MAJOR REPAIR SCHEME

Repair Leaflets [illegible]
When required [illegible]
with the procedure [illegible]
R.A.F. aircraft [illegible]
R.N. aircraft [illegible]

Repair Leaflets apply to [illegible]
unless specifically [illegible]

In this Part the absence of a suitable repair instruction for [illegible]
sustained is not to be taken as meaning that the component [illegible]
repair.

R.A.F. aircraft.—In the absence of any instruction and when [illegible]
technical officer [illegible] that repair [illegible] is practicable [illegible]
a repair scheme [illegible] submitted to the Directorate of [illegible]
Engineering, Air Ministry. When such a request is [illegible]
details with sketches and/or photographs indicating [illegible]
extent of the damage [illegible] attached [illegible]

R.N. aircraft.—In the absence of any instructions and when the [illegible]
specialist officer considers [illegible] possible [illegible]
instructions regarding repair schemes contained in A.P. (N) [illegible]
Aircraft Maintenance Manual.

ARRANGEMENT OF REPAIR LEAFLETS

Note.—[illegible]

Group E. Alighting gear

Group F. [illegible]

Group G. Tail unit

Group H. (Incorporated in Group G)

Group J. Miscellaneous repairs

P2005. [illegible] C. & P. Gp. 1

PART 4

GROUP A—GENERAL INFORMATION

LIST OF CONTENTS

	Repair Leaflet No.	Date of issue
Make up of Part 4...	A.1/1	May, 1950

GENERAL INFORMATION

Make up of Part 4

1. Repair Leaflets to this Vol. 2, Part 4 will be issued in a manner generally similar to Vol. 2, Part 1 leaflets of aircraft handbooks.

2. Recipients are to insert each new Repair Leaflet in its correct place in the Group indicated by its suffix letter and enter its title number in the appropriate place in the List of Contents of that Group. In each case the Leaflet's place in the publication is completely defined by its number, e.g., a leaflet numbered E5/1 should be inserted in Group E immediately following the Leaflets bearing numbers with the prefix E4/

3. When it is necessary to amend or cancel the information given in any Repair Leaflet contained in Part 4 a Leaflet cancelling the information will be issued to replace the original Leaflet which should be removed and disposed of. If an amendment of the Repair Leaflet is made it will be issued under another number in the same series.

4. New up to date Lists of Contents will be issued periodically in exactly the same way as Repair Leaflets. These Lists of Contents are to be inserted in front of the appropriate groups, the original Lists of Contents being removed and disposed of.

GROUP D—FUSELAGE

LIST OF CONTENTS

Title of repair leaflet	Repair drawing number	Marks of aircraft to which repair is applicable	Repair leaflet number	Date of issue
SHELL				
Damage to fuselage	R.00.A.1	All marks	D.1/1	July 1950
Access doors	R.00.A.2	Mk. 1	D.1/2	July 1950
Replacement of Joint B member	R.00.A.6	All marks	D.1/3	July 1950
BULKHEADS AND DIAPHRAGMS				
Firewall	R.00.A.7	All marks	D.2/1	July 1950
Cowl support channel	R.00.A.3 R.00.A.7	All marks	D.2/2	July 1950
Repair of rear cone	R.00.L.1	All marks	D.2/3	July 1950
Cannon beam	R.00.A.5	All marks	D.2/4	July 1950
ATTACHMENT FITTINGS				
Wing and fuselage		All marks	D.3/1	July 1950
Cross tube replacement	R.00.A.69	All marks	D.3/2	July 1950
Main plane attachment fittings replacement	R.00.A.67	All marks	D.3/3	July 1950
Replacement root end fittings	R.00.D.142 R.00.D.143-4	All marks	D.3/4	July 1950

FUSELAGE

Repair of damage to fuselage shell

This repair leaflet defines the method to be adopted in repairing damage to the fuselage shell in certain areas which are not shaded on Drawing R.00A.1.

Preparation

1. Careful inspection must be made to confirm that the areas of the fuselage, which are shaded on the drawing, are not damaged. The damaged ply skin must be cut out and careful examination effected of the exposed members. Should any of these prove to be damaged the affected portions must be cut away and repair sections scarfed in. The inner plyskin will of course have to be removed and replaced over the damaged area.

Repair drawing

2. The following repair drawing is required:—

R.00.A.1—Repairs to fuselage shell.

Repair instructions

3. To effect the repair, a new portion of inner ply skin should be scarfed in and damage to internal members repaired by scarfing in new sections as necessary. To complete the repair a new portion of outer ply skin should be scarfed in.

Estimate of requisite labour

4. The man-hours required for this repair can be estimated by reckoning that an area of 1 sq. ft. will take approximately 35 man-hours.

Repair material

5. The following material will be required:—

Stores Ref.	Part No.	Description	Size	Specification
31A/87 or /27	—	Ply, birch	$\frac{1}{8}$ in.	V.3/150
31A/83	—	Ply, birch	$\frac{5}{64}$ in.	V.3/130
31A/82 or -201	—	Ply, birch	$\frac{1}{16}$ in.	V.3/120
31A/143	X101 Mk. 1	Spruce	1·0 in. × $\frac{7}{16}$ in.	D.T.D.36B
31A/143	X102 Mk. 8	Spruce	3·5 in. × $\frac{7}{16}$ in.	Grade A
31A/99	—	Balsa planking	5·0 in. × $\frac{7}{16}$ in.	D.H.S.33
29/435	—	Brad, brass	$\frac{1}{2}$ in. × 20 s.w.g.	

FUSELAGE

Access doors

This repair leaflet defines the methods to be adopted in repairing damage to the access doors.

Preparations

1. The affected outer skin should be removed, where damaged, and any damaged portions to internal members cut away. The inner skin should then be cut away over the damaged portion if necessary.

Repair drawings

2. The following repair drawings will be required:—

R.00.A.2—Repair to access doors.

Repair instructions

3. Necessary new sections of internal members should be scarfed in, internal ply should be scarfed in where necessary and, finally, new sections of external ply scarfed in as required.

Estimate of requisite labour

4. The repairs outlined will take 27 to 36 hours for the average repair.

Repair material

5. The following materials will be required:—

Stores Ref.	Part No.	Description	Size	Specification
31A/87 or /27		Ply, birch	$\frac{1}{16}$ in.	V.3/120
31A/83		Ply, birch	$\frac{5}{64}$ in.	V.3/130
31A/143		Spruce	0·45 in. × $\frac{1}{8}$ in.	
31A/99		Balsa planking	5·0 in. × $\frac{7}{16}$ in.	D.H.S.33
29/435		Brads, brass	$\frac{1}{2}$ in., 20 S.W.G.	

FUSELAGE

Method of replacement of joint 'B' member

This Repair Leaflet defines the method to be adopted in replacing joint 'B' member.

