

VW, AUDI 7-SPEED DSG CLUTCH INSTALLER & REMOVER



Introduction:

Specially designed to install and remove the clutch of gearbox.

Item	Description	OEM
A	Puller - Clutch	T10373
B	Bolt	T10373
C	Setting Tool – Release Bearing	T10374
D	Clutch Press Piece	T10376
E	Support Device (Short)	T10323
F	Bolt (Long)	T10323
G	Support Device (Long) x 2	T10323
H	Bolt (Small)	T10323

Application:

Model:

VW: Golf 2004 >, Golf Plus 2005 >

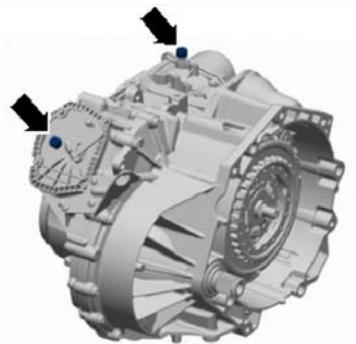
Audi: A3 2004 >, with 7-speed gearbox (code 0 AM), Touareg 2003>, with 6-speed gearbox (code 08 D)

Instruction:

Removing Dual Clutch

1. Gearbox must be removed and secured to engine/gearbox support. Mechatronic unit for dual clutch gearbox -J743- fitted onto gearbox. Remove both breather caps -arrows- and seal with clean plugs from engine bung set -VAS 6122-.

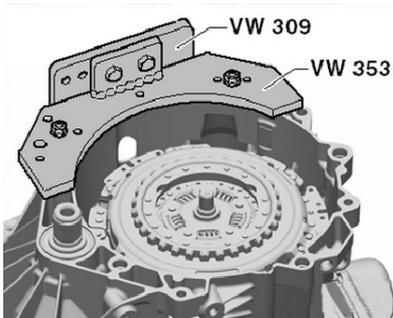
Fig.1



2. Turn gearbox in engine and gearbox support so that clutch faces upwards.

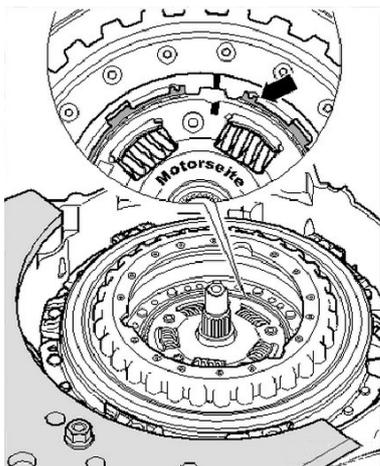
Note: The clutch must be lifted off; the mechatronic unit remains fitted on the gearbox.

Fig.2



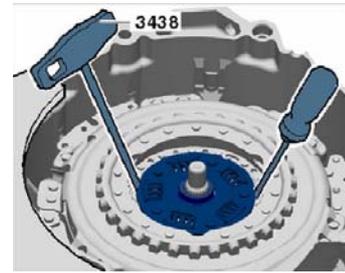
3. Remove cir-clip -arrow- for hub.

Fig.3



4. Remove hub using hook -3438- and a screwdriver.

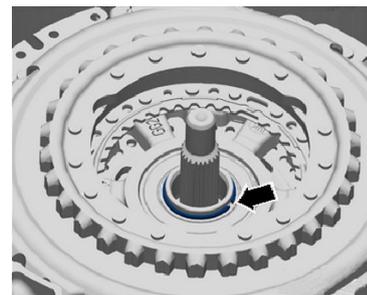
Fig.4



5. Remove circlip -arrow- for clutch.

Note: If the cir-clip cannot be removed, it is likely that the clutch is jamming the cir-clip from below. In this case, press the clutch slightly down as described in the following until the cir-clip is released. Do **NOT** knock on the clutch or shaft with a hammer. Always renew cir-clip.

Fig.5



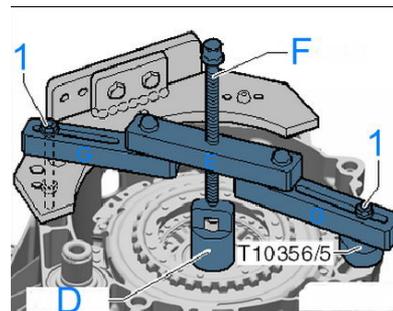
6. Set up (E and G) so it is parallel to gearbox flange, as shown in illustration. If necessary, use -T10356/5- as a spacer. Fit bolts -1- hand-tight.

Note: Fit bolts -1- hand-tight.

Caution: Risk of damage to the clutch and other components. Only press the clutch down lightly - do not exert too much pressure.

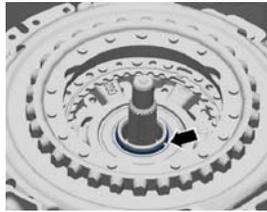
Turn spindle against thrust piece (D) when pressing clutch down.

