

Ontario MGA/MGB Association (OMGABA)

MGA TRANSMISSION TECHNICAL ARTICLE: SUGGESTIONS ON MGA GEARBOX REBUILD

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October, 1982

TOOLS NEEDED:

- 7/16", 1/2", 3/4", 1-1/8", (1-1/2") sockets, ratchet wrench, 6" and 12" extensions, 5/8" pilot rod
- 11/32", 7/16", 1/2", 9/16", (1-1/2") combination wrenches
- small (ground thin) and large flat screwdrivers, needle nose pliers, large vice grip pliers, hammer, blunt 1" chisel, sharp 1/4" chisel, and a very thin punch (or 1-1/2" finishing nail)

PRELIMINARY:

1. gearbox should be drained, shift tower/lever removed and opening covered before removal from car (especially the 15GB type without tail shaft flange)
2. clean gearbox exterior and inside clutch housing with DUNK, Varsol, etc.
3. in the following text, some parts are numbered with reference to MGA spare parts book AKD 1055 for the 15GB gearbox, while parts peculiar to the later 15GD/1600/Mk II gearbox are numbered according to parts book AKD 1215 and here are prefixed with '1600-'
4. use a Factory Workshop Manual along with the following notes:

PARTS USUALLY REPLACED IN REBUILD:

1. synchro baulk rings: 3/4 and 2/3 (116x2), 1/2 (113)
2. layshaft needle rollers (125) (in kit with spring rings and distance tube)
3. oil seals (rear extension and front cover)
4. clutch lever bush, bolt and release bearing
5. gaskets (front and side covers, rear extension and cover, shift tower)

PARTS TO INSPECT AND REPLACE IF NECESSARY:

1. various gears
 - especially straight spur gears (1st/reverse set)
2. layshaft and reverse shaft
3. synchronizer ball springs (122,111) and locating block detent springs (51/59/66)
 - replace if too short when free
4. input shaft spigot needle rollers are often galled
5. input and output shaft bearings
 - check for excessive movement of shaft (play)
6. shift remote control shaft detents and detent springs

DISMANTLING:

(A) GEARBOX

1. speedo drive nut is 1-1/8"
2. 15GD/1600/Mk II tailshaft flange nut (1600-45) is 1-1/2"
 - hold flange (1600-44) securely by bolting a flat steel bar to two holes in the flange
3. interlock assembly (79/80)
 - tapping the interlock while removing it will help, as will moving the selectors (70/73/76) around
4. note fibre washer location when removing main case side cover (17) retaining bolts
5. change-speed fork setscrews (46/54/61)

- not usually lock-wired as noted in the workshop manual
- usually have locknuts
- 6. change-speed fork locating block (67)
 - remove complete with selector shafts
 - rotate reverse selector (76) to get at upper setscrew for block
- 7. clutch lever bolt (137) and nut (138) are 3/4" socket and 9/16" wrench
- 8. remove mainshaft (89) to rear
 - it may need a tap or two to free the bearing housing (96) from the main case
- 9. clean interior of main case and rear extension to get rid of sludge, extra teeth etc.

(B) MAINSHAFT

1. 3/4 speed coupling (119/120)
 - note that centre face of synchronizer has 3 small holes (to spring galleries) on one side and 'MOWOG' on the other
 - the 'MOWOG' side should face the rear
2. spring loaded peg (93) under front thrust washer (91)
 - use sturdy, pointed knife or narrow, thin bladed screwdriver to depress peg to allow thrust washer to be turned to line up with the mainshaft splines
 - push against the spring force to allow washer removal
3. 2nd gear bronze bush (114)
 - usually stuck onto shaft
 - it, and the rear thrust washer (92), only need to be removed if necessary for replacement (unusual)
 - drive them off to the front after removing 1/2 gear and coupling (109) to the rear
4. 15GB tailshaft nut is 1-3/8"
 - remove speedo gear woodruff key (102) with small screwdriver and hammer
5. inspect bronze bushes
 - should not be scored or burnt
 - gear should not have noticeable free play on bush

(C) REAR EXTENSION

1. leave remote selector shaft and selectors intact unless worn, in which case replacement of the shaft is necessary or welding-up of the worn area around the detents may be done
2. the oil seal is probably the only part needing replacement
 - 15GD/1600/Mk II oil seals are relatively easy to pry or punch out, but the 15GB oil seal is tough to remove because it is in a steel pressing that will defy everything but brute force for removal; so you will have to destroy it to get it out
 - watch out for the soft aluminum casing when doing so
 - drive the new seal in just flush with the rear face of the extension

INSPECTION:

1. gears
 - teeth should be free of any chips with the exception of 1st, reverse, and the straight-tooth laygear, which should be as free of chips as possible (ie, no broken teeth or large divots in the teeth)
 - minor chips are allowable as replacements are \$\$\$\$\$ (laygear is \$C230 or more), so go for used parts if possible
 - all synchro dog-teeth should be free of chips and should not be rounded off or worn below the gear face
2. layshaft
 - replace if galled
 - replace needle rollers (125) as well
 - the tough part here is getting the spring rings (126) (not circlips!!!) out

- remove by tapping the ring sharply near the gap with a small chisel and hammer which should bend the ring enough out of the groove to allow removal
- note that there are 4 rings in the gear
 - leave the innermost ring in, as the bearing kits only come with 3 new rings!!!!
- 3. reverse shaft (130)
 - replace if galled
- 4. reverse bush (134)
 - replace if worn; it drifts out nicely but the new bush should be reamed out to specification after installation

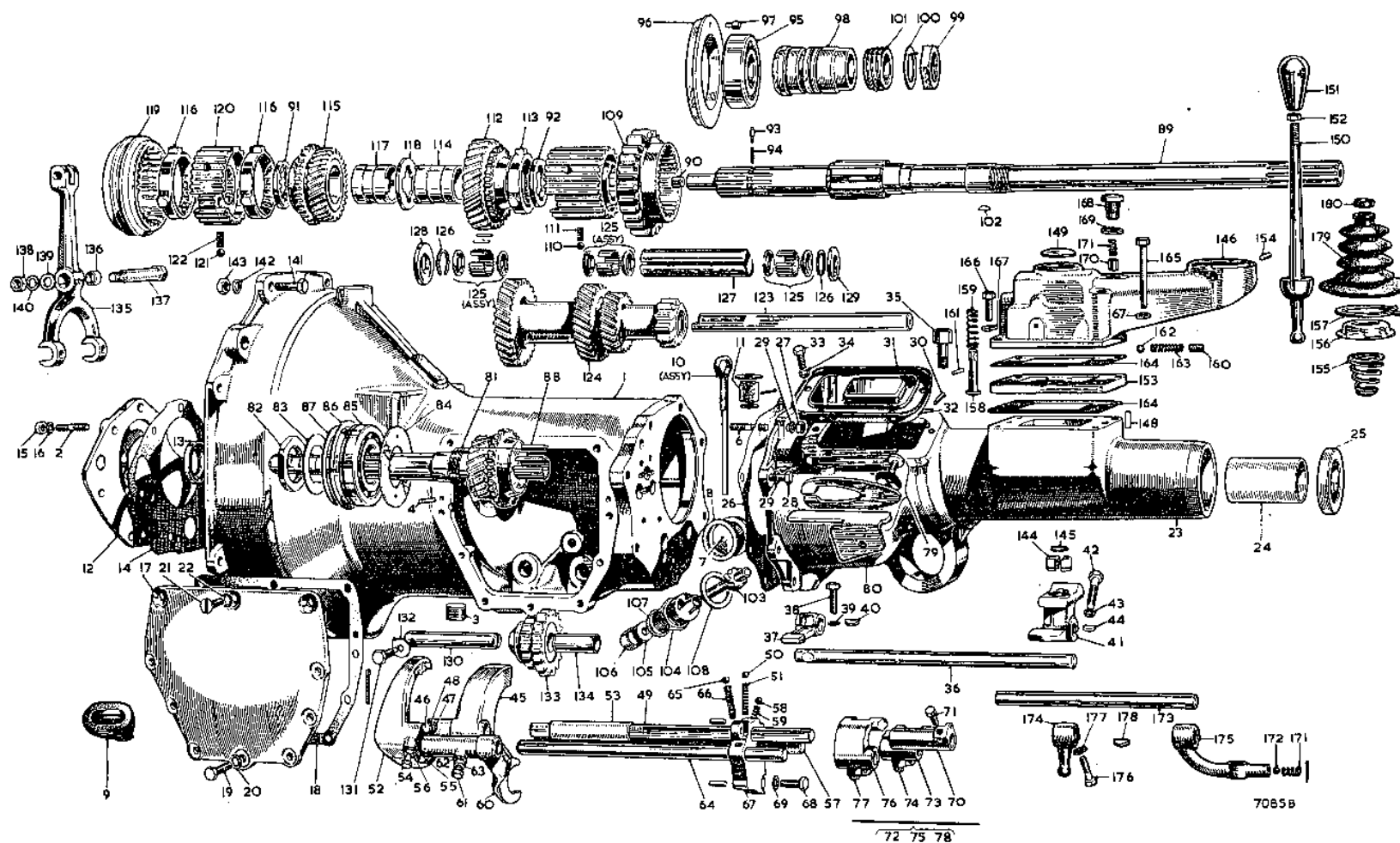
REASSEMBLING:

