Instructions for Use of Data Manual

1. **The data manual covers the following models:**

   L 206 D – L 306 D – L 406 D – L 408 – L 408 D – L 508 D – L 608 D – O 309 – O 309 D

2. **Abbreviations:**

   L = Trucks **LF = Fire-fighting vehicle**
   O = Bus **LKo = Municipal vehicle**

3. All dimensions are quoted in millimeters (mm) provided no other dimensional units are employed.

4. The pertinent part numbers are meant for identification and better differentiation of individual versions only.

   When ordering spare parts, all part numbers must be taken from Spare Parts Lists on principle.

Design Groups – Summary

Notes

Type designation	Sales designation	Output HP	Installed in	As from chassis end No.
Gasoline Engines				
121.943	M 121	80	L 408 O 309	000 001
121.945	M 121	68	L 408 O 309	
121.944	M 121	80	LF 408	000 001
121.947	M 121	68		
115.921	M 115	85	L 408	001 206
			O 309	000 147
115.928	M 115	75	L 408	001 206
			O 309	000 147
115.927	M 115	85	LF 408	001 206
115.929	M 115	75		
Diesel Engines				
615.915	OM 615	55	L206D/L306D	200 001 300 001 [1]
615.917	OM 615	60	L206D/L306D	607...204287 608...201305 [1] 607...101976 608 101647
621.932	OM 621	55	L 406 D	000 001
			O 309 D	
615.910	OM 615. I	60	L 406 D	013 838
			O 309 D	000 742
314.946 [3]	OM 314	85 [2]	L408D/508D	018 478
			O 309 D	000 935
314.948	OM 314	85 [2]	L408D/508D	042 866
			O 309 D	003 884
314.948	OM 314	85 [2]	L 608 D	000 001

[1] 100) Manufacturing Plant Hamburg-Harburg
300)
200) Manufacturing Plant Bremen

[2] Up to engine No. 51 904 with 80 HP output

[3] Without suction pump / air compressor

Model Engine Total weight	Wheel base	L 206 D OM 615.915 OM 615.917 [1] 2400 kp Model des.	L 206 D OM 615.915 OM 615.917 [1] 2700 kp Model des.	L 306 D OM 615.915 OM 615.917 [1] 3000 kp Model des.	L 306 D OM 615.915 Om 615.917 [1] 3300 kp Model des.
Light Trucks					
Chassis, low-loading	2800	607.132-12	607.432-12	608.132-12	608.432-12
	2930	607.133-12	607.433-12	608.133-12	608.433-12
	3000	607.134-12	607.434-12	608.134-12	608.434-12
	3130	607.135-12	607.435-12	608.135-12	608.435-12
	3500	607.136-12	607.436-12	608.136-12	608.436-12
	3630	607.137-12	607.437-12	608.137-12	608.437-12
	3750	607.138-12	607.438-12	608.138-12	608.438-12
	3880	607.139-12	607.439-12	608.139-12	608.439-12
	4250	607.140-12	607.440-12	608.140-12	608.440-12
	4380	607.141-12	607.441-12	608.141-12	608.441-12
Chassis, high-loading	2800	607.102-12	607.402-12	608.102-12	608.402-12
	2930	607.103-12	607.403-12	608.103-12	608.403-12
	3000	607.104-12	607.404-12	608.104-12	608.404-12
	3130	607.105-12	607.405-12	608.105-12	608.405-12
	3500	607.106-12	607.406-12	608.106-12	608.406-12
	3630	607.107-12	607.407-12	608.107-12	608.407-12
	3750	607.108-12	607.408-12	608.108-12	608.408-12
	3880	607.109-12	607.409-12	608.109-12	608.409-12
	4250	607.110-12	607.410-12	608.110-12	608.410-12
	4380	607.111-12	607.411-12	608.111-12	608.411-12
Chassis, low-loading, with double cab	3500	607.145-12	607.445-12	608.145-12	608.445-12
	3630	607.146-12	607.446-12	608.146-12	608.446-12
Chassis, high-loading, with double cab	3500	607.115-12	607.415-12	608.115-12	608.415-12
	3630	607.116-12	607.416-12	608.116-12	608.416-12
Platform truck, low-loading	2800	607.132-13	607.432-13	608.132-13	608.432-13
	3000	607.134-13	607.434-13	608.134-13	608.434-13
	3130	607.135-13	607.435-13	608.135-13	608.435-13
	3500	607.136-13	607.436-13	608.136-13	608.436-13
	3630	607.137-13	607.437-13	608.137-13	608.437-13
	3750	607.138-13	607.438-13	608.138-13	608.438-13
	3880	607.139-13	607.439-13	608.139-13	608.439-13
	4250	607.140-13	607.440-14	608.140-13	608.440-13
	4380	607.141-13	607.441-13	608.141-13	608.441-13
Platform truck, high-loading	2800	607.102-13	607.402-13	608.102-13	608.402-13
	3000	607.104-13	607.404-13	608.104-13	608.404-13
	3130	607.105-13	607.405-13	608.105-13	608.405-13
	3500	607.106-13	607.406-13	608.106-13	608.406-13
	3630	607.107-13	607.407-13	608.107-13	608.407-13
	3750	607.108-13	607.408-13	608.108-13	608.408-13
	3880	607.109-13	607.409-13	608.109-13	608.409-13
	4250	607.110-13	607.410-13	608.110-13	608.410-13
	4380	607.111-13	607.411-13	608.111-13	608.411-13

[1]) As from chassis No. 607.....204287 Manufacturing Plant Bremen
608.....201305
607.....101976 Manufacturing Plant Hamburg-Harburg
608.....101647

Model Engine Total weight	Wheel base	L 206 D OM 615.915 OM 615.917 [1] 2400 kp Model des.	L 206 D OM 615.915 OM 615.917 [1] 2700 kp Model des.	L 306 D OM 615.915 OM 615.917 [1] 3000 kp Model des.	L 306 D OM 615.915 OM 615.917 [1] 3300 kp Model des.
Platform truck, low-loading, with double cab	3000	607.143-13	607.443-13	608.143-13	608.443-13
	3130	607.144-13	607.444-13	608.144-13	608.444-13
	3500	607.145-13	607.445-13	608.145-13	608.445-13
	3630	607.146-13	607.446-13	608.146-13	608.446-13
Platform truck, high-loading, with double cab	3000	607.113-13	607.413-13	608.113-13	608.413-13
	3130	607.114-13	607.414-13	608.114-13	608.414-13
	3500	607.115-13	607.415-13	608.115-13	608.415-13
	3630	607.116-13	607.416-13	608.116-13	608.416-13
Platform truck, low-loading, with three-person cab	3500	–	607.449-13	608.149-13	608.449-13
Platform truck, high-loading, with three-person cab	3500	–	607.419-13	608.119-13	608.419-13
Van body	2400	607.160-13	607.460-13	608.160-13	608.460-13
	2920	607.161-13	607.461-13	608.161-13	608.461-13
Station wagon* (without seats)	2400	607.165-13	607.465-13	608.165-13	608.465-13
	2920	607.166-13	607.466-13	608.166-13	608.466-13
Livestock truck	2800	607.170-13	607.470-13	608.170-13	608.470-13

					4000 kg
Six-wheel chassis (single tires only)	2800	–	–	–	608.252-12
	2930	–	–	–	608.253-12
	3200	–	–	–	608.254-12
	3330	–	–	–	608.255-12
	3900	–	–	–	608.258-12
	4030	–	–	–	608.259-12
					4100 kg
Tractor head (extended frame)	850	–	–	–	608.498-12

*) License as station wagon only up to 6,170 lbs. (2,800 kg) total weight.
License for 6,600 lbs. (3,000 kg) and 7,270 lbs. (3,300 kg) possible only for truck version.

[1]) As from chassis No. 607.....204287 Manufacturing Plant Bremen
608.....201305
607.....101978 Manufacturing Plant Hamburg-Harburg
608.....101647

Model Engine		Wheel base	L 406 M 121.943/946 M 115.921/928 Model des.	L 406 D OM 621.932 OM 615.910 Model des.	L 408 D OM 314.948/948 Model des.
Trucks					
Van-body with 4 hinged doors	low	2950	309.011–13	309.111–13	309.311–13
Van-body with 4 hinged doors and lateral loading door	low	2950	309.012–13	309.112–13	309.312–13
Van-body with sliding doors	low	2950	309.013–13	309.113–13	309.313–13
Van-body with 4 hinged doors	high	2950	309.014–13	309.114–13	309.314–13
Van-body with 4 hinged doors and lateral loading door	high	2950	309.015–13	309.115–13	309.315–13
Van-body with sliding doors	high	2950	309.016–13	309.116–13	309.316–13
Van-body with 4 hinged doors	long	3500	309.024–13	309.124–13	309.324–13
Van-body with 4 hinged doors and lateral loading door	long	3500	309.025–13	309.125–13	309.325–13
Van-body with sliding doors	long	3500	309.026–13	309.126–13	309.326–13
Chassis with 4 hinged doors and lateral loading door	short	2950	309.000–11	309.100–11	309.300–11
Chassis with cab	short	2950	309.000–12	309.100–12	309.300–12
Platform truck	short	2950	309.000–13	309.100–13	309.300–13
Chassis with passenger compartment	short	2950	309.001–12	309.101–12	309.301–12
Platform truck with passenger comp.	short	2950	309.001–13	309.101–13	309.301–13
Chassis with front end	long	3500	309.002–11	309.102–11	309.302–11
Chassis with cab	long	3500	309.002–12	309.102–12	309.302–12
Platform truck	long	3500	309.002–13	309.102–13	309.302–13
Chassis with passenger compartment	long	3500	309.003–12	309.103–12	309.303–12
Platform truck with passenger comp.	long	3500	309.003–13	309.103–13	309.303–13

Van-body with 4 hinged doors	low	2950	309.411–13	310.311–13	310.411–13
Van-body with 4 hinged doors and lateral loading door	low	2950	309.412–13	310.312–13	310.412–13
Van-body with sliding doors	low	2950	309.413–13	310.313–13	310.413–13
Van-body with 4 hinged doors	high		309.414–13	310.314–13	310.414–13
Van-body with 4 hinged doors and lateral loading door	high	2950	309.415–13	310.315–13	310.415–13
Van-body with sliding doors	high	2950	309.416–13	310.316–13	310.416–13
Van-body with 4 hinged doors	long	3500	309.424–13	310.324–13	310.424–13
Van-body with 4 hinged doors and lateral loading door	long	3500	309.425–13	310.325–13	310.425–13
Van-body with sliding doors	long	3500	309.426–13	310.326–13	310.426–13
Chassis with front end	short	2950	309.400–11	310.300–11	310.400–11
Chassis with cab	short	2950	309.400–12	310.300–12	310.400–12
Platform truck	short	2950	309.400–13	310.300–13	310.400–13
Chassis with passenger compartment	short	2950	309.401–12	310.301–12	310.401–12
Platform truck with passenger compartment	short	2950	309.401–13	310.301–13	310.401–13
Chassis with front end	long	3500	309.402–11	310.302–11	310.402–11
Chassis with cab	long	3500	309.402–12	310.302–12	310.402–12
Platform truck	long	3500	309.402–13	310.302–13	310.402–13
Chassis with passenger compartment	long	3500	309.403–12	310.303–12	310.403–12
Platform truck with passenger compartment	long	3500	309.403–13	310.303–13	310.403–13

Model Engine		Wheel base	L 508 D OM 314.946/948 Model des.	L 608 D OM 314.948 Model des.	L 608 D 6.3 t OM 314.948 Model des.
Chassis with front end		4100	309.404–11	310.304–11	310.404–11
Chassis with cab		4100	309.404–12	310.304–12	310.404–12
Platform truck		4100	309.404–13	310.304–13	310.404–13
Chassis with passenger compartment		4100	309.405–12	310.305–12	310.405–12
Platform truck with passenger compartment		4100	309.405–13	310.305–13	310.405–13

Model Engine		Wheel base	O 309 M 121.943/946 M 115.921/928 Model des.	O 309 D OM 621.932 OM 615.910 Model des.	O 309 D OM 314.946/948 Model des.
Bus					
Bus with 2 hinged doors	low short	2950	309.070–10	309.170–10	309.370–10
Bus with 3 hinged doors	low short	2950	309.071–10	309.171–10	309.371–10
Bus with 2 hinged doors	high short	2950	309.072–10	309.172–10	309.372–10
Bus with 3 hinged doors	high short	2950	309.073–10	309.173–10	309.373–10
Bus with 2 hinged doors	high long	3500	309.082–10	309.182–10	309.382–10
Bus with 3 hinged doors	high long	3500	309.083–10	309.183–10	309.383–10

Model Engine		Wheel base	LKO 408 M 121.943/946 M 115.927/928 Model des.	LKO 406 D OM 621.932 OM 615.910 Model des.	LKO 508 D OM 314.946/948 Model des.
Municipal Vehicles					
Chassis with cab		2950	309.030–12	309.130–12	309.430–12
Van-body with 4 hinged doors	low	2950	309.031–13	309.131–13	309.431–13
Van-body with 4 hinged doors and lateral loading door	low	2950	309.032–13	309.132–13	309.432–13
Van-body with sliding doors	low	2950	309.033–13	309.133–13	309.433–13
Chassis with cab		3500	309.035–12	309.135–12	309.435–12

Model Engine		Wheel base	LF 408 M 121.944/947 M 115.927/929 Model des.
Firefighting Vehicles			
Van-body with 4 hinged doors with front-mounted pump	low	2950	309.051-13
Van-body with 4 hinged doors and lateral loading door, with front-mounted pump	low	2950	309.052-13
Van-body with sliding doors with front-mounted pump	low	2950	309.053-13
Chassis with cab with turntable ladder		3500	309.059-12
Chassis with front end with front-mounted pump		2950	309.050-11

Sales designation	Chassis	Engine	Clutch	Transmission
L 206 D	607.1 607.4	OM 615.915 OM 615.917[1]	TK 228 KX	ZF 4 DS-10 ZF 4 DS-10/2[2]
L 306 D	608.1 608.4	OM 615.915 OM 615.917[1]	TK 228 KX	ZF 4 DS-10 ZF 4 DS-10/2[2]
L 408	309.0	M 121.946 M 115.928[3] M 115.921[3] M 121.943	TK 228 KX	G1/15-4/5.455
L 406 D	309.1	OM 621.932 OM 615.910[4]	TK 228 KX	G 1/15-4/5.455
L 408 D	309.3	OM 314.946 OM 314.948[5]	HBX 250	G 2/24-5/6.71
L 508 D	309.4	OM 314.946 OM 314.948[5]	HBX 250	62/24-5/6.71

For index refer to next page

Front axle	Rear axle	Steering	Wheel base	Weights in kp Front axle	Rear axle	Total weight
		ZFGB16c L 1.5 Z[1]	2800 to 4380	1250 1400	1250 1400	2400 2700
		ZFGB16c L 1.5 Z[1] ZFGD 28a L 1.5 Z[1]	2800 to 4380	1400 1600	1650 1750	3000 3300
VL1/4-1.6	HL1/2-3.3	L 1 K	2950 3500	1550 1550 1550 1550 1550 1550	2200 2700 3300 2200 2700 3300	3490 4000 4600 3490 4000 4600
VL1/4-1.6	HL1/2-3.3	L 1 K	2950 3500	1550 1550 1550 1550 1550 1550	2200 2700 3300 2200 2700 3300	3490 4000 4600 3490 4000 4600
VL1/2-3.3	HL1/2-3.3	L 3.5 K	2950 3500	1800 1800 1800 1800 1800 1800	2200 2500 2700 2200 2500 2700	3490 4000 4200 3490 4000 4200
VL1/3-2	HL1/2-3.3	L 3.5 K ZF 8056[10]	2950 3500 4100	1800 1800 1800 1800 1800 1800 1800 1800 1800	2200 2500 3300 2200 2500 3300 2200 2500 3000	3490 4000 5000 3490 4000 5000 3490 4000 5000

For index refer to next page

Sales designation	Chassis	Engine	Clutch	Transmissions
L 608 D	310.3	OM 314.948	HBX 250	G 2/24-5/6.71
	310.4			
O 309	309.07	M 121.946 M 115.928 [3] M 115.921 [3] M 121.943	TK 228 KX	G1/15-4/5.455
	309.08			
O 309 D	309.17	OM 621.932 OM 615.910 [7]	TK 228 KX	G1/15-4/5.455
	309.18			
O 309 D	309.37	OM 314.946 OM 314.948 [8]	HBX 250	G2/24-5/6.71 •
	309.38			

For index refer to next page

Front axle	Rear axle	Steering	Wheel base	Weights in kp: Front axle	Rear axle	Total weight
VL 1/3-2	HL1/4-4 [9] HL1/3-4.2 [9]	L 3.5 K ZF 8056 [10]	2950	2000	3900	5600
			3500	2100	4100	5990
				2000	3900	5600
			4100	2100	4100	5990
				2000	3900	5600
				2100	4100	5990
	HL1/5-4.5		2950	2100	4500	6300
			3500	2100	4500	6300
			4100	2100	4500	6300
VL1/4-1,6	HL1/2-3.3	L 1 K	2950	1550	2700	4000
			3500	1550	3300	4600
VL1/4-1,6	HL1/2-3,3	L 1 K	2950	1550	2700	4000
			3500	1550	3300	4600
VL1/3-2	HL1/2-3,3	L 3.5 K ZF 8056 [10]	2950	1800	2700	4200
			3500	1800	3300	4800

[1]) As from chassis No. 607...204 287 / 608...201 305 — Manufacturing Plant Bremen
607...101 976 / 608...101 647 — Manufacturing Plant Hamburg-Harburg

[2]) As from chassis No. 607...205 225 / 608...201 305 — Manufacturing Plant Bremen
607 2.4 t...101 976 / 2.7 t...102 031
608 3.0 t...101 673 / 3.3 t...101 758 — Manufacturing Plant Hamburg-Harburg

[3]) As from chassis No. 001 206
[4]) As from chassis No. 013 838
[5]) As from chassis No. 042 866
[6]) As from chassis No. 000 147
[7]) As from chassis No. 000 742
[8]) As from chassis No. 003 884
[9]) As from chassis No. 013 362
[10]) Optional

Engine Type		121.943 121.944	121.946 121.947	115.921 115.927	115.928 115.929	621.932	615.915	615.910 615.917	314.946 314.948
Method of operation		4-stroke-carburetor				4-stroke diesel DB prechamber method			4-stroke diesel direct injection
Number of cylinders		4							
Bore/stroke	mm	87/83.6		87/92.4		87/83.6		87/92.4	97/128
Total piston displacement	cc	1988		2197		1988		2197	3780
Compr. ratio	ε	9 : 1	7 : 1	9 : 1	7.8 : 1	21 : 1			17 : 1
Firing order		1 – 3 – 4 – 2							
Max. speed in gears	1/min	6000				4320	4350		2800
Max. output acc. to DIN[1]) HP at	1/min	80/5000	68/4400	85/5000	75/4400	55/4200		60/4200	80/2800[2]) 85/2800[3])
Max. output acc. to SAE gr. HP at	1/min	90/5000	78/4500	94/5200	83/4600	60/4200		65/4200	90/2800[2]) 94/2800[3])
Max. torque acc. to DIN kpm at	1/min	14.2/ 2500	13.2/ 2500	17/ 2800	15/ 2800	11.5/ 2400		12.8/ 2400	23/1600[2]) 24/1800[3])
Max. torque acc. to SAE kpm at	1/min	15.4/ 2700	14.8/ 2500	18.2/ 3000	16.1/ 3000	12/ 2400		13.3/ 2400	25.5/1600[2]) 26.5/1800[3])

[1]) The stated output in HP acc. to DIN is actually available at the clutch for driving the vehicle, since the power required by the auxiliary engine units has already been deducted.

[2]) Up to engine No. 51 904

[3]) As from engine No. 51 905

L 206 D L 306 D	Perm. total weight	2400			
	Perm. axle load front	1250			
	Perm. axle load rear	1250			
Vehicle version	Wheel base	Deadweight Total	Front axle	Rear axle	Payload
Chassis with cab	2800	1060	870	190	1340 [1]
	3000	1065	870	195	1335 [1]
	3130	1100	870	230	1300 [1]
	3500 [2]	1080	875	205	1320 [1]
		1215	930	285	1185 [1]
	3630	1115	875	240	1285 [1]
Platform truck [3]	2800	1360	1010	350	1000 [4]
	3000	1395	1020	375	980 [4]
	3130	1415	1000	415	985 [4]
	3500 [2]	1425	1010	415	975 [4]
		1495	1060	435	905 [4]
	3630	1430	1010	420	970 [4]
Livestock truck [3]	2800	1620	1040	580	780 [4]
Six-wheel chassis	2800				
	2930				
	3200				
	3330				
	3900				
	4030				
Van-body truck [3] (standing height 1610)	2400	1445	995	450	955 [4]
	2920	1520	1025	495	880 [4]

[1] Chassis loading capacity of chassis with cab
[2] Double cab
[3] Deadweight with 1 driver
[4] Payload at uniform load distribution
[5] Payload at non-uniform load distribution
Station wagon / passenger car = payload depending on equipment and body

L 206 D L 306 D	Perm. total weight	2700			
	Perm. axle load front	1400			
	Perm. axle load rear	1400			
Vehicle version	Wheel base	Dead weight Total	Front axle	Rear axle	Payload
Chassis with cab	2800	1095	890	205	1605 [1]
	3000	1100	890	210	1600 [1]
	3130	1140	890	250	1560 [1]
	3500 [2]	1115	895	220	1585 [1]
		1240	950	290	1460 [1]
	3630	1155	895	260	1545 [1]
Platform truck [3]	2800	1390	1015	375	1310 [4]
	3000	1420	1030	390	1270 [4]
	3130	1470	1060	410	1230 [4]
	3500 [2]	1455	1025	430	1245 [4]
		1535	1080	455	1050 [4] 1165 [5]
	3630	1475	1040	435	1225 [4]
Livestock truck [3]	2800	1655	1060	595	1030 [4]
Six-wheel chassis	2800				
	2930				
	3200				
	3330				
	3900				
	4030				
Van-body truck [3] (standing height 1610)	2400	1475	1015	460	1225 [4]
	2920	1550	1045	505	1150 [4]

[1] Chassis loading capacity of chassis with cab
[2] Double cab
[3] Deadweight with 1 driver
[4] Payload at uniform load distribution
[5] Payload at non-uniform load distribution
Station wagon / passenger car = payload depending on equipment and body

L 206 D L 306 D	Perm. total weight	3000			
	Perm. axle load front	1400			
	Perm. axle load rear	1650			
Vehicle version	Wheel base	Deadweight Total	Front axle	Rear axle	Payload
Chassis with cab	2800	1100	890	210	1900 [1]
	3000	1105	890	215	1895 [1]
	3130	1145	890	255	1855 [1]
	3500	1120	895	225	1880 [1]
	3500 [2]	1245	950	295	1755 [1]
	3630	1160	895	265	1840 [1]
Platform truck [3]	2800	1390	1015	375	1510 [4]
	3000	1420	1025	395	1500 [4]
	3130	1475	1060	415	1520 [4]
	3500	1455	1025	430	1490 [4]
	3500 [2]	1540	1080	460	1320 [4] 1460 [5]
	3630	1480	1035	445	1515 [4]
Livestock truck [3]	2800	1660	1060	600	1340 [4]
Six-wheel chassis	2800				
	2930				
	3200				
	3330				
	3900				
	4030				
Van-body truck [3] (standing height 1610)	2400	1480	1015	465	1500 [4]
	2920	1555	1045	510	1400 [4]

[1] Chassis loading capacity of chassis with cab
[2] Double cab
[3] Deadweight with 1 driver
[4] Payload at uniform load distribution
[5] Payload at non-uniform load distribution
Station wagon / passenger car = payload depending on equipment and body

L 206 D L 306 D	Perm. total weight	3300	4000 [2]
	Perm. axle load front	1600	1600 [2]
	Perm. axle load rear	1750	2500 [2]
Vehicle version	Wheel base	Deadweight Total	Front axle	Rear axle	Payload
Chassis with cab	2800	1130	920	210	2170 [1]
	3000	1135	920	215	2165 [1]
	3130	1175	920	255	2125 [1]
	3500	1150	925	225	2150 [1]
	3500 [2]	1285	985	300	2015 [1]
	3630	1190	925	265	2110 [1]
Platform truck [3]	2800	1420	1035	385	1750 [4]
	3000	1460	1045	415	1720 [4]
	3130	1515	1050	465	1690 [4]
	3500	1495	1055	440	1710 [4]
	3500 [2]	1575	1105	470	1430 [4] 1725 [5]
	3630	1535	1060	475	1690 [4]
Livestock truck [3]	2800	1730	1120	610	1450 [4] 1570 [5]
Six-wheel chassis	2800	1390	960	430	2505
	2930	1430	960	470	2465
	3200	1400	965	435	2495
	3330	1440	915	475	2455
	3900	1510	985	525	2385
	4030	1555	985	570	2340
Van-body truck [3] (standing height 1610)	2400	1520	1045	475	1700 [4]
	2920	1595	1065	530	1650 [4]

[1] Chassis loading capacity of chassis with cab
[2] Double cab
[3] Deadweight with 1 driver
[4] Payload at uniform load distribution
[5] Payload at non-uniform load distribution
Station wagon / passenger car = payload depending on equipment and body

L 406 D L 408	Perm. total weight	3490			
	Perm. axle load front	1550			
	Perm. axle load rear	2200			
Vehicle version	Wheel base	Deadweight			Payload
		Total	Front axle	Rear axle	
Chassis with front end[2]	2950	1490	965	525	1925
	3500	1560	1000	560	1855
Chassis with cab[2]	2950 [1]	1700 1895	1130 1235	570 660	1715 1520
	3500 [1]	1770 1965	1165 1270	605 695	1645 1450
Platform chassis	2950 [1]	2030 2145	1210 1285	820 860	1460 1235[3]
	3500 [1]	2155 2275	1250 1310	905 985	1335 1195
Van-body 1600 mm standing height	2950 [1]	2245 2390	1240 1275	1005 1115	1245 1035[11]
Van-body 1750 mm standing height	2950 [1]	2275 2420	1245 1270	1030 1150	1215 1000[13]
Van-body 1900 mm standing height	2950 [1]	2365 2510	1255 1265	1110 1245	1125 910[14]
Van-body 1750 mm standing height	3500 [1]	2455 2540	1295 1320	1160 1220	1035 950
Van-body 1900 mm standing height	3500 [1]	2545 2630	1305 1320	1240 1310	945 860

[1]) with passenger compartment

[2]) Dead weights and payload without driver

At non-uniform load distribution in direction of front axle the payload is as follows:

3) 1345 5) 2435 7) 2285 9) 1610 11) 1070 13) 2160 15) 1490
4) 1855 6) 1705 8) 1100 10) 2190 12) 1580 14) 980 16) 2070

4000				4600			
1550				1550			
2700				3300			
Deadweight			Payload	Deadweight			Payload
Total	Front axle	Rear axle		Total	Front axle	Rear axle	
1490	965	525	2435	1510	975	535	3015
1560	1000	560	2365	1580	1010	570	2945
1700 1895	1130 1235	570 660	2225 2030	1720 1915	1140 1245	580 670	2805 2610
1770 1965	1165 1270	605 695	2155 1960	1790 1985	1175 1280	615 705	2735 2540
2030 2145	1210 1285	820 860	1970 1700[4]	2050 2165	1220 1295	830 870	2550 2280[5]
2155 2295	1250 1310	905 985	1845 1605[6]	2175 2315	1260 1320	915 995	2425 2160[7]
2245 2390	1240 1275	1005 1115	1755 1510[9]	2265 2410	1250 1285	1015 1125	2335 2070[10]
2275 2420	1245 1270	1030 1150	1725 1475[12]	2295 2440	1255 1280	1040 1160	2305 2040[13]
2365 2510	1255 1265	1110 1245	1635 1385[15]	2385 2530	1265 1275	1120 1255	2215 1950[16]
2455 2540	1295 1320	1160 1220	1545 1460	2475 2560	1305 1330	1170 1230	2125 2040
2545 2530	1305 1320	1240 1310	1455 1370	2565 2650	1315 1330	1250 1320	2035 1950

L 408 D L 508 D		Perm. total weight	3490			
		Perm. axle load front	1800			
		Perm. axle load rear	2200			
Vehicle version		Wheel base	Deadweight			Payload
			Total	Front axle	Rear axle	
Chassis with front end[2])		2950	1830	1240	590	1585
		3500	1900	1275	625	1515
		4100	1975	1290	685	1440
Chassis with cab[2])		2950 [1])	2040 2235	1405 1510	635 725	1375 1180
		3500 [1])	2110 2305	1440 1545	670 760	1305 1120
		4100 [1])	2185 2380	1455 1560	730 820	1230 1035
Platform truck		2950 [1])	2370 2485	1485 1560	885 925	1120 1005
		3500 [1])	2495 2635	1525 1585	970 1050	995 855
		4100 [1])	2660 2765	1545 1610	1115 1155	830 725
Van-body	1600 mm standing height	2950 [1])	2585 2730	1515 1550	1070 1180	905 760
	1750 mm standing height		2615 2760	1520 1545	1095 1215	875 730
	1900 mm standing height		2705 2850	1530 1540	1175 1310	785 640
	1750 mm standing height	3500 [1])	2795 2880	1570 1595	1225 1285	695 610
	1900 mm standing height		2885 2970	1580 1595	1305 1375	605 520

1) with passenger compartment

2) Deadweights and payload without driver

	4000				4200			
	1600				1600			
	2500				2700			
	Deadweight			Payload	Deadweight			Payload
	Total	Front axle	Rear axle		Total	Front axle	Rear axle	
	1830	1240	590	2095	1830	1240	590	2295
	1900	1275	625	2025	1870	1275	595	2255
	1975	1290	685	1950				
	2040 2235	1405 1510	635 725	1885 1690	2040 2235	1405 1510	635 725	2085 1890
	2110 2305	1440 1545	670 760	1815 1620	2080 2275	1440 1545	640 730	2045 1850
	2185 2380	1455 1560	730 820	1740 1545				
	2370 2485	1485 1560	885 925	1630 1515	2345 2490	1485 1555	860 935	1855 1630
	2495 2635	1525 1585	970 1050	1505 1365	2465 2580	1525 1590	940 990	1735 1620
	2660 2765	1545 1610	1115 1155	1340 1235				
	2585 2730	1515 1550	1070 1180	1415 1270	2585 2630	1515 1555	1070 1075	1615 1570
	2615 2760	1520 1545	1055 1215	1385 1240	2615 2650	1520 1550	1095 1100	1585 1550
	2705 2850	1530 1540	1175 1310	1295 1150	2705 2720	1530 1550	1175 1170	1495 1480
	2795 2880	1570 1595	1225 1285	1205 1120	2755 2810	1570 1595	1185 1215	1445 1390
	2885 2970	1580 1595	1305 1375	1115 1030	2880 2885	1585 1595	1295 1290	1320 1315

L 408 D L 508 D	Perm. total weight	4800			
	Perm. axle load front	1800			
	Perm. axle load rear	3300			
Vehicle version	Wheel base	Deadweight Total	Front axle	Rear axle	Payload
Chassis with front end[2]	2950	1850	1250	600	2875
	3500	1890	1285	605	2885
	4100				
Chassis with cab[2]	2950 [1]	2060 2255	1415 1520	645 735	2665 2470
	3500 [1]	2100 2295	1450 1555	650 740	2625 2430
	4100 [1]				
Platform truck	2950 [1]	2365 2510	1495 1565	870 945	2435 2170
	3500 [1]	2485 2600	1535 1600	950 1000	2315 2200
	4100 [1]				
Van-body 1600 mm standing height	2950 [1]	2605 2650	1525 1585	1080 1085	2195 2150
Van-body 1750 mm standing height	2950 [1]	2635 2670	1530 1560	1105 1110	2165 2130
Van-body 1900 mm standing height	2950 [1]	2725 2740	1540 1560	1185 1180	2075 2060
Van-body 1750 mm standing height	3500 [1]	2775 2830	1580 1605	1195 1225	2025 1970
Van-body 1900 mm standing height	3500 [1]	2900 2905	1595 1605	1305 1300	1900 1895

