CHAPTER 4

TAIL UNIT

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Introduction

1. A method of pictorial indexing is employed in this chapter to locate and categorize damage and to illustrate repair schemes by step-by-step progression from the main component key diagram, through detailed structural illustrations and negligible damage charts, to repair schemes designed for particular structural items. Fig.1 - Tail unit key diagram, gives the rib numbers and figure numbers of the main structure illustrations. The structure illustrations simplify the identification of structural items together with negligible damage definitions and repair figure numbers.

Elevator tab operating gear

Removal

2. To remove the elevator tab operating gear, proceed as follows:-

(1) Refer to the appropriate A.P. 101B-0400-1 series, Sect.3, Chap.3, and remove the port elevator from the aircraft.

(2) Obtain access to the outboard end of the torque tube assembly by removing the panel in the top surface of the elevator.

(3) Unfasten the nut and withdraw the bolt that secures the tab operating lever to the extreme outboard end of the tab operating gear assembly.

(4) Remove the split pin and withdraw the shackle pin from the slots in the links at the inboard end of the tab operating gear and permit the links to swing downwards, clear of the elevator operating lever.

(5) Remove the two split pins and nuts, and withdraw the bolts securing the bearing bracket, at the extreme inboard end of the torque tube assembly, to the elevator spar.

(6) Break the locking wire and slacken the torque tube clamp nut which secures the outboard end of the assembly and withdraw the whole assembly through the inboard end of the elevator.

Fitting

3. To fit the elevator tab operating gear, proceed as follows:-

(1) Offer up the torque tube, bearing bracket, blow-back rod and elevator operating lever to the elevator, enter the serrated portion of the torque tube into the clamp nut and fit the bolt securing the tab operating lever to the blow-back rod. Fit the two bolts securing the bearing bracket at the inboard end of the assembly.

(2) Tighten and wire-lock the clamp nut.

(3) With the elevator top surface uppermost, secure the links to the elevator operating lever when the centres of the shackle pins are 3.12 in. apart, and, with the stop pin in the centre of the slot in the tab operating lever and the tab in its neutral position, clamp together the elevator operating lever and the flanges of the torque tube and blow-back rod.

(4) Check the tab movements.

(5) Remove the bearing bracket from the inboard end of the assembly, and, from the 5/32 in. dia. pilot holes in the flange of the blow-back rod, drill and ream (0.185 in. dia.) the operating lever and the flange of the torque tube. Secure the assembly with the four countersunk bolts and remove the clamps. Refit the bearing bracket.

(6) Fit the access panel to the elevator and the elevator to the aircraft.

Note...

The above instructions are for fitting a new blow-back rod, torque tube, and elevator operating lever. If the torque tube and blow-back rod assembly is being replaced in the elevator from which it was removed, the fitting of the clamps, drilling, and reaming will not be necessary.

Rudder tab operating gear

Removal

4. To remove the rudder tab operating gear, proceed as follows:-

(1) Refer to the appropriate A.P. 101B-0400-1 series, Sect.3, Chap.3 and remove the rudder from the aircraft.

(2) Remove the two access panels from the base of the rudder nose.

(3) Disconnect the tab actuator lever from the actuator ram and remove the actuator.

(4) Remove the bolts securing the rudder hinge bottom bracket and the stop bracket to the rudder.

(5) Remove the access panel at rib 6 from the rudder nose.

(6) Withdraw the bolt that secures the tab operating lever to the upper end of the torque tube assembly.

(7) Remove two diametrically opposite bolts securing the bearing housing to the rib and fit the special extractor Ref.No.26FZ/85462.

(8) Operate the extractor and force out the torque tube assembly complete with the rudder bottom hinge bracket and stop bracket.

(9) Dismantle the limit stop from the stop bracket and kidney slot in the rudder operating lever.

(10) Remove the two self-tapping screws fastening the sealing plate over the bearings at the base of the tab operating gear and separate the rudder bottom hinge bracket from the tab operating gear at the bottom bearing.

Fitting

5. To fit the rudder tab operating gear, proceed as follows:-

(1) Offer up the assembly to the rudder bottom hinge bracket and fit the spigot and bearings into the bearing housing. Ensure that the bearing housing is packed with grease XG-287, Ref.No.34B/ ◀ 2241973. ▶

(2) Secure the sealing plate over the bearing housing using two self-tapping screws and jointing compound.

(3) Assemble the limit stop and stop bracket to the rudder operating lever.

(4) At the access panel at rib 6 on the rudder, remove the two remaining bolts which secure the tab operating lever bearing housing to the rib and disconnect the operating lever from the tab control rod. Remove the tab operating lever and bearing housing complete.

(5) Offer up the assembly to the rudder and fit the bolts securing the rudder hinge bottom bracket and the stop bracket.

(6) Ensure that the actuator is in its mid-position, refit it to the rudder and reconnect the tab actuator lever. This ensures that the lever and tab operating gear are located in the neutral position. If preferred, blocks may be made to fit each side of the stop bolt and thus centralize it in the kidney slot.

(7) Offer up the tab operating lever and bearing housing assembly to the top end of the torque tube assembly and position it with the lever midway between its stops.

(8) With the tab set in its neutral position reconnect the control rod to the tab operating lever. Refit the four bolts which secure the bearing housing.

(9) Operate the tab and check that the maximum travels quoted in A.P.101B-0400-1 series, Sect.3, Chap.4, are obtained, and that the stops on the tab operating lever are reached before the limit stop reaches the ends of the kidney slot.

(10) Ensure that no foul exists between the sealing plate and the bolts securing the rudder operating lever. Through the existing holes in the tab operating lever, drill a 3/16 in. dia. hole in the serrated end of the blow-back rod.

(11) Secure the tab operating lever and blow-back rod using a new 2 B.A. bolt, Ref.No.28D/9133014 and nut, Ref.No. 28M/9403520 and the two saddle washers. Peen to lock.

(12) Replace the access panels and refit the rudder to the aircraft.

Note...

The sequence of operation for fitting a re-conditioned rudder tab operating gear is similar to the above except that the drilling detailed in operation (10) will already have been done when the blow-back rod was fitted to its original rudder. Should it be necessary to misalign this hole relative to the one in the lever to obtain a condition of 'no foul', then the misalignment must be corrected by drilling through with a ¼ in. dia. drill, and fitting a larger bolt at operation (11).

Tail-plane skin crack limitations

6. Provided that single-line cracks are not closer together than one rib pitch in the direction of the stringer and two stringer pitches in the rib direction, single cracks between adjacent rivets are to be regarded as negligible damage not requiring repair before the Major Servicing stage or tail-plane reconditioning.

Note...

The limitation applies to all Marks with the exception of PR Mk.9.

Fitting an elevator centre hinge bearing housing

7. To fit a new elevator centre hinge bearing housing, proceed as follows:-

(1) Temporarily fit the bearing housing, Part No.EA1.31.45/6, and check that the three securing bolts are a push fit in their holes in the bearing housing.

(2) If the bolt holes in the bearing housing are not to the correct tolerance to suit the bolts, they must be reamed, using a standard 5/16 in. reamer ($0.3125 \,^{+0.0020}_{+0.0005}$ in. dia.)

Plywood skin buckling

Limitations

8. Skin buckling is acceptable, subject to the following limitations:-

(1) Skin buckling not exceeding 0.10 in. and which does not cross a rib or ribs is acceptable, but the protective finish must be serviceable, or restored as necessary.

(2) Skin buckling exceeding 0.10 in., but less than 0.30 in. is acceptable, subject to renewal of the protective covering.

(3) Skin buckling which crosses a rib or ribs is unacceptable and the skin must be renewed.

Repair

9.

(1) Where any deterioration of the protective covering exists, soften the surface with thinners and finish by spraying on two coats of the appropriate finishing colour.

(2) Renewal of the protective covering must be carried out by the following procedure:-

(a) Using thinners, soften the linen strips that reinforce the edges all round the fin until the strips can be peeled away from the madapollam covering.

(b) Carefully cut the madapollam about 1 in. below the edge of the linen strips and remove it from the fin. Soften the madapollam with thinners as necessary during removal. Strip rain-erosion-proof finish from the leading edge.

(c) Leave the aircraft under cover until the fin has dried out and the buckles have diminished.

(d) When dry, brush on one coat of clear dope, B.S.X26 Ref.No.33B/9428853. Do not thin the dope before brushing.

(e) Stop up the surface, if necessary, and flat down with No.180C waterproof, silicon carbide Ref.No. 33J/1293935.

(f) Apply a new madapollam covering Ref.No.32B/N.I.V. to the fin, doping it down with clear dope thinned 10-15 per cent. The new madapollam is to make a good butt joint with the edge of the old madapollam and have an overlap at the leading edge of 3 in. each side.

(g) Attach a 5 in. wide strip of fabric, 4 oz linen B.S. 7F-1, Ref. No.32B/1250434, to the leading edge of the fin.

(h) Using dope, soften the linen strips and close them over the madapollam joints.

(j) Flat down the surface and apply three coats of transparent, non-tautening dope, B.S.X26 Ref.No. 9428742, allowing one hour between coats and 24 hours final drying time. Flat down.

(k) Apply two coats of primer filler C.R. process, B.S.X29 Ref.No. 33B/9428800. Allow 4 hours between coats and 24 hours to dry.

(l) Apply the finishing coats and external markings to the fin.

(3) Where unacceptable skin buckling exists, fit a new skin *(Part 2, Repair Leaflet D.3/5)*.

Balancing of rudder EA1.33.1 (pre Mod.894)

10. The rudder and tab finished to the standard scheme and including the electrical actuator are balanced as an assembly. The assembly has a nose up out-of-balance moment and when freely supported on its pivot points with the hinge centre-line horizontal the trailing edge will swing downwards. This out-of-balance moment must be counterbalanced by a weight of 4.25 lb ± 0.5 lb applied at a distance of 12.75 in. forward of the hinge centre-line; the counterbalance weight must be suspended at a point indicated by a dimple in the mass-balance weight at the base of the rudder.

Should the assembly not balance within the limits specified adjustments must be made to the adjustable mass-balance weight in the rudder horn by adding or removing weights Part No.EA1.33.483 and adjusting the number of washers Part No.EA1.33.481 accordingly.

When any alteration is made to the weight or balance i.e. after repair or changing a tab the total weight of the assembly must remain within the limits of 140 lb $\pm^{14.00}_{2.50}$ lb.

Balancing of rudder EA3.33.1 (post Mod. 894) and EA9.33.1 (Mk.8)

11. The rudder and tab finished to the standard scheme and including the electrical actuator are balanced as an assembly. The assembly has a nose down out-of-balance moment and when freely supported on its pivot points with the hinge centre-line horizontal the rudder horn will swing downwards. This out-of-balance moment must be counterbalanced by a weight of 2 lb ± 6 oz suspended from the edge of the spoiler on the rudder trailing egde adjacent to the tab.

Should the assembly not balance within the limits specified adjustments must be made to the adjustable mass-balance weight in the rudder horn by adding or removing weights Part No.EA1.33.483 and adjusting the number of washers Part No.EA1.33.481 accordingly.

When any alteration is made to the weight or balance i.e. after repair or changing a tab the total weight of the assembly must remain within the limits of 146.5 lb $\pm^{14.5}_{2}$ lb.

Balancing of elevator

12. The elevator and tab, finished to the standard scheme and including the mass-balance arm, are balanced as an assembly. The assembly has a nose-down out-of-balance moment and, when freely supported on its pivot points with the hinge centre-line horizontal, the elevator horn will swing downwards. This out-of-balance moment must be counterbalanced by a weight of 5 lb 8 oz $\pm^{8}_{0}$ oz (post Mod.2182 - 5 lb 4 oz ± 4 oz - port elevator only) suspended on wire from the trailing edge.

Should the assembly not balance within the limits specified, adjustments must be made to the adjustable mass-balance weight in the elevator horn, by interchanging discs, Part No.EA1.31.333, and washers Part No.AS.470/J. The adjustable mass-balance weight must remain within the limits of 3 lb $\pm \frac{5}{2}$ oz when any alteration is made to the weight or balance, i.e. after repair, or after changing a tab, etc. The total weight of the assembly must remain within the following limits:-

Port elevator EA1.31.1
(pre Mod.893) 112 lb $\pm^{11}_{0}$ lb

Stbd. elevator EA1.31.3
(pre Mod.893) 108 lb $\pm^{10.5}_{0}$ lb

Port elevator EA3.31.1
(post Mod.893) 112 lb $\pm^{11}_{0}$ lb

Stbd. elevator EA3.31.3
(post Mod.893) 112 lb $\pm^{11}_{0}$ lb

Port elevator EA9.31.1
(post Mod.2182) 115 lb 8 oz $\pm^{11.75}_{0.00}$ lb

Balancing of elevator tabs

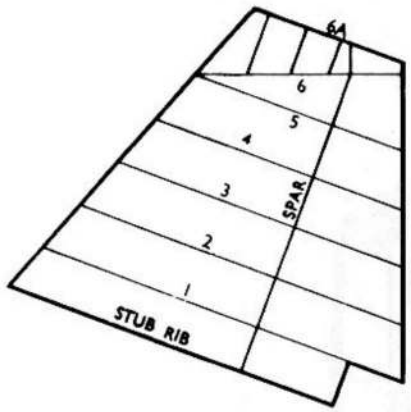
13. Modifications affecting the elevator tab weight and balancing allowance have been introduced from time to time. The accompanying Table must be referred to when repairing or renewing an elevator tab.

Note...

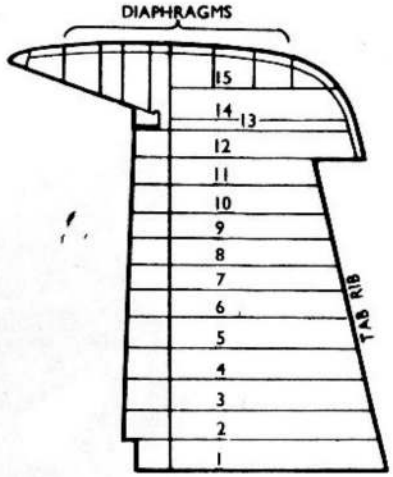
For balancing of elevator trim tabs, Part No.EB8.31.445 (port) and Part No. EB8.31.447 (starboard), fitted to the PR Mk.9 aircraft refer to fig.906 of Appendix 2 to this chapter.

Elevator tab weight and balancing allowances

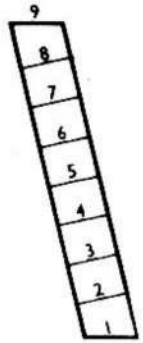
Tab Pt.No.	Tab position	Tab weight	Balancing weight	Modification
EA1.31.5	Port	6 lb 5½ oz $\pm^{10}_{2}$ oz	1 lb 4 oz ± 2 oz	893
EA1.31.6	Stbd.	7 lb ½ oz $\pm^{12}_{2}$ oz	8½ oz ± 2 oz	893
EA3.31.125	Port	6 lb 6½ oz $\pm^{10}_{2}$ oz	1 lb 4 oz ± 2 oz	4077
EA3.31.127	Stbd.	7 lb 1½ oz $\pm^{12}_{2}$ oz	8½ oz ± 2 oz	4078
EA9.31.5	Port	6 lb 12 oz $\pm^{11}_{2}$ oz	11 oz ± 2 oz	2182
EA9.31.7	Stbd.	6 lb 13 oz $\pm^{11}_{2}$ oz	11 oz ± 2 oz	2182



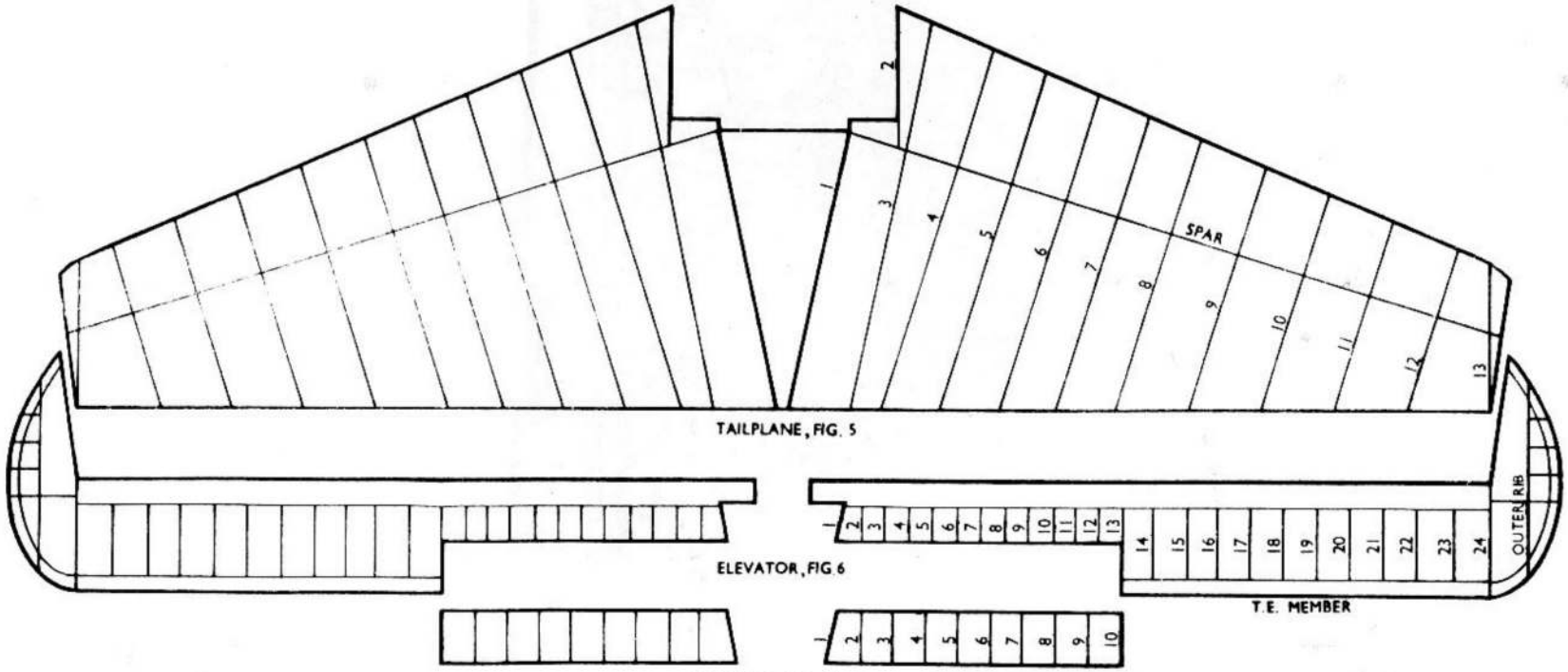
FIN, FIG. 2



RUDDER, FIG. 3



RUDDER TAB, FIG. 4



TAILPLANE, FIG. 5

ELEVATOR, FIG. 6

T.E. MEMBER

ELEVATOR TAB, FIG. 7

Fig. 1. Key diagram

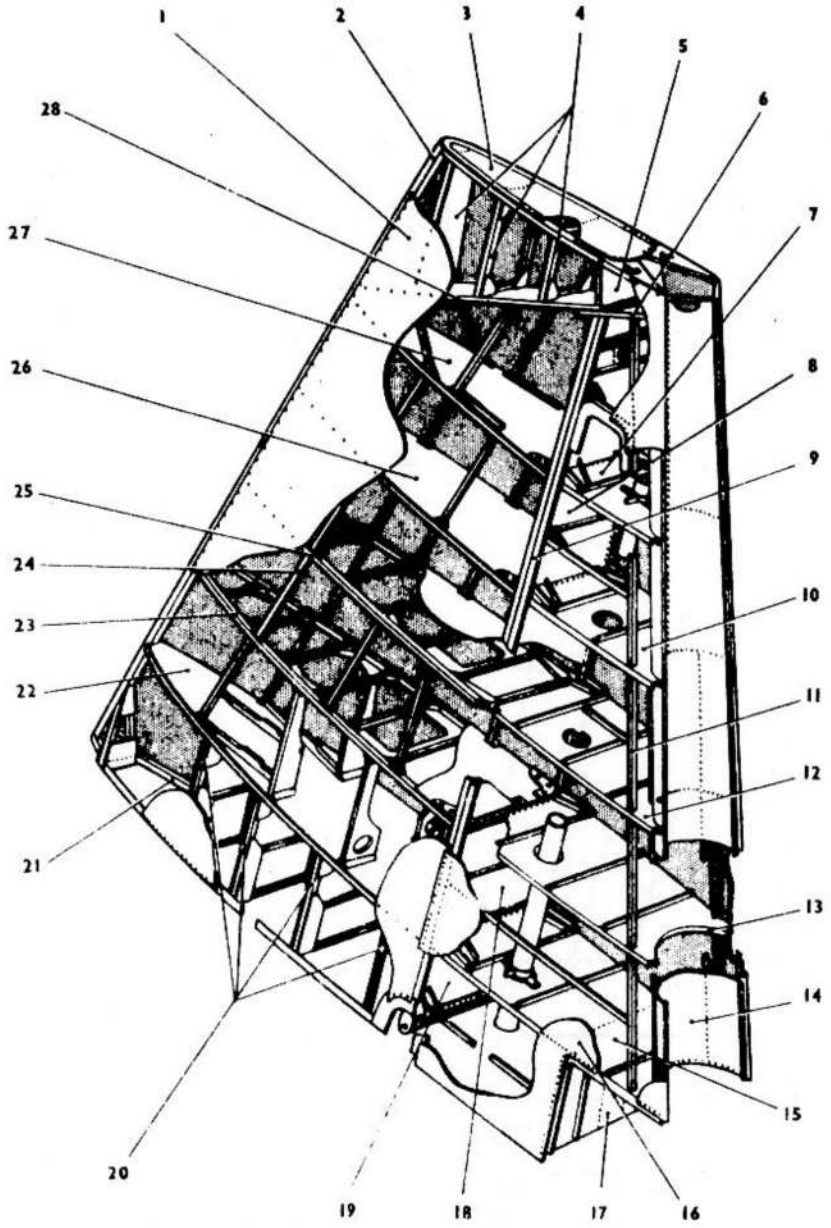


Fig. 2 Fin structure

KEY TO FIG. 2 (FIN STRUCTURE)

Item	Material: Spec.	Material: S.W.G. or thickness	Part No.	Description	Negligible damage: Dents: Max. depth	Negligible damage: Dents: Min. dia.	Negligible damage: Scratches: Depth	Negligible damage: Scratches: Spacing	Negligible damage: Holes: Max. dia.	Negligible damage: Holes: Pitch ratio	Repairable damage	Repair fig. No.
1	Plywood, 6V3, grade A, at 45 deg.	¼ in.	—	Skinning	For details and negligible and repairable damage refer to fig. 8							
2	D.T.D.36B, grade A	—	E.A1.32.67	L.E. member	0·05	1·50	0·005	3·00	—	—		
3	Plywood, 6V3, grade A	⅛ in.	E.A1.32.211	Web, L.E. rib, No. 6A	0·01	0·50	—	—	—	—		
4, 5	Plywood, 6V3, grade A; D.T.D.36B, grade A	⅛ in.	E.A1.32.213-215-217; E.A1.32.219	Diaphragms	0·01	0·50	0·016	4·00	—	—		
6	D.T.D.546	14	E.A1.32.31		0·01	0·50	—	—	—	—		
7	D.T.D.610	22	E.A1.32.45	T.E. rib, No. 6	0·01	0·50	—	—	—	—		
8	D.T.D.546	20	E.A1.32.583	T.E. rib web, No. 5	0·01	0·50	—	—	—	—		28
9	D.T.D.683	—	E.A1.32.15-17	Spar web plate	0·01	0·50	—	—	—	—		
10		21	E.A1.32.43	Spar booms	0·01	0·50	—	—	—	—		
11		20	E.A1.32.623-626	T.E. rib web, No. 4	0·01	0·50	—	—	—	—		14
12		22	E.A1.32.41	Stringers	0·01	0·50	—	—	—	—		28
13		22	E.A1.32.39	T.E. rib web, No. 3	0·01	0·50	0·016	4·00	—	—		
14	D.T.D.610	22	E.A1.32.11	T.E. rib web, No. 2	0·031	0·50	0·016	4·00	—	—		28
15		22	E.A1.32.37	Rudder shroud	0·01	0·50	—	—	—	—		
16		22	—	T.E. rib web, No. 1	0·01	0·50	—	—	—	—		29
17		20	E.A1.32.141	Skinning	For details and negligible and repairable damage refer to fig. 2							
18		18	E.A1.32.581	Diaphragm	0·04	1·25	0·010	3·00	—	—		
19	D.T.D.546	16	E.A1.32.577	Spar web plate	0·04	0·75	0·005	2·00	0·20	20:1		
20	Plywood, 6V3, grade B; D.T.D.365, grade A	⅛ in.	E.A1.32.49 to 55	Spar web plate	0·04	1·00	0·004	3·00	—	—		30
21	Mahogany, V		E.A1.32.193-4	Formers, No. 1, 2, 3 and 4	0·03	1·00	0·005	3·00	—	—		
22	Plywood, 6V3, grade A	⅛, ¼ and ⅜ in.	E.A1.32.17	Boundary members	0·04	0·75	0·005	2·00	0·20	20:1		
23	D.T.D.36B, grade A	⅜ and ½ in.	E.A1.32.21	L.E. rib, No. 1	0·04	1·00	0·005	1·00	0·125	24:1		
24	D.T.D.36B, grade A	—	E.A1.32.7AL	L.E. rib, No. 2	0·04	0·75	0·005	2·00	0·20	20:1		
25		⅜ and ½ in.	E.A1.32.23	Skin stiffener	0·04	0·75	0·005	2·00	0·20	20:1		
26	Plywood, 6V3, grade A	⅜ and ½ in.	E.A1.32.25	L.E. rib, No. 3	0·03	0·50	0·005	2·00	—	—		
27	D.T.D.36B, grade A	⅜ and ½ in.	E.A1.32.27	L.E. rib, No. 4	0·04	0·75	0·005	2·00	0·20	20:1		
28		⅜ in.	E.A1.32.29	L.E. rib, No. 5	0·04	0·75	0·005	2·00	0·20	20:1		
				L.E. rib, No. 6	0·04	0·75	0·005	2·00	0·20	30:1		

Note.—All dimensions are in inches.

◀ **Note.**– *For the repair of the wooden structure refer to A.P.2662B, Standard Repairs for Airframes* ▶

KEY TO FIG. 3 (RUDDER STRUCTURE)

Item	Material: Spec.	Material: S.W.G.	Part No.	Description	Negligible damage: Dents: Max. depth	Dents: Min. dia.	Scratches: Depth	Scratches: Spacing	Holes: Max. dia.	Holes: Pitch ratio	Repairable damage	Repair fig. No.
1			E.A1.33.449		0·05	0·50	0·005	2·00	0·20	15:1		
2			E.A1.33.451		0·05	0·50	0·005	2·00	0·20	15:1		
3			E.A1.33.453		0·05	0·50	0·005	2·00	0·20	15:1		
4	D.T.D.610	20	E.A1.33.455	Diaphragms	0·05	0·50	0·005	2·00	0·20	15:1		
5			E.A1.33.457		0·05	0·50	0·005	2·00	0·20	15:1		
6			E.A1.33.459		0·05	0·50	0·005	2·00	0·20	15:1		
7			E.A1.33.461		0·05	0·50	0·005	2·00	0·20	15:1		
8	D.T.D.213	18	E.A1.33.465	Boundary members	0·05	0·50	0·005	2·00	—	—		35
9			E.A3.33.155		0·05	0·50	0·005	2·00	—	—		
10		24	E.A1.33.501/2	T.E. rib, No. 15	0·04	0·75	0·005	2·00	0·20	25:1		34
11		22	—	Skinning	For details and negligible and repairable damage refer to fig. 8							
12		20	E.A1.33.99	T.E. rib web, No. 14	0·05	0·75	0·005	2·00	0·20	25:1		
13		22	E.A1.33.95	T.E. rib, No. 12	0·04	0·75	0·005	2·00	0·20	25:1		
14		24	E.A1.33.91	T.E. rib, No. 11	0·04	0·75	0·005	2·00	0·20	25:1		
15		24	E.A1.33.89	T.E. rib, No. 10	0·04	0·75	0·005	2·00	0·20	25:1		34
16		24	E.A1.33.87	T.E. rib, No. 9	0·04	0·75	0·005	2·00	0·20	25:1		
17		24	E.A1.33.85	T.E. rib, No. 8	0·04	0·75	0·005	2·00	0·20	25:1		
18		22	E.A1.33.705–7	Channel member	0·02	0·75	0·005	2·00	—	—		
19		24	E.A1.33.83	T.E. rib, No. 7	0·04	0·75	0·005	2·00	0·20	25:1		33
20		20	E.A1.33.93	T.E. rib, No. 6	0·05	0·75	0·005	2·00	0·20	25:1		
21	D.T.D.610	24	E.A1.33.81	T.E. rib, No. 5	0·04	0·75	0·005	2·00	0·20	25:1		
22		24	E.A3.33.99	T.E. rib, No. 4	0·04	0·75	0·005	2·00	0·20	25:1		34
23		24	E.A1.33.77	T.E. rib, No. 3	0·04	0·75	0·005	2·00	0·20	25:1		
24		24	E.A1.33.75	T.E. rib web, No. 2	0·04	0·75	0·005	2·00	0·20	25:1		
25		22	—	Skinning	For details and negligible and repairable damage refer to fig. 8							
26		24	E.A1.33.531	T.E. rib web, No. 1	0·03	0·50	0·005	2·00	0·125	40:1		34
27		18	E.A1.33.23	Channel reinforcing plate	0·05	0·75	0·005	2·00	—	—		
28		18	E.A1.33.509	Spar web	0·05	0·75	0·005	2·00	0·20	30:1		
29		20	E.A1.33.7B/C (E.E.J.99)	Stringers	0·04	0·50	0·005	1·00	—	—		16
30		20	E.A1.33.7A	Leading edge skinning	For details and negligible and repairable damage refer to fig. 8							
31		24	—	Skinning	0·05	0·75	0·010	3·00	—	—		36
32		16	E.A1.33.497	L.E. rib, No. 14								

Note.—All dimensions are in inches.

