

515 Central Locking and Anti-Theft

GENERAL	515-1	Luggage compartment locking actuator, removing and installing	515-6
DOOR HANDLES AND LOCKS	515-1	LOCKING SYSTEM AND ELECTRONIC IMMOBILIZATION	515-7
Front door lock, removing and installing	515-1	Central Locking System (ZVM)	515-7
Front door handle, removing and installing ...	515-3	Central Body Electronics (ZKE IV)	515-8
Rear door lock, removing and installing	515-4	Electronic Immobilization System (EWS)	515-8
Rear door handle, removing and installing ...	515-5	EWS II control module, replacing	515-10
Door striker, replacing	515-6	Ring antenna, replacing	515-10
LOCKING ACTUATORS	515-6	EWS II transmitter/receiver module, replacing	515-11
Door Locking Actuator	515-6		

GENERAL

This section covers repair information for the central locking and the anti-theft systems. Keep in mind that E36 cars are equipped with sophisticated and self-diagnostic electrical systems. When experiencing malfunctions relating to the central locking or the anti-theft system, it is recommended that the system be diagnosed using the BMW service tester (DIS). This advanced diagnostic tool can usually pinpoint electrical faults quickly and safely. Consult an authorized BMW dealer.

NOTE —

Additional general electrical information can be found in **610 Electrical Component Locations and Electrical Wiring Diagrams**.

DOOR HANDLES AND LOCKS

Front door lock, removing and installing

1. Remove front door panel and vapor barrier as described in **411 Doors**.

WARNING —

Some 1997 and all 1998 cars are fitted with side-impact airbags in the front doors. When servicing the door locks on cars with front side-impact airbags, always disconnect the negative (–) battery terminal. See **721 Airbag System (SRS)** for cautions and procedures relating to the airbag system.

2. Raise door window completely.

3. On cars with side-impact airbags, disconnect negative (–) cable from battery, then remove airbag module.

CAUTION —

Prior to disconnecting the battery, read the battery disconnection cautions given at the front of this manual on page viii.

NOTE —

In some models covered in this manual, it is not essential to remove the side-impact airbag to access internal door components. However, the procedure is recommended for safety reasons.

4. Disconnect harness connector from window motor to prevent accidental operation.
5. On 4-door cars: Peel back rubber window guide from rear guide rail. Remove guide rail mounting bolt at bottom. Unclip any wiring from guide rail and pull guide rail downward and remove from door. See Fig. 1.

NOTE —

The top of the guide rail is "hooked" to the door sheet metal.

6. Remove inside door handle retaining screw. Disconnect inside handle from linkage and remove. See Fig. 2.
7. Cut wire ties and remove door lock electrical harness connector. Remove door lock mounting screws. See Fig. 3.
8. Working inside door, disconnect outside door handle and lock cylinder linkage from door lock. Remove lock from inside door. See Fig. 4.

DOOR HANDLES AND LOCKS

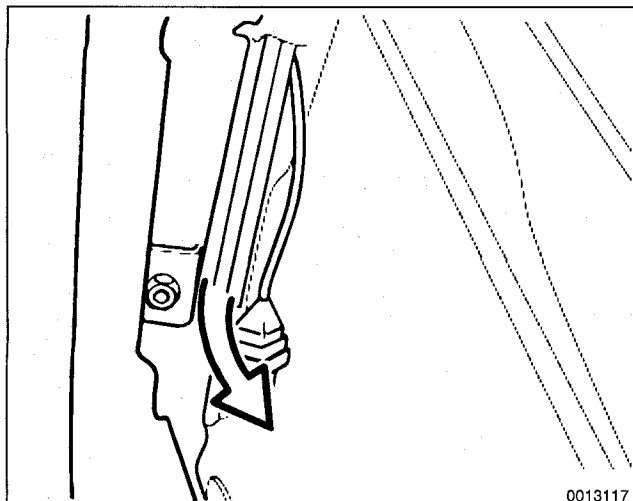


Fig. 1. 4-door cars: Remove lower retaining bolt at base of window rear guide rail and pivot rail out of door.

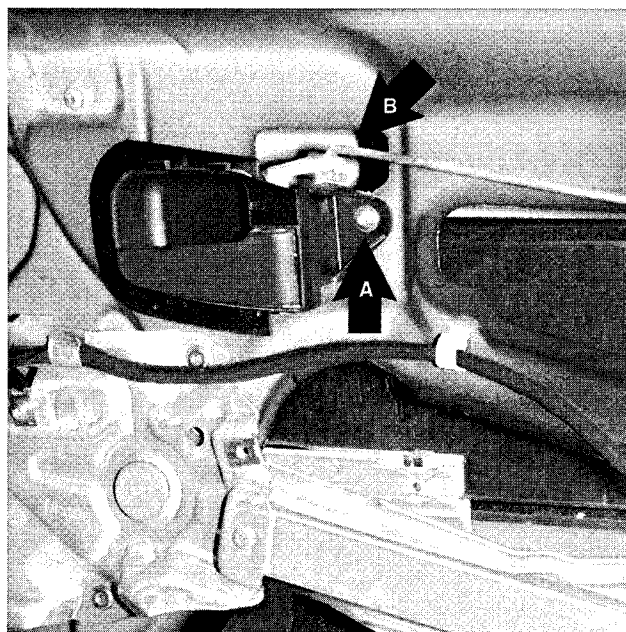


Fig. 2. Inside door handle retaining screw (A) Unhook linkage from handle at B.