Preparation

1. (1) Completely strip fuselage by removing engine, firewall cross tubes, bracing tubes, etc. (see Repair Leaflet D.2/1).

(2) Cut away damaged member leaving all woodscrews and brads projecting.

(3) Cut off projecting woodscrews and brads and clean all glue or grease from the face of the plywood.

Repair drawing

2. The following repair drawing will be required :—

R.00.A.6—Method of replacement of joint 'B' Member of the Fuselage.

Repair instructions

3. (1) Mark off new screw holes on inner surface of shell, using existing screws as datum (see Repair drawing R.00.A.6), and drill pilot holes.

(2) Offer up new member and cramp in position, and drill through pilot holes to suit woodscrews (see fig. 1/3 in part 3 of this Volume 2).

(3) Glue and screw member into position. Fix cramps as convenient, and leave for specified setting time.

Estimate of requisite labour

4. The repairs outlined will take approximately 250 man-hours.

Repair materials

5. The following repair materials will be required:—

Stores Ref.	Part No.	Description	Size	Specification
See Vol. 3	A.00215A	L.H. Joint 'B' member		Complete Assembly
	A.00216A	R.H. Joint 'B' member		
28S/2213	AGS/250/58	Woodscrews, brass, csk/hd.	No. 8 × 1¼ in.	
28S/2220	AGS/250/60		No. 8 × 1½ in.	
28S/2219	AGS/250/43		No. 6 × 1½ in.	

FUSELAGE

Firewall

This repair leaflet describes the method to be adopted in repairing damage to firewall.

Preparation

1. Remove the engine and any accessories necessary to obtain access to damaged material.

Repair drawing

2. The following repair drawing is required:—

R.00.A.7—Repair to firewall.

Repair instructions

3. Inspect firewall for damage. Any small buckles should be dressed out. Material with small holes or cracks should be cut away and a patch riveted over the damage as shown on the drawing. Large buckles which cannot be dressed out must be repaired by first drilling a hole of sufficient diameter to permit the dressing out and then fitting a patch over the damage as shown.

Estimate of requisite labour

4. The repairs outlined will take approximately 4 man-hours.

Repair materials

5. The following materials will be required:—

Stores Ref.	Part No.	Description.	Size	Specification
30B/949		Light alloy	16 S.W.G.	DTD.390 or L.38
28Q/10407	AS/2228/404	Rivet, mshr/hd. alum. alloy	$\frac{1}{8}$ in. dia.	DTD.327

FUSELAGE

Cowl support channel

This repair leaflet describes the method to be used in repairing damage to the cowl support channel.

Preparation

1. Remove the damaged portion of cowl support channel.

Repair drawing

2. The following repair drawings are required:—

R.00.A.3—Repair to cowl support channel.
R.00.A.7—Large patch repair.

Repair instructions

3. Cut away damaged portion of cowl support channel.

Buckles of a minor nature should be dressed out.

Larger buckles and other damage must be repaired as shown on the drawing R.00.A.7 and Repair Leaflet D.2/1.

Rivet on new portion of cowl support channel as shown on drawing R.00.A.3.

Estimate of requisite labour

4. The repairs outlined will take approximately 24 man-hours.

Repair materials

5. The following materials will be required:—

Stores Ref.	Part No.	Description	Size	Specification
30B/950	R.00.A.22	Butt strap	18 S.W.G.	D.T.D.390
28Q/11659	AS/2228/506	Rivet, alum alloy, mshr/hd.	$\frac{5}{32}$ in. dia.	D.T.D.327
28Q/10407	AS/2229/404	Rivet, alum alloy, csk/hd 90°	$\frac{1}{8}$ in. dia.	D.T.D.327

FUSELAGE

Front bulkhead—Rear cone

This repair leaflet defines the method to be adopted in repairing damage to the front bulkhead of the rear cone.

1. Cut away damaged portion of bulkhead.

Repair drawings

2. The following repair drawing will be required:—

R.00.L.1—Repair to front bulkhead, rear cone.

Repair instructions

3. Carry out repair as shown on repair drawing.

Estimate of requisite labour

4. The repairs outlined will take approximately 4 man-hours.

Repair materials

5. The following repair materials will be required:—

Stores Ref.	Part No.	Description	Size	Specification
31B/951 See Vol. 3	L.00858–9	Alclad sheet Front and rear fish-plates	20 S.W.G.	D.T.D.610
28Q/10407	AS/2228/404	Rivet, alum. alloy, mshr/hd.	$\frac{1}{8}$ in. dia. × $\frac{1}{4}$ in.	D.T.D.327
28Q/10653	AS/2228/505	Rivet, alum. alloy, mshr/hd.	$\frac{5}{32}$ in. dia. × $\frac{5}{16}$ in.	D.T.D.327

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Repair Leaflet D2/4

FUSELAGE

Cannon Beam

This repair leaflet describes the method to be used in repairing damage to the cannon beam.

Preparation

1. Remove bolts over area to be covered by repair.

Repair drawing

2. The following repair drawing will be required:—

R.00.A.5—Repair to forward cannon beam.

Repair instructions

3. Indentation caused by bolts should be filled with plastic wood and ply: repair patch well glued and screwed to beam.

Estimate of requisite labour

4. The repairs outlined will take approximately 10 man-hours.

Repair materials

5. The following material will be required:—

Stores Ref.	Part No.	Description	Size	Specification
31A/12		Ply, birch	$\frac{1}{4}$ in.	V.3/186
28S/2194	AGS250–39	Woodscrews, brass	No. 6, $\frac{3}{4}$ in. long	