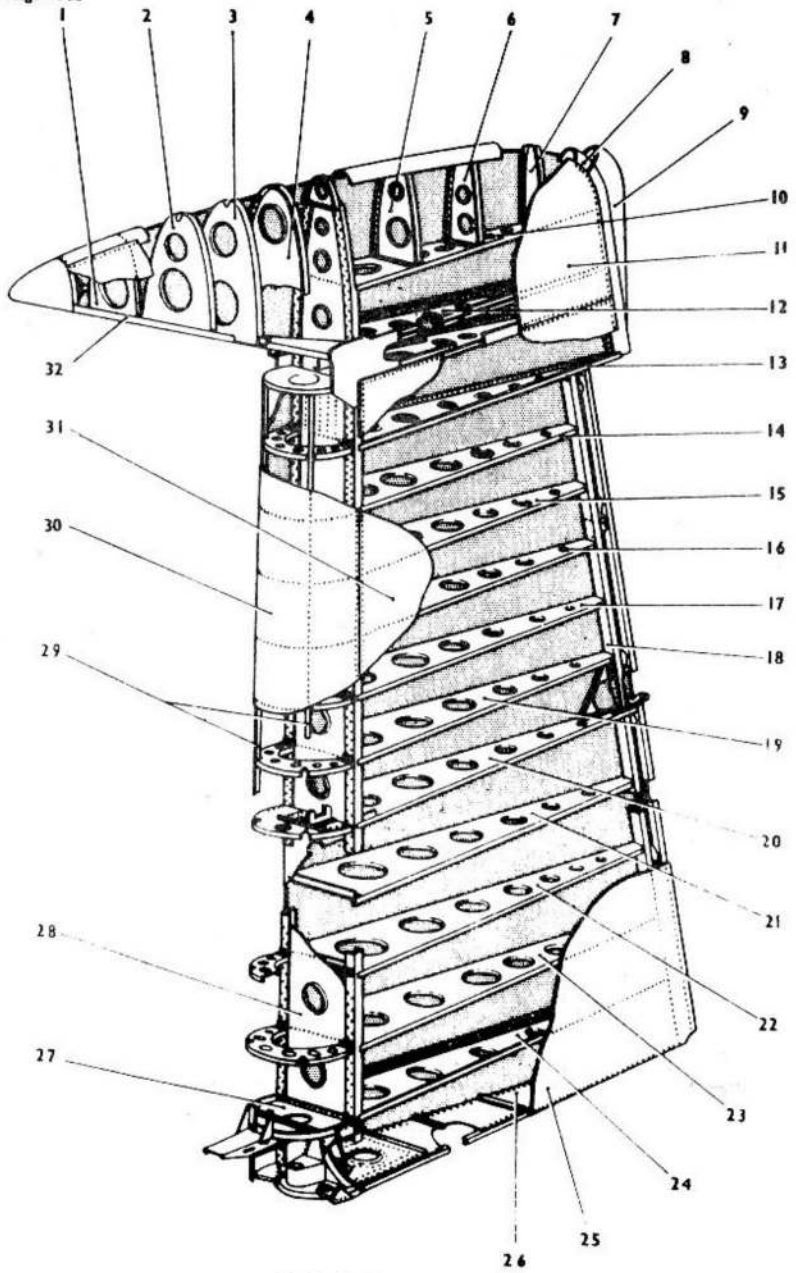
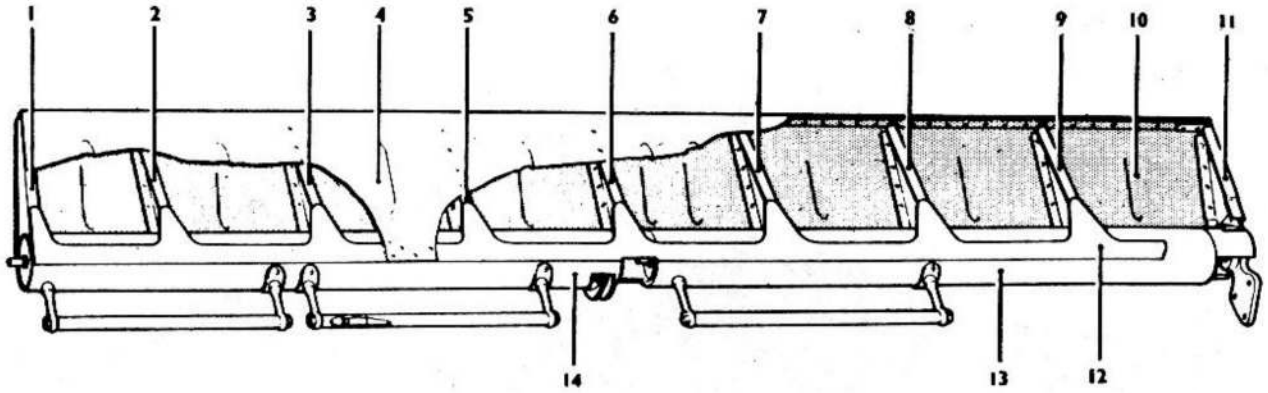


Fig. 3. Rudder structure



Item	Material: Spec.	Material: S.W.G.	Part No.	Description	Negligible damage: Dents: Max. depth	Dents: Min. dia.	Scratches: Depth	Scratches: Spacing	Holes: Max. dia.	Holes: Pitch ratio	Repairable damage	Repair fig. No.
1		26	E.A3.33.51	Rib No. 9	0·02	0·50	—	—	—	—	(To be added later)	
2		26	E.A3.33.49	Rib No. 8	0·02	0·50	—	—	—	—		
3		26	E.A3.33.47	Rib No. 7	0·02	0·50	—	—	—	—		
4		26	—	Skinning	For details and negligible and repairable damage refer to fig. 8							
5		26	E.A3.33.45	Rib No. 6	0·02	0·50	—	—	—	—		
6	D.T.D.610	26	E.A3.33.43	Rib No. 5	0·02	0·50	—	—	—	—		
7		26	E.A3.33.41	Rib No. 4	0·02	0·50	—	—	—	—		
8		26	E.A3.33.39	Rib No. 3	0·02	0·50	—	—	—	—		
9		26	E.A3.33.37	Rib No. 2	0·02	0·50	—	—	—	—		
10		26	—	Skinning	For details and negligible and repairable damage refer to fig. 8							
11		24	E.A3.33.23	Rib No. 1	0·02	0·50	—	—	—	—		
12		22	E.A3.33.71/2	Reinforcing strip	—	—	—	—	—	—		
13	D.T.D.464		E.A3.33.59	Spar, lower half	—	—	—	—	—	—		
14	1¼in. O/D	24	E.A3.33.57	Spar, upper half	—	—	—	—	—	—		

Note.—All dimensions are in inches.

Fig. 4. Rudder tab structure

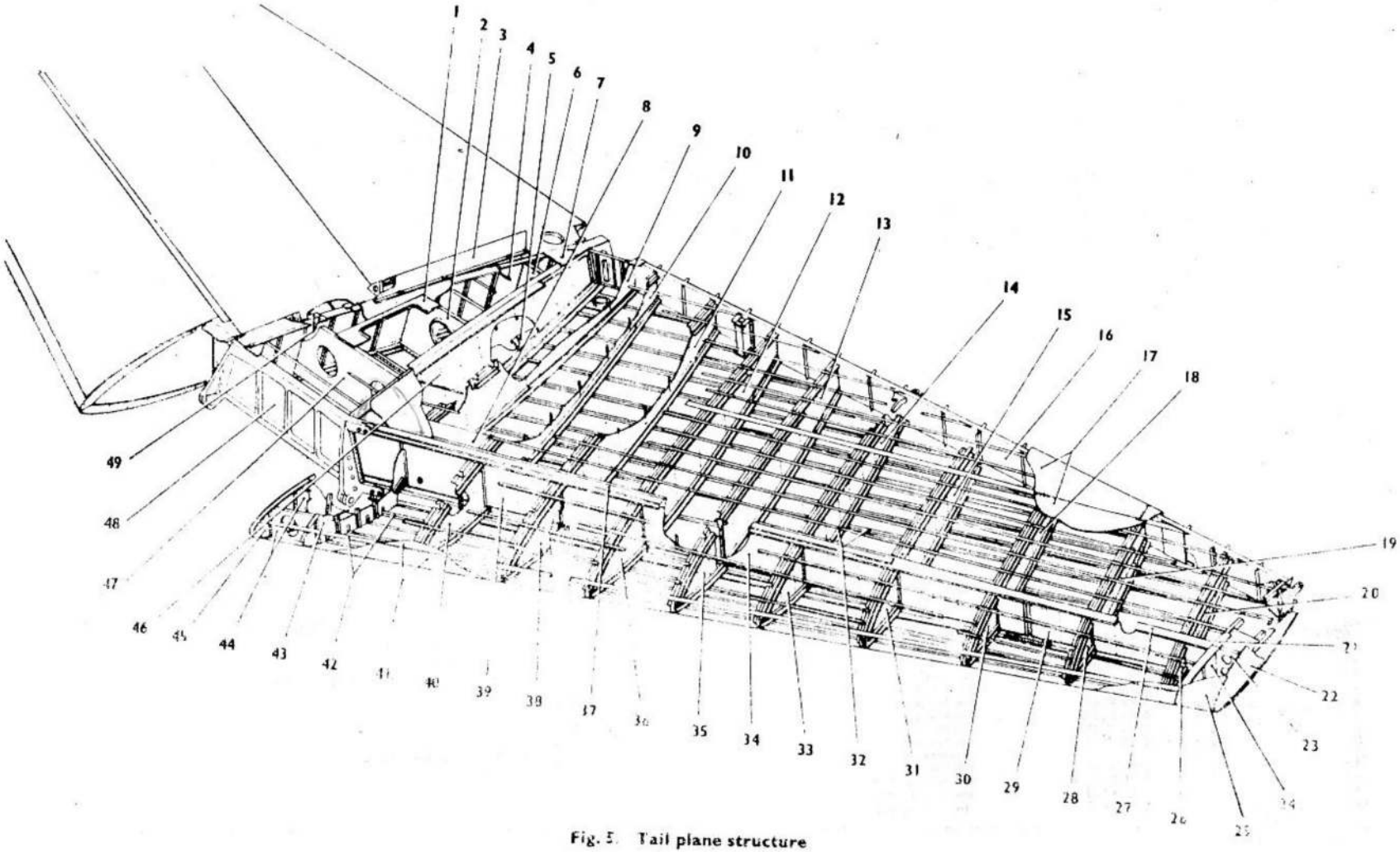


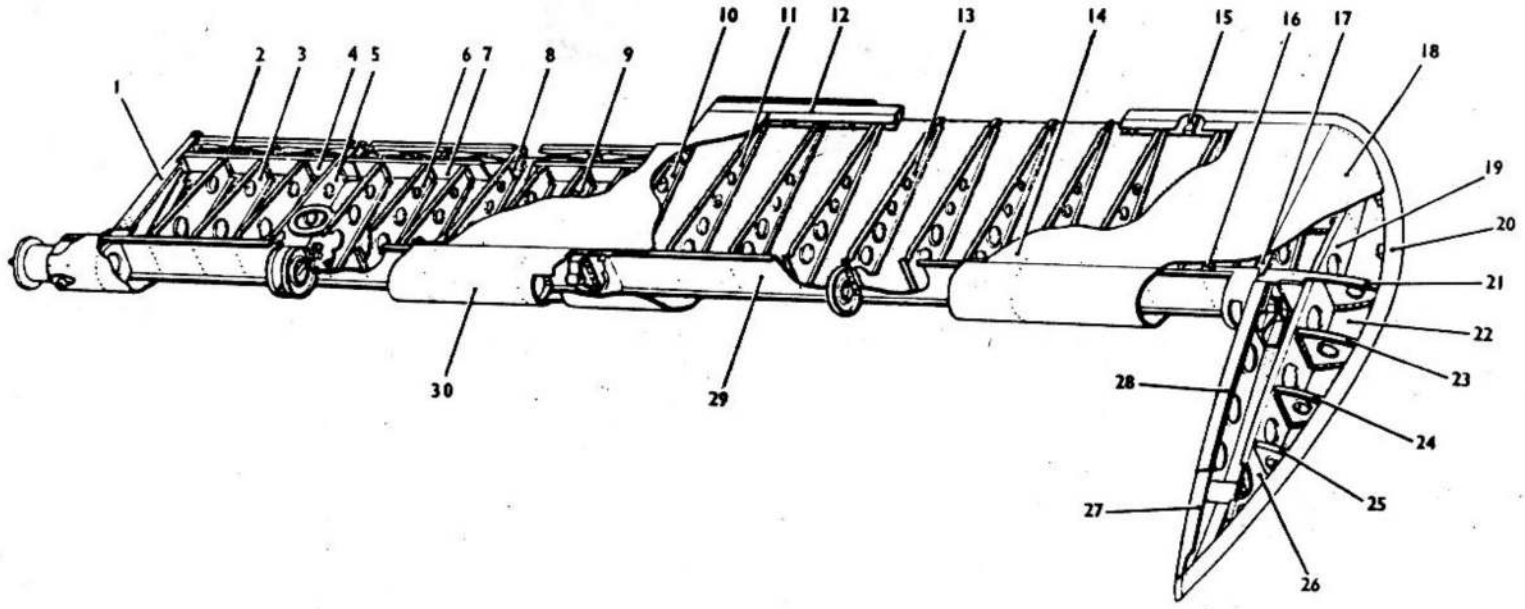
Fig. 5. Tail plane structure

KEY TO FIG. 5 (TAIL PLANE STRUCTURE)

Item	Material: Spec.	Material: S.W.G.	Part No.	Description	Negligible damage: Dents: Max. depth	Negligible damage: Dents: Min. dia.	Negligible damage: Scratches: Depth	Negligible damage: Scratches: Spacing	Negligible damage: Holes: Max. dia.	Negligible damage: Holes: Pitch ratio	Repairable damage	Repair fig. No.
1	D.T.D.546	14	E.A1.30.709	Reinforcing plate	0·03	0·50	0·010	4·00	—	—		12
2	D.T.D.610	16	E.A1.30.181	Diaphragm	0·05	1·25	0·005	4·00	0·20	30:1		
3		22	E.A1.30.531–2	Closing plate	0·05	1·00	0·005	1·00	—	—		
4	L.40	—	E.A1.30.739–747 (E.E.D.X.33)	Top and bottom stringers	0·03	0·75	0·005	2·00	0·125	32:1		Chap. 1, fig. 6
5	D.T.D.546	16	—	Skinning	For details and negligible and repairable damage refer to fig. 9							
6	D.T.D.610	16	E.A1.30.183	Diaphragm	0·05	1·00	0·005	3·00	0·20	30:1		12
7	D.T.D.546	16	—	Skinning	For details and negligible and repairable damage refer to fig. 9							
8	D.T.D.610	22	E.A1.30.7X	Skin reinforcing	0·03	0·50	0·005	3·00	0·20	40:1		19, 20, 21
9		22	E.A1.30.455	T.E. rib web, No. 3	0·03	0·75	0·005	3·00	0·20	40:1		
10		24	E.A1.30.787	T.E. rib web, No. 4	0·03	0·75	0·005	3·00	0·20	40:1		
11		24	E.A1.30.803	T.E. rib web, No. 5	0·03	0·75	0·005	3·00	0·20	40:1		
12		24	E.A1.30.885	T.E. rib web, No. 6	0·03	0·75	0·005	3·00	0·20	40:1		
13		24	E.A1.30.829	T.E. rib web, No. 7	0·03	0·75	0·005	3·00	0·20	40:1		
14		22	E.A1.30.855	T.E. rib web, No. 8	0·03	0·50	0·005	3·00	0·20	40:1		
15		22	E.A1.30.923	T.E. rib web, No. 9	0·03	0·50	0·005	3·00	0·20	40:1		
16		16	E.A1.30.753	False spar	0·03	1·00	0·010	4·00	0·25	40:1		17
17	D.T.D.546	20	—	Skinning	For details and negligible and repairable damage refer to fig. 9							
18	D.T.D.610	22	E.A1.30.933	T.E. rib web, No. 10	0·03	0·50	0·005	3·00	0·20	40:1		19, 20, 21
19		22	E.A1.30.899	T.E. rib web, No. 11	0·03	0·50	0·005	3·00	0·20	40:1		
20		22	E.A1.30.913	T.E. rib web, No. 12	0·03	0·50	0·005	3·00	0·20	40:1		
21		20	E.A1.30.939	Angle	0·05	1·00	0·005	2·00	—	—		
22	D.T.D.213	20	E.A1.30.953	Web plate	0·05	0·75	0·005	1·00	—	—		
23	D.T.D.610	22	E.A1.30.943	Inter. diaphragm	0·03	0·50	0·005	1·00	0·20	20:1		
24		20	E.A1.30.443	L.E. rib web, No. 13	0·04	0·70	0·005	3·00	0·20	40:1		19, 20, 21
25	D.T.D.213	20	—	Skinning	For details and negligible and repairable damage refer to fig.5							
26	D.T.D.610	22	E.A1.30.907	L.E. rib web, No. 12	0·03	0·75	0·005	3·00	0·20	40:1		19, 20, 21
27	D.T.D.683	—	E.A1.30.41–42 (E.E.D.X.49)	Upper and lower outer spar booms	0·015	1·00	0·010*	4·00*	—	—		
28	D.T.D.610	22	E.A1.30.893	L.E. rib web, No. 11	0·03	0·75	0·005	3·00	0·20	40:1		19, 20, 21
29	D.T.D.546	18	E.A1.30.681	Main spar outer web	0·04	1·25	0·005	3·00	0·20	50:1		18
30	D.T.D.610	22	E.A1.30.927	L.E. rib web, No. 10	0·03	0·50	0·005	3·00	0·20	40:1		
31			E.A1.30.917	L.E. rib web, No. 9	0·03	0·50	0·005	3·00	0·20	40:1		19, 20, 21
32	L.40	—	E.A1.30.243 (E.E.D.X.33)	Angle-section stringers	0·03	0·75	0·005	2·00	0·125	32:1		Chap. 1, fig. 6
33	D.T.D.610	24	E.A1.30.843	L.E. rib web, No. 8	0·03	0·75	0·005	3·00	0·20	40:1		19, 20, 21
34	D.T.D.546	16	E.A1.30.679	Main spar centre web	0·04	1·50	0·007	3·00	0·20	50:1		18
35	D.T.D.610	24	E.A1.30.823	L.E. rib web, No. 7	0·03	0·75	0·005	3·00	0·20	40:1		
36		22	E.A1.30.879	L.E. rib web, No. 6	0·03	0·50	0·005	3·00	0·20	40:1		19, 20, 21
37	D.T.D.683	—	E.A1.30.385 and 386 (E.E.D.X.48)	Upper and lower inner spar booms	0·015	1·00	0·010*	4·00*	—	—		
38	D.T.D.610	22	E.A1.30.817	L.E. rib web, No. 5	0·03	0·75	0·005	3·00	0·20	40:1		19, 20, 21
39	D.T.D.546	14	E.A1.30.677	Main spar inner web	0·03	1·50	0·010	6·00	0·20	50:1		18
40	D.T.D.610	22	E.A1.30.797	L.E. rib web, No. 4	0·03	0·50	0·005	3·00	0·20	40:1		19, 20, 21
41	D.T.D.546	20	—	Skinning	For details and negligible and repairable damage refer to fig. 9							
42	L.40	—	E.A1.30.205 (E.E.D.X.83)	Tee-section stringer	0·04	1·00	0·005	2·00	0·125	32:1		14
43	D.T.D.610	20	E.A1.30.423	L.E. rib web, No. 3	0·04	1·00	0·005	3·00	0·20	40:1		19, 20, 21
44		22	E.A1.30.191–194	Diaphragms	0·03	0·50	0·005	1·00	0·20	20:1		
45		22	E.A1.30.27	Rib web, No. 2	0·04	1·00	0·005	1·00	—	—		
46		16	E.A1.30.547	Rib web, No. 1	0·04	1·00	0·005	4·00	0·125	40:1		19, 20, 21
47		16	E.A1.30.179	Diaphragm	0·05	1·00	0·005	4·00	0·20	30:1		12
48	D.T.D.683	—	E.A1.30.33	Main spar centre section	0·015	1·00	0·010*	4·00*	—	—		
49	D.T.D.546	18	E.A1.30.707	Boundary reinforcing strip	0·05	1·00	0·005	3·00	—	—		

*These dimensions are applicable only to the webs and flanges. Scratches in the fillet radius are to be cleaned out and a reinforcing repair applied.

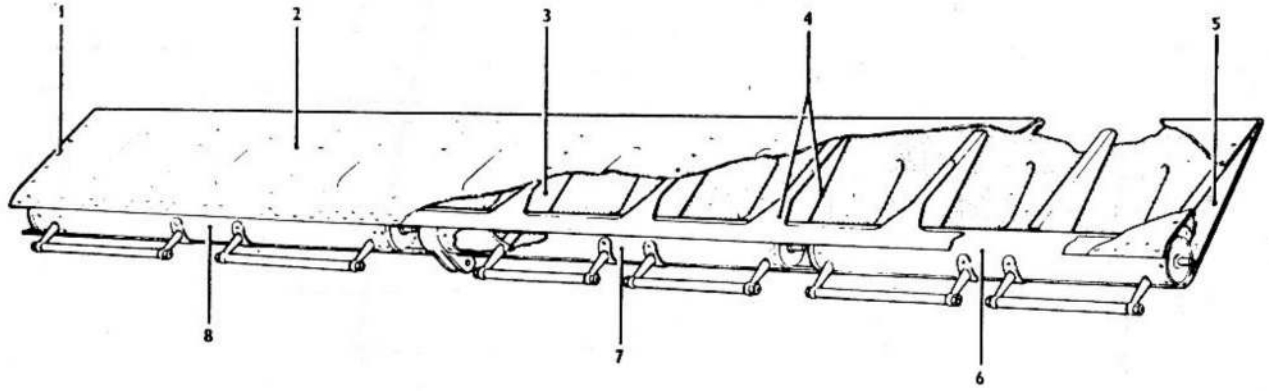
Note.—All dimensions are in inches.



Item	Material: Spec.	Material: S.W.G.	Part No.	Description	Negligible damage: Dents: Max. depth	Dents: Min. dia.	Scratches: Depth	Scratches: Spacing	Holes: Max. dia.	Holes: Pitch ratio	Repairable damage	Repair fig.No.
1	D.T.D.810	18	E.A1.31.453	Rib, No.1, boom	0.05	0.75	0.005	3.00	-	-		24
2		22	E.A1.31.243	Tab shroud stiffener	0.03	0.50	0.005	3.00	-	-		
3		22	E.A1.31.25	Ribs, No.2, 3 and 4	0.04	0.50	0.005	3.00	0.20	20:1		24
4		22	E.A1.31.489	Tab shroud spar	0.03	0.50	0.005	3.00	-	-		
5		18	E.A1.31.521	Rib, No.5 (hinge rib)	0.05	0.75	0.005	3.00	0.20	20:1		
6		22	E.A1.31.27	Ribs, No.6, 7 and 8	0.04	0.50	0.005	3.00	0.20	20:1		24
7		22	E.A1.31.263	Tab shroud spar	0.03	0.50	0.005	3.00				
8		18	E.A1.31.523	Rib, No.9 (hinge rib)	0.05	0.75	0.005	3.00	0.20	20:1		
9		22	E.A1.31.27	Ribs, No.10, 11 and 12	0.04	0.50	0.005	3.00	0.20	20:1		24
10		18	E.A1.31.33	Rib, No.13	0.05	0.75	0.005	3.00	0.20	20:1		
11		24	E.A1.31.675	Ribs, No.14 and 15	0.03	0.50	0.005	3.00	0.20	20:1		
12		24	E.A1.31.679 (E.E.J.84)	Trailing edge member	0.03	0.50	0.005	3.00	-	-		15
13		24	E.A1.31.35	Ribs No.16 to 22	0.04	0.75	0.005	2.00	0.20	25:1		24
14		24	-	Skinning	For details and negligible and repairable damage refer to fig.10							
15	Balsa	-	E.A1.31.873	Trailing edge packing	-	-	-	-	-	-		
16	D.T.D.810	24	E.A1.31.475	Rib, No.23	0.04	0.75	0.005	2.00	0.20	25:1		24
17		20	E.A1.31.471	Rib, No.24	0.05	0.75	0.005	2.00	0.20	25:1		
18		22	-	Top skin (horn)	For details and negligible and repairable damage refer to fig.10							
19		24	E.A1.31.43	Outer rib, aft	0.04	0.75	0.005	2.00	0.20	25:1		24
20	D.T.D.213	20	E.A1.31.433	Horn boundary member	0.05	1.00	0.005	3.00	0.20	25:1		28
21	D.T.D.610	16	E.A1.31.539	Horn spar	0.05	0.50	0.005	2.00	-	-		
22		22	-	Bottom skin (horn)	For details and negligible and repairable damage refer to fig.10							
23		24	E.A1.31.397	Diaphragms	0.04	0.75	0.005	2.00	0.20	25:1		
24		24	E.A1.31.395		0.04	0.75	0.005	2.00	0.20	25:1		
25		24	E.A1.31.393		0.04	0.75	0.005	2.00	0.20	25:1		
26		16	E.A1.31.401	Outer rib, forward	0.05	0.75	0.005	3.00	0.20	20:1		
27		18	E.A1.31.437	Horn boundary rib	0.05	0.75	0.005	3.00	0.20	20:1		24
28	D.T.D.124	16	E.A1.31.435	Top doubler plate	0.05	0.75	0.005	3.00	-	-		
29	D.T.D.810	10	E.A1.31.505	Spar channel	0.02	1.00	0.010	6.00	-	-		
30			E.A1.31.507	Leading edge plate	For details and negligible and repairable damage refer to fig.10							

Note — All dimensions are in inches.

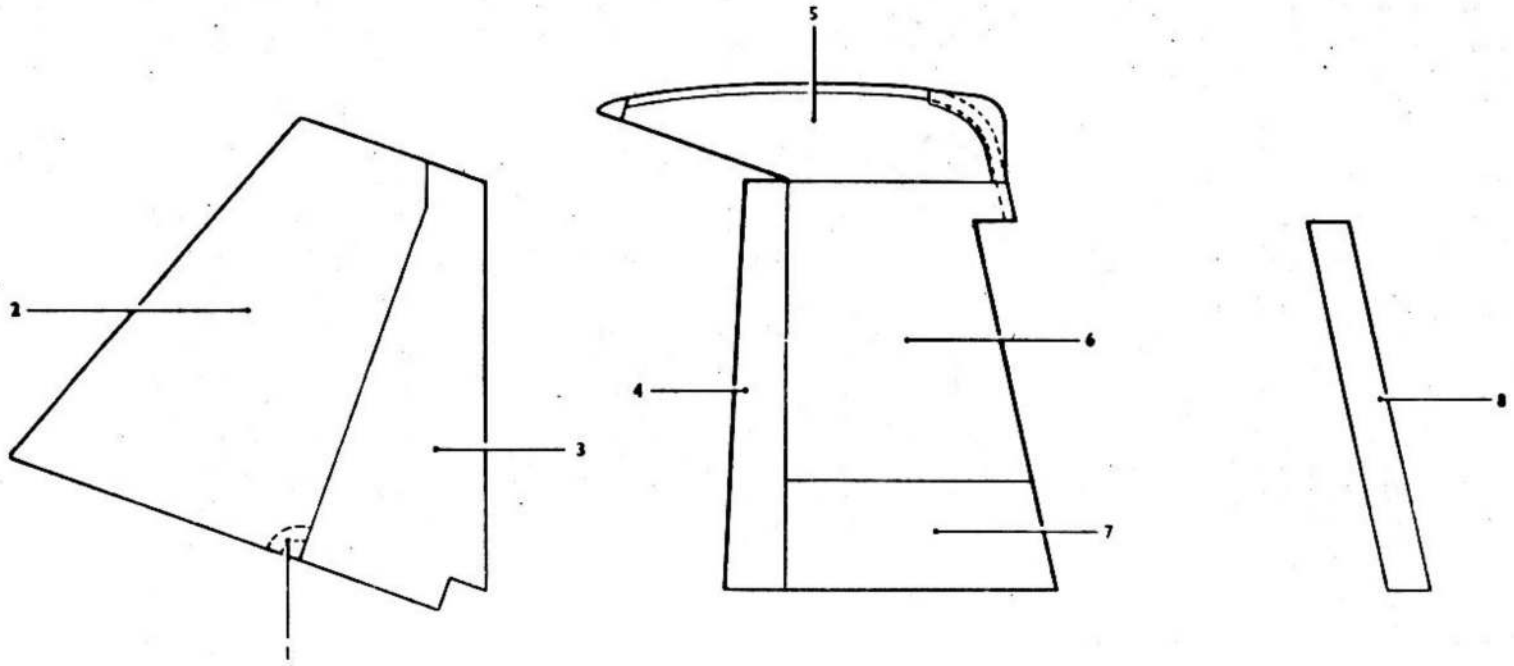
Fig. 6. Elevator structure



Item	Material: Spec.	Material: S.W.G	Part No.	Description	Negligible damage: Dents: Max. depth	Dents: Min. dia.	Scratches: Depth	Scratches: Spacing	Holes: Max. dia.	Holes: Pitch ratio	Repairable damage	Repair fig. No.
1	D.T.D.610	26	E.A1.31.107	Rib, No. 1	0·020	0·50					(To be added later	
2		26		Skinning	For details and negligible and repairable damage refer to fig. 10							
3		26	E.A1.31.111	Ribs, No. 2 to 9	0·020	0·50						
4		22	E.A1.31.527/9	Rib attachment strip								
5		26	E.A1.31.109	Rib, No. 10	0·020	0·50						
6	D.T.D.464, 1¼ in. O/D	24	E.A1.31.535	Spar (outboard section)								
7			E.A1.31.533	Spar (centre section)								
8			E.A1.31.531	Spar (inboard section)								

Note.—All dimensions are in inches.

