

TRANSMISSION**Automatic Transmission - 535xi****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
(GA6HP19Z/6HP19Z) AWD**

**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).

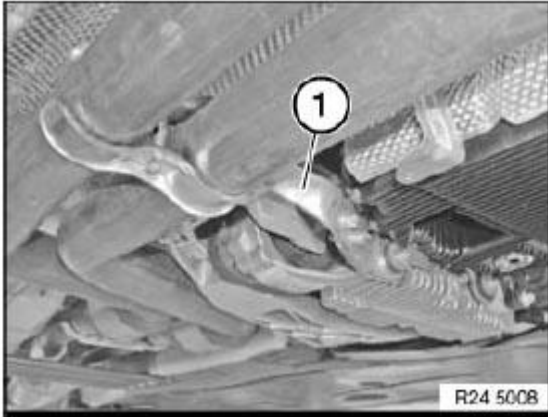


Fig. 1: Identifying Exhaust System Bracket
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Tighten down filler plug using

1. Hexagon wrench 8 A/F
2. torque wrench
3. Socket 8 A/F

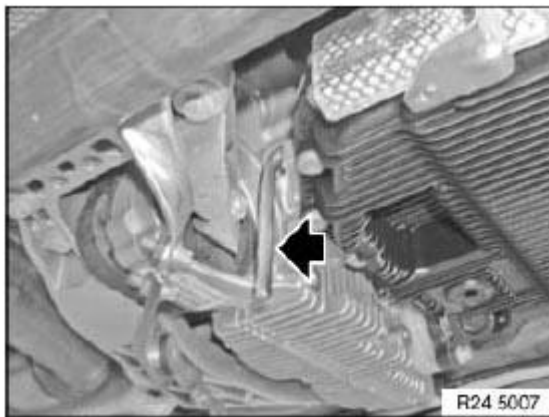


Fig. 2: Tightening Filler Plug Using Hexagon Wrench
Courtesy of BMW OF NORTH AMERICA, INC.

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.

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: **24 11 7AZ** .

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.

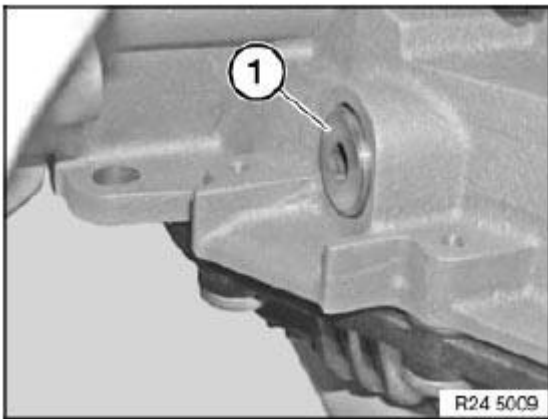


Fig. 3: Identifying Filler Plug

Courtesy of BMW OF NORTH AMERICA, INC.

Checking fluid level:

- Connect BMW Diagnosis and Information System (DIS) or BMW MoDiC 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 (TRANSMISSION DESIGNATIONS)

A5S 300J (old designation)		
A	Transmission type	○ S = Manual transmission ○ A = Automatic transmission
5	Number of forward gears	
S	Type of top gear	○ D = Direct gear ○ S = Overdrive gear
300	Max. input torque (Nm)	
J	Code letter of transmission manufacturer	○ 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	○ S = Manual transmission ○ A = Automatic transmission
6	Number of forward gears	
-		○ - = Standard with manual gearshift ○ HP = Hydraulic planetary gear ○ DKG = Twin clutch transmission/gearbox
37	Transmission type	○ 26 = D-transmission ○ 31 = C-transmission ○ 39 = F-transmission ○ 37 = H-transmission ○ 53 = G-transmission ○ 17 = I-transmission ○ 47 = J-transmission
B	Gear set	○ B = Petrol/gasoline gear ratio ○ D = Diesel gear ratio ○ S = Sport gear ratio
Z	Code letter of transmission manufacturer	○ G = Getrag ○ Z = ZF (Zahnradfabrik Friedrichshafen)

Manual transmission:

2010 BMW 535xi

TRANSMISSION Automatic Transmission - 535xi

BREAKDOWN OF BMW DESIGNATION (MANUAL TRANSMISSION)

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:

BREAKDOWN OF BMW DESIGNATION (AUTOMATIC TRANSMISSION)

BMW designation	Manufacturer	Manufacturer designation	Remark
A4S 200R	GMPT	GM4	
A4S 270R	GMPT	THM-R1w	Transmission widesteppped
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
- 23 4 050

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.

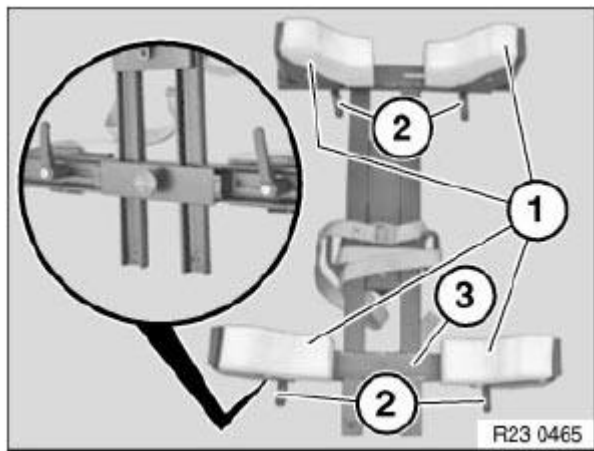


Fig. 4: Identifying Carrier Of Rear Supports
Courtesy of BMW OF NORTH AMERICA, INC.

Supporting transmission:

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

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

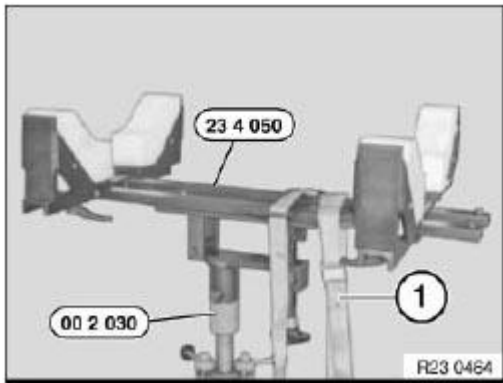


Fig. 5: Supporting Transmission With Special Tools 23 4 050 And 00 2 030
Courtesy of BMW OF NORTH AMERICA, INC.

23..... UNIVERSAL TRANSMISSION RETAINING BRIDGE

Special tools required:

- 00 1 450
- 24 0 200

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.

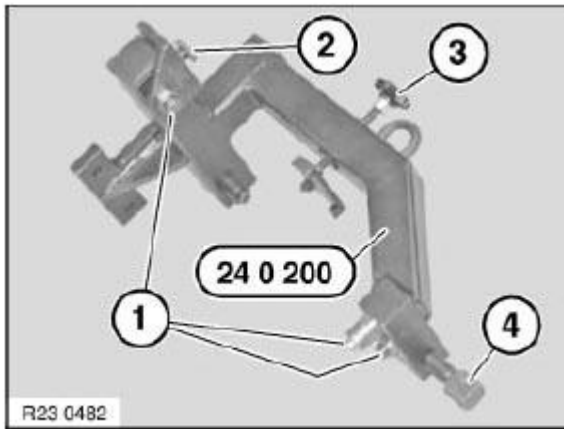


Fig. 6: Identifying Adapters, Spindle And Thrust Piece
Courtesy of BMW OF NORTH AMERICA, INC.

24 00 018 ADJUSTING GEAR LEVER (PARKING LOCK EMERGENCY RELEASE)

NOTE: Check cable for ease of movement.
Move gear selector switch to "P" position.
Control for emergency release must not be actuated.

Unfasten nut.

Tightening torque **25 16 10AZ.**

Remove cable (1).

Installation:

Adjust cable

- Release nut
- Adjust cable by means of holder (2)
- Spacing A = 1.5 mm

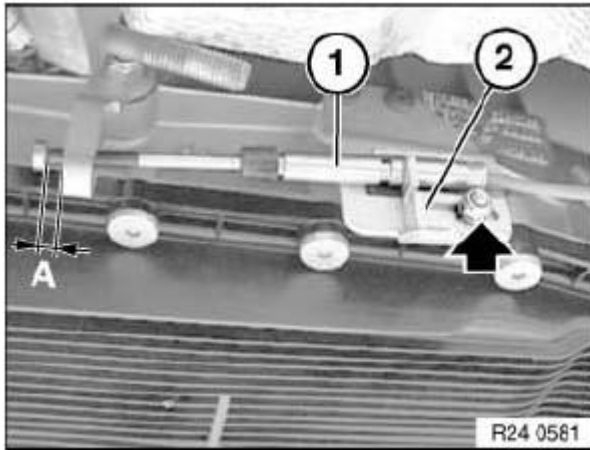


Fig. 7: Identifying Cable And Holder
Courtesy of BMW OF NORTH AMERICA, INC.

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 **25 16 8AZ**.

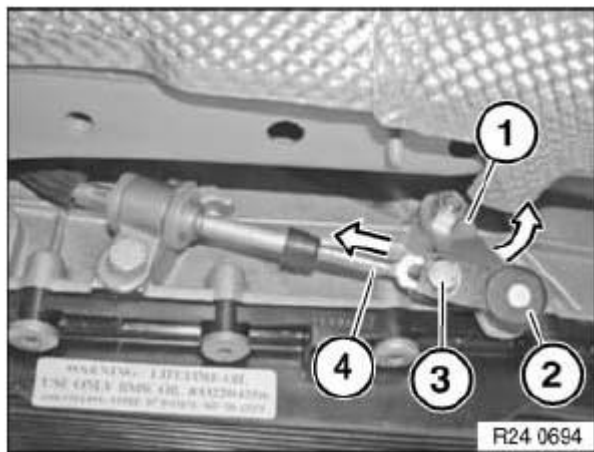


Fig. 8: Adjusting Shift Lever

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 00 030 REMOVING AND INSTALLING AUTOMATIC TRANSMISSION (GA6HP19Z AWD) N54

Special tools required:

- 00 2 030
- 00 9 010
- 00 9 120
- 00 9 130
- 23 4 05
- 24 1 110
- 24 2 390
- 24 4 160
- 24 4 161
- 24 4 165

IMPORTANT: After completion of work, check transmission oil level.

Use only the approved transmission fluid .

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

IMPORTANT: E60/E61 and E63/E64 cars are equipped with the Auto-P function as from 03/07

and 09/07 respectively.

Consequence:

With ignition on and selector lever in N position, the P position (transmission parking brake) is automatically engaged after 30 mins.

This can be prevented by manually unlocking the **transmission interlock** .

Car must not be moved when the transmission interlock is engaged.

Failure to comply with this instruction will result in immediate transmission damage.

IMPORTANT: 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**
- Remove underbody protection at front and rear. See **51 47 490 REMOVING AND INSTALLING / REPLACING FRONT UNDERBODY PROTECTION** and **51 47 491 REMOVING AND INSTALLING/REPLACING REAR UNDERBODY PROTECTION** .
- Remove **REINFORCEMENT PLATE** .

Important notes on installation are described in this work step

- Remove complete **exhaust system** .

Remove heat shields (1) and (2) and bracket.

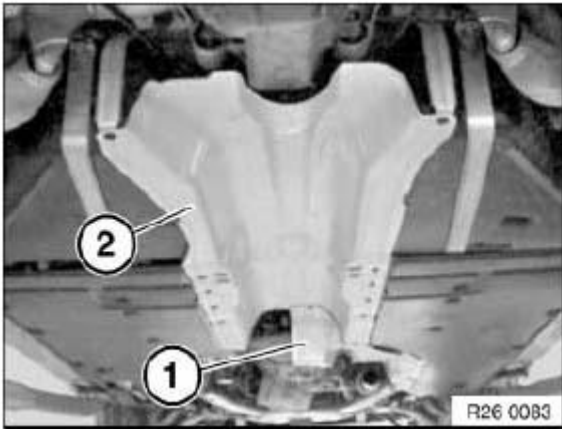


Fig. 9: Identifying Heat Shields

Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Release aluminum screw on right next to cable retaining plate with special tool 00 9 010.

Aluminum screws must be replaced. Tightening torque **24 00 2AZ** .



Fig. 10: Identifying Special Tool 00 9 010

Courtesy of BMW OF NORTH AMERICA, INC.

Release screws (1).

Disconnect connector (2).

Steel screws, tightening torque **24 00 1AZ** .

Aluminum screws, tightening torque **24 00 2AZ** .

Release aluminum screws with special tool 00 9 010.

NOTE: Illustration similar

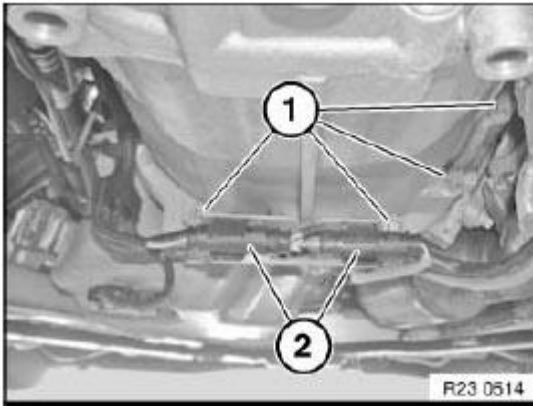


Fig. 11: Identifying Connector

Courtesy of BMW OF NORTH AMERICA, INC.

Unclip cable (1) from holder.

Release screw (2) and remove holder (3).

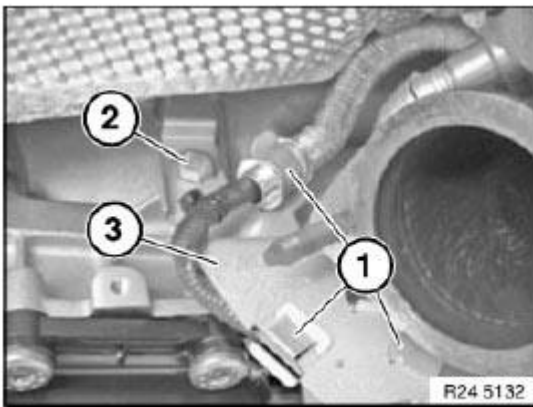


Fig. 12: Identifying Cable And Holder Screw

Courtesy of BMW OF NORTH AMERICA, INC.

Release screws (1).

Remove holder (2).

Tightening torque, **24 00 1AZ** .