Fig.6



7. Remove cir-clip -arrow- for clutch.

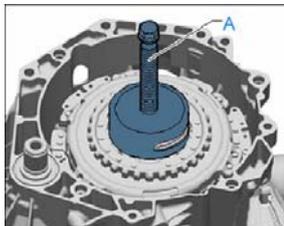
Fig.7



After Removal of Cir-clip

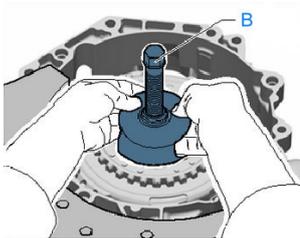
1. Insert puller (A) in clutch and take up clutch with spindle.

Fig.8



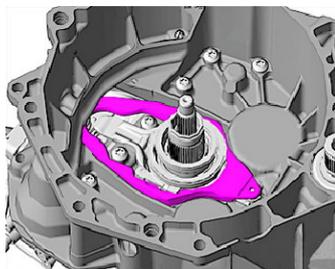
2. Take out clutch together with puller (B).

Fig.9



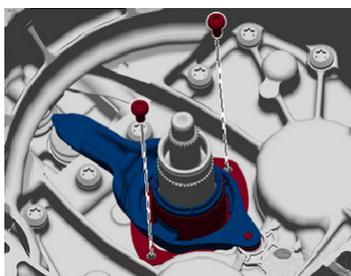
3. Remove small engagement bearing. Remove large engaging lever.

Fig.10



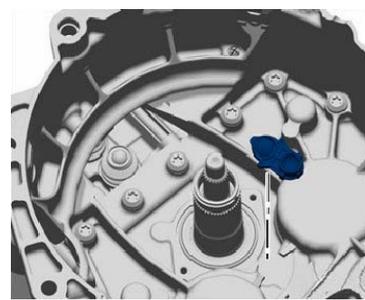
4. Remove bolts and detach small engaging lever.

Fig.11



5. Remove retainer for engaging levers.

Fig.12



Adjusting Position of Clutch Engagement Bearings

The position of the engagement bearings must be adjusted in the following cases:

- Clutch has been renewed
- Engaging levers have been renewed
- Retainer for engaging levers has been renewed
- Engagement bearings have been renewed

Note: No adjustment is necessary if all aforementioned components have merely been removed and installed again.

1. The surface of the gearbox flange must be absolutely even to make sure the ruler lies flat on the surface. Mechatronic unit for dual clutch gearbox -J743- must be installed. Tightening torques.

Note: Renew bolts which are tightened by turning through a specified angle.

Caution: Risk of damage to the clutch and other components. The retainer for the engaging levers and all the mechanical components of the engagement bearings must be dry and free from oil and grease.

Preparing dual clutch for measurement

2. Insert retainer for engaging levers.

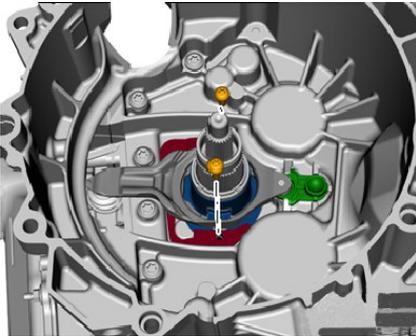
Fig.13



3. Install small engaging lever with clip.

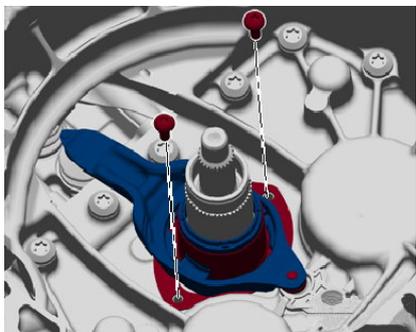
Note: In earlier gearboxes this clip may not be fitted.

Fig.14



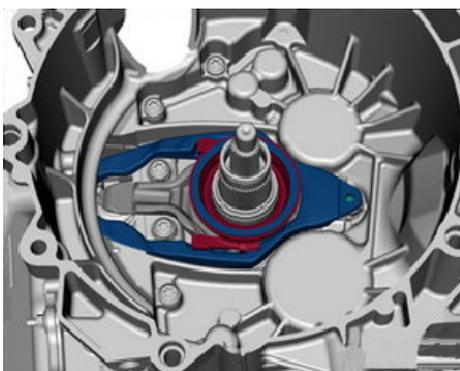
4. Tighten bolts for small engaging lever.

Fig.15



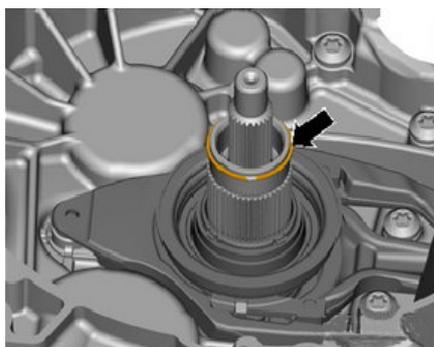
5. Insert large engaging lever. Check that both engaging levers are seated correctly.

