

RESTRICTED

AIR PUBLICATION

4343 B

VOLUME I

**ELECTRICAL MANUAL
CONTROL AND DISTRIBUTION
EQUIPMENT (AIRBORNE)**

GENERAL AND TECHNICAL INFORMATION

Prepared by direction of
the Minister of Supply

A. T. Poulton

Promulgated for the information and guidance of all concerned

By Command of
Their Lordships

J. G. Lang

ADMIRALTY

P. O. Air & the

J. H. Barnes
J. H.

AIR MINISTRY

This leaf issued with A.L. No. 60, January, 1952

P18106 3/51

May, 1956

A.P.4343B, Vol.1

ELECTRICAL MANUAL, CONTROL AND
DISTRIBUTION EQUIPMENT (AIRBORNE)

ADVANCE INFORMATION LEAFLETS

This marker card is to be inserted immediately in front of the Amendment Record Sheet at the beginning of the book. Advance Information Leaflets are to be inserted, as received, in numerical order following this card.

The information contained in Advance Information Leaflets will be incorporated by normal amendment list action in due course. In the meantime, appropriate action is to be taken in accordance with any instruction contained therein.

If, after the receipt of a leaflet, an Amendment List with a prior date and conflicting information is received, the information in the leaflet is to take precedence.

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AMENDMENT RECORD SHEET

Incorporation of an Amendment List in this publication is to be recorded by signing in the appropriate column and inserting the date of making the amendments

A.L. No.	AMENDED BY	DATE
1	<i>Lightbourn</i>	<i>17/1/51</i>
2		
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10		
11		
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13		<i>7/8/51</i>
14		
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16		
17		<i>23/8/51</i>
18		<i>5/9/51</i>
19		<i>19/9/51</i>
20		<i>19/9/51</i>
21		<i>1/10/51</i>
22		<i>11/10/51</i>
23		<i>11/10/51</i>
24		<i>26/10/51</i>
25		
26		
27		

A.L. No.	AMENDED BY	DATE
28	<i>Lightbourn</i>	<i>26/11/51</i>
29		
30		
31		
32		
33		
34		<i>21/12/51</i>
35		
36		<i>31/1/52</i>
37		
38		
39		
40		
41		
42		
43		
44		<i>28/2/52</i>
45		<i>19/3/52</i>
46		
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48		
49		
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(Continued overleaf)

Amendment Record Sheet (continued)

A.L. No.	AMENDED BY	DATE
55	<i>Hightbourn</i>	19/3/52
56	-	-
57	-	-
58	-	-
59	-	-
60	-	3/4/52
61	-	17/4/52
62	-	-
63	-	-
64	-	-
65	-	21/5/52
66	<i>B. Goulson</i>	-
67	" "	-
68	" "	-
69	" "	-
70	" "	-
71	" "	-
72	" "	-
73	" "	-
74	" "	-
75	<i>B. Goulson</i>	3/9/52
76	" "	" "
77	" "	-
78	<i>B. Goulson</i>	27/9/52
79	-	-
80	<i>B. Goulson</i>	27/9/52
81	-	-
82	<i>Hightbourn</i>	9.10.52
83	<i>Hightbourn</i>	9.10.52

A.L. No.	AMENDED BY	DATE
84	<i>Hightbourn</i>	30.10.52
85	<i>Hightbourn</i>	30.10.52
86	<i>Hightbourn</i>	13.11.52
87	<i>C.W. Coombes</i>	29.11.52
88	<i>C.W. Coombes</i>	29.11.52
89	<i>C.W. Coombes</i>	29.11.52
90	<i>C.W. Coombes</i>	29.11.52
91	-	-
92	<i>W. Banks</i>	16/1/53
93	<i>W. Banks</i>	16/2/53
94	<i>W. Banks</i>	20/2/53
95	<i>W. Banks</i>	20/2/53
96	<i>W. Banks</i>	23.3.53
97	<i>W. Banks</i>	23.3.53
98	<i>W. Banks</i>	23.3.53
99	<i>W. Banks</i>	22.4.53
100	<i>W. Banks</i>	22.6.53
101	<i>W. Banks</i>	20.5.53
102	<i>W. Banks</i>	20.5.53
103	<i>W. Banks</i>	22.6.53
104	<i>W. Banks</i>	22.6.53
105	<i>W. Banks</i>	2.7.53
106	<i>W. Banks</i>	17.7.53
107	<i>W. Banks</i>	4.8.53
108	<i>W. Banks</i>	4.8.53
*109	<i>W. Banks</i>	4.8.53
110	<i>W. Banks</i>	4.8.53
111	<i>W. Banks</i>	25.8.53
112	<i>B. Goulson</i>	25.10.53

* An Amendment Record Continuation Sheet (R.A.F Form 2096B) will be required when this page is full.
Order it now.

