

RESTRICTED

AIR PUBLICATION

4505

VOLUME 6

VULCAN AIRCRAFT

REPAIR AND RECONDITIONING INSTRUCTIONS

Prepared by direction of
the Minister of Supply

R. Thompson

Promulgated by Order
of the Air Council

H. J. Lean

AIR MINISTRY

AMENDMENT RECORD SHEET

To record the incorporation of an Amendment List in this publication, sign against the appropriate A.L. No. and insert the date of incorporation

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WARNING

EJECTION SEAT

1. An ejection seat is a potential danger to personnel and aircraft. If the firing mechanism is inadvertently operated while the aircraft is on the ground the seat will be ejected, serious injury (possibly fatal) may be caused to any person in or leaning into the cabin and damage will be done to the aircraft.
2. The following instruction must therefore be obeyed implicitly:—
BEFORE ATTEMPTING TO ENTER THE CABIN REPORT TO THE N.C.O. IMMEDIATELY IN CHARGE OF AIRCRAFT SERVICING, WHO WILL ENSURE THAT THE SEAT IS SAFE FOR THE PURPOSE REQUIRED.
3. Full instructions for rendering the seat safe are contained in the A.P.4288 series, in A.D.5037, and in the A.D.6038 series.
4. In Vulcan aircraft the following precautions must have been observed before servicing personnel enter the cockpit:—
 - (1) The safety pins have been fitted in the ejection gun sears.
 - (2) The safety straps are in position over the firing handles of the seats.
 - (3) The second safety pin attached to the safety pin disc is in the hole of the time delay unit on each seat.
 - (4) The safety pin is in the jettison gun sear.

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NOTE TO READERS

The subject matter of this publication may be affected by Air Ministry orders, or by "General Orders and Modification" leaflets in this A.P., in the associated Publications listed below, or even in some others. If possible, Amendment Lists are issued to correct this publication accordingly, but it is not always practicable to do so. When an Order contradicts any portion of this publication, the Order is to be taken as the overriding authority.

The inclusion of references to items of equipment does not constitute authority

for demanding the items.

Each leaf, except the original issue of preliminaries, bears the date of issue and the number of the Amendment list with which it is issued. New or amended technical matter on new leaves which are inserted when the publication is amended will be indicated by triangles, positioned in the text thus: ◀ — — — ▶ to show the extent of the amended text, and thus: ◀ to show where text has been deleted. When a Part, or Chapter is issued in a completely revised form, the triangles will not appear.

LIST OF ASSOCIATED PUBLICATIONS

	A.P.
R.A.F. general engineering ...	1464B
R.A.F. engineering, aircraft ...	1464D
Standard Repair for Airframes ...	2662A 2662B
Aircraft tanks	4117A
Aircraft wheels, tyres and brakes	2337
Electro-plating and corrosion resisting processes	880B
Welding, brazing and soldering principles and practice	880A
External and internal finish of aircraft	2656A

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LIST OF PARTS

Part 1	Minor airframe repairs
Part 2	Major airframe repairs
Part 3	Permissible wear

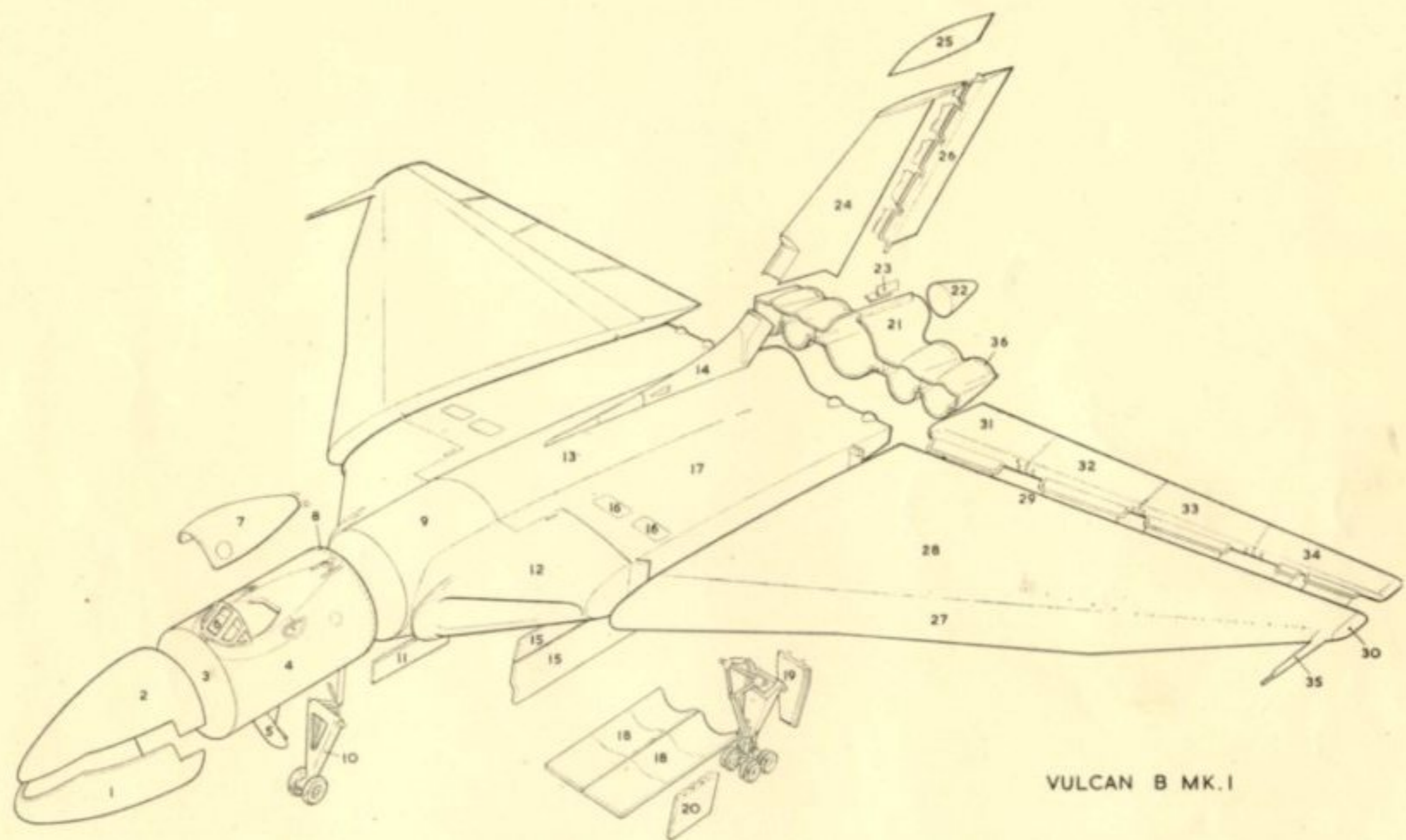
APPLICABILITY OF REPAIRS

The instruction for repair issued in this
Vol. 6, Parts 1, 2 and 3 are approved for
application to-

Vuicon B.Mk.1 (and associated role)
aircraft.

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VULCAN B MK.1

- 1 NOSE RADOME
- 2 METAL NOSE STRUCTURE
- 3 FRONT PRESSURE BULKHEAD
- 4 FRONT FUSELAGE
- 5 ENTRANCE DOOR
- 6 WINDSCREEN
- 7 CANOPY
- 8 REAR PRESSURE BULKHEAD
- 9 No. 1 TANK BAY
- 10 NOSE WHEEL UNIT
- 11 NOSE WHEEL DOORS
- 12 AIR INTAKE

- 13 BOMB BAY
- 14 DORSAL FIN
- 15 BOMB DOORS
- 16 AIR BRAKES
- 17 ENGINE BAYS
- 18 ENGINE DOORS
- 19 MAIN WHEEL UNIT FIXED FAIRING
- 20 MAIN WHEEL DOOR
- 21 REAR FUSELAGE
- 22 TAIL RADOME
- 23 BRAKE PARACHUTE COMPARTMENT DOORS
- 24 FIN

- 25 FIN-CAP
- 26 RUDDER
- 27 MAINPLANE LEADING EDGE
- 28 MAINPLANE
- 29 MAINPLANE TRAILING EDGE
- 30 WING TIP
- 31 INNER ELEVATOR
- 32 OUTER ELEVATOR
- 33 INNER AILERON
- 34 OUTER AILERON
- 35 PRESSURE HEAD
- 36 JET PIPE CAP

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April, 1957

A.P.4505, Vol.6

VULCAN AIRCRAFT - REPAIR AND RECONDITIONING INSTRUCTIONS

ADVANCE INFORMATION LEAFLETS

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

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

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

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PART 1

MINOR REPAIRS

The repairs described in this Part are limited in scope because they have been devised with a view to avoiding, as far as possible, the use of non-portable special tools, jigs, or other equipment which it is not practicable to provide as standard Unit equipment. Repairs which are beyond the scope of this Part will be described in the Repair Leaflets in Part 2 of this Volume.

In this Part, the prohibition of repairs in certain areas or the absence of a suitable repair instruction for any damage sustained is not to be taken as meaning that the component is beyond repair. Reference should be made to Part 2 where a Repair Leaflet covering major damage may be found.

In the absence of any instructions and when the appropriate technical officer considers that repair on site is practicable, a request for a repair scheme is to be submitted to the Directorate of Aircraft Engineering, Air Ministry. When such a request is submitted, full details with sketches and/or photographs indicating the exact location and extent of the damage are to be attached.

LIST OF CHAPTERS

Note.—A detailed list of contents appears at the beginning of each chapter

- 1 Introductory repair information
- 2 Fuselage
- 3 Main planes
- 4 Tail unit
- 5 Landing gear
- 6 Engine nacelles
- 7 Systems
- 8 Fly-in repairs (to be issued later)

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May, 1957

AIR MINISTRY

Air Publication 4505
Volume 6, Part 1

VULCAN AIRCRAFT - REPAIR AND RECONDITIONING INSTRUCTIONS

ADVANCE INFORMATION LEAFLET NO. 5/57

Note.- This leaflet is to be inserted in its correct numerical order following the Marker Card for Advance Information Leaflets at the beginning of the book.

RIVETING OF AIR INTAKE SKINS

When it is necessary to renew "pop" rivets in the air intake skin, or to fit them in place of solid rivets, the following procedure should be adopted, to obviate any possibility of loose mandrels being drawn into the engine and to ensure that the rivets are sealed.

Dip replacement rivets in cold setting Araldite 121 $\frac{1}{2}$ before fitting. After curing time has elapsed for the Araldite (generally 12 hours, or over night) the rivets should be filled with Ryland's "pop" rivet filler No. 2315.

July, 1957

Air Publication 4505
Volume 6, Part 1

AIR MINISTRY

VULCAN AIRCRAFT REPAIR AND RECONDITIONING INSTRUCTIONS

ADVANCE INFORMATION LEAFLET NO. 2/57

Note.- This leaflet is to be inserted in its correct numerical order following the Marker Card for Advance Information Leaflets at the beginning of the book.

Remove and destroy A.I.L. No. 2/57 which this leaflet supersedes.

Canopy fairings replacement

General

The fairings are attached at the forward end of the canopy and should it become necessary to replace one or more of the panels the following procedure must be strictly adhered to.

Preparation of surfaces

In all metal bonding, surface cleanliness is very important. The bottom and forward members of the canopy are magnesium alloy castings, and the chromate protective treatment on them should be protected against the various solvents used for cleaning the bonding surfaces.

- (1) Remove paint etc. in the area to be bonded by applying paint remover (335/1125) taking care that the treated area is slightly larger than that required for fitment of the fairing. After removal of the paint great care must be taken to wash off with water all traces of the spent stripper. Thoroughly dry the surface with a clean rag.
- (2) The clean alloy skin surface is now etched for bonding by treating with Decridine (33C/748) applied with a brush. The surface must be kept wet for a period of 5-10 minutes after which all traces of Decridine must be removed by washing with cotton-wool swabs soaked in water. Thoroughly dry the surface which should now show a "whitish" appearance after the above treatment. If the skin under the fairings has been etched previously there is no need to carry out the foregoing. The following treatment is all that is required. A cleansing and light etching operation with Decridine 202 should be carried out, and the surface afterwards washed down with water to remove any traces of the etching liquid. Dry the surface with a clean rag.
- (3) Offer the replacement fairing to the canopy which should be in position on the aircraft, and check for alignment of the faces, noting if there are any slight discrepancies so that allowance can be made when applying the Araldite compound (33C/1451).
- (4) Before fitment the bonding face of the fairing should be roughened by means of coarse sandpaper or a hacksaw blade.
- (5) When carrying out operations sub. para. 1 - 2 it would be advisable to remove the canopy from the aircraft, protect the hinge arms etc. before standing it upright in order that the solvents used, will tend to run away from the magnesium alloy members, and not effect the chromate treatment. If inadvertently some of the solvent runs onto the members and destroys the chromate treatment, the following action must be taken. Wash off with water the solvent involved and dry immediately. With a small brush apply Selenious Acid Solution over the damaged treatment area, making sure that no acid goes on the canopy skins. No further treatment is required and the fairing can be bonded on top of the chromate treatment.

Bonding compound

The compound to be used for attaching the fairing to the canopy is made up of 100 parts by weight of Araldite 121N (33C/1451) and 4 to 5 parts by weight of standard cold setting Hardener 951 (33C/1372). These constituents should be mixed thoroughly, adding the hardener to the resin, and taking care that the resin around the sides of the container is scraped off to dislodge the adherent resin. In order to extend the pot life of the resin, when mixed, it should be transferred from the mixing container and spread out onto a clean sheet of thick gauge aluminium in a layer of about

R E S T R I C T E D

$\frac{1}{2}$ in. thick or less. The pot life of the resin is about $1\frac{1}{2}$ hours depending on the prevailing temperature. When the resin has thickened up to a point where it can no longer be easily applied and spread, the pot life is considered to have expired.

Installation

Using a spatula or a blunt knife blade a film of the resin compound should be well worked into the bonding surfaces of the canopy and fairing. After the initial film has been smeared on, a body of the compound sufficient to fill up any discrepancies between the mating faces, and a fair surplus quantity should be applied so that in squeezing out the excess adhesive, any trapped air is swept out at the same time. Surplus resin should be wiped away to leave a neat fillet around the joint.

The adhesive itself, or the quality of the bond, does not benefit from the application of pressure during setting but some light pressure will almost certainly be required to ensure that the fairing is held down and in proper contact all round the rim. Adhesive tape and plasticine may be useful in maintaining the mating position of the parts while curing is in process. At this stage the rivets and Parker-Kalon screws which are fitted at the forward end of the fairings only, should now be assembled. Using the existing holes in the canopy skin and forward mag. alloy member as location points, drill through the fairing so that all the holes are in perfect alignment. All rivets and Parker-Kalon screws should be dipped in Calloseal before assembly. As the rivets are not the normal type a description is appended below.

Rivets $\left. \begin{array}{l} (422) \\ (508) \end{array} \right\}$ Adval self-sealing C/ak. 120° }
Hole dia. Morse No. 20 - $.161$ in.

Parker-Kalon type 'Z' S.970 No. 2 x $\frac{3}{16}$ in. long. (Self-tapping screw C/ak.) }
Hole dia. Morse No. 47 - $.0785$ in. x $\frac{3}{16}$ in. deep. C/ak. hole 82° x $.048$ in. deep. }

Alternative Parker-Kalon screws which may be used.

Parker-Kalon type 'Z' S.970 No. 4 x $\frac{3}{16}$ in. long. (Self-tapping screw C/ak.)
Hole dia. Morse No. 37 - $.104$ in. x $\frac{3}{16}$ in. deep C/ak. hole 82° x $.064$ in. deep.

Note.- Great care should be taken, if, for any reason the holes for the Parker-Kalon screws have to be redrilled, that the depth stated is not exceeded.

Special tools required are:-

- (1) Adval rivetting Gun
- (2) Backmarker

Manufacturer

Aviation Developments Ltd.

During time

Despite the term "cold setting", curing is still dependant on the actual temperature prevailing. If the temperature is below 60°F , localised heating should be used to bring the temperature up to at least 60°F as this figure should be regarded as the absolute minimum for serious bonding work.

With an ambient temperature of 65°F the curing to the initial hard state takes about 12 hours, and at least 48 hours to reach full strength curing. If the temperature should vary during the curing time, a check regarding the state of the resin can be obtained by retaining a sample of the squeezed out resin and keeping it under the same conditions. In normal

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temperature 60°F the resin compound should certainly be quite hard, after 24 hours have elapsed, and a mix that has not hardened after this time must be suspect.

Final finish

Any irregularities in contours, and surface blemishes both around the joints, and in the actual fairings can be filled and smoothed over with an additional quantity of the Araldite 124N adhesive.

Bleed holes

A small 1/16 in. leak hole is provided in each fairing to bleed off any leaks that may occur in the canopy skinning under the fairing. Care must be exercised that this hole is not blocked up during the bonding operation.

Final spray

No spraying should be undertaken until the resin compound has reached full strength curing. This may take several days depending on the prevailing temperature. Cellulose and synthetic thinners will dissolve the resin prior to full strength curing so the wisdom of not spraying until the cure is complete can be appreciated.

Care in handling

Frequent handling of cold setting Hardener 951 can cause dermatitis. Avoid unnecessary contact and keep all containers, weighing equipment, spatulas etc. in a clean non-sticky state. Clean all equipment immediately after use with the aid of cellulose or synthetic thinners, then washing down with water, and finally wiping dry.

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VULCAN AIRCRAFT - REPAIR AND RECONDITIONING INSTRUCTIONS

ADVANCE INFORMATION LEAFLET NO. 6/57

Note.- This leaflet is to be inserted in its correct numerical order following the Marker Card for Advance Information Leaflets at the beginning of the book.

REPAIR TO RADIO AND RADAR CRATE RUNNERS

When Mod.439 has not been incorporated, repairs by replacement to the light alloy N.C.B. (calculator) tray runners, items 40, 41, 42, 43 of Dwg. No.T.3673 can be carried out, using the following sequence and operation:-

1. Locate N.C.B. equipment in the nose wheel bay starboard side and disconnect all connectors from the power unit (Stores Ref. 90/11) and calculator (Stores Ref. 90/2). Leave the connectors loose but clear of the crate runners. Remove the 'pip' pins and slide out the tray, item 1/T3677, complete with power unit and tray, item 1/T3678, complete with calculator.
 2. Locate crate runner item 40/T3673, and at the outboard end drill out four rivets attaching the runner to support item 8/T3673, and one rivet attaching the runner to bracket item 29/T3673. At the inboard end drill out the two rivets attaching the runner to support channel item 5/T3673, and one rivet attaching runner to bracket item 35/T3673. Remove the runner from the crate.
 3. Position the new runner item 2/T4542 and drill in conjunction with original rivet holes in items 5/8/29/35/T3673. De-burr and rivet using rivets A.S.2230/40.
- Note.- Should the removal of rivets result in slightly larger holes, then a larger size rivet should be fitted, i.e., A.S.2230/50.
4. Locate crate runners, items 41 and 42/T3673, and at the outboard end drill out the two rivets attaching each runner to support item 9/T3673, and one rivet attaching each runner to bracket item 15/T3673. At the inboard end drill out the two rivets attaching each runner to the support channel item 3/T3673 and one rivet attaching each runner to bracket item 15/T3673. Remove the runner from the crate.
 5. Position the new runners items 3 and 4/T4542 and drill in conjunction with the original rivet holes in items 3/9/15/T3673. De-burr and rivet, using A.S.2230/40.
 6. Locate crate runner item 43/T3673 and at the outboard end drill out the four rivets attaching the runner to support item 16/T3673 and one rivet attaching runner to bracket item 21/T3673. At the inboard end of the runner drill out the two rivets attaching the runner to the support channel, item 6/T3673, and one rivet attaching the runner to the bracket, item 39/T3673. Remove the runner from the crate.

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7. Position the new runner, item 5/T4542, and drill in conjunction with the original rivet holes in items 16/21/39/T3673. De-burr and rivet, using rivets A.S.2230/40.

8. Replace tray item 1/T3678 complete with calculator and tray item 1/T3677 complete with power unit, and replace 'pip' pins. Re-connect connectors removed in operation 1.

Note.- This repair will be incorporated in Chapter 3 of this volume in due course.

January, 1959

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VULCAN AIRCRAFT REPAIR AND RECONDITIONING INSTRUCTIONS

ADVANCE INFORMATION LEAFLET NO.1/59

Insert this leaflet in A.P.4505, Vol.6, Part 1, Chap.2, to face para.219

SUB-PARA.12

Bomcothane 2100, Ref.No.35G/1281, has been approved for sealing windscreen panels and should be used on both instances detailed in this sub-para.

ENGINEER

Z. 18498

R E S T R I C T E D

December, 1959

AIR MINISTRY

Air Publication 4305
Volume 6, Part 1

VULCAN AIRCRAFT - REPAIR AND RECONDITIONING INSTRUCTIONS

ADVANCE INFORMATION LEAFLET NO. 2/59

Insert this leaflet in A.P.4505, Vol.6, Part 1, Chap.4, to follow the first leaf of text.

FIN CAP

General

404. Information given in the following paragraphs is designed to cover minor repairs only, and it should be emphasized that in order to achieve acceptable standards, considerable care must be exercised when carrying out same. A brief outline of the design features of the fin cap is described in the following paragraph.

Description

405. Material used for the construction of the fin cap is made from felt layers of Durestac Spec. H.A.I. D.T.D.5511. The overall thickness is approximately 0.25 in. consisting of five layers, with additional layers at the crown and attachment areas. Assembled on the inside at the rear end is a Gee aerial made from copper metal foil 1/64 inch thick or 28 S.W.G. (Refer to fig.403C).

Method of repair

406. Prior to carrying out repairs it is essential to remove the neoprene coating surrounding the damaged area for a distance of at least two inches beyond the outer edge. Holes up to 1 inch in diameter can be repaired as follows:- Attach a piece of cellophane over the hole inside the fin cap, and fill the cavity with a mixture of cold setting Araldite 121.N. Ref. No.33C/1451 and Hardener 95; Ref. No.33C/1372 ensuring that the filler will be slightly proud after curing to enable it to be smoothed down to the original contour. Instructions for the mixing of the compounds, curing times, and temperatures required are contained in para.225, and 226 to 228 of Chap.2. Tears or abrasions up to approximately 3 inches long by 1 inch wide including those which penetrate the first or second laminate, may be repaired by, firstly, removing any loose strands, and before applying the filling, roughening the surfaces of the damaged laminate with sandpaper to provide a mechanical key for adhesion. Enough filler should be applied so that eventually after curing, and sanding down, the original contour will be obtained. Finally remove any cellophane which has been used in the course of the repair, and refer to para.125 to 130, Chapter 1, for renewal of the Neoprene coating.

Notes

- (1) The information contained in this leaflet will be incorporated by normal amendment list action in due course.
- (2) If, after receipt of this leaflet, an amendment list with a prior date and conflicting information is received, the information in the leaflet is to take precedence.

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REPLACES

R E S T R I C T E D

March, 1957

A.P.4503, Vol. 4, Part 1

CHAPTER I

CHAP.

I

INTRODUCTORY REPAIR INFORMATION

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Chapter 1 INTRODUCTORY REPAIR INFORMATION

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PRESENTATION OF REPAIR INFORMATION

101. General information and standard repairs have been covered, as far as possible, in this chapter, subsequent chapters dealing with the respective repair schemes of the major component units.

102. For easy referencing, the paragraph numbers in each chapter are prefixed by the number of that chapter, e.g. the first paragraph in Chapter 2 is numbered 201 and Chapter 3 starts with 301. The figure numbers are prefixed in a similar manner.

Structural classification

103. The 3-colour system of structural classification is used in subsequent chapters to indicate the degree of strength restoration required for each part of the structure.

RED denotes PRIMARY structure.

YELLOW denotes SECONDARY structure.

GREEN denotes TERTIARY structure.

These classifications are defined in A.P.2662B, Sect. 1, Chap. 2. To facilitate identification of the structural assemblies, a thumbnail sketch of the aircraft is included in each illustration with the location of the assembly indicated.

Keys to Illustrations

104. Keys to the structure illustrations give the material, gauge or standard section used in the manufacture of each member, also the limits of negligible damage. The pitch ratio of holes governs the minimum distance between two negligible holes, e.g. a pitch ratio of 4:1 means that two holes of say 0.5 inches diameter must be at least 2 inches apart, measured between their centres. The distance between centres of negligible holes and the edge of the plate or the edges of flanged lightening holes must be at least twice the diameter of the damage. The distance between a negligible hole and a riveted or bolted joint, however, must conform to the limits quoted in the keys under pitch ratio. Holes must be cleaned out before classification.

105. In the case of negligible dents, the depth quoted in the keys to structure illustrations is the maximum allowable for dents of any size. The distance apart quoted in the keys applies only to dents up to 1 inch diameter, measured between centres. For dents larger than this the minimum allowable distance apart increases in direct proportion to the increase in diameter of the dent.

General repairs

106. Repairs illustrated in this chapter may be applied to any similar component classed as repairable. The methods of combining the simple repairs to deal with damage involving several different kinds of component are also given. Exceptional cases, which cannot be repaired by the standard methods, are dealt with by specific repair illustrations in the appropriate chapters.

Glossary

107. The following definitions explain the terms used throughout the book to describe repair parts:—

- (1) Filler plate:—An inserted piece of sheet carrying no load, which ensures continuity of profile.
- (2) Handling hole:—A hole cut in a seating plate to facilitate handling and location.
- (3) Insert:—A new load-bearing portion replacing the damaged portion of a member.
- (4) Landing:—The distance between a rivet centre and the adjacent edge of the material.
- (5) Patch:—A load-bearing portion of sheet overlapping the cleaned-out damage.
- (6) Seating plate:—A load-bearing plate supporting the filler plate.

CONSTRUCTION

108. The airframe is built up of the following detachable components:—

- (1) Nose fairing, the upper portion of which is of orthodox metal construction and the lower a one-piece composite moulding.

- (2) Front fuselage, constituting the crew's pressurised compartment.
- (3) Rear fuselage, supporting the jet pipe detachable end caps and the composite tail cone.
- (4) Main plane, comprising the following:
 - (a) Centre section, embodying the nose-wheel unit, No. 1 and No. 2 fuel tank compartments, bomb compartment, air brakes, air intakes and engine bays.
 - (b) Outer wings, complete with main-wheel units, fuel tank compartments, elevators and ailerons.
- (5) Tail unit, comprising the fin and rudder.

109. The engines are lifted into position through the engine bay door openings on the underside of the centre section. Each engine is mounted in the main plane at three attachment points, being supported in the mounting blocks on the engine bay ribs by two trunnions, one on either side of the H.P. compressor casing, and steadied at the forward end by a single adjustable suspension link. The front link is bolted to a forked bracket provided on top of the L.P. compressor casing, and at its upper end to the engine bay roof structure.

110. The hydraulically-operated alighting gear consists of two independent main-wheel units which retract forward and upward into their main plane housings outboard of the power units, and a steerable, castoring nose-wheel unit which retracts upward and backward into the nose-wheel bay under the forward portion of the centre section.

REPAIR MATERIALS

111. Unless otherwise stated, the repair material must be of the same gauge and specification as the damaged part. Where applicable, alternative materials will be given in the table of repair materials or in the keys to structure illustrations.

RIVETING

112. Rivets of the correct type and specification must be used for all repairs. Normally solid rivets are used, these being snap-head for internal structure or countersunk for external skinning. Rivets with 120 deg., 90 deg. or 60 deg. countersunk heads are used and particular care must be taken to ensure that the materials involved are countersunk to the correct angle and depth. Where inaccessibility makes the use of solid rivets impossible pop rivets may be used, but it should be noted that use of the latter is prohibited in pressure bulkheads and external skinning in the pressurised part of the aircraft. General information on rivets and riveting technique is contained in Air Publications 1464, 2662, 1982 and 3042. A list of rivets used on this aircraft is given in TABLE 2, General Repair Materials. It should be noted that rivets to specification L58 must always be used in contact with magnesium alloy, and where rivets to specification L37 are required, these must be heat treated before use. All external pop rivets must be sealed with Rylands Pop Rivet Filler No. 2313 (Stores Ref. 33C/-).

113. Rivet spacing is to be the same as the original spacing where holes are picked up. Other spacing is detailed on each repair illustration. Where existing rivet holes have been elongated they should be re-drilled $\frac{1}{8}$ in. larger in diameter than the original size, provided that sufficient material is available to satisfy the original landing requirements.

Use of bolts

114. Bolts may be specified for certain repairs; they may also be used in place of rivets where there is no access for riveting. In all cases where bolts are used, the holes must be drilled undersize and reamed to obtain a good fit.

REPAIR PRACTICES

115. The general instructions for the repair of airframes given in A.P.2662A and A.P. 2662B should be followed. Where special procedure is required for a particular repair

it will be detailed in the relevant chapter. Particular attention should be paid to the preliminary examination of damage to ascertain its extent, especially where this is not immediately apparent as in the case of buckled or wrinkled skins, which may indicate failure or distortion of primary or secondary structural members. Where necessary, adequate support must be given to the structure under repair to avoid distortion and subsequent malalignment.

Skin repairs

116. In order to preserve the high aerodynamic efficiency of the aircraft, it is essential that the external finish is maintained to a very high standard. Permanent repair of damage to the skin must always be by flush patching and countersunk-head rivets.

Reproduction of structural members

117. All original structural members and riveting must be reproduced in repaired areas. This will sometimes necessitate varying the disposition of the rivets from that shown in the repair illustration in order to pick up existing rivet holes or for the attachment of stiffeners or other members. This is permissible provided that the following conditions are fulfilled:—

- (1) The number of rivets must not be less than that specified in the repair figure. Additional rivets may be used subject to conditions (2) and (3).
- (2) The distance between any two rivets must not be less than four times the rivet diameter.
- (3) Rivet landings must not be less than twice the rivet diameter.

Heat treatment and bending

118. Aluminium alloys L59, L72, L73 and DTD.687 may be bent in one plane without heat treatment providing the bend radii are not less than those given in the following table. The table also includes the minimum bend radii permitted with heat treatment.

S.W.G.	Cold working Radius in.	Normalised and used within 1 hr. Radius in.	Fully annealed Radius in.
26	5/64	3/64	1/32
24	5/64	1/16	3/64
22	7/64	5/64	1/16
20	1/8	3/32	5/64
18	11/64	1/8	3/32
16	7/32	5/32	1/8
14	17/64	13/64	5/32
12	11/32	1/4	13/64
10	27/64	5/16	1/4
8	17/32	13/32	5/16
6	5/8	31/64	3/8

119. The following table gives the recommended radii for bending Magnesium alloy sheet, to specifications DTD.118, DTD.732 and DTD.742, in the cold condition.

S.W.G.	Radius in.	S.W.G.	Radius in.
26	5/32	16	33/64
24	3/16	14	41/64
22	15/64	12	27/32
20	19/64	10	1-1/32
18	25/64		

120. The following table gives the recommended radii for bending mild steel sheet S.510 (S.3), S.511 (S.84) and S.514 (DTD.124).

S.W.G.	S.510 & S.511 Radius in.	S.514 Radius in.
26	1/64	3/64
24	1/64	3/64
22	1/64	1/16
20	1/32	5/64
18	1/32	7/64
16	3/64	9/64
14	3/64	11/64
12	1/16	7/32

Marking off

121. Marking off should be done in pencil, the use of scribers or similar tools being prohibited, except when the markings would be removed completely when shaping the repair.

Drainage holes

122. Drainage or vent holes must be reproduced in repaired areas. Where this is not possible, new holes must be provided as near

as possible to the original positions. Refer to A.P.4505A, Vol. 1, Book 1, Sect. 2, Chap. 4 for the location of these holes. Additional drainage holes must be provided where a repair would form a moisture trap.

Lagging of hot air ducts

123. The hot air conditioning pipes are lagged with fibreglass CF/white wool to specification FG/CF/WW/10/4/1 wrapped with P.V.C. covered glass cloth sheet, specification 314/6. Damage, such as rents in the covering, which does not warrant replacement of the lagging may be repaired by stitching the side of the rent(s) together using fireproof thread (No. 2 glass tie cord is recommended). The repair should then be covered with P.V.C. covered glass cloth glued in position with Bostik Adhesive 1768.

Spraytex coating in cabin

124. When repairs have been effected to the pressure cabin skin structure, the flock adhesive sprayed covering (Spraytex) on the inner surface of the skin must be renewed in the disturbed area. The Spraytex is applied on top of the normal finish of one coat of Cellons Universal Primer SXH41A or SXH44 and one coat of E.L.R. Cellulose finish D.L.5387. First apply one coat of Spraytex Black Adhesive Type B, and then spray on one coat of Spraytex Matt Black Fibre Type S.R.9. The fibre must be sprayed on within 10 minutes of the application of the adhesive, using a Spraytex Miser fibre gun. Should it be required to remove Spraytex coating from a surface at any time, this may be done with acetone or cellulose thinner.

Note . . .

Spraytex should not be applied to front and rear bulkhead faces in the cabin. Similarly, all items which are made from Magnesium Alloy are not to be covered with Spraytex, but are to be protected by one brush coat of Bostik Primer 1752 (Stores Ref. 33C/1339) followed by two brush coats of a mixture of Bostik Primer 1752 and Bostik Sealing Compound 1790 (Stores Ref. 33C/1138). In this category are all stringer brackets at

front and rear pressure bulkheads and at station 228-75°F, the 5 in. ground conditioning connection, all valves, etc. which are mounted on the inside wall of the pressure cabin, and the base plate and front frame member to which the canopy seal is attached. Where any doubt exists, the original protective covering may be taken as a guide to the treatment required.

NEOPRENE COATING—RADOME AND SIMILAR PLASTIC COMPONENTS

Limitations of repair

125. Repair to the Neoprene finish alone is only permitted if the damage is confined to the Neoprene coating. Any erosion or mechanical damage of the resin glasscloth laminate must first be rectified as laid down in the appropriate repair scheme for radomes. Minor repairs are dealt with in Chapter 2 of this volume.

126. Where the damaged area is too great to effect a local repair, or the failure of the coating appears due to it having been badly applied in the first instance, then the entire radome should be stripped using Stripalene 395, and the coating renewed. Care must be taken after using Stripalene 395 to ensure that all wax deposit is removed from the radome surface by means of Toluol or Diluting Cement 1803C before attempting to reprime.

Mixing of Neoprene top coat cement

127. The top coat cement for application as detailed in the following paragraph should be prepared as follows:—

- (1) To one pint of top coat base cement 1801C add 47.5 ccs. Accelerator Cement 983C, and stir thoroughly.

Note . . .

The accelerator is usually supplied in pre-measured packages.

- (2) When mixed with the accelerator the top coat base cement has a limited pot-life of 8 hours. Any material remaining after this period should be discarded.

Method of repair

128. For repair of the Neoprene coating proceed as follows:—

- (1) Remove the Neoprene from the damaged and surrounding areas by careful scraping with a sharp knife, taking care not to cut the resin/glasscloth laminate.
- (2) The area to be coated should then be smoothed by means of 2/0-100 Garnet paper.
- (3) Wipe over the abraded surface with a lint-free rag damped with Toluol or diluting solvent 1803C and allow to dry out completely.
- (4) Apply one coat of Bostik primer 9252 evenly by brush, avoiding the formation of streaks and pinholes. The primer may be thinned with up to two volumes toluene only, to enable a smooth brush-coat to be applied. The primer should overlap on to the surrounding Neoprene by 0.5 in. Allow to dry at a temperature of not less than 18 deg. C for one hour.
- (5) Apply a second coat of Bostik primer 9252 and allow to dry at a temperature of not less than 18 deg. C for one hour.
- (6) After one hour drying of the primer 9252, apply one coat of the Neoprene top coat base cement 1801C by means of a brush. Brushing over an area that has only partially dried will result in dragging.
- (7) Allow to dry at a temperature of 25 ± 5 deg. C for one hour.
- (8) After one hour and not more than 1½ hours a second coat should be applied and allowed to dry.
- (9) The remaining coats may be applied by brush or spray, each coat being allowed to dry for one hour and not more than 1½ hours.
- (10) Sufficient coats should be applied in this manner to build up the Neoprene to its original thickness and present a smooth appearance. In the case of a complete re-coat the thickness should be 0.011 ± 0.001 inches, checked by means of a guide-plate which is coated along with the radome. The guide-plate can be checked by means of a micrometer.

- (11) Allow to dry and cure in a dust-free atmosphere at a temperature of 25 ± 5 deg. C for not less than 3 days. In an emergency the curing schedule could be cut to 36 hours.

Materials required

129. The following are the materials required to carry out the process detailed in the preceding paragraph:

Source Ref.	Part No.	Description
33B/927	Stripalene 395	Stripper
33C/1436	Toluol	Diluting Medium
33C/1352	1801C	Top Coat Base Cement
33C/1354	983C	Accelerator Cement
33C/1353	1803C	Diluting Cement
33C/1282	9252	Primer
33C/1433	00/100	Garnet paper

The Neoprene top coat base cement as supplied by the makers is a light tan colour, but the coating will develop a deep brown or black colour on natural ageing in approximately 2 to 3 days.

Protective value of Neoprene coatings

130. The main causes which adversely affect the protective value of Neoprene coatings are as follows:

- (1) *Use of fillers, stoppers and paints*—Application of these materials to resin/glasscloth structures, either unwittingly or as a means of filling and smoothing minor imperfections will cause failure, usually of a delayed nature, of the external Neoprene coating.
- (2) *Insufficient preparation*—Low adhesion of the Neoprene coating can also be attributed to insufficient scuffing with suitable grade Garnet paper to produce a smooth matt surface.
- (3) *Primer coat of Bostik 9252*—Thick coats of primer will give poor adhesion of the Neoprene top coat base cement. The 9252 should be suitably thinned with Toluol to enable a wet coat to penetrate all pinholes and imperfections, and not bridge across.

Note . . .

The forward six feet only of the radome is finished with a Neoprene coating.

REPAIRS TO INSULATION BLANKETS

131. The insulation blankets are made up from two layers of fine fibreglass material, each $\frac{1}{2}$ in. thick, completely enveloped in a covering of waterproof ◀Craypac (Ref. No. 33C/1474)▶. In cases of damage to a blanket, where the damage is not considered extensive enough to warrant changing the item, simple but effective repairs can be made.

132. The following procedure, which is illustrated in fig. 101, may be used for the repair of holes in blankets:

- (1) Cut out the damaged area to a regular shape, preferably circular.
 - (2) Enlarge the hole in one layer of fibreglass so that it is approximately one inch larger all round than the one made at (1).
 - (3) Cut inserts of fibreglass, complete with ◀Craypac▶ covering, to fit the holes made at (1) and (2).
 - (4) Secure a patch of the ◀Craypac▶ material on each side to cover completely the repaired area. The ◀Craypac▶ material should be secured with Bostik Adhesive ◀321 (Ref. No. 33C/594)▶.
- Slight damage on the edge of a blanket may be repaired by trimming off the damaged edge, and binding it completely with waterproof ◀Craypac▶ secured with Bostik Adhesive ◀321▶.

HONEYCOMB SANDWICH PANELS

133. Repairs to honeycomb sandwich panels are permitted, with certain restrictions. These restrictions, which vary from one panel to another, are detailed on the illustrations of the panels which appear in Chapter 3 of this volume. Where repairs are permitted the procedure, which is illustrated in fig. 102, is as follows:—

- (1) An area, circular for preference and completely encompassing the damage, is cut from the panel through both skins.
- (2) Trepan out the inner skin so that the hole on that side is approximately one inch greater in diameter than the original hole. Remove any core immediately below the larger hole and clean any surplus resin off inside the face where core has been removed.

- (3) Cut three skins to size, one to fit accurately in the smaller hole, and one approximately one inch larger in diameter. The third to be approximately one inch greater in diameter than the larger hole in the inner skin.
- (4) The areas to be bonded should now be cleaned with steel wool until of a bright, shiny appearance. The areas are then rendered grease-free by swabbing with acetone or carbon tetrachloride. A substantial layer of cold-setting Araldite (21N with 5 per cent of Hardener 95) added is applied in turn to all surfaces to be bonded, at the rate of approximately 2 ounces per square foot.
- (5) The sequence of bonding operations is now as follows:—
 - (a) Bond together the two discs making the repair patch for the outer skin. Leave under light pressure approximately 24 hours.
 - (b) Cut the required depth and type of core to fit accurately the excavated area of core in the panel.
 - (c) Bond the new piece of core to the larger of the two bonded discs making the repair patch.
 - (d) Bond this repair assembly to the outer skin of the panel.
 - (e) Finally, bond the largest repair patch plate to the panel inner skin.

It should be noted that the sealing plate (ref. on fig. 102) is to be made from material one gauge less in thickness than the panel skin, in order to compensate for the thickness of Araldite applied. The completed repair should be kept under light pressure for approximately 24 hours before being put into service.

PROTECTIVE TREATMENTS

General

134. When making repairs it is most important that the high standard of protection be maintained, and that the repaired areas be made good by the application of the original protective. The finishing scheme for the aircraft is to Specification DTD.899. For general guidance on protective coverings and their restoration reference may be made to A.P.'s 2662A and 2656A.

135. Wet assembly is essential, i.e., all metal joints not involving a rubber seal are to be assembled wet after the application of sufficient Celloseel D.T.D.900/4301 (Ref.No.33C/1197) to produce a fillet at each joint. All rivets, bolts, washers, etc., must also be coated with Celloseel where they are in contact with Magnesium Alloy.

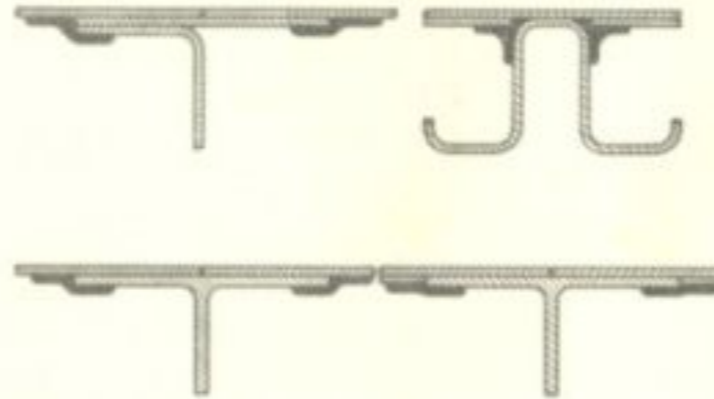
Weatherproofing

136. It is important that great care must be taken to prevent water leaking or being driven into covered components either on the ground or in flight. Extensive information on weatherproofing practice and materials is given in A.P.1464B, Vol.1, Part 2, Sect.4, Chap.7. The following general rules are given for weatherproofing of this aircraft:-

- (1) In all external riveted joints use Celloseel as described in para.135.
- (2) In all fuselage transport joints use a mixture of equal parts of Bostik 1752 (Ref.No.33C/1339) and 1790 (Ref.No.33C/1138). A bead of this mixture is inserted in each joint before bolting up.
- (3) A mixture of Bostik 1752 and 1790 is applied as a joint between the centre section rib booms and the outer wing rib booms.
- (4) A mixture of Bostik 1752 and 1790 is applied as a joint at the fairing between the fuselage and the fin skins.
- (5) Angular joints or crevices where moisture is likely to enter are sealed internally with a mixture of Bostik 1752 and 1790.
- (6) All skin butt joints are water-proofed internally at T-section stringers or butt straps with a mixture of Bostik 1752 and 1790 to

form a bead between the skin and the edge of the member.

- (7) Repairs to prevent the ingress of moisture through the airframe structure, can be carried out by following the instructions as laid down for pressure cabin sealing in Chap.2, para.210 to para.216 inclusive. Refer to illustrations below for application of sealing.



137. On the upper skin of the outer wing all gaps between skins are filled with cold setting Araldite 121N. (Ref.No.33C/1451) and finished flush with the outer surface. The filler is prepared by adding six parts by weight of Hardener 951 (Ref.No.33C/1372) to 100 parts by weight of Araldite 121N and mixing thoroughly. This filling mixture remains usable for approximately 1 to 1½ hours, and should therefore be used immediately after mixing.

138. Further information on the application of sealing compounds at typical joints in the pressurised part of the aircraft is given in Chapter 2.

REPAIR MATERIAL

139. The following tables list the materials required to effect the repairs described throughout this volume.

TABLE 1 (Standard material)

Aluminium Sheet B.S.1470		
30 s.w.g.	20 s.w.g.	16 s.w.g.
22 s.w.g.	18 s.w.g.	
Aluminium Sheet L.16		
30 s.w.g.	18 s.w.g.	1/8 in.
20 s.w.g.	10 s.w.g.	3/16 in.
Aluminium Sheet L.17		
30 s.w.g.	18 s.w.g.	1/8 in.
22 s.w.g.	10 s.w.g.	3/16 in.
Light Alloy Sheet L.72		
30 s.w.g.	16 s.w.g.	7 s.w.g.
28 s.w.g.	15 s.w.g.	6 s.w.g.
27 s.w.g.	14 s.w.g.	5 s.w.g.
26 s.w.g.	13 s.w.g.	3 s.w.g.
24 s.w.g.	12 s.w.g.	2 s.w.g.
22 s.w.g.	11 s.w.g.	1 s.w.g.
20 s.w.g.	10 s.w.g.	1/8 in.
18 s.w.g.	9 s.w.g.	1/4 in.
17 s.w.g.	8 s.w.g.	3/8 in.
Light Alloy Sheet L.73		
24 s.w.g.	17 s.w.g.	10 s.w.g.
22 s.w.g.	16 s.w.g.	8 s.w.g.
20 s.w.g.	14 s.w.g.	
18 s.w.g.	12 s.w.g.	
Light Alloy Sheet D.T.D.687A		
24 s.w.g.	14 s.w.g.	8 s.w.g.
22 s.w.g.	13 s.w.g.	6 s.w.g.
20 s.w.g.	12 s.w.g.	5 s.w.g.
18 s.w.g.	11 s.w.g.	3 s.w.g.
17 s.w.g.	10 s.w.g.	
16 s.w.g.	9 s.w.g.	

TABLE 1 (Continued)

Light Alloy Sheet L.59			Stainless Steel Sheet S.520			Mushroom-head rivets SP.85 Al. Alloy L.69			
24 s.w.g.	18 s.w.g.	14 s.w.g.	28 s.w.g.	20 s.w.g.	12 s.w.g.	1/16	1/8	3/16	1/4
22 s.w.g.	17 s.w.g.	12 s.w.g.	26 s.w.g.	17 s.w.g.	10 s.w.g.	3/32	5/32	7/32	
20 s.w.g.	16 s.w.g.	10 s.w.g.	24 s.w.g.	16 s.w.g.					
			22 s.w.g.	14 s.w.g.					
Mag. Alloy Sheet D.T.D.118			Stainless Steel Sheet S.521			Mushroom-head rivets SP.84 5% Mag. Al. Alloy L.58			
26 s.w.g.	16 s.w.g.	8 s.w.g.	28 s.w.g.	18 s.w.g.	10 s.w.g.	1/16	3/32	1/8	5/32 3/16
24 s.w.g.	14 s.w.g.	5 s.w.g.	26 s.w.g.	16 s.w.g.	6 s.w.g.				
22 s.w.g.	13 s.w.g.	4 s.w.g.	22 s.w.g.	14 s.w.g.					
20 s.w.g.	12 s.w.g.	3 s.w.g.	20 s.w.g.	12 s.w.g.					
18 s.w.g.	10 s.w.g.	1/4 in.							
17 s.w.g.	8 s.w.g.								
Mag. Alloy Sheet D.T.D.626			Titanium Sheet			120 deg. countersunk-head rivets AS.163 Aluminium L.36			
20 s.w.g.	14 s.w.g.	5 s.w.g.	28 s.w.g.	22 s.w.g.	20 s.w.g.	1/16	3/32		1/8
18 s.w.g.	12 s.w.g.	4 s.w.g.	26 s.w.g.						
17 s.w.g.	10 s.w.g.	3 s.w.g.							
16 s.w.g.	6 s.w.g.								
Mag. Alloy Sheet D.T.D.732 Soft. D.T.D.742 Half Hard			TABLE 2 (Rivets)			120 deg. countersunk-head rivets AS.465 Monel Metal D.T.D.204			
24 s.w.g.	22 s.w.g.	20 s.w.g.	Snap-head rivets SP.77 Aluminium L.36			3/32	1/8	5/32	3/16
			Aluminium Alloy L.37						
			Snap-head rivets SP.78						
			Aluminium Alloy L.37						
			Snap-head rivets SP.79 Mag. Al. Alloy L.58						
			1/16	3/32	1/8	5/32	3/16	1/4	
			Snap-head rivets SP.80 Al. Alloy L.69						
			1/16	3/32	1/8	5/32	3/16	1/4	
			Snap-head rivets SP.76 Mild Steel B.S.1109						
			1/16	3/32	1/8	5/32	3/16	1/4	
			Snap-head rivets SP.81 Monel Metal D.T.D.204						
			3/32				1/8		
			Snap-head rivets AS.459 Copper						
			1/16			3/32			

RESTRICTED

TABLE 2 (Continued)

60 deg. countersunk-head Avdel rivets SS.4654	Al. Alloy L.69 3/16		100 deg. countersunk-head Chebert rivets A.G.S.2068	Al. Alloy L.69 5/32	3/16
60 deg. countersunk-head Avdel rivets SS.4864	Al. Alloy L.69 5/32		Snaphead Avdel rivets Al. Alloy L.69	5/32	3/16
0.01 in. oversize shank x 60 deg. counter- sunk-head Avdel rivets SS.5227	Al. Alloy L.69 3/16		100 deg. countersunk-head Avdel rivets A.G.S.2066	Al. Alloy L.69 5/32	3/16
Oversize head 60 deg. countersunk-head Avdel rivets SS.5303	Al. Alloy L.69 3/16		120 deg. countersunk-head Avdel rivets SS.4398	Al. Alloy L.69 5/32	3/16
120 deg. countersunk-head Chebert rivets A.G.S.2041	Mild Steel D.T.D.720 1/8	5/32	3/16	90 deg. countersunk-head Jo-Bolts SS.4506	1/4
Snaphead Chebert rivets A.G.S.2040	Mild Steel D.T.D.720 1/8	5/32	3/16	100 deg. countersunk-head Jo-Bolts SS.4507	1/4
Snaphead Chebert rivets A.G.S.2045	Al. Alloy L.69 1/8	5/32	3/16	100 deg. countersunk-head Jo-Bolts SS.5226	3/16
120 deg. countersunk-head Chebert rivets A.G.S.2046	Al. Alloy L.69 1/8	5/32	3/16	Hexagonal head Jo-Bolts SS.4837	1/4
100 deg. countersunk-head Chebert rivets A.G.S.2067	Mild Steel D.T.D.720 1/8	5/32	3/16		5/16

RESTRICTED

TABLE 2 (Continued)

90 deg. countersunk-head rivets AS.2229. Al. Alloy L.69 1/16 1/8 3/32 3/16
90 deg. countersunk-head rivets SS.4212. Al. Alloy L.57 or DTD.327 3/32 5/32 1/8 3/16
90 deg. countersunk-head rivets AS.460 Mild Steel BS.1109 1/16 5/32 3/32 3/16 1/8
90 deg. countersunk-head rivets AS.462 Monel Metal DTD.10 1/8 3/16
60 deg. countersunk-head rivets SS.4111. Al. Alloy L.57 3/32 5/32 1/8 3/16
60 deg. countersunk-head rivets SS.4207. 5% Mag. Al. Alloy L.58 1/8 3/16
Dome-head pop rivets A.G.S.2048 5% Mag. Al. Alloy L.58. 1/8 3/16 5/32
Dome-head pop rivets A.G.S.2050 Monel Metal DTD.10 3/32 5/32 1/8 3/16
Dome-head pop rivets SS.3790 18% Nickel Silver 1/8 3/16
Countersunk-head pop rivets A.G.S.2049 5% Mag. Al. Alloy L.58 1/8 3/16 5/32

120 deg. countersunk-head pop rivets A.G.S.2051 Monel Metal DTD.10 3/32 5/32 1/8 3/16
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Countersunk-head pop rivets SS.3791. 18% Nickel Silver 1/8 3/16

TABLE 3 (Bolts, nuts, screws)

High Tensile Steel Bolts		
A.25	6 B.A.	
1A	3A	11A
2A	5A	
A.25 4 B.A.		
1/2B	6B	13B
1B	7B	14B
1 1/2B	8B	15B
2B	9B	20B
3B	10B	28B
4B	11B	33B
5B	12B	
A.25 2 B.A.		
1/2C	14C	28C
1C	15C	29C
2C	17C	30C
3C	18C	31C
4C	19C	32C
6C	20C	33C
7C	21C	36C
8C	22C	39C
9C	23C	40C
10C	24C	41C
11C	25C	42C
12C	26C	43C
13C	27C	53C
A.25 1/4 in. B.S.F.		
1E	15E	29E
2E	16E	30E
3E	17E	31E
4E	18E	32E
5E	19E	33E
6E	20E	34E
7E	21E	38E
8E	22E	40E
9E	23E	43E

10E	24E	44E
11E	25E	45E
12E	26E	47E
13E	27E	48E
14E	28E	

A.25	5/16 in. B.S.F.	
1/2G	8G	22G
1G	9G	23G
2G	10G	24G
3G	11G	27G
4G	12G	28G
5G	14G	30G
6G	16G	31G
7G	21G	50G

A.25	3/8 in. B.S.F.	
2J	11J	20J
3J	12J	21J
4J	13J	22J
5J	14J	24J
6J	15J	27J
7J	16J	29J
8J	17J	30J
9J	18J	34J
10J	19J	35J
		48J

A.25	7/16 in. B.S.F.	
6L	40L	
A.25 1/2 in. B.S.F.		
2N	10N	13N
4N	11N	22N
6N		

A.25	5/8 in. B.S.F.	
19Q		
High Tensile Steel Bolts Cadmium coated. Close tolerance		
A.59	2 B.A.	
1C	6C	11C
2C	7C	12C
3C	8C	13C
4C	9C	14C
5C	10C	20C

TABLE 3 (Continued)

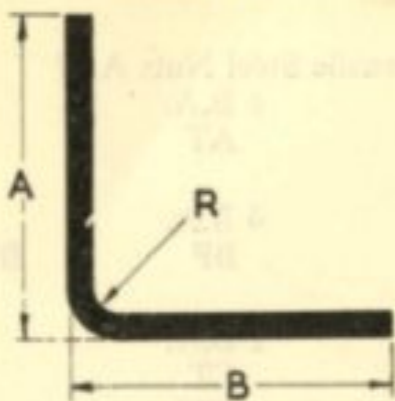
A.59 1/4 in. B.S.F.			A.26 1/4 in. B.S.F.			Steel Cheese Head Screws		
1E	10E	19E	7E	10E		A.31	6 B.A.	
2E	11E	20E	9E	13E		A6	A14	A24
3E	12E	21E				A8	A16	A32
4E	13E	22E	A.26 5/16 in. B.S.F.			A10	A18	
5E	14E	23E	2G	50G		A12	A20	
6E	15E	24E	A.26 3/8 in. B.S.F.			A.31 4 B.A.		
7E	16E	25E	11J			B6	B16	B32
8E	17E	26E	Al.Alloy Bolts. Hexagon Head			B8	B18	B36
9E	18E	29E	A.28 4 B.A.			B10	B20	B44
A.59 5/16 in. B.S.F.			1B	2B	3B	B12	B24	B48
4G	11G	20G	A.28 2 B.A.			A.31 2 B.A.		
5G	12G	22G	1C	5C	10C	C8	C18	C36
6G	13G	24G	2C	6C		C10	C20	C44
7G	14G	27G	3C	7C		C12	C24	C48
8G	15G	34G	High Tensile Shear Bolts			C14	C28	
9G	16G		A.60 1/4 in. B.S.F.			C16	C32	
10G	17G		2E	7E	15E	Steel Round Head Screws		
A.59 3/8 in. B.S.F.			4E	8E	20E	A.32 6 B.A.		
3J	9J	21J	5E	13E	24E	A4	A12	A20
4J	10J	22J	6E	14E		A6	A14	A24
5J	11J	25J	A.60 5/16 in. B.S.F.			A8	A16	
6J	17J	29J	3G	7G	11G	A10	A18	
7J	19J	32J	4G	8G	12G	A.32 4 B.A.		
8J	20J	38J	5G	9G	18G	B1	B12	B20
A.59 7/16 in. B.S.F.			6G	10G	26G	B6	B14	B24
3L	9L	28L	A.60 3/8 in. B.S.F.			B8	B16	B26
4L	12L	36L	3J	8J	20J	B10	B18	B32
6L	21L	38L	4J	10J	21J	A.32 2 B.A.		
7L	22L	39L	5J	11J	25J	C8	C20	C36
8L	24L	40L	6J	14J	34J	C12	C24	
A.59 1/2 in. B.S.F.			7J	15J	35J	C14	C28	
5N	9N	13N	A.60 7/16 in. B.S.F.			Stainless Steel Cheese Head Screws		
6N	10N	14N	6L	9L	11L	A.35	2 B.A.	
7N	11N	15N	7L	10L		C16	C20	
8N	12N	16N	A.60 1/2 in. B.S.F.			Stainless Steel Round Head Screws		
High Tensile Stainless Steel Bolts			5N	8N	11N	A.36 4 B.A.		
A.26 4 B.A.			6N	9N	12N	B16		
1B	3B	12B	7N	10N		Stainless Steel Countersunk Screws		
2B	8B		A.26 2 B.A.			A.37 2 B.A.		
High Tensile Stainless Steel Bolts			1C	4C	9C	C12	C16	C24
A.26 2 B.A.			2C	5C	10C			
1C	4C	9C	3C	8C				

RESTRICTED

TABLE 3 (Continued)

Steel Countersunk Screws			CP CS	2 B.A. CT CTL		Medium Tensile Steel Nuts A.27		
A.33	6 B.A.	A24 A28		1/4 in. B.S.F.	ETL	AP	6 B.A. AT	
A6 A10 A12	A16 A18 A20			ES ET		BT	4 B.A. BP	BTL
A33	4 B.A.	B32 B40 B44	GC GP	5/16 in. B.S.F. GT GS		CP CS	2 B.A. CT CTL	
B6 B8 B10 B12 B14	B16 B18 B20 B24 B28			3/8 in. B.S.F. JP	JS	EC EP	1/4 in. B.S.F. ES ET	ETL
C6 C8 C10	2 B.A. C12 C14 C16	C20 C24	LC	7/16 in. B.S.F.				
Stainless Steel Raised Head Countersunk Screws			NS	1/2 in. B.S.F. NT		GC GP	5/16 in. B.S.F. GS GT	GTL
A16	A.38 6 B.A. A20		PC	9/16 in. B.S.F. PS		JC JP	3/8 in. B.S.F. JS JT	JTL
B12	A.38 4 B.A. B24		QP	5/8 in. B.S.F. QS	QT			
C36	A.38 2 B.A.		SS	3/4 in. B.S.F.		LC LP	7/16 in. B.S.F. LS LT	
Light Alloy Roundhead Screws			US	7/8 in. B.S.F.		NC NP	1/2 in. B.S.F. NS NT	NTL
A4	A.40 6 B.A. A8	A10	WS	1 in. B.S.F.				
B6	A.40 4 B.A. B10					PC PP	9/16 in. B.S.F. PS PT	
C10	A.40 2 B.A.							
Light Alloy Countersunk Screws			ES	High Tensile Steel Nuts A.58 1/4 in. B.S.F.		QC	5/8 in. B.S.F. QT	
A4	A.41 6 B.A.		GS	5/16 in. B.S.F. GT				
B6	A.41 4 B.A.		JS	3/8 in. B.S.F. JT		SC SS	3/4 in. B.S.F. ST STL	
			LT	7/16 in. B.S.F.				
High Tensile Steel Nuts A.24			NS	1/2 in. B.S.F. NT		UC	7/8 in. B.S.F. US	
BP	4 B.A. BT					WC	1 in. B.S.F.	

Section A



STANDARD ROLLED SECTIONS

TABLE 4 (Rolled and extruded sections)

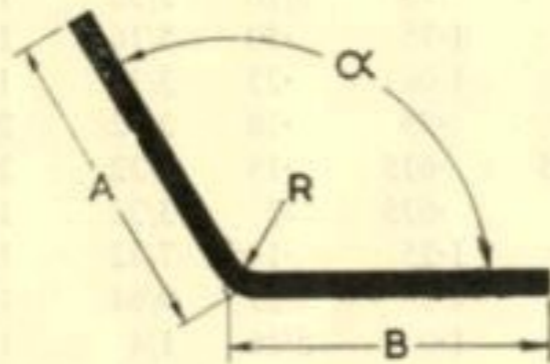
RIGHT ANGLE

S.S. No.	A in.	B in.	R in.	S.W.G.	Material
12A/1793			3/32	20	L.72
12B/1793			3/32	18	L.72
12C/1793			9/64	16	L.72
12D/1793			3/64	22	L.72
13A/1793		5/8	3/32	16	L.72
13B/1793		5/8	3/32	16	L.72
27/1793	9/16	9/16	1/16	20	L.72
60/1793	5/8		1/16	20	L.72
65/1793	7/8		1/16	20	L.72
66/1793	1		3/32	16	L.72
73/1793	5/8	5/8	1/16	16	L.72
88/1793	1	1	9/64	16	L.72
112/1793	1		5/64	20	L.72
133/1793	5/8	5/8	3/32	22	L.72
183/1793	5/8	5/8	3/32	18	L.72
198A/1793	1.25	.55	5/64	20	L.72
199/1793	15/16	19/32	5/64	16	L.72
200/1793	1	.55	5/64	20	L.72
207B/1793	1 1/8	3/4	1/8	16	L.72
239/1793	1 1/4	1	9/64	16	L.72
247/1793	7/8	3/4	9/64	16	L.72
249/1793	1.24	.82	.10	18	L.72
253/1793	1 1/2	7/16	9/64	16	L.72
311/1793	7/8	5/8	5/32	16	L.72
313/1793	1	3/4	11/64	14	L.72
314/1793	1	5/8	5/64	20	L.72
315/1793	1 3/16	1	5/32	14	L.72
318/1793	7/16	1/4	3/64	18	L.72
349/1793	2	1 1/2	11/64	14	L.72
352/1793	1	1	5/32	14	L.72
421/1793	1	1	5/64	22	L.72
425/1793	1	1	7/64	18	L.72
446/1793	1	1	7/64	18	L.72
470/1793	1 1/4	1	13/64	14	L.72
515/1793			3/32	18	L.72
529/1793			7/64	14	L.72
530/1793	1	1	3/32	16	L.72
531/1793	1	1	3/16	10	L.72

S.S. No.	A in.	B in.	R in.	S.W.G.	Material
536/1793	1 1/2	1 1/2	7/64	14	L.72
537/1793	1 1/2	1 1/2	3/16	10	L.72
557/1793	1 1/2	7/8	7/64	14	L.72
601/1793	2	1 1/2	.093	20	L.72
620/1793	1 1/2	1 1/2	3/32	20	L.72
625/1793	.875	.50	.12	18	L.72
663/1793	.75	.625	5/64	22	L.72
713/1793	1.5	.75	3/32	16	DTD.687
715/1793	1.0	.75	3/32	16	DTD.687
725/1793	1.24	.82	1/8	20	L.72
727/1793	1.187	1.25	.16	16	L.72
728/1793	1.0	1.25	3/16	10	L.72
729/1793	1.0	.75	7/64	18	L.72
737/1793	1.0	1.0	3/32	20	L.72
747/1793	.7	.5	1/16	24	L.72
751/1793	0.1	0.47	5/64	22	L.72
753/1793	.5	.55	1/8	20	L.72
761/1793	.625	.625	3/32	22	L.72
762/1793	.60	.60	7/64	20	L.72
763/1793	.60	.60	7/64	18	L.72
764/1793	.625	.625	1/16	16	L.72
768/1793	.625	.5	1/16	20	L.72
777/1793	.375	.75	1/16	22	DTD.171B
785/1793	.50	.50	3/32	22	L.72
786/1793	.50	.50	3/32	20	L.72
787/1793	.60	.70	3/32	20	L.72
788/1793	.62	.73	.07	18	L.72
796/1793	.62	.62	3/32	22	DTD.171B
797/1793	.60	.60	1/16	24	L.72
812/1793	.70	.50	1/32	26	DTD.171B or 166B
819/1793	.60	.55	.06	24	L.72
820/1793	.60	.60	1/32	26	DTD.171B
837/1793	.75	.70	5/32	14	DTD.687
838/1793	.5	.9	5/32	16	L.72
839/1793	.73	.62	.07	18	L.72
840/1793	1.5	1.5	5/32	14	L.72
841/1793	.80	.60	5/64	24	L.72
844/1793	.55	.55	3/16	24	DTD.118
845/1793	.50	.50	3/16	24	DTD.118
846/1793	.15	.60	.08	22	L.72
850/1793	.30	.60	1/8	20	L.72
853/1793	.50	.50	5/64	24	L.72
854/1793	.90	.625	1/8	20	L.72
888/1793	.15	.60	.08	22	L.72
912/1793	1.25	.75	3/32	20	L.72
925/1793	.65	.65	.087	29	L.72
976/1793	1.187	.63	11/64	18	L.72
986/1793	1.125	.63	1/8	18	L.72
987/1793	.88	.63	1/8	18	L.72

TABLE 4 (Continued)

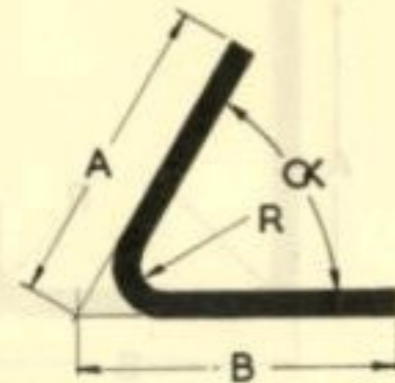
Section B



OBTUSE ANGLE

S.S. No.	A in.	B in.	R in.	Angle	S.W.G.	Material
97/1793	5/8	5/8	3/32	97° 17'	22	L.72
99/1793	1	3/4	5/64	97° 17'	20	L.72
280/1793	1	3/4	5/64	95° 25'	20	L.72
447/1793	1	1	7/64	95° 29'	18	L.72
448/1793	1	1	7/64	92° 36'	18	L.72
736/1793	1.675	.625	7/64	122°	22	L.72
759/1793	1.25	1.25	7/64	120°	14	L.72
770/1793	1	1	9/64	95°	16	L.72
798/1793	.60	.60	1/8	90 1/2°	18	L.72
800/1793	.60	.60	3/32	91°	20	L.72
802/1793	.6	1.0	3/32	90 1/2°	18	L.72
804/1793	.65	1.0	3/32	91°	18	L.72
811/1793	1.25	2.0	11/64	110°	14	L.72
858/1793	1.1875	1.5	5/32	99°	14	L.72
909/1793	.625	.625	5/64	95°	24	L.72
911/1793	.60	1.3	1/8	98°	20	L.72
950/1793	.75	.75	3/32	93° 5'	20	L.72
999/1793	1.25	.63	1/8	92°	18	L.72
1084/1793	3.35	1.37	5/32	93°	16	L.72

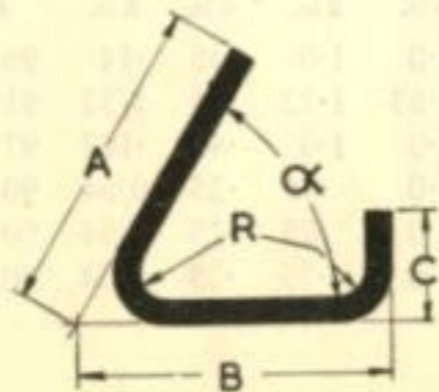
Section C



ACUTE ANGLE

S.S. No.	A in.	B in.	R in.	Angle	S.W.G.	Material
115/1793	3/4	3/4	3/32	87° 34'	18	L.72
281/1793	1	3/4	.078	84° 35'	20	L.72
347/1793	3/4	3/4	3/32	87°	20	L.72
401/1793	3/4	3/4	3/32	73°	18	L.72
450/1793	1	1	7/64	87° 24'	18	L.72
539/1793	1 3/16	1 3/16	3/32	75° 30'	16	L.72
792/1793	1.60	.60	3/16	88° 30'	24	DTD.118
799/1793	.60	.60	1/8	89° 30'	18	L.72
801/1793	.60	.60	3/32	89°	20	L.72
803/1793	.60	1.0	3/32	89° 30'	18	L.72
908/1793	.625	.625	5/64	85°	24	L.72
949/1793	.76	.76	3/32	83° 42'	20	L.72
951/1793	.78	.64	5/64	70°	22	L.72
998/1793	1.25	.63	1/8	88°	18	L.72
1000/1793	1.275	.65	1/8	78°	18	L.72
1085/1793	1.0	1.0	9/64	81°	16	L.72

Section D

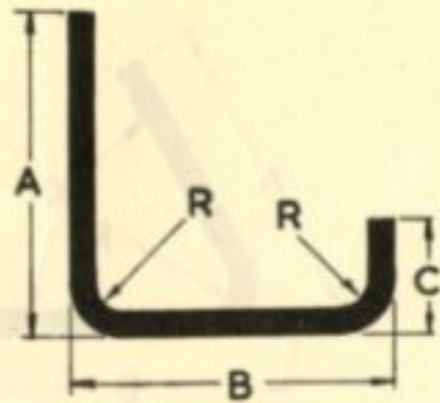


LIPPED ACUTE ANGLE

S.S. No.	A in.	B in.	C in.	R in.	Angle	S.W.G.	Material
527/1793	.65	1.0	.096	5/64	81° 32'	18	L.72
806/1793	1.0	.75	.25	9/64	89° 30'	20	L.72
808/1793	1.0	.75	.25	9/64	89° 30'	18	L.72
810/1793	1.0	.75	.25	9/64	89° 30'	16	L.72

TABLE 4 (Continued)

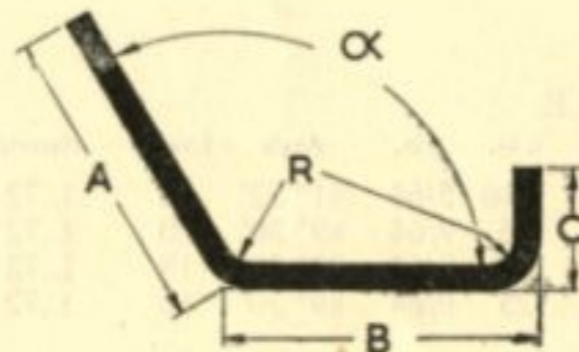
Section E



LIPPED RIGHT ANGLE

S.S. No.	A in.	B in.	C in.	R in.	S.W.G.	Material
67/1793	1	1	3/16	1/32	22	L.72
155/1793	3/4	1/2	3/8	7/64	18	L.72
213/1793	5/8	.6	9/64	3/32	16	L.72
289/1793	.505	.505	.185	.08	20	L.72
337/1793	.50	.67	1/4	7/64	20	L.72
385/1793						
386/1793	.80	1.0	.3	.07	20	L.72
406/1793	.95	1.25	.4	.19	14	L.72
410/1793	.80	1.0	.3	7/64	18	L.72
431/1793	.88	.99	.31	.13	22	L.72
522/1793	.50	.60	9/64	3/32	16	L.72
523/1793	5/8	1	7/64	3/32	16	L.72
524/1793	1.25	1.25	.142	3/32	16	L.72

Section F



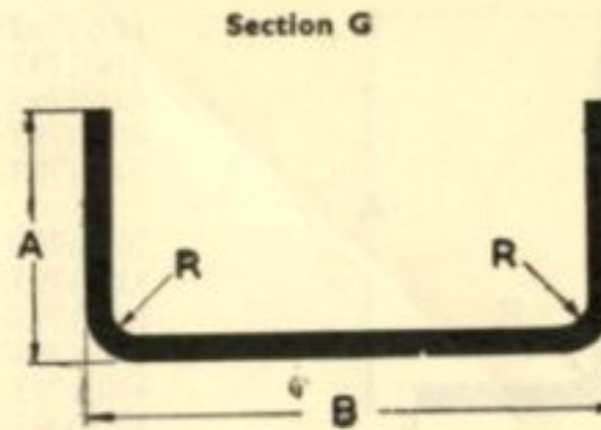
LIPPED RIGHT ANGLE (Continued)

S.S. No.	A in.	B in.	C in.	R in.	S.W.G.	Material
525/1793	1.25	1.25	.25	7/32	12	L.72
528/1793	.75	.75	3/16	3/32	16	L.72
602/1793	1.25	1.75	.50	5/16	10	L.72
619/1793	1.25	1.06	.23	3/32	14	L.72
664/1793	.75	.75	.18	3/32	20	L.72
665/1793	.625	.625	.18	3/32	20	L.72
678/1793	1.0	.625	.3	3/32	16	L.72
688/1793	1.25	1.25	.146	7/32	12	L.72
712/1793	1.0	1.5	.25	9/64	16	L.72
746/1793	1.75	1.0	5/16	1/4	12	L.72
752/1793	.65	.75	.15	1/8	20	L.72
758/1793	.75	.75	.188	3/32	16	DTD.171B
779/1793	1.0	1.12	.3	7/32	16	L.72
789/1793	.57	.54	.17	3/32	24	L.72
794/1793	.58	.57	.18	7/64	22	L.72
834/1793	1.0	.88	.25	.23	18	L.72
852/1793	.75	.75	.15	3/32	18	L.72
863/1793	1.1	1.0	.20	1/8	18	L.72
874/1793	.625	1.0	.187	1/32	22	L.72
875/1793	.85	1.5	.25	1/8	20	L.72
937/1793	1.375	1.25	.33	1/4	12	L.72
983/1793	.63	.88	.30	9/64	16	L.72
984/1793	.63	.88	.30	1/8	18	L.72
985/1793	.63	.88	.30	3/32	20	L.72
995/1793	1.0	1.0	.30	1/8	16	L.72
20/7000	1.0	.552	.50	1/16	20	L.72
23/7000	.75	.998	.50	1/8	20	L.72

LIPPED OBTUSE ANGLE

S.S. No.	A in.	B in.	C in.	R in.	Angle	S.W.G.	Material
304/1793	1.0	1.0	.35	.14	96° 18'	16	L.72
732/1803	.88	1.12	.25	5/32	91°	16	L.72
735/1793	1.0	1.0	.40	.187	97° 30'	14	DTD.687
805/1793	1.0	.75	.25	9/64	90° 30'	20	L.72
807/1793	1.0	.75	.25	9/64	90° 30'	18	L.72
809/1793	1.0	.75	.25	9/64	90° 30'	16	L.72

TABLE 4 (Continued)



2.8
2.6

1.68
50

7.28

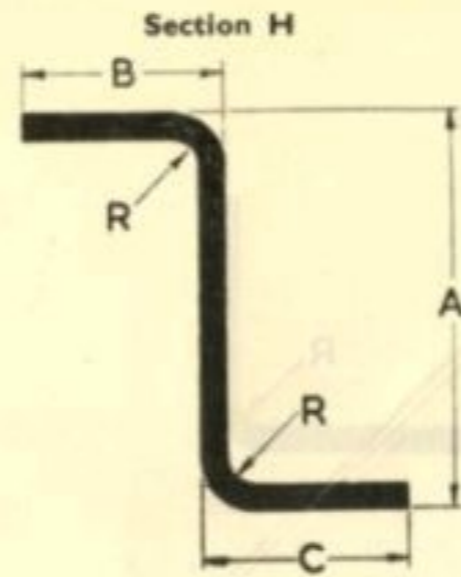
CHANNEL SECTION

S.S. No.	A in.	B in.	R. in.	S.W.G.	Material
2/1793	1/2	3/4	1/16	20	L.72
54/1793	1/2	1 3/8	1/16	18	L.72
68/1793	1/4	3/4	1/32	20	L.72
72/1793	13/32	2 3/8	1/32	20	L.72
100/1793	5/8	2	5/64	20	L.72
102/1793	3/4	2	5/64	20	L.72
110/1793	1 1/2	1	9/64	16	L.72
136/1793	5/8	1	5/64	22	L.72
150/1793	3/4	31/32	9/64	16	L.72
157/1793	5/8	.553	5/64	20	L.72
194/1793	1/4	1.7	7/64	20	L.72
206/1793	5/8	5/8	7/64	18	L.72
233/1793	1.0	3.0	5/32	16	L.72
238/1793	5/8	2.0	7/64	18	L.72
264/1793	.60	1.85	7/64	18	L.72
275/1793	.75	1.1	.078	20	L.72
278/1793	.65	2.25	11/64	18	L.72
297/1793	.75	1.25	.11	20	L.72
334/1793	7/32	1.0	5/32	18	L.72
348/1793	9/16	1.5	3/32	18	L.72
381/1793	.75	1.0	7/64	18	L.72
413/1793	.75	1.5	.156	20	L.72
455/1793	.75	3.0	7/64	18	L.72
477/1793	1.0	1.0	3/32	20	L.72
516/1793	.53	.60	3/64	22	L.72
573/1793	.75	.60	5/64	22	L.72
593/1793	5/8	1.0	5/64	22	L.72
667/1793	.75	1.25	1/8	18	L.72
742/1793	1.76	2.947	1/8	20	L.72
744/1793	.2	.75	1/16	28	DTD.166B or 171B

CHANNEL SECTION (Continued)

S.S. No.	A in.	B in.	R in.	S.W.G.	Material
745/1793	1.15	2.35	7/32	16	DTD.687
748/1793	.70	2.0	.10	18	L.72
754/1793	.25	3.0	1/8	20	L.72
769/1793	.25	1.116	1/8	18	DTD.687
780/1793	1.0	1.5	11/64	18	L.72
791/1793	.63	.75	1/8	20	L.72
813/1793	.50	2.136	1/32	26	DTD.171B or 166B
851/1793	.65	.90	3/32	18	L.72
864/1793	.73	.844	.29	22	L.72
865/1793	.80	.865	.29	20	DTD.118A
876/1793	.78	.86	.07	22	L.72
878/1793	.78	.89	.09	20	L.72
881/1793	.25	2.4	1/8	18	L.72
882/1793	.65	.85	3/32	20	L.72
883/1793	.70	.88	3/32	18	L.72
884/1793	.73	.87	3/32	20	L.72
893/1793	1.0	1.19	5/32	16	L.72
903/1793	.50	.25	1/32	20	DTD.171B
907/1793	.84	.910	1/8	20	L.72
938/1793	.125	.60	3/32	20	L.72
939/1793	2.75	2.6	7/32	16	DTD.687
940/1793	.625	2.062	7/64	22	L.72
967/1793	1.0	.75	.327	18	L.72
968/1793	1.0	.75	.311	16	DTD.687
969/1793	.95	.65	.325	18	L.72
990/1793	.75	2 3/32	5/64	20	L.72
26/7000	.75	.998	17/64	14	L.72
27/7000	1.0	.998	1/8	20	L.72
29/7000	1.0	1.498	3/32	20	L.72

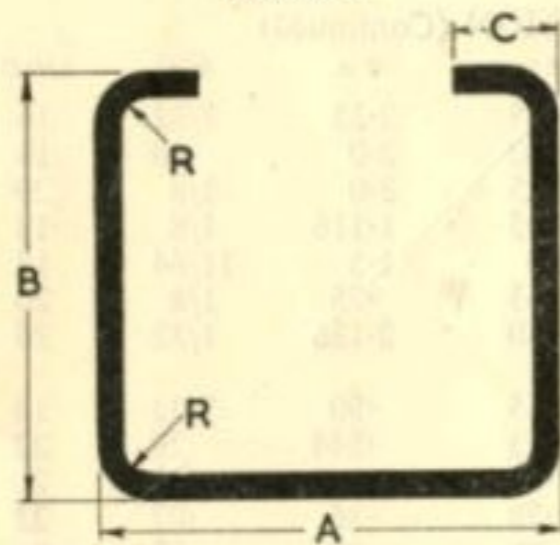
TABLE 4 (Continued)



Z SECTION

S.S. No.	A in.	B in.	C in.	R in.	S.W.G.	Material
192/1793	.60	.25	1.25	3/64	22	L.72
419/1793	.336	.246	.74	.09	20	L.72
428/1793	1.048	.8	1.25	7/64	18	L.72
451/1793	.648	.875	.875	7/64	18	L.72
743/1793	.7	.902	1.0	1/16	26	DTD.166B or 171
767/1793	.736	.386	.6	3/32	20	L.72
817/1793	1.1875	1.0	1.0	7/64	18	L.72
895/1793	.55	.60	1.185	7/64	22	L.72
896/1793	.55	.60	1.4	7/64	22	L.72
980/1793	.75	.62	1.198	1/8	18	L.72
19/7000	.552	.50	.75	1/16	20	L.72
21/7000	.564	.63	1.17	7/64	18	L.72
22/7000	.944	.75	1.20	3/32	20	L.72
24/7000	1.063	.666	.62	1/8	20	L.72
28/7000	1.584	1.0	1.0	5/32	16	L.72
30/7000	1.556	1.0	1.0	3/32	20	L.72
35/7000	.994	.75	1.35	3/32	20	L.72
36/7000	.559	.62	2.0	1/8	20	L.72

Section I



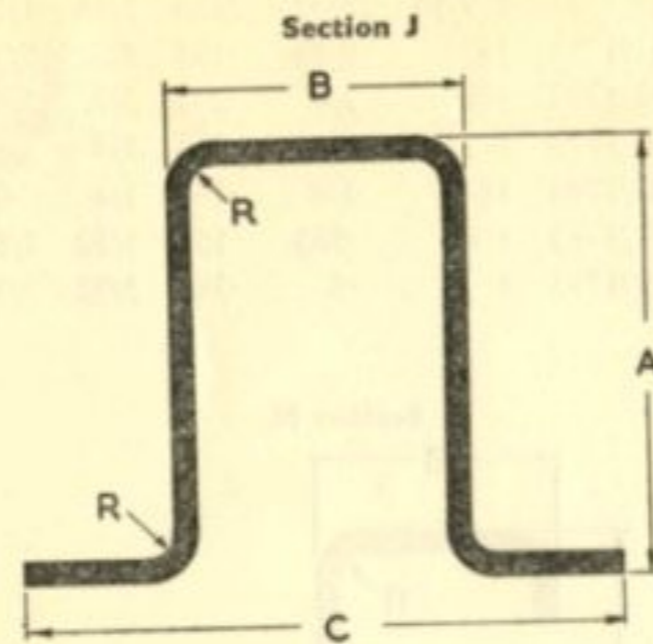
LIPPED CHANNEL SECTION

S.S. No.	A in.	B in.	C in.	R in.	S.W.G.	Material
15/1793	1 1/2	3/4	5/32	2/32	16	L.72
74/1793	3.9	1	5/16	13/64	16	L.72
77/1793	5.9	1	5/16	16/64	16	L.72
93/1793	1	3/4	.223	5/64	20	L.72
95/1793	3	7/8	1/4	5/32	20	L.72
108/1793	2	1 3/8	3/8	11/64	14	L.72
122/1793	3	3/4	1/4	5/64	20	L.72
129/1793	1	3/4	.215	5/64	22	L.72
132/1793	2	3/4	.215	5/64	22	L.72
153/1793	2	1 1/2	5/16	9/64	16	L.72
158/1793	2 13/16	3/4	1/4	5/64	20	L.72
224/1793	3.04	1.09	5/16	9/64	16	L.72
244/1793	2	1 1/2	5/16	7/64	18	L.72
285/1793	1.7	1.51	.26	.15	16	L.72
308/1793	2.5	.88	1/4	.13	18	L.72
394/1793	3	.88	1/4	.13	18	L.72
414/1793	1 1/2	1 1/2	1/4	3/16	16	L.72
420/1793	3.04	1.09	.312	.13	18	L.72
429/1793	3	1.05	5/16	11/64	14	L.72

LIPPED CHANNEL SECTION (Continued)

S.S. No.	A in.	B in.	C in.	R in.	S.W.G.	Material
486/1793	2	1	.15	7/64	18	L.72
495/1793	1.378	.908	.439	.09	16	L.72
513/1793	1.5	1.5	.25	7/64	18	L.72
524/1793						
558/1793	1	.75	.095	5/64	18	L.72
559/1793	1	.75	.142	3/32	16	L.72
579/1793	3	.75	.31	7/64	18	L.72
589/1793	4.5	1	.3	5/32	16	L.72
590/1793	4.5	1	.3	1/8	18	L.72
594/1793	3	1.05	.25	7/64	18	DTD.687
595/1793	3	1.05	5/16	11/64	14	DTD.687
596/1793	2	.75	.25	7/64	20	L.72
600/1793	2	1	.31	9/64	16	L.72
606/1793	2	2	.38	.171	18	L.72
613/1793	2	.75	.25	1/8	18	L.72
677/1793	1.5	.75	.22	1/8	18	L.72
692/1793	2	1.375	.375	11/64	14	L.73
703/1793	2.6	.88	.2	7/64	22	L.72
721/1793	2.6	3.0	.5	.372	10	L.72
749/1793	2.6	1.0	.2	1/8	20	L.72
750/1793	2.6	.75	.2	1/8	20	L.72
766/1793	2.75	1.09	5/16	9/64	16	L.72
775/1793	1.73	.75	.25	5/64	22	L.72
776/1793	1.73	.75	.25	1/8	20	L.72
816/1793	1.25	.75	.31	7/64	18	L.72
829/1793	2	1.5	.35	.30	12	L.72

TABLE 4 (Continued)



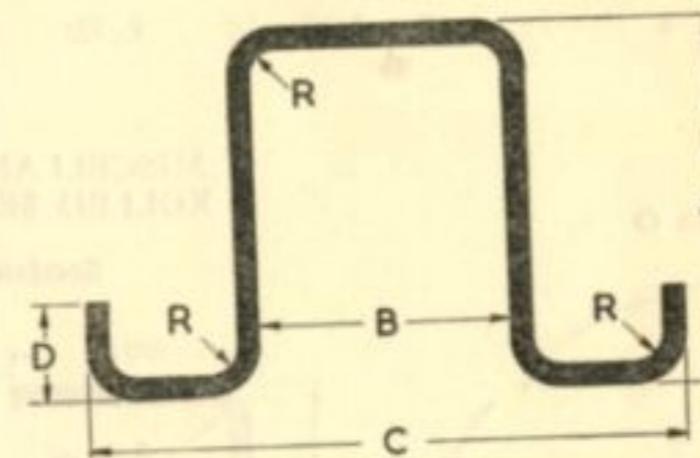
TOP HAT SECTION J

S.S. No.	A in.	B in.	C in.	R in.	S.W.G.	Material
83/1793	1.58	1	2 3/8	11/64	14	L.72
84/1793	1.564	1	2 3/8	9/64	16	L.72
182/1793	1.584	1	2 3/8	9/64	18	L.72
186/1793	-.60	-.50	1.65	7/64	22	L.72
196/1793	1.75	1	2 3/8	11/64	14	L.72
221/1793	2.0	1	2 3/8	7/64	18	L.72
376/1793	-.598	-.592	2.52	1/16	20	L.72
377/1793	-.556	-.592	3.02	1/16	20	L.72
382/1793	1	1.116	2.52	.11	18	L.72
405/1793	1.022	-.783	1.647	1/16	18	L.72
412/1793	1	-.721	1.875	5/64	18	L.72
427/1793	1.048	1.596	3	7/64	18	L.72
482/1793	1.0	-.685	1.875	1/32	22	L.72
507/1793	-.596	-.528	1.65	-.08	20	L.72
510/1793	-.75	-.656	1.75	-.06	22	L.72
512/1793	-.75	-.732	1.9	-.10	20	L.72
581/1793	2.5	1.128	2.5	9/64	16	L.72
599/1793	2.0	1.0	2.375	3/32	20	L.72
842/1793	1.7	1.062	2.375	9/64	18	L.72
917/1793	-.56	-.60	1.72	1/16	20	L.72

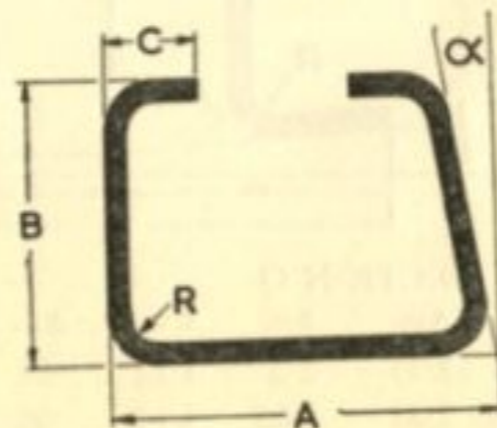
LIPPED TOP HAT SECTION L

S.S. No.	A in.	B in.	C in.	D in.	R in.	S.W.G.	Material
85/1793	1	5/8	1 7/8	3/16	7/64	18	L.72
91/1793	1	5/8	1 7/8	3/16	3/64	24	L.72
92/1793	1	5/8	1 7/8	3/16	3/64	22	L.72
146/1793	5/8	-.944	2 1/4	3/16	5/64	24	L.72
211/1793	1	5/8	1 7/8	3/16	5/64	20	L.72
219/1793	1 3/16	5/8	1 7/8	3/16	7/64	18	L.72
220/1793	1 3/16	5/8	1 7/8	3/16	5/64	24	L.72
294/1793	-.64	1.2	2.6	1/4	5/64	20	L.72
379/1793	1/2	-.319	1 1/2	-.175	1/16	22	L.72
500/1793	1/2	3/4	2 1/2	1/4	7/64	18	L.72

Section L



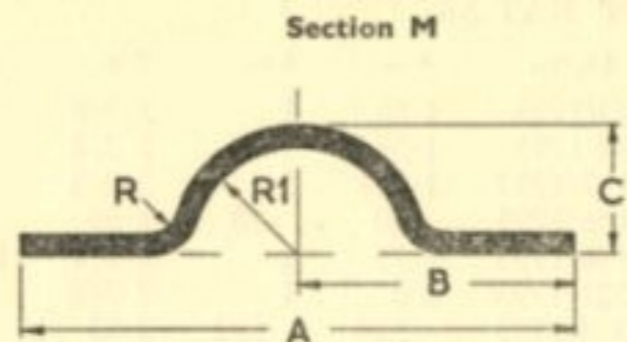
Section K



LIPPED CHANNEL K

S.S. No.	A in.	B in.	C in.	R in.	Angle	S.W.G.	Material
887/1793	1.5	1.0	-.15	7/64	5°	18	L.72
890/1793	1.25	1.0	-.15	7/64	5°	18	L.72
891/1793	1.0	1.0	-.15	7/64	5°	18	L.72

TABLE 4 (Continued)

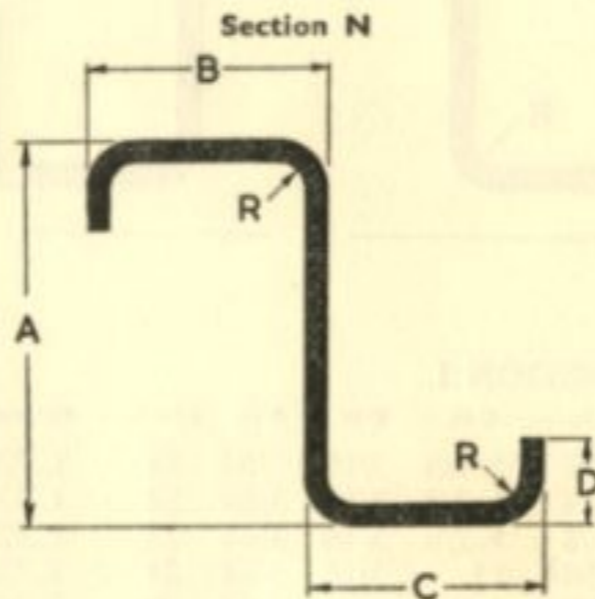


DISHED SECTION M

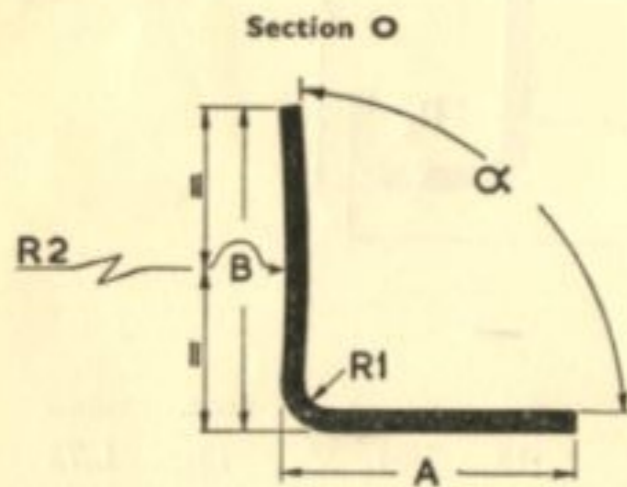
S.S. No.	A in.	B in.	C in.	R1	R2	S.W.G.	Material
6A/1793	1.8	.9	.536	1/4	1/4	20	L.73
14/1793	1 9/16	25/32	5/16	5/16	1/16	18	L.72
17/1793	1 1/8	9/16	.153	5/32	5/32	22	L.72
18/1793	1 1/8	3/4	.278	3/32	5/32	22	L.72
140/1793	1 3/8	11/16	.466	1/4	3/64	22	L.72
843/1793	1 1/8	3/4	.187	1/4	.05	22	L.72
981/1793	1.13	.565	.153	5/32	1/8	24	S.3
849/1793	1	.5	.380	3/32	3/32	22	L.72

LIPPED Z SECTION N

S.S. No.	A in.	B in.	C in.	D in.	R in.	S.W.G.	Material
164/1793	1 1/2	3/4	3/4	1/4	3/32	18	L.72
582/1793	3/4	.6	.6	1/8	3/32	20	DTD.687
583/1793	1	.6	.6	1/8	3/32	20	DTD.687
586/1793	2.6	.65	.65	.2	7/64	22	
828/1793	1.19	.64	.65	.2	3/32	20	L.72
830/1793	1.0	.636	.625	.187	3/32	20	L.72
979/1793	1.37	.4	.55	.17	3/32	18	L.72

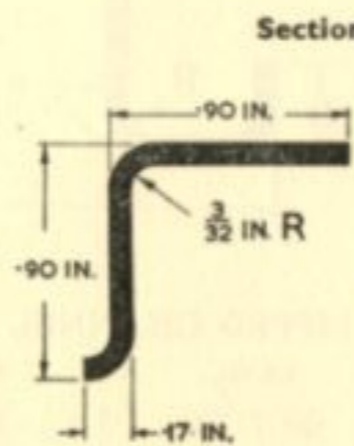


MISCELLANEOUS ROLLED SECTION

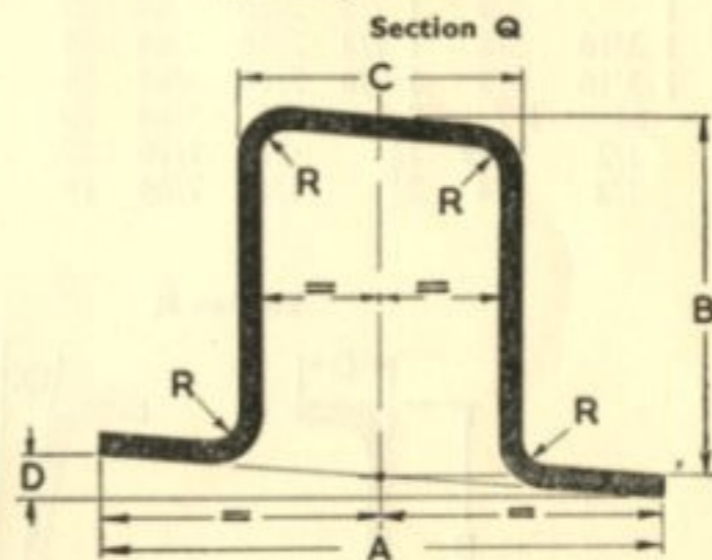


ANGLE SECTION O

S.S. No.	A in.	B in.	R1 in.	R2 in.	Angle	S.W.G.	Material
741/1793	1.5	1.5	1/4	8.3	90°	12	L.72
739/1793	1.5	1.5	1/4	8.3	80°	12	L.72



696/SS1793
18 S.W.G.
L.72



TOP HAT SECTION Q

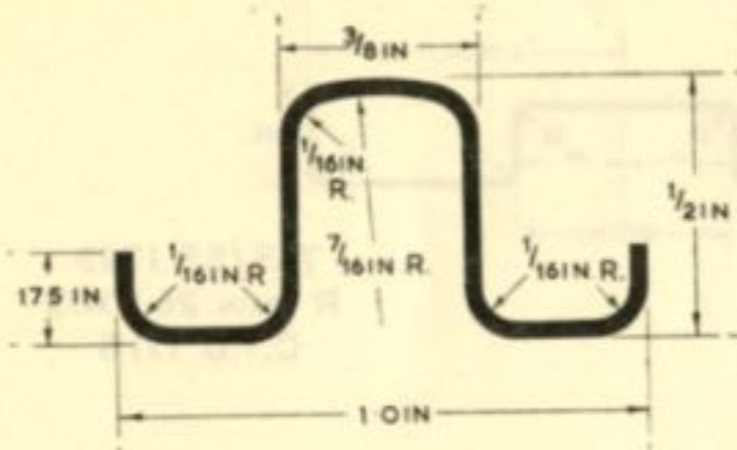
S.S. No.	A in.	B in.	C in.	D in.	R in.	S.W.G.	Material
825/1793	2.37	2.2	1.12	.08	1/8	20	L.72
25/7000	2.37	1.05	1.12	.08	1/8	20	L.73

RESTRICTED

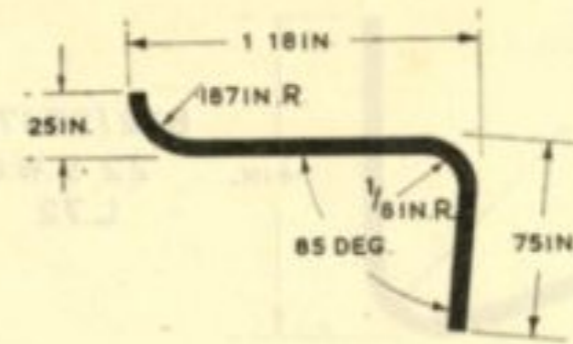
TABLE 4 (Continued)

MISCELLANEOUS ROLLED SECTIONS

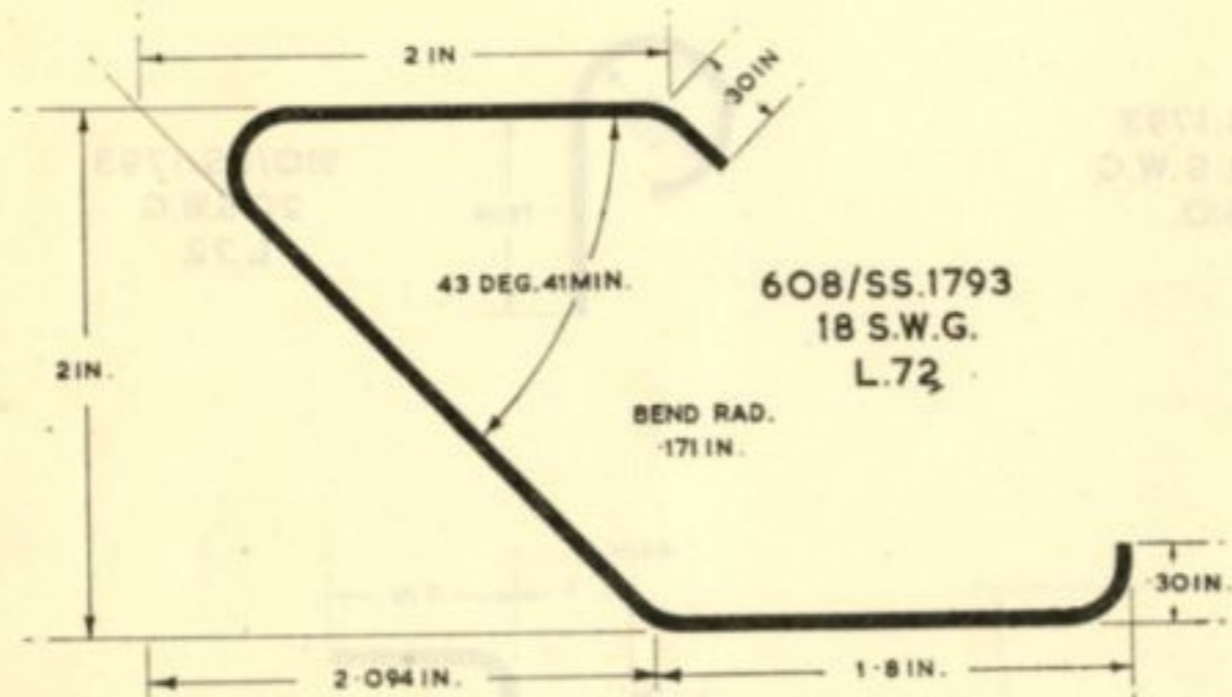
Sections R



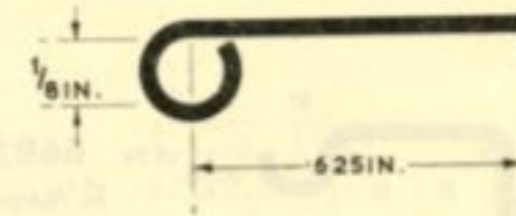
367/SS.1793
22 S.W.G.
L.72



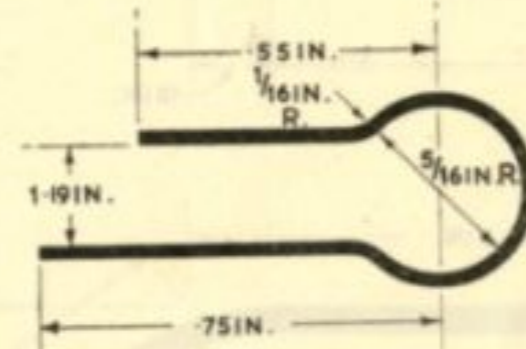
690/SS.1793
16 S.W.G.
L.72



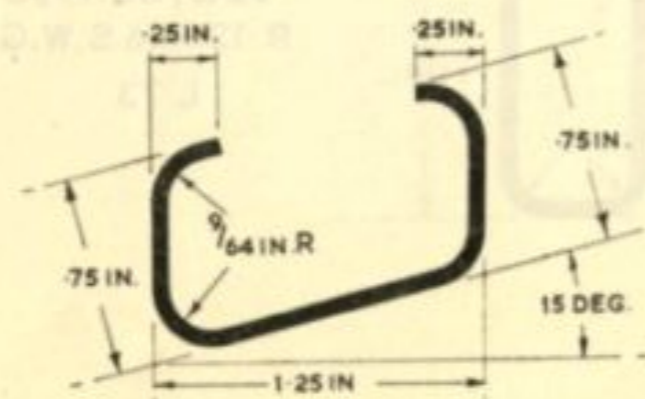
608/SS.1793
18 S.W.G.
L.72



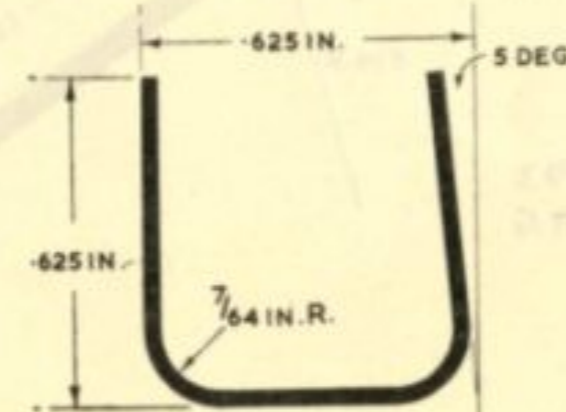
702/SS.1793
20 S.W.G.
L.72



718/SS.1793
22 S.W.G.
L.72



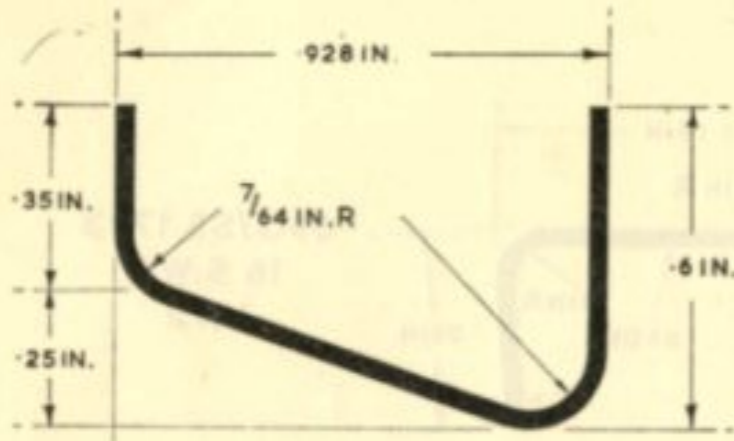
666/SS.1793
16 S.W.G.
L.72



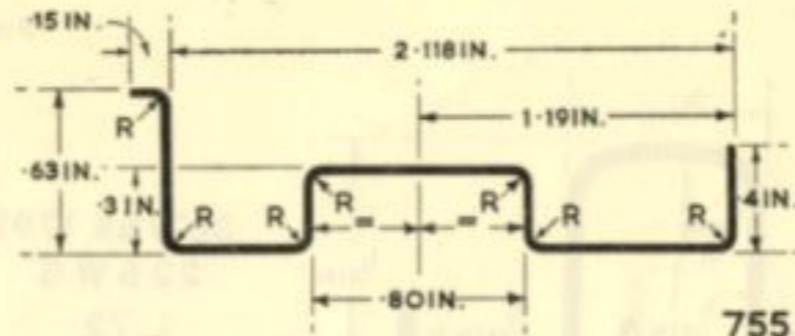
892/SS.1793
18 S.W.G.
L.72

TABLE 4 (Continued)

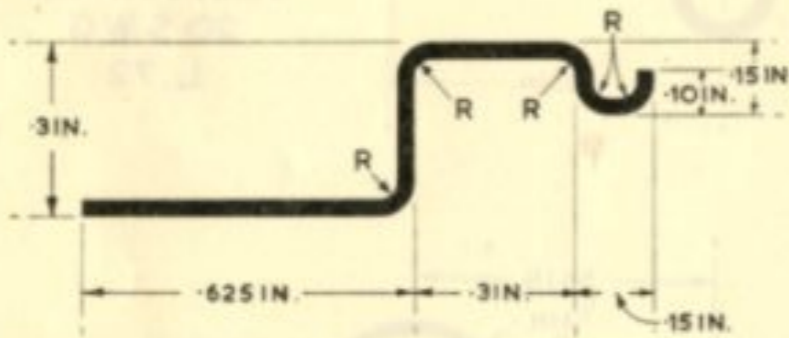
Sections 5



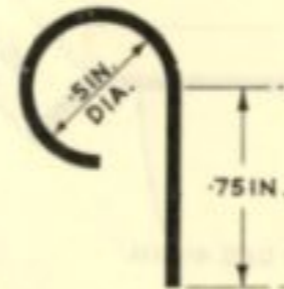
822/SS.1793
22 S.W.G
L.72



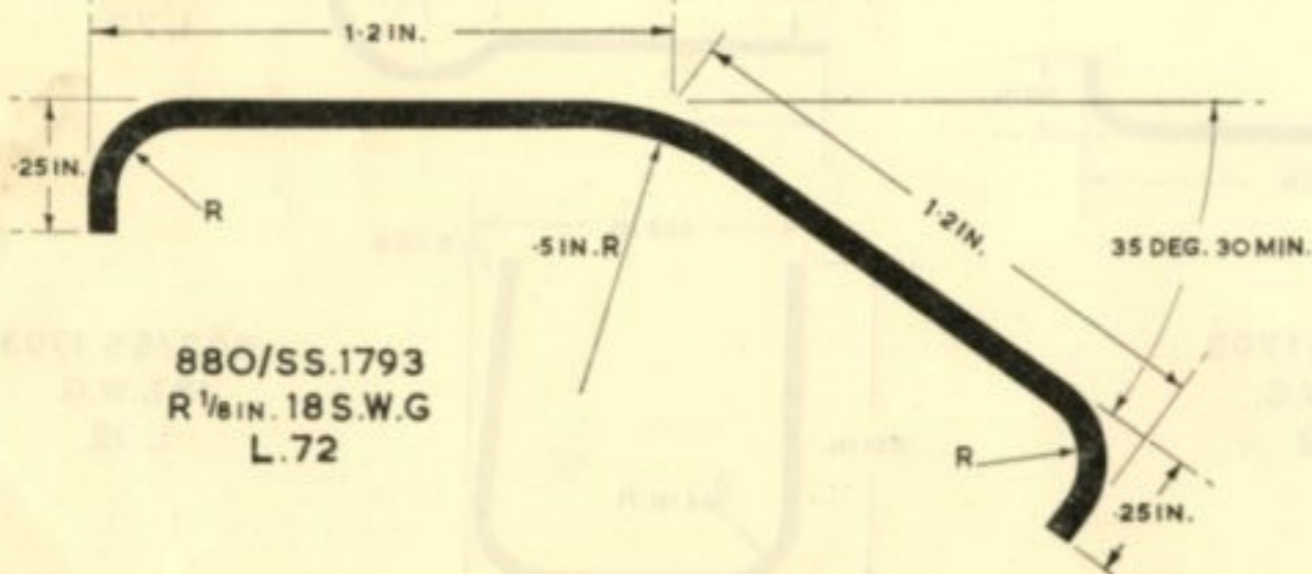
755/SS.1793
R 1/32 IN. 26 S.W.G
D.T.D 171B



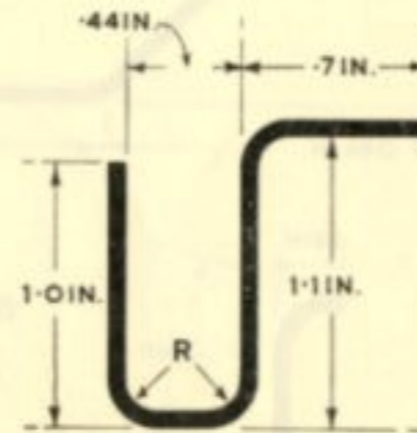
868/SS.1793
R 1/64 IN. 22 S.W.G
S. 510



910/SS.1793
20 S.W.G
L.72



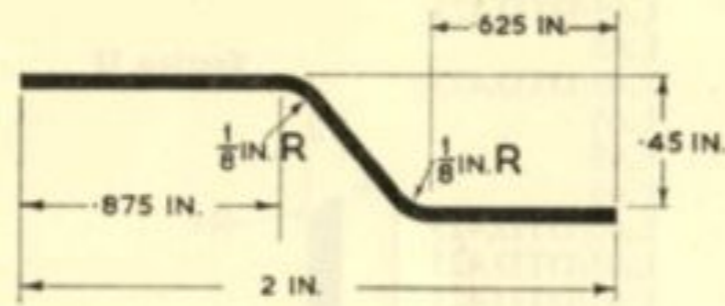
880/SS.1793
R 1/8 IN. 18 S.W.G
L.72



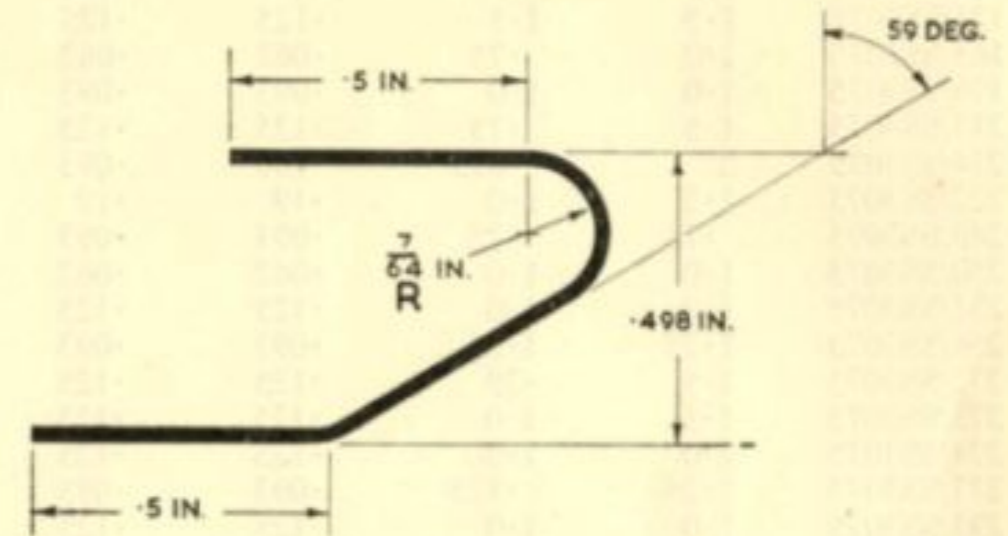
920/SS.1793
R .12 IN. 16 S.W.G
L 73

TABLE 4 (Continued)

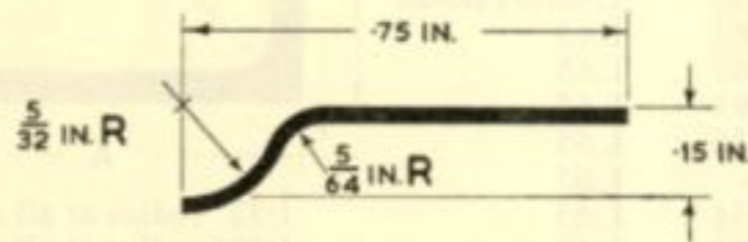
Sections T



943/SS.1793
18 S.W.G.
L.72



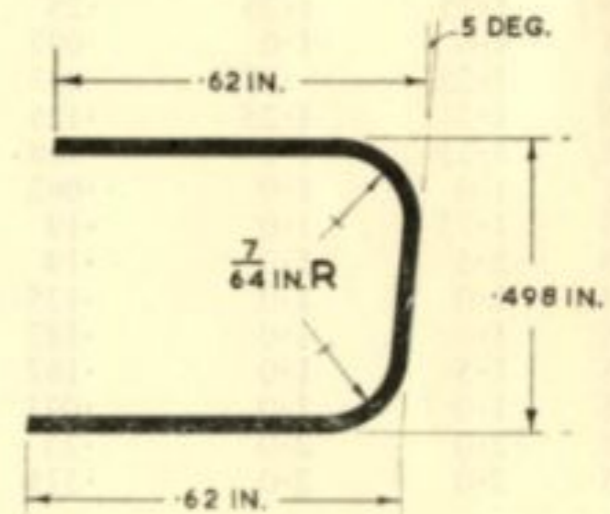
39/SS.7000
22 S.W.G.
L.72



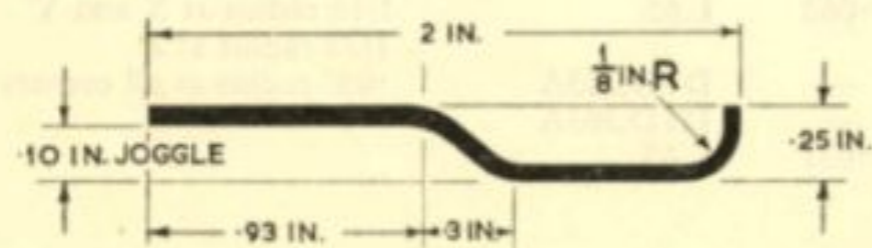
914/SS.1793
22 S.W.G.
L.72



929/SS.1793
18 S.W.G.
L.72



37/SS.7000
22 SWG
L.72

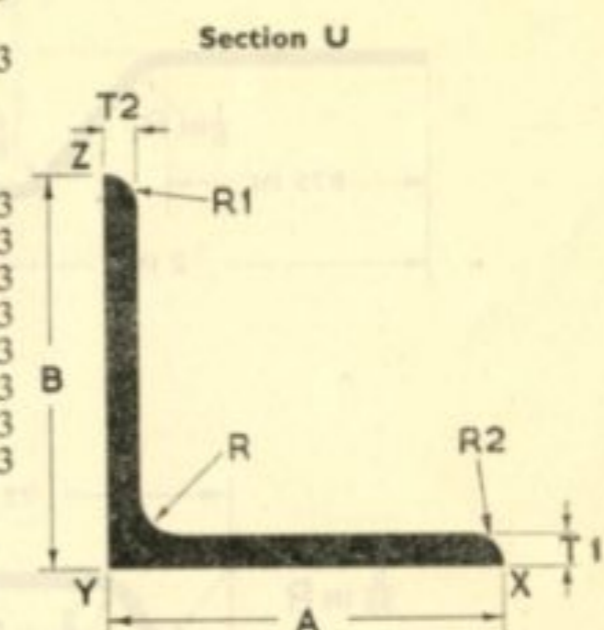


978/SS.1793
16 S.W.G.
L.72

TABLE 4 (Continued)

RIGHT ANGLE

Item No.	A in.	B in.	T1 in.	T2 in.	R in.	R1 in.	R2 in.	Specification	Remarks
67/SS3075	1.5	1.5	.187	.187	.187	.093	.093	L.65/DTD.363A	1/16 Radius at all corners
121/SS3075	1.5	1.5	.125	.125	.312	.125	.125	L.65/DTD.423	
163/SS3075	1.0	.75	.062	.062	.062	.031	.031	L.65	
176/SS3075	1.0	1.0	.093	.093	.093	.046	.046	L.65/DTD.423	
213/SS3075	1.5	.75	.125	.125	.125	.062	.062	L.65	
214/SS3075	2	.875	.156	.093	.125	—	—	L.65	
222/SS3075	1.5	1.0	.19	.19	.2	.05	.05	L.65	
249/SS3075	.75	.75	.093	.093	.093	.046	.046	L.65/DTD.423	
250/SS3075	1.0	1.0	.062	.062	.062	.031	.031	L.65/DTD.423	
251/SS3075	1.0	1.0	.125	.125	.125	.062	.062	L.65/DTD.423	
256/SS3075	1.25	1.25	.093	.093	.093	.046	.046	L.65/DTD.423	
272/SS3075	1.5	.75	.125	.125	.125	.062	.062	L.65/DTD.423	
273/SS3075	1.5	1.0	.125	.125	.156	.125	.125	L.65/DTD.423	
274/SS3075	2.0	1.0	.125	.125	.125	—	—	L.65/DTD.423	
277/SS3075	1.25	.875	.093	.093	.046	.046	.046	L.65/DTD.423	
293/SS3075	1.0	1.0	.125	.125	.125	.062	.062	L.65	
294/SS3075	1.25	1.0	.125	.125	.125	.062	.062	L.65	
300/SS3075	2.0	2.0	.1875	.1875	.25	.093	.093	L.65	
304/SS3075	1.25	1.25	.187	.187	.218	.156	.156	L.65	
305/SS3075	2.0	2.0	.25	.50	.25	—	—	L.65	
306/SS3075	1.25	1.25	.093	.093	.093	.031	.031	L.65	
307/SS3075	1.25	1.25	.125	.125	.187	.062	.062	L.65	
314/SS3075	1.5	1.5	.08	.08	.125	.031	.031	L.65	
324/SS3075	1.625	1.5	.125	.25	.187	.125	.062	L.65	
333/SS3075	1.5	1.0	.125	.125	.156	.125	.125	L.65	
340/SS3075	1.0	1.0	.125	.125	.125	.062	.062	L.65	
341/SS3075	1.25	1.25	.25	.25	.187	.125	.125	L.65	
343/SS3075	1.0	1.0	.093	.093	.093	.046	.046	L.65	
356/SS3075	1.25	.875	.093	.093	.093	.046	.046	L.65	
361/SS3075	1.5	1.25	.125	.125	.125	.062	—	L.65	
362/SS3075	3.25	1.5	.188	.188	.125	.09	.09	L.65	
376/SS3075	1.0	1.0	.062	.062	.062	.031	.031	L.65	
394/SS3075	1.75	1.0	.19	.19	.187	—	—	L.65	.03" radius at all corners
395/SS3075	2.5	1.0	.19	.19	.187	—	—	L.65	.03" radius at all corners
396/SS3075	1.0	1.0	.125	.125	.125	.062	.062	DTD.363A	.03" radius at all corners
397/SS3075	1.0	1.0	.187	.187	.10	.062	.062	DTD.363A	.03" radius at all corners
398/SS3075	1.5	1.0	.187	.10	.10	.062	.062	DTD.363A	.03" radius at all corners
399/SS3075	1.0	1.0	.093	.093	.093	.046	.234	DTD.363A	
404/SS3075	2.0	2.0	.25	.25	.25	.031	.03	L.65	1/32 radius at all corners
405/SS3075	2.0	2.0	.375	.25	.25	.031	.062	L.65	1/16 radius at X and Y 1/32 radius at Z
411/SS3075	3.54	1.63	.5	.54	.25	—	—	DTD.363A	.03" radius at all corners
429/SS3075	1.25	.90	.08	.08	.10	—	—	DTD.363A	
469/SS3075	.75	.75	.062	.062	.062	.031	.031	L.65	



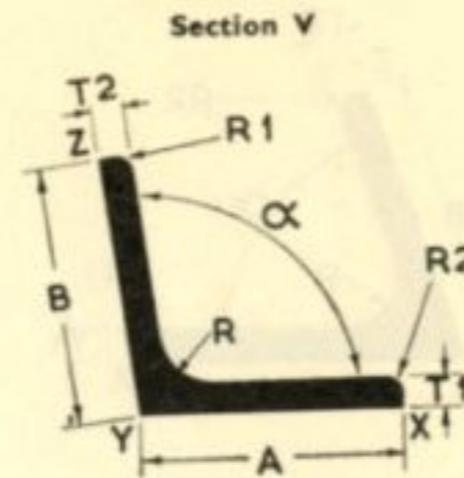
1/32" radius at all corners
1/32" radius at all corners
1/32" radius at all corners

Chamfer at X0.125" X.095"

.03" radius at all corners
.03" radius at all corners
.03" radius at all corners
.03" radius at all corners

1/32 radius at all corners
1/16 radius at X and Y
1/32 radius at Z
.03" radius at all corners

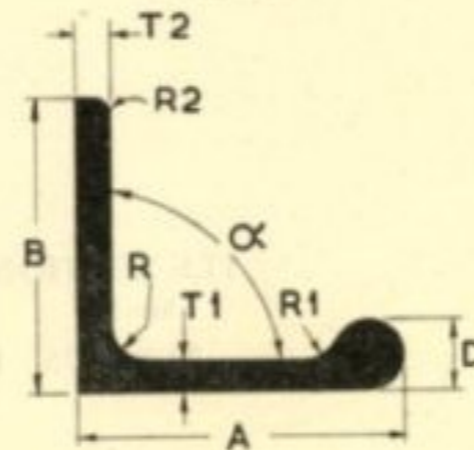
TABLE 4 (Continued)



OBTUSE ANGLE

Item No.	A in.	B in.	T1 in.	T2 in.	R in.	R1 in.	R2 in.	Angle	Specification	Remarks
254/SS3075	1.0	1.0	.125	.125	.125	.067	.067	97° 30'	L.65 or DTD.423	
269/SS3075	1.25	1.25	1.25	.125	.187	.062	.062	93°	L.65/DTD.423	
276/SS3075	1.5	1.0	.125	.125	.156	.125	.125	93° 5'	L.65/DTD.423	
295/SS3075	1.375	1.3125	.1875	.25	.187	.062	.062	97° 30'	L.65	1/32" radius at all corners
299/SS3075	1.5	1.5	.187	.187	.187	.093	.093	93°	L.65	1/32" radius at X, Y and Z
313/SS3075	2.0	1.0	.10	.10	.093	.031	.031	100° 00'	L.65	1/32" radius at all corners
329/SS3075	1.5	1.25	.125	.125	.187	.062	.062	99° 20'	L.65	1/32" radius at all corners
331/SS3075	1.5	1.25	.125	.125	.187	.062	.062	101°	L.65	Chamfer at X .125" x .093"
338/SS3075	1.25	1.25	.125	.125	.187	.062	.062	95°	L.65	
353/SS3075	1.1875	1.0	.08	.08	.08	.08	.08	102° 30'	L.65	
354/SS3075	2.093	1.312	.187	.234	.187	—	—	105° 00'	L.65	
355/SS3075	1.25	.875	.125	.125	.156	—	—	93° 00'	L.65	1/32" radius at all corners
359/SS3075	.75	.625	.062	.062	.062	—	—	95° 00'	L.65	1/32" radius at all corners
390/SS3075	1.2	.9	0.1	0.1	0.1	—	—	100° 00'	L.65	.03" radius at Y
486/SS3075	1.5	1.0	.19	.19	.125	—	—	126° 30'	L.65	

Section W

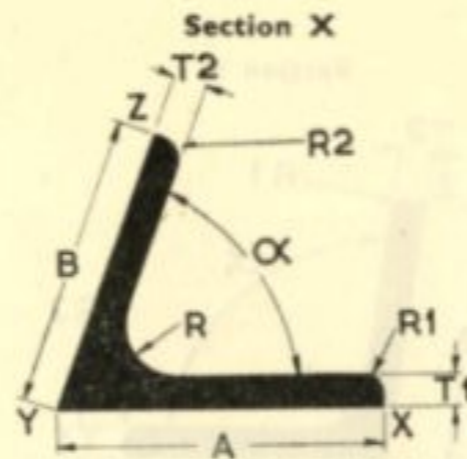


BEADED ANGLE

Item No.	A in.	B in.	T1 in.	T2 in.	D in.	R in.	R1 in.	R2 in.	Angle	Specification
248/SS3075	.75	.75	.062	.062	.187	.15	.093	.062	90°	L.65/DTD.423
347/SS3075	1.25	1.25	.104	.104	.25	.125	.125	.06	90°	L.65
402/SS3075	1.25	1.25	.064	.064	.156	.125	.071	.06	90°	L.65

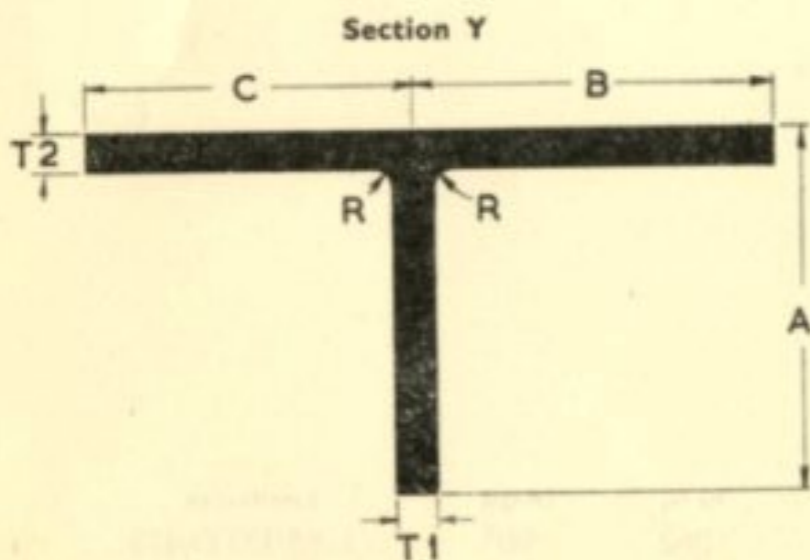
RESTRICTED

TABLE 4 (Continued)



ACUTE ANGLE

Item No.	A in.	B in.	T1 in.	T2 in.	R in.	R1 in.	R2 in.	Angle	Specification	Remarks
182/SS3075	1.5	1.25	.125	.125	.187	—	.062	79°	L.65	.125" radius at X
221/SS3075	1.25	1.25	.125	.125	.187	.062	.062	70°	L.65	
255/SS3075	1.0	1.0	.125	.125	.10	.062	.062	80°	L.65/DTD.423	
259/SS3075	1.187	1.187	.08	.08	.08	.08	.08	75°	L.65/DTD.423	
298/SS3075	1.5	1.5	.187	.187	.187	—	—	85° 30'		1/32" radius on all corners
316/SS3075	1.25	.87	.125	.125	.125	—	—	85° 00'	L.65	1/32" radius on all corners
317/SS3075	1.5	.87	.125	.125	.125	—	—	83° 30'	L.65	1/32" radius on all corners
323/SS3075	1.5	1.5	.125	.125	.187	.06	.06	66° 00'	L.65	1/32" radius on all corners
330/SS3075	1.25	1.25	.125	.125	.187	.062	.062	85° 00'	L.65	1/32" radius on all corners
344/SS3075	1.25	1.0	.125	.125	.187	.062	.062	85° 00'	L.65	1/32" radius on all corners
348/SS3075	2.1	1.625	.187	.187	.187	—	—	58° 30'	L.65	1/16" radius at Y
352/SS3075	2.1	1.625	.187	.187	.187	—	—	70° 00'	L.65	1/16" radius at Y
358/SS3075	.75	.625	.062	.062	.062	—	—	85° 00'	L.65	1/32" radius at all corners
415/SS3075	1.5	.86	.31	.22	.10	—	—	84° 00'	DTD.363A	1/32" radius at all corners
428/SS3075	.75	.75	.08	.08	.10	—	—	78° 44'	DTD.363A	.015" radius at all corners

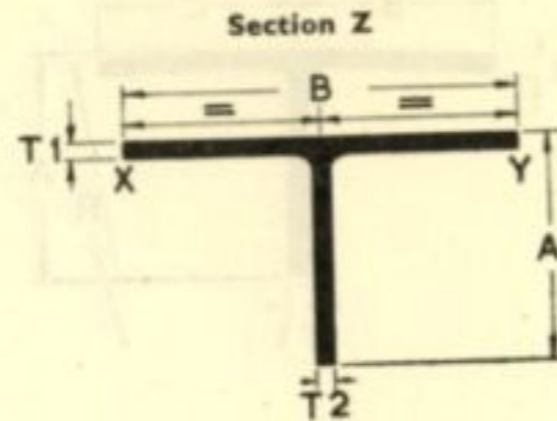


TEE SECTION, UNEQUAL TOP FLANGES, 90°

Item No.	A in.	B in.	C in.	T1 in.	T2 in.	R in.	Specification
23/SS3075	1.375	1.375	1.25	.15	.15	.06	L.65/DTD.423

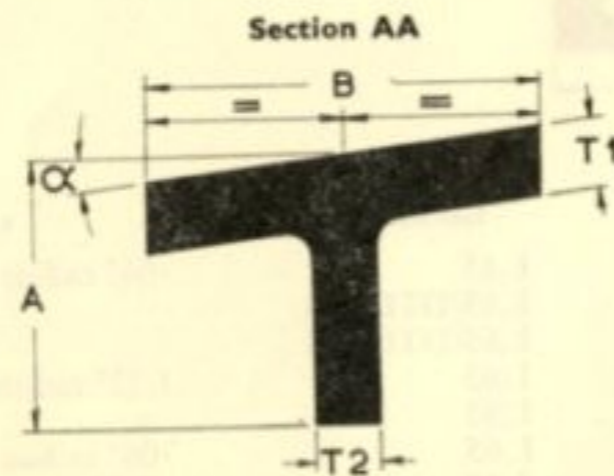
RESTRICTED

TABLE 4 (Continued)



TEE SECTIONS

Item No.	A in.	B in.	T1 in.	T2 in.	R in.	Specification	Remarks
58/SS3075	1.125	1.5	.062	.062	.062	L.65/DTD.423	.031" radius at all corners
165/SS3075	.875	1.5	.062	.062	.062	L.65	
180/SS3075	1.25	1.6	.15	.15	.062	L.65	
192/SS3075	1.0	2.0	.10	.10	.10	L.65	
292/SS3075	1.0	2.0	.10	.10	.10	L.65	
301/SS3075	1.0	2.0	.10	.10	.10	DTD.683	
309/SS3075	.60	1.1	.05	.05	.05	L.65	
315/SS3075	.875	1.5	.062	.062	.062	L.65	.031" radius at all corners
375/SS3075	.60	1.1	.05	.05	.05	L.65	
406/SS3075	2.25	2.6	.15	.07	.125	L.65	.03" radius at all corners
416/SS3075	1.0	1.8	.10	.10	.10	DTD.363A	
419/SS3075	.50	1	.05	.05	.05	L.65	.025" radius at all corners



TEE SECTION, EQUAL TOP FLANGES, ANGLED

Item No.	A in.	B in.	T1 in.	T2 in.	R in.	Angle	Specification
139/SS3075	1.25	1.95	.15	.15	.06	1° 40'	L.65
199/SS3075	2.06	3.0	.55	.50	.187	7° 0'	L.65

TEE SECTION, UNEQUAL TOP FLANGES ANGLED

Item No.	A in.	B in.	C in.	T1 in.	T2 in.	R in.	Angle
326/SS3075	1.5	1.406	1.044	.187	.187	.187	3° 00'
414/SS3075	1.10	.835	.815	.13	.13	.13	4° 40'

Specification
L.65
DTD.363A

Remarks
1/32" radius at all corners

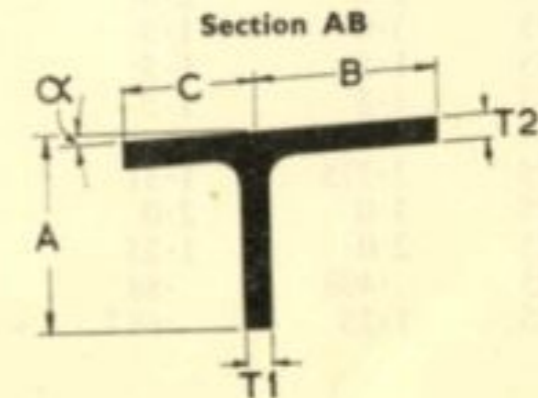
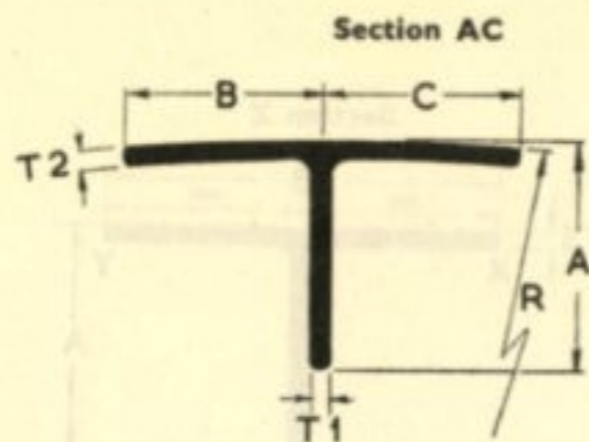
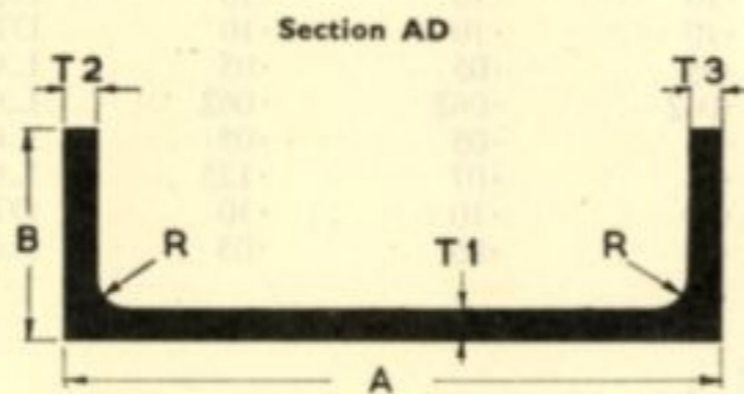


TABLE 4 (Continued)



TEE SECTION, EQUAL TOP FLANGES, CURVED

Item No.	A in.	B in.	C in.	T1 in.	T2 in.	R in.	R1 in.	Specification	Remarks
297/SS3075	1.0	1.125	1.125	0.5	.125	55.0	.125	L.65	.031" radius at all corners
318/SS3075	.875	.75	.75	.062	.062	25.0	.062	L.65	.031" radius at all corners
325/SS3075	1.0	1.0	1.0	0.1	0.1	44.0	0.1	L.65	.031" radius at all corners
337/SS3075	.6	.55	.55	.05	.05	18.25	.05	L.65	.025" radius at all corners

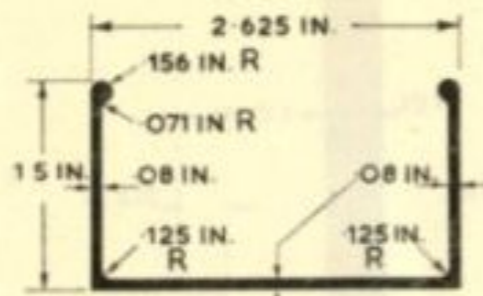


CHANNEL SECTION

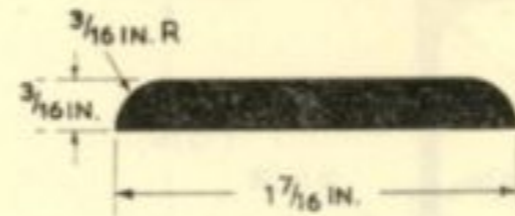
Item No.	A in.	B in.	T1 in.	T2 in.	T3 in.	R in.	Specification	Remarks
225/SS3075	1.5	1.5	.15	.15	.15	.15	L.65	.06" radius at X and Y
283/SS3075	2.5	.8125	.125	.125	.125	.125	L.65/DTD.423	
284/SS3075	3.0	1.5	.125	.125	.125	.187	L.65/DTD.423	
311/SS3075	3.0	2.0	.313	.25	.25	.25	L.65	1/32" radius at all corners
357/SS3075	3.0	1.5	.125	.125	.125	.187	L.65	
368/SS3075	1.5	1.5	.125	.125	.125	.125	L.65	.06" radius at X and Y
385/SS3075	1.5	1.5	.125	.125	.125	.125	L.65	.062" radius at X and Y
408/SS3075	2.375	1.31	.25	.25	.25	.187	DTD.683	.25" radius at P
409/SS3075	3.0	2.0	.375	.375	.375	.25	L.65	1/32" radius at all corners
410/SS3075	2.0	1.25	0.2	0.2	0.2	.19	L.65	1/16" radius at all corners
450/SS3075	.498	.88	.064	.064	.064	.109	DTD.622	1/16" radius at all corners
91/SS3075	1.25	.687	.093	.093	.093	.062	L.65/DTD.423	

TABLE 4 (Continued)

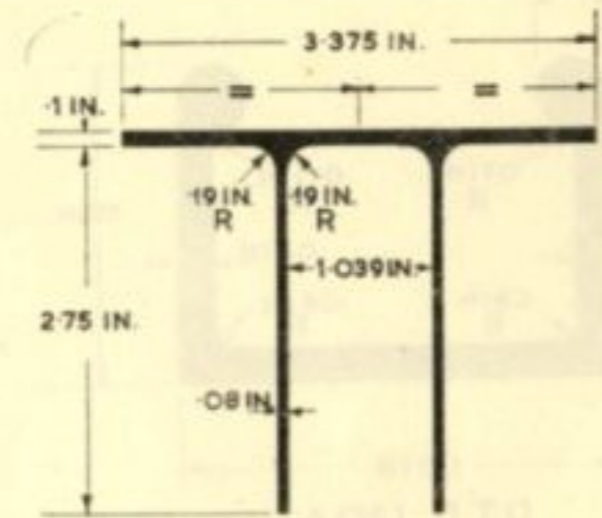
Sections AE



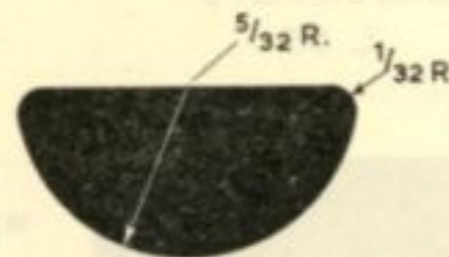
64/SS3075
D.T.D. 130A



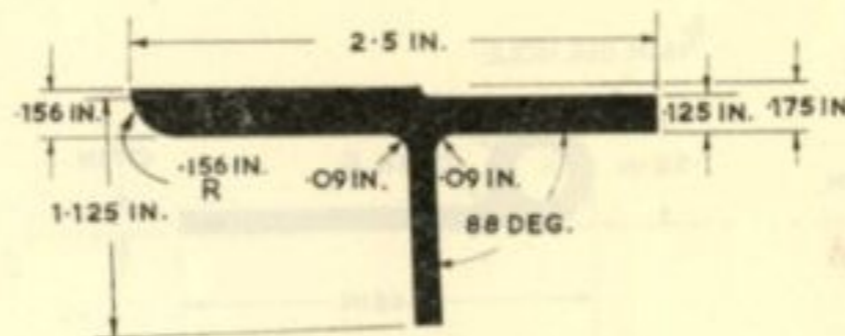
D.R.D. 59 AND 83/SS3075
L.34



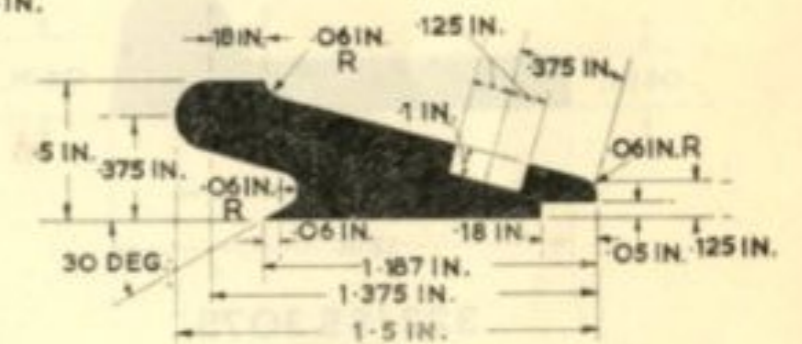
42/SS.3075
D.T.D. 130A



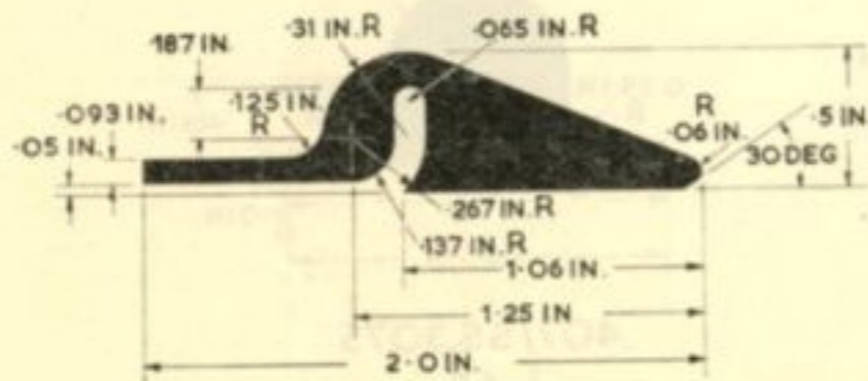
107/SS.3075
D.T.D. 130A



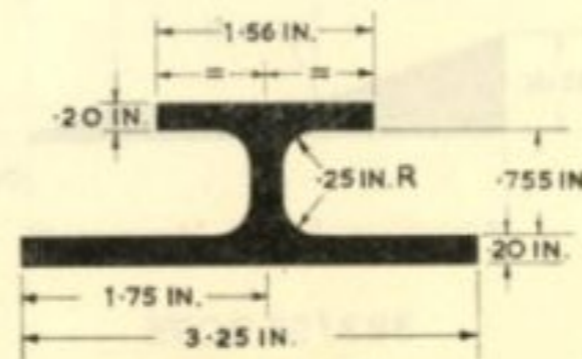
159/SS.3075
D.T.D. 443



178/SS.3075
D.T.D. 443



179/SS.3075
D.T.D. 443



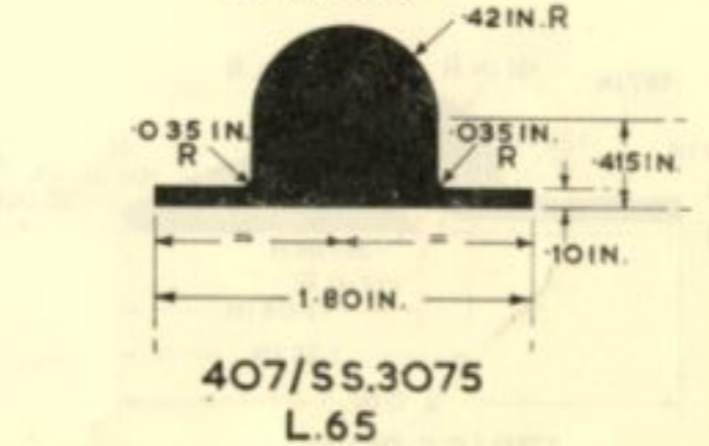
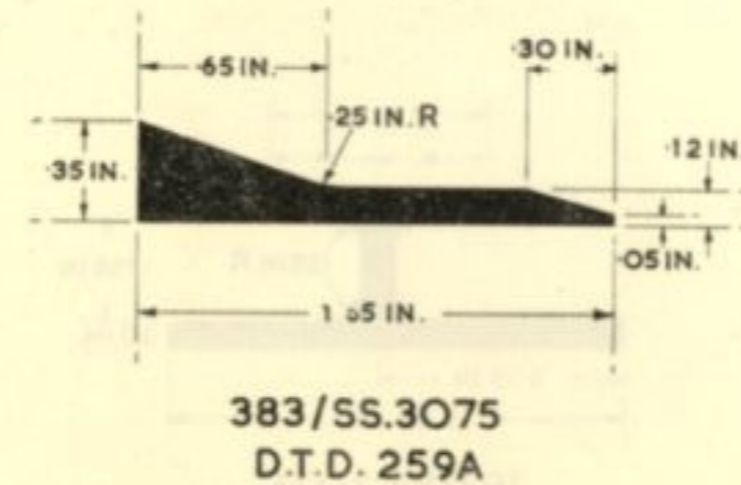
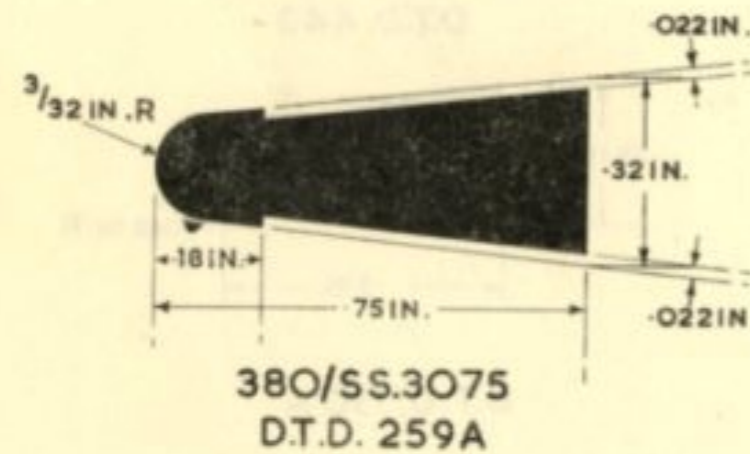
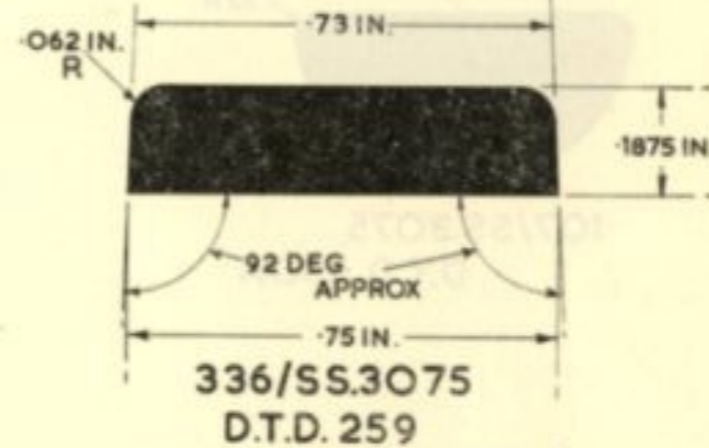
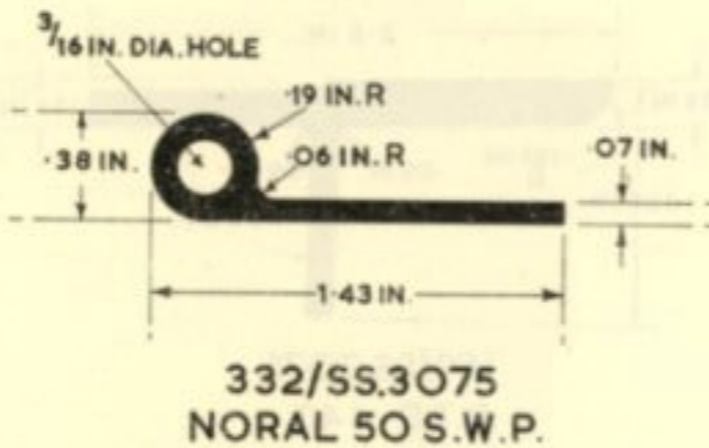
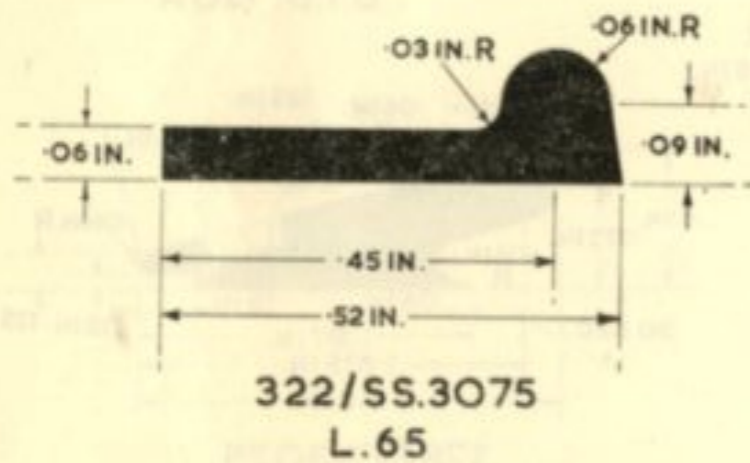
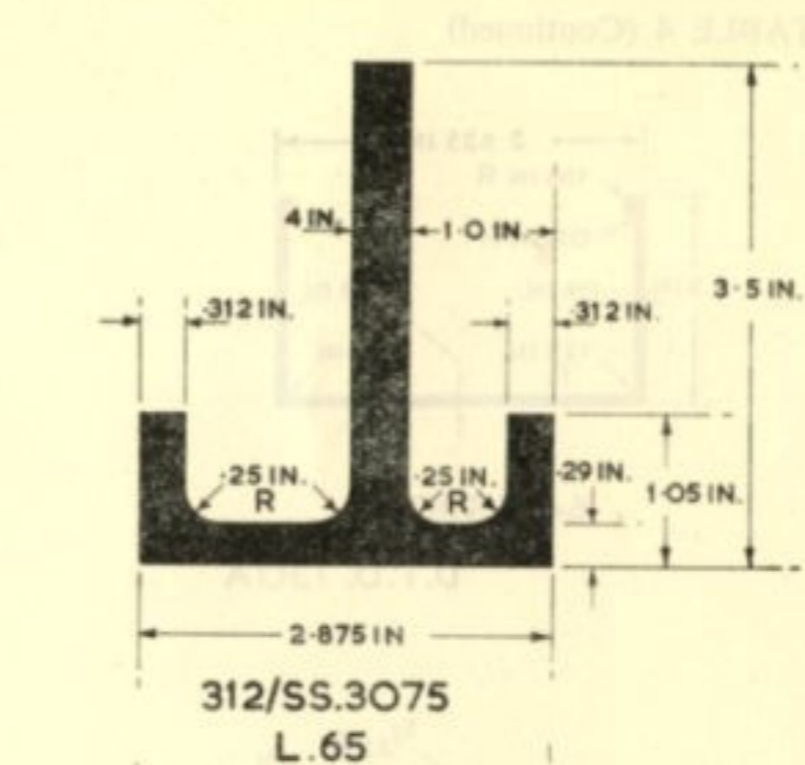
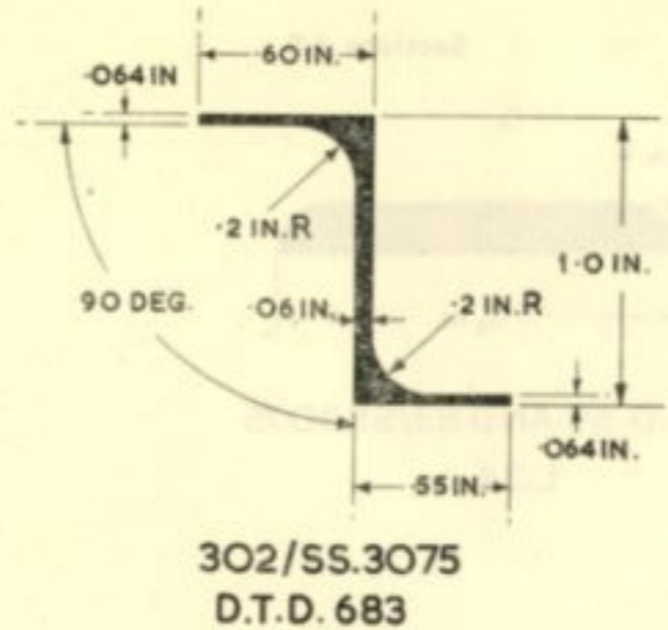
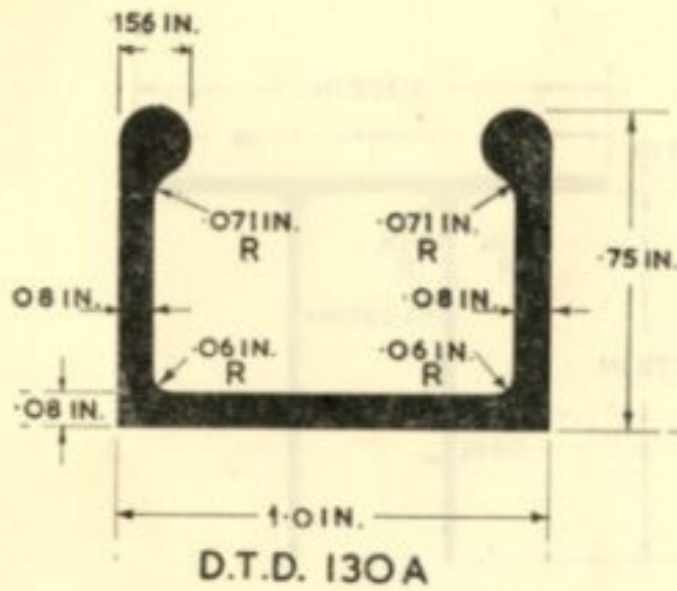
193/SS.3075
D.T.D. 423



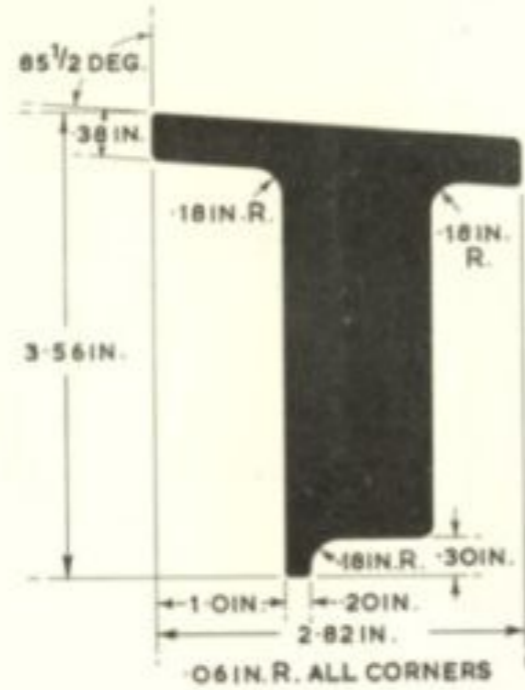
D.T.D. 130A

TABLE 4 (Continued)

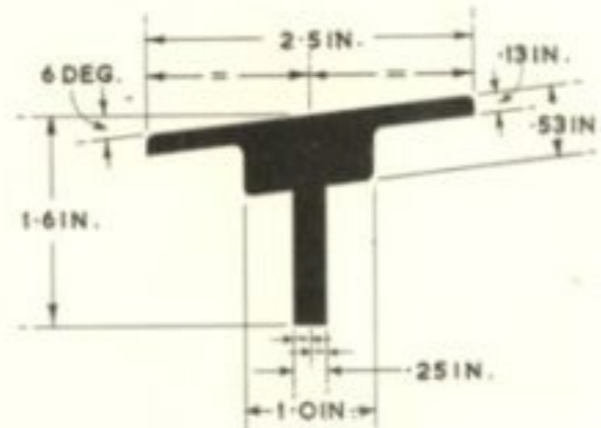
Sections AF



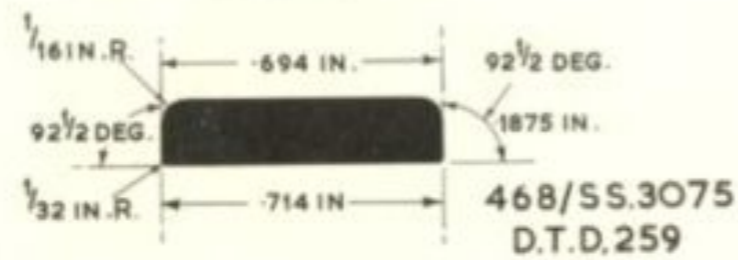
Sections AG



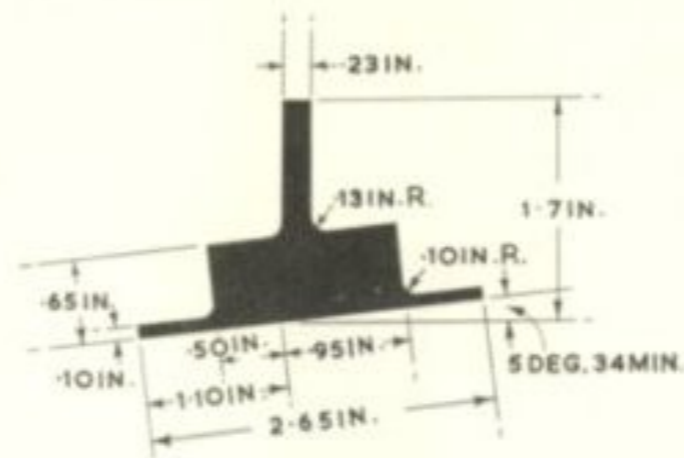
412/SS.3075
D.T.D. 363A



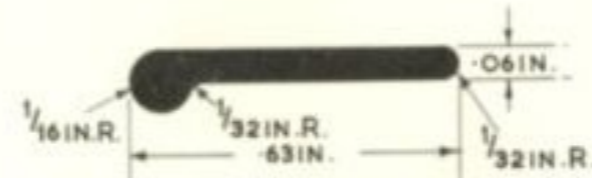
431/SS.3075
D.T.D. 363A



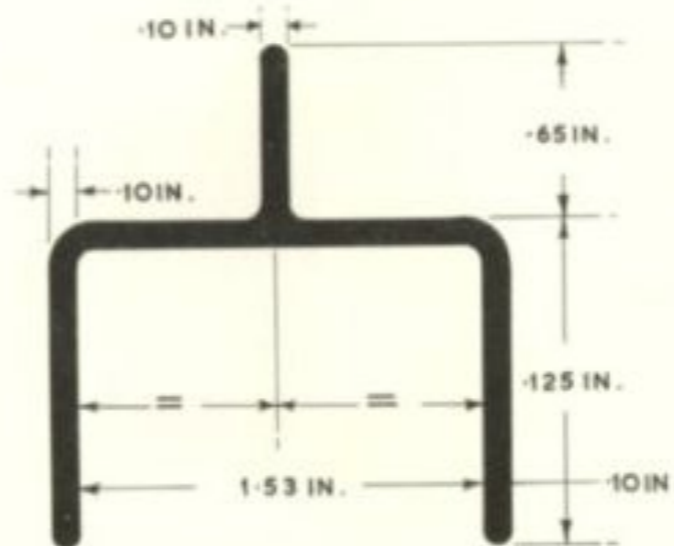
468/SS.3075
D.T.D. 259



413/SS.3075
D.T.D. 363A



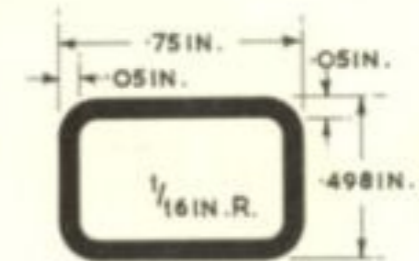
447/SS.3075
D.T.D. 634A



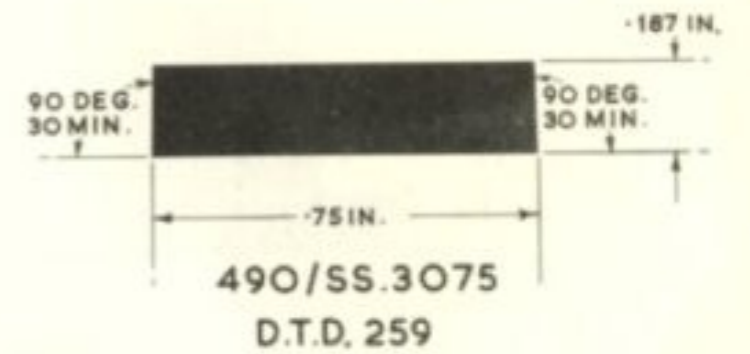
D.257
HIGH DUTY ALLOYS L.75



430/SS.3075
D.T.D. 622



458/SS.3075
D.T.D. 622



490/SS.3075
D.T.D. 259

TABLE 4 (Continued)

Sections AH

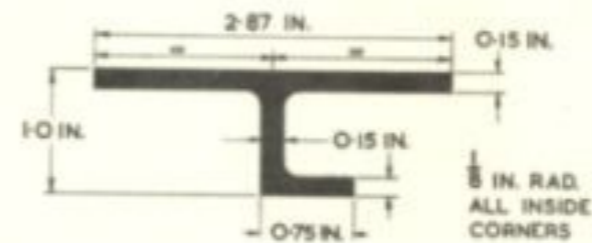
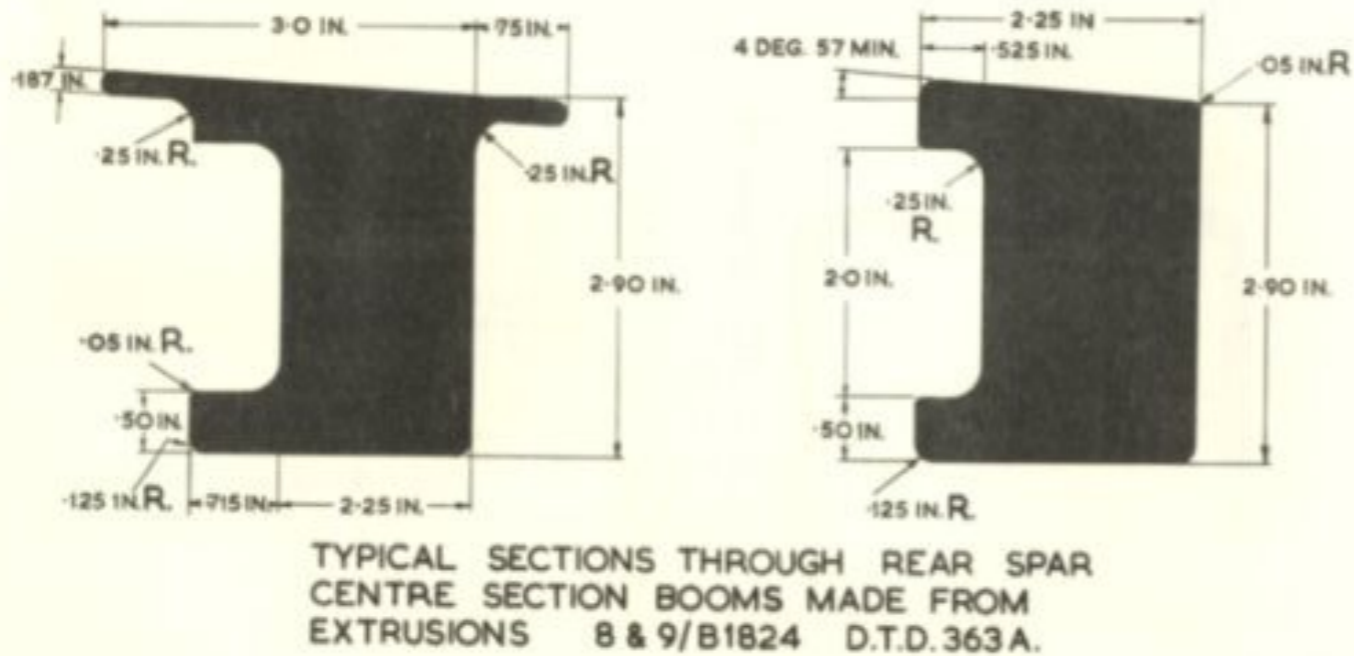
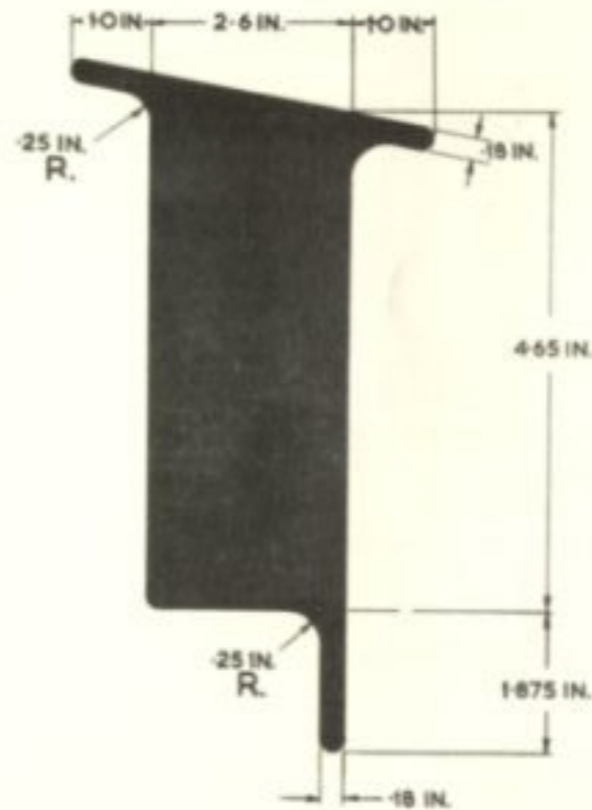
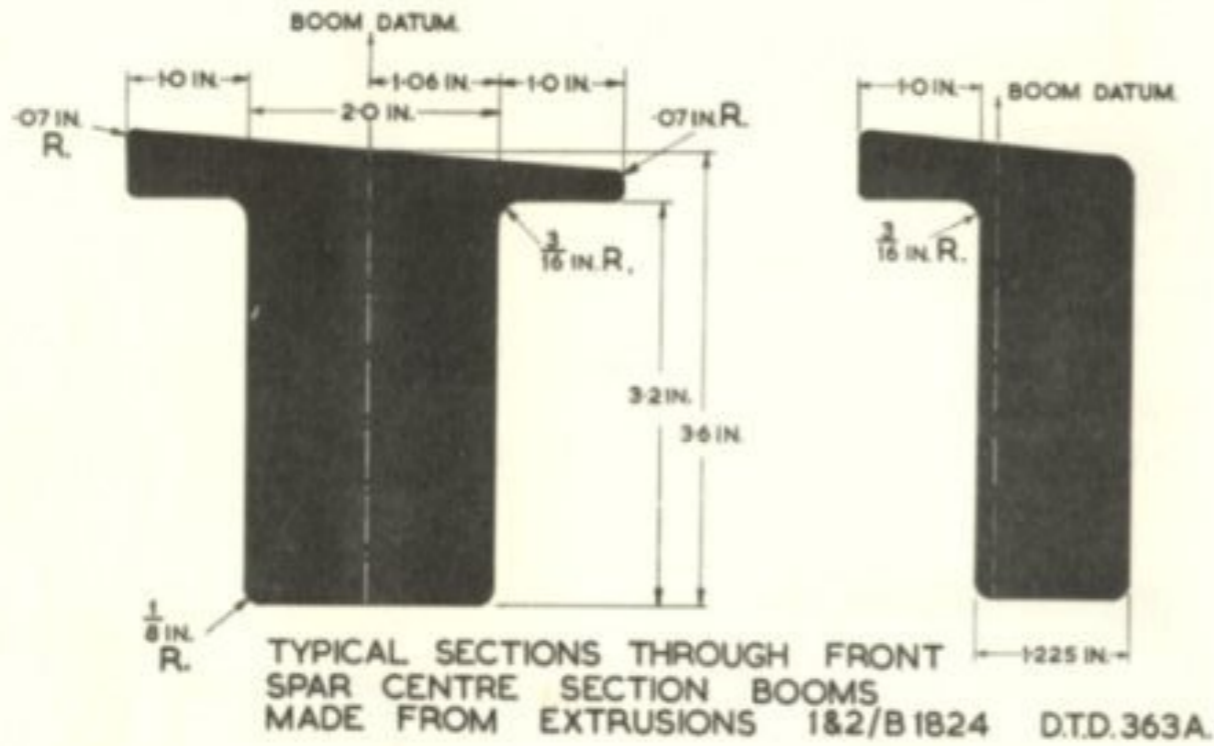
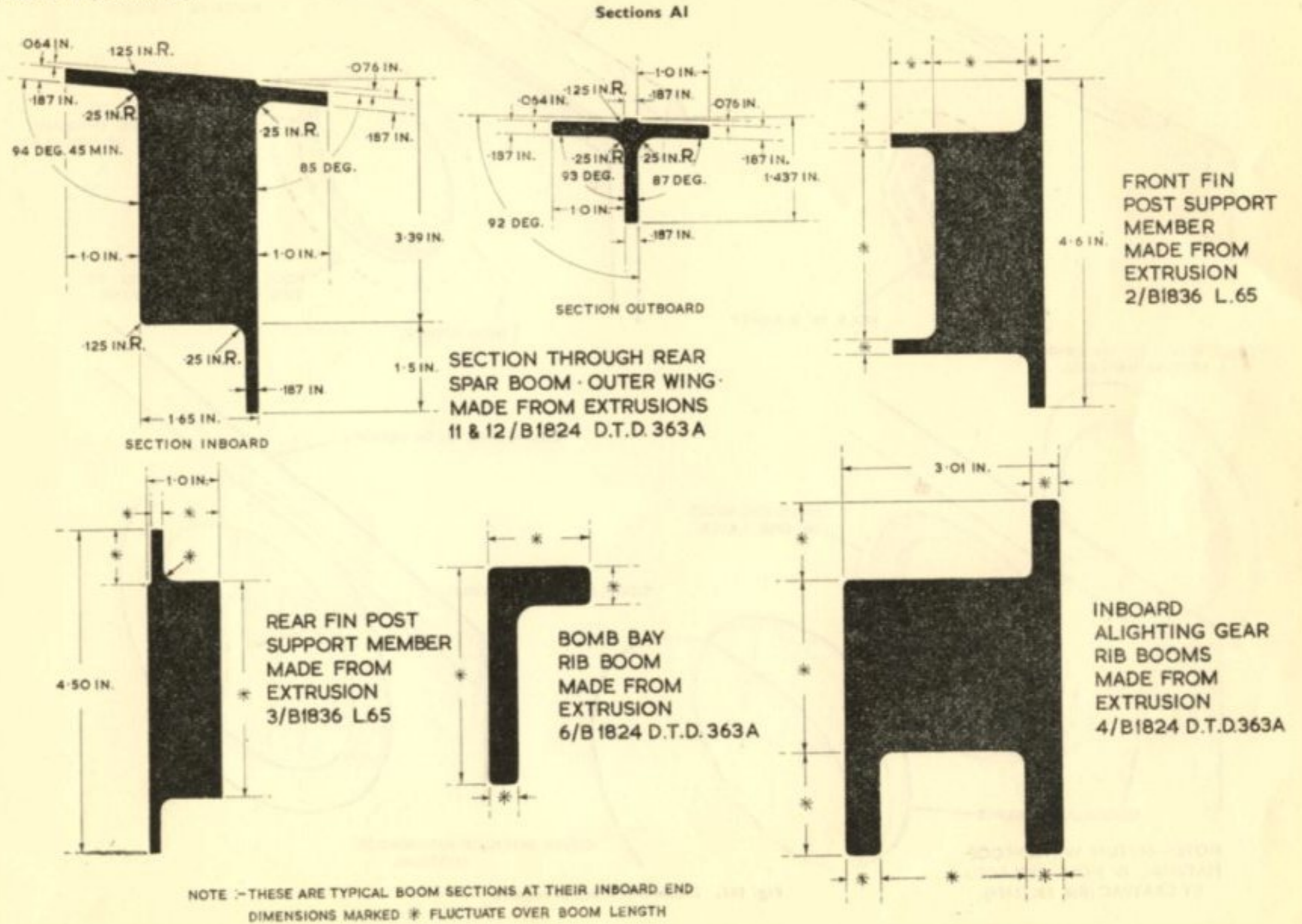


TABLE 4 (Continued)



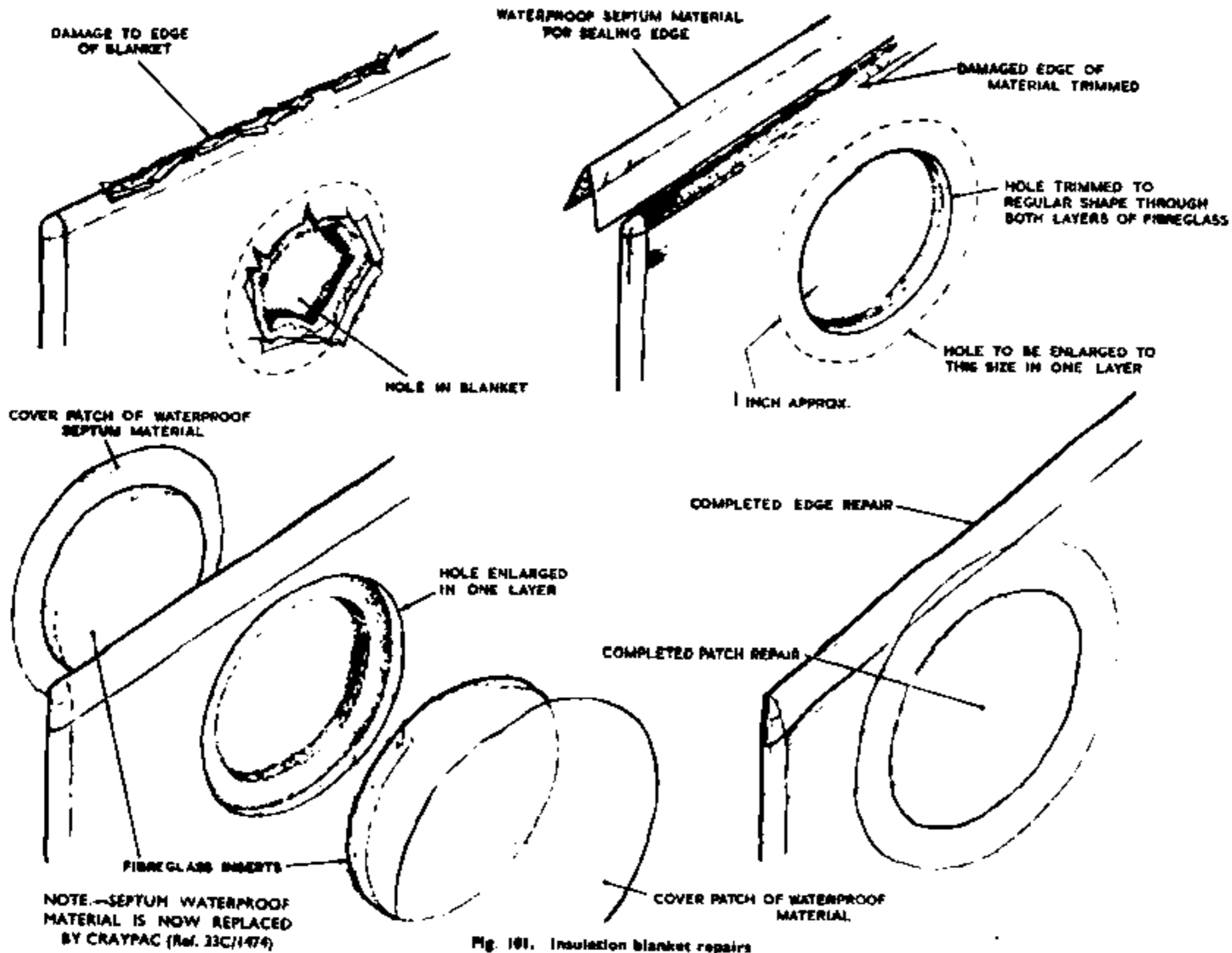


Fig. 101. Insulation blanket repairs

RESTRICTED

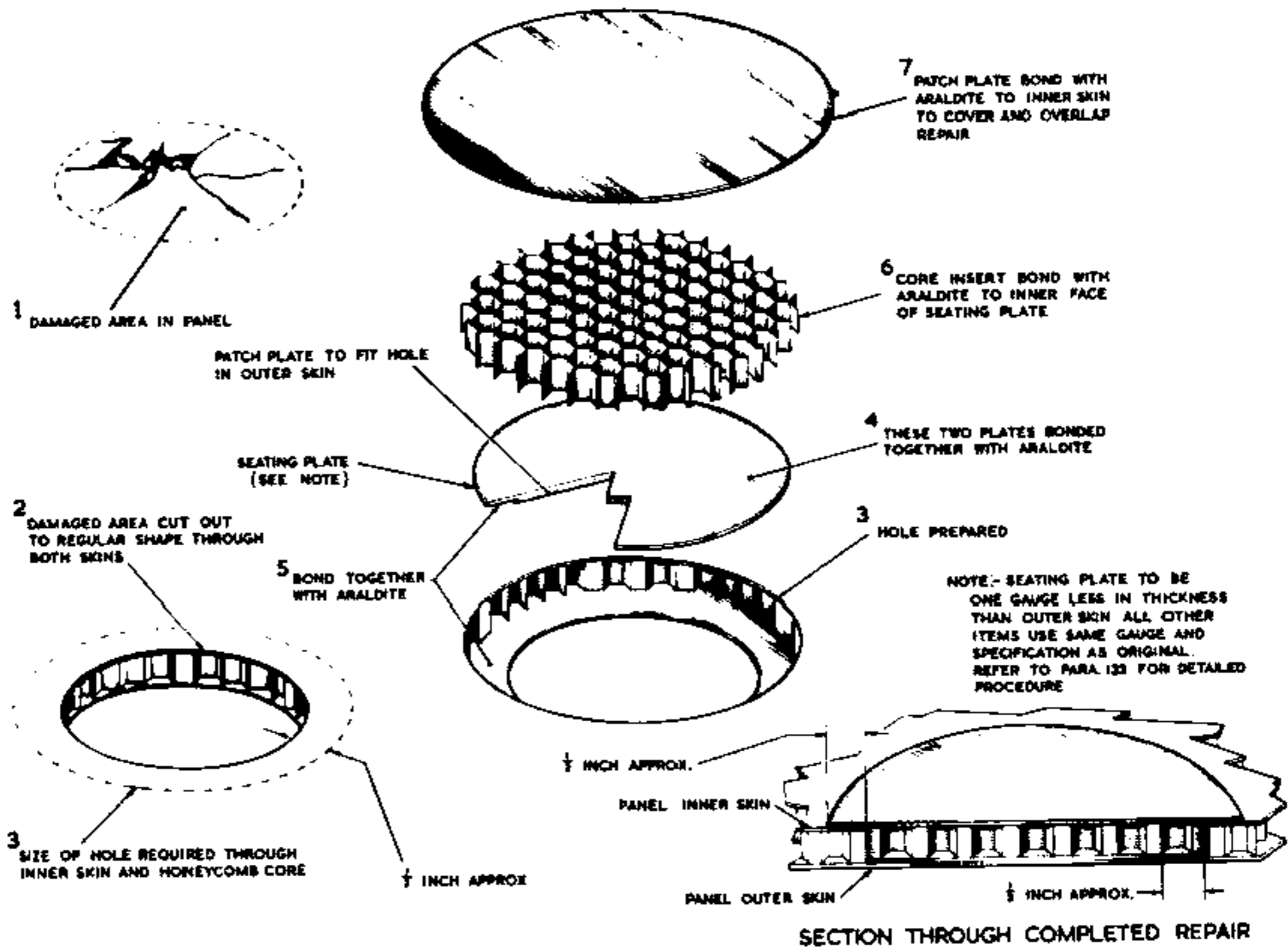
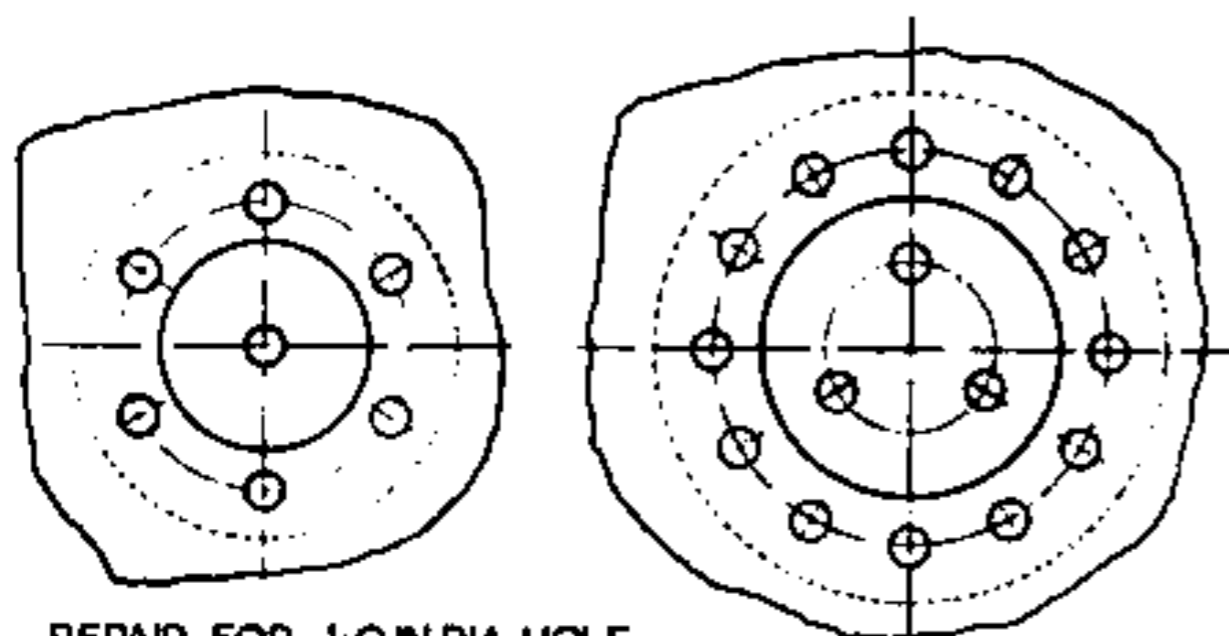


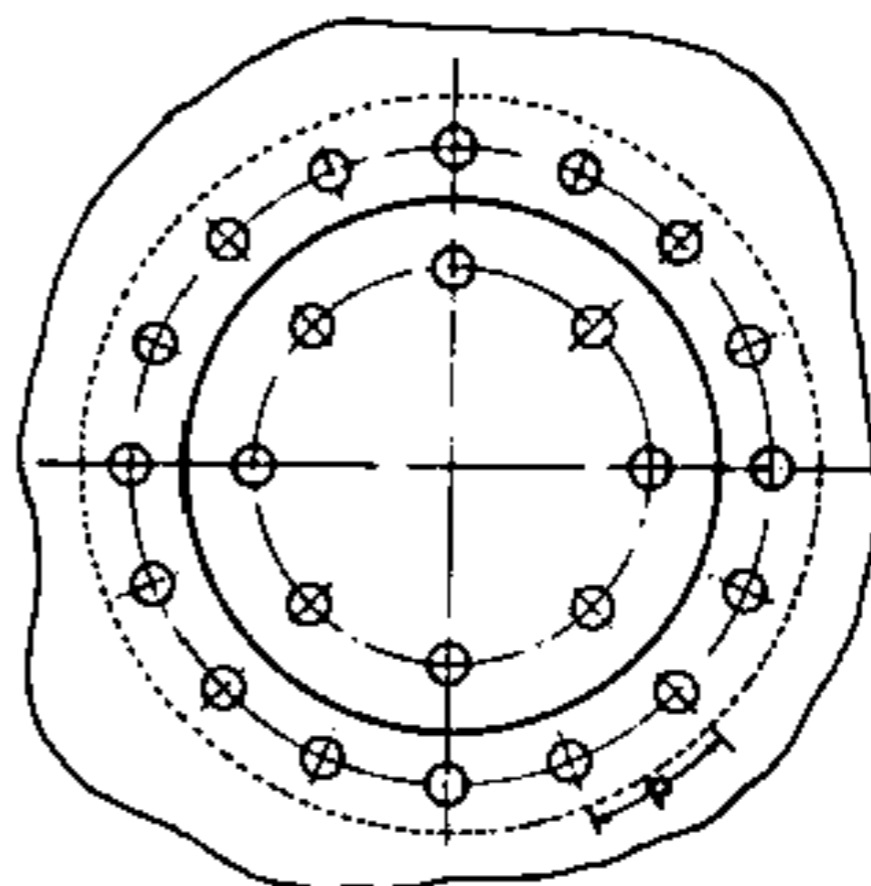
Fig. 182. Honeycomb sandwich panel repair

FILLER PLATE SHOULD BE AN ACCURATE FIT
 ANY DEVIATIONS IN CONTOUR SHOULD NOT
 EXCEED .03 AT ANY ONE POINT

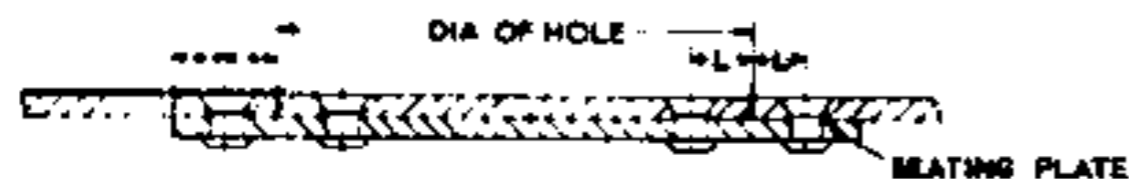


REPAIR FOR 1.0 IN. DIA. HOLE

REPAIR FOR 1.5 IN. DIA. HOLE



REPAIR FOR 2.5 IN. DIA. HOLE



TYPICAL SECTION

RIVETS MUST BE THE SAME TYPE AS THOSE
 USED IN THE SURROUNDING STRUCTURE.

FILLER PLATE TO BE OF SAME GAUGE
 AND SPECIFICATION AS EXISTING SKIN.
 SEATING PLATE TO BE TWO GAUGES THICKER

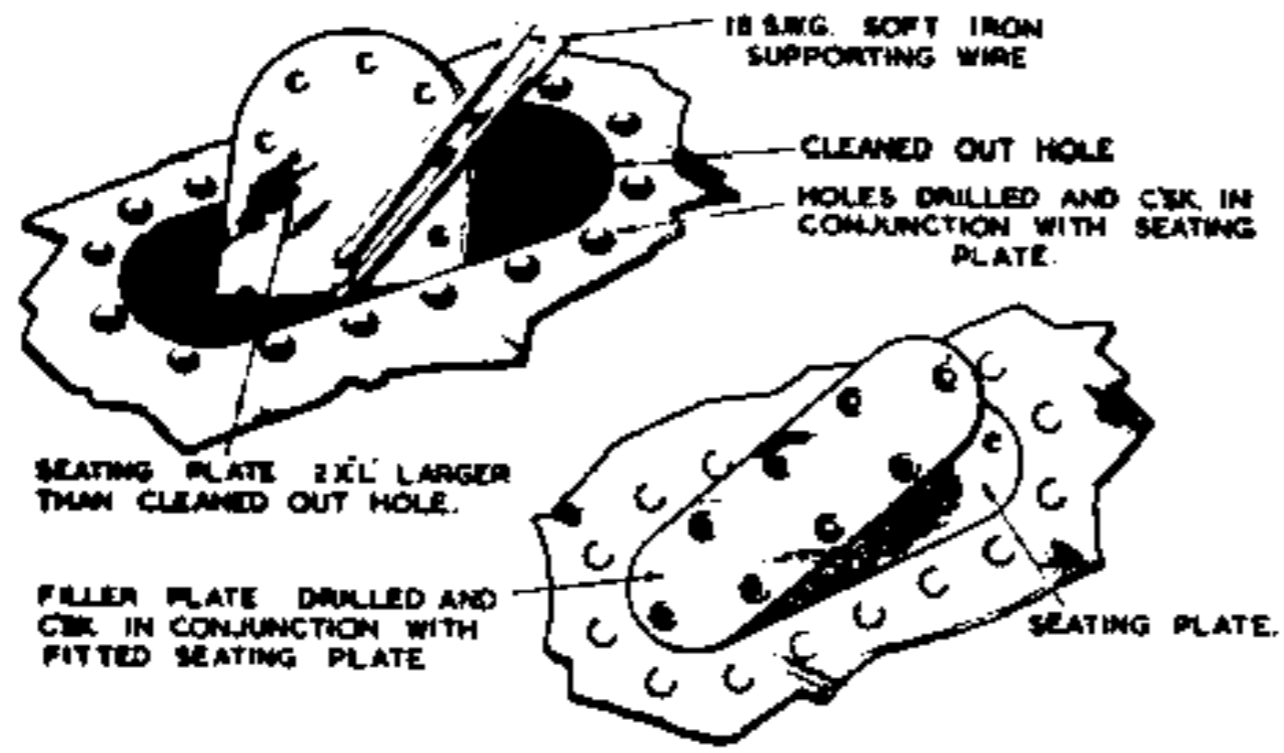
USE JOINTING COMPOUND ON ASSEMBLY PARA 134-137

GAUGE	RIVET	L.	P.
22	0.125 IN. DIA.	0.30 IN.	0.30 IN.
20	0.125 IN. DIA.	0.30 IN.	0.50 IN.
18	0.156 IN. DIA.	0.35 IN.	0.60 IN.
16	0.187 IN. DIA.	0.40 IN.	0.70 IN.
14	0.187 IN. DIA.	0.40 IN.	0.70 IN.

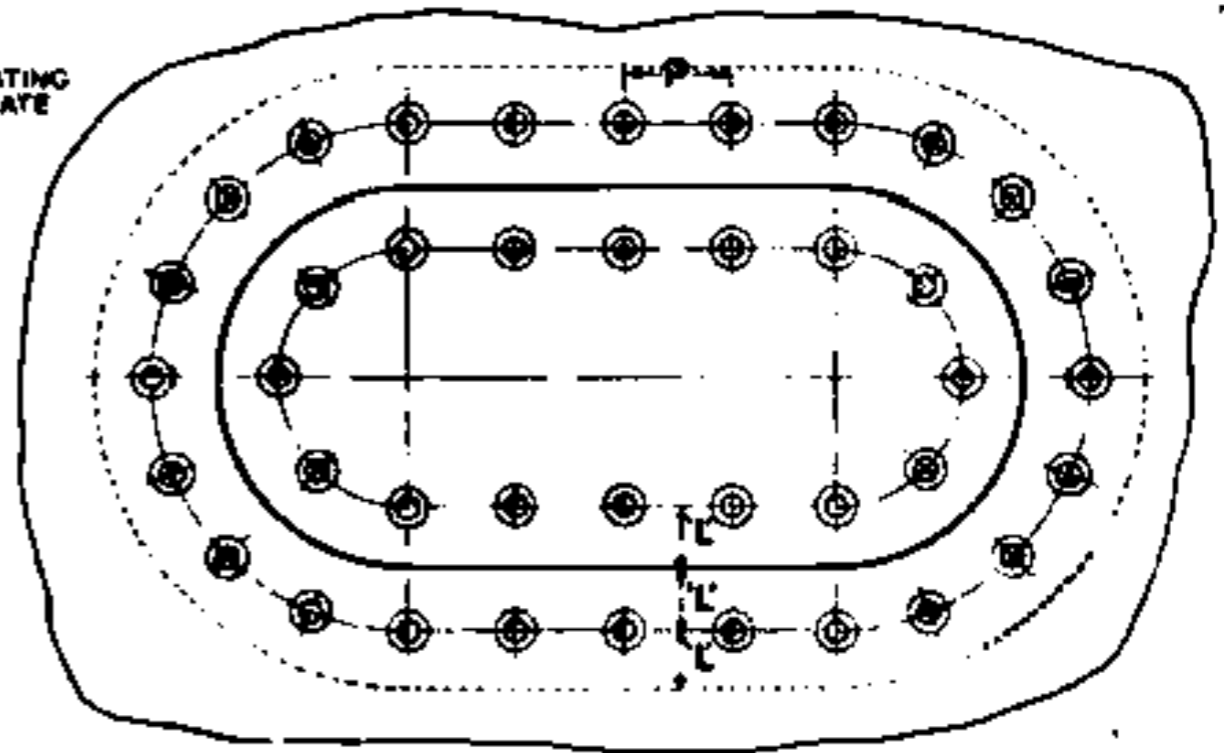
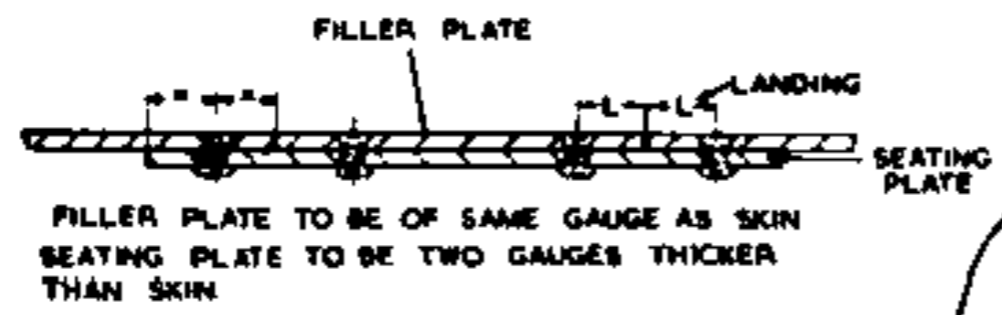
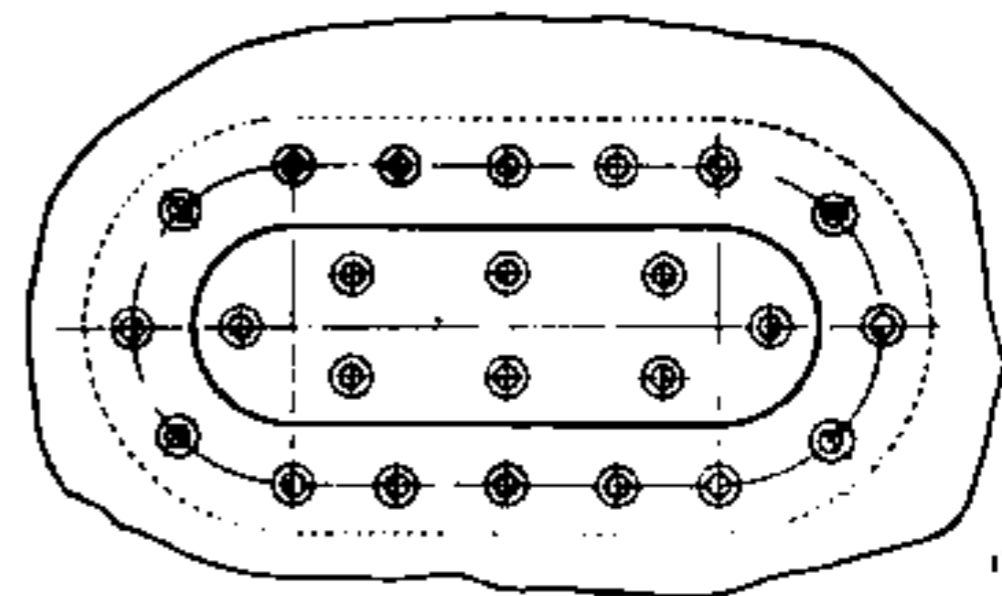
L AND P DIMENSIONS ARE APPROX.
 PITCH RATIO NOT TO EXCEED 6 X RIVET DIA.
 MINIMUM DIMENSIONS OF 'L' 2 X RIVET DIA.

Fig. 180. Skin repairs—non-pressurized—holes up to 2.5 in. dia.

RESTRICTED



USE JOINTING COMPOUND ON ASSEMBLY (PARA.134-137)



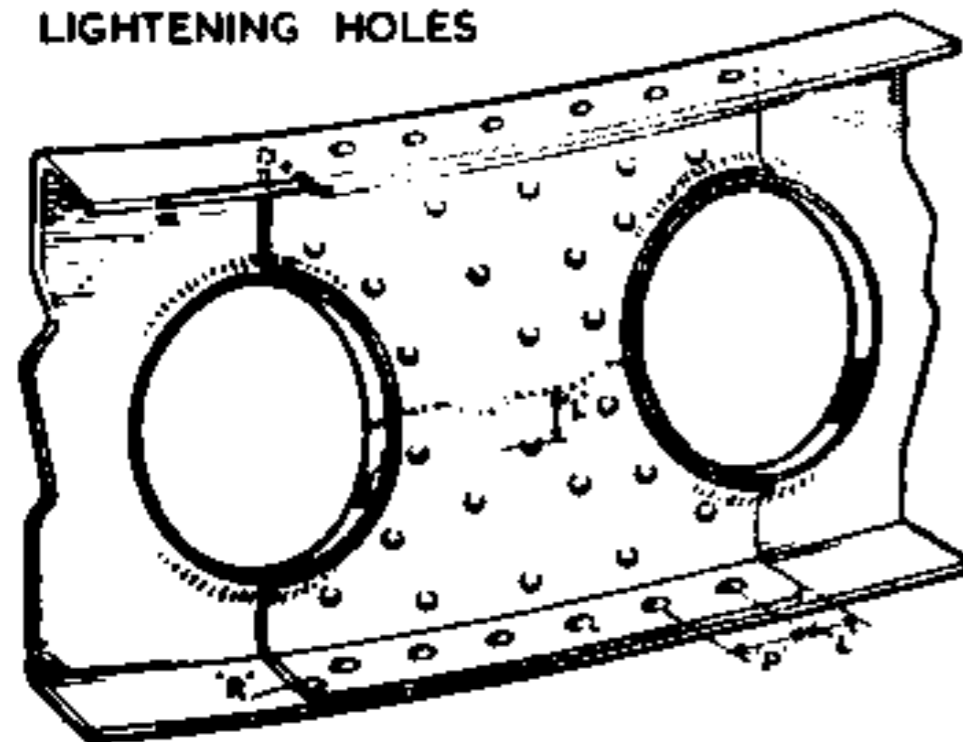
GAUGE	RIVET	L	P
22	Ø.125 IN. DIA.	Ø.3 IN.	Ø.5 IN.
20	Ø.125 IN. DIA.	Ø.3 IN.	Ø.5 IN.
18	Ø.136 IN. DIA.	Ø.35 IN.	Ø.6 IN.
16	Ø.147 IN. DIA.	Ø.4 IN.	Ø.7 IN.
14	Ø.167 IN. DIA.	Ø.6 IN.	Ø.7 IN.

