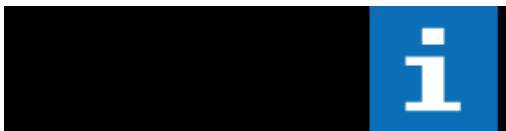


21 00 006 Bleeding clutch hydraulic system



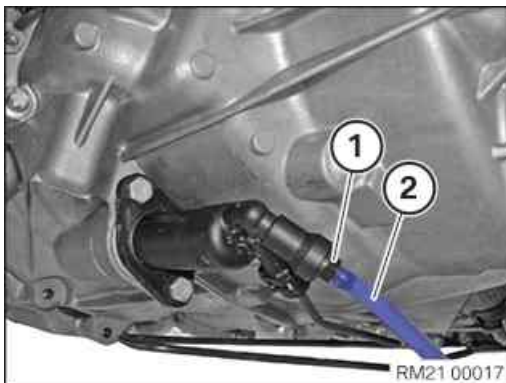
Necessary preliminary tasks:

- Connect bleeder unit to brake fluid expansion tank.
- Remove front [underbody protection](#).

Important!

Check relevant equipment manufacturer's operating instructions for each device.

Charging pressure should not exceed 2 bar.



Remove dust cap from vent valve (1).

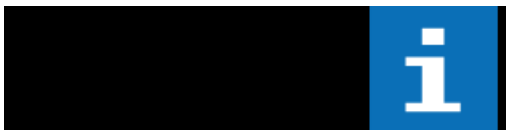
Connect vent hose (2) to vent valve (1).

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

Close vent valve.

Switch off bleeder unit or remove from expansion tank.

Correct brake fluid level in expansion tank.



Required follow-up work:

- Install front [underbody protection](#).
- Remove bleeder unit from brake fluid expansion tank.

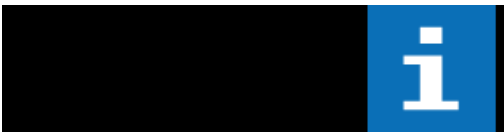
Important!

Check relevant equipment manufacturer's operating instructions for each device.

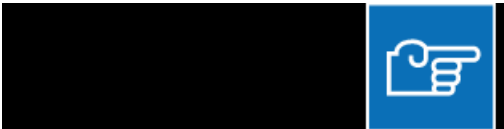
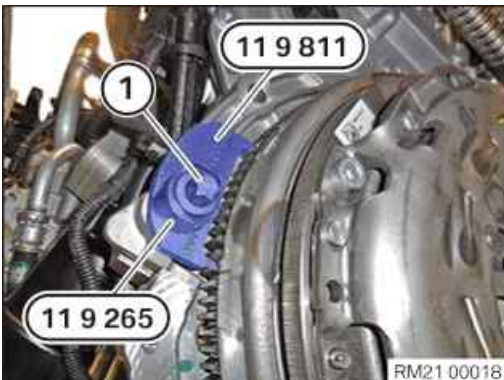
Charging pressure should not exceed 2 bar.

**Special tools required:**

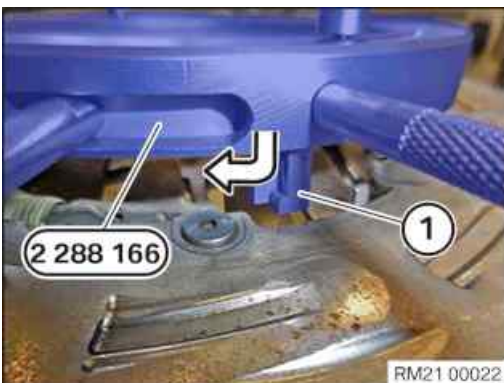
- [11 9 811](#)
- [11 9 265](#)
- [2 288 166](#)
- [21 2 170](#)
- [2 288 165](#)
- [2 358 471](#)

**Necessary preliminary tasks:**

- Remove [transmission](#).

**Removal:**

Block the flywheel with Torx screw (1) and special tools [11 9 811](#) and [11 9 265](#).