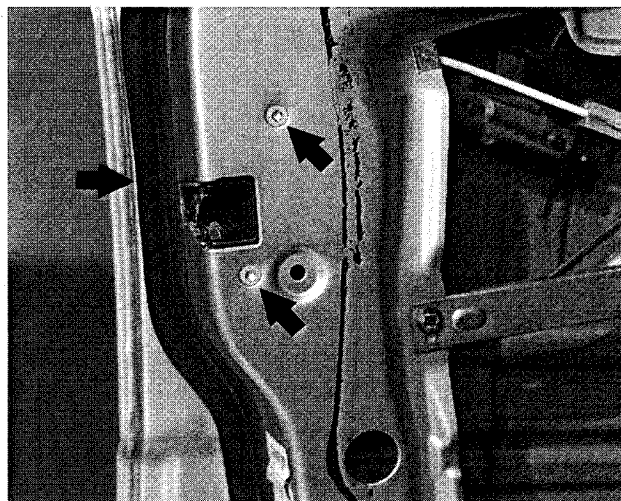


Fig. 3. Front door lock mounting screws (arrows).

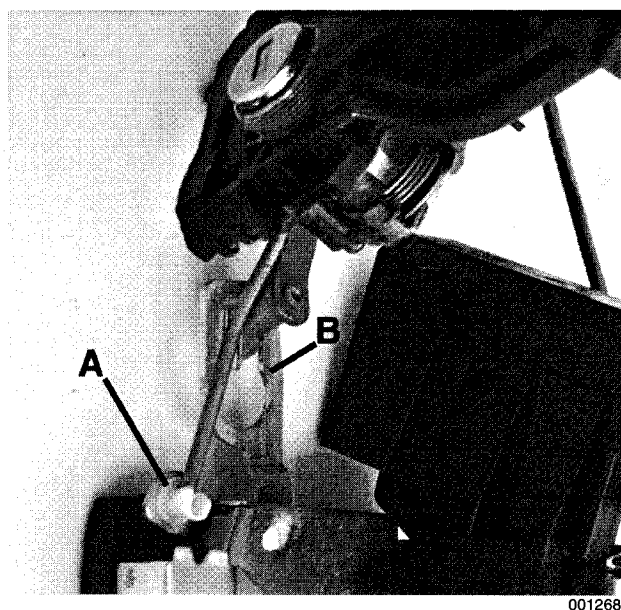


Fig. 4. Pry out lock linkage (A) from plastic retainer. Lift door lock mechanism slightly to remove latching pin from lock gate (B). Door lock mechanism shown removed from door.

9. Installation is reverse of removal, noting the following:

- Install lock mounting bolts with Loctite® 270 or equivalent thread-locker.
- Reconnect power window motor harness connector.
- Use new mounting bolts when reinstalling the side-impact airbag to the door (where applicable).
- Secure wire harnesses with wire ties.
- Check function of door lock and window mechanism before reinstalling inner door panel.

Tightening Torques

- Door lock to door 9 Nm (80 in-lb)
- Window guide to door 10 Nm (89 in-lb)

Front door handle, removing and installing

1. Close door window completely.
2. Remove front door panel and vapor barrier as described in **411 Doors**.

WARNING —

Some 1997 and all 1998 cars are fitted with side-impact airbags in the front doors. When servicing the door handles on cars with front side-impact airbags, always disconnect the negative (-) battery terminal. See **721 Airbag System (SRS)** for cautions and procedures relating to the airbag system.

3. On cars with side-impact airbags, disconnect negative (-) cable from battery, then remove airbag module.

CAUTION —

Prior to disconnecting the battery, read the battery disconnection cautions given at the front of this manual on page viii.

NOTE —

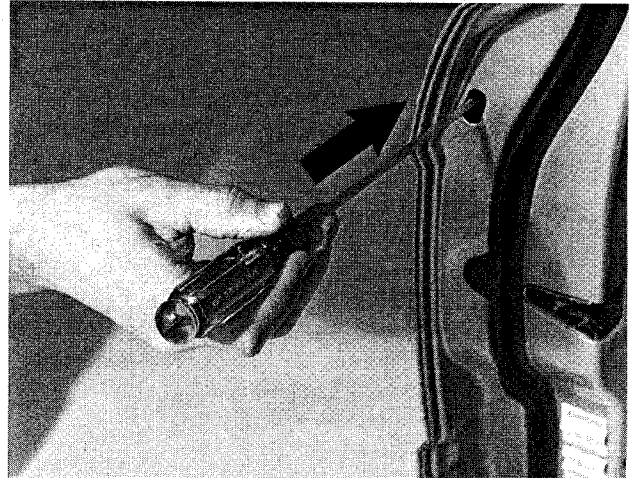
In some models covered in this manual, it is not essential to remove the side-impact airbag to access internal door components. However, the procedure is recommended for safety reasons.

4. Remove door lock as described earlier.
5. Remove window as described in **512 Door Windows**.

CAUTION —

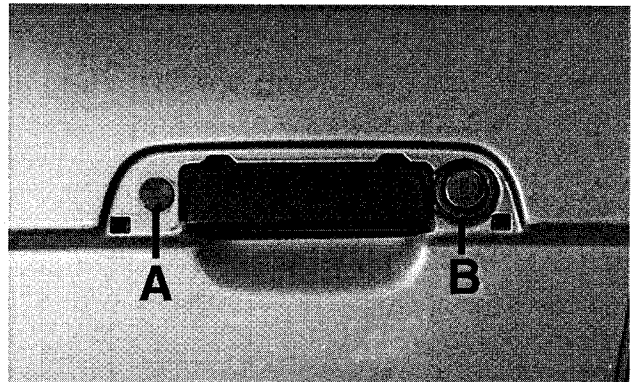
On models with side-impact airbags, removing/installing the front window requires that the battery cable be reconnected with the side-impact airbag disconnected. This will set a fault code in the SRS control module, turn on the SRS warning light, and disable the SRS system until the fault memory is cleared using special SRS test equipment.

