

HEAD OF "P" BRANCH

FOR OFFICIAL USE ONLY*Not to be communicated to anyone outside H.M. Service***ADMIRALTY FLEET ORDER****MERLIN ENGINE TOOLS**

ADMIRALTY, S.W.1.

27th May, 1943.

The following Order having been approved by My Lords Commissioners of the Admiralty is hereby promulgated for information and guidance and necessary action.

By Command of their Lordships,

*J. V. Markham*

**Distribution Limited.**

To Commanders-in-Chief, Flag Officers, Senior Naval Officers, Captains and Commanding Officers of H.M. Ships and Vessels carrying Aircraft, Superintendents or Officers in Charge of H.M. Naval Establishments, and Admiralty Overseers concerned.

NOTE:—The scale of distribution is shown in the Admiralty Fleet Order Volume, 1941, Instructions, paragraph 10.

Head of "P" Branch

**2460.—Merlin Engine Tools**  
(N.S./A.M.R. 263/43.—27.5.1943.)

The issue of engine tool kits for maintenance and repair of Merlin engines fitted to naval aircraft has been discontinued. In future all tools are to be demanded as individual items and will be allowed to each service as detailed in the appendix to this order. Supply will be made to new services in accordance with these allowances. A separate order will be issued regarding tools for Rolls-Royce Griffon engines.

2. All services concerned are to break down existing kits held into their component parts and to take the items on charge separately. Arrangements should then be made to adjust the range and quantities to conform to these allowances. Tools held surplus to allowance should be returned to the nearest R.N. store depot (at home) or storing yard (abroad) without delay in order that they may be re-issued to other services. In view of the great shortage of these tools Commanding Officers are to ensure that this order is complied with without delay.

3. Tools allowed will, broadly, limit the work which can be undertaken by these services to the following:—

- (a) *Squadrons* ... Daily inspections.  
Daily maintenance.  
Minor inspections.
- (b) *Aircraft Carriers (Fleet and Light Fleet).* Major inspections.  
Minor repairs and replacements which involve minor stripping only.  
Shock loading within limits laid down in A.P. 1590.  
Changing of engines.  
Replacement of cylinder blocks and servicing of valves, etc. (Cylinder liners are not to be removed.)
- (c) *Aircraft Carriers (Escort)* ... As for (b) but on smaller scale.
- (d) *Aircraft Carriers (Merchant Aircraft).* As for Air Stations, Classes "D" and "E", with the addition of changing engines.
- (e) *Naval Air Stations (Classes "A", "B" and "C").* Major inspections.  
Minor repairs and replacements which involve slight stripping only.  
Shock loading within limits laid down in A.P. 1590.  
Changing of engines.  
Replacement of cylinder blocks and servicing of valves, etc. (Cylinder liners are not to be removed.)
- (f) *Naval Air Stations (Classes "D" and "E").* Daily maintenance.  
Daily inspections.  
Minor inspections.  
Minor repairs by replacement with complete assemblies, which do not involve removal of engine from air-frame.
- (g) *Repair Yards (Class "A")* ... Complete overhauls and major repairs including salvage of parts to approved schemes.
- (h) *Repair Yards (Class "B")* ... (i) Those yards specialising in the complete overhaul of Merlin engines as for Repair Yards, Class "A", less valve seat salvage and a slight reduction of other salvage work.  
(ii) Those not specialising in Merlin overhaul, as for Naval Air Stations, Class "A".

- (i) *H.M.S. " Unicorn "* ... As for Repair Yards, Class "A", but on a limited scale.
- (j) *Engine Repair Ships* ... Those specialising in the complete overhaul of Merlin engines as for Repair Yards, Class "B" (i).

4. In general, work undertaken by the above-mentioned services is to come within limitations laid down in Air Publication 1590 and other approved reconditioning schedules.

5. To ensure economy, etc., demands for tools are to be limited to immediate requirements.

6. The allowances are in no instance to be exceeded, irrespective of whether one or more types of the engines named are installed in the aircraft allotted.

