

KL-0500-45 KA



KL-0500-45 K

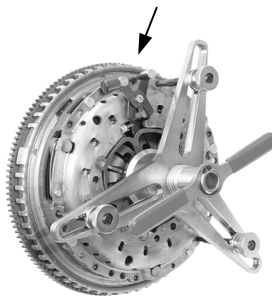


Note: As **KL-0500-45 KA** but without Supplement Kit for 4-hole pitch **KL-0500-4014**.

**3-hole pitch:
Clutch assembling**
(Pressure plate is pretensioned,
clutch plate is centered)



Resetting adjusting ring
(Pressure plate is pretensioned)



**4-hole pitch:
Clutch assembling**
(Pressure plate is pretensioned, clutch plate is centered)



KL-0500-45 KA - SAC Clutch Tool Set (German Utility Model)

Suitable for SAC-Clutches (3- and 4-hole pitch) e.g. VW-Audi, BMW, Mercedes, Volvo, Opel, Renault etc.

Field of Application

The clutch tool set **KL-0500-45 KA** enables professional removal and replacement of SAC-Clutches (SAC = Self-Adjusting-Clutch).

Correct removal and replacement of clutches is almost impossible without this tool set due to the risk of damaging or distorting the clutch which will result in incorrect separation or grabbing of the clutch. A clutch installed incorrectly is defective and has to be replaced.

The tool set **KL-0500-45 KA** prevents damage to the SAC-Clutch when removing and replacing it as well as preventing distortion of the adjusting ring on the pressure plate.

The newly developed clutch aligner **KL-0500-405** enables alignment of clutch plates also on vehicles without a guide bearing in the crankshaft. The two clamping-/centring elements ensure accurate alignment in the clutch plate on the first clamping element (Ø 15 - 28 mm) as well as accurate alignment in the guide bearing, respectively the crankshaft bore on the second one (Ø 12 - 28 mm).

Even clutches on engines where the crankshaft bore-Ø is larger than the clutch disc hub-Ø can be neatly and accurately aligned with this tool.

Advantages

- Pretensioning the clutch pressure plate when removing and installing (important as a means of avoiding distortion).
- Centring the clutch plate relative to the guide bearing or pressure plate.
- Resetting the adjusting ring (in conjunction with resetting tool **KL-0500-403**).

Technical Data

Weight:7.4 kg

Warnings and Notes

- Work on driving units, clutches etc. should only be performed by qualified personnel observing the vehicle-manufacturer's safety instructions and provisions.
- Only the vehicle manufacturer's data apply to all work done on the vehicle.
- All specific vehicle data stated herein are supplied without commitment.
- Before putting the tool into operation, visually check that it is not damaged.
- Most types of SAC clutches have a 3 hole pattern, but some cars such as e.g. **Mercedes A-Class** (model 2004 onwards [W169]) feature SAC clutches with 4 hole pattern.

It is imperative to observe the following instructions:

- ▶ Before starting work, read these instructions carefully and make sure you have understood them correctly.
- ▶ Never strike the tool with a hammer!
- ▶ Always keep the tool clean. To lubricate spindles and threads use Molybdenum disulphide paste **KL-0014-0030** only.
- ▶ Only KLANN original spare parts are recommended.

Application (Clutches with 3-hole pitch)

Reinstallation of a used clutch disc and a used clutch pressure plate.

(The adjusting ring in the clutch pressure plate remains in the position caused by wear and is not screwed back into its previous position.)

Installation of a new clutch disc and a new clutch pressure plate.

(The adjusting ring in the new clutch pressure plate is in its original position)

Fig. 1 : Screw in threaded bolts, mount clutch pretensioner.

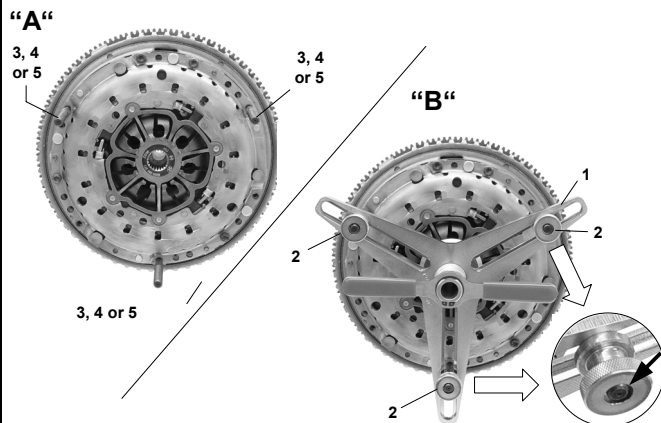


Fig. 2 : Screw in pressure spindle, Unscrew retaining screws.

