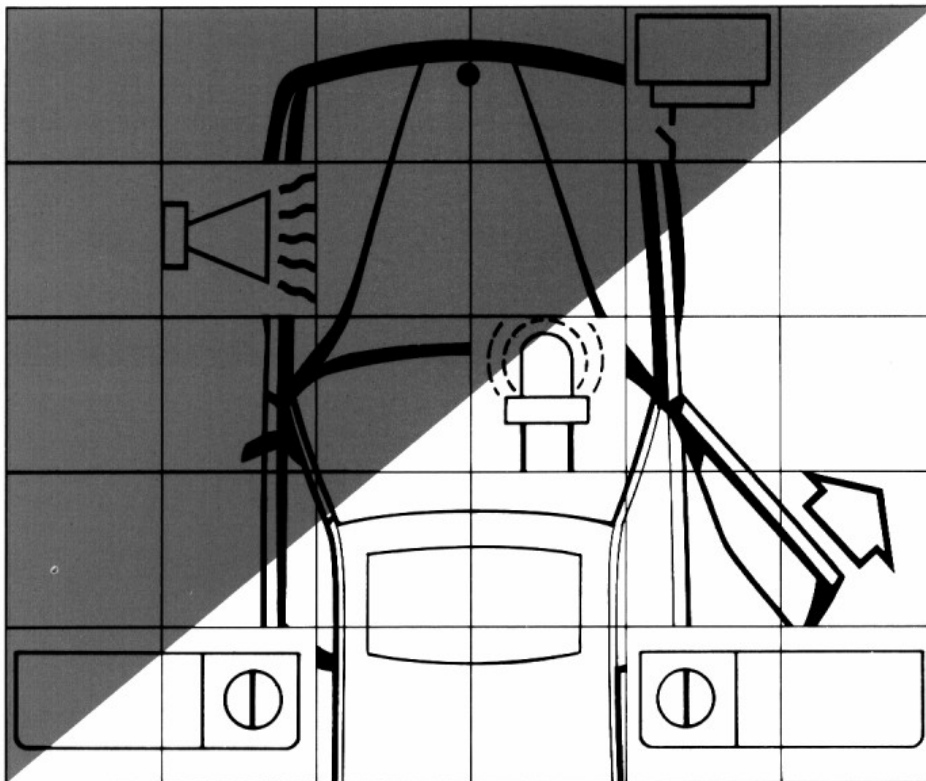


Burglar Alarm (DWA II)

Training
Reference
Book



BMW of North America, Inc.
Service Training Department

DISCLAIMER

This training reference book is not intended to be a complete and all-inclusive source for repair and maintenance data. It is only part of a training information system designed to assure that uniform procedures and information are presented to all participants at the BMW Service Training Center.

The technician must always refer to and adhere to the following official factory service publications:

1. Service Information
2. Repair Manuals
3. Specifications Microfiche
4. Technical Reference Information
5. Video Bulletins

Note: The information contained in the training course materials is solely intended for participants in this training course conducted by the BMW Service Training Center.

Information status January 1989.

For changes/additions to the technical data, please refer to the current information issued by the "Service Division".