Service	Tools	Quantity	Remarks
(a) Squadrons	Daily inspections, Daily maintenance, Minor inspections.		
(b) Aircraft Carriers (Fleet and Light Fleet)	Major inspections, Minor repairs and replacements which involve minor stripping only, Shock loading within limits laid down in A.P. 1590, Changing of engines, Replacement of cylinder blocks and servicing of valves, etc. (Cylinder liners are not to be removed.)		
(c) Aircraft Carriers (Escort)	As for (b) but on smaller scale.		
(d) Aircraft Carriers (Merchant Aircraft)	As for Air Stations, Classes "D" and "E", with the addition of changing engines.		
(e) Naval Air Stations (Classes "A", "B" and "C")	Major inspections, Minor repairs and replacements which involve slight stripping only, Shock loading within limits laid down in A.P. 1590, Changing of engines, Replacement of cylinder blocks and servicing of valves, etc. (Cylinder liners are not to be removed.)		
(f) Naval Air Stations (Classes "D" and "E")	Daily maintenance, Daily inspections, Minor inspections, Minor repairs by replacement with complete assemblies, which do not involve removal of engine from air-frame.		
(g) Repair Yards (Class "A")	Complete overhauls and major repairs including salvage of parts to approved schemes.		
(h) Repair Yards (Class "B")	(i) Those yards specialising in the complete overhaul of Merlin engines as for Repair Yards, Class "A", less valve seat salvage and a slight reduction of other salvage work. (ii) Those not specialising in Merlin overhaul, as for Naval Air Stations, Class "A".		



Ref. No.	Part No.	DESCRIPTION	MERLIN ENGINE SERIES									ALLOWANCES										REMARKS
			3	8	12	20	30	32	45	46	Squadrons per 6 I.E. Aircraft	Fleet and Light Fleet Carriers	Escort Carriers	Merchant Aircraft Carriers	NAVAL AIR STATIONS				REPAIR YARDS		Re- pair Ships	
															Class A	Class B	Class C	Class D & E	Class A	Class B		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)
<i>Crankcase and Bearings—contd.</i>																						
18000	E.6259	"C" spanner ... ..		x	x	x	x	x				1	1		1	1	1		4	4	2	
37751	D.8970	Jaw, spanner ... ..	x	x	x	x	x	x	x	x		1	1		2	1	1		4	4	2	
18004	E.45133	Spanner, slotted box (.437 bar) ... ..		x	x	x	x	x				1	1		1	1	1		6	6	2	
37754	D.7103	Spanner, slotted box (.187 bar) ... ..	x	x	x	x	x	x	x	x		1	1		1	1	1		3	3	2	
46947	D.19335	Spanner, box ... ..							x			2	1		2	2	1		6	6	2	
37757	HB.16604	Tool, withdrawing ... ..	x	x	x	x	x	x	x	x		1	1		1	1	1		2	2	1	
37763	HB.13210	Tool, withdrawing ... ..	x	x	x	x	x	x	x	x					1	1	1		4	4	2	
37760	HB.16603	Tool, withdrawing ... ..	x	x	x	x	x	x	x	x		1	1		1	1	1		2	2	1	
38230	HB.16697	Block, vice ... ..		x	x	x	x	x							1	1	1		2	2	1	
42834	HB.18274	Tool, withdrawing ... ..	x	x	x	x	x	x	x	x		1	1		1	1	1		4	4	2	
37960	HB.20998	Device, holding ... ..		x	x	x	x	x							1	1	1		2	2	1	
37961	HB.20997	Tool, withdrawing ... ..		x	x	x	x	x							1	1	1		2	2	1	
45361	HB.21115	Tool, withdrawing ... ..	x	x	x	x	x	x	x	x		1	1		1	1	1		2	2	1	
43514	HB.18704	Arbor reamers ... ..	x	x	x	x	x	x	x	x									2	2	1	
43723	HB.18883	Bar, Bushes, reamers and rad. cutters	x	x	x	x	x	x	x	x									1	1	1	
43515	HB.18565	Bush pilot ... ..	x	x	x	x	x	x	x	x									1	1	1	
43724	HB.18883B	Cutter, facing ... ..	x	x	x	x	x	x	x	x									2	2	1	
43725	HB.18883G	Cutter, radius (Standard and .005 u/size.)	x	x	x	x	x	x	x	x									2	2	1	
43726	HB.18883H	Cutter, radius (.010 and .015 u/size)	x	x	x	x	x	x	x	x									2	2	1	
43727	HB.18883I	Cutter, radius (.020 and .025 u/size)	x	x	x	x	x	x	x	x									2	2	1	
43728	HB.18883J	Cutter, radius (.030 and .035 u/size)	x	x	x	x	x	x	x	x									2	2	1	
43729	HB.18883C	Cutter, radius (Standard and .005 u/size.)	x	x	x	x	x	x	x	x									2	2	1	
43730	HB.18883D	Cutter, radius (.010 and .015 u/size)	x	x	x	x	x	x	x	x									2	2	1	
43731	HB.18883E	Cutter, radius (.020 and .025 u/size)	x	x	x	x	x	x	x	x									2	2	1	
43732	HB.18883F	Cutter, radius (.030 and .035 u/size)	x	x	x	x	x	x	x	x									2	2	1	
45296	HB.18885	Gauge, distance, taper reamers ...	x	x	x	x	x	x	x	x									1	1	1	
45295	HB.18886	Gauge, distance, taper reamers ...	x	x	x	x	x	x	x	x									1	1	1	

