

TRANSMISSION

Automatic Transmission - Operating Fluids

1.0 GENERAL INFORMATION ON AUTOMATIC TRANSMISSION FLUIDS

Automatic Transmission Fluid was developed especially for automatic transmissions. It requires additives which are carefully matched with each other, a high viscosity index and a solidification point below -40°F/-40°C.

Friction behavior of Automatic Transmission Fluid in plate-type clutches under very different operating conditions is extremely important. Other important factors are:

- Wear protection
- Oil film shear resistance
- Adhesive property
- Oxidation resistance
- Corrosion inhibition
- Sludge prevention
- Temperature-dependent viscosity changes
- Compatibility with sealing materials.

2.0 OIL ADDITIVES

Automatic transmissions are designed so that oil additives are not necessary. BMW disapproves the use of any oil additives and cannot accept the liability for any consequential damage which results from using oil additives.

3.0 APPROVED AUTOMATIC TRANSMISSION FLUIDS FOR INITIAL FILLINGS AND CORRECTING FLUID LEVELS

3.1 GM TRANSMISSIONS

USE OF ANY OTHER OIL WILL CAUSE A NON WARRANTABLE TRANSMISSION FAILURE

***Transmission identification plate can be utilized to determine proper transmission fitted in vehicle**

A4S 270R (THM-R1W)

E36

318i/is/iC/ti from 1996 to 1999 production

323i/is/iC from 1998 to 1999 production

328i/is/iC from 1996 to 1998 production

Z3 1.9 from 1996 to 1999 production

Z3 2.3/2.8 from 1997 to 2000 production

All reputable brand name Automatic Transmission Fluids of the Dexron® III formulation.

E39

528i/iT from 1997-1999 production

All reputable brand name Automatic Transmission Fluids of the Dexron® III formulation.

A4S 310R (THM-R1)

E34

525i from 1990 to 1995 production

All reputable brand name Automatic Transmission Fluids of the Dexron® III formulation.

E36

318i/is/iC/ti from 1992 to 1995 production

325i/is/iC from 1992 to 1995 production

All reputable brand name Automatic Transmission Fluids of the Dexron® III formulation.

A5S 360R (GM5)

E46

323i/Ci/Cic from 6/98 to 3/00 production

323iT from 1/00 to 3/01 to production

328i/Ci/Cic from 6/98 to 3/01 production

The transmission oil pan will be labeled with either Texaco ETL - 7045 or Dexron® III, please fill or top off with the proper fluid only. Do not mix Texaco ETL - 7045 and Dexron® III fluids.

A5S 390R (GM 5)

E46

330xi from 6/00 production to present

325xiT from 9/00 production to present

E53

X5 3.0 from 8/03 production to present

E83

X3 2.5, 3.0 from 8/03 production to present

The transmission oil pan will be labeled with either Texaco ETL - 7045 or Dexron® III, please fill or top off with the proper fluid only. Do not mix Texaco ETL - 7045 and Dexron® III fluids.

E85

Z4 3.0 from 9/02 production to present

Z4 2.5 from 9/02 production to present

No subsequent transmission fluid changes are necessary. Never mix any other oil with this transmission fluid when doing repairs or topping up.

ESSO LT 71141, BMW Part No. 83 22 9 407 807.

GA6L45R (GM6)

DEXRON-VI Automatic Transmission Fluid

E83

X3 LCI from 9/06 production to present

E82, E88

128i, 135is from 12/07 production to present

E90

328Xi from 9/06 production to present

E91

328Xi from 9/06 production to present

The fluid can be sourced locally until a BMW PN is available.

3.2 ZF TRANSMISSIONS

USE OF ANY OTHER OIL WILL CAUSE A NON WARRANTABLE TRANSMISSION FAILURE

***Transmission identification plate can be utilized to determine proper transmission fitted in vehicle**

ZF 3HP22, 4HP22, 4HP24

Utilizes Castrol TQ or Texaco Havoline Automatic Transmission Fluids of the Dexron® III formulation. Never mix any other oil with this transmission fluid when doing repairs or topping up.

A5S 310Z (5HP18)

E36

M3 from 1995 to 1999 production

Utilizes a lifetime filling of synthetic transmission fluid, ESSO LT 71141, no subsequent transmission fluid changes are necessary. Never mix any other oil with this transmission fluid when doing repairs or topping up.

ESSO LT 71141, BMW Part No. 83 22 9 407 807.

E34

530i/iT from 1993 through 1995 production

Utilizes Castrol TQ or Texaco Havoline Automatic Transmission Fluids of the Dexron® III formulation. Never mix any other oil with this transmission fluid when doing repairs or topping up.

A5S325Z (5HP19)

E46

323i/Ci/Cic from 3/00 to 8/00 production

325iT from 4/01 production to present

330i/Ci/Cic from 6/00 production to present

325i/Ci/Cic from 9/00 production to present

No subsequent transmission fluid changes are necessary. Never mix any other oil with this transmission fluid when doing repairs or topping up.

ESSO LT 71141, BMW Part No. 83 22 9 407 807.

E39

525i/iT from 3/01 production to present

530i from 3/01 production to present

No subsequent transmission fluid changes are necessary. Never mix any other oil with this transmission fluid when doing repairs or topping up.

ESSO LT 71141, BMW Part No. 83 22 9 407 807.

A5S 440Z (5HP24)

E31

840Ci from 9/96 to the present

No subsequent transmission fluid changes are necessary. Never mix any other oil with this transmission fluid when doing repairs or topping up.

ESSO LT 71141, BMW Part No. 83 22 9 407 807.

E38

740i/iL from 1/97 production to present

No subsequent transmission fluid changes are necessary. Never mix any other oil with this transmission fluid when doing repairs or topping up.

ESSO LT 71141, BMW Part No. 83 22 9 407 807.

E39

540i/iT from 1/97 production to present

No subsequent transmission fluid changes are necessary. Never mix any other oil with this transmission fluid when doing repairs or topping up.

ESSO LT 711 41, BMW Part No. 83 22 9 407 807.

E53

X5 4.4i from 9/99 production to present

X5 4.6i from 9/01 production to present

No subsequent transmission fluid changes are necessary. Never mix any other oil with this transmission fluid when doing repairs or topping up.

ESSO LT 711 41, BMW Part No. 83 22 9 407 807.

A5S 560Z (5HP30)

E31

840Ci equipped with M60 engine

Utilizes a lifetime fill of transmission fluid, no subsequent oil changes are necessary on this transmission. If transmission fluid is required for repair purposes, use only the oil approved for this transmission. It is not permitted to mix this oil with other grades of transmission fluid.

Shell LA 2634, BMW Part No. 83 22 9 407 765.

E31

840Ci equipped with M62 engine

850Ci equipped with M73 Engine

Utilizes lifetime fill of transmission fluid, no subsequent transmission fluid changes are necessary.

Never mix any other oil with this transmission fluid when doing repairs or topping up.

ESSO LT 711 41, BMW Part No. 83 22 9 407 807.

E32

740i/iL from 1993 through 1994 production

Utilizes a lifetime fill of transmission fluid, no subsequent oil changes are necessary on this transmission. If transmission fluid is required for repair purposes, use only the oil approved for this transmission. It is not permitted to mix this oil with other grades of transmission fluid.

Shell LA 2634, BMW Part No. 83 22 9 407 765.

E34

540i/iT from 1993 through 1995 production

Utilizes a lifetime fill of transmission fluid, no subsequent oil changes are necessary on this transmission. If transmission fluid is required for repair purposes, use only the oil approved for this transmission. It is not permitted to mix this oil with other grades of transmission fluid.

Shell LA 2634, BMW Part No. 83 22 9 407 765.

Effective with model year 1995 and later:

E31

850Ci from 10/94 to 6/97 production

840Ci from 12/95 to 8/96 production

Utilizes lifetime fill of transmission fluid, no subsequent transmission fluid changes are necessary.

Never mix any other oil with this transmission fluid when doing repairs or topping up.

ESSO LT 711 41, BMW Part No. 83 22 9 407 807.

E38

750iL from 1/95 production to present

740i/iL from 7/94 to 12/96 production

Utilizes lifetime fill of transmission fluid, no subsequent transmission fluid changes are necessary.

Never mix any other oil with this transmission fluid when doing repairs or topping up.

ESSO LT 711 41, BMW Part No. 83 22 9 407 807.

E39

540i/iT from 3/96 to 12/96 production

Utilizes lifetime fill of transmission fluid, no subsequent transmission fluid changes are necessary.

Never mix any other oil with this transmission fluid when doing repairs or topping up.

ESSO LT 711 41, BMW Part No. 83 22 9 407 807.

GA6HP19Z

E82/E88, E90/91/92

325i, 328i, 330i, 335i, All

The transmission fluid has a Condition Based Service interval of approximately 100,000 miles. Never mix any other oil with this transmission fluid when doing repairs or topping up.

Shell M-1375.4, BMW Part No. 83 22 0 142 516.

E60/61

525i, 530i from 8/03 production to present

The transmission fluid has a Condition Based Service interval of approximately 100,000 miles. Never mix any other oil with this transmission fluid when doing repairs or topping up.

Shell M-1375.4, BMW Part No. 83 22 0 142 516.

GA6HP19ZTU

E70 3.0i from start production to present

The transmission fluid has a Condition Based Service interval of approximately 100,000 miles. Never mix any other oil with this transmission fluid when doing repairs or topping up.

Shell M-1375.4, BMW Part No. 83 22 0 142 516.

GA6HP26Z

E60

545i from 8/03 production to present

550i All

The transmission fluid has a Condition Based Service interval of approximately 100,000 miles. Never mix any other oil with this transmission fluid when doing repairs or topping up.

Shell M-1375.4, BMW Part No. 83 22 0 142 516.

E63, E64

645Ci, 645CiC from start of production to present

650Ci, 650CiC All

The transmission fluid has a Condition Based Service interval of approximately 100,000 miles. Never mix any other oil with this transmission fluid when doing repairs or topping up.

Shell M-1375.4, BMW Part No. 83 22 0 142 516.

E65

745i from 11/2001 production to present

750i All

The transmission fluid has a Condition Based Service interval of approximately 100,000 miles. Never mix any

other oil with this transmission fluid when doing repairs or topping up.

Shell M-1375.4, BMW Part No. 83 22 0 142 516.

E66

745Li from 3/2002 production to present

750Li All

760Li from 9/2002 production to present

The transmission fluid has a Condition Based Service interval of approximately 100,000 miles. Never mix any other oil with this transmission fluid when doing repairs or topping up.

Shell M-1375.4, BMW Part No. 83 22 0 142 516.

GA6HP26ZTU

E70

X5 4.8i from start production to present

The transmission fluid has a Condition Based Service interval of approximately 100,000 miles. Never mix any other oil with this transmission fluid when doing repairs or topping up.

Shell M-1375.4, BMW Part No. 83 22 0 142 516.

4.0 CHECKING TRANSMISSION FLUID LEVEL

Due to the substantial expansion of transmission fluid when heated it is only possible to measure the oil level correctly at specified oil temperatures (after driving a distance of about 12 mi./20 km). All transmissions should be checked between a

ZF 3HP and 4HP

Due to the substantial expansion of transmission fluid when heated it is only possible to measure the oil level correctly at specified oil temperatures (after driving a distance of about 12 mi./20 km).

A5S 560Z, A5S440Z, GA6HP19Z, GA6HP26Z, GA6HP26Z, A5S325Z, A5S 310Z

All 5 and 6 speed transmissions require the fluid to be checked when fluid temperature is between 30-50° Celsius using DIS Plus or GT1. Do not check fluid level after temperature has exceeded 50° Celsius.

A4S 270R, A4S 310R and A5S 360R

See appropriate AUTOMATIC TRANSMISSION article for fluid level check procedure. These transmissions

generally do not have a dipstick and fluid level check (if necessary) must be performed through the oil fill hole.

TRANSMISSION

Automatic Transmission - Repair Instructions - X6

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.

23 TRANSMISSION DESIGNATIONS

Breakdown of BMW designation:

BREAKDOWN OF 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= SMG 7-speed
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:

BREAKDOWN OF MANUAL TRANSMISSION DESIGNATIONS

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	Transmission (247)	SMG 7-speed
GS7D36SG	Getrag	DKG436	DKG 7-speed

Automatic transmission:

BREAKDOWN OF AUTOMATIC TRANSMISSION DESIGNATIONS

BMW designation	Manufacturer	Manufacturer designation	Remark
A4S 200R	GMPT	GM4	
A4S 270R	GMPT	THM-R1w	Transmission wide-stepped
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		

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.

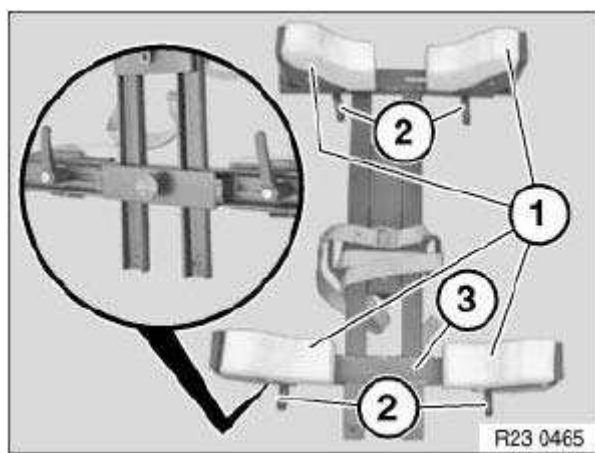


Fig. 1: Identifying Rear Supports Carrier
Courtesy of BMW OF NORTH AMERICA, INC.

Supporting transmission:

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

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

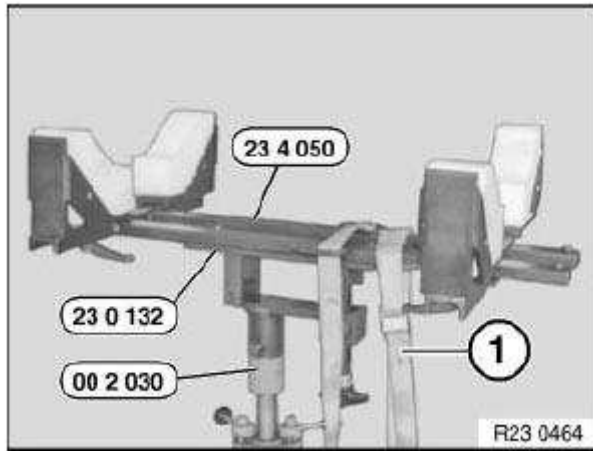


Fig. 2: Supporting Transmission Using Special Tools 23 4 050 And 00 2 030
Courtesy of BMW OF NORTH AMERICA, INC.

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.

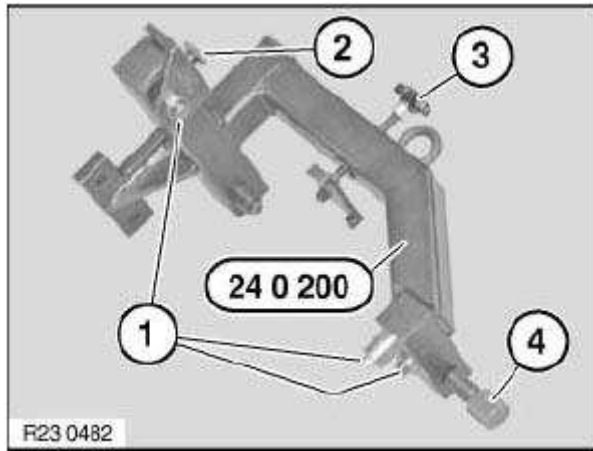


Fig. 3: Identifying Transmission Retaining Bridge 24 0 200
Courtesy of BMW OF NORTH AMERICA, INC.

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.

Remove cable (1).

Installation:

Adjust cable

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

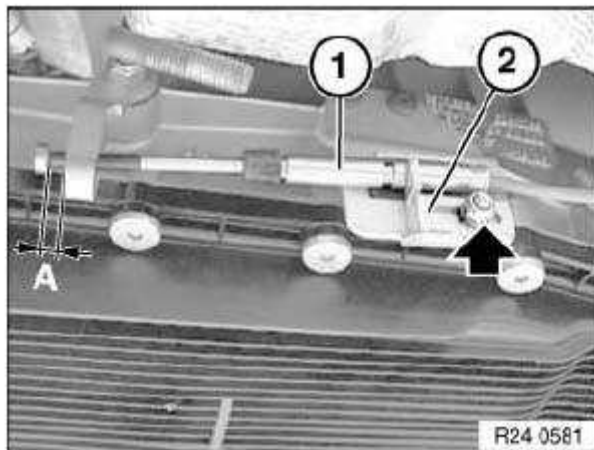


Fig. 4: Identifying Cable And Holder

Courtesy of BMW OF NORTH AMERICA, INC.

24 00 023 REMOVING AND INSTALLING AUTOMATIC TRANSMISSION (GA6HP26Z) (N63)

Special tools required:

- 00 2 030
- 23 4 050
- 24 1 380
- 24 2 390

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

Use only the approved transmission fluid . See AUTOMATIC TRANSMISSION - OPERATING FLUIDS .

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

Necessary preliminary tasks:

- Disconnect **BATTERY**
- Secure engine in installation position. See 11 00 670 SECURING ENGINE IN INSTALLATION POSITION (N54) or 11 00 670 SECURING ENGINE IN INSTALLATION POSITION (N63) .
- If necessary, remove fan cowl . See 17 11 035 REMOVING AND INSTALLING/REPLACING FAN COWL WITH ELECTRIC FAN (N54) or 17 11 035 REMOVING AND INSTALLING/REPLACING FAN COWL WITH ELECTRIC FAN (N63) .
- Remove both intake filter housings . See 13 71 000 REMOVING AND INSTALLING/REPLACING INTAKE FILTER HOUSING (N54) or 13 71 030 REMOVING AND INSTALLING BOTH INTAKE FILTER HOUSINGS (N63) .
- Remove exhaust system. See 18 00 020 REMOVING AND INSTALLING COMPLETE EXHAUST SYSTEM (N54) or 18 00 020 REMOVING AND INSTALLING COMPLETE EXHAUST SYSTEM (N63) .

- 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**
- Remove front propeller shaft. See **26 20 000 REMOVING AND INSTALLING FRONT PROPELLER SHAFT (N52K, M57T2, N54)** or **26 20 000 REMOVING AND INSTALLING FRONT PROPELLER SHAFT (N63)** .
- Remove propeller shaft. See **26 11 000 REMOVING AND INSTALLING PROPELLER SHAFT (INSERTED) COMPLETELY (N54)** or **26 11 000 REMOVING AND INSTALLING PROPELLER SHAFT (INSERTED) COMPLETELY (N63)** .

Unfasten nut.

Disconnect cable (1).

Installation:

- Unfasten nut.
- Adjust cable by means of holder (2) until spacing A = 1 mm is obtained
- Tighten nut.

Vehicles with Adaptive Drive:

Release screws (1).

Secure line (2) under cross-brace (3).

Remove cover (4).

Release screw (1) and remove crankshaft sensor.

Disengage cable from holder (2).

- Unlock plug (1) by turning and disconnect
- Release cable from retainers
- Insert special tool **24 2 390** in sealing sleeve

These tasks are described in **NOTES ON MECHATRONICS**.

IMPORTANT: Observe important note

Release screw (1).

Disconnect hydraulic lines (2) to transmission fluid cooler.

Installation:

Replace sealing rings.

Release screws (1).

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

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

Release all 6 screws (1) on torque converter.

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

Press special tool **24 1 380** together and insert in opening of transmission housing.

Unlock and detach plugs (1) and (2).

Release screws.

Tightening torque **22 32 4AZ** .

Release screw (1).

Tightening torque **22 32 5AZ** .

Remove cross-member.

Lower engine with transmission.

Secure engine and transmission in lowered position with engine bridge.

Then support transmission.

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.

Release screws.

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

Unflange transmission.

Installation:

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

Check that adapter sleeves (2) are correctly seated.

Replace damaged dowel sleeves.

Installation:

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

Attach transmission input flange to engine output flange.

24 00 030 REMOVING AND INSTALLING AUTOMATIC TRANSMISSION (GA6HP19Z) N54

Special tools required:

- **00 2 030**
- **00 9 010**
- **00 9 120**
- **00 9 130**
- **23 4 050**
- **24 1 110**
- **24 1 370**
- **24 2 390**

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

Use only the approved transmission fluid . See **AUTOMATIC TRANSMISSION - OPERATING FLUIDS** .

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

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**
- If necessary, remove fan cowl . See **17 11 035 REMOVING AND INSTALLING/REPLACING FAN COWL WITH ELECTRIC FAN (N54)** or **17 11 035 REMOVING AND**

INSTALLING/REPLACING FAN COWL WITH ELECTRIC FAN (N63) .

- Remove **underbody protection** . See 51 47 491 REMOVING AND INSTALLING/REPLACING REAR UNDERBODY PROTECTION .
- Remove **reinforcement plate** . See 31 10 010 REMOVING AND INSTALLING/REPLACING REINFORCEMENT PLATE .

Important notes on installation are described in this work step

- Remove exhaust system. See 18 00 020 REMOVING AND INSTALLING COMPLETE EXHAUST SYSTEM (N54) or 18 00 020 REMOVING AND INSTALLING COMPLETE EXHAUST SYSTEM (N63) .
- Remove heat shields
- Remove **propeller shaft from front differential** . See 26 20 000 REMOVING AND INSTALLING FRONT PROPELLER SHAFT (N52K, M57T2, N54) or 26 11 000 REMOVING AND INSTALLING PROPELLER SHAFT (INSERTED) COMPLETELY (N63) .
- Remove propeller shaft. See 26 11 000 REMOVING AND INSTALLING PROPELLER SHAFT (INSERTED) COMPLETELY (N54) or 26 11 000 REMOVING AND INSTALLING PROPELLER SHAFT (INSERTED) COMPLETELY (N63) .
- Support engine with lifter when removing transmission

Unfasten nut.

Disconnect cable (1).

Installation:

- Unfasten nut.
- Adjust cable by means of holder (2) until spacing $A = 1 \text{ mm}$ is obtained
- Tighten nut.

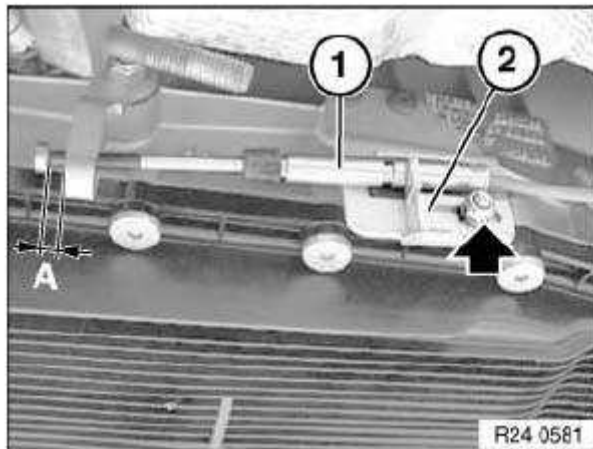


Fig. 5: Identifying Cable And Holder

Courtesy of BMW OF NORTH AMERICA, INC.

Release screw (1).

Disconnect hydraulic lines (2) to transmission fluid cooler.

Tightening torque, see 17 22 3AZ in 17 22 TRANSMISSION OIL COOLER LINES (N52) or 17 22 ENGINE OIL COOLER LINES AND TRANSMISSION OIL COOLER LINES (N63) .

Installation:

Replace sealing rings.

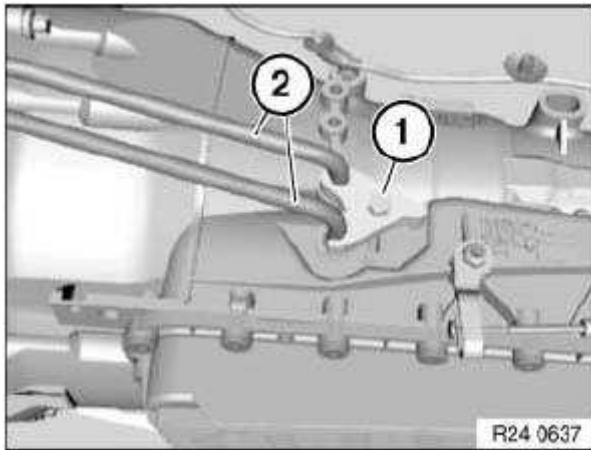


Fig. 6: Identifying Hydraulic Lines And Screw On Transmission Fluid Cooler
Courtesy of BMW OF NORTH AMERICA, INC.

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

Tightening torque, see 17 22 1AZ in 17 22 TRANSMISSION OIL COOLER LINES (N52) or 17 22 ENGINE OIL COOLER LINES AND TRANSMISSION OIL COOLER LINES (N63) .



Fig. 7: Identifying Transmission Oil Lines Bracket Nut

Courtesy of BMW OF NORTH AMERICA, INC.

Vehicle with Adaptive Drive.

Remove heat shield (1).

Release screw (2).

Detach bracket (3) from front axle.

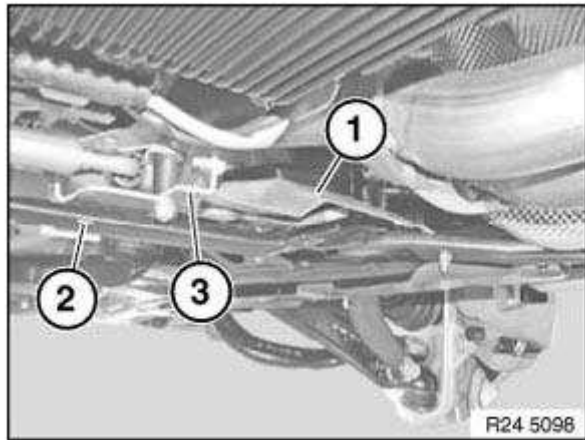


Fig. 8: Identifying Heat Shield, Screw And Bracket
Courtesy of BMW OF NORTH AMERICA, INC.

Release screw (1).

Detach oil line (2) from front axle.

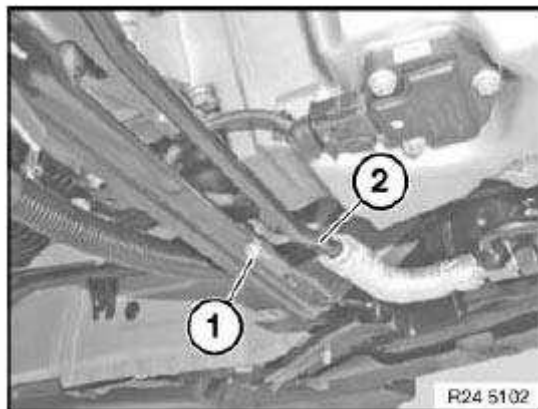


Fig. 9: Identifying Oil Line And Screw
Courtesy of BMW OF NORTH AMERICA, INC.

Detach oil lines (1) from bracket (2).

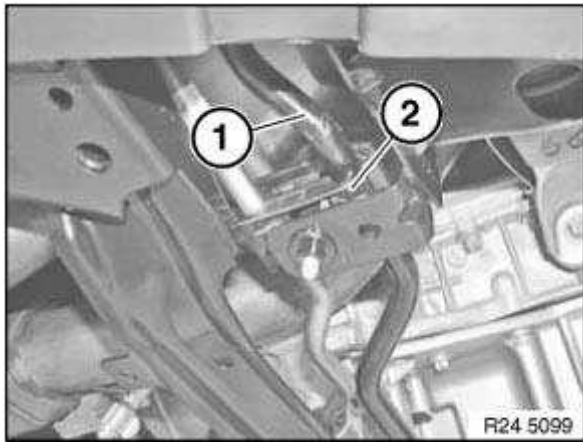


Fig. 10: Identifying Oil Line And Bracket
 Courtesy of BMW OF NORTH AMERICA, INC.

Disconnect connector (1).

Release screws (2).

Remove retaining plate (3).

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

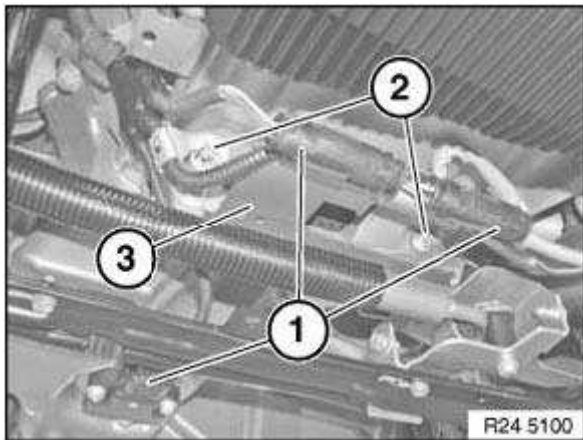


Fig. 11: Identifying Connector, Screws And Retaining Plate
 Courtesy of BMW OF NORTH AMERICA, INC.

Release aluminum screw on right (1) on right next to cable retaining plate with special tool **00 9 010** .

Aluminum screws must be replaced.

Tightening torque **24 00 2AZ** .

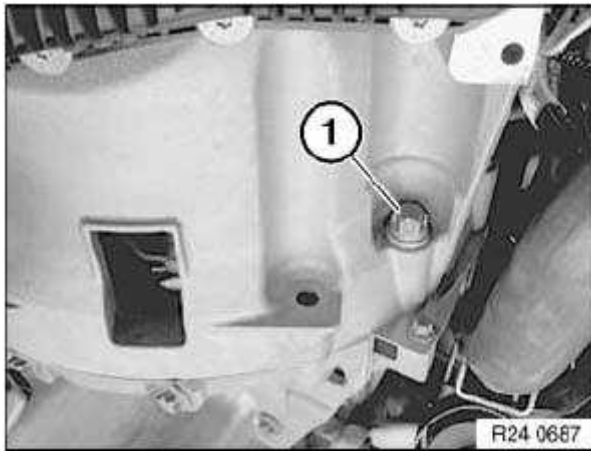


Fig. 12: Identifying Aluminum Screw
 Courtesy of BMW OF NORTH AMERICA, INC.

Insert special tool **24 1 370** into opening of transmission housing and secure with screw (1).

NOTE: Check installation location.

Lug (2) must point in opposite direction to direction of travel!