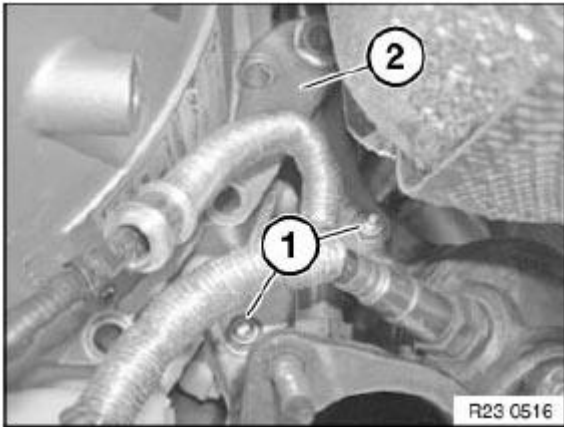


Fig. 13: Identifying Holder

Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: Version 2

Unfasten nut.

Disconnect cable (1)

Installation:

Unfasten nut.

Adjust cable by means of holder (2) until spacing A = 1 mm is obtained

Tighten nut.

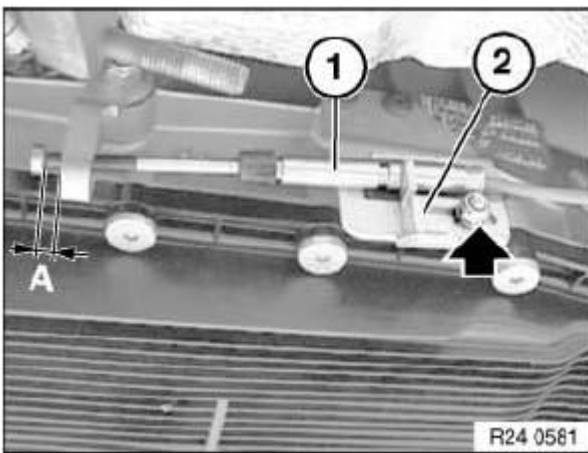


Fig. 14: Identifying Cable And Holder

Courtesy of BMW OF NORTH AMERICA, INC.

Supporting transmission:

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

Secure transmission to mounting with tensioning strap (1).

After completion of work, check transmission oil level.

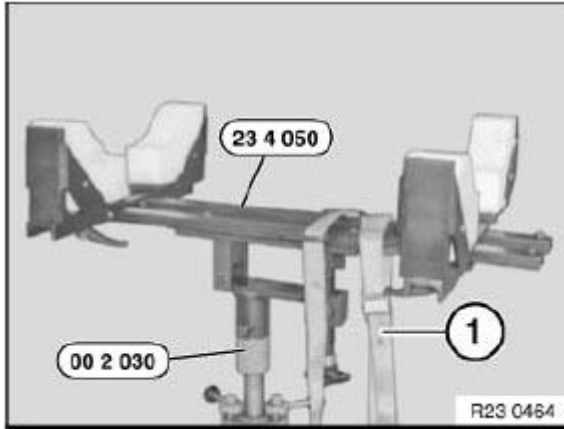


Fig. 15: Supporting Transmission With Special Tools 23 4 050 And 00 2 030
Courtesy of BMW OF NORTH AMERICA, INC.

Release screws.

Tightening torque **26 11 9AZ.** .

Remove front propeller shaft at output flange of transfer case and tie to one side.

Installation:

Replace screws.

NOTE: **Illustration similar**

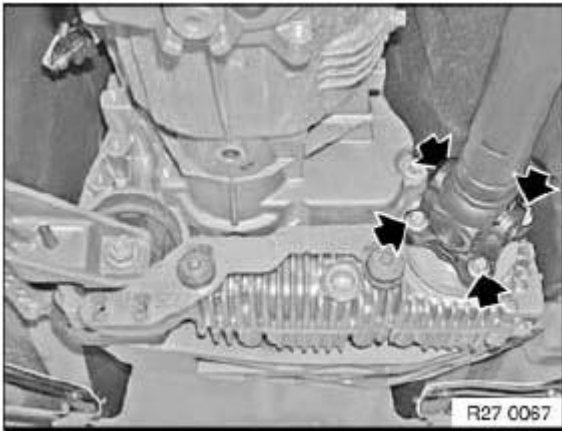


Fig. 16: Locating Front Propeller Shaft Output Flange Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Release screws (1) and remove holder (2).

NOTE: Illustration similar

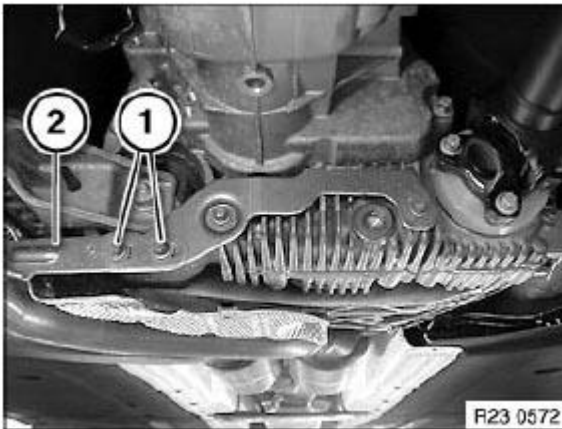


Fig. 17: Identifying Holder Screws
Courtesy of BMW OF NORTH AMERICA, INC.

- Remove propeller shaft from transmission.
- Release center bearing.
- Tie propeller shaft to one side.

Tasks are described in **26 11 000 REMOVING AND INSTALLING COMPLETE PROPELLER SHAFT (CONSTANT-VELOCITY JOINT)** .

Release screws.

Remove transmission cross-member.

Tightening torque **27 00 10AZ.**

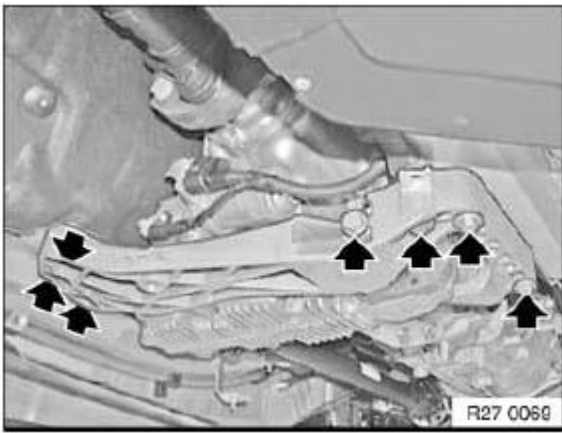


Fig. 18: Locating Transmission Cross-Member Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Disconnect plugs (1) and (2) from servomotor.

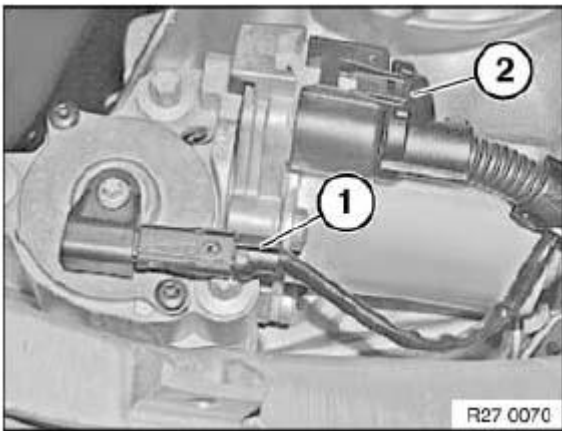


Fig. 19: Identifying Plugs
Courtesy of BMW OF NORTH AMERICA, INC.

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

These tasks are described in **Notes on mechatronics.**

IMPORTANT: Read and comply with important note.

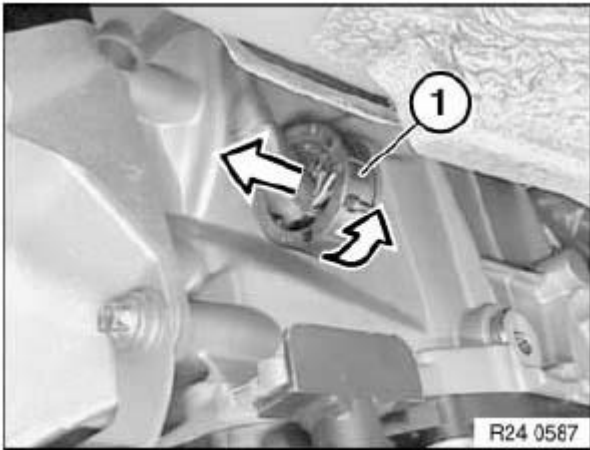


Fig. 20: Disconnecting Plug

Courtesy of BMW OF NORTH AMERICA, INC.

Release screw (1).

Disconnect hydraulic lines (2) to transmission fluid cooler.

Installation:

Replace sealing rings.

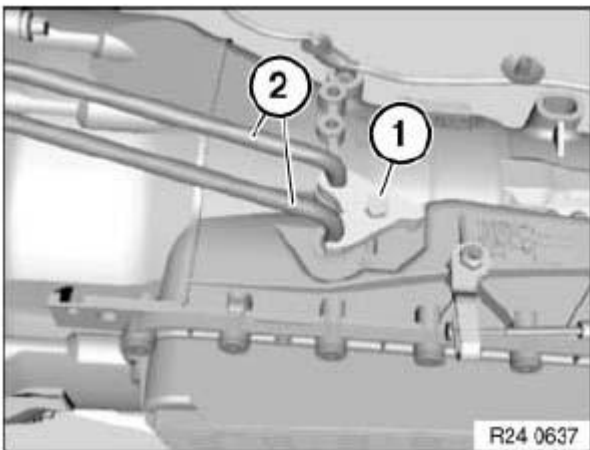


Fig. 21: Identifying Hydraulic Lines

Courtesy of BMW OF NORTH AMERICA, INC.

Release screw (1) on holder on transmission oil lines.

Remove holder.

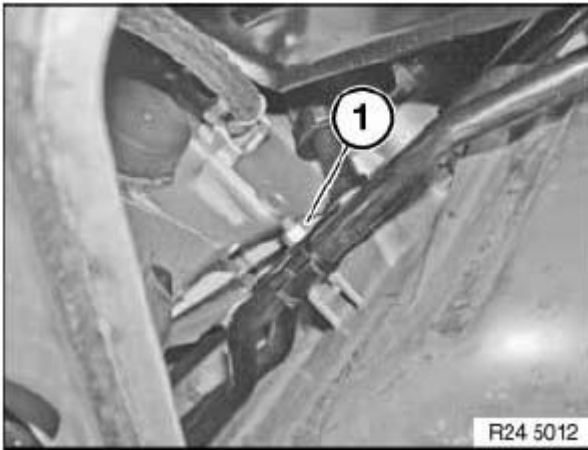


Fig. 22: Identifying Screw On Holder On Transmission Oil Lines
Courtesy of BMW OF NORTH AMERICA, INC.

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 **24 40 1AZ.**

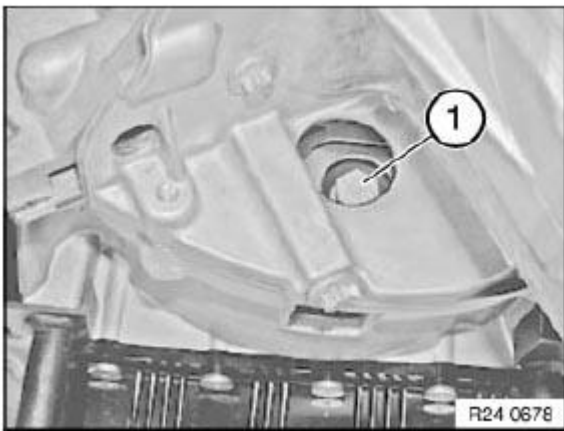


Fig. 23: Identifying Vibration Damper Screw
Courtesy of BMW OF NORTH AMERICA, INC.

Prepare special tool (1) 24 4 161 (A) with shaped section (2) 24 4 165 side (A) to (A).

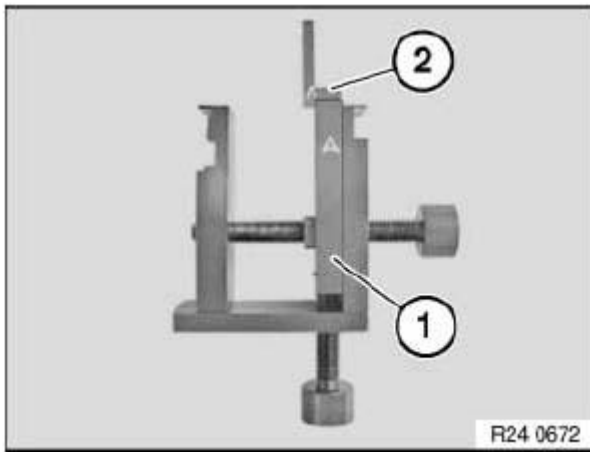


Fig. 24: Identifying Special Tool

Courtesy of BMW OF NORTH AMERICA, INC.

Insert special tool 24 4 160 into opening of transmission housing and clamp gently with screw (1).

Twist in screw (2) and clamp down.

Then tighten down screw (1).

NOTE: Illustration similar.

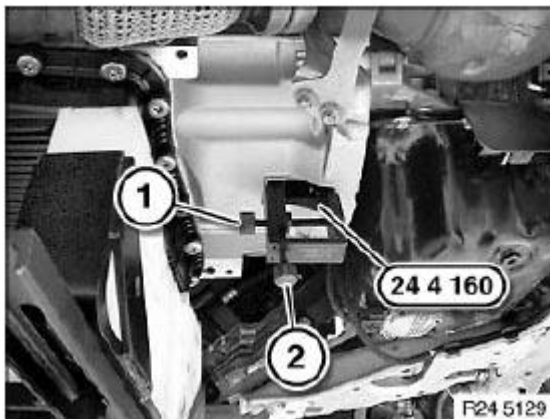


Fig. 25: Identifying Special Tool 24 4 160 And Clamp Screw

Courtesy of BMW OF NORTH AMERICA, INC.

Release screws.

Installation:

Tightening torque, steel screws 24 00 1AZ.

Aluminum screws/bolts **must** be replaced.

Tightening torque and angle of rotation

Aluminum screws/bolts 24 00 2AZ (7, 8, 9, 10, 11) Screw 9 only on N54.

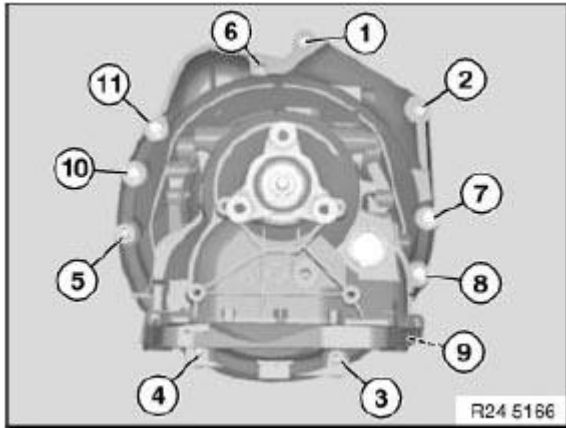


Fig. 26: Identifying Loosening Sequence Of Transmission Housing Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Secure angle of rotation special tool 00 9 120 with magnet 00 9 130 to floor plate.