L AND P DIMENSIONS APPROX
MINIMUM DIMENSION OF 'L' 2X DIA OF RIVET

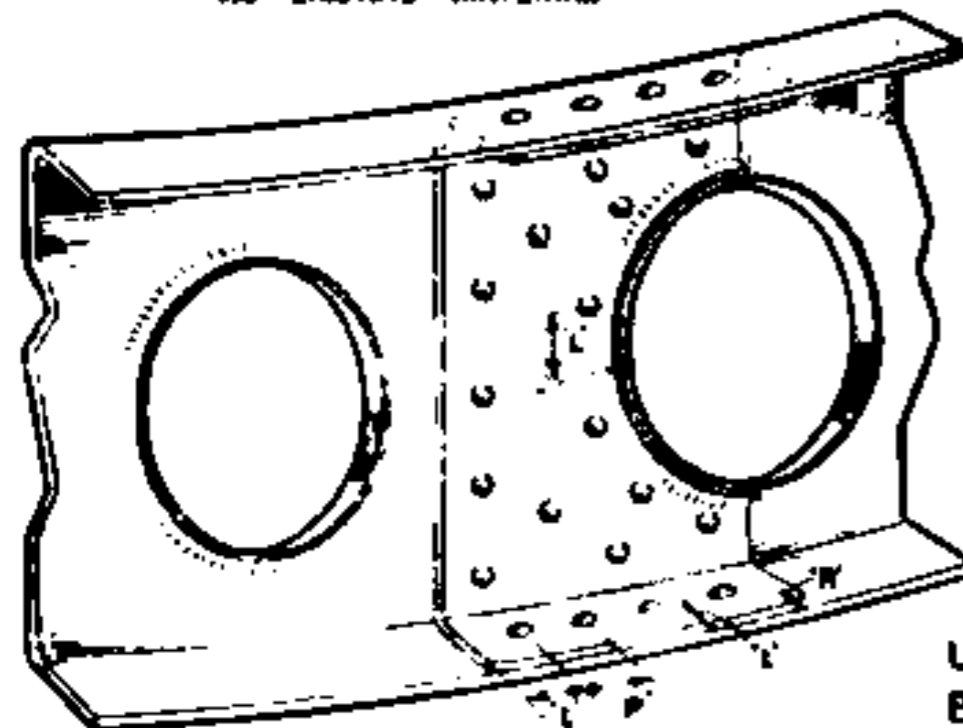
MAX SIZE OF HOLE 6 IN X 3.5 IN.

Fig. 184. Skin repairs—non-pressurized—inaccessible holes (not air intake duct skinning)

**REPAIR FOR CRACK OVER 30%
TOTAL DISTANCE BETWEEN
LIGHTENING HOLES**



REPAIR PLATE TO BE THE SAME
GAUGE AND MATERIAL SPECIFICATION
AS EXISTING MATERIAL



USE JOINTING COMPOUND
ON ASSEMBLY PARA 134-137

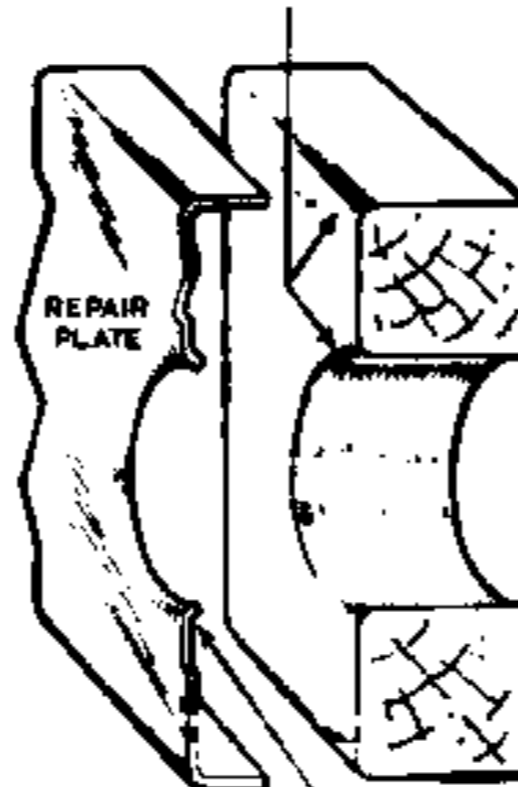
**REPAIR FOR CRACK
UP TO 30% TOTAL DISTANCE
BETWEEN LIGHTENING HOLES**

LIGHTENING HOLE FLANGE → d



CLEANED OUT DAMAGE WHICH DOES
NOT EXCEED $\frac{1}{4}$ IN DEPTH MAY BE
REGARDED AS 4 NEGLIGIBLE

EDGE OF HARDWOOD BLOCK
RADUSED TO SUIT PLATE

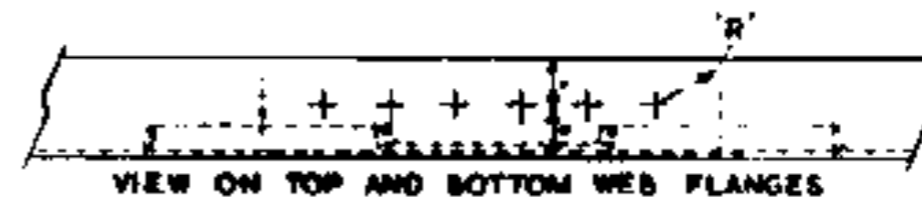


USE A HARDWOOD
BLOCK TO FORM
THIS FLANGE

GAUGE	RIVET	L	P	R
22	403/A5 2227	0.31 IN	0.6 IN	0.31 IN
20	404/A5 2227	0.31 IN	0.61 IN	0.31 IN
18	504/A5 2227	0.35 IN	0.7 IN	0.35 IN
16	505/A5 2227	0.35 IN	0.7 IN	0.35 IN

L AND P DIMENSIONS ARE APPROXIMATE
MINIMUM DIMENSIONS OF L ARE 2X RIVET DIA.

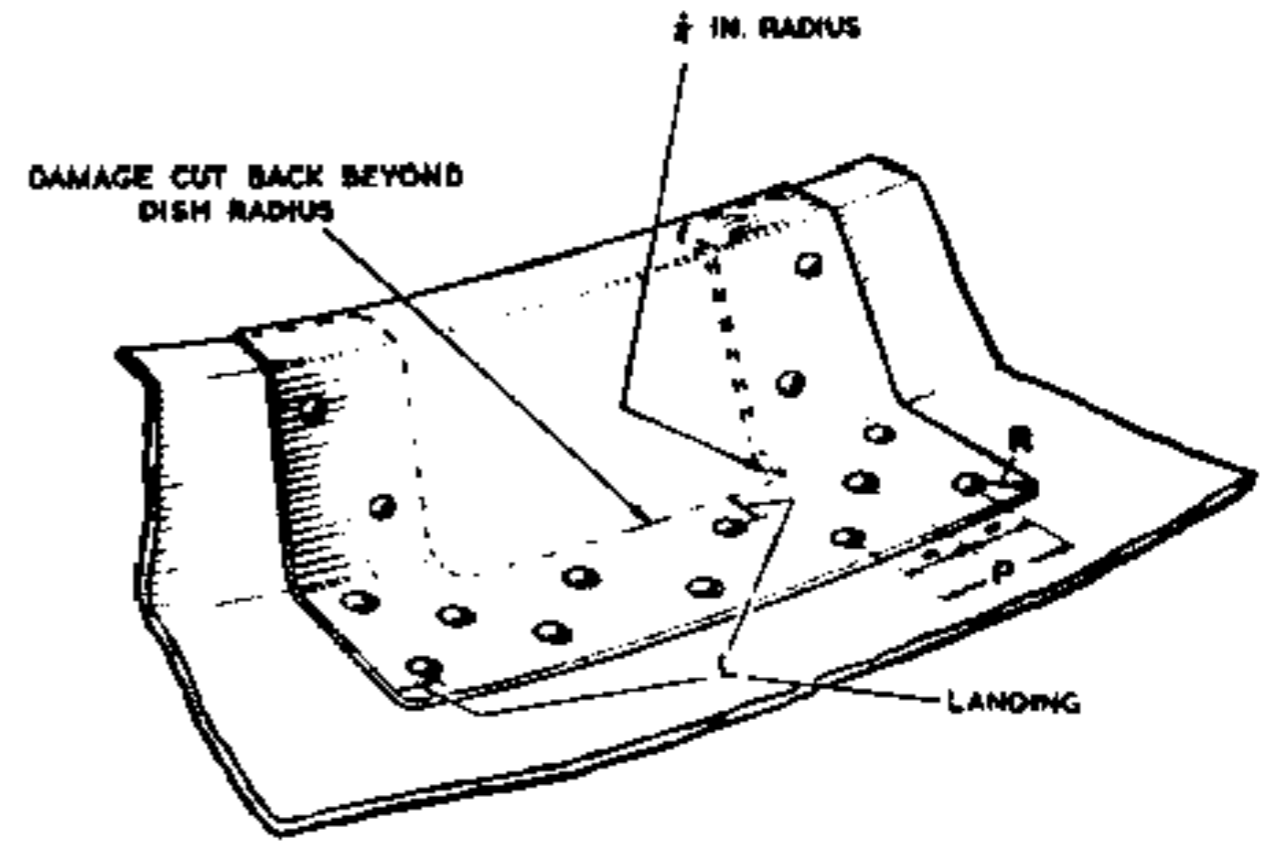
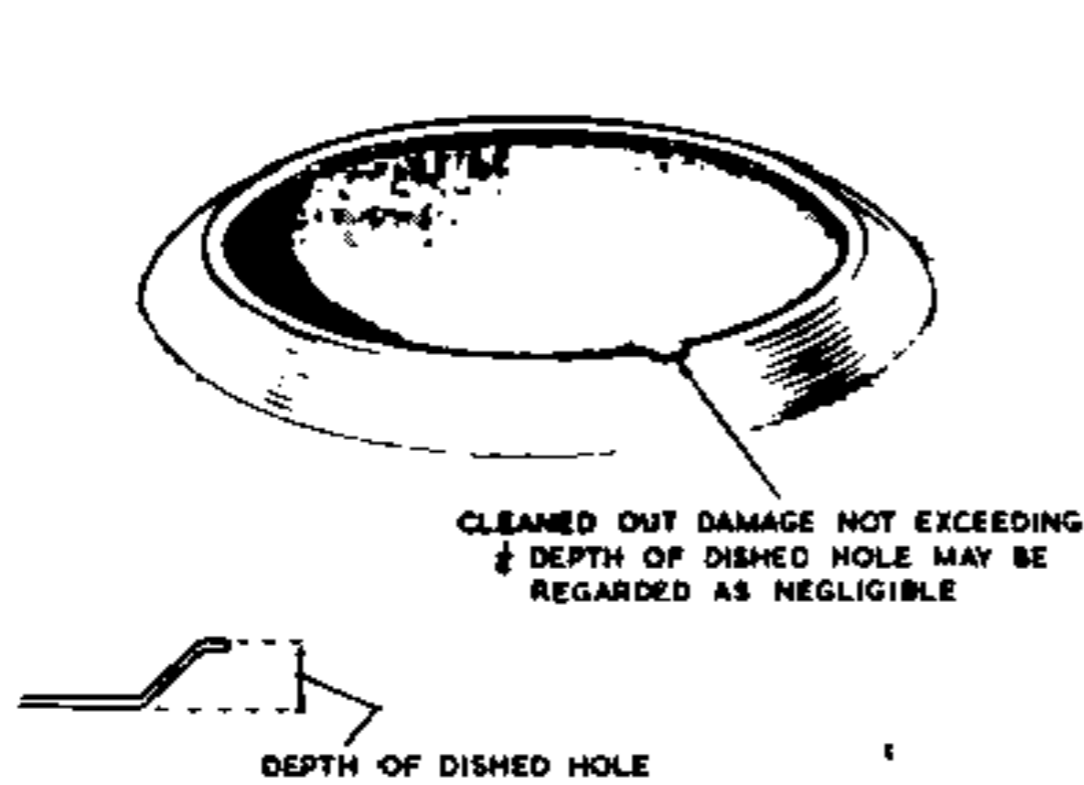
ALL SMALL CRACKS, NICKS AND ABRASIONS TO
BE SMOOTHED OUT. IN THE CASE OF AN
EXTENSIVE CRACK A $\frac{1}{8}$ IN. DIA HOLE MUST
BE DRILLED AT THE TERMINATION BEFORE
EFFECTING A REPAIR. THE MINIMUM DISTANCE
BETWEEN THE EDGE OF THIS HOLE OR
THE CRACK AND THE NEAREST RIVET HOLE,
MUST NOT BE LESS THAN DIMENSION L



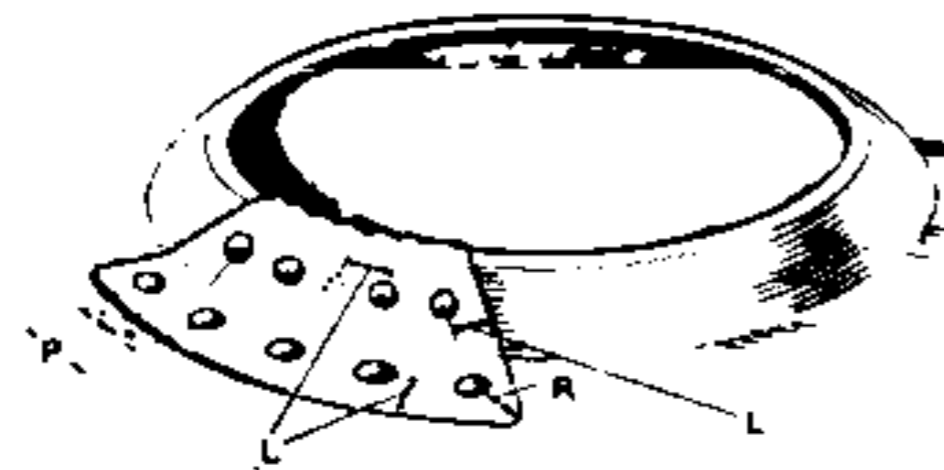
VIEW ON TOP AND BOTTOM WEB FLANGES

Fig. 185. Repairs to Ganged lightning holes

RESTRICTED



REPAIR FOR PARTIAL REPLACEMENT
 OF LARGE DISHED FLANGE



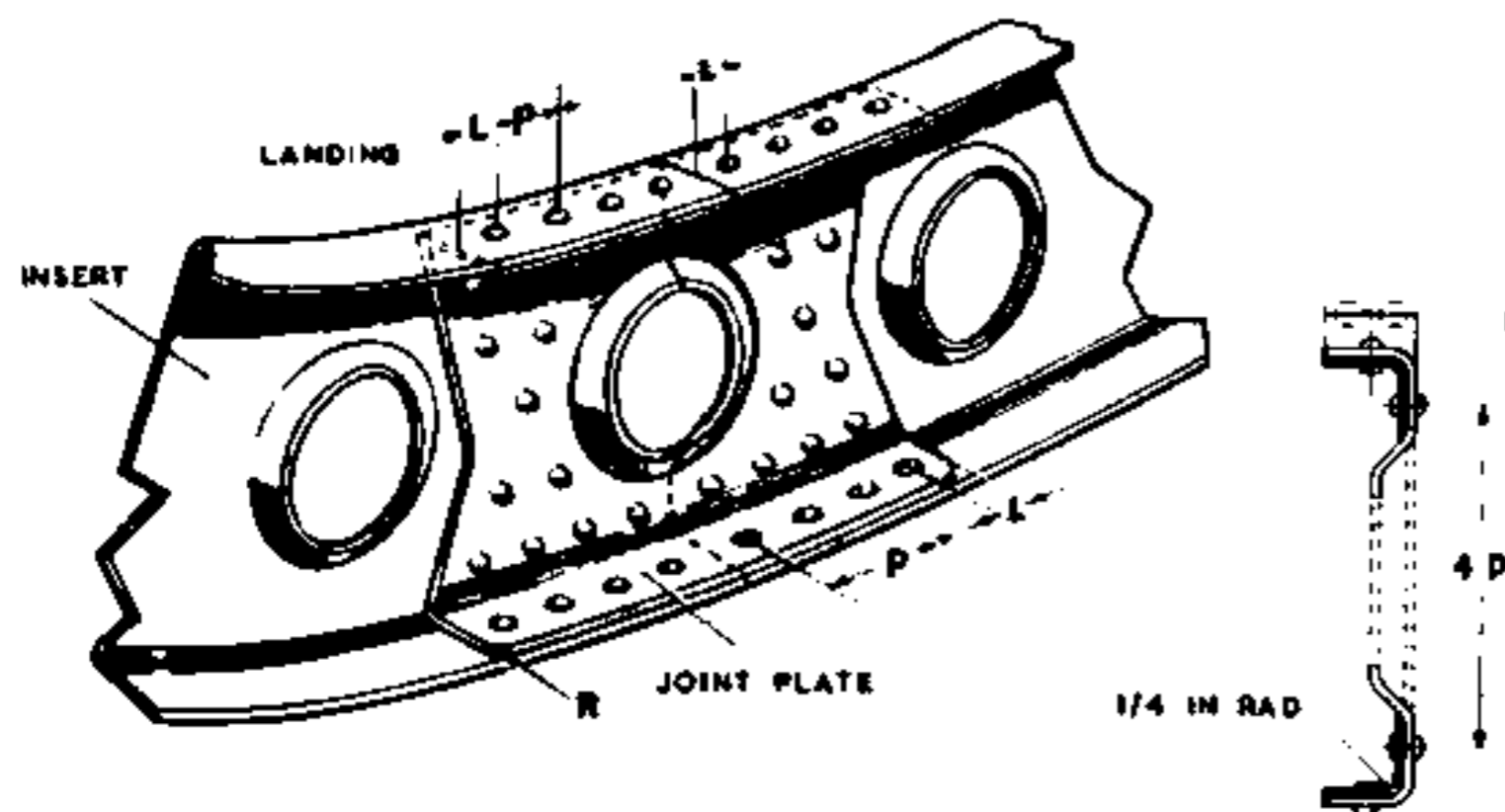
REPAIR TO CRACK NOT EXTENDING
 BEYOND THE DISH RADIUS

GAUGE	RIVET	L	P	R
22	403/AS2227	0.3IN.	0.6IN.	0.3IN.
20	404/AS2227	0.3IN.	0.6IN.	0.3IN.
18	504/AS2227	0.35IN.	0.7IN.	0.4IN.
16	505/AS2227	0.35IN.	0.7IN.	0.4IN.

L' LANDING DIMENSIONS ARE MINIMUM
 REPAIR PLATES TO BE SAME GAUGE
 AND SPECIFICATION AS EXISTING MEMBER

USE JOINTING COMPOUND ON
 ASSEMBLY (PARA 134-137)

Fig. 106 Repairs to dished lightning holes



GAUGE		RIVET	P	L	R
FORMER	JOINT PLATE				
22	20	AS 2227/404	0.5 IN.	0.3 IN.	0.25 IN.
20	18	AS 2227/404	0.5 IN.	0.3 IN.	0.25 IN.
18	16	AS 2227/503	0.6 IN.	0.3 IN.	0.3 IN.
16	14	AS 2227/503	0.6 IN.	0.3 IN.	0.3 IN.

"P" DIMENSIONS ARE APPROX.
 MINIMUM DIMENSIONS OF "L" ARE 2X RIVET DIA.

REPAIRS ILLUSTRATED ARE FOR CHANNEL SECTION
 455/581793

REPAIR TO FORMER INVOLVING LIGHTENING HOLES.

REPAIR MATERIAL TO BE SAME SPECIFICATION AS
 EXISTING MATERIAL AND MUST ACCOMMODATE
 EXISTING LIGHTENING HOLES
 RIVETS TO BE AS STATED IN TABLE WHERE
 PRACTICABLE CORNERS OF REPAIR PLATE
 RADIUSED R.

USE JOINTING COMPOUND
 ON ASSEMBLY PARA. D4-137.

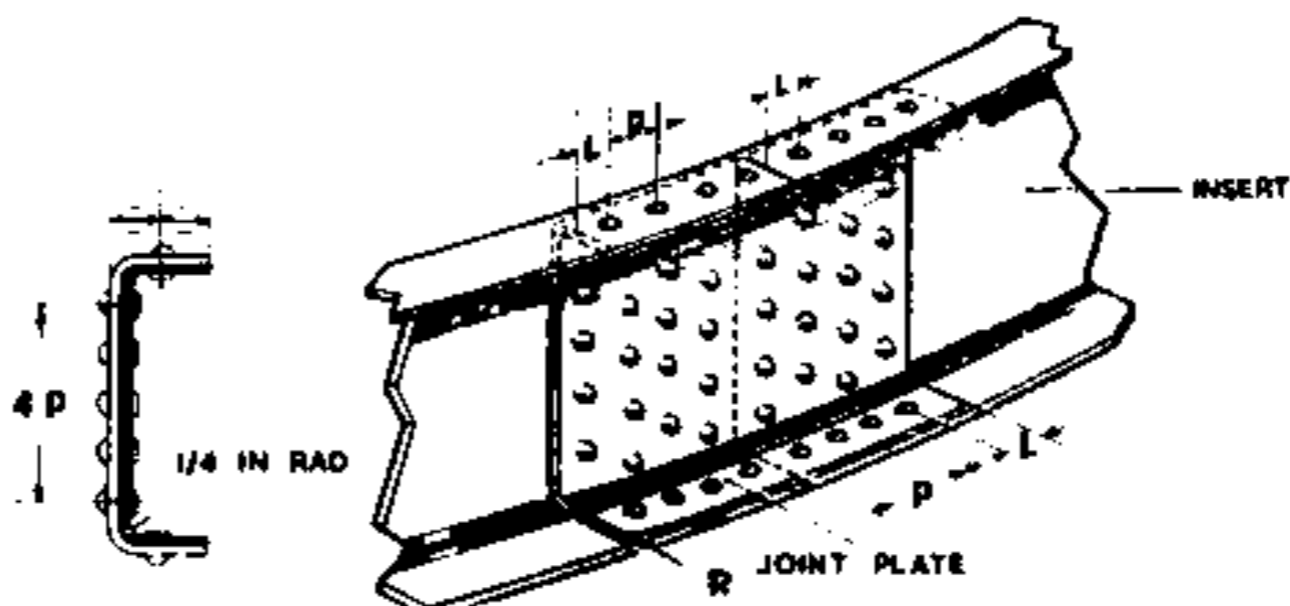
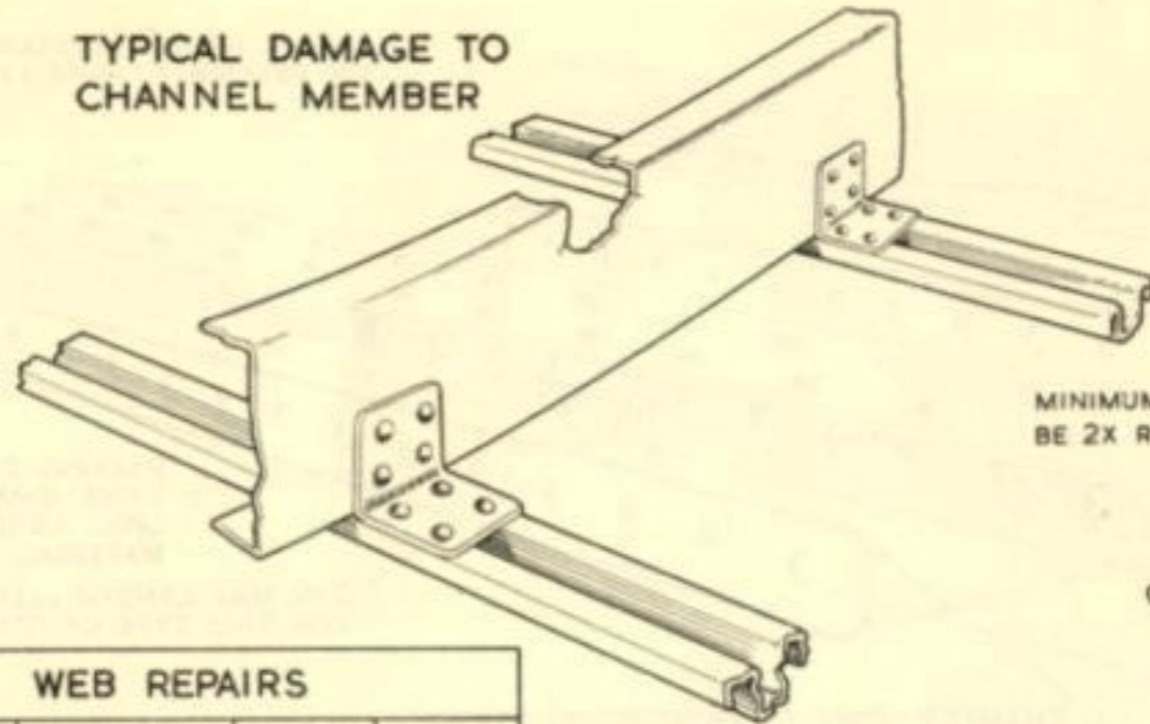


Fig. 187. Former Insertion repairs—large channel sections

RESTRICTED

TYPICAL DAMAGE TO CHANNEL MEMBER



NOTE - REPAIR MATERIAL MUST BE OF SAME GAUGE AND SPECIFICATION AS DAMAGED MEMBER. ALL CORNERS AND SHARP EDGES MUST BE REMOVED. EXISTING RIVET PITCHES IN A DAMAGED MEMBER MUST BE EMBRACED WHEN EFFECTING REPAIR. REPAIR PLATES MAY BE FITTED ON EITHER SIDE OF CHANNEL. WHEN REPAIRING LIPPED CHANNEL MEMBERS, THE REPAIR MATERIAL MUST BE EXTENDED AND BENT TO FORM A NEW LIP

THIS REPAIR CAN BE USED FOR SIMILAR DAMAGE OF ANY WIDTH

MINIMUM LANDING MUST BE 2X RIVET DIA

FLANGE RIVET PITCH 4 X RIVET DIA.

STABILIZING RIVETS AT SAME PITCH AS FLANGE RIVETS OVER WHOLE LENGTH OF ANGLE.

MIN. RAD. 1/4 IN.

A REPAIR TO FLANGE UP TO FULL WIDTH

DAMAGED PORTION MUST BE CLEANED OUT TO A REGULAR SHAPE BEFORE TYPE OF REPAIR TO BE EFFECTED CAN BE DETERMINED

USE JOINTING COMPOUND ON ASSEMBLY (PARA 134-137)

NO INSERTION REQUIRED REPAIR SUITABLE FOR ANY WIDTH

PITCH 4 X RIVET DIA.

PITCH 4 X RIVET DIA.

EXTRA ROWS TO BE STAGGERED 4X RIVET DIA. BETWEEN ROWS

B REPAIR TO WEB UP TO 50% DAMAGED

WEB REPAIRS			
GAUGE	RIVET	PITCH	No OF ROWS
22	404/AS2227	0.5 IN.	2+
20	404/AS2227	0.5 IN.	2+
18	505/AS2227	0.6 IN.	2+
16	505/AS2227	0.6 IN.	2
14	606/AS2227	0.7 IN.	2

FLANGE REPAIRS					
DEPTH OF DAMAGE IN INCHES	NUMBER OF RIVETS EACH SIDE OF DAMAGE				
	22 SWG	20 SWG	18 SWG	16 SWG	14 SWG
LESS THAN 0.4	3	3	4	3	4
0.4 TO 0.5	3	3	4	3	4
0.5 TO 0.6	4	4	5	4	4
0.6 TO 0.7	4	4	5	5	5
0.7 TO 0.9	5	6	6	6	6
0.9 TO —	5	6	6	6	7

Fig. 108. Flange and web repairs to channel members

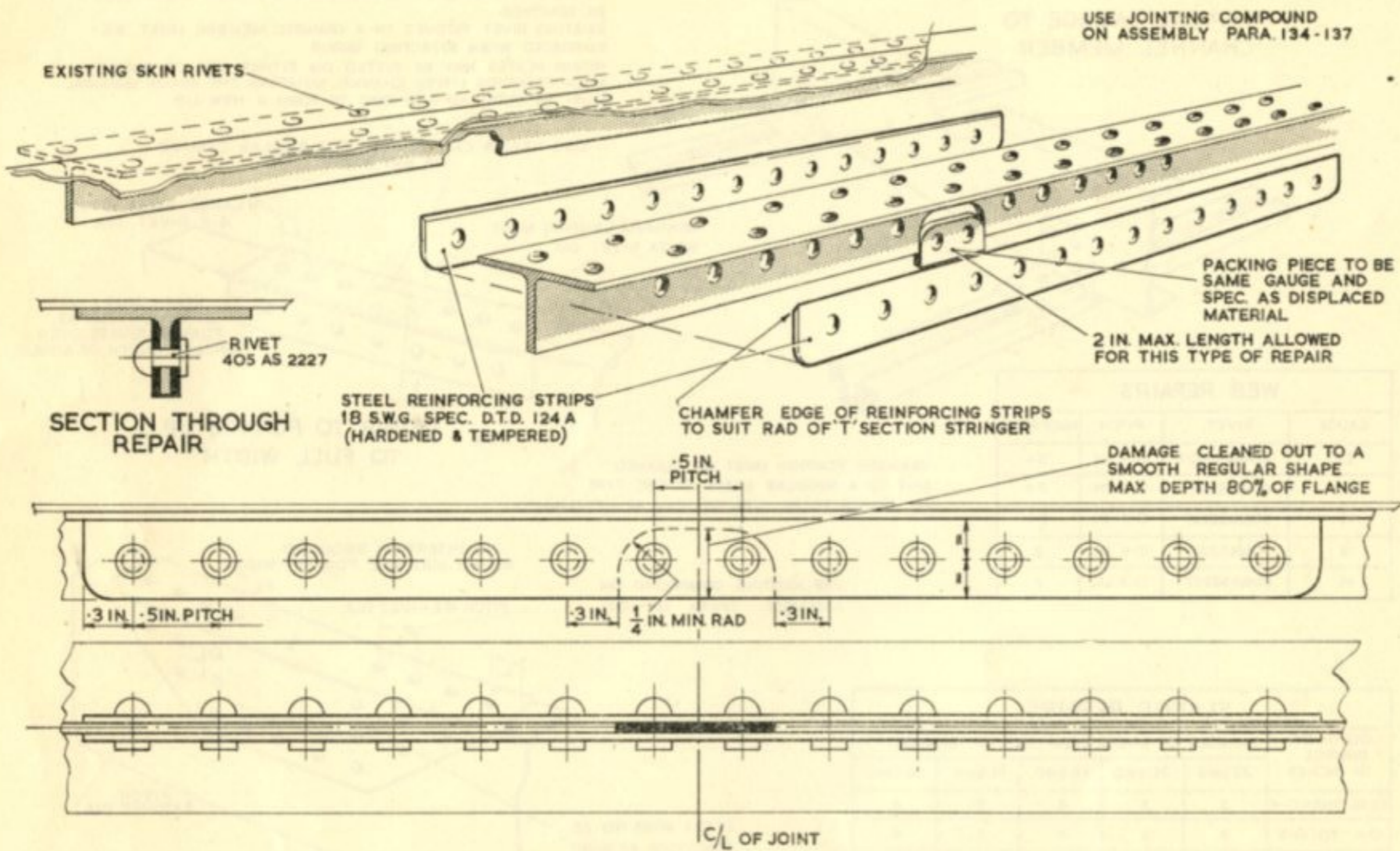


Fig. 109. Patch repair 'T'-section stringer (309, 375 & 419 SS. 3075)

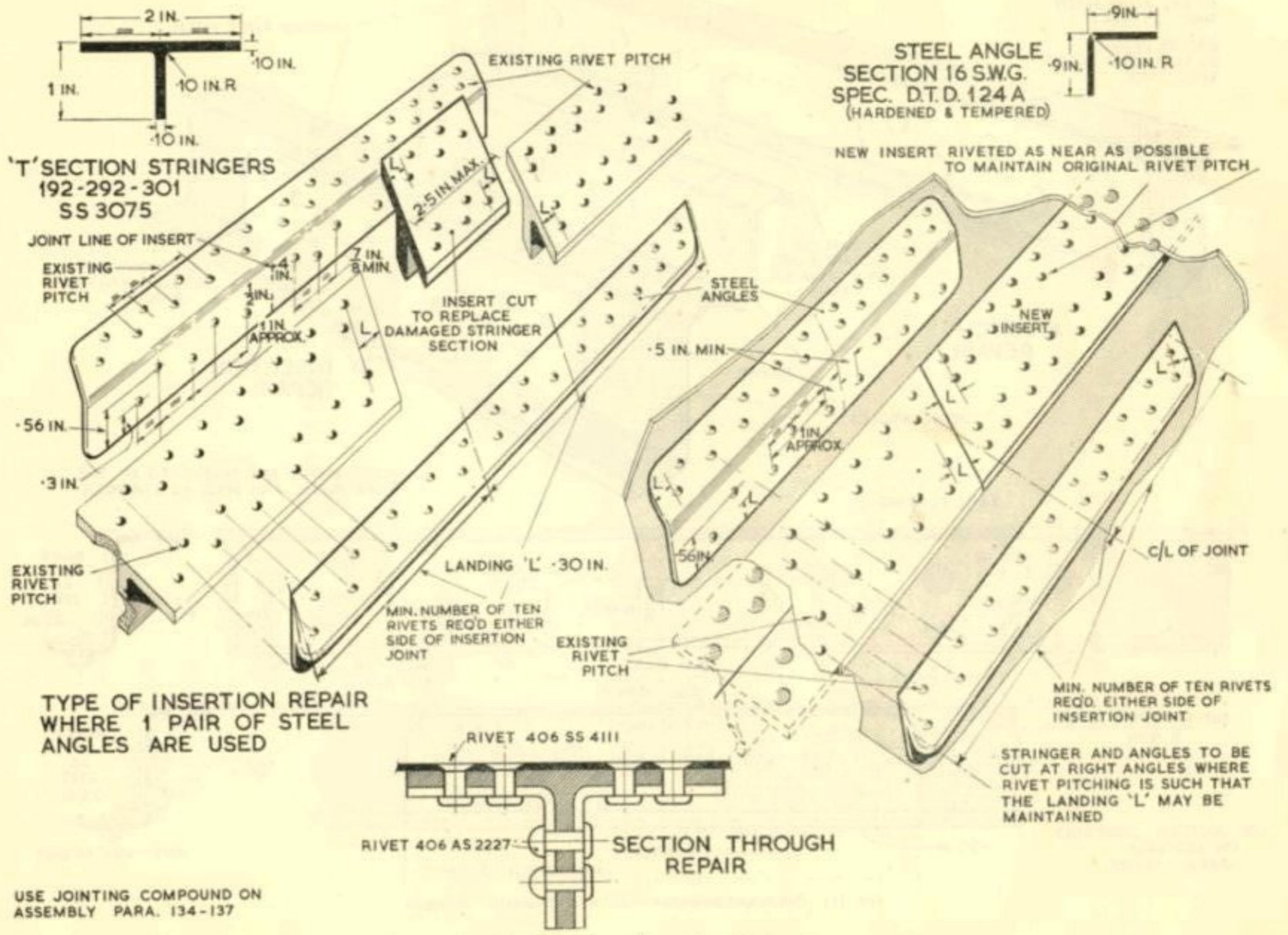


Fig. 110 'T'-section stringers-insertion repairs

583 SS 1793
20 SWG ALUM ALLOY
SPEC. D.T.D. 687

830 SS 1793
20 S.W.G. ALUM ALLOY
SPEC. L.72

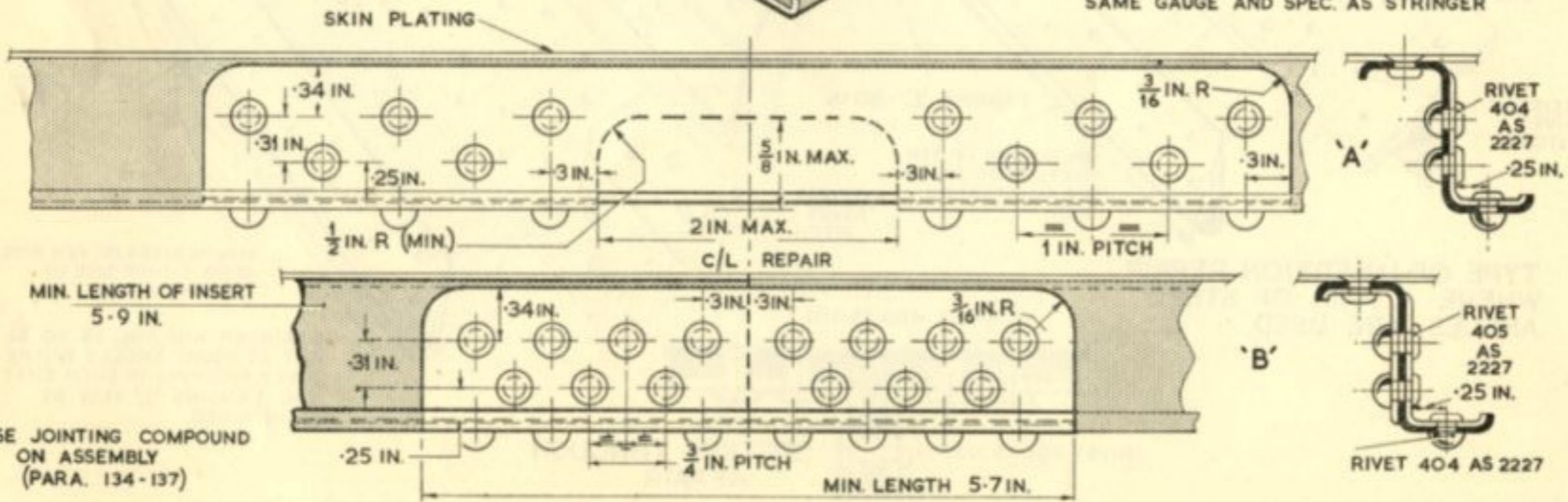
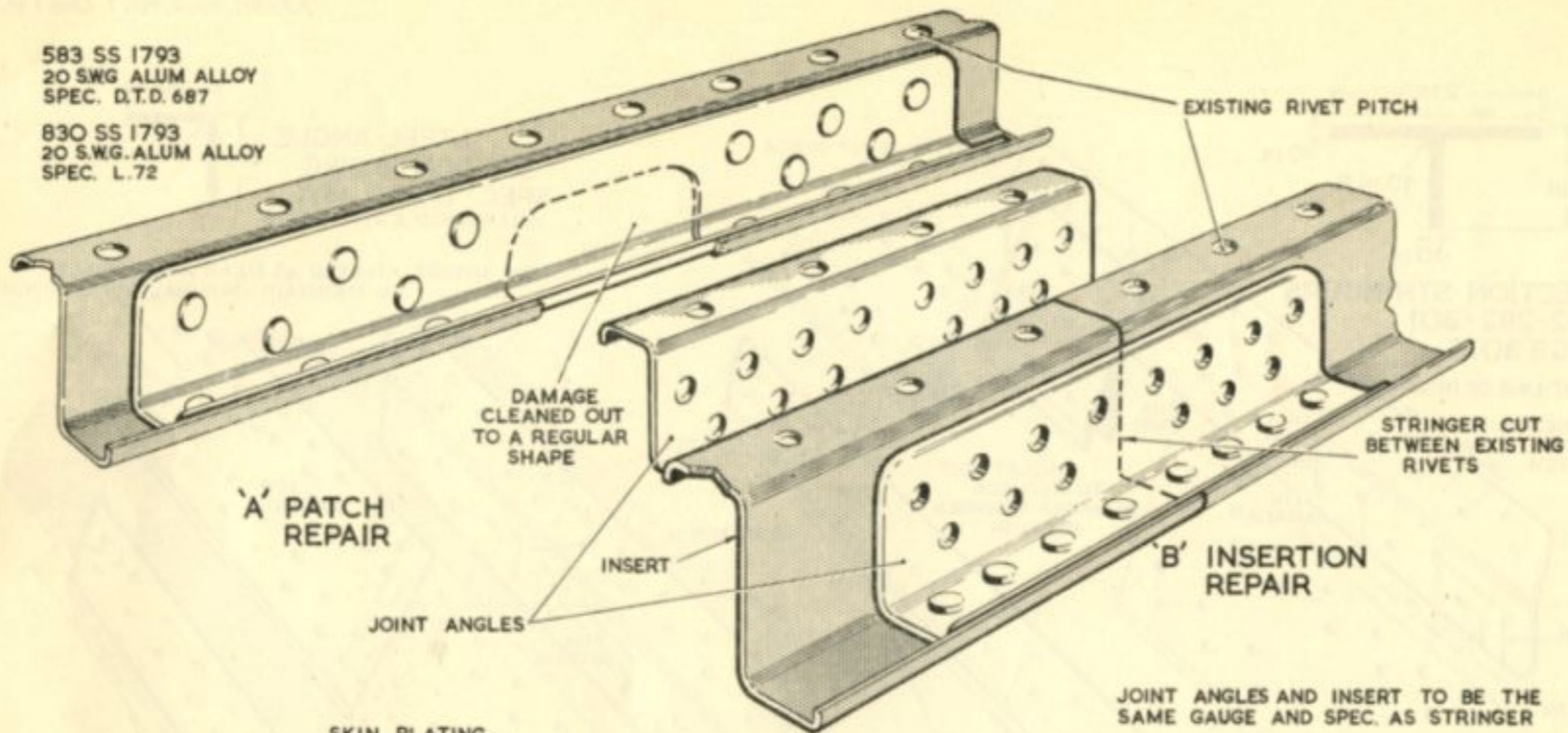


Fig. III Patch and insertion repairs to 'Z'-section stringers

RESTRICTED

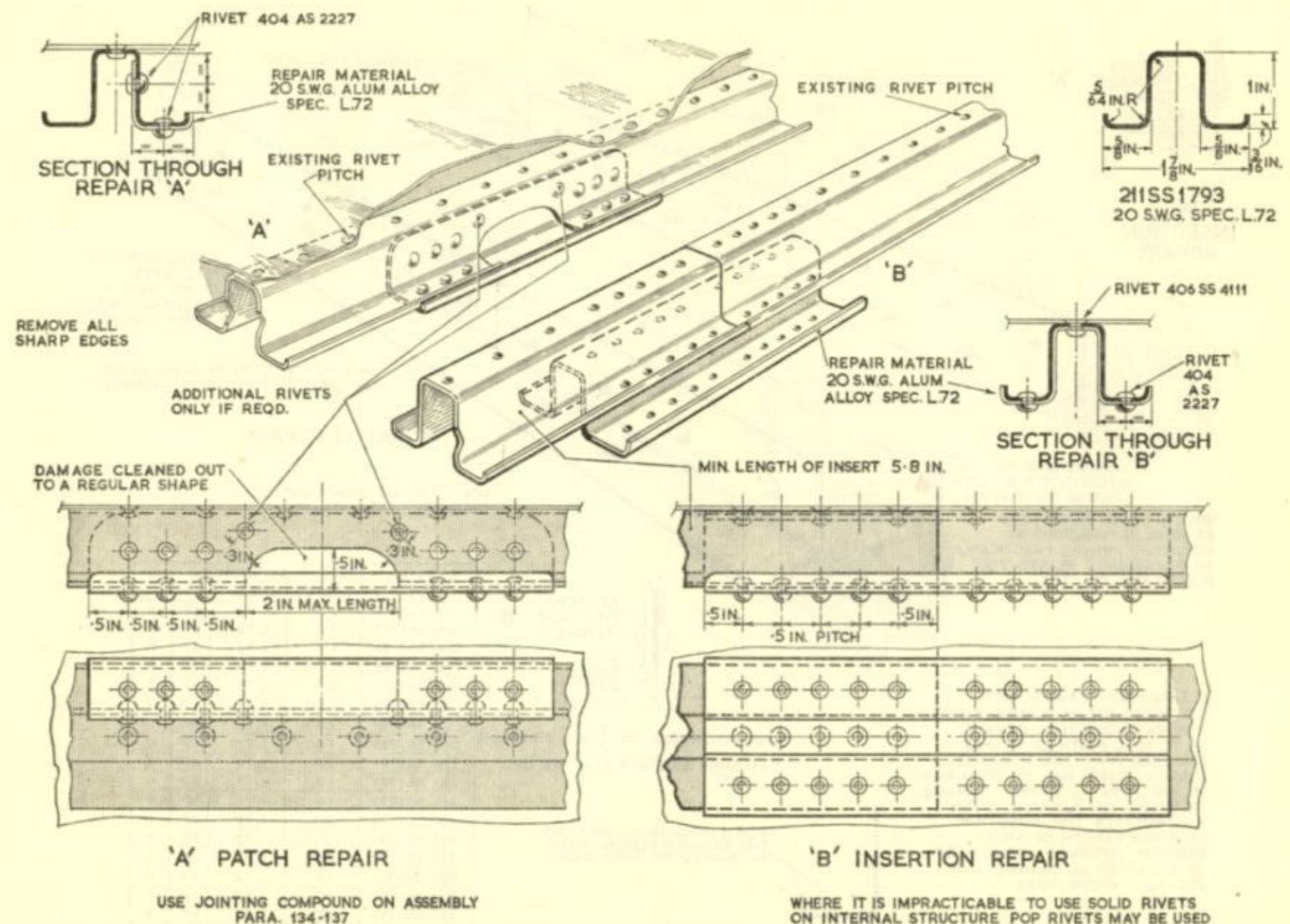
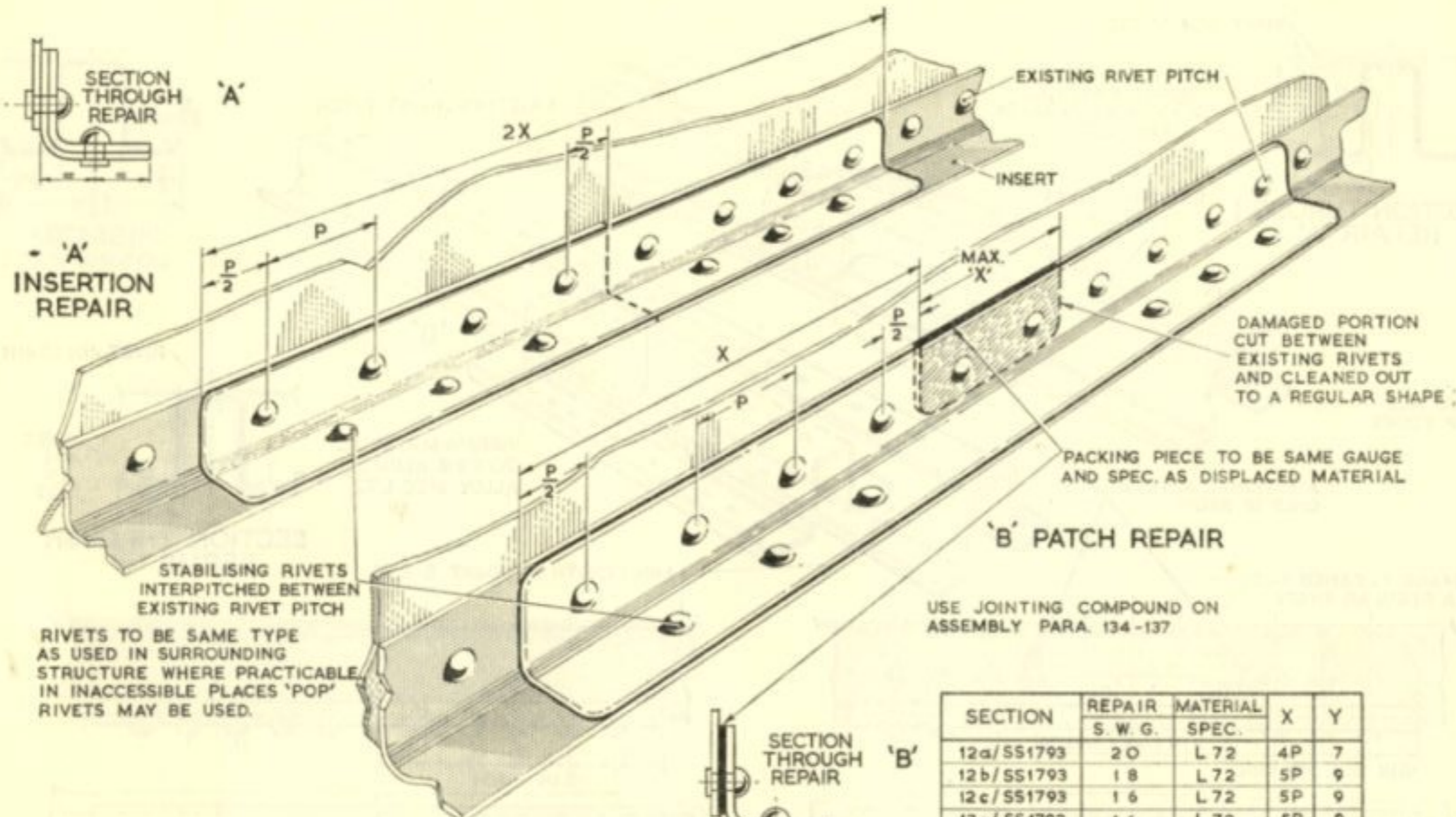


Fig. 112. Patch and insertion repairs—top hat section stringers (211 SS 1793)



RIVETS TO BE SAME TYPE AS USED IN SURROUNDING STRUCTURE WHERE PRACTICABLE IN INACCESSIBLE PLACES 'POP' RIVETS MAY BE USED.

CLEANED OUT DAMAGE NOT EXCEEDING 10% OF FLANGE WIDTH MAY BE NEGLECTED. DAMAGE UP TO FULL WIDTH OF FLANGE BUT LESS THAN THE MAXIMUM LENGTH GIVEN MAY BE REPAIRED BY PATCHING AS SHOWN. DAMAGE IN EXCESS OF MAXIMUM GIVEN NECESSITATES THE INSERTION OF A NEW LENGTH OF ANGLE. BENT OR DEFORMED ANGLE MUST BE REGARDED AS DAMAGE AND CUT AWAY ACCORDINGLY.

USE JOINTING COMPOUND ON ASSEMBLY PARA. 134-137

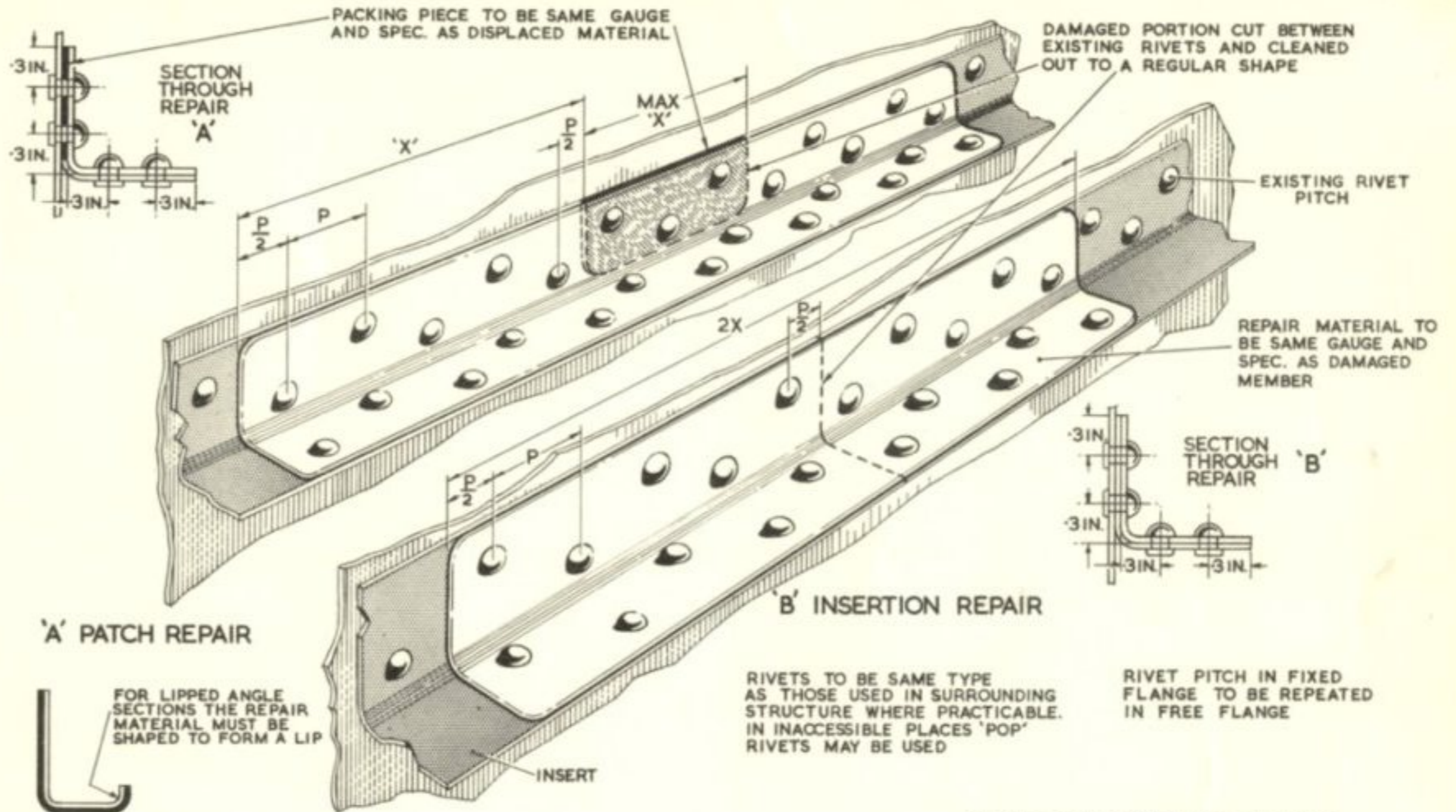
SECTION	REPAIR MATERIAL		X	Y
	S. W. G.	SPEC.		
12a/ SS1793	20	L 72	4P	7
12b/ SS1793	18	L 72	5P	9
12c/ SS1793	16	L 72	5P	9
13a/ SS1793	16	L 72	5P	9
13b/ SS1793	20	L 72	4P	7
60 SS1793	20	L 72	4P	7
73 SS1793	16	L 72	5P	9
247 SS1793	16	L 72	5P	9
133 SS1793	22	L 72	4P	7
183 SS1793	18	L 72	5P	9
311 SS1793	16	L 72	5P	9
620 SS1793	20	L 72	4P	7
625 SS1793	18	L 72	5P	9
753 SS1793	20	L 72	4P	7
761 SS1793	22	L 72	4P	7
762 SS1793	20	L 72	4P	7
763 SS1793	18	L 72	5P	9

MIN. DIMENSIONS OF $\frac{P}{2} = 2 \times$ RIVET DIA
 Y=NUMBER OF RIVETS EACH SIDE OF JOINT

FOR LIPPED ANGLE SECTIONS THE REPAIR MATERIAL MUST BE SHAPED TO FORM A LIP

Fig. 113. Patch and insertion repairs to small rolled section stiffeners

RESTRICTED



SECTION	REPAIR	MATERIAL	X	Y
	S.W.G.	SPEC.		
470/SS 1793	14 S.W.G.	L.72	5P	10
349/SS 1793	14 S.W.G.	L.72	5P	10
446/SS 1793	18 S.W.G.	L.72	6P	12

MIN. DIMENSIONS OF $\frac{P}{2} = 2 \times$ RIVET DIA.
Y = NUMBER OF RIVETS EACH SIDE OF JOINT

USE JOINTING COMPOUND ON ASSEMBLY PARA. 134-137

CLEANED OUT DAMAGE NOT EXCEEDING 10% OF FLANGE WIDTH MAY BE NEGLECTED. DAMAGE UP TO FULL WIDTH OF FLANGE BUT LESS THAN THE MAXIMUM LENGTH GIVEN MAY BE REPAIRED BY PATCHING AS SHOWN. DAMAGE IN EXCESS OF MAXIMUM GIVEN NECESSITATES THE INSERTION OF A NEW LENGTH OF ANGLE. BENT OR DEFORMED ANGLE MUST BE REGARDED AS DAMAGE AND CUT AWAY ACCORDINGLY

Fig. 114. Patch & insertion repairs to small rolled section stiffeners

RESTRICTED

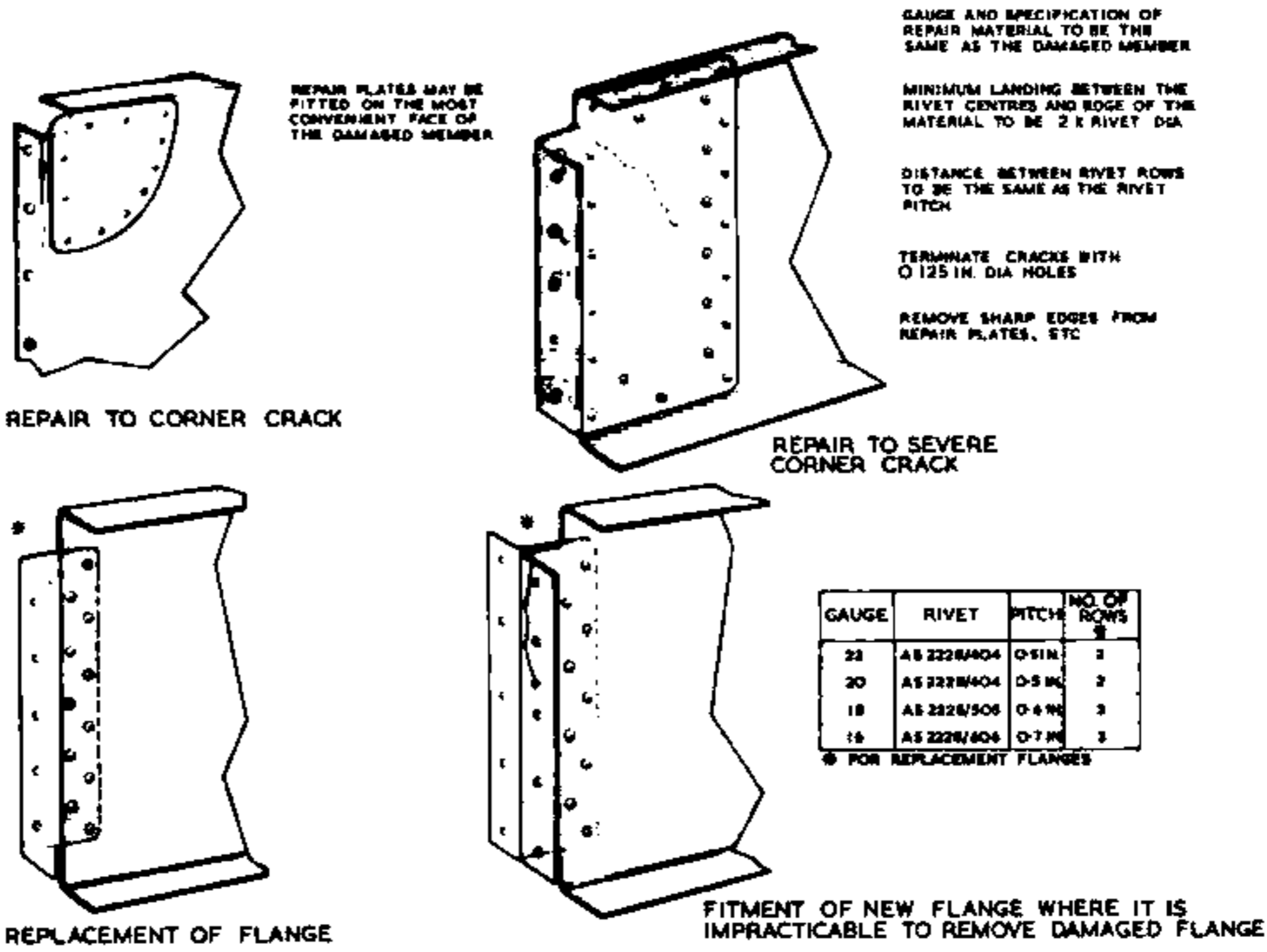


Fig 115. Repairs to ribs and intercostals
RESTRICTED

REPAIR INSTRUCTIONS

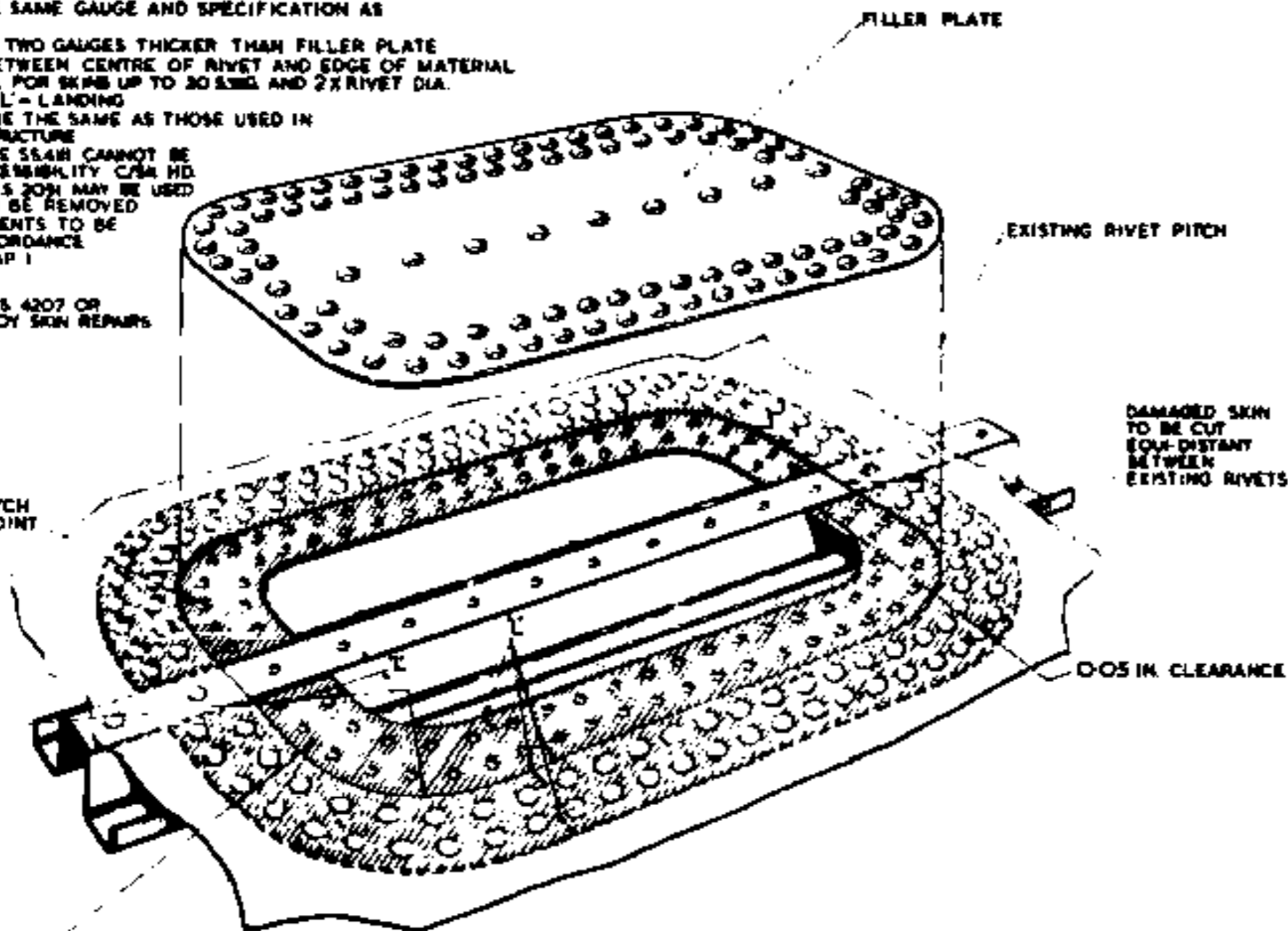
- 1 FILLER PLATE TO BE SAME GAUGE AND SPECIFICATION AS EXISTING SKIN
- 2 SEATING PLATE TO BE TWO GAUGES THICKER THAN FILLER PLATE
- 3 MINIMUM LANDING BETWEEN CENTRE OF RIVET AND EDGE OF MATERIAL TO BE $2\frac{1}{2}$ RIVET DIA. FOR SKINS UP TO 30 SWS AND $2X$ RIVET DIA. FOR THICKER SKINS L = LANDING
- 4 TYPE OF RIVETS TO BE THE SAME AS THOSE USED IN THE SURROUNDING STRUCTURE
- 5 IF SOLID RIVETS TYPE SS4H CANNOT BE FITTED DUE TO INACCESSIBILITY CSA HD POP RIVETS TYPE A.G.S 2049 MAY BE USED
- 6 ALL SHARP EDGES TO BE REMOVED
- 7 PROTECTIVE TREATMENTS TO BE CARRIED OUT IN ACCORDANCE WITH THE TEXT IN CHAP 1

NOTE - USE RIVETS TYPE SS 4207 OR A.G.S 2049 FOR MAG. ALLOY SKIN REPAIRS

ROWS OF RIVETS TO BE SAME DIA AND PITCH AS ADJACENT SKIN JOINT

2.0 IN. RAD POLISHED

SEATING PLATE



REPAIR ILLUSTRATED IS FOR ANY DAMAGE BETWEEN FORMERS OR RIBS PROVIDING THE LIMITS STATED CAN BE MAINTAINED

Fig. 116. Repairs to skin at top hat and 'Z' section stringer - unpressurised

RESTRICTED

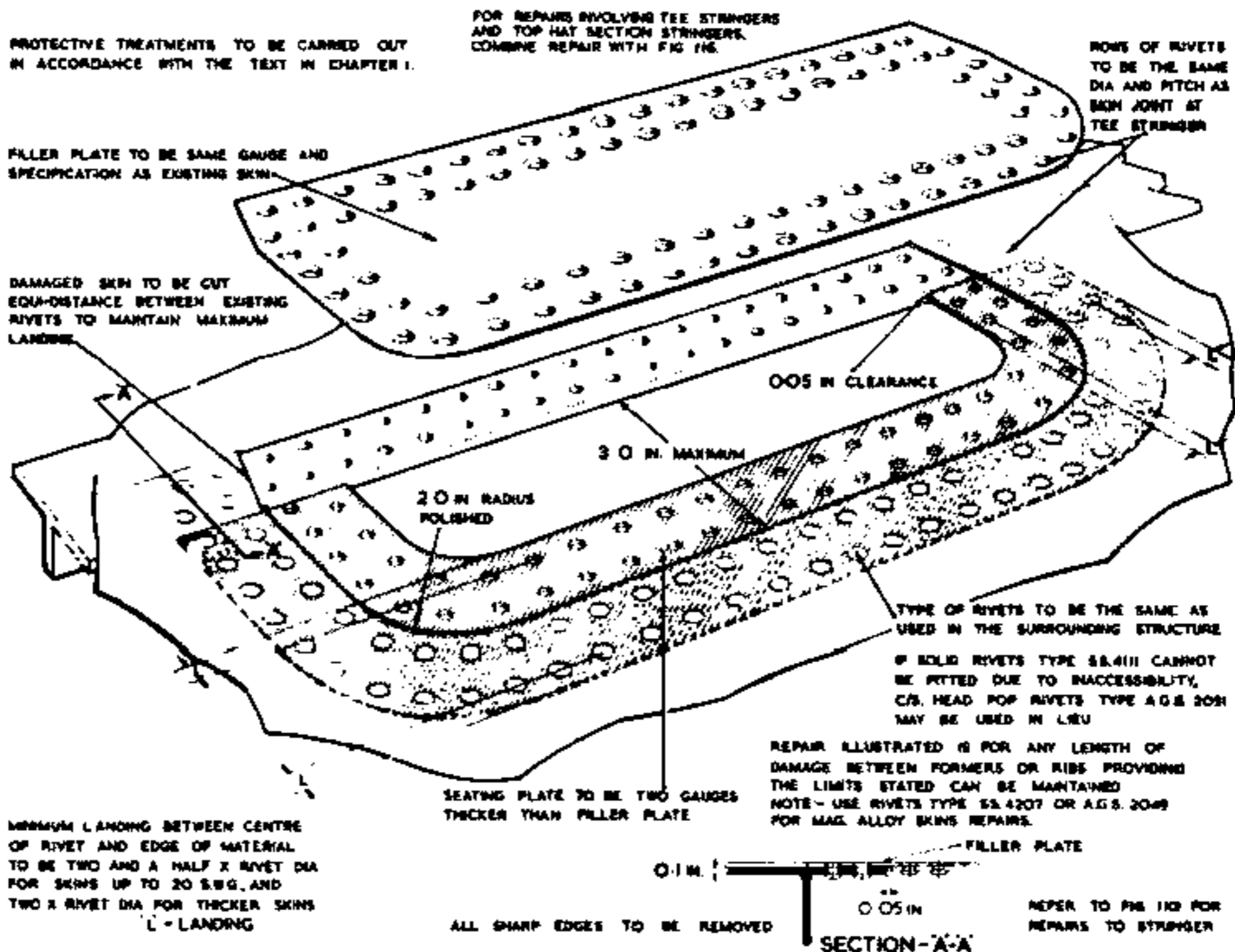
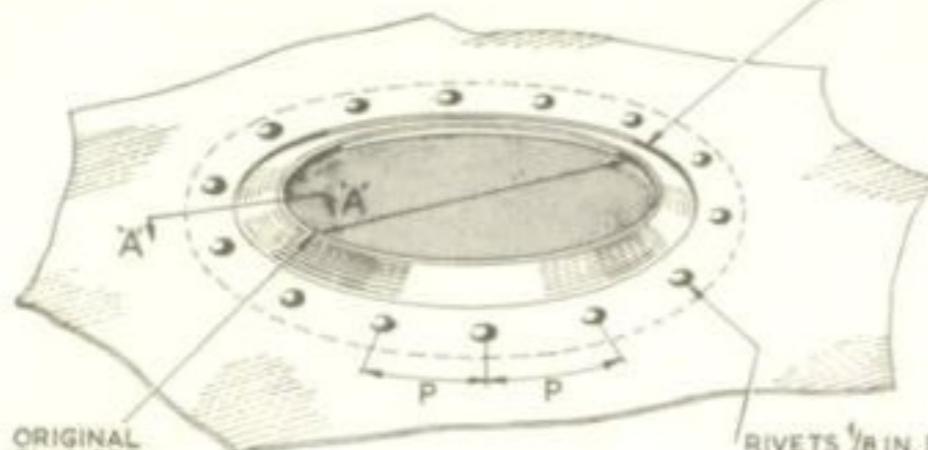


Fig. 117. Repairs to skin at T stringer - unpressurised
RESTRICTED

REPAIR INSTRUCTIONS
APPLY TO MAGNESIUM
ALLOY COMPONENTS

ORIGINAL HOLE CUT BACK TO A MAXIMUM OF $\frac{1}{16}$ IN.
BEYOND THE BEND RADIUS, OR FLUSH WITH IT
PRIOR TO FITTING FLANGE RING

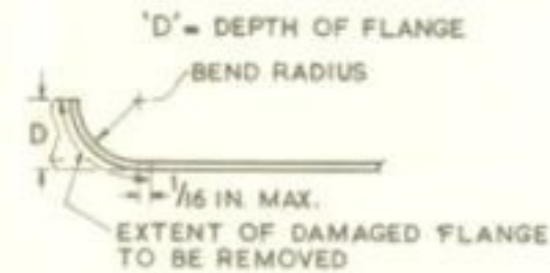


ORIGINAL
FLANGED
HOLE DIA.

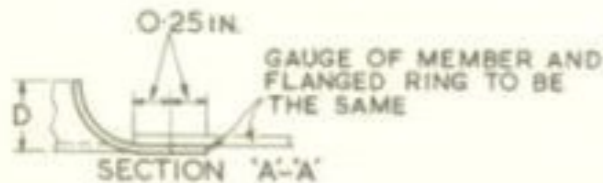
'P' = PITCH

O-625 IN. PITCHES FOR HOLES
BELOW 2 IN. DIA.
O-75 IN. PITCHES FOR HOLES
2 IN. TO 3 IN. DIA.
1-0 IN. PITCHES FOR HOLES
ABOVE 3-0 IN. DIA.

RIVETS $\frac{1}{8}$ IN. DIA.
SNAP HEAD
A S 156/403 UP TO 20 SWG.
A S 156/404 ABOVE 20 SWG.
AND UP TO 16 SWG.

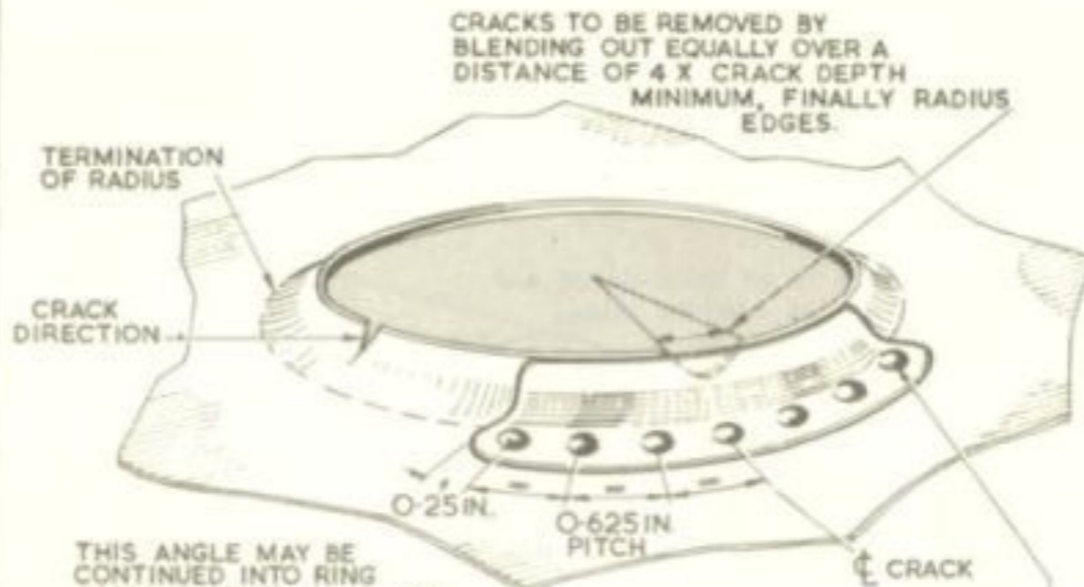


SECTION THROUGH ORIGINAL FLANGED
HOLE



NOTE: FLANGED RING MAY BE FITTED ON
EITHER SIDE OF WEB PROVIDING THE
HOLE FLANGE IS FACING THE
ORIGINAL DIRECTION

REPLACEMENT OF COMPLETE
FLANGE

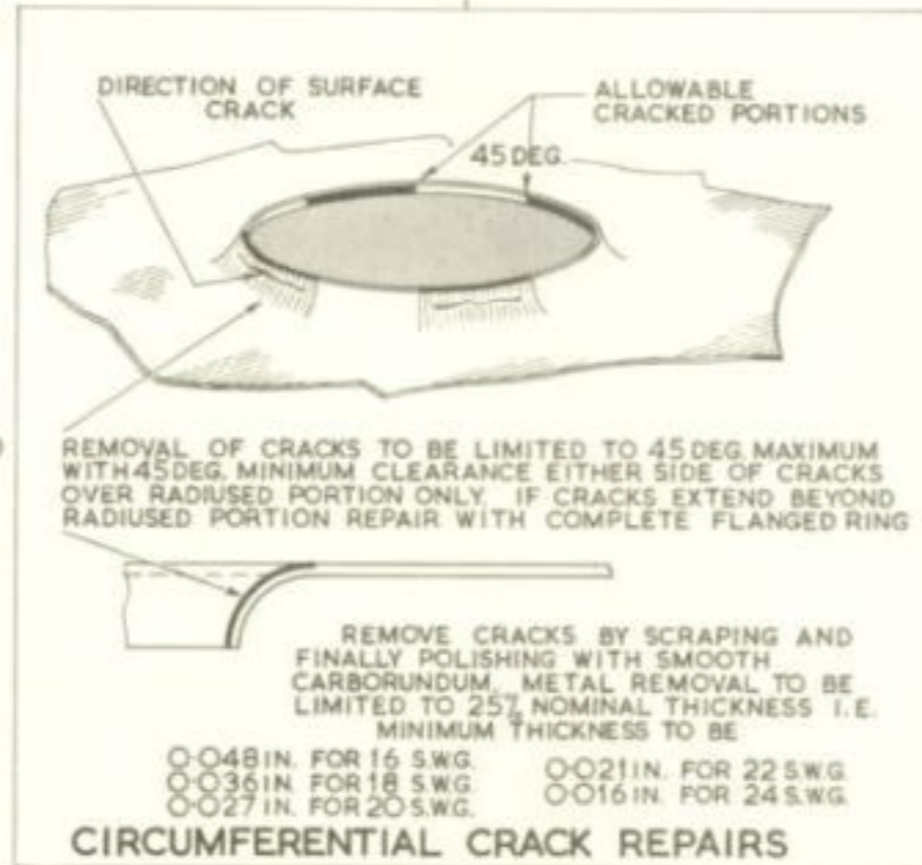


CRACKS TO BE REMOVED BY
BLENDING OUT EQUALLY OVER A
DISTANCE OF 4 X CRACK DEPTH
MINIMUM, FINALLY RADIUS
EDGES.

TERMINATION
OF RADIUS
CRACK
DIRECTION

O-25 IN.
O-625 IN
PITCH

THIS ANGLE MAY BE
CONTINUED INTO RING
FORM IF SEVERAL CRACKS
ARE FOUND. IN THIS CASE
THE RIVET PITCHES TO BE STATED AS FOR
CIRCUMFERENTIAL CRACKS. IF SMALL CRACKS
ARE NUMEROUS REPAIR AS FOR CIRCUMFERENTIAL CRACKS

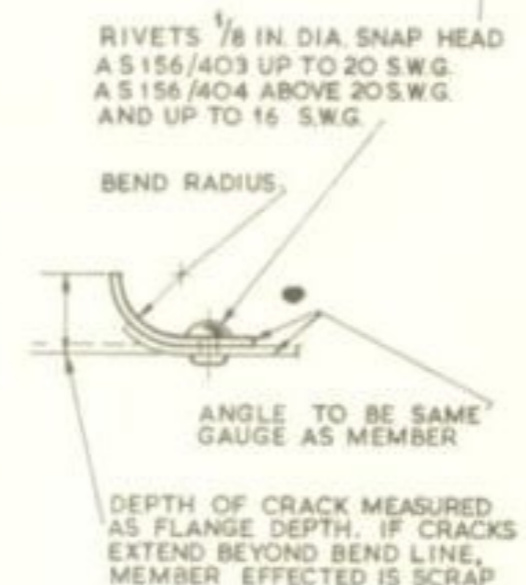


REMOVAL OF CRACKS TO BE LIMITED TO 45 DEG MAXIMUM
WITH 45 DEG. MINIMUM CLEARANCE EITHER SIDE OF CRACKS
OVER RADIUS PORTION ONLY. IF CRACKS EXTEND BEYOND
RADIUS PORTION REPAIR WITH COMPLETE FLANGED RING

REMOVE CRACKS BY SCRAPING AND
FINALLY POLISHING WITH SMOOTH
CARBORUNDUM. METAL REMOVAL TO BE
LIMITED TO 25% NOMINAL THICKNESS I.E.
MINIMUM THICKNESS TO BE

O-048 IN. FOR 16 SWG.	O-021 IN. FOR 22 SWG.
O-036 IN. FOR 18 SWG.	O-016 IN. FOR 24 SWG.
O-027 IN. FOR 20 SWG.	

CIRCUMFERENTIAL CRACK REPAIRS



RIVETS $\frac{1}{8}$ IN. DIA. SNAP HEAD
A S 156/403 UP TO 20 SWG.
A S 156/404 ABOVE 20 SWG.
AND UP TO 16 SWG.

BEND RADIUS

ANGLE TO BE SAME
GAUGE AS MEMBER

DEPTH OF CRACK MEASURED
AS FLANGE DEPTH. IF CRACKS
EXTEND BEYOND BEND LINE,
MEMBER EFFECTED IS SCRAP

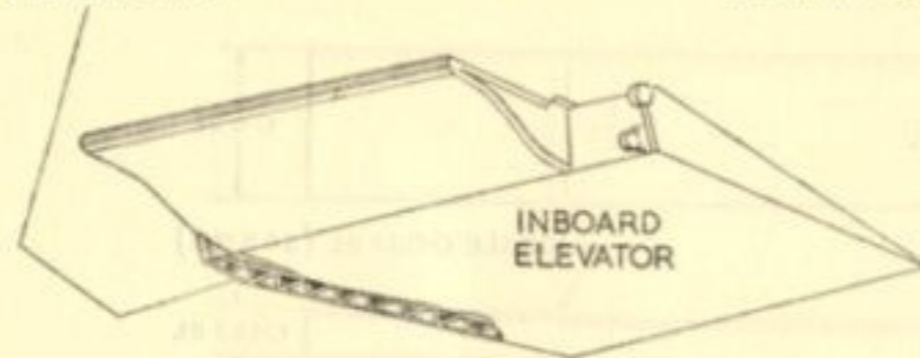
RADIAL CRACK REPAIRS

NOTE: REPAIR MATERIAL TO BE SAME
GAUGE AND SPEC. AS DAMAGED PART

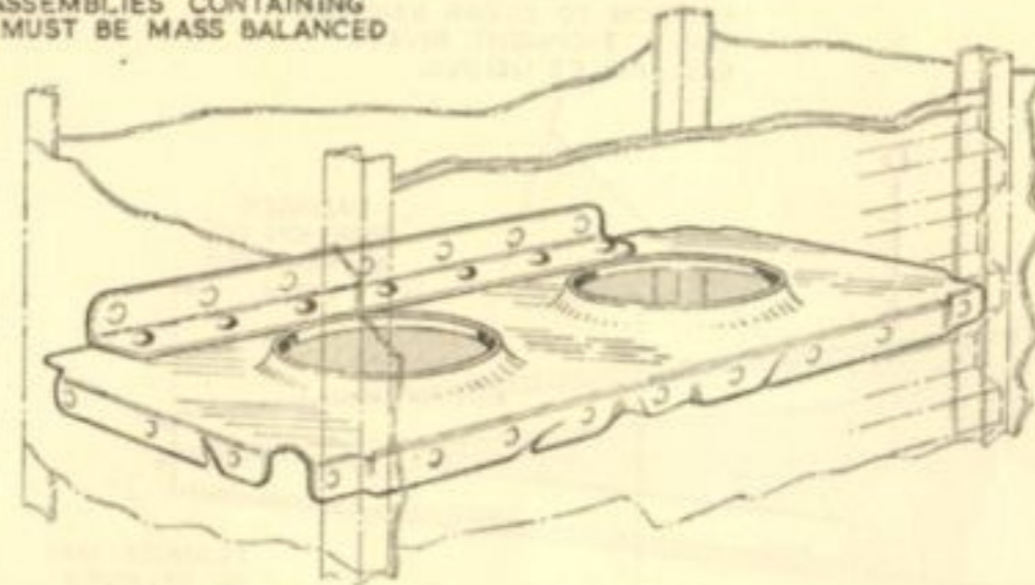
Fig. IIB. Method of repairing cracked flanges in lightning holes

RESTRICTED

LOCATION OF DIAPHRAGMS IN END RIB ASSEMBLY



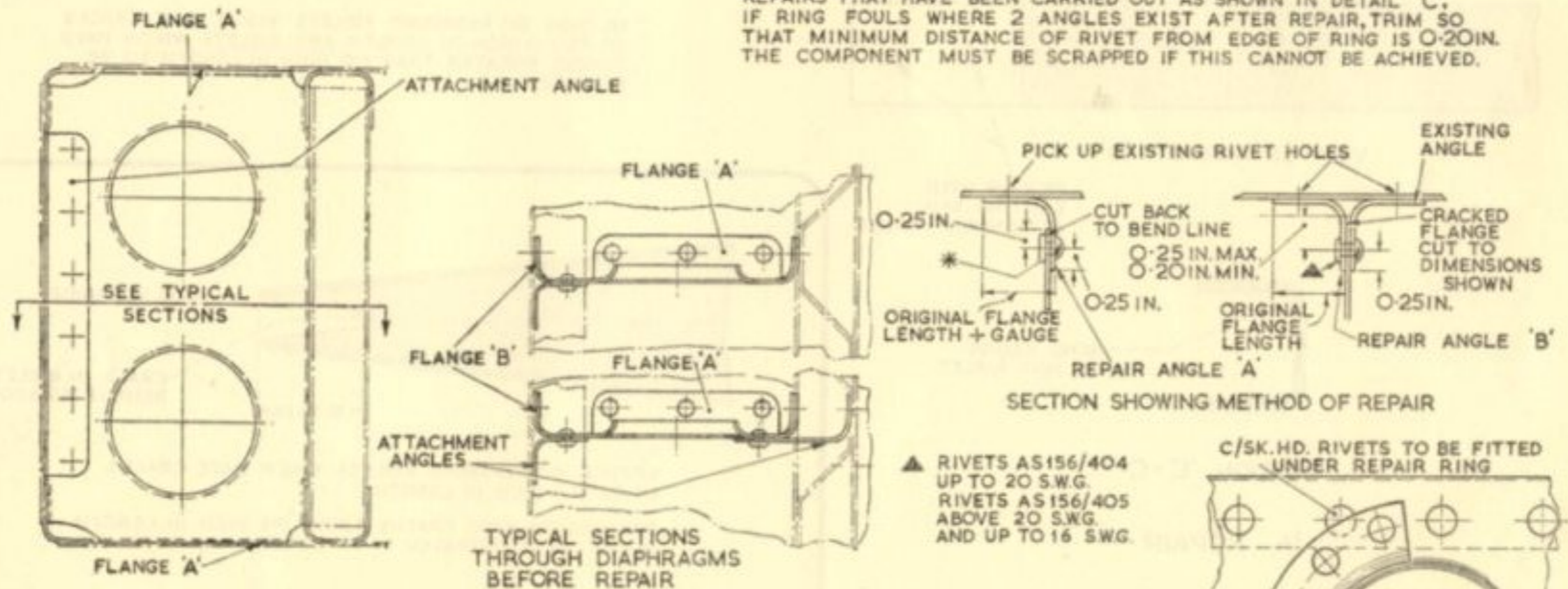
ALL CONTROL SURFACE ASSEMBLIES CONTAINING REPAIRED COMPONENTS MUST BE MASS BALANCED



TYPICAL DAMAGE TO DIAPHRAGMS

TO REPAIR CRACKED FLANGES, CUT AWAY FLANGE AND REPLACE BY A LOOSE ANGLE AS SHOWN IN METHOD OF REPAIR. IF AFTER CUTTING FLANGES AWAY TO DIMENSIONS GIVEN, CRACKS STILL EXIST, THE ITEM MUST BE SCRAPPED. THIS ALSO APPLIES IF ADJACENT FLANGES ARE CRACKED. ONLY 4 DIAPHRAGMS MAY BE REPAIRED AND IF POSSIBLE SHOULD BE EVENLY SPACED OVER LENGTH OF END RIB. LOOSE ANGLES SHALL BE THE SAME LENGTH AS THE FLANGES CUT OFF AND THE SAME GAUGE. REPAIR ANGLES MADE FROM MATERIAL SPEC. D.T.D. 118 A

NOTE: WHERE CRACKS EXIST IN FLANGED HOLES, C/SK.HD. RIVETS TO BE USED UNDER ATTACHMENT ANGLES IF THEY INTERFERE WITH ANY REPAIRS THAT HAVE BEEN CARRIED OUT AS SHOWN IN DETAIL 'C'. IF RING FOULS WHERE 2 ANGLES EXIST AFTER REPAIR, TRIM SO THAT MINIMUM DISTANCE OF RIVET FROM EDGE OF RING IS 0.20 IN. THE COMPONENT MUST BE SCRAPPED IF THIS CANNOT BE ACHIEVED.



FLANGES 'A' - FIT RIVETS MARKED * PITCHED AS EXISTING SKIN
RIVETS AS156/403 UP TO 20 S.W.G.
RIVETS AS156/404 ABOVE 20 S.W.G. AND UP TO 16 S.W.G.

FLANGES 'B' - PICK UP EXISTING RIVETS MARKED ▲, AND ADD ONE RIVET EACH SIDE OF EXISTING ANGLE AT 0.30 IN. FROM ITS TERMINATION.

MIN. DISTANCE 0.20 IN. SEE NOTE



Fig. 119. Method of repairing cracked diaphragms — end rib assembly of inboard elevators

RESTRICTED

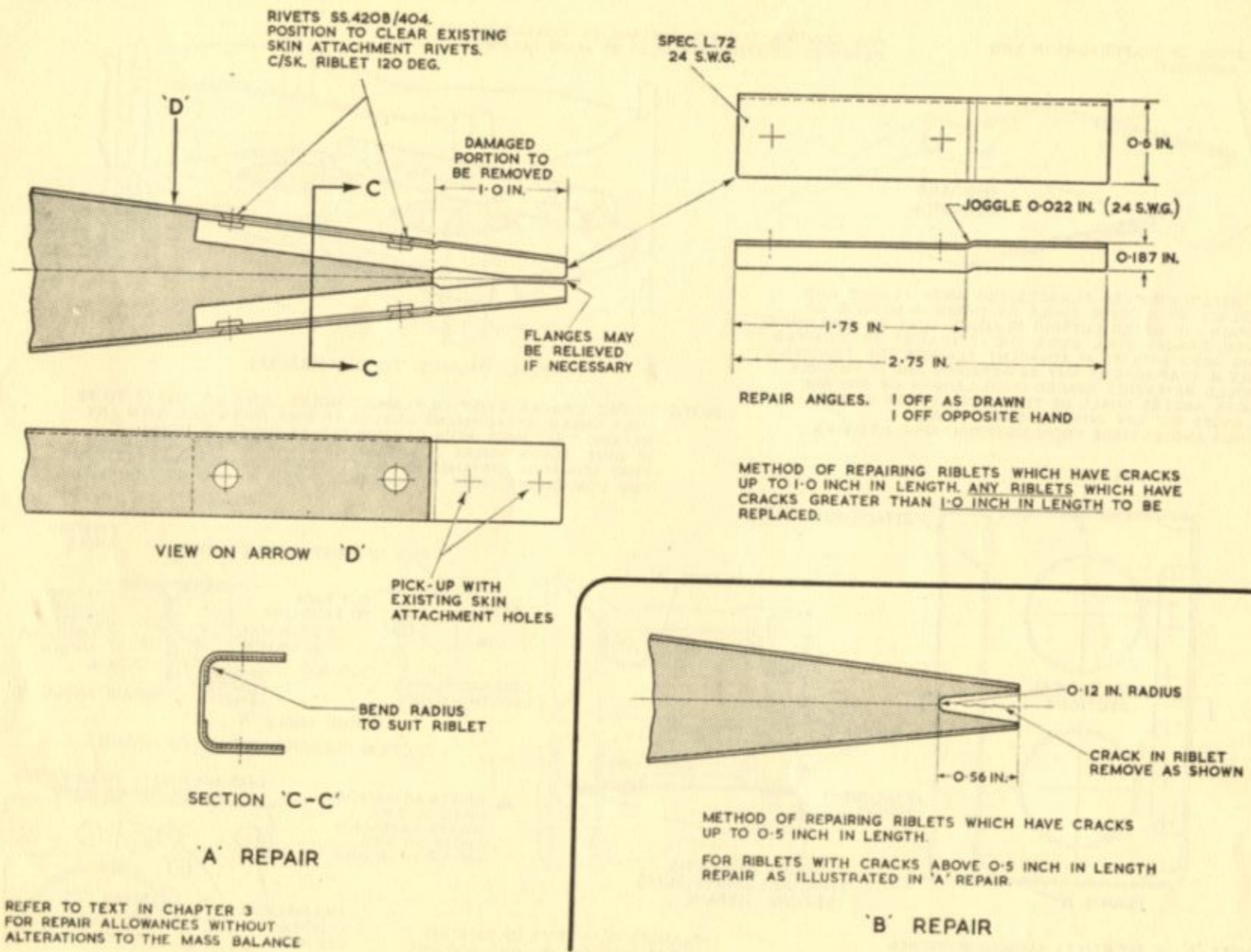
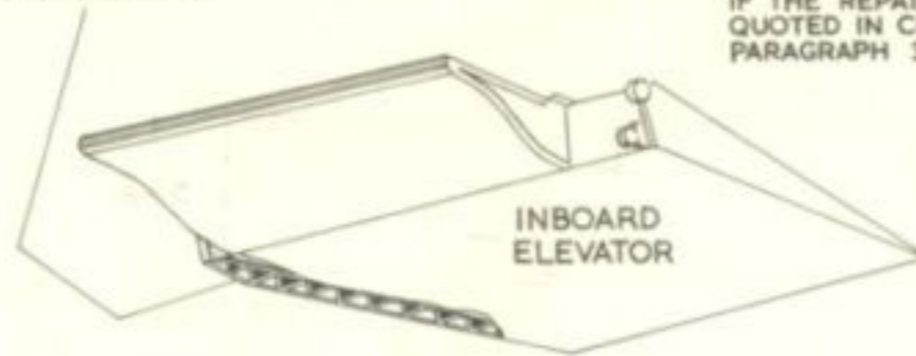


Fig. 120. Repairs to riblets — elevators, ailerons, rudder

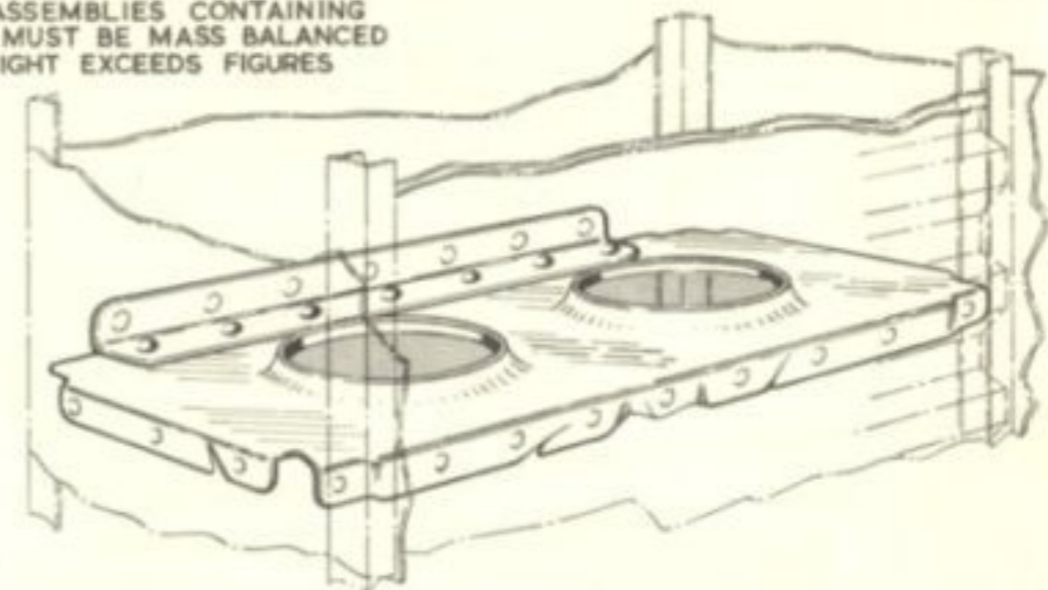
RESTRICTED

LOCATION OF DIAPHRAGMS IN END RIB ASSEMBLY



INBOARD ELEVATOR

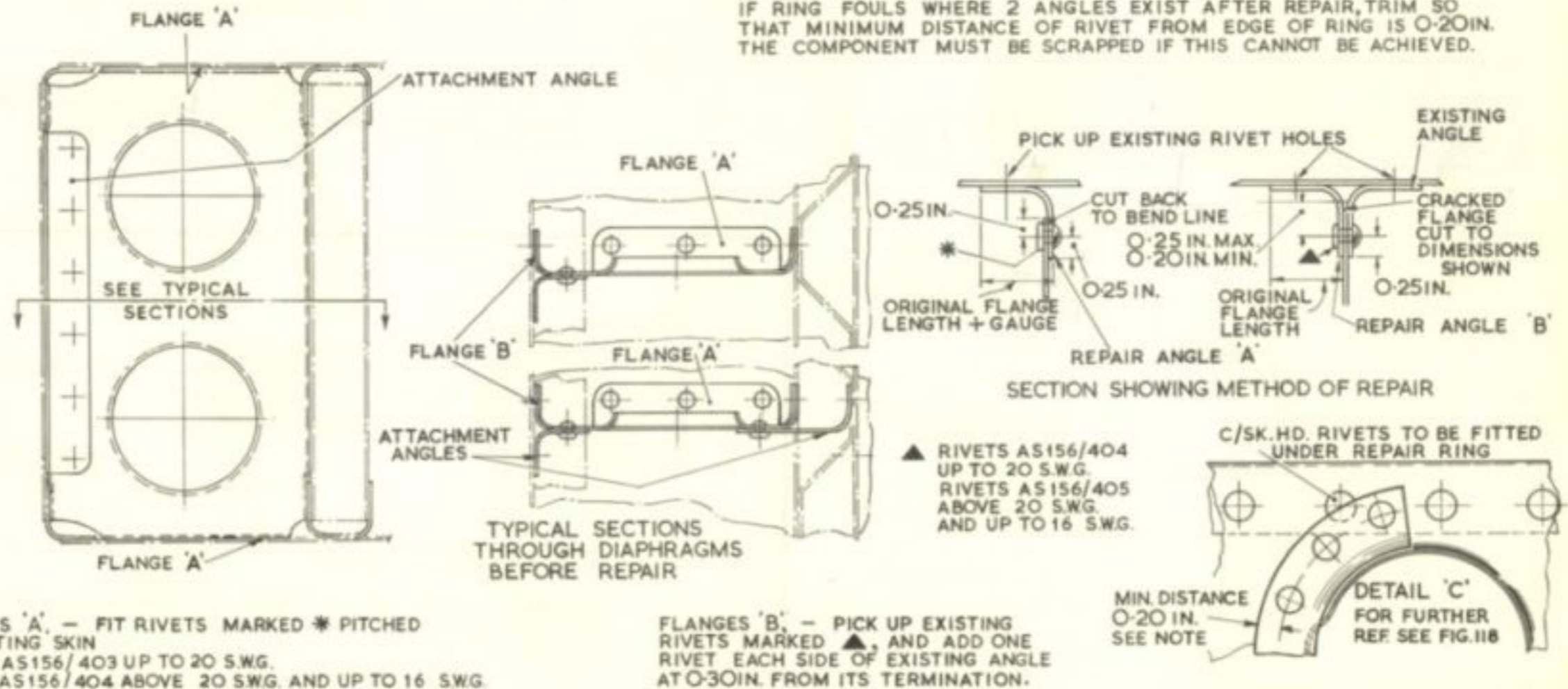
ALL CONTROL SURFACE ASSEMBLIES CONTAINING REPAIRED COMPONENTS MUST BE MASS BALANCED IF THE REPAIR EXCESS WEIGHT EXCEEDS FIGURES QUOTED IN CHAPTER 3, PARAGRAPH 319 - 322.



TYPICAL DAMAGE TO DIAPHRAGMS

TO REPAIR CRACKED FLANGES, CUT AWAY FLANGE AND REPLACE BY A LOOSE ANGLE AS SHOWN IN METHOD OF REPAIR. IF AFTER CUTTING FLANGES AWAY TO DIMENSIONS GIVEN, CRACKS STILL EXIST, THE ITEM MUST BE SCRAPPED. THIS ALSO APPLIES IF ADJACENT FLANGES ARE CRACKED. ONLY 4 DIAPHRAGMS MAY BE REPAIRED AND IF POSSIBLE SHOULD BE EVENLY SPACED OVER LENGTH OF END RIB. LOOSE ANGLES SHALL BE THE SAME LENGTH AS THE FLANGES CUT OFF AND THE SAME GAUGE. REPAIR ANGLES MADE FROM MATERIAL SPEC. D.T.D.118 A

NOTE: WHERE CRACKS EXIST IN FLANGED HOLES, C/SK.HD. RIVETS TO BE USED UNDER ATTACHMENT ANGLES IF THEY INTERFERE WITH ANY REPAIRS THAT HAVE BEEN CARRIED OUT AS SHOWN IN DETAIL 'C'. IF RING FOULS WHERE 2 ANGLES EXIST AFTER REPAIR, TRIM SO THAT MINIMUM DISTANCE OF RIVET FROM EDGE OF RING IS 0.20 IN. THE COMPONENT MUST BE SCRAPPED IF THIS CANNOT BE ACHIEVED.



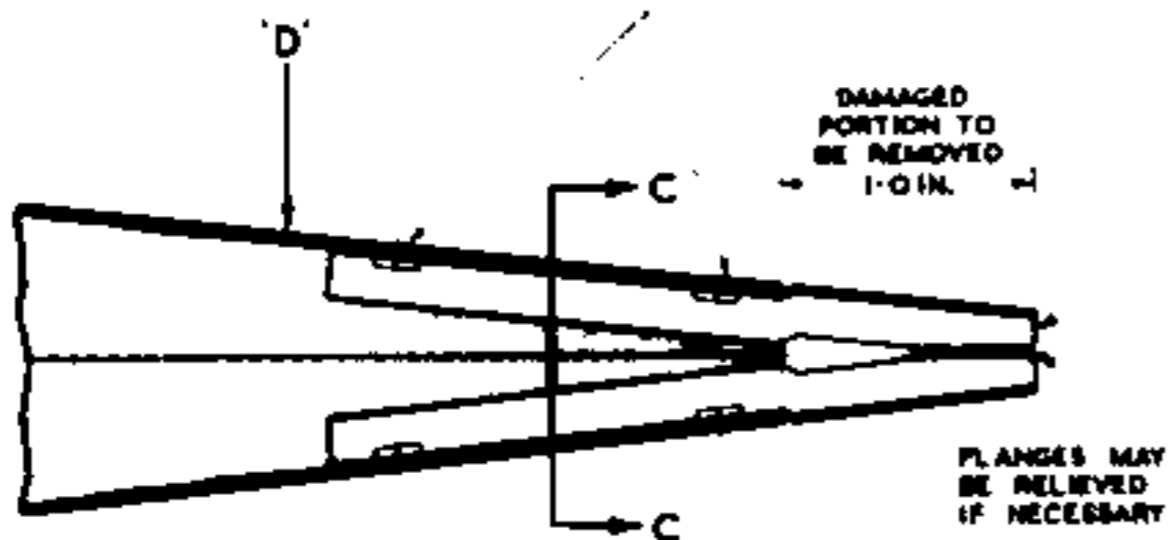
FLANGES 'A' - FIT RIVETS MARKED * PITCHED AS EXISTING SKIN
RIVETS AS156/403 UP TO 20 S.W.G.
RIVETS AS156/404 ABOVE 20 S.W.G. AND UP TO 16 S.W.G.

FLANGES 'B' - PICK UP EXISTING RIVETS MARKED ▲, AND ADD ONE RIVET EACH SIDE OF EXISTING ANGLE AT 0.30 IN. FROM ITS TERMINATION.

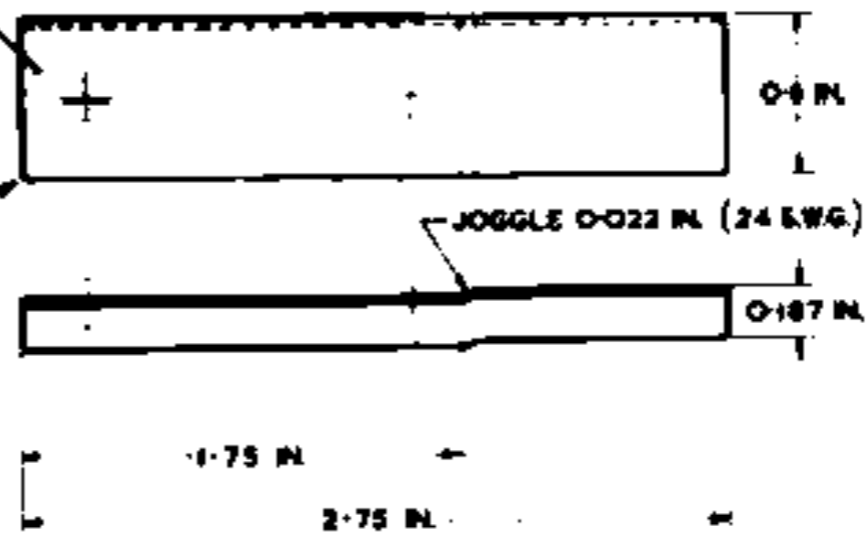
Fig.119. Method of repairing cracked diaphragms - end rib assembly of inboard elevators

RESTRICTED

RIVETS SA 4208/404
 POSITION TO CLEAR EXISTING
 SKIN ATTACHMENT RIVETS
 C/SK. RIBLET 120 DEG.

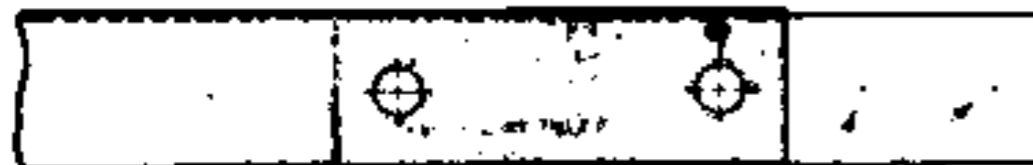


SPEC. L72
 24 S.W.G.



REPAIR ANGLES 1 OFF AS DRAWN
 1 OFF OPPOSITE HAND

METHOD OF REPAIRING RIBLETS WHICH HAVE CRACKS
 UP TO 1.0 INCH IN LENGTH. ANY RIBLETS WHICH HAVE
 CRACKS GREATER THAN 1.0 INCH IN LENGTH TO BE
 REPLACED



VIEW ON ARROW 'D'

PICK-UP WITH
 EXISTING SKIN
 ATTACHMENT HOLES

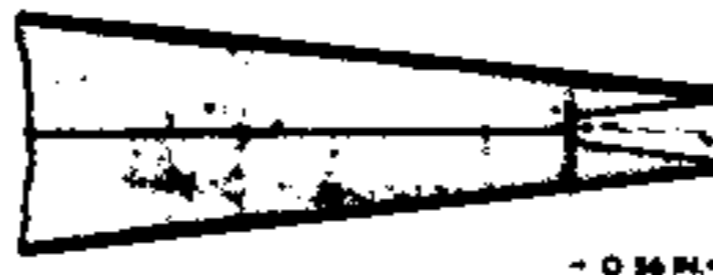


BEND RADIUS
 TO SUIT RIBLET

SECTION 'C-C'

'A' REPAIR

REFER TO TEXT IN CHAPTER 3
 FOR REPAIR ALLOWANCES WITHOUT
 ALTERATIONS TO THE MASS BALANCE



METHOD OF REPAIRING RIBLETS WHICH HAVE CRACKS
 UP TO 0.5 INCH IN LENGTH

FOR RIBLETS WITH CRACKS ABOVE 0.5 INCH IN LENGTH
 REPAIR AS ILLUSTRATED IN 'A' REPAIR.

'B' REPAIR

Fig.120. Repairs to riblets - elevators, ailerons, rudder

RESTRICTED

Skin corrosion

140. If corrosion has taken place on any skins, prompt action as stated in the following paragraphs, must be taken at once:-

- (1) Clean out the affected part by polishing, using wire wool.
- (2) Check the depth of the cleaned out part of the skin, by laying a thin piece of spring steel, or a flexible steel rule, across the cavity and checking with feeler gauges to the following tolerances.

S.W.G.	Depth allowances below normal surface of skin
20	0.004 in.
18	0.005 in.
17	0.006 in.
16	0.007 in.
14	0.008 in.

If the affected part exceeds the above dimensions, the skin must be replaced by local repair, or renewal of panel, depending on the extent of damage.

- (3) Pre-treatment primer is to be applied on the affected skin after applying instructions in sub-para. (1) and (2).

If corrosion has affected any of the rivet holes, action as detailed below must be taken:-

- (1) Drill out the affected rivets.
- (2) Open out the hole, and countersink to the next size.
- (3) All new replacement rivets to be coated with Celloseal before fitting.

For final protective treatments refer to the text in Chapter 1, para.134 to 138.

The following treatments must be applied when magnesium-alloy skins and components are affected. After removal of the corrosion, and providing that the affected skin is within the tolerance stated, a solution in water containing 10 per cent by weight of selenious acid shall be used. The solution shall be applied by swabbing with cotton wool or a soft rag until a permanent brown to brown-black colour is obtained on the exposed metal. The treated surface shall then be washed thoroughly in clean water and dried immediately. Precautions should be taken to ensure that the solution does not come into contact with the hands or any part of the skin. See, also, A.P.2662B, Sect.9. Painting of the affected parts should be carried out as instructed in D.T.D.911B, para.4.1 and 4.2, and D.T.D.899A.

B.A., B.S.F., AND B.S.P. WIRE THREAD INSERTS

General

141. Wire thread inserts Type AS.4947, and AS.4948 to AS.4959 are made from stainless steel spec.D.T.D.734, cadmium plated to D.T.D.904. Insert Type AS.4947 when correctly assembled provides a B.A. thread to B.S.93, and a B.S.F. thread to B.S.84 (Medium class). Insert type series AS.4948 to AS.4959 will provide a B.S.P. thread to B.S.2779 (Medium class) when correctly assembled in tapped holes of specified dimensions. Insert type series AS.4947 are manufactured in 12 different thread sizes from 4B.A. to 1 in. B.S.F., and each thread size is obtainable in 5 different lengths to cover the tensile strength required. The appropriate length of insert required can be obtained from the formula:-

$$\text{Length required} = \frac{1}{2} D \times \frac{\text{Bolt stress required}}{\text{U.T.S. of tapped material}}$$

but for general use of this type of insert (AS.4947) the following is recommended.

Material	Insert Length
Steel S.94	1 x D
Alum. Alloy L.65	1½ x D
Magn. Alloy DTD.662	2 x D

Note:- 'D' = π /Dia. of bolt thread size.

The insert lengths quoted above ensure that the full strength of 55 tons/sq.in. steel bolt will be met in the materials stated above.

B.S.P. INSERTS TYPE AS.4948 TO AS.4959

Choice of length

142. Inserts are manufactured in various sizes from ½ in. B.S.P. to 1½ in. B.S.P. and lengths in increments of 0.1 in. within a limited range to cover all contingencies which may be met as regards length of thread in the mating part i.e., union, valve etc.

Materials

143. Inserts can be used in steels, aluminium, and magnesium alloys with the exception of 'through' holes in magnesium alloy components in which case they must not be used. Inserts can, however, be used in 'blind' holes in magnesium alloys subject to applying the approved protective treatments called for in the assembly instructions.

WARNING...

Due to the importance of each component requiring repair, confirmation from the contractor should be obtained for permission to fit inserts in each case.

Tapping holes

144. For each component to be repaired there is a choice of two drill depths for 'blind' holes. In each case the depth of full thread is the same, but the thread run-out varies with the type of tap used. The 'finish' tap has a thread run-out of approximately 4 pitches, the 'bottom' tap one of approximately 2 pitches. Wherever possible the longer run-out should be used, but it is permissible to use the shorter run-out in holes where the depth is very important. 'Through' holes should be opened out the full length of the hole to the tapping drill size required.

Material	Type of Hole	Tap Required
Magnesium Alloy	Blind 2 x P	Rough and Bottom
Magnesium Alloy	Blind 4 x P	Finish
Alum. Alloy	Blind 2 x P	Rough and Bottom
Alum. Alloy	Blind 4 x P	Finish
Alum. Alloy	Through	Finish
Steel	Blind 2 x P	Rough and Bottom
Steel	Blind 4 x P	Rough and Finish
Steel	Through	Rough and Finish

Tools

145. The following tables contain a comprehensive list of tools necessary for the fitment of wire thread inserts. The

wire insert tool kit No. 1, (Ref. No. IC/7068) provides a complete set of tools for the removal or replacement of wire thread inserts.

TABLE 3

Tools for B.A. and B.S.F. threads

Thread Size	Tapping Drill	Rough Tap	Finish Tap	Bottom Tap	Thread Gauge *	Insert Tool	Tap Break-Off Tool	Extract Tool
4.B.A.	No.27	4.B.A.R.	4.S.B.P.	4.S.B.B.	4.S.B.G.	B.A.I.P.4	B.A.T.B.4	1227-06
2.B.A.	3/16 in.	2.B.A.R.	2.S.B.P.	2.S.B.B.	2.S.B.G.	B.A.I.P.2	B.A.T.B.2	1227-6
1/4 in. B.S.F.	F	4.X.R.	4.S.X.P.	4.S.X.B.	2004-4	X.I.P.-4	X.T.B.4	1227-6
5/16 in. B.S.F.	O	5.X.R.	5.S.X.P.	5.S.X.B.	2004-5	X.I.P.-5	X.T.B.5	1227-6
3/8 in. B.S.F.	V	6.X.R.	6.S.X.P.	6.S.X.B.	2004-6	X.I.P.-6	X.T.B.6	1227-6
7/16 in. B.S.F.	29/64 in.	7.X.R.	7.S.X.P.	7.S.X.B.	2004-7	X.I.P.-7	X.T.B.7	1227-16
1/2 in. B.S.F.	33/64 in.	8.X.R.	8.S.X.P.	8.S.X.B.	2004-8	X.I.P.-8	X.T.B.8	1227-16
9/16 in. B.S.F.	37/64 in.	9.X.R.	9.S.X.P.	9.S.X.B.	2004-9	X.I.P.-9	X.T.B.9	1227-16
5/8 in. B.S.F.	41/64 in.	10.X.R.	10.S.X.P.	10.S.X.B.	2004-10	X.I.P.-10	X.T.B.10	1227-16
3/4 in. B.S.F.	49/64 in.	12.X.R.	12.S.X.P.	12.S.X.B.	2004-12	X.I.P.-12	X.T.B.12	1227-16
7/8 in. B.S.F.	57/64 in.	14.X.R.	14.S.X.P.	14.S.X.B.	2004-14	X.I.P.-14	X.T.B.14	1227-16
1-0 in. B.S.F.	1.1/64 in.	16.X.R.	16.S.X.P.	16.S.X.B.	2004-16	X.I.P.-16	X.T.B.16	1227-24

* Thread gauge for tapped hole only.

NOTE . . .

These tools are for use with Armstrong S.B.A.C. type inserts, and are not to be used for Helicoil type.

RESTRICTED

TABLE 6
Tools for B.S.P. Threads

Thread Size	Tapping Drill	Rough Tap	Finish Tap	Bottom Tap	Thread Gauge *	Insert Tool	Tang Break-Off Tool	Extract Tool
1/8 in. B.S.P.	W	2.P.R.	2.S.P.P.	2.S.P.B.	2005-2	P.I.P-2	Use Pliers	1227-6
1/4 in. B.S.P.	17/32 in.	4.P.R.	4.S.P.P.	4.S.P.B.	2005-4	P.I.P-4		1227-16
0.6 in. dia.	39/64 in.	62.P.R.	62.S.P.P.	62.S.P.B.	2005-62	P.I.P-62		1227-16
3/8 in. B.S.P.	43/64 in.	6.P.R.	6.S.P.P.	6.S.P.B.	2005-6	P.I.P-6		1227-16
0.75 in. dia.	49/64 in.	77.P.R.	77.S.P.P.	77.S.P.B.	2005-77	P.I.P-77		1227-16
1/2 in. B.S.P.	53/64 in.	8.P.R.	8.S.P.P.	8.S.P.B.	2005-8	P.I.P-8		1227-16
5/8 in. B.S.P.	29/32 in.	10.P.R.	10.S.P.P.	10.S.P.B.	2005-10	P.I.P-10		1227-16
3/4 in. B.S.P.	1.3/64 in.	12.P.R.	12.S.P.P.	12.S.P.B.	2005-12	P.I.P-12		1227-24
7/8 in. B.S.P.	1.13/64 in.	14.P.R.	14.S.P.P.	14.S.P.B.	2005-14	P.I.P-14		1227-24
1.0 in. B.S.P.	1.5/16 in.	16.P.R.	16.S.P.P.	16.S.P.B.	2005-16	P.I.P-16		1227-24
1.1/4 in. B.S.P.	1.21/32 in.	20.P.R.	20.S.P.P.	20.S.P.B.	2005-20	P.I.P-20		1227-24
1.1/2 in. B.S.P.	1.57/64 in.	24.P.R.	24.S.P.P.	24.S.P.B.	2005-24	P.I.P-24		-

* Thread gauge for tapped hole only.

NOTE...

These tools are for use with Armstrong S.B.A.C. type inserts, and are not to be used for Helicoil type.

Installation

146. All inserts should be installed $\frac{1}{2}$ pitch below the surface, or, where the tapped hole has previously been counter-bored, the insert should be wound down to the bottom of the counter-bore to give clearance for the bolt shank, or thread run-out of the male component. When opening out the hole for the insert the counter-bore should be taken into account when arriving at the depth for the insert.

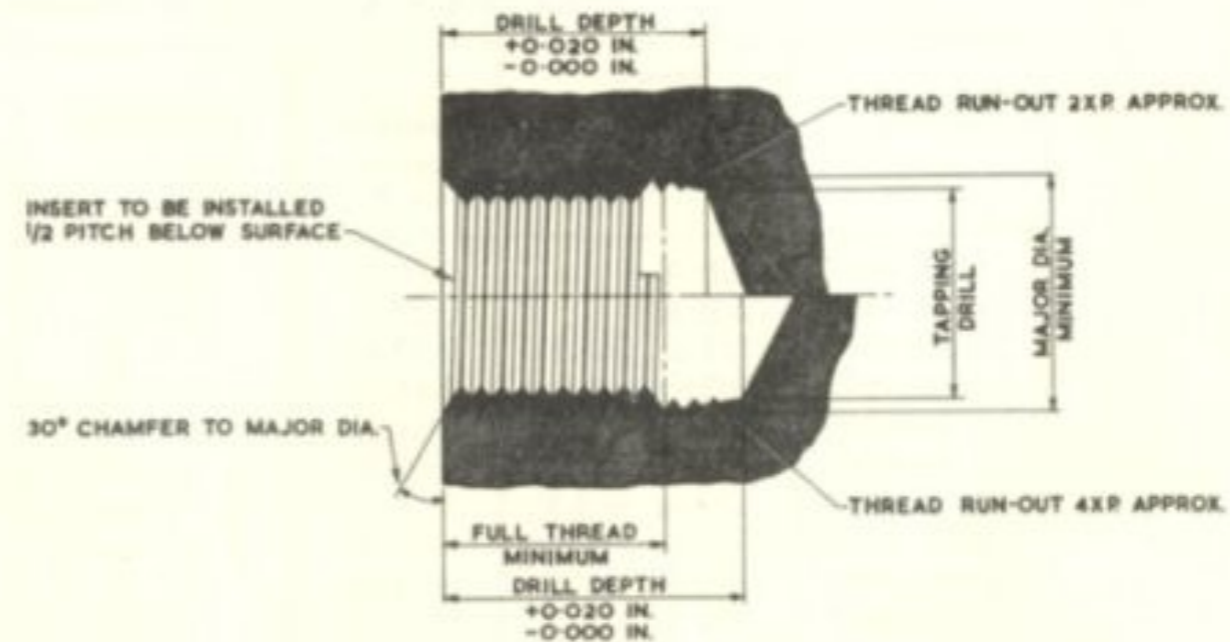


Fig.121. Installation Data for Wire Thread Inserts

RESTRICTED

TABLE 7
Installation Data
(1 x D) B.A. & B.S.F. Wire Thread Inserts

Part No.	Insert			Tapped Hole in Member			
	Thread Size	Installation Length 1 x D	Major dia.	Full Thread Including c&k.	Tapping Drill	2 x P Case Drill Depth	4 x P Case Drill Depth
1/AS.4947	4.B.A	0.13 in.	0.1749 in.	0.15 in.	No.27	0.20 in.	0.25 in.
2/AS.4947	2.B.A	0.18 in.	0.2252 in.	0.20 in.	3/16 in.	0.28 in.	0.35 in.
3/AS.4947	1/4 in. B.S.F.	0.24 in.	0.3012 in.	0.26 in.	F	0.34 in.	0.41 in.
4/AS.4947	5/16 in. B.S.F.	0.30 in.	0.3727 in.	0.33 in.	O	0.43 in.	0.53 in.
5/AS.4947	3/8 in. B.S.F.	0.37 in.	0.441 in.	0.40 in.	V	0.50 in.	0.60 in.
6/AS.4947	7/16 in. B.S.F.	0.43 in.	0.5107 in.	0.46 in.	29/64 in.	0.59 in.	0.71 in.
7/AS.4947	1/2 in. B.S.F.	0.49 in.	0.582 in.	0.52 in.	33/64 in.	0.65 in.	0.77 in.
8/AS.4947	9/16 in. B.S.F.	0.55 in.	0.6445 in.	0.58 in.	37/64 in.	0.72 in.	0.84 in.
9/AS.4947	5/8 in. B.S.F.	0.61 in.	0.7184 in.	0.65 in.	41/64 in.	0.80 in.	0.95 in.
10/AS.4947	3/4 in. B.S.F.	0.73 in.	0.8588 in.	0.78 in.	49/64 in.	0.96 in.	1.13 in.
11/AS.4947	7/8 in. B.S.F.	0.86 in.	0.9934 in.	0.91 in.	57/64 in.	1.11 in.	1.31 in.
12/AS.4947	1.0 in. B.S.F.	0.98 in.	1.130 in.	1.04 in.	1.1/64 in.	1.24 in.	1.44 in.

NOTE...

Figures quoted under column headings 'Major Dia.' and 'Tapping Drill' are omitted from tables 8, 9, 10 and 11, because they are identical to the figures quoted under the same headings in Table 7.

TABLE 8
(1 1/2 x D) B.A. & B.S.F. Wire Thread Inserts

Part No.	Insert		Tapped Hole in Member		
	Thread Size	Installation Length 1 1/2 x D	Full Thread Including c&k.	2 x P Case Drill Depth	4 x P Case Drill Depth
13/AS.4947	4.B.A	0.20 in.	0.22 in.	0.27 in.	0.32 in.
14/AS.4947	2.B.A	0.27 in.	0.29 in.	0.37 in.	0.44 in.
15/AS.4947	1/4 in. B.S.F.	0.37 in.	0.39 in.	0.47 in.	0.54 in.
16/AS.4947	5/16 in. B.S.F.	0.46 in.	0.49 in.	0.59 in.	0.69 in.
17/AS.4947	3/8 in. B.S.F.	0.55 in.	0.58 in.	0.68 in.	0.78 in.
18/AS.4947	7/16 in. B.S.F.	0.65 in.	0.68 in.	0.81 in.	0.93 in.
19/AS.4947	1/2 in. B.S.F.	0.74 in.	0.77 in.	0.90 in.	1.02 in.
20/AS.4947	9/16 in. B.S.F.	0.83 in.	0.86 in.	0.99 in.	1.11 in.
21/AS.4947	5/8 in. B.S.F.	0.93 in.	0.97 in.	1.12 in.	1.27 in.
22/AS.4947	3/4 in. B.S.F.	1.10 in.	1.15 in.	1.33 in.	1.50 in.
23/AS.4947	7/8 in. B.S.F.	1.29 in.	1.34 in.	1.54 in.	1.74 in.
24/AS.4947	1.0 in. B.S.F.	1.48 in.	1.54 in.	1.74 in.	1.94 in.

RESTRICTED

TABLE 9

(2 x D) B.A. & B.S.F. Wire Thread Inserts

Insert			Tapped Hole in Member		
Part No.	Thread Size	Installation Length 2 x D	Full Thread Including c/sk.	2 x P Case Drill Depth	4 x P Case Drill Depth
25/AS.4947	4.B.A	0.27 in.	0.29 in.	0.34 in.	0.39 in.
26/AS.4947	2.B.A	0.36 in.	0.38 in.	0.46 in.	0.53 in.
27/AS.4947	1/4 in. B.S.F.	0.49 in.	0.51 in.	0.59 in.	0.66 in.
28/AS.4947	5/16 in. B.S.F.	0.61 in.	0.64 in.	0.74 in.	0.84 in.
29/AS.4947	3/8 in. B.S.F.	0.74 in.	0.77 in.	0.87 in.	0.97 in.
30/AS.4947	7/16 in. B.S.F.	0.87 in.	0.90 in.	1.03 in.	1.15 in.
31/AS.4947	1/2 in. B.S.F.	0.99 in.	1.02 in.	1.15 in.	1.27 in.
32/AS.4947	9/16 in. B.S.F.	1.11 in.	1.14 in.	1.27 in.	1.39 in.
33/AS.4947	5/8 in. B.S.F.	1.24 in.	1.28 in.	1.43 in.	1.58 in.
34/AS.4947	3/4 in. B.S.F.	1.48 in.	1.53 in.	1.71 in.	1.88 in.
35/AS.4947	7/8 in. B.S.F.	1.73 in.	1.78 in.	1.98 in.	2.18 in.
36/AS.4947	1.0 in. B.S.F.	1.98 in.	2.04 in.	2.24 in.	2.44 in.

TABLE 10

(2 1/2 x D) B.A. & B.S.F. Wire Thread Inserts

Insert			Tapped Hole in Member		
Part No.	Thread Size	Installation Length 2 1/2 x D	Full Thread Including c/sk.	2 x P Case Drill Depth	4 x P Case Drill Depth
37/AS.4947	4.B.A	0.34 in.	0.36 in.	0.41 in.	0.46 in.
38/AS.4947	2.B.A	0.45 in.	0.47 in.	0.55 in.	0.62 in.
39/AS.4947	1/4 in. B.S.F.	0.61 in.	0.63 in.	0.71 in.	0.78 in.
40/AS.4947	5/16 in. B.S.F.	0.77 in.	0.80 in.	0.90 in.	1.00 in.
41/AS.4947	3/8 in. B.S.F.	0.93 in.	0.96 in.	1.06 in.	1.16 in.
42/AS.4947	7/16 in. B.S.F.	1.08 in.	1.11 in.	1.24 in.	1.36 in.
43/AS.4947	1/2 in. B.S.F.	1.24 in.	1.27 in.	1.40 in.	1.52 in.
44/AS.4947	9/16 in. B.S.F.	1.40 in.	1.43 in.	1.56 in.	1.68 in.
45/AS.4947	5/8 in. B.S.F.	1.55 in.	1.59 in.	1.74 in.	1.89 in.
46/AS.4947	3/4 in. B.S.F.	1.86 in.	1.91 in.	2.09 in.	2.26 in.
47/AS.4947	7/8 in. B.S.F.	2.17 in.	2.22 in.	2.42 in.	2.62 in.
48/AS.4947	1.0 in. B.S.F.	2.48 in.	2.54 in.	2.74 in.	2.94 in.

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TABLE 11

(3 x D) B.A. & B.S.F. Wire Thread Inserts

Insert			Tapped Hole in Member		
Part No.	Thread Size	Installation Length 3 x D	Full Thread Including csh.	2 x P Case Drill Depth	4 x P Case Drill Depth
49/AS.4947	4.B.A	0.42 in.	0.44 in.	0.49 in.	0.54 in.
50/AS.4947	2.B.A	0.54 in.	0.56 in.	0.64 in.	0.71 in.
51/AS.4947	1/4 in. B.S.F.	0.74 in.	0.76 in.	0.84 in.	0.91 in.
52/AS.4947	5/16 in. B.S.F.	0.93 in.	0.96 in.	1.06 in.	1.16 in.
53/AS.4947	3/8 in. B.S.F.	1.11 in.	1.14 in.	1.24 in.	1.34 in.
54/AS.4947	7/16 in. B.S.F.	1.30 in.	1.33 in.	1.46 in.	1.58 in.
55/AS.4947	1/2 in. B.S.F.	1.49 in.	1.52 in.	1.65 in.	1.77 in.
56/AS.4947	9/16 in. B.S.F.	1.68 in.	1.71 in.	1.84 in.	1.96 in.
57/AS.4947	5/8 in. B.S.F.	1.86 in.	1.91 in.	2.06 in.	2.21 in.
58/AS.4947	3/4 in. B.S.F.	2.23 in.	2.28 in.	2.46 in.	2.63 in.
59/AS.4947	7/8 in. B.S.F.	2.60 in.	2.65 in.	2.85 in.	3.05 in.
60/AS.4947	1.0 in. B.S.F.	2.98 in.	3.04 in.	3.24 in.	3.44 in.

TABLE 12

Installation Data for B.S.P. Wire Thread Inserts

Insert			Tapped Hole in Member				
Part No.	Thread Size	Install. Length	Major Dia.	Full Thread Including csh.	Tapping Drill	2 x P Case Drill Depth	4 x P Case Drill Depth
AS.4948/2	1/8 in. B.S.P.	0.2 in.	0.4308 in.	0.22 in.	W	0.30 in.	0.37 in.
AS.4948/3	1/8 in. B.S.P.	0.3 in.	0.4308 in.	0.32 in.	W	0.40 in.	0.47 in.
AS.4948/4	1/8 in. B.S.P.	0.4 in.	0.4308 in.	0.42 in.	W	0.50 in.	0.57 in.
AS.4948/5	1/8 in. B.S.P.	0.5 in.	0.4308 in.	0.52 in.	W	0.60 in.	0.67 in.
AS.4949/3	1/4 in. B.S.P.	0.3 in.	0.5874 in.	0.34 in.	17/32 in.	0.44 in.	0.54 in.
AS.4949/4	1/4 in. B.S.P.	0.4 in.	0.5874 in.	0.44 in.	17/32 in.	0.54 in.	0.64 in.
AS.4949/5	1/4 in. B.S.P.	0.5 in.	0.5874 in.	0.54 in.	17/32 in.	0.64 in.	0.74 in.
AS.4950/3	0.6 in. dia.	0.3 in.	0.6694 in.	0.34 in.	39/64 in.	0.44 in.	0.54 in.
AS.4950/4	0.6 in. dia.	0.4 in.	0.6694 in.	0.44 in.	39/64 in.	0.54 in.	0.64 in.
AS.4950/5	0.6 in. dia.	0.5 in.	0.6694 in.	0.54 in.	39/64 in.	0.64 in.	0.74 in.
AS.4950/6	0.6 in. dia.	0.6 in.	0.6694 in.	0.64 in.	39/64 in.	0.74 in.	0.84 in.

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TABLE 13
Installation Data for B.S.P. Wire Thread Inserts

Insert			Tapped Hole in Member				
Part No.	Thread Size	Install. Length	Major Dia.	Full Thread Including ϵ ch.	Tapping Drill	2 x P Case Drill Depth	4 x P Case Drill Depth
AS.4951/3	3/8 in. B.S.P.	0.3 in.	0.7254 in.	0.34 in.	43/64 in.	0.44 in.	0.54 in.
AS.4951/4	3/8 in. B.S.P.	0.4 in.	0.7254 in.	0.44 in.	43/64 in.	0.54 in.	0.64 in.
AS.4951/5	3/8 in. B.S.P.	0.5 in.	0.7254 in.	0.54 in.	43/64 in.	0.64 in.	0.74 in.
AS.4951/6	3/8 in. B.S.P.	0.6 in.	0.7254 in.	0.64 in.	43/64 in.	0.74 in.	0.84 in.
AS.4952/4	0.75 in. dia.	0.4 in.	0.8434 in.	0.45 in.	49/64 in.	0.60 in.	0.75 in.
AS.4952/5	0.75 in. dia.	0.5 in.	0.8434 in.	0.55 in.	49/64 in.	0.70 in.	0.85 in.
AS.4952/6	0.75 in. dia.	0.6 in.	0.8434 in.	0.65 in.	49/64 in.	0.80 in.	0.95 in.
AS.4952/7	0.75 in. dia.	0.7 in.	0.8434 in.	0.75 in.	49/64 in.	0.90 in.	1.05 in.
AS.4953/4	1/2 in. B.S.P.	0.4 in.	0.9184 in.	0.45 in.	53/64 in.	0.60 in.	0.75 in.
AS.4953/5	1/2 in. B.S.P.	0.5 in.	0.9184 in.	0.55 in.	53/64 in.	0.70 in.	0.85 in.
AS.4953/6	1/2 in. B.S.P.	0.6 in.	0.9184 in.	0.65 in.	53/64 in.	0.80 in.	0.95 in.
AS.4954/4	5/8 in. B.S.P.	0.4 in.	0.9954 in.	0.45 in.	29/32 in.	0.60 in.	0.75 in.
AS.4954/5	5/8 in. B.S.P.	0.5 in.	0.9954 in.	0.55 in.	29/32 in.	0.70 in.	0.85 in.
AS.4954/6	5/8 in. B.S.P.	0.6 in.	0.9954 in.	0.65 in.	29/32 in.	0.80 in.	0.95 in.
AS.4954/7	5/8 in. B.S.P.	0.7 in.	0.9954 in.	0.75 in.	29/32 in.	0.90 in.	1.05 in.

TABLE 14
Installation Data for B.S.P. Wire Thread Inserts

Insert			Tapped Hole in Member				
Part No.	Thread Size	Install. Length	Major Dia.	Full Thread Including ϵ ch.	Tapping Drill	2 x P Case Drill Depth	4 x P Case Drill Depth
AS.4955/4	3/4 in. B.S.P.	0.4 in.	1.1344 in.	0.45 in.	1.3/64 in.	0.60 in.	0.75 in.
AS.4955/5	3/4 in. B.S.P.	0.5 in.	1.1344 in.	0.55 in.	1.3/64 in.	0.70 in.	0.85 in.
AS.4955/6	3/4 in. B.S.P.	0.6 in.	1.1344 in.	0.65 in.	1.3/64 in.	0.80 in.	0.95 in.
AS.4955/7	3/4 in. B.S.P.	0.7 in.	1.1344 in.	0.75 in.	1.3/64 in.	0.90 in.	1.05 in.
AS.4955/8	3/4 in. B.S.P.	0.8 in.	1.1344 in.	0.85 in.	1.3/64 in.	1.00 in.	1.15 in.
AS.4956/4	7/8 in. B.S.P.	0.4 in.	1.2824 in.	0.45 in.	1.13/64 in.	0.60 in.	0.75 in.
AS.4956/5	7/8 in. B.S.P.	0.5 in.	1.2824 in.	0.55 in.	1.13/64 in.	0.70 in.	0.85 in.
AS.4956/6	7/8 in. B.S.P.	0.6 in.	1.2824 in.	0.65 in.	1.13/64 in.	0.80 in.	0.95 in.
AS.4956/7	7/8 in. B.S.P.	0.7 in.	1.2824 in.	0.75 in.	1.13/64 in.	0.90 in.	1.05 in.
AS.4956/8	7/8 in. B.S.P.	0.8 in.	1.2824 in.	0.85 in.	1.13/64 in.	1.00 in.	1.15 in.

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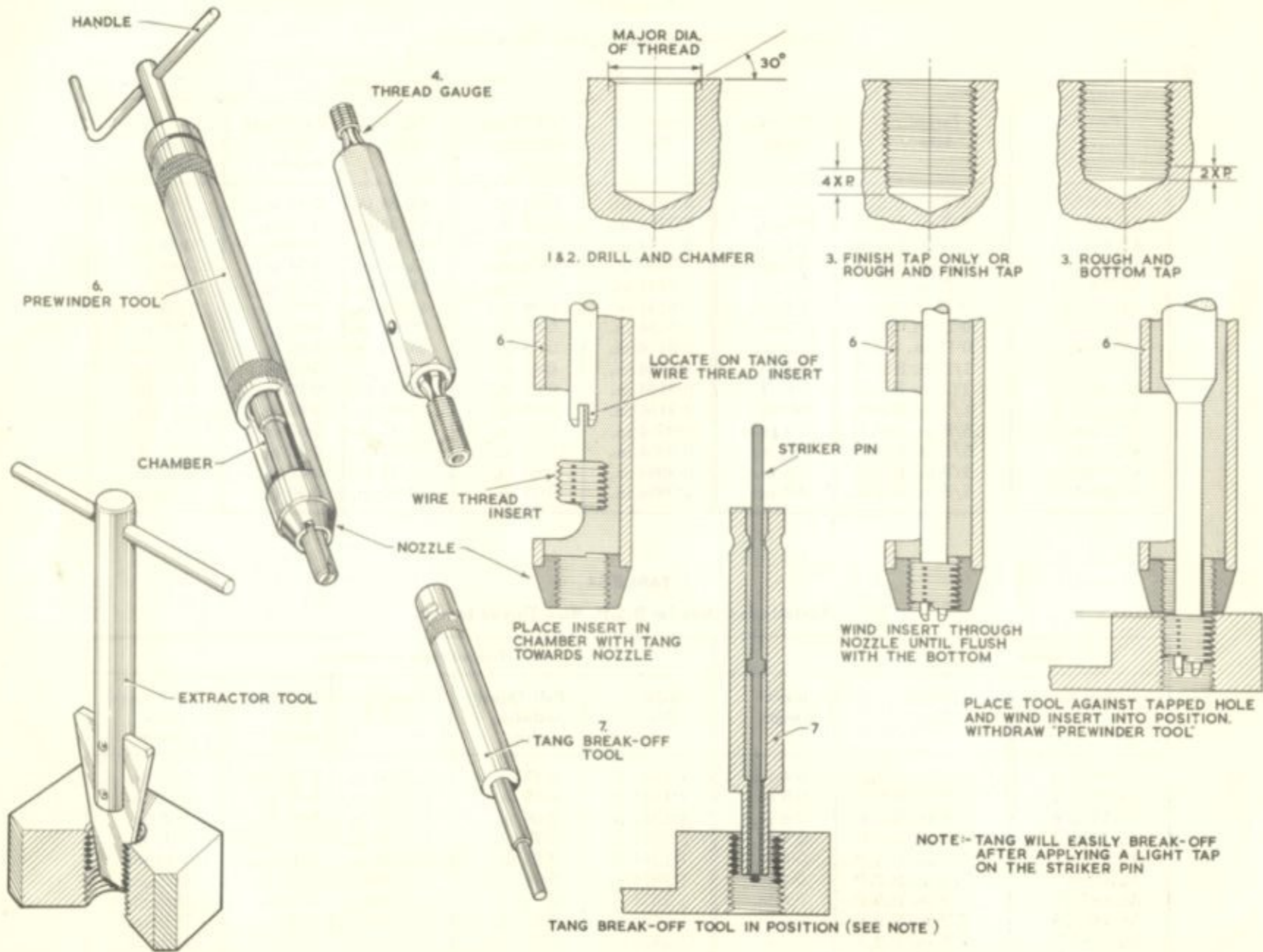


Fig.122. Assembly of wire thread inserts
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TABLE 15

Installation Data for B.S.P. Wire Thread Inserts

Insert			Tapped Hole in Member				
Part No.	Thread Size	Install. Length	Major Dia.	Full Thread including col.	Tapping Drill	2 x P Case Drill Depth	4 x P Case Drill Depth
AS.4957/5	1.0 in. B.S.P.	0.5 in.	1.4274 in.	0.55 in.	1.5/16 in.	0.75 in.	0.95 in.
AS.4957/6	1.0 in. B.S.P.	0.6 in.	1.4274 in.	0.65 in.	1.5/16 in.	0.85 in.	1.05 in.
AS.4957/7	1.0 in. B.S.P.	0.7 in.	1.4274 in.	0.75 in.	1.5/16 in.	0.95 in.	1.15 in.
AS.4957/8	1.0 in. B.S.P.	0.8 in.	1.4274 in.	0.85 in.	1.5/16 in.	1.05 in.	1.25 in.
AS.4958/5	1 1/4 in. B.S.P.	0.5 in.	1.7684 in.	0.55 in.	1.21/32 in.	0.75 in.	0.95 in.
AS.4958/6	1 1/4 in. B.S.P.	0.6 in.	1.7684 in.	0.65 in.	1.21/32 in.	0.85 in.	1.05 in.
AS.4958/7	1 1/4 in. B.S.P.	0.7 in.	1.7684 in.	0.75 in.	1.21/32 in.	0.95 in.	1.15 in.
AS.4958/8	1 1/4 in. B.S.P.	0.8 in.	1.7684 in.	0.85 in.	1.21/32 in.	1.05 in.	1.25 in.
AS.4959/5	1 1/2 in. B.S.P.	0.5 in.	2.0004 in.	0.55 in.	1.57/64 in.	0.75 in.	0.95 in.
AS.4959/6	1 1/2 in. B.S.P.	0.6 in.	2.0004 in.	0.65 in.	1.57/64 in.	0.85 in.	1.05 in.
AS.4959/7	1 1/2 in. B.S.P.	0.7 in.	2.0004 in.	0.75 in.	1.57/64 in.	0.95 in.	1.15 in.
AS.4959/8	1 1/2 in. B.S.P.	0.8 in.	2.0004 in.	0.85 in.	1.57/64 in.	1.05 in.	1.25 in.
AS.4959/9	1 1/2 in. B.S.P.	0.9 in.	2.0004 in.	0.95 in.	1.57/64 in.	1.15 in.	1.35 in.

Assembly of wire thread inserts

147. The following instructions (refer to fig.122) should be strictly adhered to when fitting a wire thread insert.

- (1) The tapped hole in the component to be repaired is to be opened out with a standard twist drill, to the diameter and depth, required for the insert.
- (2) Chamfer the hole slightly to ease the tapping operation. This only applies if the existing hole has not been previously counter-bored for clearance.
- (3) Using the special taps called up, tap the hole to the correct depth required. Paraffin can be used as a lubricant.

NOTE...

The depth is determined by the length of insert to be fitted.

- (4) Remove all the swarf etc. from the hole and check the thread with the 'go' and 'no go' thread gauge, also ensure that the thread has been tapped to the correct depth.
- (5) Thoroughly coat the hole with Celloseal D.T.D.900/4301 (Ref.No.33C/1197) (See notes after sub-para. (8)).
- (6) Using the 'Prewinder tool' the insert should be assembled in the tapped hole. Great care should be exercised when starting to wind the insert into the tapped hole to ensure that the insert is not cross-threaded.

- (7) After assembly of the insert, break off the insert tang with the special punch provided for the operation. Remove the broken tang from the hole, either by air blast or small tweezers.

- (8) Prior to final assembly, coat the insert, and hole with Celloseal. Great care should be exercised to ensure that all excess Celloseal is removed from the bore of repaired components involving liquid and air systems.

NOTE...

When repairing magnesium alloy components it is essential that Selenious acid treatment is applied after tapping the hole before coating with Celloseal. If the insert has to be removed use the

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◀ 'Extractor' tool provided. To remove the insert press 'in' and 'turn' the extractor tool at the same time.

WARNING...

Refer to the appended lists for the correct type of insert to be used in various temperature conditions. Cadmium plated inserts are only to be used where conditions will not exceed 200°C. Unplated inserts must be used where temperature conditions are likely to exceed 200°C. All other dimensions, tools required, and item numbers are identical.

Unplated inserts for conditions above 200°C.

AS.4736
AS.4737
AS.4738
AS.4739
AS.4740
AS.4741
AS.4742
AS.4743
AS.4744
AS.4745
AS.4746
AS.4747
AS.4748

Alternative for

" "
" "
" "
" "
" "
" "
" "
" "
" "
" "
" "
" "
" "

Cadmium plated inserts for conditions below 200°C.

AS.4947
AS.4948
AS.4949
AS.4950
AS.4951
AS.4952
AS.4953
AS.4954
AS.4955
AS.4956
AS.4957
AS.4958
AS.4959 ▶

March, 1957

A.P. 4505, Vol. 6, Part 1

CHAPTER 2

CHAP.

2

FUSELAGE

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Chapter 2 FUSELAGE

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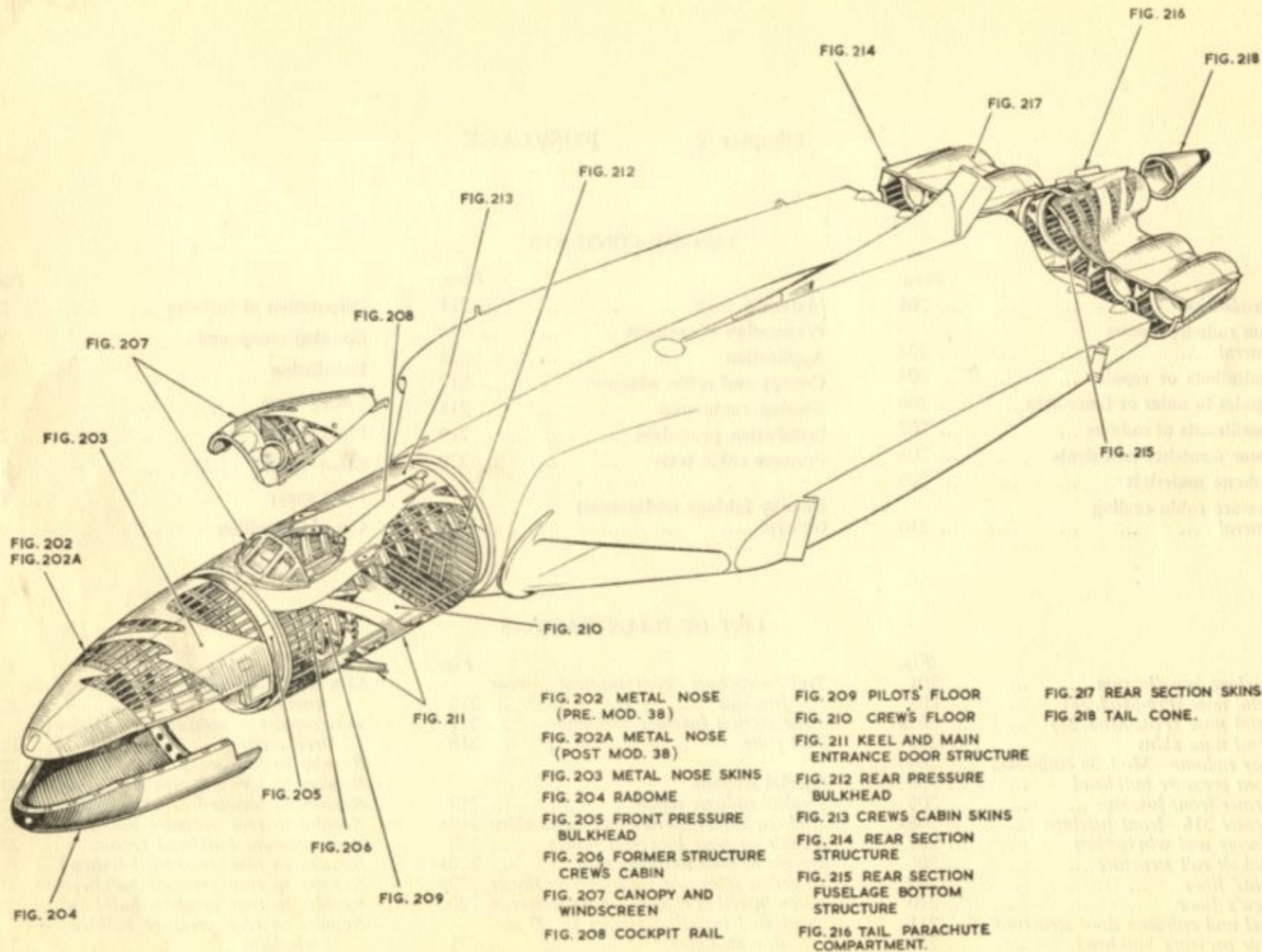


Fig. 201. Fuselage key diagram

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INTRODUCTION

201. The fuselage structure as covered in this chapter is divided into three main sections:— nose section, front fuselage and rear fuselage. A detachable radome of composite construction is fitted to the nose. It should be noted that formers are identified by their distance in inches fore or aft of the aircraft front spar datum. The main sections are illustrated in a sequence from front to rear, each section being broken down into its various sub-assemblies.

NOSE RADOME REPAIRS**General**

202. Information given in the following paragraphs is designed to cover minor repairs to Vulcan radomes in service. For standard repairs to radome structures, reference should be made to A.P.2662B, Schemes 7.1.5, 7.4.2, and 7.4.3. The procedure to be adopted in radome repairs is covered in considerable detail in A.P.2662B and where non-standard in this publication due to the radome being highly stressed structurally and critical electrically. It is emphasized that, in order to achieve acceptable standards, and satisfactory final results, considerable skill and care are necessary when effecting these repairs. In order that the importance of careful repair be fully understood, a brief outline of the design features of the radome is now given.

203. The radome is of 'half wave double sandwich' design. It consists of an outer glass fabric reinforced plastic skin, and behind this a layer of low density core material with a middle skin of reinforced plastic, then a second layer of core material and finally the inner skin. In effect there are two normal sandwiches of skin-core-skin placed back to back so that the middle skin is double the thickness of the outer skin. This build-up is necessary because the structure must fulfill severe requirements in respect of mechanical strength and stiffness as well as possessing the required dielectric characteristics. In this dielectric sense the sandwich can be regarded as a lens system, the physical dimensions of which (skin thickness, core spacing, etc.) are related to the frequency band of the incident rays. For the sandwich to have low reflection

properties over the wide range of the electrical incidence angles inherent in its shape, the thickness of the skins and the spacing of the skins, i.e., the core thickness, are critical dimensions. The importance of accurately maintaining the design thickness during repair cannot be over-emphasized. ◀No electrical tests are necessary on the radome after carrying out repairs as quoted in the following paragraphs unless the functioning of the radar in flight is unsatisfactory.▶

LIMITATIONS OF REPAIR

204. Repairs to the outer skin and the inner skin are permitted within the limits laid down in the next paragraph. Penetrating punctures, causing damage to the middle skin together with damage to both cores where the area of core involved is sufficient to show noticeable double curvature, must not be repaired without specialist advice.

205. The extent of repair is limited to an area of 50 sq. in. for any one patch. The maximum allowable length of the patch is 6 ins. longitudinally along the length of the radome, and in the vertical plane the distance repaired must not exceed 9 ins. *No repair involving replacement of fabric must be undertaken within three feet of any other repair.*

REPAIRS TO OUTER OR INNER SKIN

206. For repairs to outer or inner skins reference should be made to A.P.2662B and the Repair Schemes quoted in para. 202.

CONSTITUENTS OF RADOME

207. As the resin/glass fabric patch must have the same build-up as the original skin and a particular lay-up for a repair depends on its position on the radome, the constituents of the radome are now given. In that portion of the Neoprene coated area the lay-up is the same for both inner and outer skins, consisting of three layers of Y.227 satin weave fabric each with a nominal thickness of 0.012 in., and an outer layer of Y.93 plain weave 0.007 in. thick. The forward portion of the radome (the area coated with Neoprene, refer to fig. 204) has a thinner skin on the outside than on the inside, i.e., one layer of Y.227 and two of Y.93 making up the outer

skin, and three of Y.227 comprising the inner. This difference is to make allowance for the build-up of Neoprene applied to the outer skin as a protection against rain erosion. It should be noted that:—

Y.227 is a 0.012 in. nom. thickness satin weave fabric,

and

Y.93 is a 0.007 in. nom. thickness square weave fabric.

MINOR SCRATCHES AND DENTS

208. Surface scratches, where no appreciable tearing of glass fabric has taken place, and small dents no more than half-an-inch across, are to be repaired simply by filling in with a thixotropic resin mix (SR.18903) cured by the addition of catalyst and accelerator. (Refer to A.P.2662B, Scheme 7.1.5.) As the SR.18903 is a stiff gel, proper care must be taken to ensure that the catalyst and accelerator are thoroughly dissolved before use. Before applying the filling, the surfaces of the damaged laminate must be roughened with sandpaper to provide a mechanical key for adhesion. For areas of this order (about one quarter inch) the electrical discontinuity is negligible compared to the total area considered by the scanner, and electrical performance is not noticeably affected.

RADOME MATERIALS

209. Materials used in the construction of the radome are as follows:—

Glass fabric Y.227, T5 Finish, D.T.D. 5518, Type S.2.

Glass fabric Y.93, T5 Finish, D.T.D. 5518, Type P.6.

Radome core material, Expanded Hycar, D.T.D. 764 (0.22 in. thick).

References for resins and accelerators, etc., are contained in A.P.2662B, Scheme 7.1.5. For instructions regarding application of Neoprene top coat cement, refer to paras. 125 to 130 in Chap. 1 and to A.P.2662B, Scheme 9.4.1.

PRESSURE CABIN SEALING**General**

210. Special schemes are provided for repair to pressurised parts of the structure. In

addition to the riveting technique required for external finishing, it is necessary when any repairs or replacements are done, that the instructions given in the following paragraphs are adhered to. Considerable information on sealing compounds and their use is also given in A.P.1464B, Vol. 1, Part 2, Sect. 4, Chaps. 6 and 7. It is emphasized that thorough cleanliness is necessary and that surfaces must be free of grease, moisture, metal burrs, and any other contaminant which could prevent good adhesion of the sealant to the metal or prevent complete contact of the surfaces when assembled.

MATERIALS USED

211. The materials used for sealing pressure cabin joints, etc., are Bostik Primer 1752 and Bostik 1790 Sealing Compound. Bostik 1752 is of a low viscosity and coloured blue for identification; it is used chiefly as a foundation coating. Bostik 1790 is of a higher viscosity, and having lower adhesion properties than Bostik 1752 is usually applied over it in the nature of a fillet.

Bostik Primer 1752 (Ref. 33C/1339).
Bostik 1790 (Ref. 33C/1138).

PREPARATION OF SURFACES

212. If the surfaces are bare metal they should be degreased with trichlorethylene, but if they are coated with primer, trichlorethylene must on no account be used but the surfaces left untouched. If the primer is too thick it should be rubbed down, because if Bostik is applied to a thick layer of primer, the latter will break or shear when load is applied to the Bostik. Pressure cabin components which are treated with primer before assembly should therefore receive one coat only, which should be kept as thin as possible.

APPLICATION

213. As an interfacial jointing compound on mating surfaces, apply by painting one coat of a mixture of equal parts of Bostik 1752 and 1790 to extend $\frac{3}{8}$ in. beyond the edges of the contacting area. The assembly may be service bolted before finally tightening up if required, but for a riveted joint all riveting should be completed within 36 hours of mating.

214. For the sealing of angular joints or crevices between butt strap and skin, or

stringer and skin, etc., on the pressure side of the structure apply a brush coat of 1752 over a width extending at least $\frac{3}{8}$ in. each side of the joint and leave to dry for two hours. Then brush paint along the joint a mixture of 1752 and 1790, allow 4 to 6 hours drying time and apply a further coat of the same mixture.

215. All rivets and bolt heads should be brush coated with the mixture of 1752 and 1790 to form a continuous smooth band over the entire joint. In addition, it is essential that all bolts at pressure joints be dipped in Bostik 1752 immediately before use.

216. Regarding the mixture of 1752 and 1790 this will vary according to the prevailing weather conditions. The ideal mixture is that which is of a sufficiently low viscosity as to be brushable, yet not low enough to get blown through any joints. The above Bostik compounds must not be used for glass or perspex window sealing. In cases where sealing is required near to, or in contact with glass or perspex, Bostik Sealing Compound 1222 is to be used.

CANOPY AND CABIN WINDOWS

217. Should it be necessary to change a window in the pressurised part of the canopy or the crews cabin, it is important that all the old glazing compound and Bostik sealing is removed after the defective panel has been taken out of the frame. It cannot be too strongly emphasized that great care must be exercised when removing the glazing compound, etc., to avoid damage to the frame structure.

GLAZING COMPOUND

218. The compound to be used for glazing when fitting a new panel is made up of 100 parts by weight of Araldite 121 N (Ref. 33C/1451) and 5 parts by weight of Hardener 951 (Ref. 33C/1372). These constituents should be mixed thoroughly and used as soon as possible, as the pot life of the mix does not exceed $1\frac{1}{2}$ hours.

INSTALLATION PROCEDURE

219. The procedure for application of the glazing compound and fitment of a window panel is as follows:—

- (1) Thoroughly clean and degrease the mounting frame surface.
- (2) Protect anchor nuts if any are fitted in the frames with small pieces of transparent adhesive tape to prevent the compound entering the threads.
- (3) Cover with a thin film of thin grease the vinyl edge and faces, also the edge of the outer glass facing.
- (4) Offer the window into the frame and note where the discrepancies are, if any, regarding alignment of the two faces, so that allowance can be made when applying the compound.
- (5) Apply the Araldite compound to the mounting frame, so that a layer is formed all the way round, thicker than that eventually required.
- (6) Run a fillet of Araldite compound into the areas between the toughened glass and the vinyl, making sure that the fillet does not extend so far on the vinyl edge to interfere with the fitment of the panel retaining ring.
- (7) Press the panel gently yet firmly into the frame until the Araldite is exuded all round the edges, both internally and externally. Bolt in panel using retaining ring, tightening bolts to finger tightness only. Excessive tightening must be avoided. Service bolts can be used at this stage if desired.
- (8) Remove all exuded compound away from the edges, and off the retaining ring until they are quite clean.
- (9) Allow compound to harden by leaving it for at least 6 hours.
- (10) Remove window carefully and ensure that the Araldite has a smooth surface. If there are any indentations in the surface, fill them flush with compound and allow the filling to harden.
- (11) Clean off the panel any grease adhering to it and fit into the frame, taking care to tighten up all bolts to finger tightness first, finally tightening up with box-spanner. *Excessive tightening must be avoided*, the nuts needing little more than nipping up. Correct bolts to be fitted.
- (12) For a final seal Bostik No. 1222 must be used. No other sealing compound must come in contact with the panel.

RESTRICTED

Where necessary, Bostik 1222 is to be used for filling round the outside glass ply to give aero-dynamic smoothness. On no account must solvent or thinners be used for cleaning near the panel edge.

PRESSURE CABIN TESTS

220. Instructions for the carrying out of the necessary pressure tests after completion of any repairs to the pressurised parts of the structure are given in A.P.4505A, Vol. 1, Book 1, Sect. 3, Chap. 8.

CANOPY FAIRINGS REPLACEMENT

General

221. The fairings are attached at the forward end of the canopy and should it become necessary to replace one or more of the panels the following procedure must be strictly adhered to.

PREPARATION OF SURFACES

222. In all metal bonding, surface cleanliness is very important. The bottom and forward members of the canopy are magnesium alloy castings, and the chromate protective treatment on them should be protected against the various solvents used for cleaning the bonding surface.

- (1) Remove paint, etc., in the area to be bonded by applying paint remover (*Ref.* 33B/1125) taking care that the treated area is slightly larger than that required for fitment of the fairing. After removal of the paint great care must be taken to wash off with water all traces of the spent stripper. Thoroughly dry the surface with a clean rag.
- (2) The clean alloy skin surface is now etched for bonding by treating with Deoxidine (*Ref.* 33C/7481) applied with a brush. The surface must be kept wet for a period of 5-10 mins. after which all traces of Deoxidine must be removed by washing with cotton-wool swabs soaked in water. Thoroughly dry the surface which should now show a "whitish" appearance after the above treatment. If the skin under the fairings has been

etched previously there is no need to carry out sub-para (2). The following treatment is all that is required. A cleansing and light etching operation with Deoxidine 202 should be carried out, and the surface afterwards washed down with water to remove any traces of the etching liquid. Dry the surface with a clean rag.

- (3) Offer the replacement fairing to the canopy which should be in position on the aircraft, and check for alignment of the faces, noting if there are any slight discrepancies so that allowance can be made when applying the Araldite compound (*Ref.* 33C/1451).
- (4) Before fitment the bonding face of the fairing should be roughened by means of course sandpaper or a hacksaw blade.
- (5) When carrying out operations, sub-paras. 1-2, it would be advisable to remove the canopy from the aircraft, protect the hinge arms, etc., before standing it upright in order that the solvents used, will tend to run away from the magnesium alloy members, and not affect the chromate treatment. If inadvertently some of the solvent runs on to the members and destroys the chromatic treatment, the following action must be taken. Wash off with water the solvent involved and dry immediately. With a small brush apply Solenious Acid Solution over the damaged treatment area, making sure that no acid goes on the canopy skins. No further treatment is required and the fairing can be bonded on top of the chromate treatment.

BONDING COMPOUND

223. The compound to be used for attaching the fairing to the canopy is made up of 100 parts by weight of Araldite 121N (*Ref.* 33C/1451) and 4 to 5 parts by weight of standard cold setting Hardener 951 (*Ref.* 33C/1372). These constituents should be mixed thoroughly, adding the hardener to the resin, and taking care that the resin around the sides of the container is scraped off to dislodge the adherent resin. In order to extend

the pot life of the resin, when mixed, it should be transferred from the mixing container and spread out on to a clean sheet of thick gauge aluminium in a layer of about $\frac{1}{2}$ in. thick or less. The pot life of the resin is about $1\frac{1}{2}$ hours depending on the prevailing temperatures. When the resin has thickened up to a point where it can no longer be easily applied and spread, the pot life is considered to have expired.

INSTALLATION

224. Using a spatula or a blunt knife blade a film of the resin compound should be well worked into the bonding surfaces of the canopy and fairing. After the initial film has been smeared on, a body of the compound sufficient to fill up any discrepancies between the mating faces, and a fair surplus quantity should be applied so that in squeezing out the excess adhesive, any trapped air is swept out at the same time. Surplus resin should be wiped away to leave a neat fillet around the joint.

225. The adhesive itself, or the quality of the bond, does not benefit from the application of pressure during setting but some light pressure will almost certainly be required to ensure that the fairing is held down and in proper contact all round the rim. Adhesive tape and plasticine may be useful in maintaining the mating position of the parts while curing is in process. At this stage the rivets and Parker-Kalon screws which are fitted at the forward end of the fairings only, should now be assembled. Using the existing holes in the canopy skin and forward mag. alloy member as location points, drill through the fairing so that all the holes are in perfect alignment. All rivets and Parker-Kalon screws should be dipped in Celloseal before assembly. As the rivets are not the normal type a description is appended below.

Rivets (422) (508) Advel self-sealing, c/sk. 120°. Hole dia., Morse No. 20, 0.161 in. Parker-Kalon type "Z", S.970, No. 2 x $\frac{1}{16}$ in. long. (Self-tapping screw c/sk.) Hole dia., Morse No. 47, 0.0785 in. x $\frac{1}{16}$ in. deep. C/sk. hole 82° x 0.048 in. deep.

Alternative Parker-Kalon screws which may be used:—

Parker-Kalon, type "Z", S.970 No. 4 × $\frac{3}{16}$ in. long. (Self-tapping screw c/sk.)

Hole dia., Morse No. 37, 0.104 in. × $\frac{3}{16}$ in. deep. C/sk. hole 82° × 0.064 in. deep.

Note . . .

Great care should be taken, if, for any reason the holes for the Parker-Kalon screws have to be re-drilled, that the depth stated is not exceeded.

Special tools required are:—

- | | |
|------------------------|--|
| (1) Advel Riveting Gun | Manufacturer
Aviation
Developments
Ltd. |
| (2) Backmarker | |

CURING TIME

226. Despite the term "cold setting", curing is still dependent on the actual temperature prevailing. If the temperature is below 60°F, localized heating should be used to bring the temperature up to at least 60°F as this figure should be regarded as the absolute minimum for serious bonding work.

227. With an ambient temperature of 65°F the curing to the initial hard state takes about 12 hours, and at least 48 hours to reach full strength curing. If the temperature should vary during the curing time, a check regarding the state of the resin can be obtained by retaining a sample of the squeezed out resin and keeping it under the same conditions. In normal temperature 60°F the resin compound should certainly be quite hard, after 24 hours have elapsed, and a mix that has not hardened after this time must be suspect.

FINAL FINISH

228. Any irregularities in contours, and surface blemishes both around the joints, and in the actual fairings can be filled and smoothed over with an additional quantity of the Araldite 121 N adhesive.

BLEED HOLES

229. A small $\frac{1}{16}$ in. leak hole is provided in each fairing to bleed off any leaks that may

occur in the canopy skinning under the fairing. Care must be exercised that this hole is not blocked up during the bonding operation.

FINAL SPRAY

230. No spraying should be undertaken until the resin compound has reached full strength curing. This may take several days depending on the prevailing temperature. Cellulose and synthetic thinners will dissolve the resin prior to full strength curing so the wisdom of not spraying until the cure is complete can be appreciated.

CARE IN HANDLING

231. Frequent handling of cold setting Hardener 951 can cause dermatitis. Avoid unnecessary contact and keep all containers, weighing equipment, spatulas, etc., in a clean and non-sticky state. Clean all equipment immediately after use with the aid of cellulose of synthetic thinners, then washing down with water, and finally wiping dry.

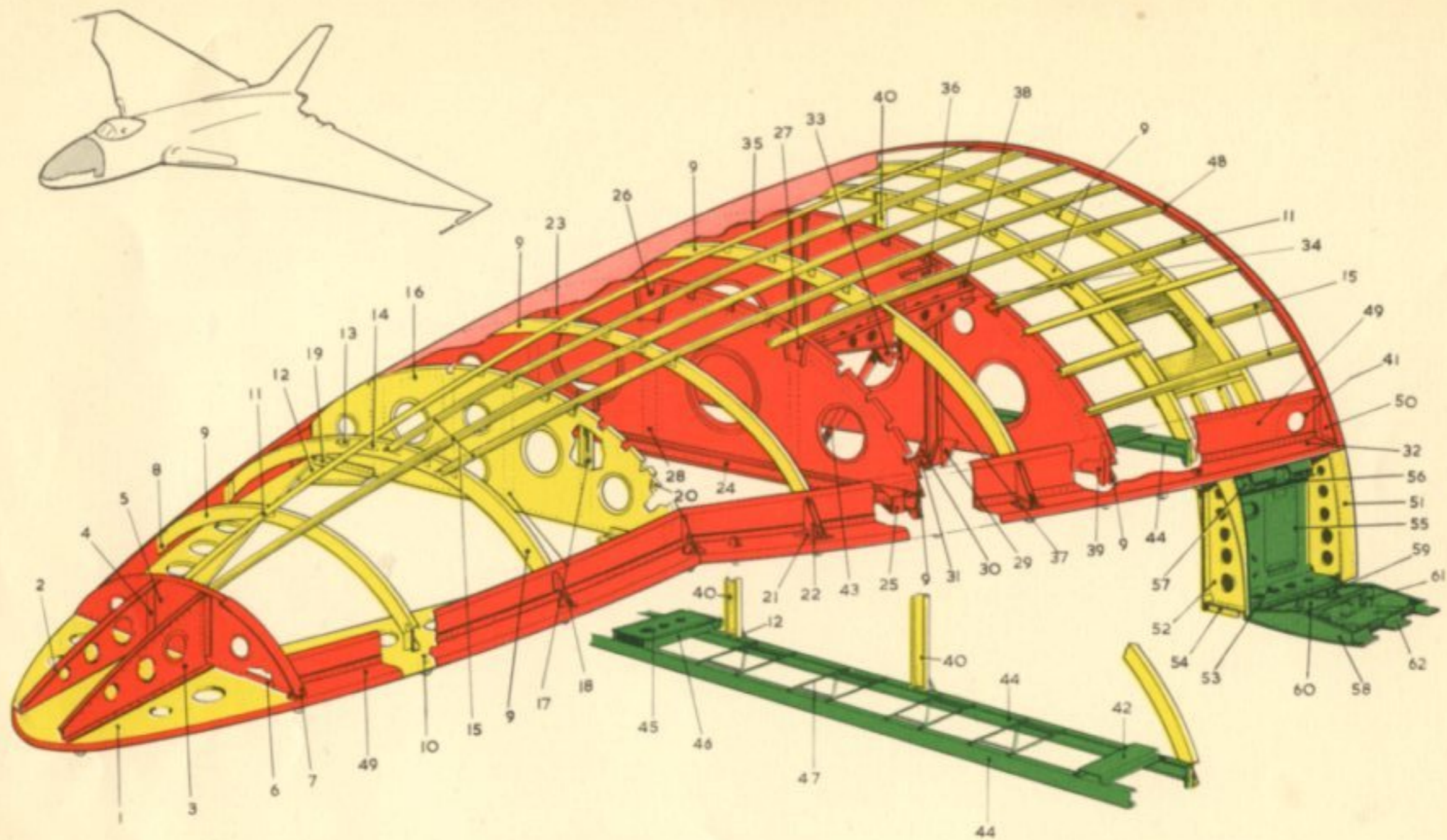


FIG. 202. METAL NOSE. (PRE MOD 38)

RESTRICTED

KEY TO FIG. 202

Item	Material Spec.	S.W.G. or Section	Description	Negligible Damage				Rep. Fig.
				Dents Depth	Distance Apart	Holes Diam.	Pitch Ratio	
1	L72	18	Nose diaphragm	0-050	6	0-5	4 : 1	—
2	L72	20	Angle	—	—	—	—	—
3	L72	22	Diaphragm	0-020	6	0-5	8 : 1	—
4	L72	12b/SS.1793	Angle	—	—	—	—	—
5	L72	22	Diaphragm Former 510 F	0-020	6	0-5	8 : 1	—
6	L72	836/SS.1793	Angle	—	—	—	—	—
7	L72	18	Butt Strap	—	—	—	—	—
8	L72	18	Attachment angle	—	—	—	—	—
9	L72	748/SS.1793	Former channel	0-050	6	0-25	6 : 1	107, 108
10	L72	18	Horizontal plate	0-10	6	0-5	8 : 1	108
11	L65	419/SS.3075	Stringer " T "	0-050	6	—	—	109
12	L72	16	Gusset plate	0-1	6	0-5	8 : 1	—
13	L72	18	Stringer bracket	—	—	—	—	—
14	L72	16	Stringer bracket	—	—	—	—	—
15	L72	367/SS.1793	Stringer top hat	0-050	6	—	—	—
16	L72	22	Diaphragm Former 470 F	0-1	6	0-5	8 : 1	103, 106
17	L72	507/SS.1793	Stiffener	0-050	6	—	—	—
18	L72	16	Toggle bracket	—	—	—	—	—
19	L72	133/SS.1793	Angle	—	—	—	—	—
20	L72	60/SS.1793	Stiffening angle	0-050	6	—	—	—
21	L72	183/SS.1793	Attachment angle	—	—	—	—	—
22	L72	18	Longeron diaphragm	—	—	—	—	—
23	L72	22	Web former 442 F	—	—	0-25	8 : 1	103, 106
24	L72	163/SS.1793	Channel cross member	—	—	—	—	107, 108
25	L72	18	Channel bracket	—	—	—	—	—
26	L72	20	Gusset plate	—	—	—	—	—
27	L72	20	Gusset plate	—	—	—	—	—
28	L72	100/SS.1793	Channel stiffener	—	—	0-25	6 : 1	107, 108
29	L72	14	Corner bracket	—	—	—	—	—
30	L72	14	Gusset plate	—	—	—	—	—
31	L72	238/SS.1793	Channel beam	—	—	0-25	6 : 1	107-108
32	L72	18	Horizontal plate	0-1	6	0-5	8 : 1	220, 220A, 220B, 220C
33	L72	14	Channel	0-050	6	—	—	—
34	L72	20	Intercostal	—	—	0-25	8 : 1	105-107
35	L72	22	Web former 414 F	—	—	0-25	8 : 1	—
36	L72	18	Attachment plate	—	—	—	—	—
37	L72	100/SS.1793	Channel stiffener	—	—	0-25	6 : 1	107-108

All measurements are given in inches.

* No repairs permitted.

† More expedient to renew than repair.

RESTRICTED

(A.L.3, Aug. 57)

KEY TO FIG. 202 (Continued)

Item	Material		Description		Negligible Damage				Rep. Fig.
	Spec.	S.W.G. or Section			Dents		Holes		
					Depth	Distance Apart	Diam.	Pitch Ratio	
38	L72	16	Channel	†	—	—	—	—	—
39	L72	18	Attachment angle	†	—	—	—	—	—
40	L72	613/SS.1793	Vertical member	*	0.050	6	0.25	6 : 1	107-108
41	L72	18	Doubling plate	*	—	—	—	—	—
42	L72	16	Support channel	*	0.1	4	1.0	4 : 1	108
43	L63	1" dia. × 22G	Strut	*	—	—	—	—	—
44	L72	613/SS.1793	Channel Cross member		0.050	4	0.25	4 : 1	107-108
45	L72	22	Mounting Tray	†	0.1	4	1.0	4 : 1	—
46	L72	348/SS.1793	Support channel	†	0.050	4	0.25	6 : 1	—
47	T.54	$\frac{1}{8}$ " dia. × 20G	Stowage frame		0.030	4	—	—	—
48	L72	840/SS.1793	Transport joint angle		—	—	—	—	—
49	L72	18	Vertical member		—	—	0.5	8 : 1	—
50	D.T.D. 683	—	Longeron attachment bracket	*	—	—	—	—	—
51	L72	18	Skin panel	†	0.050	6	—	—	—
52	L72	18	Side stiffening member		0.050	6	0.5	4 : 1	105-108
53	L72	18	Bottom member		0.050	6	0.5	8 : 1	105-108
54	L72	18	Mounting channel	†	—	—	—	—	—
55	L72	20	Inboard web		0.1	4	—	—	—
56	L72	314/SS.1793	Stiffening angle	†	—	—	—	—	—
57	L72	18	Stud bracket	†	—	—	—	—	—
58	L72	20	Side member		0.1	4	0.5	6 : 1	108
59	L72	18	Bottom angle		0.050	4	0.5	6 : 1	108
60	L72	20	Stiffening member		0.050	4	0.5	6 : 1	108
61	L72	20	Cross member		0.050	4	0.5	6 : 1	108
62	L72	18	Top angle	†	—	—	—	—	—

All measurements are given in inches.

* No repairs permitted.

† More expedient to renew than repair.

RESTRICTED

KEY TO FIG. 202A

Item	Specification	Material		Description	Negligible Damage				Repair Figure
		S.W.G. or Section			Dents	Holes			
					Depth	Distance Apart	Diameter	Pitch Ratio	
1	L72	20		Angle	†	—	—	—	—
2	L72	20		Channel	†	—	—	—	—
3	L72	20		Angle	†	—	—	—	—
4	L72	20		Angle	†	—	—	—	—
5	L72	20		Channel	†	—	—	—	—
6	L72	20		Angle	†	—	—	—	—
7	L72	20		Main channel	†	0.05	4	—	105, 108
8	L72	20		Centre bracket	†	—	—	—	—
9	L72	20		End bracket	†	—	—	—	—
10	L72	20		Angle	†	—	—	—	—
11	L72	20		Angle	†	—	—	—	—
12	L72	20		Top plate	†	0.10	4	0.5	4 : 1
13	L72	16		Back plate	†	—	—	—	—
14	L72	18		Side member	*	—	—	—	—
15	L72	20		Reinforcing plate	†	—	—	—	—
16	L72	18		Spinning	†	—	—	—	—
17	L72	18		Packing	†	—	—	—	—
18	L72	16		Packing	†	—	—	—	—
19	L72	18		Side member	*	—	—	—	—
20	L72	18		Web former 470 F	†	0.10	6	—	103
21	L72	16		Angle	†	—	—	—	—
22	L72	20		Angle	†	—	—	—	—
23	L72	455 SS.1793		Stiffener	†	0.05	6	—	—
24	L72	507 SS.1793		Stiffener	†	0.05	6	—	—
25	L72	455 SS.1793		Stiffener	†	0.05	6	—	—
26	L72	18		Web former 510 F	*	—	—	—	—
27	L72	511 SS.1793		Stiffener	*	—	—	—	—
28	L72	511 SS.1793		Stiffener	*	—	—	—	—
29	L72 or L65	—		Base Ring	†	—	—	—	—
30	L72	10		Plate	†	—	—	—	—
31	L65	—		Centre segments	†	—	—	—	—
32	L65	—		Bottom segments	†	—	—	—	—
33	L72	16		Bottom angle	*	—	—	—	—
34	L72	22		Web former 442 F	†	0.10	6	0.5	8 : 1
35	L72	18		Gusset plate	†	—	—	—	103, 106
36	L72	22		Web former 414 F	†	—	0.25	8 : 1	103, 106
37	L72	613 SS.1793		Vertical member	†	0.05	4	0.50	6 : 1
38	L72	613 SS.1793		Cross member	†	0.10	4	1.00	4 : 1
39	L72	18		Butt Strap	*	—	—	—	107-108

All dimensions are quoted in inches.

† More expedient to renew than repair.

* No repair permitted.

RESTRICTED

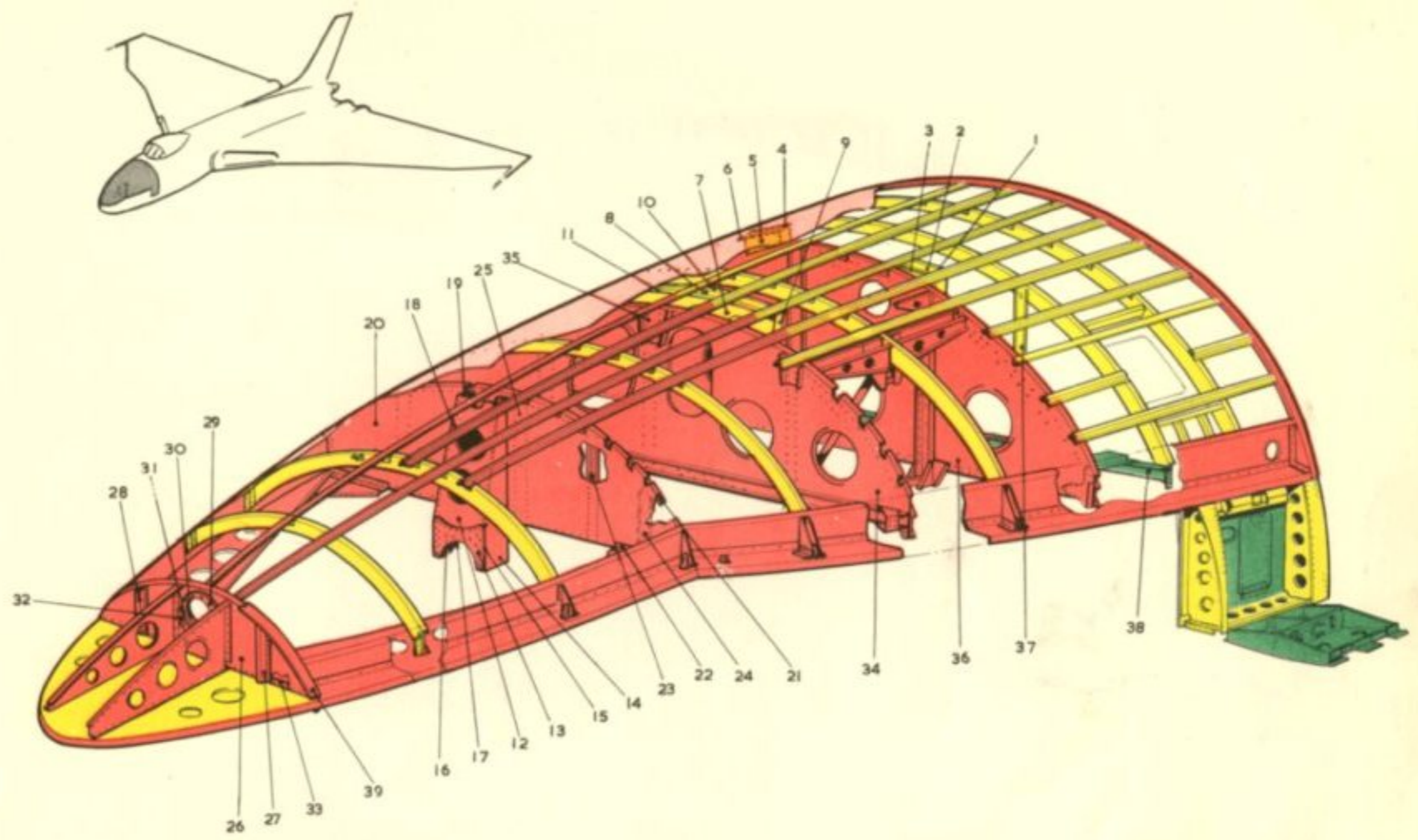
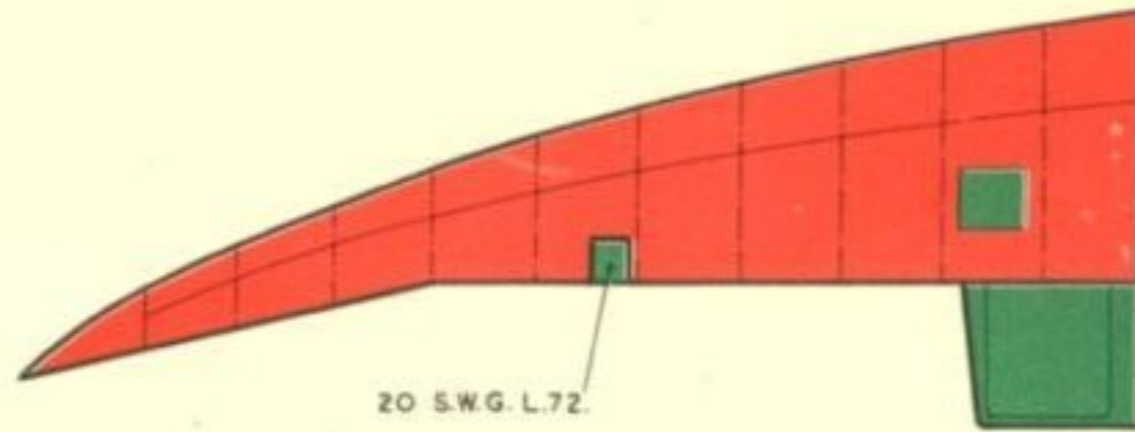


FIG. 202.A. METAL NOSE (POST MOD. 38)

RESTRICTED

PORT SIDE SKINS



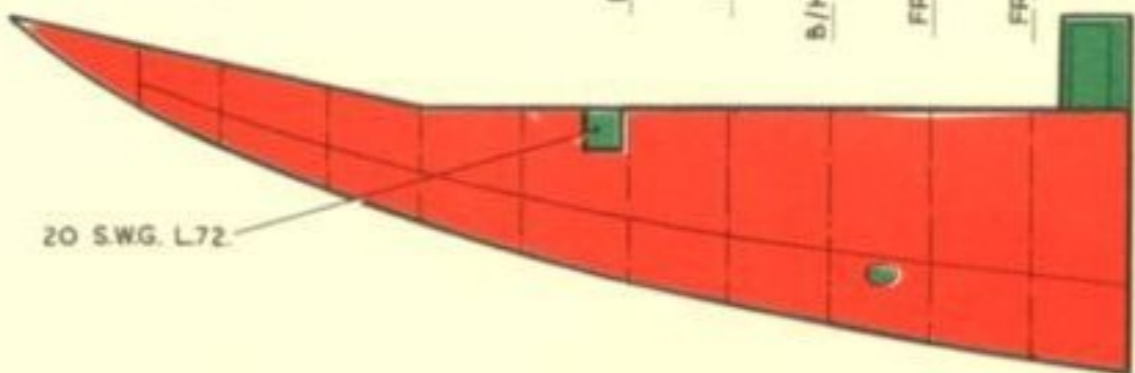
ALL SKINS ARE MADE FROM 18 S.W.G. SPEC. L.72 UNLESS OTHERWISE STATED.

DAMAGE IN AREAS OF CONCENTRATED RIVETING MUST BE REPAIRED WITH JOINTS ARRANGED OUTSIDE THE AREA.

FOR REPAIRS SEE FIG.103-104
FIG.116-117
FIG.220-226

NEGLIGIBLE DAMAGE
DENTS-RED 0.05 IN. DEEP
6 IN. APART
DENTS-GREEN 0.10 IN. DEEP
6 IN. APART
ALL HOLES MUST BE REPAIRED

STBD. SIDE SKINS



FR.310.F
FR.498.F
FR.484.F
B/HEAD 470.F
FR.456.F
B/HEAD 442.F
FR.428.F
B/HEAD 414.F
FR.400.F
FR.386.F
FR.372.F

FIG. 203. METAL NOSE SKINS

RESTRICTED

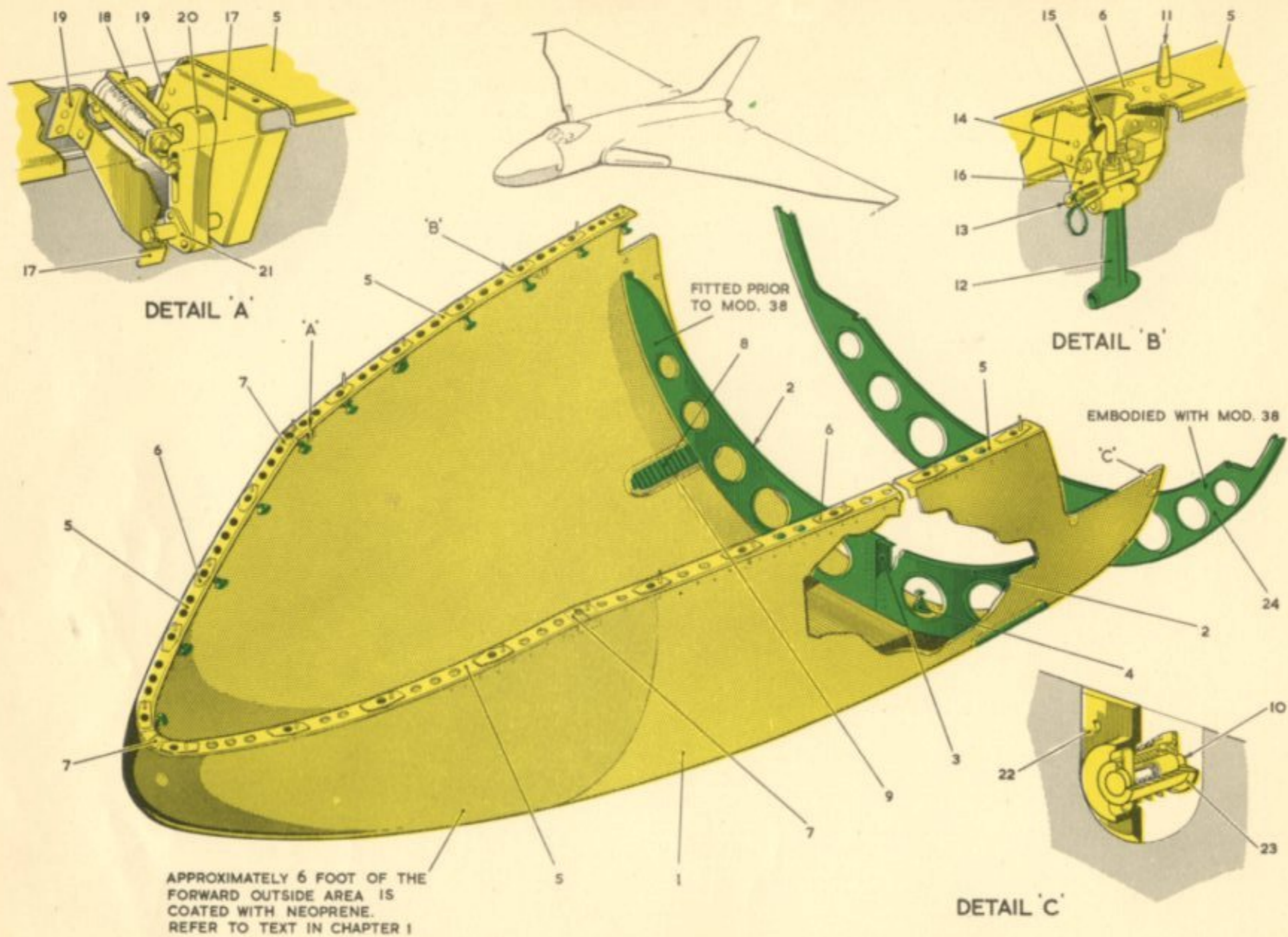


FIG. 204. NOSE RADOME-MOD 38 EMBODIED
RESTRICTED

KEY TO FIG. 204

Item	Material Specification	S.W.G. or Section	Description	Negligible Damage				Repair Figure
				Dents		Holes		
				Depth	Distance Apart	Diameter	Pitch Ratio	
1	—	—	Radome Moulding	—	—	—	—	219-219A
2	L72	16	Radome Former	0.10	2.5	0.25	4 : 1	106-107-108
3	L72	16	Joint plate	0.10	2.5	0.25	4 : 1	108
4	—	—	Drain plug assembly	*	—	—	—	—
5	L72	14	Radome longeron	0.05	3.0	—	—	—
6	L72	16	Packing plate	†	0.05	3.0	—	—
7	L72	14	Joint plate	†	0.05	3.0	—	—
8	L59	18	Louvre	†	0.10	2.5	—	—
9	L59	20	Angle	†	0.10	2.5	—	—
10	S.80	—	Button	*	—	—	—	—
11	S.110	—	Dowel	*	—	—	—	—
12	D.T.D. 130.A	—	Lever	*	0.05	2.5	—	—
13	—	—	Pip-pin	*	—	—	—	—
14	L72	18	Attachment bracket	†	0.10	3.0	—	—
15	S.96	—	Hook	*	—	—	—	—
16	L65	—	Toggle mounting	†	—	—	—	—
17	L72	18	Attachment bracket	†	0.10	3.0	0.25	6 : 1
18	L65	—	Housing	*	—	—	—	—
19	L72	18	Attachment angle	†	0.10	2.5	—	—
20	L65	—	Hook	*	—	—	—	—
21	L65	—	Bearing	†	0.50	3.0	—	—
22	B.S.S. 249	—	Housing	*	0.50	2.5	—	—
23	S.80	—	Pin	*	—	—	—	—
24	L72	16	Radome Former Mod. 38	0.10	2.5	0.25	4 : 1	106-107-108

All dimensions are quoted in inches.

† More expedient to replace than repair.

* No repairs permitted.

KEY TO FIG. 205

Item	Material Specification	S.W.G. or Section	Description	Negligible Damage				Repair Figure
				Dents		Holes		
				Depth	Distance Apart	Diameter	Pitch Ratio	
1	L72	6	Support-Ring Sector	†	—	—	—	—
2	L72	12	Attachment Ring Sector	†	—	—	—	—
3	L72	20	Dome Sector		—	—	—	223.A
4	L72	20	Jointing Strap		—	—	—	223.B
5	L72	20	Sealing plate	†	—	—	—	—
6	L73	6	Aft angle		—	—	—	—
7	D.T.D. 410	—	Pressure dome Reinforcing	†	—	—	—	—
8	L72	20	Patch plate		—	—	—	—
9	L72	16	Packing		0.050	3.0	—	—
10	L72	20	Strap plate		—	—	—	—
11	L72	16	Top horizontal angle		0.10	3.0	—	—
12	L72	16	Top plate		0.10	3.0	0.25	4 : 1
13	L72	16	Vertical panel		0.10	3.0	0.25	4 : 1
14	D.T.D. 130.A	139/SS.3075	Upper " T " section		0.10	3.0	—	—
15	L72	18	Inner skin angle		—	—	—	—
16	L72	16	Diaphragm		0.05	3.0	0.4	4 : 1
17	L73	14	Bracket		0.05	3.0	0.4	4 : 1
18	S.510	16	Bracket	*	—	—	—	—
19	D.T.D. 304.B	361/SS.3075	Forward angle		—	—	—	—
20	L72	10	Reinforcing plate outer	*	—	—	—	—
21	D.T.D. 687.A	20	Diaphragm		0.10	3.0	0.25	4 : 1
22	D.T.D. 304.B	361/SS.3075	Forward angle centre		—	—	—	—
23	L65	—	Strap bracket	*	—	—	—	—
24	L72	18	Attachment bracket	*	—	—	—	—
25	L72	10	Mounting ring	*	—	—	—	—
26	L72	10	Support ring	*	—	—	—	—
27	L72	20	Dish		—	—	—	—
28	D.T.D. 88.C	—	Access door reinforcing ring	*	—	—	—	—
29	L65	—	Clamp bracket	*	—	—	—	—

All dimensions are quoted in inches.
 † More expedient to renew than repair.
 * No repair permitted.

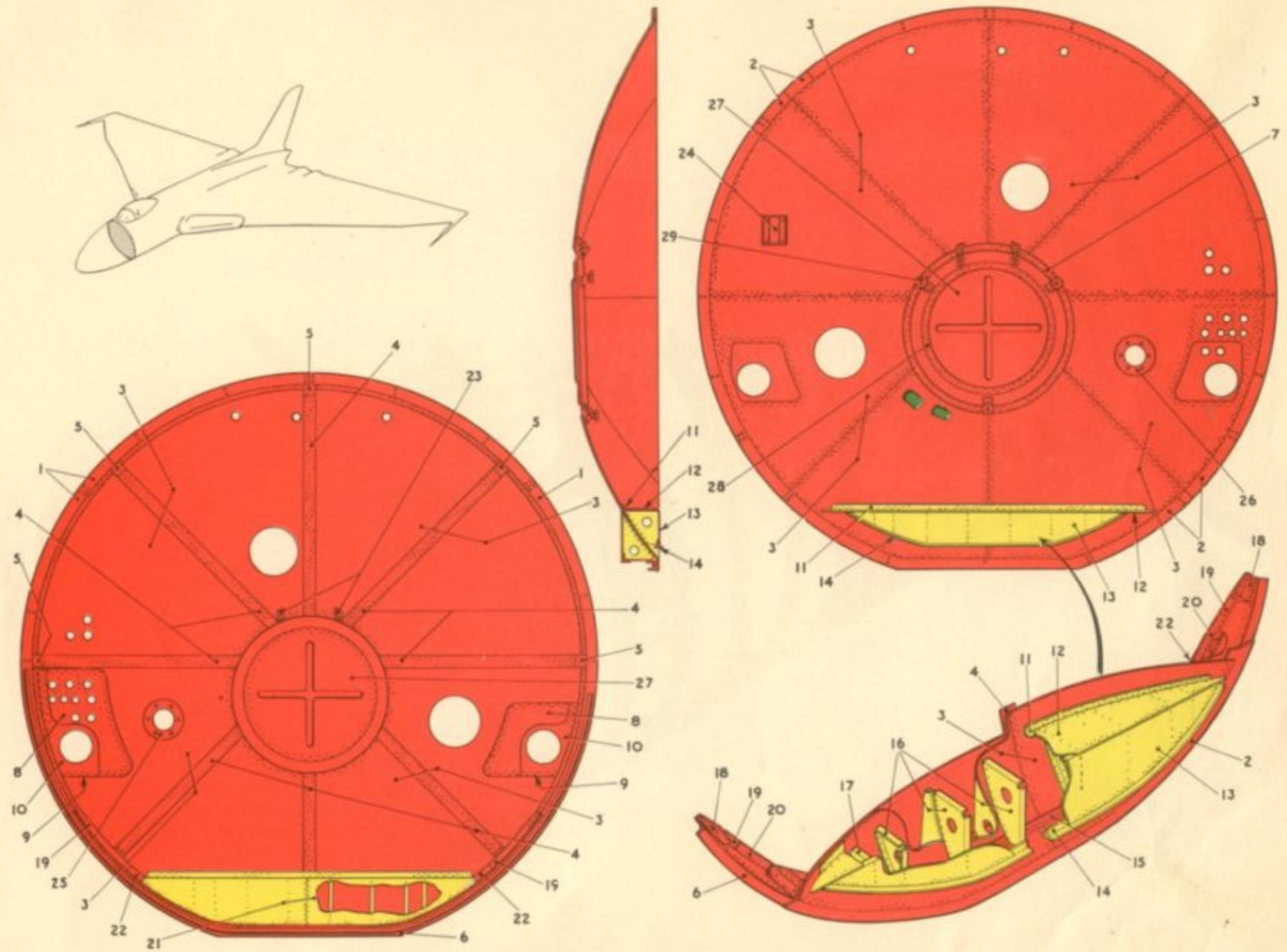


FIG. 205. FRONT PRESSURE BULKHEAD
RESTRICTED

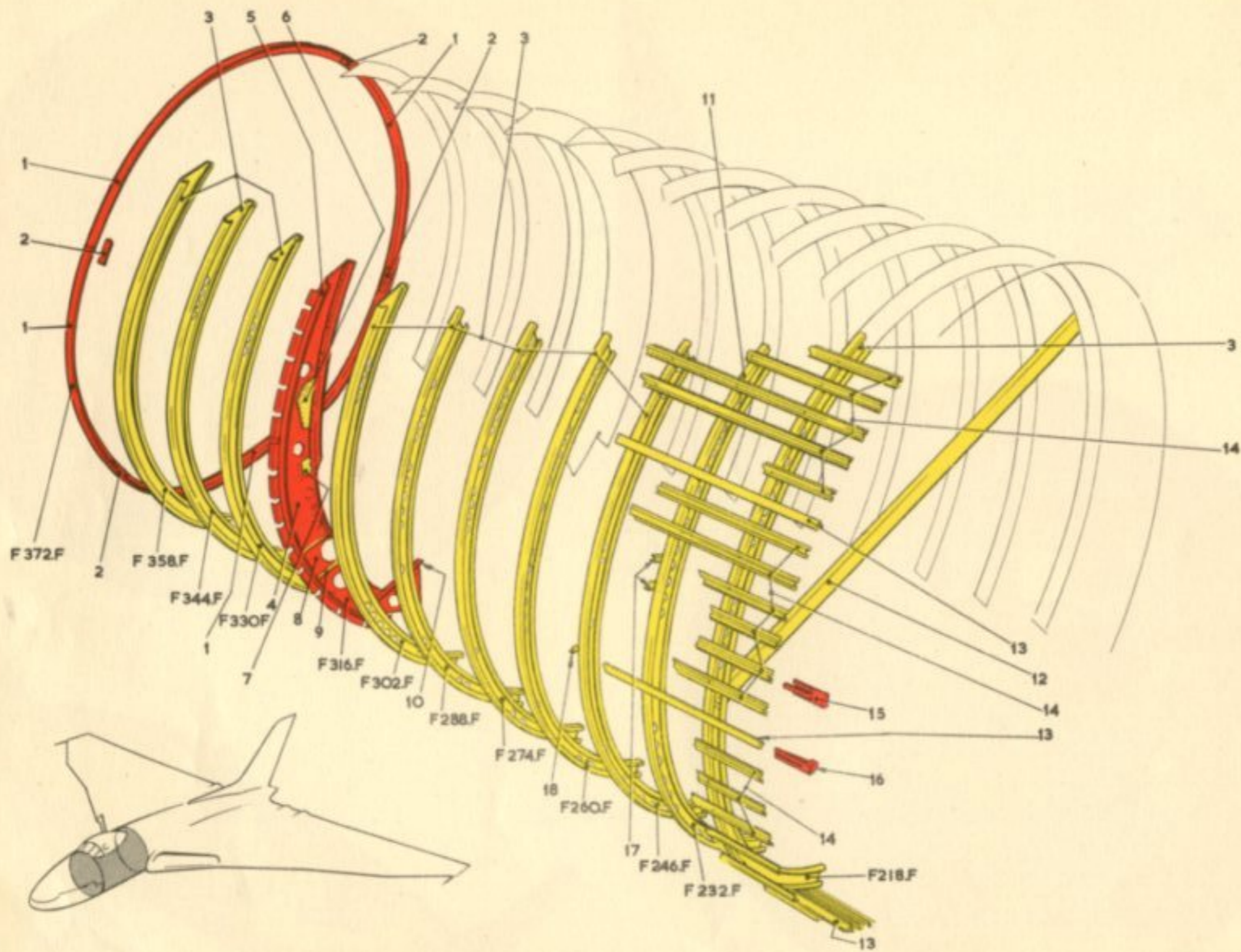


FIG. 206. FORMERS - FRONT FUSELAGE
 RESTRICTED

KEY TO FIG. 206

Item	Specification	Material		Description		Negligible Damage			Repair Figure	
		S.W.G. or Section				Dents	Holes			
						Depth	Distance Apart	Diameter	Pitch Ratio	
1	L65	299/SS.3075		Former Sector		—	—	—	—	—
2	S.3	14		Joint plate	†	—	—	—	—	—
3	L72	420/SS.1793		Half former		0.10	2.5	0.25	6 : 1	105-107-108
4	L73	18		Web plate		0.10	2.0	0.5	4 : 1	—
5	L72	525/SS.1793		Outer angle		0.10	2.0	—	—	—
6	D.T.D. 687.A	18		Gusset plate	†	0.10	2.0	0.25	4 : 1	—
7	L72	16		Doubling plate	†	0.15	2.5	0.25	3 : 1	—
8	L72	16		Reinforcing plate	†	0.15	2.5	0.25	3 : 1	—
9	L72	16		Strap	†	0.10	2.0	—	—	—
10	L72	525/SS.1793		Bottom inner angle		0.10	2.0	—	—	114
11	L72	224/SS.1793		Half former		0.10	2.5	0.25	6 : 1	105-107-108
12	L72	766/SS.1793		Cross member		0.10	2.5	0.25	6 : 1	107-108
13	L65	325/SS.3075		Stringers "T" section		—	—	—	—	110
14	L72	211/SS.1793		Stringers "top hat" section		0.50	3.0	—	—	112
15	D.T.D. 88.C	—		Stringer bracket "top hat"	*	—	—	—	—	—
16	D.T.D. 88.C	—		Stringer bracket "T"	*	—	—	—	—	—
17	L72	18		Stringer bracket	†	—	—	—	—	—
18	L72	16		Angle	†	0.10	2.5	—	—	—

All dimensions quoted are in inches.