TABLE OF CONTENTS

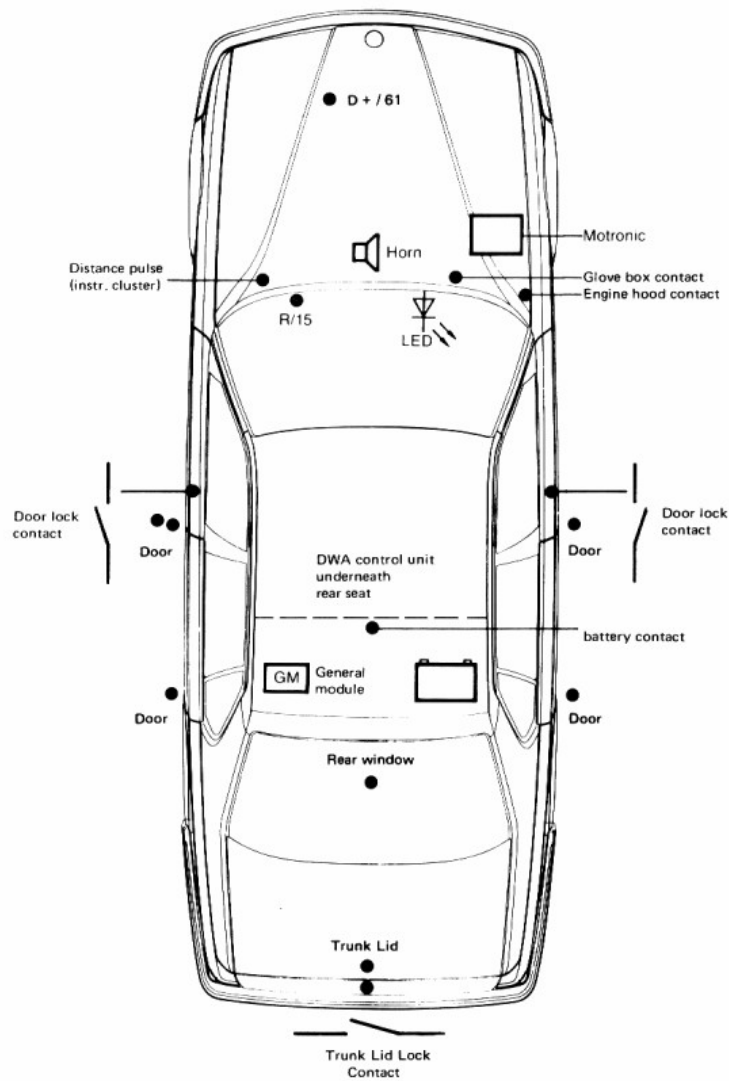
Description	Page
Introduction	2
Location of Components	3
Input Signals	5
Led Activation	7
Outputs	8

D.W.A. II

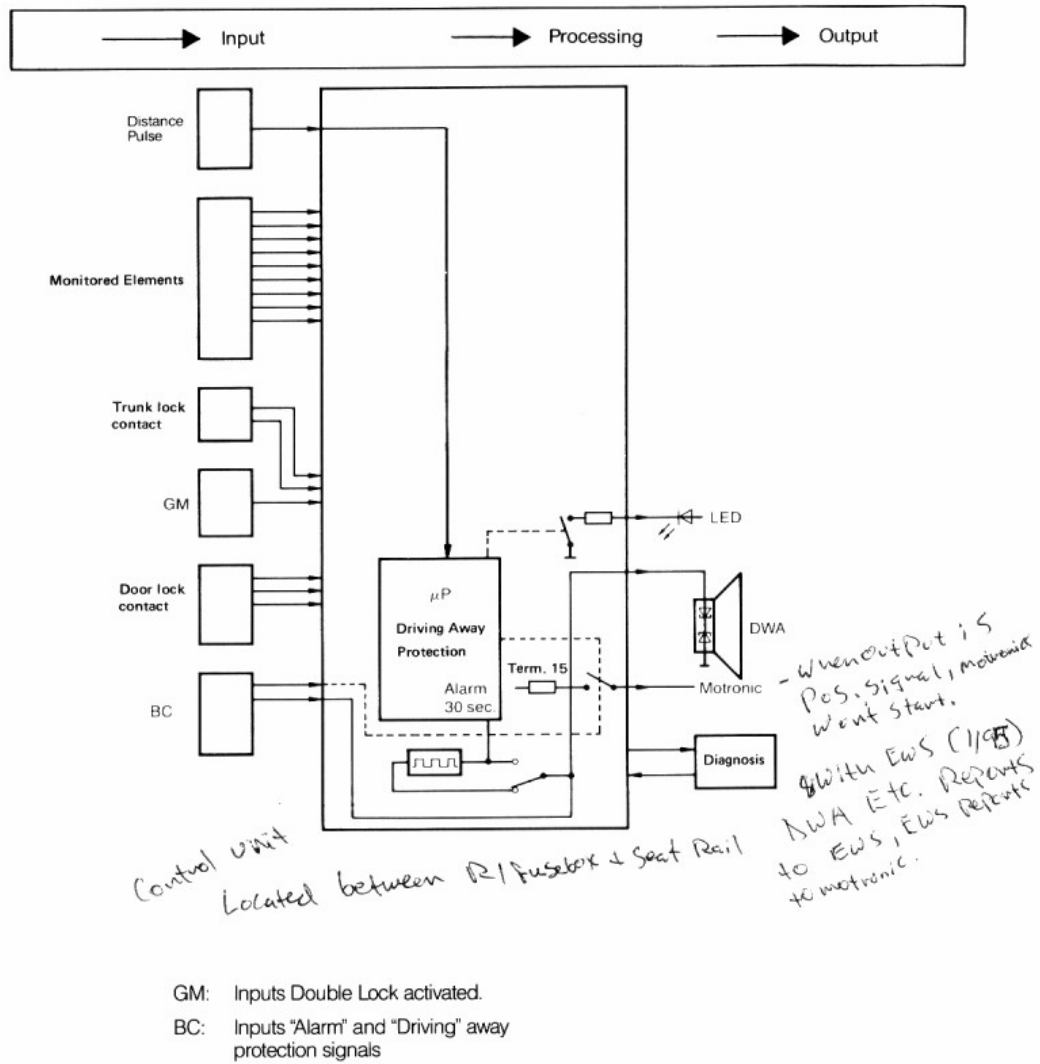
If any of the monitored switches are not secured, the system will still arm. (e.g. trunk lid open while locking the car.) Closing and locking the trunk after the system is armed will not affect the system operation.

