

## 2000-06 MANUAL &amp; AUTOMATIC TRANSMISSIONS

## Gear Shift Mechanisms - Repair Instructions - X5 (E53)

## ADJUSTMENTS

## INTERLOCK CABLE

**NOTE:** Numbers in text refer to numbers in figures.

Move selector lever to park position "P". Pull off shift knob/handle. See SHIFT LEVER KNOB/HANDLE.

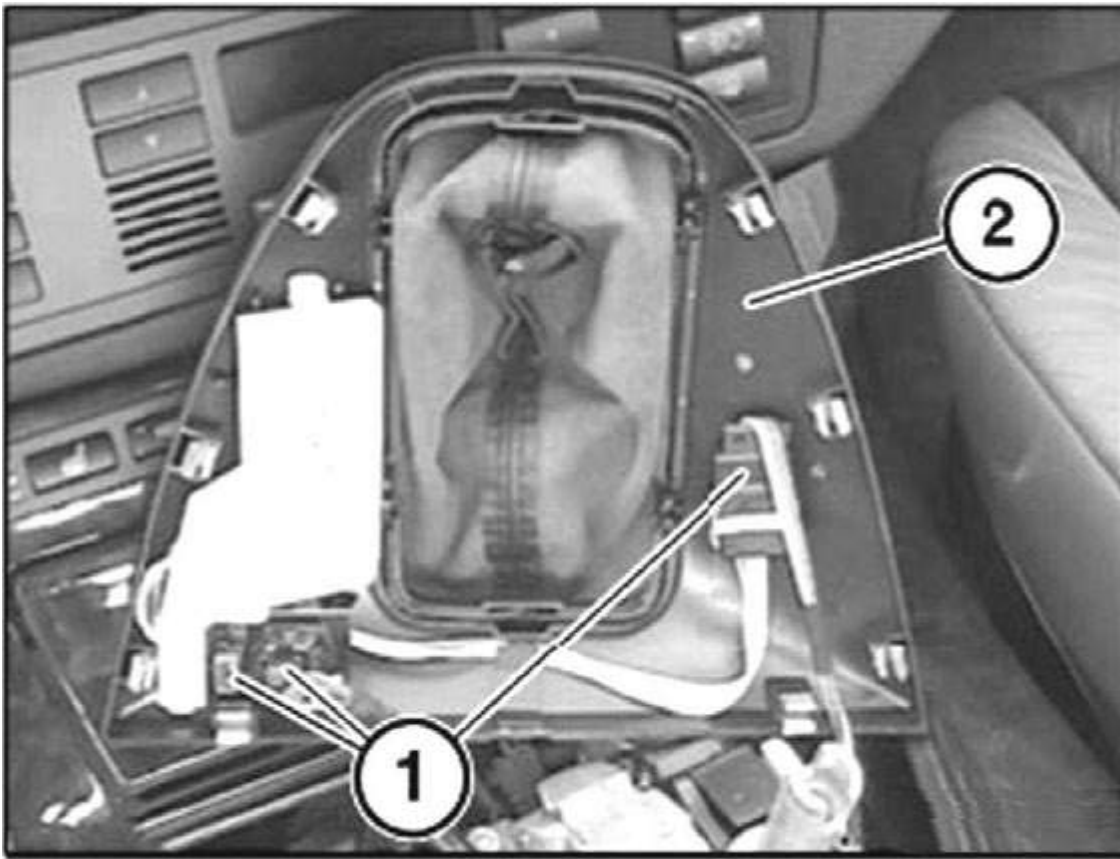
Remove trim (1) with rubber gaiter (2) from center console. See Fig. 1.



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**Fig. 1: Removing Trim With Rubber Gaiter**  
Courtesy of BMW OF NORTH AMERICA, INC.

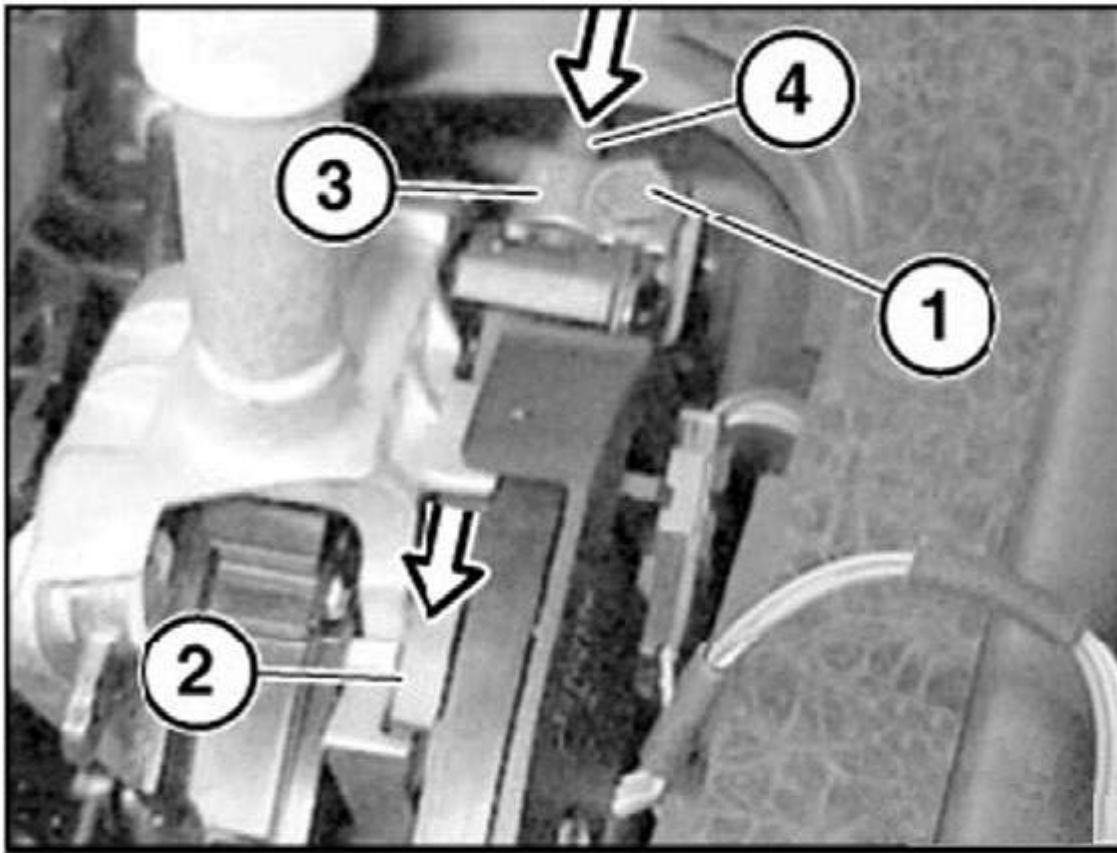
Disconnect plug connections (1) and remove trim (2). See Fig. 2. During installation, lines must be correctly clipped into the retaining clips so as to eliminate the risk of damage (jamming of line).



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**Fig. 2: Disconnecting Plug Connections & Removing Trim**  
Courtesy of BMW OF NORTH AMERICA, INC.

Move selector lever to park position "P". Turn ignition key to "0" position and remove. Slacken screw (1). It must be possible to move cable (4) slightly in bracket (3). Press interlock lever (2) down into limit position. Tighten down screw (1). Check interlock function. See **CHECKING INTERLOCK FUNCTION**. See **Fig. 3**.



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**Fig. 3: Installing Cable**

Courtesy of BMW OF NORTH AMERICA, INC.

**Checking Interlock Function**

Remove ignition key or put in "0" position. Selector lever must not move from "P" position.

Turn ignition key to "ignition" position, press foot brake. (It must be possible to select all selector lever positions.)

Select all selector lever positions except "P". In none of these positions should it be possible to turn the ignition key back to the "0" position and remove it.

Move selector lever to "P" position. It must be possible to turn the ignition key back to "0" position and remove it.

**Checking Shiftlock Function**

Ignition on, selector lever in "P" or "N" position, press brake pedal: selector lever must unlock.

Start engine, press brake pedal, engine speed greater than 2500 RPM: selector lever must be locked in "P" or "N" position.

Ignition on, move selector lever to "R" position, foot brake released: In event of brisk shifting from position "R" to "D", and from "D" to "R", the selector lever must not be locked when position "N" is exceeded. If it remains for more than approximately 0.5 seconds in position "N", the selector lever must be locked.

Selector lever may only be locked in position "P" or "N".

Driving speed greater than 5 km/h. The selector lever must not be locked off.

## **REMOVAL & INSTALLATION**

### **SHIFT LEVER**

**NOTE:**        **Numbers in text refer to numbers in figures.**

#### **Removal & Installation (6-Cylinder)**

Detach knob with a firm tug. See **Fig. 4**. Do not turn knob when detaching as this will shear off the turning lock in the knob. During Installation: Fit knob on selector lever, align and press on until it snaps noticeably into place.

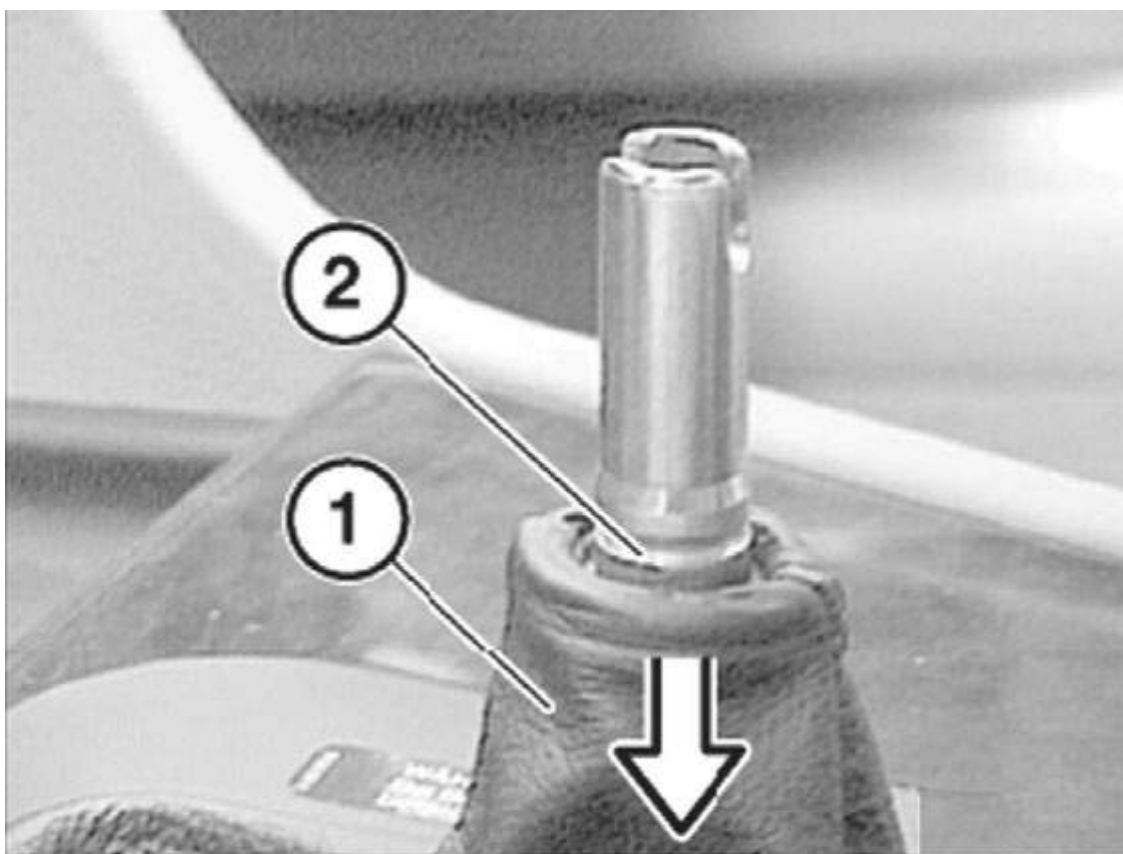


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**Fig. 4: Detaching Knob**

Courtesy of BMW OF NORTH AMERICA, INC.

During Installation: Push rubber gaiter (1) down until groove (2) is fully exposed. See **Fig. 5**.



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**Fig. 5: Identifying Groove**

Courtesy of BMW OF NORTH AMERICA, INC.

Press installation frame of rubber gaiter together slightly. Remove rubber gaiter from center console. See **Fig. 6**.

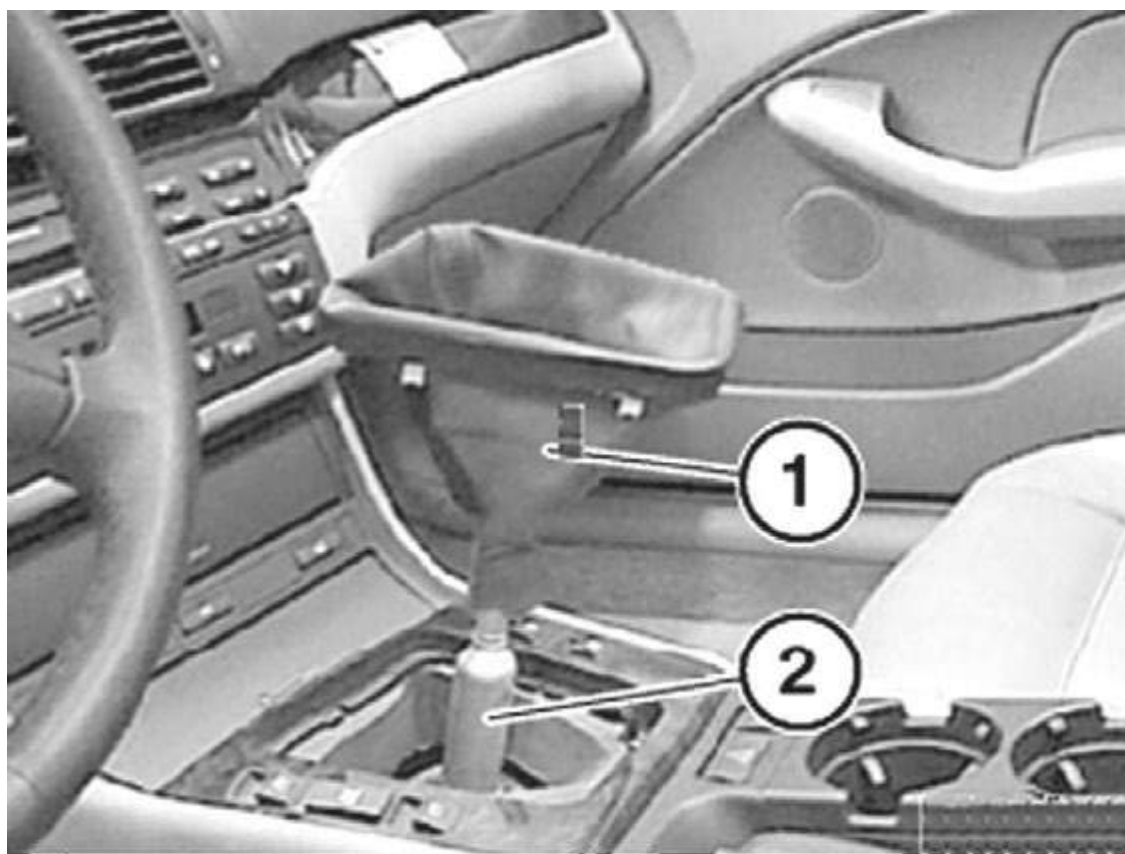


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**Fig. 6: Removing Rubber Gaiter**

**Courtesy of BMW OF NORTH AMERICA, INC.**

During Installation: Push rubber gaiter (1) down and attach to selector lever (2). Pull rubber gaiter (1) over selector lever and insert in center console. See **Fig. 7**.

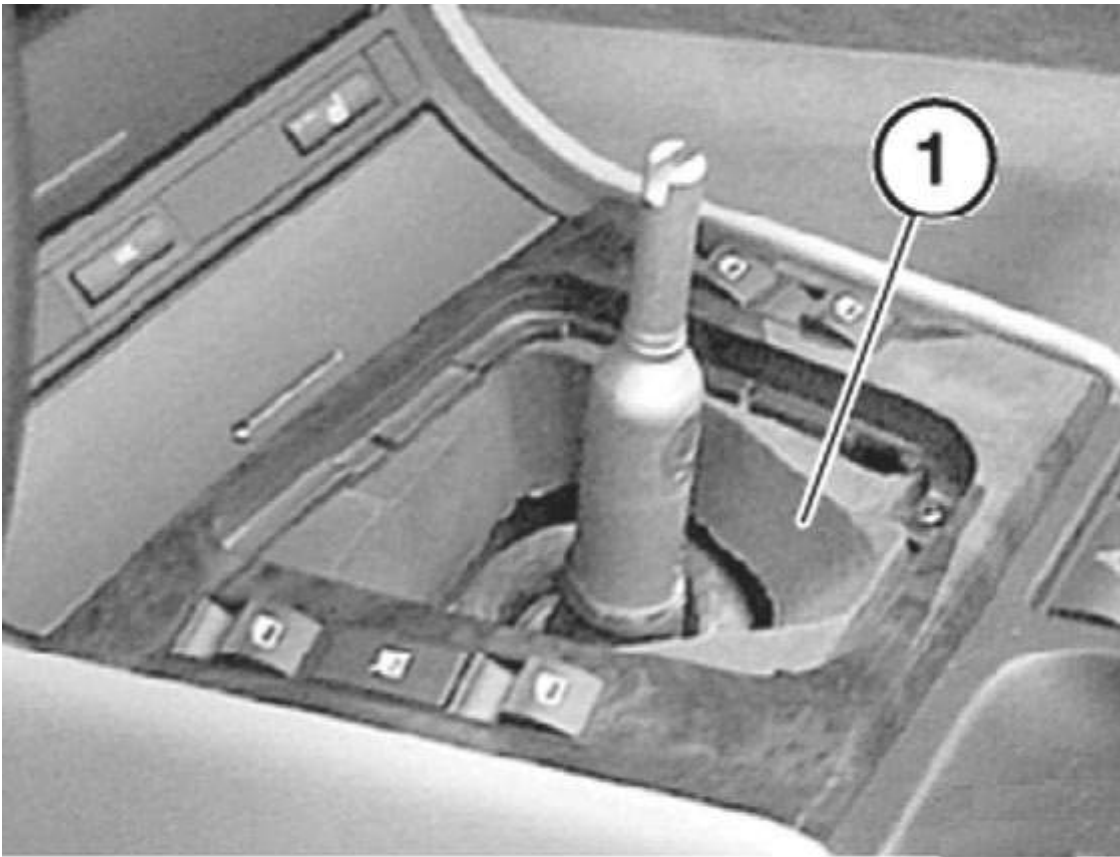


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**Fig. 7: Installing Rubber Gaiter**

Courtesy of BMW OF NORTH AMERICA, INC.

Remove soundproofing (1). See **Fig. 8**.

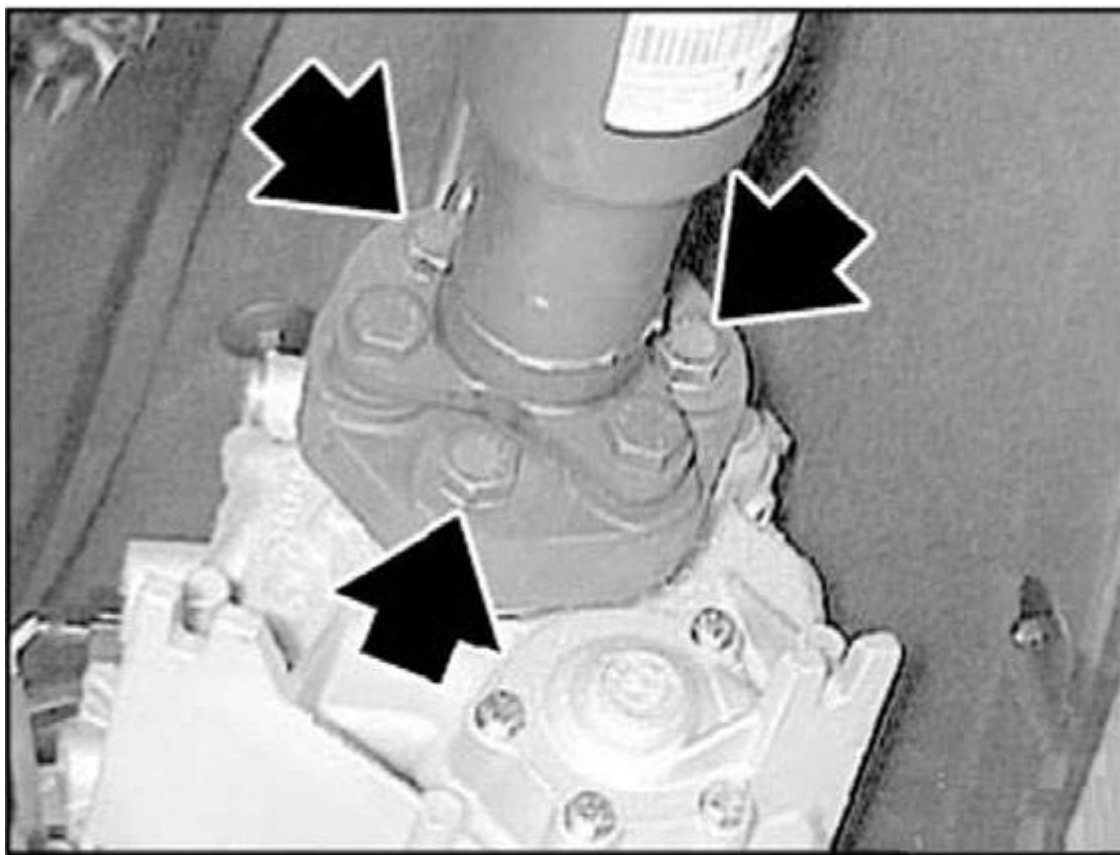


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**Fig. 8: Identifying Soundproofing**

Courtesy of BMW OF NORTH AMERICA, INC.

Remove intermediate muffler. Remove heat shield at rear. Remove heat shield at front right. During Installation: Replace self-locking nuts. When tightening screws, grip each screw and tighten down nut. This prevents the flexible disk from being subjected to torsion stress. See **Fig. 9**.

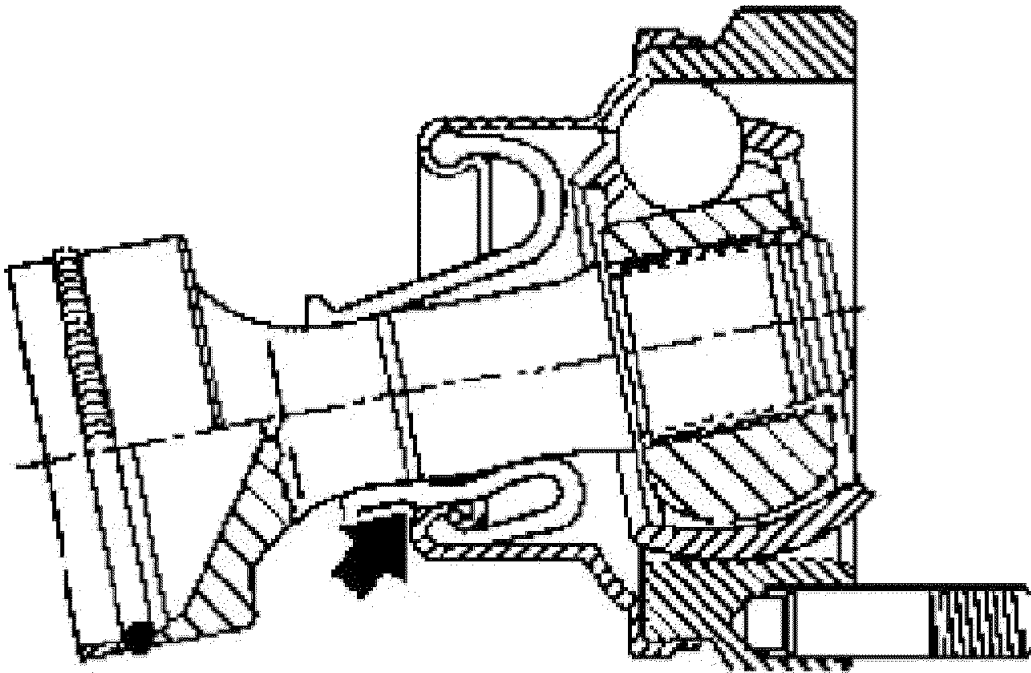


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**Fig. 9: Identifying Flexible Disk**

Courtesy of BMW OF NORTH AMERICA, INC.