† More expedient to renew than repair.

* No repair permitted.

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(A.L.3, Aug. 57)

KEY TO FIG. 206A

Item	Specification	Material S.W.G. or Section	Description	Negligible Damage				Repair Figure
				Depth	Dents Distance Apart	Holes Diameter	Pitch Ratio	
1	L73	18	Rib Web	0-10	2-0	0-5	4 : 1	—
2	L72	525/SS.1793	Rib Angle	0-10	2-0	—	—	—
3	L72	16	Reinforcing Strap	0-10	2-0	—	—	—
4	L72	16	Doubling plate	0-15	2-5	0-25	3 : 1	—
5	L72	16	Stringer Bracket	* 0-10	2-0	—	—	—
6	L72	18	Stringer Bracket	* 0-10	2-0	—	—	—
7	D.T.D. 687	18	Gusset plate	† 0-10	2-0	0-25	4 : 1	—
8	L72	16	Reinforcing Ring	† 0-15	2-0	—	—	—

All dimensions are quoted in inches.

† More expedient to renew than repair.

* No repair permitted.

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Key to fig. 207

Item	Spec.	Material S.W.G or Section	Description	Depth	Negligible Damage			Repair Fig. No.
					Dents Dist. Apart	Dia.	Holes Pitch Ratio	
1	L.72	16	Former	—	—	—	—	—
2	DTD.687	16	Front and rear channel	—	—	—	—	—
3	L.72	14	Forward bulkhead skin	—	—	—	—	—
4	L.72	16	Rear bulkhead skin	—	—	—	—	—
5	L.73	20	Stiffeners	—	—	—	—	—
6	L.72	16	Former 316. F	—	—	—	—	—
7	L.72	16	Front outer angle	—	—	—	—	—
8	DTD.259 DTD.88C	—	Front frame	—	—	—	—	—
9	L.72	219/SS.1793	Stringer	0.05	2.5	—	—	—
10	L.72	16	Hinge side members	†—	—	—	—	—
11	DTD.88C	—	Fairing block	†—	—	—	—	—
12	L.72	20	Diaphragm	0.05	3.0	0.25	8:1	—
13	L.72	16	Attachment angles	†0.05	3.0	—	—	—
14	S.96	—	Fork	*—	—	—	—	—
15	S.99	—	Pin	*—	—	—	—	—
16	L.65	328/SS.3075	Channel member	0.05	3.0	—	—	—
17	L.72	16	Centre angles	—	—	—	—	—
18	S.96	—	Dowel	*—	—	—	—	—
19	DTD.259 or DTD.88C	—	Base plate	—	—	—	—	—
20	DTD.259 or DTD.88C	—	Corner base plate	†—	—	—	—	—
21	L.72	16	Packing	†0.05	3.0	—	—	—
22	L.72	18	Stiffener bracket	†0.05	3.0	—	—	—
23	L.72	16	Channel	†0.05	3.0	—	—	—
24	DTD.166B	18	Reinforcing plate	†0.05	3.0	—	—	—
25	L.72	16	Angle	†0.05	3.0	—	—	—
26	L.72	18	Skin	0.05	3.0	—	—	—
27	L.72	20	Inner skins	0.10	2.5	—	—	—
28	L.72	18	Forward outer skins	—	—	—	—	—
29	L.72	18	Aft outer skin	0.05	3.0	—	—	—
30	L.72	18	Butt strap	—	—	—	—	—
31	DTD.687	14	Channel	0.05	3.0	—	—	—
32	L.72	20	Centre inner skin	0.10	2.5	—	—	—
33	DTD.124A	14	Channels	†—	—	—	—	—
34	S.3	10	Cam plates	*—	—	—	—	—
35	L.72	20	Aft inner skin	0.10	2.5	—	—	—
36	DTD.410	—	Centre window frame	*—	—	—	—	—
37	DTD.410	—	Side window frame	*—	—	—	—	—
38	DTD.410	—	D. V. window frame	*—	—	—	—	—
39	L.72	3	Sealing strip	*—	—	—	—	—
40	DTD.118A or DTD.142A	—	Sealing strip end	*—	—	—	—	—
41	DTD.88C	—	Windscreen base forging	*—	—	—	—	—
42	L.59	18	Rain deflector	0.10	2.5	0.25	6:1	—
43	L.65	—	Wiper stop body	*—	—	—	—	—
44	—	—	D.V. window assembly	*—	—	—	—	—

All dimensions are stated in inches.

† More expedient to replace than repair.

* No repair permitted.

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Key to fig. 208

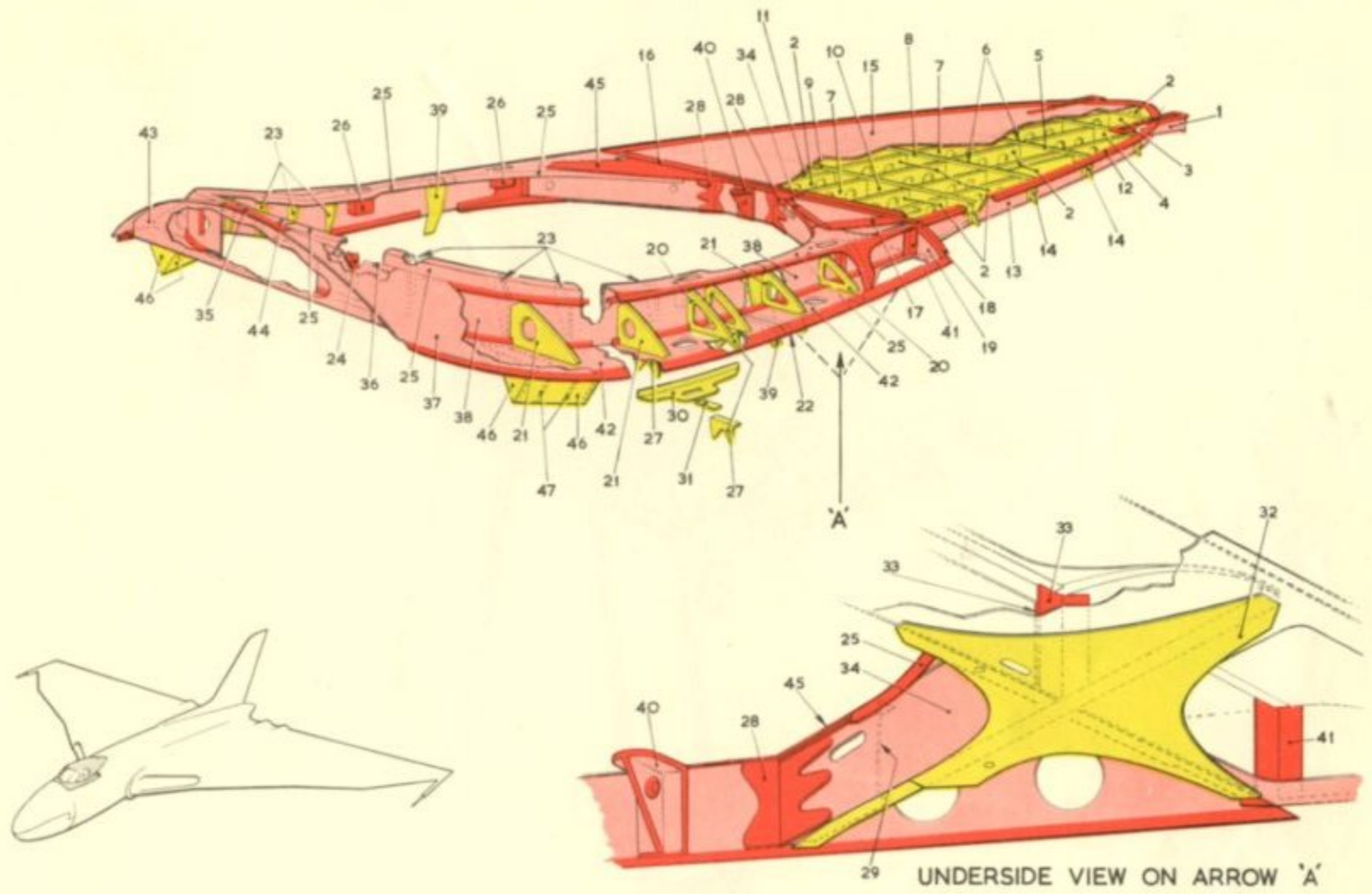
Item	Spec.	Material S.W.G or Section	Description	Dents Depth	Negligible Damage		Holes Pitch Ratio	Repair Fig. No.
					Dist. Apart	Dia.		
1	S.510 or S.514	16	Hinge cover	†0-05	3-0	—	—	—
2	L.72	18	Intercostals	0-05	3-0	0-25	4:1	115
3	L.72	20	Intercostal	0-05	3-0	0-25	4:1	108
4	DTD.687	18	Web	0-05	3-0	0-25	4:1	108
5	L.73	16	Web	0-05	3-0	—	—	—
6	L.73	12	Bottom boom angle	0-05	3-0	0-25	4:1	115
7	L.72	16	Intercostal	0-05	3-0	0-25	4:1	—
8	DTD.687	14	Web plate	0-025	3-0	0-25	6:1	—
9	L.65	338/SS.3075	Top boom	0-05	3-0	0-25	4:1	—
10	DTD.687	16	Web plate	0-05	3-0	—	—	—
11	L.65	—	Plumb line attach, block	†0-025	3-0	—	—	—
12	DTD.687	10	Cockpit rail—rear	0-025	3-0	—	—	—
13	DTD.687	10	Web plate	0-025	3-0	—	—	—
14	L.72	16	Brackets	†0-025	3-0	—	—	—
15	L.72	18	Top skin	—	—	—	—	—
16	DTD.683	350/SS.3075	Angle bracket	0-025	3-0	—	—	—
17	L.72	16	Channel stiffener	0-025	3-0	0-20	6:1	—
18	L.72	18	Butt strap	†0-05	3-0	0-25	6:1	—
19	L.72	16	Intercostal	0-05	3-0	0-25	4:1	—
20	S.514	16	Intercostal	0-05	3-0	0-25	4:1	115
21	L.72	18	Intercostal	0-05	3-0	—	—	—
22	DTD.687	10	Joint plate	†0-025	3-0	0-25	4:1	—
23	L.72	16	Support bracket	†0-05	3-0	—	—	—
24	DTD.130	—	Attachment angle	—	—	—	—	—
25	L.73	10	Rail	0-025	3-0	—	—	—
26	S.510	16	Cover	0-025	3-0	—	—	—
27	L.72	16	Attachment bracket	0-05	3-0	0-25	4:1	—
28	DTD.683 or L.65	—	Bracket	0-025	3-0	—	—	—
29	L.73	14	Reinforcing channel	0-025	3-0	0-25	8:1	—
30	L.73	10	Reinforcing plate	0-025	3-0	—	—	—
31	L.73	10	Packing	†0-025	3-0	—	—	—
32	L.73	12	Reinforcing plate	0-025	3-0	0-25	8:1	—
33	L.73	12	Attachment angle	0-025	3-0	0-25	6:1	—
34	L.73	14	Cross member	0-025	3-0	0-25	8:1	—
35	L.73	12	Bracing strip	0-025	3-0	—	—	—
36	DTD.687	10	Angle	0-025	3-0	—	—	—
37	DTD.687	12	Skin	0-025	3-0	—	—	—
38	DTD.687	10	Web	0-025	3-0	—	—	—
39	L.72	10	Gusset plate	†0-025	3-0	—	—	—
40	L.65	—	Ejection jack foot	—	—	—	—	—
41	L.72	16	Bracket	0-05	3-0	0-25	6:1	—
42	L.73	12	Web	0-025	3-0	—	—	—
43	L.72	10	Attachment plate	0-025	3-0	0-25	8:1	—
44	L.65	—	Block	0-025	3-0	—	—	—
45	L.73	10	Reinforcing plate	0-025	3-0	—	—	—
46	L.72	18	Skin panel	0-05	3-0	0-25	8:1	—
47	L.72	20	Diaphragm	†0-05	3-0	—	—	—

All dimensions are stated in inches.

† More expedient to replace than repair.

* No repair permitted.

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M/L

Fig.208 Cockpit rail structure
Mod.275, 367, 368 and 405 embodied
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(A.L.9, Mar. 58)

247151/6432 376 5/18 88LH Gp. 979

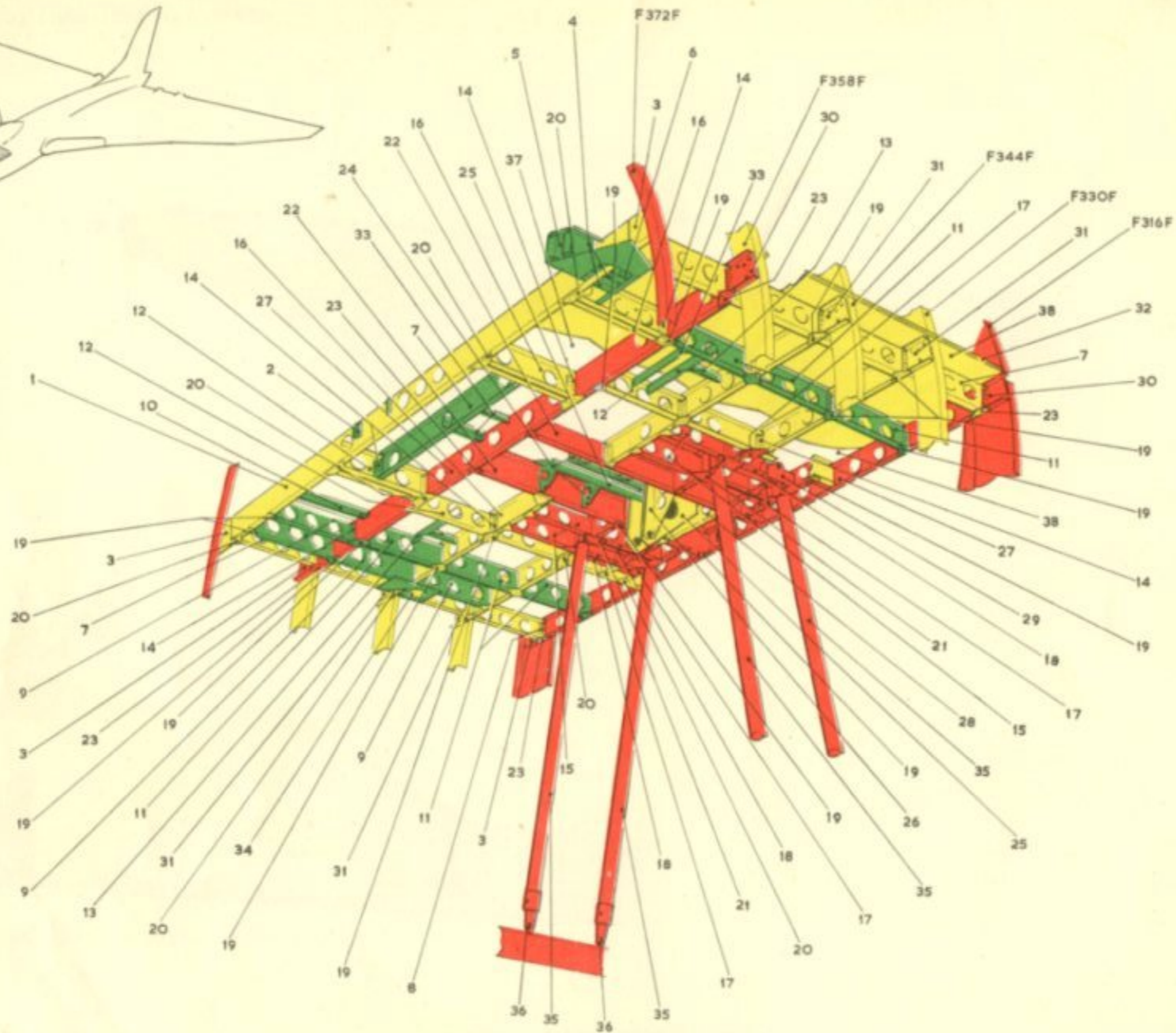


FIG. 209. PILOTS' FLOOR

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KEY TO FIG. 209

Item	Specification	Material S.W.G. or Section	Description	Negligible Damage				Repair Figure
				Depth	Dents Distance Apart	Holes Diameter	Pitch Ratio	
1	L72	589/SS.1793	Cross member	0.05	3.0	0.25	6 : 1	107-108
2	L72	20	Angle	† 0.10	2.5	—	—	—
3	L72	589/SS.1793	Attachment bracket	0.05	3.0	—	—	115
4	L72	590/SS.1793	Intercostal	0.05	3.0	0.25	4 : 1	115
5	L72	20	Gusset plate	0.10	2.5	0.25	4 : 1	—
6	L72	183/SS.1793	Angle	† 0.05	3.0	—	—	—
7	L72	590/SS.1793	Side member	0.10	2.5	0.25	6 : 1	105-108
8	L72	18	Angle	† 0.10	2.5	—	—	—
9	L72	591/SS.1793	Intercostal	0.10	2.5	0.25	4 : 1	105-108
10	L72	18	Member	0.10	2.5	0.25	4 : 1	108
11	L72	22	Intercostal	0.10	2.5	0.25	4 : 1	105-108
12	L72	590/SS.1793	Intercostal	0.10	2.5	0.25	6 : 1	105-108
13	L72	20	Support angle	0.10	2.5	0.25	4 : 1	—
14	L72	183/SS.1793	Angle	† 0.10	2.5	—	—	—
15	L72	589/SS.1793	Intercostal	0.05	3.0	0.25	6 : 1	105-108
16	L72	590/SS.1793	Intercostal	0.10	2.5	0.25	6 : 1	105-108
17	L72	18	Lamp mounting and Gusset plate	† 0.05	3.0	—	—	—
18	L72	16	Channel	0.05	3.0	—	—	—
19	L72	20	Gusset plate	† 0.10	2.0	—	—	—
20	L72	18	Gusset plate	† 0.10	2.0	—	—	—
21	L72	18	Gusset plate	† 0.05	3.0	—	—	—
22	L72	16	Floor member	0.05	3.0	0.25	8 : 1	108
23	L72	20	Gusset plate	† 0.05	3.0	—	—	—
24	L72	20	Intercostal	0.10	2.5	0.25	4 : 1	115
25	L72	20	Lipped angle	0.10	2.5	0.25	6 : 1	—
26	L72	20	Intercostal	0.10	2.5	0.25	6 : 1	—
27	L72	589/SS.1793	Cross member	0.05	3.0	0.25	8 : 1	105-108
28	L72	589/SS.1793	Intercostal	0.10	2.5	0.25	6 : 1	105-108
29	L72	8	Bearing plate	† —	—	—	—	—
30	L72	16	Attachment bracket	0.05	3.0	—	—	115
31	L72	590/SS.1793	Attachment bracket	0.10	2.5	0.25	6 : 1	115
32	L72	696/SS.1793	Shear angle	0.10	2.5	—	—	—
33	L72	18	Member	0.10	2.5	0.25	4 : 1	—
34	L72	20	Reinforcing skin	0.15	2.5	0.25	4 : 1	—
35	L63	14	Tube for support strut	* —	—	—	—	—
36	D.T.D. 683 or L65	—	End socket	* —	—	—	—	—
37	L72	22	Forward floor skin	0.10	2.5	0.25	4 : 1	225
38	L72	20	Aft floor skin	0.10	3.0	0.25	6 : 1	225

All dimensions are quoted in inches.

† More expedient to replace than repair.

* No repairs permitted

RESTRICTED

(A.L.3, Aug. 57)

KEY TO FIG. 210

Item	Specification	Material S.W.G. or Section	Description	Negligible Damage				Repair Figure	
				Dents Depth	Distance Apart	Holes Diameter	Pitch Ratio		
1	L72	589/SS.1793	Cross member	0.10	2.5	0.25	6 : 1	108	
2	L72	16	Joint bracket	0.10	2.5	0.25	6 : 1	115	
3	L72	18	Gusset plate	†	0.10	2.5	—	—	
4	L72	20	Gusset plate	†	0.10	2.5	—	—	
5	L72	18	Intercostal		0.10	2.5	0.25	4 : 1	105, 108
6	L72	20	Gusset plate	†	0.10	2.5	—	—	
7	L72	16	Gusset plate	†	0.10	2.5	—	—	
8	L72	16	Cross member		0.10	2.5	0.25	6 : 1	108
9	L72	18	Angle	†	0.10	2.5	—	—	—
10	L65	—	Jack attachment bracket	*	—	—	—	—	—
11	L72	18	Joint plate	†	0.10	2.5	—	—	—
12	L72	224/SS.1793	Cross member		0.10	2.5	0.25	6 : 1	108
13	L72	20	Gusset plate	†	0.10	2.5	—	—	—
14	L72	461/SS.1793	Step support		0.10	2.5	0.25	6 : 1	108
15	L72	413/SS.1793	Cross member		0.15	2.0	0.25	4 : 1	108
16	L72	413/SS.1793	Intercostal		0.15	2.0	0.25	4 : 1	108
17	L72	20	Gusset plate	†	0.10	2.5	—	—	—
18	L72	413/SS.1793	Cross member		0.10	2.5	0.25	6 : 1	108
19	L72	18	Angle		0.10	2.5	0.25	6 : 1	—
20	L72	14	Attachment bracket	*	—	—	—	—	—
21	L72	18	Support bracket	†	0.10	2.5	—	—	—
22	L72	413/SS.1793	Intercostal		0.15	2.0	0.25	4 : 1	108
23	L72	413/SS.1793	Intercostal		0.10	2.5	0.25	6 : 1	108
24	L72	18	Angle bracket	*	0.10	2.5	0.25	6 : 1	—
25	L72	18	Foot guard		0.20	2.0	0.5	4 : 1	—
26	L72	22	Shelf cross member		0.15	2.0	0.25	4 : 1	—
27	L72	20	Floor skin		0.15	3.0	0.5	5 : 1	225
28	L72	18	Floor support		0.10	2.5	0.25	6 : 1	108
29	L72	22	Channel member		0.15	2.0	0.25	4 : 1	—
30	L72	253/SS.1793	Angle		0.10	2.0	—	—	—
31	L72	772/SS.1793	Channel member		0.15	2.0	0.25	4 : 1	—
32	L72	18	Angle bracket	*	0.10	2.5	—	—	—
33	L72	20	Gusset plate	†	0.10	2.5	—	—	—
34	L72	18	Channel stiffener		0.10	2.5	0.25	6 : 1	—
35	L72	244/SS.1793	Floor support		0.10	2.5	0.25	6 : 1	108
36	L72	16	Centre frame member		0.10	2.5	0.25	6 : 1	108
37	L72	16	Channel		0.10	2.5	0.25	6 : 1	108
38	L72	6	Seat attachment plate	*	—	—	—	—	—
39	D.T.D. 423	248/SS.3075	Angle		0.10	2.0	—	—	—
40	L72	20	Angle		0.10	2.0	—	—	—

All dimensions are quoted in inches.

† More expedient to replace than repair.

* No repairs permitted.

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Key to fig. 211

Item	Spec.	Material S.W.G or Section	Description	Negligible Damage			Holes Pitch Ratio	Repair Fig. No.
				Dents Depth	Dist. Apart	Dia.		
1	DTD.633	—	Front O/B bracket	†—	—	—	—	—
2	L.72	14	Channel member	0.030	6.0	—	—	—
3	L.72	14	Channel member	0.030	6.0	—	—	—
4	L.65	261/SS.3075	Angle	†—	—	—	—	—
5	L.72	16	Angle bracket	†—	—	—	—	—
6	L.72	16	Angle bracket	†—	—	—	—	—
7	L.72	16	Pressing	0.030	6.0	—	—	108
8	DTD.683	—	Attachment bracket	†—	—	—	—	—
9	DTD.683	—	Attachment bracket	†—	—	—	—	—
10	L.65	314/SS.3075	Inner angle	0.030	6.0	—	—	—
11	L.72	16	Web	0.030	6.0	0.5	8:1	—
12	L.65	314/SS.3075	Inner angle	0.030	6.0	—	—	—
13	L.72	16	Web	0.030	6.0	0.5	8:1	—
14	L.65	299/SS.3075	Outer angle	0.030	6.0	—	—	—
15	L.65	—	Bracket	†—	—	—	—	—
16	L.72	18	Outer diaphragms	0.050	6.0	0.5	8:1	108
17	L.72	18	Outer diaphragms	0.030	6.0	—	—	108
18	L.72	10	Intermediate longeron	0.030	6.0	0.25	16:1	—
19	L.72	16	Angle bracket	0.030	6.0	—	—	—
20	L.72	14	Side diaphragms	0.050	6.0	0.5	8:1	108
21	L.72	14	Rear diaphragms	0.050	6.0	0.5	8:1	108
22	L.72	14	Front diaphragms	0.030	6.0	—	—	108
23	L.72	10	Reinforcing angles	0.050	6.0	—	—	—
24	L.72	18	Intercostals	0.050	6.0	0.5	8:1	105, 108
25	L.72	18	Cross member 218" F	0.050	6.0	0.5	8:1	108
26	DTD.88C	—	Stringer attachment bracket	*—	—	—	—	—
27	L.72	18	Door frame attachment brackets	0.030	6.0	—	—	—
28	L.72	10	Door frame pressing	0.030	6.0	—	—	—
29	L.72	14	Web	0.030	6.0	—	—	—
30	DTD.130A	139/SS.3075	Upper "T" section	—	—	—	—	—
31	L.72	14	Channel member	0.050	6.0	0.5	8:1	—
32	L.72	10	Forward longerons	0.030	6.0	—	—	—
33	L.72	14	Channel member	0.030	6.0	—	—	—
34	L.72	12	Inner skin member (Former 302" F)	0.030	6.0	—	—	—
35	L.72	16	Web (Former 302" F)	0.030	6.0	—	—	—
36	L.72	18	Blister intermediate formers	0.050	6.0	0.5	8:1	108
37	L.72	16	Blister former 316" F	0.030	6.0	0.5	16:1	108

All dimensions are stated in inches.

† More expedient to replace than repair.

* No repair permitted.

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Key to fig. 211 (continued)

Item	Spec.	Material S.W.G or Section	Description	Dents Depth	Negligible Damage		Holes Pitch Ratio	Repair Fig. No.
					Dist. Apart	Dia.		
38	L.72	16	Blister formers	0.050	6.0	0.5	8 : 1	108
39	DTD.443	159/SS.3075	Former flange "T" section (344" F)	0.050	6.0	—	—	—
40	L.72	16	Inclined former	0.050	6.0	0.5	8 : 1	108
41	L.72	16	Intercostal	0.030	6.0	—	—	—
42	L.72	16	Intercostal	0.050	6.0	0.5	8 : 1	108
43	L.72	18	Intercostals on C/L of blister	0.050	6.0	0.5	8 : 1	108
44	L.72	18	Intercostals (25°)	0.050	6.0	0.5	8 : 1	108
45	L.72	18	Intercostals (45°)	0.050	6.0	0.5	8 : 1	108
46	L.73	12	Window frame	0.030	6.0	—	—	—
47	L.72	10	Curved frame members	0.030	6.0	—	—	—
48	L.72	16	Window channel	0.030	6.0	—	—	—
49	L.72	16	Door stiffening members	0.050	6.0	0.5	8 : 1	108
50	DTD.687	6	Longitudinal members	0.030	6.0	0.5	16 : 1	—
51	L.72	14	Door stiffening members	0.030	6.0	0.5	16 : 1	—
52	L.72	10	Door pressing	0.030	6.0	—	—	—
53	L.73	10	Reinforcing channels	0.030	6.0	0.5	16 : 1	—
54	L.72	16	Attachment brackets	†—	—	—	—	—
55	L.65	—	Locking pin brackets	†—	—	—	—	—
56	L.65	—	Hinge fittings	—	—	—	—	—
57	L.72	—	Window channel diaphragms	0.050	6.0	0.25	8 : 1	—
58	L.72	16	Intercostals	0.030	6.0	—	—	115
59	L.72	16	Attachment angles	†—	—	—	—	—
60	DTD.683	—	Window frames corner brackets	*—	—	—	—	—
61	L.72	14	Angle brackets	†—	—	—	—	—
62	DTD.683	—	Bracket	*—	—	—	—	—
63	L.72	16	Hinge diaphragms	*—	—	—	—	—
64	L.72	16	Intercostals	0.050	6.0	—	—	115
65	DTD.166 or 171	16 and 18	Striker bracket	†—	—	—	—	—
66	◀L.72▶	18	Outer skin	—	—	—	—	—

All dimensions are stated in inches.

† More expedient to replace than repair.

* No repair permitted.

RESTRICTED

KEY TO FIG. 212

Item	Material		Description	Negligible Damage				Rep. Fig.
	Spec.	S.W.G. or Section		Dents	Holes			
				Depth	Distance Apart	Diam.	Pitch Ratio	
1	L72	581/SS.1793	" Top hat " stiffeners	0-050	6-0	—	—	224A, 224C, 224D.
2	L65	294/SS.1793	Angle	†	—	—	—	—
3	L72	16	Web	†	0-050	—	—	—
4	L72	12b/SS.1793	Angle	†	—	—	—	—
5	D.T.D. 683	—	Bracket	*	—	—	—	—
6	L65	—	Bracket	*	—	—	—	—
7	L72	14	Joint plate	*	—	—	—	—
8	L72	1	Gusset plate	†	0-050	6-0	—	—
9	L72	18	Bracket	†	—	—	—	—
10	D.T.D. 683	—	Nosewheel attachment bracket	*	—	—	—	—
11	D.T.D. 683	—	Nosewheel attachment bracket	*	—	—	—	—
12	L72	20	Stabilizing bracket	†	0-05	6-0	0-5	12 : 1
13	L72	16	Plate	†	—	—	—	—
14	L72	22	Packing strip	†	0-050	6-0	—	—
15	L72	18	Stiffening plate forward	†	—	—	—	—
16	L72	14	Web plate	†	—	—	—	224A, 224B
17	L72	16	Angle stiffeners	*	—	—	—	—
18	L72	14	Channel bracket	†	—	—	—	—
19	D.T.D. 363.A	—	Beam	†	—	—	—	—
20	D.T.D. 363.A	—	Reinforcing piece	†	—	0-5	16 : 1	—
21	L65	300/SS.3075	Aft bottom angle	†	—	—	—	—
22	L72	12/SS.1793	Landing angle	†	0-050	6-0	—	—
23	L65	300/SS.3075	Half ring	†	—	—	—	—
24	L65	300/SS.3075	Joint angle	†	—	—	—	—
25	L72	16	Reinforcing channel	†	0-050	6-0	—	—
26	L65	—	Slings bracket	*	—	—	—	—
27	L72	486/SS.1793	Channel stiffener	†	—	—	—	—
28	L72	14	Strap plate	†	0-050	6-0	—	—
29	L72	10	Reinforcing plate	†	0-050	6-0	—	—
30	L72	511/SS.1793	Panel mounting member	†	0-10	6-0	0-25	8 : 1
31	L72	20	Suppressor Mounting bracket	†	0-050	6-0	0-5	8 : 1

All dimensions are quoted in inches.
 † More expedient to renew than repair.
 * No repair permitted.

Key to fig. 214

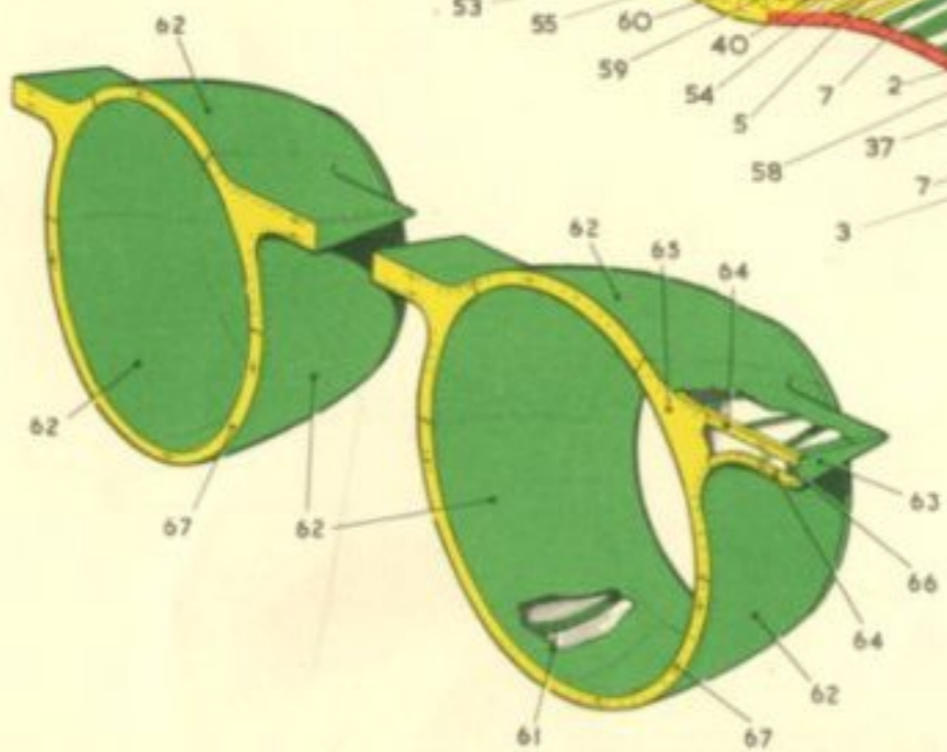
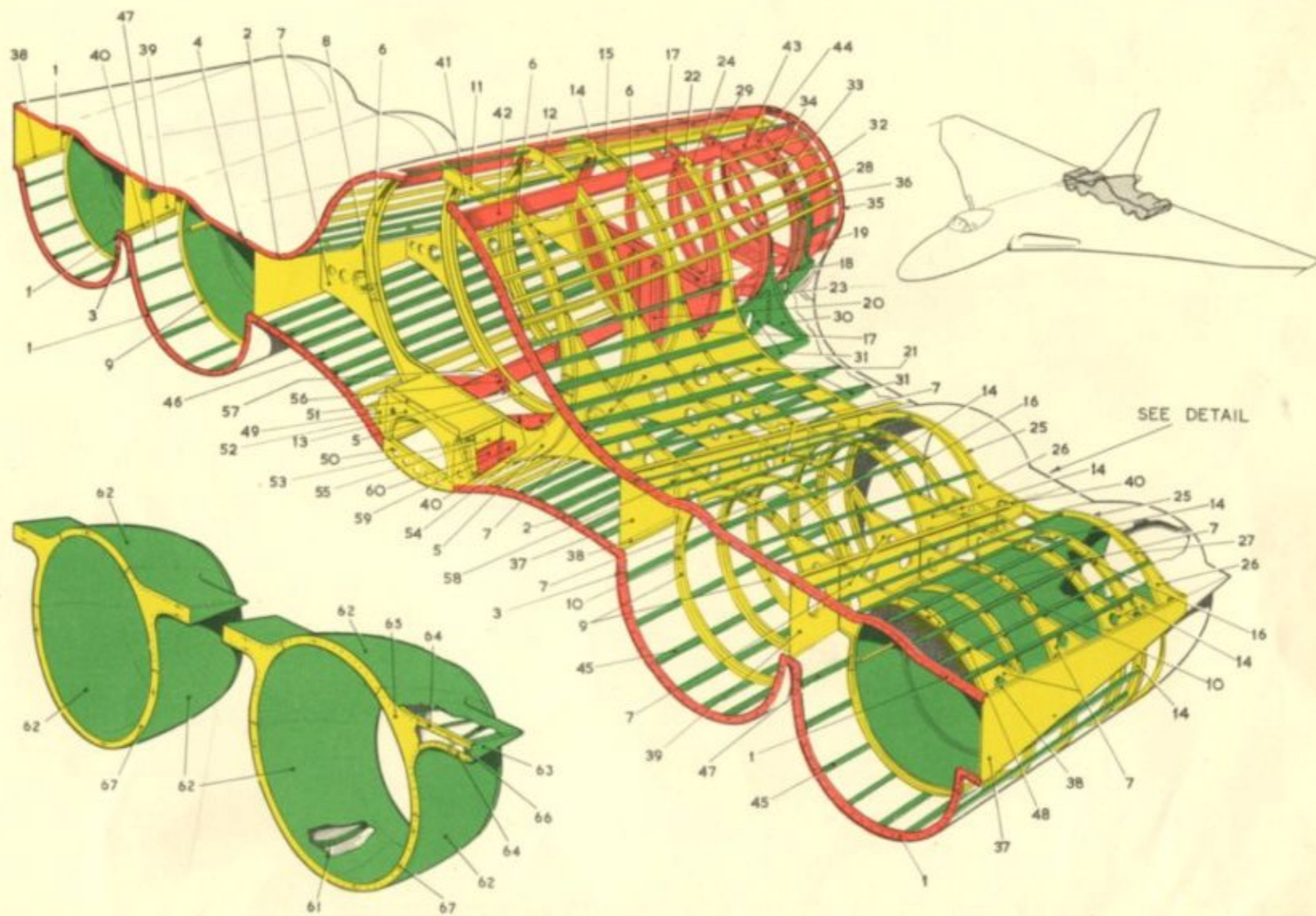
Item	Spec	Material S.W.G. or Section	Description	Depth	Negligible Damage		Holes	Pitch Ratio	Repair Fig.
					Dents Dist. Apart	Dia.			
1	L.65	316/SS.3075	Wing angles	* —	—	—	—	—	—
2	L.65	317/SS.3075	Wing angles	* —	—	—	—	—	—
3	L.72	8	Joint plates	* —	—	—	—	—	—
4	L.65	316/SS.3075	Joint angles	* —	—	—	—	—	—
5	L.72	18	Bottom member	0.10	2.5	0.25	6 : 1	107-108	—
6	L.72	18	Former side ring	0.10	2.5	0.25	6 : 1	108	—
7	L.72	20	Side and top members	0.15	2.5	0.25	4 : 1	—	—
8	L.72	18	Joint plate	† 0.10	2.5	—	—	—	—
9	L.72	20	Bottom member	0.10	3.0	—	—	—	—
10	L.72	20	Jointing channel	† 0.10	3.0	—	—	—	—
11	L.72	455/SS.1793	Intercostal	0.10	2.5	0.25	8 : 1	108-115	—
12	L.72	14	Frame top	0.10	2.5	0.25	8 : 1	108	—
13	L.72	446/SS.1793	Angle bottom member	0.10	3.0	—	—	108	—
14	L.72	16	Top member	0.10	2.5	0.25	8 : 1	108	—
15	L.72	12a/SS.1793	Angle	0.10	2.5	—	—	113	—
16	L.72	16	Jointing channel	† 0.10	2.5	—	—	—	—
17	L.72	455/SS.1793	Former top	0.05	3.0	—	—	108	—
18	L.72	18	Jointing channel	† 0.05	3.0	—	—	—	—
19	L.72	18	Channel	0.05	3.0	—	—	108	—
20	L.72	211/SS.1793	Vertical stiffeners	0.05	3.0	—	—	112	—
21	DTD.626	18	Web (side)	0.10	2.5	0.25	6 : 1	108	—
22	DTD.626	17	Web	0.10	2.5	0.25	6 : 1	108	—
23	L.72	875/SS.1793	Angle	0.10	2.5	—	—	—	—
24	L.72	20	Angle	0.10	2.5	—	—	—	—
25	L.72	359/SS.1793	Angle	0.10	2.5	—	—	—	—
26	L.72	20	Web	0.15	3.0	0.25	6 : 1	—	—
27	L.72	854/SS.1793	Web top centre	0.15	3.0	0.25	6 : 1	—	—
28	L.72	237/SS.1793	Former section	0.05	3.0	—	—	—	—
29	L.72	18	Former top	0.05	3.0	—	—	108	—
30	L.72	24	Former extension	0.20	2.0	0.25	4 : 1	108	—
31	L.72	24	Ribs	0.20	2.0	0.25	4 : 1	108	—
32	L.65	343/SS.3075	Angle	0.05	3.0	—	—	—	—
33	L.72	18	Angle	0.05	3.0	—	—	—	—
34	L.72	18	Web	0.05	3.0	—	—	—	—
35	L.65	313/SS.3075	Half former	—	—	—	—	—	—
36	L.72	12	Joint angle	* —	—	—	—	—	—
37	L.72	22	Web	0.15	3.0	0.25	6 : 1	—	—
38	L.65	356/SS.3075	Angle	0.10	3.0	—	—	—	—
39	L.72	20	Web	0.15	3.0	0.25	6 : 1	—	—
40	L.65	293/SS.3075	Angle	0.10	3.0	—	—	—	—
41	L.65	318/SS.3075	Stringer	0.10	2.5	—	—	—	—
42	L.72	14	Beam and channel	—	—	—	—	108	—
43	L.72	18	Beam	—	—	—	—	108	—
44	L.72	18	Attachment bracket	† —	—	—	—	—	—
45	L.72	582/SS.1793	Stringer (Z-section)	0.10	2.5	—	—	221	—
46	L.72	211/SS.1793	Stringer (top-hat)	0.10	2.5	—	—	112	—
47	L.65	337/SS.3075	Stringer (T-section)	0.05	3.0	—	—	—	—
48	L.65	309/SS.3075	Stringer (T-section)	0.10	2.5	—	—	—	—
49	L.72	20	Diaphragm	0.15	3.0	0.25	6 : 1	108	—
50	L.72	20	Cross member	0.15	3.0	0.25	6 : 1	108	—
51	L.72	16	Angle	0.05	3.0	—	—	—	—
52	L.72	20	Pressing	0.15	3.0	0.25	6 : 1	108	—
53	L.72	20	Aft hinge members	0.10	2.5	—	—	—	—
54	L.72	18	Web	0.10	2.5	0.25	8 : 1	—	—
55	L.72	18	Web	0.10	2.5	0.25	4 : 1	—	—
56	L.72	18	Attachment angle	* —	—	—	—	—	—
57	L.72	14	Beam	—	—	—	—	—	—
58	L.72	20	Angles	† 0.10	2.5	—	—	—	—
59	L.72	18	Joint bracket	0.10	2.5	0.25	6 : 1	115	—
60	L.72	14	Forward beam	—	—	—	—	—	—
61	S.3	981/SS.1793	Stiffener	0.05	3.0	—	—	—	—
62	S.3	24	Skins	0.05	3.0	—	—	—	—
63	L.72	20	Rib	† 0.05	3.0	—	—	—	—
64	L.65	358/SS.3075	Jet pipe formers	0.05	3.0	—	—	—	—
65	L.72	20	Former skin	0.05	3.0	—	—	—	—
66	L.72	16	Packing	* 0.05	3.0	—	—	—	—
67	L.72	854/SS.1793	Web bottom angle	0.05	3.0	—	—	—	—

All dimensions are quoted in inches.

† More expedient to replace than repair.

* No repairs permitted.

RESTRICTED



JET PIPE CAPS

FIG. 214. REAR FUSELAGE STRUCTURE RESTRICTED

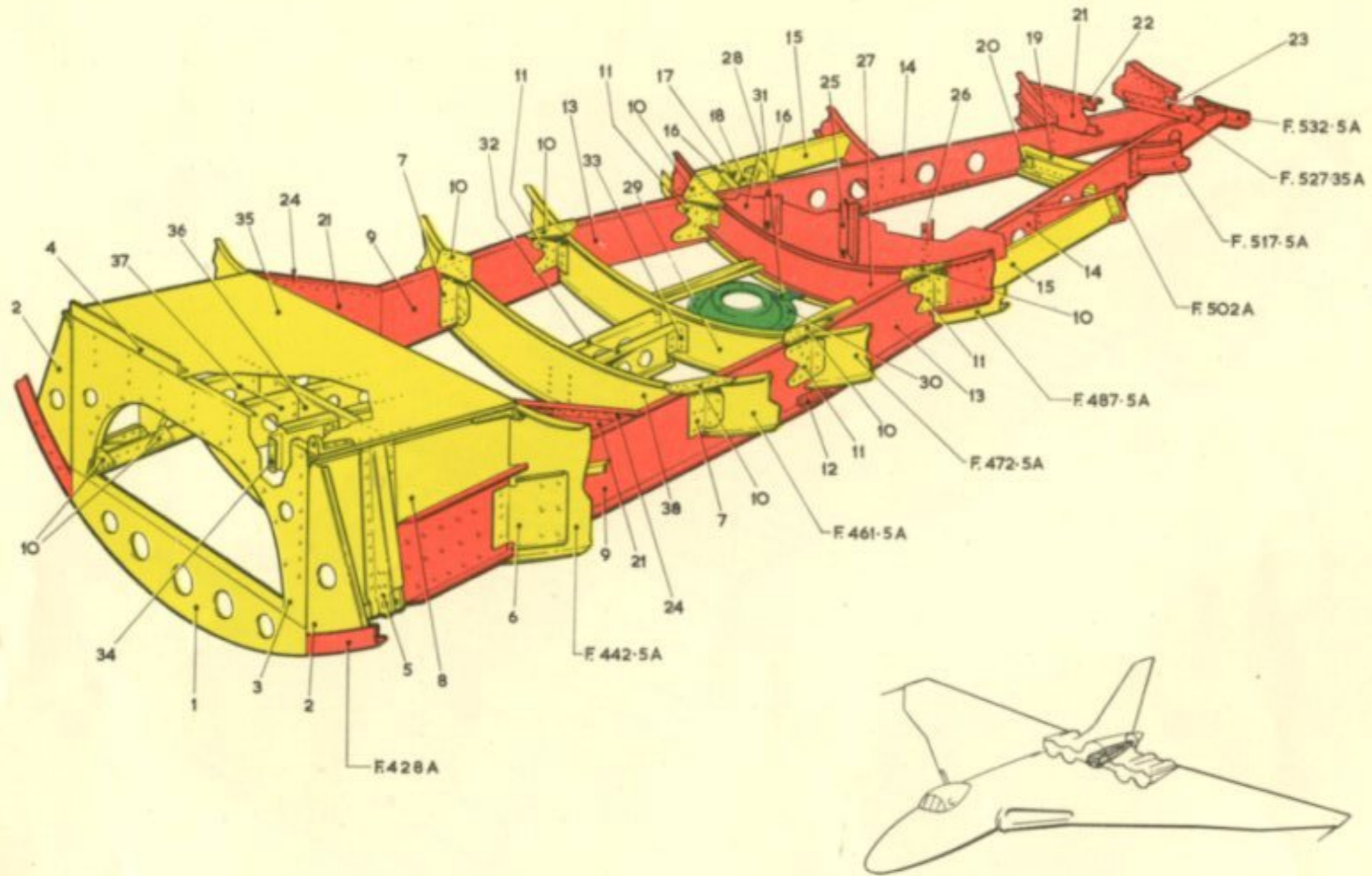


FIG. 215. REAR FUSELAGE - BOTTOM STRUCTURE
 RESTRICTED

KEY TO FIG. 215

Item	Material Specification	S.W.G. or Section	Description	Negligible Damage				Repair Figure
				Depth	Dents Distance Apart	Holes Diameter	Pitch Ratio	
1	L72	20	Cross member	0.15	3.0	0.25	6 : 1	108
2	L72	20	Diaphragm	0.15	3.0	0.25	6 : 1	108
3	L72	20	Pressing	0.15	3.0	0.25	6 : 1	108
4	L72	16	Angle	0.05	3.0	—	—	—
5	L72	20	Aft hinge member	0.10	2.5	—	—	—
6	L72	18	Joint bracket	0.10	2.5	0.25	6 : 1	115
7	L72	18	Attachment angle	†	0.10	2.5	0.25	6 : 1
8	L72	18	Web	†	0.10	2.5	0.25	4 : 1
9	L72	14	Forward beam	—	—	—	—	—
10	L72	18	Gusset plate	†	0.10	2.5	—	—
11	L72	16	Attachment angle	†	0.10	2.5	0.25	6 : 1
12	S.3 or S.84	20	Joint angle	*	—	—	—	—
13	L72	16	Aft beam	0.05	3.0	0.25	6 : 1	—
14	L72	16	Tail bumper aft beam	0.05	3.0	0.25	6 : 1	—
15	L72	18	Intercostal	0.05	3.0	0.25	6 : 1	108, 115
16	L72	16	Intercostal	0.05	3.0	0.25	6 : 1	115
17	L65	254/SS.3075	Attachment angle	†	0.05	3.0	—	—
18	L65	255/SS.3075	Attachment angle	†	0.05	3.0	—	—
19	L72	18	Attachment channel	†	0.10	2.5	0.25	8 : 1
20	L72	18	Attachment angle	†	0.10	2.5	—	—
21	L72	18	Web	†	0.05	3.0	0.25	8 : 1
22	L65	294/SS.3075	Angle	—	—	—	—	—
23	L65	344/SS.3075	Forward angle	—	—	—	—	—
24	L65	293/SS.3075	Angle	—	—	—	—	—
25	L72	211/SS.1793	Stiffener	0.05	3.0	—	—	112
26	L72	16	Vent angle	0.05	3.0	—	—	—
27	L72	455/SS.1793	Bottom half former	0.05	3.0	—	—	—
28	D.T.D. 626	18	Web	0.05	3.0	—	—	—
29	L72	455/SS.1793	Half former	0.10	2.5	0.25	8 : 1	108
30	L72	18	Mounting ring	0.05	3.0	—	—	—
31	L72	16	Attachment bracket	†	0.05	3.0	—	—
32	L72	432/SS.1793	Intercostal	†	0.10	2.5	0.25	8 : 1
33	L72	12d/SS.1793	Attachment bracket	†	0.10	2.5	—	105, 108
34	L72	20	Angles	†	0.10	2.5	—	—
35	L72	20	Skin	0.15	3.0	0.25	6 : 1	—
36	L72	20	Support arch pressing	0.15	3.0	0.25	6 : 1	108
37	L72	20	Intercostal	0.15	3.0	0.25	6 : 1	108-115
38	L72	18	Frame bottom	0.10	2.5	0.25	8 : 1	108-115

All dimensions are quoted in inches.

† More expedient to renew than repair.

* No repairs permitted.

RESTRICTED

(A.L.9, Mar. 53)

KEY TO FIG. 216

Item	Spec.	Material S.W.G. or Section	Description	Dents Depth	Negligible Damage		Holes Pitch Ratio	Repair Fig.
					Dist. Apart	Dia.		
1	L.65	313/SS.3075	Half former	—	—	0.125	4 : 1	—
2	L.72	12	Joint angle	*	—	—	—	—
3	L.72	12	Reinforcing angle	†	—	—	—	—
4	L.65	277/SS.3075	Aft Stiffener	†	—	—	—	—
5	L.72	10	Joint plate	*	—	—	—	—
6	L.72	20	Skin Attachment angle	0.05	3.0	0.125	4 : 1	—
7	L.65	343/SS.3075	Outer angle	0.05	3.0	0.125	4 : 1	—
8	L.72	18	Web	0.05	3.0	0.25	8 : 1	—
9	L.65	343/SS.3075	Angle joint plate	*	—	—	—	—
10	L.72	18	Joint plate	*	—	—	—	—
11	L.65	365/SS.3075	Stiffener	0.05	3.0	0.125	4 : 1	—
12	L.65	294/SS.3075	Reinforcing angle	0.05	3.0	0.125	4 : 1	—
13	L.72	18	Reinforcing angle	† 0.05	3.0	0.125	4 : 1	—
14	L.72	20	Strap plate	†	—	—	—	—
15	L.72	347/SS.1793	Angle	† 0.10	2.5	0.25	4 : 1	—
16	L.72	18	Reinforcing angle	† 0.10	2.5	0.25	4 : 1	—
17	L.72	18	Angle	† 0.10	2.5	0.25	4 : 1	—
18	L.72	14	Packing	0.05	3.0	0.125	8 : 1	—
19	L.72	14	Packing	0.05	3.0	0.25	4 : 1	—
20	L.72	211/SS.1793	Stringer, "Top hat"	0.05	3.0	0.125	4 : 1	112
21	L.65	318/SS.3075	Stringer, "T" section	0.05	3.0	0.125	4 : 1	—
22	DTD.124A	10	Attachment bracket	*	—	—	—	—
23	S.3	22	Parachute cable trough	0.20	3.0	—	—	—
24	L.72	14	Web	0.050	3.0	0.25	8 : 1	—
25	L.65	222/SS.3075	Top Boom	—	—	—	—	—
26	DTD.130A	269/SS.3075	Bottom Boom	—	—	—	—	—
27	L.72	16	Attachment bracket	† 0.10	2.5	—	—	—
28	L.65	300/SS.3075	Attachment angle	† 0.10	2.5	—	—	—
29	L.72	18	Top former	0.05	3.0	0.25	8 : 1	108
30	L.72	455/SS.1793	Top former	0.05	3.0	0.25	8 : 1	108
31	L.72	20	Angle	0.05	3.0	—	—	—
32	L.72	386/SS.1793	Inner angle	0.05	3.0	—	—	—
33	DTD.626	17	Web	0.05	3.0	0.25	8 : 1	—
34	L.72	18	Channel	0.10	2.5	0.25	4 : 1	—
35	L.72	20	Lipped section	0.05	3.0	0.25	4 : 1	—
36	L.72	18	Door formers	0.05	2.5	0.25	8 : 1	—
37	L.72	18	Door aft member	0.10	2.5	0.5	8 : 1	—
38	L.72	20	Door outer skin	0.15	2.5	—	—	103-104
39	L.72	22	Door inner skin	0.15	2.5	—	—	103-104
40	L.72	20	Gusset plate	† 0.05	2.5	0.125	8 : 1	—
41	L.72	18	Door member "Z" section	0.05	2.5	0.125	8 : 1	—
42	L.65	—	Bracket	*	—	—	—	—
43	L.72	20	Access panel	0.20	2.5	—	—	103-104
44	L.72	20	Removable base panel	0.20	2.5	—	—	103-104
45	L.72	18/SS.1793	Stiffener	0.050	2.5	0.125	8 : 1	—
46	L.72	20	Forward side panel	0.20	2.5	—	—	103-104
47	L.63	20	Tube	†	—	0.125	8 : 1	—
48	L.72	18	Plate	† 0.05	2.5	—	—	—
49	S.97	—	Jettison hook assembly	*	—	—	—	—
50	DTD.124A	8	Side plates	*	—	—	—	—
51	L.72	16	Web	0.10	3.0	0.25	8 : 1	—
52	L.72	18	Attachment angle	†	—	—	—	—
53	L.72	16	Attachment angle	† 0.05	3.0	—	—	—
54	L.72	18	Beam	0.05	3.0	0.25	12 : 1	—
55	L.72	16	Attachment bracket	†	—	—	—	—
56	L.72	20	Container—aft side	0.20	2.5	—	—	103-104
57	L.72	20	Base angle	0.10	2.5	0.125	8 : 1	—

All dimensions are quoted in inches.

† More expedient to renew than repair.

* No repairs permitted.

RESTRICTED

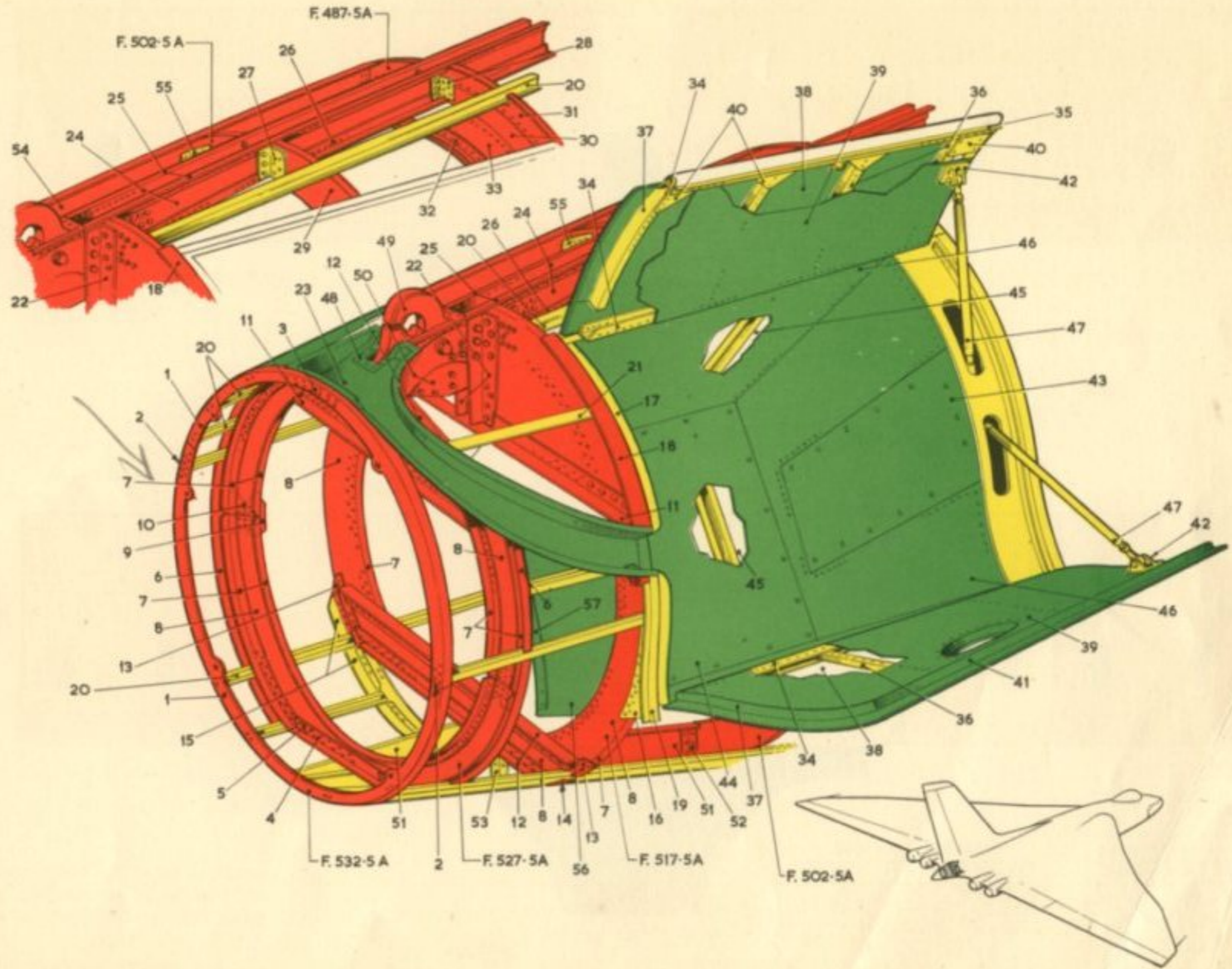
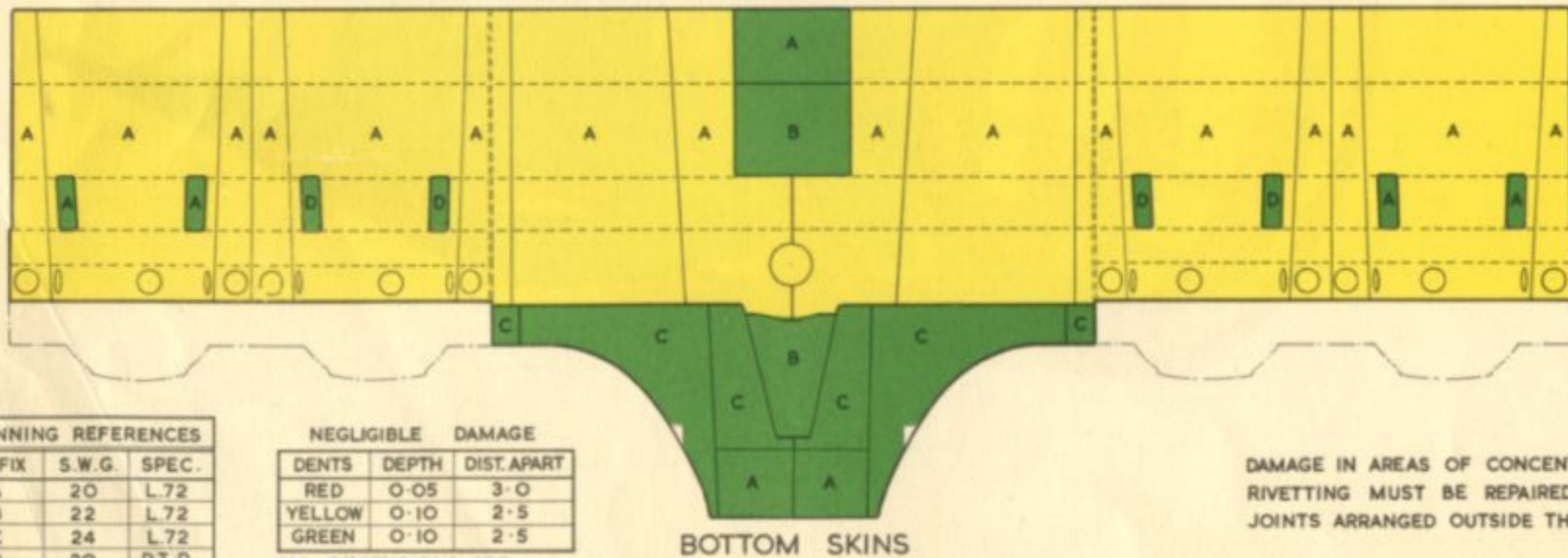
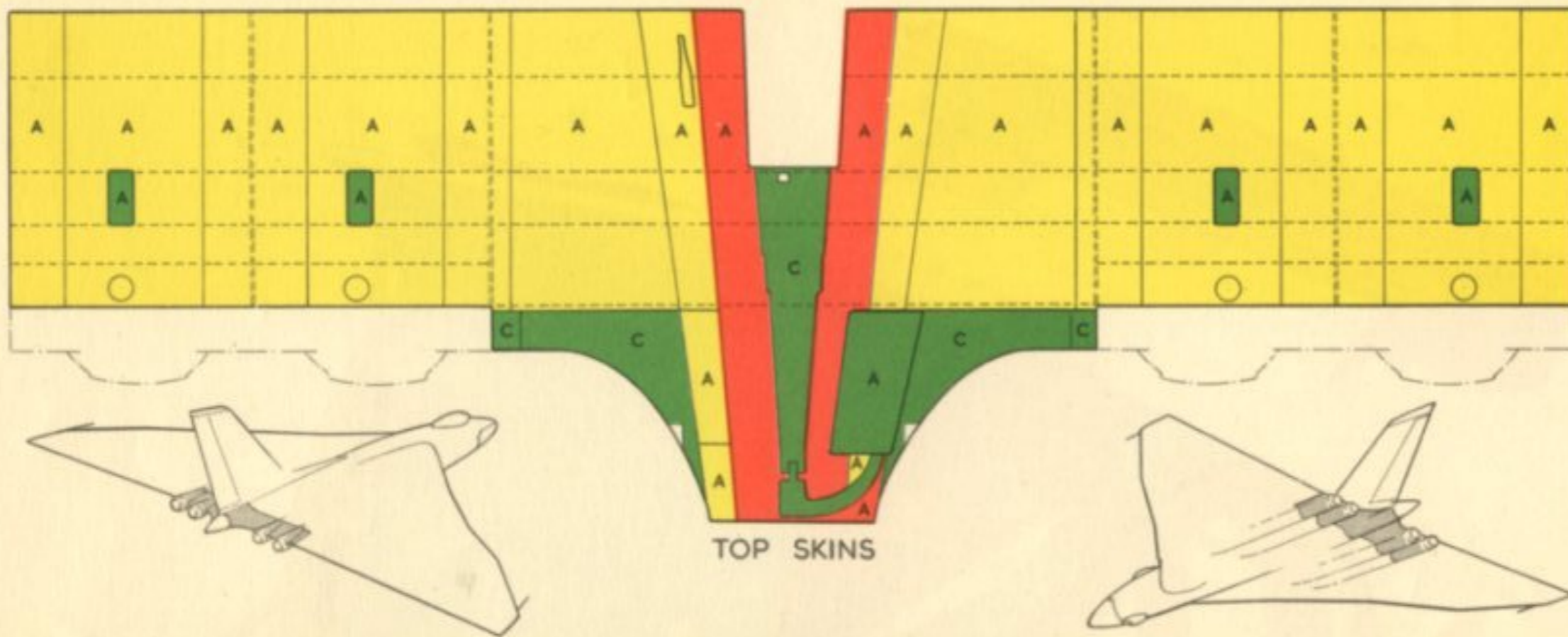


FIG. 216 TAIL PARACHUTE COMPARTMENT - REAR FUSELAGE RESTRICTED



SKINNING REFERENCES		
PREFIX	S.W.G.	SPEC.
A	20	L.72
B	22	L.72
C	24	L.72
D	20	D.T.D. 171.55

NEGLECTIBLE DAMAGE		
DENTS	DEPTH	DIST. APART
RED	0.05	3.0
YELLOW	0.10	2.5
GREEN	0.10	2.5

ALL DIMENSIONS ARE QUOTED IN INCHES

DAMAGE IN AREAS OF CONCENTRATED RIVETTING MUST BE REPAIRED WITH JOINTS ARRANGED OUTSIDE THE AREA

SKIN REPAIRS SEE FIG. 103-104

FIG. 217 REAR SECTION FUSELAGE—SKINNING

RESTRICTED

KEY TO FIG. 218

Item	Material Specification	S.W.G. or Section	Description	Negligible Damage				Repair Figure
				Dents Depth	Distance Apart	Holes Diameter	Pitch Ratio	
1	L72	14	Former 532.5	0.05	4.0	—	—	114
2	L72	14	Reinforcing angle	†	0.05	4.0	—	—
3	L72	16	Strap plate	0.05	4.0	—	—	—
4	L72	16	Skin	0.1	4.0	—	—	103
5	L72	20	Former	0.05	4.0	—	—	114
6	L72	20	Joint angle	†	0.05	4.0	—	—
7	L72	16	Former	0.05	4.0	—	—	114
8	L72	16	Joint angle	†	0.05	4.0	—	—
9	L72	10	Packing	†	—	—	—	—
10	L72	20	Gusset	†	0.05	4.0	—	—
11	L72	16	Door	†	0.1	4.0	—	—
12	L72	20	Reinforcing ring	0.05	4.0	—	—	—
13	L72	16	Door	0.1	4.0	—	—	103
14	L72	22	Reinforcing ring	0.05	4.0	—	—	—

All dimensions are quoted in inches.
 † More expedient to replace than repair.

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(A.L.9, Mar. 58)

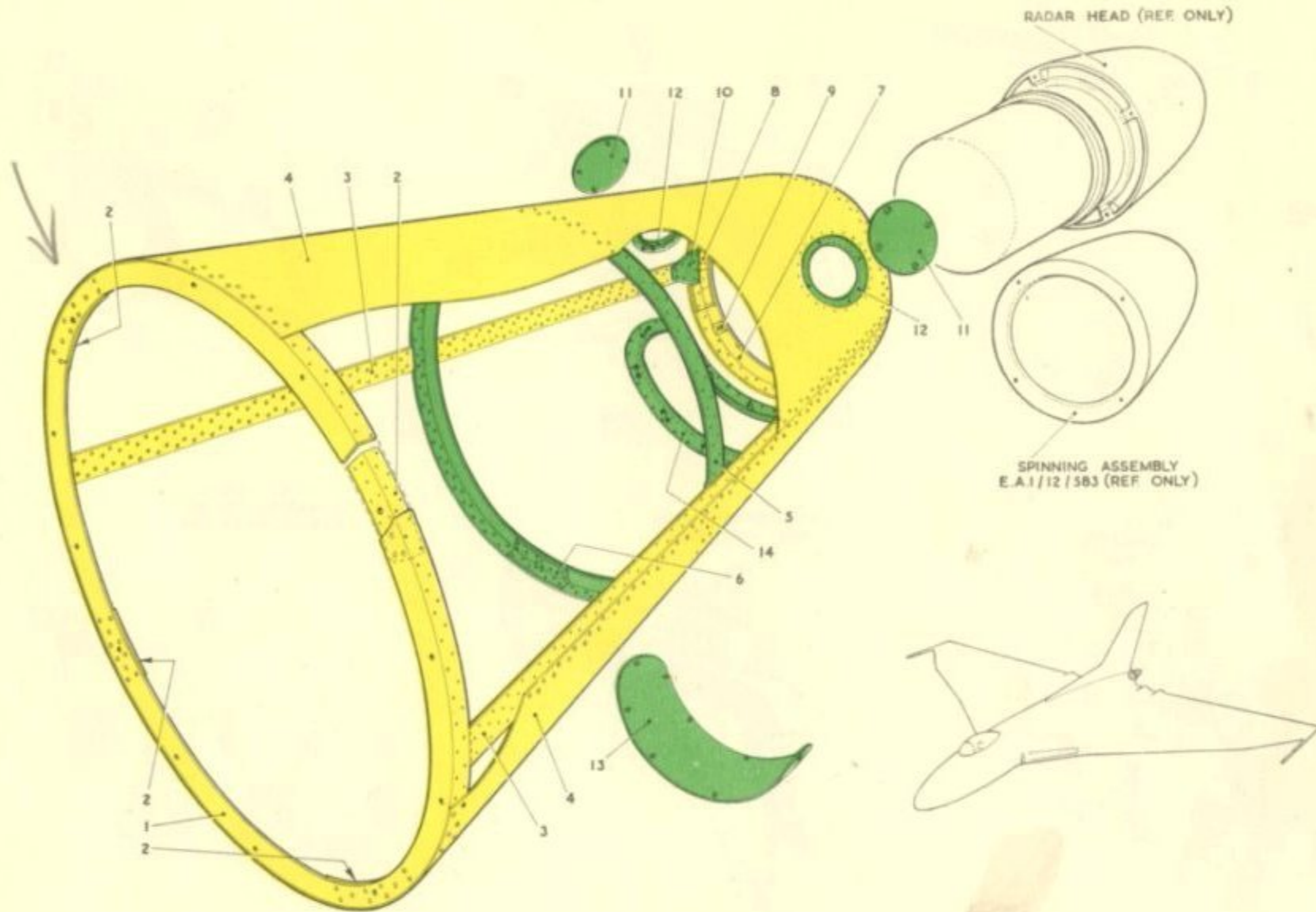
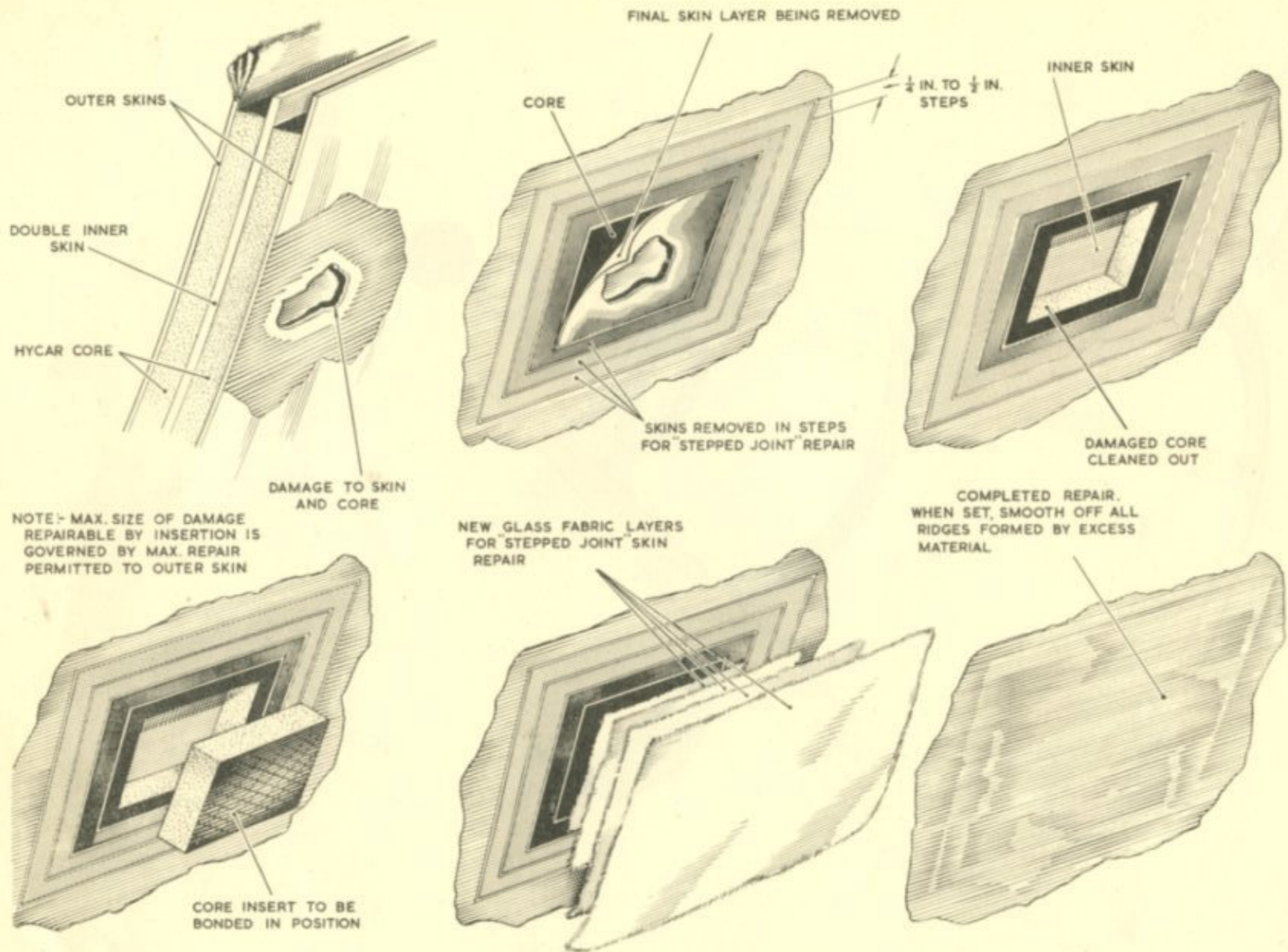


FIG 218. TAIL CONE
RESTRICTED

(AL 9, Mar. 58)



NOTE: MAX. SIZE OF DAMAGE REPAIRABLE BY INSERTION IS GOVERNED BY MAX. REPAIR PERMITTED TO OUTER SKIN

NEW GLASS FABRIC LAYERS FOR "STEPPED JOINT" SKIN REPAIR

COMPLETED REPAIR. WHEN SET, SMOOTH OFF ALL RIDGES FORMED BY EXCESS MATERIAL

FIG. 219. TYPICAL RADOME REPAIR
RESTRICTED

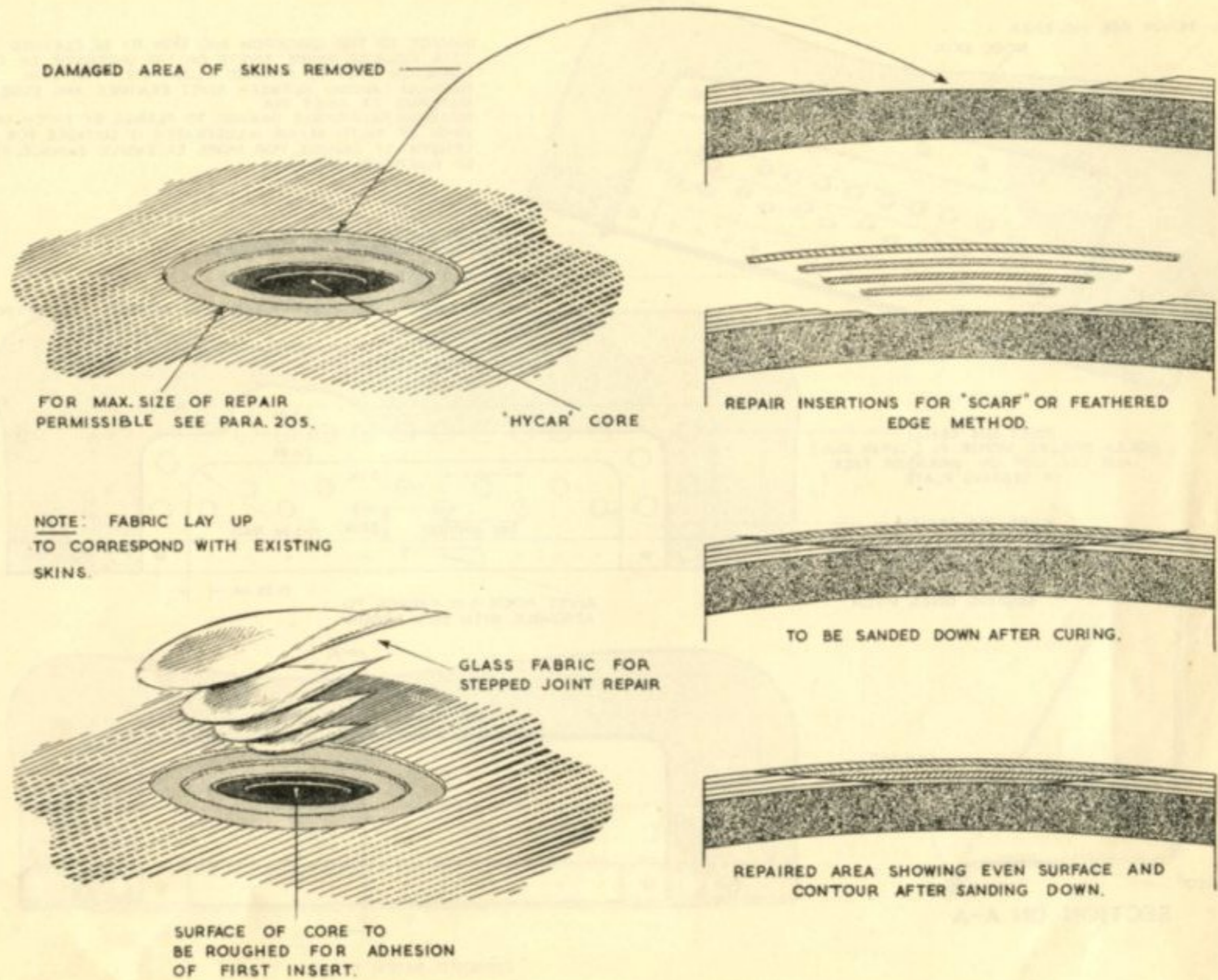
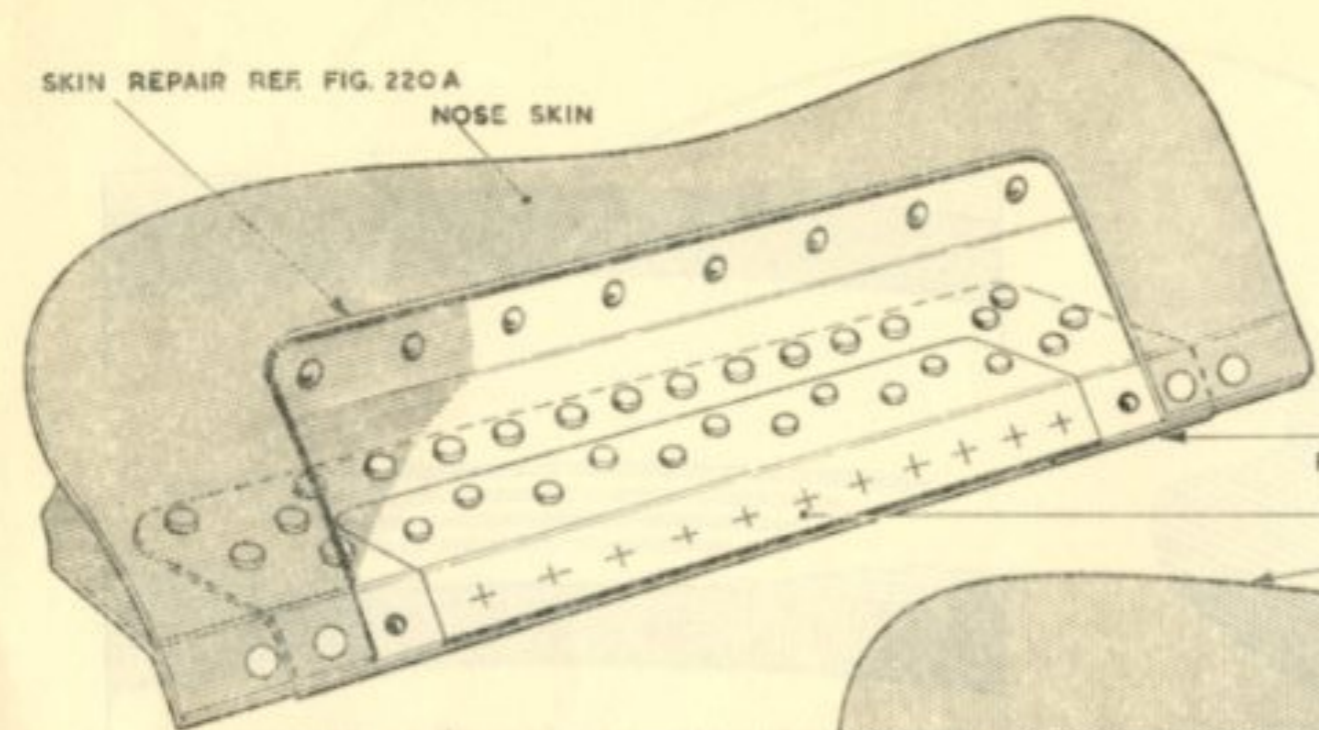


Fig. 219A. Radome repair—inner and outer skins

RESTRICTED

SKIN REPAIR REF. FIG. 220A
NOSE SKIN



DAMAGE TO THE LONGERON AND SKIN TO BE CLEANED OUT, TO A REGULAR SHAPE. RIVETS ON THE UNDERSIDE OF THE LONGERON MUST BE FINISHED FLUSH WITH THE SKIN. MINIMUM LANDING BETWEEN RIVET CENTRES AND EDGE OF MATERIAL 2X RIVET DIA. MAXIMUM REPAIRABLE DAMAGE TO FLANGE BY PATCH UP TO 50% OF WIDTH. REPAIR ILLUSTRATED IS SUITABLE FOR ANY LENGTH OF DAMAGE. FOR MORE EXTENSIVE DAMAGE, REPAIR BY INSERTION FIG. 220B

SEATING PLATE 18 SWG SPEC. L.72
FITTED ON UNDERSIDE OF LONGERON

FILLER PLATE 18 SWG SPEC. L.72

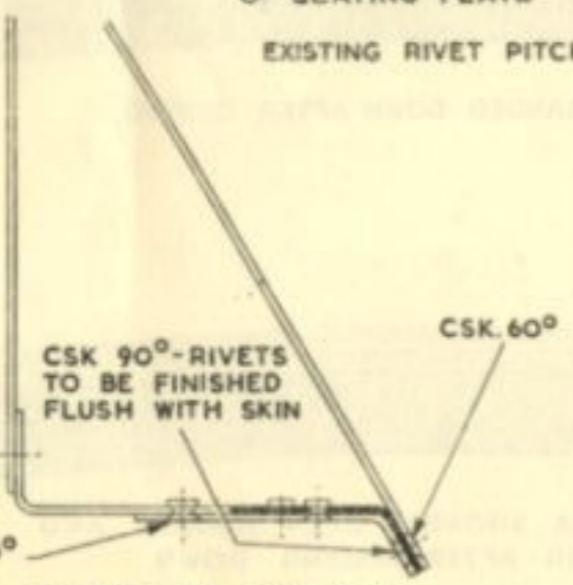
NOSE SKIN RIVET PITCH .6 IN. APPROX. 0.3 IN. RAD.

RIVET 304 SS4141
HOLES DRILLED MORSE 21 (.159 IN. DIA.)
AND CSK. 120° ON UNDERSIDE FACE
OF SEATING PLATE

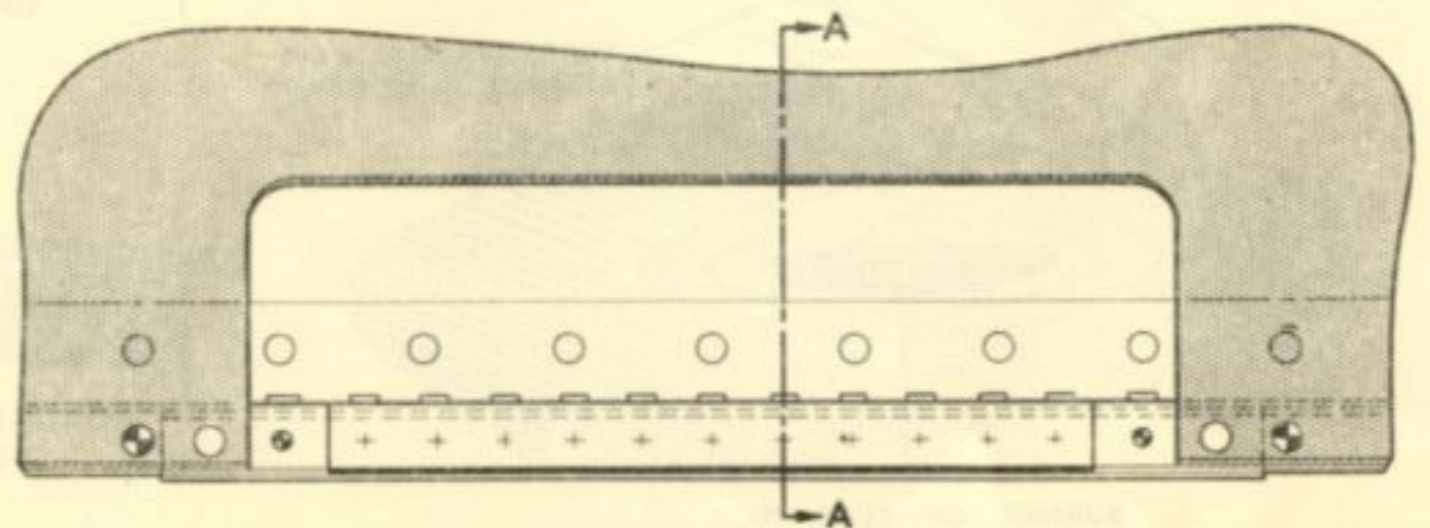
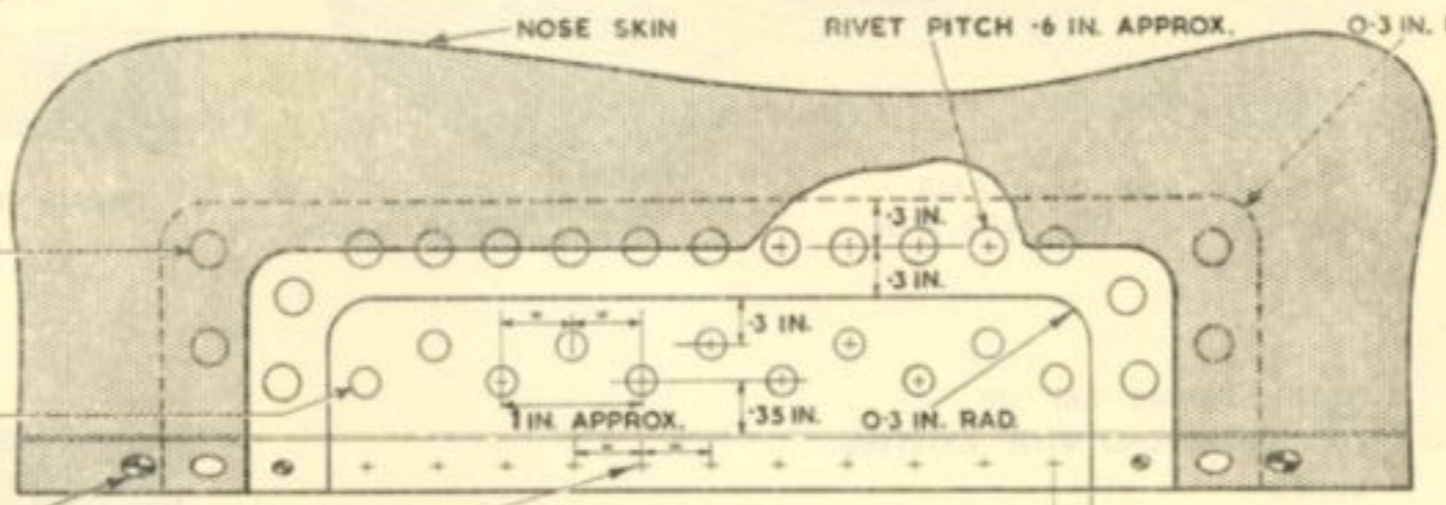
RIVET 404 SS4141
HOLES DRILLED MORSE 30 (.1285 IN. DIA.)
AND CSK. 120° ON UNDERSIDE FACE
OF SEATING PLATE

EXISTING RIVET PITCH

RIVET PITCH .5 IN. APPROX. TO
ASSEMBLE WITH SKIN REPAIR



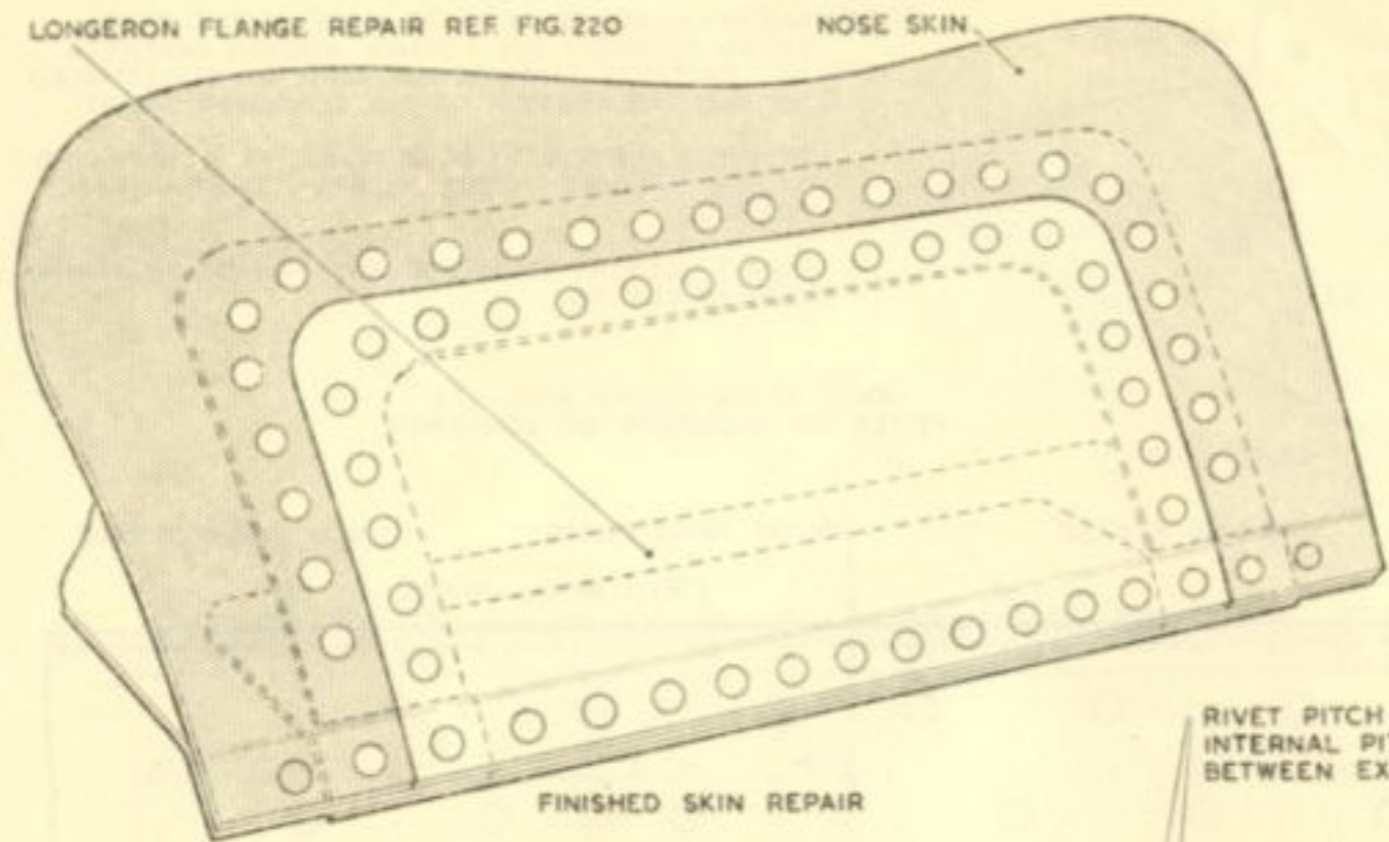
SECTION ON A-A



FINISHED PATCH REPAIR

Fig. 220. Repair to nose longeron flange

RESTRICTED



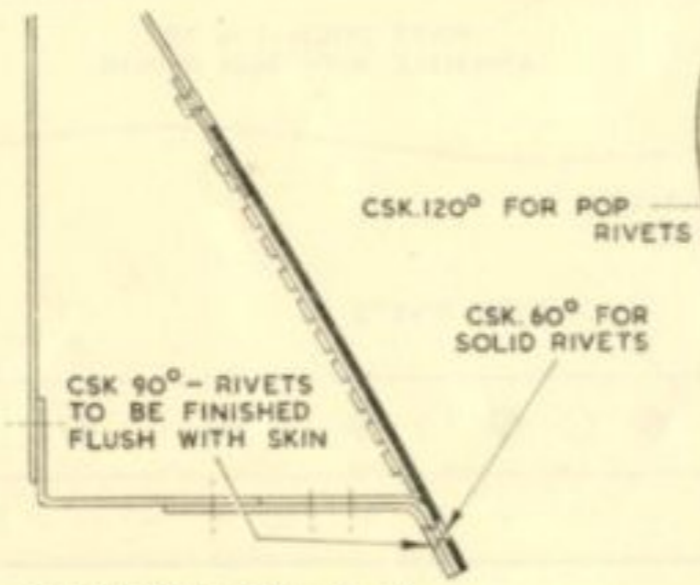
DAMAGE TO SKIN TO BE CLEANED OUT TO A REGULAR SHAPE

REPAIR ILLUSTRATED IS SUITABLE FOR ANY LENGTH OF DAMAGE TO SKIN ADJACENT TO LONGERON

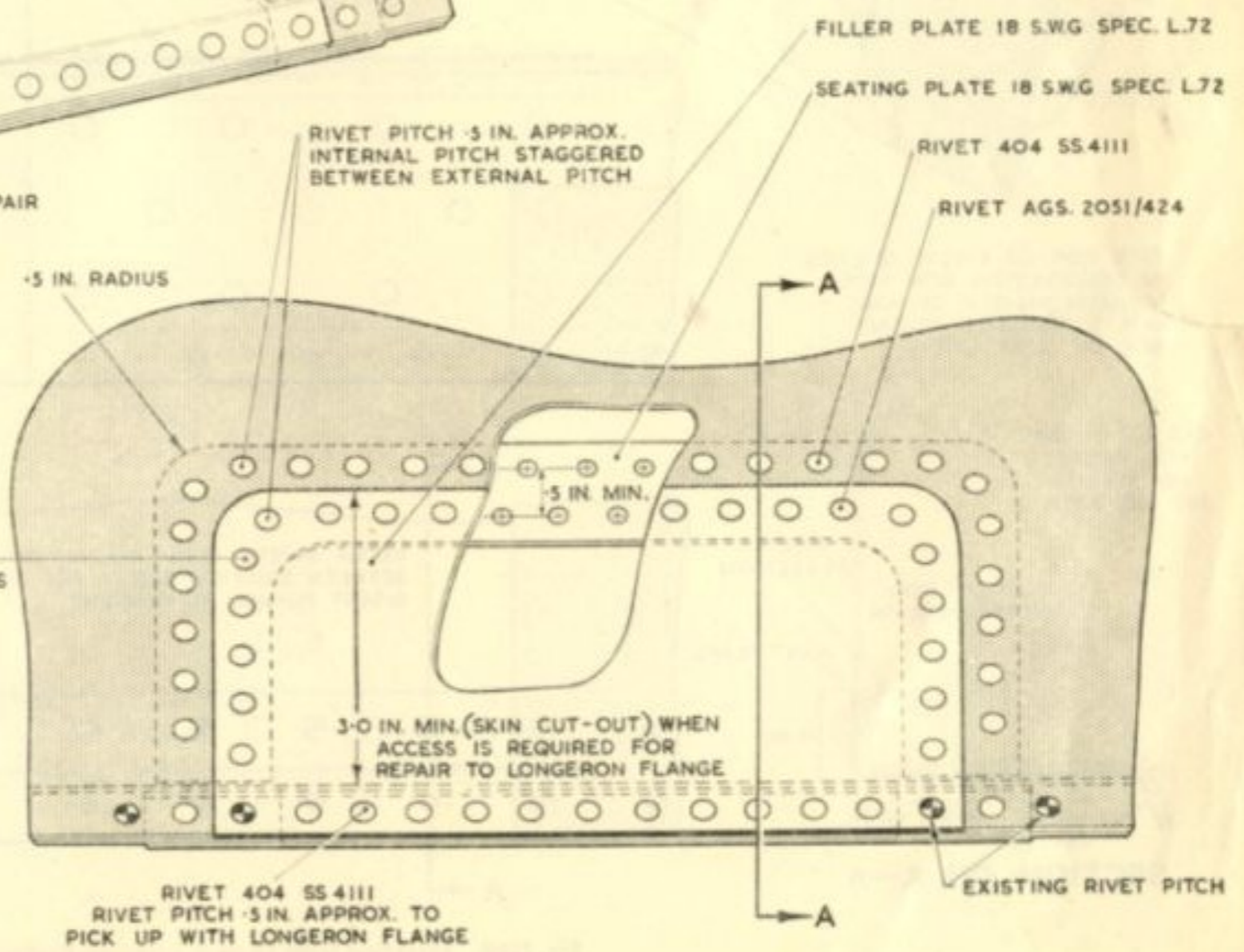
MINIMUM LANDING BETWEEN RIVET CENTRES AND EDGE OF MATERIAL 2X RIVET DIA.

POP RIVETS MUST BE FILLED WITH APPROVED FILLERS (REFER TO CHAP.1)

FINISHED SKIN REPAIR



SECTION ON A-A

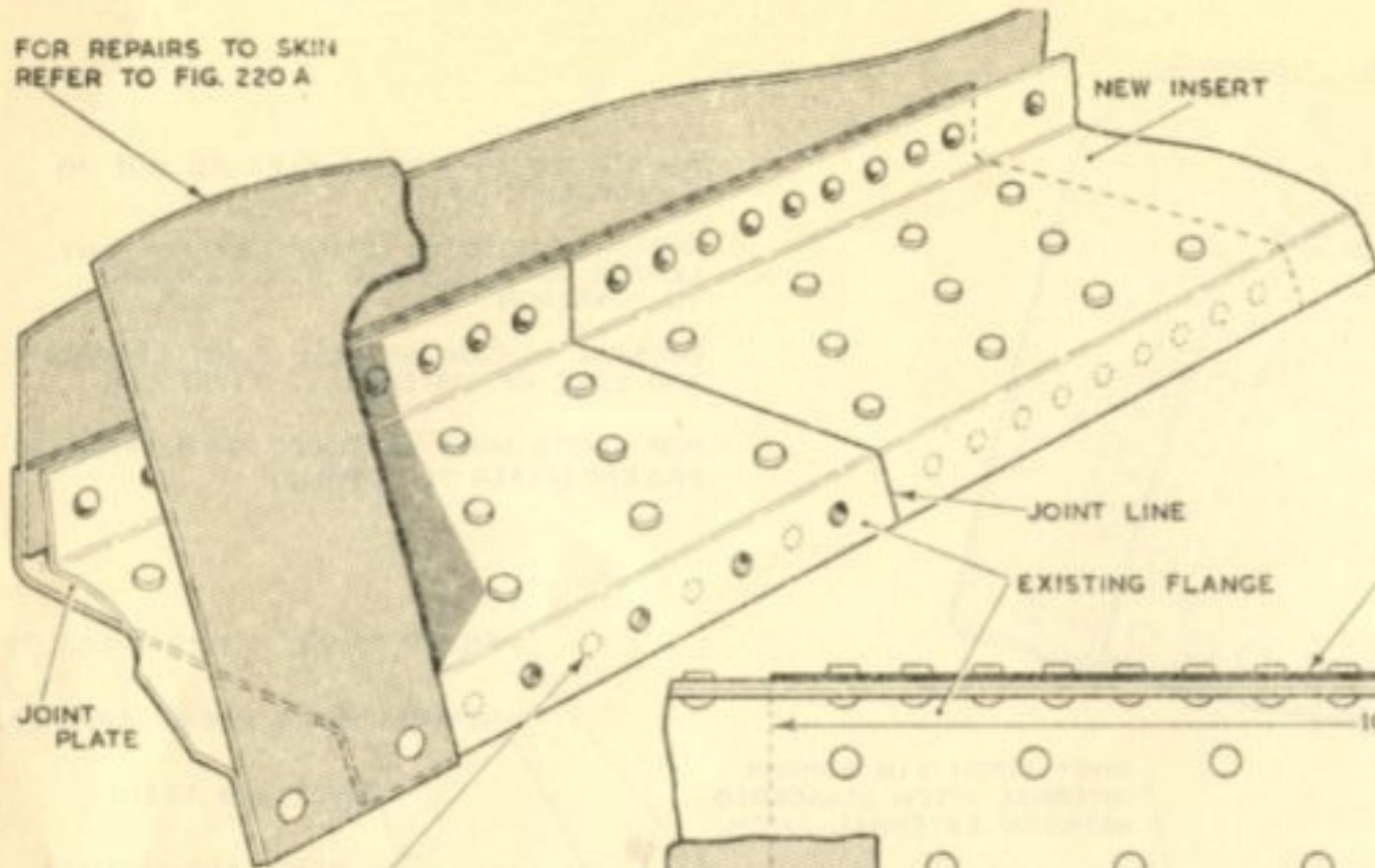


RIVET 404 SS4111
RIVET PITCH 5 IN. APPROX. TO PICK UP WITH LONGERON FLANGE

Fig. 220A. Repair to nose longeron skin

RESTRICTED

FOR REPAIRS TO SKIN
REFER TO FIG. 220A

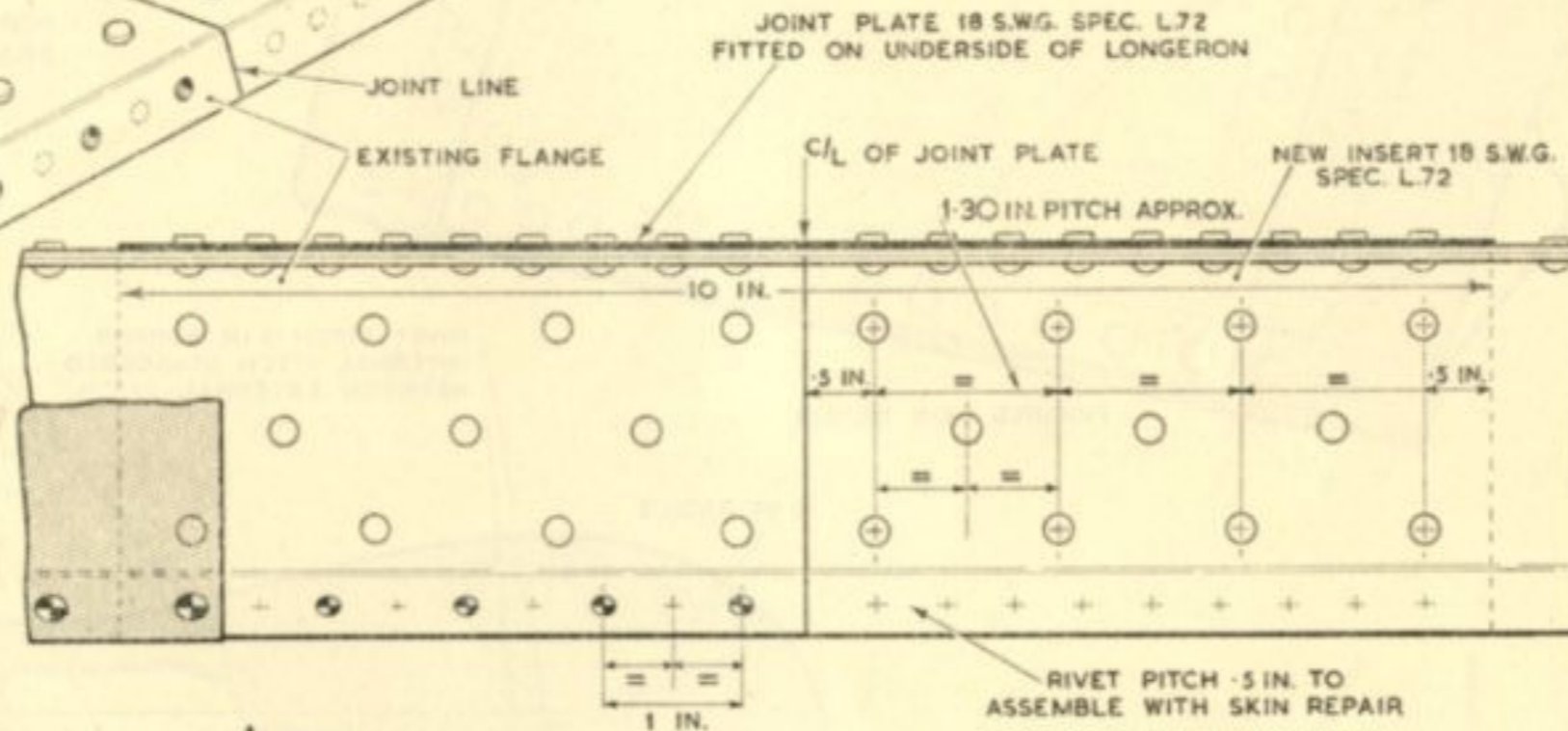


NOTE:- INSERTION JOINTS MUST BE MADE IN THE FREE
AREAS BETWEEN THE FORMER STATION BRACKETS.
ALL BRACKETS, FITTINGS, ETC., MUST BE REASSEMBLED
ON THE NEW PORTION OF THE LONGERON INSERT.

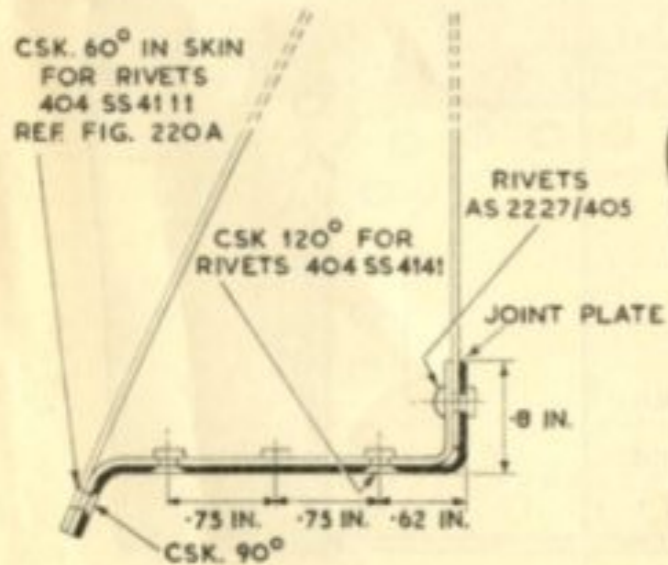
DAMAGED PORTION TO BE REMOVED AS ILLUSTRATED
AT C/L OF JOINT I.E. CUT BETWEEN EXISTING RIVET
PITCHES.

REPAIR ILLUSTRATED IS FOR ANY DAMAGE EXCEEDING
10 IN. IN LENGTH

THIS ROW OF RIVETS DRILLED
IN CONJUNCTION WITH SKIN.
MINIMUM NUMBER OF NINE
RIVETS REQUIRED AT EACH
SIDE OF JOINT LINE



CSK. 60° IN SKIN
FOR RIVETS
404 SS4111
REF FIG. 220A



SECTION ON A-A

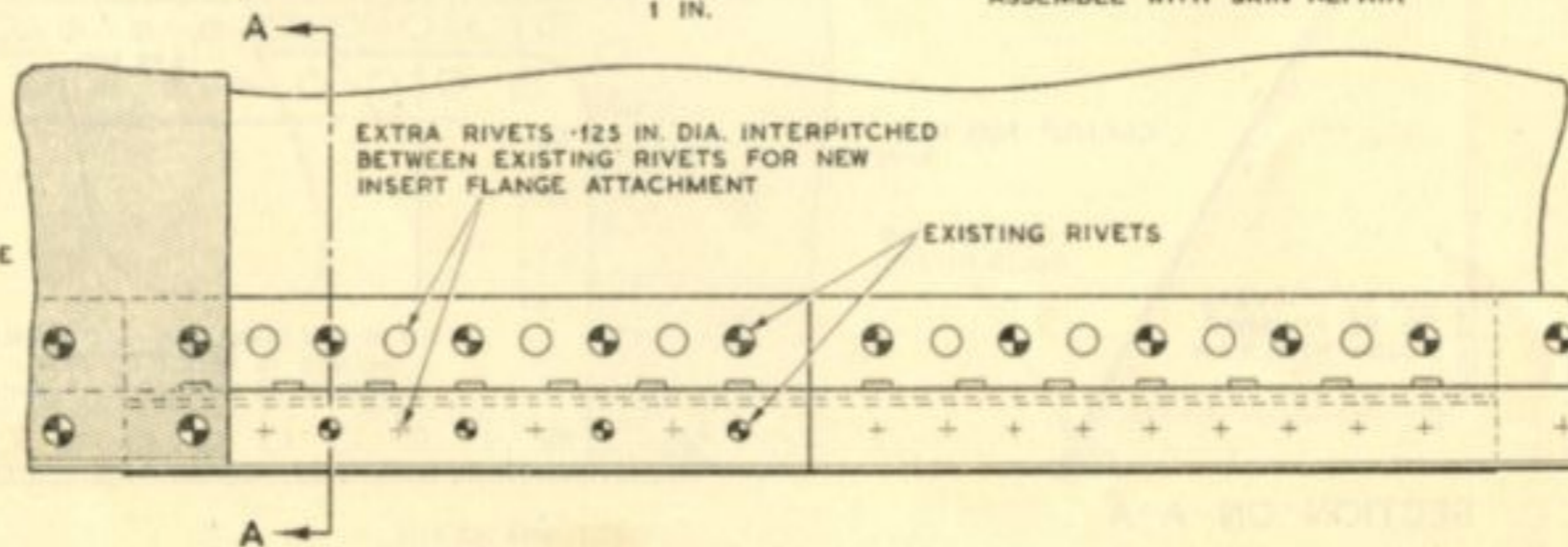


Fig. 220B. Insertion joint to nose longeron flange

RESTRICTED

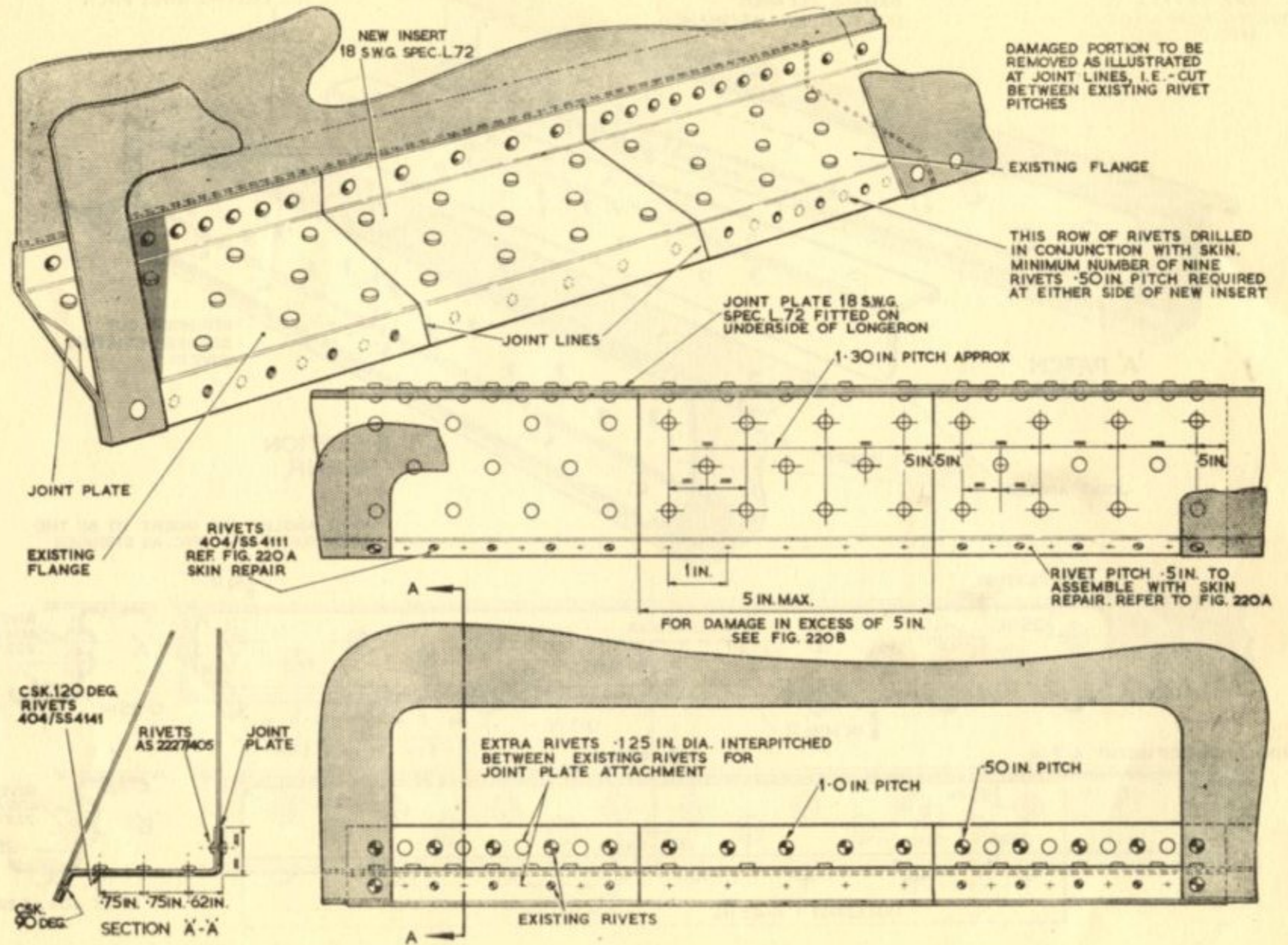
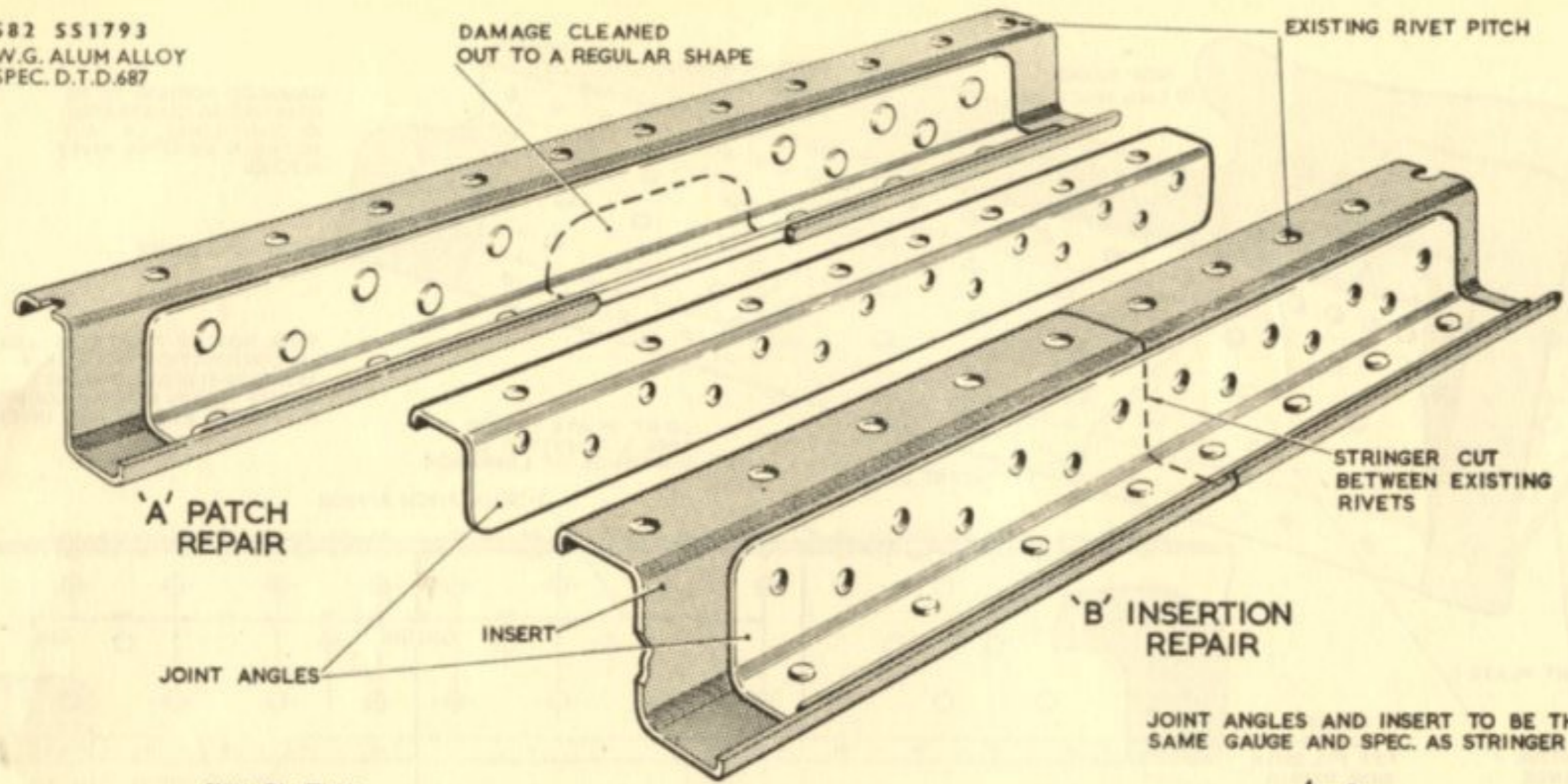


Fig. 220C. Patch insertion repair — nose longeron

RESTRICTED

582 551793
 20 S.W.G. ALUM ALLOY
 SPEC. D.T.D.687



JOINT ANGLES AND INSERT TO BE THE SAME GAUGE AND SPEC. AS STRINGER

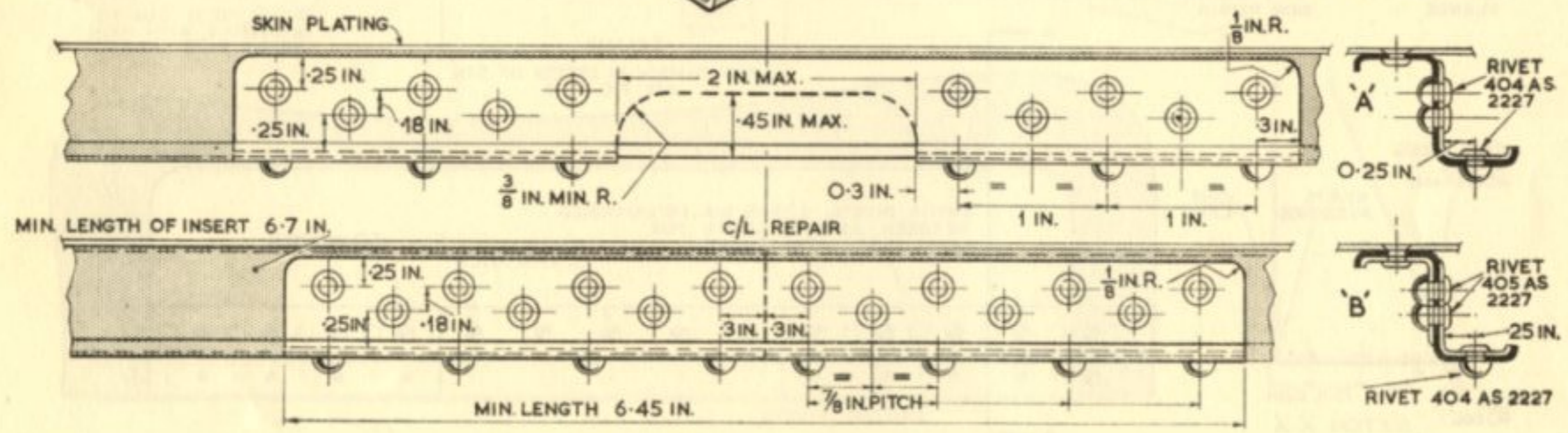


Fig. 221. Patch and insertion repairs to 'Z' section stringers

RESTRICTED

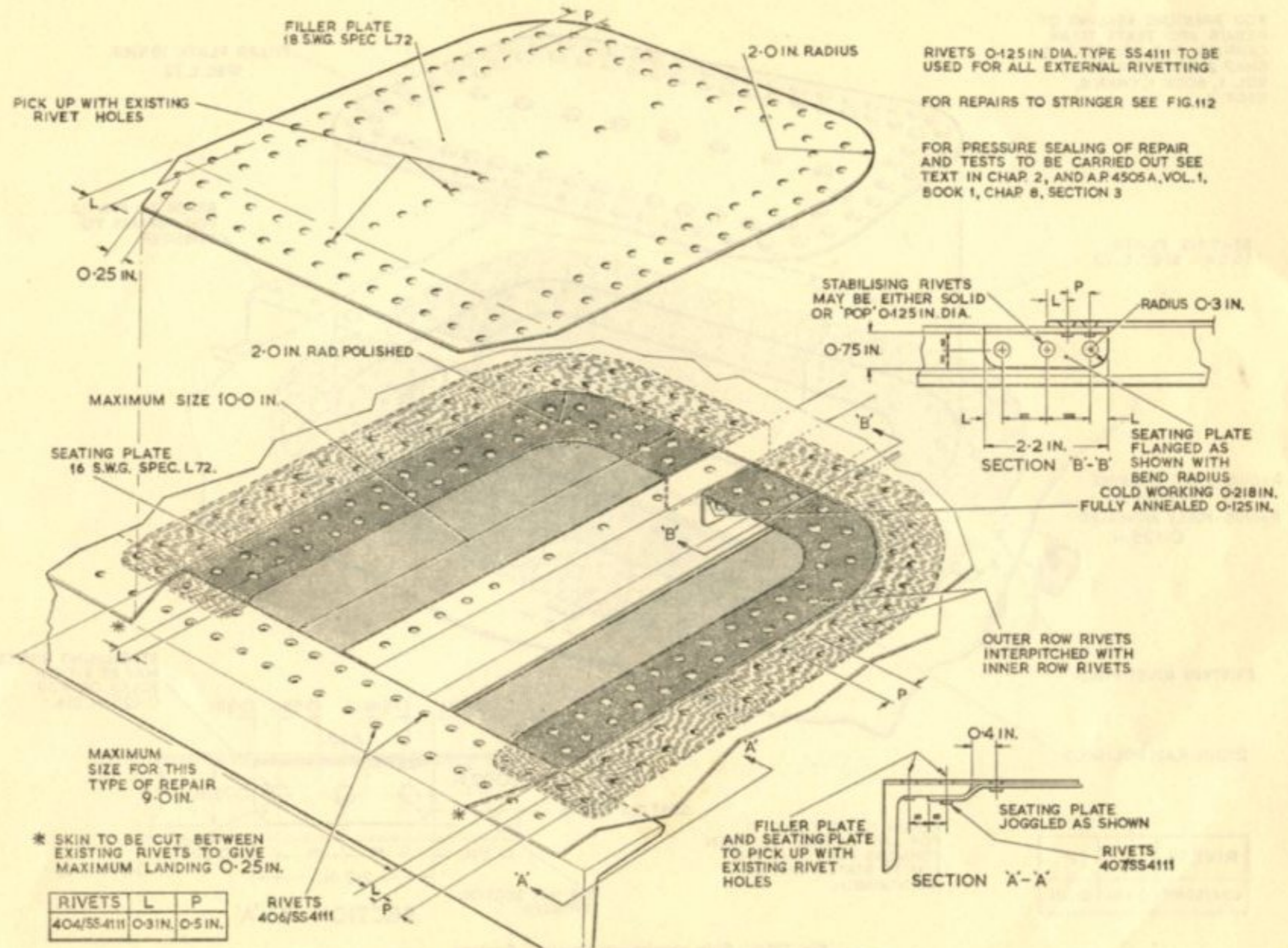


Fig. 222. Skin repair—pressurised fuselage—transport joint

RESTRICTED

FOR PRESSURE SEALING OF
REPAIR AND TESTS TO BE
CARRIED OUT, SEE TEXT IN
CHAP. 2 AND A.P. 4505 A,
VOL. 1, BOOK 1, CHAP. 8,
SECT. 3

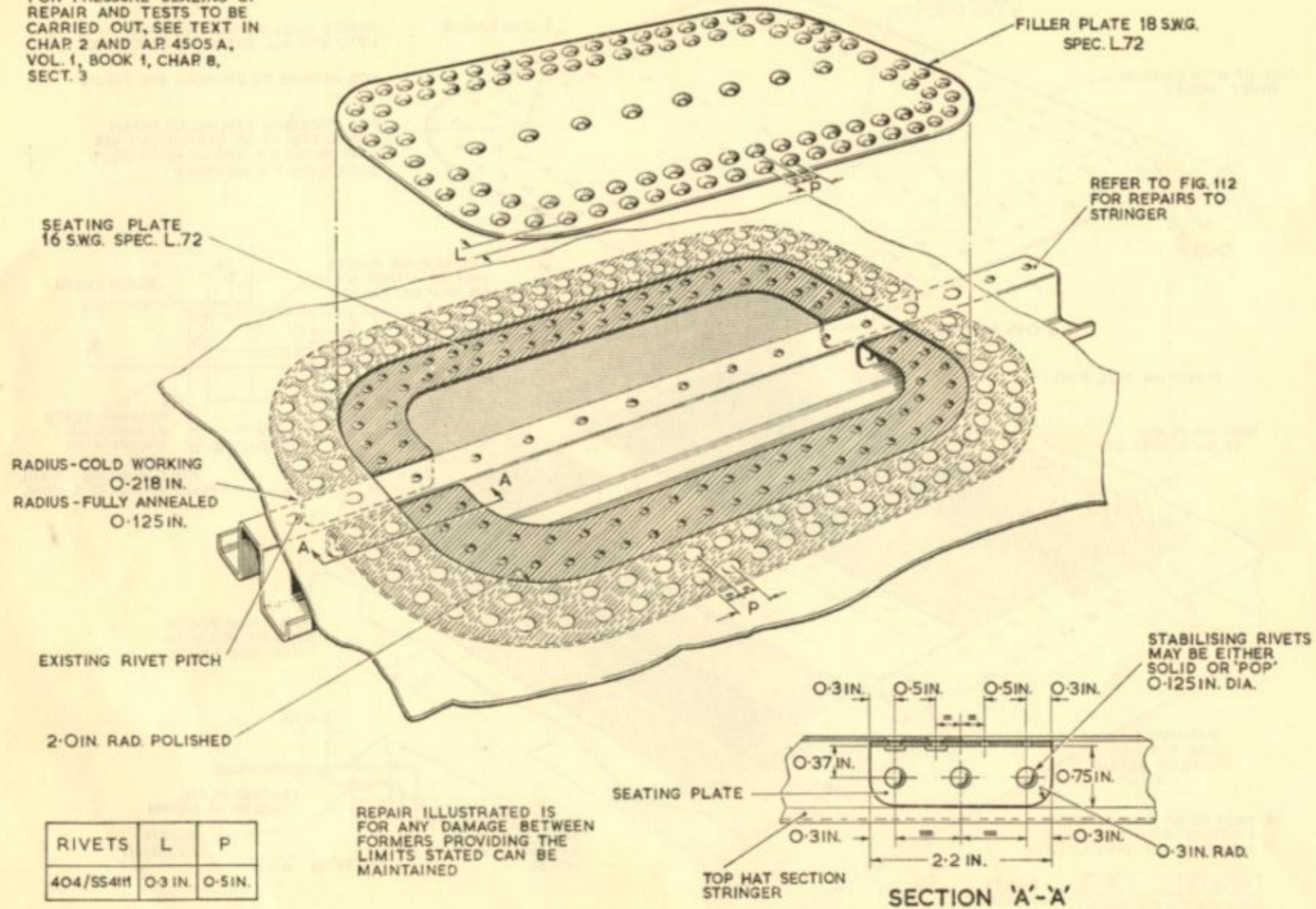


Fig. 222A. Skin repairs—pressurised fuselage

RESTRICTED

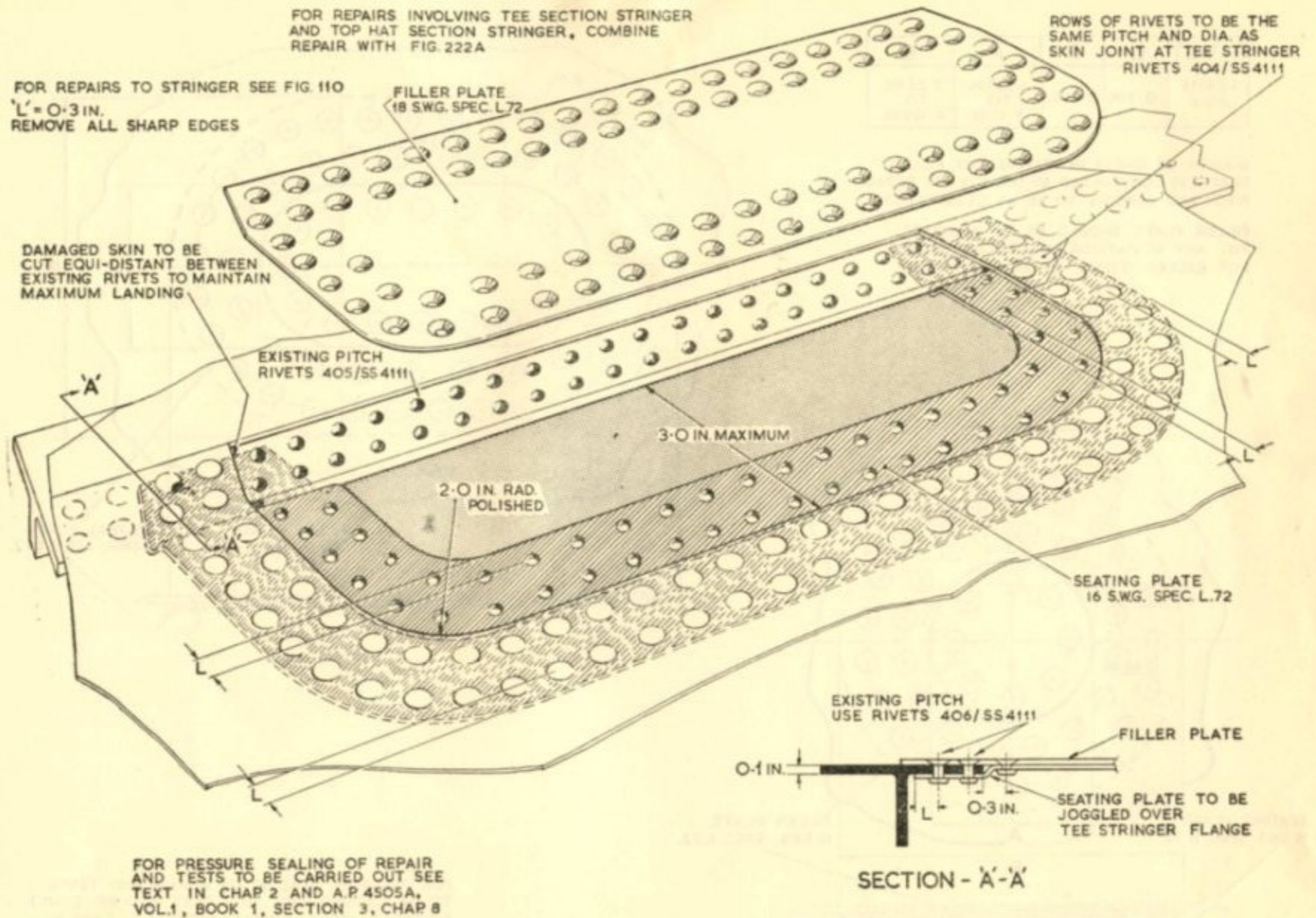
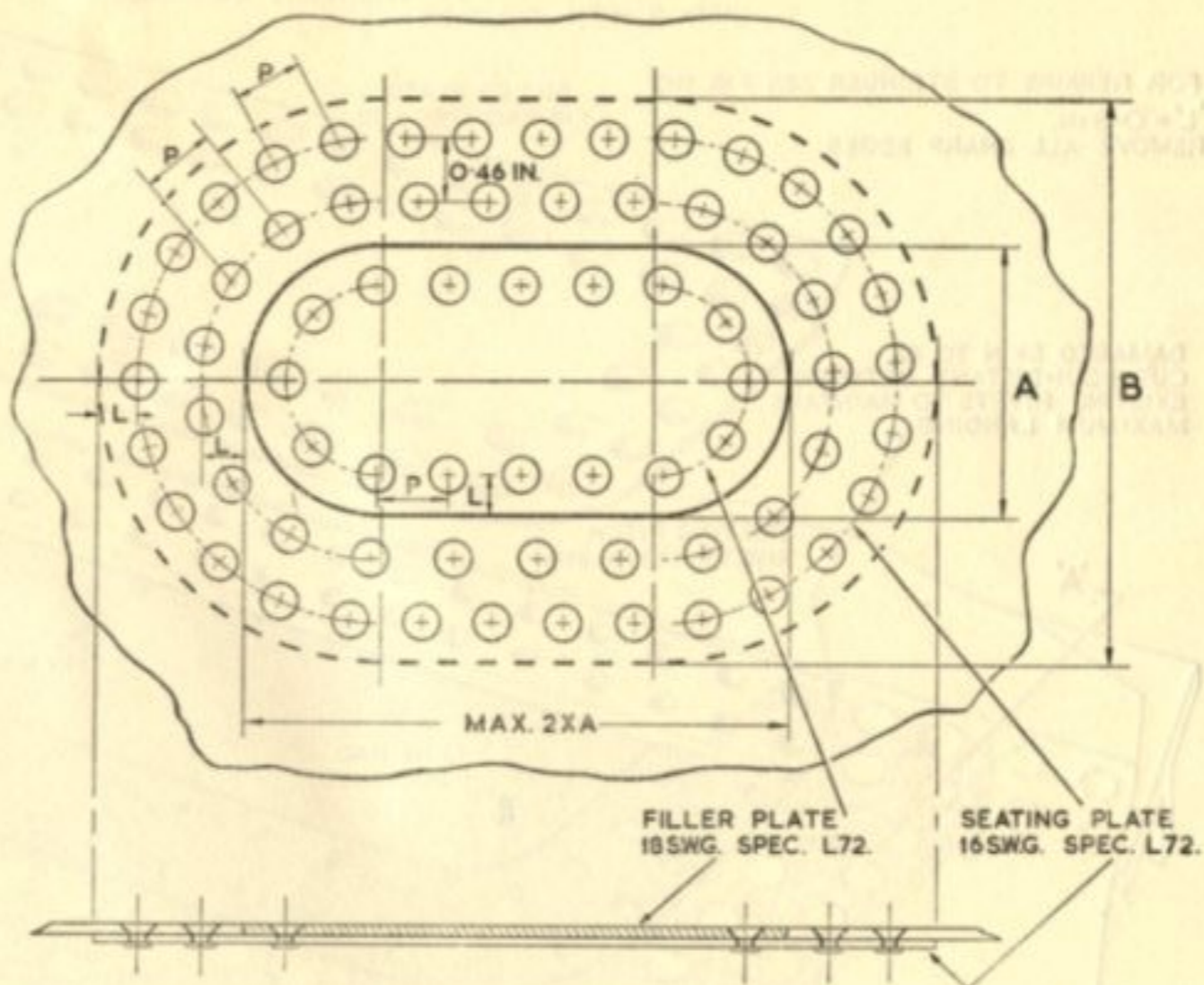
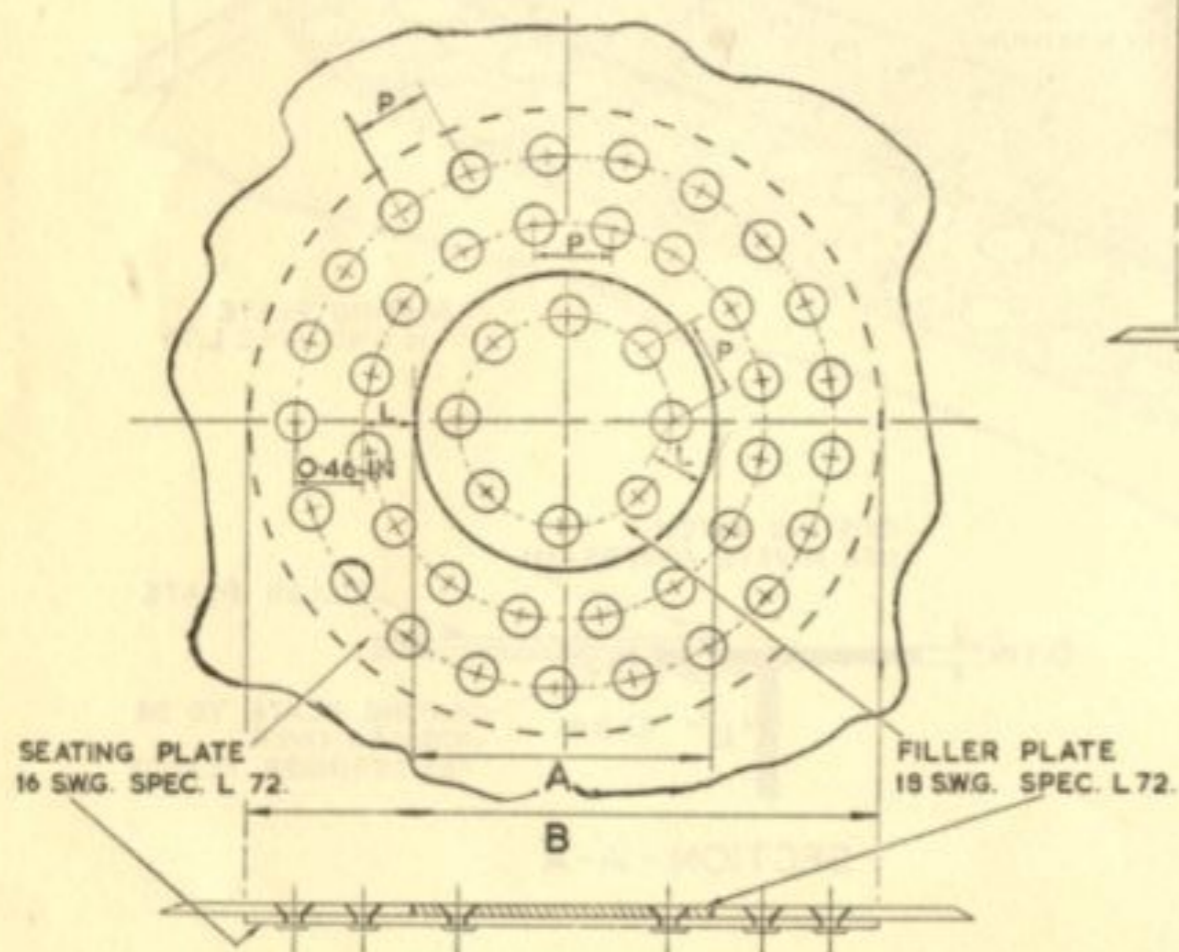


Fig. 222B. Skin repair at 'T' stringer—pressurised fuselage

RIVET	L	P	A	B
SS4111 404	0.3 IN	0.5 IN	1.125 IN. TO 2.0 IN.	3.25 IN. TO 4.125 IN.

NUMBER OF RIVETS IN SEATING AND FILLER PLATES IS CONTROLLED BY THE SIZE OF REPAIR. PITCH AND LANDING TO BE AS ILLUSTRATED.

FILLER PLATE SHOULD BE AN ACCURATE FIT. ANY DEVIATIONS IN CONTOUR SHOULD NOT EXCEED 0.03 IN. AT ANY ONE POINT.



FOR PRESSURE SEALING OF REPAIR AND TESTS TO BE CARRIED OUT SEE TEXT IN CHAP 2, AND A.P. 4505A, VOL. I, BOOK I, SECTION 3, CHAP 8.

Fig. 222C. Skin repairs—pressurised fuselage—free areas

RESTRICTED

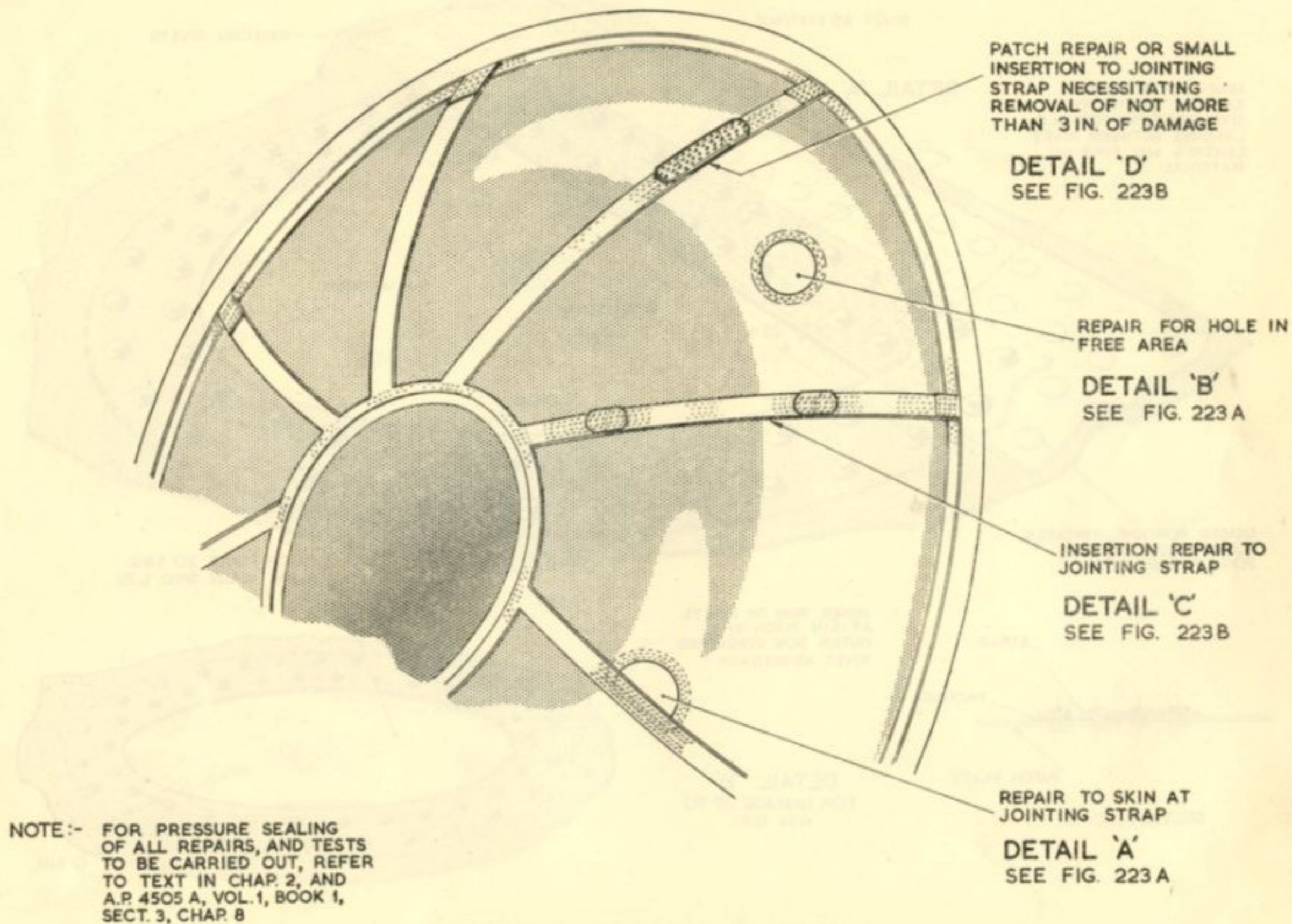


Fig. 223. Repairs to forward pressure bulkhead

RESTRICTED

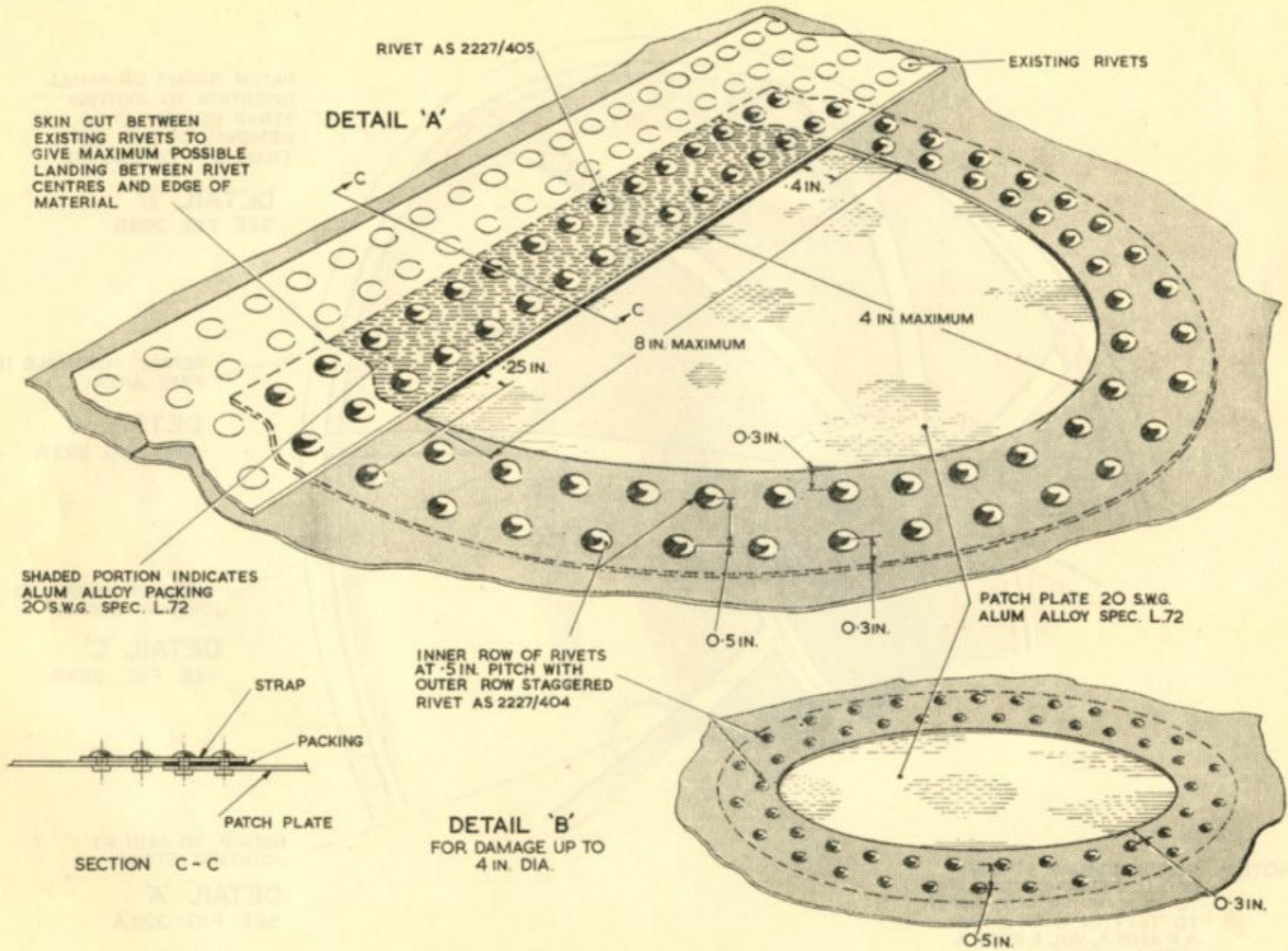


Fig. 223A. Repairs to forward pressure bulkhead

RESTRICTED

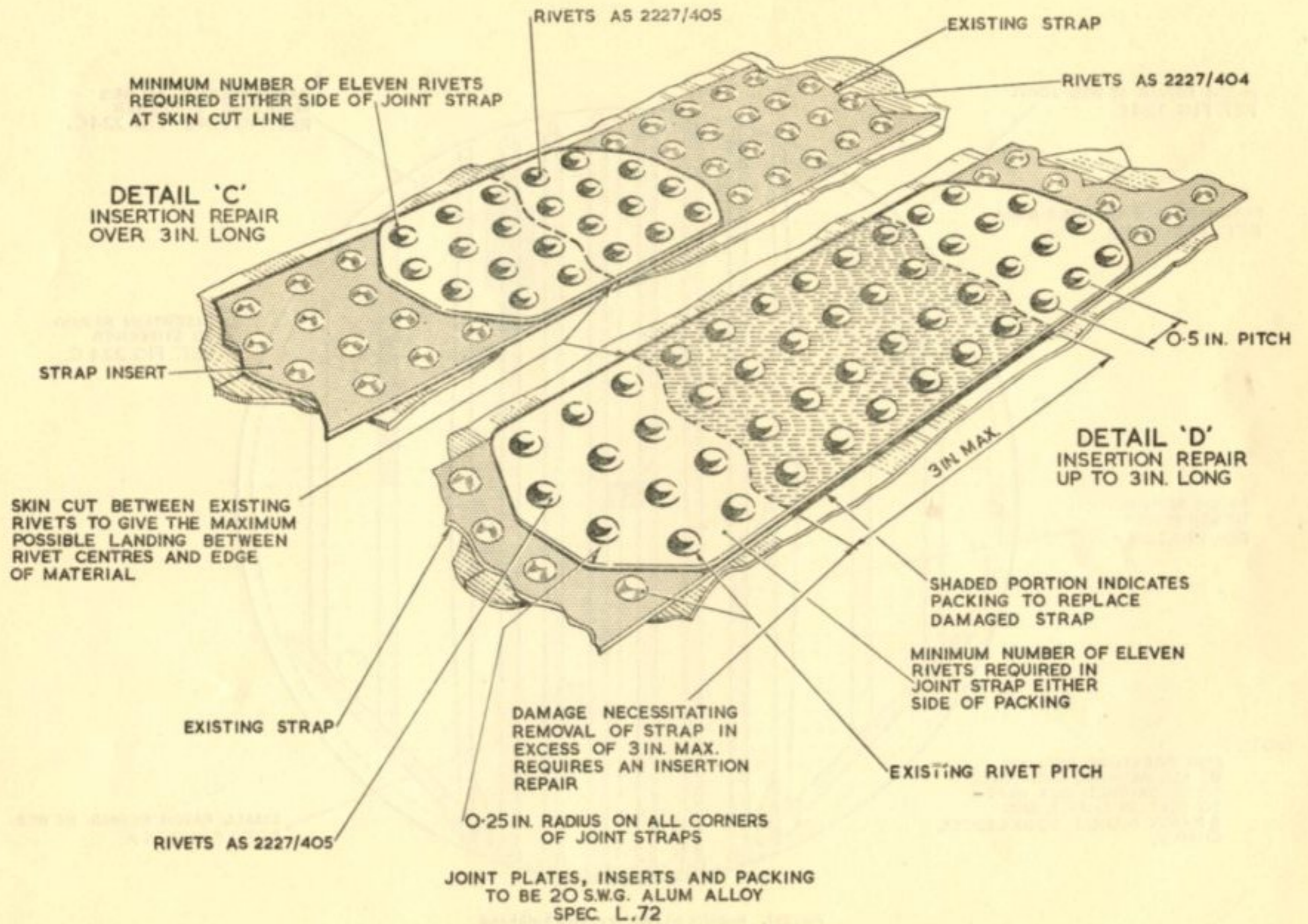


Fig. 223B. Repairs to forward pressure bulkhead

RESTRICTED

PATCH REPAIR AT WEB JOINT
REF. FIG. 224 E.

PATCH REPAIR IN FREE AREA
REF. FIG. 224 B.

PATCH REPAIR
TO STIFFENER
REF. FIG. 224 A.

PATCH REPAIR TO WEB
INVOLVING STIFFENER
REF. FIG. 224 D.-FIG. 224 C.

INSERTION REPAIR
TO STIFFENER
REF. FIG. 224 C.

SMALL PATCH REPAIR IN WEB
REF. FIG. 224 A.

NOTE :-

FOR PRESSURE SEALING
OF ALL REPAIRS, AND TESTS
TO BE CARRIED OUT REFER
TO TEXT IN CHAP. 2, AND
A.P. 4505 A, VOL. I, BOOK I, SECT. 3,
CHAP. 8.

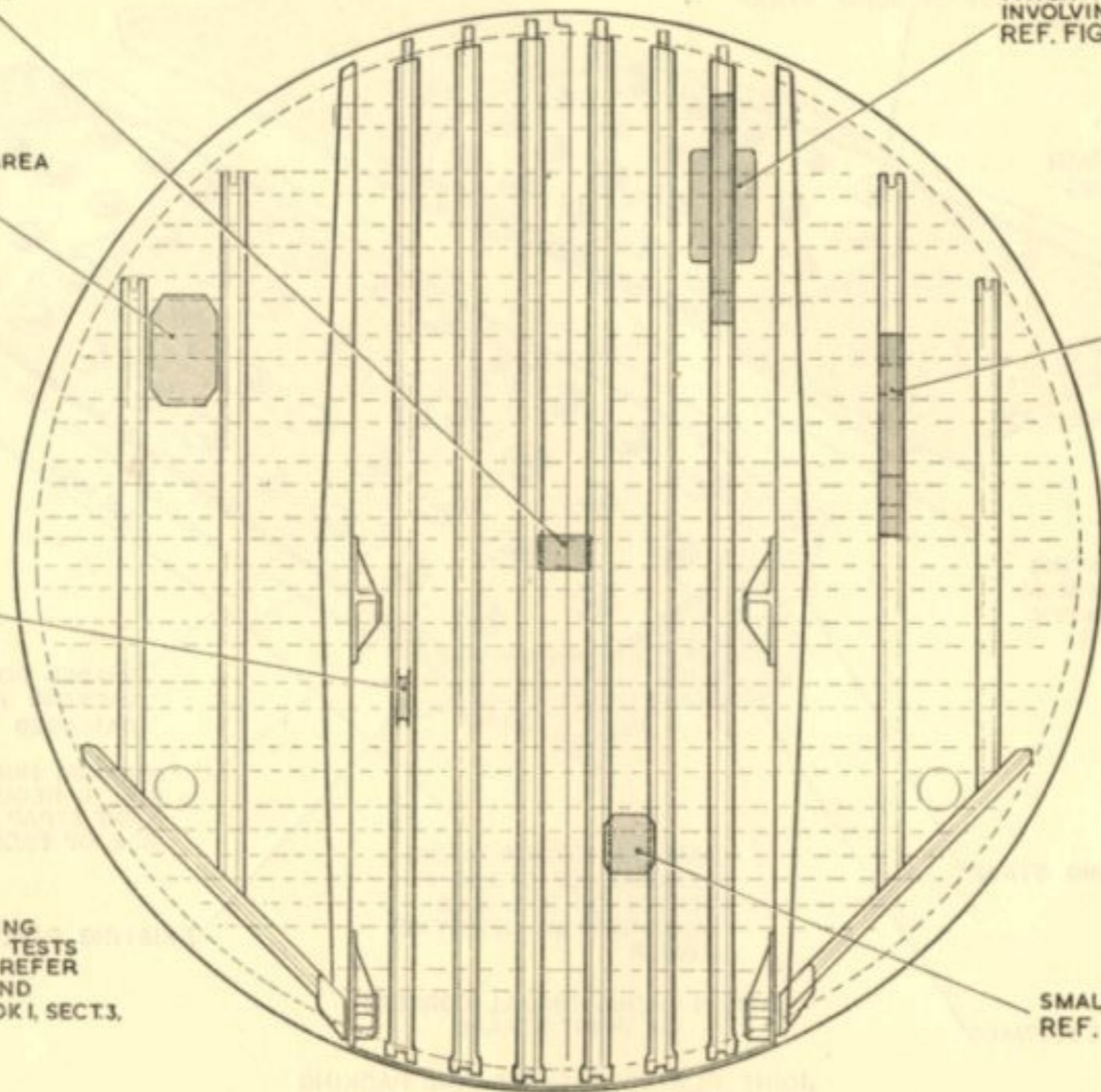


Fig. 224. Repairs to rear pressure bulkhead

RESTRICTED

CLEAN OUT DAMAGE TO GIVE THE LARGEST POSSIBLE CORNER RADIUS. ALL RIVETS ARE 0.187 IN. DIA. APPROX. 1.0 IN. PITCH. DRILL PACKING AND PATCH PLATE TO PICK-UP WITH EXISTING STIFFENERS. ADDITIONAL RIVETS TO BE STAGGERED. MINIMUM LANDING BETWEEN RIVET CENTRES AND EDGE OF MATERIAL 0.37 IN.

PATCH PLATE 14 S.W.G. SPEC. L.72 RADIUS ON ALL CORNERS 0.37 IN.

PACKING PLATE 16 S.W.G. SPEC. L.72 RADIUS ON ALL CORNERS 0.37 IN.

RIVETS AG.S.2050/639

RIVETS AS.2227/608

RIVETS AS.2227/607

MIN. 0.5 IN RADIUS POLISHED

REPAIR ILLUSTRATED IS SUITABLE FOR ANY LENGTH OF DAMAGE

MAX DEPTH ALLOWED 1.0 IN.

MINIMUM NUMBER OF 18 RIVETS TO BE FITTED IN EITHER END OF REPAIR PATCH

ALL RIVETS 0.187 IN. DIA. TYPE AG.S.2050/624 FITTED AT APPROX. 0.75 IN. PITCH

MIN. LANDING BETWEEN RIVET CENTRES AND EDGE OF MATERIAL 0.37 IN.

REPAIR PATCH 16 S.W.G. SPEC L72.

0.25 IN.RAD.

ALL CORNERS 0.37 IN. RADIUS

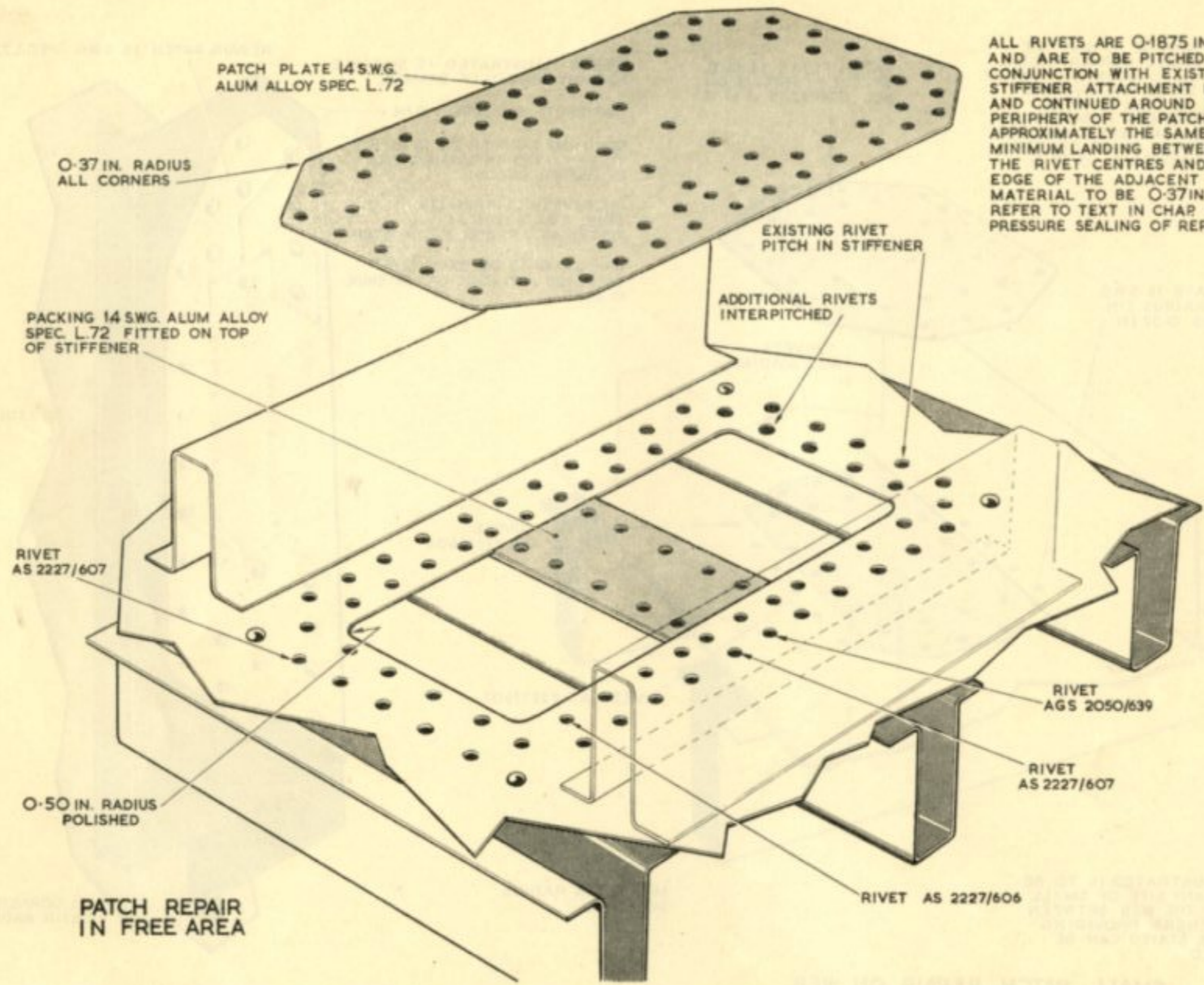
REPAIR ILLUSTRATED IS TO BE USED FOR ANY SIZE OF SMALL DAMAGE IN THE WEB BETWEEN TWO STIFFENERS, PROVIDING THE LIMITS STATED CAN BE MAINTAINED

SMALL PATCH REPAIR ON WEB

PATCH REPAIR TO STIFFENER

Fig. 224A. Rear pressure bulkhead repairs

RESTRICTED



ALL RIVETS ARE 0.1875 IN DIA. AND ARE TO BE PITCHED IN CONJUNCTION WITH EXISTING STIFFENER ATTACHMENT RIVETS, AND CONTINUED AROUND THE PERIPHERY OF THE PATCH AT APPROXIMATELY THE SAME PITCH. MINIMUM LANDING BETWEEN THE RIVET CENTRES AND THE EDGE OF THE ADJACENT MATERIAL TO BE 0.37 IN. REFER TO TEXT IN CHAR 2 FOR PRESSURE SEALING OF REPAIR

Fig. 224B. Repairs to rear pressure bulkhead

RESTRICTED

NOTE - MINIMUM NUMBER OF RIVETS FITTED IN JOINT CHANNELS AT INSERTION JOINT TO BE AS ILLUSTRATED

REFER TO TEXT IN CHAP.2 FOR PRESSURE SEALING OF REPAIR.

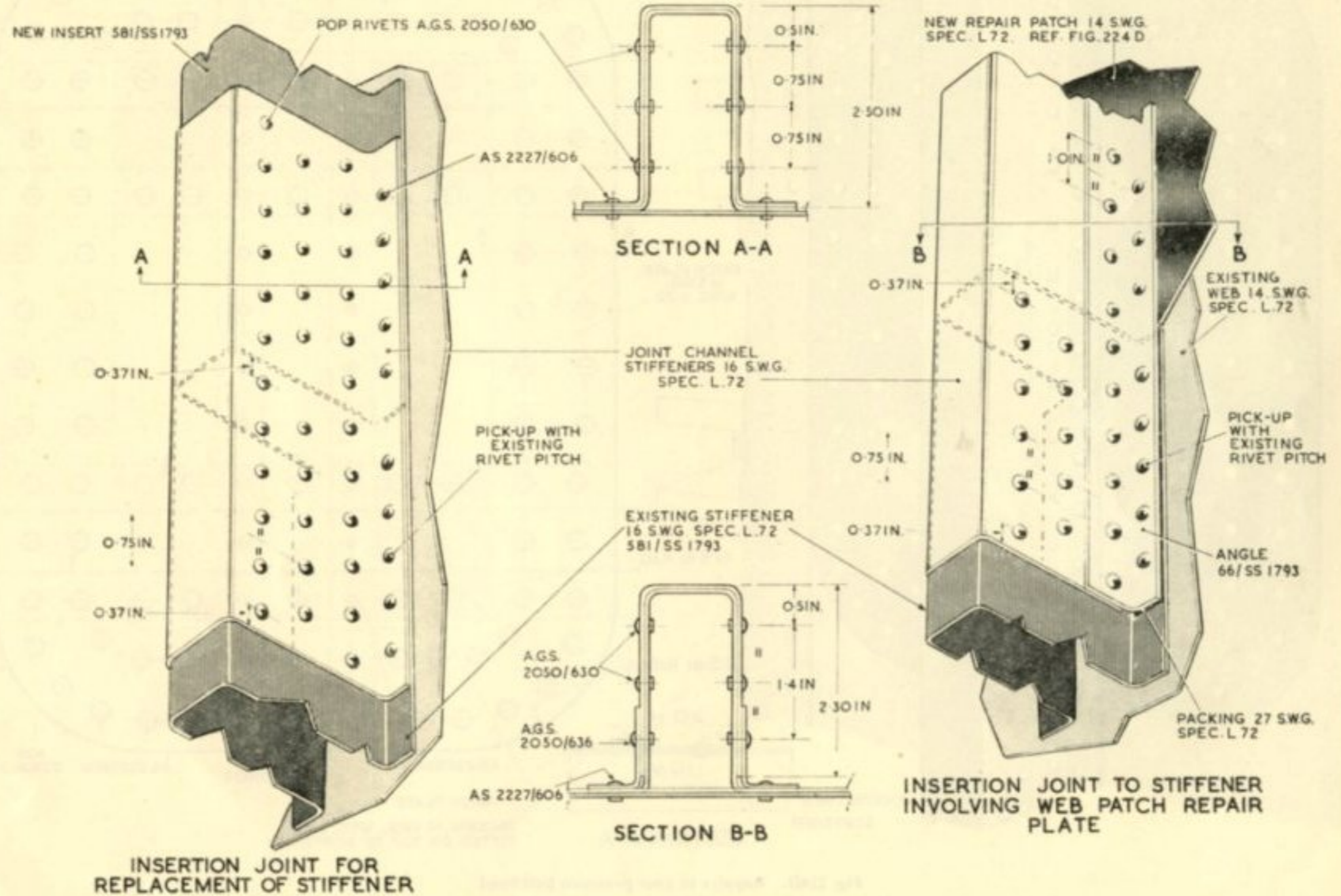
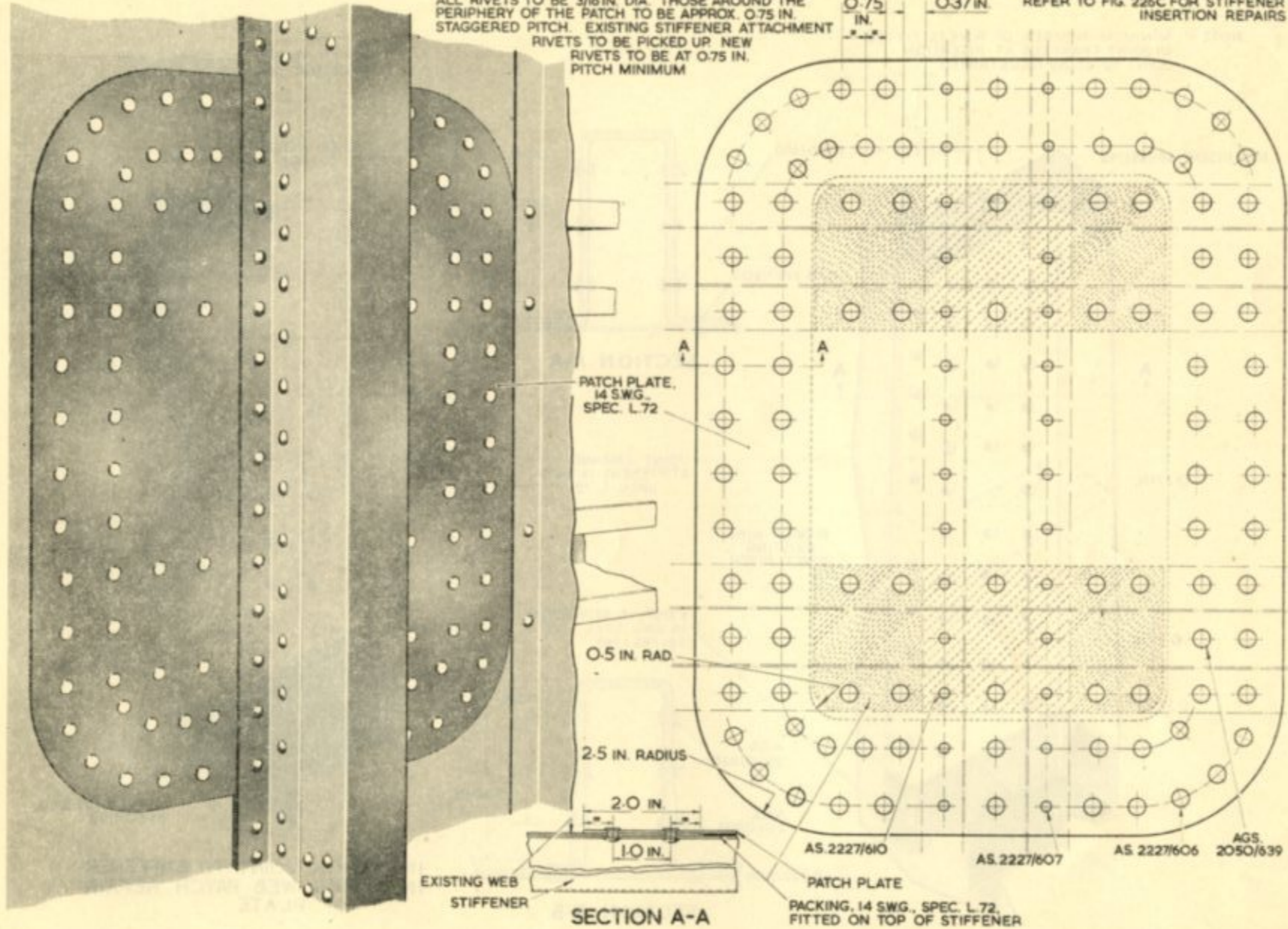


Fig. 224C. Repairs to rear pressure bulkhead

RESTRICTED

ALL RIVETS TO BE 3/16 IN. DIA. THOSE AROUND THE PERIPHERY OF THE PATCH TO BE APPROX. 0.75 IN. STAGGERED PITCH. EXISTING STIFFENER ATTACHMENT RIVETS TO BE PICKED UP. NEW RIVETS TO BE AT 0.75 IN. PITCH MINIMUM

0.75 IN. 0.37 IN. REFER TO FIG. 226C FOR STIFFENER INSERTION REPAIRS



EXISTING WEB STIFFENER

SECTION A-A

AS 2227/610 AS 2227/607 AS 2227/606 AGS 2050/639
 PATCH PLATE
 PACKING, 14 SWG., SPEC. L. 72, FITTED ON TOP OF STIFFENER

Fig. 224D. Repairs to rear pressure bulkhead

RESTRICTED

REPAIR INSTRUCTIONS

CLEAN OUT DAMAGE TO GIVE THE LARGEST POSSIBLE CORNER RADIUS. ALL RIVETS ARE 0.187 IN. DIA. MINIMUM PITCH 0.7 IN. DRILL OUT SPOT WELDS WHERE REPAIR PLATES ARE TO BE FITTED. DRILL PACKING AND PATCH PLATE TO PICK UP WITH EXISTING STIFFENERS. ADDITIONAL RIVETS TO BE STAGGERED. MINIMUM LANDING BETWEEN RIVET CENTRES AND EDGE OF MATERIAL $L = 0.37$ IN.

ALL SHARP EDGES TO BE REMOVED AND DAMAGED PORTION OF WEB TO BE POLISHED AFTER CLEANING OUT DAMAGE

FOR PRESSURE SEALING OF REPAIR AND TESTS TO BE CARRIED OUT SEE TEXT IN CHAP. 1 AND 2, AND A.P.4505A, VOL. I, BOOK 1, SECT. 3, CHAP. 8.

PACKING PLATE

PATCH PLATE

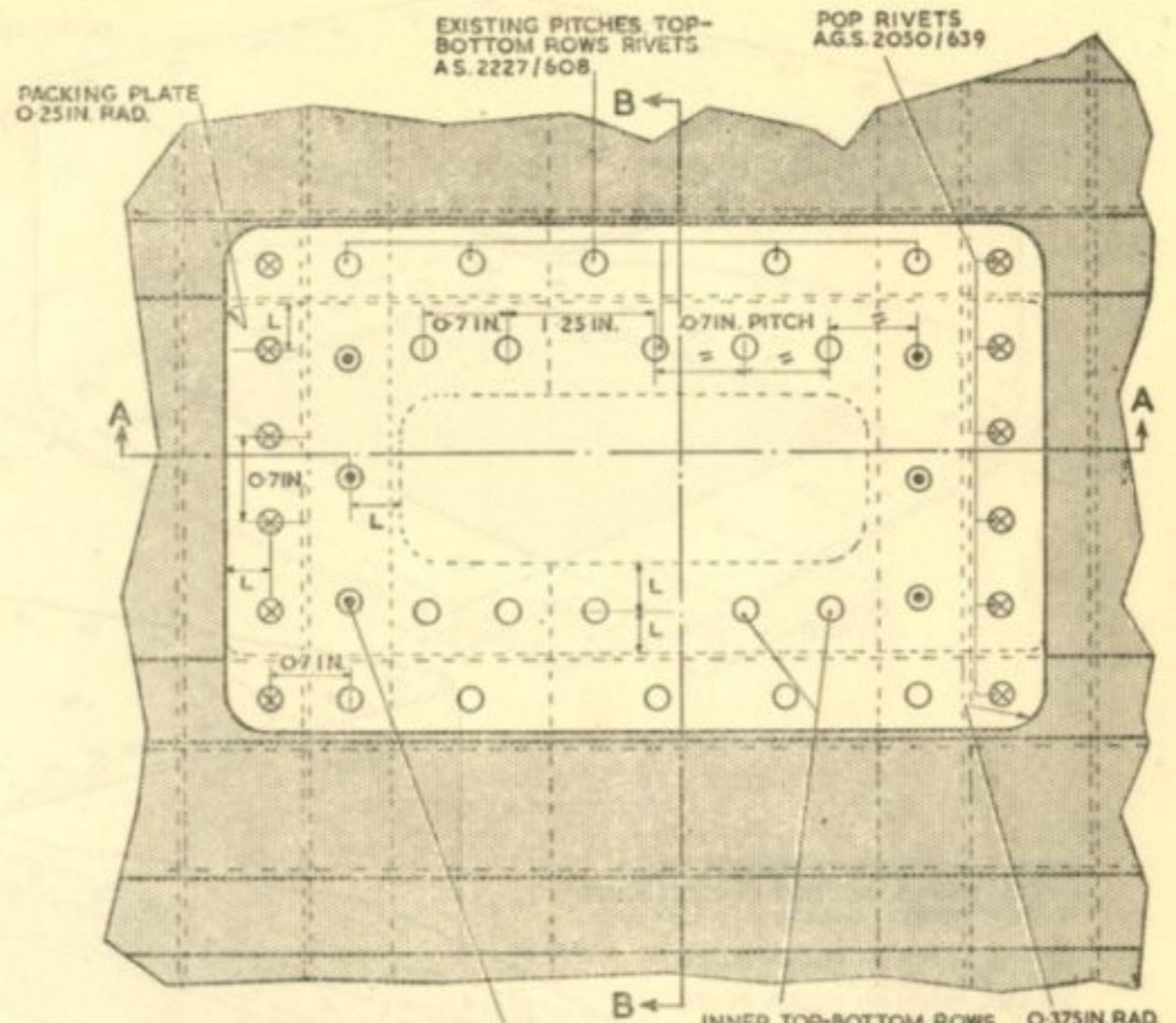
RADIUS CORNERS OF PATCH PLATE

- ⊙ - SPOT WELDS
- ⊗ - POP RIVETS
- - SOLID RIVETS

REPAIR ILLUSTRATED IS TO BE USED FOR ANY SIZE OF SMALL DAMAGE THROUGH THE WEB BETWEEN TWO STIFFENERS, PROVIDING THE LIMITS STATED CAN BE MAINTAINED



SECTION B-B



DRILL OUT SPOT WELDS REPLACE WITH RIVETS A.S. 2227/608

INNER TOP-BOTTOM ROWS RIVETS A.S. 2227/607 0.375 IN. RAD

HORIZONTAL STIFFENER

PACKING PLATE 16 SW.G. SPEC. L.72

FOR REPAIRS TO STIFFENERS REFER FIG. 224A-224C

PATCH PLATE 14 SW.G. SPEC. L.72

SECTION A-A

Fig. 224E. Repairs to rear pressure bulkhead—web joint

RESTRICTED

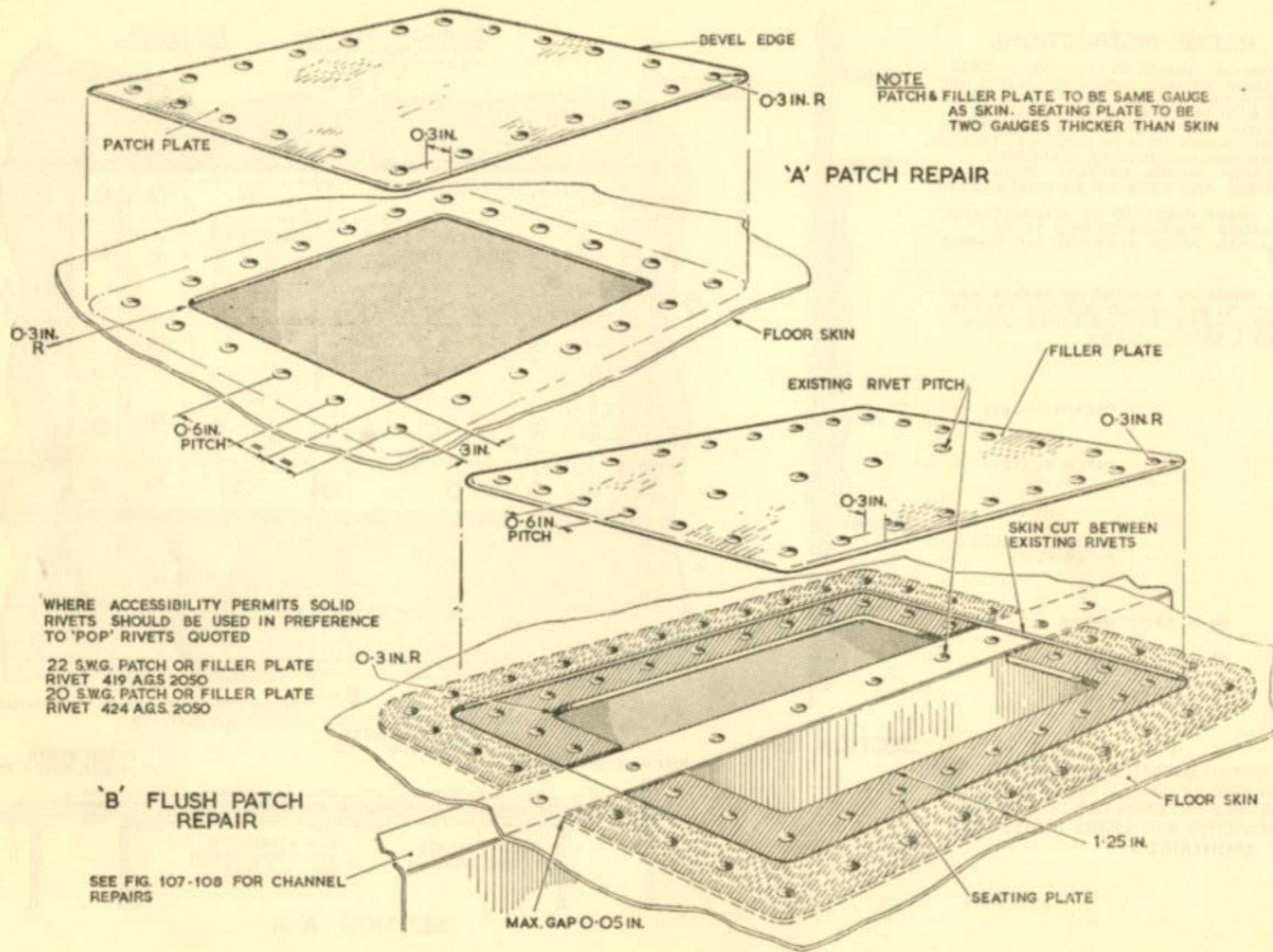


Fig. 225. Floor skin repairs

RESTRICTED

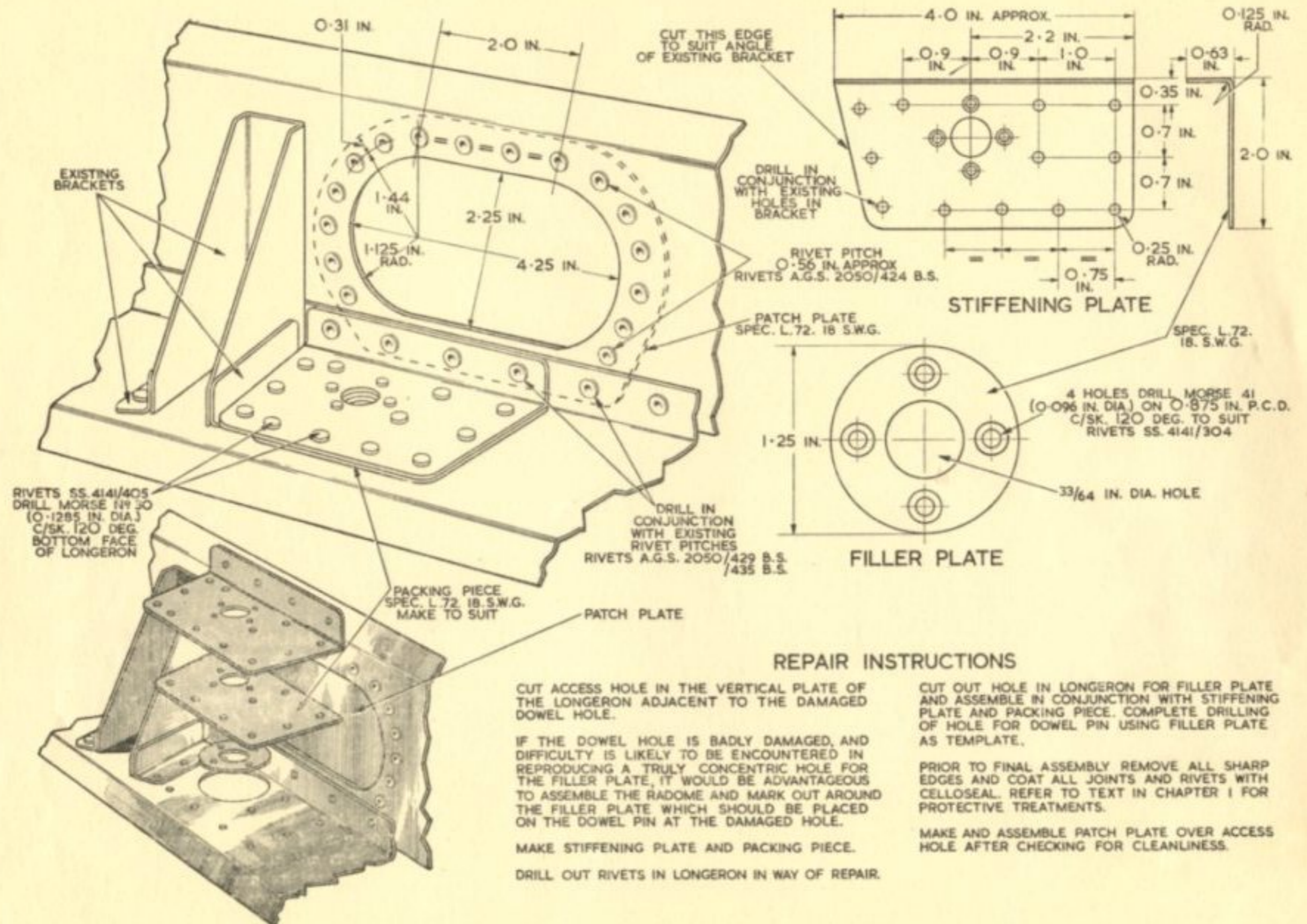


Fig. 226 Repair to damaged dowel holes in nose longeron

RESTRICTED

March, 1957

A.P.4505, Vol. 6, Part 1

CHAPTER 3

MAIN PLANES

CHAP.

3

RESTRICTED

Chapter 3 MAIN PLANES

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General

301. The main plane assembly consists of a centre section and two outer wings and to assist the user in locating small details these components are in turn broken down into sub-assemblies each with its own relevant illustrations and description. Wherever possible the sequence of annotation is from front to rear. The breakdown is as follows:-

CENTRE SECTION

302. Situated between the main plane hinge points and the forward No.1 tank bay to the rear transport former, the assembly consists of the nosewheel bay, No.1 and 2 tank bays, bomb bay, rear portion centre section, air intake, air brake structure, and engine bay.

No.1 and 2 tank bays

303. Where repairs are carried out to the inner tank skins, all rivet heads must be covered with a doped fabric strip, to Spec. D.T.D.540, 4 oz. linen, 1 in. in width (Ref.No.32B/759) for each single row of rivets, and 2.25 in. strip (Ref. No.32B/751) where double riveting occurs. Repairs involving the replacement of tank button hole plates must be carried out with a tolerance of ± 0.013 in. on eccentricity between button hole centres.

Bomb bay structure

304. The bomb bay is situated between the front and rear spars, and is of arch design construction. Repairs to heavy and medium bomb arch extrusions are given in the special repairs. Enclosing the bomb bay are power operated bomb doors. When closed, these doors are sealed at the fore and aft positions with inflatable seals. These seals if damaged or punctured are not repairable and must be renewed. Seals running longitudinally and around the hinged access doors may be repaired as shown in illustration (fig.341),

using the following sequence:-

- (1) Mark off the portion of damaged seal with the cut lines central between the screw pitching (see illustration). Remove the retaining screws and fixing strip as necessary.
- (2) Cut out the portion of seal marked off and prepare a new insertion of the same length and section (D.T.D.552).
- (3) Cut two strips of rubber sheeting (D.T.D.552) 1/32 in. thick (Ref. No.32C/624) to a width with an overlap of 0.5 in. beyond the first retaining screw hole each side of the joint.
- (4) Apply one coat of adhesive (Ref. No.33C/1302) to the strips. Position the new insert and bind the joints ensuring that the 0.5 in. overlap is maintained.
- (5) Replace the metal fixing strip and drill holes through to the new insert taking care not to damage the existing nut threads. Replace retaining screws.

This repair can be used on all fixed rubber seals on the aircraft.

Air intake

305. Positioned at each side of the nose wheel bays, the structure is mainly constructed of diaphragm build-up with double skinned leading edges. The inner skin, which is corrugated and fitted with magnesium alloy sealing blocks at various corrugation joints prevents outer skin repairs from being carried out in the normal manner. Requests for repair schemes for damage in this area should be submitted in accordance with the instructions on the Part 1 Marker Card.

306. Whenever possible solid rivets should be used in the intake area, but in

exceptional cases 'pop' rivets may be used provided the rivets are dipped in cold setting Araldite 121N. (Ref.No. 33C/1451) and finally filled with Rylands 'pop' rivet filler No.2313.

307. In common with centre section outer skins, the intake is weather-proofed and all skin butt joints and straps are sealed internally. Repairs in this area must incorporate the correct method of weather-proofing.

Air brake structure

308. Situated aft of the front spar, and above and below the engine air intakes, the air brake structure has access panels in the air brake wells and air intake tunnels, enabling minor repairs to be carried out. Repairs requiring the breakdown of the mechanism setting should be done in conjunction with A.P.4505A, Vol.1, Book 1, Sect.3, Chap.1 and 4.

Jet pipe tunnels

309. The tunnels commencing at the rear engine bulkheads and terminating at the trailing edge of the rear fuselage structure, are made from 28 s.w.g. nickel chrome stainless steel Spec. D.T.D.571 or D.T.D.171 or D.T.D.166. Repairs are illustrated on fig.342. Rippling or similar distortion of the tunnel skins is acceptable up to 1 in. in depth from crest to trough provided there are no cracks.

OUTER MAIN PLANE

310. Leading edge, centre structure, undercarriage bay, trailing edge, wing tip, ailerons and elevators.

Outer wing leading edge

311. The rib and web construction is covered by double skins and requests for repairs for damage occurring in the anti-icing area should be submitted in accordance with the instructions on the Part 1 Marker Card.

Outer wing tanks and skins

312. Forming the greater portion of the wing between the front and rear wing spars, the structure is of rib build-up and braced with skin stringers. Repairs will generally be covered in the repair materials table. Where tank compartment skins are damaged, reference should be made to para.303.

Repairs to ailerons and elevators

313. Repairs to these components may be made in the normal manner but reference should be made to the aircraft log book for previous repairs affecting the mass balance. Full instructions for mass balancing, re-painting, etc., are contained in para.320.

Control surface - balance seals

314. Repairs to the seals will mainly depend upon the extent and disposition of the damaged area. If deterioration due to ageing of the fabric is apparent, the seals should be renewed but minor repairs using the materials and procedure as follows are acceptable.

Materials required

- (1) Indiana/Cashmere fabric (Ref.No. 8099), 1/32 in. thick. Dunlop adhesive L.107 (Ref.No.33C/1361). 2 in. circular sewing needle (Ref. No.1B/1604). Single linen waxed thread, No.40, B.S.3F.34.

Method of attachment

- (2) Damaged seals may be repaired by patching, the patch being attached by solution and stitching. Using a 2 in. circular sewing needle and incorporating an overhand stitch with eight stitches to 1 in., the stitching should be locked at every 1 in. round the edge of the patch. It is recommended that the stitching is carried out while the solution is still "tacky".

Repair limits

- (3) The extent of the damage will govern the size of patch required, but an overlap of 1 in. is necessary to give the required results, therefore a rent 1 in. long should have a patch 3 x 2 inches applied. No patch may overlap an adjoining patch.

Procedure

- (4) It is important to ensure that the seal is absolutely dry and free from oil, grease and dust before proceeding as follows:-
 - (a) Stitch the rent using a herring-bone stitch.
 - (b) Measure the damage for length and width and cut out the patch to include overlap limit.
 - (c) Place the patch over the damage and mark an outline on the seal - remove and check for central positioning.
 - (d) Apply one coat of solution to both patch and fabric seal and allow to dry completely.
 - (e) Apply a second coat to both surfaces. When a "tacky" state becomes obvious, place the patch over the damaged area, using the outline as a guide. Press firmly and check that the patch is well adhered before commencing the next operation.
 - (f) Using needle, thread, and type of stitch as described, stitch the edges of the patch to the seal. Care must be taken to avoid pulling the thread too

tight. Smooth out wrinkles and puckers progressively.

- (5) Damage occurring near or up to the fixing strips may be repaired by the same method, except that the patch must extend under the fixing strip by one thickness. See rudder repair illustration (fig.406). This also applies to aileron and elevator seals secured by 1 in. folded seal strip at attachment positions.

NOTE..

Rudder seals removed for repair should be checked to ensure that the form strip is still glued to the seal before replacing.

HONEYCOMB PANELS

315. Where damage is slight, i.e., dents and small holes, the following negligible damage scheme can be used:-

- (1) Smooth dents up to 2 in. dia. and not more than 1/25th of dia. in depth, or dents with a small hole not larger than 0.5 in. Fill with cold-setting ARALDITE 121 N. (Ref.No.33C/1451) and smooth off to panel contour. For mixing the filler see Chap.2 para.233.
- (2) Alternatively, holes up to 0.5 in. after cleaning out (through one skin only) may be completely filled with ARALDITE. Very small holes may be filled by injected ARALDITE D. In each case a cellophane strip, or masking tape, should be taped over the hole during setting of the ARALDITE. Damage beyond these limits is covered in Chap.1, para.133 and fig.102.

WEATHERPROOFING

316. The main plane skin surfaces are weatherproofed and sealed. All outer

skin repairs must incorporate the correct method, and to ensure maximum efficiency reference must be made to Chap.1, para.136 to 138. The surface should be prepared before weatherproofing is carried out. The area affected should be rubbed with steel wool, then thoroughly wiped clean with a cloth soaked in carbon tetrachloride.

REPLACEMENT OF VORTEX GENERATORS

317. When a generator becomes dislodged, replacement by bonding, and then riveting in conjunction with illustrations fig.346 and 346A should be carried out. It may be necessary to remove the protective treatment from the skin in order to provide a better bonding surface. For information of the preparation and complete bonding operation refer to Chap.2, para.222 to 231. After completion of the bonding, surplus resin should be spread over the remaining unprotected area in a thin film to prevent corrosion. It is not necessary to apply pressure to ensure adhesion and to do so may result in an abortive joint. Care must be taken when drilling the generator and the wing skin to prevent damage to existing rivets and stringers. The tolerances shown on the illustrations are very important. In some cases to facilitate riveting, it may be necessary to move the generator either forward or aft to give the necessary clearance for drilling. Provided 20 deg. angle from line of flight is maintained the generator may be moved forward or aft from its original position by 0.25 in. The new drilling must provide a minimum of 0.31 in. landing in the skin stringer, or 0.31 in.

clearance between the stringer edge and the hole in the skin.

NOTE...

If etching has already been carried out for a previous replacement, the use of ALOCLENE No.2 is not required. A light etching and cleansing operation using DE-OXIDINE 202 (Ref.No.33C/748) will be sufficient, also ARDROX 20 may be used for paint removing in lieu of STRIPALINE 397 or paint remover (Ref.No.33B/1125).

EXTERNAL FINISH FOR NEGLIGIBLE DAMAGE

318. Dents and abrasions to external skins which are within the tolerance of negligible damage should have the paint removed and the affected area filled with cold setting ARALDITE 121 N. (Ref.No.33C/1451). For application see Chap.2, para.223.

CONTROL SURFACE MASS BALANCE

319. Contained in the following paragraphs are limits and instructions which must be strictly adhered to when carrying out repairs etc. on the rudder, elevators and ailerons.

General

320. Prior to carrying out any repairs, check the aircraft log books for reference to any previous repairs, modifications, and re-painting which have affected the mass

balance since the control surface was originally manufactured. A weight allowance equivalent to 12 per cent of mass balance (refer to Table 1) is allowed for all accumulated repairs etc. which are required to be satisfied. If the tolerances quoted in Table 1 are exceeded the control surface must be re-mass balanced to the original design requirements (refer to Table 2). In order to assist all personnel concerned, a true and complete history of all work, including modifications, and repainting carried out on each control surface, together with its effect on the mass balance, should be entered in the log books to ensure that the repair allowances are not exceeded.

Information

321. For information a complete repainting of a control surface, i.e., one coat of primer and two final coats applied without removing the original paint, has the equivalent effect to the loss of 2.5 per cent of the mass balance which would automatically reduce the weight allowance for repairs etc., from 12 per cent to 9.5 per cent.

Repair allowances

322. Figures appended in Table 1 are arrived at on assumption that the repairs are required at the inboard trailing edges of the elevators and ailerons, and the bottom trailing edge of the rudder, in effect these are maximum positive 'arm' stations, and consequently repairs to the limits quoted in Table 1 can be carried out in safety in any other position.

TABLE 1
Repair allowances

Component	Drwg. No.	Arm from Control Surface Hinge c/l.	Weight equivalent to 12 per cent of mass balance
Rudder	H.2229	+ 60.25 in.	3 lb. 10 oz.
I/B. Elevator	F.7851	+ 89.774 in.	5 lb. 5 oz.
O/B. Elevator	F.7852	+ 75.97 in.	4 lb. 13 oz.
I/B. Aileron	F.7849	+ 59.0 in.	3 lb. 4 oz.
O/B. Aileron	F.7850	+ 48.038 in.	2 lb. 15 oz.

NOTE . . .

The arm of the weight is measured normal to the control surface hinge centre-line, negative being forward of the hinge line, positive aft of the hinge line.

