

TRANSMISSION**Automatic Transmission - Repair Instructions - 128i****TRANSMISSION ASSEMBLY****00 DANGER OF POISONING IF OIL IS INGESTED/ABSORBED THROUGH THE SKIN****Danger of poisoning!**

Ingesting oil or absorbing through the skin may cause poisoning!

Possible symptoms are:

- Headaches
- Dizziness
- Stomach aches
- Vomiting
- Diarrhoea
- Cramps/fits
- Unconsciousness

Protective measures/rules of conduct:

- Pour oil only into appropriately marked containers
- Do **not** pour oil into drinking vessels (drinks bottles, glasses, cups or mugs)
- Observe country-specific safety regulations

First aid measures:

- Do not induce vomiting.

If the person affected is still conscious, he/she must rinse out their mouth with water, drink plenty of water and consult a doctor immediately.

If the person affected is unconscious, do not administer anything by mouth, place the person in the recovery position and seek immediate medical attention.

00 RISK OF INJURY IF OIL COMES INTO CONTACT WITH EYES AND SKIN**Danger of injury!**

Contact with eyes or skin may result in injury!

Possible symptoms are:

- Impaired sight
- Irritation of the eyes
- Reddening of the skin
- Rough and cracked skin

Protective measures/rules of conduct:

- Wear protective goggles
- Wear oil-resistant protective gloves
- Observe country-specific safety regulations

First aid measures:

- **Eye contact:** Rinse eyes immediately with plenty of water for at least 15 minutes; if available, use an eye-rinsing bottle. If irritation of the eyes persists, consult a doctor.
- **Skin contact:** Wash off with soap and water immediately. If irritation persists, consult a doctor.

NOTE: Do not use solvents/thinners.

00 SAFETY INSTRUCTIONS FOR HANDLING OIL

WARNING: **DANGER OF POISONING** if oil is ingested/absorbed through the skin!
RISK OF INJURY if oil comes into contact with eyes and skin!

Recycling:

Observe country-specific waste-disposal regulations.

Measures if oil is unintentionally released:

- **Personal precautionary measures:** Danger of slipping! Keep non-involved persons away from the work area. Wear personal protective clothing/equipment.
- **Environmental protection measures:** Prevent oil from draining into drain channels, sewerage systems, pits, cellars, water and the ground.
- **Limiting spread:** Use oil blocks to prevent the surface spread of oil.
- **Cleaning procedure:** Bind and dispose of escaped oil with nonflammable absorbents.

NOTE: Do not flush oil away with water or aqueous cleaning agents.

00 11 237 CHECKING/TOPPING UP FLUID LEVEL IN AUTOMATIC TRANSMISSION (GA6L45R)

IMPORTANT: Use only the approved transmission fluid. Failure to comply with this requirement will result in serious damage to the automatic transmission!

Remove exhaust system bracket (1).

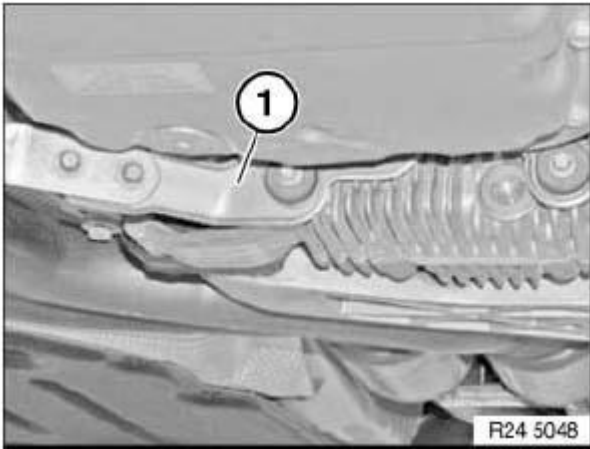


Fig. 1: Identifying Exhaust System Bracket
Courtesy of BMW OF NORTH AMERICA, INC.

Topping up transmission fluid after a repair:

Stand vehicle on a level surface and secure against rolling off.

Undo filler plug (1).

Installation:

Replace sealing ring.

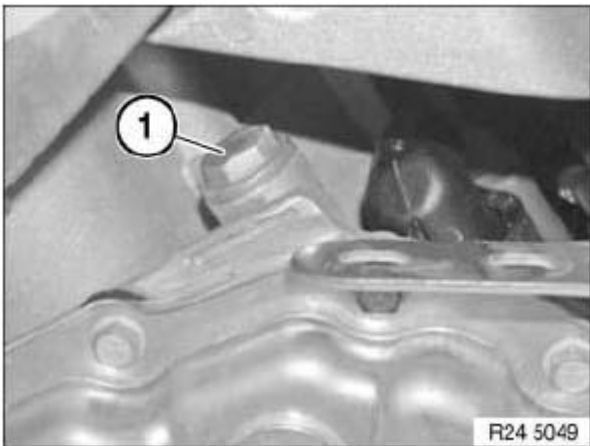


Fig. 2: Identifying Filler Plug
Courtesy of BMW OF NORTH AMERICA, INC.

Top up transmission fluid until it emerges from filling orifice.

Start engine.

Replenish transmission fluid until it emerges from filling orifice.

Screw in filler plug (1).

Tightening torque. See 24 11 7AZ in **24 11 TRANSMISSION HOUSING, TRANSMISSION OIL SUMP** .

Press brake pedal to floor and shift through all gears several times at idle speed. Then shift to "P" position (Park).

Then check fluid level.

Checking fluid level:

- Connect BMW Diagnosis and Information System (DIS) to vehicle.
- Call up Service functions (drive).
- Carry out fluid level check in accordance with instructions.

23 TRANSMISSION DESIGNATIONS

Breakdown of BMW designation:

BREAKDOWN OF BMW DESIGNATION

A5S 300J (old designation)		
A	Transmission type	<ul style="list-style-type: none"> ○ S = Manual transmission ○ A = Automatic transmission
5	Number of forward gears	
S	Type of top gear	<ul style="list-style-type: none"> ○ D = Direct gear ○ S = Overdrive gear
300	Max. input torque (Nm)	
J	Code letter of transmission manufacturer	<ul style="list-style-type: none"> ○ G = Getrag ○ J = Jatco ○ R = GMPT (General Motors Powertrain) ○ Z = ZF (Zahnradfabrik Friedrichshafen)
SMG	Notes	SMG = Sequential M gearbox/transmission
GS6-37BZ (new designation according to BMW Group Standard GS 90007)		
G	Transmission	
S	Transmission type	<ul style="list-style-type: none"> ○ S = Manual transmission ○ A = Automatic transmission
6	Number of forward gears	
		<ul style="list-style-type: none"> ○ - = Standard with manual gearshift

-		<ul style="list-style-type: none"> ○ HP = Hydraulic planetary gear ○ DKG= Twin clutch transmission/gearbox
37	Transmission type	<ul style="list-style-type: none"> ○ 26 = D-transmission ○ 31 = C-transmission ○ 39 = F-transmission ○ 37 = H-transmission ○ 53 = G-transmission ○ 17 = I-transmission ○ 47 = J-transmission
B	Gear set	<ul style="list-style-type: none"> ○ B = Petrol/gasoline gear ratio ○ D = Diesel gear ratio ○ S= Sport gear ratio
Z	Code letter of transmission manufacturer	<ul style="list-style-type: none"> ○ G = Getrag ○ Z = ZF (Zahnradfabrik Friedrichshafen)

Manual transmission:
MANUAL TRANSMISSION DESIGNATION

BMW designation	Manufacturer	Manufacturer designation	Remark
S5D 200G	Getrag	B transmission (220/5)	
S5D 200G	Getrag	B transmission (221/5)	for M41 engine only
S5D 250G	Getrag	B transmission (220/5)	Reinforced design
S5D 260Z	ZF	C-transmission (S5-31 D)	for M51 engine only
S5D 280Z	ZF	C-transmission (S5-31)	
S5D 310Z	ZF	C-transmission (S5-31)	up to 9.95
S5D 320Z	ZF	C-transmission (S5-31)	from 9.95 (reinforced design)
GS5S31BZ (SMG)	ZF	C transmission	SMG
GS5-39DZ	ZF	F transmission	
S6S 420G	Getrag	D-transmission (226/6)	
S6S 420G (SMG)	Getrag	D transmission	SMG
S6S 560G	Getrag	E-transmission (286/6)	
GS6-37BZ	ZF	H-transmission	
GS6S37BZ (SMG)	ZF	H-transmission	
GS6-37DZ	ZF	H-transmission	
GS6-37BG	Getrag	H-transmission	
GS6-53BZ	ZF	G-transmission	
GS6-53DZ	ZF	G-transmission	
GS6-17BG	Getrag	I-transmission	
GS7S47BG (SMG)	Getrag	J-transmission (247)	SMG 7-speed

GS7D36SG

Getrag

DKG436

DKG 7-speed

Automatic transmission:**AUTOMATIC TRANSMISSION DESIGNATION**

BMW designation	Manufacturer	Manufacturer designation	Remark
A4S 200R	GMPT	GM4	
A4S 270R	GMPT	THM-R1w	Transmission widesteped
A4S 310R	GMPT	THM-R1	
A5S 300J	Jatco	Jatco	
A5S 310Z	ZF	5HP-18	
A5S 325Z	ZF	5HP-19	
A5S 440Z	ZF	5HP-24	
A5S 560Z	ZF	5HP-30	
A5S 360R / 390R	GM	GM5	
GA6HP19Z	ZF	6HP19	
GA6HP26Z	ZF	6HP26	
GA6HP32Z	ZF	6HP32	
GA6L45R	GM	GM6	

23... UNIVERSAL BMW TRANSMISSION TAKE-UP**Special tools required:**

- **00 2 030** . See **00 2 030 UNIVERSAL HYDRO-LIFTER BASIC UNIT** .
- **23 4 050** . See **23 4 050 UNIVERSAL TRANSMISSION BRACKET** .

NOTE:

- The universal transmission bracket is introduced for the E60 AWD
- Suitable for manual and automatic transmissions

IMPORTANT: Front and rear supports (1) can be laterally adjusted by means of screws (2).
Carrier (3) of rear supports (1) can be longitudinally adjusted by means of screw.
Supports must be adapted in length and width to the transmission.

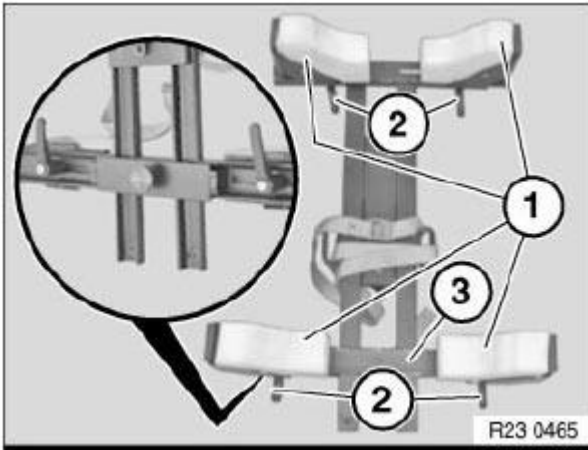


Fig. 3: Identifying Front And Rear Supports, Carrier And Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Supporting transmission:

Support transmission with special tools 23 4 050, 00 2 030 . See **Fig. 4**.

IMPORTANT: Transmission must be secured with tensioning strap (1).

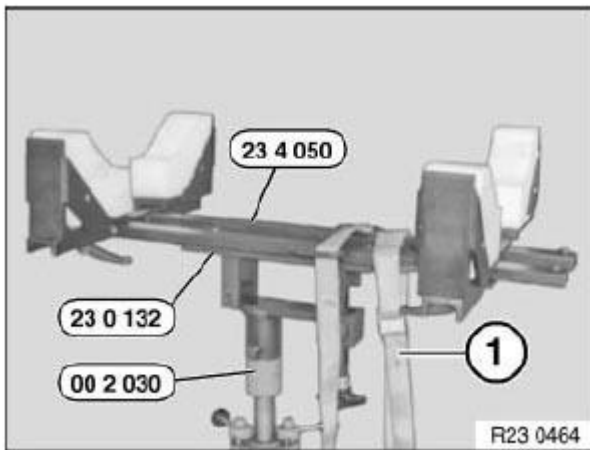


Fig. 4: Identifying Special Tools (23 4 050 And 00 2 030)
Courtesy of BMW OF NORTH AMERICA, INC.

23..... UNIVERSAL TRANSMISSION RETAINING BRIDGE

Special tools required:

- 00 1 450 . See **MAINTENANCE AND GENERAL INFORMATION - SPECIAL TOOLS -- 128I** .
- 24 0 200 . See **24 0 200 SUPPORT**

NOTE:

- The transmission retaining bridge 24 0 200 is suitable for both manual and automatic transmissions

IMPORTANT: Adapters and spindles must be adapted for positive locking to the transmission.
(Risk of injury)

Adapt adapters (1) and spindle with thrust piece (3) to transmission.

Adapt length with slide (2).

Screw in spindle (4).

IMPORTANT: Before mounting on assembly stand 00 1 450 , check retaining bridge for secure seating.

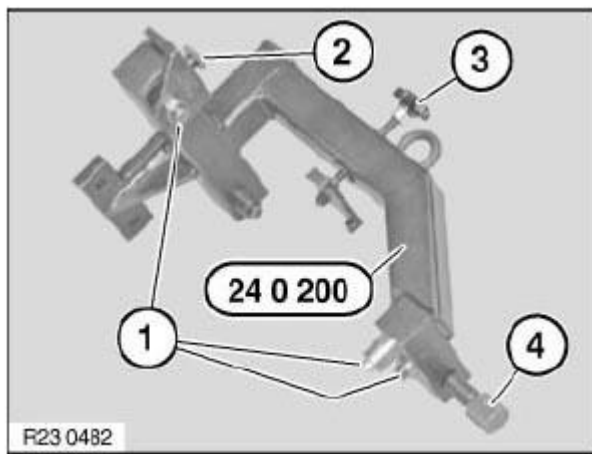


Fig. 5: Identifying Special Tools (24 0 200)
Courtesy of BMW OF NORTH AMERICA, INC.

24 00 018 ADJUSTING SELECTOR LEVER (GA6L45R)

NOTE: Check cable for ease of movement.
Move selector lever to "P" position.

Grip clamping sleeve (1).

Slacken nut (2).

Press selector lever (3) forwards into park position. Press cable (4) in direction of arrow and release again.

Grip clamping sleeve (1).

Tighten down nut (2).

Tightening torque . See 25 16 2AZ in **25 16 SHIFT CONSOLE - AUTOMATIC TRANSMISSION** .

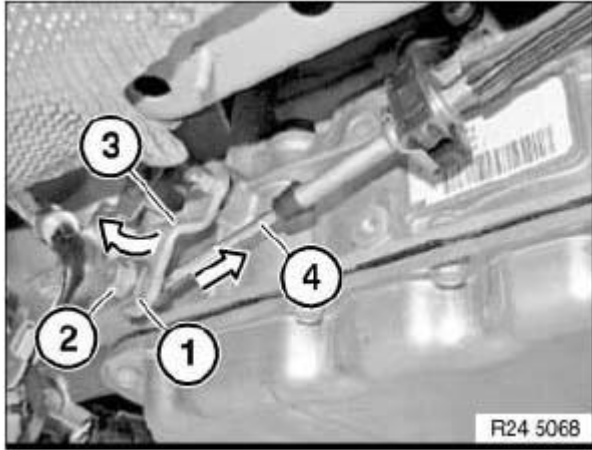


Fig. 6: Pressing Selector Lever

Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Move selector lever to "P" position.

Check whether parking gear is engaged by turning propeller shaft.

24 00 018 ADJUSTING SHIFT LEVER

NOTE: **Check cable for ease of movement.**
 Move selector lever to "P" position.

Press gear lever (1) forward into park position.

Clip shift cable head (2) onto ball head of gear lever.

Unscrew bolt (3).

Press cable (4) in direction of arrow, then release again.

Tighten screw (3).

Tightening torque. See 25 16 2AZ in **25 16 SHIFT CONSOLE - AUTOMATIC TRANSMISSION** .