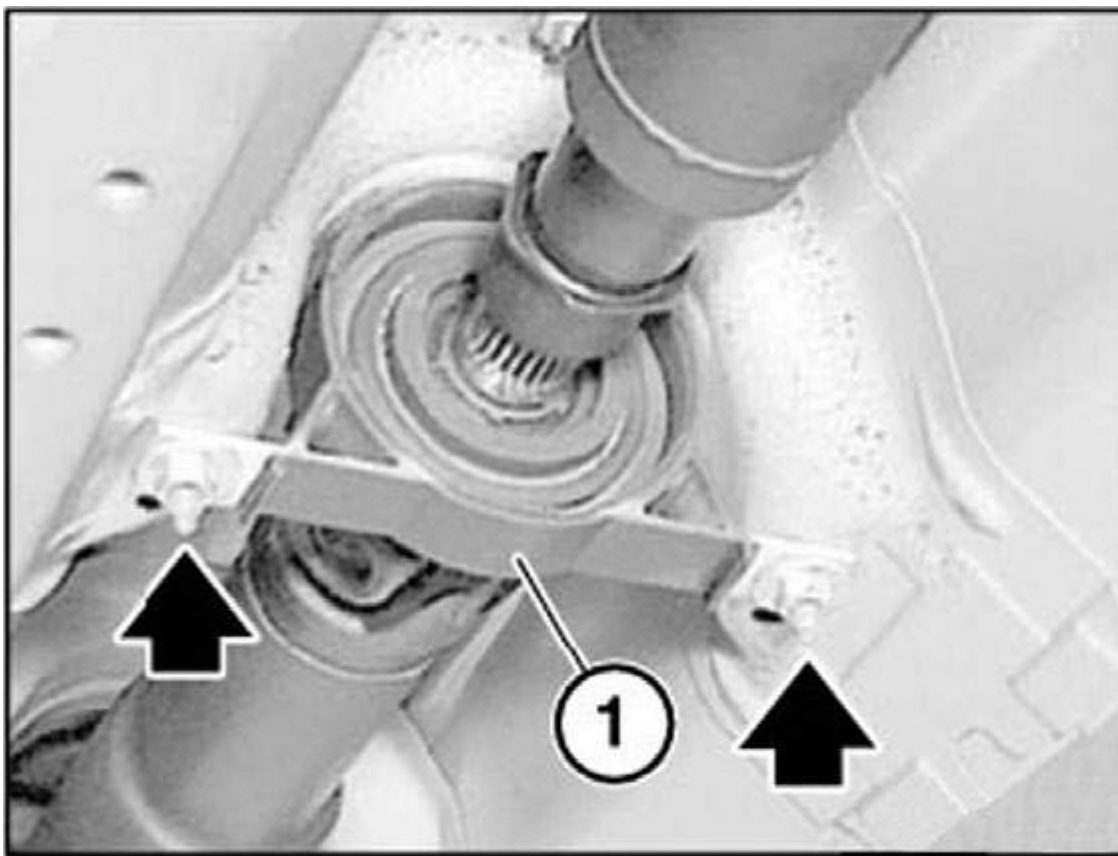
Do not let propeller shaft fall into joints. Joints and rubber sleeve can be damaged on constant-velocity joint. See **Fig. 10**.



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**Fig. 10: Identifying Propeller Shaft & Joint****Courtesy of BMW OF NORTH AMERICA, INC.**

Grip propeller shaft and release nuts. Bend propeller shaft downwards at center mount (1). See **Fig. 11**. Detach propeller shaft from transmission output flange and tie back to side on vehicle underbody.

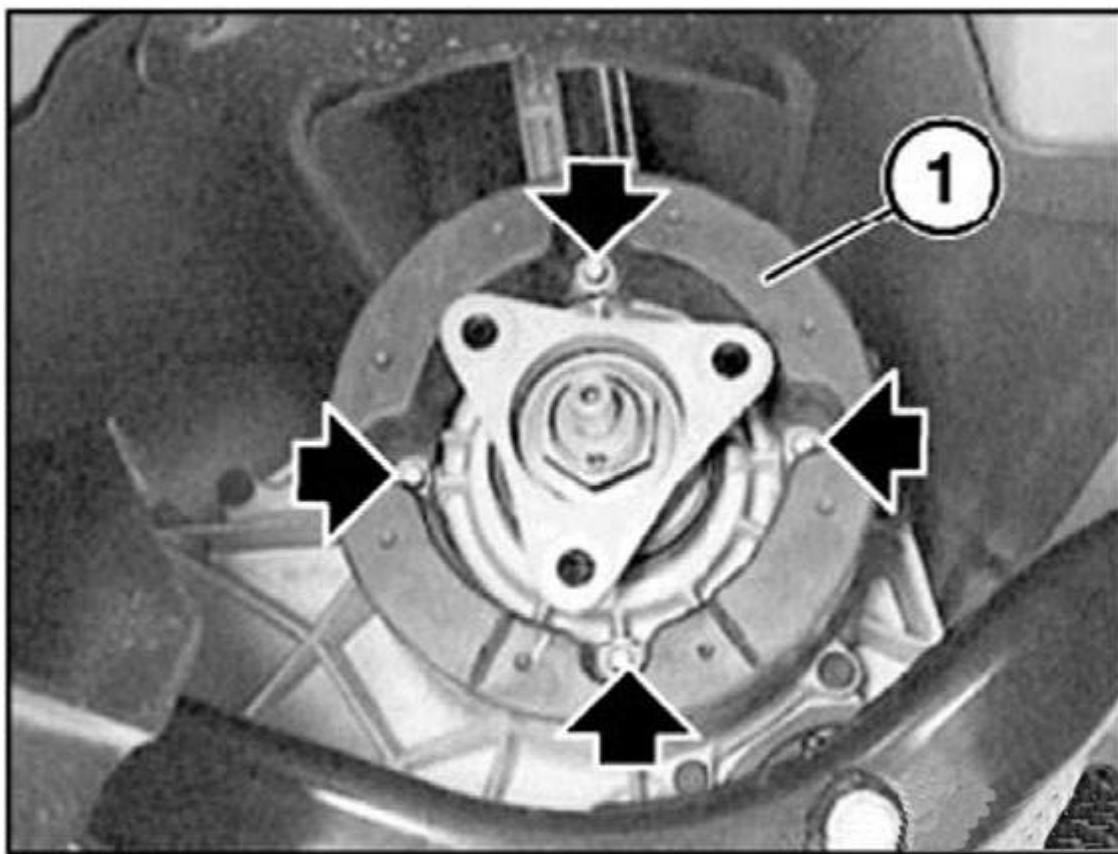


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**Fig. 11: Identifying Center Mount**

Courtesy of BMW OF NORTH AMERICA, INC.

Unfasten screws. Remove vibration damper (1). See **Fig. 12**.

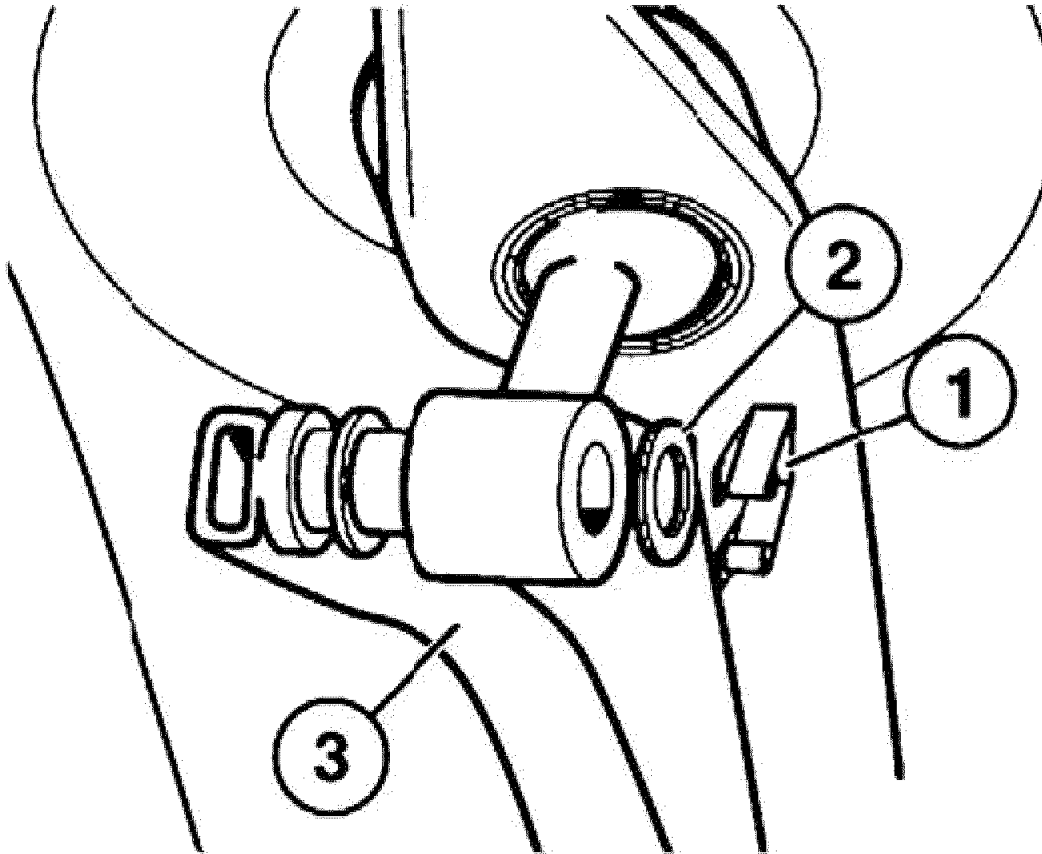


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**Fig. 12: Removing Vibration Damper**

Courtesy of BMW OF NORTH AMERICA, INC.

Lift off retainer (1). Take off washer (2). Remove selector rod (3). During Installation: Grease selector rod pin.



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**Fig. 13: Removing Selector Rod****Courtesy of BMW OF NORTH AMERICA, INC.**

Insert special tool 251110 in mounting and turn 90 degrees counterclockwise. Press mount upwards out of selector arm. See **Fig. 14**.

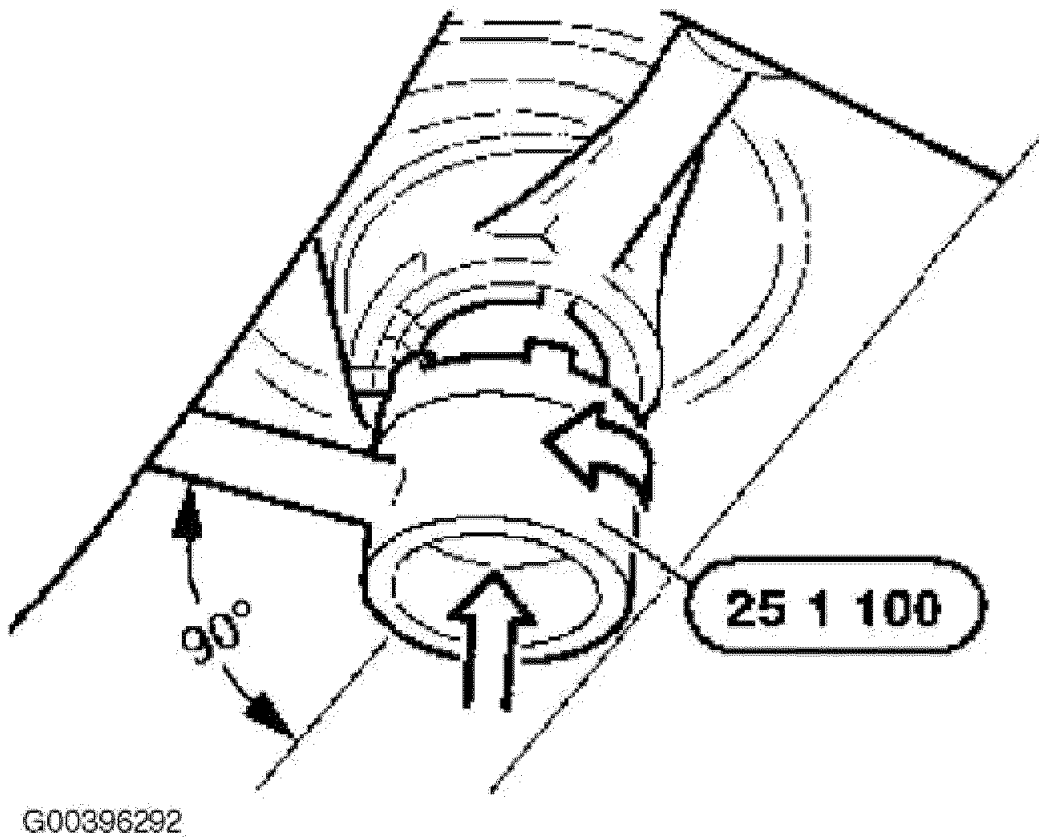


**Fig. 14: Pushing Mount Upward Out Of Selector Arm**  
Courtesy of BMW OF NORTH AMERICA, INC.

Remove rubber gaiter from body cutout and lift out with selector lever. See **Fig. 15**.

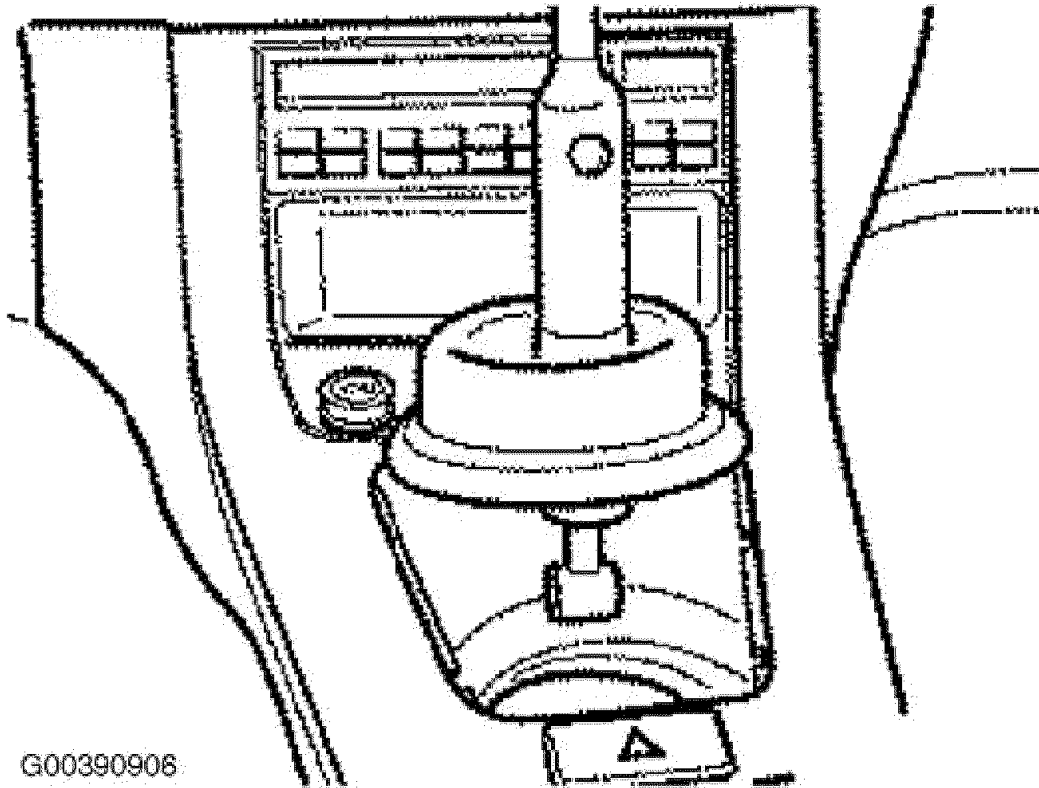


**Fig. 15: Removing Rubber Gaiter**

Courtesy of BMW OF NORTH AMERICA, INC.

During Installation: Pull inner rubber gaiter over pot on selector arm and press outer rubber gaiter into body cutout. See **Fig. 16**.

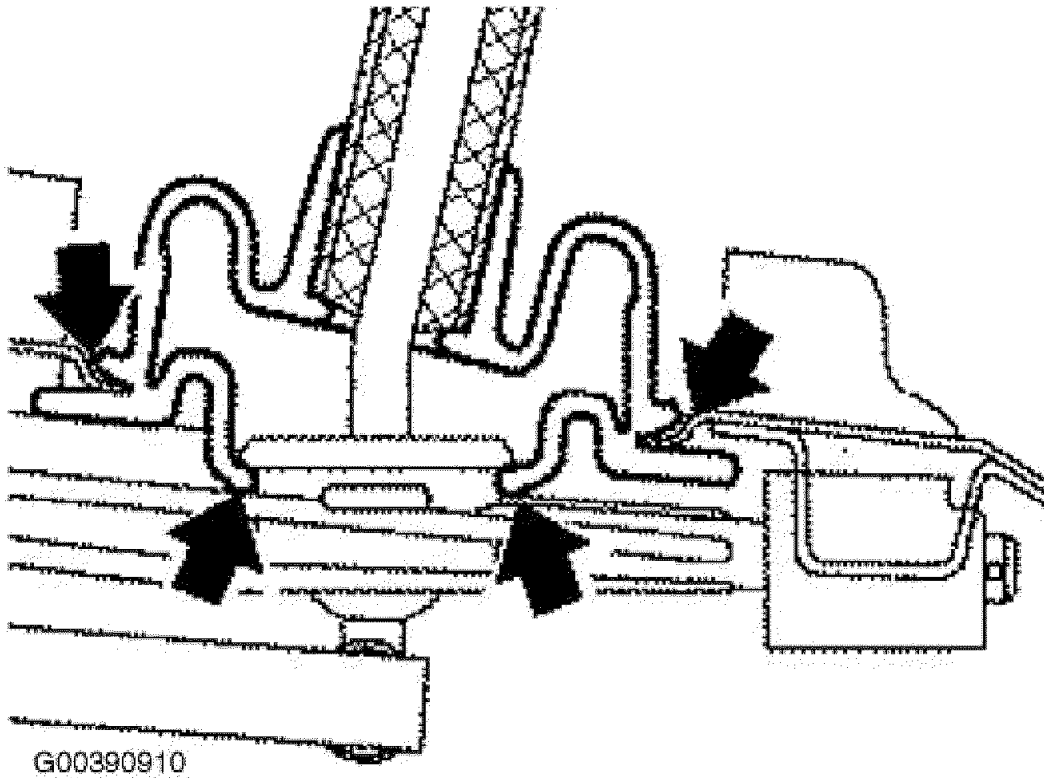


**Fig. 16: Pulling Inner Rubber Gaiter Over Pot**  
Courtesy of BMW OF NORTH AMERICA, INC.

During Installation: Insert rubber gaiter with arrow in direction of travel towards front. See **Fig. 17**.

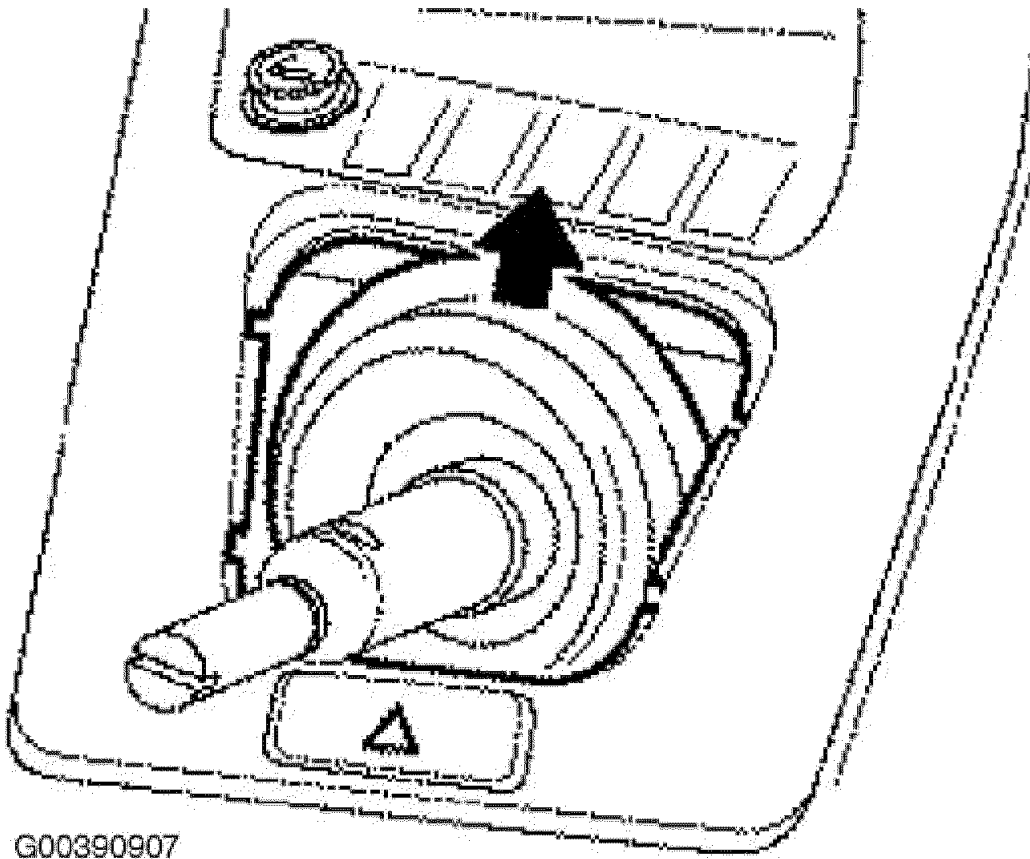
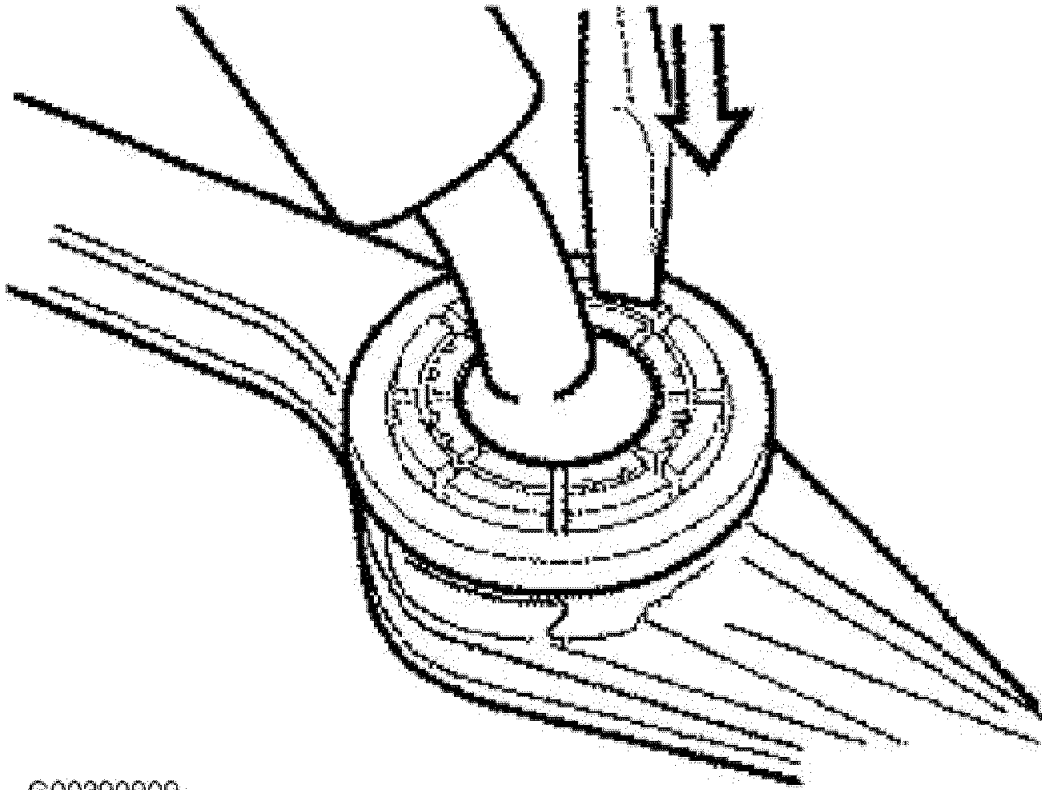


**Fig. 17: Inserting Rubber Gaiter**

Courtesy of BMW OF NORTH AMERICA, INC.