Screw down aluminum screws/bolts according to angle of rotation.

Angle of rotation **24 00 2AZ.**

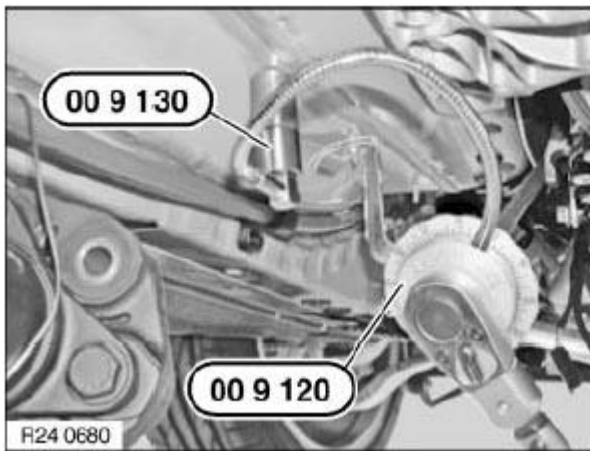


Fig. 27: Identifying Special Tool 00 9 120 And Magnet 00 9 130
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

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

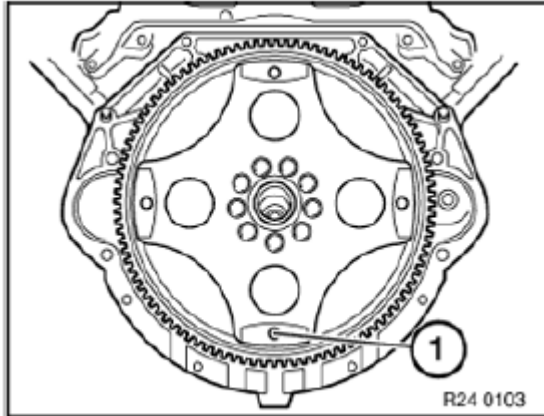


Fig. 28: Identifying Bore In Driving Disc
Courtesy of BMW OF NORTH AMERICA, INC.

Check that dowel sleeves are correctly seated.

Replace damaged dowel sleeves.

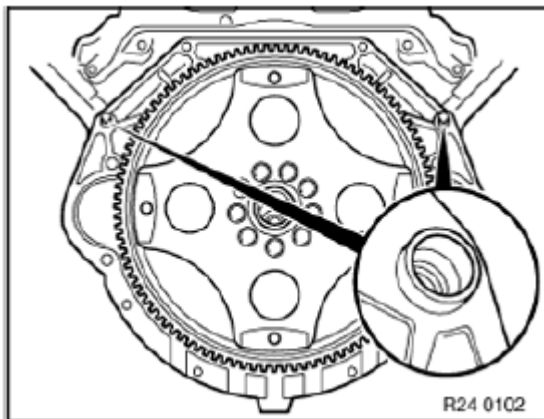


Fig. 29: Identifying Dowel Sleeves
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

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

Flange automatic transmission to engine.

24 00 050 INSTALLING REPLACEMENT TRANSMISSION (GA6HP19Z/N52/N52K/N53/N54)

Drain automatic transmission fluid at oil drain plug.

Tightening torque: **24 11 6AZ**

IMPORTANT: After completion of work, program transmission control unit.

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 .
 - After completion of work, check transmission oil level.

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 automatic transmission.

NOTE: Rear-wheel drive only

Release screws.

Remove and convert transmission bearing block (1).

Tightening torque **24 71 6AZ**.

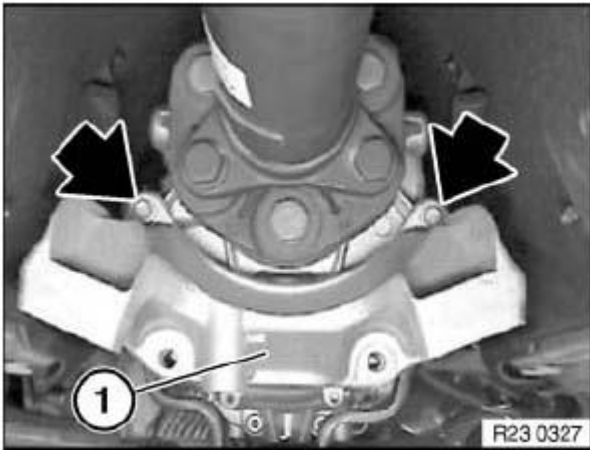


Fig. 30: Identifying Convert Transmission Bearing Block
Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: AWD

Modify transfer case .

Picture show E60 (not N54).

Release screws.

Remove and modify exhaust system bracket (1).

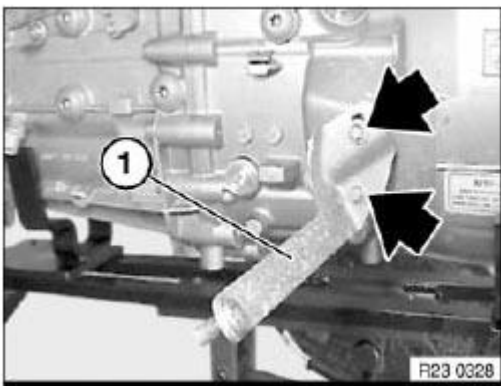


Fig. 31: Identifying Exhaust System Bracket
Courtesy of BMW OF NORTH AMERICA, INC.

Convert transportation lock (1).

Convert all cable holders.

Convert all seal plugs.

Convert protective cap on output shaft.

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

Transmission identification:

- On type plate

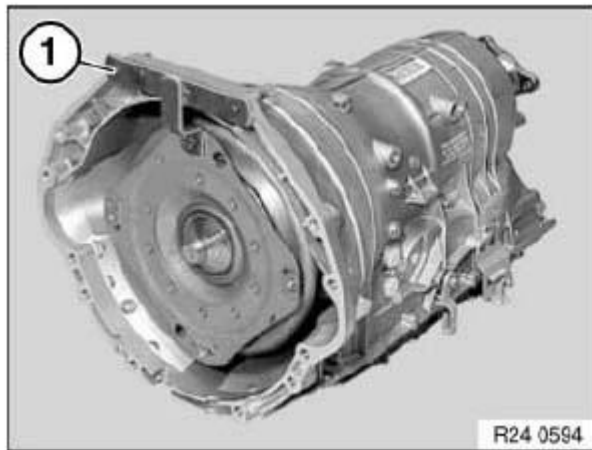


Fig. 32: Identifying Convert Transportation Lock
Courtesy of BMW OF NORTH AMERICA, INC.

TRANSMISSION CASE, OIL

24 11 011 REMOVING AND INSTALLING/SEALING OR REPLACING TRANSMISSION SUMP (GA6HP19Z)

IMPORTANT: Remove transmission sump only after it has cooled down.
After completion of work, check transmission oil level.
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: **24 11 6AZ.**

Drain automatic transmission fluid.

Installation:

Replace oil drain plug.

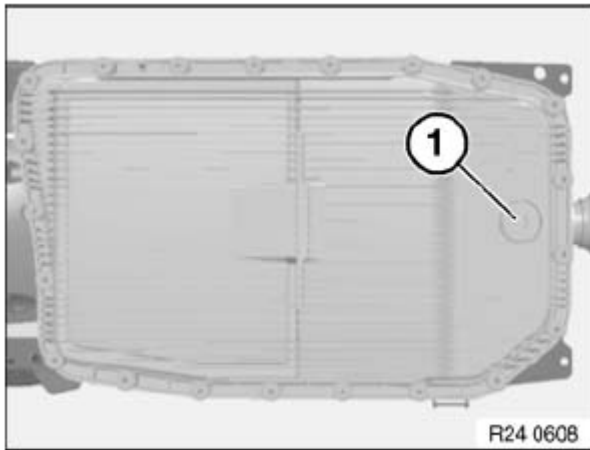


Fig. 33: Identifying Oil Drain Plug
Courtesy of BMW OF NORTH AMERICA, INC.

Unscrew all bolts.

Remove transmission sump (1).

IMPORTANT: Transmission with plastic oil sump
From 11/04 new M6x28.5 T40 Torx bolt can be retrospectively replaced.

Installation:

Insert screws (2) until screw heads make contact.

Insert all further screws in diagonal sequence from inside to outside until screw heads make contact.

Tightening torque: **24 11 5AZ.**

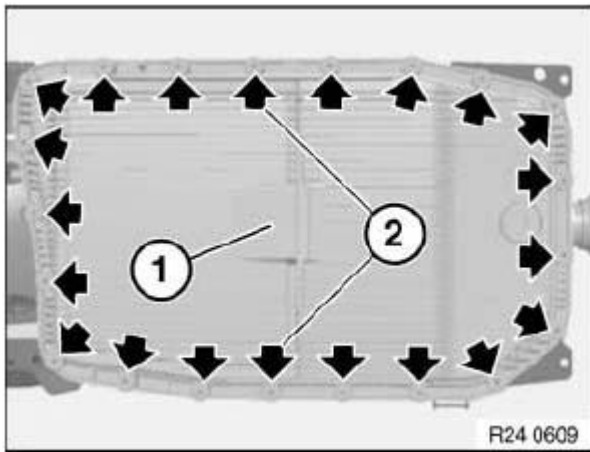


Fig. 34: Locating Transmission Sump Bolts
Courtesy of BMW OF NORTH AMERICA, INC.

Remove gasket (1) from transmission sump.

Clean transmission oil sump to remove residual oil. Clean sealing faces and groove with a cloth.

Insert new gasket in transmission sump groove.

IMPORTANT: Do not degrease transmission sump with cleaning agent.

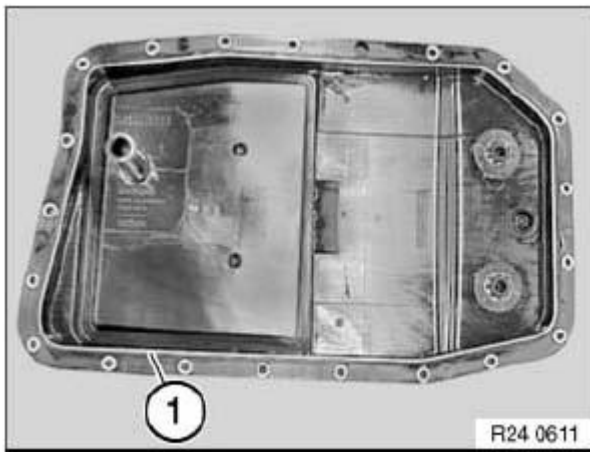


Fig. 35: Identifying Transmission Sump Gasket
Courtesy of BMW OF NORTH AMERICA, INC.

Replace sealing ring (1) on oil filter tube.

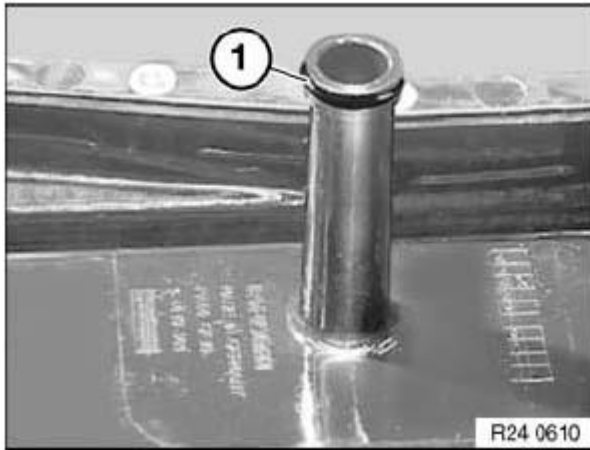


Fig. 36: Identifying Sealing Ring On Oil Filter Tube
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

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

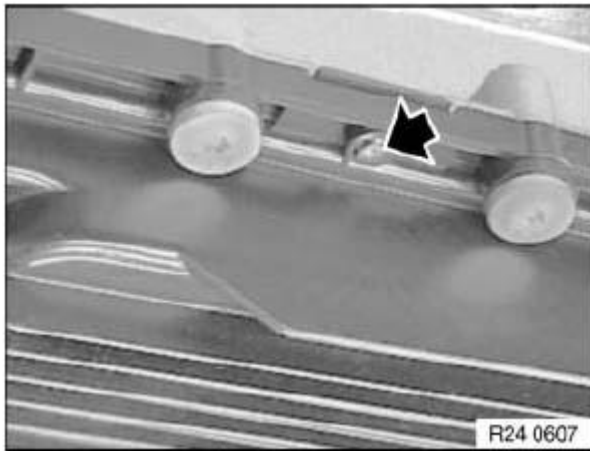


Fig. 37: Locating Opening Of Transmission Sump
Courtesy of BMW OF NORTH AMERICA, INC.

EXTENSION HOUSING, BEARING, SEAL

24 13 013 REPLACING OUTPUT FLANGE SHAFT SEAL (GA6HP19Z)

Special tools required:

- 23 0 020
- 24 2 351
- 24 2 352

- 24 2 353
- 24 2 370
- 24 2 380
- 24 2 410

IMPORTANT: After completion of work, check transmission oil level .

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**
- Remove exhaust system after catalytic converter.
- Remove transmission cross-member.

Release screws and remove transmission support block (1) (if fitted).

Tightening torque **24 71 6AZ**.

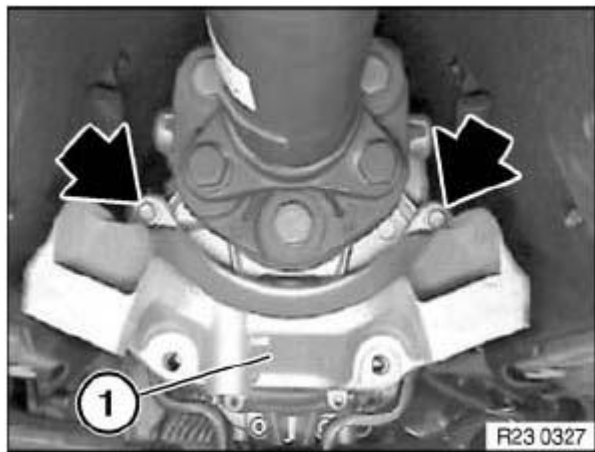


Fig. 38: Identifying Transmission Support Block
Courtesy of BMW OF NORTH AMERICA, INC.

