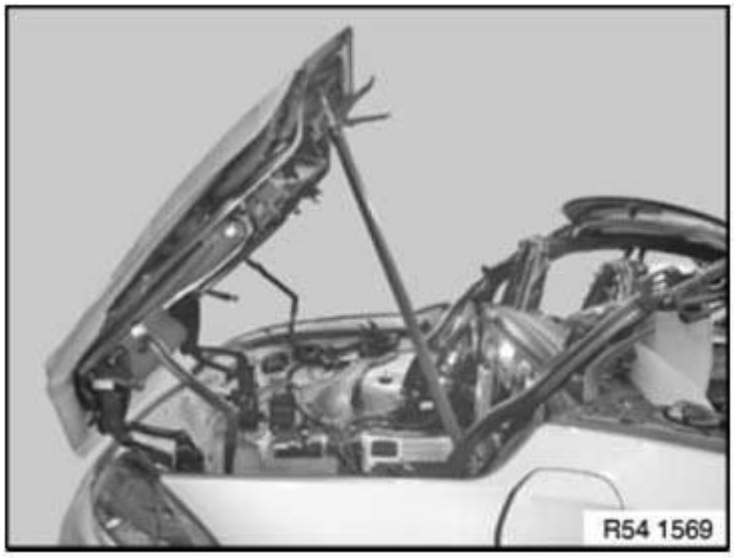


Fig. 46: Opening Convertible Top Compartment Lid
Courtesy of BMW OF NORTH AMERICA, INC.

Release screws (1) on left and right from holder.

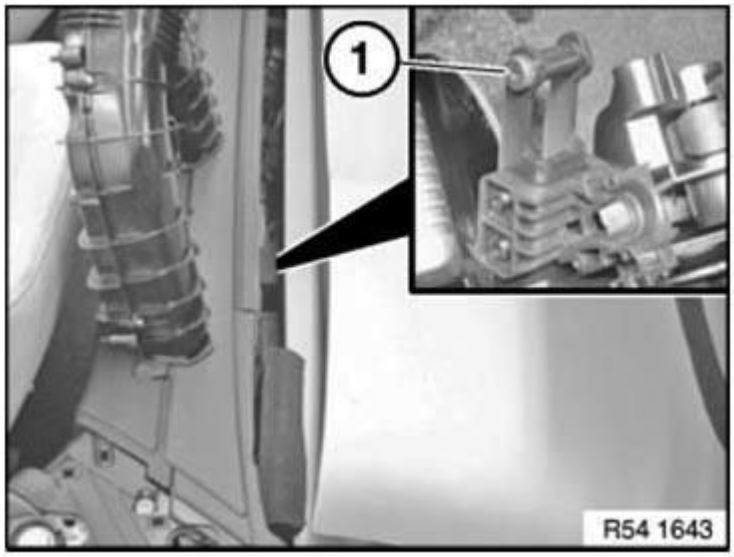


Fig. 47: Identifying Holder Screw
Courtesy of BMW OF NORTH AMERICA, INC.

Lift out roof shells uniformly with a 2nd person helping and set down.

NOTE: Only grasp the front roof shell when raising the roof shells.

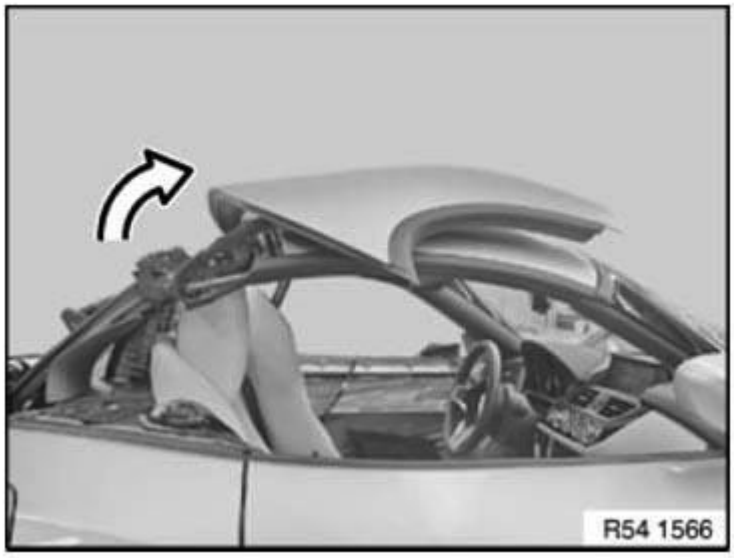


Fig. 48: Lifting Of Roof Shells
Courtesy of BMW OF NORTH AMERICA, INC.

Remove support for convertible top compartment lid (1) and set down convertible top compartment lid.

Raise rear roof shell (2) and remove **ROOFLINER**.

Set down roof shell (2) towards rear (convertible top closed).

Remove **ROOFLINER** for roof shell at front.

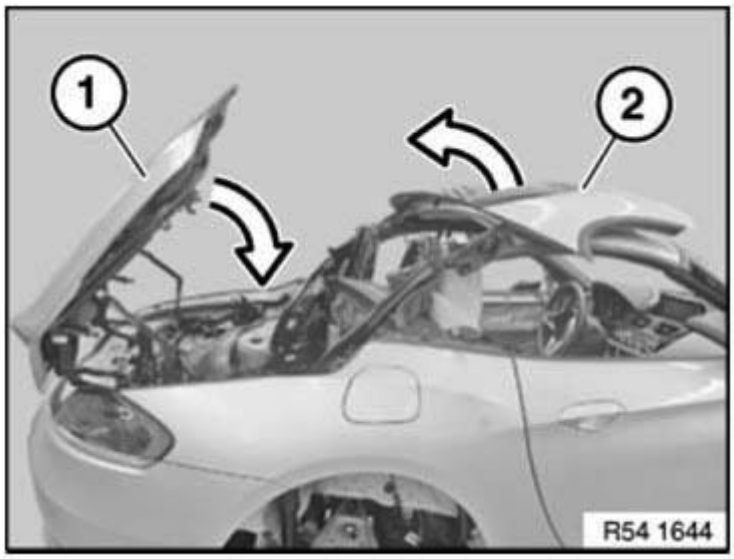


Fig. 49: Raising Rear Roof Shell
Courtesy of BMW OF NORTH AMERICA, INC.

Slide open retaining clip (1) and unclip ball head.

Secure control rod on left and right with cable tie to prevent them hanging down and rattling.

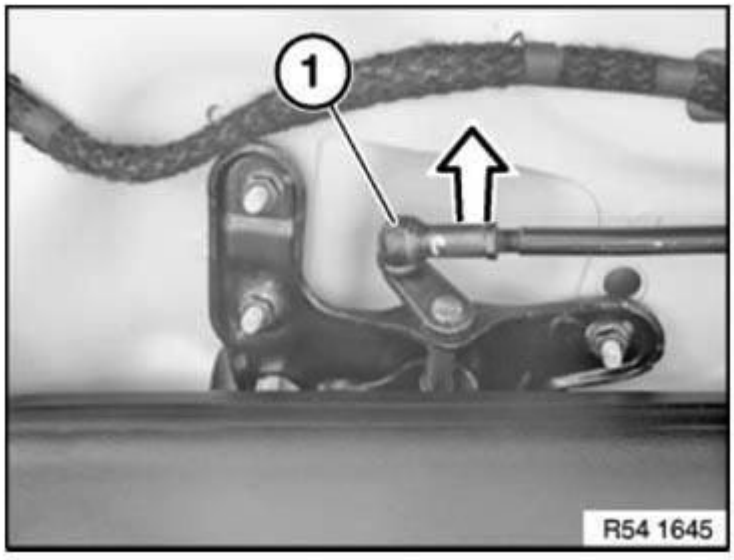


Fig. 50: Sliding Open Retaining Clip

Courtesy of BMW OF NORTH AMERICA, INC.

Lock retaining hook (1) on left and right.

Turn retaining hook (1) with pliers over dead center.

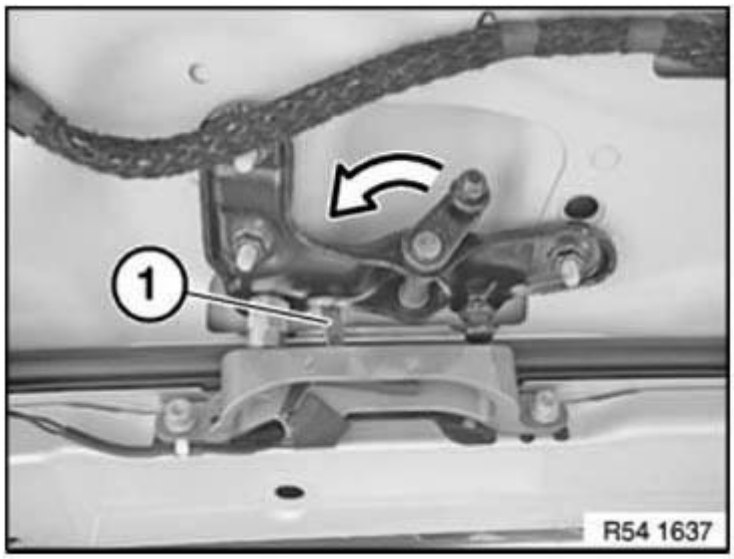


Fig. 51: Turning Retaining Hook Using Pliers Over Dead Centre
Courtesy of BMW OF NORTH AMERICA, INC.

Insert special tool 54 0 320 in convertible top frame and lock rear roof shell on left and right.

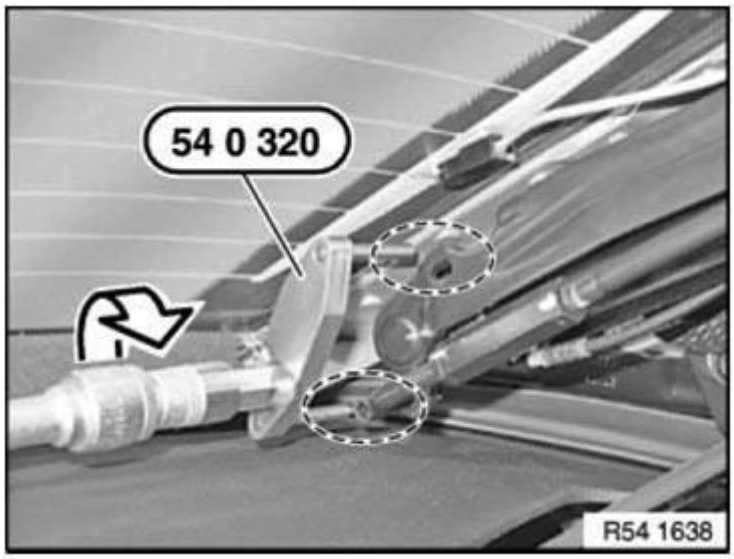


Fig. 52: Inserting Special Tool 54 0 320 On Convertible Top Frame
Courtesy of BMW OF NORTH AMERICA, INC.

IMPORTANT: The customer must no longer operate the convertible top after it has been closed with the emergency closing procedure!
To prevent operation, remove fuse 12 for convertible top.
Place removed individual parts in vehicle.

54 37 290 HARDTOP EMERGENCY OPENING

Necessary preliminary tasks

- Remove **ROOFLINER FOR ROOF SHELL AT FRONT**
- Remove **ROOFLINER FOR ROOF SHELL AT REAR**
- Remove **LUGGAGE COMPARTMENT FLOOR TRIM**

NOTE: Roofliner for roof shell at rear can not be removed without sustaining damage.

IMPORTANT: Always perform the emergency opening procedure with the aid of an assistant.
The applied force must always be even on the left and right otherwise the linkage will bend.
Always execute all movements of the roof module with the assistance of a second person.
Risk of injury by trapping!

Step 1: Open rear roof shell

Open rear lid.

Remove foam cover.

Open screws on hydraulic unit 1.5 turns.

NOTE: System is now depressurized and can be moved manually.

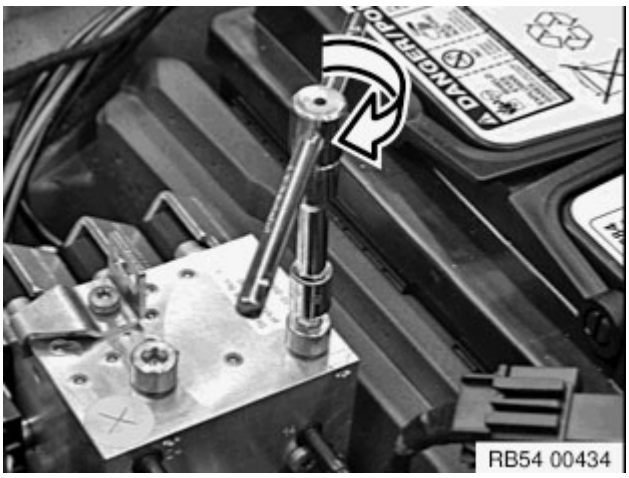


Fig. 53: Opening Screws On Hydraulic Unit
Courtesy of BMW OF NORTH AMERICA, INC.

Insert special tool **54 0 320** in convertible top linkage and unlock rear roof shell on left and right.

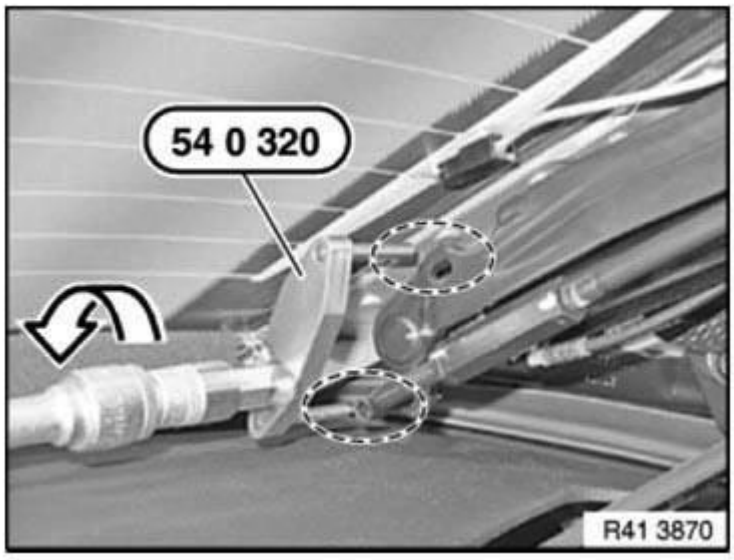


Fig. 54: Inserting Special Tool 54 0 320
Courtesy of BMW OF NORTH AMERICA, INC.

Evenly lift up rear roof shell with an assistant and set down on front roof shell.

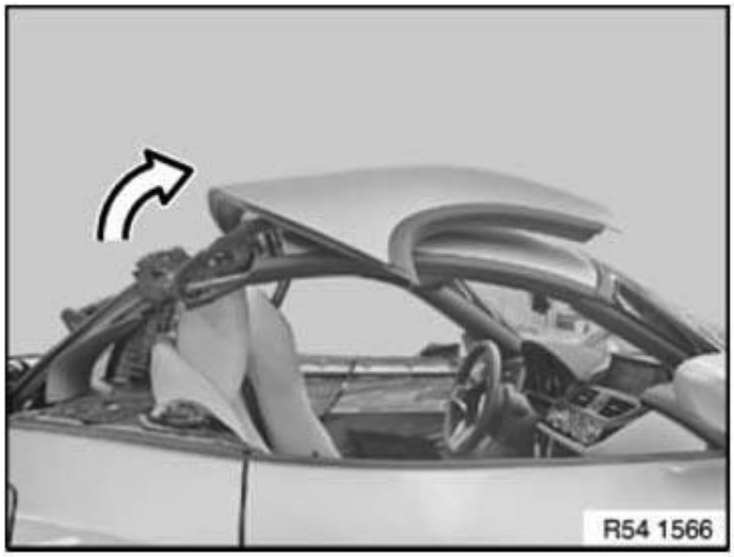


Fig. 55: Lifting Rear Roof Shell With Assistant On Front Roof Shell
Courtesy of BMW OF NORTH AMERICA, INC.

Step 2: Open cowl panel lock

Slide open retaining clip (1) and unclip ball head.

IMPORTANT: Risk of damage!
Secure control rod on left and right with cable tie to prevent them hanging down and rattling.

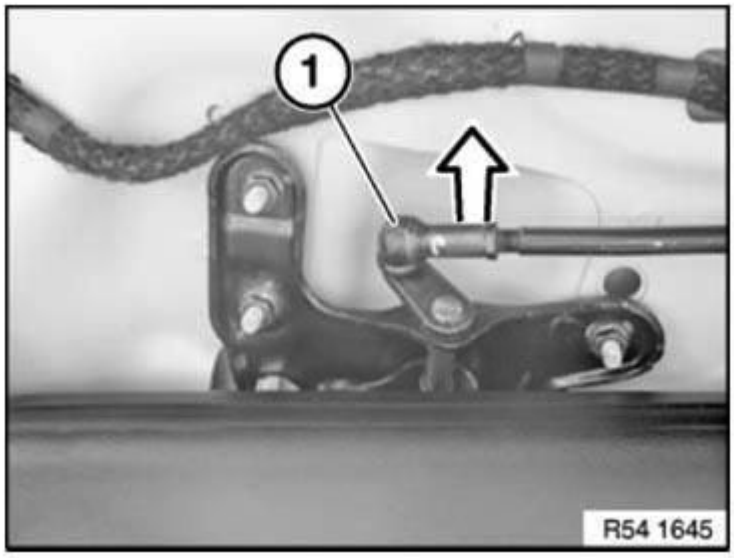


Fig. 56: Sliding Open Retaining Clip
Courtesy of BMW OF NORTH AMERICA, INC.

Unlock retaining hook (1) on left and right.

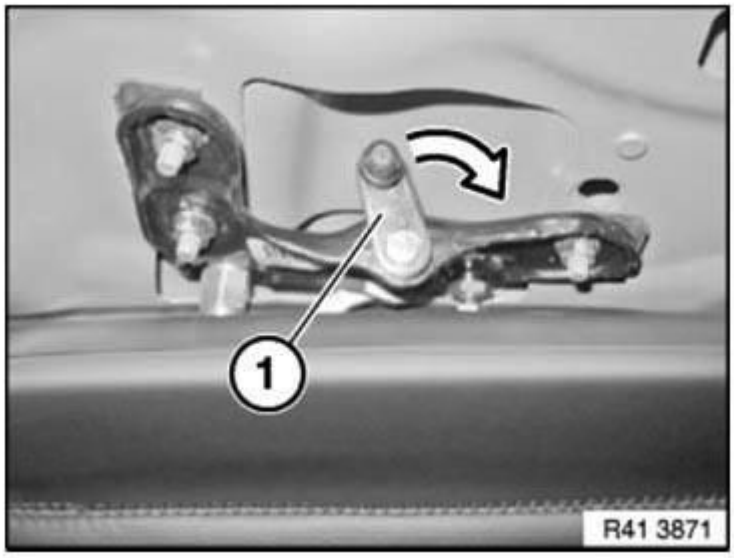


Fig. 57: Removing Retaining Hook
Courtesy of BMW OF NORTH AMERICA, INC.

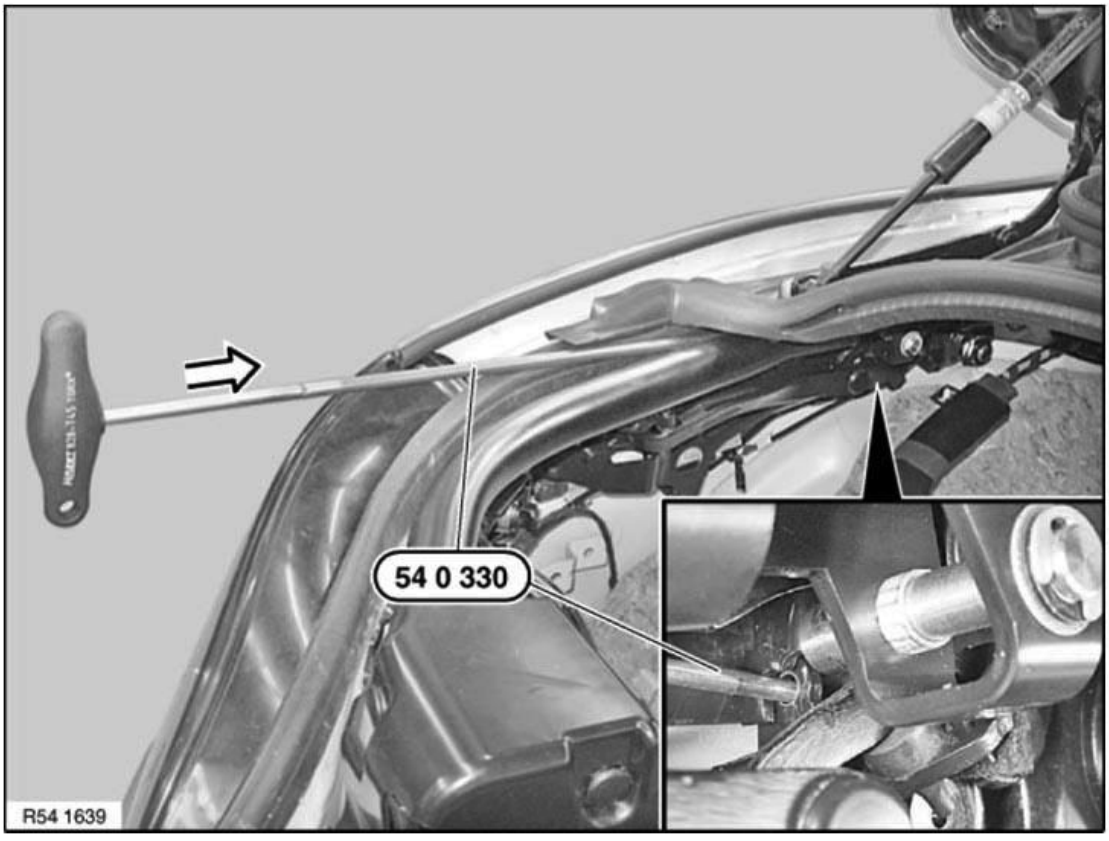


Fig. 58: Inserting Special Tool 54 0 330 Between Convertible Top Compartment Lid Frame And Side Panel
Courtesy of BMW OF NORTH AMERICA, INC.

Step 3: Open rear module lock

Open rear lid.

Insert special tool **54 0 330** at rear left and right between convertible top compartment lid frame and side panel.

Feed in tip of special tool through bore hole.

NOTE: Bore hole is visible from direction of special tool with a torch.

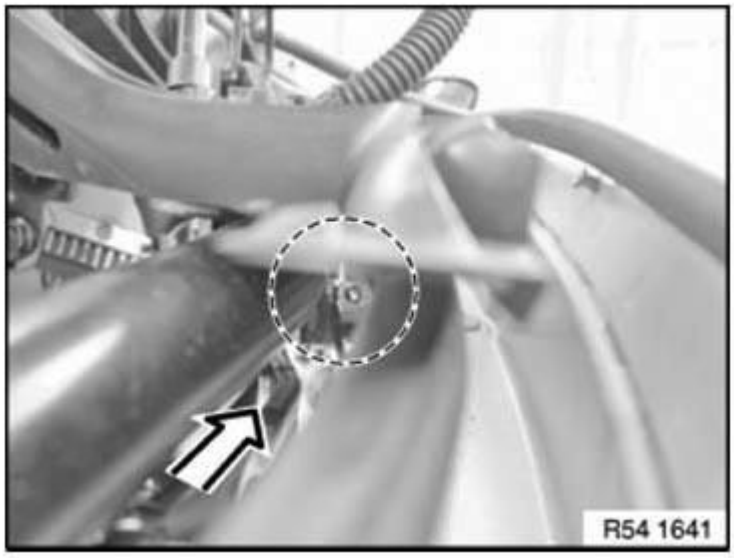


Fig. 59: Installing Tip Of Special Tool Through Bore Hole
Courtesy of BMW OF NORTH AMERICA, INC.

Tip of special tool **54 0 330** must butt against joint for hydraulic cylinder (1).

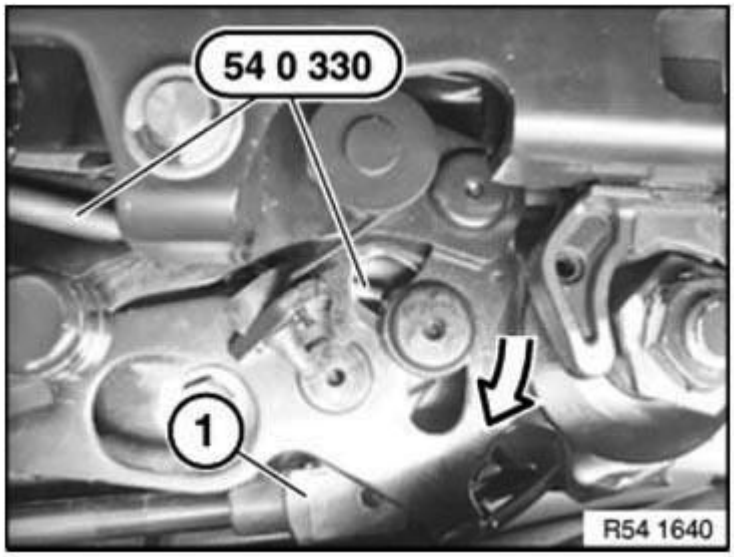


Fig. 60: Identifying Hydraulic Cylinder
Courtesy of BMW OF NORTH AMERICA, INC.

For the ideal pressure point of special tool on joint, proceed as follows:

1. Press outwards
2. Pull tool upwards
3. Press tool to unlock convertible top compartment lid latch

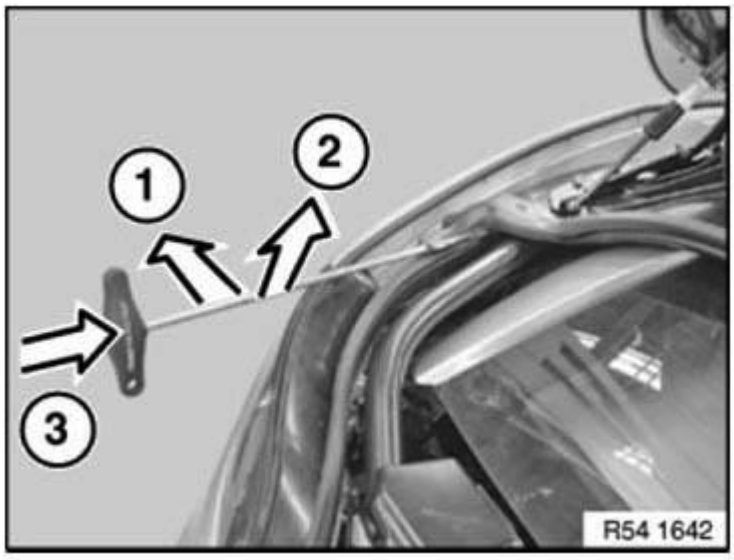


Fig. 61: Pressing Tool To Unlock Convertible Top Compartment Lid Latch
Courtesy of BMW OF NORTH AMERICA, INC.

Open rear module.

IMPORTANT: Rear module can tip.
Have an assistant support the rear module.

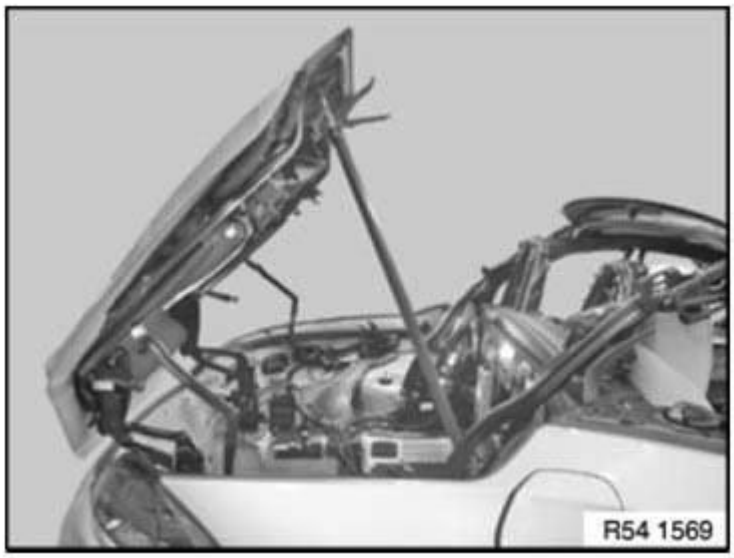


Fig. 62: Opening Rear Module
Courtesy of BMW OF NORTH AMERICA, INC.

Evenly lift up roof module (2) with an assistant and set down in vehicle.

NOTE: Only grasp the front roof shell when raising the roof shells.

Close rear module.

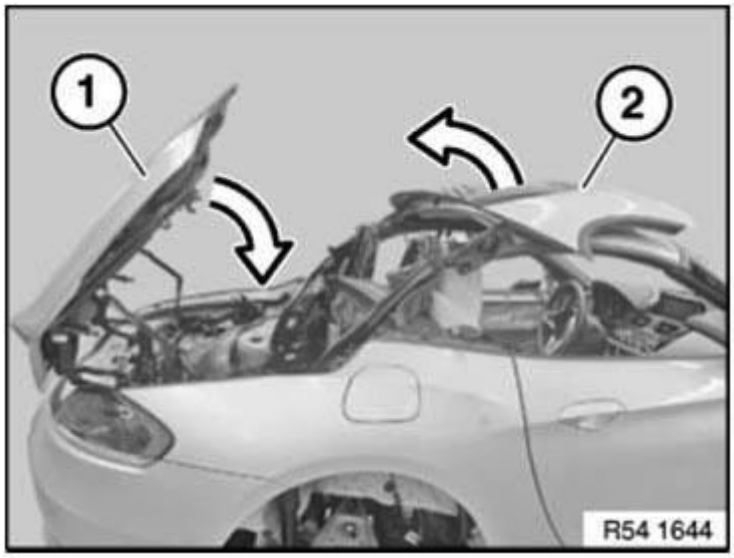


Fig. 63: Lifting Roof Module With Assistant On Vehicle

Courtesy of BMW OF NORTH AMERICA, INC.

IMPORTANT: The convertible top must not be moved any further after emergency opening.
Move the vehicle as little as possible to prevent vibrations.
Roof shells which are not locked may cause irreparable damage.

54 37... INSTALLING/REPLACING MAIN BEARING CONSOLES

IMPORTANT: The main bearing consoles factory prepared.
Removing the main bearing consoles is only necessary in the event of body repair in area of attachment points.

Adjust both consoles (1) with barrel screws (2) to dimension a.

Measurement a = 35 mm

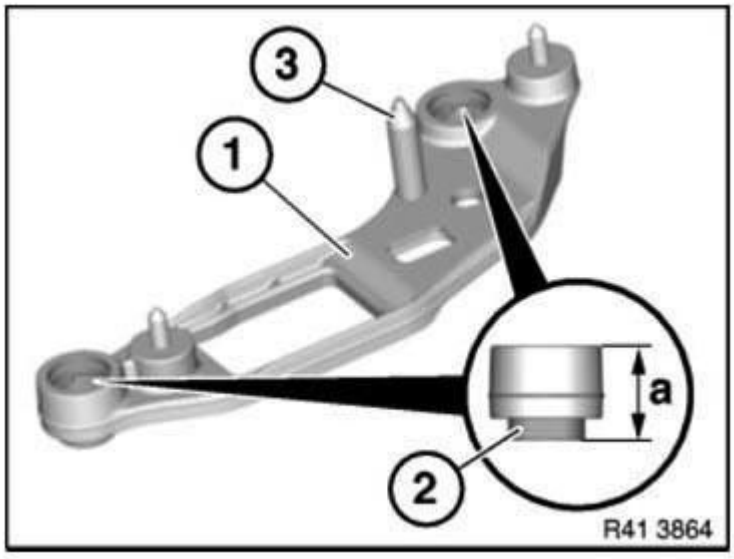


Fig. 64: Identifying Consoles With Barrel Screws Dimension
Courtesy of BMW OF NORTH AMERICA, INC.

Centre console (1) and tighten with screws (2).

Tightening torque **54 37 5AZ** .

Repeat procedure on other side of car.

Installation:

Distance of dowel pins must match distance of bore holes on roof module, correct if necessary.

