

## TOWING

Always conform with local and national legislative measures concerning the towing of vehicles as applicable.

Turn the Ignition key to position "1" to unlock the steering wheel and be able to use the turn signals, horn and possibly windshield wipers.

Since the brake booster only works with the engine running, greater force will be required on the brake pedal of cars with a brake booster when the "engine is stopped".

The towing cable should be elastic to protect the towing and towed vehicles. Consequently only use plastic fiber cables or cables with elastic links.

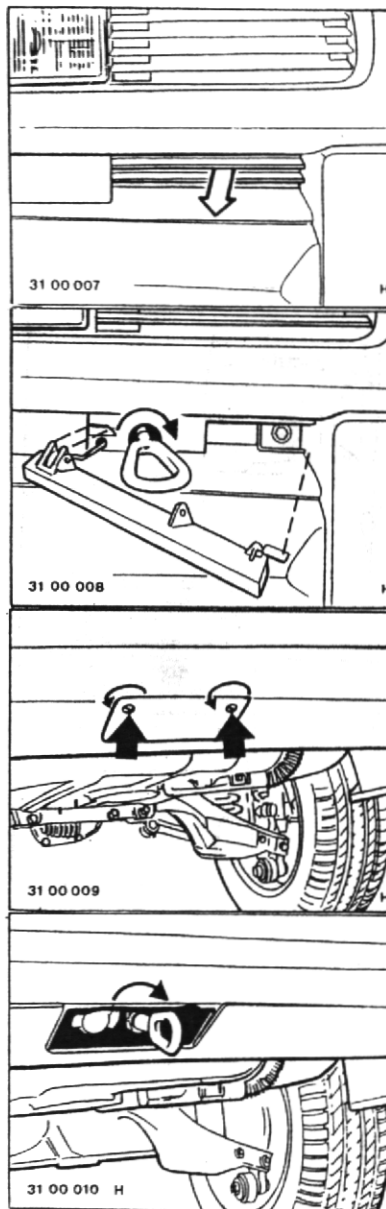
*Cars with Automatic Transmission:*

Selector lever in "N".

Max. towing speed:  
50 km/h (30 mph).

Max. towing distance:  
40 to 50 km (25 to 30 miles).

If the car has to be towed further than 50 km (30 miles) add an extra liter (2 pints) of ATF than the specified oil volume for automatics or remove the propeller shaft.  
After repairing the car it is absolutely essential to correct the ATF volume to the specified amount.



Lift out front right grill.

Screw in front towing cable eye.

Open flap.

Screw in rear towing cable.

00-11

## BMW MAINTENANCE SYSTEM

00 00 230 BMW Inspection II = Inspection I + Additional Jobs

## General Information

Check entire body.

*Important!*

The Service Indicator (SI) must be reset as follows after completion of Inspection II.  
 Switch off all electrical equipment.  
 Turn on Ignition – do not run engine.  
 Plug SI-R\* with adapter in diagnosis socket.  
 Push in and hold recessed, red INSPECTION button – green lamp (function control) comes on.  
 Red lamp also comes on after approx. 3 sec. and goes out after approx. 12 seconds.  
 Release INSPECTION button – green lamp goes out.

A clock symbol lights up together with the INSPECTION sign to announce a time-dependent inspection interval and has no influence on the green diode lights. If load and time dependent inspections occur together, resetting must be repeated after 10 seconds to cancel the clock symbol and INSPECTION sign.

## Checking Service Indicator (SI):

All five green diode lights must be on.  
 Yellow and possibly red diodes as well as INSPECTION sign should go out.

\* SI-R = Service Indicator Resetter, Order No. 62 1 100.  
 Adapter, Order No. 62 1 140.

New SI-R, Order No. 62 1 110.

Repair  
ManualTechnical  
DataNominal  
ValuesOperating  
FluidsOwner's  
Manual

Important Information!

See Service Information  
of Group 00.

00-27

**BMW MAINTENANCE SYSTEM - USA**

00 00 210 1200 Mile Inspection

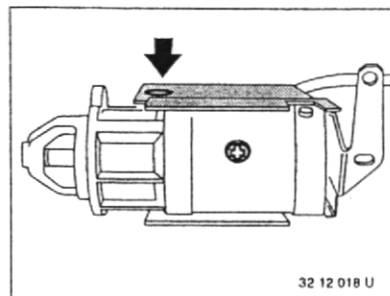
**General Information**

|   | General Information |                |                |  |                | Important Information!                                    |
|---|---------------------|----------------|----------------|--|----------------|---|
|   | Repair Manual       | Technical Data | Nominal Values | Service Information                                    | Owner's Manual |   |
| <p>Replace final drive oil at operating temperature.</p> <p>Check fluid level in tank for brake and clutch hydraulic systems.</p> <p>Replace filter element in feed and clean fine mesh filter in supply tank of cars with automatic stability and traction control (ASC + T).</p> <p>Check tire inflation pressure, correcting if necessary (including spare wheel).</p> <p>Fill supply tank for windshield washing system / check antifreeze protection.</p> <p>Fill supply tank for intensive cleaning fluid if necessary.</p> | Gr. 34              | Gr. 33         |                | Gr. 00, 33*<br>Gr. 00, 34*<br><br>Gr. 36<br><br>Gr. 00 |                | <p>Use approved oil.</p> <p>Use approved brake fluid.</p> |