1) with passenger compartment

2) Deadweights and payload without driver

L 408 D L 508 D	Perm. total weight	5000			
	Perm. axle load front	1800			
	Perm. axle load rear	3300			
Vehicle version	Wheel base	Deadweight Total	Front axle	Rear axle	Payload
Chassis with front end[2]	2950	1850	1250	600	3075
	3500	1920	1285	635	3465
	4100	1995	1300	695	2930
Chassis with cab[2]	2950 [1]	2060 2255	1415 1520	645 735	2865 2670
	3500 [1]	2130 2325	1450 1555	680 770	2795 2600
	4100 [1]	2205 2400	1465 1570	740 830	2720 2525
Platform truck	2950 [1]	2390 2505	1495 1570	895 935	2610 2180 [3]
	3500 [1]	2515 2655	1535 1595	980 1060	2485 2100 [4]
	4100 [1]	2680 2785	1555 1620	1125 1165	2320 2080 [5]
Van-body 1600 mm standing height	2950 [1]	2605 2750	1525 1560	1080 1190	2395 2010 [6]
Van-body 1750 mm standing height	2950 [1]	2635 2780	1530 1555	1105 1225	2365 1975 [7]
Van-body 1900 mm standing height	2950 [1]	2725 2870	1540 1550	1185 1320	2275 1885 [8]
Van-body 1750 mm standing height	3500 [1]	2815 2900	1580 1605	1235 1295	2185 1960 [9]
Van-body 1900 mm standing height	3500 [1]	2905 2990	1590 1605	1315 1385	2095 1875 [10]

1) with passenger compartment

2) Deadweights and payload without driver

At non-uniform load distribution in direction of front axle the payload is as follows:

3) 2495
4) 2345
5) 2215
6) 2250
7) 2250
8) 2130
9) 2100
10) 2010

L 608 D	Perm. total weight	5600			
	Perm. axle load front	2000			
	Perm. axle load rear	3900			
Vehicle version	Wheel base	Deadweight Total	Front axle	Rear axle	Payload
Chassis with front end[2]	2950	1865	1260	605	3660
	3500	1935	1295	640	3590
	4100	2010	1310	700	3515
Chassis with cab[2]	2950 [1]	2075 2270	1425 1530	650 740	3450 3255
	3500 [1]	2145 2340	1460 1565	685 775	3380 3185
	4100 [1]	2220 2415	1475 1580	745 835	3305 3110
Platform truck	2950 [1]	2405 2520	1505 1580	900 940	3195 2720 [3]
	3500 [1]	2530 2670	1545 1605	985 1065	3070 2660 [6]
	4100 [1]	2695 2800	1565 1630	1130 1170	2905 2660 [9]
Van-body 1600 mm standing height	2950 [1]	2620 2765	1540 1570	1080 1195	2980 2580 [12]
Van-body 1750 mm standing height	2950 [1]	2650 2795	1540 1585	1110 1230	2950 2540 [15]
Van-body 1900 mm standing height	2950 [1]	2740 2885	1550 1580	1190 1325	2860 2450 [18]
Van-body 1750 mm standing height	3500 [1]	2830 2915	1590 1615	1240 1300	2770 2550 [21]
Van-body 1900 mm standing height	3500 [1]	2920 3005	1600 1615	1320 1390	2680 2460 [24]

[1] with passenger compartment
[2] Deadweights and payload without driver
At non-uniform load distribution in direction of front axle the payload is as follows:

3) 3080	7) 3280	11) 3360	15) 2805	19) 3065	23) 3245
4) 3430	8) 3490	12) 2835	16) 3155	20) 3275	24) 2595
5) 3640	9) 2800	13) 3185	17) 3365	21) 2685	25) 2945
6) 2930	10) 3150	14) 3395	18) 2715	22) 3035	26) 3155

	5990			6300		
	2100			2100		
	4100			4500		
Deadweight Total	Front axle	Rear axle	Payload	Deadweight Total	Front axle	Rear axle	Payload
1905	1285	620	4010	2005	1330	675	4220
1975	1320	655	3940	2075	1365	710	4150
2050	1335	715	3865	2150	1380	770	4075
2115 2310	1450 1555	665 755	3800 3605	2215 2410	1495 1600	720 810	4010 3815
2185 2380	1485 1590	700 790	3730 3535	2285 2480	1530 1635	755 845	3940 3745
2260 2455	1500 1605	760 850	3655 3460	2360 2555	1545 1650	815 905	3865 3670
2445 2560	1530 1605	915 955	3545 2900 [4]	2545 2660	1575 1650	970 1010	3755 3220 [5]
2570 2710	1570 1630	1000 1080	3420 2630 [7]	2670 2810	1615 1675	1055 1135	3630 3160 [8]
2735 2840	1590 1555	1145 1185	3255 2840 [10]	2835 2940	1635 1700	1200 1240	3465 3180 [11]
2660 2805	1565 1595	1095 1210	3330 2750 [13]	2760 2905	1610 1640	1150 1265	3540 3080 [14]
2690 2835	1565 1590	1125 1245	3300 2720 [16]	2790 2935	1610 1635	1180 1300	3510 3040 [17]
2780 2925	1575 1585	1205 1340	3210 2630 [19]	2880 3025	1620 1630	1260 1395	3420 2950 [20]
2870 2955	1615 1640	1255 1315	3120 2730 [22]	2970 3055	1660 1685	1310 1370	3330 3070 [23]
2960 3045	1625 1640	1335 1405	3030 2640 [25]	3060 3145	1670 1685	1390 1460	3240 2980 [26]

0 – Weights

O 309 O 309 D	Perm. total weight	4000	4600	4200	4800
	Perm. axle load front	1550	1550	1800	1800
	Perm. axle load rear	2700	3300	2700	3300
Vehicle version	Wheel base	Deadweight and payload depending on body and equipment			
Bus	1600 mm standing height 1750 mm standing height	2950			
	1750 mm standing height 1900 mm standing height	3500			

0 – Trailer Loads

Model	Perm. total weight	Trailer load	Trailer load
L 206 D	2400	1000	400
	2700		500
L 306 D	3000 3300		
O 309 O 309 D	4000 4600	1600 1000	1000
O 309 D[1]	4200 4800	1400 800	1000 800
L 408 L 406 D	3490 4000 4600	2000 1600 1000	1000
L 408 D L 508 D	3490 4000 4200 4800 5000	2000 1600 1400 800 600	1150 1150 1000 800 600
L 608 D	5600 5990 6300	2000	1200

[1] OM 314

Note: Increased trailer loads are possible only in special cases with an exceptional license.

Tachometer Speed – 0

Model	Pinion reduction	Tires	Tachometer speed
L 206 D	41 : 7 37 : 7 39 : 6	6.70 - 13 6.70 - 15	1.00
L 306 D	41 : 7 37 : 7 39 : 6	7.00 - 14 6.70 - 15	2.70
	Rear axle reduction		
L 408 L 406 D O 309 O 309 D	48 : 7 41 : 7 39 : 6	6.00 - 16	2.16
	48 : 7 41 : 7	6.50 - 16	2.13
	39 : 6		2.15
L 408 D L 508 D L 608 D O 309 D[1]	41 : 10 43 : 10	6.50 - 16	2.00
	41 : 10 43 : 10	7.00 - 16	
	41 : 10 43 : 10	8 - 17,5	

[1] OM 314

Note: The tachometer speed indicates the number of revolutions of input shaft for tachometer for one meter driven by the vehicle loaded up to its permissible total weight, at specified tire pressure.

Model			L 406 D O 309 D	L 408 O 309
Engine			OM 621	M 121
Crankcase	Engine oil	max. lits. min. lits.	4.0 2.5	
Oil filter		lits.	1	0.5
Oil bath filter			0.35	
Injection pump				
Transmission	ATF	lits.	1.5	
Pto				
Rear axle	Hypoid oil SAE 90	lits.	1.6	
Steering			0.3	
Water pump		gr.	0.011	
Front wheel hub	Anti-friction bearing grease	gr.	240	
Rear wheel hub			240	
Brake system	Brake fluid	lits.	0.4	
Fuel		lits.	ca. 60	
Cooling system with heater		lits.	12.6	
Cooling system without heater		lits.	10.4	
Constant speed universal shaft Molykote grease Br. 2				

[1]) Increased oil quantity 5 lits. max. and 3 lits. min. as from engine end No.

OM 615.910 036 972
m 115.921 001 983
M 115.927 000 356
M 115.928 000 590
M 115.929 000 008

[2]) For L 306 D with 3 300 kg 0.55 lits.
[3]) L 1.5 Z
[4]) ZF ball nut power steering approx. 1.75 lits. ATF for manual transmission oil

L 406 D O 309 D	L 408 O 309	L 206 D L 306 D	L 206 D L 306 D	L 408 D L 508 D O 309 D	L 608 D
OM 615	M 115	OM 615.915	OM 615.917	OM 314	OM 314
4.0 2.5	5.0[1] 3.0	4.5 2.5	4.5 3.0	8 5	
1.0	0.5	1.0	1.0	2.1	
0.35		0.35	0.9	0.5	
				0.2	
1.5		2.5	2.2	3.4	
				0.6	
1.6				1.65	3.25
0.55		0.25[2])	0.45[3])	0.94[4])	
service-free		service-free	service-free	15	
240		ca. 60	ca. 60	240	300
240		45	40	350	500
0.4		0.5	0.75	0.4	
approx. 60		40	40	ca. 60	
12.6		9.5	10.0	13.5	
10.4		6.0		11.3	
		approx. 120 gr.	approx. 120 gr.		

Model		L 206 D		L 306	
Version		Standard	Special	Standard	Special
Perm. vehicle total weight in kg		2400	2700	3000	3300
Rear axle ratio		5.285	5.85	5.85	
Transmission ratio/i	1st gear	4.10			
	2nd gear	2.28			
	3rd gear	1.37			
	4th gear	0.87			
Max. speed km/h	1st gear	22.6	22.2	23	
	2nd gear	40.7	39.9	41.3	
	3rd gear	67.8	66.4	69.0	
	4th gear	107.0	104.0	108.5	
Climbing ability in %	1st gear	28 29[1]	26 27[1]	23 25[1]	21 23[1]
	2nd gear	16 17[1]	14.3 15.6[1]	12.2 13.4[1]	11 12.1[1]
	3rd gear	8.5 9.3[1]	7.7 8.5[1]	6.4 7.2[1]	5.8 6.5[1]
	4th gear	4.3 4.7[1]	3.9 4.3[1]	3.2 3.6[1]	2.8 3.2[1]

[1]) with engine OM 615.917 installed

With Engine OM 621 (55 HP and M 121 (68 and 80 HP)

Model		L 406 D, O 309 D			L 408, O 309		
Version		Standard					
Perm. vehicle total weight	kg	3490	4000	4600	3490	4000	4600
Rear axle ratio	i =	5.857		6.857	5.857		6.857
Transmission ratio / i =	1st gear	5.455					
	2nd gear	2.707					
	3rd gear	1.543					
	4th gear	1					
	reverse	4.464					
Max. speed / km/h	1st gear	17.9		15.3	20.6		17.6
	2nd gear	36.0		30.8	41.5		35.5
	3rd gear	63.1		54.1	72.8		62.2
	4th gear	97.4		83.5	112.3		95.8
Climbing ability without trailer %	1st gear	26.8	23.1	23.4	34.7	29.7	31.5
	2nd gear	12.3	10.6	10.8	15.9	13.7	14.4
	3rd gear	6.3	5.3	5.5	8.2	7.0	7.3
	4th gear	3.3	2.8	3.0	4.6	3.8	4.0
Climbing ability 5.6 t truck and trailer total weight %	1st gear	16.0		18.9	20.5		–
	2nd gear	7.2		8.7	9.4		–
	3rd gear	3.5		4.3	4.6		–
	4th gear	1.6		2.2	2.3		–

Model		L 408, O 309			L 406 D, O 309 D		
Version		with engine type 121.944 68 DIN HP			with rear axle i = 6.857 special design		
Perm. vehicle total weight	kg	3490	4000	4600	3490	4000	
Rear axle ratio	i =	5.857		6.857	6.857		
Transmission ratio / i =	1st gear	5.455					
	2nd gear	2.707					
	3rd gear	1.543					
	4th gear	1					
	reverse	4.464					
Max. speed / km/h	1st gear	20.6		17.6	15.3		
	2nd gear	41.5		35.5	30.8		
	3rd gear	72.8		62.2	54.1		
	4th gear	112.3		95.8	83.5		
Climbing ability without trailer %	1st gear	31.3	26.8	28.1	31.9	27.4	
	2nd gear	14.2	12.2	13.0	14.7	12.6	
	3rd gear	7.1	6.1	6.6	7.6	6.5	
	4th gear	3.7	3.1	3.5	4.3	3.6	
Climbing ability 5.6 t truck and trailer total weight %	1st gear	18.4		22.0	18.9		
	2nd gear	8.4		10.1	8.7		
	3rd gear	4.0		5.1	4.3		
	4th gear	1.8		2.5	2.2		

Model		L 408, O 309			L 408 O 309		
Version		with rear axle i = 6.857 special design			with engine type 121.944 68 DIN HP		
Perm. vehicle total weight	kg	3490	4000		3490	4000	
Rear axle ratio	i =	6.857			6.857		
Transmission ratio / i =	1st gear	5.455					
	2nd gear	2.707					
	3rd gear	1.543					
	4th gear	1					
	reverse	4.464					
Max. speed / km/h	1st gear	17.6			17.6		
	2nd gear	35.5			35.5		
	3rd gear	62.2			62.2		
	4th gear	95.8			95.8		
Climbing ability without trailer %	1st gear	43.6	37.0		37.4	33.0	
	2nd gear	19.5	16.8		17.0	15.0	
	3rd gear	10.0	8.6		8.8	7.8	
	4th gear	5.6	4.7		4.7	4.2	
Climbing ability 5.6 t truck and trailer total weight %	1st gear				22.0		
	2nd gear				10.1		
	3rd gear				5.1		
	4th gear				2.5		

With Engine OM 615 (60 HP) and M 115 (75 and 85 HP)

Model		L 406 D, O 309 D			L 408, O 309		
Version		Standard					
Perm. vehicle total weight	kg	3490	4000	4600	3490	4000	4600
Rear axle ratio	i =	5.857		6.500	5.857		6.500
Transmission ratio / i =	1st gear	5.455					
	2nd gear	2.707					
	3rd gear	1.543					
	4th gear	1					
	reverse	4.464					
Max. speed / km/h	1st gear	17.6		15.9	21.0		18.9
	2nd gear	35.6		32.0	42.3		38.1
	3rd gear	62.4		56.2	74.3		66.9
	4th gear	96.2		86.7	114.6		103.2
	4th gear[1]	92.0		82.0	105.0		90.0
Climbing ability without trailer %	1st gear	30.4	26.1	25.1	41.0	35.0	33.4
	2nd gear	13.8	12.0	11.5	18.3	15.8	15.2
	3rd gear	6.7	5.7	5.6	9.1	7.8	7.7
	4th gear	3.4	2.8	2.7	5.6	4.8	4.6
Climbing ability 5.6 t truck and trailer total weight %	1st gear	18.0		20.2	23.8		26.8
	2nd gear	8.1		9.2	10.8		12.2
	3rd gear	3.6		4.3	5.1		6.0
	4th gear	1.6		2.0	3.0		3.6

[1]) The specified data correspond to attainable max. speed on level roads.

Model		L 408, O 309			L 406 D, O 309 D		
Version		with engine type M 115.928/929, 75 DIN-HP			with rear axle i = 6.500 special design		
Perm. vehicle total weight	kg	3490	4000	4600	3490	4000	
Rear axle ratio	i =	5.857		6.500	6.500		
Transmission ratio / i =	1st gear	5.455					
	2nd gear	2.707					
	3rd gear	1.543					
	4th gear	1					
	reverse	4.464					
Max. speed / km/h	1st gear	18.5		16.7	15.9		
	2nd gear	37.2		33.6	32.0		
	3rd gear	65.3		58.9	56.2		
	4th gear	100.8		90.8	86.7		
	4th gear[1])	92.0		79.0	82.0		
Climbing ability without trailer %	1st gear	35.3	30.2	29.0	34.3	29.4	
	2nd gear	16.0	13.8	13.3	15.6	13.4	
	3rd gear	8.1	7.0	6.8	7.8	6.6	
	4th gear	4.1	3.4	4.0	4.0	3.3	
Climbing ability 5.6 t truck and trailer total weight %	1st gear	20.8		23.3	20.2		
	2nd gear	9.5		10.7	9.2		
	3rd gear	4.7		5.4	4.3		
	4th gear	2.1		3.0	2.0		

Model		L 408. O 309			L 408. O 309		
Version		with rear axle i = 6.500 special design			with engine type M 115.928/929, 75 DIN-HP		
Perm. vehicle total weight	kg	3490	4000		3490	4000	
Rear axle ratio	i =	6.500			6.500		
Transmission ratio / i =	1st gear	5.455					
	2nd gear	2.707					
	3rd gear	1.543					
	4th gear	1					
	reverse	4.464					
Max. speed / km/h	1st gear	18.9			16.7		
	2nd gear	38.1			33.6		
	3rd gear	66.9			58.9		
	4th gear	103.2			90.8		
	4th gear[1])	90.0			79.0		
Climbing ability without trailer %	1st gear	46.5	39.4		40.0	34.0	
	2nd gear	20.6	17.7		18.0	15.5	
	3rd gear	10.5	9.0		9.3	8.0	
	4th gear	6.5	5.5		5.4	4.6	
Climbing ability 5.6 t truck and trailer total weight %	1st gear	26.8			23.3		
	2nd gear	12.2			10.7		
	3rd gear	6.0			5.4		
	4th gear	3.6			3.0		

[1]) The specified data correspond to attainable max. speed on level roads.

With Engine OM 314 (80 and 85 HP)

Model	L 406 D, O 309 D[1]			L 508 D, O 309 D[1]			
Perm. vehicle total weight in kg	3490	4000	4200	3490	4000	4800	5000
Rear axle ratio i =	4.1						
Transmission ratio i = 1st gear	6.71						
2nd gear	3.88						
3rd gear	2.32						
4th gear	1.42						
5th gear	1.0						
Max. speed 1st gear	13.9						
2nd gear	24.0						
3rd gear	40.2						
4th gear	65.6						
5th gear	93.2						

Output HP	80	85	80	85	80	85	85		80	85	85
Climbing ability without trailer in % 1st gear	47.8	49.4	40.4	42.0	38.5	40.1	50.5	42.6	33.0	34.3	32.8
2nd gear	24.9	25.5	21.4	22.0	20.9	21.5	26.4	22.7	18.3	18.6	17.8
3rd gear	13.9	14.3	12.3	12.6	11.7	12.1	14.8	12.7	10.2	10.4	9.9
4th gear	7.6	7.7	6.7	6.8	6.3	6.4	8.0	6.8	5.2	5.5	5.2
5th gear	4.5	4.3	4.0	3.8	3.7	3.5	4.4	3.7	3.3	2.9	2.8

Truck and trailer total weight in kg	5600	
Output HP	80	85
Climbing ability truck and trailer total weight in % 1st gear	27.8	28.8
2nd gear	15.1	15.7
3rd gear	8.4	8.7
4th gear	4.4	4.4
5th gear	2.5	2.1

[1]) O 309 D only 4,200 and 4,800 kg permissible total weight.

With Engine OM 314 (80 and 85 HP)

Model	L 608 D					
Perm. vehicle total weight kg	5600	5600	5990	5600	5990	6300
Rear axle ratio i =	4.3			4.1		4.3
Transmission ratio i = 1st gear	7.31	6.71				
2nd gear	4.23	3.88				
3rd gear	2.53	2.32				
4th gear	1.55	1.42				
5th gear	1.0	1.0				
Max. speed 1st gear	12.2	13.2		13.7		13.5
2nd gear	21.0	22.9		23.8		23.3
3rd gear	35.1	38.3		39.7		38.9
4th gear	57.3	62.6		64.9		63.6
5th gear	88.9	88.9		92.2		90.3

Output HP	80	85	85				
Climbing ability without trailer in %	31.9	33.5	30.4	28.2	29.2	27.0	26.1
	17.4	18.2	16.6	15.4	15.9	14.8	14.3
	9.8	10.2	9.3	8.6	8.8	8.2	7.9
	5.4	5.6	4.9	4.5	4.5	4.2	4.0
	2.7	2.7	2.7	2.4	2.2	2.0	1.9

Truck and trailer total weight in kg	8600		8990	8600	9000	10600
Output HP	85					
Climbing ability truck and trailer total weight 1st gear	18.9		18.0	18.2	17.3	14.8
2nd gear	10.3		9.8	9.9	9.4	8.0
3rd gear	5.6		5.4	5.4	5.1	4.3
4th gear	2.8		2.6	2.6	2.4	2.0
5th gear	1.2		1.1	1.1	1.0	0.8

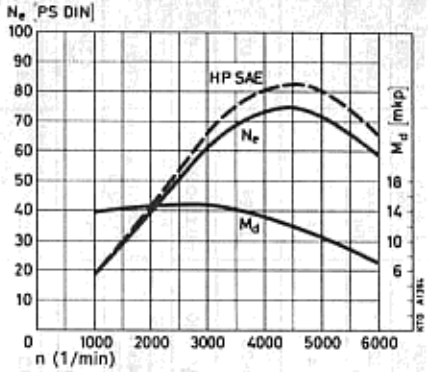
Model		L 206 D		L 305 D	
Perm. total weight	kg	2400	2700	3000	3300
Engine HP		OM 615.915 55			
Fuel consumption acc. to DIN 70030	lits/100 km	8.8	9.1	9.4	9.7
Engine oil consumption	lits/100 km	0,15			
Engine HP		OM 615.917 60			
Fuel consumption acc. to DIN 70030	lits/100 km	9.2	9.6	9.9	10.2
Engine oil consumption	lits/100 km	0.15			

Model		L 406 D O 309 D	L 408 O 309	L 408 [1] O 309 [1]	L 406D O 309 D
Engine HP		OM 621 55	M 121 80	M 121 68	OM 615 60
Fuel consumption acc. to DIN 70030 without trailer	lits/100 km	10.2	14.4	14.4	12.5
Fuel consumption on average roads[3])	lits/100 km	11–17	14–26	14–24	12–18
Average engine oil consumption	lits/100 km	0.15–0.20	0.15–0.20	0.15–0.20	0.15–0.20

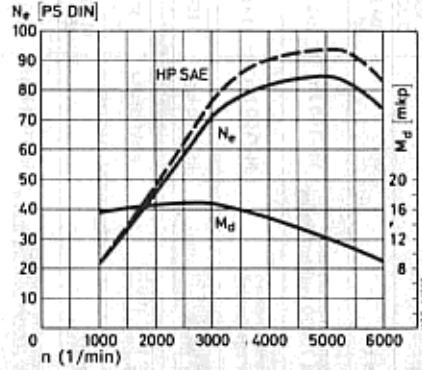
Model		L 408 O 309	L 408 [2] O 309 [2]	L 408 D/508 D O 309 D	L 608 D
Engine HP		M 115 85	M 115 75	OM 314 80/85	OM 314 80/85
Fuel consumption acc. to DIN 70030 without trailer	lits/100 km	16.3	16.3	10.6	11.2
Fuel consumption on average roads[3])	lits/100 km	16–26	16–26	11–16	12–20
Average engine oil consumption	lits/100 km	0.15–0.20	0.15–0.20	0.20	0.20

1) With engine type 121.944, 68 DIN-HP (low compression)
2) With engine type 115.928/929, 75 DIN-HP (low compression)
3) For vehicles with higher bodies or at extreme operating conditions, such as deliveries, construction site conditions etc., the fuel consumption may be higher.

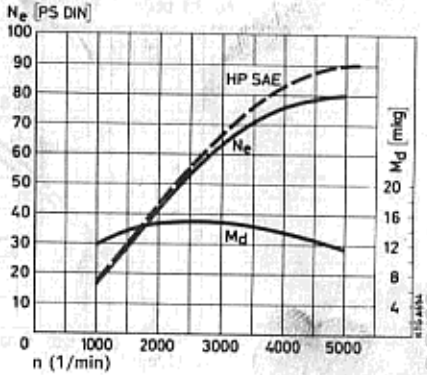
Engine M 115
75 HP/4400/min



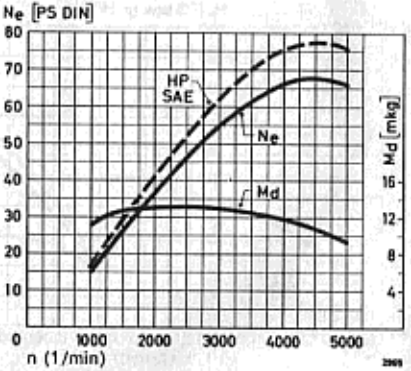
Engine M 115
85 HP/5000/min



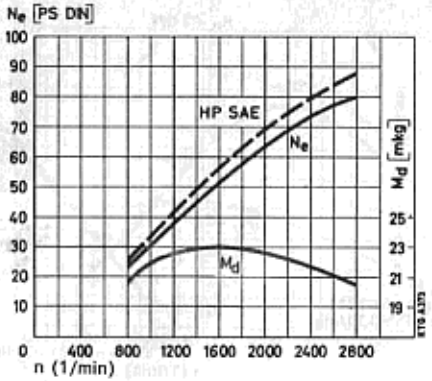
Engine M 121
80 HP/5000/min



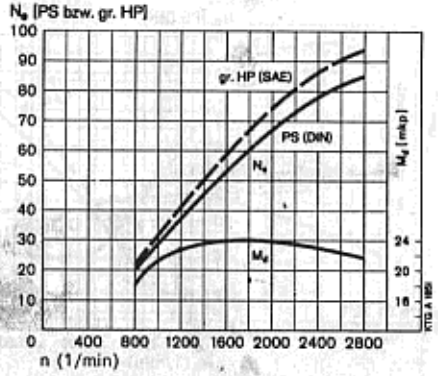
Engine M 121
68 HP/4400/min



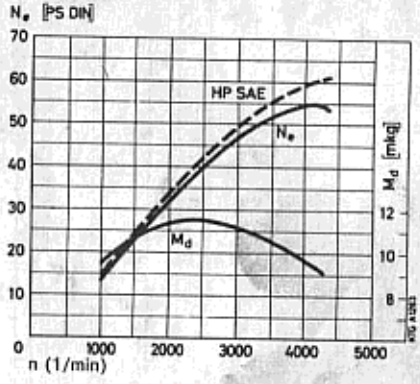
Engine OM 314
80 HP/2800/min



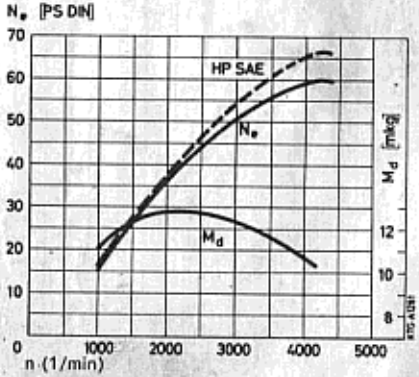
Engine OM 314
85 HP/2800/min



Engine OM 621/615
55 HP/4200/min



Engine OM 615
60 HP/4200/min



Group	Engine type	M 121/115	OM 621/615	OM 314
	Main bearing cover[3])	9		Initial torque 5 + 1 Final torque 90° + 20°
	Cylinder head[1]) [2])	with cold engine 8 | 9 with warm engine 9 | 9 0		10–11
	Threaded plug in cylinder head	–		30
	Protective sleeve in cylinder head	–		6
	Nozzle holder to cylinder head	–		6–7
01	Nozzle in nozzle holder and nozzle holder in cylinder head	–	7 + 1	8
	Nut for through-piece on nozzle holder	– –	OM 621 7 OM 615 4 + 1	– –
	Prechamber in cylinder head	–	15 + 3	–
	Cylinder head cover	1.0		2.5
	Timing housing to crankcase	–		4.5
	Timing housing cover	–		0.5
	Push rod chamber	–		0.4–0.6
	Cylinder cover to crankcase	–		3.5
	Closing plug for oil bore in crankcase	–		10
	Closing plug long. oil duct front and rear	–		6

01	Oil pan	Bolts for oil pan bottom Oil pan to crankcase M 6 1.1 M 8 3	M 6 0.5 M 8 0.75
	Bolts for intermediate flange to cylinder crankcase	5	–
03	Counterweight to crankshaft	–	Initial torque 3 Final torque 60°
	Flywheel to crankshaft	M 121, OM 621 5.5 + 0.5 [7]) M 115, OM 615 Initial torque 3 + 1 Final torque 90° + 10°	Expansion bolt SW 19 10 Expansion bolt SW 22 Initial torque 3 + 1 Final torque 60° + 20°
	Connecting rod bearing cover[3])	M 121, OM 621 3.75 [3]) M 115, OM 615 Initial torque 4 + 1 Final torque 90° + 10°	[4])
	Pulley hub to crankshaft	–	50–55
	Pto front: pulley hub to crankshaft	–	60
	Pto front: intermediate piece to hub M 8	–	3
	Collar bolt or clamping nut to crankshaft front	M 121, OM 621 18 M 115, OM 615 21 + 1	– –
	Fastening bolts for pulley and vibration damper to hub	3.5	–
05	Rocker arm brackets	–	10–11
	Camshaft gear to drive gear	–	4

Group	Engine type	M 121/115	OM 621/615	OM 314
05	Stud in cylinder head for rocker arm bearing	M 121 10 M 115 8	–	–
	Camshaft bearing bolts or nuts	0.5	2.5	–
	Adjusting torque of adjusting screw for valve adjustment (mounted with tallow)	M 121 1.5 M 115 2–4	–	–
	Rocker arm bracket bolts[5] (rocker arm unloaded)	–	3.75	–
	Camshaft gear to camshaft	8		–
	Hex. nut for attaching chain tensioner to cylinder head	2.5		–
07	Injection timer to injection pump	–		8
	Hex. nut or polystop nut on drive shaft of injection pump	–	7	–
	Coupling nut to injection line	–	2.5	
	Pipe connection for delivery valve on injection pump [6]	–	3.0 + 0.5	
13	Connecting rod camshaft air compressor	–		1.5 + 0.2
	Cylinder (camshaft air compressor) to crankcase	–		3.5–4
	Inlet and exhaust valve to cylinder head (camshaft air compressor)	–		12–14
	Cylinder head (camshaft air compressor) to bushing	–		2.5

14	Intake pipe and exhaust manifold to cylinder head	4		5
	Exhaust pipe to exhaust manifold	2.5 + 0.5		4.5
15	Starter to clutch housing	8		5
	Generator/alternator clamping strip	–		4
	Fastening bolt generator/alternator to bracket	–		3.4
	Bracket generator/alternator to crankcase	4		–
	Generator/alternator to bracket	3.75		–
	Pulley to generator/alternator	2.5		–
	Clamping bolt generator/alternator to crankcase	5		–
	Spark plugs or glow plugs	3–3.5	5	–
18	Oil pump to crankcase	–		4
	Cover to oil pump	–		4
	Oil filter to crankcase	M 8 3	M 10 4	6
	Suction basket to oil pump	–		2–2.5
	Oil pressure relief valve	in cylinder crankcase and on oil filter 4		on oil pump cover 6
	Oil filter base to top	4 + 0.5		–
	Engine supporting arm to crankcase	M 121. OM 621 4 M 115. OM 615 6.5		M 10–8 G 7 M 12–10 K 12

Select torque wrench in such a manner that its respective activation is 50–75%; for a tightening torque of 3.75 kpm, for example, a torque wrench within a range of 0–6 kpm should be used.

[1]) Prior to installing cylinder head bolts, coat threads and contact surface of cylinder head bolts as well as washers with oil.
Specifications concerning tightening sequence, as well as the individual tightening steps of the cylinder head bolts should be carefully maintained.

[2]) Upon assembly of cylinder head, run engine warm at low load to 80° C cooling water temperature. After approx. 5 minutes of operation at this cooling water temperature, retighten cylinder head bolts according to pertinent data "with the engine warm".
Tighten once again after another 300–1,000 km of driving.
Caution: When tightening cylinder head bolts, there is a tendency of omitting the necessary retightening because the releasing torque is usually higher than the specified tightening torque, so that during the first tightening step the indication may be above the nominal tightening torque.
To make sure that the cylinder head gasket is actually under the pressure provided by the specified torque, proceed as follows when retightening cylinder head bolts: Loosen each bolt in sequence of tightening pattern slightly and individually and only then tighten to specified torque. Never loosen all bolts at once and start tightening.