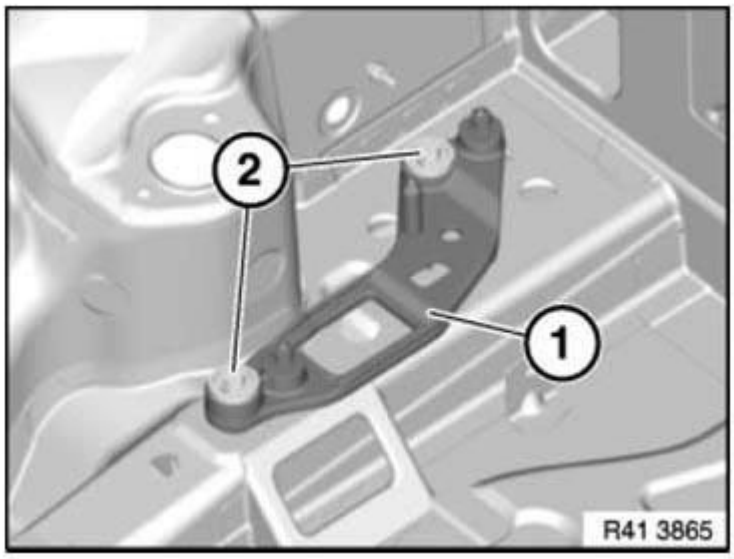


Fig. 65: Identifying Centre Console With Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Install **ROOF MODULE** and manually move to position shown.

Install **REAR MODULE**.

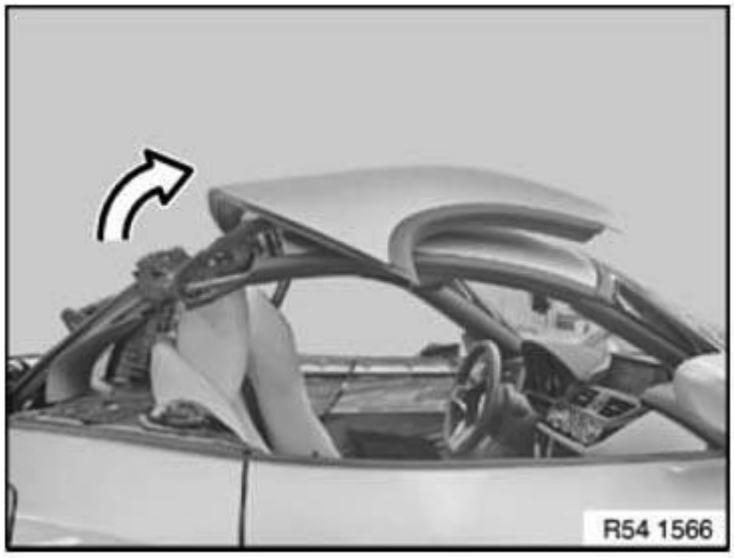


Fig. 66: Installing Roof Module

Courtesy of BMW OF NORTH AMERICA, INC.

Prior to performing further adjusting procedures on consoles, the following components must be adjusted:

- Rear module
- Rear side panels
- Tailgate

After adjusting all components, manually See **5437290 HARDTOP EMERGENCY OPENING** or **5437295 EMERGENCY CLOSING HARDTOP** run a complete convertible top cycle and check components for collision.

The convertible top can then be moved electrically.

WARNING: Risk of injury by trapping!
During adjusting procedures, support convertible top or secure with a second person helping.

Before releasing the roof module screws, move convertible top until weight is resting centrally on consoles.

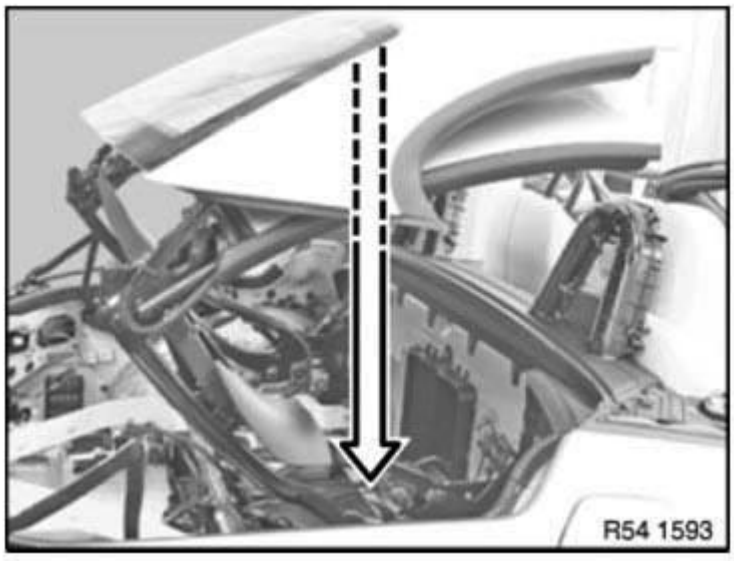


Fig. 67: Positioning For Moving Convertible Top
Courtesy of BMW OF NORTH AMERICA, INC.

Adjusting in longitudinal direction (X):

Release X screw connections (1) and slacken lock nut with special tool 54 0 190.

Tightening torques **54 37 3AZ AND 54 37 1AZ** .

IMPORTANT: To prevent twisting, release Z screw connection.

Adjust roof module by turning barrel screw (2). Turn barrel screw with special tool 54 0 180.

Pre-adjustment to dimension a= 19 mm.

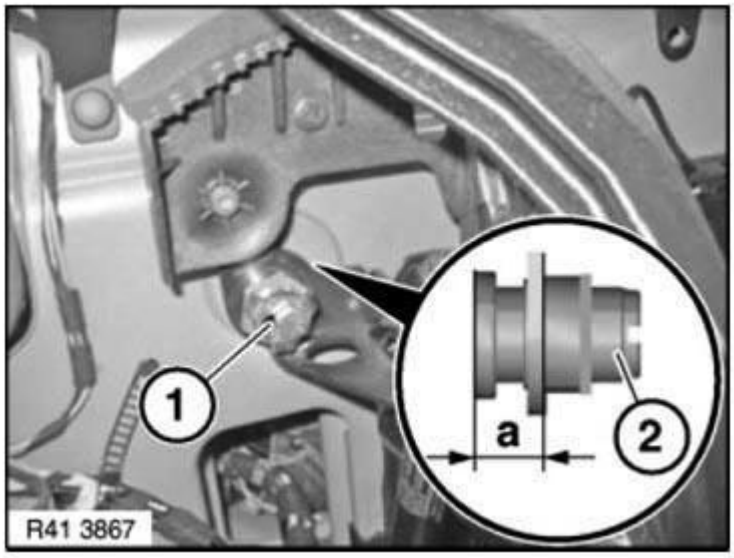


Fig. 68: Identifying Barrel Screw Dimension
Courtesy of BMW OF NORTH AMERICA, INC.

Adjusting in transverse direction (Y):

Release X and Z screw connections.

Centre roof module.

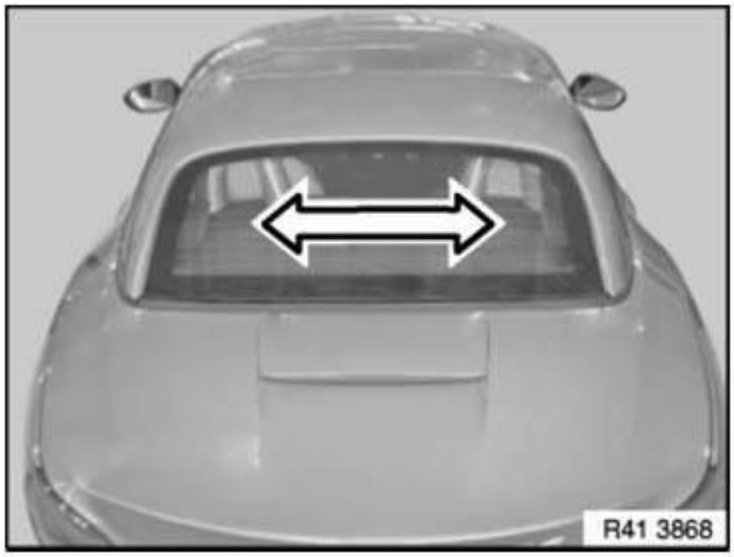


Fig. 69: Releasing X And Z Screw Connections
Courtesy of BMW OF NORTH AMERICA, INC.

Height adjustment (Z):

Release screws (1).

Tightening torque **54 37 5AZ** .

IMPORTANT: To prevent twisting, release X screw connection.

Tightening torque **54 37 3AZ** .

Installation:

Always adjust barrel screws evenly on each side.

Maximum difference between link and right side 1 mm

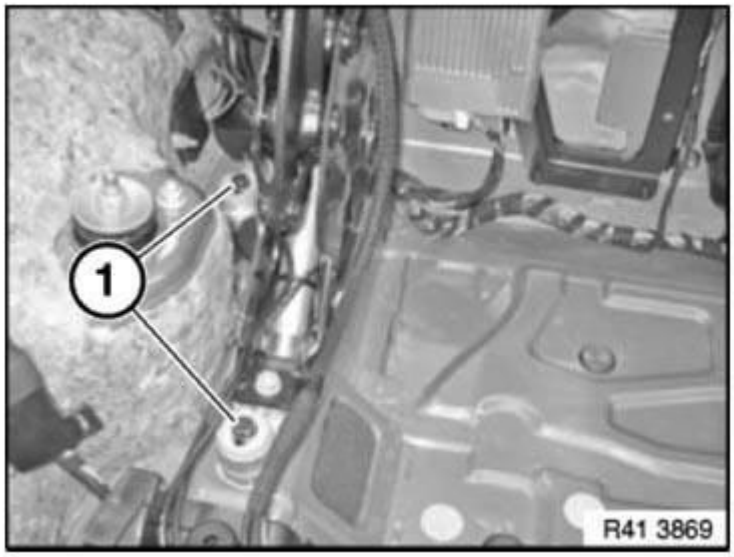


Fig. 70: Identifying Barrel Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Completely close convertible top.

Check **GAP DIMENSIONS** at marked points.

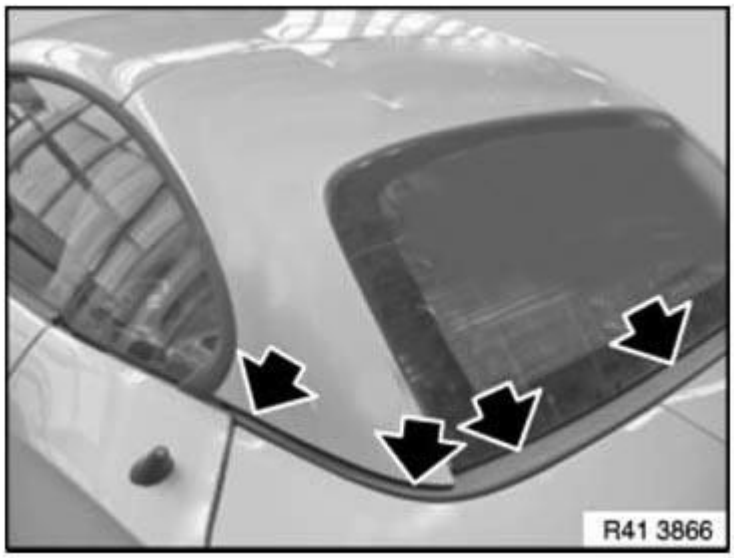


Fig. 71: Locating Gap Dimensions At Marked Points
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

If there are problems after installing the convertible top, process fault diagnosis tree in BMW diagnosis system.

41 00... PROCEDURE FOR FOLDING HARDTOP AFTER AN ACCIDENT

The hardtop may be under tension after the vehicle has incurred damage following an accident. Moving the hardtop by hydraulic means may result in irreparable damage. For this reason, the hardtop may only be moved manually until the damaged has been repaired.

IMPORTANT: It is not possible to check the correct operation of the folding roof on the damaged vehicle.

Different procedures are required, depending on the degree of damage which the vehicle has incurred. The repair instructions for emergency operation See **5437290 HARDTOP EMERGENCY OPENING** or **5437295 EMERGENCY CLOSING HARDTOP** describe only the complete sequences for manually opening and closing the hardtop.

When removing the roof module and/or the rear module, it is possible to move the hardtop manually into the necessary intermediate positions in each case.

WARNING: Risk of injury due to the heavy weight of the hardtop!
Since the hydraulic system may have to be depressurized during manual movement of the hardtop, there is an increased risk of injury by trapping. Secure the hardtop permanently and adequately against unintentional movement.

After body repairs to the vehicle

All the hardtop components screwed/bolted to the body are precisely screwed/bolted to the vehicle at the factory by means of gauges. This affects above all the base plates and consoles of the roof and rear modules. To minimize extensive adjustment work after a body repair as much as possible, only remove those components which are screwed/bolted to a damaged body part.

- Gauge the base plates *only* after a body repair to the cowl panel.

54 37 130 REMOVING AND INSTALLING ROOF MODULE

Necessary preliminary tasks

- Connect battery charger
- Remove **REAR MODULE**
- Remove hydraulic cylinder for convertible top compartment lid See **5437225 REMOVING AND INSTALLING/REPLACING RIGHT CONVERTIBLE TOP COMPARTMENT LID HYDRAULIC CYLINDER** or **5437220 REMOVING AND INSTALLING/REPLACING LEFT CONVERTIBLE TOP COMPARTMENT LID HYDRAULIC CYLINDER**

IMPORTANT: Convertible top may only be electrically operated when the main bearing is screwed down. Otherwise only perform roof movements manually with a 2nd person helping.

Move convertible top for following work into position.

Rear roof shell stowed above front roof shell.

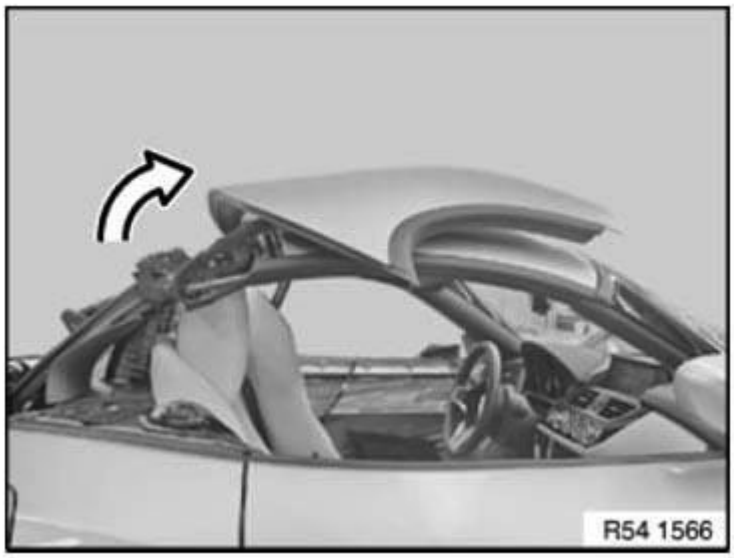


Fig. 72: Lifting Rear Roof Shell
Courtesy of BMW OF NORTH AMERICA, INC.

Unscrew nuts (1).

Set down device holder towards rear.

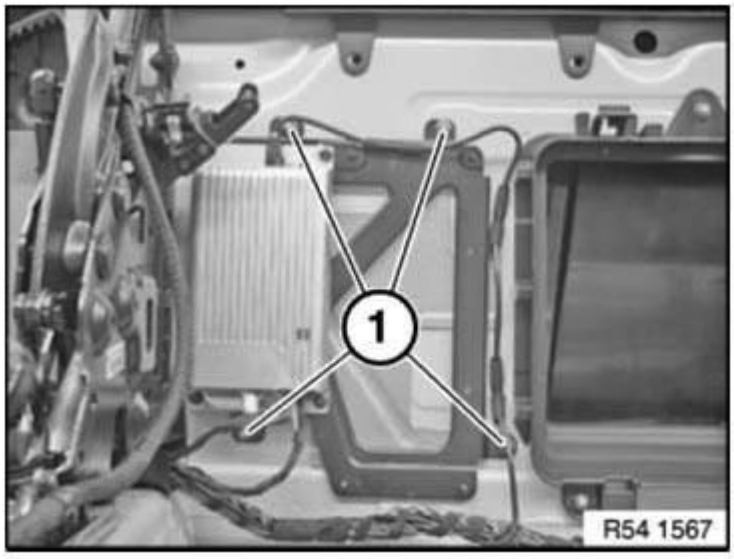


Fig. 73: Identifying Holder Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Unscrew nuts (1).

Set down device holder towards rear.

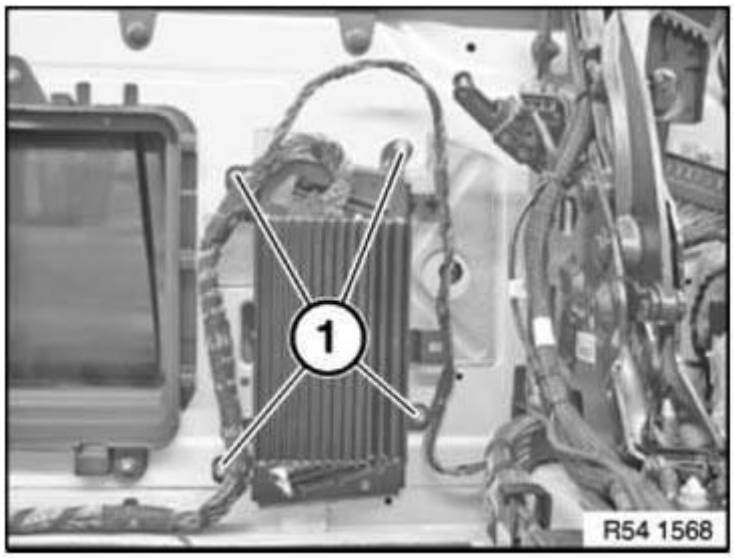


Fig. 74: Identifying Holder Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Release screws (1).

Tightening torque **54 37 09AZ** .

Remove battery rollover protection (2).

Remove insulating mat (3).

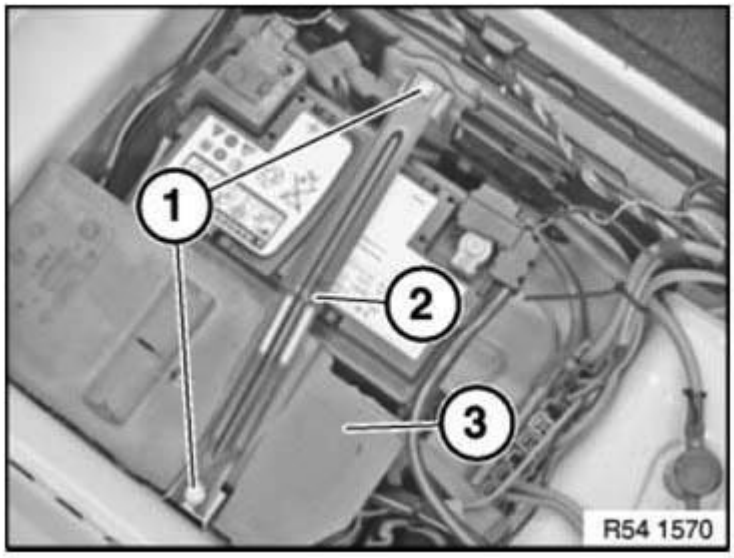


Fig. 75: Identifying Insulating Mat And Battery Rollover Protection With Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Unclip all cable holders on hydraulic lines on left.

Installation:

If necessary, replace faulty cable holders.

Detach retainer (1).

Installation:

If necessary, replace faulty retainers (1).

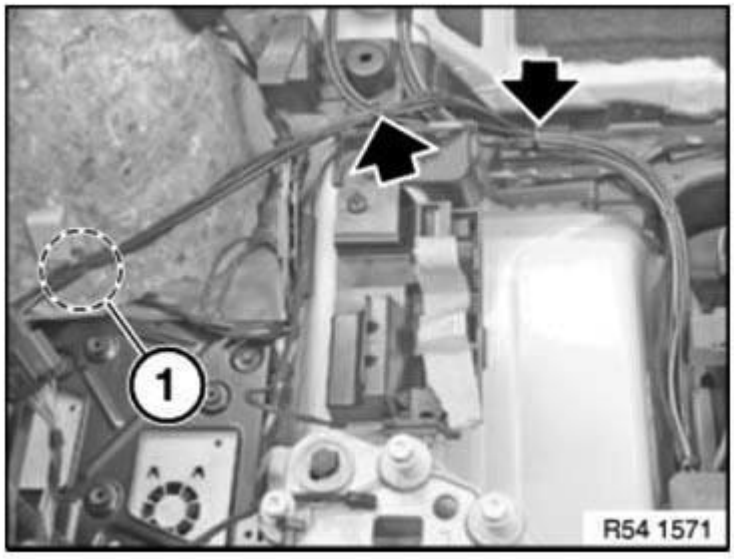


Fig. 76: Identifying Retainer
Courtesy of BMW OF NORTH AMERICA, INC.

Unclip all cable holders on hydraulic lines on right.

Installation:

If necessary, replace faulty cable holders.

Detach retainer (1).

Installation:

If necessary, replace faulty retainers (1).

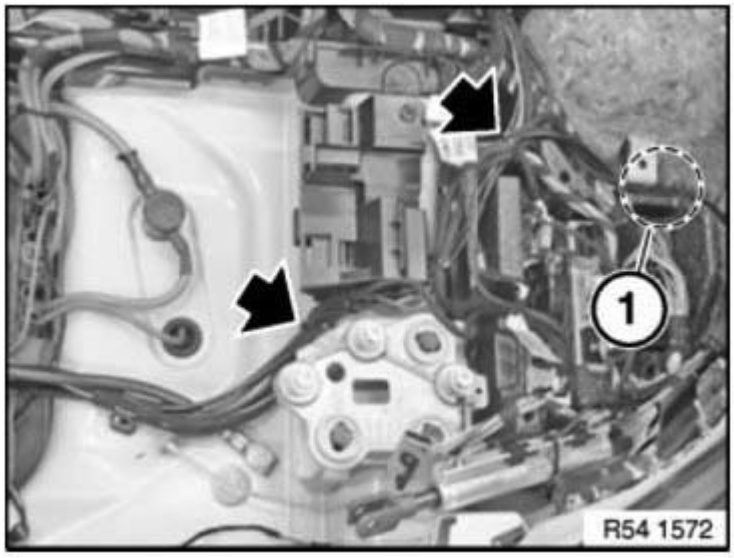


Fig. 77: Identifying Retainer
Courtesy of BMW OF NORTH AMERICA, INC.

Release screw (1) from cable holder on left and right.

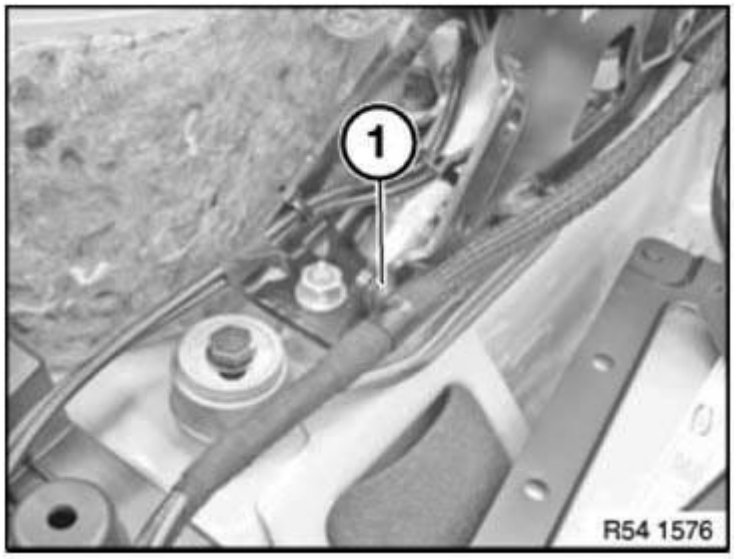


Fig. 78: Identifying Cable Holder Screw
Courtesy of BMW OF NORTH AMERICA, INC.

Remove control unit (1) on right from device holder.

Unfasten plug connection (2) and disconnect.

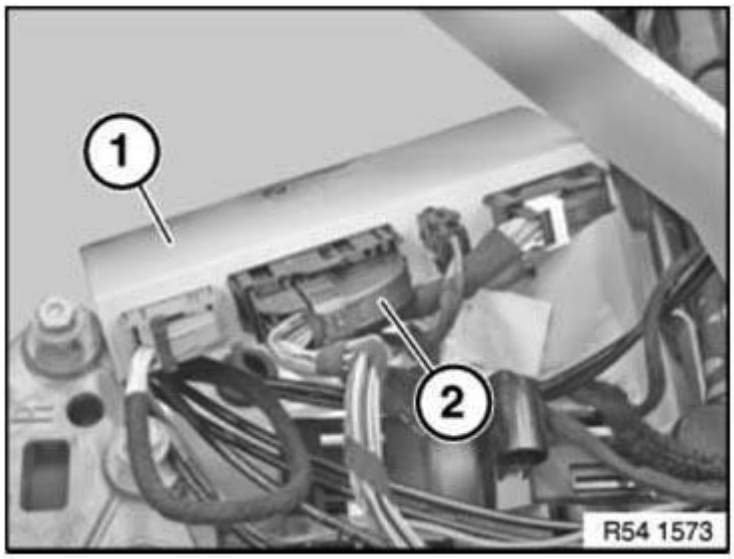


Fig. 79: Identifying Plug Connection And Control Unit
Courtesy of BMW OF NORTH AMERICA, INC.

Unlock and disconnect plug

connections (1) for hydraulic control unit.

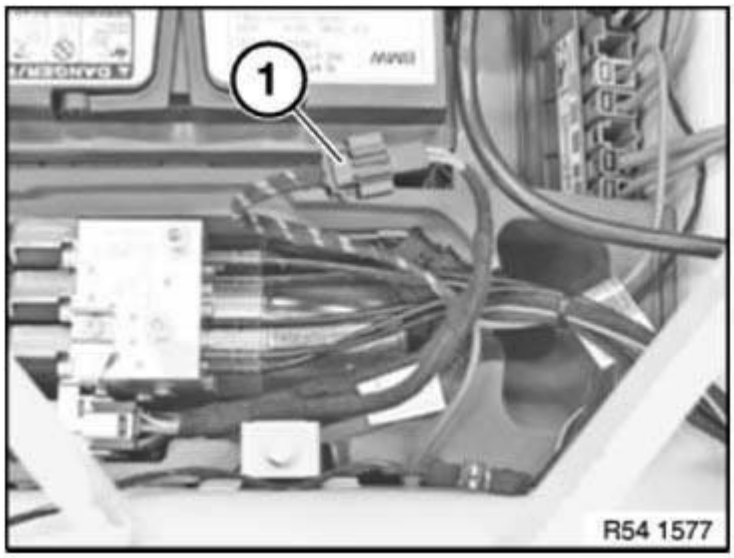


Fig. 80: Identifying Plug Connections For Hydraulic Control Unit
Courtesy of BMW OF NORTH AMERICA, INC.

Unlock plug connections (1) and disconnect.

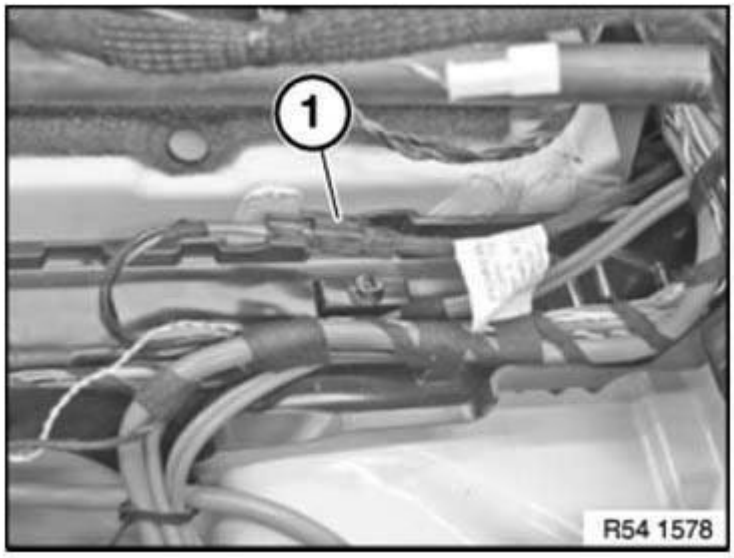


Fig. 81: Identifying Plug Connection
Courtesy of BMW OF NORTH AMERICA, INC.

Mount adapter plate 54 0 300 with bolts (1) on special tool 54 0 101.

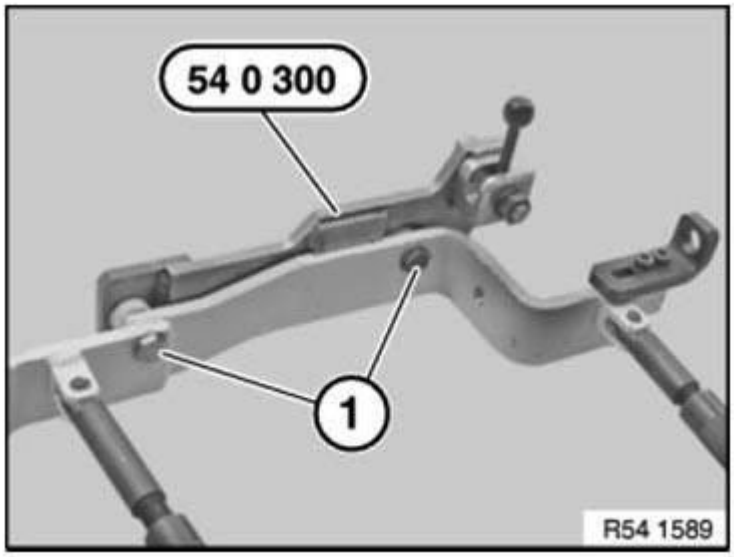


Fig. 82: Mounting Adapter Plate 54 0 300 With Bolts On Special Tool 54 0 101
Courtesy of BMW OF NORTH AMERICA, INC.

Place legs of special tool 54 0 101 as close together as possible.

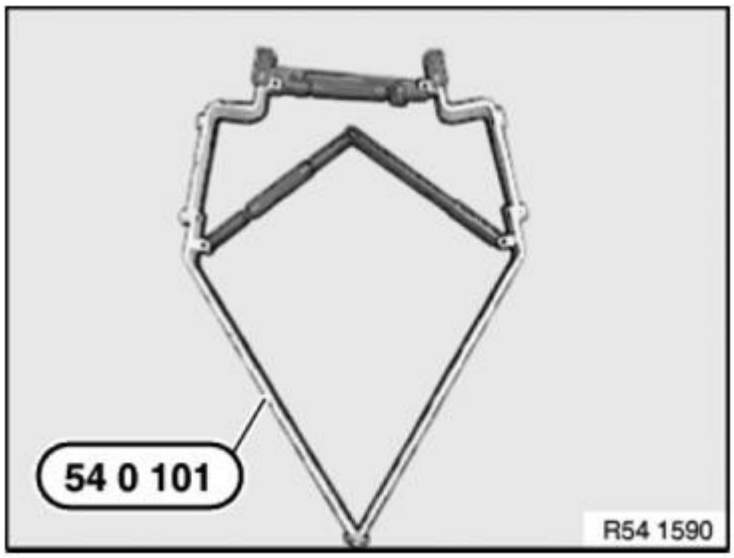


Fig. 83: Positioning Legs Of Special Tool 54 0 101
Courtesy of BMW OF NORTH AMERICA, INC.

Carefully insert folded special tool 54 0 101.

Place leg on main bearing.

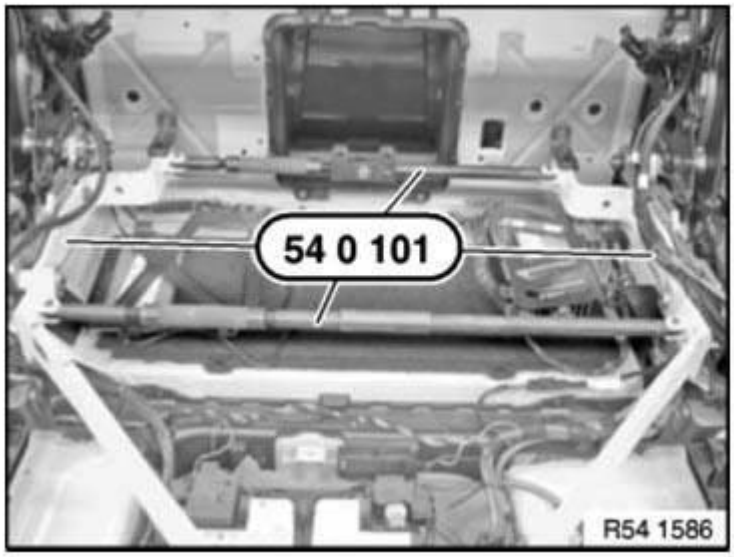


Fig. 84: Inserting Folded Special Tool 54 0 101
Courtesy of BMW OF NORTH AMERICA, INC.