Fig.16



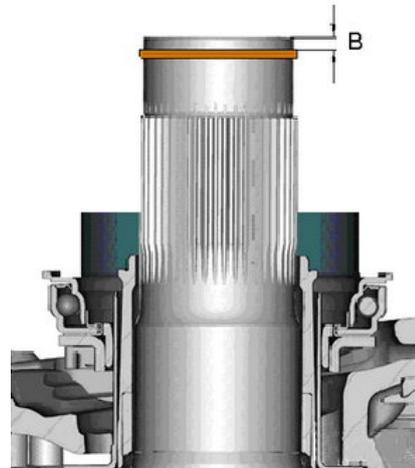
6. Re-install old cir-clip on outer input shaft.

Fig.17



Determining dimension “B” for clutch

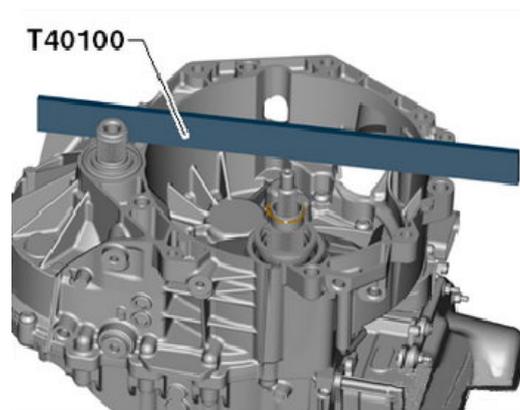
Fig.18



7. Place ruler -T40100- on edge across gearbox flange above end of shaft.

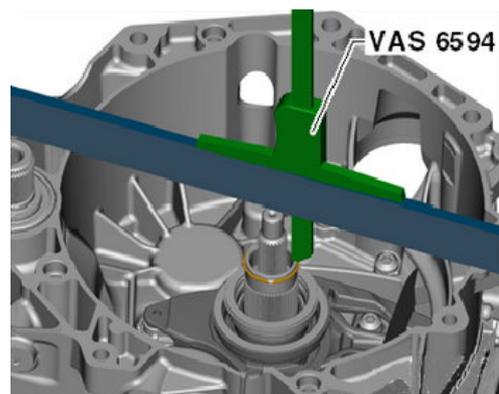
Caution: The ruler -T40100- should remain in this position during the following measurements - do not change its position or remove it.

Fig.19



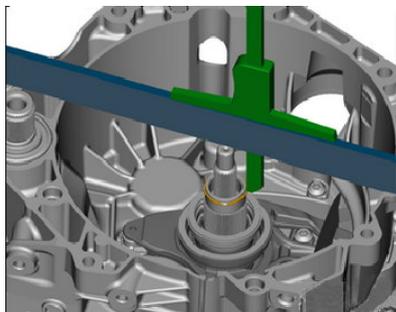
8. Set digital depth gauge (300 mm) -VAS 6594- on top of ruler -T40100- and apply tip of depth gauge to outer input shaft. Set depth gauge to “0”.

Fig.20



9. Apply tip of depth gauge to cir-clip, as shown in illustration. Determine dimension “Ba” to cir-clip at this point. Example: dimension “Ba” = 2.92 mm.

Fig.21



10. Determine dimension “Bb” to cir-clip on opposite side.

Note: Do not perform measurement at gap in cir-clip; otherwise the cir-clip could be pressed out of position and the measurement would be incorrect.

Example: dimension “Bb” = 3.00 mm

Calculate mean value of dimensions “Ba” and “Bb”.

Formula: $(Ba + Bb)/2$

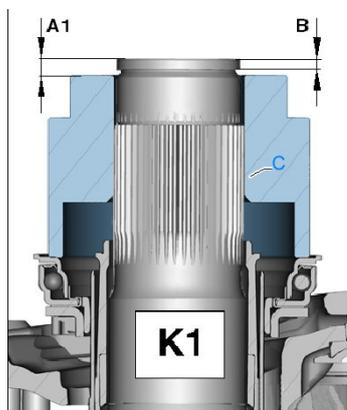
Example: $(2.92 + 3.00)/2$

Result: dimension “B” = 2.96 mm

Remove and dispose of cir-clip.

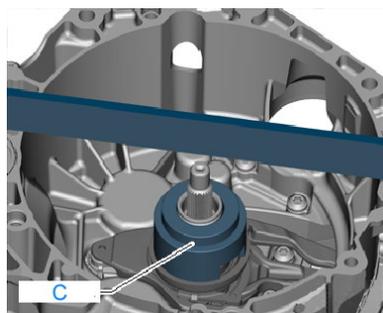
Determining dimension “A1” for engagement bearing of clutch “K 1”

Fig.22



11. Place gauge block (C) on large engagement bearing; large opening must face downwards. To make sure that gauge block (C) is seated correctly on engagement bearing, press down on gauge block and turn it. The engagement bearing should turn together with the gauge block (C).