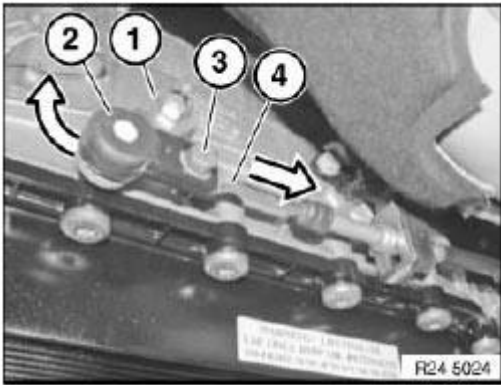


Fig. 7: Pressing Gear Lever

Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Move selector lever to "P" position.

Check whether parking gear is engaged by turning propeller shaft.

24 00 032 REMOVING AND INSTALLING AUTOMATIC TRANSMISSION (GA6L45R)

Special tools required:

For the following special tools, refer to MAINTENANCE AND GENERAL INFORMATION - SPECIAL TOOLS -- 128I .

- 00 2 030
- 00 9 010
- 00 9 120
- 00 9 130
- 23 4 050 . See 23 4 050 UNIVERSAL TRANSMISSION BRACKET .

For the following special tools, refer to AUTOMATIC TRANSMISSION - SPECIAL TOOLS .

- 24 1 110
- 24 2 390
- 24 4 160
- 24 4 161
- 24 4 165

IMPORTANT: After completion of work, check transmission oil level . See 00 11 237 CHECKING/TOPPING UP FLUID LEVEL IN AUTOMATIC TRANSMISSION (GA6L45R) . Use only the approved transmission fluid. Failure to comply with

this requirement will result in serious damage to the automatic transmission!

IMPORTANT: *Aluminum-magnesium materials.* No steel screws/bolts may be used due to the threat of electrochemical corrosion. A magnesium crankcase requires aluminum screws/bolts exclusively. Aluminum screws/bolts must be replaced each time they are *released*. Aluminum screws/bolts are permitted with and without color coding (blue). For reliable identification: Aluminum screws/bolts are *not magnetic*. Jointing torque and angle of rotation must be observed without fail (*risk of damage*) .

Necessary preliminary tasks:

- Disconnect battery negative lead . See 61 20 900 DISCONNECTING AND CONNECTING BATTERY NEGATIVE LEAD .
- Remove front underbody protection . See 51 47 490 REMOVING AND INSTALLING/REPLACING FRONT UNDERBODY PROTECTION (CONVERTIBLE) or 51 47 490 REMOVING AND INSTALLING / REPLACING FRONT UNDERBODY PROTECTION (COUPE) .
- Remove rear underbody protection . See 51 47 491 REMOVING AND INSTALLING/REPLACING REAR UNDERBODY PROTECTION (CONVERTIBLE) or 51 47 491 REMOVING AND INSTALLING/REPLACING REAR UNDERBODY PROTECTION (COUPE) .
- If necessary, remove fan cowl . See 17 11 035 REMOVING AND INSTALLING/REPLACING FAN COWL WITH ELECTRIC FAN (N52/ N52K/ N53) or 17 11 035 REMOVING AND INSTALLING/REPLACING FAN COWL WITH ELECTRIC FAN (N51) .
- Remove complete exhaust system . See EXHAUST SYSTEM COMPLETE (N52K) or EXHAUST SYSTEM COMPLETE (N51) .
- Remove heat shields
- Support engine with lifter when removing transmission

Release screws (1).

Remove bracket and heat shield.

Unclip lines (2).

Remove bracket (3).

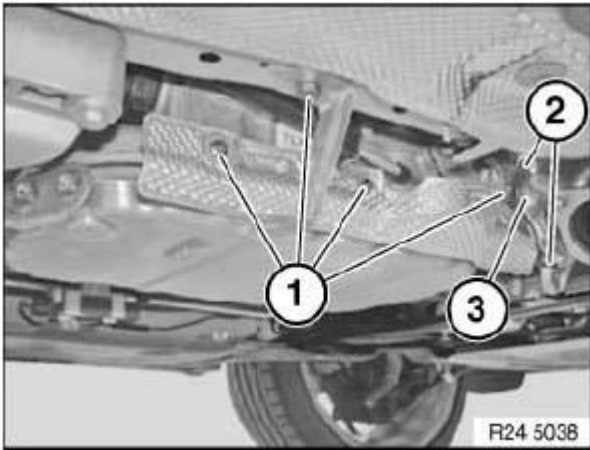


Fig. 8: Identifying Bracket And Heat Shield
 Courtesy of BMW OF NORTH AMERICA, INC.

Disconnect plug connector (1).

Release screws (2).

Remove retaining plate (3).

Tightening torque. See 24 00 2AZ in **24 00 TRANSMISSION IN GENERAL** .

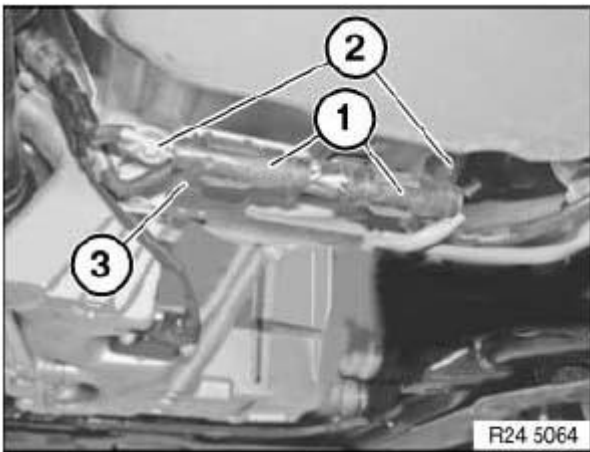


Fig. 9: Identifying Retaining Plate, Plug Connector And Screws
 Courtesy of BMW OF NORTH AMERICA, INC.

Release aluminum screws on right next to cable retaining plate with special tool **00 9 010** . See **Fig. 10**.

Aluminum screws must be replaced.

Tightening torque. See 24 00 2AZ in **24 00 TRANSMISSION IN GENERAL** .

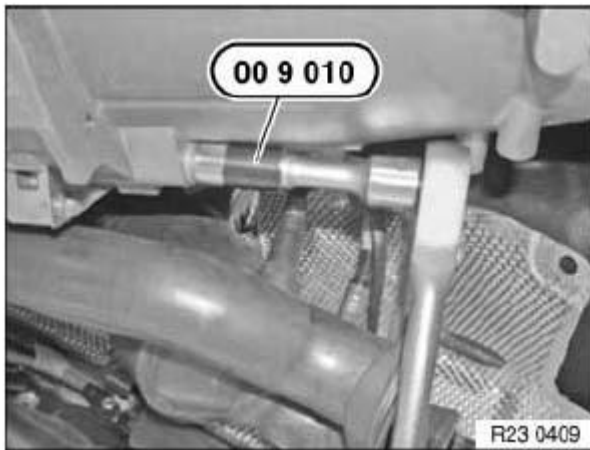


Fig. 10: Identifying Special Tools (00 9 010)
 Courtesy of BMW OF NORTH AMERICA, INC.

Grip clamping sleeve (1).

Loosen nut (2).

Detach retainer (3) downwards using a screwdriver.

Pull cable (4) out of holder.

Installation:

Adjust selector lever . See 24 00 018 ADJUSTING SHIFT LEVER.

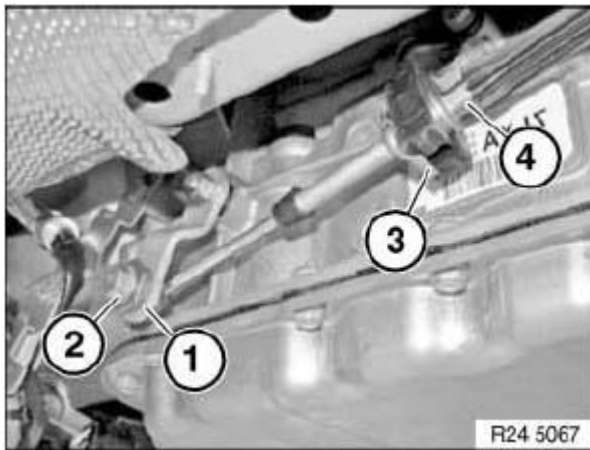


Fig. 11: Identifying Clamping Sleeve, Retainer And Nut
 Courtesy of BMW OF NORTH AMERICA, INC.

Release screw (1).

Disconnect hydraulic lines (2) to transmission fluid cooler.

Installation:

Replace sealing rings.

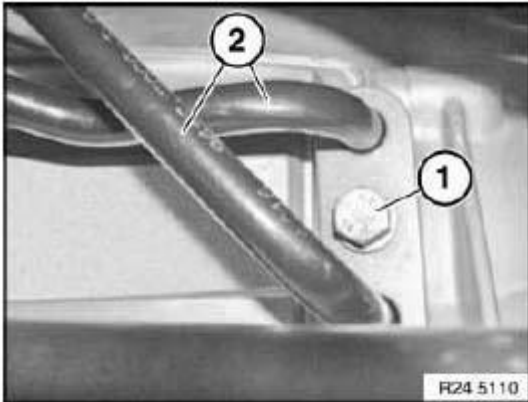


Fig. 12: Identifying Transmission Fluid Cooler Hydraulic Lines And Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Release nut (1) and bracket from transmission oil lines on oil sump.

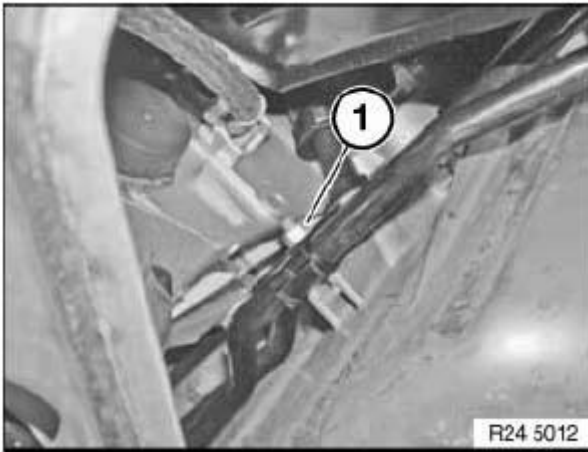


Fig. 13: Identifying Transmission Oil Lines And Nut
Courtesy of BMW OF NORTH AMERICA, INC.

Supporting transmission:

Support transmission with special tools **23 4 050** and **00 2 030** . See **Fig. 14**.

Secure transmission to mounting with tensioning strap (1).

Tasks are described in **Transmission bracket** . See **23... UNIVERSAL BMW TRANSMISSION TAKE-UP**.

After completion of work, check transmission oil level. See **00 11 237 CHECKING/TOPPING UP FLUID LEVEL IN AUTOMATIC TRANSMISSION (GA6L45R)** .

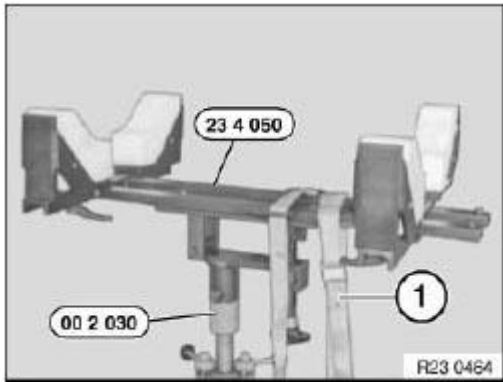


Fig. 14: Identifying Special Tools (23 4 050 And 00 2 030)

Courtesy of BMW OF NORTH AMERICA, INC.

Unfasten screws (1) and nuts (2).

Remove transmission crossmember.

Tightening torque. See 24 71 1AZ in **24 71 TRANSMISSION MOUNTS** .

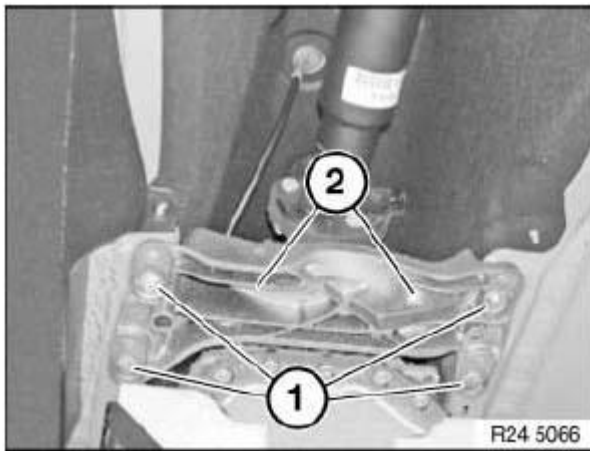


Fig. 15: Identifying Transmission Crossmember Screws And Nuts

Courtesy of BMW OF NORTH AMERICA, INC.

- Remove **propeller shaft** . See **26 11 000 REMOVING AND INSTALLING PROPELLER SHAFT (CARDAN UNIVERSAL JOINT) COMPLETELY** .

IMPORTANT: Do not allow propeller shaft to hang from fixed ball joint (*risk of damage*).

Crank engine at vibration damper in direction of rotation until screw (1) is visible in opening.

Release all screws of torque converter with special tool **24 1 110** .

Crank engine further and release remaining 5 bolts.

Tightening torque. See 24 40 1AZ in **24 40 TORQUE CONVERTER** .

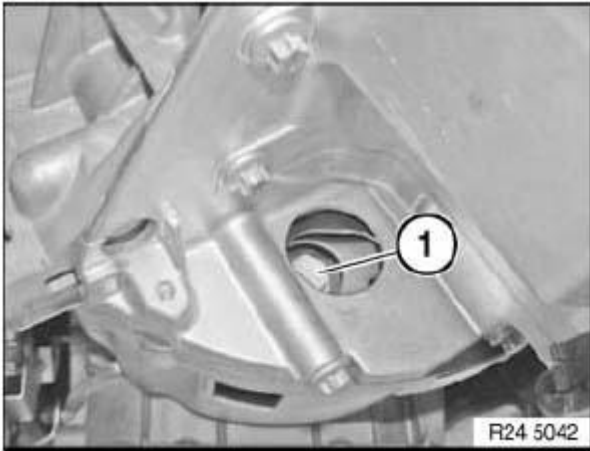


Fig. 16: Identifying Vibration Damper Screw
Courtesy of BMW OF NORTH AMERICA, INC.

Prepare special tool (1) **24 4 161** with shaped piece (2) **24 4 165** . See **Fig. 17**.

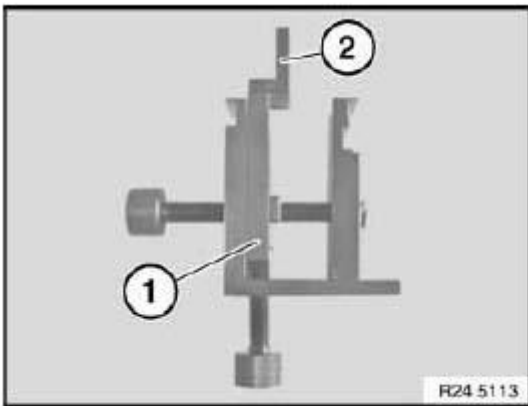


Fig. 17: Identifying Special Tools (24 4 161 And 24 4 165)
Courtesy of BMW OF NORTH AMERICA, INC.

Insert special tool **24 4 160** into opening of transmission housing and tighten down slightly with screw (1).

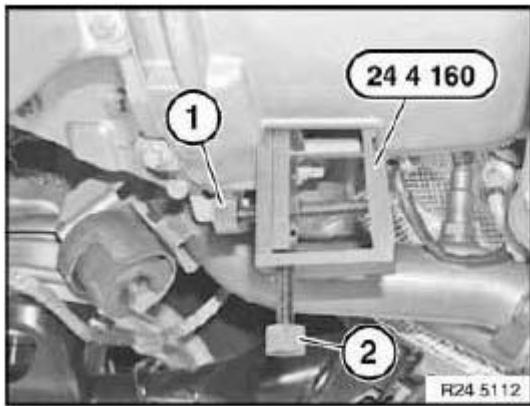


Fig. 18: Identifying Special Tools (24 4 150)

Courtesy of BMW OF NORTH AMERICA, INC.