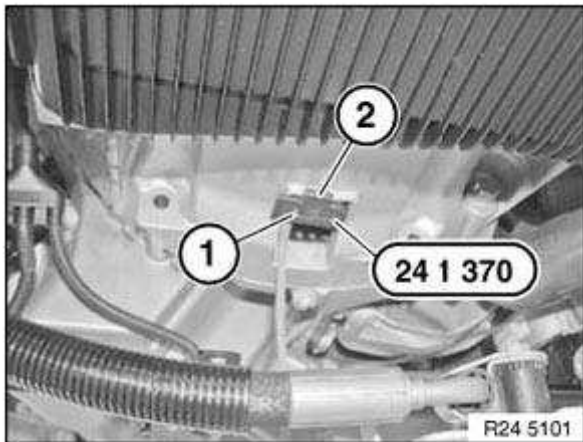


Fig. 13: Identifying Special Tool 24 1 370 On Opening Of Transmission Housing
 Courtesy of BMW OF NORTH AMERICA, INC.

- 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

IMPORTANT: Read and comply with important note.

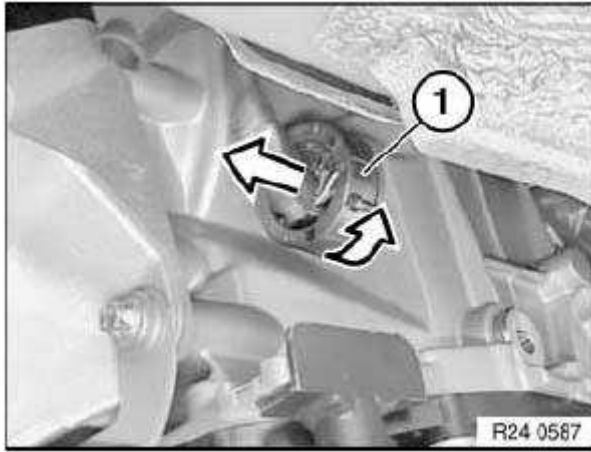


Fig. 14: Disconnecting Plug
Courtesy of BMW OF NORTH AMERICA, INC.

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.

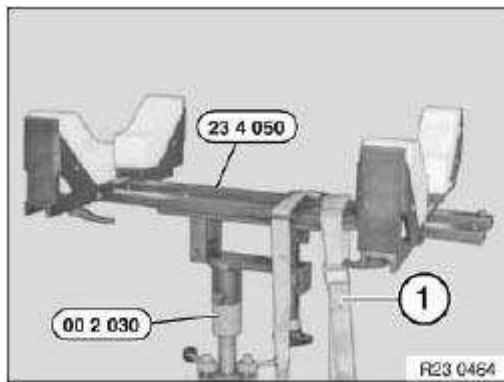


Fig. 15: Supporting Transmission Using Special Tools 23 4 050 And 00 2 030
Courtesy of BMW OF NORTH AMERICA, INC.

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 .

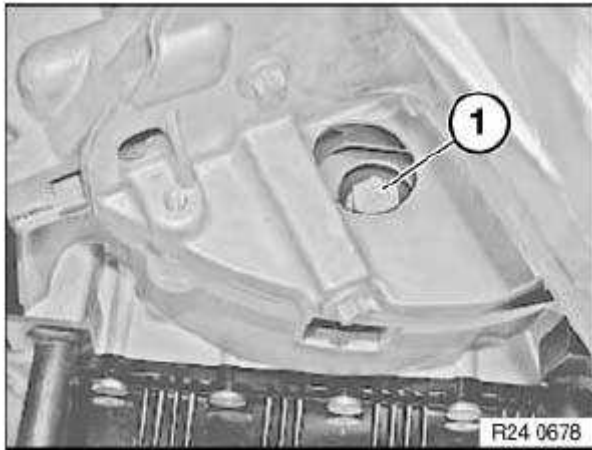


Fig. 16: Identifying Torque Converter Screw
Courtesy of BMW OF NORTH AMERICA, INC.

Release screws.

Installation:

Observe **screw fastening sequence** without fail.

Tightening torque, steel screws 24 00 1AZ .

Aluminum screws **must** be replaced.

Tightening torque and angle of rotation, aluminum screws/bolts 24 00 2AZ .

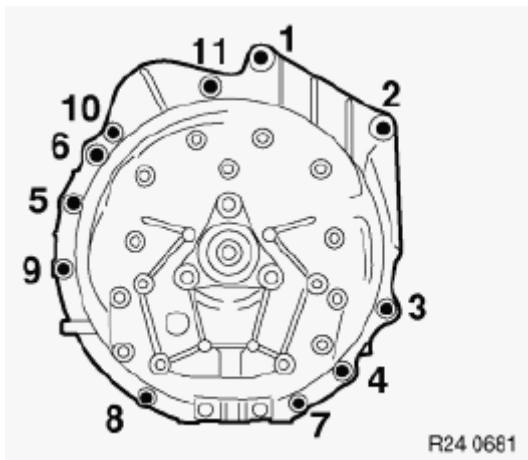


Fig. 17: Tightening Sequence Of Torque Converter Screws
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Tighten down screws/bolts to specified torque.

Secure rotation angle of special tool **00 9 120** with magnet **00 9 130**

Secure to floor plate and screw down aluminum screws/bolts in accordance with angle of rotation.

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

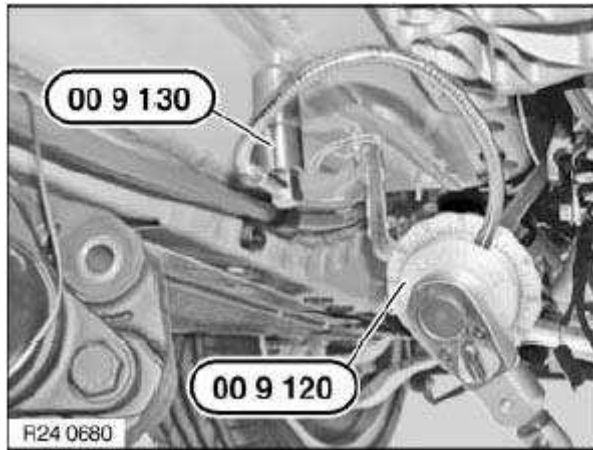


Fig. 18: Securing Rotation Angle Of Special Tool 00 9 120 Using Magnet 00 9 130
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Bore hole (1) of drive plate must be accessible from opening on engine oil sump. Check dowel sleeves (2...3) for correct seating.

Replace damaged dowel sleeves.

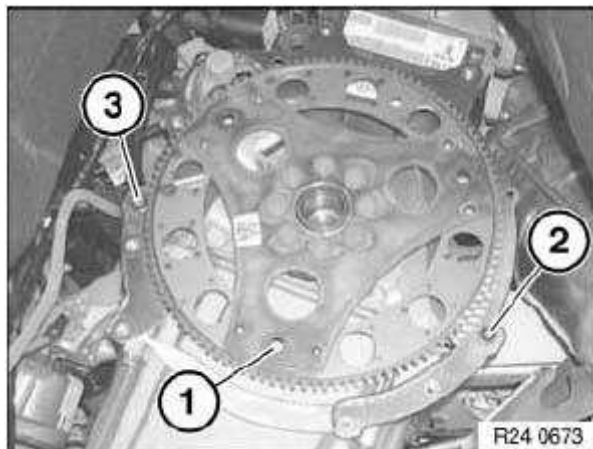


Fig. 19: Identifying Hole And Dowel Sleeves
Courtesy of BMW OF NORTH AMERICA, INC.

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)

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 . See **17 21 500 FLUSHING TRANSMISSION OIL COOLER WITH LINES (AUTOMATIC TRANSMISSION) (GA6HP19Z, GAHP26Z, GA6HP32Z)** .
- After completion of work, check transmission fluid level . See **00 11 500 CHECKING/TOPPING UP FLUID LEVEL IN AUTOMATIC TRANSMISSION (GA6HP19Z)** .

Replacement transmission is supplied filled with transmission fluid.

Use only the approved transmission fluid . See AUTOMATIC TRANSMISSION - OPERATING FLUIDS .

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

Necessary preliminary tasks:

- Remove automatic transmission. See **24 00 030 REMOVING AND INSTALLING AUTOMATIC TRANSMISSION (GA6HP19Z) (N54)** or **24 00 023 REMOVING AND INSTALLING AUTOMATIC TRANSMISSION (GA6HP26Z) (N63)**.

Convert selector lever (1).

Tightening torque **24 51 1AZ** .

Modify holder (2).

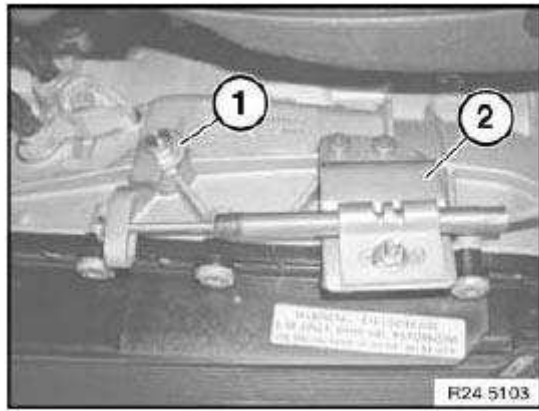


Fig. 20: Identifying Selector Lever And Holder
Courtesy of BMW OF NORTH AMERICA, INC.

Modify transfer box.

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:

- refer to BMW Parts Service.
- On type plate

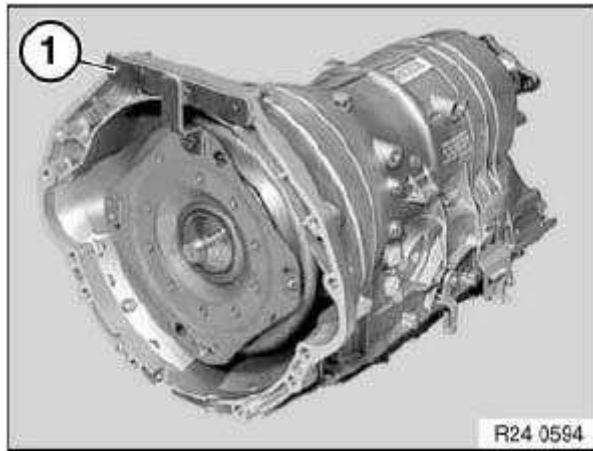


Fig. 21: Identifying Transportation Lock
 Courtesy of BMW OF NORTH AMERICA, INC.

TRANSMISSION CASE, OIL SUMP

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 fluid level .
 Use only the approved transmission fluid . See AUTOMATIC TRANSMISSION - OPERATING FLUIDS ,
 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 **underbody protection** . See 51 47 490 REMOVING AND INSTALLING/REPLACING FRONT UNDERBODY PROTECTION and 51 47 491 REMOVING AND INSTALLING/REPLACING REAR UNDERBODY PROTECTION .

Remove oil drain plug (1).

Tightening torque: 24 11 6AZ .

Drain automatic transmission fluid.

Installation:

Replace oil drain plug.

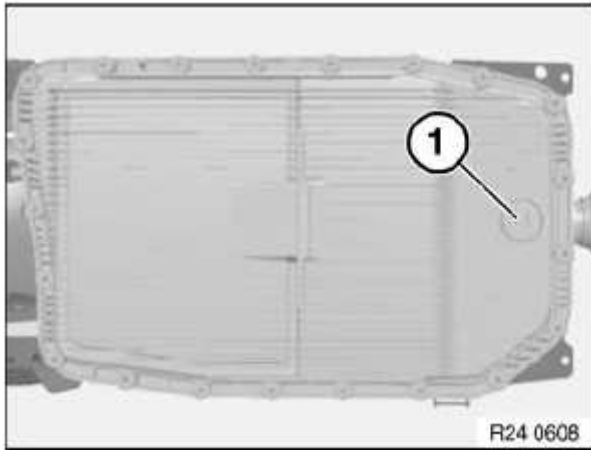


Fig. 22: Identifying Oil Drain Plug
Courtesy of BMW OF NORTH AMERICA, INC.

Unscrew all bolts.

Remove transmission sump (1).

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** .

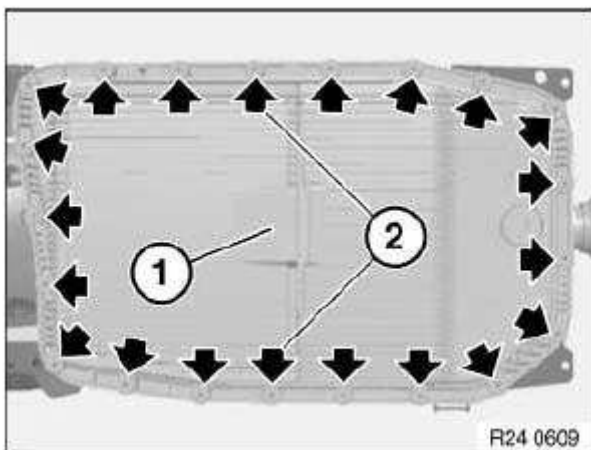


Fig. 23: Identifying Transmission Sump With Mounting Screws

Courtesy of BMW OF NORTH AMERICA, INC.

Remove gasket (1) 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.

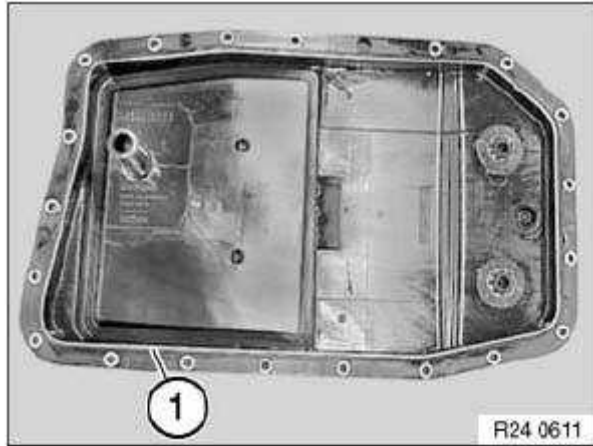


Fig. 24: Identifying Transmission Sump Gasket
Courtesy of BMW OF NORTH AMERICA, INC.

Replace sealing ring (1) on oil filter tube.

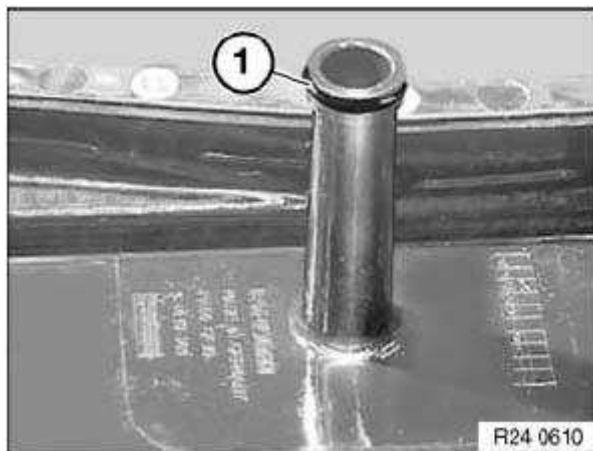


Fig. 25: Identifying Sealing Ring On Oil Filter Tube
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

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

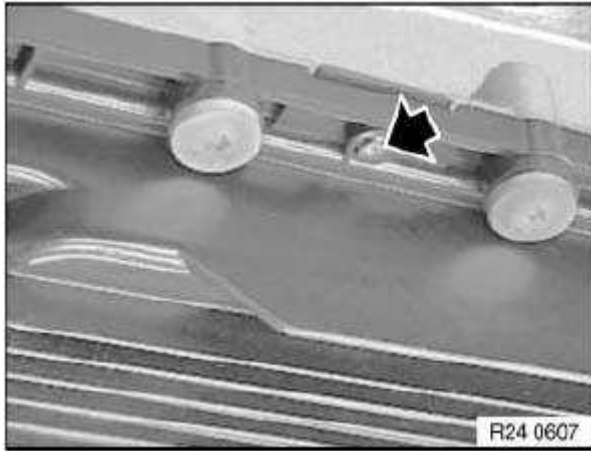


Fig. 26: Locating Gasket Position

Courtesy of BMW OF NORTH AMERICA, INC.

EXTENSION HOUSING, BEARINGS, SEAL

24 13 013 REPLACING OUTPUT FLANGE SHAFT SEAL (GA6HP19Z)

Special tools required:

- **23 0 490**
- **24 4 310**

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

Use only the approved transmission fluid . See **AUTOMATIC TRANSMISSION - OPERATING FLUIDS** .

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

Necessary preliminary tasks:

- Remove underbody protection. See **51 47 490 REMOVING AND INSTALLING/REPLACING FRONT UNDERBODY PROTECTION** and **51 47 491 REMOVING AND INSTALLING/REPLACING REAR UNDERBODY PROTECTION** .
- 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).

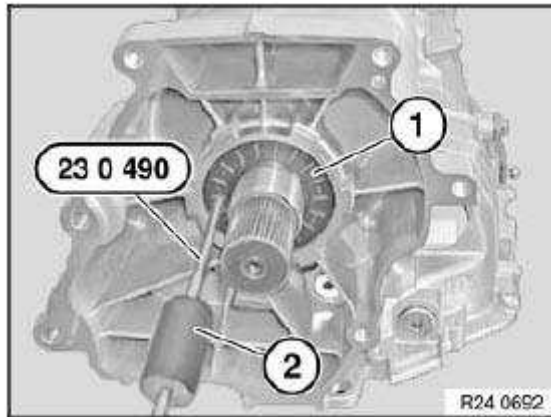


Fig. 27: Screwing Special Tool 23 0 490 Into Radial Shaft Seal
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

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

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

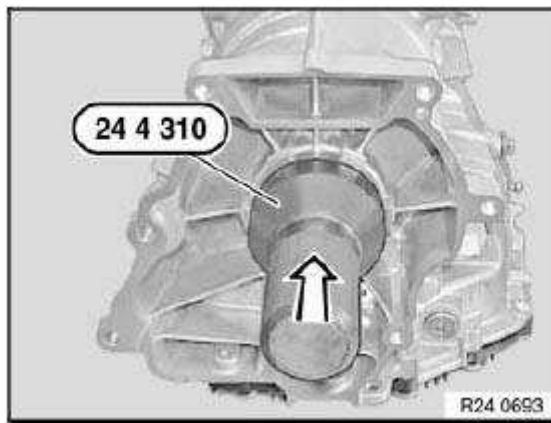


Fig. 28: Driving Shaft Seal Using Special Tool 24 4 310
Courtesy of BMW OF NORTH AMERICA, INC.

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 fluid level .
 Use only the approved transmission fluid . See AUTOMATIC TRANSMISSION - OPERATING FLUIDS .
 Failure to comply with this requirement will result in serious damage to the automatic transmission!

Necessary preliminary tasks:

- Remove **underbody protection** . See 51 47 490 REMOVING AND INSTALLING/REPLACING FRONT UNDERBODY PROTECTION and 51 47 491 REMOVING AND INSTALLING/REPLACING REAR UNDERBODY PROTECTION .

Unfasten nut.

Remove cable (1).

Installation:

Adjusting cable:

- Release nut
- Adjust cable by means of holder (2)

Distance A > or = 1.5 mm.

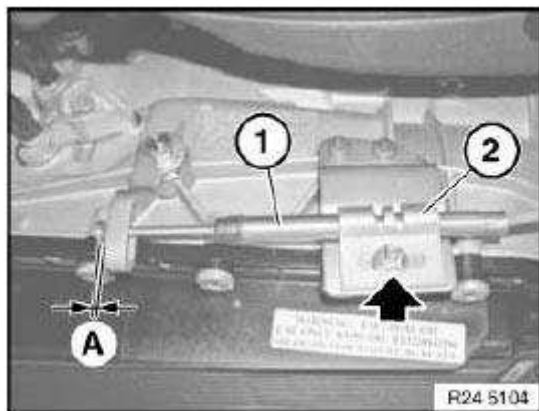


Fig. 29: Identifying Cable, Holder With Distance
 Courtesy of BMW OF NORTH AMERICA, INC.

Unfasten nut.

Take off holder (1).

Tightening torque **24 51 1AZ** .

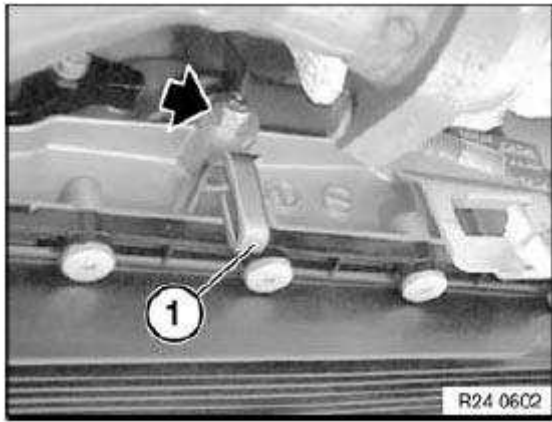


Fig. 30: Identifying Holder And Nut
Courtesy of BMW OF NORTH AMERICA, INC.

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

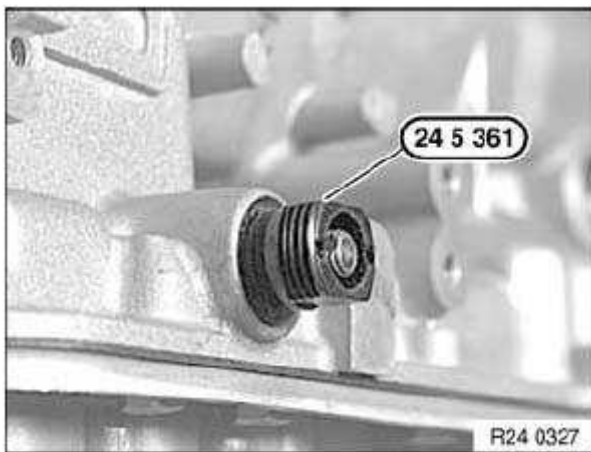


Fig. 31: Identifying Special Tool 24 5 361
Courtesy of BMW OF NORTH AMERICA, INC.

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.

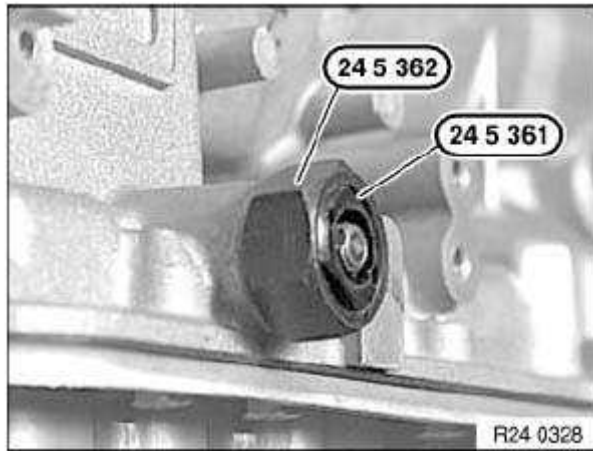


Fig. 32: Identifying Special Tool 24 5 362 And 24 5 361
 Courtesy of BMW OF NORTH AMERICA, INC.

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.

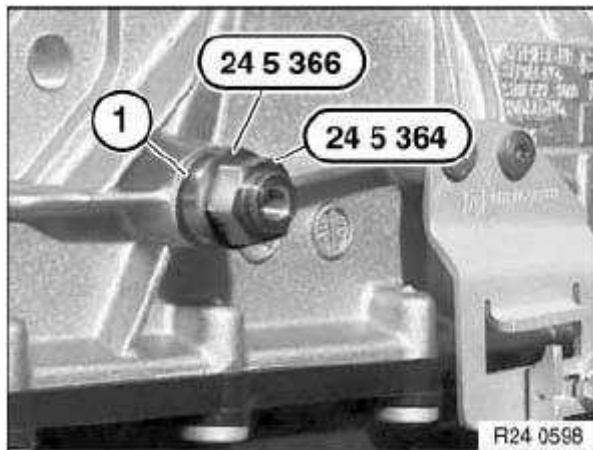


Fig. 33: Identifying Shaft Seal With Special Tools 24 5 366 And 24 5 364
 Courtesy of BMW OF NORTH AMERICA, INC.

OIL PUMP

24 31 011 REPLACING TORQUE CONVERTER SHAFT SEAL (GA6HP19Z)

Special tools required:

- **00 1 450**
- **24 0 200**
- **24 2 351**

- 24 2 352
- 24 2 353
- 24 2 400

Necessary preliminary tasks:

- Remove automatic transmission. See 24 00 030 REMOVING AND INSTALLING AUTOMATIC TRANSMISSION (GA6HP19Z) N54 or 24 00 023 REMOVING AND INSTALLING AUTOMATIC TRANSMISSION (GA6HP26Z) (N63).

IMPORTANT: After completion of work, check transmission oil level . See 00 11 500 CHECKING/TOPPING UP FLUID LEVEL IN AUTOMATIC TRANSMISSION (GA6HP19Z) .

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** .

Remove TORQUE CONVERTER.

NOTE: Read and comply with note on installation of transmission retaining bridge .

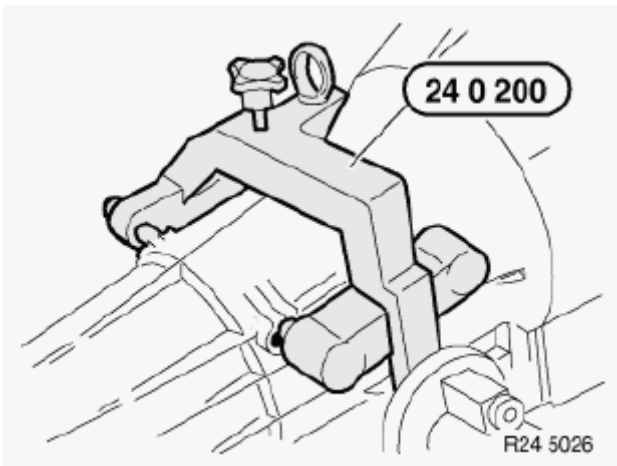


Fig. 34: Securing Transmission Using Special Tool 24 0 200
Courtesy of BMW OF NORTH AMERICA, INC.

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

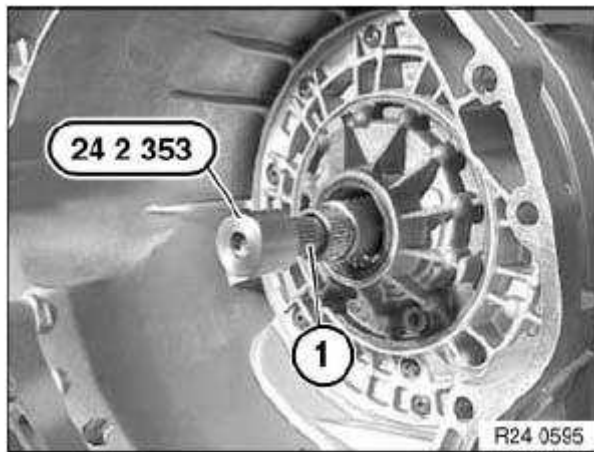


Fig. 35: Attaching Special Tool 24 2 353 To Drive Shaft
Courtesy of BMW OF NORTH AMERICA, INC.

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.

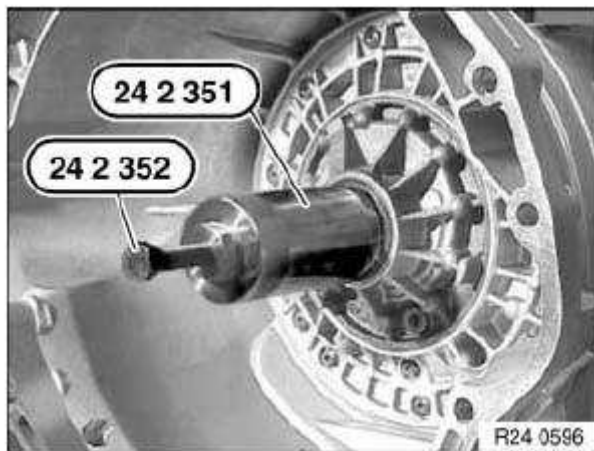


Fig. 36: Identifying Special Tools 24 2 351 And 24 2 352
Courtesy of BMW OF NORTH AMERICA, INC.

Oil sealing lip on shaft seal.

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

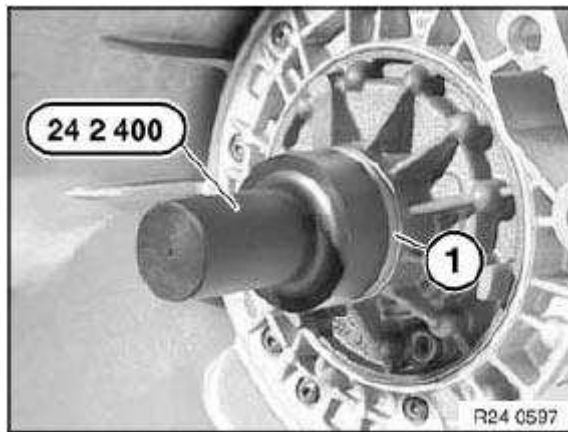


Fig. 37: Driving Shaft Seal Using Special Tool 24 2 400
Courtesy of BMW OF NORTH AMERICA, INC.

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 fluid level .
 Use only approved transmission oil . See **AUTOMATIC TRANSMISSION - OPERATING FLUIDS** .
 Failure to comply with this instruction will result in serious damage to the transmission.

Necessary preliminary tasks:

- Remove automatic transmission. See **24 00 030 REMOVING AND INSTALLING AUTOMATIC TRANSMISSION (GA6HP19Z) N54** or **24 00 023 REMOVING AND INSTALLING AUTOMATIC TRANSMISSION (GA6HP26Z) (N63)**.
- Secure transmission with **transmission holding bridge** on assembly stand
- Remove **TORQUE CONVERTER**
- Remove **MECHATRONICS**

Remove adapter (1).

Installation:

Note installation position.