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			3	8	12	20	30	32	45	46	Squadrons per 6 I.E. Aircraft	Fleet and Light Fleet Carriers	Escort Carriers	Merchant Aircraft Carriers	NAVAL AIR STATIONS				REPAIR YARDS		Re- pair Ships	
															Class A	Class B	Class C	Class D & E	Class A	Class E		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)
<i>Cylinders—contd.</i>																						
45420	HB.25056	Tap, hand, .055 o/size ...		X	X	X	X	X	X	X												
45421	HB.25057	Tap, hand, .060 o/size ...		X	X	X	X	X	X	X												
45422	HB.25058	Cutter for removing first thread ...		X	X	X	X	X	X	X												
45423	HB.25059	Internal thread micrometer ...		X	X	X	X	X	X	X												
45424	HB.25069	Pilot ...		X	X	X	X	X	X	X												
45425	HB.25040	Arbor, cutter, boring ...		X	X	X	X	X	X	X												
45426	HB.25032	Cutter seating, .050/.060 o/size ...		X	X	X	X	X	X	X												
45427	HB.25033	Gauge, seating, .002 o/size ...		X	X	X	X	X	X	X												
45428	HB.25034	Gauge, seating, .005 o/size ...		X	X	X	X	X	X	X												
44059	HB.15649	Gauge, seating, .010 o/size ...		X	X	X	X	X	X	X												
45430	HB.25036	Gauge, seating, .050 o/size ...		X	X	X	X	X	X	X												
45431	HB.25037	Gauge, seating, .052 o/size ...		X	X	X	X	X	X	X												
45432	HB.25038	Gauge, seating, .055 o/size ...		X	X	X	X	X	X	X												
45433	HB.25039	Gauge, seating, .060 o/size ...		X	X	X	X	X	X	X												
45434	HB.25042	Pilot, .050 o/size ...		X	X	X	X	X	X	X												
45435	HB.25044	Cutter, boring, .050 o/size ...		X	X	X	X	X	X	X												
45436	HB.25045	Tool, cutting, hand, .050/.060 o/size ...		X	X	X	X	X	X	X												
45437	HB.25046	Gauge, setting, .050/.060 o/size ...		X	X	X	X	X	X	X												
45438	HB.25047	Cutter, boring, .050/.060 o/size ...		X	X	X	X	X	X	X												
45381	HB.25054	Lap, conical seating ...		X	X	X	X	X	X	X												
45382	HB.25065	Pilot, screwed, .050/.052 o/size ...		X	X	X	X	X	X	X												
45383	HB.25066	Pilot, screwed, .055 o/size ...		X	X	X	X	X	X	X												
45384	HB.25067	Pilot, screwed, .060 o/size ...		X	X	X	X	X	X	X												
45393	HB.25068	Pilot ...		X	X	X	X	X	X	X												
45394	HB.2 7187	Cutter ...		X	X	X	X	X	X	X												
45395	HB.27188	Bush, guide ...		X	X	X	X	X	X	X									2	2	2	
																			1	1	1	
																			2	2	2	
45396	HB.27189	Tap ...		X	X	X	X	X	X	X												
																			2	2	2	

For use on cylinder blocks D.8985/4 and D.8986/4 only.