\* See Operating Fluid Specifications

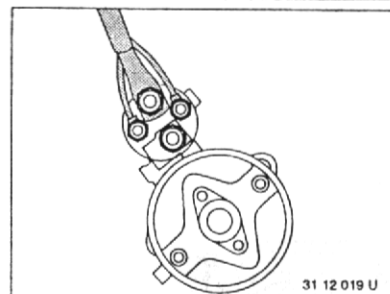
12-41/2

**Automatic Transmission:**  
Unscrew upper starter mounting bolt.  
Apply tool between firewall and wire harness of electronic box from above.

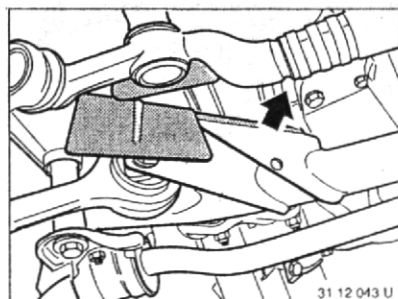


Remove starter downward.  
Unscrew heat shield.  
Unscrew bracket.

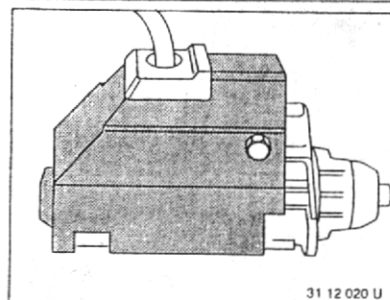
Unscrew upper starter bolt.  
Unscrew bolts from above (direction of manifold).



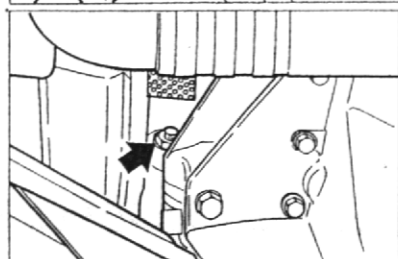
*Installation:*  
Check for correct location when installing the starter lead, as otherwise the heat shield cannot be mounted.



**Manual Transmission:**  
Unscrew upper starter bolt from underside of car.

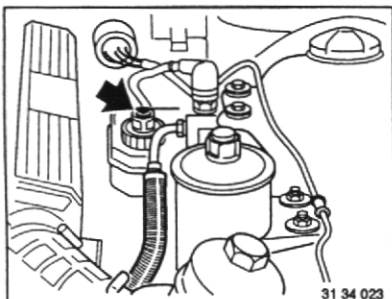


Unscrew bracket on engine block.  
Unscrew lower starter bolt.



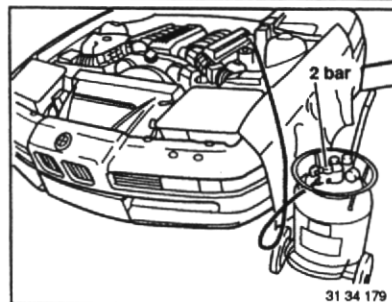
Guide in front split pipe from underneath first.  
Check installed location of bolts and springs.  
Refer to Group 18 for additional instructions.

21-00/1



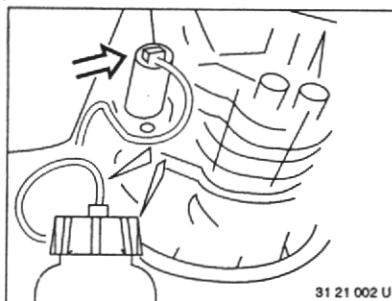
21 00 006 BLEEDING CLUTCH

Connect bleeder on brake fluid tank.



*Caution!*

Keep brake fluid off of painted parts of the car, as brake fluid would damage the paint finish.  
Proceed according to operating instructions supplied with the bleeder.  
Charging pressure must not exceed 2 bar (28 psi).



