

541 Convertible Top

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GENERAL

The convertible top comes in three versions: a manually operated top, a semi-automatic power top and a fully automatic power top.

NOTE —

The convertible top control module (CVM) is located behind the left rear side trim panel. For the location of other convertible top electric components see **610 Electrical Component Locations**.

The rear window in the convertible models is made of a strong, flexible vinyl which is available separately. Replacement of the rear window is not covered in this manual.

BMW has designed a special battery tray for the convertible which, in conjunction with the mass of the battery in the luggage compartment, serves to dampen convertible body flexing and vibration.

CAUTION —

The E36 convertible requires a special battery which is designed for constant vibration. A battery not designed for this will fail much earlier.

MANUAL CONVERTIBLE TOP

Visor Latch Plate

The left and right visor latch plates can be accessed by removing the trim and moldings around the sides and top of the windshield. Each latch is secured to the top of the windshield using three bolts. Latch position is adjusted as follows:

- Loosen bolts
- Latch top
- Align top
- Retighten bolts. See Fig. 1.

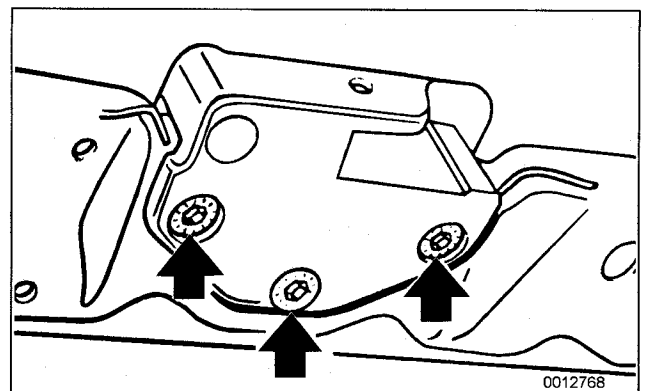


Fig. 1. Visor latch plate is held to top of windshield with three bolts (arrows).

Visor Latch

Check for ease of release and locking of convertible top front latches. Height of a latch can be changed by using the adjusting screw. To change latch tension, it is necessary to remove the trim on the front bow of the top. The ball-joint pull-rod length can then be adjusted. Lubricate latch if necessary. See Fig. 2.

MANUAL CONVERTIBLE TOP

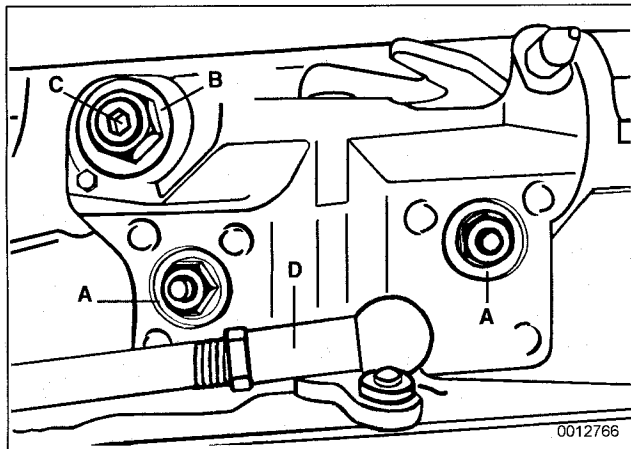


Fig. 2. Manually operated front latch. Loosen mounting nuts (A) and locknut (B), then adjust latch height with hex-bolt (C). (Fully automatic front latch height adjuster is similar.) Latch tension is adjusted at rod ball-joint end (D).

Convertible Top Lid Release Mechanism

The convertible lid release handle is situated in the trim panel behind the driver's seat. To remove the handle, pull its plastic insert forward and remove the trim insert. The handle is mounted with a single screw.

A bowden cable is routed from the handle to the left lid latch. Another cable is routed from the left to the right latch inside the luggage compartment. It is accessed by pulling down the trim lining off the front wall of the compartment.

Convertible top and frame, replacing

1. Open convertible top partially. Open convertible top lid. Open back windows.
2. Remove fasteners in compartments behind door posts and lift out complete top. Count number of shims on horizontal mounting bolts. See Fig. 3.
3. Installation is reverse of removal. Be sure to replace U-shaped shims on horizontal mounting bolts. See Fig. 4.
4. To adjust position and fit of top, remove or add U-shaped shims until top is properly aligned. Tighten nuts and screws.

POWER CONVERTIBLE TOP

The semi-automatic top, installed in 1996 convertibles, must first be manually released from the visor latch plates and pushed back past the "tension point," whereupon, the automatic retracting motor and linkage take over and pull it into the storage compartment behind the back seat.