(A) MAINSHAFT

1. oil all contact surfaces when assembling
2. front thrust washer
 - use a 1-1/2" finishing nail (or very thin punch) through hole in the synchro cone of the 3rd gear to push-in the pin to allow installation of the washer
 - the washer will not fit unless the gear train is pushed completely to the rear
 - turn washer until the pin pops into one of the splines
3. 15GB speedo gear distance piece (98)
 - line up oil hole with the hole in the shaft

(B) GEARBOX

1. laygear
 - place on bottom of box
 - thread thin stiff wire (speaker wire will do) through the gear, thrust washers, and layshaft holes in box to keep the washers in place as they are difficult to impossible to fit after the input shaft and mainshaft are in place
 - layshaft is usually fitted from the front with a pilot rod
 - remove the wire as the pilot rod is inserted
2. front cover
 - place shims in the cover when installing
 - oil the seal
 - before securing the cover, make sure that the shims haven't fallen out of their recess, as they can/will get pinched if not in the correct position
3. replace the selector shaft locating block setscrews (68x2) with 1" bolts, as the original bolts are too short (at 3/4") to get a good grip on the threads in the casting which is easily stripped!!!
4. cover the opening for the shift tower with a rag
5. after installation of gearbox, fit the shift tower and fill with oil



SERVICE PARTS LIST

THE M.G. Series MGA 1500

Item No.	DESCRIPTION	Commencing (E) GB101		Qty. per Vehicle		Unit of Issue	Type of Vehicle	MODIFICATIONS			REMARKS
		Part Number	Illus. No.	RHD	LHD			New Part Number	Change Point	Amdt. No.	
	GEAR BOX										
1	Gearbox assembly	1H3140		1	1			1H3167 1H3362 48G100	Com. (G) A101 Com. (E) GD101 Com. (G) A916		
2	Casing—gearbox	48G32	F1	1	1			48G127 58K2172 2K5380	Com. (E) GD101 Com. (G) A916 Com. (E) GD101		Prior to (G) A916 always use 48G109
3	Stud—front cover	52K485	F2	7	7						
4	Plug—drain	6K499	F3	1	1						
5	Dowel—sliding shaft locating block	AEG3108	F4	2	2						
6	Welch plug	2K8158		1	1						
7	Stud—gearbox extension	52K487	F6	1	1						
8	Stud—gearbox extension			2	2			CHS2518	Fin. (G) A915 Com. (G) A916		
9	Plug—blanking	8G500	F7	2	2						
10	Joint washer—blanking plug	2K4971	F8	2	2						
11	Dust cover—clutch withdrawal lever	1G3667	F9	1	1						
12	Dipstick	1G3802	F10	1	1						
13	Felt	1G3804	F11	1	1						
14	Cover—front	1G3642	F12	1	1			11G3197 1H3147 1H3138	Com. (G) A4378 Com. (G) A8011		
15	Cover assembly—front			1	1						
16	Oil seal		F13	1	1						
17	Joint for front cover	1G3666	F14	1	1	12					
18	Nut for front cover studs	FNZ105	F15	7	7						
19	Washer for front cover studs (spring)	2K5319	F16	7	7			LWZ305	Com. (G) A916		
20	Cover—side	1G3656	F17	1	1						
21	Joint for side cover	1G3658	F18	1	1	12					
22	Set screw for side cover	52K2037	F19	7	7			58K147	Com. (G) A916		
23	Washer for side cover screw (spring)	2K5319	F20	7	7				Fin. (G) A915		
24	Washer for side cover screw (spring)			6	6			LWZ305	Com. (G) A916		
25	Countersunk screw—side cover	52K1226	F21	3	3			58K162			
26	Washer for countersunk screw (shakeproof)	6K9012	F22	3	3						
27	Washer for side cover (fibre)			1	1			2K4958	Com. (G) A916		
28	Washer for side cover (plain)			1	1			PWZ105			
29	Extension—gearbox	1H3084	F23	1	1			1H3149 1H3273	Com. (G) A101 Com. (E) GD101 Fin. (E) GB51767		
30	Bush	1G3418	F24	1	1			6K529	Com. (E) GD101		
31	Bearing—rear extension			1	1			1H3339	Com. (G) A101		
32	Oil seal assembly	11G3147	F25	1	1	6		1H3273 CCN240	Com. (E) GD101		
33	Circlip for oil seal			1	1						
34	Joint for extension to gearbox	1G3712	F26	1	1	12					
35	Nut for gearbox extension stud	FNZ105	F27	2	2						
36	Set screw for gearbox extension	HBZ0509	F28	7	7						
37	Set screw for gearbox extension			6	6						
38	Washer for stud and set screws (spring)	LWZ205	F29	8	8	24		HCZ0510 LWZ305	Fin. (G) A915 Com. (G) A916		
39	Plug for gearbox extension (taper)	2K1356	F30	1	1	36					

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		Part Number	Illus. No.	RFD	LHD			New Part Number	Change Point	Amdt. No.	
	Gearbox—continued										
1	Cover—extension side	1G3809	F31	1	1						
2	Joint for extension side cover	1G3810	F32	1	1	12					
3	Set screw for extension side cover	HZS0405	F33	6	6						
4	Washer for set screw (spring)	LWN204	F34	6	6			LWZ304	] Com. (E) GD101		
5	Breather assembly	1G3608	F35	1	1			11H3364			
6	Shaft—remote control	1G3682	F36	1	1						
7	Lever—selector—front	1G3680	F37	1	1						
8	Set screw for front lever	51K1030	F38	1	1						
9	Washer for set screw (spring)	LWN604	F39	1	1						
10	Key for selector lever	WKN404	F40	1	1						
11	Lever—selector—rear	1H3095	F41	1	1						
12	Set screw for rear lever	51K1031	F42	1	1						
13	Washer for set screw (spring)	2K5319	F43	1	1			LWZ305	Com. (G) A916		
14	Key for selector lever	WKN404	F44	1	1						
15	Fork—1st and 2nd speed	1G3691	F45	1	1			11G3135	Com. (G) A290		
16	Screw—fork locating	2A3141	F46	1	1						
17	Lock washer—shakeproof	LWN604	F47	1	1						
18	Nut for screw	FNN504	F48	1	1						
19	Shaft—1st and 2nd speed fork	11G3079	F49	1	1			1H3134 11G3079	Com. (G) A828 Com. (G) A8011		
20	Ball—shaft	BLS110	F50	1	1	12					
21	Spring for ball	2K4909	F51	1	1	36					
22	Fork—3rd and 4th speed	1G3690	F52	1	1			1H3257	] Com. (G) A290		
23	Distance piece—3rd and 4th speed fork		F53	1	1			1H3258			
24	Screw—fork locating	2A3141	F54	1	1						
25	Lock washer—shakeproof	LWN604	F55	1	1						
26	Nut for screw	FNN504	F56	1	1						
27	Shaft—3rd and 4th speed fork	1G3692	F57	1	1			11G3140	Com. (G) A290		
28	Ball—shaft	BLS110	F58	1	1	12					
29	Spring for ball	2K4909	F59	1	1	36					
30	Fork—reverse	11G3100	F60	1	1			11G3134	Com. (G) A290		
31	Screw—fork locating	2A3141	F61	1	1						
32	Lock washer—shakeproof	LWN604	F62	1	1						
33	Nut for screw	FNN504	F63	1	1						
34	Shaft—reverse fork	11G3080	F64	1	1			11G3137 1H3133 11G3137	Com. (G) A290 Com. (G) A828 Com. (G) A8011		
35	Ball—shaft	BLS110	F65	1	1	12					
36	Spring for ball	2K4909	F66	1	1	36					
37	Block—shaft locating	1G3685	F67	1	1			11G3187	Com. (G) A916		
38	Set screw for block to casing	HNS0407	F68	2	2						
39	Washer for block screw (spring)	LWN204	F69	2	2			LWN304	Com. (E) GD101		