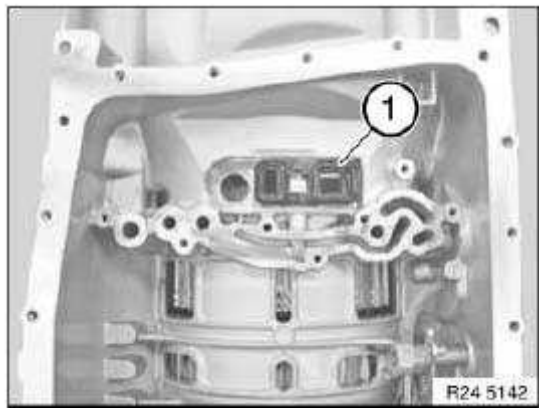


Fig. 38: Identifying Adapter
 Courtesy of BMW OF NORTH AMERICA, INC.

Release screws.

Tightening torque **24 31 3AZ** .

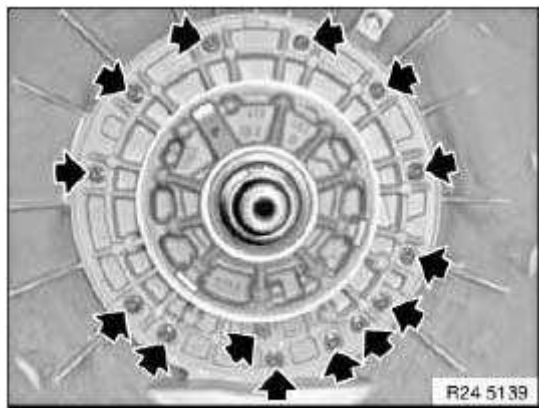


Fig. 39: Locating Transmission Screws
 Courtesy of BMW OF NORTH AMERICA, INC.

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

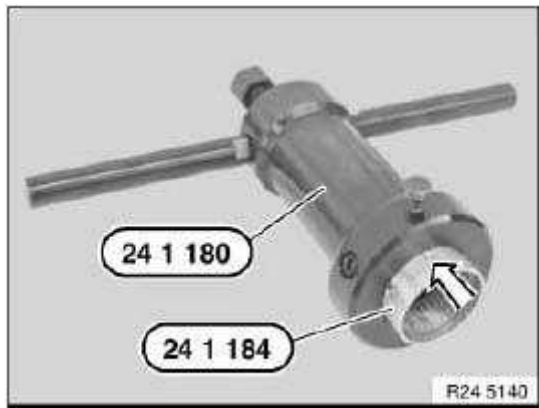


Fig. 40: Sliding Special Tool 24 1 184 In To Extractor 24 1 180
Courtesy of BMW OF NORTH AMERICA, INC.

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

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

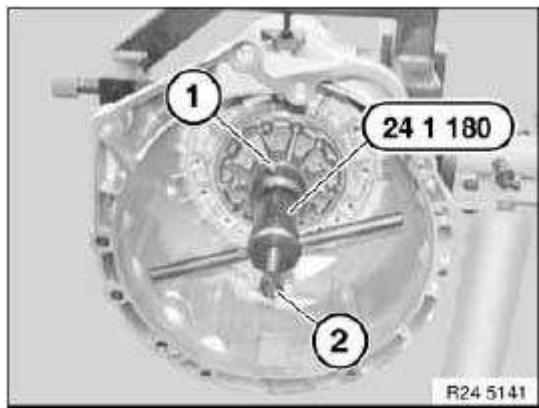


Fig. 41: Securing Special Tool 24 1 180 With Screw
Courtesy of BMW OF NORTH AMERICA, INC.

Release screws.

Tightening torque **24 31 1AZ** .

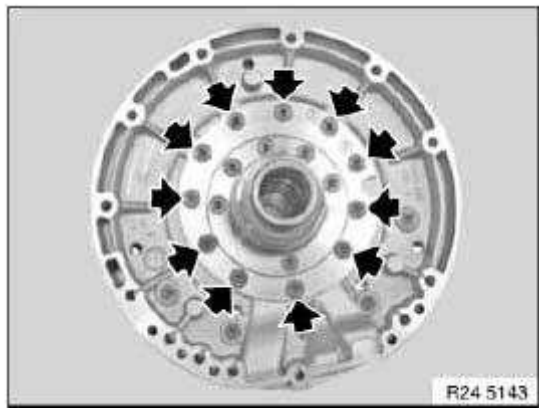


Fig. 42: Locating Screws

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.

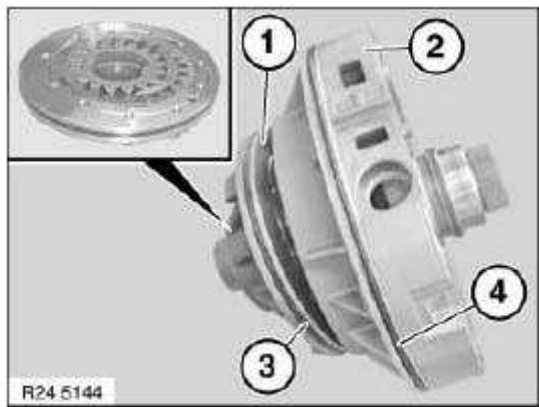


Fig. 43: Identifying Cover On Pump Housing

Courtesy of BMW OF NORTH AMERICA, INC.

SHIFT VALVES, PARKING LOCK

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: Secure vehicle against rolling, e.g. with chocks.

Press the brake pedal when manually releasing the transmission lock, otherwise there is a risk that the vehicle will roll when the transmission lock is manually released.
If the parking brake has to be released as well, observe the following procedure:

1. First, manually release the parking brake .
2. Then manually release the automatic transmission lock.

NOTE: The release tool is located in the tool kit under the floor panel in the luggage compartment!

Slide back cover mat (1) of drinks holder and remove.

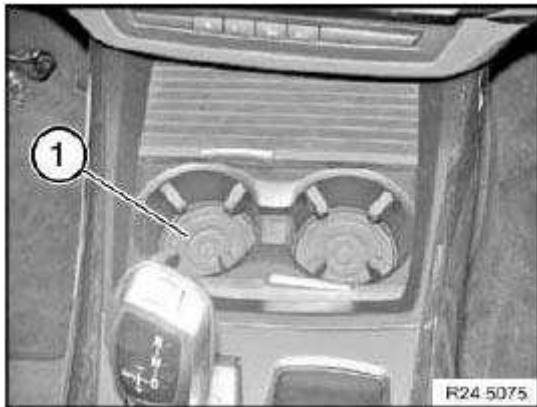


Fig. 44: Identifying Back Cover Mat Of Drinks Holder
Courtesy of BMW OF NORTH AMERICA, INC.

Open cover (1) in drinks holder base with release tool in direction of arrow.

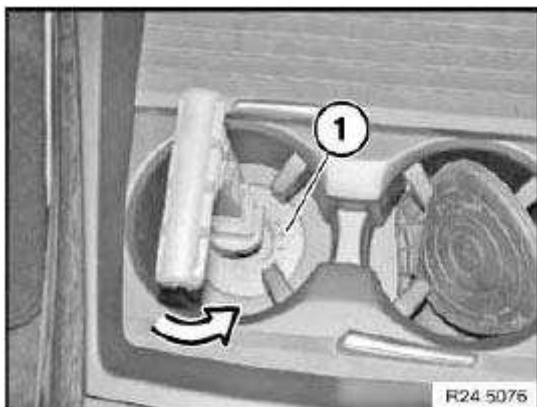


Fig. 45: Opening Drinks Holder Base Using Release Tool
Courtesy of BMW OF NORTH AMERICA, INC.

Insert release tool into opening.

Turn release tool clockwise up to stop and press down.

Transmission lock is released!

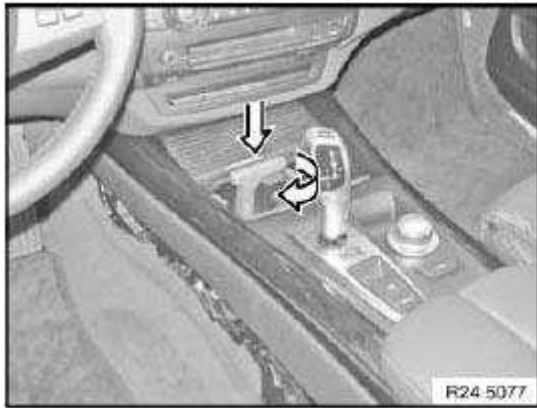


Fig. 46: Releasing Transmission Lock
Courtesy of BMW OF NORTH AMERICA, INC.

Locking transmission lock:

Pull out release tool in direction of arrow.

Transmission lock is locked.



Fig. 47: Pulling Out Release Tool
Courtesy of BMW OF NORTH AMERICA, INC.

24 34 ... MANUALLY UNLOCKING TRANSMISSION LOCK

For various tasks, it is necessary to unlock and lock the transmission lock.

This can be done from inside or underneath the vehicle.

From vehicle interior:

- Refer to **Manual emergency unlocking of transmission lock.**

Underneath car:

- Remove **underbody protection** . See **51 47 490 REMOVING AND INSTALLING/REPLACING FRONT UNDERBODY PROTECTION** and **51 47 491 REMOVING AND INSTALLING/REPLACING REAR UNDERBODY PROTECTION** .
- Press lever (1) towards rear.

Clamp lever firmly if permanently unlocking is desired.

Locking:

- Release lever (1) or release clamping

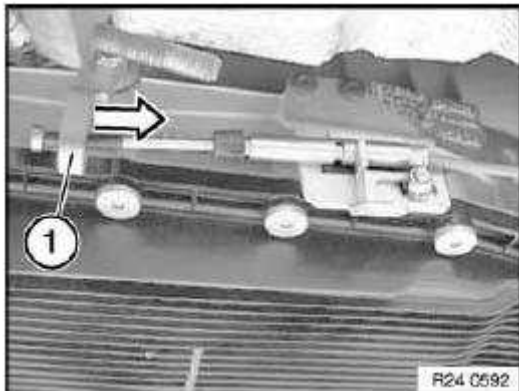


Fig. 48: Releasing Lever

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 fluid level . See **00 11 500 CHECKING/TOPPING UP FLUID LEVEL IN AUTOMATIC TRANSMISSION (GA6HP19Z)** .

Use only approved transmission fluid . See AUTOMATIC TRANSMISSION - OPERATING FLUIDS .

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) .

Unscrew plug (1) and disconnect.

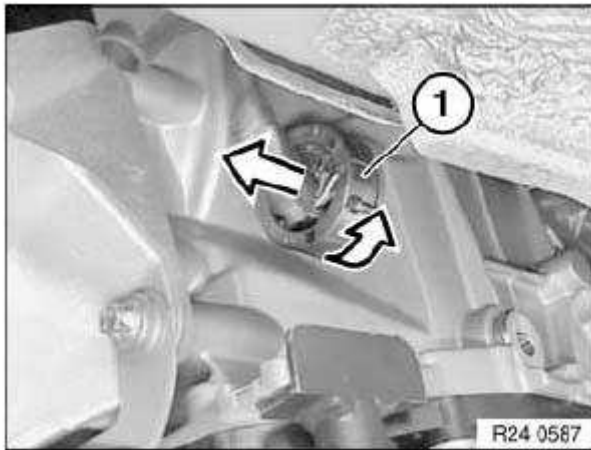


Fig. 49: Disconnecting Plug

Courtesy of BMW OF NORTH AMERICA, INC.

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

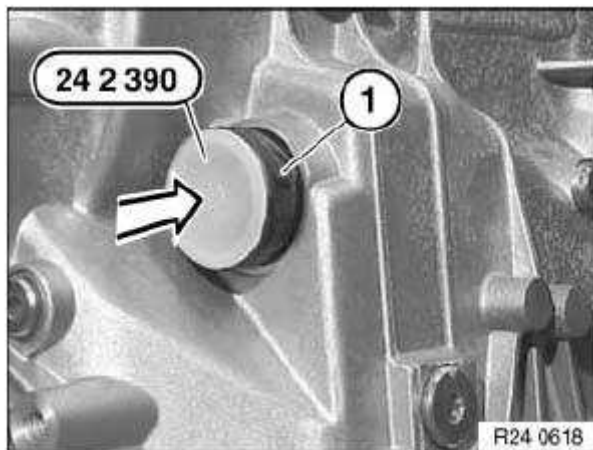


Fig. 50: Inserting Special Tool 24 2 390 In Sealing Sleeve

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 . See AUTOMATIC TRANSMISSION - OPERATING FLUIDS .

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

Necessary preliminary tasks:

- Remove heat shields
- Remove **transmission cross-member** . See 22 32 050 REPLACING CROSSMEMBER FOR TRANSMISSION MOUNTING (N54) or 22 32 050 REPLACING CROSSMEMBER FOR TRANSMISSION MOUNTING (N63) .
- Remove **transmission oil sump**

IMPORTANT: Support transmission with workshop hoist.

Unlock and disconnect plug (1) by turning.

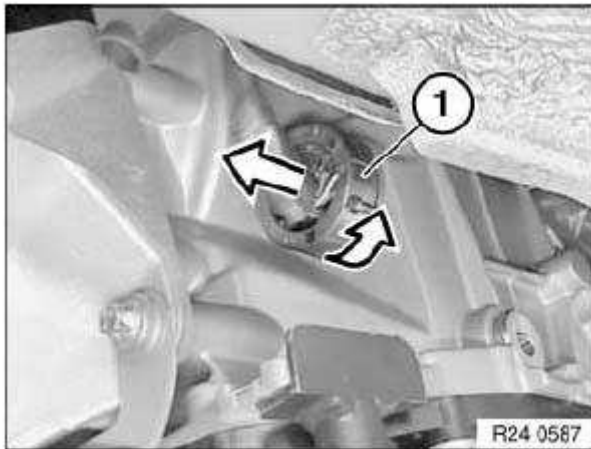


Fig. 51: Disconnecting Plug

Courtesy of BMW OF NORTH AMERICA, INC.

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

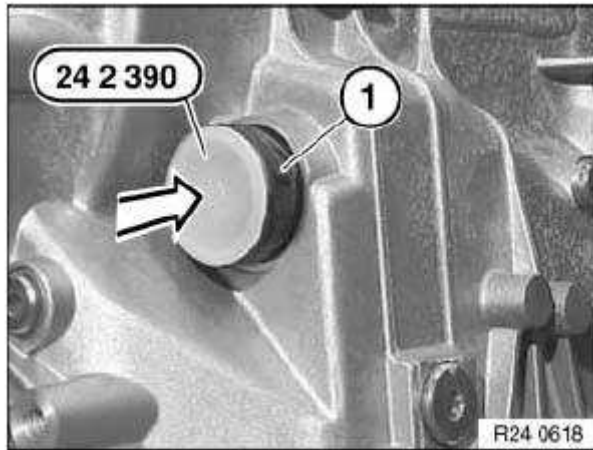


Fig. 52: Inserting Special Tool 24 2 390 In Sealing Sleeve
 Courtesy of BMW OF NORTH AMERICA, INC.

Unlock sealing sleeve with slide (1).

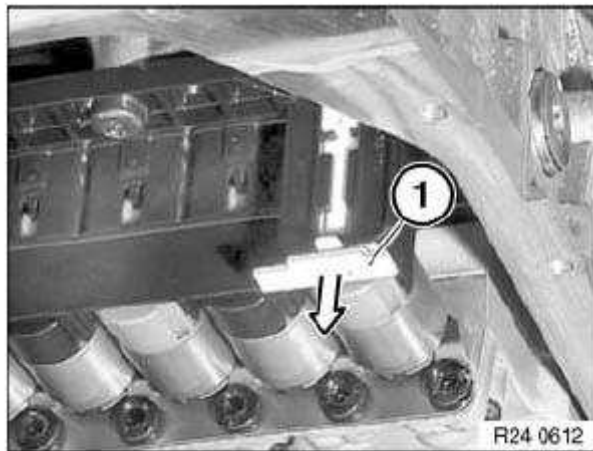


Fig. 53: Unlocking Sealing Sleeve
 Courtesy of BMW OF NORTH AMERICA, INC.

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!

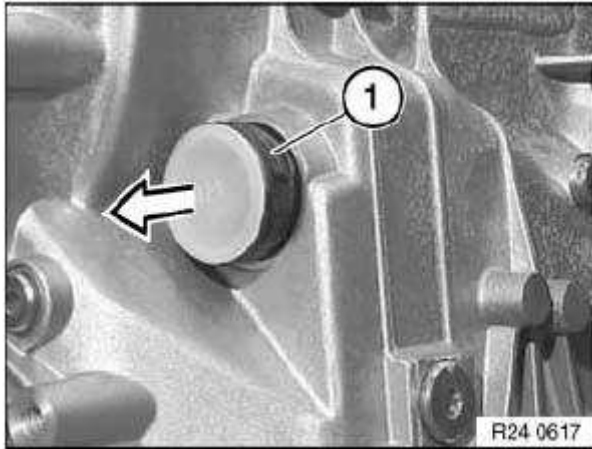


Fig. 54: Pulling Out Sealing Sleeve

Courtesy of BMW OF NORTH AMERICA, INC.

24 34 561 REPLACING MECHATRONICS (GA6HP26Z/6HP32Z)

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 . See AUTOMATIC TRANSMISSION - OPERATING FLUIDS .

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) .

Necessary preliminary tasks:

E60/ E61/ E63/ E64, E70 N62/N62TU only:

- Remove exhaust system. See 18 00 020 REMOVING AND INSTALLING COMPLETE EXHAUST SYSTEM (N54) or 18 00 020 REMOVING AND INSTALLING COMPLETE EXHAUST SYSTEM (N63) .
- If necessary, release cross-member from exhaust system on transmission.
- If necessary, remove **heat shield** on left and right.
- Remove **transmission cross-member** . See 22 32 050 REPLACING CROSSMEMBER FOR

TRANSMISSION MOUNTING (N54) or 22 32 050 REPLACING CROSSMEMBER FOR TRANSMISSION MOUNTING (N63) .

NOTE: **Version 1:**
 Unfasten nut.
 Remove cable (1).

Installation:

Adjusting shift lever

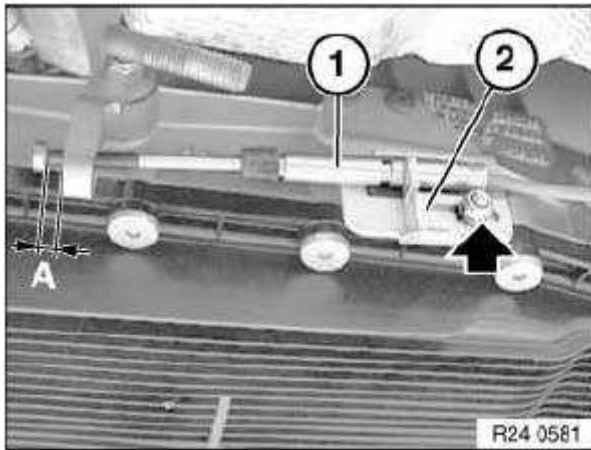


Fig. 55: Identifying Cable And Holder
Courtesy of BMW OF NORTH AMERICA, INC.

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

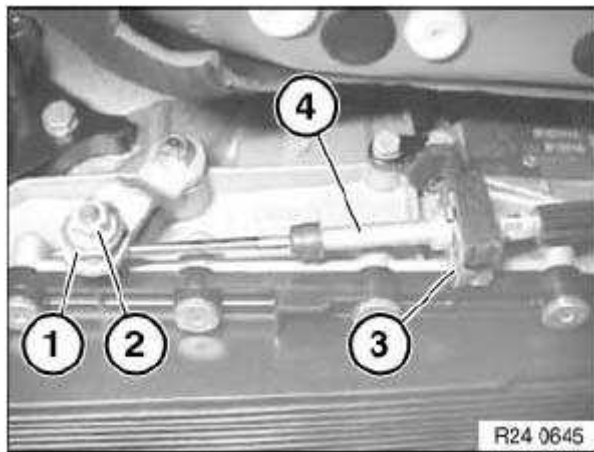


Fig. 56: Identifying Sleeve, Nut, Retainer And Cable
Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: **Version 3:**
 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 .

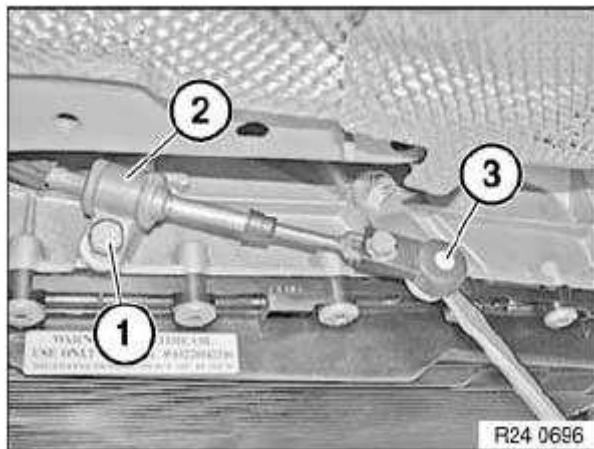


Fig. 57: Identifying Screw, Clamp And Shift Cable Head
Courtesy of BMW OF NORTH AMERICA, INC.

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

NOTE: **Illustration shows E65.**

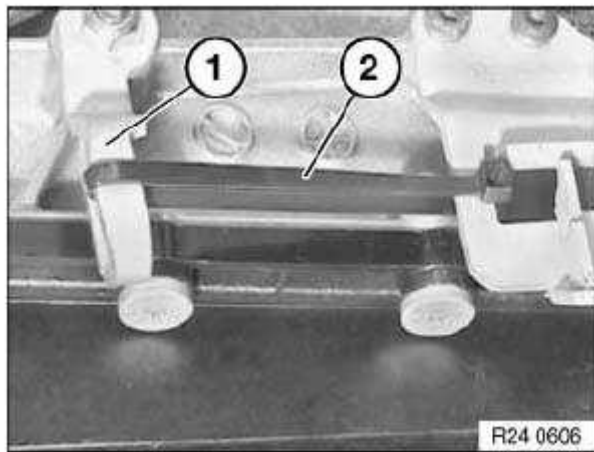


Fig. 58: Securing Lever Using Cable Tie
 Courtesy of BMW OF NORTH AMERICA, INC.

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.

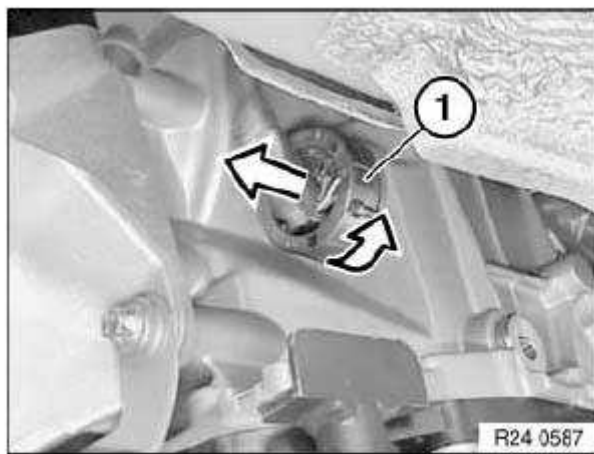


Fig. 59: Disconnecting Plug
 Courtesy of BMW OF NORTH AMERICA, INC.

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

Remove **transmission oil sump** .

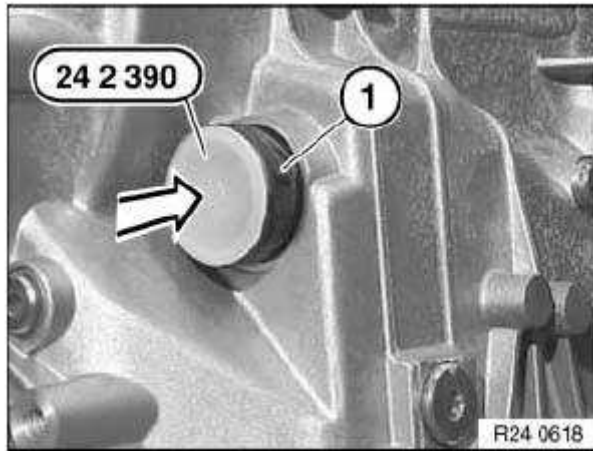


Fig. 60: Inserting Special Tool 24 2 390 In Sealing Sleeve
 Courtesy of BMW OF NORTH AMERICA, INC.

Unlock sealing sleeve with slide (1).

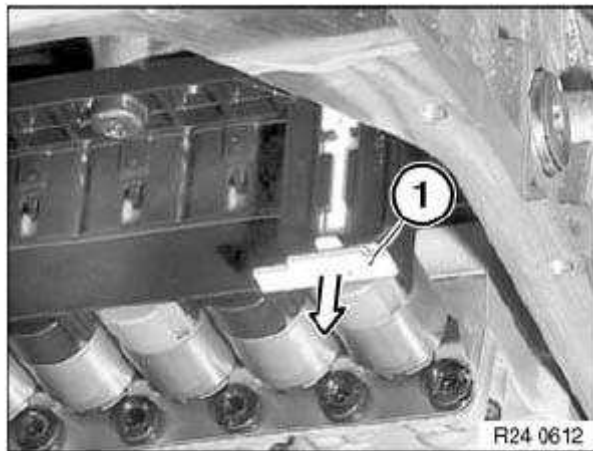


Fig. 61: Unlocking Sealing Sleeve
 Courtesy of BMW OF NORTH AMERICA, INC.

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!

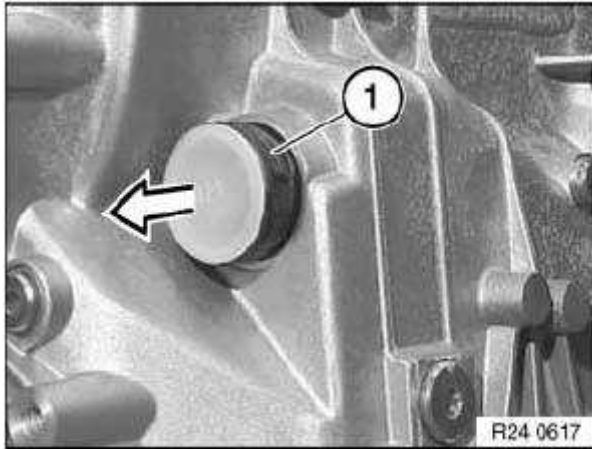


Fig. 62: Pulling Out Sealing Sleeve

Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: GA6HP26Z, GA6HP32Z

Release all screws (1 and 2).

- 1 = M6 x 59 mm
- 2 = M6 x 20 mm

Remove mechatronics.

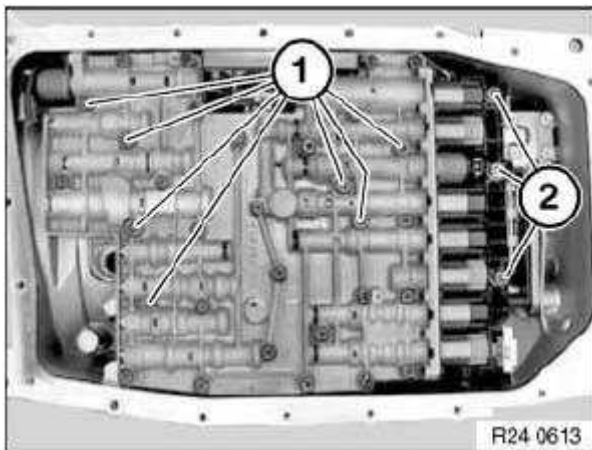


Fig. 63: Identifying Mechatronics Screws

Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: GA6HP26TU, GA6HP32TU

Release all screws (1 and 2).

- 1 = M6 x 59 mm
- 2 = M6 x 20 mm

Remove mechatronics.

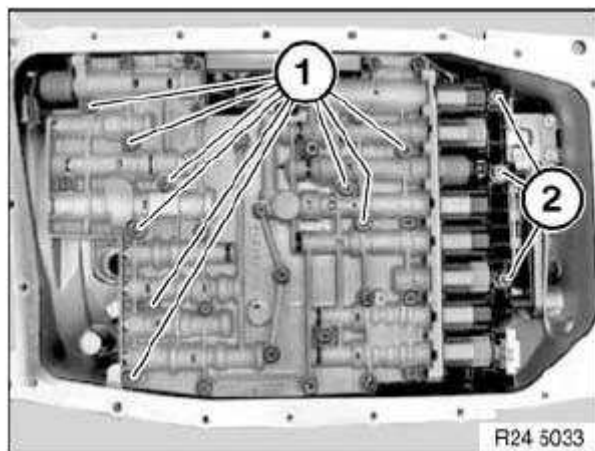


Fig. 64: Identifying Mechatronics Screws
 Courtesy of BMW OF NORTH AMERICA, INC.

IMPORTANT: E65/66 only:

Mechatronics without protective bar for solenoid valve must not be reused after removal.

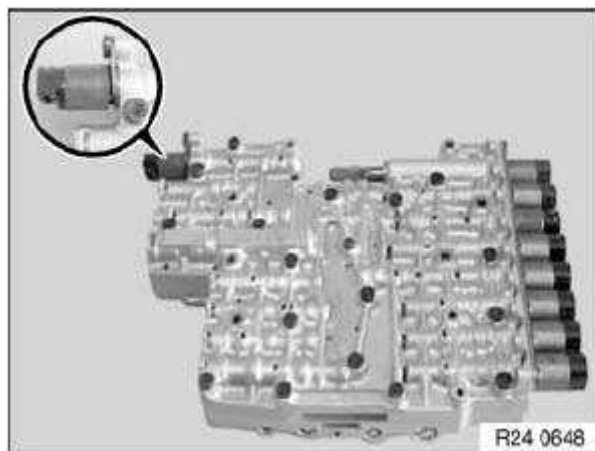


Fig. 65: Identifying Mechatronics Without Protective Bar For Solenoid Valve
 Courtesy of BMW OF NORTH AMERICA, INC.

IMPORTANT: E65/66 only:

Fit/reuse only mechatronics with protective bar (1) for solenoid valve.