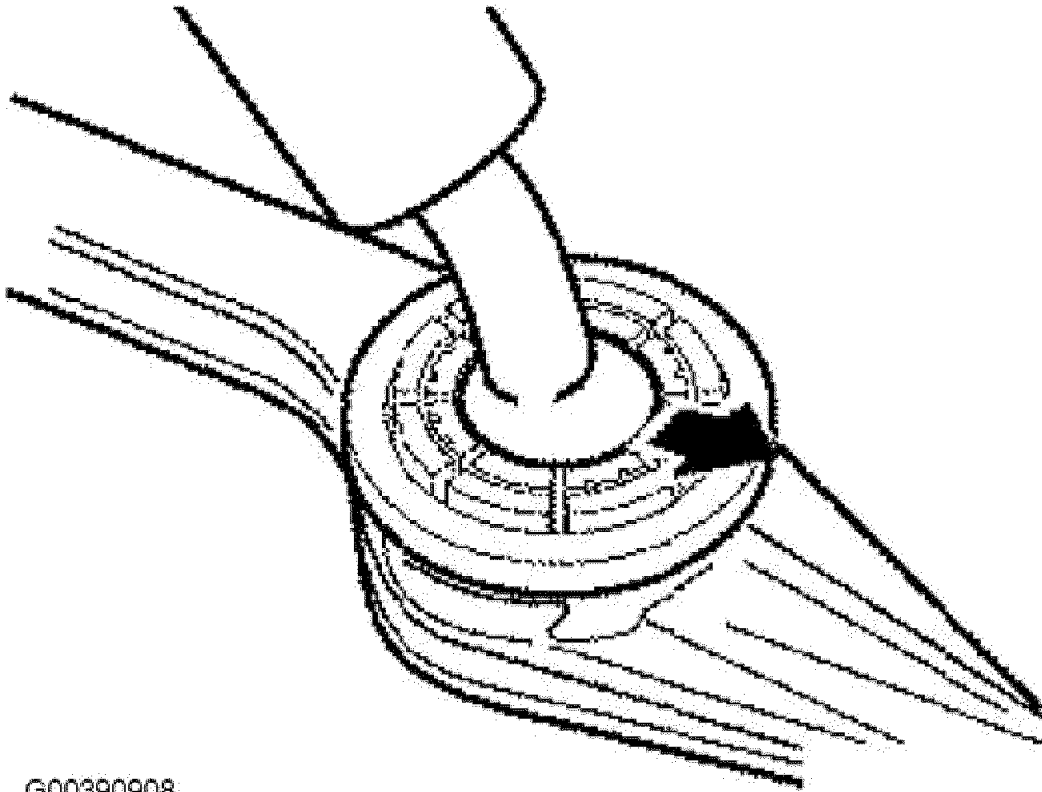
During Installation: Press mount in area of retaining lugs into selector arm until it audibly snaps into place. See **Fig. 18**.



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**Fig. 18: Pressing Mount In Area Of Retaining Lugs**  
Courtesy of BMW OF NORTH AMERICA, INC.

During Installation: Grease selector lever ball. Install selector lever in selector arm. Align mount: Arrows on mount in longitudinal axis of vehicle. Retaining lugs of mount, transverse to direction of travel. See **Fig. 19**.



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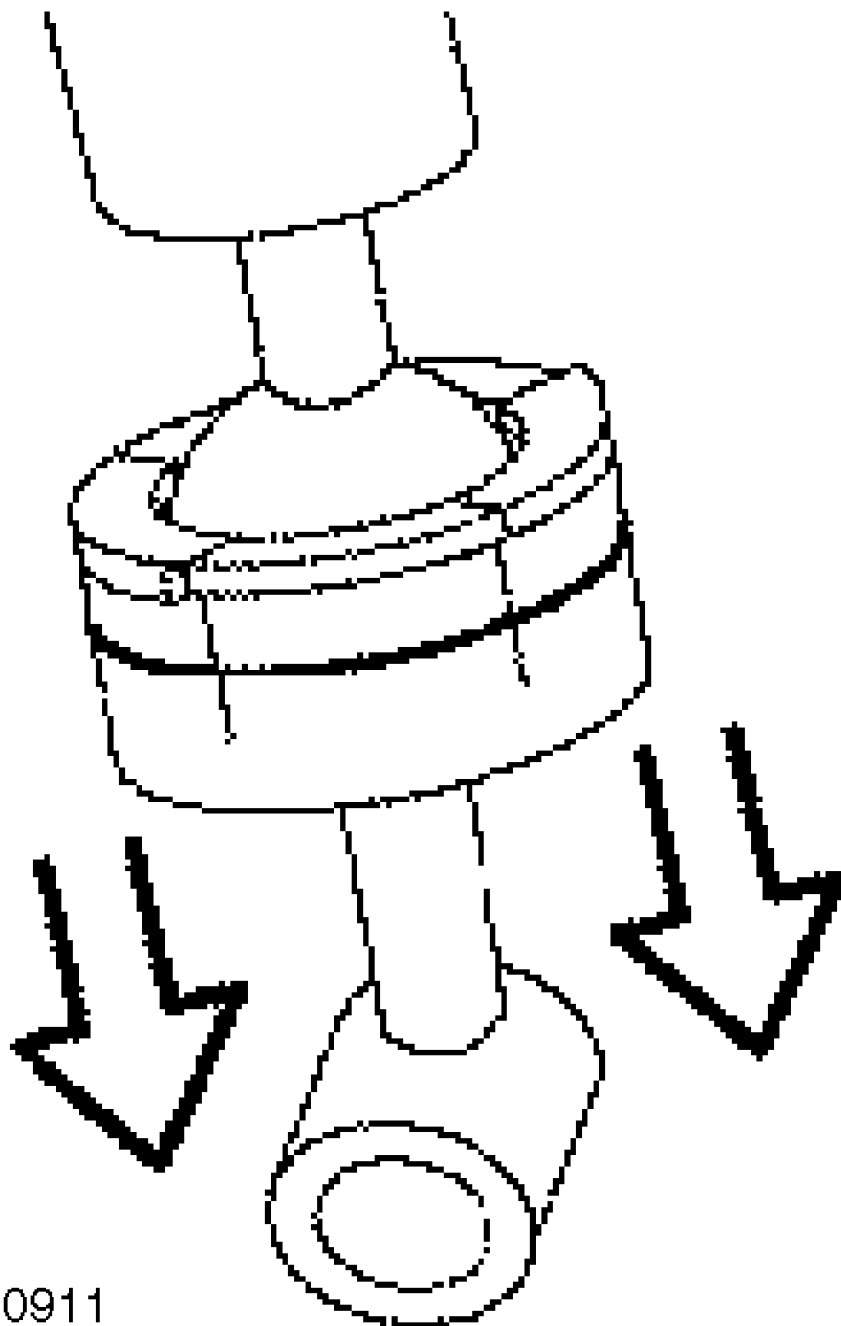
**Fig. 19: Installing Selector Lever In Selector Arm**  
Courtesy of BMW OF NORTH AMERICA, INC.

## SELECTOR LEVER

**NOTE:** Numbers in text refer to numbers in figures.

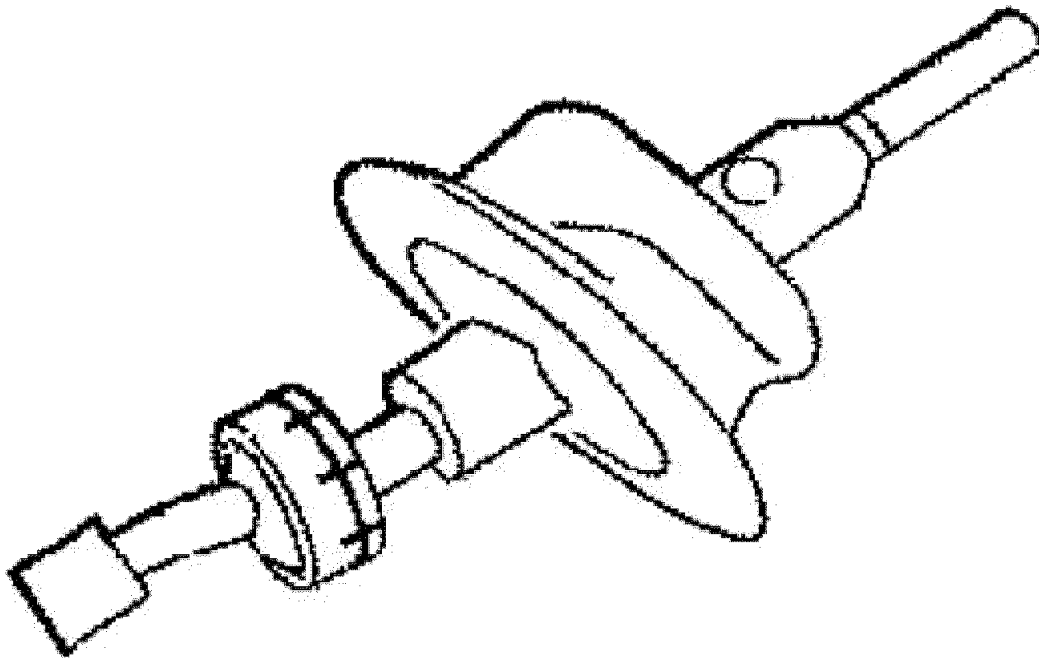
### Removal & Installation (6-Cylinder)

Detach mount from selector lever. See **Fig. 20**. During Installation: Grease ball joint.



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Detach rubber gaiter from selector lever. See **Fig. 21**.



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**Fig. 21: Detaching Rubber Gaiter From Selector Lever**  
Courtesy of BMW OF NORTH AMERICA, INC.

During Installation: Degrease selector lever (1). Coat rubber bellows on inside of shaped section (2) with Circolight lubricant. Pull rubber gaiter from above over selector lever and align. Arrow (3) on rubber gaiter must point in direction of travel (A). See **Fig. 22**.

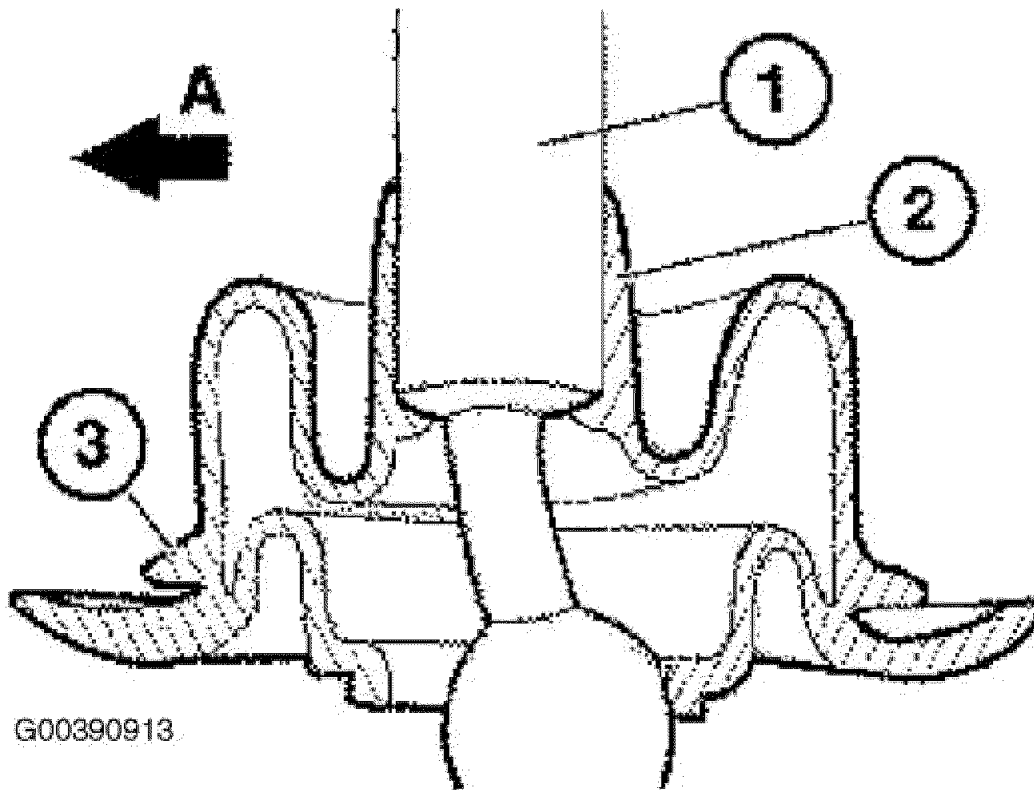


**Fig. 22: Pulling Rubber Gaiter From Above Over Selector Lever**  
Courtesy of BMW OF NORTH AMERICA, INC.

#### BEARING SHELL FOR SHIFT LEVER

**NOTE:** Numbers in text refer to numbers in figures.

##### Removal & Installation (6-Cylinder)

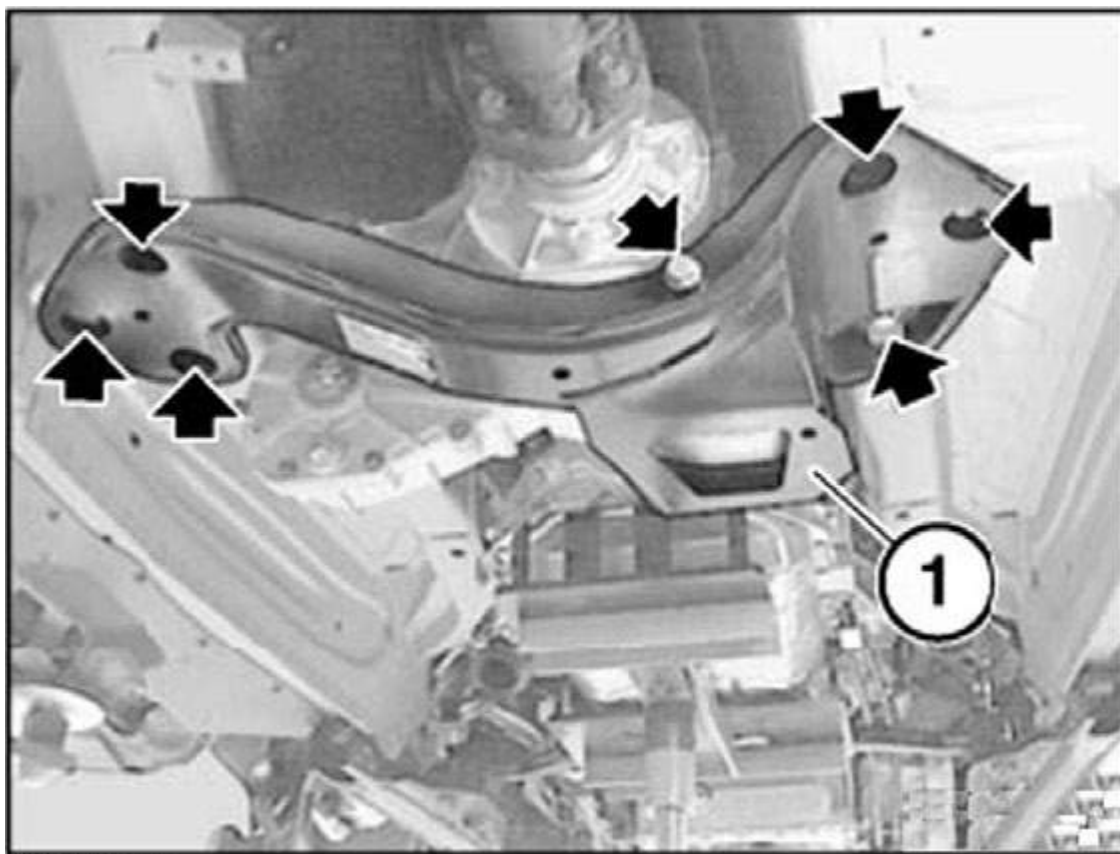
Remove shift lever. See **SHIFT LEVER**. Detach mount from selector lever. Grease ball joint. See **Fig. 20**.

#### SHIFT ARM FOR SHIFT LEVER MOUNT

**NOTE:** Numbers in text refer to numbers in figures.

##### Removal & Installation (6-Cylinder)

Remove shift lever. See **SHIFT LEVER**. Support transmission with a hoist. Remove bolts and remove transmission crossmember (1). See **Fig. 23**.

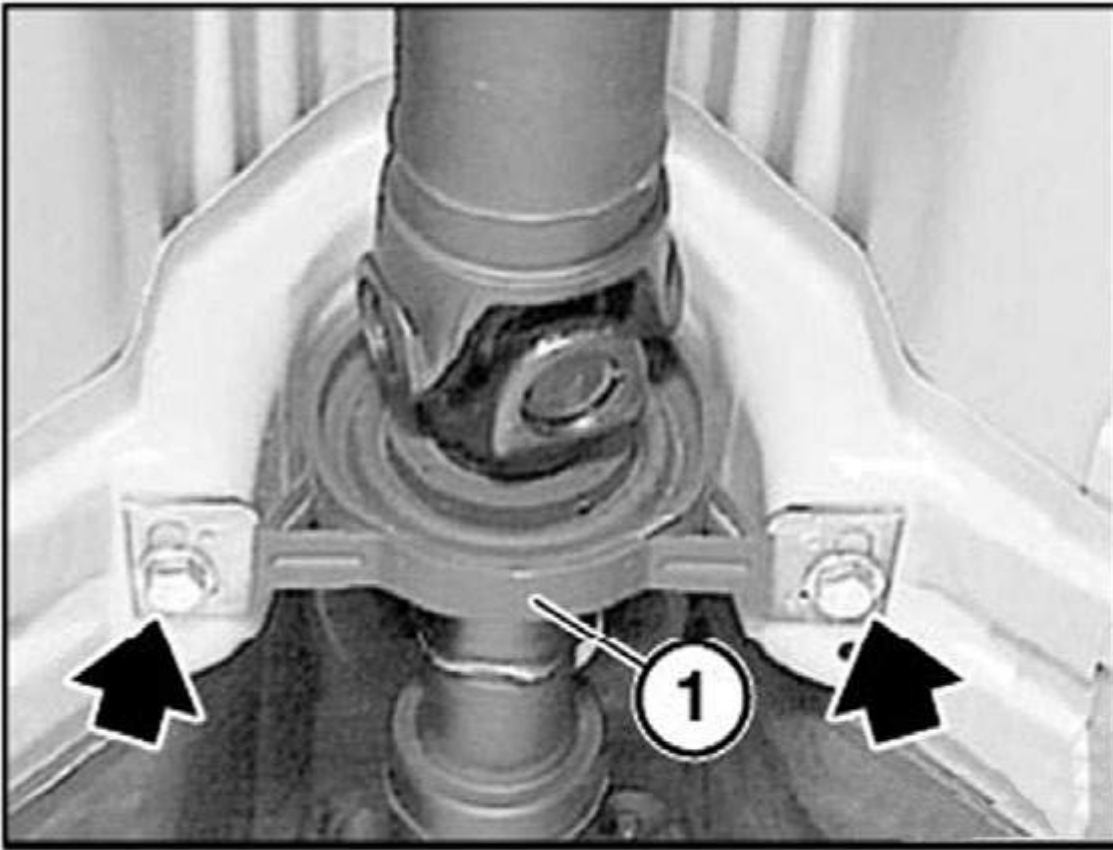


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**Fig. 23: Removing Crossmember**

Courtesy of BMW OF NORTH AMERICA, INC.

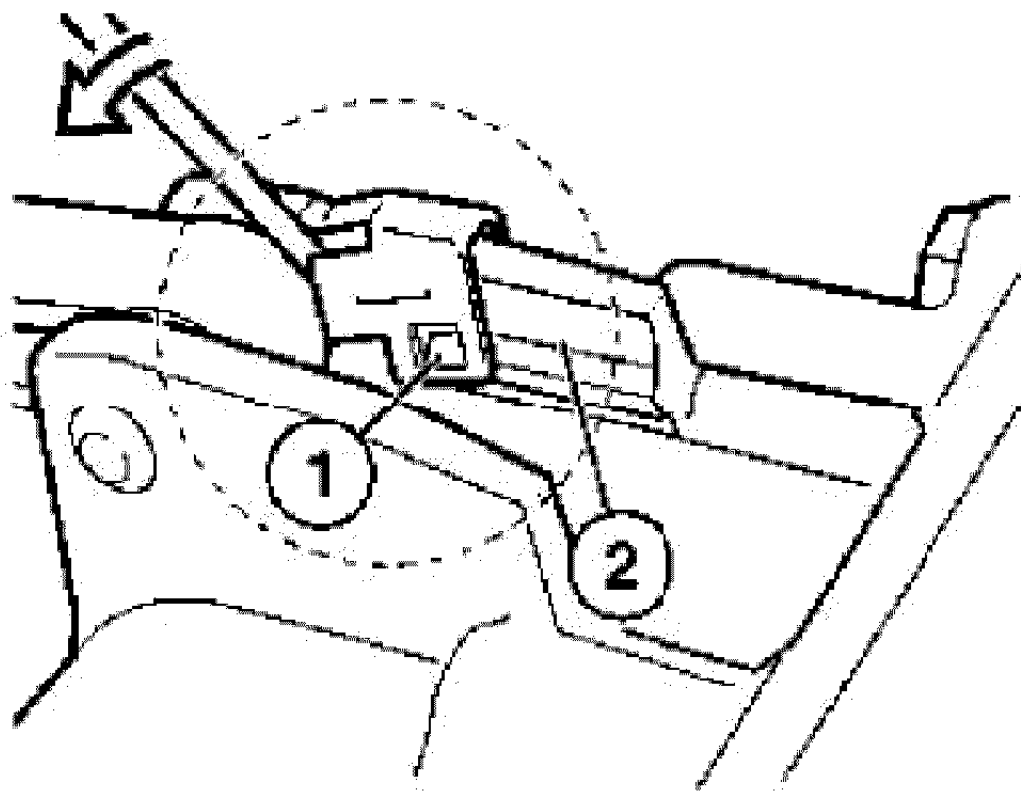
Release bolts on propeller shaft center mount (1). See Fig. 24. Lower transmission.



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**Fig. 24: Removing Bolts On Propeller Shaft Center Mount**  
Courtesy of BMW OF NORTH AMERICA, INC.

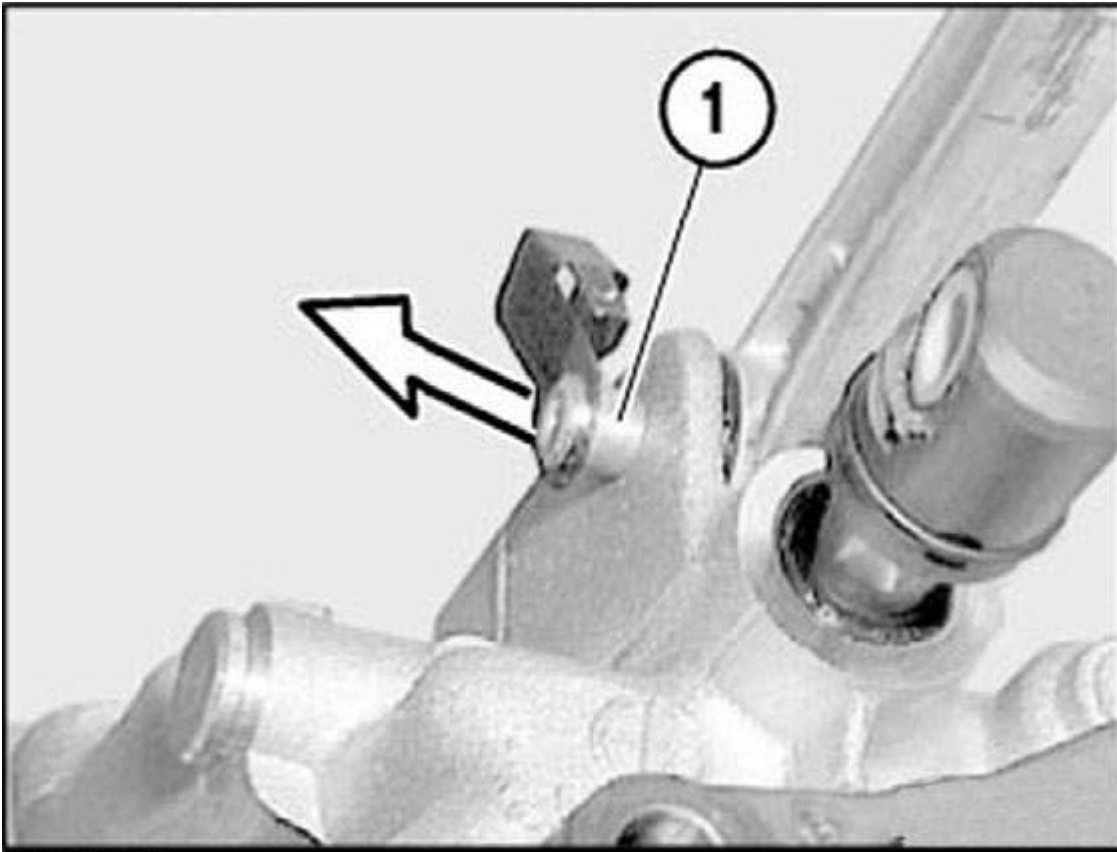
Use a screwdriver to lift out spring (1) from the lug (2) on the housing and swivel upwards. See **Fig. 25**.