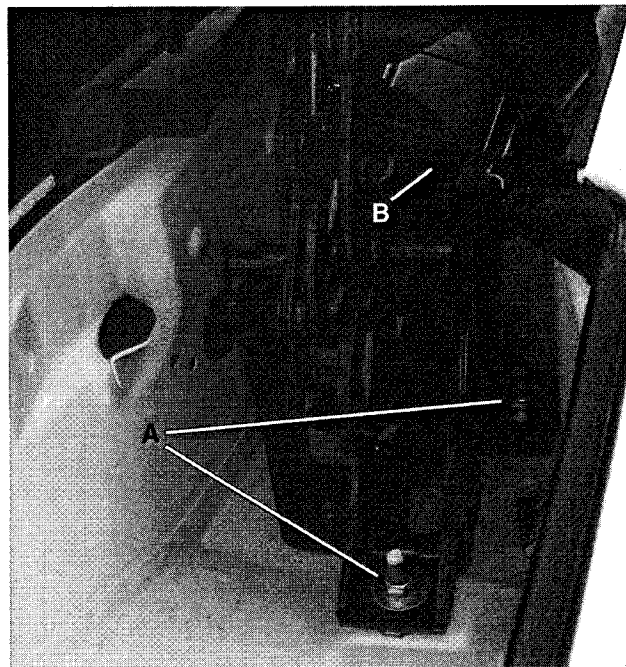


Fig. 3. Mounting nuts (A) for convertible top (two on each side). There is also a horizontal bolt with spacers on each side (B).

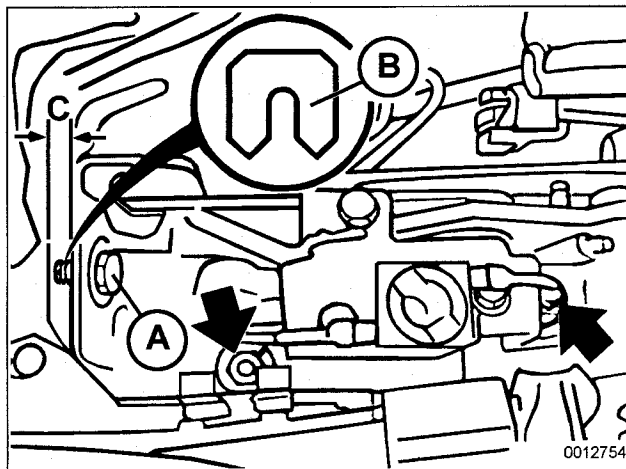
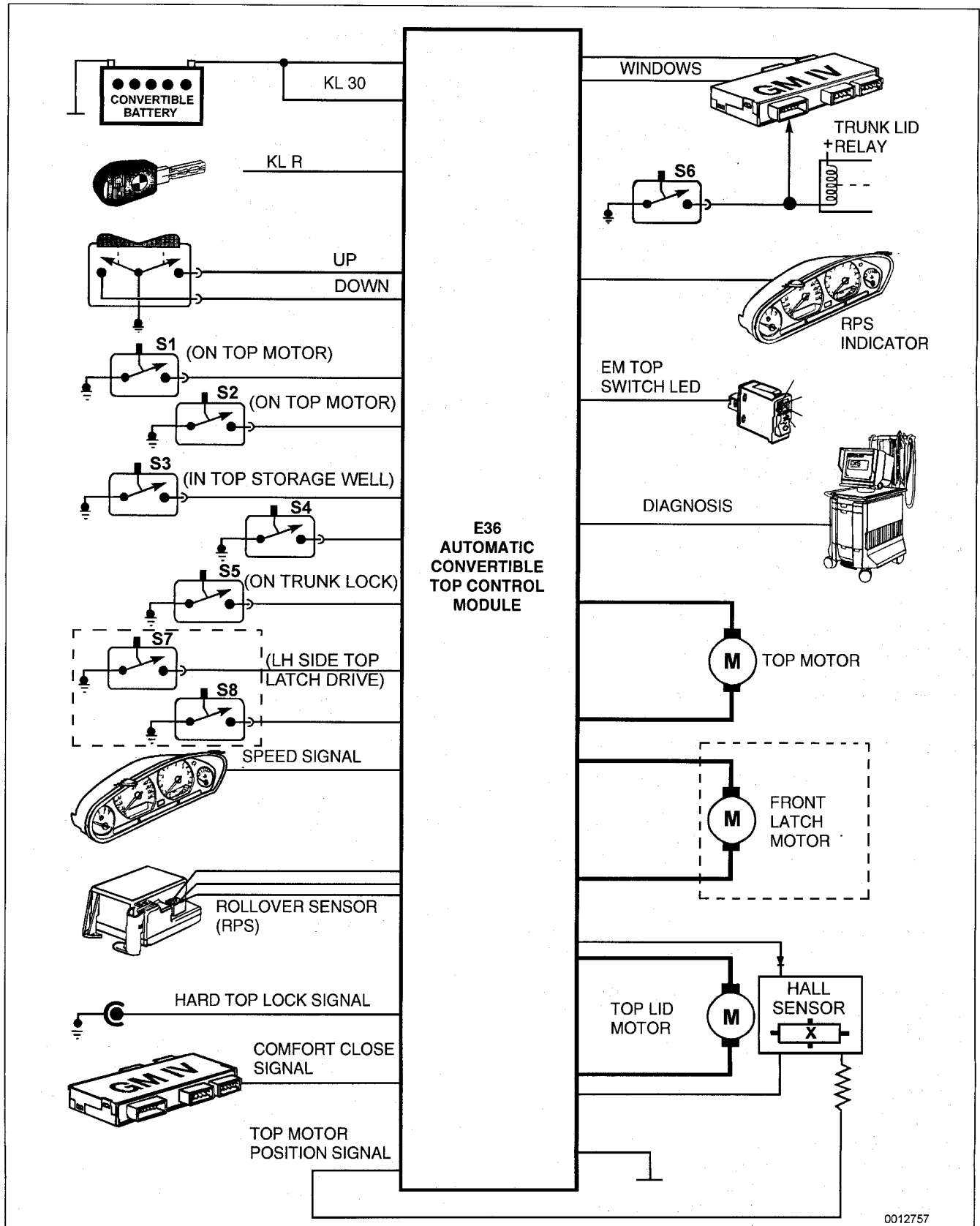