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		Part Number	Illus. No.	RHD	LHD			New Part Number	Change Point	Amdt. No.	
	Gearbox—continued										
1	Selector—1st and 2nd gear	1G3686	F70	1	1			11G3132	Com. (G) A290		
2	Screw for selector locating	1G3708	F71	1	1						
3	Wire for selector locking	2K7420	F72	1	1						
4	Selector—3rd and 4th gear	1G3687	F73	1	1			11G3133	Com. (G) A290		
5	Screw for selector locating	1G3708	F74	1	1						
6	Wire for selector locking	2K7420	F75	1	1						
7	Selector—reverse gear	1G3688	F76	1	1			11G3131	Com. (G) A290		
8	Screw for reverse gear selector	1G3708	F77	1	1						
9	Wire for selector locking	2K7420	F78	1	1						
10	Interlock arm complete	1H3092	F79	1	1						
11	Support plate for interlock arm	1H3093	F80	1	1						
12	Shaft—1st motion	1G3611	F81	1	1						
13	Nut for shaft	1G3584	F82	1	1						
14	Lock washer for nut	1A2717	F83	1	1	24					
15	Baffle—oil		F84	1	1			1H3139	Com. (G) A1861 Fin. (G) MA8010		
16	Bearing—ball—for shaft	6K885	F85	1	1			97H512	Com. (G) A1861 Fin. (C) MA8010		
								6K885	Com. (C) MA8011		
17	Spring ring for bearing	6K886	F86	1	1						
18	Shim for bearing	6K907	F87	A/R	A/R						
19	Shim for bearing	6K908		A/R	A/R						
20	Rollers—needle—for shaft	6K892	F88	18	18	36					
21	Shaft—3rd motion	11G3035	F89	1	1			11G3221 1H3277	Com. (G) A101 Com. (E) GD101		
22	Restrictor—oil	1A1964	F90	1	1						
23	Washer—thrust (.1565 to .1575")—front	11G3127	F91	A/R	A/R						
24	Washer—thrust (.1585 to .1595")—front	11G3128		A/R	A/R						
25	Washer—thrust (.1605 to .1615")—front	11G3129		A/R	A/R						
26	Washer—thrust—rear	1G3492	F92	1	1						
27	Peg for thrust washer—front	1G3268	F93	1	1	12					
28	Spring for peg	2K8960	F94	1	1						
29	Bearing—rear for 3rd motion shaft	6K528	F95	1	1						
30	Housing—bearing	1G3586	F96	1	1						
31	Peg—locating	1G3530	F97	1	1						
32	Distance piece—speedometer gear	1C3639	F98	1	1			11G3223	Com. (G) A101		
33	Distance piece assembly—speedometer gear to rear bearing			1	1			AEH3242	Com. (E) GD101		
34	Flange—3rd motion shaft			1	1			1H3304			
35	Nut for shaft and speedometer gear	1G3613	F99	1	1			11G3225	Com. (G) A101		
								FNZ612	Com. (E) GD101		
36	Lock washer	1G3612	F100	1	1			11G3226	Com. (G) A101		
								I.W.Z212	Com. (E) GD101		
37	Gear—speedometer drive	11G3039	F101	1	1			1H3151	Com. (G) A101		
38	Key for gear	WKN304	F102	1	1						
39	Pinion for speedometer drive	11G3042	F103	1	1			1H3241	Com. (G) A5120		Always use 1H3241
40	Bush for pinion	2A3256	F104	1	1						
41	Oil seal for pinion	2A3254	F105	1	1	12					
42	Ring for oil seal retaining	2A3255	F106	1	1						
43	Joint washer for bush	11G3084	F107	1	1						
44	Joint for bush to rear cover	51K3169	F108	1	1						

SERVICE PARTS LIST

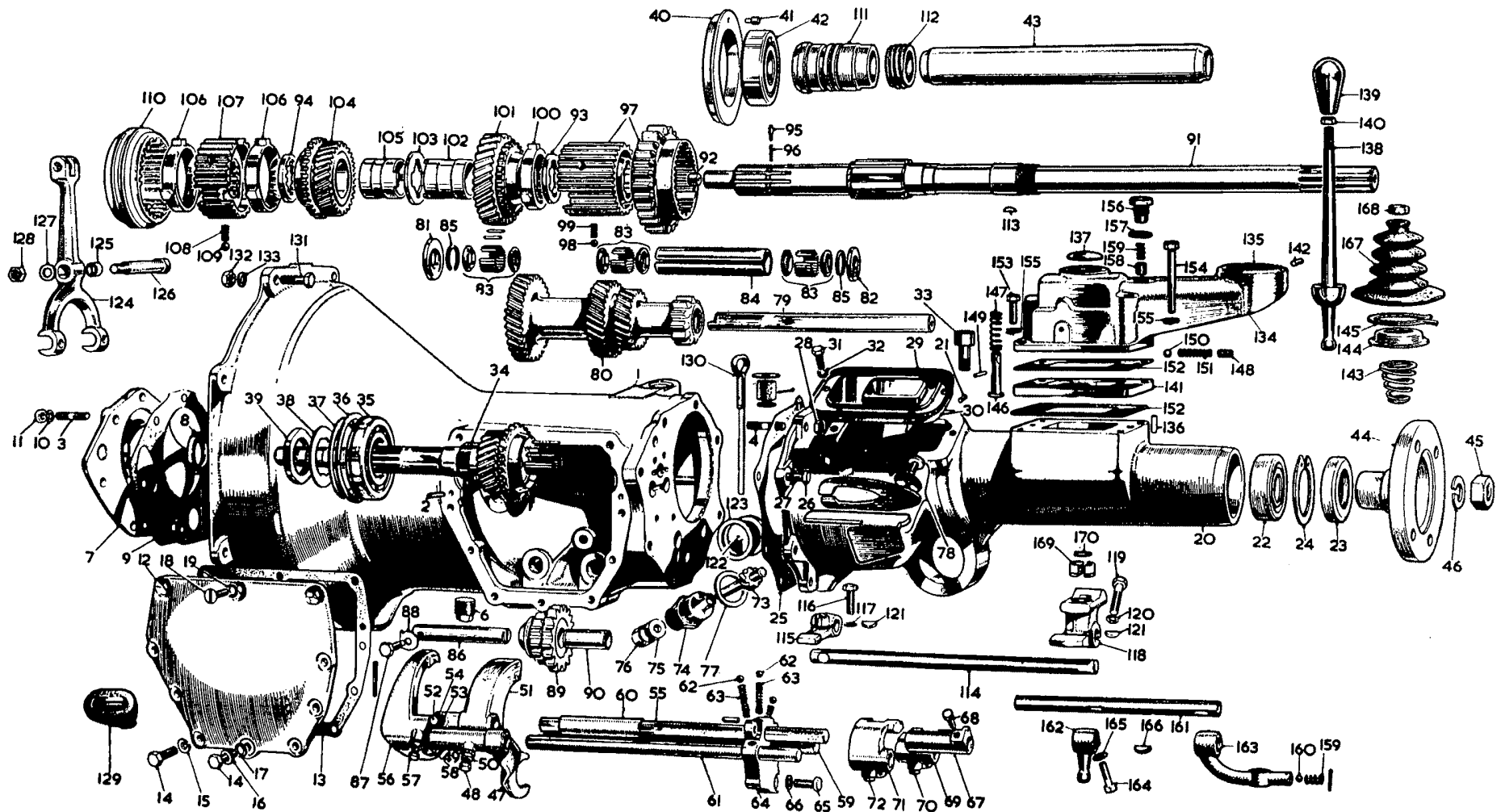
THE M.G. Series MGA 1500

Item No.	DESCRIPTION	Commencing (E) GB101		Qty. per Vehicle		Unit of Issue	Type of Vehicle	MODIFICATIONS			REMARKS
		Part Number	Illus. No.	RHD	LHD			New Part Number	Change Point	Amdt. No.	
	Gearbox—continued										
1	Gear and synchronizer assembly—1st speed	48G137	F109	1	1						
2	Ball for synchronizer	BLS109	F110	3	3	12					
3	Spring for synchronizer ball	6K884	F111	3	3						
4	Gear—2nd speed	11G3064	F112	1	1						
5	Baulk ring for 2nd speed gear	11G3063	F113	1	1						
6	Bush for 2nd speed gear	11G3028	F114	1	1						
7	Gear—3rd speed	1G3594	F115	1	1						
8	Baulk ring for 3rd and 4th gear	11G3022	F116	2	2						
9	Bush for 3rd speed gear	11G3029	F117	1	1						
10	Ring—interlocking—2nd and 3rd bushes	1G3531	F118	1	1						
11	Coupling—sliding—3rd and 4th speed	1G3598	F119	1	1						
12	Synchronizer for 3rd and 4th speed	1G3597	F120	1	1						
13	Ball for synchronizer	BLS109	F121	3	3	12					
14	Spring for synchronizer ball	6K884	F122	3	3						
15	Layshaft	11G3030	F123	1	1						
16	Layshaft	11G3123		1	1						
17	Gear unit for layshaft	11G3024	F124	1	1						
18	Bearing—needle-roller—for layshaft	3H2865	F125	3	3						
19	Spring ring for needle rollers	11G3027	F126	4	4						
20	Distance piece for bearing	11G3026	F127	1	1						
21	Washer—thrust—front	1G3576	F128	A/R	A/R						
22	Washer—thrust—rear	1G3577	F129	A/R	A/R						
23	Washer—thrust—rear	1G3578		A/R	A/R						
24	Washer—thrust—rear	1G3579		A/R	A/R						
25	Washer—thrust—rear	1G3580		A/R	A/R						
26	Shaft—reverse	11G3093	F130	1	1						
27	Shaft—reverse	11G3124		1	1						
28	Washer (spring)	LWZ305		6	6						
29	Screw—locking—for shaft	1G3581	F131	1	1						
30	Lock washer for screw	1B3363	F132	1	1						
31	Gear—reverse	11G3090	F133	1	1						
32	Bush	11G3092	F134	1	1						
33	Lever assembly—clutch withdrawal	1G3653	F135	1	1						
34	Bush for lever	1G3582	F136	1	1						
35	Bolt for lever	11G3145	F137	1	1						
36	Locknut for bolt	FNZ206	F138	1	1						
37	Washer for locknut		F139	1	1						
38	Washer for locknut (spring)	2K5863	F140	1	1	144					
39	Bolt for gearbox to mounting plate	HBZ0510	F141	6	6						
40	Washer for bolt (spring)	LWZ105	F142	6	6	24					
41	Nuts for mounting plate bolts	FNZ505	F143	6	6						
42	Bush for rear selector lever	1G3704	F144	1	1						
43	Circlip for lever bush	1G3709	F145	1	1						