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AMENDMENT RECORD SHEET

Incorporation of an Amendment List in this publication is to be recorded by signing in the appropriate column and inserting the date of making the amendments

AL N°	By	DATE			
113			146	Blouin	21. 10. 54
114	Blouin	21. 10. 53	147	Blouin	28. 10. 54
115			148		
116	Blouin	11. 11. 53	149		
117			150		
118	Blouin	26. 11. 53	151	Blouin	3. 12. 54
119	Blouin	2. 12. 53	152		
120	Blouin	2. 12. 53	153		
121	Blouin	4. 2. 54	154		
122	Blouin	22. 1. 54	155		
123	Blouin	16. 2. 54	156	Blouin	2. 5. 55
124	L. Partridge	23. 3. 54	157		
125	L. Partridge	23. 3. 54	158	L. Partridge	17. 5. 55
126	L. Partridge	23. 3. 54	159	L. Partridge	17. 5. 55
127	L. Partridge	23. 3. 54	160		
128			161	Blouin	24. 6. 55
129			162		
130	Blouin	22/4/54	163	Blouin	17. 8. 55
131			164	L. Partridge	6. 9. 55
132			165	Blouin	25. 9. 55
133			166	L. Leonard	5/1/56
134	Blouin	17/6/54	167		
135			168		
136			169		
137	Blouin	16/8/54	170	L. Leonard	19/1/56
138			171		
139	Blouin	18/8/54	172		
140	Blouin	31/8/54	173		
141			174		
142	Blouin	11/9/54	175		
143			176	N. Davies	15/3/56
144	Blouin	23/9/54	177		
145			178	L. Leonard	16/6/56

AMENDMENT RECORD SHEET

Incorporation of an Amendment List in this publication is to be recorded by signing in the appropriate column and inserting the date of making the amendments

179	b Leonard	16/6/56		
180	b. Leonard	19/7/56.		
181	b Leonard	16/6/56		
182	} b Leonard	30/8/56.		
183				
184	b. Leonard.	11.10.56.		
185	} B. Leonard	3.12.56		
186				
187				
188				
189				
190	} B. Leonard	7.1.57		
191				
192	B. Leonard	3.12.56		
192				

SPECIAL TECHNICAL INSTRUCTIONS FULFILLED

TRIES TO BE MADE FROM LEFT TO RIGHT IN ORDER OF FULFILMENT)

S.T.I. No.	S.T.I. No.	S.T.I. No.	S.T.I. No.	S.T.I. No.	UNIT AT WHICH FULFILLED
193					
194	} B. Leonard	7.1.57			
195					
196	B. Leonard	19.2.57			
197	B. Leonard	5.2.57			
198	} B. Leonard	19/2/57			
199					
200	} B. Leonard	14.3.57			
201					
202					
203					

A.L. No	AMENDED BY	DATE	A.L. No	AMENDED BY	DATE
204	B. G. G. G.	3/4/57	231	B. G. G. G.	23/1/58
205			232		
206			233	B. G. G. G.	21/4/59
207	B. G. G. G.	1/5/57			
208					
209					
210	B. G. G. G.	3/4/57			
211					
212					
213	B. G. G. G.	22/7/57			
214					
215					
216	B. G. G. G.	18/10/57			
217					
218					
219	B. G. G. G.	3/9/57			
220					
221					
222	B. G. G. G.	24/9/57			
223					
224					
225	B. G. G. G.	6/2/58			
226					
227					
228	B. G. G. G.	18/10/57			
229					
230					
174	M. G. G. G.	15-3-56			
175					
176					
177					

ADMIRAL
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LETHAL WARNING

EJECTION SEATS AND CANOPY JETTISON MECHANISMS

1. Ejection seats and canopy jettison mechanisms are sources of potential danger to personnel and of damage to the aircraft. Serious injury (possibly fatal) may result if any firing mechanisms are inadvertently operated whilst the aircraft is on the ground.

2. The following instructions are to be obeyed:—

R.N. Safety Precautions contained in A.P.(N.)140—Naval Aircraft Maintenance Manual.

