

CLUTCH

The single plate dry disc clutch, made by Fichtel & Sachs, is hydraulically controlled. Adjustment and manipulation of clutch is explained in group K Clutch, operating process K 3. Principally lined plates resp. complete clutches in exchange should be fitted when overhauling. We have described a clutch overhaul, basic adjustment K 7, solely for emergency cases, when replacement spares are not available. Adjuster ring as well as adjuster bolts are required to carry out this work. Dimensions for these two auxiliary tools are shown in drawings, group clutch K 7.

Make and type	Fichtel & Sachs Single plate, dry disc with torsional damper K 12 K Z
Adjustment from release surface to disc surface	49 mm or 1.9291"
Release movement	$8 + \frac{2}{2}$ mm or .3150 + .0787"
Clutch facing worn at	11 mm or .4331"
Clearance between release bearing and release surface	2 mm or .0787" (corresponding pedal movement appr. 20 mm or .7874")
Measure of depth from bearing surface of pres- sure plate to flywheel drive surface	29 mm or 1.417"

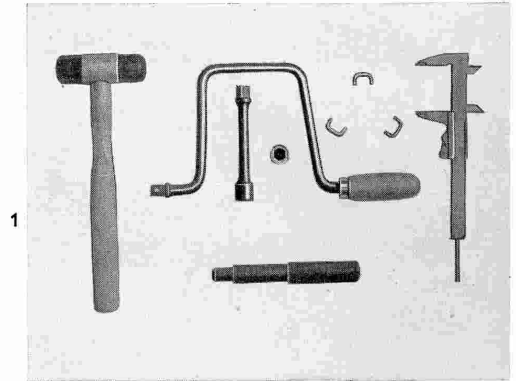
K. CLUTCH

K1. Removal of clutch and reassembly

Engine removed  
Gearbox removed

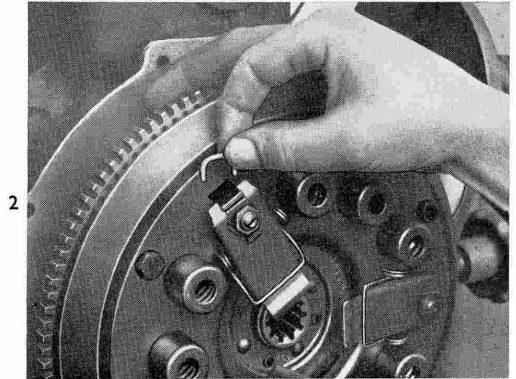
Tools: 3 clutch tension stirrups, socket-spanner 14 mm, depth gauge, plastic head hammer, clutch guide punch (dummy shaft) WK 35.

Figure 1



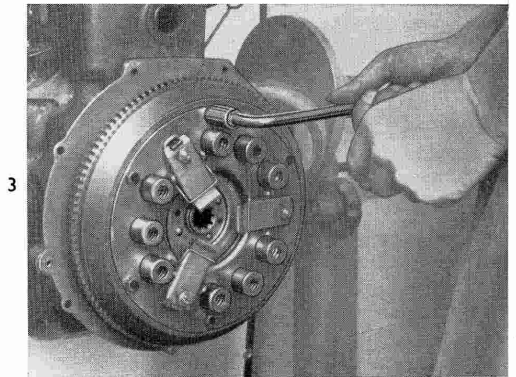
1. Insert tension stirrups and both bolts near to stirrup until stirrup tightens. (3 clutch tension stirrups, socket spanner 14 mm)

Figure 2



2. Rotate flywheel and insert next tension strap. Slacken bolts.

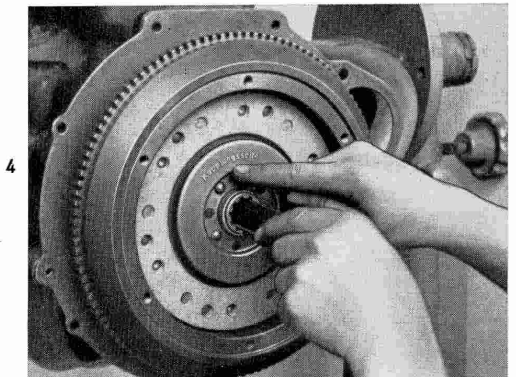
Figure 3



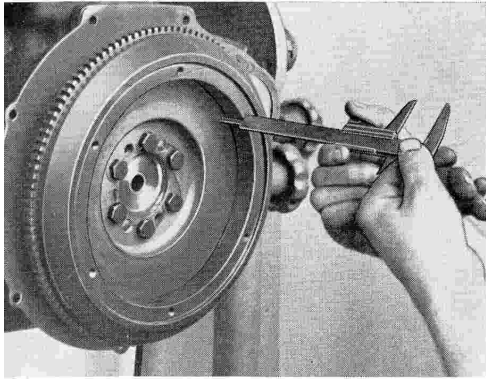
3. Rotate flywheel again, insert last tension stirrup and tighten same by slackening next bolts.
4. Undo all bolts diagonally.
5. Remove clutch and lift out plate.