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		Part Number	Illus. No.	RHD	LHD			New Part Number	Change Point	Amdt. No.	
	Gearbox—continued										
1	Remote control	AEG3001		1	1						
2	Tower—remote control	AEG3117	F146	1	1						
3	Bush for remote control tower	AEG3119		1	1						
4	Dowel for remote control tower	AEG3101	F148	2	2						
5	Core plug for tower	CA1056	F149	1	1						
6	Lever—change speed	AEG3112	F150	1	1						
7	Knob for change speed lever	1G3706	F151	1	1						
8	Locknut for change speed lever knob	FNP205	F152	1	1						
9	Stop plate	AEG3118	F153	1	1						
10	Snug for change speed ball	AEG3106	F154	2	2						
11	Spring for change speed lever	AEG3105	F155	1	1						
12	Cover for ball spring	1G3927	F156	1	1						
13	Circlip for ball spring cover	1H3087	F157	1	1						
14	Plunger for reverse selector	AEG3120	F158	1	1						
15	Spring for reverse plunger	1G3863	F159	1	1						
16	Plug for reverse plunger	2K6534	F160	1	1						
17	Dowel for reverse plunger	1G3718	F161	1	1						
18	Ball for reverse plunger	BLS110	F162	1	1	12					
19	Spring for reverse plunger detent	2K4909	F163	1	1	26					
20	Joint for control tower	1G3711	F164	2	2	12					
21	Bolt for tower (long)	HBN0500	F165	2	2			NCS0509	] Com. (G) A9864		
22	Bolt for tower (short)	HBN0522	F166	2	2			HCN0522			
23	Washer for bolts (spring)	2K5319	F167	4	4						
24	Plug for ball retaining—box cover	AEG3113	F168	1	1						
25	Washer for plug	AEG3122	F169	1	1						
26	Plunger	AEG3124	F170	1	1						
27	Spring for plunger	AEG3123	F171	2	2						
28	Ball for selector lever	BLS108	F172	1	1	144					
29	Shaft—remote control	AEG3114	F173	1	1						
30	Lever—front—selector	AEG3115	F174	1	1						
31	Lever—rear—selector	AEG3116	F175	1	1						
32	Set screw for front and rear lever	HZS0407	F176	2	2						
33	Washer for set screw (spring)	LWZ204	F177	2	2						
34	Key for remote control shaft	JA5732	F178	2	2						
35	Draught excluder for gear lever (rubber)	14A1463	F179	1	1						
36	Ring for draught excluder to lever	AHH5388	F180	1	1						



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SERVICE PARTS LIST

THE MGA 1600

Item No.	DESCRIPTION	Commencing (E) 16GA/H101		Quantity	MODIFICATIONS		REMARKS
		Part Number	Illus. No.		New Part Number	Change Point	
	GEARBOX						
1	Gearbox assembly	1H3362		1	22H73	Com. (E) 16GC/H101	
					22H124	Com. (E) 16GC/H3929, also 3854	
2	Casing assembly	48G127	1	1	48G129	Com. (E) 16GC/H101	Not available; use 48G252
					48G252	Com (E) 16GC/H4748, also 4722 to 4725, 4730, 4731, 4733, 4735 to 4739	
3	Dowel—locating block to gearbox	AEG3108	2	2			
4	Stud—front cover	53K2172	3	7			
5	Stud—rear extension	CHS2513	4	2			
6	Plug—drain	2K5830	6	1			
7	Plug—casing—welch	2K8158				Fin. (E) 16GA/U/H31660	
8	Cover assembly—front	1H3147	7	1	48G179	Com. (E) 16GA/U/H12834	1H3147 not available; use 48G179
9	Oil seal	1H3138	8	1	22H475		1H3138 not available; use 22H475
10	Joint washer—front cover to casing	1G3666	9	1			
11	Washer—spring—stud—front cover to casing	LWZ305	10	7			
12	Nut—front cover stud	FNZ105	11	7			
13	Cover—gearbox side	1G3656	12	1			
14	Joint washer—side cover to casing	1G3658	13	1			
15	Screw—gearbox side cover	53K147	14	7			
16	Washer—spring—screw	LWZ305	15	6			
17	Washer—plain—screw	PWZ105	16	1			
18	Washer—fibre—screw	2K4958	17	1			
19	Screw—gearbox side cover (countersunk)	53K162	18	3			
20	Washer—shakeproof—countersunk screw	6K9012	19	3			
21	Extension—rear	1H3273	20	1			
22	Plug—taper—rear extension	2K1356	21	2			
23	Bearing—rear extension	6K529	22	1			
24	Oil seal—rear extension	1H3275	23	1			
25	Circlip—oil seal	CCN240	24	1			
26	Joint washer—extension to casing	1G3712	25	1			
27	Screw—extension to casing	HCZ0510	26	6			
28	Washer—spring—screw	LWZ305	27	6			
29	Washer—spring—stud	LWZ305		2			
30	Nut—stud—rear extension to casing	FNZ105	28	2			
31	Cover—rear extension—side	1G3809	29	1			
32	Joint washer—side cover to extension	1G3810	30	1			
33	Screw—side cover to extension	HZS0405	31	6			
34	Washer—spring—screw	LWZ304	32	6			
35	Breather assembly	1H3364	33	1			
36	Shaft—1st motion	1G3611	34	1	22H56	Com. (E) 16GC/H3929 also 3854	
37	Bearing	6K885	35	1			
38	Spring ring—bearing	6K886	36	1			

SERVICE PARTS LIST

THE MGA 1600

Item No.	DESCRIPTION	Commencing (E) 16GA/H101		Quantity	MODIFICATIONS		REMARKS
		Part Number	Illus. No.		New Part Number	Change Point	
	Gearbox—continued						
1	Shim—1st motion shaft—002"	6K907	37	A/R			
2	Shim—1st motion shaft—004"	6K908		A/R			
3	Needle roller—1st motion shaft	8G2404	18				Part No. change; was 6K892
4	Washer—1st motion shaft nut (locking)	1A3717	38	1			
5	Nut—1st motion shaft	1G3584	39	1			
6	Housing—rear bearing	1G3586	40	1			
7	Peg—locating—rear bearing housing	1G3530	41	1			
8	Bearing—rear—3rd motion shaft	6K528	42	1			
9	Distance piece assembly—speedometer gear to rear bearing	AEH3242	43	1			
10	Flange—3rd motion shaft	1H3304	44	1			
11	Nut—3rd motion shaft flange	FNZ612	45	1			
12	Washer—spring—nut	LWZ212	46	1			
13	Fork—reverse	11G3134	47	1			
14	Screw—reverse fork locating	2A3141	48	1			
15	Washer—shakeproof—screw	LWN404	49	1			Part No. change; was LWN604
16	Nut—fork locating screw	FNN504	50	1			
17	Fork—1st and 2nd speed	11G3135	51	1			
18	Screw—fork locating	2A3141	52	1			
19	Washer—shakeproof—screw	LWN404	53	1			Part No. change; was LWN604
20	Nut—fork locating screw	FNN504	54	1			
21	Rod—1st and 2nd speed fork	11G3079	55	1			
22	Fork—3rd and 4th speed	1H3257	56	1			
23	Screw—fork locating	2A3141	57	1			
24	Washer—shakeproof—screw	LWN404	58	1			Part No. change; was LWN604
25	Rod—3rd and 4th speed fork	11G3140	59	1			
26	Distance piece—3rd and 4th speed fork rod	1H3258	60	1			
27	Rod—reverse fork	11G3137	61	1			
28	Ball—fork locating	BLS110	62	3			
29	Spring—locating ball	22A75	63	3			
30	Block—sliding shaft locating	11G3187	64	1			
31	Screw—locating block to gearbox	HNS0407	65	2			
32	Washer—spring—screw	LWN304	66	2			
33	Selector—1st and 2nd gear	11G3132	67	1			
34	Screw—selector locating	1G3708	68	1			
35	Selector—3rd and 4th gear	11G3133	69	1			
36	Screw—selector locating	1G3708	70	1			
37	Selector—reverse gear	11G3181	71	1			
38	Screw—selector locating	1G3708	72	1			
39	Pinion—speedometer	1H3241	73	1			
40	Bush—speedometer pinion	2A3256	74	1			
41	Seal—oil—speedometer pinion	2A3254	75	1			
42	Ring—oil seal retaining	2A3255	76	1			
43	Joint washer—speedometer pinion bush	88G208	77	1			Part No. change; was 51K3169
44	Arm assembly—interlocking	1H3092	78	1	22H35	Com. (G) 22729	1H3092 not available; use 22H35