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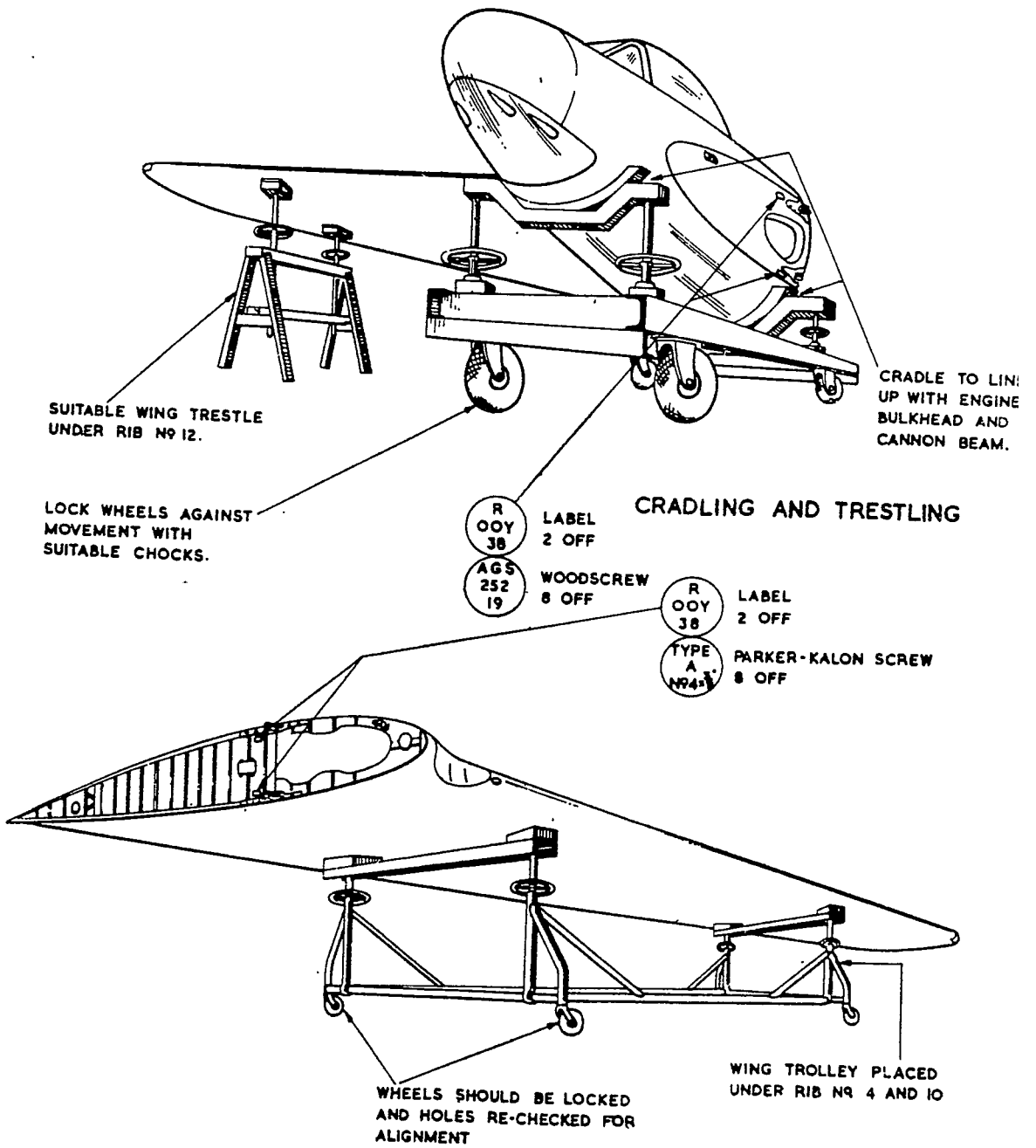
Repair Leaflet D.3/1

FUSELAGE

Wing and Fuselage attachment fitting

This repair leaflet describes the method to be adopted when it is necessary to ream to the appropriate oversize the holes in wing and fuselage attachment fittings.



Preparation

1. Remove engine and one wing from the aircraft and cradle the fuselage with the other wing still attached. The detached wing should then be trestled, preferably on a trolley as in the illustration.

Operator should be stationed on the wing where he should remain throughout the operation to avoid disturbance of the relative positions of fuselage and the wing under treatment.

Offer up wing to fuselage, line up holes to be reamed, check up with gauge adjusting wing and fuselage until the holes to be reamed are in alignment.

Insert guide bush in hole to be reamed.

Insert reamer 1·005 in. dia. in ratchet using the special spanner for securing.

Insert holding bolts in holes not to be reamed.

Recheck alignment of holes.

Care must be taken after checking alignment that there is no unnecessary movement to disturb wing or fuselage.

Repair instruction

2. Apply a heavy mineral oil to reamer and interior of hole.

Locate reamer in the guide bush and rotate *clockwise* using ratchet key.

Withdraw the reamer still rotating clockwise.

Examine hole to ascertain if all scratches have been removed. If removal has not been effected use next oversize reamer.

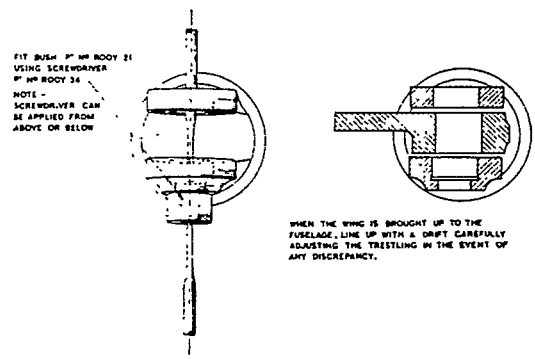
When reaming is satisfactory and all scores eliminated test size of the hole with 'GO' and 'NO GO' plug gauges. If 'GO' gauge is tight pass reamer, rotating clockwise, through hole afresh.

Remove guide bush and insert into reamed hole the appropriate bolt.

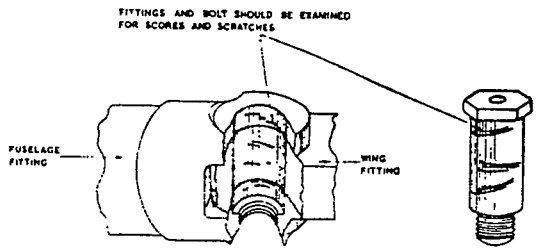
Special precaution should be taken, after the reaming is completed, in the reassembling of the wing, to use the appropriate bolt in each hole with anti-seize grease. Should any scores be caused to the hole in the process of reassembly, then the hole affected must be reamed afresh to the next oversize.

All wing attachment pins, standard or oversize, are cadmium plated. It must be remembered that when a pin has been removed it must be discarded, no matter what its condition may be, and a new pin fitted in its place. Old pins, when unscratched, are reconditioned and replated, before being passed for further use.

INSPECTION OF DAMAGE



PREPARATION FOR REAMING



INSPECTION OF DAMAGE

Estimation of labour

3. The repair outlined will take approximately 40 man-hours for reaming the attachment holes in each wing. Four men will be needed to handle the wing and another operative is stationed on top of the wing throughout the repair. It will generally be found convenient to have a sixth man stationed under the wing to pass up the instructions to the man on the wing.

A suitable entry should be made in the log book of the aircraft after the reaming has been completed and the wings refitted.