Insert clamping piece (1) in main bearing.

Reposition lever (2).

Tighten nut (3).

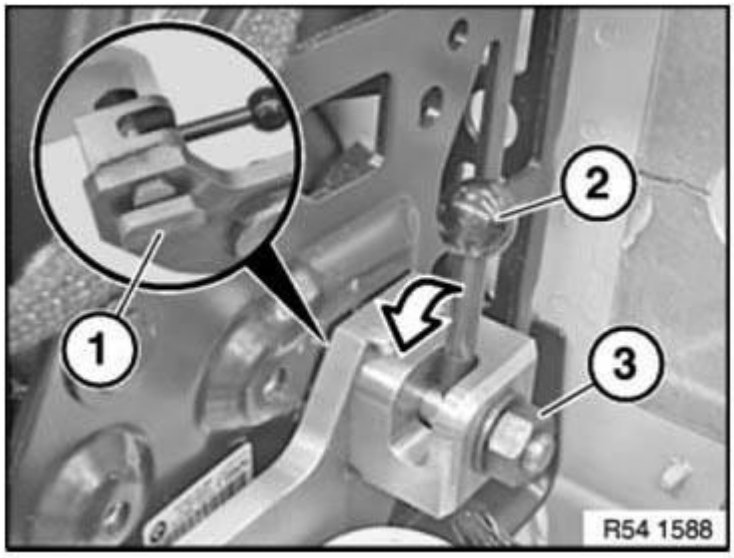


Fig. 85: Inserting Clamping Piece On Main Bearing
Courtesy of BMW OF NORTH AMERICA, INC.

Tighten down screws (1) on main bearing on left and right.

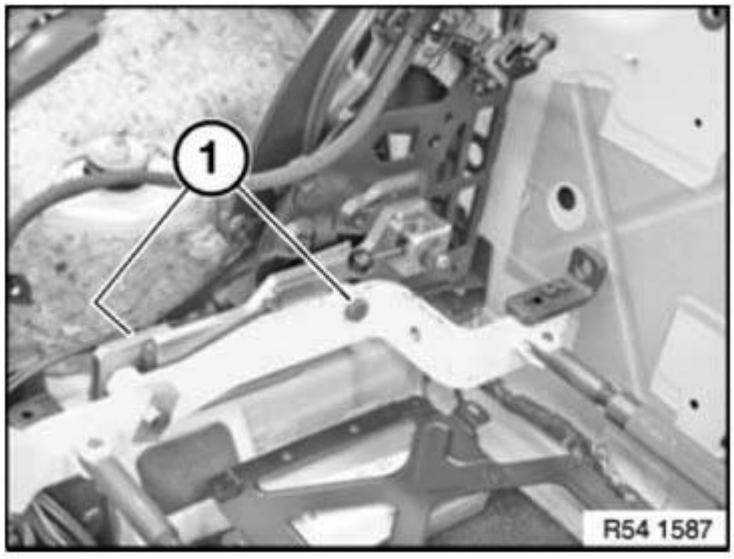


Fig. 86: Identifying Main Bearing Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Assemble linkage and screw down.

Adjust rotary sleeve (1) if necessary.

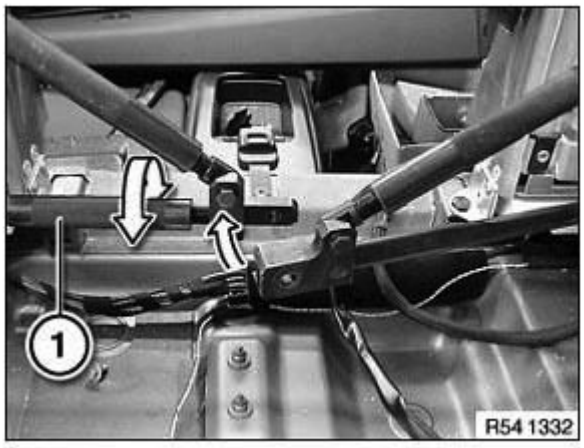


Fig. 87: Adjusting Rotary Sleeve
Courtesy of BMW OF NORTH AMERICA, INC.

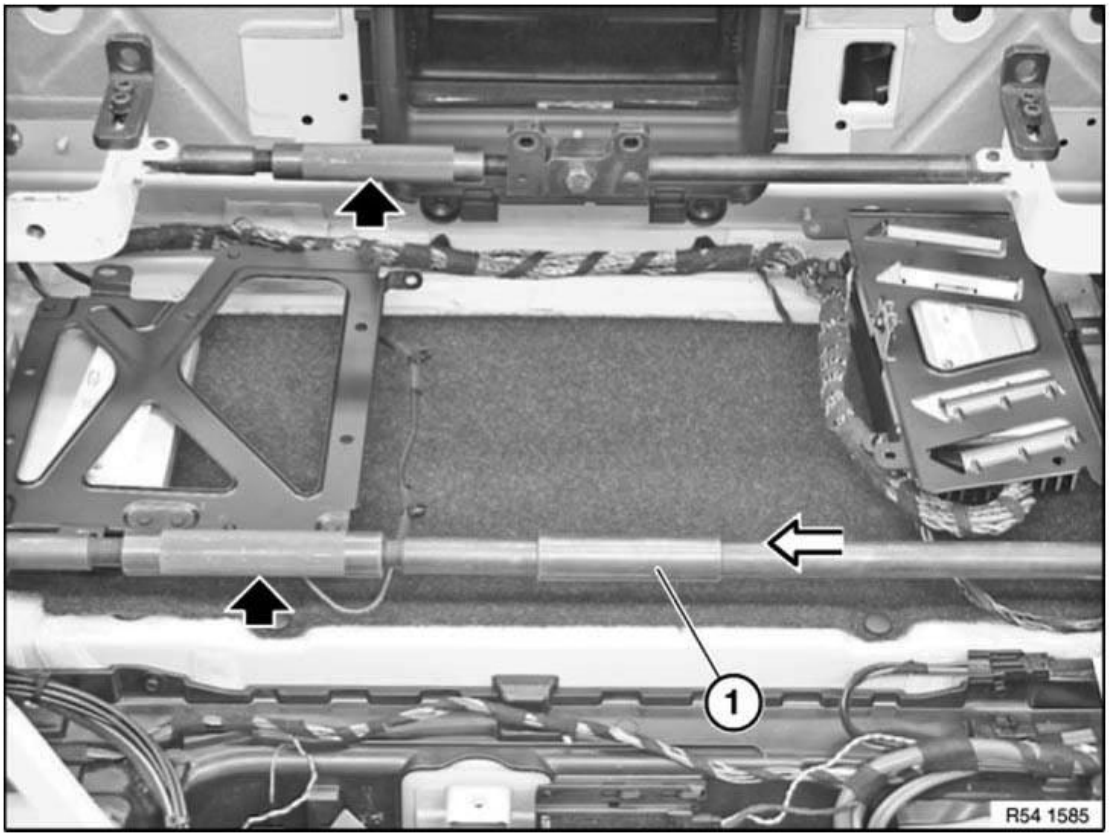


Fig. 88: Locating Locking Sleeve
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

The assembly carrier must rest free of tension on the main mount. Otherwise stress may occur at the main mount that could cause faulty installation.

Without using excessive force, pull tensioning rods outwards over rotary sleeves.

Slide locking sleeve (1) over pivot joint.

Secure hydraulic control unit (1) with cable ties to assembly carrier.

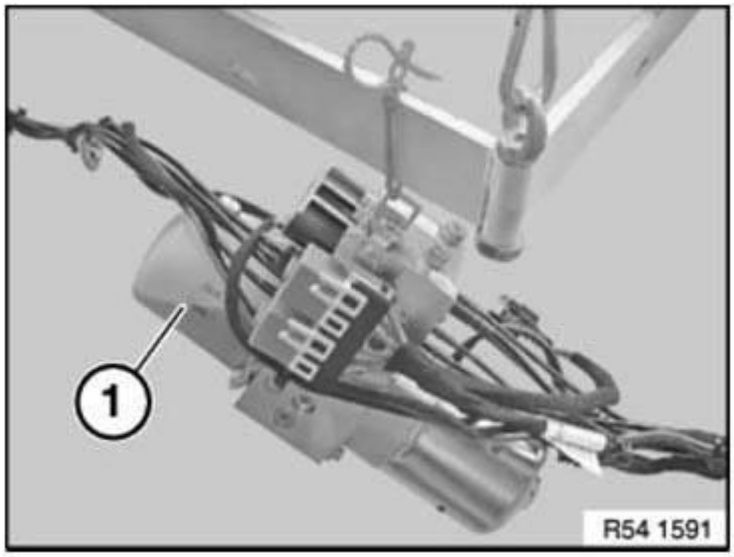


Fig. 89: Identifying Hydraulic Control Unit With Cable Ties
Courtesy of BMW OF NORTH AMERICA, INC.

Secure hydraulic cylinders (1) on left and right to assembly carrier with cable tie.

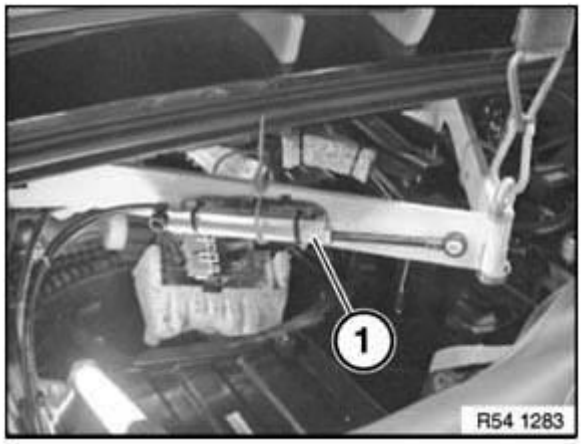


Fig. 90: Identifying Hydraulic Cylinders
Courtesy of BMW OF NORTH AMERICA, INC.

Release screws (1).

Tightening torque **54 37 03AZ** .

Replacement only:

Slacken lock nuts with special tool 54 0 190.

Tightening torque **54 37 01AZ** .

Turn back barrel screws by approx. 3 mm.

Installation:

Tighten barrel screws only with special tool 54 0 180 in conjunction with 00 9 450.

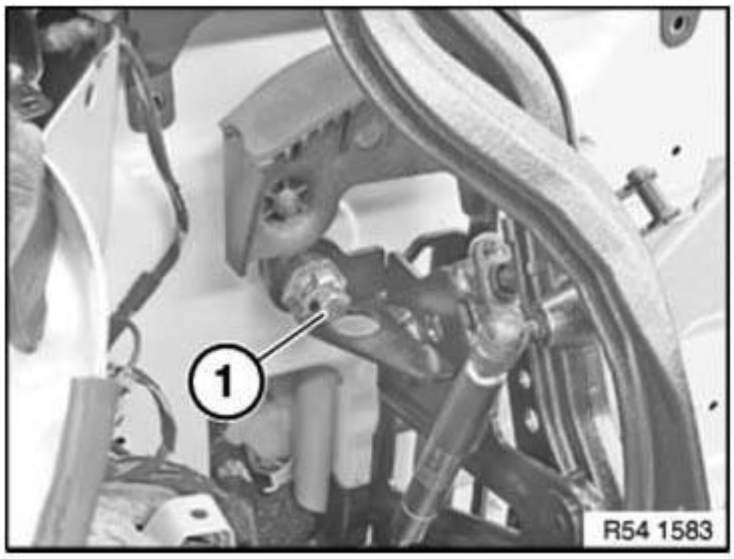


Fig. 91: Identifying Barrel Screw
Courtesy of BMW OF NORTH AMERICA, INC.

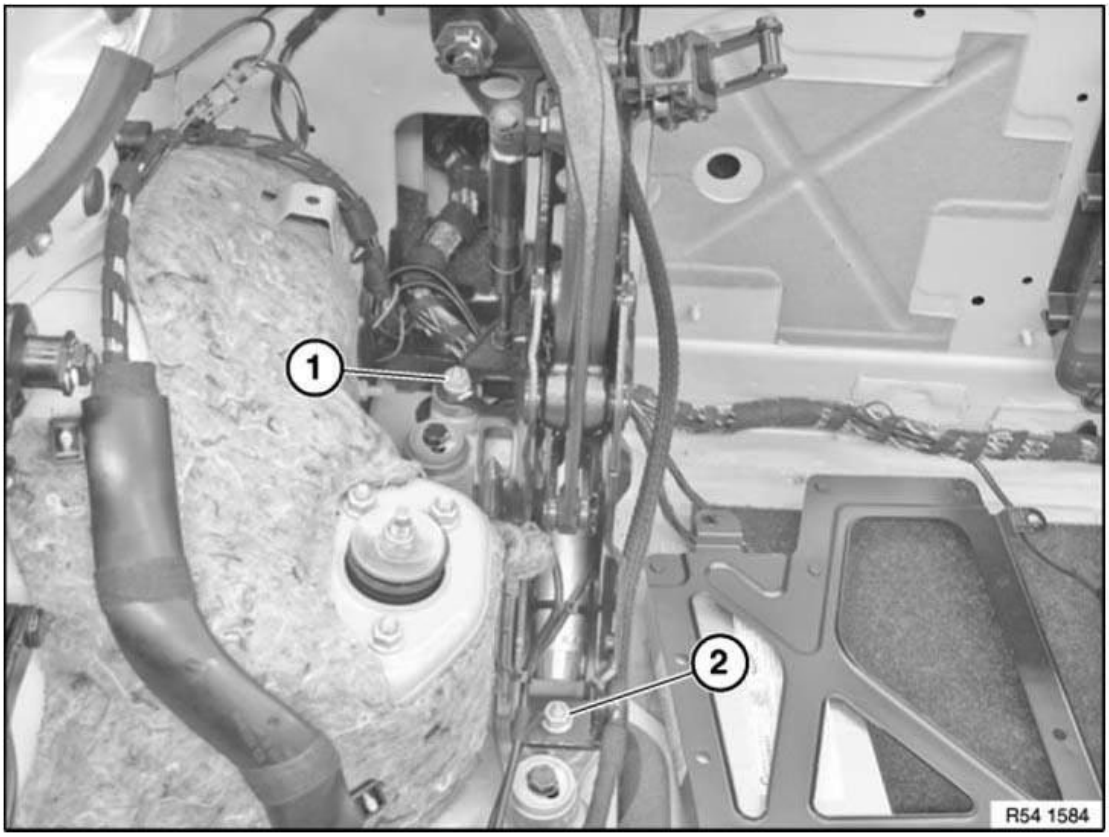


Fig. 92: Identifying Roof Module Main Bearings Nuts
Courtesy of BMW OF NORTH AMERICA, INC.

Release front nuts (1) on left and right roof module main bearings.

Tightening torque **54 37 08AZ** .

NOTE: Rear nuts (2) on left and right main bearing - release torque only .
Slacken nuts only, do not release fully.
Tightening torque 54 37 08AZ .

IMPORTANT: Convertible top must not be electrically operated after the nuts on the main bearing have been released.

IMPORTANT: Risk of damage!

Reposition joint of kinematics box on left and right towards rear.

Roof shells (2) must not be set down beforehand.

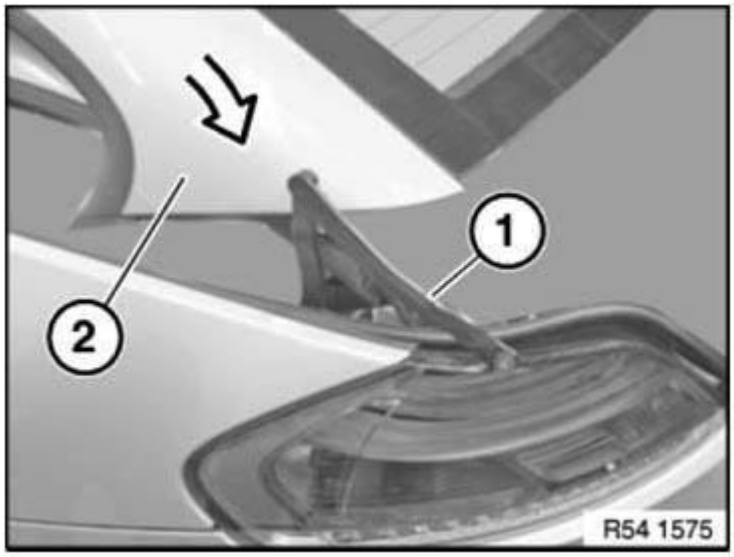


Fig. 93: Identifying Roof Shells Position
Courtesy of BMW OF NORTH AMERICA, INC.

Open screw on hydraulic unit 1.5 turns.

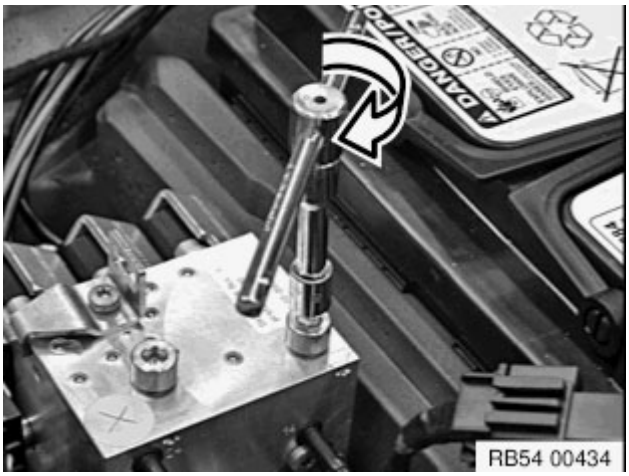


Fig. 94: Opening Screw On Hydraulic Unit
Courtesy of BMW OF NORTH AMERICA, INC.

Carefully raise roof shells with two people helping.

Move roof shells until weight acts centrally on main bearing.

Close screw on hydraulic control unit.

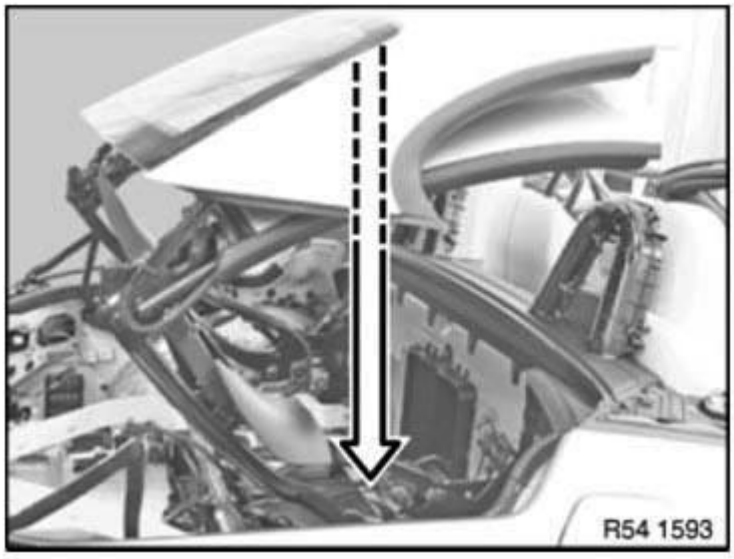


Fig. 95: Positioning For Moving Roof Shells
Courtesy of BMW OF NORTH AMERICA, INC.

Support roof shells on left and rights with two helpers.

Slacken nut (1).

Only then set roof shells down.

Open hydraulic control unit screw.

Slowly set roof shells down.

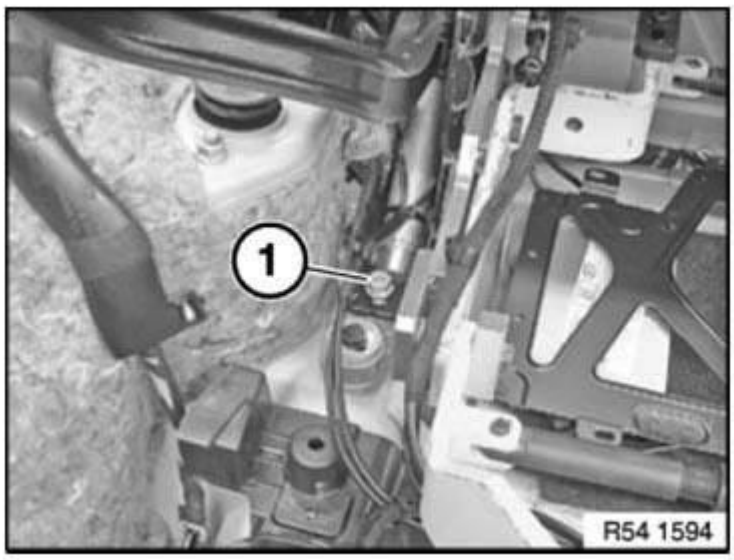


Fig. 96: Identifying Roof Shells Nut
Courtesy of BMW OF NORTH AMERICA, INC.

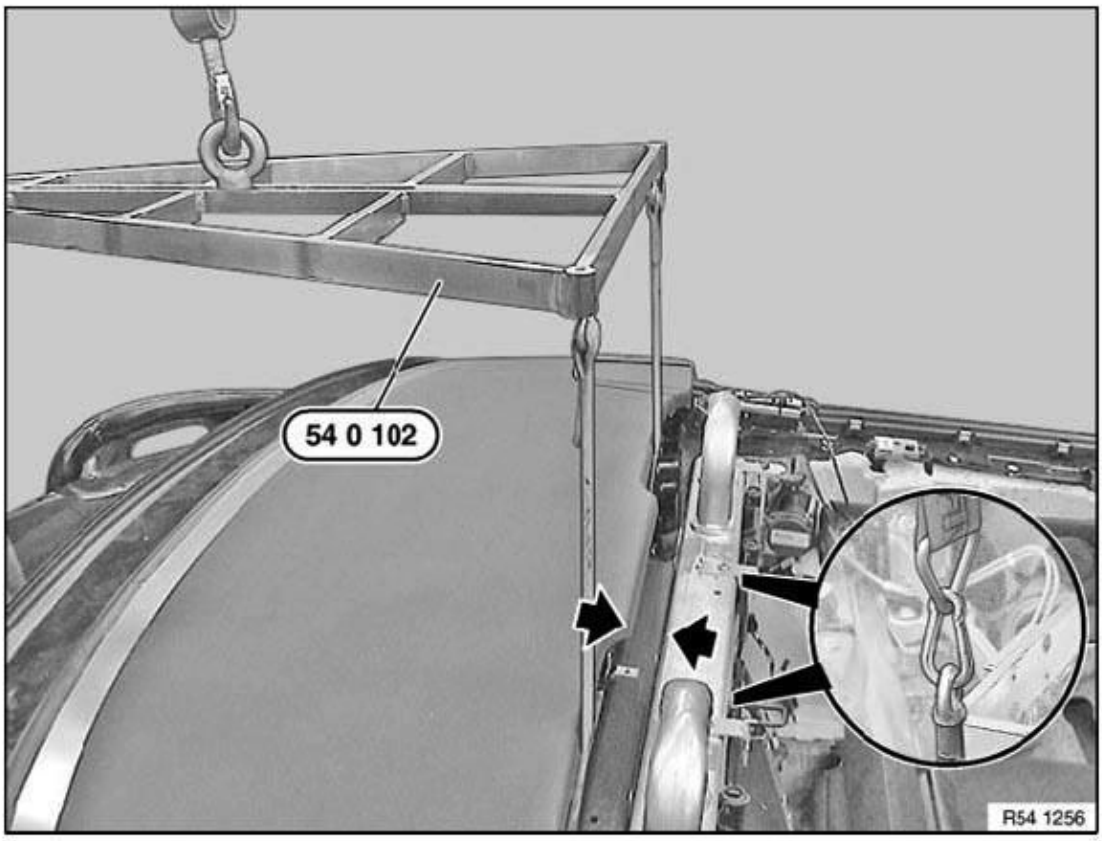


Fig. 97: Positioning Special Tool 54 0 102 With Workshop Crane Over Roof Module

Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: Carry out this part of the work with the assistance of two other persons.
Position special tool 54 0 102 with workshop crane over roof module.

IMPORTANT: Use lifting gear and assembly carrier only in conjunction with BMW WJN.10 workshop crane (special lifting arm with 1690 mm arm length - refer to BMW Workshop Equipment Catalogue) or a crane with comparable specifications.
Feed in belts between rollover protection system and roof module.
Do not twist straps!

Installation:

The assembly carrier including the roof shell can be tilted towards the rear to slot in the karabiners.

Slot karabiners into assembly carrier.

Slot karabiner at rear into assembly carrier.

IMPORTANT: Straps must not be twisted!

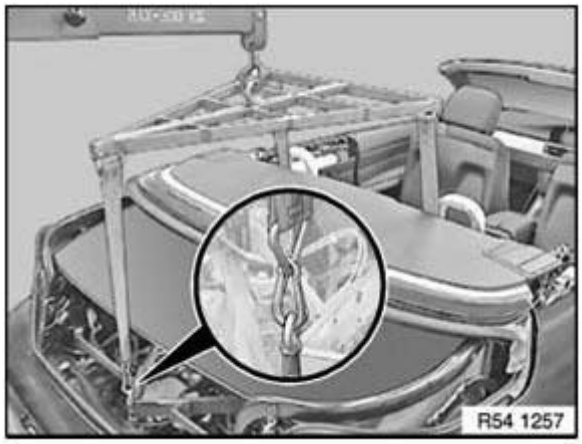


Fig. 98: Ensure Straps Are Not Twisted
Courtesy of BMW OF NORTH AMERICA, INC.

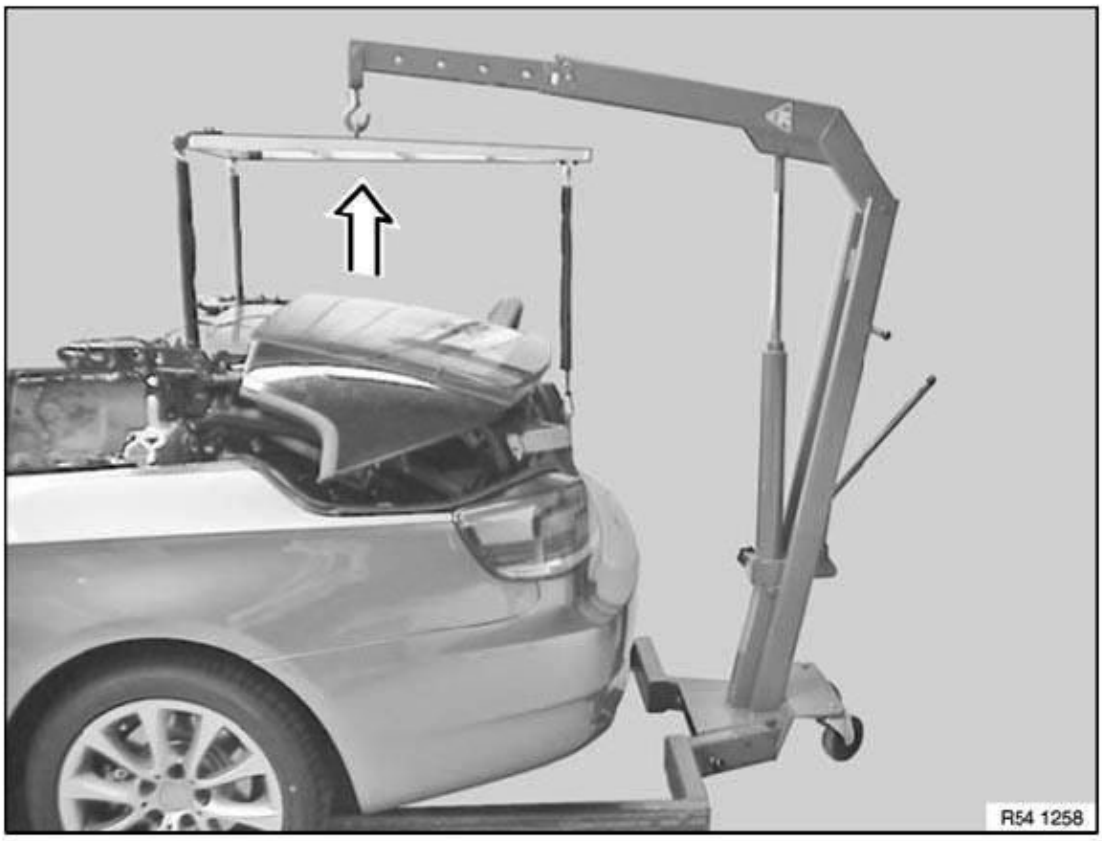


Fig. 99: Lifting Convertible Top Using Special Tool
Courtesy of BMW OF NORTH AMERICA, INC.

To lift out the Convertible top uniformly, make sure the special tool is aligned parallel to the roof module.

Lifting out roof module carefully and in stages with lifting gear.

Check freedom of movement of roof module with respect to body.

Carefully set roof module down on a suitable surface (e.g. squared beams on pallet).

Replacement only:

Change assembly carrier to new roof module and install roof module in vehicle.

Place the removed roof module in transport crate and screw down.

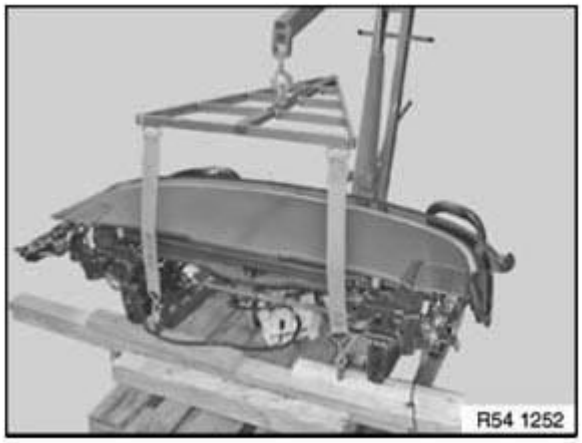


Fig. 100: Setting Roof Module Down On Surface
Courtesy of BMW OF NORTH AMERICA, INC.

Carry out function check on roof module with rear module removed:

IMPORTANT: Convertible top may only be operated when the main bearing is screwed down.

Special tool 61 4 250 must be connected.

Contact bridge simulates a closed convertible top compartment lid.

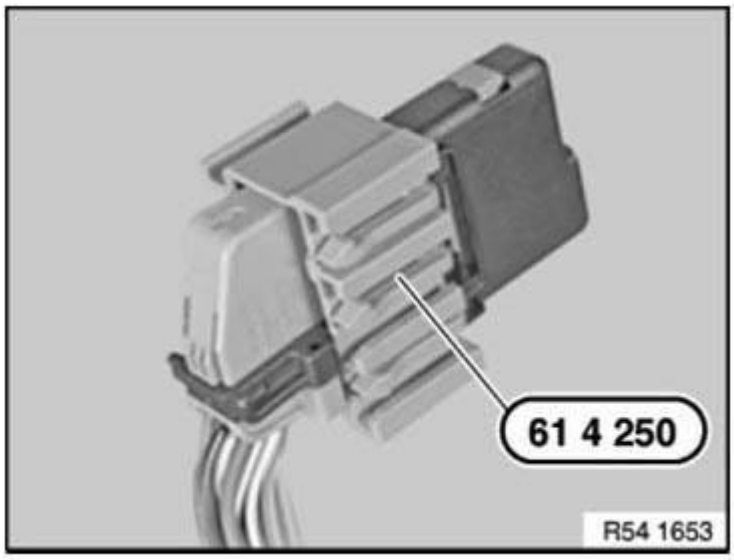


Fig. 101: Identifying Special Tool 61 4 250
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Check **GAP DIMENSIONS** and if necessary adjust

Carry out diagnosis.

54 37 166 REMOVING AND INSTALLING/REPLACING BOTH KINEMATICS BOXES

Necessary preliminary tasks

- Remove hydraulic cylinder for Convertible top compartment lid See **5437225 REMOVING AND INSTALLING/REPLACING RIGHT CONVERTIBLE TOP COMPARTMENT LID HYDRAULIC CYLINDER** or **5437220 REMOVING AND INSTALLING/REPLACING LEFT CONVERTIBLE TOP COMPARTMENT LID HYDRAULIC CYLINDER** on left and right

Open convertible top compartment lid.

IMPORTANT: Convertible top compartment lid can tilt forwards when hydraulic cylinders are removed and must be supported with suitable apparatus.