R.A.F. ALL PERSONNEL before entering the cockpit or cabin of an aircraft fitted with an ejection seat are to report to the **N.C.O.** immediately in charge of air-frame servicing who is to ensure that all safety pins (or other safety devices) are correctly positioned to render the seat and canopy jettison firing mechanisms safe. On completion of servicing, tradesmen are to report to the **N.C.O.**

3. Full instructions for rendering the firing mechanisms safe are contained in the A.P.4288 and A.P.(N.) 1023 series, in Aircraft Servicing Schedules and in the A.D.5037 series.

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PREFACE

It has become necessary to introduce a new series of Air Publications dealing with electrical equipment, because the existing series cannot be re-arranged satisfactorily to meet current requirements.

Information at present contained in A.P.1095A, B, C, F, G, H and M will be examined and where necessary revised and transferred to the new A.P.4343 series.

Although no new information will go into the old publication, the two series of publications will be complementary until the transfer of information has been completed, and reference must be made to either as required. Should information appearing in the new publications conflict with that already existing in the old publications, A.P.4343 is to be considered as the overriding authority.

Until the reader has become familiar with the new layout, reference should be made to the List of Associated Publications and to the transfer of Information table which appear at the front of each volume.

It should be noted that the suffix letters which are not listed are reserved for possible future sub-division and expansion of the new series. The division of the publications into volumes and parts is given in the Layout Tree included in each Volume 1.

A.P.4343 contains information of a general nature on equipment which may be common to any volume in the series. Information on electrical installations associated with specific aircraft will continue to be included in the appropriate Aircraft Handbook or will appear as separate Air Diagrams.

R E S T R I C T E D

TRANSFER OF INFORMATION TABLE

Subject	Existing A.P. 1095 series	New A.P.4343 series
Indicators	1095A, Sect. 1	4343, Sect. 23 and 4343E, Sect. 18
Wiring systems and cables	1095A, Sect. 3	4343, Sect. 12 and 4343C, Sect. 5
Switches and switchboxes	1095A, Sect. 7	4343, Sect. 11 and 4343C, Sect. 1
Lighting equipment	1095A, Sect. 8	4343, Sect. 21 and 4343E, Sect. 7
Bomb-release, jettison and selector switches	1095B, Sect. 2	4343, Sect. 11 and 4343X, Sect. 3
Pre-selector units	1095B, Sect. 2	4343X, Sect. 3
Automatic bomb distributors	1095B, Sect. 4	4343X, Sect. 3
Torpedo depth-setting gear	1095B, Sect. 6	4343X, Sect. 20
Photoflash distributor	1095B, Sect. 6	4343X, Sect. 24
Cartridge flare distributor	1095B, Sect. 6	4343X, Sect. 24
Gun-firing buttons	1095B, Sect. 7	4343, Sect. 11 and 4343X, Sect. 13
Electrical control of aircraft turrets	1095B, Sect. 8	4343, Sect. 18 and 4343X, Sect. 11
Motors	1095C, Sect. 2	4343, Sect. 18 and 4343D, Sect. 20
Pumps	1095C, Sect. 4	4343, Sect. 16; 4343D, Sect. 7 and 10
Generators, a.c.	1095C, Sect. 5	4343, Sect. 2 and 4343A, Sect. 1
Generators, d.c.	1095C, Sect. 5	4343, Sect. 2 and 4343A, Sect. 3
Generators, a.c./d.c.	1095C, Sect. 5	4343, Sect. 2 and 4343A, Sect. 5
Voltage and current regulators	1095C, Sect. 6	4343, Sect. 6 and 4343B, Sect. 3
Actuators	1095C, Sect. 10	4343, Sect. 17; 4343D; Sect. 14 and 16
Generators and alternators	1095G, Sect. 1	4343, Sect. 2 and 4343G, Sect. 1
Voltage regulators	1095G, Sect. 3	4343, Sect. 6 and 4343G, Sect. 5
Charging boards	1095G, Sect. 4	4343G, Sect. 3 and 4343S, Sect. 14
Rectifiers	1095G, Sect. 4	4343G, Sect. 3 and 4343S, Sect. 14
Flarepaths	1095G, Sect. 5	4343G, Sect. 13
Control and selector switches	1095G, Sect. 8	4343G, Sect. 15
Demagnetizing equipment	1095G, Sect. 8	4343G, Sect. 15
Ammeters and voltmeters	1095H, Sect. 1	4343, Sect. 24; 4343A, Sect. 16, and 4343S, Sect. 24
Testmeters	1095H, Sect. 2	4343, Sect. 24 and 4343S, Sect. 24
Insulation resistance testers	1095H, Sect. 2	4343, Sect. 24 and 4343S, Sect. 24
Generator test sets	1095H, Sect. 4	4343, Sect. 24 and 4343S, Sect. 13
Switchboards and loading panels	1095H, Sect. 4	4343, Sect. 24 and 4343S, Sect. 13

(A.L.169, July 55)

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TRANSFER OF INFORMATION TABLE—Contd.