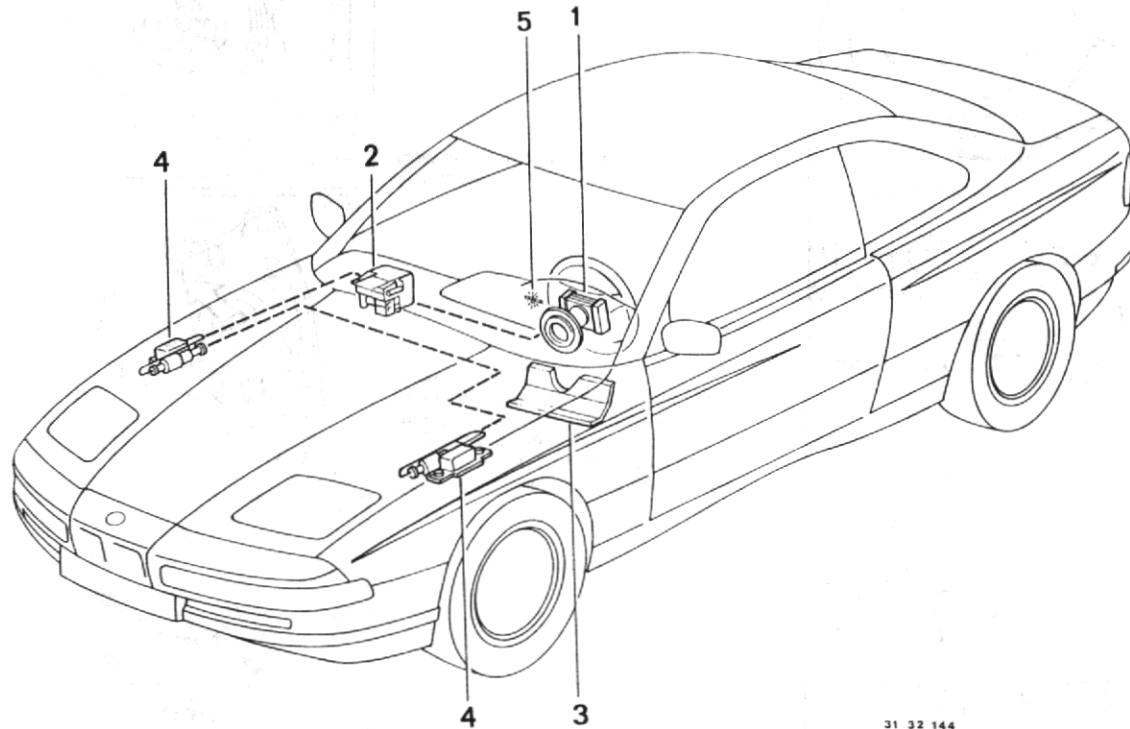
Loosen bleeder screw on the clutch slave cylinder and tighten again only when the escaping fluid is without air bubbles.  
Operate the clutch pedal several times during this step.  
Correct the level of brake fluid in the tank after bleeding.

## 32-34/1

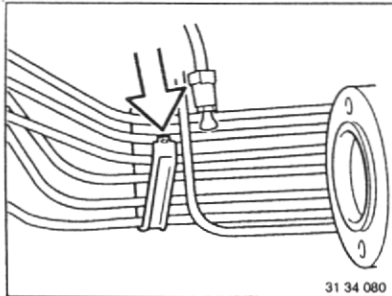
### AIRBAG SYSTEM (SRS)

#### Components:

- 1 Steering wheel with airbag unit (airbag, gas generator, ignition pill and contact ring)
- 2 Diagnosis unit
- 3 Knee guard (US model)
- 4 Two crash sensors (left and right on wheel house)
- 5 Airbag control lamp (in Instrument cluster)



## 34 - 32/1

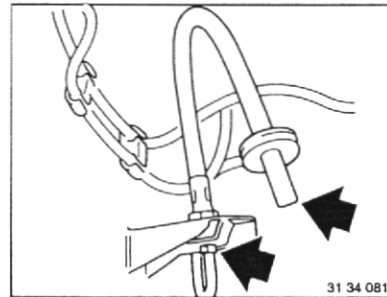


### 34 32 362 REPLACING ALL BRAKE PIPES

Brake pipes are now only supplied in straight version and correct length with connecting nipples.

Use the removed pipe as a template for bending.  
Use bending tool\*\*.  
Don't damage surface of pipe.  
Don't bend pipes sharply or attempt to bend back an incorrectly bent pipe.  
Also refer to Service Information of Group 34.

\*\* Source of Supply: HWB

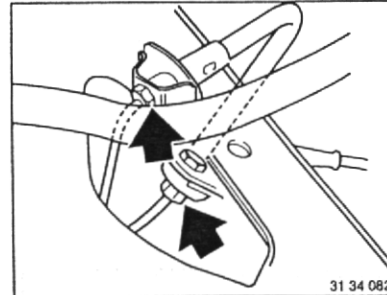


### 34 32 941 REPLACING ALL FRONT BRAKE HOSES

Draw brake fluid out of tank with a syringe reserved exclusively for use with brake fluid.  
Disconnect brake hose.