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			3	8	12	20	30	32	45	46	Squadrons per 6 Lib. Aircraft	Fleet and Light Fleet Carriers	Escort Carriers	Merchant Aircraft Carriers	NAVAL AIR STATIONS				REPAIR YARDS		Re-pair Ships	
															Class A	Class B	Class C	Class D & E	Class A	Class B		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)
<i>Spring Drive</i>																						
38341	D.7081	Spanner, slotted box (see Crankcase and Bearings).	x	x	x		x	x	x	x												
38342	D.7082	Spanner, slotted box ...	x	x	x		x	x	x	x												
45263	D.13124	Spanner, slotted box ...										1	1		1	1	1		4	4	2	
42863	HB.16713	Bush and spigot for location	x	x	x		x	x	x	x									2	2	1	
45264	HB.19917	Tool, locating ...	x	x	x		x	x	x	x					1	1	1		2	2	1	
<i>Wheelcase and Gears</i>																						
38587	D.7084	Spanner, slotted box (.500 bar)	x	x	x		x	x	x	x												
45282	D.13125	Spanner, slotted box (.375 bar)					x	x	x	x					1	1	1		4	4	2	
42892	D.10152	Spanner, slotted box (.562 bar)					x	x	x	x									4	4	2	
38584	D.8582	Spanner, slotted box (.500 bar)	x	x	x		x	x	x	x					1	1	1		6	6	2	
45339	D.13249	Spanner, slotted box (.375 bar)	x	x	x		x	x	x	x					1	1	1		6	6	2	
6062	E.37594	Spanner, slotted box (.250 bar)	x	x	x		x	x	x	x					1	1	1		3	3	1	
6060	E.30862	Spanner, slotted box (.437 bar)	x	x	x		x	x	x	x					1	1	1		6	6	2	
6056	E.30878	Spanner, slotted box (.437 bar)	x	x	x		x	x	x	x					1	1	1		6	6	2	
22384	E.32883	Spanner, slotted box (.437 bar)	x	x	x		x	x	x	x					1	1	1		6	6	2	
6042	E.45131	Spanner, box, 1.390 hex. (.437 bar)	x	x	x		x	x	x	x					1	1	1		6	6	2	
45280	HB.20656	Adaptor ...	x	x	x		x	x	x	x					1	1	1		4	4	2	
38602	HB.16579	Block, vice ...	x	x	x		x	x	x	x					1	1	1		1	1	1	
38590	HB.16554	Extractor ...	x	x	x		x	x	x	x					1	1	1		2	2	1	
38591	HB.16555	Plate, holding ...	x	x	x		x	x	x	x					1	1	1		2	2	1	
38609	HB.16594	Plate, gagging ...	x	x	x		x	x	x	x					1	1	1		2	2	1	
38605	HB.16591	Plate, gagging ...	x	x	x		x	x	x	x					1	1	1		2	2	1	
42893	HB.18200	Rig, backlash checking	x	x	x		x	x	x	x					1	1	1		2	2	1	
45281	HB.20863	Spanner, pin ...	x	x	x		x	x	x	x					1	1	1		2	2	1	
42904	HB.16764	Stand, assembling	x	x	x		x	x	x	x					1	1	1		4	4	2	
38614	HB.16599	Tool, assembling and dismantling	x	x	x		x	x	x	x					1	1	1		2	2	1	
38621	HB.16606	Tool, withdrawing	x	x	x		x	x	x	x					1	1	1		2	2	1	
38624	HB.16609	Tool, withdrawing ...	x	x	x		x	x	x	x					1	1	1		2	2	1	