Repair material

4. The following repair material will be required:—

Stores Ref.	Part No.	Description	Notes
26FC/1082	R.00.Y.35A	Tool kit, comprising:—	A complete tool kit is supplied under this store reference. Separate items of the kit are not referenced singly
	R.00.Y.17 R.00.Y.18 R.00.Y.19 R.00.Y.20	Reamers, oversize	
	R.00.Y.21	Guide bush	For use with reamers
	R.00.Y.10 R.00.Y.11 R.00.Y.12 R.00.Y.13	Gauge, plug	For oversize attachment fittings to wing
	R.00.Y.30	Key ratchet	For use with reamers
	R.00.Y.34	Screwdriver	Specially shaped for the job
	R.00.Y.39	Spanner	Specially shaped for the job
See Vol. 3	R.00.D.161–4	Oversize pin	Attachment at joint "A"
	R.00.D.165–7	Oversize pin	Attachment at joint "B"

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FUSELAGE

Replacement of fuselage cross tubes

This repair leaflet describes the method to be used in removing and replacing cross tubes in the fuselage.

Preparation

1. The fuselage should first be stripped of main planes and power unit and suitably supported before following the procedure below:—

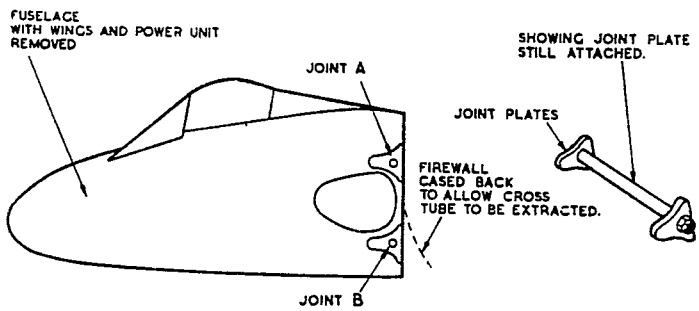
(1) Remove engine mountings.
(2) Disconnect all pipes and cables, forward of the firewall, that pass through it.
(3) Slacken off engine control cables.
(4) Remove vertical pipe in centre of firewall.
(5) Remove bolts from Joint plates Pt. No. A.00305–6 for top cross tube, or from Joint plates Pt. No. A.00441–2 for bottom cross tube.
(6) (a) If lower cross tube is to be replaced, all woodscrews and bolts securing firewall to fuselage, round the lower half, and up to the upper cross tube either side, must be removed.
(b) If upper cross tube is to be replaced, all woodscrews and bolts securing firewall to fuselage, round the upper half, and down to the lower cross tube either side, must be removed.
(7) Remove vertical stiffener in centre of forward face of firewall.
(8) Remove bolts securing cross tube to firewall.
(9) Ease firewall back sufficiently to enable cross tube and joint plates to be extracted.

Replacement of cross tubes

(1) Replace cross tube into position, and return firewall to its original shape.
(2) Fit bolts securing cross tube to firewall.
(3) Replace vertical stiffener in centre of forward face of firewall.
(4) Replace woodscrews and bolts, securing firewall to fuselage.
(5) Replace bolts in Joint plates, Pt. No. A.00305–6 or A.00441–2.
(6) Replace vertical pipe in centre of firewall.
(7) Reset engine control cables.
(8) Connect up all pipes and cables.
(9) Refit engine mountings.
(10) Install power unit and re-assemble wings to fuselage.

3. The following repair drawing will be needed for guidance:—

R.00.A.69—Fuselage cross tubes.



FUSELAGE

Replacement of main plane attachments

This repair leaflet defines the method to be adopted in replacing main plane attachments to the fuselage in all marks of the aircraft where Mod. 314 has not been incorporated.

Preparation

1. Drill and drive out heads of pins and remove fork end fitting. Test pins (Pt. No. D.00560–1) in holes in cross tube. If they prove to be slacker than a light drive fit, oversize pins must be used on re-assembly.

Repair drawing

2. The following repair drawing will be required:—

R.00.A.67—Replacement of wing attachments to fuselage.

Repair instructions

3. Insert new fork end fitting and fit pins to the necessary size.

Estimate of requisite labour

4. The repairs outlined will take approximately 10 man-hours per fitting.

Repair materials

5. The following repair materials will be required.:—

Stores Ref.	Part No.	Description	Size
See Vol. 3	D.004239	Lower fork end	
	D.004240		
	D.004241	Upper fork end	
	D.004242		
	D.00560–1	Pin	Special
	R.00.D.173	Pin, oversize	
	R.00.D.185	Pin, oversize	

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Repair Leaflet D.3/4

MAIN PLANE

Replacement of Root End Fittings

This repair leaflet describes the method to be used in repairing or replacing the root end fittings and also the method to be adopted in embodying Mod. 112.

Preparation

1. Remove fuel tank door, fuel tank and air intake duct.

Repair drawings

2. The following drawings will be required:—

R.00.D.142, R.00.D.143–4 } Replacement of Root End Fittings

Repair instructions

3. Cut away top and bottom skins as shown on the drawing, remove bolts and rivets securing wing joint fittings to flanges of ribs. Remove bolts securing wing attachment plate and rivets securing wing joint fittings. Withdraw wing attachment plate. Make up packing plates, patch plates, special washers, etc., and assemble in the order and method shown on the drawing, securing that the holes on the wing joint fittings line up with the appropriate holes in the wing attachment plate. When assembling patch plate, pitch rivets as near as possible to the pattern shown on drawings, only deviating from the illustration when rivets are pitched between existing bolts or rivets.

Estimate of requisite labour

4. Labour can be estimated on the basis that each joint will take approximately 60 man-hours.

Repair materials

5. The following repair materials will be required:—

Stores Ref.	Part No.	Description	Size	Specification
		JOINT A		
	R.00.D.145.ND	Special anchor plate	$\frac{3}{8}$ in.	S.1
28D/9498	AS.1882/7C	Bolt, m.s., csk/hd. 90°	2 B.A.	S.1
28D/8460	AS.1882/5C			
28D/8459	AS.1882/4C			
28W/8084	AS.471/C	Dural packing washer	2 B.A.	L.1 or L.3
28M/5316	A.16Y.CP	Thin nut	2 B.A.	S.1
28Q/7593	AS.2229/303	Rivet, alum. alloy, csk/hd., 90°	$\frac{3}{32}$ in.	D.T.D.327
28Q/7118	AS.2229/507		$\frac{5}{32}$ in.	
28B/9845	AS.1882/4G	Bolt, m.s., csk/hd., 90°	$\frac{5}{16}$ in.	S.1
	R.00.Y.175	Special washer	10 S.W.G.	L.3
28M/758	A.16.Y.GP	Nut, m.s.	$\frac{5}{16}$ in.	S.1
28Q/	AS.2229/609	Rivet, alum. alloy, csk/hd., 90°	$\frac{3}{16}$ in.	D.T.D.327
28M/6045	A.G.S.946.E	Washer, m.s.	$\frac{5}{16}$ in.	S.80
	A.G.S.946.F	Washer, m.s.	$\frac{3}{8}$ in.	
28B/7126	A1.5E	Bolt, m.s.	$\frac{1}{4}$ in. B.S.F.	S.1
28W/3072	A.G.S.160/D	Washer	$\frac{1}{4}$ in. B.S.F.	S.21
28D/9640	AS.1882/5E	Bolt, csk/hd., 90°	$\frac{1}{4}$ in. B.S.F.	S.1
	R.00.D.177–178	Wing joint fitting		L.40
	R.00.D.179–180			