*Installation:*  
Never twist brake hose while installing.  
Bleed brakes – see 34 00 047.  
Tightening torque\*.

*Important!*  
Also refer to filling and bleeding brakes in cars with ABS/ASC+T.



### 34 32 991 REPLACING ALL REAR BRAKE HOSES

Draw brake fluid out of tank with a syringe reserved exclusively for use with brake fluid.  
Disconnect brake hose.

*Installation:*  
Never twist brake hose while installing.  
Bleed brakes – see 34 00 047.  
Tightening torque\*.

*Important!*  
Also refer to filling and bleeding brakes in cars with ABS/ASC+T.

\* See Specifications

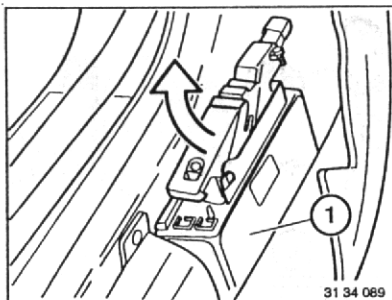
## 34 - 52/2

### 34 52 510 REPLACING CONTROL UNIT FOR ABS / ASC

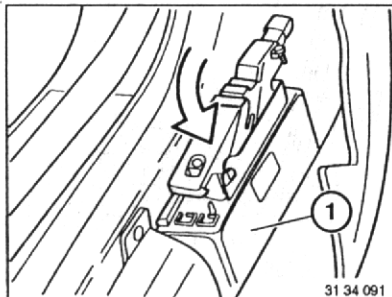
Electric wires for ABS / ASC are fully  
integrated in the main wire harness.

Detach cover in left front driver's foot-  
well partially – see Group 51.

*Caution!*  
Remove (and install) control unit only  
after switching off the ignition.



Control unit (1):  
Push back retainer and pull off multi-  
pin plug on the right side and dis-  
engage on the left side.  
Unscrew control unit on body.



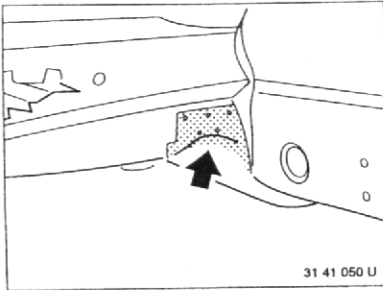
Control unit (1):  
Check for correct connection when re-  
placing a control unit.  
The multiple-pin plug has a tab on the  
left side, for which the control unit  
must have an opening.

*Installation:*  
Engage left side of plug first and then  
press the right side into the retainer.  
Check ABS/ASC – see reading fault  
memory in Car Electric/Electronic Test  
Plan.  
Check control unit number\*.  
Also refer to Service Information of  
Group 34.

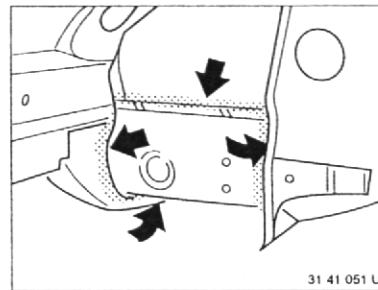
\* See Specifications



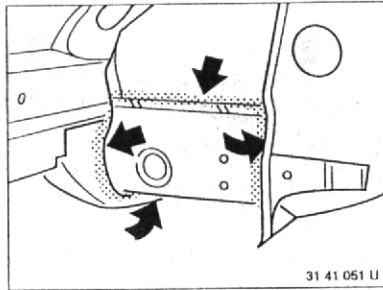
# 41-11/8



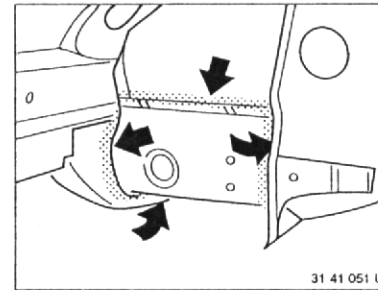
Weld front engine carrier section on rear engine carrier section in the wheel house.



Fit in reinforcement between A-pillar and engine carrier.



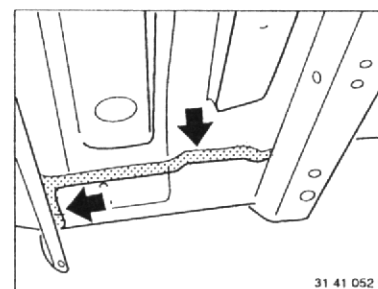
Fit in reinforcement between A-pillar and engine carrier. Mark and clean welding surface.