45283	HB.20906	Tool, withdrawing ...					x	x	x	x					1	1	1		2	2	1	
45318	HB.20907	Drift, removing ...					x	x	x	x					1	1	1		1	1	1	
43968	HB.18608	Plate, setting ...	x	x	x		x	x	x	x					1	1	1		1	1	1	
45319	HB.20908	Tool, assembling ...					x	x	x	x									1	1	1	
38628	HB.16624	Tool, withdrawing ...	x	x	x		x	x	x	x					1	1	1		2	2	1	
38594	HB.16551	Alignment bar ...	x	x	x		x	x	x	x									1	1	1	
38595	HB.16552	Drift, removing ...	x	x	x		x	x	x	x									1	1	1	
45404	HB.27506	Tool, withdrawing ...	x	x	x		x	x	x	x					1	1	1		2	2	1	
45406	HB.27127	Tool, withdrawing ...	x	x	x		x	x	x	x					1	1	1		2	2	1	
	HB.28212	Device for checking backlash	x	x	x		x	x	x	x									1	1	1	
<i>Camshaft Drive</i>																						
45251	D.13126	"C" spanner ...	x	x	x		x	x	x	x		1	1		2	2	1		4	4	2	
37601	D.7088	Spanner, slotted box (.437 bar)	x	x	x		x	x	x	x		2	1		2	1	1		4	4	2	
42811	HB.18201	Plate, gagging ...	x	x	x		x	x	x	x		1	1		1	1	1		2	2	1	
45338	HB.21109	Spanner, slotted box ...	x	x	x		x	x	x	x		2	1		2	1	1		2	2	1	
42809	HB.18199	Tool, withdrawing ...	x	x	x		x	x	x	x		1	1		1	1	1		2	2	1	
<i>Starter Motor Drive</i>																						
38408	D.7089	Spanner, slotted box (.500 bar)	x				x			x		1	1		1	1	1		3	3	1	
38509	D.7090	Spanner, slotted box (.500 bar)	x	x	x		x	x	x	x		1	1		1	1	1		2	2	1	Required prior to Mod. 280 only.
38403	E.6258	"C" spanner ...	x	x	x		x	x	x	x		1	1		1	1	1		3	3	1	
38412	E.55017	"C" spanner ...	x	x	x		x	x	x	x		1	1		1	1	1		3	3	1	
38405	E.8067	"C" spanner ...	x	x	x		x	x	x	x		1	1		1	1	1		2	2	1	
38401	E.27573	"C" spanner ...	x	x	x		x	x	x	x		1	1		1	1	1		3	3	1	Required prior to Mod. 220 only.
38418	HB.16569	Block, vice ...	x	x	x		x	x	x	x					1	1	1		2	2	1	
38417	HB.16568	Block, vice ...	x	x	x		x	x	x	x					1	1	1		2	2	1	
38416	HB.16567	Block, vice ...	x	x	x		x	x	x	x					1	1	1		2	2	1	
38419	HB.16570	Block, vice ...	x	x	x		x	x	x	x					1	1	1		1	1	1	
38441	HB.20861	Block, vice ...	x				x			x					1	1	1		1	1	1	
<i>Engaging Mechanism Section</i>																						
45267	D.13127	Spanner (.562 bar) ...					x								1	1	1		2	2	1	
38371	D.7091	Spanner, slotted box (.375 bar)	x	x	x		x	x	x	x		1	1		1	1	1		2	2	1	
38372	D.7092	Spanner, slotted box (.562 bar)	x	x	x		x	x	x	x		1	1		1	1	1		2	2	1	
45265	HB.20348	Block, vice ...					x								1	1	1		1	1	1	
45266	HB.20862	Block, vice ...					x								1	1	1		1	1	1	
45268	HB.20123/2	Rig, testing ...					x								1	1	1		1	1	1	