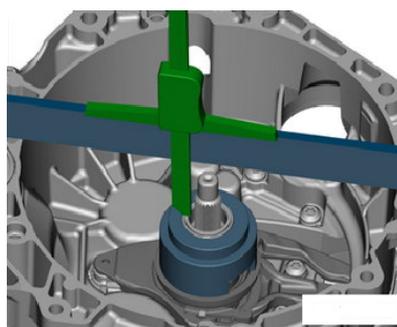
Fig.23



12. Set digital depth gauge (300 mm) -VAS 6594- on top of ruler and apply tip of depth gauge to outer input shaft. The ruler -T40100- is positioned on edge across the gearbox flange above the end of the shaft.

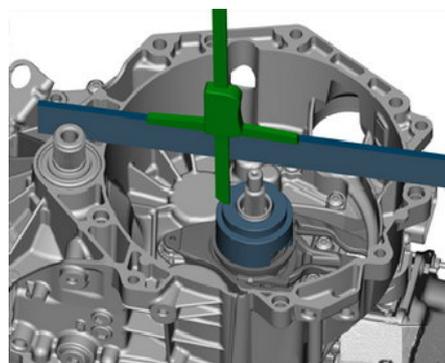
Caution: The ruler -T40100- should remain in this position during the following measurements - do not change its position or remove it.

Fig.24



13. Apply tip of depth gauge to gauge block -T10374-, as shown in illustration. Determine dimension “A1a” to gauge block -T10374- at this point. Example: dimension “A1a” = 2.61 mm

Fig.25



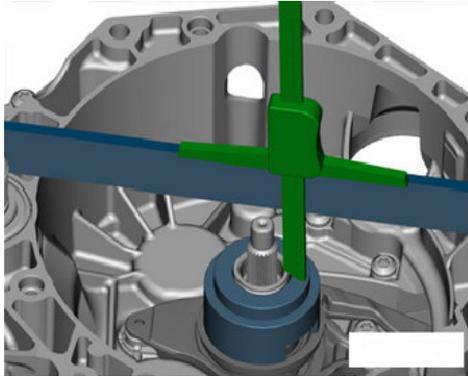
14. Determine dimension “A1b” to gauge block (C) on opposite side. Example: dimension “A1b” = 2.81 mm. Calculate mean value of dimensions “A1a” and “A1b”.

Formula: $(A1a + A1b)/2$

Example: $(2.61 + 2.81)/2 = 2.71 \text{ mm}$

Result: dimension "A1" = 2.71 mm

Fig.26



Determining installation depth of engagement bearing for clutch "K 1"

Note: The actual depth of the engagement bearing for clutch "K 1" must now be calculated from dimensions "A1" and "B" as follows:

Dimension "A1"

(-) Dimension "B"

(+) Exterior height of gauge block (C) (51.81 mm; fixed value)

(=) Actual depth of engagement bearing for clutch "K 1"

Example: $2.71 \text{ mm} - 2.96 \text{ mm} + 51.81 \text{ mm} = 51.56 \text{ mm}$. Result: Actual depth of engagement bearing for clutch "K 1" = 51.56 mm.

Calculating clearance of clutch "K 1"

Note: The clearance of clutch "K 1" must now be calculated from the actual depth and the specified depth of the engagement bearing as follows:

Actual depth of engagement bearing

(-) Specified depth of engagement bearing (50.08 mm; fixed value)

(=) Clearance of clutch "K 1"

Example: $51.56 \text{ mm} - 50.08 \text{ mm} = 1.48 \text{ mm}$

Result: Clearance of clutch "K 1" = 1.48 mm

Determining tolerance for clutch „K 1“

15. Read tolerance value for clutch off new clutch.

Example: tolerance for clutch as marked on clutch "K 1 = + 0.2" (as shown in illustration)

Fig.27



Determining thickness of shim "SK1"

Note: The thickness of shim "SK1" must now be determined from the values for the clearance and the tolerance of clutch "K 1" as follows:

Clearance of clutch "K 1"

(-/+ Tolerance value of clutch „K 1“

(=) Calculated thickness of shim "SK1"

Example: $1.48 \text{ mm} + 0.20 \text{ mm} = 1.68 \text{ mm}$

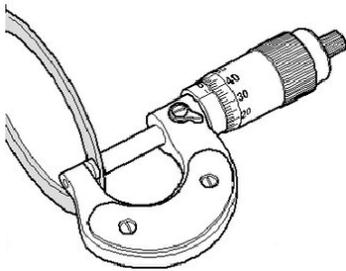
Result: Calculated thickness of shim "SK1" = 1.68 mm