Fig. 4. Horizontal positioning bolt (A) and U-shaped adjusting shims (B) for convertible top. One of two main mounting nuts (arrows) also visible.

The fully automatic top, standard on 1997 and later convertibles, allows complete operation of the top, from fully open to fully closed, with the push of a toggle switch on the console.

The top switch incorporates a "top unlatched" warning LED.

A schematic representation of the fully automatic convertible top is shown in Fig. 5.



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Fig. 5. Semi-automatic and fully automatic convertible top system. Main additional components in fully automatic top shown inside dashed lines.

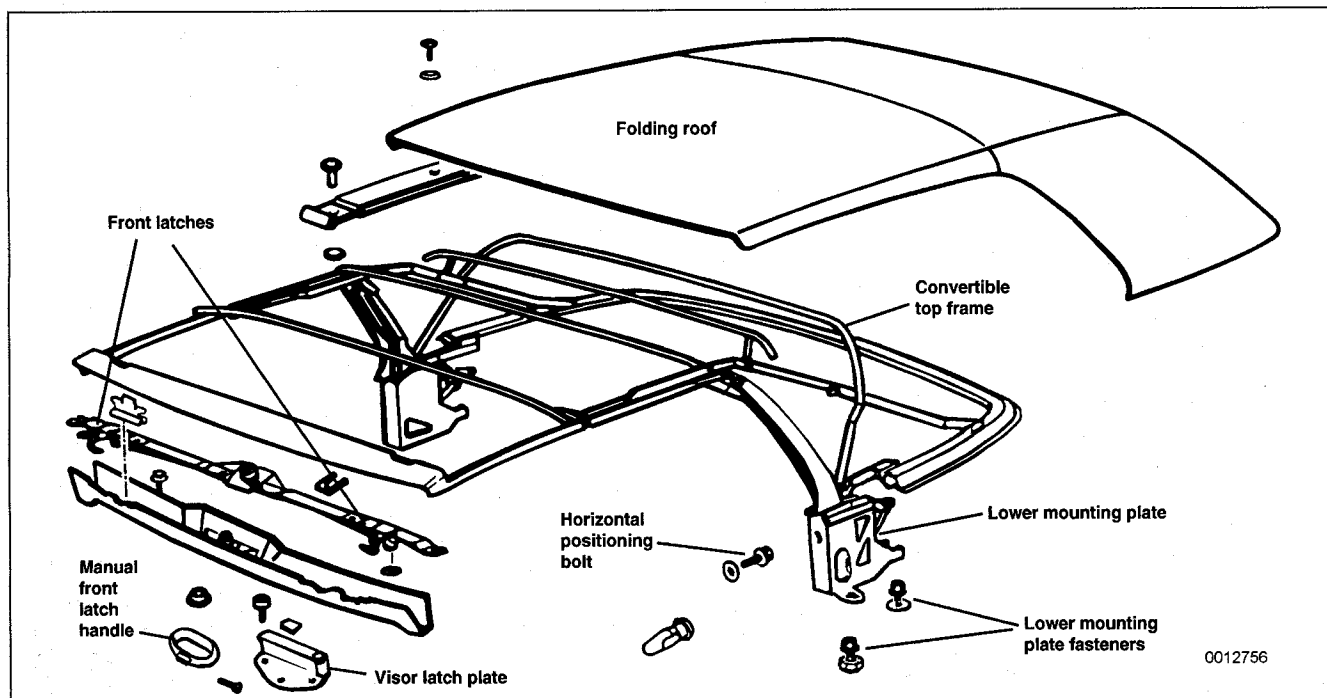


Fig. 6. Mechanical components of E36 convertible top. Manual, semi-automatic, and fully automatic tops have similar mechanical construction.

NOTE —

The electronic circuits used to control convertible top operation are complex. Diagnosis of the convertible top and the Rollover Protection System are beyond the scope of this book. Your authorized BMW dealer has the proper diagnostic equipment and tools to carry out these tasks.

Front Latching Mechanism

A close, tight fit between the front bow of the convertible roof and the top of the windshield is critical for preventing moisture and wind noise from intruding into the passenger compartment.

Visor Latch Plate

The left and right visor latch plates can be accessed by removing the trim and moldings around the sides and top of the windshield. Each latch is attached to the top of the windshield using three bolts. Latch position is adjusted as follows:

- Loosen bolts
- Latch top
- Align top
- Retighten bolts. See Fig. 7.