SERVICE PARTS LIST

THE MGA 1600

Item No.	DESCRIPTION	Commencing (E) 16GA/H101		Quantity	MODIFICATIONS		REMARKS
		Part Number	Illus. No.		New Part Number	Change Point	
	Gearbox—continued						
1	Layshaft	1H3305	79	1			
2	Gear unit—layshaft	11G3024	80	1	22H54		11G3024 not available; use 22H54
3	Washer—thrust—front—laygear	1G3576	81	A/R			
4	Washer—thrust—rear .154" to .156" (3-912 to 3-962 mm.)	1G3577	82	A/R			
5	Washer—thrust—rear .157" to .158" (3-988 to 4-013 mm.)	1G3578		A/R			
6	Washer—thrust—rear .160" to .161" (4-06 to 4-085 mm.)	1G3579		A/R			
7	Washer—thrust—rear .163" to .164" (4-136 to 4-162 mm.)	1G3580		A/R			
8	Roller—needle bearing—layshaft	3H2865	83	3			
9	Tube—distance—laygear bearing	11G3026	84	1			
10	Ring—spring—layshaft	11G3027	85	4			
11	Shaft—reverse	88G258	86	1			Part No. change was 11G3124 and 11G3093
12	Screw—reverse shaft	1G3581	87	1			
13	Washer—locking—screw	1B3863	88	1			
14	Gear assembly—reverse	11G3090	89	1	22H51 22H83	Com. (E) 16GC/H5403	Not available; use 22H83
15	Bush—reverse gear	11G8092	90	1			
16	Shaft—3rd motion	1H3277	91	1			
17	Restrictor—oil	1A1964	92	1			
18	Washer—thrust—3rd motion shaft—rear	1G3492	93	1			
19	Washer—thrust—front .1565" to .1575" (3-962 to 3-988 mm.)	11G3127	94	A/R			
20	Washer—thrust—front .1585" to .1595" (4-013 to 4-039 mm.)	11G3128		A/R			
21	Washer—thrust—front .1605" to .1615" (4-06 to 4-085 mm.)	11G3129		A/R			
22	Peg—thrust washer	1G3268	95	1			
23	Spring—peg	2K8960	96	1			
24	First speed wheel and synchronizer assembly	48G137	97	1	48G206		48G137 not available; use 48G206
25	Ball—synchronizer	BLS109	98	3			
26	Spring—synchronizer ball	6K884	99	3			
27	Baulk ring—2nd speed gear	11G3063	100	1			
28	Gear—2nd speed	11G3064	101	1			
29	Bush—2nd speed mainshaft gear	11G3028	102	1			
30	Ring—2nd and 3rd gear bushes—interlocking	1G3331	103	1			
31	Gear—3rd speed	1G3594	104	1			
32	Bush—3rd speed gear	11G3029	105	1			
33	Baulk ring—3rd and 4th speed gear	11G3022	106	2			
34	Synchronizer—3rd and 4th speed	1G3597	107	1			
35	Spring—synchronizer ball	6K884	108	3			
36	Ball—synchronizer	BLS109	109	3			
37	Coupling—sliding—3rd and 4th speed	1G3598	110	1			
38	Distance piece—3rd motion shaft	11G3223	111	1			
39	Gear—speedometer	1H3151	112	1			
40	Key—speedometer gear	WKN304	113	1			

SERVICE PARTS LIST

THE MGA 1600

Item No.	DESCRIPTION	Commencing (E) 16GA/H101		Quantity	MODIFICATIONS		REMARKS
		Part Number	Illus. No.		New Part Number	Change Point	
	Gearbox—continued						
1	Shaft—remote control (rear extension)	1H3368	114	1			
2	Lever—selector—front	88G254	115	1			Part No. change; was 1G3680 and 22H24
3	Screw—selector lever—front	51K1030	116	1			
4	Washer—shakeproof—screw	LWN404	117	1			Part No. change; was LWN604
5	Lever—selector—rear	88G253	118	1			Part No. change; was 1H3095 and 22H25
6	Screw—selector lever—rear	51K1031	119	1			
7	Washer—spring—screw	2K5319	120	1			
8	Key—selector lever	WKN404	121	2			
9	Cap—control shaft boss	8G500	122	2			
10	Joint washer—cap	2K4971	123	2			
11	Lever—clutch withdrawal	11G3193	124	1			
12	Bush for withdrawal lever	11G3195	125	1			
13	Bolt—clutch withdrawal lever	11G3196	126	1			
14	Washer—bolt	11G3199	127	1			
15	Nut—bolt (stiff)	1NZ206	128	1			
16	Cover—clutch withdrawal lever (dust)	1G3607	129	1			
17	Oil level indicator—gearbox	1G3802	130	1			
18	Bolt—gearbox to mounting plate	HBZ0510	131	7			
19	Bolt—gearbox to mounting plate			1	HBZ0510		Fin. (E) 16GC/H14721 except 4721 to 4720, 4732, 4734, 4740 to 4747 Com. (E) 16GC/H4748 also 4722 to 4725, 4730, 4731, 4733, 4735 to 4739
20	Bolt—gearbox to mounting plate			2	HBZ0515		
21	Bolt—gearbox to mounting plate			4	HBZ0520		
22	Nut—bolt	FNZ505	132	7			
23	Washer—spring—nut	LWZ305	133	7			
24	Tower assembly—remote control	AEG3001	134	1			
25	Tower—remote control	AEG3117	135	1			
26	Dowel—remote control tower	AEG3101	136	2			
27	Plug—tower (core)	CA1056	137	1			
28	Lever—change speed	AEG3112	138	1			
29	Knob—change speed lever	1G3706	139	1			
30	Locknut—change speed knob	FNP205	140	1			
31	Stop plate	AEG3118	141	1			
32	Snug—change speed ball	AEG3106	142	2			
33	Spring—change speed lever	AEG3105	143	1			
34	Cover—ball spring	1G3927	144	1			
35	Circlip—ball spring cover	1H3087	145	1			
36	Plunger—reverse selector	AEG3120	146	1			
37	Spring—reverse plunger	1G3863	147	1			
38	Plug—reverse plunger	2K0534	148	1			
39	Dowel—reverse plunger	1G3713	149	1			

SERVICE PARTS LIST

THE MGA 1600

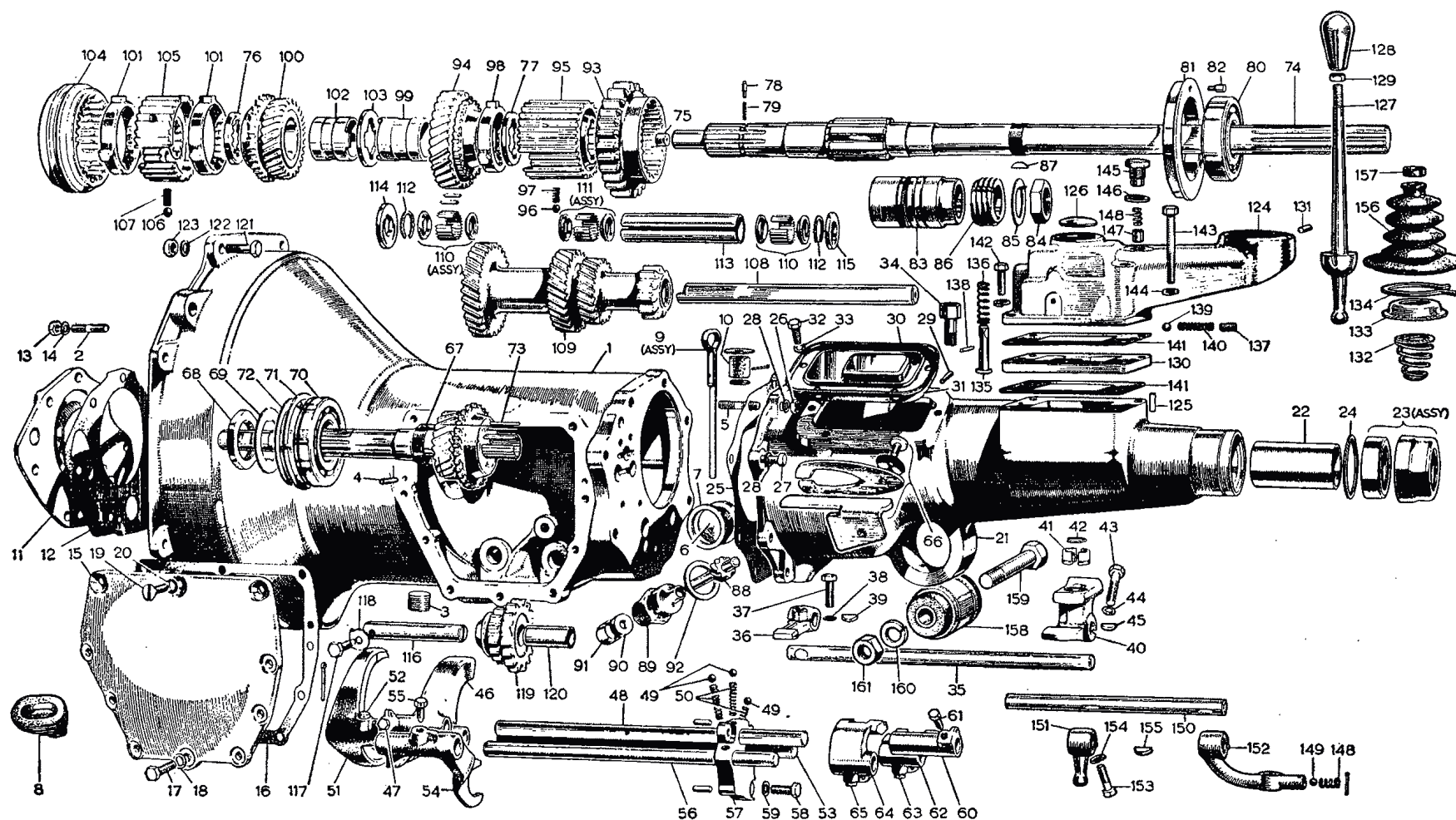
Item No.	DESCRIPTION	Commencing (E) 16GA/H101		Quantity	MODIFICATIONS		REMARKS
		Part Number	Illus. No.		New Part Number	Change Point	
	Gearbox—continued						
1	Ball—reverse plunger	BLS110	.150	1			
2	Spring—reverse plunger detent	22A75	.151	1			
3	Gasket—control tower	1G8711	.152	2			
4	Bolt—tower to extension (short)	HBN0509	.153	2			
5	Bolt—tower to extension (long)	HBN0522	.154	2			
6	Washer—spring—for bolt	2K5319	.155	4	LWN305		2K5319 not available; use LWN305
7	Plug—ball retaining	AEG3113	.156	1			
8	Washer—plug	AEG3122	.157	1			
9	Plunger	AEG3124	.158	1			
10	Spring—plunger	AEG4123	.159	2			
11	Ball—selector lever	BLS108	.160	1			
12	Shaft—remote control (tower)	AEG3114	.161	1			
13	Lever—selector—front	AEG3115	.162	1			
14	Lever—selector—rear	AEG3116	.163	1			
15	Screw—selector lever	HZS0407	.164	2			
16	Washer—spring—screw	LWN204	.165	2			
17	Key—lever	WKN404	.166	2			Part No. change; was JA5732
18	Draught excluder—change speed lever (rubber)	14A1468	.167	1			
19	Ring—draught excluder	AHH5388	.168	1			
20	Bush—change speed lever	1G3704	.169	1			
21	Circlip—bush	1G8709	.1	1			