- Unlock and disconnect plug (1) by turning.
- Do not touch pins.
- Release cable from retainers.
- Insert special tool **24 2 390** in sealing sleeve.

Operations are described in

Notes on Mechatronics . See **24 34 561 NOTES ON MECHATRONICS (GA6L45R)**.

IMPORTANT: Read and comply with important note.

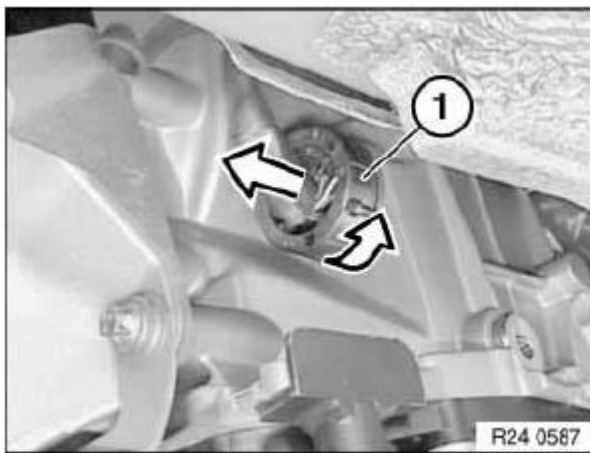


Fig. 19: Disconnecting Plug

Courtesy of BMW OF NORTH AMERICA, INC.

Release screws.

Installation:

Observe **screw fastening sequence** without fail.

Tightening torque, steel screws. See 24 00 1AZ in **24 00 TRANSMISSION IN GENERAL** .

Aluminum screws **must** be replaced.

Tightening torque and angle of rotation, aluminum screws/bolts. See 24 00 2AZ in **24 00 TRANSMISSION IN GENERAL** .

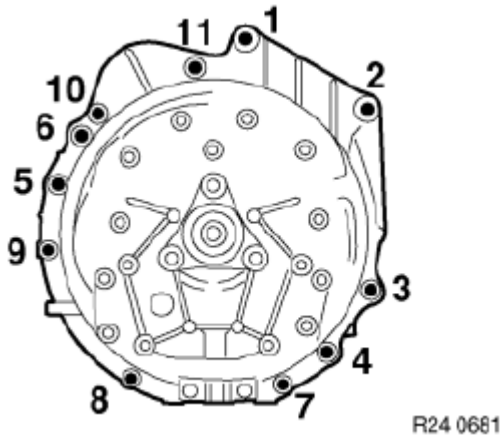


Fig. 20: Identifying Screws Tightening Sequence
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Tighten down screws/bolts to specified torque.

Secure rotation angle of special tool **00 9 120** with magnet **00 9 130** . See **Fig. 21**.

to underbody and screw down blue aluminum screws/bolts in accordance with angle of rotation.

Angle of rotation **24 00 2AZ** . See **24 00 TRANSMISSION IN GENERAL** .

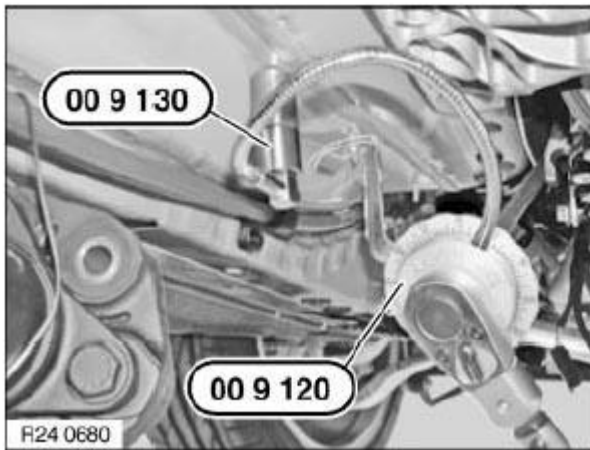


Fig. 21: Identifying Special Tools (00 9 130 And 00 9 120)
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Bore (1) in driving disc must be accessible from opening on engine oil pan.

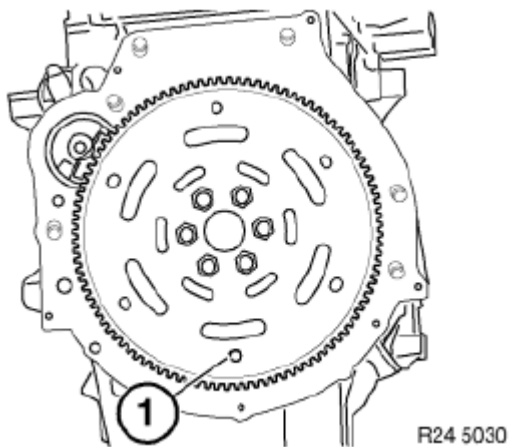


Fig. 22: Identifying Bore In Driving Disc
Courtesy of BMW OF NORTH AMERICA, INC.

Check that dowel sleeves are correctly seated.

Replace damaged dowel sleeves.

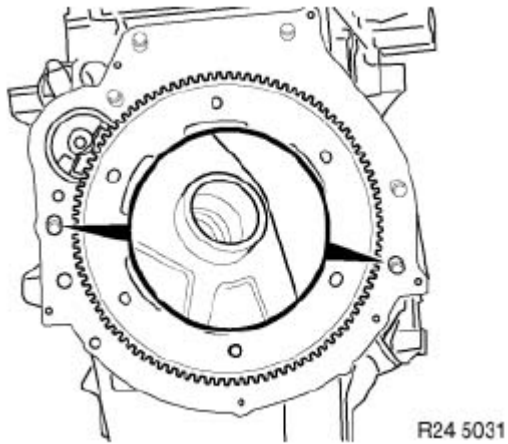


Fig. 23: Identifying Dowel Sleeves

Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Rotate torque converter until bore in torque converter is flush with bore in driving disk.

Flange automatic transmission to engine.

24 00 050 INSTALLING REPLACEMENT TRANSMISSION (GA6L45R)

Drain automatic transmission fluid at oil drain plug.

Tightening torque. See 24 11 6AZ in **24 11 TRANSMISSION HOUSING, TRANSMISSION OIL SUMP** .

Recycling:

Catch and dispose of escaping transmission fluid.

Observe country-specific waste-disposal regulations

IMPORTANT:

- **Before installing replacement transmission, always flush transmission fluid cooler together with lines . See 17 21 500 FLUSHING TRANSMISSION OIL COOLER WITH LINES (AUTOMATIC TRANSMISSION) .**
- **After completion of work, check transmission fluid level . See 00 11 237 CHECKING/TOPPING UP FLUID LEVEL IN AUTOMATIC TRANSMISSION (GA6L45R) .**

Replacement transmission is supplied filled with transmission fluid.

Use only the approved transmission fluid.

Failure to comply with this instruction will result in serious damage to the

transmission.*Necessary preliminary tasks:*

- Remove **transfer case** (AWD).
- Remove **automatic transmission** . See **24 00 032 REMOVING AND INSTALLING AUTOMATIC TRANSMISSION (GA6L45R)**.

Remove transportation lock (1).

Convert all cable holders.

Convert all seal plugs.

Remove protective cap on output shaft.

If necessary, modify transmission support block. Tightening torque. See 24 71 6AZ in **24 71 TRANSMISSION MOUNTS** .

IMPORTANT: After removing transportation lock, secure torque converter against slipping out.

Transmission identification:

- refer to BMW Parts Service.
- on type plate

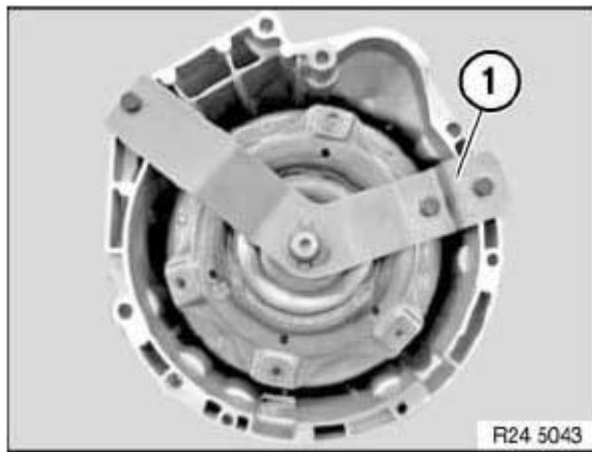


Fig. 24: Identifying Transportation Lock
Courtesy of BMW OF NORTH AMERICA, INC.

TRANSMISSION CASE, OIL SUMP

24 11 007 REPLACING SEALING PLUG (GA6L45R)**Special tools required:**

- **24 4 340** . See **24 4 340 LEVER** .

IMPORTANT: After completion of work, check transmission oil level . See **00 11 237 CHECKING/TOPPING UP FLUID LEVEL IN AUTOMATIC TRANSMISSION (GA6L45R)** . Use only the approved transmission fluid. Failure to comply with this requirement will result in serious damage to the automatic transmission!

Necessary preliminary tasks:

- Remove **rear underbody protection** . See **51 47 491 REMOVING AND INSTALLING/REPLACING REAR UNDERBODY PROTECTION (CONVERTIBLE)** or **51 47 491 REMOVING AND INSTALLING/REPLACING REAR UNDERBODY PROTECTION (COUPE)** .

Remove holder (2).

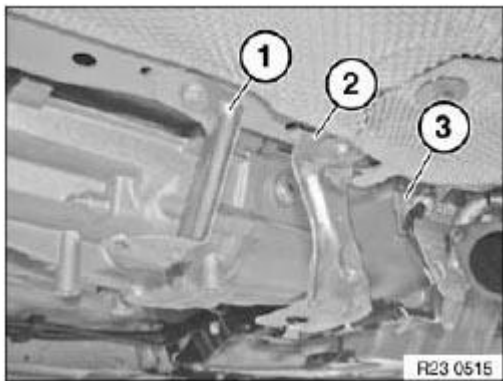


Fig. 25: Identifying Holder

Courtesy of BMW OF NORTH AMERICA, INC.

Unlock sealing plug with special tool **24 4 340** in direction of arrow and remove.

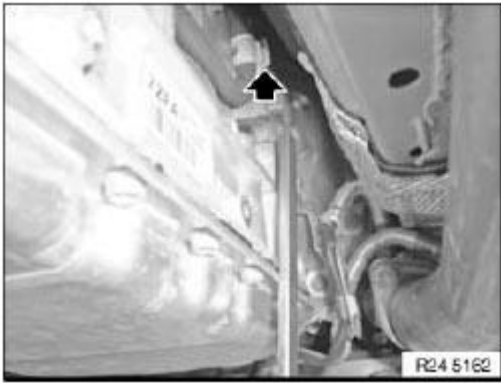


Fig. 26: Locating Sealing Plug

Courtesy of BMW OF NORTH AMERICA, INC.

24 11 013 REMOVING AND INSTALLING/SEALING OR REPLACING TRANSMISSION SUMP (GA6L45R)

IMPORTANT: Remove transmission sump only after it has cooled down.

After completion of work, check transmission fluid level. See 00 11 237 CHECKING/TOPPING UP FLUID LEVEL IN AUTOMATIC TRANSMISSION (GA6L45R) . Use only the approved transmission fluid. Failure to comply with this requirement will result in serious damage to the automatic transmission!

Recycling:

Catch and dispose of escaping transmission fluid.

Observe country-specific waste-disposal regulations.

Necessary preliminary tasks:

Remove rear underbody protection. See 51 47 491 REMOVING AND INSTALLING/REPLACING REAR UNDERBODY PROTECTION .

Remove exhaust system bracket from transmission.

Remove oil drain plug (1).

Tightening torque. See 24 11 6AZ in 24 11 TRANSMISSION HOUSING, TRANSMISSION OIL SUMP .

Drain automatic transmission fluid.

Installation:

Replace oil drain plug.

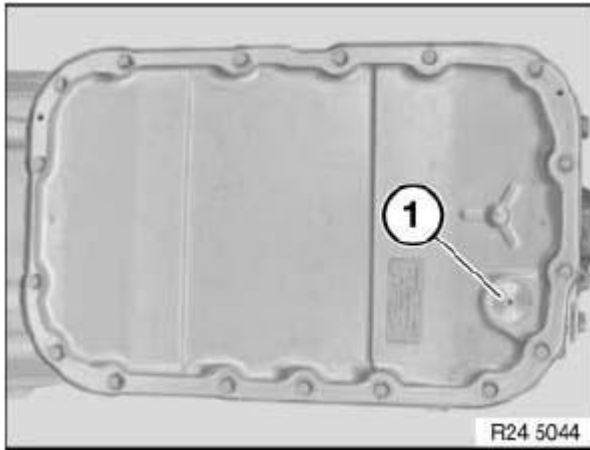


Fig. 27: Identifying Oil Drain Plug
 Courtesy of BMW OF NORTH AMERICA, INC.

Unscrew all bolts.

Remove transmission sump (1).

Installation:

Screw in bolts (1 to 17) in specified order until bolt heads make contact.

Tightening torque. See 24 11 5AZ in **24 11 TRANSMISSION HOUSING, TRANSMISSION OIL SUMP** .

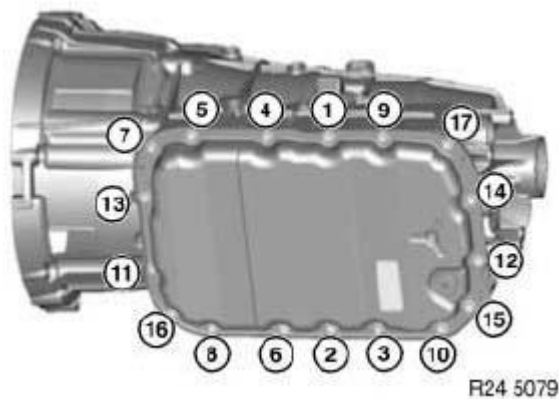


Fig. 28: Identifying Transmission Sump Tightening Sequence
 Courtesy of BMW OF NORTH AMERICA, INC.

Clean sump magnet (1) and check for metal filings/borings.

Remove gasket (2) from transmission sump.

Clean sealing faces and groove with a cloth.

Insert new gasket in transmission sump groove.

IMPORTANT: Do not degrease transmission sump with cleaning agent.

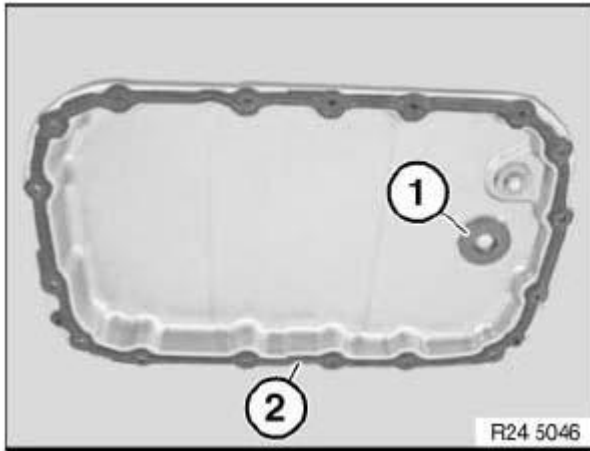


Fig. 29: Identifying Sump Magnet And Gasket
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

The gasket is correctly installed when it is engaged in the locating openings of the transmission sump.

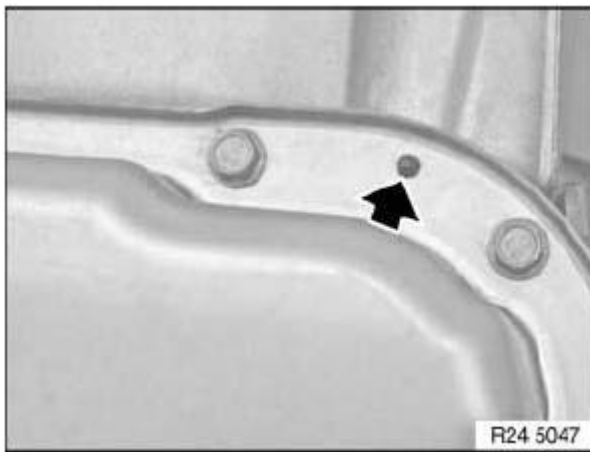


Fig. 30: Locating Gasket Hole
Courtesy of BMW OF NORTH AMERICA, INC.