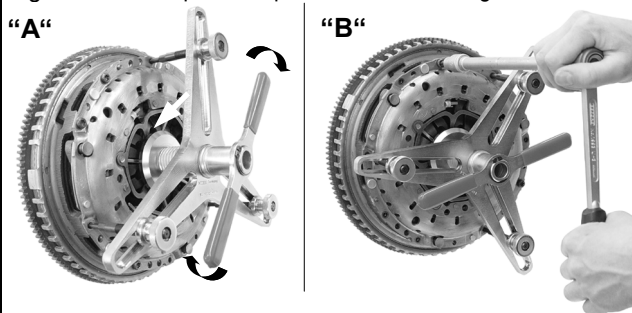


Fig. 3 : Turn back pressure spindle, Take off clutch compressor.

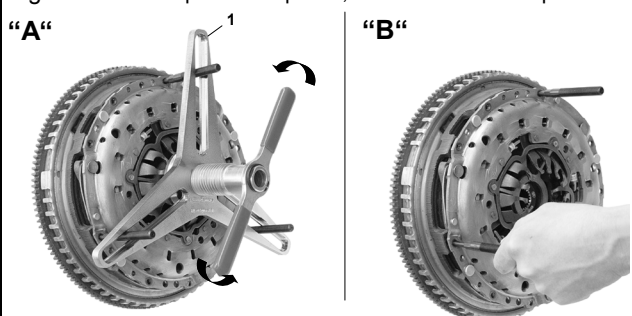
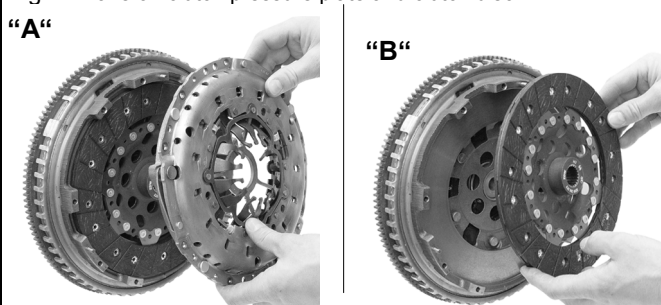


Fig. 4 : Take off clutch pressure plate and clutch disc.



Application (Clutches with 3-hole pitch)

Reinstallation of a used clutch disc and a used clutch pressure plate.

(The adjusting ring in the clutch pressure plate remains in the position caused by wear and is not screwed back into its previous position.)

Installation of a new clutch disc and a new clutch pressure plate.

(The adjusting ring in the new clutch pressure plate is in its original position.)

Note: For resetting the clutch pressure plate pls. refer to page 5

- Lift vehicle with a car lift and loosen and/or remove all necessary parts. (gearbox has been removed)
- Unscrew the 3 clutch pressure plate retaining screws (at 120-degree intervals) and screw in the threaded bolts **pos. 3, 4 or 5** to the same height (**fig. 1 A**) (observe correct thread sizes M6, M7 and M8). Mark position of the pressure plate on the flywheel.
- Place clutch pretensioner **pos. 1** onto the 3 threaded bolts **pos. 3, 4 or 5** with the pressure spindle in turned-back position. Then, screw in the knurled nuts **pos. 2** until their outer surface is flush with the end of the threaded bolts. (**fig. 1 B**)
- Screw in the pressure spindle until the clutch disc is clear. (**fig. 2 A**)
- Unscrew the remaining retaining screws from the clutch pressure plate. (**fig. 2 B**)
- Completely turn back the pressure spindle until the diaphragm spring is no longer tensioned (**fig. 3 A**). Remove knurled nuts **pos. 2**, clutch pretensioner **pos. 1** and threaded bolts. (**fig. 3 B**)
- Take off the clutch pressure plate and the clutch disc (**fig. 4 A and B**), clean the parts and check them for wear and tear; replace them by new parts, if necessary.

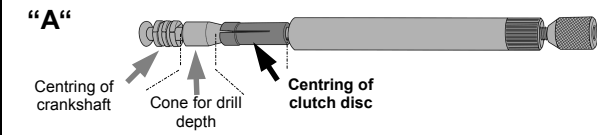
(Adhere to the manufacturer's cleaning instructions)
- Check that the new clutch disc slides smoothly on the gear shaft. Check the guide bearing in the crankshaft and/or in the flywheel. Replacement of the guide bearing can be carried out by means of tools **KL-0043-31** and **KL-0159-11**.

Important:

When re-installing a **clutch disc and a clutch pressure plate which have already been in use**, do **not** turn back the adjusting ring in the clutch pressure plate to its original position or 'new setting'.

When a **new clutch disc and a new clutch pressure plate** are installed, it is **not necessary** to turn back the adjusting ring in the clutch pressure plate as it will already be in the 'new' original position.

Fig. 5 : Determine and assemble clutch aligner.



Identify inner diameter of clutch disc.

Chapter

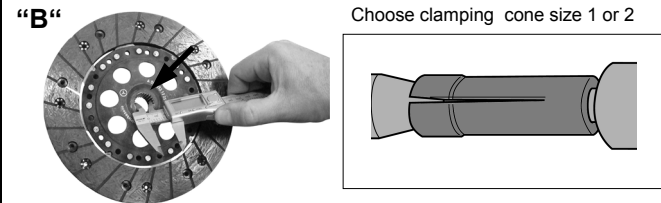
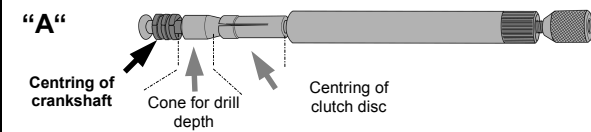


Fig. 6 : Determine and assemble clutch aligner.



