

**Necessary preliminary tasks:**

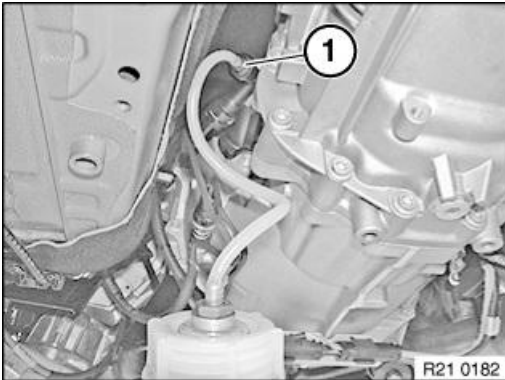
- Remove underbody protection from transmission.



Connect bleeder unit to brake fluid expansion tank. **Important!**

Check relevant Operating Instructions for each device.

Charging pressure should not exceed 2 bar.



Connect bleeder hose to bleed valve (1).

Open bleed valve (1) and flush until clear brake fluid emerges without air bubbles.

Close bleed valve.

Switch off bleeder unit or remove from brake fluid expansion tank.

Correct brake fluid level in expansion tank.

**Special tools required:**

- [11 9 260](#)
- [21 2 141](#)
- [21 2 142](#)
- [21 2 170](#)
- [21 2 180](#)
- [21 2 200](#)
- [21 2 230](#)
- [21 2 250](#)

**Important!**

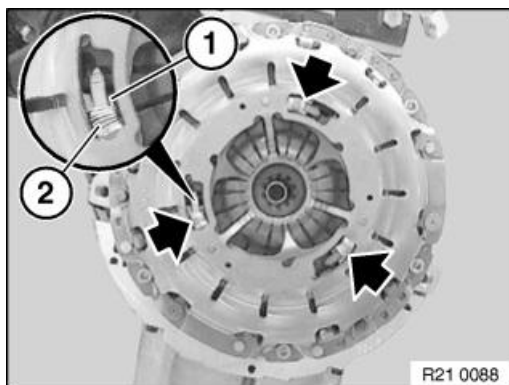
Do not clean self-adjusting clutch (SAC) and flywheel with high pressure cleaner or washing machine, otherwise the function of the adjustment unit and damping spring is no longer guaranteed.

Clean friction surface only.

Check self-adjusting clutch (SAC) for wear and damage replace if required. .

**Necessary preliminary work:**

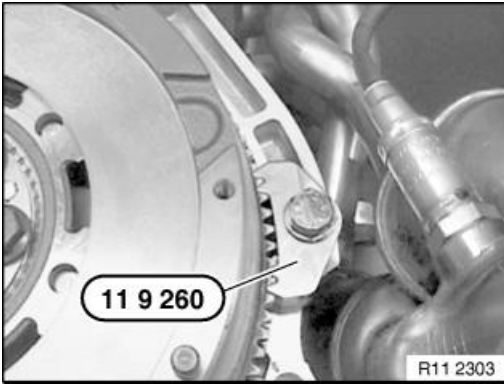
- Remove [transmission](#).

**Identification of the self-adjusting clutch $\varnothing$ 240 mm (SAC):**

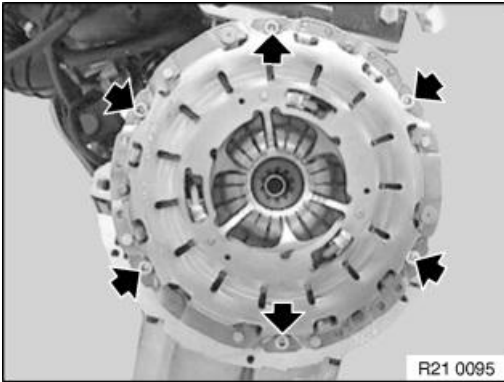
- 3 openings each with a pressure piece (1) of adjustment ring and a pressure spring (2)

Note:

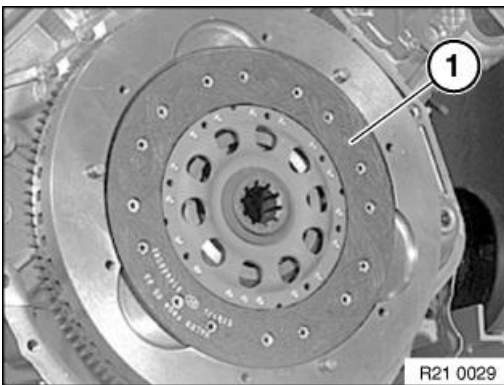
Figure shows the position of the thrust piece in case of a new clutch.



Lock flywheel with special tool [11 9 260](#).



Remove bolts and remove self-adjusting clutch from flywheel.**Important!**
Do not use a special tool to detach the self-adjusting clutch from the flywheel.



Remove clutch disc (1) from flywheel.

Clean flywheel, check for wear and damage.

[Replace damaged flywheel.](#)

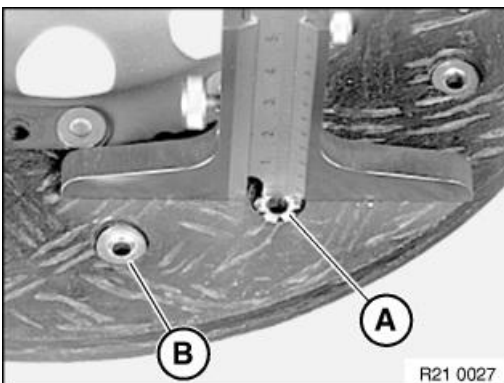
Check grooved ball bearing in crankshaft for ease of movement and tightness and if necessary [replace grooved ball bearing](#).



Important!

Always replace clutch discs fouled e.g. by oil, cleaning agent.

Check clutch disc for damage and frictional corrosion in the gearing
replace if required.



Check clutch disc for wear:

Measure lining protrusion at lining rivets at closing head (A) in each case.

Note:

Rivet connection

- a) Closing head
- B) Swage head

Replace clutch disc if lining protrusion at closing head (A) is less than 1 mm.

Push clutch disc onto the cleaned transmission input shaft and check for easy movability.



Important!

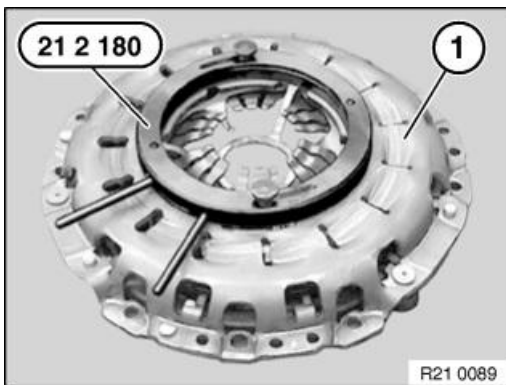
Do not clean the Self-adjusting clutch and the flywheel with a pressure washer or washing machine, otherwise the function of adjusting unit and damping springs is no longer guaranteed.

Clean friction surface only.

Check self-adjusting clutch for wear and damage and replace as necessary.

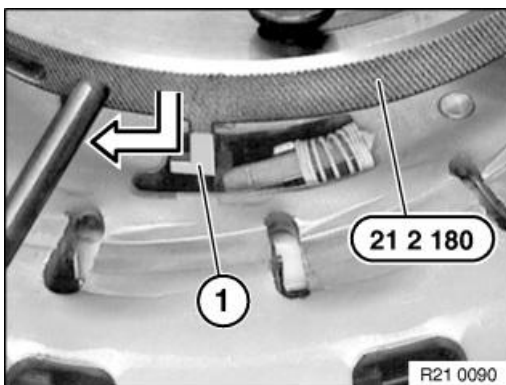


Reinstall the previously removed self-adjusting clutch and clutch disc:



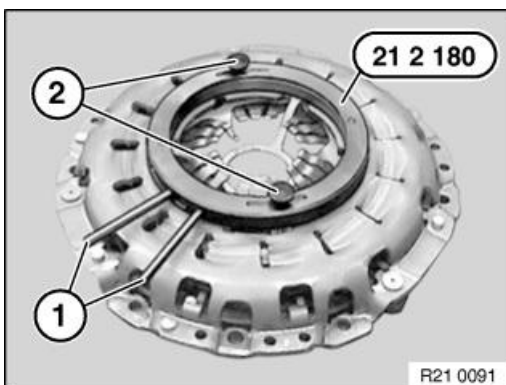
Place self-adjusting clutch (1) on a clean support.

Insert special tool [21 2 180](#) in the self-adjusting clutch (1).



Note:

Locking hooks (1) of special tool [21 2 180](#) must engage in recesses of self-adjusting clutch.



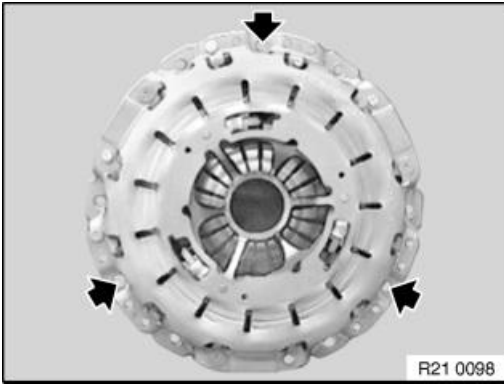
Press special tool [21 2 180](#) together at handles (1) as far as it will go and grip firmly.

At same time tighten down knurled screws (2).

Adjusting ring of the self-adjusting clutch is now fixed in its original position (actual condition).

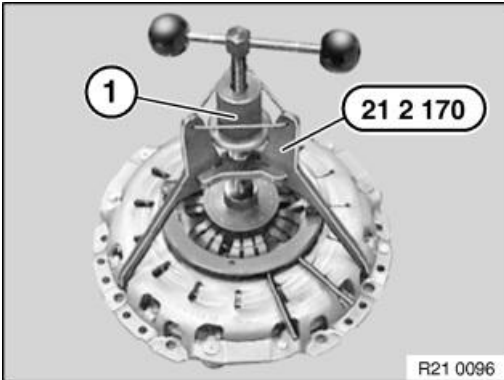
Important!

Do not adjust adjusting ring.

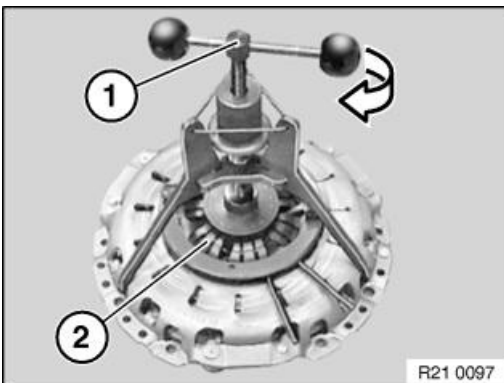


Note:

Fit special tool [21 2 170](#) only in area of bore holes for dowel pins.



Fit special tool [21 2 170](#) and tighten down at knurled screw (1).



Screw in spindle (1) until diaphragm spring (2) is pretensioned at limit position.

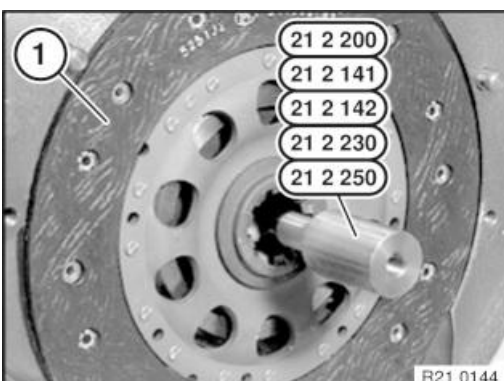


Important!

Handle clutch disk carefully, do not touch surfaces of friction pads.

Install clutch disc in correct position.

Note designation for "engine side" / "transmission side".



Centre clutch disc (1) with special tool.

Mount special tool Transmission

[21 2 141](#)

S6S 420G; S6S 560G; S5D 390Z

[21 2 142](#)

S5D 200G; S5D 250G; S5D 260Z; S5D 310Z

[21 2 200](#)

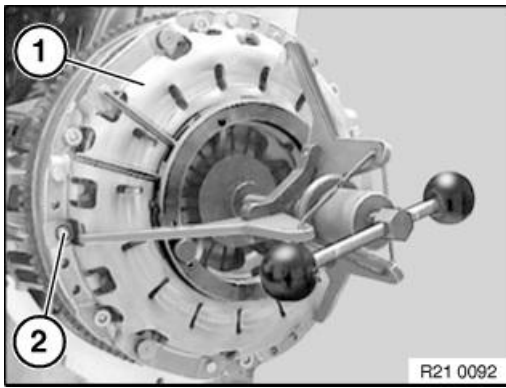
GS6-37BZ

[21 2 230](#)

GS6-53DZ

[21 2 250](#)

GS6-17BG



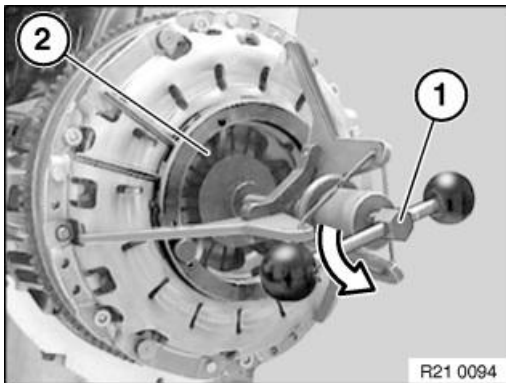
Mount self-adjusting clutch (1) to flywheel.

Pay attention to dowel pins (2).

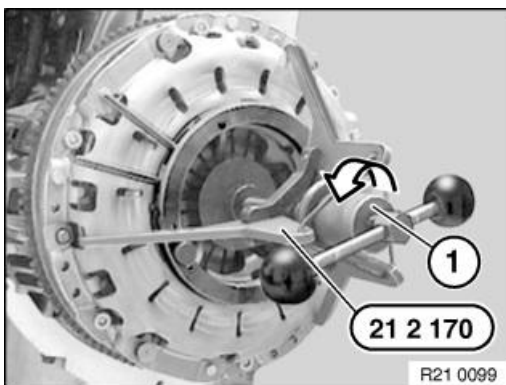
Self-adjusting clutch (1) must be secured by way of dowel pins (2).

Install and tighten down screws.

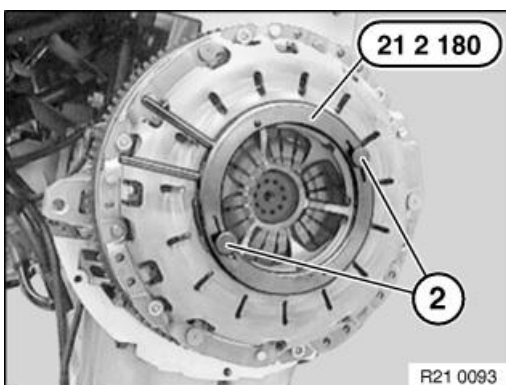
Tightening torque: [21 21 1AZ](#).



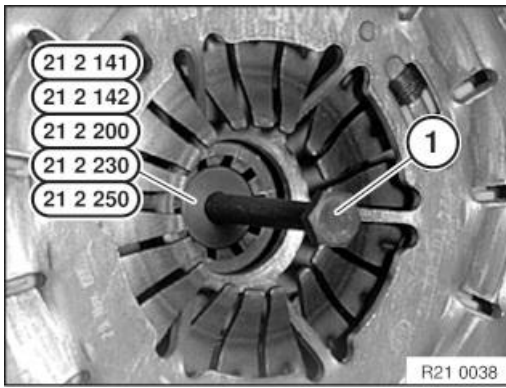
Release spindle (1) until load is fully removed from diaphragm spring (2).



Release knurled screw (1) and remove special tool [21 2 170](#) from self-adjusting clutch.



Release knurled screws (2) and remove special tool [21 2 180](#) from self-adjusting clutch.



Withdraw special tool from clutch disc with aid of accompanying screw (1).



Install removed self-adjusting clutch with new clutch disc: *Installation*

note:

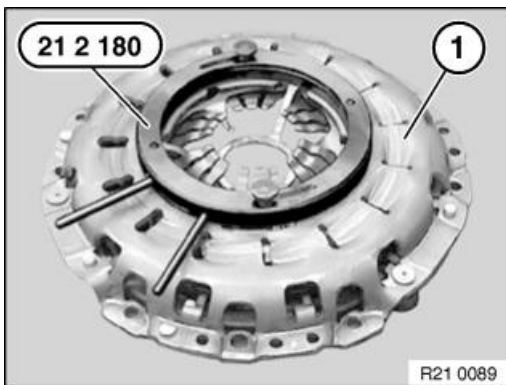
Screws must be replaced.

Jointing torque and angle of rotation must be observed without fail.



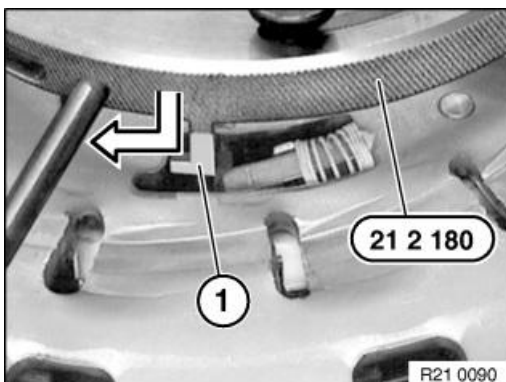
Important!

Before installing a self-adjusting clutch which has been in service with a new clutch disc: Always put the adjusting ring back in the position of a new coupling.



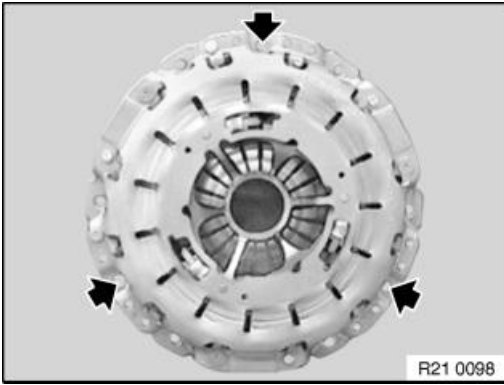
Place self-adjusting clutch on a clean support.

Insert special tool [21 2 180](#) in the self-adjusting clutch (1).



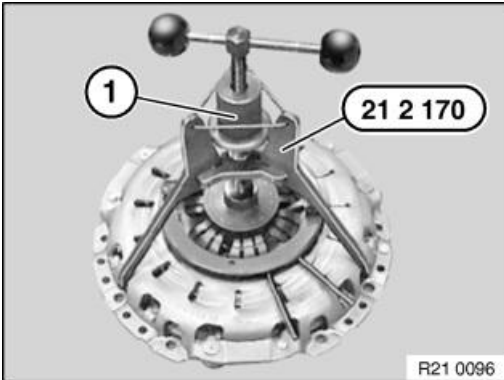
Note:

Locking hooks (1) of special tool [21 2 180](#) must engage in recesses of self-adjusting clutch.

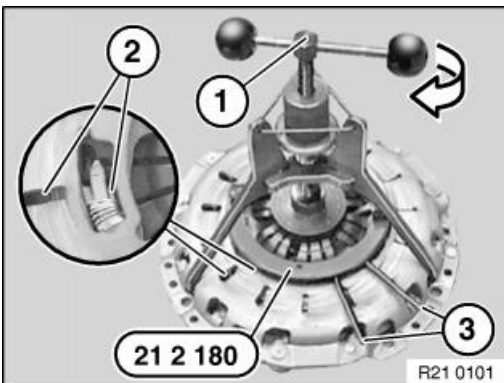


Note:

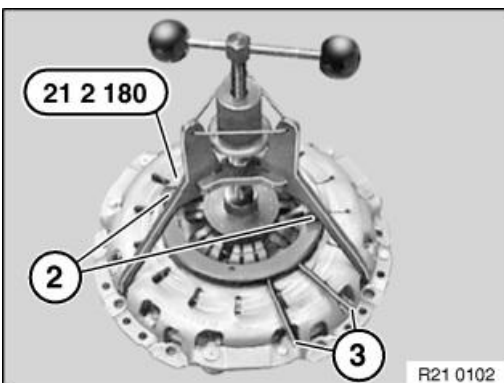
Fit special tool [21 2 170](#) only in area of bore holes for dowel pins.