es Ref.	Part No.	Description	Size	Specification
	A1.GY.JP.	Nut, m.s.	$\frac{3}{8}$ in.	S.1
3074	A.G.S.160/F	Washer	$\frac{3}{8}$ in.	S.21
10084	AS.1882/4E	Bolt, m.s. csk/hd., 90°	$\frac{1}{4}$ in. B.S.F.	
7082	A1.4E	Bolt, m.s.		S.1
7157	A.16Z.LP	Nut, m.s.	$\frac{7}{16}$ in.	S.80
	A.G.S.946.G	Washer, m.s.		
7155	A.16Z.GP	Nut, m.s.	$\frac{5}{16}$ in.	
7156	A.16Z.JP		$\frac{3}{8}$ in.	
	Type Z	Screw, P.K.	No. 6 × $\frac{3}{8}$ in. long	
462	AS.1882/8C	Bolt, csk/hd., 90°	2 B.A.	S.1
	D.00981	Bolt, special	$\frac{1}{4}$ in.	
	D.00983		$\frac{3}{8}$ in.	
461	AS.1882/6C	Bolt, m.s., cks/hd., 90°	2 B.A.	S.1
0563	AS.2229/407	Rivet, alum. alloy, csk/hd., 90°	$\frac{1}{8}$ in.	D.T.D.327
017	AS.2229/506		$\frac{5}{32}$ in.	
1814	AS.2229/607		$\frac{3}{16}$ in.	
		Sheet, alclad	16 S.W.G.	D.T.D.610
		JOINT B		
81	AS.2229/607	Rivet, alum. alloy csk/hd., 90°	$\frac{3}{16}$ in.	D.T.D.327
677	AS.2229/306		$\frac{3}{32}$ in.	
056	AS.2229/608		$\frac{3}{16}$ in.	
093	AS.2229/303		$\frac{3}{32}$ in.	
017	AS.2229/506		$\frac{5}{32}$ in.	
563	AS.2229/407		$\frac{1}{8}$ in.	
026	AS.1882/6E	Bolt, m.s., csk/hd., 90°	$\frac{1}{4}$ B.S.F.	S.1.
6	A.16.Y.EP	Nut, m.s.	$\frac{1}{4}$ in. B.S.F.	
	R.00 and 175	Washer	10 S.W.G.	L.3
4C	AS.1882/5E	Bolt, m.s., csk/hd., 90°	$\frac{1}{4}$ in. B.S.F.	S.1
	A.G.S.160/D	Washer	$\frac{1}{4}$ in. B.S.F.	S.21
26	A.15.E	Bolt, m.s.	$\frac{1}{4}$ in. B.S.F.	S.1
8	A.16.Y.GP	Nut, m.s.	$\frac{5}{16}$ in.	S.1
073	A.G.S.160/E	Washer	$\frac{5}{16}$ in.	S.21
411	AD.2229/606	Rivet, alum. alloy, csk/hd., 90°	$\frac{3}{16}$ in.	D.T.D.327
082	AS.1882.4E	Bolt, m.s., csk/hd., 90°	$\frac{1}{4}$ in. B.S.F.	S.1
18	AS.2229/507	Rivet, alum. alloy, csk/hd., 90°	$\frac{5}{32}$ in.	D.T.D.327
16	AS.470.C	Washer, packing	2 B.A.	L.1 or L.3
59	AS.1882.4C	Bolt, m.s., csk/hd., 90°	2 B.A.	S.1
16	A.16.Y.CP	Nut, m.s.	2 B.A.	S.1
	Type Z	Screw, P.K.	No. 8 × $\frac{1}{2}$ in. long	
57	A.16.Z.GP	Nut	$\frac{5}{16}$ in.	S.80
75	A.16.Z.LS	Nut, thin	$\frac{7}{16}$ in.	
05	A.G.S.946.G	Washer	$\frac{7}{16}$ in.	
	E.P.	Nut, anchor aerotight		
	E.A.			
8	AS.1882/7C	Bolt, m.s., csk/hd., 90°	2 B.A.	S.1
2	AS.1882/8C			
	D.00982	Bolt, special	$\frac{5}{16}$ in.	
	R.00.D.181–182	Wing joint fitting		L.40
	R.00.D.183–184			
	R.00.D.145ND	Plate, special anchor	$\frac{5}{16}$ in.	S.1
	D.00982	Bolt, m.s. special	$\frac{5}{16}$ in.	
		Sheet, alclad	16 S.W.G.	D.T.D.390

GROUP F—MAIN PLANE

LIST OF CONTENTS

Title of repair leaflet	Repair drawing number	Marks of aircraft to which repair is applicable	Repair leaflet number	Date of issue
ATTACHMENTS				
Replacement of root end fittings	R.00.142 R.00.143–4	All marks	See D.3/4	
STRINGER				
Stiffening of stringer at Rib No. 2	R.00.D.5 R.00.D.1	Mk. 1	F.2/1	July, 1950
SKIN				
Treatment of elongated holes	R.00.D.8	All marks	F.3/1	July, 1950
AIR INTAKES				
Removal	R.15W.130 R.15W.131	All marks	F.4/1	Oct. 1959

MAIN PLANE

Stiffening of stringers at Rib No. 2

This repair leaflet defines the method to be adopted in stiffening stringers at Rib No. 2.

1. The damaged skin must be cut away in the manner shown and the repair effected precisely as directed on the following repair drawings:—

R.00.D.5—Stiffening of stringers at Rib No. 2.

R.00.D.1, Sheet 1—Data sheet for riveted joints, Vampire wing.

Estimate of requisite labour

2. The repairs outlined will take approximately 50 man-hours.

Repair material

3. The following repair material will be required:—

Stores Ref.	Part No.	Description	Size	Specification
30B/950	R.00.D.81 ND R.00.D.82 ND	Sheet, alclad Stiffener, alclad (L) (R)	18 S.W.G.	D.T.D.390
28Q/11162	AS.2229/505	Rivet, alum. alloy, csk/hd., 90°	$\frac{5}{32}$ in. dia. × $\frac{5}{16}$ in.	
28Q/9519	TK.3.CS	Rivet, steel, Chobert, csk/hd., 120°	$\frac{1}{8}$ in. dia. × $\frac{3}{16}$ in.	
28Q/–	K.3.PS	Sheer pin, steel		
28Q/9523	TL.3.CS	Rivet, steel, Chobert, csk/hd.	$\frac{5}{32}$ in. dia. × $\frac{3}{16}$ in.	
28Q/–	L.3.PS	Shear pin, steel		
28Q/9524	TL.4.CS	Rivet, steel, Chobert, csk/hd.	$\frac{5}{32}$ in. dia. × $\frac{1}{4}$ in.	
29Q/8051	L.4.PS	Shear pin, steel		
28Q/9525	TL.5.CS	Rivet, steel, Chobert, csk/hd.	$\frac{5}{32}$ in. dia. × $\frac{5}{16}$ in.	
29Q/9650	L.5.PS	Shear pin, steel		

MAIN PLANE

Treatment of elongated holes (skin to spar)

This repair leaflet defines the method to be adopted in correcting elongation of holes in skin at main spar.