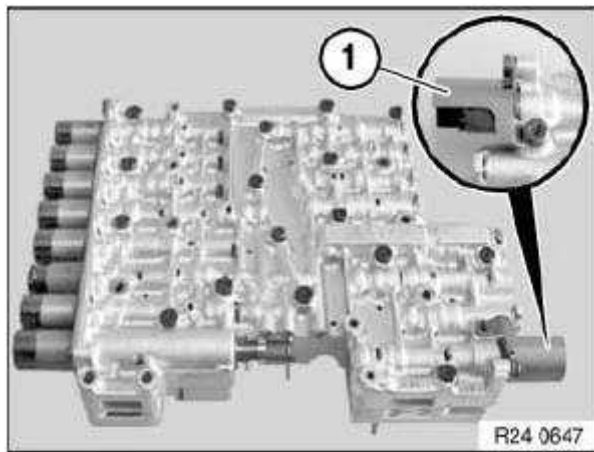


Fig. 66: Identifying Mechatronics With Protective Bar For Solenoid Valve
 Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

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

Coat new seals with automatic transmission fluid and install.

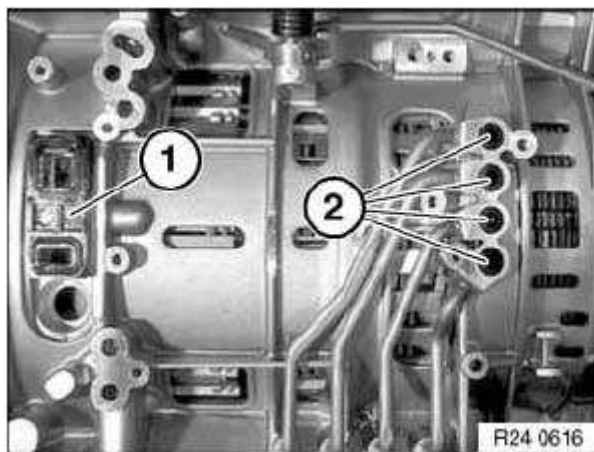


Fig. 67: Identifying Gaskets
 Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

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

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

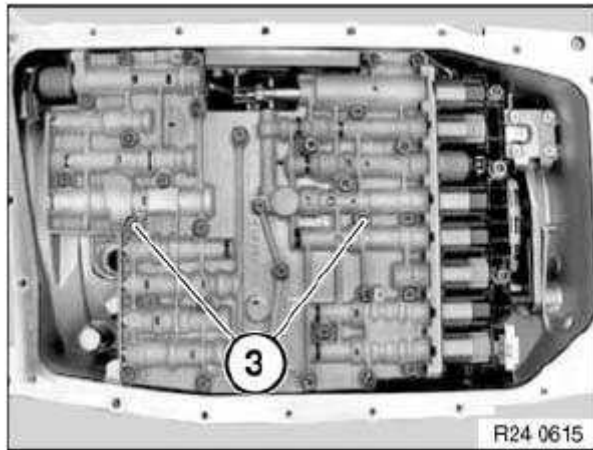


Fig. 68: Identifying Screw Head Screws
 Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: GA6HP26Z, GA6HP32Z

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 .

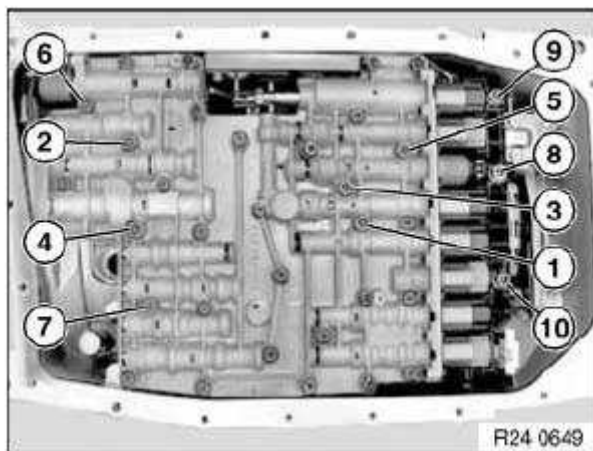


Fig. 69: Tightening Sequence Of Screws
 Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: GA6HP26TU, GA6HP32TU

IMPORTANT: Tighten down screws in order 1...13.
 Failure to comply with this requirement will result in serious damage to the
 automatic transmission!
 Tightening torque 24 30 1AZ .

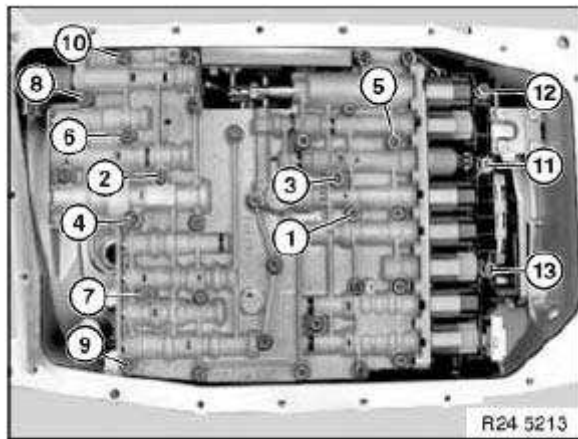


Fig. 70: Tightening Sequence Of Screws
Courtesy of BMW OF NORTH AMERICA, INC.

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 . See AUTOMATIC TRANSMISSION - OPERATING FLUIDS .

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) .

Necessary preliminary tasks:

- Remove heat shields.
- Support automatic transmission with hydraulic lifter.
- Remove **transmission cross-member** . See 22 32 050 REPLACING CROSSMEMBER FOR TRANSMISSION MOUNTING (N54) or 22 32 050 REPLACING CROSSMEMBER FOR TRANSMISSION MOUNTING (N63) .

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 .

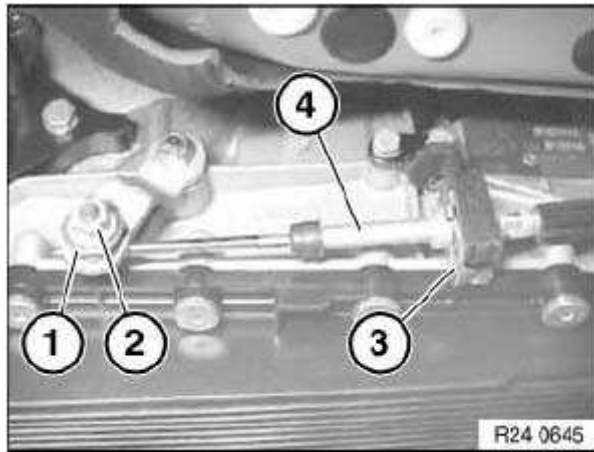


Fig. 71: Identifying Sleeve, Nut, Retainer And Cable
Courtesy of BMW OF NORTH AMERICA, INC.

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 .

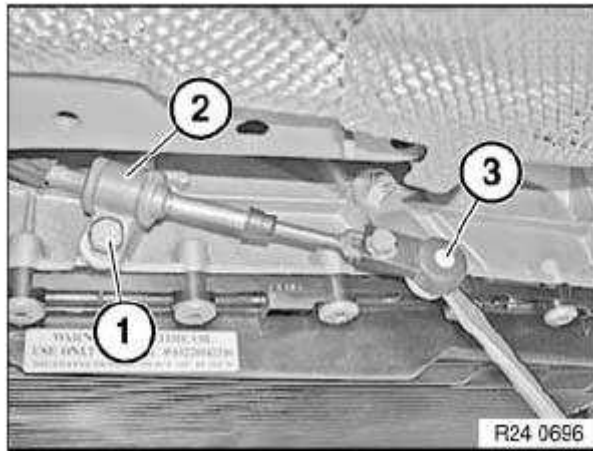


Fig. 72: Identifying Screw, Clamp And Shift Cable Head
 Courtesy of BMW OF NORTH AMERICA, INC.

Version 3:

Unfasten nut.

Remove cable (1).

Installation:

Adjusting cable:

- Release nut
- Adjust cable by means of holder (2) until spacing $A = 1 \text{ mm}$ is obtained
- Tighten down nut

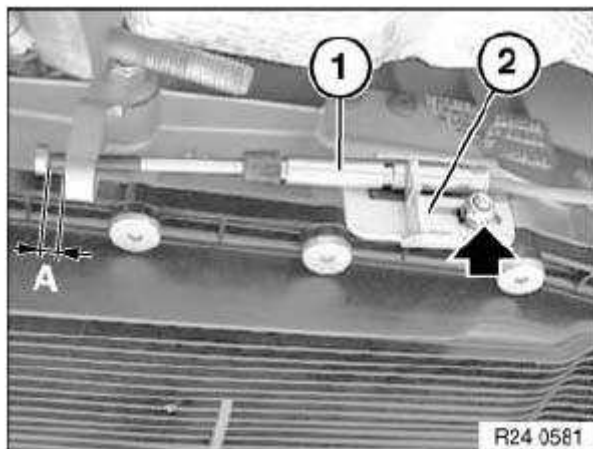


Fig. 73: Identifying Cable And Holder
 Courtesy of BMW OF NORTH AMERICA, INC.

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

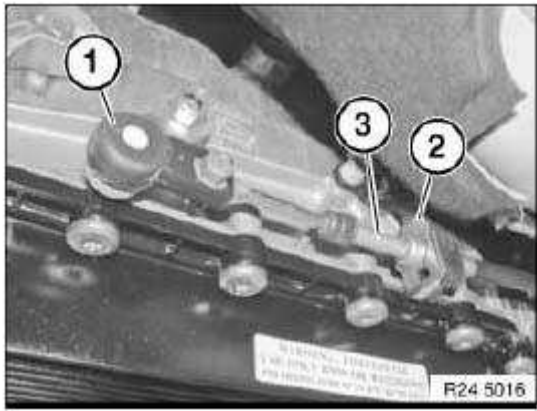


Fig. 74: Identifying Cable Head, Retainer And Cable
Courtesy of BMW OF NORTH AMERICA, INC.

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

NOTE: E65 only.

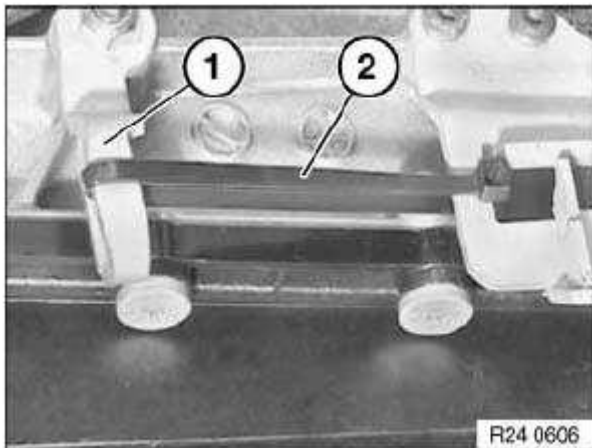


Fig. 75: Securing Lever Using Cable Tie
Courtesy of BMW OF NORTH AMERICA, INC.

M57T2 only

Release bolts (1).

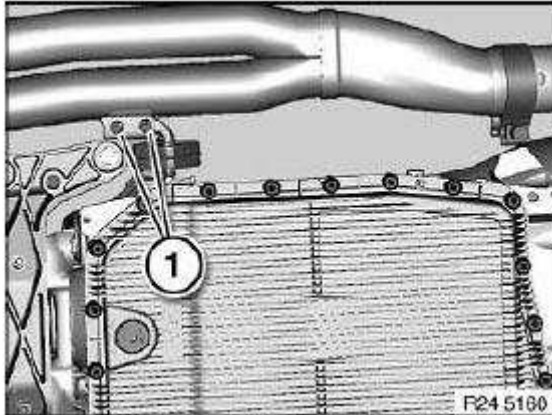


Fig. 76: Identifying Bolts
Courtesy of BMW OF NORTH AMERICA, INC.

M57T2 only

Release bolts (1).

Bracket remove.

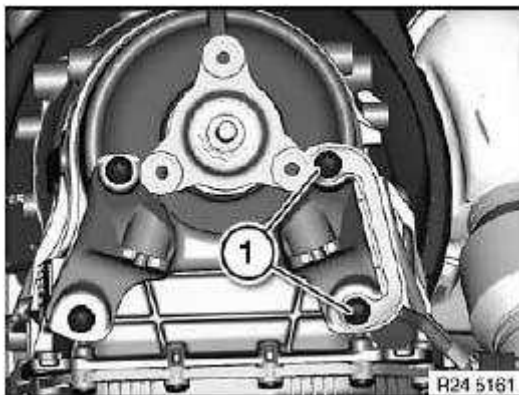


Fig. 77: Identifying Bolts
Courtesy of BMW OF NORTH AMERICA, INC.

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.

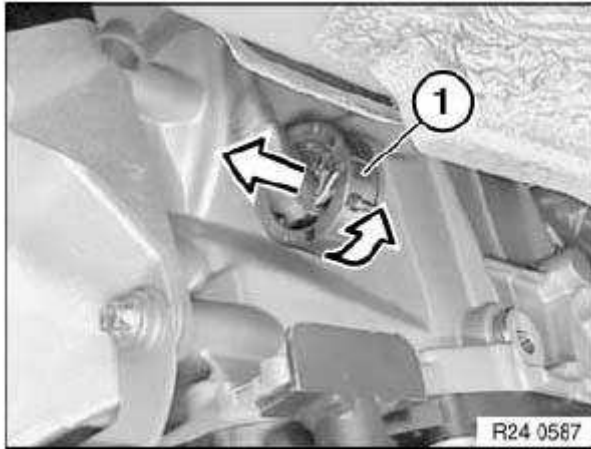


Fig. 78: Disconnecting Plug

Courtesy of BMW OF NORTH AMERICA, INC.

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

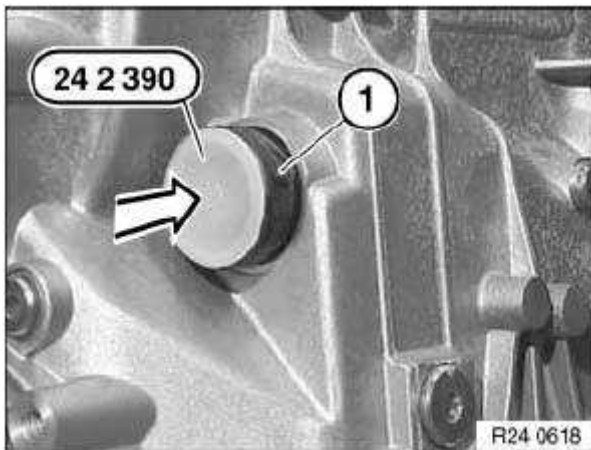


Fig. 79: Inserting Special Tool 24 2 390 In Sealing Sleeve

Courtesy of BMW OF NORTH AMERICA, INC.

Remove **transmission oil sump** .

Unlock sealing sleeve with slide (1).

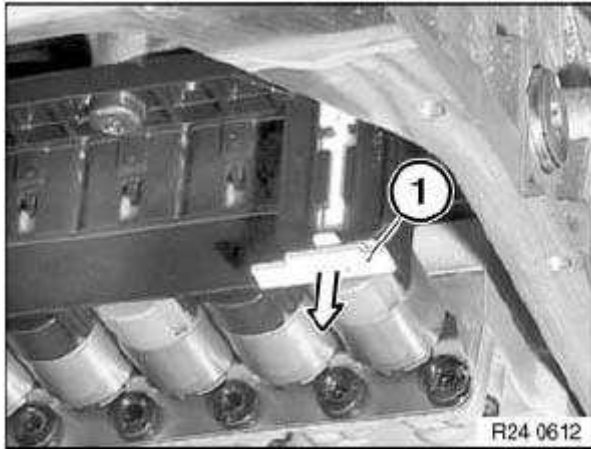


Fig. 80: Unlocking Sealing Sleeve

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!

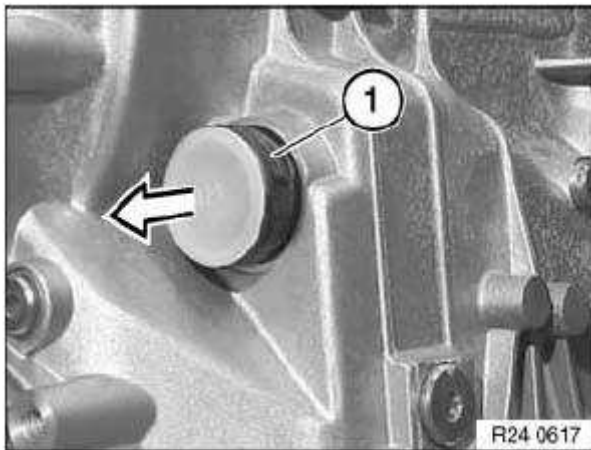


Fig. 81: Pulling Out Sealing Sleeve

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**.

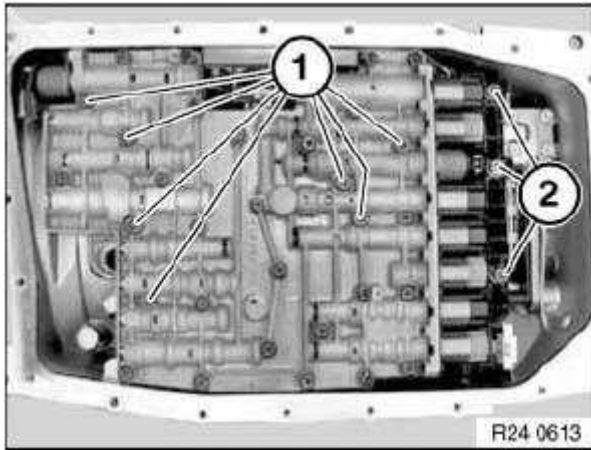


Fig. 82: Identifying Mechatronics Screws
Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: GA6HP19Z TU

Release all screws (1 and 2).

- 1 = M6 x 59 mm
- 2 = M6 x 20 mm

Remove **MECHATRONICS**.

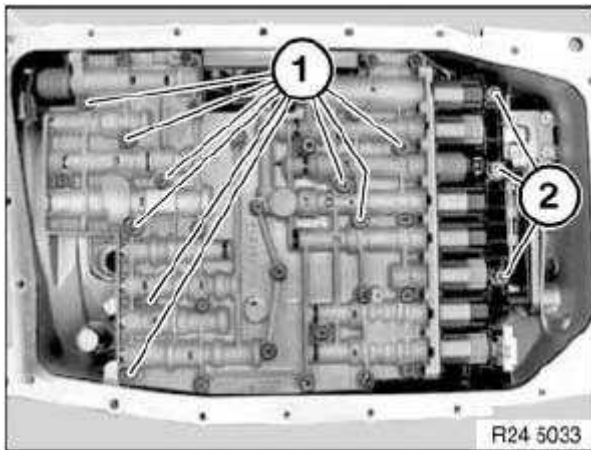


Fig. 83: Identifying Mechatronics Screws
Courtesy of BMW OF NORTH AMERICA, INC.

IMPORTANT: Only installed in E65!

Mechatronics without protective bar for solenoid valve must not be reused after removal.

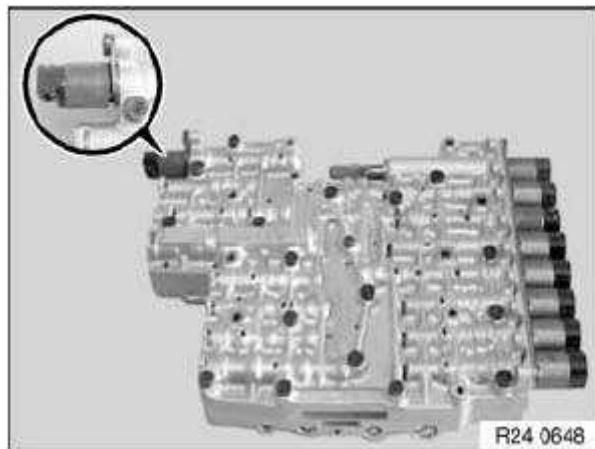


Fig. 84: Identifying Mechatronics Without Protective Bar For Solenoid Valve
Courtesy of BMW OF NORTH AMERICA, INC.

IMPORTANT: Only installed in E65!

Fit/reuse only mechatronics with protective bar (1) for solenoid valve.

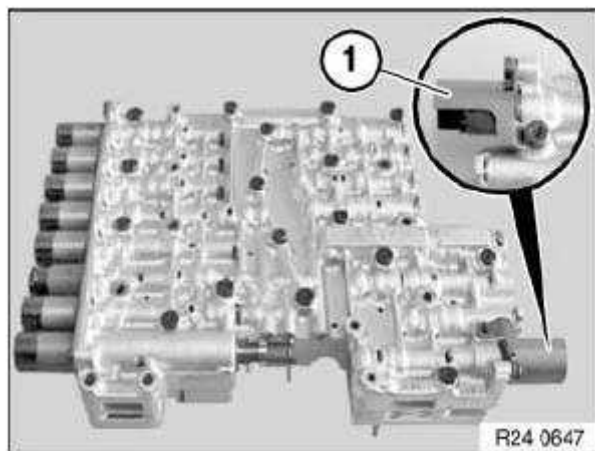


Fig. 85: Identifying Mechatronics With Protective Bar For Solenoid Valve
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

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

Coat new seals with automatic transmission fluid and install.

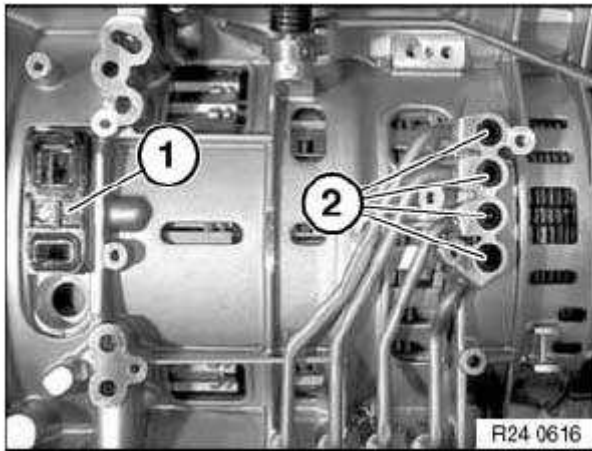


Fig. 86: Identifying Gaskets

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.

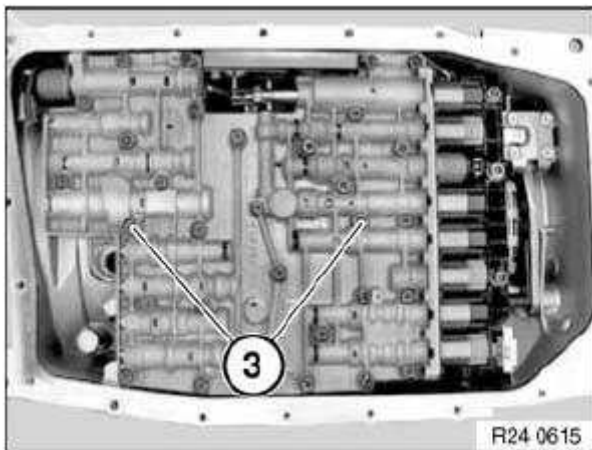


Fig. 87: Identifying Screw Head Screws

Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: GA6HP19Z

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 .

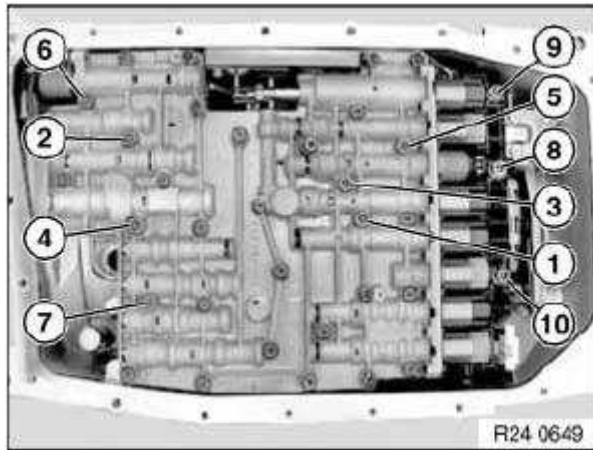


Fig. 88: Tightening Sequence Of Screws
 Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: GA6HP19Z TU

IMPORTANT: Tighten down screws in order 1...13.
 Failure to comply with this requirement will result in serious damage to the automatic transmission!
 Tightening torque 24 30 1AZ .

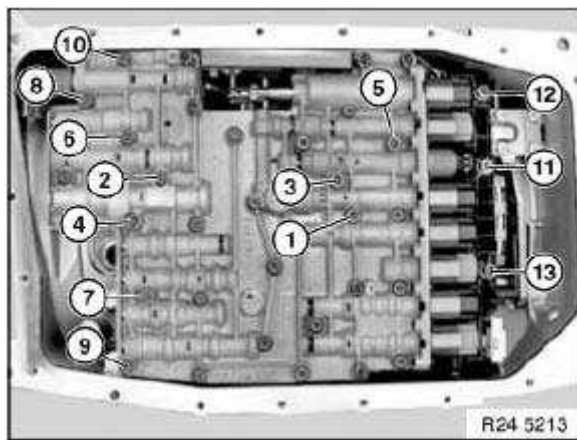


Fig. 89: Tightening Sequence Of Screws
 Courtesy of BMW OF NORTH AMERICA, INC.

TORQUE CONVERTER

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 fluid level .
Use only approved transmission oil . See **AUTOMATIC TRANSMISSION - OPERATING FLUIDS** .
Failure to comply with this instruction will result in serious damage to the transmission.

Necessary preliminary tasks:

- Remove automatic transmission. See **24 00 030 REMOVING AND INSTALLING AUTOMATIC TRANSMISSION (GA6HP19Z) (N54)** or **24 00 023 REMOVING AND INSTALLING AUTOMATIC TRANSMISSION (GA6HP26Z) (N63)**.

Screw special tool **24 4 000** into torque converter.

Remove torque converter.

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

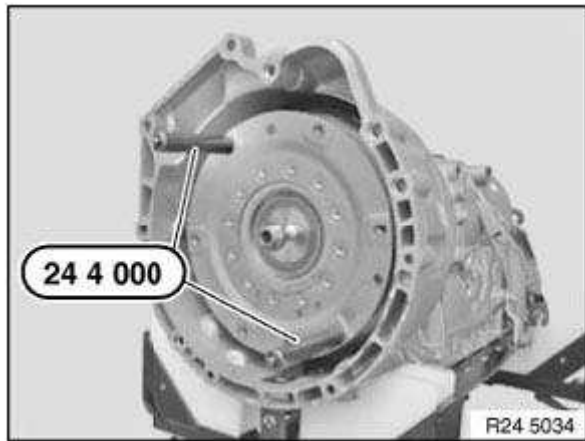


Fig. 90: Identifying Special Tool 24 4 000 On Torque Converter
Courtesy of BMW OF NORTH AMERICA, INC.

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.

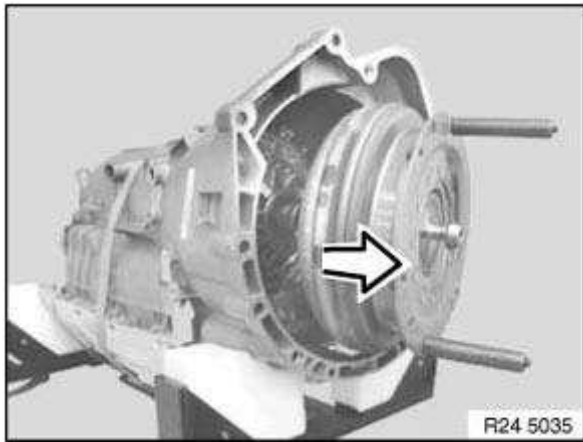


Fig. 91: Removing Torque Converter
Courtesy of BMW OF NORTH AMERICA, INC.

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 .

NOTE: Measured value must be greater than 30 mm.

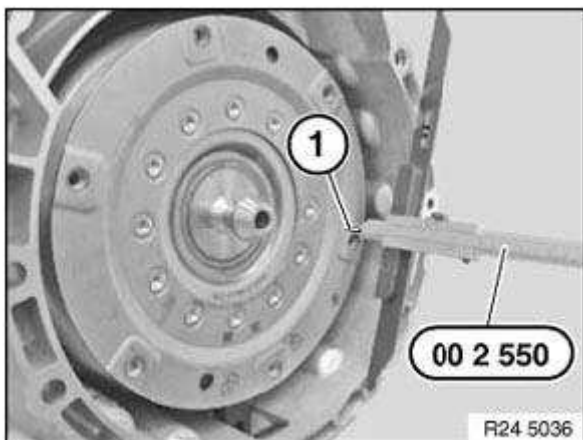


Fig. 92: Measuring Distance Between Contact Surface And Torque Converter Tapped Hole Surface
Using Special Tool 00 2 550
Courtesy of BMW OF NORTH AMERICA, INC.

2450 SHIFT FUNCTION

24 50 010 REPLACING EMERGENCY ACTUATOR

Necessary preliminary tasks:

- Remove rear compartment blower. See **64 11 263 REMOVING AND INSTALLING COMPLETE REAR CABIN FAN**.
- Remove air duct under centre console.

Unfasten nut. Remove cable (1). Installation: Adjust gearshift lever.

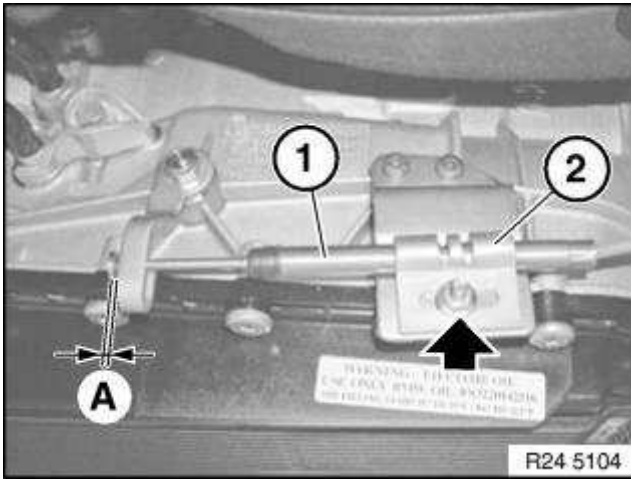


Fig. 93: Removing Cable

Courtesy of BMW OF NORTH AMERICA, INC.