Fit special tool [21 2 170](#) and tighten down at knurled screw (1).



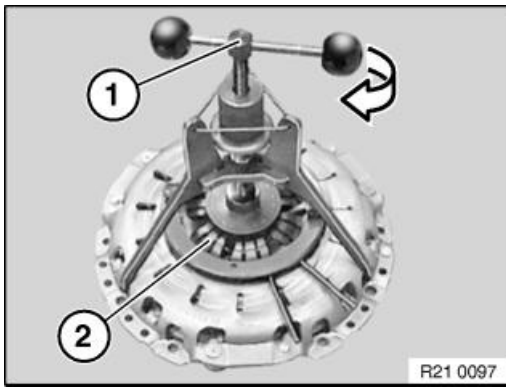
Screw in spindle (1) until the adjusting ring of self-adjusting clutch (2) can be twisted with the special tool [21 2 180](#) at handles (3).



Press special tool [21 2 180](#) together at handles (3) as far as it will go and grip firmly.

At same time tighten down knurled screws (2).

Adjusting ring of the self-adjusting clutch is now fixed in the position of a new clutch.



Screw in spindle (1) until diaphragm spring (2) is pretensioned at limit position.



Important!

Handle clutch disk carefully, do not touch surfaces of friction pads.

Install clutch disc in correct position.

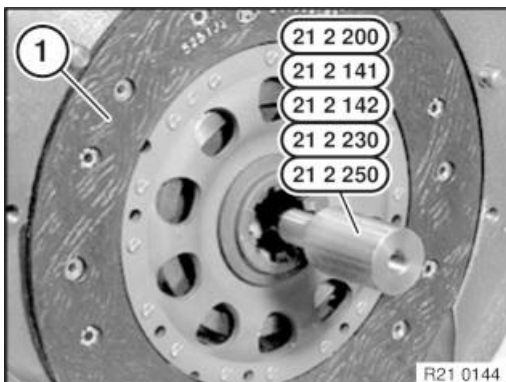
Note designation for "engine side" / "transmission side".

Installation note:

N52

Screws must be replaced.

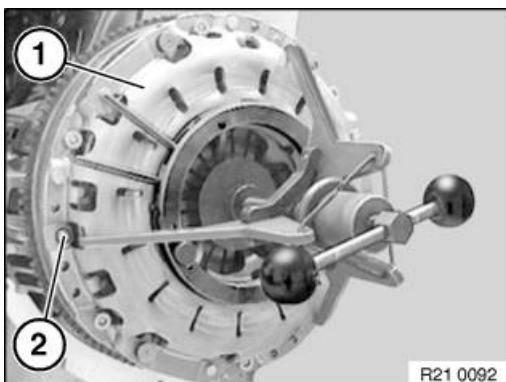
Jointing torque and angle of rotation must be observed without fail.



Centre clutch disc (1) with special tool.

Mount special tool Transmission

21 2 141	S6S 420G; S6S 560G; S5D 390Z
21 2 142	S5D 200G; S5D 250G; S5D 260Z; S5D 310Z
21 2 200	GS6-37BZ
21 2 230	GS6-53DZ
21 2 250	GS6-17BG



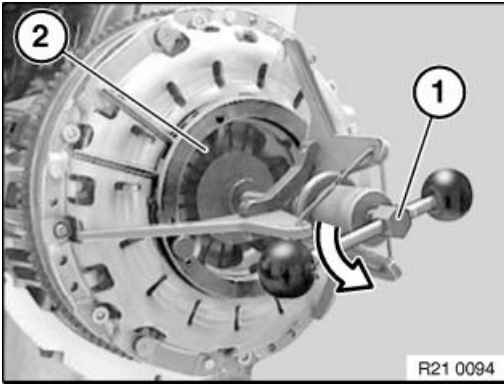
Mount self-adjusting clutch (1) to flywheel.

Pay attention to dowel pins (2).

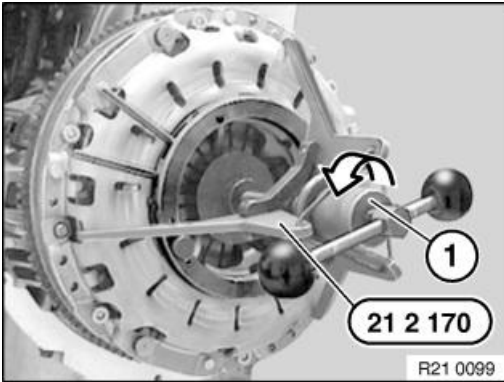
Self-adjusting clutch (1) must be secured by way of dowel pins (2).

Insert and tighten mounting bolts for self-adjusting clutch.

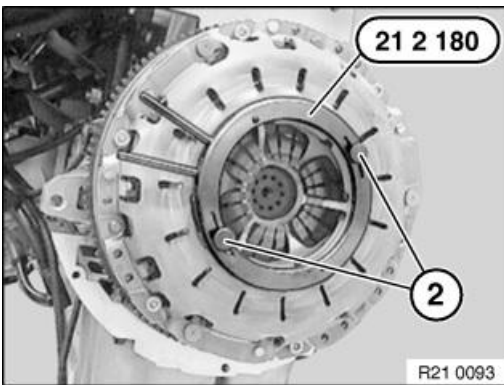
Tightening torque: [21 21 1AZ](#).



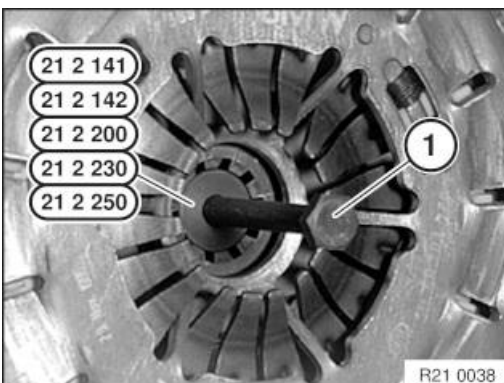
Release spindle (1) until load is fully removed from diaphragm spring (2).



Release knurled screw (1) and remove special tool [21 2 170](#) from self-adjusting clutch.



Release knurled screws (2) and remove special tool [21 2 180](#) from self-adjusting clutch.



Withdraw special tool from clutch disc with aid of accompanying screw (1).



Install new self-adjusting clutch: Installation note:

N52

Screws must be replaced.

Jointing torque and angle of rotation must be observed without fail.



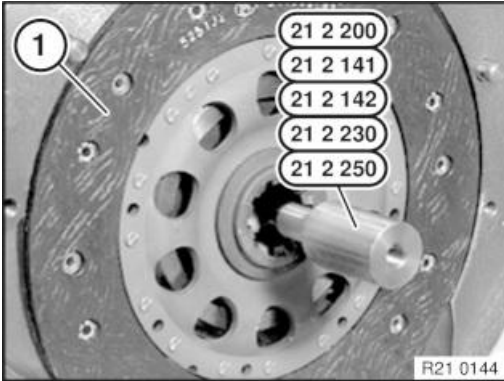
Important!

Handle clutch disk carefully, do not touch surfaces of friction pads.

Install clutch disc (1) in correct position.

Note designation for "engine side"/"transmission side".

The [clutch disengagement module](#) contained in the new AT clutch set absolutely **must** be installed.



Centre clutch disc (1) with special tool.

Mount special tool Transmission

[21 2 141](#)

S6S 420G; S6S 560G; S5D 390Z

[21 2 142](#)

S5D 200G; S5D 250G; S5D 260Z; S5D 310Z

[21 2 200](#)

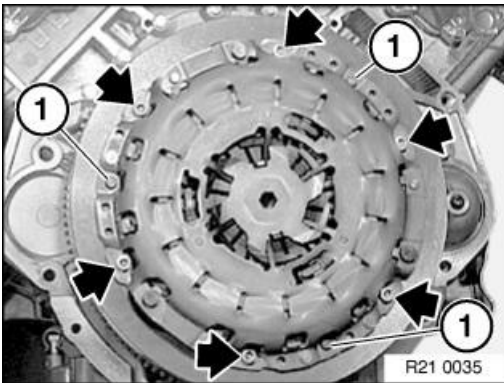
GS6-37BZ

[21 2 230](#)

GS6-53DZ

[21 2 250](#)

GS6-17BG



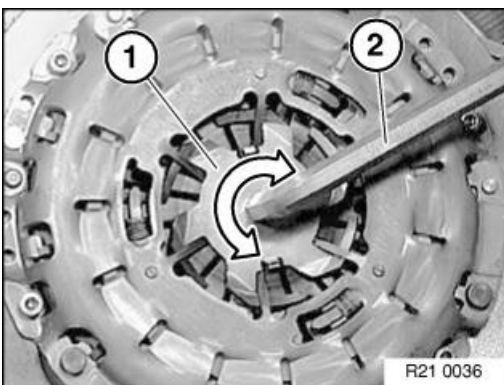
Slide self-adjusting clutch onto dowel pin (1) located in flywheel and screw on.

Tightening torque: [21 21 1AZ](#).



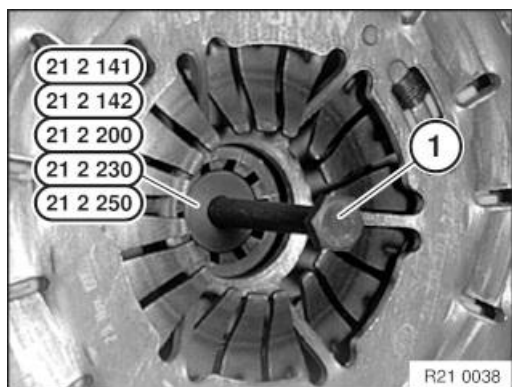
Important!

Stop (1) may only be removed with self-adjusting clutch screw-mounted.



Carefully unscrew stop (1) clockwise or anticlockwise using a size 14 (2) hexagon socket wrench. **Note:**

A slight snapping of the plate spring while unscrewing is possible.



Withdraw special tool from clutch disc with aid of accompanying screw (1).

21 21 000 Removing and installing/replacing clutch

PRELIMINARY WORK

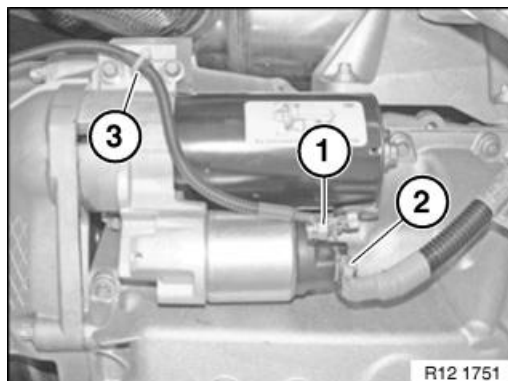
1 – Remove heat shields

- Remove the heat shields around the propeller shaft.

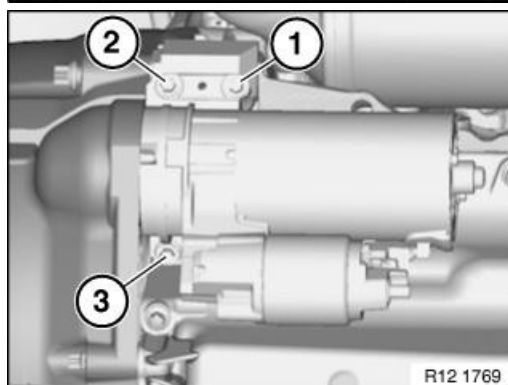
2 – Removing starter motor

Prerequisite

Battery earth lead is disconnected.



- Loosen the nut (1) and remove the cable.
- Loosen the nut (2) and remove the positive battery cable.
- Loosen the cable on the clamp (3) from the starter motor.



- Loosen screw (1).
- Loosen screw (2).
- Loosen screw (3).
- Remove starter motor.

MAIN WORK

3 – Remove clutch

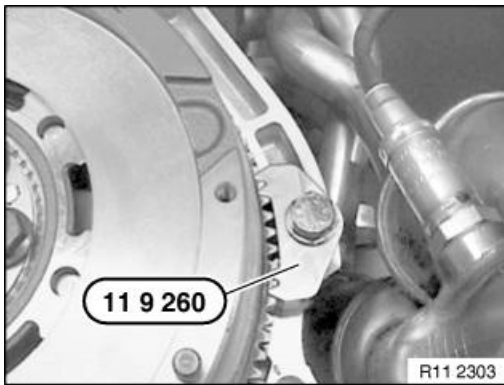


RISK OF DAMAGE

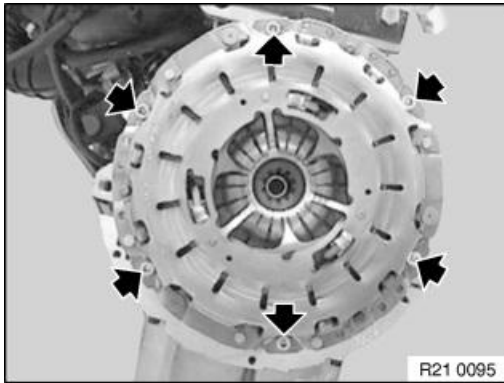
Damage to the self-adjusting clutch (SAC).

Improper cleaning of the self-adjusting clutch may cause impairment of functions on the adjustment unit and the damping springs.

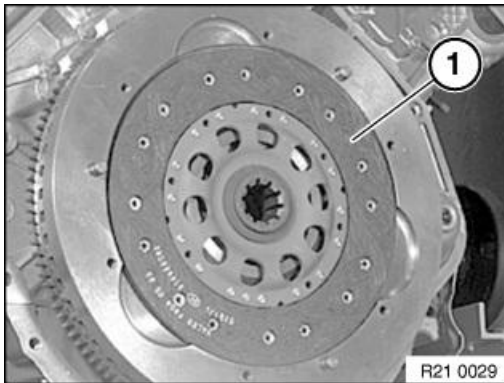
- Do not clean the self-adjusting clutch, clutch disc or pressure plate using a high pressure cleaner or in a washer.
- Clean friction surface only.



- Block the flywheel using special tool **0 493 938 (11 9 260)**.



- Loosen the screws and remove the self-adjusting clutch from the flywheel. Do not use a special tool for this purpose.



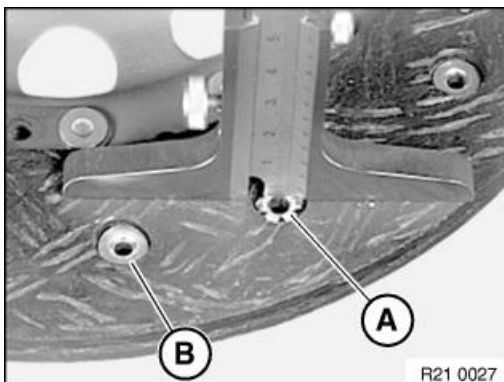
- Remove the clutch disc (1) from the flywheel.

4 – Checking clutch for wear



TECHNICAL INFORMATION

As a rule, contaminated clutch discs (e.g. contaminated by oil or cleaning agent) must be replaced.



Check

- Check clutch disc for wear:
- Measure lining protrusion at lining rivets at closing head (A) in each case.
The lining protrusion must be measured at the closing head (A) not on the swage head (B).

Result

» The lining protrusion at the closing head (A) is less than 1 mm.

Measure

- Renew the clutch disc.

5 – Install clutch.

Prerequisite

The flywheel and grooved ball bearing must be OK.



RISK OF DAMAGE

Damage to the self-adjusting clutch (SAC).

Improper cleaning of the self-adjusting clutch may cause impairment of functions on the adjustment unit and the damping springs.

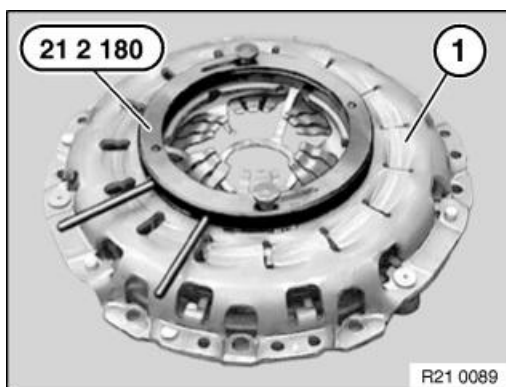
- Do not clean the self-adjusting clutch, clutch disc or pressure plate using a high pressure cleaner or in a washer.
- Clean friction surface only.

► Installing a removed, self-adjusting clutch with a new clutch disc

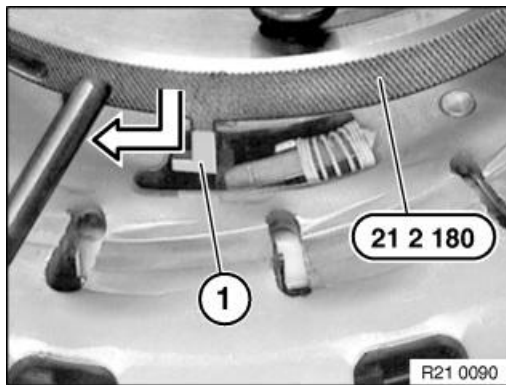


TECHNICAL INFORMATION

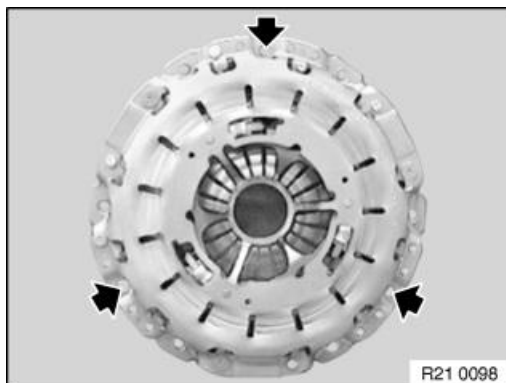
The contact surface between the clutch disc and the pressure plate must be clean and free from oil and grease.



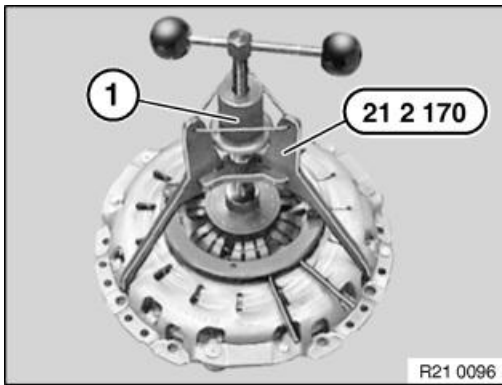
- Place self-adjusting clutch (SAC) (1) on a clean surface.
- Insert special tool **0 493 840 (21 2 180)** into self-adjusting clutch (SAC) (1).



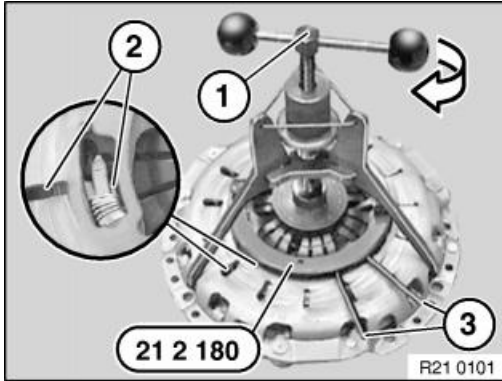
- Engage locking hooks (1) of special tool **0 493 840 (21 2 180)** into recesses of self-adjusting clutch (SAC) downwards in direction of arrow.



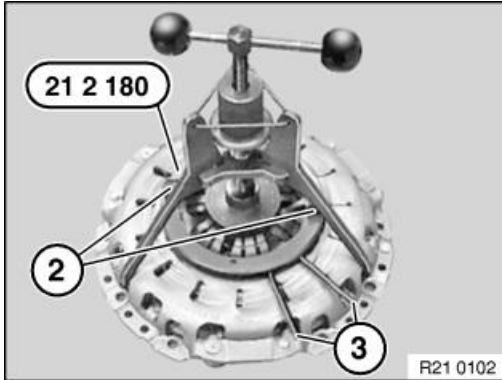
- Only insert the special tool **0 493 839 (21 2 170)** in the area of the bore holes (arrows) for the dowel pins.