- Remove propeller shaft from transmission.
- Release center bearing.
- Tie propeller shaft to one side.

Tasks are described in **26 11 000 REMOVING AND INSTALLING COMPLETE PROPELLER SHAFT (CONSTANT-VELOCITY JOINT)** .

NOTE: To rotate propeller shaft, unlock parking gear.

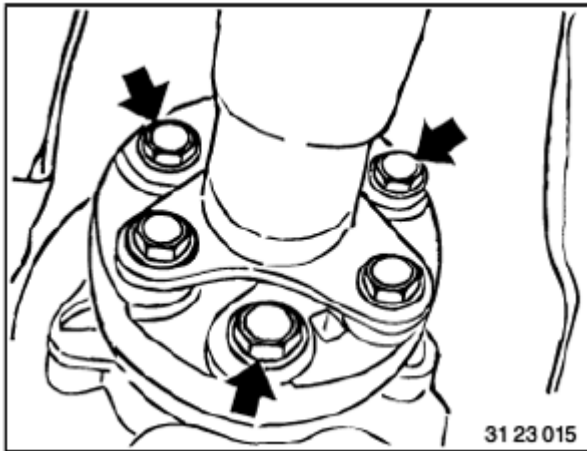


Fig. 39: Locating Propeller Shaft Bolts
Courtesy of BMW OF NORTH AMERICA, INC.

Grip output flange (1) with special tool 23 0 020.

Release nut with special tool 24 2 380.

Tightening torque: **24 13 2AZ**.

Installation:

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

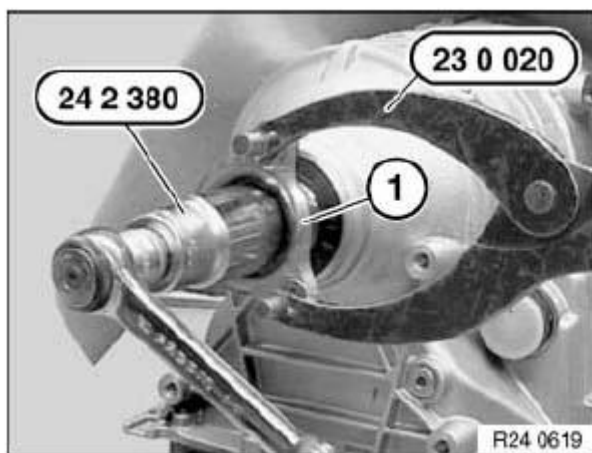


Fig. 40: Removing Propeller Shaft Output Flange Bolt
Courtesy of BMW OF NORTH AMERICA, INC.

Detach output flange from output shaft.

Remove spacer.

Attach special tool 24 2 353 to output shaft (1).

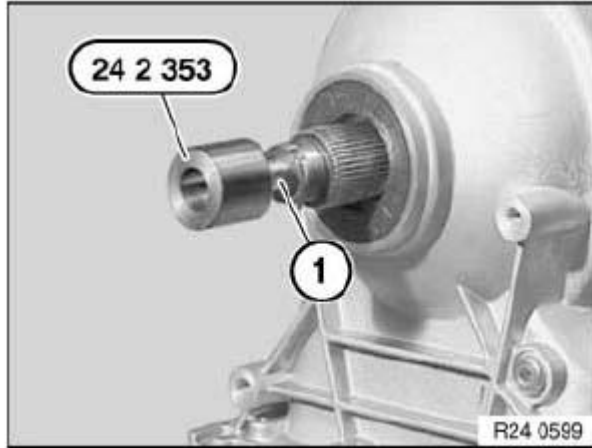


Fig. 41: Attaching Special Tool 24 2 353 To Output Shaft
Courtesy of BMW OF NORTH AMERICA, INC.

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

Pull out radial shaft seal by screwing in special tool 24 2 352.

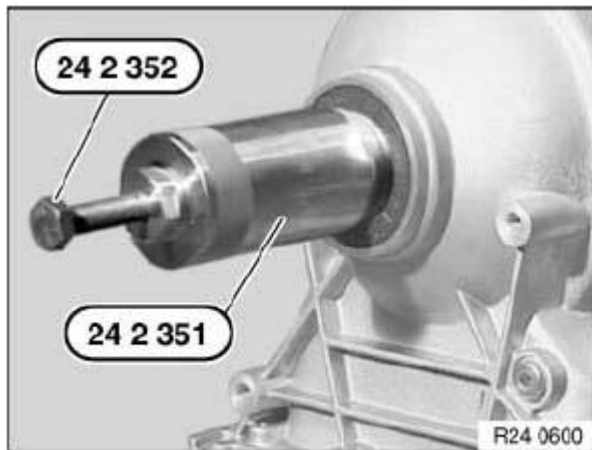


Fig. 42: Removing Radial Shaft Seal
Courtesy of BMW OF NORTH AMERICA, INC.

Oil sealing lip of radial seal (1). Drive in radial seal (1) with special tool 24 2 370 and adapter ring 24 2 410 as far as it will go.

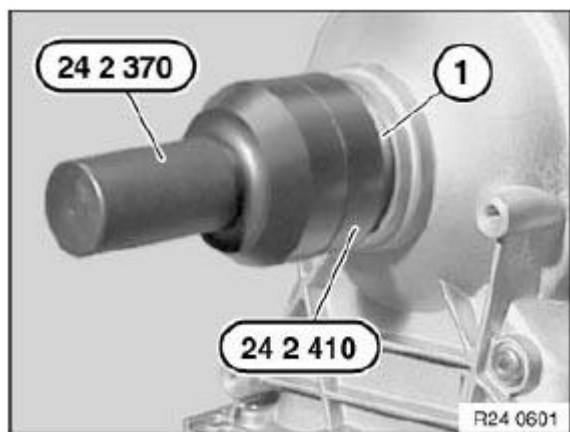


Fig. 43: Installing Radial Shaft Seal

Courtesy of BMW OF NORTH AMERICA, INC.

24 13 013 REPLACING OUTPUT FLANGE SHAFT SEAL (GA6HP19Z) AWD

Special tools required:

- 23 0 490
- 24 4 310

IMPORTANT: After completion of work, check transmission oil level.

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 transfer box

Drive a hole into radial shaft seal (1) using a center punch.

IMPORTANT: Do not use a drill as drillings may result in transmission malfunction.

Screw special tool 23 0 490 into radial shaft seal (1).

Drive out radial shaft seal (1) with impact weight (2).

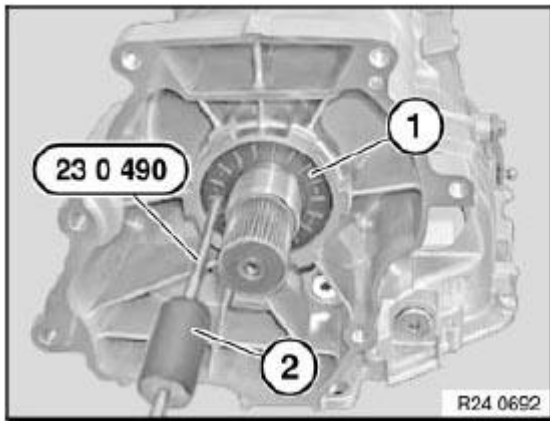


Fig. 44: Removing Radial Shaft Seal

Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Coat sealing lips of new radial seal with clean transmission oil.

Drive shaft seal firmly home with special tool 24 4 310.

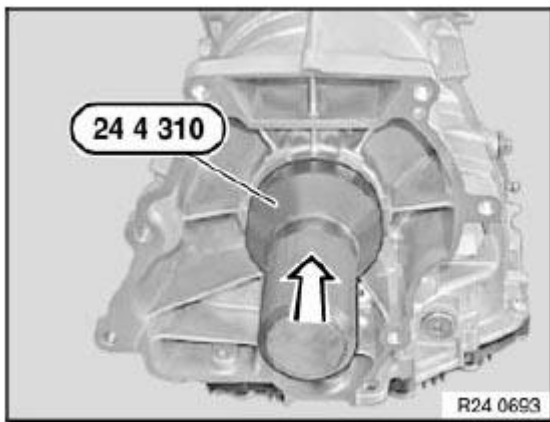


Fig. 45: Installing Radial Shaft Seal

Courtesy of BMW OF NORTH AMERICA, INC.

MECHANICAL ATTACHMENTS

24 14 002 REPLACING SHAFT SEAL FOR SELECTOR SHAFT (GA6HP19Z)

Special tools required:

- 24 5 361
- 24 5 362
- 24 5 364

- 24 5 366

IMPORTANT: After completion of work, check transmission oil level.

Use only the approved transmission fluid .

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

Necessary preliminary tasks:

- Release screws and remove transmission underbody protection (1) (E65 only). See 51 47 490 REMOVING AND INSTALLING / REPLACING FRONT UNDERBODY PROTECTION and 51 47 491 REMOVING AND INSTALLING/REPLACING REAR UNDERBODY PROTECTION
- Remove rear underbody protection (E60/E61 only). See 51 47 491 REMOVING AND INSTALLING/REPLACING REAR UNDERBODY PROTECTION

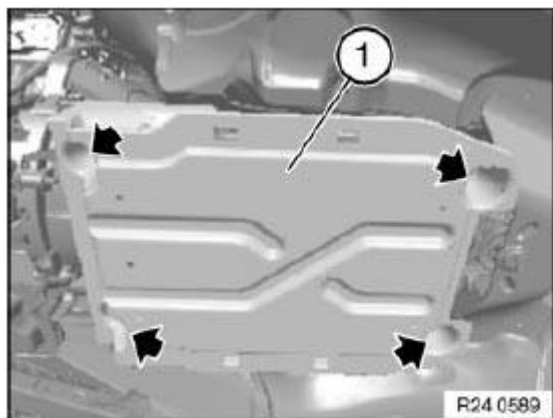


Fig. 46: Identifying Transmission Underbody Protection
Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: **Version 1:**

Unfasten nut.

Remove cable (1).

Installation:

Adjusting cable:

- Unfasten nut.
- Adjust cable via holder (2).

Distance A = 1 mm.

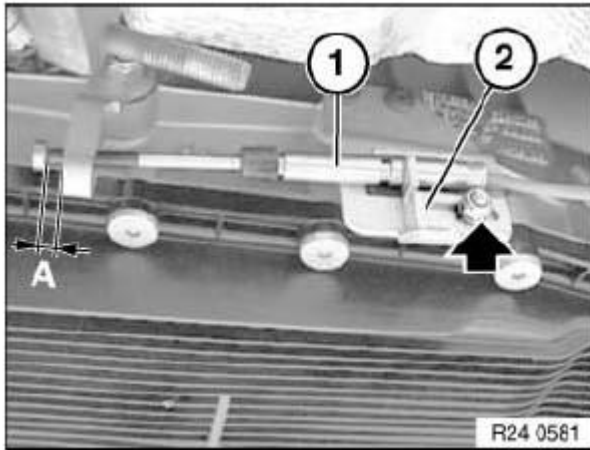


Fig. 47: Identifying Cable And Holder
Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: Version 2:

Grip clamping sleeve (1) and slacken nut (2).

Detach retainer (3) towards bottom using a screwdriver.

Pull cable (4) out of holder.

Installation:

Adjust selector lever .

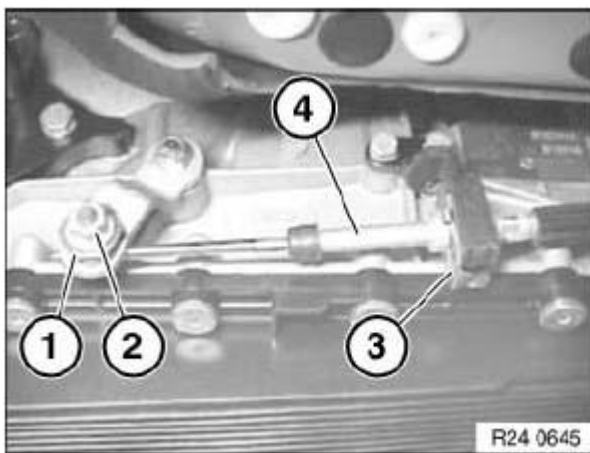


Fig. 48: Identifying Clamping Sleeve, Retainer And Slacken Nut
Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: Version 3:

Release shift cable head (2) from ball head.

Installation:

Adjust selector lever

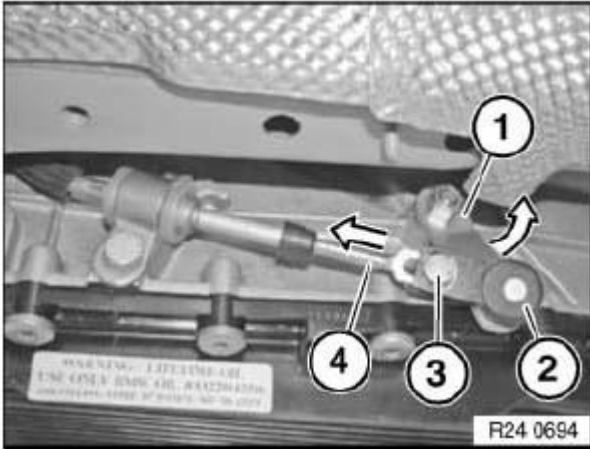


Fig. 49: Releasing Shift Cable Head From Ball Head
Courtesy of BMW OF NORTH AMERICA, INC.

Release screw.

Take off holder (1).

Tightening torque **24 51 1AZ.**

NOTE: Illustration shows E65.

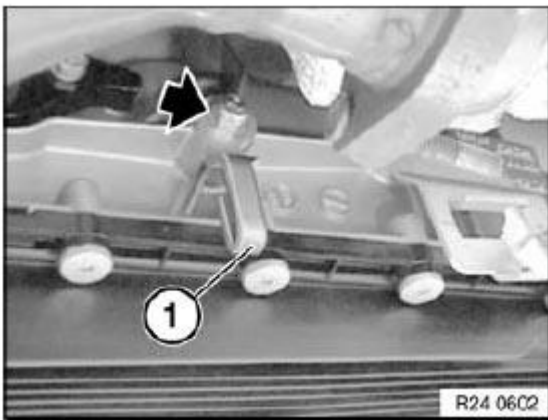


Fig. 50: Identifying Holder
Courtesy of BMW OF NORTH AMERICA, INC.