**Caution:** When reassembling, to ensure proper assembly fit new clutch plate with dummy shaft. Insert plate so that inscription "Kupplungsseite" (Clutchside) is visible.

Figure 4

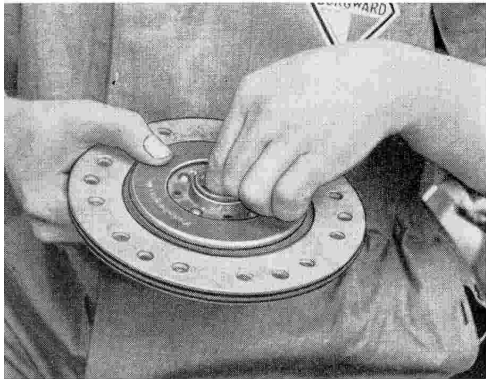


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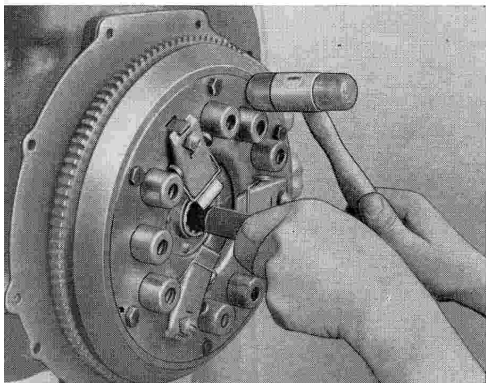
6. If the clutch bearing surface of the flywheel requires regrinding, the surface for cover plate must be returned to same dimensions to ensure the correct depth of 29 mm or 1.1417" when checked with depth gauge.

Figure 5



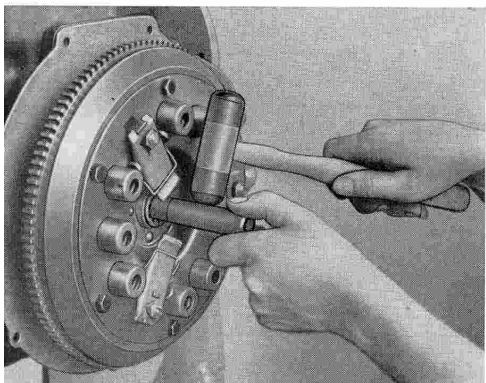
7. Do not touch clutch facings with fingers. When inserting clutch plate take hold of hub.

Figure 6



8. When reassembling the clutch, tighten bolts diagonally and remove tension stirrups. When tightened, tap clutch cover plate slightly round about with plastic-head mallet to set plate and tighten bolts again. (Socket spanner 14 mm, dummy shaft and plastic-head mallet)

Figure 7



9. Tap dummy shaft slightly with mallet so that it can be removed easily. (Plastic-head mallet)

Figure 8

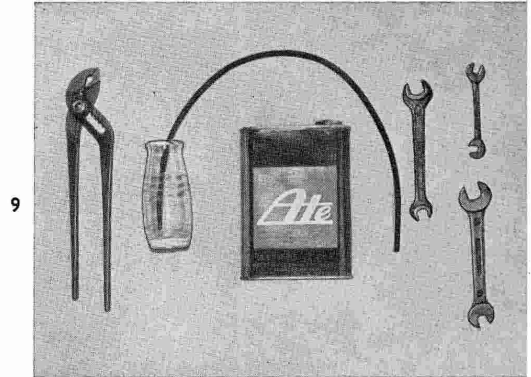
Caution: The clutch guide bush of the flywheel can be replaced without special tools and without removal of flywheel. (See M 3, figure 39 and 40)

Caution: Principally fit complete exchange clutch assemblies. For special cases see K 7.