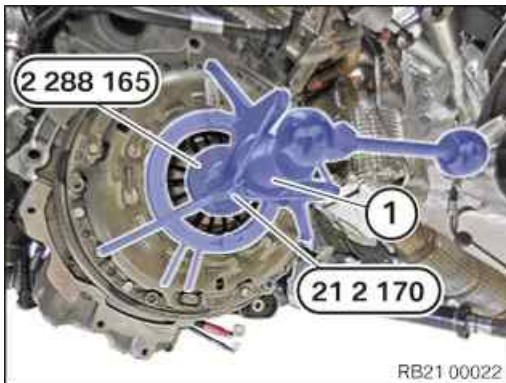
Insert special tool [2 288 166](#) in self-adjusting clutch. *Note:* Locking hooks (1) of special tool [2 288 166](#) must engage in recesses of self-adjusting clutch.



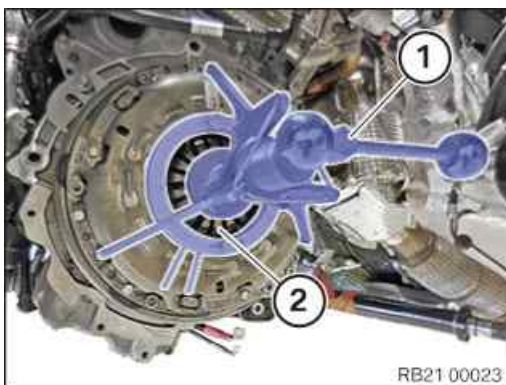
Press special tool [2 288 166](#) together at handles (2) until limit position and grip firmly.

At same time tighten down knurled screws (1).

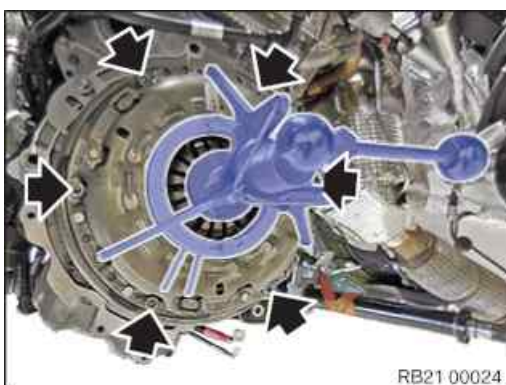
Adjusting ring of self-adjusting clutch is now secured.



Fit special tool [21 2 170](#) with the pressure plate [2 288 165](#) and tighten down at knurled screw (1).



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



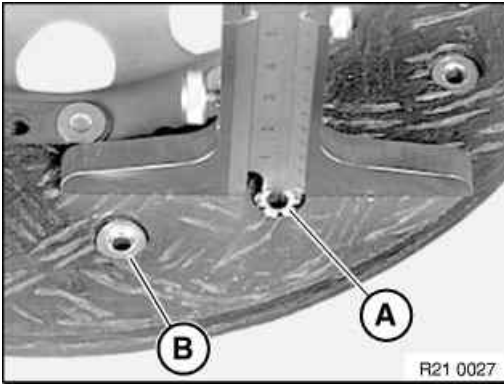
Release the screws and remove the self-adjusting clutch with clutch disc from the flywheel.



Attention!

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

Check the clutch disc for damage and frictional corrosion in the 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 the clutch disc with the self-adjusting clutch if the lining protrusion at closing head (A) is less than 1 mm.

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



Attention!

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

Clean friction surface only.

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



Installation (reinstalling removed self-adjusting clutch and clutch disc):



Attention!

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

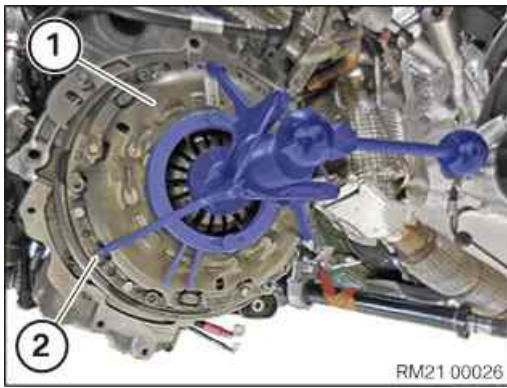
Clean friction surfaces of the flywheel and the pressure plate with BMW-approved brake cleaner.

