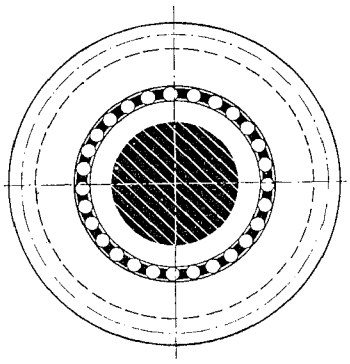
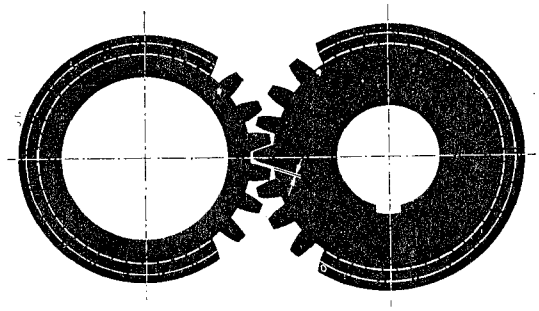
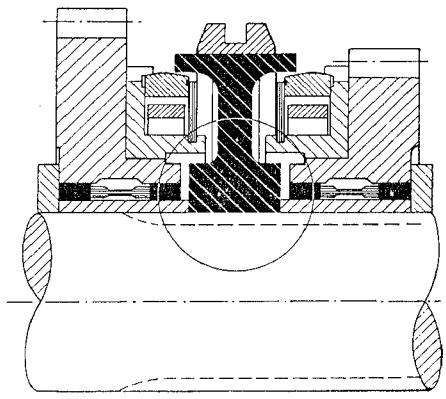
SUMMARY OF TOLERANCES

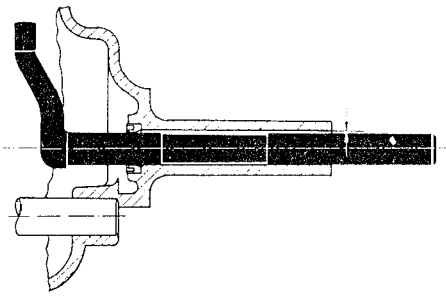
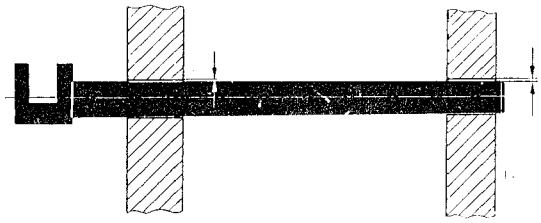
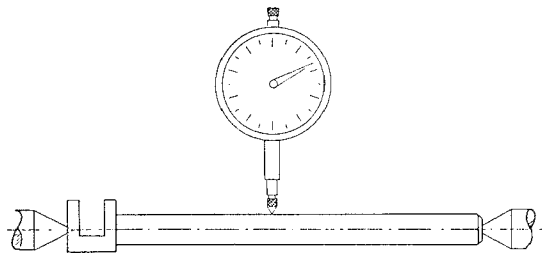
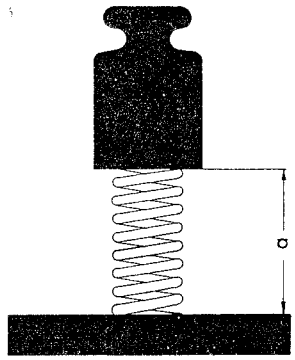
FOR