[illegible]

INSTALLED LOCATION OF SYSTEM COMPONENTS



DESIGN

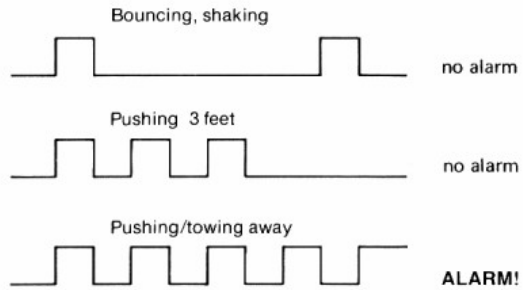


INPUT SIGNALS

Distance Pulse

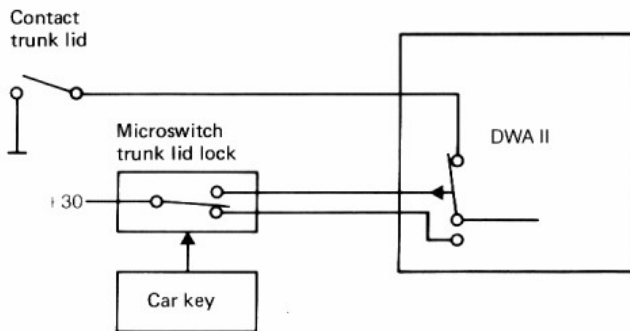
Pushing or towing of the car is detected by the distance pulse monitor. The "distance pulse" signal is sent from the instrument cluster to DWA. The alarm will activate after a distance of approx. 25 feet.

Dynamic Monitoring of Distance Pulse



Trunk Lid Switch

With an activated system, the trunk lid of the car can be opened without triggering the alarm.

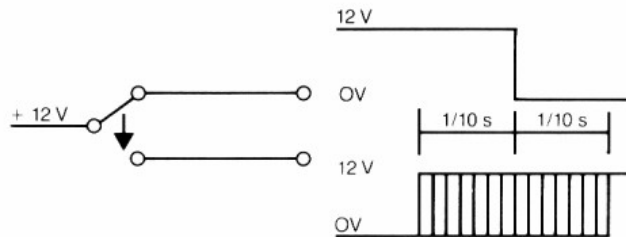


MONITORING OF LOCK SIGNALS

To prevent the system from being tampered with, particularly the electrical connections, double switches are provided at the driver's and front passenger's door locks and on the luggage compartment lid.

Switching time monitoring ensures that the signal for both switches are at the correct potential.

An intermediate signal is permitted only for a short period (microswitch changeover time). As a result, the system cannot be de-activated by hand. The signals from both switches can be the same $\frac{1}{10}$ sec. from microswitch changeover.



Rear Window

The rear window defogger grid is monitored by the DWA C.U. Interference or breaking of the window is detected by measuring current flow. Through the grid continuously while the alarm system is activated.