K 3. Clutch adjustment

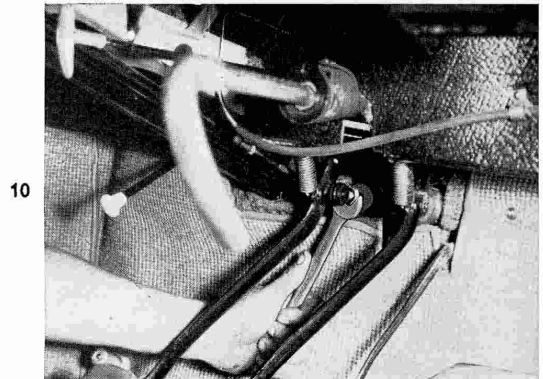
Tools: Spanner 2 x 14.7 mm, gland nut pliers, brake fluid, bleed pipe, glass.

Figure 9



1. Check if correct clearance of 0 - 0.2 mm on master-cylinder. (Zero to .00787").
2. If necessary, adjust clearance by slackening the counter nuts, take upplay by turning (in or out ) pressure rod. (2 spanners 14 mm)

Figure 10



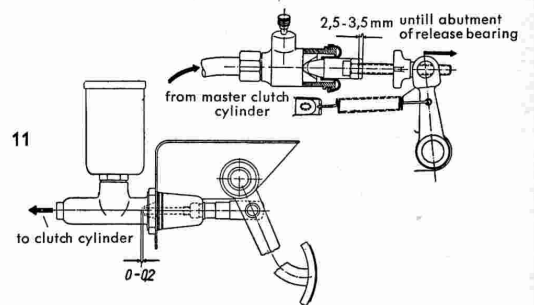
3. Check if clutch cylinder (on clutch) has correct clearance of 2.5 - 3.5 mm. (.0984 to .1181").

Figure 11

4. Clearance of 2.5-3 mm (.0984 to .1181") can be adjusted on adjuster nut if necessary. Adjust in following sequence:

- a) Press lever back until it is perceived that release bearing is lying close, and guide piston rod back.
- b) Adjust adjuster nut in this position so that a thrust of 2.5 - 3 mm (.0984 to .1181") is obtained when the clutch pedal to clutch cylinder moves backwards under spring tension. Thereby a clearance of 2 - 3 mm (.0787 to .1181) is obtained.

Figure 11



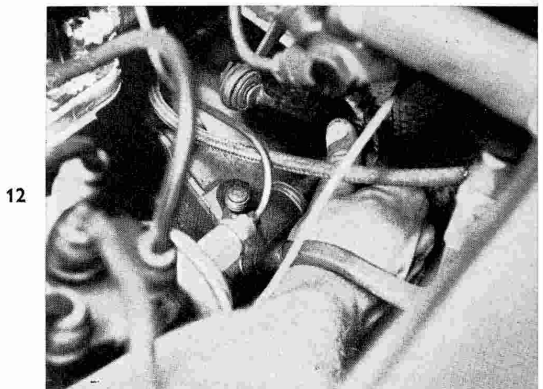
5. If necessary increase adjusting possibilities by slackening counter nut and turning clutch pressure rod anti clockwise.

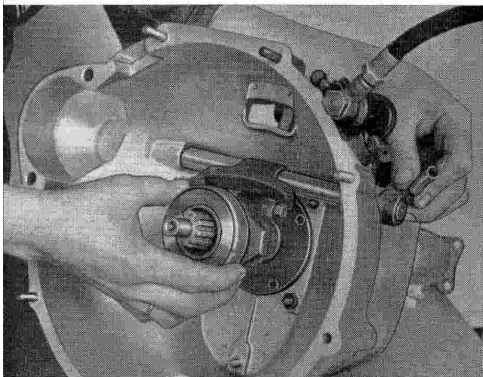
Figure 12

(2 spanners 14 mm, spanner 7 mm or gland nut pliers).

Caution: With this adjustment the clutch clearance on clutch pedal amounts to appr. 20 mm or .7874".

6. The hydraulic system must be bled when working on clutch. (Brake fluid, bleeder pipe, glass, spanner (see also B 1))





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K 5. Renewal of clutch thrust bearing

Tools: 2 strong screwdrivers or tyre levers.