TABLE 2
Static mass balance of control surfaces

Component	Drwg. No.	Arm from Control Surface Hinge c/l.	Arm position	Balance Weights
Rudder	H.2229	-10 in.	3.75 in. forward of the rudder L/E. at nose Rib 8A	0 to 19.5 lb.
I/B. Elevator	F.7851	+ 83 in.	Trailing edge Rib 10	0 to 2 lb.
O/B. Elevator	F.7852	+ 65 in.	Trailing edge Rib 31	0 to 2.5 lb.
I/B. Aileron	F.7849	+ 59 in.	Trailing edge Rib 3	2.75 to 4.25 lb.
O/B. Aileron	F.7850	+ 44.5 in.	Trailing edge Rib 26	6.75 to 7 lb.

NOTE . . .

Elevators and Ailerons are to be statically balanced with the horizontal datum set 3 deg. tail up.

POST MOD. 627 REPAIR ALLOWANCES

323. Where Mod.627 has been embodied, the allowance for repairs and mass balancing are given in tables 3 and 4.

NOTE...

Tables 1 and 2 must not be used for aircraft embodied with this modification.

TABLE 3

Post Mod. 627 repair allowances

Component	Drwg. No.	Arm from Control Surface Hinge c/l.	Weight equivalent to 12 per cent of mass balance
Rudder	H.2229	+ 60.25 in.	3 lb. 10 oz.
I/B. Elevator	F.7851	+ 89.774 in.	5 lb. 5 oz.
O/B. Elevator	F.7852	+ 75.97 in.	4 lb. 13 oz.
I/B. Aileron	F.7849	+ 59.0 in.	2 lb. 8 oz.
O/B. Aileron	F.7850	+ 48.038 in.	2 lb. 0 oz.

NOTE . . .

The arm of the weight is measured normal to the control surface hinge centre line, negative being forward of the hinge line, positive aft of the hinge line.

TABLE 4

Post Mod. 627 static mass balance control surfaces

Component	Drwg. No.	Arm from Control Surface Hinge c/l.	Arm position	Balance Weights
Rudder	H.2229	- 10.0 in.	3.75 in. forward of the rudder L/E. at nose Rib 8A.	0 to 19.5 lb.
I/B. Elevator	F.7851	+ 83.0 in.	Trailing edge Rib 10	0 to 2.0 lb.
O/B. Elevator	F.7852	+ 65.0 in.	Trailing edge Rib 31	0 to 2.5 lb.
I/B. Aileron	F.7849	+ 59.0 in.	Trailing edge Rib 3	2.0 lb. to 4.25 lb.
O/B. Aileron	F.7850	+ 44.5 in.	Trailing edge Rib 26	6.0 lb. to 7.0 lb.

NOTE . . .

Elevators and Ailerons are to be statically balanced with the horizontal datum set 3 deg. tail up.

RESTRICTED

REPLACEMENT OF WING TOP SURFACE
SKINS ABOVE ENGINE BAYS

324. When embodying Mod.831, in order to prevent the new skins from buckling after fitting, proceed as follows:-

- (1) Drain the fuel from all tanks.
- (2) Remove all engines.
- (3) Remove the fireproof skins from engine bays where required for accessibility to wing skins.
- (4) Close all engine doors.
- (5) Jack up the aircraft using the main jacking points. Refer to A.P. 4505A, Vol.1, Book 1, Sect.2, Chap.4.
- (6) Check by inclinometer at each transport rib 162.5 in. (refer to

A.P.4505A, Vol.1, Book 1, Sect.4, Chap.1, para.36 and fig.4), until the incidence setting of the port and starboard wings are identical. Rig the centre section rear spar to give a horizontal reading.

- (7) Adjust the nose steady jack at the fuselage front pressure bulkhead, until the jacking pads are touching the skin, measure the jack extension, and then apply pressure on the jack until the dimension at the jack extension is increased by 7/16 in.
- (8) Position the wing trestles (U.1058) below each wing and ensure that the outer portion of the wing trestle (U.1132) is located at rib 618. With the trestle positioned at this point it will ensure that the load is taken on the front and rear

spars, and so prevent damage occurring. Raise the wing tips without twist by 2.0 in. ▶

The aircraft is now ready for work to proceed on the removal and renewal of the skins. It is important that the aircraft should not be disturbed until the work is completed. It is, however, permissible to open any one engine access door in each bay for access to the underside of the wing top skins.

325. The above instructions will also apply if only one wing skin panel has to be removed, excepting that the engine, or engines, on the side where the repair is taking place need only be removed. When carrying out flush insertion skin repairs, up to approximately 12 in. x 12 in., it is not necessary to follow the procedure as laid down in para.324.

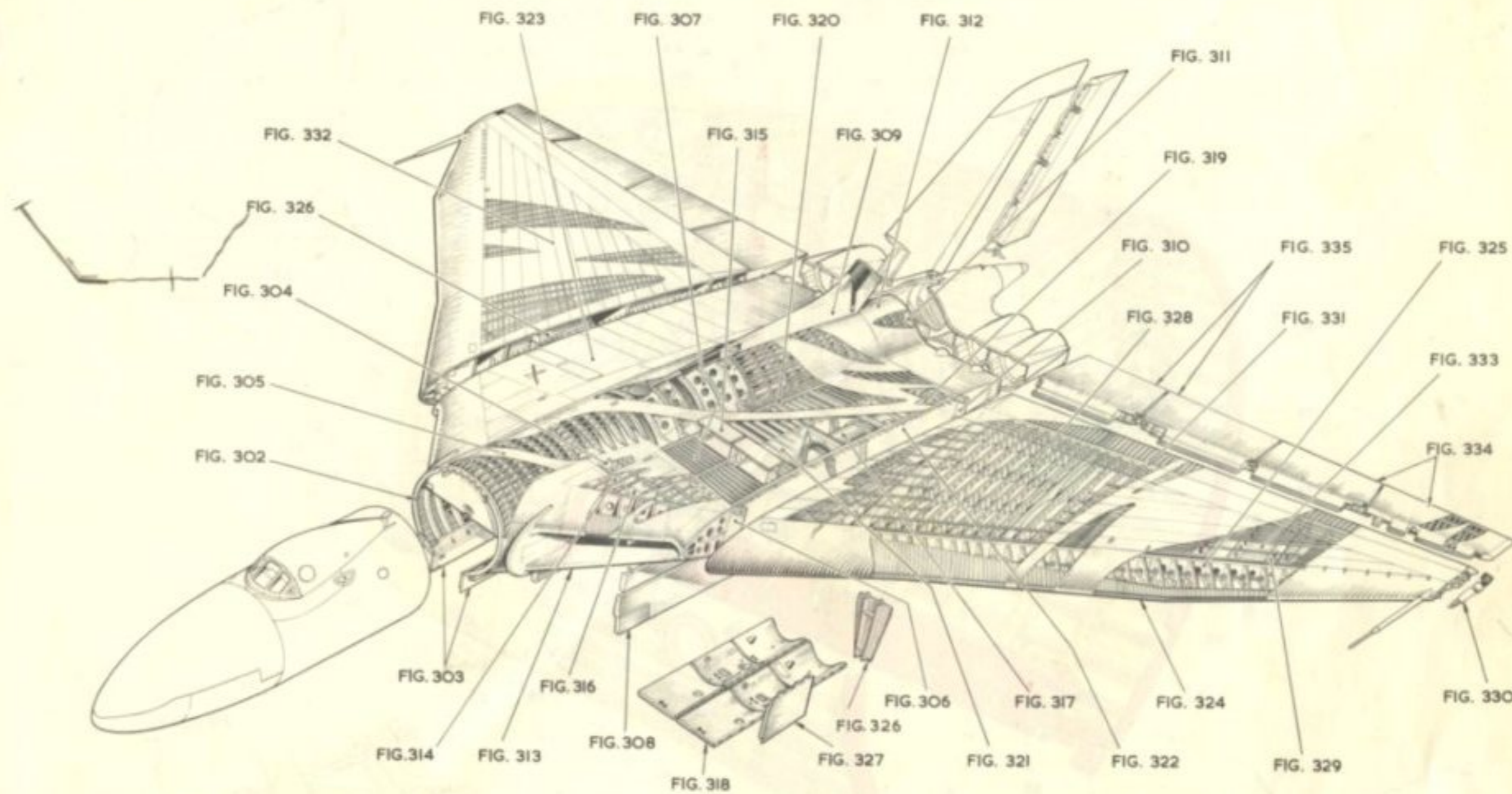


FIG. 302 NOSE WHEEL AND NUMBER ONE TANK BAYS
 FIG. 303 NOSE WHEEL DOORS
 FIG. 304 NUMBER TWO TANK BAY
 FIG. 305 SKINNING NUMBER ONE AND TWO TANK BAYS
 FIG. 306 FRONT SPAR-CENTRE SECTION
 FIG. 307 BOMB BAY
 FIG. 308 BOMB BAY DOORS

FIG. 309 DORSAL FIN
 FIG. 310 REAR SPAR-CENTRE SECTION
 FIG. 311 STRUCTURE APT OF REAR SPAR
 FIG. 312 SKINNING APT OF REAR SPAR
 FIG. 313 LEADING EDGE AIR INTAKE AND SKINS
 FIG. 314 INTAKE FORWARD OF FRONT SPAR
 FIG. 315 INTAKE APT OF FRONT SPAR

FIG. 316 AIR INTAKE TUNNELS
 FIG. 317 ENGINE BAY AND REAR STRUCTURE
 FIG. 318 ENGINE ACCESS DOORS - PORT OUTER
 FIG. 319 JET PIPE TUNNELS
 FIG. 320 INBOARD ENGINE RIB
 FIG. 321 CENTRE ENGINE RIB
 FIG. 322 OUTBOARD ENGINE RIB

FIG. 323 CENTRE SECTION SKINNING
 FIG. 324 OUTER WING LEADING EDGE
 FIG. 325 OUTER WING FRONT SPAR
 FIG. 326 UNDERCARRIAGE BAY AND AFT STRUCTURE
 FIG. 327 UNDERCARRIAGE BAY DOOR
 FIG. 328 TANK BAYS
 FIG. 329 OUTBOARD WING STRUCTURE

FIG. 330 OUTBOARD WING TIP
 FIG. 331 OUTER WING REAR SPAR AND TRAILING EDGE
 FIG. 332 TOP SKINS-OUTER WING
 FIG. 333 BOTTOM SKINS-OUTER WING
 FIG. 334 ALERON PORT I/B-O/B
 FIG. 335 ELEVATOR I/B-O/B

Fig. 301 Main plane key diagram

RESTRICTED

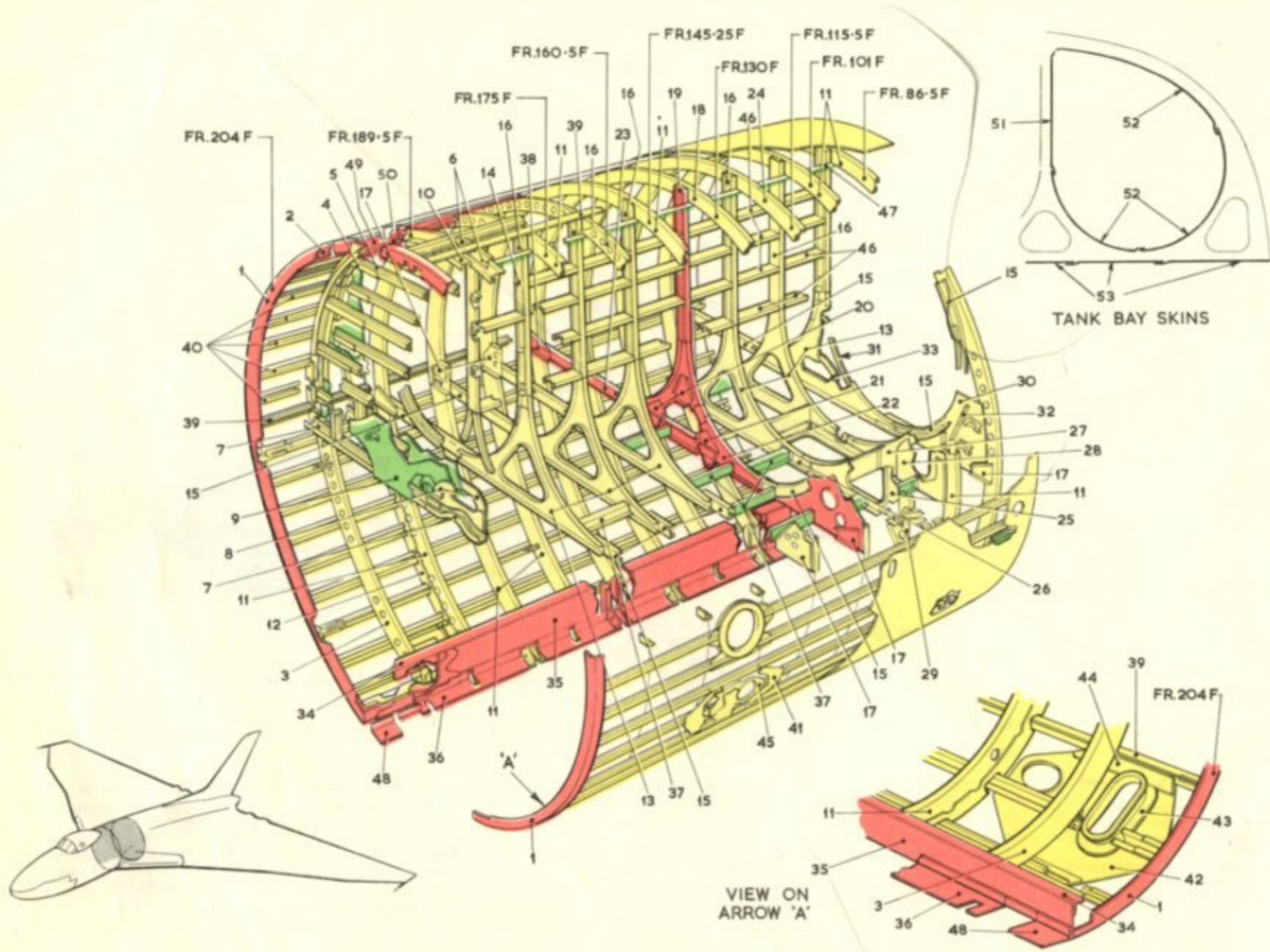


Fig. 302. Structure - No. Tank bays
RESTRICTED

KEY TO FIG.302

Item	Material		Description	Negligible Damage				Repair Fig.
	Spec.	S.W.G. or Section		Dents	Dist. Apart	Holes	Pitch Ratio	
			Depth		Dia.			
1	L.65	300/SS.3075	Half ring	-	-	-	-	-
2	L.65	300/SS.3075	Joint angle	* -	-	-	-	-
3	L.72	420/SS.1793	Former	-	-	-	-	-
4	D.T.D.687	769/SS.1793	Capping strip	0.1	2.5	0.25	4:1	-
5	L.72	211/SS.1793	Stiffener	0.1	2.5	0.25	4:1	112
6	L.72	393/SS.1793	Blanking plate	0.1	2.5	0.25	6:1	108
7	L.72	20	Channel	0.15	2.5	0.25	4:1	108
8	L.72	20	Stiffening plate	0.1	2.5	0.25	4:1	-
9	L.72	26	Fireproofing skin	0.2	2.0	-	-	103
10	L.72	24	Channel	0.2	2.5	0.25	6:1	108
11	L.72	16	Former	0.1	2.5	0.25	4:1	108
12	L.72	420/SS.1793	Skin support angle	0.1	2.5	0.25	4:1	-
13	L.72	20	Centre pressing	0.15	2.5	0.25	4:1	108
14	L.72	20	Angle bracket	x 0.1	2.5	-	-	-
15	L.72	486/SS.1793	Cross member	0.1	2.5	0.25	4:1	108
16	L.72	600/SS.1793	Support channel	0.1	2.5	0.25	4:1	108
17	L.72	18	Joint bracket	0.1	2.5	0.25	4:1	115
18	L.72	224/SS.1793	Former	0.1	2.5	0.25	4:1	108
19	L.72	16	Tank channel support	0.05	3.0	0.25	6:1	108
20	L.72	16	Gusset plate	0.05	3.0	-	-	115
21	L.72	18	Gusset plate	0.05	3.0	-	-	115
22	L.72	20	Centre pressing	0.1	2.5	0.25	6:1	108
23	L.72	486/SS.1793	Cross member	0.05	3.0	0.25	6:1	108
24	L.72	18	Former	0.1	2.5	0.25	4:1	108
25	L.72	20	Pressing	0.15	2.5	0.25	4:1	108
26	L.72	18	Joint channel	0.1	2.5	0.25	4:1	108
27	L.72	20	Pressing	0.15	2.5	0.25	4:1	108
28	L.72	16	Mounting plate	0.1	2.5	0.25	6:1	-
29	L.72	20	Joint plate	0.1	2.5	0.25	4:1	115
30	L.72	16	Stiffener plate	0.05	3.0	0.25	4:1	-
31	L.72	620/SS.1793	Angle	0.1	2.5	-	-	113
32	L.72	20	Angle	x 0.1	2.5	-	-	-
33	L.72	20	Stiffening ring	0.1	2.5	0.25	4:1	-
34	L.65	324/SS.3075	Angle	-	-	-	-	-
35	D.T.D.687	16	Web	-	-	-	-	-
36	L.72	16	Angle	-	-	-	-	-
37	L.72	16	Stiffeners	0.05	3.0	-	-	108
38	L.72	18	Joint bracket	0.05	3.0	-	-	108
39	L.65	325/SS.3075	'T' stringer	0.05	3.0	-	-	110
40	L.72	211/SS.1793	Top hat stringer	0.1	2.5	-	-	112
41	L.72	18	Doubling plate	0.1	2.5	0.25	6:1	-
42	L.72	18	Stiffening plate	0.1	2.5	0.25	6:1	-
43	L.59	16	Stiffening ring	0.1	2.5	0.25	6:1	-
44	L.72	18	Attachment angle	0.1	2.5	-	-	-
45	L.72	18	Reinforcing ring	0.1	2.5	0.25	6:1	-
46	L.72	24	Intercostal	0.2	2.0	0.25	3:1	108,115
47	L.72	12d/SS.1793	Angle	0.1	2.5	-	-	113
48	L.72	16	Angle	-	-	-	-	-
49	D.T.D.687	14	Web	-	-	-	-	-
50	L.65	-	Angle	-	-	-	-	-
51	L.72	22	Tank bay skins (yellow)	0.1	3.0	-	-	-
52	L.72	24	Tank bay skins (yellow)	0.1	3.0	-	-	-
53	L.72	28	Tank bay skins (green)	0.2	2.0	-	-	-

* No repairs permitted.

x More expedient to renew than repair.

All dimensions are quoted in inches.

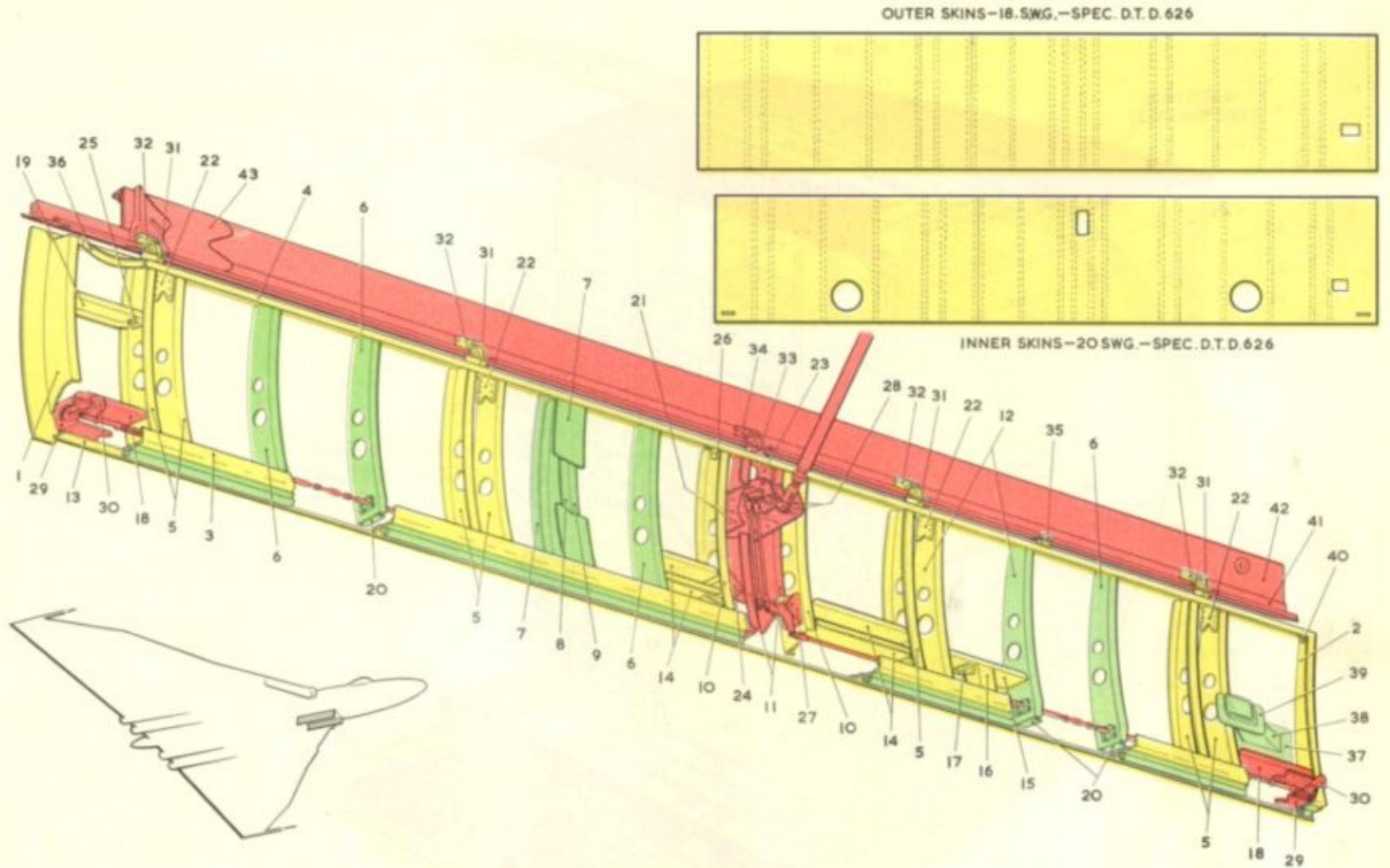
RESTRICTED

KEY TO FIG.303

Item	Material		Description	Negligible Damage				Repair Fig.
	Spec.	S.W.G. or Section		Dents Depth	Dist. Apart	Holes Dia.	Pitch Ratio	
1	L. 72	16	Front edge member	0.1	2.5	0.25	6:1	108
2	L. 72	16	Rear edge member	0.1	2.5	0.25	6:1	108
3	L. 72	18	Channel	0.1	2.5	0.25	6:1	107, 108
4	L. 72	16	'Z' member	0.1	2.5	0.25	8:1	108
5	L. 72	20	Former	0.1	2.5	0.5	4:1	105, 107, 108
6	L. 72	22	Former	0.2	2.0	0.5	4:1	105, 107, 108
7	L. 72	18	Strap plate	0.2	2.0	0.5	4:1	-
8	L. 72	22	Former	0.2	2.0	0.5	4:1	105, 107, 108
9	L. 72	22	Inner skin angle	0.2	2.0	-	-	113
10	L. 72	20	Jack side former	0.1	2.5	0.25	6:1	105, 107, 108
11	L. 72	14	Jack former	0.05	3.0	-	-	105, 107, 108
12	L. 72	18	Former	0.1	2.5	0.5	4:1	105, 107, 108
13	L. 72	925/SS, 1793	Angle	0.1	2.5	-	-	-
14	L. 72	20	Intercostal	0.1	2.5	0.25	6:1	108, 115
15	L. 72	18	Intercostal	0.1	2.5	0.25	6:1	108, 115
16	L. 65	225/SS, 3075	Channel piece	x 0.1	2.5	0.25	6:1	-
17	L. 72	18	Bracket	x 0.1	2.0	-	-	-
18	L. 72	20	Intercostal	0.05	3.0	-	-	-
19	L. 72	20	Intercostal	0.1	2.5	0.25	6:1	108, 115
20	L. 72	16	Bracket	x 0.05	3.0	-	-	-
21	L. 72	8	Side plates	x -	-	-	-	-
22	L. 72	12	Backing strap	* 0.05	3.0	-	-	-
23	L. 72	12	Backing strap	* -	-	-	-	-
24	L. 72	16	Bracket	* -	-	-	-	-
25	L. 72	20	Bracket	x 0.1	2.5	-	-	-
26	L. 72	16	Bracket	* -	-	-	-	-
27	D. T. D. 721	-	Lever housing	* -	-	-	-	-
28	L. 65	-	Distance piece	* -	-	-	-	-
29	D. T. D. 721	-	Housing	x -	-	-	-	-
30	D. T. D. 683	-	Latch (hook)	* -	-	-	-	-
31	D. T. D. 683	-	Half hinge	* -	-	-	-	-
32	D. T. D. 683	-	Half hinge	* -	-	-	-	-
33	D. T. D. 683	-	Half hinge	* -	-	-	-	-
34	D. T. D. 683	-	Half hinge	* -	-	-	-	-
35	L. 33	-	Lever	* -	-	-	-	-
36	L. 72	18	Flanged reinforcing piece	0.1	2.5	0.25	6:1	108
37	L. 72	18	Stiffening plate	0.15	2.5	0.5	4:1	-
38	L. 59	20	Outlet duct	0.15	2.5	-	-	-
39	L. 59	18	Attachment plate	0.15	2.5	0.5	4:1	-
40	L. 72	16	Bracket	x 0.05	3.0	-	-	-
41	L. 72	16	Angle	-	-	-	-	-
42	D. T. D. 687A	16	Web	x -	-	-	-	-
43	D. T. D. 687A	16	Doubling plate	x -	-	-	-	-

* No repairs permitted
 x More expedient to renew than repair
 All dimensions are quoted in inches

RESTRICTED



SKINNING

NEGLECTIBLE DAMAGE ALLOWED ON SKINS

DENTS	DEPTH	DIST. APART
YELLOW	0-10 IN.	3-0 IN.

SKIN REPAIRS SEE FIG. 103-104

DAMAGE IN AREAS OF CONCENTRATED RIVETING MUST BE REPAIRED WITH JOINTS ARRANGED OUTSIDE THE AREA.

**Fig. 303. Nose-wheel doors
RESTRICTED**

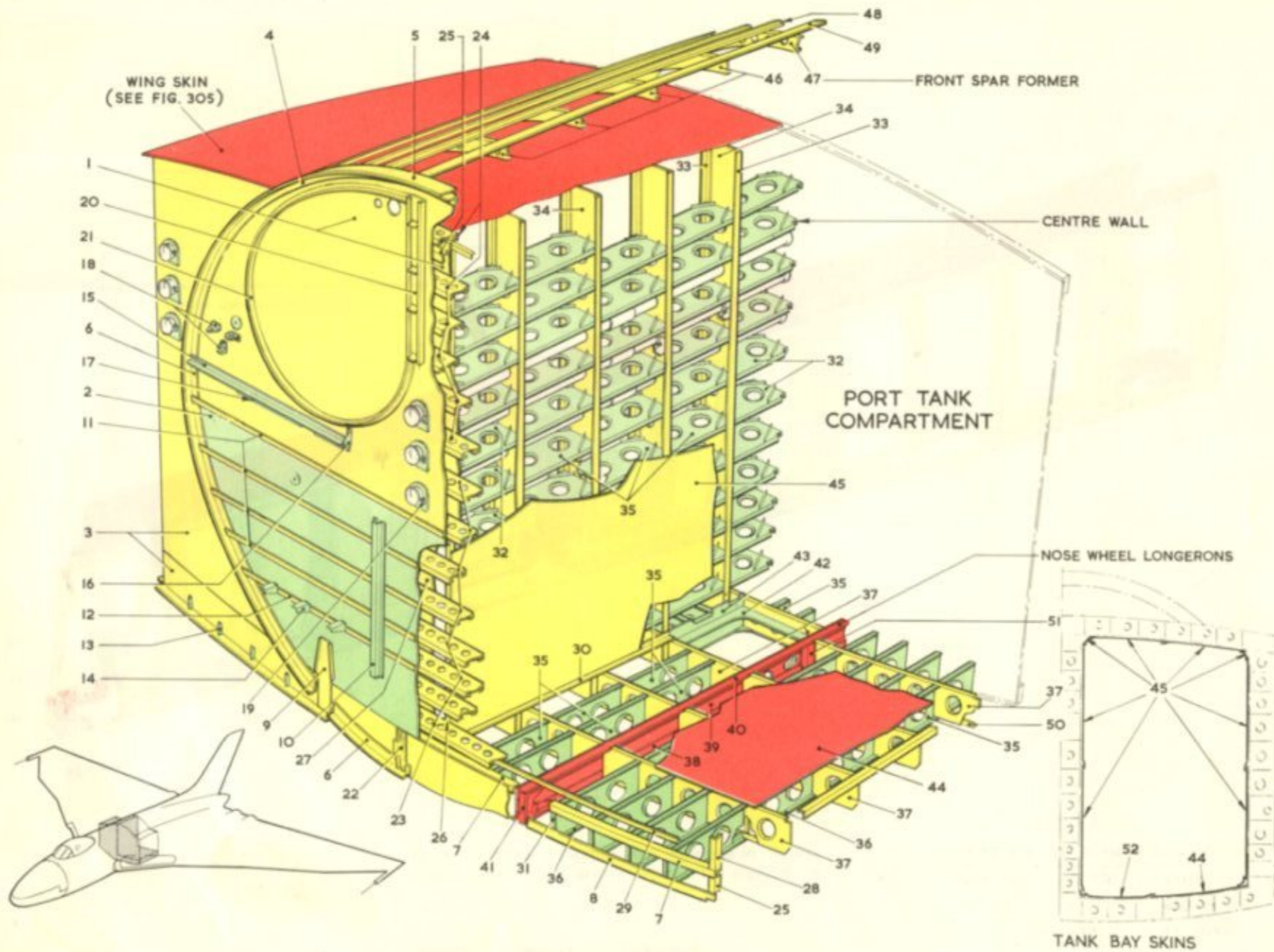


Fig. 304. No2 Tank bay
RESTRICTED

KEY TO FIG.304

Item	Material		Description	Negligible Damage					Repair Fig.
	Spec.	S.W.G. or Section		Dents		Holes			
				Depth	Dist. Apart	Dia.	Pitch Ratio		
1	D.T.D.687	20	Bulkhead web	0.05	3.0	-	-	-	
2	L.72	24	Bulkhead web	0.1	2.5	0.25	3:1	-	
3	D.T.D.687	18	Bulkhead web	0.05	3.0	0.25	6:1	-	
4	L.72	18	Angle	0.05	3.0	-	-	113	
5	L.72	18	Joint strap	0.05	3.0	-	-	-	
6	L.72	14	Angle	0.05	3.0	-	-	114	
7	D.T.D.687	12	Angle	0.05	3.0	0.25	6:1	114	
8	D.T.D.687	10	Angle	0.05	3.0	-	-	114	
9	L.72	16	Reinforcing plate	x 0.05	3.0	-	-	-	
10	L.72	211/SS.1793	De-icing panel support	0.1	2.5	0.25	3:1	112	
11	D.T.D.687	14	Stiffening piece	0.025	3.0	-	-	114	
12	D.T.D.687	16	Stiffening piece	0.025	3.0	-	-	114	
13	L.72	20	Angle	x 0.05	2.5	-	-	-	
14	L.72	20	Bracket	x 0.05	2.5	-	-	-	
15	L.72	22	Angle	0.05	2.5	0.25	3:1	113	
16	L.72	20	Bracket	x 0.025	3.0	-	-	-	
17	L.72	20	Angle	x 0.025	3.0	-	-	-	
18	L.72	18	Flame switch bracket	x -	-	-	-	-	
19	L.72	20	Reinforcing plate	x 0.05	2.5	-	-	-	
20	L.72	486/SS.1793	Channel	0.05	3.0	0.25	6:1	108	
21	L.72	446/SS.1793	Angle	0.05	3.0	-	-	114	
22	L.72	18	Bracket	x 0.025	3.0	-	-	-	
23	D.T.D.687	595/SS.1793	Channel	-	-	0.25	6:1	108	
24	D.T.D.687	594/SS.1793	Channel	-	-	0.25	6:1	108	
25	L.72	16	Angle	0.05	3.0	-	-	113	
26	L.72	13b/SS.1793	Angle	0.1	2.5	-	-	113	
27	D.T.D.687	18	Bulkhead web	0.05	3.0	-	-	-	
28	D.T.D.687	16	Angle	x 0.05	3.0	0.25	6:1	-	
29	L.72	183/SS.1793	Angle	0.05	3.0	0.25	6:1	113	
30	L.72	446/SS.1793	Angle	0.05	3.0	0.25	6:1	114	
31	L.72	22	Angle	x 0.1	2.5	-	-	-	
32	L.72	22	Intercostal	0.1	2.5	0.25	4:1	106,115	
33	L.65	294/SS.3075	Stiffening angles	0.05	3.0	-	-	-	
34	L.72	18	Web vertical formers	0.05	3.0	0.25	6:1	-	
35	L.72	24	Intercostal	0.15	2.5	0.25	4:1	106,115	
36	L.72	747/SS.1793	Angle	0.05	3.0	-	-	-	
37	L.72	20	Floor members	0.05	3.0	0.25	6:1	106,115	
38	L.65	326/SS.3075	'T' section	*	-	-	-	-	
39	D.T.D.687	14	Former web	0.025	3.0	-	-	-	
40	L.65	299/SS.3075	Former angle	*	-	-	-	-	
41	L.65	-	Bracket	*	-	-	-	-	
42	L.72	16	Support pressing	0.05	3.0	0.25	4:1	-	
43	L.72	20	Diaphragm	0.1	2.5	0.25	4:1	-	
44	L.72	12	Tank bay floor skin	0.025	3.0	-	-	-	
45	D.T.D.687	20	Inner skin	0.05	3.0	-	-	103,104	
46	L.72	20	Former channel	0.05	3.0	0.25	6:1	107,108	
47	L.72	18	Front spar former	0.1	2.5	-	-	107	
48	L.72	211/SS.1793	Stringer	0.05	3.0	-	-	112	
49	L.65	325/SS.3075	'T' stringer	0.05	3.0	-	-	-	
50	L.72	18	Angle	0.05	3.0	-	-	113,114	
51	L.72	18	Attachment angle	x 0.025	3.0	-	-	-	
52	D.T.D.687	18	Tank bay skins (yellow)	0.05	3.0	-	-	-	

* No repairs permitted

x More expedient to renew than repair

All dimensions are quoted in inches.

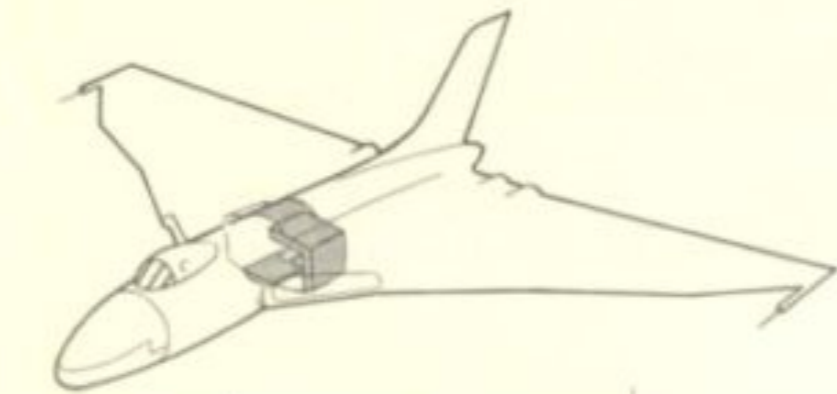
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KEY TO FIG.304A

Item	Material		Description	Negligible Damage				Repair Fig.
	Spec.	S.W.G. or Section		Dents	Holes	Pitch Ratio		
			Depth	Dist. Apart	Dia.			
1	L. 72	24	Intercostal	0.05	3.0	0.25	6:1	105, 115
2	L. 72	24	Intercostal	0.1	2.5	0.25	4:1	105, 115
3	L. 72	20	Former web	0.05	3.0	0.25	4:1	105, 115
4	D. T. D. 687	735/SS. 1793	Angle	0.05	3.0	-	-	-
5	L. 72	18	Angle	0.5	3.0	-	-	113
6	L. 72	20	Side member	0.05	3.0	0.25	6:1	107, 108
7	L. 72	20	Channel	x 0.05	3.0	0.25	6:1	-
8	D. T. D. 721	-	Attachment bracket	x 0.025	3.0	-	-	-
9	L. 65	249/SS. 3075	Attachment angle	x 0.05	3.0	-	-	-
10	D. T. D. 687	595/SS. 1793	Channel member	x 0.05	3.0	0.25	6:1	-
11	L. 72	18	Gusset	x 0.05	3.0	-	-	-
12	D. T. D. 363	17B. 1635	Booms	* 0.025	3.0	-	-	-
13	D. T. D. 683	Forging	Attachment bracket	*	-	-	-	-
14	D. T. D. 687	17	Rear side web	0.025	3.0	-	-	103, 104
15	D. T. D. 687	17	Strap plate	0.025	3.0	-	-	-
16	L. 72	16	Bracket	x 0.025	3.0	-	-	-
17	L. 72	27/SS. 1793	Angle	0.05	3.0	-	-	-
18	D. T. D. 687	14	Joint strap	0.025	3.0	-	-	-
19	L. 72	20	Intercostal	x 0.05	3.0	0.25	6:1	-
20	L. 72	22	Intercostal	0.1	2.5	0.25	6:1	105, 108
21	L. 72	20	Door frame member	0.1	2.5	0.25	6:1	-
22	L. 72	24	Intercostal	x 0.1	2.5	0.25	4:1	-
23	L. 72	24	Intercostal	x 0.1	2.5	0.25	6:1	-
24	L. 72	20	Intercostal web	0.05	3.0	0.25	6:1	105, 108
25	L. 72	20	Door frame extension	x 0.1	2.5	0.25	4:1	-
26	L. 72	20	Intercostal	x 0.1	2.5	0.25	4:1	-
27	L. 72	20	Corner plate	x 0.1	2.5	0.25	4:1	-
28	L. 72	20	Door angle	x 0.1	2.5	-	-	-
29	L. 72	20	Angle bracket	x 0.05	2.5	-	-	-
30	L. 72	18	Marker aerial frame	* 0.1	2.5	0.25	4:1	-
31	D. T. D. 118A	20	Fairing skin	0.1	2.5	-	-	103, 104
32	D. T. D. 118A	20	Butt strap	x 0.1	2.5	-	-	-
33	D. T. D. 687	14	Bottom wing skin	0.05	3.0	-	-	103, 104
34	L. 72	18	Channel	x 0.05	3.0	-	-	-
35	L. 72	20	Intercostal	x 0.1	2.5	0.25	6:1	-
36	L. 72	20	Angle	x 0.05	3.0	-	-	-
37	L. 72	20	Door frame member	0.1	2.5	0.25	6:1	-

* No repairs permitted
 x More expedient to renew than repair
 All dimensions are quoted in inches

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N°2 TANK
FORWARD
BULKHEAD

FRONT SPAR
DATUM

L.72 20.5WG.

FORWARD

SKIN LIMITS

DENTS

DEPTH.	DIST. APART
0.10	3.0

DIMENSIONS IN INCHES

PLAN VIEW OF
TOP FAIRING SKINS
(FOR REPAIRS SEE FIG. 103 & 104.)

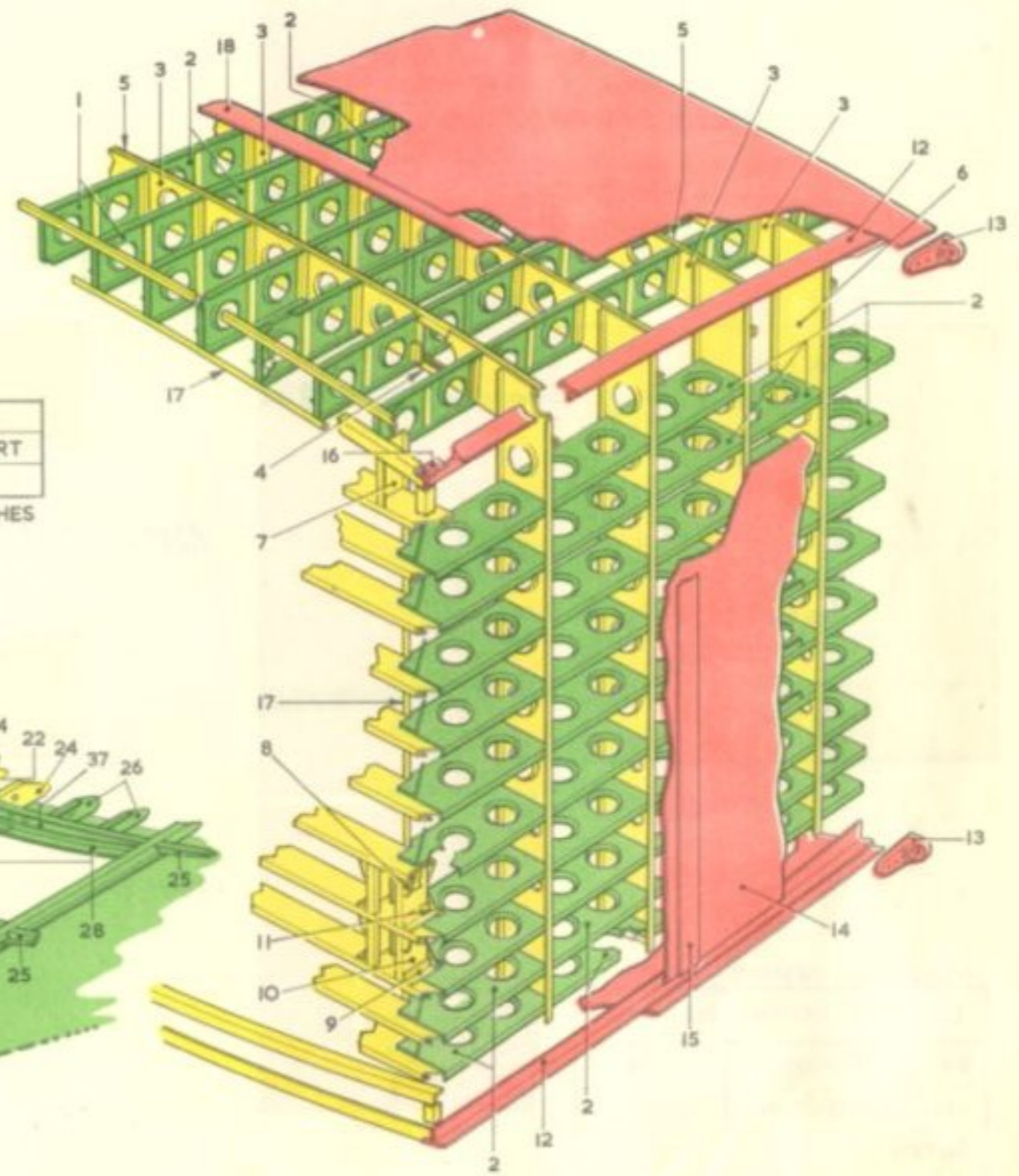
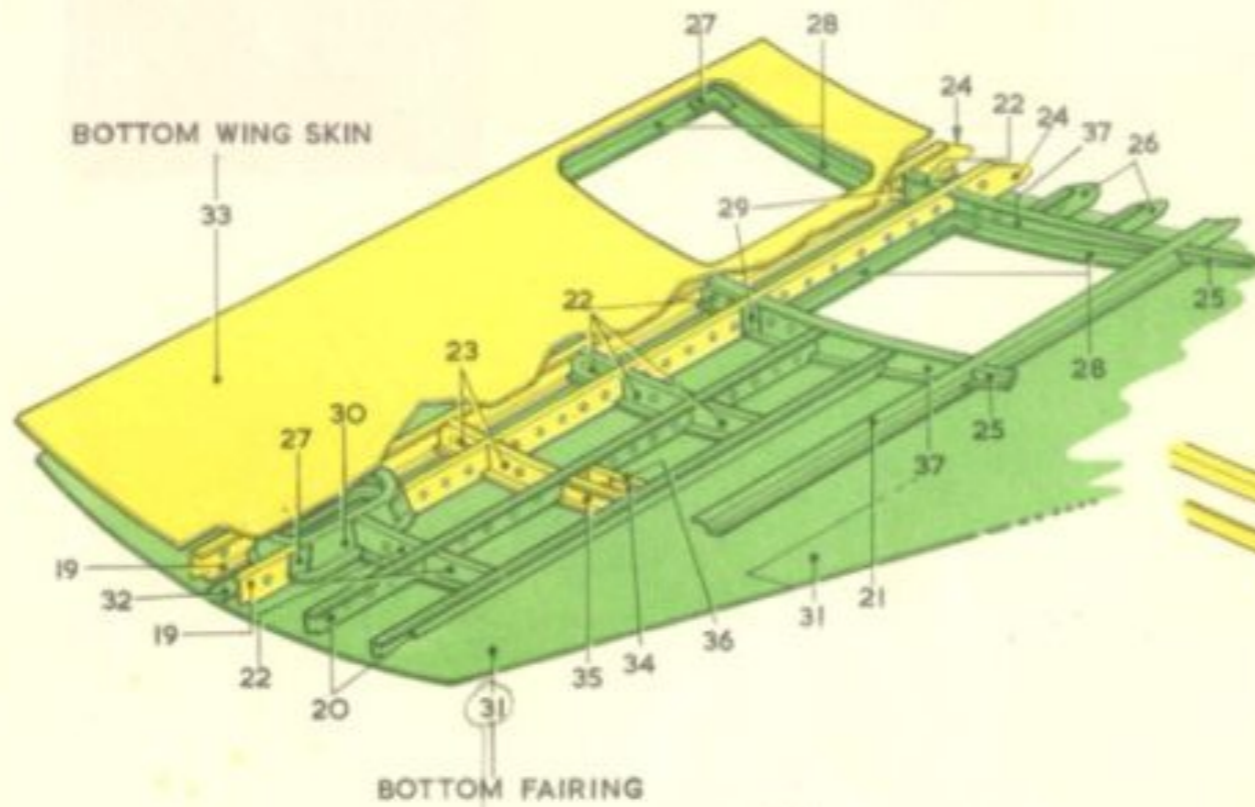
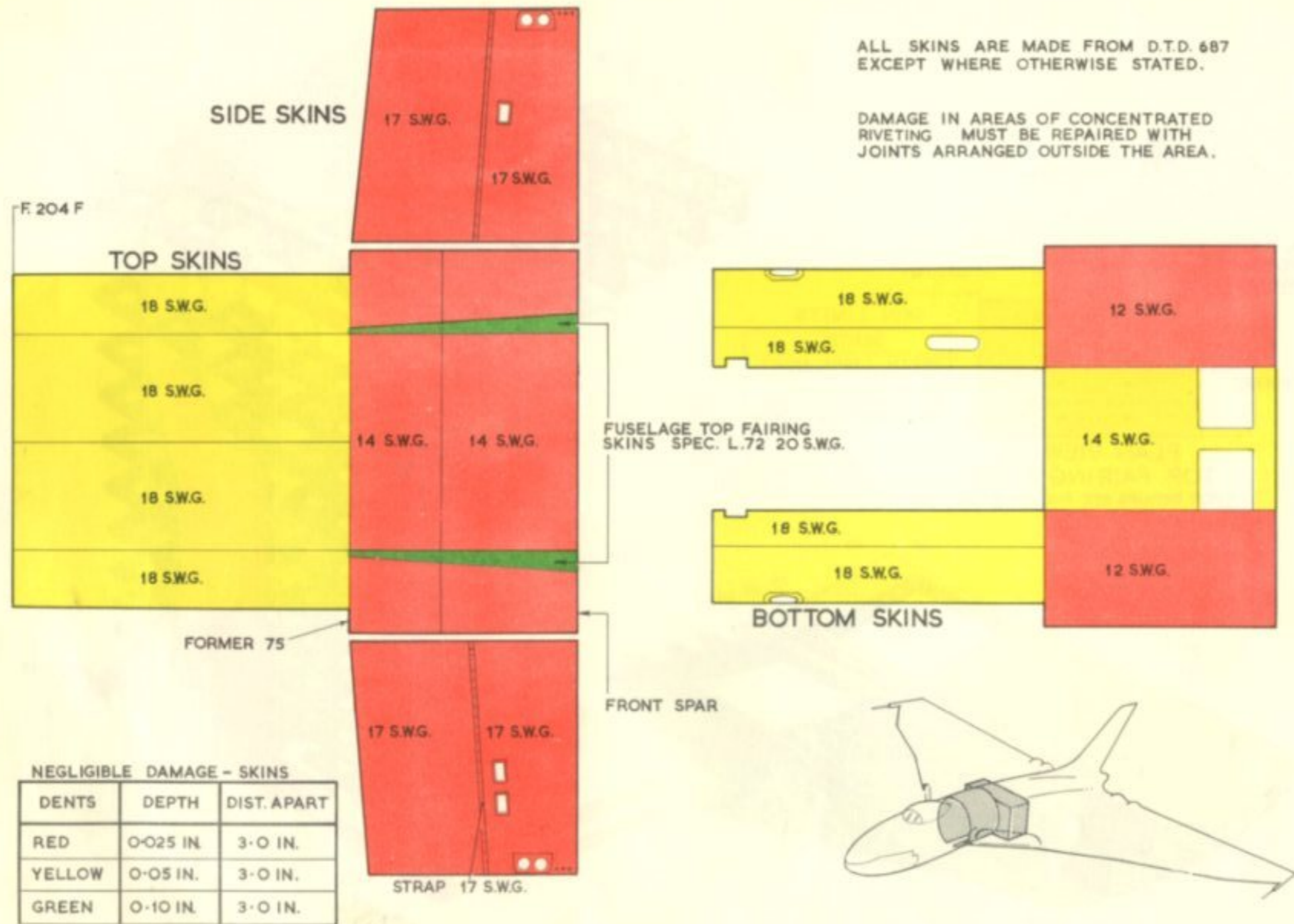


Fig. 304A. Outer tank wall and fairings

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Handwritten notes:
 4/17/61
 4/20/61
 Caution
 KM 506 aft of Pump 5th
 AH 477 forward end 1st



FOR SKIN REPAIRS SEE FIG. 103-104-116-117

Fig.305. No.1 & 2 Tank bays-Skinning

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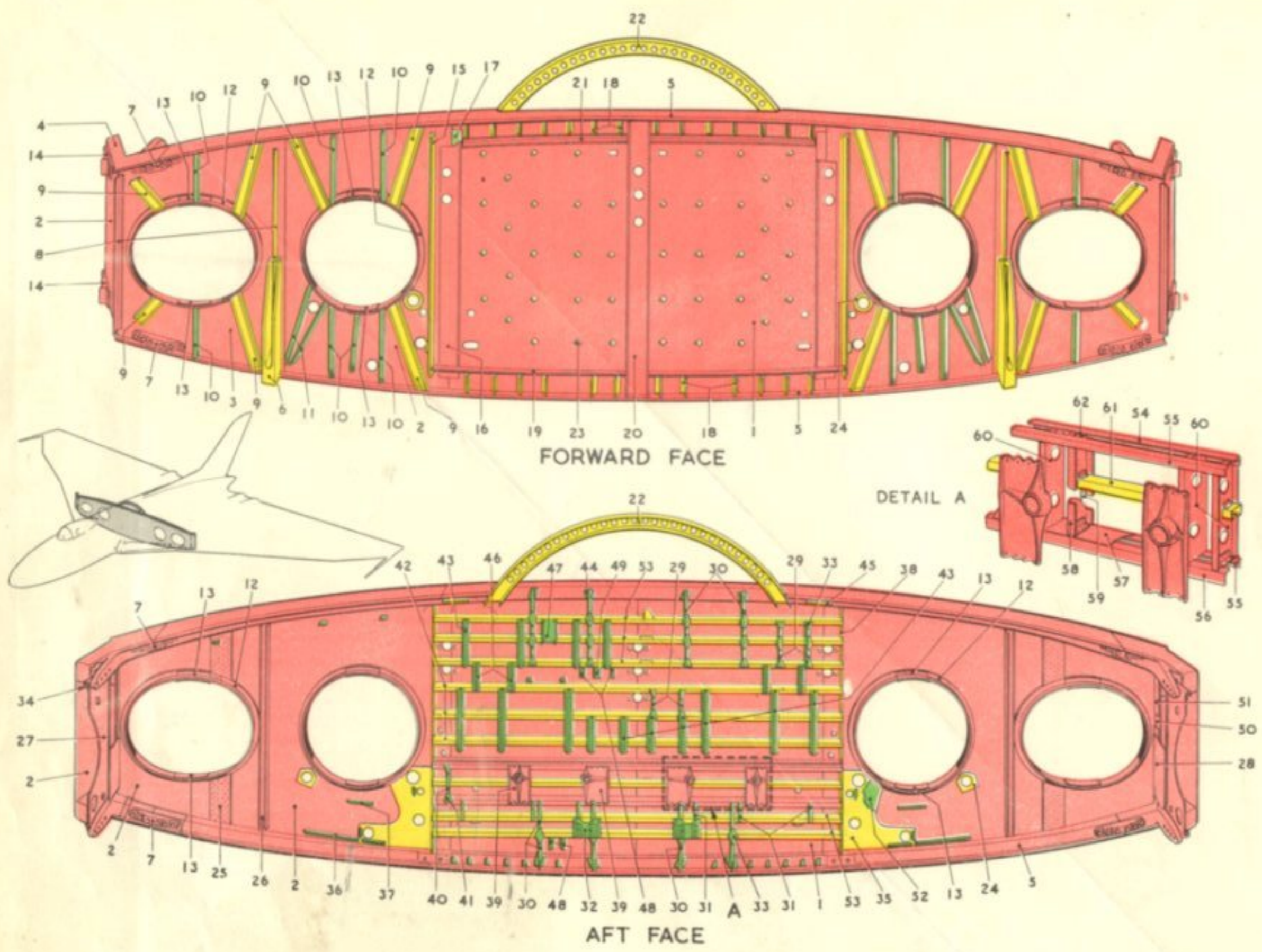


Fig 306. Front spar centre section
RESTRICTED

Fig. 306. Front spar — centre section

Item	Spec.	Material S.W.G. or Section	Description	Depth	Dents Dist. Apart	Negligible Damage Dia.	Holes Pitch Ratio	Repair Fig. No.
1	DTD.687	14	Spar web	0.05	3.0	1.0	8 : 1	103-104
2	DTD.687	8	Spar web	0.05	3.0	1.0	8 : 1	103-104
3	DTD.687	16	Reinforcing plate	0.05	3.0	1.0	8 : 1	103-104
4	DTD.683	Lt. alloy forging	Joint forging	*0.05	3.0	—	—	—
5	DTD.363	1-2/B.1635	Spar booms	*0.05	3.0	—	—	—
6	L.65	Lt. alloy bar	Jack support beams	*0.10	2.5	—	—	—
7	S.99	Hts. forging	Spar joint shackle	*0.05	3.0	—	—	—
8	L.72	18	Attachment angle	0.05	3.0	—	—	113
9	L.72	14	Reinforcing channel	0.10	2.5	0.5	4 : 1	108
10	L.72	486/SS.1793	Web stiffeners	†0.10	2.5	—	—	108
11	L.72	14	Web angle	†0.10	2.5	—	—	113-114
12	L.65	394, 395/SS.3075	Reinforcing angle	0.05	3.0	—	—	—
13	DTD.687	6	Angle joint plate	0.05	3.0	—	—	—
14	S.99	Forging	Reinforcing plate	0.05	3.0	—	—	—
15	DTD.687	17	Attachment angle	†0.10	2.5	—	—	—
16	DTD.687	13	Web joint plate	0.05	3.0	—	—	—
17	L.72	14	Joint packing	0.10	2.5	—	—	—
18	L.72	22	Attachment angle	†0.10	2.5	—	—	—
19	L.72	536/SS.1793	Attachment angle	0.05	3.0	—	—	—
20	DTD.687	13	Web joint channel	0.05	3.0	0.25	8 : 1	108
21	L.72	12a/SS.1793	Attachment angle	0.05	3.0	—	—	113
22	L.72	18	Former section	0.10	2.5	—	—	107
23	L.72	20	Tank button plates	† —	—	—	—	—
24	L.72	12	Reinforcing	†0.10	2.5	—	—	—
25	DTD.687	8	Web joint plate	0.05	3.0	—	—	—
26	DTD.687	10	Channel	0.10	2.5	—	—	108
27	L.73	14	Joint plate	0.05	3.0	0.25	4 : 1	103-104
28	DTD.687	12	Strap plate	0.05	3.0	—	—	—
29	L.72	20	Intercostal	†0.10	2.5	—	—	—
30	L.72	18	Intercostal	†0.10	2.5	—	—	—
31	L.72	18	Channel	†0.10	2.5	—	—	—
32	L.72	18	Bracket	†0.10	2.5	—	—	—
33	L.72	18	Gusset	†0.10	2.5	—	—	—
34	L.73	14	Attachment angle	0.05	3.0	—	—	—
35	DTD.687	12	Reinforcing plate	†0.10	2.5	1.0	8 : 1	—
36	L.72	20	Attachment angle	†0.10	2.5	—	—	—
37	L.72	155/SS.1793	Stiffener	†0.10	2.5	—	—	—
38	DTD.687	17	Attachment angle	†0.10	2.5	—	—	—
39	DTD.683	Alloy forging	Bracket	*0.05	3.0	—	—	—
40	L.72	14	Intercostal	†0.10	2.5	—	—	—
41	L.72	14	Gusset	†0.10	2.5	—	—	—
42	DTD.687	595/SS.1793	Stiffening member	0.10	2.5	0.5	4 : 1	108
43	L.72	511/SS.1793	Top hat stiffener	†0.10	2.5	—	—	—
44	L.65	Alloy bar	Attachment bracket	†0.10	2.5	—	—	—
45	L.72	24	Attachment angle	†0.10	2.5	—	—	—
46	L.72	451/SS.1793	Stiffener	†0.10	2.5	—	—	—
47	L.72	18	Mounting bracket	†0.10	2.5	0.5	4 : 1	—
48	DTD.687	582/SS.1793	Attachment angle	†0.10	2.5	—	—	—
49	L.72	20	Channel	†0.10	2.5	—	—	—
50	L.65	Alloy bar	Stiffener	0.05	3.0	0.5	6 : 1	—
51	DTD.687	6	Channel	0.05	3.0	0.5	6 : 1	—
52	DTD.687	17	Packing plate	†0.10	2.5	1.0	8 : 1	—
53	DTD.687	18	Stiffener web	0.10	2.5	0.5	4 : 1	—
54	DTD.363A	399/SS.3075	Stiffener angle	0.05	3.0	—	—	—
55	DTD.363A	396/SS.3075	Stiffener angle	0.05	3.0	—	—	—
56	DTD.363A	398/SS.3075	Stiffener angle	0.05	3.0	—	—	—
57	DTD.687	18	Stiffener web	0.05	3.0	0.25	6 : 1	—
58	L.65	357/SS.3075	Intercostal	0.05	3.0	0.5	6 : 1	—
59	L.72	12c/SS.1793	Intercostal angle	†0.10	2.5	—	—	—
60	L.72	16	Intercostal	0.05	3.0	0.5	6 : 1	—
61	L.72	16	Stiffener	0.10	2.5	0.25	4 : 1	108
62	L.73	10	Attachment angle	†0.05	3.0	—	—	—

* No repairs permitted

† More expedient to renew

All dimensions in inches

RESTRICTED

Key to Fig. 307. Bomb arches — port — fwd. face

Item	Spec.	Material S.W.G. or Section	Description	Depth	Negligible Damage		Holes Pitch Ratio	Repair Fig. No.
					Dents Dist. Apart	Dia.		
1	L.72	18	Gusset plate	†0-10	2-5	—	—	—
2	L.72	18	Attachment angle	†0-10	2-5	—	—	—
3	L.72	16	Stiffening angle	†0-10	2-5	—	—	—
4	L.72	10	Gusset plate	†0-10	2-5	—	—	—
5	L.72	385/SS.1795	Stiffener	0-10	2-5	—	—	—
6	L.72	18	Reinforcing plate	†0-05	3-0	0-3	8 : 1	—
7	L.72	18	Hinge channel	†0-10	2-5	0-3	8 : 1	—
8	DTD.683	Al. alloy	Attachment bracket	*0-10	2-5	—	—	—
9	L.72	85/SS.1793	Top hat stiffener	0-10	2-5	—	—	as 112
10	L.73	692/SS.1793	Joint stiffener	0-10	2-5	—	—	—
11	L.72	406/SS.1793	Attachment angle	0-10	2-5	—	—	—
12	L.65	294/SS.3075	Attachment angle	†0-05	3-0	—	—	—
13	L.72	20	Intercostal	†0-2	2-0	—	—	—
14	L.65	23/SS.3075	T-stiffener	†0-10	2-5	—	—	—
15	L.73	18	Joint strap	†0-20	2-0	—	—	—
16	L.65	362/SS.3075	Angle	†0-10	2-5	—	—	—
17	L.72	16	Reinforcing angle	†0-05	3-0	—	—	—
18	L.72	108/SS.1793	Channel	0-05	3-0	—	—	—
19	L.72	470/SS.1793	Angle	†0-05	3-0	—	—	—
20	L.73	793/SS.1793	Stiffener	0-10	2-5	—	—	as 112
21	DTD.683	Al. alloy	Crutching bracket	*0-10	2-5	—	—	—
22	L.72	16	Support channel	0-10	2-5	0-3	8 : 1	108
23	L.65	340/SS.3075	Stiffener	†0-05	2-5	—	—	—
24	L.73	16	Joint strap	†0-10	2-5	—	—	—
25	L.72	446/SS.1793	Angle	†0-10	2-5	—	—	—
26	L.72	619/SS.1793	Angle	†0-05	3-0	—	—	—
27	DTD.683	Al. alloy	Attachment bracket	*0-10	2-5	—	—	—
28	L.72	20	Reinforcing plate	0-05	3-0	—	—	103
29	L.72	937/SS.1793	Contour angle	0-05	3-0	—	—	—
30	L.72	18	Angle	†0-20	2-0	—	—	—
31	L.72	16	Angle	†0-20	2-0	—	—	—
32	L.72	12	Joint angle	†0-50	3-0	—	—	—
33	L.72	211/SS.1793	Top hat section	0-10	2-5	—	—	112
34	L.72	224/SS.1793	Stiffener	†0-10	2-5	—	—	—
35	L.73	314/SS.1793	Stiffener	†0-10	2-5	—	—	—
36	L.72	16	Side member	0-10	2-5	0-3	8 : 1	103
37	L.72	16	Joint member	†0-05	3-0	—	—	—
38	L.72	12	Doubler	†0-10	3-0	—	—	—
39	L.72	525/SS.1793	Stiffener	0-2	2-0	—	—	—
40	L.65	406/SS.3075	Edge member	0-05	3-0	—	—	—
41	L.72	16	Joint angle	†0-05	3-0	—	—	—
42	L.65	325/SS.3075	T-stringer	0-10	2-5	—	—	—
43	L.72	16	Attachment bracket	†0-10	2-5	—	—	—
44	DTD.683	Al. alloy	Attachment bracket	*0-05	3-0	—	—	—

* No repairs permitted
† More expedient to renew
All dimensions in inches

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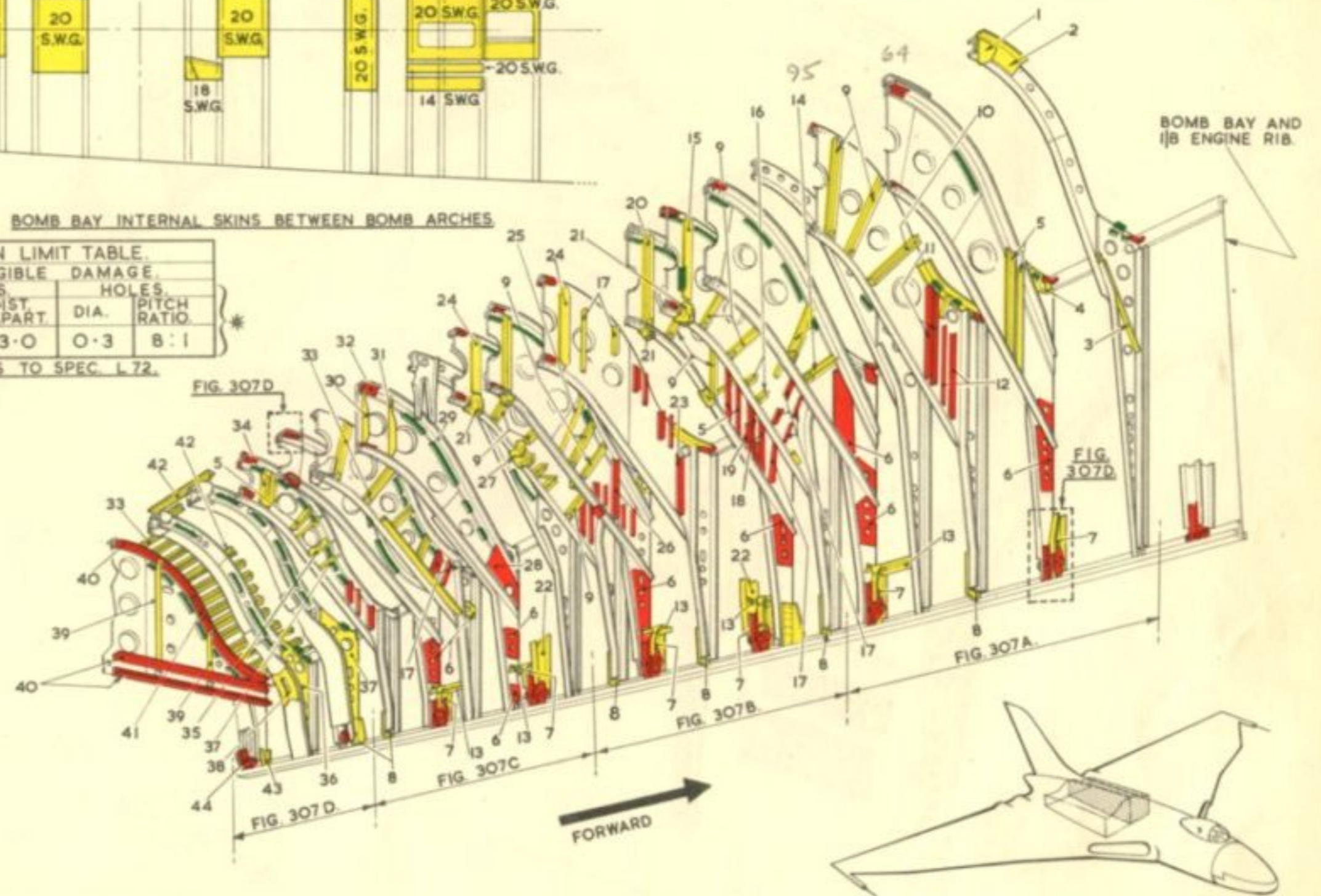
NOTE: FIG. NOS. 307A, 307B, 307C, AND 307D. SHOW STBD. VIEW OF BOMB ARCHES LOOKING FORWARD. ANNOTATION COVERS PORT AND STARBOARD.



BOMB BAY INTERNAL SKINS BETWEEN BOMB ARCHES

SKIN LIMIT TABLE.			
NEGLIGIBLE DAMAGE.			
DENTS		HOLES	
DEPTH.	DIST. APART.	DIA.	PITCH RATIO.
0.10	3.0	0.3	8:1

ALL SKINS TO SPEC. L.72.



* FOR REPAIRS SEE FIG. 103, 104, AND TEXT IN CHAPTER I.

Fig.307 Bomb arches - port
RESTRICTED

(A.L.12, June 58)

NOTE: SEE FIG. 349 FOR
DOUBLE WEB REPAIRS.

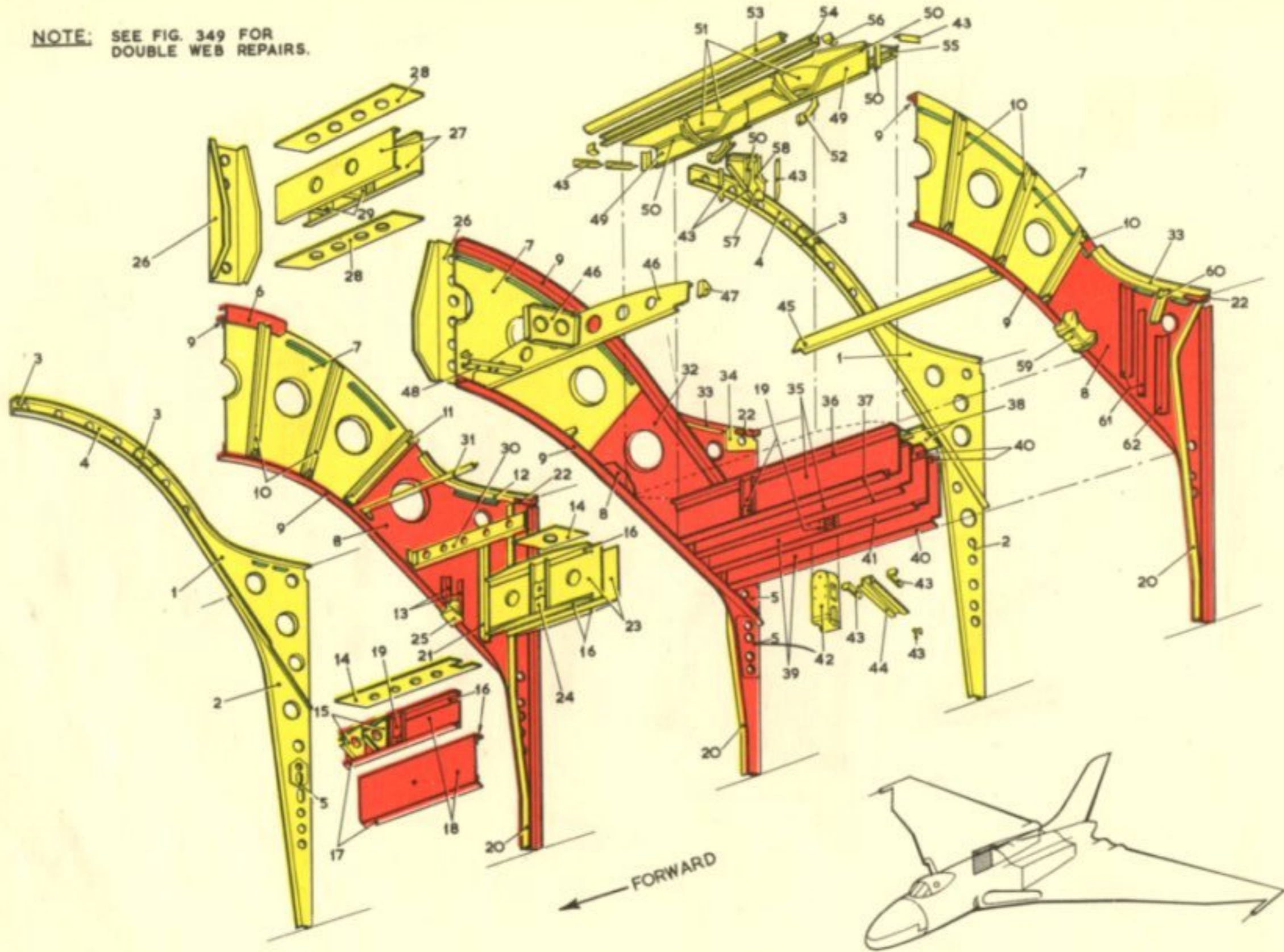


Fig.307A Bomb arches - starboard
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Key to fig. 307A. Bomb Arches—Stbd.

A.P.4505, Vol. 6, Part 1, Chap. 3 (A.L.12)

Item	Spec.	Material S.W.G. or Section	Description	Depth	Dents Dist. Apart	Negligible Damage Dia.	Holes Pitch Ratio	Repair Fig. No.
1	L.72	16	Former channel	0.10	2.5	0.3	8 : 1	103, 106
2	L.72	16	Vertical member	0.10	2.5	0.3	8 : 1	104, 106
3	L.72	16	Joint channel	†0.10	2.5	—	—	—
4	L.72	16	Channel centre	0.10	2.5	—	—	—
5	L.72	18	Stiffener plate	†0.10	2.5	—	—	—
6	L.72	18	Attachment plate	†—	—	—	—	—
7	L.73	18	Centre web	0.10	2.5	0.3	8 : 1	103
8	L.73	18	Outer web	0.05	3.0	0.25	8 : 1	103
9	L.65	404/SS/3075	Extruded angle	0.05	3.0	—	—	—
10	L.72	85/SS/1793	Web stiffener	0.10	2.5	—	—	As 112
11	L.73	14	Joint stiffener	†0.10	2.5	—	—	—
12	L.72	14	Contour angle	0.10	2.5	—	—	As 114
13	DTD.687	14	Attachment angle	†0.05	3.0	—	—	—
14	L.72	20	Intercostal plate	†0.2	2.0	—	—	—
15	L.72	18	Diaphragm	†0.2	2.0	—	—	—
16	L.65	356/SS/3075	Intercostal angle	†0.05	3.0	—	—	—
17	L.72	12	Intercostal angle	†0.05	3.0	—	—	—
18	DTD.687	14	Intercostal web	0.05	3.0	—	—	103
19	L.72	14	Stiffening channel	†0.05	3.0	—	—	—
20	L.65	304/SS/3075	Vertical angle	0.10	2.5	—	—	343
21	L.65	294/SS/3075	Attachment angle	†0.10	2.5	—	—	—
22	DTD.683 364	Forging	Attachment bracket	—	—	—	—	—
23	DTD.687	16	Intercostal web	0.10	2.5	0.3	8 : 1	103
24	L.72	14	Stiffening channel	†0.10	2.5	—	—	—
25	L.65	Al. Alloy	Crutching bracket	*0.10	2.5	—	—	—
26	L.72	18	Actuator channel	0.10	2.5	—	—	—
27	L.72	18	Side member	0.10	2.5	—	—	103
28	L.72	18	Top and bottom plate	0.20	2.0	—	—	—
29	L.72	18	Diaphragm	†0.10	2.5	—	—	—
30	L.72	20	Intercostal	0.10	2.5	—	—	—
31	L.72	20	Skin angle	†0.10	2.5	—	—	—
32	L.73	20	Web reinforcing	0.05	3.0	0.3	8 : 1	103
33	L.65	273/SS/3075	Web angle	†0.05	3.0	—	—	—
34	L.72	10	Gusset plate	†0.05	3.0	—	—	—
35	DTD.687	18	Intercostal web	0.05	3.0	—	—	103
36	L.65	307/SS/3075	Stiffening angle	0.05	3.0	—	—	—
37	L.72	10	Stiffening angle	0.05	3.0	—	—	—
38	L.72	18	Top skins	†0.10	2.5	—	—	—
39	L.72	12	Intercostal webs	0.05	3.0	—	—	103
40	L.65	486/SS/3075	Intercostal angle	0.05	3.0	—	—	—
41	L.65	348/SS/3075	Intercostal angle	0.05	3.0	—	—	—
42	L.65	Al. Alloy	Crutching block	†0.10	2.5	—	—	—
43	L.72	18	Attachment angle	—	—	—	—	—
44	L.72	12	Stiffener	†0.10	2.5	—	—	—
45	L.72	596/SS/1793	Channel	0.20	2.0	—	—	—
46	L.72	20	Intercostal	0.20	2.0	0.3	8 : 1	—
47	L.72	18	Intercostal bracket	†0.10	2.5	—	—	—
48	L.72	264/SS/1793	Channel	†0.20	2.0	—	—	—
49	L.72	20	Web	0.20	2.0	0.3	8 : 1	—
50	L.72	126/SS/1793	Web angle	†0.20	2.0	—	—	—
51	L.72	16	Support tray	†0.20	2.0	—	—	—
52	L.72	20	Tray stiffeners	†0.20	2.0	—	—	—
53	L.73	16	Channel	†0.20	2.0	—	—	—
54	L.73	18	Channel	†0.20	2.0	—	—	—
55	L.72	16	Tray angle	0.20	2.0	—	—	114
56	L.72	16	Attachment angle	†0.20	2.0	—	—	—
57	L.72	24	Stiffener web	†0.20	2.0	—	—	—
58	L.72	18	Web stiffener	†0.20	2.0	—	—	—
59	L.65	Al. Alloy	Attachment bracket	†0.10	2.5	—	—	—
60	L.72	528/SS/1793	Lipped angle	†0.10	2.5	—	—	—
61	L.72	406/SS/1793	Support angle	†0.05	3.0	—	—	—
62	L.65	191/SS/3075	Attachment angle	†0.05	3.0	—	—	—

* No repairs permitted

† More expedient to renew

All dimensions in inches

RESTRICTED

(A.L.12, June 58)

Key to Fig. 307B Bomb Arches — Stbd.

Item	Spec.	Material S.W.G. or Section	Description	Dents Depth	Negligible Damage Dist. Apart	Holes Dia.	Pitch Ratio	Repair Fig. No.
1	L.73	18	Centre web	0.10	2.5	0.3	8 : 1	103
2	L.73	18	Lower web	0.05	3.0	0.25	8 : 1	103
3	L.65	305/SS/3075	Profile angle	0.05	3.0	—	—	—
4	L.72	85/SS/1793	Stiffener	0.10	2.5	—	—	as 112
5	DTD.683	Al. Alloy	Crutching bracket	*0.10	2.5	—	—	—
6	L.72	18	Angle	0.10	2.5	—	—	—
7	L.65	273/SS/3075	Contour angle	0.10	2.5	—	—	—
8	L.72	10	Gusset plate	†0.10	2.5	0.3	8 : 1	—
9	L.72	16	Attachment angle	0.05	3.0	—	—	—
10	L.72	18	Reinforcing plate	†0.05	3.0	—	—	—
11	L.72	16	Web	0.05	3.0	—	—	103
12	L.72	525/SS/1793	Intercostal angle	†0.05	3.0	—	—	—
13	L.65	Al. Alloy	Pivot bracket	*0.10	2.5	—	—	—
14	L.65	304/SS/3075	Stiffening angle	0.10	2.5	—	—	343
15	L.65	405/SS/3075	Profile member	0.05	3.0	—	—	—
16	L.72	14	Stiffening angle	0.10	2.5	—	—	—
17	L.72	16	Reinforcing angle	†0.10	2.5	—	—	114
18	L.73	10	Reinforcing	†0.10	2.5	—	—	—
19	L.65	333/SS/3075	Angle	0.05	3.0	—	—	—
20	L.72	20	Bracket	†0.05	3.0	—	—	—
21	L.72	20	Side member	0.2	2.0	—	—	103
22	L.72	18	Plate	†0.2	2.0	—	—	—
23	L.72	20	Channel	0.2	2.0	—	—	—
24	L.65	222/SS/3075	Booms	0.05	3.0	—	—	344
25	DTD.687	14	Web	0.05	3.0	0.3	8 : 1	103
26	L.72	16	Bracket	†0.2	2.0	—	—	—
27	L.72	14	Channel	†0.05	3.0	—	—	—
28	S.96	H.T. Steel	Bearing plate	†0.05	3.0	—	—	—
29	L.72	22	Angle	†0.2	2.0	—	—	—
30	DTD.626	6	Packing	†0.2	2.0	—	—	—
31	L.72	20	Diaphragm	†0.2	2.0	—	—	—
32	L.72	20	Mounting plate	†0.2	2.0	—	—	—
33	L.72	60/SS/1793	Attachment angle	†0.2	2.0	—	—	—
34	L.72	602/SS/1793	Stiffener	0.10	3.0	—	—	—
35	L.72	446/SS/1793	Angle	†0.10	3.0	—	—	—
36	L.72	20	Plate	†0.2	2.0	—	—	—
37	DTD.687	16	Web	0.10	2.5	0.3	8 : 1	103
38	L.65	356/SS/3075	Angle	0.10	2.5	—	—	—
39	L.65	340/SS/3075	Angle	†0.10	2.5	—	—	—
40	L.72	14	Stiffening channel	†0.10	2.5	—	—	—
41	L.72	16	Doubling plate	†0.05	3.0	—	—	—
42	L.65	356/SS/3075	Angle	†0.05	3.0	—	—	—
43	L.72	12	Angle	†0.05	3.0	—	—	—
44	L.72	18	Diaphragm	†0.2	2.0	—	—	—
45	L.65	404/SS/3075	Contour angle	0.05	3.0	—	—	—
46	L.65	192/SS/3075	T-stiffener	†0.10	2.5	—	—	—
47	L.72	247/SS/1793	Angle	†0.2	2.0	—	—	—
48	L.72	385/SS/1793	Stiffening channel	0.10	2.5	—	—	—
49	L.65	Al. Alloy	Crutching bracket	*0.10	2.5	—	—	—
50	L.72	12	Intercostal web	0.05	3.0	0.3	8 : 1	103
51	L.65	486/SS/3075	Intercostal booms	†0.05	3.0	—	—	—
52	L.65	Al. Alloy	Crutching block	*0.10	3.0	—	—	—
53	S.96	H.T.S. Bar	Crutching pad	*0.10	3.0	—	—	—
54	L.65	326/SS/3075	Attachment angle	†0.05	3.0	—	—	—
55	L.65	384/SS/3075	Bottom boom	†0.05	3.0	—	—	—
56	L.73	18	Reinforcing ring	†0.2	2.0	—	—	—
57	L.72	16	Plate	†0.2	2.5	—	—	—
58	L.65	23/SS/3075	Stiffener	†0.05	3.0	—	—	—
59	L.65	307/SS/3075	Angle	†0.05	3.0	—	—	—
60	L.72	619/SS/1793	Angle	†0.10	2.5	—	—	—
61	L.72	18	Channel	†0.10	2.5	—	—	—

* No repairs permitted

† More expedient to renew

All dimensions in inches

RESTRICTED

NOTE: SEE FIG. 349 FOR
DOUBLE WEB REPAIRS.

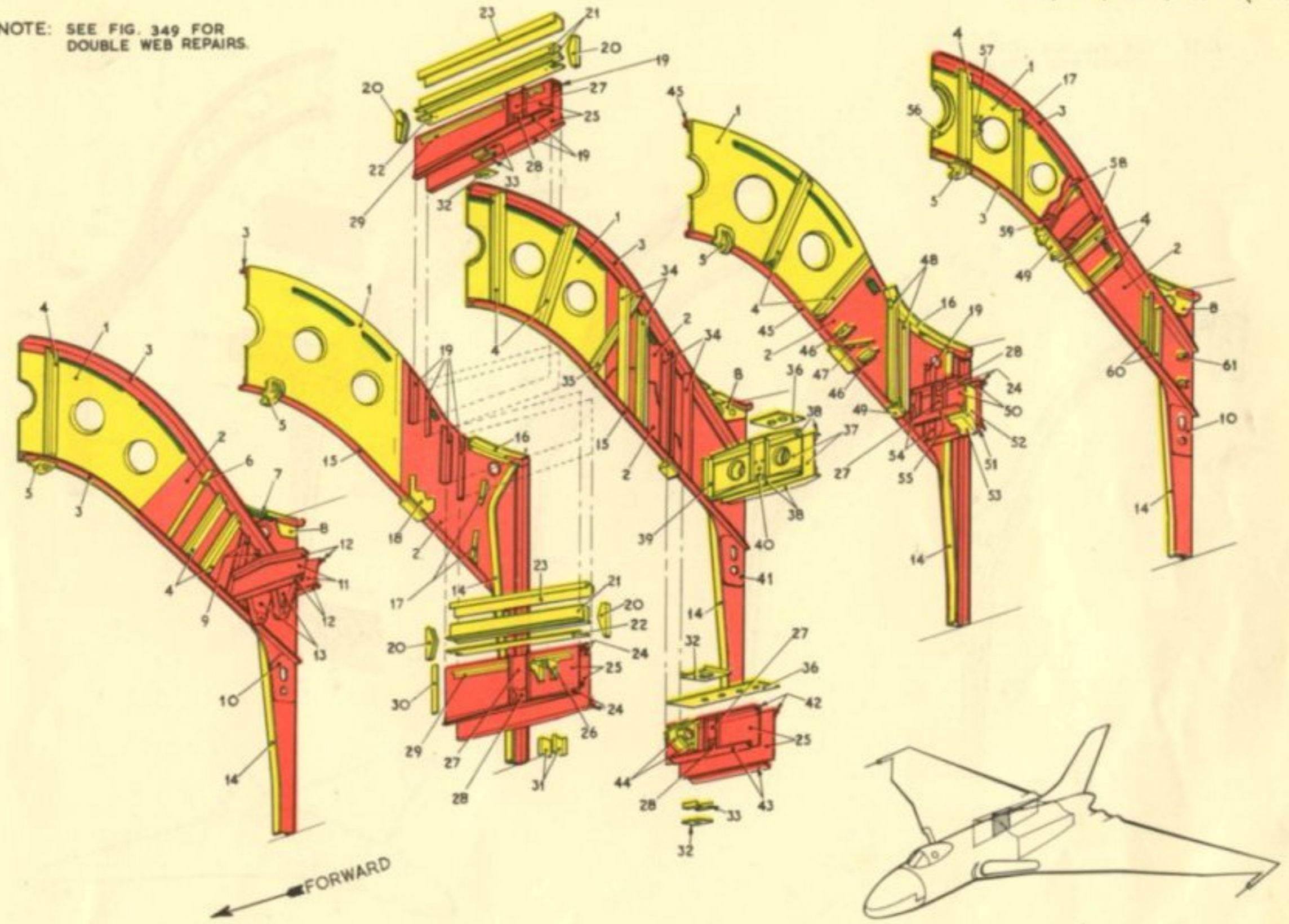


Fig.307B Bomb arches - starboard
RESTRICTED

(A.L12, June 58)

NOTE: SEE FIG. 349 FOR
DOUBLE WEB REPAIRS.

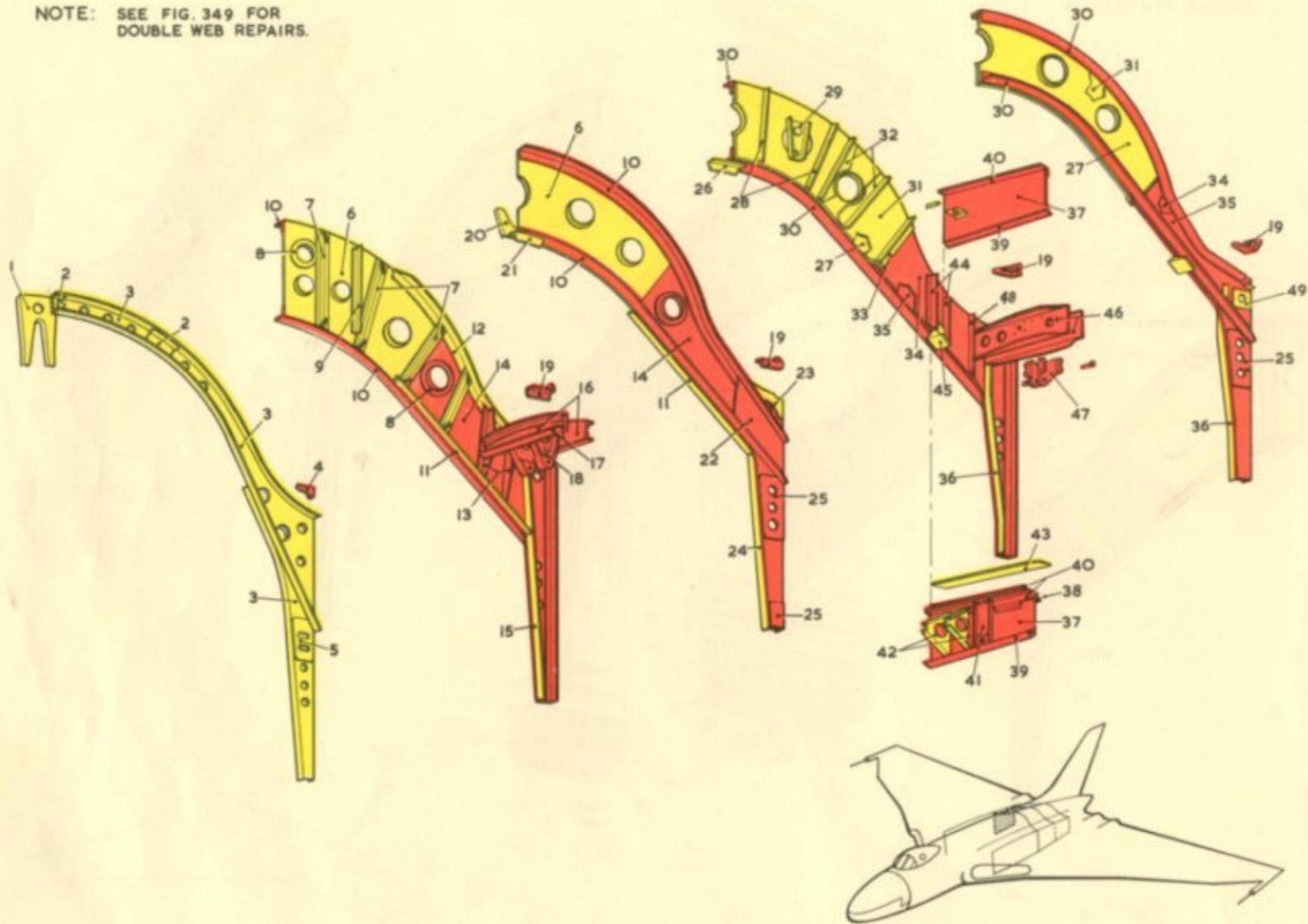


Fig.307C Bomb arches - starboard
RESTRICTED

Key to Fig. 307C — Bomb arches — stbd.

Item	Spec.	Material S.W.G. or Section	Description	Depth	Negligible Damage		Holes Pitch Ratio	Repair Fig. No.
					Dents	Dist. Apart		
1	L.72	18	Hanger bracket	†0.2	2.0	0.3	8:1	—
2	L.72	16	Insert channel	†0.05	3.0	—	—	—
3	L.72	16	Former member	0.05	3.0	—	—	103
4	DTD.683	Al. alloy	Attachment bracket	† —	—	—	—	—
5	L.72	18	Reinforcing plate	†0.10	2.5	—	—	—
6	L.72	18	Centre web	0.10	2.5	0.3	8:1	103
7	L.72	211/SS/1793	Stiffeners	0.10	2.5	—	—	112
8	L.72	18	Stiffening ring	†0.10	2.5	—	—	—
9	L.72	13b/SS/1793	Angle	†0.10	2.5	—	—	—
10	L.72	937/SS/1793	Angle	0.05	3.0	—	—	—
11	L.72	525/SS/1793	Angle	0.10	2.5	—	—	—
12	L.72	937/SS/1793	Angle	0.10	2.5	—	—	—
13	L.72	16	Angle	†0.05	3.0	—	—	—
14	L.72	18	Web	0.05	3.0	0.25	8:1	103
15	L.72	524/SS/1793	Vertical angle	0.10	2.5	—	—	—
16	L.72	16	Intercostal web	0.05	3.0	—	—	103
17	L.72	525/SS/1793	Intercostal angles	†0.05	3.0	—	—	—
18	L.65	Al. alloy	Pivot bracket	*0.05	3.0	—	—	—
19	DTD.683	Al. alloy	Attachment bracket	† —	—	—	—	—
20	L.72	18	Bracket	†0.10	2.5	—	—	—
21	L.65	356/SS/3075	Attachment angle	†0.10	2.5	—	—	—
22	L.72	20	Reinforcing plate	0.05	3.0	—	—	103
23	L.72	18	Gusset plate	†0.10	2.5	—	—	—
24	L.72	524/SS/1793	Vertical angle	0.10	2.5	—	—	—
25	L.72	18	Stiffening plate	†0.10	2.5	—	—	—
26	L.72	14	Attachment angle	†0.10	2.5	—	—	—
27	L.73	16	Centre web	0.10	2.5	0.3	8:1	103
28	L.72	385/SS/1793	Angle	0.05	3.0	—	—	—
29	L.72	22	Channel	†0.10	2.5	0.3	8:1	—
30	L.65	305/SS/3075	Contour angle	0.05	3.0	—	—	—
31	L.73	16	Centre reinforcing plate	0.05	3.0	0.3	8:1	103
32	L.65	314/SS/3075	Stiffeners	†0.10	2.5	—	—	—
33	L.72	16	Joint angle	†0.10	2.5	—	—	—
34	DTD.687	14	Reinforcing web	0.05	3.0	—	—	103
35	DTD.687	18	Lower web	0.05	3.0	0.3	8:1	103
36	L.65	304/SS/3075	Vertical angle	0.05	3.0	—	—	343
37	DTD.687	14	Intercostal web	0.05	3.0	—	—	103
38	L.72	12b/SS/1793	Angle	†0.05	3.0	—	—	—
39	L.72	12	Angle	†0.05	3.0	—	—	—
40	L.65	356/SS/3075	Angle	†0.05	3.0	—	—	—
41	L.72	16	Channel	†0.05	3.0	—	—	—
42	L.72	18	Diaphragm	†0.10	2.5	0.3	8:1	—
43	L.72	18	Plate	†0.20	2.0	0.3	8:1	—
44	DTD.687	14	Attachment angle	†0.05	3.0	—	—	—
45	L.65	Al. alloy	Crutching bracket	*0.10	2.5	—	—	—
46	L.65	Al. alloy	Forged beams	*0.05	3.0	—	—	—
47	L.65	Al. alloy	Hoist fitting	*0.05	3.0	—	—	—
48	L.65	294/SS/3075	Angle	†0.05	3.0	—	—	—
49	DTD.687	12	Reinforcing plate	†0.10	2.5	—	—	—

* No repairs permitted
† More expedient to renew
All dimensions in inches

RESTRICTED

(A.L.12, June 58)

Key to Fig. 307D — Bomb arches — stbd.

Item	Spec.	Material S.W.G. or Section	Description	Depth	Negligible Damage		Holes Pitch Ratio	Repair Fig. No.
					Dents Dist. Apart	Dia.		
1	L.72	14	Joint angle	†0-10	2-5	—	—	—
2	L.72	16	Former channel	0-10	2-5	—	—	105, 107
3	L.72	16	Top and bottom skins	0-10	2-5	0-25	5 : 1	—
4	L.72	16	Joint plate	†0-05	3-0	—	—	—
5	L.72	16	Side members	0-2	2-0	0-25	5 : 1	103
6	L.72	18	Joint angle	†0-10	2-5	—	—	—
7	L.72	18	Gusset plate	†0-10	2-5	—	—	—
8	L.72	20	Intercostal	0-2	2-0	0-25	5 : 1	106, 115
9	L.72	410/SS/1793	Stiffener	0-10	2-5	—	—	—
10	L.72	18	Contour angle	†0-10	2-5	—	—	—
11	DTD.683	Al. alloy	Bearing	* —	—	—	—	—
12	DTD.687	12	Reinforcing ring	†0-2	2-0	—	—	—
13	L.72	20	Skin panel	0-05	3-0	0-25	8 : 1	103
14	L.72	18	Skin panel	0-05	3-0	0-25	8 : 1	103
15	L.72	18	Doubling plate	0-05	3-0	—	—	—
16	L.72	14	Attachment bracket	0-05	3-0	—	—	—
17	S.96	H.T.S.	Joint plate	—	—	—	—	—
18	L.72	16	Stringer bracket	†0-05	3-0	—	—	—
19	L.72	10	Packing	†0-10	2-5	—	—	—
20	DTD.683	Al. alloy	Bearing bracket	* —	—	—	—	—
21	DTD.683	Al. alloy	Attachment bracket	*0-05	3-0	—	—	—

* No repairs permitted
 † More expedient to renew
 All dimensions in inches

RESTRICTED

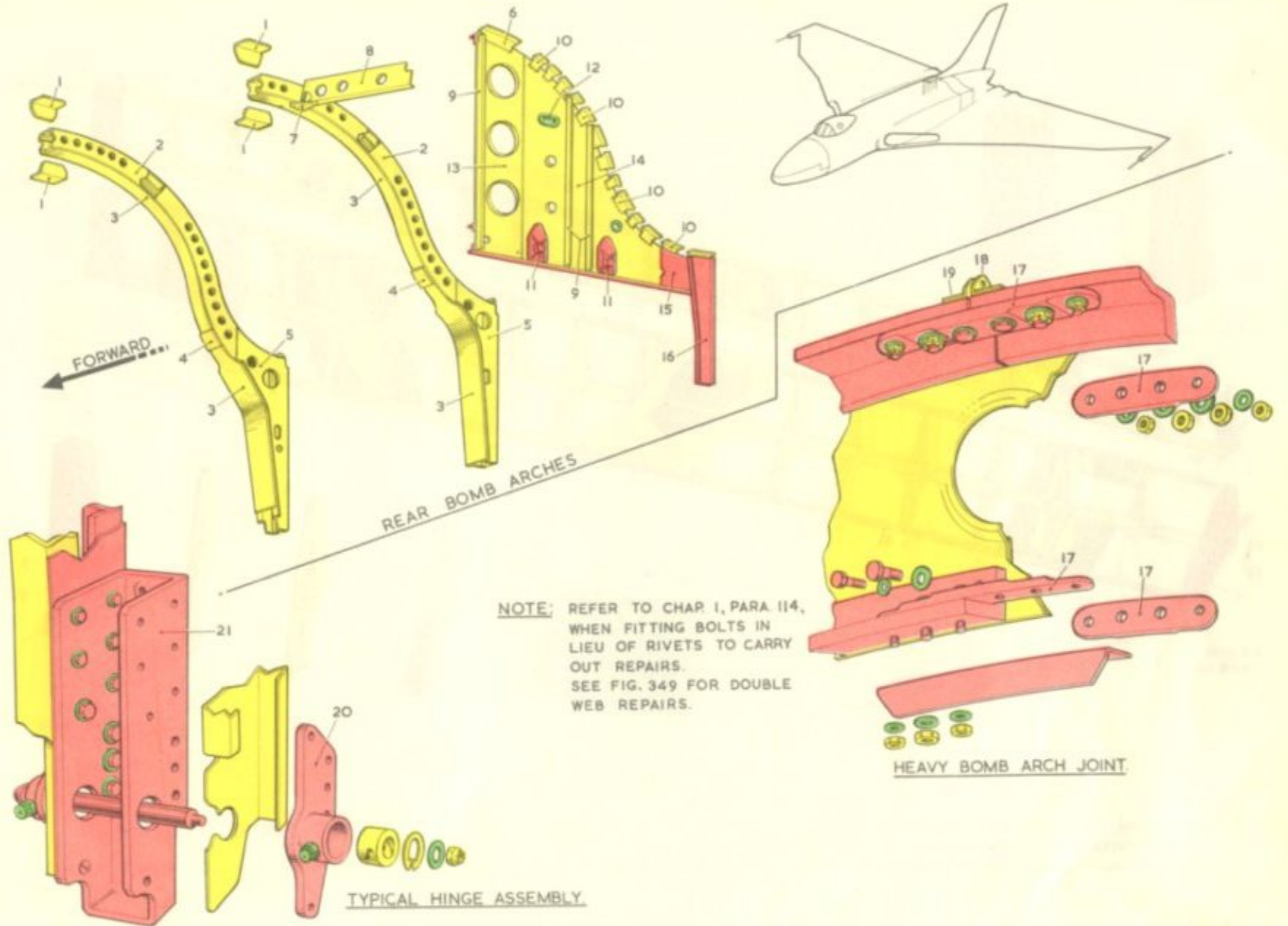
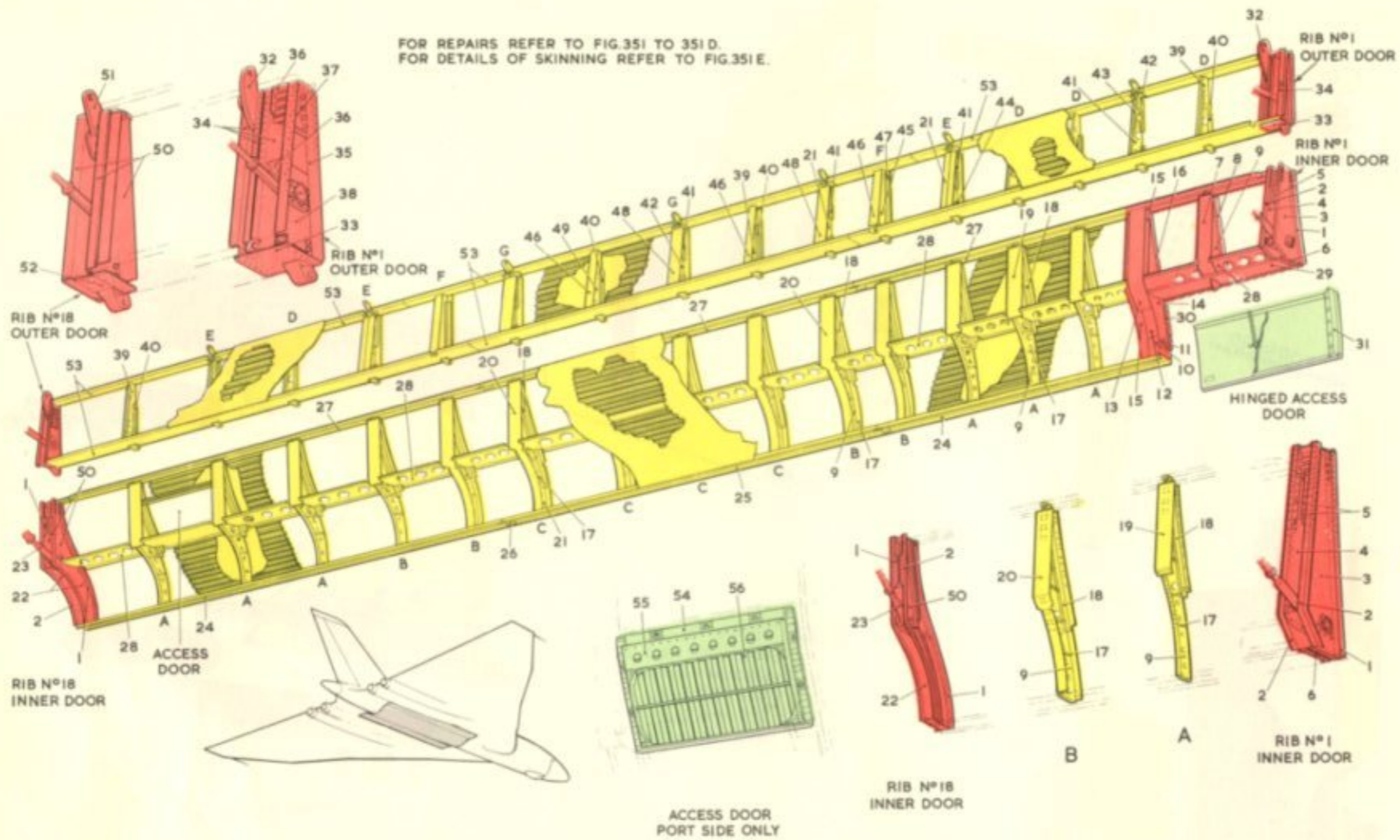


Fig. 307D. Bomb arches-Starboard
RESTRICTED



NOTE. PREFIX "IDENTICAL" LETTERS AT THE RIBS INDICATES THAT SIMILAR MATERIALS AND SECTIONS ARE USED ON ASSEMBLY.

PORT DOORS ILLUSTRATED
STBD. " OPPOSITE HAND

Fig.308. Bomb door structure
RESTRICTED

Fig. 308. Bomb door structure

Item	Spec.	Material S.W.G. or Section	Description	Depth	Negligible Damage		Holes Pitch Ratio	Repair Fig. No.
					Dents	Dist. Apart		
1	L.72	18	Angle	—	—	—	—	—
2	L.72	14	Angle	—	—	—	—	—
3	DTD.687	14	Web	0.05	3.0	0.25	8:1	—
4	L.72	14	Top plate	0.05	3.0	0.25	8:1	—
5	L.72	18	Angle	† —	—	—	—	—
6	L.72	20	Angle	† —	—	—	—	—
7	L.72	754/SS.1793	Strap	†0.05	3.0	0.25	8:1	—
8	L.72	752/SS.1793	Angle	0.05	3.0	—	—	—
9	L.72	20	Web	0.10	2.5	0.25	6:1	—
10	L.72	16	Side member	†0.05	3.0	0.25	8:1	—
11	L.65	—	Catch bracket	*0.05	3.0	—	—	—
12	L.73	14	Reinforcing plate	†0.05	3.0	0.25	8:1	—
13	L.73	18	Strap plate	†0.10	2.5	0.25	6:1	—
14	L.73	16	Side member	0.05	3.0	0.25	8:1	—
15	L.72	943/SS.1793	'Z' section	†0.05	3.0	—	—	—
16	L.72	12b/SS.1793	Attachment angle	0.05	3.0	—	—	—
17	L.72	753/SS.1793	Angle	†0.10	2.5	—	—	—
18	L.72	752/SS.1793	Angle	0.10	2.5	—	—	—
19	L.72	754/SS.1793	Strap plate	†0.15	2.0	0.30	5:1	—
20	L.72	18	Strap plate	†0.15	2.0	0.30	5:1	—
21	L.72	18	Web	0.10	2.5	0.25	6:1	—
22	L.72	18	Web	0.05	3.0	0.25	8:1	—
23	L.65	—	Eye-end	—	—	—	—	—
24	L.72	16	Channel	0.10	2.5	0.25	8:1	108
25	L.72	20	Channel	0.10	2.5	0.25	8:1	108
26	L.72	16	Joint channel	†0.10	2.5	—	—	—
27	L.72	14	Channel	0.10	2.5	0.25	8:1	108
28	L.72	20	Intercostals	0.15	2.0	0.25	4:1	105
29	L.72	18	Hinge-channel	0.05	3.0	0.25	4:1	108
30	L.72	20	Angle	†0.05	3.0	—	—	—
31	L.72	20	Support member	0.20	2.0	0.30	4:1	—
32	S.11	—	Hinge block	—	—	—	—	—
33	L.72	16	Stiffening plate	†0.05	3.0	0.25	4:1	—
34	L.72	14	Channel	0.05	3.0	0.25	6:1	—
35	DTD.687	10	Web plate	0.05	3.0	—	—	108
36	L.72	14	Channel	0.05	3.0	—	—	—
37	L.72	14	Angle	†0.05	3.0	—	—	—
38	L.72	14	Reinforcing plate	0.05	3.0	0.25	6:1	—
39	L.72	22	Web	0.20	2.0	0.50	4:1	108
40	L.72	761/SS.1793	Angle	0.15	2.5	—	—	113
41	L.72	16	Channel	0.05	3.0	0.25	6:1	108
42	L.72	16	Web	0.10	2.5	0.25	6:1	108
43	L.72	16	Angle	0.05	3.0	—	—	113
44	L.72	763/SS.1793	Angle	†0.05	3.0	—	—	—
45	L.72	18	Web	0.20	2.0	0.50	4:1	108
46	L.72	20	Plate	†0.20	2.0	0.50	4:1	—
47	L.72	523/SS.1793	Angle	0.15	2.5	—	—	113
48	L.72	20	Plate	†0.15	2.5	0.25	6:1	—
49	L.72	20	Web	0.20	2.0	0.50	4:1	108
50	L.72	14	Web plate	0.05	3.0	0.25	8:1	108
51	S.96	—	Hinge block	—	—	—	—	—
52	L.72	18	Plate	†0.05	3.0	0.25	4:1	—
53	L.72	14	Channel	0.10	2.5	0.25	8:1	108
54	L.72	20	Door frame member	0.20	2.0	—	—	—
55	L.72	22	Skin panel	0.20	2.0	0.50	4:1	—
56	L.59	18	Louvre	0.20	2.0	—	—	—

* No repairs permitted

† More expedient to renew

All dimensions in inches

RESTRICTED

(A.L.12, June 58)

Fig. 309. Dorsal fin — structure — skins

Item	Spec.	Material S.W.G. or Section	Description	Depth	Negligible Damage		Holes Pitch Ratio	Repair Fig. No.
					Dents	Dist. Apart		
1	L.72	12a/SS.1793	Angle	0-10	2-5	—	—	113
2	L.72	22	Web	0-15	2-5	0-25	4:1	—
3	L.72	20	Attachment angle	†0-10	2-5	—	—	—
4	L.72	20	Gusset plate	†0-15	2-5	0-25	4:1	—
5	L.72	18	Panel	0-15	2-5	0-25	4:1	—
6	L.72	65/SS.1793	Panel angles	0-10	2-5	—	—	113
7	L.72	18	Attachment channel	0-10	2-5	—	—	—
8	L.72	112/SS.1793	Angle	0-10	2-5	—	—	113
9	L.72	133/SS.1793	Side angle	0-10	2-5	—	—	113
10	L.72	13b/SS.1793	Angle	0-10	3-0	—	—	113
11	L.72	12b/SS.1793	Angle	0-10	2-5	—	—	113
12	L.72	446/SS.1793	Angle	0-10	2-5	—	—	113
13	L.72	24	Web	0-20	2-0	0-25	4:1	—
14	L.72	13b/SS.1793	Angle	0-10	2-5	—	—	113
15	L.72	20	Angle	0-10	2-5	—	—	113
16	L.72	12d/SS.1793	Attachment angle	0-10	2-5	—	—	113
17	L.72	22	Angle	0-10	2-5	—	—	113
18	L.72	22	Angle	0-10	2-5	—	—	113
19	L.72	24	Web	0-15	3-0	0-25	6:1	—
20	L.72	20	Angle	0-10	2-5	—	—	113
21	L.72	22	Angle	0-10	2-5	—	—	113
22	L.72	22	Angle	†0-10	2-5	—	—	113
23	L.72	22	Angle	†0-10	2-5	—	—	113
24	L.72	22	Angle	†0-10	2-5	—	—	113
25	L.72	22	Angle	†0-10	2-5	—	—	—
26	L.72	22	Angle	†0-10	2-5	—	—	113
27	L.72	22	Angle	†0-10	2-5	—	—	113
28	L.72	22	Angle	†0-10	2-5	—	—	113

All dimensions in inches
 † More expedient to renew

RESTRICTED

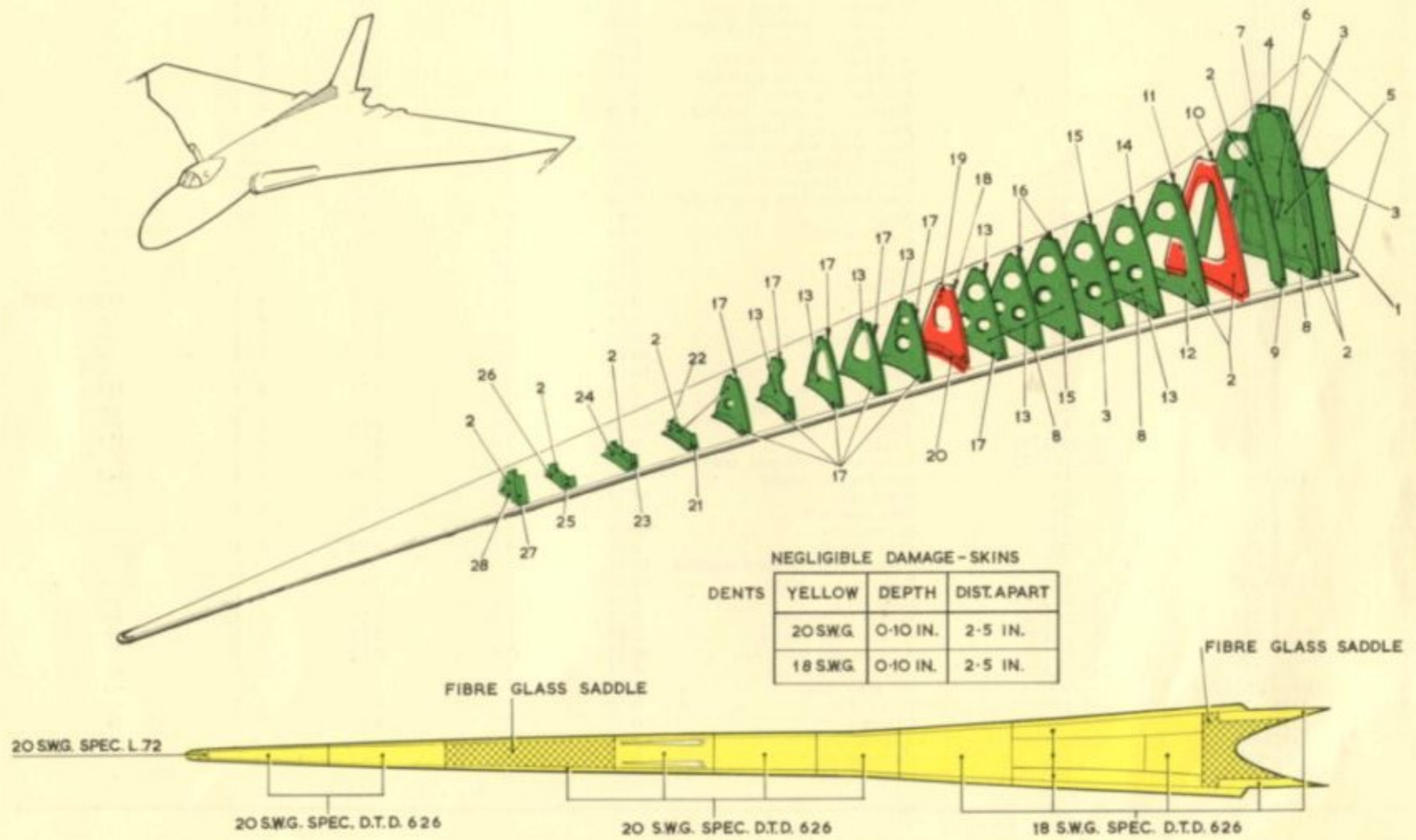


FIG. 309. DORSAL FIN - STRUCTURE - SKINS RESTRICTED

(A.L.12, June 58)

Fig. 310. Rear spar structure

Item	Spec.	Material S.W.G. or Section	Description	Depth	Negligible Damage		Holes Pitch Ratio	Repair Fig. No.
					Dents	Dist. Apart		
1	DTD.687	10	Web	0.05	3	1.0	8:1	—
2	DTD.687	10	Web joint plate	0.05	3	—	—	—
3	DTD.687	12	Web-centre portion (red)	0.05	3	1.0	8:1	—
3	DTD.687	12	Web-centre portion (yellow)	0.10	2.5	1.0	8:1	—
4	DTD.687	12	Web joint channel	0.05	3	—	—	—
5	DTD.687	12	Web-top portion (red)	0.15	3	1.0	8:1	—
5	DTD.687	12	Web-top portion (yellow)	0.10	2.5	1.0	8:1	—
6	L.73	10	Reinforcing plate (red)	0.05	3	1.0	8:1	—
6	L.73	10	Reinforcing plate (yellow)	0.10	2.5	1.0	8:1	—
7	DTD.363A	—	Rear spar top boom	*0.05	3	—	—	—
8	DTD.363A	—	Rear spar bottom boom	*0.05	3	—	—	—
9	DTD.683	—	Joint forging—top	*0.05	3	—	—	—
10	DTD.683	—	Joint forging—bottom	*0.05	3	—	—	—
11	S.96	—	Spar boom—ring joint section	*0.05	3	—	—	—
12	L.72	24	Angle	†0.1	2.5	—	—	—
13	L.72	14	Stiffener web	0.05	3	—	—	—
14	L.72	16	Stiffener	0.05	3	—	—	—
15	L.72	108/SS.1793	Stiffener	0.10	2.5	—	—	—
16	L.72	20	Stiffener	0.10	2.5	—	—	—
17	L.72	20	Angles	0.10	2.5	0.25	4:1	113
18	L.72	16	Channel	0.10	2.5	0.25	4:1	—
19	L.72	20	Centre pressing	0.10	2.5	1.0	6:1	—
20	L.72	10	Beam	†0.10	2.5	0.25	4:1	—
21	L.65	—	Catch plate	†0.10	2.5	—	—	—
22	L.72	18	Reinforcing angle	0.10	2.5	0.25	4:1	113
23	L.72	18	Skin attachment angles	†0.10	2.5	—	—	—
24	L.72	16	Angle and strap	0.10	2.5	0.25	4:1	—
25	L.72	12a/SS.1793	Angle	0.10	2.5	0.25	4:1	113
26	L.72	386/SS.1793	Stringer attachment angle	0.10	2.5	0.25	4:1	—
27	DTD.687	17	Attachment angle	0.10	2.5	0.25	4:1	113
28	L.72	20	Strap plate	†0.10	2.5	—	—	—
29	L.72	20	Side member	0.05	3	0.50	6:1	—
30	L.72	20	Diaphragm	†0.10	2.5	—	—	—
31	L.72	20	Skin panel	0.05	3	0.50	6:1	—
32	L.65	—	Fwd. fin post support member	*0.05	3	—	—	—
33	DTD.687	14	Reinforcing plate	†0.05	3	—	—	—
34	L.72	83/SS.1793	Stiffener	0.10	2.5	0.25	4:1	—
35	L.72	677/SS.1793	Platform channel	0.10	2.5	0.25	4:1	—
36	L.65	338/SS.1793	Attachment angles	0.05	3	0.25	6:1	—
37	L.72	85/SS.1793	Attachment member	†0.10	2.5	0.25	4:1	—
38	L.72	249/SS.1793	Attachment angle	0.05	3	—	—	—
39	S.99 or EN.267	—	Jet pipe rings	0.05	3	—	—	—
40	DTD.124A	14	Inner skin	0.10	3	0.50	4:1	—
41	DTD.687	939/SS.1793	Channel	0.05	3	0.25	6:1	—
42	DTD.687	715/SS.1793	Angle	0.05	3	—	—	113
43	DTD.687	16	Capping strip	0.05	3	—	—	—
44	DTD.687	18	Gusset plate	†0.05	3	—	—	—

* No repairs permitted
† More expedient to renew
All dimensions in inches

RESTRICTED

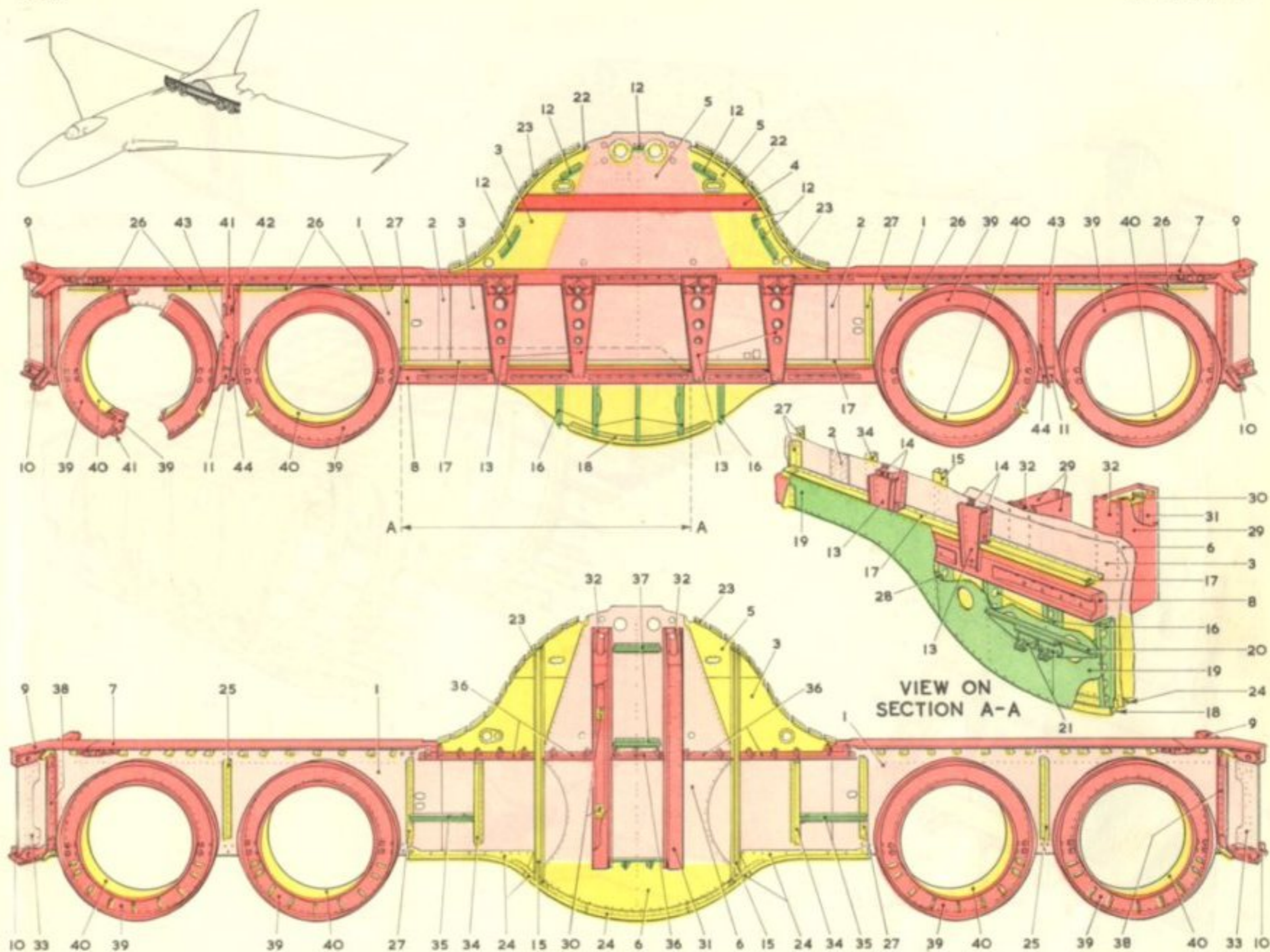


Fig 310. Rear spar - Centre section
RESTRICTED

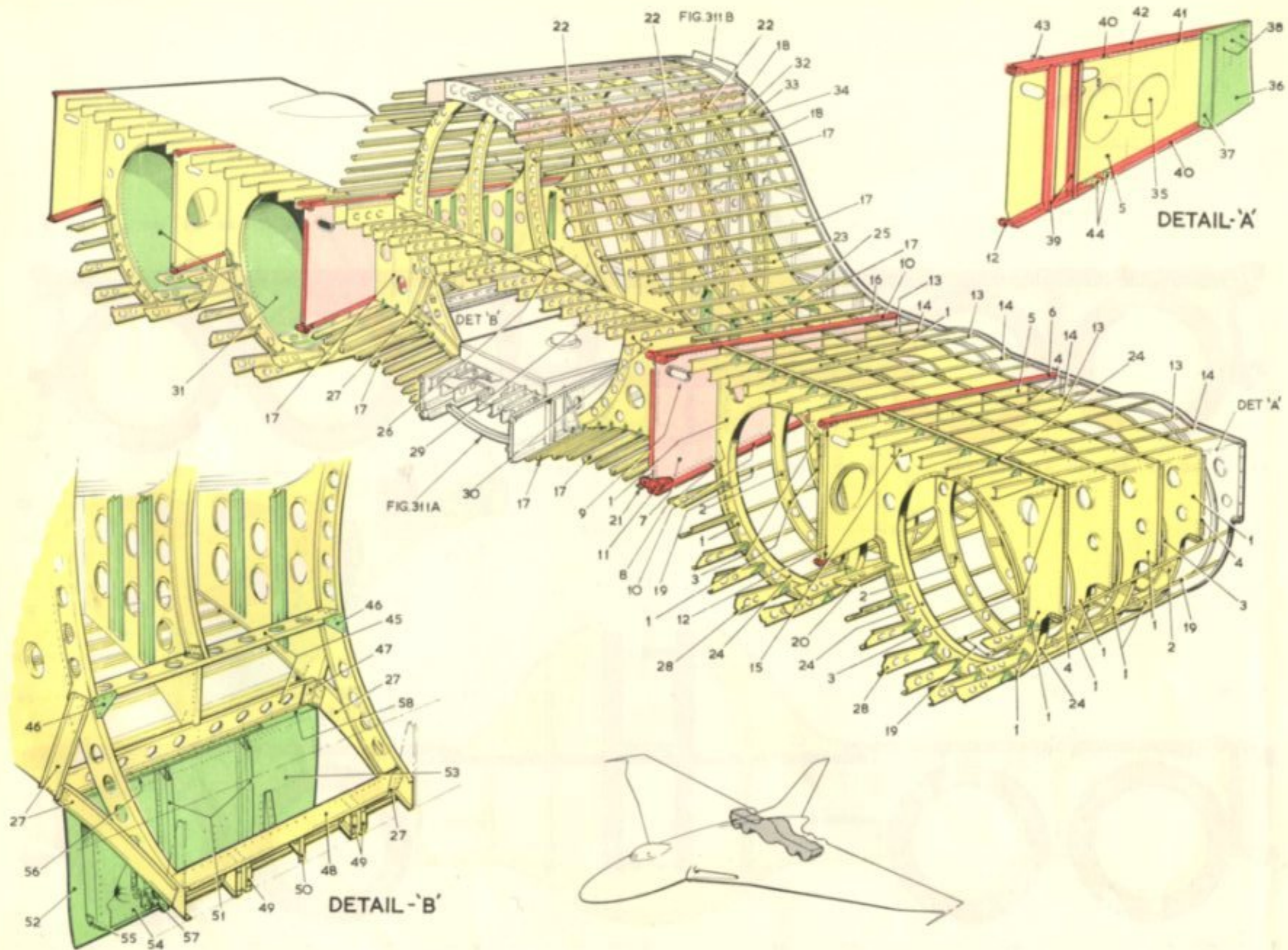


Fig. 311. Structure aft of rear spar
 RESTRICTED

KEY TO FIG.311

Item	Material		Description	Negligible Damage					Repair Fig.
	Spec.	S.W.G. or Section		Dents		Holes			
			Depth	Dist. Apart	Dia.	Pitch Ratio			
1	L.72	22	Formers	0.1	3.0	0.25	8:1	103	
2	L.72	20	Joint channel	x 0.1	3.0	0.25	6:1	-	
3	L.72	12d/SS.1793	Angle	0.1	3.0	0.25	6:1	-	
4	L.72	386/SS.1793	Stiffener	0.05	3.0	0.25	6:1	-	
5	L.73	24	Web	0.1	3.0	0.25	8:1	103	
6	L.65	361/SS.3075	Boom	0.025	3.0	-	-	-	
7	D.T.D.687	17	Web	0.025	3.0	0.25	8:1	103,104	
8	L.72	12a/SS.1793	Attachment angle	0.05	3.0	0.25	8:1	113	
9	D.T.D.687	16	Stiffening ring	x 0.025	3.0	-	-	-	
10	D.T.D.363	411/SS.3075	Boom	0.025	3.0	-	-	-	
11	S.96	-	Attachment bracket	* 0.025	3.0	-	-	-	
12	L.65	-	Attachment bracket	* 0.025	3.0	-	-	-	
13	D.T.D.687	582/SS.1793	'Z' stringer	0.05	3.0	0.25	6:1	221	
14	L.65	375/SS.3075	'T' stringer	0.05	3.0	0.25	6:1	109	
15	L.72	20	Intercostals	x 0.1	3.0	0.25	6:1	-	
16	L.72	525/SS.1793	Special stringer	0.05	3.0	0.25	6:1	-	
17	L.72	211/SS.1793	Top hat stringer	0.1	3.0	0.25	6:1	112	
18	L.65	325/SS.3075	'T' stringer	0.05	3.0	0.25	6:1	-	
19	D.T.D.687	582/SS.1793	'Z' stringer	0.1	3.0	0.25	6:1	221	
20	L.65	337/SS.3075	'T' stringer	0.1	3.0	0.25	6:1	-	
21	L.65	292/SS.3075	'T' stringer	0.05	3.0	0.25	6:1	110	
22	L.72	455/SS.1793	Formers	0.05	3.0	0.25	6:1	105,107	
23	L.72	22	Pressing	0.1	2.5	0.25	6:1	103	
24	L.72	20	Butt strap	x 0.1	3.0	0.25	6:1	-	
25	L.72	20	Reinforcing angle	x 0.1	2.5	0.25	4:1	-	
26	L.65	357/SS.3075	Channel	0.05	3.0	0.25	6:1	-	
27	L.72	18	Channel	0.05	4.0	0.25	8:1	107	
28	L.72	24	Intercostals	x 0.1	3.0	0.25	6:1	-	
29	L.72	20	Intercostals	x 0.1	3.0	0.25	6:1	-	
30	L.72	18	Intercostals	x 0.1	3.0	0.25	6:1	-	
31	A.V.R.50	28	Jet pipe tunnels	xx 1.0	-	-	-	342	
	D.T.D.571 or D.T.D.166	28	(Prior to Mod.51)	xx 1.0	-	-	-	342	
32	L.72	14	Beam	x 0.05	3.0	-	-	-	
33	L.72	10	Gusset	x 0.05	3.0	-	-	-	
34	L.65	-	Bracket	x 0.05	3.0	-	-	-	
35	L.72	22	Reinforcing plate	x 0.1	3.0	0.25	6:1	-	
36	L.72	20	Fairing skin	0.15	2.5	-	-	103,104	
37	L.72	18	Diaphragm	x 0.1	2.5	-	-	-	
38	L.72	18	Channel stiffeners	0.05	2.5	0.25	6:1	-	
39	L.72	666/SS.1793	Stiffener	0.05	3.0	0.25	8:1	-	
40	L.72	430/SS.1793	Angle	0.05	3.0	-	-	113,114	
41	L.72	112/SS.1793	Angle	0.05	3.0	-	-	113,114	
42	L.65	306/SS.3075	Boom	0.05	3.0	-	-	-	
43	L.72	18	Angle	x 0.05	3.0	-	-	-	
44	L.65	-	Bracket	* 0.05	3.0	-	-	-	
45	L.72	18	Channel	0.05	4.1	0.25	8:1	105,107	
46	L.72	18	Gusset	x 0.05	2.0	-	-	-	
47	L.72	18	Bracket	x -	-	-	-	-	

* No repairs permitted
x More expedient to renew than repair
xx See text in Chap.3
All dimensions are quoted in inches

RESTRICTED

KEY TO FIG.311 (contd.)

Item	Material Spec.	S.W.G. or Section	Description	Negligible Damage				Repair Fig.
				Dents Depth	Dist. Apart	Holes Dia.	Pitch Ratio	
48	L.72	20	Skin angle	0.05	4.0	0.25	8:1	-
49	L.72	16	Diaphragm	x 0.05	4.0	-	-	-
50	L.72	20	Diaphragm	x 0.05	4.0	-	-	-
51	L.72	507/SS.1793	Stiffener	0.05	4.0	-	-	-
52	L.72	20	Outer skin	0.1	4.0	-	-	102
53	L.72	20	Inner skin	0.1	4.0	0.5	8:1	102
54	L.72	22	Pressing	0.1	4.0	0.5	8:1	-
55	S.3	18	Reinforcing strip	x 0.05	4.0	-	-	-
56	L.72	A.S.1880	Hinge	x -	-	-	-	-
57	D.T.D.721		Door catch	x -	-	-	-	-
58	L.72	20	Channel	0.05	4.1	0.25	8:1	-

* No repairs permitted
 x More expedient to renew than repair
 All dimensions are quoted in inches

RESTRICTED

KEY TO FIG.311A

Item	Material		Description	Negligible Damage				Repair Fig.
	Spec.	S.W.G. or Section		Dents	Holes		Pitch Ratio	
			Dept	Dist. Apart	Dia.			
1	L.72	20	Stiffening angle	0.05	3.0	0.25	4:1	-
2	L.72	20	Intercostal	0.1	2.5	0.25	4:1	108
3	L.72	13b/SS.1793	Attachment angle	0.05	3.0	0.25	6:1	113
4	L.65	-	Bracket	* -	-	-	-	-
5	L.72	16	Support angle	0.05	3.0	0.25	6:1	-
6	L.72	16	Attachment bracket	* -	-	-	-	-
7	L.72	20	Skin	0.05	3.0	0.25	6:1	103, 104
8	L.72	20	Cross member	0.05	3.0	0.25	6:1	108
9	L.72	20	Floor support member	0.05	3.0	0.25	6:1	103
10	L.72	18	Side member	0.05	3.0	0.25	6:1	108
11	L.65	293/SS.3075	Angle	0.025	3.0	-	-	-
12	L.72	20	Stiffening channel	0.05	3.0	0.25	6:1	107
13	L.72	18	Skin attachment angle	0.05	3.0	-	-	-
14	L.72	20	Side web	0.1	2.5	0.25	6:1	103, 104
15	L.72	20	Diaphragm	0.1	2.5	0.25	6:1	115
16	L.72	20	Angle	x 0.1	2.5	-	-	-
17	L.72	20	Stiffening ring	0.05	3.0	-	-	-
18	L.72	18	Support angle	0.5	3.0	0.25	6:1	113
19	D. T. D. 622	450/SS.3075	Edge member	0.05	3.0	0.25	6:1	-
20	Alum. foil	SS.4275	Honeycomb	0.05	3.0	-	-	102
21	D. T. D. 88C	-	Support block	* 0.025	3.0	-	-	-
22	L.72	20	Corner plate	x 0.1	2.5	-	-	-
23	L.72	24	Top and bottom skins	0.1	2.5	-	-	103
24	L.72	16	Bracket	* 0.05	3.0	-	-	-
25	L.72	20	Angle	x 0.05	3.0	-	-	-
26	D. T. D. 410 D. T. D. 423	-	Packing	x 0.05	3.0	-	-	-
27	L.72	308/SS.1793	Support channel	0.05	3.0	0.25	6:1	108
28	L.72	18	Cross member	0.05	3.0	0.25	6:1	105, 107
29	L.72	596/SS.1793	Support channel	0.05	3.0	0.25	6:1	105, 108
30	L.72	18	Bracket	x 0.05	3.0	-	-	-
31	L.72	158/SS.1793	Channel	0.05	3.0	0.25	6:1	105, 108
32	L.72	486/SS.1793	Intercostal	x 0.05	3.0	0.25	4:1	-
33	L.72	18	Angle	x 0.05	3.0	-	-	-
34	L.72	158/SS.1793	Intercostal	x 0.05	3.0	0.25	4:1	105, 108
35	L.72	18	Support angle	0.05	3.0	0.25	6:1	-
36	D. T. D. 423	-	Attachment bracket	* 0.05	3.0	-	-	-
37	L.72	20	Skin	0.1	2.5	0.25	4:1	103, 104
38	L.72	20	Angle	x 0.05	3.0	0.25	4:1	-

* No repairs permitted
x More expedient to renew than repair
All dimensions are quoted in inches

RESTRICTED

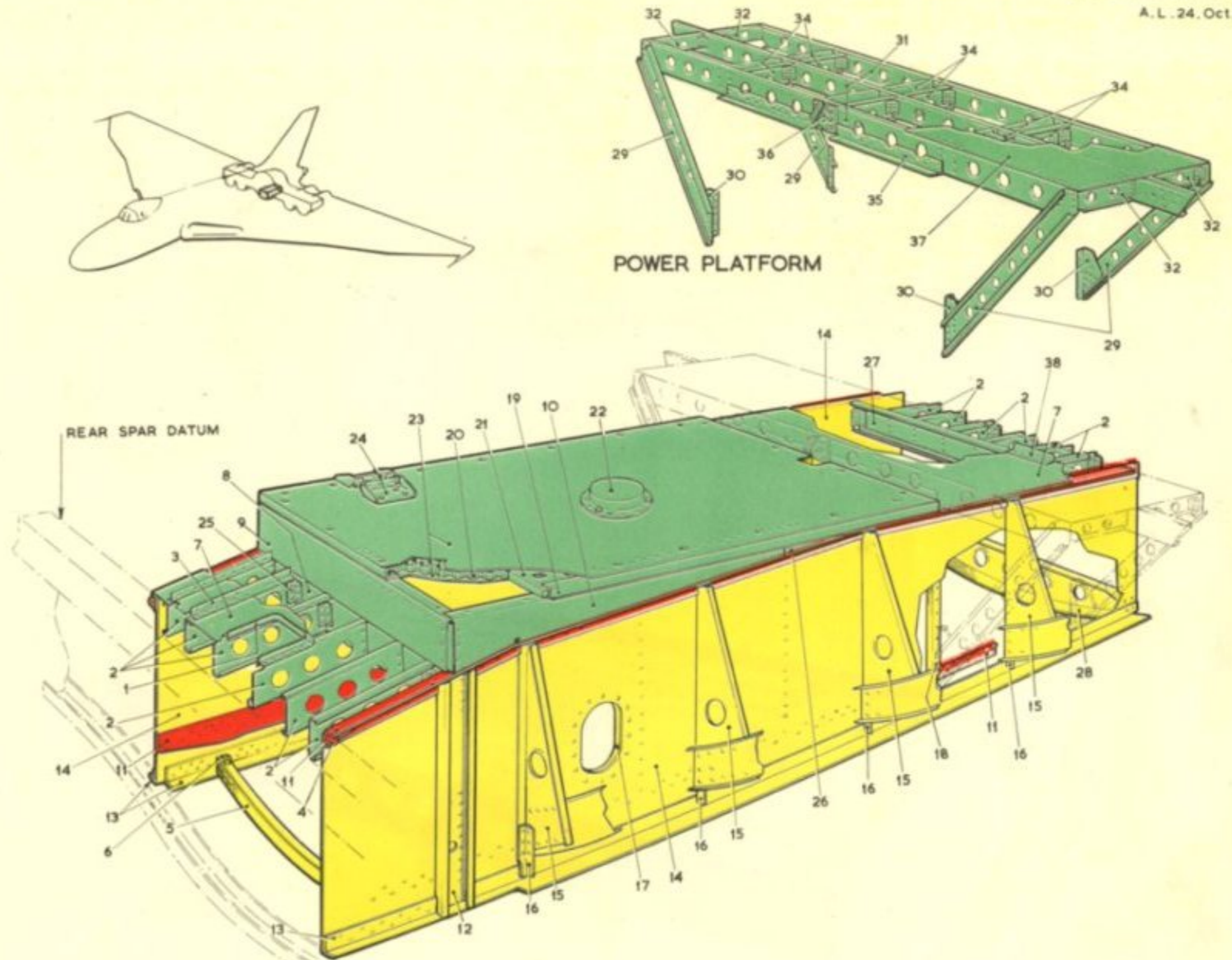
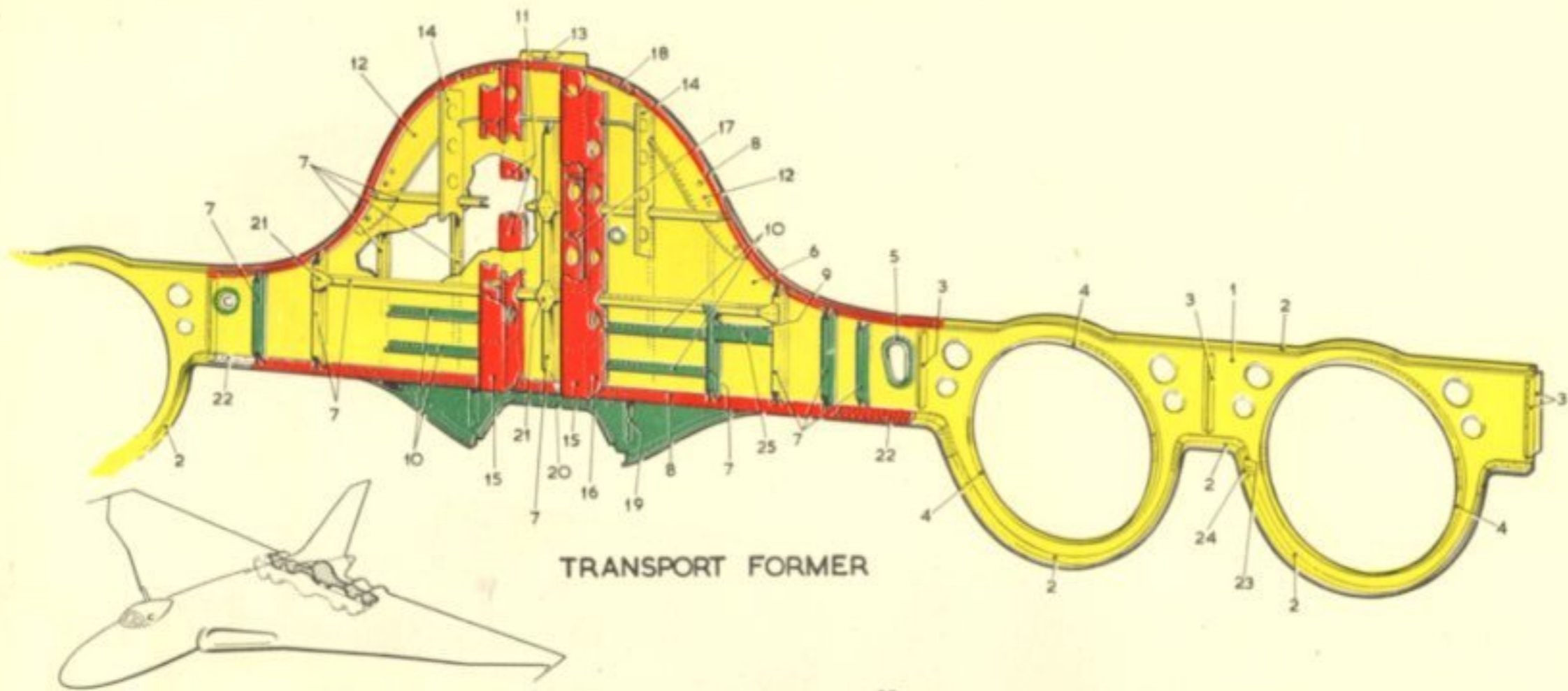
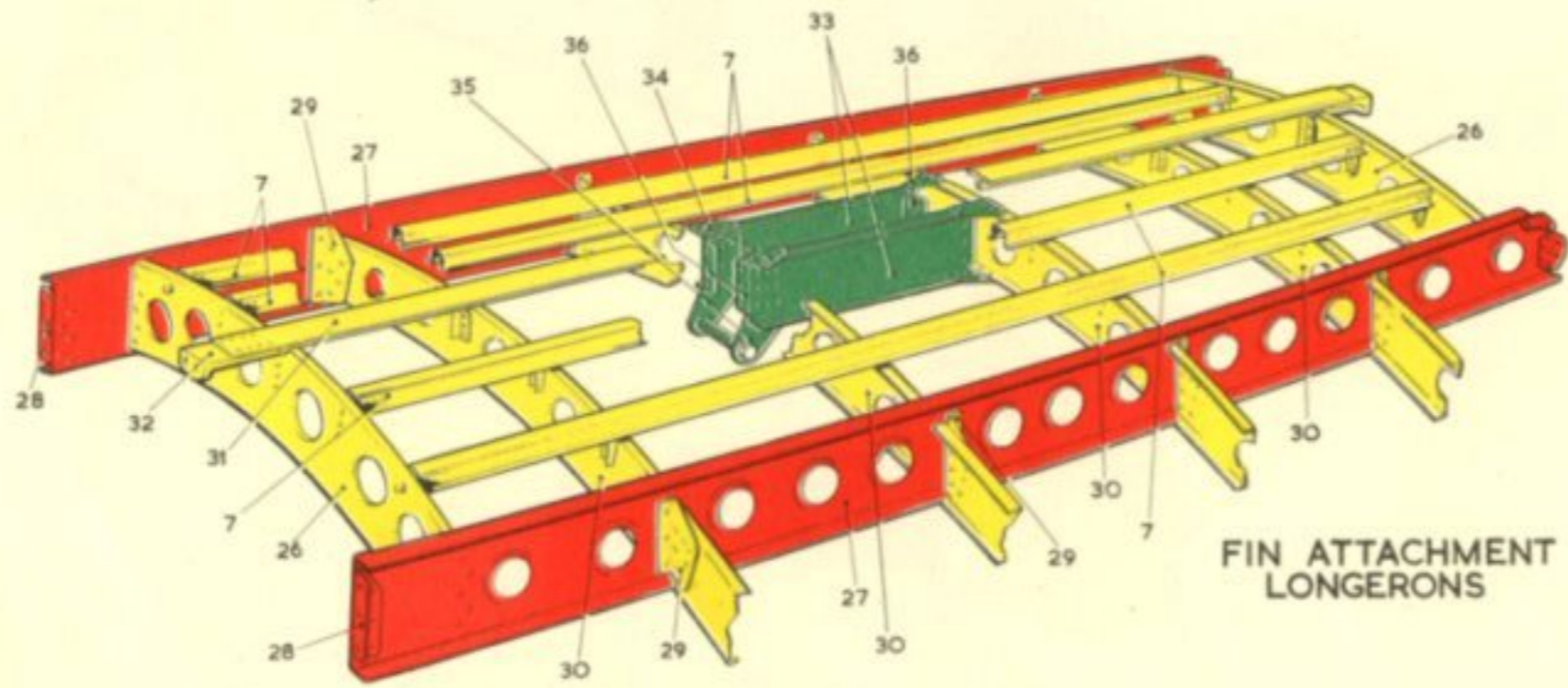


FIG. 311A. LAUNCHING COMPARTMENT (MOD. 10)
RESTRICTED



TRANSPORT FORMER



FIN ATTACHMENT LONGERONS

FIG. 311B. STRUCTURE AFT OF REAR SPAR RESTRICTED

Fig. 311B. Structure aft of rear spar

Item	Spec.	Material S.W.G. or Section	Description	Depth	Negligible Damage		Holes Pitch Ratio	Repair Fig. No.
					Dents Dist. Apart	Dia.		
1	L.73	20	Web	0.10	2.5	0.25	6:1	103-104
2	L.65	355/SS.3075	Angle	0.025	3.0	—	—	—
3	L.72	20	Angle	†0.05	3.0	—	—	—
4	L.72	13b/SS.1793	Angle	0.05	3.0	0.25	6:1	113
5	L.73	18	Tube support	†0.05	3.0	—	—	—
6	L.73	18	Web	0.05	3.0	0.25	8:1	—
7	L.72	211/SS.1793	Stiffener	0.05	3.0	0.25	6:1	112
8	L.65	329/SS.3075	Angle	0.025	3.0	—	—	—
9	D.T.D.687	583/SS.1793	Z Section	†0.05	3.0	0.25	6:1	—
10	L.72	625/SS.1793	Stiffening angle	0.05	3.0	0.25	6:1	113
11	L.65	Light-Alloy	Fin, post support member	* —	—	—	—	—
12	L.73	14	Reinforcing plate	0.05	3.0	0.25	8:1	103-104
13	L.73	18	Reinforcing skin	0.05	3.0	0.25	6:1	103-104
14	L.72	18	Channel	0.05	3.0	0.25	6:1	107-108
15	L.72	20	Back plate	0.05	3.0	0.25	6:1	103-104
16	L.72	20	Side member	0.05	3.0	0.25	6:1	107-108
17	L.72	20	Diaphragm	†0.05	3.0	0.25	4:1	—
18	L.65	Light-alloy	Reinforcing member	†0.025	3.0	—	—	—
19	L.72	13b/SS.1793	Angle	†0.05	3.0	0.25	4:1	—
20	L.72	20	Angle	0.05	3.0	0.25	4:1	113
21	L.72	18	Gusset	†0.05	3.0	0.25	4:1	—
22	D.T.D.124A	12	Joint angle	* —	—	—	—	—
23	L.72	8	Side plate	† —	—	—	—	—
24	L.72	14	Top plate	† —	—	—	—	—
25	L.72	20	Cover plate	†0.05	3.0	0.25	6:1	—
26	L.72	18	Intercostal	0.05	3.0	0.25	6:1	—
27	L.72	16	Longeron	0.025	3.0	0.25	8:1	105
28	L.72	16	Bracket	†0.025	3.0	—	—	—
29	L.72	16	Bracket	†0.025	3.0	—	—	—
30	L.72	455/SS.1793	Former channel	0.05	3.0	0.25	6:1	105
31	L.65	325/SS.3075	Tee stringer	0.05	3.0	0.25	6:1	—
32	D.T.D.88c	Mag.-al. forging	Attachment bracket	*0.025	3.0	—	—	—
33	L.72	18	Intercostal	0.05	3.0	0.25	6:1	107-108
34	L.72	18	Gusset	†0.05	2.0	—	—	—
35	L.72	10	Reinforcing plate	*0.025	3.0	—	—	—
36	L.72	18	Attachment angle	†0.05	3.0	—	—	—

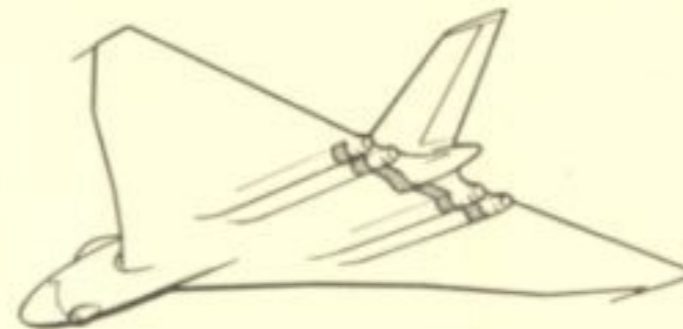
* No repairs permitted
† More expedient to renew
All dimensions in inches



TOP SURFACE SKINS



NOTE: DAMAGE IN AREAS OF CONCENTRATED RIVETING MUST BE REPAIRED WITH JOINTS ARRANGED OUTSIDE THE AREA
 SEE TEXT IN CHAP I FOR SKIN REPAIRS AND WEATHERPROOFING. FOR METHOD OF REPAIR SEE FIG. 103, 116, 117.

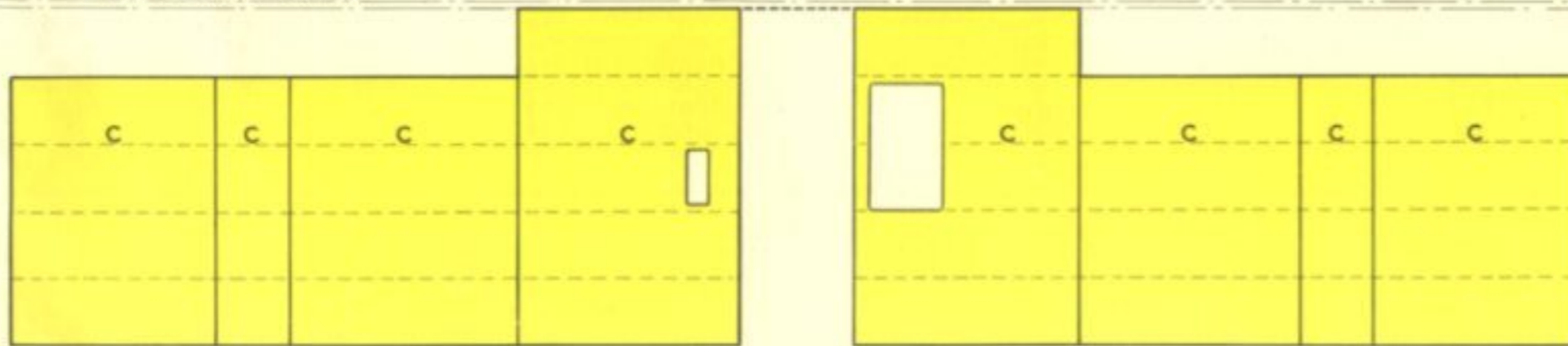


SKIN REFERENCE.		
LETTER.	S.W.G.	MAT. SPEC.
A	18	D.T.D. 687
B	20	D.T.D. 687
C	20	L72

SKIN LIMITS		
NEGLIGIBLE		DAMAGE
COLOUR.	DENTS.	DIST. APART.
RED.	—	—
YELLOW.	0-10	2-5
GREEN.	—	—

ALL DIMENSIONS IN INCHES.

REAR SPAR DATUM



BOTTOM SURFACE SKINS

Fig.312 Skinning aft of rear spar
 RESTRICTED

Fig. 313. Leading edge intake and skins

Item	Spec.	Material S.W.G. or Section	Description	Depth	Negligible Damage		Holes Pitch Ratio	Repair Fig. No.
					Dents Dist. Apart	Dia.		
1	L.72	24	Separator web	0.15	2.5	—	—	—
2	L.72	22	Separator web	0.15	2.5	—	—	103-104
3	L.72	663/SS.1793	Separator angle	0.15	2.5	—	—	—
4	L.72	13b/SS.1793	Separator angle	0.15	2.5	—	—	113
5	L.73	22	Web	0.15	3.0	2.5	6:1	103-104
6	L.72	759/SS.1793	Skin angle	0.05	3.0	—	—	—
7	L.73	605/SS.1793	Skin angle	0.10	3.0	—	—	—
8	L.73	16	Centre web	0.05	3.0	0.25	6:1	103-104
9	L.72	13b/SS.1793	Attachment angle	0.10	3.0	—	—	113
10	L.72	85/SS.1793	Stiffener	0.10	3.0	—	—	—
11	L.72	18	Reinforcing angle	0.10	3.0	—	—	—
12	L.72	20	Web	0.10	3.0	0.25	8:1	103-104
13	L.72	811/SS.1793	Spar boom	0.10	3.0	—	—	—
14	L.73	18	Web reinforcing	†0.10	3.0	0.25	6:1	—
15	L.72	22	Rib web	0.15	3.0	0.25	4:1	103-106
16	L.72	620/SS.1793	Rib angle	†0.10	3.0	—	—	—
17	L.72	24	Rib web	0.15	3.0	0.25	4:1	103-106
18	L.72	20	Rib angle	†0.10	3.0	—	—	—
19	L.72	18	Rib web	0.10	3.0	—	4:1	103-106
20	L.73	12	Rib angle	†0.10	3.0	—	—	—
21	L.72	211/SS.1793	Top hat stiffener	0.10	3.0	0.25	6:1	112
22	L.72	20	Intercostal web	†0.10	3.0	0.25	4:1	—
23	L.72	14	Joint straps	†0.05	3.0	—	—	—
24	L.65	58/SS.3075	T-stringer	0.10	3.0	—	—	—
25	L.72	664/SS.1793	Rib angle	†0.10	3.0	—	—	—
26	L.53	Al.-alloy	Nose rib casting	*0.05	3.0	—	—	—
27	L.72	1/SS.4127	Corrugated skin	*0.10	2.5	—	—	—
28	L.72	14	Leading edge skins	*0.05	3.0	—	—	—
29	L.72	14	Fairings	0.05	3.0	—	—	—
30	L.72	14	Nose skins	0.05	3.0	—	—	—
31	L.72	14	Fairing	0.05	3.0	—	—	—
32	L.59	16	Ducting	†0.10	3.0	—	—	—
33	L.59	18	Ducting	†0.10	3.0	—	—	—
34	L.72	18	Inner skins	0.05	3.0	—	—	—

* No repairs permitted
† More expedient to renew
All dimensions in inches

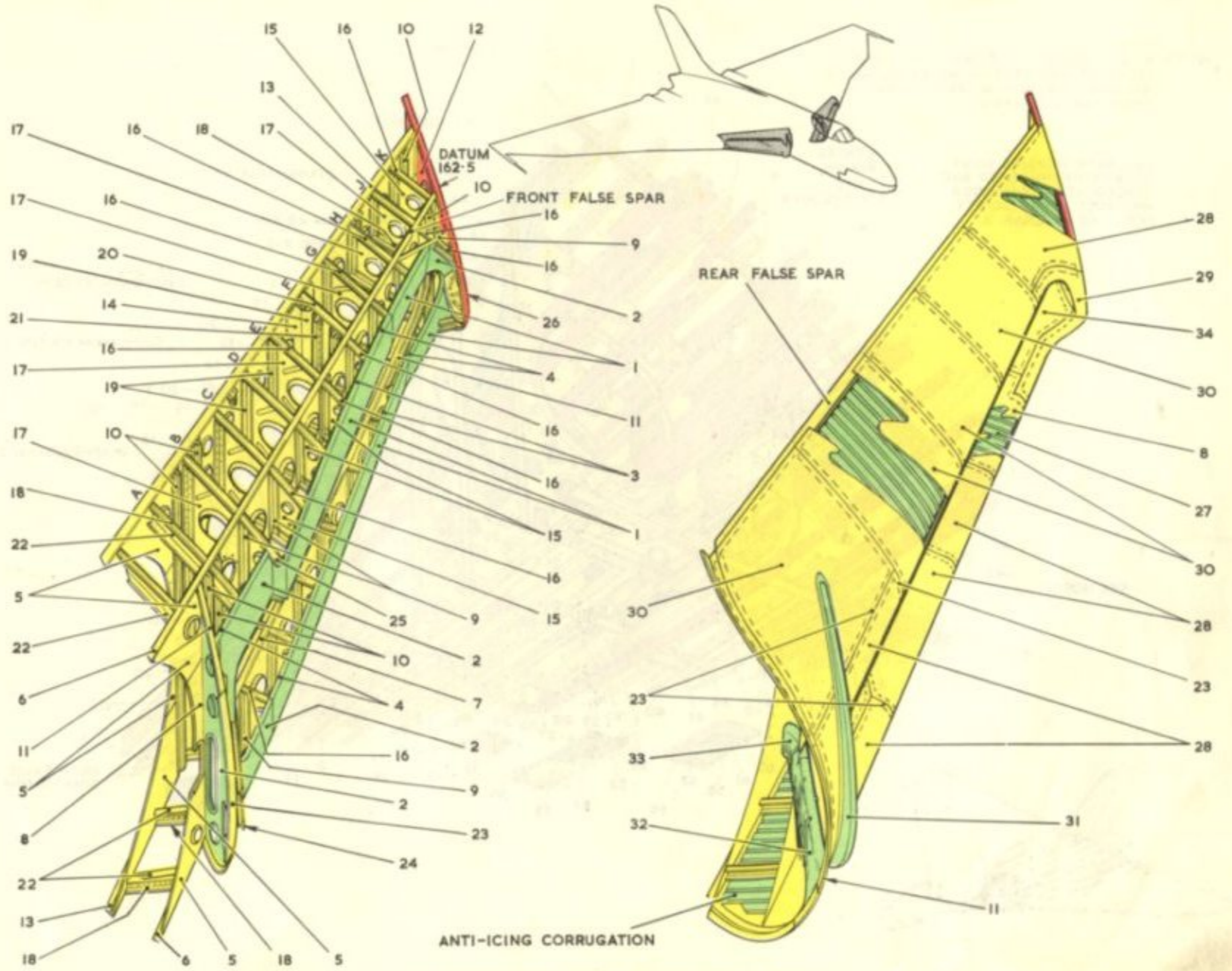


Fig. 313. Leading edge intake and skins
RESTRICTED

NOTE: WHEN REPLACING OR MANUFACTURING ITEMS 47 AND 48 THE MATERIAL GAUGE REQUIRED SHOULD BE ASCERTAINED FROM THE OLD ITEM.

ALL SKIN REPAIRS MUST BE WEATHERPROOFED AND SEALED AT 'T' STRINGER AND BUTT STRAP JOINTS. SEE TEXT IN CHAP. 3.

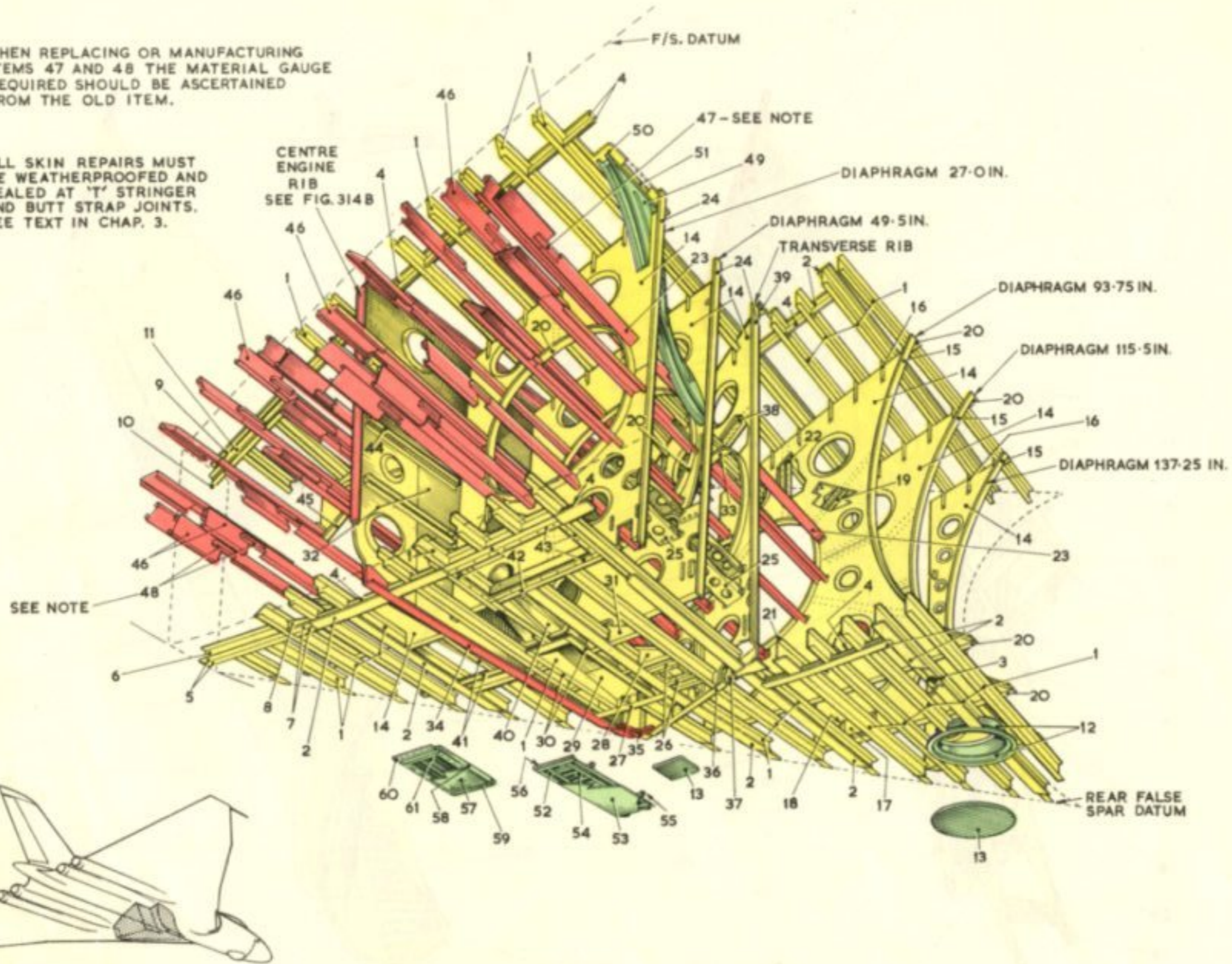


Fig. 314. Air intake forward of front spar
RESTRICTED

Key to Fig. 314. Air intake forward of front spar

Item	Spec.	Material S.W.G. or Section	Description	Dents		Negligible Damage		Repair Fig. No.
				Depth	Dist. Apart	Dia.	Holes Pitch Ratio	
1	L.72	20	Stringers	0.05	6.0	0.25	8:1	108
2	DTD.626	18	Joint straps	0.05	6.0	0.25	8:1	—
3	L.72	874/SS/1793	Angle	0.05	6.0	0.25	8:1	as 113
4	L.72	67/SS/1793	Intercostal angles	0.05	6.0	0.25	8:1	as 113
5	L.72	410/SS/1793	Angles	0.05	6.0	0.25	8:1	as 113
6	L.72	20	Web	0.05	6.0	0.25	8:1	as 108
7	L.72	386/SS/1793	Angle	10.05	6.0	0.25	8:1	—
8	L.72	22	Web	10.05	6.0	0.25	8:1	—
9	L.72	18	Angles	0.05	6.0	0.25	8:1	as 113
10	L.72	18	Intercostal	10.05	6.0	0.25	8:1	—
11	L.72	20	Angle	0.05	6.0	0.25	8:1	as 113
12	L.72	18	Aerial mounting assembly	0.10	6.0	0.50	8:1	—
13	Y.227	Fibre Glass	Window	—	—	—	—	—
14	L.72	22	Diaphragm web	0.10	6.0	0.5	8:1	103, 104, 106
15	L.72	912/SS/1793	Attachment angles	0.05	6.0	0.25	8:1	as 113, 114
16	L.72	18	Attachment angles	10.05	6.0	0.25	8:1	—
17	L.72	16	Gusset	10.05	6.0	0.25	8:1	—
18	L.72	20	Stiffening plate	10.05	6.0	0.25	8:1	—
19	L.72	186/SS/1793	Web stiffener	0.05	6.0	0.25	8:1	—
20	L.72	20	Angle	0.05	6.0	0.25	8:1	as 113
21	L.72	20	Angle	—	—	—	—	as 113
22	L.72	211/SS/1793	Top hat stiffener	0.05	6.0	0.25	8:1	112
23	L.72	20	Intercostals	† —	—	—	—	—
24	L.72	13b/SS/1793	Attachment angles	0.05	6.0	0.25	8:1	113
25	L.72	18	Channels	10.05	6.0	0.25	8:1	—
26	L.72	20	Intercostals	10.05	6.0	0.25	8:1	—
27	L.72	20	Stiffener	0.10	6.0	0.5	8:1	—
28	L.72	20	Intercostal	0.10	6.0	0.5	8:1	103, 108
29	L.59	18	Cover plate	0.10	6.0	0.5	8:1	103
30	L.59	18	Flange angle	0.05	6.0	0.25	8:1	—
31	L.72	20	Stiffening plate	0.05	6.0	0.25	8:1	103, 108
32	L.72	20	Rib web	0.10	6.0	0.5	8:1	103, 104, 106
33	L.73	20	Tunnel angle	0.05	6.0	0.25	8:1	as 113
34	L.73	10	Rib angles (See Fig. 314B)	—	—	—	—	—
35	DTD.130	Al. alloy	Bracket	• —	—	—	—	—
36	L.73	20	Outer angle	0.05	6.0	0.25	8:1	—
37	L.73	16	Inner angle	0.05	6.0	0.25	8:1	—
38	L.73	14	Tunnel angle	—	—	—	—	—
39	L.72	16	Gusset plate	10.05	6.0	—	—	—
40	L.59	20	Diffuser	0.05	6.0	0.25	8:1	103
41	L.72	20	Support members for air extractors	10.05	6.0	0.25	8:1	—
42	L.72	20	Angle	0.05	6.0	0.25	8:1	113
43	L.72	18	Angle	0.05	6.0	0.25	8:1	113
44	L.72	379/SS/1793	Stiffener	0.05	6.0	0.25	8:1	as 112
45	L.72	60/SS/1793	Tunnel angle	0.05	6.0	0.25	8:1	113
46	L.72	667/SS/1793	Intercostal	—	—	—	—	—
47	L.72	18	Channels	10.025	6.0	0.25	8:1	—
48	L.72	16	Channels (See Note on Fig. 314)	10.025	6.0	0.25	8:1	—
49	L.72	20	Air bleed ducting	0.10	6.0	—	—	—
50	DTD.626	17	Reinforcing plate	10.05	6.0	0.25	8:1	—
51	L.59	17	Attachment plate	10.05	6.0	0.25	8:1	—
52	L.72	500/SS/1793	Door stiffener	0.05	6.0	0.25	8:1	—
53	L.72	20	Bottom skin	0.10	6.0	—	—	103

RESTRICTED

Key to Fig. 314. Air intake forward of front spar (contd.)

Item	Spec.	Material S.W.G. or Section	Description	Dents Depth	Negligible Damage		Holes Pitch Ratio	Repair Fig. No.
					Dist. Apart	Dia.		
54	L.72	24	Top skin	0.10	6.0	0.5	8 : 1	103
55	L.65	Al. alloy	Hinge arm	*0.05	6.0	—	—	—
56	KO.118	Tubular	Lintex seal	† —	—	—	—	—
57	L.72	18	Skin panel	0.10	6.0	—	—	103
58	L.72	20	Door member	0.05	6.0	—	—	—
59	L.72	20	Door member	0.05	6.0	—	—	—
60	DTD.390	AS.1880	Door hinge	†0.05	6.0	—	—	—
61	L.72	20	Centre member	0.05	6.0	—	—	—

* No repairs permitted
 † More expedient to renew
 All dimensions in inches

NOTE- DAMAGE IN AREAS OF CONCENTRATED RIVETING MUST BE REPAIRED WITH JOINTS ARRANGED OUTSIDE THE AREA.
ALL SKIN REPAIRS MUST BE WEATHERPROOFED (SEE CHAP. I, PARAS. 134 TO 137).
FOR REPAIRS SEE FIG. 103 AND 104.

SKIN REFERENCE

LETTER	S.W.G.	MAT. SPEC.
A	17	D.T.D. 626
B	17	L.72
C	18	D.T.D. 626
D	14	L.72

LIMIT TABLE

NEGLECTIBLE DAMAGE		
COLOUR	DENTS	DIST. APART
RED	—	—
YELLOW	0.025	3.0
GREEN	—	—

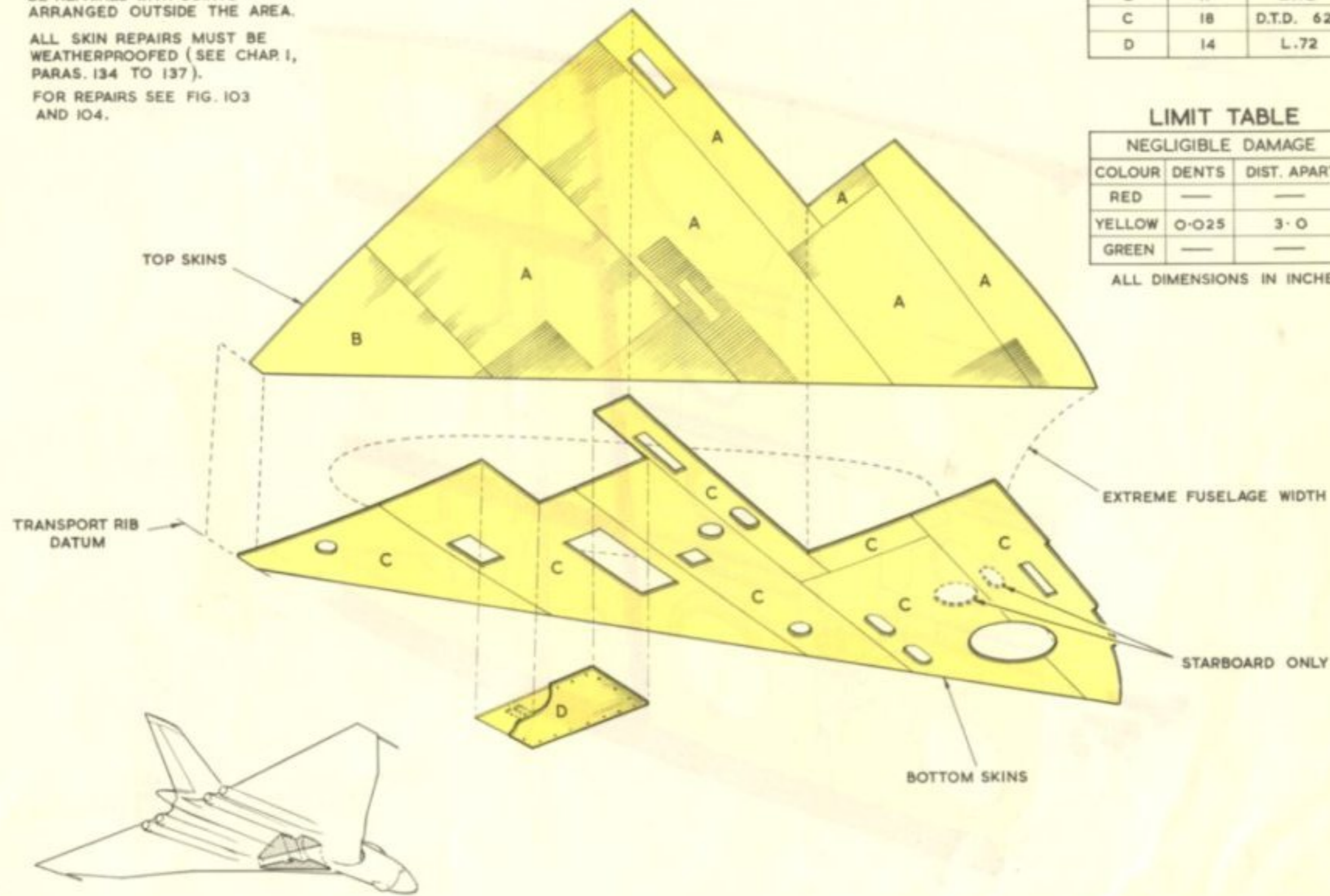


Fig. 314A. Intake structure outer skins
RESTRICTED

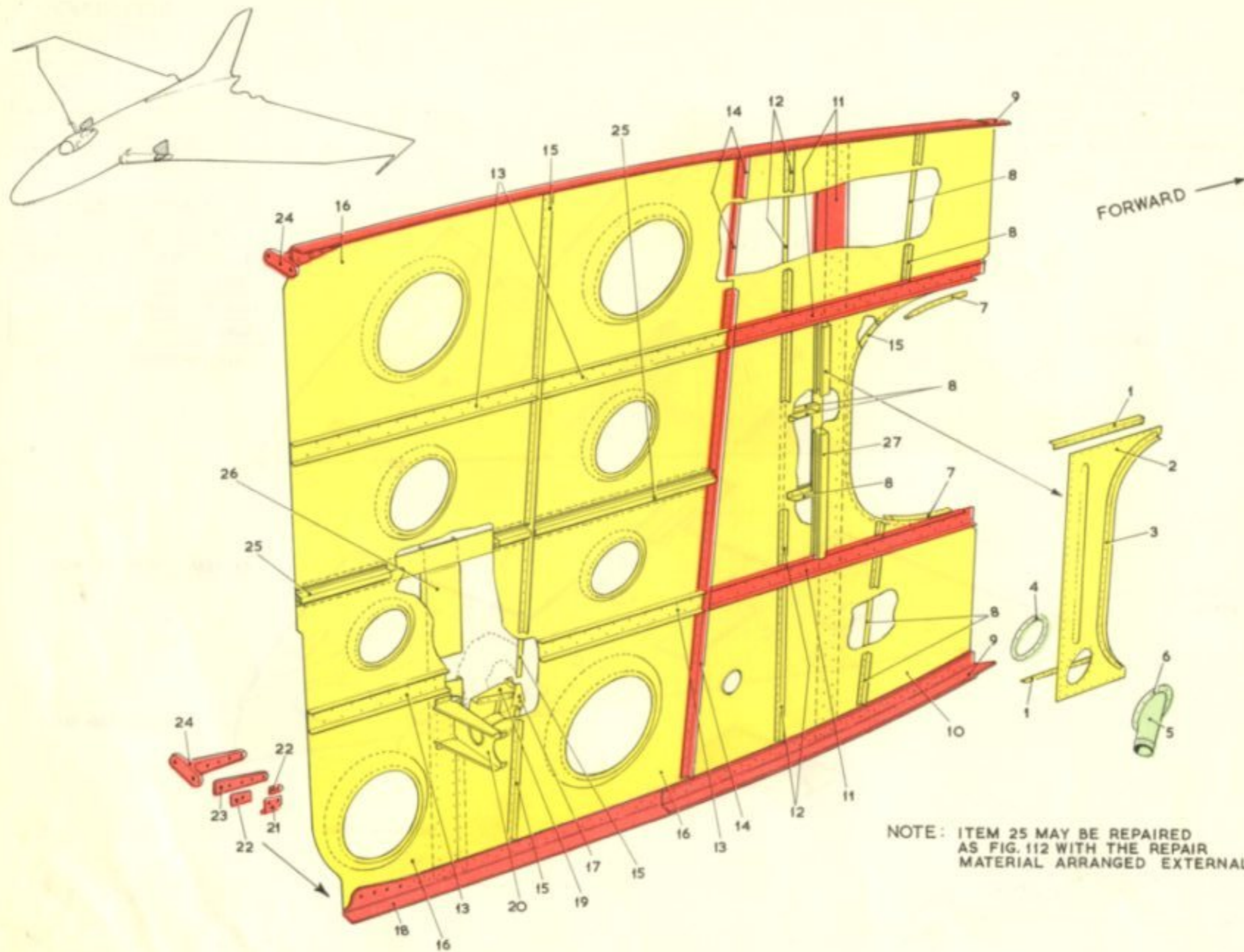


Fig. 314B. Forward portion—Centre engine rib
RESTRICTED

KEY TO FIG.314B

Item	Material		Description	Dents Depth	Negligible Damage			Repair Fig.
	Spec.	S.W.G. or Section			Holes Dist. Apart	Dia.	Pitch Ratio	
1	L. 72	22	Angle	x 0.05	6.0	0.125	10:1	113
2	L. 72	24	Plate	0.05	4.0	0.25	8:1	103
3	L. 72	133/SS. 1793	Angle	0.05	6.0	0.125	10:1	113
4	L. 72	20	Reinforcing plate	x 0.05	6.0	0.125	10:1	
5	L. 54	Tubing	Stub pipe	x 0.05	6.0	-	-	
6	L. 59	18	Plate	x 0.05	6.0	0.125	10:1	
7	L. 72	18	Angle	x 0.05	6.0	0.125	10:1	113
8	L. 72	20	Angle	0.05	6.0	0.125	10:1	113
9	L. 73	12	Beam reinforcing angles	0.025	8.0	-	-	
10	L. 73	16	Web	0.05	8.0	0.125	10:1	103, 104, 106
11	L. 73	10	Channel member	0.025	8.0	-	-	107, 108
12	L. 72	13b/SS. 1793	Angle	0.05	6.0	0.125	10:1	113
13	L. 72	100/SS. 1793	Channel member	0.05	8.0	0.125	10:1	107, 108
14	L. 73	10	Angle	0.025	8.0	-	-	113
15	L. 72	13b/SS. 1793	Angle	0.05	6.0	0.125	10:1	113
16	L. 72	20	Web	0.05	8.0	0.25	10:1	103, 104, 106
17	L. 72	14	Bracket	x 0.025	8.0	0.125	10:1	
18	L. 73	10	Boom angles	0.025	8.0	-	-	
19	L. 72	18	Bracket	x 0.05	8.0	0.125	10:1	
20	L. 72	18	Support bracket	x 0.05	6.0	0.125	8:1	
21	L. 72	18	Angle	x 0.025	6.0	-	-	
22	L. 72	18	Packing piece	x 0.025	6.0	-	-	
23	L. 72	14	Packing piece	x 0.025	6.0	-	-	
24	L. 65 or D. T. D. 683	Forging	Bracket	* -	-	-	-	
25	L. 72	379/SS. 1793	Top hat section stiffeners	0.05	8.0	0.125	10:1	See Note on Fig. 314B
26	L. 72	20	Stiffener	0.05	8.0	0.125	10:1	107, 108
27	L. 72	129/SS. 1793	Channel member	x 0.05	6.0	0.125	8:1	

* No repairs permitted
x More expedient to renew than repair
All dimensions are quoted in inches

RESTRICTED

KEY TO FIG.315

Item	Material		Description	Negligible Damage				Repair Fig.
	Spec.	S.W.G. or Section		Dents	Holes		Pitch Ratio	
			Depth	Dist. Apart	Dia.			
1	L. 72	24	Intercostal web	0.05	2.5	0.25	4:1	103, 115
2	L. 72	525/SS. 1793	Skin angle	-	-	0.125	4:1	-
3	L. 72	18	Stiffening bracket	x 0.05	2.5	0.25	4:1	-
4	L. 72	386/SS. 1793	Bottom angles	-	-	0.125	4:1	-
5	D. T. D. 364B D. T. D. 683	-	Attachment bracket	* 0.02	-	-	-	-
6	L. 72	22	Reinforcing skins	0.1	2.5	1.0	8:1	103, 104
7	L. 72	16	Stiffeners	x 0.1	2.5	0.25	4:1	-
8	L. 72	18	Diaphragm	0.1	2.5	0.25	4:1	-
9	L. 72	20	Intercostal web	0.1	2.5	0.25	4:1	103, 115
10	L. 72	16	Skin angle	-	-	0.125	4:1	-
11	L. 72	18	Bracket	x 0.05	2.5	0.25	4:1	-
12	L. 72	66/SS. 1793	Angle	-	-	0.125	4:1	-
13	D. T. D. 687	22	Bulkhead web (green) (yellow)	0.3 0.1	2.5 2.5	- 0.25	- 4:1	103, 104 103, 104
14	L. 72	112/SS. 1793	Stiffening ring	0.1	2.5	-	-	-
15	L. 72	530/SS. 1793	Skin angle	0.1	2.5	0.125	4:1	-
16	D. T. D. 687	20	Reinforcing ring	0.1	2.5	-	-	-
17	L. 72	20	Support bracket	0.1	2.5	0.25	4:1	-
18	L. 72	20	Formers	0.1	2.5	0.25	4:1	-
19	L. 72	18	Intake skin	0.1	2.5	-	-	103, 104
20	L. 72	18	Stiffener	0.1	2.5	0.25	4:1	112
21	L. 33	-	Half ring	0.1	2.5	0.25	4:1	-
22	L. 72	18	Retaining ring	0.1	2.5	0.25	4:1	-
23	L. 72	20	Side support bracket	x 0.1	2.5	0.25	4:1	-
24	L. 72	12c/SS. 1793	Angle	0.1	2.5	0.125	4:1	113
25	L. 72	18	Angle	0.1	2.5	0.125	4:1	-
26	L. 72	976/SS. 1793	Angle	0.1	2.5	0.125	4:1	-
27	L. 72	667/SS. 1793	Stringer	x 0.1	2.5	0.125	4:1	-
28	L. 72	816/SS. 1793	Channel	x 0.1	2.5	0.125	4:1	-
29	L. 72	12b/SS. 1793	Angle stiffener	0.1	2.5	0.125	4:1	113
30	L. 72	18	Joint angle	x 0.1	2.5	-	-	-
31	L. 73	18	Web	0.05	2.5	0.25	4:1	103, 115
32	L. 73	689/SS. 1793	Angle	0.05	2.5	0.25	4:1	-
33	L. 73	688/SS. 1793	Angle	0.05	2.5	0.25	4:1	-
34	D. T. D. 364B D. T. D. 683	-	Side load bracket	* 0.2	-	-	-	-
35	L. 72	16	Bracket	x 0.1	2.5	0.25	4:1	-
36	L. 72	304/SS. 1793	Angle	0.05	2.5	0.25	4:1	-
37	L. 72	22	Web	0.05	2.5	0.25	4:1	103, 115
38	L. 72	20	Bracket	x 0.1	2.5	0.25	4:1	-
39	L. 72	379/SS. 1793	Top hat stringers	0.1	2.5	0.125	4:1	112
40	L. 72	249/SS. 1793	Angle	0.05	2.5	0.125	4:1	-
41	L. 72	20	Diaphragm	x 0.1	2.5	0.5	4:1	-
42	L. 72	20	Angle	x 0.05	2.5	0.25	4:1	-

* No repairs permitted
x More expedient to renew than repair
All dimensions are quoted in inches

RESTRICTED

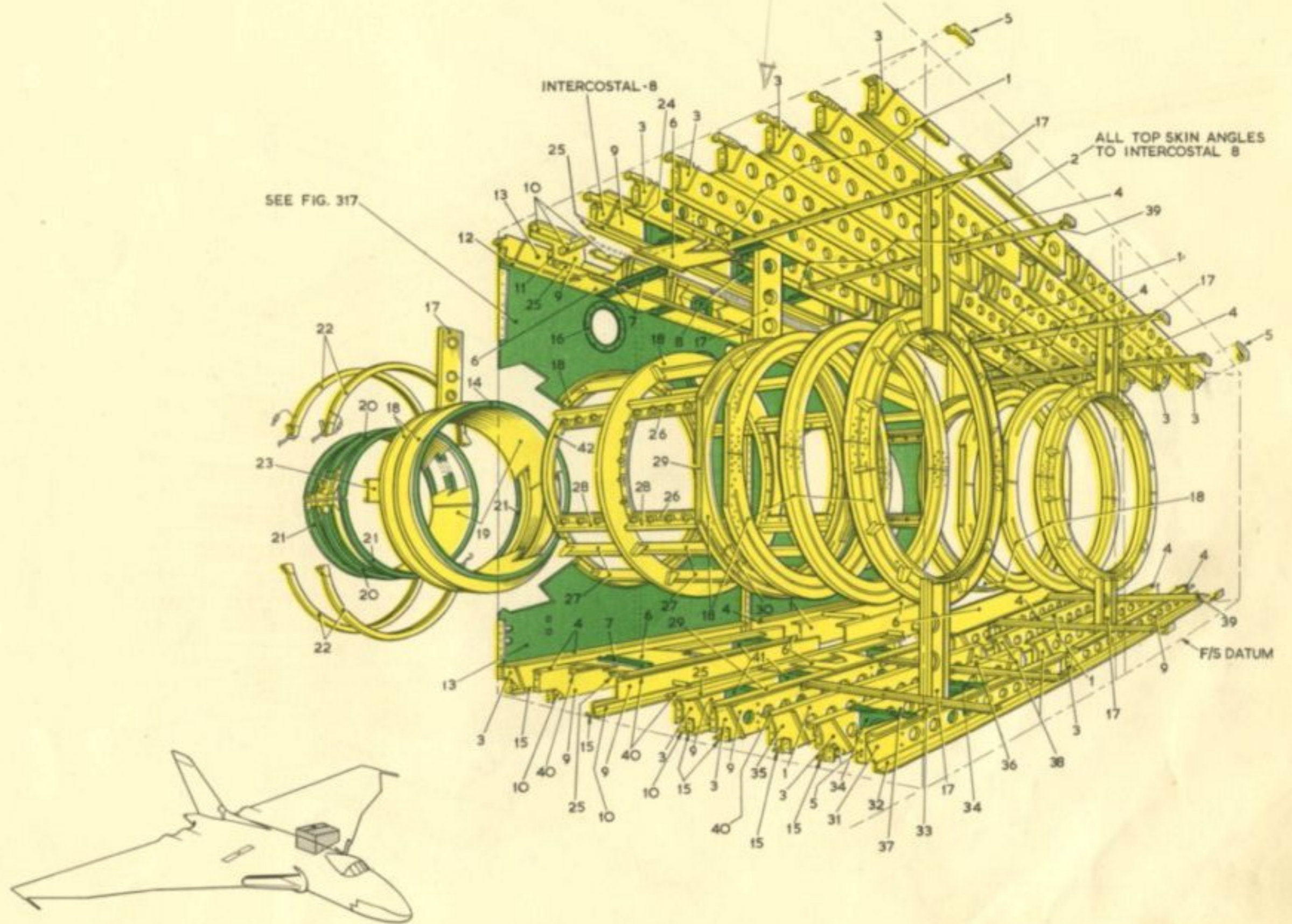


Fig.315 - Intake aft of front spar
RESTRICTED

(A.L./2, June 58)

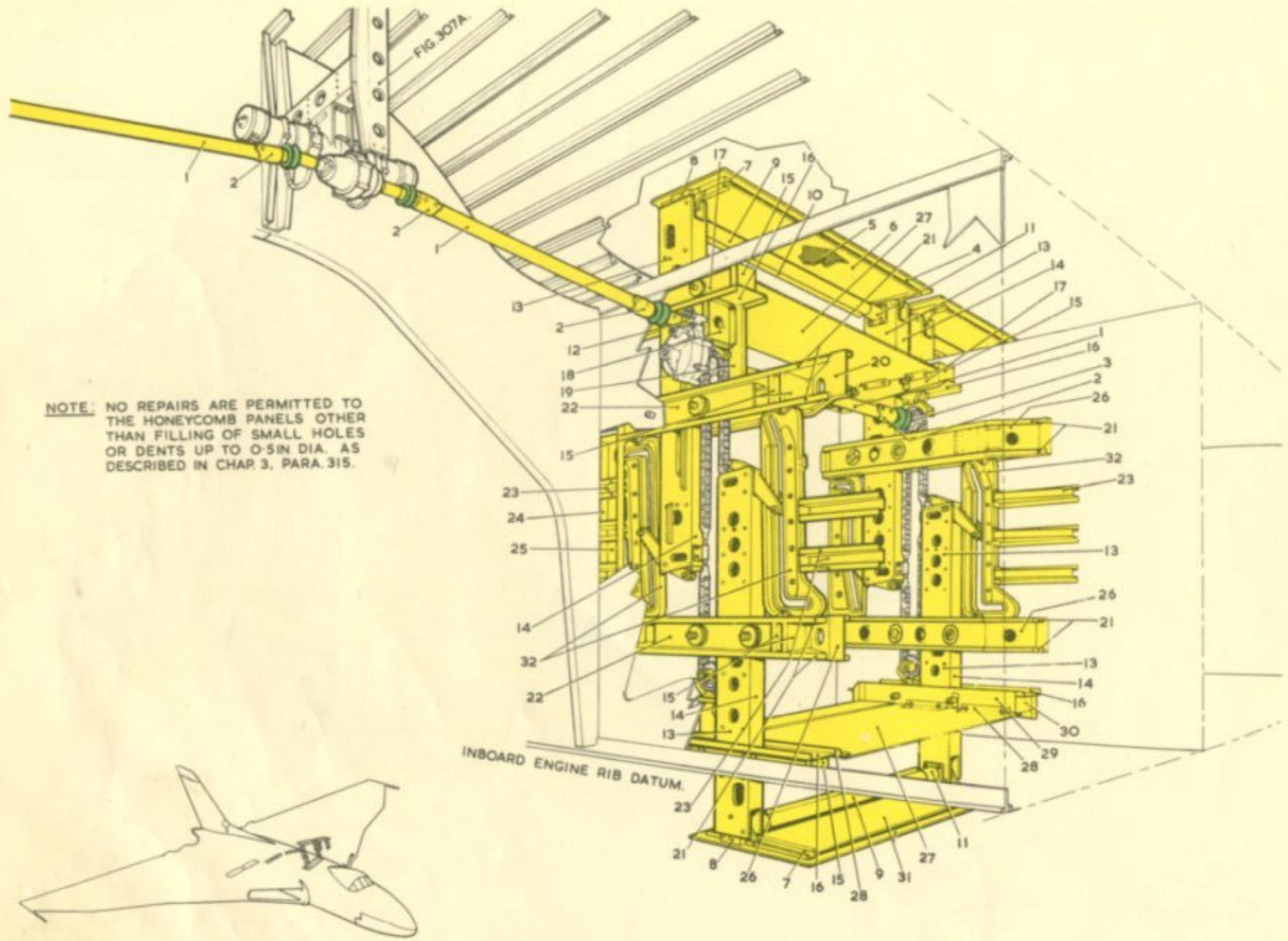


Fig.315A - Airbrake structure RESTRICTED

Key to fig. 315A. Airbrake structure

Item	Spec.	Material S.W.G or Section	Description	Depth	Negligible Damage		Repair Fig. No.
					Dents Dist. Apart	Holes Pitch Ratio	
1	T.45	20	Torque shaft	*0-025	3-0	—	—
2	T.45	17	Sleeve	†0-025	3-0	—	—
3	S.1	M.S. bar	Adapter	†0-025	3-0	—	—
4	L.73	17	Top skin	†0-025	3-0	—	—
5	—	11/SS/4282 11/SS/4275	Honeycomb	†—	—	—	—
6	L.73	17	Inner skin	†0-025	3-0	—	—
7	L.73	16	Side member	†0-025	3-0	—	—
8	BSS.668	—	Stops	†0-025	3-0	—	—
9	L.63	20	Bracing tube	0-025	3-0	—	—
10	L.72	929/SS/1793	Angle	0-025	3-0	—	—
11	L.65	Al. alloy	Spigot	†0-025	3-0	—	—
12	S.96	Bar	Adapter	†0-025	3-0	—	—
13	L.73	8	Side plate	0-025	3-0	0-25	8:1
14	DTD.683	408/SS/3075	Channel	0-025	3-0	0-25	8:1
15	L.72	18	Diaphragm	†0-05	3-0	0-25	8:1
16	L.72	18	Box members	0-05	3-0	0-25	8:1
17	L.72	18	Side channel	0-05	3-0	0-25	8:1
18	L.73	16	Diaphragm	†0-05	3-0	0-25	8:1
19	L.73	16	Mounting channel	0-05	3-0	0-25	8:1
20	L.72	16	Side channel	0-05	3-0	0-25	8:1
21	L.72	18	Upper and lower channels	0-05	3-0	0-25	8:1
22	L.72	18	Channel	0-05	3-0	0-25	8:1
23	L.72	18	Buttress	†0-05	3-0	0-25	6:1
24	L.72	20	Sealing intercostal	0-05	3-0	0-25	6:1
25	L.72	20	Skin	0-05	3-0	—	—
26	L.72	441/SS/1793	Channel	0-05	3-0	0-25	8:1
27	L.72	20	Skin panel	0-10	3-0	—	—
28	L.72	18	Attachment angle	†0-05	3-0	0-25	8:1
29	DTD.687	12	Side plate	0-05	3-0	0-25	8:1
30	L.72	22	Reinforcing	†0-10	3-0	0-25	6:1
31	L.73	18	Skins	†0-05	3-0	—	—
32	DTD.304 or L.53	Al. alloy	Cam track	*0-05	3-0	—	—

* No repairs permitted
† More expedient to renew
‡ See note on fig. 315A
All dimensions in inches

RESTRICTED

Key to Fig. 316. Air intake tunnels

Item	Spec.	Material S.W.G. or Section	Description	Negligible Damage			Repair Fig. No.
				Dents Depth	Dist. Apart	Holes Dia. Pitch Ratio	
1	L.72	20	Tunnel skin	—	—	—	116
2	L.72	20	Joint strap	• —	—	—	—
3	L.72	22	Tunnel skins	—	—	—	—
4	L.72	20	Anti-icing fairing	—	—	—	116
5	L.72	20	Nose skins	—	—	—	—
6	L.59	20	Intake bleed duct	—	—	—	—
7	BS.668	—	Fairing block	0.05	6.0	—	—
8	L.72	20	Duct angles	† —	—	—	—
9	L.72	17/SS/1793	Stiffener	†0.030	6.0	—	—
10	L.72	22	Stiffening angle	†0.030	6.0	0.125	16 : 1
11	L.72	22	Panel	†0.050	6.0	—	—
12	L.72	18	Access panel	—	—	—	—
13	L.72	14	Packer	—	—	—	—
14	L.72	24	Duct, web	†0.050	6.0	—	—
15	L.72	129/SS/1793	Duct, channel	0.050	6.0	—	—
16	L.72	112/SS/1793	Angle	0.030	6.0	0.125	16 : 1
17	L.72	22	Web	0.050	6.0	0.25	8 : 1
18	L.73	10	Channel	0.025	6.0	0.125	16 : 1
19	L.72	20	Intercostals	†0.050	6.0	0.25	8 : 1
20	L.59	20	Stub pipe	†0.025	6.0	—	—
21	L.72	60/SS/1793	Angle	0.025	6.0	—	—
22	DTD.626	17	Tunnel skins	—	—	—	—
23	L.72	10	Channel	†0.025	6.0	—	116
24	L.72	26	Packing	—	—	—	—
25	L.72	22	Butt straps	• —	—	—	—
26	L.72	20	Angle	†0.025	6.0	—	—
27	L.72	133/SS/1793	Angle	0.025	6.0	—	—
28	L.72	13b/SS/1793	Angle	0.025	6.0	—	—
29	L.72	18	Angle	0.025	6.0	—	113
30	L.72	601/SS/1793	Angle	0.025	6.0	—	—