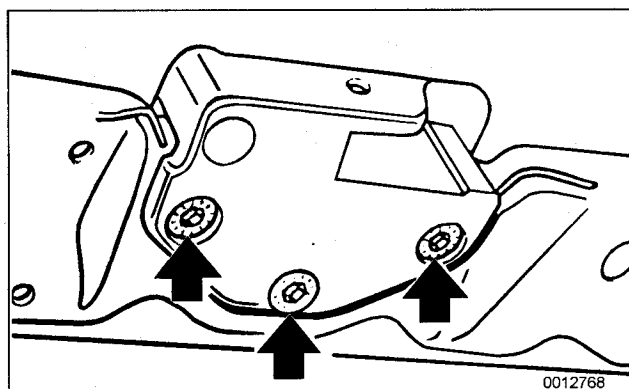


Fig. 7. Visor latch plate is held to top of windshield with three bolts (arrows).

Visor Latch

The semi-automatic and the fully automatic top front latches are of similar design. For the automatic latching mechanism an additional motor has been installed in the front bow of the convertible top. This releases the top from the visor latch plates and pulls it back far enough for the main retracting mechanism to complete the job.

The latches and the motor can be accessed by removing the front cover trim from the convertible top.

The left latch in the fully automatic version has two microswitches (S7 and S8) which signal open, closed and latched states. See Fig. 8.

The length of the dead center point rod is critical to correct opening and latching of the convertible top. See Fig. 9.

Dead Center Point Rod

- Dimension A 205.5 ± 1 mm (8.09 ± 0.04 in)

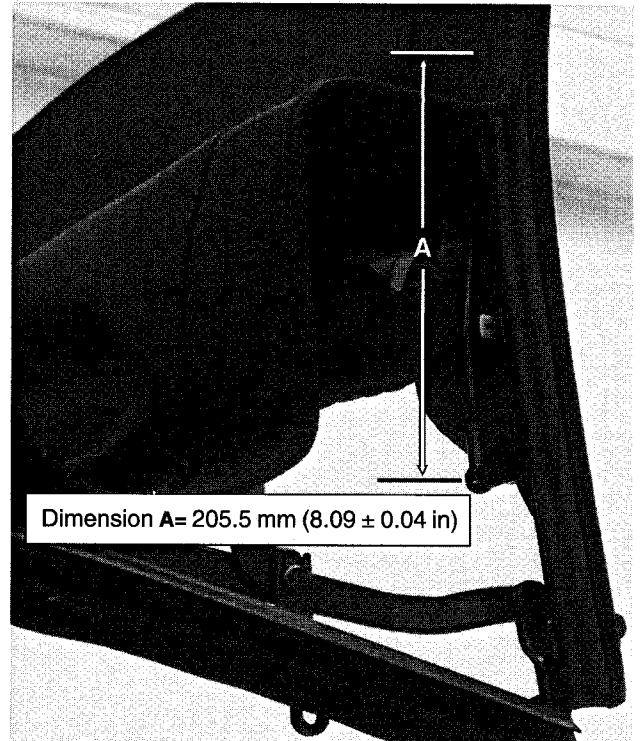
Visor Latch Motor

The fully automatic convertible top is latched and unlatched by one electric motor installed in the front roof bow. To replace, remove front cover trim from the roof. Remove electrical harness connectors from motor, and remove mounting screws. Slide the motor off the output shafts to the left and right latches.

During reinstallation, the output shafts must be turned until the S8 microswitch in the left latch is tripped.