Preparation

1. Remove fuel tank and bag support channel and cold air pipe that passes through spar. Remove bolts and rivets as indicated on the repair drawing.

Repair drawing

2. The following repair will be required:—

R.00.D.8—Correction of elongated holes (skin to spar).

Repair instructions

3. Open out holes with No. 2 drill and countersink to suit new bolts. Fit new bolts, washers and nuts, and replace cold air pipe, bag support channel and fuel tank.

Estimate of requisite labour

4. The repairs outlined will take approximately 11 to 14 man-hours per wing, according to number of defective bolts to be replaced.

Repair materials

5. The following repair materials will be required:—

Stores Ref.	Part No.	Description	Size
See Vol. 3	R.00.D.152–156	Bolt, special	
	R.00.D.157	Washer	
28M/	A.16Y.DT	Nut	$\frac{7}{32}$ in. B.S.F.

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October, 1959

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*A.L.*31, *Nov.* 59

MAIN PLANE

Removal of air intakes

This repair leaflet describes a method of removing the air intakes without first removing the wing. The procedure as follows assumes that it is required to replace the same intakes. Should a new intake be required, it will be necessary to make access holes and covers as applicable in the new part before fitment.

Repair drawings

1. The following repair drawings will be required:—

R.15W.130—Access panels in nose duct fairings, port and starboard.

R.15W.131—Access panel in wing top skin, between rib No. 1A and 1B.

Procedure

2. *Port intake*

(1) Remove the wing root fillets around the leading edge.

(2) Remove the countersunk bolts, attaching the nose fairing to the top and bottom of the drag member, rib No. 1A and nose rib No. 2. (The 4 B.A. bolts in the leading edge of rib No. 1A may be left *in situ.*)

(3) Remove the access panel situated on the bottom surface aft of the drag member adjacent to rib No. 2.

(4) Cut an access hole in the nose fairing to R.15W.130. Where the cold air pipe as shown for starboard is fitted to *port* wing, cut the f[illegible]ess hole and cut the cold air pipe.

(5) Remove the cold air unit access panel in the top skin and the reinforcing stringer.

Note . . .

It may be found that the access panel does not exist on Mk. 5, 9 *and* 10 *aircraft and it will therefore be necessary to cut an access hole in accordance with* R.15W.131.

(6) Remove the cold air unit where applicable.

(7) Through the access hole (*sub-para.* (3)), disconnect the ducting and bonding where the cabin supercharger is fitted and remove the bolts securing the nose fairing flanges to the drag member.

(8) Should the bolts outboard of rib No. 1B on Mark T.11 and T.22 aircraft be inaccessible through the access hole (*sub-para.* (3)) due to the air duct for the heat exchanger covering the hole. then the following procedure is to be adopted:—

(*a*) Remove No. 2 tank door.

(*b*) Lower tank on to a trestle, but do *not* disconnect the tank.

(*c*) Remove the Hycar packing covering the centre lightening hole in nose rib No. 2 and, through this hole, remove the bolts securing the heat exchanger duct.

(*d*) Remove the bolts outboard of rib No. 1B.

(9) Remove the nose fairing and complete the access holes and covers in accordance with R.15W.130.

3. *Starboard intake*

(1) Remove the wing root fillets around the leading edge.

(2) Remove the detachable leading edge fairing (Mk. 9 aircraft only)

(3) Remove the countersunk bolts attachment the nose fairing to the top and bottom of the drag member, rib No. 1A and nose rib No. 2. (The 4 B.A. bolts in the leading edge of rib No. 1A may be left *in situ.*

(4) Remove the access panel situated on the bottom surface, aft of the drag member, adjacent to rib No. 2.

(5) Remove the outboard detachable nose duct fairing (Mk. 9 aircraft only with cold air unit fitted).

(6) Cut access holes in the nose fairing to drawing, R.15W.130.

(7) Remove the cold air unit access panel in the top skin and the reinforcing stringer (Mk. 9 aircraft only) and remove the cold air unit.

(8) Cut an access hole to the drawing, shown on R.15W.131 (Mk. 5, 10, T.11 and T.22 aircraft only with cabin supercharger fitted).

(9) Remove the bolts securing the nose fairing flanges to the drag member.

(10) Through the forward access hole cut in the nose fairing, cut the cold air pipe as shown on R.15W.130.

(11) Through the access hole in sub-para. (iv) disconnect the ducting and bonding (Mk. 5, 10, T.11 and T.22 aircraft with cabin supercharger fitted).

(12) Remove the nose fairing and complete the access holes and covers in accordance with R.15W.130.

Note . . .

When replacing the port and starboard nose fairings on any of the above Marks of aircraft, the 2 B.A. bolt with the rearward facing head, at the extreme inboard lower position, may be omitted if it is difficult to replace. In this instance the second and third bolts from the inboard lower 2 B.A. bolts, with the rearward facing heads, are to be replaced by $\frac{1}{4}$ *in. B.S.F. bolts to A.*25/3E *and* $\frac{1}{4}$ *in. B.S.F. floating anchor nuts to A.G.S.*2012/E.11.

Repair materials

4. The following repair materials will be required:—

Ref. No.	Part No.	Description	Size	Spec.	No. off
Requirements for air intake panel					
	R.15W.124ND	Landing ring	18 S.W.G.	L.72	1
	R.15W.125ND	Access panel	14 S.W.G.	L.72	1
28S/14006	A.33/B.14	Screw, 90 deg. csk/hd.	4 B.A.		8
28M/10228	A.G.S.2009/B1	Nut, double anchor	4 B.A.	Nyloc	8
28Q/10432	AS.2230/304	Rivet, 120 deg. csk/hd.	$\frac{3}{32}$	L.57	16
32C/376	DHS.159/J30	Hose, synthetic rubber*	3 in.	F7GRS	1
28E/15228	A.G.S.605/IX	Hose clip*			2
* Required for port forward access hole only.					
Requirements for top skin access panel					
	R.15W.132ND	Access panel	12 S.W.G.	L.72	1
	R.15W.133ND	Backing plate	16 S.W.G.	S.3	1
26DV/6328	R.15W.134ND	Reinforcing stringer	J.723	L.65	1
	R.15W.135ND	Backing plate	16 S.W.G.	S.3	1
28M/10288	A.G.S.2001/C1	Stiffnut	2 B.A.		6
28M/11957	A.G.S.2007/C1	Anchor nut	2 B.A.		46
28D/8307	AS.1242/2C	Bolt, 90 deg. csk/hd.	2 B.A.	S.96	52
28Q/6675	AS.2229/304	Rivet, 90 deg. csk/hd.	$\frac{3}{32}$	L.57	92
28Q/6640	AS.2229/404	Rivet, 90 deg. csk/hd.	$\frac{1}{8}$	L.57	2
28Q/10564	AS.2229/608	Rivet, 90 deg. csk/hd.	$\frac{3}{16}$	L.57	70
30B/1730		Packing strip	18 S.W.G.	L.72	As reqd.