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

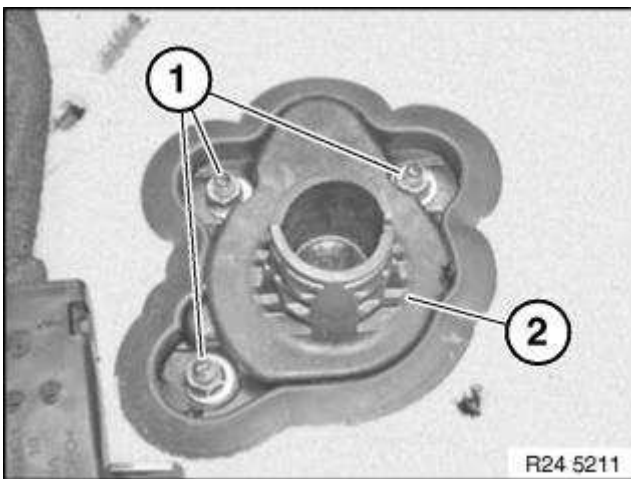


Fig. 94: Removing Emergency Actuator

Courtesy of BMW OF NORTH AMERICA, INC.

TRANSMISSION

Automatic Transmission - Special Tools - X6

24 0 010 FIXTURE

In conjunction with: 00 2 510

NOTE: For checking axial play of drive shaft

Transmission: 4 HP 22, 4 HP 24, A5S 310Z, A5S 560Z

Storage location: B23

Order number: 24 0 010

Fixture

Consisting of:

1 = 24 0 011 Dial gauge holder

2 = 24 0 012 Clamping piece

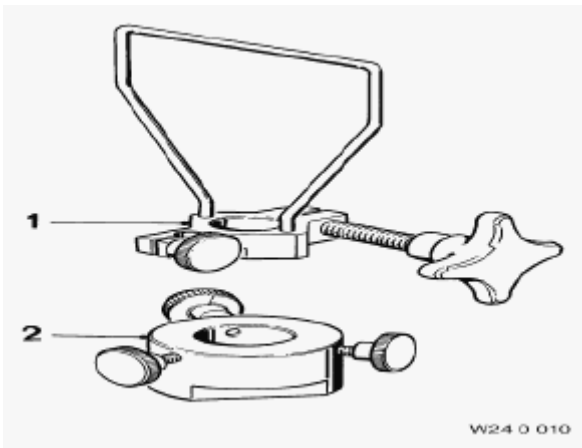


Fig. 1: Identify Special Tool (24 0 010)

Courtesy of BMW OF NORTH AMERICA, INC.

24 0 020 OIL PRESSURE TEST ACCESSORIES

Minimum set: Mechanical tools

In conjunction with: 13 3 061 and BMW DIS

NOTE: For pressure gauge 13 3 061 or BMW DIS for checking oil pressure

Transmission: 3 HP 12, 3 HP 20, 3 HP 22, 4 HP 22, 4 HP 24, A4S 270R, A4S 310R, A5S 300J, A5S 310Z, A5S 440Z, A5S 560Z

Storage location: B23, B24, single

Order number: 24 0 020

Oil pressure test accessories

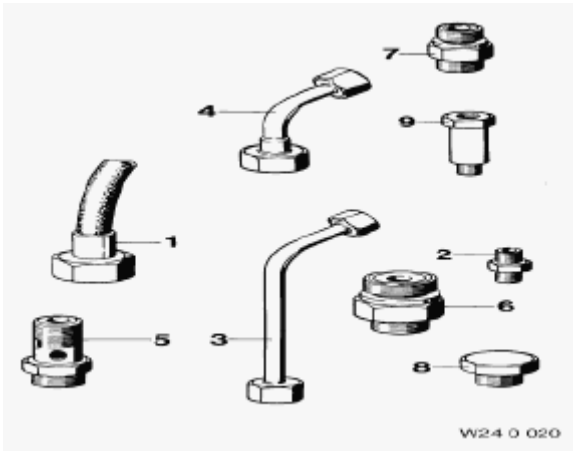


Fig. 2: Identify Special Tool (24 0 020)
Courtesy of BMW OF NORTH AMERICA, INC.

Consisting of:

1 = 24 0 021 Pressure hose with connection

NOTE: Pressure hose 1.7 m, connection M12x1.5 - M14x1.5 external thread/for checking the various converter pressures / Transmission: A4S 310R, A4S 270R

2 = 24 0 022 Reducer

NOTE: For checking main pressure (3 HP 22, A5S 310Z) and clutch A (ZF transmissions) / transmission: 3 HP 22, A5S 310Z, A5S 560Z and all ZF transmissions

In conjunction with: 24 0 140

3 = 24 0 023 Pipe bend, 145 mm

NOTE: Extended length 145 mm / Transmission: 4 HP 22, 4 HP 24

In conjunction with: 13 6 052

4 = 24 0 024 Pipe bend, 90 mm

NOTE: Extended length 90 mm

In conjunction with: 13 6 052

5 = 24 0 025 Banjo bolt

NOTE: M20x1.5 - M18x1.5 / For checking converter pressure / Transmission: 3 HP 12

In conjunction with: 24 0 024

6 = 24 0 026 Reducer

NOTE: M24x1.5 - 20x1.5 / For checking main pressure / Transmission: 3 HP 20

In conjunction with: 24 0 024

7 = 24 0 027 Reducer

NOTE: M20x1.5 - M18x1.5 / For checking main pressure (3 HP 12) and converter pressure (3 HP 20) / Transmission: 3 HP 12, 3 HP 20

In conjunction with: 24 0 024

8 = 24 0 028 Screw plug

NOTE: M18x1.5 / For closing off oil supply lines while checking converter pressure / Transmission: 3 HP 20

9 = 24 0 029 Adapter

NOTE: For closing off supply and return lines while checking main pressure / Transmission: 3 HP 22

24 0 030 ADAPTER

In conjunction with: 13 3 061, 24 0 021, 24 0 023

NOTE: For pressure gauge 13 3 061 / For checking converter pressure

Transmission: 4 HP 22

Storage location: B23

Order number: 24 0 030

Adapter

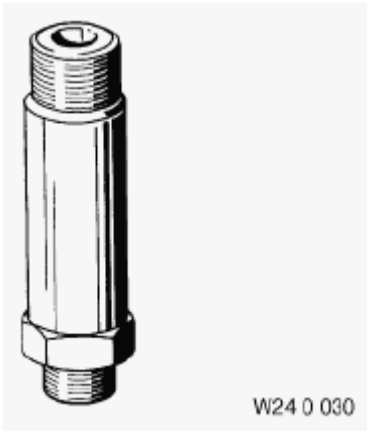


Fig. 3: Identify Special Tool (24 0 030)
Courtesy of BMW OF NORTH AMERICA, INC.

24 0 040 RETAINING FIXTURE

NOTE: For removing and installing disc pack

Transmission: 3 HP 20, 3 HP 22, 4 HP 22, 4 HP 24

Storage location: C27

Order number: 24 0 040

Retaining fixture

Consisting of:

1 = 24 0 041 Disc

2 = 24 0 042 Ring

3 = 24 0 043 Half shells

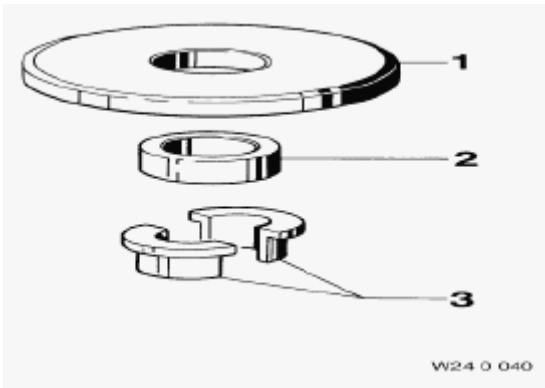


Fig. 4: Identify Special Tool (24 0 040)
 Courtesy of BMW OF NORTH AMERICA, INC.

24 0 040 EXTRACTOR GRIP

NOTE: For sealing plug in bottom section of transmission casing

Transmission: 3 HP 12, 3 HP 20, 3 HP 22, 4 HP 22, 4 HP 24

Storage location: A24

Order number: 24 0 050

Extractor grip



Fig. 5: Identify Special Tool (24 0 040)
 Courtesy of BMW OF NORTH AMERICA, INC.

24 0 070 ADAPTER

In conjunction with: 13 3 061 (pressure gauge), 24 0 021, 24 0 023

NOTE: For Checking pump pressure

Transmission: 4 HP 22, 4 HP 24

Storage location: B23

Order number: 24 0 070

Adapter

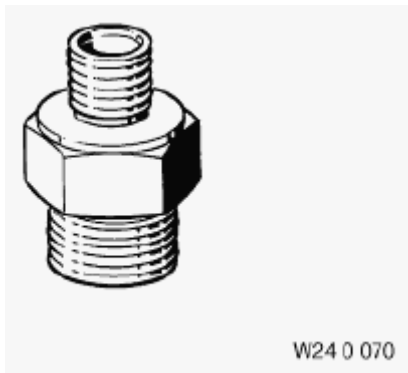


Fig. 6: Identify Special Tool (24 0 070)

Courtesy of BMW OF NORTH AMERICA, INC.

24 0 080 FUNNEL

Minimum set: Mechanical tools

NOTE: For filling transmission fluid in transmission

Transmission: 240/5, 242/4, 245/5, 245/5Sport, 260/5, 262/4, 265/5, 265/5Sport, 280/5Sport, 3 HP 12, 3 HP 20, 3 HP 22, 4 HP 22, 4 HP 24, A4S 270R, A4S 310R, A5S 300J, A5S 310Z, A5S 440Z, A5S 560Z, BW 65, S5D 200G, S5D 250G, S5D 260Z, S5D 310Z, S6S 420G, S6S 560G, ZF S5-16

Order number: 24 0 080

Funnel



Fig. 7: Identify Special Tool (24 0 080)

Courtesy of BMW OF NORTH AMERICA, INC.

24 0 090 DRIFT

NOTE: For driving in radial seal in transmission case front section / Replaced by 24 0 110, November 96

Transmission: 4 HP 22, 4 HP 24

Order number: 24 0 090

Drift



W24 0 090

Fig. 8: Identify Special Tool (24 0 090)
Courtesy of BMW OF NORTH AMERICA, INC.

24 0 110 DRIFT

NOTE: For driving in radial seal in transmission case front section / model year: from 90 and for output flange of S5D 200G and S5D 250G transmissions

Transmission: 4 HP 22, 4 HP 24, A5S 310Z, GS617BG, S5D 200G, S5D 250G

Storage location: B17

SI number: 1 03 90 (184)

Order number: 24 0 110

Drift

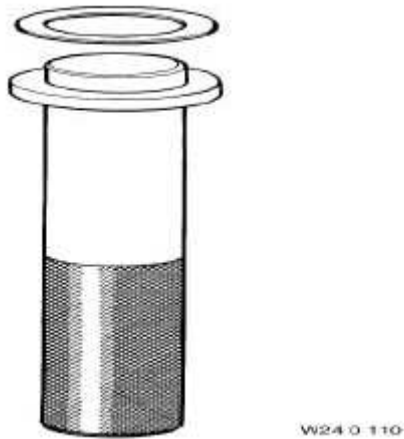


Fig. 9: Identify Special Tool (24 0 110)
Courtesy of BMW OF NORTH AMERICA, INC.

Consisting of:

24 0 111 Ring disk 1 mm

NOTE: Transmission: 4 HP 24 - No. 0 029 160, 4 HP 22 - No. 1 113 936

24 0 120 ATTACHMENT FOR TROLLEY

NOTE: For removing and installing transmission / Replaced by 24 0 130, March 87

Transmission: 4 HP 22

Order number: 24 0 120

Attachment for trolley

24 0 130 TAKE-UP SUPPORT FOR TRANSMISSION

In conjunction with: 00 2 030 (not included in minimum kit)

NOTE: For removal and installation

Transmission: 4 HP 22, 4 HP 24

SI number: 1 02 87(721)

Order number: 24 0 130

Take-up support for transmission

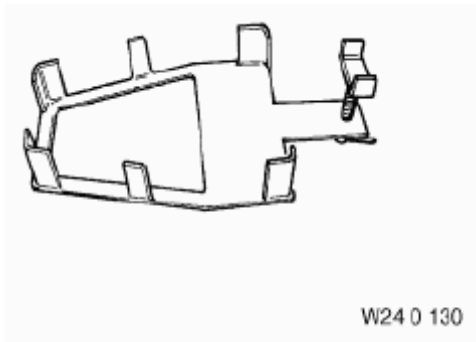


Fig. 10: Identify Special Tool (24 0 130)
Courtesy of BMW OF NORTH AMERICA, INC.

24 0 140 PIPE MANIFOLD

Minimum set: Mechanical tools

In conjunction with: 13 3 061, 24 0 021, 24 0 022, 13 6 051, 13 6 052, 24 5 190

NOTE: For pressure gauge 13 3 061 and BMW DIS for measuring oil pressure in transmission

Transmission: A4S 270R, A4S 310R, A5S 310Z, A5S 560Z

Storage location: C3

SI number: 1 01 92(469)

Order number: 24 0 140

Pipe manifold

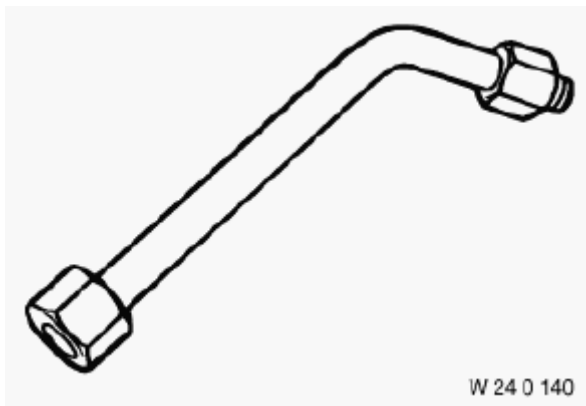


Fig. 11: Identify Special Tool (24 0 140)
Courtesy of BMW OF NORTH AMERICA, INC.

24 0 150 MOUNTING BRACKET

In conjunction with: 00 1 450

NOTE: For mounting transmission on assembly stand

Transmission: 3 HP 12, 3 HP 20, 3 HP 22, 4 HP 22, A4S 270R, A4S 310R, A5S 310Z

Order number: 24 0 150

Mounting bracket

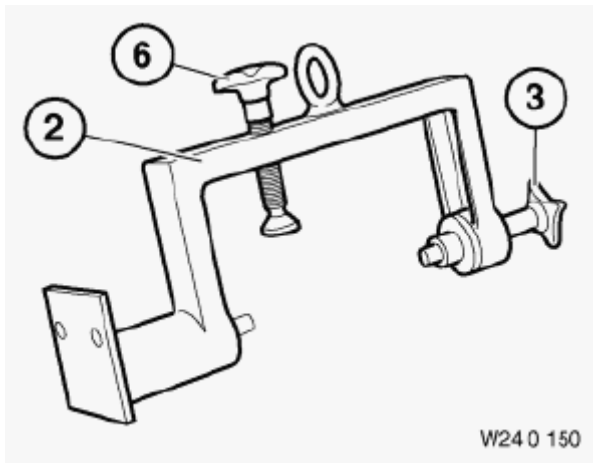


Fig. 12: Identify Special Tool (24 0 150)
Courtesy of BMW OF NORTH AMERICA, INC.

Consisting of:

2 = 24 0 152 Baseframe

3 = 24 0 153 Spindle with rotary handle

6 = 24 0 156 Spindle

NOTE: With thrust piece, transmission: all

In conjunction with: 00 1 450

24 0 170 SUPPORT

In conjunction with: 00 2 030 (not included in minimum kit)

NOTE: For removing and installing transmission

Transmission: A5S 560Z

SI number: 1 06 92(509)

Order number: 24 0 170

Support

Consisting of:

24 0 171 Adjusting screw

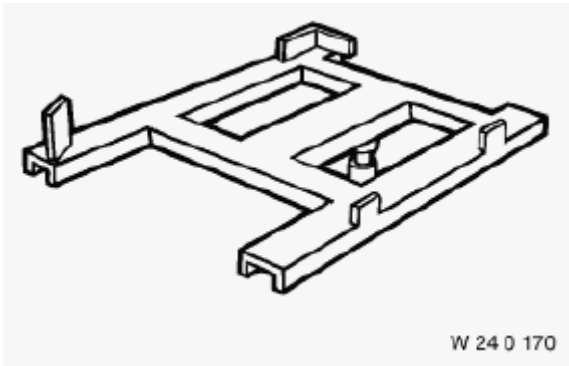


Fig. 13: Identify Special Tool (24 0 170)

Courtesy of BMW OF NORTH AMERICA, INC.

24 0 180 SUPPORT

In conjunction with: 00 1 450

NOTE: For mounting transmission on assembly stand.

Transmission: A5S 310Z, A5S 325Z, A5S 360R, A5S 440Z, A5S 560Z, GA6 HP19Z, GA6 HP26Z

SI number: 1 06 92 (509)

Order number: 24 0 180

Support

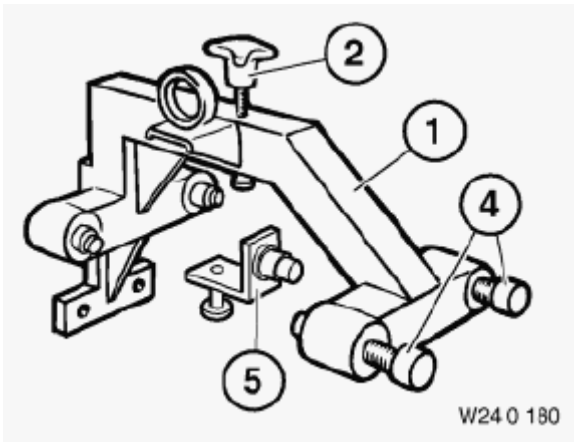


Fig. 14: Identify Special Tool (24 0 180)
Courtesy of BMW OF NORTH AMERICA, INC.

Consisting of:

- 1 = 24 0 181 Baseframe
- 2 = 24 0 182 Pressure spindle with star handle
- 4 = 24 0 184 Spindle, long (2 x)
- 5 = 24 0 185 Adapter

24 0 190 HOLDING FIXTURE

Minimum set: Mechanical tools

NOTE: For output flange of propeller shaft while releasing and tightening slotted nut

Transmission: A5S 310Z, A5S 325Z, A5S 360R, A5S 560Z

SI number: 1 06 92(509)

Order number: 24 0 190

Holding fixture

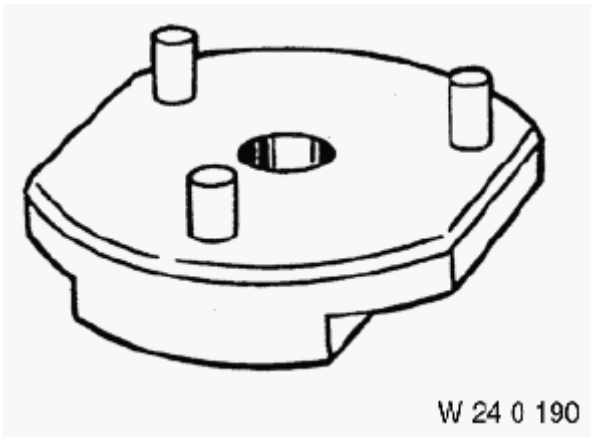


Fig. 15: Identify Special Tool (24 0 190)
 Courtesy of BMW OF NORTH AMERICA, INC.

24 0 200 SUPPORT

In conjunction with: 00 1 450

NOTE: For mounting transmission on assembly stand.

Transmission: A5S 440Z, A5S 560Z, GA6 HP19Z, GA6 HP26Z, GA6 HP32Z

SI number: 1 27 06 (328)

Order number: 24 0 200

Support

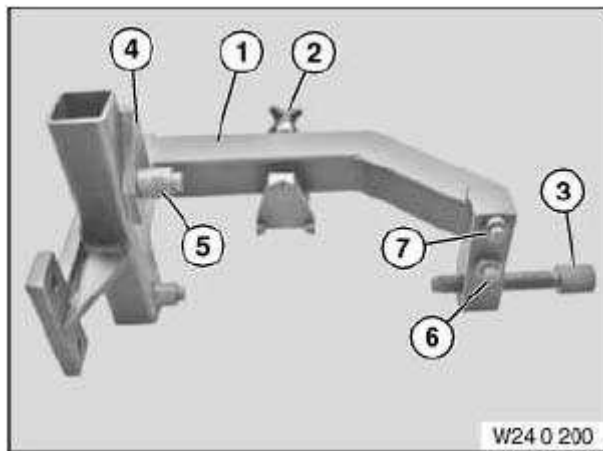


Fig. 16: Identify Special Tool (24 0 200)
 Courtesy of BMW OF NORTH AMERICA, INC.

Consisting of:

1 = 24 0 201 Basic body

2 = 24 0 202 Spindle with thrust member

3 = 24 0 203 Spindle with screw

4 = 24 0 204 Sliding piece

5 = 24 0 205 Adapter (long)

6 = 24 0 206 Adapter (medium)

7 = 24 0 207 Adapter (short)

24 0 250 TAKE-UP SUPPORT FOR TRANSMISSION

In conjunction with: 24 5 301 and 00 2 030 (not included in minimum tool kit)

NOTE: For removing and installing transmission.

Transmission: A5S 440Z

SI number: 1 08 96(080)

Order number: 24 0 250

Take-up support for transmission

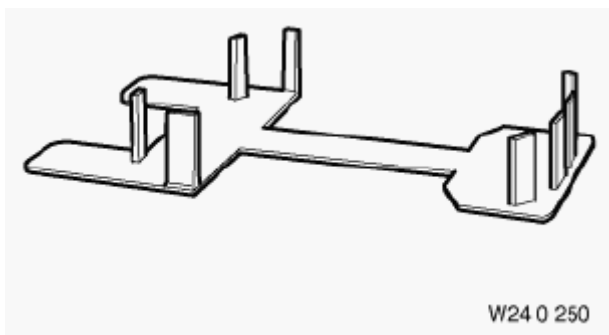


Fig. 17: Identify Special Tool (24 0 250)
Courtesy of BMW OF NORTH AMERICA, INC.

24 1 010 INSTALLATION SLEEVE

NOTE: For removing disc pack (4th gear) as well as fitting needle bearing in oil pump housing (A5S 560Z)

Transmission: 4 HP 22, 4 HP 24, A5S 560Z

Storage location: A18

Order number: 24 1 010

Installation sleeve

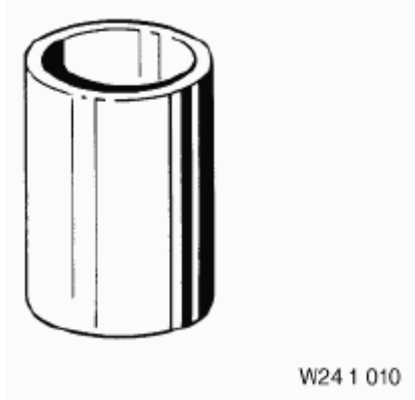


Fig. 18: Identify Special Tool (24 1 010)
Courtesy of BMW OF NORTH AMERICA, INC.

24 1 050 IMPACT BUSH

NOTE: For fitting rotary shaft seal for torque converter in oil pump housing

Transmission: 3 HP 20, 3 HP 22

Storage location: C29

Order number: 24 1 050

Impact bush

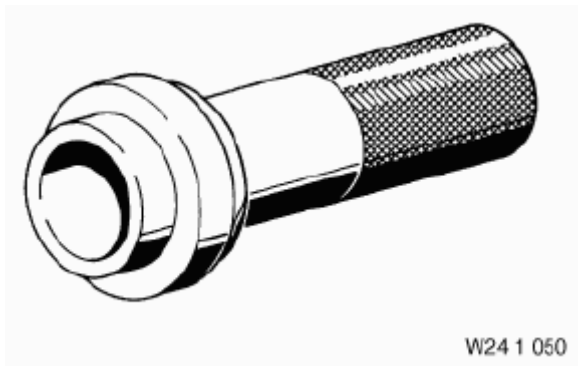


Fig. 19: Identify Special Tool (24 1 050)
Courtesy of BMW OF NORTH AMERICA, INC.

24 1 060 IMPACT BUSH

NOTE: For fitting rotary shaft seal for torque converter in oil pump housing and on output flange

Transmission: 3 HP 20, 3 HP 22, A5S 300J, BW 65

Storage location: B29, C29

Order number: 24 1 060

Impact bush

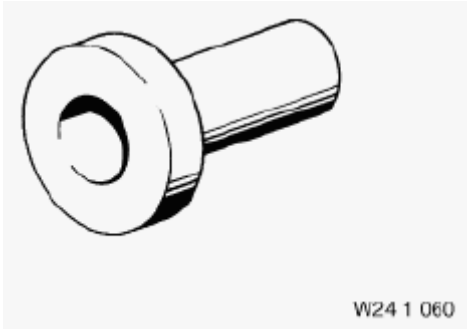


Fig. 20: Identify Special Tool (24 1 060)
Courtesy of BMW OF NORTH AMERICA, INC.

24 1 070 IMPACT BUSH

Minimum set: Mechanical tools

NOTE: For fitting rotary shaft seal in oil pump housing

Transmission: A5S 325Z

Storage location: B36

SI number: 1 03 98(303)

Order number: 24 1 070

Impact bush

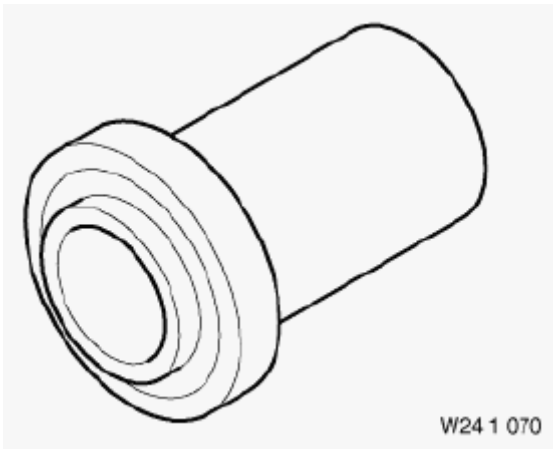


Fig. 21: Identify Special Tool (24 1 070)
Courtesy of BMW OF NORTH AMERICA, INC.

24 1 080 BUSH (ALUMINUM)

Minimum set: Mechanical tools

In conjunction with: 00 5 010

NOTE: For fitting on input shaft while removing rotary shaft seal from oil pump housing

Transmission: A5S 325Z

Storage location: A36

SI number: 1 03 98(303)

Order number: 24 1 080

Bush (aluminum)

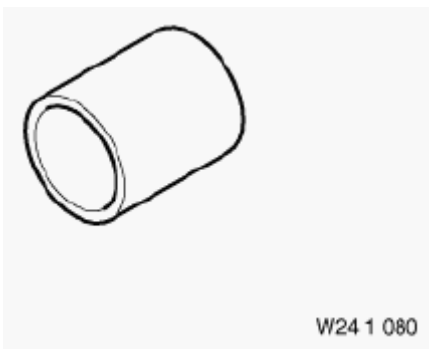


Fig. 22: Identify Special Tool (24 1 080)
Courtesy of BMW OF NORTH AMERICA, INC.

24 1 090 IMPACT BUSH

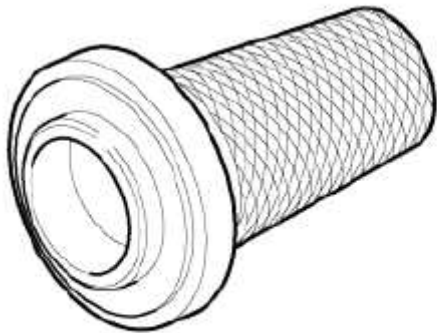
NOTE: For installing rotary shaft seal on output flange

Transmission: A5S 390G

SI number: 1 08 98(333)

Order number: 24 1 090

Impact bush



W24 1 090

Fig. 23: Identify Special Tool (24 1 090)
Courtesy of BMW OF NORTH AMERICA, INC.

24 1 100 IMPACT BUSH

NOTE: For fitting rotary shaft seal for output flange in transmission extension

Transmission: 3 HP 12, 3 HP 20, 3 HP 22

Order number: 24 1 100

Impact bush

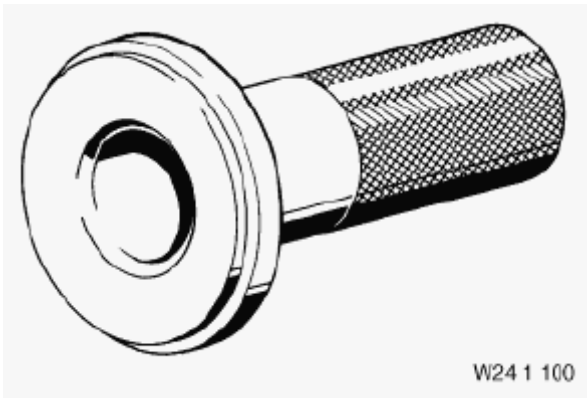


Fig. 24: Identify Special Tool (24 1 100)
Courtesy of BMW OF NORTH AMERICA, INC.

24 1 110 SOCKET WITH MAGNET

Minimum set: Mechanical tools

NOTE: For loosening and tightening converter mounting

Transmission: 3 HP 12, 3 HP 20, 3 HP 22, 4 HP 22, 4 HP 24, A4S 200R, A4S 270R, A4S 310R, A5S 300J, A5S 310Z, A5S 325Z, A5S 360R, A5S 390G, A5S 390R, A5S 440Z, A5S 560Z, GA6 HP19Z, GA6 HP26Z, GA6 HP32Z

Storage location: B19

SI number: 1 04 86 (566)

Order number: 24 1 110

Socket with magnet

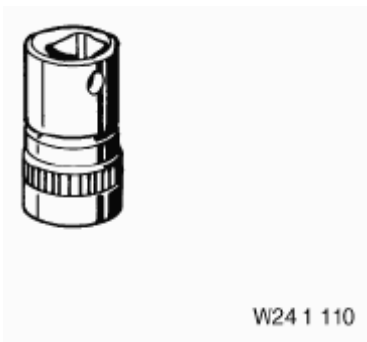


Fig. 25: Identify Special Tool (24 1 110)
Courtesy of BMW OF NORTH AMERICA, INC.