[3]) Connecting rod and main bearing bolts are tightened without lock to specified torque. Note that the threads of the connecting rod bolts and the nuts should be coated well with oil.

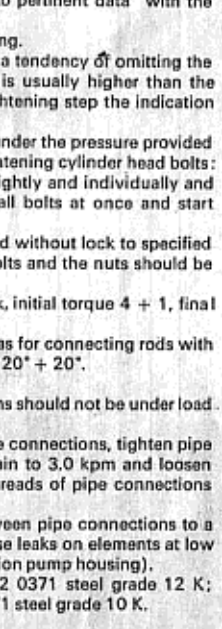
[4]) For bolts M 14 and connecting rods without x mark, initial torque 4 + 1, final torque 80°.
For bolts M 14 and connecting rods marked x, as well as for connecting rods with double hexagon head, initial torque 5 + 1, final torque 120° + 20°.
For bolts M 12, 9 kpm.

[5]) When tightening rocker arm bracket bolts, rocker arms should not be under load of camshaft.

[6]) To make sure of correct seat of sealing rings on pipe connections, tighten pipe connections to 3.0 kpm and loosen, tighten once again to 3.0 kpm and loosen again. Then tighten finally to 3.0 + 0.5 kpm. Coat threads of pipe connections with tallow prior to tightening.
Also tighten fastening bolt of clamping jaw lock between pipe connections to a torque of 0.9 kpm only (excessive tightening may cause leaks on elements at low and high pressure end caused by distortion of the injection pump housing).

[7]) 6 + 0.5 kpm when using expansion bolt 180 032 0371 steel grade 12 K; 4.5 + 0.5 kpm when using expansion bolt 180 032 0171 steel grade 10 K.

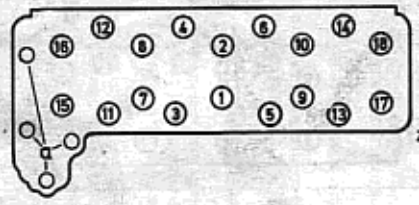
Tightening sequence and table for stepwise tightening of cylinder head bolts M 12

	Tightening sequence for tightening cylinder head bolts	Stepwise tightening Tightening torque in kpm			
		Step 1	Step 2	Step 3	Checkup
M 121			6		9
M 115		with engine cold			at 80° C CW[1])
		4	6	8	9
		M 10 bolts 11 to 14			
		2	4	5	6

Note: Tighten all remaining bolts "a" with M 8 threads by means of hand wrench.
Loosen cylinder head bolts in reverse sequence, that is, start at the rear.

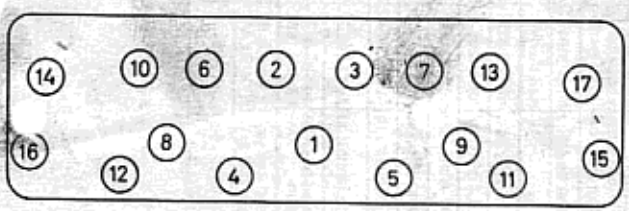
1) CW = cooling water temperature

Tightening sequence and table for stepwise tightening of cylinder head bolts M 12

Type	Tightening sequence for tightening cylinder head bolts	Stepwise tightening Tightening torque in kpm			
		Step 1	Step 2	Step 3	Checkup
OM 615 OM 621	 Z-2956	4	6	9	9

Note: Tighten all remaining bolts "a" with M 8 threads by means of hand wrench.
Loosen cylinder head bolts in reverse sequence, that is, start at the rear.

Tightening sequence for cylinder head bolts: OM 314



Note: Tighten cylinder head nuts or bolts in steps after mounting cylinder head, that is, tighten acc. to sequence shown to 5 kpm first, then 8 kpm, and finally 11 kpm.

Group	Transmission type	G 15	G 20
26	Fastening nut for clutch flange	12	30-35
	Fastening nut for input shaft	12	30-35
	Slot nut for main shaft	12	-
	Bolts to lower differential cover	2.5	2.5
Transmission type		ZF 4 DS - 10	
Ring gear bolts		6.0	
Nuts to input shaft		18	
Nuts to differential flange		4.0	
Bolts to lower differential cover		1.5 - 2.0	
Nuts and bolts to intermediate and end cover		2.5	
Oil drain and filler plug		7.0	
Castle nut M 20 × 1.5 for suspending transmission		15.0	

Group	Front axle type	all except L 206 D/L 306 D	L 206 D/ L 306 D
33	Drag link to front axle	20,5	12
	Steering knuckle arm to front axle	20,5	6
	Clamping sleeve on track rod	4 - 4.5	4 - 4.5
	Cone connections drag links and track rods	5 - 7	
	Front spring U-bolt nuts	8 - 10	12
	Wheel nuts	16 - 18	14
	Wheel joint ball pins		8
	Cross strut M 16 × 1.5		5
	Shock absorber bolts M 12 (8 G)		8
	Castle nut for guide lever		13
	Castle nut for intermediate lever		13
	Castle nut for pitman arm[1])		11 - 13
	Castle nut for fitted bolts (8 G) on wheel joint		8
	Bolts for rocker arm bearing M 12 × 70 DIN 931 (8 G)		8
	Castle nut for control arm M 10 nut 8 G, bolt 12 K		6

[1]) For L 306 D / 3.3 t ≙ 14

Group	Rear axle type	HL 1/0 - 2.7	HL 1/2 - 3.3	HL 1/4 - 4	HL 1/3 - 4.2	HL 1/5 - 4.5
35	Differential case	5	6	16 - 18	6 - 7	20 - 22
	Ring gear bolt	8 - 9	7	16 - 18	7 - 8	16 - 18
	Bearing cover bolts	12	12	22 - 23	13 - 15	22 - 23
	Slot nuts or collar nuts to coupling flange	20	20	30	20	30
	Threaded ring (axle drive)	50	50	80 - 100	50	80 - 100
	Attachment of brake mounting plate	4.5 - 5.5	5.8	5.8	6 - 7	13 - 15
	External slot nut for rear wheel hub	36 - 40	20 - 25	30 - 35	20 - 25	30 - 35
	Rear spring U-bolt nuts	8 - 10	8 - 10	8 - 10	8 - 10	8 - 10
	Wheel nuts	16 - 18	16 - 18	16 - 18	16 - 18	16 - 18

Rear axle L 206 D / L 306 D

Group	Rear axle type	Ball axle – single-wheel suspension
35	Wheel nuts	14
	Hex. socket bolts for control arms	28
	Hex. socket bolts for axle tube	45
	Connecting flange for rear axle sub-frame M 14 × 35 DIN 931 (10 K)	17
	Bolts for axle tube M 12 × 22 DIN 933 (10 K)	12

Group	Steering type	MB - L 1 K	MB - L 3.5 K	ZF 8056
46	Fastening bolts to housing cover	2.5	3	3.7
	Counter nut of adjusting screw	2.5 - 3	5 - 6	
	Counter nut on adjusting ring	8 - 10	22	
	Fastening bolts, steering to steering bracket	4.7	14	14
	Fastening bolts, steering bracket to frame	4.7	4.7	4.7
	Castle nut pitman arm	16 - 18	40 - 50	40 - 50
	Drag link cone connections	5 - 7	11 - 13	11 - 13

Group	Steering type	ZFGB 16 c	ZFGD 28 a	L 1.5 z
46	Vehicle type	L206D/2.4t L206D/2.7t L306D/3.0t	L306D/3.3t	L 206 D L 306 D
	Hex. bolt for attaching steering gear	5	5	4.8
	Self-locking hex. nut for attaching pitman arm to pitman shaft	11 - 13	14	20 - 22
	Castle nut on drag link – track and connecting rod	5	5	5
	Hex. nut attaching steering wheel to steering spindle tube	3.5 - 4.5	3.5 - 4.5	4
	Bolts on steering case cover	2.5	2.5	2.2 - 2.4
	Hex. socket bolt to clamping piece of adjusting ring			3.0 - 3.5
	Castle nut for guide lever	11 - 13	11 - 13	
	Castle nut for intermediate lever	11 - 13	11 - 13	

0 – Tightening Torques in kpm

Reference values

Expansion bolts	Threads				Rigid bolts		
	6 G	8 G	10 K	12 K	8 G	10 K	12 K
M 5	0.5	0.6	0.9	1.1			
M 5 x 0.5	1.0	1.3	1.7	2.1			
M 6	0.9	1.1	1.5	1.8	0.8	1.0	1.4
M 6 x 0.5	1.0	1.3	1.7	2.1	1.1	1.5	1.8
M 8	2.4	2.5	3.4	4.3	1.9	2.5	3.0
M 8 x 1	2.7	3.0	4.0	5.0	2.5	3.2	3.8
M 10	4.4	4.7	6.5	8.3	3.9	4.7	5.2
M 10 x 1	5.0	5.8	7.8	9.5	4.2	5.1	5.7
M 12	7.3	7.8	11.3	14.0	6.5	7.0	8.0
M 12 x 1.5	8.3	9.5	13.5	16.0	7.2	9.2	11.0
M 14	11.0	12.0	17.5	21.5	9.2	12.0	12.0
M 14 x 1.5	12.8	14.0	20.0	24.0	12.4	14.5	17.6
M 16	17.0	18.0	26.0	31.0	14.2	18.5	22.5
M 16 x 1.5	18	20	29	35	16	22.5	25.5
M 18	23	25	36	43	19	24.5	30.5
M 18 x 1.5	25	27	39	47	22.5	29	34
M 20	31.5	33	47	56	27	34	42
M 20 x 1.5	34	35	50	60	30	38	45
M 22	42	43	60	72	35	42	51
M 22 x 1.5	43	45	62	74	40	48	56
M 24	54	56	79	95	42	55	68
M 24 x 1.5	57	59	83	100	45	58	71

Note: These tightening torques are valid only when no other data are specified.

Engine type			M 121	M 115	OM 621	OM 615	OM 314
Valve clearance	Engine cold	Inlet	0.08	0.08	0.10	0.10	0.20
		Exhaust	0.20	0.20	0.40	0.40	0.30
	Engine warm	Inlet	no adjustments permitted on warm engine		0.20 (60–80°cooling 0.45 water temp.)		no adjustments permitted on warm engine
		Exhaust					
Valve clearance is measured			between sliding surface of rocker arm and base circle of camshaft		between cap nut at valve stem end and rocker arm		between valve stem upper edge and rocker arm slide surface
Inlet opens BTDC			11°	11°	12°30′		29°
Inlet closes ABDC			53°	47°	41°30′		55°53′

at specified valve

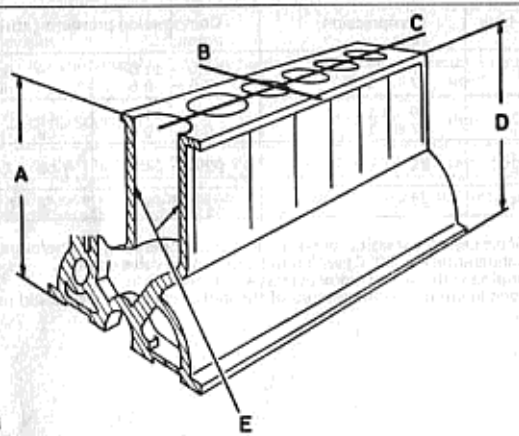


Fig. 01/1

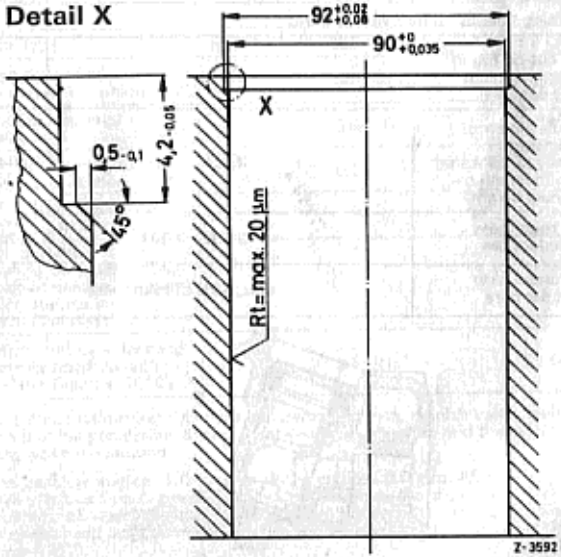
Engine type		M 121	OM 621	M 115	OM 615	OM 314
Total height (production size) of cylinder crankcase	„A"	238.4 / 238.5		242.8 / 242.9		358.9 / 359.1
Minimum height following required material removal		238.1 / 238.2		242.5		358.7 / 358.9
Perm. roughness of parting surface in longitudinal direction	„C"	0.08				0.03
Perm. roughness of parting surface in transverse direction	„B"	0.05				0
Perm. deviation of parallelity of upper parting surface in relation to lower parting surface in longitudinal direction	„D"	0.1				
Pressure-test crankcase whenever possible with hot water at approx. 70°C		3 kp/cm²				5 kp/cm²
Piston may stand back	–	–				0.08
Piston may protrude	+	up to 0.5	0.7–1.2	0.05 / 0.65	2 lits. 0.7–1.2 / 2.2 lits. 0.6–1.1	0.3

Dimensions when installing cylinder liners into engines OM 621 and OM 615

Liner	OM 621	OM 615
Part No.	621 011 0610	615 011 0210

When refinishing cylinder liners, only the standard dimension and the intermediate stage are permitted.

Detail X



Engine type	M 121	M 115	OM 621	OM 615	OM 314
Repair stages of cylinder bores Standard I			87.000 87.022		97.010 96.990
Standard II			——		97.065 97.065
Standard III			——		97.135 97.115
Intermediate stage			87.250 87.272		——
Repair stage I			87.500 87.522		97.510 97.490
Repair stage II			88.000 88.022		98.010 97.990
Repair stage III			88.500 88.522		——
Machining tolerances for cylinder bores					
Perm. out-of-round and perm. conicity of cylinder bore			0.013		0.01
Perm. deviation of cylinder bore vertically to crankshaft axis, with reference to cylinder height			0.050		0.04
Perm. roughness of cylinder bore			0.002 - 0.004		0.003
Perm. undulation of cylinder bore			max. 50% of roughness		

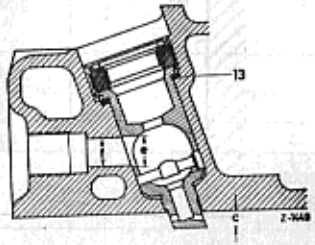


Fig. 01/2

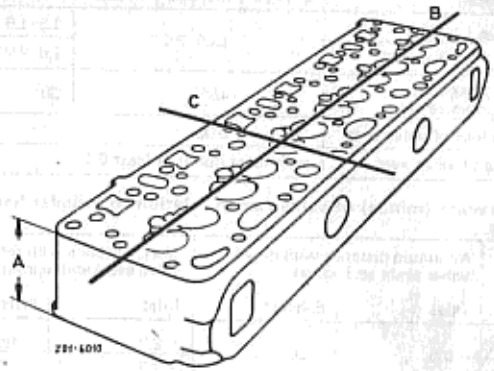


Fig. 01/3

Engine type	M 121	OM 621	M 115	OM 615	OM 314
Total height of cylinder head in new condition "A"		84.8–85.0			91.9–92.1
Perm. total material allowance		0.8–1 [1]			1
Perm. roughness of parting surface in longitudinal direction "B"		0.1			0.05
Perm. roughness of parting surface in transverse direction "C"		0			
Perm. deviation of parallelity of upper parting surface in relation to lower parting surface in longitudinal direction		0.1			
Pressure-test cylinder head whenever possible with hot water (approx. 70°C)		2 kp/cm²			5 kp/cm²

Note: When refinishing cylinder head parting surface, refinish valve seats to the extent that the permissible distance between the valve disc and the cylinder head parting surface is assured.

[1]) On gasoline engines 1.0 mm, on diesel engines 0.8 mm. After refinishing the cylinder head parting surface of diesel engines, the distance "c" of 5.5 to 5.9 mm between the face of the prechamber and the parting surface of the cylinder head must be maintained by adding a pertinent sealing ring (Fig. 1/2, item 13).

01 – Refinishing of Valve Seat

Engine type		M 121	OM 621	M 115	OM 615	OM 314
Valve seat width	Inlet	1.25–2.0			1.3–1.6	1.8–2
	Exhaust				2.6–2.9	1.8–2.4
Adjusting angle for refinishing valve seat		45°			30°	45°
Perm. runout of valve seat		0.05				0.03
Relieving of valve seat		with relief cutter at least 0.1				

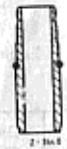
Perm. recess (minus) of valve disc in relation to cylinder head parting surface

Engine type	Minimum distance with new valve seats and valves		Max. distance with refinished valve seats and reground valves [1]	
	Inlet	Exhaust	Inlet	Exhaust
M 121	– 0.5	– 1.6	– 2.3	– 1.8
M 115			– 2.0	– 1.75
OM 621	– 0.5	– 0.5	– 1.2	– 1.2
OM 615			– 2.0	– 2.0
OM 314	– 0.6	– 0.6	– 1.0	– 1.0

Note: The lower edge of valve seat on valve should never rest against valve seat in cylinder head, since this might cause edge to work into seat, so that the valve will leak and develop a tendency toward burning out. For this reason, the valve seat is relieved or cut free at this point.

[1]) The dimensions named for max. distance are reduced by the same dimension at which the parting surface of the cylinder head has been refinished.

Engine type	Part No.	Rep. stage	Color code	OD
M 121 M 115	Inlet 130 050 00 24	Standard dimension	green	14.021 14.012
			brown	14.030 14.021
	Inlet 130 050 01 24	Rep. stage 1	grey-green	14.039 14.030
			grey-brown	14.048 14.039
	Inlet 130 050 02 24	Rep. stage 2	red	14.230 14.212
	Inlet 130 050 03 24	Rep. stage 3	white	14.430 14.412
	Exhaust 108 050 05 24	Standard dimension	green	15.021 15.012
			brown	15.030 15.021
	Exhaust 108 050 06 24	Rep. stage 1	grey-green	15.039 15.030
			grey-brown	15.048 15.039
	Exhaust 108 050 07 24	Rep. stage 2	red	15.230 15.212
	108 050 08 24	Rep. stage 3	white	15.430 15.412
OM 621 OM 615	Inlet 621 053 15 29 Exhaust 621 053 36 30	Standard dimension	–	14.039 14.028
	Inlet 621 053 16 29 Exhaust 621 053 37 30	Rep. stage	red	14.239 14.228

Bore in cylinder head	Overlap	Valve guide ID Inlet	Valve guide ID Exhaust	Valve guide Length Inlet	Valve guide Length Exhaust	Shape of valve guide
14.000 14.009 14.009 14.018 14.018 14.027 14.027 14.036 14.200 14.218 14.400 14.418	+0.012	9.000 9.015	–	58.5	–	
15.000 15.009 15.009 15.018 15.018 15.027 15.027 15.036 15.200 15.218 15.400 15.418	+ 0.012	–	11.000 11.018	–	45.0	
14.000 14.018 14.200 14.218	0.01 to 0.04	10.000 10.015	10.000 10.015	61	49.5	

Engine type	Size or repair stage	OD	Bore in cylinder head	Overlap
OM 314	Standard I	15.046 / 15.028	15.018 / 15.000	+ 0.010 to + 0.046
	Rep. stage I	15.146 / 15.128	15.118 / 15.100	
	Rep. stage II	15.246 / 15.228	15.218 / 15.200	
	Rep. stage III	15.546 / 15.528	15.518 / 15.500	

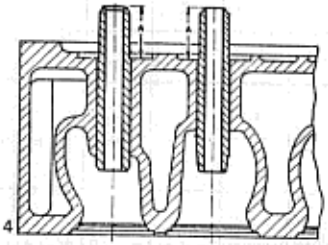


Fig. 01/4 Engine OM 314

Engine type	Distance from valve guide to support of valve spring (refer to illustration, note "A")		ID		Length	
	Inlet	Exhaust	Inlet	Exhaust	Inlet	Exhaust
OM 314 80 PS	24-0.5		9.022 / 9.000	9.022 / 9.000	78	78
OM 314 85 PS				10.022 / 10.000		73

Valve seat rings inlet [1]		OM 621	M 121 M 115	Valve seat rings exhaust [1]	OM 621	M 121 M 115
	Standard dimension	621 053 02 31	121 053 05 31		621 053 06 32	121 053 05 32
	Rep. stage 1 and 2	621 053 03 31	121 053 06 31		621 053 07 32	121 053 06 32
Basic bore "D1" in cylinder head	Standard dimension	38.000 38.016	48.000 48.016		35.500 35.516	42.000 42.016
	Rep. stage 1	38.500 38.516	48.500 48.516		36.000 36.016	42.500 42.516
	Rep. stage 2	39.000 39.016	49.000 49.016		36.500 36.516	43.000 43.016
Required overlap of valve seat ring in cylinder head		+ 0.054 to + 0.085	+ 0.074 to + 0.100		+ 0.059 to + 0.085	+ 0.074 to + 0.100
Diameter "D"	Standard dimension	38.085 38.075	48.090 48.100		35.545 35.535	42.090 42.100
	Rep. stage 1	40.000 [2] 38.585 38.575	49.300 [2] 48.590 48.600		37.000 [2] 36.045 36.035	43.300 [2] 42.580 42.600
	Rep. stage 2	40.000 [2] 39.085 39.075	49.300 [2] 49.090 49.100		37.000 [2] 36.545 36.535	43.300 [2] 43.090 43.100
Depth "t" of bore in cylinder head		10.100 [3] 10.200	10.000 10.100 13.000 [5] 13.100		10.600 [3] 10.700	27.500 27.600
Height "H" of valve seat ring	Standard dimension	8.000 7.910	8.000 7.910		8.000 7.910	9.500 9.410
	Repair stage 1	8.500 [2] 8.200 8.110	8.000 7.910		8.500 [2] 8.200 8.110	9.500 9.410
	Repair stage 2	8.500 [2] 8.400 8.310	–		8.500 [2] 8.400 8.310	–
Distance "t1" between parting surface cylinder head and valve seat ring		2.1–2.2	2 2.0–2.3 [5]		2.6–2.8	–

Note: On light metal alloy cylinder heads the valve seat ring must be peened after pressing-in at three points.

[1]) Refer to Fig. 0.1/5 to 0.1/6.

[2]) Roughing dimension.

[3]) Depth of bore in cylinder head for repair stage 1 is 10.30–10.40 mm, and for repair stage 2 10.50–10.60 mm.

[5]) Applies to type M 121 only.

Inlet

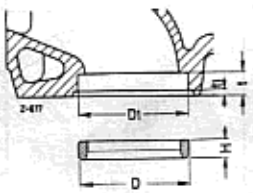


Bild 01/5

Exhaust

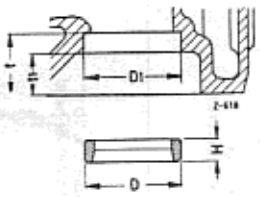


Bild 01/6

01 – Valve Seat Rings

		Valve seat rings	
		Inlet	Exhaust
Engine type		OM 314	OM 314
OD "D" valve seat ring	Standard I	46.080 / 46.070	38.080 / 38.070
	Rep. stage I	46.380 / 46.370	38.380 / 38.370
	Rep. stage II	46.580 / 46.570	38.580 / 38.570
Bore dia. "D1" in cylinder head	Standard I	46.025 / 46.000	38.025 / 38.000
	Rep. stage I	46.325 / 46.300	38.325 / 38.300
	Rep. stage II	46.525 / 46.500	38.525 / 38.500
Pressing-in depth "t" in cylinder head		11,1 / 10,9	
Distance "t1" from cylinder head flat surface to valve seat ring		2,8 / 2,7	

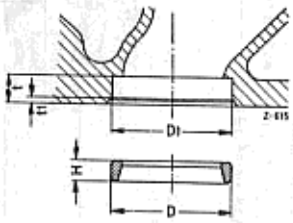


Fig. 01/7 Inlet

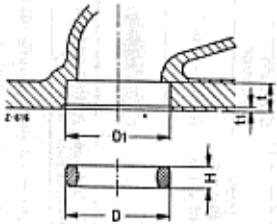


Fig. 01/8 Exhaust

Valve seat rings

Engine type	Repair stages of Crank-shaft	Crankshaft bearing journals		Fitted bearing shells			Crankpin	
		Dia. of journals	Width of journal at fitted bearing	Color code	Wall thick-ness	Width	Dia. of pins	Width of pins
M 121/115 OM 621/615	Standard dimension	69.965 69.955	34.025 34.000	blue red	2.245 2.248	33.900 33.800	51.965 51.955	32.000 32.100
	Rep. stage 1	69.715 69.705	34.225 34.200 34.425 34.400 up to 34.600	blue red blue red blue red	2.370 2.373 2.370 2.373 2.370 2.373	34.100 34.000 34.300 34.200	51.715 51.705	up to 32.300
	Rep. stage 2	69.465 69.455		blue red	2.495 2.498	34.600	51.465 51.455	
	Rep. stage 3	69.215 69.205		blue red	2.620 2.623	34.400 rough	51.215 51.205	
	Rep. stage 4	68.965 68.955		blue red	2.745 2.748		50.965 50.955	

Note: Fitted bearing shells for repair stage 1 with pertinent allowance are 0.2 and 0.4 mm wider than those for standard dimensions (refer to table). Fitted bearing shells 0.5 mm wider (repair stage 1 to 4) are rough dimensions only; refinishing to the newly ground journal dimension is required.
Max. wear limit of crankshaft journals and crankpins is 0.02 mm.
The repair stages named in table should be accurately maintained. In addition, the fillets on crankshaft journals and crankpins must be held to 2.5 to 3 mm.

Engine type	Repair stages of crankshaft	Crankshaft bearing journals		Crankpins		Wall thickness for bearing shells ready for installation	
		Dia. of journals	Width of fitted bearing journal	Dia of pins	Width of pins	Crankshaft bearing	Connecting rod bearing
OM 314	Standard I	88.010 87.990	31.810 31.770	60.015 59.990	37.93 bis 38.13	2.465-2.477	2.962-2.972
	Standard II	87.910 87.890		59.915 59.890		2.515-2.527	3.012-3.022
	Rep. stage I	87.760 87.740	32.062 32.000	59.765 59.740		2.590-2.602	3.087-3.097
	Rep. stage II	87.510 87.490		59.515 59.490		2.715-2.727	3.212-3.222
	Rep. stage III	87.260 87.240		59.265 59.240		2.840-2.852	3.337-3.347
	Rep. stage IV	87.010 86.990		59.015 58.990		2.965-2.977	3.462-3.472

03 – Crankshaft Bearing Basic Bore

Engine type	M 121/115 OM 621/615	OM 314
Basic bore dia. for crankshaft bearing in cylinder crankcase	74.500 74.519	93.022 93.000
Perm. out-of-round of basic bore	0.01	0.01
Perm. conicity of basic bore	0.01	0.01
Overlap of crankshaft bearing shell halves in basic bore	+0.02 to +0.05	+0.078 to +0.025

03 – Crankshaft Bearing

ID of crankshaft bearing with bearing shell halves inserted

Engine type	Standard		Repair stages			
	I	II	I	II	III	IV
M 121 M 115 OM 621 OM 615	69.99 70.02		69.74 69.77	69.49 69.52	69,24 69,27	68.99 69.02
OM 314	88.08 88.06	87.98 87.96	87.83 87.81	87.58 87.56	87.33 87.31	87.08 87.06

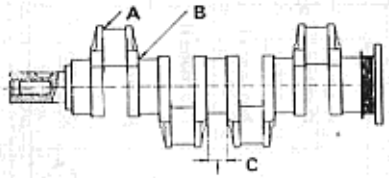


Fig. 03/1

Engine type	M 121/115 OM 621/615	OM 314
Perm. out-of-round of crankshaft journals and crankpins	0.005 [1]	0.01
Perm. conicity of crankshaft journals and crankpins	0.01	0.01
Perm. misalignment of crankpins in relation to crankshaft journals with reference to bearing length	0.01	0.01
Perm. runout of center crankshaft bearing journal when supported in outer crankshaft journals	0.02	0.05
Perm. lateral runout of fitted bearing journal	0.015	0.02
Perm. vertical runout of flywheel flange with reference to crankshaft bearing journal	0.02	0.02
Perm. lateral runout of flywheel flange with reference to crankshaft bearing journal, measured at OD	0.01	0.02
Fillets on crankshaft journals and crankpins refer to Fig. 03–1, Note A and B	2.5-3	Fitted bearing 4–4.5 n bearing 3.5–4
Hardness of crankshaft journals and crankpins — Sklerograph hardness	68-74	52-60
Hardness of crankshaft journals and crankpins — Rockwell hardness	55-61	65-73
Perm. unbalance of crankshaft cmp	15	30

Note: When changing flywheels and balancing discs, refer to and apply balancing instructions in service manuals. Crankshaft is balanced together with front balancing disc and flywheel.

[1]) with used crankshaft journals and crankpins 0.01 mm
[2]) with used crankshaft journals and crankpins 0.015 mm

03 – Connecting Rods

Engine type		M 121/115 OM 621/615	OM 314
Basic bore dia. for connecting rod bearing		55.600 55.619	66.019 66.000
Basic bore dia. for connecting rod bushing (piston pin bushing)	Standard dimension	29.000 29.021	39.025 39.000
	Rep. stage I	29.500 29.521	39.225 39.200
	Rep. stage II	—	39.525 39.500
Perm. out-of-true and perm. conicity of basic bore for connecting rod bearing and for connecting rod bushing		0,01	0,01
Width of connecting rod at	connecting rod bearing eye	31.880 31.841	37.830 37.730
	piston pin eye		35.6 - 0.1
Perm. difference in weight of complete connecting rod assembly of one engine		5 g	20 g
Perm. deviation of parallel alignment of basic bore axis in relation to piston pin bore axis, with reference to a length of 100 mm		0.03	0.025
Perm. crossover of basic bore in relation to piston pin bore with reference to a length of 100 mm		0,1	0.03
Length of connecting rod from center of connecting rod bearing bore to center of piston pin bore		148,95 149.05	230.00 230.05

Crankshaft and Connecting Rod Bearing Clearances – 03

Engine type	Crankshaft bearing clearance		Connecting rod bearing clearance	
	radial	axial (fitted bearing) refer to Fig. 03/1 Note C	radial	axial when new
M 121 M 115 OM 621 OM 615	0.045 - 0.065[1]	0.100 - 0.175[2]	0.035 - 0.055	0.110 - 0.260[3]
OM 314	0.050 - 0.090	0.190 - 0.292	0.050 - 0.095	0.100 - 0.400

[1]) for radial clearance, try for mean value
[2]) for repairs, an axial play up to 0.30 is permitted
[3]) for repairs, an axial play up to 0.50 is permitted

Connecting Rod Bearings and Connecting Rod Bushings – 03

Connecting rod bearing ID with bearing shell halves inserted

Engine type	Standard		Repair stages			
	I	II	I	II	III	IV
M 121 M 115 OM 621 OM 615	51.99 52.02	—	51.74 51.77	51.49 51.52	51.24 51.27	50.99 51.02
OM 314	60.065 60.065	59.985 59.965	59.855 59.815	59.585 59.565	59.335 59.315	59.085 59.065

Connecting rod bushing

Engine type	OD			ID	
	Standard I	Rep. stage I	Rep. stage II	Rough Dimension	Finished dimension
M 121 M 115 OM 621 OM 615	29.096 29.058	29.596 29.558	—	—	26.012 26.018
OM 314	39.059 39.043	39.259 39.243	39.559 39.543	35.300 35.250	36.038 36.030

Engine type		M 121	OM 621	M 115	OM 615	OM 314
Piston dia.	Standard	86.99 86.97	86.95 86.93	87.00 86.98	86.96 86.94	Standard I: 96.910 96.890
	Intermediate stage	87.24 87.22	87.20 87.18	87.25 87.23	87.21 87.19	Standard II: 96.985 96.965
	Rep. stage 1	87.49 87.47	87.45 87.43	87.50 87.48	87.46 87.44	Standard III: 97.035 97.015
	Rep. stage 2	87.99 87.97	87.95 87.93	88.00 87.98	87.96 87.94	Rep. stage 1: 97.410 97.390
	Rep. stage 3	88.49 88.47	88.45 88.43	88.50 88.48	88.46 88.44	Rep. stage 2: 97.910 97.890
Piston pin		0.03		0.02–0.03	0.02 [1]	0.10–0.11
Piston clearance	Dia.	26.000 25.995		25.000 24.995		[2]
	Clearance in connecting rod bushing	0.012–0.023				
	Clearance (–) or overlap (+) in piston	– 0.007 to + 0.003	– 0.008 to + 0.006	– 0.007 to + 0.002		– 0 to + 0.007
Distance between piston crown and parting surface – cylinder crankcase at TDC – position of piston		to 0.5	0.7–1.2	0.05–0.65	0.7–1.2 [3]	– 0.08 to + 0.30
Perm. difference in weight of pistons of one engine (in grams)		4				5 [4]

1) For 3-ring pistons the piston clearance is 0.02 - 0.03 mm.
2) To maintain piston pin fits in piston and in connecting rod bushing, the piston pins, the piston pin eyes and the connecting rods at eye of connecting rod bushing are color-coded. Be sure to assemble only piston pins, pistons and connecting rods having the same color code.
3) For 60-HP engine ≙ 0.6 - 1.1 mm
4) For repairs, mainly when only one piston is replaced, a difference in weight of 20 grams is permitted.