- Position special tool **0 493 839 (21 2 170)** and secure using knurled screw (1).

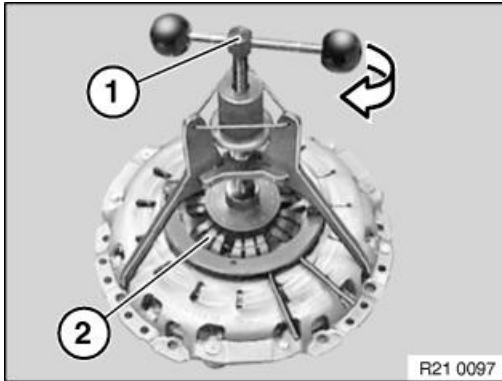


- Screw in the spindle (1) until the adjusting ring of the self-adjusting clutch (SAC) (2) can be turned using the handles (3) of the special tool **0 493 840 (21 2 180)**.

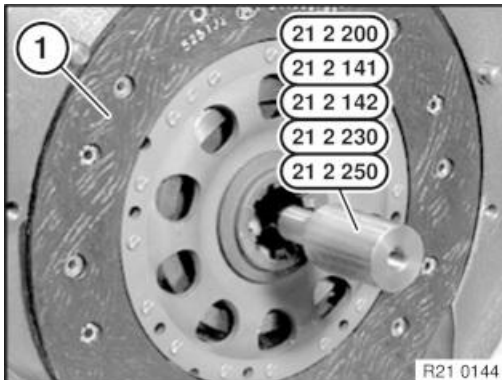


- Move the adjusting ring into the position for a new self-adjusting clutch (SAC).
- Press the handles (3) of the special tool **0 493 840 (21 2 180)** together until the limit position and hold in position.
- Tighten the knurled screws (2). In the process, continue holding the handles (3) in position.

The adjusting ring is now fixed in the position for a new self-adjusting clutch (SAC).



- Screw in the spindle (1) until the diaphragm spring (2) has been pre-tensioned to the limit position.

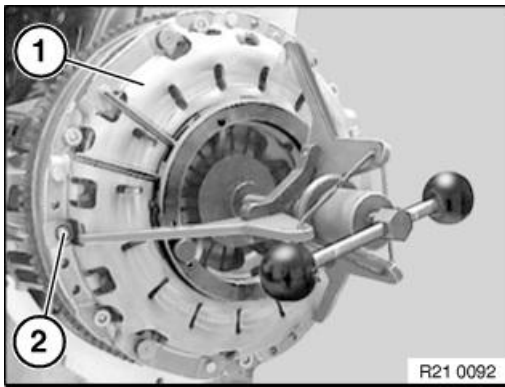


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TECHNICAL INFORMATION

The contact surface between the clutch disc and the pressure plate must be clean and free from oil and grease.

- Centre the clutch disc (1) using the special tool:
0 494 280 (21 2 200) for GS6-37BZ/DZ
0 491 426 (21 2 141) for S6S 420G; S6S 560G; S5D 390Z
0 491 427 (21 2 142) for S5D 200G; S5D 250G; S5D 260Z; S5D 310Z
0 494 649 (21 2 230) for GS6-53DZ
0 494 962 (21 2 250) for GS6-17BG/DG



- Align the self-adjusting clutch (SAC) (1) using the dowel pins (2) and install on the flywheel.

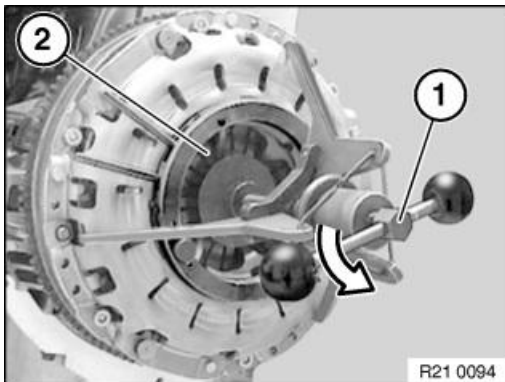
- Renew screws.

Parts: Bolts

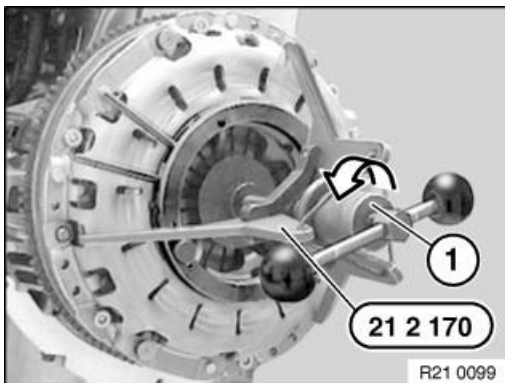
- Install and tighten down screws.

Clutch to flywheel

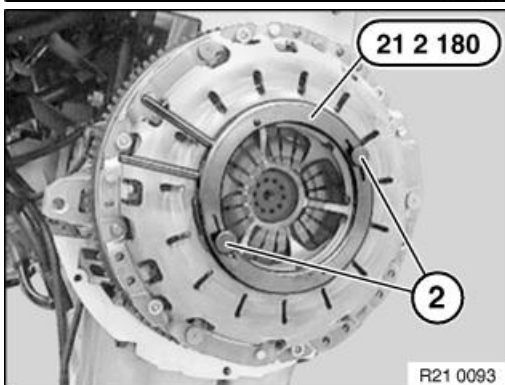
M8 8.8	Renew screws.	Tightening torque	25 Nm
M8 10.9	Renew screws.	Tightening torque	34 Nm
M8 10.9 ZNS screw	Renew screws.	Jointing torque	15 Nm
		Angle of rotation	90 °



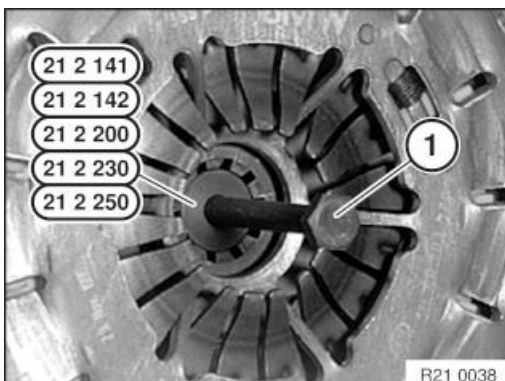
- Loosen the spindle (1) until the diaphragm spring (2) is fully relieved.



- Release knurled screw (1) and remove special tool **0 493 839 (21 2 170)** from self-adjusting clutch (SAC).



- Release knurled screws (2) and remove special tool **0 493 840 (21 2 180)** from self-adjusting clutch (SAC).



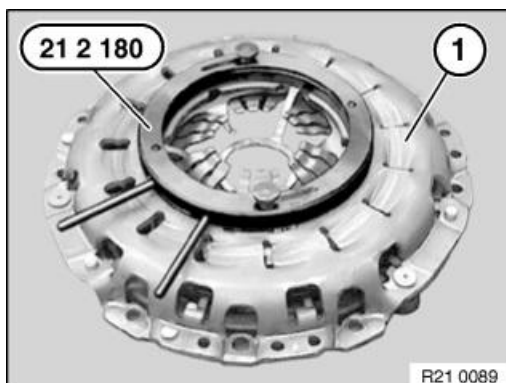
- Pull out the special tool from the clutch disc using the enclosed screw (1).

► Installing the removed self-adjusting clutch and clutch disc

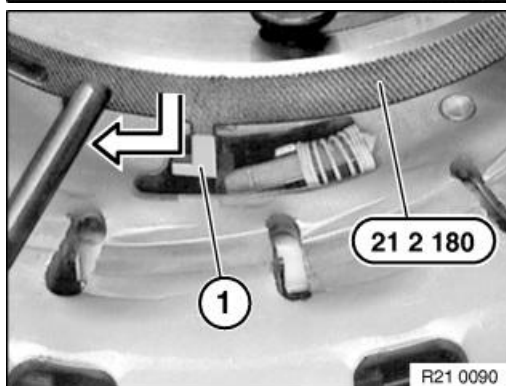


TECHNICAL INFORMATION

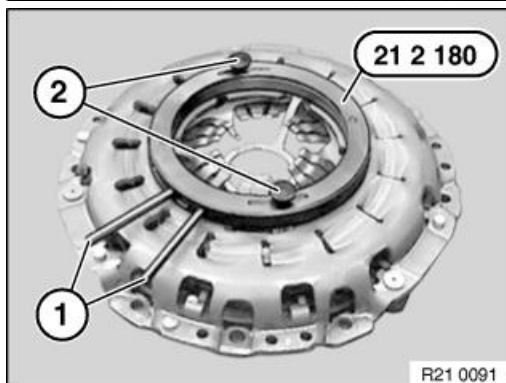
The contact surface between the clutch disc and the pressure plate must be clean and free from oil and grease.



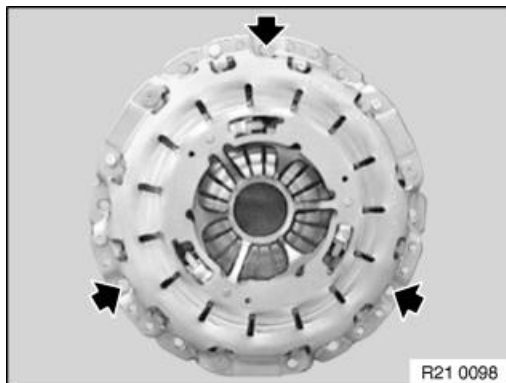
- Place self-adjusting clutch (SAC) (1) on a clean surface.
- Insert special tool **0 493 840 (21 2 180)** into self-adjusting clutch (SAC) (1).



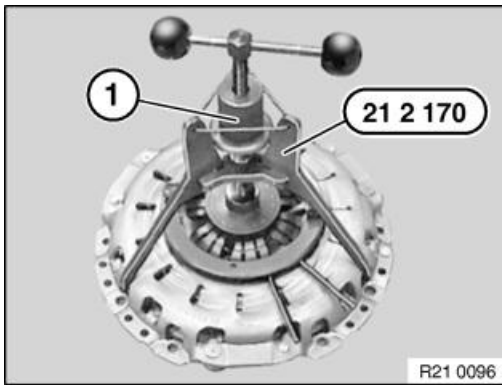
- Engage locking hooks (1) of special tool **0 493 840 (21 2 180)** into recesses of self-adjusting clutch (SAC) downwards in direction of arrow.



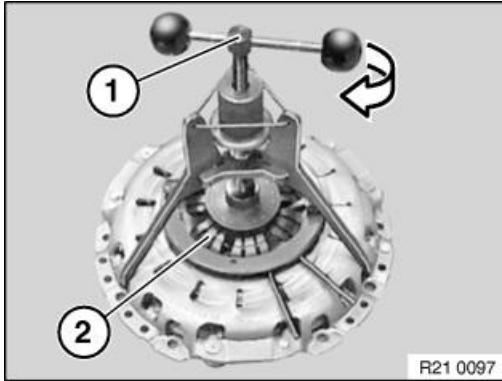
- Press together and hold the special tool **0 493 840 (21 2 180)** up to the limit position using the handles (1).
- Tighten the knurled screws (2). Continue to hold the handles (1).
The adjusting ring of the self-adjusting clutch is now fixed in its current position (actual condition).
- Make sure that the adjusting ring is not adjusted.



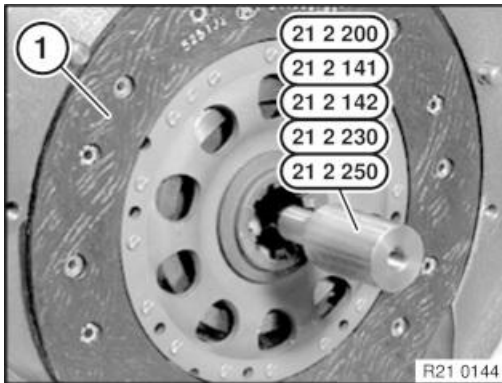
- Only insert the special tool **0 493 839 (21 2 170)** in the area of the bore holes (arrows) for the dowel pins.



- Position special tool **0 493 839 (21 2 170)** and secure using knurled screw (1).



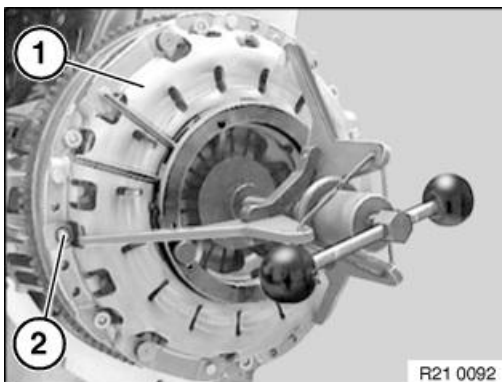
- Screw in the spindle (1) until the diaphragm spring (2) has been pre-tensioned to the limit position.



TECHNICAL INFORMATION

The contact surface between the clutch disc and the pressure plate must be clean and free from oil and grease.

- Centre the clutch disc (1) using the special tool:
0 494 280 (21 2 200) for GS6-37BZ/DZ
0 491 426 (21 2 141) for S6S 420G; S6S 560G; S5D 390Z
0 491 427 (21 2 142) for S5D 200G; S5D 250G; S5D 260Z; S5D 310Z
0 494 649 (21 2 230) for GS6-53DZ
0 494 962 (21 2 250) for GS6-17BG/DG



- Align the self-adjusting clutch (SAC) (1) using the dowel pins (2) and install on the flywheel.

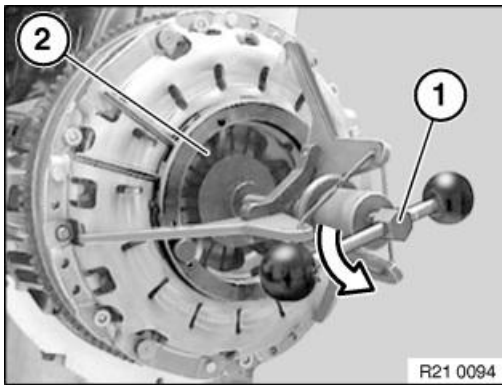
- Renew screws.

Parts: Bolts

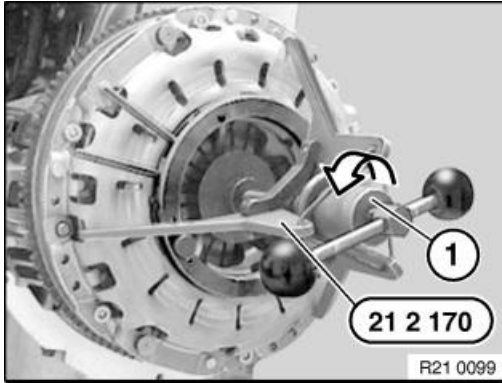
- Install and tighten down screws.

Clutch to flywheel

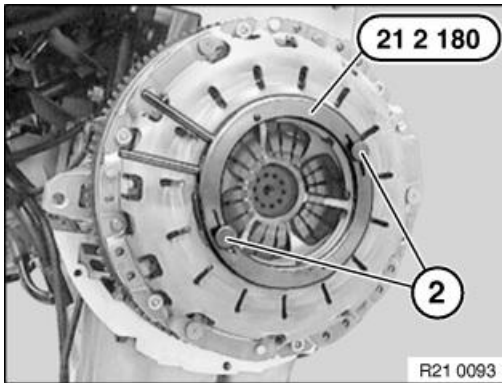
M8 8.8	Renew screws.	Tightening torque	25 Nm
M8 10.9	Renew screws.	Tightening torque	34 Nm
M8 10.9 ZNS screw	Renew screws.	Jointing torque	15 Nm
		Angle of rotation	90 °



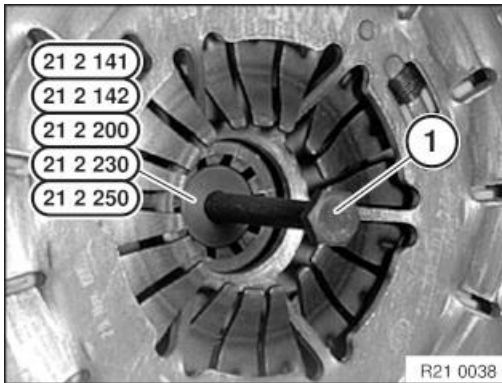
- Loosen the spindle (1) until the diaphragm spring (2) is fully relieved.



- Release knurled screw (1) and remove special tool **0 493 839 (21 2 170)** from self-adjusting clutch (SAC).



- Release knurled screws (2) and remove special tool **0 493 840 (21 2 180)** from self-adjusting clutch (SAC).



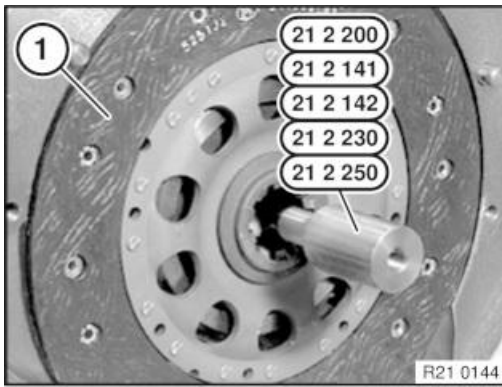
- Pull out the special tool from the clutch disc using the enclosed screw (1).

► Installing a new self-adjusting clutch (SAC)

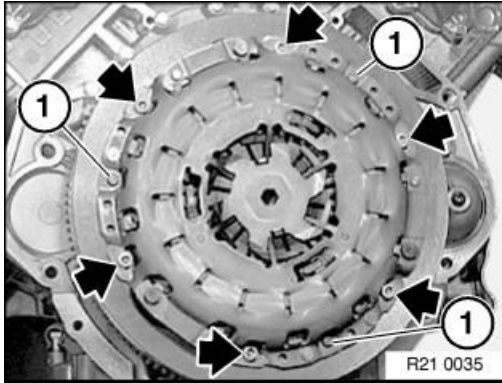


TECHNICAL INFORMATION

The contact surface between the clutch disc and the pressure plate must be clean and free from oil and grease.



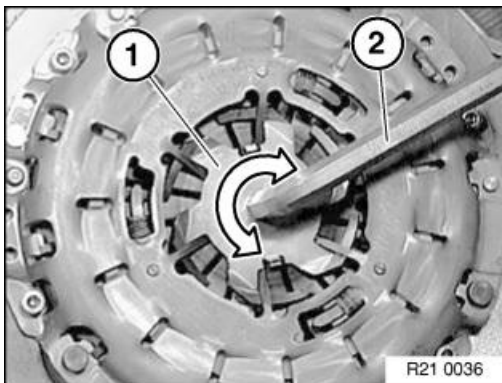
- Centre the clutch disc (1) using the special tool:
0 494 280 (21 2 200) for GS6-37BZ/DZ
0 491 426 (21 2 141) for S6S 420G; S6S 560G; S5D 390Z
0 491 427 (21 2 142) for S5D 200G; S5D 250G; S5D 260Z; S5D 310Z
0 494 649 (21 2 230) for GS6-53DZ
0 494 962 (21 2 250) for GS6-17BG/DG



- Align the self-adjusting clutch (SAC) using the dowel pins (1) and install on the flywheel.
- Renew screws.
Parts: Bolts
- Install and tighten screws (arrows).