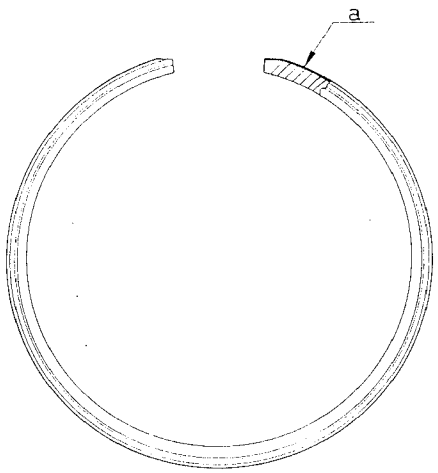
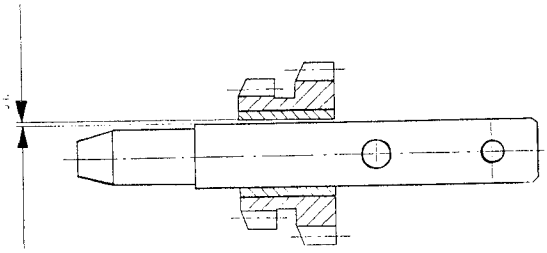
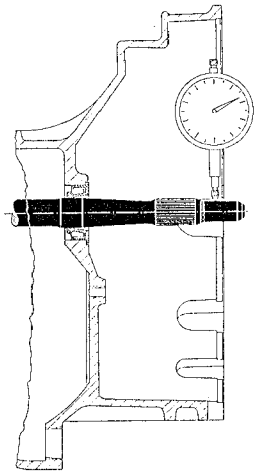
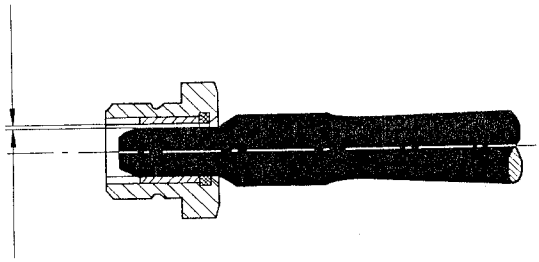
GROUP **R**

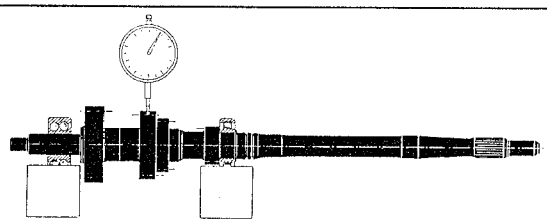
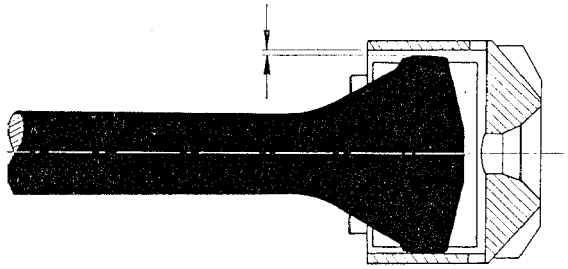
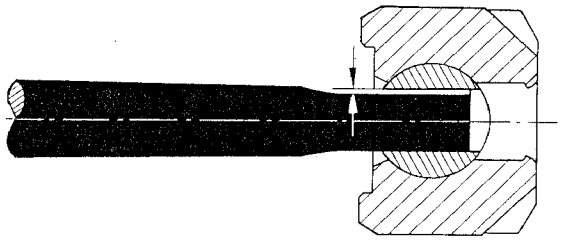
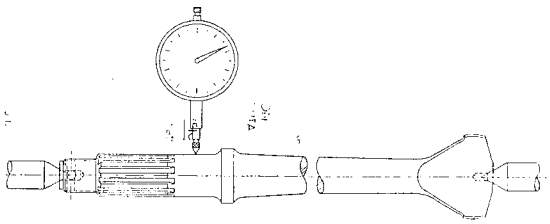
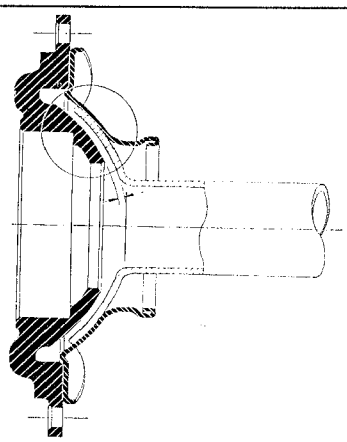
Table of Tolerances for Transmission 741