Weld reinforcement between A-pillar and engine carrier.



Clean mating surfaces on reinforcement.



Weld reinforcement between A-pillar and engine carrier on the underside.

Drill holes in reinforcement for plug welding A-pill connection and floor plate assembly.

Grind welded surfaces smooth.

## 51-00/1

### 51 00 . . . INFORMATION FOR REPAIRING PLASTIC PARTS

The hardtop repairing conditions mentioned below conform with legislation in the Federal Republic of Germany. Always conform with pertinent legislation in a different country.

These repairing instructions are provided for qualified workers and assumes their skill, conscientiousness and sense of responsibility. The instructions are limited to factory approved repairing materials and methods as well as associated tips to make the work easier. Only general working procedures are described in these instructions. The scope of work and order of procedures will always have to be adapted to the pertinent damage condition. Repairs are an economical solution, so that optical deficiency cannot be excluded on a longterm basis due to the different physical properties of the concerned materials.

The following E 31 parts are made of plastic and can be repaired with Alro/CARPOX 383 or 3M 5900 plastic repairing material.

- Front spoller
- Bumpers
- Side guards

Alro/CARPOX 383 repairing material must be used for repairs in visible zones (reflecting surfaces).

#### *Important!*

Only such damage, which does not have influence on the strength and rigidity of the bumper, may be repaired. The following types of damage may not be repaired in the interest of safety.

- Damage on body mounting points.
- Damage in immediate vicinity of body mounting points.
- Peel-offs.
- Ruptures.
- Cracks, extending from corners and edges.
- Continuous cracks with a length of more than 100 mm (4").
- Holes from a size of 100 mm<sup>2</sup> (1.5 in.<sup>2</sup>) on.

Parts with these types of damage must be replaced!

Refer to the BMW Painting Manual for information on painting plastic parts.

#### Required Materials:

- Sanding discs, grain size P 120 and P 220
- Sandpaper, grain size P 400
- Wet sandpaper, grain size P 800
- 3M Cement Remover 8984
- 3M Aluminum Adhesive Tape Scotch 424
- 3M Glass Grid Fabric 9030
- Alro/CARPOX 383 or 3M 5900 plastic repairing material
- Mask
- Gloves
- Infrared lamp

Source of Supply: HWB

#### Safety Precautions:

- Extracting of grinding abrasion.
- Wearing mask and gloves while grinding.
- Working only in well ventilated rooms.
- Washing hands frequently.
- Storing food separately.
- Not eating, drinking or smoking while working.
- Not inhaling vapors.

#### First Aid:

Take off dirty clothes immediately. If dust has gotten in eyes, rinse out with water thoroughly and go to a physician. If great amount of vapors are inhaled, go outdoors in fresh air and, if necessary, visit a physician.

#### Information on Toxicology:

Irritates eyes, skin and the respiratory track. No damaging effects are known as long as handling is correct.

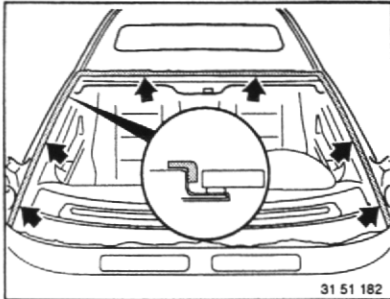
#### Measures in Case of Fire:

Fire extinguishing agents: powders, foam, CO<sub>2</sub>, halon, water mist.

#### Scrapping:

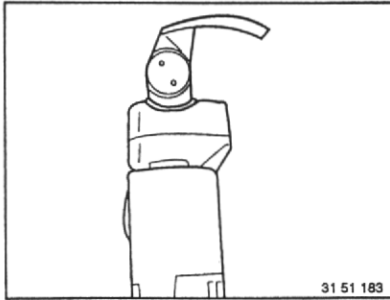
Never let it get into drink water systems. Single components of the repair material must be scrapped as special refuse. After mixing the single components and hardening, it can be brought to the normal refuse station.

# 51-31/4



Paste two layers of cloth adhesive tape (e.g. Tesa) on the body all around.

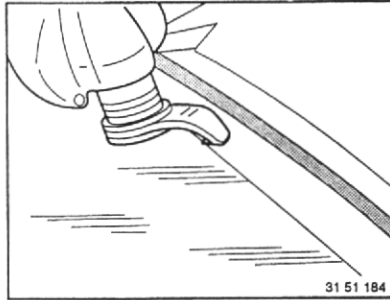
31 51 182



Mount long knife\* (40 mm/1.575" long knife blade) on tool.