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GROUP G—TAIL UNIT

LIST OF CONTENTS

Title of repair leaflet	Repair drawing number	Marks of aircraft to which repair is applicable	Repair leaflet number	Date of issue
ELEVATOR				
General repair	R.00.J.21 R.00.J.2	All marks	G.1/1	July 1950
RUDDER				
General repair	R.00.J.3 Sheet 1	Mk. 3	G.2/1	July 1950
TAIL PLANE				
General repair	R.00.J.1 Sheet 2	Mk. 1	G.3/1	July 1950
FIN				
Repair of upper fin	R.00.J.4	All marks	G.4/1	July 1950
STUB BOOM				
Removal of nose and rear portion	R.00.D.9	Mk. 1 and 3	G.5/1	July 1950

TAIL UNIT

Elevator

This repair leaflet defines the method to be adopted in repairing damage to the elevator. Although the treatment described is mainly replacement of damaged material the question of disturbance of mass balance should not be forgotten.

Preparation

1. Remove elevator from tail plane. Cut away damaged portion of skin and any internal damage which may be revealed upon inspection.

Repair drawings

2. The following repair drawings will be required:—

R.00.J.21—Joint Plate.
R.00.J.2—Repairs to Elevator.

Repair instructions

3. Damaged ribs or stiffeners should be replaced. Prepare landing strips to the width shown on the drawing and attach them to the existing skin with solid rivets. Insert new portions of skin and secure with Chobert rivets where solid rivets cannot be used.

Estimate of requisite labour

4. The repairs outlined will take approximately 25 man-hours.

Repair materials

5. The following repair materials will be required:—

Stores Ref.	Part No.	Description	Size	Specification
30B/953		Insertion patch	24 s.w.g.	D.T.D.390
30B/950		Landing strip	18 s.w.g.	
30B/951	R.00.J.21	Joint plate	20 s.w.g.	
28Q/10407	AS.2228/404	Rivet, alum. alloy, mushroom head	$\frac{1}{8}$ in. dia. × $\frac{1}{4}$ in. long	
28Q/10402	AS.2230/404	Rivet, alum. alloy, csk/hd., 120°	$\frac{1}{8}$ in. dia. × $\frac{1}{4}$ in. long	
28Q/10855	AS.2230/310	Rivet, alum. alloy, csk/hd., 120°	$\frac{3}{32}$ in. dia. × $\frac{5}{8}$ in. long	
28Q/10434	AS.2230/308	Rivet, alum. alloy, csk/hd., 120°	$\frac{3}{32}$ in. dia. × $\frac{1}{2}$ in. long	
28Q/10433	AS.2230/307	Rivet, alum. alloy, csk/hd., 120°	$\frac{3}{32}$ in. dia. × $\frac{7}{16}$ in. long	
28Q/9520	TK.4.CS	Rivet, steel, Chobert, csk/hd., 120°	$\frac{1}{8}$ in. dia. × $\frac{1}{4}$ in. long	

TAIL UNIT

Rudder

This repair leaflet defines the method to be adopted in repairing damage to the rudder. Although it is unlikely that repairs will disturb the mass balancing of the component the possibility should not be forgotten.

Preparation

1. Remove rudder from the aircraft. Strip off damaged skin panel and search for internal damage.

Repair drawings

2. The following repair drawing will be required:—

R.00.J.3—Repairs to rudder.

Repair instructions

3. Complete direction is included on the drawing.

Estimate of requisite labour

4. The repairs outlined will take a minimum of 10 man-hours and will take longer with an increase in the extent of damage or number of necessary replacements.

Repair material

5. In addition to replacement parts the following rivets will be required.

Stores Ref.	Part No.	Description	Size	Specification
28Q/9598	TK/4/CNA	Rivet, alum. alloy, Chobert, csk/hd.	$\frac{1}{8}$ in. dia.	D.T.D.327
28Q/6881	TL/4/CNA		$\frac{5}{32}$ in. dia.	D.T.D.327

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TAIL UNIT

Tailplane

This repair leaflet defines the method to be adopted in repairing damage to the tailplane.

Preparation

1. Damaged portions of skin should be cut away and adjacent internal members inspected for damage. Any internal damage should also be cut away.

Repair drawings

2. The following repair drawings will be required:—

R.00.J.1, Sheets 1 and 2—Repairs to Tailplane.

Repair instructions

3. Damage to ribs, stiffeners or spars are repaired as shown on repair drawing R.00.J.1, Sheet 2. Repair of buckles is effected with riveted reinforcing plates which when butt-jointed are secured with riveted butt straps.

Damage to the skin should be repaired as shown on Sheet 1 of repair drawing R.00.J.1. This illustration shows the insertion of landing strips and the riveting of skin patches. Where possible solid riveting should be practised but elsewhere Chobert rivets may be used.

Estimate of requisite labour

4. The repairs outlined will take approximately 20 man-hours for any skin repair, and 4 man-hours on average for internal repair.

Repair materials

5. The following repair materials will be required:—

Stores Ref.	Part No.	Description	Size	Specification
30B/952		Insertion patch	22 s.w.g.	D.T.D.390 or D.T.D.610
30B/950		Landing strip	18 s.w.g.	
30B/952		Butt straps	22 s.w.g.	
30B/951		Butt straps	20 s.w.g.	
28Q/10432	AS/2230/304	Rivet, alum. alloy, csk/hd., 120°	$\frac{3}{32}$ in. dia. × $\frac{1}{4}$ in. long	D.T.D.327
28Q/10412	AS/2230/404		$\frac{1}{8}$ in. dia. × $\frac{1}{4}$ in. long	
28Q/10407	AS/2228/404	Rivet, alum. alloy, mushroom head	$\frac{1}{8}$ in. dia. × $\frac{1}{4}$ in. long	
28Q/10653	AS/2228/505		$\frac{5}{32}$ in. dia. × $\frac{5}{16}$ in. long	
28Q/9520	TK/4/CS	Rivet, steel, Chobert, csk/hd., 120°	$\frac{1}{8}$ in. dia. × $\frac{1}{4}$ in. long	

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Repair Leaflet G.4/1

TAIL UNIT

Upper fin

This repair leaflet defines the method to be adopted in repairing damage to the upper fin.