Install clutch disc in correct position.

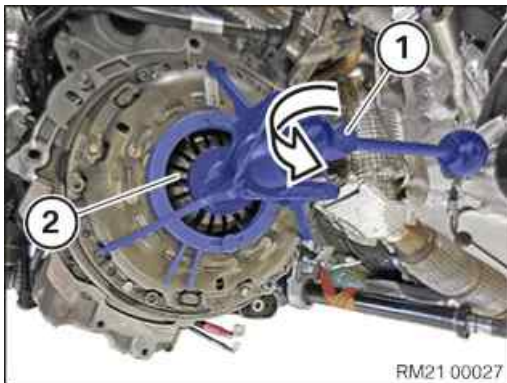
Note designation for "engine side" / "transmission side".



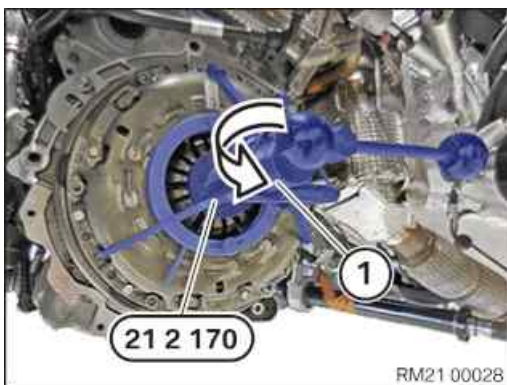
Centre clutch disc (1) with special tool [2 358 471](#).



Mount self-adjusting clutch (1) on flywheel together with special tools.
 Pay attention to dowel pins (2).
 Self-adjusting clutch (1) must be secured by way of dowel pins (2).
 Install and tighten down screws.
Part: Renew screws.
 Tightening torque: [21 21 1AZ](#).



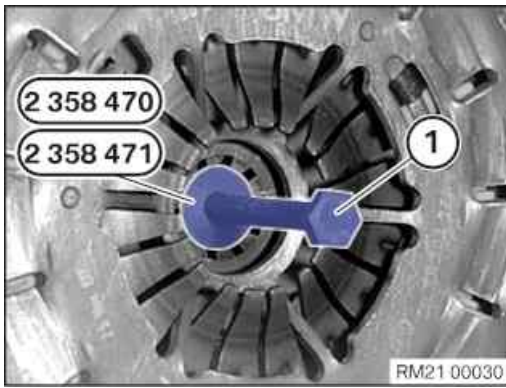
Release spindle (1) until load is fully removed from diaphragm spring (2).



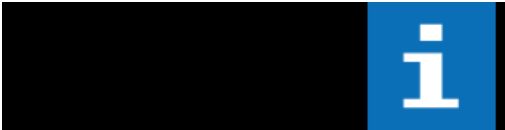
Release knurled screw (1) and remove special tool [21 2 170](#) from self-adjusting clutch.



Release knurled screws (1) and remove special tool [2 288 166](#) from self-adjusting clutch.

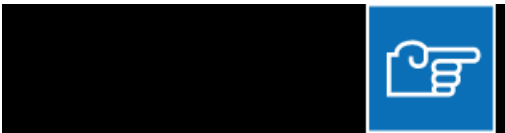


[2 358 471](#) Withdraw special tool from clutch disc with aid of accompanying screw (1).

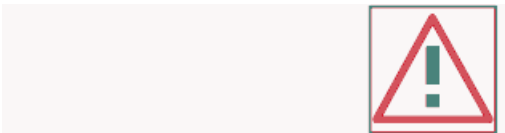


Required follow-up work:

- Install [transmission](#).



Installation (installing a new self-adjusting clutch):



Attention!

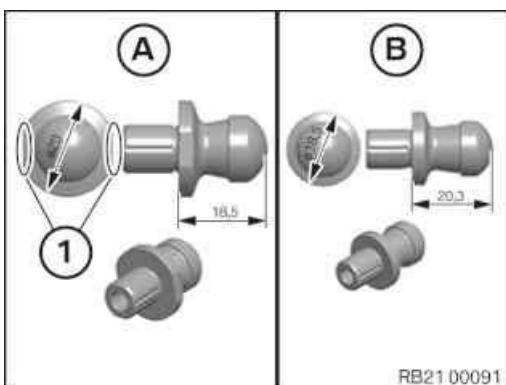
Handle clutch disc carefully, do not touch surfaces of friction pads.