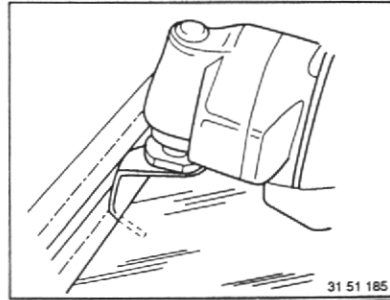
*Note:*  
If necessary, sharpen knife with the machine running.

31 51 183



Insert knife\* carefully between the body and window glass.

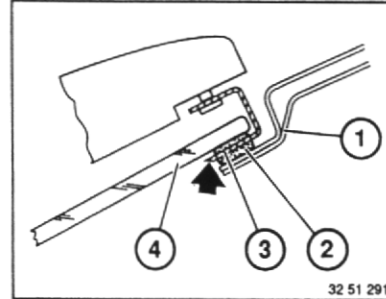
31 51 184



Guide web of knife\* parallel to the window glass.

31 51 185

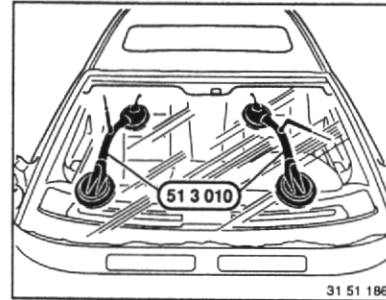
\* Source of Supply: HWB



Cut through cement bead all around as close as possible to the window glass.

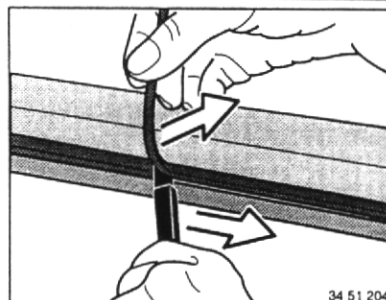
- 1 = Body opening
- 2 = Cement bead
- 3 = Knife
- 4 = Window glass

32 51 291



Lift out windshield with Special Tool 51 3 010.

31 51 186



Reduce remaining cement in body opening to a thickness of about 0.5 mm (0.020").  
Cut off cement remainders with an universal knife (sharp as a razor blade) carefully to avoid damaging the paint finish in the body opening.

34 51 204

\* Source of Supply: HWB

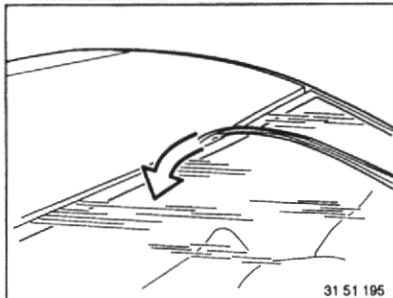
# 51-31/8



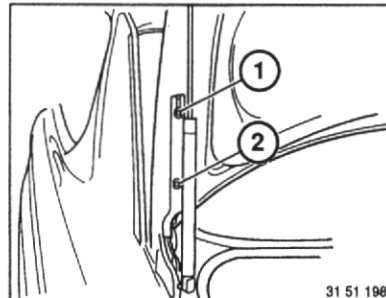
## 51 31 200 REMOVING AND INSTALLING REAR WINDOW

Unclip plate for C-pillar.  
Disconnect plugs on rear window de-fogger and window antenna.

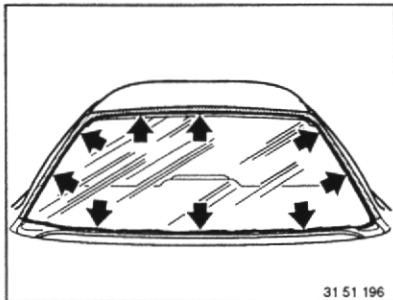
Cover top of side panels with fender guards, blanket or something similar.



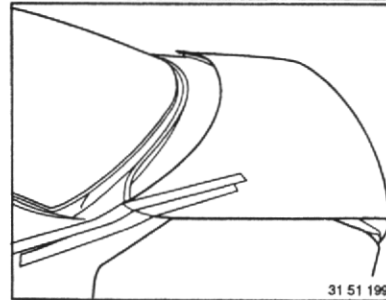
Pull out seal.



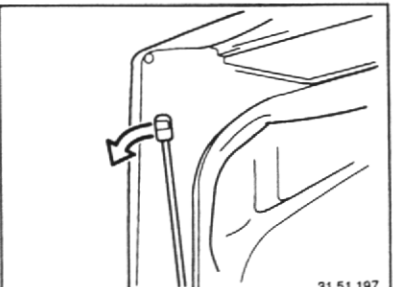
Unscrew bolt (1).  
Unscrew bolt (2).