Engine type		M 115	OM 615	OM 314
Piston ring groove	I	Rect. compr. ring	Rect. compr. ring	Keystone ring
	II	Baffle ring	Rect. compr. ring	Modif. taper face compr. ring
	III	Chamfered oil control ring	Coil-backed chamfered oil ring [1]	Modif. taper face compr. ring
	IV			Chamfered oil control ring
	V			Small-slot oil ring
Piston ring clearances, Gap clearance	I	0.55 - 0.70	0.55 - 0.70	0.35 - 0.55
	II	0.45 - 0.60	0.45 - 0.60	0.35 - 0.55
	III	0.25 - 0.40	0.25 - 0.40	0.35 - 0.55
	IV			0.25 - 0.40
	V			0.25 - 0.40
Piston ring clearances, Side clearance	I	0.045 - 0.72	0.045 - 0.72	0.044 - 0.080
	II	0.045 - 0.72	0.045 - 0.72	0.055 - 0.082
	III	0.045 - 0.72	0.045 - 0.72	0.055 - 0.082
	IV			0.032 - 0.062
	V			0.025 - 0.052

Note: Piston ring assembly is always subject to latest state of engine production.
1) For OM 615.915 coil-backed modified taper face compression ring

Type		OM 621/M 121	OM 615/M 115
Distance "a" [1]		19.5	
Distance "b"	when new	18.0	22.5
	for repairs up to	17.0	21.5
Perm. lateral runout		0.05	

[1]) When refinishing clutch surfaces "A" make sure that distance "a" is always maintained. For this reason, machine fastening surface "B" for clutch according to material removal at clutch surface.

Note: Material removal at clutch surface "A" should not exceed 1 mm.

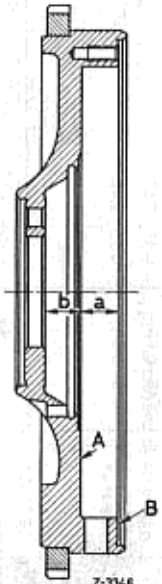


Fig. 03/2

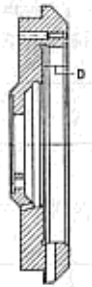


Fig. 03/3 OM 314

Engine type		OM 314
OD of flywheel		335.530 335.390
ID for receiving crankshaft flange		130.063 130.000
Distance "D" between clutch surface and fastening surface [1]) for clutch (refer to Fig. 03/3		33.5±0.1
Perm. material removal at clutch surface		1
Perm. runout of mounted flywheel	Lateral runout	0.1
	Vertical runout (radial)	0.25

[1]) When refinishing clutch surface make sure that distance "D" is always maintained. For this reason, the fastening surface for the clutch should be machined in accordance with material removal at clutch surface.

	Engine type	Valve disc dia. mm	Valve stem dia. mm	Valve length mm	Height "h" of valve disc when new	Height "h" of refinishing limit mm	Valve seat angle "B"
Inlet	M 121 M 115	44.30 44.10	8.970 8.948	128		1	45°
	OM 621	36.30 36.10	9.920 9.900	131			
	OM 615	38.90 38.70	9.920 9.905	131.5		1.5	30°
	OM 314	44.10 43.90	8.950 8.800	140.5±0.2	2–2.5	1	45°
Exhaust	M 121 M 115	37.25 36.95	10.940 10.918	113.2		1.5	45°
	OM 621	31.30 31.10	9.920 9.898	131			
	OM 615	33.30 33.10	9.940 9.918				30°
	OM 314	36.10 35.90	8.950 [1] 8.800	140.5±0.2	1.6–2	1	45°

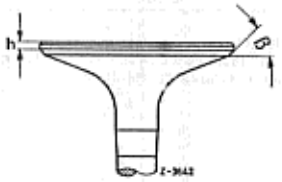


Fig. 05/1

[1]) OM 314 with 85 HP $\frac{9.94}{9.80}$

Note: Perm. runout between valve stem and valve cone max. 0.03 mm.

Engine type		OD mm	Wire dia. mm	Length unloaded mm	Length under preload mm	kp	Length under final load mm	kp
OM 621		29.8	3.6	47.4	38.4	17 to 19	29.9	37.7 to 42.3
OM 615		30.2	3.8	50.5	38.4	23 to 26.4	29.9	46.3 to 53
M 115	Internal spring	22.2	2.5	45	31	12.8 to 15.2	21	22.8 to 25.2
	External spring	33.6	4.5	47.1	40	26 to 30	30	69 to 77
M 121	Internal spring	22.2	2.5	45	31	12.8 to 15.2	21	22.8 to 25.2
	External spring	32.8	4.1	52	40	26.6 to 30	30	56.4 to 63.6
OM 314		33.5 + 0.4	4.25	60.5	46.7	30 ± 1.5	35.18	59 + 4

Note: Load tolerance when new $+\frac{10}{5}$%, wear limit —10%.

[1]) Mount valve spring with close winding resting on cylinder head.

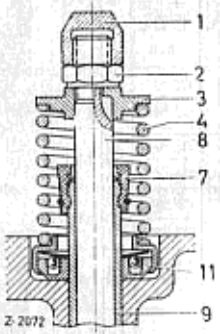


Fig. 05/2

Inlet and exhaust valve

Type OM 621/615

1 Cap nut
2 Counter nut
3 Valve spring retainer
4 Valve spring
7 Valve seal
8 Valve
9 Valve guide
11 Valve rotating device

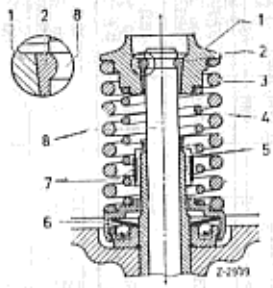


Fig. 05/3

Inlet and exhaust valve

Type M 121/115

1 Valve spring retainer
2 Valve cone half
3 External valve spring
4 Internal valve spring
5 Teflon sealing ring with clamping ring and clamping tape
6 Valve rotating device (Rotocap)
7 Valve guide
8 Valve with round groove for valve cone

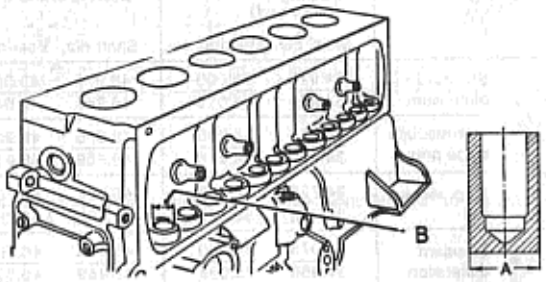


Fig. 05/4

Engine type	Repair stages	Color code	OD of tappet[1]	Tappet bore in cylinder crankcase [2]	Tappet clearance
OM 314	Standard I	none	27.990 / 27.980	28.033 / 28.000	0.010 to 0.053
	Rep. stage I	grey	28.190 / 28.180	28.233 / 28.200	
	Rep. stage II	white	28.490 / 28.480	28.533 / 28.500	
	Rep. stage III	yellow	28.740 / 28.730	28.783 / 28.750	

[1]) refer to Fig. 05/4, Note A
[2]) refer to Fig. 05/4, Note B

Engine type	Version	Bearing 1 (input end)		Bearing 2 and 3	
		Shaft dia.	Bearing dia.	Shaft dia.	Bearing dia.
M 121 M 115	Standard dimension	34.975 34.959	35.000 35.016	48.975 48.959	49.000 49.016
	Intermediate stage grey	34.875 34.859	34.900 34.916	48.875 48.859	48.900 48.916
	Rep. stage 1 red	34.725 34.709	34.750 34.766	48.725 48.709	48.750 48.766
OM 621 OM 615	Standard dimension	34.975 34.959	35.000 35.025	46.475 46.459	46.500 46.525
	Intermediate stage grey	34.875 34.859	34.900 34.925	46.375 46.359	46.400 46.425
	Rep. stage 1 red	34.725 34.709	34.750 34.775	46.225 46.209	46.250 46.275

Note: When grinding camshaft to next repair stage, width "A" of bearing journal must be corrected each time as required (Fig. 05/5).

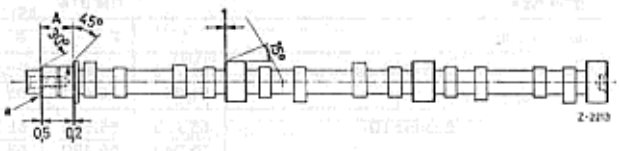


Fig. 05/5

Note: When regrinding bearing points, always grind face "a" to the point where dimension "A" is still maintained (refer to table below).

Camshaft fitted bearing	Width "A" of bearing journal (fitted bearing)	Width of fitted bearing
all types	34.000 34.039	33.950 33.911

Perm. play of center bearing points, of base cam circles and of camshaft gear set when supported in outer bearing points.	
all types	0.025

Camshaft bearing clearances

Type	radial	axial
OM 621/615	0.025 - 0.066	0.050 - 0.128
M 121/115	0.025 - 0.057	0.040 - 0.106

Hardness of cams

all types	Brinell hardness (at least) HB 500	Skleroskop hardness (at least) 70

05 – Camshafts and Camshaft Bearings

Engine type		OM 314		
Bearing point		1	2	3
Standard I	Camshaft dia.	55.710 / 55.691	55.460 / 55.441	55.210 / 55.191
	Bearing ID	55.770 / 55.740	55.520 / 55.490	55.270 / 55.240
Standard II	Camshaft dia.	55.610 / 55.591	55.360 / 55.341	55.110 / 55.091
	Bearing ID	55.670 / 55.640	55.420 / 55.390	55.170 / 55.140
Standard III	Camshaft dia.	55.460 / 55.441	55.210 / 55.191	54.960 / 54.941
	Bearing ID	55.520 / 55.490	55.270 / 55.240	55.020 / 54.990
Rep. stage I	Camshaft dia.	55.210 / 55.191	54.960 / 54.941	54.710 / 54.691
	Bearing ID	55.270 / 55.240	55.020 / 54.990	54.770 / 54.740

Camshaft Bearing Clearances – 05

Engine type		OM 314
Running clearance of camshaft	radial	0.03–0.079
	axial	0.135–0.365
Backlash between	crankshaft gear and camshaft gear injection pump	0.070–0.180
	pinion and intermediate gear or camshaft gear	0.070–0.180
Perm. lateral runout of all control gears		0.010
Perm. runout of camshaft radial [1]		0.020
Hardness	of bearing journals and base cam circles	57–62 HRC
	of high points with pitch line	45–55 HRC

[1] Perm. runout of center bearing point, of cam base circles and of camshaft gear seat when supported in outer bearing points.

05 – Rocker Arms

Engine type	OM 621 OM 615	OM 314
Basic bore dia. in rocker arm	14.000 14.018	22.052 22.000
OD of rocker arm bushing	14.039 14.028	22.106 22.073
ID of rocker arm bushing	12.000 12.018	20.021 20.000
Perm. deviation from parallel between sliding surface and bore at a measuring length of 100 mm	0.1	
Dia. of rocker arm shaft	11.984 11.966	19.980 19.959
Radial clearance of rocker arms on shaft	0.016–0.052	0.020–0.062

Note: On all gasoline engines the rocker arms are no longer mounted on rocker arm shafts, but each individual rocker arm is seated on a ball pin.

If in this version the valve clearance can no longer be adjusted (by turning ball pin top down), a thinner thrust piece can be inserted into valve disc. The thrust pieces are normally 4.5 mm thick and are also available 3.5 mm and 2.5 mm thick.

Engine type	Part No.	Dimension "A" with chain tensioner removed
M 121/115	121 050 06 11	57
OM 621/615	621 050 04 11	74

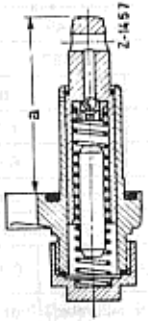


Fig. 05/6 with O-ring seal

Compression spring for chain tensioner

Model	Compression spring Part No.	OD mm	Wire dia. mm	Length unloaded mm	Length under preload mm	kp	Length under final load mm	kp
all Models	621 993 06 01	11.6	1.6	78	50	8.72	44	10.35

At higher altitudes, the mixture of carburetors equipped with a standard nozzle line-up will be too rich; a result of the low air pressure. To prevent such a situation, carburetors should be provided either with Solex altitude correctors or smaller main nozzles.

For altitude adjustment, the main nozzles should always be selected as small as possible, but no excessive drop in output should occur. If the main nozzle is too small or if the nozzle selected for altitude adjustment is often used at normal altitudes under full load, the engine may become too hot by burning the lean mixture.

a) Solex altitude correctors

The installation of altitude correctors together with standard main nozzles will provide the correct composition of the fuel-air mixture for each altitude or any air pressure. This is why altitude correctors are particularly advantageous for vehicles driven both at normal altitudes or higher up.

The bellows installed in the altitude corrector will automatically control the flow of the fuel to the main nozzle in dependence of the pertinently prevailing air pressure.

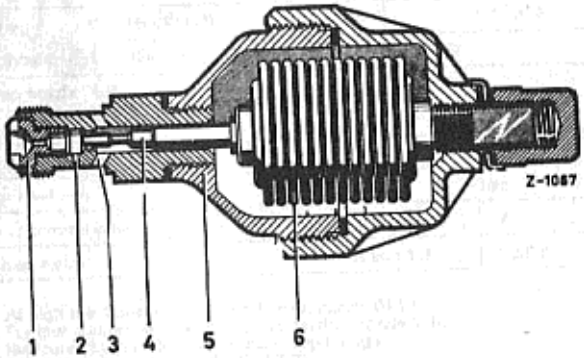


Fig. 07/1

1 Main nozzle
2 Bypass bore
3 Fuel inlet hole
4 Needle
5 Housing
6 Bellows

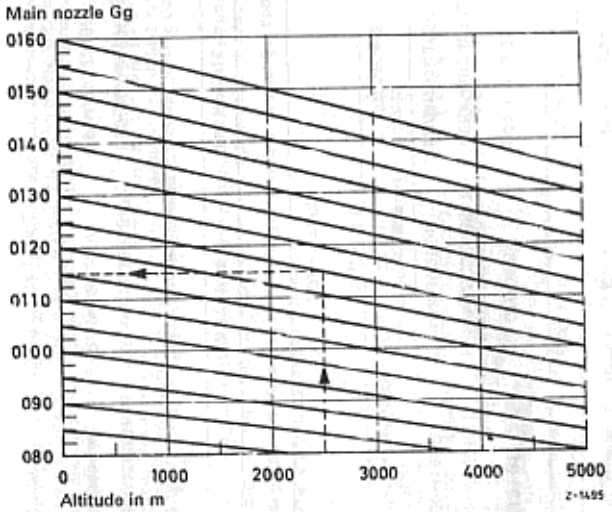


Fig. 07/2

Example: Normal main nozzle: "Gg" 0125
Main nozzle at 2,500 m altitude: "Gg" 0115 (refer to broken line)

Type	Solex altitude corrector		
	Part No.	Bypass bore	Main nozzle "Gg"
M 121/115	000 072 04 05	1.3 mm dia.	0145

b) Smaller main nozzles

Reference values concerning the size of the main nozzles for the individual types are shown in the tables covering carburetor line-up as well as in Fig. 07/2.

Injection pumps with governor and delivery pump installed as standard equipment for operation at altitudes up to 2,000 m above sea level			
Engine type	OM 621	OM 615.910	OM 615.915
Injection pump with governor and delivery pump – DB Part No.	621 070 31 01	615 070 04 01	621 070 39 01
Injection pump - Bosch designation	PES4M50C320RS14	PES4M55C320RS47	PES4M50C320RS14
Governor - Bosch designation	EP/MN60M19DR	EP/MN60M26DR	EP/MN60M25DR
Delivery pump - Bosch designation		FP/K22M6	
Control rod travel including compensation path[1])		14.2 - 14.5	
Test values 001/4 DAI page, date[2])		2.2a - 1.1968	

Injection pumps with governor and delivery pump installed as standard equipment for operation at altitudes above 2,000 m above sea level			
Engine type	OM 621	OM 615.910	OM 615.915
Injection pump with governor and delivery pump - DB Part No.	621 070 28 01	615 070 06 01	621 070 40 01
Injection pump - Bosch designation	PES4M50C320RS14z	PES4M55C320RS47z	PES4M50C320RS14z
Governor - Bosch designation	EP/MN60M15DR	EP/MN60M26DR	EP/MN60M25DR
Delivery pump - Bosch designation		FP/K22M6	
Control rod travel including compensating path[1]) mm		14.2 - 14.5	
Test values 001/4 DAI page, date[2])		2.2a - 1.1968	

Note: Always measure max. speed at no-load, and, if required, adjust control valve accordingly. Never exceed specified max. speeds.

Instead of measuring max. speed at no-load (end of governing) the begin of governing can also be checked and corrected at full load or, on vehicles, the permissible max. speed in 2nd and 3rd gear acc. to tachometer-indication. For permissible max. speeds refer to table covering driving speed. Higher speeds are not permitted for mechanical reasons and because of the risk of dragging oil and dirt out of the air cleaner.

However, accurate checking and adjusting of an injection pump can be performed on an injection test bench only – or by a carbon monoxide analysis of the exhaust gases. Test sheets for the various pump types are available for workshops having an appropriate test bench. These test sheets are supplied on request by the "central service department". The sheets always refer to the latest type of injection pump. In the event of a replacement, always install the pump named or the pertinent exchange pump.

[1]) The indicated control rod travel represents the path of the control rod from full load stop to extreme stop position. With the aid of the specified control rod and compensating travel values, the injection pump can also be checked in an emergency without using a test bench.

[2]) Only those test values and test sheets apply that carry the above or a later date.

Engine type OM 314	Injection pump designation (Bosch)	Governor designation (Bosch)	Delivery pump designation (Bosch)	Test value DAI page date
80 HP	PES4A80C410RS2094	RQV300 . . 1425AB564DL	FP/KS22AD23/2	DAI 3.8a 10.65
85 HP	PES4A90C410RS2294	RQV300 . . 1425AB740L	FP/KS22AD23/2	MB 5.7n 5.71

Note: Injection pump is in begin-of-delivery position, when the marking on the camshaft gear of the injection pump is in alignment with marking on flange of injection pump.

Check and adjust begin of delivery of injection pump in relation to crankshaft following installation of injection pump according to overflow method.

07 – Injection Timer

Engine type		OM 621/615
Bushings	OD	23.980-23.959
	ID	15.000-15.027
	Length	33.65-33.70
	Flange thickness	4.65-4.70
Hub of drive or intermediate gear	Length of hub	28.75-28.80
	Bore dia.	24.000-24.021
Radial play between bushing and hub of drive or intermediate gear		0.020-0.062
Axial play between drive gear or sprocket wheel and flange bushing		0.05-0.20
Axial play between flange bushing and thrust ring or front bearing bushing of intermediate gear shaft		0.05-0.12

Compression springs for injection timer

Engine type	OD	Wire dia.	Length unloaded	Length under preload mm	kp	Length under final load mm	kp
Compression springs, Part No. 636 993 0501, for injection timer							
OM 621/615	11.40	2.25	43.8	43.3	1.4-1.7	37.0	19.3-19.95
Compression springs, Part No. 621 993 0501, for split governor weights							
OM 621	9.45	1.25	20.2			13.2	5

07 – Injection Nozzles (Injectors)

Engine type		Begin of delivery	Injectors Bosch designation	DB Part No.	Opening pressure atü new	used
OM 621		26° v. OT	DNO SD 1510	0000172812	110-120	min. 100
OM 615		24° v. OT				
OM 314	80 HP	21° v. OT	DLLA 150 S 187	0000178621	200-210	min. 180
	85 HP	15° v. OT				

Engine type	Fuel delivery pump Bosch designation
M 121	PE 15 552
M 115	PE 15 552 from middle of 71 PE 15 673
OM 621 OM 615	FP/K 22 M 6
OM 314	FP/KS 22 AD 23

Fuel Delivery Pump – 07

Engine type			M 121/115
Designation of pump			APG diaphragm pump PE 15 552 as from middle of 1971 PE 15 673
Delivery pressure	Measuring point		following pump outlet
	Delivery pressure at starting speed	atü	0.12 - 0.16
	Delivery pressure at idling speed	atü	0.15 - 0.20
Vacuum	Measuring point		prior to pump inlet
	Vacuum at starting speed	atü	0.3 - 0.4
		mm Hg	230 - 320
Engine type			OM 621/615
Designation of pump			Bosch FP/K 22 M 6
Delivery pressure	Measuring point		between inject. pump and fuel main filter
	Delivery pressure at idling speed	atü	0.8 - 15
	at n = 3.000/min	atü	min. 2.2
Delivery end pressure	at idling speed	atü	min. 2.0
	at n = 3.000/min	atü	min. 2.5
Vacuum	Measuring point		prior to pump inlet
	at idling speed	atü	0.2 - 0.4

07 – Fuel Overflow Valve

		Opening pressure of fuel overflow valve (atü)
OM 615	at idling speed	0.8 - 1.5
	at n = 3000/min	min. 2.2
OM 621	at idling speed	1.0 - 1.5
	at n = 3000/min	min. 2.0

13 – Air Compressor

Engine type	OM 314
Make	MB
MB Part No.	321 001 02 13
Number of cylinders	1
Piston dia.	77
Stroke	30
Piston displacement cc	140
Delivery volume lits/min at 1/min	137/2800 at 0 kp/cm² counterpressure 82/2800 t 8 kp/cm² counterpressure
Operating pressure kp/cm²	7.35: 5.6/7.35
Operating speed n = 1/min	1400
Lubrication	[1]

[1]) flanged laterally to crankcase, lubrication by splash oil of engine

Engine type	OM 314		
Cylinder liner	Bore dia.	Piston dia.	Piston clearance
Standard I	77.010 / 76.990	76.980 / 76.970	0.02-0.03
Standard II	77.085 / 77.065	77.055 / 77.045	
Standard III	77.135 / 77.115	77.105 / 77.095	
Rep. stage I	77.260 / 77.240	77.230 / 77.220	
Rep. stage II	77.510 / 77.490	77.480 / 77.470	
Rep. stage III	77.760 / 77.740	77.730 / 77.720	
Rep. stage IV	78.010 / 77.990	77.980 / 77.970	
Gap clearance of piston rings	0.025-0.45		
Side clearance of piston rings	0.01-0.034		

Air compressor crankpin and connecting rod bearing	Crankpin dia.	Bearing bore in installed condition
Standard I	32.000 / 31.984	32.050 / 32.030
Standard II	31.900 / 31.884	31.950 / 31.930
Standard III	31.750 / 31.734	31.800 / 31.780
Rep. stage I	31.500 / 31.484	31.550 / 31.530

Connecting rod bearing clearance	axial	0.030 - 0.066
	radial	0.065 - 0.317
Connecting rod bushing	ID	16.035 / 16.025
	OD	19.048 / 19.035
Piston pin dia.		16.016 / 16.011
Piston pin clearance		0.01-0.04

18 – Drive for Oil Pump, Ignition Distributor and Injection Pump

Engine type				OM 621 OM 615	M 121 M 115
Intermediate gear shaft	Shaft dia.		front	19.980 19.959	19.980 19.959
			rear	29.960 29.927	17.960 17.940
	Bearing bushing bore		front	20.020 20.033	20.020 20.033
			rear	30.020 30.041	18.000 18.018
Helical gear for oil pump drive	Shaft dia.			13.968 13.950	13.968 13.950
	ID of bearing bushing cm Thrust piece or bearing body			14.000 14.018	14.000 14.018
Clearances	Intermediate gear shaft	radial	front	0.040-0.074	0.040-0.074
			rear	0.060-0.114	0.040-0.078
		axial		0.05-0.12	0.05-0.12
	Helical gear for oil pump drive		radial	0.032-0.068	0.032-0.068
			axial	0.1-0.25	0.1–0.25
	Backlash			0.12-0.22	0.12-0.22

OM 314

Drive gear on camshaft Helical gear on oil pump shaft	Backlash
Drive gear on camshaft Drive gear on injection pump shaft	0.070-0.160

Engine type		M 121 M 115	OM 621 OM 615
Delivery at 1/min		350 = 4.62 lits. at 2 atü counterpressure 2,500 = 33.0 lits. at 5 atü counterpressure	
Bore in oil pump housing top and bottom		12.000 12.018	
Drive shaft dia.		11.984 11.973	
Oil pump shaft dia.		11.973 11.964	
Radial play of drive shaft		0.016-0.045	
Play between gear wheel and housing	axial	0.046-0.075	
	radial	0.046-0.057	
Backlash per gear set		0.05-0.15	
Height of gear wheel	mm	22	
Underpressure suction end	mm Qs	400	
Overpressure delivery end	kp/cm²	5	
Oil temperature max.	°C	100[1] 135	100[1] 125

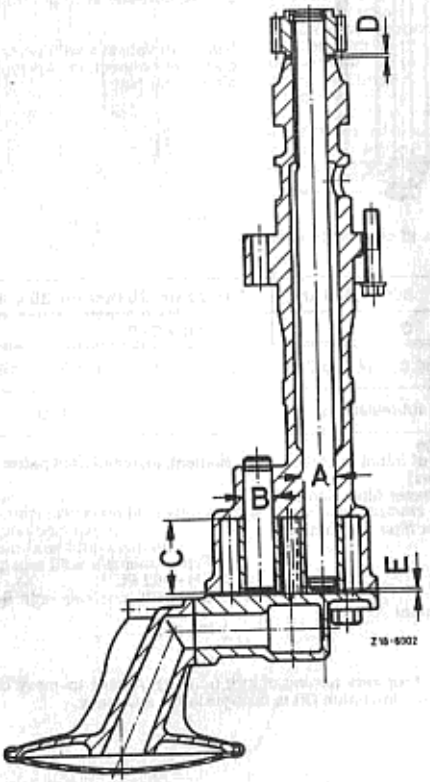
Note: The operational safety of the engine is not impaired as long as the oil pressure at operating temperature and idling speed is not dropping below 0.5 kp/cm² and increases immediately upon acceleration.

1) M 121, OM 621

Engine type		OM 314
Radial play of drive shaft		0.016-0.042
Radial play between oil pump gear wheel and oil pump		0.011-0.040
Overlap between oil pump shaft and housing		0.010-0.039
Radial play of oil pump gear wheels between housing and gear wheel		0.030-0.105
Axial play of oil pump gear wheels between housing cover and gear wheel		0.025-0.089
Backlash of oil pump gears		0.150-0.250
Backlash of oil pump drive gears (helical gears)		0.096-0.128
Number of teeth of oil pump gear wheels		7/7
Test torque helical gear oil pump		7
Test torque oil pump gear wheel (driving)		
Dimension A	Dia. in housing	17.018 / 17.000
	Dia. of drive shaft	16.984 / 16.976
Dimension B	Dia. of oil pump shaft	15.039 / 15.028
	Height of housing for gears	35.025 / 35.000
	Height of oil pump gear wheel	34.975 / 34.936
Dimension C	Installation height of oil pump shaft	34.2 + 0.3
Dimension D	Perm. play between helical drive gear and pump housing upper edge with driving gear resting against upper edge of pump housing	0.04
Dimension E	Installation height of drive shaft	0.5-0.8

Engine type	Height of gear wheel	Pump speed 1/min	Delivery kg/min	Under-pressure suction end mm Qs	Overpressure delivery end kp/cm²	Oil temperature °C
OM 314	29.980 / 29.947	300 / 1400	8.9 / 41	0	max. 8	max. 120

Fig. 18/1



Main flow oil filter with paper filter element

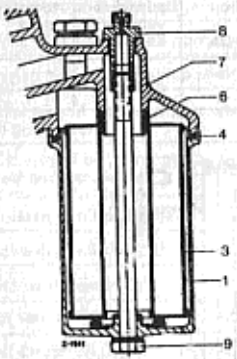


Fig. 18/2

1 Oil filter lower half
3 Main flow paper filter element
4 Rubber sealing ring
6 Rubber sealing ring
7 Oil filter upper half
8 Screw connection
9 Hex. bolt and sealing ring

Note: On vehicles with air-oil cooler the pertinent connections are located on oil filter upper half.

Filter element and oil change intervals

M 121/115	300–1,000 km	10,000 km 20,000 km 30,000 km	etc, at normal operating conditions
	O–I	each time O–P	

Explanation of abbreviations

O = Oil change
I = Removal of initial operation filter element, installation of paper filter element (as follows)
P = Replace paper filter element

Approved paper filter elements

Make	Type
Fram	CH - 962 PL
Knecht	EH 256/1
Mann und Hummel	H 7.70/0
Purolator	PM 205

Note: Watch out for easy turning of hex. bolt (9). A hard-to-move or canted bolt may cause screw connection (8) to become loose and leaky.

Combination main flow and bypass oil filter

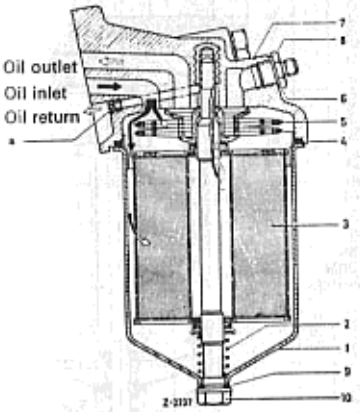


Fig. 18/3

1 Oil filter lower half
2 Compression spring with spring retainer
3 Bypass paper filter element
4 Rubber seal
5 Main flow filter element
6 Sealing ring
7 Oil filter upper half
8 Screw connection
9 Sealing ring
10 Hex. bolt
a Throttle bore

Note: On vehicles with air-oil cooler, the pertinent connections are located on oil filter upper half.

Filter element and oil change intervals

Type	300–1,000 km	5,000 km 10,000 km 15,000 km 20,000 km	etc. at normal operating conditions
OM 621/615	O–I	each time O–M–P	

Explanation of abbreviations

O = Oil change
I = Remove initial operation filter element, install main and bypass filter element (refer to previous page)
M = Clean main flow filter element
P = Replace paper filter element

Approved paper filter elements (bypass filter)

Make	Type
Hengst	E 110 M
Knecht	T 01.1
Mann und Hummel	PF 925
Purolator	T 110/312

Combination main flow and bypass oil filter

1 Oil inlet from oil pump to oil filter
2 Outlet from oil filter to lube points
3 Oil return from bypass filter (micro filter) to oil pan
A Oil filter housing
B Main flow filter
C Lube oil filtered by main flow filter
D Bypass filter (micro filter)
E Partial quantity of filtered oil of (C) is forced in micro-filtered condition through bypass filter into chamber F
G Oil return of partial quantity of micro-filtered oil through clamping bolt via return flow bore in filter head to oil pan, so that the entire oil charge is microfiltered in a given, major period.
H Clamping screw
J Oil filter head

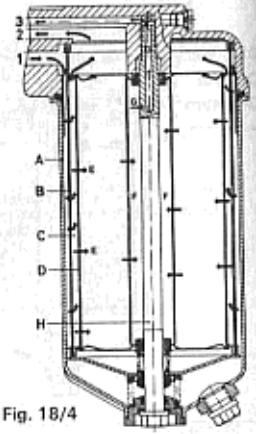


Fig. 18/4

Filter element and oil change intervals

Oil change: at 300–1,000 km, at 10,000 km and then every 10,000 km at normal operating conditions.