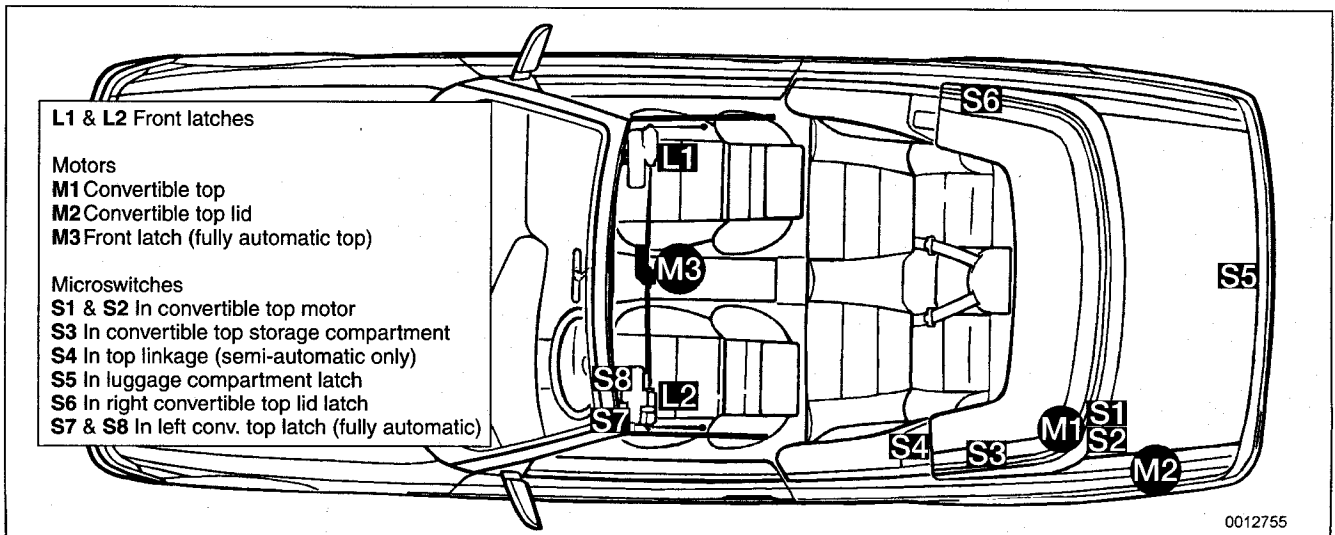
Convertible top and frame, replacing

1. Open convertible top partially. Open convertible top lid. Open back windows.
2. Fully automatic power convertible top: Remove front cover trim from top. Disconnect electrical harness connectors from front latch motor. Disconnect connectors from S7 and S8 microswitches at left latch.



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Fig. 9. Preset length of dead center point rod.



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Fig. 8. Location of automatic and semi-automatic convertible latch mechanisms, motors and microswitches.

541-6 CONVERTIBLE TOP

3. Remove headliner, starting from front and working backward. Note arrangement and lacing of tensioning cable so it can be reinstalled in its original configuration. See Fig. 10.

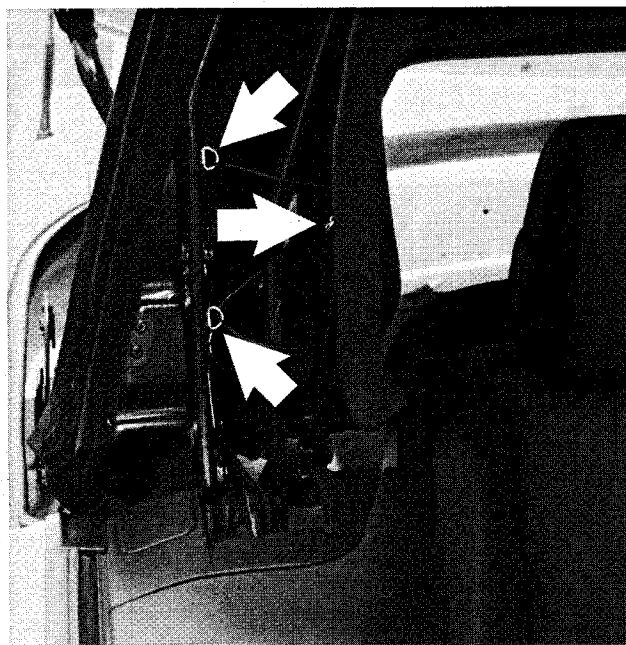


Fig. 10. Headliner tensioning cable and some of its retaining eyelets (arrows).

4. Disconnect electrical harness connector from S4 microswitch in middle linkage of convertible top.
5. Disconnect electric motor linkage rods in convertible top storage compartment behind left rear seat. See Fig. 11.

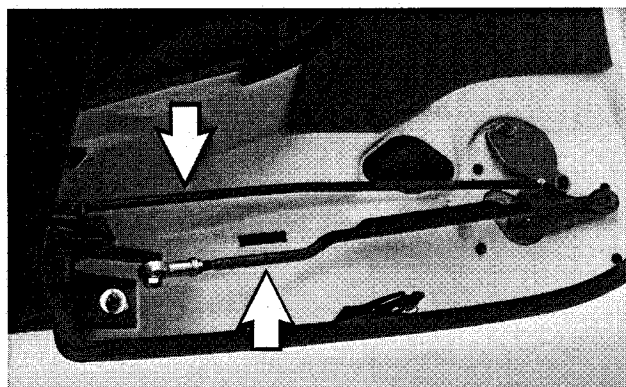


Fig. 11. Convertible top linkage rods (arrows) in compartment behind left rear seat.

6. Pull electrical harness through to disengage from top.

POWER CONVERTIBLE TOP

7. Remove fasteners in bottom of storage compartments behind door posts and lift out complete top. Note number of shims on horizontal mounting bolt. See Fig. 12.

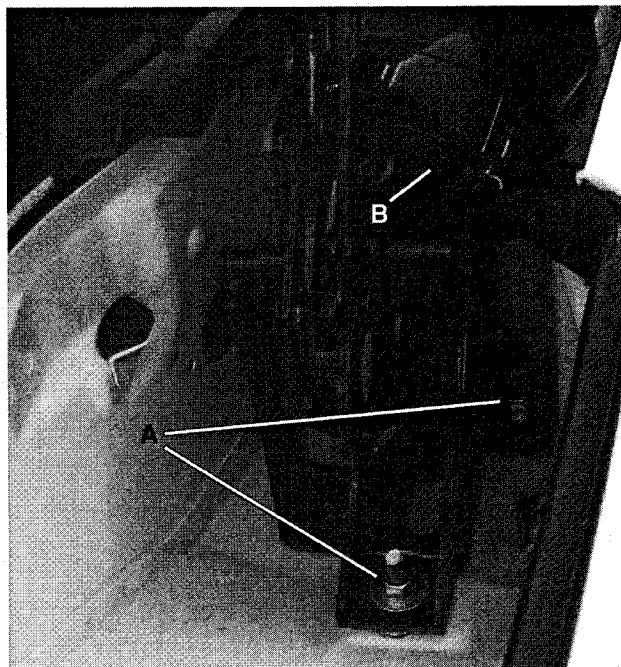


Fig. 12. Mounting nuts (A) for convertible top (two on each side). There is also a horizontal bolt with spacers on each side (B).