Clutch to flywheel

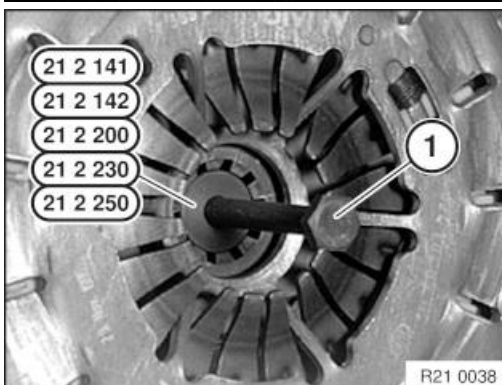
M8 8.8	Renew screws.	Tightening torque	25 Nm
M8 10.9	Renew screws.	Tightening torque	34 Nm
M8 10.9 ZNS screw	Renew screws.	Jointing torque	15 Nm
		Angle of rotation	90 °



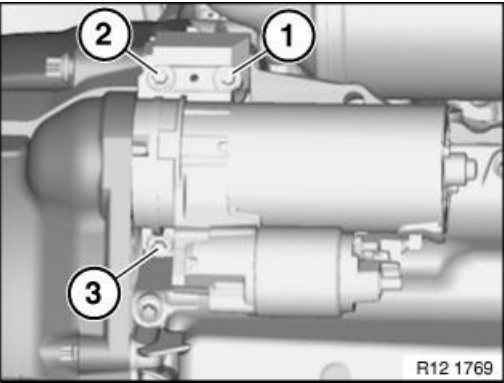
TECHNICAL INFORMATION

Only remove the stop of the self-adjusting clutch once the self-adjusting clutch has been screwed. Otherwise the self-adjusting clutch may be damaged.

- Turn hexagon socket wrench with AF 14 (2). The stop (1) is released.
- Pull out the special tool from the clutch disc using the enclosed screw (1).



6 – Installing starter motor



- Check starter pinion and ring gear for damage. Replace starter motor if necessary.
- Position starter motor on oil sump.

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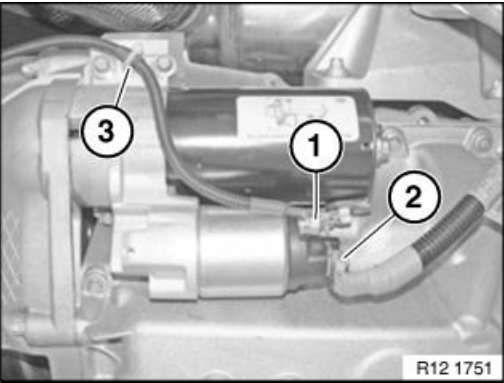
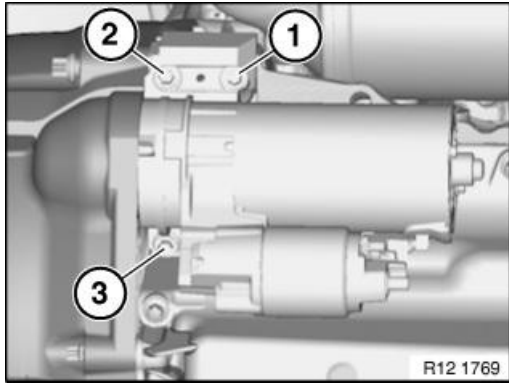
TECHNICAL INFORMATION

When assembling, it is essential to observe screwing sequences and tightening torques.
Non-observance of these requirements may result in leaks and damage.

- Tighten the screws (1), (2) and (3).

Starter motor

M8x60	Tighten screws in the following sequence (1), (2), (3).	19 Nm
-------	---	-------



- Attach cable to clamp (3) on starter motor.
- Attach positive battery cable and tighten nut (2).

Battery positive lead to starter

M8		13,4 Nm
----	--	---------

- Attach cable and tighten nut (1).

Wiring harness to starter (terminal 50)

M6		7 Nm
----	--	------

- **Only during starter motor replacement or on vehicles with automatic engine start-stop function (MSA):**
Reset start counter using BMW diagnosis system.

7 – Install the heat shields

- Install the heat shields around the propeller shaft.

Overview of Tightening Torques

Clutch to flywheel

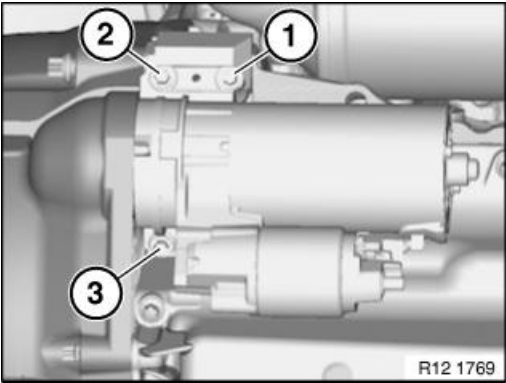
Used in step 5

M8 8.8	Renew screws.	Tightening torque	25 Nm
M8 10.9	Renew screws.	Tightening torque	34 Nm
M8 10.9 ZNS screw	Renew screws.	Jointing torque	15 Nm
		Angle of rotation	90 °

Starter motor

Used in step 6

M8x60	<i>Tighten screws in the following sequence (1), (2), (3).</i>	19 Nm
-------	--	-------



Battery positive lead to starter

Used in step 6

M8		13,4 Nm
----	--	---------

Wiring harness to starter (terminal 50)

Used in step 6

M6		7 Nm
----	--	------

Overview of Special Tools

0 493 938 (11 9 260) Holder

Used in step 3



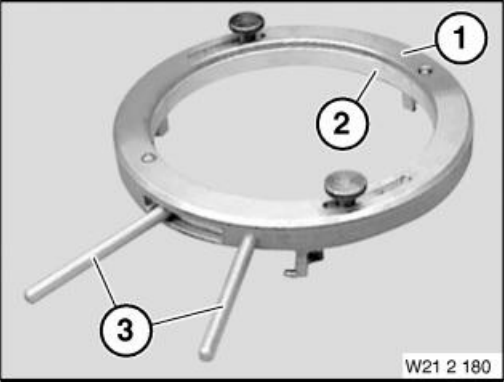
Common

Usage	(Counter support with screw connection) For holding the flywheel when gearbox is removed
Included in the tool or work	
Storage location	A44
Replaced by	
In connection with	
SI-Number	01 01 01 (662)

Consisting of

Pos	BMW Order number	Replaced by	Designation	In Connection with
1	0 494 034 (11 9 261)		Holder (Individual counter support)	
2	0 494 035 (11 9 262)		Screw (Bolt (thread M10) with washer) For screwing counter support	
3	0 494 129 (11 9 263)		Bush (Bush for counter support) For counter support, for retaining flywheel when gearbox is removed Engine: N62, N73	
6	0 495 216 (11 9 266)		Bush For counter support, for retaining flywheel when gearbox is removed Engine: M57TU2	
4	0 494 130 (11 9 264)		Screw (Bolt (thread M12)) For counter support for retaining flywheel when gearbox is removed	
5	0 494 793 (11 9 265)		Bush	

0 493 840 (21 2 180) Ring



Common

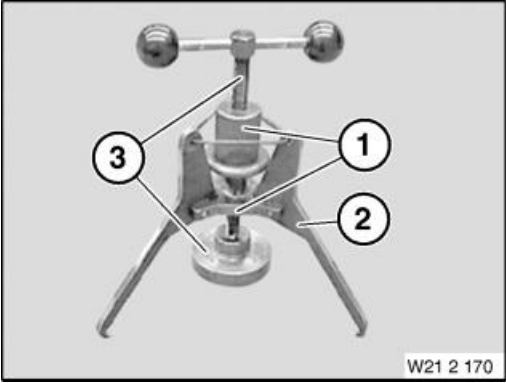
Used in step 5

Usage	(locating ring) For locating and resetting adjusting ring of self-adjusting clutch on all 6- and 8-cylinder engines.
Included in the tool or work	
Storage location	A44
Replaced by	
In connection with	
SI-Number	01 16 00 (622)

Consisting of

Pos	BMW Order number	Replaced by	Designation	In Connection with
1	0 494 561 (21 2 181)		Ring (Outer ring) discontinued, available as part of set of special tools only	
2	0 494 562 (21 2 182)		Ring (Inner ring) discontinued, available as part of set of special tools only	
3	0 494 563 (21 2 183)		Pin (Threaded pin) Scope: 2 units discontinued, available as part of set of special tools only	

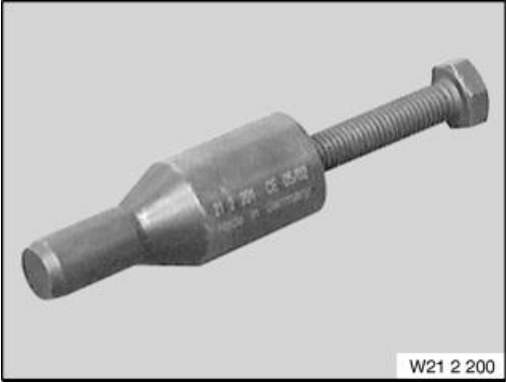
0 493 839 (21 2 170) Device



Common		Used in step	5
Usage	(tensioning device) For resetting adjusting ring and installing self-adjusting clutch on flywheel without tension.		
Included in the tool or work			
Storage location	Individual		
Replaced by			
In connection with			
SI-Number	01 16 00 (622)		

Consisting of				
Pos	BMW Order number	Replaced by	Designation	In Connection with
1	0 494 558 (21 2 171)		Basic body (Basic body) Basic body with adjusting spindle Deletion, only available via tool set	
2	0 494 559 (21 2 172)		Claw (Clamping claw (1 piece)) Available as part of complete tool set 0493839 only.	
3	0 494 560 (21 2 173)		Spindle (Pressure spindle with washer) Available as part of complete tool set 0493839 only.	

0 494 280 (21 2 200) Mandrel



Common		Used in step	5
Usage	(Clutch centring pin and screw M10.) For centring clutch disc during installation.		
Included in the tool or work			
Storage location	C42		
Replaced by			
In connection with			
SI-Number	01 10 02 (907)		

0 491 426 (21 2 141) Mandrel



Common		Used in step	5
Usage	(Clutch centring drift) With screw M10 Transmission: S6S 420G, S6S 560G		
Included in the tool or work	0 491 425		
Storage location			
Replaced by			
In connection with			
SI-Number			

0 491 427 (21 2 142) Mandrel



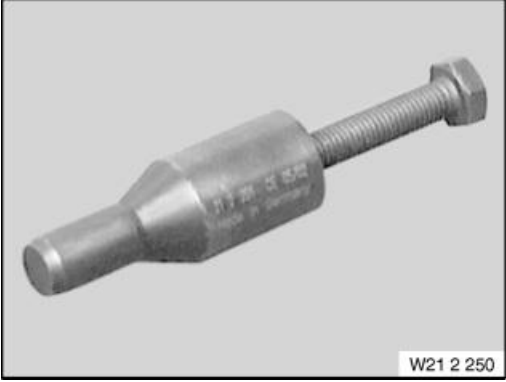
Common		Used in step	5
Usage	(Clutch centring drift) With screw M10 Transmission: S5D 200G, S5D 250G, S5D 260Z, S5D 310Z, S5D 320Z		
Included in the tool or work	0 491 425		
Storage location			
Replaced by			
In connection with			
SI-Number			

0 494 649 (21 2 230) Mandrel



Common		Used in step	5
Usage	(clutch centring drift) With screw M10 (G transmission)		
Included in the tool or work			
Storage location	C45		
Replaced by			
In connection with			
SI-Number	01 03 03 (960)		

0 494 962 (21 2 250) Mandrel



Common		Used in step	5
Usage	(clutch centring drift) For centring drive plate when installing. Clutch disc with modified gearing. Transmission: S5D 250G (B transmission)		
Included in the tool or work			
Storage location	A50		
Replaced by			
In connection with			
SI-Number	01 20 04 (135)		

Overview Technical Data

Links

General repair instructions	Used in step
12 00 ... Notes for disconnecting and connecting battery	
61 00 ... Safety information for handling vehicle battery	
61 12 ... Notes on intelligent battery sensor (IBS)	

Operating materials	Used in step
3.0 ATE brake cylinder paste, grease in clutch area	

Operating materials	Used in step
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21 21 500 Removing and installing/replacing clutch

1 – Remove clutch

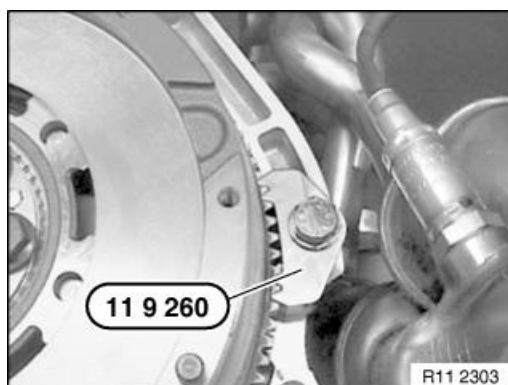


RISK OF DAMAGE

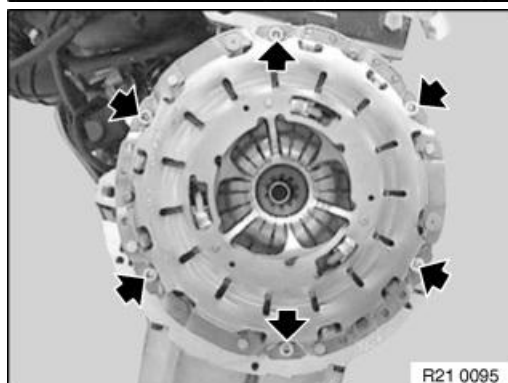
Damage to the self-adjusting clutch (SAC).

Improper cleaning of the self-adjusting clutch may cause impairment of functions on the adjustment unit and the damping springs.

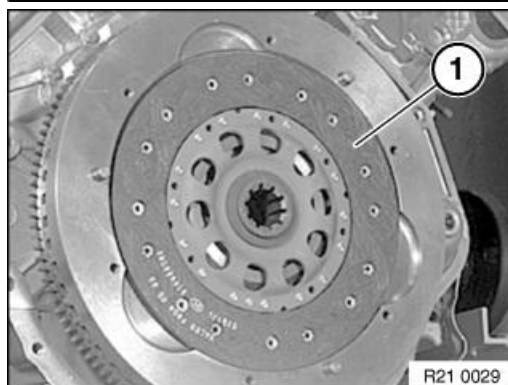
- Do not clean the self-adjusting clutch, clutch disc or pressure plate using a high pressure cleaner or in a washer.
- Clean friction surface only.



- Block the flywheel using special tool **0 493 938 (11 9 260)**.



- Loosen the screws and remove the self-adjusting clutch from the flywheel. Do not use a special tool for this purpose.



- Remove the clutch disc (1) from the flywheel.

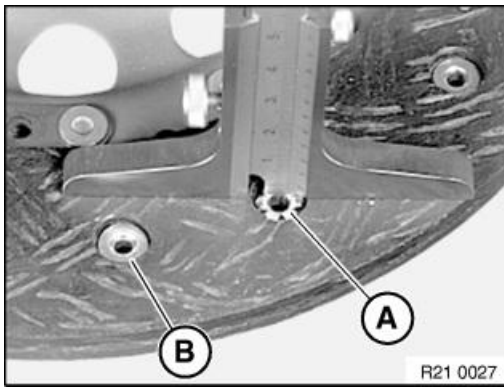
2 – Checking clutch for wear



TECHNICAL INFORMATION

As a rule, contaminated clutch discs (e.g. contaminated by oil or cleaning agent) must be replaced.

Check



- Check clutch disc for wear:
- Measure lining protrusion at lining rivets at closing head (A) in each case.
The lining protrusion must be measured at the closing head (A) not on the swage head (B).

Result

» The lining protrusion at the closing head (A) is less than 1 mm.

Measure

- Renew the clutch disc.

3 – Install clutch.

Prerequisite

The flywheel and grooved ball bearing must be OK.



RISK OF DAMAGE

Damage to the self-adjusting clutch (SAC).

Improper cleaning of the self-adjusting clutch may cause impairment of functions on the adjustment unit and the damping springs.

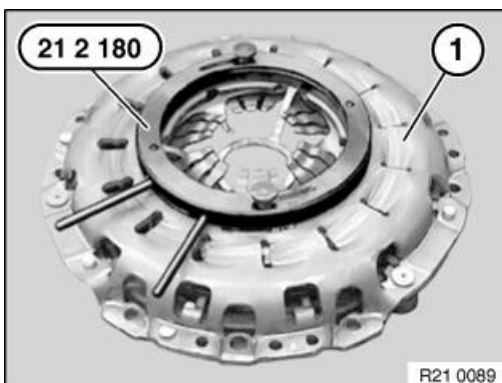
- Do not clean the self-adjusting clutch, clutch disc or pressure plate using a high pressure cleaner or in a washer.
- Clean friction surface only.

► Installing a removed, self-adjusting clutch with a new clutch disc

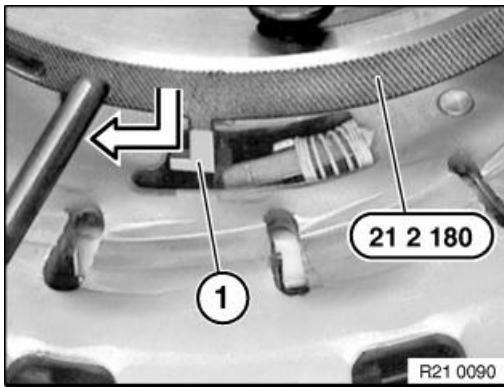


TECHNICAL INFORMATION

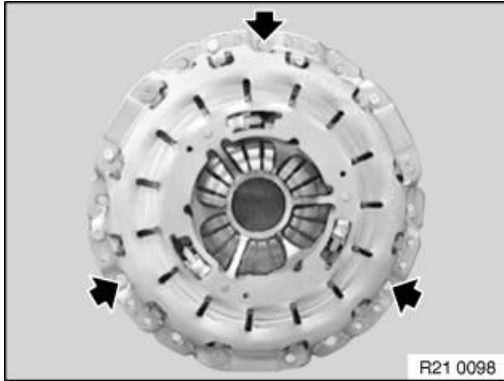
The contact surface between the clutch disc and the pressure plate must be clean and free from oil and grease.



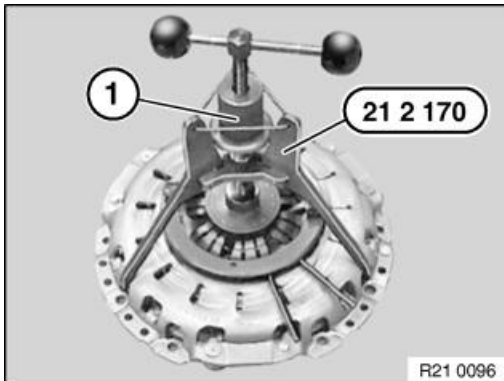
- Place self-adjusting clutch (SAC) (1) on a clean surface.
- Insert special tool **0 493 840 (21 2 180)** into self-adjusting clutch (SAC) (1).



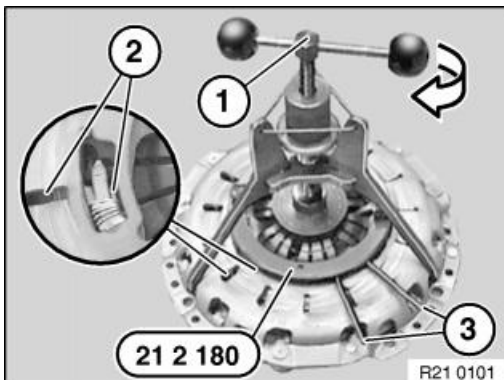
- Engage locking hooks (1) of special tool **0 493 840 (21 2 180)** into recesses of self-adjusting clutch (SAC) downwards in direction of arrow.



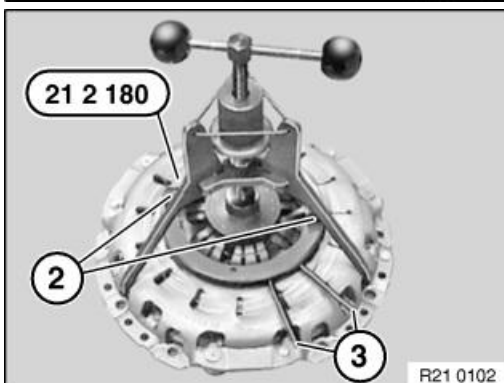
- Only insert the special tool **0 493 839 (21 2 170)** in the area of the bore holes (arrows) for the dowel pins.