Oil filter version: Strainer filter (main flow filter), micro filter filter cartridge (bypass filter).

OM 314	300–1.000 km	10.000 km	20.000 km	etc.
	O–M–P	O–M–P	O–M–P	

Explanation of abbreviations:
O = O = Oil change
M = Clean main flow filter element
P = Replace bypass filter element

Note: The oil should never remain in engine for more than 6 months. When driving less than 10,000 km during this period, the change from winter to summer operation serves to fill up with fresh oil.

Caution: Drain oil only when engine is warm.

Engine type	Part No. of spring	OD	Wire dia.	Length unloaded	Length under preload mm	kp	Length under final load mm	kp	Opening pressure of oil pressure relief valve atü
in cylinder crankcase[1]									
M 121, OM 621 M 115, OM 615	127 993 02 01	8.7–9	1.3	43.6	39	2	30.5	5.25–5.95	4.5–5.5
OM 314	326 993 04 01	9.3 9.3	1.7 1.7	49.4 49.4	45.4 47.9	4.39 1.65	36.2 40.9	14.5 9.4	8 ± 0.5 5.2[1]
in oil filter									
M 121 OM 621	181 993 06 01	12.25	1.25	49	32	2.26	24	3–3.6	2.2–2.5
OM 314	314 993 02 01	16.5	1.5	66	31	4.5 ± 0.3	21 ± 0.5	5.7	1.6 - 2.6

Oil pressure gauge: The operational safety of the engine is not endangered, as long as the oil pressure at operating temperature and idling speed does not drop below 0.5 kp/cm² and increases immediately upon acceleration.

[1] For OM 314 in oil pump
[2] When installing closing plug DB No. 3 529 970 130 (without code No. "g")
b) When installing oil pressure relief valve DB No. 3 521 800 315
c) as from engine No. 107 235

Water pump	Water pump without water pump housing and pulley Part No.	Distance a and b	Fig.
M 121 OM 621	121 200 06 20	a = 22.8–23.2 b = 88.8–89	20/1
M 115 OM 615	121 200 11 20	a = 22.8–23.2 b = 88.55–89.45	20/2

Cooling water thermostat	Cooling water thermostat insert wax thermostat with bypass control (Fig. 20/3 and 4)	Main valve			Perm. leak water quantity at 1 atü and 15–20°C
		Begin of opening (pressureless) at °C	Working stroke "a" (pressureless) in mm	at °C	lits/h
M 121 M 115 OM 621 OM 615	Part No. 001 203 89 75 optionally 001 203 90 75	78–80	8	91–94	0–10
	Winter thermostat Part No. 001 203 91 75	86–88	8	99–102	0–10

Caution! Install cooling water thermostat insert in such a manner that ball valve is at max. position.

Type M 121, OM 621

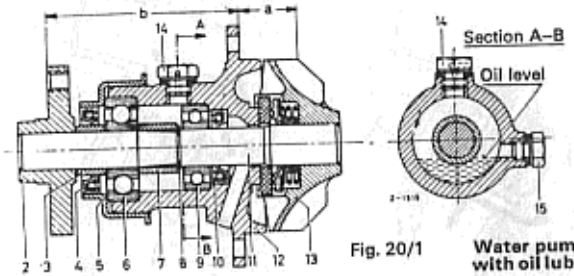


Fig. 20/1 **Water pump with oil lubrication**

2 Hub
3 Intermediate ring
4 Sealing ring
5 Sealing ring holder
6 Grooved ball bearing
7 Spacing sleeve
8 Locking ring
9 Grooved ball bearing
10 Sealing ring
11 Water pump shaft
12 Bearing housing
13 Impeller
14 Filler plug with venting hole
15 Oil level inspection plug

Note: The slip ring seal with spring used up to now has been replaced by a slide ring seal as shown in Fig. 20/2.

Model M 115, OM 615

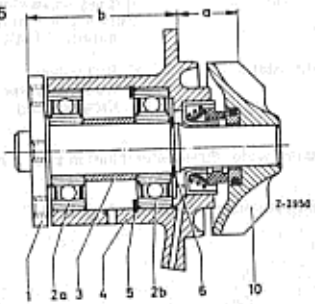
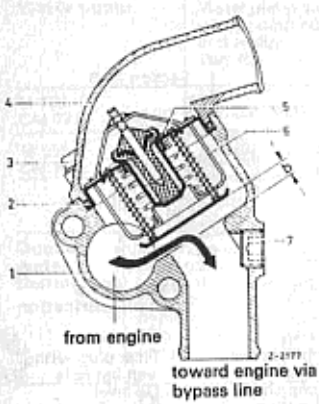


Fig. 20/2 **Service-free water pump**

1 Hub with water pump shaft
2a Front ball bearing
2b Rear ball bearing
3 Spacing sleeve
4 Bearing bushing
5 Locking ring
6 Locking ring
10 Impeller



Cooling water thermostat with wax thermostat insert and bypass control

Fig. 20/3

Main valve closed
Bypass valve fully opened
Stroke = 6–7.5 mm
at 0 to approx. 78° C

Fig. 20/4

Main valve opened
Bypass valve closed
Stroke a = 8 mm
at approx. 91–94° C

1 Cooling water thermostat
2 Sealing ring
3 Hex. bolt
4 Cover

5 Ball valve
6 Cooling water thermostat insert [1])
7 Closing plug

Caution! Install cooling water thermostat insert in such a manner that ball valve is at highest position.

[1]) Cooling water thermostat insert is shown offset by 90°.

20 – Water Pump

Engine type		OM 314
Water pump shaft dia.	on impeller seat	15.039 / 15.028
	small bearing	30.009 / 29.996
	large bearing	17.008 / 16.997
Bore dia. in impeller		15.000 / 15.018
Shaft dia. for hub		29.048 / 29.035
Bore dia. in hub		29.000 / 29.021
Hub dia. for sealing ring		42.011 / 41.995
Shaft dia. for rear sealing ring		17.008 / 16.997
Pressing impeller on water pump shaft		Impeller flush at shaft end
Reference dimension "a" refer to Fig. 20/5		119 ± 0.5
Distance "J" refer to Fig. 20/5		0.6 + 0.2
Distance "K" refer to Fig. 20/5		0.2 + 0.1
Lubrication of water pump (grease)		approx. 35 grams

20 – Cooling Water Thermostat

Engine type			OM 314	
MB Part No.			–	
Water flow rate (leak water quantity) of main valve at 1 kp/cm² and 20°C in lits/min			1	
Opening begins at		°C	79 ± 1	
Main valve	Stroke in mm	a	8	refer to Fig. 20/6 Note a
	Fully opened at	°C	94 ± 1	
Bypass valve	Stroke in mm	b	6 - 7.5	refer to Fig. 20/7 Note b
	Closed at	°C	79 - 1	

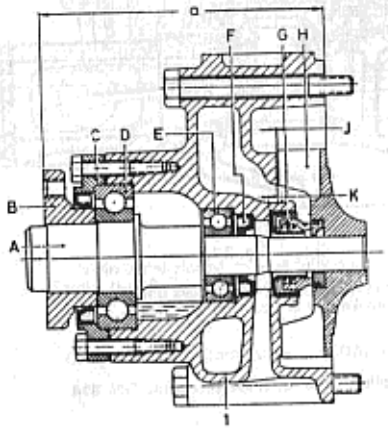


Fig. 20/5 Water pump OM 314

1 Water pump housing
a Reference dimension
A Water pump shaft
B Hub
C Holder with front oil sealing ring
D Large grooved ball bearing
E Small grooved ball bearing
F Rear oil sealing ring
G Slide ring seal
H Impeller
J Distance between impeller and housing
K Distance between slide ring seal and housing

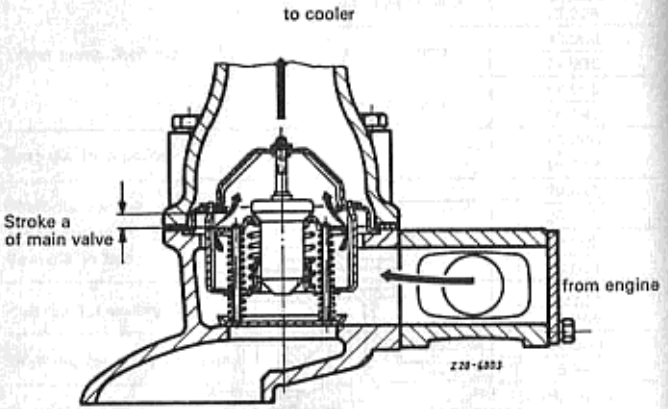


Fig. 20/6

Main valve opened, bypass line closed
Stroke a = 8 mm at approx. 94 ± 1 °C

Cooling water thermostat, engine OM 314

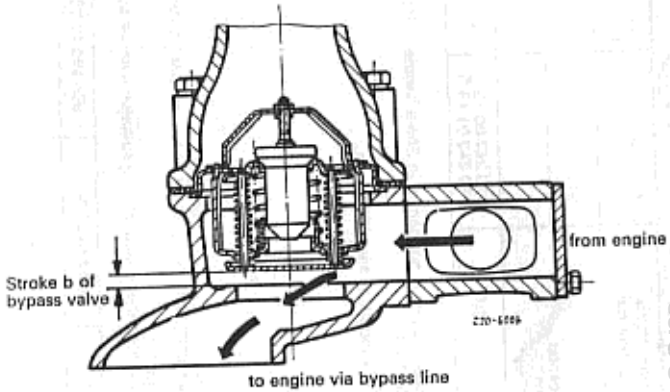


Fig. 20/7

Main valve closed, bypass fully opened
Stroke b = 6–7.5 mm at 0 to approx. 79–1 °C

Cooling water thermostat, engine OM 314

Engine type	Installation position front	Part No.	Installation position rear	Part No.	Shore hardness
OM 621/615 M 121/115	right and left	309 241 02 13	center	319 240 00 18	1)
OM 615.915[3] OM 615.917[3]		615 220 02 16 615 220 03 16		–	
OM 314	right and left	314 223 01 12	right and left	310 242 00 13 310 242 01 13 [2]	40

1) For prechamber and carburetor engines the softness of the rubber mounts is not named in Shore hardness. Here, the dimension is the change in height of mount at 100 kp static load.
   a) Rubber mount front: total height under load 57 mm.
   b) Rubber mount rear: upper edge of face end to upper edge of supporting area 53+2 mm.
2) L 508 D as from chassis No. 083 265–083 345
   L 508 D as from chassis No. 083 451– . . . . .
   L 608 D as from chassis No. 015 634–015 658
   L 608 D as from chassis No. 015 755– . . . . .
   O 309 D as from chassis No. 011 659–011 665
   O 309 D as from chassis No. 011 685– . . . . .
3) L 206 D, L 306 D

Engine type	Part No.			
	front left	front right	rear left	rear right
OM 314	309 240 10 06	309 240 11 06	309 240 12 06	309 240 13 06

Note: If for some reason or other the brackets for engine mounts require replacement, special attention must be paid to correct installation in vehicles with OM 314 engine (compare Part No.).

If the brackets are interchanged in relation to each other, the engine installation position will be wrong. The following reference dimensions apply when checking for correct installation:

Frame outer edge front left to center engine mount 148.5 mm
Frame outer edge front right to center engine mount 158.5 mm
Frame outer edge rear left to center engine mount 113.5 mm
Frame outer edge rear right to center engine mount 123.5 mm

Driven plate			
Model	Version	Fichtel + Sachs designation	Part No.
L 408 0309	1	228 GSBL	001 250 2003
L 406 D 0309 D	1	228 SZ	001 250 4603
L 408 D L 508 D L 608 D O 309 D [1]	1	250 HBXZ	001 250 0603
L 206 D L 306 D	1	228 CBL	608 250 0003
Clutch pressure plate			
L 408 0309 L 406 D 0309 D	1	TK 228 KX	000 250 7004
L 408 0309	2		000 250 8904
L 408 D L 508 D L 608 D 0309 D [1]	1	HBX 250	000 250 9904
L 408 D L 508 D L 608 D 0309 D [1]	3		001 250 7504
L 206 D L 306 D	1	TK 228 KX	608 250 0004

Version 2) Installation of reinforced clutch pressure plates for model designation 309.00–02 as from chassis No. 004 013, model designation 309.07–08 as from chassis No. 000 788, as from January 5, 1971.

Version 3) Installation of reinforced clutch pressure plates for model designation 309.30–32, 309.40–42 as from chassis No. 052 700, model designation 309.37–38 as from chassis No. 005 880, model designation 310.3 as from chassis No. 006 100, as from March 20, 1970.

[1]) OM 314

Diven plate Model	L 406 D. O 309 D[1])	L 408. O 309 B	L 408 D. L 508 D L 608 D.O 309 D[2])	L 206 D. L 306 D
Part No.	001 250 46 03	001 250 20 03	001 250 06 03	608 250 00 03
Fichtel + Sachs designation	228 SZ	228 GSBL	250 BHXZ	228 CBL
Facing designation	Breku 044 or Textar 50 S 17		Breku 053	
Thickness of driven plate loaded	8.8 ± 0.3	9.1 ± 0.25	9.1 + 0.3	9.3 ± 0.3
Thickness of driven plate unloaded	9.3 ± 0.3	9.8 ± 0.25	9.8 + 0.3	10.1 ± 0.3
Thickness of lining per lining	3.5			4
Perm. wear of lining each end	1.0		1.5	1
Perm. unbalance of driven plate (cmp)	5.0		20.0	5.0
Perm. lateral runout of driven plate	0.5			
Perm. radial play on input shaft	0.05			

[1]) with engine OM 615
[2]) with engine OM 314

Clutch pressure plate Part No.	000 250 70 04	001 250 89 04	000 250 99 04	001 250 75 04	608 250 00 04
Fichtel + Sachs designation	TK 228 KX	TK 228 KX	HB X 250	HBX 250	TK 228 KX
Reference dimension between cover plate and throwout levers with new driven plate	(refer to Fig. 25/1, note e) 7.0		(refer to Fig. 25/2, note b, b[1]) 23.0		7.0
with worn driven plate	18.0		7.0		18.0
Adjusting dimension for assembly of clutch (between throwout levers and clutch surface)	(refer to Fig. 25/1, note d) 36.8		–		41 ± 0.4
Throwout path of throwout levers max.	10.0		10.0		10.0
Path of throwout levers caused by wear of driven plate	11.0		18.0		11.0
Idle travel between throwout bearing and throwout levers (lash)	2.0 (refer to Fig. 25/1, note f)		3.0		2–3
Clutch pedal lash	25–30		30–35		25–30
Max. perm. deviation of throwout levers in relation to each other	0.3		0.3		0.4
Thickness of pressure plate	(refer to Fig. 25/1, note c) 16.5		(refer to Fig. 25/2, note B) 32.5		16.5
Perm. material removal of pressure plate for repairs	1.0		1.0		1.0
Perm. unbalance of pressure plate (cmp)	15.0		25.0		20.0
Contact pressure when new (kp)	470	537.5	590	700 ± 30	440 ± 20
Adjusting dimension measured from throwout lever to measuring plate	–	–	(refer to Fig. 25/2, note A) 42.7 ± 0.5		
Thickness of measuring plate	–	–	(refer to Fig. 25/2, note a) 9.3 ± 0.01		

[1]) When removing more than 0.5 mm from pressure plate, ground steel discs having the thickness of the total material removed must be placed between the clutch springs and the spring sleeve or insulating washers to reestablish the original spring pressure.

a = Distance between clutch surface and fastening surface of clutch pressure plate

b = Thickness of driven plate

c = Thickness of pressure plate

d = Adjusting dimension between throwout levers and clutch surface of clutch pressure plate

e = Reference dimension between cover plate and throwout levers

f = Idle path between throwout levers and throwout bearing

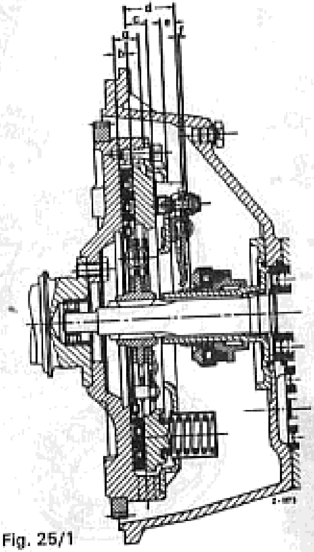


Fig. 25/1

A = Adjusting dimension measured from throwout lever to measuring plate

a = Thickness of measuring plate

B = Total height of clutch pressure plate

b = Reference dimension between cover plate and throwout levers

b_1 = Reference dimension, when this dimension is attained, the facings are worn out

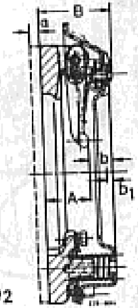


Fig. 25/2

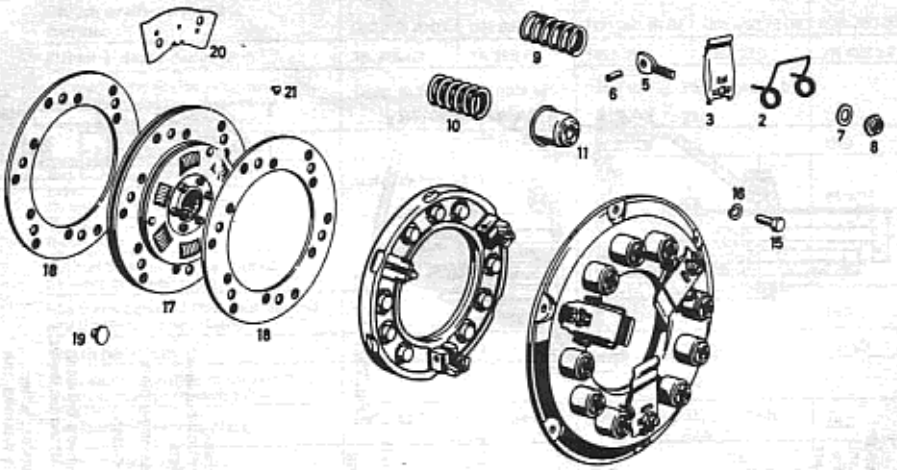
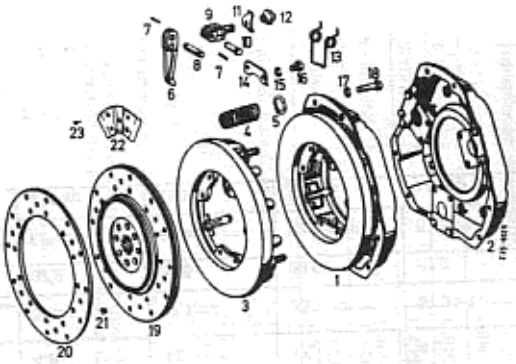


Fig. 25/3 Clutch TK 228 KX with driven plate

1 Clutch cover plate
2 Leg spring
3 Throwout lever
4 Pressure plate
5 Swivel pin
6 Set pin
7 Ring
8 Adjusting nut
9 Clutch spring
10 ditto
11 Spring sleeve
15 Hex. screw
16 Snap ring
17 Driven plate
18 Clutch facing
19 Hollow rivet
20 Leaf spring
21 Rivet

Fig. 25/4 Clutch HBX 250 with driven plate

1 Clutch
2 End plate
3 Pressure plate
4 Compression spring
5 Insulating washer
6 Throwout lever
7 Needle
8 Shaft (throwout lever)
9 Bracket
10 Shaft (bracket)
11 Leaf spring
12 Adjusting nut
13 Leg spring
14 Reinforcing plate
15 Snap ring
16 Hex. screw
17 Snap ring
18 Hex. screw
19 Driven plate
20 Clutch facing
21 Rivet for facing
22 Intermediate spring
23 Rivet for intermediate spring



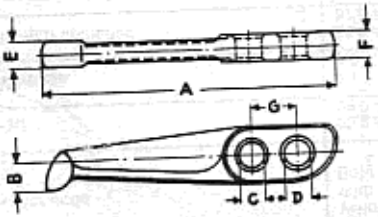


Fig. 25/5

Throwout levers and needles of clutch HBX 250

Dimension "A" mm	Dimension "B" mm	Dimension "C" a. "D" mm	Dimension "E" mm	Dimension "F" mm	Needles per bore	Dia. of needles mm
~ 93	4.5	$11^{+0.018}$	$9.3^{+0.15}$	$9.3^{+0.15}$	19	1.5

25 – Clutch

Clutch springs Part No.	3 × 000 252 18 20 6 × 000 252 47 20	9 × 000 252 18 20	9 × 000 252 47 20	9 × 000 252 63 20	9 × 000 252 47 20
Fichtel + Sachs Part No.	1805 074 001 1805 007 001	1805 074 001	1825 015 001	1830 324 001	1805 007 001
Color code	yellow with gold gold	yellow with gold	light blue with gold bronze stripe	colorless varnished or colorless with gold stripe	colorless with gold stripe
OD	28.6 ± 0.25 29.0 ± 0.2	28.6 ± 0.25	27.4 ± 0.25	28.3 ± 0.25	29.0 ± 0.2
Wire dia.	4.1 4.0	4.1	4.2	4.5	4.0
Length unloaded	55.0 ± 1.5 57.0 ± 1.5	55.0 ± 1.5	57.7 ± 2	56.5 ± 2	57.0 ± 1.5
Length loaded	37.2	37.2	39.5	39.5	37.2
Load	62 ± 3 kp 51 ± 2.5 kp	62 ± 3 kp	69 kp	82 ± 4 kp	51 ± 2.5 kp
Throwout force	150 kp	171 kp	150 kp	175 kp	175 kp

Transmission designation		Installed in	
new	old	Vehicle model	Engine
ZF 4 DS 10		L 206 D, L 306 D	OM 615.915
ZF 4 DS 10/2 [1]		L 206 D, L 306 D	OM 615.917
G 1/15 - 4/5.455	G 15 - 4/5.455	L 408, O 309 L 406 D, O 309 D	M 121/115 OM 621/615
G 2/24 - 5/6.71	G 20 - 5/6.71	L 408 D, L 508 D L 608 D [2], O 309 D	OM 314

[1]) Installed as from Chassis No.

607 . . . 205 225
608 . . . 201 305 — in Bremen

607 2.4 t . . . 101 976
607 2.7 t . . . 102 031
608 3.0 t . . . 101 673
608 3.3 t . . . 101 758 — in Hamburg-Harburg

[2]) Up to chassis No. 008 558 G 20–5/7.31 or G 2/24–5/7.31

Note: To provide the most important transmission data for MB transmissions in the transmission designation, the previous designations have been changed as follows

Example: G 2 / 24 – 5 / 6.71

- 6.71 — 1st gear ratio
- 5 — Number of gears
- 24 — Max. input torque in kpm
- 2 — Series
- G — Transmission

Clutch springs Part No.	3 × 000 252 18 20 6 × 000 252 47 20	9 × 000 252 18 20	9 × 000 252 47 20	9 × 000 252 63 20	9 × 000 252 47 20
Fichtel + Sachs Part No.	1805 074 001 1805 007 001	1805 074 001	1825 015 001	1830 324 001	1805 007 001
Color code	yellow with gold gold	yellow with gold	light blue with gold bronze stripe	colorless varnished or colorless with gold stripe	colorless with gold stripe
OD	28.6 ± 0.25 29.0 ± 0.2	28.6 ± 0.25	27.4 ± 0.25	28.3 ± 0.25	29.0 ± 0.2
Wire dia.	4.1 4.0	4.1	4.2	4.5	4.0
Length unloaded	55.0 ± 1.5 57.0 ± 1.5	55.0 ± 1.5	57.7 ± 2	56.5 ± 2	57.0 ± 1.5
Length loaded	37.2	37.2	39.5	39.5	37.2
Load	62 ± 3 kp 51 ± 2.5 kp	62 ± 3 kp	69 kp	82 ± 4 kp	51 ± 2.5 kp
Throwout force	150 kp	171 kp	150 kp	175 kp	175 kp

Transmission designation		Installed in	
new	old	Vehicle model	Engine
ZF 4 DS 10		L 206 D, L 306 D	OM 615.915
ZF 4 DS 10/2 ¹)		L 206 D, L 306 D	OM 615.917
G 1/15 - 4/5.455	G 15 - 4/5.455	L 408, O 309 L 406 D, O 309 D	M 121/115 OM 621/615
G 2/24 - 5/6.71	G 20 - 5/6.71	L 408 D, L 508 D L 608 D²), O 309 D	OM 314

¹) Installed as from Chassis No.

607 . . . 205 225 — in Bremen
608 . . . 201 305

607 2.4 t . . . 101 976 — in Hamburg-Harburg
607 2.7 t . . . 102 031
608 3.0 t . . . 101 673
608 3.3 t . . . 101 758

²) Up to chassis No. 008 558 G 20–5/7.31 or G 2/24–5/7.31

Note: To provide the most important transmission data for MB transmissions in the transmission designation, the previous designations have been changed as follows

Example: G 2 / 24 – 5 / 6.71

- 6.71 — 1st gear ratio
- 5 — Number of gears
- 24 — Max. input torque in kpm
- 2 — Series
- G — Transmission

26 – Transmission Ratio

G 1/15 - 4/5.455		Const.	1st gear	2nd gear	3rd gear	4th gear	5th gear	reverse gear
Number of teeth	Z 2 / Z 1	30 / 14	28 / 11	24 / 19	18 / 25	—	—	17 / 12 — 25 / 17
Ratio i =		2.143	2.545	1.263	0.72	—	—	2.083
Total ratio i =		—	5.455	2.707	1.543	1.0		4.464
G 2/24 - 5/6.71								
Number of teeth	Z 2 / Z 1	38 / 17	39 / 13	33 / 19	26 / 25	21 / 33	—	41 / 14
Ratio i =		2.235	3.0	1.735	1.04	0.637	—	2.925
Total ratio i =		—	6.71	3.88	2.32	1.42	1.0	6.55
G 2/24 - 5/7.31								
Number of teeth	Z 2 / Z 1	39 / 16	39 / 13	33 / 19	26 / 25	21 / 33	—	41 / 14
Ratio i =		2.44	3.0	1.735	1.04	0.637	—	2.925
Total ratio i =			7.31	4.23	2.53	1.55	1.0	7.14

Transmission designation	G 1/15 - 4/5.455	G 2/24 - 5/6.71
Axial play of input shaft between grooved ball bearing and front transmission case cover[1])	0.02 - 0.04	
Axial play of main shaft[1]) between grooved ball bearing and rear transmission case cover (note I)	0.02 - 0.04	
Axial play of countershaft [1]) [2])	0.02 - 0.04	
Adjustment of countershaft: Dimension from face of large gear wheel (constant wheel) of countershaft to flat surface of transmission case [3])	14.0 ± 0.1	14.5 ± 0.1

Note: All notes refer to Fig. 26/1
[1]) in built-in condition with gasket compressed
[2]) Note F
[3]) Note K

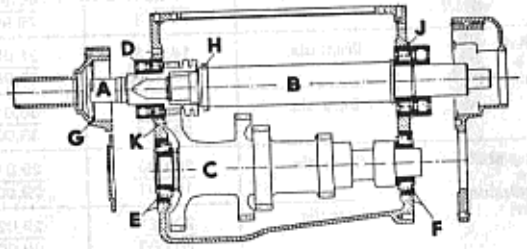


Fig. 26/1

Synchromesh transmission

A Input shaft
B Main shaft
C Countershaft
D Bearing
E Axial play
F Add compensating washers if required, until gear pairs are in alignment
G Lug ring
H Thrust washer (lock ring)
I Circlip
K Dimension (from parting surface to face of blocking gear)

26 – Dimensions and Tolerances of Shaft Bearings

Transmission designation		G 1/15 - 4/5.455	G 2/24 - 5/6.71
Countershaft and bores in transmission case front and rear	Shaft dia.	25.005 24.996	30.005 29.996
	Bore dia.	62.013 61.994	72.013 71.994
Main shaft and bore in transmission case rear	Shaft dia.	29.996 29.991	40.013 40.002
	Bore dia.	72.013 71.994	80.013 79.994
Input shaft and bore in crankshaft	Shaft dia.	14.994 14.983	19.980 19667
	Bore dia.	60.000	47.003 46.987
Input shaft and bore in transmission case	Shaft dia.	30.009 29.996	40.013 40.002
	Bore dia.	71.994 72.013	80.013 79.994
Main shaft and bore in input shaft	Shaft dia.	19.993 19.980	27.993 27.984
	Bore dia.	28.000 28.013	38.016 38.000
Reversing shaft and bore in transmission case front	Shaft dia.	20.000 19.987	29.015 29.002
	Bore dia.	20.021 20.000	29.021 29.000
Reversing shaft and bore in transmission case rear	Shaft dia.	20.000 19.987	30.035 30.022
	Bore dia.	20.021 20.000	30.021 30.000
Bearing of countershaft front and rear in transmission case	OD	62	72
	ID	25	30
	Width	18.25	20.75
	Radial play	0.02	0.02

Transmission designation		G 1/15 - 4/5.455	G 2/24 - 5/6.71
Bearing of main shaft rear in transmission case	OD	72	80
	ID	30	40
	Width	19	18
	Radial play		0.025-0.040
Bearing of input shaft in crankshaft	OD		47
	ID		20
	Width		14
	Radial play		0,02
Bearing of input shaft in transmission case	OD	72	80
	ID	30	40
	Width	19	18
	Radial play	0.02	0.025-0.040

26 – Bushings for Bearings of Gear Wheels

Lengths of flange bushings		G 1/15-4/5,455	G 2/24-5/671
1st gear		–	39.4 39.5 39.6 39.7 39.8 39.9 40.0 40.1
2nd gear		–	35 + 0.03
3rd gear		–	39.7 - 39.8
Bushing 1st gear wheel	Version	roller assembly	flange bushing
	Needle bearing seat dia.	2×18 cyl. rollers	53.460 / 53.447
	Length	3.5×8 DIN 5402	39.4 - 40.1 steps of 0.1
Bushing 2nd gear wheel	Version	split roller assembly	synchro-nizing body
	Needle bearing seat dia.	2×18 cyl. rollers	53.460 / 53.447
	Length, bearing seat	3.5 x 8 DIN 5402	35 + 0.03
Bushing 3rd gear wheel	Version	needle cage	flange bushing
	Needle bearing seat dia.	–	53.460 / 53.447
	Length, bearing seat	40x35x31	39.7-39.8
Bushing 4th gear wheel	Version	–	synchro-nizing body
	Needle bearing seat dia.	–	53.460 / 53.447
	Length, bearing seat	–	33.3 + 0.05

Reverse gear		G 1/15 - 4/5.455	G 2/24-5/6.71
Reversing shaft dia.		20.000 / 19.987	29.993 / 29.980
Bushing in reversing gear	ID	20.022 / 20.053	30.065 / 30.062
	OD	25.022 / 25.031	35.119 / 35.080
Bore dia. in reversing gear		25.000 / 25.021	35.025 / 35.000
Countershaft			
Countershaft dia. for countershaft gear wheels		35.033 / 35.017	42.042 / 42.026
Countershaft gear wheel for 2nd and 3rd gear, bore dia.		35.000 / 35.016	–
Countershaft gear wheel for 4th gear, bore dia.		–	42.025 / 42.000
Countershaft gear wheel for constant gear, bore dia.		34.994 / 35.010	42.025 / 42.000

Synchromesh transmission		G 1/15-4/5.455	G 2/24-5/671
Axial pressure for disengaging sliding sleeves in kg		7 - 11	10 - 13
Slot width of sliding sleeve		8.4	11.8 + 0.1
Reference dimension when placing synchro-nizing cone against internal cone	1st–3rd gear 4th gear in repair case up to 1st gear	1.3 1.0 0.5	max. min. $2.1\ ^{+0.1}_{-0.15}\ 1.1$
	2nd–4th gear		$2.0\ ^{+0.1}_{-0.15}\ 1.0$
	5th gear		$1.7\ ^{+0.1}_{-0.15}\ 0.7$

26 – Synchromesh Transmissions

	G 1/15-4/5.455	G 2/24-5/6.71
Thickness of thrust washers for main shaft		5.55 5.65 5.75 5.85 5.95 6.05 6.15 6.25 6.35 6.45 6.55