16. Measure and select required shim from shims supplied and have to hand for installation.

Calculated thickness of shim	Available shims Thickness in mm
0.31 ... 0.90	0.8
0.91 ... 1.10	1.0
1.11 ... 1.30	1.2
1.31 ... 1.50	1.4
1.51 ... 1.70	1.6
1.71 ... 1.90	1.8
1.91 ... 2.10	2.0
2.11 ... 2.30	2.2
2.31 ... 2.50	2.4
2.51 ... 2.70	2.6
2.71 ... 3.30	2.8

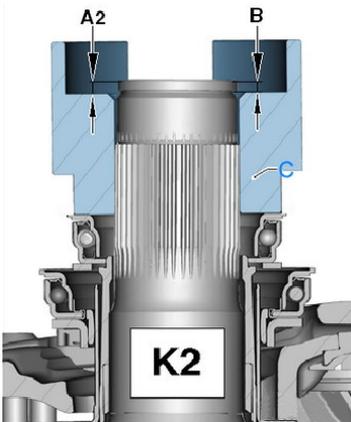
Caution: Mark shim as "SK1" and have this shim ready for assembly. This shim "SK1" (and only this shim) must be fitted for the small engagement bearing when adjusting.

Fig.28



Determining dimension "A2" for engagement bearing of clutch "K 2"

Fig.29



17. Only insert small engagement bearing.

Fig.30



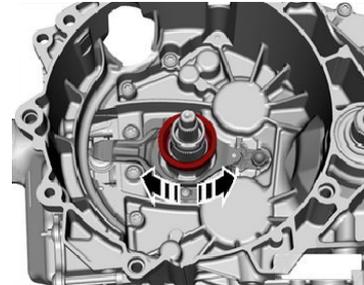
18. The small engagement bearing only fits in one position due to the 4 grooves.

Fig.31



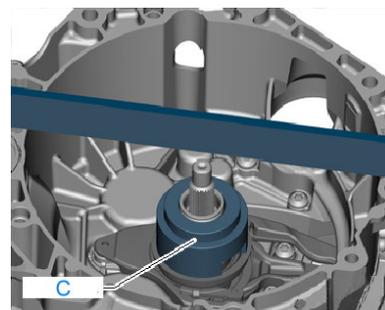
19. Check that small engagement bearing is installed correctly and grooves are seated properly by turning it -arrows-.

Fig.32



20. Place gauge block (C) on small engagement bearing; large opening must face upwards.

Fig.33

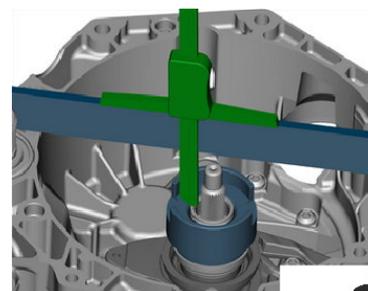


21. Set digital depth gauge (300 mm) -VAS 6594- on top of ruler and apply tip of depth gauge to outer input shaft. The ruler -T40100- is positioned on edge across the gearbox flange above the end of the shaft.

Caution: The ruler -T40100- should remain in this position during the following measurements - do not change its position or remove it.

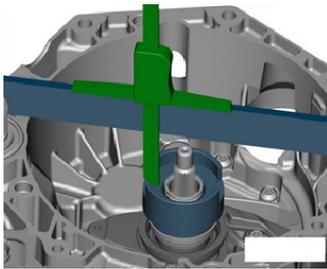
Set depth gauge to "0".

Fig.34



22. Apply tip of depth gauge to gauge block (C), as shown in illustration. Determine dimension "A2a" to gauge block (C) at this point. Example: dimension "A2a" = 2.50 mm

Fig.35



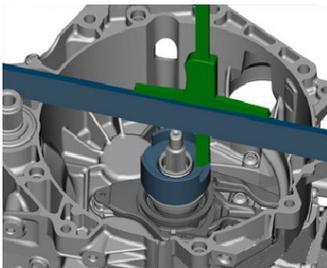
23. Determine dimension “A2b” to gauge block (C) on opposite side. Example: dimension “A2b” = 2.54 mm. Calculate mean value of dimensions “A2a” and “A2b”.

Formula: $(A2a + A2b)/2$

Example: $(2.50 + 2.54)/2 = 2.52$ mm

Result: dimension “A2” = 2.52 mm

Fig.36



Determining installation depth of engagement bearing for clutch “K 2”

Note: The actual depth of the engagement bearing for clutch “K 2” must now be calculated from dimensions “A2” and “B” as follows:

Dimension “A2”

(-) Dimension “B”

(+) Interior height of gauge block (C) (36.20 mm; fixed value)

(=) Actual depth of engagement bearing for clutch “K 2”

Example: 2.52 mm – 2.96 mm + 36.20 mm = 35.76 mm

Result: Actual depth of engagement bearing for clutch “K 2” = 35.76 mm

Calculating clearance of clutch “K 2”

Note: The clearance of clutch “K 2” must now be calculated from the actual depth and the specified depth of the engagement bearing as follows:

Actual depth of engagement bearing

(-) Specified depth of engagement bearing (34.35 mm; fixed value)

(=) Clearance of clutch “K 2”