Clean friction surfaces of the flywheel and the pressure plate with BMW-approved brake cleaner.

Install clutch disc (1) in correct position.

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

The [clutch operator](#) included in the exchange clutch kit and the new [guide sleeve](#) **must** be installed.



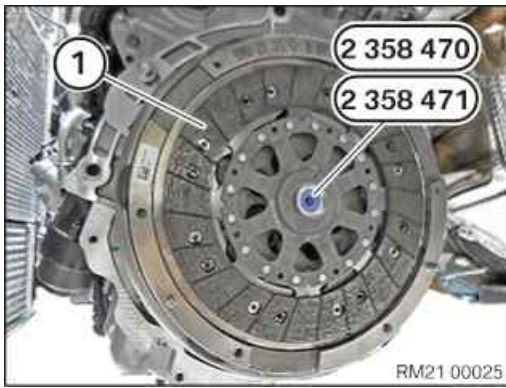
Check the ball pin and [renew](#) it if necessary. **Attention!**

Different ball pins (A) and (B) may be installed in vehicles until 12/2016!

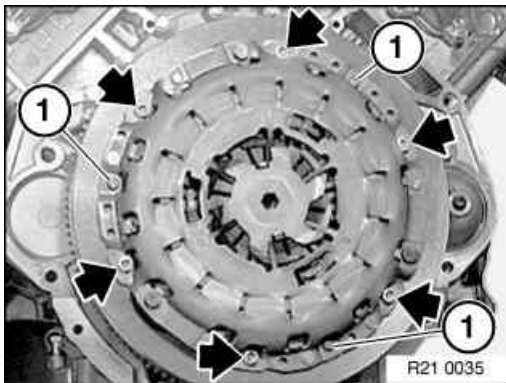
Ball pins differ in length, diameter and visually by the flat portion (1)! See graphic.

It must be ensured that the same ball pin is installed again!

Non-compliance may lead to damage to the clutch and transmission!



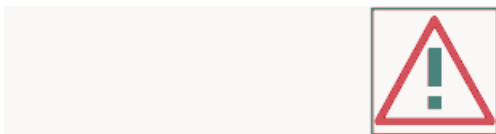
Centre clutch disc (1) with special tool [2 358 471](#) .



Slide the self-adjusting clutch onto the dowel pins (1) located in the flywheel and tighten the screws.

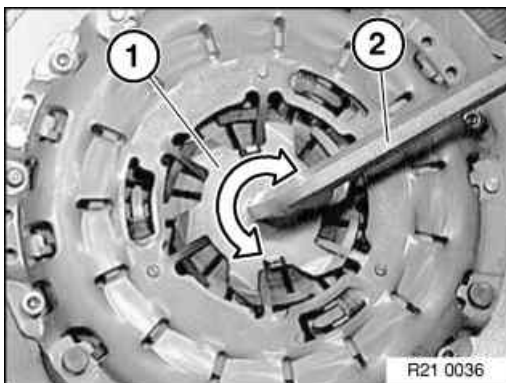
Part: Renew screws.

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



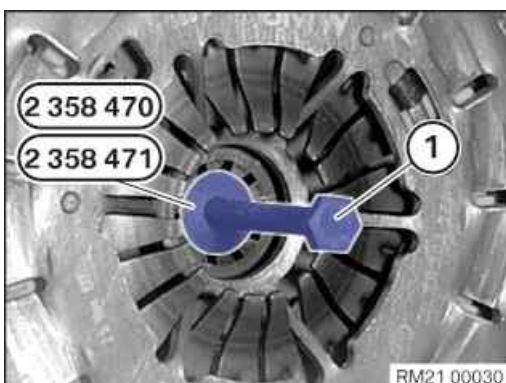
Attention!

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.



[2 358 471](#) Withdraw special tool from clutch disc with aid of accompanying screw (1).