Fig. 7. Elevator tabs structure



Item	Material: Spec.	Material: S.W.G. or thickness	Part No.		Description	Negligible damage: Scratches: Depth	Scratches: Min. spacing	Dents: Max. depth	Dents: Max. width	Dents: Min. width	Dents: Min. spacing	Repairable damage	Repair fig. No.
FIN													
1	Plywood 6V3, grade A	$\frac{1}{16}$ in.	E.A1.32.7		Reinforcing ply	—	—	—	—	—	—		
2		$\frac{1}{8}$ in.	E.A1.32.7U E.A1.32.7V	(port) (starb.)	Leading edge panels	0·005	3	0·05	—	1·00	6W		
3	D.T.D.610	22	E.A1.32.1A E.A1.32.1B	(port) (starb.)	Trailing edge panels	0·003	2	0·04	4	0·50	4W	Holes. Oil canning effect. Panting and damage in excess of negligible.	27
RUDDER													
4	D.T.D.610	20	E.A1.33.7A		Leading edge panel	0·004	3	0·04	4	0·70	6W		32
5		22	E.A1.33.811 E.A1.33.812	(port) (starb.)	Upper panels	0·003	2	0·03	4	0·50	4W		31
6		24	E.A3.33.97 E.A3.33.98	(port) (starb.)	Centre panels	0·002	2	0·025	3	0·50	4W		31
7		22	E.A3.33.93 E.A3.33.94	(port) (starb.)	Lower panels	0·003	2	0·03	4	0·50	4W		31 and Part 2, Leaflet D3/1
RUDDER TAB													
8	D.T.D.610	26	E.A3.33.69 E.A3.33.77	(port) (starb.)	Panels	—	—	0·02	2½	0·50	4W		

Notes.—All dimensions given for negligible damage are in inches. W, in min. spacing column = the least dimension of the damage.

Fig. 8. Fin, rudder and rudder tab skinning

KEY TO FIG. 9. TAIL PLANE SKINNING (POST MOD. 5058)

Item	Material Spec.	Material S.W.G.	Part No.	Description	Negligible damage: Dents Max. depth	Dents Min. dia.	Scratches Depth	Scratches Spacing	Holes Max. dia.	Holes Pitch ratio	Repairable damage	Repair fig. No.
1	L.73	20	EA1.30.5J	Panel, leading edge, port	0.040	0.70	0.004	3.00			Holes	11
2	L.73	20	EA1.30.5H	Panel upper, leading edge, port								
3	D.T.D.683 EEDX.48		EA1.30.385	Boom, spar upper, port	0.015	0.50	0.010	1.00	0.125	16:1		
4	L.72	20	EA1.30.783	Plate, sealing, upper	—	—	—	—	—	—		
5	L.72	20	EA1.30.784	Plate, sealing, upper	—	—	—	—	—	—		
6	D.T.D.683 EEDX.48		EA1.30.386	Boom, spar upper, inner starboard	0.015	0.050	0.010	1.00	0.125	16:1		
7	L.73	20	EA1.30.6H	Panel upper, leading edge, starboard	0.040	0.70	0.004	.3.00			Holes, panting and damage in excess of negligible	11
8	L.73	20	EA1.30.6J	Panel, leading edge, starboard								
9	D.T.D.213	20	EA1.30.73	Panel tip, upper, starboard								
10	L.73	20	EA1.30.20	Panel upper, trailing edge, starboard								
11	L.73	20	EA1.30.8V	Panel upper, trailing edge, starboard								
12	L.73	16	EA1.30.70S	Panel upper, centre section, starboard	0.050	1.25	0.010	3.00			as for item 10	11
13	L.73	16	EA1.30.70S	Panel upper, centre section, port								
14	L.73	20	EA1.30.7V	Panel upper, trailing edge, port	0.040	0.70	0.004	3.00			as for item 10	11
15	L.73	20	EA1.30.7W	Panel upper trailing edge, port								

continued...

KEY TO FIG. 9. TAIL PLANE SKINNING (POST MOD. 5058) - *continued*

Item	Material Spec.	Material S.W.G.	Part No.	Description	Negligible damage: Dents Max. depth	Dents Min. dia.	Scratches Depth	Scratches Spacing	Holes Max. dia.	Holes Pitch ratio	Repairable damage	Repair fig. No.
16	D.T.D.	20	EA3.30.73	Panel tip, upper, port								
17	L.73	20	EA1.30.7I	Panel lower, trailing edge, port	0.040	0.70	0.004	3.00	–	–	as for item 10	11
18	L.73	20	EA1.30.7L	Panel lower, trailing edge, port								
19	L.73	16	EA1.30.731	Panel lower, centre section, port								
20	L.73	16	EA1.30.731	Panel lower, centre section, starboard	0.050	1.00	0.010	3.00	–	–	as for item 10	11
21	L.73	20	EA1.30.8L	Panel lower, trailing edge, starboard								
22	L.73	20	EA1.30.8I	Panel lower, trailing edge, starboard	0.040	0.70	0.004	3.00	–	–	as for item 10	11
23	D.T.D.213	20	EA3.30.74	Panel tip, lower, starboard	0.040	0.70	0.004	3.00	–	–		
24	L.73	20	EA1.30.1K	Plate closing, starboard	0.040	0.70	0.004	3.00	–	–		
25	L.72	22	EA3.30.123	Plate reinforcing, starboard	–	–	–	–	–	–		
26	L.72	22	EA3.30.123	Plate reinforcing, starboard	–	–	–	–	–	–		
27	L.72	22	EA3.30.123	Plate reinforcing, port	–	–	–	–	–	–		
28	L.72	22	EA1.30.1173	Plate reinforcing, port	–	–	–	–	–	–		
29	L.73	22	EA1.30.1J	Plate closing, port	0.040	0.70	0.004	3.00			as for item 10	11
30	D.T.D.213	20	EA3.30.74	Panel tip, lower	0.040	0.70	0.004	3.00			– – – –	–

KEY TO FIG.902 (TAIL PLANE, ELEVATOR AND TAB STRUCTURE)

Item	Material		Part No.	Description	Negligible damage						Repair fig.No.
					Dents		Scratches		Holes		
	Spec.	S.W.G.			Max. depth	Min. dia	Depth	Spacing	Max. dia	Pitch ratio	
	Tail plane		E.B8.30.7/8	Assembly							
1	L.72	20	E.B8.30.89/90	Stiffener, rib web	0.04	0.70	0.005	1.00	0.20	10:1	Ch.1,fig.4
			E.B8.30.99/100	Rib 2 assembly							
	L.72	20	E.B8.30.87/8	Web	0.04	0.70	0.005	1.00	-	-	19
3	L.40 EEDX36		E.B8.30.375/6	T boom stiffener	0.015	0.50	0.010	1.00	0.125	16:1	R.M.E.
4	L.72	16	E.B8.30.343/4	Skin panel, lower surface inboard	0.05	1.00	0.010	3.00	-	-	
5	L.72	16		Buttstraps	0.03	1.00	0.010	3.00	-	-	R.M.E.
	L.72	20	E.B8.30.7/8	Rib angle brackets stringers 7-14	0.03	1.00	0.005	1.00	-	-	R.M.E.
6	L.73	18	E.B8.30.345/6	Skin panel, lower bracket outboard	0.05	1.00	0.010	5.00	-	-	
7	L.72	16	E.B8.30.341/2	Skin panel, lower surface T/E	0.05	1.00	0.010	3.00	-	-	
8	L.72	16	E.B8.30.7/8	Buttstraps	0.05	1.00	0.010	3.00	-	-	R.M.E.
	Elevator		E.B8.31.11	Assembly							
1	L.72	22	E.B8.31.323	Ribs 2 to 5	0.04	0.50	0.005	2.00	0.20	10:1	24
2	L.72	18	E.B8.31.321	Rib 6 tab hinge	0.05	0.75	0.010	3.00	0.20	10:1	24
3	L.72	22	E.B8.31.325	Ribs 7 to 10	0.04	0.50	0.005	2.00	0.20	10:1	24
4	L.72	18	E.B8.31.329	Rib 11 tab hinge	0.05	0.75	0.010	3.00	0.20	10:1	24
5	L.72	22	E.B8.31.325	Ribs 12 to 15	0.04	0.50	0.005	2.00	0.20	10:1	24
6	L.72	18	E.B8.31.331/2	Rib 16	0.05	0.75	0.010	3.00	0.20	10:1	24
7	L.72 EEJ84	24	E.B8.31.37	Trailing edge member	0.03	0.50	0.005	3.00	-	-	15
8	L.72	24	E.B8.31.337	Ribs 17 to 20	0.03	0.50	0.005	2.00	0.20	10:1	24
	L.72	24	E.B8.31.333	Ribs 21 to 30	0.03	0.50	0.005	2.00	0.20	10:1	24
9	L.72	24	E.B8.31.33	Skin sheeting top	0.03	0.50	0.003	2.00	-	-	22
	L.72	24	E.B8.31.35	Skin sheeting bottom	0.03	0.50	0.003	2.00	-	-	22
10	EEJ80										
	L.72	10	E.B8.31.139	Front spar U-section	0.02	0.50	0.015	4.00	-	-	23
11	L.72	10	E.B8.31.137	Spar channel	0.03	1.00	0.015	6.00	0.20	30:1	
12	L.72	18	E.B8.31.77	Diagonal stiffener	0.03	0.50	0.015	2.00	0.15	10:1	R.M.E.
13			E.B8.31.135/6	Mass balance assembly							
	S.95/S.96		E.B8.31.131	Arm	0.03	0.50	0.015	2.00	-	-	R.M.E.
	S.96		E.B8.31.133	Sleeve	0.02	0.30	0.015	2.00	-	-	R.M.E.
	Elevator tab		E.B8.31.5	Assembly							
1	L.72	26	E.B8.31.5	Skin sheeting top and bottom	0.03	0.60	-	-	-	-	
2	L.65		E.B8.31.315	Centre hinge fitting	0.02	0.40	0.015	1.00	-	-	

Note:- All dimensions are in inches

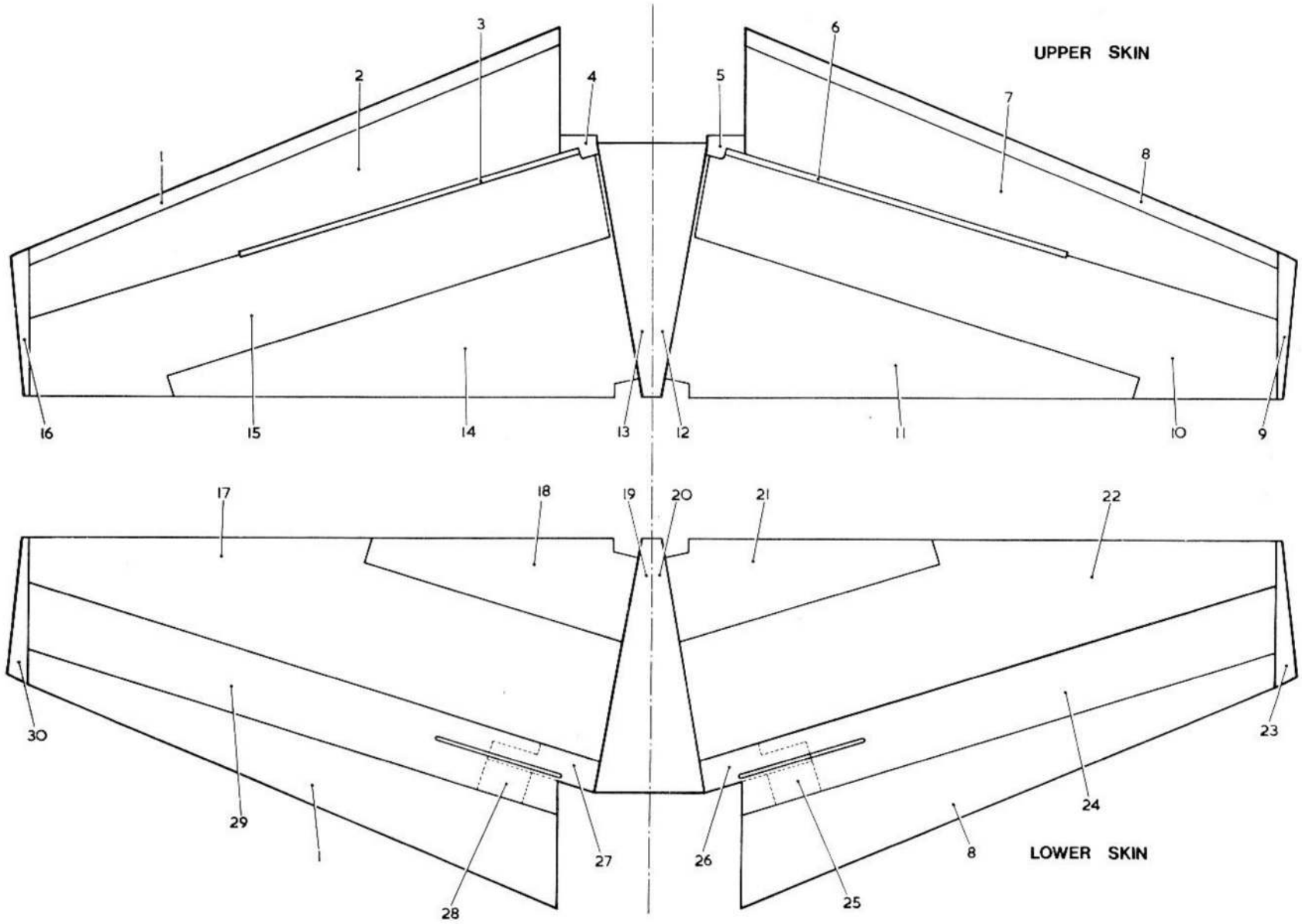
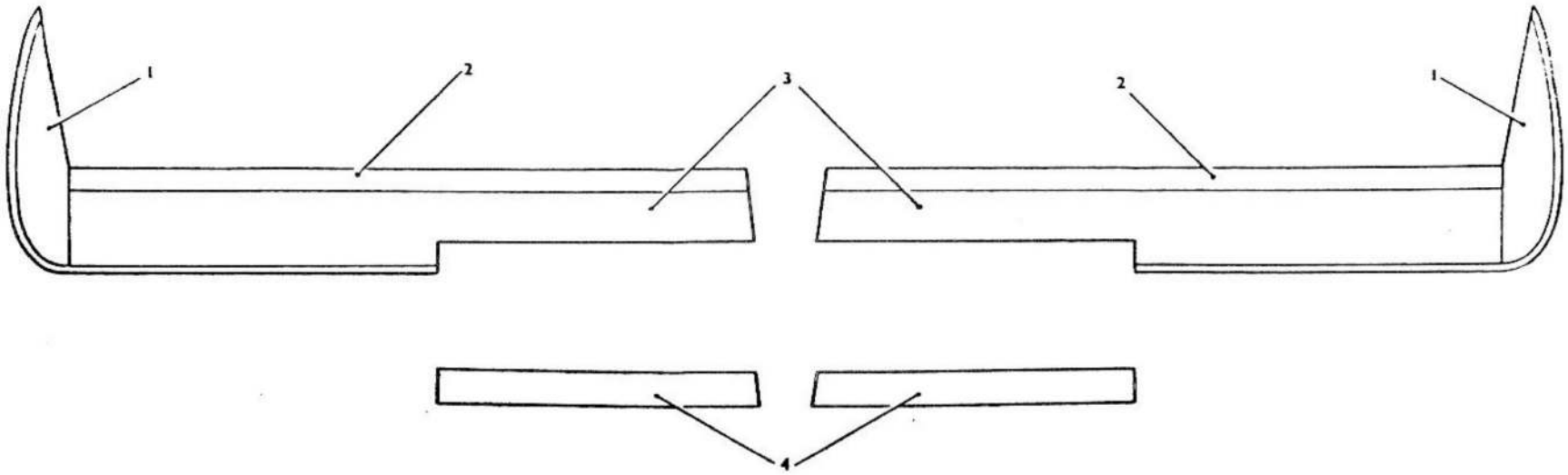


FIG.9. TAIL PLANE SKINNING (POST MOD.5058)



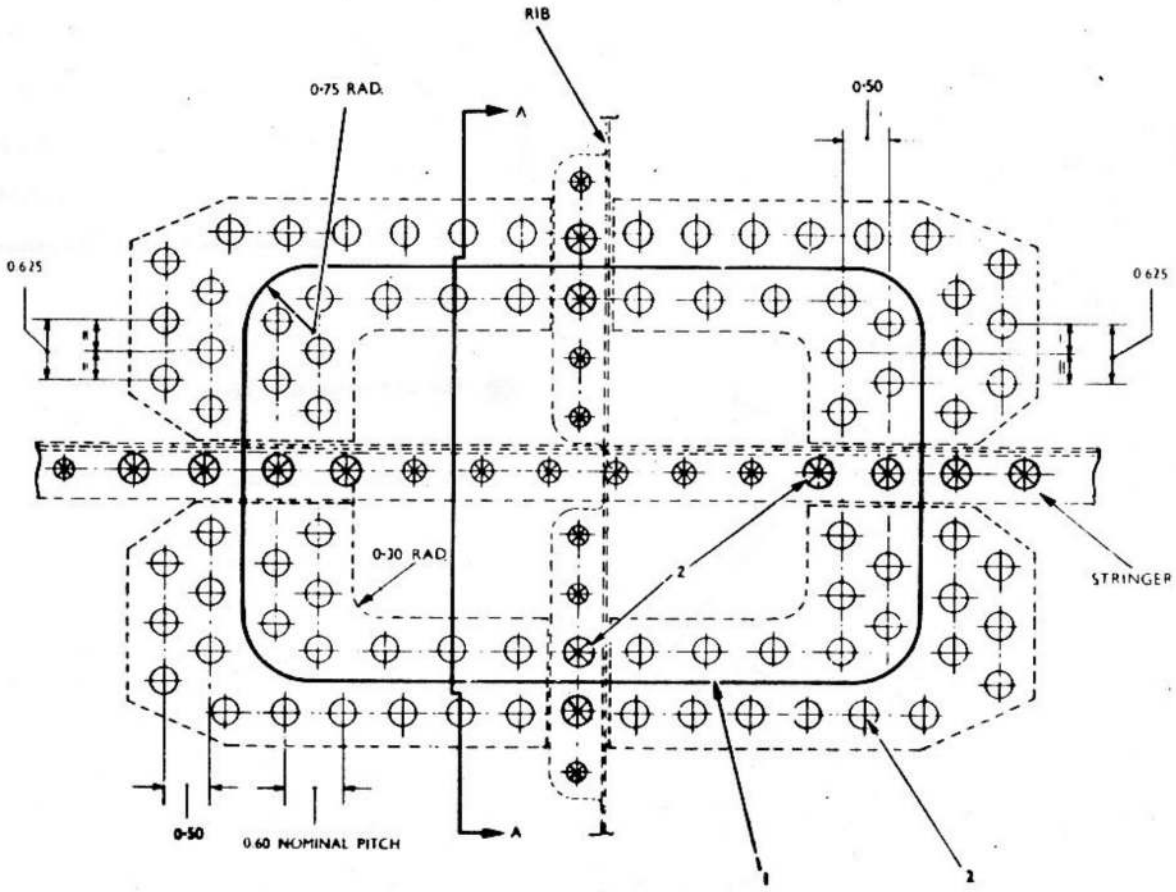
Item	Material		Part No.	Description	Negligible damage						Repairable damage	Repair fig. No.
					Scratches		Dents					
	Spec.	S.W.G.			Depth	Min. spacing	Max. depth	Max. width	Min. width	Min. spacing		
1	D.T.D.610	22	E.A1.31.551	Upper panel	0·003	2	0·03	4	0·50	4W	Holes.	25
2		22	E.A1.31.552	Lower panel								
		10	E.A1.31.507	Leading edge panel	0·012	3	0·02	3	0·50	4W	Oil canning effect. Panting and damage in excess of negligible.	23
3		24	E.A1.31.499	Upper panel	0·002	2	0·03	3	0·50	4W		22
4		24	E.A1.31.501	Lower panel								
		26	E.A1.31.525	Skin (port tab)	—	—	0·02	2¼	0·50	4W		
		26	E.A1.31.526	Skin (starb. tab)								

Notes.—All dimensions given for negligible damage are in inches. W, in min. spacing column = the least dimension of the damage.

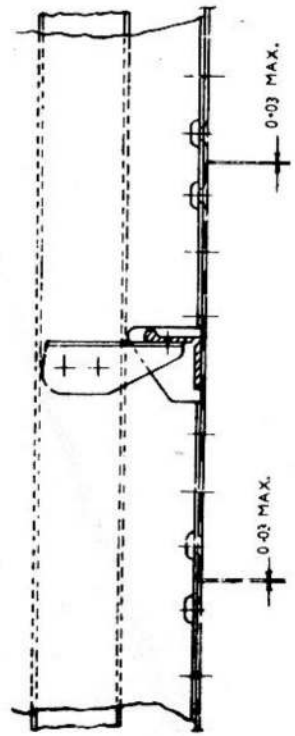
Fig. 10. Elevator and elevator tab skinning

ALL DIMENSIONS ARE IN INCHES

1	REPAIR MATERIAL 20 S.W.G., D.T.D.546	AS REQUIRED
2	RIVETS, TLP K/BS524	AS REQUIRED



ALL LANDINGS ARE 0·35



SECTION A-A

PICK UP EXISTING RIVET HOLE

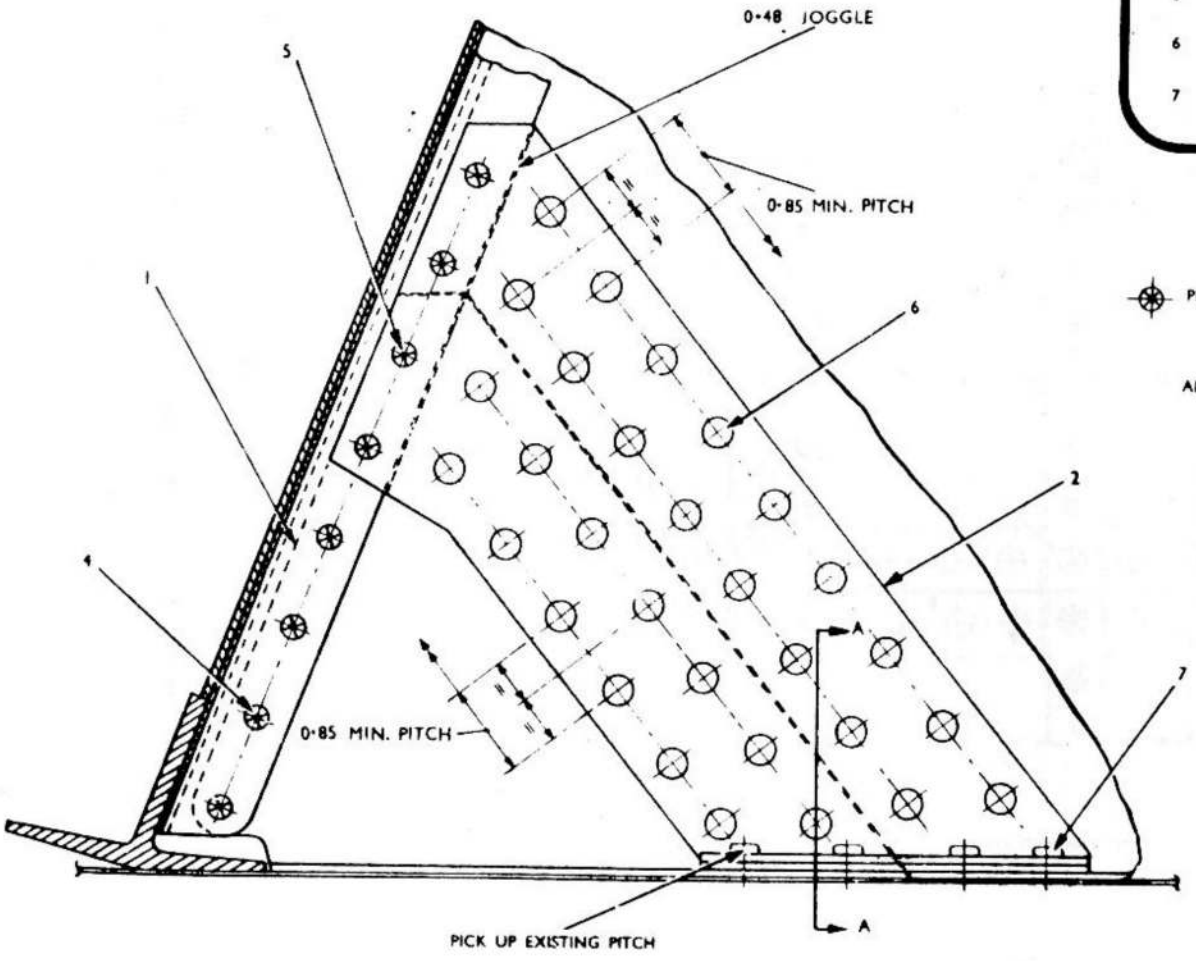
Fig. 11. Flush skin patch crossing stringer and rib

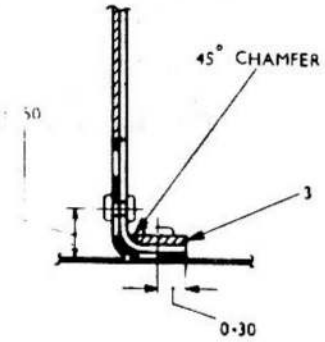
ALL DIMENSIONS ARE IN INCHES

1	REPAIR MATERIAL, 16 S.W.G., D.T.D.610	1 OFF
2	BUTT-STRAP, 16 S.W.G., D.T.D.610	1 OFF
3	PACKING, 8 S.W.G., D.T.D.610	1 OFF
4	RIVETS, TLP/D/BS424	AS REQUIRED
5	RIVETS, TLP/D/BS429	AS REQUIRED
6	RIVETS, TLP/D/BS630	AS REQUIRED
7	RIVETS, TLP/D/BS639	AS REQUIRED

PICK UP EXISTING RIVET HOLES

ALL LANDINGS ARE 0.40 MIN.