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

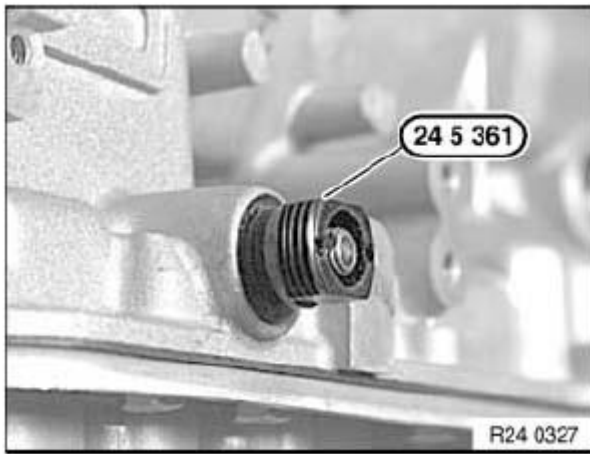


Fig. 51: Identifying Special Tool 24 5 361
Courtesy of BMW OF NORTH AMERICA, INC.

Screw special tool 24 5 362 onto special tool 24 5 361 and tighten down.

This pulls the shaft seal out of the transmission housing.

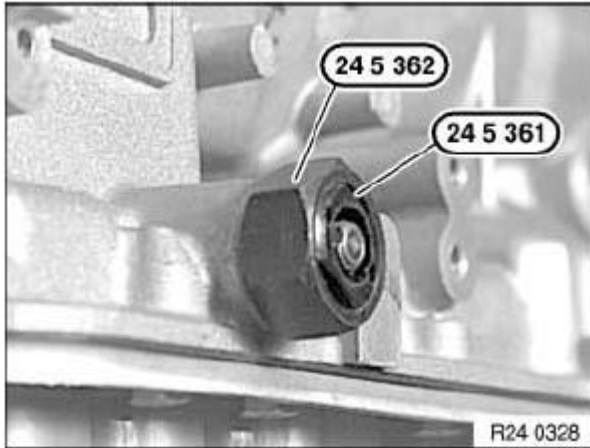


Fig. 52: Identifying Special Tool 24 5 362 Onto Special Tool 24 5 361
Courtesy of BMW OF NORTH AMERICA, INC.

Oil sealing lip on shaft seal (1).

Screw in shaft seal (1) with special tools 24 5 366 and 24 5 364 as far as it will go.

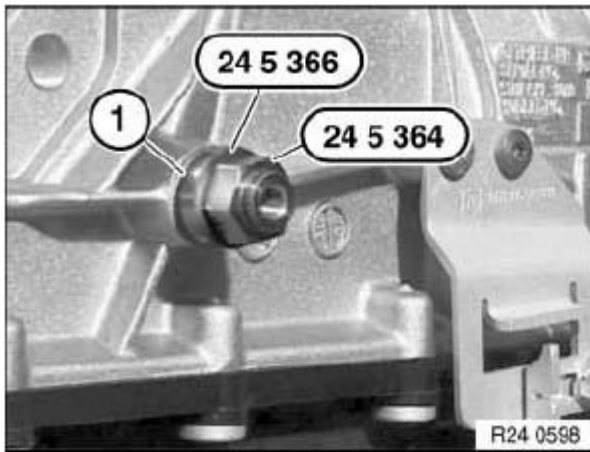


Fig. 53: Screwing In Shaft Seal With Special Tools 24 5 366 And 24 5 364
Courtesy of BMW OF NORTH AMERICA, INC.

OIL PUMP

24 31 011 REPLACING SHAFT SEAL FOR TORQUE CONVERTER (GA6HP19Z)

Special tools required:

- 00 1 450
- 24 0 180
- 24 2 351
- 24 2 352
- 24 2 353
- 24 2 400

Necessary preliminary tasks:

- Remove automatic transmission .

IMPORTANT: After completion of work, check transmission oil level.

Use only approved transmission fluid .

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

Secure transmission with special tool 24 0 180 to assembly stand 00 1 450.

Remove torque converter .

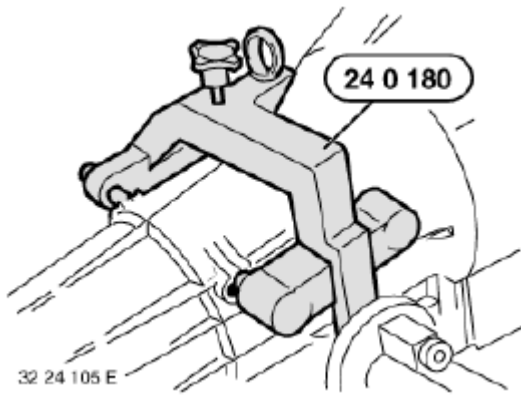


Fig. 54: Securing Transmission With Special Tool 24 0 180
Courtesy of BMW OF NORTH AMERICA, INC.

Attach special tool 24 2 353 to drive shaft (1).

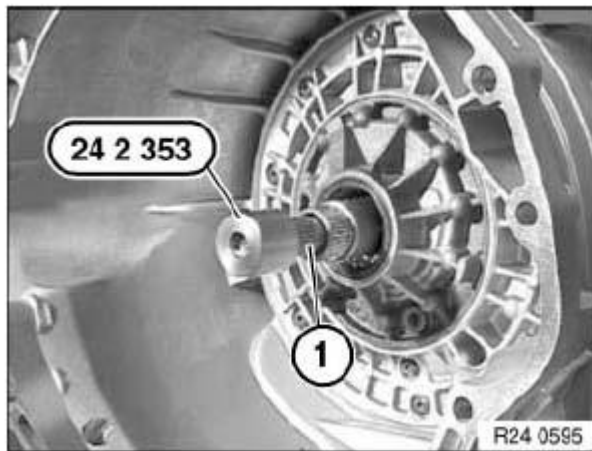


Fig. 55: Attaching Special Tool 24 2 353 To Drive Shaft
Courtesy of BMW OF NORTH AMERICA, INC.

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

Screw in special tool 24 2 352 to remove shaft seal.

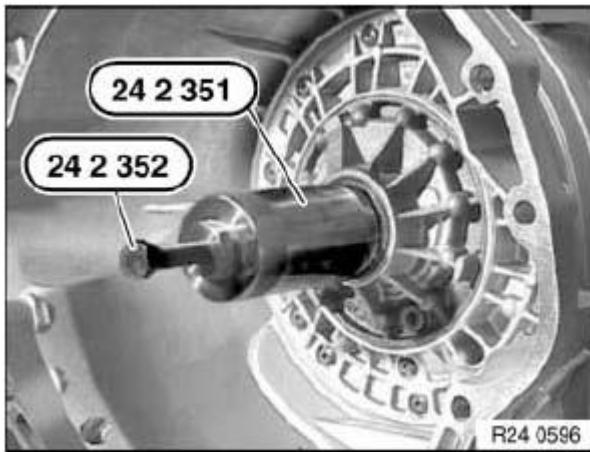


Fig. 56: Removing Shaft Seal

Courtesy of BMW OF NORTH AMERICA, INC.

Oil sealing lip on shaft seal.

Drive in shaft seal (1) with special tool 24 2 400 as far as it will go.

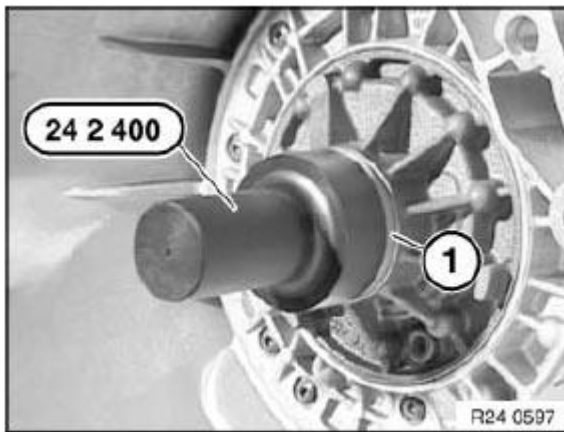


Fig. 57: Installing Shaft Seal

Courtesy of BMW OF NORTH AMERICA, INC.

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

Special tools required:

- 24 1 180
- 24 1 184

IMPORTANT: After completion of work, check transmission oil level.
Use only approved transmission fluid .

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

Necessary preliminary tasks:

- Remove **automatic transmission**
- Secure transmission with **transmission holding bridge** on assembly stand
- Remove **torque converter**
- Remove **mechatronics**

Remove adapter (1).

Installation:

Note installation position.

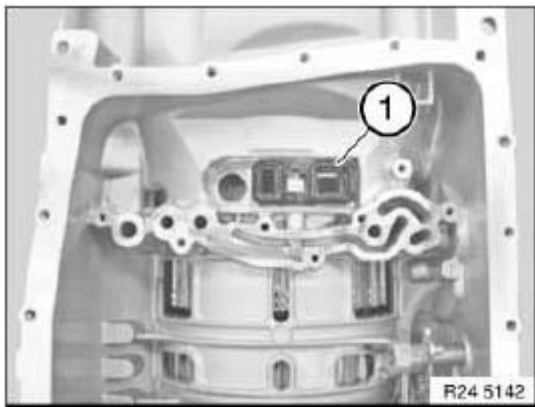


Fig. 58: Identifying Adapter
Courtesy of BMW OF NORTH AMERICA, INC.

Release screws.

Tightening torque **24 31 3AZ.**

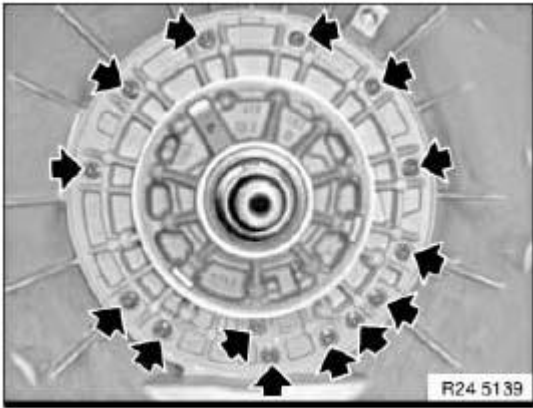


Fig. 59: Locating Torque Converter Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Slide special tool 24 1 184 completely into extractor 24 1 180.

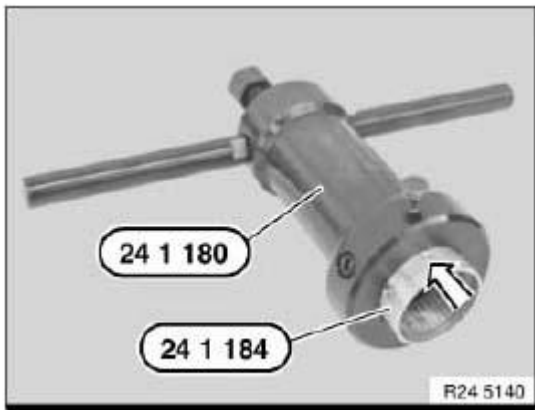


Fig. 60: Sliding Special Tool 24 1 184 Into Extractor 24 1 180
Courtesy of BMW OF NORTH AMERICA, INC.

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

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

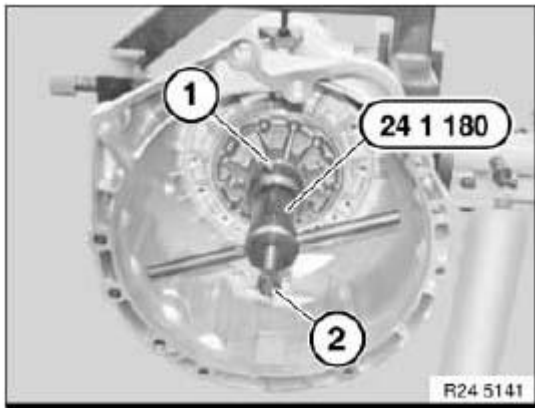


Fig. 61: Identifying Special Tool 24 1 180
Courtesy of BMW OF NORTH AMERICA, INC.

Release screws.

Tightening torque **24 31 1AZ.**

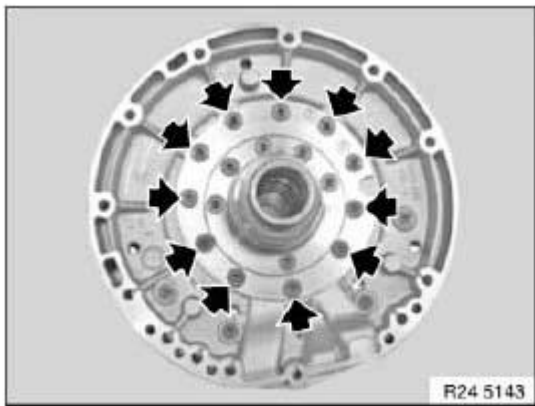


Fig. 62: Locating Transmission Housing Screws
Courtesy of BMW OF NORTH AMERICA, INC.

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

Replace O-rings (3 + 4).

Installation:

Pay attention to installation position of gears during disassembly.

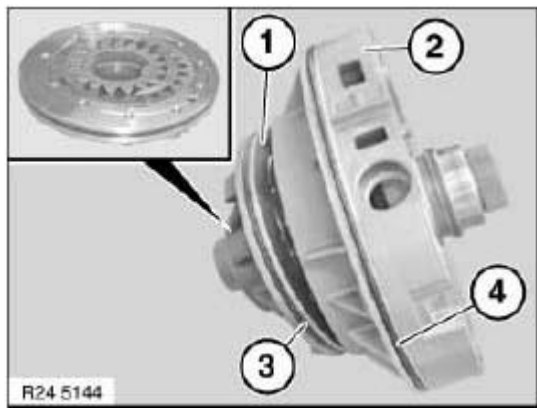


Fig. 63: Identifying Cover, O-Rings And Pump Housing
 Courtesy of BMW OF NORTH AMERICA, INC.

REGULATOR

24 34... MANUAL EMERGENCY RELEASE OF TRANSMISSION LOCK

In the event of a power supply interruption, e.g. flat battery or electrical fault, the transmission lock must be manually released, otherwise the wheel will be locked and the vehicle cannot be moved.

- IMPORTANT:**
- **Firmly apply handbrake**
 - **Manually unlock transmission lock**

NOTE: The screwdriver for unlocking is located in the onboard tool kit in the luggage compartment!

Remove **trim for preselector lever** .

Take screwdriver from on-board tool kit and insert into opening (1).



Fig. 64: Inserting Screwdriver Into Opening

Courtesy of BMW OF NORTH AMERICA, INC.

Pull screwdriver towards rear until it engages audibly and leave inserted in opening.

Transmission lock is released!

**Fig. 65: Releasing Transmission Lock**

Courtesy of BMW OF NORTH AMERICA, INC.

Locking transmission lock:

Pull out screwdriver in direction of arrow.

Transmission lock is locked.

**Fig. 66: Pulling Out Screwdriver**

Courtesy of BMW OF NORTH AMERICA, INC.

SHIFT VALVES, PARKING

24 31 575 REPLACING OIL PUMP O-RINGS (GA6HP26/19Z)**Special tools required:**

- 24 1 180
- 24 1 184

IMPORTANT: After completion of work, check transmission oil level.