8. Installation is reverse of removal. Be sure to replace U-shaped shims on horizontal mounting bolts. See Fig. 13.

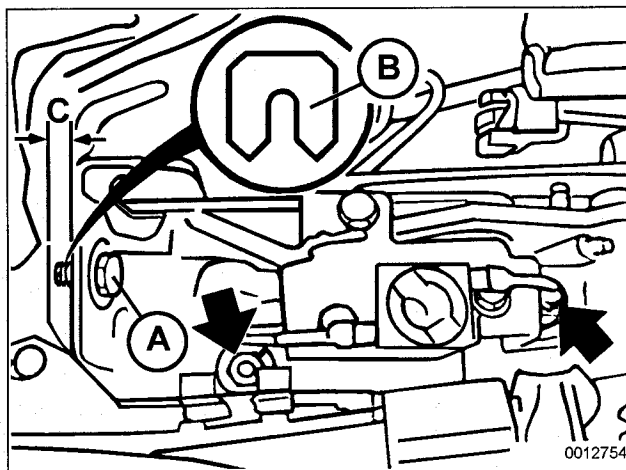
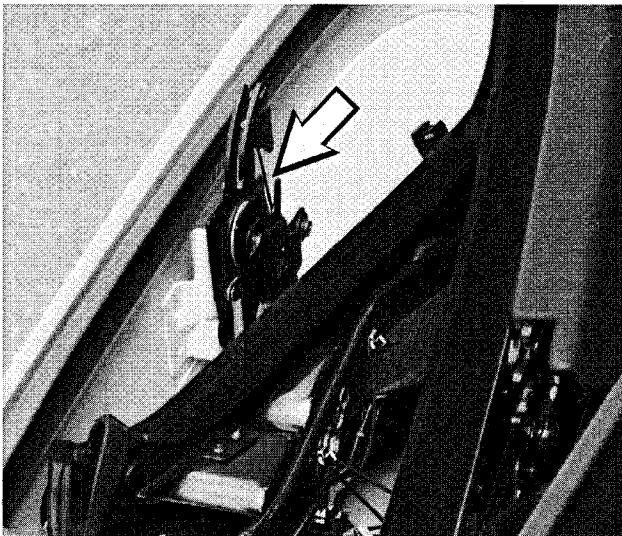


Fig. 13. Horizontal positioning bolt (A) and U-shaped adjusting shims (B) for convertible top. One of two main mounting nuts (arrows) also visible.

9. To adjust position and fit of top, remove or add U-shaped shims until top is properly aligned. Tighten nuts and screws.

Convertible top drive motor, replacing

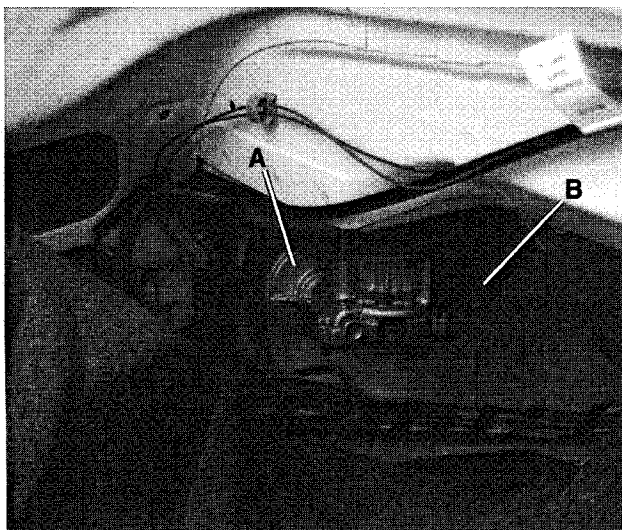
1. Open convertible top partially, stopping when convertible top lid is fully open. Remove lid.
2. Release luggage compartment lock-out by pressing on microswitch in right convertible top lid latch. See Fig. 14.



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Fig. 14. Right side convertible top lid latch. **Arrow** points to location of luggage compartment lock-out microswitch.