24 11 665 REMOVING AND INSTALLING/REPLACING TRANSMISSION OIL FILTER (GA6L45R)

IMPORTANT: After completion of work, check transmission fluid level. See 00 11 237 CHECKING/TOPPING UP FLUID LEVEL IN AUTOMATIC TRANSMISSION (GA6L45R) . Use only approved transmission oil. Failure to comply with this

instruction will result in serious damage to the transmission.

Necessary preliminary tasks:

- Remove **transmission fluid sump** . See **24 11 013 REMOVING AND INSTALLING/SEALING OR REPLACING TRANSMISSION SUMP (GA6L45R)**.

Remove transmission oil filter (1) with a suitable tool (2).

Installation:

Replace **oil filter gasket** . See **24 11 666 REMOVING AND INSTALLING/REPLACING TRANSMISSION OIL FILTER GASKET (GA6L45R)**.



Fig. 31: Identifying Transmission Oil Filter
Courtesy of BMW OF NORTH AMERICA, INC.

24 11 666 REMOVING AND INSTALLING/REPLACING TRANSMISSION OIL FILTER GASKET (GA6L45R)

Special tools required:

- **13 5 250** . See **FUEL SYSTEM - SPECIAL TOOLS (N51, N52K)** .

For the following special tools, refer to **AUTOMATIC TRANSMISSION - SPECIAL TOOLS** .

- **24 4 390**
- **24 4 400**

IMPORTANT: After completion of work, check gear oil level . See **00 11 237 CHECKING/TOPPING UP FLUID LEVEL IN AUTOMATIC TRANSMISSION (GA6L45R)** . Use only approved transmission oil. Failure to comply with this instruction will result in serious damage to the transmission.

Necessary preliminary tasks:

- Remove **transmission oil filter** . See **24 11 665 REMOVING AND INSTALLING/REPLACING TRANSMISSION OIL FILTER (GA6L45R)**.

Pull transmission oil filter gasket out of housing with special tools **24 4 390** and **13 5 250**. See **Fig. 32**.

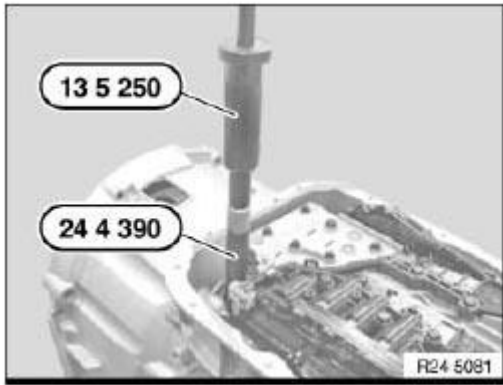


Fig. 32: Identifying Special Tools (13 5 250 And 24 4 390)
Courtesy of BMW OF NORTH AMERICA, INC.

Drive transmission filter gasket into housing with special tool **24 4 400** . See **Fig. 33**.

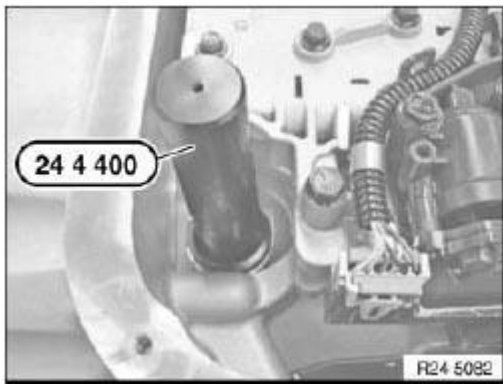


Fig. 33: Identifying Special Tools (24 4 400)
Courtesy of BMW OF NORTH AMERICA, INC.

EXTENSION HOUSING, BEARINGS, SEAL

24 13 014 REPLACING OUTPUT FLANGE SHAFT SEAL (GA6L45R)

Special tools required:

- **23 0 020** . See **23 0 020 HOLDER** .
- **23 1 210** . See **23 1 210 WRENCH SOCKET WAF 30** .

For the following special tools, refer to **AUTOMATIC TRANSMISSION - SPECIAL TOOLS** .

- 24 4 360
- 24 4 370

IMPORTANT: After completion of work, check transmission fluid level . See 00 11 237 CHECKING/TOPPING UP FLUID LEVEL IN AUTOMATIC TRANSMISSION (GA6L45R) . Use only the approved transmission fluid. Failure to comply with this requirement will result in serious damage to the automatic transmission!

Necessary preliminary tasks:

- Remove underbody protection
- Remove heat shields
- Remove complete **exhaust system** . See EXHAUST SYSTEM COMPLETE .
- Remove **transmission crossmember** . See 22 32 050 REPLACING CROSSMEMBER FOR TRANSMISSION MOUNTING .
 - Remove propeller shaft from transmission.
 - Release center bearing.
 - Tie propeller shaft to one side.

Tasks are described in **Removing propeller shaft** . See 26 11 000 REMOVING AND INSTALLING PROPELLER SHAFT (CARDAN UNIVERSAL JOINT) COMPLETELY .

NOTE: To rotate propeller shaft, unlock parking gear.

Release screws.

Remove transmission bearing block (1).

Tightening torque. See 24 71 6AZ in 24 71 TRANSMISSION MOUNTS .

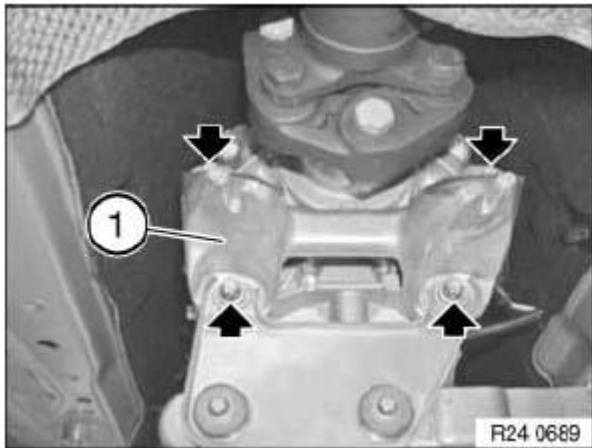


Fig. 34: Identifying Transmission Bearing Block
Courtesy of BMW OF NORTH AMERICA, INC.

Grip output flange (1) with special tool **23 0 020** . See **Fig. 35**.

Release nut with special tool **23 1 210** . See **Fig. 35**.

Tightening torque. See 24 13 3AZ in **24 13 TRANSMISSION EXTENSION, BEARINGS, SEALS** .

Installation:

Apply a streak of Loctite 277 over complete thread width.

Replace nut and secure with a mandrel (8 mm) by caulking.

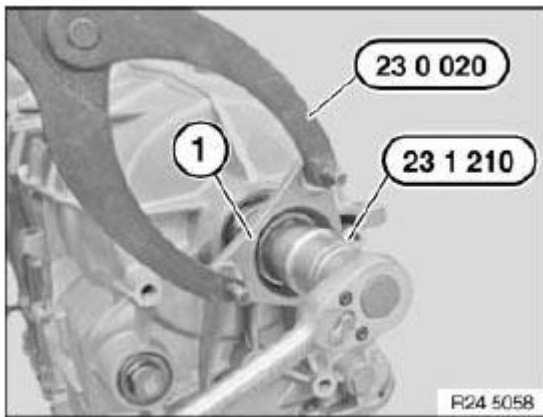


Fig. 35: Identifying Special Tools (23 0 020 And 23 1 210)
Courtesy of BMW OF NORTH AMERICA, INC.

Detach output flange from output shaft.

Remove spacer.

Push special tool **24 4 360** onto output shaft (1). See **Fig. 36**.

Locking hooks (2) must enter completely.

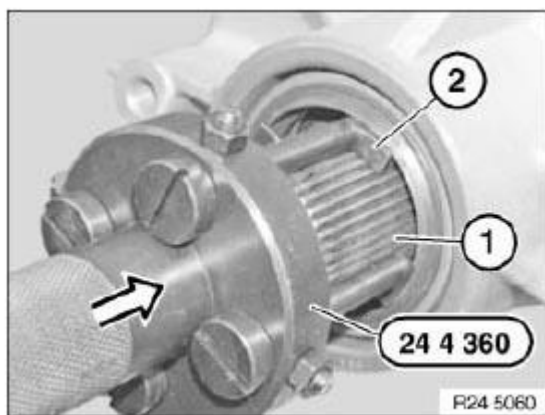


Fig. 36: Identifying Special Tools (24 4 360) And Hooks
 Courtesy of BMW OF NORTH AMERICA, INC.

Turn locks (1) counterclockwise.

Screw in bolt (2) until radial shaft seal is released.

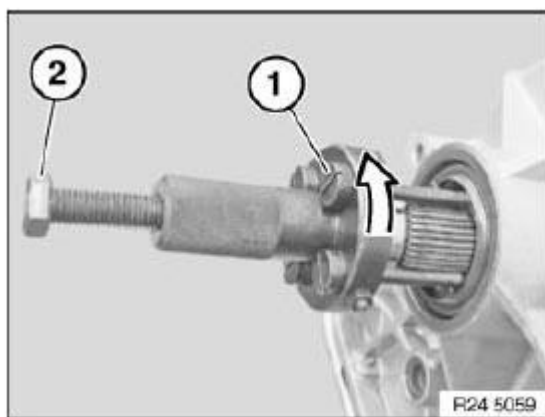


Fig. 37: Turning Locks
 Courtesy of BMW OF NORTH AMERICA, INC.

Oil sealing lip on radial shaft seal (1).

Drive radial shaft seal (1) firmly home with special tool 24 4 370 . See **Fig. 38**.

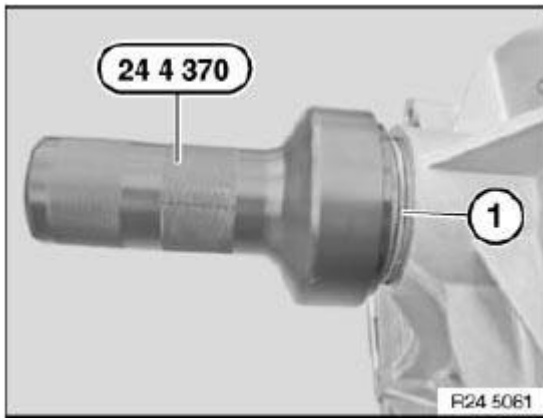


Fig. 38: Identifying Radial Shaft Seal

Courtesy of BMW OF NORTH AMERICA, INC.

MECHANICAL ATTACHMENTS

24 14 003 REPLACING SELECTOR SHAFT SEAL (GA6L45R)

Special tools required:

For the following special tools, refer to **AUTOMATIC TRANSMISSION - TIGHTENING TORQUES**.

- 24 4 381
- 24 4 382
- 24 5 361
- 24 5 362

IMPORTANT: After completion of work, check transmission fluid level. See **00 11 237 CHECKING/TOPPING UP FLUID LEVEL IN AUTOMATIC TRANSMISSION (GA6L45R)**. Use only the approved transmission fluid. Failure to comply with this requirement will result in serious damage to the automatic transmission!

Necessary preliminary tasks:

- Remove heat shields

Slacken nut (1).

Take off holder (2).

Tightening torque. See 24 51 1AZ in **24 51 EXTERNAL SHIFT LINKAGE**.

After completing work:

Adjust shift lever. See **24 00 018 ADJUSTING SELECTOR LEVER (GA6L45R)**.

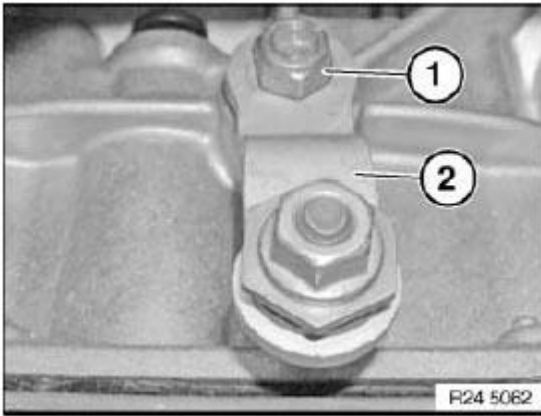


Fig. 39: Identifying Holder And Nut
Courtesy of BMW OF NORTH AMERICA, INC.

Screw in special tool **24 5 361** until it is firmly connected with shaft seal. See **Fig. 40**.

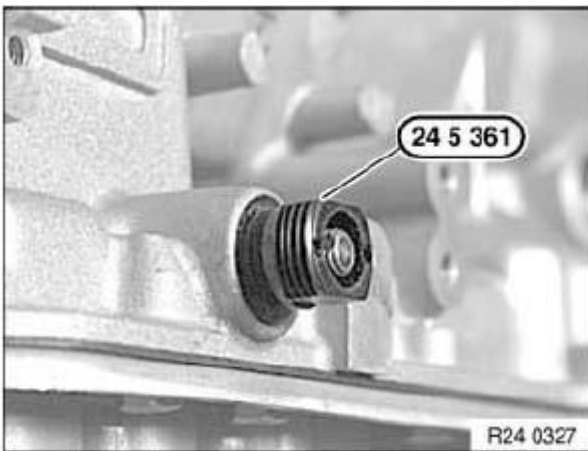


Fig. 40: Identifying Special Tools (24 5 361)
Courtesy of BMW OF NORTH AMERICA, INC.

Screw special tool **24 5 362** onto special tool **24 5 361** and tighten down. See **Fig. 41**.

This pulls the shaft seal out of the transmission housing.

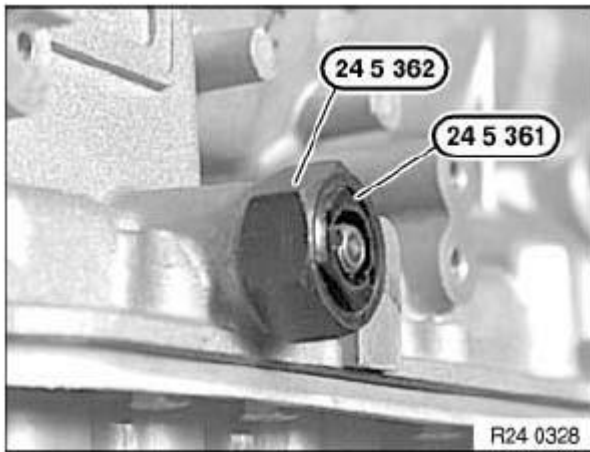


Fig. 41: Identifying Special Tools (24 5 362 And 24 4 361)
 Courtesy of BMW OF NORTH AMERICA, INC.

Oil sealing lip on shaft seal.

Screw in shaft seal with special tools **24 4 381** and **24 4 382** as far as it will go.

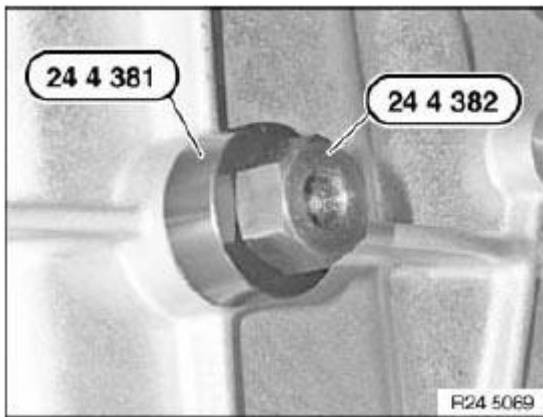


Fig. 42: Identifying Special Tools (24 4 381 And 24 4 382)
 Courtesy of BMW OF NORTH AMERICA, INC.

24 50 030 REPLACING SELECTOR SHAFT (GA6L45R)

IMPORTANT: After completion of work, check transmission oil level. See **00 11 237 CHECKING/TOPPING UP FLUID LEVEL IN AUTOMATIC TRANSMISSION (GA6L45R)** . Use only the approved automatic transmission fluid in this automatic transmission.

Failure to comply with this requirement will result in serious damage to the automatic transmission!