Measuring Point	Tolerance (new) mm	Wear limit mm	
1. Clearance between sleeve, rollers or needles, and inner surface of gear 1st and 2nd gear rollers 3×5 DIN 5402 available in standard and + 0.004 mm 3rd and 4th gear needle bearings 2.5×19.8 mm are available in standard and + 0.004 mm	By installing oversize roller or needle bearings, practically no clearance but turning freely.	By installing oversize roller or needle bearings, practically no clearance but turning freely.	
2. Backlash between gears 1st gear 2nd gear 3rd gear 4th gear	0.06—0.20	0,30	
3. Backlash ring and pinion gears	Between 0.12 and 0.18 as marked on ring gear. Measure at four different positions 90° apart.	Up to 0.05 mm in excess of clearance marked on gears	
4. Gears on pinion shaft 1st gear 2nd gear lateral 3rd gear clearance 4th gear	0.25—0.35 0.20—0.30 0.20—0.30 0.20—0.30	0.40 0.40 0.40 0.40	

Second Edition of this Page, March 1962

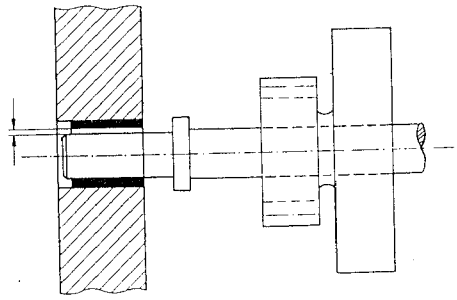
Measuring Point	Tolerance (new) mm	Wear limit mm	
5. Selector rod in transmission cover, end play	0.095—0.140	0.3	
6. a) Selector rod clearance in guide bores of intermediate plate and gearbox housing for 1st and 2nd gear, 3rd and 4th gear, and reverse gear	0.095—0.156	0.4	
b) Selector rods for 1st and 2nd gear, 3rd and 4th gear, and reverse gear run-out	—	0.10	
7. Selector rod lock spring 1st and 2nd gear 3rd and 4th gear load at 21.5 mm free length reverse gear load at 21.9 mm free length	3.3 kg 23.2 mm 6.5 kg 25.7 mm		
8. Selector fork lateral clearance in sliding sleeve 1st and 2nd gear 3rd and 4th gear	0.10—0.30	0.5	

Measuring Point	Tolerance (new) mm	Wear limit mm	
9. Synchronizing rings 1st gear 2nd gear 3rd gear 4th gear Outside diameter Removed Installed	 76.56—76.84 76.3 —76.7	When molyb-denum coating has worn off (a)	
10. Reverse idler II on idler shaft clearance	0.032—0.068	0.25	
11. Main shaft a) Run out on pilot bearing surface	0.1 max.	0.2	
b) Shaft clearance in pilot bushing	0.082—0.168	0.2	

Measuring Point	Tolerance (new) mm	Wear limit mm	
c) Run out between bearings	0.03 max.	0.04 *)	
12. Rear axle shaft a) Clearance on large diameter clearance	0.03–0.10	0.15	
b) Clearance between fulcrum plates	0.05—0.15	0.25	
c) Run out on outer bearing surface, shaft on centers	0.00—0.02	0.03 **)	
13. Transmission side cover/rear axle tube/rear axle tube retainer clearance	0.1—0.2	0.3 ***) (After re-conditioning adjust to new tolerance using at least one 0.1 mm paper gasket)	

*) **) Excessive run out of rear axle or main shaft may be corrected without heat. However, the value to be corrected should not exceed 0.25 mm on the main shaft and 0.2 mm on the rear axle shaft. To correct use hydraulic press VW 400.

***) If the wear limit is exceeded, a thinner gasket may be used for adjustment.

Measuring Point	Tolerance (new) mm	Wear limit mm	
14. Starter shaft / starter bushing clearance	0.018—0.055	0.25	

Preloads

Measuring Point	Tolerance (new) mm	—	
1. Bearing retaining plate / intermediate plate with bearings installed	0.03—0.13 **Preload**	—	
2. Transmission side cover left and right with bearings / 2 spacers / differential carrier	0.13—0.17 **Preload**	—	
3. Outer bearing cover left or right / brake backing plate / inner bearing flange with ball bearing Brake backing plate	0.05—0.15 **Preload**	—	