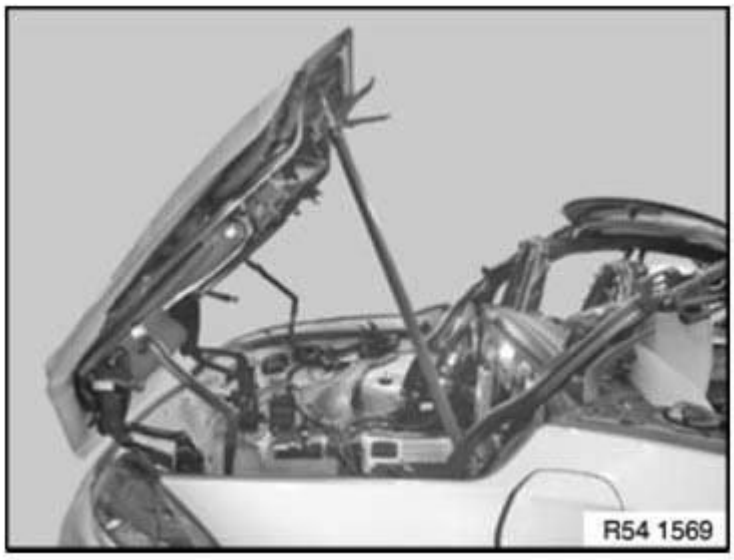


Fig. 102: Identifying Top Compartment Lid
Courtesy of BMW OF NORTH AMERICA, INC.

Unfasten and detach retaining clip (1).

Drive out pin.

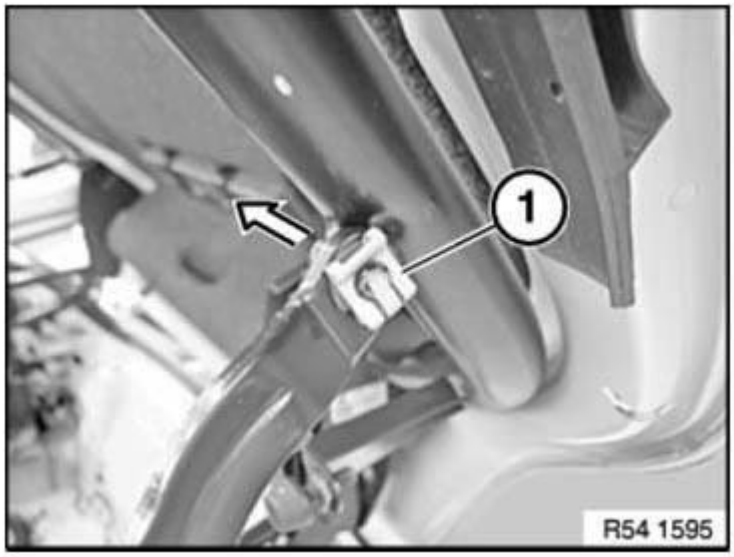


Fig. 103: Disconnecting Retaining Clip
Courtesy of BMW OF NORTH AMERICA, INC.

Release screws (1).

Remove kinematics box.

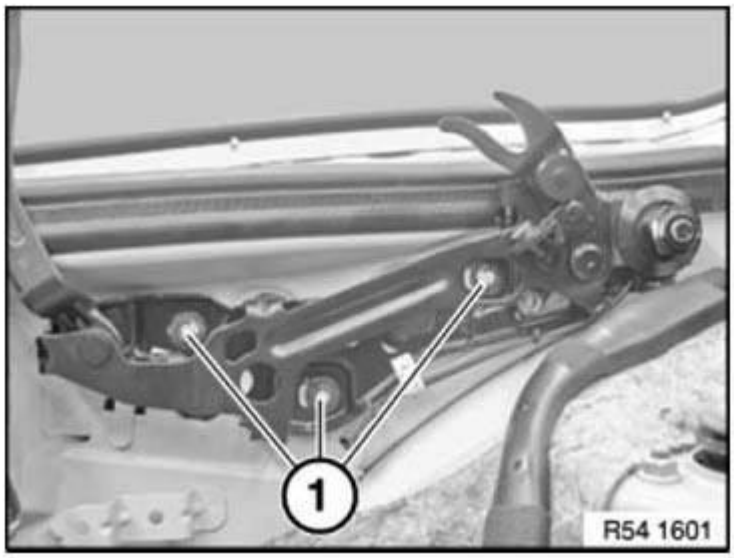


Fig. 104: Identifying Kinematics Box Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Adjusting kinematics box

NOTE: Kinematics box must not be at top dead center.

Insert screws (1).

Kinematics box should still be able to be slid in order to center itself.

Close Convertible top compartment lid.

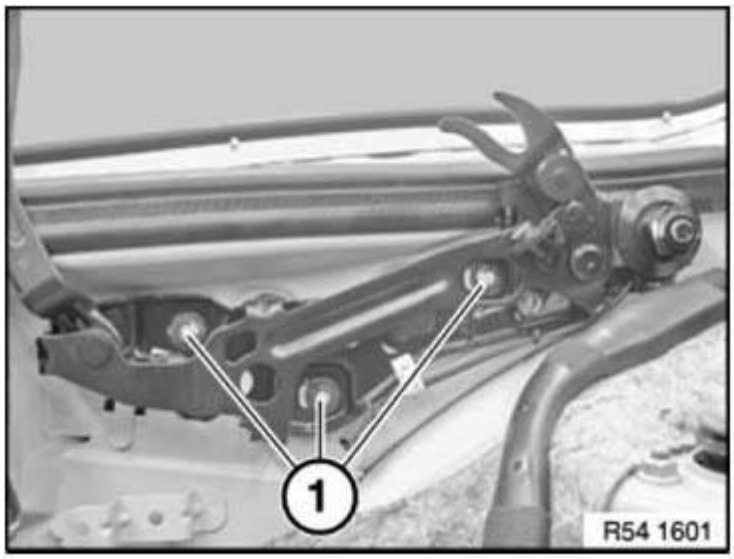


Fig. 105: Identifying Kinematics Box Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Open rear lid.

Tighten down screws (1).

Tightening torque **54 37 02AZ** .

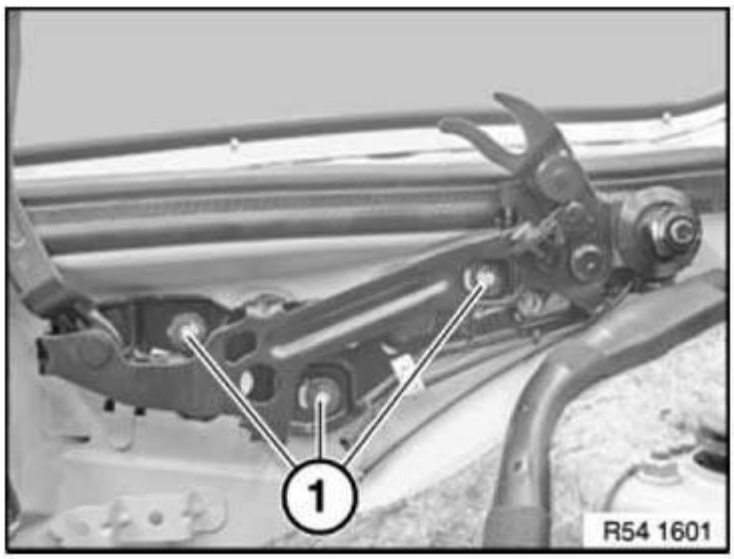


Fig. 106: Identifying Kinematics Box Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Check **GAP DIMENSIONS** .

If necessary, manually adjust the kinematics box.

54 37 162 REMOVING AND INSTALLING/REPLACING LEFT KINEMATICS BOX

NOTE: This operation is described in section on: Removing and installing/replacing both kinematics boxes.

54 37 164 REMOVING AND INSTALLING/REPLACING RIGHT KINEMATICS BOX

NOTE: This operation is described in section on: Removing and installing/replacing both kinematics boxes

54 37 100 REMOVING AND INSTALLING ROOF SHELL FASTENER MOTOR (DRIVE)

Necessary preliminary tasks

- Remove **ROOFLINER**

Installation:

- Microencapsulated nuts (Loctite) must be replaced and may not be reused
- Screw connection must be completed within 20 minutes (start of curing)
- Microencapsulated nuts must not be retightened
- Threaded bolts must be cleaned beforehand in event of repeated use

Slide open retaining clip (1) and unclip ball head.

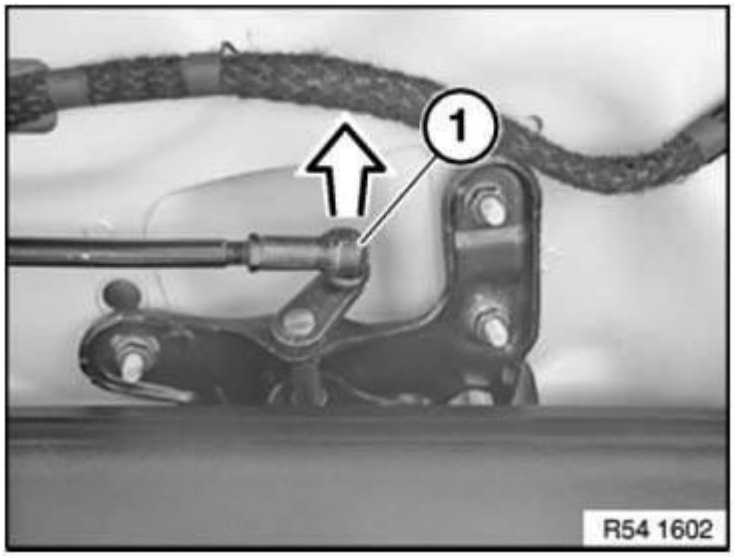


Fig. 107: Sliding Open Retaining Clip
Courtesy of BMW OF NORTH AMERICA, INC.

Unfasten plug connection (1) and disconnect.

Unscrew nuts.

Tightening torque **54 37 12AZ** .

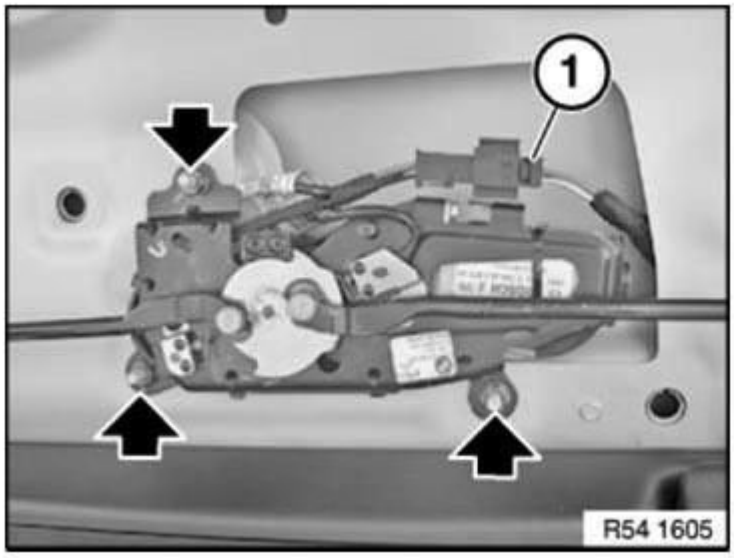


Fig. 108: Locating Plug Connection Nuts
Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: Check GAP DIMENSIONS and if necessary adjust at front.

54 37 188 REMOVING AND INSTALLING/REPLACING HYDRAULIC CYLINDER FOR

KINEMATICS BOX ON LEFT

Necessary preliminary work

- Remove **LUGGAGE COMPARTMENT WHEEL ARCH TRIM**

IMPORTANT: Hydraulic fluid may emerge from the disconnected lines and the open connections on the hydraulic cylinder. Protect components and work area with suitable materials (e.g. cloths).

IMPORTANT: Soft top compartment lid tilts shut when system is depressurized and must be supported with suitable auxiliary equipment.

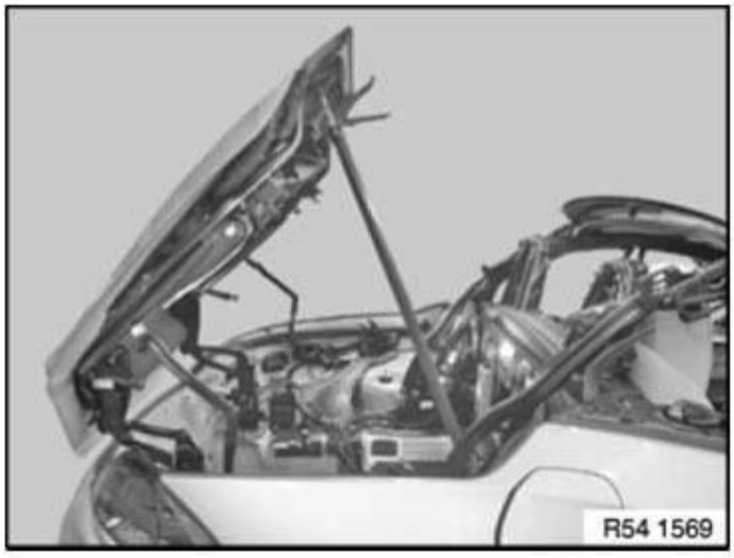


Fig. 109: Identifying Top Compartment Lid
Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: Hydraulic system must be at zero pressure. Open screw on hydraulic unit 1.5 turns.

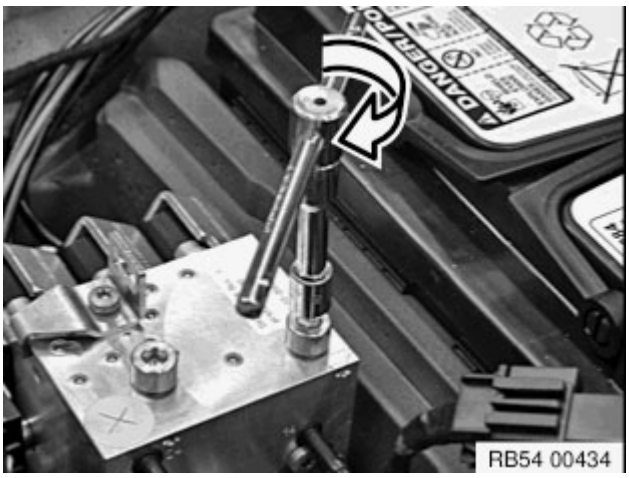


Fig. 110: Closing Shutoff Valve On Hydraulic Unit Using Allen Key
Courtesy of BMW OF NORTH AMERICA, INC.

Unlock retaining clip (1). Turn bearing journal downwards (2).

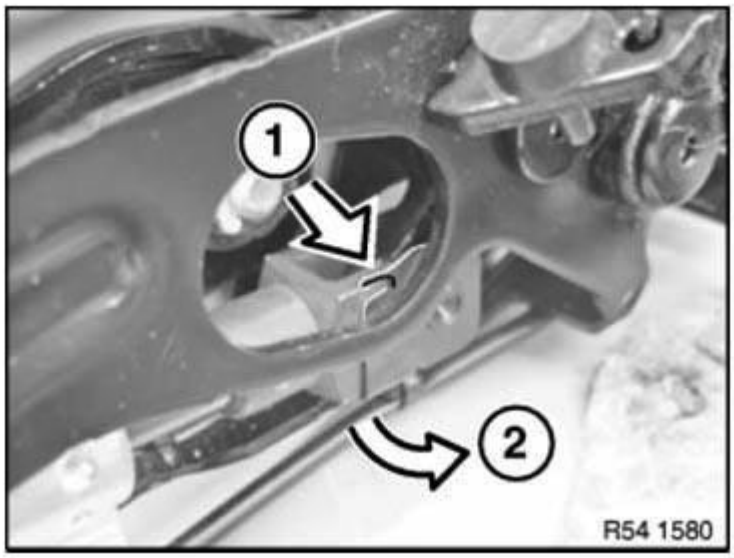


Fig. 111: Twisting Bearing Journal
Courtesy of BMW OF NORTH AMERICA, INC.

Remove bearing journal (1).

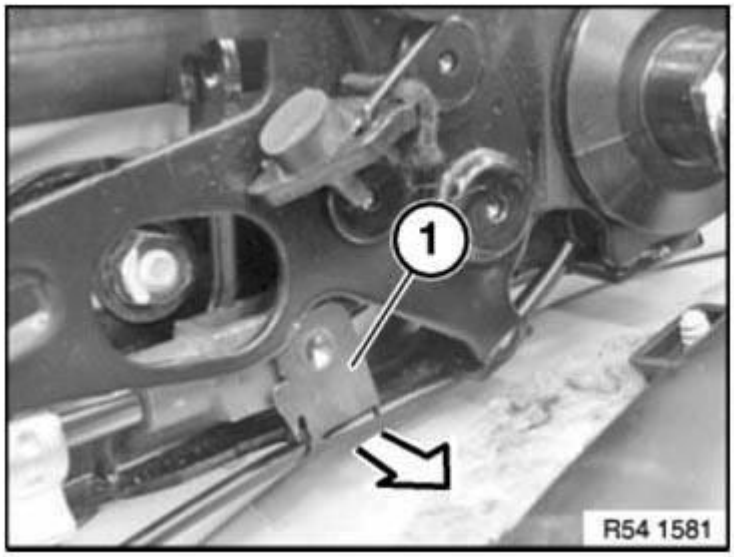


Fig. 112: Removing Bearing Pin
Courtesy of BMW OF NORTH AMERICA, INC.

Detach retaining clip (1) with screwdriver. Drive out bolt (2) on side.

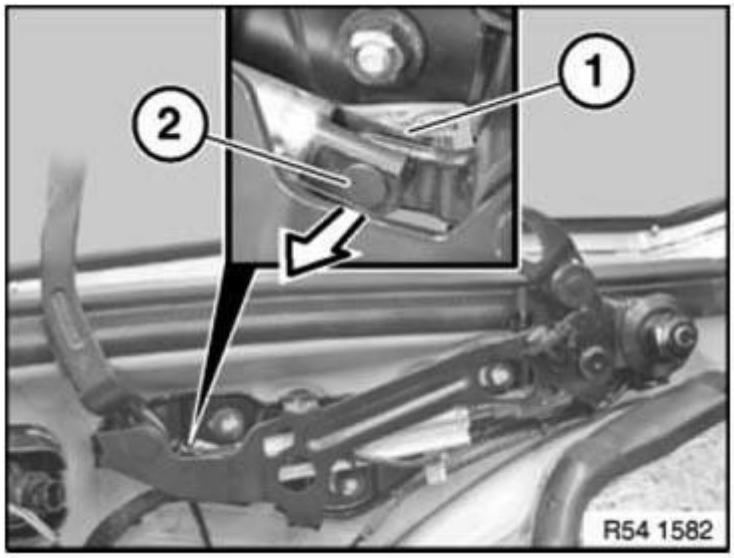


Fig. 113: Removing Pin
Courtesy of BMW OF NORTH AMERICA, INC.

Feed out hydraulic cylinder (1). Unfasten plug connection (2) and disconnect. **Right side only:** Unlock plug connection (3) for Hall-effect sensor and disconnect.

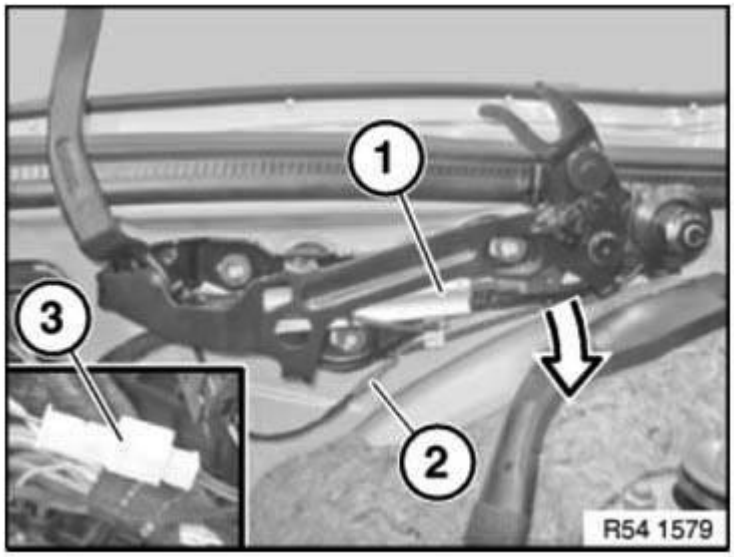


Fig. 114: Removing Hydraulic Cylinder
Courtesy of BMW OF NORTH AMERICA, INC.

Replacement only: Disconnect hydraulic lines from cylinder.

IMPORTANT: Protect separation points (lines and cylinder) against dripping fluid, e.g. with a cleaning cloth. Observe hose markings.

Detach cable strap. Open retainer (1) at bottom/top on cylinder with screwdriver. Detach hydraulic lines (2).

Installation note: Carry out function check. Check fluid level.

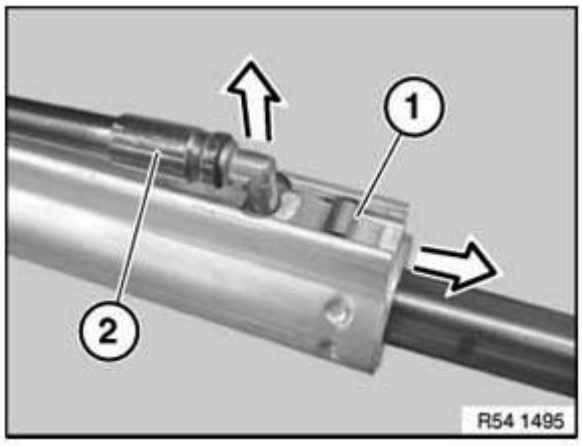


Fig. 115: Detaching Hydraulic Lines
Courtesy of BMW OF NORTH AMERICA, INC.

54 37 187 REMOVING AND INSTALLING/REPLACING HYDRAULIC CYLINDER FOR KINEMATICS BOX ON RIGHT

NOTE: Except for the plug connections for Hall-effect sensors, the work is identical to: Removing and installing/replacing hydraulic cylinder for kinematics box on left.

54 37 185 REMOVING AND INSTALLING/REPLACING HYDRAULIC UNIT (DRIVE) FOR RETRACTABLE HARDTOP

Necessary preliminary work

- Remove **LUGGAGE COMPARTMENT FLOOR TRIM PANEL**

IMPORTANT: Hydraulic fluid may emerge from the disconnected lines and the open connections on the hydraulic unit (drive).
Protect components and work area with suitable materials (e.g. cloths).
Follow REPAIR INSTRUCTIONS for hydraulic system.
Do not fit hydraulic lines in kinked, crushed or transposed condition.

Release screws (1).

Tightening torque **54 37 09AZ** .

Remove battery rollover protection (2).

Remove insulating mat (3).

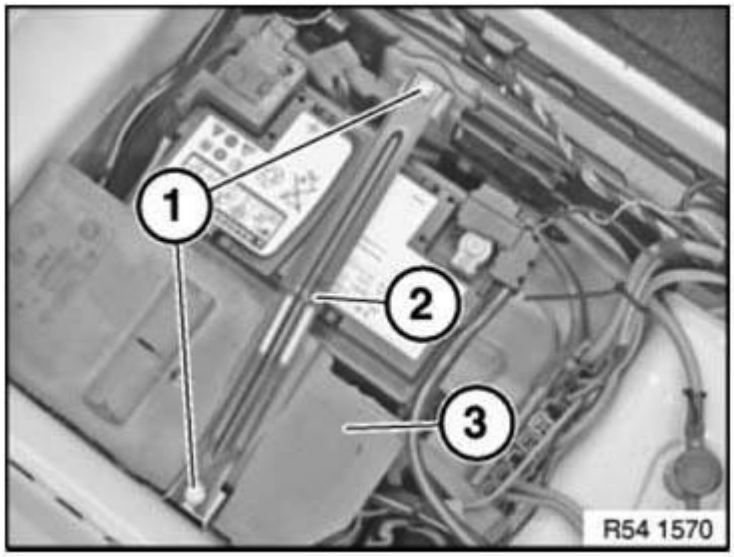


Fig. 116: Identifying Insulating Mat And Battery Rollover Protection With Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Unfasten plug connection (1) and disconnect.

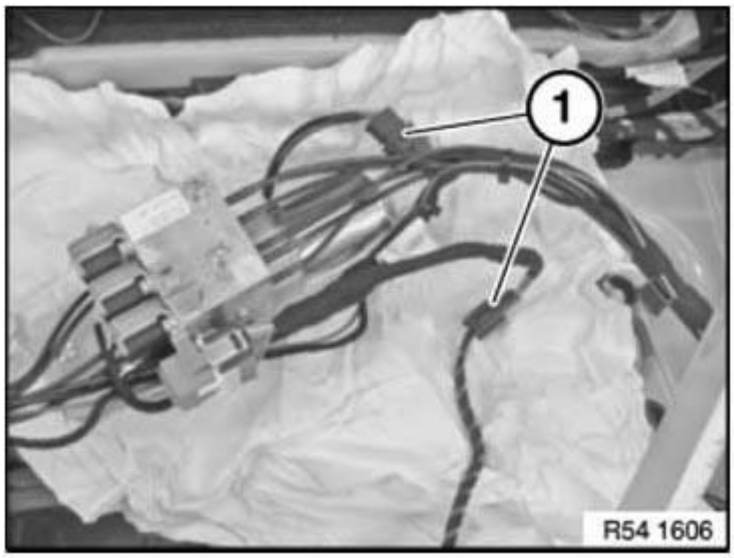


Fig. 117: Identifying Plug Connections
Courtesy of BMW OF NORTH AMERICA, INC.

Press release and detach relay (1) from holder.

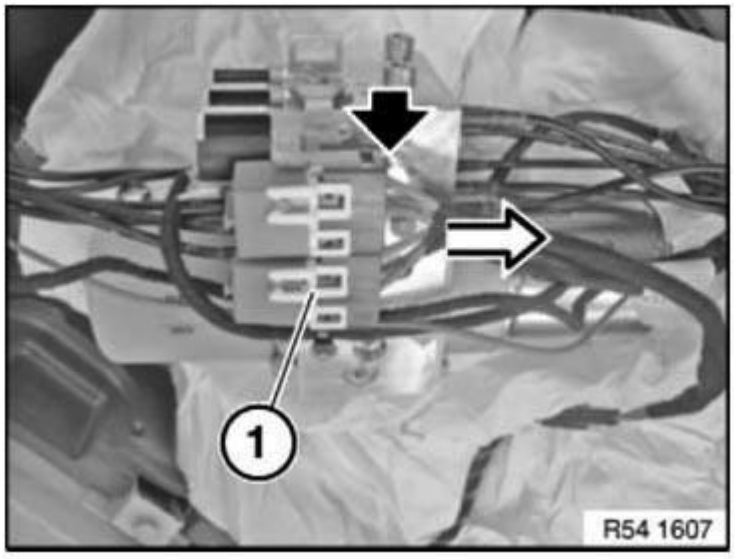


Fig. 118: Disconnecting Relay From Holder
Courtesy of BMW OF NORTH AMERICA, INC.

Release plug connections (1) and disconnect.

Cut cable straps.

Installation note:

Plug connections are coded against incorrect assembly.

Replace defective cable strap.

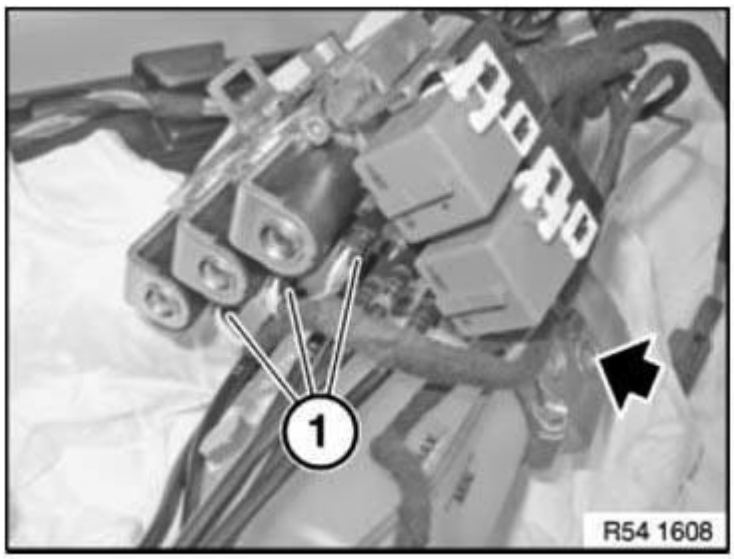


Fig. 119: Identifying Plug Connections
Courtesy of BMW OF NORTH AMERICA, INC.

IMPORTANT: Protect joints (lines and hydraulic unit) against dripping fluid, e.g. with a cleaning cloth.

Disconnect hydraulic lines from hydraulic unit:

- Release screws.
- Detach hydraulic lines

Installation note:

Hydraulic lines and connections are marked with numbers to prevent mix-ups.

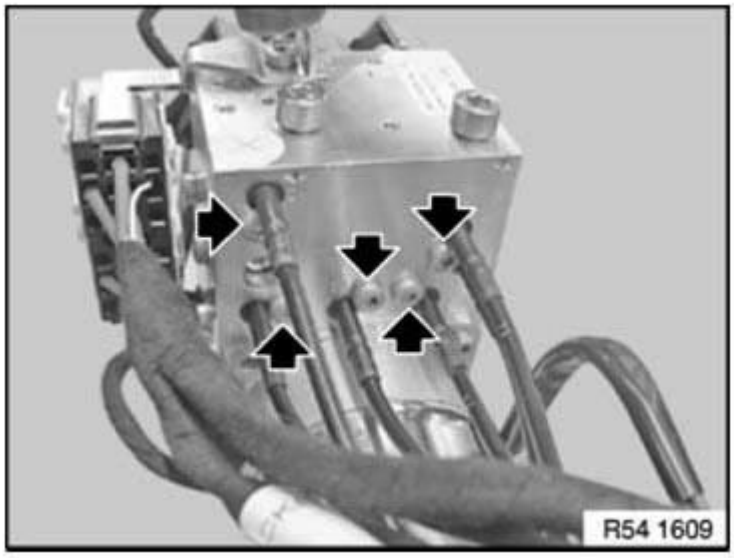


Fig. 120: Locating Hydraulic Line Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Disconnect hydraulic lines from hydraulic unit:

- Release screws.
- Detach hydraulic lines
- Remove hydraulic unit (drive).

Installation note:

Hydraulic lines and connections are marked with numbers to prevent mix-ups.

Check **FLUID LEVEL** or top up if necessary.

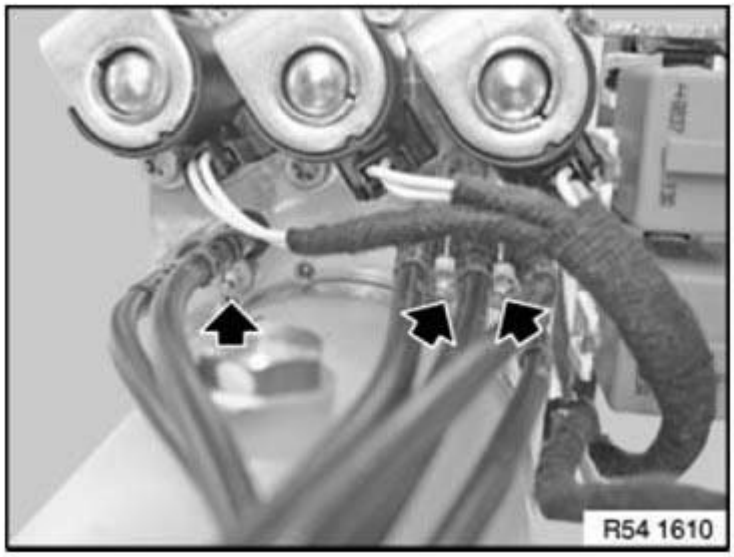


Fig. 121: Locating Hydraulic Line Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Replacement only:

Use Allen key to close shutoff valve on hydraulic unit.

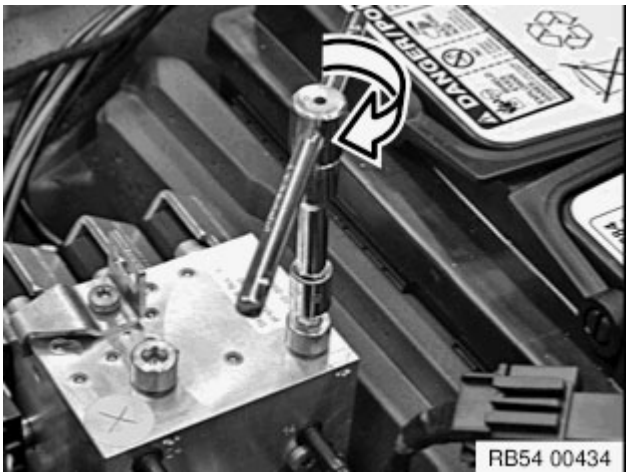


Fig. 122: Closing Shutoff Valve On Hydraulic Unit Using Allen Key
Courtesy of BMW OF NORTH AMERICA, INC.