Necessary preliminary tasks:

- Remove Mechatronics . See **24 34 563 REPLACING MECHATRONICS (GA6L45R)**.
- Remove selector shaft seal . See **24 14 003 REPLACING SELECTOR SHAFT SEAL (GA6L45R)**.

Drive a metal pin (1) - dia. approx. 3 mm - into clamping pin (2) (to prevent clamping pin from being compressed).

Grip clamping pin (2) with side nippers.

NOTE: Illustration similar

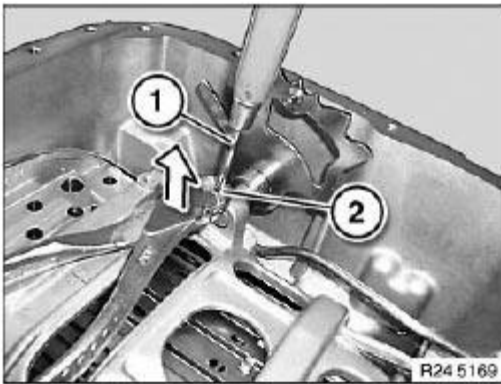


Fig. 43: Driving Metal Pin

Courtesy of BMW OF NORTH AMERICA, INC.

Drive clamping pin (2) with a suitable tool out of selector shaft.

Remove selector shaft.

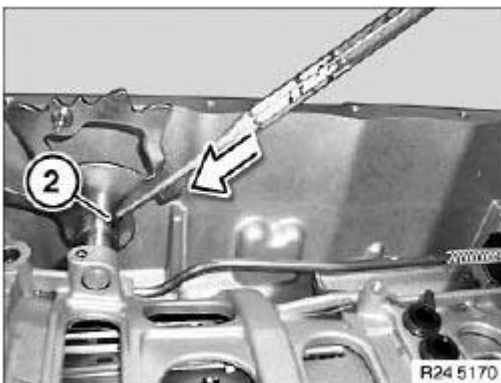


Fig. 44: Driving Clamping Pin

Courtesy of BMW OF NORTH AMERICA, INC.

24 14 005 REPLACING SEALING CAP FOR SELECTOR SHAFT (GA6L45R)

IMPORTANT: After completion of work, check transmission oil level . See **00 11 237**

CHECKING/TOPPING UP FLUID LEVEL IN AUTOMATIC TRANSMISSION (GA6L45R) . Use only the approved automatic transmission fluid in this automatic transmission.

Failure to comply with this requirement will result in serious damage to the automatic transmission!

Necessary preliminary tasks:

- Remove **rear underbody protection** . See **51 47 491 REMOVING AND INSTALLING/REPLACING REAR UNDERBODY PROTECTION** .
- Remove front propeller shaft from transfer case and tie to one side.

Tasks are described in **Removing front propeller shaft** . See **26 11 000 REMOVING AND INSTALLING PROPELLER SHAFT (CARDAN UNIVERSAL JOINT) COMPLETELY** .

Screw special tool 23 0 490 into sealing cap.

Drive out sealing cap with impact weight (1).

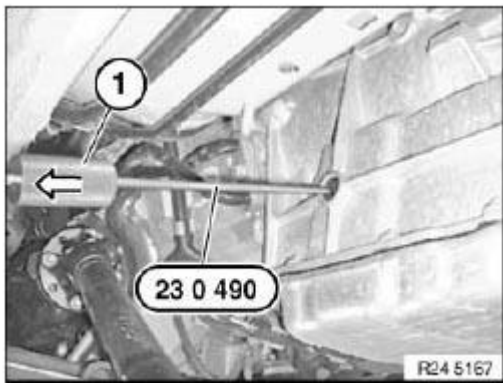


Fig. 45: Identifying Special Tools (23 0 480)
Courtesy of BMW OF NORTH AMERICA, INC.

Place new sealing cap (1) on drift (2).

NOTE: Drift (2) for driving in sealing cap is contained in repair kit.

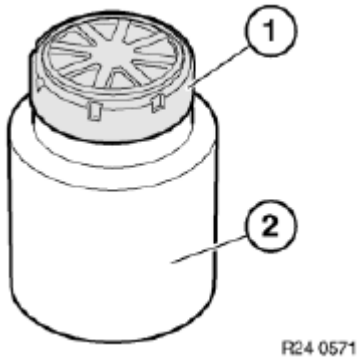


Fig. 46: Identifying Sealing Cap On Drift
 Courtesy of BMW OF NORTH AMERICA, INC.

Drive in new sealing cap (1) with drift (2) as far as it will go.

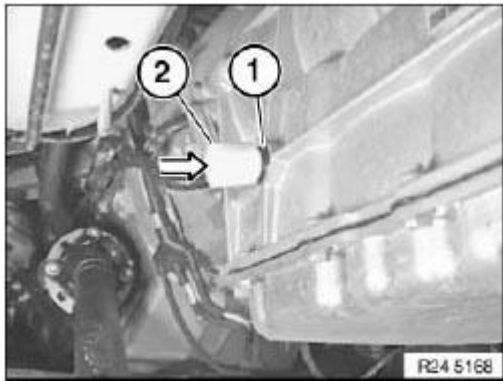


Fig. 47: Identifying Sealing Cap With Drift
 Courtesy of BMW OF NORTH AMERICA, INC.

OIL PUMP

24 31 012 REPLACING TORQUE CONVERTER SHAFT SEAL (GA6L45R)

Special tools required:

- 00 1 450 . See MAINTENANCE AND GENERAL INFORMATION - SPECIAL TOOLS -- 128I .

For the following special tools, see AUTOMATIC TRANSMISSION - SPECIAL TOOLS .

- 24 0 200
- 24 2 351
- 24 2 352
- 24 2 354
- 24 2 360

Necessary preliminary tasks:

- Remove **automatic transmission** . See **24 00 032 REMOVING AND INSTALLING AUTOMATIC TRANSMISSION (GA6L45R)**.

IMPORTANT: After completion of work, check transmission oil level. See **00 11 237 CHECKING/TOPPING UP FLUID LEVEL IN AUTOMATIC TRANSMISSION (GA6L45R)** . Use only approved transmission oil. Failure to comply with this instruction will result in serious damage to the transmission.

Secure transmission with special tool **24 0 200** to assembly stand **00 1 450** . See **Fig. 48**.

Remove **torque converter** . See **24 40 013 REMOVING AND INSTALLING/REPLACING TORQUE CONVERTER (GA6L45R)**.

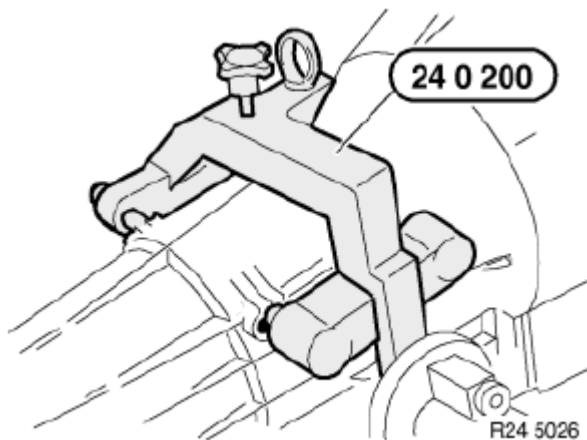


Fig. 48: Identifying Special Tools (24 0 200)
Courtesy of BMW OF NORTH AMERICA, INC.

Remove retaining ring (1) with a suitable tool (2).

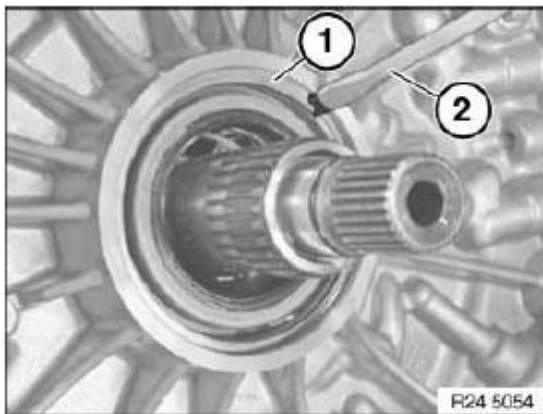


Fig. 49: Removing Retaining Ring

Courtesy of BMW OF NORTH AMERICA, INC.

Attach special tool **24 2 354** to drive shaft (1). See **Fig. 50**.

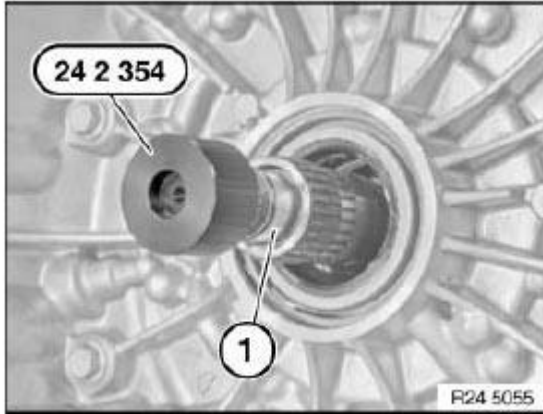


Fig. 50: Identifying Special Tools (24 2 354)

Courtesy of BMW OF NORTH AMERICA, INC.

Screw in special tool **24 2 351** until it is firmly connected with shaft seal. See **Fig. 51**.

Screw in special tool **24 2 352** to remove shaft seal. See **Fig. 51**.

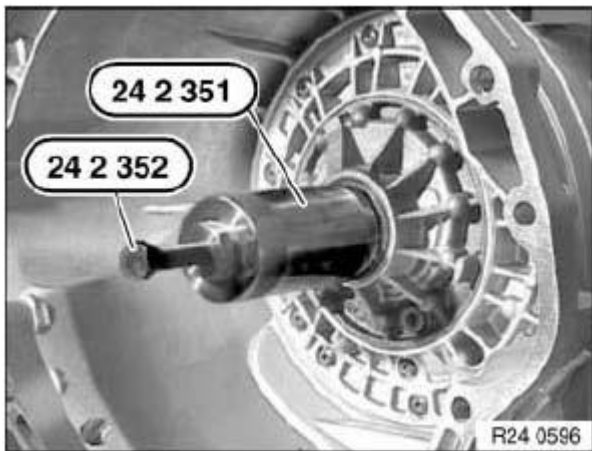


Fig. 51: Identifying Special Tools (24 2 351 And 24 2 352)

Courtesy of BMW OF NORTH AMERICA, INC.

Oil sealing lip on shaft seal.

Drive in shaft seal (1) with special tool **24 2 360** as far as it will go.

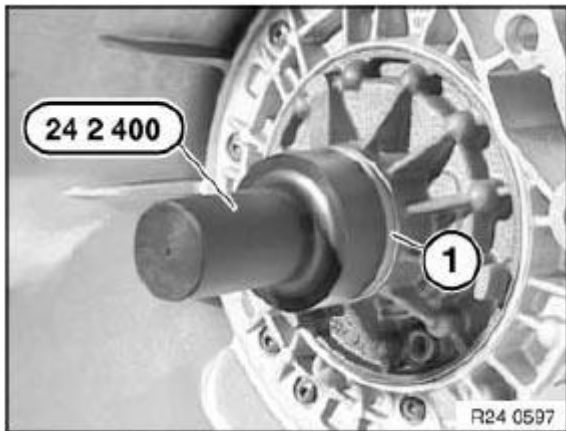


Fig. 52: Identifying Special Tools (24 2 400)

Courtesy of BMW OF NORTH AMERICA, INC.

24 31 575 REPLACING OIL PUMP O-RINGS (GA6HP26/19Z)

Special tools required:

For the following special tools, see **AUTOMATIC TRANSMISSION - SPECIAL TOOLS** .

- 24 1 180
- 24 1 184

IMPORTANT: After completion of work, check transmission fluid level. See **00 11 237 CHECKING/TOPPING UP FLUID LEVEL IN AUTOMATIC TRANSMISSION (GA6L45R)** . Use only approved transmission oil. Failure to comply with this instruction will result in serious damage to the transmission.

Necessary preliminary tasks:

- Remove **automatic transmission** . See **24 00 032 REMOVING AND INSTALLING AUTOMATIC TRANSMISSION (GA6L45R)**.
- Secure transmission with **transmission holding bridge** on assembly stand. See **23..... UNIVERSAL TRANSMISSION RETAINING BRIDGE**.
- Remove **torque converter** . See **24 40 013 REMOVING AND INSTALLING/REPLACING TORQUE CONVERTER (GA6L45R)**.
- Remove **Mechatronics** . See **24 34 563 REPLACING MECHATRONICS (GA6L45R)**.

Remove adapter (1).

Installation:

Note installation position.

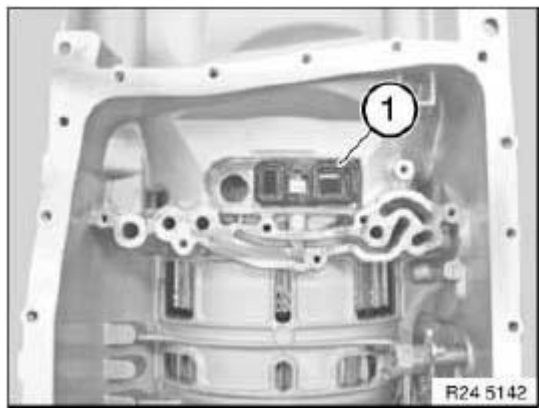


Fig. 53: Identifying Adapter

Courtesy of BMW OF NORTH AMERICA, INC.

Release screws.

Tightening torque. See 24 31 3AZ in AUTOMATIC TRANSMISSION - TIGHTENING TORQUES.

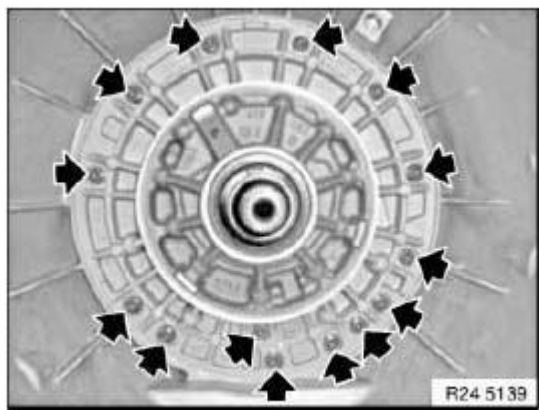


Fig. 54: Locating Screws

Courtesy of BMW OF NORTH AMERICA, INC.

Slide special tool 24 1 184 completely into extractor 24 1 180. See Fig. 55.

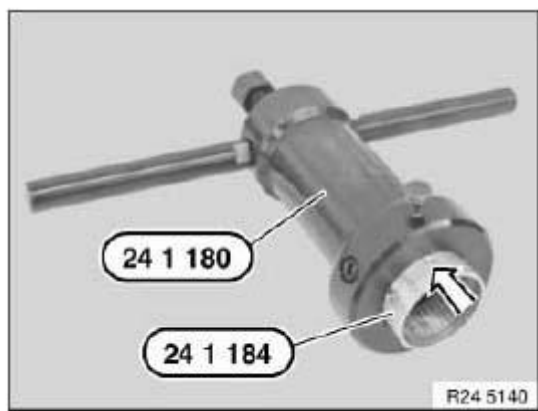


Fig. 55: Identifying Special Tools (24 1 180 And 24 1 184)
 Courtesy of BMW OF NORTH AMERICA, INC.

Attach special tool **24 1 180** and secure with screw (1).

Insert screw (2) and release oil supply unit from transmission housing.

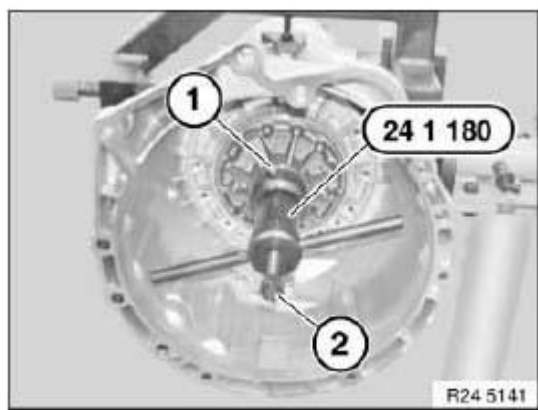


Fig. 56: Identifying Special Tools (24 1 180)
 Courtesy of BMW OF NORTH AMERICA, INC.