- Position special tool **0 493 839 (21 2 170)** and secure using knurled screw (1).

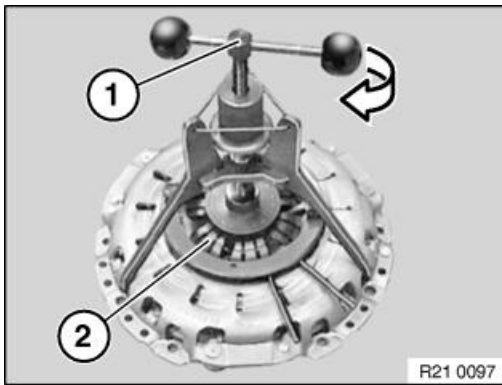


- Screw in the spindle (1) until the adjusting ring of the self-adjusting clutch (SAC) (2) can be turned using the handles (3) of the special tool **0 493 840 (21 2 180)**.

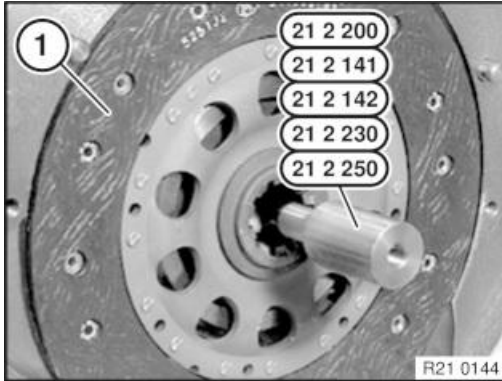


- Move the adjusting ring into the position for a new self-adjusting clutch (SAC).
- Press the handles (3) of the special tool **0 493 840 (21 2 180)** together until the limit position and hold in position.
- Tighten the knurled screws (2). In the process, continue holding the handles (3) in position.

The adjusting ring is now fixed in the position for a new self-adjusting clutch (SAC).



- Screw in the spindle (1) until the diaphragm spring (2) has been pre-tensioned to the limit position.



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TECHNICAL INFORMATION

The contact surface between the clutch disc and the pressure plate must be clean and free from oil and grease.

- Centre the clutch disc (1) using the special tool:

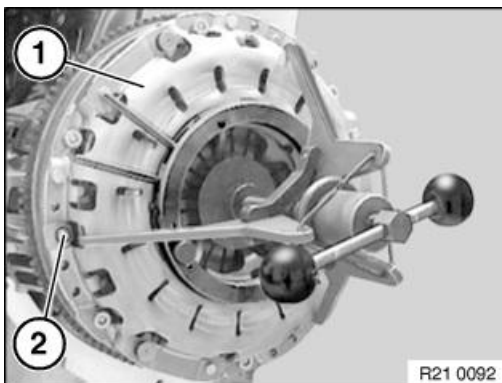
0 494 280 (21 2 200) for GS6-37BZ/DZ

0 491 426 (21 2 141) for S6S 420G; S6S 560G; S5D 390Z

0 491 427 (21 2 142) for S5D 200G; S5D 250G; S5D 260Z; S5D 310Z

0 494 649 (21 2 230) for GS6-53DZ

0 494 962 (21 2 250) for GS6-17BG/DG



- Align the self-adjusting clutch (SAC) (1) using the dowel pins (2) and install on the flywheel.

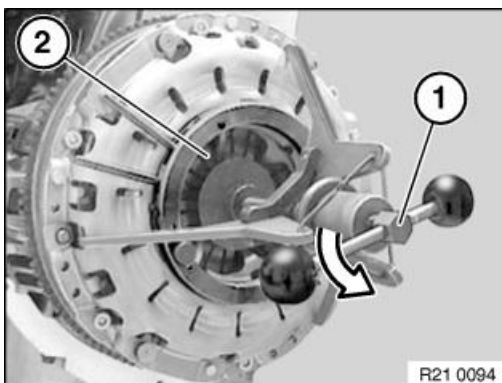
- Renew screws.

Parts: Bolts

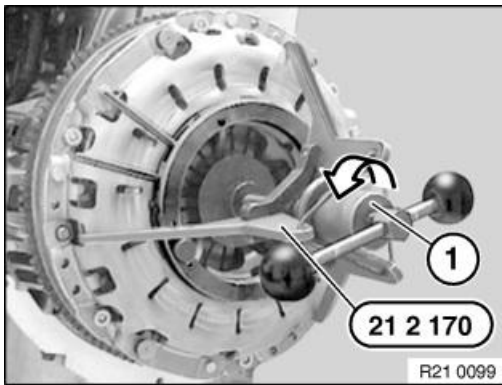
- Install and tighten down screws.

Clutch to flywheel

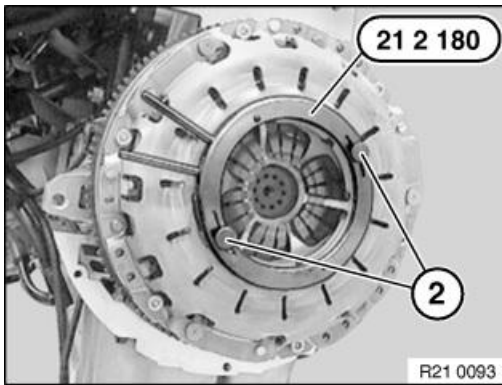
M8 8.8	Renew screws.	Tightening torque	25 Nm
M8 10.9	Renew screws.	Tightening torque	34 Nm
M8 10.9 ZNS screw	Renew screws.	Jointing torque	15 Nm
		Angle of rotation	90 °



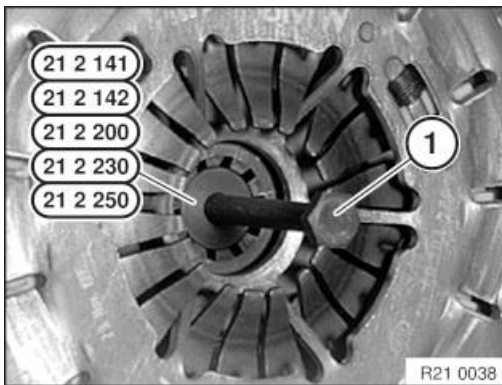
- Loosen the spindle (1) until the diaphragm spring (2) is fully relieved.



- Release knurled screw (1) and remove special tool **0 493 839 (21 2 170)** from self-adjusting clutch (SAC).



- Release knurled screws (2) and remove special tool **0 493 840 (21 2 180)** from self-adjusting clutch (SAC).



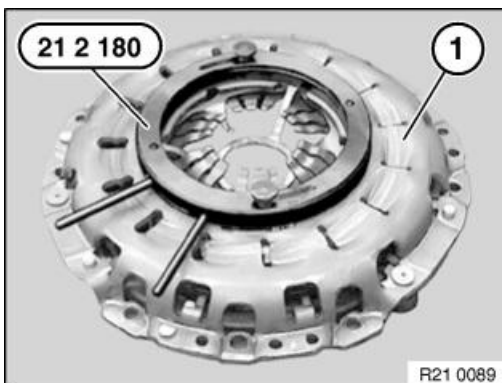
- Pull out the special tool from the clutch disc using the enclosed screw (1).

► Installing the removed self-adjusting clutch and clutch disc

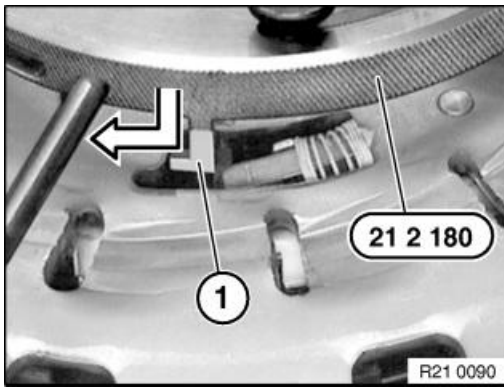
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TECHNICAL INFORMATION

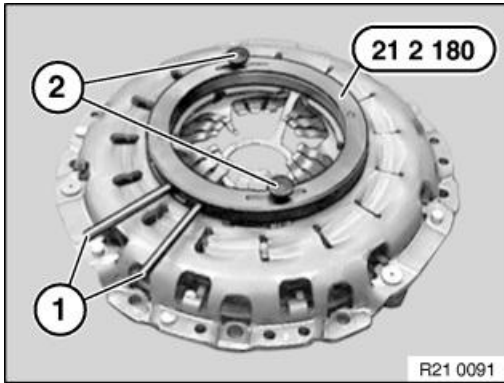
The contact surface between the clutch disc and the pressure plate must be clean and free from oil and grease.



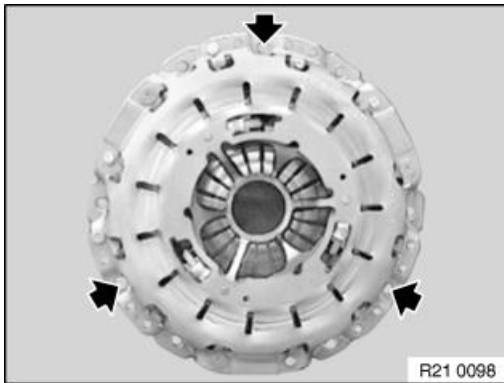
- Place self-adjusting clutch (SAC) (1) on a clean surface.
- Insert special tool **0 493 840 (21 2 180)** into self-adjusting clutch (SAC) (1).



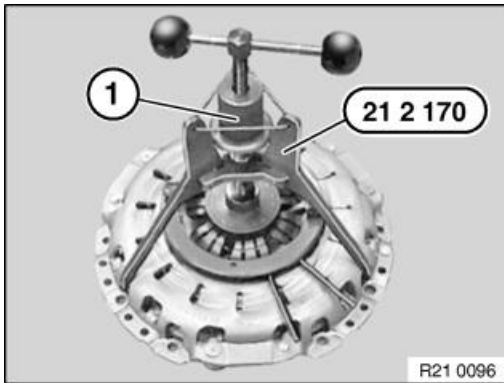
- Engage locking hooks (1) of special tool **0 493 840 (21 2 180)** into recesses of self-adjusting clutch (SAC) downwards in direction of arrow.



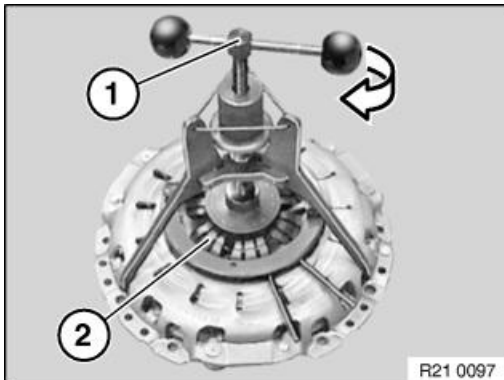
- Press together and hold the special tool **0 493 840 (21 2 180)** up to the limit position using the handles (1).
- Tighten the knurled screws (2). Continue to hold the handles (1).
The adjusting ring of the self-adjusting clutch is now fixed in its current position (actual condition).
- Make sure that the adjusting ring is not adjusted.



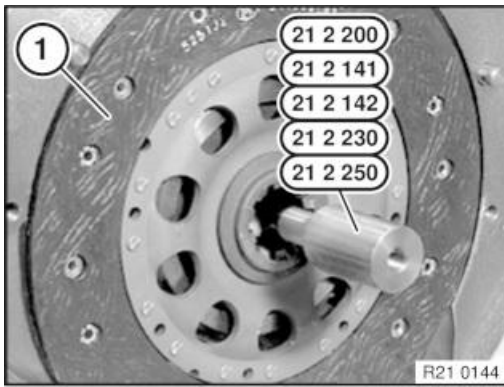
- Only insert the special tool **0 493 839 (21 2 170)** in the area of the bore holes (arrows) for the dowel pins.



- Position special tool **0 493 839 (21 2 170)** and secure using knurled screw (1).



- Screw in the spindle (1) until the diaphragm spring (2) has been pre-tensioned to the limit position.



TECHNICAL INFORMATION

The contact surface between the clutch disc and the pressure plate must be clean and free from oil and grease.

- Centre the clutch disc (1) using the special tool:

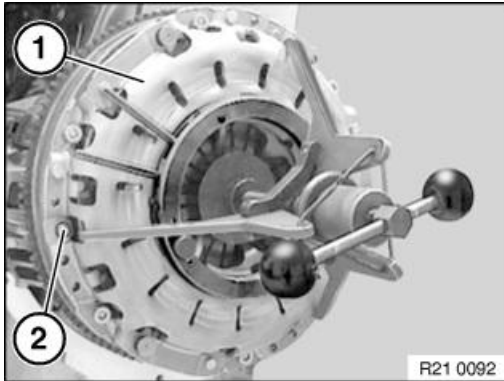
0 494 280 (21 2 200) for GS6-37BZ/DZ

0 491 426 (21 2 141) for S6S 420G; S6S 560G; S5D 390Z

0 491 427 (21 2 142) for S5D 200G; S5D 250G; S5D 260Z; S5D 310Z

0 494 649 (21 2 230) for GS6-53DZ

0 494 962 (21 2 250) for GS6-17BG/DG



- Align the self-adjusting clutch (SAC) (1) using the dowel pins (2) and install on the flywheel.

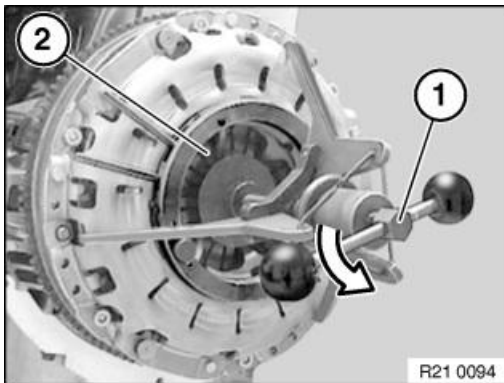
- Renew screws.

Parts: Bolts

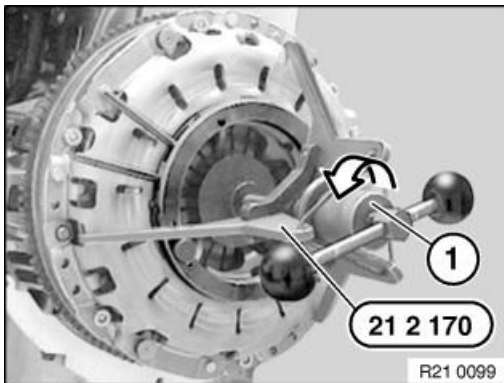
- Install and tighten down screws.

Clutch to flywheel

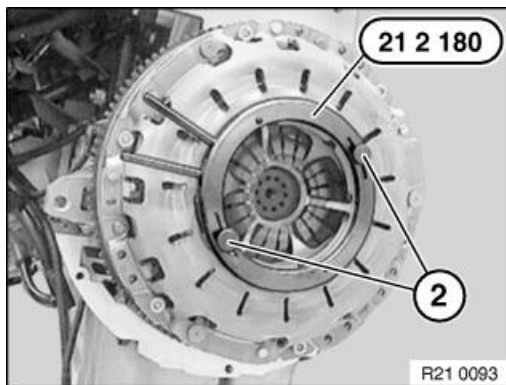
M8 8.8	Renew screws.	Tightening torque	25 Nm
M8 10.9	Renew screws.	Tightening torque	34 Nm
M8 10.9 ZNS screw	Renew screws.	Jointing torque	15 Nm
		Angle of rotation	90 °



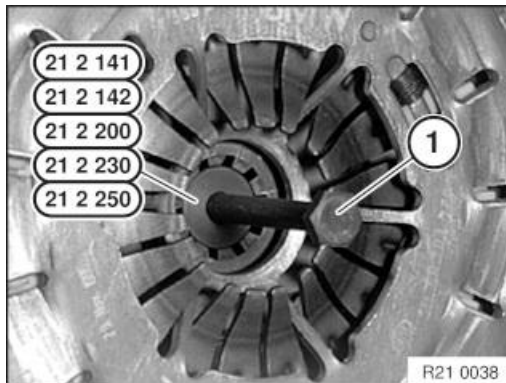
- Loosen the spindle (1) until the diaphragm spring (2) is fully relieved.



- Release knurled screw (1) and remove special tool **0 493 839 (21 2 170)** from self-adjusting clutch (SAC).



- Release knurled screws (2) and remove special tool **0 493 840 (21 2 180)** from self-adjusting clutch (SAC).



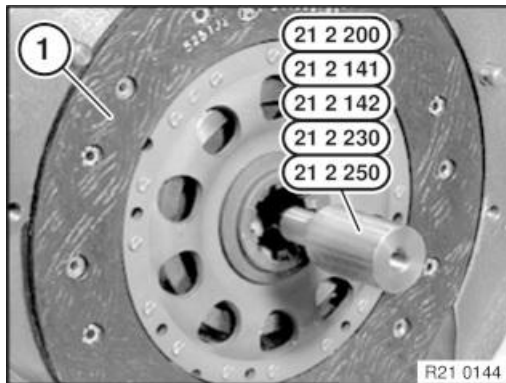
- Pull out the special tool from the clutch disc using the enclosed screw (1).

► Installing a new self-adjusting clutch (SAC)

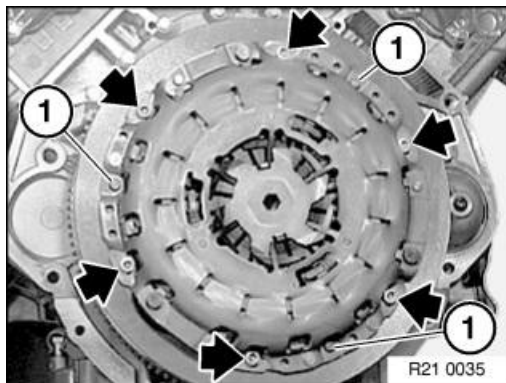
i

TECHNICAL INFORMATION

The contact surface between the clutch disc and the pressure plate must be clean and free from oil and grease.



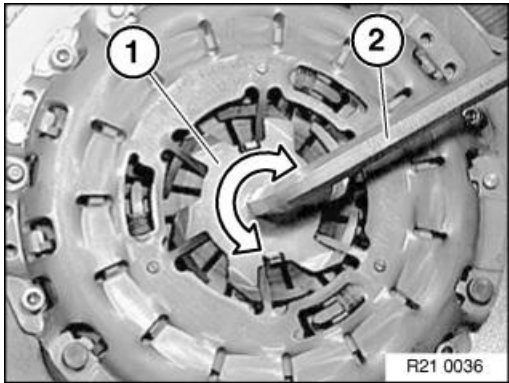
- Centre the clutch disc (1) using the special tool:
0 494 280 (21 2 200) for GS6-37BZ/DZ
0 491 426 (21 2 141) for S6S 420G; S6S 560G; S5D 390Z
0 491 427 (21 2 142) for S5D 200G; S5D 250G; S5D 260Z; S5D 310Z
0 494 649 (21 2 230) for GS6-53DZ
0 494 962 (21 2 250) for GS6-17BG/DG



- Align the self-adjusting clutch (SAC) using the dowel pins (1) and install on the flywheel.
- Renew screws.
- Install and tighten screws (arrows).

Clutch to flywheel

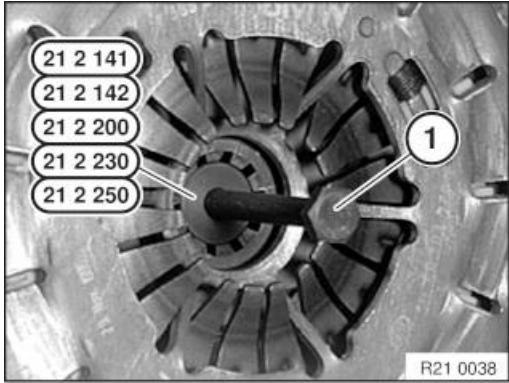
M8 8.8	Renew screws.	Tightening torque	25 Nm
M8 10.9	Renew screws.	Tightening torque	34 Nm
M8 10.9 ZNS screw	Renew screws.	Jointing torque	15 Nm
		Angle of rotation	90 °



TECHNICAL INFORMATION

Only remove the stop of the self-adjusting clutch once the self-adjusting clutch has been screwed. Otherwise the self-adjusting clutch may be damaged.