54 37 190 REMOVING AND INSTALLING/REPLACING HYDRAULIC CYLINDER FOR LEFT ROOF SHELL

Necessary preliminary work

- Remove **LUGGAGE COMPARTMENT FLOOR TRIM PANEL** .
- Partially open the roof.

- Remove **roofliner for roof shell at rear**.

IMPORTANT: Hydraulic fluid may emerge from the disconnected lines and the open connections on the hydraulic cylinder. Protect components and work area with suitable materials (e.g. cloths

IMPORTANT: Soft top compartment lid tilts shut when system is depressurized and must be supported with suitable auxiliary equipment.

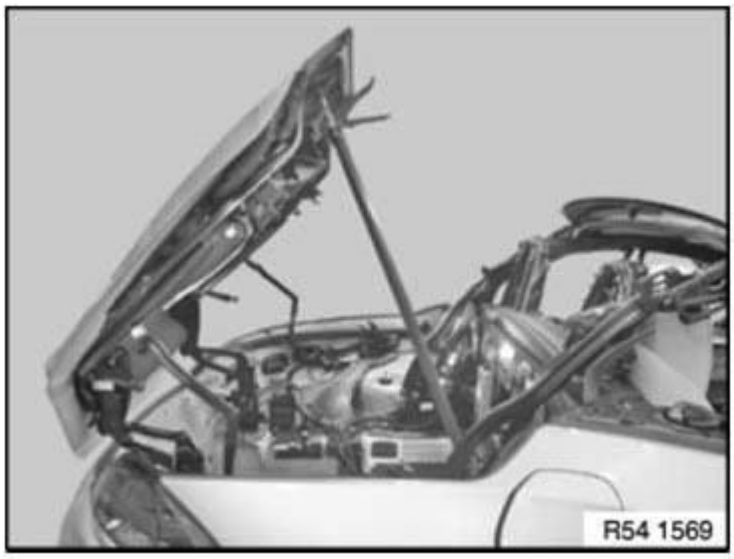


Fig. 123: Identifying Top Compartment Lid
Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: Hydraulic system must be at zero pressure. Open screw on hydraulic unit 1.5 turns.

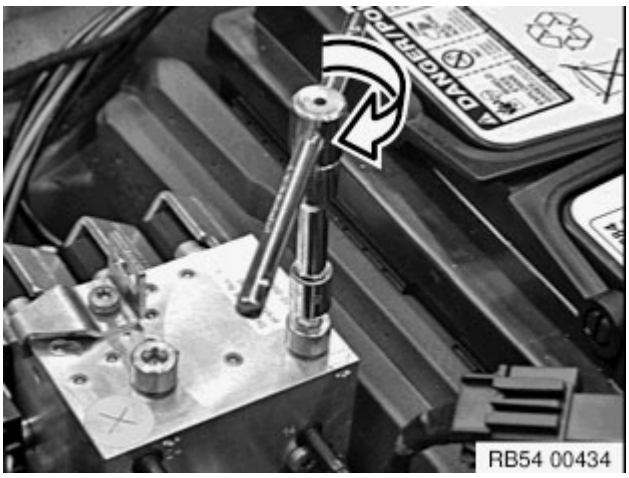


Fig. 124: Closing Shutoff Valve On Hydraulic Unit Using Allen Key
Courtesy of BMW OF NORTH AMERICA, INC.

IMPORTANT: Never lift off ball socket with engaged clamp. Replaced overelongated clamps. Before installation, grease ball socket if necessary.

Installation note: Pack grease into two opposite positions in socket. The grease spreads after installation on the ball pin all round in the ball socket.

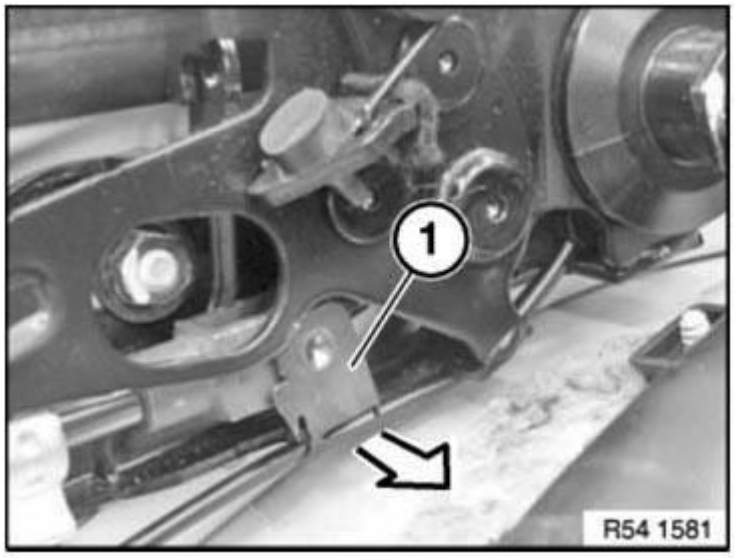


Fig. 125: Removing Bearing Pin
Courtesy of BMW OF NORTH AMERICA, INC.

Dismantling/installing ball sockets:

1. Push on clamp in direction of groove with screwdriver

2. Lift off ball socket from ball pin
3. Slide clamp back
4. Fit ball socket on ball stud and snap into place with force

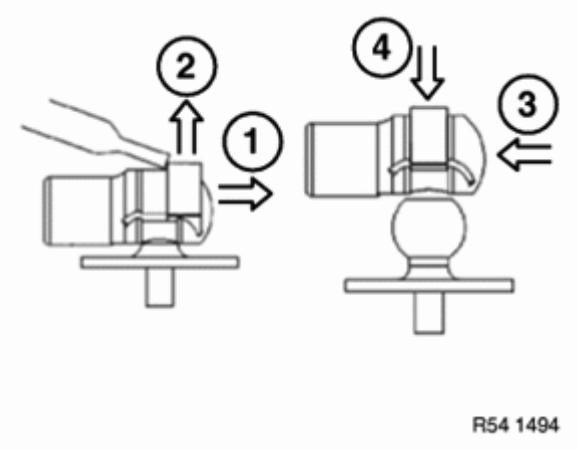


Fig. 126: Pushing On Retainer In Direction Of Groove With Screwdriver
Courtesy of BMW OF NORTH AMERICA, INC.

Removing hydraulic cylinder:

- Slide retaining clips (1) upwards.
- Detach ball sockets at sides.
- Feed out hydraulic cylinder.

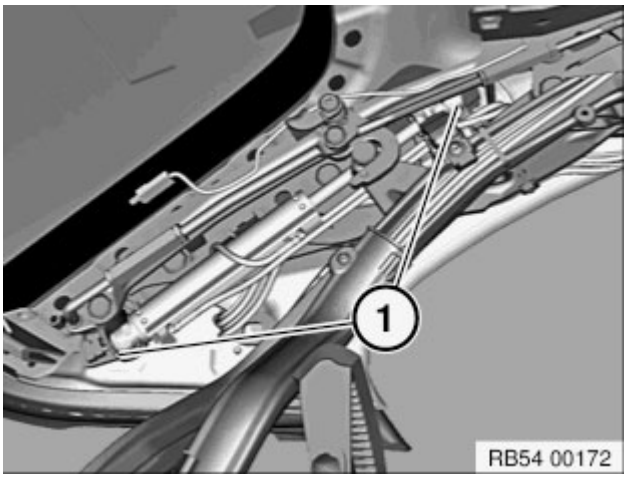


Fig. 127: Removing Hydraulic Cylinder
Courtesy of BMW OF NORTH AMERICA, INC.

Replacement only: Disconnect hydraulic lines from cylinder.

IMPORTANT: Protect separation points (lines and cylinder) against dripping fluid, e.g. with a cleaning cloth. Observe hose markings.

Detach cable strap. Open retainer (1) at bottom/top on cylinder with screwdriver. Detach hydraulic lines (2).

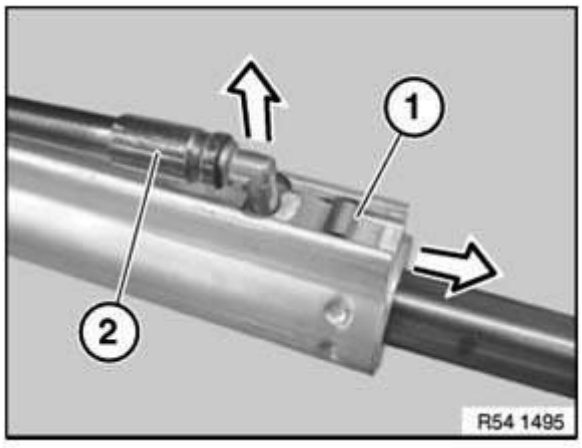


Fig. 128: Detaching Hydraulic Lines
Courtesy of BMW OF NORTH AMERICA, INC.

Right side only: Unlock plug connection for hall effect sensor and disconnect.

Installation note: Carry out function check. Check fluid level.

54 37 195 REMOVING AND INSTALLING/REPLACING HYDRAULIC CYLINDER FOR ROOF SHELL ON RIGHT

NOTE: Except for the plug connections for Hall-effect sensors, the work is identical to: Removing and installing/replacing hydraulic cylinder for left roof shell.

54 37 220 REMOVING AND INSTALLING/REPLACING LEFT CONVERTIBLE TOP COMPARTMENT LID HYDRAULIC CYLINDER

NOTE: Except for the operations covering the plug connections for the Hall sensors, this task is identical to:

- **Removing and installing/replacing right CONVERTIBLE TOP COMPARTMENT LID HYDRAULIC CYLINDER**

54 37 090 REMOVING AND INSTALLING/REPLACING LEFT OR RIGHT CONVERTIBLE LOCK

Necessary preliminary tasks

- Remove **FRONT ROOFLINER**
- Open Convertible top.

Installation:

- Microencapsulated nuts (Loctite) must be replaced and may not be reused
- Screw connection must be completed within 20 minutes (start of curing)
- Microencapsulated nuts must not be retightened
- Threads of threaded bolts must be cleaned beforehand in event of repeated use

Slide open retaining clip (1) and unclip ball head.

NOTE: Before removing, mark position of nuts to ensure correct alignment when installing.

Unscrew nuts (2).

Tightening torque **54 37 12AZ** .

Installation:

Replace nuts.

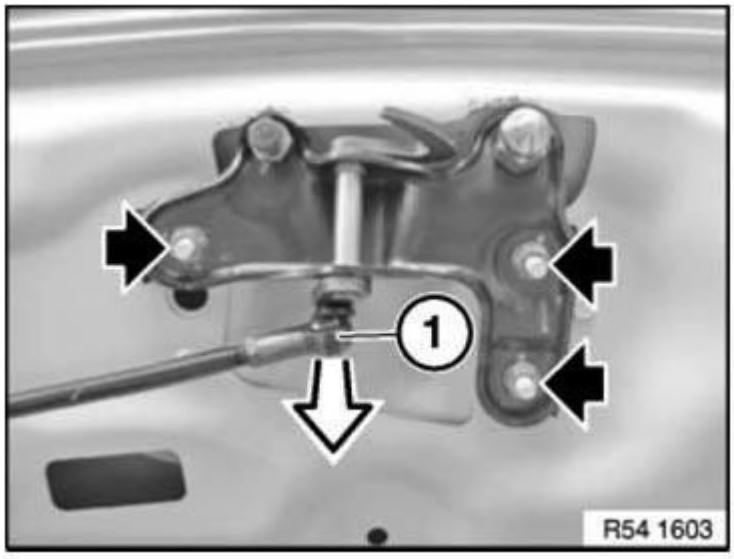


Fig. 129: Sliding Open Retaining Clip
Courtesy of BMW OF NORTH AMERICA, INC.

Replacement only:

Screw on new fasteners loosely.

Fastener should still be able to be slid in order to center itself.

Close convertible top.

Fasteners glide into place.

Tighten nuts.

Tightening torque **54 37 12AZ** .

Check **GAP DIMENSIONS** and if necessary adjust

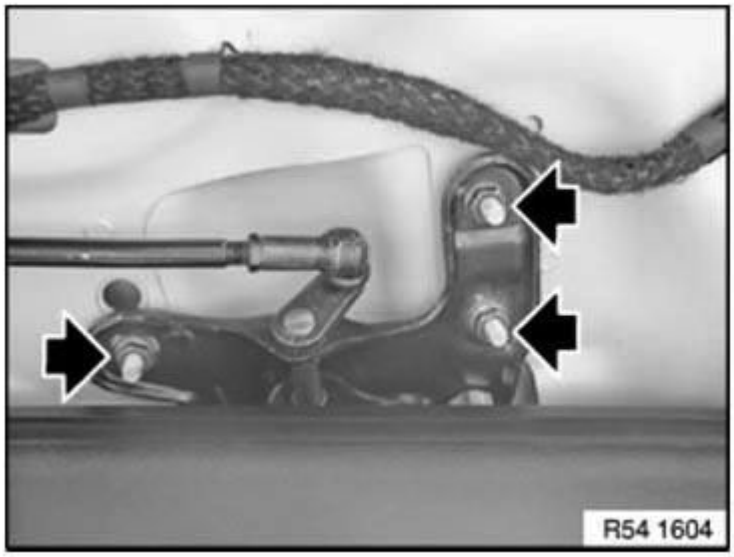


Fig. 130: Locating Screw On Fasteners
Courtesy of BMW OF NORTH AMERICA, INC.

51 31 200 REMOVING AND INSTALLING/REPLACING REAR WINDOW

IMPORTANT: The "INSTRUCTIONS ON CEMENTING WINDSCREEN" serve as the basis for this repair instruction and must be observed without fail.
Cover rear side panels with protective covers.
When reusing the rear window:
Do not damage plug soldering tags for heated rear window.

Necessary preliminary tasks

- Remove **ROOFLINER FOR ROOF SHELL**

NOTE: Removal is performed with ROLL OUT 2000 .

- **Tape off entire roof shell aperture with fabric adhesive tape (paint coat must not be damaged)**
- **All attachment parts must not be damaged**

Move rear roof shell (1) forwards until frame (1) can be engaged in openings (2) on left and right with a suitable tool.

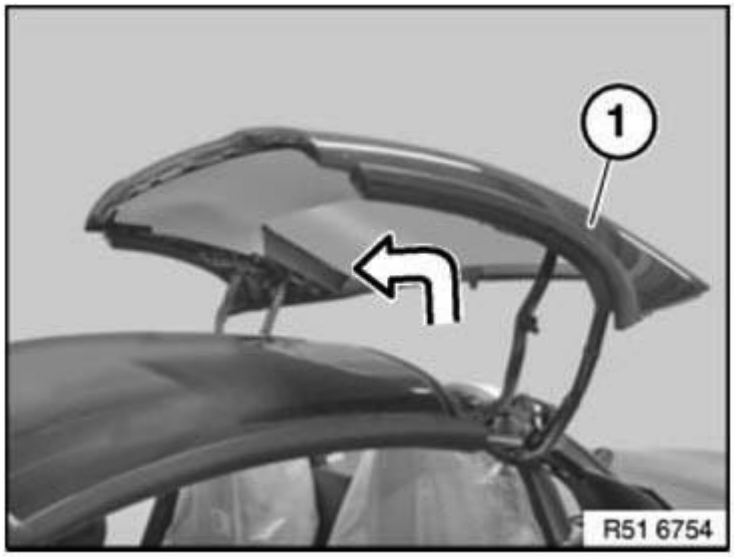


Fig. 131: Moving Rear Roof Shell
Courtesy of BMW OF NORTH AMERICA, INC.

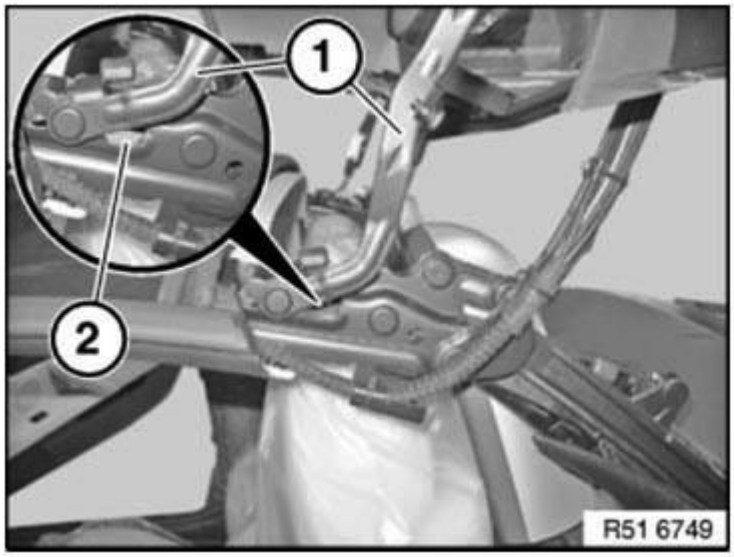


Fig. 132: Frame Engaged On Openings
Courtesy of BMW OF NORTH AMERICA, INC.

Disconnect heated rear window plug connections (1) on left and right.

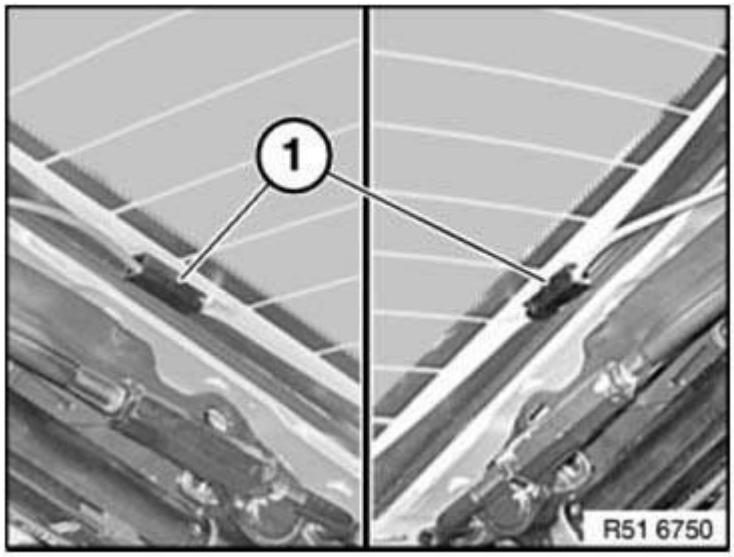


Fig. 133: Identifying Rear Window Plug Connections
Courtesy of BMW OF NORTH AMERICA, INC.

IMPORTANT: Tape off body area at piercing point (1) with fabric adhesive tape (risk of damage).

Push wire starter from **ROLL OUT 2000** at line (1) through adhesive bead.

Cut out rear window with **ROLL OUT 2000** .

Lift out rear window with special tool 51 3 010 .

Installation:

Bond rear window with hardtop closed.

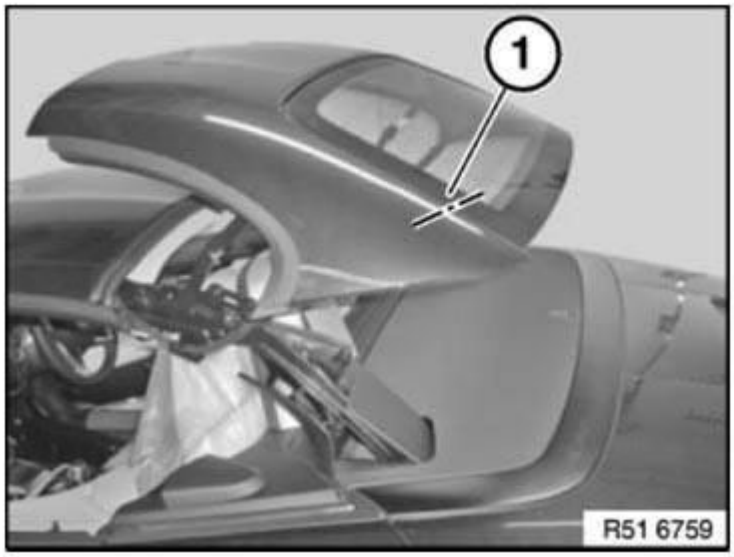


Fig. 134: Identifying Wire Starter From Roll Out 2000 At Line
Courtesy of BMW OF NORTH AMERICA, INC.

Fitting 6 spacer buffers:

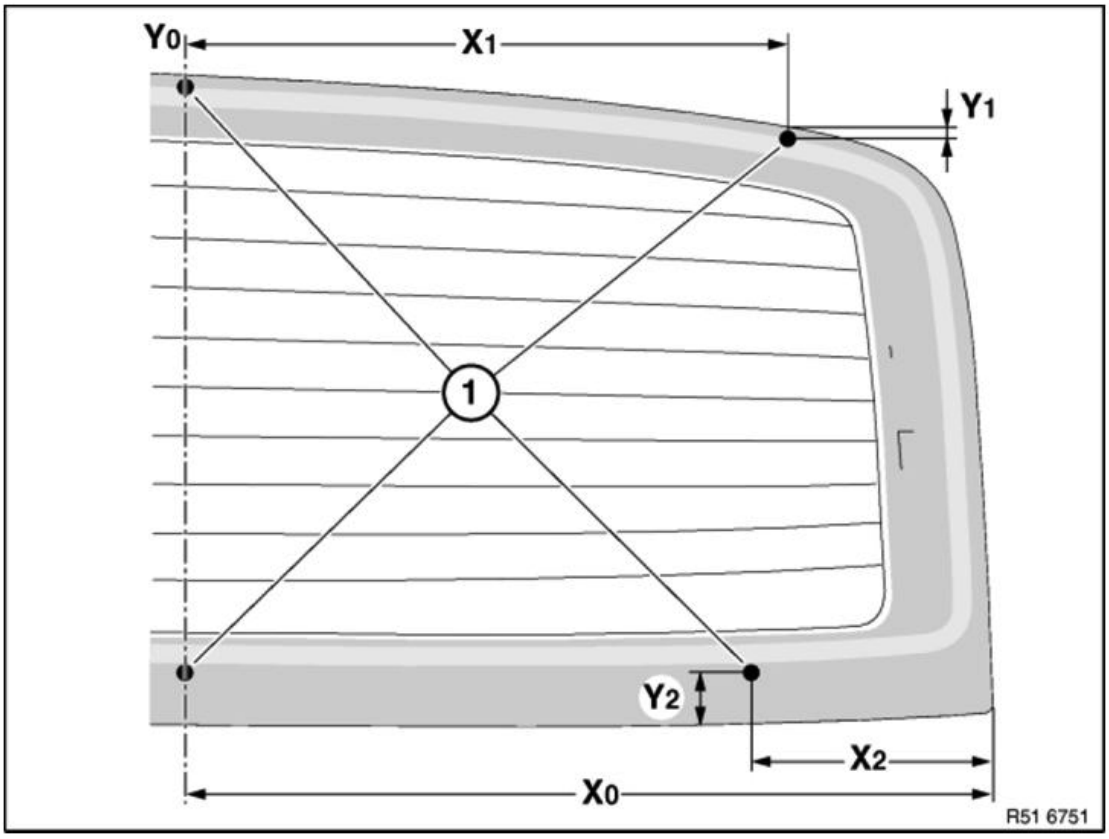


Fig. 135: Identifying Upper And Lower Spacer Buffer Dimension
Courtesy of BMW OF NORTH AMERICA, INC.

IMPORTANT: To avoid rear window breakage and leaks, remove remnants of removed spacer buffers (1).
Position new spacer buffers (1) outside adhesive bead.
Only the following spacer buffers (1) may be used:

- Dia. 9.5 mm and 3.8 mm high

SPACER BUFFER DIMENSION SPECIFICATION

Apply dimensions to right window half in mirror-inverted fashion			
X_0 =	550	Y_0 =	All dimensions in mm Window center
X_1 =	380	Y_1 =	6
X_2 =	165	Y_2 =	35

Y_1 = applicable to all upper spacer buffers (1)

Y_2 = applicable to all lower spacer buffers (1)

Overview of bonding agent application (primer)

Apply bonding agent in marked area (1), but not beyond the ceramic glass screen print.

NOTE: Otherwise wipe again straight away with a fluff-free cloth.

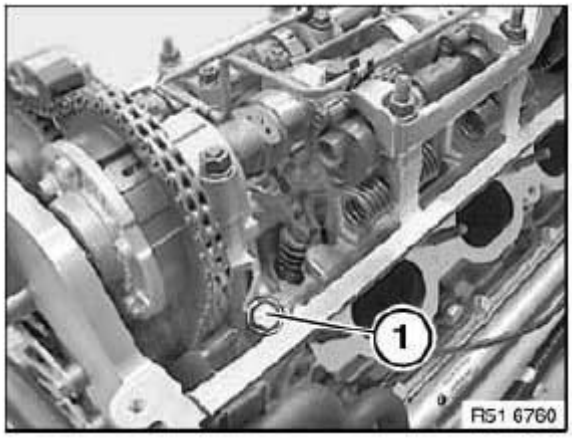


Fig. 136: Identifying Bonding Agent On Applied Marked Area

Courtesy of BMW OF NORTH AMERICA, INC.

Overview of adhesive bead trace, top and side

Adhesive bead trace (1) runs inside clinch points (2).

Adhesive bead trace

A = 7^{+2} mm (width, adhesive bead trace)

B = 7^{+1} mm (height, adhesive bead trace)

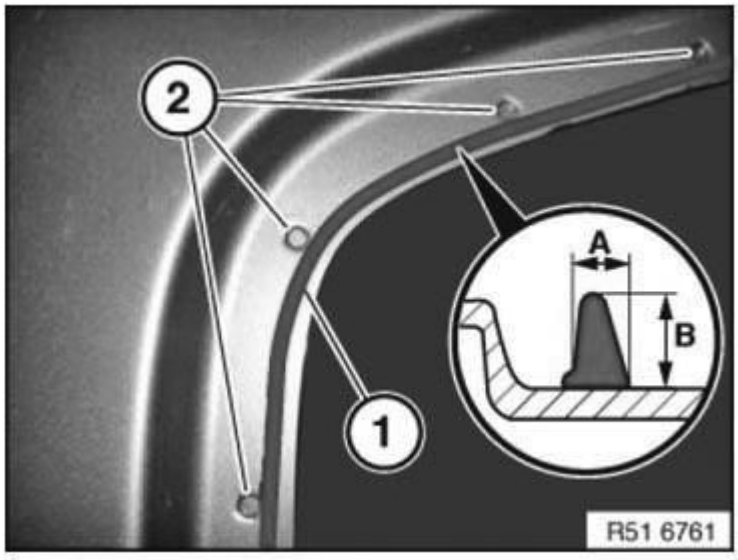


Fig. 137: Identifying Adhesive Bead Trace (Top)
Courtesy of BMW OF NORTH AMERICA, INC.

Overview of adhesive bead trace, bottom

Adhesive bead trace (1) runs in sheet recess of cross-member (2).

Spread bead joint (3) with special tool 00 9 322 .

Adhesive bead trace

A = 7^{+2} mm (width, adhesive bead trace)

B = 7^{+1} mm (height, adhesive bead trace)

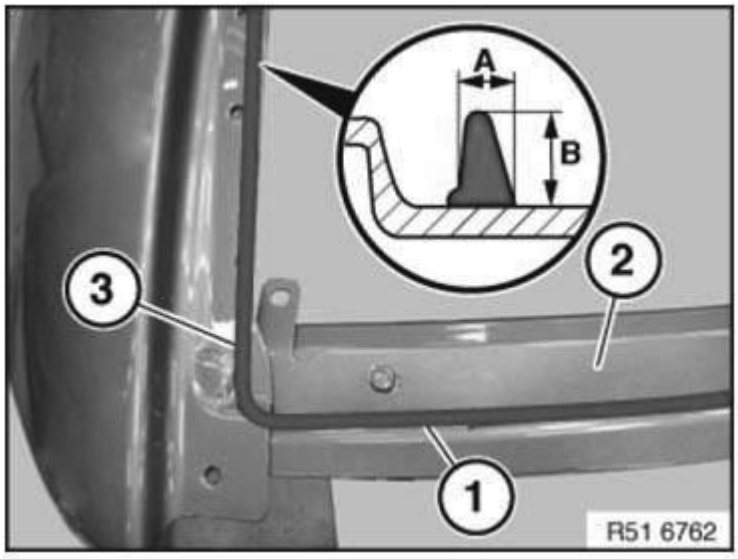


Fig. 138: Identifying Adhesive Bead Trace (Bottom)
Courtesy of BMW OF NORTH AMERICA, INC.

Attach special tool 51 3 010 twice to tool trolley. Moisten suction surfaces and secure rear window from outside.

If reusing the removed rear window, remove the adhesive residue with a blunt scraper or knife.

Observe treatment of adhesive area in body aperture and on rear window, see **INSTRUCTIONS ON WINDOW CEMENTING**

Position and width of bead joint:

- Overlapping and closed
- Not visible from outside and inside
- The contact point becomes noticeable through an increase in the adhesive volume (approx. 1.5 - 2 x bead width after crushing).

  Position adhesive bead only where the glass ceramic material offers a sufficient overlap and the body flange offers sufficient space.

- The adhesive bead is not permitted in the window radii and in the cowl panel area

NOTE: Adhesive area for plastic adhesive tapes (1) must be free from grease and dust.

Stick two yellow plastic adhesive tapes (1) to roof at distance (A) from outside corners.

Length: 400 mm

A = 150 mm

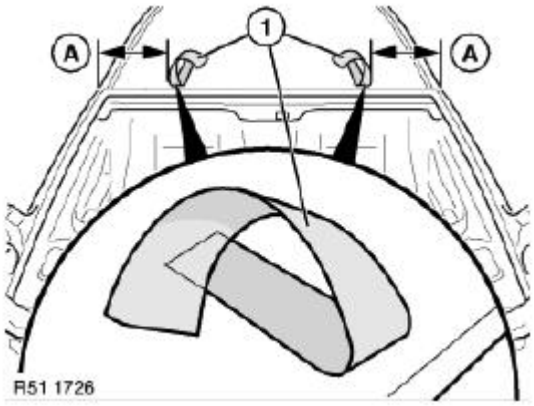


Fig. 139: Identifying Plastic Adhesive Tapes Position Onto Roof
Courtesy of BMW OF NORTH AMERICA, INC.

Gap dimensions

A = Centre rear window (2) to roof shell (1) laterally.

B = Rear window (2) to trim strip, convertible top compartment lid (3), see **GAP DIMENSIONS, BODY** .

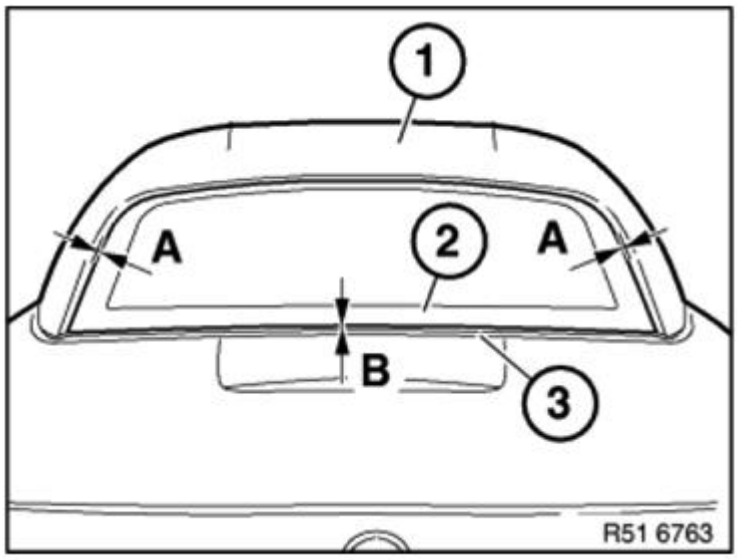


Fig. 140: Identifying Gap Dimension For Centre Rear Window To Roof

Shell
Courtesy of BMW OF NORTH AMERICA, INC.

Checking pre-tension on rear window

In order to avoid wind noises, rear window (1) must be lower than roof outer skin (2).

Position special tool 51 0 010 in middle of vehicle depending on measurement (A) and check underprotrusion of rear window (1).