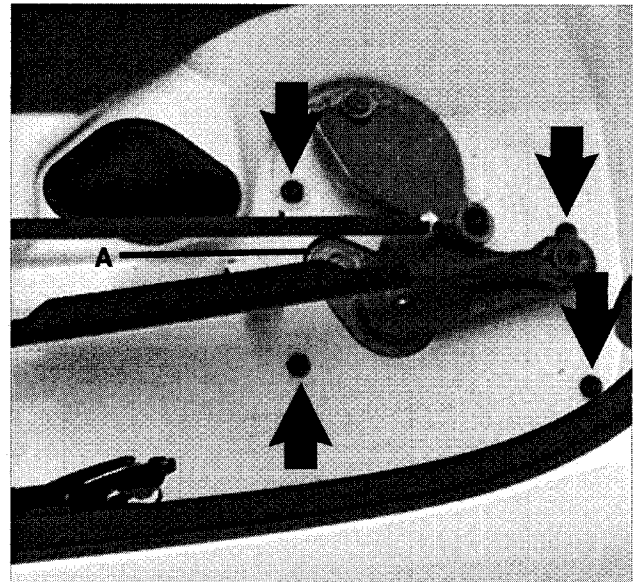
3. Open luggage compartment. Remove trim and inner lining from left side of compartment.
4. Disconnect electrical harness connectors at top motor. Release emergency release cable from lever. Push lever up to release motor. See Fig. 15.



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Fig. 15. Convertible top motor (A) and release lever (B) in luggage compartment.

5. Working in convertible top storage compartment behind driver's seat, remove convertible top linkage rods from top of motor. Refer to Fig. 11.
6. Remove four fasteners holding motor to body and remove motor through luggage compartment. See Fig. 16.



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Fig. 16. Convertible top motor mounting screws (arrows). Gasket (A) must be renewed when motor is replaced.

7. Installation is reverse of removal. Keep the following in mind:
 - Replace sealing gasket between top of motor and body.
 - Secure motor mounting screws with Locktite® 270 or equivalent.

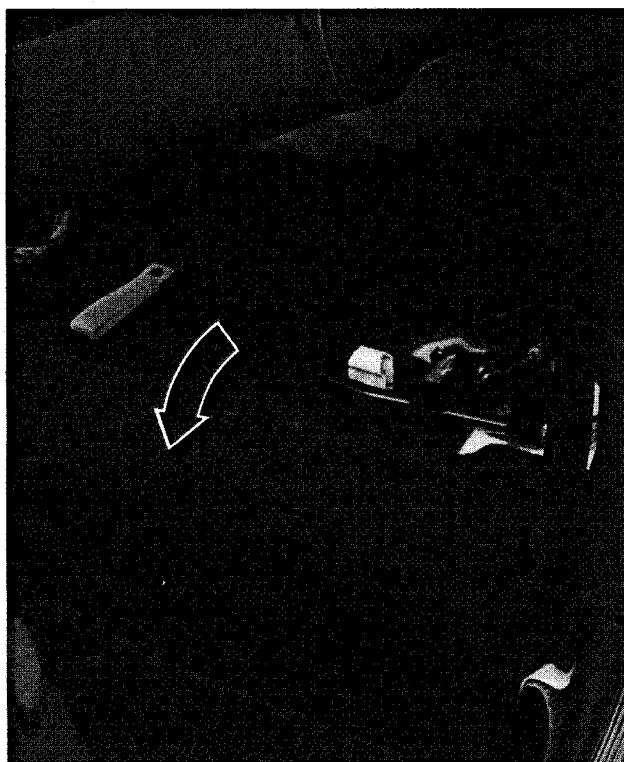
Tightening Torque

- Convertible top motor to body mounting screws. 10 Nm (7.5 ft-lb)

Convertible Top Emergency Operation

A malfunction in the electrical system or another fault in the convertible top mechanism can cause the automatic or semi-automatic top to be stuck in open, shut, or intermediate position. The following general procedures are suggested in order to close the top in an emergency situation. Resetting procedures for convertible top synchronization after emergency closure are beyond the scope of this manual.

Main Motor. To release the top linkage from the motor, lift the left corner of the rear seat to access emergency release handle. See Fig. 17.



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Fig. 17. Convertible top motor emergency release handle under rear seat. Pull in direction of **arrow** to release top.

CAUTION —

In case of failure of the automatic or semi-automatic convertible top function, only use the emergency procedure to close the top, never to open it. An authorized BMW dealer should then be consulted.

It is then possible to push the top manually to a near closed position. In the case of the semi-automatic top, simply attach and lock the front latches.

Front Latches. Once the fully automatic convertible top has been released from the motor and manually pushed to near-closure, emergency latching of the top is possible by using the S-shaped hex key provided in the emergency tool kit.

First, remove the plastic cover over the latch motor in the front bow of the convertible top. See Fig. 18.

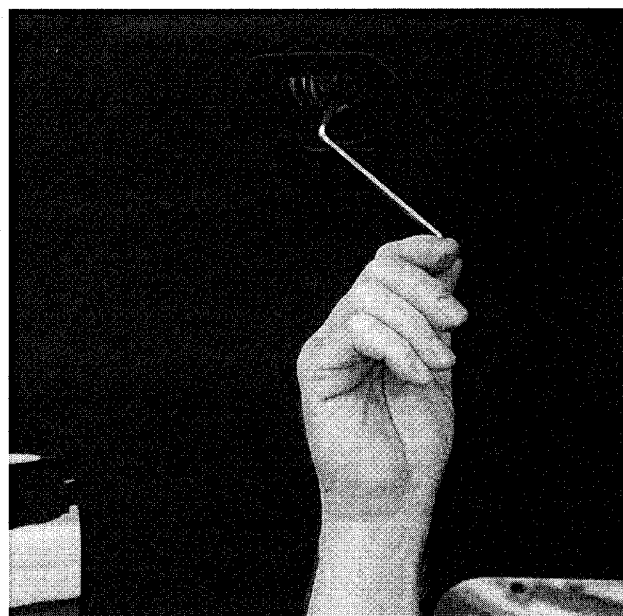
Next, use the hex key from tool box to crank the front latches shut. See Fig. 19.