- Turn hexagon socket wrench with AF 14 (2). The stop (1) is released.
- Pull out the special tool from the clutch disc using the enclosed screw (1).



Additional Information

Overview of Tightening Torques

Clutch to flywheel

Used in step 3

M8 8.8	Renew screws.	Tightening torque	25 Nm
M8 10.9	Renew screws.	Tightening torque	34 Nm
M8 10.9 ZNS screw	Renew screws.	Jointing torque	15 Nm
		Angle of rotation	90 °

Overview of Special Tools

0 493 938 (11 9 260) Holder

Used in step 1



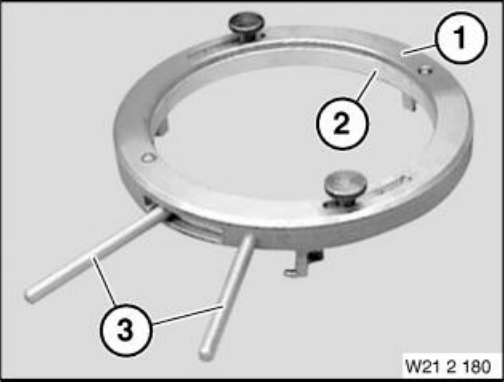
Common

Usage	(Counter support with screw connection) For holding the flywheel when gearbox is removed
Included in the tool or work	
Storage location	A44
Replaced by	
In connection with	
SI-Number	01 01 01 (662)

Consisting of

Pos	BMW Order number	Replaced by	Designation	In Connection with
1	0 494 034 (11 9 261)		Holder (Individual counter support)	
2	0 494 035 (11 9 262)		Screw (Bolt (thread M10) with washer) For screwing counter support	
3	0 494 129 (11 9 263)		Bush (Bush for counter support) For counter support, for retaining flywheel when gearbox is removed Engine: N62, N73	
6	0 495 216 (11 9 266)		Bush For counter support, for retaining flywheel when gearbox is removed Engine: M57TU2	
4	0 494 130 (11 9 264)		Screw (Bolt (thread M12)) For counter support for retaining flywheel when gearbox is removed	
5	0 494 793 (11 9 265)		Bush	

0 493 840 (21 2 180) Ring



Common

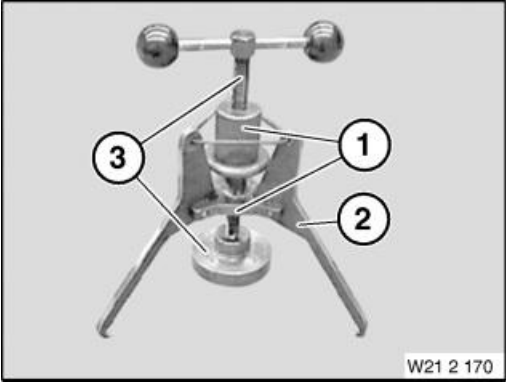
Used in step 3

Usage	(locating ring) For locating and resetting adjusting ring of self-adjusting clutch on all 6- and 8-cylinder engines.
Included in the tool or work	
Storage location	A44
Replaced by	
In connection with	
SI-Number	01 16 00 (622)

Consisting of

Pos	BMW Order number	Replaced by	Designation	In Connection with
1	0 494 561 (21 2 181)		Ring (Outer ring) discontinued, available as part of set of special tools only	
2	0 494 562 (21 2 182)		Ring (Inner ring) discontinued, available as part of set of special tools only	
3	0 494 563 (21 2 183)		Pin (Threaded pin) Scope: 2 units discontinued, available as part of set of special tools only	

0 493 839 (21 2 170) Device



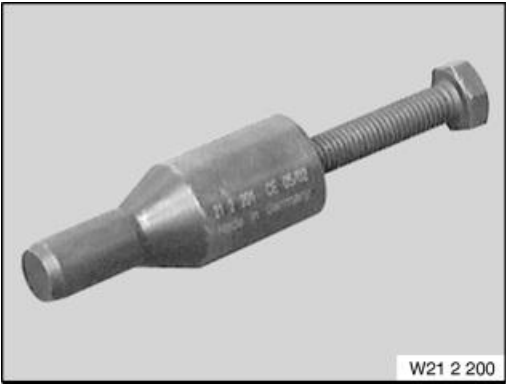
Common Used in step 3

Usage	(tensioning device) For resetting adjusting ring and installing self-adjusting clutch on flywheel without tension.
Included in the tool or work	
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 16 00 (622)

Consisting of

Pos	BMW Order number	Replaced by	Designation	In Connection with
1	0 494 558 (21 2 171)		Basic body (Basic body) Basic body with adjusting spindle Deletion, only available via tool set	
2	0 494 559 (21 2 172)		Claw (Clamping claw (1 piece)) Available as part of complete tool set 0493839 only.	
3	0 494 560 (21 2 173)		Spindle (Pressure spindle with washer) Available as part of complete tool set 0493839 only.	

0 494 280 (21 2 200) Mandrel



Common		Used in step	3
Usage	(Clutch centring pin and screw M10.) For centring clutch disc during installation.		
Included in the tool or work			
Storage location	C42		
Replaced by			
In connection with			
SI-Number	01 10 02 (907)		

0 491 426 (21 2 141) Mandrel



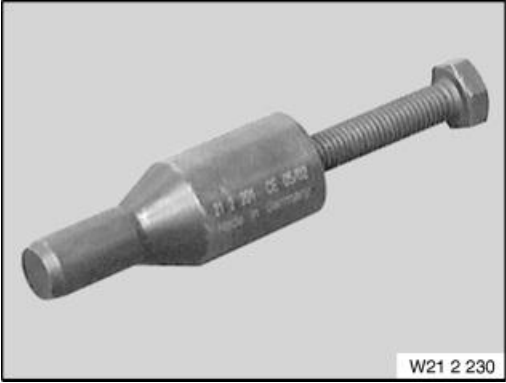
Common		Used in step	3
Usage	(Clutch centring drift) With screw M10 Transmission: S6S 420G, S6S 560G		
Included in the tool or work	0 491 425		
Storage location			
Replaced by			
In connection with			
SI-Number			

0 491 427 (21 2 142) Mandrel



Common		Used in step	3
Usage	(Clutch centring drift) With screw M10 Transmission: S5D 200G, S5D 250G, S5D 260Z, S5D 310Z, S5D 320Z		
Included in the tool or work	0 491 425		
Storage location			
Replaced by			
In connection with			
SI-Number			

0 494 649 (21 2 230) Mandrel

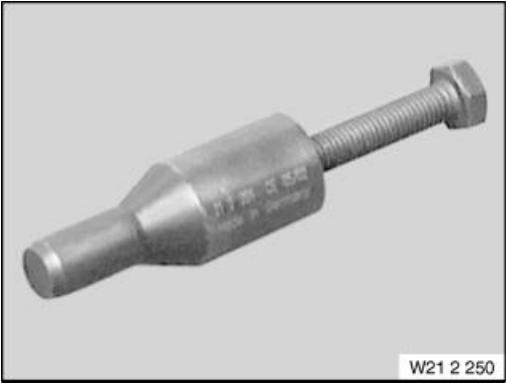


Common

Used in step 3

Usage	(clutch centring drift) With screw M10 (G transmission)
Included in the tool or work	
Storage location	C45
Replaced by	
In connection with	
SI-Number	01 03 03 (960)

0 494 962 (21 2 250) Mandrel



Common

Used in step 3

Usage	(clutch centring drift) For centring drive plate when installing. Clutch disc with modified gearing. Transmission: S5D 250G (B transmission)
Included in the tool or work	
Storage location	A50
Replaced by	
In connection with	
SI-Number	01 20 04 (135)

21 21 500 Removing and installing/replacing the clutch (SAC 228 N45/N46/N45T/N43/N46T/N47)



Special tools required:

- [11 9 260](#)
- [21 2 170](#)
- [21 2 190](#)
- [21 2 250](#)



Important!

Do not clean self-adjusting clutch and flywheel with high pressure cleaner or washing machine as the proper function of adjustment unit and damping springs can no longer be guaranteed.

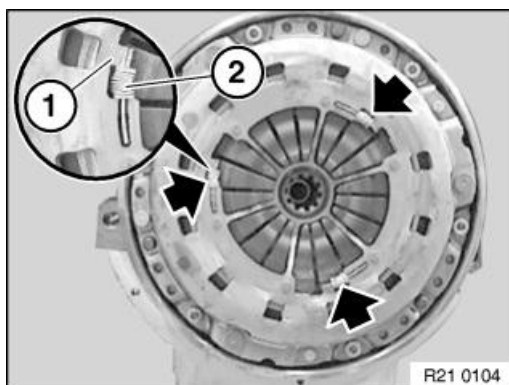
Clean friction surface only.

Check SAC clutch for wear and damage and replace if necessary.



Necessary preliminary tasks:

- Remove [transmission](#)

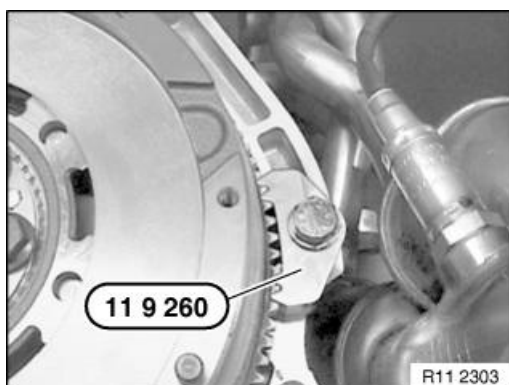


Identification SAC clutch dia. 228 mm (Self Adjusting Clutch):

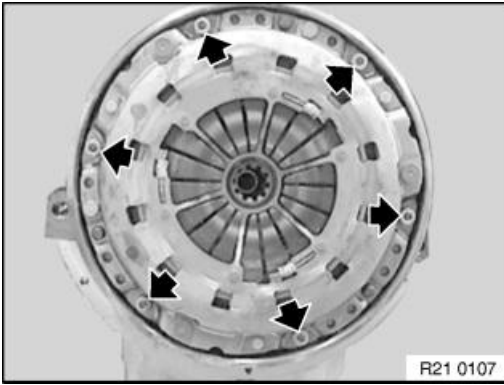
- 3 recesses each with a synchronising key (1) of adjusting ring and a compression spring (2)

Note:

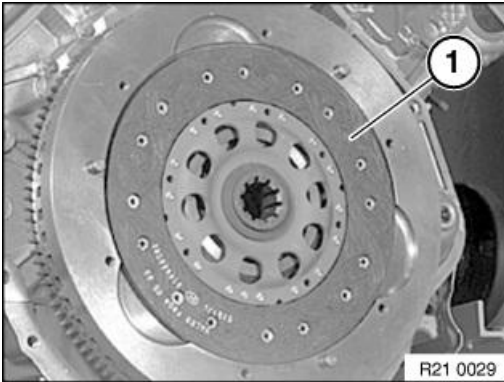
Image shows new position of synchronising keys.



Lock flywheel with special tool [11 9 260](#).



Unfasten bolts and remove SAC clutch from flywheel. **Important!**
Do not use a special tool to detach SAC clutch from flywheel.

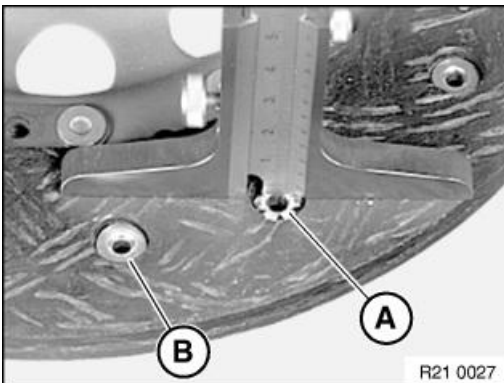


Remove clutch disc (1) from flywheel.
Clean flywheel, check for wear and damage.
[Replace damaged flywheel.](#)
Check grooved ball bearing in crankshaft for ease of movement and tightness and if necessary [replace grooved ball bearing.](#)



Important!
Always replace clutch discs fouled e.g. by oil, cleaning agent.

Check clutch disk for damage and friction rust in hub profile and replace if necessary.



Check clutch disc for wear:
Measure lining protrusion at lining rivets at closing head (A) in each case.

Note:

Rivet connection

- A) Closing head
- B) Swage head

Replace clutch disc if lining protrusion at closing head (A) is less than 1 mm.

Push clutch disc onto the cleaned transmission input shaft and check for easy movability.



Important!

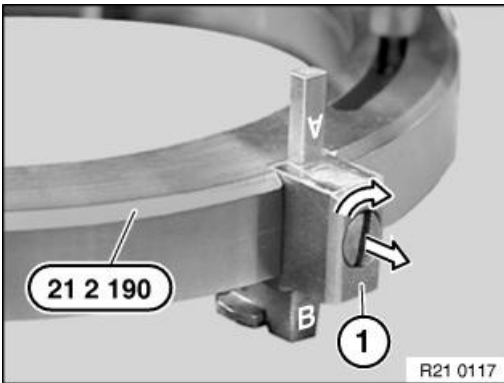
Do not clean self-adjusting clutch and flywheel with high pressure cleaner or washing machine as the proper function of adjustment unit and damping springs can no longer be guaranteed.

Clean friction surface only.

Check SAC clutch for wear and damage and replace if necessary.



Reinstalling removed SAC clutch and clutch disc:



Note:

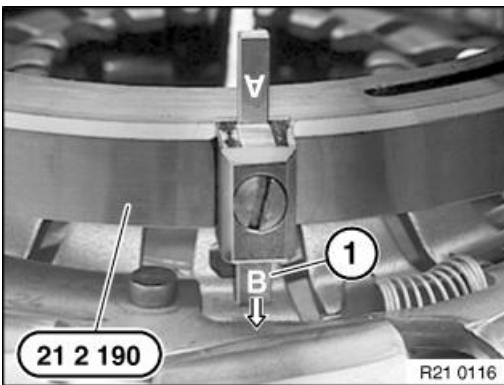
Before installing special tool [21 2 190](#) in self-adjusting clutch: Adjust retaining pin to "A" or "B".

A SAC clutch with plastic adjusting ring

B SAC clutch with steel adjusting ring

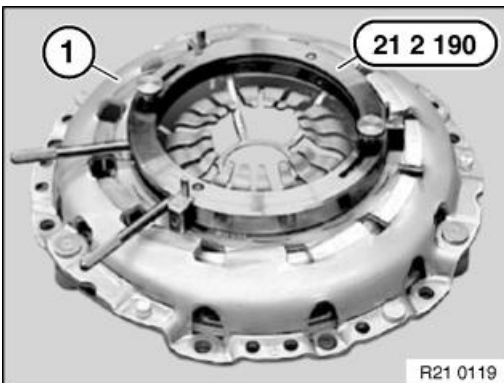
Pre-adjustment:

Pull out handle (1) and through 180° into position "A" or "B".



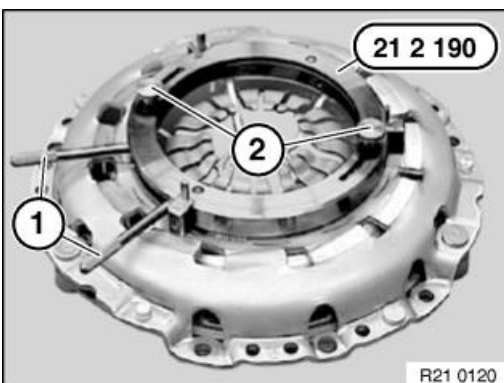
Note:

Retaining pins (1) or locking hooks of special tool [21 2 190](#) must engage in recesses of self-adjusting clutch.



Set SAC clutch (1) down on a clean surface.

Insert special tool [21 2 190](#) in SAC clutch (1).



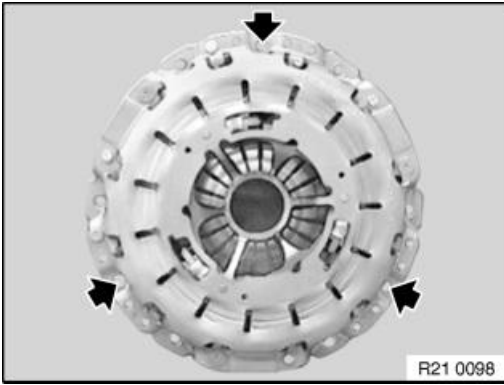
Press special tool [21 2 190](#) together at handles (1) as far as it will go and grip firmly.

At same time tighten down knurled screws (2).

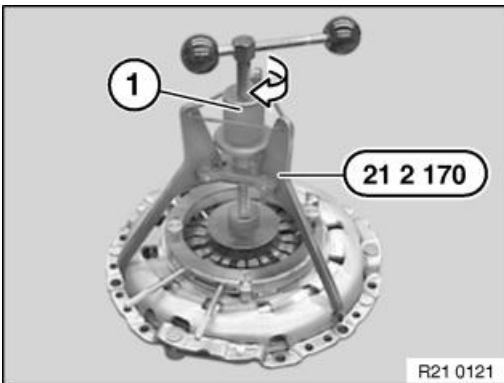
Adjustment ring of SAC clutch is now secured in its original position (wear position).

Important!

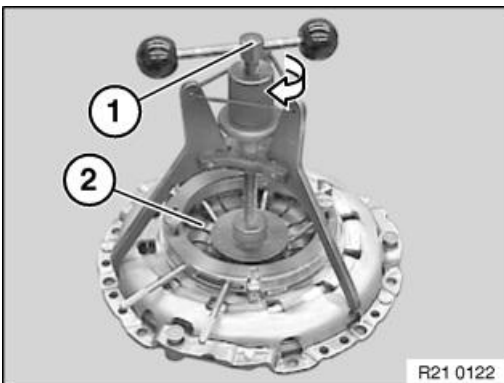
Do not reset adjusting ring to new position.



Note:
Fit special tool [21 2 170](#) only in area of bore holes for dowel pins.



Fit special tool [21 2 170](#) and tighten down at knurled screw (1).

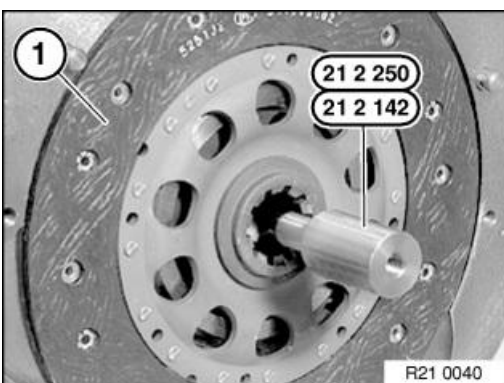


Screw in spindle (1) until diaphragm spring (2) is tensioned up to stop.

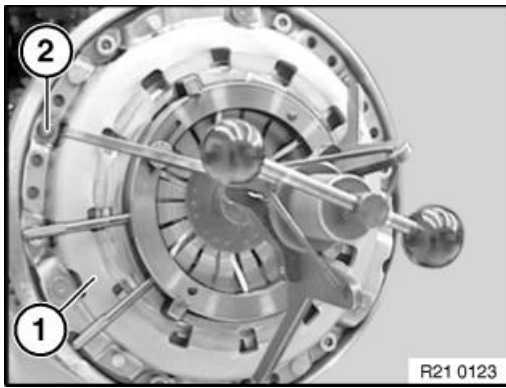


Important!

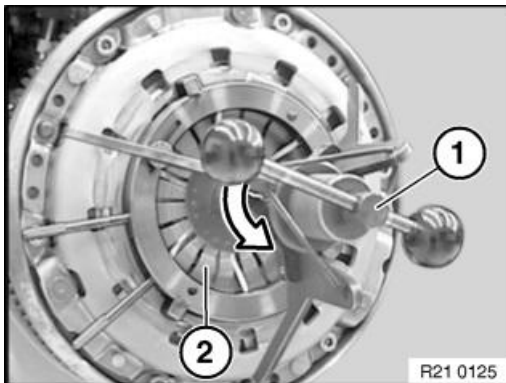
Handle clutch disc with care. Do not touch surfaces of friction linings.
Install clutch disc in correct position.
Pay attention to text "engine end" / "transmission side".