Identify inner-Ø of the centring bore.

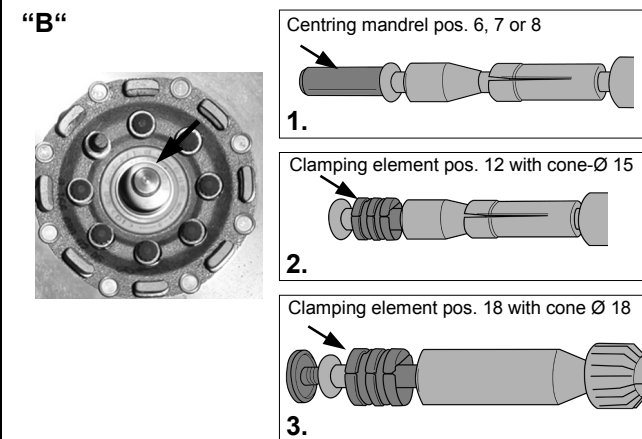
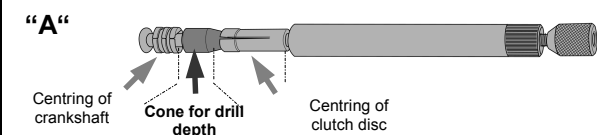


Fig. 7 : Determine and assemble clutch aligner.



Identify centring bore depth in crankshaft.

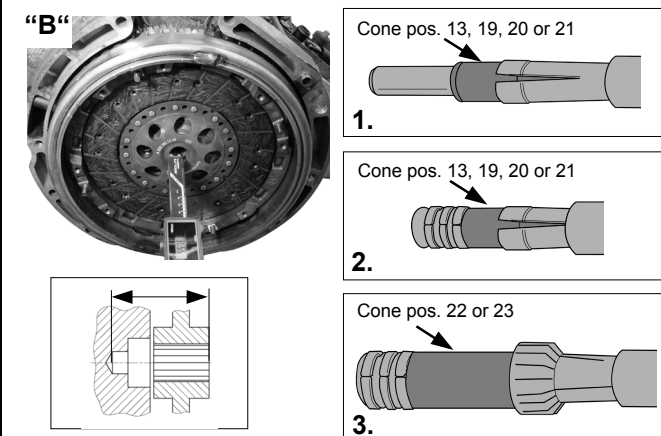


Fig. 8 : Assembled clutch aligner.



9. Determine and assemble the appropriate clutch aligner.

9.1. ⇒ **Identify clamping cone of clutch disc. (fig. 5 A and B)**

Measure inner diameter of clutch disc and choose the suitable clamping cone size 1 (15 - 22mm) **pos. 14** or size 2 (22 - 28mm) **pos. 16** .

9.2. ⇒ **Identify centring of the crankshaft. (fig. 6 A and B)**

1.Inner-Ø 12 - 15mm:

Use centring mandrel pos. 6 (Ø 12 mm), pos. 7 (Ø 14mm), or pos. 8 (Ø 15mm).

2. Inner-Ø 15.5 - 21 mm:

Use clamping element pos. 12 (Ø 15.5 - 21mm) in conjunction with moveable cone Ø 15mm.

3. Inner-Ø 22 - 28 mm

Use clamping element pos. 18 (Ø 20 - 28mm) in conjunction with moveable cone Ø 18mm and cone adaptor pos. 17.

9.3. **Identify cone length. (fig. 7 A and B)**

1. With centring mandrel Pos. 6, Pos. 7 or Pos. 8 use moveable cone pos. 13, pos. 19, pos. 20 or pos. 21.

2. With clamping segment pos. 12 use moveable cone pos. 13, pos. 19, pos. 20 or pos. 21.

3. With clamping segment pos. 18 use moveable cone pos. 22 or pos. 23 .

Fig. 9 : Insert clutch aligner and clutch disc into flywheel.

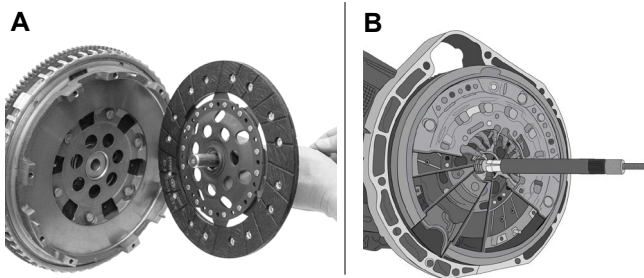


Fig. 10 : Place clutch pressure plate.