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			3	8	12	20	30	32	45	46	Squadrons Per 6 I.E. Aircraft	Fleet and Light Fleet Carriers	Escort Carriers	Merchant Aircraft Carriers	NAVAL AIR STATIONS				REPAIR YARDS		Re- pair Ships	
															Class A	Class B	Class C	Class D & E	Class A	Class B		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)
<i>Engaging Mechanism Section—contd.</i>																						
38377	HB.16644/2	Rig, testing ... ..	x	x	x		x	x	x	x												
42866	HB.18094	Block, vice ... ..	x	x	x		x	x	x	x					1	1	1		2	1	1	
42865	HB.18095	Block, vice ... ..	x	x	x		x	x	x	x					1	1	1		2	1	1	
<i>Cartridge Starter</i>																						
45337	D.13246	Spanner, box, 1·480 flats (·500 bar)...		x	x		x	x														
45328	HB.21089	Tool, assembly and withdrawing ...		x	x		x	x							1	1			3	3	2	
<i>Coolant Pump</i>																						
37031	D.8590	Tommy bar ... ..	x	x	x	x	x	x	x	x												
43833	HB.18663	Jig, hand reaming ... ..	x	x	x	x	x	x	x	x									4	4	2	
43834	HB.18664	Reamer, hand ... ..	x	x	x	x	x	x	x	x									1	1	1	
43836	HB.18666	Tool, assembling ... ..	x	x	x	x	x	x	x	x									3	3	2	
43835	HB.18665	Tool, withdrawing ... ..	x	x	x	x	x	x	x	x									1	1	1	
46887	HB.21869	Jig, hand facing ... ..	x	x	x	x	x	x	x	x									1	1	1	
46888	HB.21870	Cutter, hand facing ... ..	x	x	x	x	x	x	x	x									1	1	1	
<i>Oil Pump and Drive for Retractable Undercarriage</i>																						
38221	D.7094	Spanner, slotted box (·500 bar) ...	x																			
46953	D.18750	"C" spanner ... ..	x	x	x	x	x	x	x	x					1	1			2	2	1	
46954	D.18751	Ring spanner ... ..	x	x	x	x	x	x	x	x					1	1	1		2	2	1	
38277	E.24700	Spanner, slotted box (·437 bar) ...	x																			
45259	HB.21000	Block, vice ... ..		x	x	x	x								1	1			2	2	1	
45261	HB.20999	Block, vice ... ..		x	x	x	x								1	1	1		2	2	1	
45262	HB.20912	Block, vice ... ..		x	x	x	x								1	1	1		2	2	1	
38224	HB.17489	Spanner, slotted box ... ..	x	x	x	x	x	x							1	1	1		2	2	1	
38233	HB.16657	Extractor ... ..	x	x	x	x	x	x							1	1	1		3	3	1	
38236	HB.16692	Gagging tool ... ..	x												1	1	1		2	1	1	
38239	HB.16695	Gagging tool and vice block ...	x												1	1	1		2	1	1	
38240	HB.16696	Block, vice ... ..	x												1	1	1		2	1	1	
38230	HB.16697	Block, vice (see Crankcase and Bearings).	x												1	1	1		2	1	1	
<i>Oil Pumps, Engine</i>																						
38171	D.7095	Spanner, union, 1·870 flats ... ..	x	x	x	x	x	x	x	x					1	1	1		4	4	2	
18001	E.30144	Spanner, union, 1·578 flats ... ..	x	x	x	x	x	x	x	x					1	1	1		2	2	1	
6048	E.30859	Spanner, slotted box ... ..	x	x	x	x	x	x	x	x					1	1	1		3	3	1	
38174	C.5095	"C" spanner ... ..	x	x	x	x	x	x	x	x					1	1	1		2	2	1	
6160	HB.2394	Extractor ... ..	x	x	x	x	x	x	x	x					1	1	1		3	3	1	
<i>Oil Relief Valve</i>																						
38711	F.248	Spanner, ring ... ..	x	x	x	x	x	x	x	x					2	1			4	4	2	
45326	HB.21091	Reamer, hand ... ..		x	x		x	x											2	2	1	
45327	HB.21092	Bar for reamer... ..		x	x		x	x											1	1	1	
45350	HB.21227	Reaming fixture, hand ... ..		x	x		x	x											1	1	1	
45346	HB.21228	Cutter, hand, facing ... ..		x	x		x	x											1	1	1	
45345	HB.21229	Bar for cutter ... ..		x	x		x	x											1	1	1	
45349	HB.21230	Wrench ... ..		x	x		x	x											1	1	1	
45348	HB.21231	Gauge, setting ... ..		x	x		x	x											1	1	1	
38251	HB.16572	Tool, lapping ... ..	x	x	x	x	x	x	x	x					1	1	1		2	2	2	
—	HB.21090	Tool, assembling and withdrawing ...		x	x		x	x											2	2	1	
<i>Magneto Drive and Fittings</i>																						
5037	E.38660	Extractor ... ..	x	x	x	x	x	x	x	x					1	1			2	2	1	
5036	E.32722	Screw, extractor ... ..	x	x	x	x	x	x	x	x					1	1			2	2	1	
6138	HB.7015	Tool holding, and spanner ... ..	x	x	x	x	x	x	x	x					1	1			4	4	2	
46952	HB.28529	Tool, assembling and withdrawing ...	x	x	x	x	x	x	x	x					1	1			2	2	1	
<i>Camshaft and Rocker Mechanism</i>																						
6064	E.30855	Spanner, slotted box (·375 bar) ...	x	x	x	x	x	x	x	x					2	1			4	4	2	
43503	HB.18083	Reamer, hand ... ..	x	x	x	x	x	x	x	x									3	3	2	
43504	HB.18634	Tool, assembling ... ..	x	x	x	x	x	x	x	x									2	2	1	
43505	HB.18635	Tool, withdrawing ... ..	x	x	x	x	x	x	x	x									2	2	1	
37574	HB.16620	Extractor ... ..	x	x	x	x	x	x	x	x					1	1	1		2	2	1	
42819	HB.18159	Spanner, box ... ..	x	x	x	x	x	x	x	x					1	1	1		3	3	2	
42831	HB.18171	Tool withdrawing ... ..	x	x	x	x	x	x	x	x					1	1	1		2	2	1	
—	D.22780	Spanner ... ..	x	x	x	x	x	x	x	x					1	1	1		2	2	1	
—	D.22781	Pin, spanner ... ..	x	x	x	x	x	x	x	x					2	2	2		4	4	2	