Springs of synchromesh transmission

G 2/24 - 5/6.71	OD	Wire dia.	Length unloaded	Length under load preloaded		final load	
	mm	mm	mm	mm	kg	mm	kg
Compression spring 1st to 5th gear	5.0	0.9	26.1	21.4±0.2	2.7	19±0.2	4.2
Restoring spring 1st to 5th gear	8.0	0.63	15.5	18.2	0.5	21	0.75
G 1/15 - 4/5,455							
	6.0	0.8	11.6	8.3	1.8	7.1	2.5

26 – Sealing Rings

	G 1/15 - 4/ 5.455	G 2/24 - 5/6.71
Sealing ring input end	Radial sealing ring 28 x 40 x 7	1 Radial sealing ring 33 x 50 x 8
Input shaft dia.	29.900 29.848	33.000 32.900
Sealing ring transmission case cover rear	Sealing ring 38 x 52 x 10	Radial sealing ring B 48 x 65
Coupling flange dia. of running surface new	38.000 37.840	48.000 47.900
when repaired	37.340	–

ZF 4 DS 10 ZF 4 DS 10/2	1st gear	2nd gear	3rd gear	4th gear	reverse gear
Number of teeth Z 2 / Z 1	41/10	41/18	41/30	33/38	39/10
Ratio i =	4.1	2.28	1.37	0.87	3.9

	13" and 14" wheels	15" wheels	Tractor head and six-wheel chassis
Ring gear Z / Pinion Z	37/7	41/7	39/6
Ratio i =	5.28	5.86	6.5

Adjusting data	
Axial play of axle flanges	0.1
Axial play of all gear wheels	0.1 - 0.15
Backlash between pinion and ring gear	0.12 - 0.16
Preload of input shaft	0,05

I	II	III	IV	V	VI	VII	A_1	B_1	C_1
L 406 D/29 L 406 D/35	60/4200	G 15 - 4/5.455 or G 1/15 - 4/5.455	0,662	b	35/2800	13.5	1295 1845	157 177	79
L 408/29 L 408/35	75/4400				35/2500	15.1	1295 1845	157 177	
L 408/29 L 408/35	85/5000				40/2500	17.3	1295 1845	157 177	

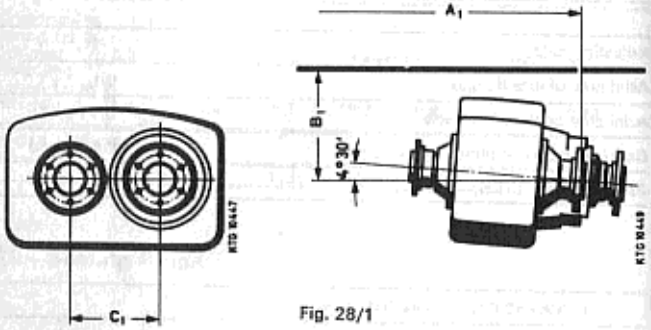


Fig. 28/1

Explanations for tables showing intermediate transmission and pto

I Vehicle model – wheel base
II Engine output in HP at 1/min
III Transmission designation
IV Transmission ratio i; nNA = ixn engine
V Direction of rotation seen in driving direction
a = counterclockwise, b = clockwise
VI Continuous output at pto in HP as from engine speed
VII Attainable torque at pto or intermediate transmission at continuous output in kpm

A_1 Dimension from rear edge of clutch flange or from cone of shaft stub up to center of front axle

B_1 Dimension from center of clutch flange or shaft stub up to upper edge of chassis frame. On L 206 D, L 306 D up to upper edge of bolt head of engine suspension

C_1 Dimension from center of clutch flange or shaft stub to center of vehicle

Bore dia. in housing for transmission suspension		19.521 19.500
Bolt dia.		19.541 19.528
Bore dia. in housing for bearings	Main shaft	72.013
	Output shaft	71.994
Main shaft dia.		35.000 34.989
Output shaft dia.		35.000 34.989
Bore dia. for detent rod in case		16.110 16.000
Detent rod dia.		15.984 15.957
Bore dia. in shift lever		15.027 15.000
Backlash of gear wheels		0.08-0.12
Axial play	Main shaft	0.02-0.08
	Output shaft	0.05-0.1

Shift spring for detent rod

Part No.	OD	Wire dia.	Length unloaded
319 993 02 01	8	1.5	18

28 – Intermediate Gear Units

Designation	OD	ID	Width	Radial play
Bearing of main shaft front and rear in transmission case				
Grooved ball bearing 6306 DIN 625	72	30	19	0.008 - 0.022
Bearing of input shaft front and rear in transmission case				
Grooved ball bearing 6306 DIN 625	72	30	19	0.008 - 0.022
Bearing of input shaft in main shaft				
INA needle bearing NKI 20/16 000 981 57 10	32	20	16	0.02 - 0.04
Bearing of drive gear on input shaft				
2 INA needle cages KS 35 000 981 13 84	42	35	18	0.01 - 0.04

I	II	III	IV	V	VI	VII	A_1	B_1	C_1
L 408 D	80/2800	G 20-5/6.71 or G2/24-5/6.71	0.662	b	60/2500	28	605	197	201
			1.514	a		13	611	138	178
L 508 D	85/2800	G 20-5/7.31	0.607	b		28	605	197	201
L 608 D		G2/24-5/7.31	1.390	a		13	611	138	178

For explanations refer to page 176

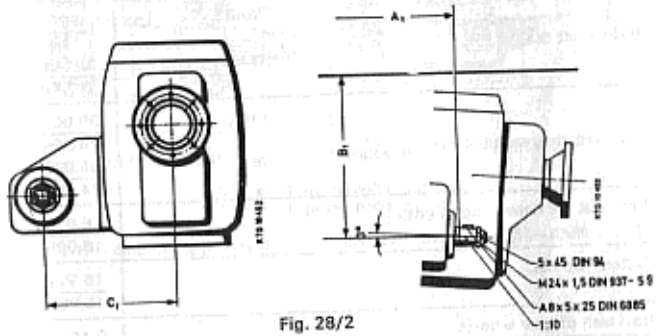


Fig. 28/2

Transmission ratio	slow	0.662 [1]	0.607 [2]
	fast	1.514	1.390
Bore dia. in case	front		52.004 / 51.985
	rear		62.004 / 61.985
Bore dia. for intermediate gear shaft in case	front		30.021 / 30.000
	rear		25.021 / 25.000
Main shaft dia.	front		20.005 / 19.996
	rear		30.005 / 29.996
Intermediate gear shaft dia.	front		30.005 / 29.996
	rear		25.005 / 24.996
Bore dia. for detent rod in case			16.018 / 16.000
Detent rod dia.			15.994 / 15.983
Backlash of gear wheels			0.10 - 0.20
Axial play of main shaft			0.4 - 0.5

[1]) In combination with G 20–5/6.71 or G 2/24–5/6.71 = 0.662 slow / 1.514 fast

[2]) In combination with G 20–5/7.31 or G 2/24–5/7.31 = 0.607 slow / 1.390 fast

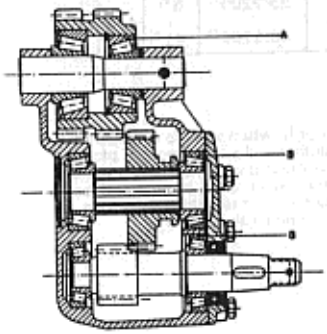


Fig. 28/3
(similar to engine rotation)

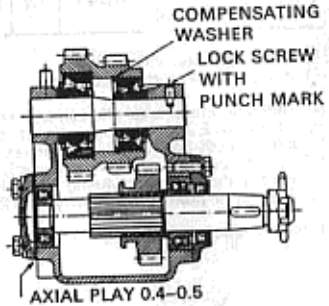


Fig. 28/4
(opposite to engine rotation)

A Tapered roller bearing
B Tapered roller bearing

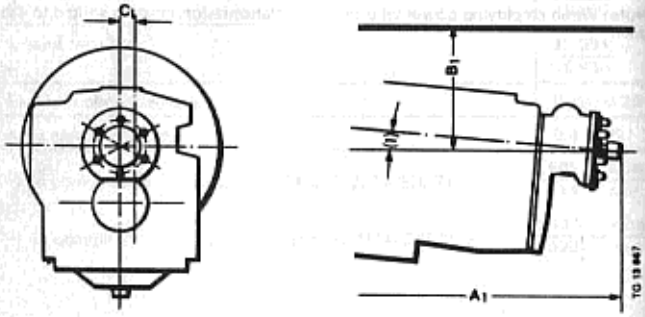
Note: When employing power take-off, main transmission must be shifted to 4th gear.

I	II	III	IV	V	VI	VII	A_1	B_1	C_1
L 206 D L 306 D	55/4200 or 60/4200	ZF 4 DS 10	1.0	a	25/2200[1] 35/2200[2]	8[1] 11[2]	413	86	18

[1]) With radial take-off (V-belts)
[2]) With axial take-off (shaft drive)

All shiftable power take-offs can be used only when vehicle is stopped (engine speed approx. 2,200/min) by pertinent coupling and engagement of pto with hand throttle. Directly connected pump drives (without gear shift) may run along without power output only (idling speed), for example oil pumps and pertinently connected shafts. Units running under load while the vehicle is driven must be operated by oil pump drive directly from the engine (illustration).

For explanations refer to page 176



(1) = 4° 30'

Fig. 28/5

Model	Wheel base „A"	Length „L"	Frame side member Height of sections front „D"	center „E"	rear „F"	Material thickness mm	Frame width front „B"	rear „C"	Number of cross members
L 406 D L 408 O 309 O 309 D	2950	4810	120	170	120	4	785	785	8
	3500	5756							9
L 406 D O 309 D [1]	2950	4810	120	170	120	4	785	785	9
	3500	5756							10
L 508 D	2950	4810	120	170	120	4	785	785	9
	3500	5756							10
	4100	6756	123	211	123	5.5	788	788	11
L 608 D 5.6 t.	2950	4810	122	172	122	5	787	787	9
	3500	5756							10
	4100	6756	123	211	123	5.5	788	788	11
L 608 D 5.99 t. 6.30 t.	2950	4810	123	173	123	5.5	788	788	9
	3500	5756							10
	4100	6756		211					11

[1] OM 314

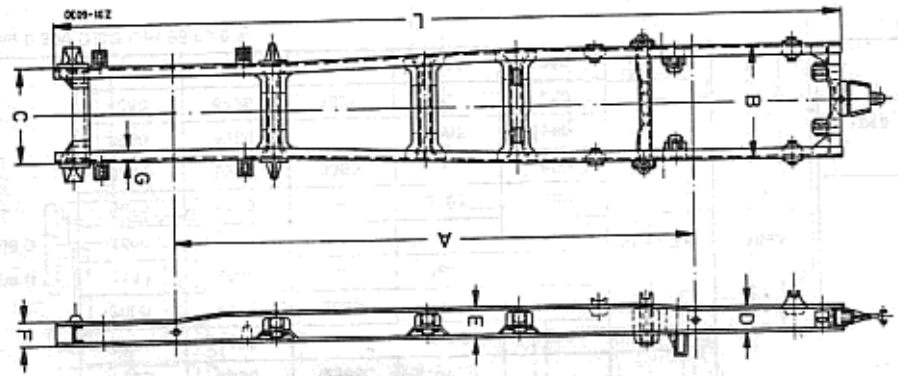


Fig. 31/1

Model	Wheel base A	B	C	C'	D	ø E	F	G
	2400	3878	2035					–
	2800	4278	2435	–	950			
	2920	4398	2555					765
	2930	4408	–	2435	1280			
	3000	4478	2635	–	950			
L 206 D /	3130	4608	–	2635	1280			–
L 306 D	3500	4978	3135	–	950	88.9 x 3.6[1]	1623	
	3630	5108	–	3135	1280			
	3750	5228	3385	–	850			
	3880	5358	–	3385	1280			1345
	4250	5728	3885	–	950			
	4380	5858	–	3885	1280			

[1]) For L 306 D 3.3 tons 88.9×6.3

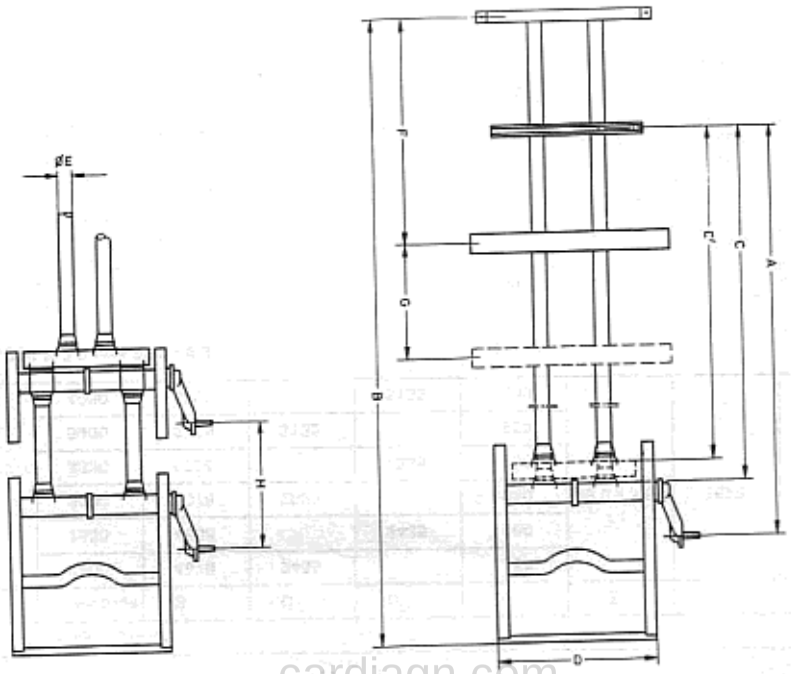


Fig. 31/2

Frames for six-wheel vehicles

Model	Wheel base	B	C	C'	D	E	F	H
L 306 D	2800	4678	2435		950	88.9 x 3.6[1]	1623	800
	2930	4808		2435	1280			
	3200	5078	2035		950			
	3330	5208		2035	1280			
	3900	5778	3135		950			
	4030	5908		3135	1280			

[1]) For L 306 D 3.3 tons 88.9 x 6.3

Fig. 32/1

Model		Part No.	Axle load in kg	Leaf			Length "L"	Height "H"	Spring travel /100 kg load	Inst. chassis No.
				Number	Thick-ness	Width				
L 406 D	Standard	309 320 04 02	1350/ 1550	6	7.5	60	1340±3	45	23.8	from 000 001 to 017 300
		309 320 05 02	1550	7				52,5	20.3	from 017 301 to 081 471
		309 320 11 02								from 081 472 to .....
	Special design	SA 17675[3] 309 320 10 02	1300		7			49	27	from ..... to .....
		SA 17 812[4] 309 320 06 02	1800	8	7.5			60	17.9	from ..... to 082 341
		309 320 12 02								from 082 342 to .....
L 408	Special design	309 320 04 02	1350/ 1550	6	7.5	60	1340±3	45	23.8	from 000 001 to 001 251
		309 320 05 02	1550	7				52,5	20.3	from 001 252 to 004 970
		309 320 11 02								from 004 971 to .....
	Standard	SA 17 675[3] 309 320 10 02	1300		7			49	27	from ..... to .....
		SA 17 812[2][4] 309 320 06 02 309 320 12 02	1800	8	7.5			60	17.9	from ..... to 005 052 from 005 053 to .....

Explanations for index refer to next page

Model		Part No.	Axle load in kg	Leaf Number	Leaf Thickness	Leaf Width	Length "L"	Height "H"	Spring travel /100 kg load	Inst. chassis No.
L 408 D	Standard	309 320 06 02	1800	8	7.5	60	1340±3	60	17.9	from start to 048 630
L 508 D	Standard	309 320 06 02	1800	8	7.5	60	1340±3	60	17.9	from start to 082 341
		309 320 12 02								from 082 342 to .....
L 608 D	Standard	310 320 01 02	2000/2100	8	8	60	1340±3	64	15.8	from 000 001 to 016 362
		310 320 06 02								from 016 363 to .....
O 309	Standard	309 320 04 02	1350/1550	6	7.5	60	1340±3	45	23.8	from 000 001 to 000 170
		309 320 05 02	1550	7				52.5	20.3	from 000 171 to 000 996
		309 320 11 02								from 000 997 to .....
	Special design	SA 17 812 309 320 06 02	1800	8				60	17.9	from ..... to 000 999
		309 320 12 02								from 001 000 to .....
O 309 D	Standard	309 320 04 02	1350/1550	6	7.5	60	1340±3	45	23.8	from 000 001 to 000 921
		309 320 05 02	1550	7				52.5	20.3	from 000 922 to 011 228
		309 320 11 02								from 011 229 to .....
	Special design	SA 17 812 309 320 06 02	1800	8				60	17.9	from ..... to 011 371
		309 320 12 02								from 011 372 to .....
O 309 D[1]	Standard	309 320 06 02	1800	8	7.5	60	1340±3	60	17.9	from start to 011 371
		309 320 12 02								from 011 372 to .....

[1] OM 314
[2] LF vehicles
[3] Ambulances
[4] Municipal vehicles

Model	Part No.	Axle load in kg	Leaf Number	Leaf Thickness "S"	Width	Length	Height "H"	Spring travel /100 kg load
L 206 D	608 320 00 11	1250 / 1400	4 6	4 4	15 B_1 30 B	1060 ± 5	32	34
L 306 D 3.0 t	608 320 00 11	1400	4 6	4 4	15 B_1 30 B	1060 ± 5	32	34
L 306 D 3.3 t	608 320 01 11	1600	4 6	4.3 4.3	17.5 B_1 35 B	1060 ± 5	34.4	24.5

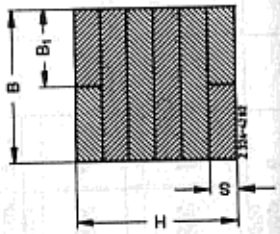


Fig. 32/2
Front spring spring assembly L 206 D, L 306 D

Adjusting dimensions for installation of spring assembly

Delivery dimension of spring assy at 500 kp test pressure	Shims	Installation dimension of spring assy at 500 kp test pressure	Mounting for spring assy in control arm
L 206 D, L 306 D (3000 kg)			
32.0	0.2	32.2	32.01 - 32.11
31.9 - 31.8	0.3	32.2 - 32.1	32.01 - 32.11
31.8 - 31.7	0.4	32.2 - 32.1	32.01 - 32.11
31.7 - 31.6	0.5	32.2 - 32.1	32.01 - 32.11
31.6 - 31.5	0.6	32.2 - 32.1	32.01 - 32.11
31.5 - 31.36	0.7	32.2 - 32.06	32.01 - 32.11
L 306 D (3300 kg)			
34.4	0.2	34.6	34.41 - 34.51
34.3 - 34.2	0.3	34.6 - 34.5	34.41 - 34.51
34.2 - 34.1	0.4	34.6 - 34.5	34.41 - 34.51
34.1 - 34.0	0.5	34.6 - 34.5	34.41 - 34.51
34.0 - 33.9	0.6	34.6 - 34.5	34.41 - 34.51
33.9 - 33.76	0.7	34.6 - 34.46	34.41 - 34.51

Caution!
The spring assembly is installed in control arm at a preload of 0.1–0.2 mm. The preload is attained by means of shims which are placed accurately into center of spring between the 3rd and the 4th spring leaf.

Model		Part No.	Axle load in kg	Number	Leaf Thickness	Width	Length "L"	Height "H"	Deflection /100 kg load	Perm. neg. incl.	Inst. chassis No.
L 406 D	Standard	309 320 11 06	2700	4	11	60	1600±3	82	15.85-7.3	37±4	from 000 001 to 082 902
		309 320 32 06		2	19						from 082 903 to .....
	Special design	SA 17 345/5 309 320 19 06	2200	4	11			62	16.3-11.7	17±4	from 018 382 to 081 368
		309 320 31 06		1	18						from 081 369 to .....
		SA 17 345/1 309 320 12 06	3300	5	11			97	12.85-6.2	32±4	from 000 001 to 079 787
		309 320 33 06		2	21						from 079 788 to .....
		SA 17 675[3] 309 320 13 06	2300	4 1	10 21			61	21.5-12.7	16±4	from ..... to .....
		309 320 26 06	1700	5	9.5			47,5	24.6	2.5	from ..... to .....
L 408	Standard	309 320 11 06	2700	4	11	60	1600±3	82	15.85-7.3	37±4	from 000 001 to 005 095 from 005 096 to .....
		309 320 32 06		2	19						
	Special design	SA 17 345/5 309 320 19 06	2200	4	11			62	16.3-11.7	17±4	from 001 340 to 004 956 from 004 957 to .....
		309 320 31 06		1	18						

L 408	Special design	SA 17 345/1[2] 309 320 12 06 309 320 33 06	3300	5 2	11 21	60	1600±3	97	12.85-6.2	32±4	from 000 001 to 004 835 from 004 836 to .....
		SA 17 675[3] 309 320 13 06	2300	4 1	10 21			61	21.5-12.7	16±4	from ..... to .....
		309 320 26 06	1700	5	9.5			47.5	24.6	2.5	from ..... to .....
L 408 D	Standard	309 320 19 06	2200	4 1	11 18	60	1600±3	62	16.3-11.7	17±4	from start
		309 320 11 06	250	4 2	11 19			82	15.85-7.3	37±4	to 048 630
L 508 D	Standard	SA 17 345/15 309 320 19 06 309 320 31 06	2200	4 1	11 18	60	1600±3	62	16.3-11.7	17±4	from 048 631 to 081 368 from 081 369 to .....
		SA 17 345/16 309 320 11 06 309 320 32 06	2500	4 2	11 19			82	15.85-7.3	37±4	from 048 631 to 082 902 from 082 903 to .....
	Special design	309 320 12 06 309 320 33 06	3300	5 2	11 21			97	17.85-6.2	52±4	from start to 079 787 from 079 788 to .....

Explanations for index refer to next page

Model		Part No.	Axle load in kg	Number	Leaf Thickness	Width	Length "L"	Height "H"	Deflection /100 kg load	Perm. neg. incl.	Inst. chassis No.
L 608 D	Standard	310 320 00 06 310 320 04 06	3900	5 2 1	11 13 30	60	1600±3	111	12.55-5.0	29±4	from 000 001 to ..... from ..... to .....
	Special design	SA 19 368/1 310 320 01 06 310 320 05 06	4100	6 2	11 23			112	10.7-5.05	30±4	from 000 001 to ..... from ..... to .....
		SA 19 658/1 310 320 03 06	4500	7 2	11 23			123	9.25-4.7	36±4	from start to .....
O 309	Standard	309 320 09 06 replaced by 309 320 14 06	2400	7	10	60	1600±3	70	15.7	25±4	from 000 001
			2700	5 1	10 21			71	17.5-11.35	26±4	to 000 179
		309 320 20 06 309 320 28 06	2700 2700	5 1	10 18			68	17.6-12.6	23 ± 4	from 000 180 to ..... from ..... to .....
	Special design	309 320 09 06 replaced by 309 320 13 06	2400	7	10			70	15.7	25±4	from 000 001
			3200	4 1	10 21			61	21.5-12.7	16±4	to 000 179
		SA 17 345/6 309 320 18 06 309 320 29 06	3300 3300	6 1	10 21			81	14.5-9.9	36±4	from 000 180 to 001 063 from 001 064 to .....

O 309 D	Standard	309 320 09 06 replaced by 309 320 14 06	2400 2700	7 5 1	10 10 21	60	1600±3	70 71	15.7 17.5-11.35	25±4 26±4	from 000 001 to 000 990
		309 320 20 06 309 320 28 06	2700 2700	5 1	10 18			68	17.6-12.6	23±4	from 000 991 to ..... from ..... to .....
	Special design	309 320 09 06 replaced by 309 320 13 06	2400 2300	7 4 1	10 10 21			70 61	15.7 21.5-12.7	25±4 16±4	from 000 001 to 000 958
		SA 17 345/2 309 320 18 06 309 320 29 06	3300 3300	6 1	10 21			81	14.5-9.9	36±4	from 000 959 to 011 674 from 011 675 to .....
O 309 D [1]	Standard	309 320 20 06 309 320 28 06	2700	5 1	10 18	60	1600±3	68	17.6-12.6	23±4	from start to ..... from ..... to .....
	Special design	SA 17 345/4 309 320 18 06 309 320 29 06	3300	6 1	10 21			81	14.5-9.9	36±4	from start to 011 674 from 011 675 to .....

1) OM 314
2) LF vehicles
3) Ambulances

Model	Part No.	Axle load in kg	Number	Leaf Thickness	Width	Length	Height	Deflection/ 100 kg load
L 206 D	608 320 02 11	1250/1400	4 4	7	20 40	1100±5	42	26
L 306 D	608 320 04 11	1650/1750/	2 5	7	30 40	1100±5	49	23

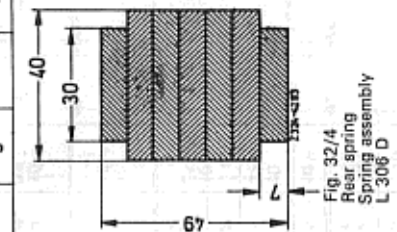


Fig. 32/4
Rear spring
Spring assembly
L 306 D

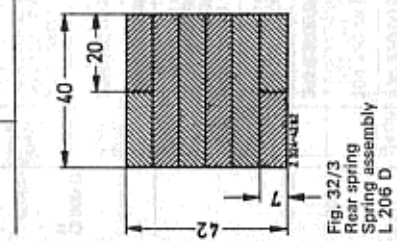


Fig. 32/3
Rear spring
Spring assembly
L 206 D

Supplementary spring – hollow rubber spring front

Part No.	Model	Axle load in kg	Dimensions in mm Lenght	OD	ID
309 320 01 77	L 408 D L 508 D L 608 D O 309	1800 1800 2000/2100 1800	120	66	15
608 320 00 77	L 206 D L 306 D	1250-1600	59,5	top 80 center 68 bottom 58	18

Supplementary spring – hollow rubber spring rear

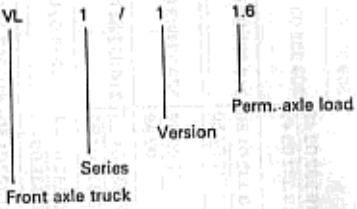
Part No.	Model	Axle load in kg	Dimensions in mm Lenght	OD	ID
309 320 01 77	L 406 D L 408 L 408 D O 309	2200 2700 2200 2700 2200 2500 2700	120	66	15
309 320 02 77	L 406 D L 408 L 508 D/O 309 L 608 D	3300 3300 3300 3900/4100/ 4500	110 110	top 80 center 73 bottom 64	20
608 320 00 77	L 206 D	1250/1400	59.5	top 80 center 68 bottom 58	18
608 320 01 77	L 306 D	1650/1750/ 2500	70	top 80 center 71 bottom 65	20

Model		Part No.	Test value at 100 strokes/min and 100 mm stroke		Length	
			Tension	Compression	Tensioned	Compressed
L 206 D L 306 D	SE	608 323 00 00	100	150	387^{+5}_{-2}	267 ±2,5
		608 326 00 00	225	100	536 ±2,5	332^{+5}_{-5}
	VFV	608 323 01 00	150	225	392^{+5}_{-2}	270 ±2,5
		608 326 01 00	250	150	531 ±2,5	336^{+5}_{-5}
L 408 L 406 D	SE	001 326 53 00	255	18	572^{+3}_{-1}	352^{+3}_{-1}
		001 326 78 00				
	VFV	001 326 63 00	250	19	568^{+3}_{-1}	352^{+3}_{-1}
		001 326 82 00		18	572^{+5}_{-2}	355^{+5}_{-5}
	SA 17 812 1800 kg Front axle load	001 326 60 00	250	18	625^{+5}_{-2}	374^{+3}_{-5}
		002 323 13 00	280	20		
		002 323 27 00				
		001 326 59 00	250	18	625^{+3}_{-1}	375^{+3}_{-1}
		002 323 26 00	280 ±15	20 ±3		
O 309 O 309 D	SE	001 326 54 00	305	16	572^{+3}_{-1}	352^{+3}_{-1}
		001 326 79 00				
		001 326 53 00	255	18		
		001 326 78 00				
	VFV	001 326 62 00	300	19	568^{+3}_{-1}	352^{+3}_{-1}
		002 323 30 00	305	16	572^{+5}_{-2}	355^{+5}_{-5}
		001 326 63 00	250	19	568^{+3}_{-1}	352^{+3}_{-1}
		001 326 82 00		18	572^{+5}_{-2}	355^{+5}_{-5}
	SA 17 812 1800 kg Front axle load	001 326 60 00	250	18	625^{+5}_{-2}	374^{+3}_{-5}
		002 323 13 00	280	20		
		002 323 27 00				
		001 326 59 00	250	18	625^{+3}_{-1}	375^{+3}_{-1}
		002 323 26 00	280±15	20±3		
L 408 D L 508 D L 608 D O 309 D with OM 314	Se	002 323 13 00	280±14	20±2	625±2	374±2
		002 323 27 00	280	20	625^{+5}_{-2}	374^{+3}_{-5}
		002 323 26 00	280±15	20±3	625^{+3}_{-1}	375^{+3}_{-1}
	VFV	001 326 77 00	280±15	20±3	626^{+3}_{-1}	376^{+3}_{-1}
		001 326 83 00	280±20	20±6	625^{+5}_{-2}	375^{+3}_{-5}

Color	Make	Axle	Installed as from chassis No.
black	F+S/Boge a	V	
		H	
brown	F+S/Boge a	V	
		H	
black	F+S	V+H	L 408 from 003 843/L 406 D from 062 955
black	F + S / Boge a	V + H	
black	Boge V + H a	V + H	L 408 from 005 094/L 406 D from 082 889
			L 408 from 005 135/L 406 D from 083 411
	F + S	V + H	L 408 from 005 094/L 406 D from 082 889
olive green	F + S	V	O 309 from 000 778/O 309 D from 008 440
black		H	O 309 from 000 774/O 309 D from 008 101
black / olive green	F + S / Boge a	V	
black	F + S / Boge a	H	
black	Boge a	V + H	O 309 from 001 045/O 309 D from 011 604
			O 309 from 001 064/O 309 D from 011 685
	F + S	V + H	O 309 from 001 045/O 309 D from 011 604
black	Boge a	V + H	L 508 D from 083 411
			L 608 D from 015 755/O 309 D from 011 685
	F + S		
oxide red / redbrown	F + S / Boge a	V + H	

a = optional

Key – front axle designation



Model	Version	Front axle design.	Kingpin	Front axle beam	Bushings top / bottom	Steering knuckle	Drum hub
L 408	1	VL 1/0 - 1.4	309 331 03 01	319 332 14 06	319 332 02 49 / 319 332 03 49	309 332 02 01	309 334 02 04
L 406 D	2	VL 1/1 - 1.6				309 332 03 01	309 334 04 04
O 309	3	VL 1/1 - 1.6					309 334 05 04
O 309 D	4	VL 1/4 - 1.6	309 331 06 01	310 332 04 06	310 332 01 50 / 310 332 02 50	310 332 04 01	309 334 06 04
L 408 D	1	VL 1/2 - 1.8	310 331 00 01	319 332 14 06	319 332 02 49 / 319 332 03 49	309 332 03 01	309 334 05 04
L 508 D	2	VL 1/3 - 2					
O 309 D[1]	3	VL 1/3 - 2	310 331 02 01	310 332 04 06	310 332 01 50 / 310 332 02 50	310 332 04 01	309 334 06 04
L 608 D	1	VL 1/3 - 2	310 331 00 01	310 332 00 06	310 332 02 49 / 310 332 00 50	310 332 00 01	310 334 00 04
	2	VL 1/3 - 2	310 331 02 01	310 332 04 06	310 322 01 50 / 310 332 02 50	310 332 04 01	310 334 08 04