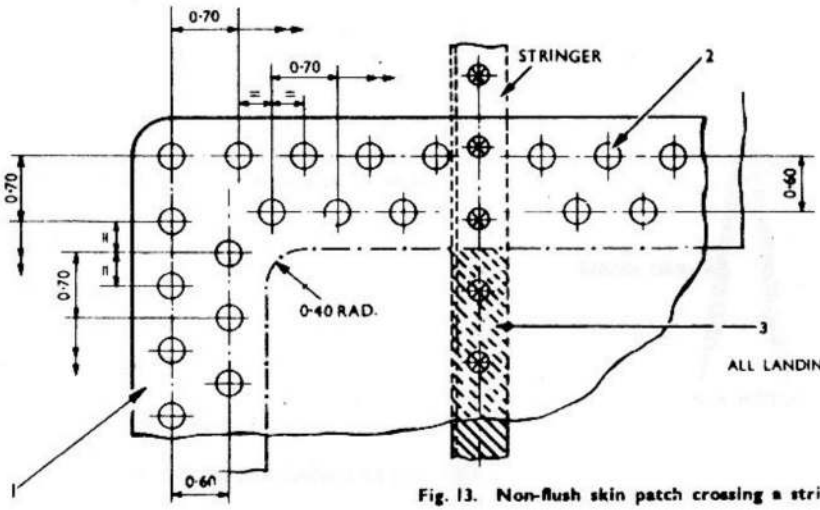
SECTION A-A

Fig. 12. Insertion repair to diaphragm—tail plane centre-section box

588024 64373 5882 4/56 750 CWSLtd1787 Gp979-2

ALL DIMENSIONS ARE IN INCHES

1	REPAIR MATERIAL, 16 S.W.G., D.T.D.546	1 OFF
2	RIVETS, TLP/D/BS630	AS REQUIRED
3	PACKING, 16 S.W.G., D.T.D.546	AS REQUIRED



—·—·— DENOTES EXTENT OF CLEANED OUT DAMAGE

ALL LANDINGS ARE 0.40

PICK UP EXISTING RIVET HOLE

Fig. 13. Non-flush skin patch crossing a stringer—tail plane centre-section box

ALL DIMENSIONS ARE IN INCHES

1	ANGLE, E.E.J.225, 18 S.W.G., D.T.D.546	4 OFF
2	RIVETS, TLP/K/BS421	32 OFF
3	RIVETS, TLP/D/BS424	16 OFF

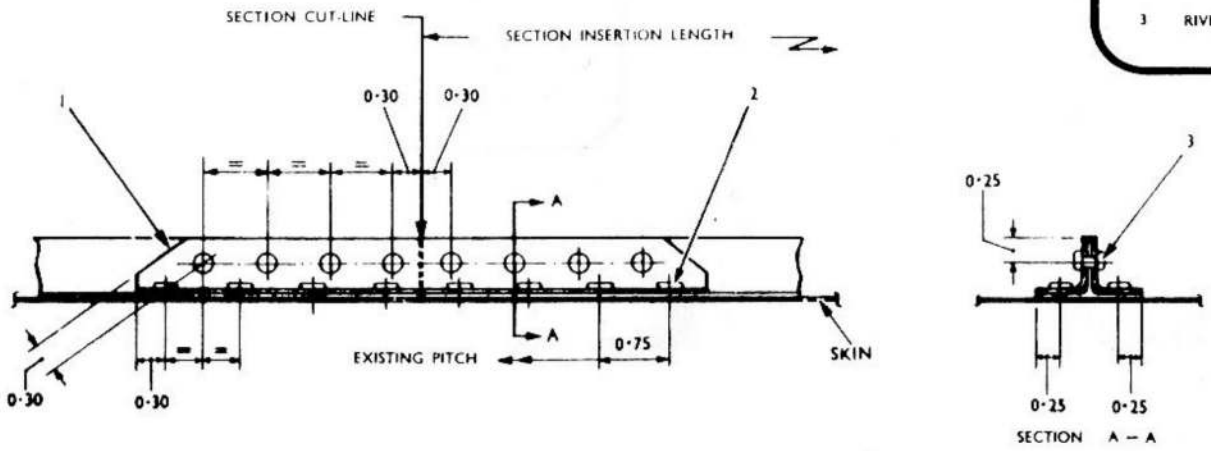


Fig. 14. Insertion repair to E.E.D.X. 83 section

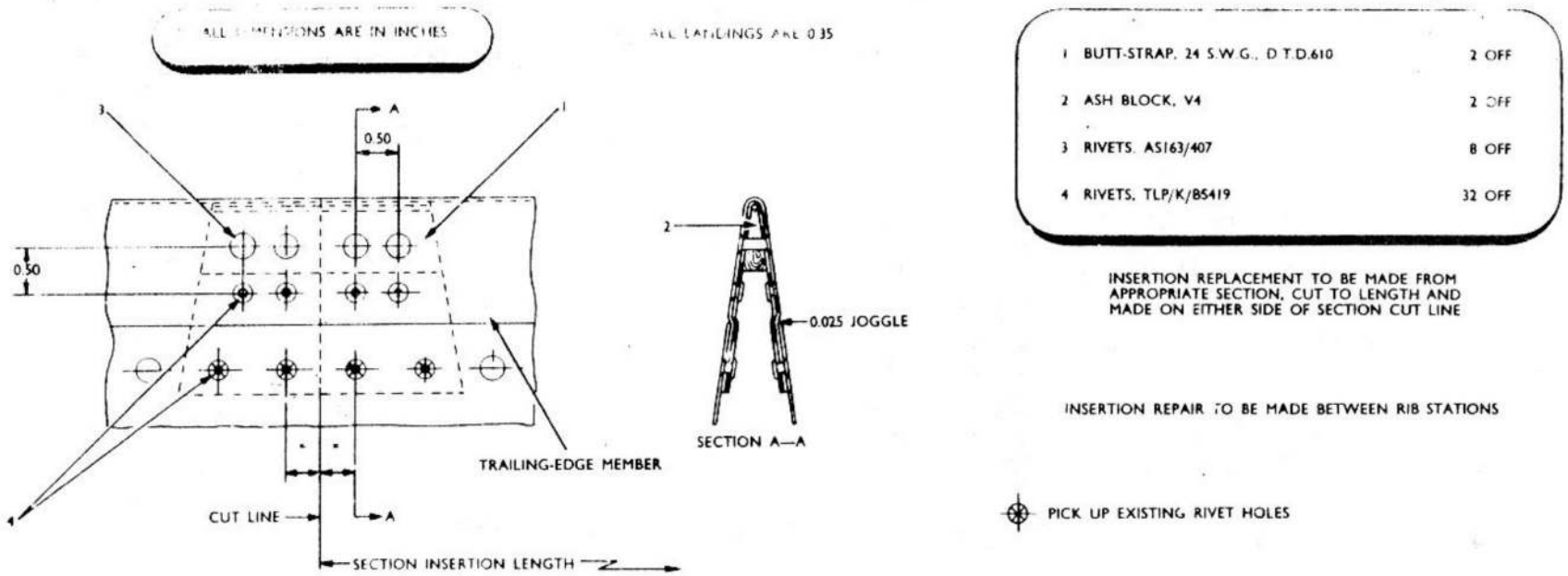


Fig. 15. Insertion repair to E.E.J.84 section

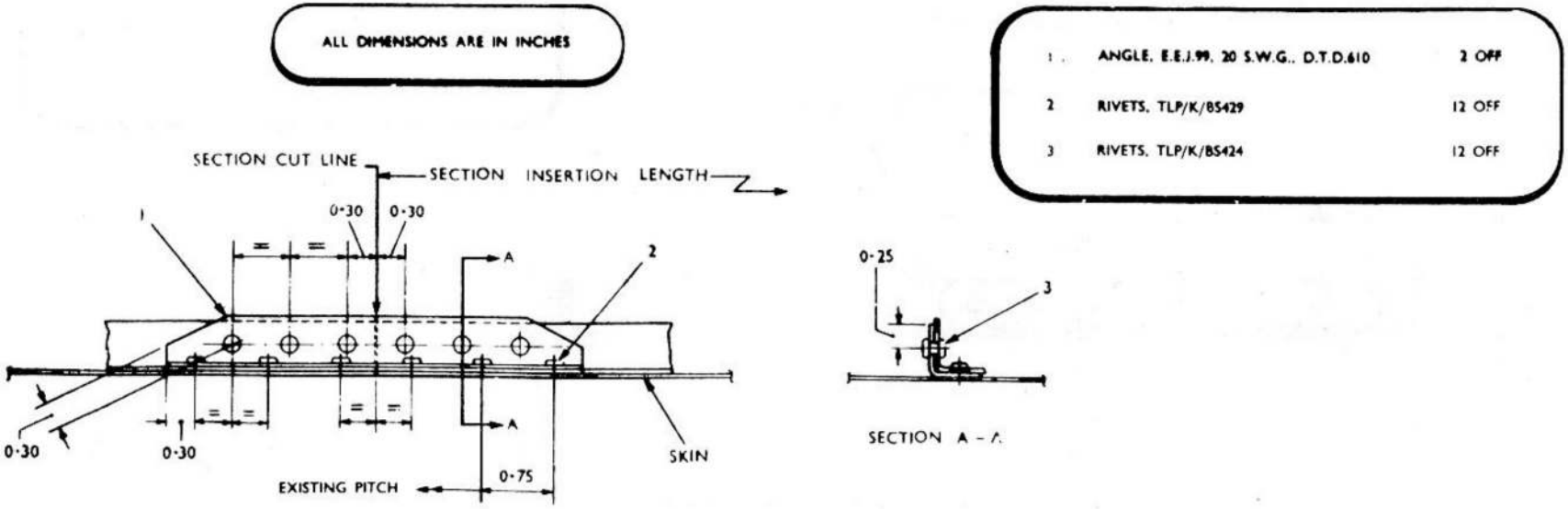


Fig. 16. Insertion repair to E.E.J. 99 (20 S.W.G.) section

588024 64373 5882 4/56 750 CWSLtd1787 Gp979-2

ALL DIMENSIONS ARE IN INCHES

ALL LANDINGS 0·40

REGULAR BOLT PITCH TO BE MAINTAINED BY ADJUSTING LENGTH OF CUT OUT.

1	NON-FLUSH PATCH DTD 610/16 S.W.G.	1 OFF
2	PACKING DTD 610/14 S.W.G.	2 OFF
3	ANCHOR NUTS-AGS 2008/C/1.	AS REQD.
4	HEX. HD. BOLTS A25/2C.	AS REQD.
5	RIVETS-TLP/K/BS 630.	18 OFF
6	RIVETS-AS 2230/304.	AS REQD.
7	RIVETS-AS 2230/305.	8 OFF

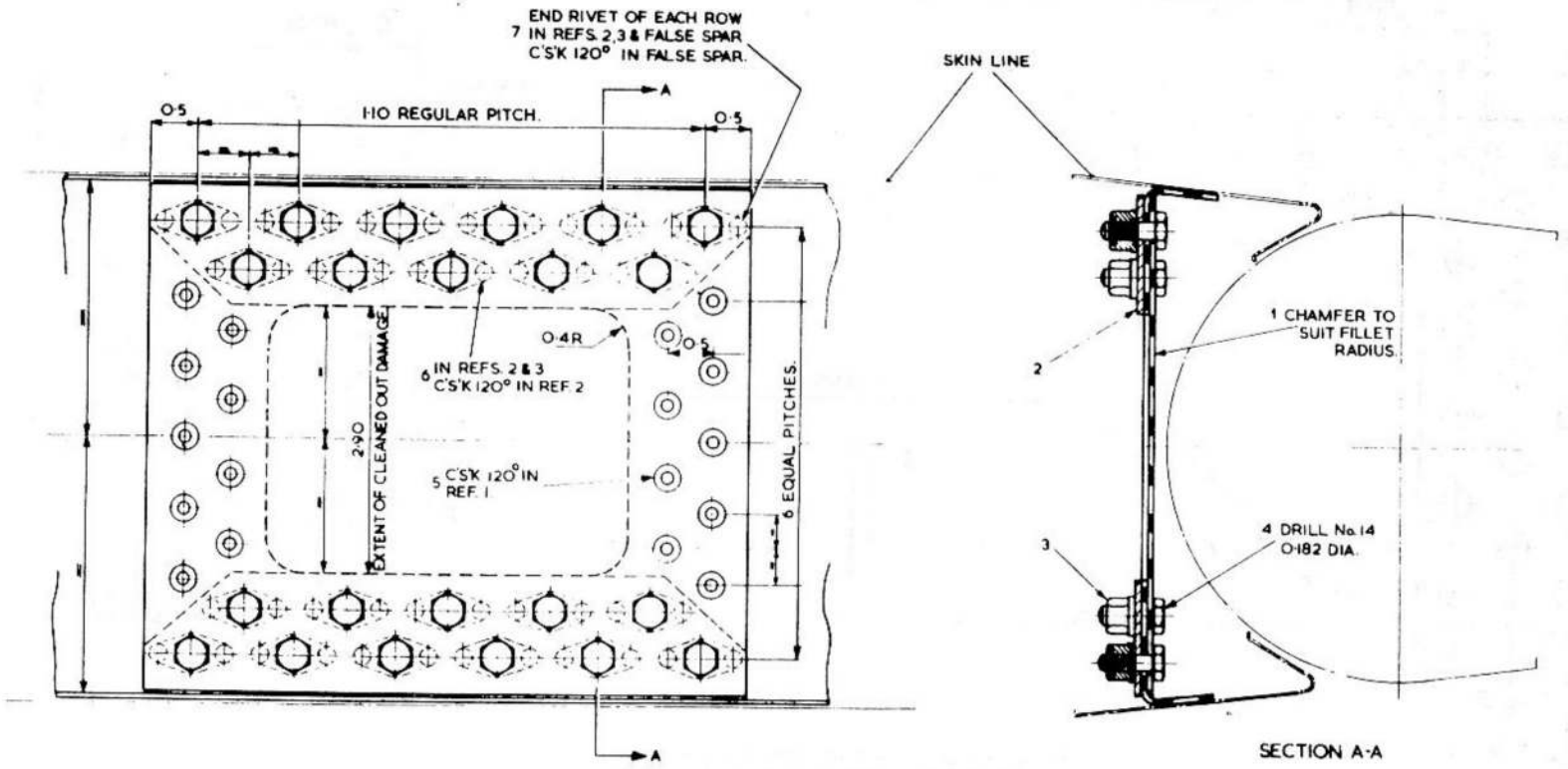


Fig. 17. Non-flush patch in tailplane false spar

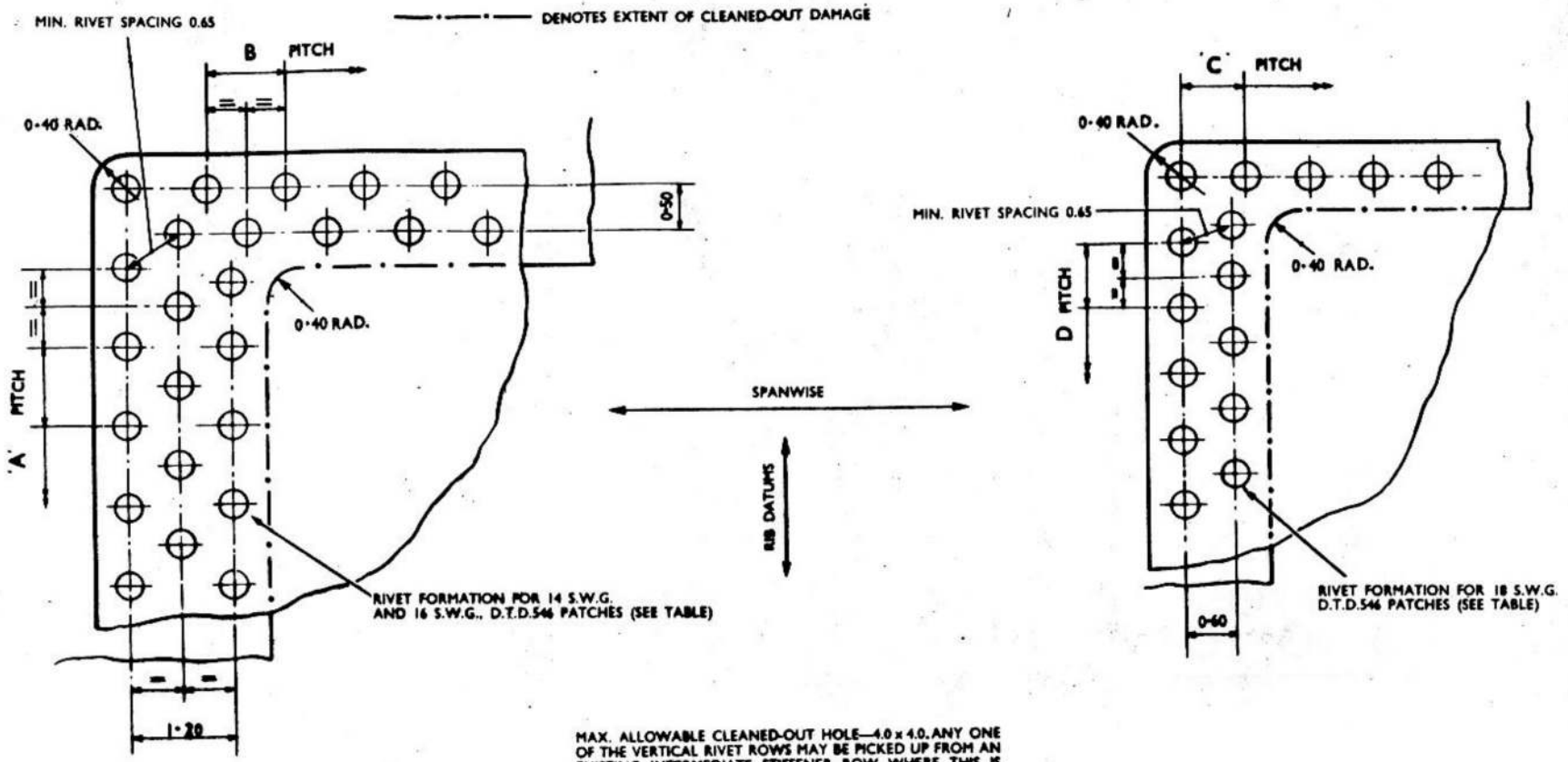
RESTRICTED

(A.L. 33, Mar. '56)

ALL DIMENSIONS ARE IN INCHES

ALL LANDINGS ARE 0.40

WEB AND PATCH		DIMENSIONS				
SPEC.	S.W.G.	A	B	C	D	RIVETS
D.T.D.546	18	—	—	0.70	0.75	TLP/D/BS624
D.T.D.546	16	0.90	1.00	—	—	TLP/D/BS630
D.T.D.546	14	0.75	0.90	—	—	TLP/D/BS630



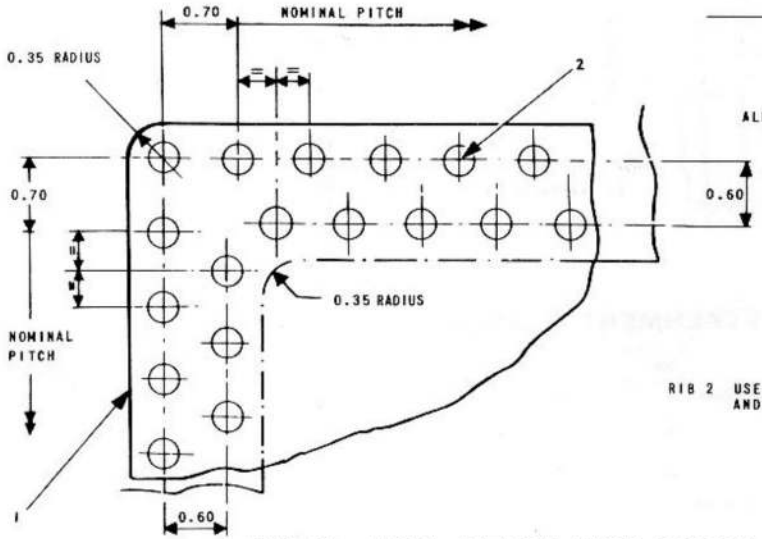
MAX. ALLOWABLE CLEANED-OUT HOLE—4.0 x 4.0. ANY ONE OF THE VERTICAL RIVET ROWS MAY BE PICKED UP FROM AN EXISTING INTERMEDIATE STIFFENER ROW WHERE THIS IS MADE NECESSARY BY THE POSITION OF THE DAMAGE. D.T.D.610 PACKING WILL BE REQUIRED UNDER ANY ANGLE STIFFENERS LYING ACROSS DAMAGE

Fig. 18. Non-flush patch in tail plane main spar, outer centre and inner web

583592 65475 5978 4/56 750 CWSLtd1760 Gp979-2

NOTE...
ALL DIMENSIONS ARE IN INCHES

ITEM	PART NO.	DESCRIPTION	QUANTITY	REMARKS
1		PIECE, PATCH	AS REQUIRED	S.W.G. AND SPECIFICATION TO BE IDENTICAL TO WEB.
2	AS.2227/5	RIVET, 5/32 IN. DIA., SN.HD.	AS REQUIRED	LENGTH TO SUIT GAUGE OF WEB AND REPAIR MATERIAL



ALL LANDINGS ARE 0.35

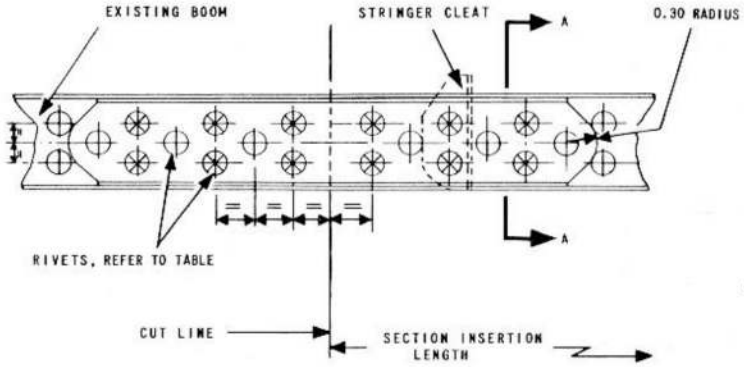
IT IS PERMISSIBLE TO PICK UP VERTICAL WEB ANGLE STIFFENERS WITH THIS PATCH BUT L.72 PACKING WILL BE REQUIRED IF STIFFENER LIES ACROSS DAMAGE

RIB 2 USE COUNTERSUNK RIVETS AND DIMPLE THE WEB SHEET

——·——·—— DENOTES EXTENT OF CLEANED OUT DAMAGE

FIG. 19. NON - FLUSH WEB PATCH - ALL TAIL PLANE RIBS EXCEPT RIB 1

EXISTING BOOMS SPEC.S.W.G.	REPAIR MEMBER SPEC.S.W.G.	NO. OFF	RIVETS	NO.OFF PER SIDE OF CUT LINE	TOTAL NO. OFF
L.72 14	S.514 16	2	AGS.2050/424	15	60
L.72 16	S.514 18	2	AGS.2050/419	12	48
L.72 18	S.514 20	2	AGS.2050/419	9	36



SECTION A-A

PICK UP EXISTING RIVET HOLES

S.W.G. MAT. SPEC. AND RIVET DATA COVERING ALL RIB BOOMS IN TAIL PLANE. ALL RIVETS TO BE BREAK STEM MANDRELS

INSERTION PIECE TO BE MADE FROM APPROPRIATE SECTION CUT TO LENGTH AND MADE ON EITHER SIDE OF SECTION CUT LINE

NOTE... THIS REPAIR ONLY APPLICABLE WHERE RIB BOOMS ARE OF CONSTANT SECTION

NOTE...
ALL DIMENSIONS ARE IN INCHES

◄ ANNOTATIONS AMENDED ►

FIG. 20. INSERTION REPAIR, TAIL PLANE RIB BOOMS

3364

NOTE...
ALL DIMENSIONS ARE IN INCHES

RIVET LENGTHS ARE VARIABLE WITH S.W.G. OF SKIN

DENOTES EXTENT OF CLEANED-OUT DAMAGE

PICK-UP EXISTING RIVET HOLES

ITEM	PART NO.	DESCRIPTION	QUANTITY	REMARKS
1	-	PIECE, ANGLE	AS REQUIRED	22 S.W.G. L.72 (SAME MATERIAL AS WEB)
2	AS.2227/40	RIVET, 1/8 IN.DIA., SN.HD.	AS REQUIRED	

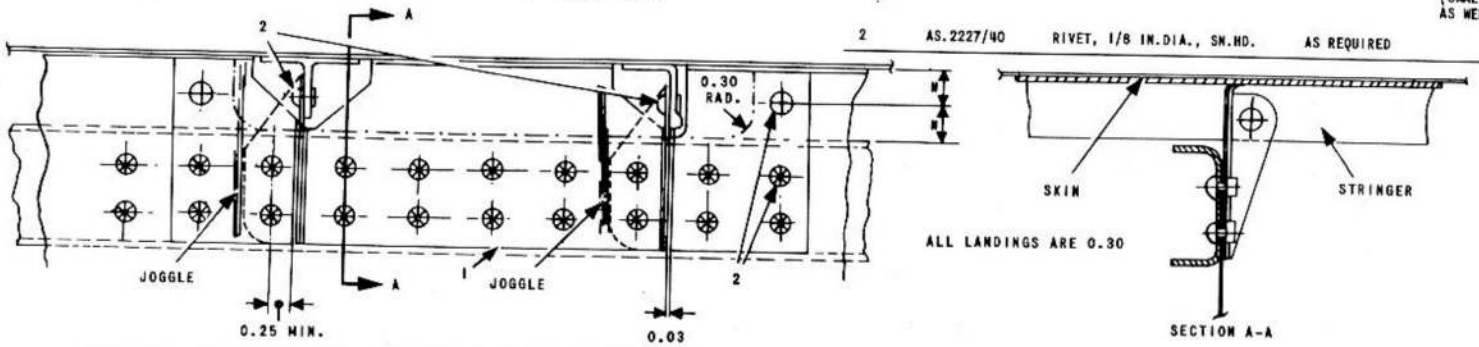


FIG. 21. INSERTION REPAIR, TAIL PLANE RIB ATTACHMENT FLANGE - RIBS 4, 5, 6, 7, 9, 10, 11 & 12

NOTE...
THIS REPAIR IS NOT APPLICABLE OVER THE AREA OF THE ELEVATOR TAB SHROUD, AS THERE IS A POSSIBILITY OF THE RIVETS FOULING THE TAB MASS BALANCE ASSEMBLY

BUTT-STRAP TO BE FLANGED UP 0.15 AS SHOWN
PICK UP EXISTING RIVET HOLES

ITEM	PART NO.	DESCRIPTION	QUANTITY
1	24G/L.72	BUTTSTRAP	1
2	24G/L.72	PIECE, INSERTION	1
3	AGS.2050/4198S	RIVET, 1/8 IN.DIA., CHOBERT	AS REQUIRED

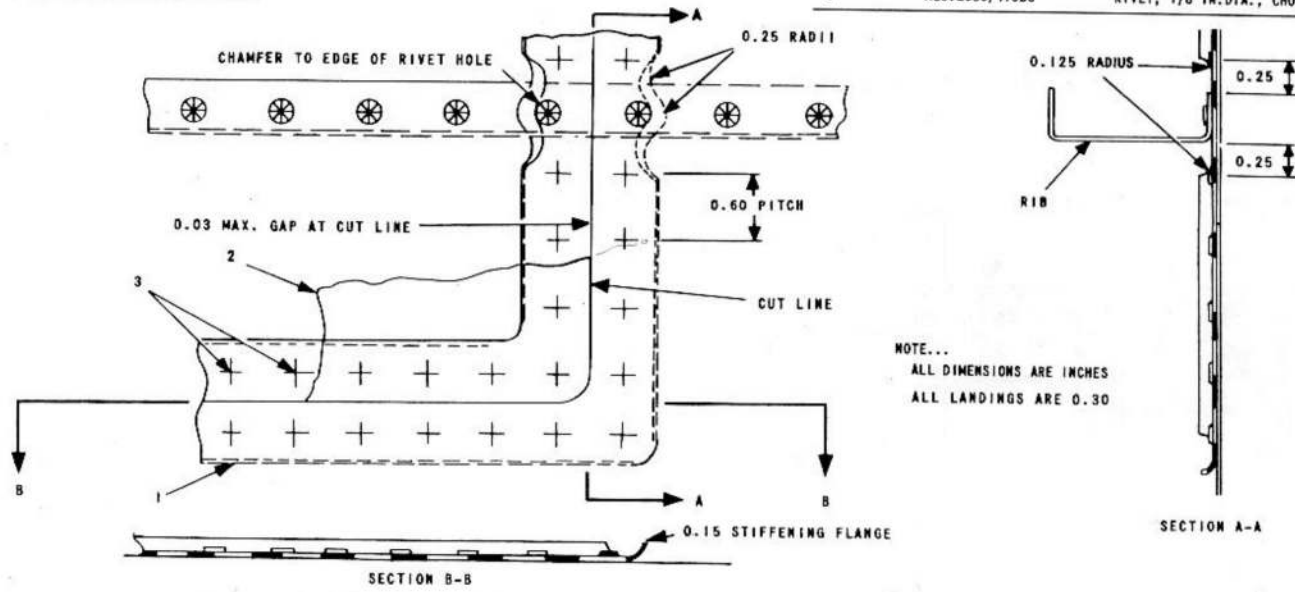
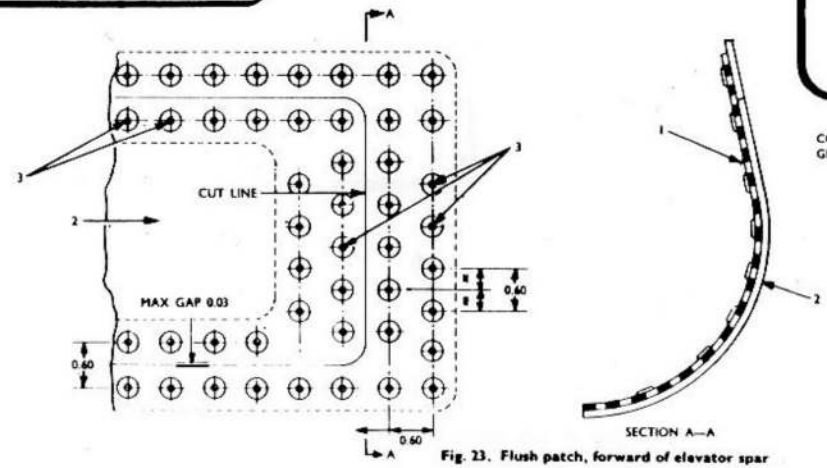