Release screws.

Tightening torque. See 24 31 1AZ in **AUTOMATIC TRANSMISSION - TIGHTENING TORQUES**.

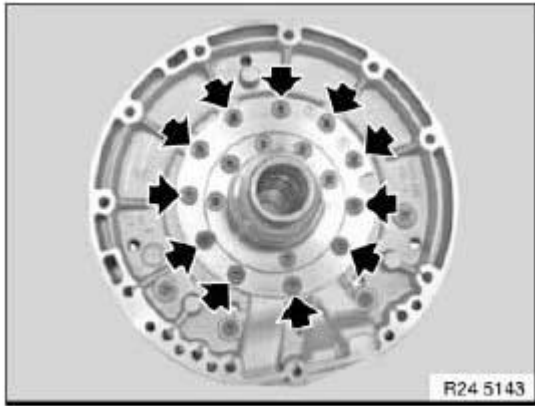


Fig. 57: Locating Screws

Courtesy of BMW OF NORTH AMERICA, INC.

Detach cover (1) from pump housing (2).

Replace O-rings (3 + 4).

Installation:

Pay attention to installation position of gears during disassembly.

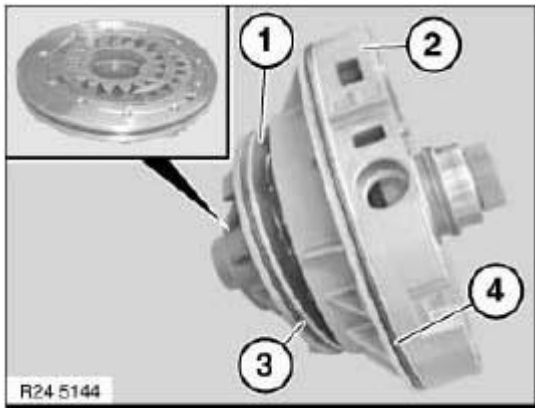


Fig. 58: Identifying Cover And Pump Housing With O-Ring

Courtesy of BMW OF NORTH AMERICA, INC.

SHIFT VALVES PARKING

24 31 575 REPLACING OIL PUMP O-RINGS (GA6HP26/19Z)

Special tools required:

For the following special tools, refer to **AUTOMATIC TRANSMISSION - TIGHTENING TORQUES**.

- 24 1 180
- 24 1 184

IMPORTANT: After completion of work, check transmission fluid level. See 00 11 237 CHECKING/TOPPING UP FLUID LEVEL IN AUTOMATIC TRANSMISSION (GA6L45R) . Use only approved transmission oil. Failure to comply with this instruction will result in serious damage to the transmission.

Necessary preliminary tasks:

- Remove **automatic transmission** . See 24 00 032 REMOVING AND INSTALLING AUTOMATIC TRANSMISSION (GA6L45R).
- Secure transmission with **transmission holding bridge** on assembly stand. See 23..... UNIVERSAL TRANSMISSION RETAINING BRIDGE.
- Remove **torque converter** . See 24 40 013 REMOVING AND INSTALLING/REPLACING TORQUE CONVERTER (GA6L45R).
- Remove **Mechatronics** . See 24 34 563 REPLACING MECHATRONICS (GA6L45R).

Remove adapter (1).

Installation:

Note installation position.

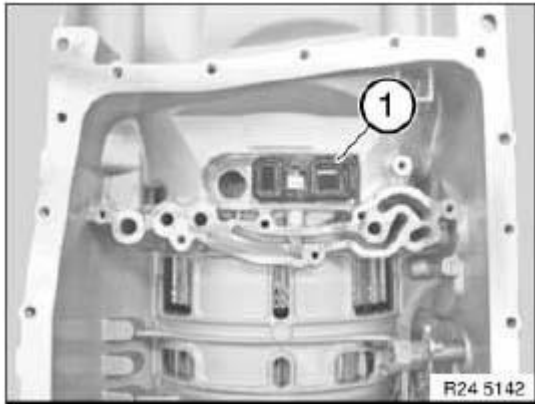


Fig. 59: Identifying Adapter
Courtesy of BMW OF NORTH AMERICA, INC.

Release screws.

Tightening torque. See 24 31 3AZ in AUTOMATIC TRANSMISSION - TIGHTENING TORQUES .

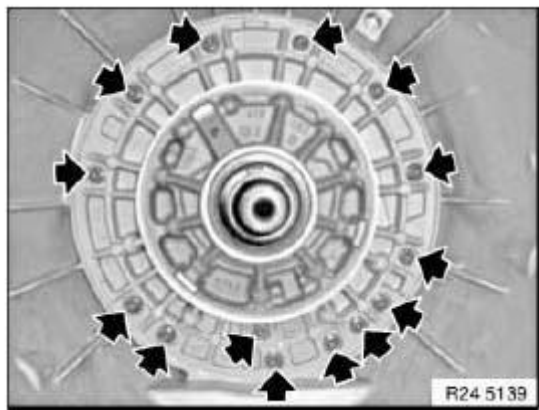


Fig. 60: Locating Screws

Courtesy of BMW OF NORTH AMERICA, INC.

Slide special tool 24 1 184 completely into extractor 24 1 180. See **Fig. 61**.

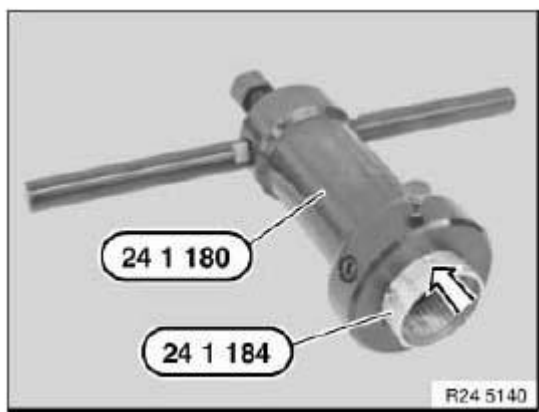


Fig. 61: Identifying Special Tools (24 1 180 And 24 1 184)

Courtesy of BMW OF NORTH AMERICA, INC.

Attach special tool 24 1 180 and secure with screw (1).

Insert screw (2) and release oil supply unit from transmission housing.

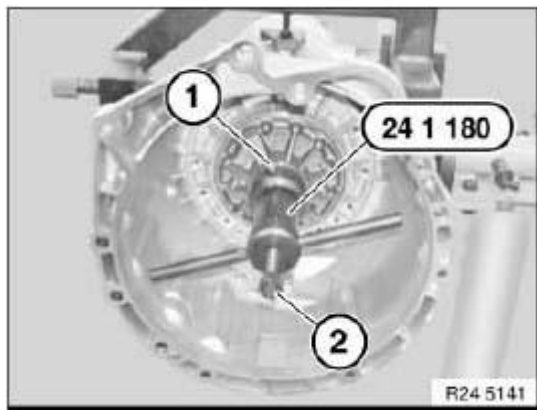


Fig. 62: Identifying Special Tools (24 1 180)

Courtesy of BMW OF NORTH AMERICA, INC.

Release screws.

Tightening torque. See 24 31 1AZ in **AUTOMATIC TRANSMISSION - TIGHTENING TORQUES** .

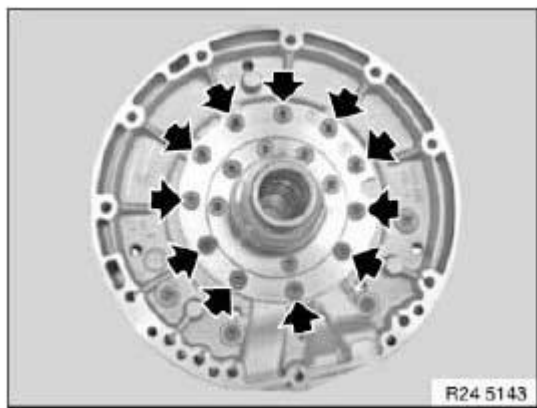


Fig. 63: Locating Screws

Courtesy of BMW OF NORTH AMERICA, INC.

Detach cover (1) from pump housing (2).

Replace O-rings (3 + 4).

Installation:

Pay attention to installation position of gears during disassembly.

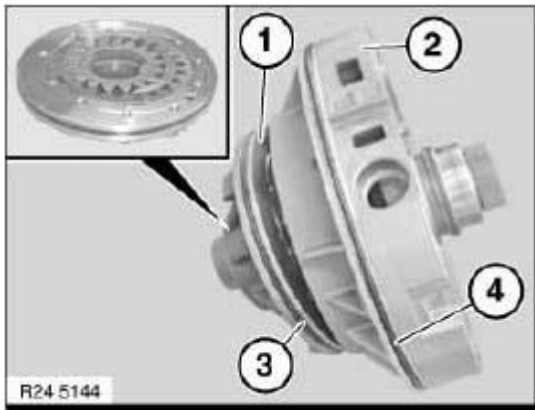


Fig. 64: Identifying Cover And Pump Housing With O-Ring
Courtesy of BMW OF NORTH AMERICA, INC.

24 34 561 NOTES ON MECHATRONICS (GA6L45R)

Special tools required:

- 24 2 390 . See 24 2 390 COVERING CAP .

IMPORTANT: After completing work:

- Load specific data version with DIS
- Check transmission fluid level . See 00 11 237 CHECKING/TOPPING UP FLUID LEVEL IN AUTOMATIC TRANSMISSION (GA6L45R) .

Use only approved transmission fluid.

Failure to comply with this requirement will result in serious damage to the automatic transmission!

IMPORTANT: Read and comply with notes on protection against electrostatic damage (ESD protection). See 61 35... NOTES ON ESD PROTECTION (ELECTRO STATIC DISCHARGE) .

Unscrew plug (1) and disconnect.

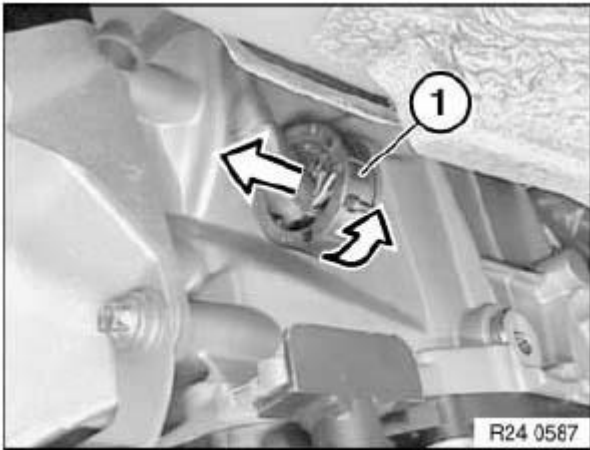


Fig. 65: Disconnecting Plug

Courtesy of BMW OF NORTH AMERICA, INC.

Insert special tool 24 2 390 in sealing sleeve (1). See **Fig. 66**.

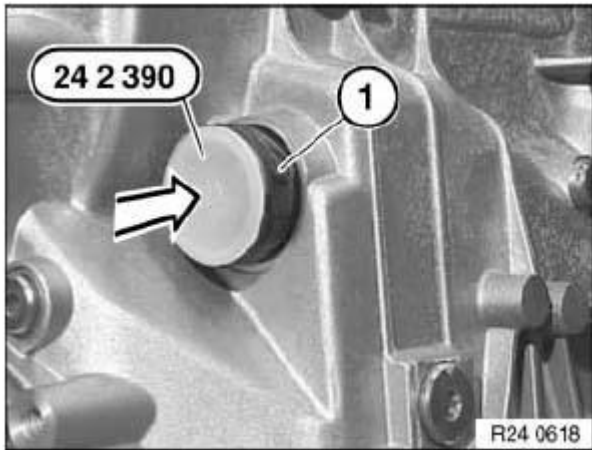


Fig. 66: Inserting Special Tool (24 2 390) In Sealing Sleeve

Courtesy of BMW OF NORTH AMERICA, INC.

24 34 563 REPLACING MECHATRONICS (GA6L45R)

Special tools required:

- 24 2 390 . See **24 2 390 COVERING CAP** .
- 24 4 350 . See **24 4 350 SOCKET, TORX SPECIAL PROFILE SECTION** .

NOTE: After completing work:

- Load specific data version with DIS.

IMPORTANT: After completion of work, check transmission oil level. See 00 11 237 CHECKING/TOPPING UP FLUID LEVEL IN AUTOMATIC TRANSMISSION (GA6L45R) . Use only approved transmission fluid. Failure to comply with this requirement will result in serious damage to the automatic transmission!

IMPORTANT: Read and comply with notes on protection against electrostatic discharge (ESD protection). See 61 35... NOTES ON ESD PROTECTION (ELECTRO STATIC DISCHARGE) .

Necessary preliminary tasks:

- Remove heat shields.
- Support automatic transmission with hydraulic lifter.
- Remove transmission crossmember.

Grip clamping sleeve (1).

Loosen nut (2).

Detach retainer (3) towards bottom using a screwdriver.

Pull cable (4) out of holder.

Installation:

Adjust selector lever . See 24 00 018 ADJUSTING SHIFT LEVER.

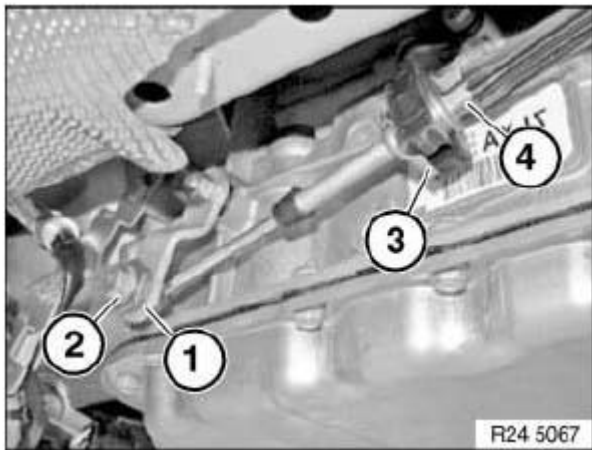


Fig. 67: Identifying Clamping Sleeve, Retainer And Nut
Courtesy of BMW OF NORTH AMERICA, INC.

IMPORTANT: Mechatronics can be destroyed by static discharges. Therefore the contacts inside the plug must not be touched. Insert special tool immediately after work

step.

Unscrew plug (1) and disconnect.

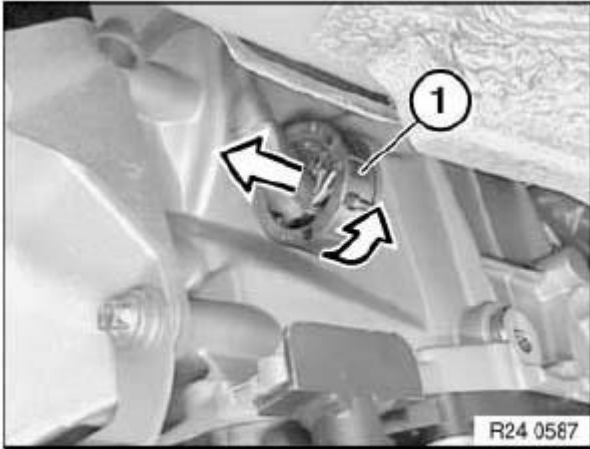


Fig. 68: Disconnecting Plug
Courtesy of BMW OF NORTH AMERICA, INC.

Insert special tool 24 2 390 in sealing sleeve (1).

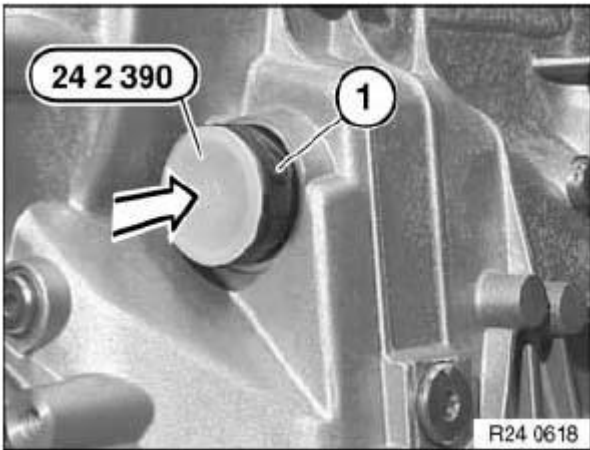


Fig. 69: Inserting Special Tool (24 2 390) In Sealing Sleeve
Courtesy of BMW OF NORTH AMERICA, INC.