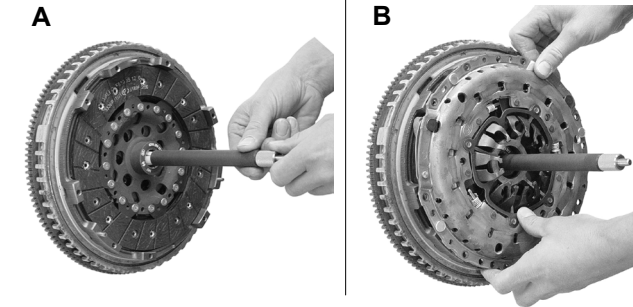


Fig. 11 : Screw in threaded bolts, mount clutch pretensioner.

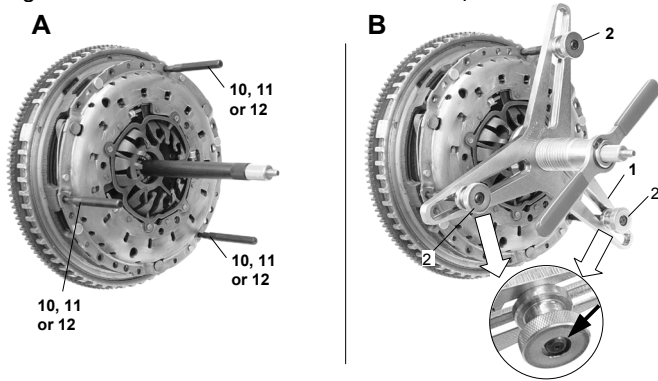


Fig. 12 : Screw in pressure spindle, screw in retaining screws.

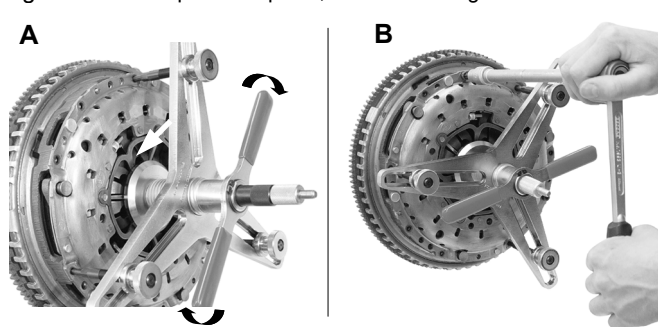
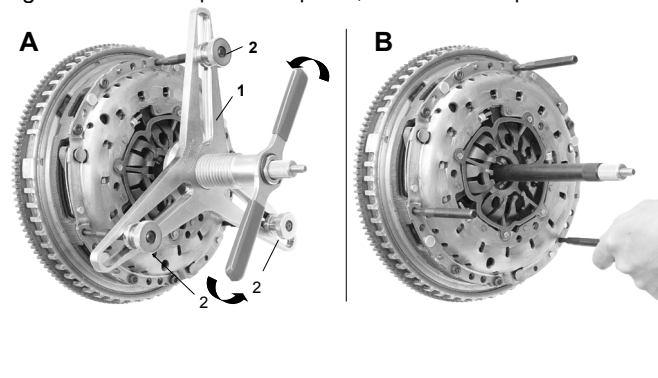


Fig. 13 : Turn back pressure spindle, remove clutch pretensioner.



10. Insert the assembled clutch aligner (**fig. 8**) with the clutch disc into the flywheel and tighten the clutch aligner. (**fig. 9 A and B**)

For this purpose, lock the base body (guide tube) **pos. 10** and tighten the knurled nut **pos. 15**. The clutch disc is centered towards the flywheel. (**fig. 10 A**)

11. Place the clutch pressure plate on the flywheel (**fig. 10 B**) and screw the 3 threaded bolts, **pos. 3, 4 or 5** into the flywheel at 120-degree intervals (**fig. 11 A**).

12. Place the clutch pretensioner **pos. 1** on the 3 threaded bolts and screw in the knurled nuts **pos. 2** until each is flush with the end of the threaded bolt. (**fig. 11 B**)

13. Screw in the pressure spindle until the pressure plate housing rests against the flywheel. (**fig. 12 A**)

14. Screw in the retaining screws holding the clutch pressure plate (**fig. 12 B**).

15. Unscrew the pressure spindle as far as the limit stop is reached (**fig. 13 A**) (diaphragm spring is no longer tensioned).

Remove knurled nuts **pos. 2**, clutch pretensioner **pos. 1** and threaded bolts **pos. 3, 4 or 5**. (**fig. 13 B**).

16. Screw in the remaining 3 retaining screws and tighten all screws strictly observing the prescribed torque.

17. Remove the clutch aligner by loosening the knurled nut **pos. 15**.

Fig. 14 : **Note:** Clutch with 4-hole pitch



Application (Clutches with 3-hole pitch)

Installation of a new clutch disc and reinstallation of a used clutch pressure plate.

Fig. 15 : Screw in threaded bolts, install clutch pretensioner.