FIG. 22. FLUSH PATCH CROSSING A RIB, AFT OF ELEVATOR SPAR

3363

ALL DIMENSIONS ARE IN INCHES

ALL LANDINGS ARE 0.30

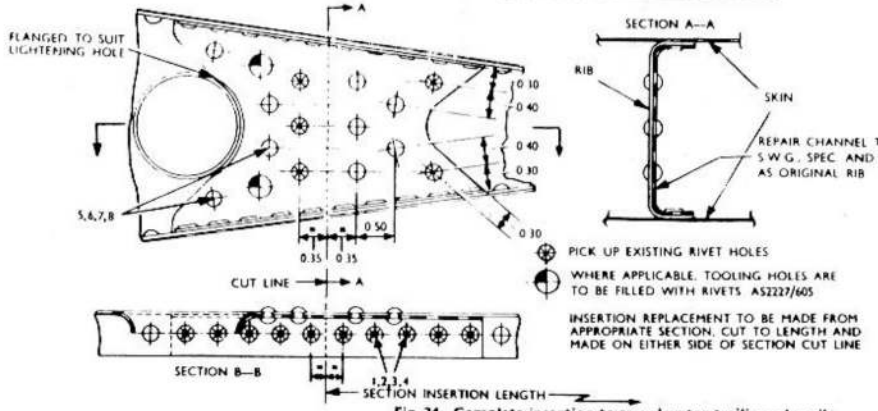


1	BUTT STRAP, 1 S.W.G., D.T.D.610	1 OFF
2	INSERTION PIECE, 10 S.W.G., D.T.D.610	1 OFF
3	RIVETS, A&S.2051/53783	AS REQUIRED

CORRECT SHROUD GAP OVER TOTAL ELEVATOR MOVEMENT, AS GIVEN IN A.P.4326B, VOL. 1, SECT. 3, CHAP. 3, MUST BE MAINTAINED

Fig. 23. Flush patch, forward of elevator spar

ALL DIMENSIONS ARE IN INCHES



RIVET DATA IN SKIN FLANGE

ITEM	MATERIAL SPEC.	S.W.G.	RIVETS	NO. OFF
1	D.T.D.610	18	AGS.2051/51985	40
2	D.T.D.610	20	AGS.2051/41985	40
3	D.T.D.610	22	AGS.2051/41985	40
4	D.T.D.610	24	AGS.2051/41985	40

RIVET DATA IN WEB OF RIB

ITEM	MATERIAL SPEC.	S.W.G.	RIVETS	NO. OFF
5	D.T.D.610	18	AS2227/404	28
6	D.T.D.610	20	AS2227/404	28
7	D.T.D.610	22	AS2227/403	28
8	D.T.D.610	24	AS2227/403	28

Fig. 24. Complete insertion to any elevator trailing-edge rib

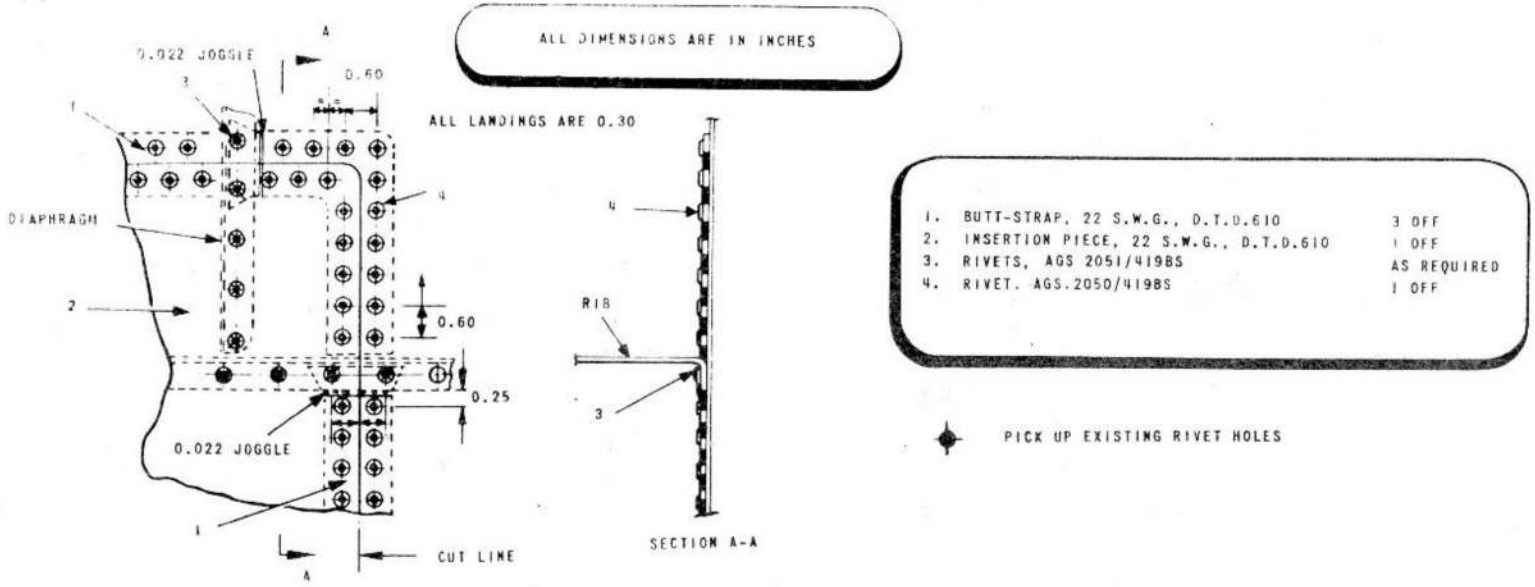


Fig. 25. Flush skin patch crossing a rib and diaphragm-elevator horn

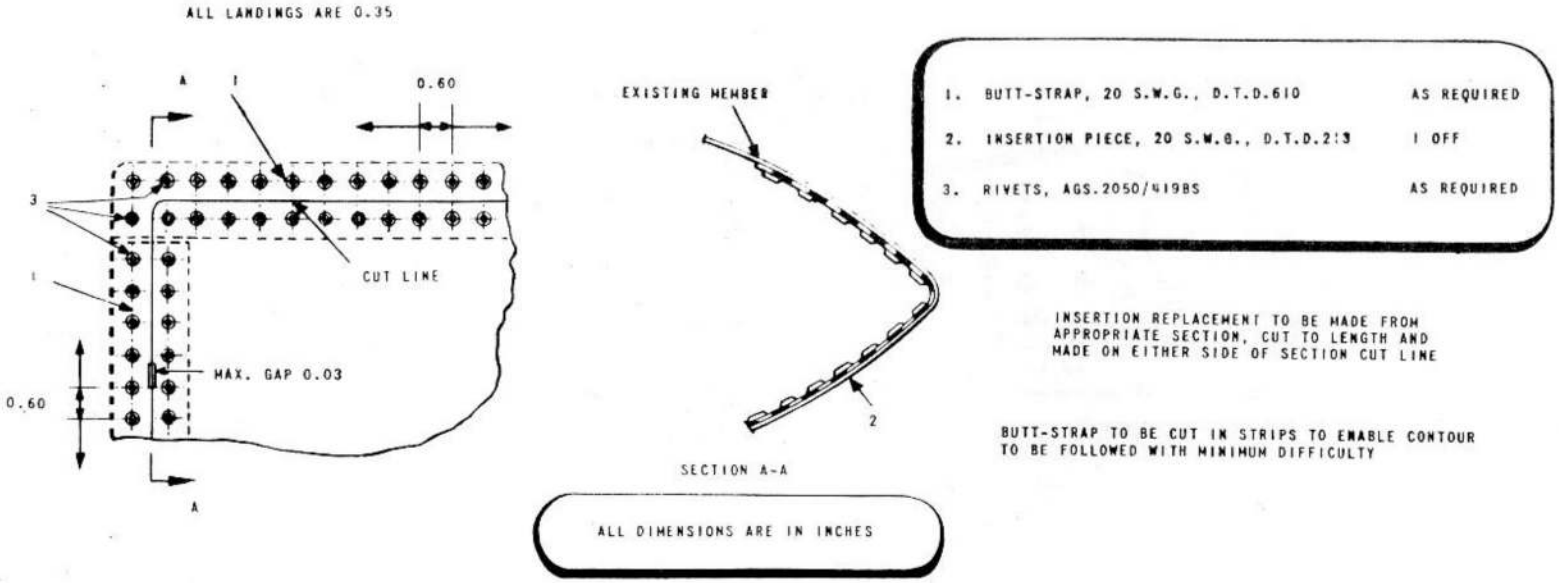


Fig. 26. Insertion repair-elevator horn boundary member

ALL DIMENSIONS ARE IN INCHES

1	REPAIR PIECE, 22 S.W.G., D.T.D.610	1 OFF
2	BUTT-STRAP, 22 S.W.G., D.T.D.610	1 OFF
3	RIVETS, TLP/K/BS419	AS REQUIRED

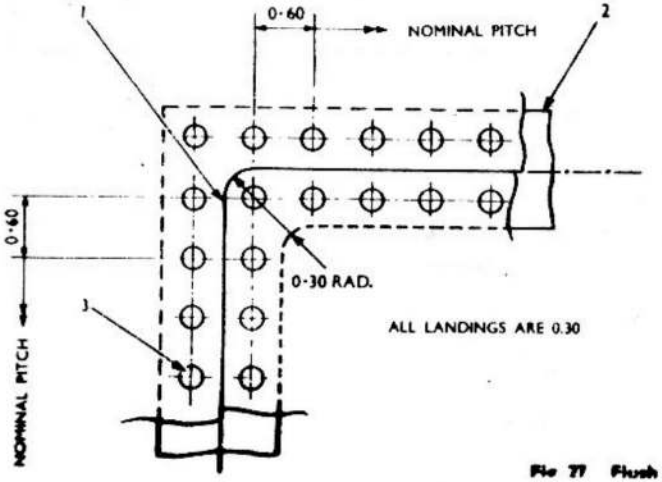
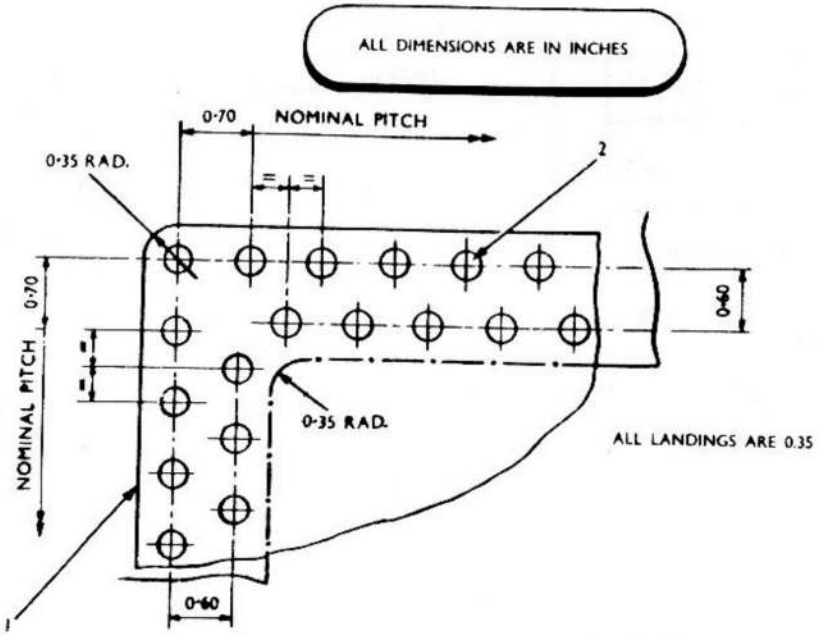


Fig 27 Flush skin patch, aft of fin main spar

ALL DIMENSIONS ARE IN INCHES

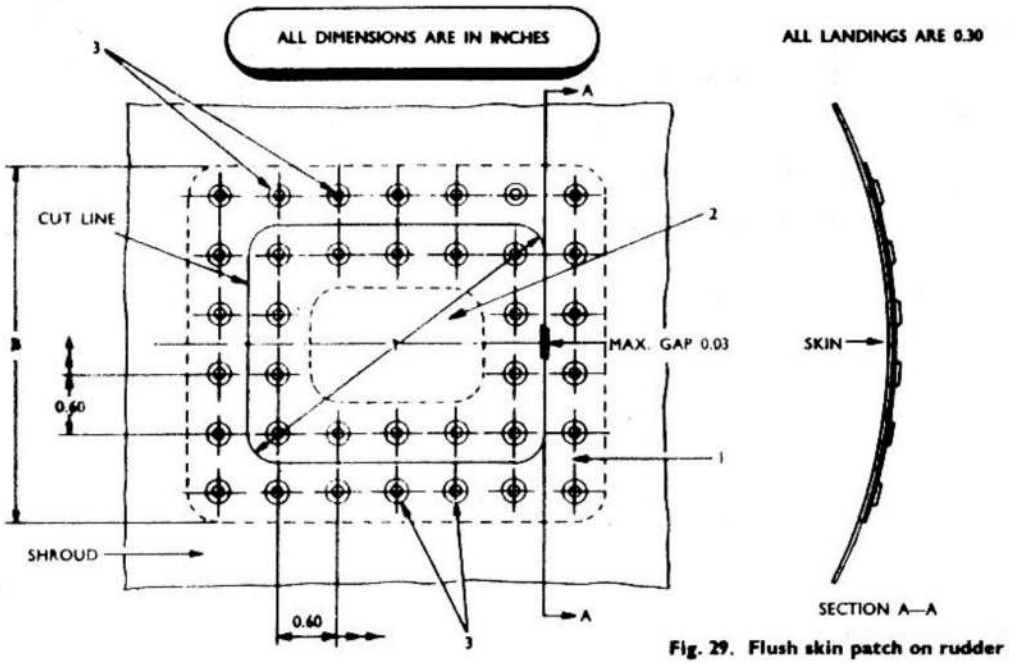
1	REPLACEMENT PIECE, 22 S.W.G., D.T.D.610	1 OFF
2	RIVETS, AS2227/504	AS REQUIRED

THIS REPAIR IS APPLICABLE ONLY TO RIBS 1 TO 5 INCLUSIVE. STUB AND TOP RIBS ARE EXCLUDED



—·—·— DENOTES EXTENT OF CLEANED-OUT DAMAGE

Fig. 28. Non-flush patch on rib web—fin metal portion

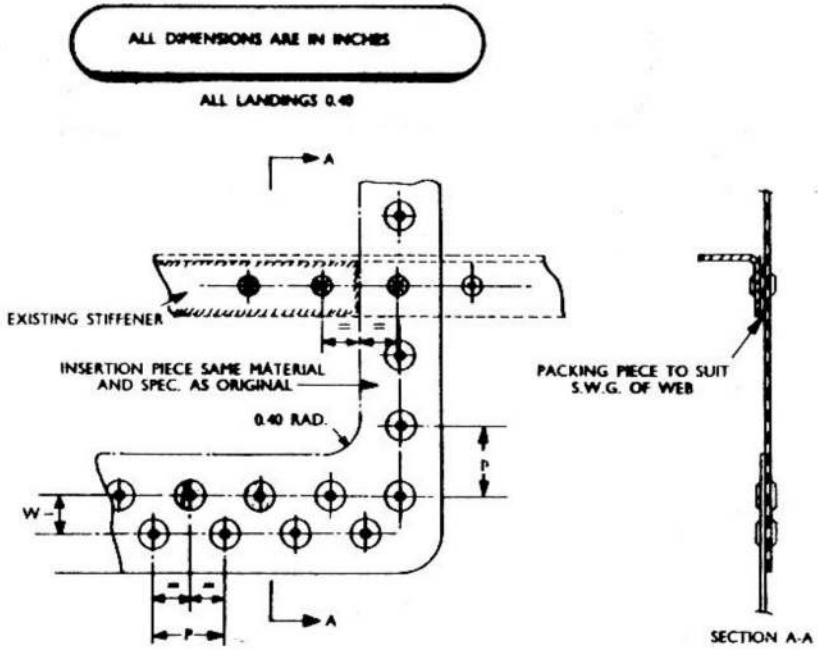


1	BUTT-STRAP, 22 S.W.G., D.T.D.610	1 OFF
2	INSERTION PIECE, 22 S.W.G., D.T.D.610	1 OFF
3	RIVETS, TLP/K/BS419	AS REQUIRED

CORRECT SHROUD GAP OVER TOTAL RUDDER MOVEMENT, AS GIVEN IN A.P.4326B, VOL. 1, SECT. 3, CHAP. 3, MUST BE MAINTAINED

DIMENSION B MUST BE LESS THAN DIMENSION A

Fig. 29. Flush skin patch on rudder shroud



ITEM	S.W.G.	RIVET SPEC.
1	16	TLP/D/BS429
2	18	TLP/D/BS424
3	20	TLP/D/BS419

EXISTING RIVET DATA

ITEM	MATERIAL SPEC.	S.W.G.	RIVET SPEC.	P	p	W
1	D.T.D.546	16	TLP/D/BS624	0.70	0.70	0.60
2	D.T.D.546	18	TLP/D/BS624	0.75	0.70	0.65
3	D.T.D.546	20	TLP/D/BS519	0.625	0.60	0.55

MATERIAL AND RIVET DATA

PICK UP EXISTING RIVET HOLES

DENOTES EXTENT OF CLEANED-OUT DAMAGE

Fig. 30. Non-flush patch to fin main spar web

75045 0462 9561 4/53 360 CWS&Ltd3301 Gp979.2

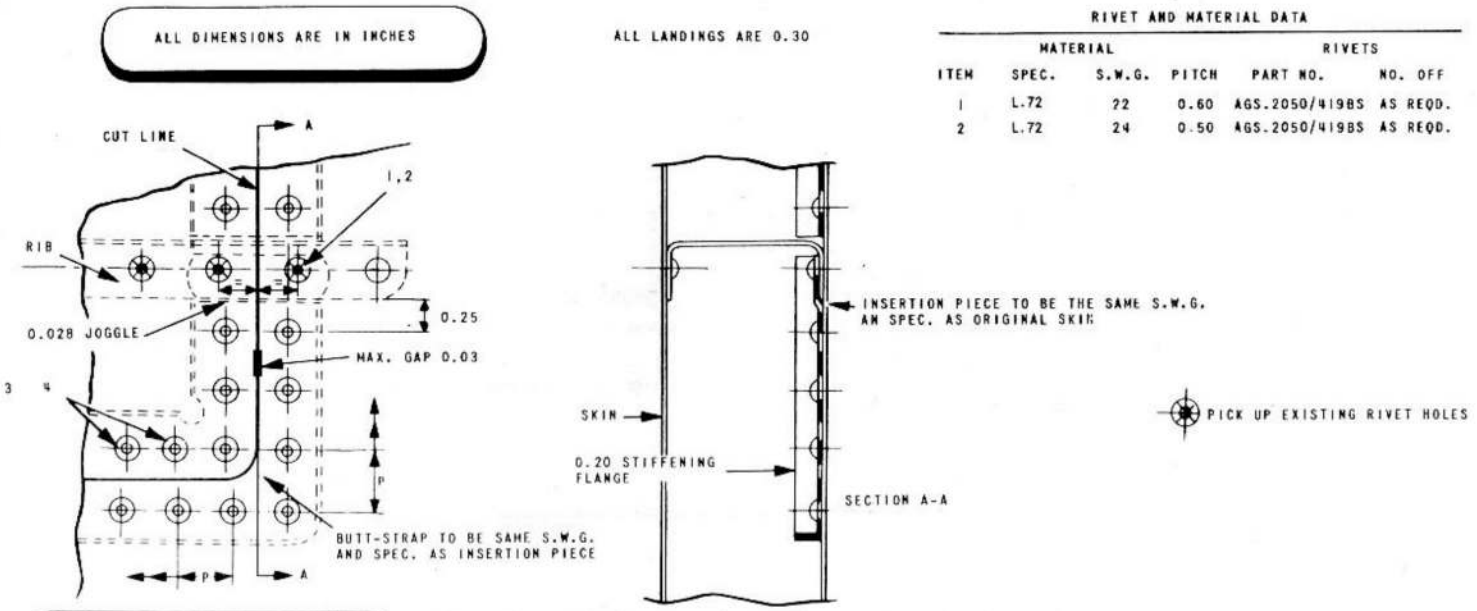


Fig. 31. Flush skin patch crossing a rib, aft of rudder spar

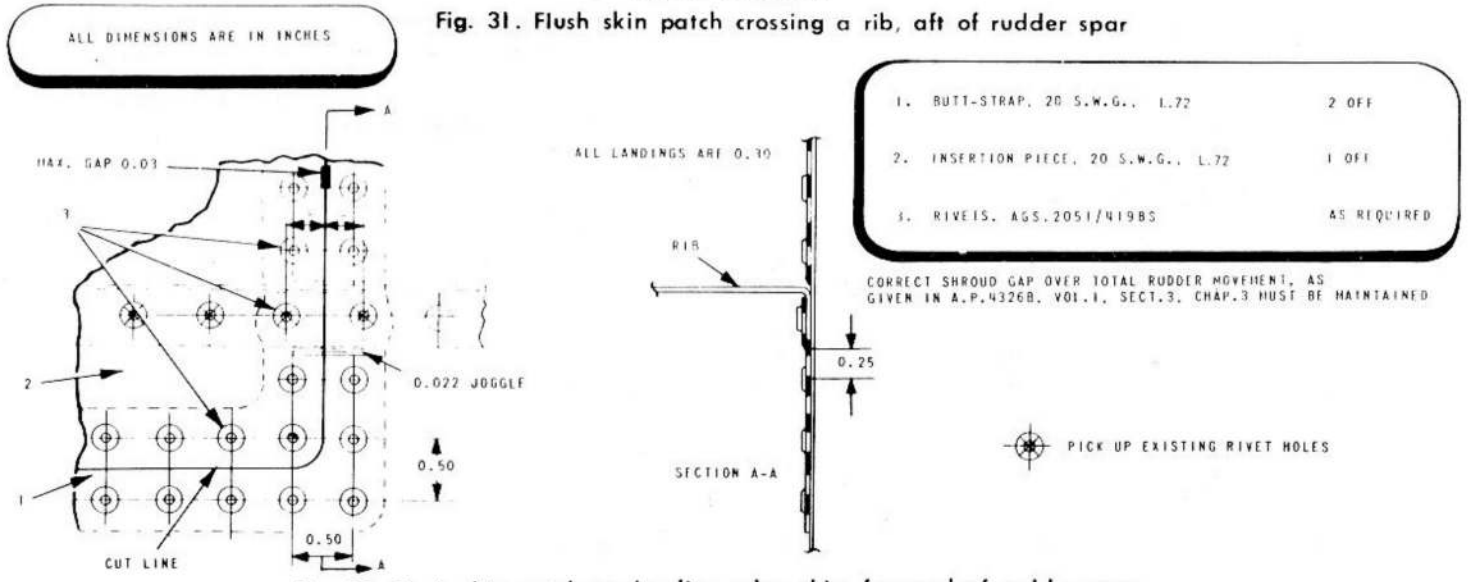


Fig. 32. Flush skin patch on leading edge skin, forward of rudder spar

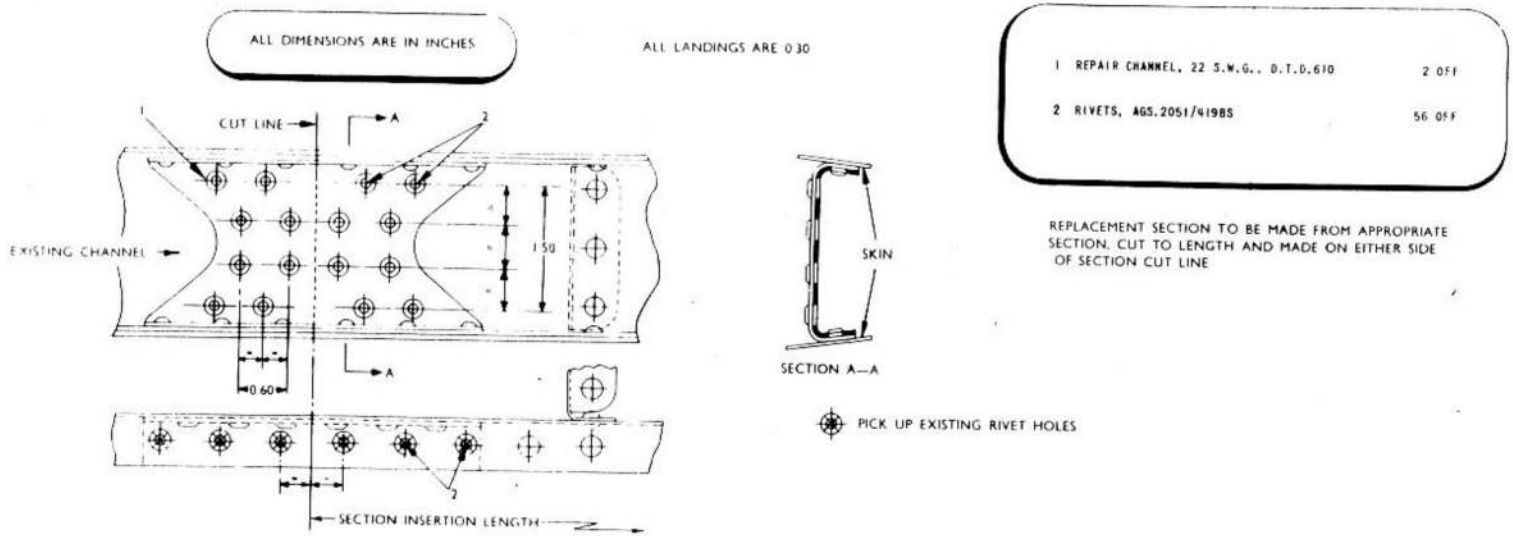
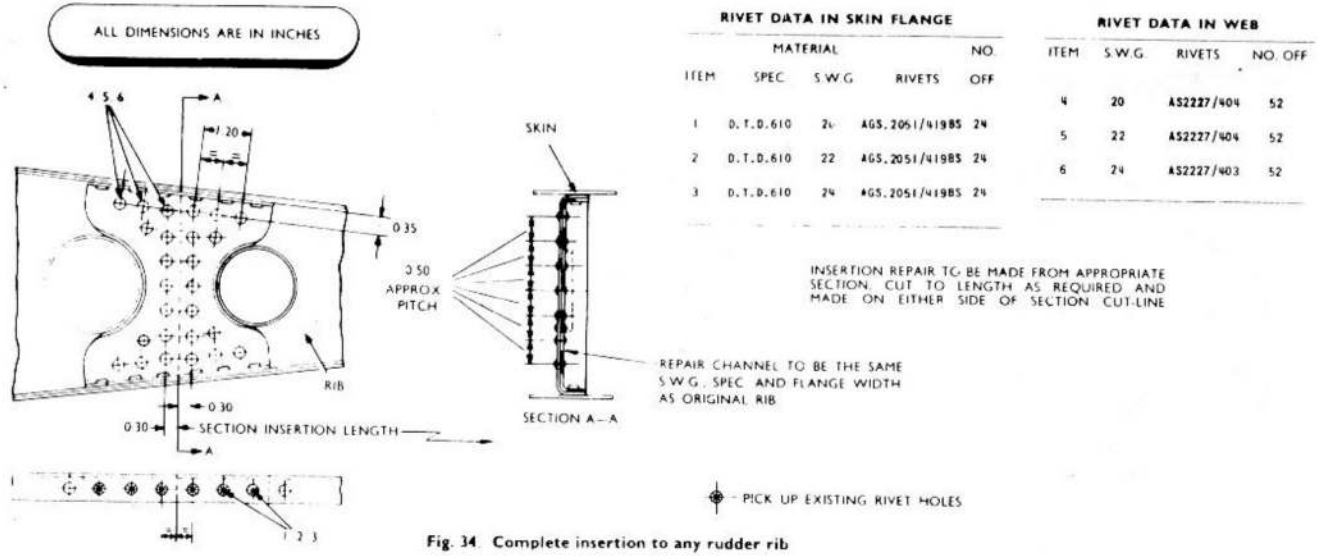


Fig. 33. Insertion repair to tab shroud channel member



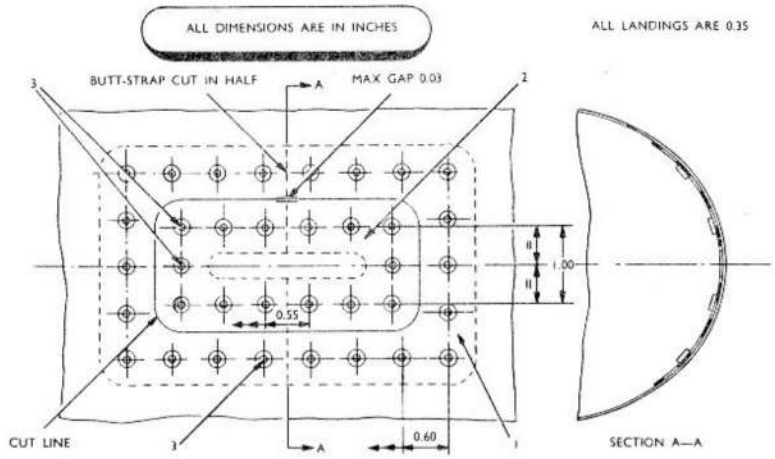
RIVET DATA IN SKIN FLANGE

ITEM	MATERIAL SPEC	S.W.G.	RIVETS	NO. OFF
1	D.T.D.610	24	AGS.2051/4198S	24
2	D.T.D.610	22	AGS.2051/4198S	24
3	D.T.D.610	24	AGS.2051/4198S	24