AKD 600D**SECTION F**
THE GEARBOX

General description.

- Section No. F.1 Removing the gearbox.
- Section No. F.2 Dismantling the gearbox.
- Section No. F.3 Dismantling the third motion shaft.
- Section No. F.4 Assembling the third motion shaft.
- Section No. F.5 Layshaft gear.
- Section No. F.6 Assembling the first motion shaft.
- Section No. F.7 Assembling the rear extension.
- Section No. F.8 Assembling the gearbox.
- Section No. F.9 Modified gearbox front end cover.
- Section No. F.10 Modified gearbox.

THE GEARBOX COMPONENTS



KEY TO THE GEARBOX COMPONENTS

<i>No.</i>	<i>Description</i>	<i>No.</i>	<i>Description</i>	<i>No.</i>	<i>Description</i>	<i>No.</i>	<i>Description</i>
1.	Casing—gearbox.	42.	Circlip—lever bush.	84.	Nut—shaft and speedometer gear.	122.	Washer—spring.
2.	Stud—front cover.	43.	Set screw—rear lever.	85.	Lock washer.	123.	Nut—mounting plate bolt.
3.	Plug—drain.	44.	Spring washer—set screw.	86.	Gear—speedometer drive.	124.	Tower—remote control.
4.	Dowel—side cover to gearbox.	45.	Key—selector lever.	87.	Key—gear.	125.	Dowel—remote control tower.
5.	Stud—gearbox extension.	46.	Fork—1st and 2nd speed.	88.	Pinion—speedometer drive.	126.	Core plug—tower.
6.	Plug—blanking.	47.	Screw—fork locating.	89.	Bush—pinion.	127.	Lever—change speed.
7.	Joint washer—blanking plug.	48.	Shaft—1st and 2nd speed fork.	90.	Oil seal—pinion.	128.	Knob—change speed lever.
8.	Dust cover—clutch withdrawal lever.	49.	Ball—shaft.	91.	Ring—oil seal retaining.	129.	Locknut—change speed lever knob.
9.	Dipstick.	50.	Spring—ball.	92.	Joint—bush to rear cover.	130.	Stop plate.
10.	Felt.	51.	Fork—3rd and 4th speed.	93.	Gear—1st speed.	131.	Snug—change speed ball.
11.	Cover—front.	52.	Screw—fork locating.	94.	Gear—2nd speed.	132.	Spring—change speed lever.
12.	Joint—front cover.	53.	Shaft—3rd and 4th speed fork.	95.	Synchroniser—2nd speed.	133.	Cover—ball spring.
13.	Nut—front cover studs.	54.	Fork—reverse.	96.	Ball—synchroniser.	134.	Circlip—ball spring cover.
14.	Spring washer—front cover stud.	55.	Screw—fork locating.	97.	Spring—ball.	135.	Plunger—reverse selector.
15.	Cover—side.	56.	Shaft—reverse fork.	98.	Baulk ring—2nd speed gear.	136.	Spring—reverse plunger.
16.	Joint—side cover.	57.	Block—shaft locating.	99.	Bush—2nd speed gear.	137.	Plug—reverse plunger.
17.	Set screw—side cover.	58.	Set screw—block to casing.	100.	Gear—3rd speed.	138.	Dowel—reverse plunger.
18.	Spring washer—side cover screw.	59.	Spring washer—block screw.	101.	Baulk ring—3rd and 4th gear.	139.	Ball—reverse plunger.
19.	Countersunk screw—side cover.	60.	Selector—1st and 2nd gear.	102.	Bush—3rd speed gear.	140.	Spring—reverse plunger detent.
20.	Shakeproof washer—countersunk screw.	61.	Screw—selector locating.	103.	Ring—interlocking—2nd and 3rd bushes.	141.	Gasket—control tower.
21.	Extension—gearbox.	62.	Selector—3rd and 4th gear.	104.	Coupling—sliding—3rd and 4th speed.	142.	Bolt—short—tower.
22.	Bush.	63.	Screw—selector locating.	105.	Synchroniser—3rd and 4th speed.	143.	Bolt—long—tower.
23.	Oil seal.	64.	Selector—reverse gear.	106.	Ball—synchroniser.	144.	Spring washer.
24.	Joint washer—oil seal.	65.	Screw—reverse gear selector.	107.	Spring—ball.	145.	Plug—ball retaining—box cover.
25.	Joint extension to gearbox.	66.	Interlock arm complete.	108.	Layshaft.	146.	Washer—plug.
26.	Nut—gearbox extension stud.	67.	Shaft—1st pinion.	109.	Gear unit—layshaft.	147.	Plunger.
27.	Set screw—gearbox extension.	68.	Nut—shaft.	110.	Bearing—needle roller—layshaft—outer.	148.	Spring—plunger.
28.	Spring washer—stud and set screw.	69.	Lock washer.	111.	Bearing—needle roller—layshaft—inner.	149.	Ball—selector lever.
29.	Plug—taper—gearbox extension.	70.	Bearing—ball—shaft.	112.	Spring ring—needle rollers.	150.	Shaft—remote control.
30.	Cover—extension side.	71.	Spring ring—bearing.	113.	Distance-piece—bearing.	151.	Lever—front—selector.
31.	Joint—extension side cover.	72.	Shim—bearing.	114.	Washer—thrust—front.	152.	Lever—rear—selector.
32.	Set screw—extension side cover.	73.	Rollers—needle—shaft.	115.	Washer—thrust—rear.	153.	Set screw—front and rear lever.
33.	Spring washer.	74.	Shaft—3rd motion.	116.	Shaft—reverse.	154.	Spring washer.
34.	Breather assembly.	75.	Restrictor—oil.	117.	Screw—locking—shaft.	155.	Key.
35.	Shaft—remote control.	76.	Washer—thrust—front.	118.	Lock washer—screw.	156.	Draught excluder—rubber—gear lever.
36.	Lever—selector—front.	77.	Washer—thrust—rear.	119.	Gear—reverse.	157.	Ring—lever draught excluder.
37.	Set screw—front lever.	78.	Peg—thrust washer—front.	120.	Bush.	158.	Flexible bush—rear engine mounting.
38.	Spring washer—set screw.	79.	Spring—peg.	121.	Bolt—gearbox to mounting plate.	159.	Bolt—rear mounting bush.
39.	Key—selector lever.	80.	Bearing—rear—3rd motion shaft.			160.	Washer—spring.
40.	Lever—selector—rear.	81.	Housing—bearing.			161.	Nut—rear mounting bush bolt.
41.	Bush—rear selector lever.	82.	Peg—locating.				
		83.	Distance-piece — speedometer gear.				

GENERAL DESCRIPTION

The gearbox has four forward speeds and one reverse. Top gear is obtained by direct drive, third and second by gears in constant mesh, and first and reverse by sliding spur gears.

A sliding joint of the reverse spline type is fitted to the rear end of the third motion shaft and is lubricated from the gearbox.

Section F.1

REMOVING THE GEARBOX

Remove the power unit as in Section A.18.

Remove the starter motor and unscrew the bolts and nuts securing the bell housing and exhaust pipe support brackets and withdraw the gearbox and rear extension from the engine. Take care to keep the gearbox flange parallel with the crankcase face until the first motion shaft is clear of the clutch.

Section F.2

DISMANTLING THE GEARBOX

Extract the dipstick, drain plug and speedometer drive.

Unscrew the nuts and remove the gear lever remote control tower and joint washer.

Unscrew and remove the six bolts and the rear extension cover and joint washer. Remove the interlock arm and bracket.

Remove the one nut and seven set screws securing the gearbox extension to the gearbox. Pull the extension from the gearbox, at the same time manoeuvring the remote control shaft selector lever from the selectors.

Unscrew the three countersunk screws and the seven hexagon-headed set screws holding the gearbox cover; remove the cover and overshoot stop.

Cut the locking wire and unscrew the three change speed fork set screws.