Subject	Existing A.P. 1095 series	New A.P.4343 series
Generators	1095M, Sect. 1	4343M, Sect. 1
Starter motors	1095M, Sect. 1	4343M, Sect. 14
C.A.V. control boards	1095M, Sect. 2	4343M, Sect. 5
Voltage regulators	1095M, Sect. 2	4343M, Sect. 5
Cut-outs	1095M, Sect. 2	4343M, Sect. 5
Solenoid switches for C.A.V. starters	1095M, Sect. 4	4343M, Sect. 10
Engine screening harness	1095M, Sect. 4	4343M, Sect. 10
68 ft. high speed launch	1095M, Sect. 5	4343M, Sect. 11
Bomb loading scows	1095M, Sect. 5	4343M, Sect. 11

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LIST OF SECTIONS AND PRELIMINARY MATTER

PRELIMINARIES

Amendment Record Sheet
 Note to readers
 List of associated publications
 Layout of A.P.
 Preface
 Transfer of information table

SECTIONS

- 1 Voltage regulators, 12/24-volt
- 2 Voltage regulators, 112-volt
- 3 Voltage and current regulators, 12/24-volt
- 4 Voltage and current regulators, 112-volt
- 5 Voltage regulators (electronic), 12/24-volt
- 6 Voltage regulators (electronic), 112-volt
- 7 Panels, control, 12/24-volt
- 8 Panels, control, 112-volt
- 9 (to be issued later)
- 10 Cut-outs and circuit breakers, 12/24-volt
- 11 Cut-outs and circuit breakers, 112-volt
- 12 (to be issued later)
- 13 (to be issued later)
- 14 Rotary transformers, 12/24-volt
- 15 Rotary transformers, 112-volt
- 16 Rotary converters and inverters, 12/24-volt
- 17 Rotary converters and inverters, 112-volt
- 18 Static transformers, rectifiers and inverters, 12/24-volt
- 19 Static transformers, rectifiers and inverters, 112-volt
- 20 Miscellaneous

Note.—A list of chapters is given at the beginning of each section

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(A.L.205, Nov. 56)

NOTE TO READERS

To eliminate the old-style AP numbers for general electrical publications, the reference number of this publication has been changed to the electrical first element and the general information second element numbers of the current coding system. The publication has not been revised to bring the contents up to date.

When revision of information on a given equipment is required, the existing information will be removed from this publication and revised information will be issued under the specific code number for the equipment.

The initial issue of information on new electrical equipment is being made under the specific code number for the equipment.

A list of old and new publication numbers for current Topic 1 and 6 general electrical publications follows this Note to Readers.

This publication is now unclassified and new or revised leaves will not carry a security marking. Holders should delete the RESTRICTED marking as soon as reasonably convenient, and in any event before this publication or any part of it is disposed of as waste.

LIST OF ELECTRICAL PUBLICATIONS - GENERAL

AIR PUBLICATION				
Code Number	Formerly			TITLE
	AP	Vol.	Book	
113A-0311-1	4343A	1	-	Generators and batteries
113A-0311-6	4343A	6	-	Generators and batteries
113D-07191-1	4343B	1	1	Voltage regulators
113D-0009-1	4343B	1	2	Control panels, cut-outs and circuit breakers
113D-0010-1	4343B	1	3	Rotary and static transformers and inverters
113D-0011-6	4343B	6		Control and distribution equipment
113D-0012-1	4343C	1	1	Manually and mechanically operated switches
113D-0013-1	4343C	1	2	Relay, solenoid and automatic switches 12/28V
113D-0014-1	4343C	1	3	Cables, starting switches and control switch boxes
113D-0015-1	4343C	1	4	Relay, solenoid and automatic switches 100/250V
113D-0016-6	4343C	6		Switches, cables, wiring and accessories
113E-0535-1	4343D	1	1	Starter motors and starter generators
113E-0479-1	4343D	1	2	Pumps (electric)