RIVET DATA IN WEB

ITEM	S.W.G.	RIVETS	NO. OFF
4	20	AS2227/404	52
5	22	AS2227/404	52
6	24	AS2227/403	52

Fig. 34. Complete insertion to any rudder rib

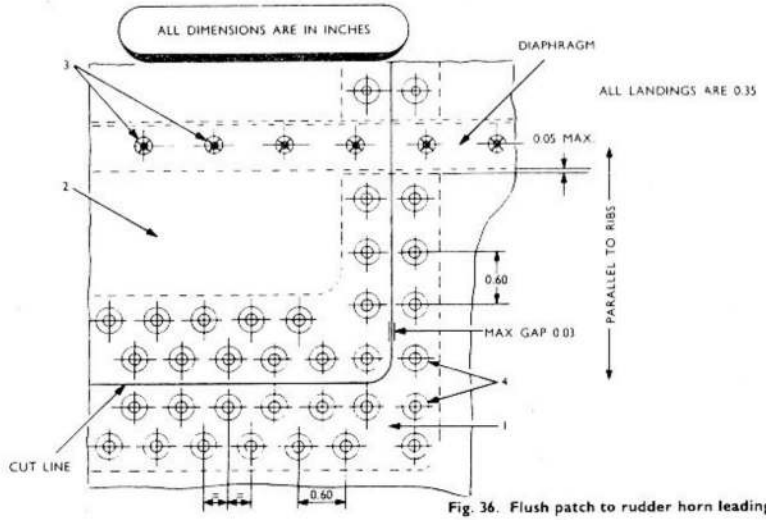


1	BUTT-STRAP, 18 S.W.G., L.72	2 OFF
2	INSERTION PIECE, 18 S.W.G., D.T.D.213	1 OFF
3	RIVETS, TLP K BS419	AS REQUIRED

REPLACEMENT PIECE TO BE MADE FROM APPROPRIATE SECTION, CUT TO LENGTH AND MADE ON EITHER SIDE OF SECTION CUT LINE

BUTT-STRAP TO BE CUT IN HALF TO ENABLE CONTOUR TO BE FOLLOWED WITH MINIMUM DIFFICULTY

Fig. 35. Insertion repair to rudder horn boundary member



1	BUTT STRAP, 16 S.W.G., L.72	2 OFF
2	INSERTION PIECE, 16 S.W.G., L.72	1 OFF
3	RIVETS, TLP K BS419	AS REQUIRED
4	RIVETS, TLP K BS524	AS REQUIRED

PICK UP EXISTING RIVET HOLES

Fig. 36. Flush patch to rudder horn leading-edge rib

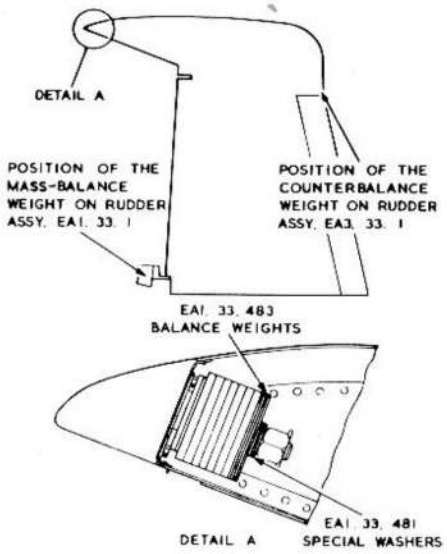


Fig. 37. Adjustment of rudder balance

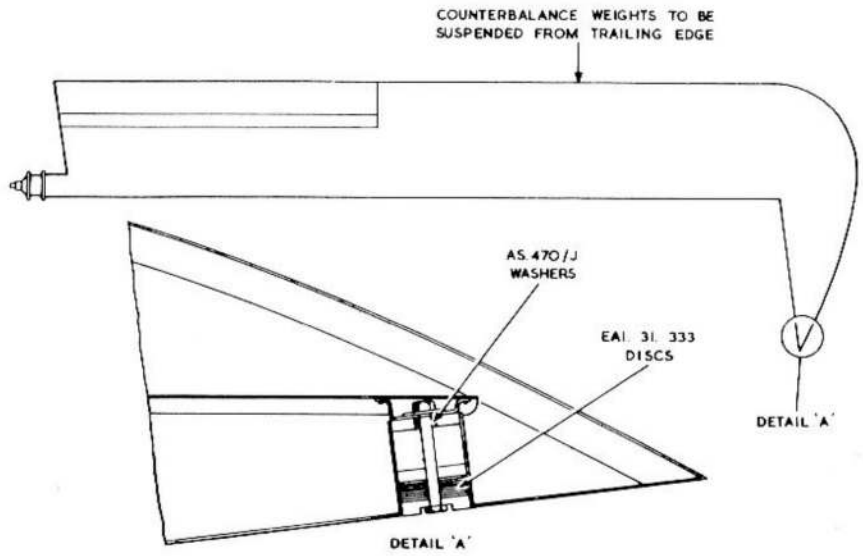


Fig. 38. Adjustment of elevator balance

KEY TO FIG. 39. (WEAR LIMITS, TAIL-PLANE ATTACHMENTS)

(key overleaf)

KEY TO FIG. 39 (WEAR LIMITS, TAIL-PLANE ATTACHMENTS)

Ref. No.	Joint	Wear point	Dimension new	Clearance new	Permissible worn clearance	Remedial action
1	Actuator-to tail plane	Bearing block	0.7505 / 0.7495	0.0000 / −0.0015 (int.)	0.0000	Renew the bush
		Bush, outside diameter	0.7510 / 0.7505			
		Bush, inside diameter	0.6255 / 0.6245	0.0028 / 0.0013	0.0040	Renew the bush and/or the pin
		Pin	0.6232 / 0.6227			
2	Actuator-to fuselage	Lug	0.8130 / 0.8120	0.0005 / −0.0015 (int.)	0.0005	Renew the bush
		Bush, outside diameter	0.8135 / 0.8125			
		Bush, inside diameter	0.6880 / 0.6870	0.0028 / 0.0013	0.0040	Renew the bush and/or the pin
		Special bolt	0.6857 / 0.6852			
3	Tail plane-to fuselage at forward hinge	Hinge bracket	0.8755 / 0.8745	0.0000 / −0.0015 (int.)	0.0000	Renew the bush
		Bush, outside diameter	0.8760 / 0.8755			
		Bush, inside diameter	0.7505 / 0.7500	0.0020 / 0.0010	0.0040	Renew the bush and/or the pivot bolt
		Pivot bolt	0.7490 / 0.7485	0.0020 / 0.0010	0.0040	
		Bush, inside	0.7505 / 0.7500			
		Bush, outside diameter	0.8760 / 0.8755	0.0000 / −0.0015 (int.)	0.0000	Renew the bush
		Spar hinge lug	0.8755 / 0.8745			

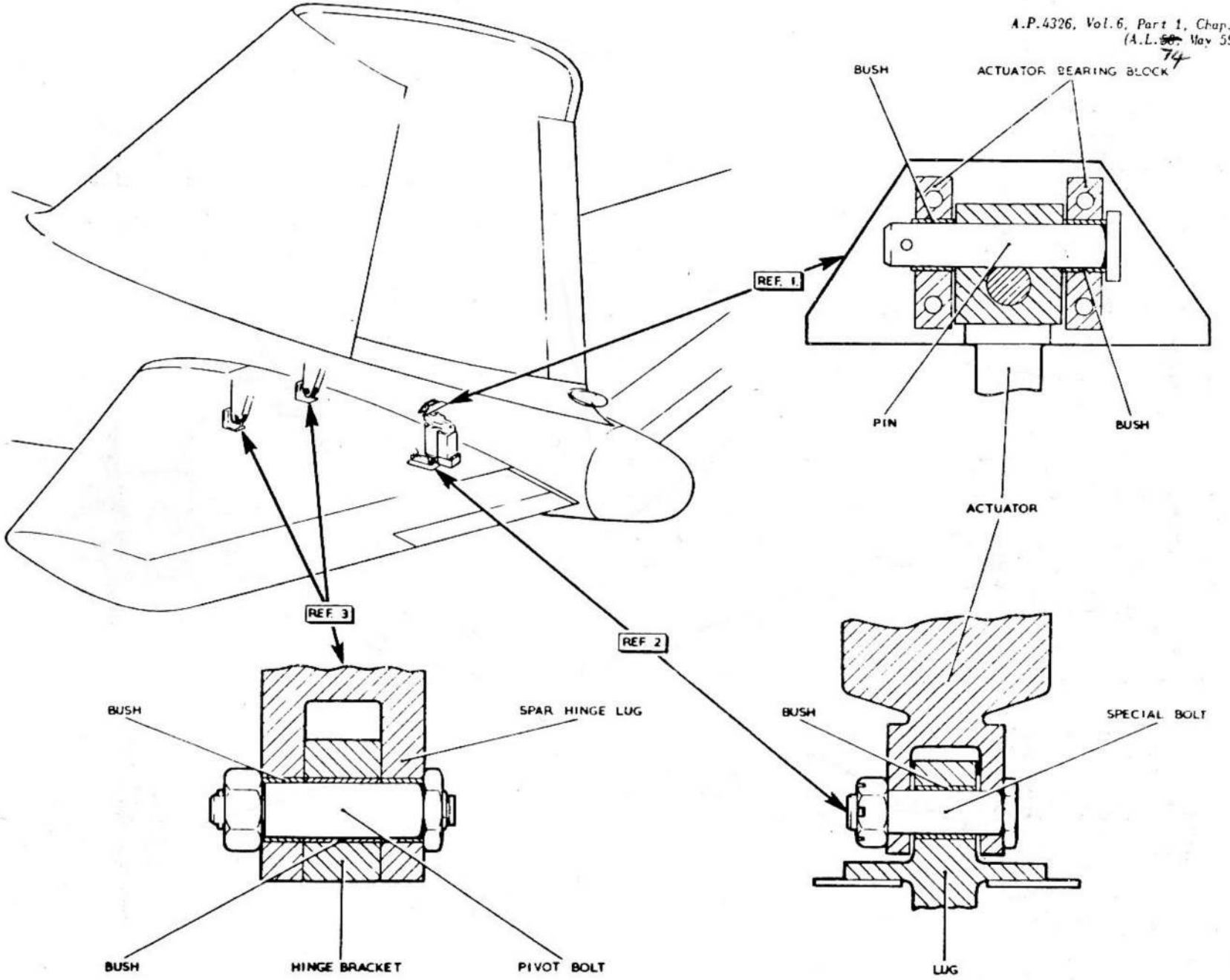


FIG. 39. WEAR LIMITS, TAIL-PLANE ATTACHMENTS

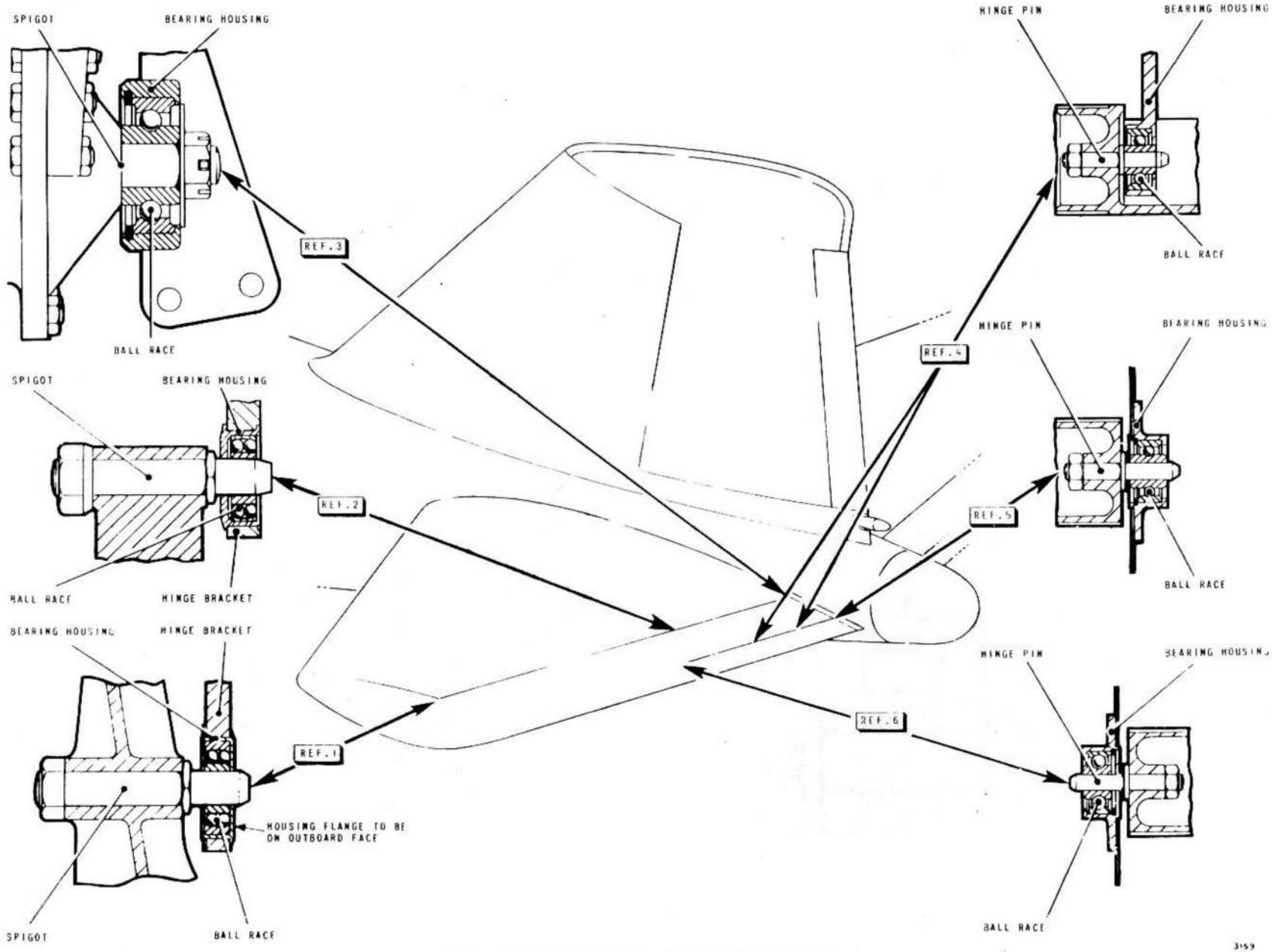


FIG. 40. WEAR LIMITS, ELEVATOR AND TAB

KEY TO FIG. 40 (WEAR LIMITS, ELEVATOR AND TAB)

Ref. No.	Joint	Wear point	Dimension new	Clearance new	Permissible worn clearance	Remedial action
1	Elevator to tail plane at outboard hinge	Bearing housing	1·3140 / 1·3130	0·0023 / 0·0002	0·0030	Renew the ball bearing and the housing
		Ball bearing, outside diameter	1·3128 / 1·3117			
		Ball bearing	—	—	0·0090 (Axial)	Renew the ball bearing
		Ball bearing, inside diameter	0·5002 / 0·4998	0·0012 / 0·0003	0·0020	Renew the ball bearing and the hinge spigot
		Hinge spigot	0·4995 / 0·4990			
2	Elevator to tail plane at centre hinge	Bearing housing	1·3140 / 1·3130	0·0023 / 0·0002	0·0030	Renew the ball bearing and the housing
		Ball bearing, outside diameter	1·3128 / 1·3117			
		Ball bearing	—	—	0·0090 (Axial)	Renew the ball bearing
		Ball bearing, inside diameter	0·5002 / 0·4998	0·0012 / 0·0003	0·0020	Renew the ball bearing and the hinge spigot
		Hinge spigot	0·4995 / 0·4990			
3	Elevator to tail plane at inboard hinge	Bearing housing	1·9385 / 1·9380	0·0018 / 0·0002	0·0020	Renew the ball bearing and the housing
		Ball bearing, outside diameter	1·9378 / 1·9367			
		Ball bearing	—	—	0·0400 (Axial)	Renew the bearing
		Ball bearing, inside diameter	0·6252 / 0·6248	0·0022 / 0·0003	0·0030	Renew the ball bearing and the hinge spigot
		Hinge spigot	0·6245 / 0·6230			
4	Tab to elevator at both centre hinges	Bearing housing	0·9029 / 0·9019	0·0022 / 0·0002	0·0030	Renew the ball bearing and the housing
		Ball bearing, outside diameter	0·9017 / 0·9007			
		Ball bearing	—	—	0·0250 (Axial)	Renew the bearing
		Ball bearing inside diameter	0·2502 / 0·2498	0·0012 / 0·0003	0·0020	Renew the ball bearing and the hinge pin
		Hinge pin	0·2495 / 0·2490			
5	Tab to elevator at inboard hinge	Bearing housing	0·9029 / 0·9019	0·0022 / 0·0002	0·0030	Renew the ball bearing and the housing
		Ball bearing, outside diameter	0·9017 / 0·9007			
		Ball bearing	—	—	0·0250 (Axial)	Renew the bearing
		Ball bearing inside diameter	0·2502 / 0·2498	0·0012 / 0·0003	0·0020	Renew the ball bearing and the hinge pin
		Hinge pin	0·2495 / 0·2490			
6	Tab to elevator at outboard hinge	Bearing housing	0·9029 / 0·9019	0·0022 / 0·0002	0·0030	Renew the ball bearing and the housing
		Ball bearing, outside diameter	0·9017 / 0·9007			
		Ball bearing	—	—	0·0250 (Axial)	Renew the bearing
		Ball bearing, inside diameter	0·2502 / 0·2498	0·0012 / 0·0003	0·0020	Renew the ball bearing and the hinge pin
		Hinge pin	0·2495 / 0·2490			

KEY TO FIG. 41 (WEAR LIMITS, RUDDER AND TAB)

Ref. No.	Joint	Wear point	Dimension new	Clearance new	Permissible worn clearance	Remedial action
1	Rudder to fuselage at bottom hinge	Housing	2·2510 / 2·2505	0·0020 / 0·0000	0·0020	Renew the ball bearing and the housing
		Ball bearing, outside diameter	2·2505 / 2·2490			
		Ball bearing	—	—	0·0100 (Axial)	Renew the bearing
		Ball bearing, inside diameter	0.8752 / 0.8748	0·0022 / 0·0003	0·0030	Renew the ball bearing and the spigot
		Spigot	0.8745 / 0.8730			
2	Rudder to fin at top hinge	Hinge bracket	0·3754 / 0·3746	0·0014 / 0·0001	0·0030	Renew the bolt
		Bearing bolt	0·3745 / 0·3740	0·0012 / 0·0003	0·0020	Renew the ball bearing and the bolt
		Ball bearing, inside diameter	0·3752 / 0·3748			
		Ball bearing	—	—	0·0400 (Axial)	Renew the bearing
		Ball bearing, outside diameter	1·4378 / 1·4367	0·0023 / 0·0002	0·0030	Renew the ball bearing and the housing
		Housing	1·4390 / 1·4380			
3	Tab to rudder at top hinge	Bearing pin	0·2498 / 0·2495	0·0007 / 0·0000	0·0010	Renew the ball bearing
		Ball bearing, inside diameter	0·2502 / 0·2498			
		Ball bearing	—	—	0·0250 (Axial)	Renew the bearing
		Ball bearing, outside diameter	0·9017 / 0·9007	0·0017 / 0·0002	0·0020	Renew the ball bearing and the hinge bracket
		Hinge bracket	0·9024 / 0·9019			
4	Tab to rudder at centre hinge	Bearing pin	0·2498 / 0·2495	0·0007 / 0·0000	0·0010	Renew the ball bearing and the pin
		Ball bearing, inside diameter	0·2502 / 0·2498			
		Ball bearing	—	—	0·0250 (Axial)	Renew the bearing
		Ball bearing, outside diameter	0·9017 / 0·9007	0·0017 / 0·0002	0·0020	Renew the ball bearing and the hinge bracket
		Hinge bracket	0·9024 / 0·9019			
5	Tab to rudder at bottom hinge	Bearing bolt	0·2495 / 0·2490	0·0003	0·0020	Renew the ball bearing and the bolt
		Ball bearing, inside diameter	0·2502 / 0·2498			
		Ball bearing	—	—	0·0250 (Axial)	Renew the bearing
		Ball bearing, outside diameter	0·9017 / 0·9007	0·0017 / 0·0002	0·0020	Renew the ball bearing and the hinge bracket
		Hinge bracket	0·9024 / 0·9019			

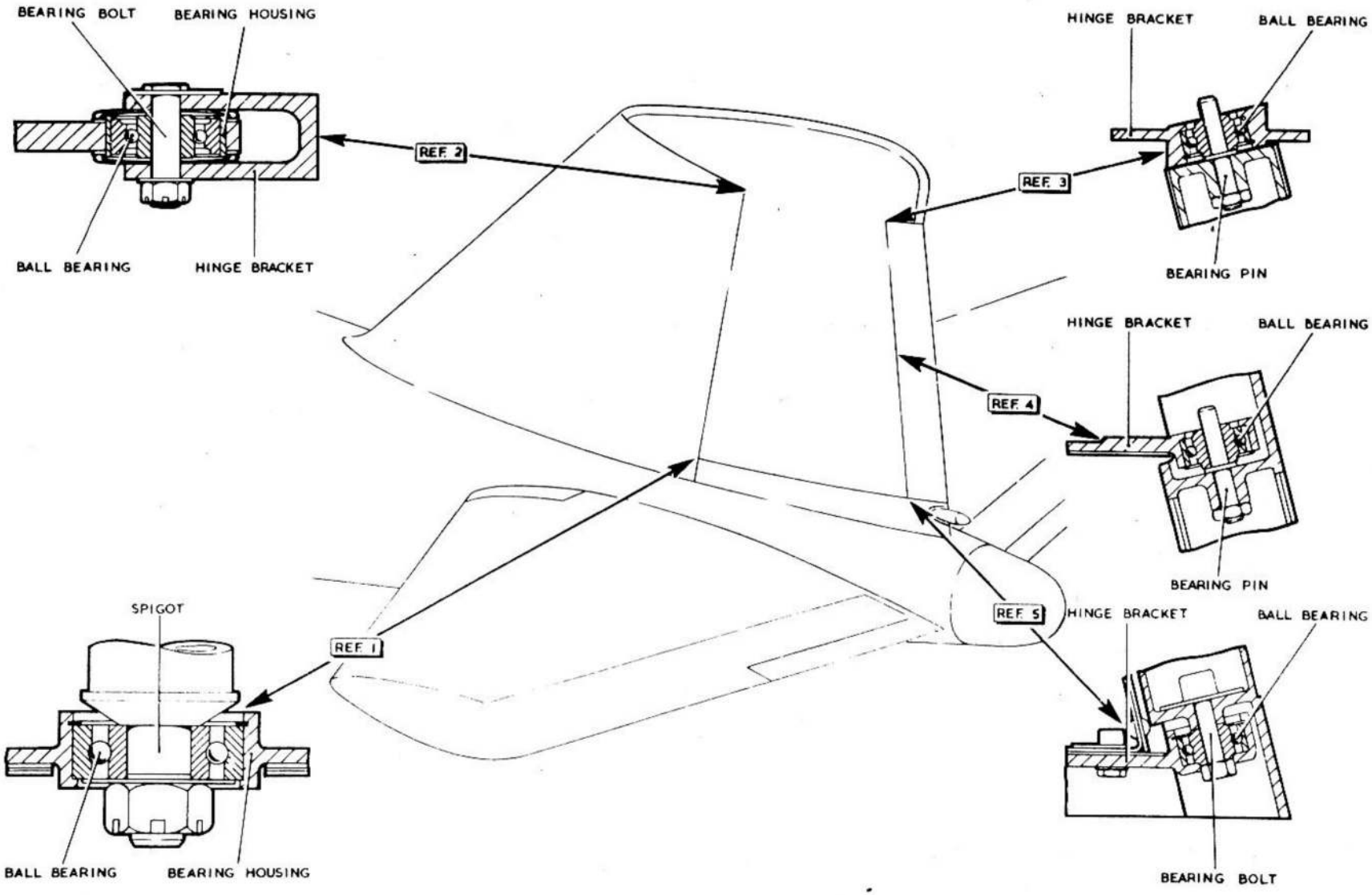


Fig. 41. Wear limits, rudder and tab

585053 64923 5931 4:56 750 CWS1 rd1751 Gp979-2

APPENDIX 1

B(I)Mk.6 TAIL UNIT STRUCTURE

Appendix I B(I) MK.6 TAIL UNIT STRUCTURE

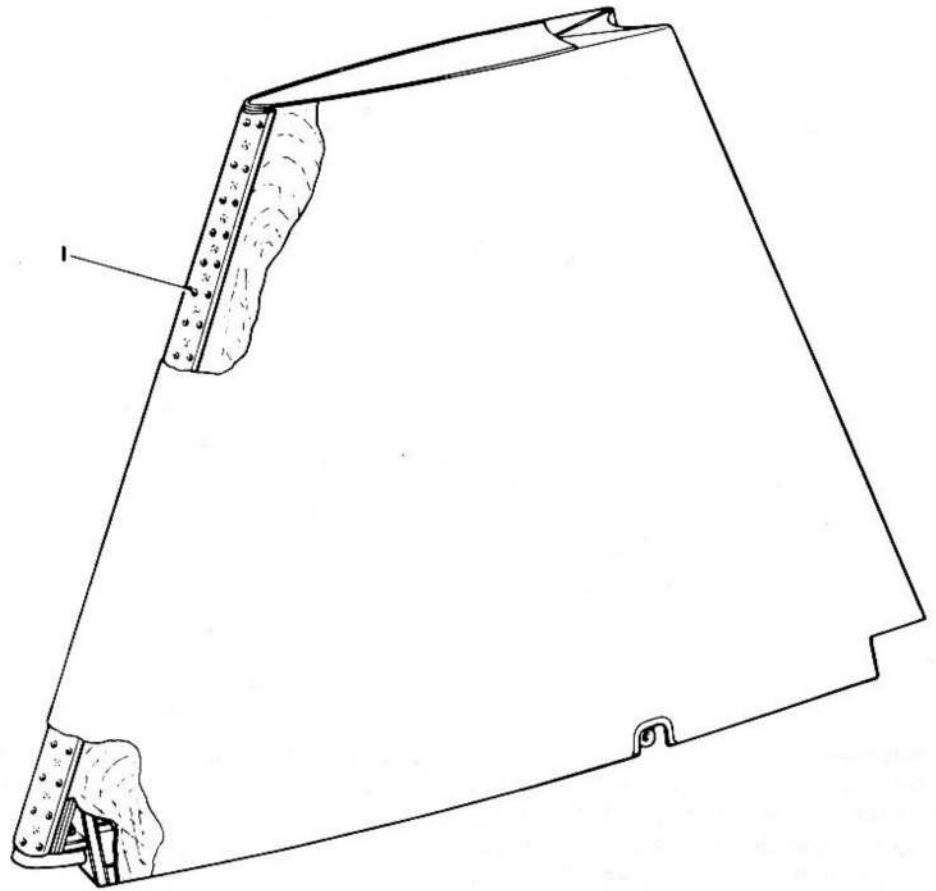
LIST OF CONTENTS

LIST OF ILLUSTRATIONS

Introduction

1. This appendix illustrates the tail unit structure of the B(I) Mk.6, in the same manner as the main chapter illustrates the B Mk.2 structure. Only that structure peculiar to B(I) Mk.6 is detailed; information which is common to other marks of aircraft, being already given elsewhere, is not repeated.

2. The figure numbers of all structure illustrations and repair schemes in this appendix commence with the number 6. This is to distinguish them from similar illustrations and repair schemes peculiar to other marks.



Item	Material		Part No.	Description	Negligible damage						Repair fig.No.
					Dents		Scratches		Holes		
	Spec.	S.W.G.			Max. depth	Min. dia.	Depth	Spacing	Max. dia.	Pitch ratio	
1	L.72	18	E.C1.32.2505	Metal leading-edge strip							

Fig.601. Fin leading-edge strip

APPENDIX 2

PR Mk.9 TAIL UNIT STRUCTURE

Appendix 2 PR MK.9 TAIL UNIT STRUCTURE

LIST OF CONTENTS

LIST OF ILLUSTRATIONS

Introduction

1. This appendix illustrates the structural differences occurring on the PR Mk.9, due mainly to additional localized reinforcing modifications and to the introduction of a new rudder. Information common to other marks of aircraft, being already given elsewhere, is not repeated.

2. The figure numbers of all illustrations in this appendix commence with the number (9) to distinguish them from similar illustrations peculiar to other marks of aircraft.

Rudder and elevator balancing adjustments

3. After repair to rudder or elevator, the component is to be balanced in accordance with the requirements detailed in fig.903.