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**Fig. 25: Lifting Out Spring From Lug On Housing**  
Courtesy of BMW OF NORTH AMERICA, INC.

Unlock bearing pin (1) in direction of arrow and remove. Grease bearing pin on installation. See **Fig. 26**.

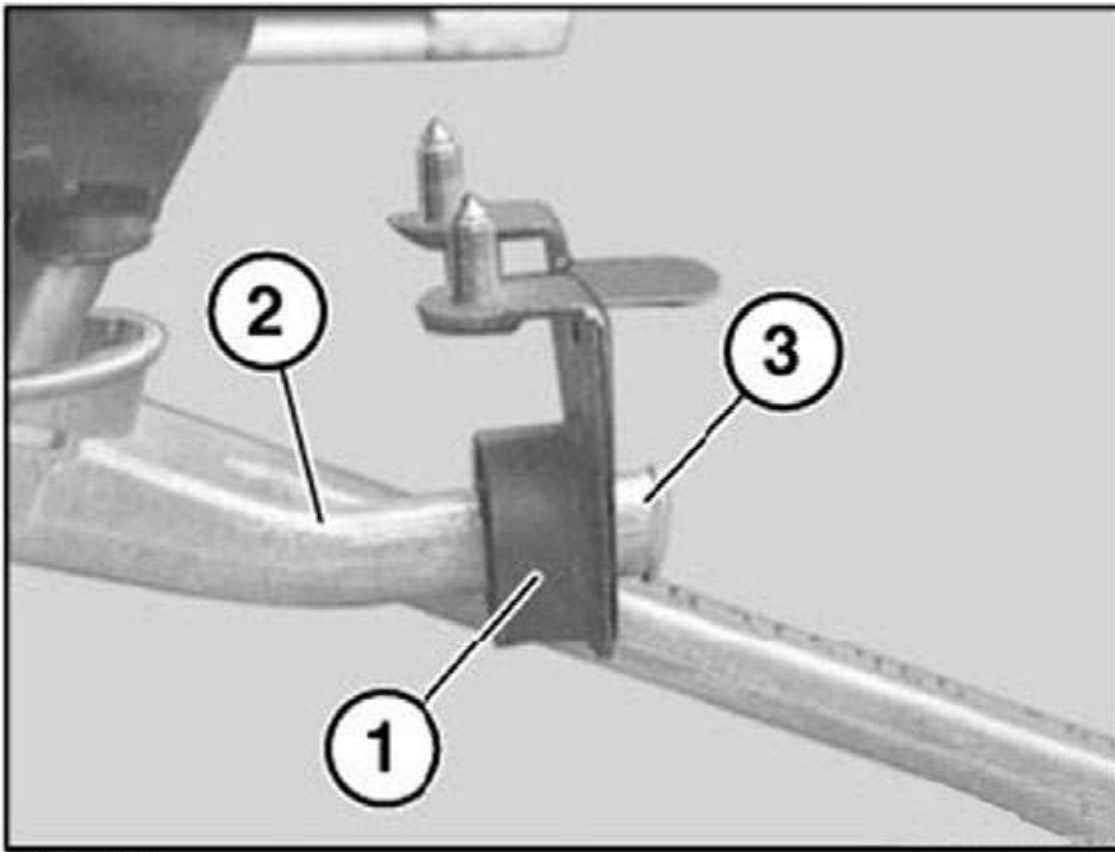


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**Fig. 26: Removing Bearing Pin**

Courtesy of BMW OF NORTH AMERICA, INC.

Do not remove support bearing (1). Do not remove shift arm (2) from support bearing (1). See **Fig. 27**. During installation, grease bearing pin of shift arm.



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**Fig. 27: Identifying Shift Arm & Support Bearing**  
**Courtesy of BMW OF NORTH AMERICA, INC.**

If bearing bushing is damaged: replace bearing bushing (1). Press out bearing bushing. Coat new bearing bushing with Circolight lubricant and then press into shift arm until side flanges of bearing bushing protrude uniformly. See **Fig. 28**.

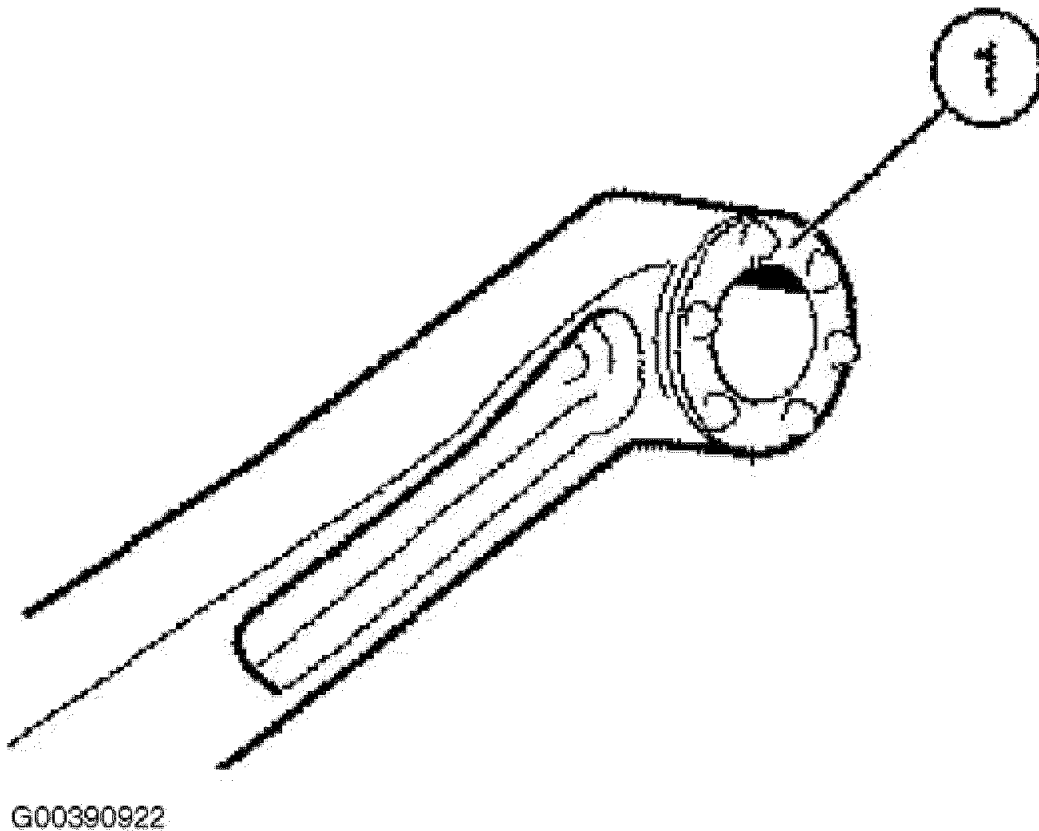


**Fig. 28: Identifying Bearing Bushing**  
Courtesy of BMW OF NORTH AMERICA, INC.

#### BEARING BUSHINGS FOR SHIFT ARM

**NOTE:** Numbers in text refer to numbers in figures.

##### Removal & Installation (6-Cylinder)

Remove shift arm. See **SHIFT ARM FOR SHIFT LEVER MOUNT**. Press out bearing bushing (1). Coat new bearing bushing (1) with Circolight lubricant and then press into shift arm until side edges of bushing protrude uniformly. See **Fig. 28**.

#### SHIFT ARM SUPPORT

**NOTE:** Numbers in text refer to numbers in figures.

##### Removal & Installation (6-Cylinder)

Detach knob with a firm tug. See **Fig. 4**. Do not turn knob when detaching as this will shear off the turning lock in the knob. During Installation: Fit knob on selector lever, align and press on until it snaps noticeably into place.

During Installation: Push rubber gaiter (1) down until groove (2) is fully exposed. See **Fig. 5**.

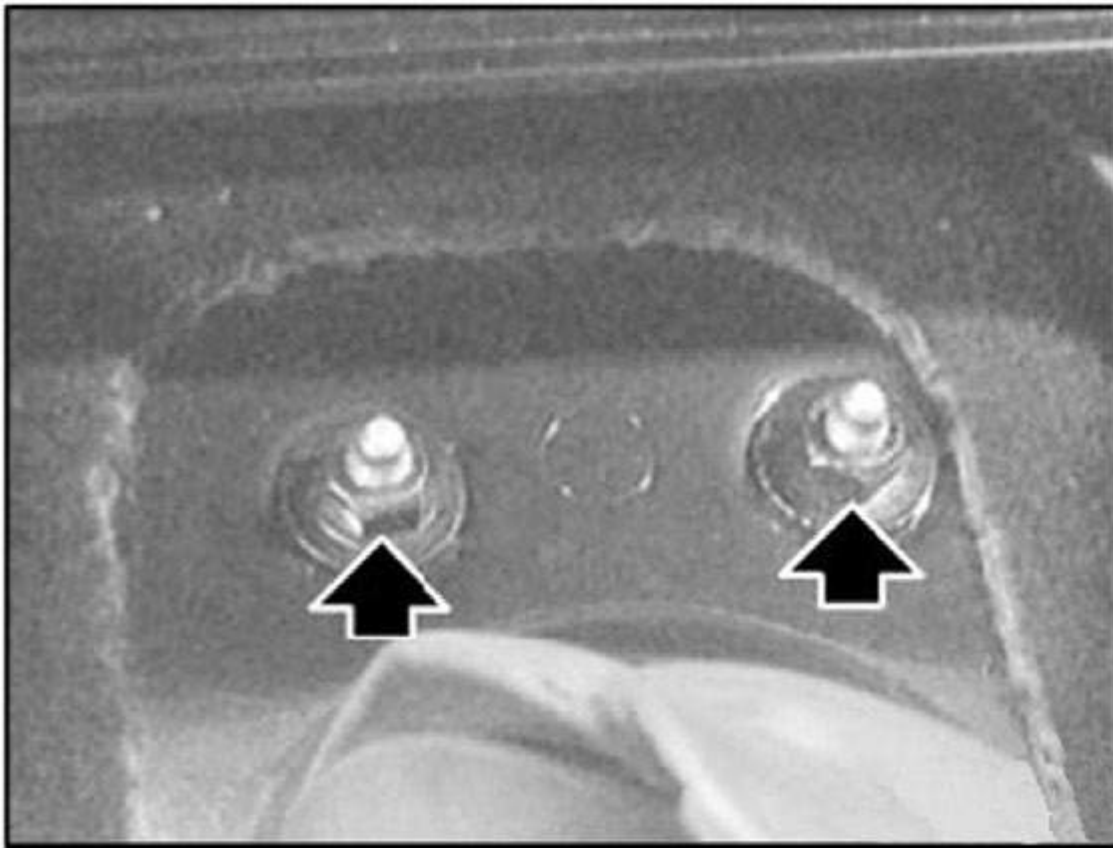
Press installation frame of rubber gaiter together slightly. Remove rubber gaiter from center console. See **Fig. 6**.

During Installation: Push rubber gaiter (1) down and attach to selector lever (2). Pull rubber gaiter (1) over selector lever and insert in center console. See **Fig. 7**.

Remove soundproofing (1). See **Fig. 8**.

During Installation: Pull inner rubber gaiter over pot on selector arm and press outer rubber gaiter into body cutout. See **Fig. 16**.

Unscrew nuts. See **Fig. 29**.



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**Fig. 29: Identifying Nuts**

Courtesy of BMW OF NORTH AMERICA, INC.

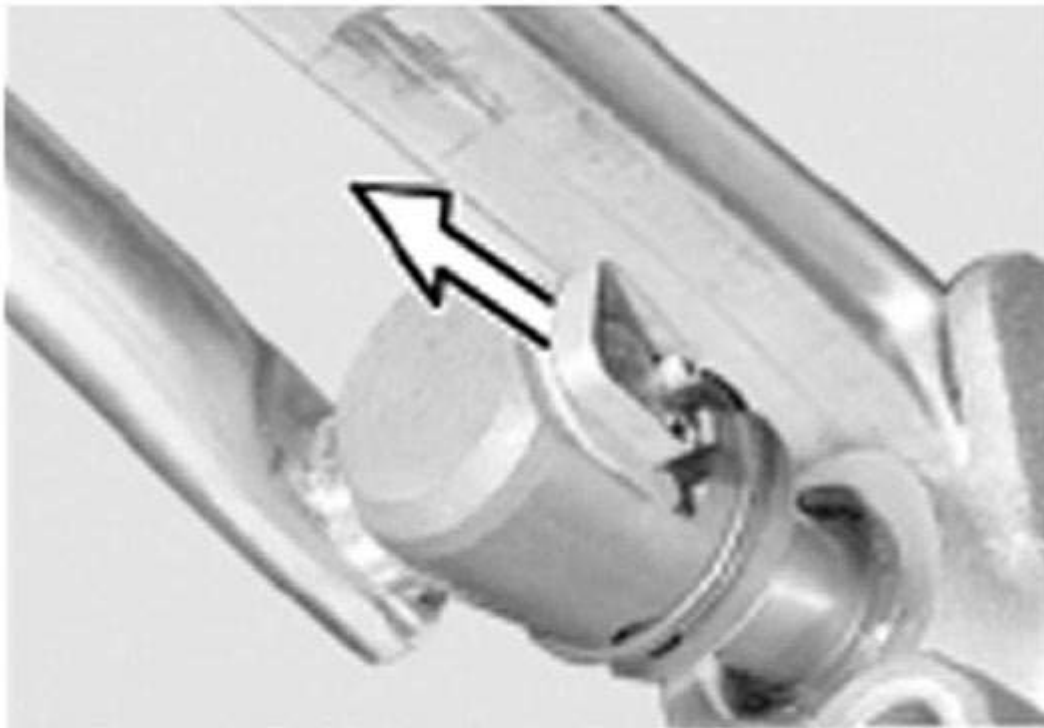
Detach support bearing (1) from below from selector arm (2). Grease bearing journal (3) of selector arm. During installation, observe installation position of support bearing. See **Fig. 27**. During installation, grease bearing pin of shift arm.

## **SELECTOR ROD JOINT**

### **Removal & Installation (6-Cylinder)**

Remove transmission. See **REMOVAL & INSTALLATION - X5 (6HP26Z)** .

Detach locking clip. See **Fig. 30**.

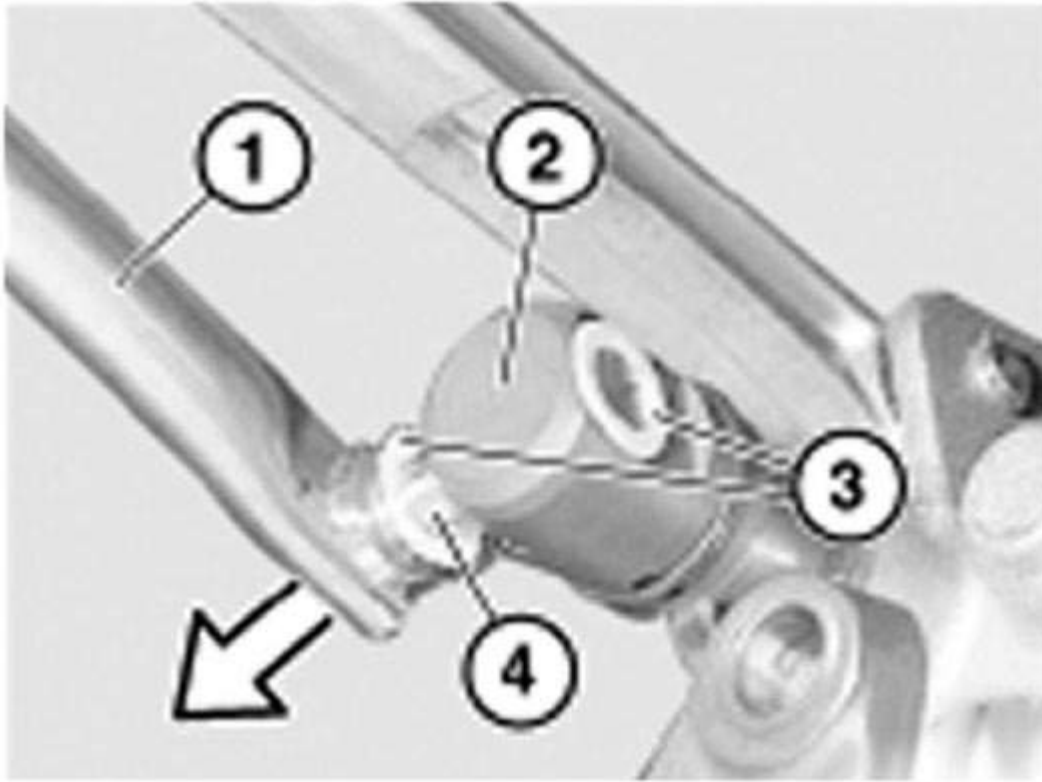


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**Fig. 30: Detaching Locking Clip**

**Courtesy of BMW OF NORTH AMERICA, INC.**

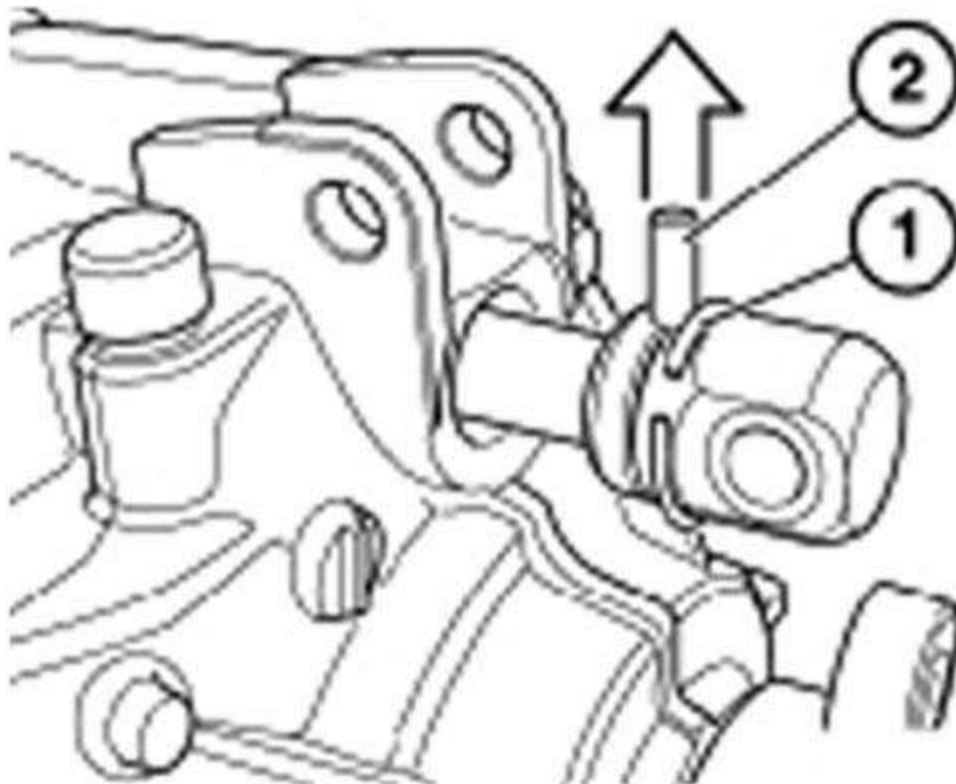
Pull shift rod (1) out of shift rod joint (2) and remove shims (3). See **Fig. 31**. During installation, grease shift rod pin (4). Large contact surface of shims (3) must rest on shift rod joint (2).



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**Fig. 31: Pulling Shift Rod Out Of Shift Rod Joint**  
**Courtesy of BMW OF NORTH AMERICA, INC.**

Lever spring washer (1) out of groove and push a little towards rear. Press dowel pin (2) upwards/downwards out of shift rod joint and remove shift rod joint. During installation: grease ball of selector shaft. Replace spring washer (1). See **Fig. 32**.



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**Fig. 32: Replacing Spring Washer**

Courtesy of BMW OF NORTH AMERICA, INC.

Check rubber ring (1) in shift rod joint (2) and replace if necessary. See **Fig. 33**.

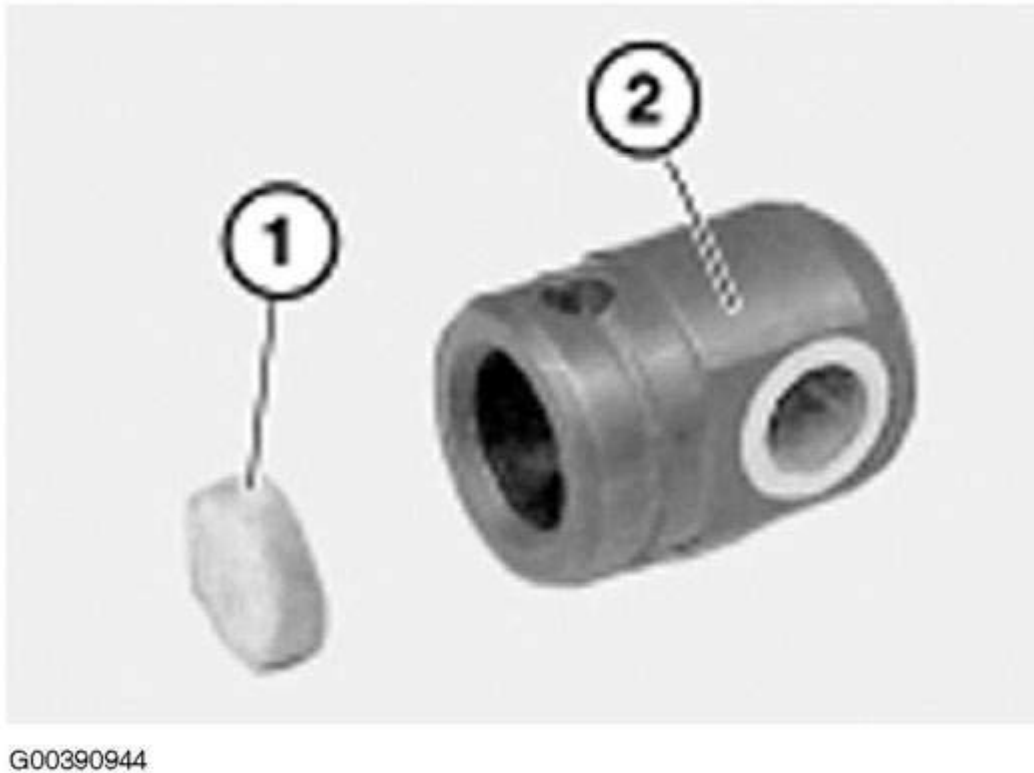


**Fig. 33: Checking Rubber Ring In Shift Rod Joint**  
Courtesy of BMW OF NORTH AMERICA, INC.

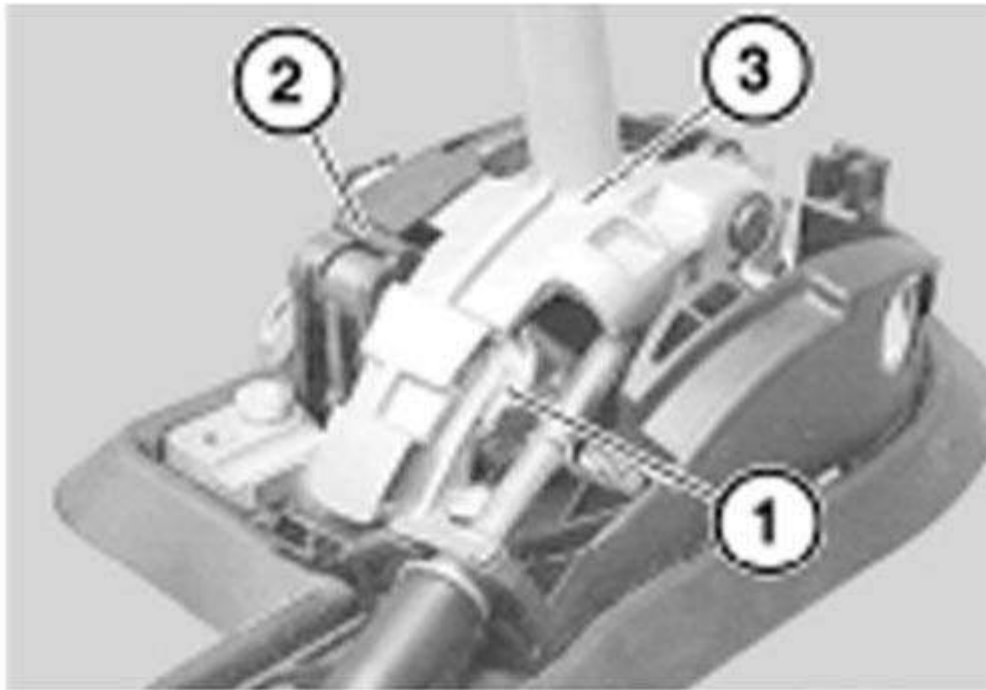
### SHIFT TOWER (STEPTRONIC)

**NOTE:** Numbers in text refer to numbers in figures.

**NOTE:** Do not disassemble new Steptronic gearshift bracket.

### Removal & Installation (6-Cylinder & V8)

Features of new Steptronic shift tower include: solenoid valve position (1), Black plastic section (2), and aluminum section (3). Move selector lever to parking position "P". Remove transmission underbody protection as necessary. See **Fig. 34**.