Door Lock Signal

The DWA control unit receives an acknowledgement signal from the general module (from the QZV terminal) when the double lock function is activated.

Battery

The battery is protected by a microswitch on the battery cover. Disconnecting the battery on an armed system will not cancel the alarm function. Reconnecting the battery will activate the system and cause the alarm to sound.

monitored @ ground connection (US ver.)

DWA 4

"94 Features"

REMOTE KEYLESS ENTRY (RF) - ALARM SYSTEM (DWA)

As of 9/93 production, all E31s and the E34-540i are equipped with the Factory installed Remote (keyless) Entry (RF) - DWA Alarm Systems. The DWA is similar in operation to the previous DWA systems used on other Models. It incorporates the following features:

- Protection against forcible entry of the vehicle through the Doors or rear glass.
- Protection against forcible entry of the hood, trunk or glove box.
- Driveaway protection - no start (cancelling of the Motronic ignition and injection).
- Tow away protection (monitoring of the rear axle distance contact).

An activated DWA system features an audible horn sounding for 30 seconds, the 4-way hazard warning lights and highbeam headlights flashing for five minutes and the drive away protection activated.

A new feature is the arming/disarming of the system. With the new RF/DWA IV, the DWA can only be armed and disarmed using the RF transmitter.

A LED status indicator is used to show the armed state of the DWA system.

- When armed, the LED comes on steady to indicate a secured state.
- If the LED is flashing, after arming, one of the monitored points is not secure. The system will arm after 10 seconds and the LED continues to flash.
- If the alarm was triggered, the LED flashes to indicate that the vehicle was tampered with. The LED will go out when the system is disarmed.
- When arming and disarming the system, the LED flashes and the alarm horn sounds briefly.

REMOTE ENTRY

The Remote (keyless) Entry is a Radio Frequency (RF) system. It is similar in operation to the Infrared remote system used on previous models. The RF can carry out all of the locking/unlocking features of the master key as well as arming and disarming the DWA. The system consists of the following:

- **Transmitter** - Combined with a master key into one compact unit. It incorporates a battery, three operation buttons and a LED indicator. Up to four transmitters can be coded to one system.
- **Receiver/ Control Module** - Is combined into the auto dimming rearview mirror.
- **Communication Links** - From the RF control module to the GM (for locking/unlocking) and the DWA (for alarm arming/disarming).

OUTPUTS

Driving Away Protection

Any attempt to start the engine while the alarm is armed will trigger the alarm. At the same time, a signal is sent from the DWA control unit to the motronic control unit. The motronic C.U. then cancels the ignition and injection signals.

Alarm Horn Activation

The alarm horn is activated via a relay in the DWA control unit. This horn is shared by the BC code alarm function.

Emergency Disarming

The "emergency deactivation" procedure allows the driver the possibility of deactivating the system in spite of false lock signals (defective), however the alarm will sound, when opening the door.

1. Door unlocked and opened manually alarm, and LED *flashes*.
2. All doors closed.
3. *Starting Requirement:* Ignition key turned from "0" to "R", while all doors are closed; LED comes on, DWA disarms after approx. 15 minutes.
4. *Interruption:* (during 15 minute time) the operation will be interrupted as soon as a door is opened or the ignition key turned away from "R"; the LED *flashes*.
5. Emergency disarming can be started again as from point 3.

DWA 4

"94 Features"

REMOTE KEYLESS ENTRY (RF) - ALARM SYSTEM (DWA)

As of 9/93 production, all E31s and the E34-540i are equipped with the Factory installed Remote (keyless) Entry (RF) - DWA Alarm Systems. The DWA is similar in operation to the previous DWA systems used on other Models. It incorporates the following features:

- Protection against forcible entry of the vehicle through the Doors or rear glass.
- Protection against forcible entry of the hood, trunk or glove box.
- Driveaway protection - no start (cancelling of the Motronic ignition and injection).
- Tow away protection (monitoring of the rear axle distance contact).

An activated DWA system features an audible horn sounding for 30 seconds, the 4-way hazard warning lights and highbeam headlights flashing for five minutes and the drive away protection activated.