Use only approved transmission fluid .

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

Necessary preliminary tasks:

- Remove automatic transmission
- Secure transmission with **transmission holding bridge** on assembly stand
- Remove torque converter
- Remove mechatronics

Remove adapter (1).

Installation:

Note installation position.

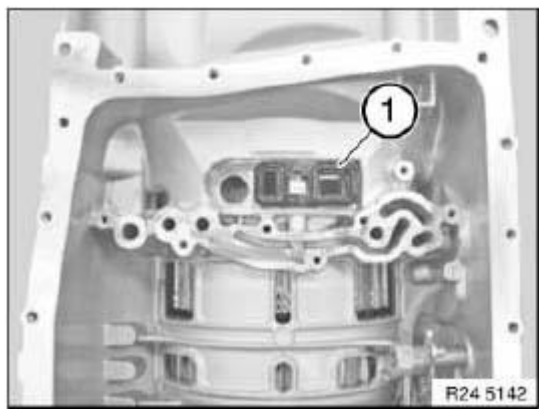


Fig. 67: Identifying Adapter

Courtesy of BMW OF NORTH AMERICA, INC.

Release screws.

Tightening torque **24 31 3AZ.**

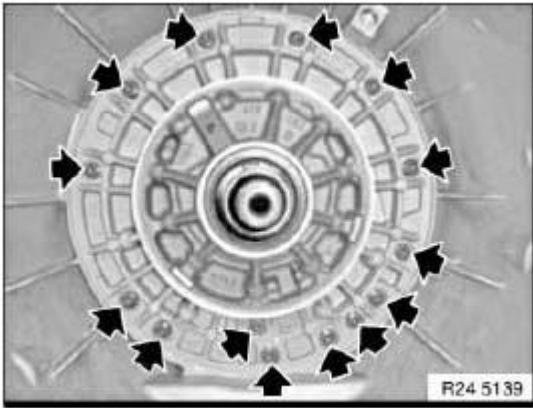


Fig. 68: Locating Torque Converter Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Slide special tool 24 1 184 completely into extractor 24 1 180.

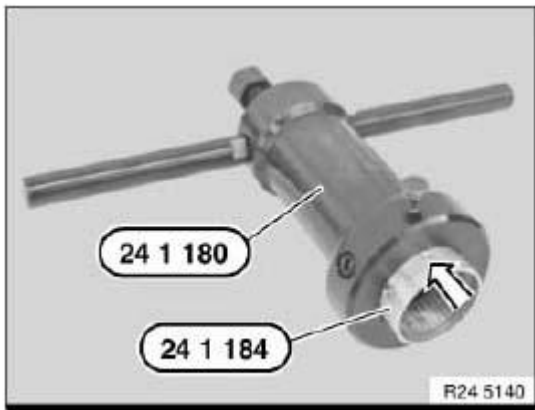


Fig. 69: Sliding Special Tool 24 1 184 Into Extractor 24 1 180
Courtesy of BMW OF NORTH AMERICA, INC.

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

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

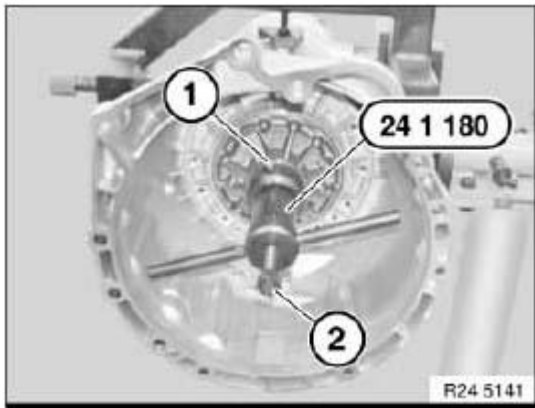


Fig. 70: Identifying Special Tool 24 1 180
Courtesy of BMW OF NORTH AMERICA, INC.

Release screws.

Tightening torque **24 31 1AZ.**

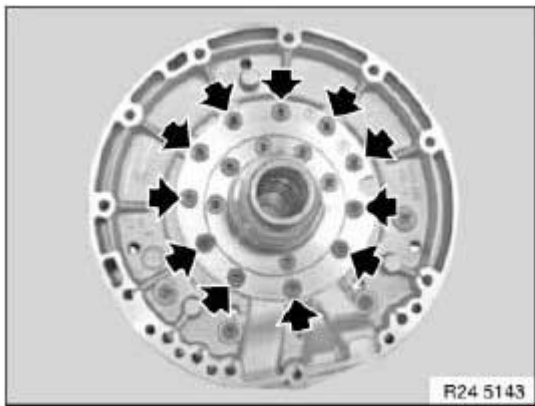


Fig. 71: Locating Transmission Housing Screws
Courtesy of BMW OF NORTH AMERICA, INC.

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

Replace O-rings (3 + 4).

Installation:

Pay attention to installation position of gears during disassembly.



Fig. 72: Identifying Cover, O-Rings And Pump Housing
Courtesy of BMW OF NORTH AMERICA, INC.

24 34... MANUAL EMERGENCY RELEASE OF TRANSMISSION LOCK

In the event of a power supply interruption, e.g. flat battery or electrical fault, the transmission lock must be manually released, otherwise the wheel will be locked and the vehicle cannot be moved.

- IMPORTANT:**
- Firmly apply handbrake
 - Manually unlock transmission lock

NOTE: The screwdriver for unlocking is located in the on-board tool kit in the luggage compartment!

Remove trim for preselector lever .

Take screwdriver from on-board tool kit and insert into opening (1).



Fig. 73: Inserting Screwdriver Into Opening
Courtesy of BMW OF NORTH AMERICA, INC.

Pull screwdriver towards rear until it engages audibly and leave inserted in opening.

Transmission lock is released!



Fig. 74: Releasing Transmission Lock

Courtesy of BMW OF NORTH AMERICA, INC.

Locking transmission lock:

Pull out screwdriver in direction of arrow.

Transmission lock is locked.



Fig. 75: Pulling Out Screwdriver

Courtesy of BMW OF NORTH AMERICA, INC.

24 34... NOTES ON MECHATRONICS (GA6HP26Z/GA6HP32Z/GA6HP19Z)

Special tools required:

- 24 2 390

IMPORTANT: After completing work:

- Load specific data version with DIS
- Check transmission oil level

Use only approved transmission fluid .

Failure to comply with this requirement will result in se 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.

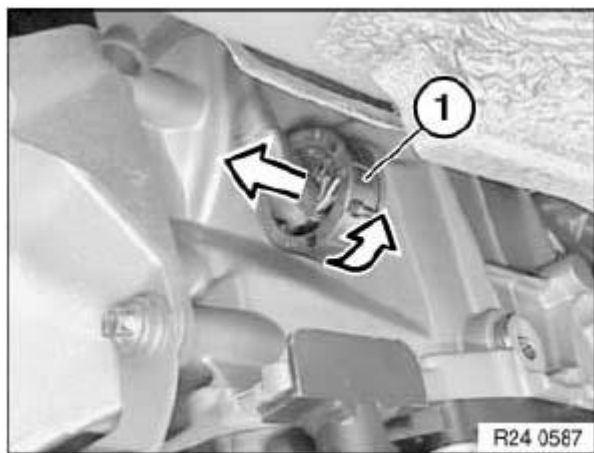


Fig. 76: Disconnecting Plug

Courtesy of BMW OF NORTH AMERICA, INC.

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

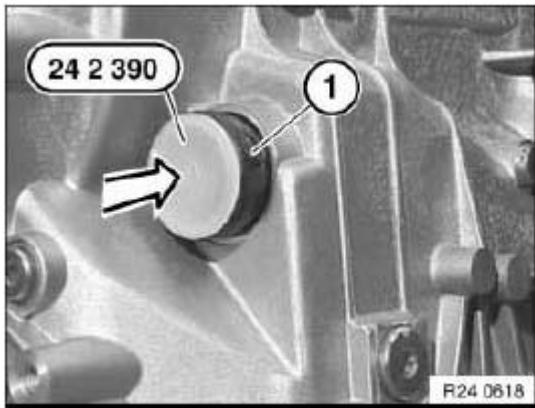


Fig. 77: Inserting Special Tool 24 2 390 In Sealing Sleeve
Courtesy of BMW OF NORTH AMERICA, INC.

24 34 021 REPLACING SEALING SLEEVE FOR TRANSMISSION HOUSING (GA6HP19Z)

Special tools required:

- 24 2 390

IMPORTANT: After completion of work, check transmission oil level .

Use only approved transmission fluid .

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

Necessary preliminary tasks:

- Remove transmission cross-member.
- Remove transmission sump.

IMPORTANT: Support transmission with workshop hoist.

Remove heat shield (1).

NOTE: Illustration similar.

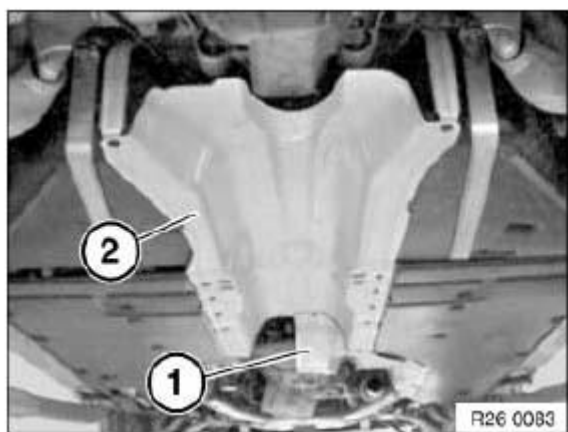


Fig. 78: Identifying Heat Shield

Courtesy of BMW OF NORTH AMERICA, INC.

Unlock and disconnect plug (1) by turning.

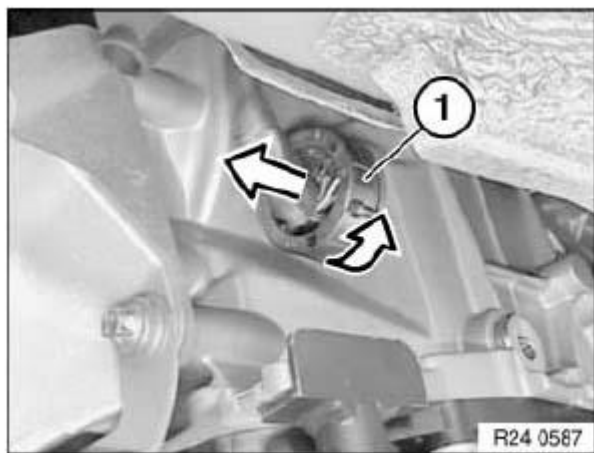


Fig. 79: Disconnecting Plug

Courtesy of BMW OF NORTH AMERICA, INC.

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

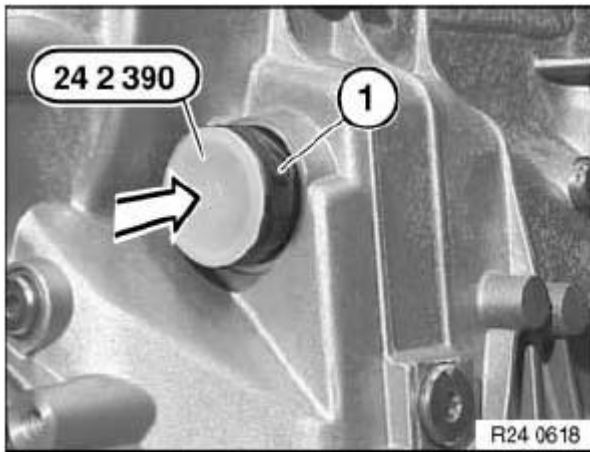


Fig. 80: Inserting Special Tool 24 2 390 In Sealing Sleeve
Courtesy of BMW OF NORTH AMERICA, INC.

Unlock sealing sleeve with slide (1).

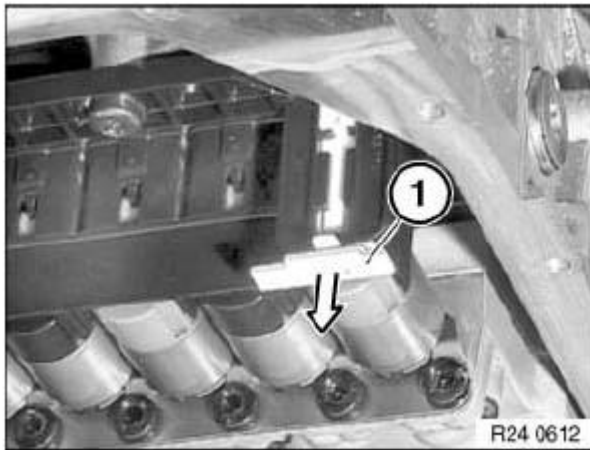


Fig. 81: Unlocking Sealing Sleeve With Slide
Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: 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!

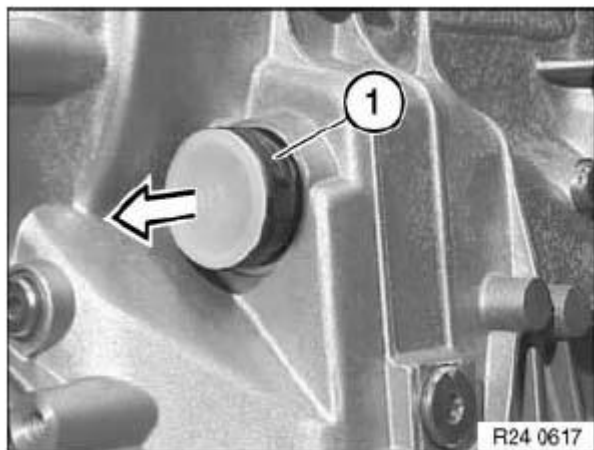


Fig. 82: Pulling Out Sealing Sleeve

Courtesy of BMW OF NORTH AMERICA, INC.

24 34 562 REPLACING MECHATRONICS (GA6HP19Z)

Special tools required:

- 24 2 390

NOTE: After completing work:

- Load specific data version with DIS.

IMPORTANT: After completion of work, check transmission oil level .

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) .

Necessary preliminary tasks:

- Remove heat shield on right.
- Support automatic transmission with hydraulic lifter.
- Remove **transmission cross-member** .

Version 1:

Grip clamping sleeve (1) and slacken nut (2).

Detach retainer (3) downwards using a screwdriver.

Pull cable (4) out of holder.

Installation:

Adjust selector lever .