Example: 35.76 mm – 34.35 mm = 1.41 mm

Result: Clearance of clutch “K 2” = 1.41 mm

Determining tolerance for clutch “K 2”

24. Read tolerance value for clutch off new clutch.

Example: tolerance for clutch as marked on clutch “K 2 = + -0.2” (as shown in illustration)

Fig.37



Determining thickness of shim “SK2”

Note: The thickness of shim “SK2” must now be determined from the values for the clearance and the tolerance of clutch “K 2” as follows:

Clearance of clutch “K 2”

(-/+) Clearance of clutch “K 2”

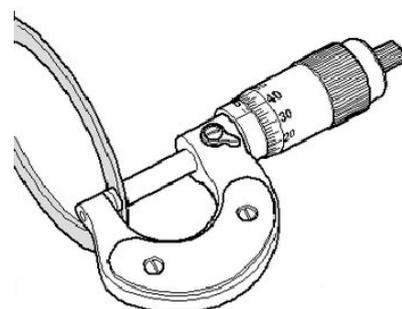
(=) Calculated thickness of shim “SK2”

Example: 1.41 mm – 0.20 mm = 1.21 mm

Result: Calculated thickness of shim “SK2” = 1.21 mm

Measure and select required shim from shims supplied and have to hand for installation.

Fig.38

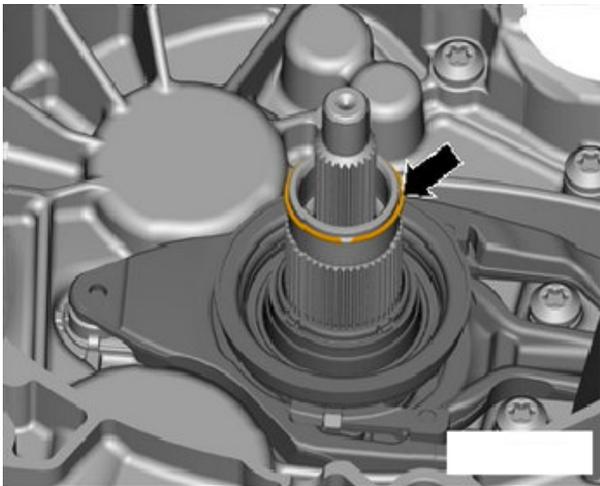


Calculated thickness of shim	Available shims Thickness in mm
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1.11 ... 1.30	1.2
1.31 ... 1.50	1.4
1.51 ... 1.70	1.6
1.71 ... 1.90	1.8
1.91 ... 2.10	2.0
2.11 ... 2.30	2.2
2.31 ... 2.50	2.4
2.51 ... 2.70	2.6
2.71 ... 3.30	2.8

Caution: Mark shim as “SK2” and have this shim ready for assembly. This shim “SK2” (and only this shim) must be fitted when adjusting.

25. The clutch can be installed.

Fig.39



Installing dual clutch

Tightening torques

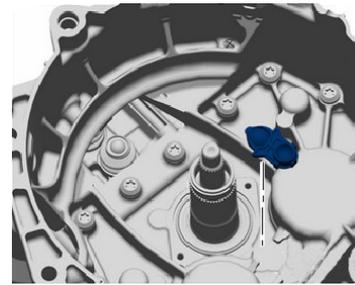
Note: Renew bolts which are tightened by turning through a specified angle.

Caution: Clutch components must be free of oil and grease when installing.

Note: The following four steps are only necessary if the position of the engagement bearings did not have to be adjusted.

1. Insert retainer for engaging levers.

Fig.40



2. Install small engaging lever with clip.

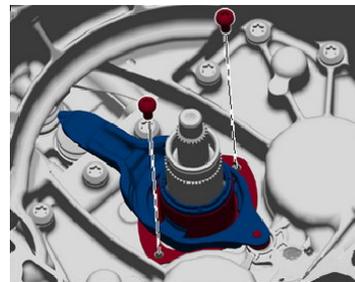
Note: In earlier gearboxes this clip may not be fitted.

Fig.41



3. Tighten bolts for small engaging lever.

Fig.42



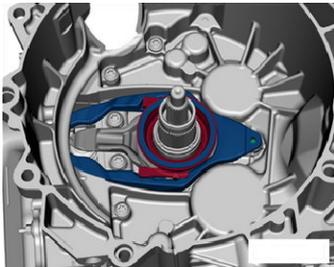
4. Insert large engaging lever. Check that both engaging levers are seated correctly.

Caution: The positions of the engagement bearings must be adjusted correctly.

The adjustment procedure can only be performed before installing the clutch. The position of the engagement bearings must be adjusted in the following cases: Clutch has been renewed. Engaging levers have been renewed. Retainer for engaging levers has been renewed. Engagement bearings have been renewed. If one of the procedures listed above has been performed, the positions of the engagement bearings “K 1 and K 2” must be adjusted and the shims with the correct thicknesses (as determined above) must be inserted before continuing.