24 1 120 GAUGE

NOTE: For adjusting position switch in "P" position during assembly / Model year: As from 03/96

Transmission: A4S 270R

SI number: 1 07 96(068)

Order number: 24 1 120

Gauge

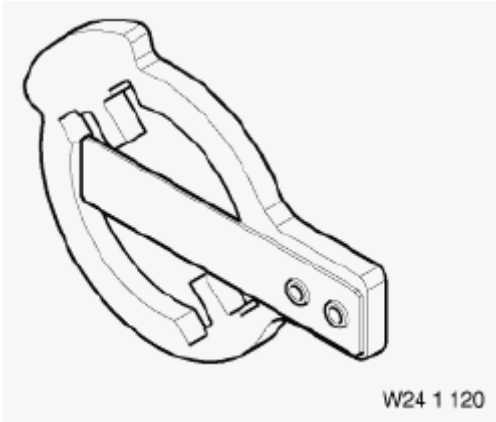


Fig. 26: Identify Special Tool (24 1 120)
Courtesy of BMW OF NORTH AMERICA, INC.

24 1 170 PIN WRENCH

Minimum set: Mechanical tools

NOTE: For releasing and tightening slotted nut on output flange

Transmission: A5S 310Z

Storage location: A35

SI number: 1 09 90(282)

Order number: 24 1 170

Pin wrench



Fig. 27: Identify Special Tool (24 1 170)
 Courtesy of BMW OF NORTH AMERICA, INC.

24 1 180 FIXTURE

In conjunction with: 24 1 080

NOTE: For removing and installing oil pump

Transmission: A5S 310Z, A5S 560Z, GA6 HP19Z, GA6 HP26Z, GA6 HP32Z, GA6L45R

Storage location: Z1, Z2

SI number: 01 09 90 (282)

Order number: 24 1 180

Fixture

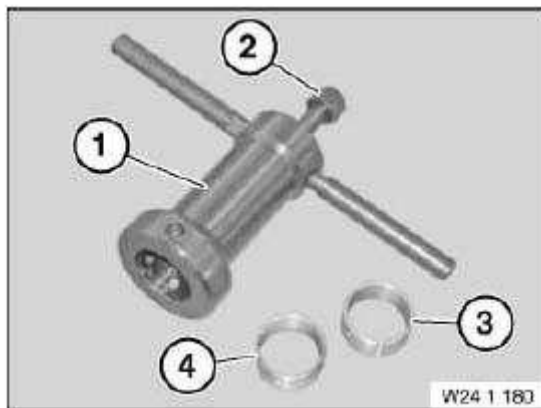


Fig. 28: Identify Special Tool (24 1 180)
 Courtesy of BMW OF NORTH AMERICA, INC.

Consisting of:

1 = 24 1 181 Retaining tube

2 = 24 1 182 Thread spindle

3 = 24 1 183 Clamping ring

4 = 24 1 184 Clamping ring

NOTE: **Transmission: GA6HP19Z, GA6HP26Z**

24 1 190 DRIFT

Minimum set: Mechanical tools

In conjunction with: 00 5 500

NOTE: **For fitting rotary shaft seal in front section of transmission casing**

Transmission: A5S 310Z

Storage location: B28

SI number: 1 09 90(282)

Order number: 24 1 190

Drift

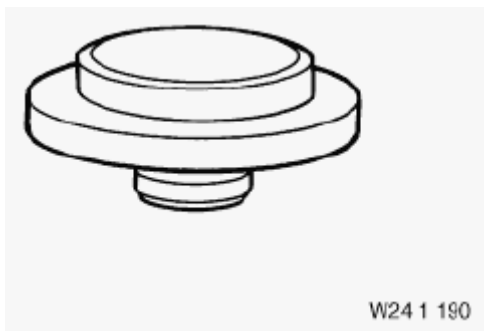


Fig. 29: Identify Special Tool (24 1 190)

Courtesy of BMW OF NORTH AMERICA, INC.

24 1 200 INSTALLATION SLEEVE

Minimum set: Mechanical tools

NOTE: **For preventing damage to rotary shaft seal while fitting on gearshift shaft**

Transmission: A5S 310Z

Storage location: B18

SI number: 1 09 90(282)

Order number: 24 1 200

Installation sleeve



Fig. 30: Identify Special Tool (24 1 200)

Courtesy of BMW OF NORTH AMERICA, INC.

24 1 210 RETAINING PLATE FOR DISC PACKAGE

NOTE: Not required as from transmission No. 11 2 300

Transmission: A5S 310Z

Storage location: B22

SI number: 1 09 90(282)

Order number: 24 1 210

Retaining plate for disc package

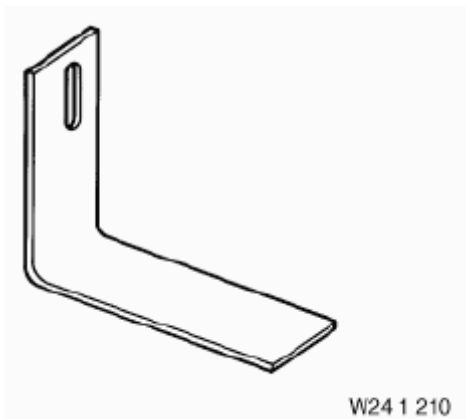


Fig. 31: Identify Special Tool (24 1 210)
 Courtesy of BMW OF NORTH AMERICA, INC.

24 1 220 TAKE-UP SUPPORT FOR DRIVE FLANGE

In conjunction with: 24 1 170 (A5S 310Z), 24 4 110 (A5S 440Z)

NOTE: When loosening slotted nut

Transmission: A5S 310Z, A5S 440Z

SI number: 1 09 90(282)

Order number: 24 1 220

Take-up support for drive flange

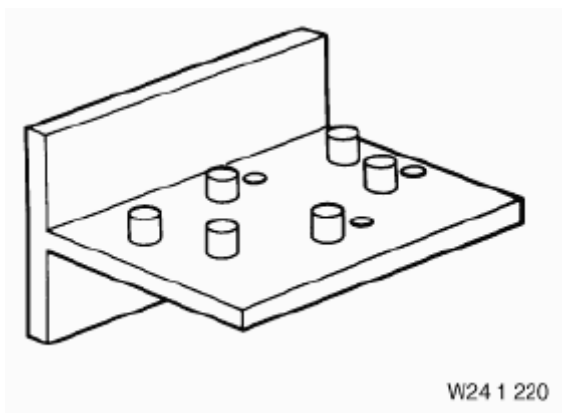


Fig. 32: Identify Special Tool (24 1 220)
 Courtesy of BMW OF NORTH AMERICA, INC.

24 1 230 PRESSING TOOL

NOTE: For removing and installing piston (cover) on brake Ct

Transmission: A5S 310Z

Storage location: B20

SI number: 1 14 93(718)

Order number: 24 1 230

Pressing tool

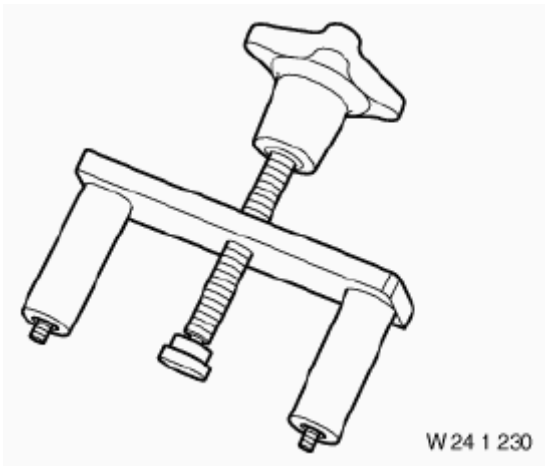


Fig. 33: Identify Special Tool (24 1 230)
Courtesy of BMW OF NORTH AMERICA, INC.

24 1 240 MEASURING DEVICE

NOTE: For determining spacers on brake C

Transmission: A5S 310Z

Storage location: B20

SI number: 1 14 93(718)

Order number: 24 1 240

Measuring device

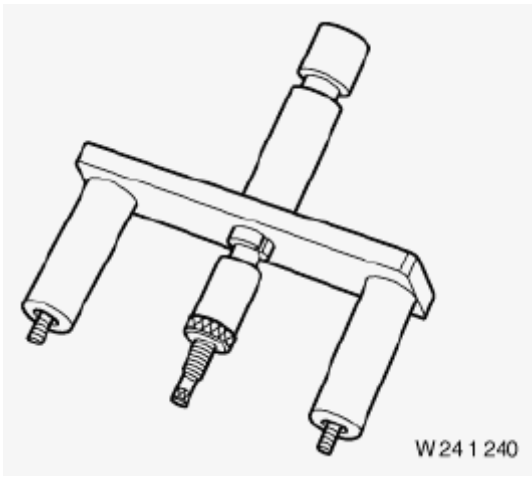


Fig. 34: Identify Special Tool (24 1 240)
 Courtesy of BMW OF NORTH AMERICA, INC.

24 1 250 LIFTING GEAR

NOTE: For removing and installing brake clutch unit D/G incl. sprag wheel

Transmission: A5S 310Z

Storage location: B11, C11

SI number: 1 14 93(718)

Order number: 24 1 250

Lifting gear

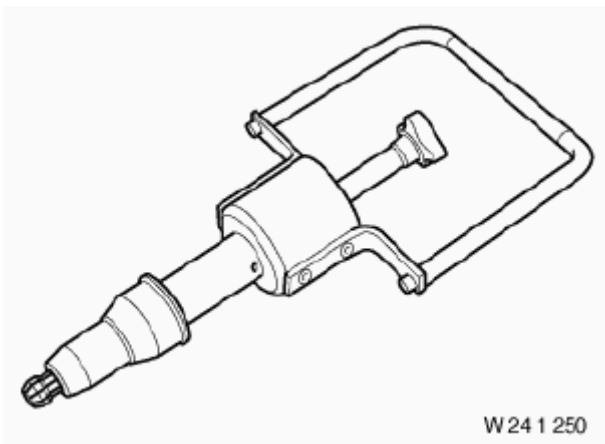


Fig. 35: Identify Special Tool (24 1 250)
 Courtesy of BMW OF NORTH AMERICA, INC.

24 1 260 REMOVAL AND MOUNTING FIXTURE

NOTE: For removing and installing cylinder D/E with planetary gear train

Transmission: A5S 560Z

Storage location: C1, C2

SI number: 1 01 95(892)

Order number: 24 1 260

Removal and mounting fixture

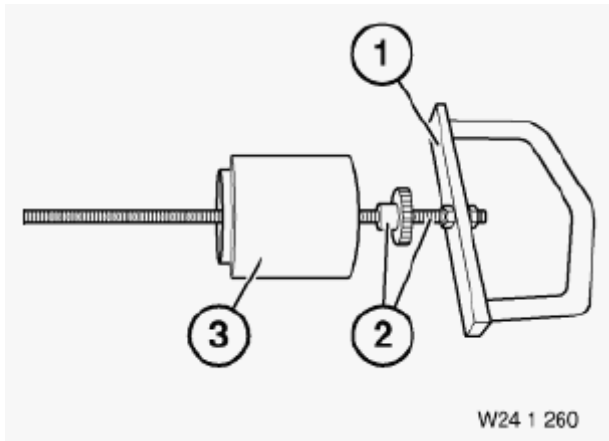


Fig. 36: Identify Special Tool (24 1 260)
Courtesy of BMW OF NORTH AMERICA, INC.

Consisting of:

1 = 24 1 261 Handle

2 = 24 1 262 Spindle with knurled nut

3 = 24 1 263 Centering bush

24 1 270 REMOVAL AND MOUNTING FIXTURE

NOTE: For removing and installing clutch A/B/C

Transmission: A5S 560Z

Storage location: B14, B15, B3

SI number: 1 01 95(892)

Order number: 24 1 270

Removal and mounting fixture

Consisting of:

1 = 24 1 271 Lifting tube with eye bolt

2 = 24 1 272 Lock pin

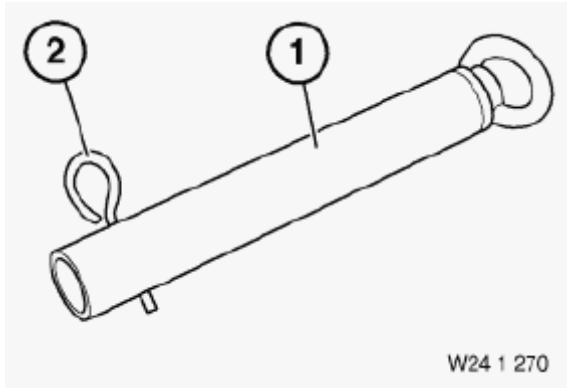


Fig. 37: Identify Special Tool (24 1 270)

Courtesy of BMW OF NORTH AMERICA, INC.

24 1 280 REMOVAL AND MOUNTING FIXTURE

NOTE: For removing and installing brake clutch F

Transmission: A5S 560Z

Storage location: C20

SI number: 1 01 95(892)

Order number: 24 1 280

Removal and mounting fixture

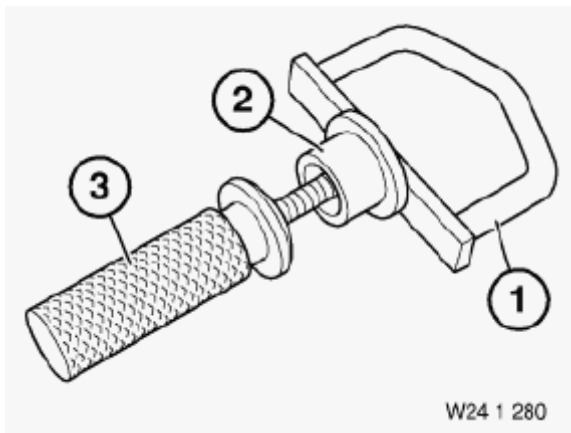


Fig. 38: Identify Special Tool (24 1 280)
Courtesy of BMW OF NORTH AMERICA, INC.

Consisting of:

1 = 24 1 281 Handle with spindle

2 = 24 1 282 Knurled nut

3 = 24 1 283 Centering handle

24 1 290 WEDGES

NOTE: For fixing disc pack C in position while securing retainer tabs

Transmission: A5S 560Z

Storage location: C17

SI number: 1 01 95(892)

Order number: 24 1 290

Wedges

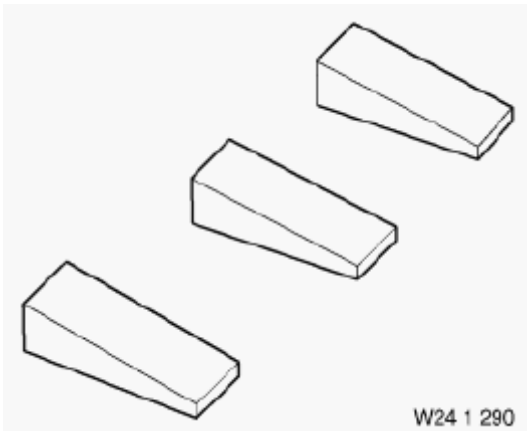


Fig. 39: Identify Special Tool (24 1 290)
Courtesy of BMW OF NORTH AMERICA, INC.

24 1 300 IMPACT TOOL

NOTE: For securing retainer tabs on disc pack C

Transmission: A5S 560Z

Storage location: C17

SI number: 1 01 95(892)

Order number: 24 1 300

Impact tool

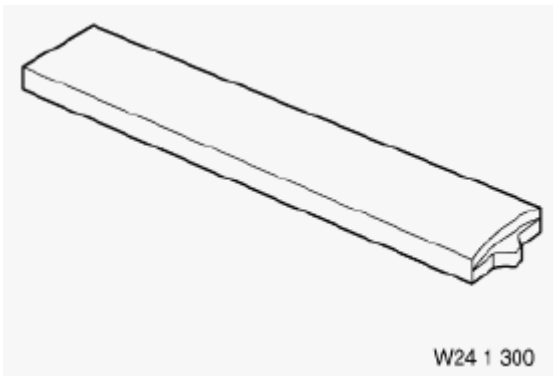


Fig. 40: Identify Special Tool (24 1 300)
Courtesy of BMW OF NORTH AMERICA, INC.

24 1 310 RELEASING TOOL

NOTE: For releasing retainer tabs on disc pack C

Transmission: A5S 560Z

Storage location: C2

SI number: 1 01 95(892)

Order number: 24 1 310

Releasing tool

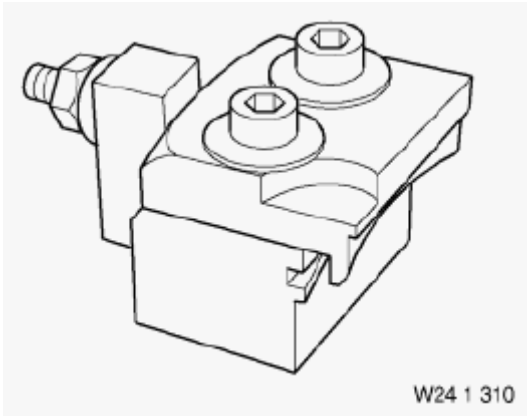


Fig. 41: Identify Special Tool (24 1 310)
Courtesy of BMW OF NORTH AMERICA, INC.

Consisting of:

1 = 24 1 311 Profile section (slide)

2 = 24 1 312 Basic body

24 1 370 LOCATING FIXTURE

NOTE: For securing converter during removal and installation of transmission.

Transmission: GA6 HP19Z

Storage location: A20, B20

SI number: 1 23 05 (224)

Order number: 24 1 370

Locating fixture

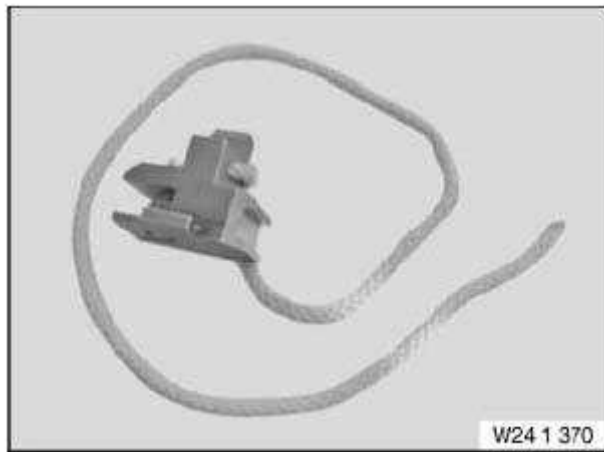


Fig. 42: Identify Special Tool (24 1 370)

Courtesy of BMW OF NORTH AMERICA, INC.

24 1 380 LOCATING FIXTURE

NOTE: For securing converter during removal and installation of transmission.

Series: E71, F01, F02

Transmission: GA6 HP26Z

SI number: 01 12 08 (455)

Order number: 24 1 380

Locating fixture

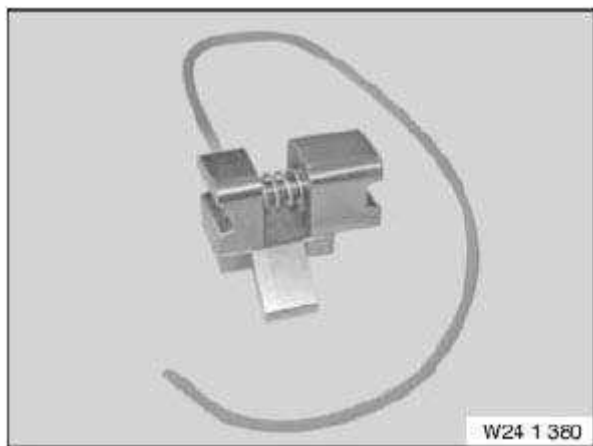


Fig. 43: Identify Special Tool (24 1 380)

Courtesy of BMW OF NORTH AMERICA, INC.

24 2 020 TOOL

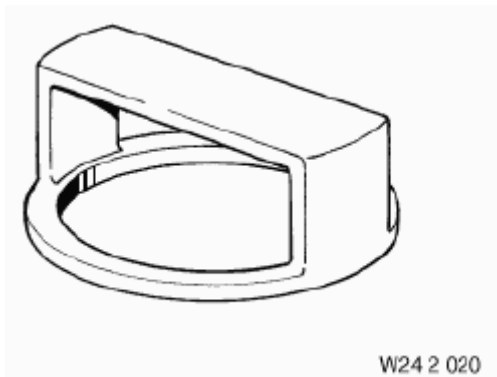
NOTE: For compressing disc spring

Transmission: 4 HP 22, 4 HP 24

Storage location: C32

Order number: 24 2 020

Tool



W24 2 020

Fig. 44: Identify Special Tool (24 2 020)
Courtesy of BMW OF NORTH AMERICA, INC.

24 2 030 TOOL

NOTE: For compressing disc spring

Transmission: 3 HP 20, 3 HP 22, 4 HP 22, 4 HP 24

Storage location: C32

Order number: 24 2 030

Tool

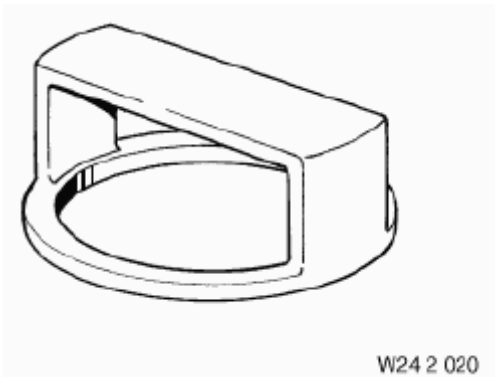


Fig. 45: Identify Special Tool (24 2 030)
Courtesy of BMW OF NORTH AMERICA, INC.

24 2 040 TOOL

NOTE: For compressing disc spring

Transmission: 3 HP 12, 3 HP 20, 3 HP 22, 4 HP 22, 4 HP 24

Storage location: C32

Order number: 24 2 040

Tool

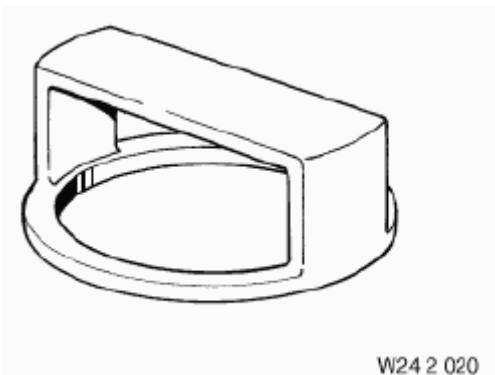


Fig. 46: Identify Special Tool (24 2 040)
Courtesy of BMW OF NORTH AMERICA, INC.

24 2 050 EXTRACTOR GRIP

NOTE: For sealing plugs in transmission case lower section / Replaced by 24 0 050

Order number: 24 2 050

Extractor grip

24 2 140 TENSIONING TOOL

NOTE: For removing and installing snap ring in front of centering plate of ZF transmissions

Transmission: 3 HP 12, 3 HP 20, 3 HP 22

Order number: 24 2 140

Tensioning tool

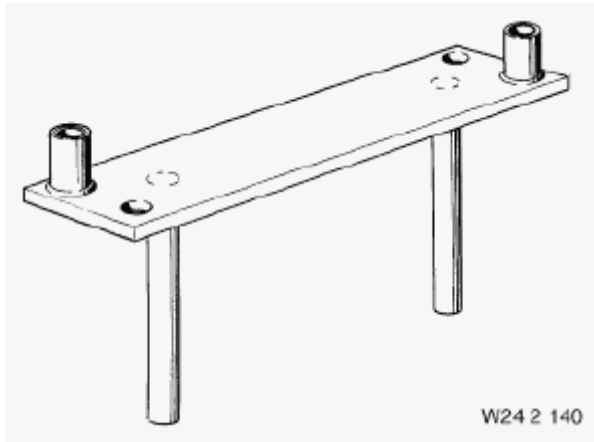


Fig. 47: Identify Special Tool (24 2 140)

Courtesy of BMW OF NORTH AMERICA, INC.

24 2 310 TOOL KIT FOR REMOVING AND INSTALLING REVERSE GEAR PISTON

NOTE: For disassembling and assembling transmission for "Sealing intermediate plate" job

Transmission: A4S 270R, A4S 310R

SI number: 1 22 97(239)

Order number: 24 2 310

Tool kit for removing and installing reverse gear piston

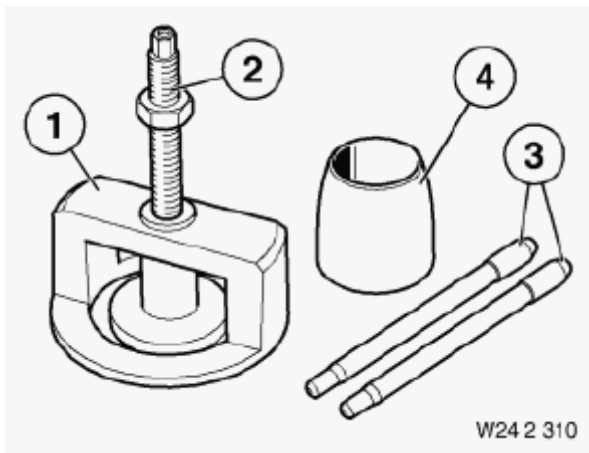


Fig. 48: Identify Special Tool (24 2 310)
Courtesy of BMW OF NORTH AMERICA, INC.

Consisting of:

1 = 24 2 311 Pressure plate

NOTE: For removing and installing spring retainer

2 = 24 2 312 Spindle with pressure plate

NOTE: Spindle M14x1.5, nut M14, pressure plate and washer / For removing and installing spring retainer

3 = 24 2 313 Guide pin (2)

NOTE: For fixing gaskets and intermediate plates on intermediate housing

4 = 24 2 314 Slip bush

NOTE: For removing piston in cylinder of intermediate plate

24 2 320 BOX SPANNER

In conjunction with: 24 2 330

NOTE: For 3/16" socket head cap screw with 1/4" socket for adjusting brake band

Transmission: A4S 270R, A4S 310R

SI number: 1 24 97(257)

Order number: 24 2 320

Box spanner

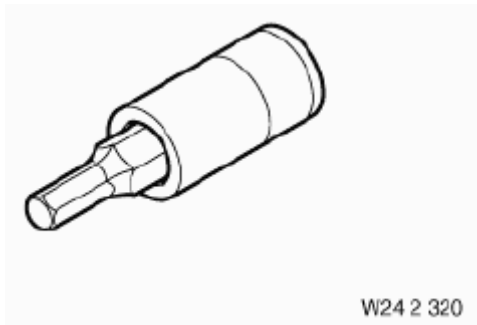


Fig. 49: Identify Special Tool (24 2 320)
Courtesy of BMW OF NORTH AMERICA, INC.

24 2 330 1/2" OPEN-ENDED SPANNER

In conjunction with: 24 2 320

NOTE: For adjusting brake band

Transmission: A4S 270R, A4S 310R

SI number: 1 24 97(257)

Order number: 24 2 330

1/2" open-ended spanner



Fig. 50: Identify Special Tool (24 2 330)
Courtesy of BMW OF NORTH AMERICA, INC.

24 2 350 EXTRACTOR

Minimum set: Mechanical tools

NOTE: For extracting radial seal on torque converter and on output flange

Transmission: GA6 HP19Z, GA6 HP26Z, GA6 HP32Z,

Storage location: A46

SI number: 1 14 01 (766)

Order number: 24 2 350

Extractor

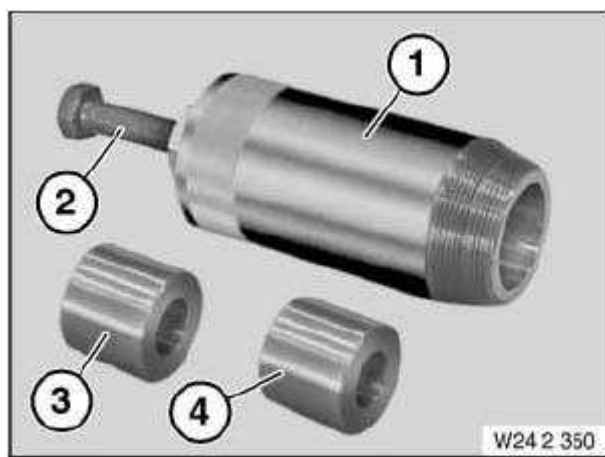


Fig. 51: Identify Special Tool (24 2 350)
Courtesy of BMW OF NORTH AMERICA, INC.

Consisting of:

1 = 24 2 351 Extractor

2 = 24 2 352 Spindle M12 x 65 with ball head

3 = 24 2 353 Thrust member

4 = 24 2 354 Thrust member

NOTE: Transmission: GA6L45R (GM6)

24 2 360 DRIFT

Minimum set: Mechanical tools

NOTE: For fitting radial seal on torque converter

Transmission: GA6 HP19Z, GA6 HP26Z, GA6 HP32Z, GA6L45R

Storage location: B46

SI number: 1 14 01 (766)

Order number: 24 2 360

Drift



Fig. 52: Identify Special Tool (24 2 360)
Courtesy of BMW OF NORTH AMERICA, INC.

24 2 390 COVERING CAP

Minimum set: Mechanical tools

NOTE: For sealing off guide sleeve of transmission connector

Transmission: GA6 HP19Z, GA6 HP26Z, GA6 HP32Z

Storage location: C49

SI number: 1 14 01 (766)

Order number: 24 2 390

Covering cap



Fig. 53: Identify Special Tool (24 2 390)
Courtesy of BMW OF NORTH AMERICA, INC.

24 2 400 DRIFT

Minimum set: Mechanical tools

NOTE: For driving in shaft seal on torque converter

Series: E61, E71, E85, E86, E87, E88, E90, F01, F02

Transmission: GA6 HP19Z

Storage location: B47

SI number: 1 08 03 (988)

Order number: 24 2 400

Drift



Fig. 54: Identify Special Tool (24 2 400)
Courtesy of BMW OF NORTH AMERICA, INC.

24 2 410 ADAPTER RING

Minimum set: Mechanical tools

In conjunction with: 24 2 370

NOTE: For fitting radial seal on output flange.

Transmission: GA6 HP19Z, GA6 HP26Z, GA6 HP32Z

SI number: 01 18 08 (482)

Order number: 24 2 410

Adapter ring



Fig. 55: Identify Special Tool (24 2 410)
Courtesy of BMW OF NORTH AMERICA, INC.