A = 2 mm

X = measurement stages 1... 4 mm

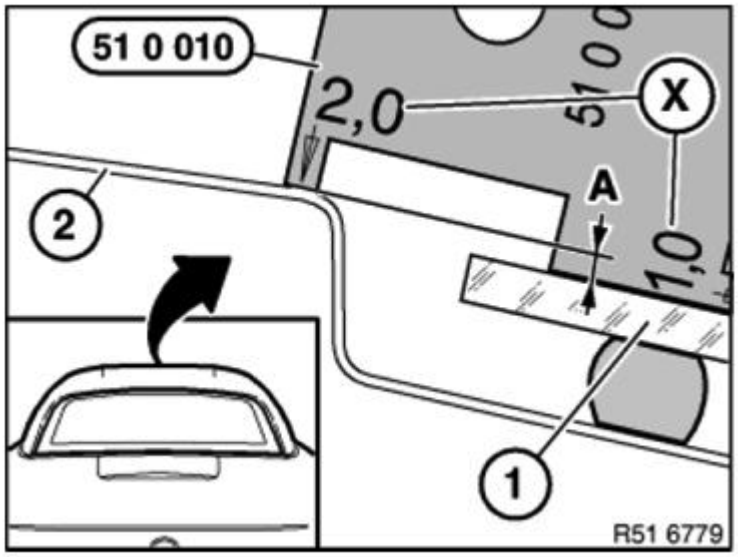


Fig. 141: Checking Pre-Tension On Rear Window Using Special Tool 51 0 010
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Underprotrusion dimension "A" is decreased by approx. 4 mm continuously from window center to window edge on left and right.

54 37 225 REMOVING AND INSTALLING/REPLACING RIGHT CONVERTIBLE TOP COMPARTMENT LID HYDRAULIC CYLINDER

Necessary preliminary tasks

- Remove luggage compartment wheel arch trim . See **5147161 REMOVING AND INSTALLING/REPLACING RIGHT LUGGAGE COMPARTMENT WHEEL ARCH TRIM** or **5147151 REMOVING AND INSTALLING/REPLACING LEFT LUGGAGE COMPARTMENT WHEEL ARCH PANEL** on left or right.
- See **REPAIR INSTRUCTIONS FOR HYDRAULIC SYSTEM** of Convertible top and Convertible top compartment lid

CAUTION: Hydraulic fluid may emerge from the disconnected lines and the open connections on the hydraulic cylinder.
Protect components and work area with suitable materials (e.g. cloths).

IMPORTANT: Convertible top compartment lid tilts closed when system is depressurized and must be supported with suitable apparatus.

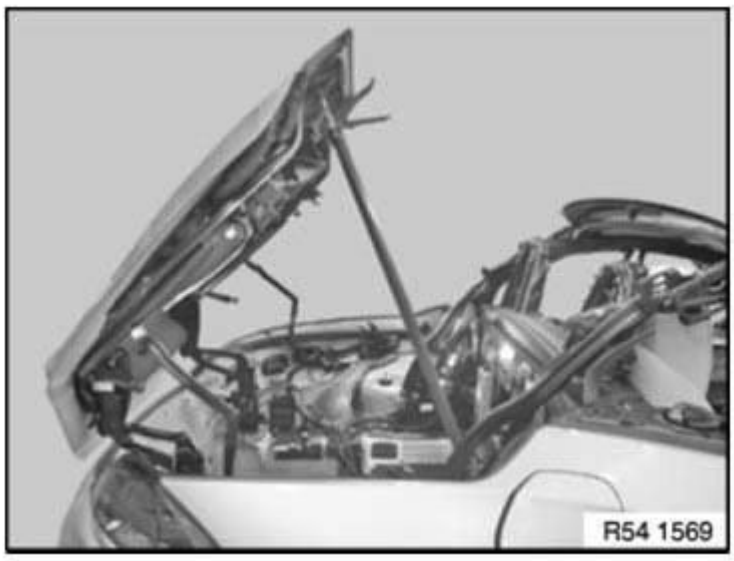


Fig. 142: Identifying Convertible Top Compartment Lid
Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: Hydraulic system must be at zero pressure.
Open screw on hydraulic unit 1.5 turns.

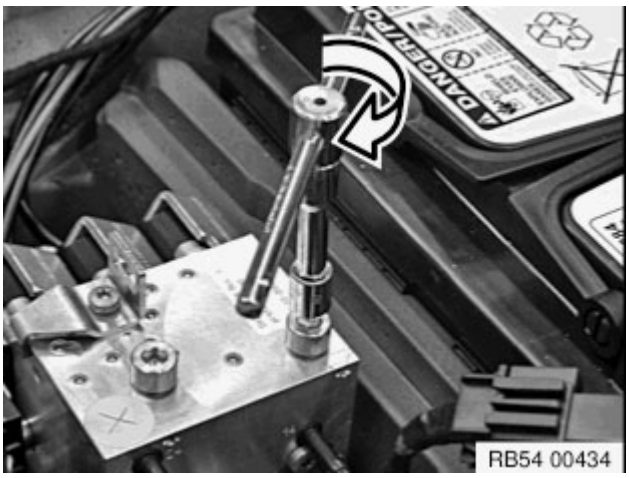


Fig. 143: Opening Screw On Hydraulic Unit
Courtesy of BMW OF NORTH AMERICA, INC.

1. Unlock retaining lug
2. Twist bearing pin downwards

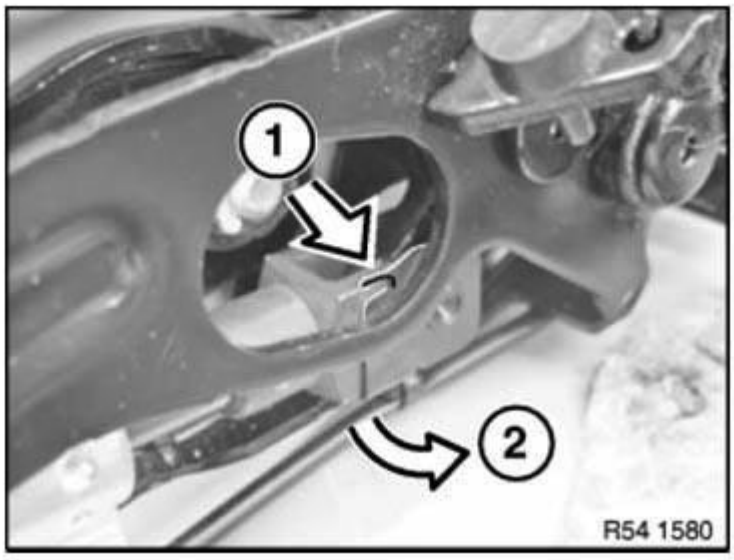


Fig. 144: Twisting Bearing Pin
Courtesy of BMW OF NORTH AMERICA, INC.

Remove bearing pin (1).

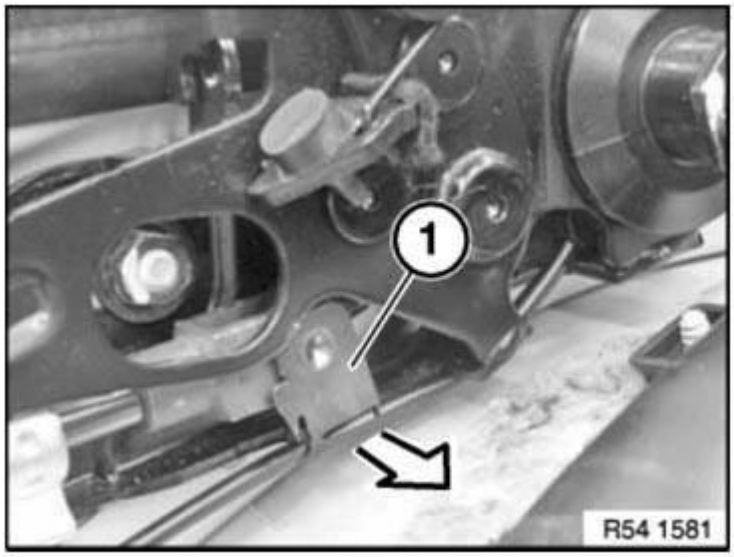


Fig. 145: Removing Bearing Pin
Courtesy of BMW OF NORTH AMERICA, INC.

Remove retaining clip (1) with a screwdriver.

Drive out pin (2) at side.

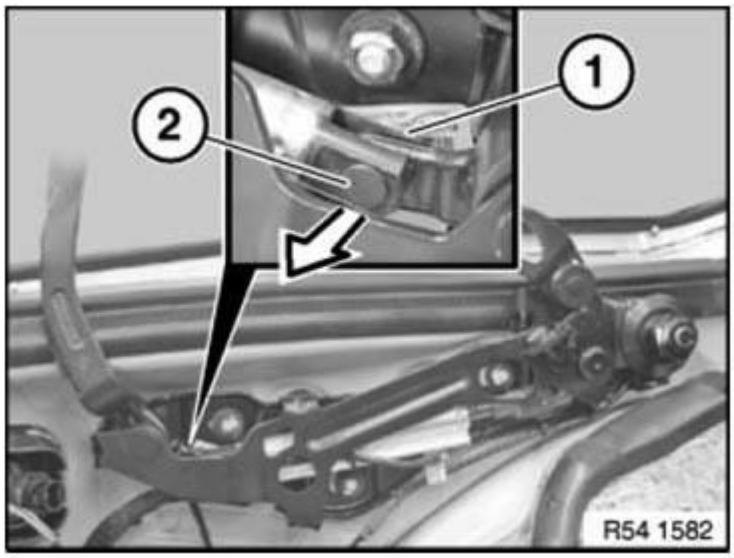


Fig. 146: Removing Pin
Courtesy of BMW OF NORTH AMERICA, INC.

Feed out hydraulic cylinder (1).

Unfasten plug connection (2) and disconnect.

Right side only:

Unlock plug connection (3) for Hall sensor and disconnect.

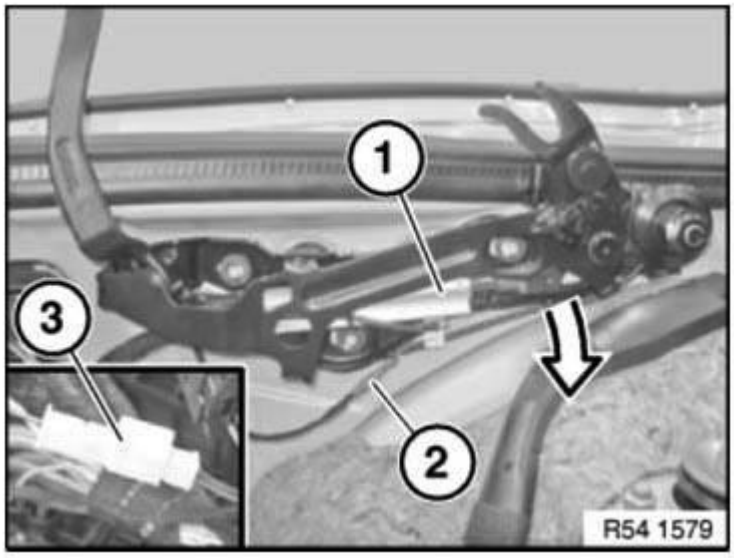


Fig. 147: Removing Hydraulic Cylinder
Courtesy of BMW OF NORTH AMERICA, INC.

Replacement only:

IMPORTANT: Protect joints (lines and cylinder) against dripping fluid, e.g. with a cleaning cloth.

Detach cable tie.

Installation:

Replace faulty cable ties.

Slide open retaining rings (1) with screwdriver.

Detach hydraulic lines (2).

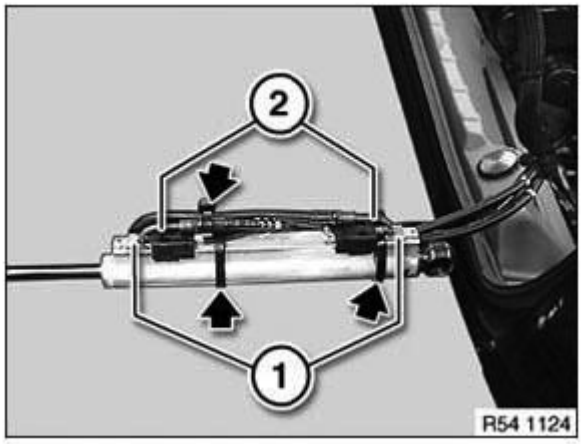


Fig. 148: Identifying Retaining Rings And Hydraulic Lines
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

- Carry out operational check.
- Check **FLUID LEVEL** .

54 37 070 REMOVING AND INSTALLING/REPLACING ROOF SHELL AT FRONT

Necessary preliminary tasks

- Remove **ROOFLINER FOR ROOF SHELL AT FRONT**
- Close soft top (front lock remains unlocked)

NOTE: Removal of front roof shell must only be carried out when the rear roof shell is fitted.
Never remove the front and rear roof shell together.
An adjustment of the roof shell is specified in all directions and in this case is not possible.

Installation:

- Microencapsulated screws (Loctite) must be replaced and may **not** be reused
- Screw connection must be completed within 20 minutes (start of curing)
- Microencapsulated screws must not be retightened
- Thread of nut must be cleaned beforehand in event of repeated use

Special tool 54 0 350 for mechanically tensioning convertible top when

removing roof shell.

Insert and tension tightening hook (1) on left and right.

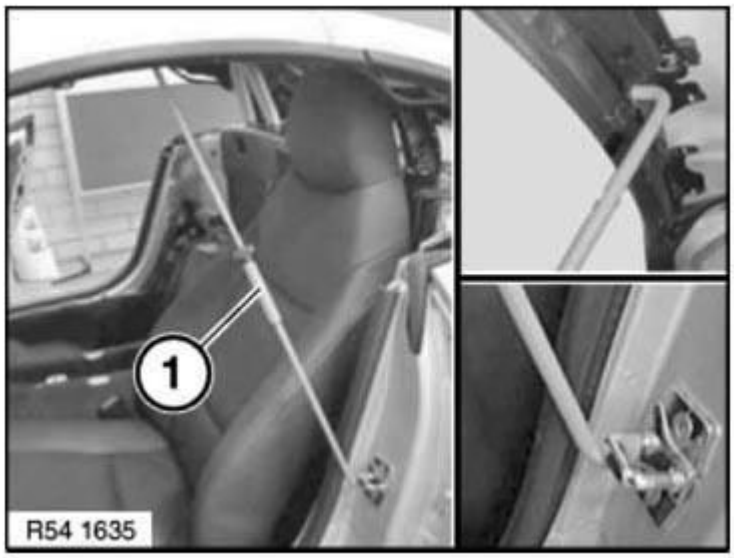


Fig. 149: Identifying Hook
Courtesy of BMW OF NORTH AMERICA, INC.

Unfasten plug connection (1) and disconnect.

Cut open cable tie (2).

Unclip cable holder (3).

Installation:

Replace faulty cable ties and cable clips.

Feed wiring harness out of roof shell.

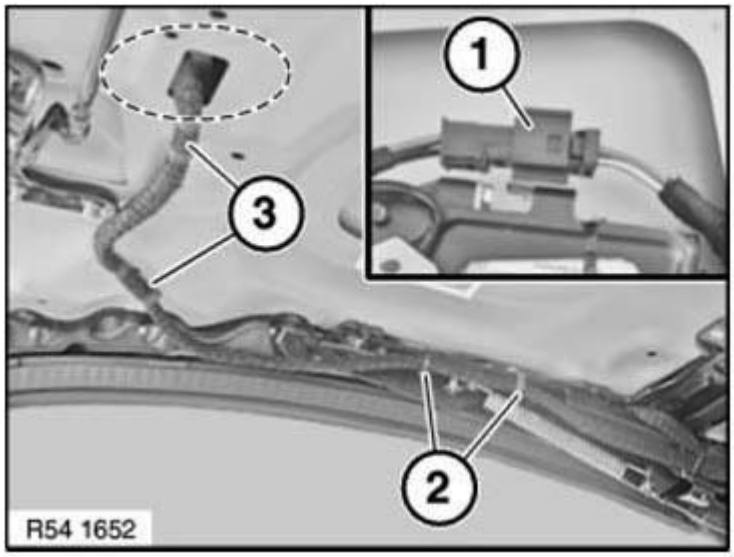


Fig. 150: Identifying Plug Connection, Cable Tie And Cable Holder
Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: Count and note the number of washers for height specification.

Release Torx screws (1).

Installation:

Replace Torx screws and insert with Loctite.

Tightening torque **54 37 11AZ** .

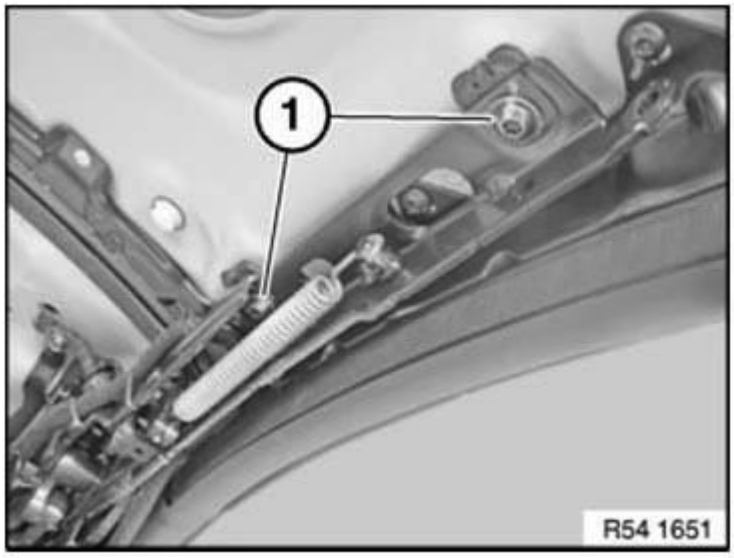


Fig. 151: Identifying Torx Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Replacement only

- Remove **FRONT LATCH**
- Remove **LATCH MOTOR**
- Remove **SEAL**

Release Torx screws (1).

Installation:

Replace Torx screws and insert with Loctite.

Tightening torque **54 37 13AZ** .

Remove seal mount.

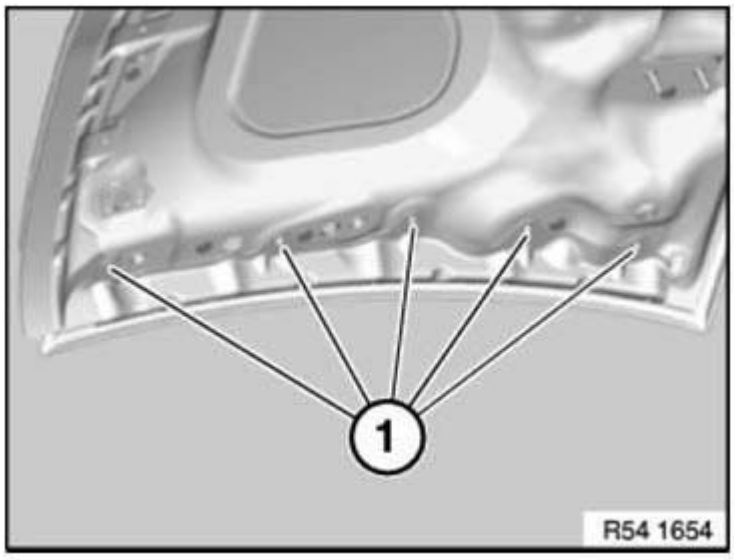


Fig. 152: Identifying Torx Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Drill out rivets (1).

Remove seal mount.

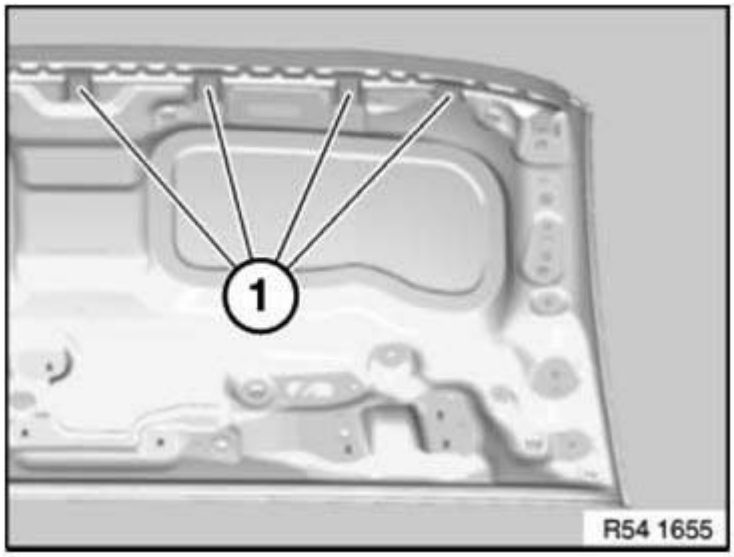


Fig. 153: Identifying Seal Mount Rivets
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Check **GAP DIMENSIONS** for convertible top.

54 37 080 REMOVING AND INSTALLING/REPLACING ROOF SHELL AT REAR

Necessary preliminary tasks

- Remove **ROOFLINER FOR ROOF SHELL AT REAR**

NOTE: Removal of rear roof shell must only be carried out when the front roof shell is fitted.
Never remove the rear and front roof shell together.
An adjustment of the roof shell is specified in all directions and in this case is not possible.

Installation:

- Microencapsulated screws (Loctite) must be replaced and may **not** be reused
- Screw connection must be completed within 20 minutes (start of curing)
- Microencapsulated screws must **not** be retightened
- Thread of nut must be cleaned beforehand in event of repeated use

Move rear roof shell (1) over front roof shell.

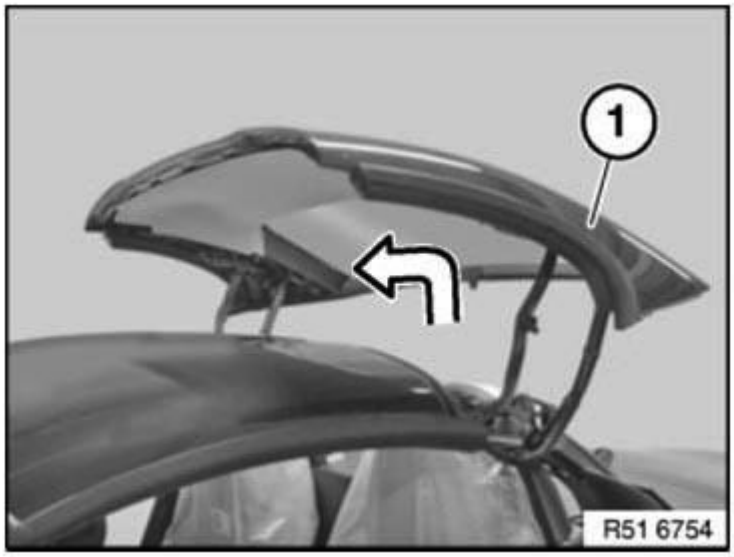


Fig. 154: Moving Rear Roof Shell Over Front Roof Shell
Courtesy of BMW OF NORTH AMERICA, INC.

Secure rear roof shell against sinking.

Insert auxiliary tool on left and right in bore hole (2) of convertible top frame (1).

Roof shell is blocked when hydraulic system is depressurized.

IMPORTANT: Remove auxiliary tool again without fail before moving roof. Risk of damage!

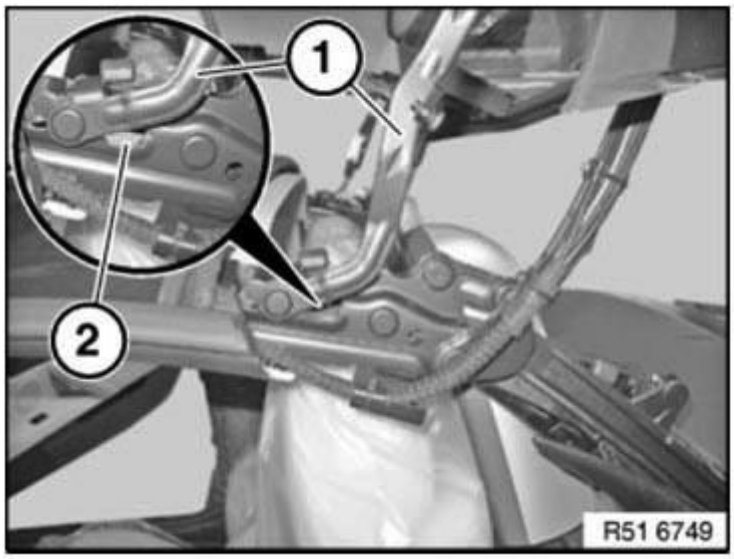


Fig. 155: Identifying Bore Hole Of Convertible Top Frame
Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: Count and note the number of washers for height specification.

Release Torx screws (1) on left and right.

Installation:

Replace Torx screws.

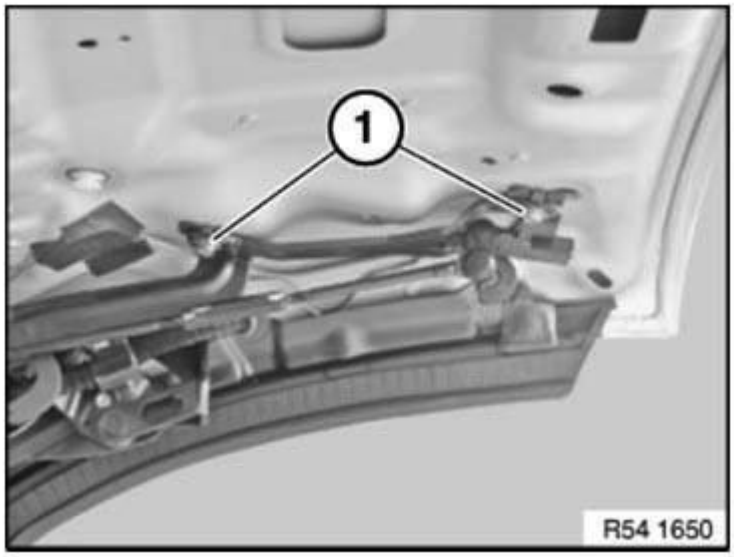


Fig. 156: Identifying Washer Torx Screws
Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: Count and note the number of washers.

Release Torx screws (1) on left and right.

Installation:

Replace Torx screws.

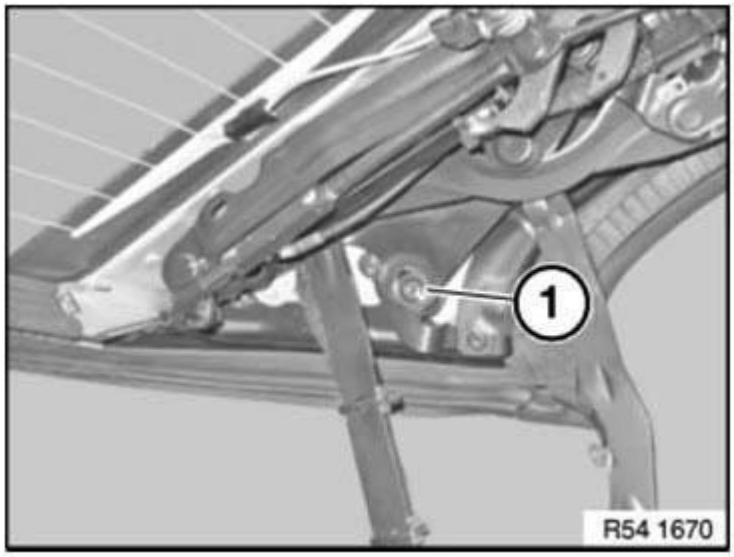


Fig. 157: Identifying Washer Torx Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Install and adjust roof shell without fin.

Release screws (1).

Remove fin.

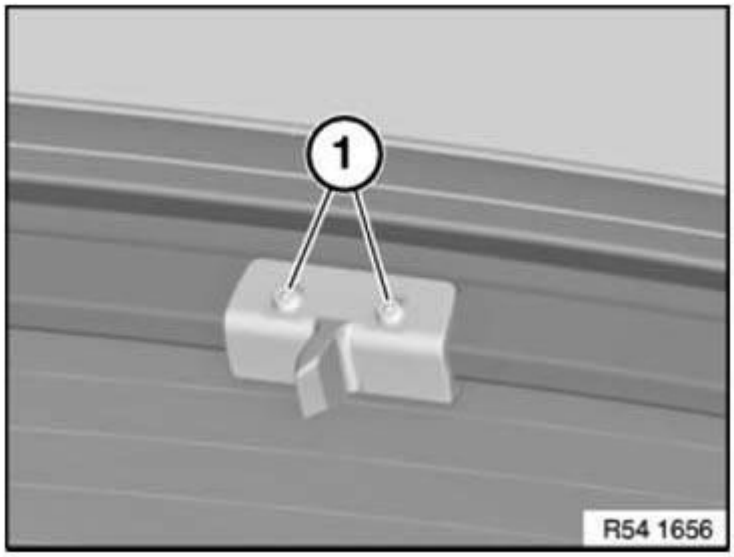


Fig. 158: Identifying Fin Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Observe installation sequence:

Screw on roof shell slack, roof shell must just still be able to be moved.

Close convertible top.

Align roof shell and check **GAP DIMENSION** .

Screw down front Torx screw (1).

Tightening torque **54 37 11AZ** .

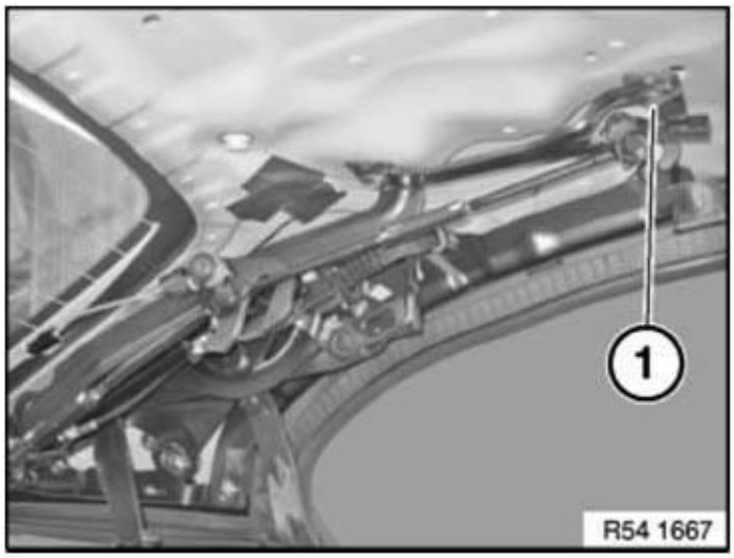


Fig. 159: Identifying Roof Shell Screw
Courtesy of BMW OF NORTH AMERICA, INC.

Screw down Torx screw (1).

Tightening torque **54 37 11AZ** .

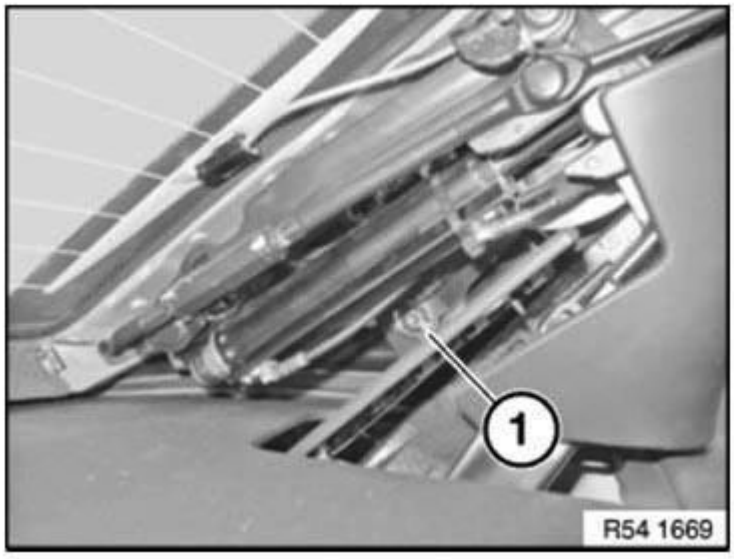


Fig. 160: Identifying Roof Shell Screw
Courtesy of BMW OF NORTH AMERICA, INC.

Open convertible top.

Screw down rear Torx screw (1).

Tightening torque **54 37 11AZ** .

Install fin.