6. Pry out access plug in end of door. Use screwdriver through access hole to slide exterior trim locking plate into released position. See Fig. 5. Remove door handle exterior trim piece.
7. Working inside door, remove locking clip for door handle retaining pin and push pin out.
8. Working inside door, disconnect electrical harness connector at door handle. Twist plastic connector bracket to remove from door handle.
9. Working at door exterior, remove handle collar nut while supporting handle. See Fig. 6.



0011681

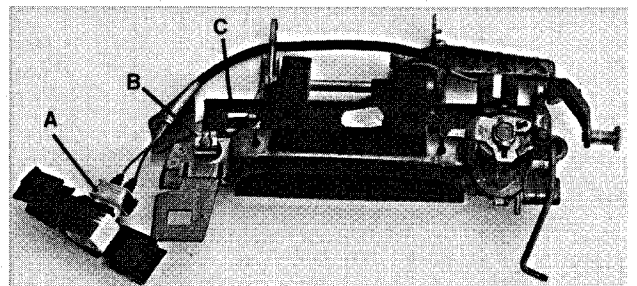
Fig. 5. Insert screwdriver into access hole and push locking plate forward (arrow) to release exterior handle trim.



0011682

Fig. 6. Door handle retaining pin (A) and lock collar nut (B). Door handle trim shown removed.

10. Remove door handle from door by angling out of door cavity. Removed door handle assembly is shown in Fig. 7.



0012684

Fig. 7. Door handle harness connector (A); retaining pin locking clip (B); exterior trim locking plate (C). Handle assembly shown removed from door.

515-4 CENTRAL LOCKING AND ANTI-THEFT

11. Installation is reverse of removal. Keep in mind the following:

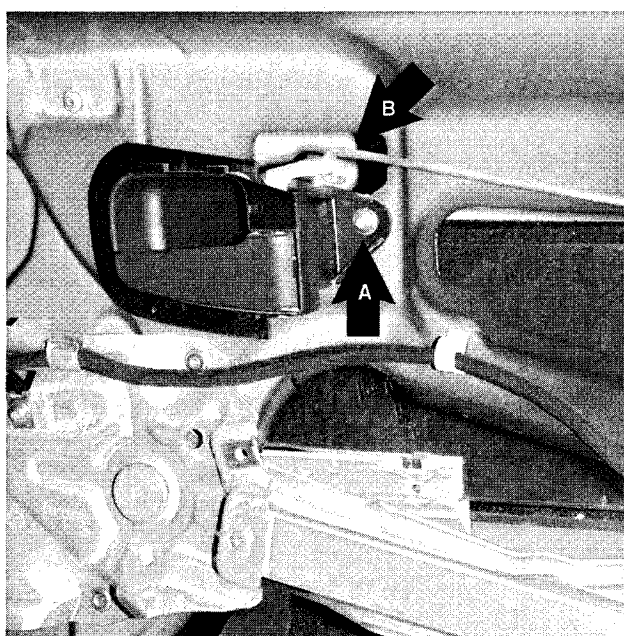
- Make sure rubber seal for handle is correctly positioned before tightening mounting fasteners.
- Install exterior trim piece and then use a hooked tool to pull locking plate into locked position. Make sure door handle trim contacts body evenly before locking trim in place.
- Use new mounting bolts when reinstalling the side-impact airbag to the door (where applicable). Reset SRS warning light and clear SRS fault memory using special test equipment. See **721 Airbag System (SRS)**.
- Reconnect all harness connectors (including power window motor) before installing door panel.
- Secure wire harnesses with wire ties.
- Adjust and reinitialize windows. See **512 Door Windows**.

Tightening Torque

- Collar nut to door handle 10 Nm (89 in-lb)

Rear door lock, removing and installing

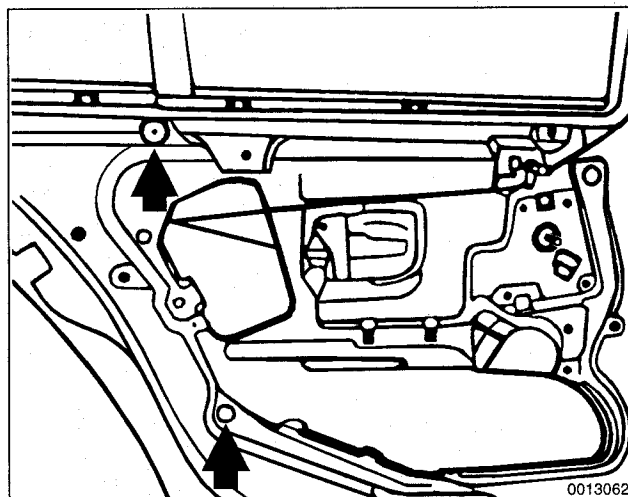
1. Remove rear door panel and vapor barrier as described in **411 Doors**.
2. Remove window from rear door as described in **512 Door Windows**.
3. Disconnect and remove inside door handle. See Fig. 8.



0013073

Fig. 8. Inside door handle retaining screw (A) Unhook linkage from handle at B.

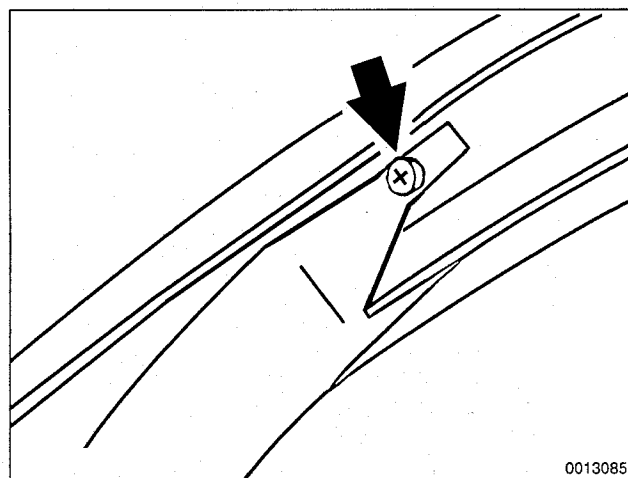
4. Remove screws mounting bottom of window rear track to door. See Fig. 9.