Unscrew the two set screws and remove the shifter shaft locating block with shifter shafts from the gearbox; note the two dowels in the block; take care to catch the three selector balls and springs.

Withdraw the forks from the box in the following order—reverse, top and third, and first and second.

Unscrew the clutch lever pivot nut; screw out the pivot bolt and remove the lever with the thrust bearing.

Unscrew the nuts and remove the gearbox front cover; note the bearing shims between the cover and the bearing. Tap out the layshaft, allowing the gear cluster to rest in the bottom of the box.

Unscrew the retaining set screw and remove the reverse shaft and gear.

Withdraw the mainshaft assembly to the rear.

Withdraw the first motion shaft complete with 18 spigot needle rollers, using tool No. 68894 if necessary.

Lift out the layshaft gear cluster and the two thrust washers.

Rear extension

Release the front and rear selector levers from the remote control shaft by removing the clamping screws and sliding the levers from the rod. Extract the keys from the shaft and withdraw the remote control shaft from the rear extension.

Section F.3

DISMANTLING THE THIRD MOTION SHAFT

Remove the following items in this order: baulk ring; synchromesh sleeve and hub; second baulk ring. If the synchromesh sleeve is removed from the hub take care not to lose the three locating balls and springs which will be released in consequence.

Press down the third speed gear cone thrust washer plunger; rotate the thrust washer to align its splines with those on the shaft and remove the washer.

Withdraw the third speed gear and its splined bush.

Withdraw the bush interlocking washer to release the second speed gear with its bush and baulk ring.

Remove the thrust washer from the splines on the shaft and withdraw the first and second speed hub and gear; if necessary slide the gear from the hub, taking care not to lose the three balls and springs.

Tap up the locking tab and unscrew the rear retaining nut; withdraw the washer, speedometer drive gear and key and the distance sleeve from the shaft.

Press the rear bearing and housing from the shaft.

Section F.4

ASSEMBLING THE THIRD MOTION SHAFT

Assemble from the front end.

1. Locate the rear thrust washer on the front end of the splines, ground face to the front.
2. Push the longer brass bush up to the splines with the dog towards the front.

Note.—This bush must be fitted so that the oil hole is in line with the one in the shaft and the cut-away portion of the third speed splined bush will be over the locating peg hole when the dogs of the two bushes are engaged with the bush interlocking washer.

3. Fit the second speed baulk ring and gear onto the bush with the plain side of the gear towards the front.
4. Slide on the bush interlocking ring and the shorter

splined bush, locating the dogs of both bushes in the interlocking ring.

- (5) Insert the spring and locating peg into the hole in the shaft.
- (6) Fit the third speed gear onto the bush with the cone towards the front.
- (7) Thread on the front thrust washer, machined face towards the gear, while holding down the locating peg with a thin punch through the hole in the gear cone, and push the washer over it; turn the washer to allow the locating peg to engage in one of the splines.
- (8) Fit the three springs and balls to the third speed synchronizer and push on the synchronizer sleeve (striking dog).
- (9) Push on the top and third gear synchromesh assembly hub with its two baulk rings. The plain side of the hub faces the rear.

Assemble the following items from the rear:

- (1) Insert the three balls and springs in the second gear hub and push the synchronizer sleeve (striking dog) into position on the hub.
- (2) Fit the first speed gear and synchromesh hub assembly, and the baulk ring, to the splines on the shaft.
- (3) Press the rear bearing into its housing and fit it to the shaft, outer flange of the housing to the rear.
- (4) Push on the distance sleeve, speedometer drive gear and key, lock washer and nut.

Section F.5

LAYSHAFT GEAR

The assembly sequence of the layshaft bearings is as follows: a circlip at the rear, a needle race, a single long distance tube, a circlip, a needle race, a circlip, a needle race, a circlip, two races being fitted at the front end and one at the rear.

When assembling, fit a circlip to the innermost groove in the gear, pushing it in from the front, or large gear, end.

Hold the layshaft vertically in the vice, stepped end downwards.

Smear the shaft with grease and assemble a roller bearing on the shaft against the vice jaws and then slide the gear cluster over the shaft and the bearing with the large gear downwards.

Remove the shaft from the vice and push the bearing into the gear against the circlip. Fit a retaining circlip and follow with the end roller bearing assembly and retaining circlip.

Slide the distance tube into the other end of the gear, followed by the other end bearing and circlip. Withdraw the shaft from the gear.

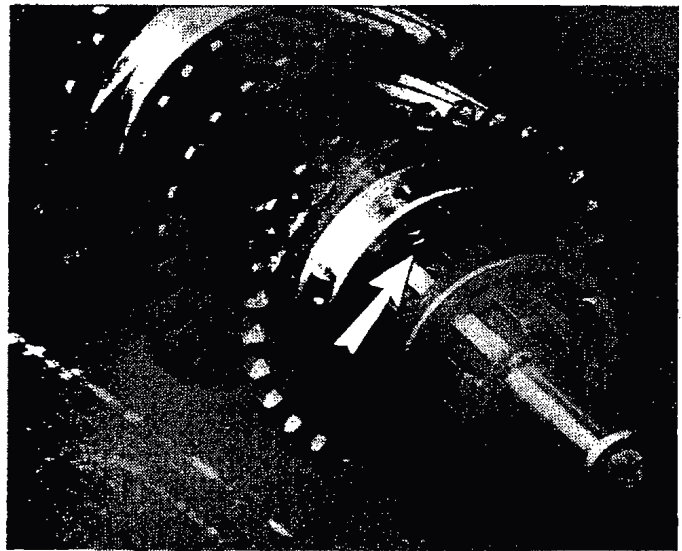


Fig. F.1

The arrow indicates the third speed thrust washer and locating peg. Note the hole in the gear cone

Section F.6

ASSEMBLING THE FIRST MOTION SHAFT

Fit the bearing to the shaft with the spring ring away from the gear. Replace the lock washer and tighten the retaining nut; bend over the locking tab. Fit the shaft to the housing. Do not fit the front end cover until the layshaft has been refitted.

Section F.7

ASSEMBLING THE REAR EXTENSION

Locate the remote control shaft in the rear extension.

Fit the front and rear selector levers to the remote control shaft; note that they are secured and located by keys and set screws.

Fit the rear extension to the gearbox, locating the control shaft front selector lever in the shifter rod selectors.

Replace the interlock arm on the rear extension side cover flange and refit the cover.

Section F.8

ASSEMBLING THE GEARBOX

Place the layshaft gear in the box complete with end thrust washers but do not fit the shaft.

Assemble and replace the first motion shaft, and replace the 18 needle-roller bearings.

Insert the third motion shaft from the rear; use the gasket fitted between the box and rear extension to position the dowel and bearing housing. Push home the

shaft, the rear bearing and housing, and enter the spigot in the needle-roller race of the first motion shaft.

Fit the layshaft and thrust washers. Line up the cut-away portion of the front end with the layshaft locating groove in the front cover.

Fit the reverse gear and shaft; tighten and lock the set screw.

Refit the front end cover, replacing the bearing shims that were removed on dismantling.

Refit the clutch lever and fork.

Fit the selectors to the shifter shaft rear ends.

Bolt the shifter shaft locating block to the rear face of the gearbox; replace the balls and springs and insert the shifter shafts.

Position the gear change forks in the box in the following sequence: reverse, first and second, third and top. Push the shifter shafts into the box and through the forks; insert, tighten, and wire up the set screws.

Position the selectors on the rear ends of the shifter shafts; insert, tighten, and wire up the set screws.

Refit the gearbox rear extension.

Locate the change speed gate in the gearbox and fit the side cover, using a new joint as necessary.

Screw in the speedometer drive gear assembly, plugs and breather.

The remote control assembly is fitted to the gearbox, and the gearbox filled with oil, after the power unit is installed in the chassis.

Section F.9

MODIFIED GEARBOX FRONT END COVER

Commencing at Engine No. 7981, and a few earlier gearboxes, a modified gearbox front end cover is introduced. The new cover is fitted with an oil seal to prevent the possibility of oil leaking into the clutch housing. There is also a venting duct in the cover necessitating modified fork rods.

The parts may not be fitted to earlier cars.

The new part numbers are :

Gearbox front end cover	..	..	1H3137
Gearbox cover oil seal	..	..	1H3138
Reverse fork rod	..	..	11G3137

First and second fork rod 11G3079

Third and fourth fork rod 11G3140

Refitting the front cover

It is essential that the front cover should be concentric with the first motion shaft in order to avoid oil leaks. This is effected as follows.

Mount the cover, less oil seal, onto the gearbox, and push right home on the studs. Ensure that the cover is free to move in all directions on the studs. If not, the points at which the holes bind on the studs must be relieved until the cover is free to 'float'. Remove the cover and refit the oil seal, using Service tool 18G134 with adaptor 18G134Q.

Fit Service tool 18G598 to the bore of the front cover, and push it in until it is tight. Lightly oil the seal, and carefully fit the front cover, retaining the centralizer 18G598 firmly in position. Fit all spring washers and nuts and tighten them finger-tight only. Using a suitable socket spanner, tighten all nuts, by diametric selection, one half-turn at a time until the nuts are fully tightened. Remove the centralizer.