24 3 040 GAUGE

NOTE: For adjusting restrictor piston when installing gearshift unit

Transmission: 3 HP 12, 3 HP 20, 3 HP 22

Order number: 24 3 040

Gauge

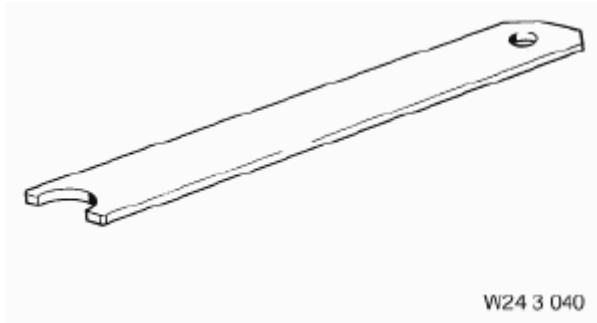


Fig. 56: Identify Special Tool (24 3 040)
Courtesy of BMW OF NORTH AMERICA, INC.

24 3 050 GAUGE

NOTE: For aligning hydraulic gearshift unit in transmission

Transmission: 3 HP 20, 3 HP 22, 4 HP 22, 4 HP 24

Order number: 24 3 050

Gauge

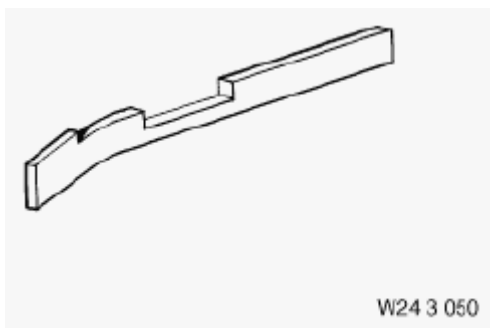


Fig. 57: Identify Special Tool (24 3 050)
Courtesy of BMW OF NORTH AMERICA, INC.

24 3 140 DRIVE BUSH

NOTE: For checking smooth movement of oil pump

Transmission: 3 HP 12, 3 HP 20, 3 HP 22, 4 HP 22, 4 HP 24, A5S 560Z

Storage location: A20

Order number: 24 3 140

Drive bush

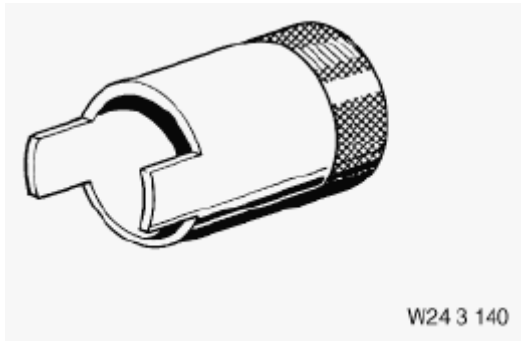


Fig. 58: Identify Special Tool (24 3 140)
Courtesy of BMW OF NORTH AMERICA, INC.

24 3 150 DRIVE BUSH

NOTE: For checking smooth movement of oil pump

Transmission: 3 HP 20, 3 HP 22

Storage location: A20

Order number: 24 3 150

Drive bush

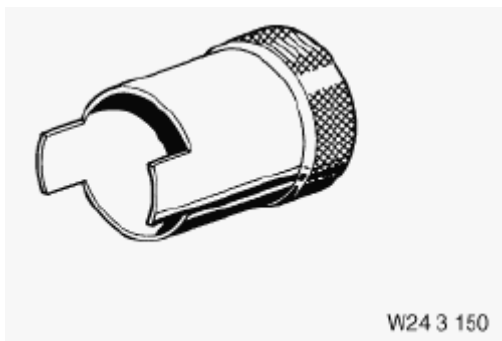


Fig. 59: Identify Special Tool (24 3 150)
Courtesy of BMW OF NORTH AMERICA, INC.

24 4 000 ASSEMBLY GRIP (2)

Minimum set: Mechanical tools

NOTE: For removing and installing torque converter

Transmission: A4S 200R, A4S 270R, A4S 310R, A5S 300J, A5S 310Z, A5S 325Z, A5S 360R, A5S 390G, A5S 390R, A5S 440Z, A5S 560Z, GA6 HP19Z, GA6 HP26Z, GA6 HP32Z

Storage location: C18

Order number: 24 4 000

Assembly grip (2)

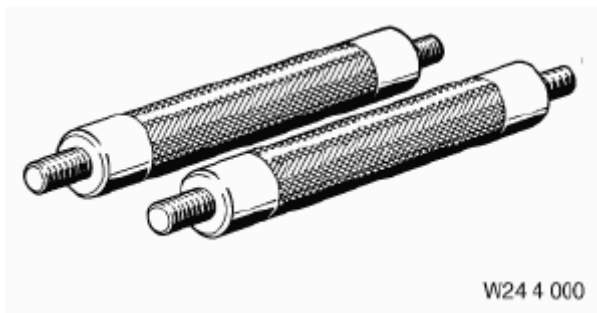


Fig. 60: Identify Special Tool (24 4 000)
Courtesy of BMW OF NORTH AMERICA, INC.

24 4 070 FIXTURE

NOTE: For checking torque converter for leaks

Transmission: 3 HP 20, 3 HP 22, 4 HP 22

Order number: 24 4 070

Fixture

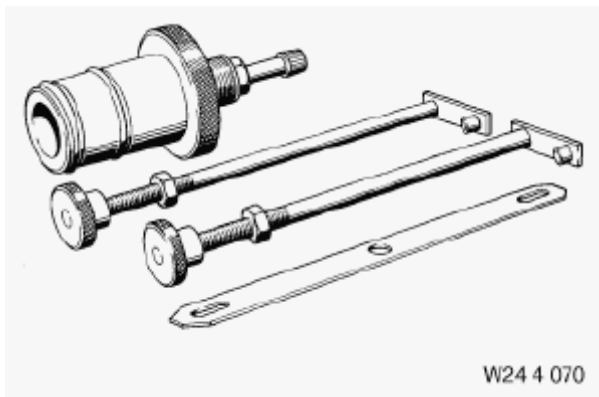


Fig. 61: Identify Special Tool (24 4 070)

Courtesy of BMW OF NORTH AMERICA, INC.

24 4 080 FIXTURE

NOTE: For firmly holding torque converter in position while removing and installing transmission

Transmission: 4 HP 22, 4 HP 24

Storage location: Single

Order number: 24 4 080

Fixture

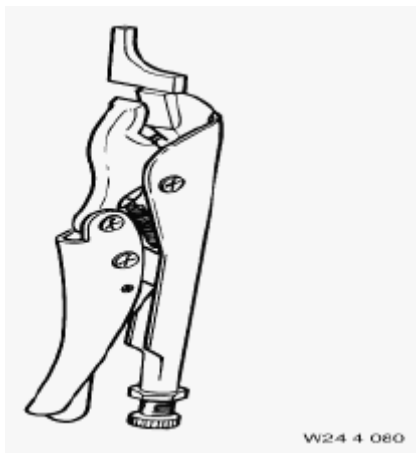


Fig. 62: Identify Special Tool (24 4 080)

Courtesy of BMW OF NORTH AMERICA, INC.

24 4 090 DRIFT

Minimum set: Mechanical tools

In conjunction with: 00 5 500

NOTE: For fitting rotary shaft seal on output end

Transmission: A5S 440Z, A5S 560Z

Storage location: B28

SI number: 1 06 92(509)

Order number: 24 4 090

Drift

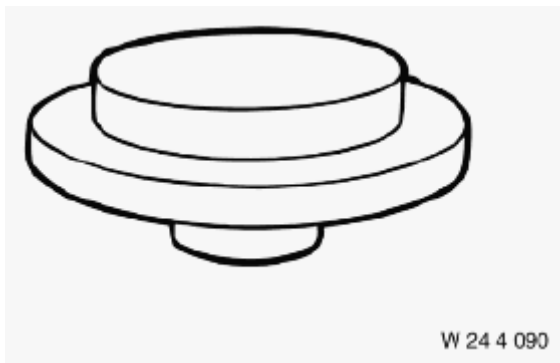


Fig. 63: Identify Special Tool (24 4 090)
Courtesy of BMW OF NORTH AMERICA, INC.

24 4 100 DRIFT

Minimum set: Mechanical tools

NOTE: For fitting rotary shaft seal on drive side (behind converter)

Transmission: A5S 440Z, A5S 560Z

Storage location: C29

SI number: 1 06 92(509)

Order number: 24 4 100

Drift

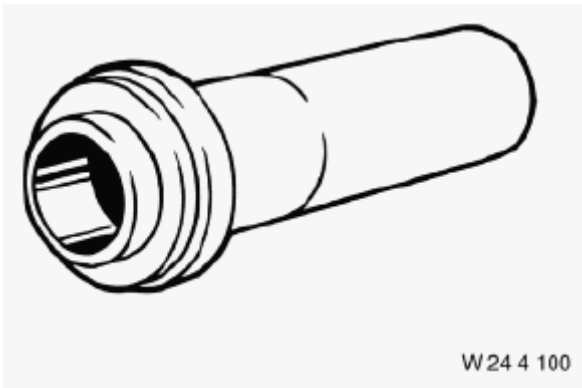


Fig. 64: Identify Special Tool (24 4 100)
Courtesy of BMW OF NORTH AMERICA, INC.

24 4 110 SPANNER

Minimum set: Mechanical tools

NOTE: For releasing and tightening slotted nut on output flange

Transmission: A5S 440Z, A5S 560Z

Storage location: A23

SI number: 1 06 92(509)

Order number: 24 4 110

Spanner

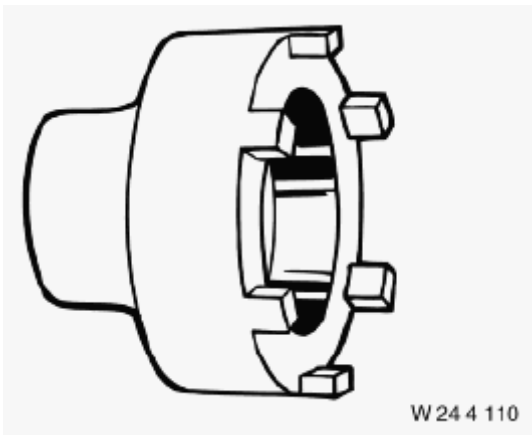


Fig. 65: Identify Special Tool (24 4 110)
Courtesy of BMW OF NORTH AMERICA, INC.

24 4 120 FIXTURE

NOTE: For firmly holding torque converter in position while removing and installing transmission. Replaced by 24 4 130.

Order number: 24 4 120

Fixture

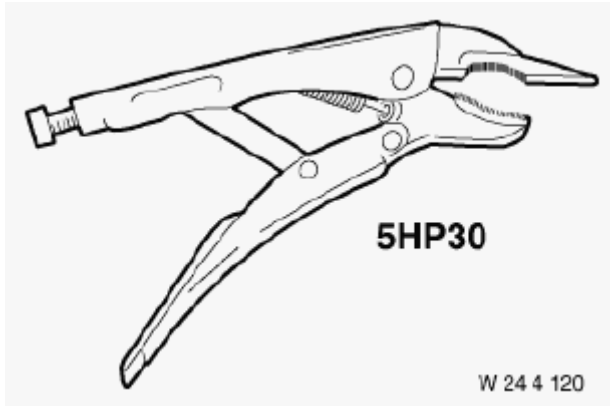


Fig. 66: Identify Special Tool (24 4 120)
Courtesy of BMW OF NORTH AMERICA, INC.

24 4 130 LOCATION TOOL

Minimum set: Mechanical tools

NOTE: For firmly holding torque converter in position while removing and installing transmission

Transmission: A4S 310R, A5S 300J, A5S 310Z, A5S 325Z, A5S 360R, A5S 390G, A5S 440Z, A5S 560Z, GA6 HP26Z

Storage location: A33

SI number: 1 05 97 (181)

Order number: 24 4 130

Locating tool

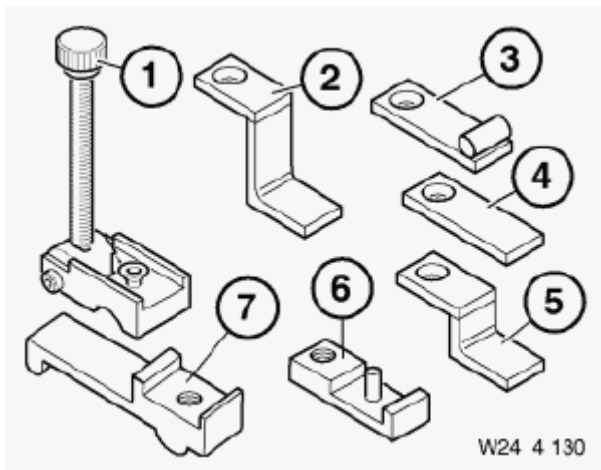


Fig. 67: Identify Special Tool (24 4 130)
Courtesy of BMW OF NORTH AMERICA, INC.

Consisting of:

1 = 24 4 131 Base unit

2 = 24 4 132 Blade

NOTE: Transmission: A5S 440Z, GA6HP26Z (N62)

3 = 24 4 133 Blade

NOTE: Transmission: A4S 310R and A5S 390G

4 = 24 4 134 Blade

NOTE: Transmission: A5S 310Z, A5S 560Z, A5S 300J and A5S 325Z

5 = 24 4 135 Blade

NOTE: Transmission: A5S 560Z, GA6 HP26Z (M67), GA6 HP32Z (N73)

6 = 24 4 136 Counter plate

7 = 24 4 137 Blade

NOTE: Transmission: A5S 360R

24 4 160 SUPPORT BRACKET

Minimum set: Mechanical tools

NOTE: For securing converter during removal and installation of transmission

Transmission: GA6 HP19Z, GA6 HP26Z, GA6 HP32Z, GA6L45R

Storage location: A47, C46

SI number: 1 11 02 (908)

Order number: 24 4 160

Support bracket

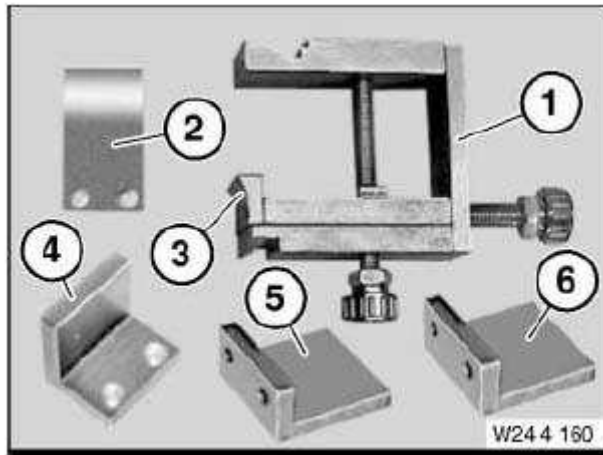


Fig. 68: Identify Special Tool (24 4 160)

Courtesy of BMW OF NORTH AMERICA, INC.

Consisting of:

1 = 24 4 161 Basic body

2 = 24 4 162 Shaped section

NOTE: For converter variant N73

3 = 24 4 163 Shaped section

NOTE: For converter variant M57TU

4 = 24 4 164 Shaped section

NOTE: For converter variant M54

5 = 24 4 165 Shaped section

NOTE: **Transmission: GA6 HP19 in E87, E90**

6 = 24 4 166 Shaped section

NOTE: **Transmission: GA6L45R (GM6) in E83 / N52K**

24 4 200 DRIFT AND SLIP BUSH

Minimum set: Mechanical tools

NOTE: **For driving in shaft seal on drive shaft.**

Transmission: GACVT16Z

Order number: 24 4 200

Drift and slip bush

Consisting of:

1 = 24 4 201 Drift

2 = 24 4 202 Slip bush



Fig. 69: Identify Special Tool (24 4 200)
Courtesy of BMW OF NORTH AMERICA, INC.

24 4 210 SOCKET WAF 46

NOTE: **For releasing and tightening down output shaft screw/bolt (bearing side).**

Transmission: GACVT16Z

SI number: 1 09 05 (188)

Order number: 24 4 210

Socket WAF 46



Fig. 70: Identify Special Tool (24 4 210)
Courtesy of BMW OF NORTH AMERICA, INC.

24 4 220 EXACTOR

NOTE: For removing primary bearing on drive shaft.

Transmission: GACVT16Z

SI number: 1 09 05 (188)

Order number: 24 4 220

Extractor

Consisting of:

1 = 24 4 221 Basic body

2 = 24 4 222 Claws (2 x)

3 = 24 4 223 Thrust piece

4 = 24 4 224 Ring

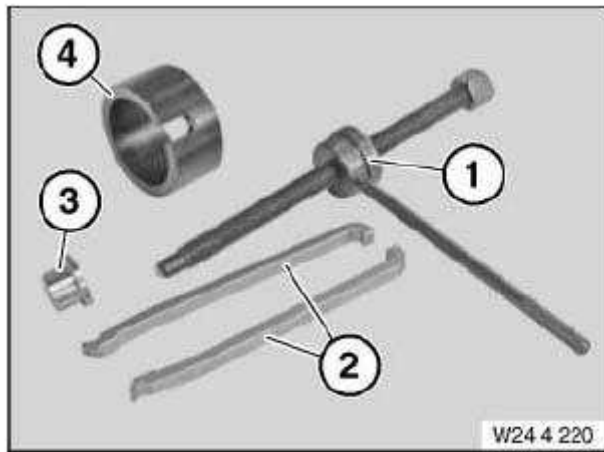


Fig. 71: Identify Special Tool (24 4 220)
 Courtesy of BMW OF NORTH AMERICA, INC.

24 4 230 DRIFT

NOTE: For driving in primary bearing on drive shaft.

Transmission: GACVT16Z

SI number: 1 09 05 (188)

Order number: 24 4 230

Drift



Fig. 72: Identify Special Tool (24 4 230)
 Courtesy of BMW OF NORTH AMERICA, INC.

24 4 280 EXTRACTOR

Minimum set: Mechanical tools

NOTE: For removing shaft seal on shift shaft.

Transmission: GA6F21WA

Storage location: A83

SI number: 1 03 05 (174)

Order number: 24 4 280

Extractor



Fig. 73: Identify Special Tool (24 4 280)

Courtesy of BMW OF NORTH AMERICA, INC.

24 4 290 DRIFT

Minimum set: Mechanical tools

NOTE: For driving in shaft seal on shift shaft.

Transmission: GA6F21WA

Storage location: C83

SI number: 1 03 05 (174)

Order number: 24 4 290

Drift



Fig. 74: Identify Special Tool (24 4 290)
Courtesy of BMW OF NORTH AMERICA, INC.

24 4 310 DRIFT

Minimum set: Mechanical tools

NOTE: For driving in shaft seal on output shaft.

Series: E60, E70, E71, E90, E91

Transmission: GA6 HP19Z, GA6 HP26Z

Storage location: B50

SI number: 1 04 05 175

Order number: 24 4 310

Drift



Fig. 75: Identify Special Tool (24 4 310)
Courtesy of BMW OF NORTH AMERICA, INC.

24 4 340 LEVER

NOTE: For removing and installing oil filler cap.

Transmission: GA6L45R

SI number: 01 19 07 (397)

Order number: 24 4 340

Lever



Fig. 76: Identify Special Tool (24 4 340)
Courtesy of BMW OF NORTH AMERICA, INC.

24 4 350 SOCKET, TORX SPECIAL PROFILE SECTION

Minimum set: Mechanical tools

NOTE: For releasing and tightening down Mechatronic screw connection.

Transmission: GA6 HP19Z, GA6L45R

SI number: 1 02 07 (334)

Order number: 24 4 350

Socket, Torx special profile section



Fig. 77: Identify Special Tool (24 4 350)
Courtesy of BMW OF NORTH AMERICA, INC.

24 4 360 EXTRACTOR

Minimum set: Mechanical tools

NOTE: For withdrawing output shaft seal (4x2).

Transmission: GA6 HP19Z, GA6L45R

SI number: 1 02 07 (334)

Order number: 24 4 360

Extractor

Consisting of:

1 = 24 4 361 Basic body

2 = 24 4 362 Claw (4 x)

3 = 24 4 363 Screw

4 = 24 4 364 Spindle

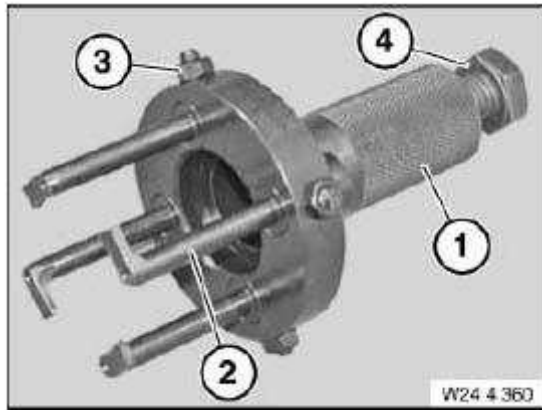


Fig. 78: Identify Special Tool (24 4 360)
 Courtesy of BMW OF NORTH AMERICA, INC.

24 4 370 DRIFT

Minimum set: Mechanical tools

NOTE: For driving in output shaft seal (4x2).

Transmission: GA6 HP19Z, GA6L45R

SI number: 1 02 07 (334)

Order number: 24 4 370

Drift



Fig. 79: Identify Special Tool (24 4 370)
 Courtesy of BMW OF NORTH AMERICA, INC.

24 4 380 BUSHING WITH NUT

Minimum set: Mechanical tools

NOTE: For drawing in selector shaft seal.

Transmission: GA6 HP19Z, GA6L45R

SI number: 1 02 07 (334)

Order number: 24 4 380

Bushing with nut

Consisting of:

1 = 24 4 381 Bushing

2 = 24 4 382 Nut M8x1

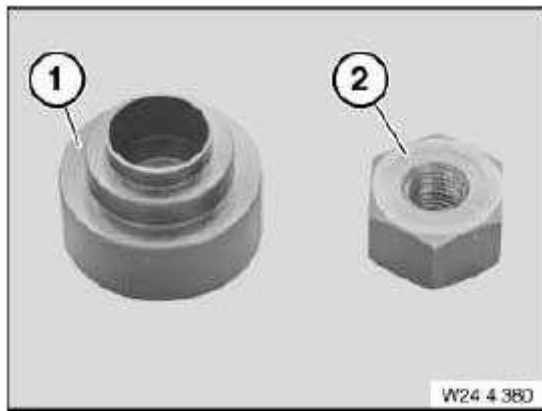


Fig. 80: Identify Special Tool (24 4 380)
Courtesy of BMW OF NORTH AMERICA, INC.

24 4 390 EXTRACTOR

Minimum set: Mechanical tools

In conjunction with: 13 5 250

NOTE: For removing oil filter sealing ring.

Transmission: GA6 HP19Z, GA6L45R

SI number: 1 02 07 (334)

Order number: 24 4 390

Extractor



Fig. 81: Identify Special Tool (24 4 390)
Courtesy of BMW OF NORTH AMERICA, INC.

24 4 400 DRIFT

Minimum set: Mechanical tools

NOTE: For driving in oil filter sealing ring.

Transmission: GA6 HP19Z, GA6L45R

SI number: 1 02 07 (334)

Order number: 24 4 400

Drift



Fig. 82: Identify Special Tool (24 4 400)
Courtesy of BMW OF NORTH AMERICA, INC.

24 5 120 TOOL

NOTE: For centering converter bell housing with respect to oil pump during assembly

Transmission: A4S 270R, A4S 310R

Storage location: B2

SI number: 1 04 95(906)

Order number: 24 5 120

Tool

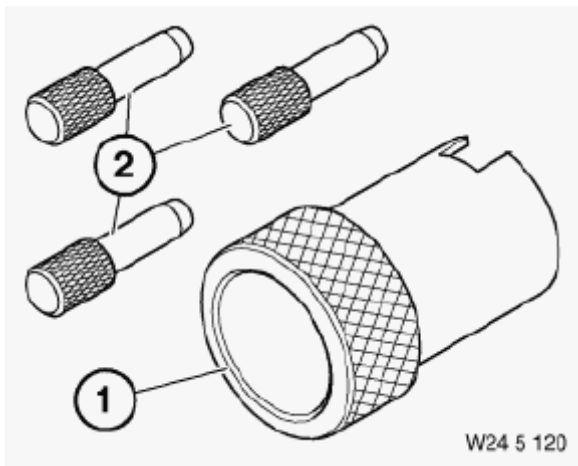


Fig. 83: Identify Special Tool (24 5 120)
Courtesy of BMW OF NORTH AMERICA, INC.

Consisting of:

1 = 24 5 121 Centering bush

2 = 24 5 122 Centering pin (3)

24 5 140 CENTERING PIN

NOTE: For transfer plate and gasket to shift unit (2 x)

Transmission: A4S 310R

Order number: 24 5 140

Centering pin

24 5 150 CENTERING PIN WITH THREAD (2)

NOTE: For centering gearshift unit in transmission during assembly

Transmission: A4S 270R, A4S 310R

Storage location: A2

SI number: 1 03 90(184)

Order number: 24 5 150

Centering pin with thread (2)



Fig. 84: Identify Special Tool (24 5 150)
Courtesy of BMW OF NORTH AMERICA, INC.

24 5 160 CENTERING PINS

NOTE: For centering main housing with respect to intermediate and converter housing
(2)

Transmission: A4S 270R, A4S 310R

Storage location: A2, B2

SI number: 1 03 93(663)

Order number: 24 5 160

Centering pins

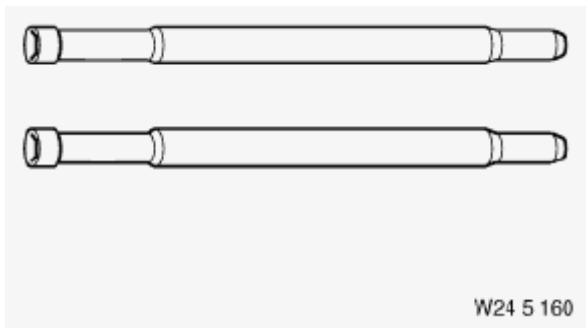


Fig. 85: Identify Special Tool (24 5 160)
 Courtesy of BMW OF NORTH AMERICA, INC.

24 5 190 ADAPTER

In conjunction with: 13 3 061, 13 3 067, 24 0 021, 24 0 023, 24 0 140

NOTE: For pressure gauge 13 3 061 for checking oil pressure in transmission

Transmission: A4S 270R, A4S 310R

Storage location: C20

SI number: 1 03 90(184)

Order number: 24 5 190

Adapter

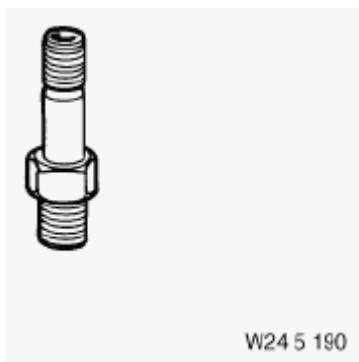


Fig. 86: Identify Special Tool (24 5 190)
 Courtesy of BMW OF NORTH AMERICA, INC.

24 5 200 IMPACT BUSH

NOTE: For driving in radial seal of selector lever shaft / Replaced by 24 5 360

Transmission: A4S 270R, A4S 310R

SI number: 1 03 90 (184)

Order number: 24 5 200

Impact bush

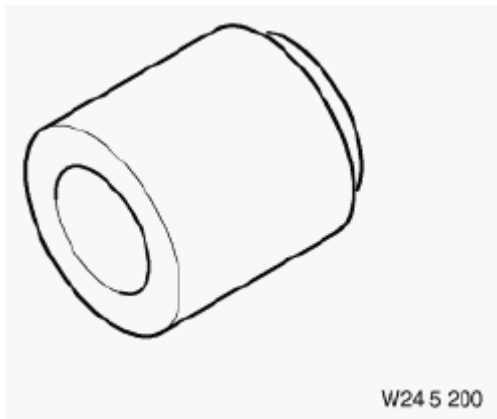


Fig. 87: Identify Special Tool (24 5 200)
Courtesy of BMW OF NORTH AMERICA, INC.

24 5 210 HOLDER

NOTE: For loosening and tightening gearshift cable

Transmission: 4 HP 22, 4 HP 24, A4S 270R, A4S 310R, A5S 310Z

Storage location: B19

SI number: 1 04 91(372)

Order number: 24 5 210

Holder

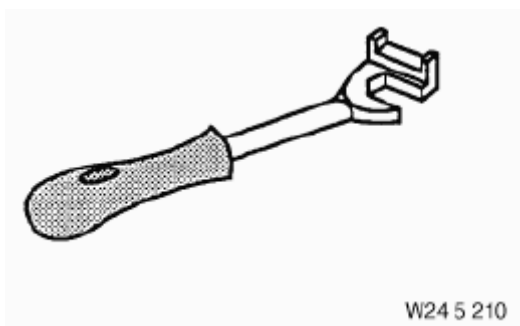


Fig. 88: Identify Special Tool (24 5 210)
Courtesy of BMW OF NORTH AMERICA, INC.

24 5 220 HOLDER

NOTE: For loosening and tightening gearshift cable

Transmission: A5S 300J, A5S 310Z

Storage location: B19

SI number: 1 04 91(372)

Order number: 24 5 220

Holder

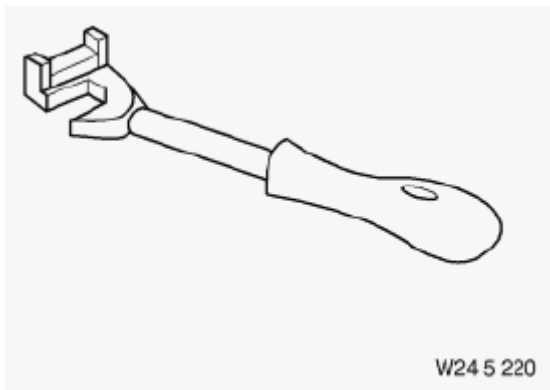


Fig. 89: Identify Special Tool (24 5 220)
Courtesy of BMW OF NORTH AMERICA, INC.