0013062

Fig. 9. Rear window track lower fasteners (arrows).

5. Remove window rear track top screw and move track aside. See Fig. 10.

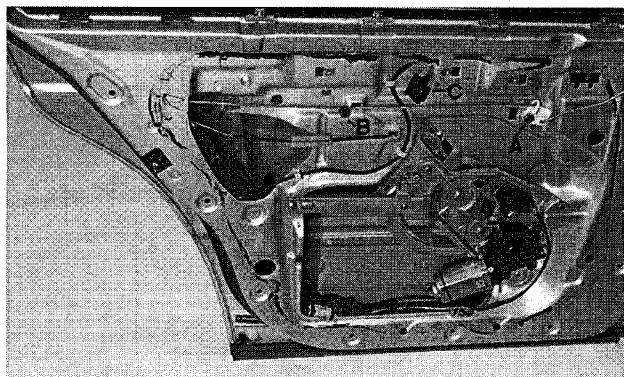


0013085

Fig. 10. Rear window track top screw (arrow).

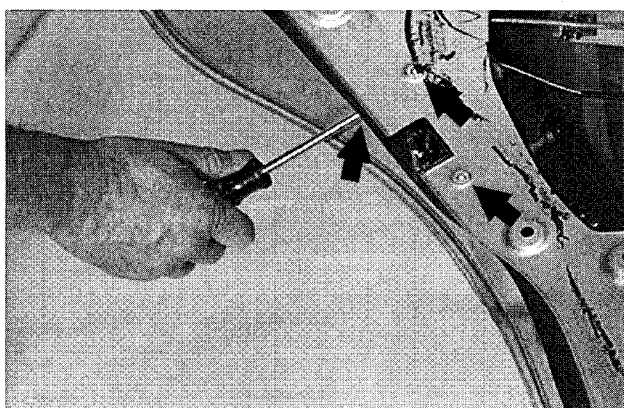
6. Remove screw from lock button linkage rod retainer. Lift rod out of retaining clip. See Fig. 11.
7. Disconnect door lock harness connector.
8. Remove door lock screws. See Fig. 12.
9. Move lock up slightly to disengage from exterior handle linkage. Remove lock from inside door.

DOOR HANDLES AND LOCKS



0011688

Fig. 11. Rear door lock button linkage rod retainer (A), rod retaining clip (B), and harness connector (C).



0011687

Fig. 12. Rear door lock mounting screws (arrows).

10. Installation is reverse of removal. Keep in mind the following:

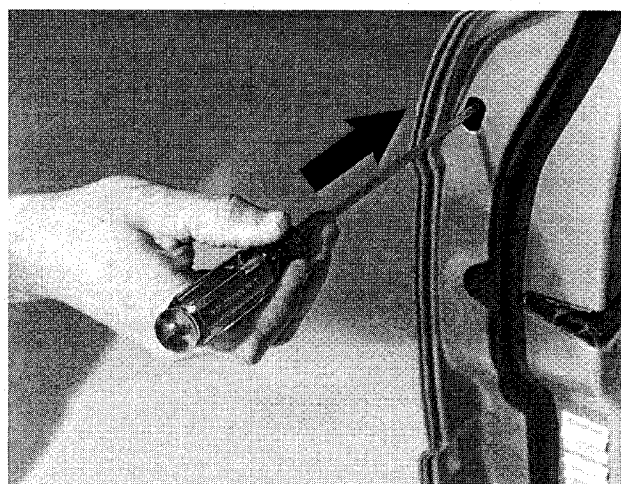
- Install lock mounting bolts with Loctite® 270 or equivalent thread-locker.
- Reconnect power window motor harness connector before installing door panel.
- Secure wire harnesses with wire ties.
- Adjust window as described in 512 Door Windows.

Tightening Torque

- Door lock to door 9 Nm (80 in-lb)

Rear door handle, removing and installing

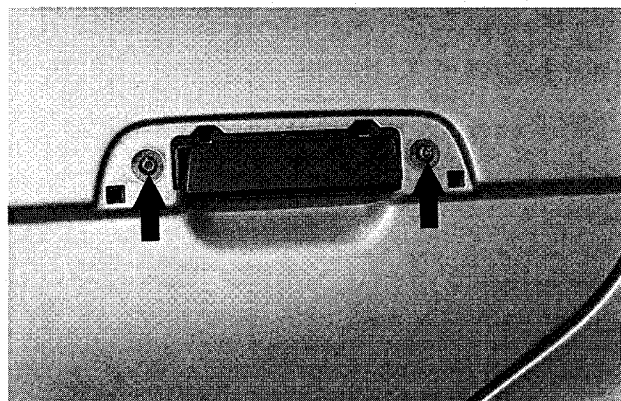
1. Remove rear door panel and vapor barrier as described in 411 Doors.
2. Remove window from rear door as described in 512 Door Windows.
3. Remove door lock as described earlier.
4. Pry out access plug in end of door. Use screwdriver through access hole to slide exterior trim locking plate into released position. See Fig. 13. Remove door handle exterior trim piece.



0011681

Fig. 13. Insert screwdriver into access hole and push locking plate forward (arrow) to release exterior handle trim.

5. Remove door handle mounting screws while supporting handle. See Fig. 14.



0011684

Fig. 14. Rear door handle mounting screws (arrows).