* No repairs permitted
† More expedient to renew
All dimensions in inches

RESTRICTED

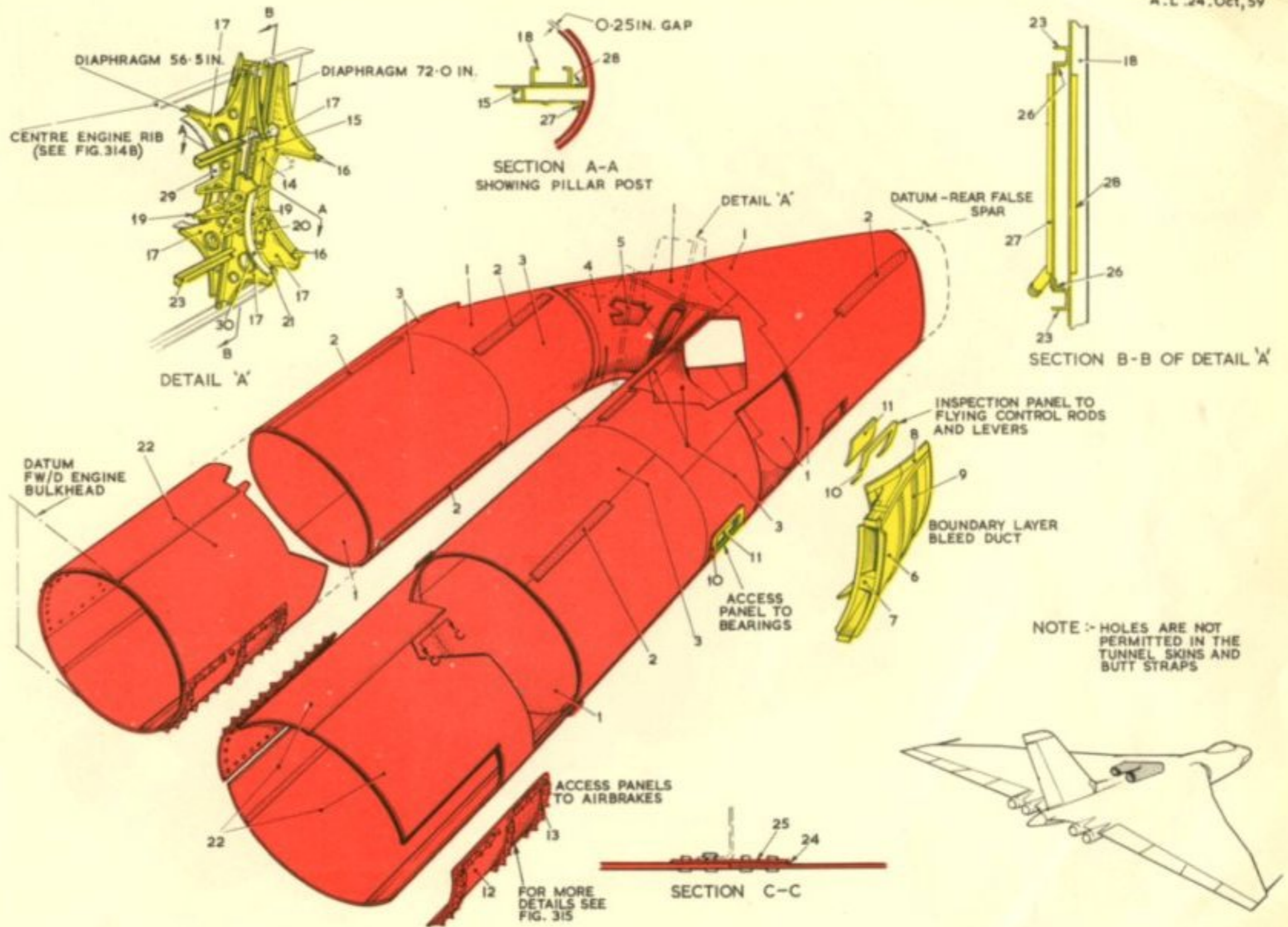
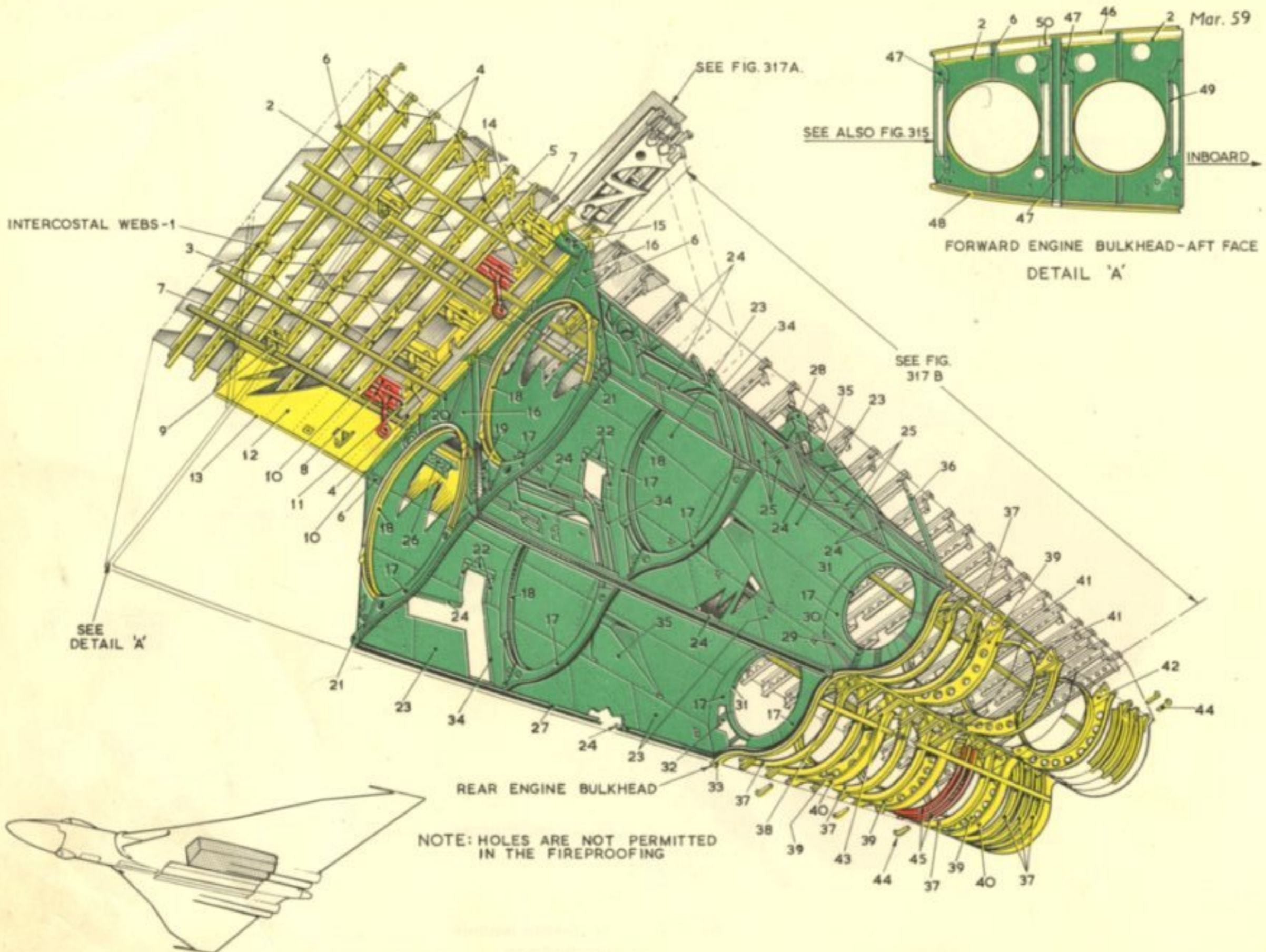


Fig.316 Air intake tunnels RESTRICTED



**Fig.317 - Engine bay and rear structure
RESTRICTED**

Key to fig. 317. Engine bay and aft structure

Item	Spec.	Material S.W.G or Section	Description	Negligible Damage			Holes Pitch Ratio	Repair Fig. No.
				Dents Depth	Dist. Apart	Dia.		
1	L.72	24	Intercostal web	0.05	2.5	0.25	4:1	103, 115
2	L.72	386/SS/1793	Intercostal angle (O/B)	—	—	0.125	4:1	—
3	L.72	971/SS/1793	Intercostal angle (I/B)	—	—	0.125	4:1	—
4	L.72	16	Top skin angles	—	—	0.125	4:1	—
5	L.72	18	Web bracket	†0.05	2.5	0.25	4:1	—
6	L.72	379/SS/1793	Top hat section	—	—	0.125	4:1	—
7	L.72	18	Plate bracket (yellow)	†0.05	2.5	0.25	4:1	—
8	L.72	18	Plate, bracket (red)	†—	—	0.25	4:1	—
9	L.72	12	Bracket	—	—	—	—	—
10	L.72	20	Web	0.05	2.5	0.25	4:1	103, 115
11	L.65	340/SS/3075	Bottom angle	—	—	0.125	4:1	—
12	L.72	20	Stiffening skin	0.10	2.5	1.0	8:1	103
13	L.72	529/SS/1793	Attachment angle	0.10	2.5	0.25	4:1	—
14	L.72	16	Bottom angle	—	—	0.125	4:1	—
15	L.72	18	Diaphragm	†0.15	2.0	0.25	4:1	—
16	DTD.166B	26	Web plate	0.3	2.0	—	—	103, 104
17	DTD.166B	26	Skins	†—	—	0.25	4:1	—
18	DTD.166B	755/SS/1793	Sealing ring	—	—	0.25	4:1	—
19	DTD.166B	22	Sealing plate	†—	—	—	—	—
20	L.72	18	Angle	†0.10	2.5	0.25	4:1	—
21	DTD.166B	813/SS/1793	Channel stiffener	—	—	—	—	—
22	DTD.166B	22	Sealing plates	†—	—	—	—	—
23	DTD.166B	28	Fireproofing skins	0.30	2.0	—	—	as 342
24	DTD.166B	743/SS/1793	"Z" angle	†0.10	2.5	—	—	—
25	DTD.166B	744/SS/1793	Channel stiffeners	†0.10	2.5	—	—	—
26	L.72	18	Bracket	†—	—	—	—	—
27	DTD.166B	26	Channel stiffener	0.10	2.5	—	—	—
28	DTD.166B	22	Shroud tube	0.10	2.5	—	—	—
29	DTD.166B	20	Stiffener	†0.10	2.5	—	—	—
30	DTD.166B	22	Stiffener	†0.10	2.5	—	—	—
31	DTD.166B	22	Half ring	0.10	2.5	—	—	—
32	DTD.166B	26	Shroud angle	†0.10	2.5	—	—	—
33	L.72	729/SS/1793	Bottom angle	—	—	0.125	4:1	—
34	DTD.166B	26	Attachment angle	†0.10	2.5	—	—	—
35	DTD.166B	22	Hoisting canopy	0.2	2.0	—	—	—
36	L.72	12a/SS/1793	Bulkhead angle	0.10	2.0	—	—	—
37	L.72	940/SS/1793	Former channel	—	—	0.25	4:1	—
38	L.72	93/SS/1793	Cross member	†—	—	—	—	—
39	L.72	22	Web	0.10	2.5	0.25	4:1	103
40	L.72	18	Capping strip	*—	—	—	—	—
41	L.72	725/SS/1793	Skin angle	—	—	0.125	4:1	—
42	L.72	18	Gusset plate	†—	—	0.25	4:1	—
43	L.72	410/SS/1793	Angle	—	—	—	—	—
44	DTD.683	Al. alloy	Stringer bracket	†0.02	2.5	—	—	—
45	L.72	18	Former channel	—	—	—	—	—
46	L.65	376/SS/3075	Skin angle	—	—	0.125	4:1	—
47	L.72	16	Web stiffeners	†0.10	2.5	0.25	4:1	—
48	L.72	20	Seal angle	†0.10	2.5	0.25	4:1	—
49	L.72	314/SS/1793	Angle	†0.05	2.5	0.25	4:1	—
50	L.72	16	Bracket	†0.05	2.5	0.25	4:1	—

All dimensions in inches
* No repairs permitted
† More expedient to renew

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Key to fig. 317A. U/C side load beam

Item	Spec.	Material S.W.G or Section	Description	Depth	Negligible Damage		Holes Pitch Ratio	Repair Fig. No.
					Dents Dist. Apart	Dia.		
1	L.72	24	Web	0.05	2.5	0.25	4:1	103
2	L.72	16	Skin angle	—	—	0.125	4:1	—
3	DTD.364B 683	Al. alloy	Bracket	†0.02	—	—	—	—
4	L.72	386/SS/1793	Angle	—	—	0.125	4:1	—
5	L.72	20	Web bracket	†0.05	2.5	0.25	4:1	—
6	L.72	97/SS/1793	Bottom angle	—	—	0.125	4:1	—
7	L.72	18	Web bracket	†0.05	2.5	0.25	4:1	—
8	DTD.683	Al. alloy	Bracket	†0.02	—	—	—	—
9	L.72	16	Bracket	†0.05	2.5	0.25	4:1	—
10	L.72	20	Reinforcing skins	0.10	2.5	0.25	4:1	103, 104
11	L.72	14	Channel	0.10	2.5	0.5	8:1	—
12	L.72	446/SS/1793	Angle	—	—	0.125	4:1	—
13	L.72	16	Diaphragm	†0.10	2.5	0.25	4:1	—
14	L.72	18	Diaphragm	†0.10	2.5	0.25	4:1	—
15	L.72	10	Angle	—	—	0.125	4:1	—
16	L.72	16	Web	0.10	2.5	0.25	4:1	103
17	L.72	18	Reinforcing plate	†—	—	—	—	—
18	L.72	385/SS/1793	Angle	—	—	0.125	4:1	—
19	L.72	18	Angle	—	—	0.125	4:1	—
20	L.72	67/SS/1793	Angle	—	—	0.125	4:1	—
21	L.72	971/SS/1793	Angle	—	—	0.125	4:1	—
22	L.72	22	Packing	†—	—	—	—	—
23	L.72	14	Bracket	0.05	2.5	0.25	4:1	—

† More expedient to renew
All dimensions in inches

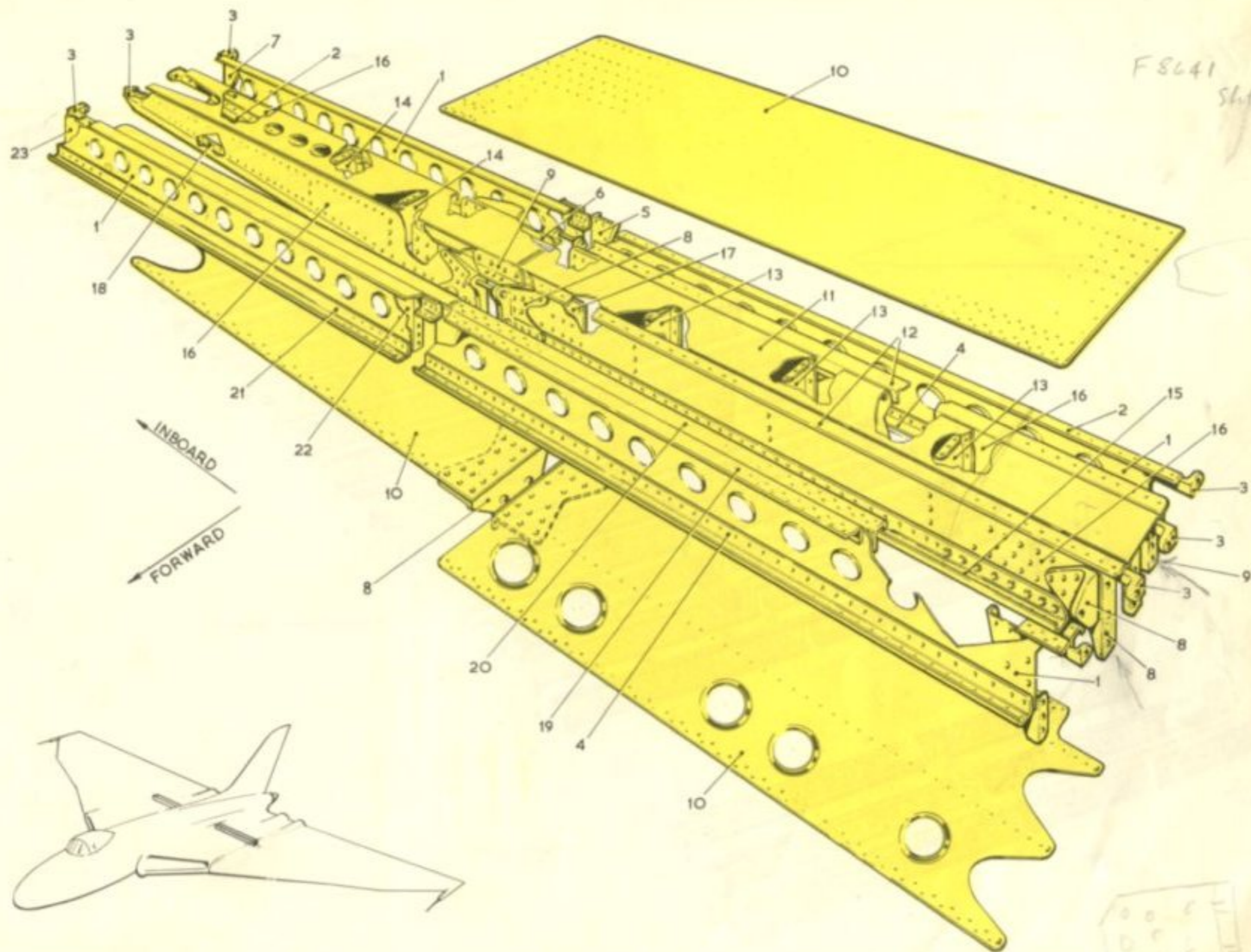
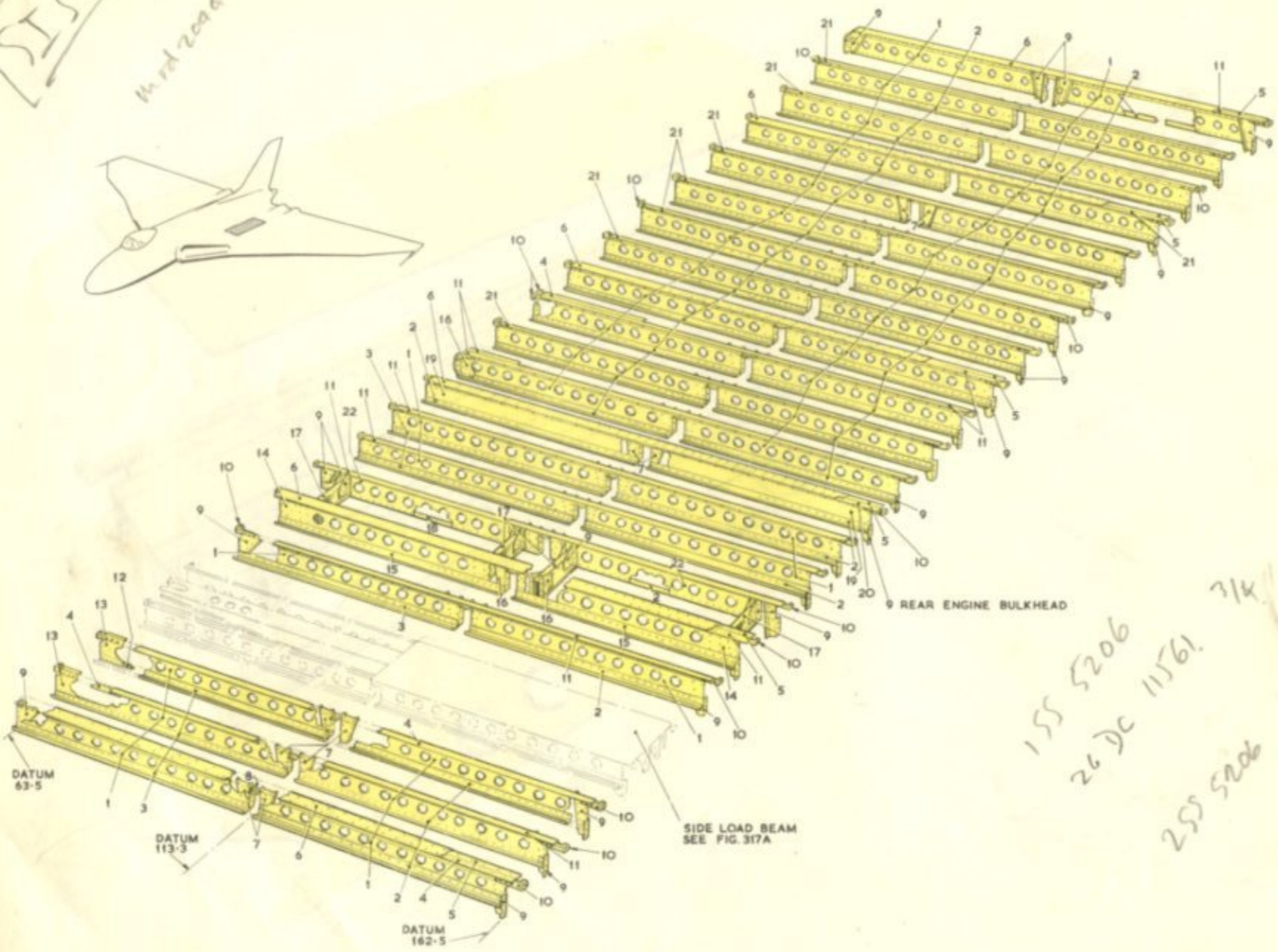


Fig. 317A. - U/c side-load beam
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26 DEC 11561 314
255 5206 14

Fig.317B. Centre section roof structure
RESTRICTED

KEY TO FIG.317B

Item	Material		Description	Dents Depth	Negligible Damage			Repair Fig.
	Spec.	S.W.G. or Section			Holes Dist. Apart	Dia.	Pitch Ratio	
1	L.72	24	Web	0.05	2.5	0.25	4:1	103
2	L.72	386/SS.1793	Angle	-	-	0.125	4:1	113
3	L.72	971/SS.1793	Angle	-	-	0.125	4:1	113
4	L.72	88/SS.1793	Angle	-	-	0.125	4:1	114
5	L.72	67/SS.1793	Angle	-	-	0.125	4:1	114
6	L.72	20	Strap plate	-	-	-	-	-
7	L.72	20	Bracket	x 0.05	2.5	0.25	4:1	-
8	L.72	16	Bracket	x 0.05	2.5	0.25	4:1	-
9	L.72	18	Bracket	x 0.05	2.5	0.25	4:1	-
10	L.65	-	Stringer bracket	* 0.02	-	-	-	-
11	L.72	16	Skin angle	-	-	0.125	4:1	113
12	L.72	529/SS.1793	Angle	-	-	0.125	4:1	113
13	L.72	14	Bracket	x 0.05	2.5	0.25	4:1	-
14	L.72	16	Web	x 0.05	2.5	0.25	4:1	103
15	L.72	385/SS.1793	Angle	-	-	0.125	4:1	113
16	L.72	16	Bracket	x 0.05	2.5	0.25	4:1	-
17	L.72	16	Channel member	-	-	0.125	4:1	108
18	L.72	972/SS.1793	Angle	-	-	0.125	4:1	113
19	L.72	22	Web	0.05	2.5	0.25	4:1	103
20	L.72	530/SS.1793	Angle	-	-	0.125	4:1	114
21	L.72	770/SS.1793	Skin angle	-	-	0.125	4:1	114
22	L.72	20	Web	0.05	2.5	0.25	4:1	103

* No repairs permitted
 x More expedient to renew than repair
 All dimensions are quoted in inches

RESTRICTED

KEY TO FIG.318

Item	Material		Description	Negligible Damage				Repair Fig.
	Spec.	S.W.G. or Section		Dents	Holes	Pitch Ratio		
			Depth	Dist. Apart	Dia.			
1	L. 72	665/SS. 1793	Stringer	x 0.1	2.5	0.25	4:1	-
2	L. 72	20	Former	0.1	2.5	-	-	-
3	L. 72	16	Capping strip	* 0.1	2.5	0.25	4:1	-
4	L. 72	18	Capping strip	* 0.1	2.5	0.25	4:1	-
5	L. 72	20	Capping strip	* 0.1	2.5	0.25	4:1	-
6	D. T. D. 171B	26	Inner skins	0.2	2.5	-	-	103
7	L. 72	24	Inner skins	0.2	2.5	-	-	103
8	D. T. D. 171B	20	Breather labyrinth	* 0.2	2.0	-	-	-
9	D. T. D. 171B	26	Patch plate	* 0.2	2.0	-	-	-
10	L. 72	20	Outer skins	0.1	2.5	-	-	103
11	L. 59	18	Air intake	* -	-	-	-	-
12	D. T. D. 171B	20	Gusset plate	0.1	2.5	0.25	8:1	-
13	L. 72	20	Stiffener plate	x -	-	-	-	-
14	L. 72	20	Outboard edge member	0.1	2.5	-	-	-
15	L. 72	20	Inboard edge section	0.1	2.5	-	-	-
16	L. 72	18	Inboard edge member	0.1	2.5	-	-	-
17	L. 72	20	Seal retaining strip	x 0.2	2.0	-	-	-
18	L. 72	20	Seal angle	0.1	2.5	-	-	-
19	D. T. D. 171B	22	Scoop angle	0.1	2.5	-	-	-
20	D. T. D. 171B	22	Scoop liner	* -	-	-	-	-
21	S. 3	20	Air scoop	* -	-	-	-	-

* No repairs permitted
 x More expedient to renew than repair
 All dimensions are quoted in inches

RESTRICTED

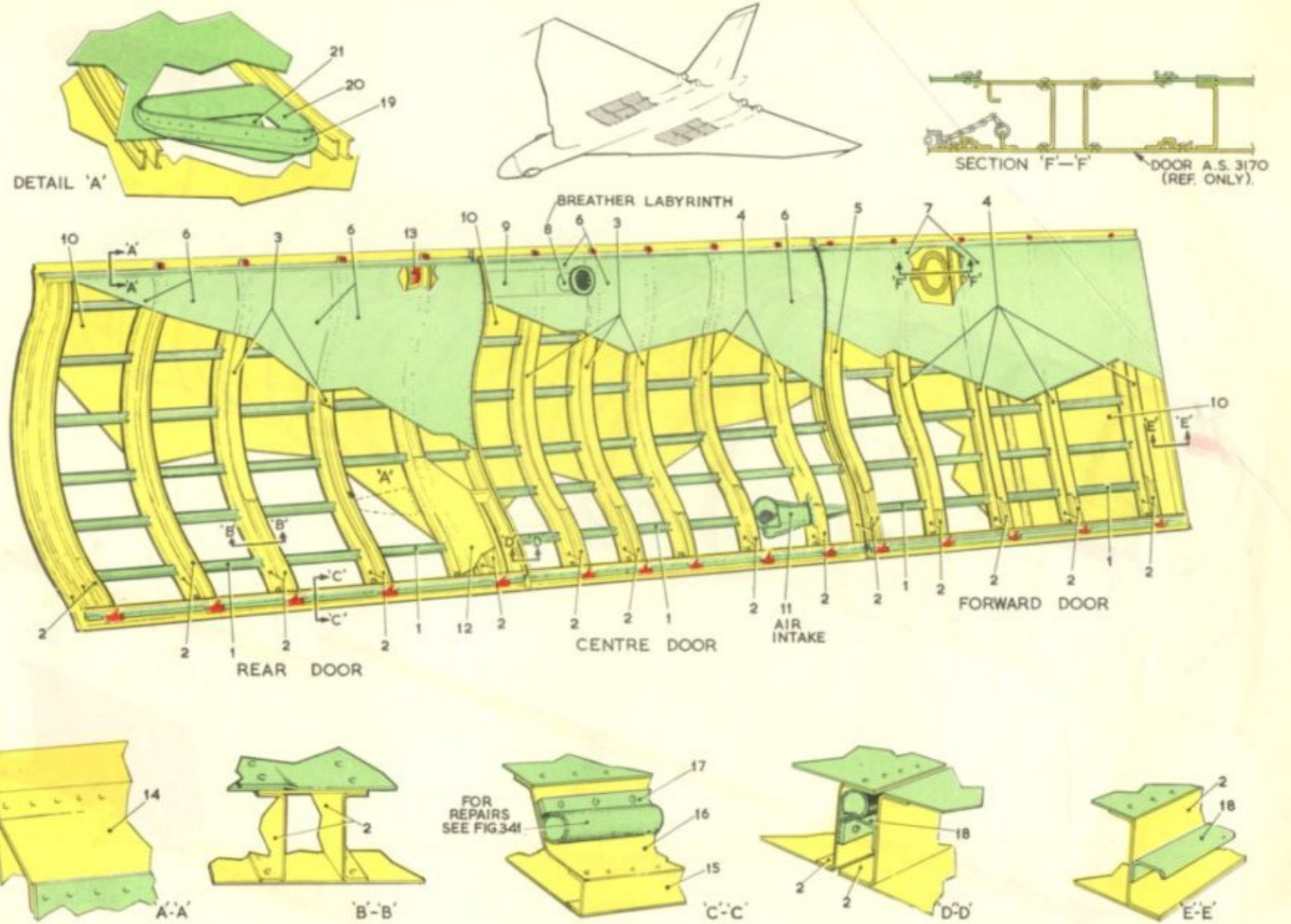


Fig. 318. Engine access doors - Port outer
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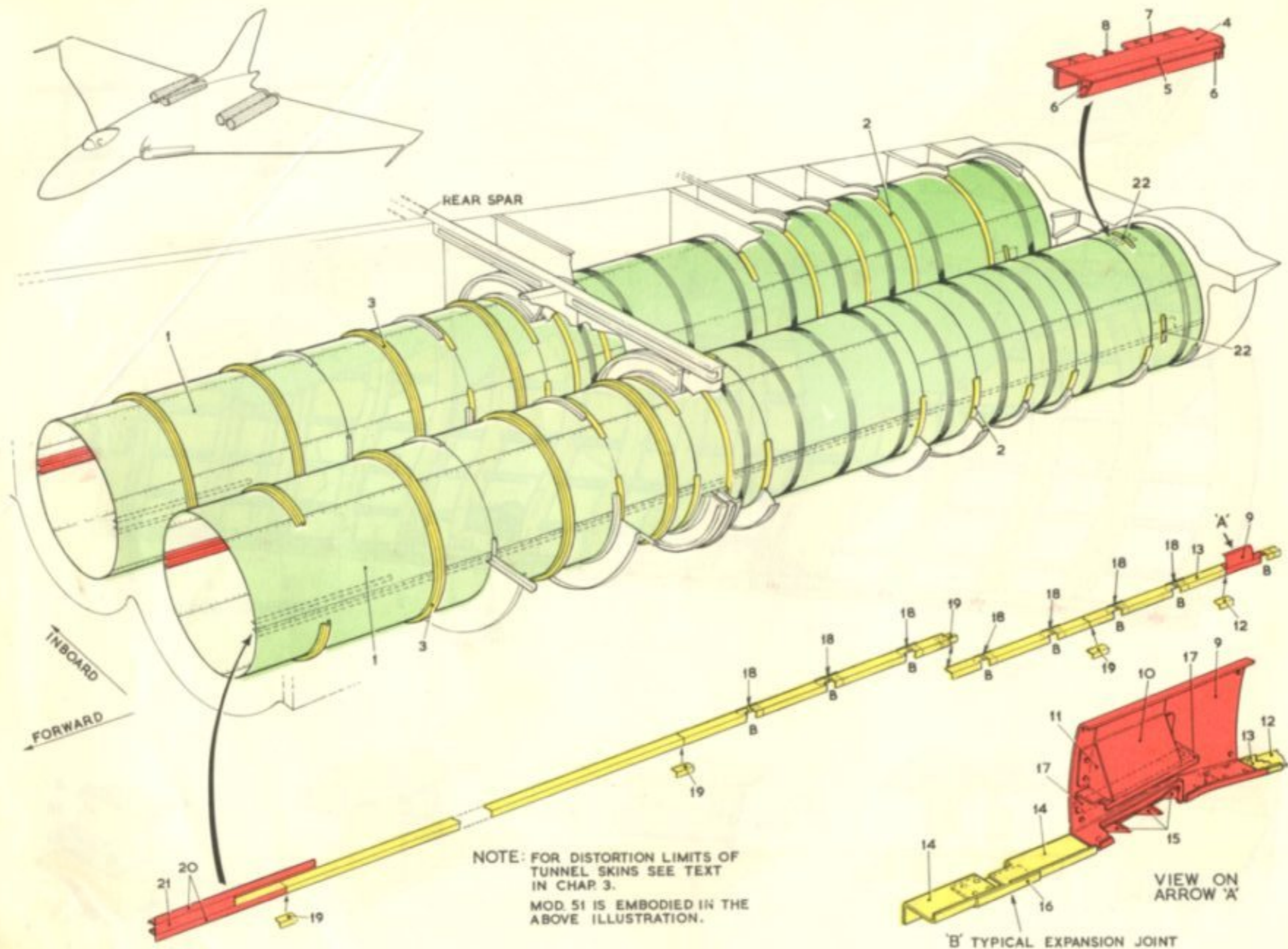


Fig. 319. Jet pipe tunnels
RESTRICTED

KEY TO FIG.319

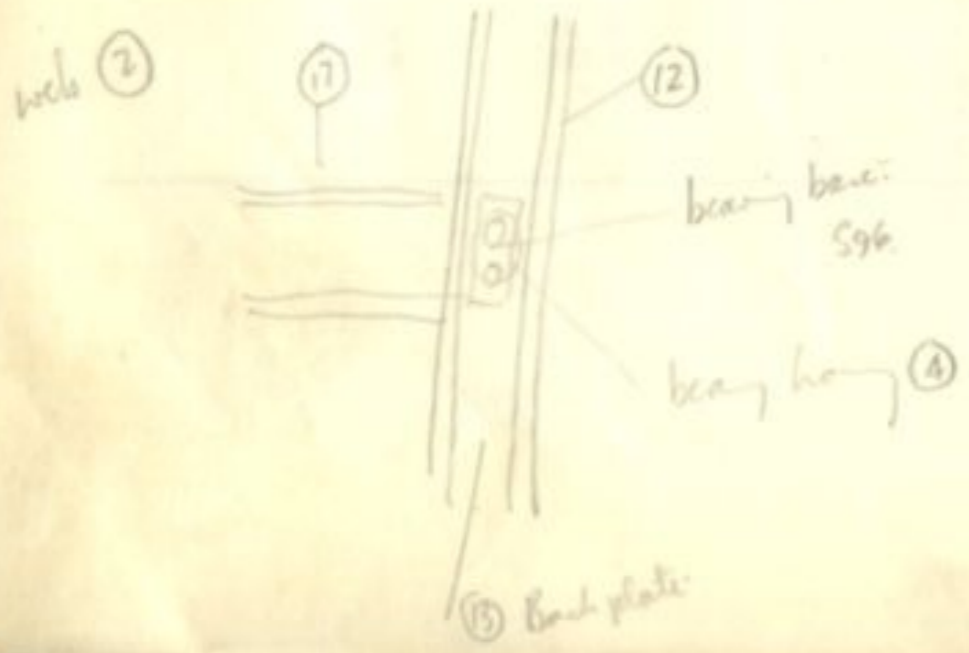
Item	Material		Description	Dents Depth	Negligible Damage			Repair Fig.
	Spec.	S.W.G. or Section			Dents Dist. Apart	Holes Dia.	Holes Pitch Ratio	
1	A.V.R.50 Titanium	28	Jet pipe tunnel skins	* 1.0	-	-	-	342,342A
	D.T.D.571 or D.T.D.166	28	(Prior to Mod.51)	* 1.0	-	-	-	342, 342A
2	A.V.R.50 Titanium	20	Tunnel skin joint straps	x 0.05	3.0	-	-	-
	D.T.D.571 or D.T.D.166	20	(Prior to Mod.51)	x 0.05	3.0	-	-	-
3	L-72	379/SS.1793	Top hat stiffeners	0.05	3.0	0.125	8:1	342
4	D.T.D.171B	14	Channel	x 0.025	4.0	-	-	-
5	D.T.D.171B	16	Angle	x 0.025	4.0	-	-	-
6	D.T.D.171B	16	End plates	x 0.025	4.0	-	-	-
7	D.T.D.171B	14	Angle	x 0.025	4.0	-	-	-
8	D.T.D.171B	14	Gusset	x 0.025	4.0	-	-	-
9	D.T.D.171B	18	Backplate	0.025	6.0	0.125	8:1	-
10	D.T.D.171B	18	Bracket	x 0.025	4.0	0.125	6:1	-
11	D.T.D.171B	18	Gusset	x 0.025	4.0	0.125	6:1	-
12	L-72	16	Jointing angle	x 0.05	6.0	0.125	8:1	-
13	L-72	690/SS.1793	Guide rail	0.05	6.0	-	-	-
14	D.T.D.171B	18	Guide rail	0.05	6.0	-	-	-
15	D.T.D.166B	18	Gusset	x 0.025	6.0	0.125	10:1	-
16	D.T.D.171B	18	Expansion bracket	x 0.025	6.0	0.125	8:1	-
17	D.T.D.171B	18	Retaining angle (free side)	x 0.025	8.0	-	-	-
	D.T.D.171B	18	Guide channel (fixed side)	x 0.025	8.0	-	-	-
18	L-72	18	Expansion bracket	x 0.05	6.0	0.125	6:1	-
19	L-72	66/SS.1793	Jointing angle	x 0.05	6.0	0.125	8:1	-
20	D.T.D.171B	18	Top and bottom guide rails	x 0.025	6.0	-	-	-
21	D.T.D.171B	18	Channel	x 0.025	6.0	-	-	-
22	L-72	68/SS.1793	Stiffening channel	x 0.025	6.0	-	-	-

x More expedient to renew than repair
 * See text in Chap.3
 All dimensions are quoted in inches

RESTRICTED

KEY TO FIG.320

Item	Spec.	Material S.W.G. or Section	Description	Negligible Damage				Repair Fig.
				Dents Depth	Dist. Apart	Holes Dia.	Pitch Ratio	
1	D. T. D. 363	6B/1824	Rib boom	* 0.05	3.0	-	-	-
2	D. T. D. 687	18	Rib web	0.05	3.0	1.0	8:1	103, 104
3	D. T. D. 687	16	Rib web	0.05	3.0	1.0	8:1	103, 104
4	S. 96	-	Bearing housing	* -	-	-	-	-
5	D. T. D. 687	18	Joint strap	0.05	3.0	-	-	-
6	L. 72	20	Stiffening plate	x 0.1	2.5	0.5	8:1	-
7	L. 72	18	Attachment angle	0.1	2.5	-	-	113
8	L. 65	-	Bobbin	x -	-	-	-	-
9	L. 72	16	Stiffening plate	x 0.1	2.5	0.25	4:1	-
10	L. 72	18	Stiffening plate	x 0.1	2.5	-	-	-
11	L. 72	12b/SS. 1793	Attachment angle	0.1	2.5	-	-	113
12	D. T. D. 124A	18	Side member	-	-	0.5	8:1	-
13	D. T. D. 171B	26	Back plate	0.1	2.5	-	-	-
14	D. T. D. 166B	26	Attachment angle	x 0.1	2.5	-	-	-
15	S. 1	-	Bearing plate	* -	-	-	-	-
16	D. T. D. 124A	16	Bracket assembly	x -	-	-	-	-
17	D. T. D. 124A	20	Compression member	* -	-	0.25	4:1	-
18	S. 93	-	Channel bracket	* -	-	-	-	-



* No repairs permitted
 x More expedient to renew than repair
 All dimensions are quoted in inches

RESTRICTED

Key to Fig. 320A. Inboard engine rib

Item	Spec.	Material S.W.G. or Section	Description	Depth	Negligible Damage		Holes Pitch Ratio	Repair Fig. No.
					Dents	Dist. Apart		
1	DTD.363	6B/1824	Top boom	*0.05	3.0	—	—	—
2	L.72	16	Side member	—	—	—	—	105, 115
3	L.72	14	Channel	† —	—	—	—	—
4	L.72	18	Reinforcing plate	†0.05	3.0	—	—	—
5	L.72	406/SS/1793	Angle	0.10	2.5	—	—	—
6	L.72	83/SS/1793	Top hat stiffener	0.10	2.5	—	—	—
7	L.72	16	Channel	†0.10	2.5	—	—	—
8	L.72	18	Stiffening plate	†0.10	2.5	0.3	12:1	—
9	L.72	20	Support plate	†0.2	2.0	—	—	—
10	L.72	20	Intercostal	†0.10	2.5	0.3	12:1	—
11	L.65	Al. alloy	Bearing channel	†0.10	2.5	—	—	—
12	L.65	304/SS/3075	Angle	0.05	3.0	—	—	343
13	L.72	14	Channel	0.10	2.5	—	—	—
14	L.72	16	Bracket	†0.10	2.5	0.3	12:1	—
15	L.72	12b/SS/1793	Angle	0.05	3.0	—	—	113
16	L.72	18	Stiffener	†0.10	2.5	—	—	—
17	L.65	343/SS/3075	Angle	0.05	3.0	—	—	—
18	L.72	16	Angle	0.05	3.0	—	—	114
19	L.72	14	Channel	0.05	3.0	—	—	—
20	L.72	84/SS/1793	Support members	†0.10	2.5	—	—	—
21	L.72	16	Gusset plates	†0.10	2.5	—	—	—
22	L.72	18	Doubler plate	†0.05	3.0	—	—	—
23	L.65	Al. alloy	Attachment fitting	† —	—	—	—	—
24	S.96	—	Screwed sleeve	†0.05	3.0	—	—	—
25	L.65	Al. alloy	Bearing	† —	—	—	—	—
26	L.65	312/SS/3075	Bottom boom	*0.05	3.0	—	—	—

* No repairs permitted
† More expedient to renew
All dimensions in inches

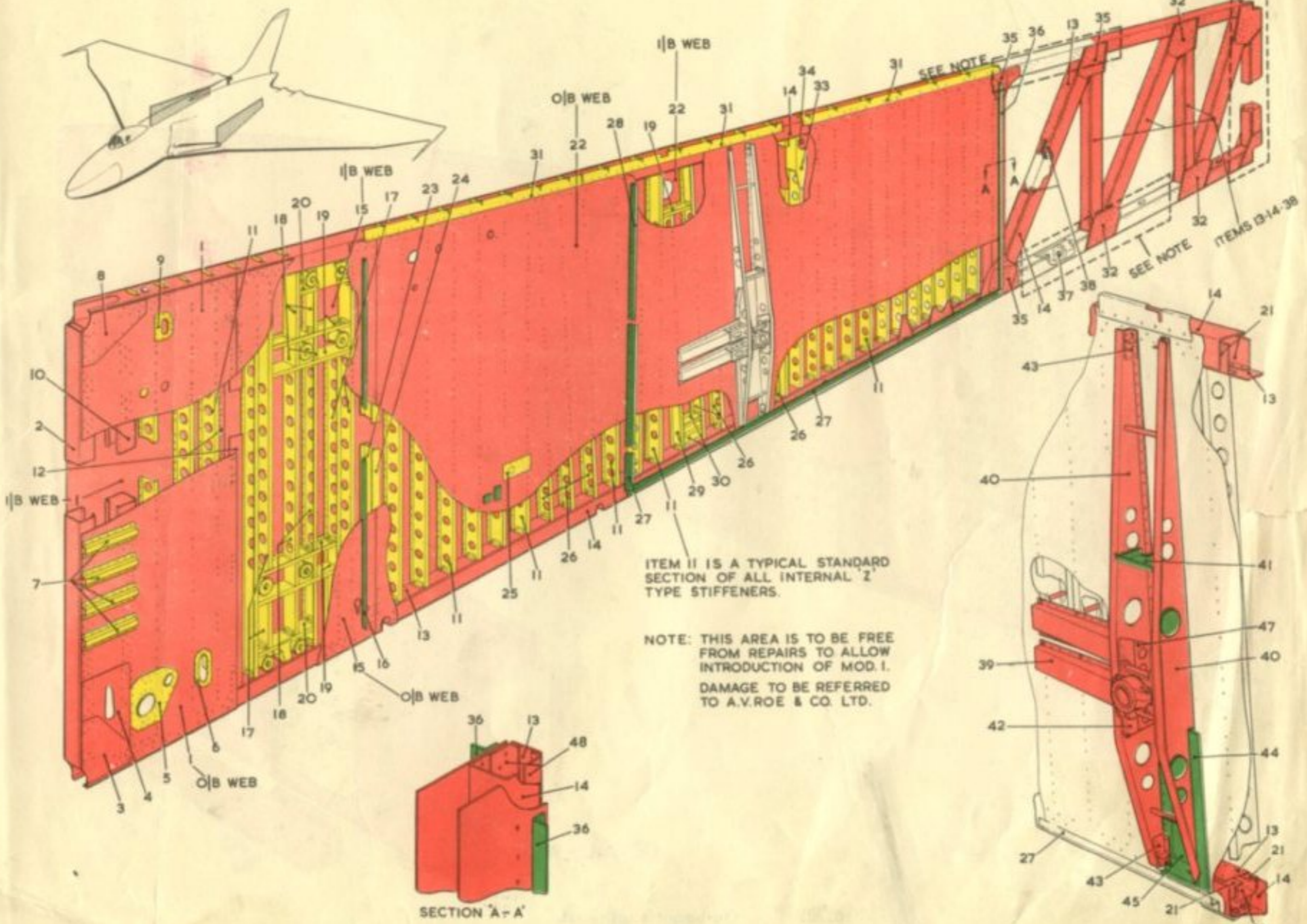
Key to Fig. 321. Centre engine rib

Item	Spec.	Material S.W.G. or Section	Description	Depth	Negligible Damage			Repair Fig. No.
					Dents Dist. Apart	Holes Dia.	Pitch Ratio	
1	DTD.687	20	Web	0.05	3.0	1.0	8:1	103, 104
2	DTD.687	10	Channel	0.10	2.5	—	—	—
3	DTD.687	14	Gusset	†0.05	3.0	1.0	8:1	—
4	DTD.687	18	Reinforcing plate	0.05	3.0	1.0	8:1	103
5	DTD.687	18	Reinforcing plate	0.10	2.5	0.50	8:1	—
6	L.72	20	Reinforcing plate	†0.10	2.5	0.25	4:1	—
7	L.72	500/SS/1793	Stiffener	0.10	2.5	0.25	4:1	As 112
8	DTD.687	10	Gusset	†0.05	3.0	1.0	8:1	—
9	L.72	14	Stiffening plate	†0.10	2.5	0.25	4:1	—
10	L.72	721/SS/1793	Channel member	0.10	2.5	—	—	—
11	L.72	586/SS/1793	Stiffener	0.10	2.5	0.25	4:1	—
12	DTD.687	22	Butt strap	†0.05	3.0	—	—	—
13	DTD.687	16	Capping	0.05	3.0	—	—	—
14	DTD.687	939/SS/1793	Boom channel	0.05	3.0	—	—	—
15	DTD.687	16	Web	0.05	3.0	1.0	8:1	103, 104
16	L.72	20	Angle	0.10	2.5	—	—	As 113, 114
17	L.72	749/SS/1793	Channel	0.10	2.5	0.25	4:1	105, 107
18	L.72	750/SS/1793	Channel	0.10	2.5	0.25	4:1	105, 107
19	L.72	20	Channel	0.10	2.5	0.25	4:1	As 108
20	L.72	16	Channel	0.10	2.5	0.25	4:1	As 108
21	DTD.687	716/SS/1793	Angle member	0.05	3.0	—	—	—
22	DTD.687	22	Web	0.05	3.0	1.0	8:1	103, 104
23	L.72	22	Channel	0.10	2.5	0.25	4:1	As 108
24	L.72	24	Butt strap	0.10	2.5	—	—	—
25	L.72	18	Stiffening plate	†0.10	2.5	0.25	4:1	—
26	L.72	703/SS/1793	Channel	0.10	2.5	0.25	4:1	105, 107
27	DTD.171B or 166B	743/SS/1793	'Z' section	†0.15	2.0	—	—	—
28	L.72	13b/SS/1793	Angle	0.15	2.0	—	—	113
29	L.72	18	Channel	0.10	2.5	0.25	4:1	108
30	S.3	20	Channel	†0.10	2.5	0.25	4:1	—
31	L.72	20	Angle	0.10	2.5	0.25	4:1	—
32	DTD.687	18	Gusset	†0.10	2.5	—	—	—
33	L.72	22	Channel	†0.10	2.5	0.25	4:1	—
34	DTD.142A	Mag. alloy	Block	†0.10	2.5	—	—	—
35	DTD.687	16	Gusset	†0.05	3.0	—	—	—
36	L.72	12a/SS/1793	Angle	0.15	2.0	—	—	113
37	L.72	18	Diaphragm	†0.10	2.5	—	—	—
38	DTD.687	715/SS/1793	Angle	0.05	3.0	—	—	—
39	S.514	20	Compression member	* —	—	0.25	4:1	—
40	S.514	16	Mounting member	—	—	0.5	8:1	—
41	DTD.171B or 166B	26	Partition	†0.15	2.0	—	—	—
42	S.1	M. steel	Bearing plate	—	—	—	—	—
43	S.514	16	Bracket	†0.05	3.0	—	—	—
44	DTD.171B or 166B	26	Angle	0.15	2.0	—	—	—
45	DTD.171B or 166B	26	Backing plate	0.15	2.0	—	—	—
46	DTD.687	16	Channel	0.05	3.0	—	—	—
47	S.96	Steel	Bearing base	—	—	—	—	—
48	DTD.687	713/SS/1793	Angle member	0.05	3.0	—	—	—

† More expedient to renew
* No repairs permitted
All dimensions in inches

RESTRICTED

FIG. 310



ITEM 11 IS A TYPICAL STANDARD SECTION OF ALL INTERNAL '2' TYPE STIFFENERS.

NOTE: THIS AREA IS TO BE FREE FROM REPAIRS TO ALLOW INTRODUCTION OF MOD. I. DAMAGE TO BE REFERRED TO A.V.ROE & CO. LTD.

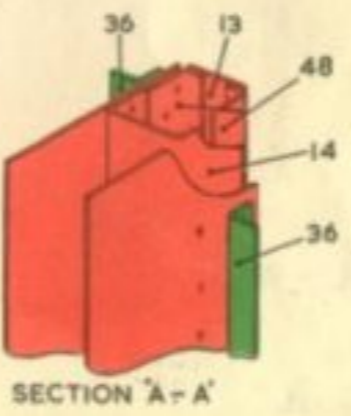


Fig.321 - Centre engine rib RESTRICTED

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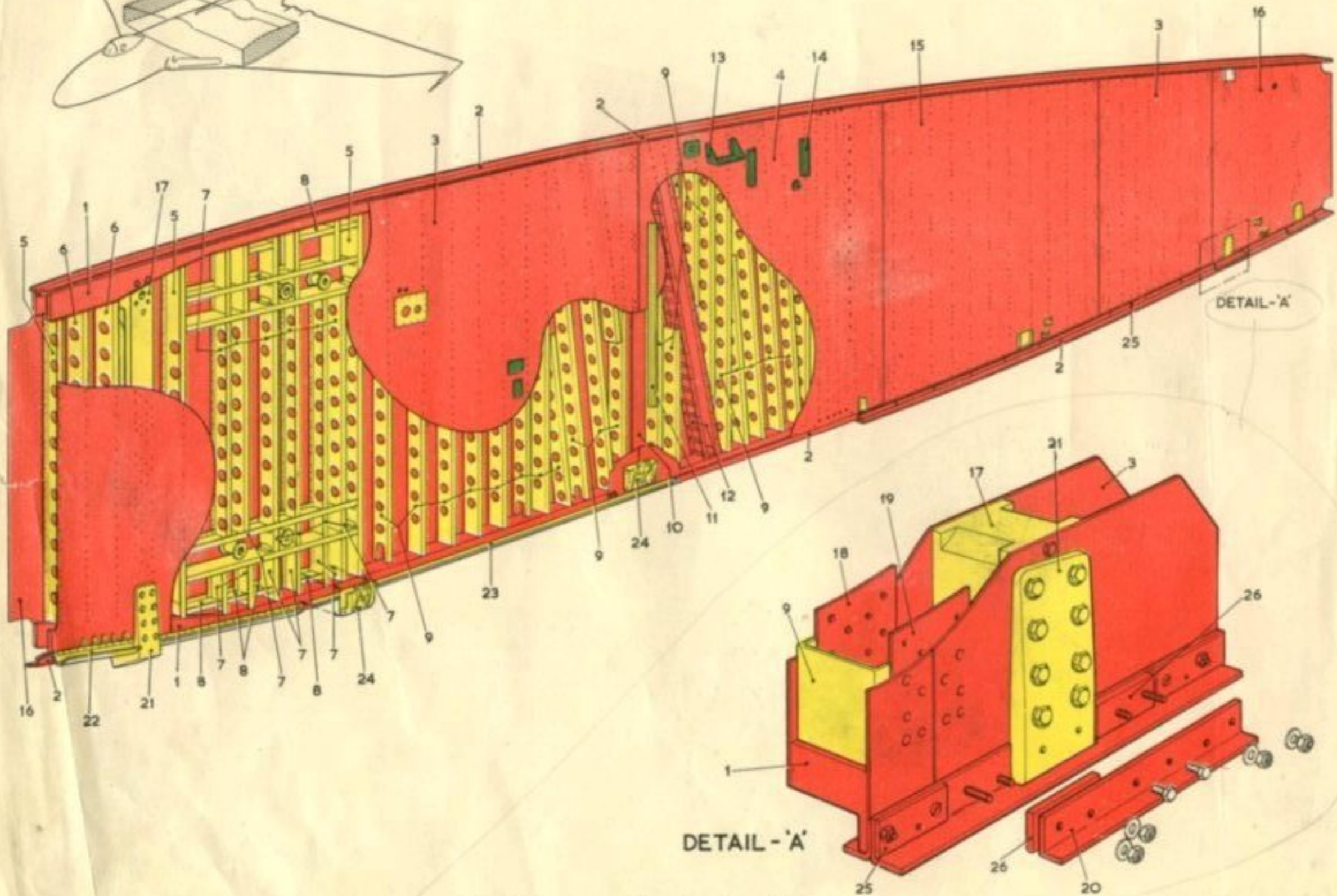


Fig.322 - Outboard engine rib RESTRICTED

OUT

Key to Fig. 322. Outboard Engine Rib

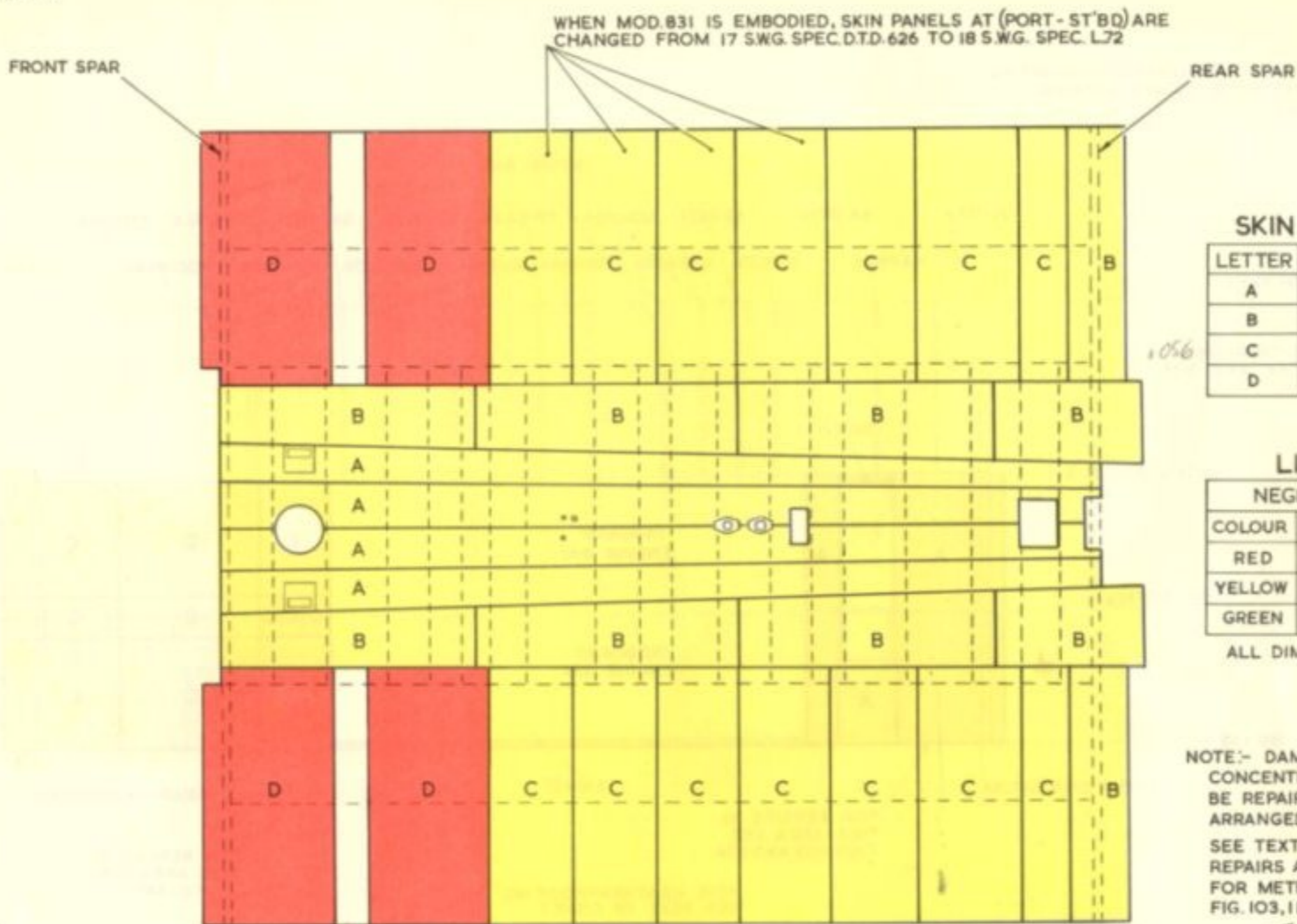
Item	Spec.	Material S.W.G. or Section	Description	Depth	Negligible Damage			Repair Fig. No.
					Dents Dist. Apart	Dia.	Holes Pitch Ratio	
1	DTD.363A	Al. Alloy	Rib booms	*0.05	3.0	—	—	
2	L.73	10	Skin angle	0.05	3.0	—	—	
3	DTD.687	14	Skin panel	0.05	3.0	1.0	8:1	103 104
4	DTD.687	13	Skin panel	0.05	3.0	1.0	8:1	103 104
5	L.72	429/SS/1793	Channel	0.05	3.0	0.25	4:1	105
6	L.72	122/SS/1793	Channel	0.05	3.0	0.25	4:1	105
7	L.72	20	Channel	†0.05	3.0	0.25	4:1	
8	L.72	16	Channel	†0.05	3.0	0.25	4:1	
9	L.72	579/SS/1793	Channel	0.05	3.0	0.25	4:1	105
10	DTD.687	13	Joint strap	—	—	—	—	
11	L.72	140/SS/1793	Grooved strip	†—	—	—	—	
12	L.73	14	Channel	0.05	3.0	—	—	
13	L.72	16	Bracket	†0.10	2.5	0.25	4:1	
14	L.72	511/SS/1793	Stiffener	0.10	2.5	0.25	4:1	
15	DTD.687	18	Skin panel	0.05	3.0	1.0	8:1	103 104
16	DTD.687	12	Skin panel	0.05	3.0	1.0	8:1	103 104
17	L.65	Al. Alloy	Centre member	*0.10	2.5	0.25	4:1	
18	DTD.687	16	Butt strap	—	—	—	—	
19	DTD.687	12	Butt strap	—	—	—	—	
20	DTD.364B	294/SS/3075	Angle	†0.05	3.0	—	—	
21	DTD.364B	Al. Alloy	Jacking pad mounting	0.02	—	—	—	
22	DTD.372	332/SS/3075	Hinge	†—	—	—	—	
23	L.65	251/SS/3075	Retaining angle	0.10	3.0	0.25	4:1	
24	DTD.88c	Mag. Alloy	Catch bracket	0.10	2.5	—	—	
25	L.73	10	Strips	0.10	2.5	0.25	4:1	
26	DTD.142A	Mag. Alloy	Packing blocks	†0.10	2.5	—	—	

* No repairs permitted
† More expedient to renew
All dimensions in inches

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(A.L.12, June 58)



SKIN REFERENCE

LETTER	S.W.G.	MAT. SPEC.
A	20	L 72
B	20	D.T.D. 687
C	17	D.T.D. 626
D	17	D.T.D. 687

LIMIT TABLE

NEGLECTIBLE DAMAGE		
COLOUR	DENTS	DIST. APART
RED	0.05	3.0
YELLOW	0.10	2.5
GREEN	—	—

ALL DIMENSIONS IN INCHES

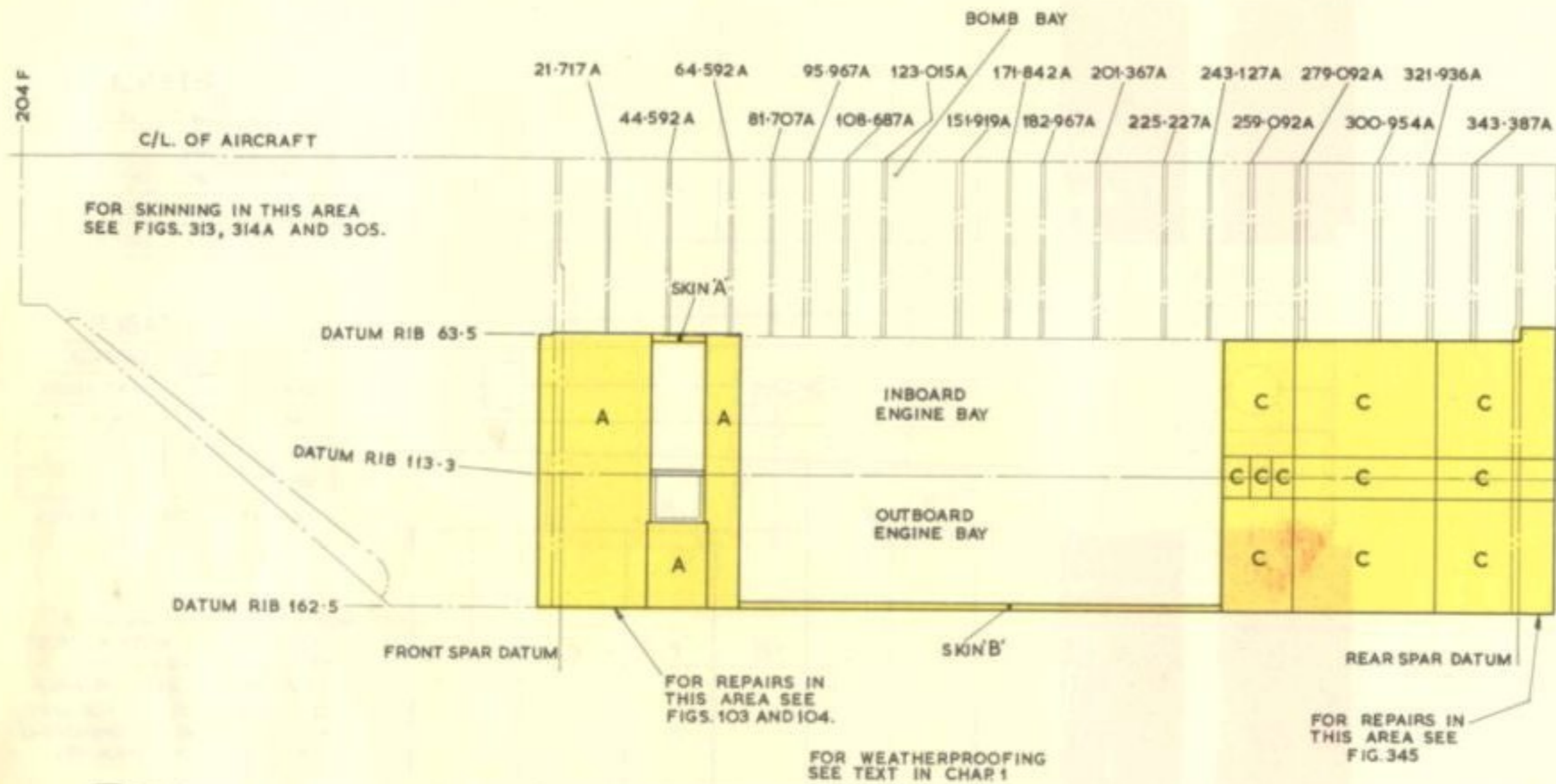
NOTE:- DAMAGE IN AREAS OF CONCENTRATED RIVETING MUST BE REPAIRED WITH JOINTS ARRANGED OUTSIDE THE AREA. SEE TEXT IN CHAP. 1 FOR SKIN REPAIRS AND WEATHERPROOFING. FOR METHOD OF REPAIR SEE FIG. 103, 116 & 117.



Fig. 323. Centre section skinning - Top surface

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DAMAGE IN AREAS OF CONCENTRATED RIVETING
MUST BE REPAIRED WITH JOINTS ARRANGED
OUTSIDE THE AREA.



SKIN REFERENCE

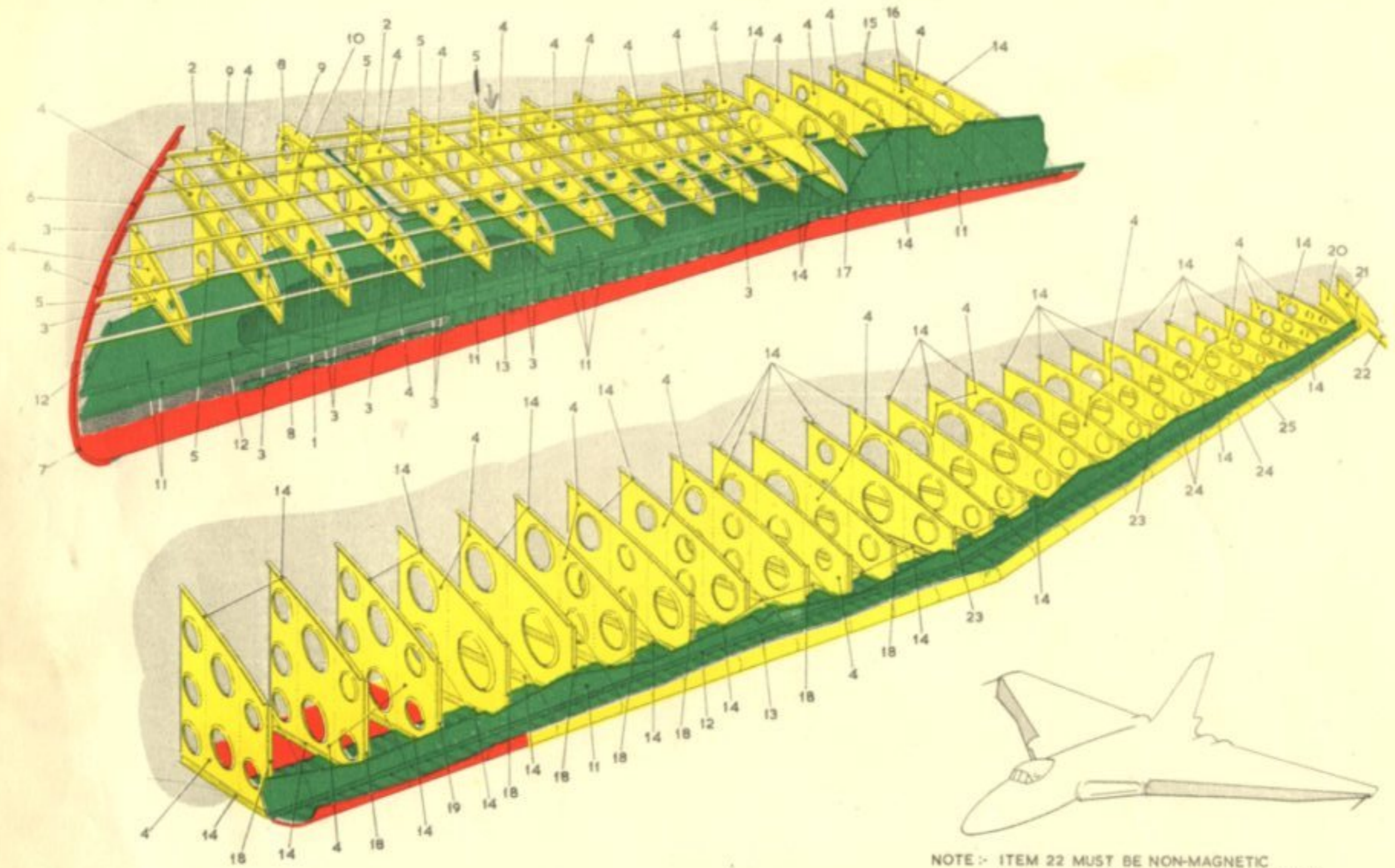
LETTER	S. W. G.	MAT. SPEC.
A	18	D.T.D.687
B	20	D.T.D.687
C	20	L.72

SKIN LIMITS

NEGLECTIBLE DAMAGE		
COLOUR	DENTS	DIST. APART
RED	—	—
YELLOW	0.05 IN.	6.0 IN.
GREEN	—	—

Fig. 323A. Centre section skinning - Bottom surface

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NOTE :- ITEM 22 MUST BE NON-MAGNETIC
ITEM 11 TO BE REPAIRED WITH D.T.D. 742

Fig.324 - Leading edge structure
RESTRICTED

Key to Fig. 324. Leading edge structure

Item	Spec.	Material S.W.G. or Section	Description	Negligible Damage			Holes Pitch Ratio	Repair Fig. No.
				Dents Depth	Dist. Apart	Dia.		
1	DTD.687	582/SS/1793	Stringers	—	—	0.125	4:1	221
2	DTD.683	301/SS/3075	Stringers	—	—	0.125	4:1	110
3	L.72	431/SS/1793	Rib boom	—	—	0.125	4:1	—
4	L.72	24	Rib webs	0.10	2.5	0.25	4:1	103, 106
5	L.72	22	Intercostal	0.10	2.5	0.25	4:1	103, 106
6	L.65	352/SS/3075	Nose casting	* —	—	—	—	—
7	L.53	Al. alloy	Nose casting	* —	—	—	—	—
8	L.72	20	Intercostal	0.10	2.5	0.25	4:1	103, 106
9	L.72	14	Attachment angle	† —	—	0.125	4:1	—
10	L.72	12b/SS1793	Angle	—	—	0.125	4:1	113
11	A.Z.31	24	Duct panels	0.15	2.0	—	—	103
12	L.72	22	Nose angle	0.15	2.0	—	—	—
13	L.72	SS/4121	Corrugation panels	0.15	2.0	—	—	—
14	L.72	13b/SS/1793	Rib booms	—	—	0.125	4:1	—
15	L.65	293/SS/3075	Rib booms	—	—	0.125	4:1	—
16	L.72	18	Rib web	0.10	2.5	0.25	4:1	103, 106
17	L.72	20	Nose rib	0.10	2.5	0.25	4:1	—
18	L.72	950/SS/1793	Duct angle	—	—	0.125	4:1	—
19	L.72	999/SS/1793	Duct angle	—	—	0.125	4:1	—
20	L.72	20	Rib pressing	0.10	2.5	0.25	4:1	103
21	L.72	18	Rib pressing	0.10	2.5	0.25	4:1	103
22	DTD.171	18	Pitot fairing	0.10	2.5	—	—	—
23	L.72	949/SS/1793	Duct angle	—	—	0.125	4:1	—
24	L.72	22	Duct angle	—	—	0.125	4:1	—
25	L.72	950/SS/1793	Duct angle	—	—	0.125	4:1	—

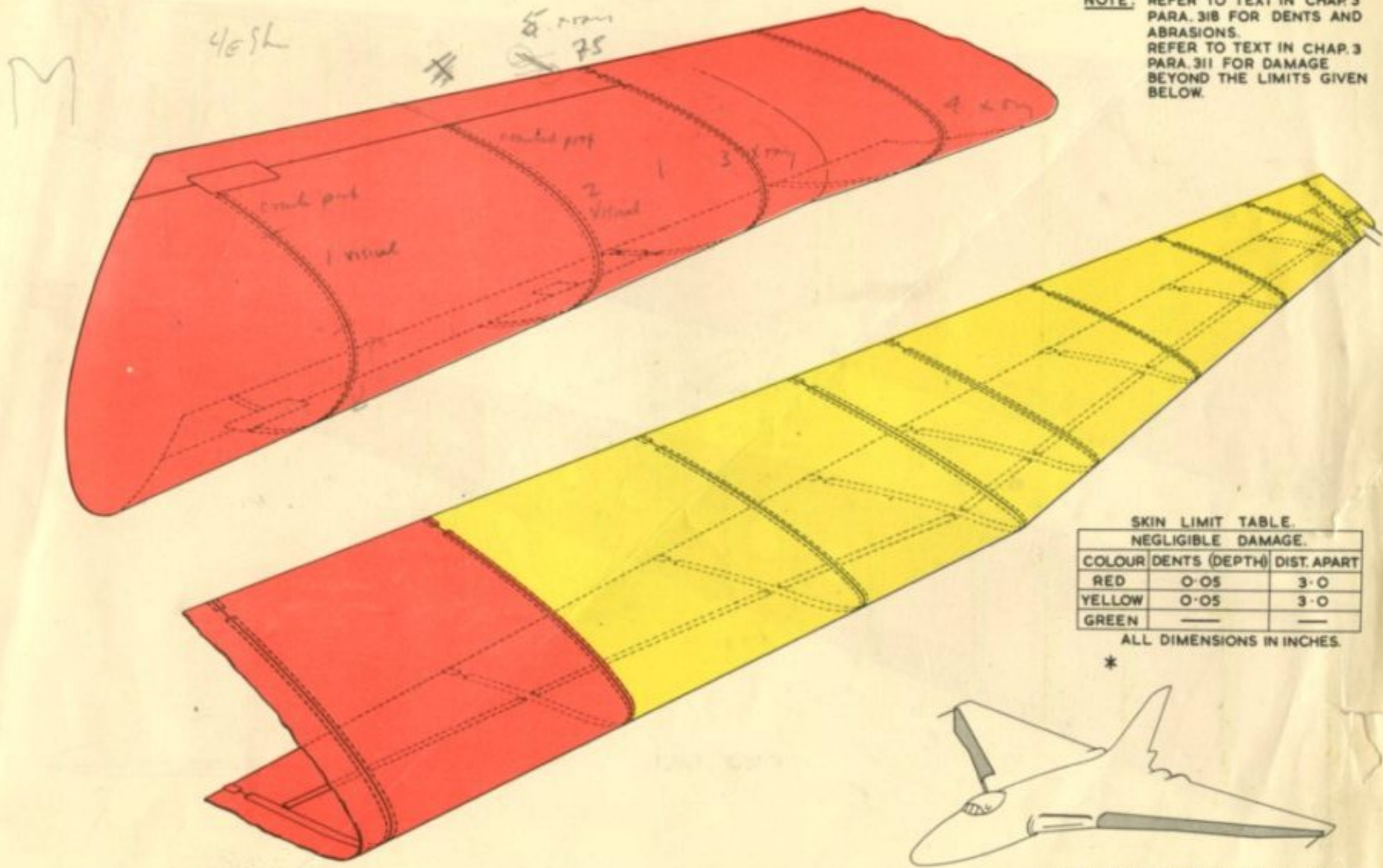
* No repairs permitted

† More expedient to renew

All dimensions in inches

RESTRICTED

NOTE: REFER TO TEXT IN CHAP 3
 PARA. 318 FOR DENTS AND
 ABRASIONS.
 REFER TO TEXT IN CHAP. 3
 PARA. 311 FOR DAMAGE
 BEYOND THE LIMITS GIVEN
 BELOW.



SKIN LIMIT TABLE.
 NEGLIGIBLE DAMAGE.

COLOUR	DENTS (DEPTH)	DIST. APART
RED	0.05	3.0
YELLOW	0.05	3.0
GREEN	—	—

ALL DIMENSIONS IN INCHES.

*



* THESE LIMITS APPLY TO BUTTSTRAPS.
 ALL SKINS AND BUTTSTRAPS ARE D.T.D.
 687, 14 S.W.G.

**Fig.324A - Leading edge skins
 RESTRICTED**

(A.L.12, June 58)

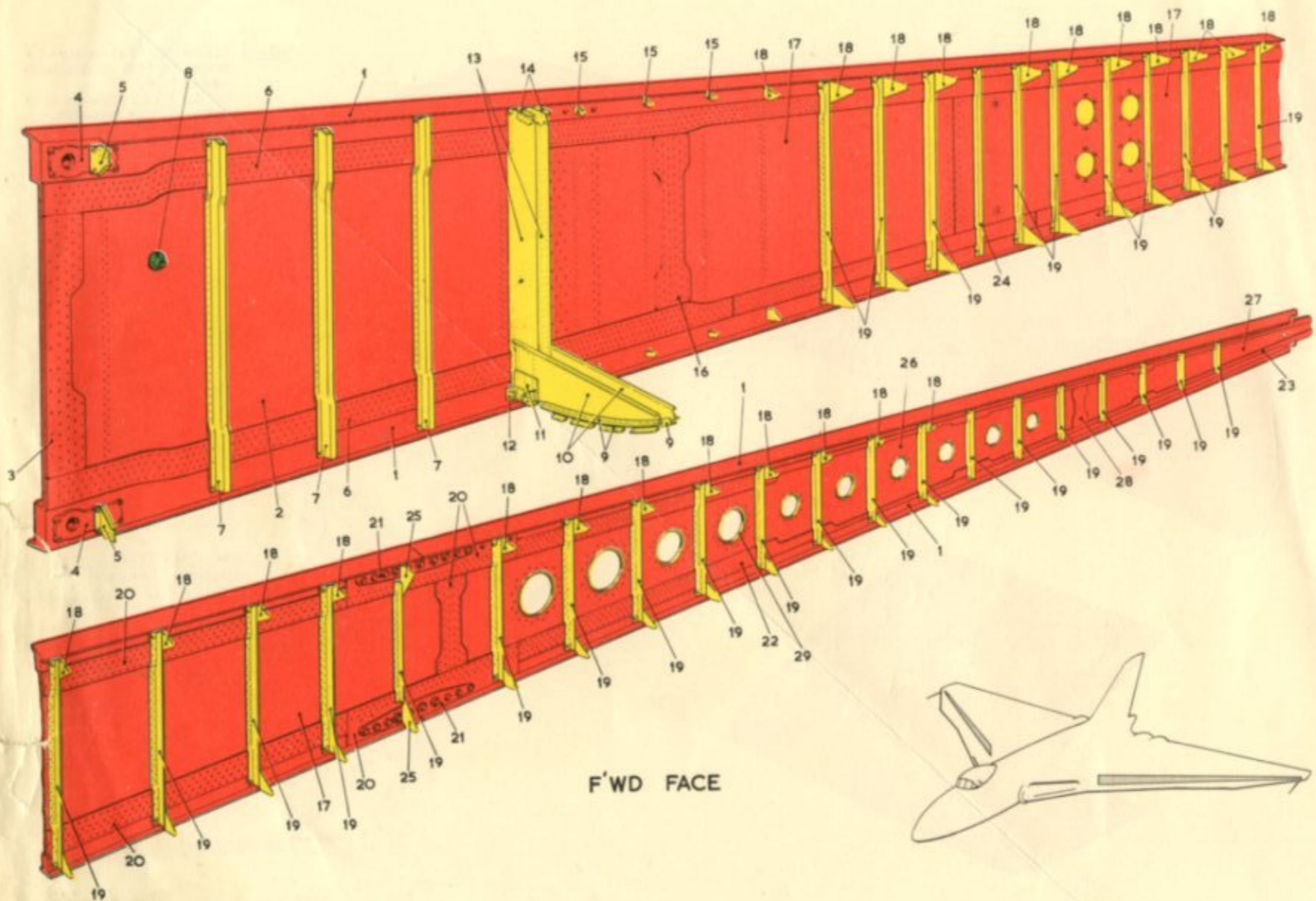


Fig.325 - Outer wing front spar
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Key to Fig. 325. Outer wing — front spar

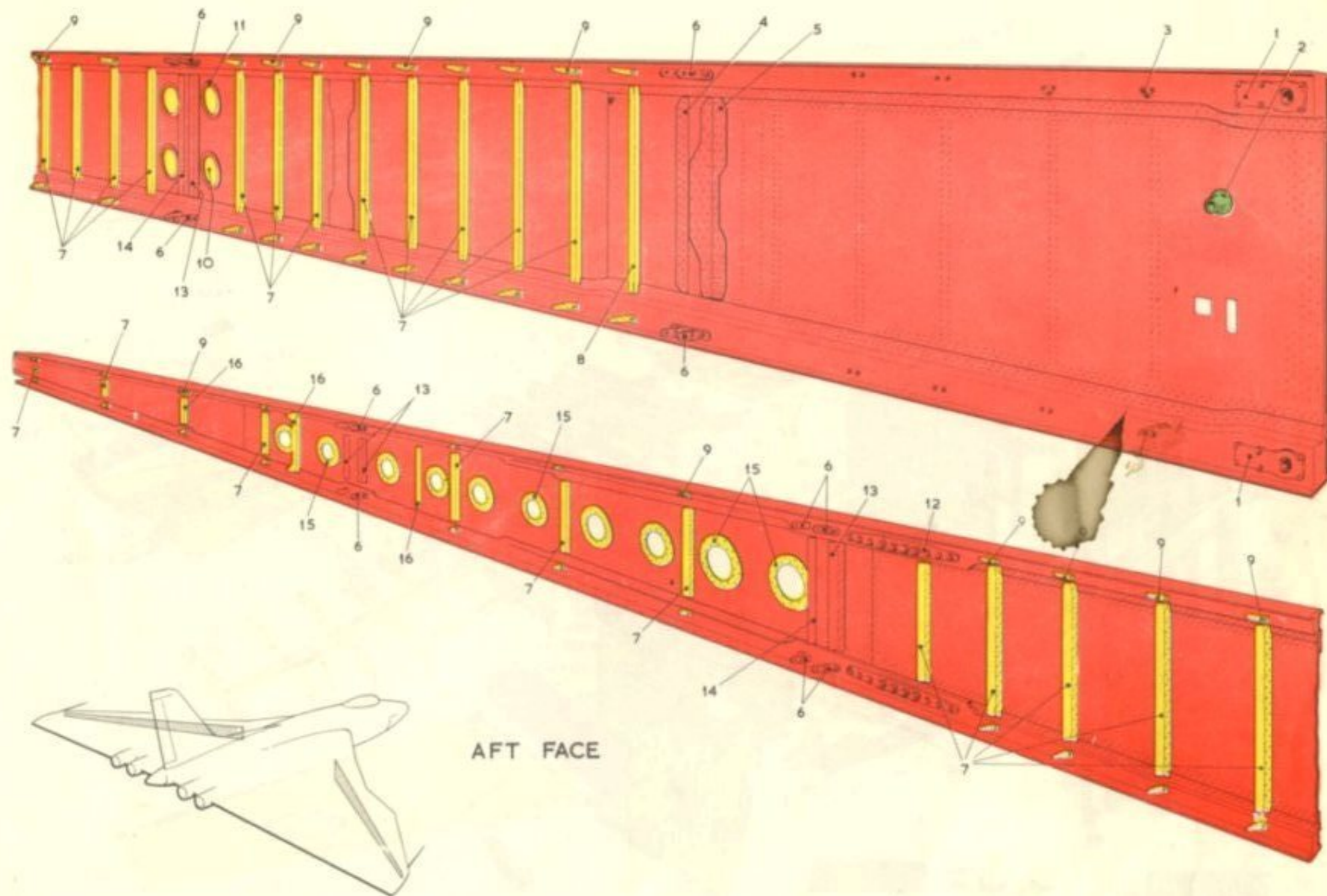
Item	Spec.	Material S.W.G. or Section	Description	Depth	Negligible Damage		Holes Pitch Ratio	Repair Fig. No.
					Dents	Dist. Apart		
1	DTD.363	—	Spar booms	*0.05	3.0	—	—	—
2	DTD.687	9	Spar web	0.025	6.0	—	—	—
3	DTD.687	8	Reinforcing plate	—	—	—	—	—
4	SS.99	H.T.S.	Reinforcing plate	—	—	—	—	—
5	L.72	16	Bracket	†0.10	2.5	0.25	4:1	—
6	DTD.687	9	Boom strap	—	—	—	—	—
7	L.72	14	Web stiffener	—	—	0.25	4:1	—
8	L.65	Al. alloy	Pipe connection	—	—	—	—	—
9	L.73	14	Angles	†0.10	2.5	0.25	4:1	—
10	L.73	14	Channel	0.10	2.5	0.25	4:1	103
11	L.73	14	Bearing plate	† —	—	—	—	—
12	DTD.683	Al. alloy	Bracket	† —	—	—	—	—
13	L.73	12	Channel	—	—	0.25	4:1	103
14	L.73	12	Shear angle	†0.10	2.5	0.25	4:1	—
15	L.72	16	Attachment bracket	—	—	—	—	—
16	DTD.687	12	Joint strap	† —	—	—	—	—
17	DTD.687	13	Spar web	0.025	6.0	—	—	—
18	L.72	18	Bracket	† —	—	—	—	—
19	L.72	20	Attachment angle	0.05	3.0	0.125	4:1	—
20	DTD.687	13	Strap	—	—	—	—	—
21	DTD.363	Al. alloy	Shackle	—	—	—	—	—
22	DTD.687	16	Boom strap	—	—	—	—	—
23	DTD.687	18	Boom strap	—	—	—	—	—
24	L.65	292/SS/3075	'Tee' stiffener	0.05	3.0	—	—	—
25	L.72	16	Bracket	† —	—	0.25	4:1	—
26	DTD.687	16	Web	0.025	6.0	0.25	8:1	103, 104
27	DTD.687	18	Web	0.025	6.0	0.25	8:1	103, 104
28	DTD.687	16	Joint plate	—	—	—	—	—
29	L.72	16	Reinforcing ring	† —	—	—	—	—

* No repairs permitted
† More expedient to renew
All dimensions in inches

Key to Fig. 325A. Outer wing — front spar

Item	Spec.	Material S.W.G. or Section	Description	Depth	Negligible Damage		Holes Pitch Ratio	Repair Fig. No.
					Dents	Dist. Apart		
1	S.99	H.T.S.	Reinforcing plate	—	—	—	—	—
2	L.65	Al. alloy	Pipe connection	—	—	—	—	—
3	L.72	10	Mounting block	—	—	—	—	—
4	DTD.687	16	Attachment angle	* —	—	0.125	4:1	—
5	DTD.687	11	Attachment angle	—	—	0.125	4:1	—
6	L.65	Al. alloy	Bracket	† —	—	—	—	—
7	L.72	18	Attachment angle	0.05	3.0	0.125	4:1	—
8	DTD.687	18	Attachment angle	0.05	3.0	0.125	4:1	—
9	L.72	16	Attachment bracket	† —	—	—	—	—
10	DTD.687	16	Cover plate	†0.10	2.5	—	—	—
11	DTD.687	13	Cover plate	—	—	—	—	—
12	DTD.363	Al. alloy	Joint shackle	—	—	—	—	—
13	L.72	16	Attachment angle	* —	—	—	—	—
14	L.72	14	Attachment angle	* —	—	—	—	—
15	L.72	16	Reinforcing ring	† —	—	—	—	—
16	DTD.687	16	Attachment angle	†0.05	3.0	0.125	4:1	—

* No repairs permitted
 † More expedient to renew
 All dimensions in inches



AFT FACE

Fig. 325A. Outer wing front spar
RESTRICTED

300

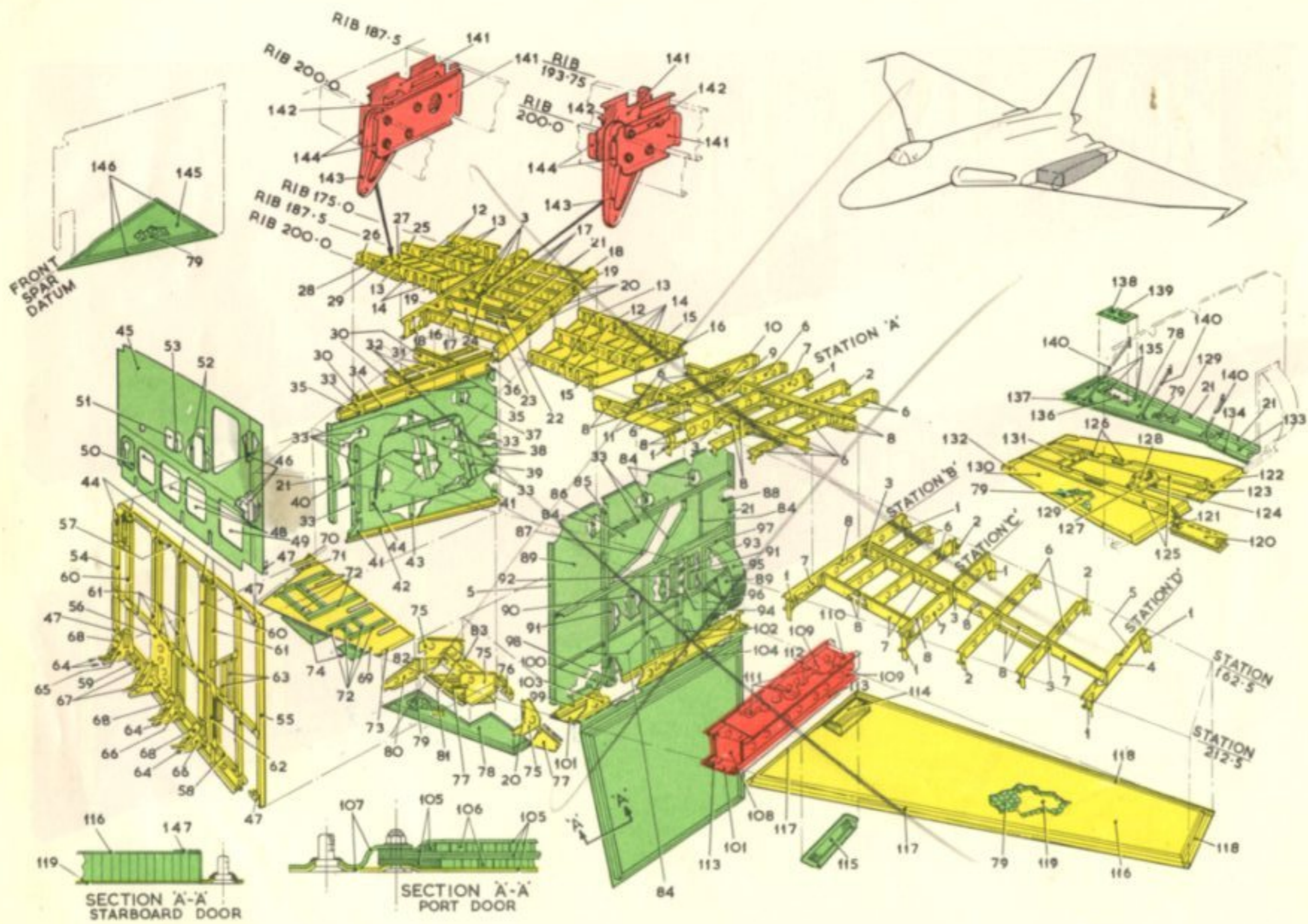


Fig. 326. U/C. bay and aft structure
RESTRICTED

KEY TO FIG.326

Item	Material		Description	Negligible Damage				Repair Fig.
	Spec.	S.W.G. or Section		Dents	Holes			
				Depth	Dist. Apart	Dia.	Pitch Ratio	
1	L. 72	18	Attachment angle	x -	-	-	-	
2	L. 72	67/SS. 1793	Attachment bracket	x -	-	-	-	
3	L. 72	20	Attachment angle	x -	-	-	-	
4	L. 72	18	Support beam	0.1	2.0	0.25	4:1	108
5	L. 72	16	Stiffening angle	-	-	0.125	4:1	113
6	L. 72	24	Intercostal	0.1	2.0	0.25	4:1	105, 108
7	L. 72	22	Web	0.1	2.0	0.25	4:1	103
8	L. 65 or D. T. D. 423	248/SS. 3075	Extruded angle	-	-	0.125	4:1	
9	L. 72	16	Intercostal	0.1	2.0	0.25	4:1	105, 108
10	L. 72	22	Intercostal	0.1	2.0	0.25	4:1	105, 108
11	L. 72	22	Gusset plate	x -	-	0.25	4:1	
12	L. 72	24	Web	0.1	2.0	0.25	4:1	
13	L. 72	834/SS. 1793	Top and bottom booms	-	-	0.125	4:1	114
14	L. 72	183/SS. 1793	Stiffener	x -	-	-	-	
15	L. 72	24	Doubling plate	0.1	2.0	0.25	4:1	
16	L. 72	26	Skin	0.2	2.5	0.125	4:1	
17	L. 72	394/SS. 1793	Rib	0.1	2.0	0.25	4:1	108
18	L. 65	340/SS. 3075	Top and bottom booms	-	-	0.125	4:1	
19	L. 72	20	Web	0.2	2.5	0.25	4:1	
20	L. 72	18	Angle	x -	-	-	-	
21	L. 72	18	Angle	-	-	0.125	4:1	114
22	L. 65	343/SS. 3075	Top boom	-	-	0.125	4:1	
23	L. 65	293/SS. 3075	Bottom boom	-	-	0.125	4:1	
24	L. 72	16	Web	0.2	2.5	0.25	4:1	
25	L. 72	20	Plate	0.2	2.5	0.25	4:1	
26	L. 72	18	Plate	0.2	2.5	0.25	4:1	
27	L. 72	26	Skin	0.2	2.5	0.25	4:1	
28	L. 72	678/SS. 1793	Bottom boom	-	-	0.125	4:1	114
29	L. 72	22	Angle	-	-	0.125	4:1	114
30	L. 72	20	Diaphragm	0.1	2.0	0.25	4:1	105, 108
31	L. 72	386/SS. 1793	Angle	-	-	0.125	4:1	114
32	L. 72	379/SS. 1793	Stringer	-	-	0.125	4:1	
33	L. 72	385/SS. 1793	Angle	-	-	0.125	4:1	114
34	L. 72	16	Angle	-	-	-	-	114
35	L. 72	18	Bracket	x -	-	-	-	
36	L. 72	18	Plate	x -	-	-	-	
37	L. 72	110/SS. 1793	Channel	-	-	0.125	4:1	107, 108
38	L. 72	24	Web	0.2	2.0	0.25	4:1	103
39	L. 72	192/SS. 1793	'Z' section stiffener	-	-	0.125	4:1	
40	L. 72	18/SS. 1793	Stiffener	-	-	0.125	4:1	
41	L. 72	20	Gusset plate	x -	-	-	-	
42	L. 72 or L. 65 or D. T. D. 423	251/SS. 3075	Angle	-	-	0.25	4:1	
43	L. 72	16	Channel	-	-	0.125	4:1	
44	L. 72	18	Gusset plate	x -	-	-	-	
45	D. T. D. 626	20	Skin	0.2	2.0	0.25	4:1	103, 104
46	D. T. D. 626	20	Joint strap	x -	-	0.25	4:1	
47	L. 72	16	Gusset plate	x -	-	-	-	
48	D. T. D. 626	20	Access door	0.1	2.5	0.25	4:1	103

* No repairs permitted

x More expedient to renew than repair

All dimensions are quoted in inches

RESTRICTED

KEY TO FIG.326 (contd.)

Item	Material		Description	Negligible Damage				Repair Fig.
	Spec.	S.W.G. or Section		Dents	Holes		Pitch Ratio	
				Depth	Dist. Apart	Dia.		
49	L. 72	20	Access door	0.1	2.5	0.25	4:1	103
50	L. 72	18	Stiffening plate	-	-	0.25	4:1	
51	D. T. D. 626	18	Access door	0.1	2.5	0.25	4:1	103
52	L. 72	60/SS. 1793	Angle	-	-	0.125	4:1	113
53	L. 72	12b/SS. 1793	Angle	-	-	0.125	4:1	113
54	L. 72	608/SS. 1793	Vertical boom	-	-	0.125	4:1	
55	L. 72	606/SS. 1793	Vertical boom	-	-	0.125	4:1	
56	L. 72	18	Bracket plate	0.1	2.5	0.25	4:1	
57	L. 72	244/SS. 1793	Top boom	-	-	0.125	4:1	
58	L. 72	108/SS. 1793	Bottom boom	-	-	0.125	4:1	
59	L. 72	18	Skin attachment angle	-	-	0.125	4:1	
60	L. 72	102/SS. 1793	Channel	-	-	0.125	4:1	
	L. 72	16	Reinforcing channel	-	-	0.125	4:1	
61	L. 72	16	Strap plate	-	-	0.25	4:1	
	L. 72	102/SS. 1793	Stiffener	-	-	0.125	4:1	107, 108
62	L. 72	16	Bracket	-	-	0.125	4:1	
63	L. 72	120/SS. 1793	Stiffener	-	-	0.125	4:1	
64	L. 72	247/SS. 1793	Attachment angle	x -	-	0.125	4:1	
65	L. 72	12	Hinge bracket	x -	-	-	-	
66	L. 72	14	Hinge bracket	x -	-	-	-	
67	L. 72	18	Box bracket	x -	-	-	-	
68	L. 72	16	Plate	x -	-	-	-	
69	D. T. D. 626	16	Skin	0.2	2.0	0.25	4:1	103
70	L. 72	18	Strap	x 0.1	2.5	0.25	4:1	
71	L. 72	18	Attachment angle	x -	-	-	-	
72	L. 72	348/SS. 1793	Stiffening channel	-	-	0.125	4:1	107, 108
73	L. 72	183/SS. 1793	Angle	-	-	0.125	4:1	113
74	L. 72	16	Access panel	0.1	2.0	0.25	4:1	103
75	L. 72	18	Diaphragm	0.1	2.5	0.25	4:1	
76	L. 72	18	Support member	0.1	2.5	0.25	4:1	
77	D. T. D. 626	16	Access panel	0.1	2.0	0.25	4:1	103
78	L. 72	30	Skin	0.2	2.0	0.25	4:1	
79	Alum. foil	SS. 4275	Honeycomb	-	-	-	-	
80	L. 72	18	Intercostal	0.05	1.5	0.25	4:1	
81	L. 72	14	Support bracket	0.1	2.0	0.25	4:1	
82	L. 72	20	Stiffening member	0.1	2.0	0.25	4:1	
83	L. 72	18	Spray shield	-	-	-	-	
84	L. 72	12a/SS. 1793	Angle	-	-	0.125	4:1	113
85	L. 72	285/SS. 1793	Channel	-	-	0.125	4:1	108
86	L. 72	20	Access door	0.2	2.0	0.25	4:1	103
87	L. 72	200/SS. 1793	Angle	-	-	0.125	4:1	
88	L. 72	16	Stiffening plate	x -	-	0.125	4:1	
89	L. 72	20	Web	0.2	2.0	0.25	4:1	103
90	L. 72	790/SS. 1793	Stiffener	-	-	0.125	4:1	
91	L. 72	790/SS. 1793	Stiffener	-	-	0.125	4:1	
92	L. 72	85/SS. 1793	Stiffener	-	-	0.125	4:1	
93	L. 72	14	Bracket	x -	-	0.125	4:1	
94	L. 72	16	Bracket	x -	-	-	-	
95	L. 72	20	Channel	-	-	0.125	4:1	
96	L. 72	2/SS. 1793	Stiffener	-	-	0.125	4:1	108
97	L. 72	20	Angle	-	-	0.125	4:1	113

* No repairs permitted

x More expedient to renew than repair

All dimensions are quoted in inches

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KEY TO FIG.326 (contd.)

Item	Material		Description	Negligible Damage			Repair Fig.
	Spec.	S.W.G. or Section		Dents	Holes	Pitch Ratio	
				Depth	Dist. Apart	Dia.	
98	L. 65 or D. T. D. 683	Forging	Hinge arm	* -	-	-	-
99	L. 65	333/SS. 3075	Angle	-	-	0.125	4:1
100	L. 72	18	Bracket	x -	-	-	-
101	L. 72	16	Skin	0.1	2.5	-	-
102	L. 72	24	Diaphragm	-	-	-	-
103	L. 72	18	Beam	0.05	2.0	0.125	4:1
104	L. 72	16	Hinge angle	-	-	0.125	4:1
105	V93-T5	-	Fibreglass cloth	-	-	-	-
106	Dufaylite	¼ in. cell	Fibreglass honeycomb	-	-	-	-
107	L. 72	16	Frame member	-	-	0.125	4:1
108	L. 72	16	Channel	0.05	2.5	0.125	4:1
109	L. 72	24	Web	0.05	2.5	0.125	8:1
110	L. 72	24	Plate	0.1	2.5	0.25	8:1
111	L. 72	24	Diaphragm	-	-	0.25	8:1
112	L. 72	.2d/SS. 1793	Angle	-	-	0.125	8:1
113	L. 72	20	Angle	-	-	0.125	8:1
114	L. 59	20	Chute sleeve	x 0.1	2.0	0.25	4:1
115	L. 72	18	Extractor ramp	x 0.1	2.0	0.25	4:1
116	L. 73	22	Inner skin	0.2	2.0	0.125	4:1
117	L. 72	22/SS. 1793	Edge member	-	-	0.125	4:1
118	L. 72	35/SS. 1793	Edge member	-	-	0.125	4:1
119	L. 73	24	Outer skin	0.1	2.5	-	-
120	L. 72	18	Hinged flap	-	-	-	-
121	S. 110	-	Bracket	x -	-	-	-
122	L. 72	20	'Z' member	-	-	0.125	4:1
123	L. 65 or D. T. D. 683	Forging	Hinge bracket	* -	-	-	-
124	L. 72	27/SS. 7000	Frame member	-	-	0.125	4:1
125	L. 73	825/SS. 1793	Stiffener	0.1	2.5	0.25	4:1
126	L. 73	20	Channel	0.1	2.5	0.25	4:1
127	L. 72	825/SS. 1793	Stiffener	-	-	-	-
128	L. 72	20	Spring anchorage	x -	-	-	-
129	L. 72	26	Outer skin	0.1	2.5	-	-
130	L. 72	24	Inner skin	0.2	2.0	0.125	4:1
131	L. 72	20	Bracket	x -	-	0.125	4:1
132	L. 72	14	Plate	x 0.1	2.5	0.25	4:1
133	L. 73	14	Skin	0.1	2.0	-	-
134	L. 72	846/SS. 1793	Seal retaining strip	x -	-	0.125	4:1
135	L. 72	20/SS. 1793	Channel	-	-	0.125	4:1
136	L. 72	19/SS. 1793	'Z' section	-	-	0.125	4:1
137	L. 72	20	Channel	-	-	0.125	4:1
138	L. 72	24	Access door pressing	0.1	2.5	-	-
139	L. 72	22	Access door skin	0.1	2.5	-	-
140	T. 45	-	Strut	x -	-	-	-
141	L. 72	18	Intercostal	-	-	0.125	8:1
142	L. 72	18	Angle	-	-	-	-
143	L. 72	-	Bracket	x 0.02	-	-	-
144	L. 72	16	Angle	x -	-	-	-
145	L. 72	24	Inner skin	0.2	2.0	0.125	4:1
146	L. 72	895/SS. 1793	Frame member	-	-	0.125	4:1
147	L. 72	22/SS. 1793	Angle	-	-	0.125	4:1

* No repairs permitted

x More expedient to renew than repair

All dimensions are quoted in inches

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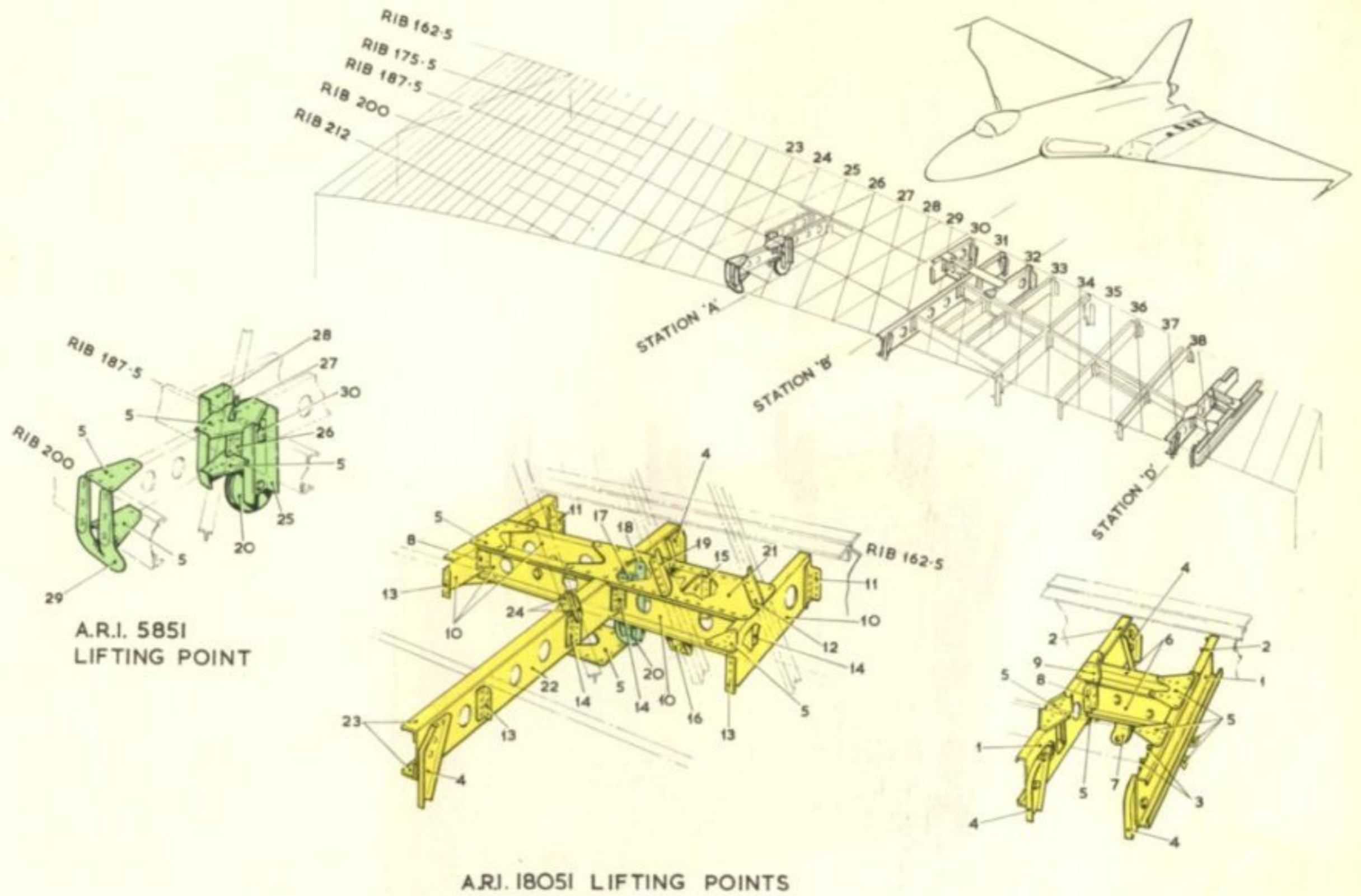


Fig. 326A. U/C. bay and aft structure - Details

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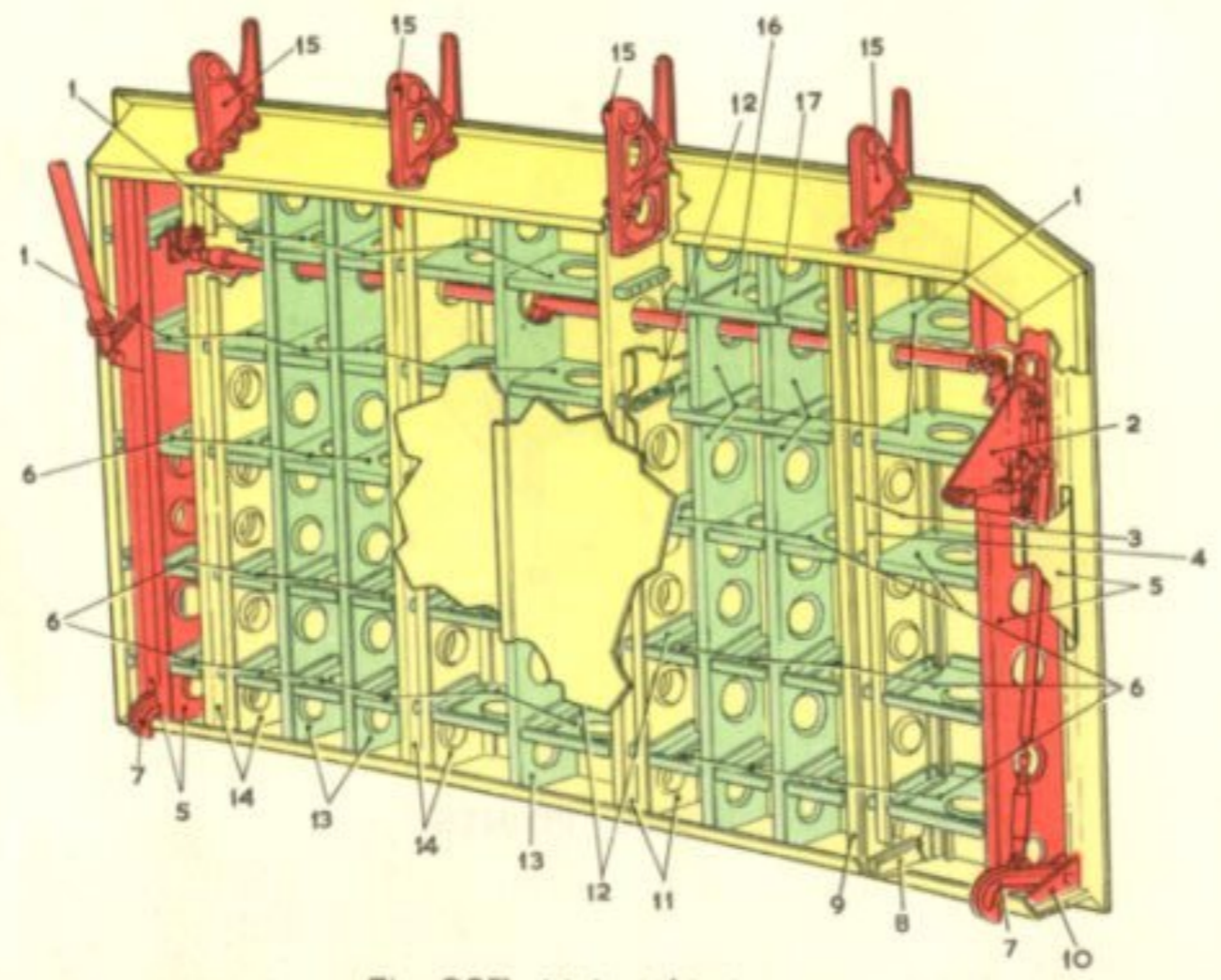
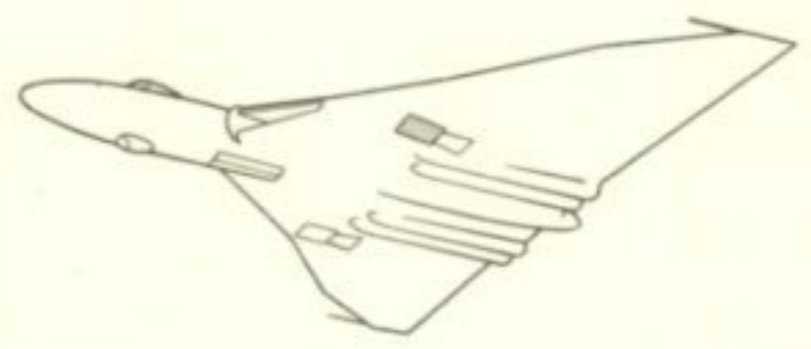
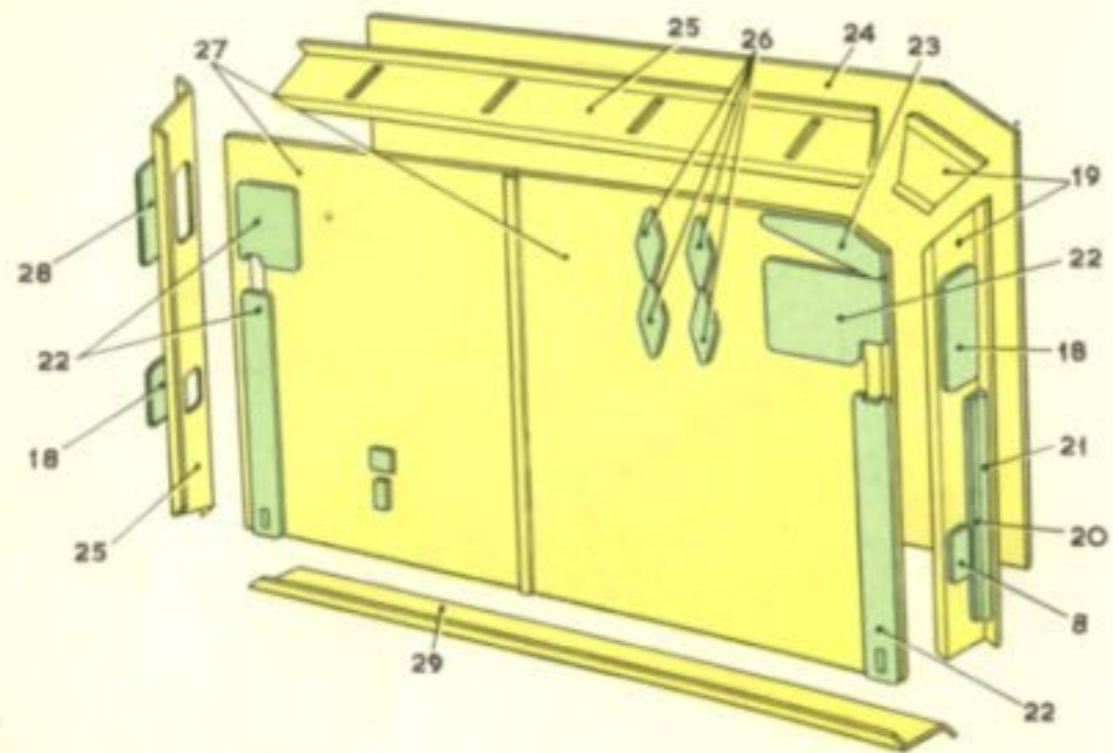


Fig. 327. Main U/C. door
RESTRICTED

KEY TO FIG.327

Item	Material		Description	Negligible Damage				Repair Fig.
	Spec.	S.W.G. or Section		Dents	Dist. Apart	Holes		
				Depth		Dia.	Pitch Ratio	
1	L. 72	20	Intercostal	0.1	2.0	0.125	4:1	106, 107
2	D. T. D. 687	10	Plate	x -	-	-	-	-
3	L. 72	18	Web	0.05	2.5	-	-	-
4	L. 72	16	Angle	-	-	-	-	114
5	L. 72	18	Rib	-	-	-	-	105, 106, 107
6	L. 72	22	Intercostal	0.1	2.0	0.125	4:1	106, 107
7	S. 80	-	Door-catch	* 0.02	-	-	-	-
8	L. 72	18	Bracket	x -	-	0.125	8:1	-
9	L. 72	14	Angle	-	-	-	-	114
10	L. 65	-	Bracket	* -	-	-	-	-
11	L. 72	16	Rib	0.05	2.5	-	-	105, 106, 107
12	L. 72	20	Angle	-	-	0.125	4:1	113
13	L. 72	20	Rib	0.1	2.0	0.125	4:1	105, 106, 107
14	L. 72	18	Rib	0.05	2.5	-	-	105, 106, 107
15	D. T. D. 130	-	Hinge arm	* 0.02	-	-	-	-
16	L. 72	16	Intercostal web	0.1	2.0	0.125	4:1	106
17	L. 72	16	Intercostal boom	-	-	-	-	-
18	L. 72	16	Access panel	0.1	2.0	0.25	4:1	-
19	L. 72	18	Frame member	0.2	2.0	0.25	4:1	-
20	L. 72	22	Cover strip	x -	-	0.125	4:1	-
21	1/SS. 4143	-	Seal (Rubber)	-	-	-	-	-
22	L. 72	20	Access panel	0.1	2.0	0.25	4:1	-
23	L. 72	20	Gusset plate	x 0.1	2.0	0.25	4:1	-
24	L. 73	20	Outer skin	0.1	2.5	-	-	103
25	L. 72	18	Frame member	0.1	2.0	0.25	4:1	-
26	L. 72	18	Gusset plate	x -	-	0.25	4:1	-
27	L. 72	20	Inner skin	0.2	2.0	0.25	4:1	-
28	L. 72	18	Access panel	0.1	2.0	0.25	4:1	-
29	L. 72	14	Frame member	0.1	2.0	0.25	4:1	-

* No repairs permitted
x More expedient to renew than repair
All dimensions are quoted in inches

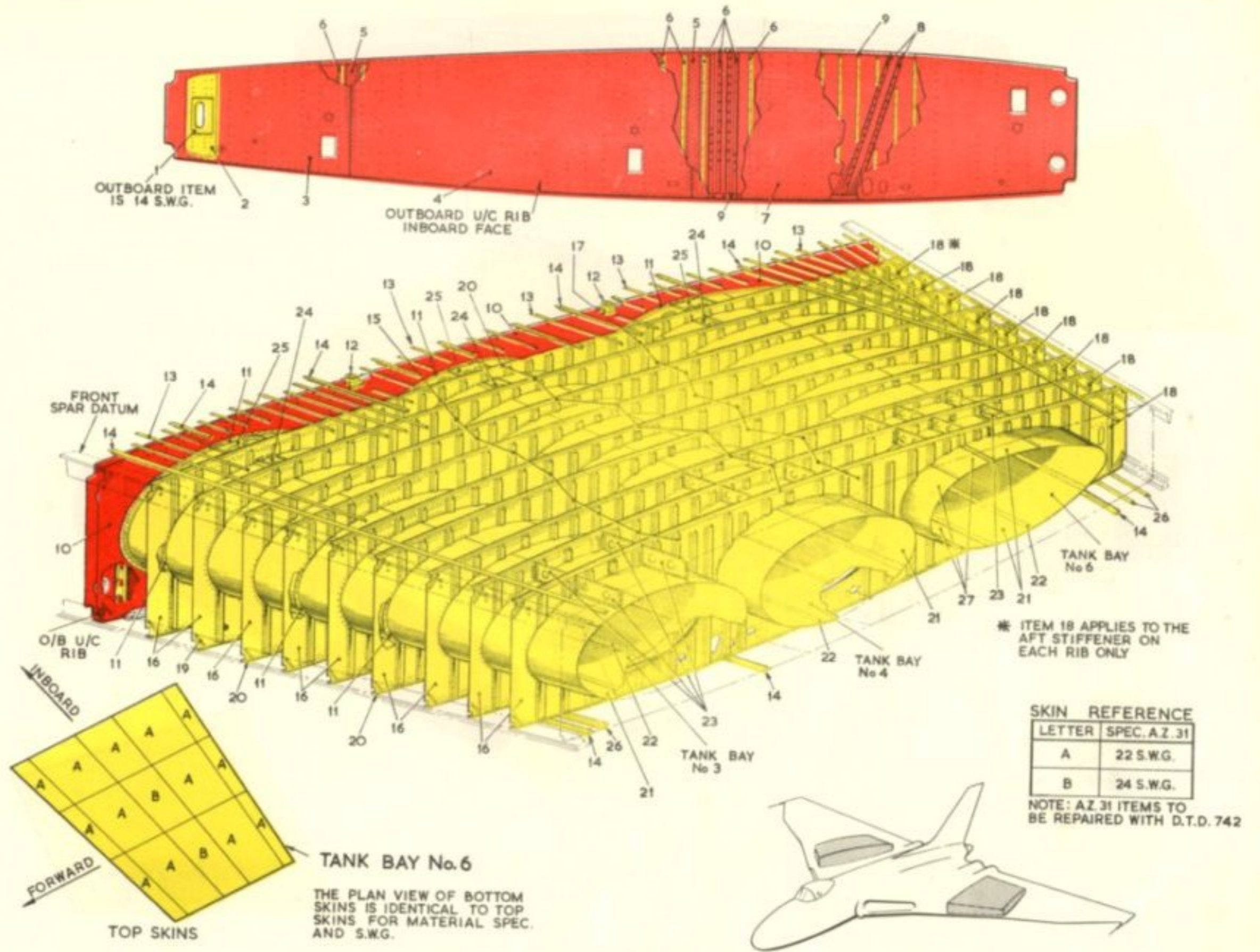
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KEY TO FIG.328

Item	Material		Description	Negligible Damage				Repair Fig.
	Spec.	S.W.G. or Section		Dents	Holes		Pitch Ratio	
			Depth	Dist. Apart	Dia.			
1	L.72	17	Stiffening plate	x 0.1	2.5	0.25	4:1	-
2	L.72	20	Reinforcing plate	0.1	2.5	0.25	4:1	-
3	D.T.D.687	13	Web	0.05	3.0	1.0	8:1	103
4	D.T.D.687	18	Web	0.05	3.0	1.0	8:1	103
5	D.T.D.687	17	Butt strap	-	-	-	-	-
6	L.72	579/SS.1793	Stiffeners	0.05	3.0	0.25	4:1	-
7	D.T.D.687	12	Web	0.05	3.0	-	-	-
8	L.73	14	Channel	0.05	3.0	-	-	-
9	D.T.D.683	9/B.1635	Rib booms	* 0.05	3.0	-	-	-
10	D.T.D.687	17	Rib web	0.05	3.0	-	-	-
11	L.72	12c/SS.1793	Tank angle	0.1	2.5	0.125	4:1	103
12	L.65		Lifting block	x 0.02	-	-	-	113
13	D.T.D.683	302/SS.3075	'Z' stringer (top)	-	-	-	-	-
14	D.T.D.683	301/SS.3075	'T' stringer	-	-	-	-	347
15	L.72	146/SS.1793	Rib stiffeners	x 0.05	3.0	0.125	4:1	110
16	D.T.D.626	20	Rib web	0.1	2.5	0.5	8:1	-
17	L.72	24	Rib web	0.1	2.5	0.5	8:1	-
18	L.72	186/SS.1793	Web stiffeners	x 0.05	3.0	0.125	4:1	-
19	L.72	12a/SS.1793	Rib angle	-	-	0.125	4:1	-
20	L.72	10	Rib booms	-	-	0.125	4:1	113
21	A.Z.31	24	Tank bay skins	0.1	2.5	-	-	-
22	D.T.D.626	20	Reinforcing strips	0.1	2.5	-	-	-
23	L.72	20	Diaphragms	x 0.1	2.5	0.25	4:1	-
24	L.72	18	Panel	x 0.1	2.5	-	-	-
25	L.72	22	Panel	x 0.1	2.5	-	-	-
26	D.T.D.687	583/SS.1793	'Z' stringer (bottom)	0.05	4.0	-	-	-
27	A.Z.31	22	Tank bay skins	0.1	2.5	-	-	111

* No repairs permitted
 x More expedient to renew than repair
 All dimensions are quoted in inches

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SKIN REFERENCE

LETTER	SPEC. A.Z. 31
A	22 S.W.G.
B	24 S.W.G.

NOTE: AZ 31 ITEMS TO BE REPAIRED WITH D.T.D. 742

Fig. 328. Nos. 3, 4 and 6 tank bays
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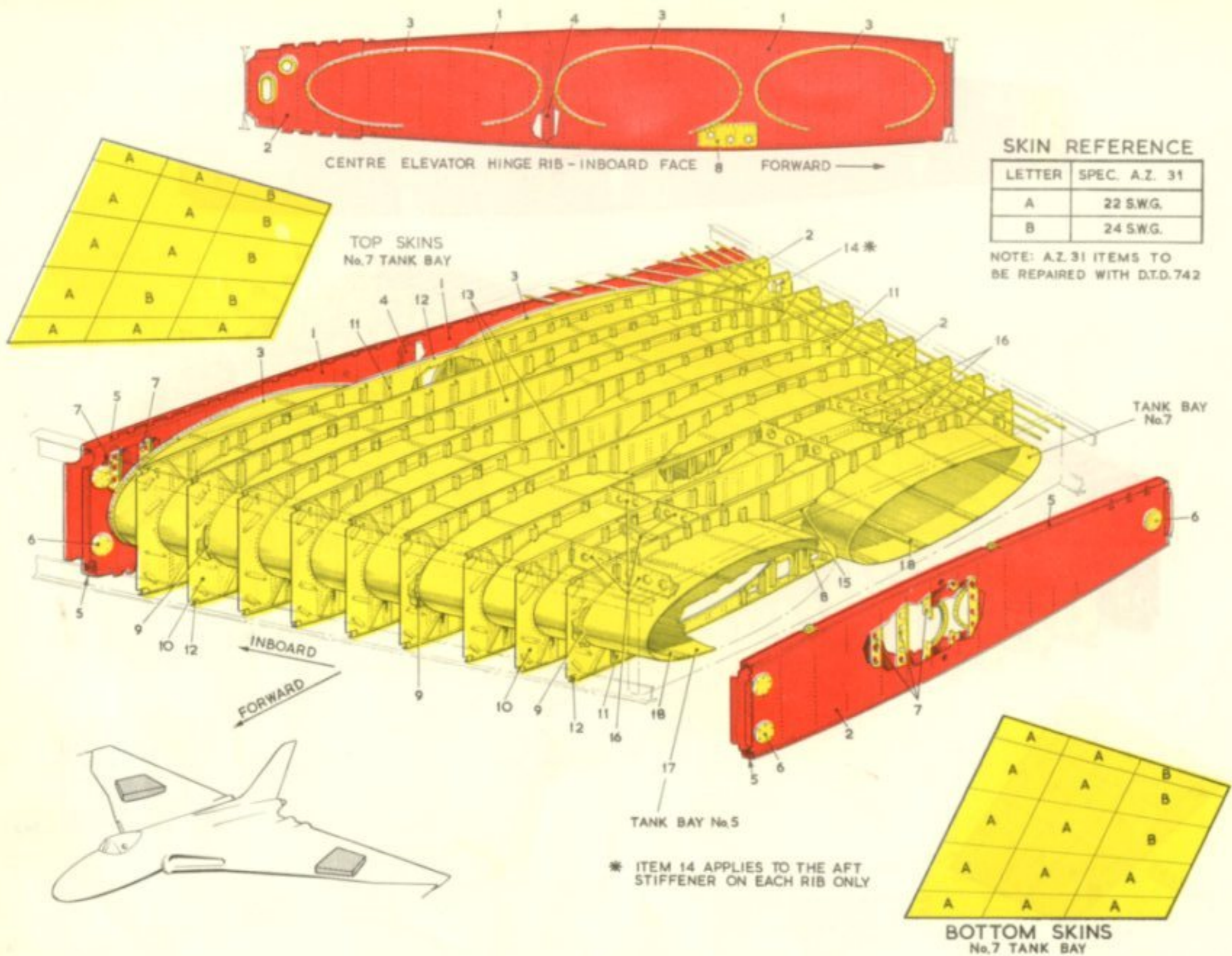


Fig. 328A. Nos.5 and 7 tank bays

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KEY TO FIG.328A

Item	Material		Description	Negligible Damage				Repair Fig.
	Spec.	S.W.G. or Section		Dents	Holes		Pitch Ratio	
			Depth	Dist. Apart	Dia.			
1	L. 72	20	Web	0.05	3.0	1.0	8:1	103, 104
2	L. 72	20	Reinforcing plate	0.05	3.0	1.0	8:1	-
3	L. 72	12c/SS. 1793	Tank angle	0.1	2.5	0.125	4:1	113
4	L. 72	18	Joint strap	-	-	-	-	-
5	L. 65	311/SS. 3075	Rib booms	* 0.05	3.0	-	-	-
6	L. 72	20	Cover plate	0.1	2.5	1.0	8:1	-
7	L. 72	579/SS. 1793	Channel	0.1	2.5	0.25	4:1	-
8	L. 72	18	Reinforcing plate	0.05	3.0	0.5	8:1	-
9	L. 72	16	Tank angle	0.1	2.5	0.124	4:1	-
10	L. 72	22	Stiffening plate	0.1	2.5	0.5	8:1	-
11	L. 72	146/SS. 1793	Stiffener	x 0.05	3.0	0.125	4:1	-
12	L. 72	537/SS. 1793	Top and bottom booms	0.05	3.0	0.125	4:1	-
13	L. 72	24	Rib Web	0.1	2.5	0.5	8:1	-
14	L. 72	12b/SS. 1793	Stiffener	x 0.05	3.0	0.125	4:1	-
15	L. 72	100/SS. 1793	Stiffening channel	0.05	3.0	0.125	4:1	-
16	L. 72	20	Diaphragm	x 0.1	2.5	0.25	4:1	-
17	A. Z. 31	24	Tank bay skins	0.1	2.5	-	-	-
18	D. T. D. 626	20	Reinforcing strip	0.1	2.5	-	-	-

* No repairs permitted
x More expedient to renew than repair
All dimensions are quoted in inches

RESTRICTED

KEY TO FIG.329

Item	Spec.	Material		Description	Negligible Damage				Repair Fig.
		S.W.G. or Section			Dents	Holes			
				Depth	Dist. Apart	Dia.	Pitch Ratio		
1	L. 72	386/SS. 1793		Boom	-	-	0.125	4:1	
2	L. 72	24		Web	0.1	2.5	0.5	8:1	103, 104
3	L. 72	91/SS. 1793		Stiffener	0.05	3.0	0.125	4:1	
4	L. 72	20		Channel	0.1	2.5	0.25	4:1	
5	L. 72	18		Stiffener	0.05	3.0	0.125	4:1	
6	L. 72	22		Mounting plate	0.1	2.5	0.5	8:1	103
7	L. 72	18		Vertical member	0.05	3.0	0.125	4:1	
8	L. 72	18		Channel	x 0.1	2.5	0.25	4:1	
9	L. 72	20		Gusset plate	x 0.1	2.5	0.25	4:1	
10	L. 72	530/SS. 1793		Stiffener (yellow)	0.05	3.0	0.125	4:1	
10	L. 72	530/SS. 1793		Stiffener (red)	0.05	3.0	-	-	
11	L. 72	410/SS. 1793		Stiffener	0.05	3.0	-	-	
12	L. 72	18		Reinforcing plate	0.05	3.0	-	-	349
13	L. 72	18		Rib web	0.05	3.0	-	-	103, 104, 349
14	L. 72	525/SS. 1793		Top boom	0.05	3.0	-	-	
15	L. 65	304/SS. 3075		Bottom boom	0.05	3.0	-	-	
16	L. 72	731/SS. 1793		Angle	0.05	3.0	-	-	
17	L. 72	16		Angle	0.05	3.0	-	-	
18	L. 72	15/SS. 1793		Channel	0.05	3.0	-	-	
19	S. 96	-		Bearing housing	*	-	-	-	
20	L. 72	20		Webs	0.05	3.0	-	-	103, 104
21	L. 65	311/SS. 3075		Top and bottom booms	* 0.05	3.0	-	-	
22	L. 72	579/SS. 1793		Stiffeners (yellow)	0.05	3.0	0.125	4:1	
22	L. 72	579/SS. 1793		Stiffeners (red)	0.05	3.0	-	-	
23	L. 72	233/SS. 1793		Stiffeners	0.05	3.0	-	-	
24	D. T. D. 142	-		Packing block	x 0.1	2.5	0.25	-	
25	L. 72	10		Reinforcing plate	0.05	3.0	-	-	
26	L. 72	16		Shear angles	0.05	3.0	-	-	
27	L. 72	20		Reinforcing plate	x 0.15	3.0	-	-	
28	L. 72	18		Reinforcing ring	x 0.1	2.5	-	-	
29	L. 72	27/SS. 1793		Stiffening angle	x 0.05	3.0	-	-	

* No repairs permitted
 x More expedient to renew than repair
 All dimensions are quoted in inches

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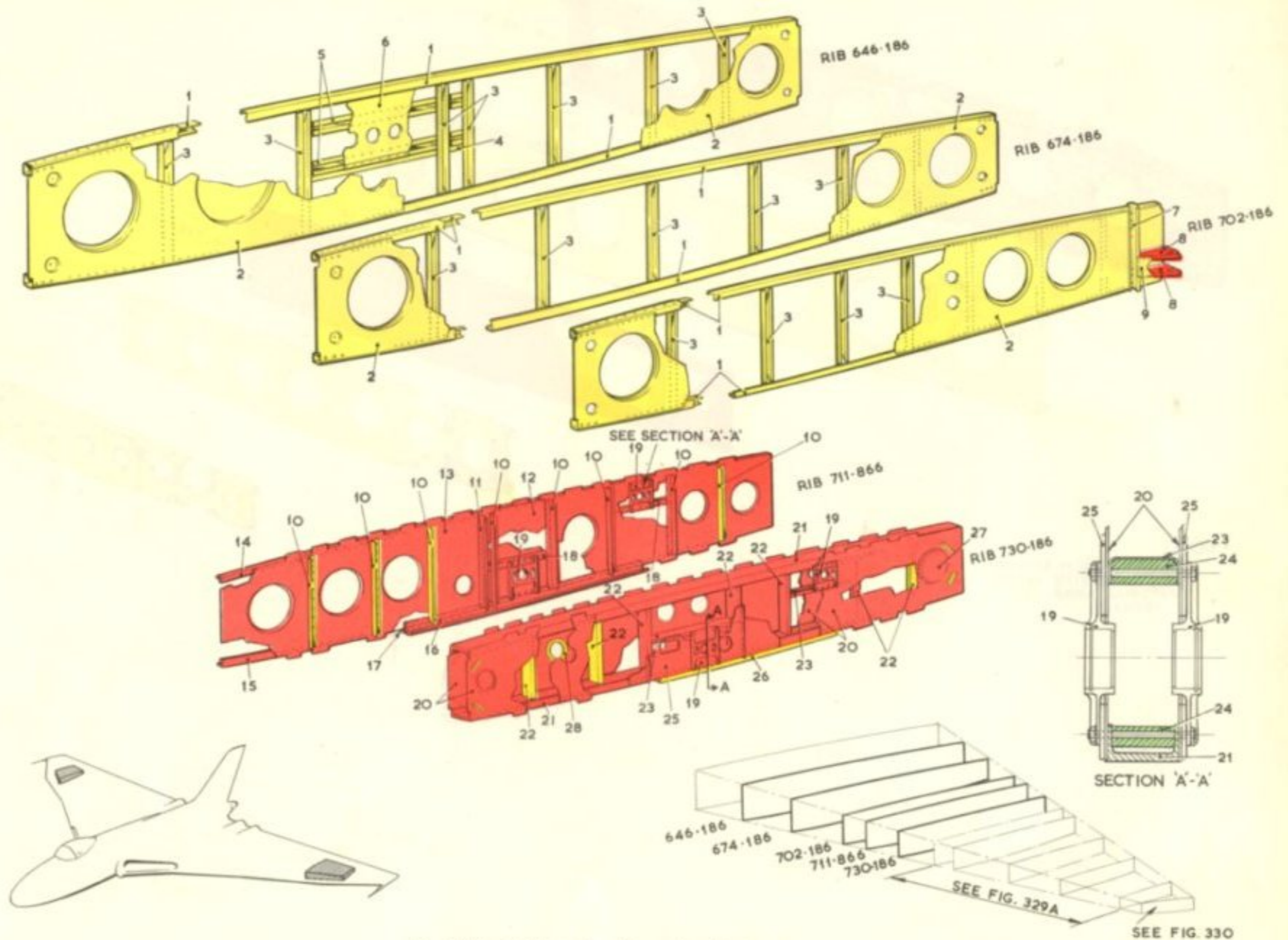
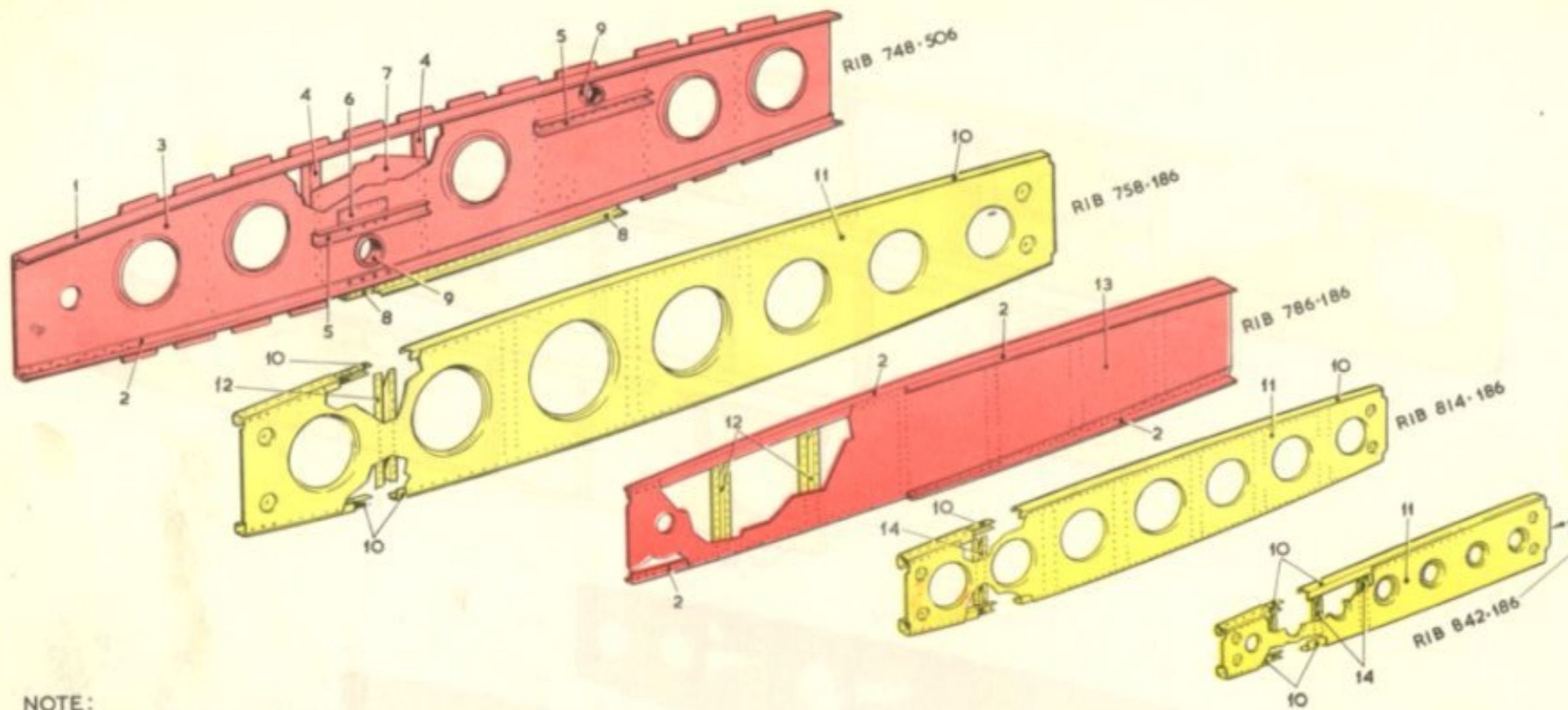


Fig. 329. Outboard wing structure
RESTRICTED



NOTE:
 ITEMS 12 AND 14 REPAIRED
 AS FIG. 112 WITH REPAIR
 MATERIAL ARRANGED
 EXTERNALLY

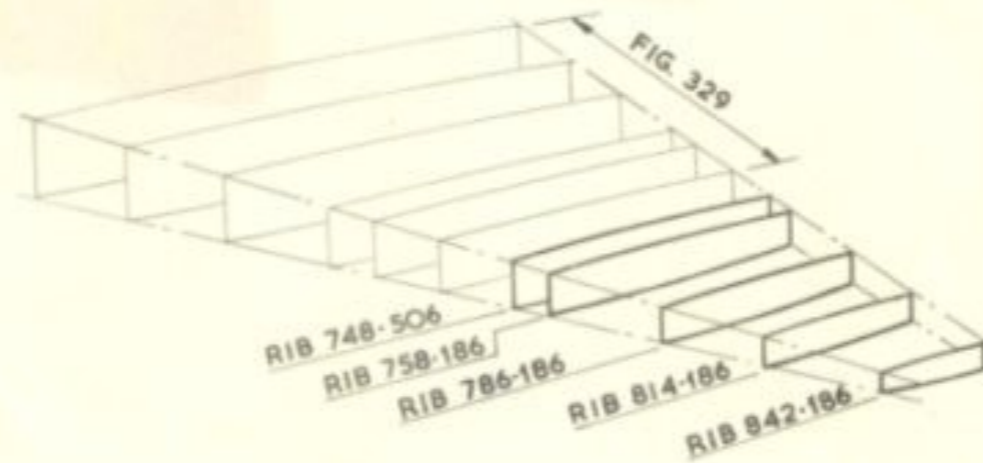


Fig. 329A. Outboard wing structure
 RESTRICTED

KEY TO FIG.329A

Item	Material		Description	Negligible Damage				Repair Fig.
	Spec.	S.W.G. or Section		Dents	Holes			
				Depth	Dist. Apart	Dia.	Pitch Ratio	
1	L. 72	525/SS. 1793	Boom	* 0.05	3.0	-	-	-
2	L. 65	304/SS. 3075	Boom	* 0.05	3.0	-	-	-
3	L. 72	18	Rib web	0.05	3.0	-	-	103, 104, 106
4	L. 72	530/SS. 1793	Rib stiffeners	0.05	3.0	-	-	114
5	L. 72	15/SS. 1793	Channel stiffeners	x 0.05	3.0	-	-	108
6	L. 72	16	Reinforcing plate	* 0.05	3.0	-	-	-
7	L. 72	18	Reinforcing plate	x 0.05	3.0	-	-	-
8	L. 72	16	Angle	0.05	3.0	0.125	4:1	-
9	S. 96		Housing	* -	-	-	-	-
10	L. 72	386/SS. 1793	Boom angles	-	-	0.125	4:1	113
11	L. 72	24	Rib web	0.1	2.5	0.5	8:1	103, 104, 106
12	L. 72	91/SS. 1793	Stiffeners	0.05	3.0	0.125	4:1	112
13	L. 72	20	Rib web	0.05	3.0	-	-	103, 104, 106
14	L. 73	379/SS. 1793	Stiffeners	0.05	3.0	0.125	4:1	112

* No repairs permitted
 x More expedient to renew than repair
 All dimensions are quoted in inches

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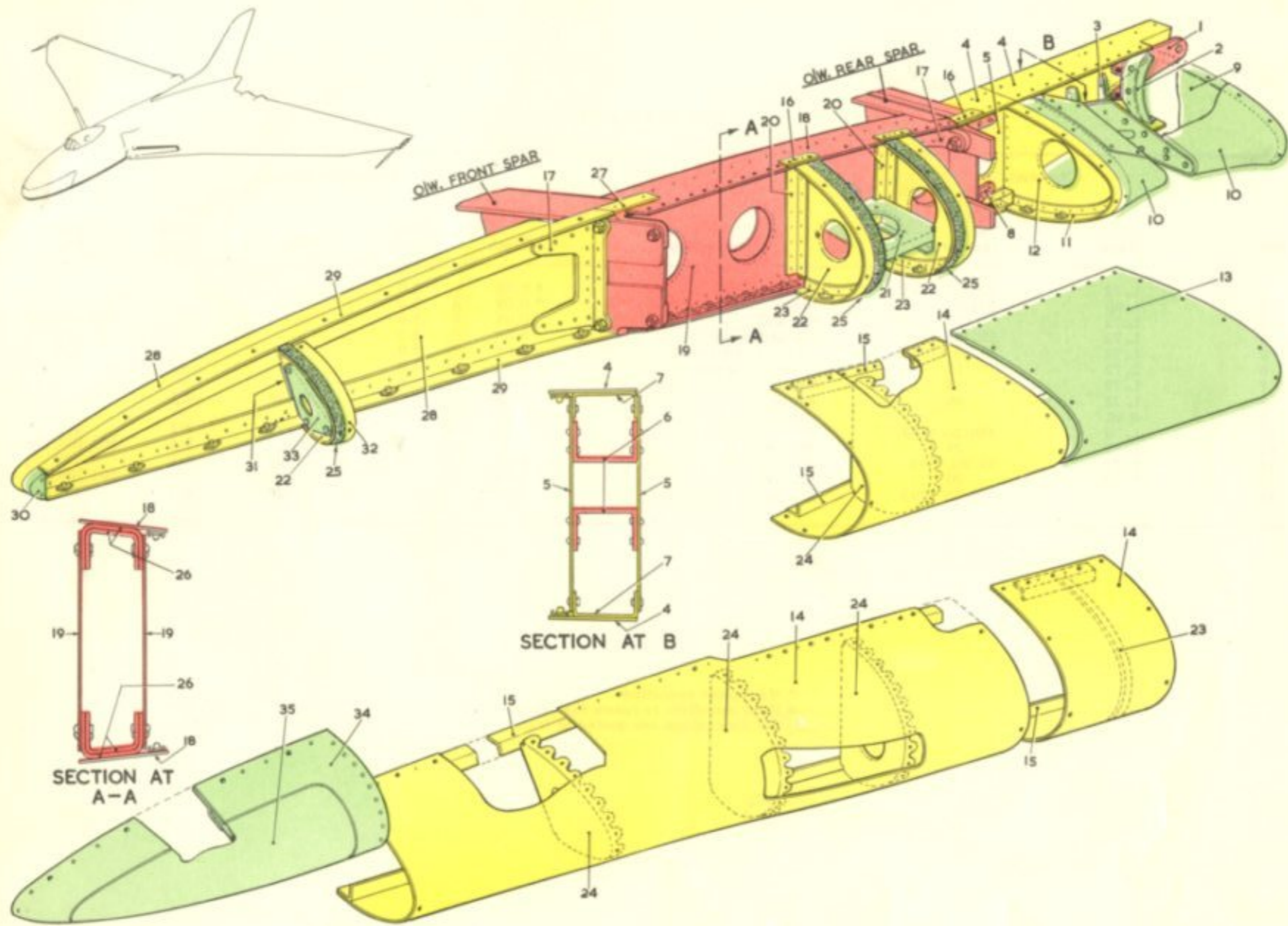


Fig. 330. Outboard wing tip
RESTRICTED

Key to Fig. 330. Outboard wing tip

Item	Spec.	Material S.W.G. or Section	Description	Negligible Damage			Holes Pitch Ratio	Repair Fig. No.
				Dents Depth	Dist. Apart	Dia.		
1	DTD.638 or 364	Al. alloy	Hinge bracket	* —	—	—	—	—
2	L.72	18	Shroud angle	†0-10	2-5	0-25	8:1	—
3	L.72	18	Bracket	†0-10	2-5	0-25	4:1	—
4	L.72	16	Strap plate	0-10	2-5	0-25	8:1	—
5	L.72	20	Side plate	0-10	2-5	0-25	8:1	103
6	L.65	368/SS/3075	Channel member	* —	—	—	—	—
7	L.72	20	Cover channel	0-10	2-5	0-25	8:1	—
8	L.65	Al. alloy	Attachment bracket	* —	—	—	—	—
9	L.72	18	Shroud	0-10	2-5	—	—	103
10	L.59	20	Mounting bracket	0-10	2-5	—	—	—
11	L.72	20	Former angle	†0-10	2-5	—	—	—
12	L.72	20	Former	0-10	2-5	0-25	4:1	—
13	Y.227/T5	Fibre glass	Panel	0-2	2-5	—	—	219A
14	L.72	22	Fairing picce	0-10	2-5	—	—	103
15	L.72	20	Fairing angle	0-10	2-5	—	—	—
16	L.72	20	Packing	†0-10	2-5	0-25	4:1	—
17	DTD.683 or 364	Al. alloy	Attachment bracket	* —	—	—	—	—
18	L.72	16	Strap plate	0-05	3-0	0-2	5:1	—
19	L.72	20	Web plate	0-05	3-0	0-5	8:1	103, 104
20	L.72	18	Angles	†0-10	2-5	—	—	—
21	L.72	18	Mounting bracket	†0-10	2-5	0-5	4:1	—
22	L.72	18	Former	0-10	2-5	0-5	8:1	—
23	L.72	60/SS/1793	Angles	0-10	2-5	—	—	113
24	L.72	24	Former	0-10	2-5	0-5	8:1	—
25	Silicone Soft rubber	¼" thick	Weatherstrip	† —	—	—	—	—
26	L.73	14	Rib booms	0-05	3-0	0-2	8:1	—
27	L.72	14	Packing	†0-10	2-5	—	—	—
28	L.72	18	Rib pressing	0-10	2-5	0-25	8:1	103
29	L.72	729/SS/1793	Rib angle	0-10	2-5	—	—	—
30	BSS.668	—	Nose block	0-10	2-5	0-25	4:1	—
31	L.72	18	Packing	†0-10	2-5	0-25	4:1	—
32	L.72	18	Plate	†0-10	2-5	—	—	—
33	L.72	18	Mounting plate	†0-10	2-5	0-25	4:1	—
34	L.72	18	Cover frame	0-10	2-5	—	—	—
35	DTD.838A	Perspex	Window	0-2	2-5	—	—	—

* No repairs permitted

† More expedient to renew

All dimensions in inches

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Key for Fig. 331. Outer wing rear spar and trailing edge

Item	Spec.	Material S.W.G. or Section	Description	Dents Depth	Negligible Damage		Holes Pitch Ratio	Repair Fig. No.
					Dist. Apart	Dia.		
1	L.72	20	Intercostal	0.10	2.5	0.50	8:1	103, 104, 115
2	L.72	20	Angle	—	—	0.125	4:1	113
3	L.72	20	Skins	0.10	2.5	—	—	103, 104
4	L.72	20	Skins	0.20	2.0	—	—	103, 104
5	L.72	20	'Z' member	—	—	0.125	4:1	as 111
6	L.72	20	Gusset plate	†—	—	0.125	4:1	—
7	L.72	244/SS/1793	Channel	†—	—	0.25	4:1	—
8	Noral/50/SWP	SS4138	Hinge	—	—	—	—	—
9	L.72	12C/SS/1793	Angle	0.05	3.00	0.25	4:1	113
10	L.72	669/SS/1793	Channel	0.05	3.00	0.25	4:1	as 108
11	L.72	15/SS/1793	Channel	0.10	2.5	0.25	4:1	—
12	L.65	Al. alloy	Hinge bracket	—	—	—	—	—
13	L.72	20	Channel members	0.10	2.5	0.25	4:1	—
14	L.72	20	Hinge rib webs <i>Red</i>	0.05	3.0	—	—	—
			Hinge rib webs <i>Yellow</i>	0.10	2.5	0.50	8:1	103, 104
15	L.72	18	Angle	0.10	2.5	—	—	—
16	L.65	311/SS/3075	Extruded member	0.05	3.0	—	—	—
17	L.72	20	Vertical members	—	—	0.125	4:1	—
18	L.72	16	Gusset plate	†0.10	2.5	0.125	4:1	—
19	L.72	20	Web plates	0.10	2.5	0.50	8:1	103, 104
20	L.72	247/SS/1793	Angle	0.10	2.5	—	—	113
21	L.72	732/SS/1793	Angle	0.10	2.5	—	—	—
22	L.72	20	Gusset plate	†0.10	2.5	0.125	4:1	—
23	L.72	26	Shroud panel	0.20	2.0	—	—	103, 104
24	L.72	133/SS/1793	Stiffening angle	0.10	2.5	—	—	113
25	L.72	746/SS/1793	Angle	0.10	2.5	—	—	—
26	BSS	Tufnol	Rubbing block	—	—	—	—	—
27	L.72	22	Inner and outer skins	0.10	2.5	—	—	as 351C, 351D
28	L.72	18	Edge member	0.10	2.5	—	—	—
29	L.72	739/SS/1793	Bottom angle	0.10	2.5	—	—	—
30	L.72	741/SS/1793	Top angle	0.10	2.5	—	—	—
31	L.72	12a/SS/1793	Angle	0.10	2.5	—	—	—
32	L.72	18	Channel members	0.10	2.5	0.25	4:1	—
33	L.72	20	Rib webs	0.10	2.5	0.25	4:1	103, 104
34	L.73	60/SS/1793	Shroud attachment angle	0.10	2.5	—	—	113
35	L.72	20	Channel members	—	—	0.25	4:1	—
36	DTD.683	Al. alloy	Trunnion bearing	•—	—	—	—	—
37	L.72	16	Gusset plate	†—	—	—	—	—
38	S.96	Steel	Bearing housing	•—	—	—	—	—
39	L.77	Al. alloy	Hinge bracket	•—	—	—	—	—
40	L.65	409/SS/3075	Extruded channel	0.50	3.0	—	—	—
41	L.65	357/SS/3075	Extruded channel	0.50	3.0	—	—	—
42	L.72	16	Door angle	0.10	2.5	—	—	as 114
43	L.72	20	Reinforcing plate	•0.10	2.5	—	—	—
44	L.72	18	Gusset plate	†0.10	2.5	—	—	—
45	L.72	18	Top and bottom channels	—	—	—	—	—
46	L.72	66/SS/1793	Shroud angle	0.10	2.5	—	—	—
47	DTD.259A	Mag. alloy	Tapered packing	†—	—	—	—	—
48	L.72	779/SS/1793	Door angle	0.10	2.5	—	—	as 114
49	L.72	16	Stiffening plate	•—	—	—	—	—
50	L.72	16	Gusset	†—	—	0.125	4:1	—
51	L.72	780/SS/1793	Top and bottom channels	—	—	0.125	4:1	—
52	L.72	60/SS/1793	Angles	0.10	2.5	—	—	—
53	L.72	20	Cover plate	0.10	2.5	2.25	4:1	—
54	L.72	385/SS/1793	Angle	0.10	2.5	2.25	4:1	—
55	L.65	410/SS/3075	Extruded member	0.05	3.0	—	—	—

* No repairs permitted

† More expedient to renew

All dimensions in inches

RESTRICTED

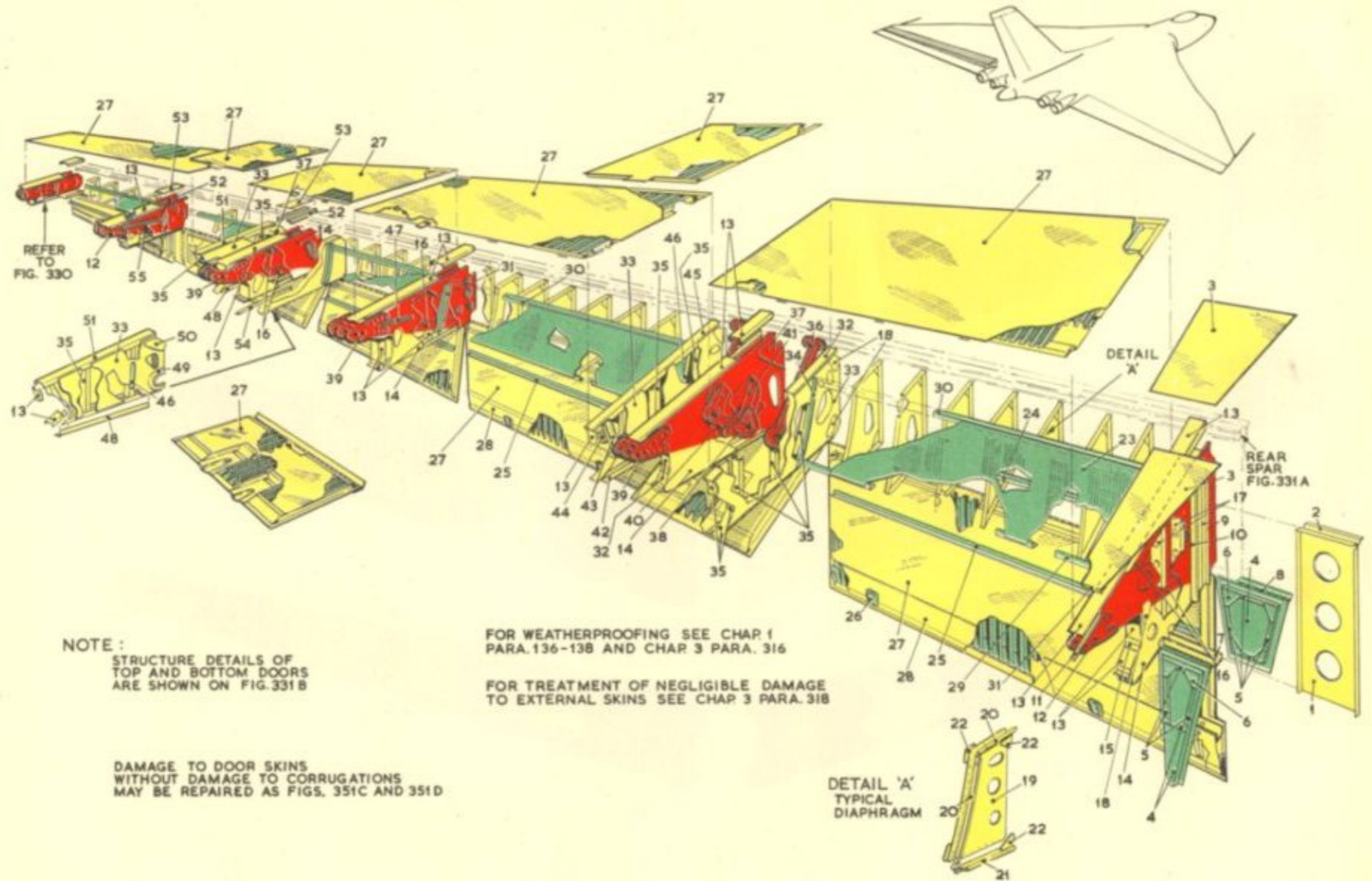


Fig. 331 Outer wing rear spar and trailing edge RESTRICTED

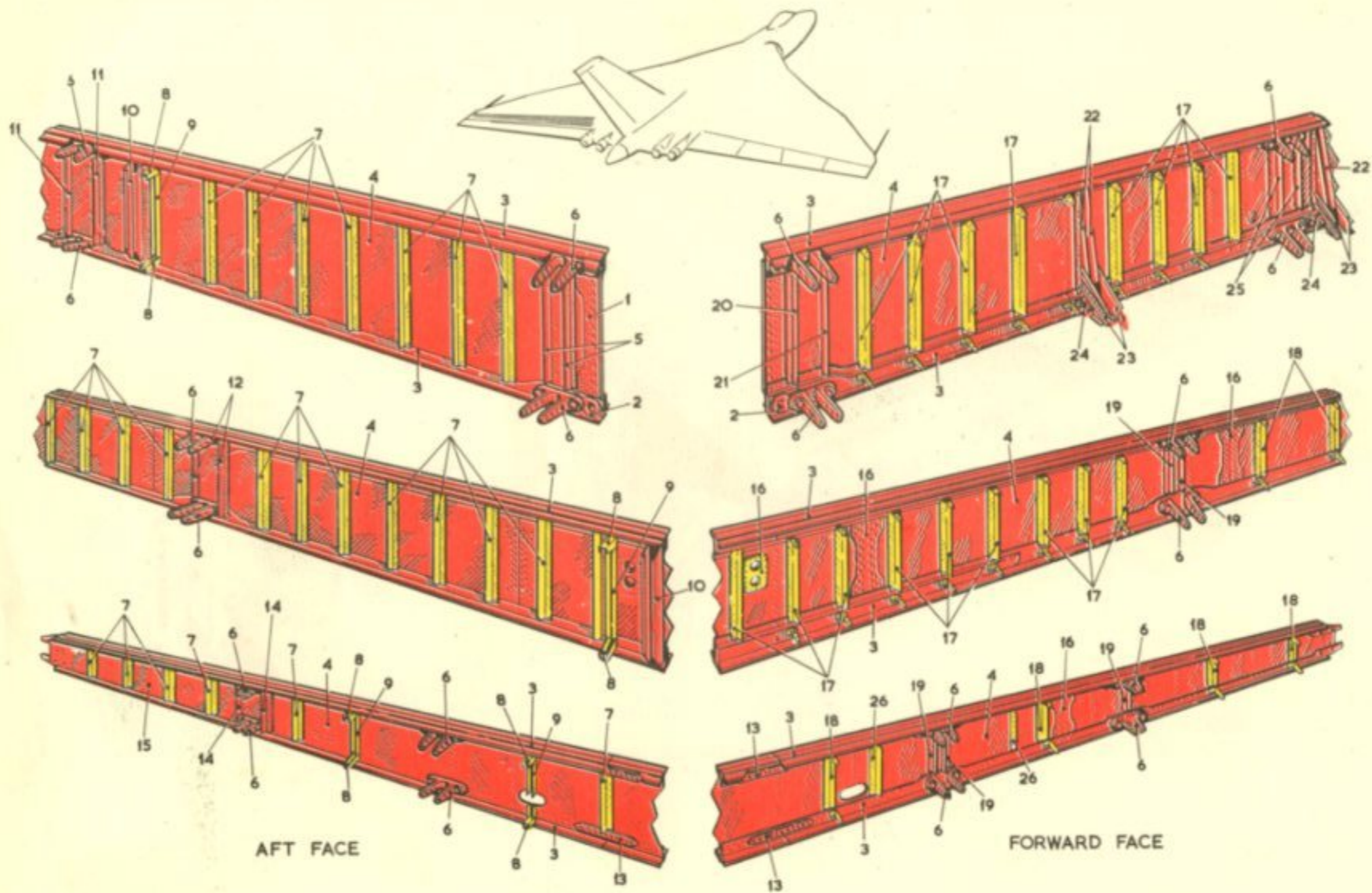


Fig. 331A Rear spar
RESTRICTED

KEY TO FIG.331A

Item	Spec.	Material		Description	Negligible Damage				Repair Fig.
		S.W.G. or Section			Dents	Holes			
					Depth	Dist. Apart	Dia.	Pitch Ratio	
1	D.T.D.687	14		Reinforcing plate	* -	-	-	-	-
2	S.99	-		Reinforcing plate	* -	-	-	-	-
3	D.T.D.363A	11.B.1824		Spar booms	* 0.05	3.0	-	-	-
4	D.T.D.687	12		Spar webs	0.025	6.0	-	-	103,104
5	L.72	8		Stiffening angle	-	-	-	-	-
6	D.T.D.683	-		Bracket	* -	-	-	-	-
7	L.72	16		Attachment angle	0.05	3.0	0.125	4:1	114
8	D.T.D.683	-		Bracket	* -	-	-	-	-
9	L.72	18		Channel	x 0.1	2.5	0.25	4:1	-
10	L.72	18		Channel	x 0.05	3.0	0.125	4:1	-
11	L.65	304/SS.3075		Angle	-	-	-	-	-
12	L.65	251/SS.3075		Angle	-	-	-	-	-
13	D.T.D.363	-		Joint strap	* -	-	-	-	-
14	L.65	176/SS.3075		Attachment angle	0.05	3.0	0.125	4:1	-
15	D.T.D.687	16		Outboard web	0.025	6.0	-	-	103,104
16	D.T.D.687	12		Joint plate	* -	-	-	-	-
17	L.72	18		Angle	0.05	3.0	0.125	4:1	114
18	L.72	20		Angle	0.05	3.0	0.125	4:1	114
19	L.72	16		Angle	-	-	-	-	114
20	D.T.D.687	12		Angle	-	-	-	-	-
21	D.T.D.687	16		Angle	-	-	-	-	-
22	L.73	14		Vertical channel	x -	-	-	-	-
23	L.73	14		Stiffener	x -	-	-	-	-
24	D.T.D.410	-		Bracket	* -	-	-	-	-
25	L.72	16		Attachment angle	-	-	-	-	-
26	L.72	16		Angle	0.05	3.0	0.125	4:1	114

* No repairs permitted
x More expedient to renew than repair
All dimensions are quoted in inches

RESTRICTED

KEY TO FIG.331B

Item	Material		Description	Negligible Damage				Repair Fig.
	Spec.	S.W.G. or Section		Dents	Holes			
				Depth	Dist. Apart	Dia.	Pitch Ratio	
1	L. 72	22	Inner skin	0.2	2.0	0.125	4:1	351C, 351D 351C, 352, 353
2	L. 72	22	Outer skin	0.1	2.5	-	-	
3	L. 72	SS. 4133/24G	Corrugation	0.1	2.5	-	-	
3A	L. 72	SS. 4132/24G	Corrugation	0.1	2.5	-	-	
3B	L. 72	24	Corrugation	0.1	2.5	-	-	
3C	L. 72	SS. 4131/24G	Corrugation	0.1	2.5	-	-	
4	D. T. D. 259	383/SS. 3075	Extruded member	* -	-	0.125	4:1	
5	L. 72	18	Rear edge member	-	-	0.125	4:1	
6	Tufnol	-	Rubbing block	x -	-	-	-	
7	L. 72	18	Edge member	-	-	0.25	4:1	
8	L. 72	746/SS. 1793	Stiffening angle	-	-	0.125	4:1	
9	L. 72	20	Channel bracket	x -	-	-	-	
10	L. 72	22/SS. 1793	Angle bracket	x -	-	-	-	
11	T. 35	17	Distance tube	x -	-	-	-	
12	L. 72	18	'Z' section stiffener	-	-	0.125	4:1	
13	L. 72	22	Funnel	x 0.05	2.0	-	-	
14	L. 72	20	Cover	x -	-	0.125	4:1	
15	L. 72	22	Flanged outlet	x -	-	-	-	
16	L. 72	20	Channel	x -	-	0.125	4:1	
17	L. 72	20	End stiffener	x -	-	0.125	4:1	
18	L. 72	20	Packing	x -	-	0.125	4:1	
19	L. 72	20	Fairing	0.05	1.5	-	-	
20	L. 72	746/SS. 1793	Stiffening angle	0.1	2.0	0.25	4:1	
21	L. 72	13b/SS. 1793	Angle bracket	x -	-	-	-	
22	L. 72	22	Stiffener	x -	-	-	-	

* No repairs permitted
 x More expedient to renew than repair
 All dimensions are quoted in inches

RESTRICTED

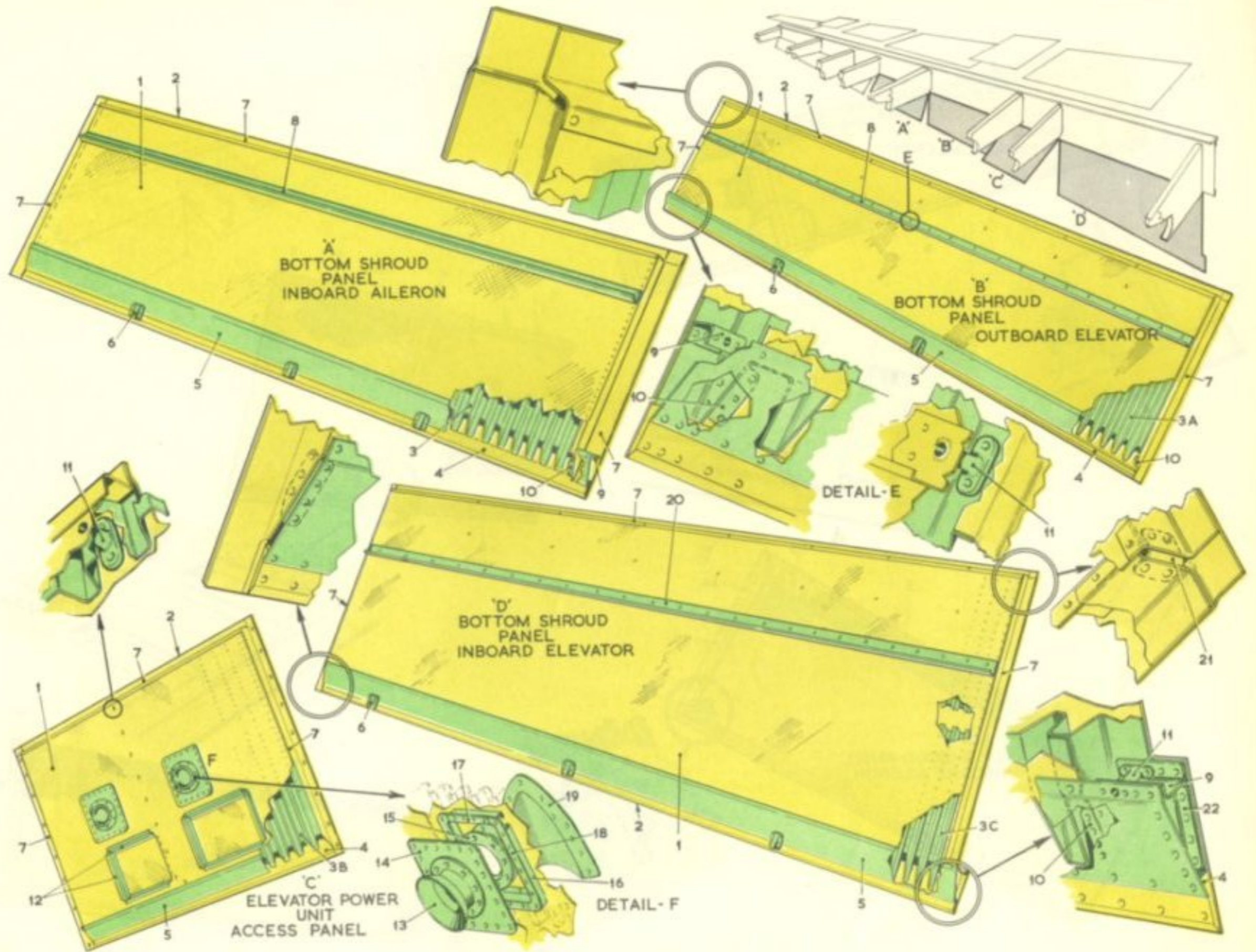


Fig. 331B. Trailing edge structure-Panels
RESTRICTED

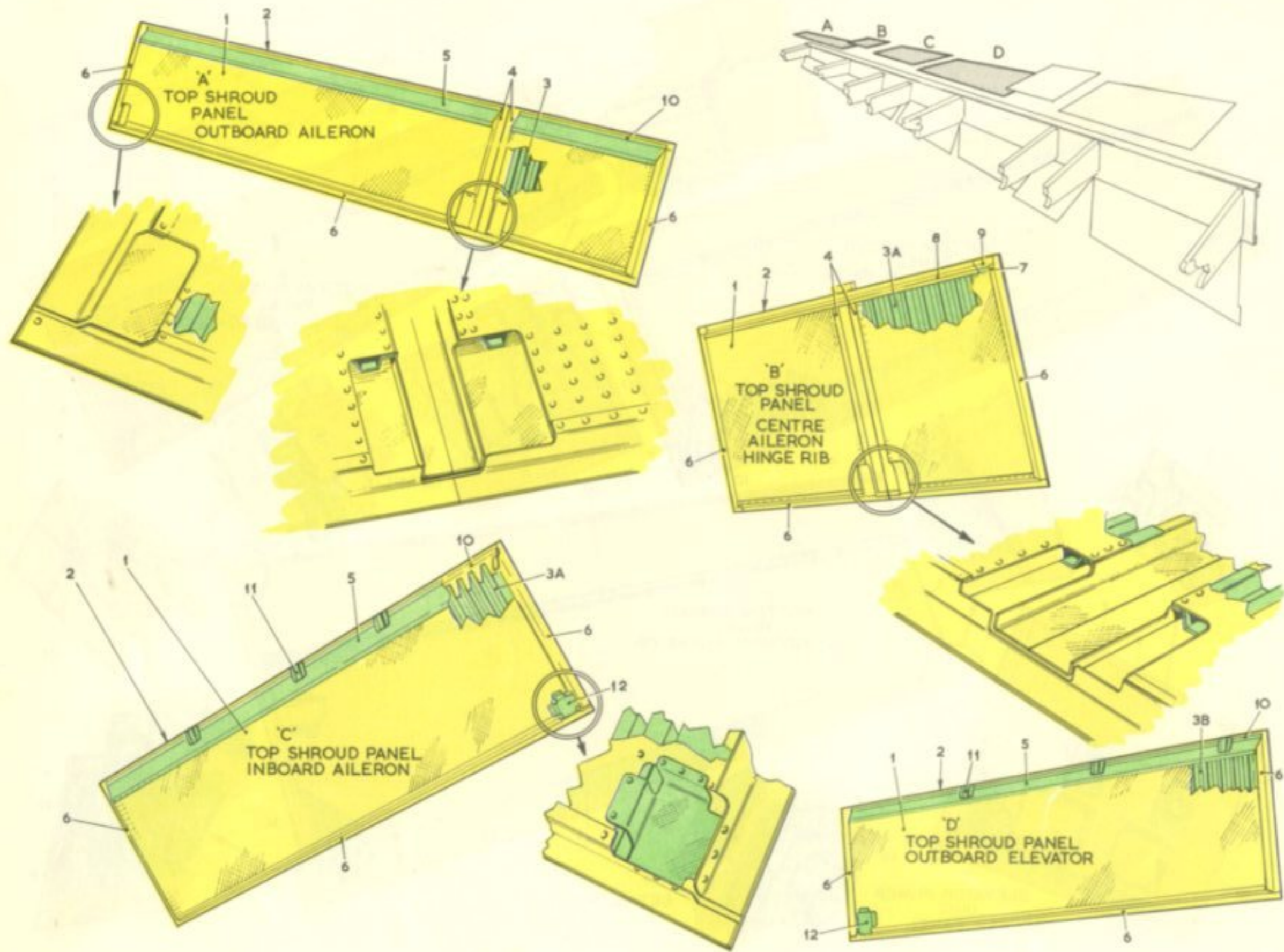


Fig. 331C. Trailing edge structure-Panels
RESTRICTED

KEY TO FIG.331C

Item	Material		Description	Negligible Damage				Repair Fig.
	Spec.	S.W.G. or Section		Dents	Holes			
				Depth	Dist. Apart	Dia.	Pitch Ratio	
1	L.72	22	Inner skin	0.2	2.0	0.125	4:1	351C, 351D 351C, 352, 353
2	L.72	22	Outer skin	0.1	2.5	-	-	
3	L.72	SS.4134/24G	Corrugation	0.1	2.5	-	-	
3A	L.72	SS.4133/24G	Corrugation	0.1	2.5	-	-	
3B	L.72	SS.4132/24G	Corrugation	0.1	2.5	-	-	
4	L.72	18	Channel member	0.1	2.5	0.125	4:1	
5	L.72	18	Rear member	-	-	0.125	4:1	
6	L.72	18	Edge member	-	-	0.25	4:1	
7	L.72	18	Channel stiffener	0.1	2.0	0.125	4:1	
8	L.72	20	Shroud	0.05	2.0	0.25	4:1	
9	L.72	12	Trailing edge member	-	-	0.25	4:1	
10	D.T.D.259	383/SS.3075	Extruded member	* -	-	0.125	4:1	
11	Tufnol	-	Rubbing block	x -	-	-	-	
12	L.72	20	Bracket	x 0.1	-	0.25	4:1	

* No repairs permitted
x More expedient to renew than repair
All dimensions are quoted in inches

RESTRICTED

KEY TO FIG.331D

Item	Material		Description	Negligible Damage				Repair Fig.
	Spec.	S.W.G. or Section		Dents	Holes			
			Depth	Dist. Apart	Dia.	Pitch Ratio		
1	L. 72	22	Inner skin	0.2	2.0	0.125	4:1	351C, 351D 351C, 352, 353
2	L. 72	22	Outer skin	0.1	2.5	-	-	
3	L. 72	18	Centre member	0.1	2.5	0.125	4:1	
4	L. 72	SS. 4132/24G	Corrugation	0.1	2.5	-	-	
4A	L. 72	SS. 4132/24G	Corrugation	0.1	2.5	-	-	
4B	L. 72	SS. 4133/24G	Corrugation	0.1	2.5	-	-	
5	L. 72	12	Rear member	-	-	0.125	4:1	
6	L. 72	20	Shroud	0.05	2.0	0.25	4:1	
7	L. 72	18	Channel member	-	-	0.25	4:1	
8	L. 72	18	Edge member	-	-	0.25	4:1	
9	L. 72	SS. 4131/22G	Corrugation	0.1	2.5	-	-	
10	D. T. D. 259	383/SS. 3075	Extruded member	* -	-	0.125	4:1	
11	L. 72	18	Rear member	-	-	0.125	4:1	
12	L. 72	20	Corner bracket	x 0.1	-	0.25	4:1	
13	Tufnol	-	Rubbing block	x -	-	-	-	
14	L. 72	746/SS. 1793	Angle	-	-	0.125	4:1	
15	L. 72	20	Bracket	x 0.1	1.5	0.25	4:1	
16	L. 72	18	Channel	0.1	2.5	0.125	4:1	
17	L. 65	-	Distance piece	x -	-	-	-	

* No repairs permitted
 x More expedient to renew than repair
 All dimensions are quoted in inches

RESTRICTED

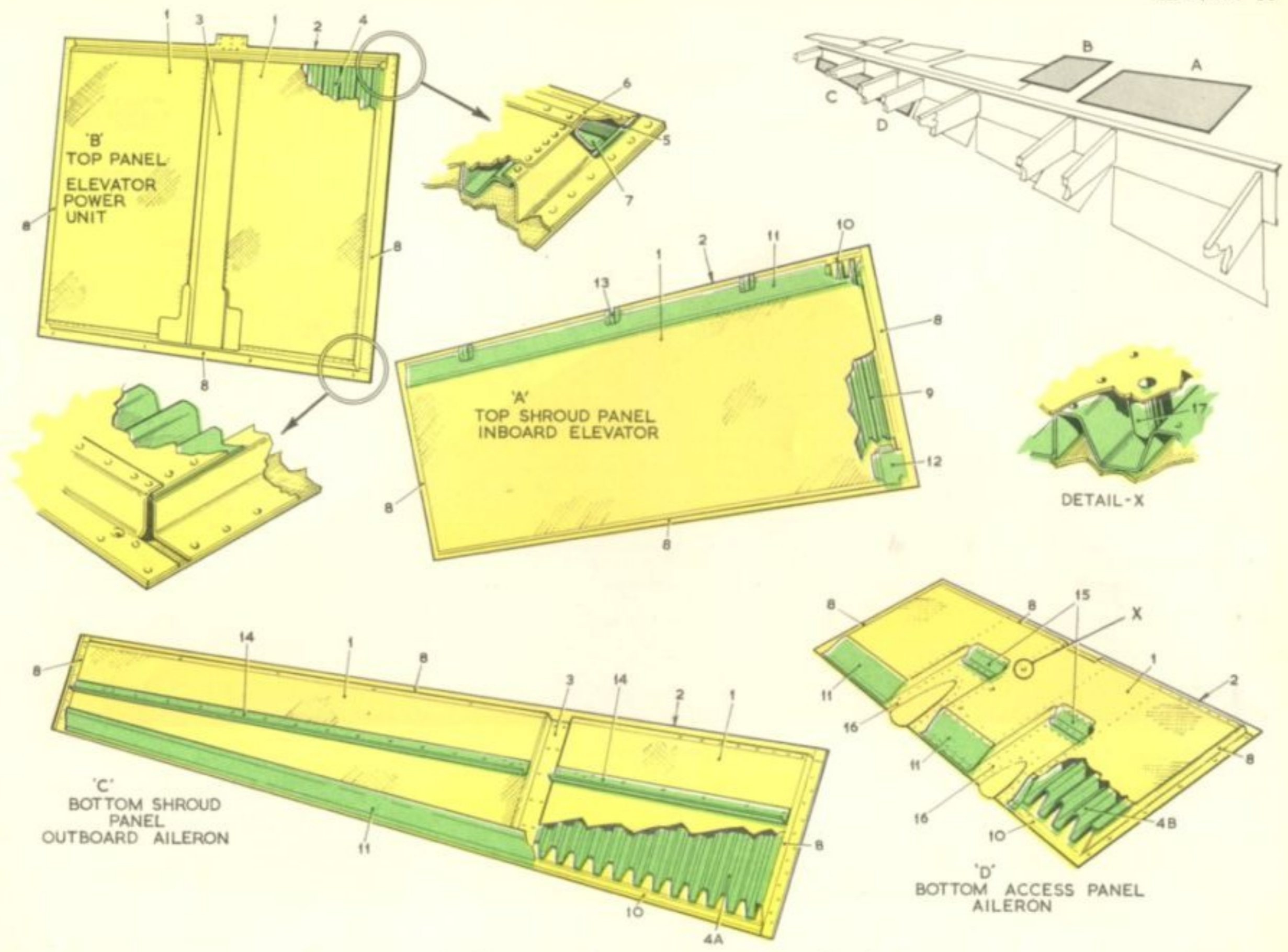
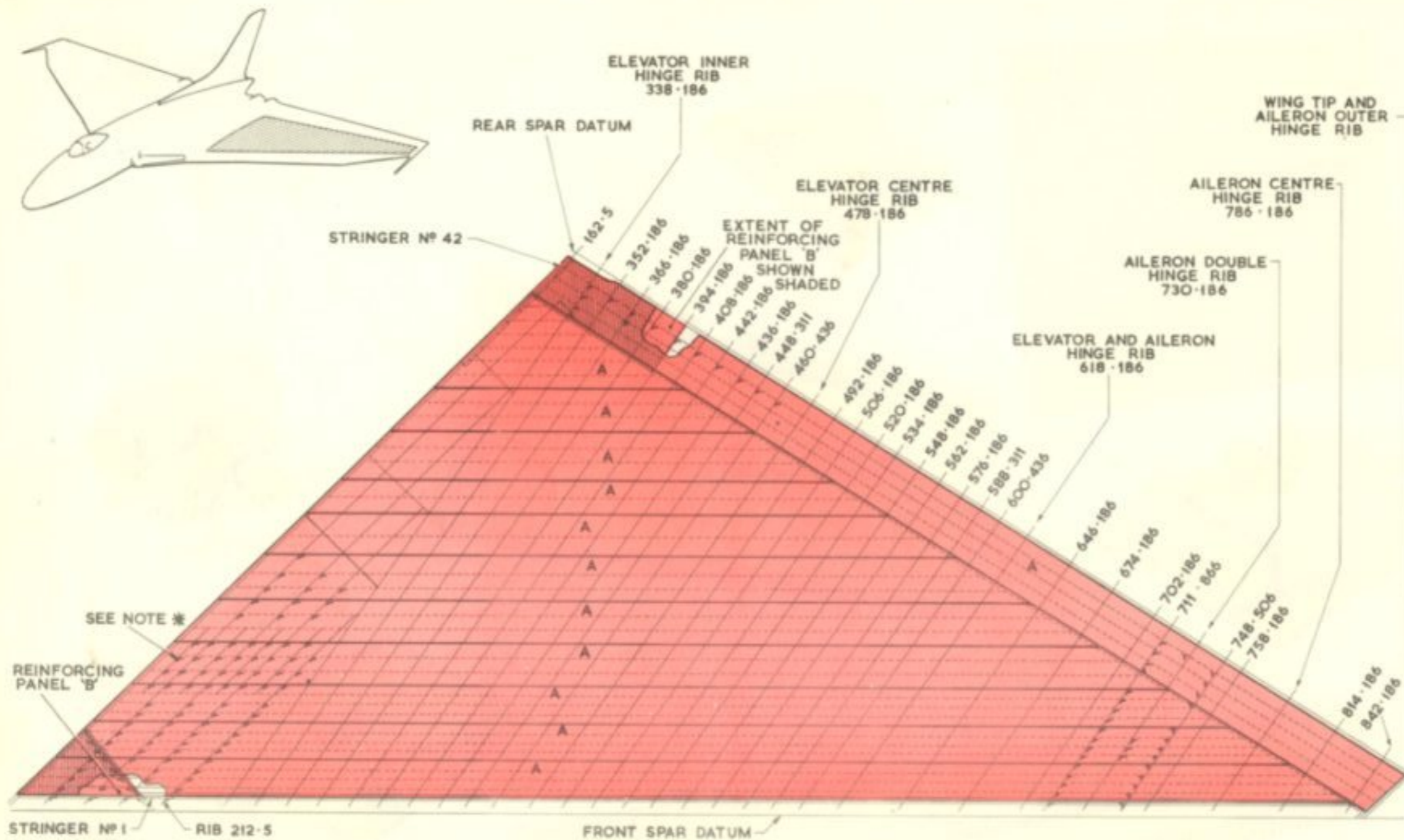


Fig. 331D. Trailing edge structure-Panels RESTRICTED



NOTE:- STRINGERS ARE NUMBERED CONSECUTIVELY 1 TO 42.

* NO NEGLIGIBLE DAMAGE IS ALLOWED TO ROLLED SECTION SHEAR ANGLES OR STRINGER BRACKETS. THESE ITEMS ARE TO BE RENEWED TO SPEC. L72. THE S.W.G. IS TO BE THE SAME AS DAMAGED ITEM.

SKIN LIMIT TABLE		
NEGLIGIBLE DAMAGE		
COLOUR	DENTS	DIST. APART
RED	0.05 IN.	3.0 IN.

SKIN REFERENCE		
LETTER	SPEC.	S. W. G.
A	D.T.D. 687	16
B	D.T.D. 687	22

FOR WEATHERPROOFING SEE TEXT IN CHAR 1 AND 3.
 FOR SKIN REPAIRS SEE FIG. 103 AND 104.
 FOR COMBINED SKIN AND STRINGER REPAIRS SEE FIG. 110, 117 AND 347.
 FOR STRINGER NEGLIGIBLE DAMAGE LIMITS SEE KEY TABLE TO FIG. 328.
 POP RIVETS USED FOR REPAIRS SHOULD BE FILLED WITH A SUITABLE FILLER. REFER TO CHAR 1.

Fig. 332. Top skins - Outer wing
 RESTRICTED

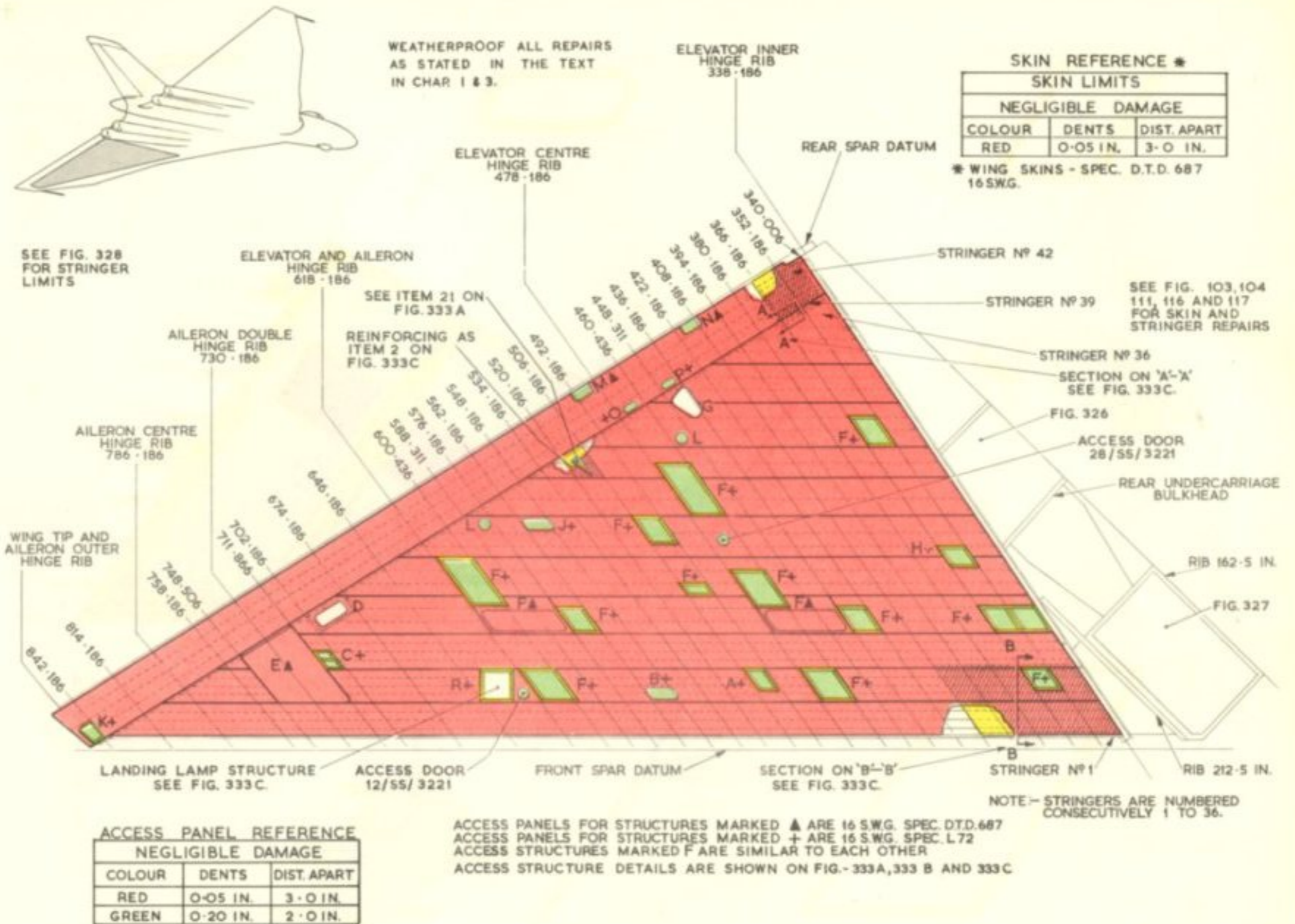


Fig. 333. Bottom skins - Outer wing
RESTRICTED

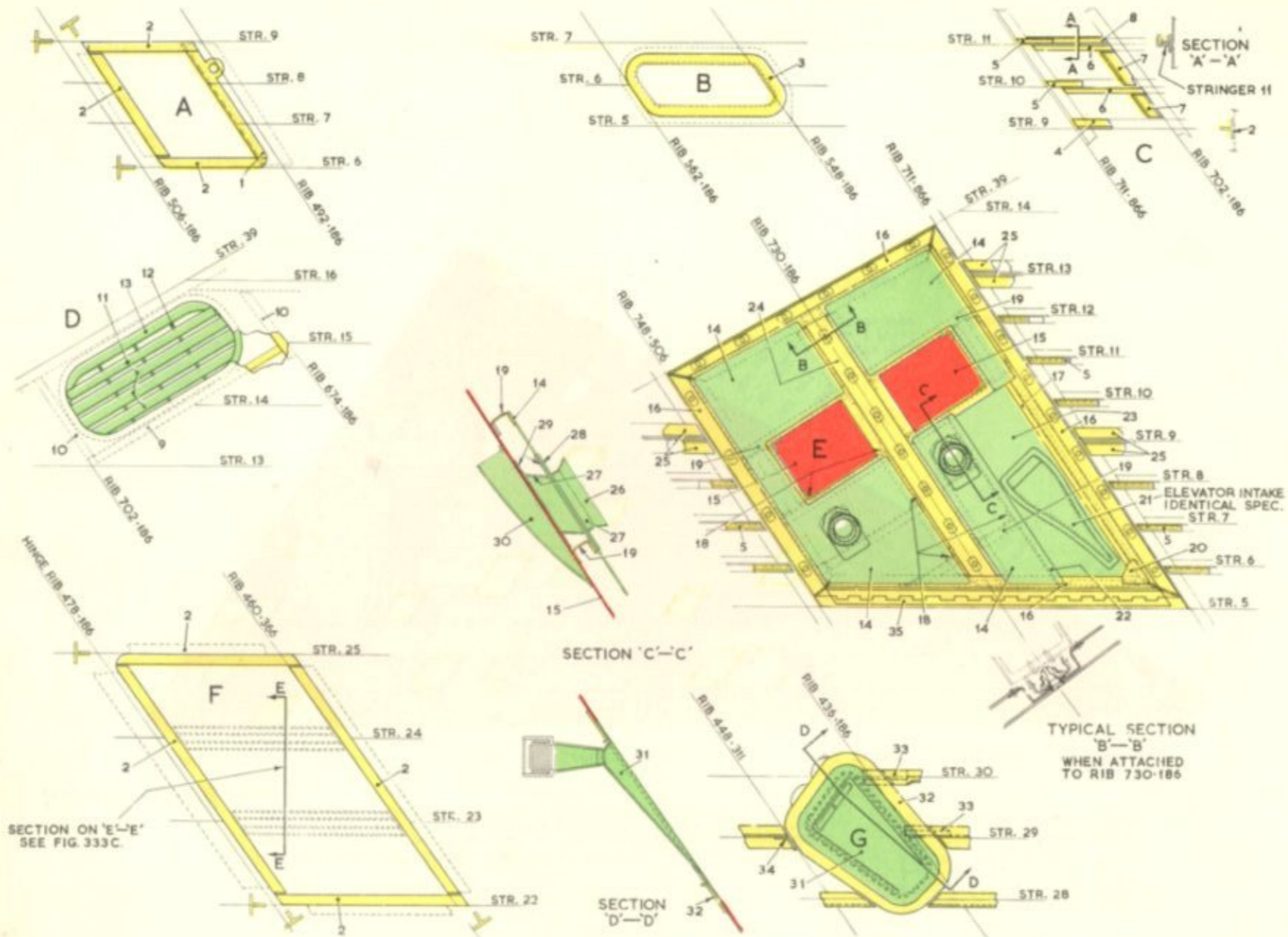


Fig. 333A. Bottom skins - Access structure
RESTRICTED

KEY TO FIG.333A

Item	Material		Description	Negligible Damage				Repair Fig.
	Spec.	S.W.G. or Section		Dents	Holes			
			Depth	Dist. Apart	Dia.	Pitch Ratio		
1	L. 72	16	Angle member	-	-	0.125	4:1	
2	D. T. D. 683	301/SS. 3075	'T' stringers	-	-	0.125	4:1	
3	L. 72	18	Door frame	0.1	2.0	0.25	4:1	
4	L. 72	16	Attachment bracket	x -	-	-	-	-
5	L. 72	20	Stringer bracket	x -	-	-	-	-
6	L. 72	18	Packing	x -	-	-	-	-
7	L. 72	18	Attachment bracket	x -	-	-	-	-
8	L. 72	18	Attachment angle	x -	-	-	-	-
9	L. 72	558/SS. 1793	Channel	-	-	0.125	4:1	
10	L. 72	18	Lipped angle	-	-	0.125	4:1	
11	L. 59	18	Louvre vanes	x -	-	-	-	-
12	L. 34	3/16 in. bar	Bracing rod	x -	-	-	-	-
13	L. 59	18	Louvre frame	0.1	2.0	0.25	4:1	
14	L. 72	18	Skin panel-inner	0.2	2.0	0.25	4:1	103
15	D. T. D. 687	16	Skin panel-outer	0.05	3.0	-	-	103
16	L. 72	16	Door edge member	-	-	0.125	4:1	
17	L. 72	18	'Z' stiffener	-	-	0.125	4:1	
18	L. 72	18	Corner brackets	x -	-	-	-	-
19	L. 72	18	Transverse members	-	-	0.125	4:1	
20	L. 72	18	Gusset	x -	-	-	-	-
21	L. 59	18	Flush intake	0.2	2.0	0.25	4:1	
22	L. 72	18	Channel	-	-	0.125	4:1	
23	L. 72	18	Reinforcing skin	0.2	2.0	0.25	4:1	103
24	L. 72	16	Centre channel	-	-	0.125	4:1	
25	L. 72	16	'T' stringer bracket	x -	-	-	-	-
26	L. 59	20	Funnel	0.05	-	-	-	-
27	L. 54	20	Tube	0.05	-	-	-	-
28	L. 59	20	Base plate	-	-	0.25	4:1	
29	L. 59	20	Flange	-	-	0.25	4:1	
30	L. 72	20	Fairing	0.2	2.0	-	-	-
31	L. 59	18	Tank vent scoop	0.2	2.0	-	-	-
32	L. 72	16	Stiffening ring	0.05	2.5	0.125	4:1	
33	L. 72	16	Stringer bracket	-	-	-	-	-
34	L. 72	16	Stringer bracket	-	-	-	-	-
35	L. 72 or AS. 1880/35	20	Door hinge	-	-	-	-	-

x More expedient to renew than repair
All dimensions are quoted in inches

RESTRICTED

KEY TO FIG.333B

Item	Material Spec.	S.W.G. or Section	Description	Negligible Damage				Repair Fig.
				Dents Depth	Dist. Apart	Holes Dia.	Pitch Ratio	
1	D. T. D. 423	193/SS. 3075	Stringer section	-	-	0.125	4:1	
2	D. T. D. 683	301/SS. 3075	Stringer section	-	-	0.125	4:1	
3	L. 72	16	Bracket	x -	-	-	-	
4	L. 72	18	Panel frame	0.05	2.0	0.25	4:1	
5	L. 72	18	Panel frame	-	-	0.125	4:1	
6	L. 72	18	Bracket	x -	-	-	-	
7	L. 72	18	Vent body	0.1	2.5	-	-	
8	L. 59	20	Louvre	x 0.02	-	-	-	
9	L. 59	16	Inner body	0.05	2.0	-	-	
10	L. 34	3/16" bar	Bracing rod	x -	-	-	-	
11	L. 72	20	Top angle ring	-	-	-	-	
12	L. 72	20	Cover plate	x 0.05	2.0	-	-	
13	L. 72	20	Reinforcing ring	x -	-	-	-	
14	L. 72	10	Packing plate	x -	-	-	-	
15	L. 72	A. S. 1877	Hinge	x -	-	-	-	
15a	M. Steel	14	Hinge pin	x -	-	-	-	
15b	D. T. D. 215	16	Spring	x -	-	-	-	
16	L. 72	20	Reinforcing angle	-	-	0.125	4:1	
17	L. 73	16	Reinforcing panel	0.05	2.0	0.25	4:1	
18	L. 65	356/SS. 3075	Stiffening angle	-	-	0.125	4:1	
19	D. T. D. 687	16	Door angle	x -	-	-	-	
20	L. 72	386/SS. 1793	Stiffening angle	-	-	0.125	4:1	
21	L. 72	18	Inner stiffening plate	0.05	2.0	0.125	4:1	
22	L. 72	12	Packing	x -	-	-	-	
23	L. 72	199a/SS. 1793	Joint angles	x -	-	0.125	4:1	
24	L. 72	20	Packing	x -	-	-	-	

x More expedient to renew than repair
All dimensions are quoted in inches

RESTRICTED

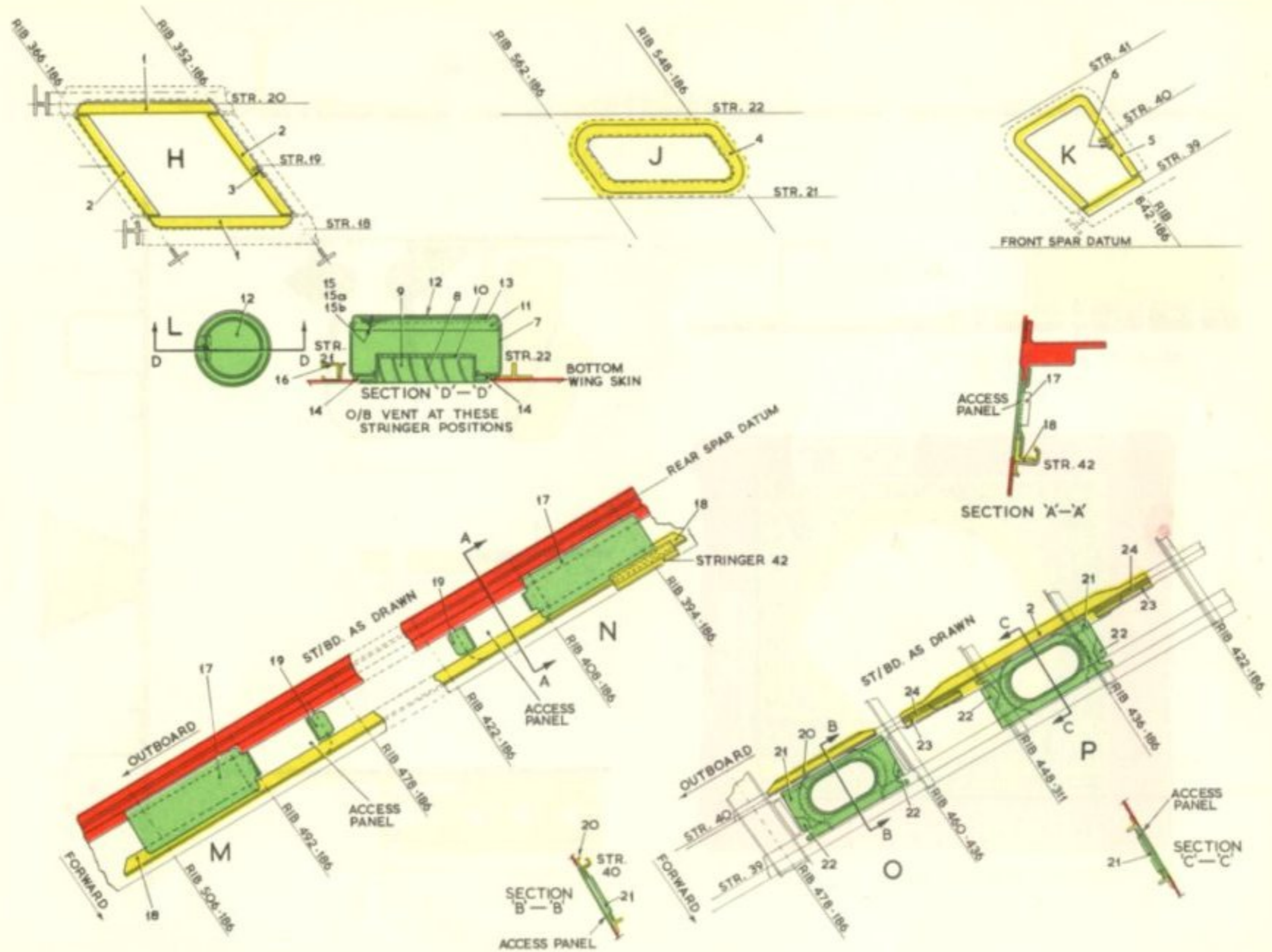


Fig. 333B. Bottom skins - Access structure
RESTRICTED

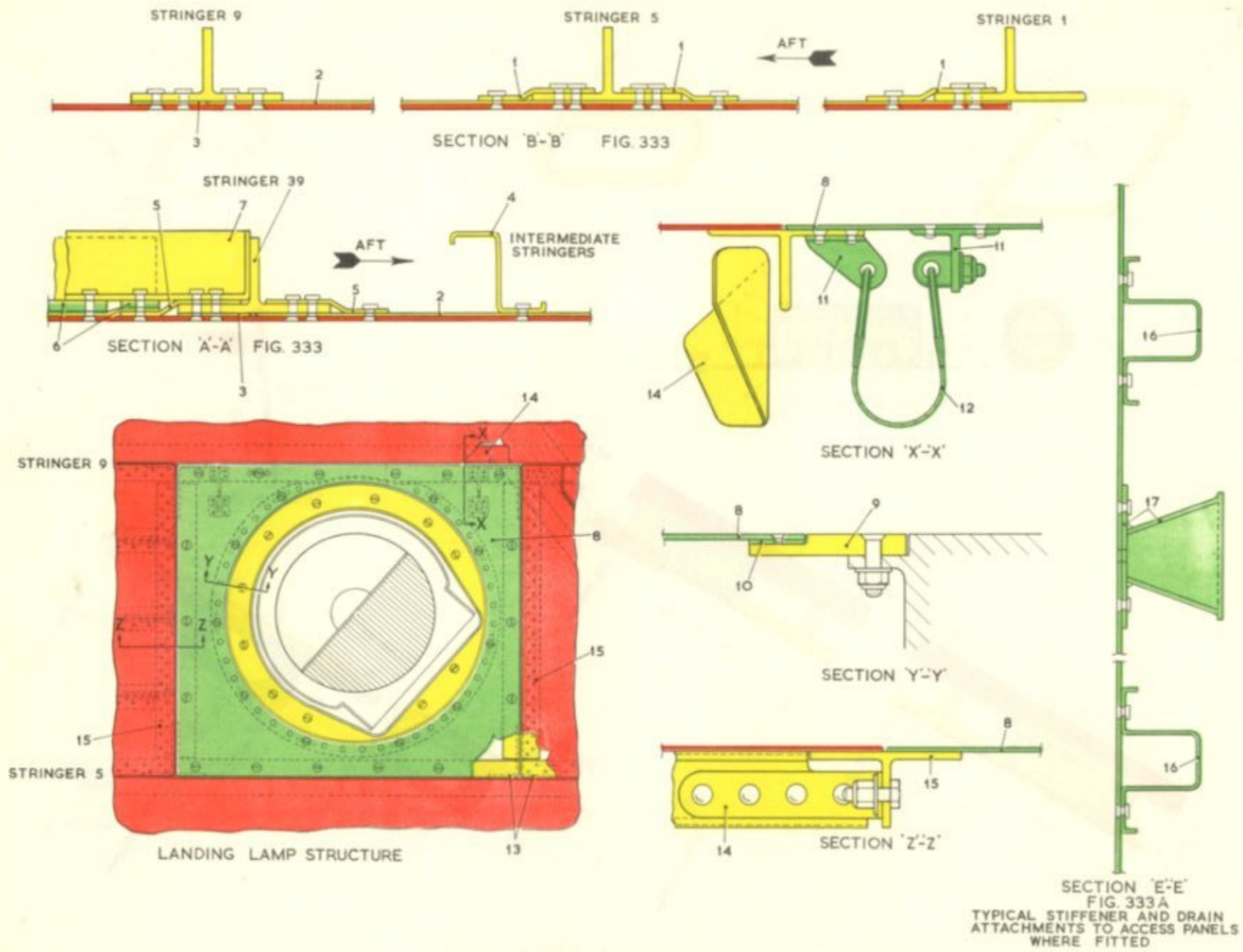


Fig. 333C. Bottom skins - Access structure
RESTRICTED

SECTION 'E'-'E'
FIG. 333A
TYPICAL STIFFENER AND DRAIN
ATTACHMENTS TO ACCESS PANELS
WHERE FITTED

KEY TO FIG.333C

Item	Spec.	Material S.W.G. or Section	Description	Negligible Damage				Repair Fig.
				Dents Depth	Dist. Apart	Holes Dia.	Pitch Ratio	
1	L. 73	14	Reinforcing plates	-	-	0.125	4:1	
2	D. T. D. 687	22	Reinforcing skin	0.1	2.5	0.25	4:1	
3	L.72	22	Packing	x -	-	-	-	-
4	D. T. D. 687	583/SS. 1793	Stringer section	-	-	0.125	4:1	111
5	L. 73	16	Reinforcing plates	-	-	0.125	4:1	
6	L. 72	-	Packing block	x -	-	-	-	-
7	L. 72	16	Attachment angle	x -	-	-	-	-
8	L. 72	16	Landing lamp panel	x 0.1	2.5	-	-	-
9	L. 72	3	Mounting ring	0.02	-	-	-	-
10	L. 72	16	Packing ring	x -	-	-	-	-
11	L. 65	58/SS. 3075	Bracket	x -	-	0.125	-	-
12	W. 2	3 Cwt.	Cable	x -	-	-	-	-
13	L. 72	14	Corner brackets	x -	-	-	-	-
14	L. 72	20	Stringer brackets	x -	-	-	-	-
15	D. T. D. 683	301/SS. 3075	Stringer intercostal	-	-	0.125	4:1	110
16	L. 72	85/SS. 1793	Panel stiffener	-	-	0.125	4:1	
17	L. 59	18	Drain body and base plate	x 0.05	-	-	-	-

x More expedient to renew than repair
All dimensions are quoted in inches

RESTRICTED

KEY TO FIG.334

Item	Material		Description	Negligible Damage				Repair Fig.
	Spec.	S.W.G. or Section		Dents	Holes			
			Depth	Dist. Apart	Dia.	Pitch Ratio		
1	D. T. D. 118	22	Trailing edge member	0.05	6.0	-	-	
2	D. T. D. 118	16	Packing strip	0.05	6.0	-	-	
3	D. T. D. 118	24	Tail rib	0.05	6.0	0.25	8:1	108, 115, 120
4	L. 72	20	Angle	0.05	8.0	-	-	
5	L. 72	20	Angle	0.05	8.0	-	-	
6	L. 72	22	Attachment angle	x 0.05	6.0	0.125	12:1	
7	L. 72	810/SS. 1793	Angle	0.025	8.0	-	-	
8	L. 72	808/SS. 1793	Angle	0.025	8.0	-	-	
9	L. 72	809/SS. 1793	Angle	0.025	8.0	-	-	
10	D. T. D. 626	20	Web	0.025	8.0	-	-	103
11	L. 72	807/SS. 1793	Angle	0.025	8.0	-	-	
12	L. 72	22	Angle	0.05	8.0	0.125	12:1	
13	D. T. D. 687	12	Packing	x 0.05	6.0	-	-	
14	D. T. D. 687	16	Packing	x 0.05	6.0	-	-	
15	L. 72	14	Plate	x 0.05	8.0	-	-	
16	D. T. D. 259	-	Packing	x 0.05	6.0	-	-	
17	D. T. D. 259	-	Packing	x 0.05	6.0	-	-	
18	L. 72	16	Plate	x 0.05	6.0	-	-	
19	L. 72	16	Channel	0.025	10.0	-	-	
20	S. 96	-	Bearing housing	*	-	-	-	
21	L. 72	20	Angle	x 0.05	8.0	-	-	
22	L. 65	-	Packing	x 0.05	6.0	-	-	
23	L. 72	183/SS. 1793	Angle	0.05	6.0	0.125	12:1	113
24	L. 72	789/SS. 1793	Angle	0.05	8.0	0.125	12:1	113
25	D. T. D. 118	22	Web	0.05	8.0	0.125	12:1	
26	L. 72	18	Plate	x 0.05	8.0	-	-	
27	L. 65	-	Packing	x 0.05	8.0	-	-	
28	L. 72	18	Angle	0.05	8.0	-	-	
29	S. 96	-	Bracket	*	-	-	-	
30	L. 72	18	Angle	x 0.05	8.0	-	-	
31	L. 65	306/SS. 3075	Angle	0.025	10.0	-	-	
32	L. 72	798/SS. 1793	Angle	0.025	10.0	-	-	113
33	L. 72	799/SS. 1793	Angle	0.025	8.0	-	-	113
34	L. 65	-	Bracket	*	-	-	-	
35	S. 96	-	Bracket	*	-	-	-	
36	L. 72	20	Riblet	0.05	4.0	0.25	6:1	
37	L. 72	20	Angle	0.05	6.0	-	-	
38	L. 72	18	Skin	0.05	8.0	-	-	103
39	D. T. D. 118	792/SS. 1793	Angle	0.025	8.0	0.125	12:1	113
40	D. T. D. 118	801/SS. 1793	Angle	0.025	8.0	0.125	12:1	113
41	D. T. D. 118	24	Web	0.05	6.0	0.25	6:1	
42	L. 72	24	Angle	x 0.05	6.0	0.125	10:1	
43	L. 72	20	Angle	x 0.05	6.0	0.125	10:1	
44	D. T. D. 118	803/SS. 1793	Angle	0.025	8.0	-	-	113
45	D. T. D. 118	804/SS. 1793	Angle	0.025	8.0	-	-	113

* No repairs permitted
x More expedient to renew than repair
All dimensions are quoted in inches

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KEY TO FIG.334 (contd.)