Required when I.A.E. hydraulic pump is fitted.











1. The first part of the document is a list of names and addresses of the members of the committee.

Name	Address	City	State
John A. Doe	123 Main St.	New York	NY
Jane B. Smith	456 Elm St.	Chicago	IL
Robert C. Johnson	789 Oak St.	Los Angeles	CA
Mary D. White	101 Pine St.	Philadelphia	PA
James E. Brown	202 Cedar St.	San Francisco	CA
Elizabeth F. Green	303 Birch St.	Boston	MA
William G. Black	404 Spruce St.	Washington	DC
Patricia H. Gray	505 Willow St.	Portland	OR
Richard I. King	606 Ash St.	Seattle	WA
Susan J. Lee	707 Hickory St.	Denver	CO
Thomas K. Hall	808 Maple St.	Phoenix	AZ
Barbara L. Young	909 Poplar St.	San Diego	CA
Charles M. Baker	1010 Walnut St.	San Antonio	TX
Deborah N. Adams	1111 Chestnut St.	Fort Worth	TX
Edward O. Nelson	1212 Olive St.	Dallas	TX
Frances P. Carter	1313 Elm St.	Houston	TX
George Q. Evans	1414 Maple St.	Austin	TX
Helen R. Hill	1515 Pine St.	San Jose	CA
Isaac S. King	1616 Oak St.	San Francisco	CA
Julia T. Lee	1717 Birch St.	San Francisco	CA
Kenneth U. Young	1818 Cedar St.	San Francisco	CA
Laura V. Brown	1919 Spruce St.	San Francisco	CA
Michael W. Green	2020 Willow St.	San Francisco	CA
Nancy X. Black	2121 Ash St.	San Francisco	CA
Oscar Y. Gray	2222 Hickory St.	San Francisco	CA
Peter Z. King	2323 Maple St.	San Francisco	CA
Quinn A. Lee	2424 Poplar St.	San Francisco	CA
Rachel B. Young	2525 Walnut St.	San Francisco	CA
Samuel C. Adams	2626 Chestnut St.	San Francisco	CA
Tina D. Nelson	2727 Olive St.	San Francisco	CA
Victor E. Carter	2828 Elm St.	San Francisco	CA
Wendy F. Evans	2929 Maple St.	San Francisco	CA
Xavier G. Hill	3030 Pine St.	San Francisco	CA
Yvonne H. King	3131 Oak St.	San Francisco	CA
Zoe I. Lee	3232 Birch St.	San Francisco	CA
Adam J. Young	3333 Cedar St.	San Francisco	CA
Beth K. Brown	3434 Spruce St.	San Francisco	CA
Carl L. Green	3535 Willow St.	San Francisco	CA
Diana M. Black	3636 Ash St.	San Francisco	CA
Eric N. Gray	3737 Hickory St.	San Francisco	CA
Fred O. King	3838 Maple St.	San Francisco	CA
Gina P. Lee	3939 Poplar St.	San Francisco	CA
Harry Q. Young	4040 Walnut St.	San Francisco	CA
Irene R. Adams	4141 Chestnut St.	San Francisco	CA
Jack S. Nelson	4242 Olive St.	San Francisco	CA
Karen T. Carter	4343 Elm St.	San Francisco	CA
Liam U. Evans	4444 Maple St.	San Francisco	CA
Maria V. Hill	4545 Pine St.	San Francisco	CA
Nathan W. King	4646 Oak St.	San Francisco	CA
Olivia X. Lee	4747 Birch St.	San Francisco	CA