Paste double layer of cloth adhesive tape (e.g. Tesa) on body all around.



Pull back trunk lid, place on fender guards and hold with cloth adhesive tape.



Loosen retainers and disconnect left and right gas pressure props.



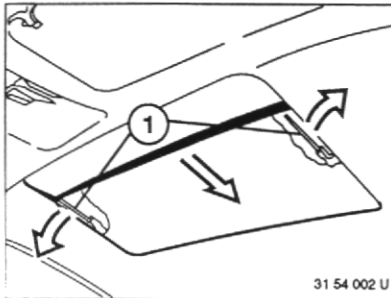
Mount a long knife\* (40 mm / 1.575" long blade) on tool.

*Note:*  
If necessary, sharpen knife with the machine running.

Source of Supply: HWB

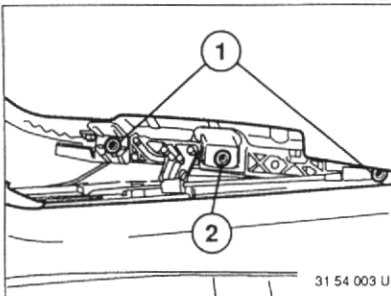
# 54-12/3

## 54 12 100 REMOVING AND INSTALLING SUN ROOF LID



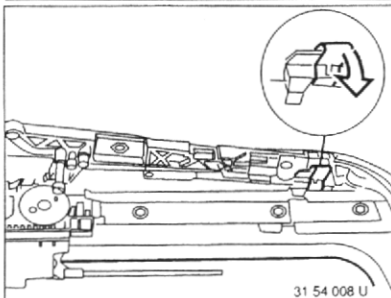
31 54 002 U

**Removing:**  
Open sun roof to lifted position.  
Press locking lever out and push back the floating roof liner.



31 54 003 U

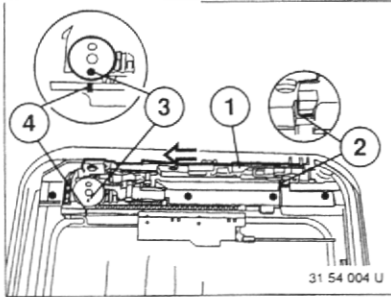
Loosen screws (1) on left and right sides.  
Unscrew screws (2) on left and right sides.



31 54 008 U

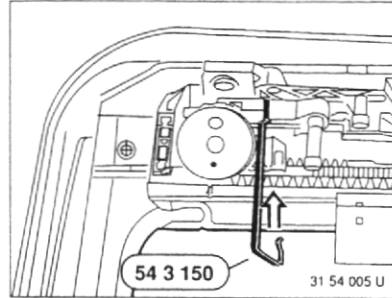
Press in retainers on left and right sides with a screwdriver and take off sun roof lid from above.

*Note:*  
Sun roof lid was removed in picture for better understanding.



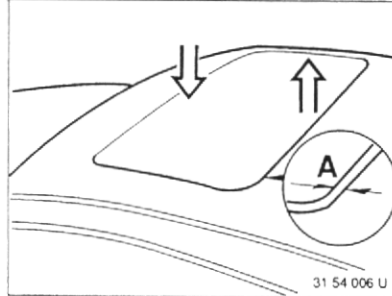
31 54 004 U

**Installing:**  
Move sun roof lid or gates to "closed" position.  
Press back gate (1) against stop (2).  
Bore (3) and notch (4) must be opposite each other.



31 54 005 U

Insert Special Tool 54 3 150 on left and right sides to lock the gate.



31 54 006 U

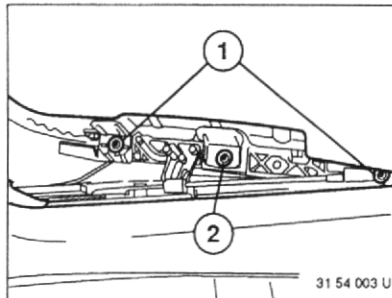
Mount and adjust lid.

**Ideal Adjustment:**

Uniform distance (A) of lid to roof at front and rear.

**Height:**

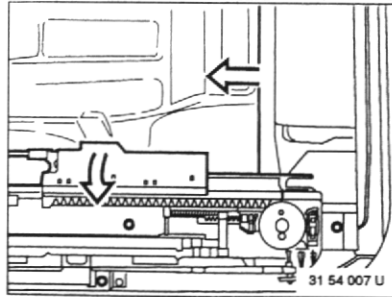
Front: flush to 1 mm (0.039") deeper  
Rear: flush to 1 mm (0.039") higher



31 54 003 U

Tighten screws (1).  
Tightening torque\*.

Remove Special Tool 54 3 150.