Remove transmission oil sump . See **24 11 013 REMOVING AND INSTALLING/SEALING OR REPLACING TRANSMISSION SUMP (GA6L45R)**.

Unlock sealing sleeve with slide (1).

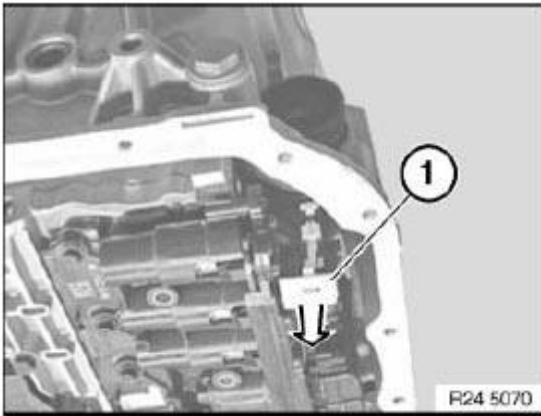


Fig. 70: Identifying Sealing Sleeve

Courtesy of BMW OF NORTH AMERICA, INC.

Note position of sealing sleeve.

Pull out sealing sleeve (1).

Installation:

Screw in sealing sleeve partially (lug in upper area). Turn until lug engages in groove of transmission. Slide in sealing sleeve.

Lug on sealing sleeve must not be damaged!

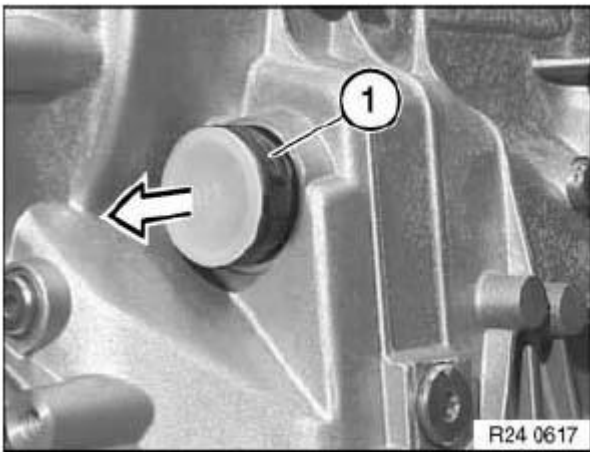


Fig. 71: Pulling Out Sealing Sleeve

Courtesy of BMW OF NORTH AMERICA, INC.

Release all bolts (1) with special tool **24 4 350**.

Remove Mechatronics.

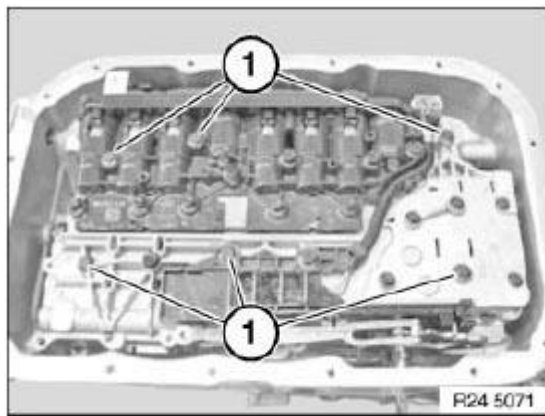


Fig. 72: Identifying Bolts

Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Replace gasket (1).

Coat new seals with automatic transmission fluid and install.

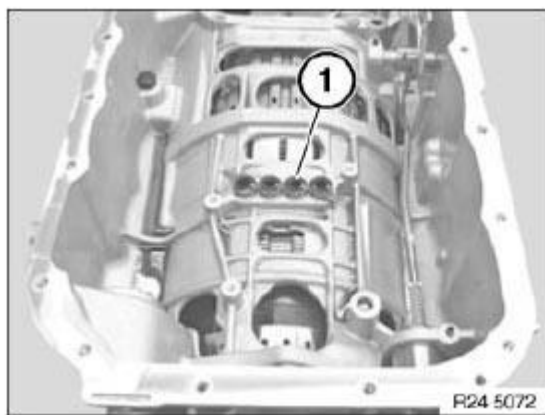


Fig. 73: Identifying Automatic Transmission Gasket

Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Replace gaskets (1).

Coat new seals with automatic transmission fluid and install.

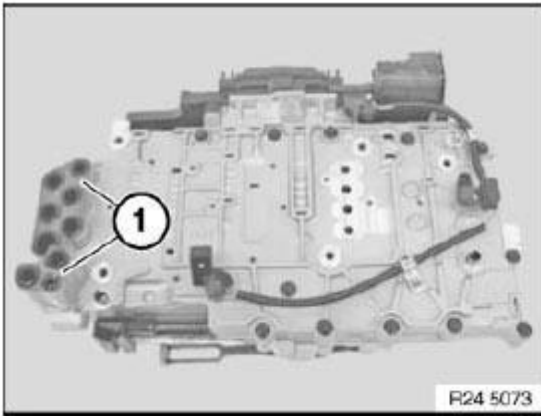


Fig. 74: Identifying Automatic Transmission Gaskets
Courtesy of BMW OF NORTH AMERICA, INC.

IMPORTANT: Tighten down bolts in sequence (1 to 6). Failure to comply with this requirement will result in serious damage to the automatic transmission! Tightening torque. See 24 30 1AZ in AUTOMATIC TRANSMISSION - TIGHTENING TORQUES .

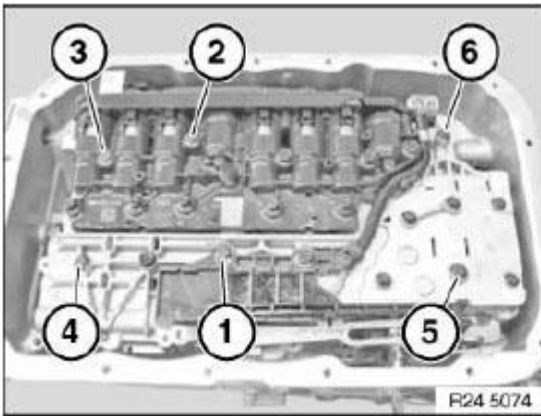


Fig. 75: Identifying Automatic Transmission Bolts Tightening Sequence
Courtesy of BMW OF NORTH AMERICA, INC.

WIRING HARNESS, SHIFT ELEMENTS AND SENSORS

24 35 610 REMOVING AND INSTALLING/REPLACING TRANSMISSION POSITION SWITCH (GA6L45R)

IMPORTANT: After completion of work, check transmission fluid level. See 00 11 237 CHECKING/TOPPING UP FLUID LEVEL IN AUTOMATIC TRANSMISSION (GA6L45R) . Use only approved transmission oil. Failure to comply with this instruction will result in serious damage to the transmission.

Necessary preliminary tasks:

- Remove **transmission oil filter** . See **24 11 665 REMOVING AND INSTALLING/REPLACING TRANSMISSION OIL FILTER (GA6L45R)**.

Unlock and disconnect plug (1).

Release screws (2).

Remove transmission position switch (3).

Tightening torque. See 24 30 1AZ in **24 30 HYDRAULIC/ELECTRIC CONTROL PARTS AND CONTROLLING ELEMENTS** .

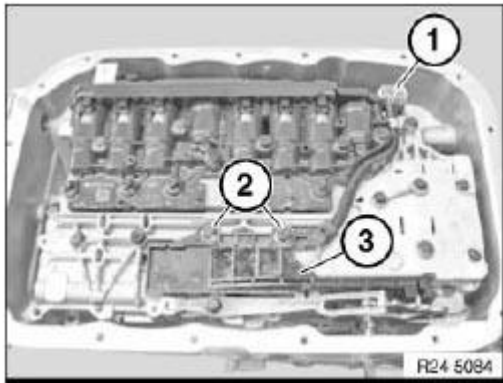


Fig. 76: Identifying Transmission Position Switch, Plug And Screws
Courtesy of BMW OF NORTH AMERICA, INC.

24 35 700 REMOVING AND INSTALLING/REPLACING INPUT AND OUTPUT SPEED SENSOR (GA6L45R)

IMPORTANT: After completion of work, check transmission fluid level. See **00 11 237 CHECKING/TOPPING UP FLUID LEVEL IN AUTOMATIC TRANSMISSION (GA6L45R)** . Use only approved transmission oil. Failure to comply with this instruction will result in serious damage to the transmission.

Necessary preliminary tasks:

- Remove **Mechatronics** . See **24 34 563 REPLACING MECHATRONICS (GA6L45R)**.

Unlock and disconnect plug (1).

Release screws (2).

Detach input and output speed sensor from Mechatronics.

Tightening torque. See 24 30 4AZ in **24 30 HYDRAULIC/ELECTRIC CONTROL PARTS AND CONTROLLING ELEMENTS** .

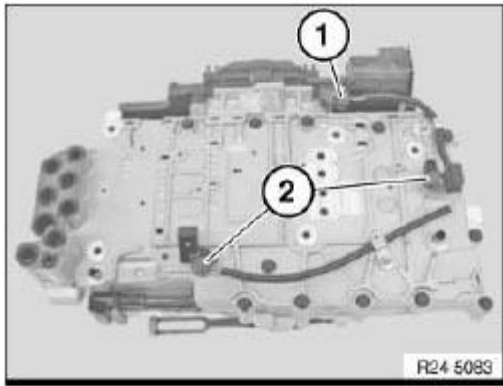


Fig. 77: Identifying Input And Output Speed Sensor Plug And Screws
Courtesy of BMW OF NORTH AMERICA, INC.

TORQUE CONVERTER

24 31 575 REPLACING OIL PUMP O-RINGS (GA6HP26/19Z)

Special tools required:

For the following special tools, refer to **AUTOMATIC TRANSMISSION - SPECIAL TOOLS** .

- 24 1 180
- 24 1 184

IMPORTANT: After completion of work, check transmission fluid level. See **00 11 237 CHECKING/TOPPING UP FLUID LEVEL IN AUTOMATIC TRANSMISSION (GA6L45R)** . Use only approved transmission oil. Failure to comply with this instruction will result in serious damage to the transmission.

Necessary preliminary tasks:

- Remove **automatic transmission** . See **24 00 032 REMOVING AND INSTALLING AUTOMATIC TRANSMISSION (GA6L45R)**.
- Secure transmission with **transmission holding bridge** on assembly stand. See **23..... UNIVERSAL TRANSMISSION RETAINING BRIDGE**.
- Remove **torque converter** . See **24 40 013 REMOVING AND INSTALLING/REPLACING TORQUE CONVERTER (GA6L45R)**.
- Remove **Mechatronics** . See **24 34 563 REPLACING MECHATRONICS (GA6L45R)**.

Remove adapter (1).

Installation:

Note installation position.

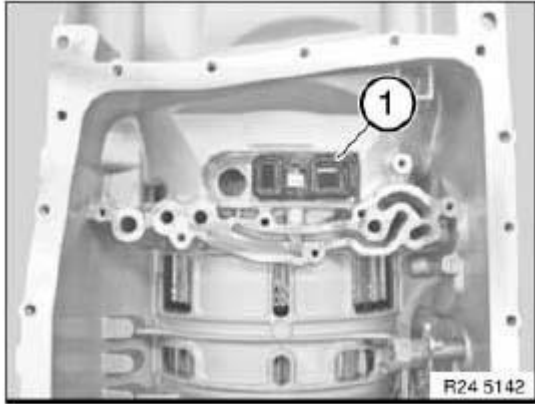


Fig. 78: Identifying Adapter
Courtesy of BMW OF NORTH AMERICA, INC.

Release screws.

Tightening torque. See 24 31 3AZ in **AUTOMATIC TRANSMISSION - TIGHTENING TORQUES**.

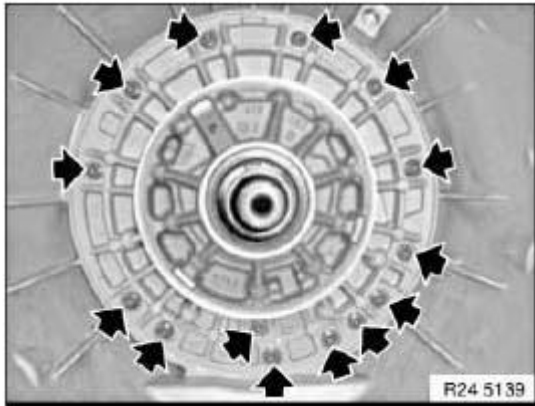


Fig. 79: Locating Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Slide special tool 24 1 184 completely into extractor 24 1 180. See **Fig. 80**.

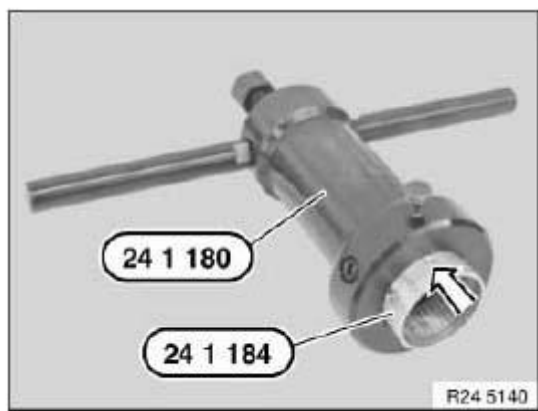


Fig. 80: Identifying Special Tools (24 1 180 And 24 1 184)
 Courtesy of BMW OF NORTH AMERICA, INC.

Attach special tool **24 1 180** and secure with screw (1).

Insert screw (2) and release oil supply unit from transmission housing.

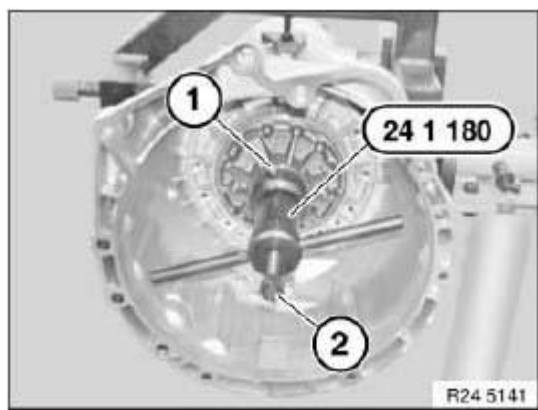


Fig. 81: Identifying Special Tools (24 1 180)
 Courtesy of BMW OF NORTH AMERICA, INC.

Release screws.

Tightening torque. See 24 31 1AZ in **AUTOMATIC TRANSMISSION - TIGHTENING TORQUES**.

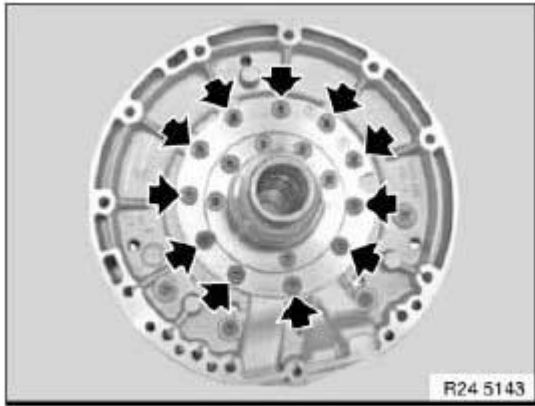


Fig. 82: Locating Screws

Courtesy of BMW OF NORTH AMERICA, INC.

Detach cover (1) from pump housing (2).

Replace O-rings (3 + 4).

Installation:

Pay attention to installation position of gears during disassembly.