Paul Y. Young	4848 Cedar St.	San Francisco	CA
Rebecca Z. Brown	4949 Spruce St.	San Francisco	CA
Sean A. Green	5050 Willow St.	San Francisco	CA
Tina B. Black	5151 Ash St.	San Francisco	CA
Uma C. Gray	5252 Hickory St.	San Francisco	CA
Victor D. King	5353 Maple St.	San Francisco	CA
Wendy E. Lee	5454 Poplar St.	San Francisco	CA
Xavier F. Young	5555 Walnut St.	San Francisco	CA
Yvonne G. Adams	5656 Chestnut St.	San Francisco	CA
Zoe H. Nelson	5757 Olive St.	San Francisco	CA
Adam I. Carter	5858 Elm St.	San Francisco	CA
Beth J. Evans	5959 Maple St.	San Francisco	CA
Carl K. Hill	6060 Pine St.	San Francisco	CA
Diana L. King	6161 Oak St.	San Francisco	CA
Eric M. Lee	6262 Birch St.	San Francisco	CA
Fred N. Young	6363 Cedar St.	San Francisco	CA
Gina O. Brown	6464 Spruce St.	San Francisco	CA
Harry P. Green	6565 Willow St.	San Francisco	CA
Irene Q. Black	6666 Ash St.	San Francisco	CA
Jack R. Gray	6767 Hickory St.	San Francisco	CA
Karen S. King	6868 Maple St.	San Francisco	CA
Liam T. Lee	6969 Poplar St.	San Francisco	CA
Maria U. Young	7070 Walnut St.	San Francisco	CA
Nathan V. Adams	7171 Chestnut St.	San Francisco	CA
Olivia W. Nelson	7272 Olive St.	San Francisco	CA
Paul X. Carter	7373 Elm St.	San Francisco	CA
Rebecca Y. Evans	7474 Maple St.	San Francisco	CA
Sean Z. Hill	7575 Pine St.	San Francisco	CA
Tina A. King	7676 Oak St.	San Francisco	CA
Uma B. Lee	7777 Birch St.	San Francisco	CA
Victor C. Young	7878 Cedar St.	San Francisco	CA
Wendy D. Brown	7979 Spruce St.	San Francisco	CA
Xavier E. Green	8080 Willow St.	San Francisco	CA
Yvonne F. Black	8181 Ash St.	San Francisco	CA
Zoe G. Gray	8282 Hickory St.	San Francisco	CA
Adam H. King	8383 Maple St.	San Francisco	CA
Beth I. Lee	8484 Poplar St.	San Francisco	CA
Carl J. Young	8585 Walnut St.	San Francisco	CA
Diana K. Adams	8686 Chestnut St.	San Francisco	CA
Eric L. Nelson	8787 Olive St.	San Francisco	CA
Fred M. Carter	8888 Elm St.	San Francisco	CA
Gina N. Evans	8989 Maple St.	San Francisco	CA
Harry O. Hill	9090 Pine St.	San Francisco	CA
Irene P. King	9191 Oak St.	San Francisco	CA
Jack Q. Lee	9292 Birch St.	San Francisco	CA
Karen R. Young	9393 Cedar St.	San Francisco	CA
Liam S. Brown	9494 Spruce St.	San Francisco	CA
Maria T. Green	9595 Willow St.	San Francisco	CA
Nathan U. Black	9696 Ash St.	San Francisco	CA
Olivia V. Gray	9797 Hickory St.	San Francisco	CA
Paul W. King	9898 Maple St.	San Francisco	CA
Rebecca X. Lee	9999 Poplar St.	San Francisco	CA
Sean Y. Young	10000 Walnut St.	San Francisco	CA