A new feature is the arming/disarming of the system. With the new RF/DWA IV, the DWA can only be armed and disarmed using the RF transmitter.

A LED status indicator is used to show the armed state of the DWA system.

- When armed, the LED comes on steady to indicate a secured state.
- If the LED is flashing, after arming, one of the monitored points is not secure. The system will arm after 10 seconds and the LED continues to flash.
- If the alarm was triggered, the LED flashes to indicate that the vehicle was tampered with. The LED will go out when the system is disarmed.
- When arming and disarming the system, the LED flashes and the alarm horn sounds briefly.

REMOTE ENTRY

The Remote (keyless) Entry is a Radio Frequency (RF) system. It is similar in operation to the Infrared remote system used on previous models. The RF can carry out all of the locking/unlocking features of the master key as well as arming and disarming the DWA. The system consists of the following:

- **Transmitter** - Combined with a master key into one compact unit. It incorporates a battery, three operation buttons and a LED indicator. Up to four transmitters can be coded to one system.
- **Receiver/ Control Module** - Is combined into the auto dimming rearview mirror.
- **Communication Links** - From the RF control module to the GM (for locking/unlocking) and the DWA (for alarm arming/disarming).

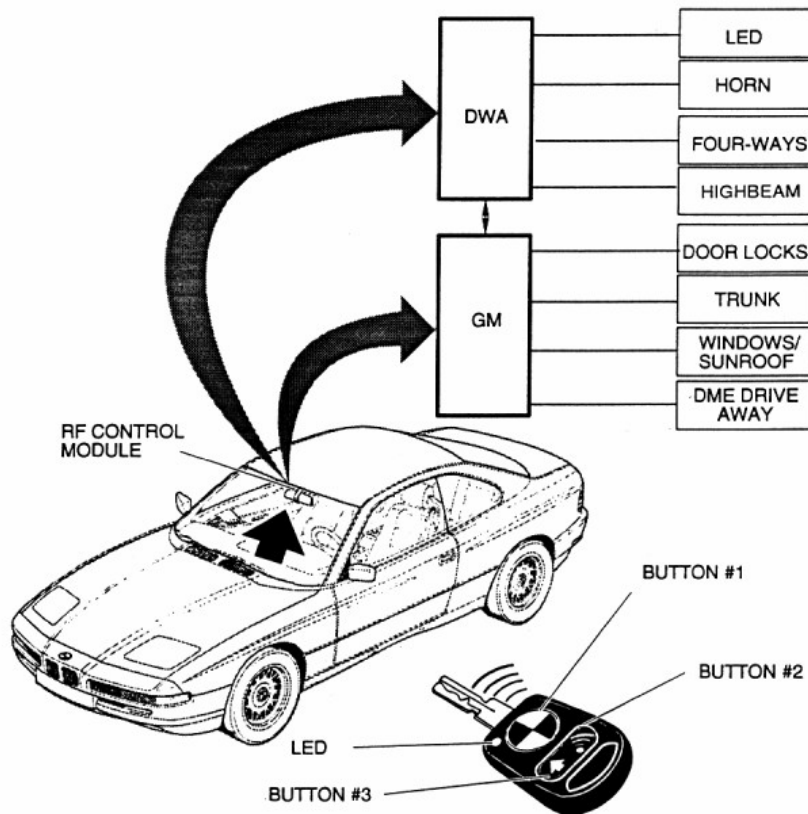
Transmitter/system operation is as follows:

KEY BLADE - master key, all normal key functions.

BUTTON #1. - pressed once = lock request (LED flashes).
- pressed twice = double lock/DWA arming request (LED flashes).

BUTTON #2. - panic mode, pressed and held = alarm activation, horn for 30 seconds and flashers for 5 minutes.

BUTTON #3. - pressed once = unlock request (LED flashes).
- pressed/held briefly = unlock double lock/dis-arm DWA request (LED flashes).
- pressed and held = windows/sunroof opened E31 (LED flashes).