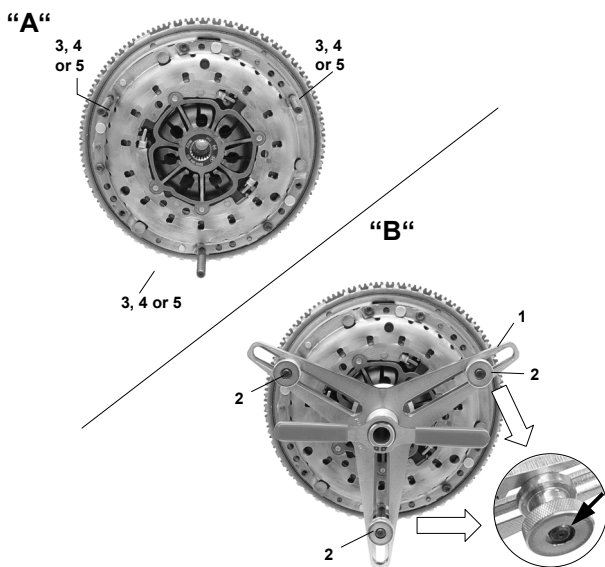


Fig. 16 : Screw in pressure spindle, unscrew retaining screws.

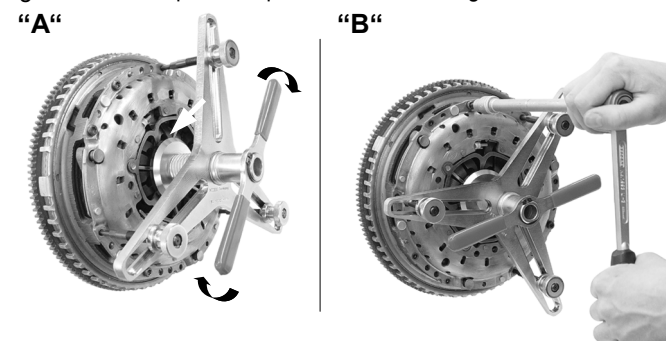
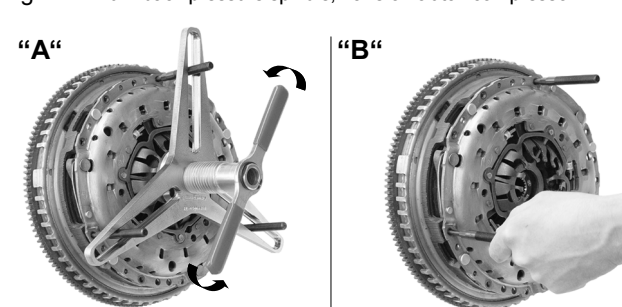


Fig. 17 : Turn back pressure spindle, Take off clutch compressor.



Note:

On clutches with a 4-hole-pitch the tool is installed as shown in fig. 14 .

Application (Clutches with 3-hole pitch)

Installation of a new clutch disc and reinstallation of a clutch pressure plate that has already been in use.

1. Lift vehicle with a car lift and loosen and/or remove all necessary components. (gearbox is removed)
2. Unscrew the 3 retaining screws of the clutch pressure plate (at 120-degree intervals) and screw in threaded bolts **pos. 3, 4 or 5** (fig. 15 A) (Observe thread sizes M6, M7 and M8).
3. Place clutch compressor **pos. 1, with pressure spindle turned back** onto the 3 threaded bolts; then tighten the knurled nuts **pos. 2** until the outer edge of the knurled nut is flush with the end of the threaded bolts. (fig. 15 B)
4. Screw in the pressure spindle until the clutch disc is clear. (fig. 16 A)
5. Unscrew the remaining retaining screws from the clutch pressure plate. (fig. 16 B)
6. Fully turn back the pressure spindle. (diaphragm spring is no longer tensioned) (fig. 17 A).
7. Remove knurled nuts **pos. 2**, clutch compressor **pos. 1** and threaded bolts **pos. 3, 4 or 5**. (fig. 17 B)

Fig. 18 : Remove clutch pressure plate and clutch disc.

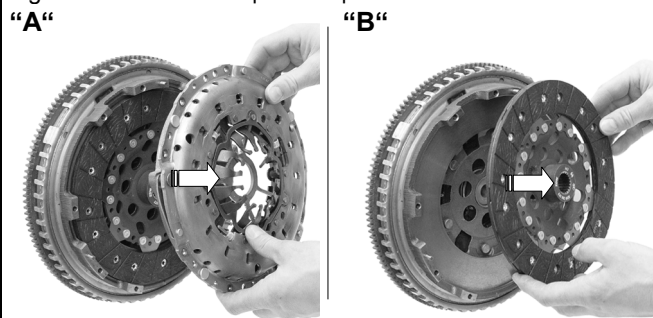


Fig. 19 : Mount clutch pressure plate cover without clutch disc, Screw in threaded bolts, mount clutch compressor.

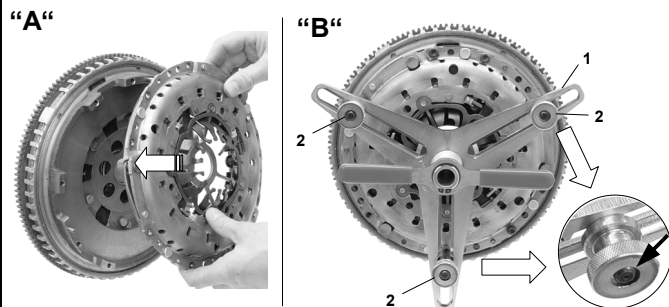


Fig. 20 : Screw in pressure spindle.