24 5 230 ASSEMBLY RING

Minimum set: Mechanical tools

NOTE: For fitting rotary shaft seal on gearshift shaft

Transmission: 4 HP 22, 4 HP 24, A5S 310Z

Storage location: B19

SI number: 1 04 91(372)

Order number: 24 5 230

Assembly ring

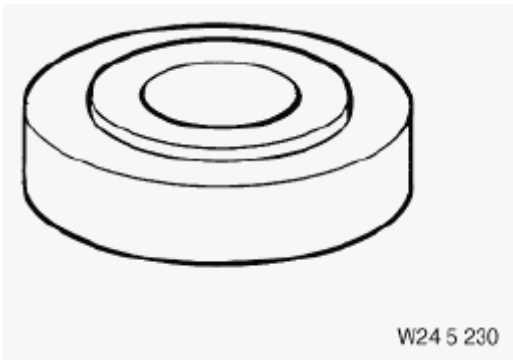


Fig. 90: Identify Special Tool (24 5 230)

Courtesy of BMW OF NORTH AMERICA, INC.

24 5 240 HOLDER

NOTE: For releasing and tightening gearshift cable / transmission with position switch

Transmission: A5S 310Z, A5S 560Z

Storage location: B19

SI number: 1 06 92(509)

Order number: 24 5 240

Holder

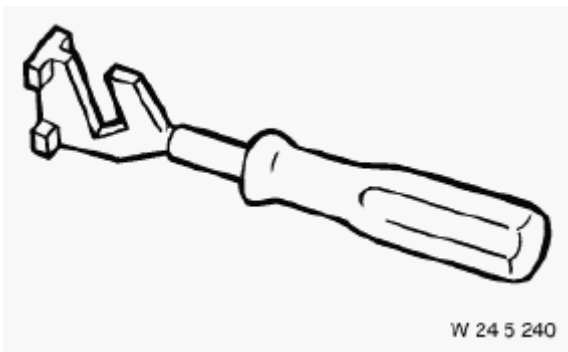


Fig. 91: Identify Special Tool (24 5 240)

Courtesy of BMW OF NORTH AMERICA, INC.

24 5 250 BUSH

Minimum set: Mechanical tools

In conjunction with: 24 5 490

NOTE: For fitting rotary shaft seal on selector shaft

Transmission: A5S 310Z, A5S 560Z

Storage location: B19

SI number: 1 02 95(896)

Order number: 24 5 250

Bush

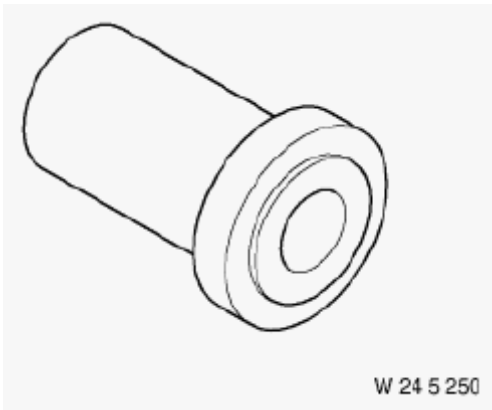


Fig. 92: Identify Special Tool (24 5 250)
Courtesy of BMW OF NORTH AMERICA, INC.

24 5 260 EXTRACTOR TOOL

Minimum set: mechanical tools

NOTE: For removing rotary shaft seal of selector shaft / transmission with position switch

Transmission: A5S 310Z, A5S 440Z, A5S 560Z

Storage location: B19

SI number: 1 02 95 (896)

Order number: 24 5 260

Extractor tool

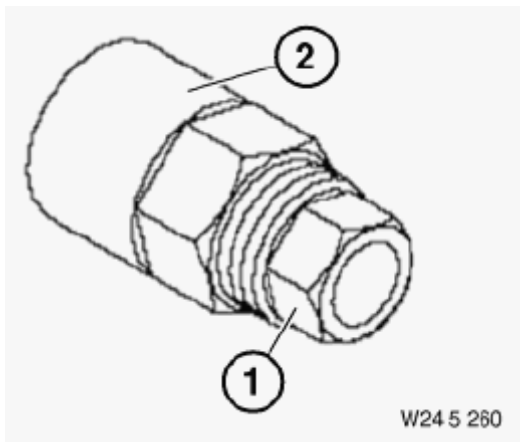


Fig. 93: Identify Special Tool (24 5 260)
Courtesy of BMW OF NORTH AMERICA, INC.

Consisting of:

1 = 24 5 261 Insert

2 = 24 5 262 Bushing

24 5 270 BUSH

Minimum set: Mechanical tools

In conjunction with: 24 5 490

NOTE: For fitting rotary shaft seal on selector shaft

Transmission: A5S 440Z

Storage location: B18

SI number: 1 08 96(080)

Order number: 24 5 270

Bush

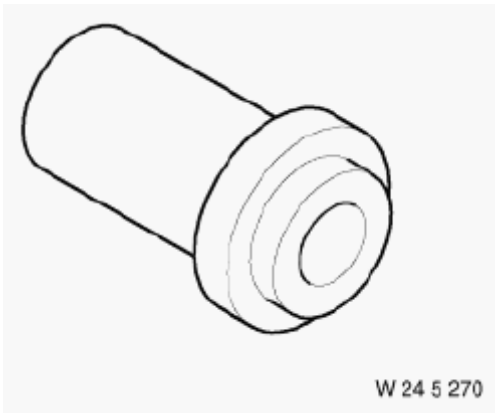


Fig. 94: Identify Special Tool (24 5 270)
 Courtesy of BMW OF NORTH AMERICA, INC.

24 5 350 TAKE-UP SUPPORT FOR AUTOMATIC TRANSMISSION

NOTE: Miscellaneous: Japan and South Africa only

Transmission: A5S 300J

Order number: 24 5 350

Take-up support for automatic transmission

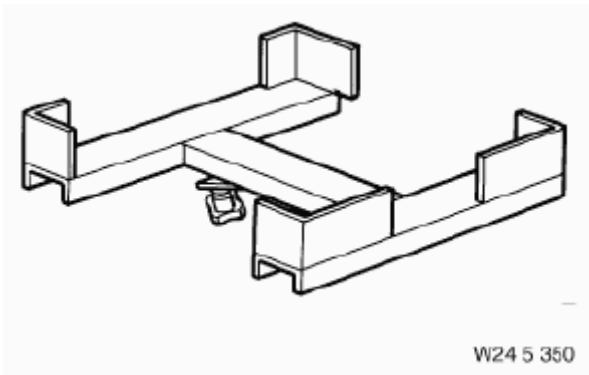


Fig. 95: Identify Special Tool (24 5 350)
 Courtesy of BMW OF NORTH AMERICA, INC.

24 5 360 FIXTURE

Minimum set: Mechanical tools

NOTE: For removing and installing selector shaft seal 24 5 361, 24 5 362, 24 5 364 and 24 5 366 for E90

Transmission: A4S 200R, A4S 270R, A4S 310R, A5S 360R, A5S 390R, GA6 HP19Z, GA6 HP26Z, GA6

HP32Z, GA6L45R

Storage location: C4

SI number: 1 14 96 (105)

Order number: 24 5 360

Fixture

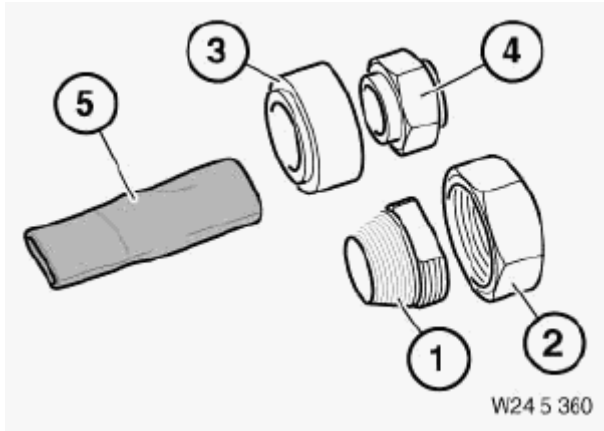


Fig. 96: Identify Special Tool (24 5 360)
Courtesy of BMW OF NORTH AMERICA, INC.

Consisting of:

1 = 24 5 361 Threaded bush

2 = 24 5 362 Union nut

3 = 24 5 363 Bush

NOTE: For transmission without position switch Transmission: A4S 310R

4 = 24 5 364 Nut

5 = 24 5 365 Slip sleeve (5 x)

NOTE: Transmission: A4S 310R

6 = 24 5 366 Bush

NOTE: For driving in radial shaft seal on selector shaft (emergency release)
Transmission: GA6 HP26Z

24 5 400 DRIFT

In conjunction with: 00 5 500

NOTE: For drive shaft seal.

Transmission: GACVT16Z

Order number: 24 5 400

Drift

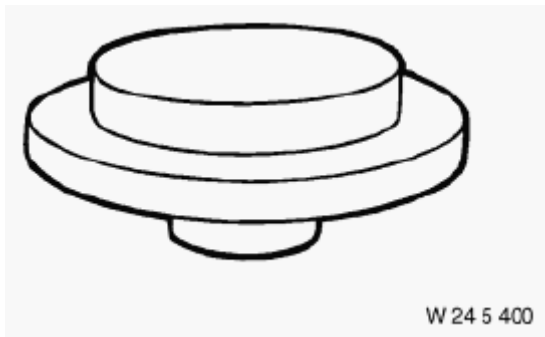


Fig. 97: Identify Special Tool (24 5 400)

Courtesy of BMW OF NORTH AMERICA, INC.

24 5 490 SLIP SLEEVE (5)

Minimum set: Mechanical tools

NOTE: For preventing damage to rotary shaft seal while fitting on gearshift shaft

Transmission: A5S 310Z, A5S 440Z, A5S 560Z

SI number: 1 02 95 (896)

Order number: 24 5 490

Slip sleeve (5)

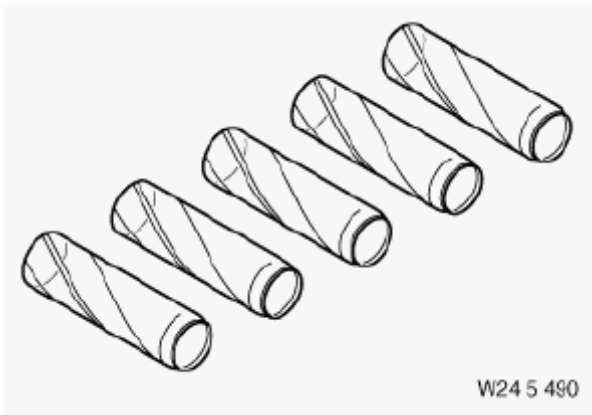


Fig. 98: Identify Special Tool (24 5 490)
Courtesy of BMW OF NORTH AMERICA, INC.

24 6 000 TEST CABLE, 8-PIN

In conjunction with: Test box 88-pin 614410

NOTE: For automatic transmission (EH transmission)

Transmission: 4 HP 22, 4 HP 24

SI number: 2 03 91 (313)

Order number: 24 6 000

Storage location: A 101

Test cable, 8-pin

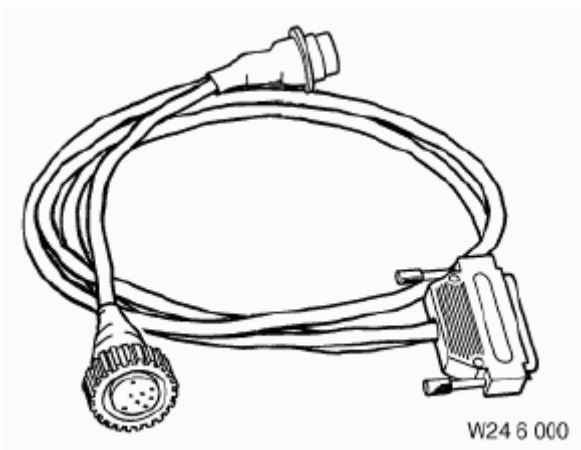


Fig. 99: Identify Special Tool (24 6 000)
Courtesy of BMW OF NORTH AMERICA, INC.

24 6 010 TEST CABLE, 9-PIN

In conjunction with: Test box 88-pin 614410

NOTE: For automatic transmission (EH transmission)

Transmission: A4S 270R, A4S 310R

Storage location: A 102

SI number: 2 03 91 (313)

Order number: 24 6 010

Test cable, 9-pin

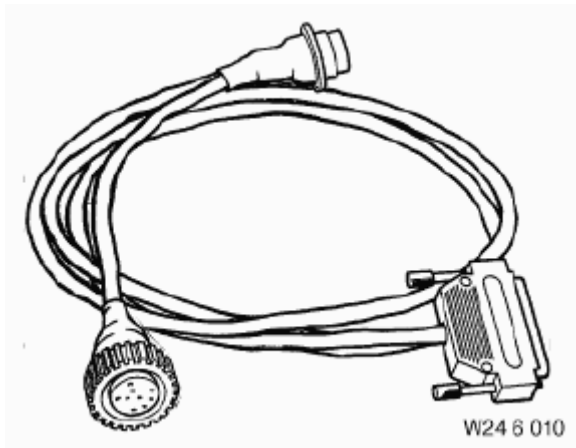


Fig. 100: Identify Special Tool (24 6 010)
Courtesy of BMW OF NORTH AMERICA, INC.

24 6 020 TEST CABLE, 14-PIN

In conjunction with: Test box 88-pin 614410

NOTE: For automatic transmission (EH transmission)

Transmission: A5S 310Z

Storage location: A 103

SI number: 0 02 99 (399)

Order number: 24 6 020

Test cable, 14-pin



Fig. 101: Identify Special Tool (24 6 020)
Courtesy of BMW OF NORTH AMERICA, INC.

Consisting of:

24 6 029 Operating instructions

24 6 060 TEST CABLE, 16-IN

NOTE: For automatic transmission (EH transmission)

Transmission: A5S 310Z, A5S 560Z

Storage location: A 106

SI number: 2 02 93 (650)

Order number: 24 6 060

Test cable, 16-pin

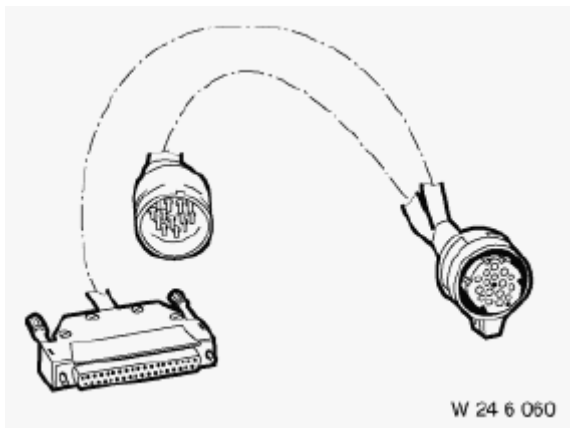


Fig. 102: Identify Special Tool (24 6 060)
Courtesy of BMW OF NORTH AMERICA, INC.

24 6 070 TEST CABLE, 20-PIN

In conjunction with: 61 1 459

NOTE: For automatic transmission GM5

Transmission: A5S 360R

Storage location: A 107

SI number: 2 01 99 (468)

Order number: 24 6 070

Test cable, 20-pin

24 6 080 TEST LEAD, 16-PIN

Minimum set: Measuring and testing equipment

In conjunction with: 61 1 459

Transmission: GA6 HP26Z

Storage location: L204

SI number: 2 06 01 (763)

Order number: 24 6 080

Test lead, 16-pin

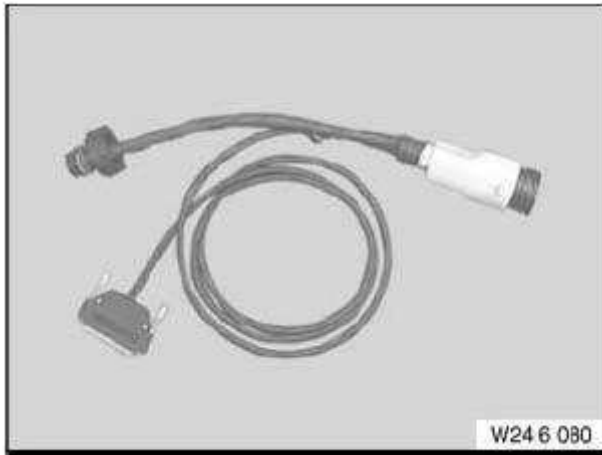


Fig. 103: Identify Special Tool (24 6 080)

Courtesy of BMW OF NORTH AMERICA, INC.

24 8 100 ADAPTER

Minimum set: Mechanical tools

NOTE: For filling automatic transmission

Transmission: GACVT16Z

SI number: 1 05 01 (718)

Order number: 24 8 100

Adapter



Fig. 104: Identify Special Tool (24 8 100)

Courtesy of BMW OF NORTH AMERICA, INC.

24 8 110 DRIFT

Minimum set: Mechanical tools

In conjunction with: 00 5 500

NOTE: For driving shaft seal onto drive flange

Transmission: GACVT16Z

SI number: 1 02 02 (823)

Order number: 24 8 110

Drift



Fig. 105: Identify Special Tool (24 8 110)
Courtesy of BMW OF NORTH AMERICA, INC.

24 8 120 RUBBER PROFILE

Minimum set: Mechanical tools

NOTE: For protecting shaft seal in transmission when installing output shafts.

Transmission: GACVT16Z, GS5-65BH, GS6-85BG, GS685DG SI number: 1 02 02 (823)

Order number: 24 8 120

Rubber profile



Fig. 106: Identify Special Tool (24 8 120)

Courtesy of BMW OF NORTH AMERICA, INC.

24 8 130 DRIFT

In conjunction with: 00 5 550

NOTE: For driving in shaft seal on input shaft. Transmission: CVT automatic transmission Replaced by 24 4 200

Transmission: GACVT16Z

SI number: 1 02 02 (823)

Order number: 24 8 130

Drift



Fig. 107: Identify Special Tool (24 8 130)

Courtesy of BMW OF NORTH AMERICA, INC.

TRANSMISSION

Automatic Transmission - Tightening Torques

TRANSMISSION ASSEMBLY

24 00 TRANSMISSION IN GENERAL

TRANSMISSION IN GENERAL - TIGHTENING TORQUE SPECIFICATIONS

	Type	Thread	Tightening specification	Measure
1AZ Transmission to engine				
Hex screws	A4S 200R/A4S 270R/A4S 310R/A5S 300J/A5S 310Z/A5S 325Z/A5S 440Z/A5S 560Z/A5S 360R/A5S 390R /GA6HP19Z/GA6HP26Z/GA6HP32Z	M8		24 Nm
Hex screws	A4S 200R/A4S 270R/A4S 310R/A5S 300J/A5S 310Z/A5S 325Z/A5S 440Z/A5S 560Z/A5S 360R/A5S 390R/GA6HP19Z/GA6HP26Z/GA6HP32Z	M10		45 Nm
Hex screws	A4S 200R/A4S 270R/A4S 310R/A5S 300J/A5S 310Z/A5S 325Z/A5S 440Z/A5S 560Z/A5S 360R/A5S 390R/GA6HP19Z/GA6HP26Z/GA6HP32Z	M12		82 Nm
	A4S 200R/A4S 270R/A4S 310R/A5S 300J/A5S			

Torx bolts	310Z/A5S 325Z/A5S 440Z/A5S 560Z/A5S 360R/A5S 390R	M8		21 Nm
Torx bolts	A4S 200R/A4S 270R/A4S 310R/A5S 300J/A5S 310Z/A5S 325Z/A5S 440Z/A5S 560Z/A5S 360R/A5S 390R	M10		42 Nm
Torx bolts	A4S 200R/A4S 270R/A4S 310R/A5S 300J/A5S 310Z/A5S 325Z/A5S 440Z/A5S 560Z/A5S 360R/A5S 390R	M12		72 Nm
Torx bolts	GA6HP19Z/GA6HP26Z	M6		9 Nm
Torx bolts	GA6HP26Z	M10		38 Nm
Steel Torx screws	GA6HP19Z/GA6L26Z/GA6L45R	M8		19 Nm
Steel Torx screws	GA6HP19Z/GA6HP26Z/GA6L45R	M12		66 Nm
2AZ Transmission to engine N51/N52/N54/N53/N52K Aluminium screws/bolts are not magnetic	GA6HP19Z/GA6HP26Z/GA6L45R		Replace screws Jointing torque and angle of rotation must be observed without fail	
	GA6HP19Z/GA6L45R	M10 x 30	Jointing torque	20 Nm
			Torque angle	90-110°
	GA6HP19Z	M10 x 85	Jointing torque	20 Nm
			Torque angle	180-200°
	GA6HP19Z/GA6L45R	M12	Jointing torque	25 Nm
			Torque angle	130 °
	A4S 200R/A4S 270R/A4S 310R/A5S			

3AZ Reinforcement shell to transmission/extension	300J/A5S 310Z/A5S 325Z/A5S 440Z/A5S 560Z/A5S 360R/A5S 390R/GA6HP19Z/GA6HP26Z/GA6HP32Z	M8		23 Nm
4AZ Cover plate for transmission	GA6HP19Z/GA6L45R	M6		9 Nm

TRANSMISSION CASE, OIL SUMP

24 11 TRANSMISSION HOUSING, TRANSMISSION OIL SUMP

TRANSMISSION HOUSING, TRANSMISSION OIL SUMP - TIGHTENING TORQUE SPECIFICATIONS

	Type	Thread	Tightening specification	Measure
5AZ Transmission oil sump	4HP-22/4HP-24/A5S 310Z/A5S 325Z	M6		6 Nm
	A5S 560Z/A5S 440Z	M6		10 Nm
	A4S 270R/A4S 310R	M6		12 Nm
	A5S 360R/A4S 360R	M6		10 Nm
	A5S 300J			9 Nm
	GA6HP26Z/GA6HP19Z/GA6L45R/GA6HP32Z	M6		10 Nm
6AZ Oil drain plug	A4S 200R/A5S 310Z /	M10		16 Nm
	A5S 325Z			35 Nm
	A5S 440Z	M16 x 1.5		30 Nm
	A5S 560Z			50 Nm
	A5S 360R/A5S 390R	M14		18 Nm
	A4S 270R/A4S 310R			25 Nm
	A5S 300J			35 Nm
	GA6L45R	M12 x 1.75		14 Nm
	GA6HP19Z/GA6HP26Z/GA6HP32Z	M10 x 1	Metal oil sump	12 Nm
	GA6HP19Z/GA6HP26Z/GA6HP32Z	M16 x 1.5 M24 x 1	Plastic oil sump	8 Nm
7AZ Oil filler plug	A5S 325Z			30 Nm
	A5S 310Z/A5S 560Z			100 Nm
	A5S 440Z	M18 x 1.5		35 Nm
	A4S 270R/A4S 310R			33 Nm

	A5S 360R/A4S 360R	M14		18 Nm
	A5S 300J			40 Nm
	GA6HP26Z/GA6HP32Z	M30 x 1.5		80 Nm
	GA6HP19Z/GA6HP26Z/GA6HP32Z	M18 x 1.5		35 Nm
	GA6L45R	M18 x 1.5		19 Nm

EXTENSION HOUSING, BEARINGS, SEAL

24 13 TRANSMISSION EXTENSION, BEARINGS, SEALS

TRANSMISSION EXTENSION, BEARINGS, SEALS - TIGHTENING TORQUE SPECIFICATIONS

	Type	Thread	Tightening specification	Measure
1AZ Slotted nut/output flange	A5S 310Z/A5S 440Z / A5S 560Z/A5S 325Z			120 Nm
2AZ Double hexagon nut/output flange	GA6HP26Z		until 09/02 without sealing ring in output flange	80 Nm
	GA6HP19Z/GA6HP26Z		from 09/02 with sealing ring in output flange	60 Nm
3AZ Output shaft nut to output flange	GA6L45R	22 x 1.5		55 Nm

PLANETARY DRIVE

24 22 PLANETARY GEAR DRIVE

PLANETARY GEAR DRIVE - TIGHTENING TORQUE SPECIFICATIONS

	Type	thread	tightening specification	Measure
1AZ Brake coupling D/G on gear box housing	A5S 310Z/A5S 560Z	M10		
			Insert all screws until contact is made with screw head in each case	
			center bolt	30 Nm
			both outer screws	15 Nm
			center bolt	63 Nm
			both outer screws	30 Nm
			both outer screws	63 Nm

RELEASE CLUTCHES

24 23 SHIFT CLUTCHES

SHIFT CLUTCHES - TIGHTENING TORQUE SPECIFICATIONS

	Type	thread	tightening specification	Measure
1AZ Torx screws for F clutch on transmission case	4HP-22/4HP-24	M6		10 Nm
	/ A5S 560Z	M8		23 Nm
2AZ Brake band adjusting screw	A 4 S 270 R/A 4 S 310 R	5/16"		5 Nm
3AZ Lock nut of brake band adjusting screw	A 4 S 270 R/A 4 S 310 R	5/16"		21 Nm

HYDRAULIC/ELECTRIC CONTROL COMPONENTS/ELEMENTS

24 30 HYDRAULIC/ELECTRIC CONTROL PARTS AND CONTROLLING ELEMENTS

HYDRAULIC/ELECTRIC CONTROL PARTS AND CONTROLLING ELEMENTS - TIGHTENING TORQUE SPECIFICATIONS

	Type	Thread	Tightening specification	Measure
1AZ Valve body to transmission	3HP-22	M6		11 Nm
	4HP-22/4HP-24/A5S 310Z / A5S 440Z / A5S 300J/A5S 325Z / GA6HP19Z / GA6HP26Z / GA6HP32Z	M6		8 Nm
	GA6HP19TUGA6HP26TU	M6		10 Nm
	A4S 270R/A4S 310R	5/16 inch		20 Nm
	A5S 360R/A4S 360R	M6		11 Nm
	A5S 560Z	M6 x 12		6 Nm
	A5S 560Z	M6 x 55		8 Nm
	GA6L45R	M5 Torx		8 Nm
2AZ Valve housing to valve body	A4S 200R/A4S 270R/A4S 310R/A5S 300J/A5S 310Z/A5S 310Z/A5S 440Z/A5S	M6		5 Nm

	560Z/A5S 360R/A5S 390R/GA6HP19Z/GA6HP26Z/GA6HP32Z			
3AZ Adapter plate on shift unit	A4S 270R/A4S 310R			13 Nm
4AZ Input and output speed sensors to mechatronics		M6		12 Nm

OIL PUMP

24 31 PRIMARY PUMP

PRIMARY PUMP - TIGHTENING TORQUE SPECIFICATIONS

	Type	Thread	Tightening specification	Measure
1AZ Oil pump to case				
	A4S 270R/A4S 310R	5/16 inch		
			1st pass	10 Nm
			2nd pass	20 Nm
	A5S 560Z	M6		10 Nm
	A5S 560Z	M5		5 Nm
	A5S 300J/A5S 440Z/A5S 310Z/A5S 325Z	M6		11 Nm
	GA6HP19Z/GA6HP26Z	M6		10 Nm
2AZ Oil strainer	A5S 440Z/A5S 560Z			5 Nm
	A5S 310Z			6 Nm
	A5S 325Z	M6		6 Nm
	A4S 270R/A4S 310R	5/16 inch		20 Nm
	A5S 300J			8 Nm
3AZ Oil pump body	A4S 270R/A4S 310R	5/16 inch		20 Nm
	A5S 310Z/A5S 560Z	M6		10 Nm
	GA6HP19Z/GA6HP26Z			10 Nm
4AZ Oil cooler pipe adapter to transmission	A5S 300J/A4S 270R/A4S 310R			28 Nm
Hollow bolt	A5S 440Z	M18 x 1.5		25 Nm
Cap screw	A5S 440Z	M18 x 1.5		20 Nm

SHIFT VALVES, PARKING LOCK

24 34 SHIFT VALVES, PARKING LOCK

SHIFT VALVES, PARKING LOCK - TIGHTENING TORQUE SPECIFICATIONS

	Type	thread	tightening specification	Measure
7AZ Pulse generator, output speed	A5S 325Z			6 Nm
8AZ Pulse generator, turbine speed	A5S 325Z			8 Nm
9AZ Plug	A5S 325Z			20 Nm

WIRING HARNESS, SHIFT ELEMENTS & SENSOR

24 35 WIRE HARNESS, SHIFT ELEMENTS AND SENSOR

WIRE HARNESS, SHIFT ELEMENTS AND SENSOR - TIGHTENING TORQUE SPECIFICATIONS

	Type	thread	tightening specification	Measure
1AZ Transmission socket to case	4HP-22 EH/4 HP-24EH/A5S 310Z	M26		12 Nm
	A4S 270R/A4S 310R	M26		14 Nm

TORQUE CONVERTER

24 40 TORQUE CONVERTER

TORQUE CONVERTER - TIGHTENING TORQUE SPECIFICATIONS

	Type	Thread	Tightening specification	Measure
1AZ Torque converter to flywheel		M8		26 Nm
	A4S 270R/A4S 310R/A5S 310Z/A5S 300J/A5S 440Z/A5S 560Z/A5S 325Z/A4S 200R/GA6HP26Z/GA6HP19Z	M10 8.8		45 Nm
	A5S360/390R	M10		45 Nm
	A5S360/390R/GA6HP19Z/GA6HP26Z/GA6HP32Z/GA6L45R	M10 10.9		56 Nm

EXTERNAL GEARSHIFT COMPONENTS

24 51 EXTERNAL SHIFT LINKAGE

EXTERNAL SHIFT LINKAGE - TIGHTENING TORQUE SPECIFICATIONS

	Type	Thread	Tightening specification	Measure
1AZ Selector lever on transmission	A4S 200R/A4S 270R/A4S 310R/A5S 310Z/A5S 325Z/A5S 440Z/A5S 560Z/A5S 360R/A5S 390R/GA6HP19Z/GA6HP26Z/GA6 HP32Z/GA6L45R	M8 x 1		10 Nm
	A5S 300J	M8		15 Nm

INTERNAL GEARSHIFT

24 52 INTERIOR SHIFT ELEMENTS

INTERIOR SHIFT ELEMENTS - TIGHTENING TORQUE SPECIFICATIONS

	Type	Thread	Tightening specification	Measure
1AZ Shift segment to shaft	A4S 270R/A4S 310R			22 Nm
	A5S 300J	M14 x 1.5		35 Nm
2AZ Detent spring on shift unit	A4S 270R/A4S 310R	5/16"		25 Nm