Section F.10

MODIFIED GEARBOX

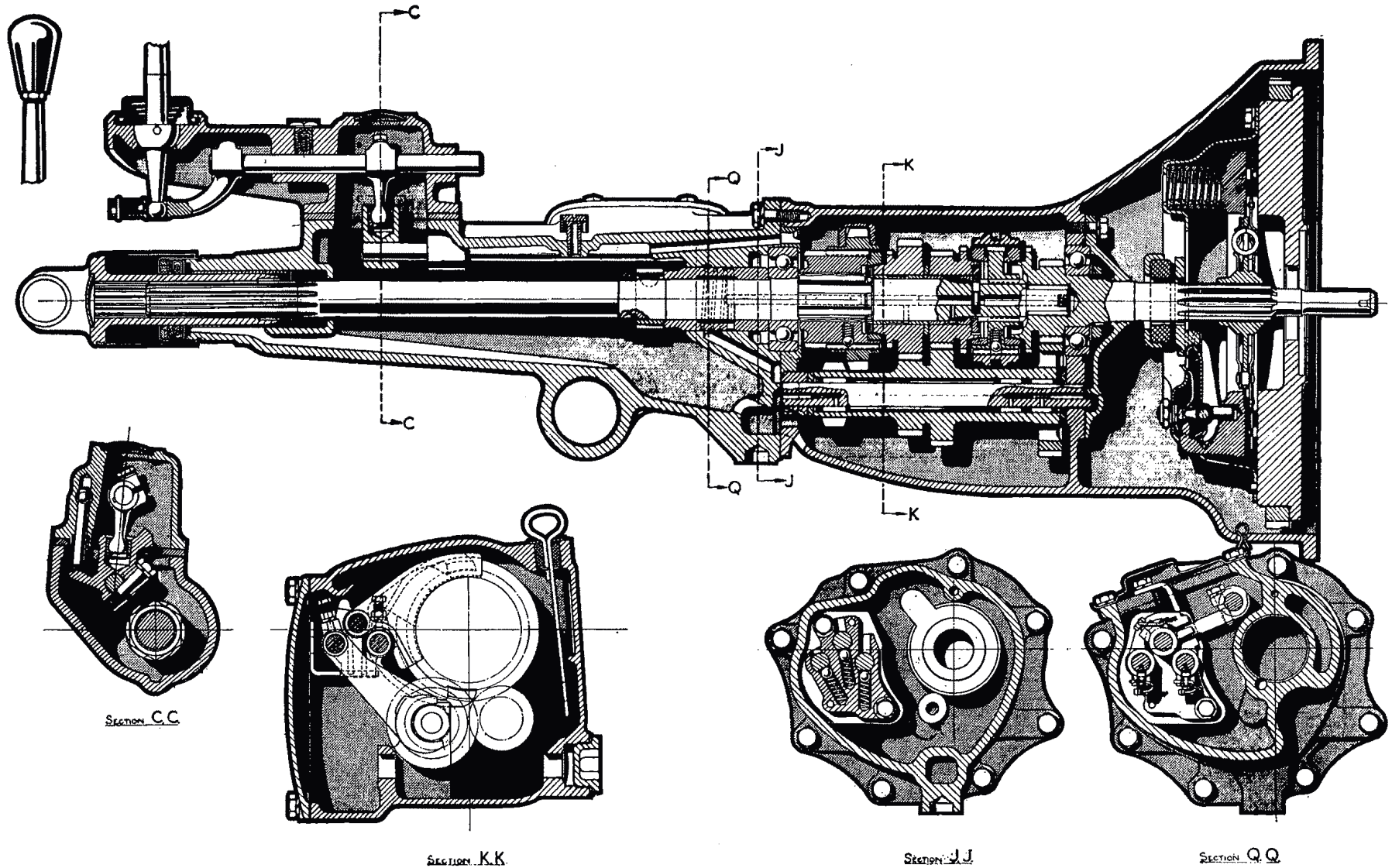
Coincident with the introduction of the 15GD series power unit (see Section A.44) the following changes have been incorporated in the gearbox.

The main gearbox casing has been modified to accommodate the new high position of the starter motor on the engine. The gearbox extension has also been changed to suit the new gearbox third motion shaft. The propeller shaft (see Section G.8) is now bolted to a flange which is splined to the gearbox third motion shaft and secured by a nut and spring washer. This arrangement supersedes that of the splined sliding joint for the propeller shaft on the third motion shaft.

To remove the gearbox remove the power unit as in Section A.44. Detach the gearbox from the engine as in Section F.1.

The new gearbox is not interchangeable with that previously fitted.

THE GEARBOX AND REMOTE CONTROL IN SECTION



SECTION FF

THE GEARBOX

(MGA 1600 and MGA 1600 [Mk. II])

Section FF.1 Modified gearbox assemblies.

Section FF.1

MODIFIED GEARBOX ASSEMBLIES

Three modifications to the gearbox have been introduced to prevent automatic disengagement of third gear. If trouble of this nature is experienced remove the gearbox from the car (Section F.1) and check the following points:

- (1) Follow the gearbox dismantling procedure given in Section F.2 as far as removing the shift shaft locating block from the gearbox casing. Remove the third and fourth gear shifting rod from the locating block, being careful to catch the ball and spring that will be released. The free length of this spring should be 1.187 in. (30.16 mm.) and the poundage should be between 18 and 20 lb. (8.16 and 9.07 kg.) when the spring is compressed to .75 in. (19.05 mm.). As these springs adopt a permanent set in service without necessarily affecting the poundage, it is advisable to ensure that the spring is in order by checking its poundage.
- (2) Check the depth of the bore in the fork rod locating block, using a depth gauge micrometer. This dimension should be 2.094 in. (53.18 mm.) (see [A], Fig. FF.1). On unmodified gearboxes the depth was 2.157 in. (54.77 mm.). In such cases fit a packing washer .063 in. thick (1.59 mm.) in the bottom of the bore.
- (3) Check the depth of the detent notches in the third and fourth speed selector fork rod. Give particular

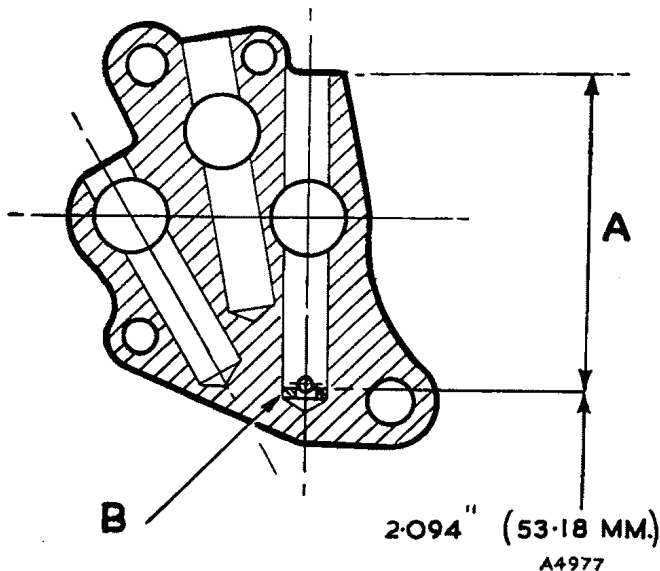


Fig. FF.1

The fork locating block in section, showing a washer (B) .063 in. (1.59 mm.) thick fitted to provide the revised bore depth (A) of 2.094 in. (53.18 mm.)

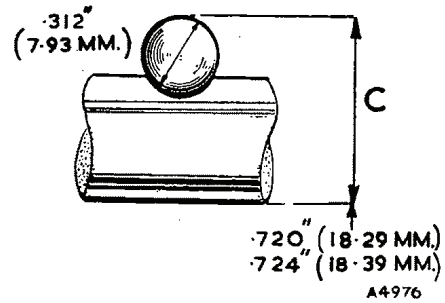


Fig. FF.2

The third and fourth speed fork rod with detent ball placed in a notch for measurement of distance (C)

attention to the third speed notch nearest the centre of the rod. It is not intended that the smaller central (neutral position) notch should be included in this check. Measure the diameter of the detent ball, using a micrometer (Fig. FF.2). Place the ball in each of the deeper notches in turn and measure the distance (C) (Fig. FF.2). If this measurement is greater than .724 in. (18.39 mm.) a new fork rod providing dimension (C) in both the third and fourth speed notches should be selected and fitted. The depth of these two detent notches was increased by .018 in. (.46 mm.) on later gearboxes to give the dimension shown in Fig. FF.2.

- (4) Following the procedure given in Section FF.2, remove the third motion shaft (mainshaft) assembly from the gearbox. Remove the top and third gear synchromesh sleeve and hub with its baulk rings. Press down the third speed gear thrust washer locating plunger. Turn the thrust washer to align its splines with those on the shaft and remove the washer. Withdraw the third speed gear and its bronze bush. Withdraw the bush interlocking washer to release the second speed gear with its bronze bush and baulk ring. Check with a micrometer the outside diameter of the bronze bushes. This should be 1.3115 to 1.312 in. (33.308 to 33.321 mm.). Ensure that this dimension is constant throughout the length of each bush. If the bushes are worn fit new phosphor-bronze bushes (Part Nos. 11G3028 and 11G3029). These were reintroduced at Gearbox No. 24001 to replace the sintered bronze bushes used previously.

Reassemble the third motion shaft (mainshaft), following the instructions given in Section F.4, and immerse the bronze bushes in warm oil to facilitate fitting.

Reassemble the gearbox, using the method given in Sections F.4 and F.5.