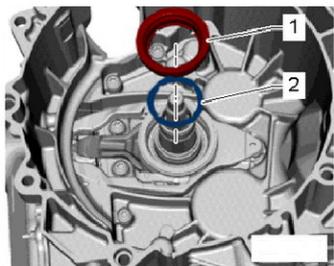
Do not continue assembly unless the adjustment is correct. If no new components have been installed, the "old" shims can be re-inserted. Fit only one shim on each engagement bearing when adjusting.

Fig.43



5. First fit either old shim or new shim "SK1"-item 2- (thickness of new shim as determined above) and then insert small engagement bearing -1-.

Fig.44



6. The small engagement bearing only fits in one position due to the 4 grooves.

Fig.45



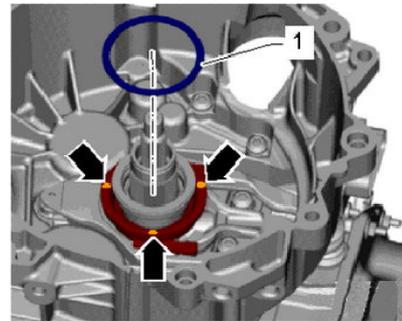
7. Check that small engagement bearing is installed correctly and grooves are seated properly by turning it -arrows-.

Fig.46



8. Fit either old shim or new shim "SK2"-item 1- (thickness of new shim as determined above). To prevent shim from slipping out of seat when inserting clutch, fix it in place with three drops of adhesive -AMV 195 KD1 01--arrows-.

Fig.47

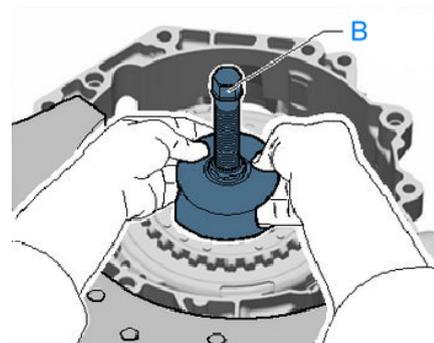


9. Turn back spindle of puller (B).

Caution: Risk of damage to adjusting mechanism of clutch. The clutch is self-adjusting. Shocks can affect the adjusting mechanism. Do not allow the clutch to drop into the gearbox when installing it.

Insert clutch in gearbox using puller (B), as shown in illustration.

Fig.48

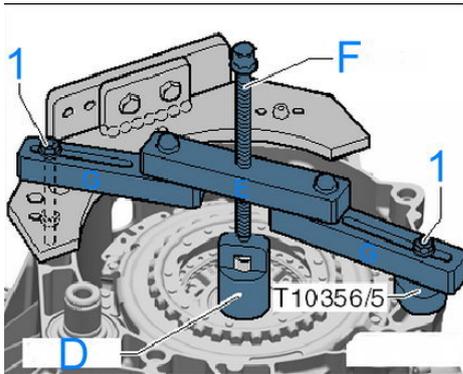


10. Set up support bridge (F) so it is parallel to gearbox flange, as shown in illustration. If necessary, use -T10356/5- of assembly tool -T10356- as a spacer. Fit bolts -1- hand-tight.

Note: Secure bolts -1- with nuts as required. Press on clutch as far as stop.

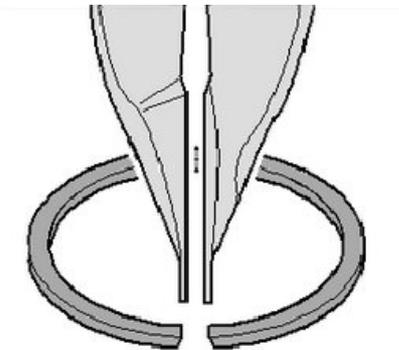
Note: Place a hand on the clutch when pressing it on. You will be able to feel a slight grating or juddering movement. This indicates that the clutch is being pressed in to a press fit. You can also feel when the clutch reaches its stop and is fully seated.

Fig.49



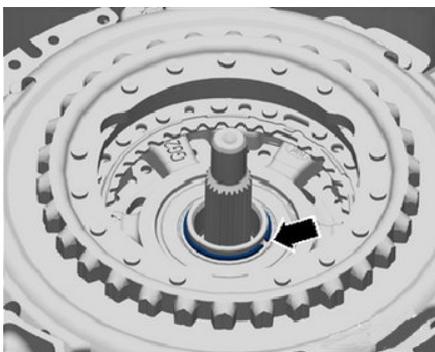
11. Take hold of cir-clip using cir-clip pliers, as shown in illustration. Installation position of cir-clip: narrow part of gap is at the top.

Fig.50



12. Insert cir-clip -arrow-.
Note: If the cir-clip cannot be inserted, this means that the clutch has not been pressed onto the stop properly.