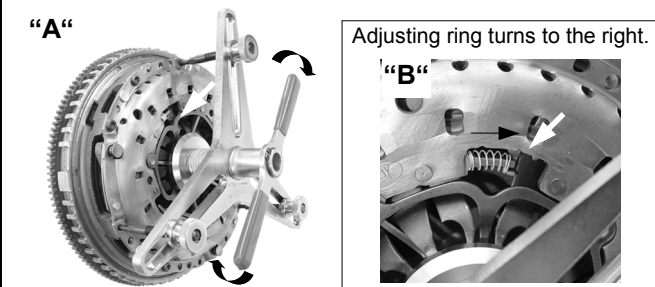


Fig. 21 : Install resetting tool.

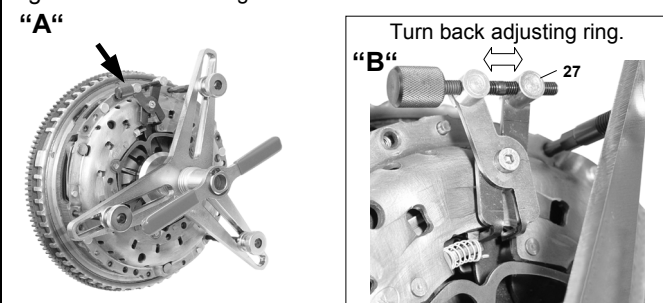
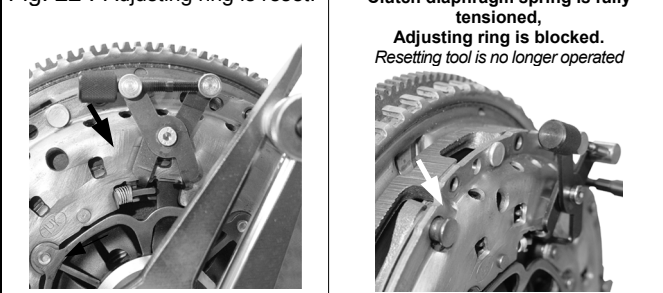


Fig. 22 : Adjusting ring is reset.



- Remove the clutch pressure plate and the clutch disc (**fig. 18 A and B**), clean the parts and check them for wear; replace them by new parts, if necessary.

(Adhere to the manufacturer's cleaning instructions!)

- Check that the new clutch disc slides smoothly on the gear shaft. Check the pilot bearing in the crankshaft and/or in the flywheel. Replacement of the pilot bearing can be carried out by using the tools **KL-0043-31** and **KL-0159-11**.

! Important:

Before installation of a new clutch disc with a clutch pressure plate previously used, the adjusting ring in the clutch pressure plate has to be turned back into its original position.

Failure to do so will result into malfunction of the clutch and consequently, engine and /or gearbox and clutch will have to be removed and installed again.

- Mount the previously used clutch pressure plate with the 3 threaded bolts **pos. 3, 4 or 5** onto the flywheel. (**fig. 19 A**) **For this purpose, do not insert a clutch disc.** Observe the installation-position mark made earlier.

- Place clutch pretensioner **pos. 1**, with **pressure spindle turned back** onto the 3 threaded bolts; then tighten the knurled nuts **pos. 2** until the outer edge of the knurled nut is flush with the end of the threaded bolts. (**fig. 19 B**)

- Insert the resetting tool **pos. 27** in the recess of the pressure plate where the return spring is connected. (**fig. 21 A**)
⇒ Resetting tool must not be spread apart!

- Screw the pressure spindle in until the adjusting ring in the clutch pressure plate begins to turn to the right (clockwise). (**fig. 20 A**)
This can be seen and also be heard by a chattering sound. (**fig. 20 B**)

- Turn the adjusting ring back to the left (counter-clockwise) into the zero or 'new' position (**fig. 21 B**) by spreading the resetting tool **pos. 27**

Note:

Do not exert any pressure on the resetting tool **pos. 27** by means of the resetting spindle, as the resetting arms could be bent.

If necessary, screw in the pressure spindle of the clutch pretensioner **pos. 1** a little bit further, so that the adjusting ring can be turned back more easily with the resetting tool.

! Attention: *The adjusting ring is prevented from turning if the diaphragm spring is not compressed or is fully tensioned. In this case the resetting tool must not be operated!*

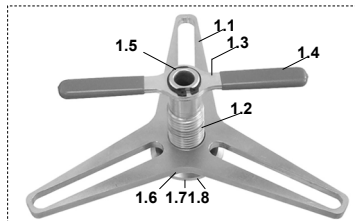
- Fully turn back the pressure spindle and dismantle the clutch pretensioner. Remove the resetting tool **pos. 27** from the clutch pressure plate. Then, remove the clutch pressure plate.