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**Fig. 34: Identifying Steptronic Features**

Courtesy of BMW OF NORTH AMERICA, INC.

Remove storage compartment. See **STORAGE COMPARTMENT**.

During installation, lines must be correctly clipped into the retaining clips so as to prevent damage (trapping of lines). Grip clamping sleeve (1) and slacken nut (2). See **Fig. 35**.

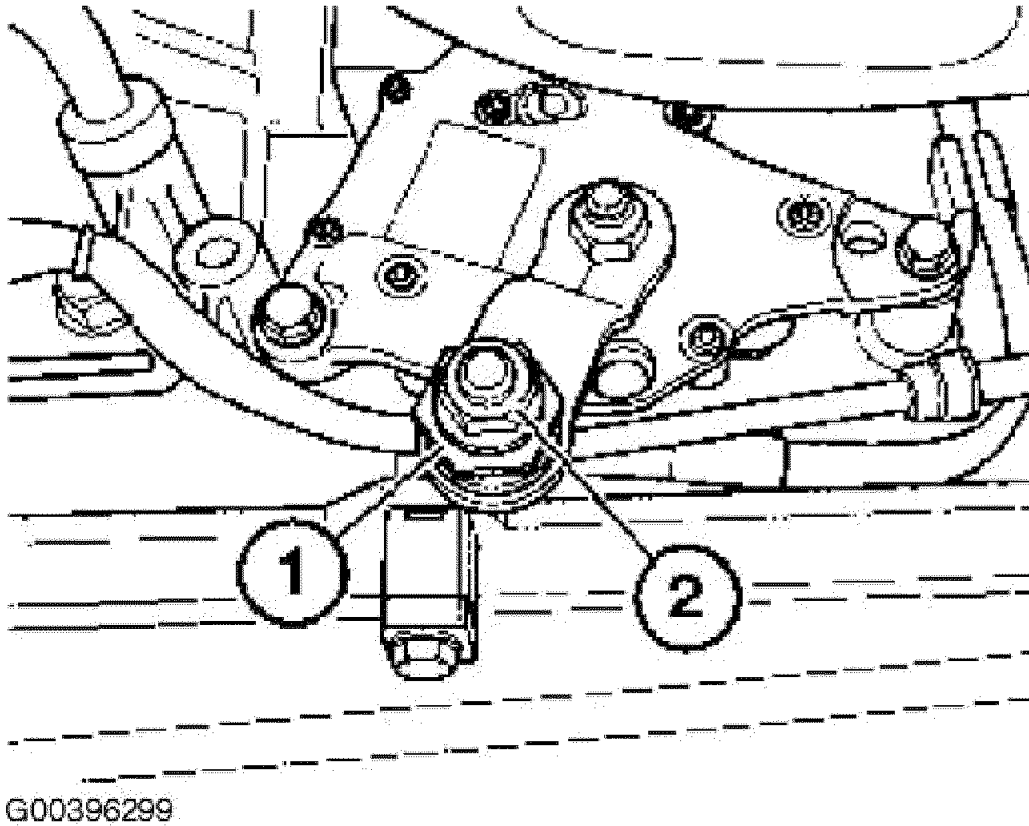
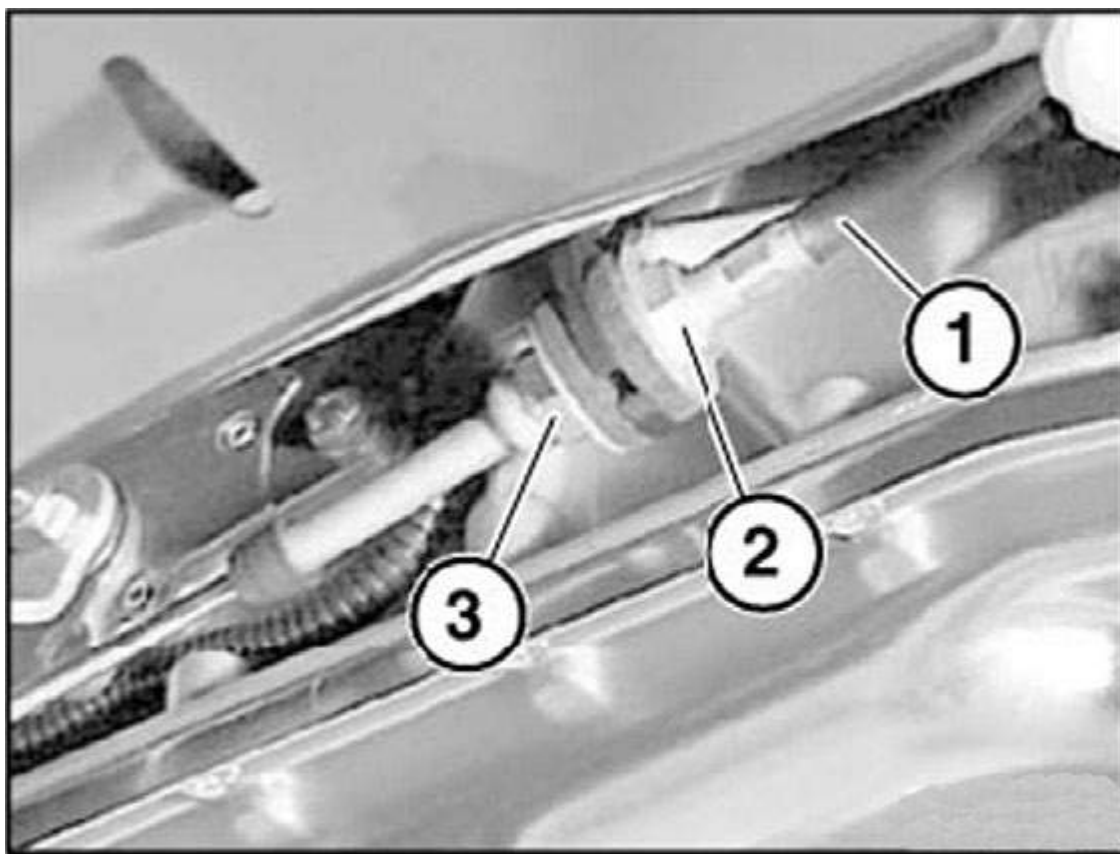


**Fig. 35: Gripping Clamping Sleeve & Slackening Nut**  
Courtesy of BMW OF NORTH AMERICA, INC.

Grip cable (1) at hexagon head (2). Unscrew nut (3). Pull cable (1) out of holder. See **Fig. 36**.

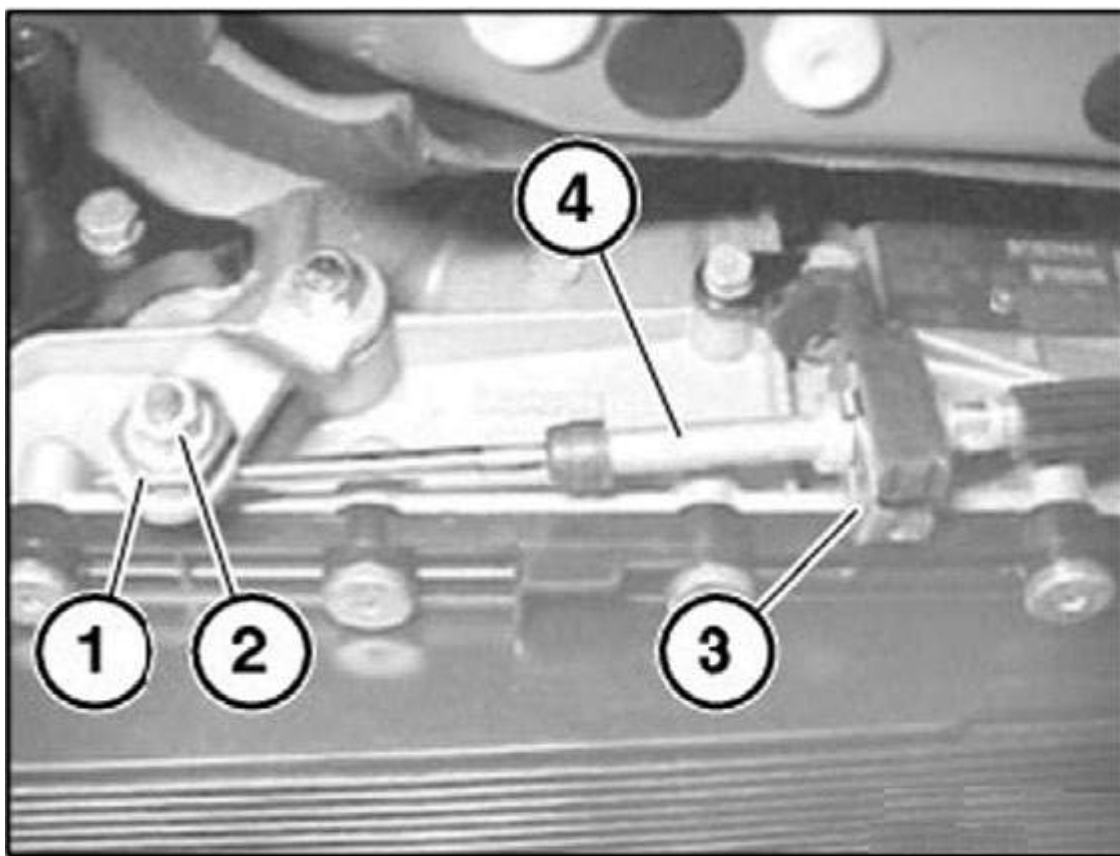


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**Fig. 36: Pulling Cable Out Of Holder**

Courtesy of BMW OF NORTH AMERICA, INC.

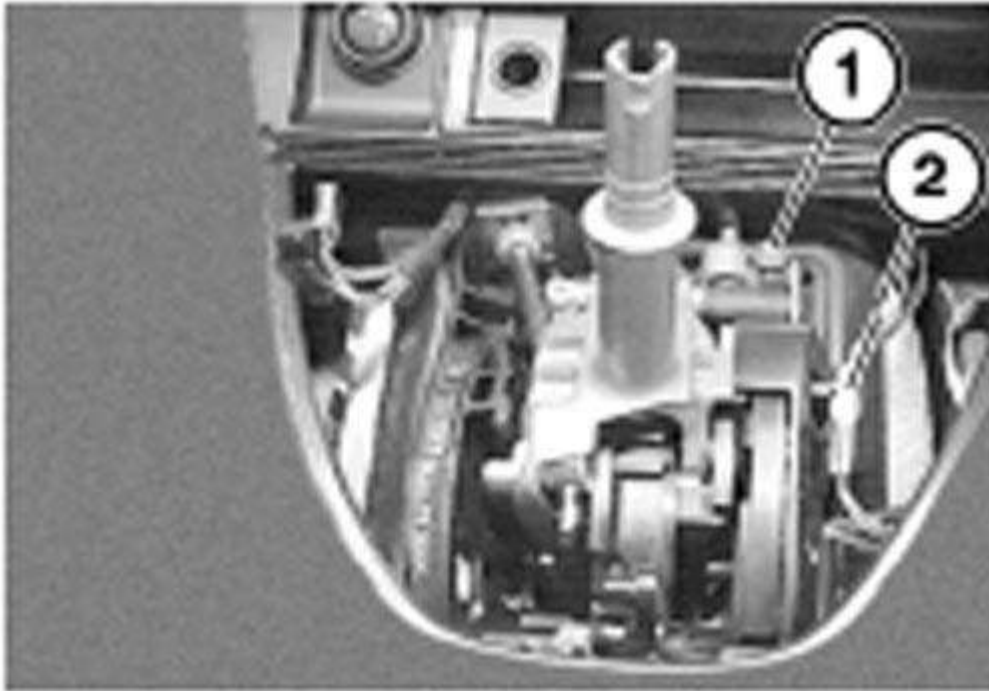
On 6HP26Z transmission, lever out retainer (3) downwards using a screwdriver. See **Fig. 37**.



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**Fig. 37: Levering Out Retainer Downwards**  
Courtesy of BMW OF NORTH AMERICA, INC.

Release screw (1) on interlock cable. Pull plug connector (2) out of bracket and disconnect. See **Fig. 38**.



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**Fig. 38: Removing Cable Plug From Fixture**  
Courtesy of BMW OF NORTH AMERICA, INC.

Disconnect plug connector (1). Release screws and lift out shift tower (2) a little. Unhook interlock cable. Remove shift bracket with cable. During installation, check interlock/shiftlock function and adjust as necessary. See **Fig. 39**.

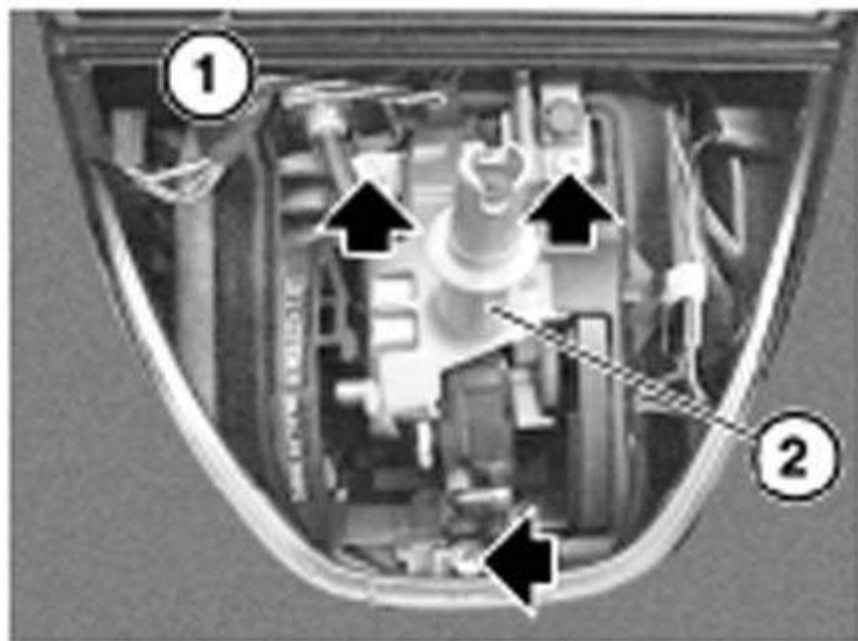
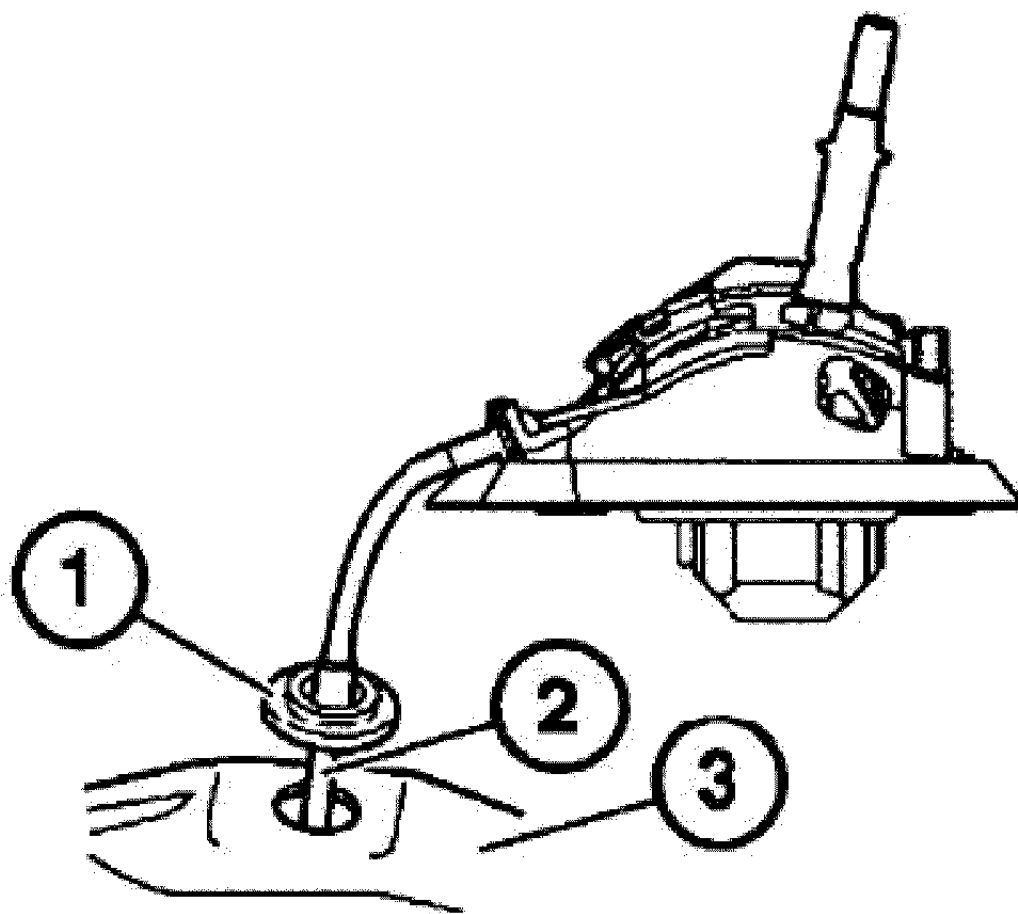


**Fig. 39: Removing Shift Tower**

Courtesy of BMW OF NORTH AMERICA, INC.

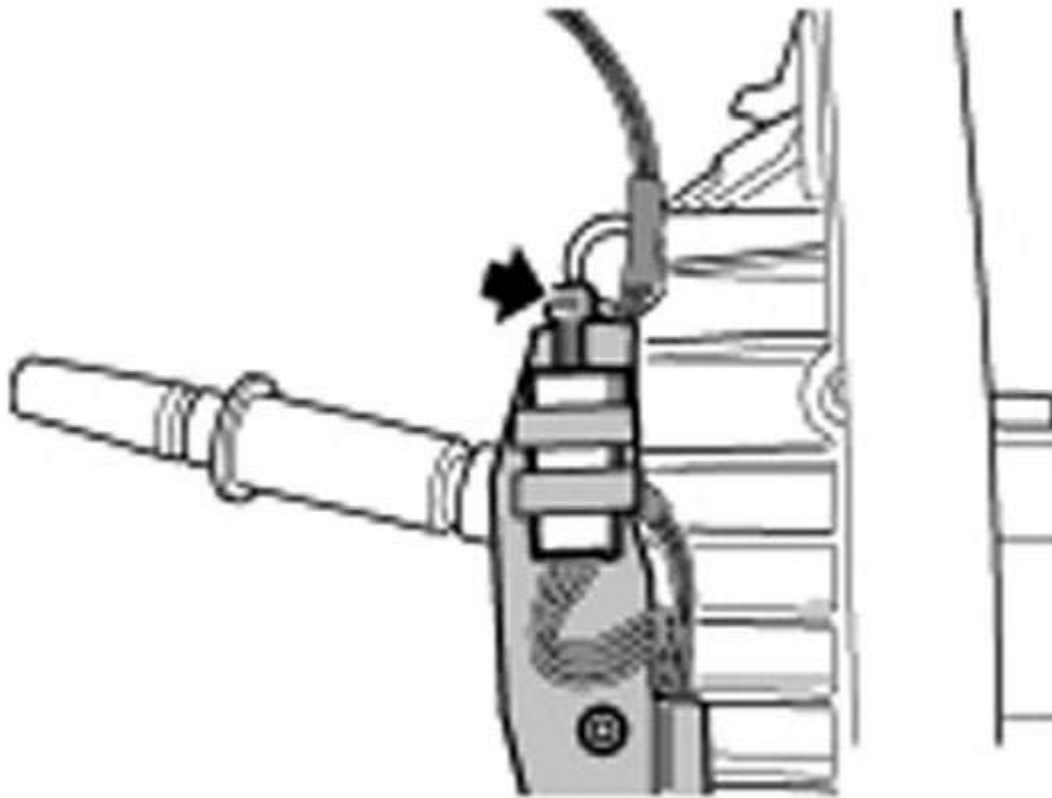
Insert rubber seal (1) of shift cable (2) in transmission tunnel (3). See **Fig. 40**.



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**Fig. 40: Installing Rubber Seal Of Shift Cable In Transmission**  
Courtesy of BMW OF NORTH AMERICA, INC.

During installation, secure leads using cable ties. See **Fig. 41**.



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**Fig. 41: Securing Lines With Cable Ties**  
Courtesy of BMW OF NORTH AMERICA, INC.

#### SHIFT LEVER KNOB/HANDLE

**NOTE:** Numbers in text refer to numbers in figures.

#### Removal & Installation (6-Cylinder & V8)

Do not twist knob during removal as this would cause the turning lock in the knob to shear off. Tug firmly to remove knob. See **Fig. 42**. During installation, fit knob on selector lever, align and press on until it snaps noticeably into place.

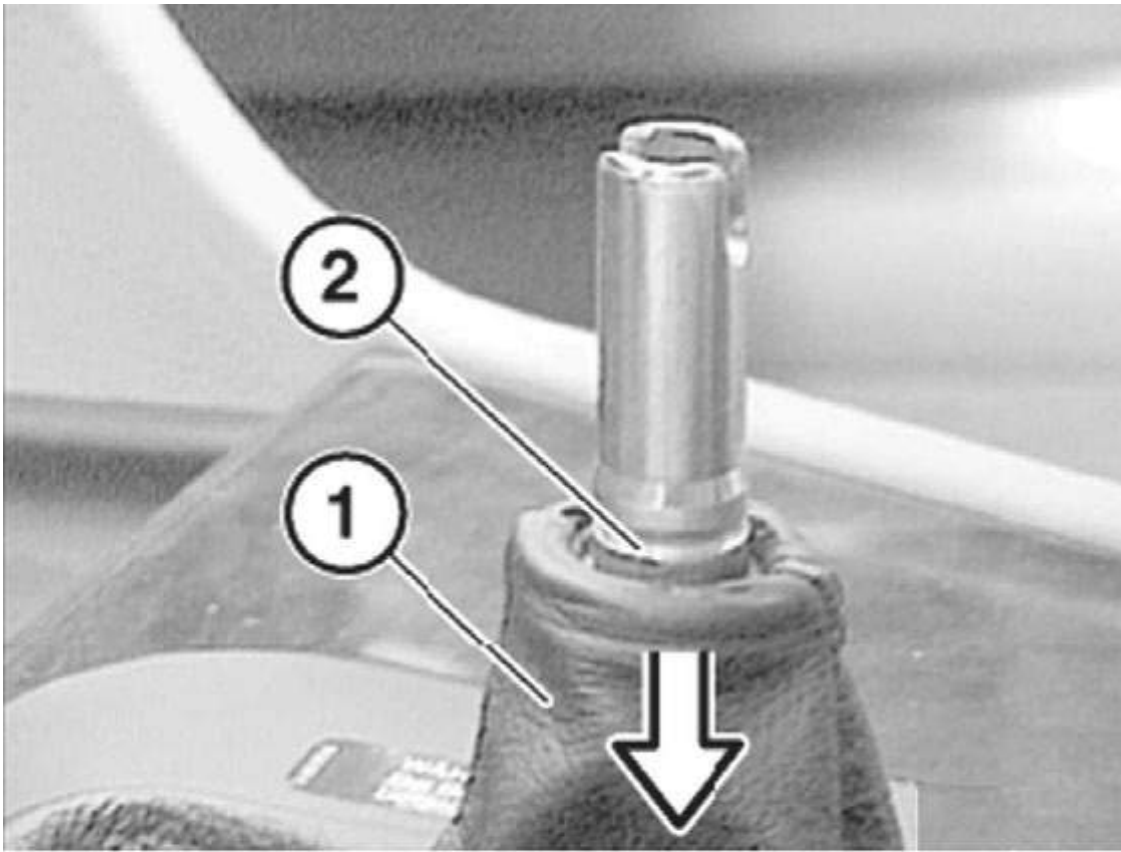


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**Fig. 42: Detaching Knob**

Courtesy of BMW OF NORTH AMERICA, INC.

During installation, ensure rubber gaiter (1) is pushed down until groove (2) is fully exposed. See **Fig. 43**.