515-6 CENTRAL LOCKING AND ANTI-THEFT

6. Remove door handle assembly from inside door.
7. Installation is reverse of removal. Keep in mind the following:
 - Make sure rubber seal for handle is correctly positioned before tightening mounting fasteners.
 - Install exterior trim piece and then use a hooked tool to pull locking plate into locked position. Make sure door handle trim contacts body evenly before locking trim in place.
 - Reconnect all harness connectors (including power window motor) before installing door panel.
 - Secure wire harnesses with wire ties.
 - Adjust window as described in **512 Door Windows**.

Tightening Torque

- Rear door handle mounting screws . . 10 Nm (89 in-lb)

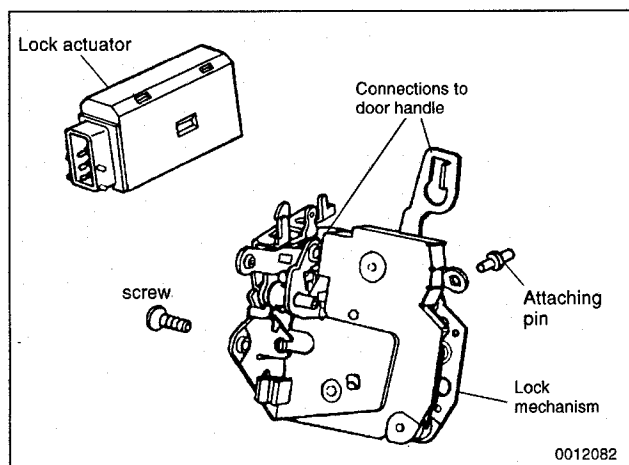


Fig. 15. Front door lock mechanism and related parts. Rear lock mechanism is similar.

Door striker, replacing

The door striker contains an electrical contact switch. If the switch is faulty, the striker must be replaced. To remove the striker, remove the mounting bolts. Disconnect the harness connector from the striker.

NOTE —

If the striker backup plate falls into the body cavity, it can be retrieved after removing the inside trim from the B-pillar (door-post pillar).

Tightening Torque

- Striker plate to body pillar. 28 Nm (20 ft-lb)

LOCKING ACTUATORS

Door Locking Actuator

The front door lock mechanism and actuator are shown in Fig. 15. The rear door lock and actuator are similar. The lock must first be removed, as described earlier, to replace the actuator.

NOTE —

- If just one of the central locking drives does not operate, the locking linkage could be frozen or stiff enough to prevent actuation of the drive. Try remove the interior door panel and lubricating the locking linkage as the first step.
- The actuator is not serviceable and must be replaced if defective.

Luggage compartment locking actuator, removing and installing

1. Raise trunk lid. Remove tool kit and trunk lid trim panel. See Fig. 16.

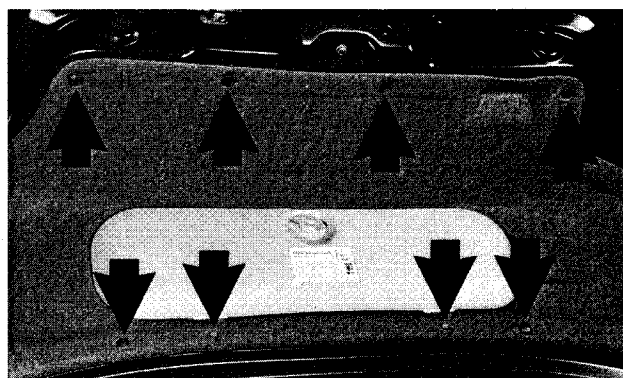


Fig. 16. Trunk lid trim and tool kit retaining screws and clips (arrows).

2. Disconnect actuating rod from lock. See Fig. 17.
3. Unplug two wiring connectors from actuator. See Fig. 18.

NOTE —

The actuator is adjustable. Matchmark the attaching screws before removal.

4. Remove actuator attaching screws. Pull actuator backwards from behind metal shield to remove.
5. Installation is reverse of removal. Align actuator screws with matchmarks during installation.

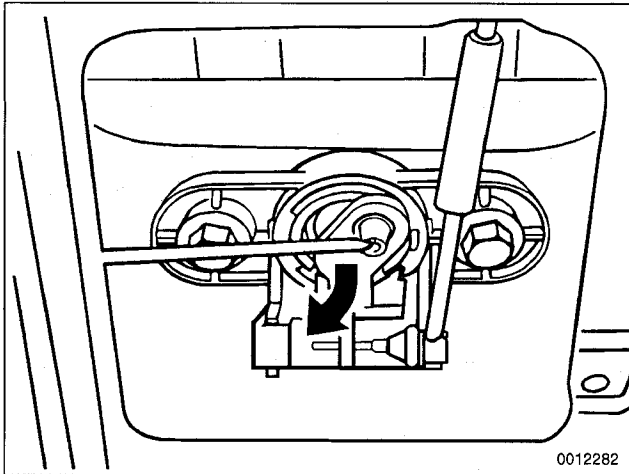


Fig. 17. Pull off luggage compartment lock actuating rod in the direction of arrow.

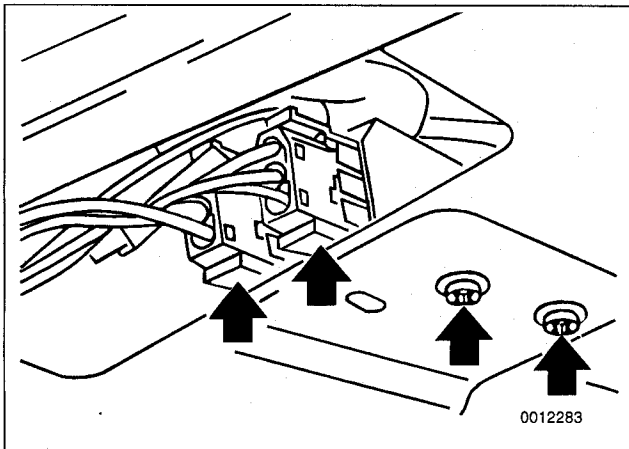


Fig. 18. Luggage compartment actuator wire connectors and attaching screws (arrows).