Necessary reworking:

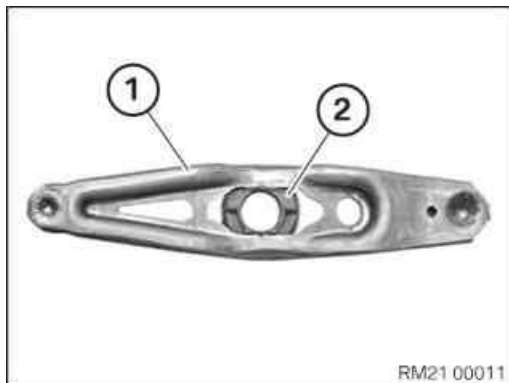
- Install [transmission](#).

**Necessary preliminary work:**

- Remove [transmission](#)

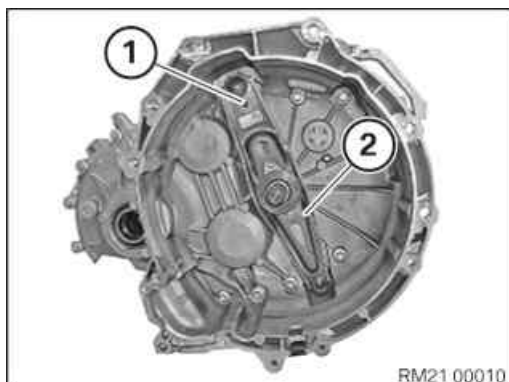


Do not disassemble the release module.

**Removal:**

Release bearing (1) and release lever (2) have been combined to form a single release module.

Do **not** grease sliding surfaces.



Press wire spring clip (1) through clutch release lever (2).

Remove clutch operator (2).

**Preparation for installation:**

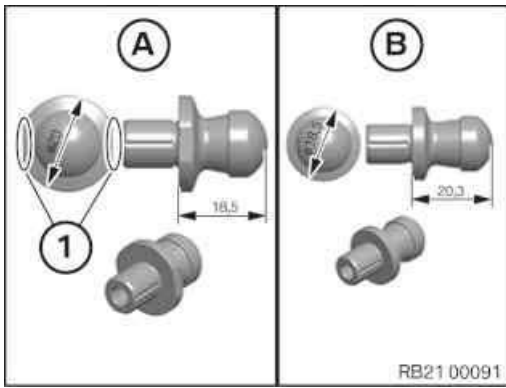
When replacing the clutch operator, the ball pin, wire spring clip and the guide sleeve must also be renewed.

Clean all sliding surfaces on release bearing.

Check for damage and replace if necessary.

Do not grease release bearing.

**Installation:**



When renewing the clutch operator, the ball pin must also be replaced!

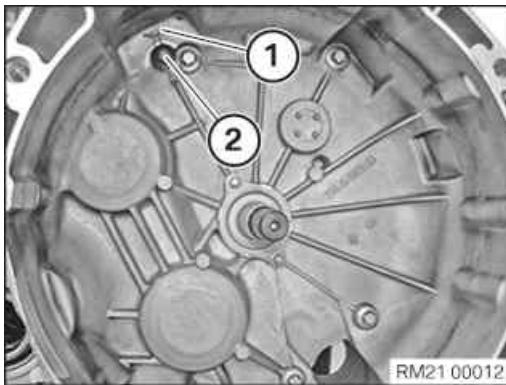
Caution!

Different ball pins (A) and (B) may be installed in vehicles until 12/2016!

Ball pins differ in length, diameter and visually by the flat portion (1)! See graphic.

It must be ensured that the same ball pin is installed again!

Non-compliance may lead to damage to the clutch and transmission!



Lightly grease ball pin (2).

Grease:

Refer to Service [Operating Fluids](#)

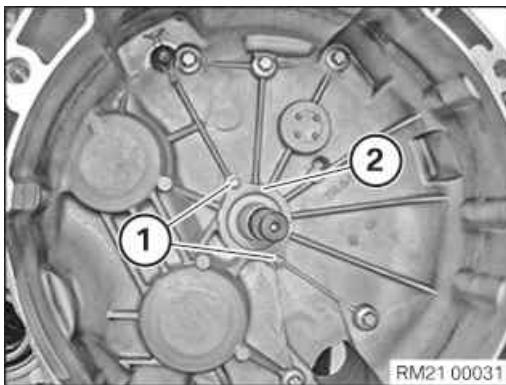
Only for renewal of clutch operator:

Remove wire spring clip (1).