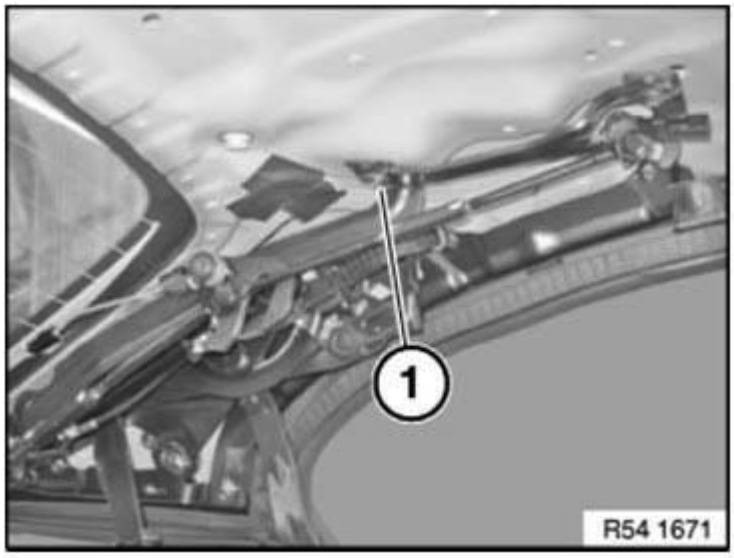


Fig. 161: Identifying Fin Screw
Courtesy of BMW OF NORTH AMERICA, INC.

Replacement only

- Modify **REAR WINDOW**
- Modify **SEAL**

Release screws (1).

Tightening torque **54 37 13AZ** .

Remove seal holder.

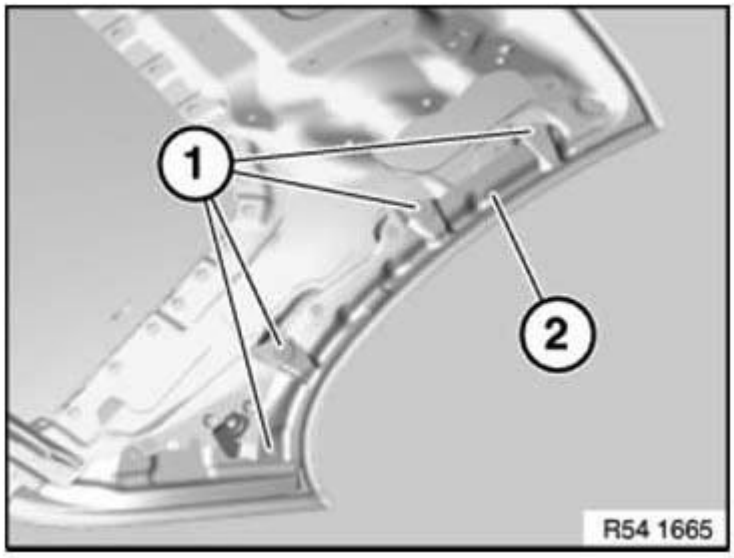


Fig. 162: Identifying Holder Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Release screws (1).

Tightening torque **54 37 13AZ** .

Remove seal holder.

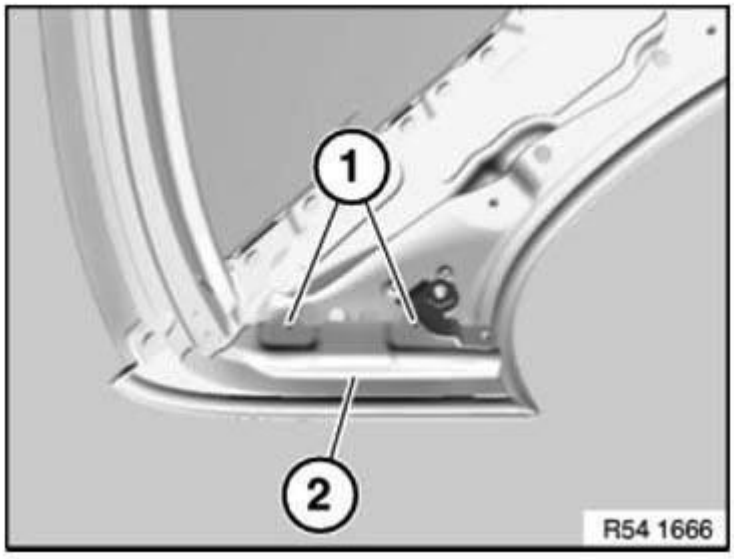


Fig. 163: Identifying Holder Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Attach Teflon tape (1) in front area of roof shell.

A. 25 mm

Installation:

Clean adhesive area with spirit.

Air drying time: > or = 2 minute

IMPORTANT: Adhesive area must be dry and free from dust and grease.
Once it has been cleaned, do not touch the adhesive area with bare hands.

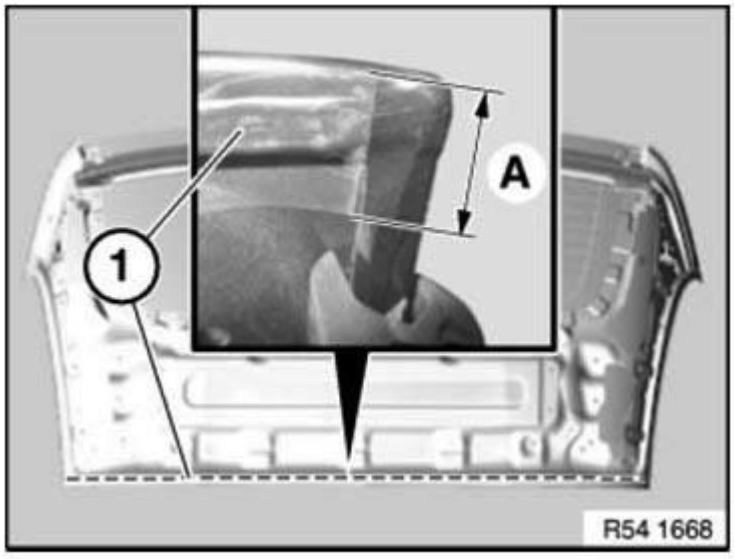


Fig. 164: Identifying Teflon Tape On Front Area Of Roof Shell Dimension
Courtesy of BMW OF NORTH AMERICA, INC.

54 37 035 REMOVING AND INSTALLING/REPLACING ROOFLINER FOR ROOF SHELL AT FRONT

Necessary preliminary tasks

- Open convertible top

Unclip roofliner in front area (1) with special tool 51 0 310.

Unclip roofliner at rear.

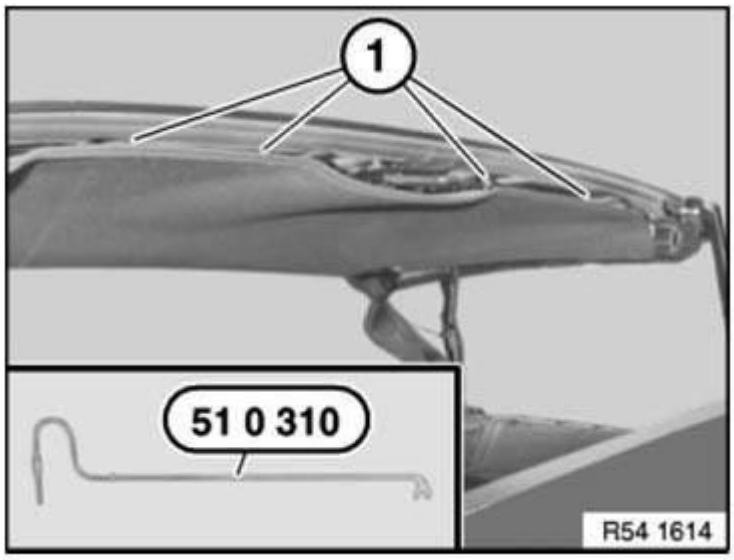


Fig. 165: Removing Roofliner On Front Area Using Special Tool 51 0 310

Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Pre-install clips on roofliner (1).

If necessary, replace faulty clips (1).

After installing fold out roofliner seal.

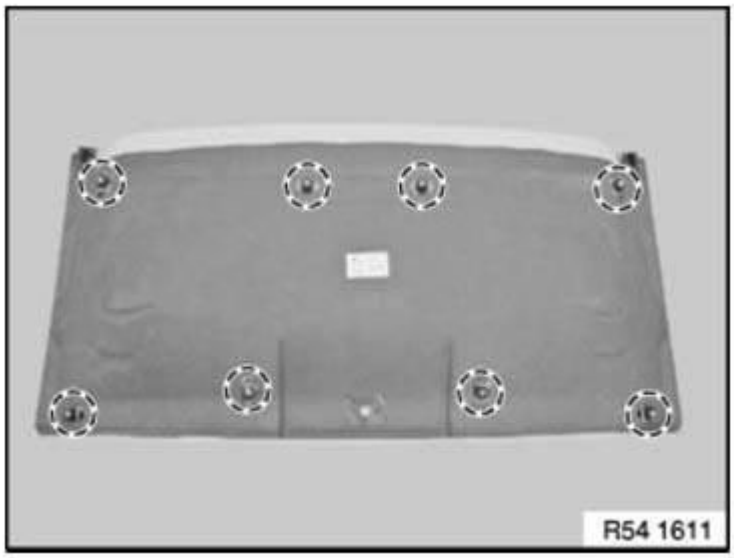


Fig. 166: Identifying Clips On Roofliner
Courtesy of BMW OF NORTH AMERICA, INC.

54 37 045 REMOVING AND INSTALLING/REPLACING ROOFLINER FOR ROOF SHELL AT REAR

Open convertible top until rear roofliner is accessible.

1. Unclip roofliner from roof shell.
2. Remove roofliner from roof shell.

Installation:

Thread in roofliner first in marked area.

Check roofliner for correct seating.

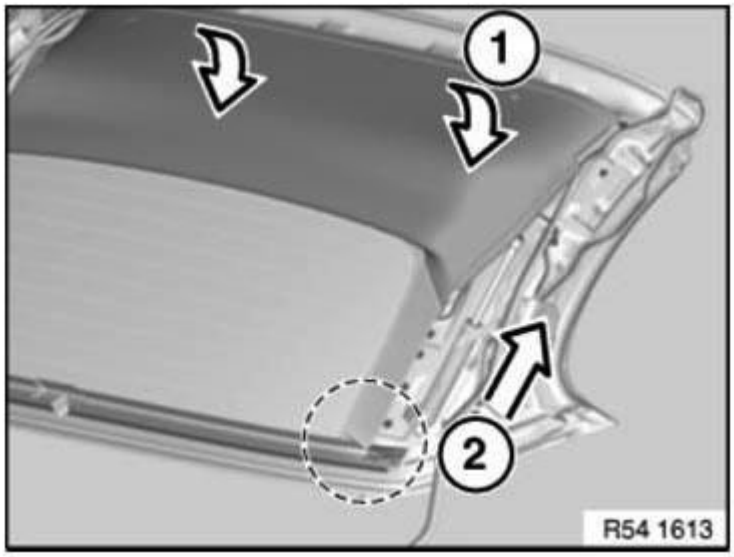


Fig. 167: Removing Roofliner From Roof Shell
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Pre-install clips on roofliner.

After installing fold out roofliner seal.

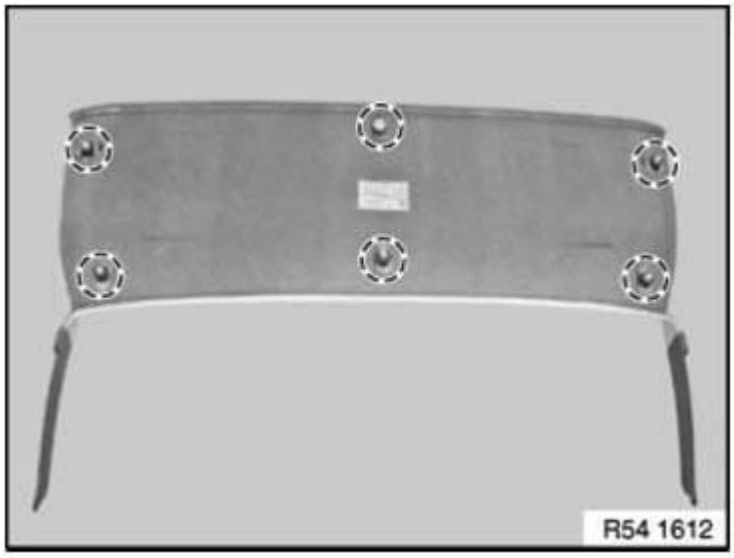


Fig. 168: Identifying Clips On Roofliner
Courtesy of BMW OF NORTH AMERICA, INC.

54 37 160 REMOVING REAR MODULE

Necessary preliminary tasks

- Connect battery charger
- Remove **LOADING SILL END COVER**
- Remove **TRIM FROM REAR APRON**

Open convertible top compartment lid.

IMPORTANT: Convertible top compartment lid may tilt forwards and must be supported with suitable apparatus.

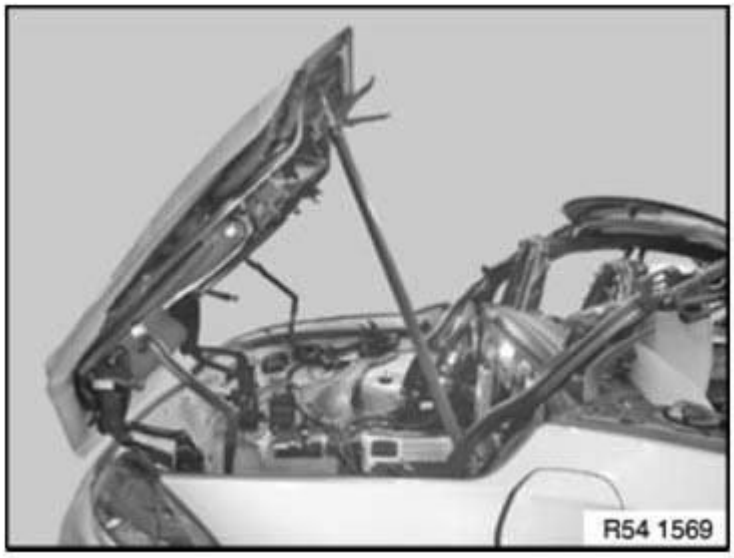


Fig. 169: Opening Convertible Top Compartment Lid
Courtesy of BMW OF NORTH AMERICA, INC.

Generously cover bumper area (loading sill) with protective covers (1).

Fig. 170: Cover Bumper Area (Loading Sill) With Protective Covers
Courtesy of BMW OF NORTH AMERICA, INC.

Measure distance A between rear module kinematics.

Installation:

Adjust distance A.

Basic adjustment dimension e.g. for replacement:

A = 770.3 mm.

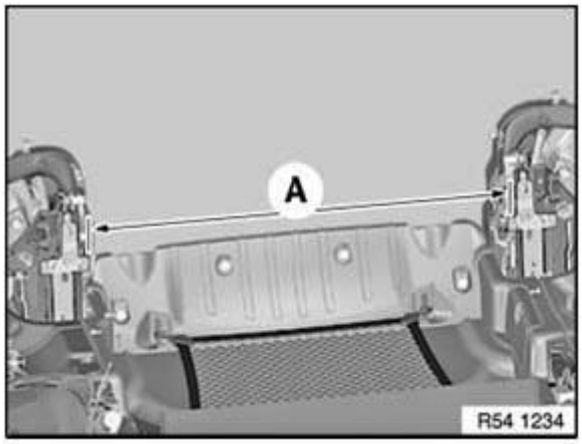


Fig. 171: Adjusting Distance Between Rear Module Kinematics
Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: Rear lid must be closed.

Unlock and disconnect plug connection (1) on right main bearing.

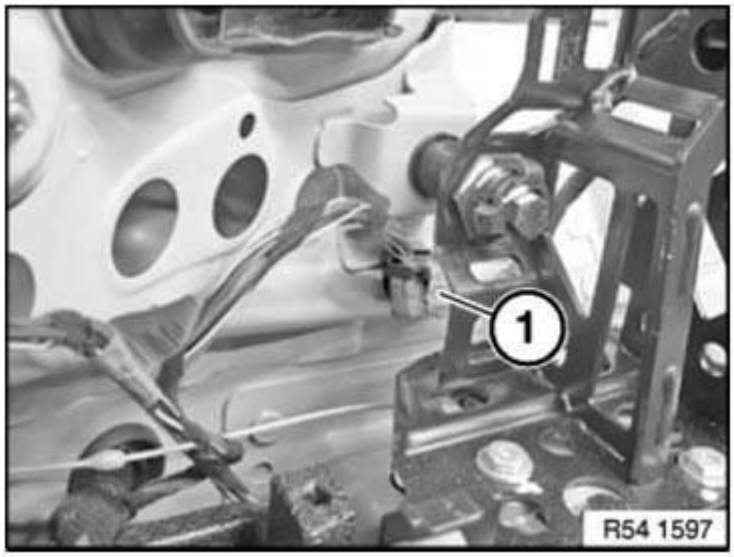


Fig. 172: Identifying Plug Connection
Courtesy of BMW OF NORTH AMERICA, INC.

Connect special tool 61 4 250 to vehicle-side plug for rear module.

NOTE: Adapter simulates closed rear lid. Retractable hardtop without rear lid not in working order.

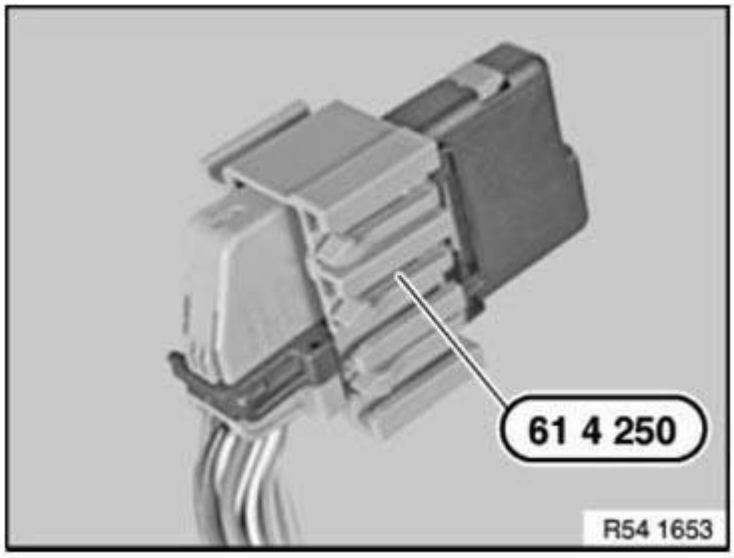


Fig. 173: Identifying Special Tool 61 4 250 To Vehicle-Side Plug For Rear Module
Courtesy of BMW OF NORTH AMERICA, INC.

Release left and right screws (1).

Tightening torque **54 34 1AZ** .

NOTE: Do not adjust barrel screws.

Replacement only:

Bring barrel screws into contact with special tool 54 0 180 in conjunction with special tool 00 9 450.

Tightening torque **54 34 10AZ** .

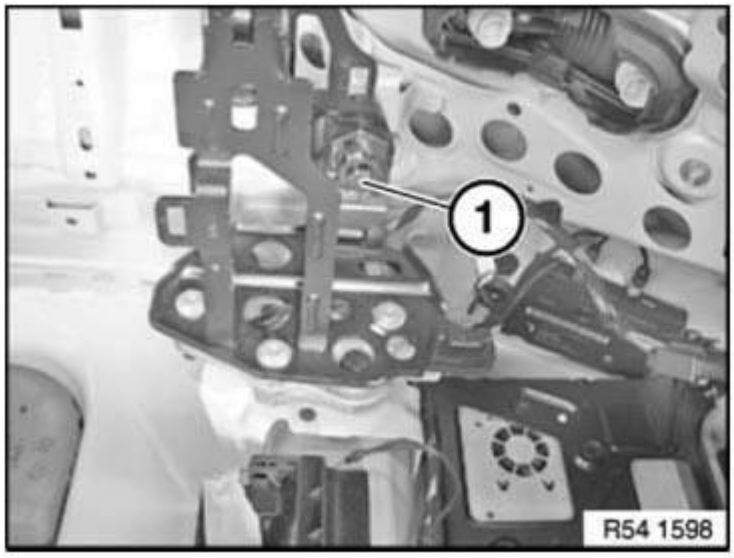


Fig. 174: Identifying Barrel Screw
Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: Before removing, mark position of screws (1) to ensure correct alignment during installation.

Do **not** release screws.

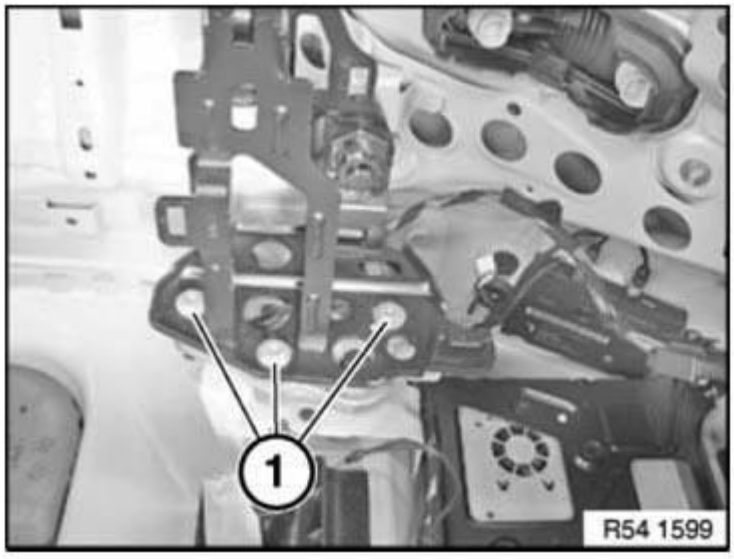


Fig. 175: Identifying Barrel Screw
Courtesy of BMW OF NORTH AMERICA, INC.

IMPORTANT: Proceed with the greatest possible caution when carrying out the following tasks.
Risk of damage!
Two persons are essential for helping to carry out the following tasks.

IMPORTANT: Rear module sinks if incorrectly supported. Risk of damage!

Position a helper on both the left and right sides of the rear module.

Grip rear module with two hands on rear module kinematic assembly and support in Z-direction.

NOTE: Bracket is double-jointed and bends.

Fig. 176: Positioning Helper On Both Sides Of Rear Module
Courtesy of BMW OF NORTH AMERICA, INC.

Unlock and detach retainers (1) on left and right.

Drive out pin.

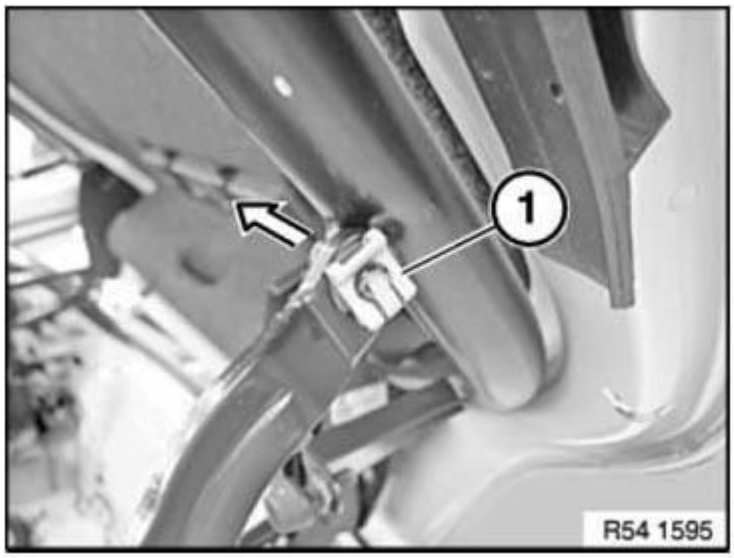


Fig. 177: Disconnecting Retainer
Courtesy of BMW OF NORTH AMERICA, INC.

Release screws (1) on left and right from bearing support.

Tightening torque **54 34 13AZ** .

Remove rear module.

Set down rear module on a suitable surface.

IMPORTANT: Do not damage any surrounding parts.

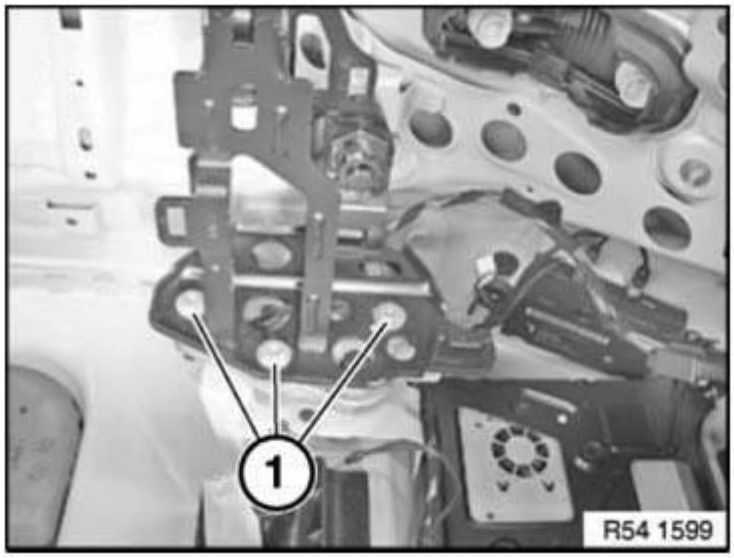


Fig. 178: Identifying Bearing Support Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Check **GAP DIMENSIONS** and if necessary adjust

Carry out diagnosis.

54 37 005 REPLACING FRONT ROOF SHELL SEAL

Necessary preliminary tasks

- Remove **ROOF LINING**
- Partially open convertible top

Remove seal (1).

Installation:

Slide seal flush onto windscreen frame seal.

Make sure seal (1) is **SECURELY MOUNTED** on seal carrier.

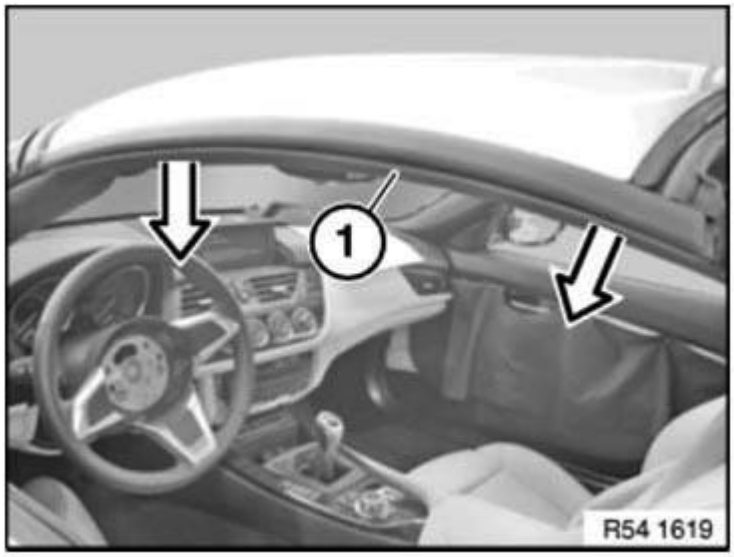


Fig. 179: Removing Seal
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Sealing lip on windscreen frame seal must not be distorted when roof shell seal retracts.

If the sealing lip is distorted, the roof shell seal must be pushed further forwards.

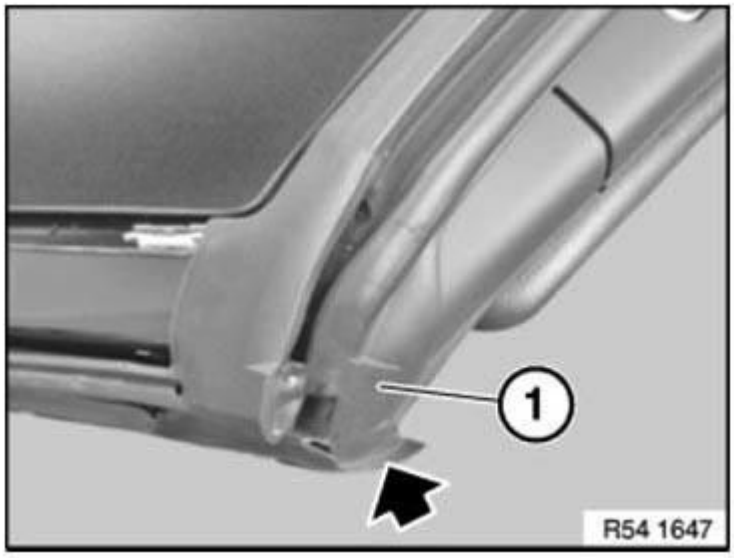


Fig. 180: Identifying Windscreen Frame Seal
Courtesy of BMW OF NORTH AMERICA, INC.

IMPORTANT: Count and make a note of washers.

Release left and right screws (1).

Installation:

Adjust gap dimension, seal carrier to roof shell.

= 2 mm ±1 mm

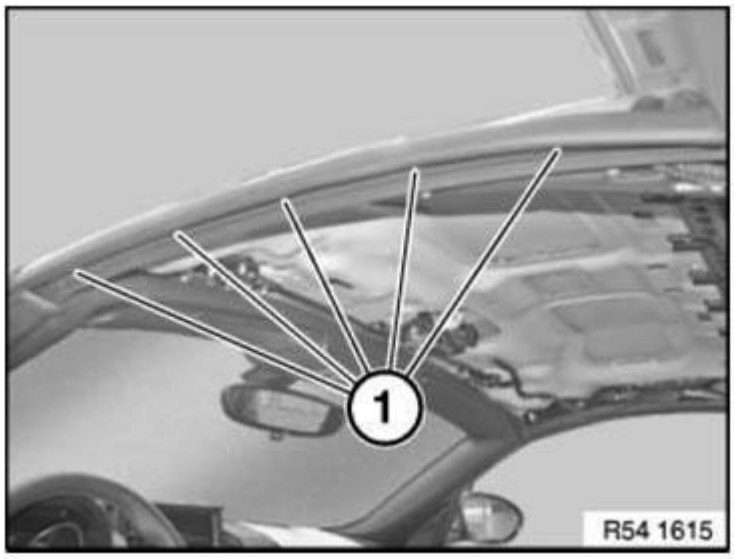


Fig. 181: Identifying Roof Shell Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Before installing the seal carrier, fit a butyl pad (1) and a butyl ball (2) at the front corners of the roof shell.

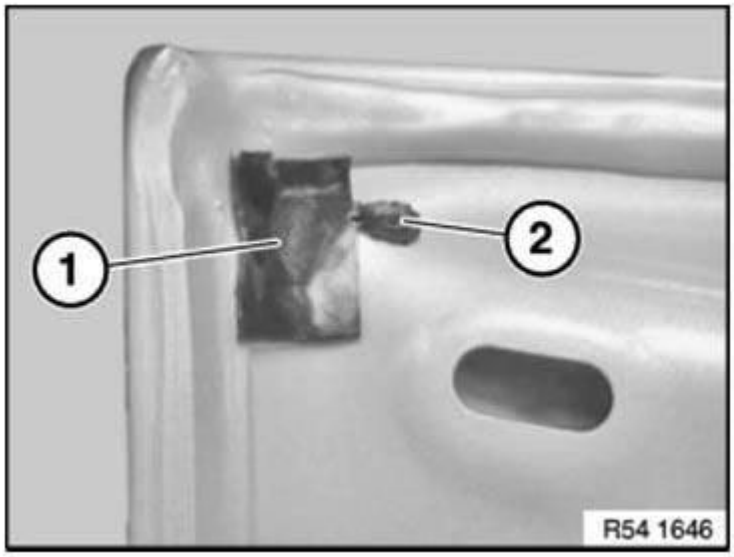


Fig. 182: Identifying Butyl Pad And Butyl Ball Of Roof Shell
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Grease contact points of seal carrier and cowl panel seal with Vaseline.

Slide seal carrier (1) fully onto cowl panel seal and screw down.

Tightening torque **54 37 14AZ** .

If necessary, **ADJUST** windscreen frame seal to roof shell seal.

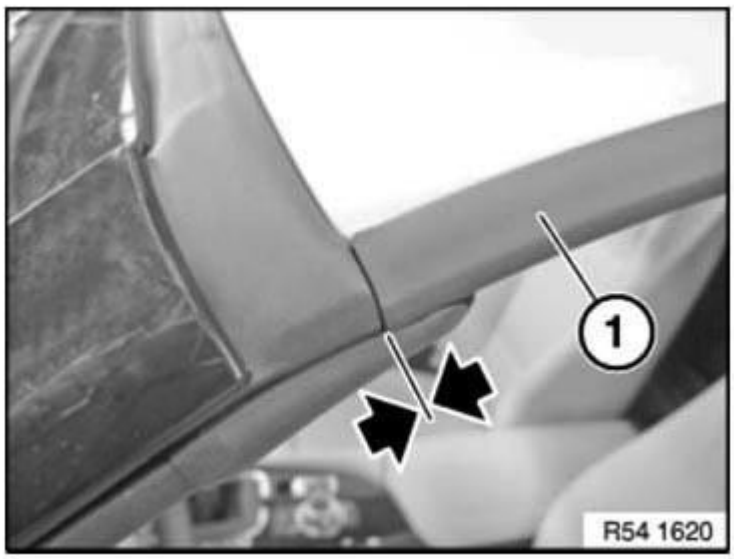


Fig. 183: Identifying Seal Carrier
Courtesy of BMW OF NORTH AMERICA, INC.