[1]) with OM 314

Installation Survey

Model	L 408	L 406 D	O 309	O 309 D	L 408 D	L 508 D	O 309 D (OM 314)	L 608 D	Version
Installation as from chassis No.	from start (all weight classes)	from start (all weight classes)	from start (all weight classes)	from start (all weight classes)	from start	from start	from start	from start	1
	001 289 (up to 4.0t)	017 769 (up to 4.0t)	000 174 (up to 4.0t)	000 938 (up to 4.0t)		048 631	005 152	013 362	2
	002 366 (up to 4.0t) 001 289 (up to 4.6t)	036 904 (up to 4.0t) 017 769 (up to 4,6t)	000 464 (up to 4.0t) 000 174 (up to 4,6t)	003 161 (up to 4,0t) 000 936 (up to 4.6t)		078 584	010 917		3
	004 707 (all weight classes)	078 115 (all weight classes)	000 939 (all weight classes)	010 635 (all weight classes)					4

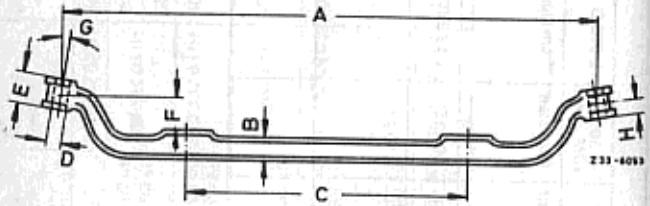


Fig. 33/1

Part No.	A	B	C	D⌀	E	F	Inclination G	H
309 331 03 01	1583	62	925	1)	65	26	5°	27.5
309 331 06 01								
310 331 00 01		67						
310 331 02 01								

Dimension D index 1)

Part No.	Standard	Rep. stage I	Rep. stage II	Rep. stage III
309 331 03 01	24.021 / 24.000	24.325 / 24.300	24.625 / 24.600	25.025 / 25.000
309 331 06 01	26.000 / 26.021	26.300 / 26.321	26.600 / 26.621	27.000 / 27.021
310 331 00 01	24.021 / 24.000	24.325 / 24.300	24.625 / 24.600	25.025 / 25.000
310 331 02 01	26.000 / 26.021	26.300 / 26.321	26.600 / 26.621	27.000 / 27.021

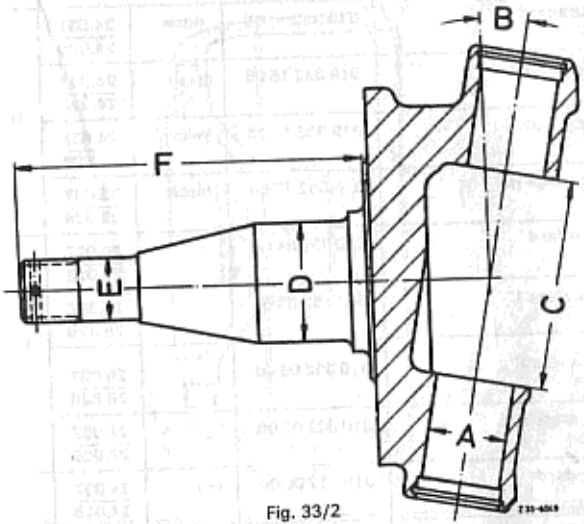


Fig. 33/2

Part No.	A dia.	B	C	D dia.	E dia.	F
309 332 02 01	29.030 / 29.000	6°	75	34.991 / 34.980	20.000 / 19.987	138
309 332 03 01				39.694 / 39.683	22.234 / 22.221	
310 332 00 01				44.991 / 44.980	25.000 / 24.991	148
310 332 04 01	31.031 / 30.969				25.000 / 24.987	

Repair stages	Part No.	Color code	Pin dia.	Length
Standard	319 332 [illegible] 06	none	24.037 / 24.028	152
Rep. stage I	319 332 15 06	green	24.337 / 24.328	
Rep. stage II	319 332 16 06	yellow	24.637 / 24.628	
Rep. stage III	319 332 17 06	black	25.037 / 25.028	
Standard	310 332 04 06		26.037 / 26.028	154
Rep. stage I	310 332 05 06		26.337 / 26.328	
Rep. stage II	310 332 06 06		26.637 / 26.628	
Rep. stage III	310 332 07 06		27.037 / 27.028	
Standard	310 332 00 06	red	24.037 / 24.028	154
Rep. stage I	310 332 01 06	red-green	24.337 / 24.328	
Rep. stage II	310 332 02 06	yellow	24.637 / 24.628	
Rep. stage III	310 332 03 06	red-black	25.037 / 25.028	

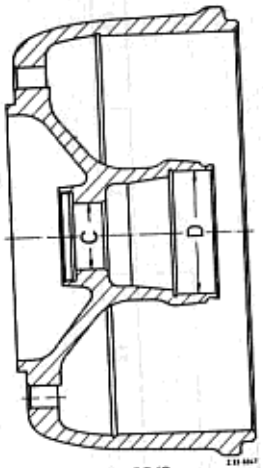


Fig. 33/3

Part No.	Dimension C	Dimension D	Brake drum dia. Standard	Rep. stage I	Rep. stage II
309 334 02 04	51.970 / 51.940	71.968 / 71.938	300	301	302
309 334 04 04	52.358 / 52.328	76.168 / 76.138			
309 334 05 04					
309 334 05 04 [1]	52.358 / 52.348	76.168 / 76.138			
309 334 06 04	51.970 / 51.940	79.968 / 79.938			
310 334 00 04					
310 334 08 04					

[1] for VL 1/2–1.8

Part No.	319 332 02 49	319 332 03 49	310 332 00 50	310 332 01 50	310 332 02 50
OD	29.061 / 29.048			31.076 / 31.060	
ID Standard	24.098 / 24.065			25.650 / 25.550	
Rep. stage I	24.398 / 24.365				
Rep. stage II	24.698 / 24.665				
Rep. stage III	25.098 / 25.065				
Height	33	40	33	33	40

Front axle L 206 / L 306	
Track width	1372
Toe-out	0 - 2 mm
Camber	3° ± 30'
KPI	7° 40'
Caster	0°
Angle of lock (max.) inside outside	35° 29°
Wheel bearing play	0.03 - 0.14
Track difference angle at 20° wheel lock	2° 25'
Distance between "Nilos" ring and dust ring	1 mm

Front wheel hub	
Bearing seat "a"	45.280 45.265
Bearing seat "b"	41.312 41.297
Fit "c" for constant speed universal shaft	32.595 32.575
Fit "f" for brake drum	130.00 129.75
Bolt circle "g" for attaching disc wheel	160

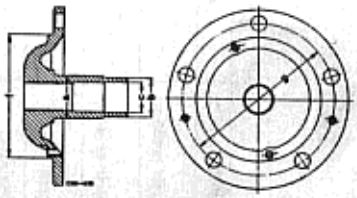


Fig. 33/4

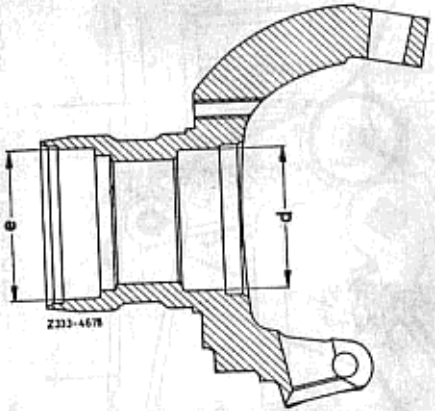


Fig. 33/5

Steering hub	
Bearing seat "d"	73.418 73.393
Bearing seat "e"	77.763 77.738

Front wheel bearing				
Tapered roller	Designation bearing	OD	ID	Width
Inside	Timken LM 501 349 / 501 310	73.431	41.275	19.558
Outside	Timken LM 603 011 / 603 049	77.788	45.242	19.842

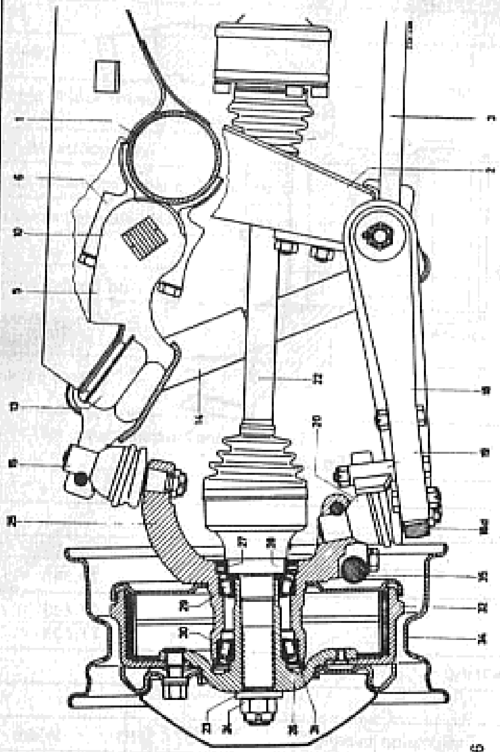


Fig. 33/6

1 Frame
2 Bearing bracket for control arm
3 Front cross strut
5 Swing arm
6 Swing arm bearing
10 Leaf spring
13 Hollow rubber spring
14 Shock absorber
15 Upper wheel joint
18 Control arm
18d Wheel joint holder
19 Steering lock
20 Lower wheel joint
22 Constant speed universal shaft
23 Crowned washer
24 Castle nut
25 Steering hub
26 Wheel hub
27 Guard ring
28 Inner Nilos ring
29 Inner tapered roller bearing
30 Outer tapered roller bearing
31 Outer Nilos ring
32 Brake drum
34 Disc wheel
35 Steering knuckle arm

Key – rear axle designation

HL 1 / 2 - 3.3

3.3 – Perm. axle load
2 – Version
1 – Series
HL – Rear axle 2-axle (4-wheel) truck

Model	Rear axle designation perm. rear axle load to	Reduction i =	Rear axle housing with axle tube and bearing cap	Gear set	Number of teeth	Differential housing	Rear axle shaft	Drum hub	Version
L 406 L 406 D O 309 O 309 D	HL 1/0-2.7 2.4 - 2.7 und HL 1/2-3,3 2.2 - 2.7	5.857	3093500520	3193500439[1] 3193500639[2]	41:7	3093500127	3093570101	3093560202	1
			3093500920			3093500227			2
								3093560402	3
		6.5	3093500520	3093500139[2]	39:6	3093500127	3093570101	3093560202	1
			3093500920			3093500227			2
								3093560402	3
		6.857	3093500520	3193500539[1] 3193500739[2]	48:7	3093500127	3093570101	3093560202	7
	HL 1/2-3.3 3.2 - 3.3	5.857	3093500520	3193500439[1] 3193500639[2]	41:7	3093500127	3093570101	3093560202	4
								3093560402	5
			3093500920			3093500227			6
		6.5	3093500520	3093500139[2]	39:6	3093500127	3093570101	3093560202	4
			3093500920			3093500227		3093560402	5
									6
L 408 D/ L 508 D/ O309D[3]	HL 1/2-3,3 2.2 - 2.7 - 3.2 - 3.3	4.1	3093500920	3093500239[1] 3093500039[2]	41:10	3093500227	3093570101	3093560402	1

L 608 D	HL 1/4-4 3.9 - 4.1	4.3	3103500020	3143501239[1] 3143501439[2]	43:10	3143500427	3103570001	3103560002	1
	HL 1/3-4.2 3.9 - 4.1	4.1	3103500720	3093500239[1] 3093500039[2]	41:10	3093500227	3103570501	3103560002	2
	HL 1/5-4.5 4.5	4.3	3103500820	3183500339[1] 3183500439[2]	43:10	3143500427	3103570401	3103560002	3

1) Gleason
2) Klingelnberg
3) OM 314

Installation survey

Model	L 408	L 406 D	O 309	O 309 D	L 408 D/ L 508 D/ O 309 D[1]	L 608 D	Version
Installed as from chassis number	000 001	000 001	000 001	000 001	Start	000 001	1
	001 490	020 177	000 203	001 130		013 362	2
	002 367	036 905	000 465	003 171		013 469	3
	000 001	000 001	000 001	000 001	–		4
	001 329	018 184	000 182	000 960		–	5
	001 467	020 101	000 203	001 124			6
	000 001						7[2]

[1] OM 314
[2] Reduction 6.857 (48 : 7) replaced as from November 1967 by reduction 6.5 (39 : 6). Gear sets are exchangeable.

Axle designation	Gear set Part No.	Number of teeth $Z_1 : Z_2$	Basic dimension (mm)	Backlash (mm)	Friction coefficient drive pinion bearing with radial sealing ring (kp-cm)	Preload of differential carrier bearing in mm before tightening bearing cap bolts	after	Distance slide piece-ring (mm)	Wheel bearing play (mm)
HL 1/2 - 3.3	319 350 05 39 319 350 07 39	48 : 7	55.7	0.13 - 0.18 0.15 - 0.25	5 - 20	0.005-0.02	0.02-0.04	–	0.02 - 0.04
	319 350 04 39 319 350 06 39	41 : 7		0.13 - 0.18 0.15 - 0.25					
	309 350 01 39	39 : 8		0.15 - 0.25					
	309 350 02 39 309 350 00 39	41 : 10		0.13 - 0.18 0.15 - 0.25					
HL 1/4 - 4	314 350 12 39 314 350 14 39	43 : 10	65.7	0.13 - 0.18 0.15 - 0.25	14 - 34			0.25	
HL 1/3 - 4.2	309 350 02 39 309 350 00 39	41 : 10	55.7	0.13 - 0.18 0.15 - 0.25	5 - 20			–	
HL 1/5 - 4.5	318 350 03 39 318 350 04 39	43 : 10	65.7	0.13 - 0.18 0.15 - 0.25	14 - 34			0.25	

Drive pinion bearing:
Mount tapered roller bearing with 0–0.02 mm preload. This preload is obtained when a friction torque of 5–20 kpcm is measured on removed pinion assembly with 244 mm ring gear dia., and of 14–34 kpcm with 312 mm ring gear dia. Smooth down broken edges of compensating rings prior to installation.

Differential or ring gear bearing:
Tighten bearing cap at ring gear end. Mount dial gauge with its tracer pin resting approx. 40 mm above bearing cap. Then tighten threaded ring opposite ring gear so that the dial gauge deflection amounts to 0.005–0.02 mm; then tighten pertinent bearing cap. Rotate ring gear. The preload indicated by the dial gauge may amount to 0.02–0.04 mm, corresponding to a friction-torque of 20–38 kpcm.

Wheel hub bearing:
Tighten inner slot nut to 10 kpm while constantly rotating hub. Then loosen slot nut and pull hub back until play is observed. Then screw-in the inner slot nut until the dial gauge indicates a play of 0.02–0.04 mm. Tighten outer slot nut including lock washer. Check bearing play once again while rotating hub.

Adjusting screw with sliding piece:
Screw-in adjusting screw with sliding piece up to stop against ring gear. Then screw back ¹/₄ turn for rear axles of series 2 and 4, and ¹/₄ turn for series 5, which corresponds to a distance of 0.25 mm. Lock adjusting screw with counter nut.

Intermediate shaft bearing (through-drive):
Attach bearing cap with bolts to intermediate housing. Measure distance between bearing and housing. Preload of cap against bearing should be 0.05 mm and can be obtained by means of compensating washers.

Part No.	a	b	c ø	d ø	e ø	f ø	g ø	h ø
309 350 05 20	1664	925	90.016 / 89.984	75.000 / 74.926	49.991 / 49.975	54.990 / 54.971	61,995 / 61,976	95,016 / 94,984
308 350 08 20	1664	925	90.016 / 89.984	75.000 / 74.926	49.991 / 49.975	54.990 / 54.971	61,995 / 61,976	95,016 / 94,984
310 350 00 20	1680	925	101.650 / 101.625	90,000 / 89,913	53,970 / 53,957	66,670 / 66,650	61,995 / 61,976	112,738 / 112,713
310 350 07 20	1728	925	90.016 / 89.984	90.000 / 89.913	53,970 / 53,957	66,670 / 66,650	61,995 / 61,976	95,016 / 94,984
310 350 08 20	1728	925	101.650 / 101.625	90.000 / 89.913	53,970 / 53,957	66,670 / 66,650	61,995 / 61,976	112,738 / 112,713

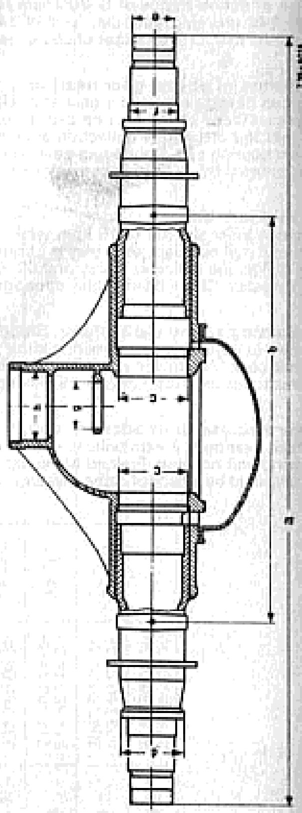


Fig. 35/1

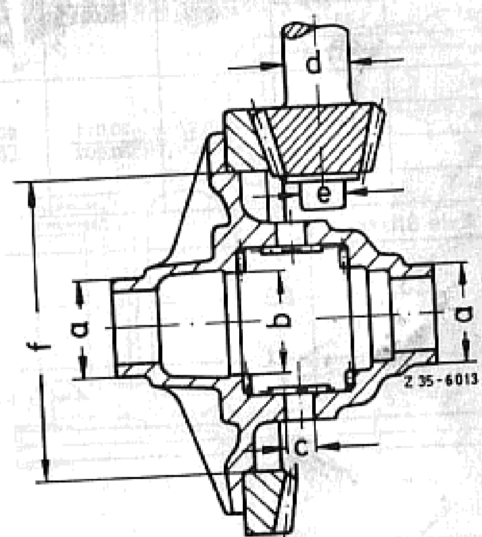


Fig. 35/2

Differential case

Part No.	a ø	b ø	c ø	f ø
319 350 01 27	50.028 / 50.017	45.039 / 45.000	20.052 / 20.000	162.014 / 161.989
309 350 02 27	50.028 / 50.017	45.039 / 45.000	20.052 / 20.000	162.014 / 161.989
314 350 04 27	60.388 / 60.363	52.046 / 52.000	24.052 / 24.000	205.016 / 204.987

35 – Gear Set

Part No.	$Z_2 : Z_1$	d ø	e ø	f ø
319 350 04 39	41 : 7	40.013 / 40.002	25,011 / 25,002	162.025 / 162,000
319 350 06 39				
309 350 02 39	41 : 10			
309 350 01 39	39 : 8			
309 350 00 39	41 : 10			
314 350 12 39	43 : 10	45.012 / 45.000	30,011 / 30,002	205.029 / 205.000
314 350 14 39				
318 350 03 39				
318 350 04 39				

35 – Rear Axle Shaft

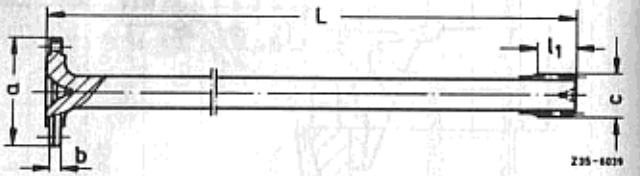


Fig. 35/3

Part No.	L	L_1	a ø	b	c ø
309 357 01 01	834	47	132	7	35.500 / 35,350
310 357 00 01	840	44	136	7	42.500 / 42,340
310 357 05 01	865	45	136	7	38,500 / 38,350
310 357 04 01	865	45	136	7	42,500 / 42.340

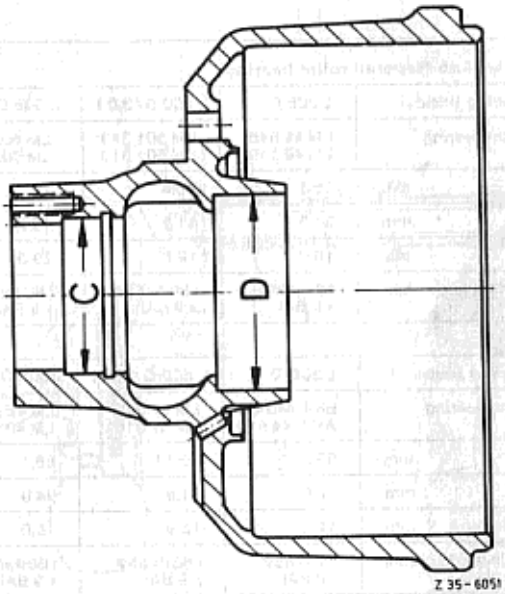


Fig. 35/4

Brake drum hub Part No.	Dia. C	Dia. D	Brake drum dia. Standard	Rep. stage I	Rep. stage II
309 350 04 02	89.941 / 89.976	99.941 / 99.976	300	301	302
310 356 00 02	95.225 / 95.199	112.665 / 112,662	300	301	302

Possible track widths	1400 mm / 1730 mm
Wheel bearing play	0.03 - 0.14
Toe-in	0 - 3 mm

Rear wheel hub (tapered roller bearing)

Wheel bearing (inside)		L 206 D	L 306 D / 3,0 t	L 306 D / 3.3 t
Designation bearing complete		LM 48 548/ LM 48 510	LM 501 349/ LM 501 310	LM 603 011/ LM 603 049
OD	mm	65.1	73.4	77.7
ID	mm	34.9	41.2	45.24
Width	mm	18.0	19.8	19.8
Radial sealing ring	mm	68ø x55ø x 9 BAi	180ø x55ø x 9 BAi	180ø x55ø x 9 BAi

Wheel bearing (outside)		L 206 D	L 306 D / 3.0 t	L 306 D / 3.3 t
Designation bearing complete		BK-L 446 449/ AK-L 44 610	LM 67 048/ LM 67 010	LM 48 548/ LM 48 510
OD	mm	50.3	59.1	65.1
ID	mm	27.0	31.8	34.9
Width	mm	14.2	15.9	18.0
Radial sealing ring	mm	68ø x55ø x 9 BAi	180ø x55ø x 9 BAi	180ø x55ø x 9 BAi

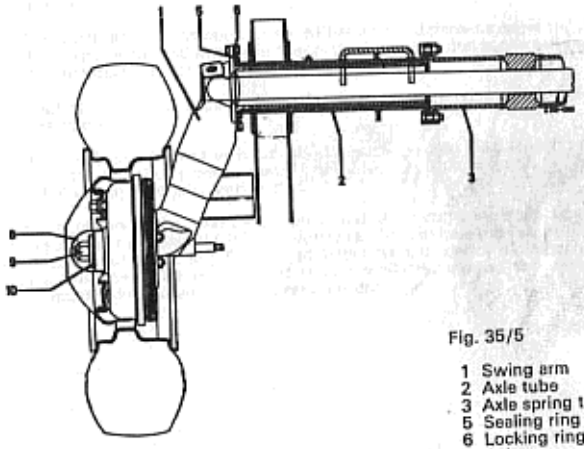


Fig. 35/5

1 Swing arm
2 Axle tube
3 Axle spring tube
5 Sealing ring
6 Locking ring
8 Axle cap
9 Castle nut
10 Washer
11 Intermediate washer

Caution!

Intermediate washer Part No. 608 326 00 96

The toe-in of the rear sub-frame should be between max. 0–3 mm. Deviations may be compensated between axle spring tube and axle supporting tube by means of intermediate washers (4 mm max.)

Wheel alignment

If irregularities are showing up on vehicle with regard to steering characteristics, roadholding and tire wear, note that in addition to wheel settings other factors may also be involved.

The following characteristics must be met.

a) Specified tire pressure
b) Tire treads in good condition (uniformly worn)
c) Perfectly operating shock absorbers
e) Steering components, wheel bearings and steering knuckles with as little play as possible

All values such as toe-in, camber, caster, KPI and track difference angle are always listed for the correctly loaded vehicle (perm. total weight), that is, the axles should carry the permissible axle load.

For a routine checkup it is generally sufficient to measure with vehicle ready for driving (empty).

In case of vehicles involved in accidents or vehicles where irregularities in road-holding or tire wear have been noticed, measurements should be made with the vehicle both ready for driving and loaded.

If components on front or rear axle, such as springs or complete units, have been exchanged prior to measuring, it is absolutely essential to take the vehicle on a test drive prior to start measuring. Exchanged parts have a tendency of changing their position under the influence of road shocks while driving, so that measuring results would be inaccurate without a previous drive.

Model		Tires rim size with tube	Tires rim size without tube	Rim type DB Part No. with tube	Rim type DB Part No. without tube	Number of tires front	Number of tires rear	Type of tire	Weight of complete wheel kg (approx.)
L 206 D	Standard	6.70 - 13 5 IK x 13	–	Low bed 608 400 00 02	–	2	2	Steel sheet disc wheel	20.5
2.4 t		7.00 - 14 5 K x 14-B	–	Low bed 608 400 02 02[2]	–	2	2		20.5
L 206 D 2.7 t L 306 D	Standard	6.70 - 15 4,5 K x 15	–	Low bed 608 400 01 02 608 400 04 02[3]	–	2 2	2 2		23 23
L 408 L 406 D O 309 O 309 D	Standard	6.00 - 16 4.50 E x 16	6.00 - 16 4.50Ex16H2-A	Low bed 309 400 04 02[4]	Low bed 309 400 10 02[4]	2	4		30
	Special design	6.50 - 16 4.50 E x 16	6.50 - 16 4.50Ex16H2-A	Low bed 309 400 04 02[4]	Low bed 309 400 10 02[4]	2	4		35
L 408 D L 508 D L 608 D O 309 D[1]	Standard	6.50 - 16 4.50Ex16-A	6.50 - 16 4.50Ex16H2-A	Low bed 309 400 06 02[5]	Low bed 309 400 09 02[5]	2	4		35
	Special design	7.00 - 16 6.00G-16SDC	–	Semi-low-bed 310 400 03 02	–	2	4		46
	Special design	–	8 - 17,5 5.25 x 17.5	–	Steep shoulder 310 400 05 02	2	4		46

[1]) With OM 314

[2]) As from chassis No. 607 . . . 205 240 Manufacturing Plant Bremen
As from chassis No. 607 . . . 101 976 Manufacturing Plant Hamburg-Harburg

[3]) As from chassis No. 607 . . . 101 977 L 206 D Manufacturing Plant Hamburg-Harburg
608 . . . 101 647 L 306 D

[4]) For 0 309 and 0 309 D, 309 400 05 02 with tube 309 400 12 02 without tube

[5]) For 0 309 D, 309 400 07 02 with tube 309 400 11 02 without tube

Model		L 206 D L 306 D	L 408 L 408 D L 608 D O 309 L 406 D L 508 D O 309 D
Front wheel camber		3°±30'	1°
Toe-in			0 ± 1 mm
Toe-out		0 - 2 mm	
Caster		0° - 20'	2° 30' [1])
KPI		7° 40'	5°
Max. wheel lock	inside	35°	52° [2])
	outside	29°	35°
Track difference angle at 20° steering lock		2°25'	2°30'
Rear wheel camber		0°	0°

Note: Values apply to vehicle ready for driving, that is, with oil and water filled in, full fuel tank, spare wheel, vehicle tools, but without person and cargo.

[1]) On the following vehicles camber amounted to 3°45':

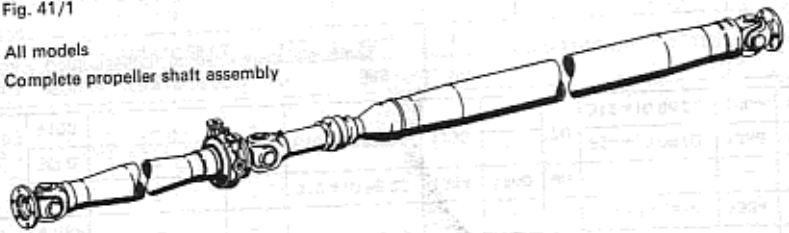
L 408	up to chassis No.	042 489
L 406 D		002 774
O 309		003 839
O 309 D with OM 615		000 537

[2]) For tires 7.00–16 or 8–17.5 inside ≙ 48°, outside ≙ 34°30'

Fig. 41/1

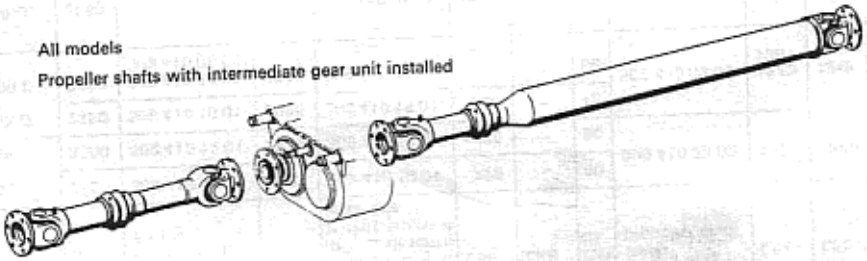
All models

Complete propeller shaft assembly



All models

Propeller shafts with intermediate gear unit installed



Model	Wheel base	Universal shaft compl. Part No.	LBe	from transmission to intermediate bearing or from transmission to rear axle	LBe	LKo	Tube dia.	Rear propeller shaft	LBe	LKo	Tube dia.
L 408	2950	309 410 13 01	2095	309 410 19 01	723	–	60	309 410 23 02	1372	1349	90
O 309	3500	309 410 12 01	2648	309 410 17 01	1276	–	80				
L 406 D	2950	309 410 10 01	2095	309 410 15 01	723	–	45	309 410 03 02	1372/ 1381	1349	80
O 309 D	3500	309 410 11 01, 309 410 06 06[2]	2648	309 410 17 01	1276	–	80				90
L 408 D	2950	–	–	314 410 05 02	1934	1900	90	–		–	–
L 508 D	3500	–	–	310 410 02 01	1138	–	70	312 410 79 02	1338	1311	70
O 309 D[1]	4100[3]	–	–			–		314 410 05 02	1934	1900	90
L 608 D	2950	–	–	312 410 86 02	1934	1900	90	–	–	–	–
	3500	–	–	310 410 02 01	1138	–	70	314 410 09 02	1338	1311	70
	4100	–	–			–		312 410 86 02	1934	1900	90

Note: LBe = Operating length
LKo = Control length, propeller shaft telescoped

[1]) OM 314

[2]) For model 309.102/103 as from chassis No. 063 299
For model 309.182/183 as from chassis No. 008 113
For model 309.12 as from chassis No. 075 701

[3]) For L 508 D only

Model	Wheel base	from transmission to intermediate gear unit Part No.	LBe	LKo	Tube dia.	from intermediate gear unit to rear axle Part No.	LBe	LKo	Tube dia.
L 408	2950	328 410 04 02	452	432	45	309 410 07 02	1351	1326	85
L 406 D	3500	309 410 05 02	1011	992	80				

Note: LBe = Operating length
LKo = Control length, propeller shaft telescoped

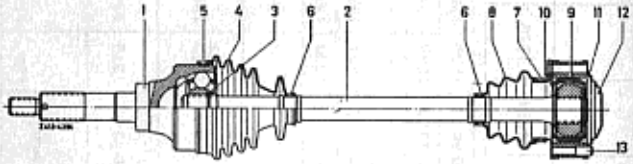


Fig. 41/2

1 Ball joint
2 Propeller shaft
3 Circlip
4 Rubber sleeve
5 Hose clip
6 Hose clip
7 Hose clip
8 Rubber sleeve
9 Compensating joint
10 Spring washer
11 Locking ring
12 End cover
13 Spring set pin

Model	L 206 D / L 306 D
Length max.	665 mm
Length min.	649 mm
Max. transmittable torque	140 kpm
External joint (radial motion)	38°
External joint (axial motion)	0 mm
Internal joint (radial motion)	18°
Internal joint (axial motion)	16 mm

Inspection and maintenance of the brake system should be given particular attention to maintain road safety. The brake system should therefore be regularly checked.

Scope of checkup

1. Checking the brake shoes
2. Inspecting the dust caps at wheel and pressure cylinders
3. Checking the brake drums
4. Checking the line system for corrosion, chafe marks and damage caused by road metal
5. Checking brake fluid level in compensating tank
6. Checking brake system for leaks (including brake unit in hydraulic and in vacuum system)
7. Checking brake pedal lash
8. Checking hand brake
9. Checking brake deceleration

Specifications for performing these checkups are included in Service Manuals.