Luggage Compartment Cover. A microswitch in the right convertible top lid latch prevents the luggage compartment from being opened while the lid is up. This lockout can be overridden by pressing on the microswitch. Refer to Fig. 14.



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Fig. 18. Remove plastic cover from center of convertible roof front bow to access latching motor drive.



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Fig. 19. Using emergency hex key to move front part of convertible top.

CAUTION —

The convertible top lid and the luggage compartment cover interfere with each other and cannot be open at the same time. To avoid damage to painted surfaces, an assistant should keep the lid down until the luggage compartment cover can be closed.

Convertible Top Lid

The components of the convertible top lid are shown in Fig. 20.

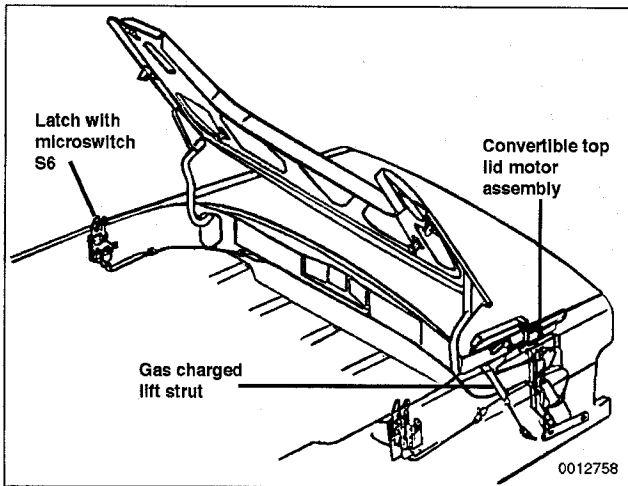


Fig. 20. Components of the convertible top lid.

The lid latches are cable operated by a drive motor located in the left side of the luggage compartment, behind the trim liner. The same motor is used to raise and lower the lid during automatic convertible top operation.

The latch cables must be adjusted so that the lid fits snugly against the body when locked.

The lid drive motor can be removed and replaced from the luggage compartment.

ROLLOVER PROTECTION SYSTEM

Two spring-loaded cassettes are mounted behind the rear seat. A single rollover sensor, mounted on the left cassette, signals the convertible top module (CVM) of an imminent rollover, whereupon the module triggers both cassettes within 3/10th of a second. See Fig. 21.

Once the car's ignition has been switched on, the rollover sensor performs a self-test lasting 6 seconds. During this time a yellow warning light is lit on the dashboard. If the warning light fails to go out after 6 seconds, this means that a fault has been detected in the system. The fault is stored in the CVM. Faults can be retrieved and diagnosed by special diagnostic equipment.

NOTE —

Diagnosis of the convertible top and the Rollover Protection System are beyond the scope of this book. Your authorized BMW dealer has the proper diagnostic equipment and tools to carry out these tasks.

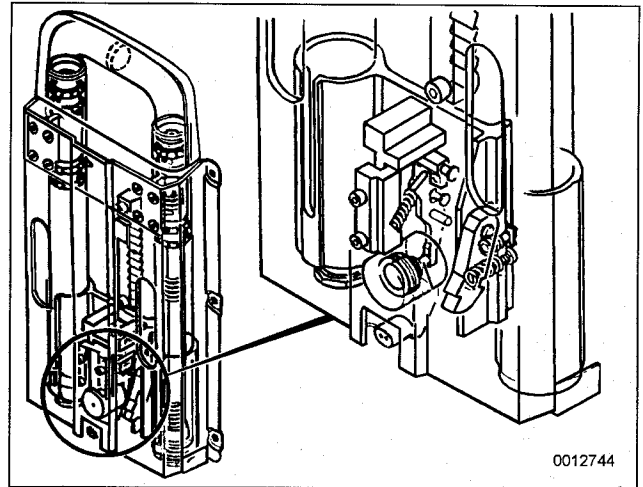


Fig. 21. Construction of the rollover protection cassette.

After deployment, the detent pawl in a rollover protection cassette can be retracted using the special tool in the tool kit, fitted to the screwdriver handle. The rear seat headrest needs to be raised for this procedure.

WARNING —

Ensure that the area above and adjacent to the roll-over bars remains clear and unobstructed at all times.

CAUTION —

- It is not possible to close the convertible top with the rollover bars extended.
- If a hardtop is mounted, be sure to install the protective rollover bar covers provided with the hardtop to prevent damaging the rear window in case of deployment.