- The installation follows the same principle as when installing a new clutch disc and a new clutch pressure plate (please refer to page 2)

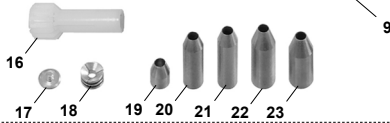
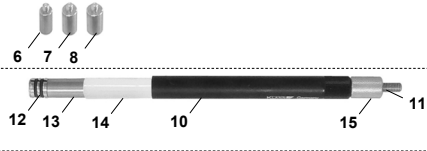
Specification: KL-0500-45 KA

KL-0500-45 K

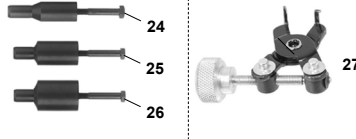
KL-0500-401



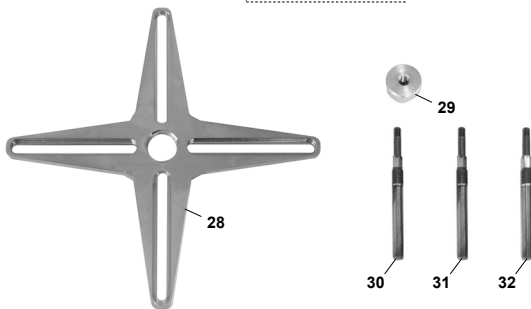
KL-0500-405



KL-0500-404



KL-0500-4014



Accessories:

KL-0500-15 - Clutch Mandrel Ø26.5 mm



Accessories:

KL-0149-131 - Adjustable Pin-type face spanner



Specification

Pos.	Part No.	Description	Qty.
	KL-0500-45 KA	SAC Clutch Tool Set	1

Consists of:

	KL-0500-45 K	SAC Clutch Tool Set with Resetting Tool in Plastic Case	1
	KL-0500-4014	Supplement Kit 4-hole pitch	1

Pos.	Part-No.	Description	Qty.
	KL-0500-45 K	SAC Clutch Tool Set with Resetting Tool in Plastic Case	1

Consists of:

	KL-0500-401	Clutch pretensioner 3-hole-pitch	1
27	KL-0500-403	Resetting Tool	1
	KL-0500-404	Clutch Mandrel Set (3 pcs)	1
	KL-0500-405	Clutch Aligner, double acting	1
	KL-0500-4590 A	Plastic case (not ill.)	1

Pos.	Part-No.	Description	Qty.
	KL-0500-401	Clutch pretensioner 3-hole-pitch	1

Consists of:

1		Clutch pretensioner 3-hole-pitch base unit	1
2	KL-0500-4006	Knurled Nut	3
3	KL-0500-4007	Threaded bolt M6	3
4	KL-0500-4008	Threaded bolt M7	3
5	KL-0500-4009	Threaded bolt M8	3

Pos.	Part-No.	Description	Qty.
1		Clutch pretensioner 3-hole-pitch base unit	1

Consists of:

1.1	KL-0500-4001	Base Plate 3-hole pitch	1
1.2	KL-0500-4002	Spindle	1
1.3	KL-0500-4003	Lever	1
1.4	KL-0500-4004	Protective handle 15 x 6	2
1.5	KL-0032-0012	Circlip A28	1
1.6	KL-0500-4005	Press piece	1
1.7	KL-0500-1007	Set of steel balls	1
1.8	KL-0500-1008	Snap ring A24	1

Pos.	Part-No.	Description	Qty.
	KL-0500-404	Clutch Mandrel Set	1

Consists of:

24	KL-0500-11	Clutch Mandrel Ø15/23 mm	1
25	KL-0500-12	Clutch Mandrel Ø15/28 mm	1
26	KL-0500-21	Clutch Mandrel Ø15/32.5 mm	1

Pos.	Part-No.	Description	Qty.
	KL-0500-405	Clutch Aligner, double acting	1

Consists of:

9	KL-0500-4050	Guide Tube complete	1
6	KL-0500-4057-1	Centring Pin Ø12	1
7	KL-0500-4057-2	Centring Pin Ø14	1
8	KL-0500-4057-3	Centring Pin Ø15	1
16	KL-0069-0006	Clamping cone size 2, 22 mm	1
17	KL-0500-4055	Cone extender	1
18	KL-0500-4054	Clamping Segment Set Ø20	1
19	KL-0500-4056-2	Sliding Cone Ø15, 40 mm long	1
20	KL-0500-4056-3	Sliding Cone Ø15, 67 mm long	1
21	KL-0500-4056-4	Sliding Cone Ø15, 75 mm long	1
22	KL-0500-4056-6	Sliding Cone Ø18, 75 mm long	1
23	KL-0500-4056-5	Sliding Cone Ø18, 67 mm long	1

Pos.	Part-No.	Description	Qty.
9	KL-0500-4050	Guide Tube complete	1

Consists of:

10	KL-0500-4051	Tube for body	1
11	KL-0500-4052	Clamping screw	1
12	KL-0500-4053	Clamping Segment Set Ø15.5	1
13	KL-0500-4056-1	Sliding Cone Ø15, 30 mm long	1
14	KL-0069-0005	Clamping Cone size 1, 15 mm	1
15	KL-0500-4103	Knurled Nut	1