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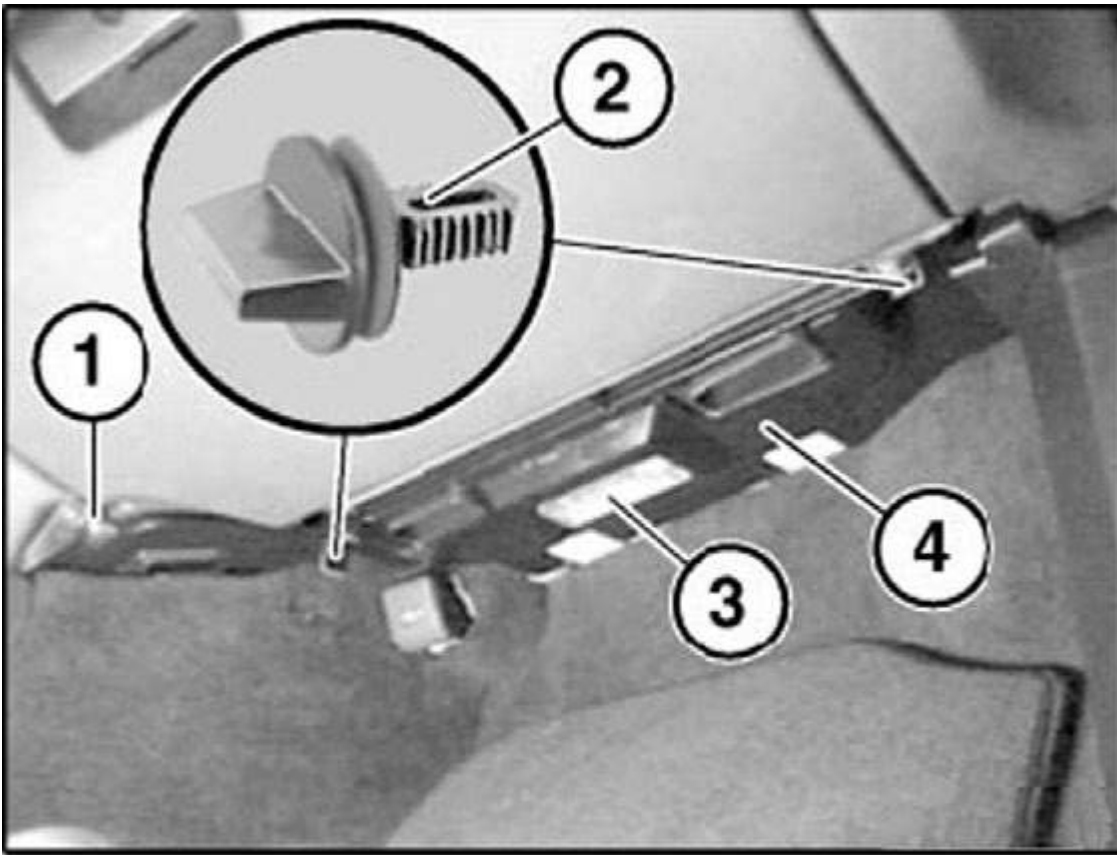
**Fig. 43: Identifying Groove**

Courtesy of BMW OF NORTH AMERICA, INC.

## STORAGE COMPARTMENT

### Removal & Installation

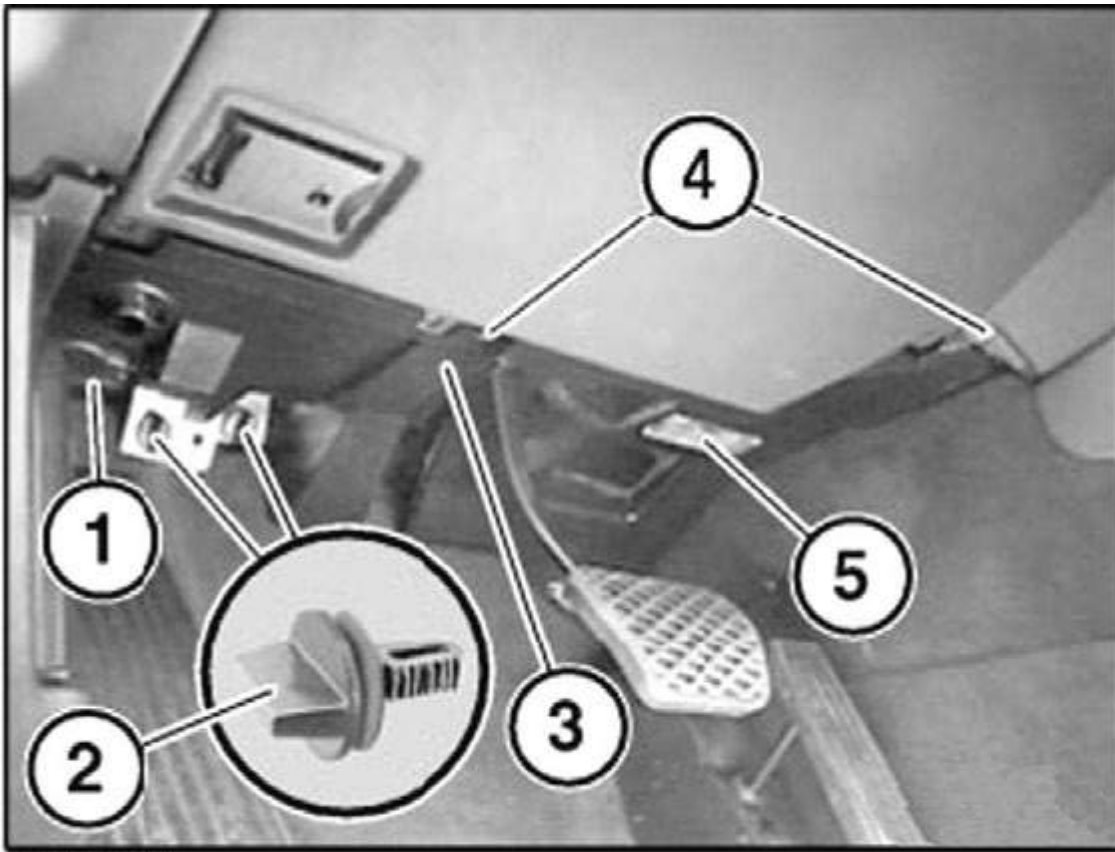
Release screw (1). Turn toggle (2) and remove. Lower trim (4) a little and disconnect plug connection for footwell light (3). Remove bottom right trim (4) for instrument panel.



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**Fig. 44: Removing Bottom Right Trim**  
Courtesy of BMW OF NORTH AMERICA, INC.

Unlock gong (1) and remove from trim (3). Release screws (4). Turn toggle (2) and remove. Lower trim (3) a little and disconnect plug connection for footwell light (5). See **Fig. 45**.



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**Fig. 45: Removing Pedal Assembly Trim**

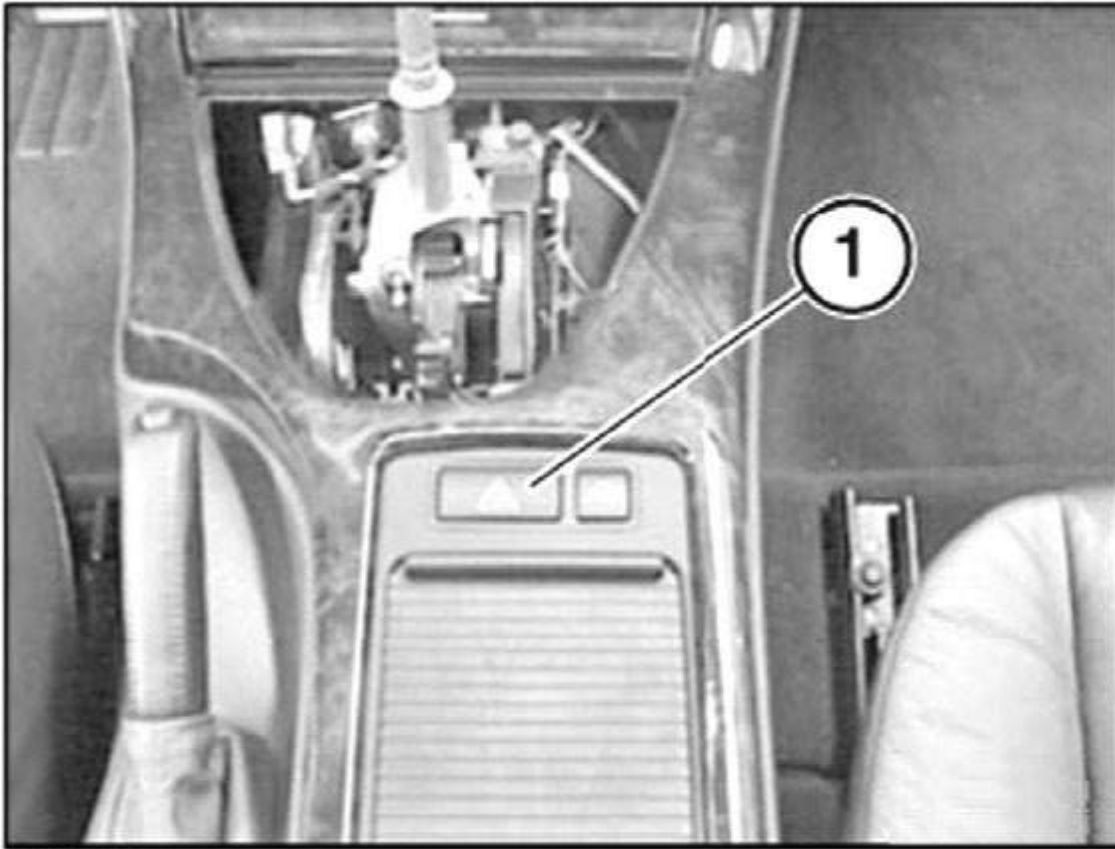
Courtesy of BMW OF NORTH AMERICA, INC.

Remove shift lever knob/handle. See **SHIFT LEVER KNOB/HANDLE**.

Remove trim (1) with rubber gaiter (2) from center console. See **Fig. 1**.

Disconnect plug connections (1) and remove trim (2). See **Fig. 2**.

Press out switch for hazard warning flashers/central locking (1) through opening for preselector lever finisher. Disconnect plug. See **Fig. 46**.



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**Fig. 46: Removing Hazard Warning Switch**  
Courtesy of BMW OF NORTH AMERICA, INC.

Unlock heating controls (1) with special tool 00 9 340 and pull out in direction of arrow. During installation, ensure that heating controls (1) are correctly seated. Disconnect plug connections and remove heating controls (1). See **Fig. 47**.

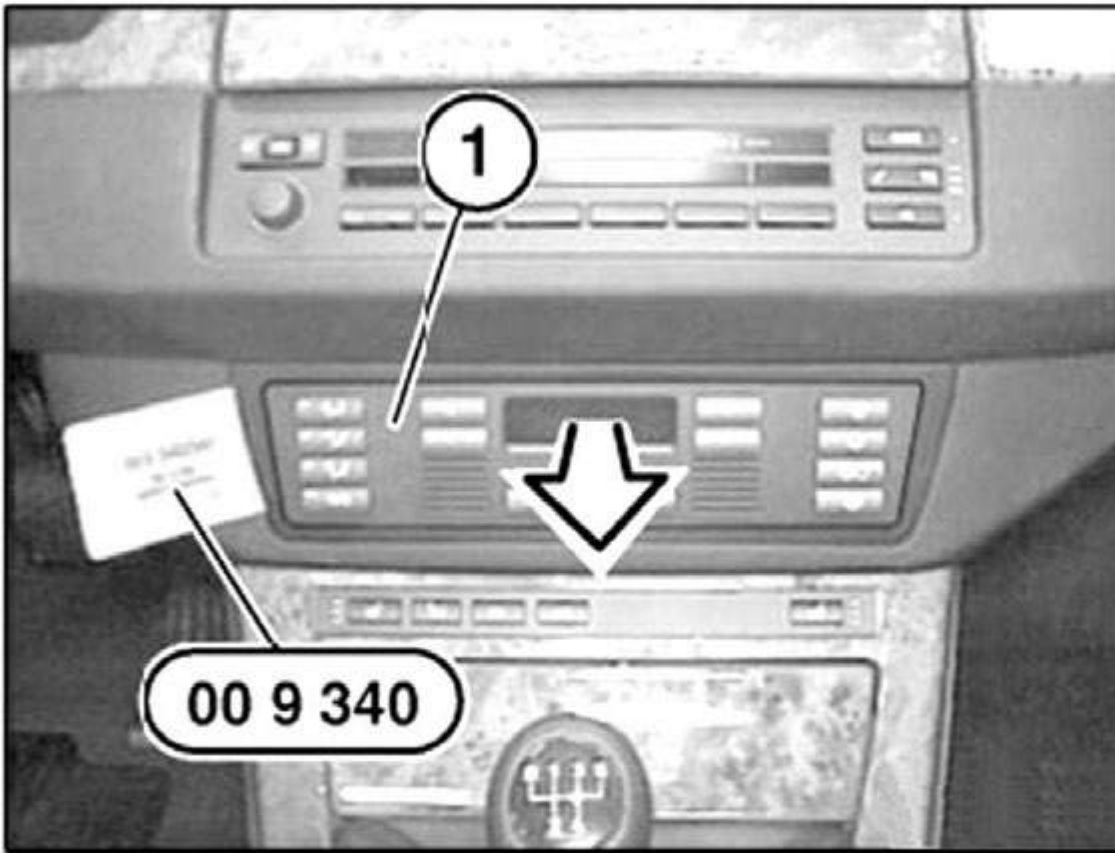


**Fig. 47: Removing A/C-Heater Controls**  
Courtesy of BMW OF NORTH AMERICA, INC.

Press out switch unit (1) through opening for heating controls. Disconnect plug. See **Fig. 48**.

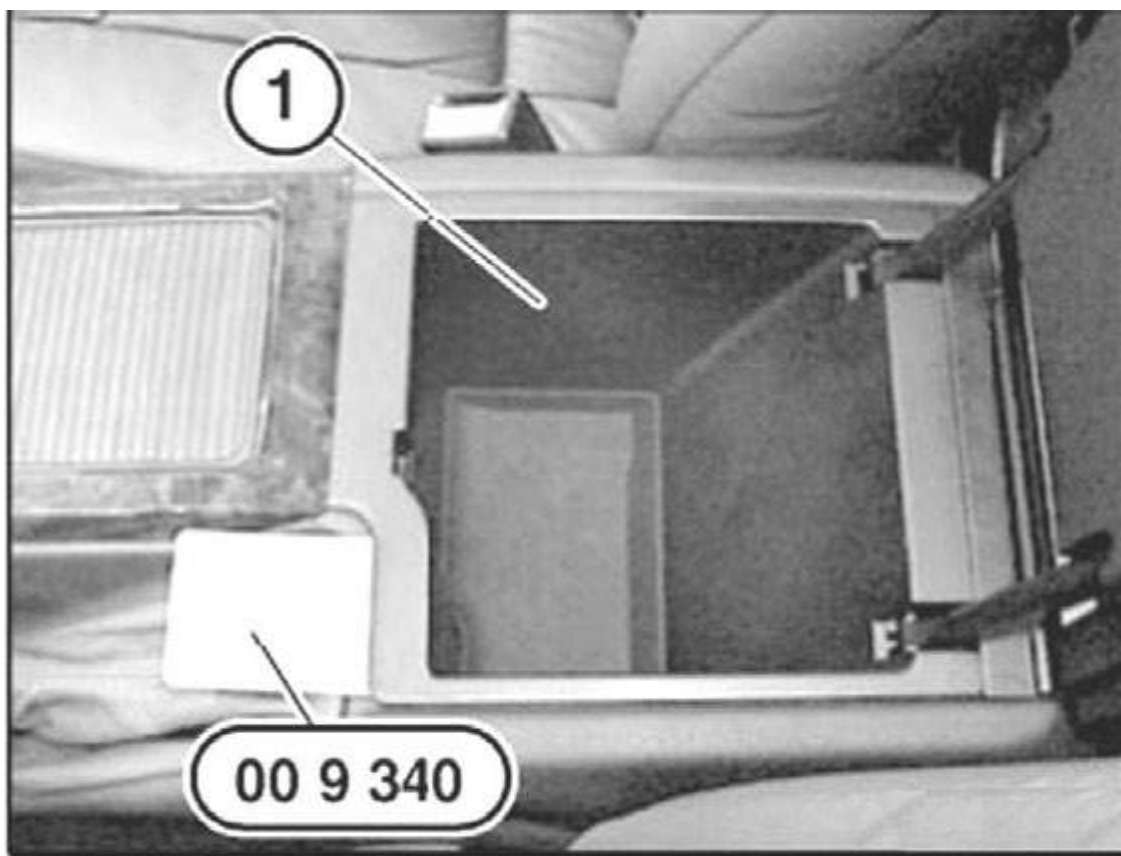


G00396309

**Fig. 48: Removing Switch Unit**

Courtesy of BMW OF NORTH AMERICA, INC.

Lever out storage box (1) with special tool 00 9 340 and remove. See **Fig. 49**.

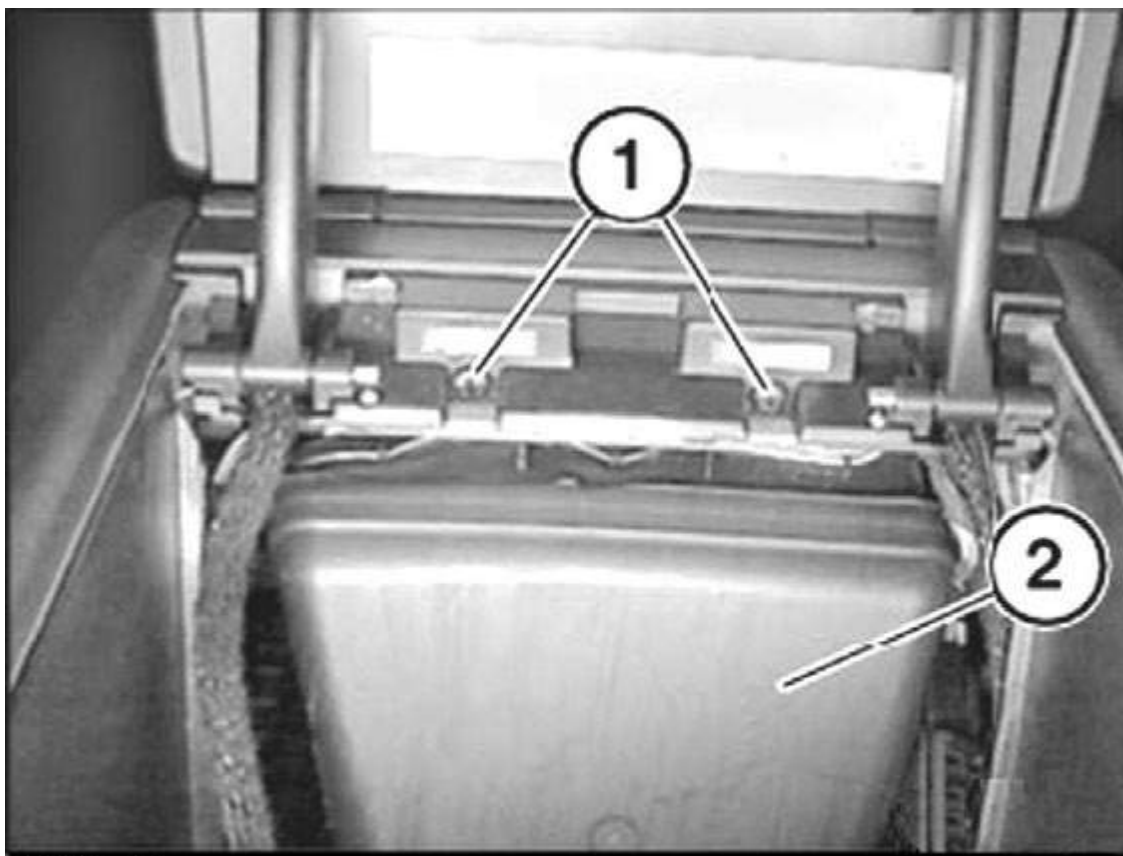


G00396310

**Fig. 49: Levering Out Storage Box**

Courtesy of BMW OF NORTH AMERICA, INC.

Loosen screws (1). During installation, ensure that air duct (2) is correctly seated. See **Fig. 50**.

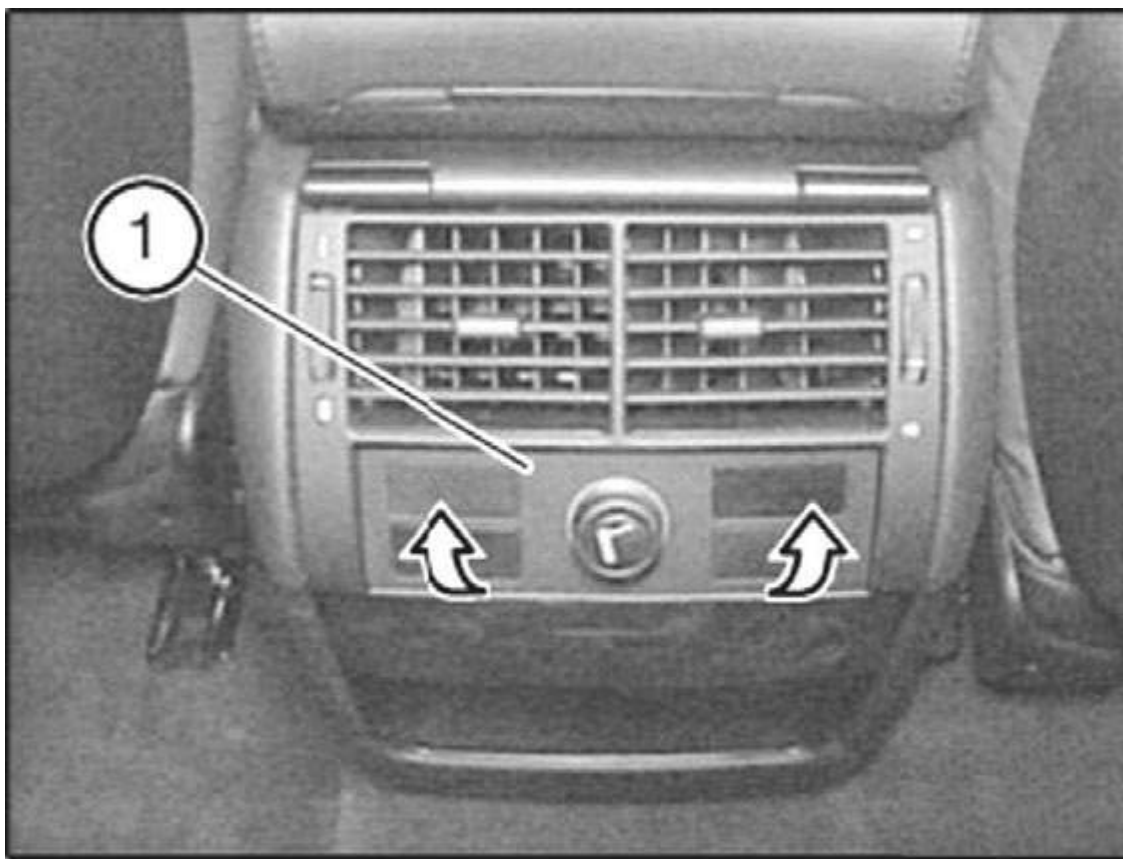


G00396311

**Fig. 50: Removing Air Duct**

Courtesy of BMW OF NORTH AMERICA, INC.