1. Remove release bearing with housing from clutch guide bush by turning clutch shaft.

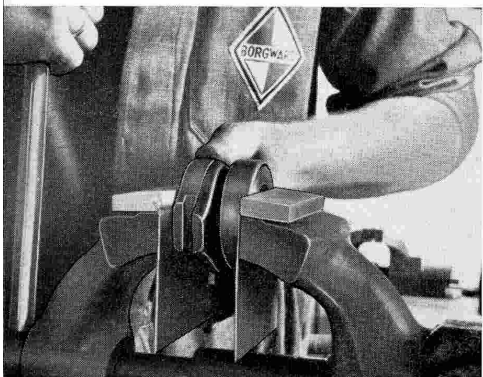
Figure 13



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2. Chuck housing in the vice, use protecting jaws. Remove thrust bearing with 2 tyre levers.

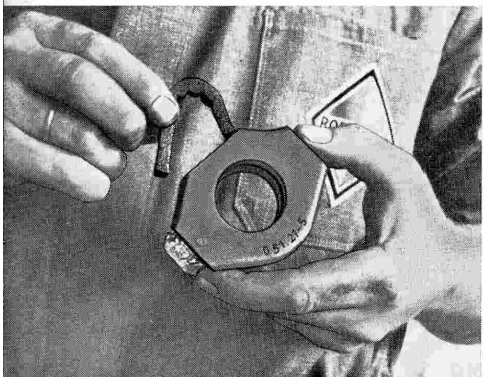
Figure 14



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3. Press on new bearing between protecting jaws in vice.

Figure 15



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4. Soak lubricating felt in motor oil and insert in housing.

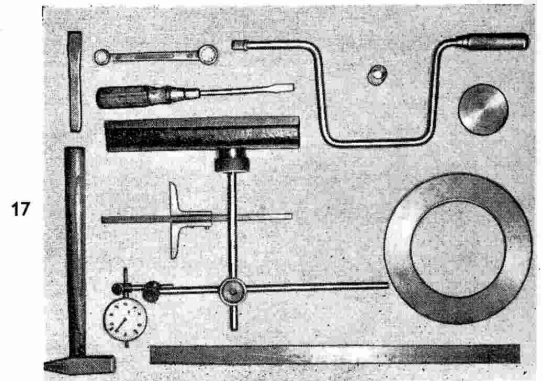
Figure 16

Reassembly in reversed sequence.

K7. Clutch basis adjustment

Caution: This work should be carried out only when a part has to be replaced and the clutch must be re-assembled. It is presumed, that all parts are at hand. Clutch must be dismounted in flywheel. Clutch springs must be released by slackening ball nuts and by screwing in bolts and diagonal slackening of bolts. Reassembly in the same manner. Adjustment and test likewise in flywheel. When dismantling clutch, mark pressure plate and flywheel surface to ensure proper balance of clutch. In case of clutch troubles it is recommended to fit an exchange clutch assembly (see K 1).

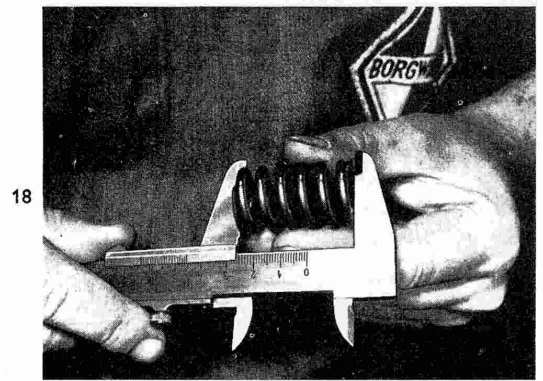
Tools: Socket spanner 14 mm, plastic-head mallet, dummy shaft W K 35, screw driver, hammer, insert piece for clutch test B W 15, adjustment ring for clutch B W 16, dial gauge with holder, 3 clutch tension stirrups.



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Figure 17

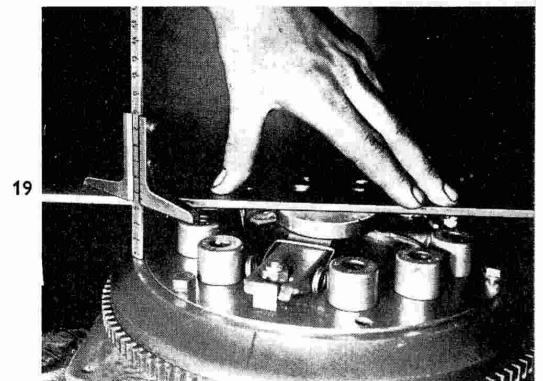
1. Correct spring length when measuring same:  $44.5 \pm 1$  mm or  $1.7520 \pm .0394$ ". Spring mark: White color. Spring must be replaced when spring length has become more than 1 mm or  $.0394$ " shorter than above mentioned length.