LOCKING SYSTEM AND ELECTRONIC IMMOBILIZATION

The central locking system uses electrical lock actuators at each door and at the trunk lid. The locking system can be actuated by either front door lock or by the luggage compartment lock. On some 1994 and later cars, an additional remote control key pad can also be used to activate the lock and anti-theft systems.

When the key is turned to the lock position, a micro-switch signals a central control module to lock all doors, luggage compartment, gas tank flap and, in later convertibles, the glove box lid. Where applicable, this also arms the anti-theft system.

NOTE —

The central locking system responds to accidents via an impact (inertia) switch. When this function is activated, the doors are automatically unlocked and the hazard warning lights and interior lights are turned on. The impact switches are mounted in the left and right footwells behind the speaker grilles.

Central Locking System (ZVM)

Different versions of the central locking control have been used in the E36 cars. In early production cars (model years 1992 and 1993), the locking system is controlled through the central locking module. This system is referred to as ZVM.

In this system, three microswitches are operated via the door lock cylinder at each front door. Turning the key approximately 45° (position 1) operates the door locking microswitch. Turning the key approximately 90° (position 2) actuates the double locking microswitch. Turning the key approximately 45° in the opposite direction through position 0 actuates the unlocking microswitch and deactivates the alarm system (position 3). See Fig. 19.

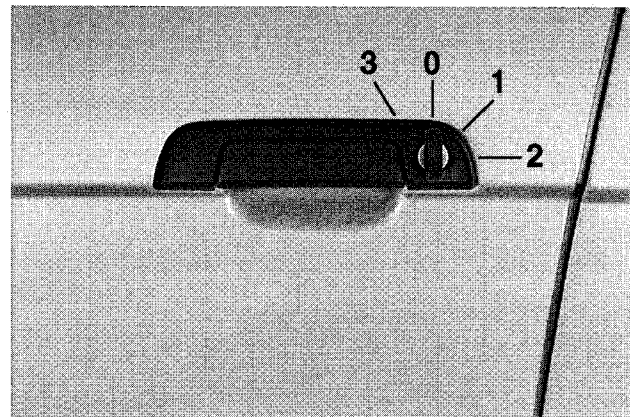


Fig. 19. ZVM door lock cylinder positions.

CAUTION —

Do not engage double locking position with passengers in the car unless the master key is available. The door cannot be opened from outside or inside without the master key.

NOTE —

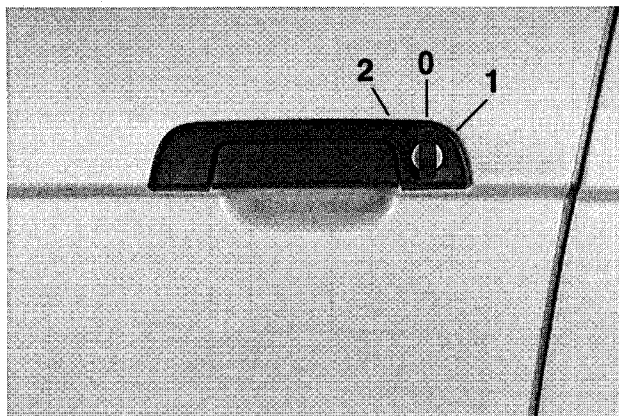
In case of a discharged battery, the car can still be locked or unlocked using the key.

Central Body Electronics (ZKE IV)

Beginning with vehicles produced 9/93 (model year 1994), the central locking system was integrated with sunroof and window closure into the Central Body Electronics (ZKE IV) (generation four) system. The control module for this system is mounted in front of the glove compartment.

In this system two microswitches are operated via the door lock cylinder at both front doors. Turning the key approximately 45° (position 1) operates the door locking microswitch and activates the alarm system. Holding the key in that position also closes any open windows and the sunroof.

Turning the key approximately 45° in the opposite direction through position 0 actuates the unlocking microswitch and deactivates the alarm system (position 2). See Fig. 20.



0011762a

Fig. 20. ZKE IV door lock cylinder positions.

Electronic Immobilization System (EWS)

The electronic anti-theft system known as EWS was first introduced in January 1994. The early version of the system uses a starting inhibition module to interrupt the ignition, the fuel injection and the starter motor. This system is activated and deactivated by the central locking system. The control module for the system is installed under the left side of the dashboard.

Starting with models built since January 1995, E36 cars come equipped with a sophisticated coded electronic immobilization system called EWS II. For a schematic of the system, refer to Fig. 21.

NOTE —

The EWS II system is also sometimes referred to as the Driveway Protection System or the electronic immobilization system.

On EWS II equipped cars, the ignition key is embedded with a computer chip and permanently encoded. A primary code is programmed into the key and into the vehicle itself. A secondary code is changed every time the vehicle is started. If the key code and EWS II control module code do not match, the engine management control module and the starter are disabled. EWS II ignition keys cannot be duplicated.

The system is designed to have up to ten keys and only an authorized BMW dealer can provide replacement keys.

NOTE —

It is possible to damage the electronic circuitry in the key, rendering it unusable. In that case, a new key should be purchased and initialized by an authorized BMW dealer.