◀ **Balancing elevator trim tabs, post Mod.4811**

4. Balancing of elevator trim tabs after the embodiment of Modification No.4811 must be undertaken in accordance with fig.906.

Fitting a metal protective strip to the fin leading edge *(fig.907)*

5. Refer to the illustration and proceed as follows:-

(1) Position the protective metal strip, Part No.EB8.32.327A on the fin leading edge and using it as a template mark around the edges on to the fin skin covering. ▶

◀ (2) Remove the protective metal strip, and carefully cut the skin covering along the lines marked, operation (1) refers, down to the plywood skin face.

(3) Peel off the cut covering down to the plywood skin.

(4) One inch aft of the cut line on each side of the fin carefully cut and peel away the outer fabric covering, leaving one layer in position.

(5) Lightly sand the exposed surface of the fin plywood skin, remove all dust and debris and wipe the surface using a lint-free cloth moistened with cellulose thinners.

(6) Brush coat the plywood surface with clear dope Ref.No.33B/9428855 allow to dry and fill with stopper Ref.No. 33B/9428859 and allow to dry for four hours.

(7) Sand down the stopped plywood surface using No.0 grade glass paper Ref. No.33J/9426829 and after removing all dust apply two more coats of clear dope, allowing each coat to overlap on to the existing fin covering by three inches.

Note...

A drying time of one hour must be allowed for each coat of clear dope.

(8) Cut enough madopollam fabric Ref. No.32B/1282 in two strips to allow a two inch overlap on the fin leading edge centre line and a two inch overlap at the aft edge on to the existing covering.

Note...

The madopollam must be cut on the bias and the edges serrated.

(9) Lay on one strip of madopollam on the port side lapping around the fin leading edge by two inches and dope in position using clear dope, and repeat the procedure on the starboard side of the fin. Finally brush on one coat of clear dope and allow it to dry.

(10) Fit the protective metal cover, Part No.EB8.32.327/A, in accordance with the details in the illustration, Fig.907 and secure using one hundred number two gauge woodscrews, AGS.250 3 wet assembled using Hermetite Ref.No. 33H/224478.

(11) Apply two coats of primer paint, Ref.No.33B/9428800 to the protective metal cover and allow to dry.

(12) Position the fabric strip, Part No.EB8.32.327C equally disposed about the fin leading edge and secure using clear dope and allow to dry.

(13) Spray two coats of primer finish Ref.No.33B/- over the work area and allow four hours to dry. Restore the standard surface finish. ▶

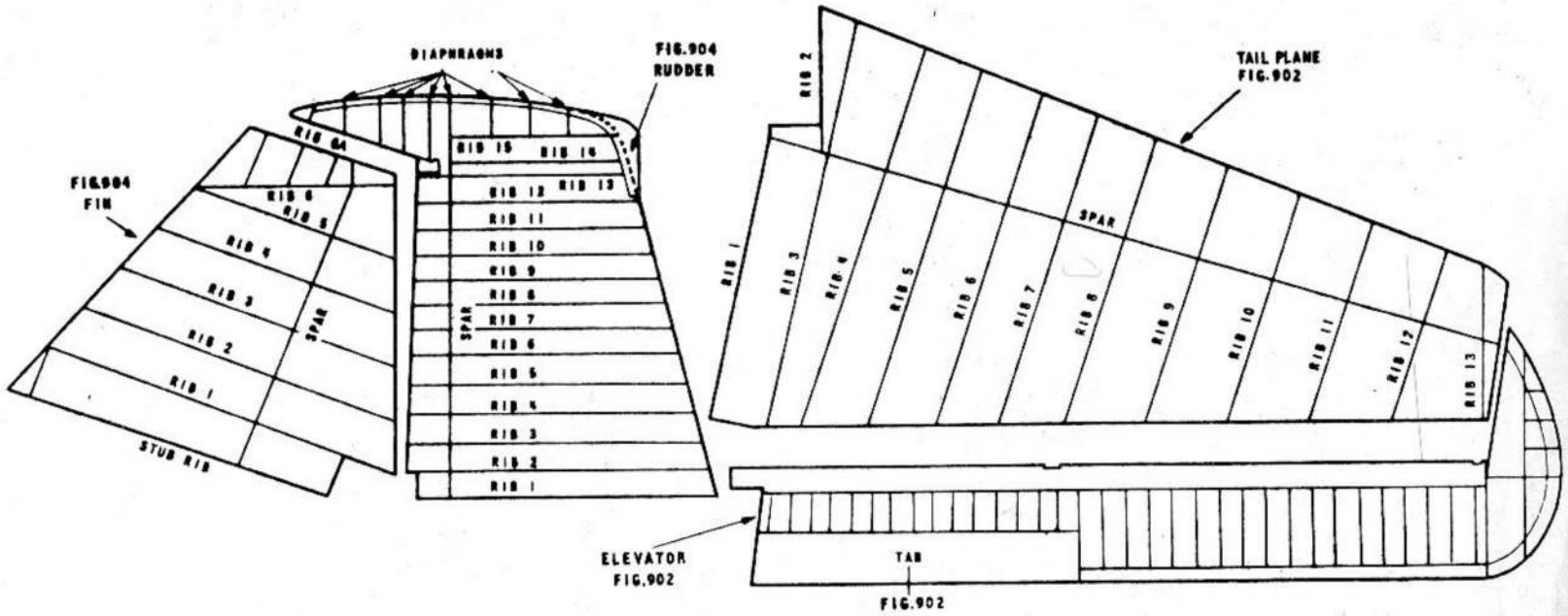


Fig.901 Key diagram

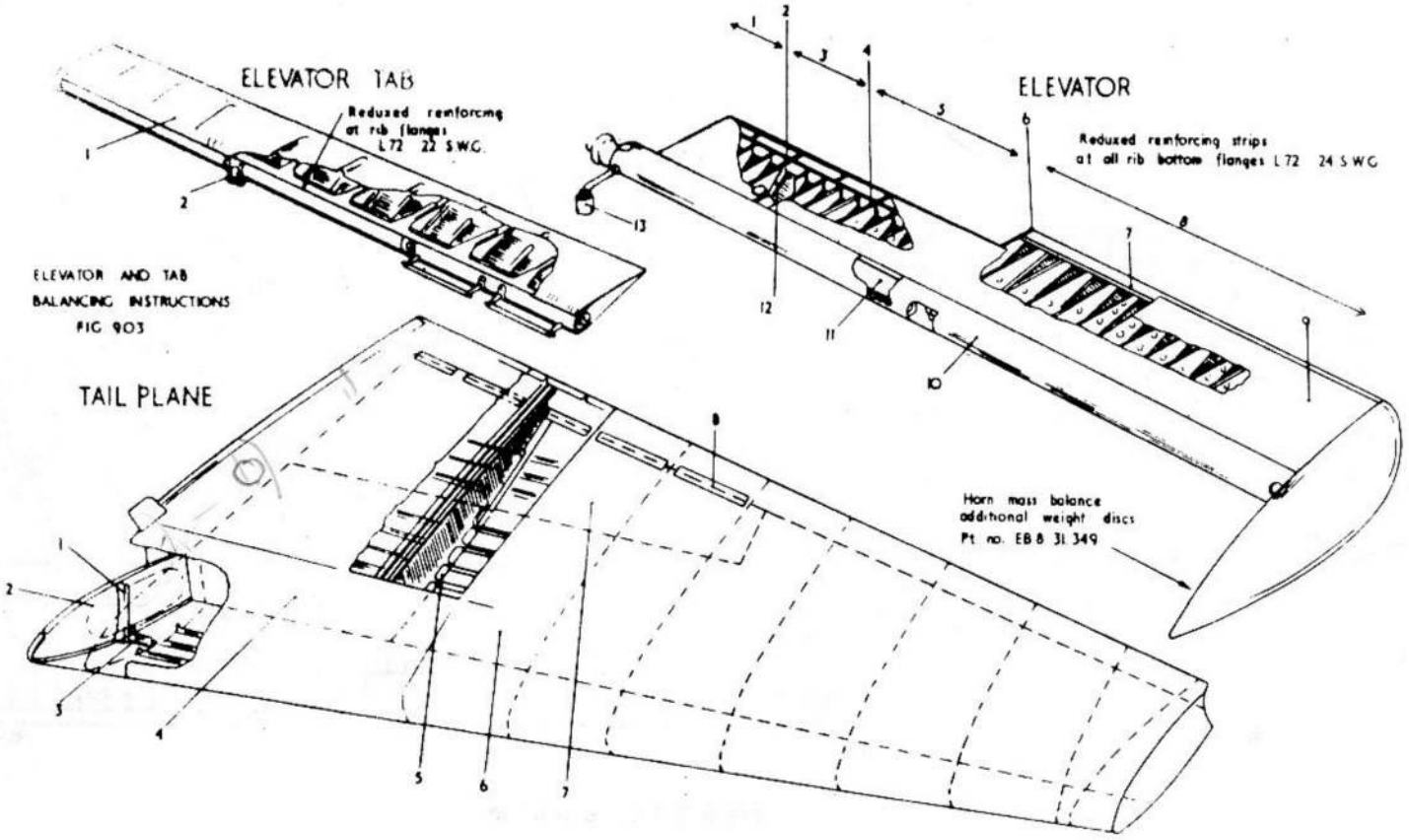


Fig. 902 Tail plane, elevator and tab structure

BALANCING ELEVATORS

The elevator and tab finished to the standard scheme, and including the mass balance arm, are balanced as an assembly. When any alteration is made to the weight or balance, i.e. after repair or tab change the total weight of the assembly must remain within the following limits.

◀ Port elevator EB8.31.1 124½ lb $\pm \frac{12}{32}$ lb (10%)

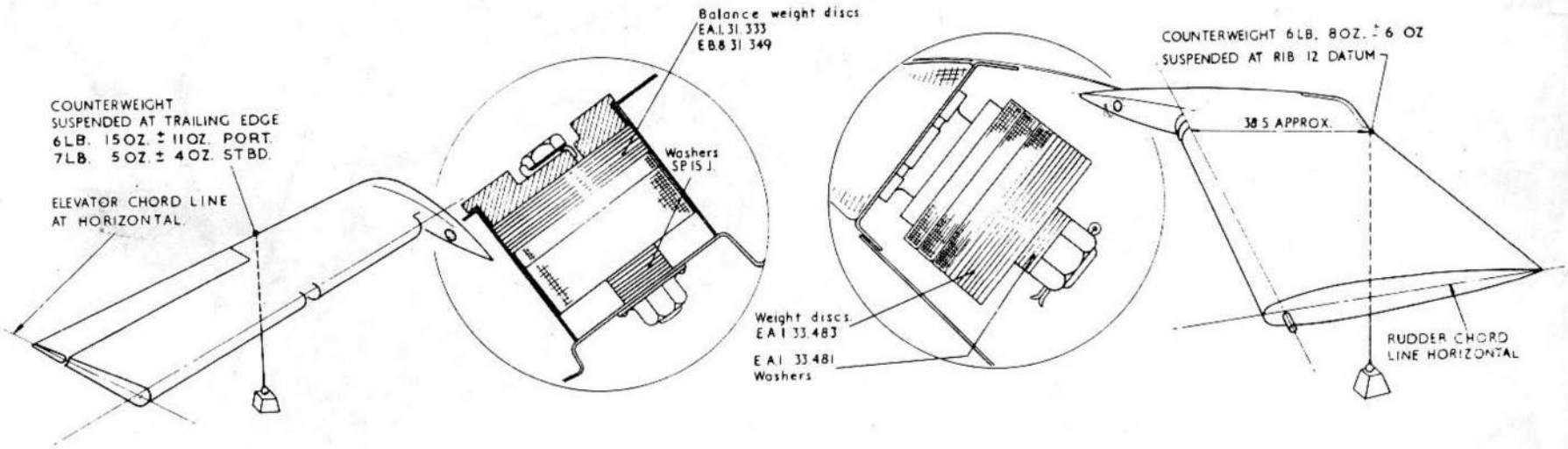
Starboard elevator EB8.31.405122 lb $\pm \frac{12}{32}$ lb (10%)

The assembly has a nose-down out-of-balance moment and when freely suspended on its hinge points the elevator horn will swing downwards. This out-of-balance moment must be counter-balanced by suspending a weight of 6 lb 15 oz ± 11 oz (port elevator) 7 lb 5 oz ± 4 oz (starboard elevator) from the trailing edge. The elevator chord should then be horizontal. If the elevator does not balance within the suspended weight limits viz: 6 lb 4 oz to 7 lb 10 oz (port elevator) 7 lb 1 oz to 7 lb 9 oz (starboard elevator), adjustments must be made to the balance weight in the elevator horn by interchanging the discs, Pt.No. EA1.31.333/EB8.31.349, and washers, Pt.No.SP.15/J. The weight of the horn mass balance must remain within the limits of 3 lb 2 oz to 3 lb 13 oz (3 lb 7½ oz ± 10%). ▶

BALANCING RUDDER EB8.33.1

The rudder, finished to the standard scheme and including the mass balance weight Pt.No.EA3.33.247, is balanced as an assembly. When any alteration is made to the weight or balance, i.e. after repair, the total weight of the assembly ◀ must remain within the limits of 132½ lb $\pm \frac{13}{32}$ lb (10%). ▶

The assembly has a nose-down out-of-balance moment and when freely supported on its hinge points the rudder horn will swing downwards. This out-of-balance moment must be counter-balanced by suspending a weight of 6 lb 8 oz ± 6 oz from the end of the spoiler on rib 12 datum, the rudder chord should then lie horizontal. If the rudder does not balance within the suspended weight limits viz: 6 lb 2 oz to 6 lb 14 oz, adjustments must be made to the mass balance weight in the rudder horn by adding or removing weights Pt.No.EA1.33.483, and adjusting washers Pt.No.EA1.33.481. For details of standard finishing schemes for control surfaces refer to Chap.1, para.25.



Adjustment of elevator balance.

Adjustment of rudder balance.

NOTE: ALL DIMENSIONS IN INCHES.

Fig.903 Rudder and elevator balancing adjustments

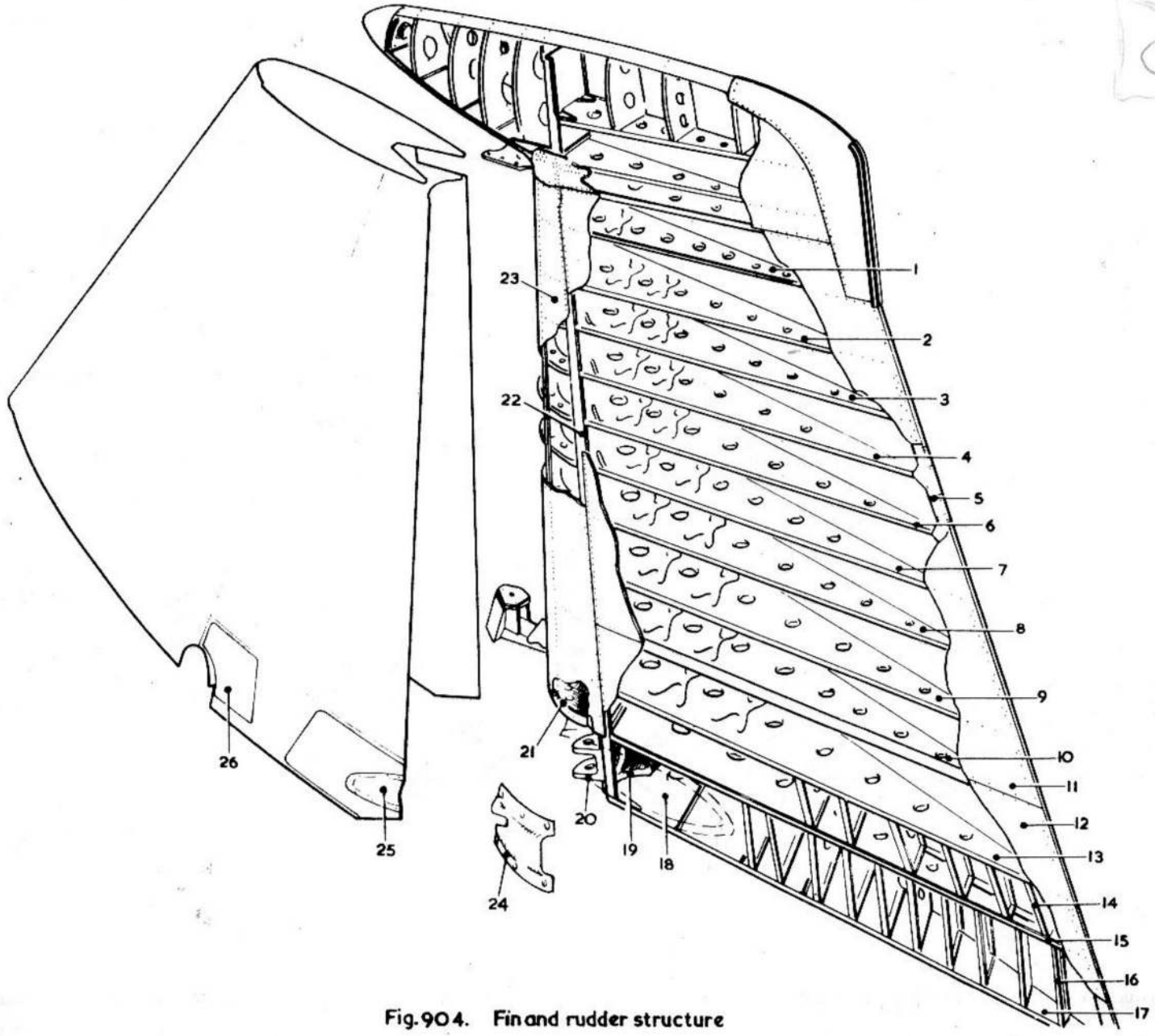
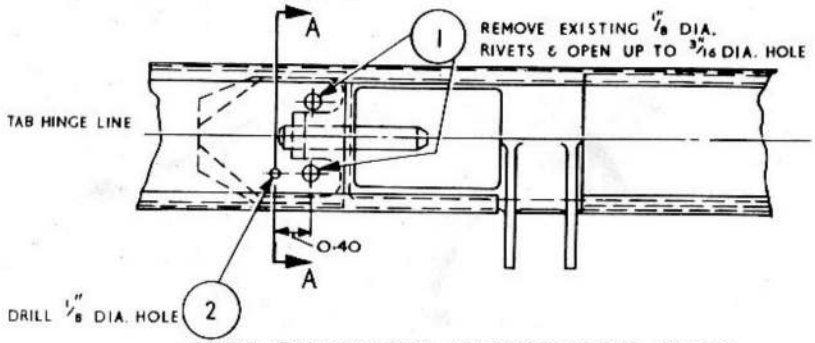


Fig. 904. Fin and rudder structure

KEY TO FIG.904 (FIN AND RUDDER STRUCTURE)

Item	Material		Part No.	Description	Negligible damage						Repair fig.No.
					Dents		Scratches		Holes		
	Spec.	S.W.G.			Max. depth	Min. dia	Depth	Spacing	Max. dia	Pitch ratio	
1	L.72	22	E.B8.33.133	T/E Rib 12	0.04	0.75	0.005	2.00	0.20	15:1	34
2	L.72	24	E.B8.33.45	T/E Rib 11	0.04	0.75	0.005	2.00	0.20	15:1	34
3	L.72	24	E.B8.33.43	T/E Rib 10	0.04	0.75	0.005	2.00	0.20	15:1	34
4	L.72	24	E.B8.33.41	T/E Rib 9	0.04	0.75	0.005	2.00	0.20	15:1	34
5	L.72	18	E.B8.33.169	T/E Member	0.03	0.50	0.010	3.00	-	-	
6	L.72	24	E.B8.33.39	T/E Rib 8	0.04	0.75	0.005	2.00	0.20	15:1	34
7	L.72	24	E.B8.33.37	T/E Rib 7	0.04	0.75	0.005	2.00	0.20	15:1	34
8	L.72	24	E.B8.33.35	T/E Rib 6	0.04	0.75	0.005	2.00	0.20	15:1	34
9	L.72	24	E.B8.33.31	T/E Rib 5	0.04	0.75	0.005	2.00	0.20	15:1	34
10	L.72	24	E.B8.33.29	T/E Rib 4	0.04	0.75	0.005	2.00	0.20	15:1	34
	L.72	20	E.B8.33.171/2	Buttstraps at rib 4	0.03	0.50	0.005	3.00	-	-	
11	L.72	24	E.B8.33.173/4	Skin panel, ribs 4-13	0.025	0.50	0.004	3.00	-	-	31
12	L.72	22	E.B8.33.177/9	Skin panel, ribs 1-4	0.03	0.50	0.005	3.00	-	-	31
13	L.72	24	E.B8.33.27	T/E Rib 3	0.04	0.75	0.005	3.00	0.20	15:1	34
14	L.72	20	E.B8.33.165	Stiffener assembly, ribs 2-3	0.04	0.75	0.010	3.00	-	-	R.M.E.
15	L.72	20	E.B8.33.129	Rib 2, web	0.04	0.75	0.005	3.00	0.20	15:1	Ch.1, fig.4 & 7
	L.72	14	E.B8.33.125/127	Rib 2, booms	0.03	0.50	0.010	3.00	-	-	
16	L.72	20	E.B8.33.165	Stiffener assembly, ribs 1-2	0.04	0.75	0.010	3.00	-	-	R.M.E.
17	L.72	24	E.B8.33.105	Rib 1, web	0.04	0.75	0.005	2.00	0.20	15:1	Ch.1, fig.4
	L.72	18	E.B8.33.107/109	Rib 1, booms	0.04	0.75	0.005	3.00	-	-	Pt.2 leaflet D3/2
18	L.72	20	E.B8.33.423	Rudder, jack fairing aft	0.02	0.50	0.010	3.00	-	1	R.M.E.
19	L.53		E.B8.33.101	Bottom hinge bracket	0.02	0.50	0.015	2.00	-	-	R.M.E.
20	DTD.683		E.B8.33.407	Control bracket	0.02	0.50	0.015	2.00	-	-	R.M.E.
21	L.72	16	E.B8.33.22	Nose rib 2	0.05	0.75	0.010	3.00	0.20	10:1	Ch.1, fig.4 & 7
22			E.B8.33.55	Rudder spar assembly							
	L.72	18	E.B8.33.155	Spar web	0.05	0.75	0.005	2.00	0.20	15:1	
	L.72	16	E.B8.33.405	Spar boom, port	0.05	0.75	0.005	2.00	-	-	
	L.72	16	E.B8.33.161	Spar boom, starboard	0.05	0.75	0.005	2.00	-	-	
	EEJ108										
23	L.72	20	E.B8.33.201	Nose skin	0.04	0.70	0.005	3.00	-	-	32
24	DTD.124	20	E.B8.33.409	Rudder jack fairing	0.02	0.50	0.010	3.00	-	-	R.M.E.
25	DTD.124	20	E.B8.32.301	Rudder jack fairing, on fin	0.02	0.50	0.010	3.00	-	-	R.M.E.
	L.72	22	E.B8.32.321	Access door	0.04	0.60	0.005	2.00	-	-	Ch.1, fig.5
26	L.72	22	E.B8.32.27	Access door	0.04	0.60	0.005	2.00	-	-	Ch.1, fig.5

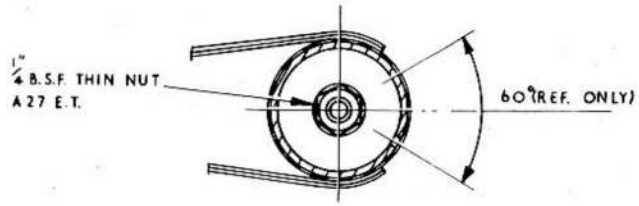
Note:- All dimensions are in inches



VIEW ON INBOARD INTERMEDIATE HINGE

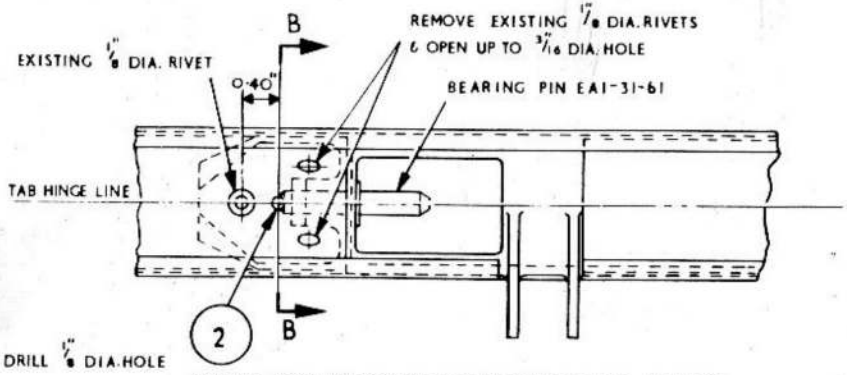
PORT – EB8-31-375
STBD – EB8-31-377

OUTBOARD INTERMEDIATE HINGE SIMILAR

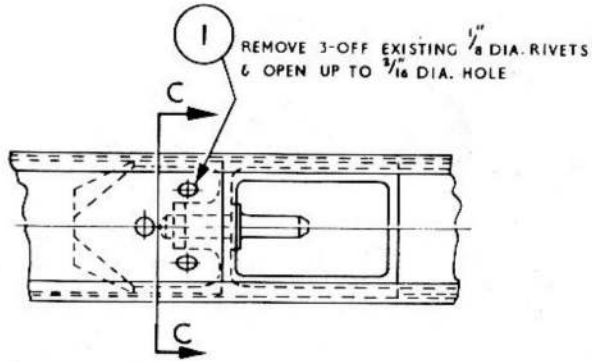


SECTION 'A'-'A'

SECTIONS 'B'-'B' & 'C'-'C' SIMILAR



VIEW ON INBOARD INTERMEDIATE HINGE



VIEW ON OUTBOARD INTERMEDIATE HINGE

NOTES...

1. AFTER DRILLING HOLES AS SHOWN TIGHTEN NUT WITH SMALL PARALLEL PIN PUNCH AND PUNCH LOCK THREADS VIA THE APPROPRIATE HOLE CARE IS TO BE TAKEN TO AVOID DAMAGE TO THE HOLES DRILLED FOR ACCESS. THE TAB IS TO BE ADEQUATELY SUPPORTED DURING THE PUNCHING PROCESS TO AVOID DAMAGE TO THE THIN T.E. SKIN
2. AFTER SATISFACTORY COMPLETION OF LOCKING RE-RIVET WITH REFS 1 & 2 TO THE DETAILS SHOWN.

1. AGS. 2050 624 B.S. RIVET TUCKER POP 3/16" DIA.
2. AGS. 2050 424 B.S. RIVET TUCKER POP 1/8" DIA.

NOTE...
ALL DIMENSIONS IN INCHES

FIG. 905. TIGHTENING AND LOCKING ELEVATOR HINGE PINS

3469

BALANCING ELEVATOR TRIM TABS
PART NO.EB8.31.445, PORT
PART NO.EB8.31.447, STARBOARD } POST MOD.4811

NOTE...
THE WEIGHT OF A TRIM TAB AFTER PAINTING OR REPAIR MUST BE:-
7 LB.2OZ.±2 OZ PORT SIDE
8 LB.2OZ.±2 OZ STARBOARD SIDE

PROCEDURE:-
1 FREELY SUPPORT THE ELEVATOR TRIM TAB ON THE HINGE CENTRE LINE AT EACH END.
2 SUSPEND A WEIGHT OF 1 LB. 2 OZ.± 2 OZ. FROM THE CENTRE LINE OF THE APPROPRIATE BALANCE WEIGHT:-
PART NO.EB8.31.379, PORT
PART NO.EB8.31.383, STARBOARD
I.E. AT A 2 IN. ARM AT WHICH CONDITION THE TAB CHORD LINE SHOULD BE HORIZONTAL
3 IF A HEAVY TRAILING EDGE CONDITION ARISES USE ALTERNATIVE BALANCE WEIGHTS AS SHOWN ON THE ILLUSTRATION.

NOTE...
ANY CASE OF THE ELEVATOR TRIM TAB FAILING TO BALANCE MUST BE NOTIFIED TO THE AIRWORTHINESS DEPARTMENT OF THE CONTRACTOR.