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Figure 18

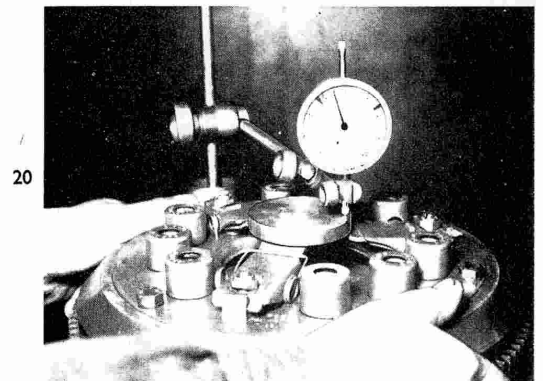
2. Fit adjustment ring B W 16 (see reverse page) to flywheel instead of clutch plate according to K 1.
3. Put on insert piece B W 15 to adjust clutch lever with dial gauge (see reversed page). Measurement from backside of joint facing to lever support  $26 \pm 0.5$  mm or  $1.0236 \pm .0197$ " inclusive insert piece.



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Figure 19

4. For adjustment turn adjuster bolt with screwdriver. Rotate clutch under dial gauge. Highest permissible measurement divergence when rotating 0.3 mm or  $.0118$ ".



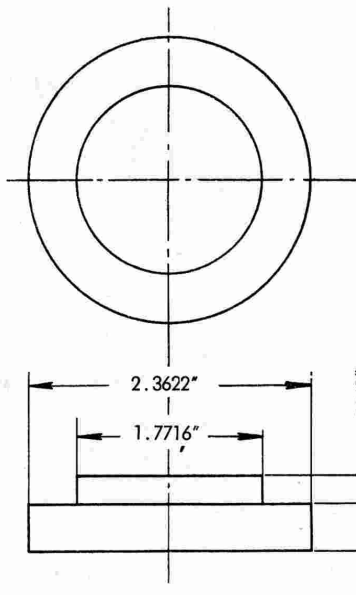
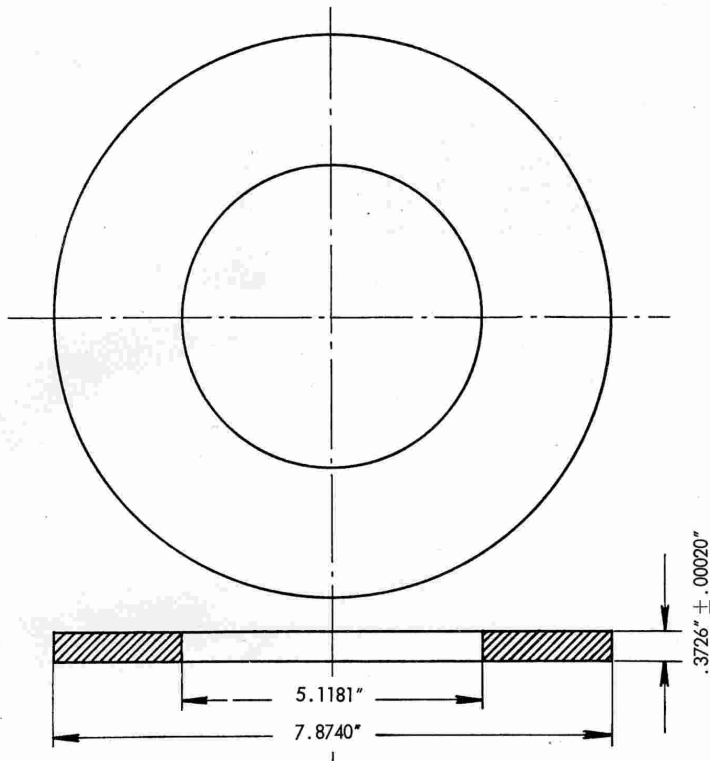
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Figure 20

5. Remove clutch after adjustment. See K 1. Secure nuts and bolts with punch blow into slot of bolt.

Caution: When securing bolts, put a bolt underneath bolthead, otherwise the blow becomes ineffective on account of clutch springs. Fit new ball nuts in every case.

Isabella



Drawing top:  
Insertion piece for clutch test

Drawing bottom:  
Clutch adjustment ring