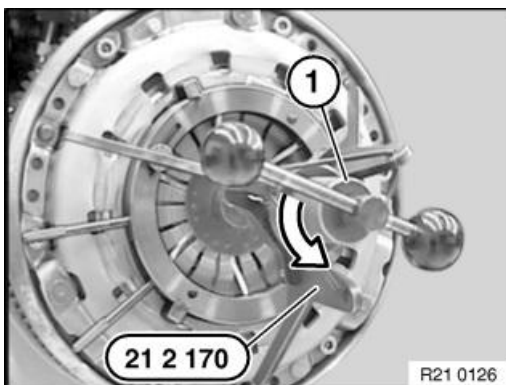
Centre clutch disc (1) with special tool [21 2 250](#) .



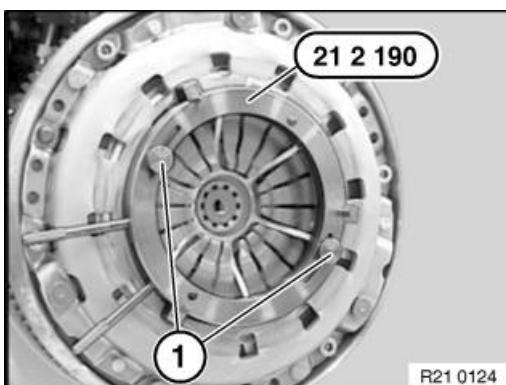
Fit SAC clutch (1) on flywheel.
 Pay attention to dowel pins (2).
 SAC clutch (1) must be secured by way of dowel pins (2).
 Install and tighten down screws.
 Tightening torque: [21 21 1AZ](#).



Release spindle (1) until load is fully removed from diaphragm spring (2).



Release knurled screw (1) and remove special tool [21 2 170](#) from SAC clutch.



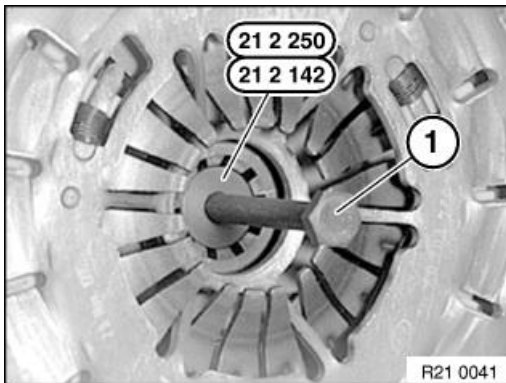
Release knurled screws (1) and remove special tool [21 2 190](#) from SAC clutch.

**Important!**

If special tool [21 2 190](#) cannot be removed from self-adjusting clutch.

proceed as follows:

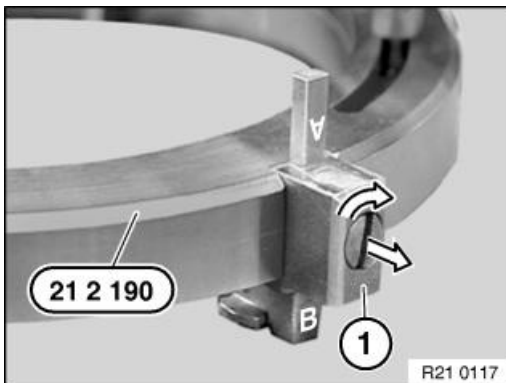
- Fit special tool [21 2 170](#) on self-adjusting clutch again and secure
- Screw in spindle up to diaphragm spring.
- Screw in spindle approx. 1 turn over contact pressure of diaphragm spring.
- Remove special tool [21 2 190](#) from self-adjusting clutch
- Remove special tool [21 2 170](#) and [21 2 190](#) from self-adjusting clutch



[21 2 250](#) Withdraw special tool from clutch disc with aid of accompanying screw (1).

**Installing removed SAC clutch with new clutch disc:****Important!**

Before installing an SAC clutch which has been in service with a new clutch disc: always reset adjusting ring in new position.

**Note:**

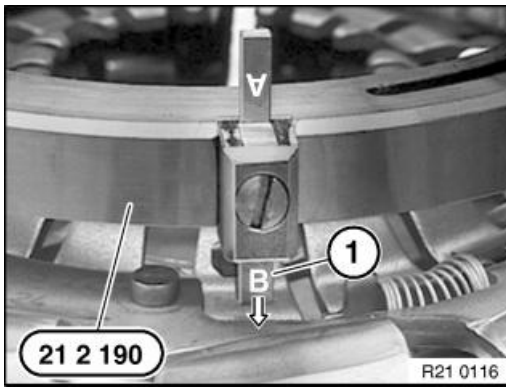
Before installing special tool [21 2 190](#) in self-adjusting clutch: Adjust retaining pin to "A" or "B".

A SAC clutch with plastic adjusting ring

B SAC clutch with steel adjusting ring

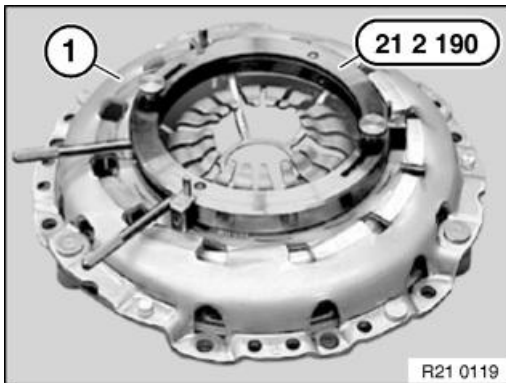
Pre-adjustment:

Pull out handle (1) and through 180° into position "A" or "B".



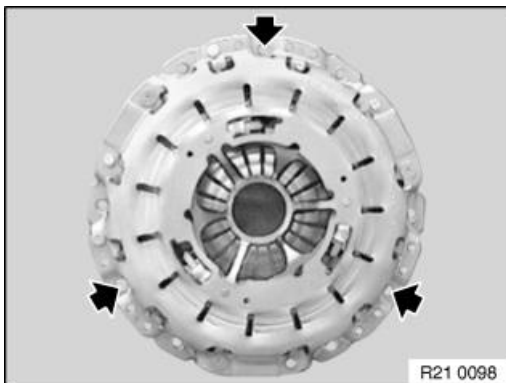
Note:

Retaining pins (1) or locking hooks of special tool [21 2 190](#) must engage in recesses of self-adjusting clutch.



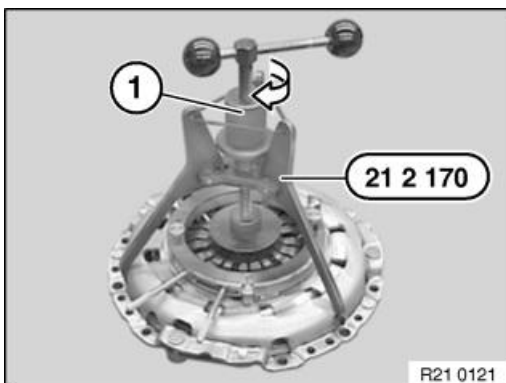
Set SAC clutch (1) down on a clean surface.

Insert special tool [21 2 190](#) in SAC clutch (1).

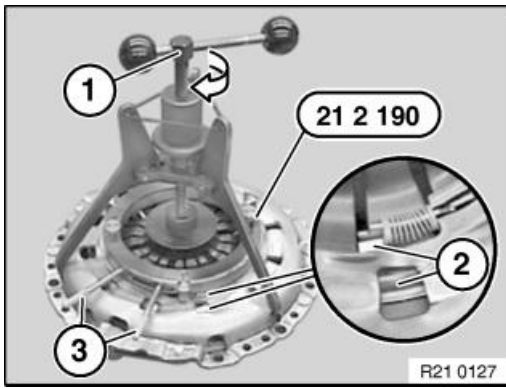


Note:

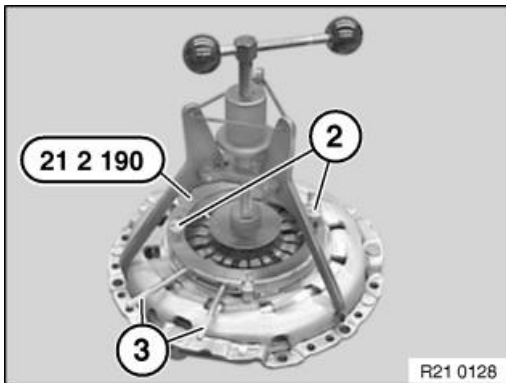
Fit special tool [21 2 170](#) only in area of bore holes for dowel pins.



Fit special tool [21 2 170](#) and tighten down at knurled screw (1).



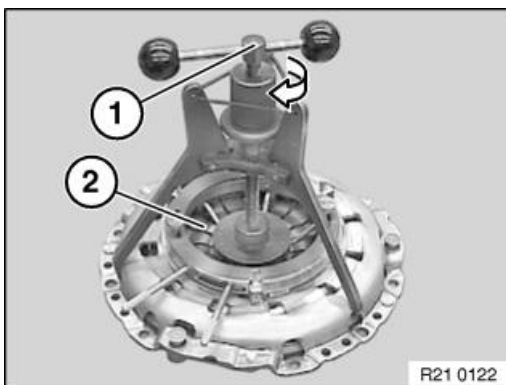
Screw in spindle (1) until adjustment ring of SAC clutch (2) can be turned with special tool [21 2 190](#) at handles (3).



Press special tool [21 2 190](#) together at handles (3) as far as it will go and grip firmly.

At same time tighten down knurled screws (2).

Adjustment ring of SAC clutch is now secured in new position.



Screw in spindle (1) until diaphragm spring (2) is tensioned up to stop.

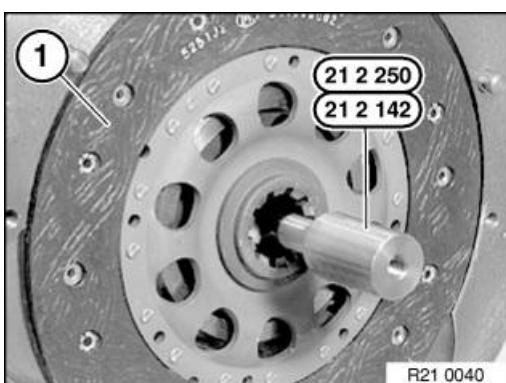


Important!

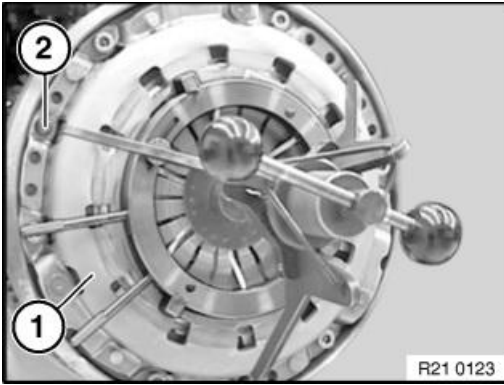
Handle clutch disc with care. Do not touch surfaces of friction linings.

Install clutch disc in correct position.

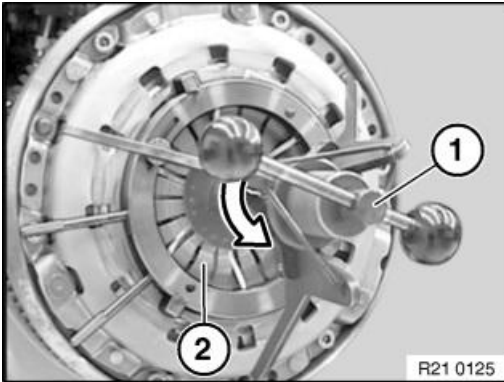
Pay attention to text "engine end" / "transmission side".



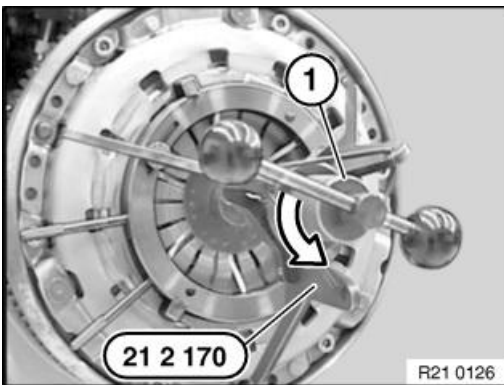
Centre clutch disc (1) with special tool [21 2 250](#) .



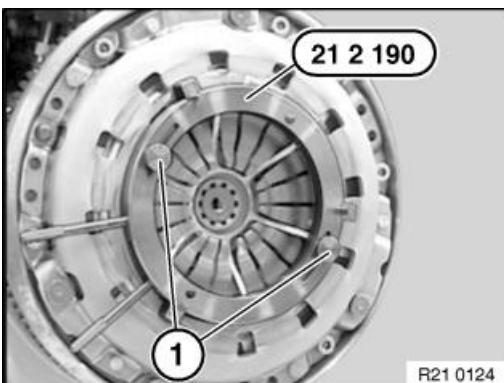
Fit SAC clutch (1) on flywheel.
 Pay attention to dowel pins (2).
 SAC clutch (1) must be secured by way of dowel pins (2).
 Install retaining screws of SAC clutch and tighten down.
 Tightening torque: [21 21 1AZ](#).



Release spindle (1) until load is fully removed from diaphragm spring (2).



Release knurled screw (1) and remove special tool [21 2 170](#) from SAC clutch.



Release knurled screws (1) and remove special tool [21 2 190](#) from SAC clutch.

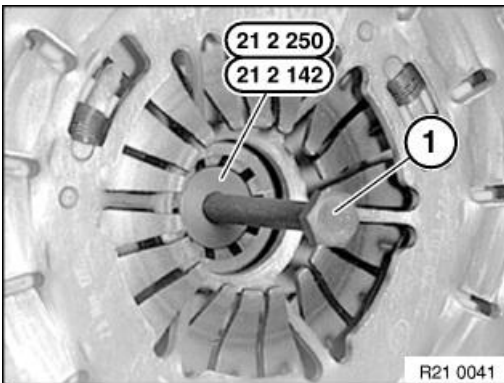


Important!

If special tool [21 2 190](#) cannot be removed from self-adjusting clutch.

proceed as follows:

- Fit special tool [21 2 170](#) on self-adjusting clutch again and secure
- Screw in spindle up to diaphragm spring.
- Screw in spindle approx. 1 turn over contact pressure of diaphragm spring.
- Remove special tool [21 2 190](#) from self-adjusting clutch
- Remove special tool [21 2 170](#) and [21 2 190](#) from self-adjusting clutch



[21 2 250](#) Withdraw special tool from clutch disc with aid of accompanying screw (1).



Installing new SAC clutch:



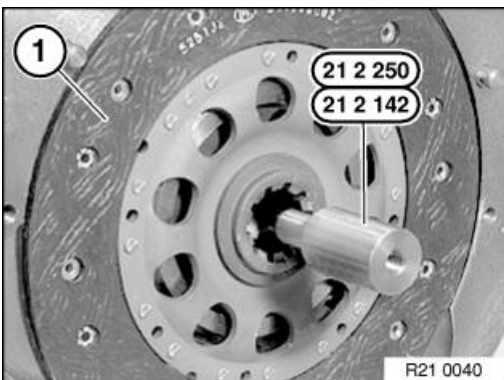
Important!

Handle clutch disc with care. Do not touch surfaces of friction linings.

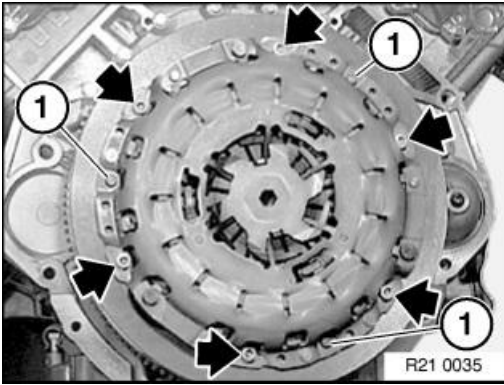
Install clutch disc (1) in correct position.

Note designation for "engine side"/"transmission side".

The [clutch disengagement module](#) contained in the new AT clutch set absolutely **must** be installed.



Centre clutch disc (1) with special tool [21 2 250](#) .

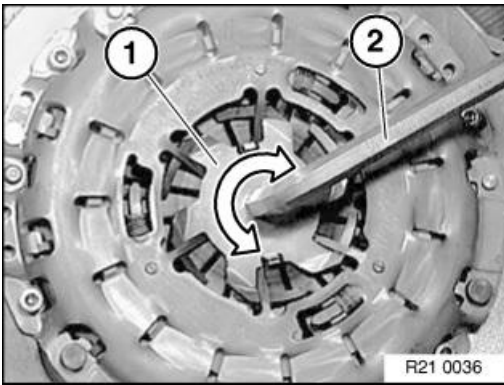


Push SAC clutch onto dowel pins (1) located in flywheel and screw down.
Tightening torque [21 21 1AZ](#).

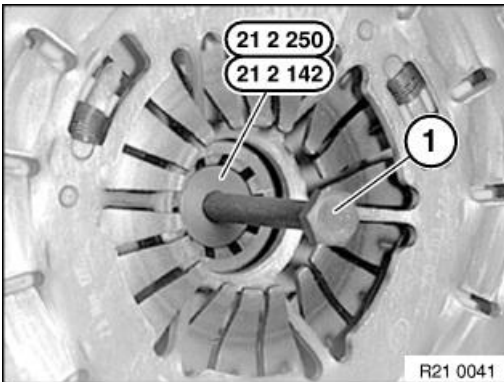


Important!

Locking piece (1) may only be removed with SAC clutch screw-mounted!



Carefully unscrew locking piece (1) clockwise or anticlockwise with a hexagon socket wrench 14 A/F (2). **Note:**
A slight snapping of the plate spring while unscrewing is possible.



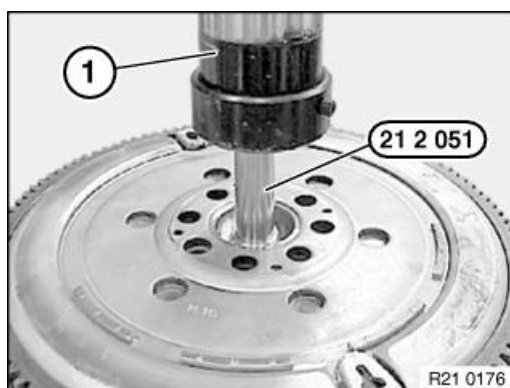
[21 2 250](#) Withdraw special tool from clutch disc with aid of accompanying screw (1).

**Special tools required:**

- [21 2 051](#)
- [21 2 052](#)

**Note:**

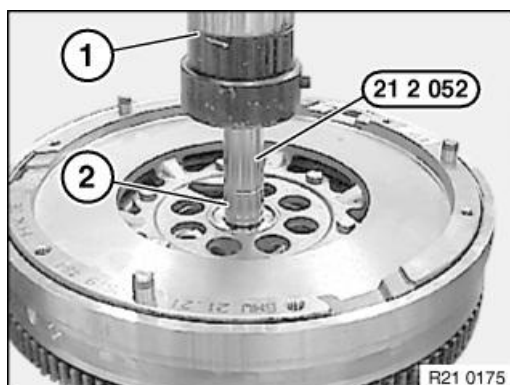
[Flywheel](#) removed!



Using hydraulic press (1) and special tool [21 2 051](#), press roller bearing out of dual-mass flywheel downwards on engine side. **Important!**

Risk of damage:

Roller bearing must not be driven out.



Push roller bearing (2) onto special tool [21 2 052](#).

Using hydraulic press (1), press roller bearing into dual-mass flywheel as far as it will go on clutch side.