Pos.	Part-No.	Description	Qty.
	KL-0500-4014	Supplement Kit 4-hole pitch	1

Consists of:

28	KL-0500-4011	Base Plate 4-hole pitch	1
29	KL-0500-4006	Knurled Nut	1
	KL-0500-4006 A	Knurled Nut (old version) (not ill.)	1
30	KL-0500-4007	Threaded bolt M6	1
31	KL-0500-4008	Threaded bolt M7	1
32	KL-0500-4009	Threaded bolt M8	1

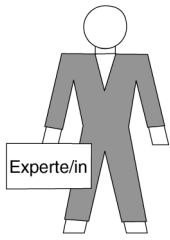
Accessories:

KL-0500-15 Clutch Mandrel Ø26.5mm (BMW, Audi)

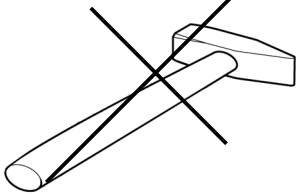
KL-0149-131 Pin-type face spanner adjustable Ø14 -100mm, Pin-Ø5mm

Used to remove the pretensioning ring e.g. on Audi, Fiat.

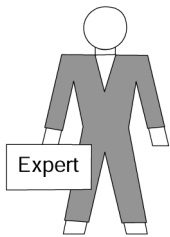
Produkt-Information komplett durchlesen und verstehen.



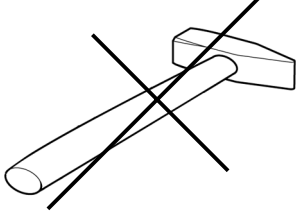
Pflege und Reinigung.



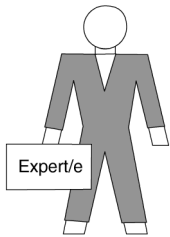
Carefully read the Product Information and make sure you have understood it correctly.



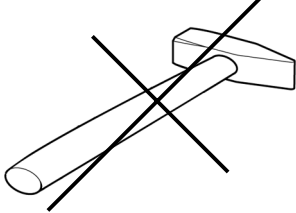
Care and cleaning.



Lisez entièrement l'information produit et assurez-vous de l'avoir bien comprise.



Entretien et nettoyage.



! Vorschriften und Hinweise

- Arbeiten an Fahrzeugen nur durch Fachpersonal unter Beachtung der Hinweise, Vorschriften und Sicherheitsvorschriften des Fahrzeugherstellers durchführen!
- Für alle Arbeiten am Fahrzeug gelten nur die vom Fahrzeughersteller vorgegebenen Daten.
- Alle angegebenen fahrzeugspezifischen Daten erfolgen unter Vorbehalt.
- Vor Inbetriebnahme durch Sichtprüfung überzeugen, dass das Werkzeug keine Beschädigung aufweist.

! Folgende Punkte sind unbedingt zu beachten:

- Vor Arbeitsbeginn Produkt-Information komplett durchlesen und verstehen.
- Niemals mit einem Hammer auf das Werkzeug schlagen.
- Werkzeug stets sauber halten. Als Schmiermittel für Spindeln und Gewinde ausschließlich Molybdändisulfid Paste **KL-0014-0030** verwenden.
- Generell dürfen nur KLANN Original-Ersatzteile verwendet werden.

! Warnings and Notes

- Any work on vehicles should only be performed by qualified personnel observing and complying with the directions, provisions, and safety regulations issued by the vehicle manufacturer .
- Only the vehicle manufacturer's data apply to all work done on the vehicle.
- All specific vehicle data stated herein are supplied without commitment.
- Before putting the tool into operation, visually check that it is not damaged.

! It is imperative to observe the following points:

- Before starting work, read the Product Information carefully and make sure you have understood it correctly.
- Never strike the tool with a hammer!
- Always keep the tool clean. To lubricate spindles and threads use only Molybdenum Disulphide Paste **KL-0014-0030**.
- Only KLANN original spare parts are recommended.

! Prescriptions et remarques

- Toutes interventions sur les véhicules doivent impérativement être effectuées par du personnel qualifié, tout en respectant les recommandations, prescriptions et consignes de sécurité du constructeur du véhicule
- Pour tous les travaux réalisés sur le véhicule, seules les données indiquées par le constructeur du véhicule sont valables.
- Toutes les caractéristiques mentionnées spécifiques aux véhicules sont données sous réserve.
- Avant la mise en service, contrôler visuellement que l'outil ne présente pas d'endommagement.

! Les points suivants sont impérativement à respecter:

- Avant de démarrer les travaux, lisez entièrement l'information produit et assurez-vous de l'avoir bien comprise.
- Ne frappez jamais l'outil avec un marteau !
- Maintenez l'outil toujours dans un état de propreté. Graissez les tiges et les filetages exclusivement avec de la pâte de bisulfure de molybdène **KL-0014-0030**.
- Généralement, vous ne devez utiliser que des pièces de rechange originales KLANN.