31 54 007 U

**Important!**

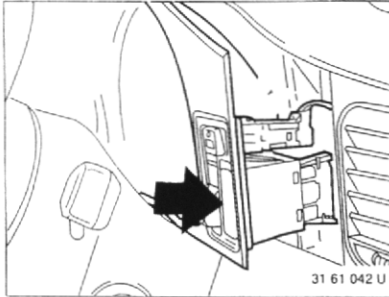
Lift left and right racks and pull floating roof liner forward half the distance (if not retainers on racks would break off when operating the sun roof).

*Note:*

Sun roof lid was removed in picture for better understanding.

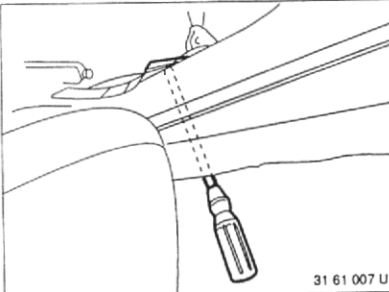
\* See Specifications

## 61-31/4



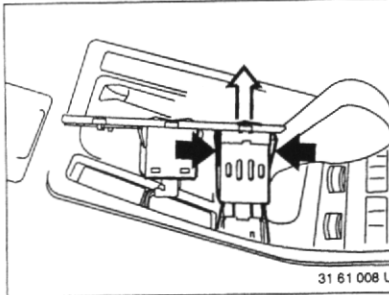
### 61 31 072 REPLACING VERTICAL HEADLIGHT AIM CONTROL SWITCH

See "Replacing Light Switch" in 61 31 028.

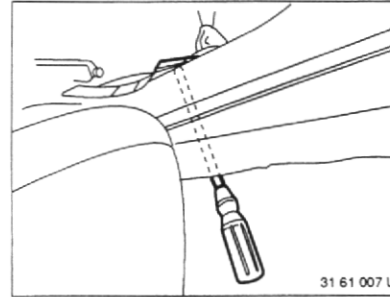


### 61 31 ... REPLACING SWITCH IN CENTER CONSOLE

Press out switch frame in center console carefully from underneath with a screwdriver.

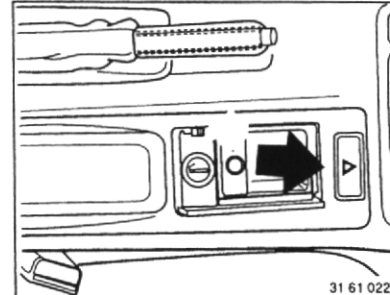


Pull off plug.  
Press in retaining hook and press switch forward out of the trim panel.



### 61 31 080 REPLACING HAZARD WARNING LIGHT SWITCH

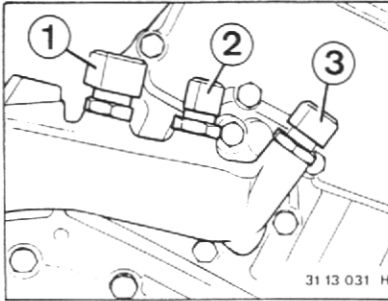
Press out switch frame in center console carefully from underneath with a screwdriver.



Press out hazard warning light switch from underneath.

Disconnect plug.

## 62 - 16/1

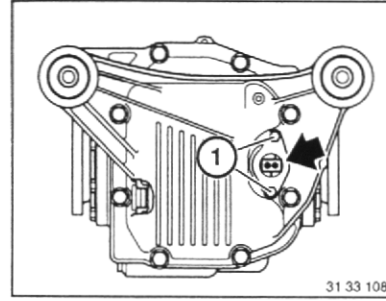


### 62 16 050 REMOVING AND INSTALLING OR REPLACING SENDER FOR TEMPERATURE GAGE

The temperature gage sender is located with two other temperature sensors behind the engine between the firewall and engine in a water pipe.

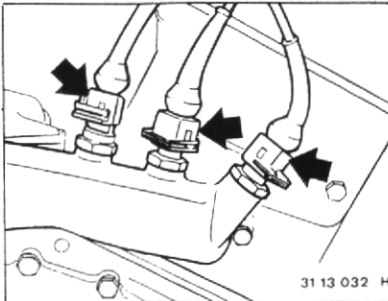
*Note:*  
Temperature sensors are shown on a removed engine in the picture for better illustration.

**Arrangement:**  
1 Temperature sensor - DME  
2 Temperature sensor - EML  
3 Temperature sensor - temp. gage



### 62 16 071 REMOVING AND INSTALLING OR REPLACING SENDER FOR SPEEDOMETER

Pull off plug.  
Unscrew screws (1).  
Pull out sender.



Pull off plug on temperature gage and unscrew sender.