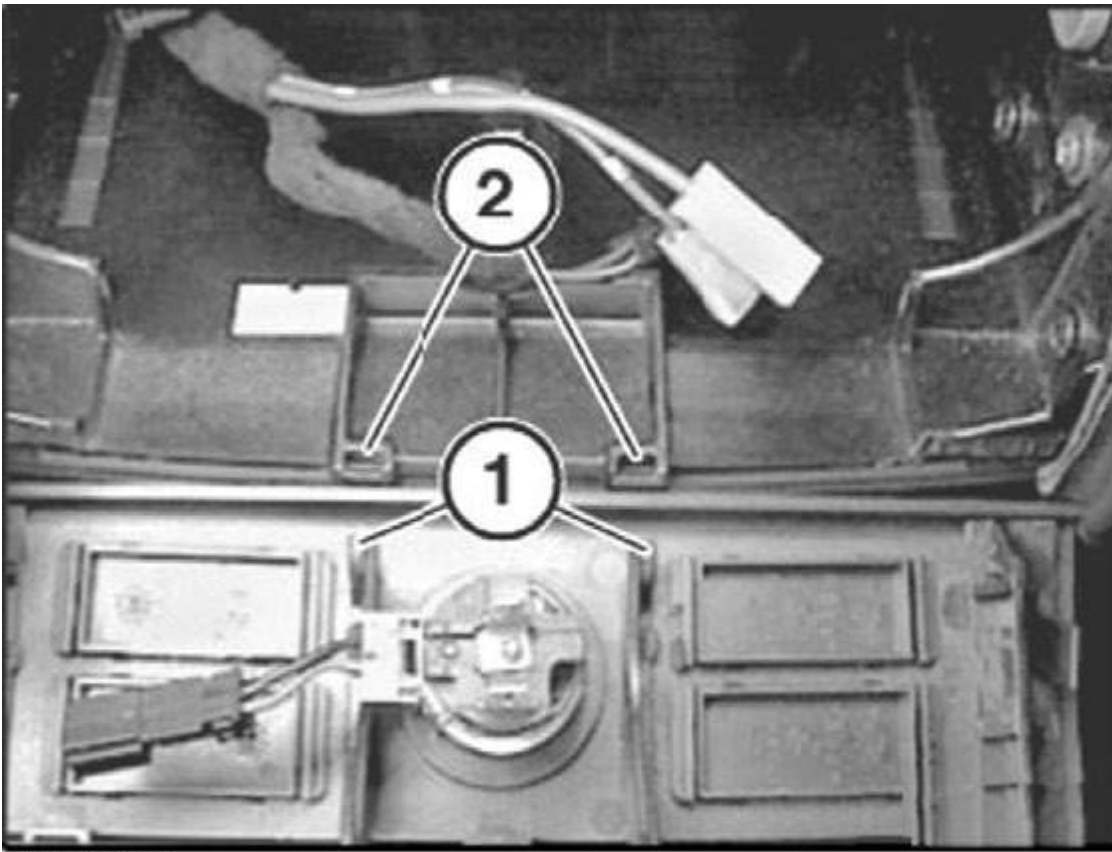
Pullout fresh-air grill (1) in direction of arrow. See **Fig. 51**.



G00396312

**Fig. 51: Pulling Out Fresh Air Grille In Direction Of Arrow**  
Courtesy of BMW OF NORTH AMERICA, INC.

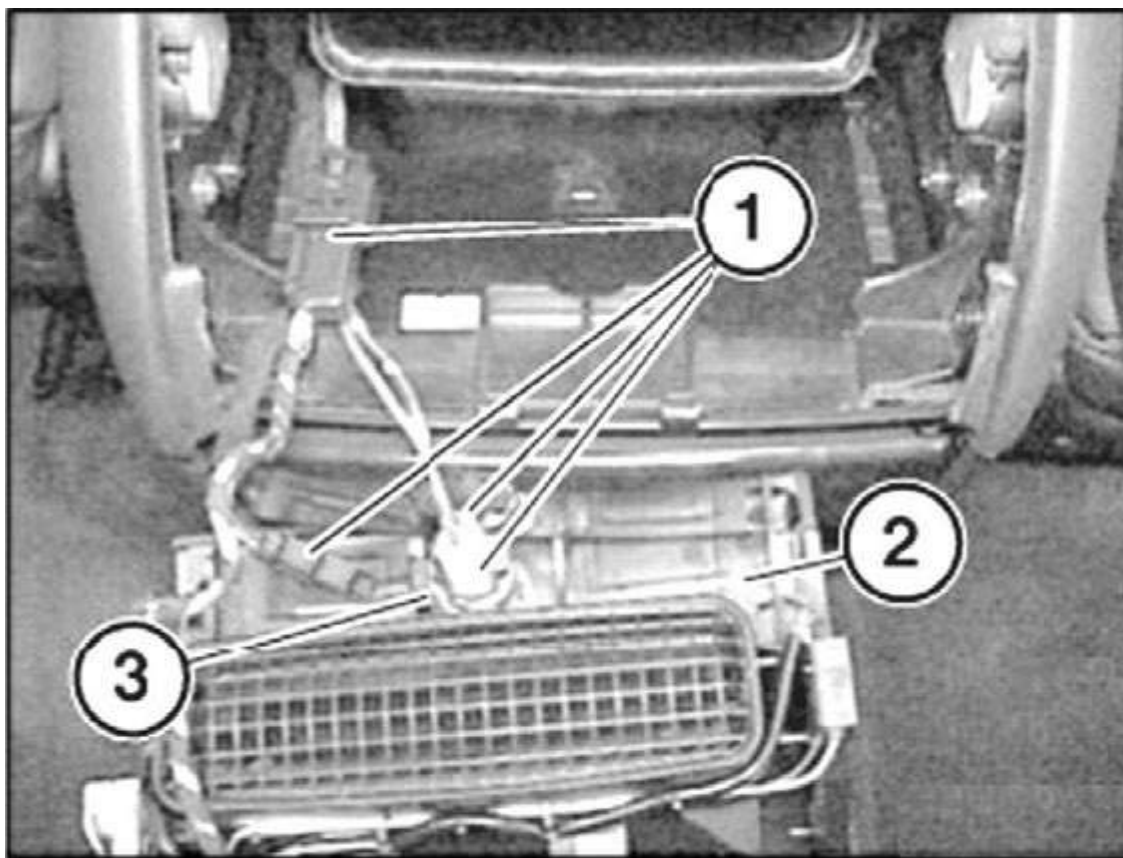
During installation, snap journals (1) into place in openings (2). See **Fig. 52**.



G00396313

**Fig. 52: Snapping Journals Into Place In Openings**  
Courtesy of BMW OF NORTH AMERICA, INC.

Disconnect plug connections (1). If necessary, disconnect plug connections on switch for seat heating. Remove fresh air grill (2). If necessary, unclip switch for seat heating. See **Fig. 53**.

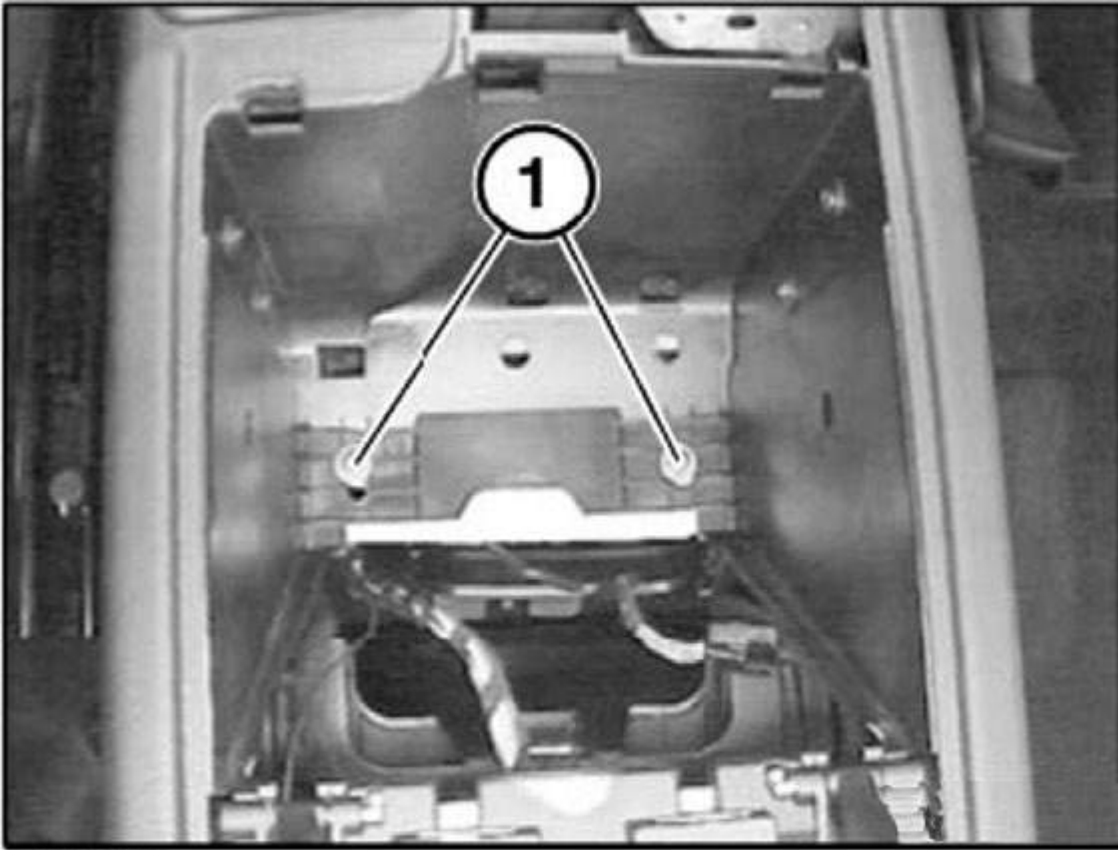


G00396314

**Fig. 53: Removing Fresh Air Grille**

Courtesy of BMW OF NORTH AMERICA, INC.

Release screws. See **Fig. 54.**

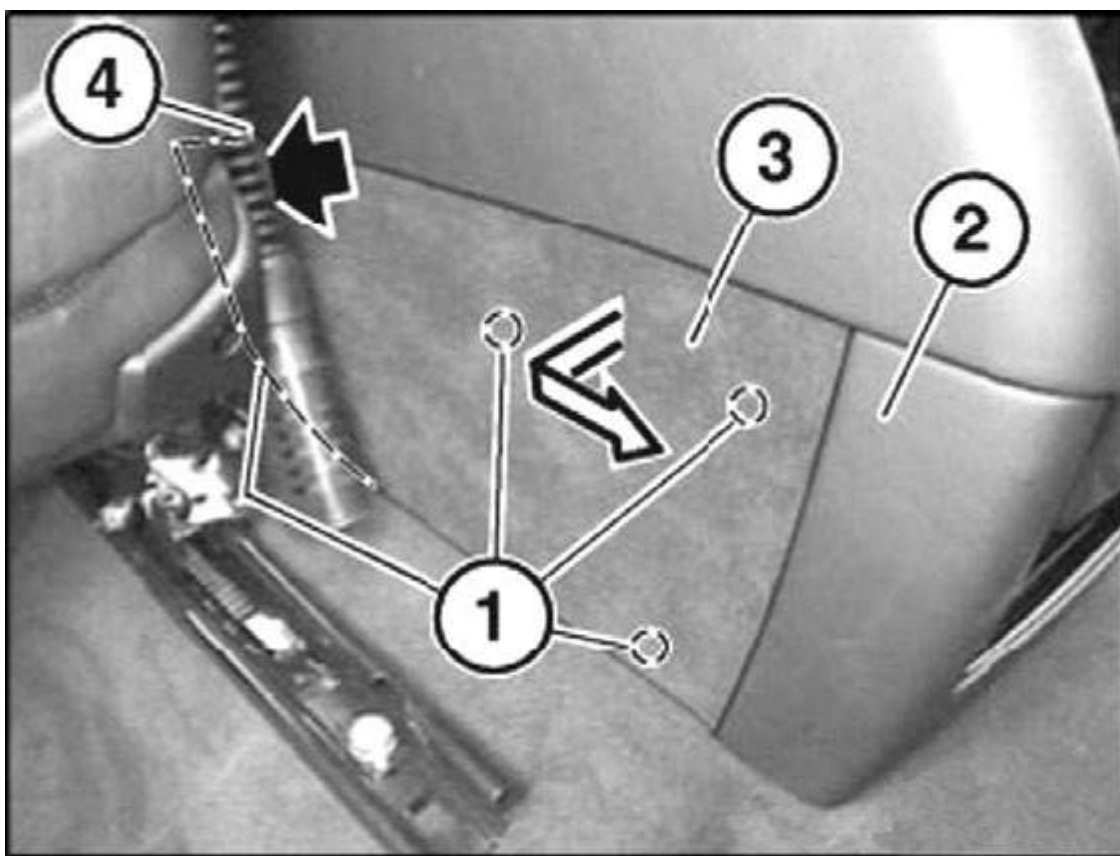


G00396315

**Fig. 54: Identifying Screws**

**Courtesy of BMW OF NORTH AMERICA, INC.**

Last clip on front carpet (4) must be unclipped (risk of damage). Unclip clips (1) on left/right with carpet (3) outwards from center console (2). Pull out carpet (3) towards rear. See **Fig. 55**.

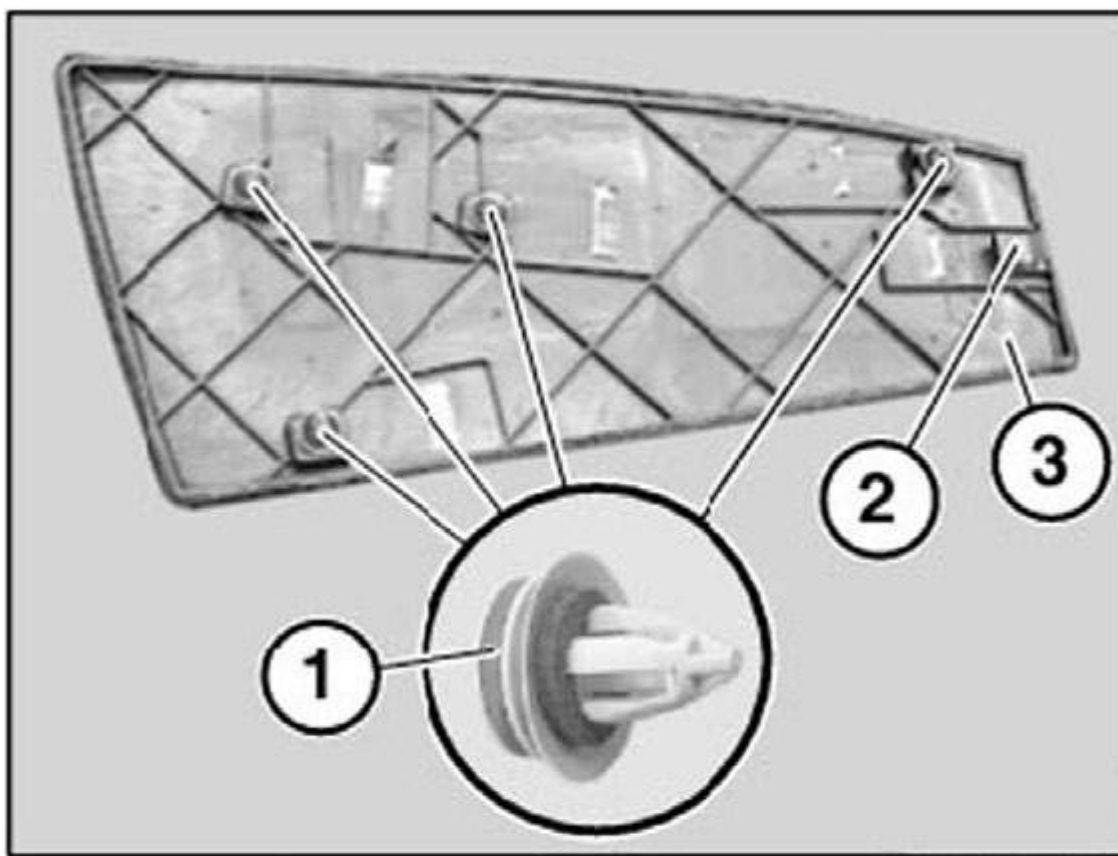


G00396316

**Fig. 55: Removing Carpet**

Courtesy of BMW OF NORTH AMERICA, INC.

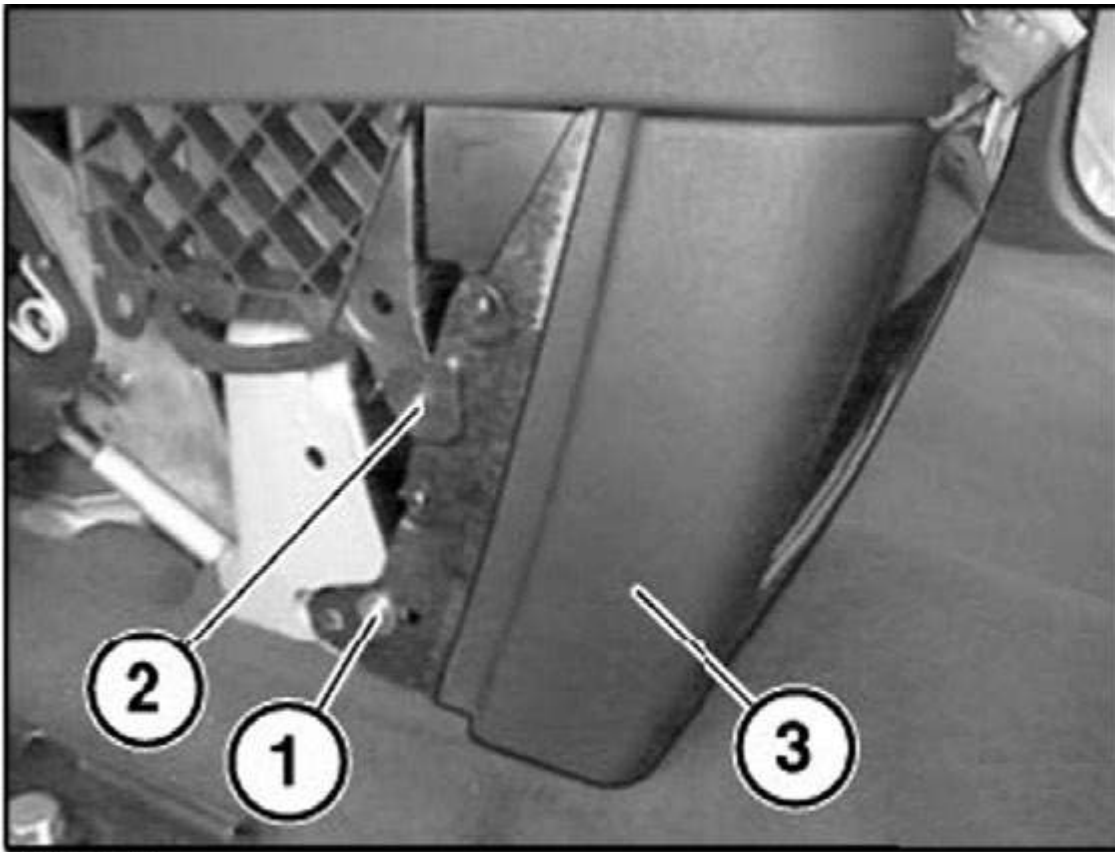
During installation, if necessary, replace faulty clips (1) with sealing washer and retainer (2) on carpet (3). See **Fig. 56**.



G00396317

**Fig. 56: Identifying Clips, Retainer & Carpet**  
Courtesy of BMW OF NORTH AMERICA, INC.

Screw (2) is only released for removal of cup holder (3). Unfasten screws (1) and (2) left/right. See **Fig. 57**.

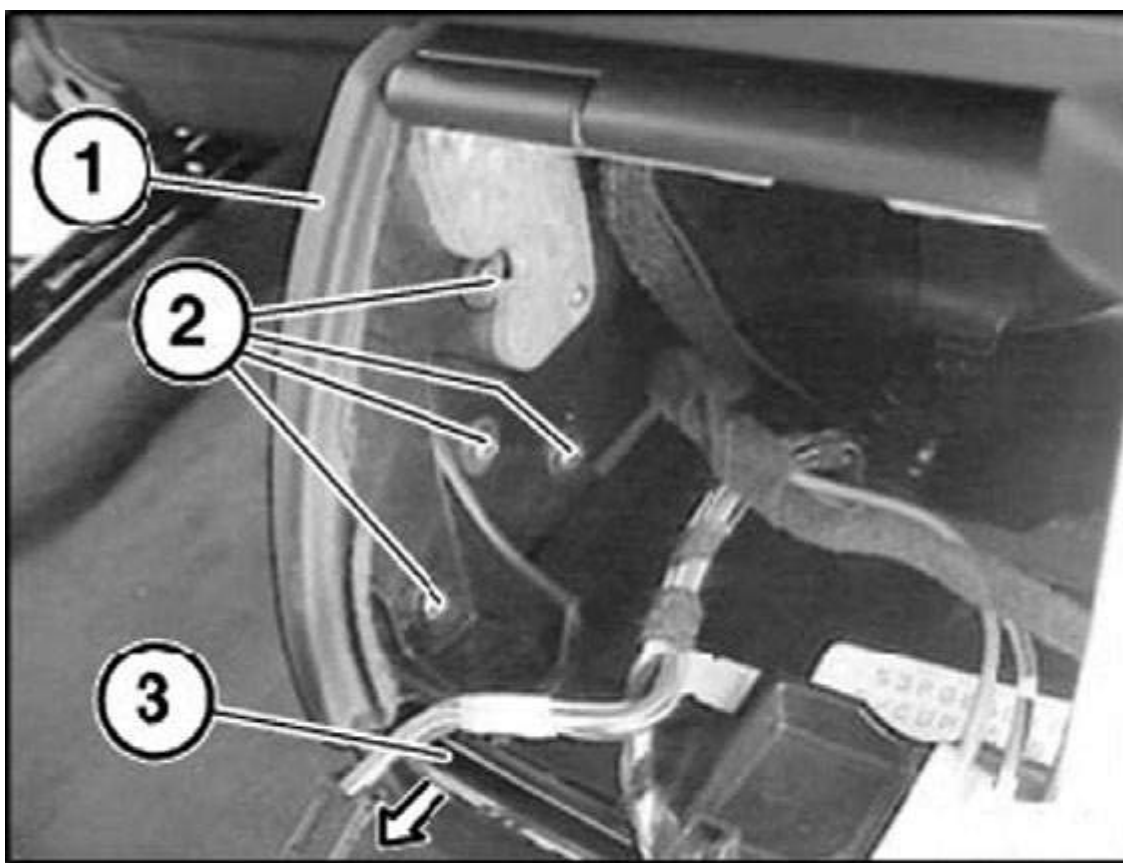


G00396318

**Fig. 57: Removing Cup Holder**

Courtesy of BMW OF NORTH AMERICA, INC.

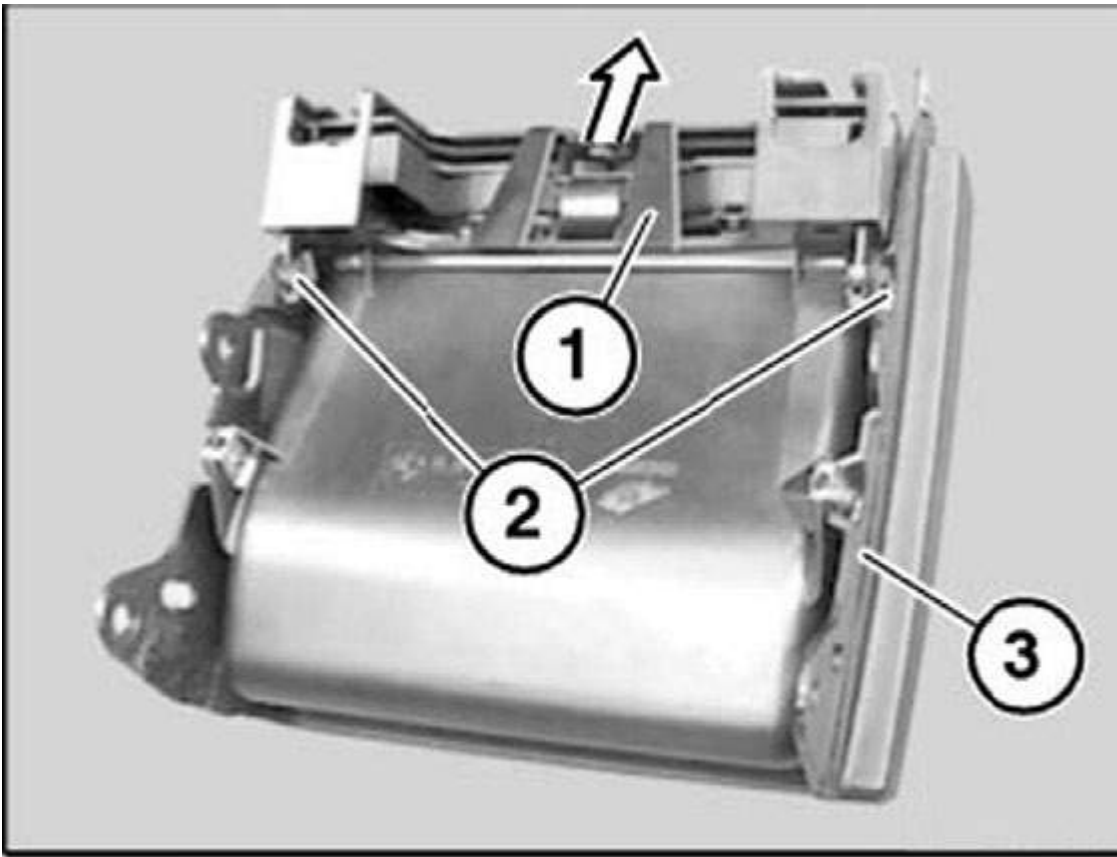
Release left/right screws (2). Pull left/right side sections (1) apart and pull out center console (rear) with cup holder (3). See **Fig. 58**.