Item	Material		Description	Negligible Damage				Repair Fig.
	Spec.	S.W.G. or Section		Dents	Holes			
			Depth	Dist. Apart	Dia.	Pitch Ratio		
46	L. 72	20	Angle	0.05	8.0	0.125	12:1	
47	L. 72	24	Top hat stiffener	0.05	8.0	0.125	12:1	113
48	D. T. D. 687	14	Plate	x 0.05	8.0	-	-	
49	D. T. D. 118	24	Diaphragm	0.05	6.0	0.25	8:1	105
50	D. T. D. 118	24	Angle	0.05	6.0	0.25	8:1	113
51	D. T. D. 118	20	Web	0.025	6.0	-	-	103
52	L. 72	797/SS. 1793	Angle	0.025	6.0	0.125	12:1	113
53	L. 72	24	Packing	x 0.05	6.0	0.25	8:1	
54	L. 72	20	Bracket	0.05	6.0	-	-	
55	L. 72	850/SS. 1793	Angle	x 0.05	6.0	-	-	
56	L. 72	849/SS. 1793	Angle	x 0.05	6.0	-	-	
57	L. 72	20	Angle	x 0.025	8.0	0.125	12:1	
58	L. 72	18	Plate	x 0.05	6.0	0.125	12:1	
59	L. 72	794/SS. 1793	Stiffener	0.05	6.0	0.125	12:1	
60	L. 72	22	Angle	x 0.05	6.0	0.125	12:1	113
61	L. 72	20	Angle	0.05	6.0	0.125	12:1	
62	L. 72	22	Rib	0.05	6.0	0.25	10:1	103
63	L. 72	22	Angle	x 0.05	6.0	0.25	10:1	
64	L. 72	20	Angle	0.025	8.0	0.125	12:1	113
65	L. 72	20	Web	0.05	6.0	0.25	10:1	103
66	T. 45	17	Tube	x 0.05	4.0	-	-	
67	L. 72	819/SS. 1793	Angle	0.025	8.0	0.125	12:1	113
68	L. 72	24	Web	0.05	6.0	0.125	8:1	
69	L. 72	22	Angle	x 0.05	6.0	0.125	10:1	
70	D. T. D. 118	22	Web	0.05	6.0	0.25	10:1	
71	L. 72	20	Angle	0.05	6.0	0.25	12:1	
72	L. 72	20	Angle	x 0.05	6.0	0.125	12:1	
73	L. 72	22	Bracket	x 0.05	6.0	0.125	10:1	
74	L. 72	24	Corrugation	0.05	4.0	0.25	10:1	
75	L. 72	883/SS. 1793	Channel	0.025	8.0	0.125	12:1	
76	L. 72	20	Channel	x 0.05	6.0	0.25	10:1	
77	L. 72	20	Channel	0.05	8.0	-	-	108
78	S. 510	-	End piece	x 0.025	8.0	-	-	
79	S. 510	-	Channel	0.025	8.0	-	-	
80	Lead	-	Balance weight	0.1	4.0	-	-	
81	S. 510	-	Additional balance weight	0.1	4.0	-	-	
82	L. 65	259/SS. 3075	Angle	0.025	6.0	-	-	113
83	L. 72	10	Bearing plates	x 0.025	6.0	-	-	
84	L. 72	802/SS. 1793	Angle	0.05	6.0	0.125	8:1	113
85	L. 72	13b/SS. 1793	Angle	0.05	6.0	0.125	8:1	113
86	L. 72	20	Top hat stiffener	0.05	6.0	0.125	10:1	
87	D. T. D. 363	413/SS. 3075	Boom	0.025	12.0	-	-	
88	L. 72	14	Web	0.025	12.0	0.125	16:1	103
89	L. 65	429/SS. 3075	Angle	0.025	6.0	-	-	
90	L. 72	22	Bracket	0.025	6.0	-	-	

x More expedient to renew than repair
All dimensions are quoted in inches

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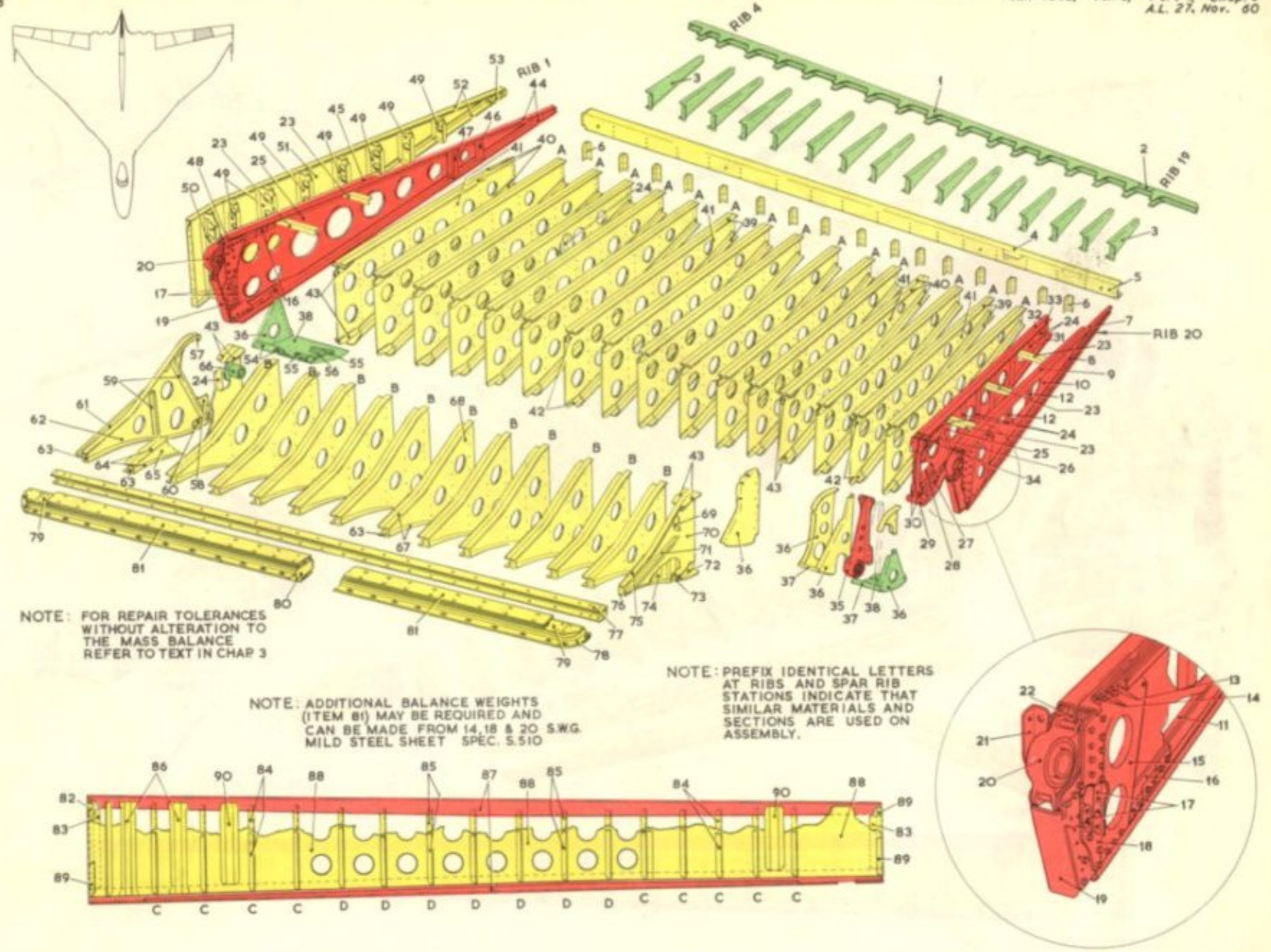


Fig. 334. Inboard aileron
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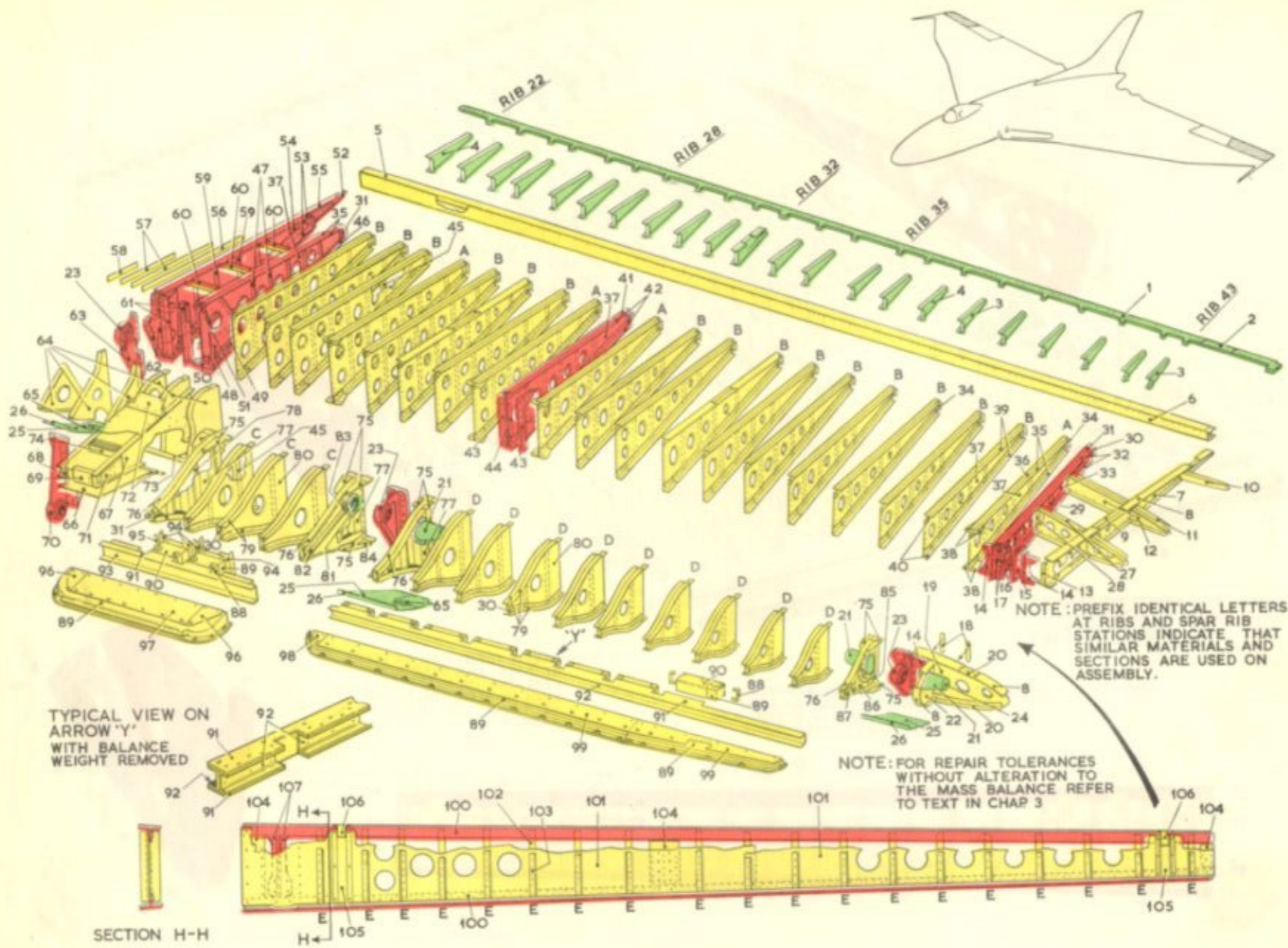
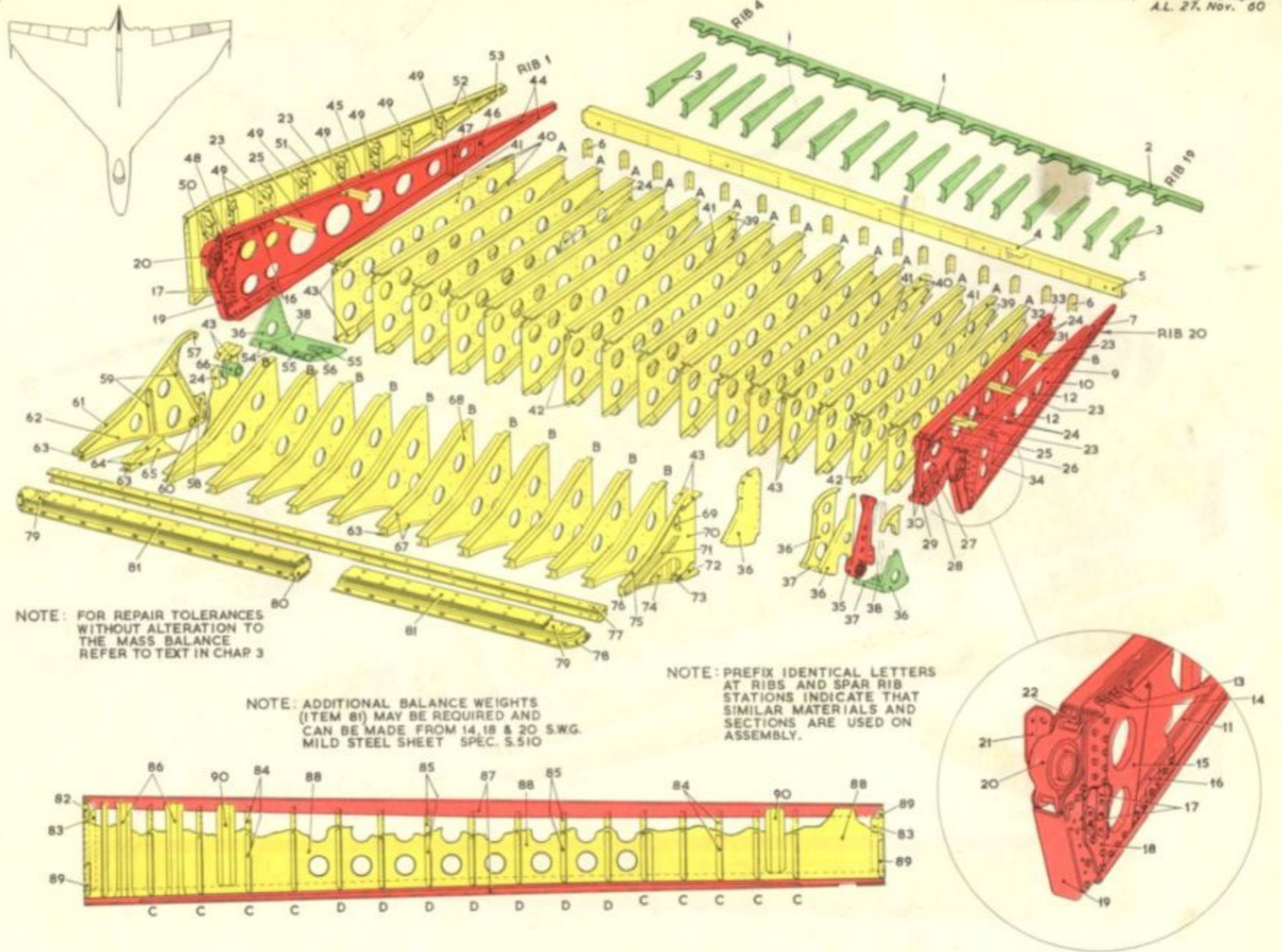


Fig. 334A. Outboard aileron
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NOTE: FOR REPAIR TOLERANCES WITHOUT ALTERATION TO THE MASS BALANCE REFER TO TEXT IN CHAP 3

NOTE: ADDITIONAL BALANCE WEIGHTS (ITEM 81) MAY BE REQUIRED AND CAN BE MADE FROM 14, 18 & 20 S.W.G. MILD STEEL SHEET SPEC. S.510

NOTE: PREFIX IDENTICAL LETTERS AT RIBS AND SPAR RIB STATIONS INDICATE THAT SIMILAR MATERIALS AND SECTIONS ARE USED ON ASSEMBLY.

Fig. 334. Inboard aileron
RESTRICTED

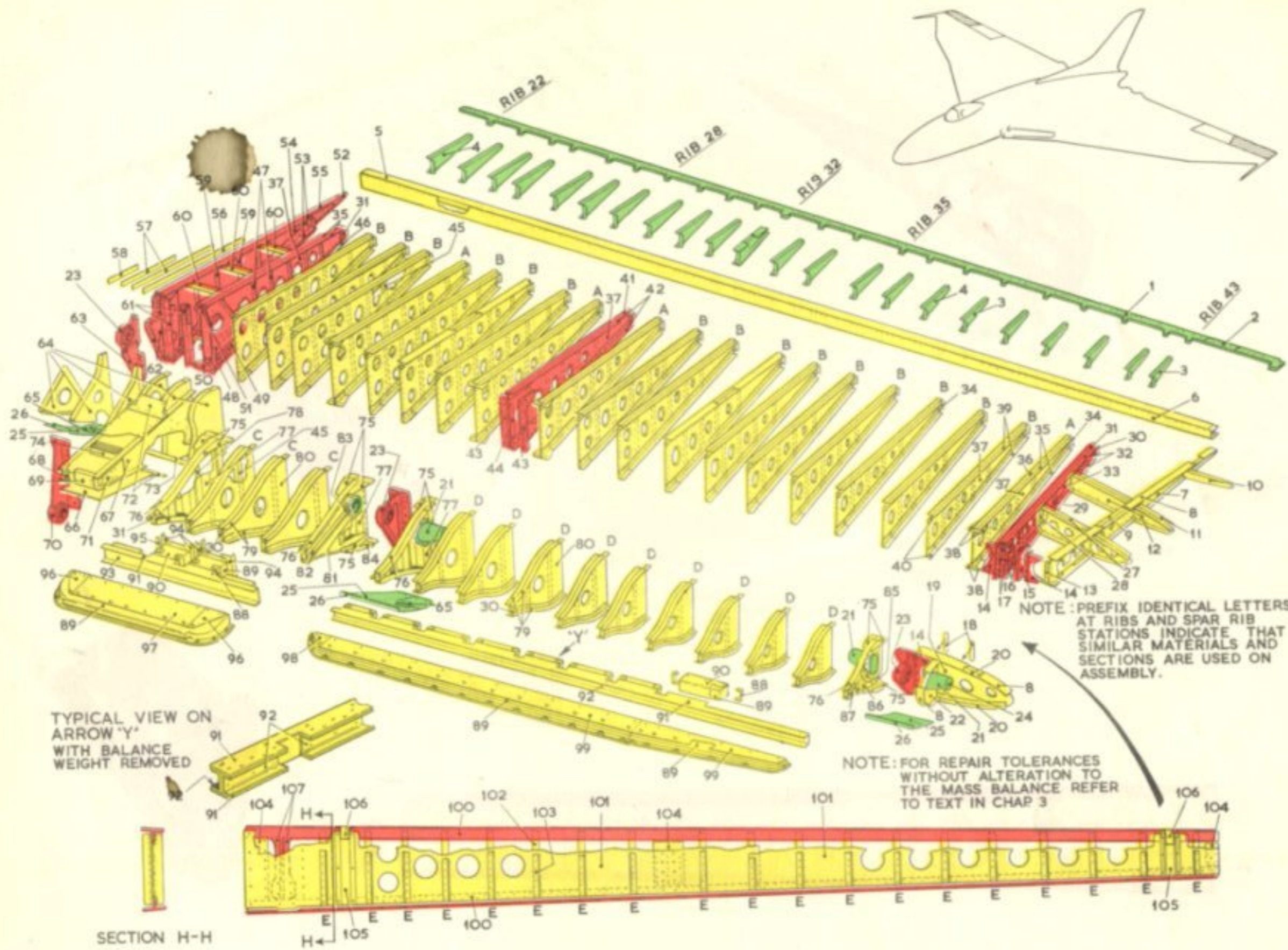


Fig. 334A. Outboard aileron
RESTRICTED

KEY TO FIG.334A

Item	Material		Description	Negligible Damage				Repair Fig.
	Spec.	S.W.G. or Section		Dents	Holes			
			Depth	Dist. Apart	Dia.	Pitch Ratio		
1	D.T.D.118	22	Trailing edge member	0.05	6.0	-	-	
2	D.T.D.118	16	Packing	x 0.05	6.0	-	-	
3	L.72	24	Tail rib	0.05	6.0	0.25	8:1	108,115,120
4	D.T.D.118	24	Tail rib	0.05	6.0	0.25	8:1	108,115,120
5	L.72	20	Angle	0.05	8.0	-	-	
6	L.72	20	Angle	0.05	6.0	-	-	
7	L.72	22	Web	0.05	3.0	0.25	8:1	103
8	D.T.D.626	20	Joint strap	x 0.05	3.0	0.25	8:1	
9	L.72	24	Angle	0.05	3.0	0.125	8:1	113
10	L.72	24	Stiffener	0.05	3.0	0.25	8:1	
11	L.72	819/SS.1793	Angle	0.05	3.0	0.125	6:1	113
12	L.72	24	Channel member	0.05	3.0	0.25	6:1	103,108
13	L.72	22	Angle	0.05	3.0	0.125	8:1	113
14	L.65	Forging	Angle	*	-	-	-	
15	L.72	16	Plate	x 0.025	6.0	-	-	
16	D.T.D.259	-	Packing	x 0.025	6.0	-	-	
17	D.T.D.259	-	Packing	x 0.025	6.0	-	-	
18	L.72	16	Packing	x 0.025	6.0	-	-	
19	L.72	20	Web	0.05	4.0	0.25	6:1	103
20	L.72	16	Angle	0.05	6.0	0.125	8:1	113
21	S.510	22	Pocket	x 0.1	4.0	-	-	
22	L.72	22	Rib	0.05	6.0	0.25	10:1	103
23	S.96	Forging	Housing	*	-	-	-	
24	S.510	22	Back plate	x 0.1	4.0	-	-	
25	L.72	18	Skin	0.05	8.0	-	-	103
26	L.72	20	Angle	0.05	6.0	-	-	
27	D.T.D.118	24	Angle	0.05	3.0	0.125	6:1	113
28	L.72	22	Angle	0.05	6.0	0.125	6:1	
29	L.72	22	Angle	0.025	8.0	0.125	12:1	
30	L.72	20	Angle	x 0.025	8.0	0.125	12:1	
31	L.72	802/SS.1793	Inboard angle	0.025	10.0	-	-	113
32	L.72	803/SS.1793	Outboard angle	0.025	10.0	-	-	113
33	D.T.D.118	22	Web	0.05	8.0	0.125	10:1	103
34	L.72	22	Angle	x 0.025	6.0	0.125	10:1	
35	L.72	799/SS.1793	Outboard angle	0.025	8.0	0.125	8:1	113
36	L.72	798/SS.1793	Inboard angle	0.025	8.0	0.125	8:1	113
37	D.T.D.118	24	Web	0.05	6.0	0.25	6:1	103
38	L.72	18	Angle	0.05	4.0	0.125	8:1	
39	D.T.D.118	792/SS.1793	Angle	0.025	8.0	0.125	8:1	113
40	L.72	24	Angle	x 0.05	4.0	0.125	8:1	
41	L.72	807/SS.1793	Angle	0.025	10.0	-	-	113
42	L.72	808/SS.1793	Angle	0.025	10.0	-	-	113
43	L.65	Forging	Bracket	*	-	-	-	
44	L.72	-	Packing	x 0.025	6.0	-	-	

* No repairs permitted
x More expedient to renew than repair
All dimensions are quoted in inches

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KEY TO FIG.334A (contd.)

Item	Material		Description	Negligible Damage				Repair Fig.
	Spec.	S.W.G. or Section		Dents	Holes	Pitch Ratio		
			Depth	Dist. Apart	Dia.			
45	L.72	789/SS.1793	Angle	0.05	6.0	0.125	8:1	
46	L.65	306/SS.3075	Bottom boom	-	-	-	-	
47	L.72	24	Angle	0.025	10.0	0.125	8:1	113
48	L.72	18	Plate	0.025	8.0	0.125	8:1	
49	D.T.D.687	12	Diffusion strip	0.025	10.0	-	-	
50	S.96	-	Bracket	*	-	-	-	
51	L.65	-	Bracket	*	-	-	-	
52	B.S.S.668	-	Block	x	-	-	-	
53	L.72	805/SS.1793	Angle	-	-	-	-	
54	D.T.D.626	20	Web	0.025	10.0	-	-	103
55	L.72	20	Angle	-	-	-	-	
56	D.T.D.687	14	Diffusion strip	x 0.025	8.0	-	-	
57	D.T.D.687	12	Diffusion strip	x 0.025	8.0	-	-	
58	D.T.D.687	10	Diffusion strip	x 0.025	8.0	-	-	
59	L.72	22	Angle	0.025	10.0	0.125	8:1	113
60	L.72	183/SS.1793	Angle	0.05	10.0	0.125	8:1	113
61	D.T.D.363	409/SS.3075	Angle	0.025	10.0	-	-	
62	L.72	18	Plate	0.025	10.0	-	-	
63	L.72	16	Channel	0.025	10.0	-	-	
64	L.72	20	Riblet	0.05	4.0	0.25	6:1	103
65	AS.1878/25	-	Hinge	0.05	6.0	-	-	
66	L.72	20	Skin	0.025	12.0	-	-	103
67	L.72	20	Channel	0.05	8.0	0.125	8:1	108
68	L.72	20	Angle	x 0.05	6.0	0.125	8:1	
69	L.72	20	Channel	0.05	6.0	0.25	8:1	
70	S.96	-	Bracket	x	-	-	-	
71	Lead	-	Balance weight	0.1	3.0	-	-	
72	L.72	20	Angle	0.05	6.0	0.125	6:1	
73	L.72	22	Angle	0.05	6.0	0.125	6:1	113
74	S.510	12	Additional balance weight	0.1	3.0	-	-	
75	L.72	18	Angle	x 0.05	4.0	0.125	8:1	
76	L.72	18	Channel	0.05	4.0	0.25	8:1	
77	L.72	24	Corrugation	0.05	3.0	0.125	12:1	
78	L.72	18	Packing	x 0.05	3.0	0.25	8:1	
79	L.72	819/SS.1793	Angle	0.025	8.0	0.125	12:1	113
80	L.72	24	Web	0.05	6.0	0.125	8:1	103
81	T.45	22	Tube	0.1	4.0	-	-	
82	L.72	20	Angle	0.05	6.0	0.125	12:1	113
83	L.72	22	Angle	x 0.05	6.0	0.125	10:1	
84	L.72	20	Plate	x 0.05	4.0	0.25	8:1	
85	L.72	2/SS.1793	Stiffener	0.05	6.0	0.25	10:1	
86	L.72	22	Stiffener	0.05	6.0	0.25	10:1	
87	L.72	20	Angle	x 0.05	6.0	0.25	10:1	
88	S.511	-	Bracket	x 0.025	6.0	0.125	10:1	

* No repairs permitted
x More expedient to renew than repair
All dimensions are quoted in inches

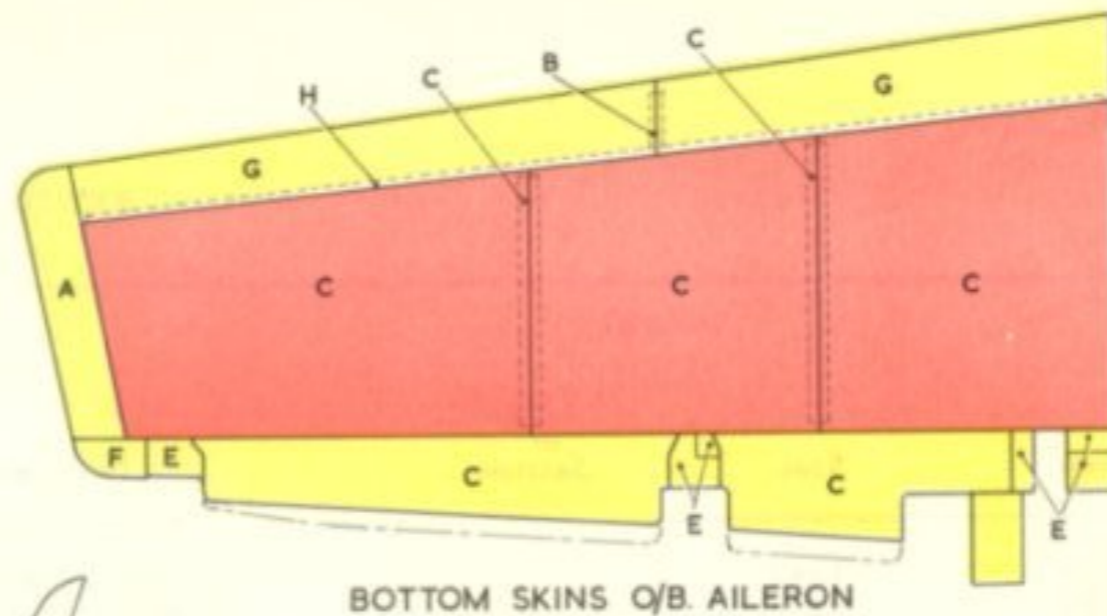
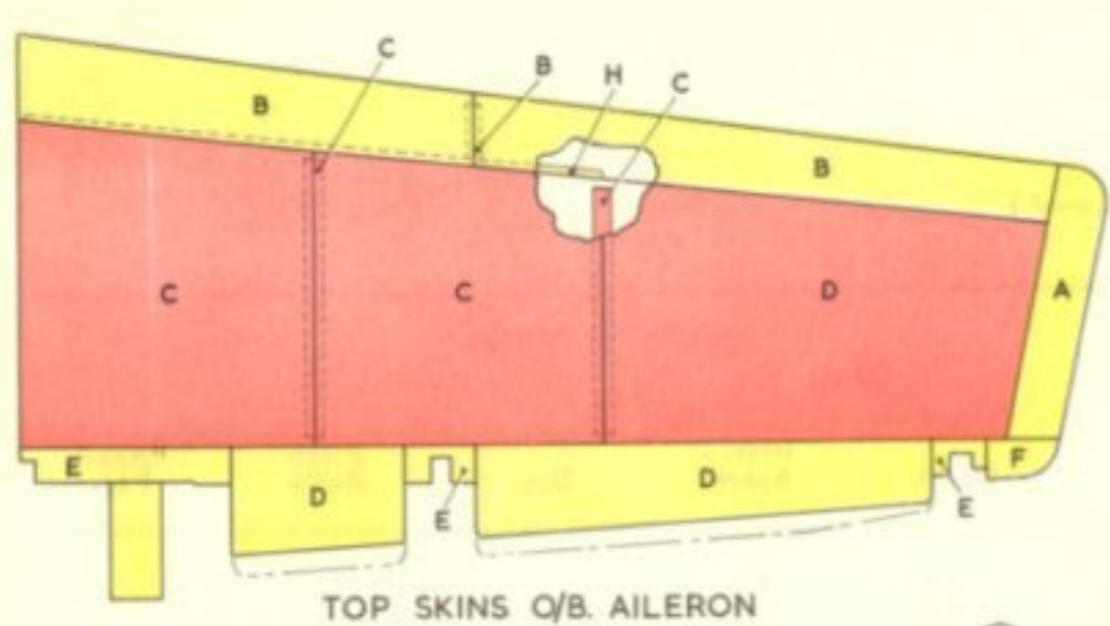
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KEY TO FIG.334A (contd.)

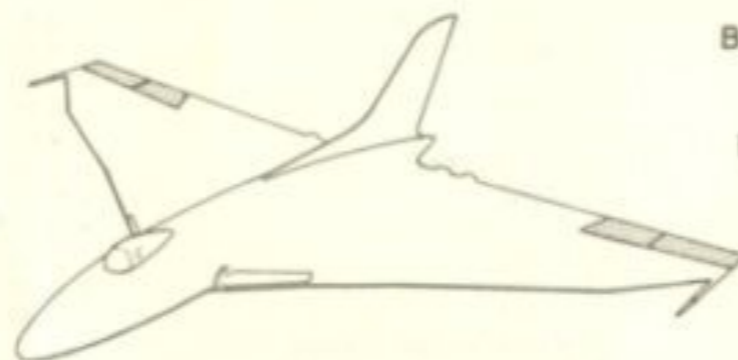
Item	Material		Description	Negligible Damage				Repair Fig.
	Spec.	S.W.G. or Section		Dents	Holes			
			Depth	Dist. Apart	Dia.	Pitch Ratio		
89	Lead	-	Balance weight	0.1	4.0	-	-	
90	S.511	-	Channel	0.025	6.0	0.125	10:1	
91	L.72	20	Strap	x 0.05	8.0	0.25	8:1	
92	L.72	20	Channel	0.05	8.0	-	-	108
93	L.72	18	Channel	0.05	8.0	-	-	108
94	L.72	18	Angle bracket	x 0.05	8.0	0.25	8:1	
95	L.72	24	Packing	x 0.05	4.0	0.25	8:1	
96	S.511	16	End piece	x 0.025	8.0	-	-	
97	S.510	16	Channel	0.025	8.0	-	-	
98	S.510	18	End piece	x 0.025	8.0	-	-	
99	S.510	18	Channel	0.025	8.0	-	-	
100	D. T. D. 363	414/SS.3075	Top and bottom booms	-	-	-	-	
101	L.72	16	Web	0.025	6.0	0.125	10:1	103
102	L.72	663/SS.1793	Angle	0.05	8.0	0.125	8:1	113
103	L.72	133/SS.1793	Angle	0.05	8.0	0.125	8:1	113
104	L.72	10	Bearing plate	0.05	3.0	0.125	8:1	
105	L.72	22	Slings bracket	0.05	6.0	0.125	8:1	
106	L.65	-	Block	x 0.1	4.0	-	-	
107	L.72	18	Angle	0.025	10.0	-	-	

x More expedient to renew than repair
All dimensions are quoted in inches

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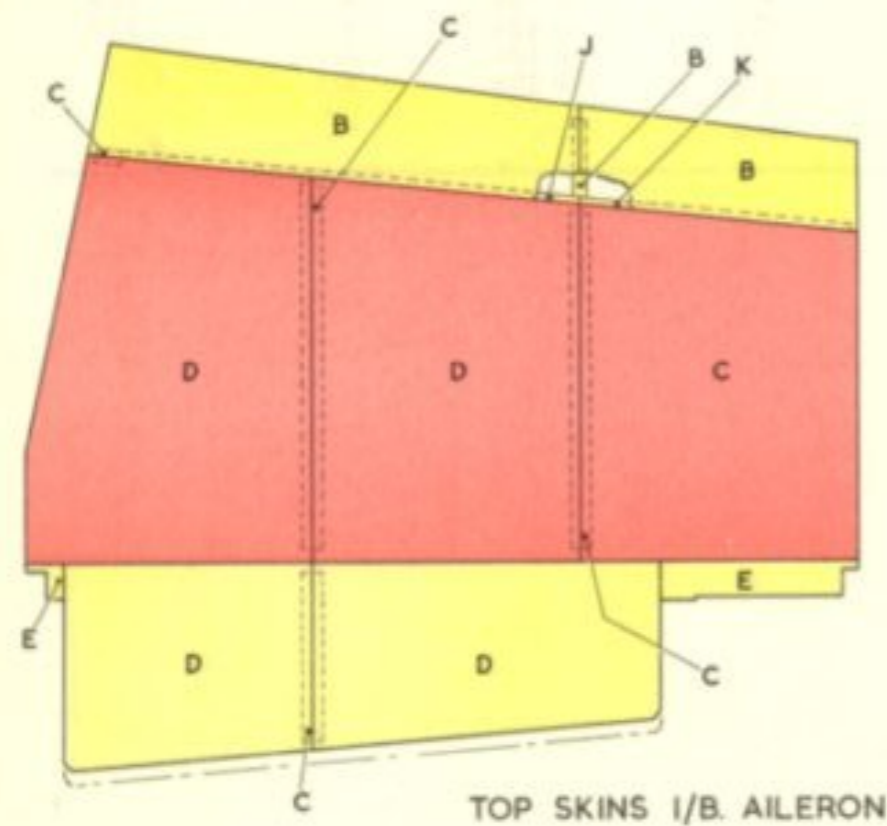


FOR REPAIRS SEE FIG.103 & FIG.104.
DAMAGE IN AREAS OF CONCENTRATED
RIVETING MUST BE REPAIRED WITH
JOINTS ARRANGED OUTSIDE THE AREA.



NOTE: ITEMS H, J & K, ARE PACKING PIECES
FITTED BETWEEN SKIN AND CHANNEL.
REPAIRS ARE NOT PERMITTED TO
BUTT STRAPS.

FOR REPAIR TOLERANCES WITHOUT
ALTERATIONS TO MASS BALANCE
REFER TO TEXT IN CHAP 3



SKIN REFERENCE		
LETTER	S.W.G.	MAT. SPEC.
A	20	D.T.D. 118A
B	22	D.T.D. 118A
C	18	D.T.D. 626
D	20	D.T.D. 626
E	18	L 72
F	20	L 59
G	22	L 72
H	26	L 72
J	30	L 72
K	28	D.T.D. 118A

NEGLECTIBLE DAMAGE		
COLOUR	DENTS	DIST. APART
RED	0.025	6.0
YELLOW	0.05	6.0
GREEN		

ALL DIMENSIONS IN INCHES

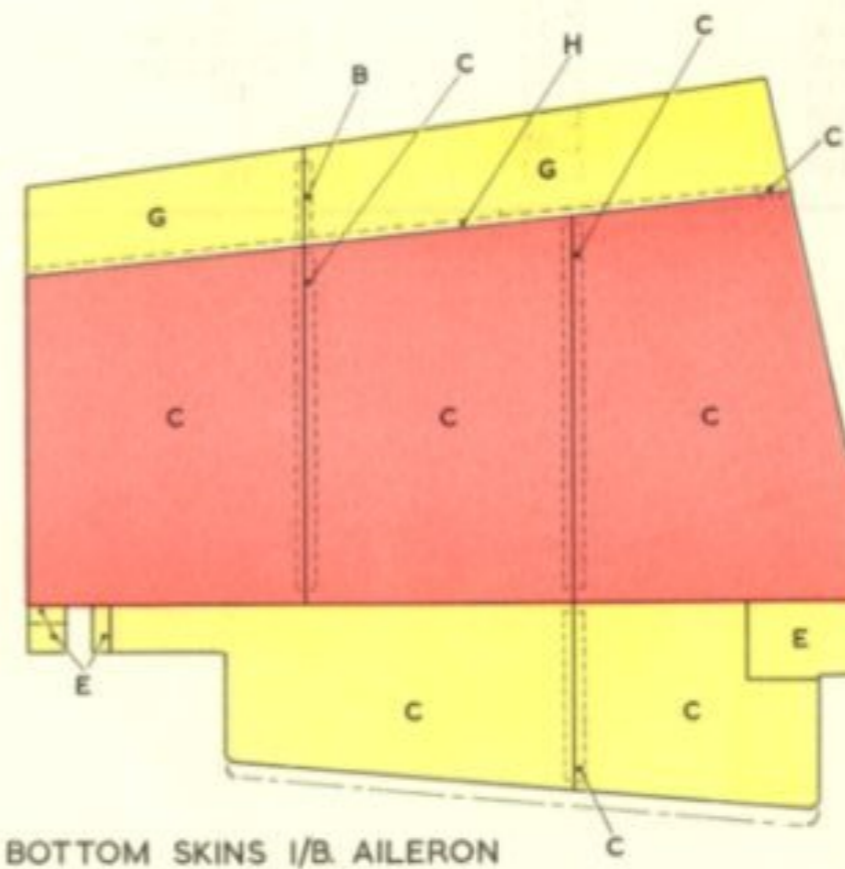


Fig. 334 B. Aileron skins
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Key to Fig. 335. Inboard elevator

Item	Spec.	Material S.W.G. or Section	Description	Negligible Damage			Holes Pitch Ratio	Repair Fig. No.
				Dents Depth	Dist. Apart	Dia.		
1	DTD.118A	22	Stiffening plates	0.05	4.0	—	—	—
2	DTD.259	10	Stiffening strip	0.025	4.0	—	—	103
3	DTD.118A	22	Tail ribs	0.05	4.0	0.25	6:1	—
4	L.72	853/SS/1793	Stiffeners	† 0.05	4.0	0.25	6:1	—
5	DTD.118A	18	Auxiliary spar	0.05	6.0	0.25	8:1	—
6	DTD.118A	18	Butt straps	† 0.05	6.0	0.25	8:1	103
7	L.73	22	Rib web	0.05	8.0	—	—	—
8	DTD.363	416/SS/3075	*T Section booms	0.025	8.0	—	—	—
9	L.72	66/SS/1793	Bottom booms (Rib 18)	0.025	6.0	—	—	—
9a	L.72	66/SS/1793	Stiffeners	0.05	6.0	0.25	8:1	113
10	L.72	763/SS/1793	Stiffeners	0.05	6.0	0.25	8:1	113
11	L.72	762/SS/1793	Stiffeners	0.05	6.0	0.25	8:1	113
12	L.72	761/SS/1793	Stiffener	0.05	6.0	0.25	8:1	—
13	DTD.687	10	Housing plate	* 0.025	8.0	0.125	12:1	—
14	L.72	16	Channel	0.025	8.0	—	—	—
15	S.96	H.T.S.	Bearing housing	—	—	—	—	113
16	L.72	12b/SS/1793	Rib booms	0.025	8.0	—	—	—
17	L.72	785/SS/1793	Rib stiffeners	† 0.05	6.0	0.25	8:1	113
18	L.72	12c/SS/1793	Rib stiffener	0.05	6.0	0.25	8:1	—
19	L.72	207/SS/1793	Rib angle	0.05	8.0	0.25	8:1	—
20	DTD.626	20	Doubling plate	0.05	6.0	0.25	8:1	—
21	L.72	18	Doubling plate	† 0.05	6.0	0.25	6:1	—
22	DTD.118A	20	Angle	0.05	6.0	0.25	6:1	—
23	L.65	Al. alloy	Attachment bracket	—	—	—	—	103
24	L.72	20	Former	0.05	4.0	0.25	6:1	—
25	L.72	788/SS/1793	Angle	† 0.05	6.0	0.25	6:1	—
26	L.72	18	Angle	† 0.05	6.0	0.25	6:1	—
27	L.72	112/SS/1793	Angle	† 0.05	6.0	0.25	6:1	—
28	L.72	852/SS/1793	Angle	† 0.05	6.0	0.25	6:1	103
29	L.72	18	Skin panel	0.05	8.0	—	—	—
30	L.72	851/SS/1793	Channel	† 0.05	6.0	0.25	6:1	—
31	DTD.118A	24	Corrugated rib webs	0.10	6.0	0.25	6:1	—
32	DTD.118A	865/SS/1793	Top and bottom booms	0.05	6.0	0.25	8:1	—
33	L.72	20	Channel	† 0.05	6.0	0.25	8:1	—
34	DTD.118A	24	Reinforcing strip	0.05	6.0	0.25	8:1	—
35	L.72	884/SS/1793	Top and bottom booms (Rib 14 only)	0.05	6.0	0.25	8:1	—
36	L.72	18	Channels (Rib 14 only)	† 0.05	6.0	0.25	8:1	—
37	L.72	18	Stiffening plate (Rib 14 only)	† 0.05	6.0	0.25	8:1	—
38	L.72	18	Gusset (Rib 14 only)	† 0.05	6.0	0.25	8:1	—
39	L.72	882/SS/1793	Top and bottom rib booms	0.025	8.0	—	—	—
40	L.72	20	Doubling channel	† 0.025	8.0	0.25	10:1	—
41	H.T.S.	S.11	Bearing housing	—	—	—	—	—
42	DTD.259A	Mag. alloy	Packing block	* 0.05	6.0	0.25	8:1	103
43	DTD.626	20	End web	0.025	8.0	—	—	113
44	L.72	761/SS/1793	Top and bottom booms	0.025	8.0	—	—	103
45	L.72	20	Diaphragms	0.05	6.0	0.25	6:1	103
46	L.72	22	Diaphragms	0.05	6.0	0.25	6:1	—
47	DTD.118A	22	Angles	† 0.05	6.0	0.25	8:1	—
48	DTD.259	Mag alloy	Packing block	† 0.05	6.0	0.25	8:1	103
49	L.72	18	Former	0.05	6.0	0.25	6:1	—
50	L.72	20	Angle	0.05	6.0	0.25	6:1	—
51	L.72	850/SS/1793	Angle	† 0.05	6.0	0.25	6:1	—
52	L.72	849/SS/1793	Formers	† 0.05	6.0	0.25	8:1	—

RESTRICTED

Key to Fig. 335. Inboard elevator (contd.)

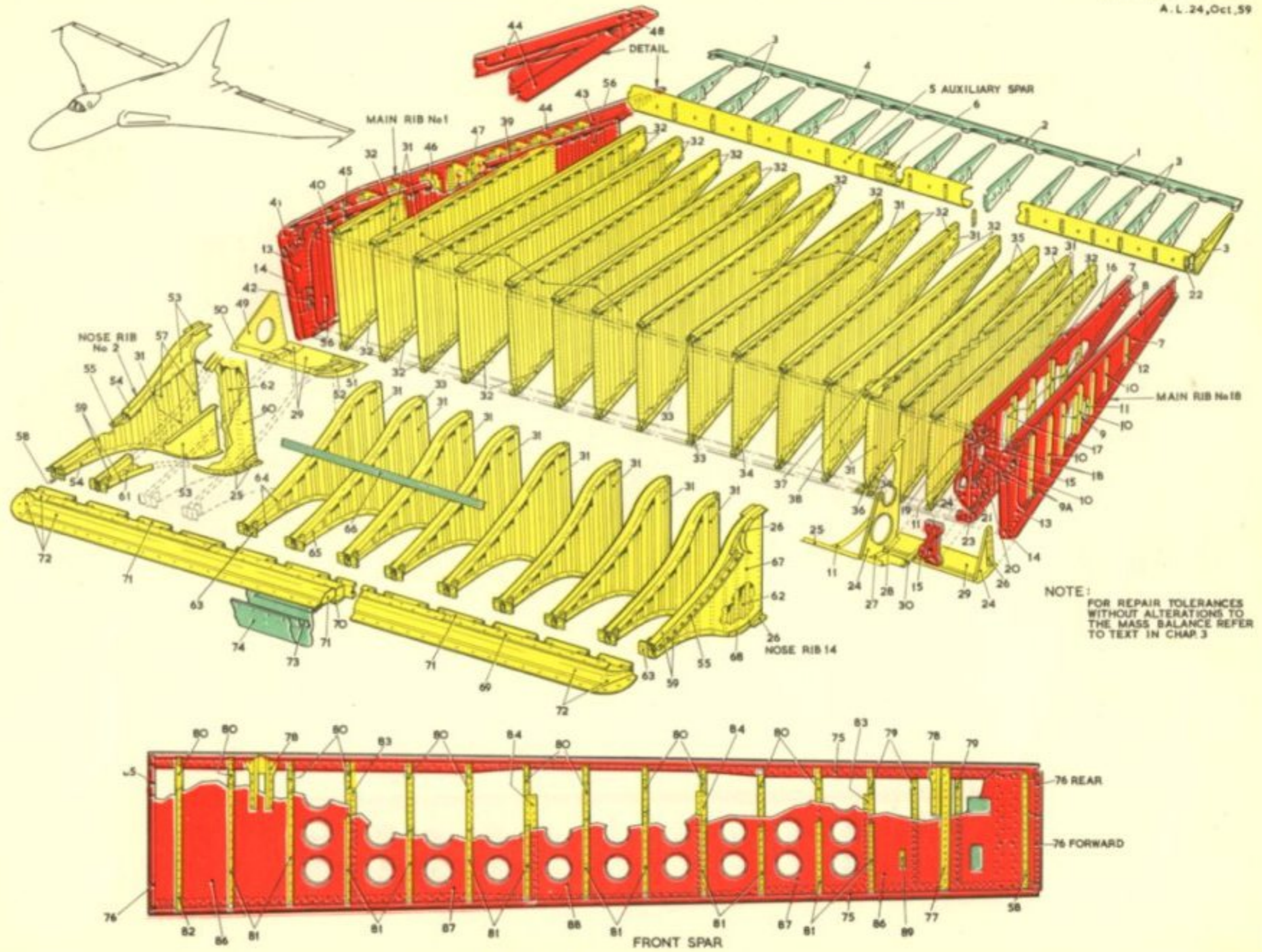
Item	Spec.	Material S.W.G. or Section	Description	Dents Depth	Negligible Damage		Holes Pitch Ratio	Repair Fig. No.
					Dist. Apart	Dia.		
53	L.72	20	Gusset	0.05	6.0	0.25	6:1	—
54	L.72	877/SS/1793	Top and bottom channels	0.05	8.0	0.25	8:1	—
55	L.72	664/SS/1793	Sealing angle	0.05	8.0	—	—	—
56	DTD.118A	24	Corrugated web	0.05	6.0	0.25	10:1	—
57	L.72	20	Channel	0.05	6.0	0.25	6:1	—
58	L.72	12a/SS/1793	Angle (nose rib No. 2 only)	† 0.05	6.0	0.25	6:1	—
59	L.72	878/SS/1793	Top and bottom channels	0.05	8.0	0.25	8:1	—
60	DTD.118A	22	Rib web plate	0.05	8.0	0.25	8:1	—
61	DTD.118A	22	Forward corrugation (Nose rib 3 only)	0.05	6.0	0.25	8:1	—
62	DTD.118A	20	Corrugated web	0.05	6.0	0.25	8:1	—
63	L.72	20	Attachment bracket	† 0.05	6.0	0.25	6:1	—
64	L.72	864/SS/1793	Top and bottom channels (Nose ribs 4 to 13)	0.05	8.0	0.25	8:1	—
65	DTD.118A	24	Rib web plate	0.10	6.0	0.25	6:1	—
66	L.72	767/SS/1793	Drainage channel	0.05	6.0	—	—	—
67	DTD.118A	22	Rib side web	0.05	8.0	—	—	—
68	L.72	18	Stiffening plate	† 0.05	6.0	0.25	6:1	—
69	S.3	Mild steel	Balance strips	† 0.10	6.0	—	—	—
70	L.72	18	Channel	0.05	6.0	0.25	8:1	—
71	—	Lead	Balance weight	0.15	5.0	—	—	—
72	S.3	Mild steel	Balance weight shrouds	0.10	6.0	—	—	—
73	L.72	702/SS/1793	Retaining strip	0.10	6.0	0.25	6:1	—
74	Indiana/ Cashmere Fabric	1/32" thk.	Shroud seals	—	—	—	—	406
75	L.65	Al. alloy	Top and bottom booms	—	—	—	—	—
76	L.65	249/SS/3075	Attachment angles	—	—	—	—	—
77	L.72	425/SS/1793	Attachment angle	0.05	6.0	0.25	8:1	as 113, 114
78	DTD.118A	18	Bracket	† 0.025	8.0	0.25	10:1	—
79	L.72	20	Angle	0.05	6.0	0.25	8:1	—
80	L.72	314/SS/1793	Angle	0.05	6.0	0.25	8:1	113
81	L.72	13b/SS/1793	Angle	0.05	6.0	0.25	8:1	113
82	L.72	20	Channel	0.05	6.0	0.25	8:1	—
83	L.72	14	Strap plate	* 0.025	8.0	0.25	10:1	—
84	L.72	18	Strap plate	* 0.05	6.0	0.25	8:1	—
85	DTD.363	428/SS/3075	Rear angle	—	—	—	—	—
86	L.72	12	Spar web	0.025	8.0	—	—	—
87	L.72	14	Spar web	0.025	6.0	0.125	16:1	—
88	L.72	18	Spar web	0.025	6.0	0.125	12:1	—
89	L.65	277/SS/3075	Bracket	† 0.025	6.0	—	—	—

* No repairs permitted

† More expedient to renew

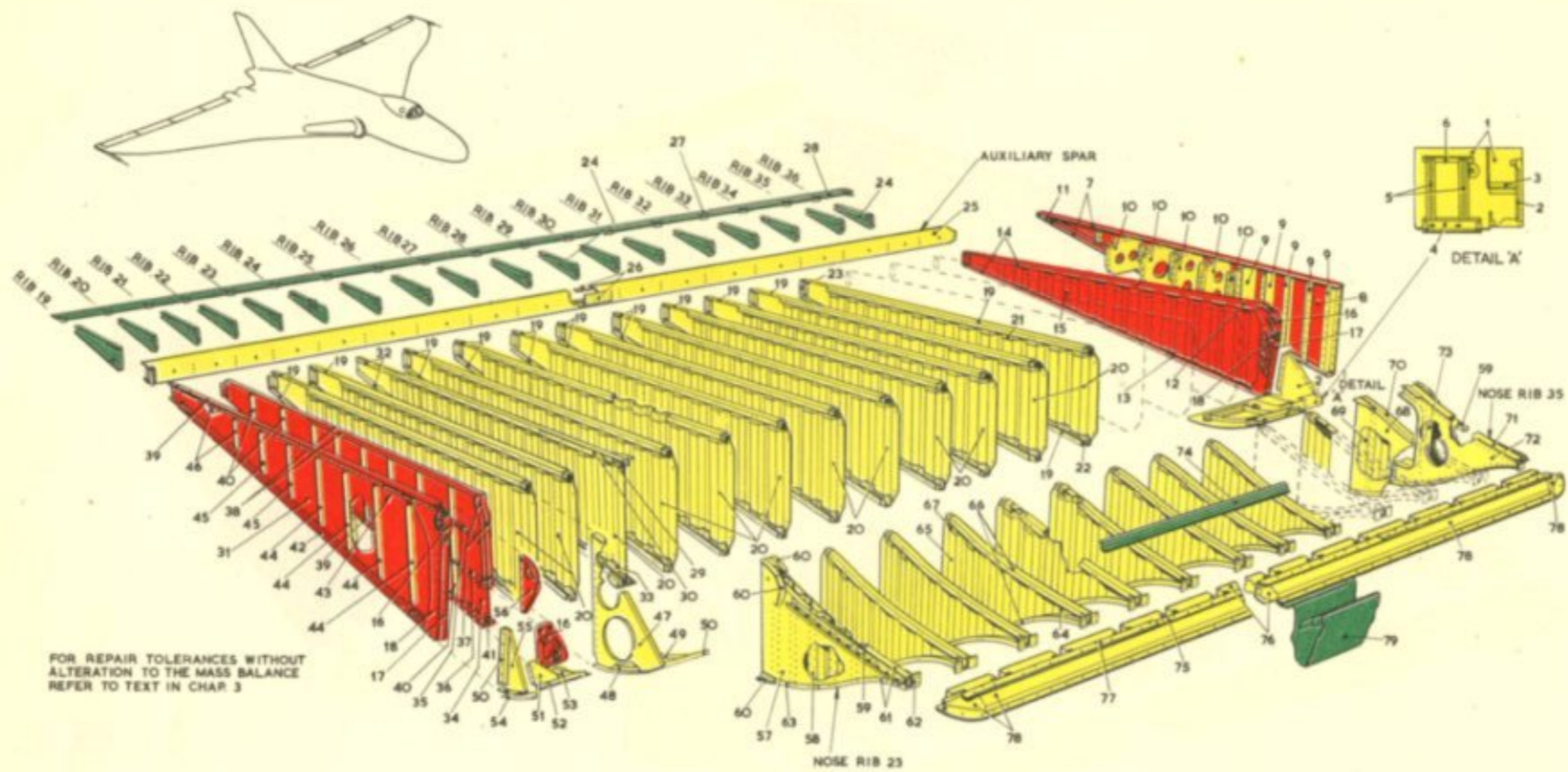
All dimensions in inches

RESTRICTED



NOTE:
 FOR REPAIR TOLERANCES
 WITHOUT ALTERATIONS TO
 THE MASS BALANCE REFER
 TO TEXT IN CHAP. 3

Fig.335 Inboard elevator
 RESTRICTED



FOR REPAIR TOLERANCES WITHOUT ALTERATION TO THE MASS BALANCE REFER TO TEXT IN CHAR 3

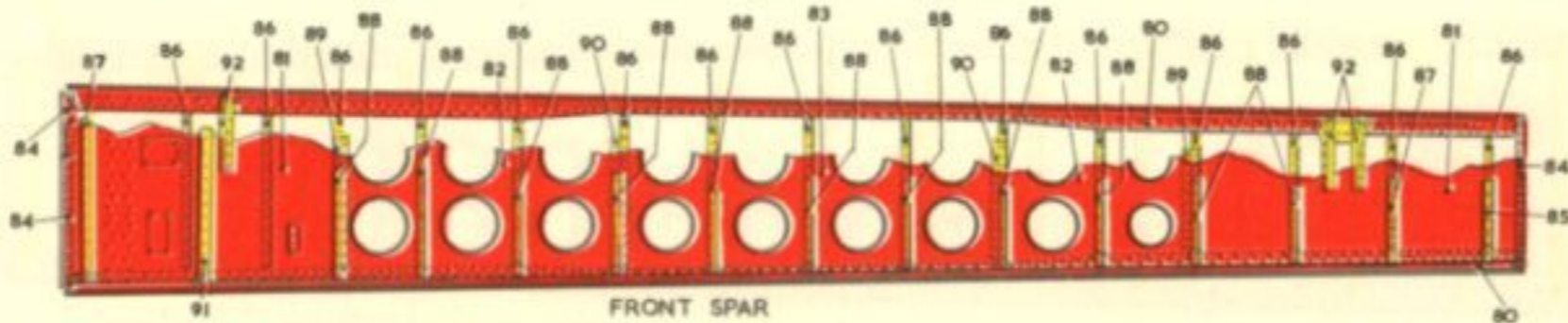


Fig.335A Outboard elevator RESTRICTED

Key Fig. 335A. Outboard elevator

Item	Spec.	Material S.W.G. or Section	Description	Negligible Damage			Holes Pitch Ratio	Repair Fig. No.
				Dents Depth	Dist. Apart	Dia.		
1	L.72	18G	Access panel skins	0.05	8.0	—	—	103
2	L.72	20G	Formers	0.05	6.0	—	—	103
3	—	AS/1878/30	Hinge	0.025	6.0	—	—	—
4	L.72	20G	Angle former	0.05	6.0	0.25	8:1	—
5	L.72	849/SS/1793	Former	0.05	6.0	0.25	8:1	—
6	L.72	850/SS/1793	Angle	0.05	6.0	0.25	8:1	—
7	L.72	22	Top and bottom booms	0.025	8.0	—	—	113
8	DTD.626	20	Web plate	0.05	8.0	0.25	10:1	103
9	L.72	20	Support angles	0.05	6.0	0.25	6:1	—
10	DTD.118A	22	Diaphragms	0.05	6.0	0.25	6:1	103
10A	DTD.118A	22	Angle	0.05	6.0	—	—	—
11	DTD.259	Mag. alloy	Block	0.05	6.0	0.25	8:1	—
12	L.72	18	Doubling channel	0.025	8.0	0.25	10:1	—
13	L.72	20	Doubling channel	0.025	8.0	0.25	10:1	—
14	L.72	883/SS/1793	Top and bottom booms	0.025	6.0	—	—	—
15	DTD.118A	24G. Ref. F9203	Corrugation	0.05	6.0	0.25	10:1	—
16	S.96	H.T.S.	Bearing housing	—	—	—	—	—
17	L.72	16	Channel	0.025	8.0	—	—	—
18	DTD.687	10	Stiffening plate	*0.025	8.0	0.125	12:1	—
19	DTD.118A	865/SS/1793	Top and bottom booms (Rib 21-35 less rib 23)	0.05	6.0	0.25	8:1	—
20	DTD.118A	24G. Ref. F9203	Corrugated web (Ribs 21-35)	0.10	6.0	0.25	6:1	—
21	DTD.118A	24	Reinforcing strips (Rib 21-35)	0.05	6.0	0.25	8:1	—
22	L.72	20	Reinforcing channel (Rib 21-35 less rib 23)	0.05	6.0	0.25	8:1	—
23	DTD.118A	22	Attachment angles (Rib 20-36)	0.05	6.0	0.25	6:1	—
24	DTD.118A	22	Tail ribs (19-36)	0.05	4.0	0.25	6:1	103
25	DTD.118A	18	Auxiliary spar	0.05	6.0	0.25	8:1	—
26	DTD.118A	18	Spar butt-straps	†0.05	6.0	0.25	8:1	—
27	DTD.118A	22	Stiffening plates	0.05	4.0	—	—	—
28	DTD.259	10	Packing strip	0.025	4.0	—	—	—
29	L.72	18	Angle (rib 23 only)	†0.05	6.0	0.25	8:1	—
30	L.72	18	Stiffener (rib 23 only)	†0.05	6.0	0.25	8:1	—
31	L.73	22	Rib web (rib 19 only)	0.05	8.0	—	—	103
32	L.72	884/SS/1793	Top and bottom booms (rib 23 only)	0.05	6.0	0.25	8:1	—
33	DTD.118A	AS.404/24	Reinforcing strips (Rib 21 to 35)	0.05	6.0	0.25	8:1	—
34	DTD.118A	22	Rib web (rib 20 only)	0.05	8.0	—	—	103
35	L.72	762/SS/1793	Angle	†0.05	8.0	0.25	6:1	—
36	L.72	66/SS/1793	Angle	†0.05	8.0	0.25	6:1	—
37	L.72	207b/SS/1793	Attachment angles	0.05	8.0	0.25	8:1	—
38	L.72	12b/SS/1793	Top booms (rib 20 only)	0.025	8.0	—	—	113
39	DTD.363	416/SS/3075	'T' Section booms	0.025	8.0	—	—	—
40	L.72	785/SS/1793	Stiffener	†0.05	6.0	0.25	8:1	113
41	L.65	Al. alloy	Attachment bracket	—	—	—	—	—
42	L.72	66/SS/1793	Bottom booms	0.025	6.0	—	—	—
43	DTD.259	Mag. alloy	Packing block	0.025	6.0	0.125	8:1	—
44	L.72	763/SS/1793	Stiffeners	†0.05	6.0	0.25	8:1	113
45	L.72	762/SS/1793	Stiffeners	†0.05	6.0	0.25	8:1	113
46	L.72	761/SS/1793	Stiffener	†0.05	6.0	0.25	8:1	113
47	L.72	20	Former	0.05	6.0	0.25	6:1	103

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Key to Fig. 335A. Outboard elevator (contd.)

Item	Spec.	Material S.W.G. or Section	Description	Negligible Damage			Holes Pitch Ratio	Repair Fig. No.
				Dents Depth	Dist. Apart	Dia.		
48	L.72	787/SS/1793	Angle	† 0.05	6.0	0.25	6:1	—
49	L.72	762/SS/1793	Angle	† 0.05	6.0	0.25	6:1	113
50	L.72	788/SS/1793	Angle	† 0.05	6.0	0.25	6:1	—
51	L.72	20	Gusset	0.05	6.0	0.25	6:1	103
52	L.72	515/SS/1793	Angle	0.05	6.0	0.25	6:1	—
53	L.72	206/SS/1793	Channel	0.05	6.0	0.25	6:1	—
54	L.72	112/SS/1793	Angle	† 0.05	6.0	0.25	6:1	—
55	L.72	20	Former	0.05	6.0	0.25	6:1	103
56	L.72	20	Former	0.05	4.0	0.25	6:1	103
57	DTD.118A	22	Rib web (Nose rib 23 only)	0.05	8.0	0.25	8:1	—
58	DTD.118A	20	Corrugated web (nose rib 23 only)	0.10	6.0	0.25	6:1	—
59	L.72	664/SS/1793	Sealing angle (nose ribs 23 and 35)	0.25	8.0	—	—	—
60	L.72	18	Angle	† 0.05	6.0	0.25	6:1	—
61	L.72	878/SS/1793	Top and bottom channels (nose rib 23 only)	0.05	8.0	0.25	8:1	—
62	L.72	20	Attachment bracket (nose ribs 23-35)	† 0.05	6.0	0.25	6:1	—
63	L.72	18	Stiffening plate	0.05	6.0	0.25	6:1	—
64	DTD.118A	24	Forward web plates (nose ribs 24-33)	0.10	6.0	0.25	6:1	—
65	DTD.118A	24	Corrugated web (nose ribs 24-33)	0.10	6.0	0.25	6:1	—
66	L.72	864/SS/1793	Top and bottom booms (nose ribs 24-33)	0.05	8.0	0.25	8:1	—
67	L.72	22	Reinforcing strips (nose ribs 24-33)	0.05	6.0	0.25	6:1	—
68	DTD.118A	24	Sealing plate (nose rib 34 only)	0.05	8.0	—	—	—
69	DTD.118A	24	Corrugated web (nose rib 34 only)	0.05	6.0	0.25	8:1	—
70	L.72	876/SS/1793	Top and bottom booms (nose rib 34 only)	0.05	8.0	0.25	8:1	—
71	L.72	877/SS/1793	Top and bottom booms (nose rib 35 only)	0.05	8.0	0.25	8:1	—
72	L.72	20	Side webs (nose rib 35 only)	0.05	8.0	—	—	—
73	DTD.118A	20	Channel (nose rib 35 only)	0.05	6.0	0.25	6:1	—
74	L.72	767/SS/1793	'Z' Section	0.05	6.0	—	—	—
75	L.72	18	Channel	0.05	6.0	0.25	8:1	—
76	—	—	Lead	0.15	5.0	—	—	—
77	S.3	M.S.	Balance strips	† 0.10	6.0	—	—	—
78	S.3	20	Mass balance cover	0.10	6.0	—	—	—
79	Indian	1/32"	Sealing cloth	—	—	—	—	406
80	DTD.363	431/SS/3075	Top and bottom booms	—	—	—	—	—
81	L.72	12	Spar web	0.025	8.0	—	—	—
82	L.72	14	Spar web	0.025	6.0	0.125	16:1	—
83	L.72	18	Spar web	0.025	6.0	0.125	12:1	—
84	DTD.130	249/SS/3075	Attachment angle (rib 36)	—	—	—	—	—
85	L.72	20	Channel	0.05	6.0	0.25	8:1	—
86	L.72	314/SS/1793	Angle	0.05	6.0	0.25	8:1	113
87	L.72	12a/SS/1793	Angle	0.05	6.0	0.25	8:1	113
88	L.72	13b/SS/1793	Angle	0.05	6.0	0.25	8:1	113
89	L.72	14	Strap plate	* 0.025	8.0	0.25	10:1	—
90	L.72	18	Strap plate	* 0.05	6.0	0.25	8:1	—
91	L.72	425/SS/1793	Angle	0.05	6.0	0.25	8:1	as 113, 114
92	DTD.118	18	Slings brackets	† 0.025	8.0	0.25	10:1	—

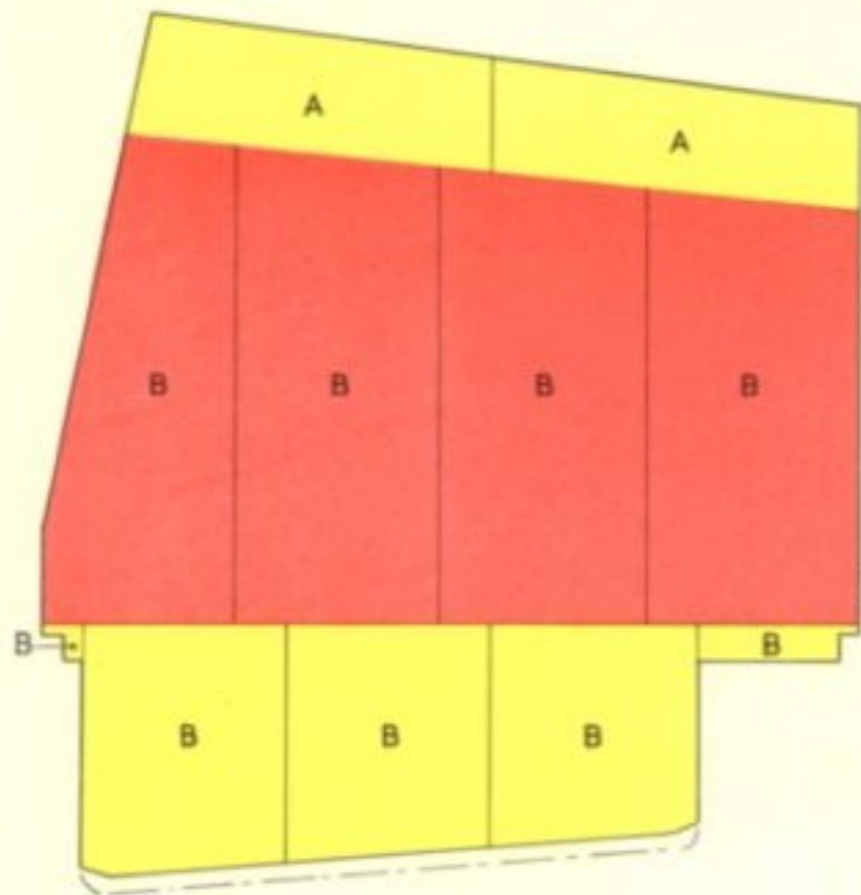
† More expedient to renew

* No repairs permitted

All dimensions in inches

RESTRICTED

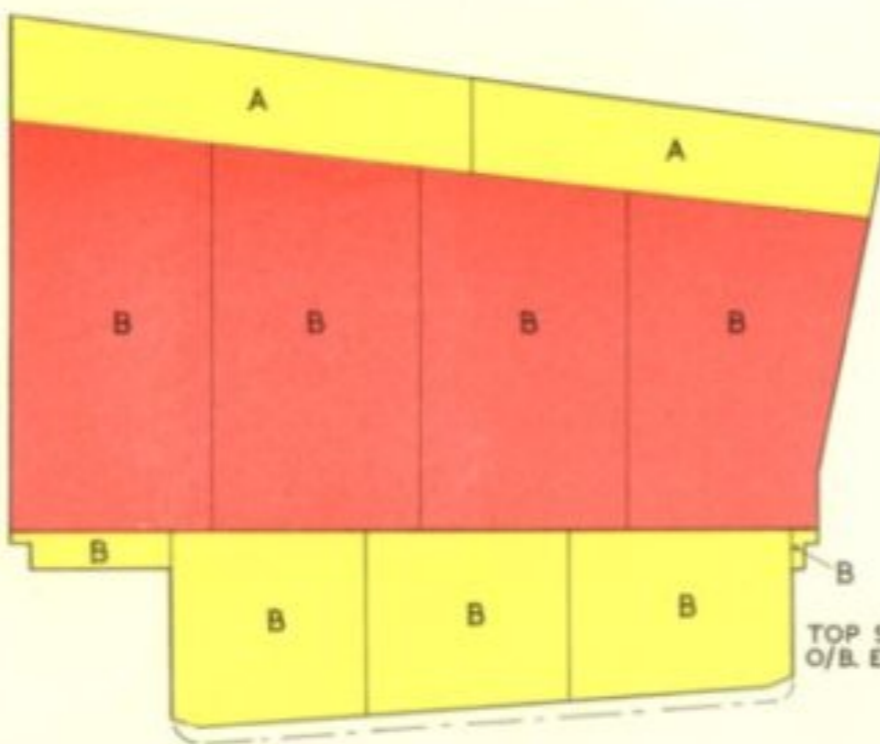
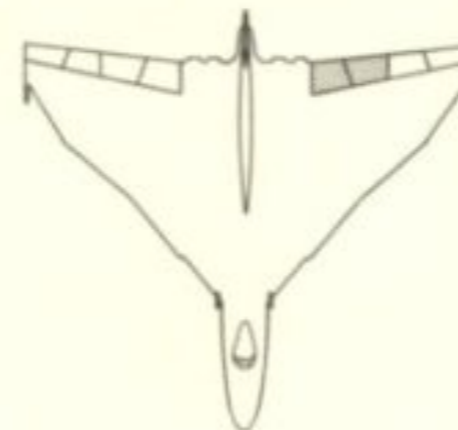
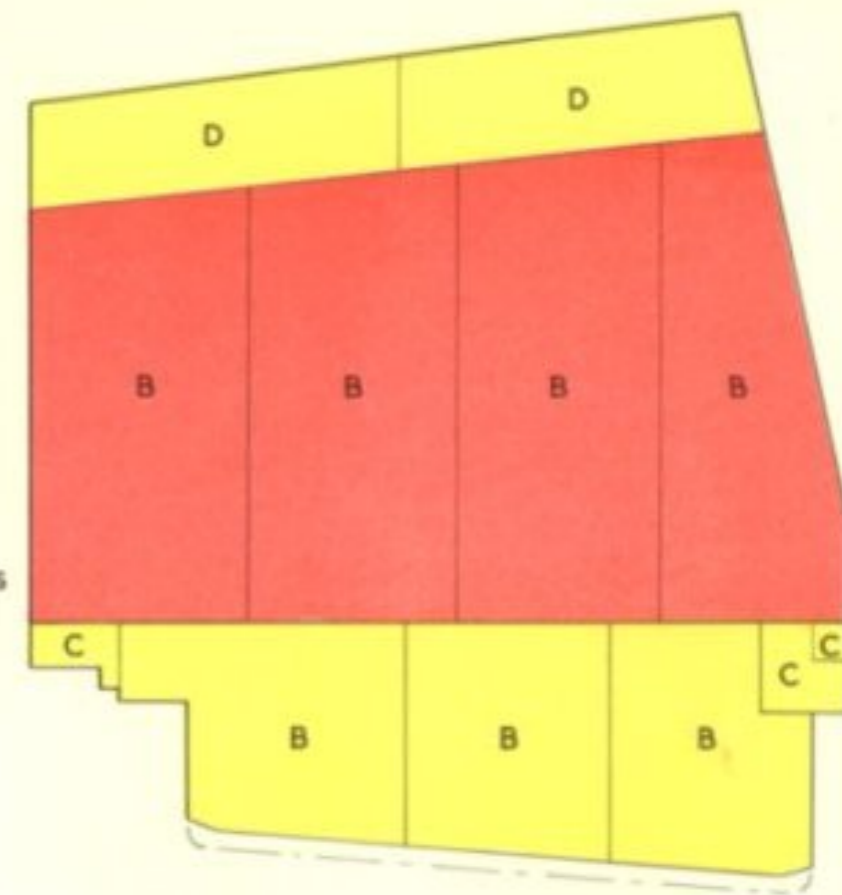
FOR REPAIRS SEE FIG. 103 AND FIG. 104.
DAMAGE IN AREAS OF CONCENTRATED
RIVETING MUST BE REPAIRED WITH
JOINTS ARRANGED OUTSIDE THE AREA.



TOP SKINS
I/B. ELEVATOR

BOTTOM SKINS
I/B. ELEVATOR

SKIN REFERENCE		
LETTER	S. W. G.	MAT. SPEC.
A	22	D.T.D. 118 A
B	18	D.T.D. 626
C	18	L72
D	22	L72



TOP SKINS
O/B. ELEVATOR

BOTTOM SKINS
O/B. ELEVATOR

NEGLECTIBLE DAMAGE		
COLOUR	DENTS	DIST. APART
RED	0.025 IN.	6.0 IN.
YELLOW	0.05 IN.	6.0 IN.
GREEN	—	—

FOR REPAIR TOLERANCES WITHOUT
ALTERATION TO THE MASS BALANCE
REFER TO TEXT IN CHAP. 3.

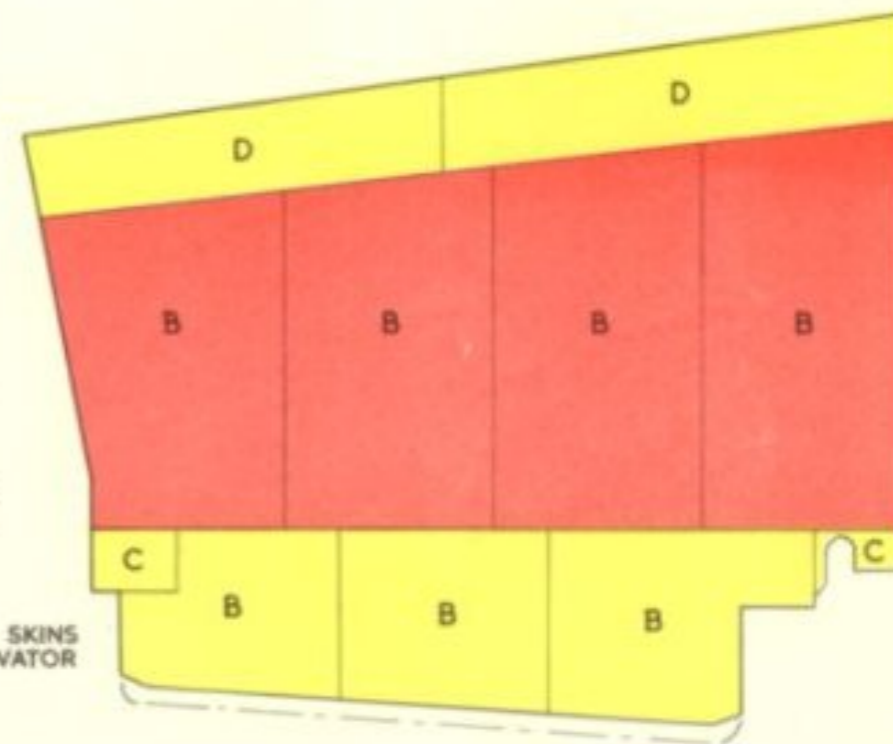


Fig. 335B. Elevator skins

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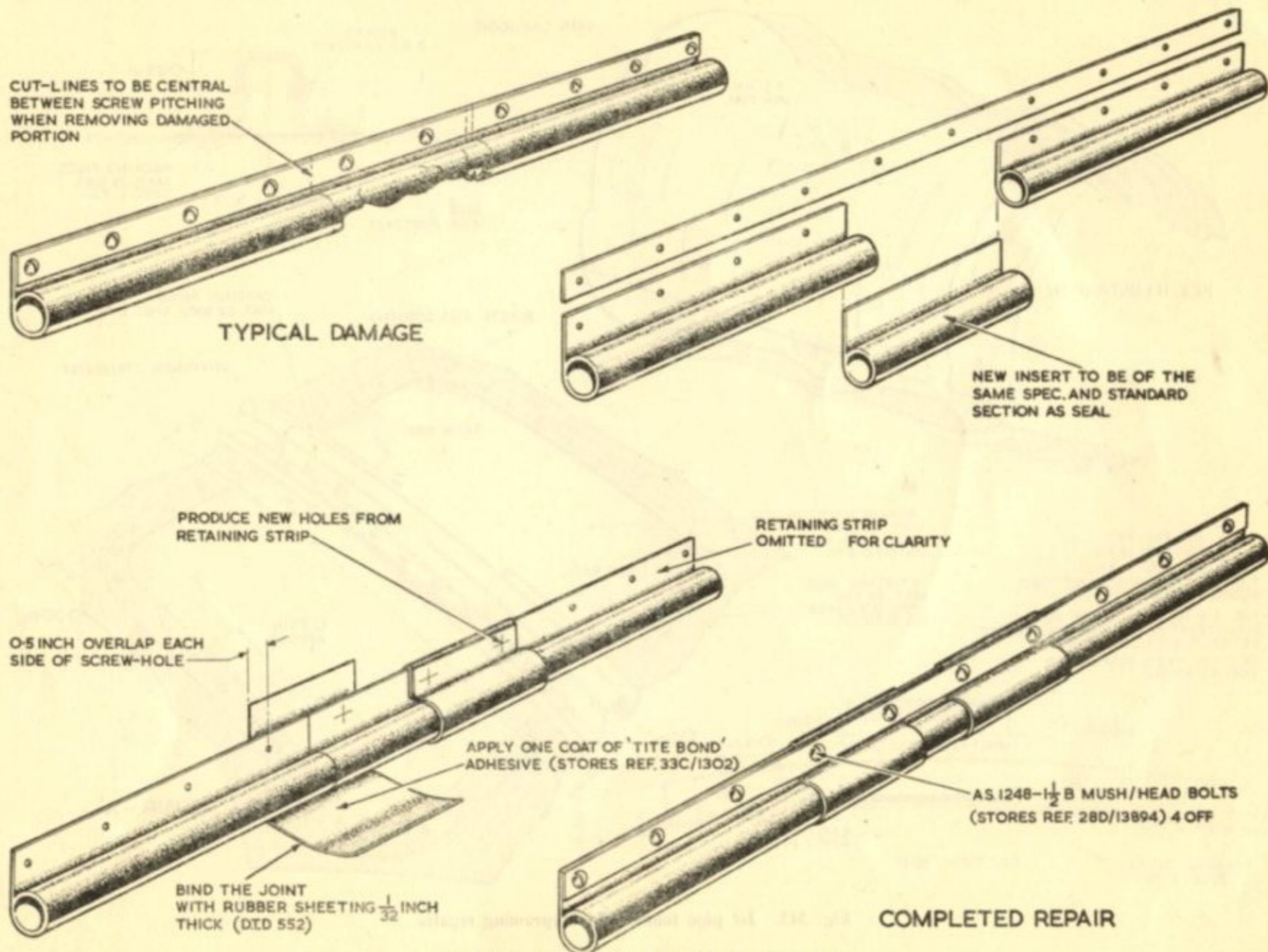
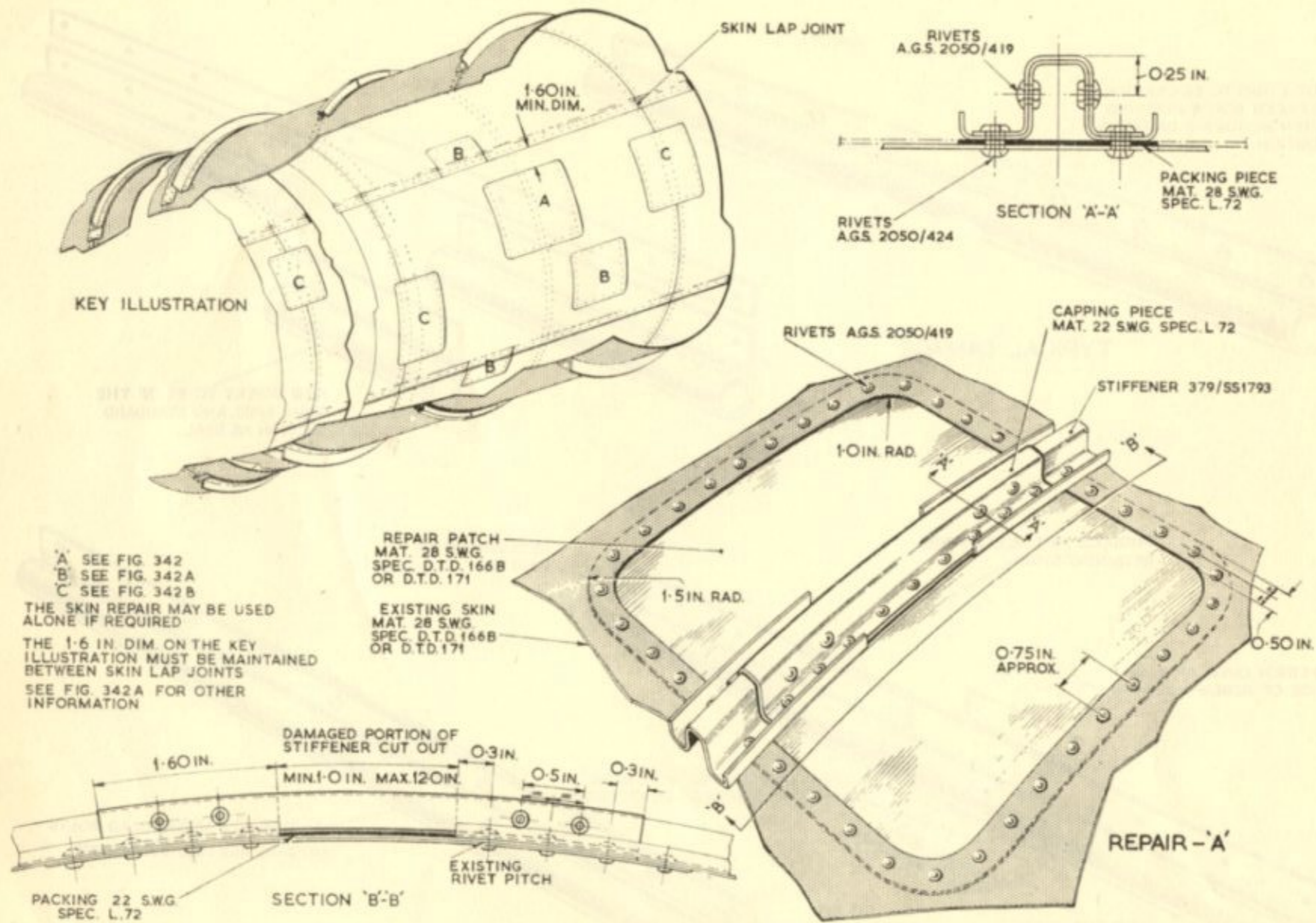


Fig. 341. Typical repair for 'P' type rubber seals

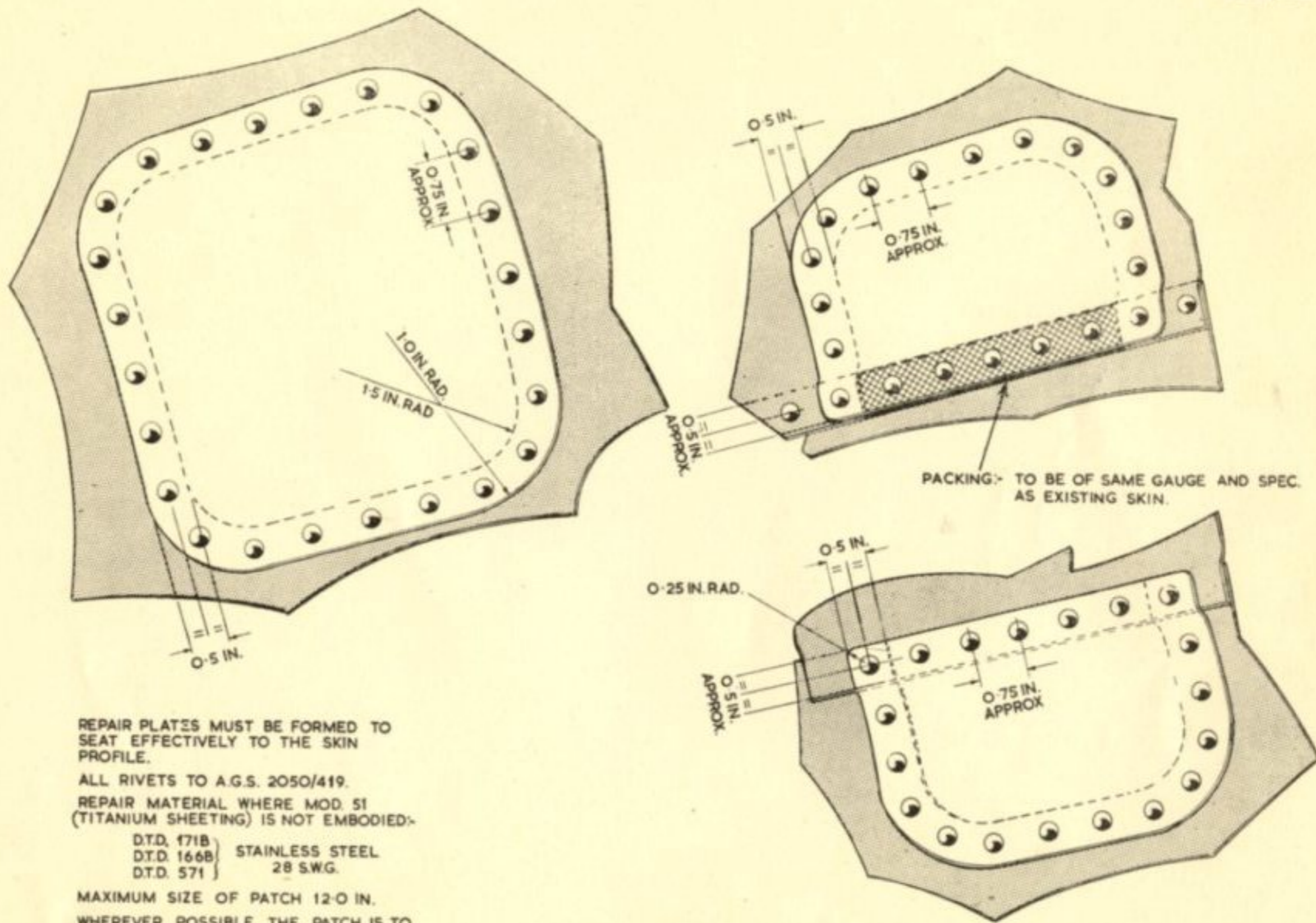
RESTRICTED



'A' SEE FIG. 342
 'B' SEE FIG. 342A
 'C' SEE FIG. 342B
 THE SKIN REPAIR MAY BE USED ALONE IF REQUIRED
 THE 1.6 IN. DIM. ON THE KEY ILLUSTRATION MUST BE MAINTAINED BETWEEN SKIN LAP JOINTS
 SEE FIG. 342A FOR OTHER INFORMATION

Fig. 342. Jet pipe tunnel and fireproofing repairs

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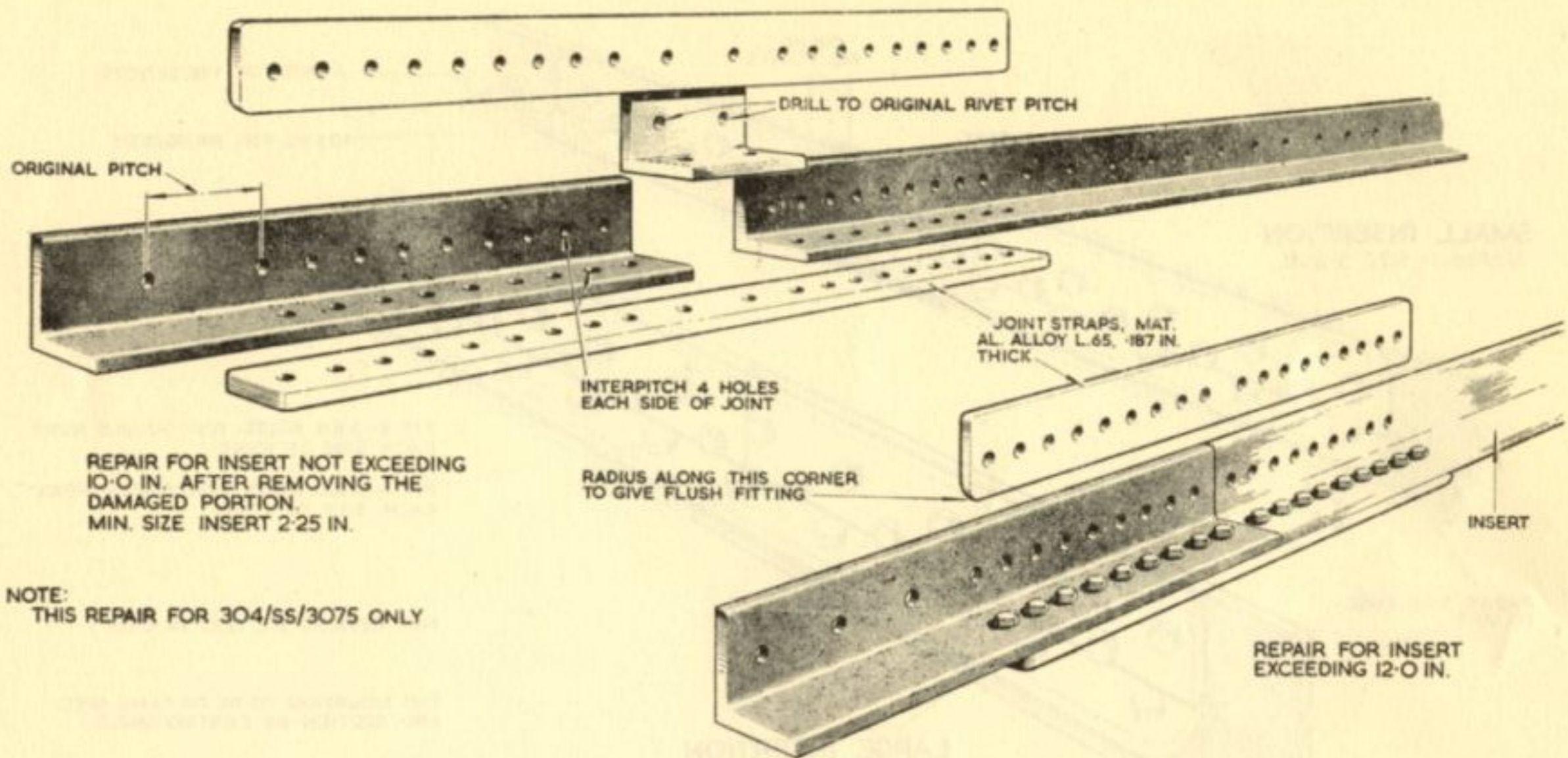
REPAIR PLATES MUST BE FORMED TO SEAT EFFECTIVELY TO THE SKIN PROFILE.
 ALL RIVETS TO A.G.S. 2050/419.
 REPAIR MATERIAL WHERE MOD. 51 (TITANIUM SHEETING) IS NOT EMBODIED:-
 D.T.D. 171B } STAINLESS STEEL
 D.T.D. 166B } 28 S.W.G.
 D.T.D. 571 }

MAXIMUM SIZE OF PATCH 12-0 IN.
 WHEREVER POSSIBLE THE PATCH IS TO PICK-UP WITH ANGLES OR STIFFENERS.

NOTE: FOR REPAIRS SEE TEXT IN CHAP. 1. FOR DISTORTION LIMITS TO JET PIPE TUNNELS SEE TEXT IN CHAP. 3.

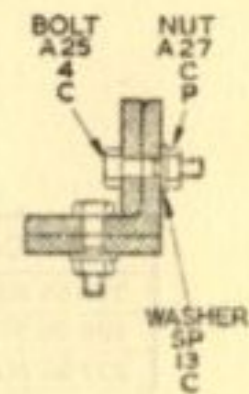
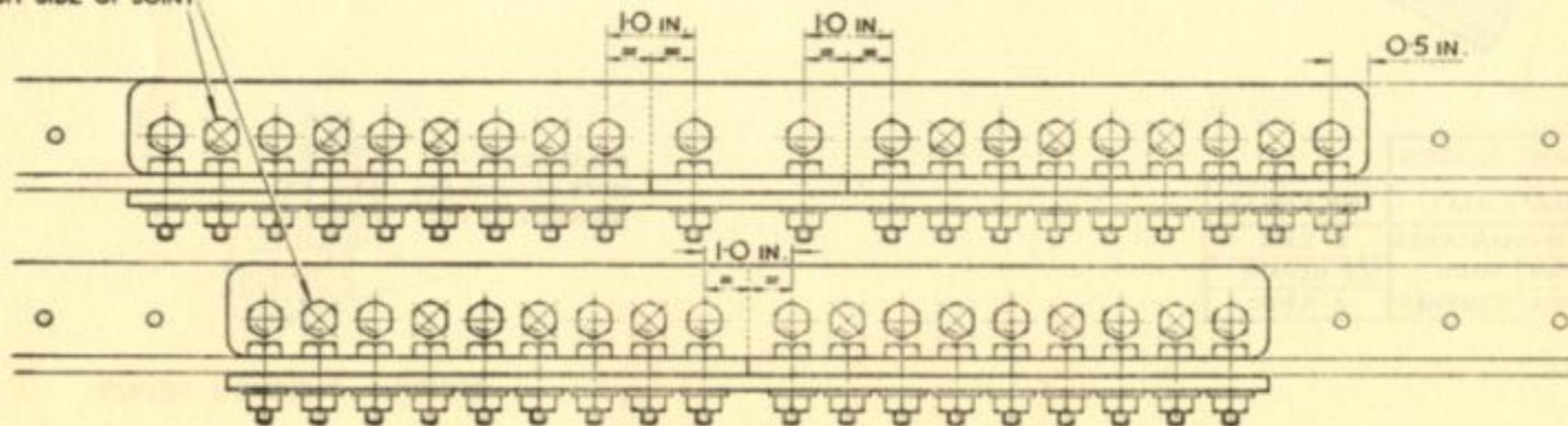
Fig. 342A. Skin repairs to fireproofing and jet pipe tunnels

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NOTE:
THIS REPAIR FOR 304/SS/3075 ONLY

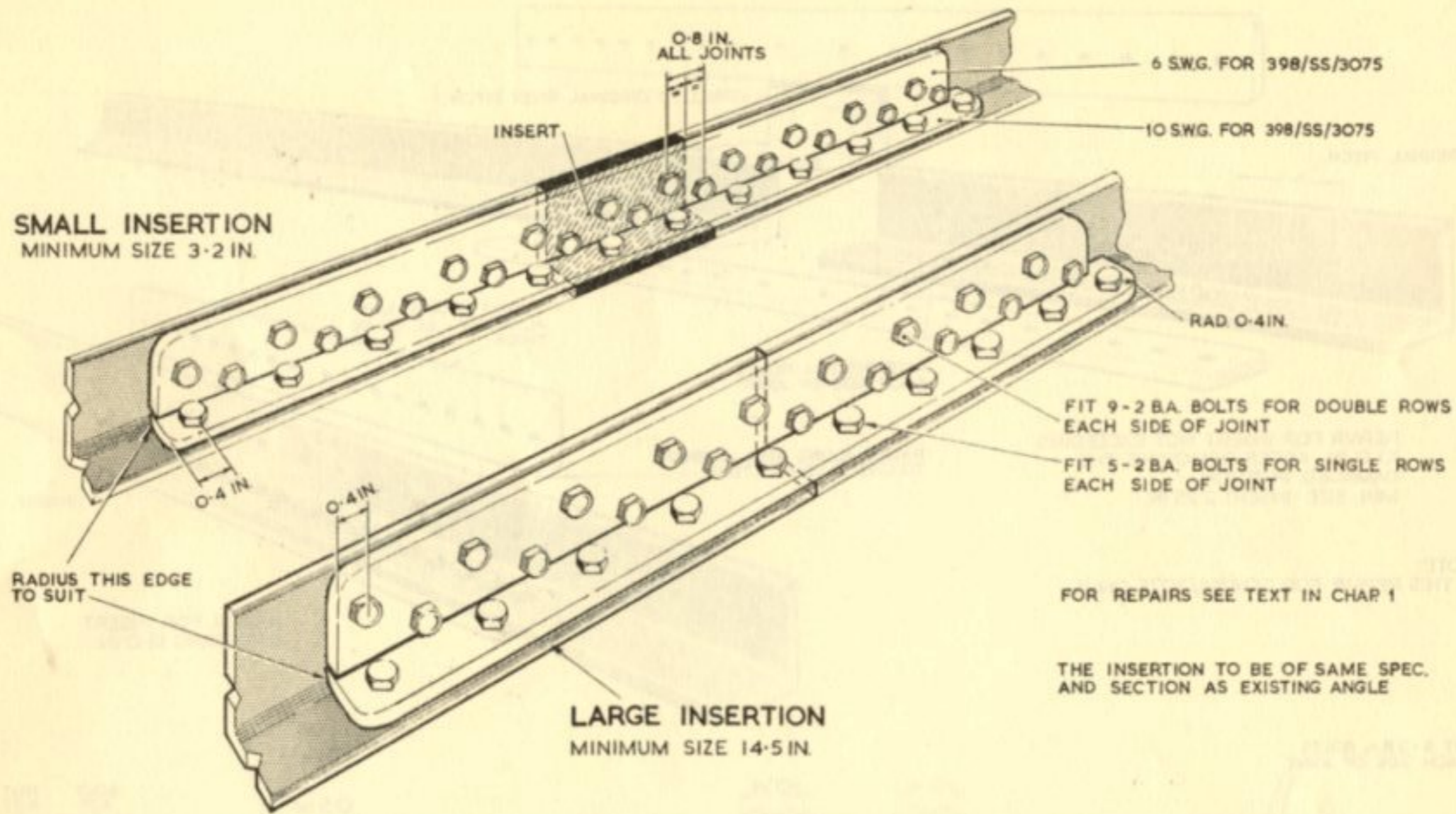
FIT 9-28.A. BOLTS
EACH SIDE OF JOINT



SECTION THROUGH REPAIR

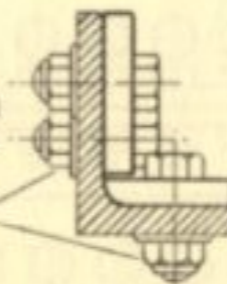
Fig. 343. Medium extruded angle — insertion repair

RESTRICTED



JOINT PLATES		
SECTION	MATERIAL	THICKNESS
394 SS 3075	S 514 HARDENED	8 S.W.G.
398 SS 3075	S 514 AND	SEE REPAIR
222 SS 3075	S 514 TEMPERED	6 S.W.G.

BOLTS A 25/2C
NUTS AGS. 2001/C/1
WASHERS SP 10/C



SECTION THROUGH REPAIR

Fig. 344. Insertion repairs to medium extruded angle

RESTRICTED

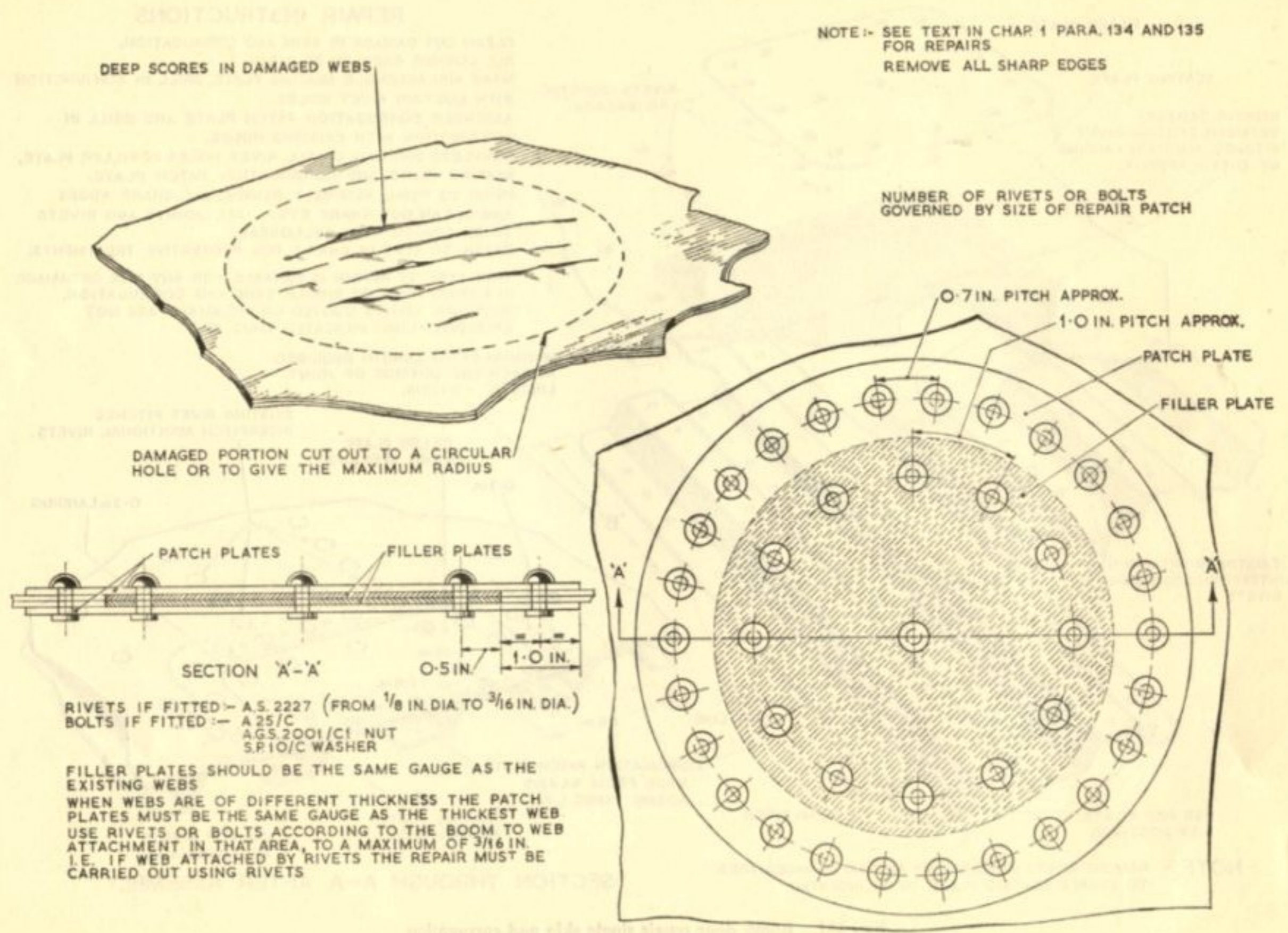
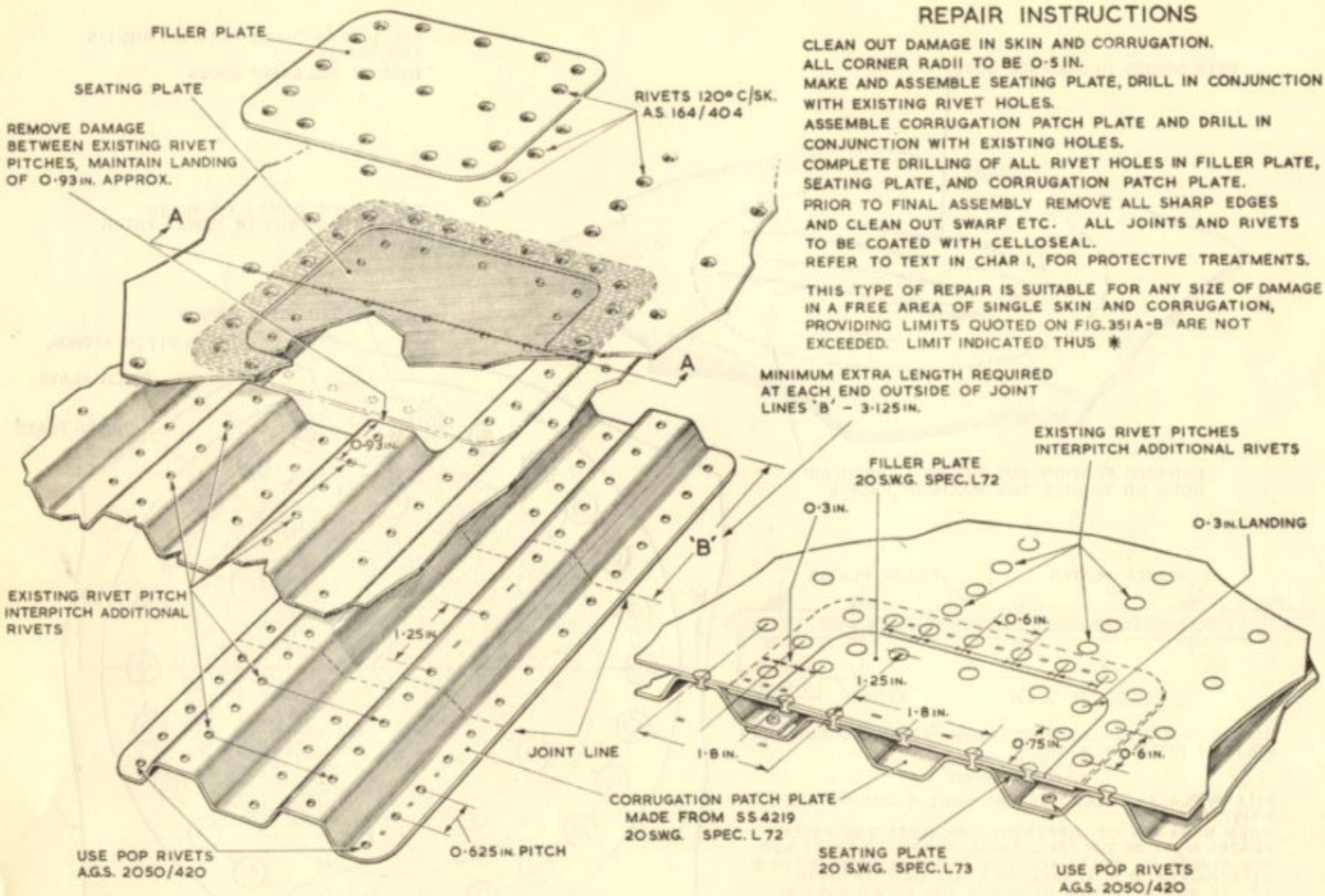


Fig. 349. Double web repairs in free areas

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REPAIR INSTRUCTIONS

CLEAN OUT DAMAGE IN SKIN AND CORRUGATION. ALL CORNER RADII TO BE 0.5 IN. MAKE AND ASSEMBLE SEATING PLATE, DRILL IN CONJUNCTION WITH EXISTING RIVET HOLES. ASSEMBLE CORRUGATION PATCH PLATE AND DRILL IN CONJUNCTION WITH EXISTING HOLES. COMPLETE DRILLING OF ALL RIVET HOLES IN FILLER PLATE, SEATING PLATE, AND CORRUGATION PATCH PLATE. PRIOR TO FINAL ASSEMBLY REMOVE ALL SHARP EDGES AND CLEAN OUT SWarf ETC. ALL JOINTS AND RIVETS TO BE COATED WITH CELLOSEAL. REFER TO TEXT IN CHAR I, FOR PROTECTIVE TREATMENTS.

THIS TYPE OF REPAIR IS SUITABLE FOR ANY SIZE OF DAMAGE IN A FREE AREA OF SINGLE SKIN AND CORRUGATION, PROVIDING LIMITS QUOTED ON FIG. 351A-B ARE NOT EXCEEDED. LIMIT INDICATED THUS *

MINIMUM EXTRA LENGTH REQUIRED AT EACH END OUTSIDE OF JOINT LINES 'B' - 3.125 IN.

SECTION THROUGH A-A AFTER ASSEMBLY

NOTE - REMOVE RIVETS IF NECESSARY AROUND DAMAGED AREA TO ENABLE SEATING PLATE TO BE INSERTED

Fig. 351. Bomb door repair single skin and corrugation

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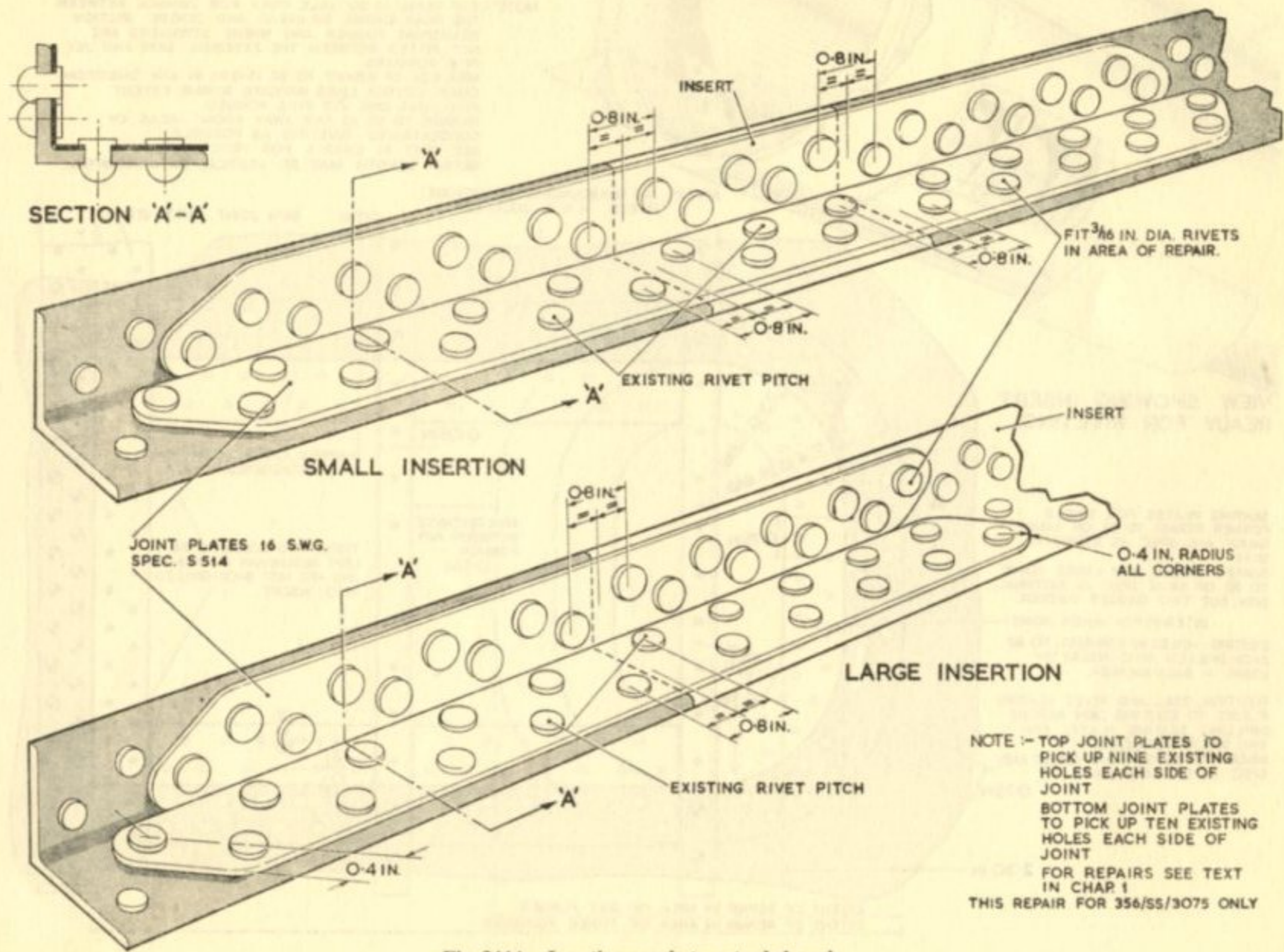
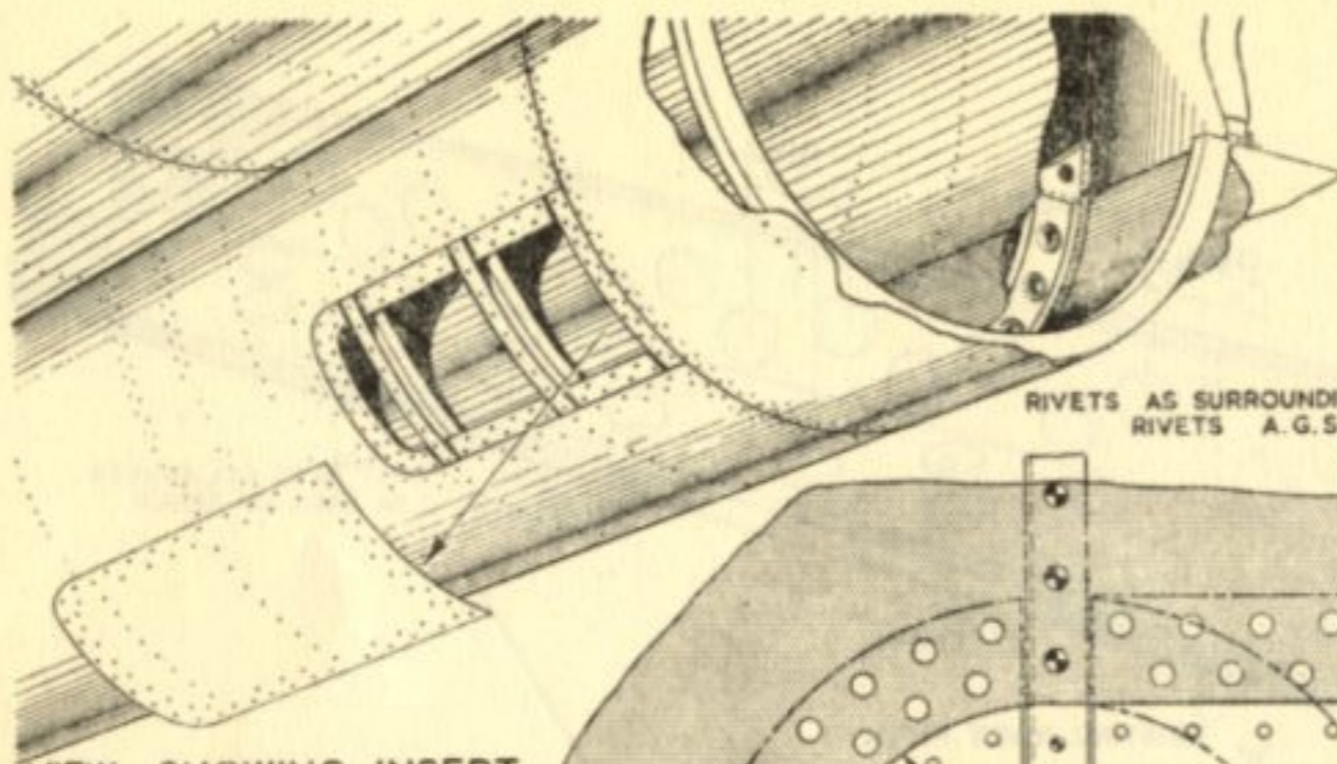


Fig. 344A. Insertion repair to extruded angle



NOTE: THIS REPAIR IS SUITABLE ONLY FOR DAMAGE BETWEEN THE REAR ENGINE BULKHEAD AND CENTRE SECTION TRANSPORT FORMER AND WHERE STRINGERS ARE NOT FITTED BETWEEN THE EXTERNAL SKIN AND JET PIPE FORMERS.
 MAX. SIZE OF INSERT TO BE 15-0 IN. IN ANY DIRECTION.
 CHAIN DOTTED LINES INDICATE REPAIR EXTENT INVOLVING ONE JET PIPE FORMER.
 REPAIRS TO BE AS FAR AWAY FROM AREAS OF CONCENTRATED RIVETING AS POSSIBLE.
 SEE TEXT IN CHAP 1 FOR PROCEDURE.
 REPAIR LENGTH MAY BE VERTICAL OR HORIZONTAL.

VIEW SHOWING INSERT READY FOR RIVETING.

SEATING PLATES FOR SINGLE FORMER REPAIR TO BE OF SAME GAUGE AND SPEC. AS EXTERNAL SKIN.
 SEATING PLATES FOR LARGE REPAIR TO BE OF SAME SPEC. AS EXTERNAL SKIN, BUT TWO GAUGES THICKER.

INTER-PITCH INNER ROWS
 EXISTING HOLES IN FORMERS TO BE BACK-DRILLED INTO INSERT BY USING A BACK-MARKER.

POSITION, DRILL, AND RIVET SEATING PLATES TO EXISTING SKIN BEFORE DRILLING SEATING PLATES FOR THE INSERT ATTACHMENT.
 INSERT TO BE OF SAME GAUGE AND SPEC. AS EXTERNAL SKIN.

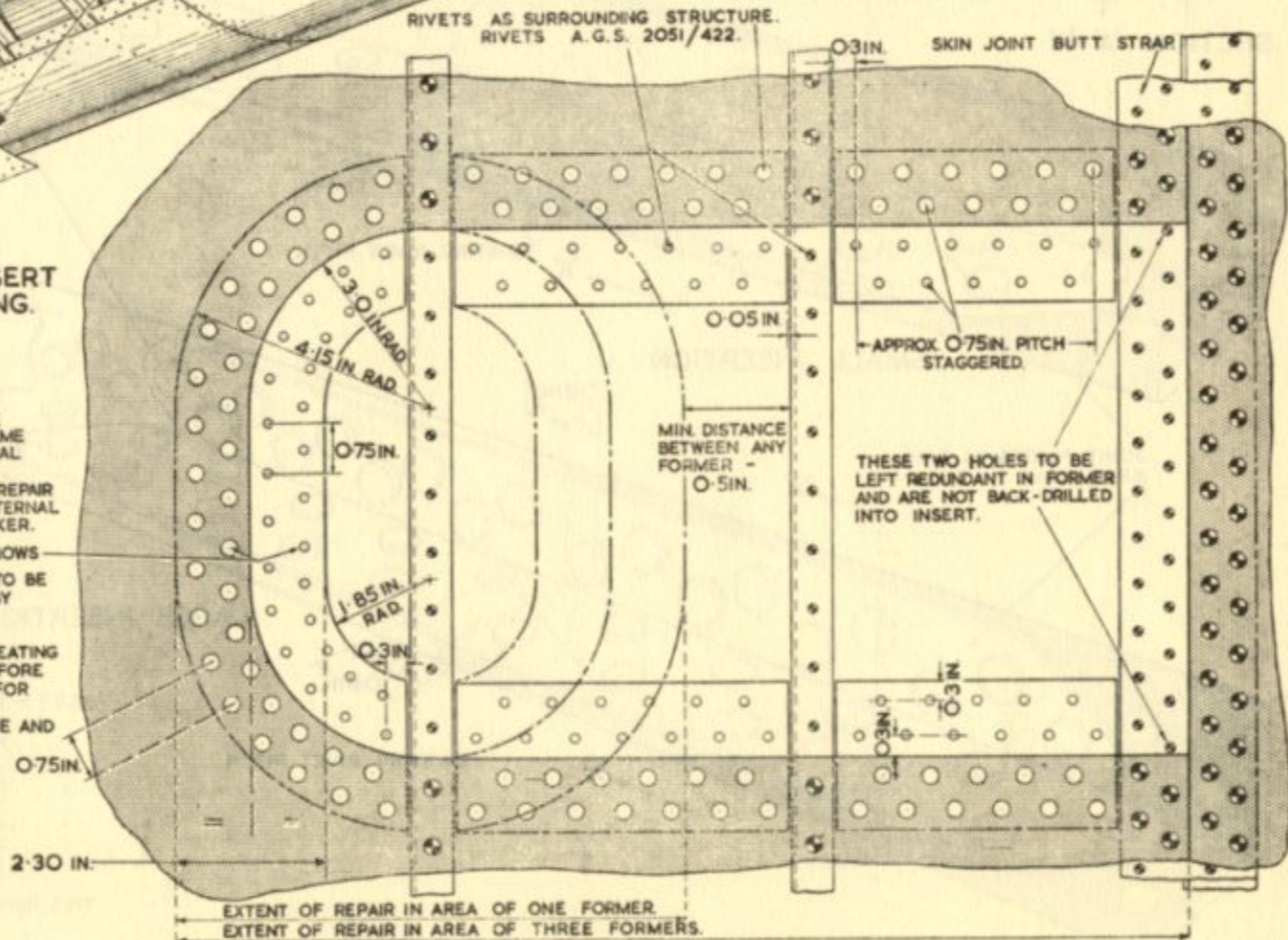


Fig. 345. Skin repair—between rear engine bulkhead and transport former Stn. 428-0

RESTRICTED

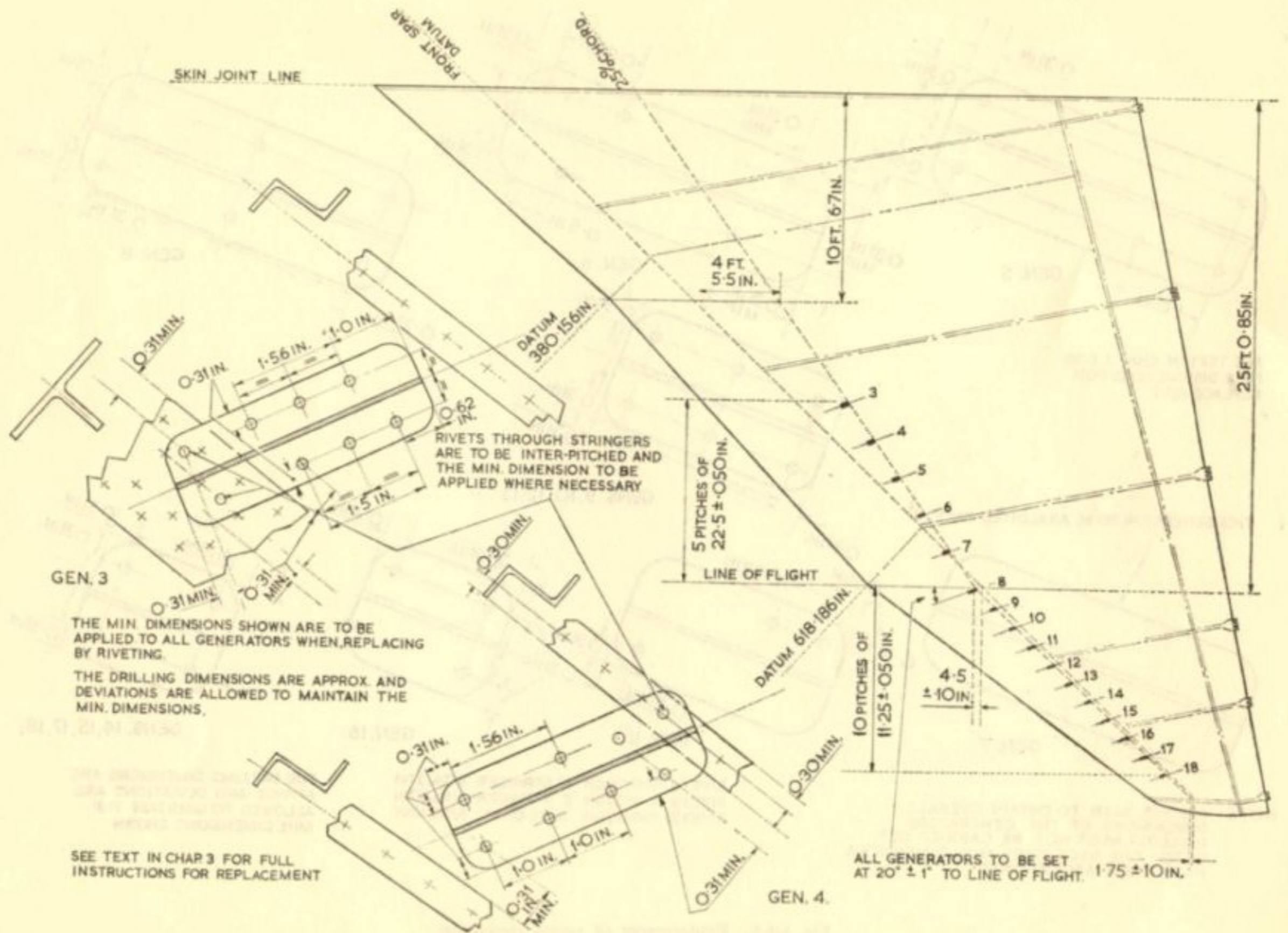
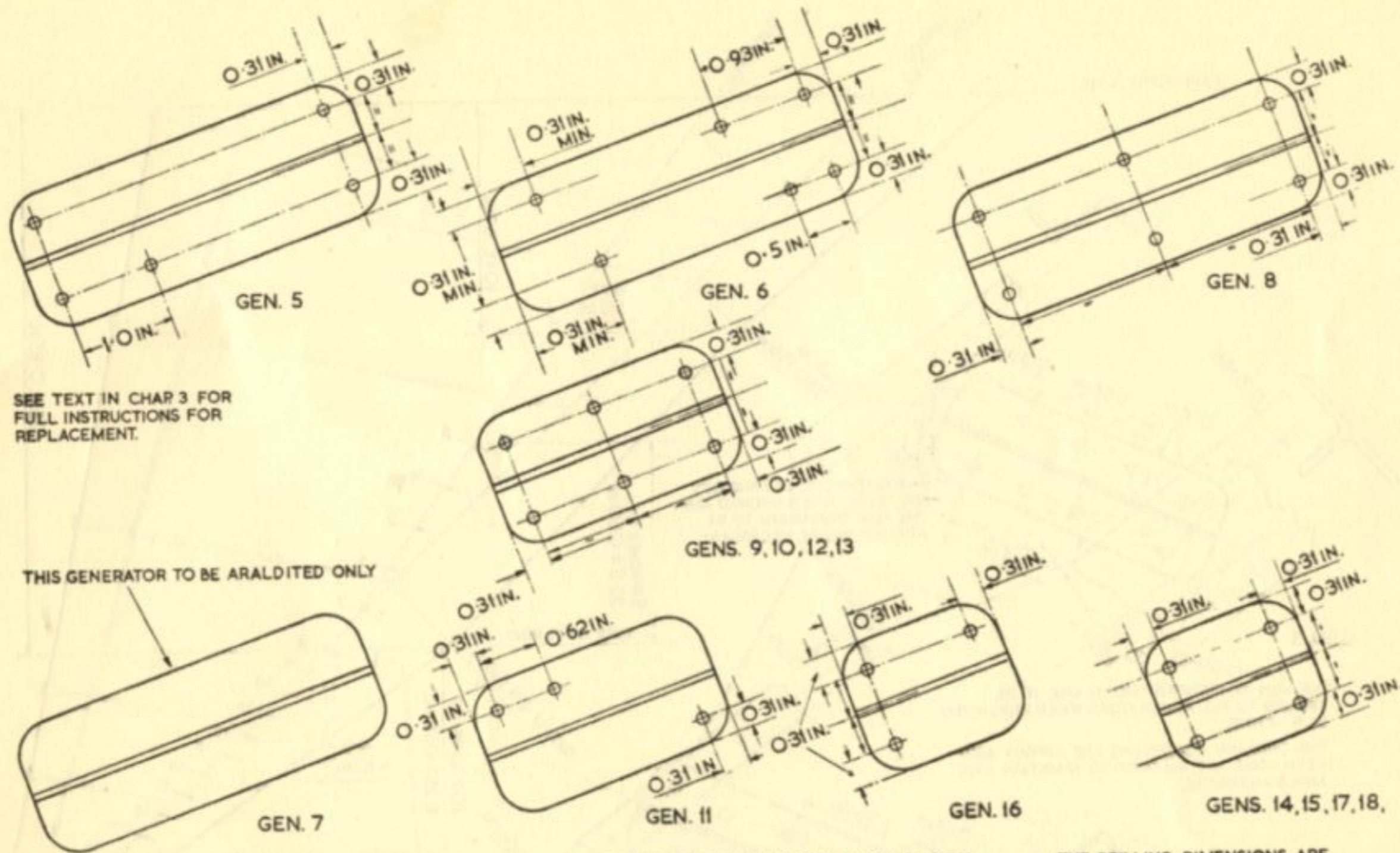


Fig. 346. Replacement of vortex generators

RESTRICTED



SEE TEXT IN CHAP 3 FOR FULL INSTRUCTIONS FOR REPLACEMENT.

THIS GENERATOR TO BE ARALDITED ONLY

NOTE: SEE FIG. 346B TO OBTAIN OVERALL DIMENSIONS OF THE GENERATORS. DRILLING MUST NOT BE CARRIED OUT UNTIL THE NECESSARY MIN. DIMENSIONS HAVE BEEN ASCERTAINED

RIVETS THROUGH 'T' STRINGER 8/SS/3791
 RIVETS THROUGH 'Z' STRINGER 6/SS/3791
 RIVETS THROUGH SKIN ONLY 5/SS/3791

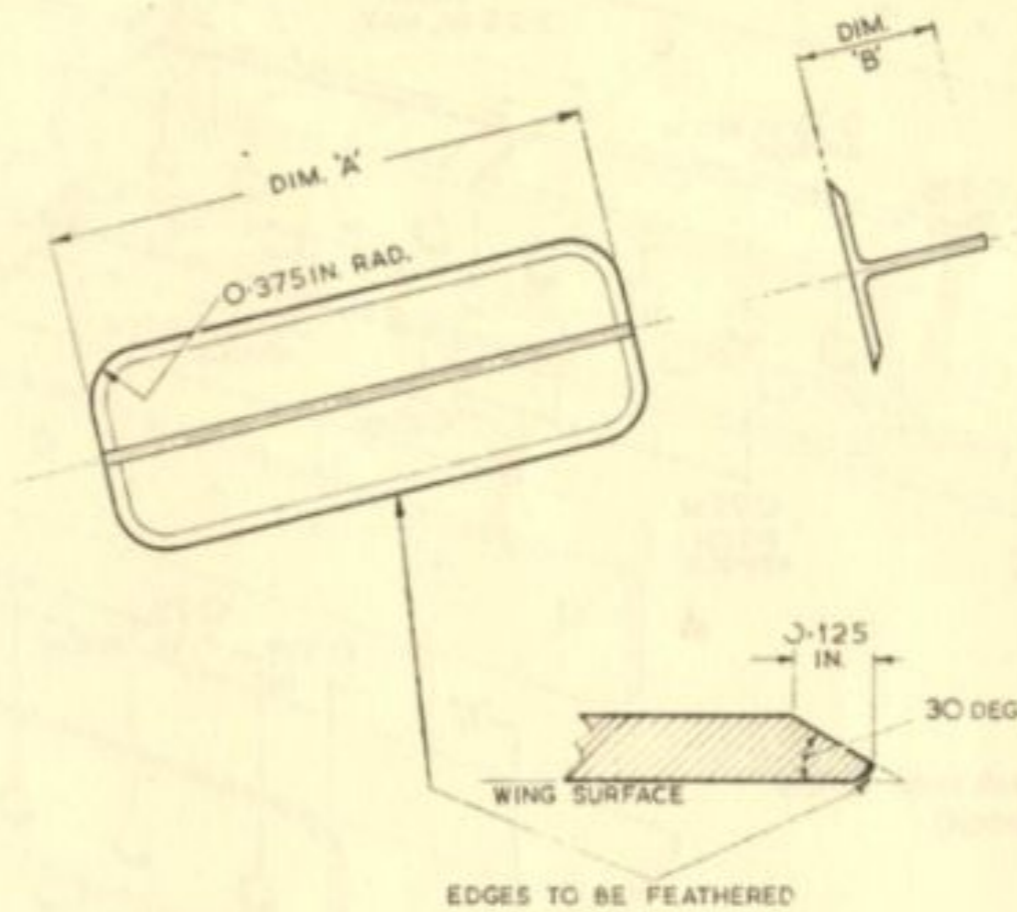
THE DRILLING DIMENSIONS ARE APPROX. AND DEVIATIONS ARE ALLOWED TO MAINTAIN THE MIN. DIMENSIONS SHOWN

Fig. 346A. Replacement of vortex generators

RESTRICTED

GENERATOR	DIM. 'A'	DIM. 'B'
3	4.0 IN.	1.0 IN.
4	4.0 IN.	1.0 IN.
5	4.0 IN.	1.0 IN.
6	4.0 IN.	1.0 IN.
7	4.0 IN.	1.0 IN.
8	4.0 IN.	1.0 IN.
9	2.7 IN.	0.66 IN.
10	2.7 IN.	0.66 IN.
11	2.7 IN.	0.66 IN.
12	2.7 IN.	0.66 IN.
13	2.7 IN.	0.66 IN.
14	1.8 IN.	0.45 IN.
15	1.8 IN.	0.45 IN.
16	1.8 IN.	0.45 IN.
17	1.8 IN.	0.45 IN.
18	1.8 IN.	0.45 IN.

SEE FIG. 346A FOR DRILLING AND RIVETING



MAKE FROM 58/SS/3075

Fig. 346B. Replacement of vortex generators

FOR WEATHERPROOFING OF
REPAIR, REFER TO TEXT IN CHAP. I
 $L = 0.38$ IN. MINIMUM.
FOR SKIN REPAIRS REFER TO FIG. 116.

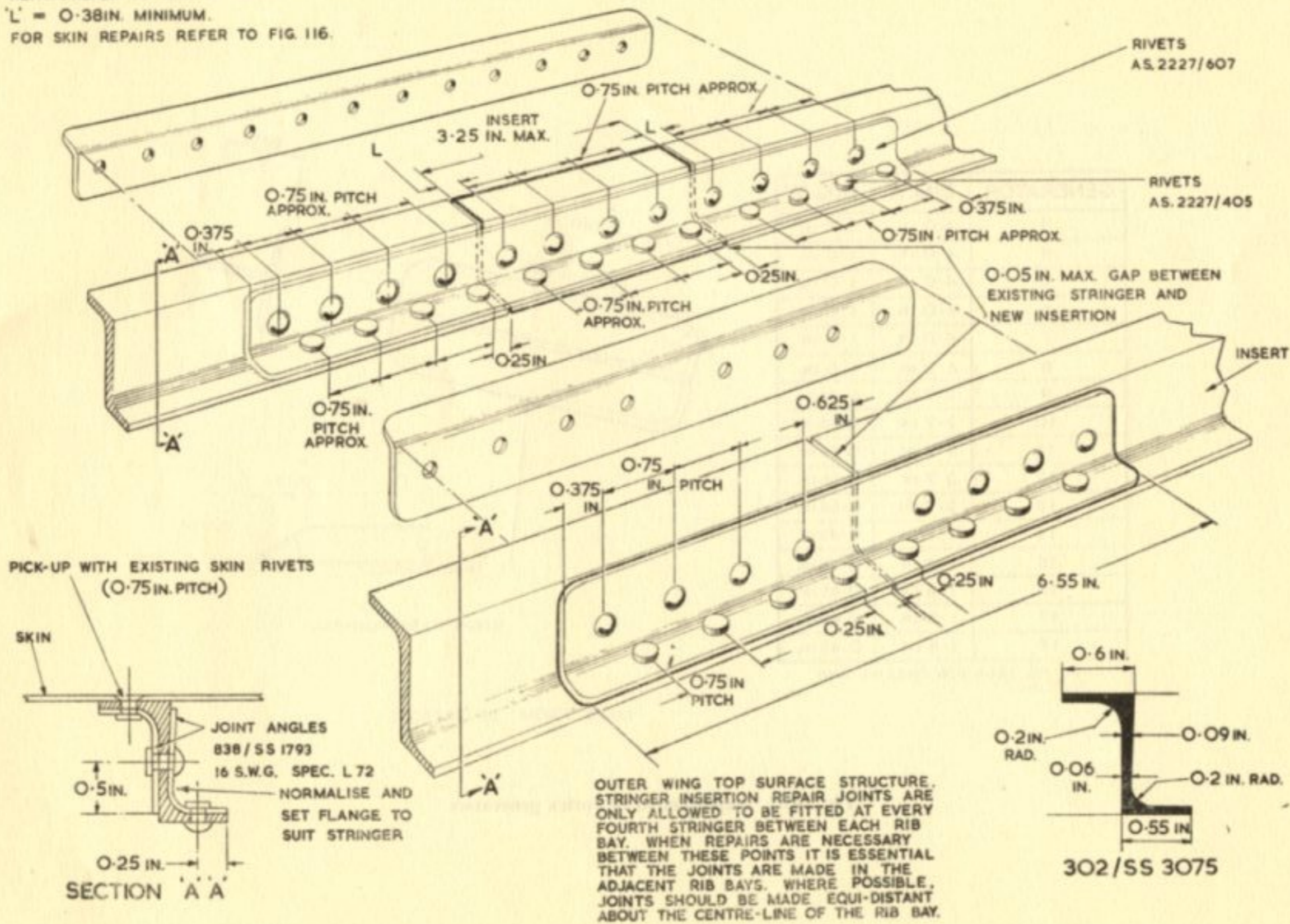


Fig. 347. Extruded section stringer—insertion repair 302/SS 3075

RESTRICTED

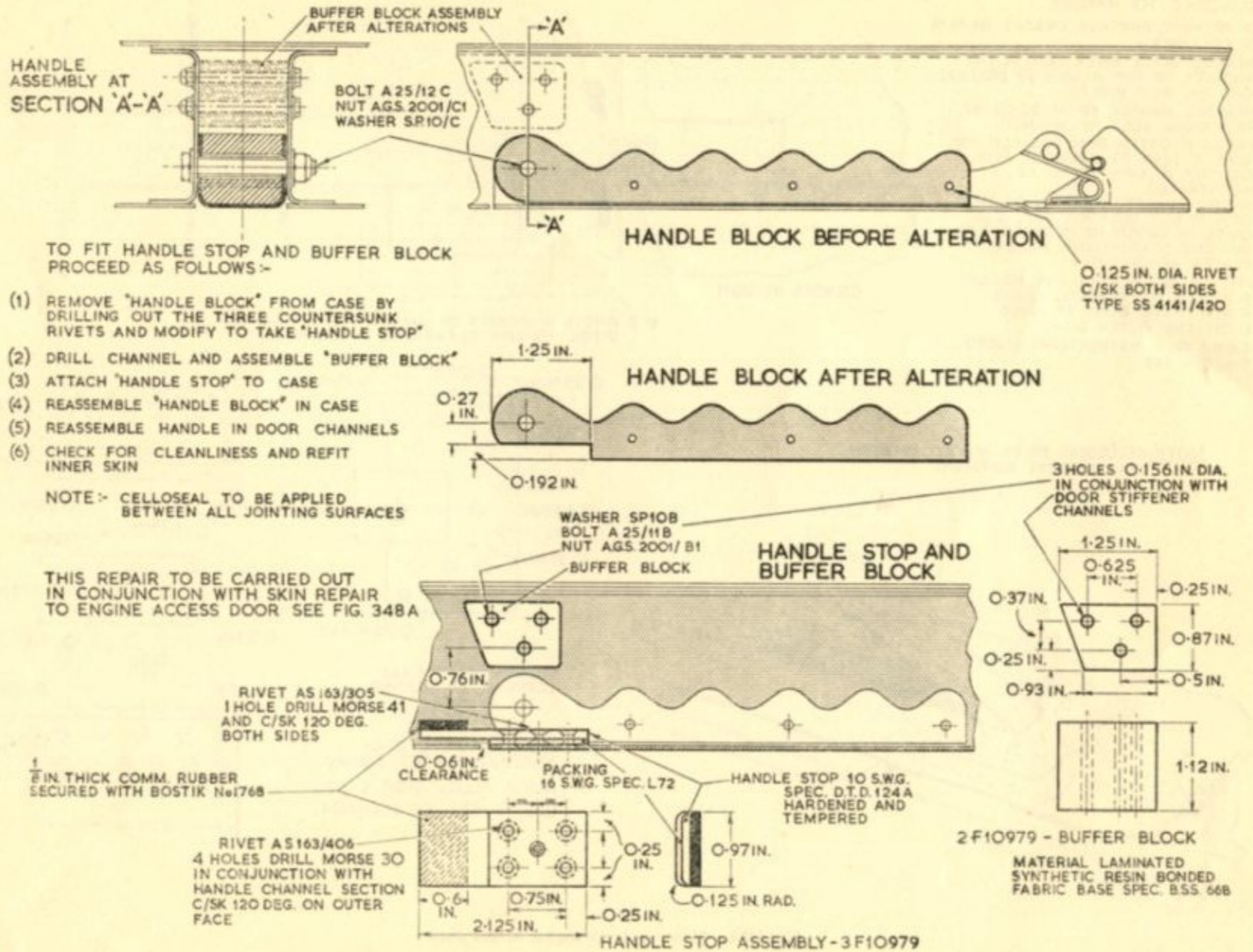
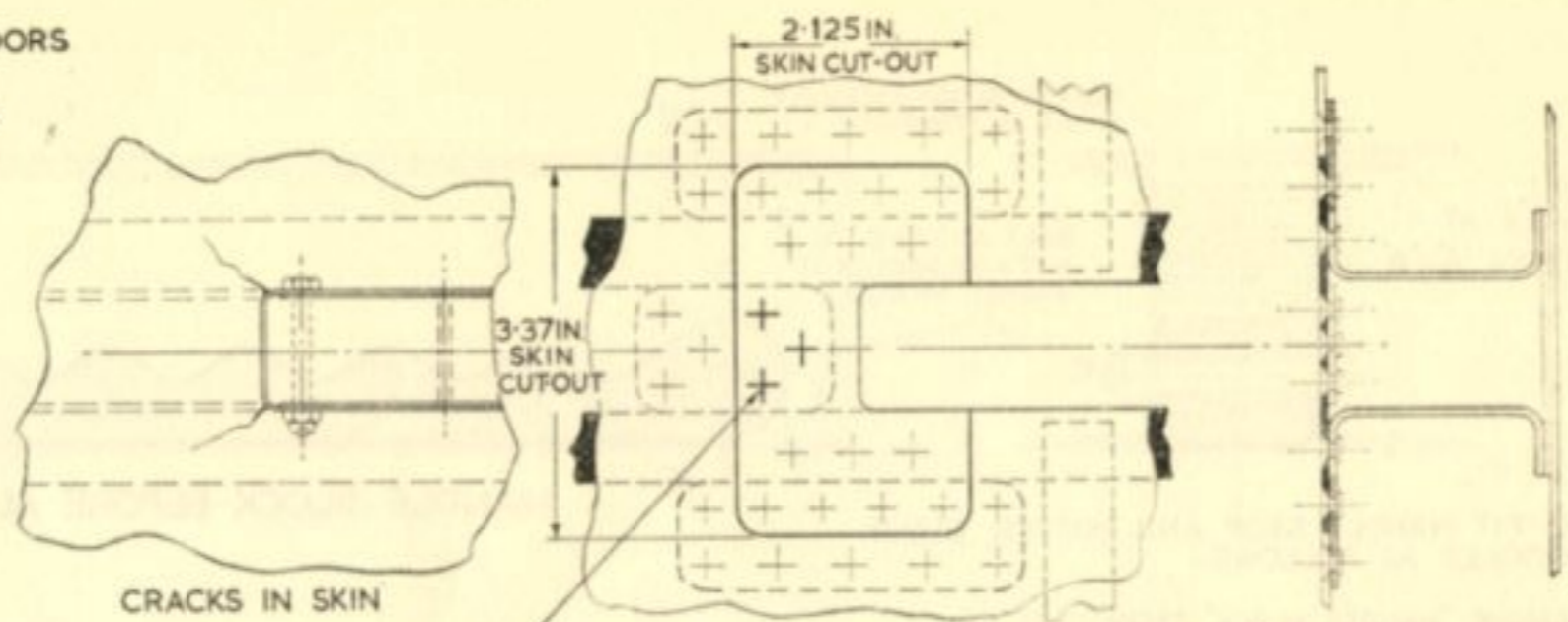


Fig. 348. Repair to prevent further cracks in engine access doors

SKIN CRACKS IN ENGINE ACCESS DOORS ADJACENT TO HANDLE.

TO PREVENT FURTHER CRACKS REPAIR AS FOLLOWS:-

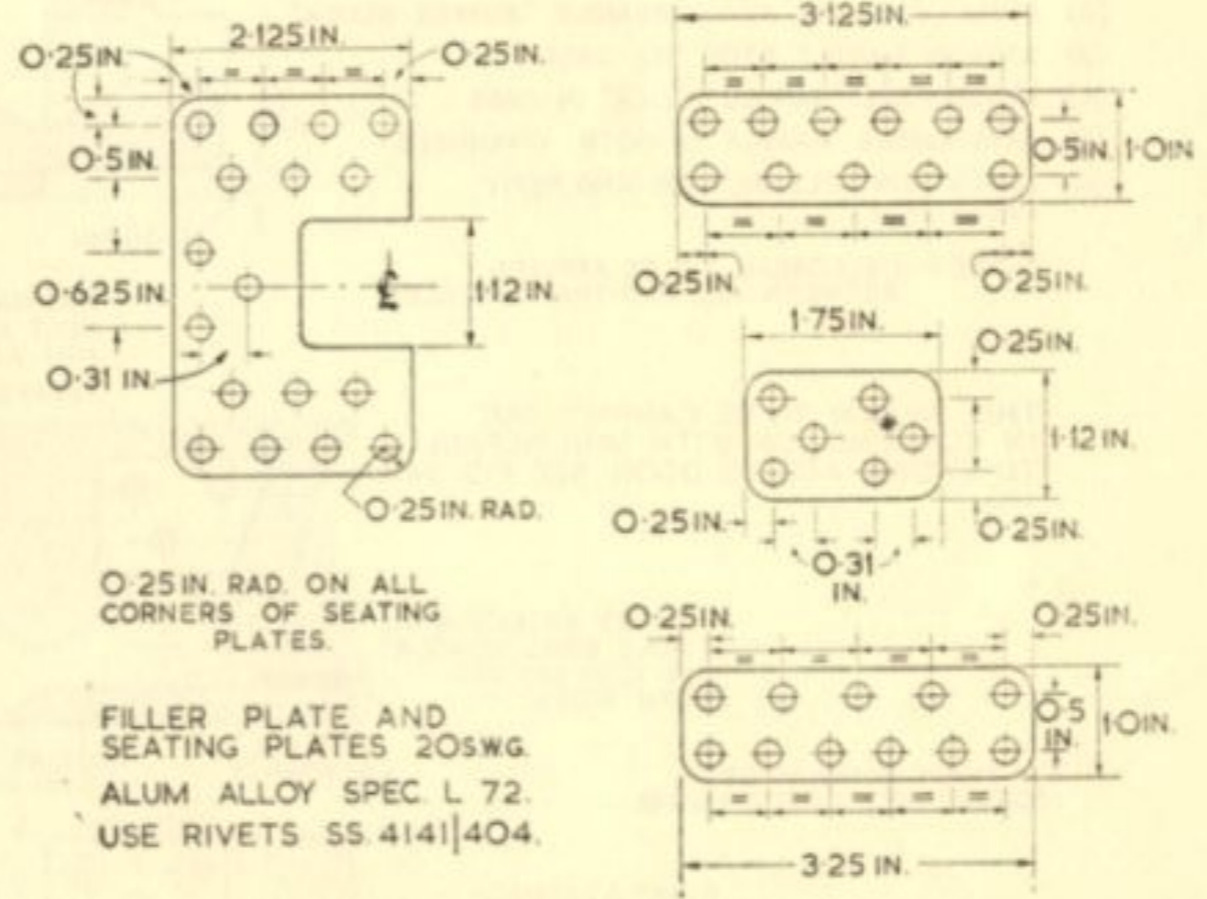
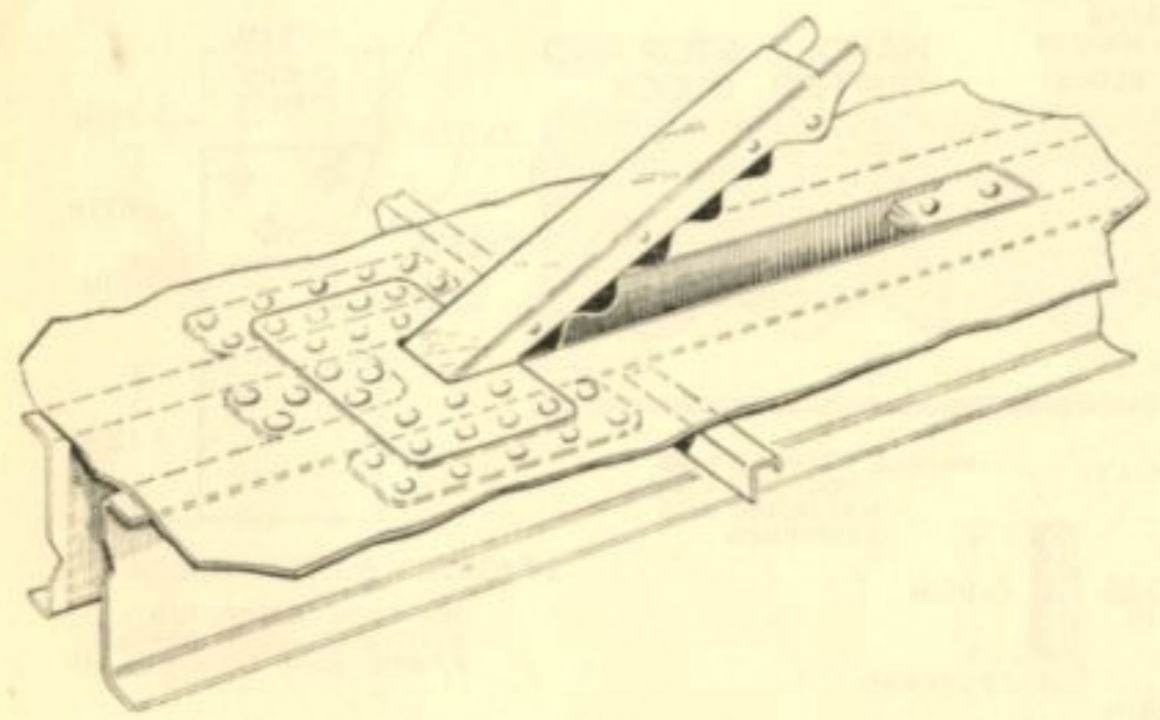
- 1 REMOVE DOOR INNER SKIN IN THE VICINITY OF THE HANDLE BY DRILLING OUT THE POP RIVETS.
- 2 REMOVE HANDLE FROM DOOR BY RELEASING BOLT IN CHANNEL.
- 3 RELEASE OUTER SKIN LOCALLY TO GIVE ACCESS TO DAMAGED SKIN. CUT-OUT IN SKIN TO BE AS ILLUSTRATED.
IF THE DAMAGED PORTION OF THE SKIN IS NOT CLEANED OUT, IT IS QUITE IN ORDER TO INCREASE THE CUT-OUT SEATING AND FILLER PLATES ACCORDINGLY.
- 4 FIT SEATING PLATES AND FILLER PLATE, ALSO REPLACE RIVETS WHICH HAVE BEEN REMOVED FROM THE OUTER SKIN.
- 5 CARRY OUT INSTRUCTIONS STATED ON FIG. 348.



CRACKS IN SKIN

* 3 RIVETS IN VICINITY OF HANDLE STOP TO BE C/SK ON INSIDE TO GIVE CLEARANCE IF REQUIRED.

NOTE: CELLOSEAL TO BE APPLIED BETWEEN ALL JOINTING SURFACES.

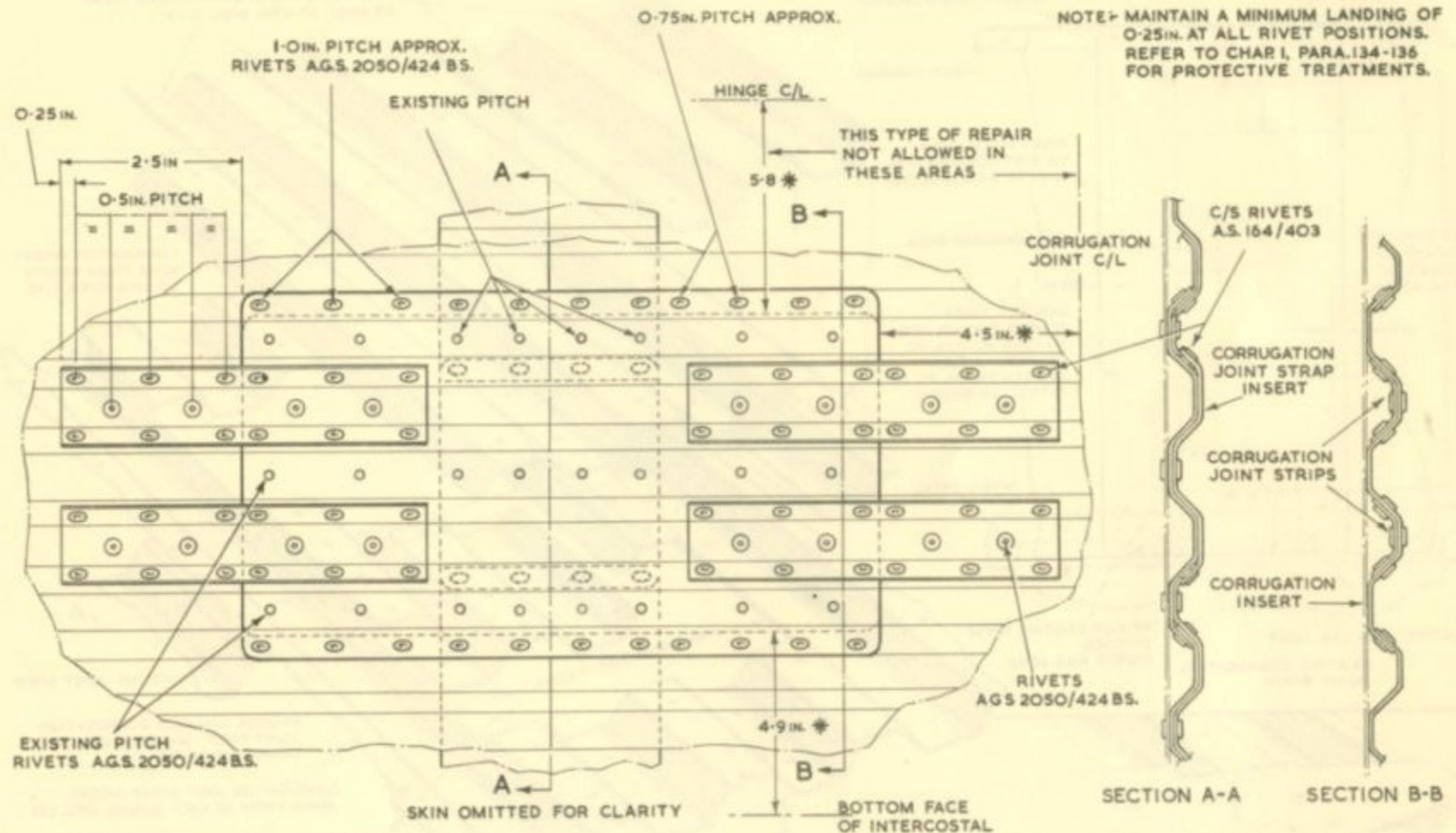


0.25 IN. RAD. ON ALL CORNERS OF SEATING PLATES.

FILLER PLATE AND SEATING PLATES 20SWG. ALUM ALLOY SPEC L 72. USE RIVETS SS.4141|404.

Fig. 348A. Skin repair to engine access door

RESTRICTED



REPAIR INSTRUCTIONS

CUT AND REMOVE INNER SKIN PANEL AS SHOWN ON FIG. 351B. CLEAN OUT DAMAGED CORRUGATION, MAINTAIN A MINIMUM RADIUS OF 0.25 in. MAKE CORRUGATION INSERT AND JOINT STRIPS. ASSEMBLE JOINT STRIPS TO INSERT. MAKE REPAIR JOINT STRAP FOR EXISTING CORRUGATION JOINT STRIP PRIOR TO FINAL ASSEMBLY REMOVE ALL SHARP EDGES, COAT ALL JOINTS AND RIVETS WITH CELLOSEAL.

ASSEMBLE INSERT AND CORRUGATION JOINT STRAP RIVET UP LESS SKIN ATTACHMENT RIVETS. FIT NEW SKIN PANEL WITH DOUBLE LAP JOINT AND COMPLETE RIVETING.

REFER TO FIG. 351B
FOR FURTHER DETAILS

REPAIR LIMITS

THIS TYPE OF REPAIR IS SUITABLE FOR DAMAGE TO CORRUGATION SECTIONS UP TO APPROX. 4.5 in. FROM ADJACENT JOINTS. MAXIMUM REPAIRABLE DEPTH 9-625 in. APPROX. DAMAGE ABOVE THESE LIMITS MUST BE REPLACED BY FULL LENGTH CORRUGATION AND SKIN PANELS WITH JOINT STRIPS FITTED

FIG. 351 A BOMB DOOR REPAIR CORRUGATION JOINT AND SINGLE SKIN

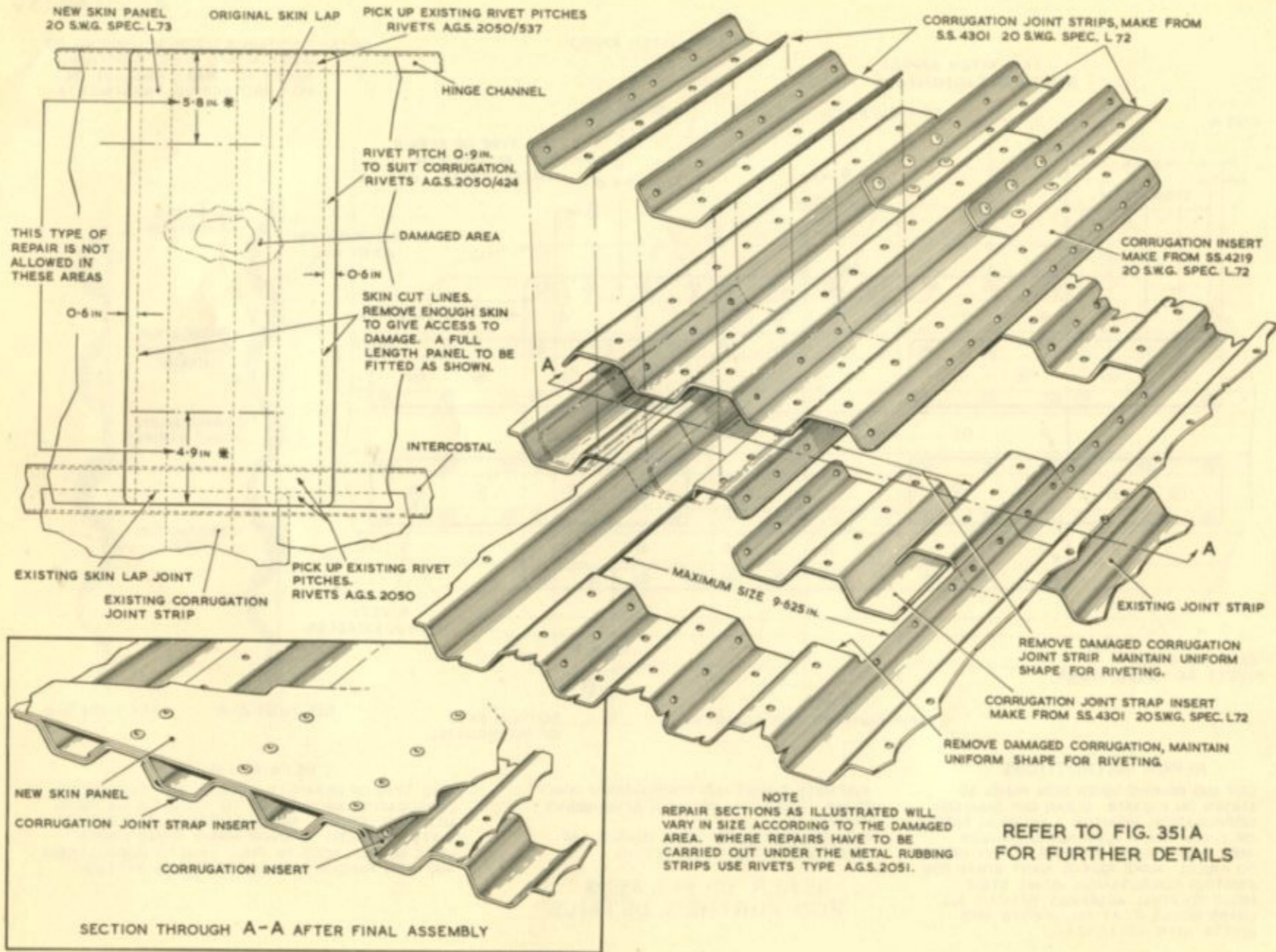


FIG 351 B BOMB DOOR REPAIR CORRUGATION JOINT AND SINGLE SKIN

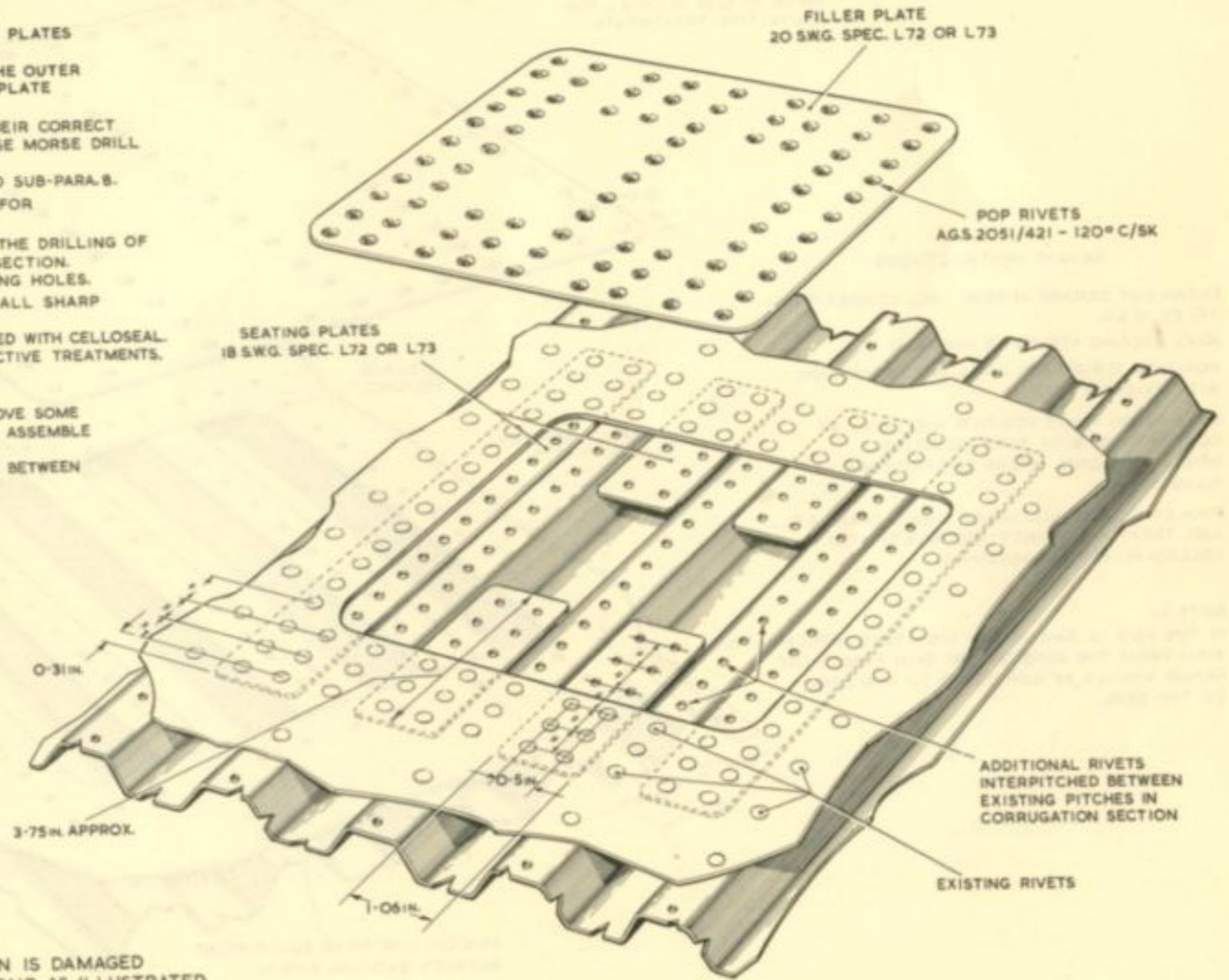
RESTRICTED

REPAIR INSTRUCTIONS

- 1 CLEAN OUT DAMAGE IN SKIN. ALL CORNER RADII TO BE 0.5 IN.
- 2 MAKE SEATING PLATES AS REQUIRED
- 3 DRILL $\frac{3}{32}$ IN. PILOT HOLES IN SEATING PLATES FOR ATTACHMENT TO SKIN.
- 4 POSITION THE SEATING PLATES ON THE OUTER FACE OF THE SKIN AND USE AS TEMPLATE FOR DRILLING.
- 5 ASSEMBLE THE SEATING PLATES IN THEIR CORRECT POSITIONS, OPEN OUT THE HOLES USE MORSE DRILL No. 30 AND COUNTERSINK 120° PRIOR TO RIVETING PLATE, REFER TO SUB-PARA. B.
- 6 MARK OUT AND DRILL FILLER PLATE FOR ATTACHMENT TO SEATING PLATES.
- 7 POSITION FILLER PLATE, COMPLETE THE DRILLING OF SEATING PLATES AND CORRUGATION SECTION. DRILL IN CONJUNCTION WITH EXISTING HOLES.
- 8 PRIOR TO FINAL ASSEMBLY REMOVE ALL SHARP EDGES AND CLEAN OUT SWarf ETC., ALL JOINTS AND RIVETS TO BE COATED WITH CELLOSEAL. REFER TO TEXT IN CHARI FOR PROTECTIVE TREATMENTS.

NOTE - IT MAY BE NECESSARY TO REMOVE SOME EXISTING RIVETS IN ORDER TO ASSEMBLE THE LONG SEATING PLATES. SEATING PLATES TO BE FITTED BETWEEN EVERY CORRUGATION.

THIS TYPE OF REPAIR IS SUITABLE FOR ANY DAMAGE TO THE SKIN WITHIN THE LIMITS QUOTED ON FIG. 351 A - B LIMITS INDICATED THUS *



IF CORRUGATION IS DAMAGED
 CARRY OUT REPAIR AS ILLUSTRATED
 ON FIG. 351

FIG. 351C BOMB DOOR REPAIRS EXTERNAL SINGLE SKIN

SKIN PATCH PLATE
 MATERIAL 20 SWG. SPEC. L72 OR L73.
 USE POP RIVETS AG.S.2051/424
 120° C/SK. HEAD FOR ATTACHMENTS.
 REFER TO TEXT IN CHAP I, FOR
 PROTECTIVE TREATMENTS

REPAIR INSTRUCTIONS

CLEAN OUT DAMAGE IN SKIN. ALL CORNER RADII
 TO BE 0.5 IN.

MAKE PACKING STRIPS AS REQUIRED.

POSITION STRIPS AND DRILL IN CONJUNCTION
 WITH EXISTING HOLES.

MAKE PATCH PLATE, POSITION AND DRILL IN
 CONJUNCTION WITH EXISTING HOLES.
 DRILL ADDITIONAL HOLES INTERPITCHED AS
 ILLUSTRATED.

FINALLY REMOVE ALL SHARP EDGES, SWarf ETC.,
 AND TREAT ALL JOINTS AND RIVETS WITH
 CELLOSEAL BEFORE ASSEMBLY.

NOTE

IF THE SKIN IS DAMAGED IN THE AREAS APPROXIMATELY
 4-5 IN. FROM THE EDGE OF THE SKIN PANELS, THE
 REPAIR SHOULD BE CONTINUED TO THE EDGE
 OF THE SKIN.

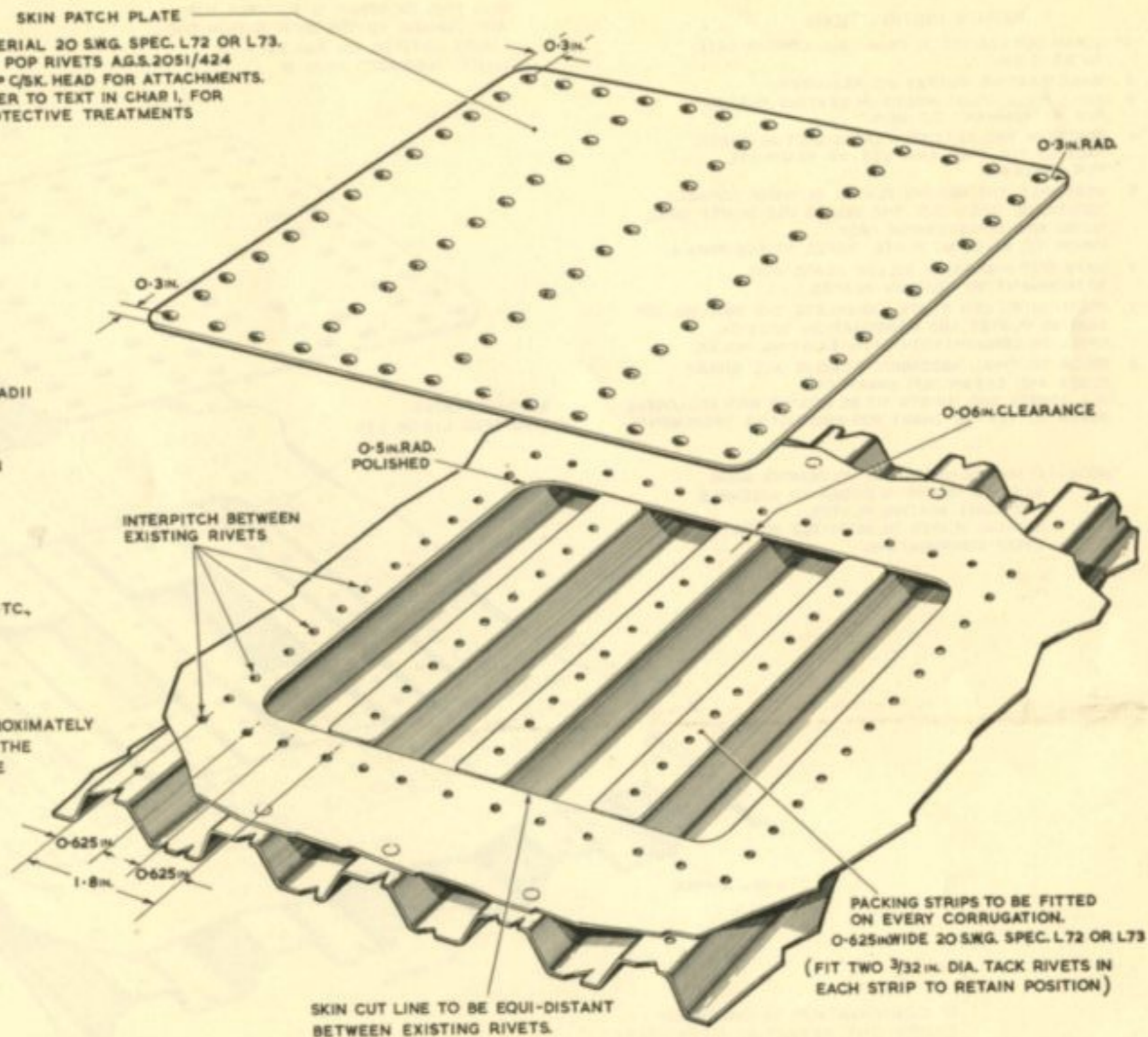


FIG. 351D BOMB DOOR REPAIR - INTERNAL SKIN - FREE AREAS

RESTRICTED

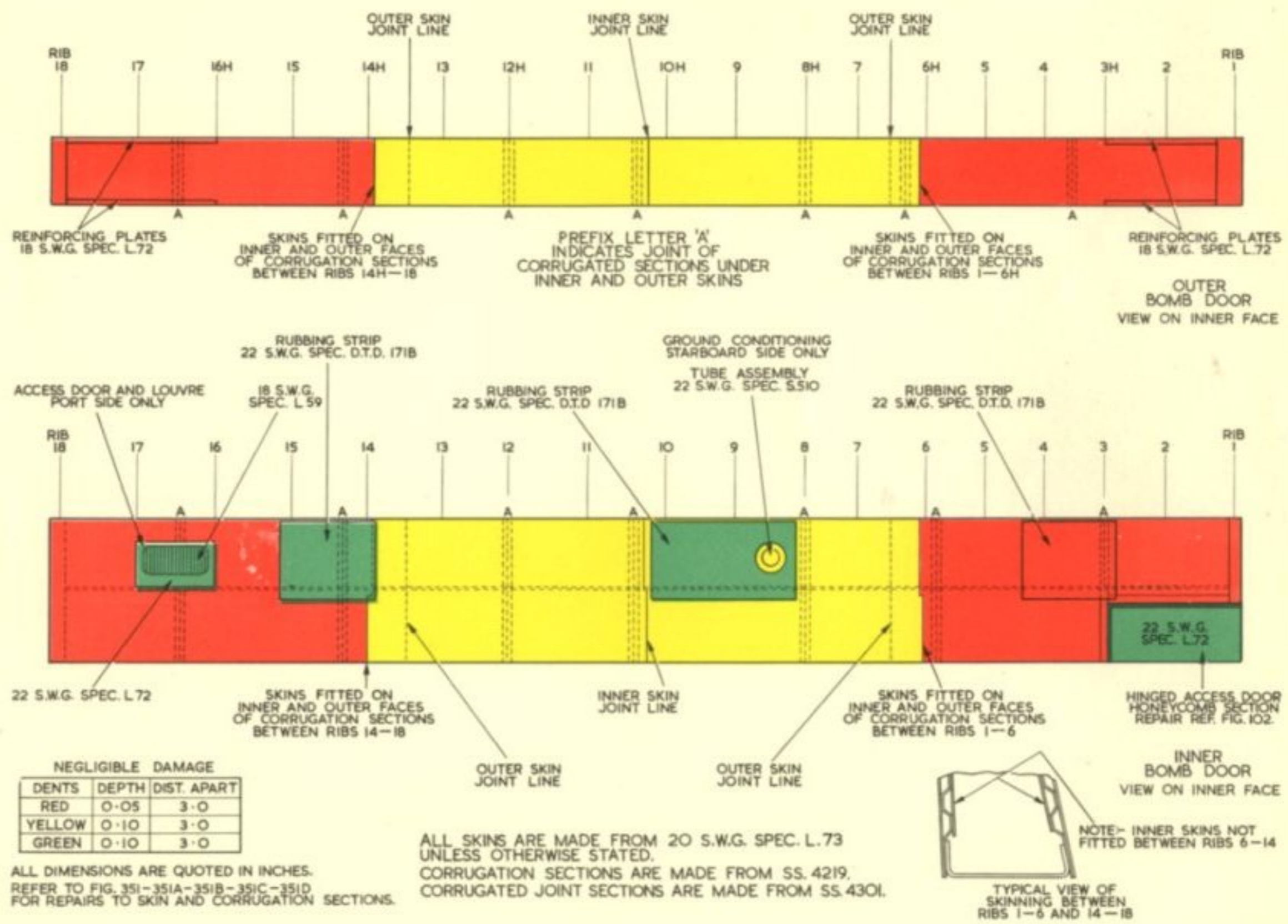
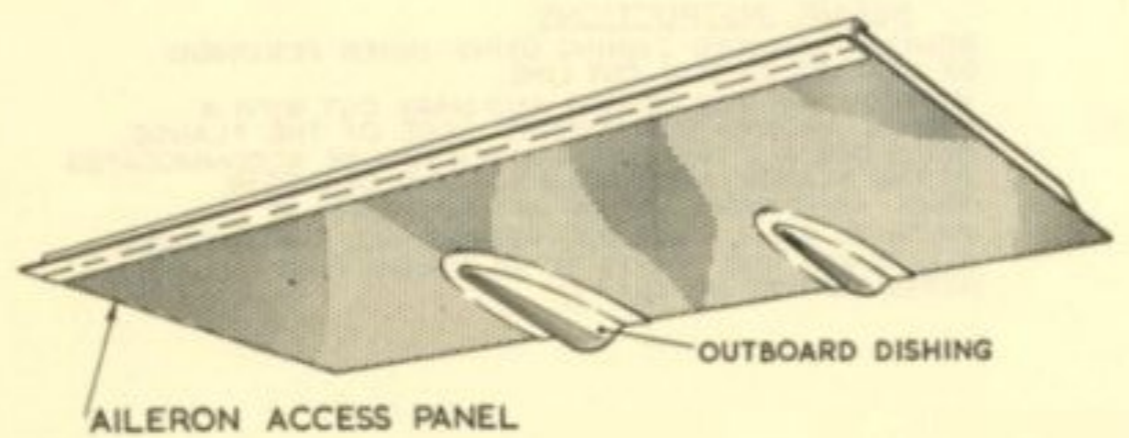
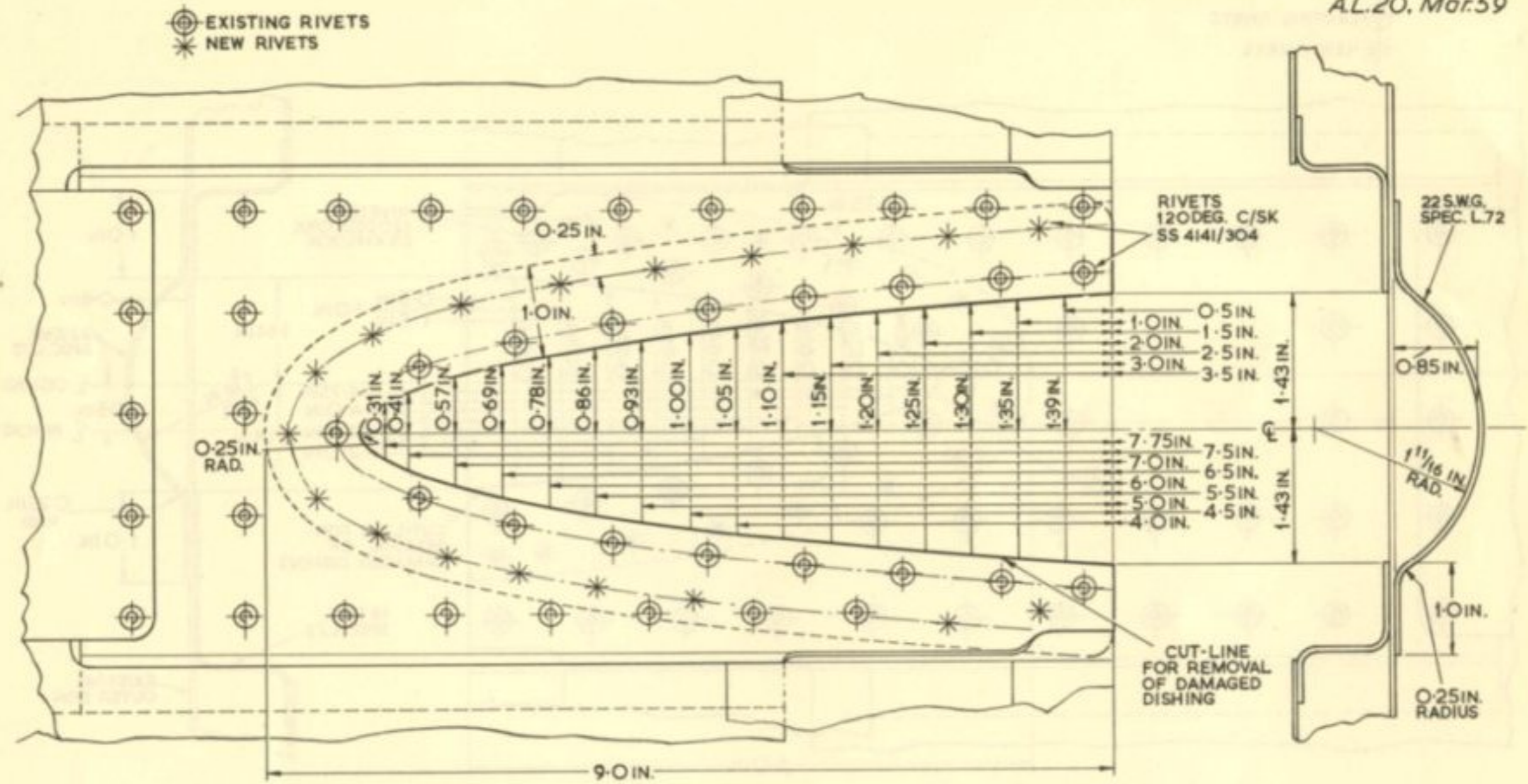




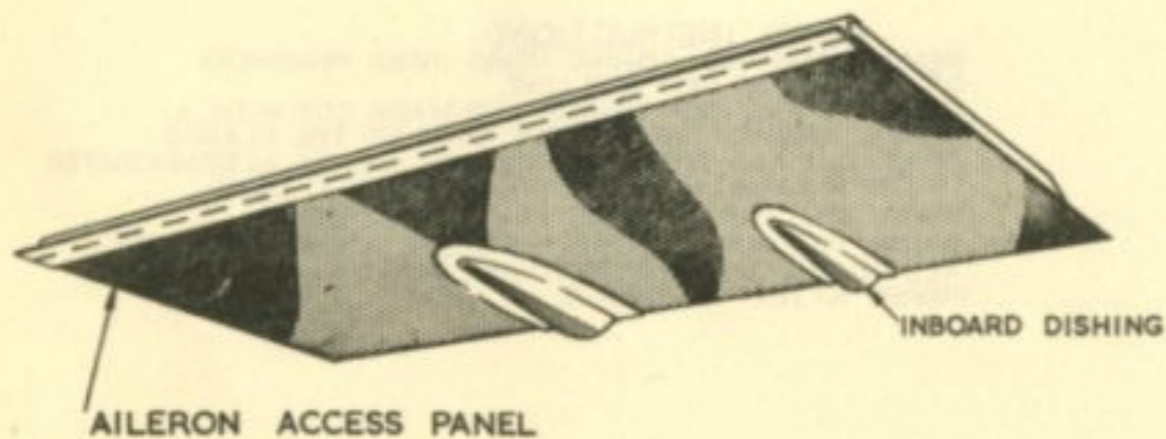
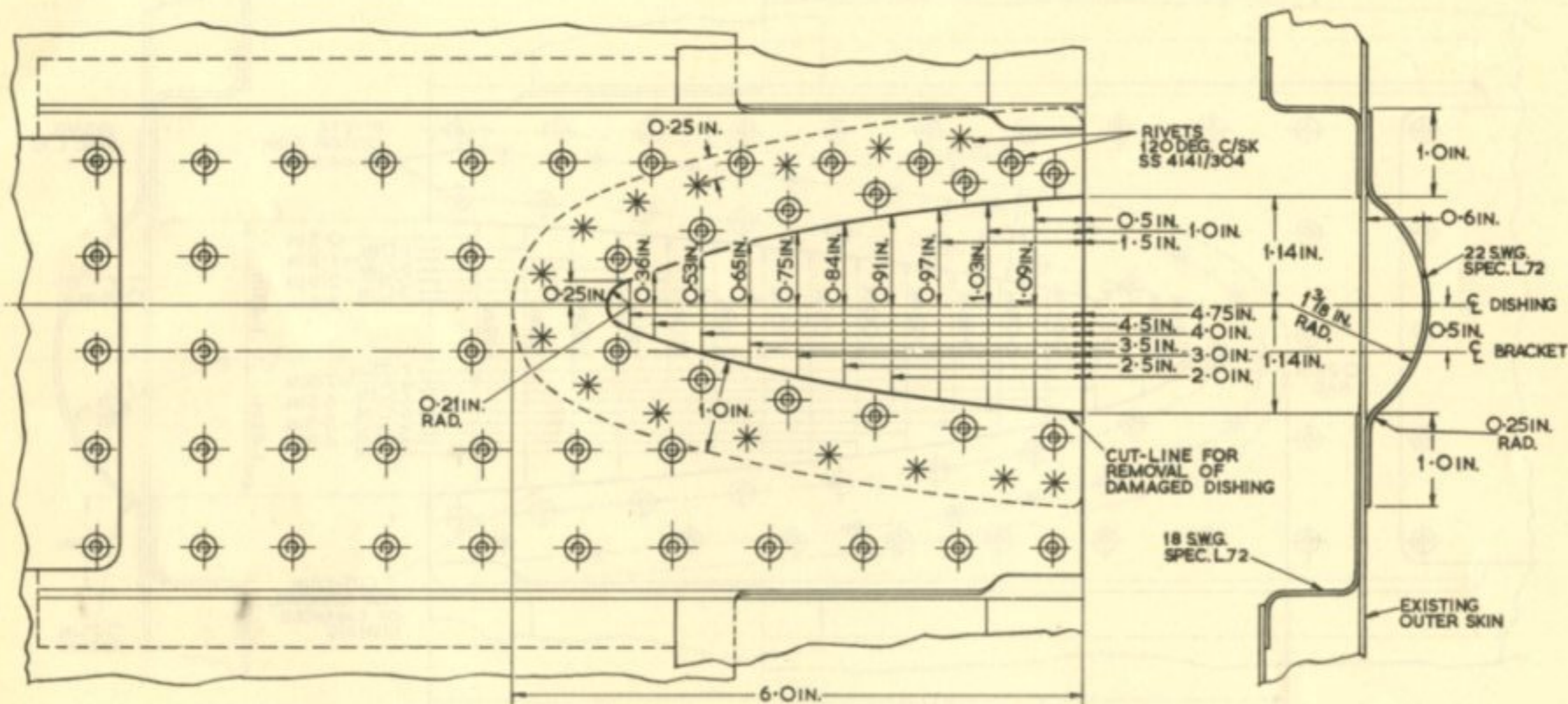
Fig. 351E Bomb door - skinning
RESTRICTED



REPAIR INSTRUCTIONS
 REMOVE DAMAGED DISHING USING INNER PERIPHERY OF BRACKET AS SKIN CUT LINE.
 POSITION THE NEW DISHING AND MARK OUT WITH A PENCIL AROUND THE OUTSIDE EDGE OF THE FLANGE.
 DRILL OUT ALL THE RIVETS WHICH CAN BE ACCOMMODATED IN THE FLANGE: MAINTAIN A LANDING OF 0.25 IN.
 DRILL ADDITIONAL HOLES AS ILLUSTRATED *
 PRIOR TO FINAL ASSEMBLY, REMOVE ALL SHARP EDGES.
 ALL RIVETS AND JOINTS TO BE COATED WITH CELLOSEAL (REFER TO TEXT IN CHAP 1).

FIG. 352 AILERON BOTTOM ACCESS PANEL - REPAIR TO OUTBOARD DISHING
RESTRICTED

 EXISTING RIVETS
 NEW RIVETS



REPAIR INSTRUCTIONS

REMOVE DAMAGED DISHING USING INNER PERIPHERY OF BRACKET AS SKIN CUT LINE.

POSITION THE NEW DISHING AND MARK OUT WITH A PENCIL AROUND THE OUTSIDE EDGE OF THE FLANGE.

DRILL OUT ALL THE RIVETS WHICH CAN BE ACCOMMODATED IN THE FLANGE: MAINTAIN A LANDING OF 0.25 IN.

DRILL ADDITIONAL HOLES AS ILLUSTRATED *

PRIOR TO FINAL ASSEMBLY, REMOVE ALL SHARP EDGES.

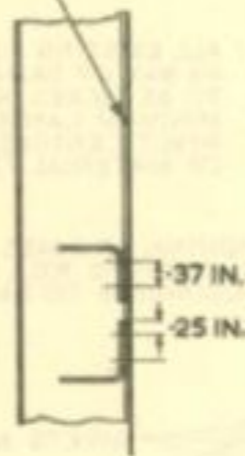
ALL RIVETS AND JOINTS TO BE COATED WITH CELLOSEAL (REFER TO TEXT IN CHAP. 1).

FIG. 353 AILERON BOTTOM ACCESS PANEL - REPAIR TO INBOARD DISHING RESTRICTED

PATCH PLATE 18 S.W.G SPEC. D.T.D. 626
 PICK-UP EXISTING MOUNTING HOLES
 THUS ●
 NOTE- IF CRACKS DO NOT WARRANT
 INSERTION REPAIR, DRILL OUT ENDS
 OF CRACKS 0.125 IN. DIA. AND
 ASSEMBLE PATCH PLATE.