TRANSMITTER INITIALIZATION

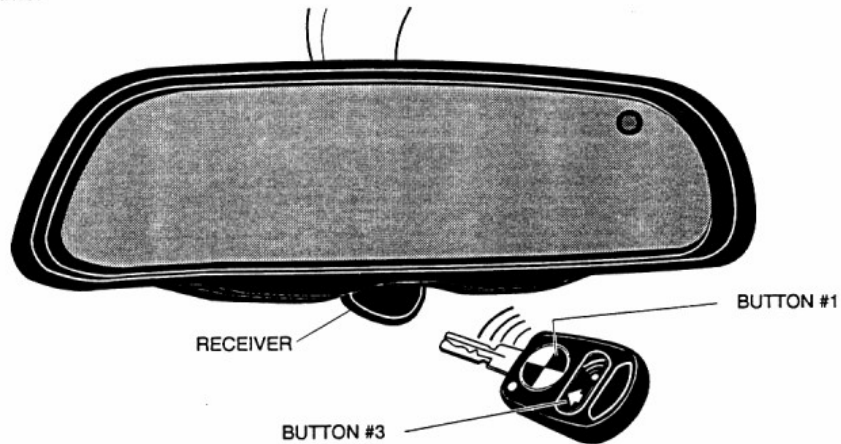
The transmitter will need to be initialized for the following conditions:

1. Transmitter battery replacement (when battery is removed longer than 1 minute).
2. Whenever a transmitter is replaced (for a defective unit).
3. Whenever new transmitters are added to the system.

The initialization procedure is as follows:

- Door closed.
- Switch ignition on (Kl R) approx. 5 seconds, then switch off.
- Hold transmitter next to the receiver, press button #3 and hold.
- Press button #1. three times within 10 seconds.
- Release button #3.
- Transmitter LED begins to flash, central locking - locks/unlocks.
- Initialization complete.

NOTE: Any other transmitters used with the system must also be initialized at the same time.



Diagnosis and Troubleshooting:

Diagnosis and Troubleshooting are carried out using the Diagnostic Tester, pertinent software and ETMs. Replacement DWA IV control modules require coding, to the specific vehicle, using the MoDiC.

SPECIAL FUNCTIONS

SERIES	ES1
PITCH SENSOR	YES
INFRARED REMOTE CONTROL	YES
TRUNK LID AS OPERATING LOCATION?	NO
ALARM TONE	INTERVAL
OPTICAL ALARM	YES
STATUS LED	FLASHES
#	+ + ↑ ↓
R	

SPECIAL FUNCTIONS

OWN OPERATION ONLY WITH REMOTE CONTROL	
EMERGENCY TRIGGERING POSSIBLE?	YES
INTERIOR SENSOR	NO
VISUAL ACKNOWLEDGEMENT DURING ACTIVATION?	YES
VISUAL ACKNOWLEDGEMENT DURING DE- ACTIVATION?	YES
ACOUSTIC ACKNOWLEDGEMENT WHEN ACTIVATING?	YES
#	+ + ↑ ↓
R	

SPECIAL FUNCTIONS

ACOUSTIC ACKNOWLEDGEMENT WHEN DEACTIVATING?	YES
DURATION OF ACOUSTIC ACK- NOWLEDGMENT	100 MS
WINDOW MONITORING, SIDE WINDOWS	YES
WINDOW MONITORING, REAR WINDOW	YES
WINDOW MONITORING, QUARTER LIGHTS (TOURING)	NO
#	+ + ↑ ↓
R	

Service-Information



Group 66 Electronic Transmitting/ Receiving Systems	Bulletin Number 66 01 93 (3921) Page 1 of 3	Woodcliff Lake, NJ December 1993 Product Engineering
---	---	--

SUBJECT: Remote Control Anti-Theft System (DWA IV)

MODELS: 540i; 8 Series (E31) - Vehicles Produced 9/93 and Later

General

Information: The above-mentioned vehicles are equipped with a remote control for locking/double-locking and arming/disarming DWA. In these vehicles, DWA can only be armed/disarmed by means of the remote control transmitter (arming/disarming by means of the master key in the door lock is not possible).

NOTE:

If the mirror is electrically disconnected from the vehicle (even if DWA is not armed), the "Panic Mode" of DWA is tripped. The vehicle battery (or batteries) must be disconnected prior to removal of the inside rear view mirror for any reason.

If DWA is tripped due to mirror removal, reconnect the mirror and switch off DWA by means of the remote control transmitter.