Carefully remove ball pin (2).

Carefully drive in ball pin (2). The ball pin may be damaged by twisting or when the steering angle of >5°!

Lightly grease ball pin.

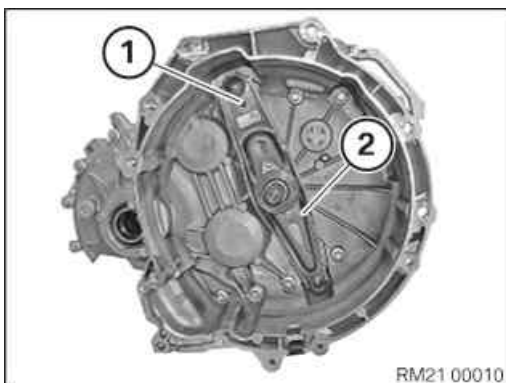


Only for renewal of clutch operator:

Loosen screws (1).

Replace guide sleeve (2).

Tightening torque [23 11 1AZ](#).



Clip in wire spring clip (1) into clutch operator (2).

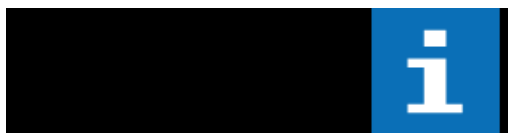
Install clutch operator (2).



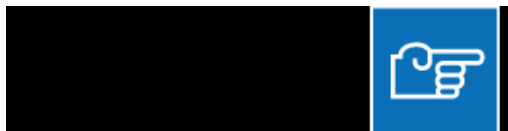
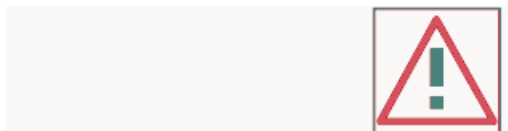
Required follow-up work:

- Install [transmission](#)

When installing a new clutch, the clutch operator, ball pin and the guide sleeve must be renewed!

**Necessary preliminary tasks:**

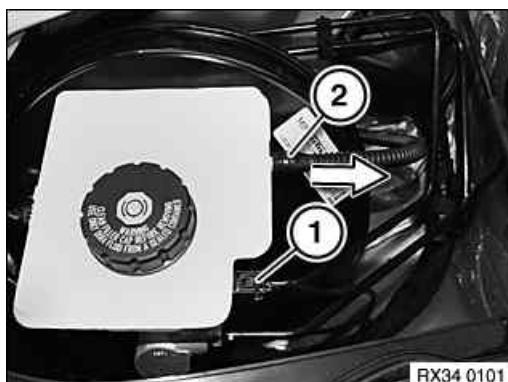
- Remove front [underbody protection](#).

**Removal:****Attention!**

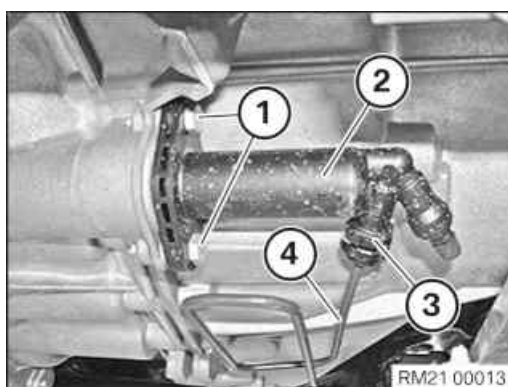
If possible, do not deflect push rod of clutch slave cylinder.

A deflection of the push rod caused by removal will cause easy escape of fluid. This escape of fluid does not mean that the clutch slave cylinder is damaged.

Exchange is therefore not necessary.



Draw off brake fluid until level is below connection (2) to clutch master cylinder.



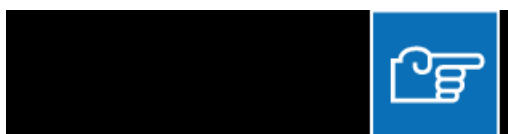
Release screws (1) of clutch slave cylinder.