Important!

Risk of damage:

Observe press-in instruction:

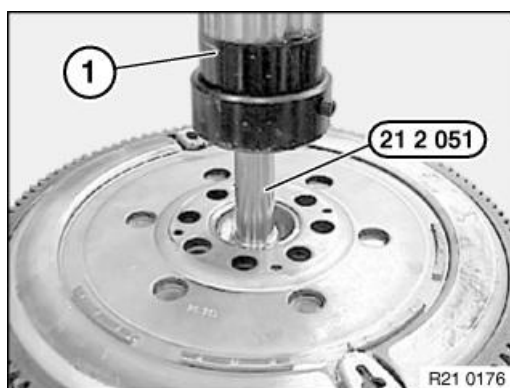
- Roller bearing must not be driven in.
- Roller bearing mounting force/travel monitored:
Min. 2000 N 1 mm before end of pressing in.
Max. 15,000 N during entire press-in procedure.

**Special tools required:**

- [21 2 051](#)
- [21 2 052](#)

**Note:**

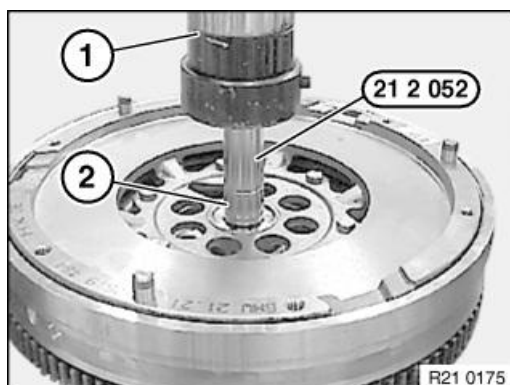
[Flywheel](#) removed!



Using hydraulic press (1) and special tool [21 2 051](#), press roller bearing out of dual-mass flywheel downwards on engine side. **Important!**

Risk of damage:

Roller bearing must not be driven out.



Push roller bearing (2) onto special tool [21 2 052](#).

Using hydraulic press (1), press roller bearing into dual-mass flywheel to limit position on clutch side.

Important!

Risk of damage:

Observe press-in instruction:

- Roller bearing must not be driven in.
- Roller bearing mounting force/travel monitored:
Min. 2000 N 1 mm before end of pressing in.
Max. 15,000 N during entire press-in procedure.

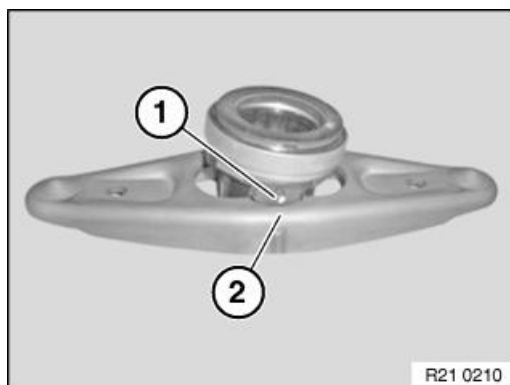
Note: (gearbox removed)



New version (except M models)

Release bearing and release lever have been combined to form a single release module.

Do not disassemble the release module. Otherwise there is a risk of the release module being **incorrectly** reassembled.



Installation note:

Make sure that the correct cam (1) of the release bearing is on the sliding surface (2) of the release lever.

Note:

Do not grease sliding surfaces (2).

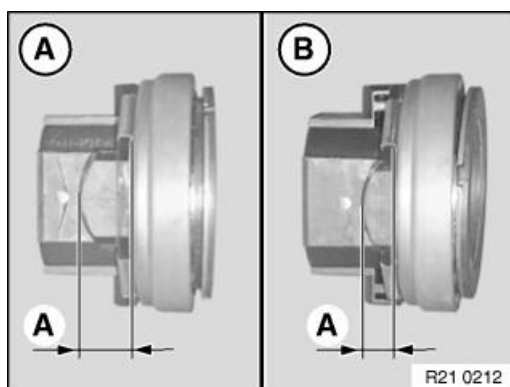
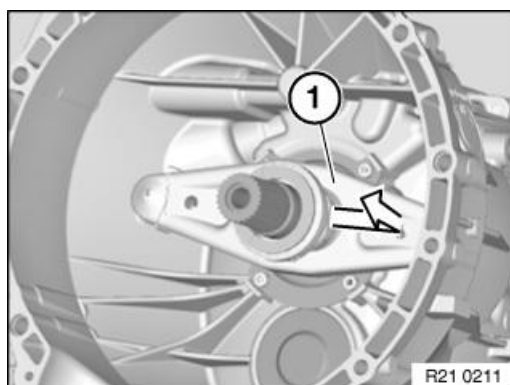


image A: Cam (1) of release bearing (**A=12 mm**) is on sliding surface of release lever.

Type : N43, N45, N46

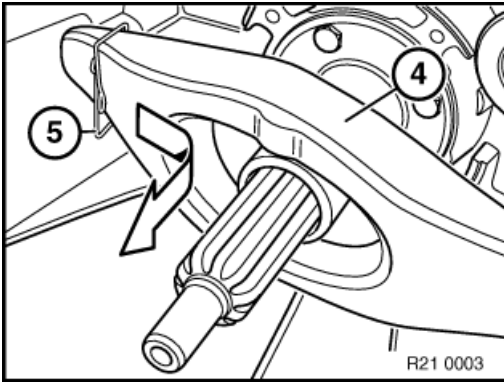
image B: Cam (1) of release bearing (**A=7 mm**) is on sliding surface of release lever.

Version for all other engines



Remove release module (1) from spring wire clip.

Remove release module.

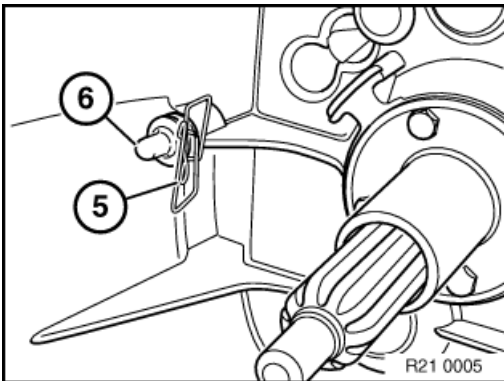


Withdraw release lever (4) from wire spring clip (5) and remove. **Installation note:**

Clean release lever.

Note:

Graphic similar.



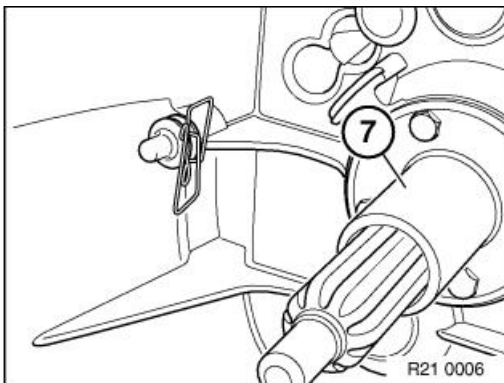
Installation note:

Check spring wire clip (5) and ball pin (6) for damage and replace if necessary.

Apply a thin coating of grease to ball pin (6).

Grease, refer to BMW Service [Operating Fluids](#).

Graphic similar.



Clean guide sleeve (7). *Installation note:*

Do **not** grease guide sleeve.

If guide sleeve is greased, the release lever can stick on the guide sleeve.

Note:

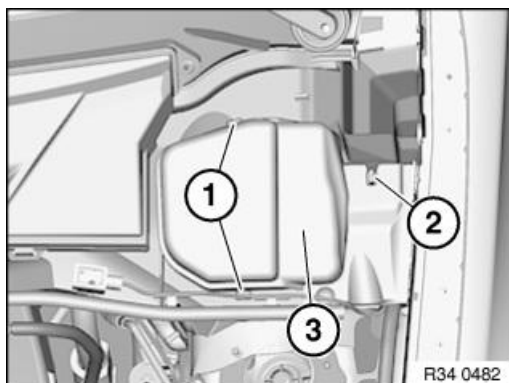
Graphic similar.

**Note:**

After completing work, bleed [clutch hydraulic system](#).

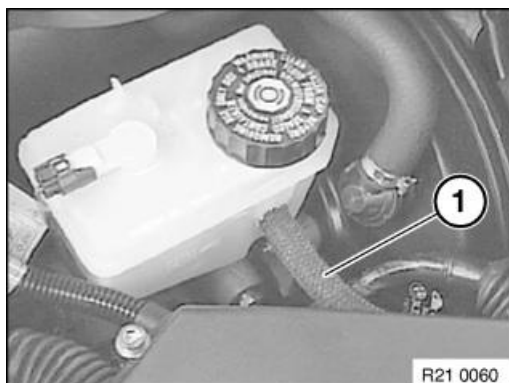
*Necessary preliminary tasks:*

- Remove [trim panel](#) for pedal assembly.



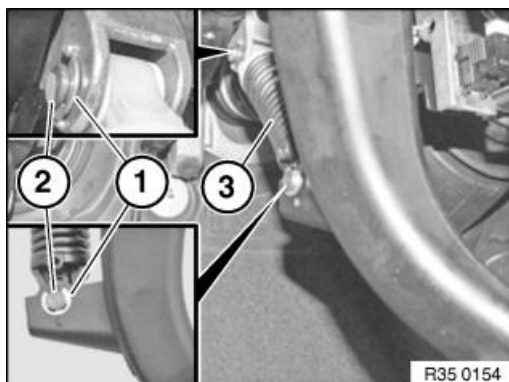
Unclip retaining tabs (1).

Pull cover (3) out of guide (2) and remove.



Draw off brake fluid up to supply hose of clutch hydraulic system (1). For this purpose, use only a vacuum pipe that is exclusively used for removing brake fluid.

Detach supply hose (1) from expansion tank.



Remove retainer (1).

Installation:

Check retainer (1), replace if necessary.

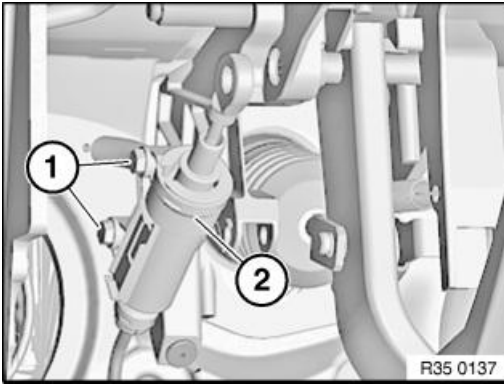
Both shanks of retainer (1) must rest in groove of bolts (2) and engage audibly.

Slide out pin (2).

Installation:

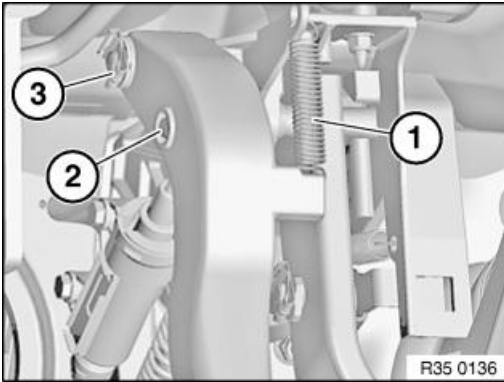
Lightly grease bolt (2).

Remove over-centre helper spring.



Release screws (1) on cylinder (2).

Tightening torque: [21 52 4AZ](#)



Disconnect return spring (1).

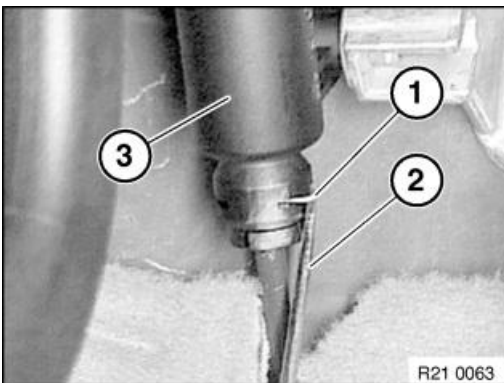
Detach locking clip (3) and pull clutch pedal with clutch master cylinder off bearing block.

Press pin ends (2) together and remove pin.

Installation:

Replace locking clip.

The locking clip must be seated with both legs in the pin groove.

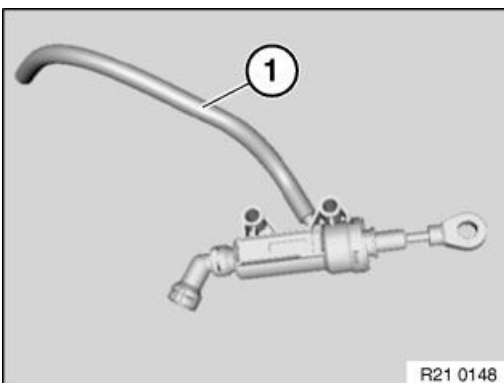


Detach retainer (1) with a screwdriver (2).

Note:

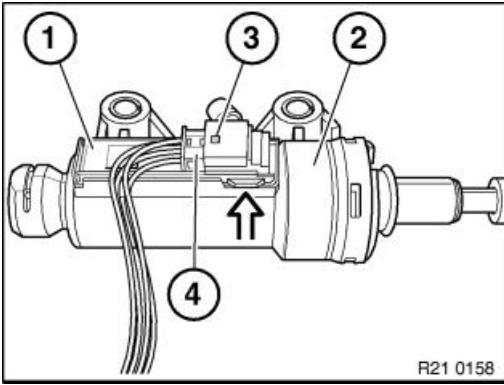
Do not foul carpet with brake fluid.

Detach hydraulic line from clutch master cylinder.



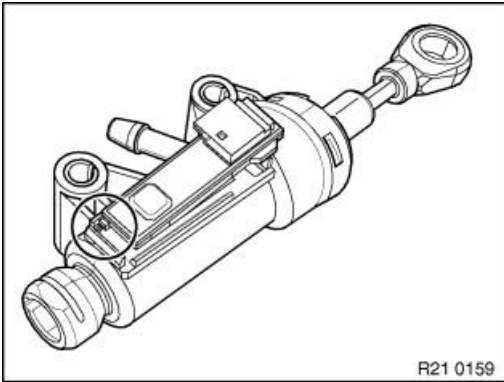
Detach supply hose (1) from clutch master cylinder. **Important!**

Do not pull supply hose completely into interior.



Lever out shift element (1) from clutch master cylinder (2) with screwdriver.

Release plug connection (3) and disconnect plug (4) from shift element (1).



Installation:

Shift element is secured against incorrect installation.

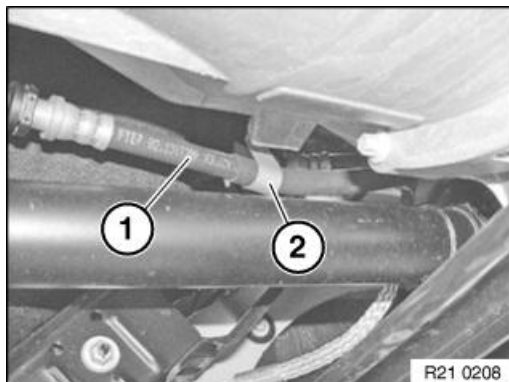
Shift element must snap audibly into place.



Special tools required:

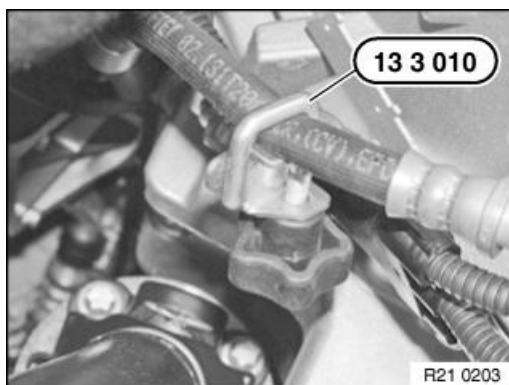
- [13 3 010](#)

Note: After completing work bleed [clutch hydraulic system](#).

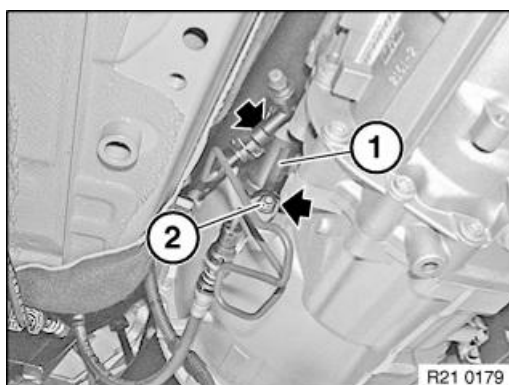


Four-wheel drive vehicles only:

Detach hydraulic line (1) from holder (2).



Seal hydraulic line to clutch slave cylinder with special tool [13 3 010](#).



Release nuts and remove clutch slave cylinder (1) with holder (2). **Installation note:**

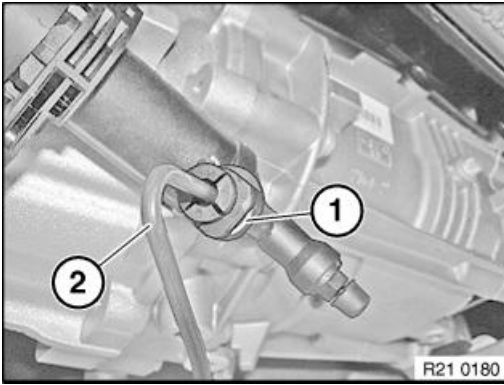
Replace self-locking nuts.

Tightening torque [21 52 5AZ](#).

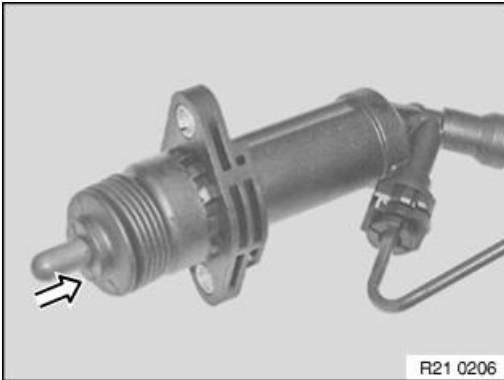
Important!

Clutch slave cylinder must not rest at the side on the transmission.

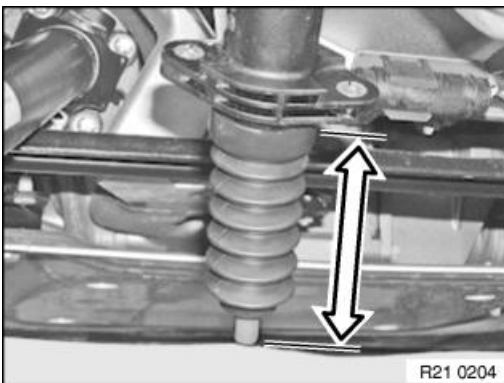
Failure to comply with this instruction may result in leaks at the clutch slave cylinder.



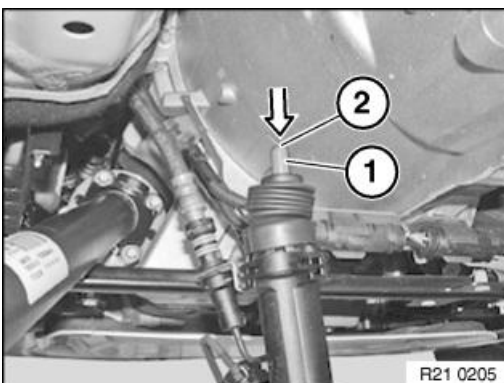
Unlock spring clamp (1).
Disconnect hydraulic line (2).



Press cylinder together by hand.
Connect hydraulic line with cylinder pressed.



Remove special tool [13 3 010](#).
Hold cylinder piston vertically downwards.
Press piston 5 times into cylinder.



Press in piston until it engages.
Install clutch slave cylinder.
Bleed [clutch hydraulic system](#).

Installation note:

Clean thrust member (1) and contact surface on release lever.
Lightly grease thrust member (1) on contact surface (2).

[Grease, refer to BMW Service Operating Fluids.](#)