Initialization of the transmitter(s) to the receiver in the mirror is performed as follows:

Initialization Procedure

1. Enter the vehicle and shut all doors.
2. Turn ignition switch to the accessory position (KL R), and then turn it off again within 5 seconds.
3. Holding the transmitter near the mirror, depress and **hold down** the unlock button (button with up arrow marking).
4. While holding down the unlock button, depress and release the lock button (button with BMW logo) **three times** (within 10 seconds of depressing the unlock button).

Please initial and route to the following for information before filing									
<input checked="" type="checkbox"/>	Service Manager	<input checked="" type="checkbox"/>	Warranty Mgr.	<input checked="" type="checkbox"/> Service Technicians - Initial Below					
<input checked="" type="checkbox"/>	Service Advisor		Parts Mgr.						
<input checked="" type="checkbox"/>	Service Advisor		Body Shop Mgr.						
<input checked="" type="checkbox"/>	Shop Foreman		PDI Dept.						

★ ★ SATISFIED CUSTOMERS -THE MEASURE OF OUR SUCCESS ★ ★

5. Release the unlock button and continue to hold the transmitter near the mirror until the LED on the transmitter quits flashing.
6. **Without turning the ignition on again**, repeat steps 3 through 5 for additional transmitters (up to four transmitters can be initialized to one receiver).

Confirmation of initialization is recognized by the door lock buttons being activated (to lock position, then immediately back to the unlock position) when the lock button is released during the initialization procedure (see step 5 of the procedure).

If this lock activation does not take place as described, initialization has not occurred. This may be due to improper initialization procedures, or due to an "initialization block" being present in the receiver.

Initialization can be "blocked," as a security measure, under two circumstances:

- If the transceiver loses its initialization (failed transmitter) while DWA is armed, or
- If the mirror is removed while DWA is armed.

The initialization block is also active whenever the vehicle is locked to prevent any other transmitter from being initialized to the receiver.

If a vehicle is encountered with an initialization block, this block can be erased by means of a special Service Tester diskette. This diskette will be sent to you shortly under the Automatic Tool Shipment Program.

If this problem is encountered prior to receipt of the diskette, contact Bob Lyons at BMW of North America, Inc., Montvale, NJ. A diskette will be sent to you.

Removing Initialization Block

1. Load special diskette ("Radio Controlled System Service Test-Limited Version") into BMW Service Tester. Connect to vehicle. Switch ignition to "Accessory" position (KL R).
2. Select "12 IR System" from menu.
3. The control module identification page will appear. Page down to the menu.
4. Select "2 Erase Initialization Block" and press acknowledge button.

NOTE: This must be done from inside the vehicle – **The driver's door must not be opened** – use the remote for the Service Tester.

5. Acknowledgment will appear on the Service Tester screen that the initialization block has been removed, and a note will appear stating that the transmitters can be initialized "after terminal R has been switched off."
6. Switch off ignition and initialize transmitter(s). **Do not switch ignition back on until all transmitters are initialized!** Refer to steps 3 through 6 of the "Initialization Procedure" previously described.

Ignition may be switched on again, or doors opened again, only after all transmitters are initialized.

Service-Information



Group 65 Radio and Special Equipment	Bulletin Number 65 01 94 (3949) Page 1 of 2	Woodcliff Lake, NJ March 1994 Product Engineering
--	---	---

SUBJECT: Anti-Theft Systems - DWA and Alpine

MODELS: All (so equipped)

Situation: Since March 1993 production, vehicles equipped with the Anti-Theft System (DWA) have had the interior protection circuit and tilt alarm sensor incorporated into the DWA system. Vehicles not equipped with the DWA system are pre-wired for the Alpine Anti-Theft System (either port-installed as standard equipment, or dealer-installed as optional equipment). The Alpine Anti-Theft System monitors the interior of the vehicle via a glass-breakage detection circuit (microphone).