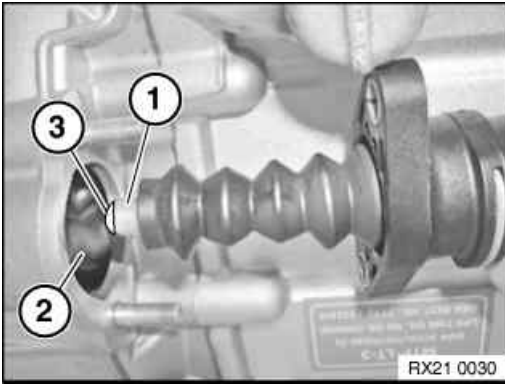
Remove clutch slave cylinder (2).

Release line connection (3) and disconnect line (4).

Attention!

Catch escaping brake fluid in a suitable collecting vessel.

**Installation:**

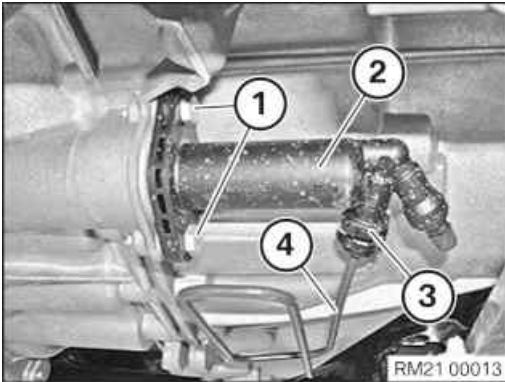


Clean synchronising key (1) and contact surface on release lever (2).

Lightly grease synchronising key (1) on contact surface (3).

Grease,

refer to Service [Operating Fluids](#).



Install line connection (3) with line (4).

Install clutch slave cylinder (2).

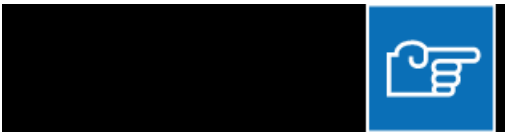
Parts: Renew screws (1).

Tighten down screws (1) of clutch slave cylinder.

Tightening torque [21 52 1AZ](#).

Attention!

Catch escaping brake fluid in a suitable collecting vessel.

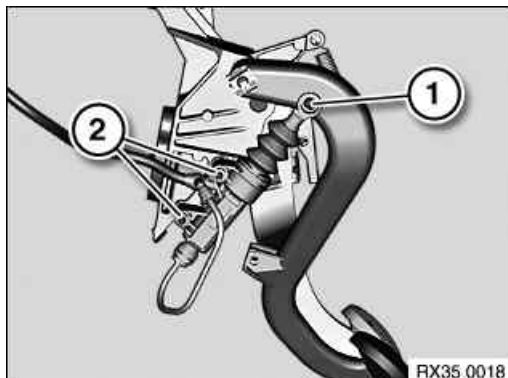


Note:

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

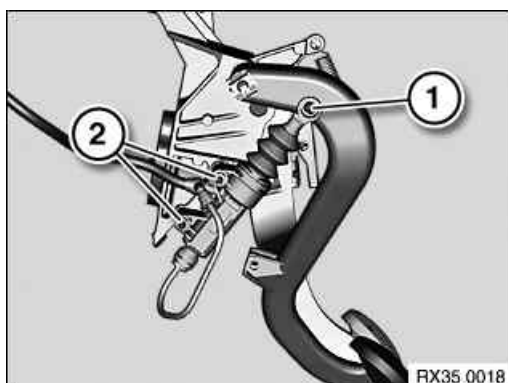
**Necessary preliminary tasks:**

- Remove [bearing support for foot pedal](#)

**Removal:**

Press pin (1) together and press out.

Release nuts (2) and remove clutch master cylinder.

**Installation:**

Insert bolt (1).

Install clutch master cylinder and tighten nuts (2).

Tightening torque [21 52 2AZ](#).

Important!

After completing work bleed clutch hydraulic system.

**Required reworking:**

- Install [bearing support for foot pedal](#)