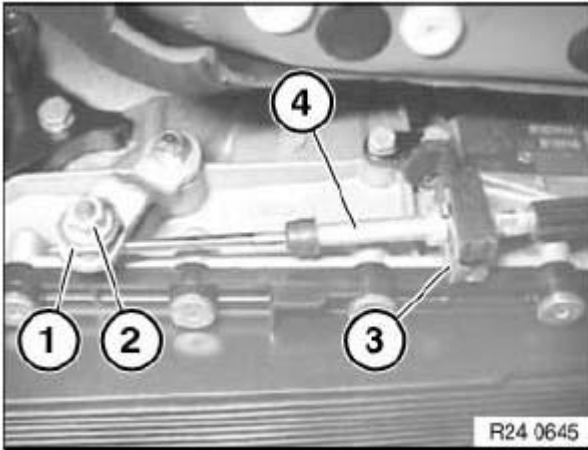


Fig. 83: Identifying Clamping Sleeve, Cable And Slacken Nut
Courtesy of BMW OF NORTH AMERICA, INC.

Version 2:

Release screw (1).

Remove clamp (2).

Release shift cable head (3) using a screwdriver from ball head of shift cable lever.

Installation:

Adjust selector lever .



Adjusting cable:

-
- R24 0581

Fig. 85: Identifying Cable And Holder
Courtesy of BMW OF NORTH AMERICA, INC.

Version 4:

Move selector lever to "Park".

Release shift cable head (1) using a screwdriver from ball head of shift lever.

Detach retainer (2) downwards using a screwdriver.

Slide cable (3) towards rear and disengaged in downward direction.

Installation:

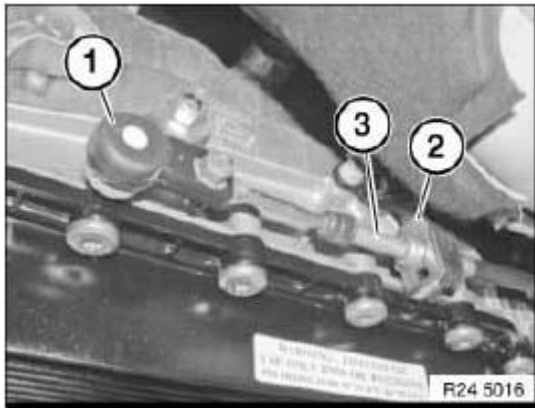
Adjusting shift lever

Fig. 86: Identifying Retainer, Cable And Shift Cable Head
Courtesy of BMW OF NORTH AMERICA, INC.

Secure lever (1) with a cable tie (2) or wire in vertical position.

NOTE: E65 only.

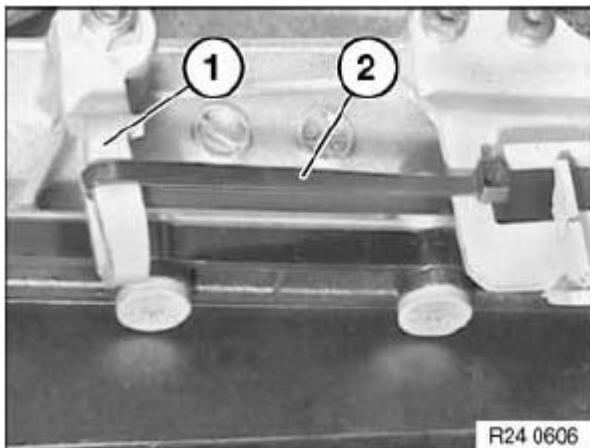


Fig. 87: Securing Lever With Cable Tie
Courtesy of BMW OF NORTH AMERICA, INC.

M57T2 only

Release screws (1).

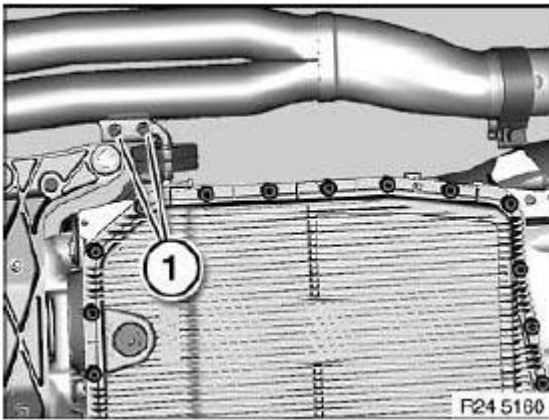


Fig. 88: Identifying Screws
Courtesy of BMW OF NORTH AMERICA, INC.

M57T2 only

Release screws (1).

Bracket remove.

Tightening torque **24 71 6AZ.**

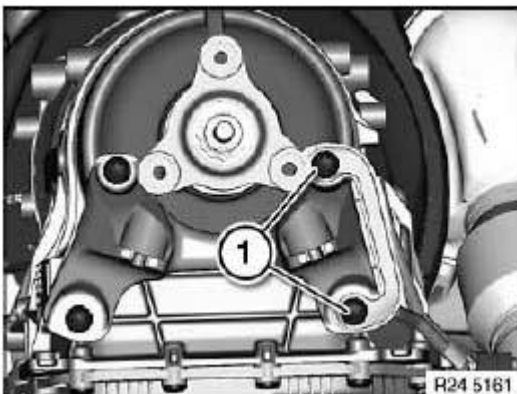


Fig. 89: Identifying Bracket Screws
Courtesy of BMW OF NORTH AMERICA, INC.

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.

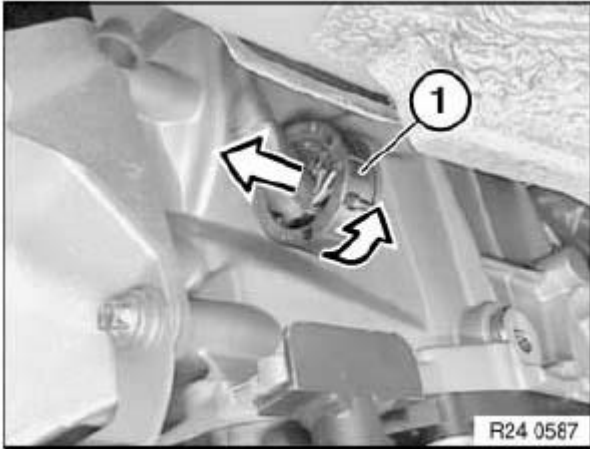


Fig. 90: Disconnecting Plug

Courtesy of BMW OF NORTH AMERICA, INC.

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

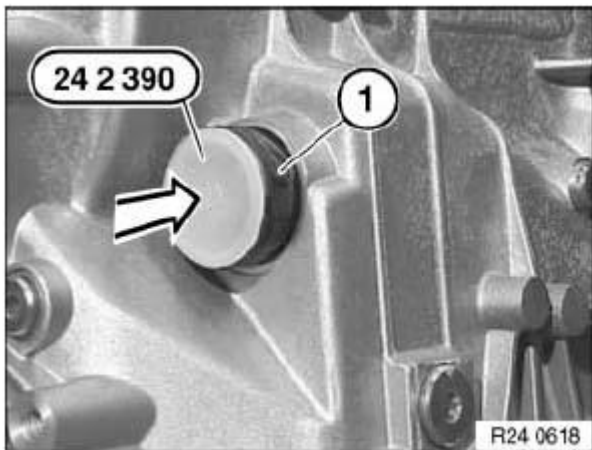


Fig. 91: Inserting Special Tool 24 2 390 In Sealing Sleeve

Courtesy of BMW OF NORTH AMERICA, INC.

Remove transmission oil sump.

Unlock sealing sleeve with slide (1).

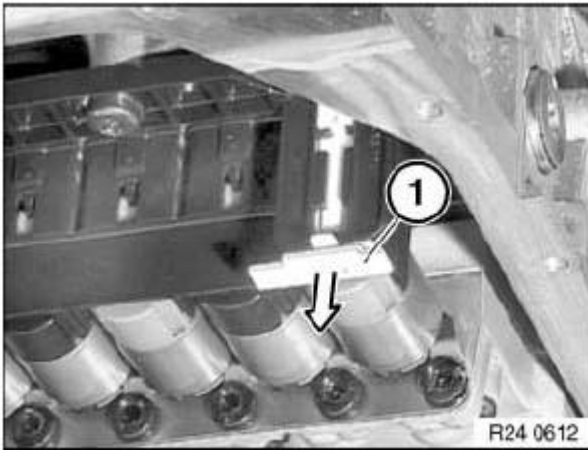


Fig. 92: Unlocking Sealing Sleeve With Slide
Courtesy of BMW OF NORTH AMERICA, INC.

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!

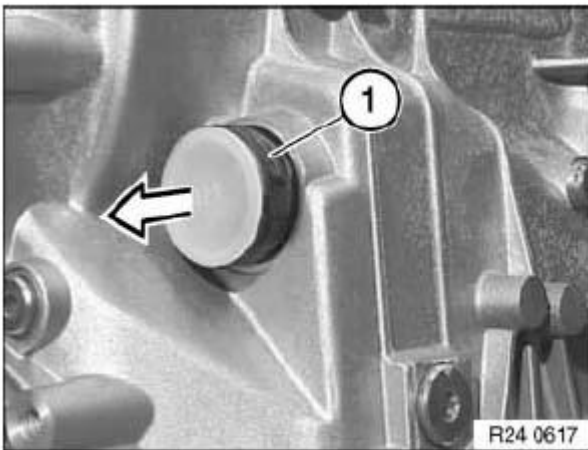


Fig. 93: Pulling Out Sealing Sleeve
Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: GA6HP19Z

Release all screws (1 and 2).

- 1 = M6 x 58 mm
- 2 = M6 x 20 mm

Remove mechatronics.

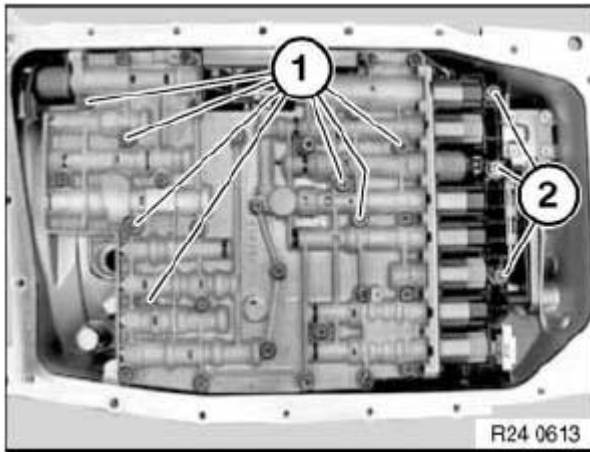


Fig. 94: Identifying Mechatronics Screws (GA6HP19Z)
Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: GA6HP19Z TU

Release all screws (1 and 2).

- 1 = M6 x 58 mm
- 2 = M6 x 20 mm

Remove mechatronics.

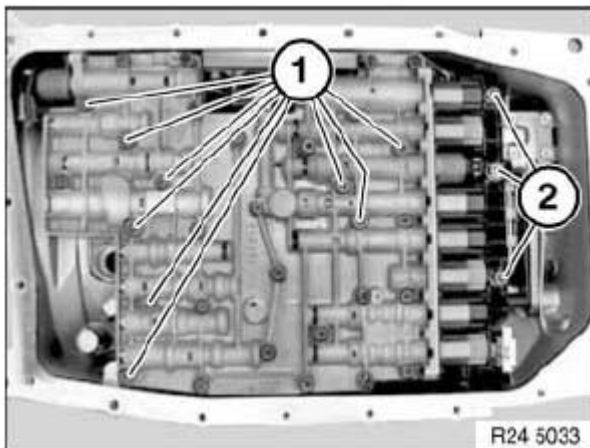
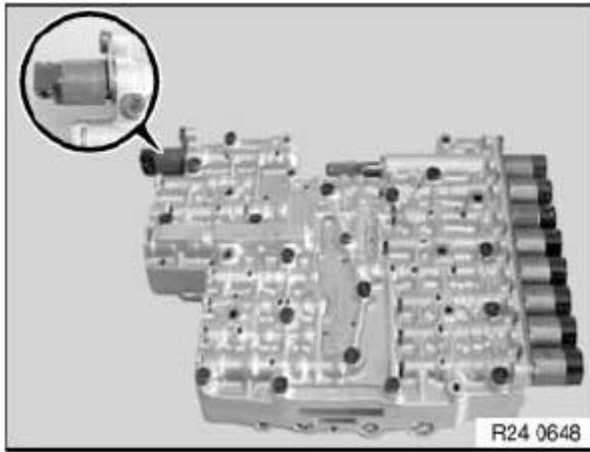
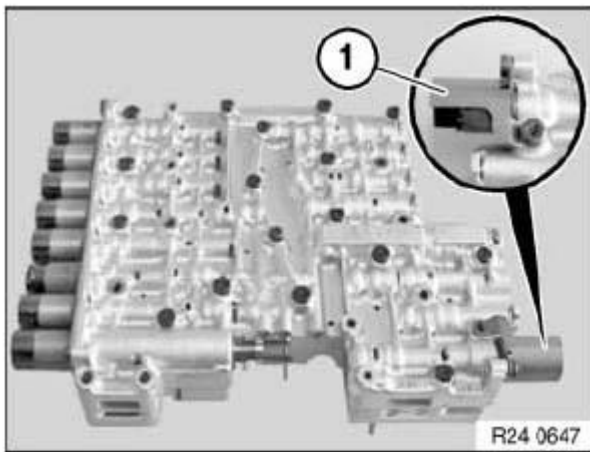


Fig. 95: Identifying Mechatronics Screws (GA6HP19Z TU)

Courtesy of BMW OF NORTH AMERICA, INC.

IMPORTANT: Only installed in E65!**Mechatronics without protective bar for solenoid valve must not be reused after removal.****Fig. 96: Identifying Mechatronics**

Courtesy of BMW OF NORTH AMERICA, INC.

IMPORTANT: Only installed in E65!**Fit/reuse only mechatronics with protective bar (1) for solenoid valve.****Fig. 97: Identifying Mechatronics With Protective Bar For Solenoid Valve**

Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Check gaskets (1 and 2) for damage, replace gaskets if necessary.

Coat new seals with automatic transmission fluid and install.

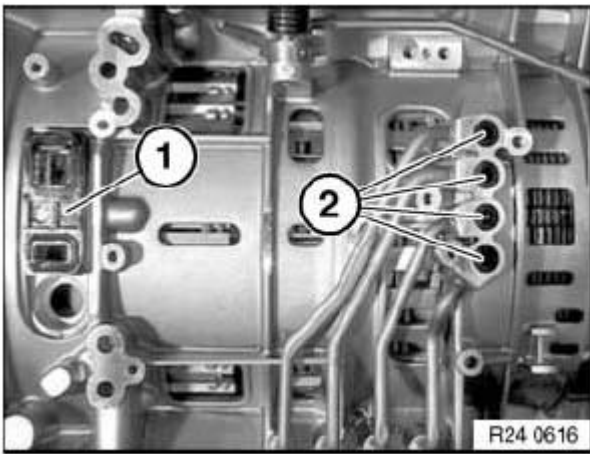


Fig. 98: Identifying Gaskets

Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Insert screws (3) alternately until contact is made with each screw head.