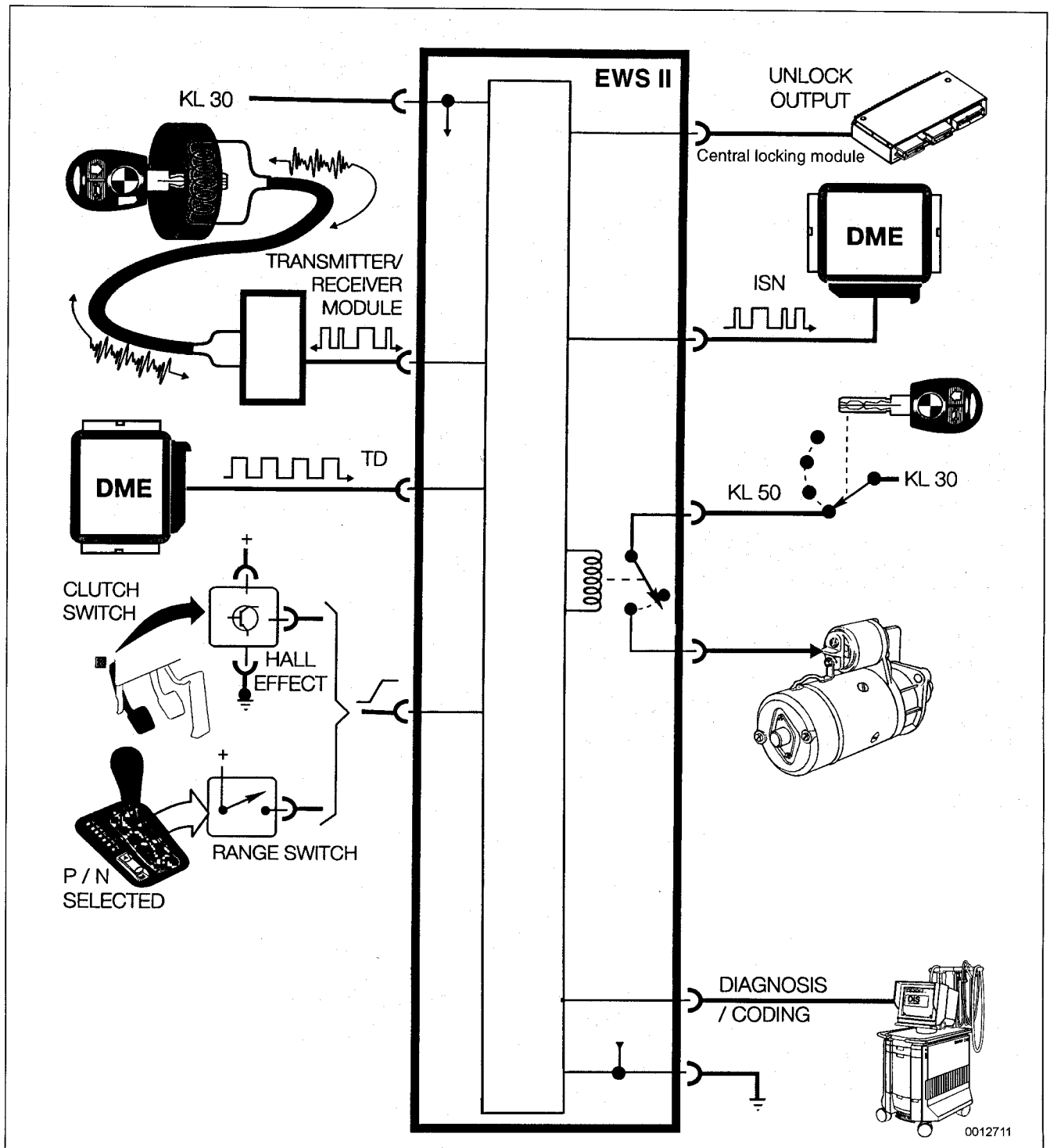


Fig. 21. EWS II system.

EWS II control module, replacing

1. Disconnect negative (-) cable from battery.

CAUTION —

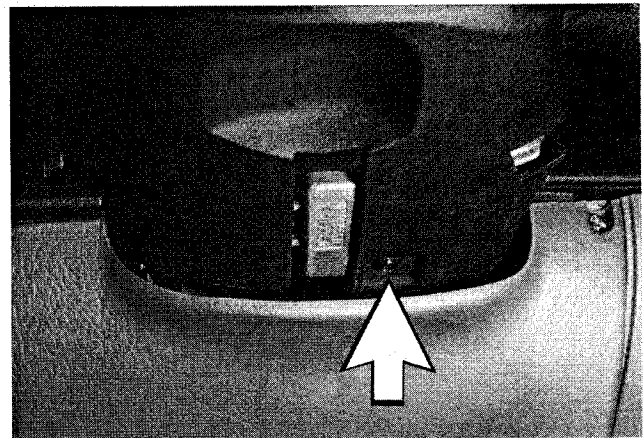
Prior to disconnecting the battery, read the battery disconnection cautions given at the front of this manual on page viii.

2. Remove glove compartment as described in 513 Interior Trim.
3. Remove EWS II control module harness connector. Pull module out of bracket. See Fig. 22.

NOTE —

The EWS II module should be identified with EWS II markings.

4. Installation is reverse of removal.



0012543

Fig. 23. Steering column cover retaining screw (arrow).