Because of the interior monitoring now in place, certain monitoring functions will be deleted as follows:

Area/Component Monitored	Series From Which Deleted	Date of Deletion
Rear Seat Bench	E32, E34	March 1994
Battery Ground Point	E32, E34	March 1994
Radio*	E36, E32, E34, E31	Phase-Out Beginning Sept. 1993
Glove Compartment*	E36, E32, E34, E31	Phase-Out Beginning Sept. 1993

*Note: The radio will still be monitored by the Anti-Theft System in all vehicles equipped with On-Board Computer, and in the E36 convertible. The glove box will also continue to be monitored in the E36 convertible.

Warranty

Status: Information only.

Please initial and route to the following for information before filing									
<input checked="" type="checkbox"/>	Service Manager	<input checked="" type="checkbox"/>	Warranty Mgr.	<input checked="" type="checkbox"/> Service Technicians - Initial Below					
<input checked="" type="checkbox"/>	Service Advisor		Parts Mgr.						
<input checked="" type="checkbox"/>	Service Advisor		Body Shop Mgr.						
<input checked="" type="checkbox"/>	Shop Foreman		PDI Dept.						

★ ★ SATISFIED CUSTOMERS - THE MEASURE OF OUR SUCCESS ★ ★

Service-Information



Group 61 Electrical	Bulletin Number 61 01 94 (3955) Page 1 of 1	Woodcliff Lake, NJ March 1994 Product Engineering
------------------------	---	---

SUBJECT: Immobilizing Circuit for Anti-Theft Protection

MODELS: All

Situation: Since September 1993 production, an immobilizing circuit has been incorporated into all vehicles as an additional anti-theft measure.

This circuit sends a high signal to the Engine Control Module to disable ignition and injection functions, if the central locking system is double-locked and the ignition is turned on (KL15 "RUN" position).

The Electrical Troubleshooting Manuals for 1994 models reflect this information. Refer to the section for Engine Control Module (DME) for specifics.

Additional measures will be phased into production during March 1994. This Service Information bulletin will be updated at that time.

Please initial and route to the following for information before filing									
<input checked="" type="checkbox"/>	Service Manager	<input checked="" type="checkbox"/>	Warranty Mgr.	<input checked="" type="checkbox"/> Service Technicians - Initial Below					
<input checked="" type="checkbox"/>	Service Advisor		Parts Mgr.						
<input checked="" type="checkbox"/>	Service Advisor		Body Shop Mgr.						
<input checked="" type="checkbox"/>	Shop Foreman		PDI Dept.						

Service-Information



Group 66 Electronic Transmitting/ Receiving Systems	Bulletin Number 66 01 89 (1810) ✓ Page 1 of 1	Woodcliff Lake, NJ February 1989 Technical Dept.
---	---	--

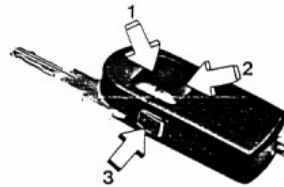
SUBJECT: Infrared Remote Control Transmitter

Situation: Starting in 9/88 several changes were made to the operation of the infrared transmitter.

Please take note of these changes as some of the functions are reversed on the transmitter.

8/88 and earlier production

- 1) Unlocking
- 2) Locking and closing of the windows and sunroof if held down
- 3) Double locking, activation of DWA (only if button is pressed within 15 seconds after pressing button 2)



9/88 and later production

- 1) Locking and closing of the windows and sunroof if held down
- 2) Unlocking
- 3) Double locking and activation of DWA (only if button is pressed within 15 seconds after pressing button 1)

Very truly yours,

Carl E. Hooser
Carl E. Hooser
Vice President
Service Operations

Very truly yours,

Ralph Beier
Ralph Beier
Technical Manager

Please initial and route to the following for information before filing									
<input checked="" type="checkbox"/>	Service Manager	<input checked="" type="checkbox"/>	Warranty Mgr.					X Service Technicians - Initial Below	
<input checked="" type="checkbox"/>	Service Advisor	<input checked="" type="checkbox"/>	Parts Mgr.						
<input checked="" type="checkbox"/>	Service Advisor	<input checked="" type="checkbox"/>	Sales Mgr.						
<input checked="" type="checkbox"/>	Shop Foreman	<input checked="" type="checkbox"/>	PDH Dept						

This document was created with Win2PDF available at <http://www.daneprairie.com>.
The unregistered version of Win2PDF is for evaluation or non-commercial use only.