USE 20 S.W.G D.T.D 626 MATERIAL
 FOR FILLER PLATE INSERTION
 IF REQUIRED. RIVET PITCH
 1-0 IN. STAGGERED.

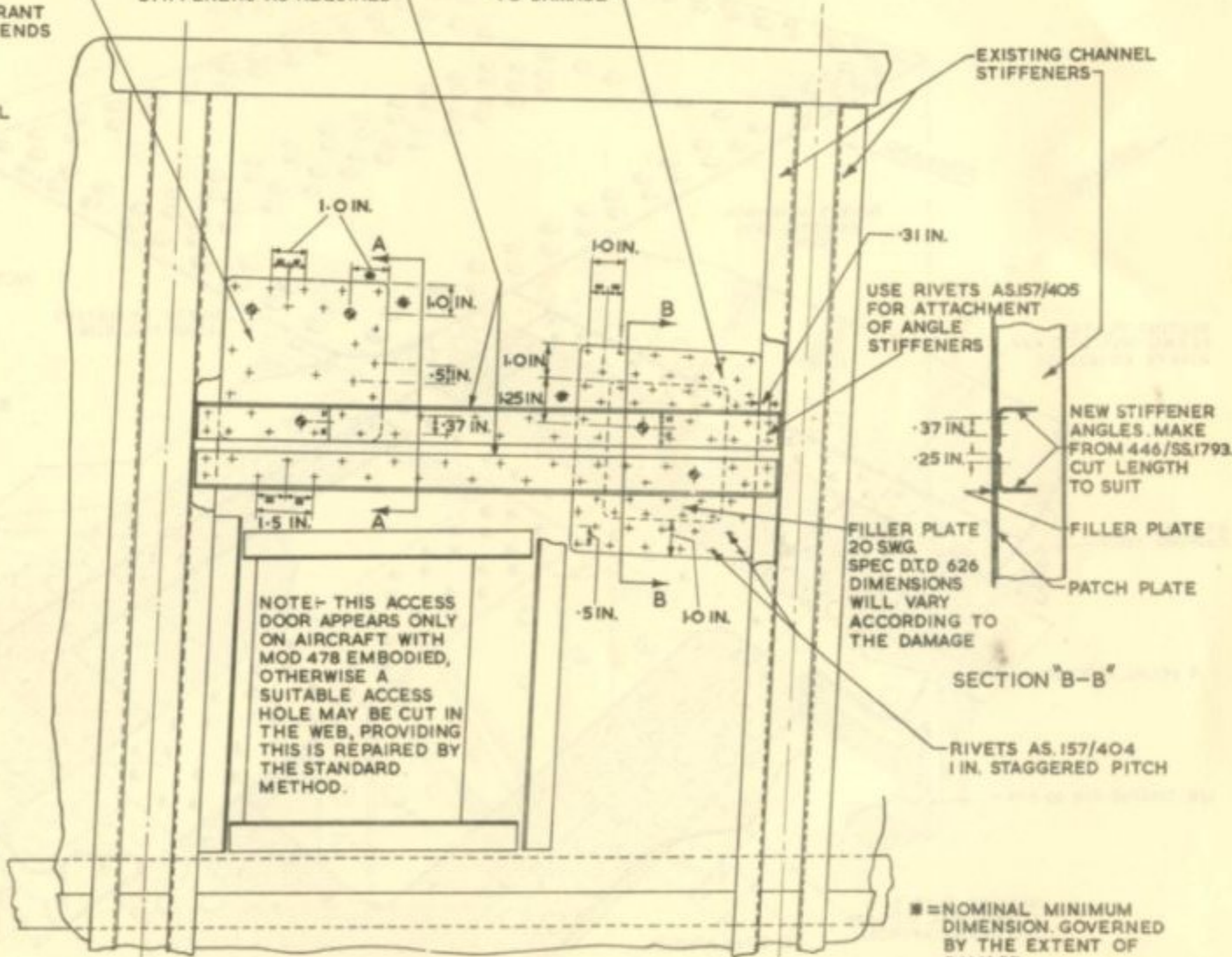
PATCH PLATE



SECTION "A-A"

FIT PACKING STRIPS 18 S.W.G
 SPEC. L72 UNDER ANGLE
 STIFFENERS AS REQUIRED

PATCH PLATE 18 S.W.G SPEC. D.T.D. 626
 DIMENSIONS WILL VARY ACCORDING
 TO DAMAGE



EXISTING CHANNEL
 STIFFENERS

.31 IN.

USE RIVETS AS.157/405
 FOR ATTACHMENT
 OF ANGLE
 STIFFENERS

NEW STIFFENER
 ANGLES. MAKE
 FROM 446/SS1793.
 CUT LENGTH
 TO SUIT

FILLER PLATE
 20 SWG.
 SPEC D.T.D 626
 DIMENSIONS
 WILL VARY
 ACCORDING TO
 THE DAMAGE

FILLER PLATE
 PATCH PLATE

SECTION "B-B"

RIVETS AS.157/404
 1 IN. STAGGERED PITCH

NOTE- THIS ACCESS
 DOOR APPEARS ONLY
 ON AIRCRAFT WITH
 MOD 478 EMBODIED,
 OTHERWISE A
 SUITABLE ACCESS
 HOLE MAY BE CUT IN
 THE WEB, PROVIDING
 THIS IS REPAIRED BY
 THE STANDARD
 METHOD.

NOTE- MAINTAIN A 0.25 IN
 RADIUS ON ALL CORNERS OF
 FILLER PLATES, PATCH PLATES,
 AND CLEANED OUT PORTION
 OF DAMAGED WEB.
 A MINIMUM LANDING OF
 0.25 IN. IS REQUIRED AT ALL
 RIVET POSITIONS

ALL JOINTS, AND RIVETS TO
 BE COATED WITH CELLOSEAL.
 REFER TO CHAP.1. PARA 134 TO 136
 FOR PROTECTIVE TREATMENTS

■ = NOMINAL MINIMUM
 DIMENSION. GOVERNED
 BY THE EXTENT OF
 DAMAGE

FIG.354. REPAIR TO WEB ON MAIN U/C. RIB 212.5 IN. (FOR MOUNTING OF SELECTOR UNIT AND JETTISON VALVE.)

RESTRICTED

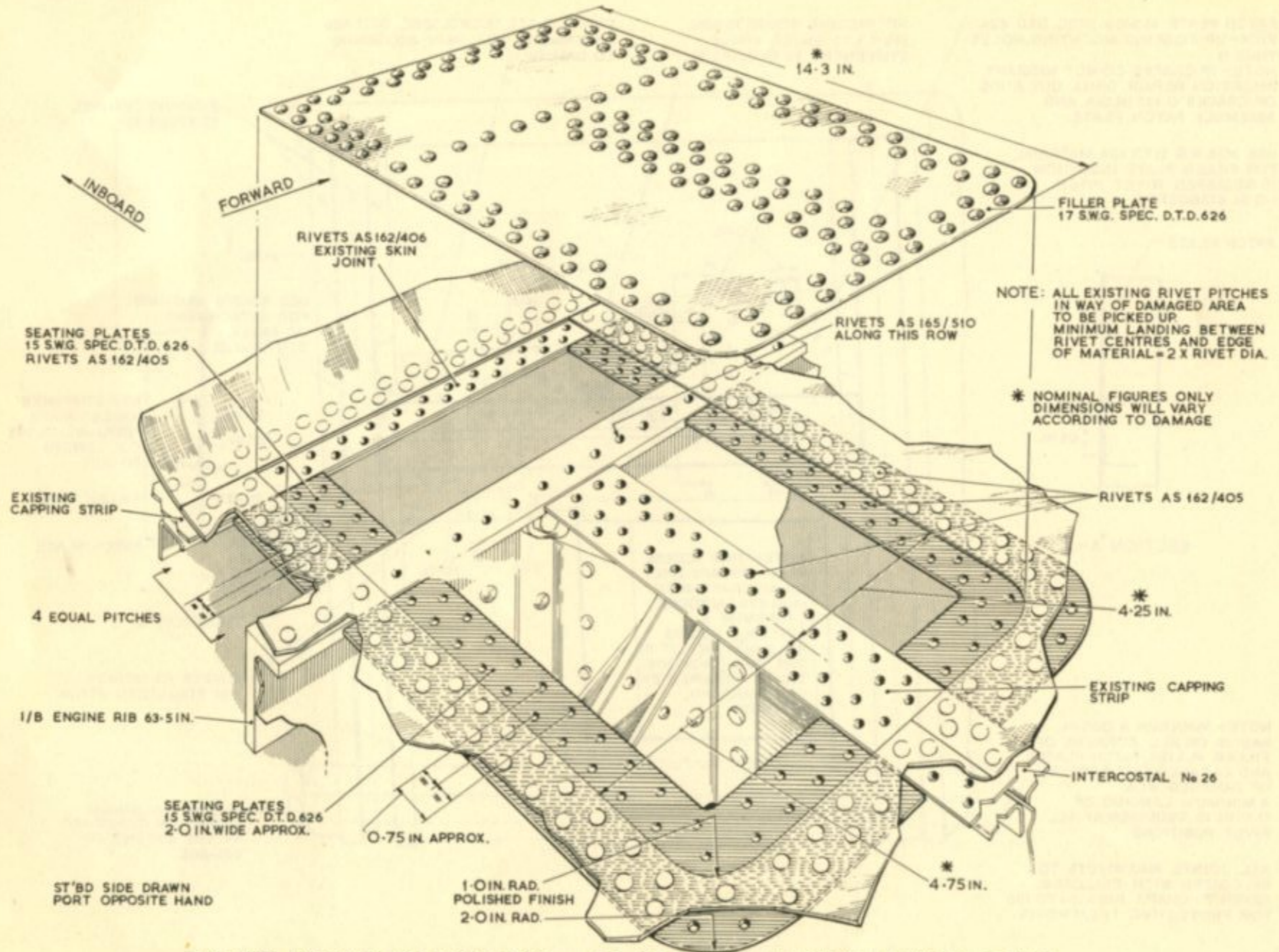
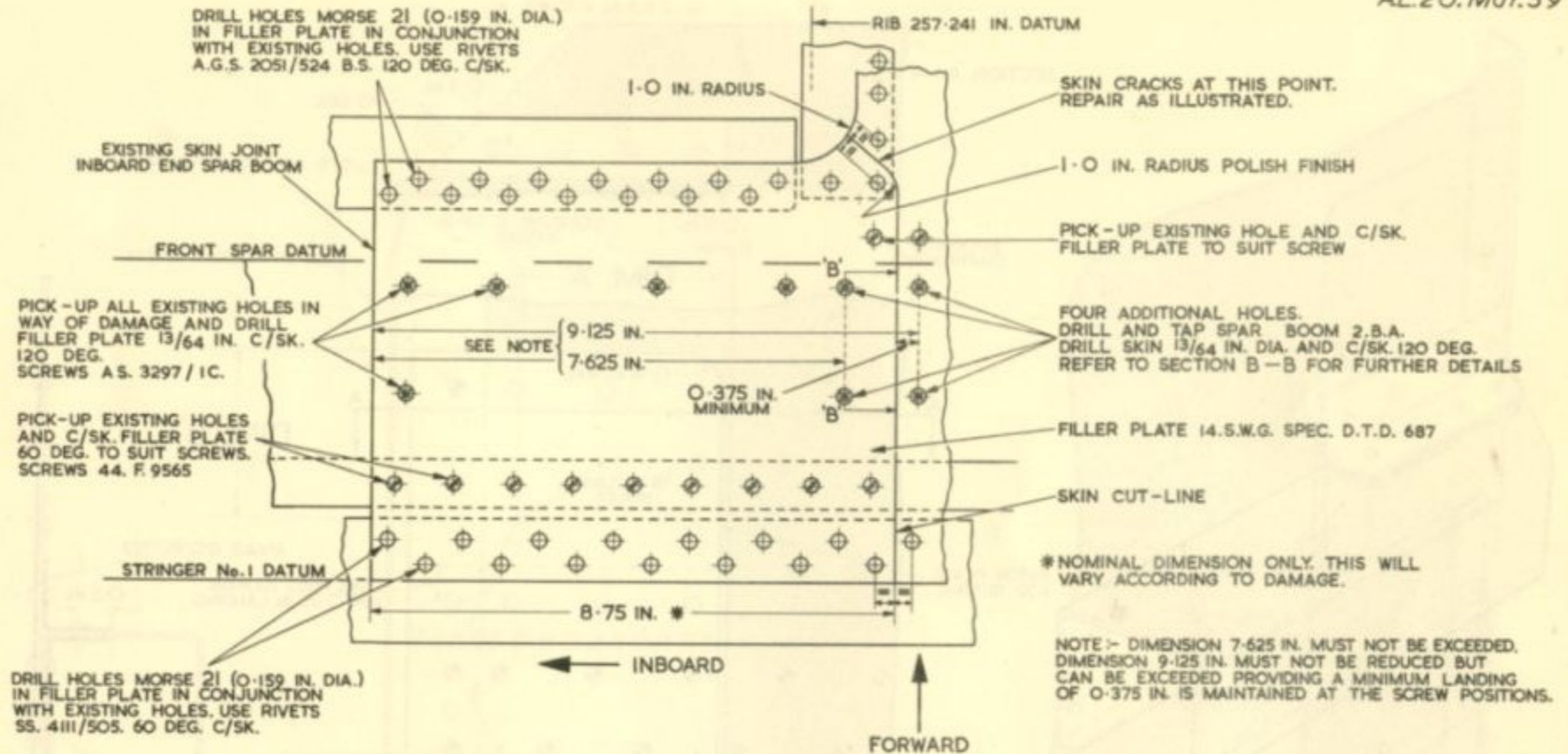
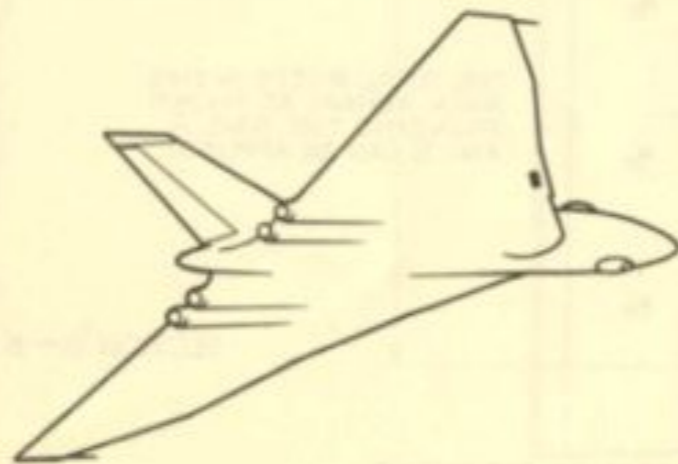


FIG. 355 REPAIR TO TOP SKIN - AT REAR 1/8 ENGINE LIFTING POINT RESTRICTED

ST'BD SIDE DRAWN
PORT OPPOSITE HAND



VIEW ON UNDERSIDE OF WING LOOKING UP PORT SIDE AS DRAWN



THIS REPAIR IS SUITABLE FOR SKIN DAMAGE AT THE REAR OUTBOARD CORNER OF THE WING TRANSPORT JOINT ACCESS DOOR, PORT OR ST'BD. SIDE.

REFER TO CHAP. I. FOR PROTECTIVE TREATMENT INSTRUCTIONS.

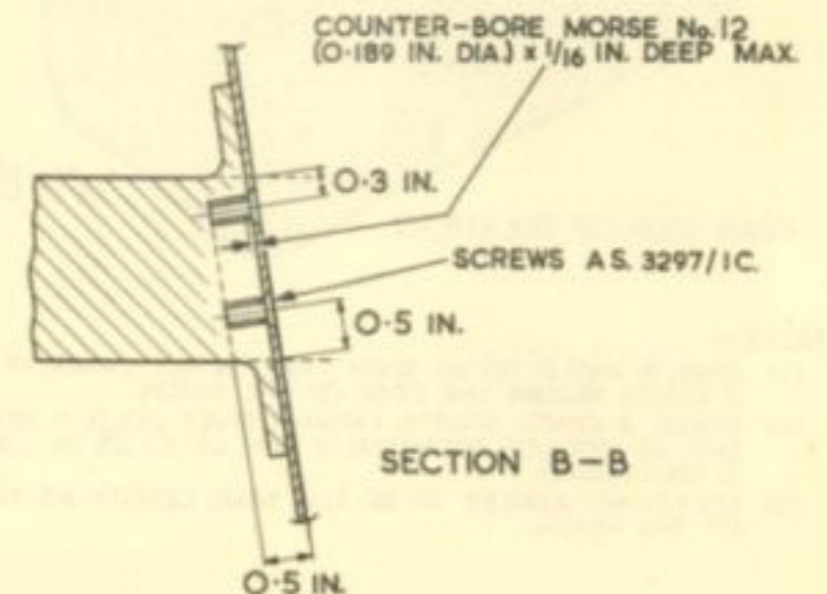
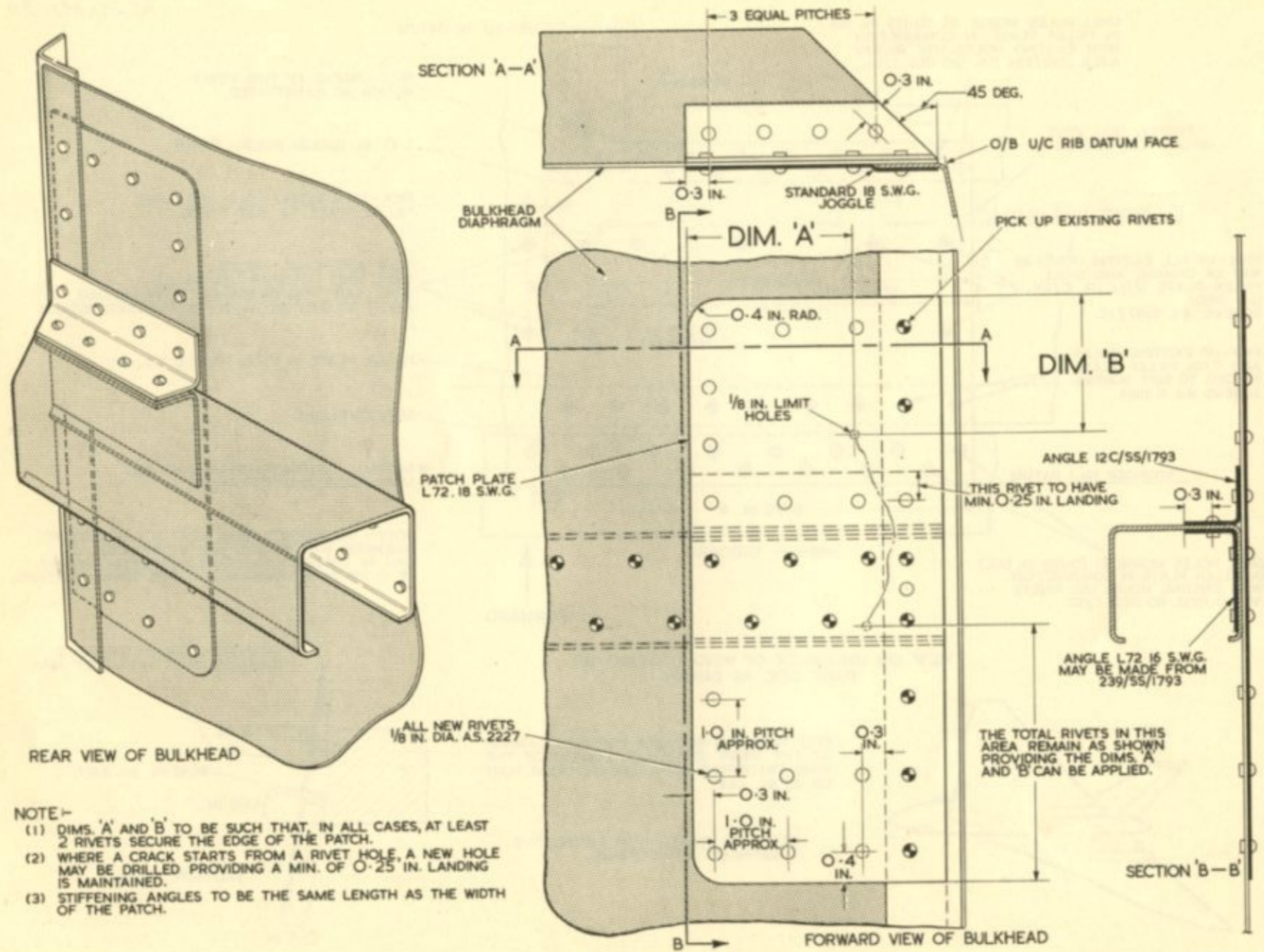


FIG. 356. SKIN REPAIR TO WING L/EDGE BOTTOM SKIN



NOTE -

- (1) DIMS. 'A' AND 'B' TO BE SUCH THAT, IN ALL CASES, AT LEAST 2 RIVETS SECURE THE EDGE OF THE PATCH.
- (2) WHERE A CRACK STARTS FROM A RIVET HOLE, A NEW HOLE MAY BE DRILLED PROVIDING A MIN. OF 0.25 IN. LANDING IS MAINTAINED.
- (3) STIFFENING ANGLES TO BE THE SAME LENGTH AS THE WIDTH OF THE PATCH.

FIG. 357. STIFFENING REPAIR TO CRACKED REAR BULKHEAD — M/W BAY

RESTRICTED

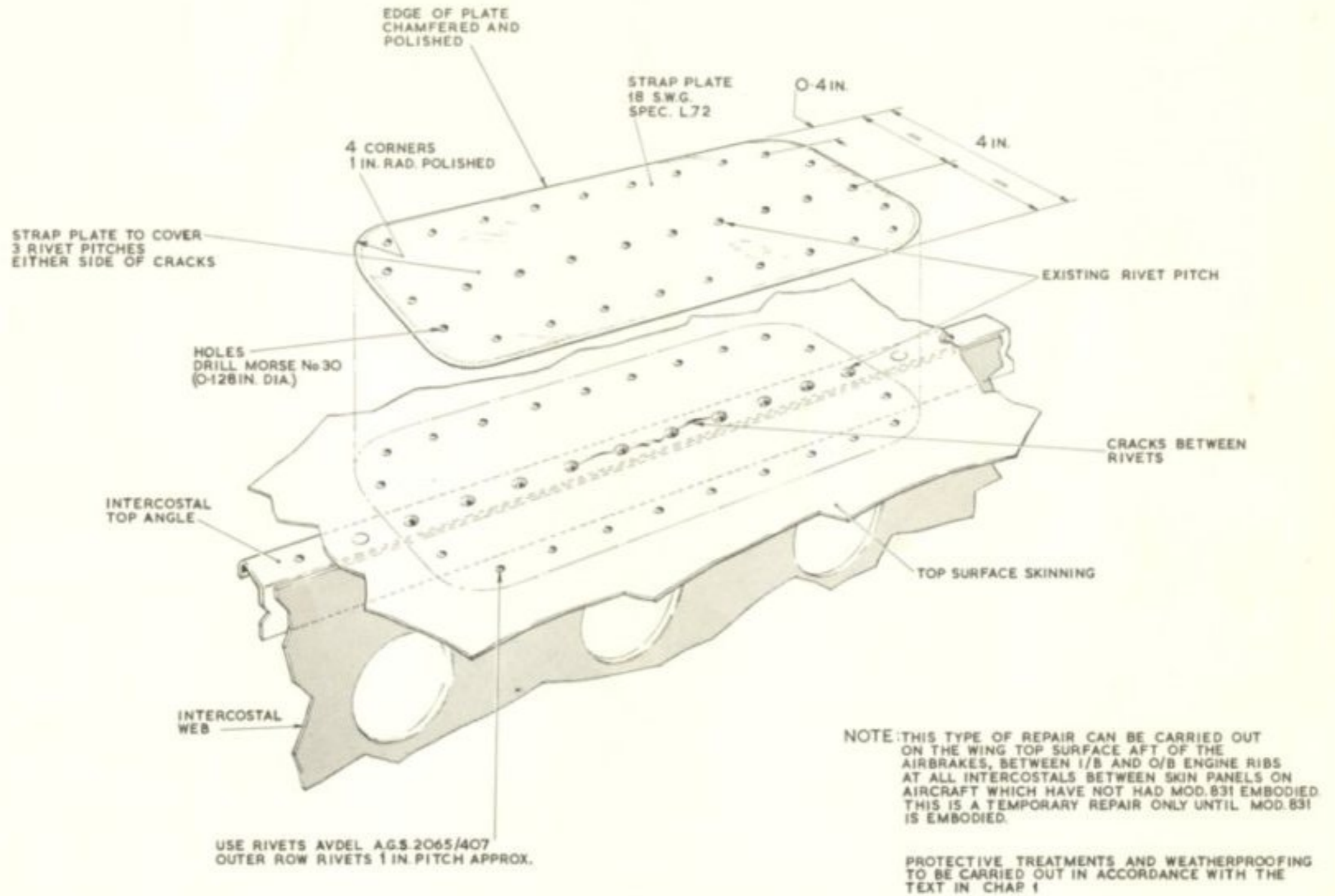


Fig.358. Wing top skin repairs to aircraft (Pre Mod. 831)

RESTRICTED

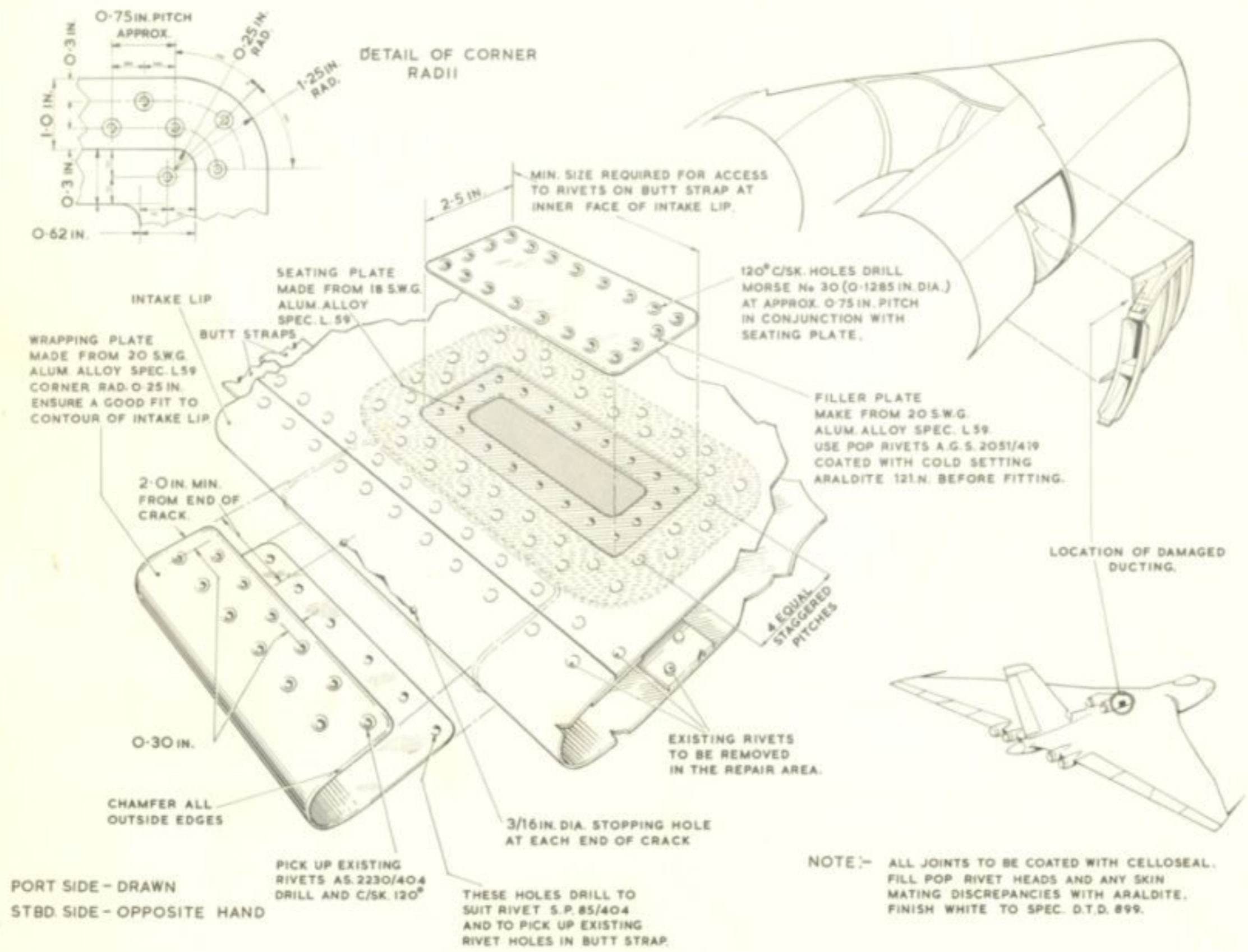


Fig. 359. Repair to crack in lip of air intake boundary layer bleed duct.

March, 1957

A.P.4505, Vol. 6, Part I

CHAPTER 4

TAIL UNIT

CHAP.

4

RESTRICTED

Chapter 4 TAIL UNIT

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INTRODUCTION

401. As no conventional tail-plane is fitted on this aircraft, the main assemblies in the "tail-unit" consist only of a fin and rudder. The elevators and the dorsal fin are dealt with separately in Chap. 3. The main assemblies are illustrated from front to rear, each section being broken down into various sub-assemblies. With the exception of a detachable fin tip which is made from a composite material, the fin and rudder are made from all metal construction.

PROTECTIVE TREATMENTS

402. When any repairs are being carried out, protective treatments as laid down in Chap. 1, paras, 134 to 138, should be incorporated.

REPAIRS TO RUDDER BALANCE SEALING

403. Refer to Chap. 3, para. 314 for minor repairs to balance seals, and for illustrations see figs. 406 and 407. In the event of a rudder seal having to be changed, proceed as follows:—

- (1) Select the rudder to port.
- (2) Remove the countersunk head bolts from the fin hinged shroud access doors which are situated on the port side of the fin. The doors will now swing clear, giving access to the rudder balance seals.
- (3) Remove the mush-head bolts attaching

the damaged seal to the fin shroud balance chamber.

- (4) Select the rudder to starboard.
- (5) Remove the bolts attaching the seal to the beak of the rudder. The seal can now be removed.
- (6) Check the condition of the doped fabric patches over the protruding bolt heads on both sides of the centre and top hinge rudder arms, which are attached to the rear fin post. If showing signs of deterioration replace before fitting the new seal. The purpose of the patches is to give the seal a smooth run over the bolt heads when the rudder is operated.
- (7) Using the damaged seal as a template, assemble the new balance seal as follows. Remove the fin shroud metal "form" strip from the damaged seal, clean off the old adhesive and inspect for damage. If found to be satisfactory, attach the "form" strip to the new seal in exactly the same position as it was when previously fitted to the damaged seal.
- (8) The method of attaching the "form" strip is as follows. Using Dunlop adhesive (*Ref. No. 33C/1361*) apply a coat of solution to both the "form" strip and the balance seal. Allow to dry for about 15 mins., then apply a second coat. When both surfaces are tacky, press the fabric firmly round the "form" strip using finger

pressure, or a hand roller.

- (9) After the joint has dried out, punch holes in the balance seal where required to align with the holes in the "form" strip.
- (10) Check all bolts for damage, renew where necessary.
- (11) Dip all bolts in Celloseal DTD.900/431 before assembly.
- (12) Assemble the seal to the rudder, following the instructions stencilled on the seal, i.e., "Top" and "This edge must be fitted to the rudder".
- (13) Reassemble all the bolts in the seal at the rudder beak, and in the fixing strip at the fin shroud attachment points.
- (14) Check the seal for tension when the rudder is operated for full movement. There should be just enough slack in the seal when the rudder is selected to port, or starboard, to ensure that no interference will take place.
- (15) Inspect for "foreign" bodies at hinge points, etc., prior to reassembling the bolts in the fin hinged shroud panels.

Warning

Personnel carrying out the above operations should be made aware of the danger involved if the controls are functioned when the repair is being embodied, and all necessary precautions should be taken to avoid accidents.

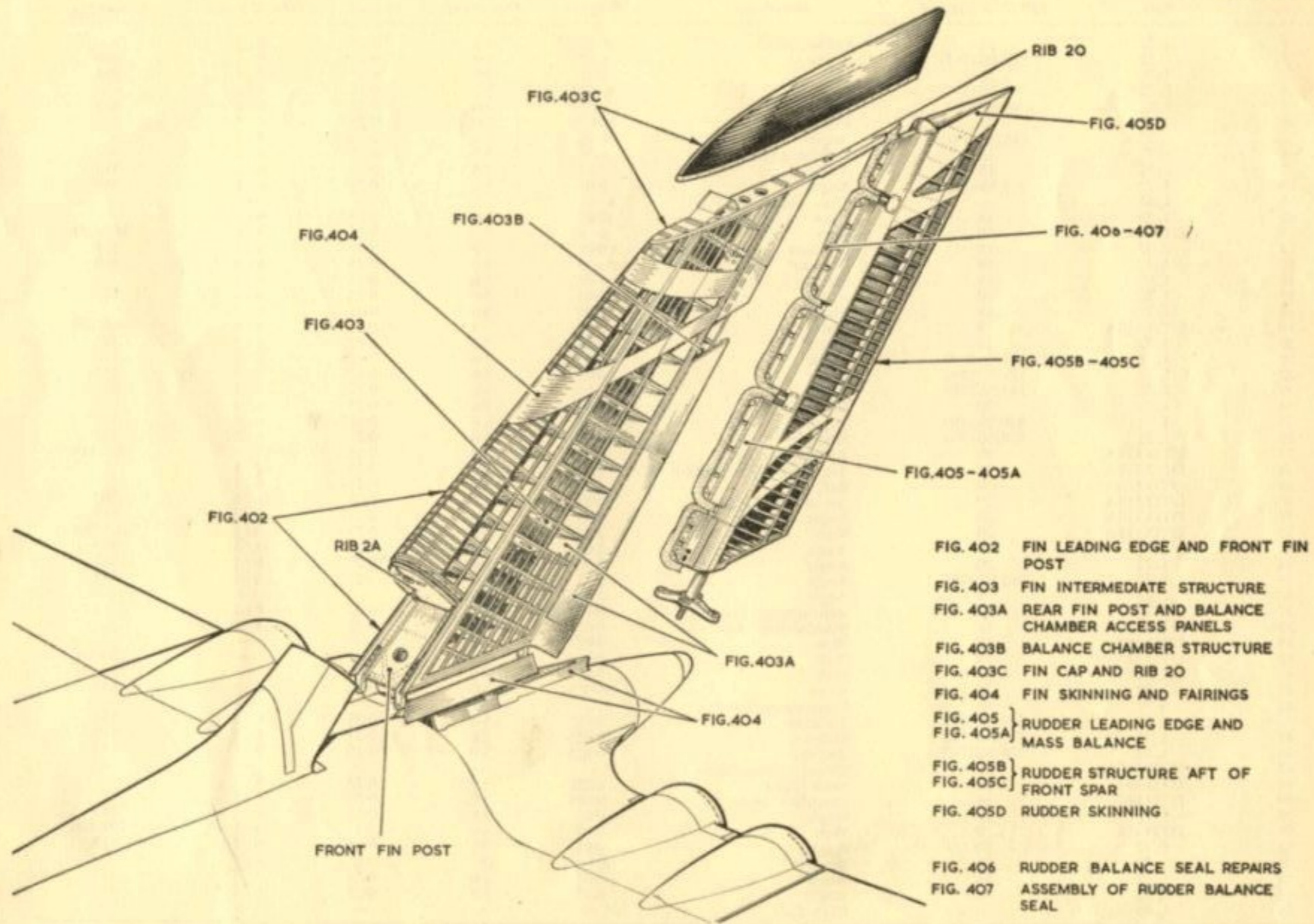


Fig. 401. Tail unit key diagram

RESTRICTED

Key to Fig. 402

Item	Material Spec.	S.W.G. or Section	Description	Depth	Negligible Damage		Holes Pitch Ratio	Repair Fig.
					Dents Dist. Apart	Dia.		
1	L.72	18	Gusset plate	†0.05	3.0	0.25	6:1	—
2	L.72	183/SS1793	Angle	0.025	3.0	0.25	6:1	113
3	L.72	20	Web	0.05	3.0	0.25	10:1	104
4	L.72	60/SS1793	Angle	†0.025	3.0	0.25	6:1	—
5	L.72	60/SS1793	Angle	0.025	3.0	0.25	6:1	113
6	L.72	12	Packing	†0.025	3.0	0.25	8:1	—
7	L.72	12b/SS1793	Angle	†0.05	3.0	0.25	4:1	—
8	L.72	18	Stiffening plate	0.05	3.0	0.25	6:1	—
9	L.72	18	Angle	0.05	3.0	0.25	6:1	114
10	L.72	249/SS1793	Angle	0.05	3.0	0.25	6:1	114
11	L.65	—	Club foot	* —	—	—	—	—
12	L.59	18	Plate	†0.05	3.0	0.25	6:1	—
13	DTD.626	20	Web	0.05	3.0	0.25	8:1	103-104
14	L.72	18	Channel	0.05	3.0	0.25	6:1	108
15	L.72	18	Channel	0.05	3.0	0.25	6:1	108
16	L.72	18	Strip	†0.05	3.0	0.25	6:1	—
17	L.72	20	Angle	0.05	3.0	0.25	6:1	113
18	L.72	18	Plate	0.05	3.0	0.25	6:1	—
19	DTD.118A	18	Web	0.05	3.0	0.25	4:1	103-106
20	L.72	18	Angle	0.05	3.0	0.125	6:1	113
21	L.72	528/SS1793	Angle	0.05	3.0	0.125	6:1	113
22	L.72	12b/SS1793	Angle	0.05	3.0	0.125	8:1	113
23	L.72	183/SS1793	Angle	0.05	3.0	0.125	6:1	113
24	L.72	20	Bracket	†0.05	3.0	0.25	6:1	—
25	L.72	830/SS1793	Stringer	0.05	3.0	0.125	6:1	111
26	L.72	828/SS1793	Stringer	0.05	3.0	0.25	6:1	111
27	DTD.118A	20	Air ducting wall	0.05	3.0	0.25	10:1	103-116
28	DTD.118A	20	Air ducting corrugation	0.05	3.0	0.25	10:1	—
29	DTD.118A	20	Butt strap	0.05	3.0	0.25	6:1	—
30	DTD.118A	20	Air ducting wall	0.05	3.0	0.25	10:1	103
31	DTD.118A	20	Angle	0.05	3.0	0.125	6:1	113
32	DTD.118A	20	Web	0.05	3.0	0.25	4:1	103-106
33	L.72	16	Angle	0.05	3.0	0.25	6:1	113
34	L.72	20	Angle	0.05	3.0	0.25	6:1	113
35	L.72	762/SS1793	Angle	0.05	3.0	0.25	6:1	113
36	L.72	8	Angle	0.025	3.0	—	—	—
37	DTD.687	14	Reinforcing plate	0.025	3.0	0.25	8:1	—
38	DTD.687	18	Reinforcing plate	0.025	3.0	0.25	8:1	—
39	DTD.687	12	Web	0.025	3.0	—	—	103-116
40	DTD.687	14	Web	0.025	3.0	—	—	103-116
41	DTD.687	16	Web	0.025	3.0	—	—	113
42	L.72	18	Angle	0.025	3.0	0.25	8:1	—
43	S.99	—	Front fin post fitting	* —	—	—	—	—
44	L.72	219/SS1793	Stiffener	0.025	3.0	0.25	8:1	112
45	L.72	213/SS1793	Stiffener	0.025	3.0	0.25	8:1	113
46	L.72	528/SS1793	Stiffener	0.025	3.0	0.25	8:1	113
47	DTD.363A	—	Front fin post boom	* —	—	—	—	—
48	DTD.687	14	Joint plate	0.025	3.0	0.25	8:1	—
49	DTD.687	14	Doubling plate	0.025	3.0	0.25	8:1	—
50	L.72	16	Angle	0.05	3.0	0.25	6:1	113
51	DTD.118	20	Web	0.05	3.0	0.25	4:1	103-106
52	L.72	20	Angle	0.05	3.0	0.25	6:1	113
53	L.72	20	Bracket	†0.05	3.0	0.25	6:1	—
54	L.72	18	Angle	0.05	3.0	0.25	6:1	113
55	L.72	18	Angle	0.05	3.0	0.25	6:1	113
56	L.65	—	Club foot	* —	—	—	—	—

All dimensions are quoted in inches

† More expedient to renew than repair

* No repairs permitted

RESTRICTED

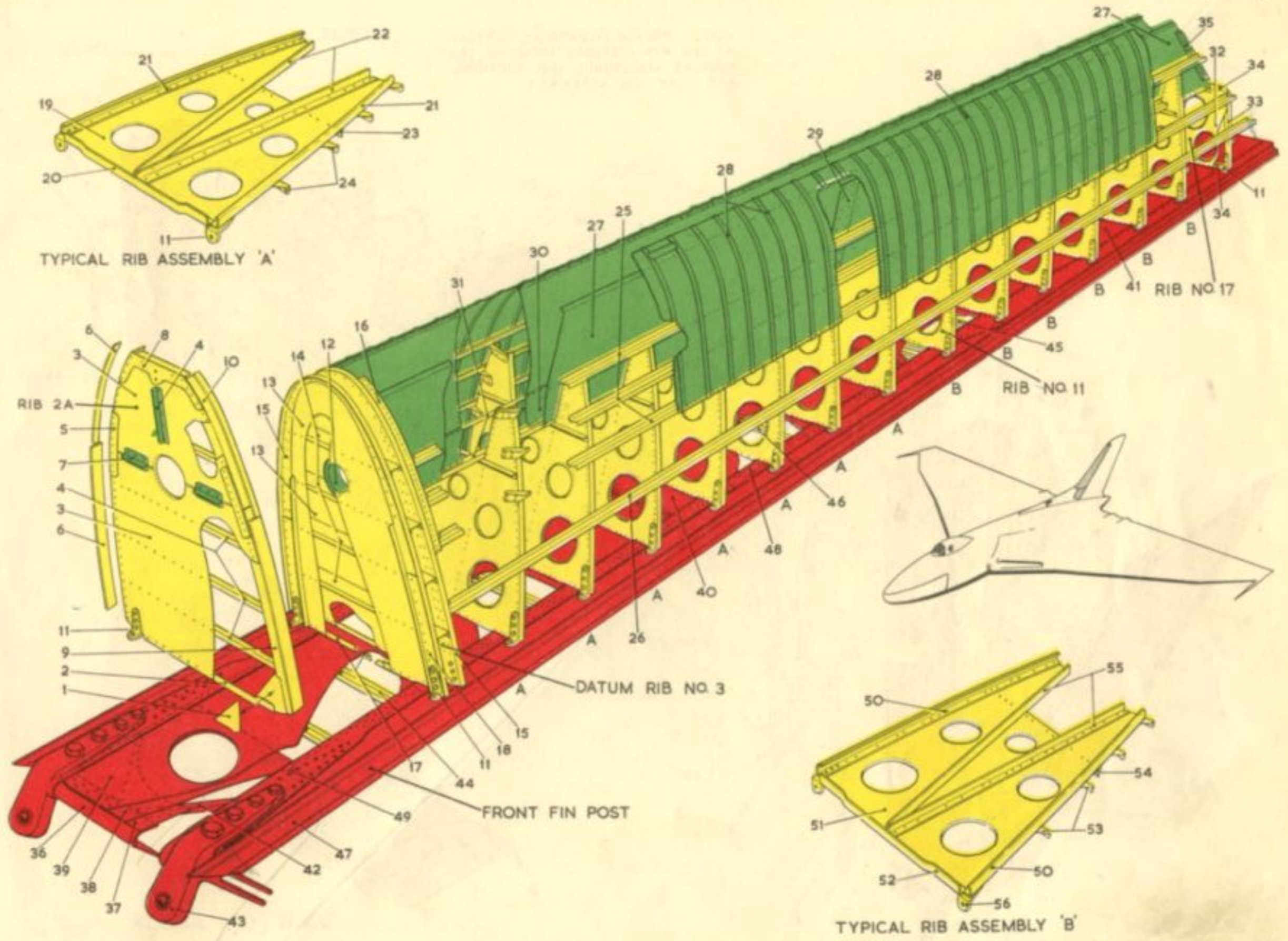


Fig.402 - Fin L/Edge - Front fin post RESTRICTED

(AL 14, Sept. 58)



NOTE: PREFIX 'IDENTICAL' LETTERS AT THE RIB STATIONS INDICATE THAT SIMILAR MATERIALS AND SECTIONS ARE USED ON ASSEMBLY.

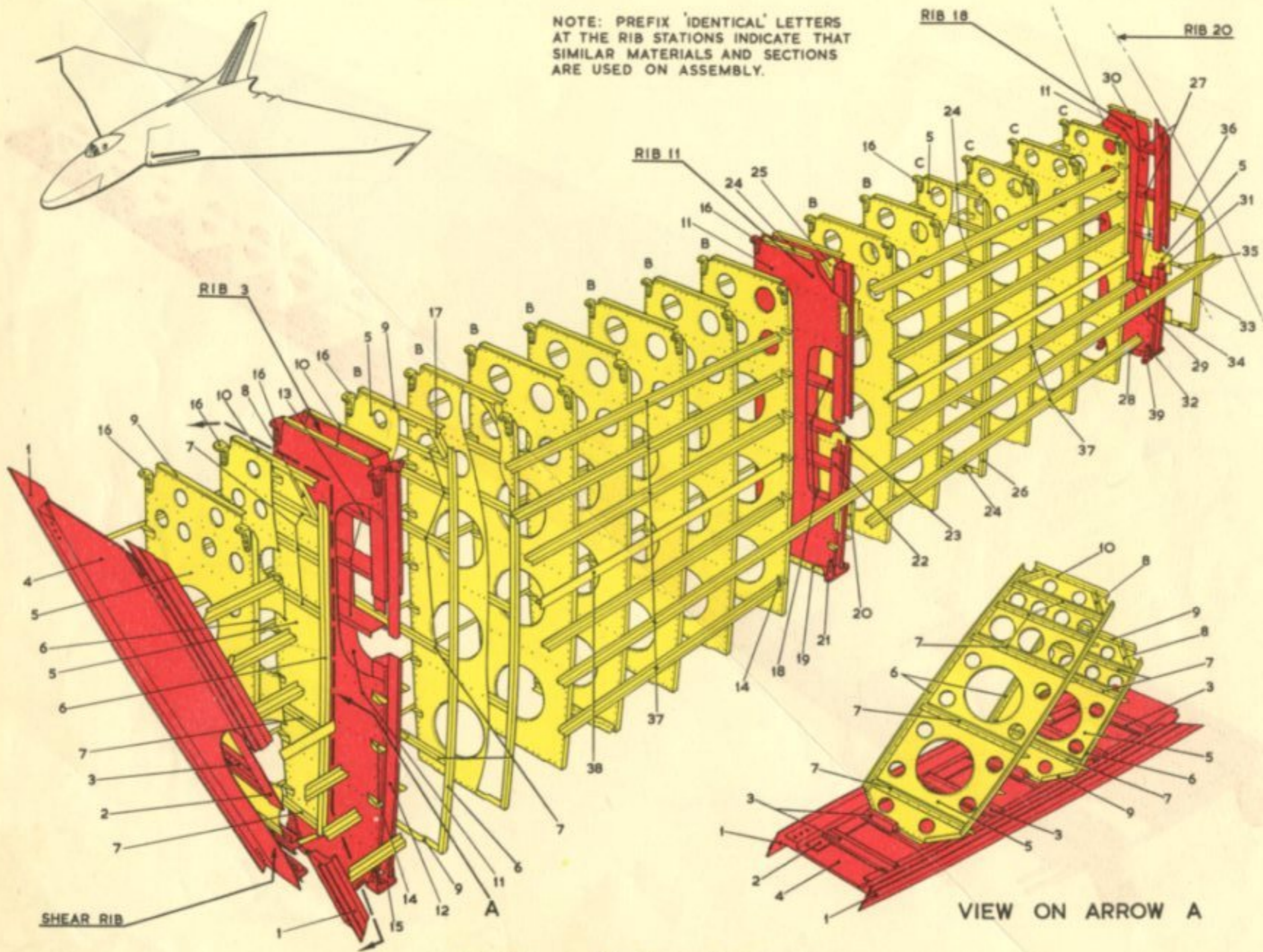


Fig.403 - Fin intermediate structure RESTRICTED

Key to Fig. 403

Item	Material Spec.	S.W.G. or Section	Description	Depth	Negligible Damage		Repair Fig.
					Dents Dist. Apart	Holes Dia. Pitch Ratio	
1	L.65	—	Shear rib boom	0.025	3.0	—	—
2	DTD.687	8	Joint strip	0.025	3.0	—	—
3	L.72	211/SS1793	Stiffener	0.025	3.0	—	112
4	DTD.687	8	Shear rib web	0.025	3.0	0.25	20:1
5	DTD.118	20	Rib web	0.05	3.0	0.25	4:1
6	L.72	528/SS1793	Angle	0.05	3.0	0.125	8:1
7	L.72	664/SS1793	Angle	0.05	3.0	0.125	8:1
8	L.72	786/SS1793	Angle	†0.05	3.0	0.25	6:1
9	L.72	12a/SS1793	Angle	0.05	3.0	0.125	8:1
10	L.72	20	Angle	0.05	3.0	0.25	6:1
11	DTD.626	20	Rib web	0.025	3.0	0.25	20:1
12	L.72	153/SS1793	Rib boom	0.025	3.0	—	—
13	L.72	20	Stiffener	0.025	3.0	0.25	8:1
14	L.72	18	Stringer brackets	†0.05	3.0	0.25	6:1
15	S.99	—	Bracket	* —	—	—	—
16	L.65	—	Club foot bracket	* —	—	—	—
17	L.72	785/SS1793	Angle	†0.05	3.0	0.25	6:1
18	L.72	20	Stiffener	0.025	3.0	0.25	8:1
19	S.514	20	Channel	0.025	3.0	0.25	8:1
20	L.72	20	Bracket	†0.025	3.0	0.25	6:1
21	S.99	—	Bracket	* —	—	—	—
22	L.72	829/SS1793	Boom	0.025	3.0	—	—
23	L.72	8	Packing	0.025	3.0	0.25	8:1
24	L.72	20	Angle	0.025	3.0	0.125	8:1
25	L.72	20	Channel	†0.025	3.0	0.25	6:1
26	L.72	16	Angle	0.05	3.0	0.125	8:1
27	L.72	20	Stiffener	0.025	3.0	0.25	8:1
28	L.72	20	Angle	0.025	3.0	0.125	8:1
29	L.72	153/SS1793	Boom	0.025	3.0	—	—
30	L.72	20	Angle	0.025	3.0	0.125	8:1
31	L.72	18	Liner	0.025	3.0	0.25	8:1
32	L.72	18	Channel	0.025	3.0	0.25	6:1
33	L.72	528/SS1793	Boom	0.025	3.0	0.125	8:1
34	L.72	12a/SS1793	Angle	0.025	3.0	0.125	8:1
35	L.72	664/SS1793	Stiffener	0.025	3.0	0.125	8:1
36	L.72	18	Angle	0.025	3.0	0.125	8:1
37	L.72	828/SS1793	Stringer 'Z' section	0.05	3.0	0.25	6:1
38	L.65	58/SS3075	Stringer 'T' section	0.025	3.0	0.25	8:1
39	S.99	—	Bracket	* —	—	—	—

All dimensions are quoted in inches

† More expedient to renew than repair

* No repairs permitted

Key to Fig. 403A

Item	Material Spec.	S.W.G. or Section	Description	Depth	Negligible Damage		Holes Pitch Ratio	Repair Fig.
					Dents Dist. Apart	Dia.		
1	DTD.626	16	Packing	†0-025	3-0	0-25	6:1	—
2	L.72	20	Channel stiffener	0-025	3-0	0-25	6:1	107-108
3	L.72	18	Beam	0-025	3-0	0-25	6:1	108
4	L.72	887/SS1793	Beam	0-025	3-0	0-25	6:1	108
5	L.72	18	Stiffener	0-025	3-0	0-25	6:1	—
6	L.72	18	Beam joint channel	†0-025	3-0	0-25	6:1	—
7	L.72	18	Reinforcing plate	0-025	3-0	—	—	—
8	L.65	—	Fitting	*0-025	3-0	—	—	—
9	L.65	—	Fitting	*0-025	3-0	—	—	—
10	L.72	20	Hinges	†0-025	3-0	—	—	—
11	L.72	20	Brackets	0-025	3-0	0-25	6:1	115
12	L.72	20	Brackets	0-025	3-0	0-25	6:1	115
13	L.72	22	Bracket	†0-025	3-0	—	—	—
14	L.72	18	Angle bracket	†0-025	3-0	—	—	—
15	DTD.626	18	Fairing skin	0-025	3-0	—	—	103-116
16	L.72	18	Torsion box skin	0-025	3-0	—	—	104
17	L.72	890/SS1793	Beam channel	0-025	3-0	—	—	108
18	L.72	891/SS1793	Beam channel	0-025	3-0	—	—	108
19	L.72	18	Stiffener	0-025	3-0	0-25	6:1	—
20	L.72	18	Stiffener	0-025	3-0	0-25	6:1	—
21	L.72	18	Beam	0-025	3-0	—	—	—
22	L.65	—	Fitting plate	*0-025	3-0	—	—	—
23	L.72	18	Beam	0-025	3-0	—	—	108
24	L.72	887/SS1793	Beam	0-025	3-0	—	—	108
25	S.514	16	Angle plate	* —	—	—	—	—
26	L.65	—	Fitting	*0-025	3-0	—	—	—
27	L.72	20	Angle stiffener	†0-025	3-0	0-25	6:1	—
28	S.514	14	Angle plate	* —	—	—	—	—
29	L.72	18	Stiffener	0-025	3-0	0-25	6:1	—
30	L.72	18	Beam joint channel	†0-025	3-0	—	—	—
31	L.65	295/SS3075	Fitting	*0-025	3-0	—	—	—
32	L.72	20	Bracket	0-025	3-0	0-25	6:1	115
33	DTD.626	18	Fairing skin	0-025	3-0	—	—	103-116
34	L.65	—	Fitting	*0-025	3-0	—	—	—
35	L.65	—	Fitting	*0-025	3-0	—	—	—
36	L.72	22	Vent piece	†0-05	3-0	0-25	6:1	—
37	L.72	20	Channel	0-025	3-0	0-25	6:1	—
38	L.72	18	Gusset	†0-025	3-0	0-25	6:1	—
39	L.72	892/SS1793	Beam channel	0-025	3-0	—	—	—
40	L.65	—	Plate	*0-025	3-0	—	—	—
41	L.72	528/SS1793	Stiffener	†0-025	3-0	0-25	6:1	—
42	L.72	665/SS1793	Stiffener	†0-025	3-0	0-25	6:1	—
43	L.72	54/SS1793	Stiffener	0-025	3-0	0-25	6:1	108
44	L.72	522/SS1793	Stiffener	†0-025	3-0	0-25	6:1	—
45	L.72	289/SS1793	Stiffener	†0-025	3-0	0-25	6:1	—
46	L.65	—	Fitting	*0-025	3-0	0-25	6:1	—
47	DTD.687	16	Web	0-025	3-0	—	—	103-116
48	DTD.687	14	Web	0-025	3-0	—	—	103-116
49	DTD.363A	—	Boom	0-025	3-0	—	—	—
50	S.99	—	Fin post joint fitting	* —	—	—	—	—
51	L.72	20	Angle	0-025	3-0	0-25	6:1	—

All dimensions are quoted in inches

† More expedient to renew than repair

* No repairs permitted

RESTRICTED

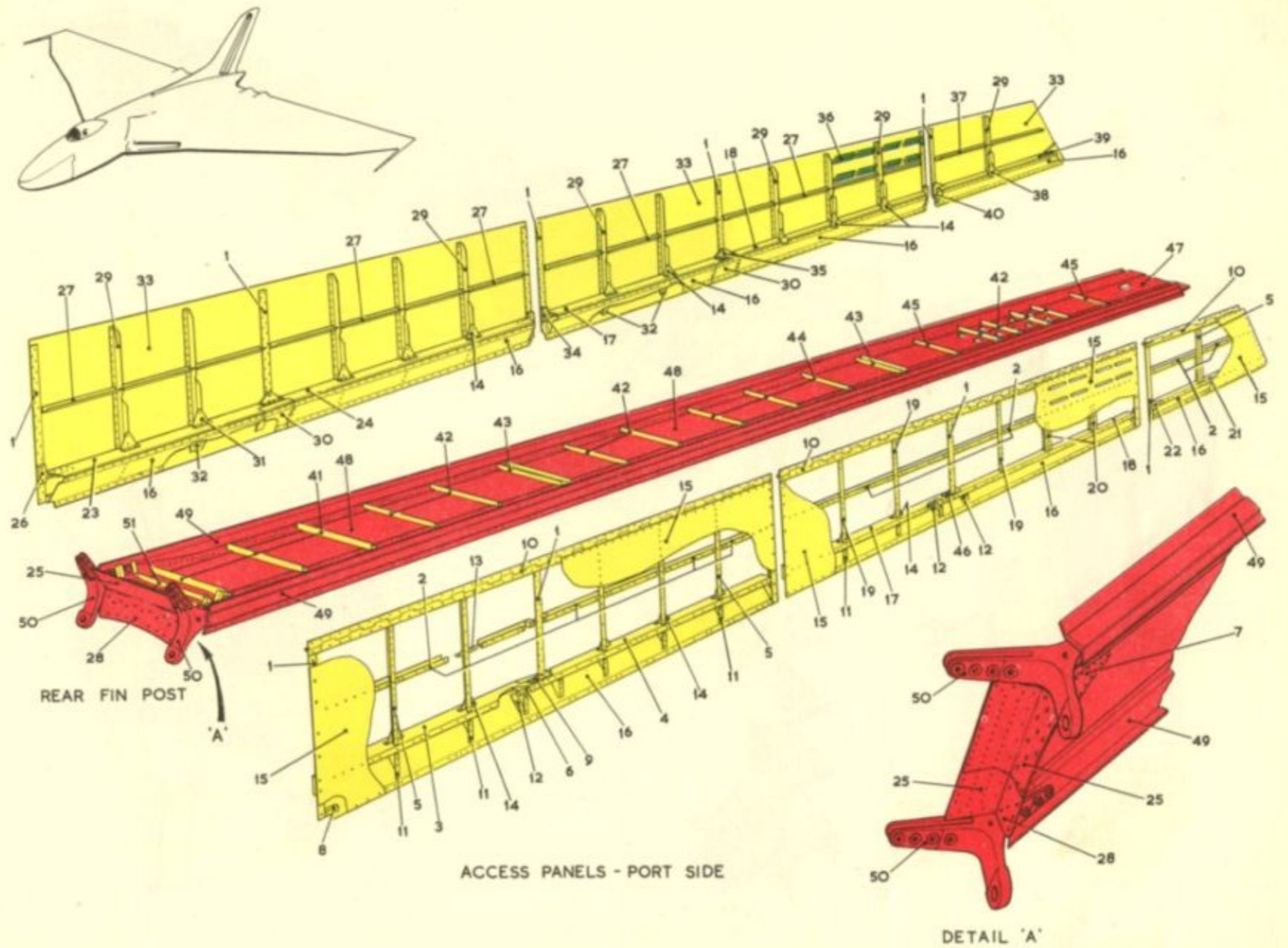


Fig.403A.- Rear fin post - Balance chamber access panels
RESTRICTED

(AL14, Sept. 58)

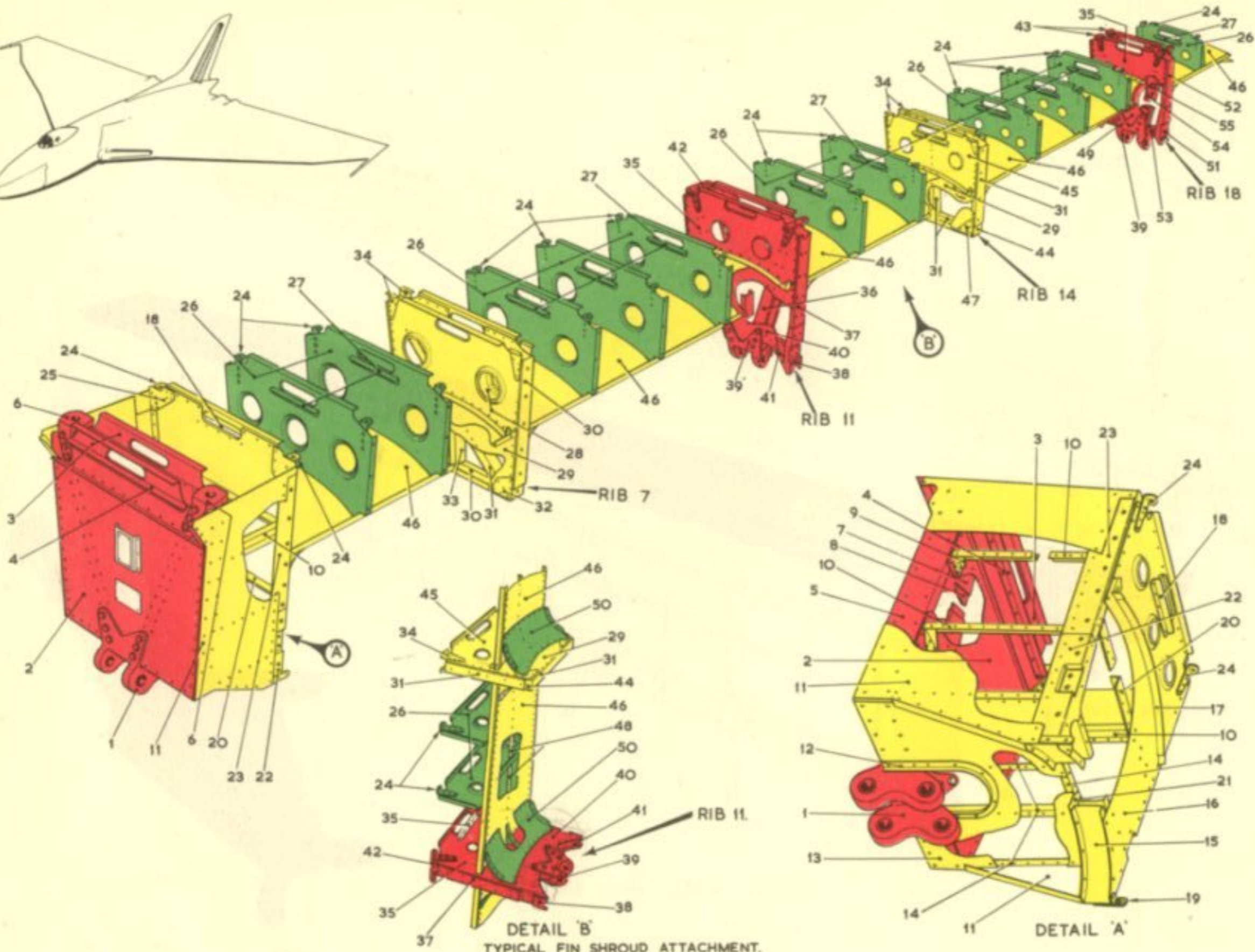
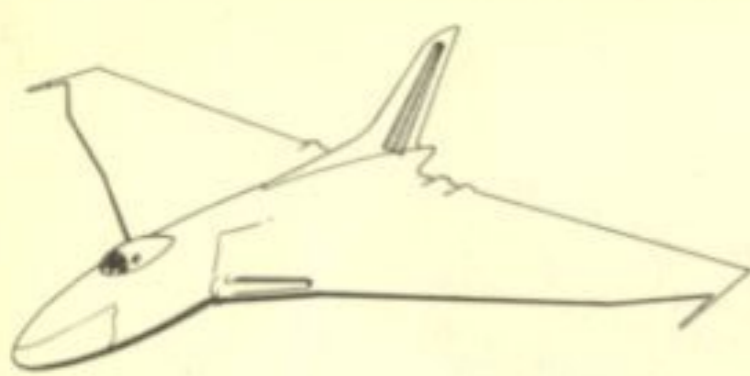


Fig.403B - Fin balance chamber structure
RESTRICTED

Key to Fig. 403B

Item	Material Spec.	S.W.G. or Section	Description	Depth	Negligible Damage		Holes Pitch Ratio	Repair Fig.
					Dents Dist. Apart	Dia.		
1	DTD.683 or L.65	—	Bracket	* —	—	—	—	—
2	DTD.626	20	Web	0-025	3-0	—	—	103
3	L.72	18	Bracket	0-025	3-0	—	—	108
4	L.72	788/SS1793	Angle	0-025	3-0	—	—	113
5	L.72	100/SS1793	Channel	0-025	3-0	—	—	108
6	S.99	—	Bracket	* —	—	—	—	—
7	L.72	153/SS1793	Boom	0-025	3-0	—	—	108
8	L.72	12	Packing	†0-025	3-0	—	—	—
9	L.72	20	Bracket	†0-05	3-0	0-25	6:1	—
10	L.72	828/SS1793	Stringer	0-05	3-0	0-25	8:1	111
11	DTD.626	18	Skin	0-05	3-0	—	—	103-116
12	L.72	18	Angle	†0-05	3-0	0-25	8:1	—
13	L.72	20	Diaphragm	0-05	3-0	—	—	103-116
14	L.72	762/SS1793	Angle	0-05	3-0	0-25	8:1	113
15	L.72	20	Channel	0-05	3-0	0-25	6:1	108
16	DTD.626	20	Web	0-05	3-0	0-25	8:1	103-116
17	L.72	20	Diaphragm	0-05	3-0	0-25	8:1	115
18	L.72	20	Angle	†0-05	3-0	0-25	6:1	—
19	S.510	16	Bracket	†0-025	3-0	—	—	—
20	L.72	863/SS1793	Angle	0-05	3-0	0-25	8:1	—
21	DTD.626	20	Bottom web	†0-05	3-0	0-25	8:1	—
22	S.510	18	Channel	†0-025	3-0	0-25	8:1	—
23	L.72	20	Angle	0-05	3-0	0-25	8:1	108
24	L.72	18	Bracket	†0-025	3-0	—	—	—
25	L.72	20	Sealing plate	†0-05	3-0	0-25	4:1	—
26	L.72	20	Pressing	0-10	3-0	0-5	6:1	115
27	L.72	20	Angle bracket	†0-05	3-0	0-25	6:1	—
28	L.72	22	Doubling plate	0-10	3-0	0-25	6:1	115
29	DTD.118	22	Web	0-10	3-0	0-25	6:1	103
30	L.72	20	Channel	0-05	3-0	0-25	8:1	108
31	L.72	508/SS1793	Channel	0-05	3-0	0-25	8:1	107-108
32	L.72	20	Gusset plate	†0-05	3-0	0-25	8:1	—
33	L.72	22	Channel	†0-05	3-0	0-25	8:1	—
34	L.72	20	Angle bracket	†0-05	3-0	—	—	—
35	L.72	20	Doubling plate	†0-05	3-0	0-25	8:1	—
36	S.514	16	Channel	0-05	3-0	—	—	—
37	L.72	100/SS1793	Channel	0-05	3-0	0-25	8:1	108
38	S.510	20	Channel	†0-05	3-0	0-25	8:1	—
39	DTD.683 or L.65	—	Bracket	* —	—	—	—	—
40	DTD.626	20	Web	0-025	3-0	—	—	103
41	L.72	100/SS1793	Channel	0-05	3-0	—	—	108
42	S.99	—	Bracket	* —	—	—	—	—
43	S.99	—	Bracket	* —	—	—	—	—
44	L.72	22	Channel	0-05	3-0	0-25	8:1	—
45	L.72	22	Doubling plate	0-10	3-0	0-25	6:1	—
46	L.72	22	Diaphragm shroud skins	0-025	3-0	—	—	104
47	L.72	20	Gusset plate	†0-05	3-0	0-25	8:1	—
48	L.72	20	Angle	0-05	3-0	0-25	8:1	113
49	DTD.626	20	Web	0-025	3-0	—	—	—
50	S.510	24	Corner bracket	0-10	3-0	—	—	104
51	S.510	22	Channel	†0-05	3-0	0-25	8:1	—
52	L.72	100/SS1793	Channel	0-05	3-0	0-25	8:1	108
53	L.72	20	Channel	0-05	3-0	—	—	108
54	L.72	16	Packing	†0-025	3-0	—	—	—
55	L.72	153/SS1793	Boom	0-025	3-0	—	—	108

All dimensions are quoted in inches

† More expedient to renew than repair

* No repairs permitted

RESTRICTED

(A.L.14, Sep. 58)

Key to Fig. 403C

Item	Material Spec.	S.W.G. or Section	Description	Depth	Negligible Damage		Holes Pitch Ratio	Repair Fig.
					Dents Dist. Apart	Dia.		
1	DTD.5511	Felt layers of Durestos	Fin tip	0.05	10	—	—	
2	L.72	16	Attachment plates	†0.025	3.0	—	—	
3	L.4 or L.59	16	Nose attachment plate	†0.025	3.0	—	—	—
4	L.72	18	Web	0.05	3.0	0.25	6:1	—
5	L.72	18	Tail piece	†0.05	3.0	0.25	6:1	—
6	L.72	18	Packings	†0.05	3.0	—	—	—
7	L.72	14	Packing strips	†0.05	3.0	—	—	—
8	L.72	22	Packing strip	†0.05	3.0	—	—	—
9	L.72	18	Packing strip	†0.05	3.0	—	—	—
10	L.59	16	Top rib fairing	0.10	3.0	—	—	—
11	L.59	18	Doubling plate	0.05	3.0	0.25	6:1	
12	L.72	183/SS1793	Stiffener	0.05	3.0	0.25	6:1	113
13	L.72	16	Bracket	0.05	3.0	0.25	6:1	113
14	L.72	18	Bracket	0.05	3.0	0.25	6:1	115
15	L.72	16	Plate	0.10	3.0	0.25	6:1	103-104
16	L.72	24	Bracket	0.10	3.0	0.25	4:1	103-115
17	L.72	16	Bracket	†0.05	3.0	0.25	6:1	—
18	L.72	18	Joint plate	†0.05	3.0	0.25	6:1	—
19	L.72	16	Lipped angle	†0.05	3.0	0.25	8:1	—
20	L.72	11	Packing	†0.05	3.0	—	—	—
21	L.72	12	Packing	†0.05	3.0	—	—	—
22	L.72	18	Boom	0.025	3.0	0.25	8:1	—
23	L.72	18	Angle strap	†0.025	3.0	0.25	6:1	—
24	L.72	18	Cap	†0.05	3.0	0.25	6:1	—
25	L.72	16	Plate	0.10	3.0	—	—	103
26	L.72	16	Channel	0.05	3.0	0.25	6:1	115
27	L.72	18	Bracket	0.05	3.0	0.25	6:1	113
28	L.72	16	Angle	0.05	3.0	0.25	6:1	114

All dimensions are quoted in inches

† More expedient to renew than repair

* No repairs permitted

RESTRICTED

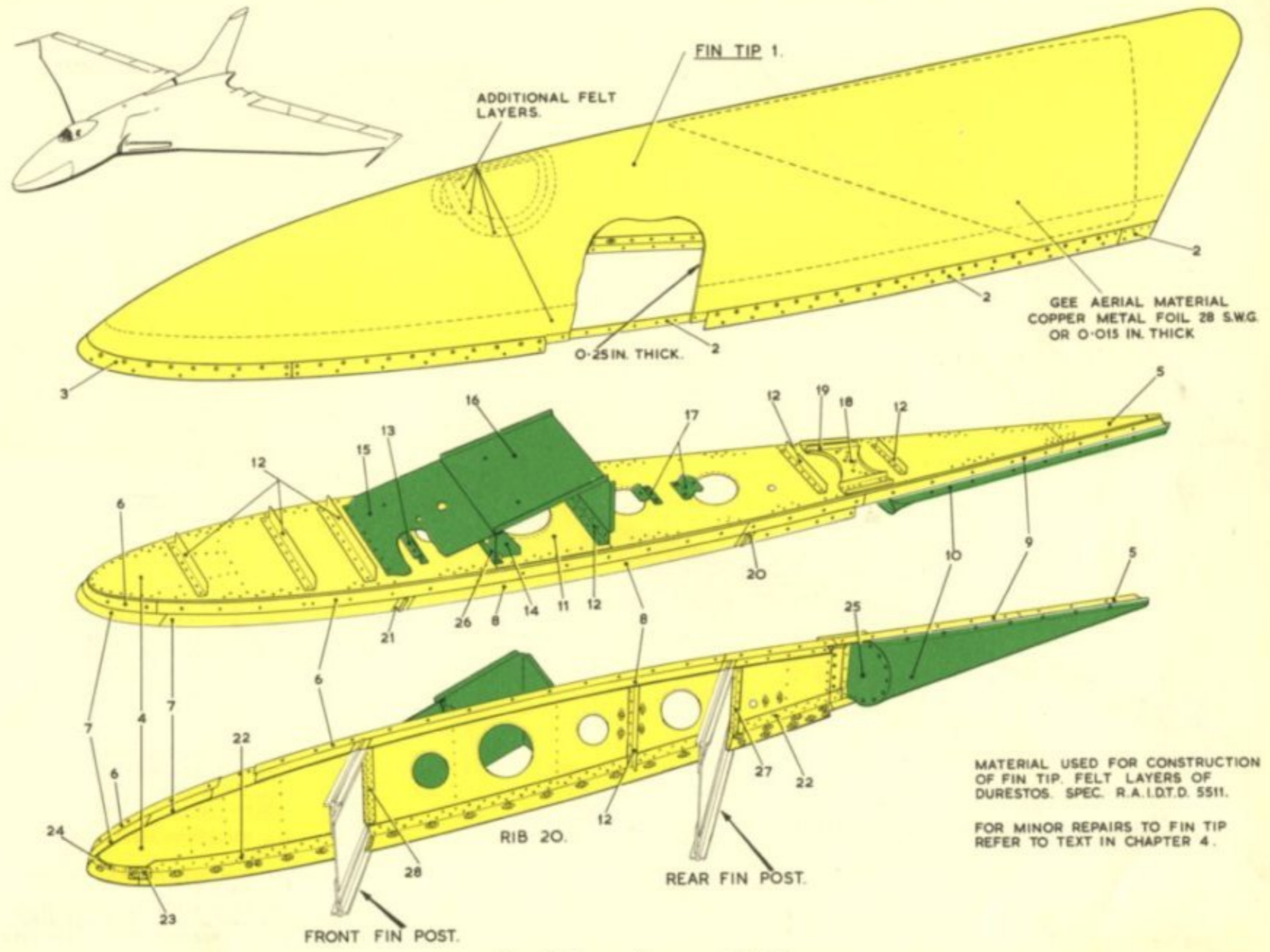
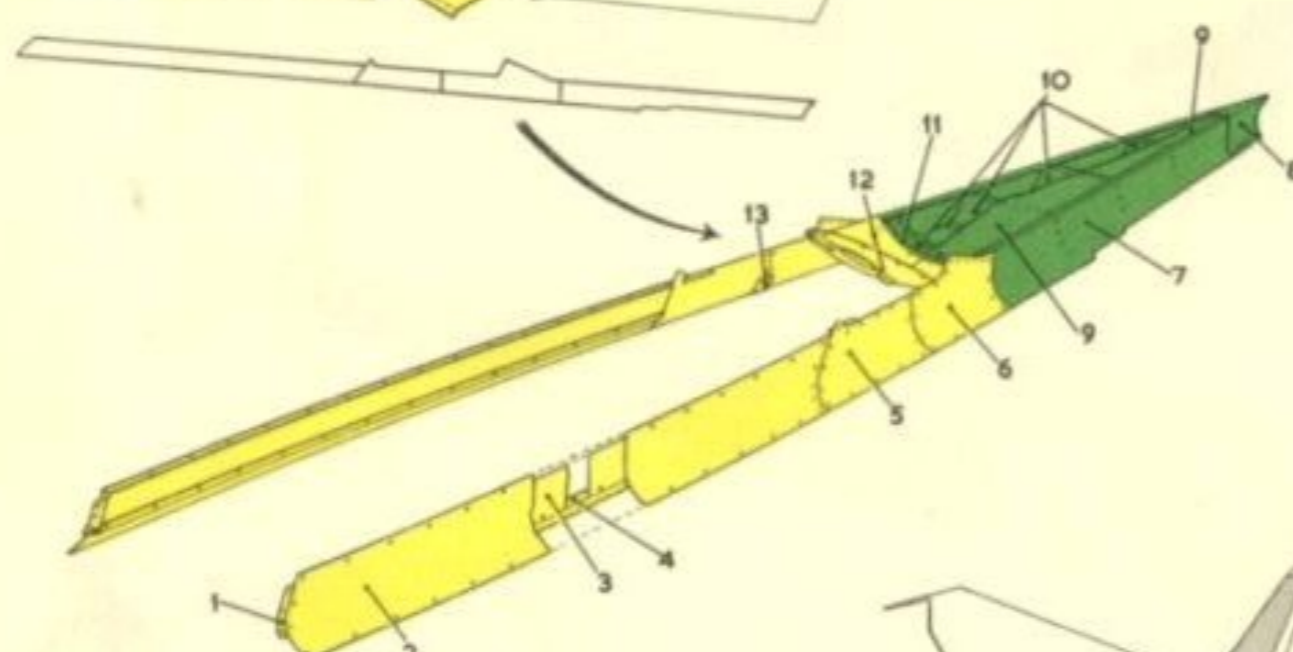
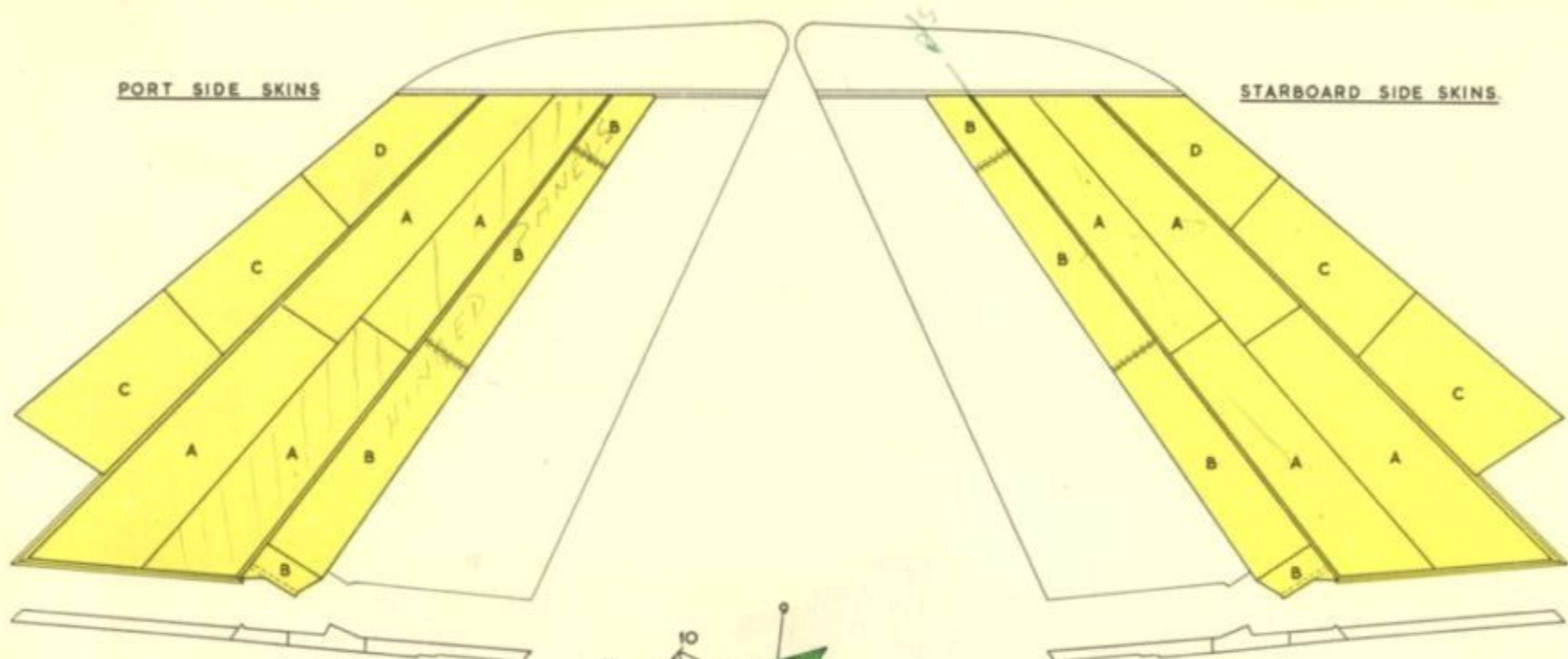


Fig.403C - Fin cap - Rib 20
RESTRICTED



SKINNING REFERENCES.		
PREFIX.	S.W.G.	SPEC.
A	14	D.T.D. 626.
B	18	D.T.D. 626.
C	18	L.72.
D	20	L.72.

NEGLIGIBLE DAMAGE.		
DENTS.	DEPTH.	DIST. APART.
YELLOW.	0-05	5-0
GREEN.	0-10	4-0

ALL DIMENSIONS QUOTED IN INCHES.
 FOR SKIN REPAIRS SEE FIG. 103, 104, 116, 117.
 DAMAGE IN AREAS OF CONCENTRATED RIVETING MUST BE REPAIRED WITH JOINTS ARRANGED OUTSIDE THE AREA.



Fig.404 - Fin skinning RESTRICTED

Key to Fig. 404

Item	Material Spec.	S.W.G. or Section	Description	Depth	Negligible Damage		Holes Pitch Ratio	Repair Fig.
					Dents	Dist. Apart		
1	L.72	18	Strap plate	†0.05	3.0	—	—	—
2	L.72	20	Fillet	0.05	3.0	—	—	103-104
3	L.72	20	Plate	0.05	3.0	0.25	6:1	—
4	L.72	18	Angle	0.05	3.0	0.25	6:1	113
5	L.72	20	Forward panel	0.05	3.0	—	—	103
6	L.72	20	Rear panel	0.05	3.0	—	—	103-104
7	L.72	24	Forward fairing	0.05	3.0	—	—	104
8	L.59	24	Rear fairing	0.05	3.0	—	—	—
9	L.72	24	Fairing top	0.05	3.0	—	—	103-104
10	L.72	24	Diaphragm	0.05	3.0	0.25	4:1	115
11	L.72	18	Strap plate	0.05	3.0	—	—	—
12	L.59	20	Inside fairing	0.05	3.0	0.25	6:1	103
13	L.72	20	Strap plate	†0.05	3.0	—	—	—

All dimensions are quoted in inches

† More expedient to renew than repair

* No repairs permitted

RESTRICTED

Key to Fig. 405

Item	Spec.	Material S.W.G. or Section	Description	Negligible Damage			Holes Pitch Ratio	Repair Fig.
				Dents Depth	Dist. Apart	Dia.		
1	L.72	22	Seal form strip	†0.05	3.0	0.125	8:1	
2	L.34	D.R.B.59	Seal fixing strip	†0.05	3.0	0.125	8:1	
3	L.72	22	Balance weight support skin	0.05	3.0	0.125	8:1	
4	LEAD	—	Balance weight	0.10	3.0	—	—	
5	L.65	—	Balance support member	†0.05	3.0	0.125	8:1	
6	L.72	18	Plate	†0.05	6.0	0.125	10:1	
7	L.72	206/SS.1793	Channel	0.05	6.0	0.125	10:1	
8	L.72	18	Top and bottom former	0.05	3.0	0.125	8:1	
9	L.72	10	Reinforcing plate	†0.025	3.0	0.125	10:1	108
10	L.65	—	Block	* —	—	—	—	
11	L.65	—	Bracket	* —	—	—	—	
12	L.72	12	Strip	†0.025	3.0	0.125	10:1	
13	L.72	18	Plate	†0.05	6.0	0.25	6:1	
14	L.72	183/SS.1793	Angle	0.05	6.0	0.125	8:1	
15	L.72	24	Former pressing	0.05	3.0	0.25	6:1	113
16	L.72	183/SS.1793	Angle	0.05	6.0	0.125	10:1	108
17	L.72	18	Plate	0.05	6.0	0.125	10:1	113
18	L.72	24	Former pressing	0.05	3.0	0.25	4:1	108
19	L.77 or DTD.683	—	Bracket	* —	—	—	—	
20	S.11 or S.94	Bar	Shaft	—	—	—	—	
21	S.96	—	Housing	* —	—	—	—	
22	S.99	—	Lever	* —	—	—	—	
23	L.72	24	Former pressing	0.05	3.0	0.25	4:1	108
24	L.72	776/SS.1793	Balance channel	0.05	6.0	0.25	6:1	108
25	L.72	22	Plate	0.05	6.0	0.25	6:1	108
26	L.72	776/SS.1793	Balance channel	0.05	6.0	0.25	6:1	108
27	L.72	22	Former pressing	0.05	3.0	0.25	6:1	108
28	L.72	22	Gusset	†0.05	3.0	0.125	6:1	108
29	L.72	14	Foot bracket	*0.025	6.0	—	—	
30	L.72	24	Former pressing	0.05	3.0	0.25	6:1	108
31	L.72	776/SS.1793	Balance channel	0.05	6.0	0.25	6:1	108
32	L.72	22	Plate	†0.05	6.0	0.25	6:1	108
33	L.72	20	Frame plate	†0.05	6.0	0.25	6:1	
34	S.96	Bar	Housing	* —	—	—	—	
35	L.77	—	Hinge fitting	* —	—	—	—	
36	L.72	18	Channel	0.025	6.0	0.25	10:1	
37	L.72	18	Angle bracket	†0.025	6.0	0.125	10:1	
38	L.72	20	Angle	0.05	6.0	0.125	6:1	
39	L.72	797/SS.1793	Angle	†0.05	6.0	0.125	6:1	
40	L.72	24	Angle	†0.05	6.0	0.125	6:1	113
41	DTD.687	16	Web	0.10	6.0	0.25	10:1	113
42	DTD.687	18	Web	0.10	6.0	0.25	10:1	
43	DTD.5074	415/SS.3075	Spar boom	—	—	—	—	
44	L.72	18	Plate	†0.05	6.0	0.25	8:1	
45	L.72	10	Plate	† —	—	—	—	
46	L.72	20	Angle	† —	—	—	—	
47	L.72	18	Strap plate	†0.05	6.0	0.125	6:1	

All dimensions are quoted in inches

†More expedient to replace than repair

*No repairs permitted

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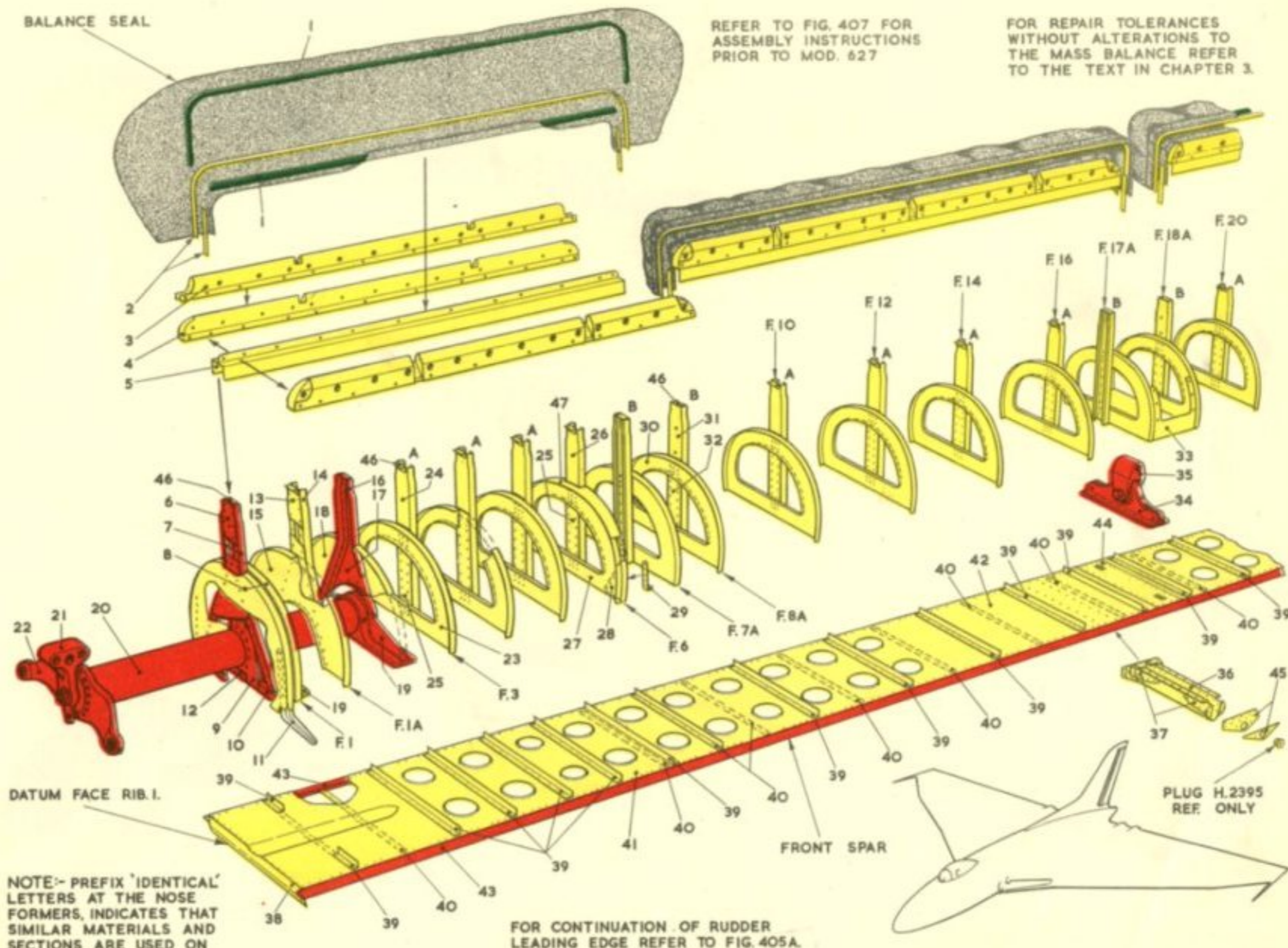
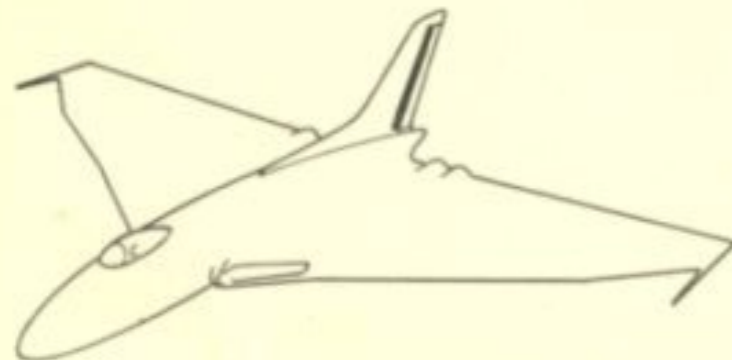
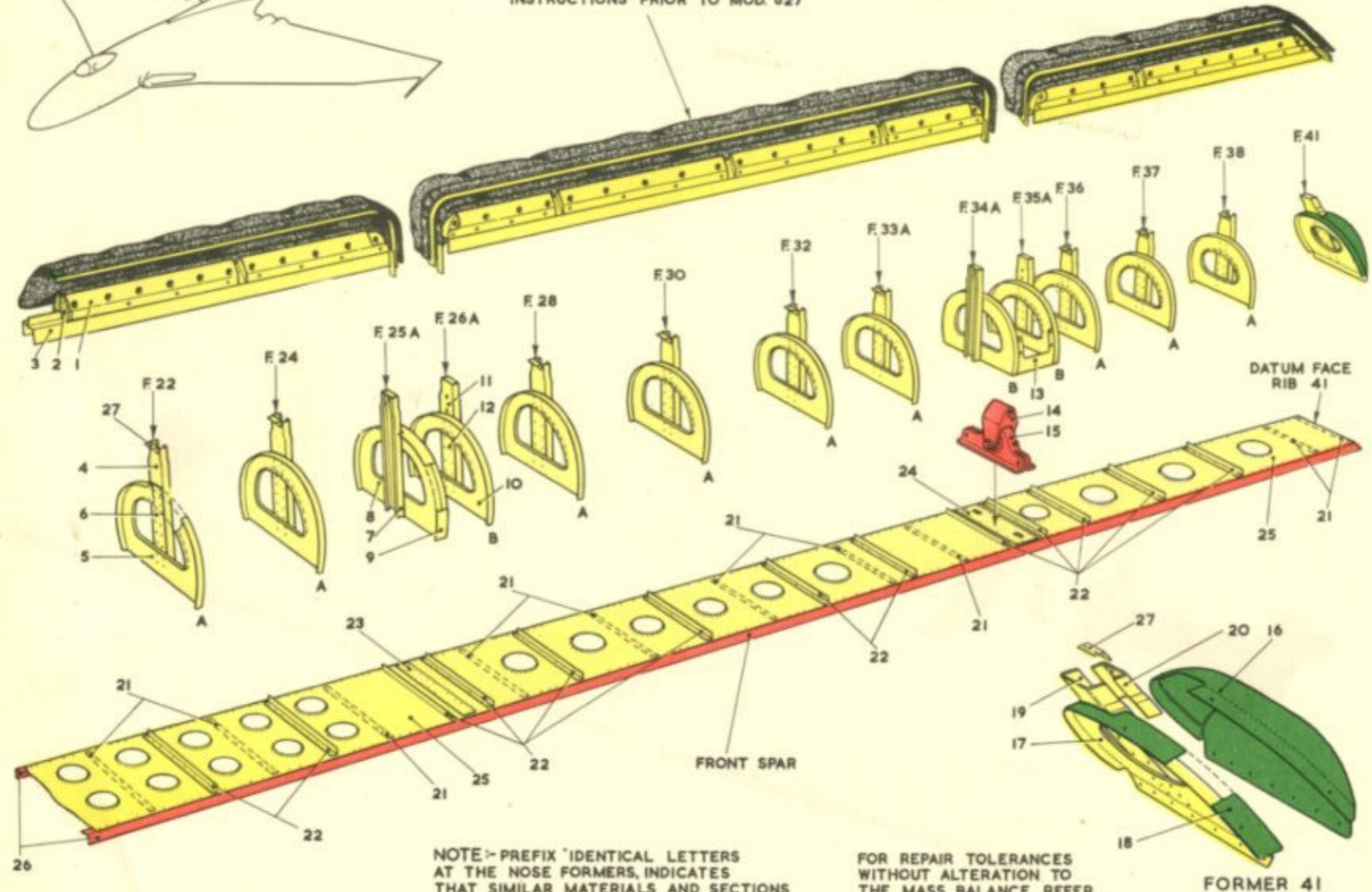


Fig.405 - Rudder L/Edge and mass balance

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REFER TO FIG.407 FOR ASSEMBLY INSTRUCTIONS PRIOR TO MOD. 627



FOR CONTINUATION OF RUDDER L/EDGE REFER TO FIG.405.

NOTE:- PREFIX IDENTICAL LETTERS AT THE NOSE FORMERS, INDICATES THAT SIMILAR MATERIALS AND SECTIONS ARE USED ON ASSEMBLY.

FOR REPAIR TOLERANCES WITHOUT ALTERATION TO THE MASS BALANCE REFER TO THE TEXT IN CHAPTER 3.

Fig.405A Rudder L/Edge and Mass balance

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Key to Fig. 405A

Item	Spec.	Material S.W.G. or Section	Description	Dents Depth	Negligible Damage		Holes Pitch Ratio	Repair Fig. No.
					Dist. Apart	Dia.		
1	L.72	22	Balance weight support skin	0.05	3.0	0.125	8:1	
2	LEAD	—	Balance weight	0.10	3.0	—	—	
3	L.65	—	Balance support member	0.05	3.0	0.125	8:1	
4	L.72	776/SS.1793	Balance channel	0.05	6.0	0.25	6:1	108
5	L.72	24	Former pressing	0.05	3.0	0.25	4:1	108
6	L.72	22	Plate	†0.05	6.0	0.25	6:1	
7	L.72	20	Balance channel	0.05	6.0	0.25	6:1	108
8	L.72	24	Former pressing	0.05	3.0	0.25	4:1	108
9	L.72	20	Strap plate	†0.05	6.0	0.125	6:1	
10	L.72	24	Former pressing	0.05	3.0	0.25	4:1	108
11	L.72	776/SS.1793	Balance channel	0.05	6.0	0.25	6:1	108
12	L.72	22	Plate	0.05	6.0	0.25	6:1	
13	L.72	20	Door frame	0.05	6.0	0.25	6:1	
14	L.77	—	Hinge fitting	* —	—	—	—	
15	S.96	Bar	Housing	* —	—	—	—	
16	L.59	20	Cap	0.05	6.0	—	—	
17	L.72	24	Former pressing	0.05	3.0	0.25	4:1	108
18	L.72	20	Strap plate	†0.05	3.0	0.125	6:1	
19	L.72	775/SS.1793	Balance channel	0.05	6.0	0.25	6:1	
20	L.72	22	Inner channel	0.05	6.0	0.25	6:1	
21	L.72	24	Angle	†0.05	6.0	0.125	6:1	113
22	L.72	797/SS.1793	Angle	†0.05	6.0	0.125	6:1	113
23	DTD.687	18	Strap	†0.05	6.0	0.125	6:1	
24	L.72	18	Plate	†0.05	6.0	0.25	6:1	
25	DTD.687	18	Web	0.10	6.0	0.25	10:1	
26	DTD.5074	415/SS.3075	Spar boom	—	—	—	—	
27	L.72	20	Angle	† —	—	—	—	

All dimensions are quoted in inches

†More expedient to replace than repair

*No repairs permitted

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Key to Fig. 405B

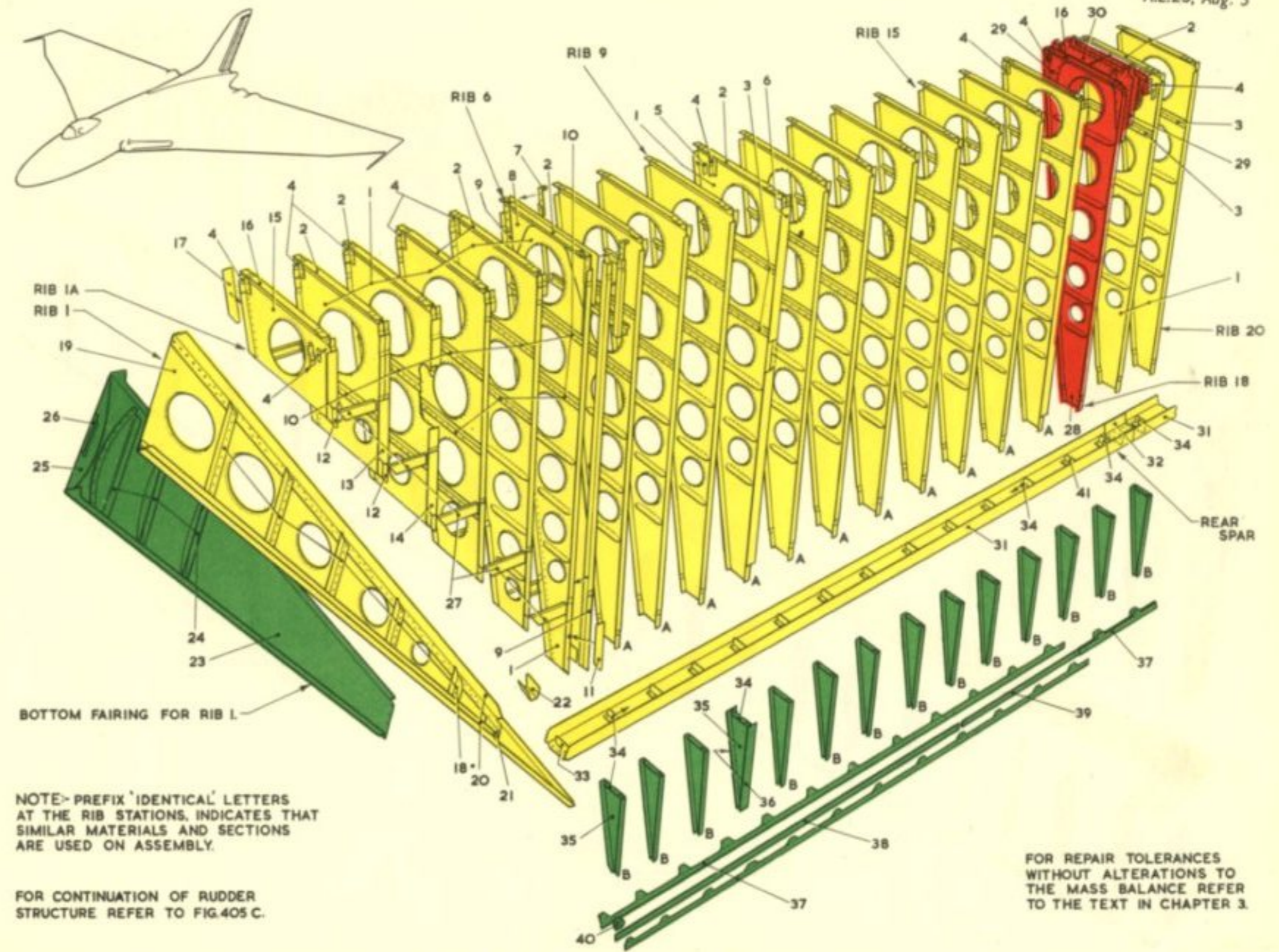
Item	Spec.	Material S.W.G. or Section	Description	Dents Depth	Negligible Damage		Holes Pitch Ratio	Repair Fig. No.
					Dist. Apart	Dia.		
1	DTD.118	24	Web	0.05	6.0	0.25	8 : 1	106, 108
2	L.72	24	Rib angle	0.05	6.0	0.125	10 : 1	113
3	L.72	24	Stiffening angles	†0.05	6.0	0.125	10 : 1	
4	L.72	22	Angle	†0.05	4.0	0.125	10 : 1	
5	DTD.118	18	Packing	†0.025	4.0	—	—	
6	DTD.118	18	Strip	†0.025	4.0	0.125	10 : 1	
7	L.72	14	Foot bracket	—	—	—	—	
8	L.72	16	Reinforcing plate	0.025	4.0	0.125	10 : 1	
9	DTD.118	24	Angles	0.05	6.0	0.125	10 : 1	113
10	DTD.118	24	Stiffening angles	†0.05	6.0	0.25	8 : 1	
11	DTD.626	20	Skin reinforcing plate	†0.025	6.0	0.125	10 : 1	
12	L.72	24	Angle	0.05	6.0	0.125	10 : 1	113
13	DTD.118	18	Packing	†0.05	6.0	0.25	8 : 1	
14	DTD.626	18	Packing	†0.05	6.0	0.25	8 : 1	
15	L.72	24	Web	0.05	6.0	0.25	8 : 1	106, 108
16	L.72	20	Angle	0.05	6.0	0.125	10 : 1	113
17	L.72	18	Packing	†0.05	6.0	0.25	8 : 1	
18	L.72	22	Stiffening angles	†0.05	6.0	0.25	8 : 1	
19	L.72	20	Web	0.05	6.0	0.25	8 : 1	106
20	L.72	249/SS.1793	Angles	0.05	6.0	0.125	10 : 1	113
21	L.72	18	Packing	†0.025	4.0	0.125	10 : 1	
22	DTD.118	22	Angle	0.025	6.0	0.125	10 : 1	
23	L.59	20	Fairing	0.025	6.0	—	—	103
24	L.72	22	Stiffener	0.05	6.0	0.25	8 : 1	
25	L.59	20	End plate	0.05	6.0	—	—	
26	L.72	22	Angle	†0.05	6.0	0.125	10 : 1	
27	L.72	18	Channel	0.05	6.0	0.25	8 : 1	
28	DTD.118	20	Web	0.025	8.0	0.125	16 : 1	106, 108
29	L.72	8	Plate	†0.025	6.0	0.125	16 : 1	
30	DTD.626	20	Stiffener	0.025	6.0	0.125	16 : 1	
31	DTD.118	22	Channel	0.05	6.0	0.25	8 : 1	
32	DTD.118	22	Joint channel	†0.05	6.0	0.125	16 : 1	
33	DTD.118	22	Angle	†0.05	6.0	0.125	16 : 1	
34	DTD.118	24	Angle	†0.05	6.0	0.125	16 : 1	
35	DTD.118	24	Riblet	0.05	4.0	0.125	10 : 1	120
36	DTD.118	22	Strips	†0.025	4.0	0.125	10 : 1	
37	DTD.118	22	Plate strip	†0.025	4.0	—	—	
38	DTD.118	10	Wedge strip	†0.025	6.0	0.125	20 : 1	
39	DTD.118	12	Wedge strip	†0.025	6.0	0.125	20 : 1	
40	DTD.259	—	Block	†0.025	6.0	—	—	
41	DTD.118	24	Angle	†0.05	6.0	0.125	16 : 1	

All dimensions are quoted in inches

†More expedient to replace than repair

*No repairs permitted

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BOTTOM FAIRING FOR RIB 1.

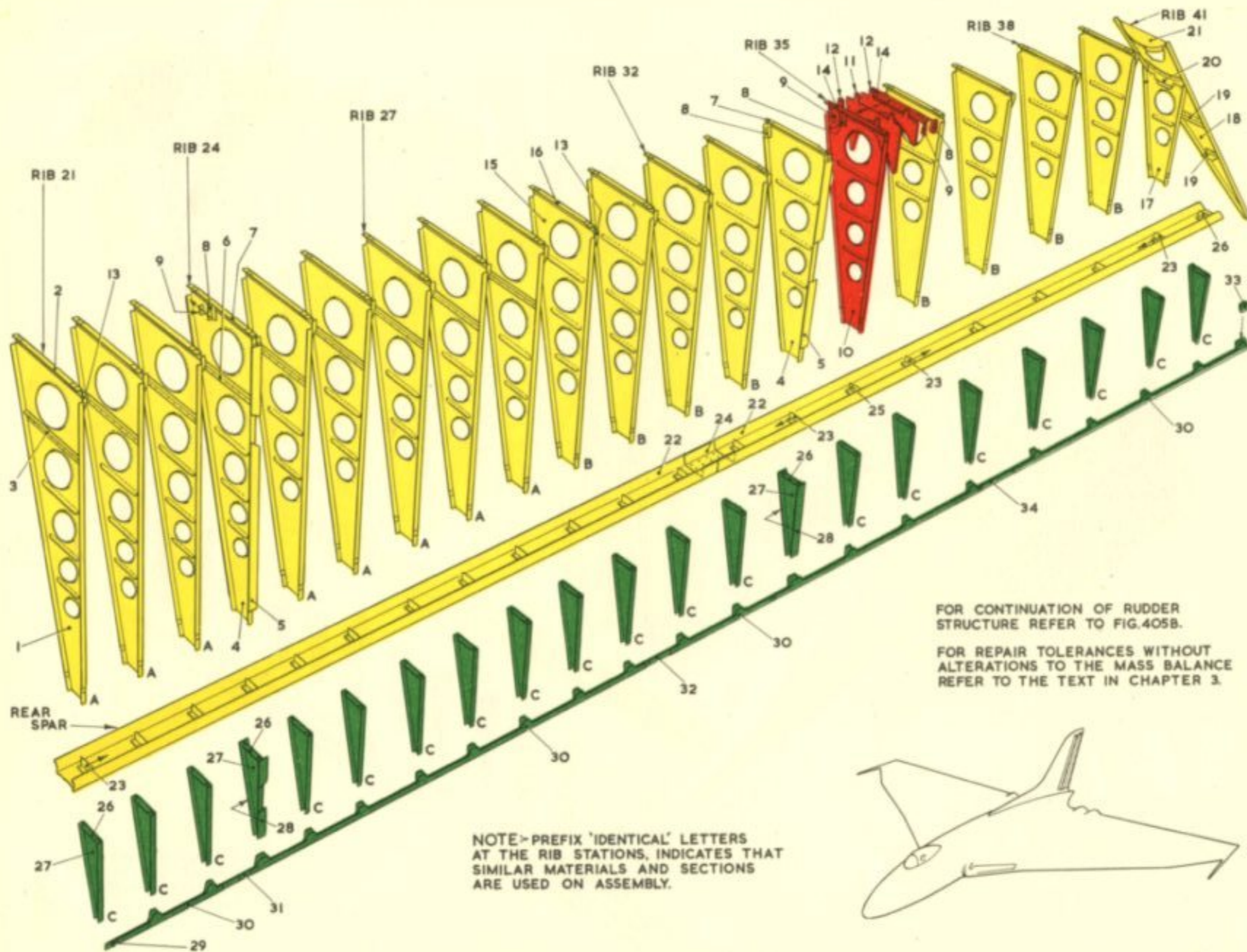
NOTE - PREFIX 'IDENTICAL' LETTERS AT THE RIB STATIONS, INDICATES THAT SIMILAR MATERIALS AND SECTIONS ARE USED ON ASSEMBLY.

FOR CONTINUATION OF RUDDER STRUCTURE REFER TO FIG.405 C.

FOR REPAIR TOLERANCES WITHOUT ALTERATIONS TO THE MASS BALANCE REFER TO THE TEXT IN CHAPTER 3.

Fig.405B - Rudder structure - aft of front spar

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FOR CONTINUATION OF RUDDER
STRUCTURE REFER TO FIG.405B.
FOR REPAIR TOLERANCES WITHOUT
ALTERATIONS TO THE MASS BALANCE
REFER TO THE TEXT IN CHAPTER 3.

NOTE - PREFIX 'IDENTICAL' LETTERS
AT THE RIB STATIONS, INDICATES THAT
SIMILAR MATERIALS AND SECTIONS
ARE USED ON ASSEMBLY.

Fig.405C - Rudder structure - aft of front spar

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Key to Fig. 405C

Item	Spec.	Material S.W.G. or Section	Description	Negligible Damage			Holes Pitch Ratio	Repair Fig. No.
				Dents Depth	Dist. Apart	Dia.		
1	DTD.118	24	Web	0.05	6.0	0.25	8 : 1	106, 108
2	L.72	24	Attachment angle	0.05	6.0	0.125	12 : 1	113
3	L.72	24	Lipped angle	†0.05	6.0	0.125	12 : 1	
4	DTD.118	24	Web	0.05	6.0	0.25	8 : 1	106, 108
5	DTD.118	18	Strip	†0.025	4.0	0.125	10 : 1	
6	L.72	24	Lipped angle	†0.05	6.0	0.125	12 : 1	
7	L.72	24	Attachment angle	0.05	6.0	0.125	10 : 1	113
8	L.72	22	Angle bracket	†0.05	4.0	0.125	10 : 1	
9	L.72	—	Packing when required	†0.025	6.0	—	—	
10	DTD.118	20	Web	0.025	8.0	0.125	16 : 1	106, 108
11	DTD.626	20	Stiffener plate	†0.025	6.0	0.125	16 : 1	
12	L.72	8	Plate	†0.025	6.0	0.125	16 : 1	
13	L.72	22	Angle bracket	†0.05	4.0	0.125	10 : 1	
14	L.72	20	Attachment angle	†0.05	6.0	0.125	10 : 1	113
15	DTD.118	24	Web	0.05	6.0	0.25	8 : 1	106, 108
16	L.72	24	Attachment angle	†0.05	6.0	0.125	10 : 1	113
17	DTD.118	24	Web	0.05	6.0	0.25	8 : 1	106, 108
18	L.72	24	Rib web	0.05	6.0	0.25	8 : 1	106, 108
19	DTD.118	22	Angle	†0.05	6.0	0.125	12 : 1	113
20	L.72	22	Bracket	0.05	6.0	0.25	8 : 1	
21	L.72	20	Diaphragm	0.05	8.0	—	—	
22	DTD.118	22	Channel	0.05	6.0	0.25	8 : 1	
23	DTD.118	22	Angle	†0.05	6.0	0.125	12 : 1	
24	DTD.118	22	Channel	†0.05	6.0	0.125	12 : 1	
25	DTD.118	20	Angle	†0.05	6.0	0.125	12 : 1	
26	DTD.118	24	Angle	†0.05	6.0	0.125	12 : 1	
27	DTD.118	24	Riblets	0.05	4.0	0.125	10 : 1	120
28	DTD.118	22	Strips	†0.025	4.0	0.125	10 : 1	
29	DTD.118	12	Wedge strip	†0.025	6.0	0.125	20 : 1	
30	DTD.118	22	Plate	†0.025	6.0	—	—	
31	DTD.118	14	Wedge strip	†0.025	6.0	0.125	20 : 1	
32	DTD.118	16	Wedge strip	†0.025	6.0	0.125	20 : 1	
33	DTD.259	—	Block	†0.025	6.0	—	—	
34	DTD.118	18	Wedge strip	†0.025	6.0	0.125	20 : 1	

All dimensions are quoted in inches

†More expedient to replace than repair

*No repairs permitted

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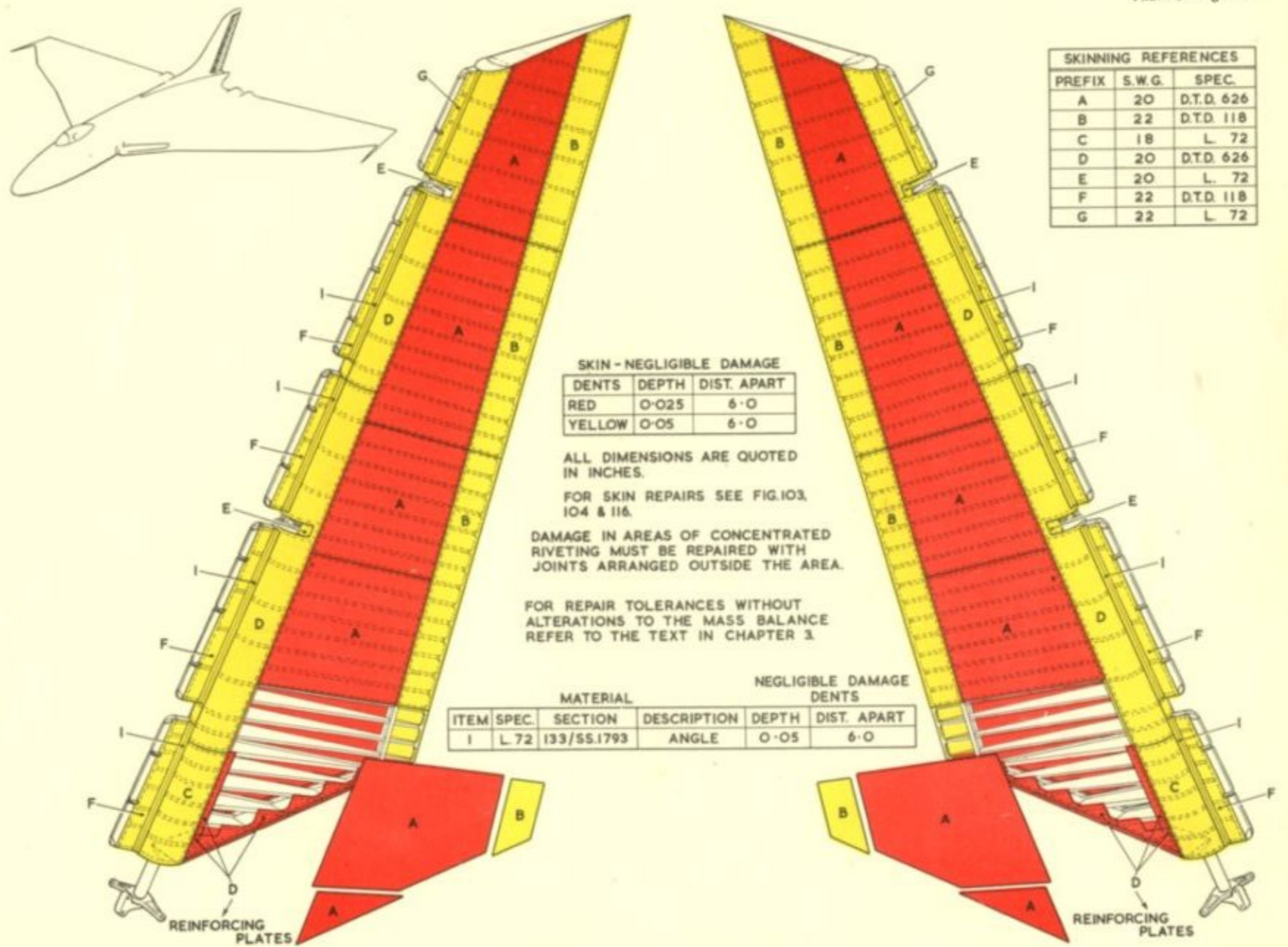


Fig.405D - Rudder skinning

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March, 1957

A.P.4505, Vol. 6, Part 1

CHAPTER 5

ALIGHTING GEAR

CHAP.
5

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Chapter 5 ALIGHTING GEAR

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Main undercarriage beams	502	Nose undercarriage	504▶

INTRODUCTION

501. The main alighting gear and nose wheel units are of Dowty design and manufacture. The nose unit is rearward retracting with levered suspension, incorporating a liquid spring shock-absorber, steering system, centring jack, and a retracting strut assembly. The main unit assembly is forward retracting, incorporating a liquid-spring shock-absorber, and is carried on four twin-tyred wheels, fitted to a trailing bogie.

DESCRIPTION AND SPECIAL TOOLS

502. For a detailed description of the alighting gear and a list of special tools refer to A.P.1803E, Vol. 1, Section 3, Chapter 8, and Section 6, Chapter 7.

ASSEMBLY

503. Bearing beams for the main units are made from light-alloy, and are assembled to the outboard engine ribs, and the mainplane ribs at the wing root. The main bearing brackets for the nose unit are mounted on beams which are assembled on the rear face of the cabin rear pressure bulkhead. Negligible damage and torque loadings for the main bearing beams and brackets on the alighting gear are given on their respective illustrations. Where the torque loadings are given in ft. lbs. this means that the figures quoted are for a spanner 1 ft. long.

Note ...

The spanner must never be hammered when tightening the nuts, or bolts.

Worn tolerances

504. A detailed list of the permissible worn tolerances allowed on the main bearing bushes, etc., are given with the illustrated drawings in this chapter. For further details of the alighting gear refer to A.P.1803D, Vol. 2, Part 2, and Vol. 2, Part 3. Data regarding fits and clearances in relation to worn tolerances are specified under four headings:— "Dimensions New," "Permissible Worn Dimensions," "Clearances New," and "Permissible Worn Clearance." The figures in the column "Dimensions New" are the drawing sizes to which the parts are manufactured. Dimensions quoted in the column "Permissible Worn Dimensions" represent the limits of size to which parts may be worn and refitted for a further period of service. These dimensions have been so fixed that the components are fit for the full period of further service which is normally permitted between complete overhauls. For "Non-Selective Assembly" any two parts which are not worn beyond the limits given may be mated. "Selective Assembly" requires that a part worn within the stated limits may be assembled with a mating part, new or otherwise, provided that, when

assembled, the clearance does not exceed that stated in the "Permissible Worn Clearances" column.

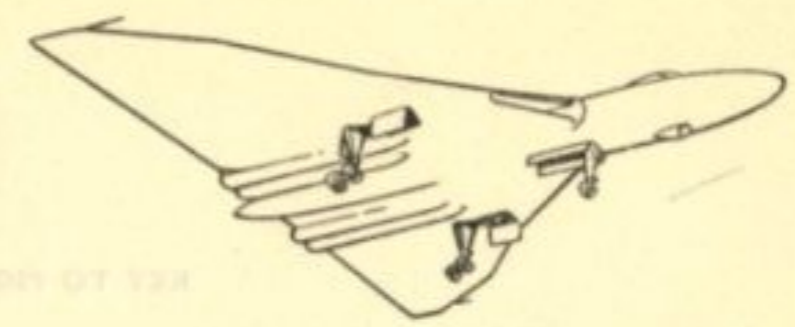
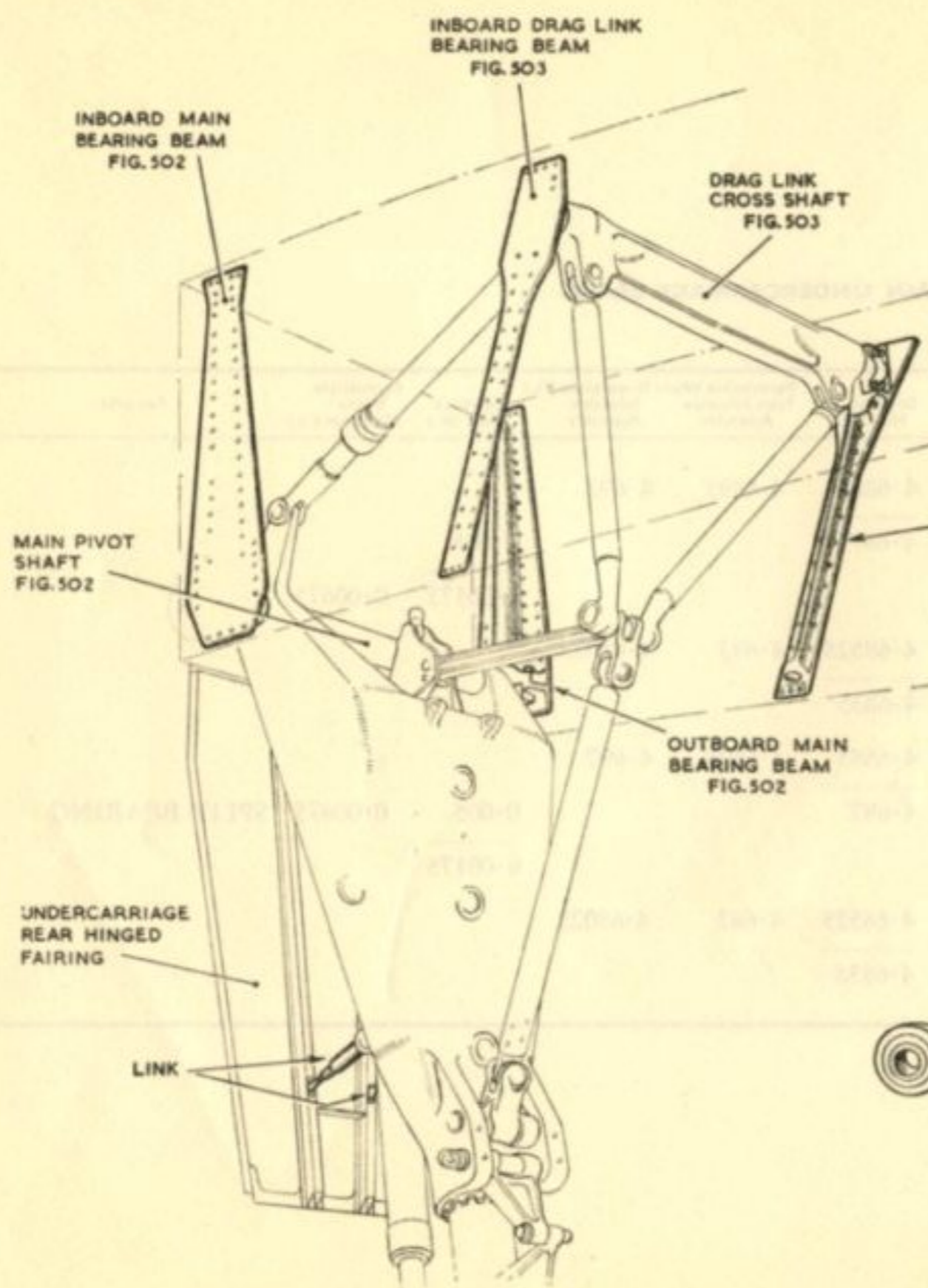
Assembly of alighting gear beam torque-loaded bolts

505. Assemble the bolts in the beams, and nose undercarriage bearing brackets in the following sequence.

- (1) Remove the lanolin from bolts and nuts.
- (2) Lightly coat with Celloseal spec. DTD. 900/4301 the shank of the bolts, and the bores in the beam. Assemble while the treatment is still wet. Refer to Fig. 502-503-504.
- (3) Prior to torque loading, lightly grease the nut, and the threaded portion of the bolt. Use grease spec. DTD.825 or DTD.866. Washers to be coated with Celloseal before assembly.
- (4) After finally torque loading and completing assembly, coat the bolt heads, nuts and washers with lanolin spec. DTD.663 or DTD.279B.

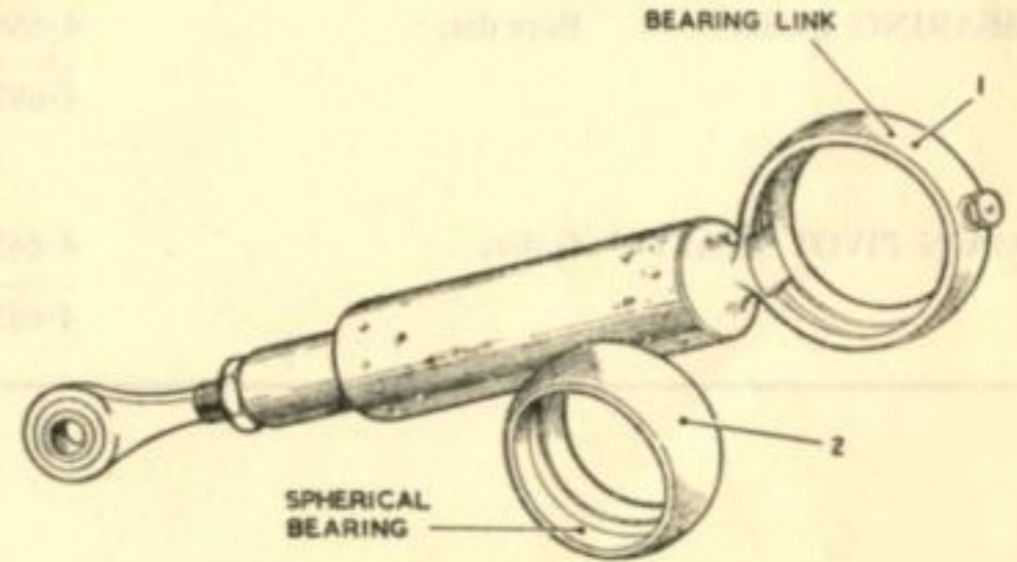
Materials required.

Stores Ref.	Spec.	Description
34B/9100489	DTD.663 or	Lanolin
34B/9100483	DTD.279B	"
33C/1197	DTD.900/4301	Celloseal
34B/9100512	DTD.825 or	Grease
34B/9423152	DTD.866	"



FOR NEGLIGIBLE DAMAGE AND TORQUE LOADINGS ON BEARING BEAMS REFER TO FIGS. 502 - 503

Ref. No.	Part and Description	Dimension New (in.)	Permissible Worn Dimensions (in.)		Clearance New (in.)	Permissible Worn Clearance (in.)
			Selective Assembly	Selective Assembly		
1	LINK Bore dia.	2-1265 2-12525	2-12675	2-12825	0-003 0-0005	0-0035
2	SPHERICAL BEARING O/dia.	2-12475 2-1235	2-12325	2-12175		



UNDERCARRIAGE REAR FAIRING LINKAGE

Fig. 501. U/C Main bearing beams—Key diagram

KEY TO FIG. 502—MAIN UNDERCARRIAGE BEAMS

Ref. No. on Diagram	Part and Description	Dimension New (in.)	Permissible Worn Non-Selective Assembly	Dimensions (in.) Selective Assembly	Clearance New (in.)	Permissible Worn Clearance (in.)	Remarks
1	BEARING BUSH Bore dia.	4.6885 <u>4.687</u>	4.6895	4.692	0.005 <u>0.00175</u>	0.00675	
2	MAIN PIVOT SHAFT O/dia.	4.68525 <u>4.6835</u>	4.683	4.68025			
3	BEARING BUSH Bore dia.	4.6885 <u>4.687</u>	4.6895	4.692	0.005 <u>0.00175</u>	0.00675	SPLIT BEARING
4	MAIN PIVOT SHAFT O/dia.	4.68525 <u>4.6835</u>	4.683	4.68025			

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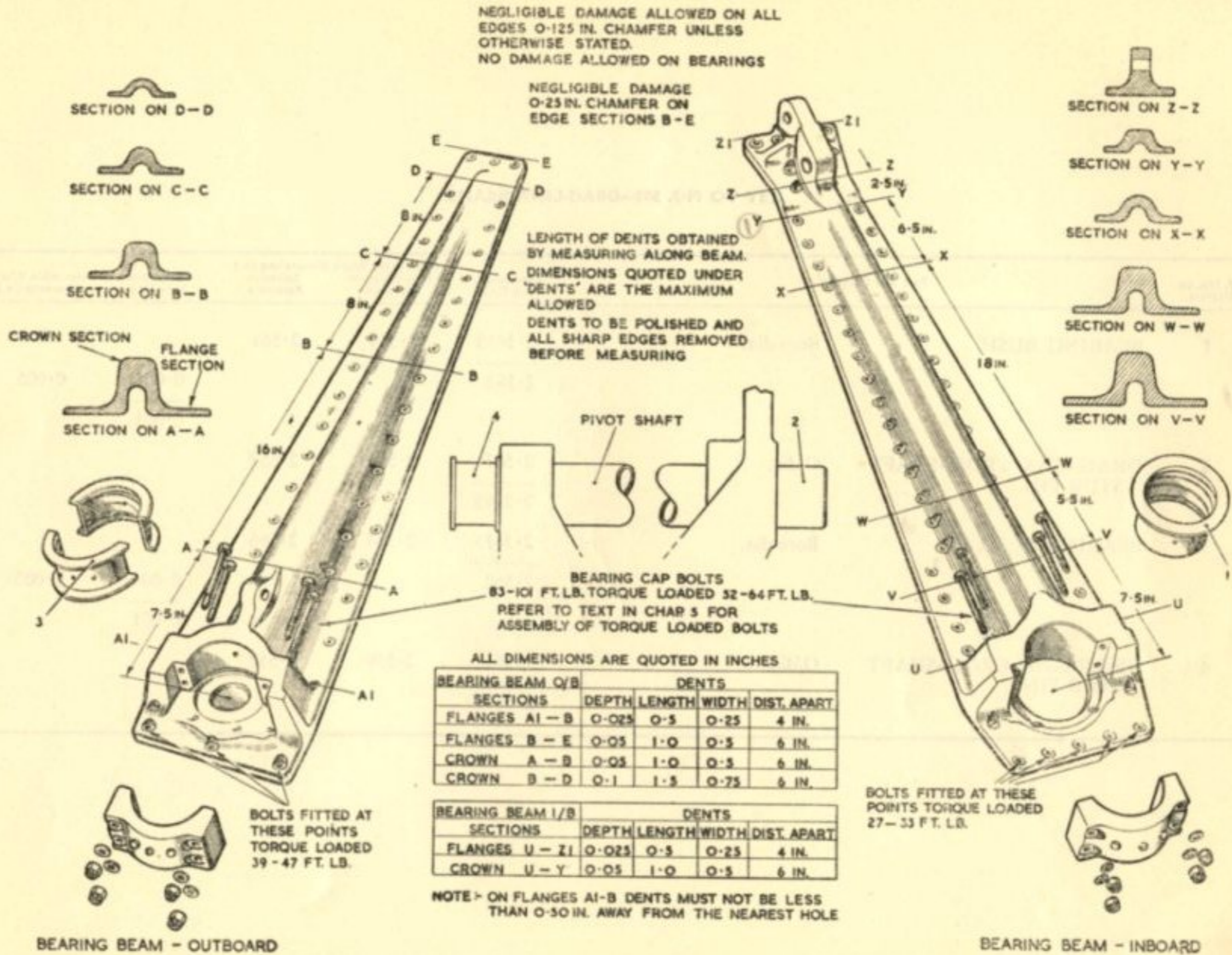


Fig. 502. Main undercarriage beams

KEY TO FIG. 503—DRAG-LINK BEAMS

Ref. No. on Diagram	Part and Description	Dimension New (in.)	Permissible Worn Non-Selective Assembly	Permissible Worn Dimensions (in.) Selective Assembly	Clearance New (in.)	Permissible Worn Clearance (in.)	
1	BEARING BUSH	Bore dia.	2.5635	2.564	2.566	0.004	0.005
			2.562				
2	DRAG-LINK CROSS-SHAFT STUB PIN	O/dia.	2.561	2.559	2.557	0.004	0.005
			2.5595				
3	BEARING BUSH	Bore dia.	2.5635	2.564	2.566	0.004	0.005
			2.562				
4	DRAG-LINK CROSS-SHAFT STUB PIN	O/dia.	2.561	2.559	2.557	0.004	0.005
			2.5595				

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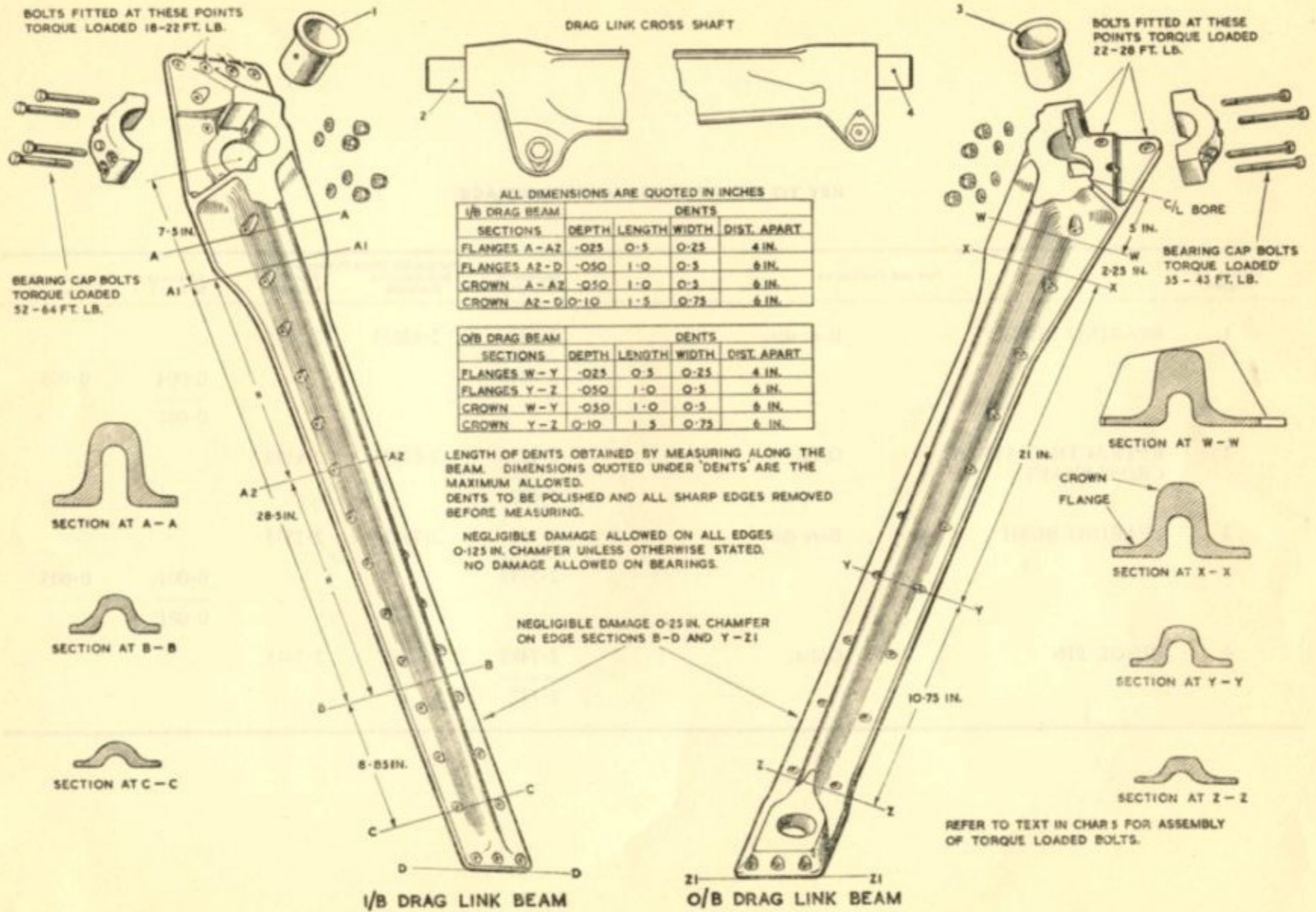


Fig. 503. Drag link beams

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KEY TO FIG. 504—NOSE UNDERCARRIAGE

Ref. No. on Diagram	Part and Description	Dimension New (in.)	Permissible Worn Dimensions (in.)		Clearance New (in.)	Permissible Worn Clearance (in.)	
			Non-Selective Assembly	Selective Assembly			
1	BEARING BUSH	Bore dia.	2.626	2.62675	2.6285	0.004	0.005
			2.6245				
2	RETRACTING STRUT CROSS-SHAFT	O/dia.	2.6235	2.62175	2.6195		
			2.622				
3	BEARING BUSH	Bore dia.	2.751	2.7515	2.7535	0.004	0.005
			2.7495				
4	HINGE PIN	O/dia.	2.7485	2.7465	2.7445		
			2.747				

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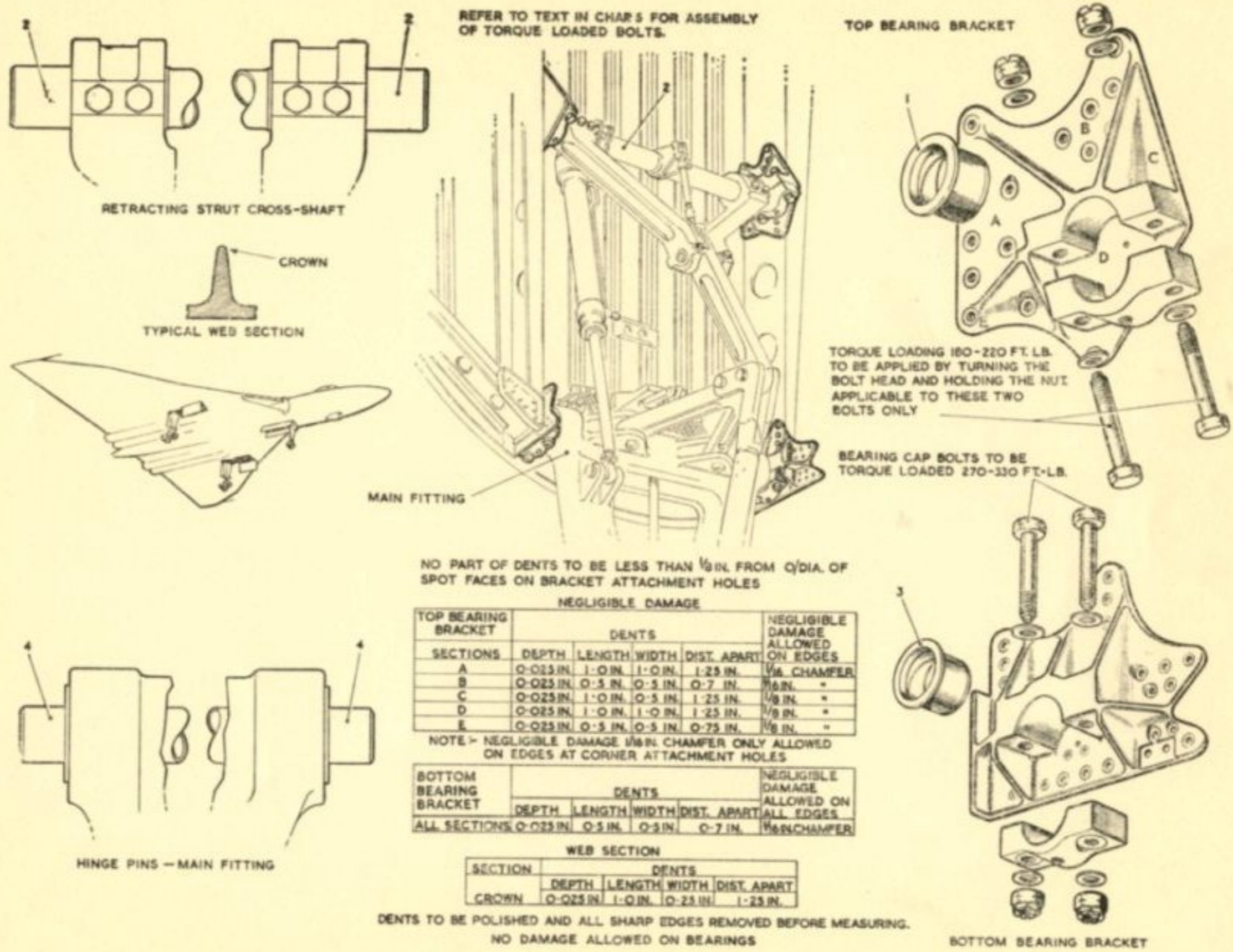


Fig. 504. Nose undercarriage

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CHAPTER 6

ENGINE NACELLES

6

RESTRICTED

Chapter 6 ENGINE NACELLES

The engine nacelles being integral with the aircraft centre section, repairs to their structural components are incorporated in Chapter 3, e.g. Engine access doors—Fig. 318. Reference should also be made to general repair illustrations in Chapter 1.

CHAPTER 7

SYSTEMS

Chapter 7 SYSTEMS

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Introduction

701. A comprehensive detailed list of all components, illustrations of systems, together with a list of raw material for the manufacture and repair of pipe details is contained in A.P.4505A, Vol. 3, Part 1, 2, 3 and 4.

PIPING

702. Pipes which fail or are damaged in the various systems will only be repairable by replacement, excepting in the case of a long length of pipe, when an insertion can be made using standard couplings, and providing that no fouls will occur at the newly made joint. Provision for the repair of metal

fuel pipes in the outer wings by insertion, is provided for by the use of a special tool. Ref. No. Z.9865. With this tool, bending the ends of the pipes can be accomplished in situ. Refer to fig. 701.

PIPE BENDING

703. All pipes made for replacement must be bent to one of the radii quoted in the tables. No intermediate radii is permissible. Preference should always be given to the largest bend radii. The smaller radii should only be used when their use is unavoidable. Free hand bending of pipes must not be resorted to. Use the approved standard pipe bending tools, which will ensure that ovality

of the pipe at bends is kept to a minimum. After completion of pipe bending, fitting of couplings, sleeves, and of belling, the pipe should be replated for a distance of approximately four inches from each end to prevent corrosion. The plating applies only to the pipe. Couplings and sleeves should be secured at a distance from the end of the pipe which will allow plating to take place.

General

704. Reference for bend radii, and minimum straight length requirements for pipes, are contained in fig. 702, 703, and key tables. For additional information refer to A.P.1464D, Vol. 1, and A.P.1464B, Vol. 1.

REPAIR INSTRUCTIONS

END OF PIPE TO BE MADE CIRCUMFERENTIALLY SQUARE TO CENTRE-LINE OF PIPE.

RELEASE CONE-ADJUSTER SO THAT THE BALL BEARING FALLS BELOW THE OUTER SURFACE OF THE INNER BODY.

ENTER THE PIPE UP TO THE STOP ON THE INNER BODY.

APPLY LOAD ON THE BALL BEARING BY MEANS OF THE CONE ADJUSTER. RELEASE AND TIGHTEN LOCKNUT ACCORDINGLY.

ROTATE FOR BEADING BY TURNING THE INNER BODY WITH SPANNER. MAKE SURE THE PIPE IS AGAINST THE STOP DURING THIS OPERATION.

AFTER COMPLETION OF BEADING, RELEASE LOCKNUT AND SCREW IN CONE ADJUSTER UNTIL BALL BEARING IS BELOW OUTER SURFACE OF INNER BODY.

REMOVE LOCKING RING FROM BODY WHICH WILL NOW SEPARATE FOR REMOVAL FROM PIPE.

CHECK BEADING FOR CORRECT SIZE.

ENSURE THAT THE PIPES ARE SCRUPULOUSLY CLEAN BEFORE REMAKING JOINT.

NOTE - THIS TOOL IS DESIGNED FOR BEADING LONG PIPES WHICH CANNOT BE REMOVED FROM THE AIRCRAFT WHEN A REPAIR IS NECESSARY BY INSERTION OF A SHORT LENGTH OF NEW PIPE.

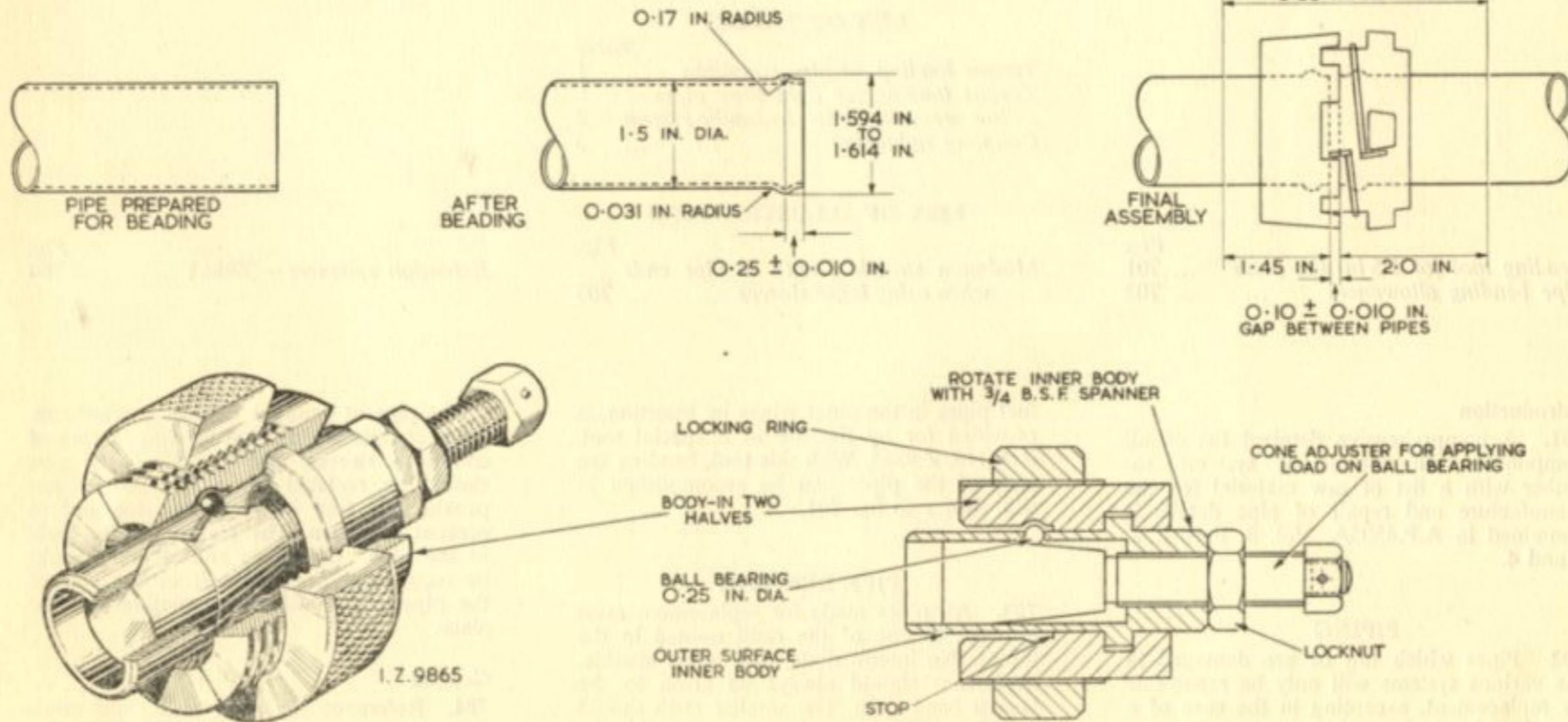


Fig. 701. Beading tool for 1.5 in. dia. pipes (using F.R.S.110/K type couplings)

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Outside dia. of pipe in.	"A" minimum straight length in.	"B" minimum straight length in.	"R" BEND RADIUS		
			First choice in.	Smaller alternative in.	Absolute minimum in.
0-187	1-0	2-0	2-0	1-25	0-75
0-25	1-0	2-0	2-0	1-50	1-0
0-312	1-0	2-0	2-5	1-75	1-25
0-375	1-0	2-0	2-5	2-0	1-50
0-437	1-5	2-0	3-0	2-50	1-75
0-50	1-5	2-0	6-0/4-0	3-0	2-0
0-625	1-5	2-0	6-0/4-0	3-0	2-0
0-75	1-5	2-0	6-0	4-0	3-0
0-875	1-5	2-0	6-0	4-0	3-0
1-0	1-5	2-0	6-0	4-0	3-0
1-25	1-5	2-5	8-0/6-0	4-0	3-0
1-50	1-5	3-0	8-0/6-0	5-0	4-0
2-0	1-75	4-0	10-0	8-0	6-0
2-50	1-75	5-0	10-0	8-0	6-0

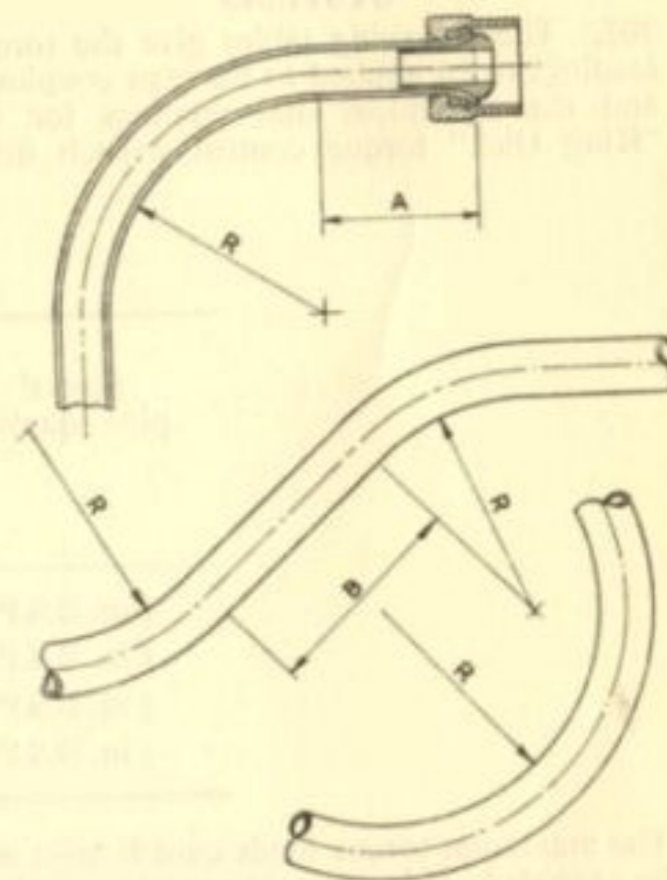


Fig. 702. Pipe bending allowances

Outside dia. of pipe in.	"C" minimum straight length in.	Outside dia. of pipe in.	"C" minimum straight length in.
0-187	5-0	0-75	5-0
0-25	5-0	0-875	5-50
0-312	5-0	1-0	5-50
0-375	5-0	1-25	5-50
0-437	5-0	1-50	5-50
0-50	5-0	2-0	5-50
0-625	5-0	2-50	5-50

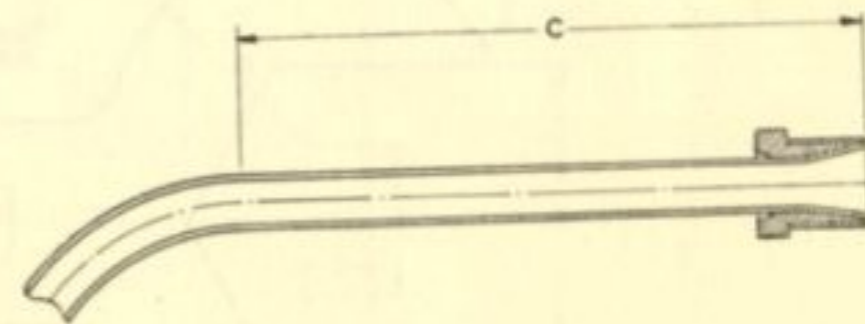


Fig. 703. Minimum straight length at pipe ends when using inner sleeves

TORQUE LOADS — HYDRAULIC SYSTEMS

705. The following tables give the torque loadings to be applied to the pipe couplings, and the equivalent dial readings for the "King Dick" torque control wrench fitted

with an extension spanner with a 2.0 in. arm. The figures quoted in Table 1 apply to the high pressure pipe lines made from steel and tungum.

Three columns of equivalent readings are quoted:—

- (1) Torque load to be applied to coupling nut.
- (2) With extension spanner in line with torque wrench centre-line.
- (3) With extension spanner set at 90 deg. to centre-line of torque wrench.

TABLE 1
Torque loadings on pipe couplings

Size of pipe coupling	Torque to be applied to coupling nut lb./in.	Equivalent torque readings on dial		Satisfactory for working pressure of up to:— p.s.i.
		Extension spanner in line lb./in.	Extension spanner set at 90 deg. to centre-line lb./in.	
½ in. B.S.P.	50 to 70	45 to 55	45 to 65	4,000
¾ in. B.S.P.	100 to 135	85 to 110	100 to 130	4,000
1 in. B.S.P.	175 to 225	150 to 185	175 to 220	4,000
1½ in. B.S.P.	350 to 425	300 to 355	345 to 415	4,000

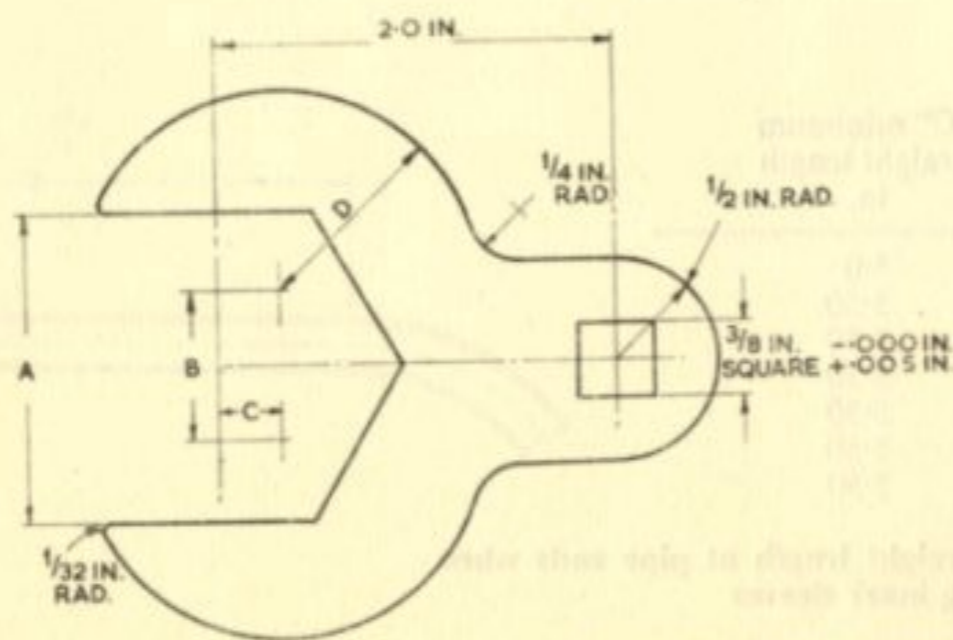
The maximum torque loads quoted must not be exceeded. If leakage occurs, the coupling

assembly should be checked to ensure that the pipe has been correctly belled, and also

to ascertain whether any of the coupling parts have been wrongly assembled or distorted.

Special tools:— Extension spanners Part No. Z.9862.

Material — Nickel-Chrome 0.25 in. thick, hardened and ground.



Item	A in.	B in.	C in.	D in.
2. Z.9862	1.67	0.75	0.312	0.937
3. Z.9862	1.20	0.437	0.312	0.75
4. Z.9862	1.10	0.437	0.25	0.625
5. Z.9862	1.01	0.531	0.312	0.625
6. Z.9862	0.82	0.25	0.25	0.625
7. Z.9862	0.60	0.25	0.187	0.437
8. Z.9862	0.525	0.156	0.156	0.375
9. Z.9862	0.710	0.25	0.218	0.531

Fig. 704. Extension spanners — Z9862

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TABLE 2
Torque loadings for light alloy pipes on the low pressure joints of the hydraulic systems

Size of pipe coupling B.S.P.	Torque to be applied to coupling nut lb/in.	Equivalent torque readings on dial		Satisfactory for working pressure of up to:— p.s.i.
		Extension spanner in line lb./in.	Extension spanner set at 90 deg. to centre-line lb./in.	
$\frac{1}{8}$ in.	40 to 60	35 to 50	35 to 55	500
$\frac{1}{4}$ in.	100 to 125	85 to 100	100 to 120	500
$\frac{3}{8}$ in.	150 to 200	130 to 165	150 to 195	500
$\frac{1}{2}$ in.	200 to 275	170 to 230	195 to 270	500
$\frac{3}{4}$ in.	200 to 275	170 to 230	195 to 270	500
$\frac{1}{2}$ in.	250 to 375	210 to 310	245 to 370	500
1 in.	250 to 375	210 to 310	245 to 370	500

Instructions for the tightening of couplings on all systems excepting hydraulics, are defined in the following table.

TABLE 3
Coupling tightening

Outside dia. of pipe	Approximate fraction of turn after finger tightening	
	For a new joint	For a remade joint
$\frac{1}{8}$ in.	$\frac{1}{2}$	$\frac{1}{2}$
$\frac{1}{4}$ in.	$\frac{1}{2}$	$\frac{1}{2}$
$\frac{3}{8}$ in.	$\frac{1}{2}$	$\frac{1}{2}$
$\frac{1}{2}$ in.	$\frac{1}{2}$	$\frac{1}{2}$
$\frac{3}{4}$ in.	$\frac{1}{2}$	$\frac{1}{2}$
$\frac{1}{2}$ in.	$\frac{1}{2}$	$\frac{1}{2}$
$\frac{3}{4}$ in.	$\frac{1}{2}$	$\frac{1}{2}$
1 in.	$\frac{1}{2}$	$\frac{1}{2}$
$1\frac{1}{4}$ in.	$\frac{1}{2}$	$\frac{1}{2}$
$1\frac{1}{2}$ in.	$\frac{1}{2}$	$\frac{1}{2}$

INSTALLATION

706. It is very important before fitting a pipe or a new pipe insert, to check that the interior of the pipe is scrupulously clean, also great care should be taken that no swarf, etc., is left in the existing installation. Prior to torque loading of pipe joints, lightly grease all threads with anti-freeze grease ZX-13, Ref. 34B/9100528, N.A.T.O. Code No. S.720. This instruction applies to the following systems: Hydraulics, Emergency Air, De-icing, Fuel, Engine Oil, Pneumatics, and Nitrogen. For the oxygen system use Aqueous colloidal graphite grease ZX-24, Ref. 34B/9105066, N.A.T.O. Code No. S.718.

FUEL SYSTEM

707. The normal fuel carrying capacity of the aircraft is contained in fourteen flexible tanks which are positioned as follows: five in each outer wing, and four fitted above and aft of the nose-wheel bay. The wing tanks are made of Hycatrol H.P.257, 0.030 in. thick, reinforced with Terylene. Spec. D.T.D.1132. Fuselage tanks are made from Hycatrol H.P.257, 0.040 in. thick, reinforced with Terylene. Spec. D.T.D.1124. All the tanks which are crash-resistant, and suitable

for use at low temperatures, are coated on the outside surface with Polyfilm Lacquer D.T.D.900/4312. For tank removal instructions refer to A.P.4505A, Vol. 1, Book 1. General information and repair instructions for these tanks are given in A.P.4117B.

TESTING

708. Instructions for the pressure testing and functioning of systems after repair or replacement of components, are contained in the associated publications listed below:—

	A.P.
Hydraulics ...	4505A, Vol. 1, Book 1 1803, Vol. 1
Pneumatics ...	4505A, Vol. 1, Book 1 4303, Vol. 1
De-icing ...	4505A, Vol. 1, Book 1
Fuel ...	4505A, Vol. 1, Book 1
Engine oil ...	4501, Vol. 1
Nitrogen ...	4505A, Vol. 1, Book 1
Oxygen ...	4505A, Vol. 1, Book 1 1275, Vol. 1
Cabin air pressure and conditioning system ...	4505A, Vol. 1, Book 1
Flying controls ...	4505A, Vol. 1, Book 1
Engine controls	4505A, Vol. 1, Book 1

BALL RACES

709. A special tool kit Z.9306, Ref. No. 26DC/95300, is available for removing the various sizes of securing plates which retain the ball-race in the housing. After servicing, or renewal of ball-race, assemble a new securing plate with the appropriate tools from the above kit.

CHAPTER 8

FLY-IN REPAIRS

$\frac{2}{K} \cdot \frac{G\theta}{L} \cdot \frac{T}{I}$

PART 2

MAJOR REPAIRS

$\frac{M}{I} \cdot \frac{R}{Y} \cdot \frac{F}{Y}$

Repair Leaflets in this Part may call up manufacturers' repair drawings. When required, these drawings should be requisitioned in accordance with the procedure given in A.P.3158, Vol. 2, Leaflet D.7.

In this Part, the absence of a suitable repair instruction for any damage sustained is not to be taken as meaning that the component is beyond repair. In the absence of any instruction and when the appropriate technical officer considers that repair on site is practicable, a request for a repair scheme is to be submitted to the Directorate of Aircraft Engineering, Air Ministry. When such a request is submitted, full details with sketches and/or photographs indicating the exact location and extent of the damage are to be attached.

$\frac{M}{I} \cdot \frac{F}{Y}$

$F \cdot \frac{M Y}{I}$

PART
2

REPAIR TO STRINGER ATTACHMENT BRACKETS - FORWARD FACE, REAR PRESSURE BULKHEAD, STATION 204F.

General information

1. This repair is applicable to Vulcan B.Mk.1, Mk.1A and Mk.2 aircraft.

2. This repair calls for the renewal of all cracked, corroded, or damaged stringer attachment brackets on the forward face of the rear pressure bulkhead at station 204F, that are outside the tolerances quoted in Repair Leaflet A.1/3. It is essential that new brackets, manufactured from aluminium alloy only, be used for renewal.

3. This repair is concerned only with the renewal of defective stringer brackets and does not give any details of removals or re-installations that have been necessary in gaining access to them.

4. Before commencing operations, obtain the manufacturers drawings that are listed below. If any of these drawings have been held on a station, it is essential that they be checked, before use, to see that they are the latest issue.

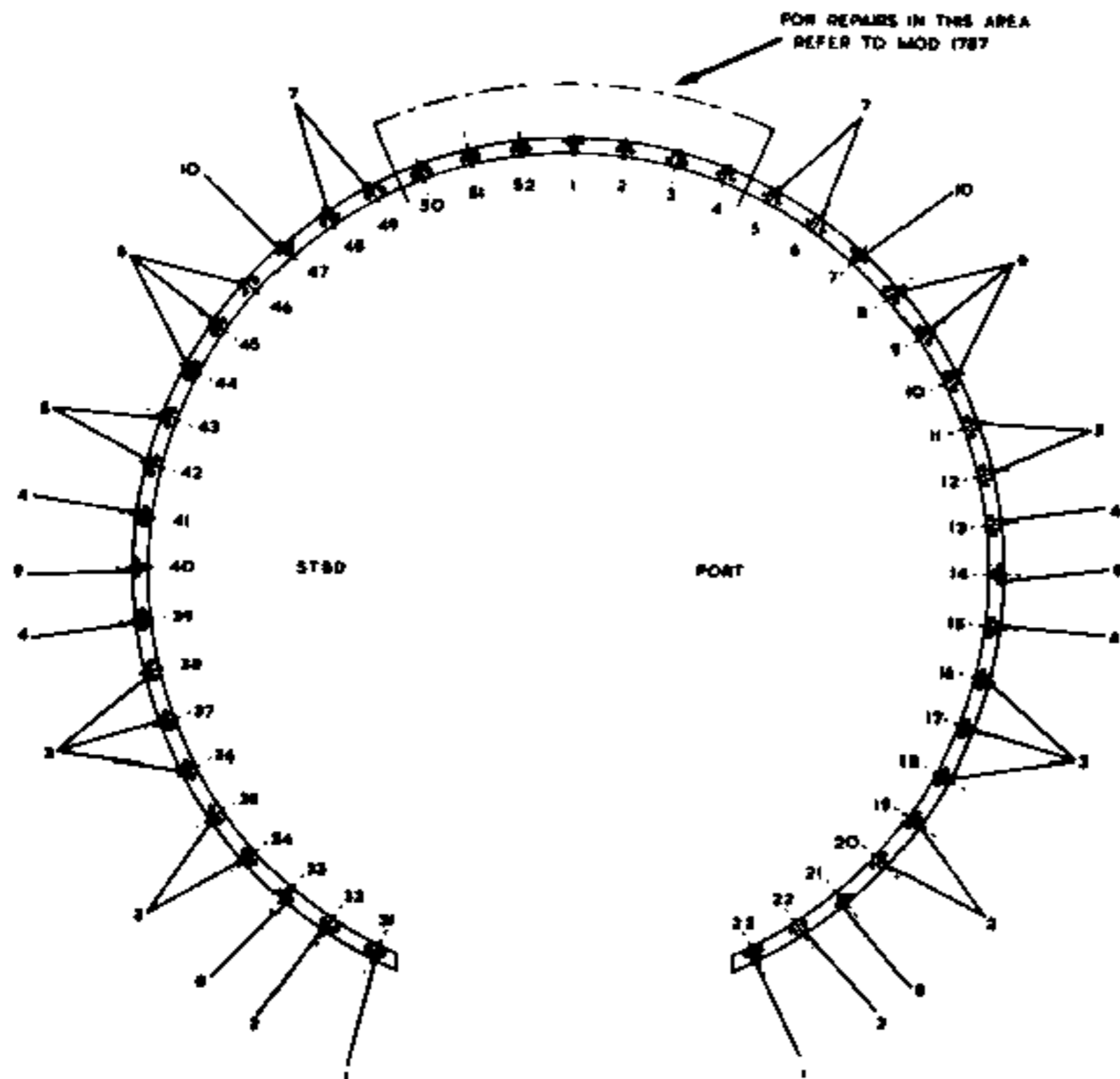
5. Refer to Repair Leaflet A.1.2 to determine the correct aircraft jacking procedure for this repair before commencing operations.

6. The original magnesium alloy stringer attachment brackets, together with their stringer positions and new aluminium alloy stringer attachment brackets are given in the Key to Fig.1 of this leaflet.

Manufacturers drawings:-

A.3071	Sht.2	G.A. of aircraft transport joints.
A.3096	Sht.2	G.A. of aircraft transport joints.
D.12365	Sht.2	Method of renewing cracked magnesium alloy top hat stringer brackets.
D.9544	Sht.2	Details of skinning of crews nacelle.
D.9428	Sht.5	Details of stringer attachments - crews nacelle.
D.12614	Sht.1	Top hat section stringer attachment brackets at rear pressure bulkhead.
D.12620	-	Semi-finished top hat stringer bracket.

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NOTE -
ITEM NUMBERS FOR KEY TABLES
ARE ARRANGED EXTERNALLY

Fig.1. Rear pressure bulkhead, station 204F- forward face

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PART 3

PERMISSIBLE WEAR

The purpose of the information set out in this part is to guide maintenance personnel on the amount of wear allowed on mating parts, on aircraft undergoing overhaul procedure. If the appropriate technical officer considers that a repair on site, to recover the original dimension of a part worn beyond the limits stated is practicable, a request for a repair scheme is to be submitted to the Directorate of Aircraft Engineering, Air Ministry.

LIST OF CHAPTERS

NOTE...

A detailed list of illustrations appears at the beginning of each chapter.

- 1 Introductory information
- 2 Fuselage
- 3 Main planes
- 4 Tail unit
- 5 Landing gear
- 6 Engine Nacelles
- 7 Systems

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Chapter 1
INTRODUCTORY INFORMATION
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<i>Column headings</i>	102
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Presentation of permissible wear information

101. Permissible wear data is specified under the following headings:-

Dimension New
Permissible Worn Dimension; Non-selective Assembly
Permissible Worn Dimension; Selective Assembly
Clearance New
Permissible Worn Clearance

A detailed description of each heading is given in para.102. The tables indicate the wear limits to be observed during reconditioning. Detail drawings are provided with each table and are identified by letters which also locate the details on key drawings. Parts which are liable to wear are identified on the detail drawings by item numbers which also appear on the tables against the appropriate data. All dimensions are

quoted in inches and a minus sign indicates an interference fit.

Column headings

102. Dimension New indicates the maximum and minimum size to which new parts are made. It is an expression of the accuracy of workmanship demanded by design requirements.

Permissible Worn Dimension; Non-selective Assembly is the limit to which any two mating parts may wear and still be assembled to undergo a further period of service.

Permissible Worn Dimension; Selective Assembly is the limit to which a part may be worn and still be fitted for a further period of service provided that, its mating part is selected so that on assembly the Permissible Worn Clearance is not exceeded. In extreme cases, parts worn to the dimensions quoted must be

mated with new parts, to the high limit of the Dimension New in the case of male parts, and the low limit in the case of female parts.

Clearance New shows the maximum and minimum clearances which result from the mating of two new parts.

Permissible Worn Clearance is the maximum clearance permitted between two mating parts, when assembled to undergo a further period of service, and is decided upon by the manufacturers in the light of practical experience. It is not the critical clearance beyond which an assembly will fail.

OILITE BUSHES

103. For the lubrication, cleaning, re-impregnation and installation of oilite bushes refer to A.P.1464B, Vol.1, Part 2, Sect.1, Chap.3.