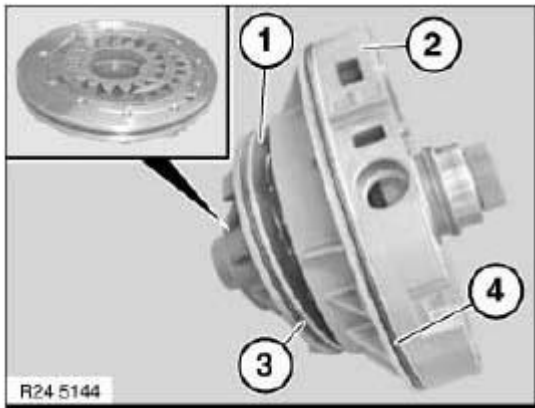


Fig. 83: Identifying Cover And Pump Housing With O-Ring

Courtesy of BMW OF NORTH AMERICA, INC.

24 40 013 REMOVING AND INSTALLING/REPLACING TORQUE CONVERTER (GA6L45R)

Special tools required:

- **00 2 550** . See **00 2 550 DEPTH GAUGE** .

For the following special tools, refer to **AUTOMATIC TRANSMISSION - SPECIAL TOOLS** .

- **24 4 000** . See **24 4 000 ASSEMBLY GRIP (2)** .

IMPORTANT: After completion of work, check transmission fluid level. See 00 11 237 CHECKING/TOPPING UP FLUID LEVEL IN AUTOMATIC TRANSMISSION (GA6L45R) . Use only approved transmission oil. Failure to comply with this instruction will result in serious damage to the transmission.

Necessary preliminary tasks:

- Remove **automatic transmission** . See 24 00 032 REMOVING AND INSTALLING AUTOMATIC TRANSMISSION (GA6L45R).

Screw special tool **24 4 000** into torque converter. See Fig. 84.

Remove torque converter.

NOTE: When torque converter is removed, transmission oil flows out.

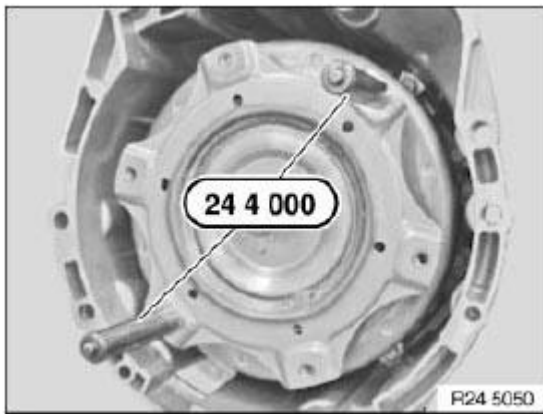


Fig. 84: Identifying Special Tools (24 4 000)
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

When installing, do not damage shaft seal and bearing.

If the torque converter is not correctly installed, the driver of the pump impeller may be damaged when the transmission is flanged to the engine.

Remove torque converter and set down vertically.

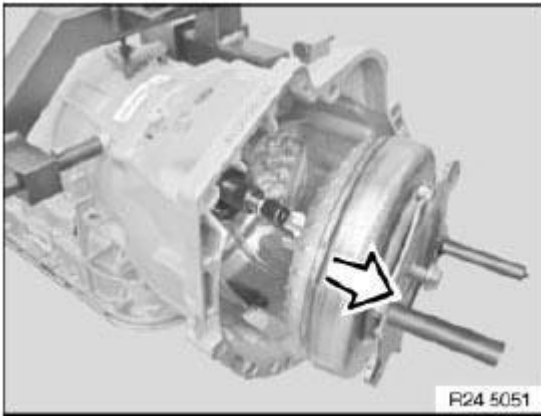


Fig. 85: Removing Torque Converter
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Push torque converter through shaft seal onto transmission shaft as far as it will go.

Press torque converter by hand into converter housing and turn in the process. Converter hub opening must snap into place in driver of pump impeller. Torque converter must be felt to slip inwards.

Determine distance between contact surface and surface (1) of tapped hole in torque converter with special tool 00 2 550 .

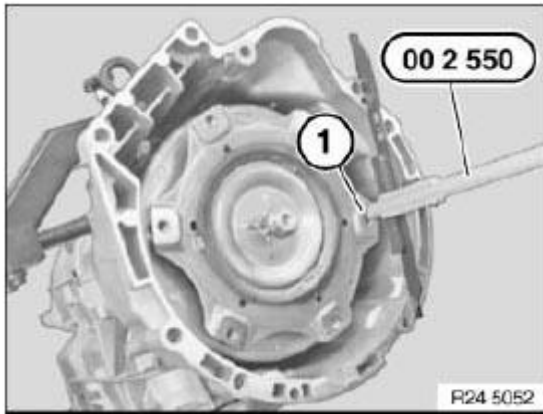


Fig. 86: Identifying Special Tools (00 2 550)
Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: Measured value must be greater than 25 mm.

SHIFT FUNCTION

24 14 005 REPLACING SEALING CAP FOR SELECTOR SHAFT (GA6L45R)

IMPORTANT: After completion of work, check transmission oil level. See 00 11 237 CHECKING/TOPPING UP FLUID LEVEL IN AUTOMATIC TRANSMISSION (GA6L45R) . Use only the approved automatic transmission fluid in this automatic transmission.

Failure to comply with this requirement will result in serious damage to the automatic transmission!

Necessary preliminary tasks:

- Remove **rear underbody protection** . See 51 47 491 REMOVING AND INSTALLING/REPLACING REAR UNDERBODY PROTECTION (CONVERTIBLE) or 51 47 491 REMOVING AND INSTALLING/REPLACING REAR UNDERBODY PROTECTION (COUPE) .
- Remove front propeller shaft from transfer case and tie to one side.

Tasks are described in **Removing front propeller shaft** . See 26 11 000 REMOVING AND INSTALLING PROPELLER SHAFT (CARDAN UNIVERSAL JOINT) COMPLETELY .

Screw special tool 23 0 490 into sealing cap.

Drive out sealing cap with impact weight (1).

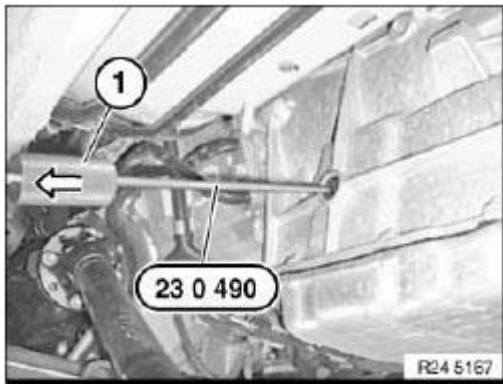


Fig. 87: Identifying Special Tools (23 0 490)
Courtesy of BMW OF NORTH AMERICA, INC.

Place new sealing cap (1) on drift (2).

NOTE: Drift (2) for driving in sealing cap is contained in repair kit.

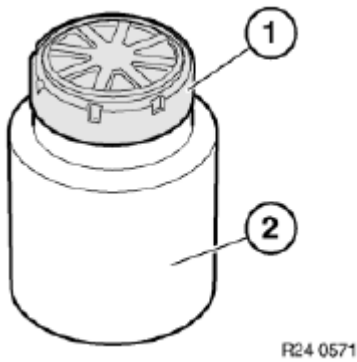


Fig. 88: Identifying Sealing Cap On Drift
 Courtesy of BMW OF NORTH AMERICA, INC.

Drive in new sealing cap (1) with drift (2) as far as it will go.

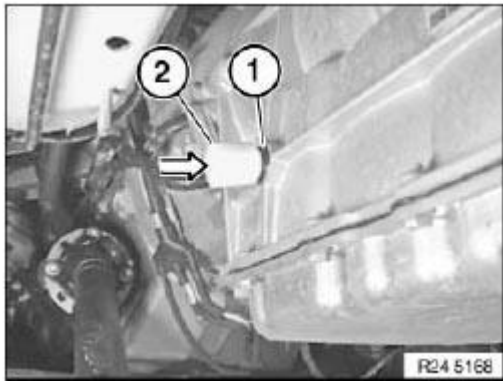


Fig. 89: Driving In Sealing Cap With Drift
 Courtesy of BMW OF NORTH AMERICA, INC.

24 50 030 REPLACING SELECTOR SHAFT (GA6L45R)

IMPORTANT: After completion of work, check transmission oil level. See 00 11 237 CHECKING/TOPPING UP FLUID LEVEL IN AUTOMATIC TRANSMISSION (GA6L45R) . Use only the approved automatic transmission fluid in this automatic transmission.

Failure to comply with this requirement will result in serious damage to the automatic transmission!

Necessary preliminary tasks:

- **Remove Mechatronics** . See 24 34 563 REPLACING MECHATRONICS (GA6L45R).
- **Remove selector shaft seal** . See 24 14 003 REPLACING SELECTOR SHAFT SEAL (GA6L45R).

Drive a metal pin (1) - dia. approx. 3 mm - into clamping pin (2) (to prevent clamping pin from being compressed).

Grip clamping pin (2) with side nippers.

NOTE: Illustration similar

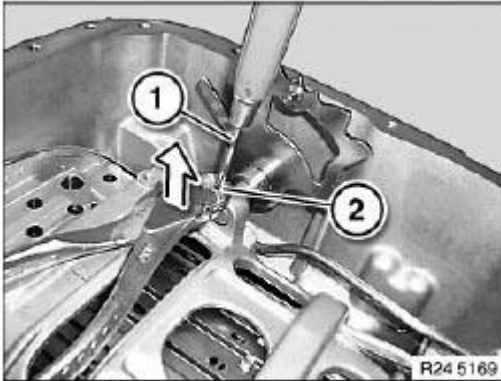


Fig. 90: Driving In Metal Pin

Courtesy of BMW OF NORTH AMERICA, INC.

Drive clamping pin (2) with a suitable tool out of selector shaft.

Remove selector shaft.

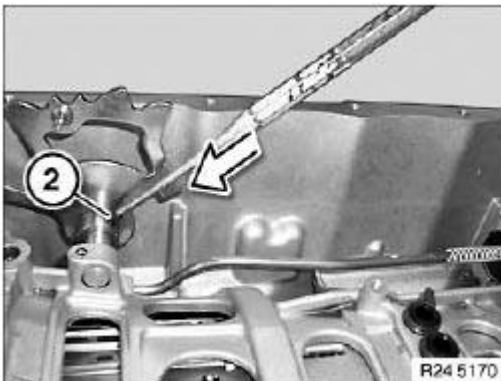


Fig. 91: Driving Out Metal Pin

Courtesy of BMW OF NORTH AMERICA, INC.

INTERNAL GEARSHIFT

24 14 005 REPLACING SEALING CAP FOR SELECTOR SHAFT (GA6L45R)

IMPORTANT: After completion of work, check transmission oil level. See 00 11 237 CHECKING/TOPPING UP FLUID LEVEL IN AUTOMATIC TRANSMISSION (GA6L45R) .
Use only the approved automatic transmission fluid in this automatic transmission.

Failure to comply with this requirement will result in serious damage to the automatic transmission!

Necessary preliminary tasks:

- Remove **rear underbody protection** . See **51 47 491 REMOVING AND INSTALLING/REPLACING REAR UNDERBODY PROTECTION (CONVERTIBLE)** or **51 47 491 REMOVING AND INSTALLING/REPLACING REAR UNDERBODY PROTECTION (COUPE)** .
- Remove front propeller shaft from transfer case and tie to one side.

Tasks are described in **Removing front propeller shaft** . See **26 11 000 REMOVING AND INSTALLING PROPELLER SHAFT (CARDAN UNIVERSAL JOINT) COMPLETELY** .

Screw special tool 23 0 490 into sealing cap.

Drive out sealing cap with impact weight (1).

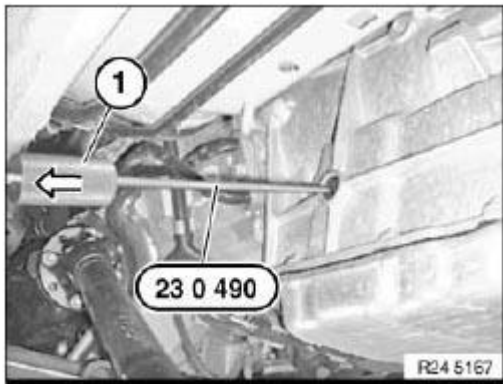


Fig. 92: Identifying Special Tools (23 0 490)
Courtesy of BMW OF NORTH AMERICA, INC.

Place new sealing cap (1) on drift (2).

NOTE: Drift (2) for driving in sealing cap is contained in repair kit.

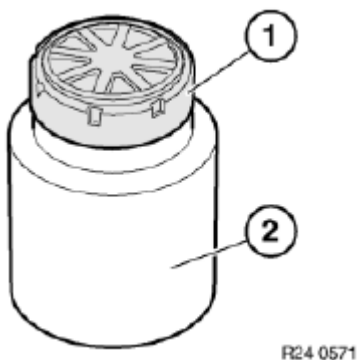
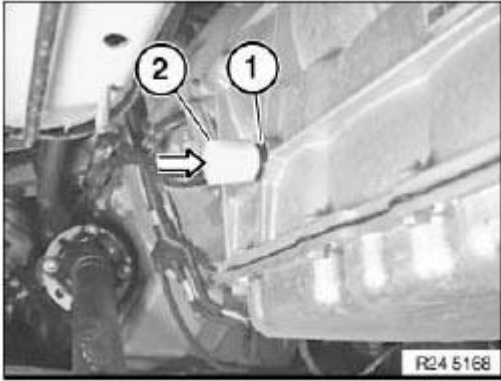


Fig. 93: Identifying Sealing Cap On Drift

Courtesy of BMW OF NORTH AMERICA, INC.

Drive in new sealing cap (1) with drift (2) as far as it will go.

**Fig. 94: Driving In Sealing Cap With Drift**

Courtesy of BMW OF NORTH AMERICA, INC.

24 50 030 REPLACING SELECTOR SHAFT (GA6L45R)

IMPORTANT: After completion of work, check transmission oil level. See **00 11 237 CHECKING/TOPPING UP FLUID LEVEL IN AUTOMATIC TRANSMISSION (GA6L45R)** . Use only the approved automatic transmission fluid in this automatic transmission.

Failure to comply with this requirement will result in serious damage to the automatic transmission!

Necessary preliminary tasks:

- **Remove Mechatronics** . See **24 34 563 REPLACING MECHATRONICS (GA6L45R)**.
- **Remove selector shaft seal** . See **24 14 003 REPLACING SELECTOR SHAFT SEAL (GA6L45R)**.

Drive a metal pin (1) - dia. approx. 3 mm - into clamping pin (2) (to prevent clamping pin from being compressed).

Grip clamping pin (2) with side nippers.

NOTE: **Illustration similar**

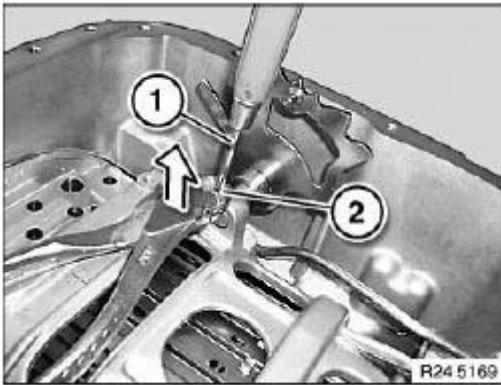


Fig. 95: Driving In Metal Pin

Courtesy of BMW OF NORTH AMERICA, INC.

Drive clamping pin (2) with a suitable tool out of selector shaft.

Remove selector shaft.

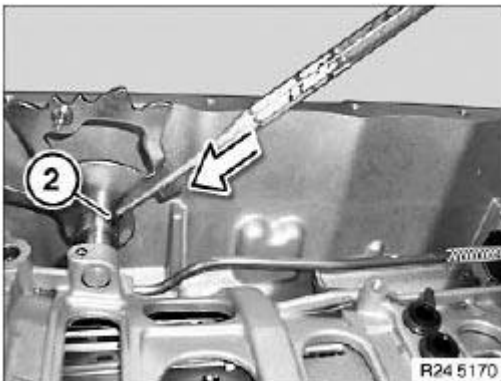


Fig. 96: Driving Out Metal Pin

Courtesy of BMW OF NORTH AMERICA, INC.