Detach seal (1) from seal carrier.

Installation:

Cleanly push on seal from rear, starting on left and right, into corners.

Push on seal in one operation, as sealing lip may kink.

Check kink-free position of sealing lip between roof shell and seal carrier using a torch.

If necessary, repeat procedure.

Make sure seal (1) is **SECURELY MOUNTED** on seal carrier.

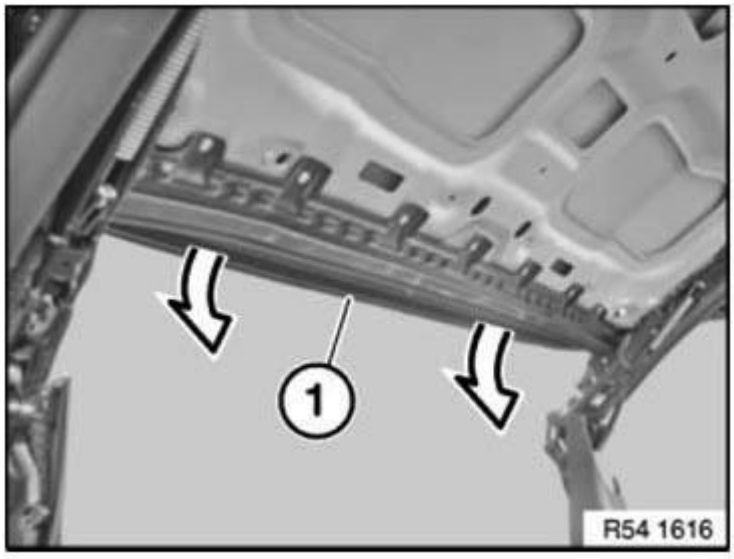


Fig. 184: Disconnecting Seal From Seal Chamber
Courtesy of BMW OF NORTH AMERICA, INC.

Check retraction depth of windows and **ADJUST** if necessary.

If necessary, adapt number of washers.

54 37 024 REPLACING REAR ROOF SHELL SEAL

Necessary preliminary tasks

- Partially open convertible top

Remove seal (1).

Installation:

Slide seal flush onto front roof shell seal.

Make sure seal (1) is **SECURELY MOUNTED** on seal carrier.

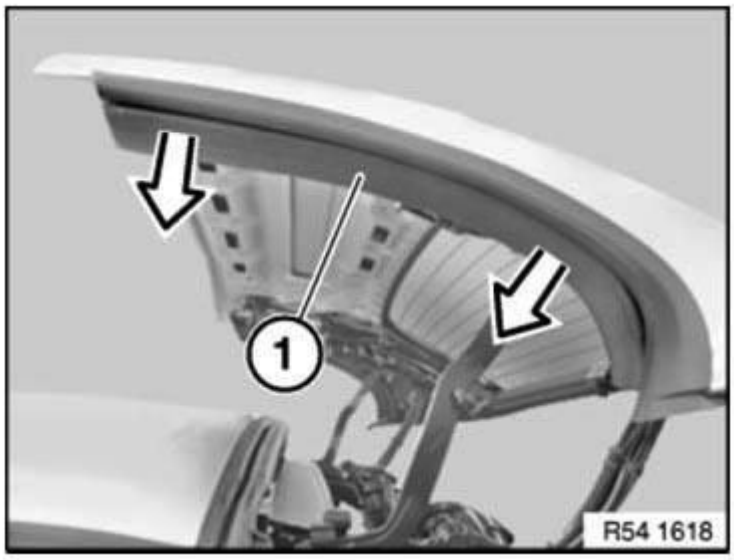


Fig. 185: Removing Seal
Courtesy of BMW OF NORTH AMERICA, INC.

IMPORTANT: Count and make a note of washers.

Release left and right screws (1).

Installation:

Adjust gap dimension, seal carrier to roof shell.

If necessary, adapt number of washers.

= 2 mm ±1 mm

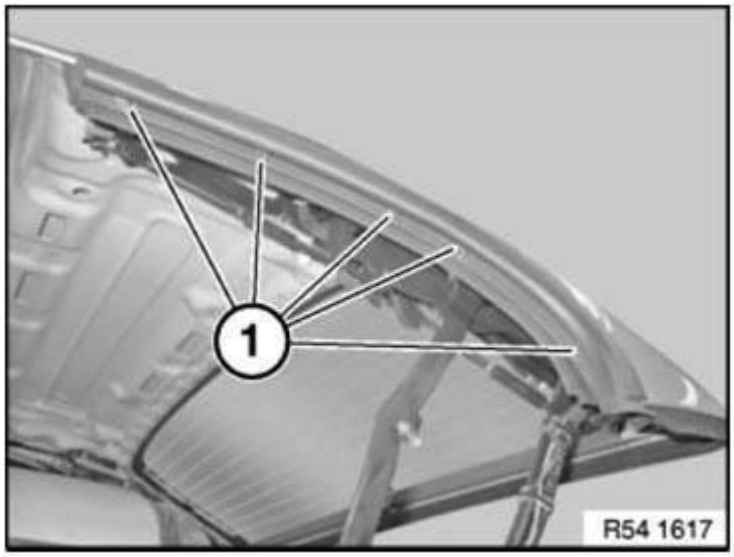


Fig. 186: Identifying Roof Shell Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Grease contact points of seal carriers with Vaseline.

Slide seal carrier (1) fully onto front roof shell seal and screw down.

If necessary, **ADJUST** seal carrier, front roof shell.

Tightening torque **54 37 14AZ** .

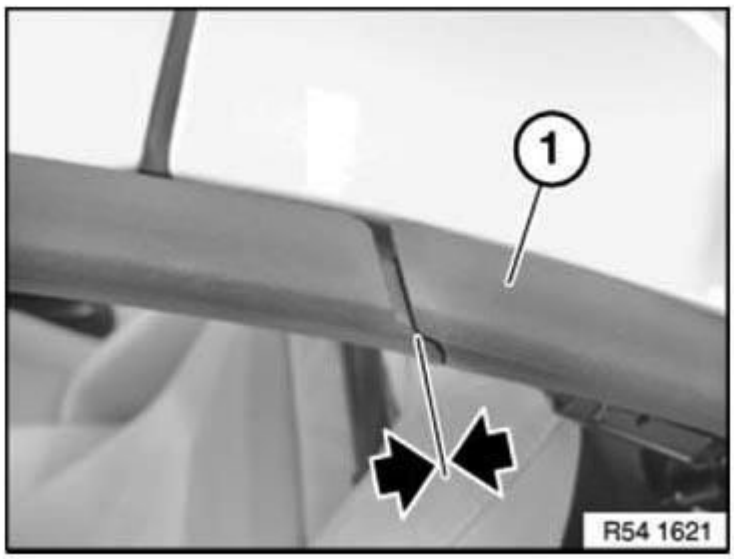


Fig. 187: Identifying Seal Carrier
Courtesy of BMW OF NORTH AMERICA, INC.

Detach seal (1) from seal carrier.

Installation:

Make sure seal (1) is correctly seated on seal carrier.

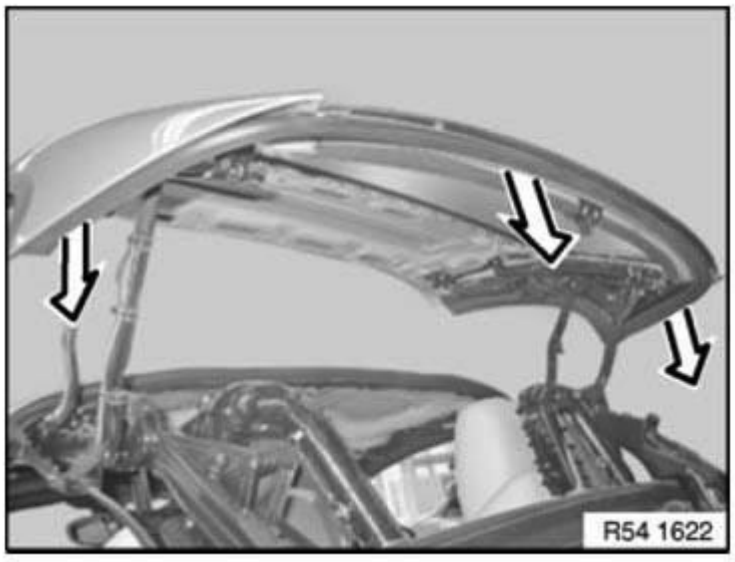


Fig. 188: Disconnecting Seal From Seal Carrier
Courtesy of BMW OF NORTH AMERICA, INC.

Check retraction depth of windows and adjust See **5137154 ADJUSTING REAR LEFT OR RIGHT SIDE WINDOW** or **5132154 ADJUSTING LEFT OR RIGHT FRONT DOOR WINDOW GLASS** if necessary.

ACCESSORIES AND BODY, CAB

Slide/Tilt Roof - Special Tools - Z4

54 SLIDE/TILT SUNROOF AND CONVERTIBLE TOP

54-0300 ADAPTER PLATE

Adapter plate MW

NOTE: 54 0 100 omitted starting 11/2009

SI number

01 09 09 (532)

Consisting of:

1 = 0496691 Adapter

NOTE: Adapter, left

2 = 0496692 Adapter

NOTE: Adapter, right

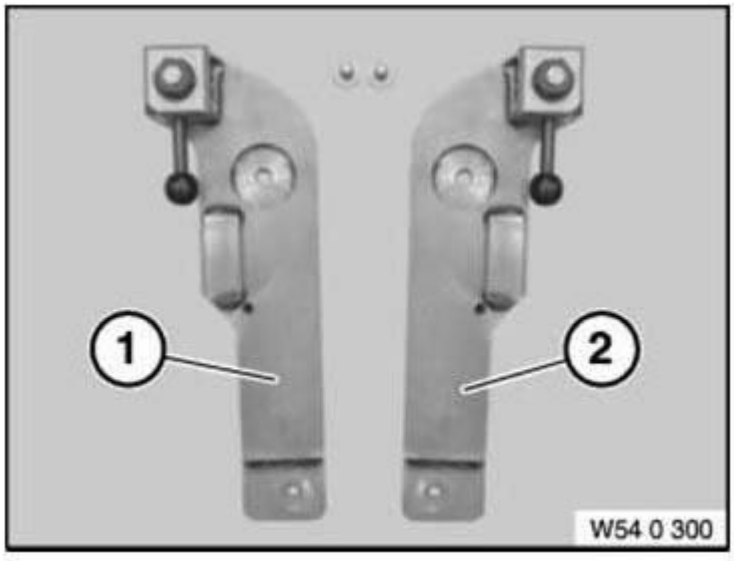


Fig. 1: Identifying Adapter Plate (540300)
Courtesy of BMW OF NORTH AMERICA, INC.

54-0070 BELT

Belt MW

NOTE: Replaces 540103 effective 11/2009

SI number

01 30 09 (602)

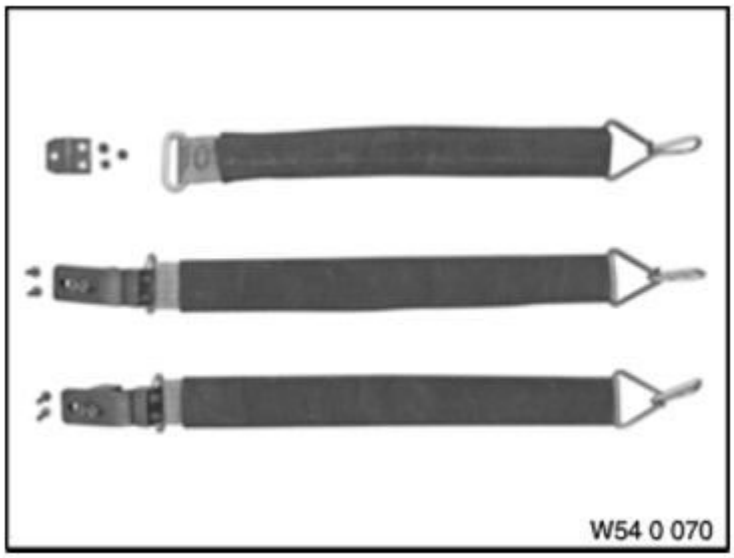


Fig. 2: Identifying Belt (540070)
Courtesy of BMW OF NORTH AMERICA, INC.

54-0180 BIT

Bit MW

NOTE: For adjusting barrel screws (adjusting elements) on the RHT.

SI number

01 03 07 (337)

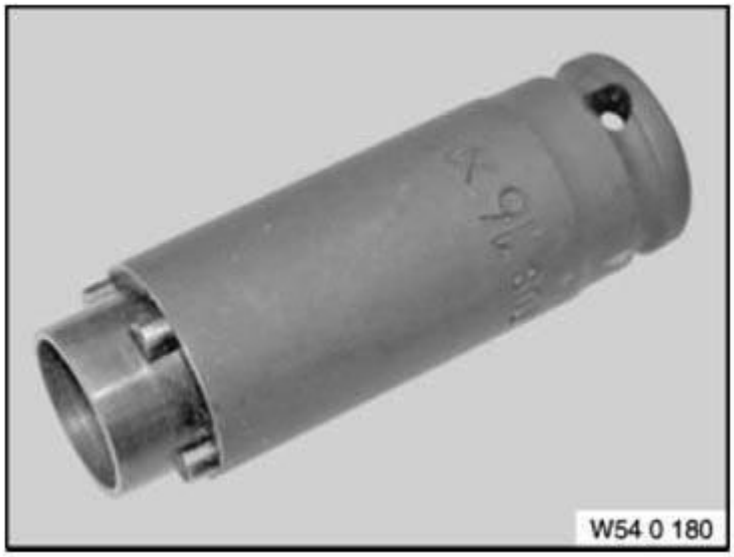


Fig. 3: Identifying Bit (540180)
Courtesy of BMW OF NORTH AMERICA, INC.

54-0190 BIT

Bit MW

NOTE: For lock nuts on barrel screws (WAF 30) on the retractable hardtop (RHT)

SI number

01 03 07 (337)

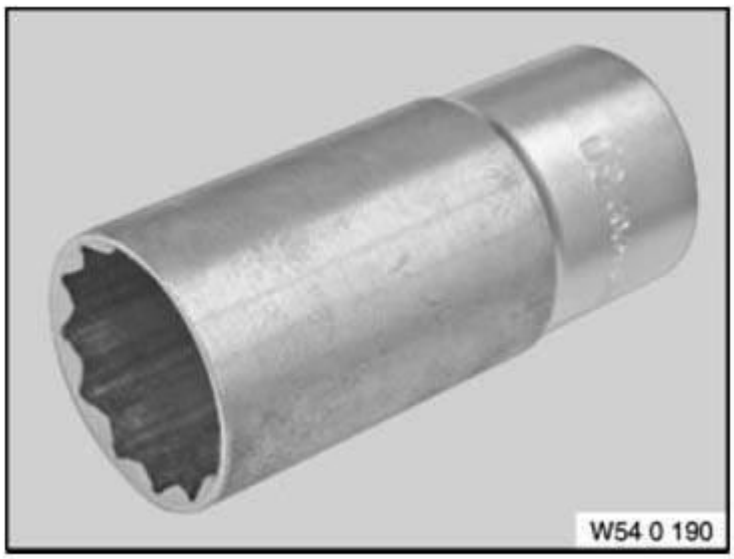


Fig. 4: Identifying Bit (540190)

Courtesy of BMW OF NORTH AMERICA, INC.

54-0250 FITTING AID

Fitting aid MW

SI number

01 13 10 (652)

Fig. 5: Identifying Fitting Aid (540250)
Courtesy of BMW OF NORTH AMERICA, INC.

54-0060 FIXTURE

Fixture MW

NOTE: Replaces 540101 effective 11/2009

SI number

01 30 09 (602)

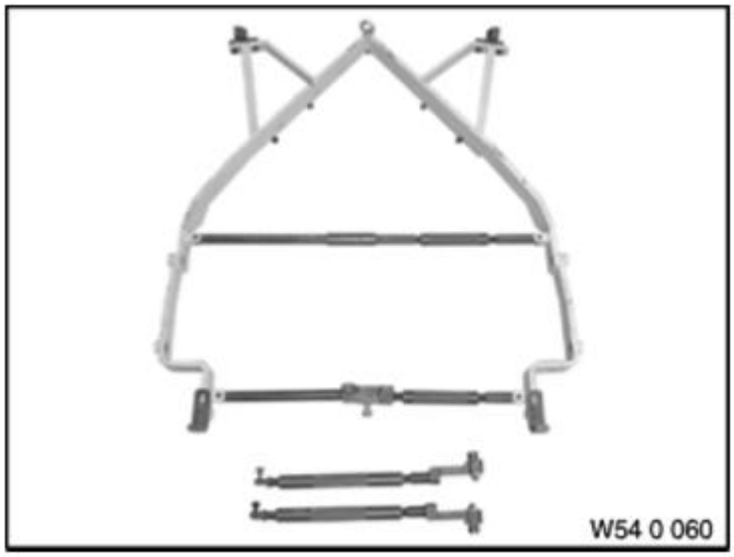


Fig. 6: Identifying Fixture (540060)
Courtesy of BMW OF NORTH AMERICA, INC.

54-0050 LIFTING GEAR

Lifting gear MW

NOTE: Replaces 540102 effective 11/2009

SI number

01 30 09 (602)

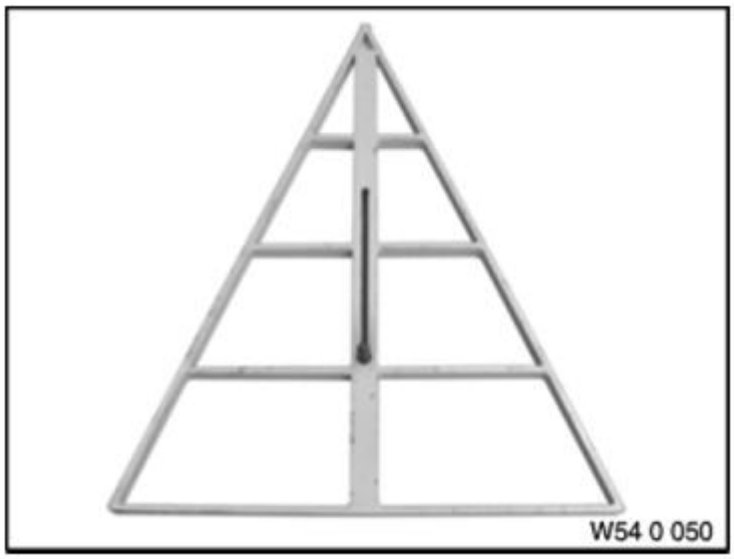


Fig. 7: Identifying Lifting Gear (540050)
Courtesy of BMW OF NORTH AMERICA, INC.

54-0160 TOOL

Tool MW

NOTE: (Emergency closing/opening (3 tools)) For manual opening or closing of hardtop in the event of a technical defect.

SI number

01 03 07 (337)

Consisting of:

3 = 0496075 Adapter

1 = 0496051 Tool

NOTE: (Slide tool)

2 = 0496052 Tool

NOTE: (Pulling tool)

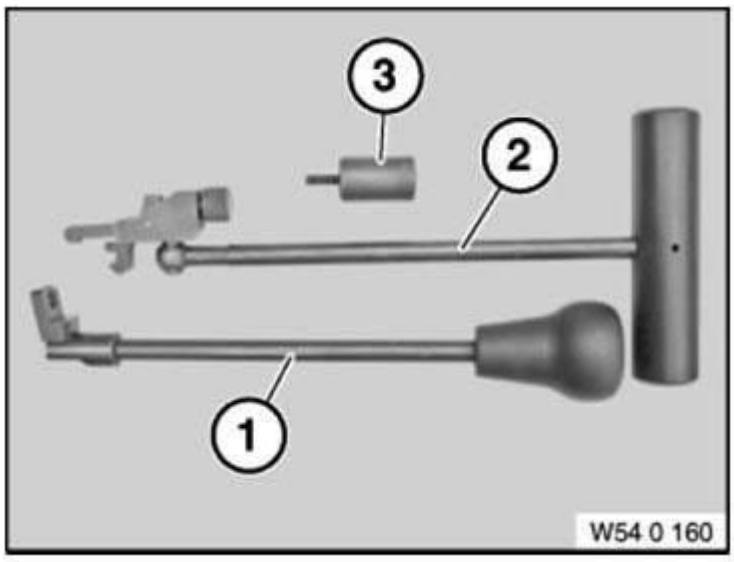


Fig. 8: Identifying Tool (540160)
Courtesy of BMW OF NORTH AMERICA, INC.

54-0330 TOOL

Tool Minimum set: Mechanical tools MW

NOTE: For unlocking soft top

Storage Location

C26

B26

A26

SI number

01 09 09 (532)

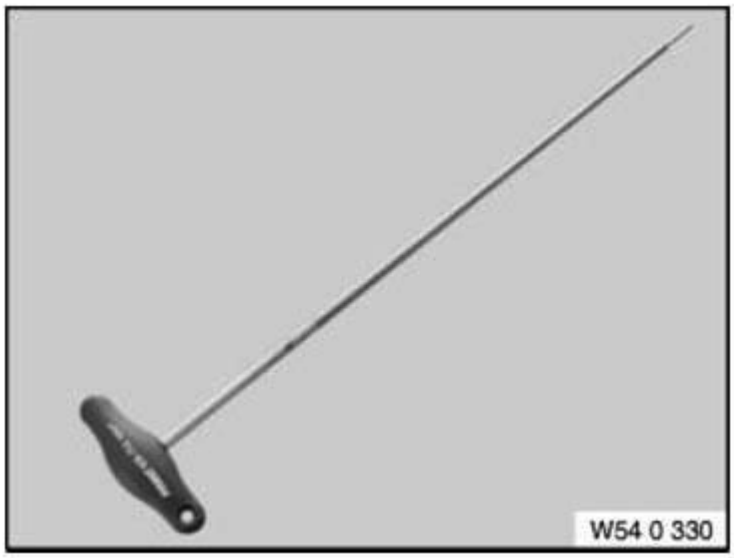


Fig. 9: Identifying Tool (540330)
Courtesy of BMW OF NORTH AMERICA, INC.

54-0350 TOOL

Tool MW

NOTE: (clamping hook) Delivery specification 2 pieces

Storage Location

C26

A26

B26

SI number

01 09 09 (532)

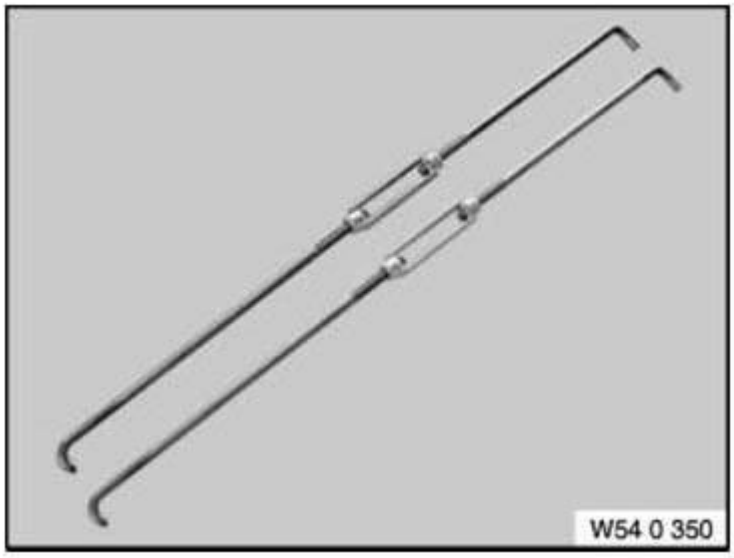


Fig. 10: Identifying Tool (540350)
Courtesy of BMW OF NORTH AMERICA, INC.

54-0320 TOOL

Tool Minimum set: Mechanical tools MW

NOTE: For locking soft top

Storage Location

B26

C26

SI number

01 09 09 (532)

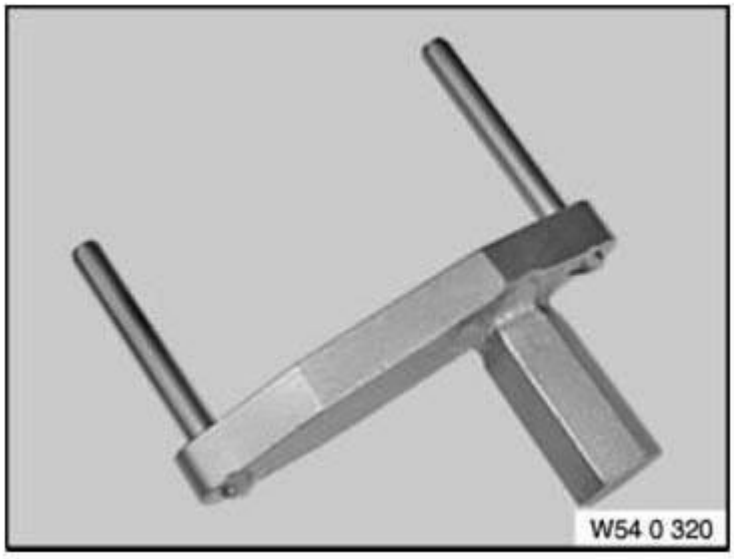


Fig. 11: Identifying Tool (540320)
Courtesy of BMW OF NORTH AMERICA, INC.

54-1240 TOOL

Tool MW

NOTE: (Tool set) For adjusting the slide/tilt sunroof

Consisting of:

1 = 0494795 Key

NOTE: Special Torx for tightening the slide/tilt sunroof screws

2 = 0494796 Template

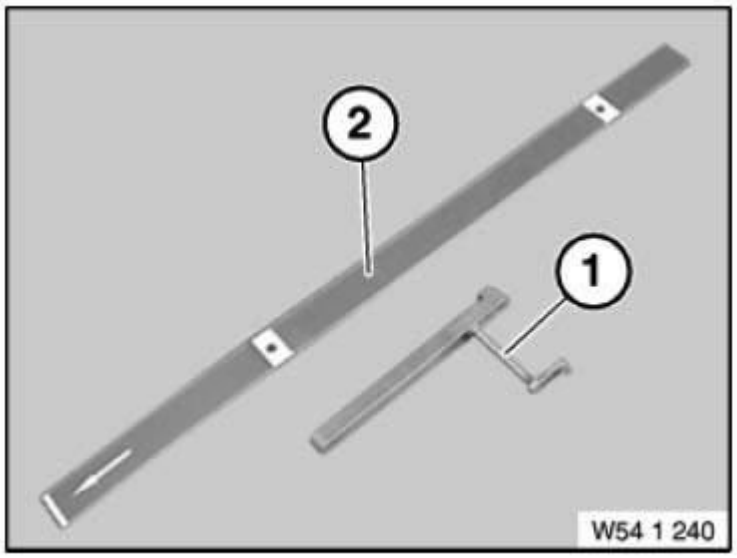


Fig. 12: Identifying Tool (541240)
Courtesy of BMW OF NORTH AMERICA, INC.

54-0210 TOOL

Tool MW

NOTE: (Clamping tool) For removal and installation of gas-filled shock absorbers on hardtop.

SI number

01 21 09 (583)

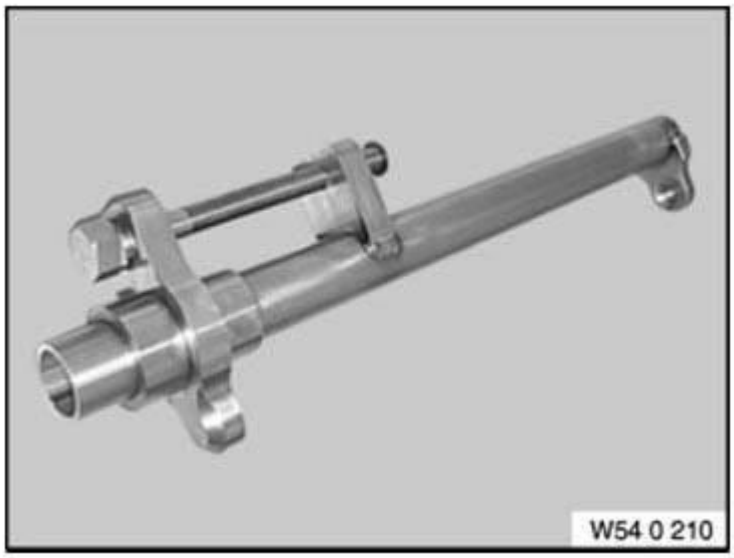


Fig. 13: Identifying Tool (540210)

Courtesy of BMW OF NORTH AMERICA, INC.

61-4250 CONNECTOR

Connector Minimum set: Measuring and testing equipment MP

NOTE: as intermediary contact on soft top

SI number

02 05 09 (549)

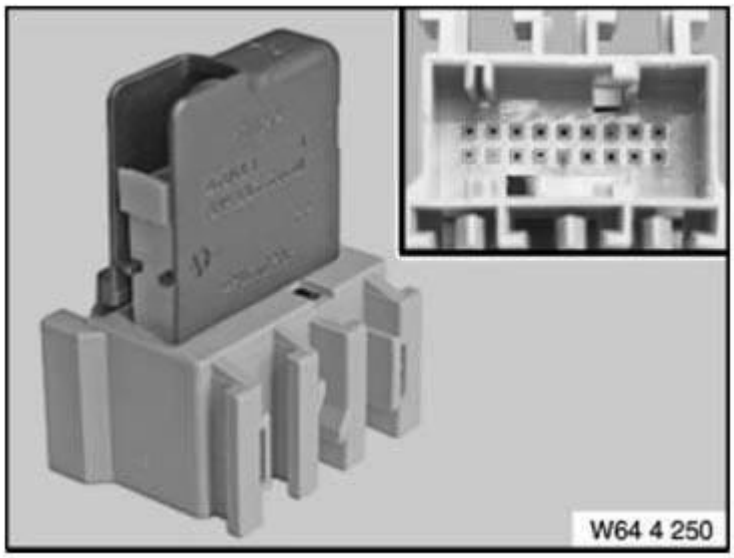


Fig. 14: Identifying Connector (614250)
Courtesy of BMW OF NORTH AMERICA, INC.

ACCESSORIES AND BODY, CAB

Slide/Tilt Roof and Convertible Top - Tightening Torques - Z4

CONVERTIBLE TOP COMPARTMENT LID

41 63 CONVERTIBLE TOP COMPARTMENT LID

TIGHTENING TORQUE SPECIFICATION - CONVERTIBLE TOP COMPARTMENT LID

		Type	Thread	Tightening specifications	Dimension
1AZ	Hinge to convertible top compartment lid	E93	M8		20 Nm
2AZ	Convertible top compartment lid to convertible top compartment lid mechanism	E88	M8		20 Nm
3AZ	Convertible top compartment lid to hinge	E88	M6		8 Nm
		E89	M6		5.5 Nm
4AZ	Hinge to body	E88	M8		20 Nm
5AZ	Accumulator plate to body	E88	M6		8 Nm

POWER CONVERTIBLE TOP

54 37 POWER CONVERTIBLE TOP

TIGHTENING TORQUE SPECIFICATION - POWER CONVERTIBLE TOP

		Type	Thread	Work instruction	Measure
1AZ	Locking of X-screw connection -	E89			19 Nm

	Main bearing, roof module to rear end module				
2AZ	Kinematics box - to body	E89			19 Nm
3AZ	X-screw connection - Rear end module/roof module	E89			19 Nm
4AZ	Base plate - to cowl panel	E89			19 Nm
5AZ	Mounting brackets - to body	E89			8 Nm
7AZ	Linkage, rear end module - to mounting bracket, rear end	E89			19 Nm
8AZ	Linkage, roof module - to mounting bracket, roof	E89			19 Nm
9AZ	Battery rollover protection	E89			6 Nm
10AZ	Barrel screws - to frame, roof and rear modules	E89		20 cNm = 0.2 Nm	20 cNm
11AZ	Roof shell to linkage	E89	M8x20		19 Nm
12AZ	Screw connection, front lock to	E89			8 Nm

	roof shell				
13AZ	Seal holder to roof shell	E89			4.6 Nm
14AZ	Seal to seal holder	E89			2.3 Nm
15AZ	Hydraulic valve (solenoid valve)	E89			6 Nm