Note: When repairing the brake system, the storage periods for rubber components of the brake system should be observed. They are:

6 Months for brake unit
1 Year for fully assembled master and wheel cylinders
2 Years for molded rubber parts such as brake sleeves
2 Years for brake hoses and high-pressure hoses

42 – Installation Survey

Model		L 206 D L 306 D	L 408 L 406 D	L 408 D L 508 D L 608 D	L 608 D 6.3 t	O 309 O 309 D	O 309 D (OM 314)
Hand brake		Lever-type hand brake, mech. on front wheels	Lever-type hand brake, mechanical on rear wheels				
Service brake	Standard	Single-circuit system [1]	Single-circuit hydraulic system with [2] vacuum booster		Dual-circuit hydraulic system with vacuum booster [3]		
	Special design	Dual-circuit hydraulic system with vacuum booster [1]		with single- or dual-assisted hydraulic system	–		Dual-circuit air-assisted hydraulic system
Brake system	front	Duo-servo brake [4]					
	rear	Simplex	Duo-servo brake				
Trailer or third wheel brake connection	Special design	–	Hydrakup system [5]		–	Hydrakup system [5]	
				Single-line air-assisted brake [6]			Single-line air-assisted brake [6]
Engine brake	Special design	–	Throttle valve in exhaust manifold foot-operated (mechanical) [8]				

[1] L 206 D, L 306 D with wheel base 2400 to 3130 with brake force distributor
[2] Brake with standard vacuum booster for
L 406 D as from chassis end No. 042 950
L 408 as from chassis end No. 002 799
L 408 D as from chassis end No. 042 950
L 508 D as from chassis end No. 042 950
[3] Brake with standard vacuum booster for
O 309 D as from chassis end No. 003 903
O 309 as from chassis end No. 000 545
[4] L 206 D, 2400 kg perm. total weight Simplex
[5] Not on vehicles with air-assisted brake
[6] With air-assisted brake only
[8] Not on vehicles with M 121/115 engine

Installation survey – single-circuit brake

Model	Brake unit	Part No.	Installed as from Date	Installed as from Chassis No.
L 406 D L 408 D L 508 D	T 51/136 T 56/174	000 430 97 30 001 430 03 30	15. 9. 69 5. 2. 70	042 950 050 376
L 408				002 799 003 159
L 608 D			May 68 5. 2. 70	prod. start 005 298

Installation survey – dual-circuit brake

Model	Brake unit	Part No.	Installed as from Date	Installed as from Chassis No.
L 206 D	T 51/926	up to 2.4 to. 608 430 02 30 above 2.4 tons 608 430 01 30	14. 1. 72	004 287
L 306 D				001 305
L 406 D L 408 D L 508 D	T 51/136 T 51/174	001 430 04 30 001 430 01 30	15. 9. 69 1. 4. 70	042 950 053 173
L 408				002 799 003 299
O 309				000 545 000 674
O 309 D				003 903 006 175
L 608 D			May 68 1. 4. 70	prod. start 006 187
L 608 D 6.3 t	T 51/200	001 430 19 30	10. 9. 71	013 469

Model			L 206 D L 306 D	L 406 D L 406	L 408 D L 508 D	L 608 D	O 309 O 309 D
Effective braking area upon deduction of rivet holes and chamfers per axle		cm^2	Simplex 380 Duo-Serv. 535	665		962	665
Effective braking area, total		cm^2	Simplex 760 Simplex-Duo-Servo 915	1330		1924	1330
Brake shoe adjustment			mechanical				
Clearance between brake lining and brake drum		mm	approx. 0.2 = after placing brake shoes against brake drum. Turn adjusting nut back for approx. 6 teeth				
Clearance between piston rod and master brake cylinder piston		mm	1.0				
Pedal ratio	a) without booster		6.36	5.8		–	5.8
	b) with vacuum booster		6.36	4.98			
	c) air-assisted		–	5.81			
Pedal travel max.	a) without booster	mm	236[1]	209		–	209
	b) with vacuum booster	mm	216	172.4			
	c) air-assisted	mm	–	140.4			
Brake shoe ratio			Simplex 2.04 Duo-Serv. 1.86	1.77			

Operating pressure	a) in vacuum booster	atu	0.8	0.6 - 0.8			
	b) in air reservoir	atü	–	6.5 - 7.35			
Hydraulic pressure in brake system at: 70 kp foot pressure against pedal	a) without booster	atü	–	110		–	110
	b) with vacuum booster	atü	approx. 145[4]				
	c) air-assisted	atü	–	ca. 145			
Initial pressure in hydraulic system		atü	0.5 - 1.2	1.0 - 1.4			
Master brake cylinder dia./ stroke (mm)	a) without booster	Single-circuit brake	20.64/36			–	
		Dual-circuit brake	–	20.64/18/17		–	20.64/18/17
	b) with vacuum booster	Single-circuit brake	–	22.2/33			–
		Dual-circuit brake	23.81/17/15[2]	22.2/17/15[5]			
	c) air-assisted	Single-circuit brake	–		23.81/33	22.2/33	–
		Dual-circuit brake	–		23.81/17/15	22.2/17/15	23.81/17/15
Wheel brake cylinder dia.		mm	front 19.05 rear 22.2[3]	22.2[6]			

[1] L 206 D up to chassis No. 005 224 and L 306 D up to chassis No. 001 304 ≙ 220 mm
[2] up to 2.4 tons ≙ 23.71/21/11 [3] up to 2.4 tons ≙ front 26.99 rear 19.05
[4] L 608 D, 6.3 tons ≙ 150 atü [5] L 608 D, 6.3 tons ≙ 25.4/17/15 [6] L 608 D, 6.3 tons ≙ 23.81

42 – Tolerance Table for Master and Wheel Brake Cylinder

Nominal dia. mm	Nominal dia. inch	Housing largest perm. dia. mm	Piston smallest perm. dia. mm	Max. perm. clearance mm
19.05	3/4	19.16	18.90	0.26
20.64	13/16	20.75	20.49	
22.2	7/8	22.31	22.05	
23.81	15/16	23.92	23.66	
25.40	1	25.51	25.25	
26.99	17/16	27.10	26.84	

42 – Check Valve

Installation position	Engine end: black Brake unit end: white
Opening pressure	max. 0.15 atü

ATE Brake Unit

Type	Diaphragm dia. mm	Diaphragm dia. inch	Stroke mm	Max. pressure rod travel mm	Fresh air inlet	Booster factor
T 51/136	203.2	8	33	34.6	at rubber sleeve	single unit 2.62
T 51/174					through pipe connection	tandem unit 3.74
T 51/200						
T 51/926	228	9			at rubber sleeve	3.66

Note: The hydraulic ratio as a result of varying dias. of master brake cylinder is not included in booster factor.

Test values for ATE brake unit

Operating pressure atü	Pedal force kp	Hydraulic pressure atü
0.6	40	95 ±5
	70	135 ±5
0.8	40	110 ±5
	70	150 ±5

Note: Prior to test, check bearings of brake lever and linkage for easy operation.

Model	Brake type	Brake linings		Part No.	Thick-ness	Width	Min. thick-ness	Length
L 206 D L 306 D	Simplex	primary and secondary	standard rep. stage 1 rep. stage 2	608 421 00 10 608 421 01 10 608 421 02 10	5.3 5.8 6.3	50	2.5	221
L 408 L 406 D L 408 D L 508 D O 309 O 309 D	Duo-Servo	primary	standard rep. stage 1 rep. stage 2	309 421 06 10 309 421 07 10 309 421 08 10	10.0 10.5 11.0	68	5	238
		secondary	standard rep. stage 1 rep. stage 2	309 421 03 10 309 421 04 10 309 421 05 10	10.0 10.5 11.0			282
L 608 D	Duo-Servo	primary	standard rep. stage 1 rep. stage 2	309 421 12 10 309 421 13 10 309 421 14 10	10.0 10.5 11.0	98	5	238
		secondary	standard rep. stage 1 rep. stage 2	309 421 09 10 309 421 10 10 309 421 11 10	10.0 10.5 11.0			282

Model	Brake shoe sets[1])			Part No.	Width
L 206 D / L 306 D ab 2.7 t	Duo-Servo	primary	standard rep. stage 1 rep. stage 2	608 420 03 20 608 420 12 20 608 420 13 20	52.5
		secondary (without lever)	standard rep. stage 1 rep. stage 2	608 420 14 20 608 420 15 20 608 420 16 20	
L 406 D / L 408 L 408 D / L 508 D O 309 D / O 309			standard	309 420 24 20	70
			rep. stage 1	309 420 25 20	
			rep. stage 2	309 420 26 20	
L 608 D			standard rep. stage 1 rep. stage 2	309 420 45 20 309 420 46 20 309 420 47 20	100

[1]) Each set of brake shoes comprises two brake shoes. The brake linings of the sets are already ground to radius and no refinishing is required provided the brake drums have been machined down to the respective repair stage.

Model	Width of brake area		Brake drum dia. standard	rep. stage 1	rep. stage 2
L 206 D / L 306 D	Simplex Duo-Servo	51.5 52.5	230 284	231 285	232 286
L 408 / L 406 D L 408 D / L 508 D O 309 / O 309 D		70	300	301	302
L 608 D		100			

Note: When using repair brake shoe sets, machine drum hubs to specified dimensions. When these dimensions are observed, the linings of the repair sets need not be additionally machined. In all other cases, the brake linings must be finished to obtain a perfect contact pattern. For this type of work, the machining tools made by Gottfried Kindermann, 8 Munich 55, Schondorfer Straße 2 are well-suited. These so-called Zanchi units are available from the Service Department of the Wörth Plant.

Adjusting dimension for brake shoe machining unit: Brake drum dia. minus 2 mm.

42 – Technical Data for Air Compressor / Suction Pump

The suction pump is identical in design with the air compressor. It is driven via the camshaft and requires no service. The connecting rod bearing is lubricated by the main flow of the engine oil circuit through an oil duct in the camshaft. Piston and piston rods are lubricated by splash oil of the engine.

Delivery volume at 2.800/min	approx. 190 lits/min
Piston dia.	77
Stroke	30
Piston displacement cc	140

Cylinder liner	Bore dia.	Piston dia.	Piston play
Standard	76.990 / 77.010	76.980 / 76.970	
Standard I	77.065 / 77.085	77.055 / 77.045	
Standard II	77.115 / 77.135	77.105 / 77.095	
Rep. stage I	77.240 / 77.260	77.230 / 77.220	0.02 - 0.03
Rep. stage II	77.490 / 77.510	77.480 / 77.470	
Rep. stage III	77.740 / 77.760	77.730 / 77.720	
Rep. stage IV	77.990 / 78.010	77.980 / 77.970	

Gap clearance of piston rings	0.025 - 0.45
Side clearance of piston rings	0.01 - 0.034

Air compressor crankpin and connecting rod bearing		Crankpin dia.	Bearing bore in installed condition
Standard		32.000 / 31.984	32.030 / 32.050
Standard I 0.1 mm undersize		31.900 / 31.884	31.930 / 31.950
Standard II 0.25 mm undersize		31.750 / 31.734	31.780 / 31.800
Rep. stage I 0.5 mm undersize		31.500 / 31.484	31.530 / 31.550
Connecting rod bearing play	axial	0.030 - 0.066	
	radial	0.065 - 0.317	

Connecting rod bushing	ID	16.025 / 16.035
	OD	19.048 / 19.035
Piston pin dia.		16.016 / 16.011

Model	Type of steering		Pitman arm	Drag link	Installation in chassis No.
L 206 D	ZF-Gemmer 7316/GB 16 c		L 608 463 00 01	L 608 460 00 05	
	MB - L 1.5 Z		L 608 463 02 01 R 608 463 03 01		3)
L 306 D	ZF - Gemmer 7316 / GB 16 c		L 608 463 00 01	L 608 460 00 05	
	ZF - Gemmer 7328 / GD28a[1]		L 608 463 01 01		
	MB - L 1.5 Z		L 608 463 02 01 R 608 463 03 01		4)
L 408 L 406 D O 309 O 309 D	MB - L 1 K		L 309 463 04 01 R 309 463 05 01	L 309 460 03 05 R 309 460 04 05	
				L 309 460 08 05 R 309 460 09 05	5)
L 408 D L 508 D L 608 D O 309 D[2]	MB - L 3.5 K		L 309 463 07 01	L 309 460 05 05	
			L 309 463 09 01 R 309 463 10 01	L 309 460 10 05 R 309 460 11 05	5)
	Special design ZF ball nut power steering 8056		L 309 463 08 01	L 309 460 12 05	

1) Vehicles with 3.3 tons total weight

2) OM 314

3) As from chassis No. 204 287 Manufacturing Plant Bremen
101 976 Manufacturing Plant Hamburg-Harburg

4) As from chassis No. 201 305 Manufacturing Plant Bremen
101 647 Manufacturing Plant Hamburg-Harburg

5)

L 408	as from chassis No.	002 775
L 406 D	as from chassis No.	042 490
L 408 D / L 508 D	as from chassis No.	048 631
L 608 D	as from chassis No.	004 807
O 309	as from chassis No.	000 538
O 309 D	as from chassis No.	003 840
O 309 D [2]	as from chassis No.	005 152

L = Lefthand steering
R = Righthand steering

Technical data		MB - L 1 K	MB - L 3,5 K	MB - L 1,5 Z	ZF-Gemmer 7316/GB 16c	ZF-Gemmer 7328/GD28a	ZF - 8056
Ratios i =	mean	19.8	34.2	–	–	–	18.8
	total	17.4	29.1	25.7	15.5	20.2	17.4
Steering wheel turns from lock to lock		4.17	6.7 [1]	5.0	3.53	4.6	4.0 [2]
Pitch angle of steering worm		5° 33'		17° 48'	–	–	10° 70'
Pitch of steering worm mm		11		9			12
Number of steel balls in ball circuit		2 × 36	2 × 38	2 × 32	–	–	26
Adjusting values							
Friction torque ball circuit cmkp		1.5 – 2.5		1.5 – 2	1 – 2.5	1.5 – 4	2 – 5
Total friction torque cmkp	pitman shaft	175 – 225	600 – 800	–	13 – 20		–
	steering spindle	–	–	15–20 without bushing 20–26 with bushing	–	–	outside pressure point 7–12 in pressure point 4–5 higher

Adjustment of pitman shaft	Adjust in center position only: turn adjusting screw for block position counter-clockwise and loosen for approx. 1/4 turn		
Adjustment of steering spindle		Turning adjusting screw inwards increases friction torque	Set friction torque by turning adjusting screw approx. 1/2 turn prior to lock to 7–12. In center position increase by adjusting by 4–5 (cmkp)
Axial play of steering worm	adjust free of play		
Max. perm. play steering wheel mm	20 - 30		

[1]) For special design 17 450 ≙ 7.0

[2]) For special design 17 450 ≙ 4.2

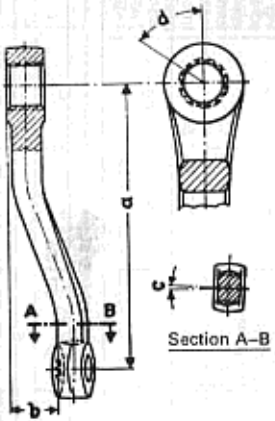


Fig. 46/1

Part No.	Length "a"	Offset "c"	Center locating mark "d"	Bore dia. of splining for pitman shaft (in inches)
309 463 04 01 309 463 05 01	204 ± 0,5	10°	52°45' ± 10'	1⅛"
309 463 07 01	225		33°50'	1¾"
309 463 08 01	214+1		60° 40' ±30'	1⅜"
309 463 09 01 309 463 10 01	233+1		32° 10'	1¾"
608 463 00 01				
608 463 01 01				
608 463 02 01 608 463 03 01	155		30° 20'	1⅜"

Fig. 46/2

Part No.	Lenght "L"	Tube dia.
608 460 00 05 309 460 03 05 309 460 04 05	1170 ± 10 492 – 1	20 x 2 26 x 2.8
309 460 08 05 309 460 09 05	488 – 1	26 × 2.7
309 460 05 05 309 460 10 05 309 460 11 05	473.5 – 1	
309 460 12 05	493	

Model	L 206 D L 306 D	L 408 L 406 D O 309 O 309 D	L 408 L 406 D O 309 O 309 D	L 406 D L 508 D L 608 D O 309 D
Engine type	OM 615	M 121 OM 621	M 115 OM 615	OM 314
Part No.	608 500 00 02 608 500 04 02 [1]	319 500 21 02	309 500 07 02 309 500 17 02 [2]	
Core width	433.4	470.0	567.6 558.3 [2]	
Core height	440.0	445.0	435.0	
Core depth	42.0	69.0	69 40 [2]	
Face area dm²	19	21	24.7 24.3 [2]	
Overpressure valve opens at atü	0,8	0,4		
Underpressure valve opens at atu	0.8	0.1		
Test pressure atü	1.5	1		
Fan distance "a"	19	18	25 - 30 40 - 45 [2]	
Cooling water temperature °C	70 - 95 (M 121, M 115) 70 - 110 (OM 621, OM 615)			75 - 95
Code number on radiator lock	0,8 LR 6	40		

1) L 206 D as from chassis No. 607...204 287 Manufacturing Plant
L 306 D as from chassis No. 608...201 305 Bremen
L 206 D as from chassis No. 607...101 976 Manufacturing Plant
L 306 D as from chassis No. 608...101 647 Hamburg-Harburg

2) L 406 D as from chassis No. 081 279
L 508 D as from chassis No. 081 279
L 408 as from chassis No. 004 948
L 608 D as from chassis No. 014 983
O 309 as from chassis No. 000 996
O 309 D as from chassis No. 011 200

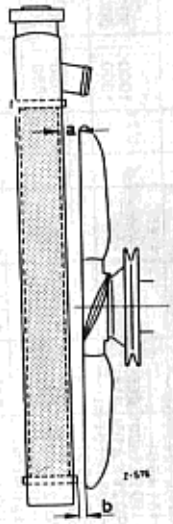


Fig. 50/1

Model	(Engine type)	Starter DB Part No. Bosch Order No. Bosch designation	Short-circuit test Current Amps.	Short-circuit test Voltage Volts	Load test Current Amps.	Load test Voltage Volts	Load test Speed 1/min	Idling test Current Amps.	Idling test Voltage Volts	Idling test Speed 1/min
L 408 O 309	(M 121)	001 151 45 01 000 120 3..... ED(R)12V 0.8 PS	265- 315	6	155- 195	9	1000- 1300	30- 50	11.5	6200- 7400
L 408 O 309	(M 115)	002 151 15 01 000 131 30 07 GF(R)12V1.4PS	600- 650	6	295- 325	9	1550- 1850	50- 70	11.5	9900- 11000
L 406 D O 309 D	(OM 621)	001 151 50 01 000 135 4..... JD(R)12V1.8PS	695- 745	6	325- 355	9	1200- 1500	60- 80	11.5	5500- 7500
L 206 D L 306 D L 406 D O 309 D	(OM 615)	001 151 64 01 000 136 20 03 JF(R)12V2.5PS	1125- 1175	6	735- 765	9	950- 1250	80- 100	11.5	7000- 9000
L 408 D L 508 D L 608 D O 309 D	(OM 314)	001 151 41 01 000 140 20 81 KG 24 V 4 PS	480- 960	12.5	470- 530	18	1250- 1550	60- 80	23	3500- 4000

Model	Engine type	Generator (alternator) DB Part No. Bosch Order No. Bosch designation	Output test Adj. load Amps.	Output test Speed at 60° C with regulator at 1/min	Resistance data Stator Ω + 10%	Resistance data Rotor Ω + 10%	Voltage regulator DB Part No. Bosch Order No. Bosch designation
L 206 D L 306 D	OM 615	003 154 67 02 G1–14V28A22	10 18 28	1500 2200 7000	0.4	4.0	001 154 84 06 0 190 601 006 AD 1 / 14 V
L 408 / O 309 L 406 D/O 309 D	M 121 M 115 OM 621 OM 615	002 154 38 02 0 120 400 600 K 1–14V35A20	10 23 35	1300 2000 6000	0.26	4.0	001 154 84 06 0 190 601 006 AD 1 / 14 V
L 408 D / L 508 D L 608 D / O 309 D	OM 314	003 154 39 02 0 120 400 700 K1–14V35A20					
Special versions							
L 206 D L 306 D	OM 615	002 154 38 02 0 120 400 600 K1–14V35A20	10 23 35	1300 2000 6000	0.26	4.0	001 154 84 06 0 190 601 006 AD 1 / 14 V
L 408 / O 309 L 406 D / O 309 D	M 115 OM 615	002 154 91 02 0 120 400 679 K1–14V55A20	10 36 55	1200 2000 6000	0.14	4.0	
L 408 D / L 508 D L 608 D / O 309 D	OM 314	003 154 33 02 0 120 400 712 K1–14V55A20					
		003 154 90 02 0 120 400 800 K1–14V65A24	10 43 65	1450 2400 6000	0.085	3.4	

14 / 54 / 82 – Regulator – Ignition Coil – Ignition Distributor

Regulator	Regulating voltage Volts	1/min-Generator (alternator)	Load current Amps.
AD 1 / 14 V	13.9 - 14.8	4000	3 - 8

Ignition coil

Engine type	DB No. Bosch No. Bosch designation	Spark length mm	Primary current Amps.	Primary resistance Ohms
M 121 M 115	000 158 00 03 022 110 20 37 K 12 V	14	1.4	3.1 - 3.6

Ignition distributor

Engine type	DB No. Bosch No. Bosch designation	Contact pressure P	Contact gap mm	Closing angle degrees
M 121 M 115	001 158 15 01 0 231 115 064 JFUR 4	400 - 530	0.4	50 ± 3

Spark plugs

a) Normal operation

Engine type	Bosch	Beru	
M 121	W 200 T 27	D 200 / 14 / 3	
M 121[1)]	W 175 T 7	D 175 / 14	
M 115	W 215 T 30	D 215 / 14 / 3 A	

b) City and short-distance driving, winter driving

M 115	WG 190 T 30	G 190 / 14 / 3	

Glown plugs

Engine type	Bosch	Beru	
OM 621	KE / GA 1 / 21	381 GK	
OM 615	KE 4677 C / A	382 GK	

[1)] Low-compression engine

15 / 54 / 82 – Distribution of Fuses

Model			L 206 D L 306 D
Fuse No.	Amps.	Conductor	Consumer
1	8	15/54	Flashing lights, tele-thermometer, fuel gauge
2	8	15/54	Windshield wiper, fan switch, oil pressure and charging control light
3	8	15/54	Horn, brake light switch
4	8	56 a	High beam right
5	8	56 a	High beam left, high beam warning light
6	8	58	Instrument lights, number plate light
7	8	58	Tail light left, parking light left
8	8	58	Tail light right, parking light right
9	8	30	Interior light, warning flasher switch
10	8	56 b	Low beam right
11	8	56 b	Low beam left
12	8	–	Unused

Distribution of Fuses – 15 / 54 / 82

Model			L 408 L 406 D L 408 D L 608 D O 309 O 309 D L 508 D
Fuse No.	Amps.	Conductor	Consumer
1	8	56 a	High beam left
2	8	56 a	High beam right, high beam warning light
3	8	56 b	Low beam left
4	8	56 b	Low beam right
5	8	58	Tail light left, parking light left, switch fog light (special design)
6	8	58	Regulator switch of instrument lights, number plate light on van-body, tail light right, parking light right
7	16	30	Warning flasher switch, tachometer or tachograph, cab light, socket
8	8	54	Horn, windshield wiper
9	8	54	Flasher light, instruments (+)
10	8	54	Brake light, heater blower

Fuse sequence begins at rear in driving direction.

SA = Special versions

15 / 54 / 82 – Battery

Model			all
Voltage		Volts	12
Capacity (Ah) vehicles with	prechamber/carburetor engine		88[1])
	direct injection engine		2×66
Acid level above upper edge of separator or acid level mark		mm	5
Specific weight of acid at 20°C (acid density)	well-charged		1.28 (for tropics 1.23)
	half-charged		1.21 (for tropics 1.16)
	discharged		1.14 (for tropics 1.09)
Charging current (A)	at initial charge	A	max. 5% of battery capacity
	normal at recharge	A	max. 10% of battery capacity
	at rapid charge	A	max. 75% of battery capacity
Acid temperature before charging		°C	16–32
Max. temperature		°C	40 (for tropics 50)
Freezing point (°C)	well-charged	°C	–68 (for tropics –40)
	half-charged	°C	–40 (for tropics –13)
	discharged	°C	–12 (for tropics –6)

Note: Separators extend beyond plates by approx. 10 mm

[1]) L 206 D, L 306 D ≙ 66 Ah

Model		all
Operating voltage	Volts	12
Headlights	Watts	45/40
Parking lights	Watts	4
Fog lights (Special design)	Watts	35
Stop lights	Watts	21
Tail lights	Watts	10
Instrument panel light	Watts	5
Directional indicator (flasher) lights	Watts	21
Instrument lights	Watts	2
Warning lights	Watts	2
Interior light	Watts	10
Charging control light	Watts	2
Clearance light	Watts	4

SA = Special versions

54 – Angle Drive

Model	Rear axle ratio i =	Tires	Angle drive reduction Transmission end	Instrument end	DB Part No.
L 408 L 406 D O 309 O 309 D	48 : 7		1.4117		001542543
	41 : 7	6.00 - 16	1.2105	1	001542083
	39 : 6		1.3571		002542253
L 408 L 406 D O 309 O 309 D	48 : 7		1.4117		001542543
	41 : 7	6.50-16	1.2105	1	001542083
	39 : 6		1.3333		000542773
L 408 D L 508 D L 608 D O 309 D[1]	41 : 10	6.50-16	0.9047		001542153
		7.00-16	0.8571	1	002542883
		8 -17.5	0.8823		000542423
L 408 D L 508 D L 608 D O 309 D[1]	43 : 10	6.50-16	0.9473		000542043
		7.00-16	0.8947	1	001542903
		8 -17.5	0.9285		000542583

1) OM 314

Längenmaße – Linear Measure

Millimeter in Zoll Millimeters to inches	1 mm = 0.0394 in.
Zentimeter in Zoll Centimeters to inches	1 cm = 0.394 in.
Meter in Fuß Meters to feet	1 m = 3.281 ft.
Meter in Yard Meters to yards	1 m = 1.094 yds.
Kilometer in Meilen Kilometers to statute miles	1 km = 0.621 stat. mile

Flächenmaße – Square Measure

Quadratmillimeter in Quadratzoll Square millimeters to square inches	1 mm² = 0.0015 sq. in.
Quadratzentimeter in Quadratzoll Square centimeters to square inches	1 cm² = 0.155 sq. in.

Raummaße – Cubic Measure

Kubikzentimeter in Kubikzoll Cubic centimeters to cubic inches	1 cm³ = 0.0610 cu. in.
Kubikdezimeter in Kubikzoll Cubic decimeters to cubic inches	1 dm³ = 61.023 cu. in.

1 dm³ = 1 l (Liter)

Hohlmaße – Liquid Measure

Liter in Pint – Liters to pints	1 l = 2.113 US pints 1 l = 1.759 Imperial pints
Liter in Quart – Liters to quarts	1 l = 1.057 US quarts 1 l = 0.88 Imperial quarts
Liter in Gallonen – Liters to gallons	1 l = 0.2642 US gal. 1 l = 0.22 Imperial gal.

Gewichtsmaße – Weight

Gramm oder Pond in Unzen Grams or ponds to ounces	1 g o. 1 p = 0.0353 oz.
Kilogramm oder Kilopond in Pfund Kilograms or kiloponds to pounds	1 kg o. 1 kp = 2.205 lbs.

Druckmaße – Pressure

Kilopond pro Quadratzentimeter in Pfund pro Quadratzoll Kiloponds per square centimeter to pounds per square inch	1 kp/cm² (at) = 14.22 lbs./sq. in. (psi)
Millimeter Quecksilbersäule in Zoll Quecksilbersäule Millimeters Hg to inches Hg	1 mm QS (Hg) = 0.0394 in. Hg

Temperaturmaße – Temperature

Grad Celsius in Grad Fahrenheit Degrees centigrade to degrees Fahrenheit	$°C \cdot \frac{9}{5} + 32 = °F$

Drehmomente – Torque

Meterkilopond in Fußpfund Kilopond-meter to foot-pounds	1 mkp = 7.233 ft. lbs.

Geschwindigkeitsmaße – Speed

Kilometer pro Stunde in Meilen pro Std. Kilometers per hour to miles per hour	1 km/h = 0.621 miles/h (mph)
Meter pro Sekunde in Fuß pro Sekunde Meters per second to feet per second	1 m/s = 3.281 ft./s (fps)

Verbrauch – Consumption

Liter pro 100 Kilometer in Meilen pro US-Gallone bzw. Imperial-Gallone	$\frac{235}{l/100\ km}$ = miles/US gal.
Liters per 100 Kilometers to miles per US-gallon or miles per Imperial-gallon, resp.	$\frac{282}{l/100\ km}$ = miles/Imp. gal.

Beispiel: Verbrauch
Example: Consumption $8\ l/100\ km = \frac{235}{8\ l/100\ km} = 235 : 8 = 29.37$? miles/US gal. miles/US gal.

Millimeter in Zoll – Millimeters to Inches

	Millimeter – Millimeters										
	0,00	0,01	0,02	0,03	0,04	0,05	0,06	0,07	0,08	0,09
mm	Zoll – Inches									
0	0	.000 394	.000 787	.001 181	.001 575	.001 969	.002 362	.002 756	.003 150	.003 543
0,1	.003 937	.004 331	.004 724	.005 118	.005 512	.005 906	.006 296	.006 693	.007 087	.007 480
0,2	.007 874	.008 268	.008 661	.009 055	.009 449	.009 843	.010 236	.010 630	.011 024	.011 417
0,3	.011 811	.012 205	.012 598	.012 992	.013 386	.013 780	.014 173	.014 567	.014 961	.015 354
0,4	.015 748	.016 142	.016 535	.016 929	.017 323	.017 717	.018 110	.018 504	.018 898	.019 291
0,5	.019 685	.020 079	.020 472	.020 866	.021 260	.021 654	.022 047	.022 441	.022 835	.023 228
0,6	.023 622	.024 026	.024 409	.024 803	.025 197	.025 591	.025 984	.026 378	.026 772	.027 165
0,7	.027 559	.027 953	.028 346	.028 740	.029 134	.029 528	.029 921	.030 315	.030 709	.031 102
0,8	.031 496	.031 890	.032 283	.032 677	.033 071	.033 465	.033 858	.034 252	.034 646	.035 039
0,9	.035 433	.035 827	.036 220	.036 614	.037 008	.037 402	.037 795	.038 189	.036 583	.038 976

Millimeter – Millimeters

mm	0	1	2	3	4	5	6	7	8	9
	Zoll – Inches									
0	0	0.039370	0.078740	0.118110	0.157840	0.196850	0.236220	0.275591	0.314961	0.354331
10	0.393701	0.433071	0.472441	0.511811	0.515181	0.590551	0.629291	0.669291	0.708661	0.748031
20	0.787402	0.826772	0.866142	0.905512	0.944882	0.984252	1.023622	1.062992	1.102362	1.141732
30	1.181102	1.220472	1.259843	1.299213	1.338583	1.377953	1.417323	1.456693	1.496063	1.535433
40	1.574803	1.614173	1.653543	1.692913	1.732283	1.771654	1.811024	1.850394	1.889764	1.929134
50	1.968504	2.007874	2.047244	2.086614	2.125984	2.165354	2.204724	2.244094	2.283465	2.322835
60	2.362205	2.401575	2.440945	2.480315	2.519685	2.559055	2.598425	2.637795	2.677165	2.716535
70	2.755906	2.795276	2.834646	2.874016	2.913386	2.952756	2.992126	3.031496	3.070866	3.110236
80	3.149606	3.189976	3.228346	3.267717	3.307087	3.346457	3.385827	3.425197	3.464567	3.503937
90	3.543307	3.582677	3.622047	3.661417	3.700787	3.740157	3.779528	3.818898	3.858268	3.897638

mm	100	200	300	400	500	600	700	800	900	1000
Zoll Inches	3.937008	7.874016	11.811024	15.748031	19.685039	23.622047	27.559055	31.496063	35.433071	39.370079

Beispiel – Example: 2861,35 mm = ? Zoll – Inches

2000 mm = 2 × 1000 mm = 2 × 39,370079 = 78.740158 Zoll – Inches
800 mm = 10 × 80 mm = 10 × 3.149606 = 31.496060 Zoll – Inches
61 mm = = 2.401575 Zoll – Inches
0,35 mm = = .013780 Zoll – Inches

2861,35 mm = = 112.651533 Zoll – Inches