G00396319

**Fig. 58: Removing Center Console With Cup Holder**  
Courtesy of BMW OF NORTH AMERICA, INC.

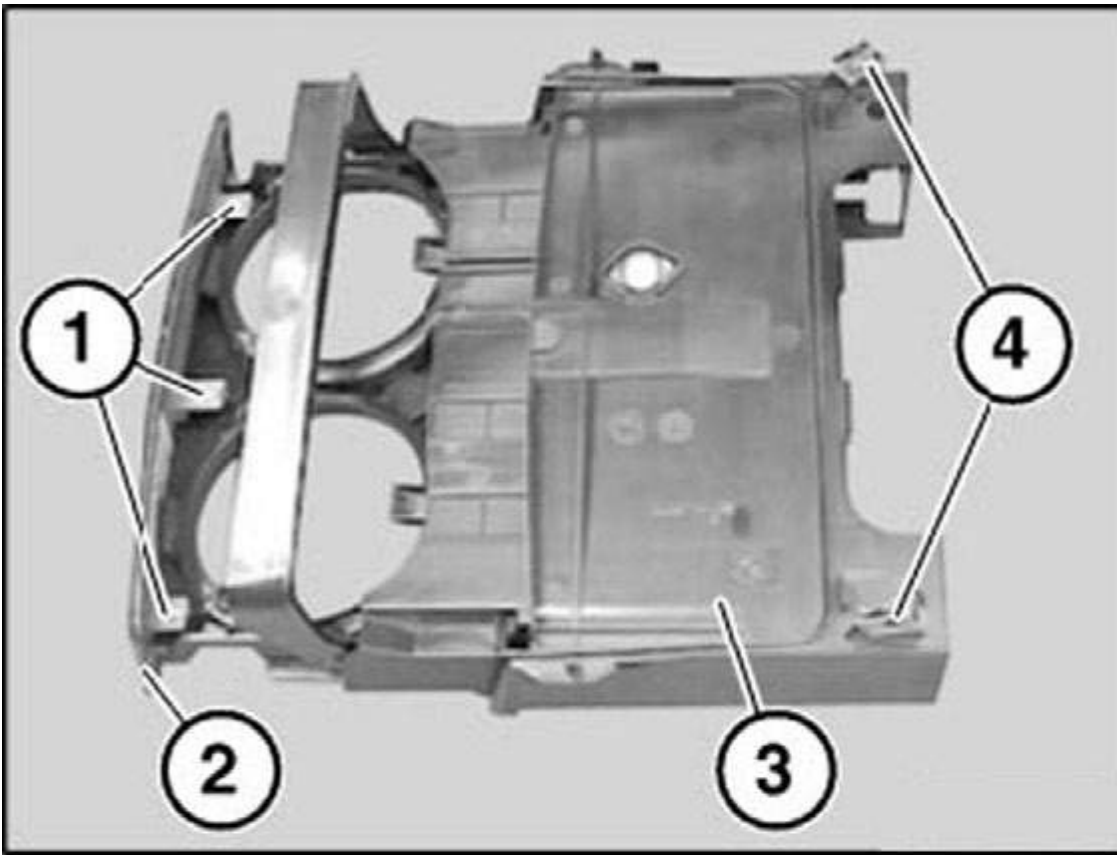
Release screws (2). Detach cup holder (1) from carrier (3). See **Fig. 59**.



G00396320

**Fig. 59: Detaching Cup Holder From Carrier**  
Courtesy of BMW OF NORTH AMERICA, INC.

During replacement only, open cup holder. Release screws (1) and detach molding (2). Detach metal nuts (4) from cup holder (3). See **Fig. 60**.

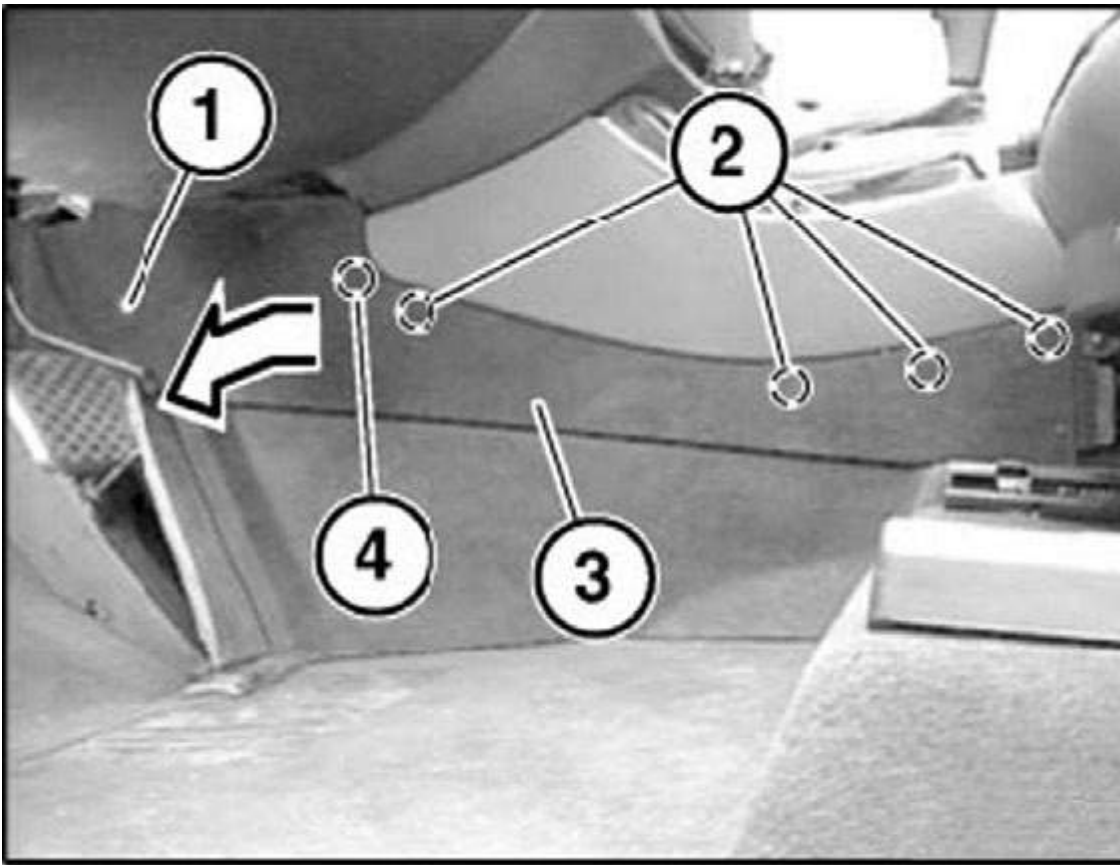


G00396321

**Fig. 60: Disassembling Cup Holder**

**Courtesy of BMW OF NORTH AMERICA, INC.**

Release left/right screws (1). Unclip clips (2) outwards on side carpet (3) on left/right. See **Fig. 61**. Slide carpet (3) forwards out of retainer (4) and remove.

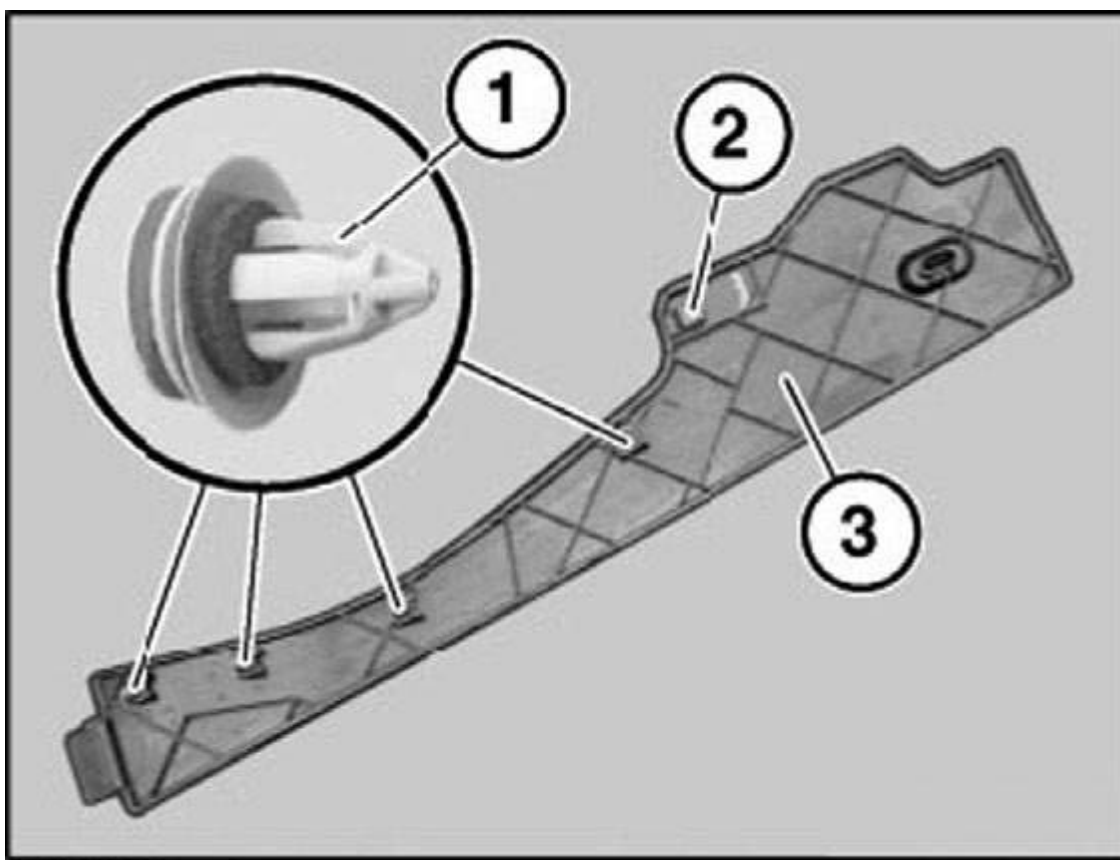


G00396322

**Fig. 61: Removing Screws & Clips**

Courtesy of BMW OF NORTH AMERICA, INC.

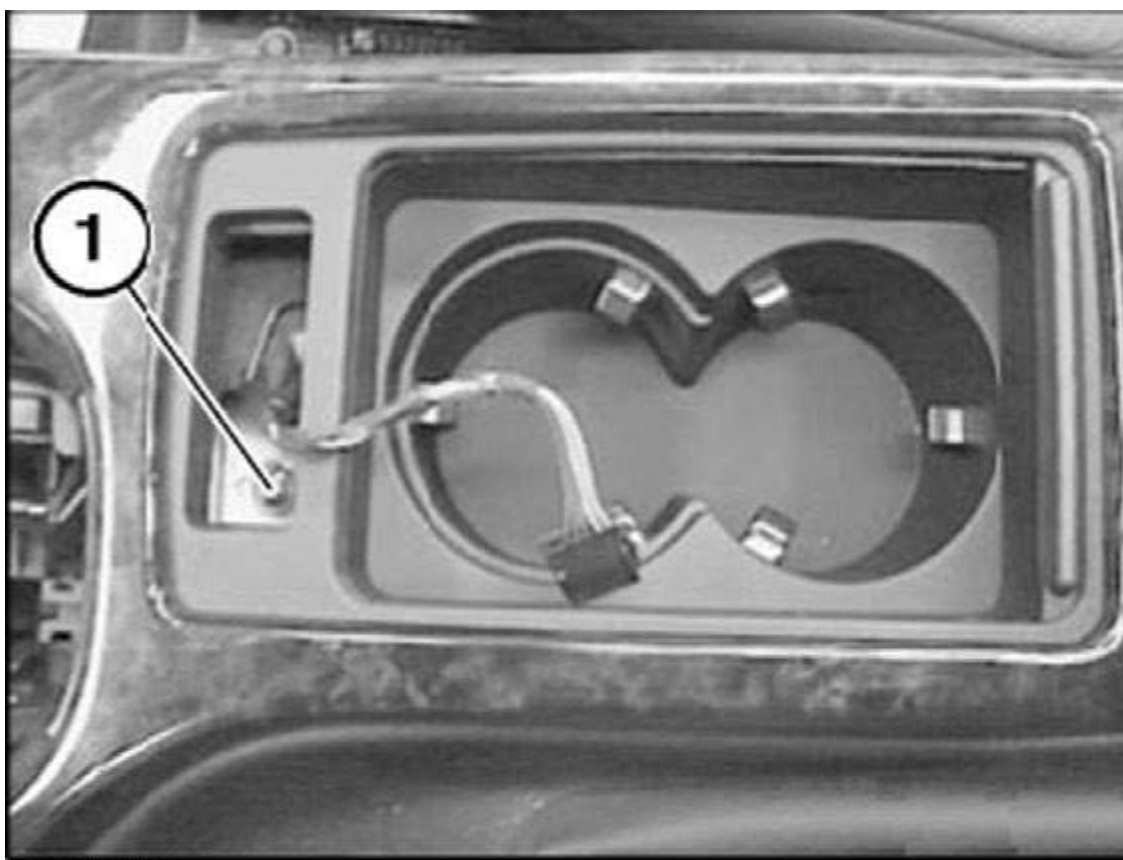
During installation, if necessary, replace faulty clips (1) with sealing washer and retainer (2) on side carpet (3).  
See **Fig. 62**.



G00396323

**Fig. 62: Identifying Clips With Sealing Washer & Retainer On Side Carpet**  
Courtesy of BMW OF NORTH AMERICA, INC.

Release screw (1). See [Fig. 63](#).

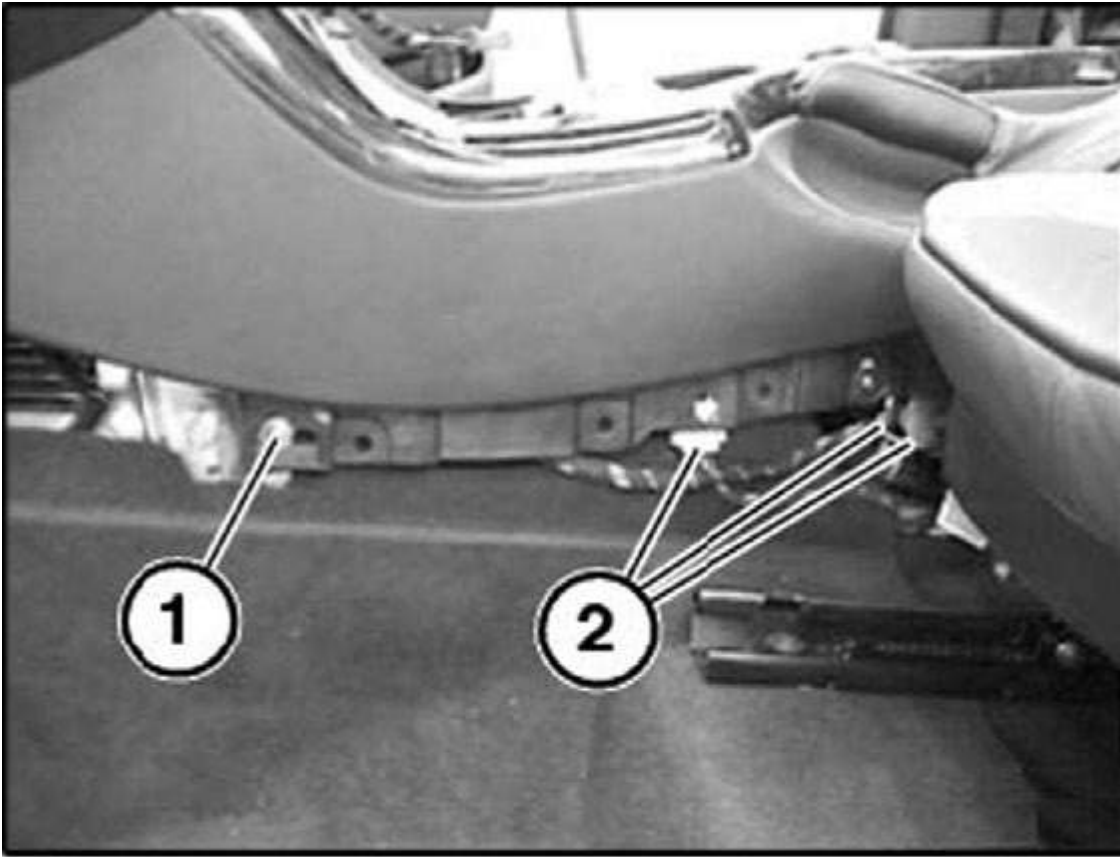


G00396324

**Fig. 63: Identifying Screw**

Courtesy of BMW OF NORTH AMERICA, INC.

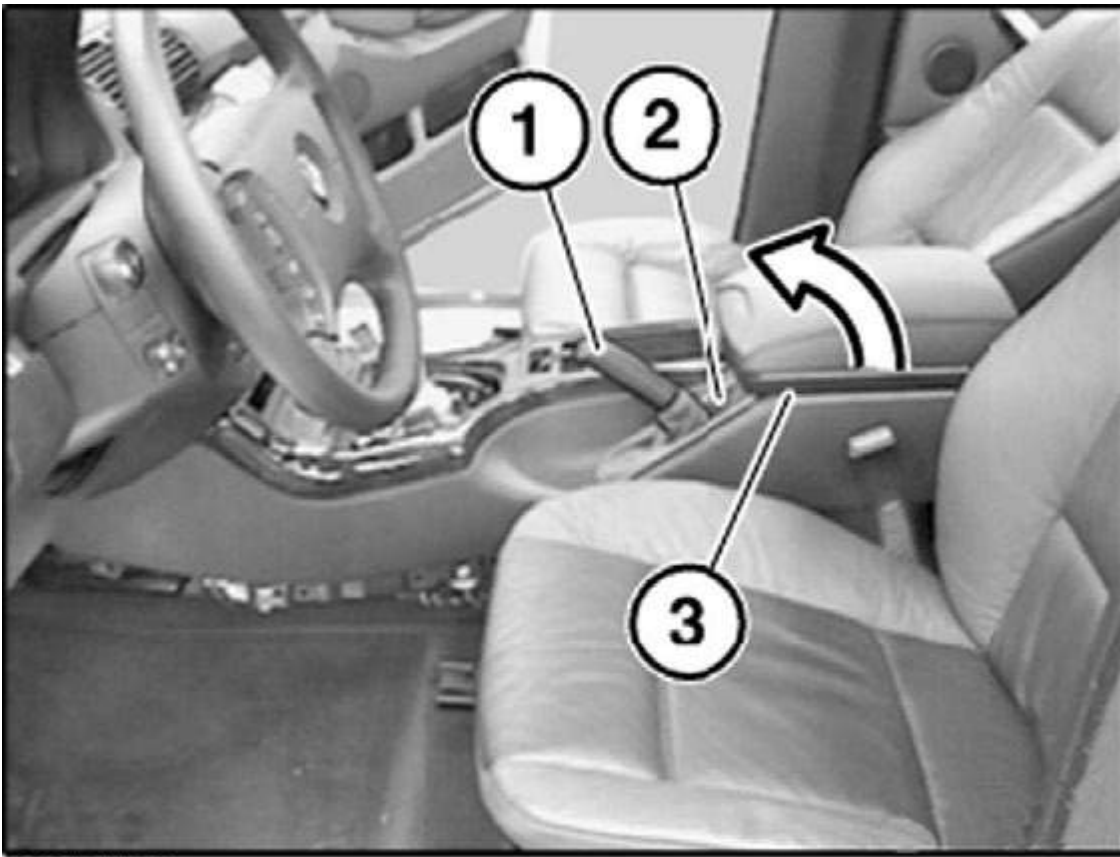
Release left/right screws (1). Disconnect plug connections (2). See **Fig. 64**.



G00396325

**Fig. 64: Identifying Left & Right Screws & Connectors****Courtesy of BMW OF NORTH AMERICA, INC.**

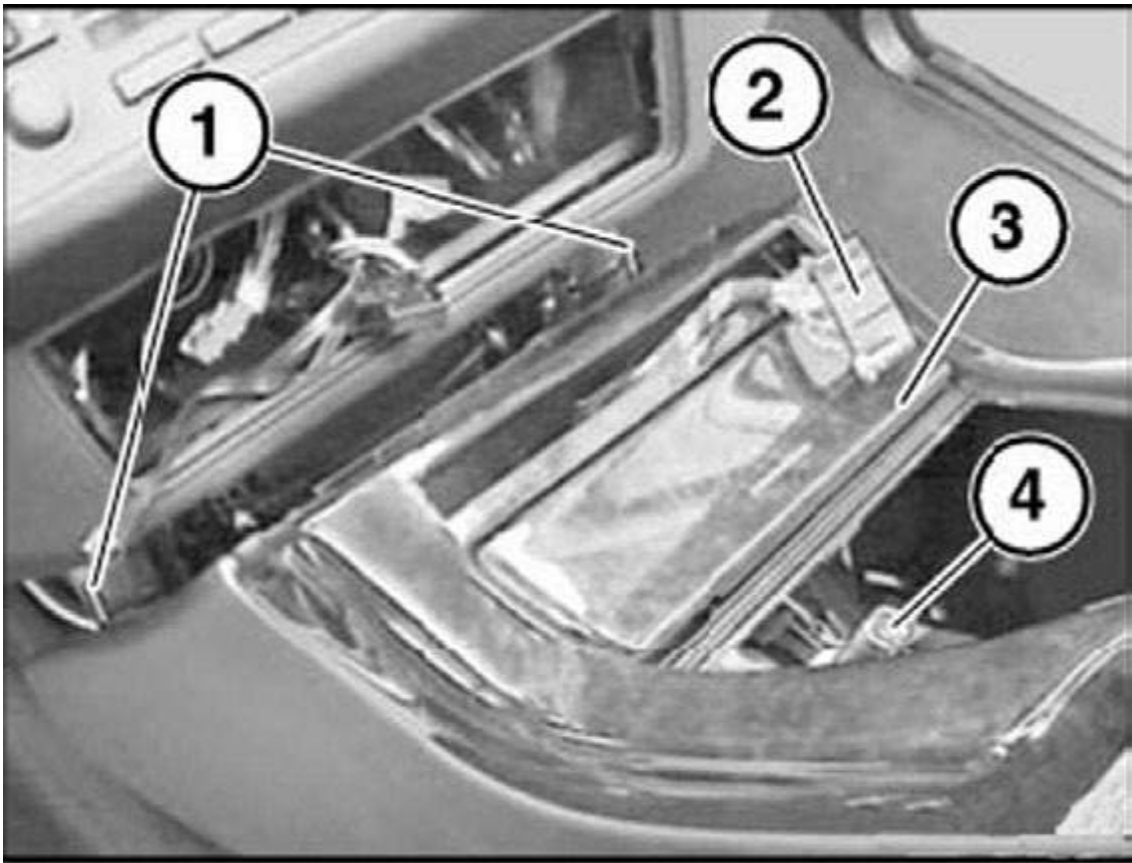
Apply hand brake lever (1) to maximum setting. Unclip rubber gaiter (2). Raise center console (3) at rear and lift over hand brake lever (1). See **Fig. 65**.



G00396326

**Fig. 65: Raising Center Console At Rear & Lifting Over Handbrake Lever**  
Courtesy of BMW OF NORTH AMERICA, INC.

Feed plug (2) out of center console (3). Lift center console (3) over shift stick (4) and remove from car. See **Fig. 66**. During installation, guides (1) must not be damaged.



G00396327

**Fig. 66: Lifting Center Console Out Of Vehicle**  
Courtesy of BMW OF NORTH AMERICA, INC.

**TORQUE SPECIFICATIONS**

**TORQUE SPECIFICATIONS**

| Application                                                                         | Ft. Lbs. (N.m) |
|-------------------------------------------------------------------------------------|----------------|
| Cable On Shift Tower                                                                | 11 (15)        |
| Flexible Disk To Propeller Shaft & Transmission Output Flange/Steel Propeller Shaft |                |
| Thread M8/8.8                                                                       | 35 (48)        |
| Thread M10/10.9                                                                     | 47 (64)        |
| Thread M12/10.9                                                                     | 74 (100)       |
| INCH Lbs. (N.m)                                                                     |                |
| Clamping Screw On Shift Lever                                                       | 88 (10)        |
| Interlock Cable On Shift Tower                                                      | 62 (7)         |
| Shift Console To Tunnel                                                             | 62 (7)         |