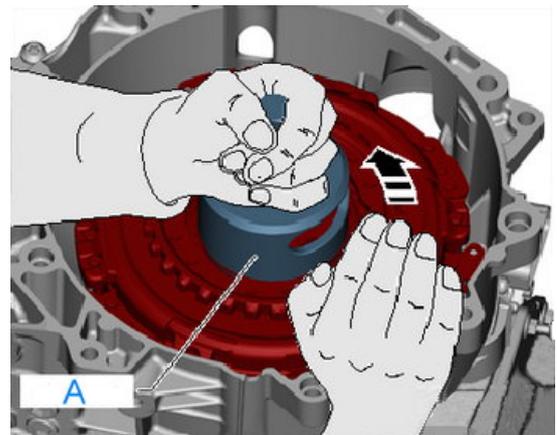
Fig.51



13. Turn clutch against puller (A) -arrow- by hand (without a tool) so that clutch moves into operating position at this point already.

Note: After it has been pressed on, the clutch is seated on the input shaft at the bottom stop; this is not the ideal position.

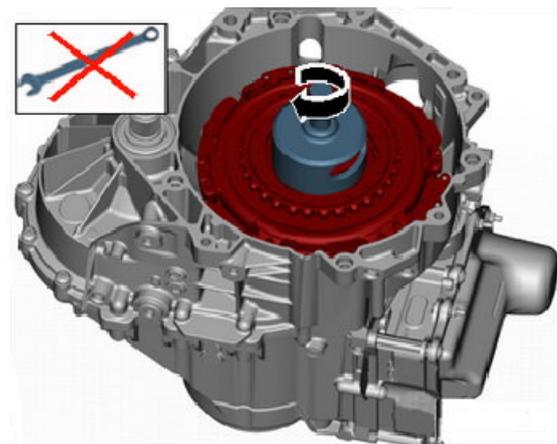
Fig.52



14. The clutch should only be pulled up far enough so it touches the cir-clip.

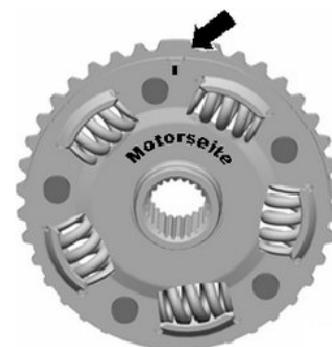
Note: Only turn the clutch by hand (without a tool); in this way the clutch will slide against the cir-clip.

Fig.53



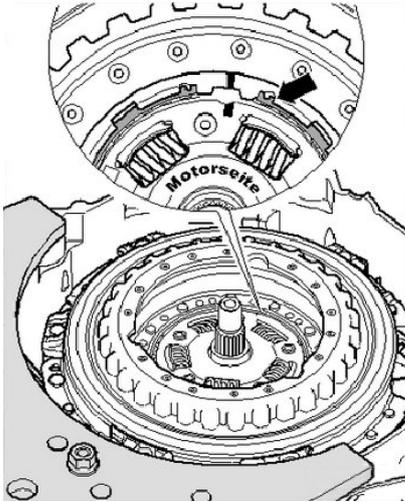
15. Insert hub. The hub has one large tooth -arrow- and can only be fitted in one correct position. The large tooth has a marking on the engine side.

Fig.54



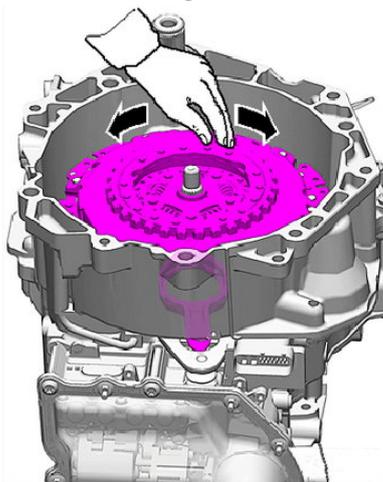
16. Install cir-clip -arrow- on hub. Gap of cir-clip must face lug on clutch.

Fig.55



17. Turn clutch by hand; observe small engaging lever when turning.

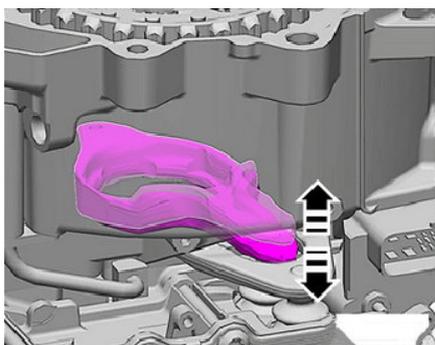
Fig.56



18. The small engaging lever should be absolutely still while the clutch is being turned. It should not move up and down.

Note: If the small engaging lever moves up and down, the shim is not seated correctly. In this case, the clutch must be removed again.

Fig.57



19. Check shims -arrows-. The shims must be seated correctly and must not be damaged.

Fig.58



20. Remove both plugs and fit breather caps -arrows- again. Dispose of unused shims. After installing the gearbox, run the basic setting complete function in guided functions.

Fig.59