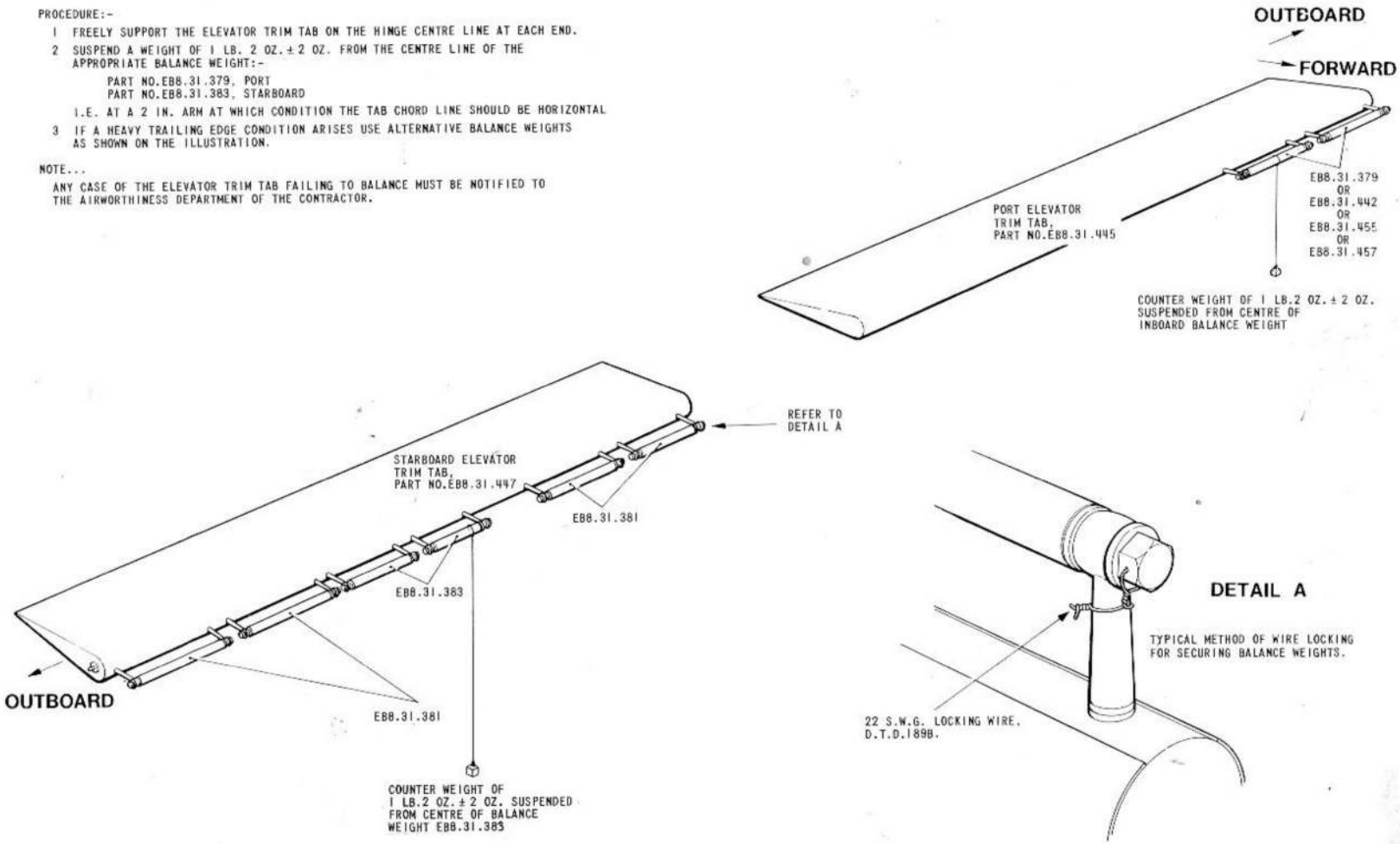
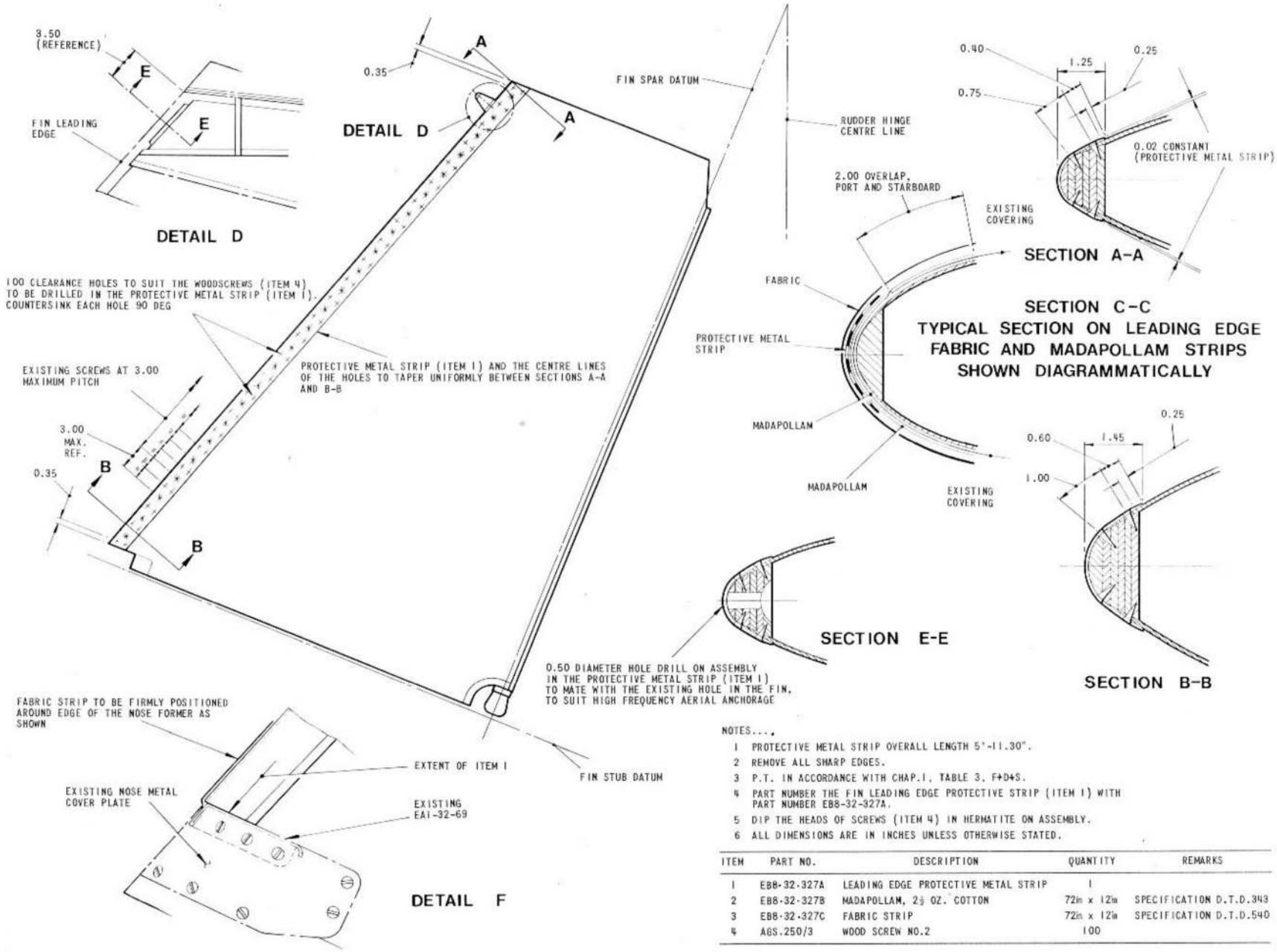


FIG. 906 . BALANCING ELEVATOR TRIM TABS, POST MOD 4811



NOTES...

1. PROTECTIVE METAL STRIP OVERALL LENGTH 5'-11.30".
2. REMOVE ALL SHARP EDGES.
3. P.T. IN ACCORDANCE WITH CHAP.1, TABLE 3, F+D+S.
4. PART NUMBER THE FIN LEADING EDGE PROTECTIVE STRIP (ITEM 1) WITH PART NUMBER E88-32-327A.
5. DIP THE HEADS OF SCREWS (ITEM 4) IN HERMATITE ON ASSEMBLY.
6. ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE STATED.

ITEM	PART NO.	DESCRIPTION	QUANTITY	REMARKS
1	E88-32-327A	LEADING EDGE PROTECTIVE METAL STRIP	1	
2	E88-32-327B	MADAPOLLAM, 2½ OZ. COTTON	72in x 12in	SPECIFICATION D.T.D.343
3	E88-32-327C	FABRIC STRIP	72in x 12in	SPECIFICATION D.T.D.540
4	AGS.250/3	WOOD SCREW NO.2	100	

FIG. 907. FITTING A METAL PROTECTIVE STRIP TO THE FIN LEADING EDGE

3584

APPENDIX 3

T MK.17 and TT MK.18 TAIL-UNIT STRUCTURE

◄ Appendix 3 T MK.17 AND TT MK.18 TAIL-UNIT STRUCTURE ►

LIST OF CONTENTS

LIST OF ILLUSTRATIONS

Introduction

1. This appendix illustrates the tail ◄ unit structure of the T Mk.17 and TT Mk.18 in the same manner as the main chapter illustrates the B Mk.2 structure. Only that structure peculiar to the T Mk.17 and TT Mk.18 is detailed; information which is common to all marks of aircraft, being given elsewhere, is not repeated.

2. The figure numbers of all structure illustrations and repair schemes in this appendix commence with the number 17. This is to distinguish them from ► similar illustrations and repair schemes peculiar to other marks.

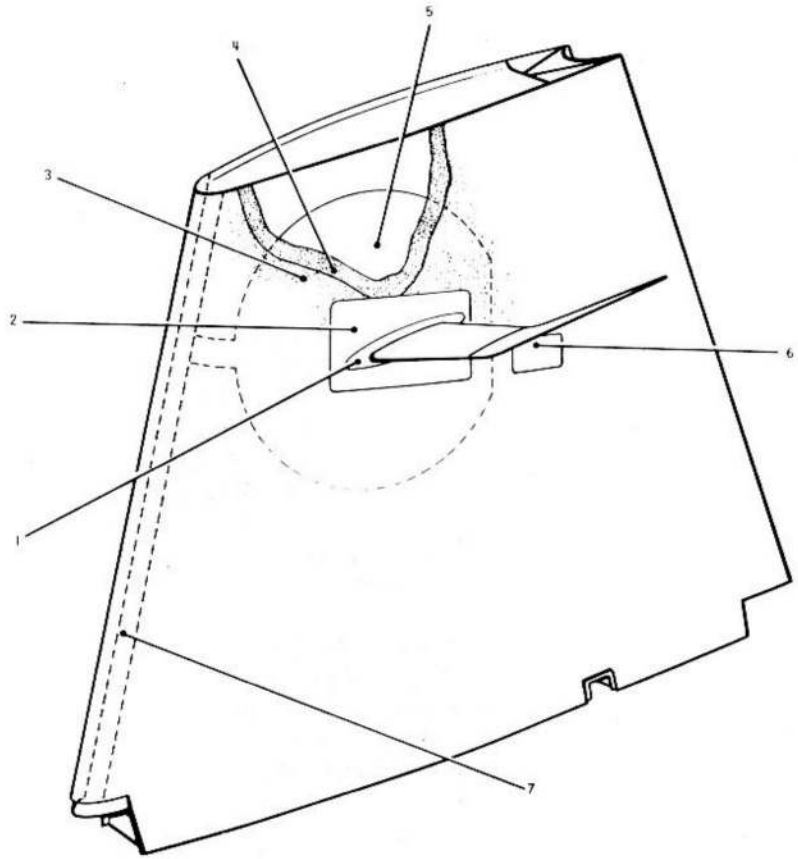


FIG. 1701. FIN SKINNING

3282

1013-0N00-6/R67/547304/047/7-68/BAC/1307

KEY TO FIG.1701 (FIN SKINNING)

Item	Material		Part No.	Description	Negligible damage						Repair fig.No.
					Dents		Scratches		Holes		
	Spec.	S.W.G.			Max. depth	Min. dia.	Depth	Spacing	Max. dia.	Pitch ratio	
1	L.73	20	EG7.32.35 EG7.32.36/2	Plate, aerial base	-	-	0.020	1.000	-	-	
2	L.72	10	EG7.32.157 EG7.32.158	Panel	0.025	0.750	0.014	5.000	0.16	32:1	
3	D.T.D.546		EA9.32.339B	Strip, fabric	-	-	-	-	-	-	
4	D.T.D.343A		EA9.32.339A	Strip, Madapollam	-	-	-	-	-	-	
5	-	39	E97.32.165 E97.32.167	Foil, aerial base	-	-	-	-	-	-	
6	L.73	22	EG7.32.83/1	Panel	0.040	0.70	0.003	2.000	0.200	15:1	
7	L.72	18	EC1.32.2505	Strip, leading-edge	0.040	0.700	0.005	2.000	0.125	20:1	

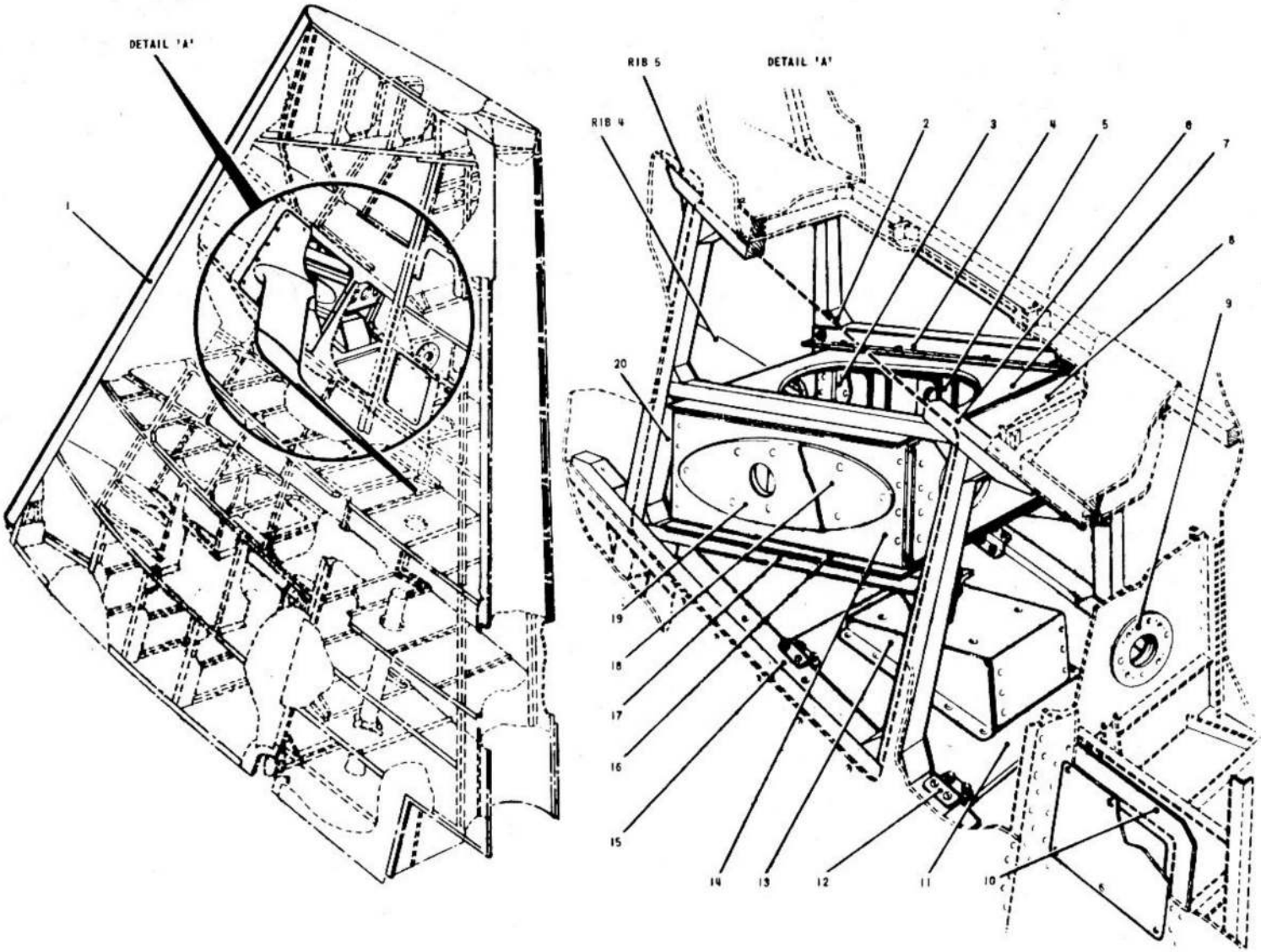


FIG.1702. FIN STRUCTURE

5287

KEY TO FIG.1702 (FIN STRUCTURE)

Item	Material		Part No.	Description	Negligible damage						Repair fig.No.
					Dents		Scratches		Holes		
	Spec.	S.W.G.			Max. depth	Min. dia.	Depth	Spacing	Max. dia.	Pitch ratio	
1	L.72	18	EC1.32.2505	Strip, leading edge	0.040	0.700	0.005	2.000	0.200	20:1	
2	Spruce wood		EG7.32.138	Piece, corner	-	-	-	-	-	-	
3	L.73	18	EG7.32.57	Piece, corner angle	0.040	0.750	0.005	2.000	0.200	20:1	
4	EEDX.47	10	EG7.32.55	Piece, angle	0.010	0.800	0.010	1.500	-	-	
5	L.73	16	EG7.32.150	Diaphragm	0.040	1.000	0.004	3.000	-	-	
6	Spruce wood		EG7.32.89	Beam, support	-	-	-	-	-	-	
7	L.73	18	EG7.32.47	Panel	0.040	1.000	0.004	3.000	-	-	
8	L.73	18	EG7.32.41	Channel end, aft	-	-	-	-	-	-	
9	L.73	20	EG7.32.87/1	Plate, stiffening	0.010	0.500	0.003	2.000	-	-	
10	L.73	16	EG7.32.85/1	Panel, landing	0.040	1.000	0.004	3.000	-	-	
11	Birch wood	¼ ply V3	EG7.32.99	Plate, reinforcing	-	-	-	-	-	-	
12	L.73	18	EG7.32.131	Cleat	0.040	1.000	0.004	-	-	-	
13	L.73	18	EG7.32.37	Bracket	0.040	1.000	0.004	-	-	-	
14	L.73	18	EG7.32.43	Channel, side	0.040	1.000	0.004	2.000	-	-	
15	Spruce wood		EG7.32.97	Beam, support	-	-	-	-	-	-	
16	L.73	18	EG7.32.49	Panel	0.040	1.000	0.004	2.000	-	-	
17	Spruce wood		EG7.32.31	Beam, support	-	-	-	-	-	-	
18	L.73	4	EG7.32.33	Plate, aerial base	-	-	0.015	0.750	-	-	
19	L.73		EG7.32.35	Plate, aerial base	0.010	0.500	0.003	2.000	-	-	
20	Spruce wood		EG7.32.135	Beam, support	-	-	-	-	-	-	

APPENDIX 4

T Mk. 22 TAIL-UNIT STRUCTURE

Appendix 4 T MK.22 TAIL-UNIT STRUCTURE

LIST OF CONTENTS

LIST OF ILLUSTRATIONS

Introduction

1. This appendix illustrates the tail-unit structure of the T Mk.22 in the same manner as the main chapter illustrates the B Mk.2 structure. Only that structure peculiar to the T Mk.22 is detailed; information which is common to all marks of aircraft given elsewhere is not repeated.

2. The figure numbers of all structure illustrations and general repair schemes in this appendix commence with the number 22. This is to distinguish them from similiar illustrations and repair schemes peculiar to other marks.

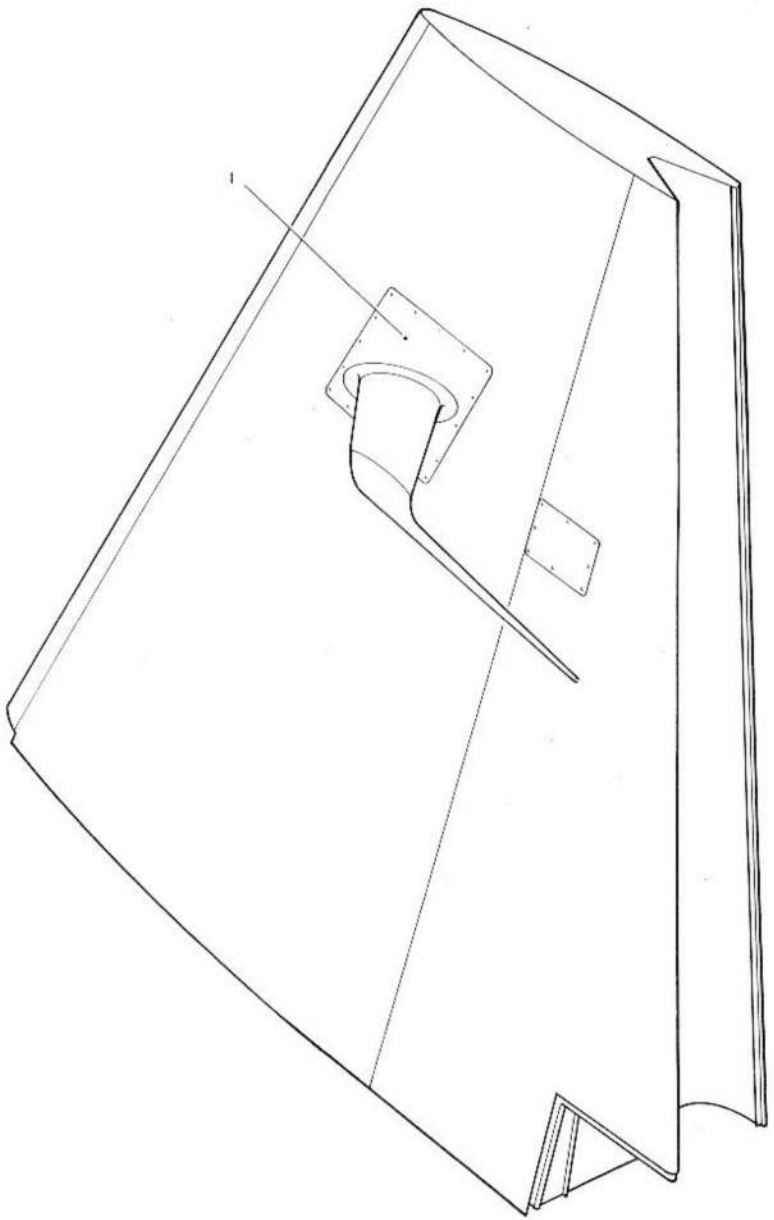


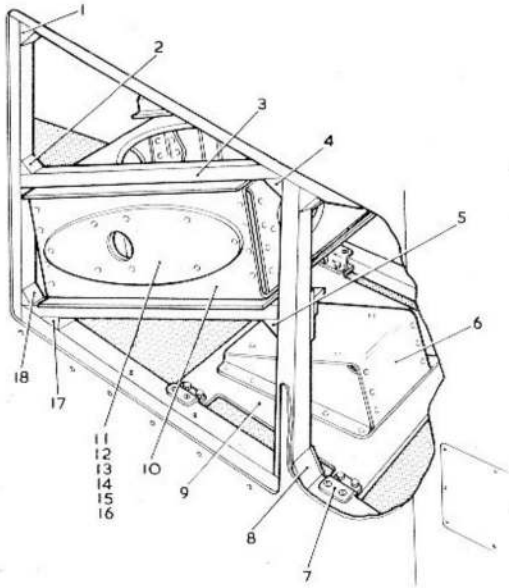
FIG. 2201. FIN SKINNING

3555

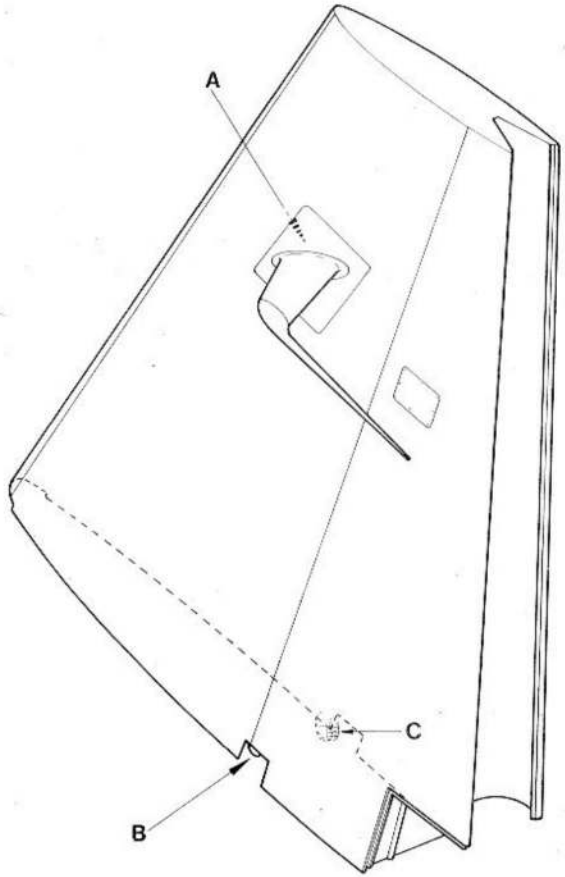
KEY TO FIG. 2201 (FIN SKINNING)

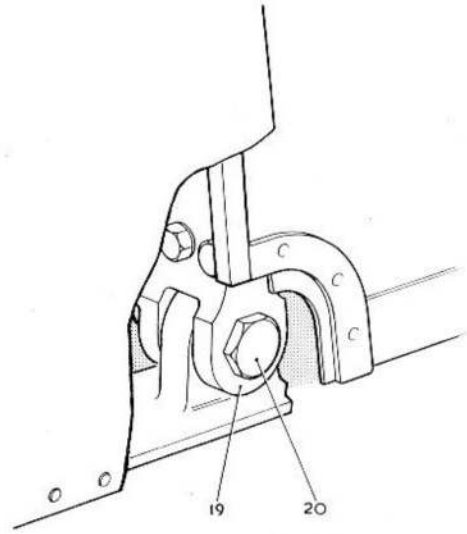
	Material				Negligible damage						
					Dents		Scratches		Holes		
Item	Spec.	S.W.G.	Part No.	Description	Max. depth	Min. dia.	Depth	Spacing	Max. dia.	Pitch ratio	Repair fig.No.
1	L.72	10	EK5.32.7	Panel, access	0.025	0.750	0.014	5.000	0.16	32:1	-

Note...
All dimensions are in inches

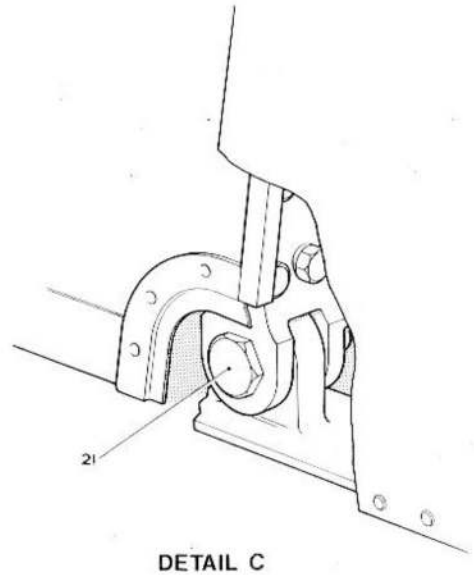


DETAIL A





DETAIL B



DETAIL C

FIG. 2202. FIN STRUCTURE

3553

KEY TO FIG. 2202 (FIN STRUCTURE)

Item	Material Spec.	S.W.G.	Part No.	Description	Negligible damage: Dents Max. depth	Dents Min. dia.	Scratches Depth	Scratches Spacing	Holes Max. dia.	Holes Pitch ration	Repair fig.No.
1	Wood, spruce		EK5.32.67	Piece, corner	-	-	-	-	-	-	Renewal recommended
2	Wood, spruce		EK5.32.42	Piece, corner	-	-	-	-	-	-	Renewal recommended
3	Wood, spruce		EK5.32.71	Gusset	-	-	-	-	-	-	Renewal recommended
4	Wood, spruce		EK5.32.52	Piece, corner	-	-	-	-	-	-	Renewal recommended
5	Wood, spruce		EK5.32.56	Piece, corner	-	-	-	-	-	-	Renewal recommended
6	L.73	18	EK5.32.12	Bracket	0.040	1.000	0.004	-	-	-	-
7	L.73	18	EK5.32.63	Cleat	0.040	1.000	0.004	-	-	-	-
8	Wood, spruce		EK5.32.58	Piece, corner	-	-	-	-	-	-	Renewal recommended
9	Wood, Birch		EK5.32.97	Plate, reinforcing	-	-	-	-	-	-	Renewal recommended
10	L.73	18	EK5.32.15	Channel side	0.040	1.000	0.004	2.000	-	-	-
11	L.72	16	EK5.32.87	Plate, aerial base	-	-	0.015	0.750	-	-	-
12	L.72	14	EK5.32.80	Plate, aerial base	-	-	0.020	0.750	-	-	-
13	L.72	24	EK5.32.81	Plate, aerial base	-	-	0.005	0.750	-	-	-
14	L.72	22	EK5.32.82	Plate, aerial base	-	-	0.007	0.750	-	-	-
15	L.72	20	EK5.32.83	Plate, aerial base	-	-	0.006	0.750	-	-	-
16	L.72	18	EK5.32.84	Plate, aerial base	-	-	0.017	0.750	-	-	-
17	Wood, spruce		EK5.32.48	Piece, corner	-	-	-	-	-	-	Renewal recommended
18	Wood, spruce		EK5.32.46	Piece, corner	-	-	-	-	-	-	Renewal recommended
19	D.T.D.5029 forging		EK5.32.2	Fitting, root, fin spar	-	-	-	-	-	-	Renewal recommended
20	S.97	Bar	EK5.32.16	Bolt, special-to-type	-	-	-	-	-	-	Renewal recommended
21	S.97	Bar	EK5.32.17	Bolt, special-to-type	-	-	-	-	-	-	Renewal recommended

Note...
All dimensions are in inches