Preparation

1. Cut away damaged skin. Examine for damage to interior members or for any damage remote from the area affected.

Repair drawing

2. The following repair drawing will be required to effect the repairs outlined:—

R.00.J.4—Repairs to Upper Portion of Fin.

Repair instructions

3. Cut away damaged skin. Inspect for any internal damage and repair any members affected. Buckles must be dressed out and patched as shown in the drawing. Damage in excess of buckling must be cut away and an insertion made of a new portion of skin, the attachment being effected with butt straps. Finally a new portion of skin should be attached over the damage using the landing strips illustrated in the drawing.

Estimate of requisite labour

4. The repairs outlined will take approximately 20 man-hours.

Repair materials

5. The following materials will be required:—

Stores Ref.	Part No.	Description	Size	Specification
30B/950		Repair bracket	18 S.W.G.	D.T.D.390
30B/951	R.00.J.29	Landing strips Butt straps Repair brackets	20 S.W.G.	
See Vol. 3		Bracket.		
30B/951		Landing plate		
30B/952		Insertions	22 S.W.G.	
28Q/10412	AS.2230 404	Rivet, alum. alloy, csk/hd., 120°	$\frac{1}{8}$ in. dia. × $\frac{1}{4}$ in. long	
28Q/10680	AS/2227 403	Rivet, alum. alloy	$\frac{1}{8}$ in. dia. × $\frac{3}{16}$ in. long	
28Q/9520	TK 4/CS	Rivet, steel, Chobert, csk/hd., 120°	$\frac{1}{8}$ in. dia. × $\frac{1}{4}$ in. long	

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Repair Leaflet G.5/1

TAIL UNIT

Stub boom

This repair leaflet defines the method to be adopted in removing nose or rear portions of the tail boom.

Preparation

1. Trestle aircraft to stand without undercarriage support.
Remove tank door, fuel tank and undercarriage leg, inspect boom and select cut line.

Repair drawing

2. The following repair drawing will be required:—

R.00.D.9—Method of removing nose or rear portions of tail boom.

Repair instructions

3. The full instructions set out on the drawing must be carefully followed.

Estimate of requisite labour

4. The repairs outlined will take approximately 20 man-hours.

Repair materials

5. The following repair materials will be required:—

Stores Ref.	Part No.	Description	Size	Specification
See Vol. 3	D.00.1965–6	Stub boom top shell L.H. and R.H.		
	D001967–8	Stub boom bottom shell, R.H. and L.H.		
	R.00.D.196 ND	Anchor nut plate	20 S.W.G.	D.T.D.610
30B/946		Alclad sheet	12 S.W.G.	D.T.D.610
28D/10753	AS/1882/2C	Bolt, csk/hd.	$\frac{5}{16}$ in. B.S.F.	
28M/5853	G.A.1	Aerotight nut	$\frac{5}{16}$ in. B.S.F.	
28W/3071	A.G.S.160/C	Washer	$\frac{5}{16}$ in. i/d.	
	SP/16/C	Thick washer	$\frac{5}{16}$ in. i/d.	
28Q/9028	AS/162/606	Rivet, alum. alloy, csk/hd., 90°	$\frac{3}{16}$ in., $\frac{3}{8}$ in. long	D.T.D.303
28Q/7242	AS/162/506	Rivet, alum. alloy, csk/hd., 90°	$\frac{5}{32}$ in. dia., $\frac{3}{8}$ in. long	D.T.D.303
28Q/7700	AS/162/406	Rivet, alum. alloy, csk/hd. 90°	$\frac{1}{8}$ in. dia., $\frac{3}{8}$ in. long	D.T.D.303
28D/8458	AS/1882/3C	Bolt, csk/hd.	2 B.A.	
28M/8932	C/D1	Nut, aerotight double anchor	2 B.A.	
28Q/10905	AS/2229/307	Rivet, alum. alloy, csk/hd., 90°	$\frac{3}{32}$ in. dia., $\frac{7}{16}$ in. long	D.T.D.327

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A.P.4099 & 4269, Vol. 2, Part 4
Repair Leaflet G.5/1

TAIL UNIT

Stub boom

This repair leaflet defines the method to be adopted in removing nose or rear portions of the tail boom.

Preparation

1. Trestle aircraft to stand without undercarriage support.
Remove tank door, fuel tank and undercarriage leg, inspect boom and select cut line.

Repair drawing

2. The following repair drawing will be required:—

R.00.D.9—Method of removing nose or rear portions of tail boom.

Repair instructions

3. The full instructions set out on the drawing must be carefully followed.

Estimate of requisite labour

4. The repairs outlined will take approximately 20 man-hours.

Repair materials

5. The following repair materials will be required:—

Stores Ref.	Part No.	Description	Size	Specification
See Vol. 3	D.00.1965–6	Stub boom top shell L.H. and R.H.		
	D001967–8	Stub boom bottom shell, R.H. and L.H.		
	R.00.D.196 ND	Anchor nut plate	20 S.W.G.	D.T.D.610
30B/946		Alclad sheet	12 S.W.G.	D.T.D.610
28D/10753	AS/1882/2C	Bolt, csk/hd.	$\frac{5}{16}$ in. B.S.F.	
28M/5853	G.A.1	Aerotight nut	$\frac{5}{16}$ in. B.S.F.	
28W/3071	A.G.S.160/C	Washer	$\frac{5}{16}$ in. i/d.	
	SP/16/C	Thick washer	$\frac{5}{16}$ in. i/d.	
28Q/9028	AS/162/606	Rivet, alum. alloy, csk/hd., 90°	$\frac{3}{16}$ in., $\frac{3}{8}$ in. long	D.T.D.303
28Q/7242	AS/162/506	Rivet, alum. alloy, csk/hd., 90°	$\frac{5}{32}$ in. dia., $\frac{3}{8}$ in. long	D.T.D.303
28Q/7700	AS/162/406	Rivet, alum. alloy, csk/hd. 90°	$\frac{1}{8}$ in. dia., $\frac{3}{8}$ in. long	D.T.D.303
28D/8458	AS/1882/3C	Bolt, csk/hd.	2 B.A.	
28M/8932	C/D1	Nut, aerotight double anchor	2 B.A.	
28Q/10905	AS/2229/307	Rivet, alum. alloy, csk/hd., 90°	$\frac{3}{32}$ in. dia., $\frac{7}{16}$ in. long	D.T.D.327

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