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Chapter 2
FUSELAGE

LIST OF ILLUSTRATIONS

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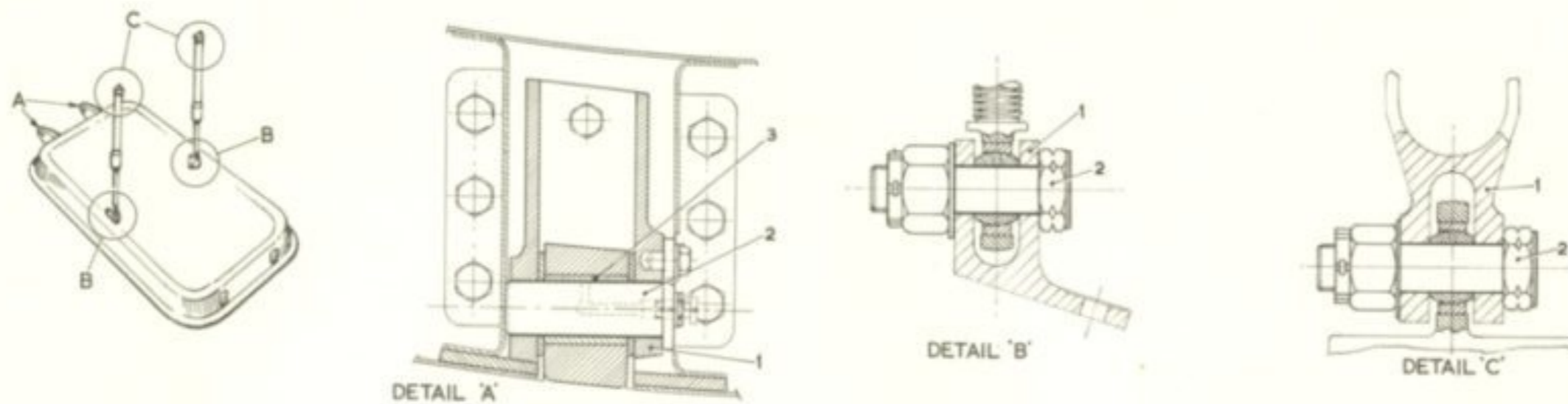


Fig.201. Main entrance door

Detail	Item	Part and Description	Dimension New (in.)	Permissible Worn Dimension (in.)		Clearance New (in.)	Permissible Worn Clearance (in.)	Remarks
				Non-selective Assembly	Selective Assembly			
A	1	BRACKET (bore)	$\frac{0.7505}{0.74975}$	0.751	0.752	$\frac{0.0025}{0.00075}$	0.003	
	2	PIN (o/dia.)	$\frac{0.749}{0.748}$	0.748	0.74675			
	3	BUSH (bore)	$\frac{0.75075}{0.74925}$	0.7515	0.7525	$\frac{0.00275}{0.00025}$	0.0035	
	2	PIN (o/dia.)	$\frac{0.749}{0.748}$	0.748	0.74575			
B	1	BRACKET (bore)	$\frac{0.5002}{0.4998}$	0.5008	0.50125	$\frac{0.0009}{0.00005}$	0.0015	
	2	BOLT (o/dia.)	$\frac{0.49975}{0.4993}$	0.4993	0.4983			
C	1	BRACKET (bore)	$\frac{0.5002}{0.4998}$	0.5008	0.50125	$\frac{0.0009}{0.00005}$	0.0015	
	2	BOLT (o/dia.)	$\frac{0.49975}{0.4993}$	0.4993	0.4983			

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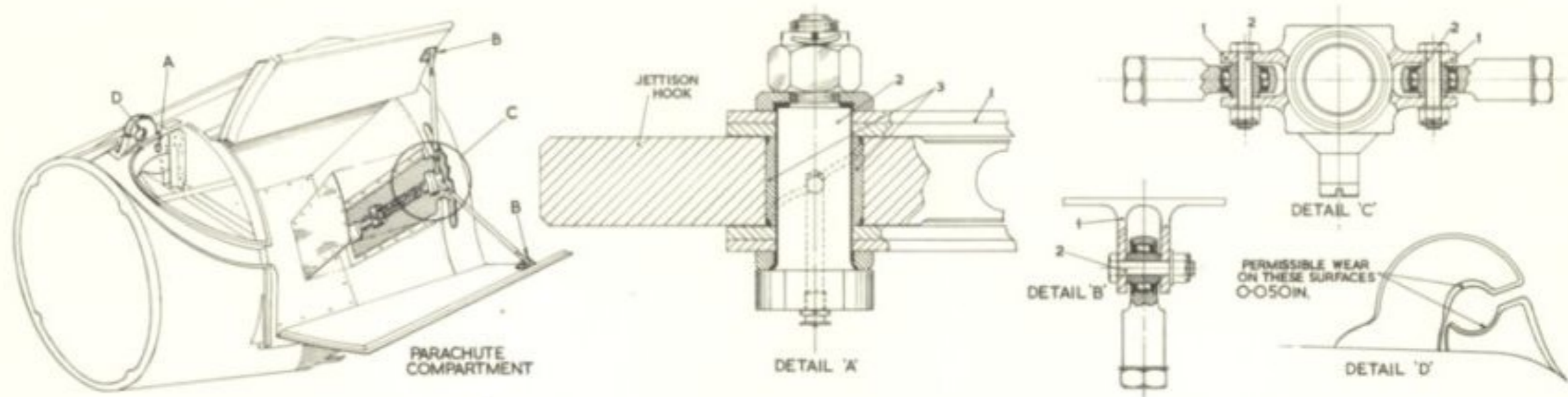


Fig.202. Brake parachute release mechanism

Detail	Item	Part and Description	Dimension New (in.)	Permissible Worn Dimension (in.)		Clearance New (in.)	Permissible Worn Clearance (in.)	Remarks
				Non-selective Assembly	Selective Assembly			
A	1	SIDE MEMBER (bore)	$\frac{1.00075}{0.9995}$	1.00125	1.00175	$\frac{0.0015}{-0.00025}$	0.002	
	2	BOLT (o/dia.)	$\frac{0.99975}{0.99925}$	0.99925	0.9975			
	3	BUSH (bore)	$\frac{1.00075}{0.9995}$	1.00125	1.00175	$\frac{0.0015}{-0.00025}$	0.002	
	2	BOLT (o/dia.)	$\frac{0.99975}{0.99925}$	0.99925	0.9975			
B	1	BRACKET (bore)	$\frac{0.188}{0.187}$	0.1888	0.18925	$\frac{0.0015}{-0.00025}$	0.002	
	2	BOLT (o/dia.)	$\frac{0.18725}{0.1868}$	0.1868	0.185			
C	1	BRACKET (bore)	$\frac{0.188}{0.187}$	0.1888	0.18925	$\frac{0.0012}{-0.00025}$	0.002	
	2	BOLT (o/dia.)	$\frac{0.18725}{0.1868}$	0.1868	0.185			

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Chapter 3
MAIN PLANES

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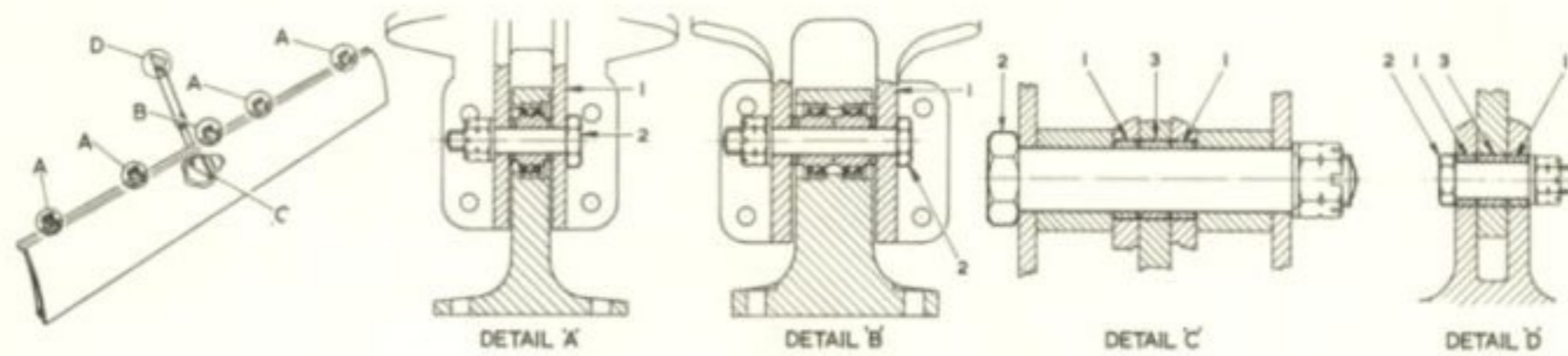


Fig.301. Nose wheel door

Detail	Item	Part and Description	Dimension New (in.)	Permissible Worn Dimension (in.)		Clearance New (in.)	Permissible Worn Clearance (in.)	Remarks
				Non-selective Assembly	Selective Assembly			
A	1	HINGE BRACKET (bore)	$\frac{0.25025}{0.24975}$	0.251	0.252	$\frac{0.00225}{0.00075}$	0.003	
	2	BOLT (o/dia.)	$\frac{0.249}{0.248}$	0.248	0.24675			
B	1	HINGE BRACKET (bore)	$\frac{0.25025}{0.24975}$	0.2508	0.25125	$\frac{0.00095}{0.00000}$	0.0015	
	2	BOLT (o/dia.)	$\frac{0.24975}{0.2493}$	0.2493	0.24825			
C	1	BUSH (bore)	$\frac{0.62525}{0.62475}$	0.62575	0.62725	$\frac{0.003}{0.001}$	0.0035	
	2	BOLT (o/dia.)	$\frac{0.62375}{0.62225}$	0.62225	0.62125			
	3	BUSH (bore)	$\frac{0.62575}{0.6245}$	0.62625	0.62775	$\frac{0.0035}{0.00075}$	0.004	
	2	BOLT (o/dia.)	$\frac{0.62375}{0.62225}$	0.62225	0.6205			
D	1	BUSH (bore)	$\frac{0.37525}{0.37475}$	0.376	0.377	$\frac{0.00225}{0.00075}$	0.003	
	2	BOLT (o/dia.)	$\frac{0.374}{0.373}$	0.373	0.37175			
	3	BUSH (bore)	$\frac{0.3755}{0.3745}$	0.3765	0.3775	$\frac{0.0025}{0.0005}$	0.0035	
	2	BOLT (o/dia.)	$\frac{0.374}{0.373}$	0.373	0.371			

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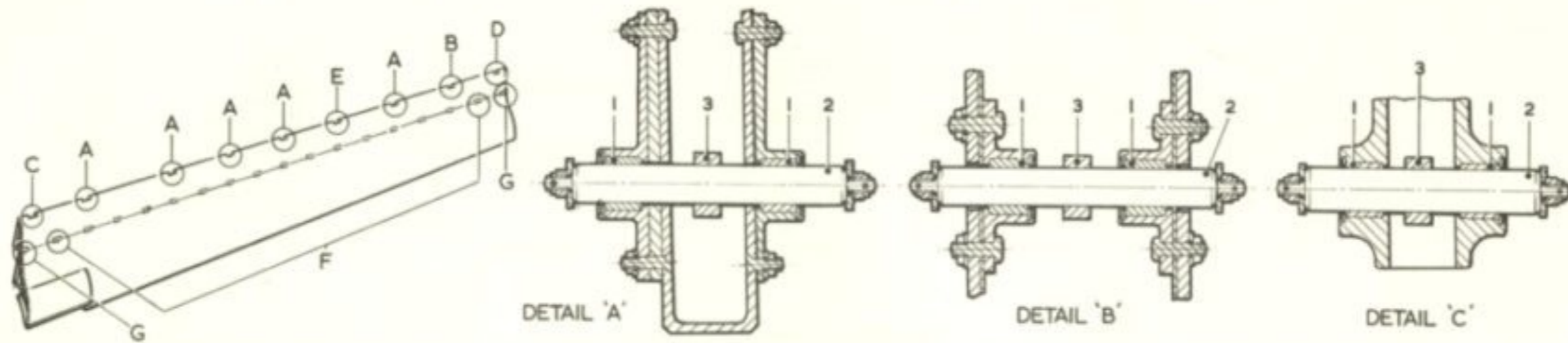
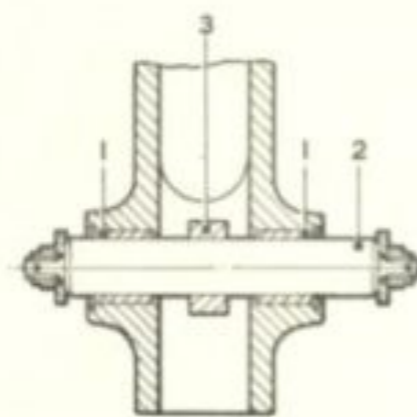


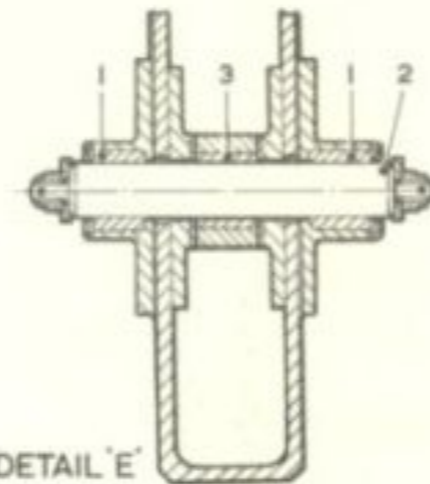
Fig.302. Bomb door hinges

Detail	Item	Part and Description	Dimension New (in.)	Permissible Worn Dimension (in.)		Clearance New (in.)	Permissible Worn Clearance (in.)	Remarks
				Non-selective Assembly	Selective Assembly			
A	1	BUSH (bore)	$\frac{0.7278}{0.72575}$	0.729	0.72975	$\frac{0.00655}{0.004}$	0.008	
	2	PIN (o/dia.)	$\frac{0.72175}{0.72125}$	0.721	0.71775			
	3	HINGE BLOCK (bore)	$\frac{0.72575}{0.7245}$	0.727	0.72775	$\frac{0.0045}{0.00275}$	0.006	
	2	PIN (o/dia.)	$\frac{0.72175}{0.72125}$	0.721	0.7185			
B	1	BUSH (bore)	$\frac{0.7278}{0.72575}$	0.729	0.72975	$\frac{0.00655}{0.004}$	0.008	
	2	PIN (o/dia.)	$\frac{0.72175}{0.72125}$	0.721	0.71775			
	3	HINGE BLOCK (bore)	$\frac{0.72575}{0.7245}$	0.727	0.72775	$\frac{0.0045}{0.00275}$	0.006	
	2	PIN (o/dia.)	$\frac{0.72175}{0.72125}$	0.721	0.7185			
C	1	BUSH (bore)	$\frac{0.87575}{0.8745}$	0.877	0.87775	$\frac{0.0045}{0.00275}$	0.006	
	2	PIN (o/dia.)	$\frac{0.87175}{0.87125}$	0.871	0.8685			
	3	HINGE BLOCK (bore)	$\frac{0.87575}{0.8745}$	0.877	0.87775	$\frac{0.0045}{0.00275}$	0.006	
	2	PIN (o/dia.)	$\frac{0.87175}{0.87125}$	0.871	0.8685			

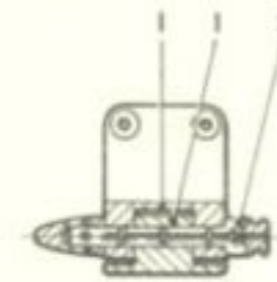
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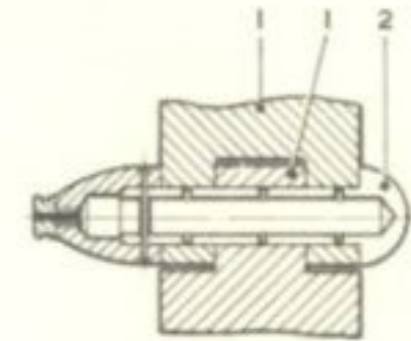
DETAIL 'D'



DETAIL 'E'



DETAIL 'F'



DETAIL 'G'

Fig.302A. Bomb door hinges

Detail	Item	Part and Description	Dimension New (in.)	Permissible Worn Dimension (in.)		Clearance New (in.)	Permissible Worn Clearance (in.)	Remarks
				Non-selective Assembly	Selective Assembly			
D	1	BUSH (bore)	$\frac{0.75075}{0.7495}$	0.752	0.75275	$\frac{0.0045}{0.00275}$	0.006	
	2	PIN (o/dia.)	$\frac{0.74675}{0.74625}$	0.746	0.7435			
	3	HINGE BLOCK (bore)	$\frac{0.75075}{0.7495}$	0.752	0.75275	$\frac{0.0045}{0.00275}$	0.006	
	2	PIN (o/dia.)	$\frac{0.74675}{0.74625}$	0.746	0.7435			
E	1	BUSH (bore)	$\frac{0.7278}{0.72575}$	0.729	0.72975	$\frac{0.00655}{0.004}$	0.008	
	2	PIN (o/dia.)	$\frac{0.72175}{0.72125}$	0.721	0.71775			
	3	BUSH (bore)	$\frac{0.72575}{0.7245}$	0.727	0.72775	$\frac{0.0045}{0.00275}$	0.006	
	2	PIN (o/dia.)	$\frac{0.72175}{0.72125}$	0.721	0.7185			
F	1	HINGE BRACKET (bore)	$\frac{0.313}{0.312}$	0.314	0.317	$\frac{0.0035}{0.0000}$	0.005	
	2	PIN (o/dia.)	$\frac{0.312}{0.3095}$	0.309	0.307			
G	1	HINGE BRACKET (bore)	$\frac{0.75075}{0.7495}$	0.7515	0.7525	$\frac{0.00275}{0.0005}$	0.0035	
	2	PIN (o/dia.)	$\frac{0.749}{0.748}$	0.748	0.746			

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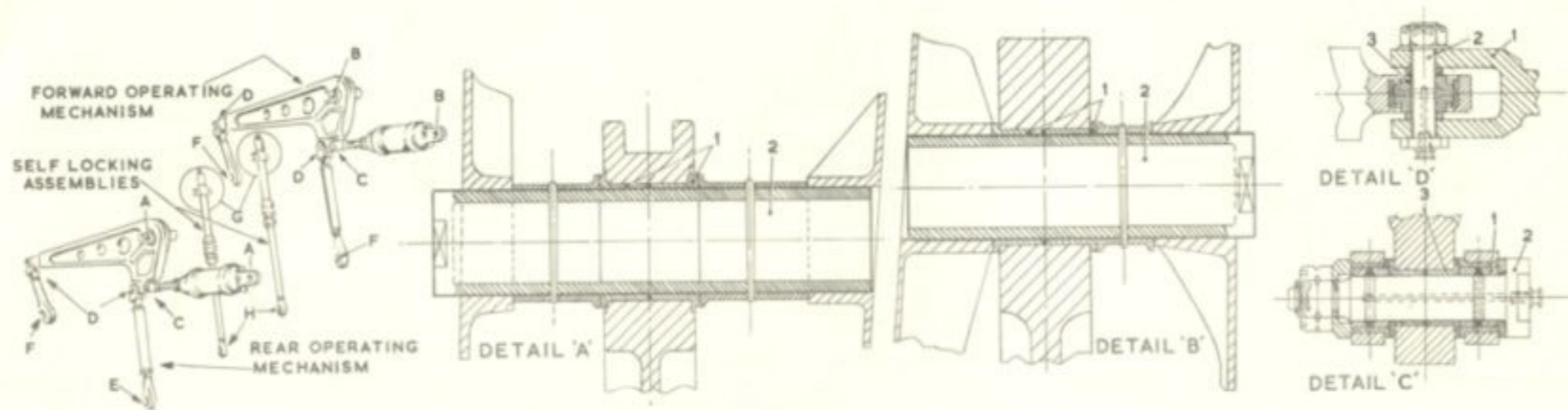


Fig.302B. Bomb door mechanism

Detail	Item	Part and Description	Dimension New (in.)	Permissible Worn Dimension (in.)		Clearance New (in.)	Permissible Worn Clearance (in.)	Remarks
				Non-selective Assembly	Selective Assembly			
A B	1	BEARING DUSHES (bore)	$\frac{2.25125}{2.24925}$	2.252	0.2545	$\frac{0.0055}{0.00125}$	0.0065	
	2	PIN (o/dia.)	$\frac{2.248}{2.24575}$	2.2455	0.24275			
C	1	BUSH (bore)	$\frac{1.00075}{0.9995}$	1.001	1.00175	$\frac{0.002}{0.00025}$	0.0025	
	2	BOLT (o/dia.)	$\frac{0.99925}{0.99875}$	0.9985	0.997			
	3	BUSH (bore)	$\frac{1.00075}{0.9995}$	1.001	1.00175	$\frac{0.002}{0.00025}$	0.0025	
	2	BOLT (o/dia.)	$\frac{0.99925}{0.99875}$	0.9985	0.997			
D	1	FORK END (bore)	$\frac{0.5005}{0.4995}$	0.501	0.50175	$\frac{0.00125}{-0.00025}$	0.002	
	2	BOLT (o/dia.)	$\frac{0.49975}{0.49925}$	0.499	0.4975			
	3	BEARING (bore)	$\frac{0.5005}{0.4995}$	0.501	0.50175	$\frac{0.00125}{-0.00025}$	0.002	
	2	BOLT (o/dia.)	$\frac{0.49975}{0.49925}$	0.499	0.4975			

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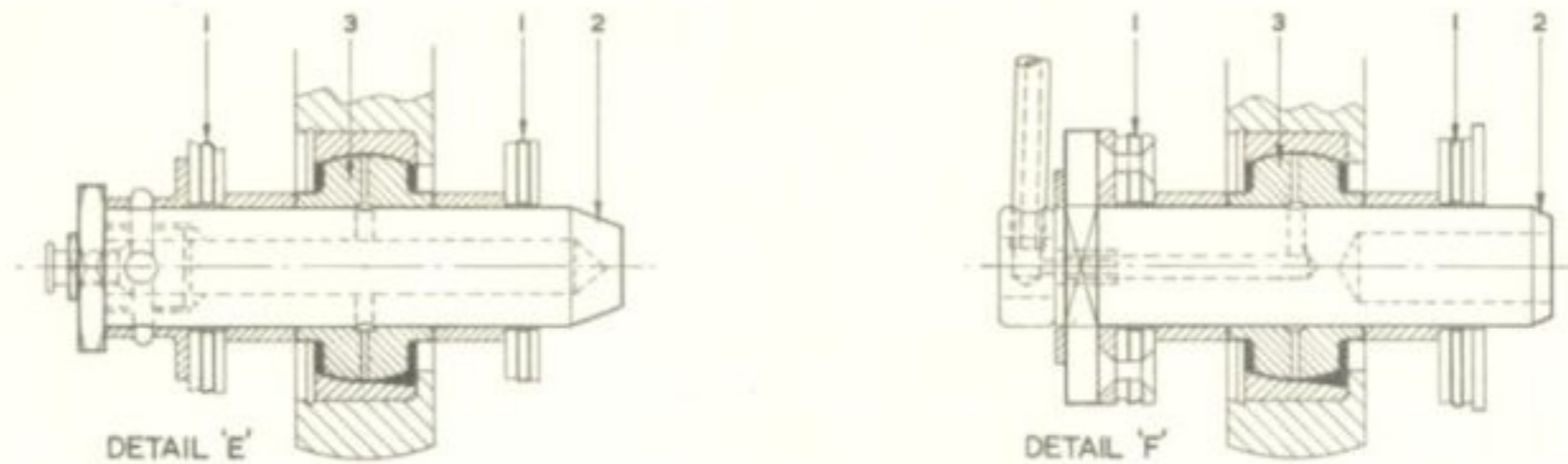


Fig.302C. Bomb door mechanism

Detail	Item	Part and Description	Dimension New (in.)	Permissible Worn Dimension (in.)		Clearance New (in.)	Permissible Worn Clearance (in.)	Remarks
				Non-selective Assembly	Selective Assembly			
E	1	RIB SIDE MEMBER (bore)	$\frac{0.87575}{0.8745}$	0.876	0.87775	$\frac{0.0035}{0.00075}$	0.004	
	2	PIN (o/dia.)	$\frac{0.87375}{0.87225}$	0.872	0.8705			
	3	BEARING (bore)	$\frac{0.8755}{0.87475}$	0.87575	0.8775	$\frac{0.00325}{0.001}$	0.00375	
	2	PIN (o/dia.)	$\frac{0.87375}{0.87225}$	0.872	0.871			
F	1	RIB SIDE MEMBER (bore)	$\frac{0.87575}{0.8745}$	0.876	0.87675	$\frac{0.002}{0.00025}$	0.0025	
	2	PIN (o/dia.)	$\frac{0.87425}{0.87375}$	0.8735	0.872			
	3	BEARING (bore)	$\frac{0.8755}{0.87475}$	0.876	0.87675	$\frac{0.00175}{0.0005}$	0.0025	
	2	PIN (o/dia.)	$\frac{0.87425}{0.87375}$	0.8735	0.87225			

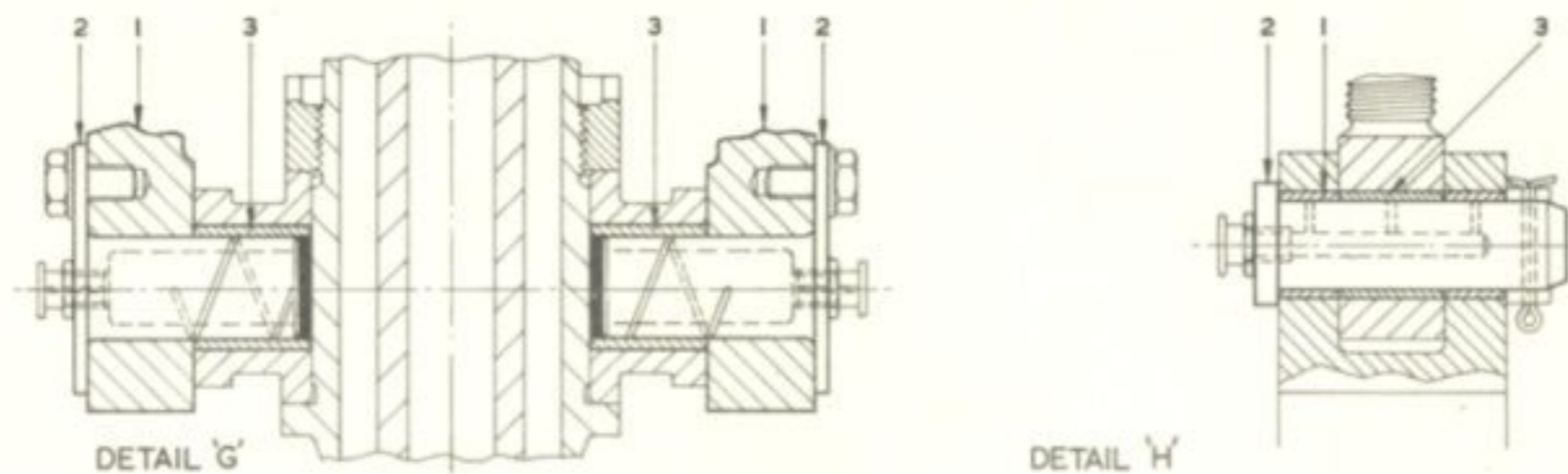


Fig.302D. Bomb door mechanism

Detail	Item	Part and Description	Dimension New (in.)	Permissible Worn Dimension (in.)		Clearance New (in.)	Permissible Worn Clearance (in.)	Remarks
				Non-selective Assembly	Selective Assembly			
G	1	PIVOT BRACKET (bore)	$\frac{0.75075}{0.7495}$	0.7513	0.7528	$\frac{0.00345}{0.0007}$	0.004	
	2	PIN (o/dia.)	$\frac{0.7488}{0.7473}$	0.7473	0.7455			
	3	BUSH (bore)	$\frac{0.75075}{0.7495}$	0.7513	0.7528	$\frac{0.00345}{0.0007}$	0.004	
	2	PIN (o/dia.)	$\frac{0.7488}{0.7473}$	0.7473	0.7455			
H	1	BUSH (bore)	$\frac{0.62575}{0.6245}$	0.6265	0.6305	$\frac{0.00575}{0.0005}$	0.0065	
	2	PIN (o/dia.)	$\frac{0.624}{0.620}$	0.620	0.618			
	3	BUSH (bore)	$\frac{0.62575}{0.6245}$	0.6265	0.6305	$\frac{0.00575}{0.0005}$	0.0065	
	2	PIN (o/dia.)	$\frac{0.624}{0.620}$	0.620	0.618			

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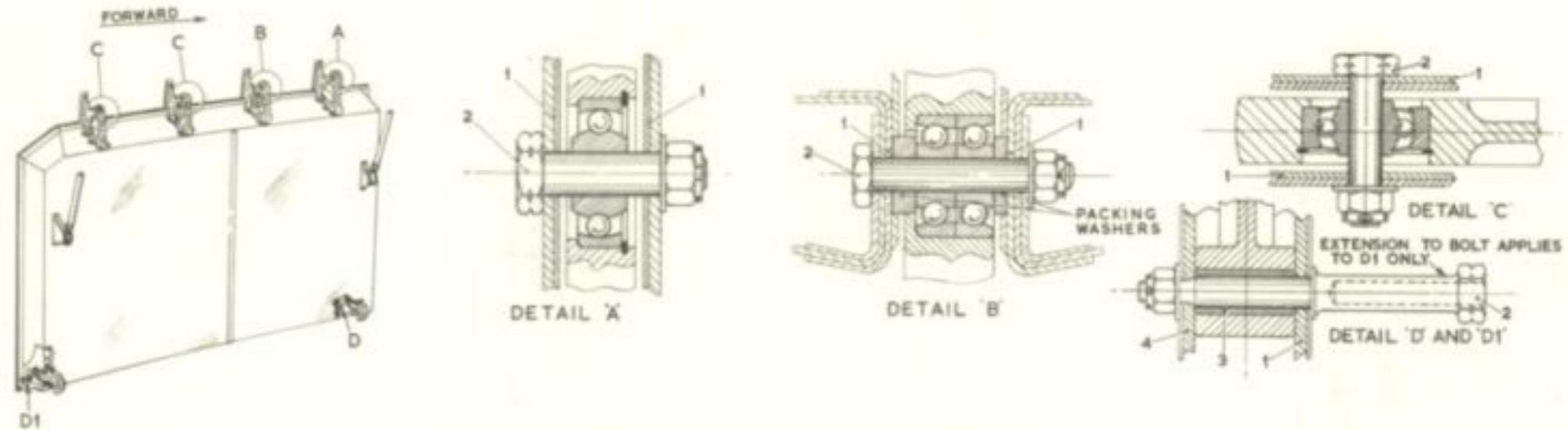
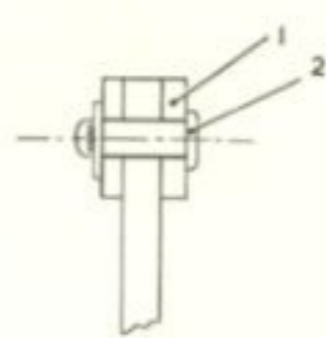
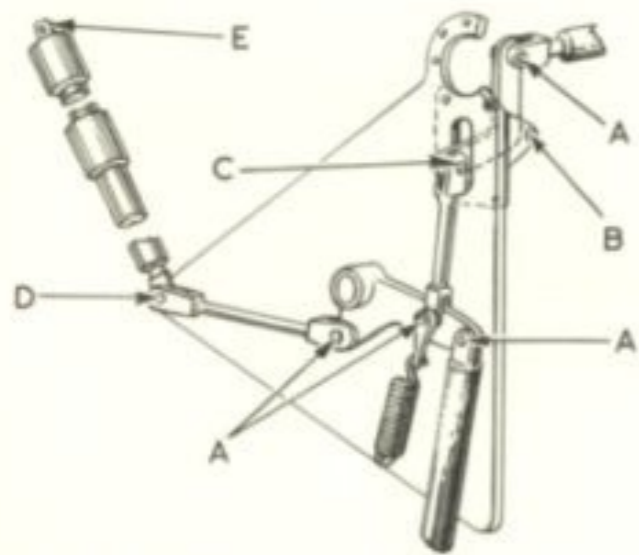
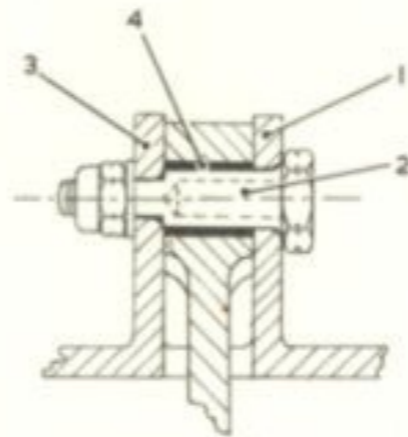


Fig.303. Main undercarriage door hinges and catch hooks

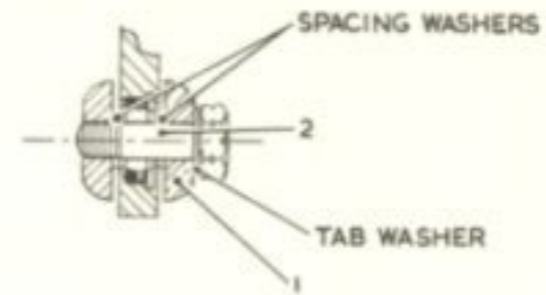
Detail	Item	Part and Description	Dimension New (in.)	Permissible Worn Dimension (in.)		Clearance New (in.)	Permissible Worn Clearance (in.)	Remarks
				Non-selective Assembly	Selective Assembly			
A	1	HINGE BRACKET (bore)	$\frac{0.5008}{0.5003}$	0.5015	0.502	$\frac{0.0013}{0.0003}$	0.002	
	2	BOLT (o/dia.)	$\frac{0.5000}{0.4995}$	0.4995	0.4983			
B	1	HINGE BRACKET (bore)	$\frac{0.3937}{0.3933}$	0.394	0.3947	$\frac{0.0015}{0.0006}$	0.002	
	2	BOLT (o/dia.)	$\frac{0.3927}{0.3922}$	0.392	0.3913			
C	1	HINGE BRACKET (bore)	$\frac{0.3758}{0.3753}$	0.3764	0.3769	$\frac{0.0019}{0.0009}$	0.0025	
	2	BOLT (o/dia.)	$\frac{0.3744}{0.3739}$	0.3739	0.3728			
D D.1	1	FULCRUM BRACKET (bore)	$\frac{0.3775}{0.377}$	0.378	0.379	$\frac{0.003}{0.002}$	0.004	
	2	BOLT (o/dia.)	$\frac{0.375}{0.3745}$	0.374	0.373			
	3	BUSH (bore)	$\frac{0.37525}{0.37475}$	0.3755	0.376	$\frac{0.00075}{-0.00025}$	0.001	
	2	BOLT (o/dia.)	$\frac{0.375}{0.3745}$	0.3745	0.37375			
	4	FULCRUM BRACKET (bore)	$\frac{0.251}{0.250}$	0.252	0.253	$\frac{0.003}{0.001}$	0.004	
	2	BOLT (o/dia.)	$\frac{0.249}{0.248}$	0.248	0.246			



DETAIL 'A'



DETAIL 'B'

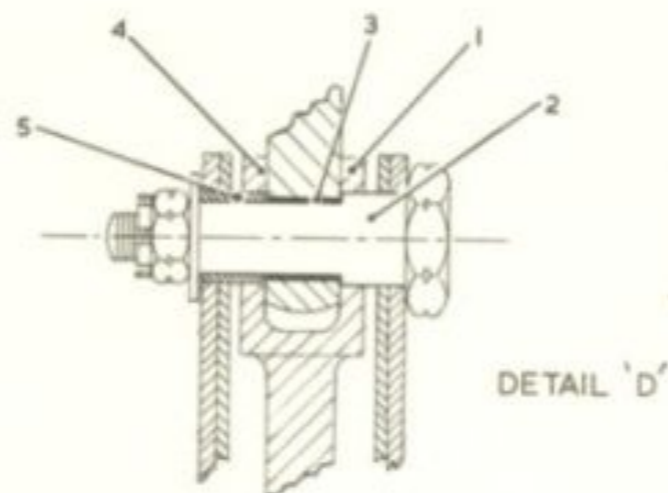


DETAIL 'C'

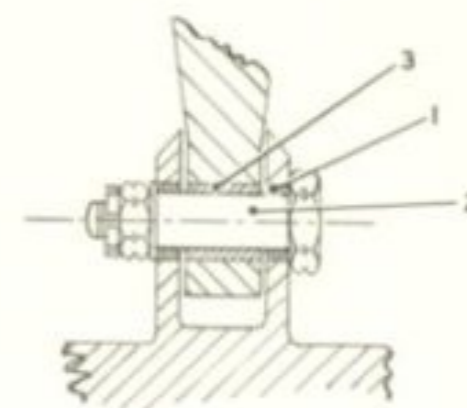
Fig. 303A Main undercarriage door mechanism

Detail	Item	Part and Description	Dimension New (in.)	Permissible Worn Dimension (in.)		Clearance New (in.)	Permissible Worn Clearance (in.)	Remarks
				Non-selective Assembly	Selective Assembly			
A	1	FORK END (bore)	$\frac{0.2505}{0.2495}$	0.251	0.252	$\frac{0.0025}{0.0005}$	0.003	
	2	PIN (o/dia.)	$\frac{0.249}{0.248}$	0.248	0.2465			
B	1	BRACKET (bore)	$\frac{0.377}{0.3765}$	0.378	0.379	$\frac{0.0015}{0.0000}$	0.0025	
	2	BOLT (o/dia.)	$\frac{0.3765}{0.3755}$	0.3755	0.374			
	3	BRACKET (bore)	$\frac{0.2505}{0.2495}$	0.251	0.252	$\frac{0.0025}{0.0005}$	0.003	
	2	BOLT (o/dia.)	$\frac{0.249}{0.248}$	0.248	0.2465			
	4	BUSH (bore)	$\frac{0.3771}{0.3766}$	0.378	0.379	$\frac{0.0026}{0.0001}$	0.0035	
2	BOLT (o/dia.)	$\frac{0.3765}{0.3745}$	0.3745	0.3731				
C	1	LINK (bore)	$\frac{0.2505}{0.2495}$	0.251	0.252	$\frac{0.0025}{0.0005}$	0.003	
	2	BOLT (o/dia.)	$\frac{0.249}{0.248}$	0.248	0.2465			

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DETAIL 'D'



DETAIL 'E'

Fig.303B. Main undercarriage door mechanism

Detail	Item	Part and Description	Dimension New (in.)	Permissible Worn Dimension (in.)		Clearance New (in.)	Permissible Worn Clearance (in.)	Remarks
				Non-selective Assembly	Selective Assembly			
D	1	LINK (bore)	$\frac{0.62575}{0.6245}$	0.6267	0.62825	$\frac{0.0035}{0.00075}$	0.0045	
	2	BOLT (o/dia.)	$\frac{0.62375}{0.62225}$	0.6222	0.620	$\frac{0.0025}{0.0005}$	0.003	
	3	BUSH (bore)	$\frac{0.5005}{0.4995}$	0.5005	0.5005	$\frac{0.0035}{0.00075}$	0.0045	
	2	BOLT (o/dia.)	$\frac{0.499}{0.498}$	0.4975	0.4965	$\frac{0.00175}{0.00025}$	0.0025	
	4	LINK (bore)	$\frac{0.62575}{0.6245}$	0.6267	0.62825	$\frac{0.0035}{0.00075}$	0.0045	
E	5	BUSH (o/dia.)	$\frac{0.62375}{0.62225}$	0.6222	0.620	$\frac{0.0035}{0.00075}$	0.0045	
	1	BUSH (bore)	$\frac{0.3755}{0.3745}$	0.3755	0.3755	$\frac{0.00175}{0.00025}$	0.0025	
	2	BOLT (o/dia.)	$\frac{0.37425}{0.37375}$	0.373	0.372	$\frac{0.00175}{0.00025}$	0.003	
	3	BUSH (bore)	$\frac{0.3755}{0.3745}$	0.376	0.37725	$\frac{0.00175}{0.00025}$	0.0025	
	2	BOLT (o/dia.)	$\frac{0.37425}{0.37375}$	0.373	0.3715	$\frac{0.00175}{0.00025}$	0.003	

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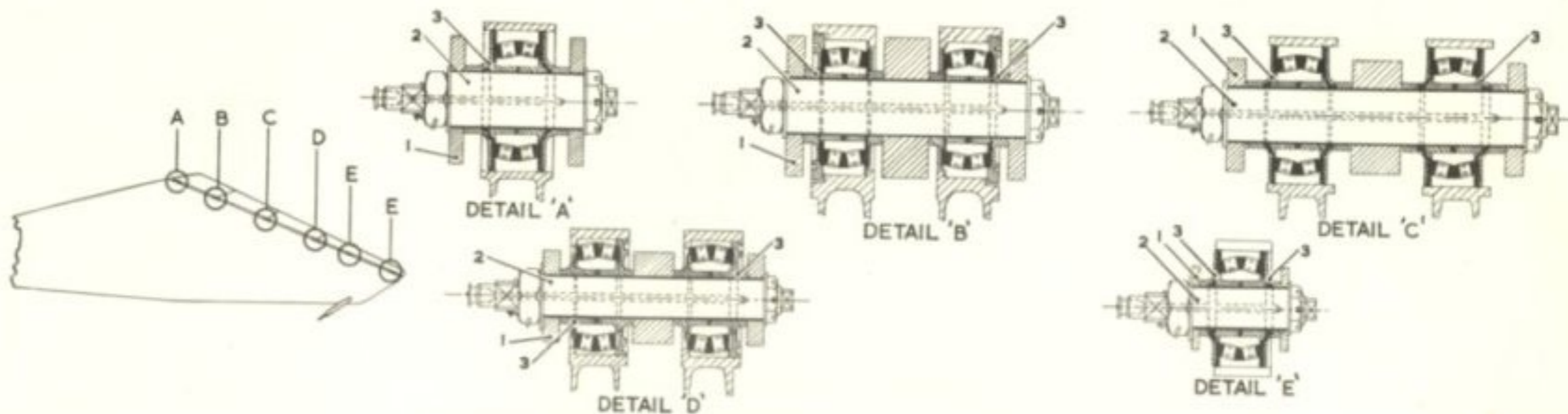
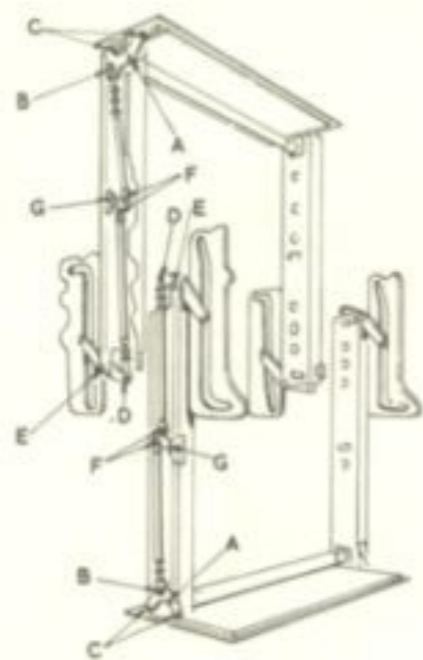
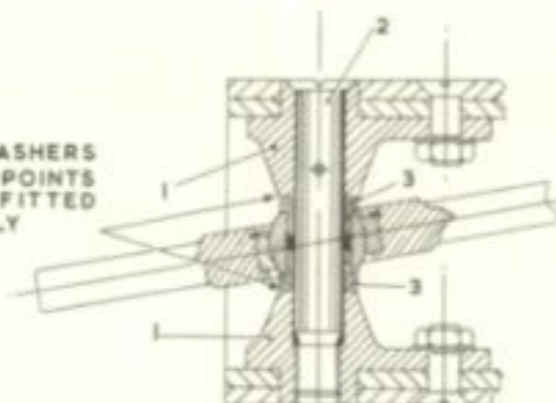


Fig.304. Elevator and aileron hinges

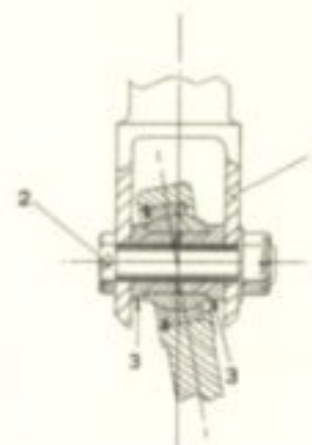
Detail	Item	Part and Description	Dimension New (in.)	Permissible Worn Dimension (in.)		Clearance New (in.)	Permissible Worn Clearance (in.)	Remarks
				Non-selective Assembly	Selective Assembly			
A B C	1	BRACKET (bore)	$\frac{1.0005}{0.99975}$	1.00075	1.00125	$\frac{0.00175}{0.0005}$	0.002	
	2	BOLT (o/dia.)	$\frac{0.99925}{0.99875}$	0.99875	0.99775			
	3	BUSH (bore)	$\frac{1.0005}{0.99975}$	1.00125	1.00175			
	2	BOLT (o/dia.)	$\frac{0.99925}{0.99875}$	0.99875	0.99725	$\frac{0.00175}{0.0005}$	0.0025	
D E	1	BRACKET (bore)	$\frac{0.7505}{0.74975}$	0.75075	0.75125	$\frac{0.00175}{0.0005}$	0.002	
	2	BOLT (o/dia.)	$\frac{0.74925}{0.74875}$	0.74875	0.74775			
	3	BUSH (bore)	$\frac{0.7505}{0.74975}$	0.75125	0.75175			
	2	BOLT (o/dia.)	$\frac{0.74925}{0.74875}$	0.74875	0.74725	$\frac{0.00175}{0.0005}$	0.0025	



EXISTING WASHERS
AT THESE POINTS
MUST BE REFITTED
ON ASSEMBLY



DETAIL A



DETAIL B

Fig.305. Air brake mechanism

Detail	Item	Part and Description	Dimension New (in.)	Permissible Worn Dimension (in.)		Clearance New (in.)	Permissible Worn Clearance (in.)	Remarks
				Non-selective Assembly	Selective Assembly			
A	1	BRACKET (bore)	$\frac{0.4395}{0.4375}$	0.440	0.4407	$\frac{0.0028}{0.0003}$	0.0035	
	2	BOLT (o/dia.)	$\frac{0.4372}{0.4367}$	0.4365	0.434			
	3	BUSH (bore)	$\frac{0.438}{0.437}$	0.4385	0.4392	$\frac{0.0013}{-0.0002}$	0.002	
	2	BOLT (o/dia.)	$\frac{0.4372}{0.4367}$	0.4365	0.435			
B	1	FORK-END (bore)	$\frac{0.3145}{0.3125}$	0.315	0.3157	$\frac{0.0028}{0.0003}$	0.0035	
	2	BOLT (o/dia.)	$\frac{0.3122}{0.3117}$	0.3115	0.309			
	3	BUSH (bore)	$\frac{0.313}{0.312}$	0.3135	0.3142	$\frac{0.0013}{-0.0002}$	0.002	
	2	BOLT (o/dia.)	$\frac{0.3122}{0.3117}$	0.3115	0.310			

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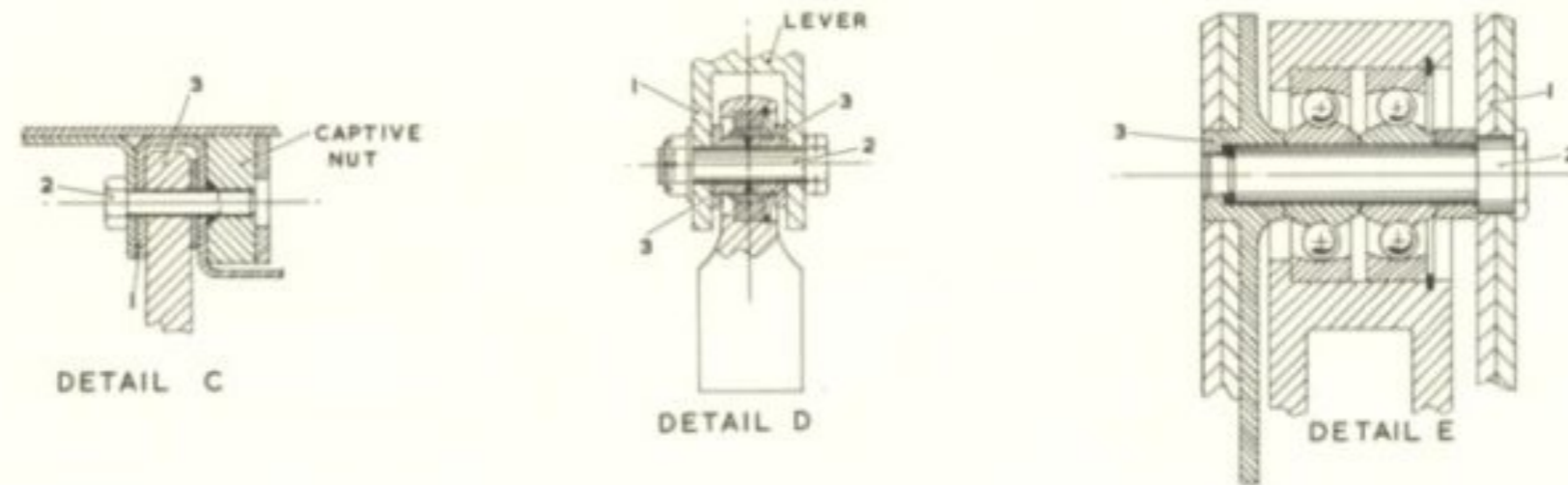


Fig.305A. Air brake mechanism

Detail	Item	Part and Description	Dimension New (in.)	Permissible Worn Dimension (in.)		Clearance New (in.)	Permissible Worn Clearance (in.)	Remarks
				Non-selective Assembly	Selective Assembly			
C	1	CHANNEL (bore)	$\frac{0.252}{0.250}$	0.25275	0.25325	$\frac{0.00275}{0.00025}$	0.0035	
	2	BOLT (o/dia.)	$\frac{0.24975}{0.24925}$	0.24925	0.2465			
	3	LEVER (bore)	$\frac{0.252}{0.250}$	0.25275	0.25325	$\frac{0.00275}{0.00025}$	0.0035	
	2	BOLT (o/dia.)	$\frac{0.24975}{0.24925}$	0.24925	0.2465			
D	1	LEVER (bore)	$\frac{0.313}{0.312}$	0.3135	0.3142	$\frac{0.0013}{-0.0002}$	0.002	
	2	BOLT (o/dia.)	$\frac{0.3122}{0.3117}$	0.3115	0.310			
	3	BUSH (bore)	$\frac{0.313}{0.312}$	0.3135	0.3142	$\frac{0.0013}{-0.0002}$	0.002	
	2	BOLT (o/dia.)	$\frac{0.3122}{0.3117}$	0.3115	0.310			
E	1	SIDE MEMBER (bore)	$\frac{0.6258}{0.6245}$	0.6262	0.6267	$\frac{0.0016}{-0.0002}$	0.002	
	2	BOLT (o/dia.)	$\frac{0.6247}{0.6242}$	0.6242	0.6225			
	3	BOSS (bore)	$\frac{0.5005}{0.4995}$	0.501	0.5017	$\frac{0.0013}{-0.0002}$	0.002	
	2	BOLT (o/dia.)	$\frac{0.4997}{0.4992}$	0.499	0.4975			

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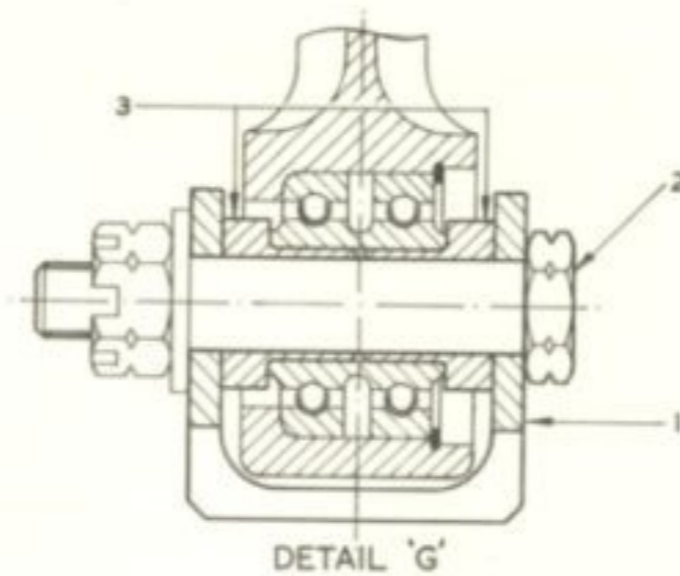
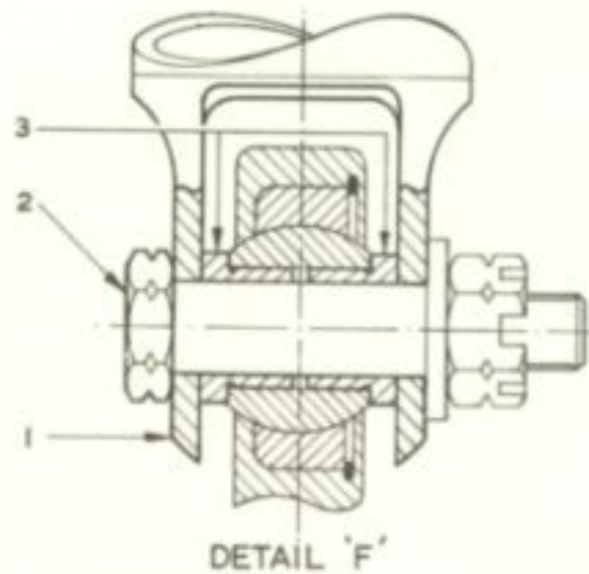


Fig.305B. Air brake mechanism

Detail	Item	Part and Description	Dimension New (in.)	Permissible Worn Dimension (in.)		Clearance New (in.)	Permissible Worn Clearance (in.)	Remarks
				Non-selective Assembly	Selective Assembly			
F	1	FORK-END (bore)	$\frac{0.3145}{0.3125}$	0.315	0.3157	$\frac{0.0028}{0.0003}$	0.0035	
	2	BOLT (o/dia.)	$\frac{0.3122}{0.3117}$	0.3115	0.309			
	3	BUSH (bore)	$\frac{0.313}{0.312}$	0.3135	0.3142	$\frac{0.0013}{-0.0002}$	0.002	
	2	BOLT (o/dia.)	$\frac{0.3122}{0.3117}$	0.3115	0.310			
G	1	BRACKET (bore)	$\frac{0.313}{0.312}$	0.3135	0.3142	$\frac{0.0013}{-0.0002}$	0.002	
	2	BOLT (o/dia.)	$\frac{0.3122}{0.3117}$	0.3115	0.310			
	3	BUSH (bore)	$\frac{0.313}{0.3125}$	0.3135	0.3142	$\frac{0.0013}{-0.0003}$	0.002	
	2	BOLT (o/dia.)	$\frac{0.3122}{0.3117}$	0.3115	0.3105			

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Chapter 4
TAIL UNIT

LIST OF ILLUSTRATIONS

	<i>Fig.</i>
<i>Rudder hinges</i>	401

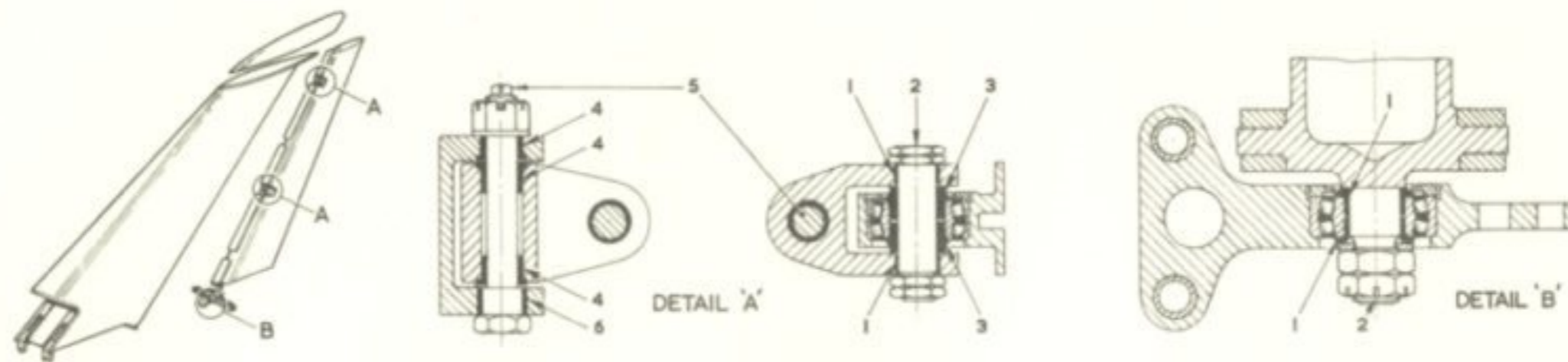


Fig.401. Rudder hinges

Detail	Item	Part and Description	Dimension New (in.)	Permissible Worn Dimension (in.)		Clearance New (in.)	Permissible Worn Clearance (in.)	Remarks
				Non-selective Assembly	Selective Assembly			
A	1	BUSH (bore)	$\frac{0.75075}{0.74950}$	0.75125	0.75275	$\frac{0.0035}{0.00075}$	0.004	
	2	BOLT (o/dia.)	$\frac{0.74875}{0.74725}$	0.74725	0.7455			
	3	BUSH (bore)	$\frac{0.7505}{0.74975}$	0.75125	0.75275	$\frac{0.00325}{0.001}$	0.004	
	2	BOLT (o/dia.)	$\frac{0.74875}{0.74725}$	0.74725	0.74575			
	4	BUSH (bore)	$\frac{0.62575}{0.6245}$	0.62625	0.62775	$\frac{0.0035}{0.00075}$	0.004	
	5	BOLT (o/dia.)	$\frac{0.62375}{0.62225}$	0.62225	0.6205			
	6	BUSH (bore)	$\frac{0.75075}{0.74950}$	0.75125	0.75275	$\frac{0.0035}{0.00075}$	0.004	
B	5	BOLT (o/dia.)	$\frac{0.74875}{0.74725}$	0.74725	0.7455			
	1	BUSH (bore)	$\frac{1.00075}{0.9995}$	1.001	1.0015	$\frac{0.0015}{-0.00025}$	0.00175	
	2	SHAFT (o/dia.)	$\frac{0.99975}{0.99925}$	0.99925	0.99775			

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Chapter 5
ALIGHTING GEAR

For permissible wear information applicable to this chapter refer to A.P.4505 Vol.6, Part 1, Chap.5, A.P.1803D and A.P.1803E.

Chapter 6
ENGINE NACELLES
LIST OF ILLUSTRATIONS

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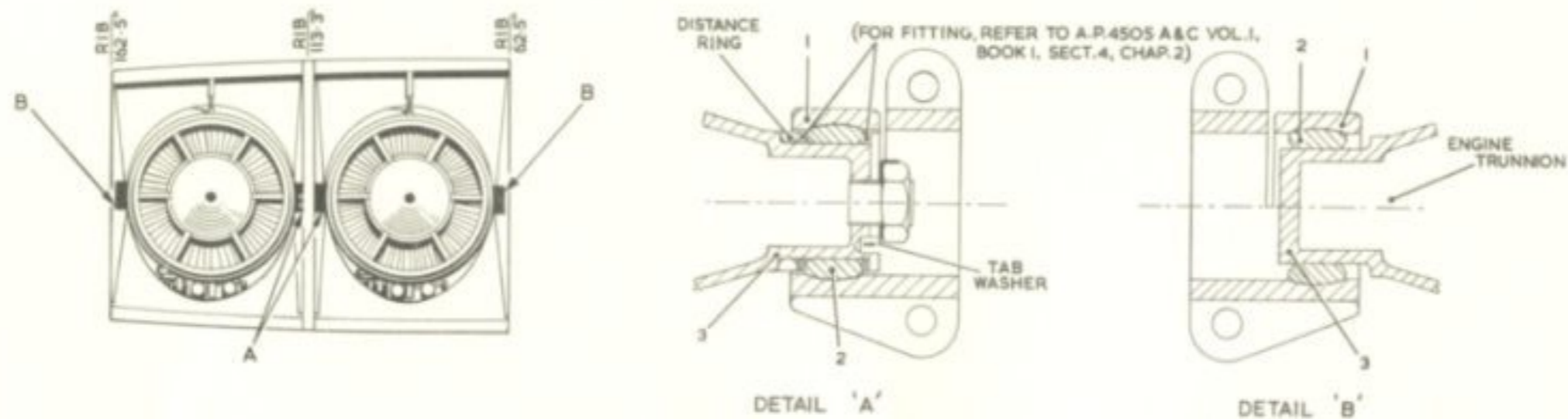


Fig. 601 Engine trunnions

Detail	Item	Part and Description	Dimension New (in.)	Permissible Worn Dimension (in.)		Clearance New (in.)	Permissible Worn Clearance (in.)	Remarks
				Non-selective Assembly	Selective Assembly			
A	1	BEARING HOUSING (bore)	$\frac{2.7015}{2.701}$	2.702	2.703	$\frac{0.003}{0.002}$	0.004	Split housing
	2	BEARING (o/dia.)	$\frac{2.699}{2.6985}$	2.698	2.697			
	2	BEARING (bore)	$\frac{2.001}{2.0005}$	2.0013	2.002	$\frac{0.0017}{0.0005}$	0.002	
	3	ENGINE TRUNNION (o/dia.)	$\frac{2.000}{1.9993}$	1.9993	1.9985			
B	1	BEARING HOUSING (bore)	$\frac{2.7015}{2.701}$	2.702	2.703	$\frac{0.003}{0.002}$	0.004	
	2	BEARING (o/dia.)	$\frac{2.699}{2.6985}$	2.698	2.697			
	2	BEARING (bore)	$\frac{2.001}{2.0005}$	2.0013	2.002	$\frac{0.0017}{0.0005}$		
	3	ENGINE TRUNNION (o/dia.)	$\frac{2.000}{1.9993}$	1.9993	1.9985			

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Chapter 7 SYSTEMS

LIST OF ILLUSTRATIONS

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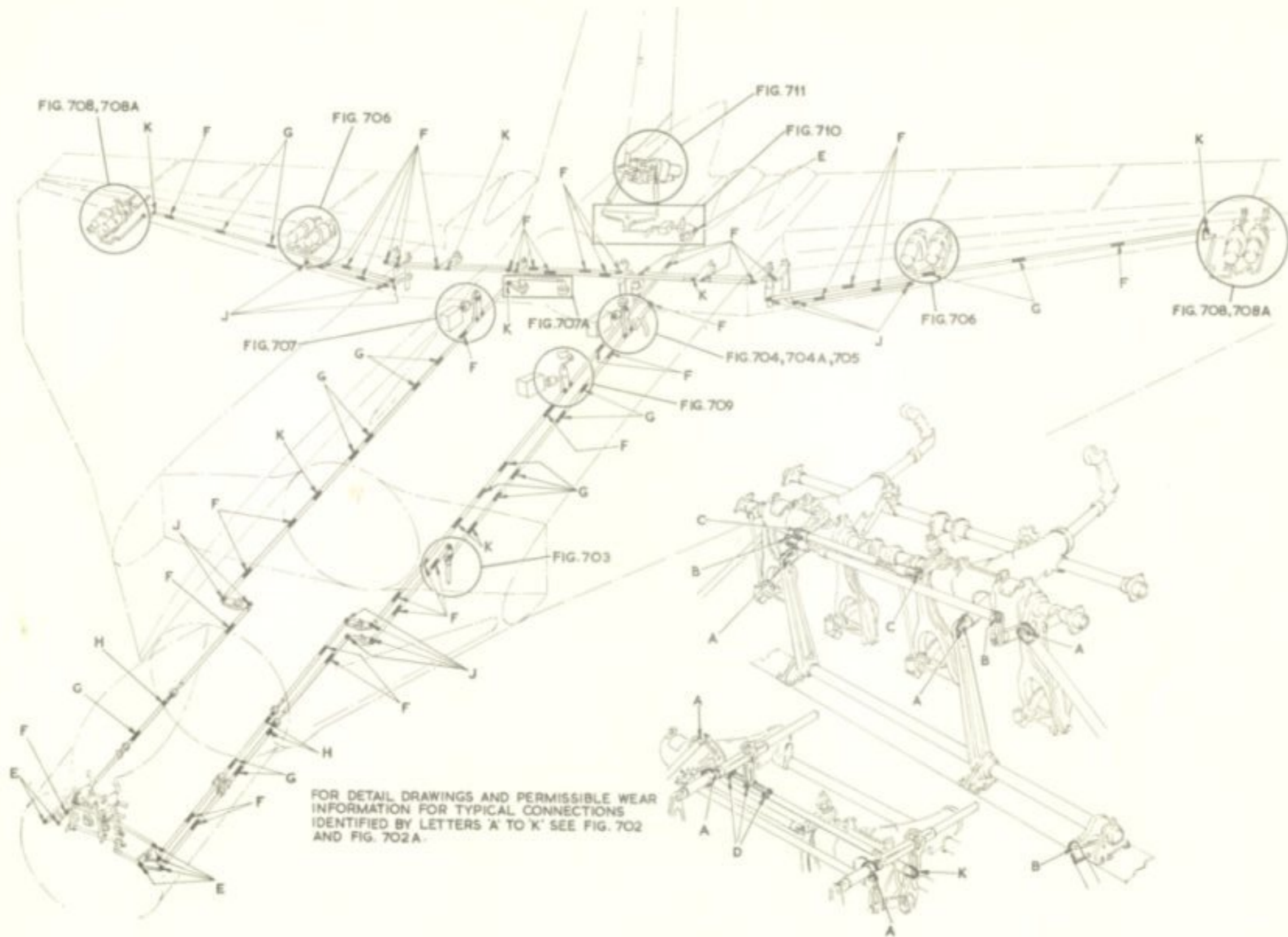


Fig. 70I. Flying controls key diagram
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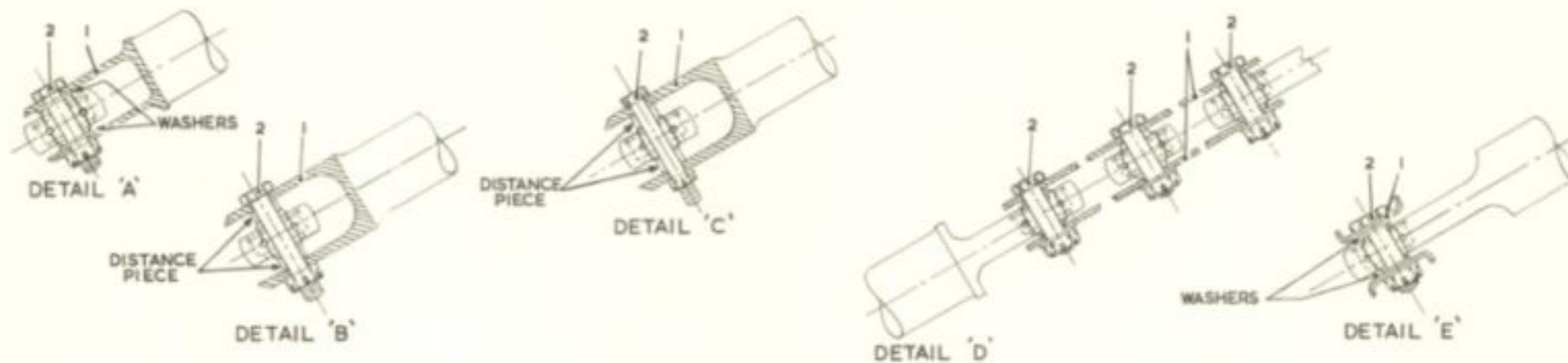


Fig.702. Typical connections

Detail	Item	Part and Description	Dimension New (in.)	Permissible Worn Dimension (in.)		Clearance New (in.)	Permissible Worn Clearance (in.)	Remarks
				Non-selective Assembly	Selective Assembly			
A	1	FORK-END (bore)	$\frac{0.313}{0.312}$	0.31325	0.31375	$\frac{0.00125}{-0.00025}$	0.0015	
	2	BOLT (o/dia.)	$\frac{0.31225}{0.31175}$	0.31175	0.3105			
B	1	FORK-END (bore)	$\frac{0.313}{0.312}$	0.31325	0.31375	$\frac{0.00125}{-0.00025}$	0.0015	
	2	BOLT (o/dia.)	$\frac{0.31225}{0.31175}$	0.31175	0.3105			
C	1	FORK-END (bore)	$\frac{0.2505}{0.2495}$	0.25075	0.25125	$\frac{0.00125}{-0.00025}$	0.0015	
	2	BOLT (o/dia.)	$\frac{0.24975}{0.24925}$	0.24925	0.248			
D	1	LINK PLATE (bore)	$\frac{0.313}{0.312}$	0.31325	0.31375	$\frac{0.00125}{-0.00025}$	0.0015	
	2	BOLT (o/dia.)	$\frac{0.31125}{0.31175}$	0.31175	0.3105			
E	1	LEVER (bore)	$\frac{0.313}{0.312}$	0.31325	0.31375	$\frac{0.00125}{-0.00025}$	0.0015	
	2	BOLT (o/dia.)	$\frac{0.31225}{0.31175}$	0.31175	0.3105			

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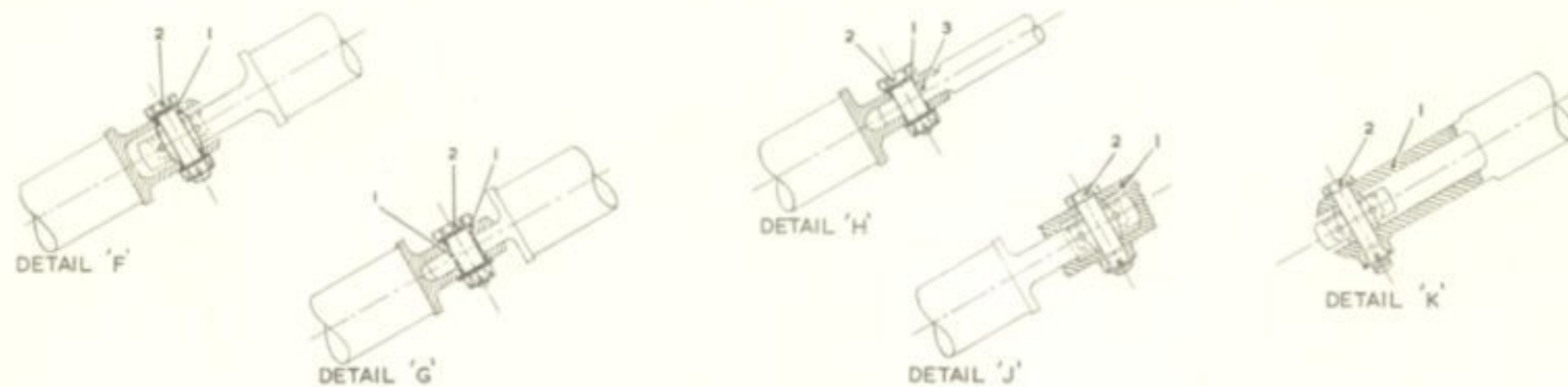


Fig.702A. Typical connections

Detail	Item	Part and Description	Dimension New (in.)	Permissible Worn Dimension (in.)		Clearance New (in.)	Permissible Worn Clearance (in.)	Remarks
				Non-selective Assembly	Selective Assembly			
F	1	BUSH (bore)	$\frac{0.313}{0.312}$	0.31325	0.31375	$\frac{0.00125}{-0.00025}$	0.0015	
	2	BOLT (o/dia)	$\frac{0.31225}{0.31175}$	0.31175	0.3105			
G	1	BUSH (bore)	$\frac{0.3755}{0.3745}$	0.37575	0.37625	$\frac{0.00125}{-0.00025}$	0.0015	
	2	BOLT (o/dia.)	$\frac{0.37475}{0.37425}$	0.37425	0.373			
H	1	BUSH (bore)	$\frac{0.3755}{0.3745}$	0.37575	0.37625	$\frac{0.00125}{-0.00025}$	0.0015	
	2	BOLT (o/dia)	$\frac{0.37475}{0.37425}$	0.37425	0.373			
	3	EYE END (bore)	$\frac{0.3755}{0.3745}$	0.37575	0.37625			
	2	BOLT (o/dia.)	$\frac{0.37475}{0.37425}$	0.37425	0.373			
{ J K	1	LEVER (bore)	$\frac{0.313}{0.312}$	0.31325	0.31375	$\frac{0.00125}{-0.00025}$	0.0015	
	2	BOLT (o/dia)	$\frac{0.31225}{0.31175}$	0.31175	0.3105			

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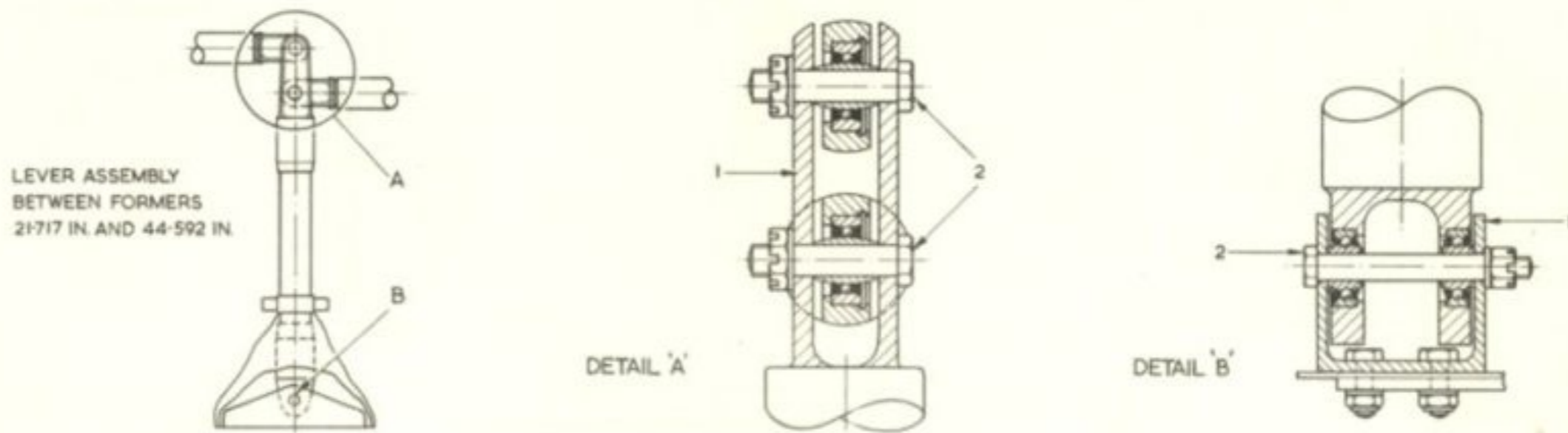


Fig.703. Elevator controls

Detail	Item	Part and Description	Dimension New (in.)	Permissible Worn Dimension (in.)		Clearance New (in.)	Permissible Worn Clearance (in.)	Remarks
				Non-selective Assembly	Selective Assembly			
A	1	FORK END (bore)	$\frac{0.313}{0.312}$	0.31325	0.31375	$\frac{0.00125}{-0.00025}$	0.0015	
	2	BOLT (o/dia.)	$\frac{0.31225}{0.31175}$	0.31175	0.3105			
B	1	BEARING CHANNEL (bore)	$\frac{0.2505}{0.2495}$	0.25075	0.25125	$\frac{0.00125}{-0.00025}$	0.0015	
	2	BOLT (o/dia.)	$\frac{0.24975}{0.24925}$	0.24925	0.248			

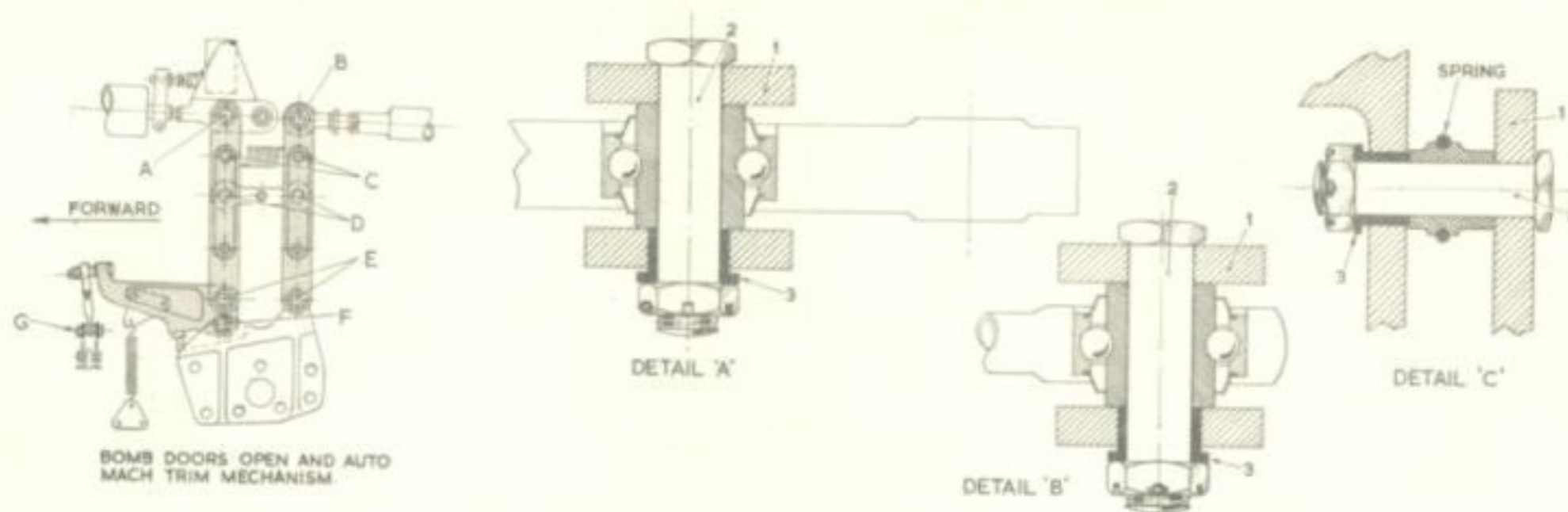


Fig.704. Elevator controls

Detail	Item	Part and Description	Dimension New (in.)	Permissible Worn Dimension (in.)		Clearance New (in.)	Permissible Worn Clearance (in.)	Remarks
				Non-selective Assembly	Selective Assembly			
A	1	LEVER (bore)	$\frac{0.313}{0.312}$	0.31325	0.31375	$\frac{0.00125}{-0.00025}$	0.0015	
	2	BOLT (o/dia.)	$\frac{0.31225}{0.31175}$	0.31175	0.3105	$\frac{0.00125}{-0.00025}$	0.0015	
	3	BUSH (bore)	$\frac{0.313}{0.312}$	0.31325	0.31375	$\frac{0.00125}{-0.00025}$	0.0015	
	2	BOLT (o/dia.)	$\frac{0.31225}{0.31175}$	0.31175	0.3105	$\frac{0.00125}{-0.00025}$	0.0015	
B	1	LEVER (bore)	$\frac{0.313}{0.312}$	0.31325	0.31375	$\frac{0.00125}{-0.00025}$	0.0015	
	2	BOLT (o/dia.)	$\frac{0.313}{0.312}$	0.31175	0.3105	$\frac{0.00125}{-0.00025}$	0.0015	
	3	BUSH (bore)	$\frac{0.31225}{0.31175}$	0.31325	0.31375	$\frac{0.00125}{-0.00025}$	0.0015	
	2	BOLT (o/dia.)	$\frac{0.31125}{0.31175}$	0.31175	0.3105	$\frac{0.00125}{-0.00025}$	0.0015	
C	1	LEVER (bore)	$\frac{0.2505}{0.2495}$	0.25075	0.25125	$\frac{0.00125}{-0.00025}$	0.0015	
	2	BOLT (o/dia.)	$\frac{0.24975}{0.24925}$	0.24925	0.248	$\frac{0.00125}{-0.00025}$	0.0015	
	3	BUSH (bore)	$\frac{0.25025}{0.24925}$	0.25075	0.25125	$\frac{0.001}{0.000}$	0.0015	
	2	BOLT (o/dia.)	$\frac{0.24975}{0.24925}$	0.24925	0.24825	$\frac{0.001}{0.000}$	0.0015	

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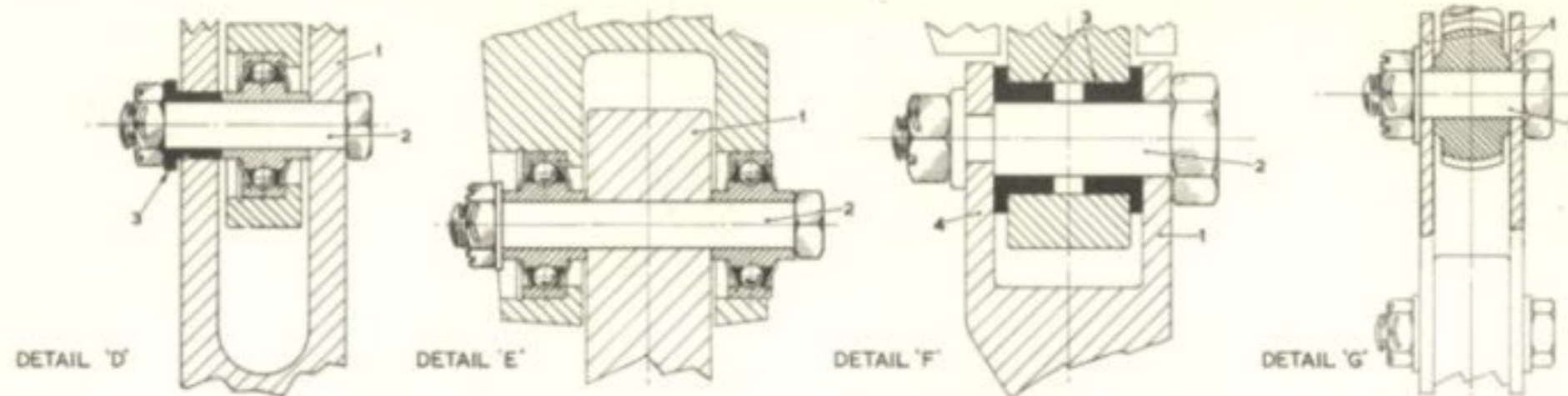


Fig.704A. Elevator controls

Detail	Item	Part and Description	Dimension New (in.)	Permissible Worn Dimension (in.)		Clearance New (in.)	Permissible Worn Clearance (in.)	Remarks
				Non-selective Assembly	Selective Assembly			
D	1	LEVER (bore)	$\frac{0.2505}{0.2495}$	0.25075	0.25125	$\frac{0.00125}{-0.00025}$	0.0015	
	2	BOLT (o/dia.)	$\frac{0.24975}{0.24925}$	0.24925	0.248			
	3	BUSH (bore)	$\frac{0.25025}{0.24975}$	0.25075	0.25125	$\frac{0.001}{0.000}$	0.0015	
	2	BOLT (o/dia.)	$\frac{0.24975}{0.24925}$	0.24925	0.24825			
E	1	BRACKET (bore)	$\frac{0.25025}{0.24975}$	0.25075	0.25125	$\frac{0.001}{0.000}$	0.0015	
	2	BOLT (o/dia.)	$\frac{0.24975}{0.24925}$	0.24925	0.24825			
F	1	BRACKET FLANGE (bore)	$\frac{0.37525}{0.37475}$	0.37575	0.37625	$\frac{0.001}{0.000}$	0.0015	
	2	BOLT (o/dia.)	$\frac{0.37475}{0.37425}$	0.37425	0.37325			
	3	BUSH (bore)	$\frac{0.37525}{0.37475}$	0.37575	0.37625	$\frac{0.001}{0.000}$	0.0015	
	2	BOLT (o/dia.)	$\frac{0.37475}{0.37425}$	0.37425	0.37325			
	4	BRACKET FLANGE (bore)	$\frac{0.2505}{0.2495}$	0.25075	0.25125	$\frac{0.00125}{-0.00025}$	0.0015	
G	2	BOLT (o/dia.)	$\frac{0.24975}{0.24925}$	0.24925	0.248			
	1	SIDE PLATE (bore)	$\frac{0.2505}{0.2495}$	0.25075	0.25125	$\frac{0.00125}{-0.00025}$	0.0015	

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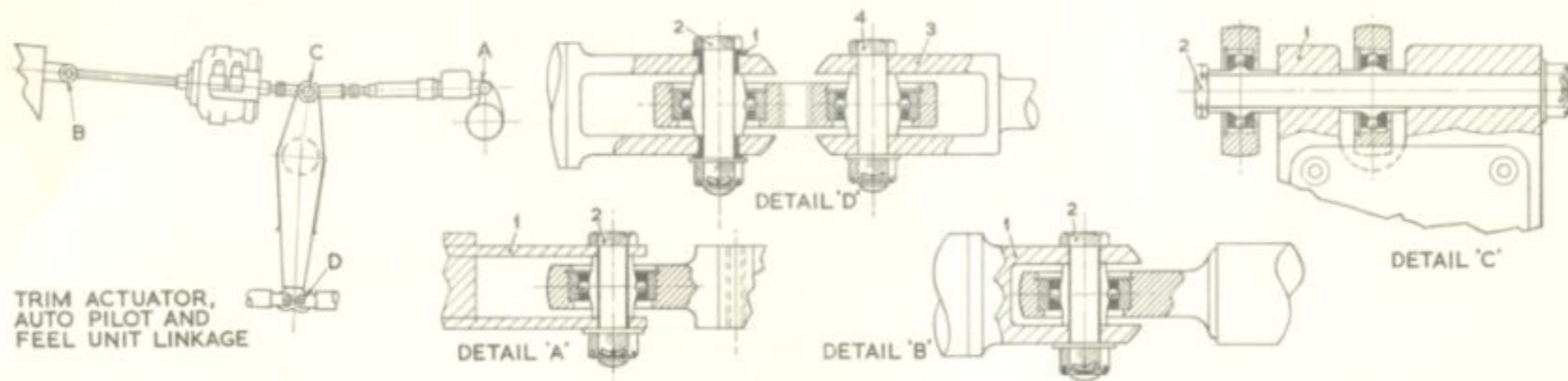


Fig.705. Elevator controls

Detail	Item	Part and Description	Dimension New (in.)	Permissible Worn Dimension (in.)		Clearance New (in.)	Permissible Worn Clearance (in.)	Remarks
				Non-selective Assembly	Selective Assembly			
A	1	LEVER (bore)	0.313 0.312	0.31325	0.31375	0.00125 -0.00025	0.0015	
	2	BOLT (o/dia.)	0.31225 0.31175	0.31175	0.3105			
B	1	FORK-END (bore)	0.313 0.312	0.31325	0.31375	0.00125 -0.00025	0.0015	
	2	BOLT (o/dia.)	0.31225 0.31175	0.31175	0.3105			
C	1	FORK-END (bore)	0.313 0.312	0.31325	0.31375	0.00125 -0.00025	0.0015	
	2	BOLT (o/dia.)	0.31225 0.31175	0.31175	0.3105			
D	1	BUSH (bore)	0.313 0.312	0.31325	0.31375	0.00125 -0.00025	0.0015	
	2	BOLT (o/dia.)	0.31225 0.31175	0.31175	0.3105			
	3	FORK-END (bore)	0.313 0.312	0.31325	0.31375	0.00125 -0.00025	0.0015	
	4	BOLT (o/dia.)	0.31225 0.31175	0.31175	0.3105			

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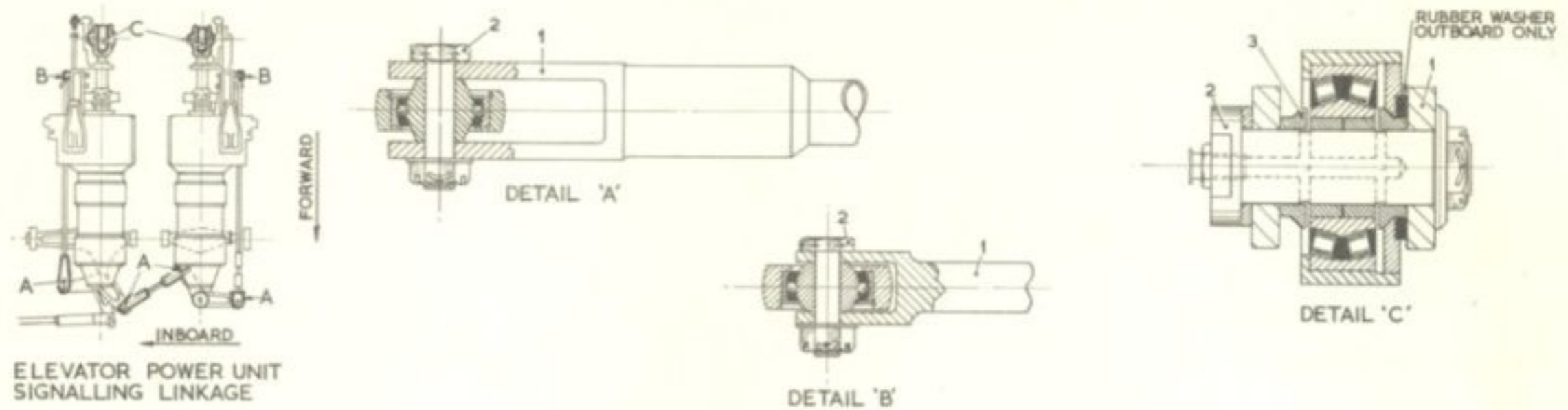


Fig.706. Elevator controls

Detail	Item	Part and Description	Dimension New (in.)	Permissible Worn Dimension (in.)		Clearance New (in.)	Permissible Worn Clearance (in.)	Remarks
				Non-selective Assembly	Selective Assembly			
A	1	FORK END (bore)	$\frac{0.313}{0.312}$	0.31325	0.31375	$\frac{0.00125}{-0.00025}$	0.0015	
	2	BOLT (o/dia.)	$\frac{0.31225}{0.31175}$	0.31175	0.3105			
B	1	LEVER (bore)	$\frac{0.2505}{0.2495}$	0.25075	0.25125	$\frac{0.00125}{-0.00025}$	0.0015	
	2	BOLT (o/dia.)	$\frac{0.24975}{0.24925}$	0.24925	0.248			
C	1	FORK END (bore)	$\frac{0.7505}{0.74975}$	0.75075	0.75125	$\frac{0.00125}{0.00000}$	0.0015	
	2	BOLT (o/dia)	$\frac{0.74975}{0.74925}$	0.74925	0.74825			
	3	BUSH (bore)	$\frac{0.7505}{0.74975}$	0.75075	0.75125	$\frac{0.00125}{0.00000}$	0.0015	
	2	BOLT (o/dia.)	$\frac{0.74975}{0.74925}$	0.74925	0.74825			

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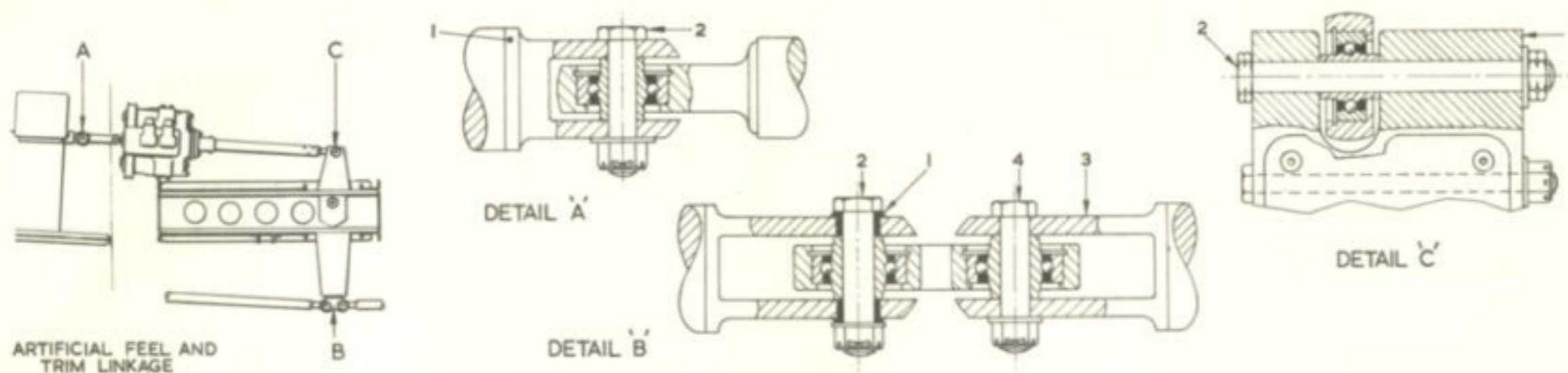


Fig.707. Aileron controls

Detail	Item	Part and Description	Dimension New (in.)	Permissible Worn Dimension (in.)		Clearance New (in.)	Permissible Worn Clearance (in.)	Remarks
				Non-selective Assembly	Selective Assembly			
A	1	FORK-END (bore)	$\frac{0.313}{0.312}$	0.31325	0.31375	$\frac{0.00125}{-0.00025}$	0.0015	
	2	BOLT (o/dia.)	$\frac{0.31225}{0.31175}$	0.31175	0.3105			
B	1	BUSH (bore)	$\frac{0.313}{0.312}$	0.31325	0.31375	$\frac{0.00125}{-0.00025}$	0.0015	
	2	BOLT (o/dia.)	$\frac{0.31225}{0.31175}$	0.31175	0.3105			
	3	FORK-END (bore)	$\frac{0.313}{0.312}$	0.31325	0.31375	$\frac{0.00125}{-0.00025}$	0.0015	
	4	BOLT (o/dia.)	$\frac{0.31225}{0.31175}$	0.31175	0.3105			
C	1	FORK-END (bore)	$\frac{0.313}{0.312}$	0.31325	0.31375	$\frac{0.00125}{-0.00025}$	0.0015	
	2	BOLT (o/dia.)	$\frac{0.31225}{0.31175}$	0.31175	0.3105			

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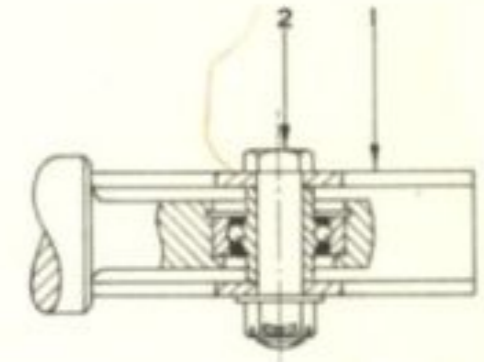
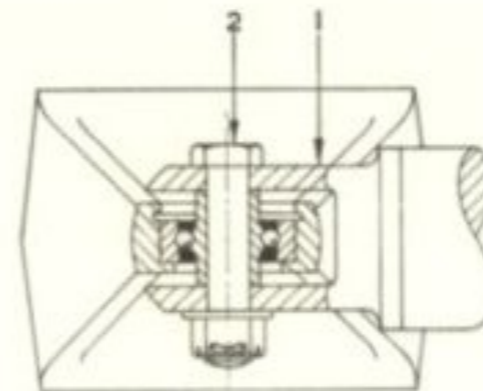
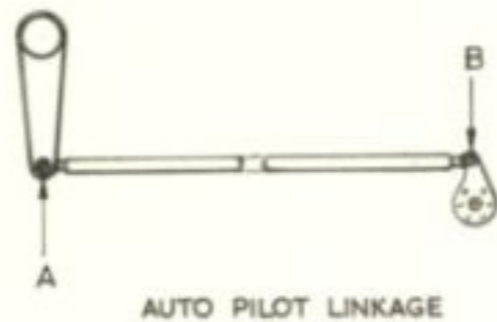


Fig.707A. Aileron controls

Detail	Item	Part and Description	Dimension New (in.)	Permissible Worn Dimension (in.)		Clearance New (in.)	Permissible Worn Clearance (in.)	Remarks
				Non-selective Assembly	Selective Assembly			
A	1	FORK END (bore)	$\frac{0.313}{0.312}$	0.31325	0.31375	$\frac{0.00125}{-0.00025}$	0.0015	
	2	BOLT (o/dia)	$\frac{0.31225}{0.31175}$	0.31175	0.3105			
B	1	LEVER (bore)	$\frac{0.313}{0.312}$	0.31325	0.31375	$\frac{0.00125}{-0.00025}$	0.0015	
	2	BOLT (o/dia.)	$\frac{0.31225}{0.31175}$	0.31175	0.3105			

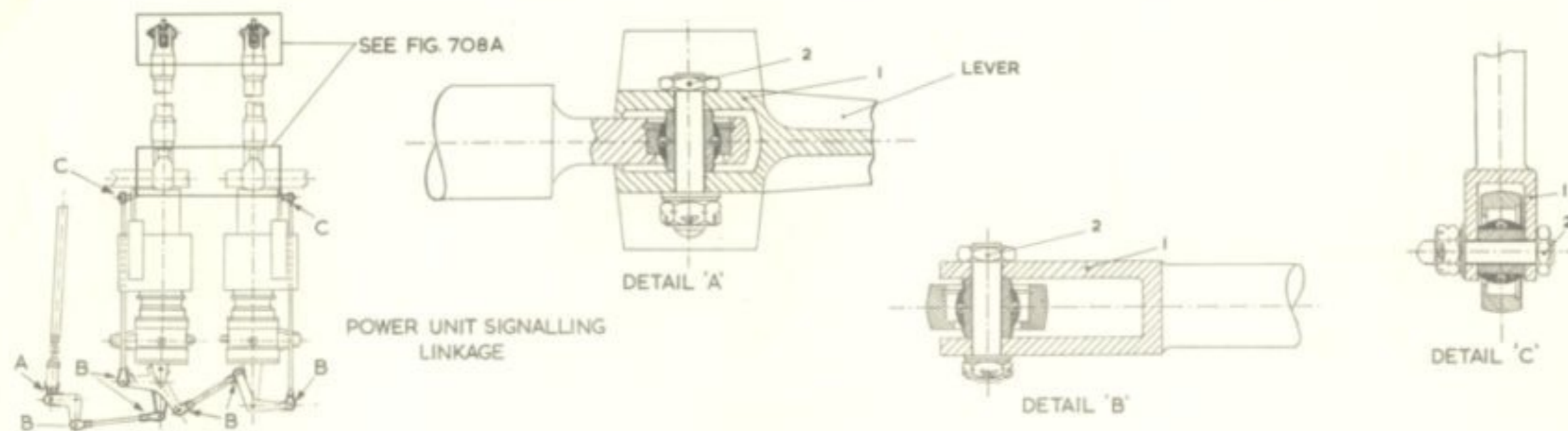


Fig. 708 Aileron controls

Detail	Item	Part and Description	Dimension New (in.)	Permissible Worn Dimension (in.)		Clearance New (in.)	Permissible Worn Clearance (in.)	Remarks
				Non-selective Assembly	Selective Assembly			
A	1	LEVER (bore)	$\frac{0.313}{0.312}$	0.31325	0.31375	$\frac{0.00125}{-0.00025}$	0.0015	
	2	BOLT (o/dia.)	$\frac{0.31225}{0.31175}$	0.31175	0.3105			
B	1	FORK-END (bore)	$\frac{0.313}{0.312}$	0.31325	0.31375	$\frac{0.00125}{-0.00025}$	0.0015	
	2	BOLT (o/dia)	$\frac{0.31225}{0.31175}$	0.31175	0.3105			
C	1	LEVER (bore)	$\frac{0.2505}{0.2495}$	0.25075	0.25125	$\frac{0.00125}{-0.00025}$	0.0015	
	2	BOLT (o/dia.)	$\frac{0.24975}{0.24925}$	0.24925	0.248			

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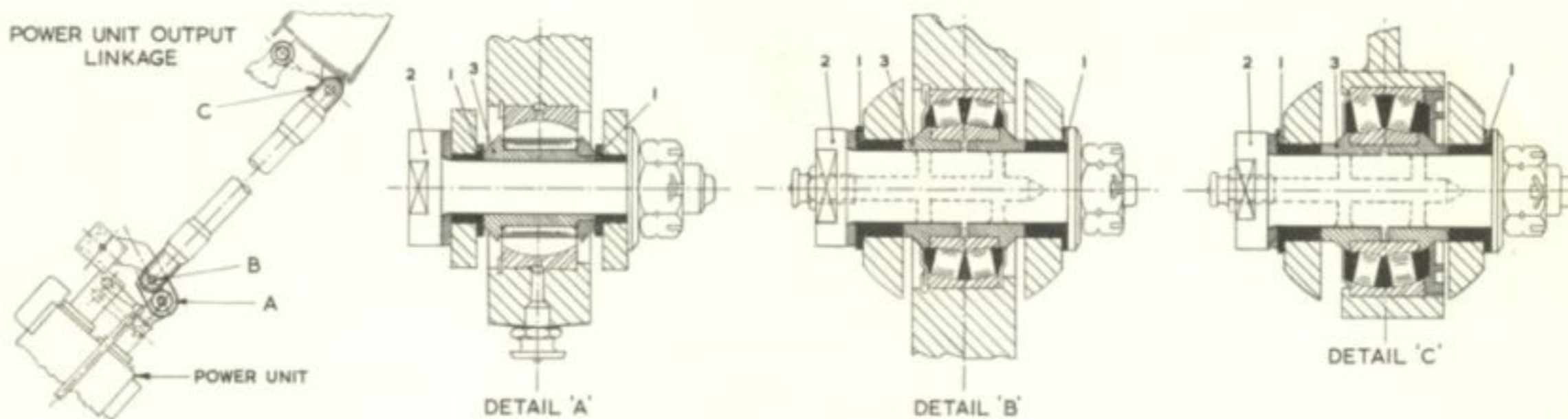


Fig.708A. Aileron controls

Detail	Item	Part and Description	Dimension New (in.)	Permissible Worn Dimension (in.)		Clearance New (in.)	Permissible Worn Clearance (in.)	Remarks
				Non-selective Assembly	Selective Assembly			
A	1	BUSH (bore)	$\frac{0.563}{0.56225}$	0.56325	0.56375	$\frac{0.00125}{0.00000}$	0.0015	
	2	BOLT (o/dia.)	$\frac{0.56225}{0.56175}$	0.56175	0.56075			
	3	BUSH (bore)	$\frac{0.5627}{0.5622}$	0.56275	0.56325	$\frac{0.00095}{-0.00005}$	0.0010	
	2	BOLT (o/dia.)	$\frac{0.56225}{0.56175}$	0.56175	0.5612			
B C	1	BUSH (bore)	$\frac{0.7505}{0.74975}$	0.75075	0.75125	$\frac{0.00125}{0.00000}$	0.0015	
	2	BOLT (o/dia.)	$\frac{0.74975}{0.74925}$	0.74925	0.74825			
	3	BUSH (bore)	$\frac{0.7505}{0.74975}$	0.75075	0.75125	$\frac{0.00125}{0.00000}$	0.0015	
	2	BOLT (o/dia.)	$\frac{0.74975}{0.74925}$	0.74925	0.74825			

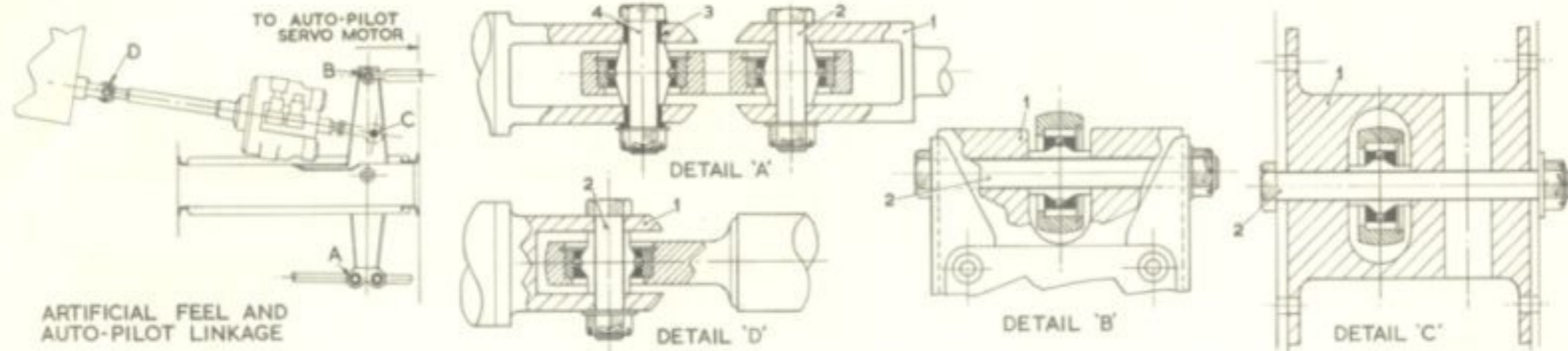


Fig. 709 Rudder controls

Detail	Item	Part and Description	Dimension New (in.)	Permissible Worn Dimension (in.)		Clearance New (in.)	Permissible Worn Clearance (in.)	Remarks
				Non-selective Assembly	Selective Assembly			
A	1	FORK END (bore)	$\frac{0.313}{0.312}$	0.31325	0.31375	$\frac{0.00125}{-0.00025}$	0.0015	
	2	BOLT (o/dia.)	$\frac{0.31225}{0.31175}$	0.31175	0.3105			
	3	BUSH (bore)	$\frac{0.313}{0.312}$	0.31325	0.31375	$\frac{0.00125}{-0.00025}$	0.0015	
	4	BOLT (o/dia.)	$\frac{0.31225}{0.31175}$	0.31175	0.3105			
B	1	BLOCK (bore)	$\frac{0.313}{0.312}$	0.31325	0.31375	$\frac{0.00125}{-0.00025}$	0.0015	
	2	BOLT (o/dia.)	$\frac{0.31225}{0.31175}$	0.31175	0.3105			
C	1	BLOCK (bore)	$\frac{0.313}{0.312}$	0.31325	0.31375	$\frac{0.00125}{-0.00025}$	0.0015	
	2	BOLT (o/dia.)	$\frac{0.31225}{0.31175}$	0.31175	0.3105			
D	1	FORK END (bore)	$\frac{0.313}{0.312}$	0.31325	0.31375	$\frac{0.00125}{-0.00025}$	0.0015	
	2	BOLT (o/dia.)	$\frac{0.31225}{0.31175}$	0.31175	0.3105			

RESTRICTED

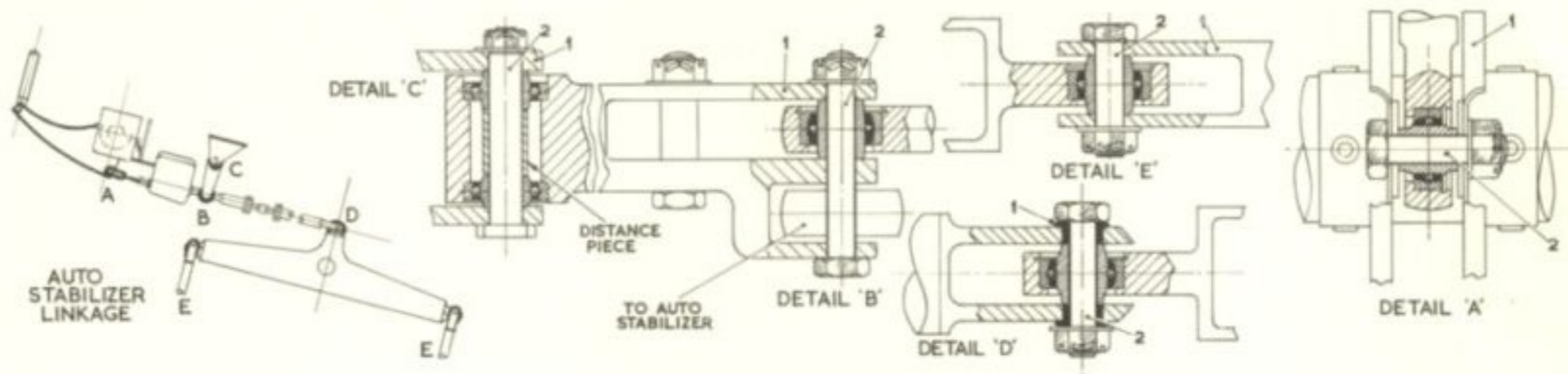


Fig.710. Rudder controls

Detail	Item	Part and Description	Dimension New (in.)	Permissible Worn Dimension (in.)		Clearance New (in.)	Permissible Worn Clearance (in.)	Remarks
				Non-selective Assembly	Selective Assembly			
A	1	LEVER (bore)	$\frac{0.313}{0.312}$	0.31325	0.31375	$\frac{0.00125}{-0.00025}$	0.0015	
	2	BOLT (o/dia.)	$\frac{0.31225}{0.31175}$	0.31175	0.3105			
B	1	LEVER (bore)	$\frac{0.313}{0.312}$	0.31325	0.31375	$\frac{0.00125}{-0.00025}$	0.0015	
	2	BOLT (o/dia.)	$\frac{0.31225}{0.31175}$	0.31175	0.3105			
C	1	BRACKET (bore)	$\frac{0.3755}{0.3745}$	0.37575	0.37625	$\frac{0.00125}{-0.00025}$	0.0015	
	2	BOLT (o/dia.)	$\frac{0.37475}{0.37425}$	0.37425	0.373			
D	1	BUSH (bore)	$\frac{0.313}{0.312}$	0.31325	0.31375	$\frac{0.00125}{-0.00025}$	0.0015	
	2	BOLT (o/dia.)	$\frac{0.31225}{0.31175}$	0.31175	0.3105			
E	1	FORK END (bore)	$\frac{0.313}{0.312}$	0.31325	0.31375	$\frac{0.00125}{-0.00025}$	0.0015	
	2	BOLT (o/dia.)	$\frac{0.31225}{0.31175}$	0.31175	0.3105			

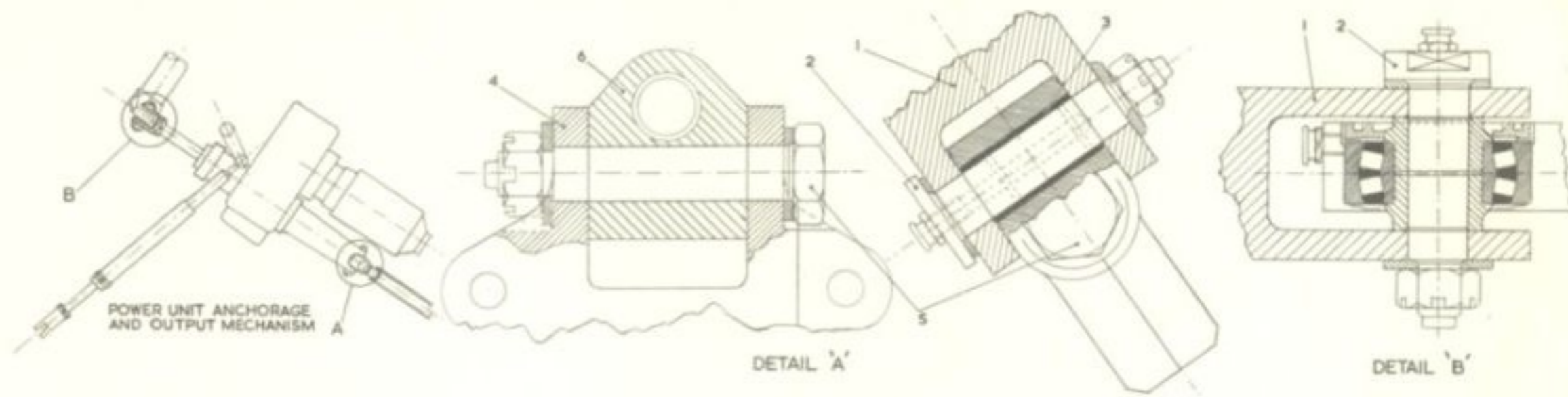


Fig.711. Rudder controls

Detail	Item	Part and Description	Dimension New (in.)	Permissible Worn Dimension (in.)		Clearance New (in.)	Permissible Worn Clearance (in.)	Remarks
				Non-selective Assembly	Selective Assembly			
A	1	CONE (bore)	$\frac{0.6255}{0.62475}$	0.62575	0.62625	$\frac{0.00125}{0.00000}$	0.0015	
	2	BOLT (o/dia.)	$\frac{0.62475}{0.62425}$	0.62425	0.62325			
	3	BUSH (bore)	$\frac{0.6255}{0.62475}$	0.62575	0.62625	$\frac{0.00125}{0.00000}$	0.0015	
	2	BOLT (o/dia.)	$\frac{0.62475}{0.62425}$	0.62425	0.62325			
	4	BRACKET (bore)	$\frac{0.628}{0.625}$	0.6285	0.6295	$\frac{0.005}{0.001}$	0.0055	
	5	BOLT (o/dia.)	$\frac{0.624}{0.623}$	0.623	0.6195			
	6	BLOCK (bore)	$\frac{0.6255}{0.62475}$	0.626	0.627	$\frac{0.0025}{0.00075}$	0.003	
B	5	BOLT (o/dia.)	$\frac{0.624}{0.623}$	0.623	0.62175			
	1	FORK END (bore)	$\frac{0.7505}{0.74975}$	0.75075	0.75125	$\frac{0.00125}{0.00000}$	0.0015	
	2	BOLT (o/dia.)	$\frac{0.74975}{0.74925}$	0.74925	0.74825			

RESTRICTED

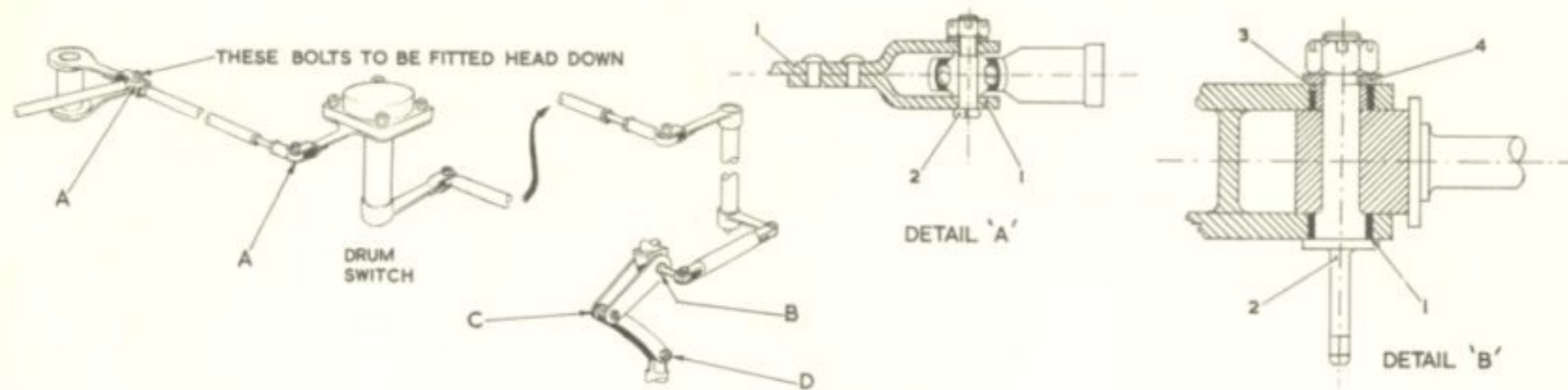


Fig.712. Nose wheel steering mechanism

Detail	Item	Part and Description	Dimension New (in.)	Permissible Worn Dimension (in.)		Clearance New (in.)	Permissible Worn Clearance (in.)	Remarks
				Non-selective Assembly	Selective Assembly			
A	1	LEVER (bore)	$\frac{0.1903}{0.1893}$	0.191	0.19155	$\frac{0.00125}{-0.00025}$	0.002	
	2	BOLT (o/dia.)	$\frac{0.18955}{0.18905}$	0.189	0.1873			
B	1	OILITE BUSH (bore)	$\frac{0.5005}{0.5000}$	0.5005	0.5005	$\frac{0.00125}{0.00025}$	0.002	
	2	BOLT (o/dia.)	$\frac{0.49975}{0.49925}$	0.4985	0.4980			
	3	OILITE BUSH (bore)	$\frac{0.5005}{0.5000}$	0.5005	0.5005	$\frac{0.00125}{0.00025}$		
	4	STEEL BUSH (o/dia.)	$\frac{0.49975}{0.49925}$	0.4985	0.4980			

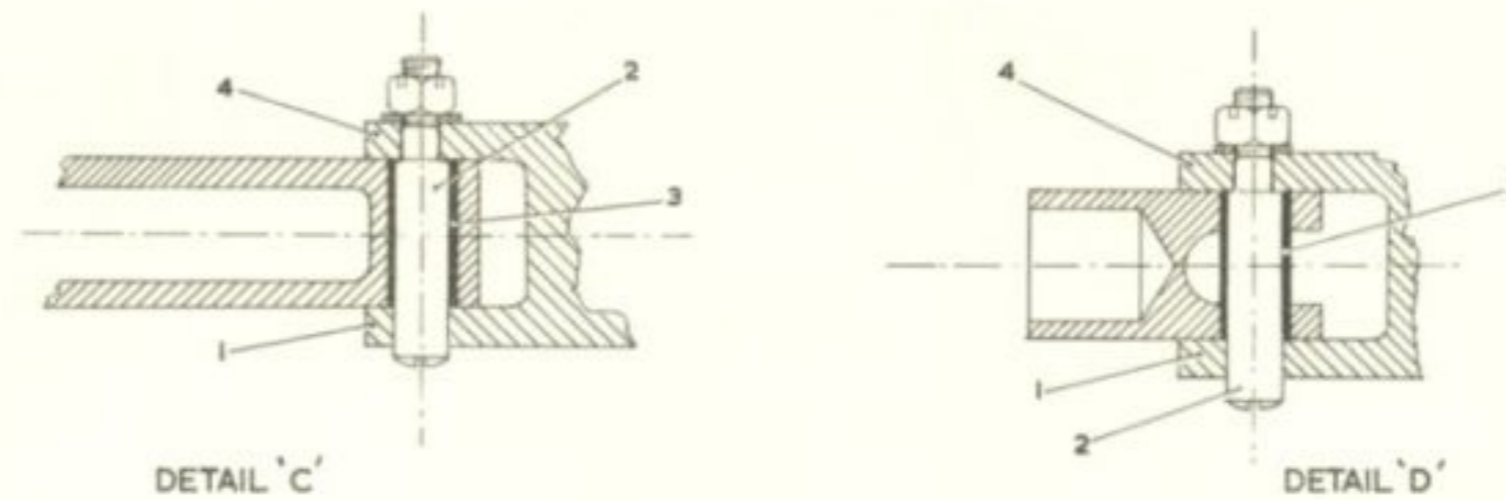


Fig.712A. Nose wheel steering mechanism

Detail	Item	Part and Description	Dimension New (in.)	Permissible Worn Dimension (in.)		Clearance New (in.)	Permissible worn Clearance (in.)	Remarks
				Non-selective Assembly	Selective Assembly			
C	1	LEVER (bore)	$\frac{0.3755}{0.3745}$	0.37625	0.37675	$\frac{0.00125}{-0.00025}$	0.002	
	2	BOLT (o/dia.)	$\frac{0.37475}{0.37425}$	0.37425	0.3725			
	3	BUSH (bore)	$\frac{0.3755}{0.3753}$	0.37575	0.37625			
	2	BOLT (o/dia.)	$\frac{0.37475}{0.37425}$	0.37425	0.3738	$\frac{0.00125}{0.00055}$	0.0015	
	4	LEVER (bore)	$\frac{0.2505}{0.2495}$	0.25125	0.25175	$\frac{0.00125}{-0.00025}$	0.002	
	2	BOLT (o/dia.)	$\frac{0.24975}{0.24925}$	0.24925	0.2475			
D	1	LEVER (bore)	$\frac{0.3755}{0.3745}$	0.37625	0.37675	$\frac{0.00125}{-0.00025}$	0.002	
	2	BOLT (o/dia.)	$\frac{0.37475}{0.37425}$	0.37425	0.3725			
	3	BUSH (bore)	$\frac{0.3755}{0.3753}$	0.37575	0.37625			
	2	BOLT (o/dia.)	$\frac{0.37475}{0.37425}$	0.37425	0.3738	$\frac{0.00125}{0.00055}$	0.0015	
	4	LEVER (bore)	$\frac{0.2505}{0.2495}$	0.25125	0.25175	$\frac{0.00125}{-0.00025}$	0.002	
	2	BOLT (o/dia.)	$\frac{0.24975}{0.24925}$	0.24925	0.2475			

RESTRICTED

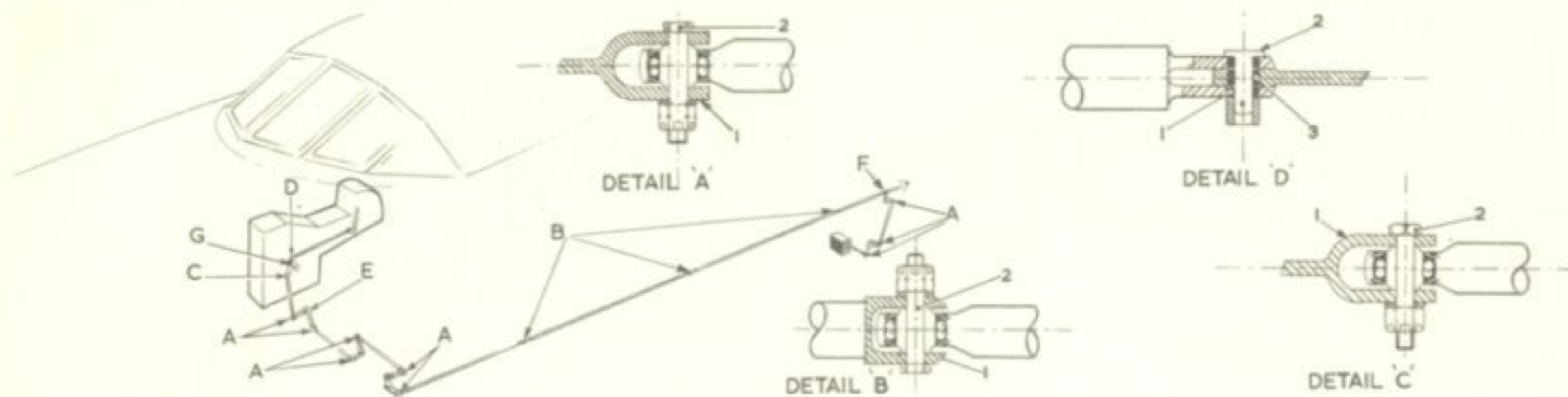


Fig.713. Parking brake mechanism

Detail	Item	Part and Description	Dimension New (in.)	Permissible Worn Dimension (in.)		Clearance New (in.)	Permissible Worn Clearance (in.)	Remarks
				Non-selective Assembly	Selective Assembly			
A	1	LEVER (bore)	$\frac{0.1903}{0.1893}$	0.191	0.19155	$\frac{0.00125}{-0.00025}$	0.002	
	2	BOLT (o/dia.)	$\frac{0.18955}{0.18905}$	0.189	0.1873			
B	1	FORK-END (bore)	$\frac{0.1903}{0.1893}$	0.191	0.19155	$\frac{0.00125}{-0.00025}$	0.002	
	2	BOLT (o/dia.)	$\frac{0.18955}{0.18905}$	0.189	0.1873			
C	1	LEVER (bore)	$\frac{0.188}{0.187}$	0.1885	0.18885	$\frac{0.00145}{0.00015}$	0.002	
	2	BOLT (o/dia.)	$\frac{0.18685}{0.18655}$	0.1865	0.185			
D	1	BUSH (bore)	$\frac{0.188}{0.187}$	0.189	0.18975	$\frac{0.00185}{0.00025}$	0.003	
	2	PIN (o/dia.)	$\frac{0.18675}{0.18615}$	0.186	0.184			
	3	BUSH (bore)	$\frac{0.188}{0.187}$	0.189	0.18975	$\frac{0.00185}{0.00025}$	0.003	
	2	PIN (o/dia.)	$\frac{0.18675}{0.18615}$	0.186	0.184			

RESTRICTED

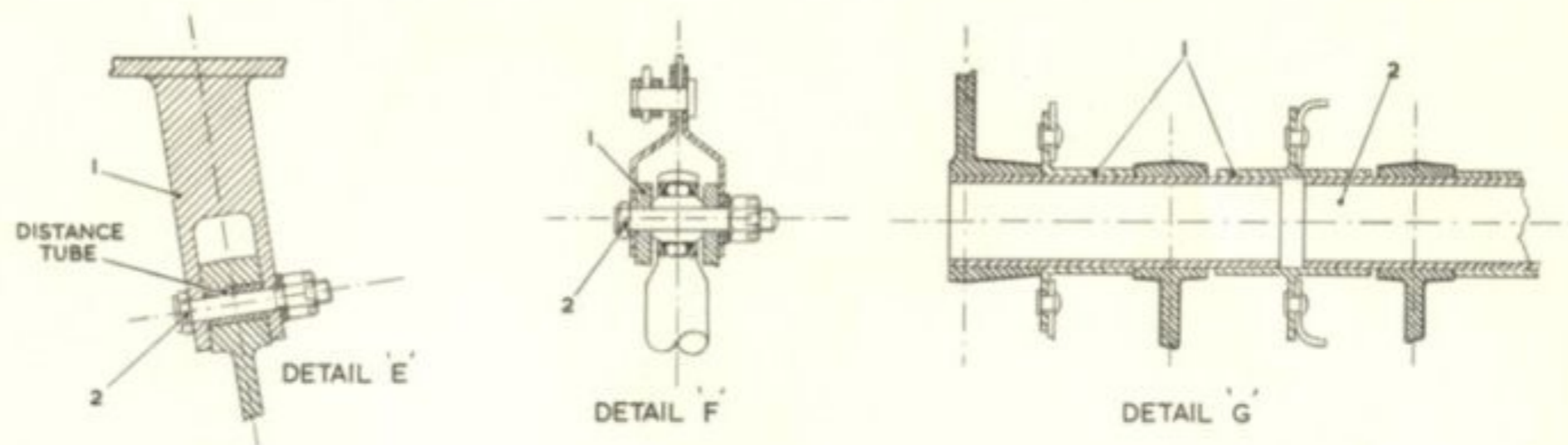


Fig.713A. Parking brake mechanism

Detail	Item	Part and Description	Dimension New (in.)	Permissible Worn Dimension (in.)		Clearance New (in.)	Permissible Worn Clearance (in.)	Remarks
				Non-selective Assembly	Selective Assembly			
E	1	BRACKET (bore)	$\frac{0.1895}{0.1875}$	0.19025	0.19075	$\frac{0.00275}{0.00025}$	0.0035	
	2	BOLT (o/dia.)	$\frac{0.18725}{0.18675}$	0.18675	0.184			
F	1	LEVER (bore)	$\frac{0.1903}{0.1893}$	0.191	0.19155	$\frac{0.00125}{-0.00025}$	0.002	
	2	BOLT (o/dia.)	$\frac{0.18955}{0.18905}$	0.189	0.1873			
G	1	BUSH (bore)	$\frac{0.752}{0.750}$	0.753	0.756	$\frac{0.005}{0.001}$	0.007	
	2	TUBE (o/dia.)	$\frac{0.749}{0.747}$	0.746	0.743			

RESTRICTED

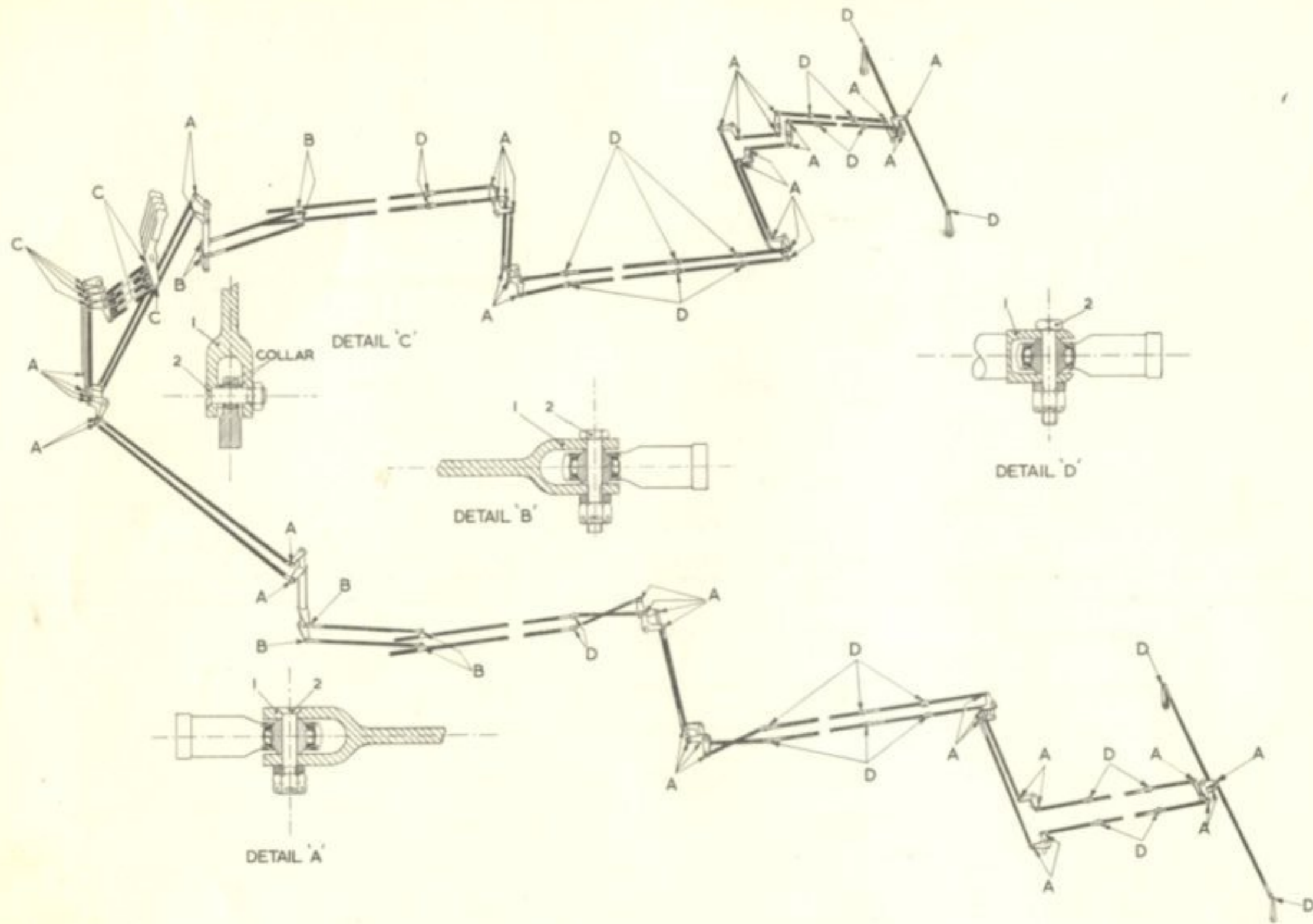


Fig. 714. Engine controls
RESTRICTED

Key to Fig.714

Detail	Item	Part and Description	Dimension New (in.)	Permissible Worn Dimension (in.)		Clearance New (in.)	Permissible Worn Clearance (in.)	Remarks																																						
				Non-selective Assembly	Selective Assembly																																									
A	1	LEVER (bore)	$\frac{0.1875}{0.187}$	0.188	0.18835	$\frac{0.00095}{0.00015}$	0.0015																																							
	2	BOLT (o/dia.)	$\frac{0.18685}{0.18655}$	0.1865	0.1855				B	1	LEVER (bore)	$\frac{0.1875}{0.187}$	0.188	0.18835	$\frac{0.00095}{0.00015}$	0.0015		2	BOLT (o/dia.)	$\frac{0.18685}{0.18655}$	0.1865	0.1855	C	1	LEVER (bore)	$\frac{0.188}{0.187}$	0.1887	0.18925	$\frac{0.00125}{-0.00025}$	0.002		2	BOLT (o/dia.)	$\frac{0.18725}{0.18675}$	0.1867	0.185	D	1	FORK-END (bore)	$\frac{0.1895}{0.1875}$	0.190	0.19035	$\frac{0.00295}{0.00065}$	0.0035		2
B	1	LEVER (bore)	$\frac{0.1875}{0.187}$	0.188	0.18835	$\frac{0.00095}{0.00015}$	0.0015																																							
	2	BOLT (o/dia.)	$\frac{0.18685}{0.18655}$	0.1865	0.1855				C	1	LEVER (bore)	$\frac{0.188}{0.187}$	0.1887	0.18925	$\frac{0.00125}{-0.00025}$	0.002		2	BOLT (o/dia.)	$\frac{0.18725}{0.18675}$	0.1867	0.185	D	1	FORK-END (bore)	$\frac{0.1895}{0.1875}$	0.190	0.19035	$\frac{0.00295}{0.00065}$	0.0035		2	BOLT (o/dia.)	$\frac{0.18685}{0.18655}$	0.1865	0.184										
C	1	LEVER (bore)	$\frac{0.188}{0.187}$	0.1887	0.18925	$\frac{0.00125}{-0.00025}$	0.002																																							
	2	BOLT (o/dia.)	$\frac{0.18725}{0.18675}$	0.1867	0.185				D	1	FORK-END (bore)	$\frac{0.1895}{0.1875}$	0.190	0.19035	$\frac{0.00295}{0.00065}$	0.0035		2	BOLT (o/dia.)	$\frac{0.18685}{0.18655}$	0.1865	0.184																								
D	1	FORK-END (bore)	$\frac{0.1895}{0.1875}$	0.190	0.19035	$\frac{0.00295}{0.00065}$	0.0035																																							
	2	BOLT (o/dia.)	$\frac{0.18685}{0.18655}$	0.1865	0.184																																									

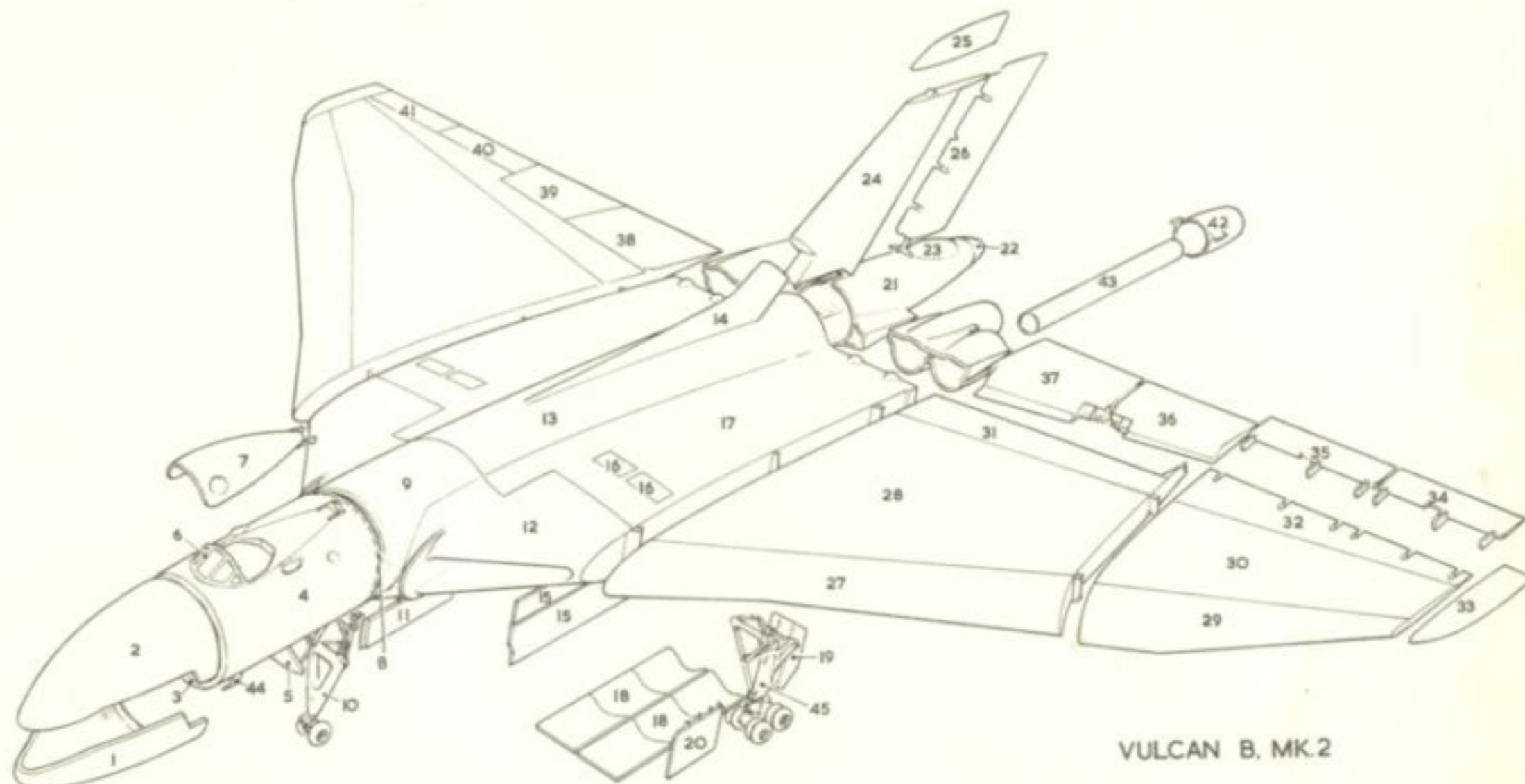
APPENDIX 1

VULCAN B MK.2 AIRCRAFT

APP.

1

RESTRICTED



VULCAN B. MK.2

- | | | | | | |
|----|-------------------------|----|--------------------------------------|----|---------------------------------------|
| 1 | NOSE RADOME | 16 | AIR BRAKES | 31 | WING TRAILING EDGE (INBOARD PORTION) |
| 2 | METAL NOSE STRUCTURE | 17 | ENGINE BAYS | 32 | WING TRAILING EDGE (OUTBOARD PORTION) |
| 3 | FRONT PRESSURE BULKHEAD | 18 | ENGINE DOORS | 33 | WING TIP |
| 4 | FRONT FUSELAGE | 19 | MAIN WHEEL UNIT FIXED FAIRING | 34 | NO.1 ELEVON |
| 5 | ENTRANCE DOOR | 20 | MAIN WHEEL DOOR | 35 | NO.2 ELEVON |
| 6 | WINDSCREEN | 21 | REAR FUSELAGE | 36 | NO.3 ELEVON |
| 7 | CANOPY | 22 | TAIL RADOME | 37 | NO.4 ELEVON |
| 8 | REAR PRESSURE BULKHEAD | 23 | BRAKE PARACHUTE COMPARTMENT | 38 | NO.5 ELEVON |
| 9 | NO.1 TANK BAY | 24 | FIN | 39 | NO.6 ELEVON |
| 10 | NOSE WHEEL UNIT | 25 | FIN CAP | 40 | NO.7 ELEVON |
| 11 | NOSE WHEEL DOOR | 26 | RUDDER | 41 | NO.8 ELEVON |
| 12 | AIR INTAKE | 27 | WING LEADING EDGE (INBOARD PORTION) | 42 | JET PIPE CAP |
| 13 | BOMB BAY | 28 | WING (INBOARD PORTION) | 43 | JET PIPE TUNNEL |
| 14 | DORSAL FIN | 29 | WING LEADING EDGE (OUTBOARD PORTION) | 44 | PRESSURE HEAD |
| 15 | BOMB DOORS | 30 | WING (OUTBOARD PORTION) | 45 | MAIN WHEEL UNIT |

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Chapter 1

INTRODUCTION

This aircraft differs extensively from the Vulcan B Mk.1 and it has been found necessary to introduce this Appendix to illustrate the structural differences. The illustrations have been given the same numbers as those appertaining to the corresponding structure in the Part 1, with the prefix 'A' added. Structure not illustrated herein is identical to the Mk.1 and reference should be made to the appropriate Chapter in the Part 1. General repair information and tables of repair materials laid down in Chapters 1 to 7 in the Part 1, should be followed, except where superseded in this Appendix.

LIST OF CHAPTERS

- 1 Introduction
- 2 Fuselage
- 3 Main planes
- 4 Tail unit
- 5 Alighting gear
- 6 Not applicable
- 7 Systems

RESTRICTED

Chapter 2

FUSELAGE

LIST OF CONTENTS

(To be issued later)

RESTRICTED

Chapter 3

MAIN PLANES

LIST OF CONTENTS

(To be issued later)

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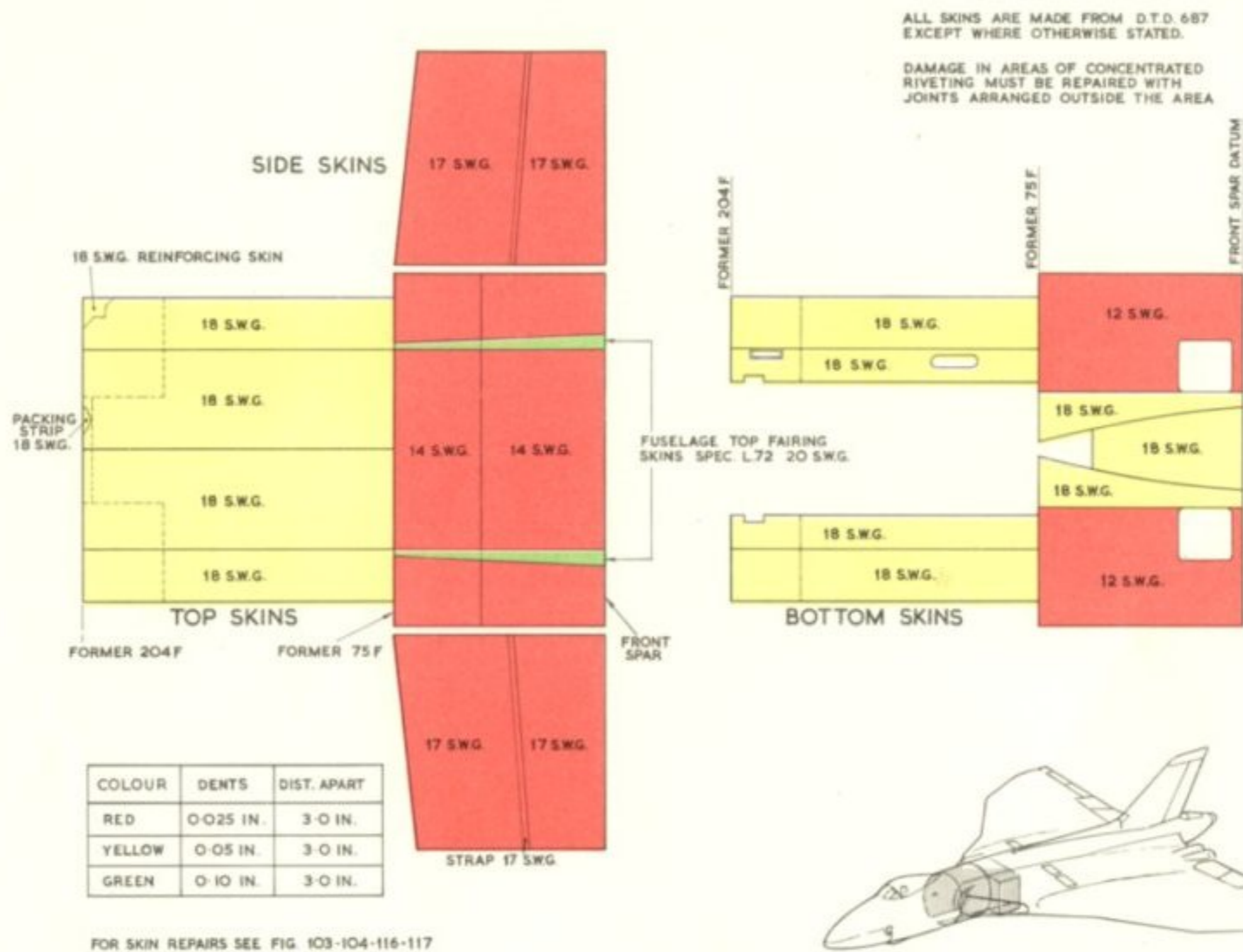
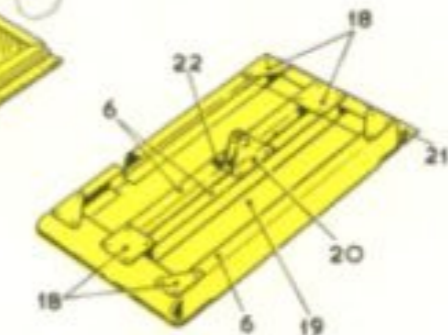
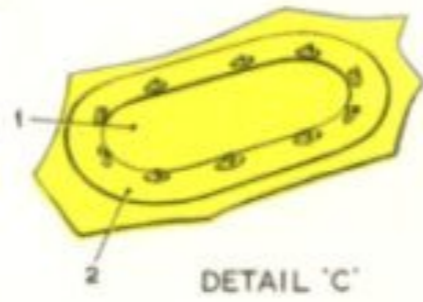


FIG. A 305. No.1 & 2 Tank bays—skinning
RESTRICTED



DAMAGE IN AREAS OF CONCENTRATED RIVETING MUST BE REPAIRED WITH JOINTS ARRANGED OUTSIDE THE AREA



NOTE: HOLES NOT PERMITTED IN TUNNEL SKINS AND BUTT STRAPS

SKIN REFERENCE

LETTER	SPEC.	S. W. G.
A	L.72	12
B	L.72	14
C	L.73	14
D	L.72	16
E	D.T.D.626	16
F	L.72	17
G	L.72	18
H	D.T.D.626	18
J	L.72	20

LIMIT TABLE

NEGLECTIBLE DAMAGE		
COLOUR	DENTS	DIST APART
RED	0.025 IN.	3.0 IN.
YELLOW	0.05 IN.	3.0 IN.

FOR WEATHERPROOFING SEE TEXT IN CHAP. 1 AND 3
FOR SKIN REPAIRS SEE FIG. 103, 104 AND 116

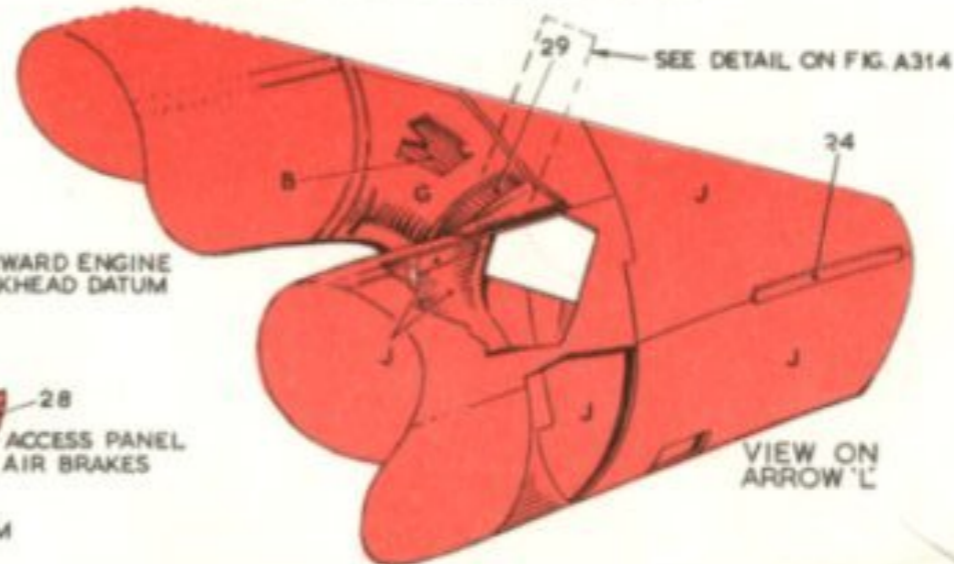
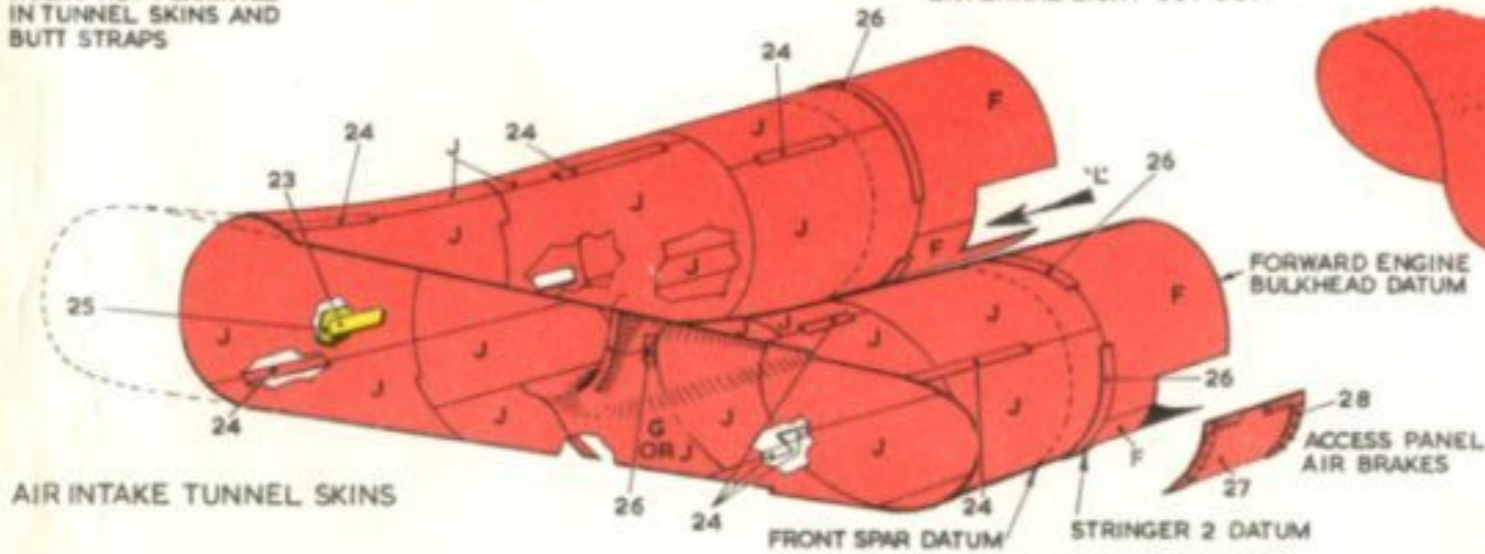


Fig. A314A. Air intake structure -skinning (Post Mod.1682)

RESTRICTED

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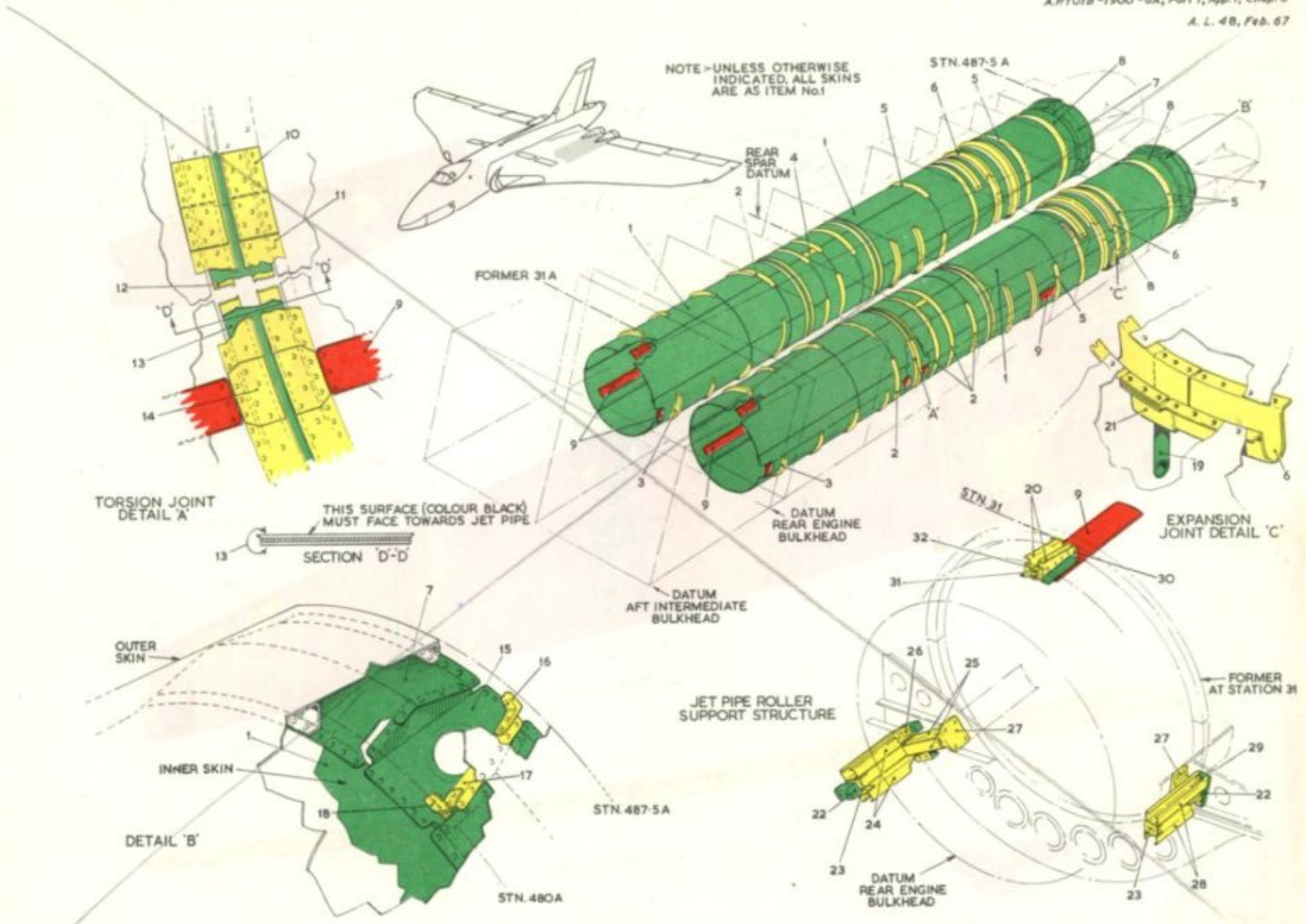


Fig. A 319. Jet pipe tunnels (Post Mod. 855 and 1392)

RESTRICTED

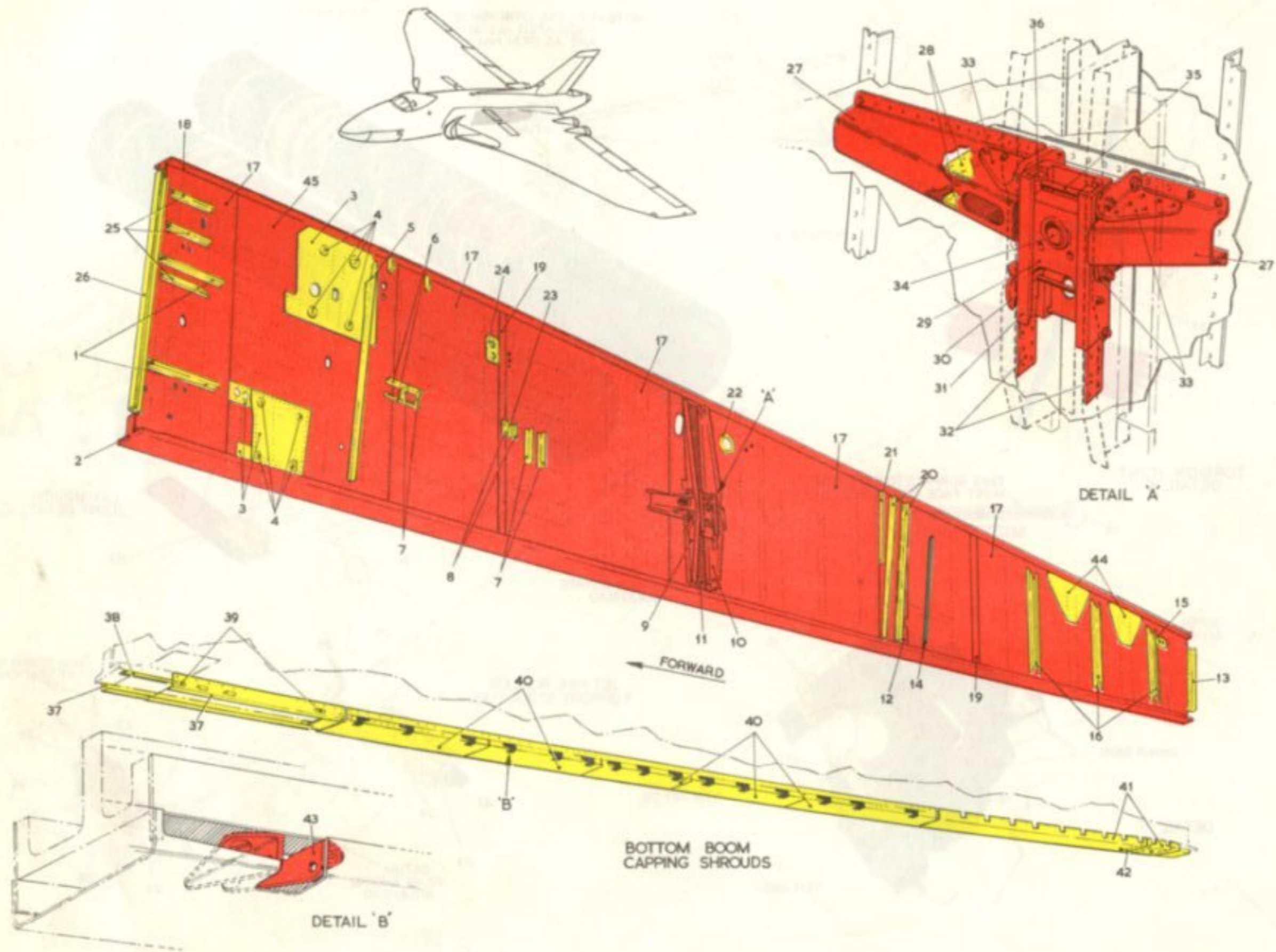


Fig. A320. Inboard engine rib - outboard face - port (Post Mod. 729 and 906)

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SKIN REFERENCE

LETTER.	S. W. G.	MAT. SPEC.
A	14	DTD. 687
B	17	DTD. 687
C	17	DTD. 626
D	18	DTD. 687
E	20	L.72
F	20	DTD. 687

LIMIT TABLE

NEGLECTIBLE DAMAGE		
COLOUR.	DENTS	DIST APART
RED	0.05 IN.	3.0 IN.
YELLOW	0.10 IN.	2.5 IN.
GREEN	—	—

NOTE.— DAMAGE IN AREAS OF CONCENTRATED RIVETING IS TO BE REPAIRED WITH JOINTS ARRANGED OUTSIDE THE AREA.
SEE TEXT IN CHAP 1 FOR WEATHERPROOFING FOR METHOD OF REPAIR SEE FIG. 103, 116, & 117

NOTE.— WHEN PANELS ITEM 'C' REQUIRE REPLACEMENT NEW PANELS ARE TO BE SPEC. L.72 18 SWG.

WHEN REPLACING A SKIN PANEL OR PANELS BETWEEN RIBS 63.5 AND 162.5 OR WHEN EMBODYING MOD. 895 AND 994 REFER TO PART I, CHAP.3, PARA. 324 AND 325 FOR JACKING INSTRUCTIONS.

NOTE.— FOR BOTTOM SURFACE SKINNING BETWEEN REAR SPAR AND STATION 428A REFER TO FIG. 312

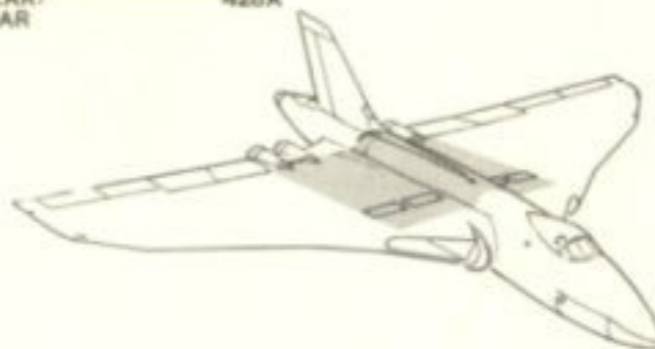
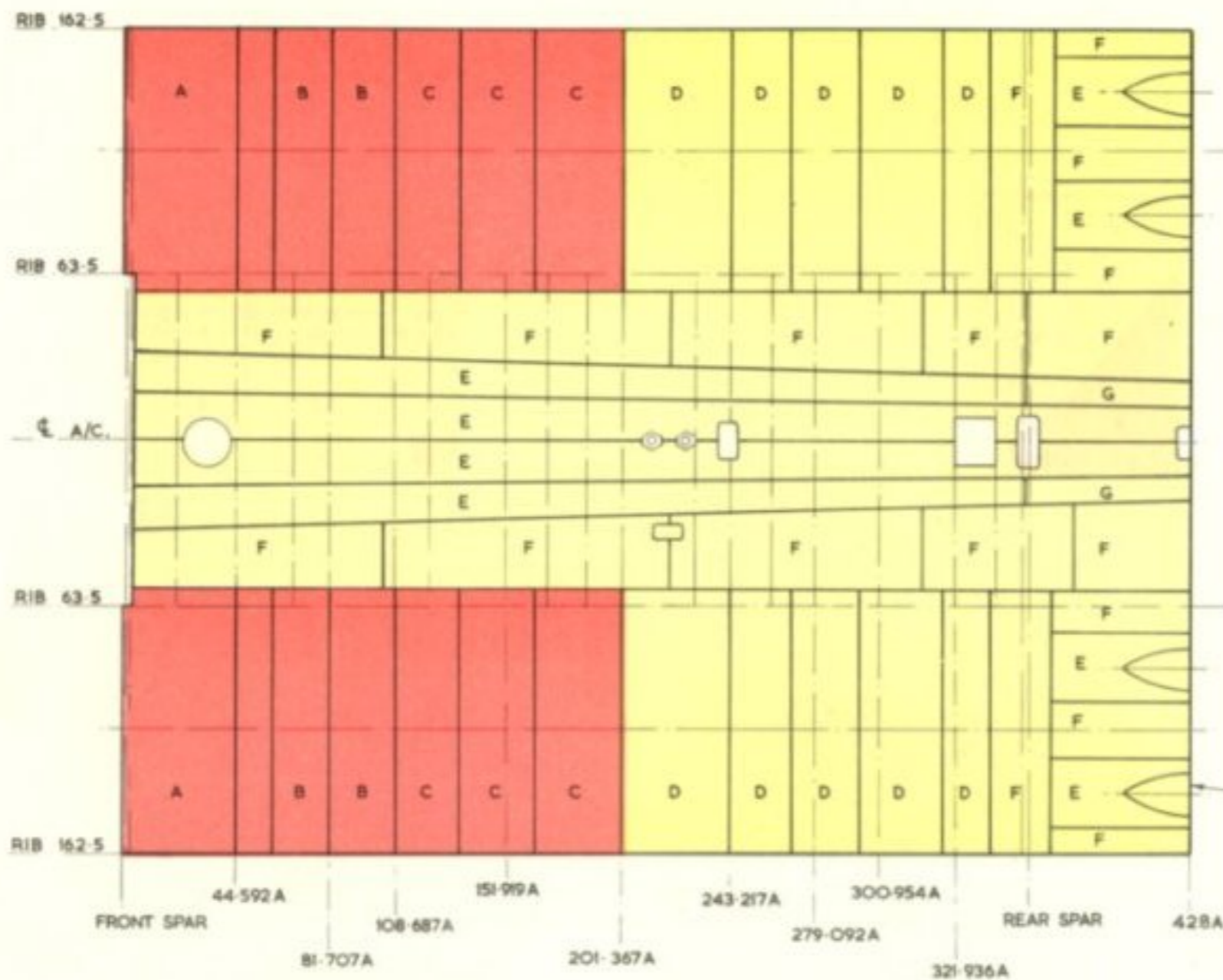


FIG. A 323. Centre section skinning—top surface (Pre Mod. 895 & 994)

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SKIN REFERENCE

LETTER	S W G.	MAT. SPEC.
A	12	D.T.D. 687
B	12	L-73
C	14	L-73
D	18	L-72
E	20	L-72
F	20	D.T.D. 687
G	18	D.T.D. 687

SKIN LIMITS

NEGLECTIBLE DAMAGE		
COLOUR	DENTS	DIST. APART
RED	0.05 IN.	3.0 IN.
YELLOW	0.10 IN.	2.0 IN.
GREEN	—	—

NOTE:— DAMAGE IN AREAS OF CONCENTRATED RIVETING IS TO BE REPAIRED WITH JOINTS ARRANGED OUTSIDE THE AREA. SEE TEXT IN CHAR 1 AND 3. FOR WEATHERPROOFING. FOR METHOD OF REPAIR SEE FIG. 103, 116, & 117

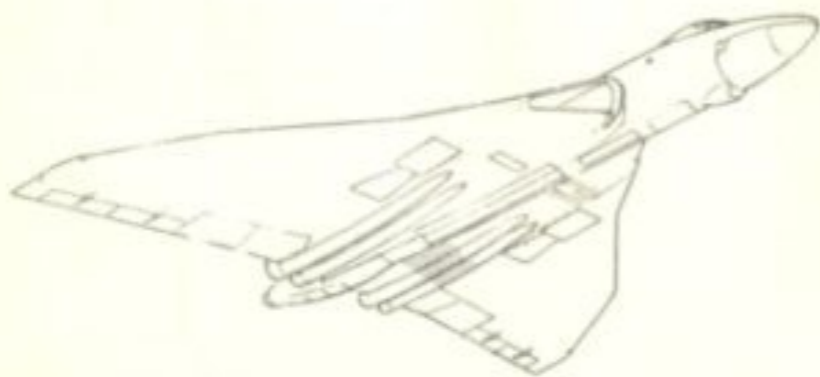
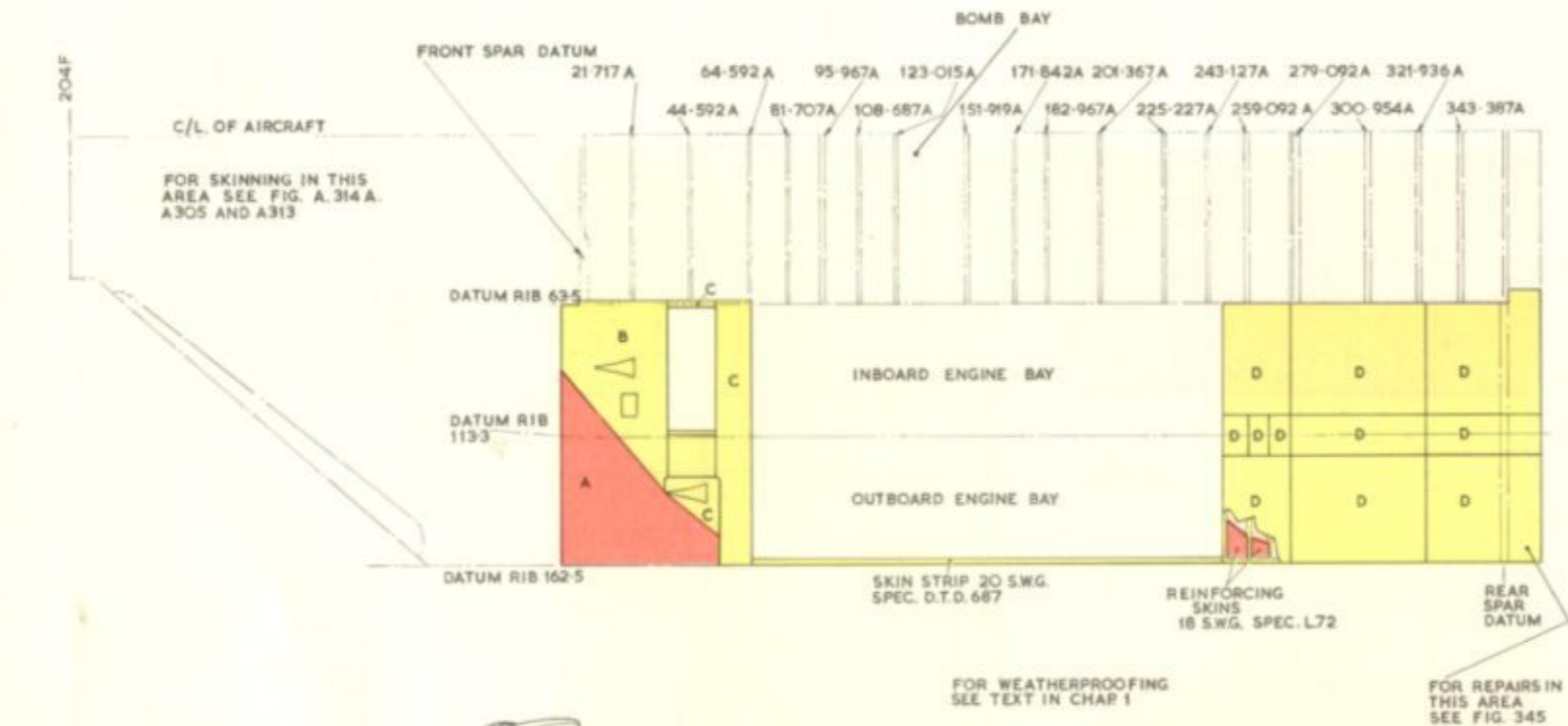
FOR BOTTOM SURFACE SKINNING BETWEEN REAR SPAR AND STATION 428A REFER TO FIG. 312

WHEN REPLACING A SKIN PANEL OR PANELS BETWEEN RIBS 63.5 AND 162.5 REFER TO PART 1, CHAP. 3, PARA. 324 AND 325 FOR JACKING INSTRUCTIONS.

FIG. A 323. Centre section skinning-top surface (Mod. 895 & 994 embodied)

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DAMAGE IN AREAS OF CONCENTRATED RIVETING
MUST BE REPAIRED WITH JOINTS ARRANGED
OUTSIDE THE AREA



SKIN REFERENCE		
LETTER	S. W. G.	MAT SPEC.
A	10	L.73
B	14	D.T.D.687
C	18	D.T.D.687
D	20	L.72

SKIN LIMITS		
NEGLECTIBLE DAMAGE		
COLOUR	DENTS	DIST. APART
RED	0.025 IN.	3.0 IN.
YELLOW	0.050 IN.	3.0 IN.
GREEN	—	—

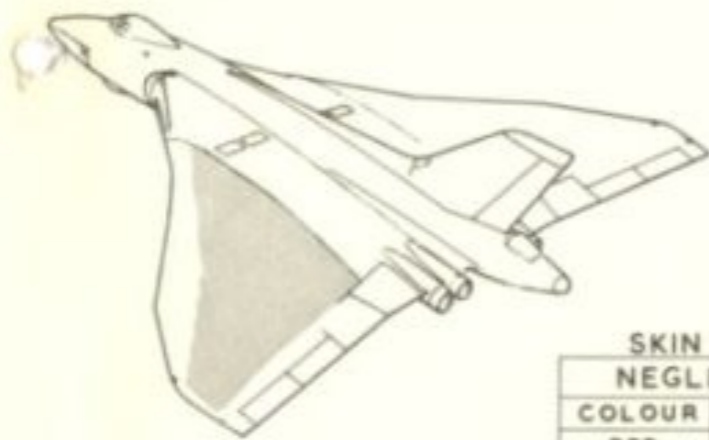
ON AIRCRAFT WITH MOD. 895 EMBODIED THE TABLES BELOW APPLY TO SKIN PANEL 'A' ONLY
ALL OTHER SKINS ARE IDENTICAL AND THE ABOVE TABLES APPLY

A	7	L. 73
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RED	0.0075 IN.	6.0 IN.
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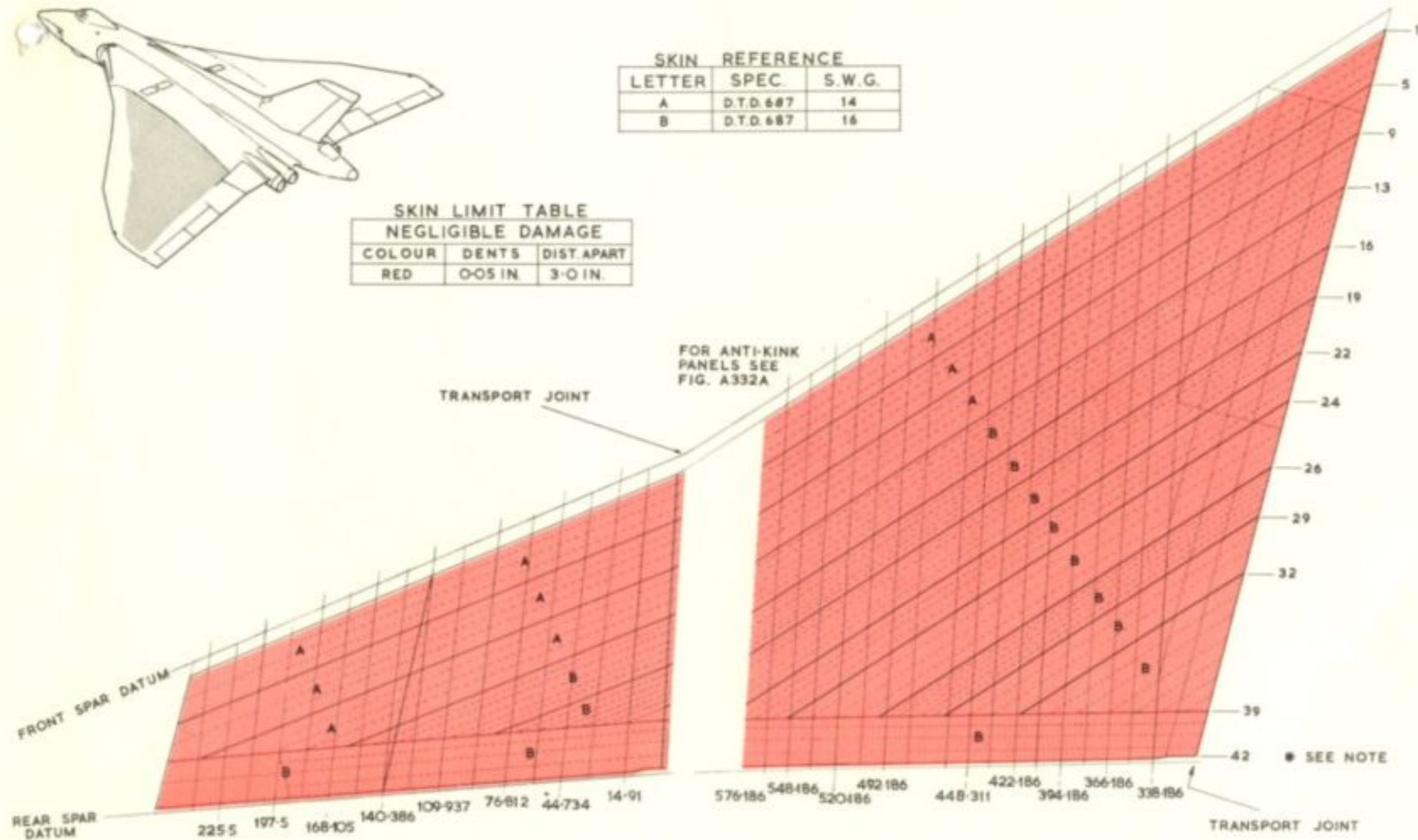
FIG. A 323A. Centre section skinning bottom surface

RESTRICTED



SKIN REFERENCE		
LETTER	SPEC.	S.W.G.
A	D.T.D.687	14
B	D.T.D.687	16

SKIN LIMIT TABLE NEGLECTIBLE DAMAGE		
COLOUR	DENTS	DIST. APART
RED	0.05 IN.	3.0 IN.



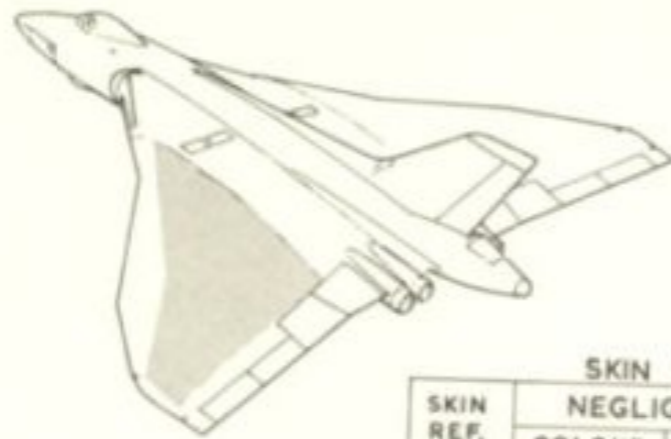
STRINGER REFERENCE		
STRINGER No.	SECTION	REPAIR FIG.
1, 5, 9, 13, 16, 19, 22, 24, 26, 29, 32, 39.	301/553075	A373 AND A373A
REMAINDER	302/553075	A 372

* NOTE :- STRINGERS ARE NUMBERED CONSECUTIVELY 1-42. INTERMEDIATE STRINGERS BETWEEN 13 AND 29 ARE IDENTIFIED BY THE SUFFIX 'a' TO THE PRECEDING STRINGER NUMBER.

FOR WEATHERPROOFING SEE TEXT IN CHAPS. 1 AND 3.
FOR SKIN REPAIRS SEE FIG. 103 AND 104.

FIG. A 332. Top skins-outer wing (Pre.Mod. 894)

RESTRICTED

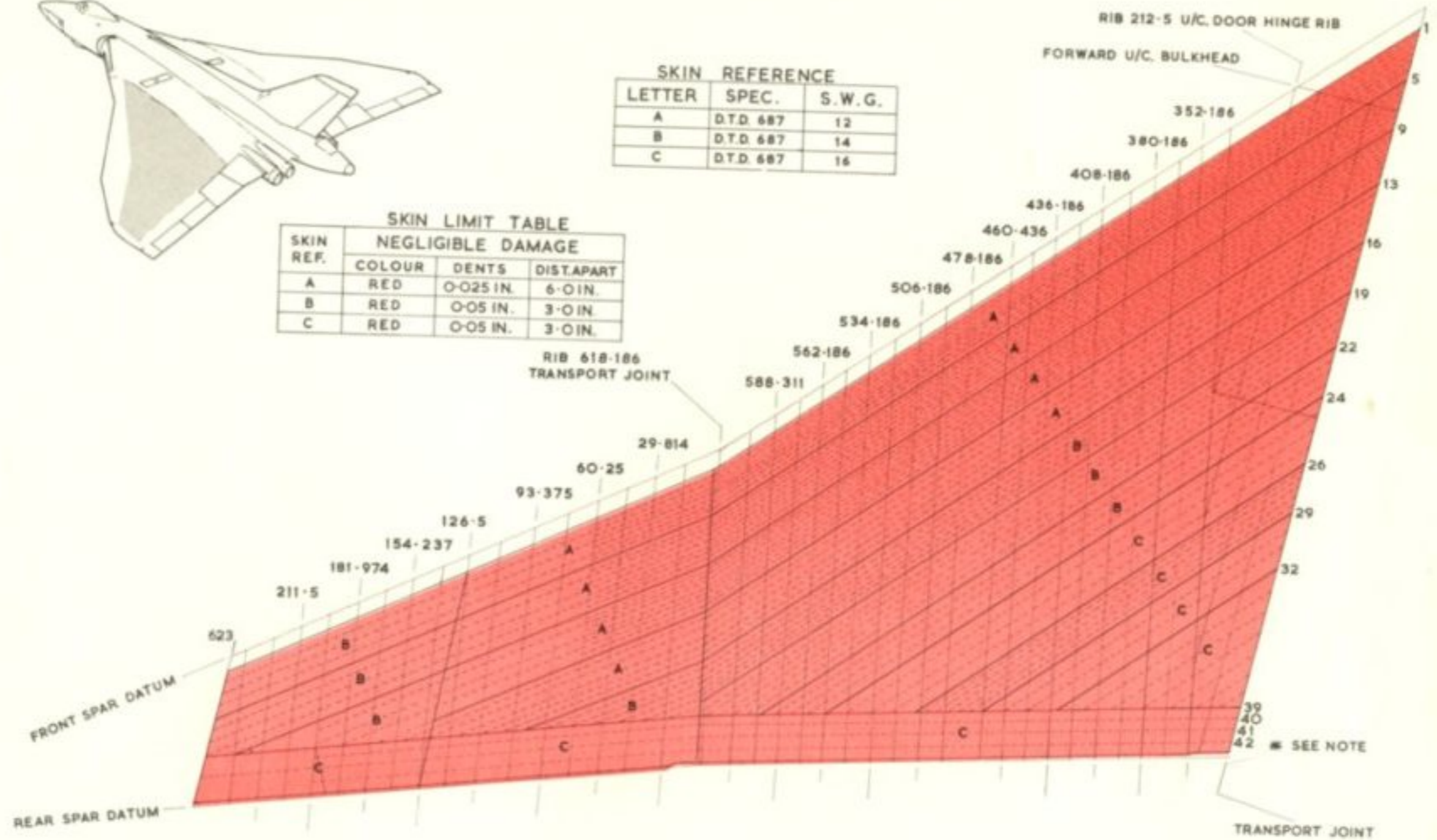


SKIN REFERENCE

LETTER	SPEC.	S.W.G.
A	D.T.D. 687	12
B	D.T.D. 687	14
C	D.T.D. 687	16

SKIN LIMIT TABLE

SKIN REF.	NEGLECTIBLE DAMAGE		
	COLOUR	DENTS	DIST. PART
A	RED	0.025 IN.	6.0 IN.
B	RED	0.05 IN.	3.0 IN.
C	RED	0.05 IN.	3.0 IN.



STRINGER REFERENCE

STRINGER No.	SECTION	REPAIR FIG.
1, 5, 9, 13, 16, 19, 22, 24	588/553075	A 371
26, 29, 32, 39	301/553075	A373 - A373A
REMAINDER	302/553075	A 372

* NOTE :- STRINGERS ARE NUMBERED CONSECUTIVELY 1-42. INTERMEDIATE STRINGERS BETWEEN 1 AND 29 ARE IDENTIFIED BY THE SUFFIX 'a' TO THE PRECEDING STRINGER NUMBER.

FOR WEATHERPROOFING SEE TEXT IN CHAPS. 1 AND 3
FOR SKIN REPAIRS SEE FIG. 103 AND 104

FIG. A 332 A.—Top skins outer wing (Mod. 894 embodied)

RESTRICTED

KEY TO FIG.A334B

Item	Material		Description	Depth	Negligible Damage			Repair Fig.
	Spec.	S.W.G. or Section			Dents	Holes	Pitch Ratio	
					Dist. Apart	Dia.		
1	Alum. foil	SS.4275	Honeycomb	-	-	-	-	-
2	L.72	58/SS.7000	Forward edge member	0.025	4.0	-	-	-
3	L.72	28	Inner skin	0.025	6.0	-	-	-
4	L.72	24	Outer skin	0.025	6.0	-	-	-
5	L.72	18	Channel member	0.025	4.0	0.125	15:1	-
6	L.72	18	Channel member	0.025	4.0	0.125	15:1	-
7	L.72	18	End member	0.025	4.0	-	-	-
8	L.72	57/SS.7000	Trailing edge member	0.025	4.0	-	-	-
9	D. T. D. 622	489/SS.3075	Reinforcing member	0.025	4.0	-	-	-
10	L.72	18	Reinforcing strip	x 0.05	4.0	0.125	8:1	-
11	L.72	16	Reinforcing strip	0.025	4.0	0.125	15:1	-
12	L.72	28	Packing	x -	-	-	-	-

x More expedient to renew than repair.
All dimensions are quoted in inches

RESTRICTED

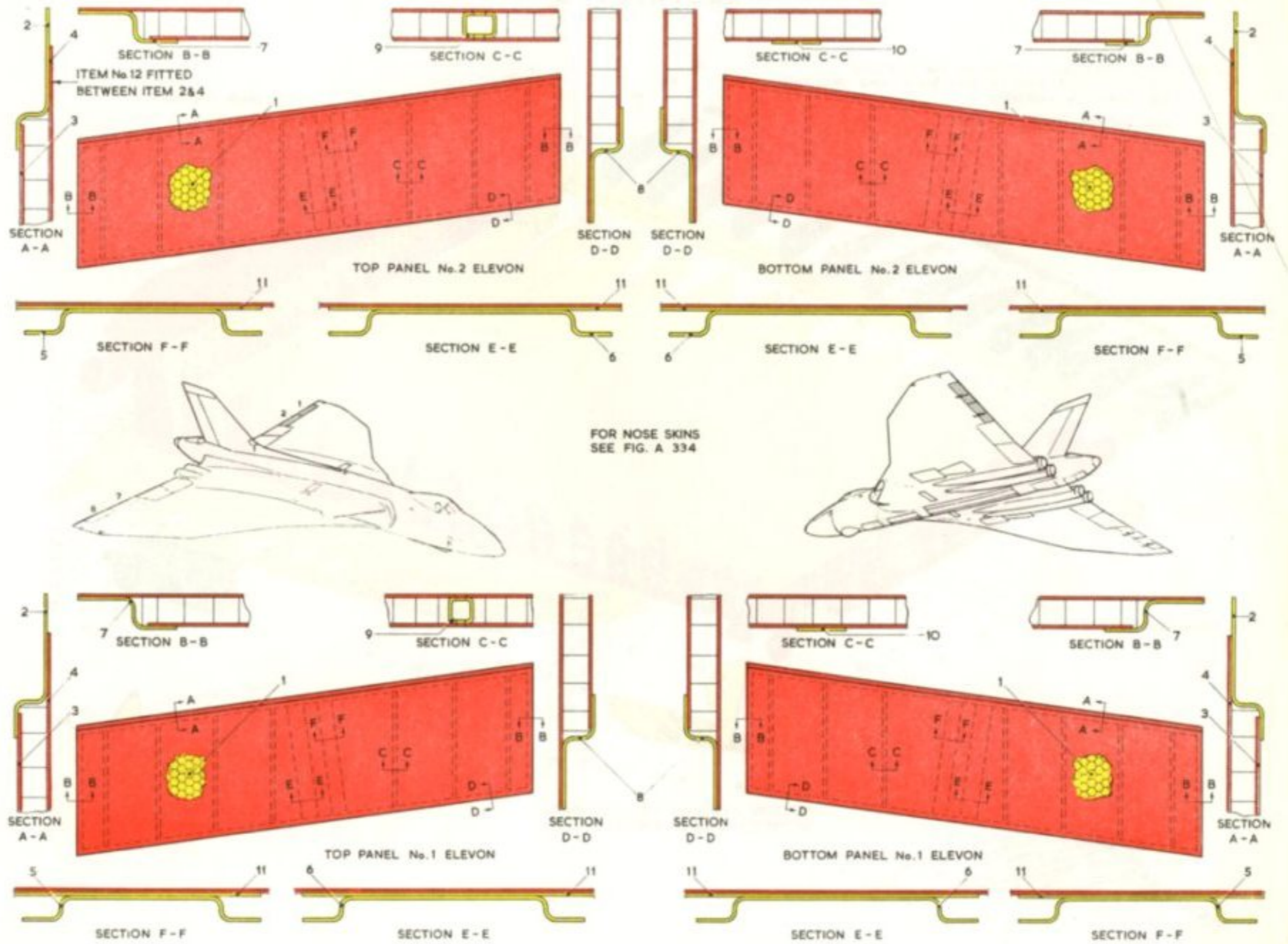


FIG. A 334 B. No.1 & 2 elevon panels (7 and 8 opposite hand)

RESTRICTED

NOTE - PREFIX IDENTICAL LETTERS AT RIB STATIONS INDICATE THAT SIMILAR MATERIALS AND SECTIONS ARE USED ON ASSEMBLY
No. 5 ELEVON OPPOSITE HAND

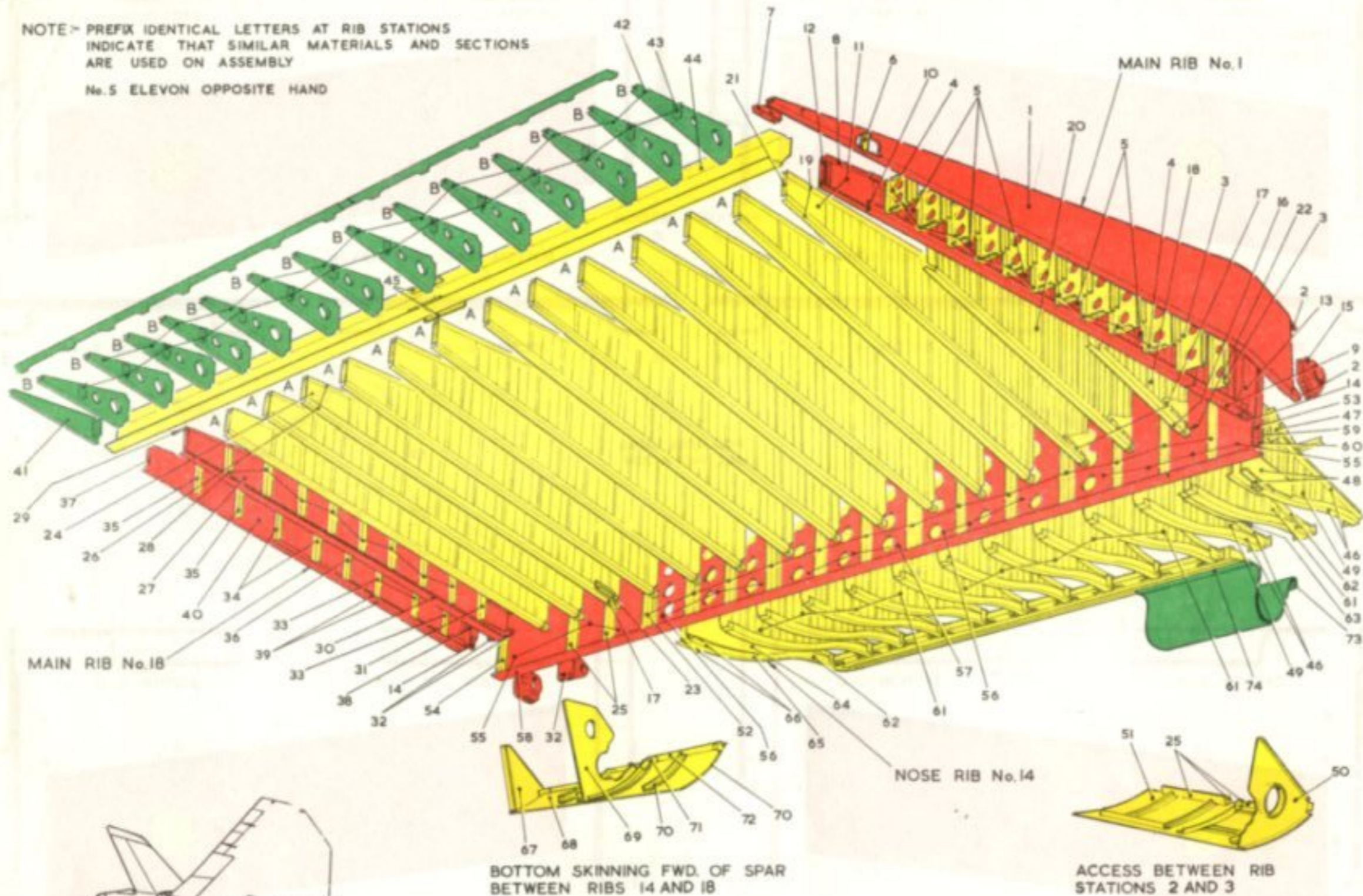


Fig. A335 Inboard elevator - No. 4 Elevon (Post mod. 89)

RESTRICTED

37
Shakti
2/2

RESTRICTED

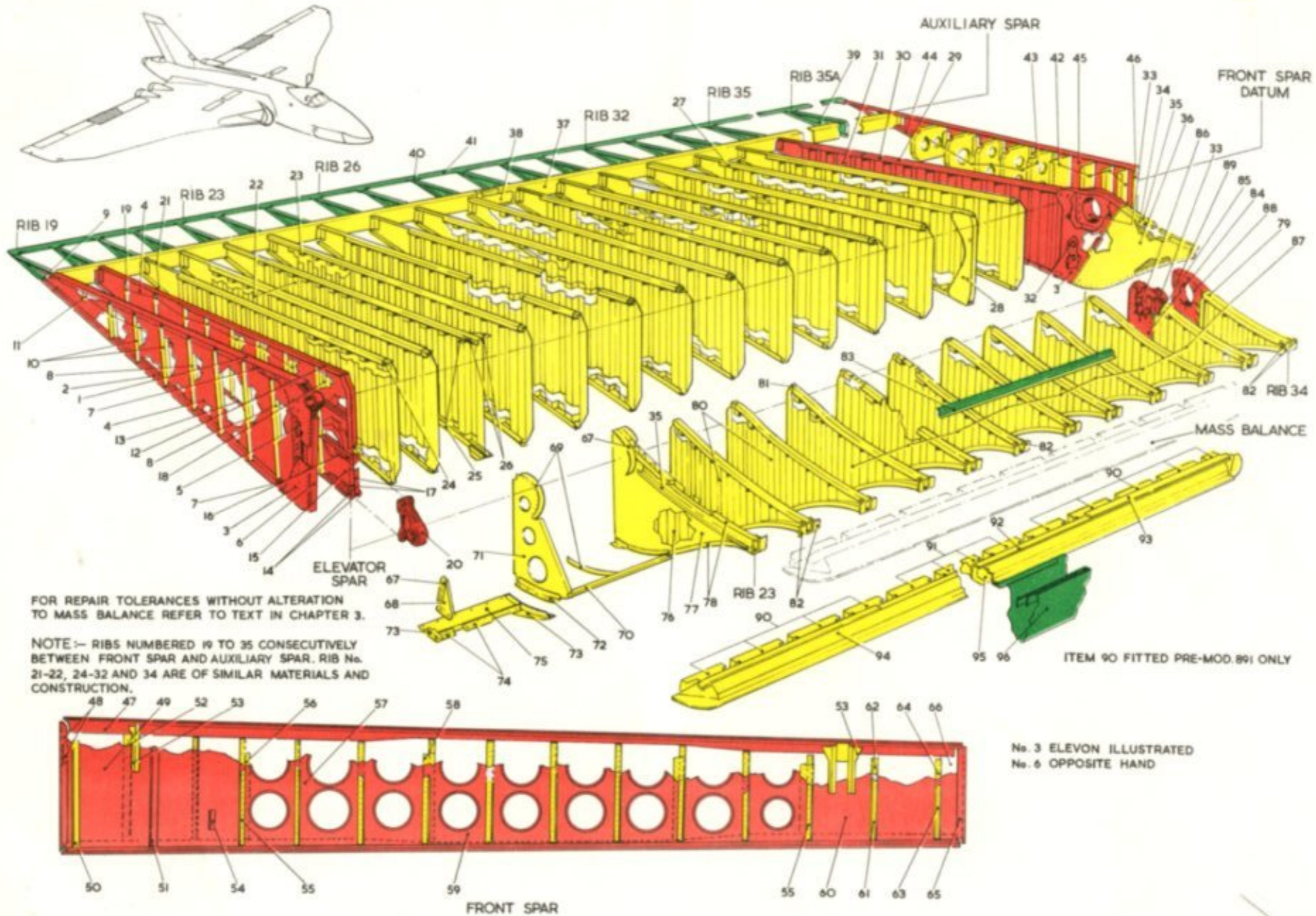


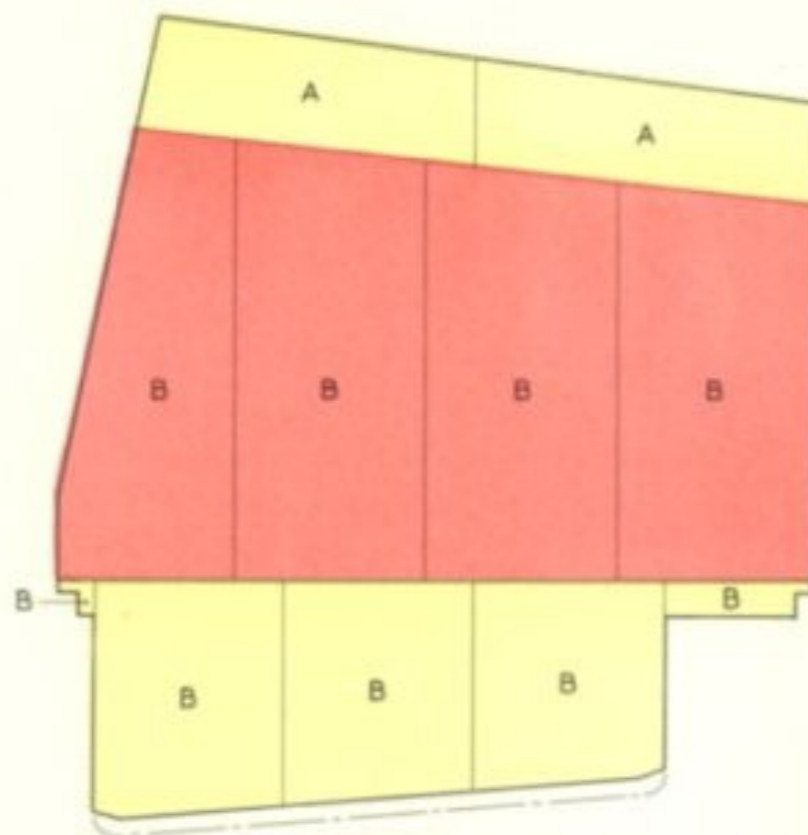
Fig. A335A Outboard elevator - No.3 elevon (No. 6 opposite hand)

RESTRICTED

Sheet 2
8/2
 (37)

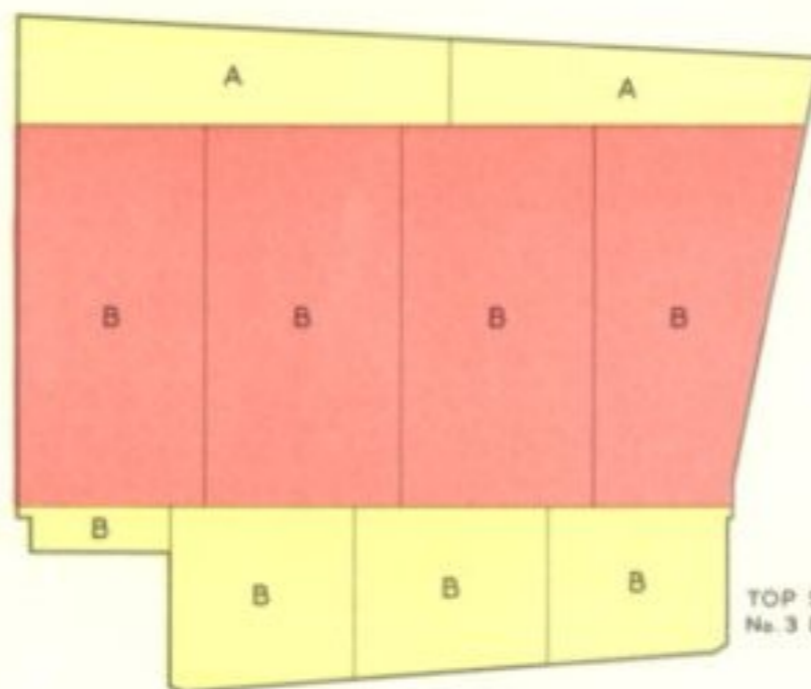
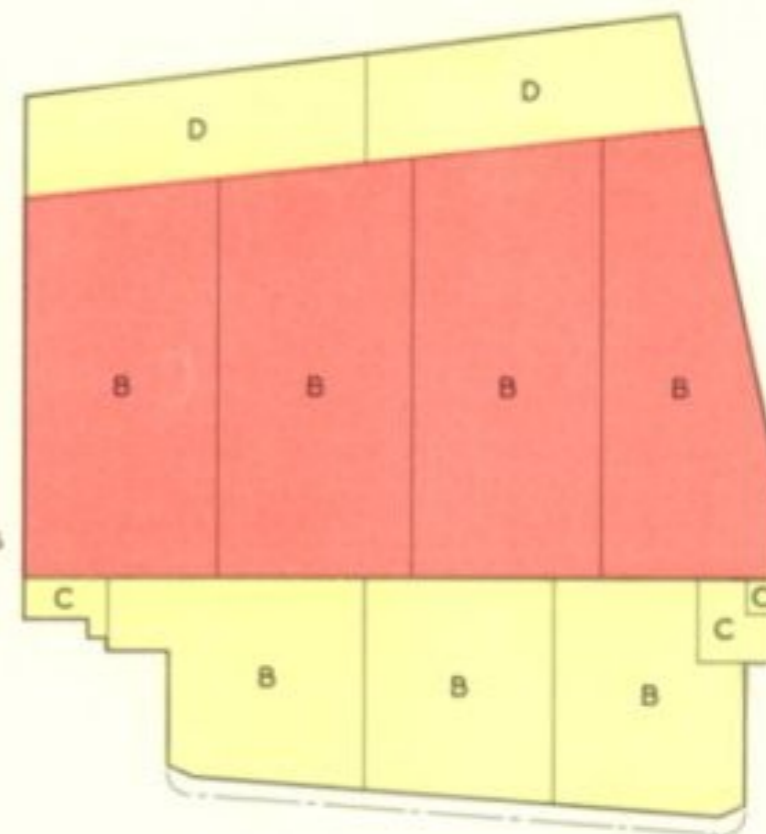
FOR REPAIRS SEE FIG. 103 AND FIG. 104
DAMAGE IN AREAS OF CONCENTRATED
RIVETING MUST BE REPAIRED WITH
JOINTS ARRANGED OUTSIDE THE AREA

SKIN REFERENCE		
LETTER	S. W. G.	MAT. SPEC.
A	22	D.T.D. 118 A
B	18	D.T.D. 626
C	18	L72
D	22	L72



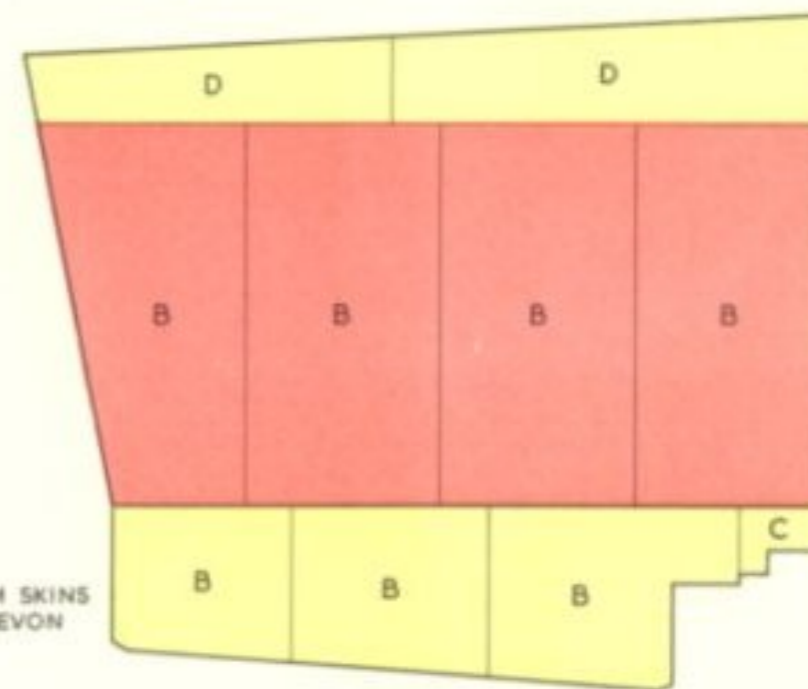
TOP SKINS
No. 4 ELEVON

BOTTOM SKINS
No. 4 ELEVON



TOP SKINS
No. 3 ELEVON

BOTTOM SKINS
No. 3 ELEVON



NEGLECTIBLE DAMAGE		
COLOUR	DENTS	DIST. APART
RED	0.025 IN.	6.0 IN.
YELLOW	0.05 IN.	6.0 IN.
GREEN	—	—

FOR REPAIR TOLERANCES WITHOUT
ALTERATION TO THE MASS BALANCE
REFER TO TEXT IN CHAPTER 3.

FIG. A 335B. No. 3 & 4 elevon skins (No. 5 & 6 opposite hand)

RESTRICTED

NOTE:— REPAIR JOINTS MUST BE MADE A MINIMUM OF 18 IN. FROM NATURAL TERMINATION JOINTS AND ON AN UNTAPERED SECTION OF STRINGER

NOTE:— FOR WEATHERPROOFING OF COMBINED STRINGER AND SKIN REPAIR SEE TEXT IN PART I, CHAP. I

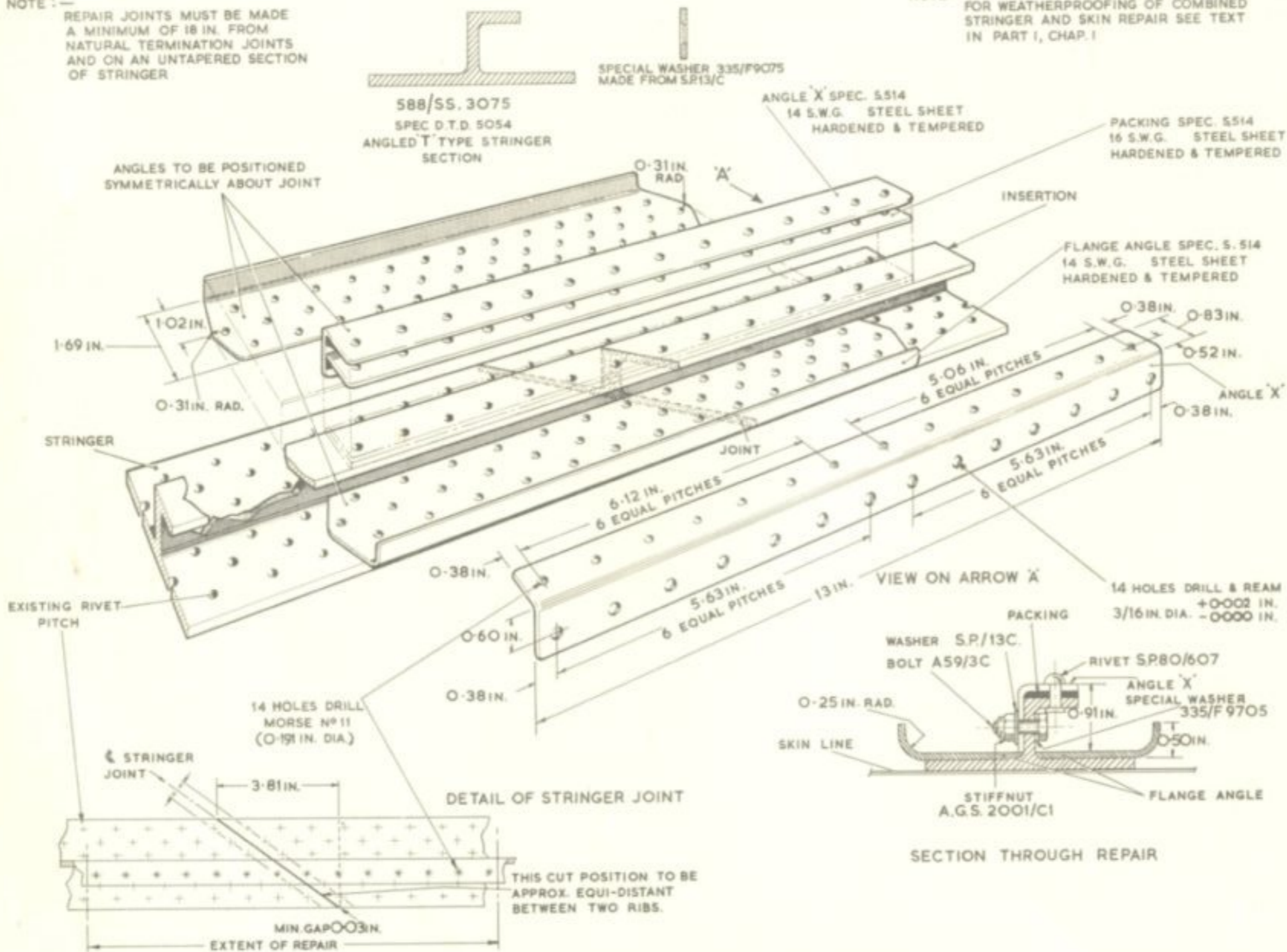
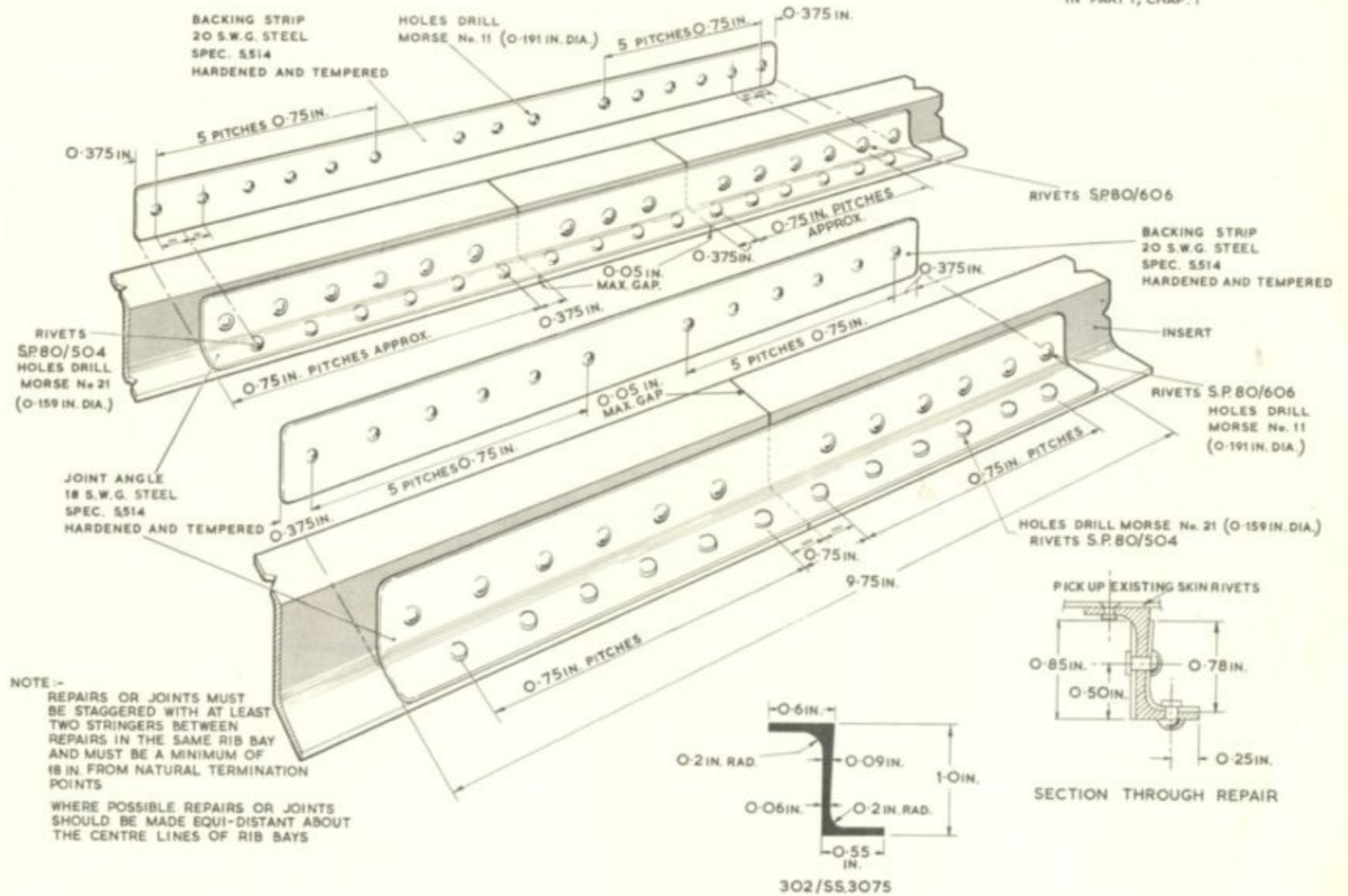


FIG. A 371. Angled T-section stringer repair (588/SS.3075)

RESTRICTED

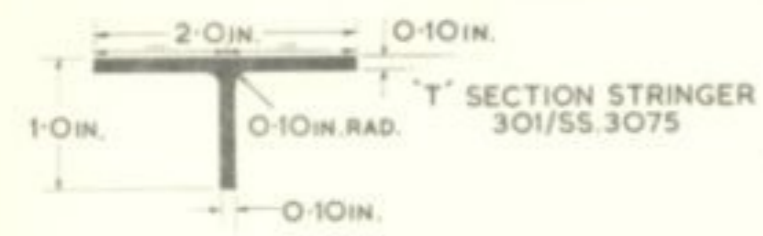
NOTE :-
 FOR WEATHERPROOFING OF COMBINED
 STRINGER AND SKIN REPAIR SEE TEXT
 IN PART 1, CHAP. 1



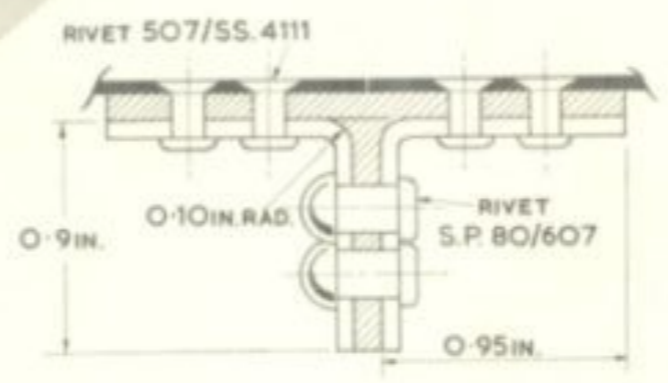
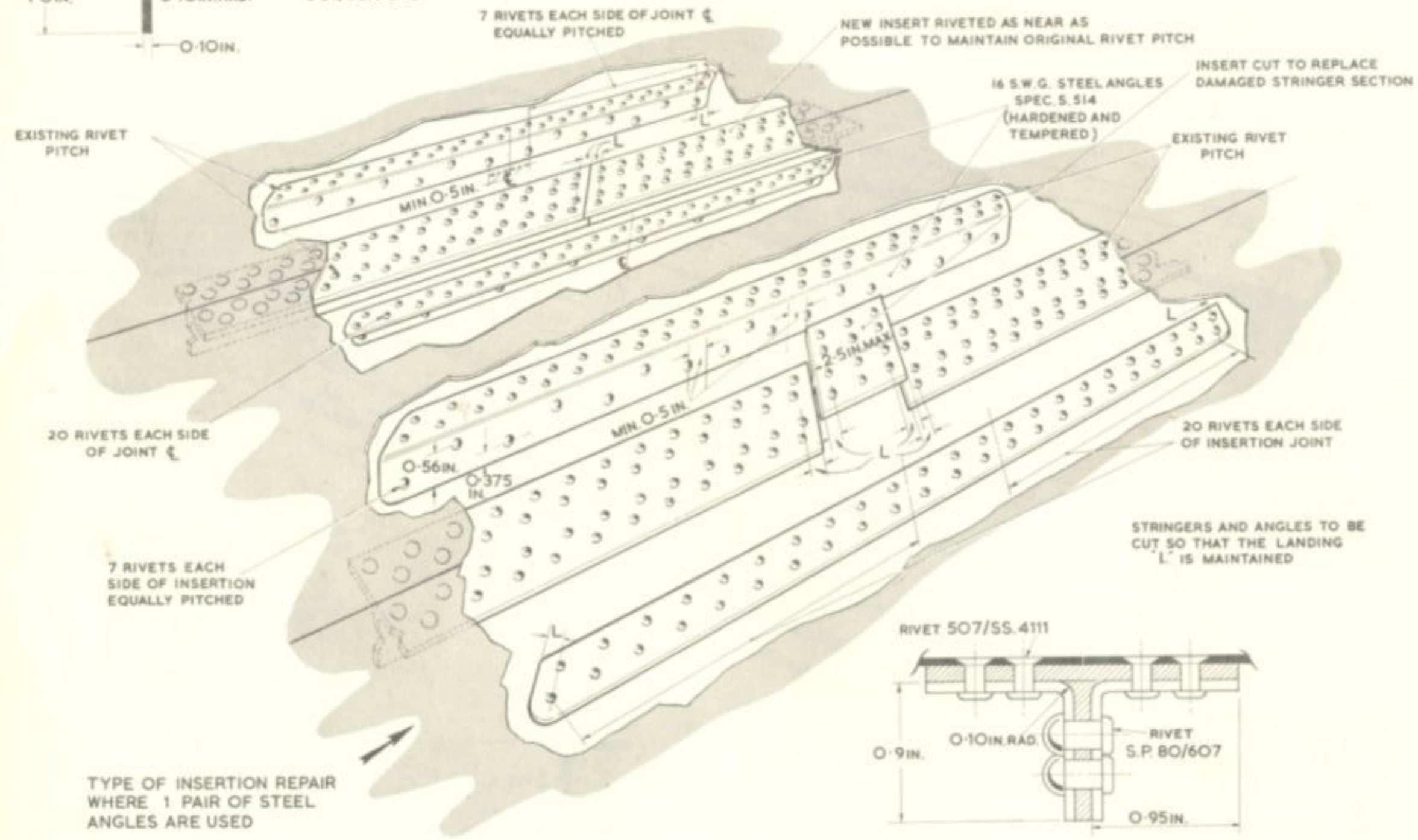
NOTE :-
 REPAIRS OR JOINTS MUST
 BE STAGGERED WITH AT LEAST
 TWO STRINGERS BETWEEN
 REPAIRS IN THE SAME RIB BAY
 AND MUST BE A MINIMUM OF
 18 IN. FROM NATURAL TERMINATION
 POINTS
 WHERE POSSIBLE REPAIRS OR JOINTS
 SHOULD BE MADE EQUI-DISTANT ABOUT
 THE CENTRE LINES OF RIB BAYS

FIG. A 372. Z' section stringer repair (302 SS. 3075)

RESTRICTED



NOTE- THIS REPAIR IS APPLICABLE TO AREAS WHERE 5/32 IN. RIVETS ARE USED FOR SKIN ATTACHMENT



NOTE- FOR WEATHERPROOFING OF COMBINED STRINGER AND SKIN REPAIRS SEE TEXT IN PART 1, CHAPTER 1.

$L = \frac{1}{2}$ EXISTING RIVET PITCH

FIG. A 373. 'T' Section stringers - insertion repairs (301/SS. 3075)

RESTRICTED

NOTE:- THIS REPAIR IS APPLICABLE WHERE 3/16 IN. RIVETS ARE USED FOR SKIN ATTACHMENT.

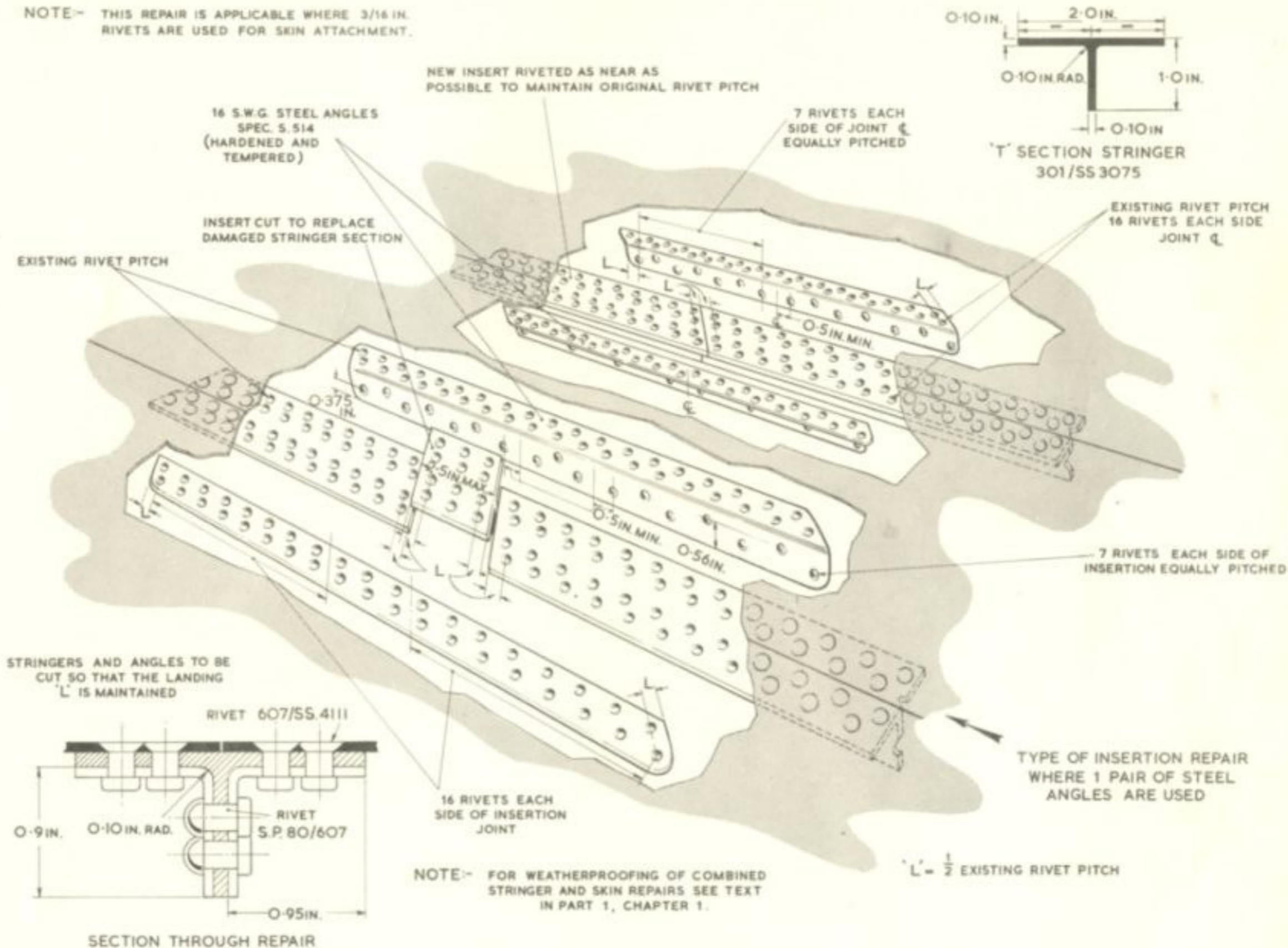


FIG. A 373A. T Section stringers - insertion repairs (301/SS.3075)

RESTRICTED

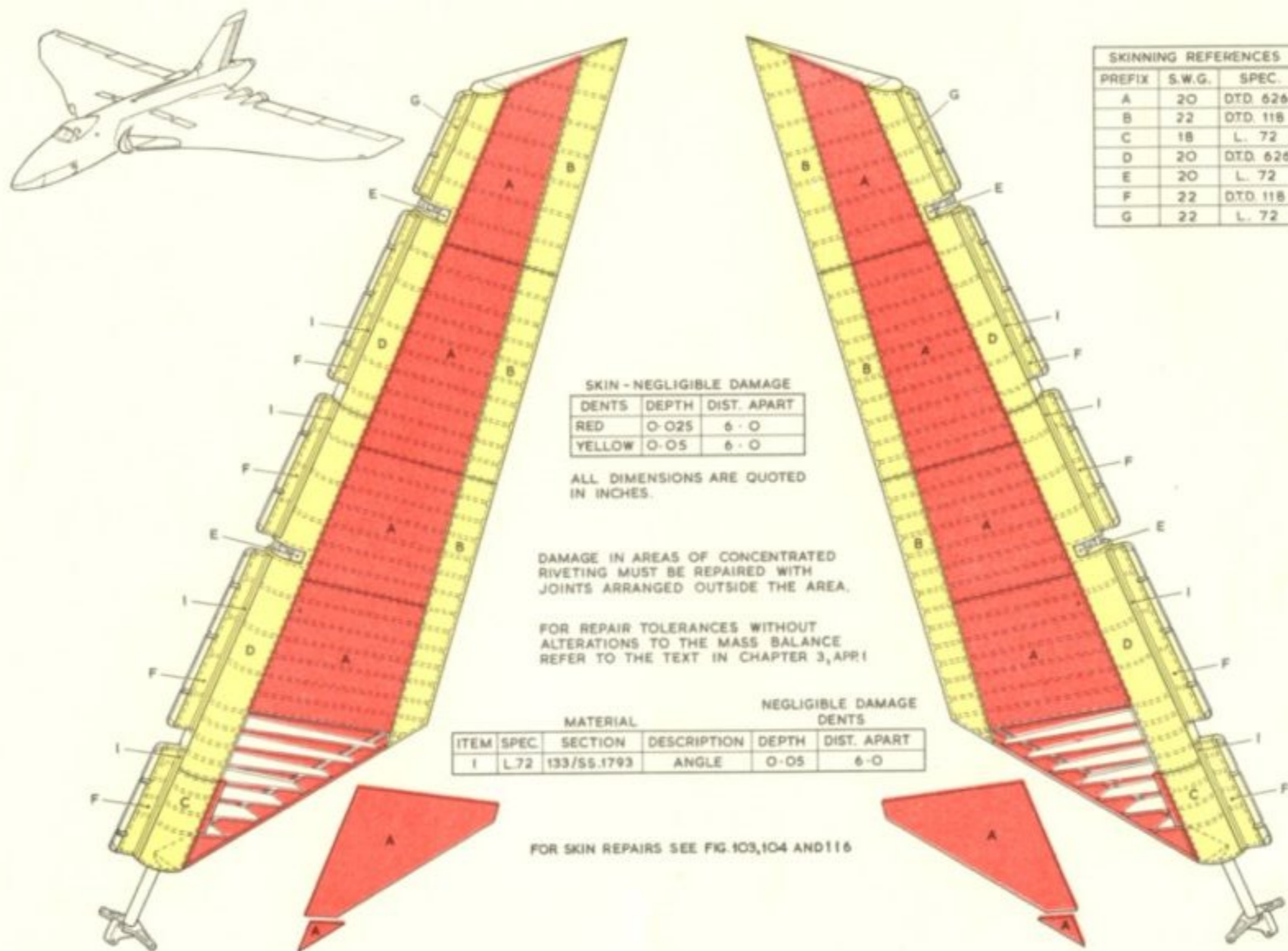
Chapter 4

TAIL UNIT

LIST OF CONTENTS

(To be issued later)

RESTRICTED



SKINNING REFERENCES		
PREFIX	S.W.G.	SPEC.
A	20	DTD 626
B	22	DTD 118
C	18	L. 72
D	20	DTD 626
E	20	L. 72
F	22	DTD 118
G	22	L. 72

SKIN - NEGLIGIBLE DAMAGE		
DENTS	DEPTH	DIST. APART
RED	0.025	6.0
YELLOW	0.05	6.0

ALL DIMENSIONS ARE QUOTED IN INCHES.

DAMAGE IN AREAS OF CONCENTRATED RIVETING MUST BE REPAIRED WITH JOINTS ARRANGED OUTSIDE THE AREA.

FOR REPAIR TOLERANCES WITHOUT ALTERATIONS TO THE MASS BALANCE REFER TO THE TEXT IN CHAPTER 3, APR 1

MATERIAL				NEGLIGIBLE DAMAGE DENTS	
ITEM	SPEC.	SECTION	DESCRIPTION	DEPTH	DIST. APART
I	L.72	133/55.1793	ANGLE	0.05	6.0

FOR SKIN REPAIRS SEE FIG. 103, 104 AND 116

FIG. A 405 D. Rudder Skinning
RESTRICTED

Chapter 5

ALIGHTING GEAR

LIST OF CONTENTS

(To be issued later)

RESTRICTED

Chapter 7

SYSTEMS

LIST OF CONTENTS

(To be issued later)