Ring antenna, replacing

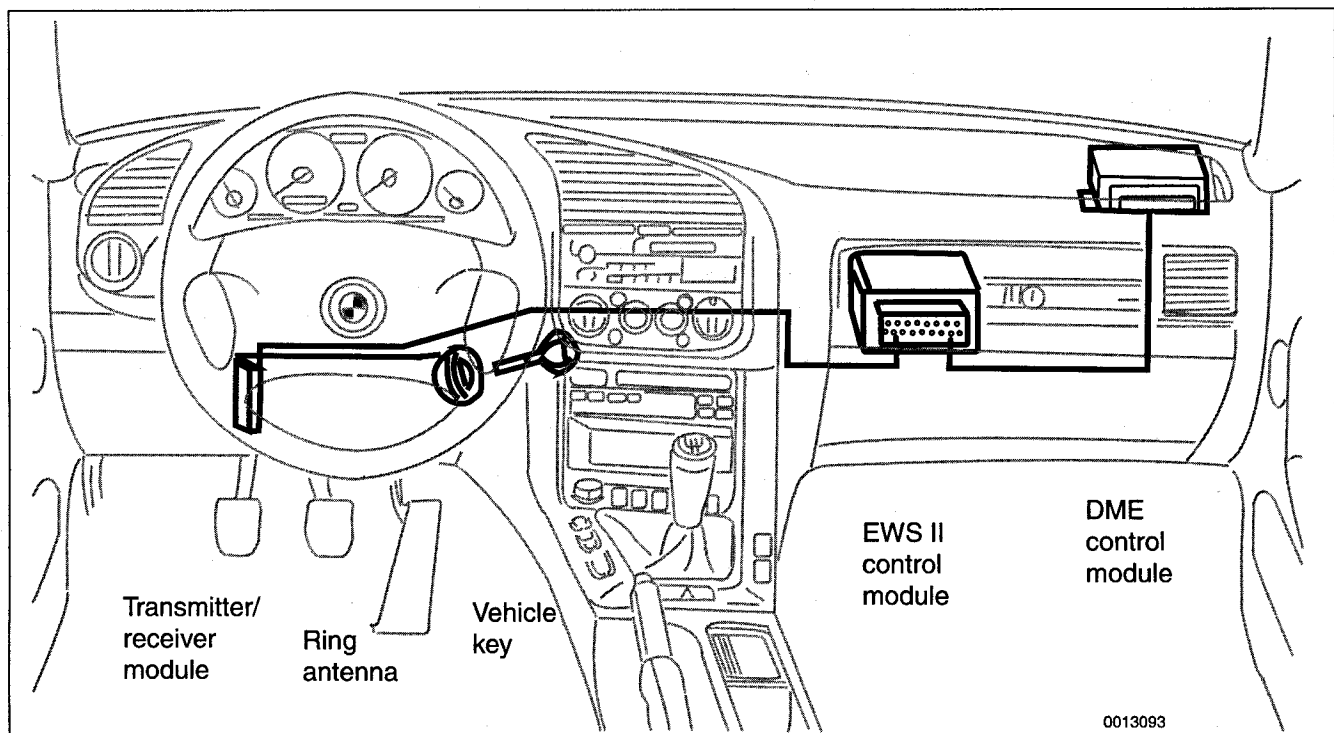
1. Disconnect negative (-) cable from battery.

CAUTION —

Prior to disconnecting the battery, read the battery disconnection cautions given at the front of this manual on page viii.

2. Remove lower steering column cover. See Fig. 23.

3. Remove lower left dash trim panel as described in 513 Interior Trim.
4. Cut off wire ties holding wiring harness to steering column.
5. Gently pry off ring antenna from ignition switch.
6. Unplug ring antenna harness from EWS II transmitter/receiver module as described below.
7. Installation is reverse of removal.



0013093

Fig. 22. Location of EWS II components.

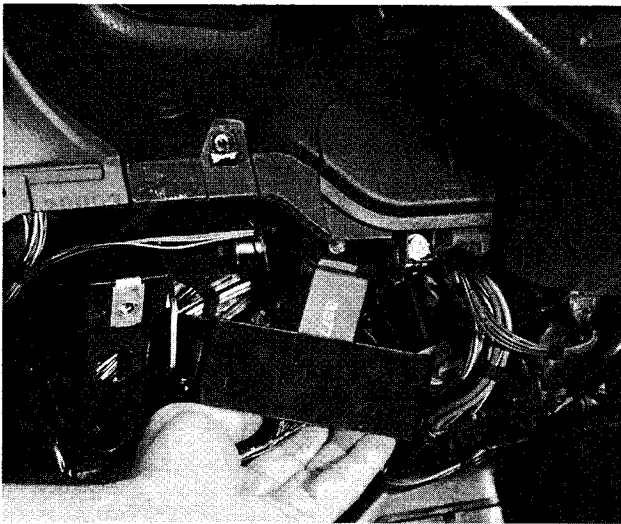
EWS II transmitter/receiver module, replacing

1. Disconnect negative (-) cable from battery.

CAUTION —

Prior to disconnecting the battery, read the battery disconnection cautions given at the front of this manual on page viii.

2. Remove lower left dash trim panel and knee bolster as described in **513 Interior Trim**.
3. Unclip auxiliary relay panel under steering column and lower it to access relays and harness connectors. See Fig. 24.



0013164

Fig. 24. Lowering the left side auxiliary relay panel.

4. Disconnect harness connector from transmitter/receiver module. Unclip module from panel. See Fig. 25.

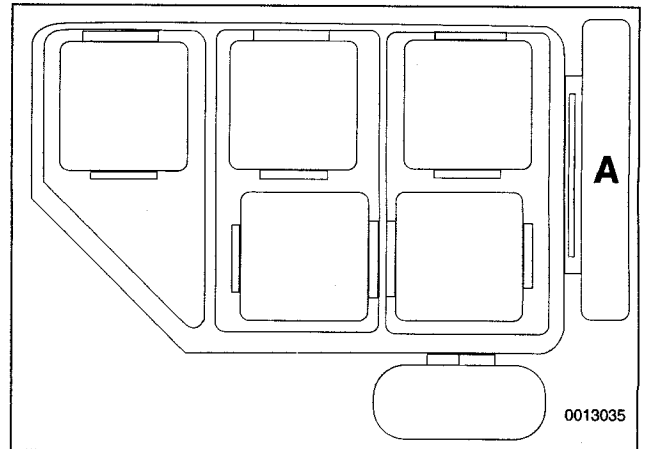


Fig. 25. Position of EWS II transmitter/receiver module (A) on left side auxiliary relay panel.

5. Installation is reverse of removal.