Insert all further screws contact is made with each screw head.

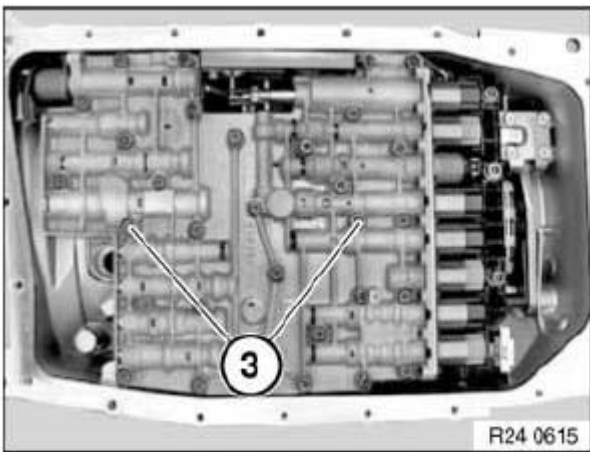


Fig. 99: Identifying Screws

Courtesy of BMW OF NORTH AMERICA, INC.

IMPORTANT: Tighten down screws in order 1...10.

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

Tightening torque 24 30 1AZ.

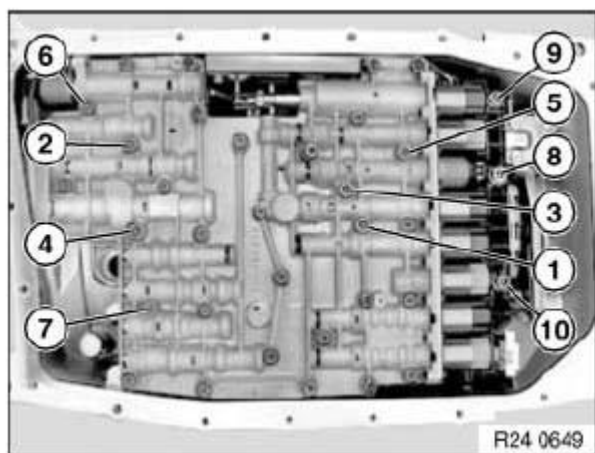


Fig. 100: Identifying Tightening Sequence Of Mechatronics Screws

Courtesy of BMW OF NORTH AMERICA, INC.

TORQUE CONVERTER

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

Special tools required:

- 24 1 180
- 24 1 184

IMPORTANT: After completion of work, check transmission oil level.

Use only approved transmission fluid .

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

Necessary preliminary tasks:

- Remove automatic transmission
- Secure transmission with transmission holding bridge on assembly stand
- Remove torque converter
- Remove mechatronics

Remove adapter (1).

Installation:

Note installation position.

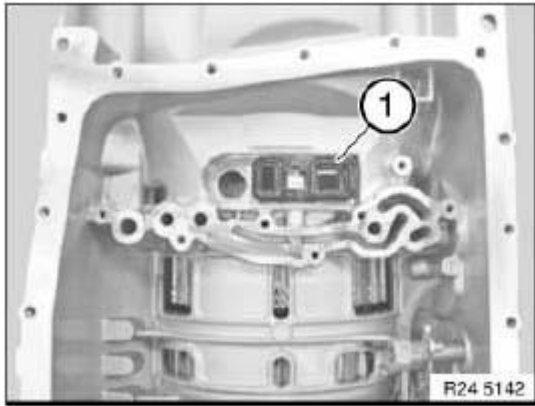


Fig. 101: Identifying Adapter

Courtesy of BMW OF NORTH AMERICA, INC.

Release screws.

Tightening torque 24 31 3AZ.

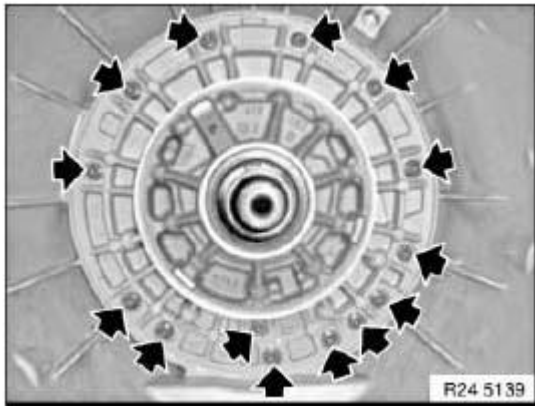


Fig. 102: Locating Oil Pump Screws

Courtesy of BMW OF NORTH AMERICA, INC.

Slide special tool 24 1 184 completely into extractor 24 1 180.

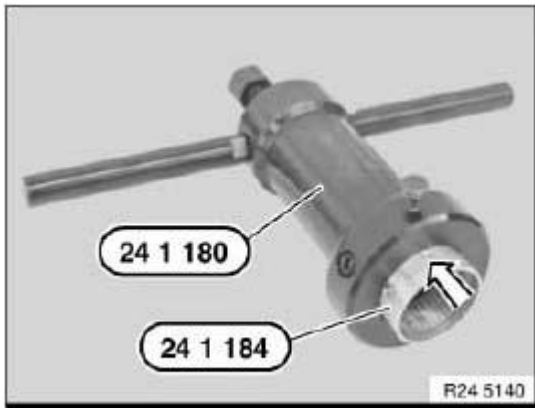


Fig. 103: Sliding Special Tool 24 1 184 Into Extractor 24 1 180
Courtesy of BMW OF NORTH AMERICA, INC.

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

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

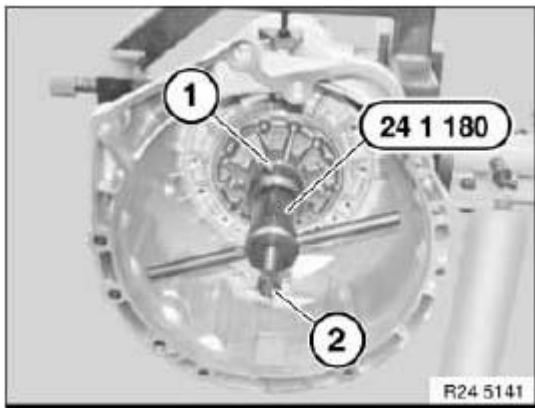


Fig. 104: Identifying Special Tool 24 1 180
Courtesy of BMW OF NORTH AMERICA, INC.

Release screws.

Tightening torque **24 31 1AZ.**

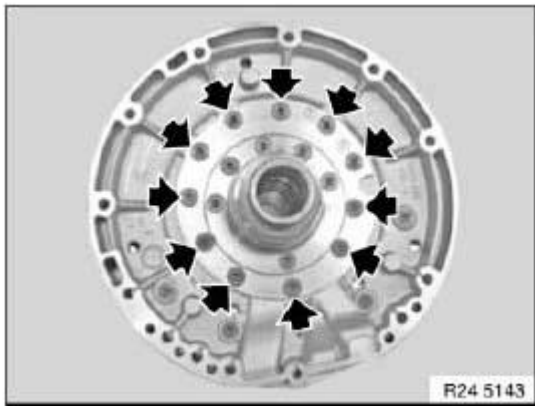


Fig. 105: Locating Transmission Housing Screws
 Courtesy of BMW OF NORTH AMERICA, INC.

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

Replace O-rings (3 + 4).

Installation:

Pay attention to installation position of gears during disassembly.

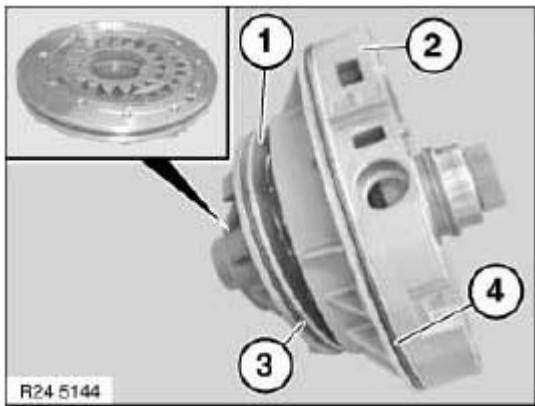


Fig. 106: Identifying Cover, O-Rings And Pump Housing
 Courtesy of BMW OF NORTH AMERICA, INC.

24 40 011 REMOVING AND INSTALLING/REPLACING TORQUE CONVERTER (GA6HP19Z)

Special tools required:

- 00 2 550
- 24 4 000

IMPORTANT: After completion of work, check transmission oil level.
Use only approved transmission fluid .
Failure to comply with this instruction will result in serious damage to the transmission.

Necessary preliminary tasks:

- Remove automatic transmission

Screw special tool 24 4 000 into torque converter.

Remove torque converter.

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

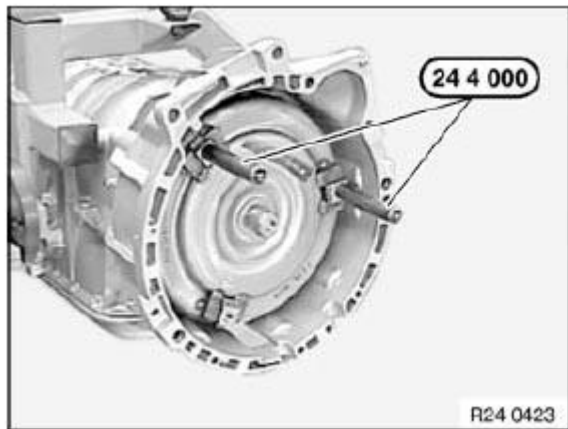


Fig. 107: Identifying Special Tool 24 4 000 Into Torque Converter
Courtesy of BMW OF NORTH AMERICA, INC.

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.

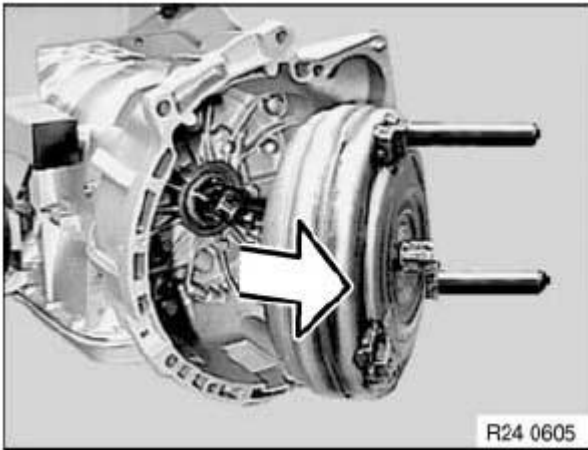


Fig. 108: Removing Torque Converter
Courtesy of BMW OF NORTH AMERICA, INC.

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.

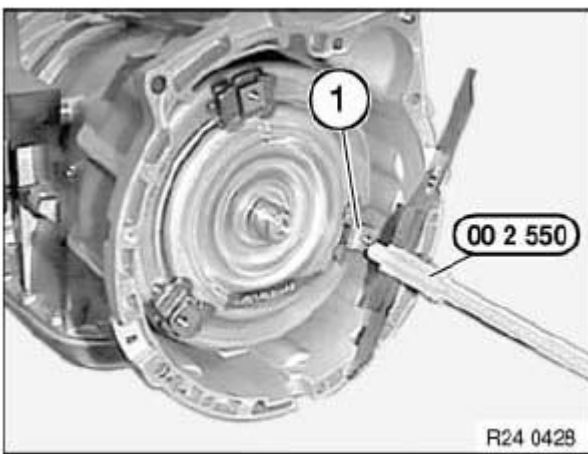


Fig. 109: Checking Distance Between Contact Surface And Tapped Hole Surface In Torque Converter With Special Tool 00 2 550
Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: Measured value must be greater than 25 mm.

SHIFT FUNCTION

24 50 010 REPLACING EMERGENCY ACTUATOR

Necessary preliminary tasks:

- Remove rear **underbody protection** . See **51 47 491 REMOVING AND INSTALLING/REPLACING REAR UNDERBODY PROTECTION**
- Remove **center console** . See **51 16 ... REMOVING AND INSTALLING/REPLACING CENTRE CONSOLE COVER (E60)** or **51 16 ... REMOVING AND INSTALLING/REPLACING CENTRE CONSOLE COVER (E61)** .
- Remove **gear selector switch** .
- Remove air duct under storage compartment.

Unfasten nut.

Remove cable (1).

Installation:

Adjust **selector lever** .

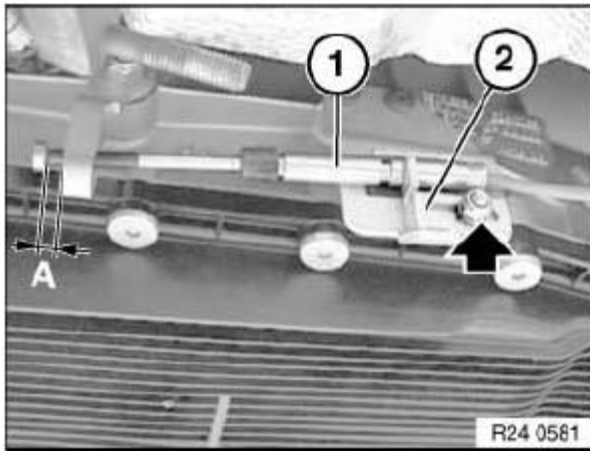


Fig. 110: Identifying Cable

Courtesy of BMW OF NORTH AMERICA, INC.

Release screws (1) and remove emergency actuator (2) in upward direction.

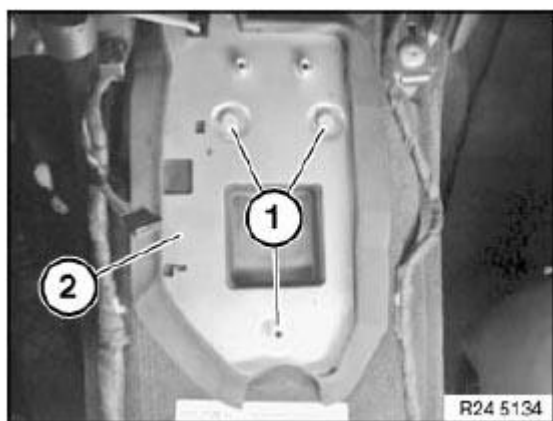


Fig. 111: Identifying Emergency Actuator Screws
Courtesy of BMW OF NORTH AMERICA, INC.