LIST OF ELECTRICAL PUBLICATIONS - GENERAL

AIR PUBLICATION				
Code Number	Formerly			TITLE
	AP	Vol.	Book	
113E-0189-1	4343D	1	3	Linear actuators (electric)
113E-03181-1	4343D	1	4	Motors (electric)
113E-0267-1	4343D	1	5	Rotary actuators (electric)
113E-0535-6	4343D	6	1	Starter motors and starter generators
113E-0479-6	4343D	6	2	Pumps (electric)
113E-0189-6	4343D	6	3	Linear actuators (electric)
113E-03181-6	4343D	6	4	Motors (electric)
113E-0267-6	4343D	6	5	Rotary actuators (electric)
113F-0002-1	4343E	1	1	Solenoid actuators, lighting and braking control equipment
113F-0003-1	4343E	1	2	Heating, refrigerating and engine synchronizing equipment
107E-0002-1	4343E	1	3	Fire warning, extinguishing, safety and rescue equipment
113F-0673-1	4343E	1	4	Indicators and warning devices, de-icing and miscellaneous equipment
120A-0301-1	4343G	1	-	Electrical ground equipment
120A-0302-1	4343J	1	-	Electrical ground power indicators, testmeters, testers and precision indicating instruments (RN only)

LIST OF ELECTRICAL PUBLICATIONS - GENERAL

Code Number	AIR PUBLICATION			TITLE
	AP	Formerly Vol.	Book	
113D-1856-1	4343P	1	2	Connectors
120A-0001-1	4343Q	1	-	Data book of electrical servicing equipment
120A-1001-1	4343S	1	1	Electrical servicing equipment for general use
120D-0001-1	4343S	1	2	Servicing equipment for M.T. rotary and control equipment
120F-0001-1	4343S	1	3	Servicing equipment for static equipment
120N-0145-1	4343V	1	1	Special-to-type electrical servicing equipment (RAF)
120N-0146-1	4343V	1	2	Special-to-type electrical servicing equipment (RN)
113G-0001-1	4343X	1	1	Armament electrical control equipment (Airborne)
120G-0001-1	4343X	1	2	Armament electrical test equipment

LIST OF SECTIONS AND
PRELIMINARY MATTER

PRELIMINARIES

Amendment Record Sheet
Lethal Warning
Note to Readers
List of Electrical Publications - General
List of Sections
List of Lubricants

SECTIONS

- 1 Voltage regulators, 12/28 volt
- 2 Voltage regulators, 100/250 volt
- 3 Voltage and current regulators, 12/24 volt
- 4 Voltage and current regulators, 100/250 volts
- 5
- 6

Note:- A list of chapters is given at the beginning of each section.

LIST OF LUBRICANTS

The following is a list of lubricants and associated materials mentioned in the AP 4343 series of publications. To avoid repetition, common user items are identified in the text of the various books by their Joint-Service designations only. Reference numbers are used for items peculiar to the RAF.

Joint-Service designation	Reference No.	N.A.T.O. Code No.
Oil, OC-600	34D/9100536	O-208
Oil, OEP-740	34B/9428567	
Oil, OF-24	34D/9100566	H-544
Oil, OM-13	34D/9100570	O-134
Oil, OM-15	34B/9100572	H-515
Oil, OM-16	34D/9427822	S-756
Oil, OM-33	34D/9423224	H-576
Oil, OM-58	34D/9106165	
Oil, OM-71	34D/9100577	O-138
Oil, OM-170*	34B/9100553	O-115
Oil, OM-270	34A/9100554	O-117
Oil, OMD-110	34D/9100581	O-180
Oil, OX-14	34B/9100590	O-147
Oil, OX-23	34B/9423150	O-158
Oil, OX-38	34B/9424819	O-419
Grease, XG-265	34B/9433481	
Grease, XG-271	34B/9100510	G-382
Grease, XG-275	34B/9100512	G-350
Grease, XG-276	34B/9425139	
Grease, XG-277	34B/9100514	G-359
Grease, XG-278	34B/9105058	G-354
Grease, XG-284	34B/9439321	G-366
Grease, XG-285	34B/9100517	G-355
Grease, XG-290	34B/9105057	
Grease, XG-315	34B/9100519	G-394
Grease, Aeroshell No.15	34B/1429	
Silicone compound XG-250 (Previously M.S.4)	33H/9424829	S-736
Protective, PX-7	34B/9100488	S-743

*To be superseded by OM-270.