

CHAPTER 1

CHAPTER I

GENERAL

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CHAPTER 1

GENERAL INFORMATION

Description

1. The Vampire Mk. 30 aircraft is a twin-boom single seat monoplane interceptor fighter, propelled by a turbo jet unit located at the rear of the fuselage behind the pilot.

The wing is of all-metal construction and fully cantilever; the fuselage, of monocoque construction, comprises an inner and outer skin of plywood sandwiching balsa planking, and is isolated from the turbine unit by a light alloy bulkhead.

Light alloy cowling completely covers the engine, and forms a continuation of fuselage lines ending at the jet orifice.

The fins, rudders, tailplane and elevator are all constructed of light alloy, and are carried by the monocoque tail booms.

The tricycle landing gear is fully retractable.

Ground Handling

2. The aircraft may only be towed when the special towing equipment (Part No. Y00304A, Ident. No. W4G/25085), arm, nose steering is available. The towing arm is attached to the nose wheel spools and secured with two latches. The maximum permitted angle of the towing arm is 20° either side of the forward towing position.

For safety, and ease in manoeuvring, a fitter should sit in the cockpit to operate the wheel brakes. These are operated pneumatically and are applied by operation of the lever on the Control Column. A parking catch is mounted next to the brake lever, and differential control is obtained by operating the rudder pedals.

Support of Structure

3. Before attempting any structural repair, consideration should be given to the effect on the structure caused by the removal of members; any extensive repair will require the provision of adequate support to prevent distortion.

Slinging

4. See A.A.P. No. 828, Fig. 1/8.

Jacking and Trestling

5. See A.A.P. No. 828, Fig. 1/9.

Equipment, Ground Handling

6. See A.A.P. No. 828, Sectn. 4, Chap. 3.

Cracks in Structure

7. Cracks in either metal or wooden members are liable to spread unless properly checked, and careful routine inspection must

be made to detect such cracks. Guidance in methods to be used in discovery of cracks will be found in A.P. 1464A, Vol. 1, Part 3, Sectn. 13, Chap. 2. Cracks of a negligible nature in metal components must have $\frac{1}{8}$ in. dia. holes drilled at extremities, and cracks which affect the fibres in wooden members in any way must be repaired by the methods described later for the members concerned.

NOTE: As each defect is found, it should be ringed with chalk or pencil to avoid overlooking during repair operations.

Timber Deterioration and Corrosion

8. Before assembling a structure after repair, search should be made for signs of corrosion or, in the case of wooden members, for evidence of timber deterioration. Where the surface is covered with enamel, a clue to corrosion will be found by the flaking of the paint under thumb pressure.

Timber may show signs of discolouration or show dampness, and repair or re-protective treatment must be effected. The appropriate protective treatment for the various members of the aircraft is set out in Table No. 1 and explained in detail in Table No. 2, and the notes which follow.

After the completion of any repair which causes the exposure of a raw ply edge to water soakage or in the case of any external patch repair to the fuselage, the surface exposed must be treated with Tropic Proofing K4/10612 (see Treatment 'O', Table No. 2), and allowed to dry for at least 4 hours before finally doping fabric over the repaired area.

This treatment must be regarded as a highly important procedure to be undertaken with every care in its application.

Gluing

9. Synthetic resin cement to Specification DTD. 484 (latest issue) should be used for all repairs to wooden components.

The methods and mixes used in the Vampire are those set out in R.A.A.F. Process Specification K. 24. For further information regarding application of synthetic resin glue, see A.P. 2662A, Sectn. 3, Chap. 31, which details general notes on gluing and cramping, accelerated gluing schemes using hot wire, radiant heat, steel foil, and electric blanket. It should be noted that the information in A.P. 2662A is for aero-lite glues and the mixing and application instructions are therefore not directly applicable.

Before making repairs, the surface should be clean and true. Protective covering and the old glue must be scraped off, and the surfaces sanded to achieve good joints.

It is recommended that operatives wear protective covering on hands, as removal of hardened glue could lead to skin irritation. Operatives who have used the casein type of glue will, however, appreciate the change over to the synthetic resin type, which is less detrimental to the skin.

Preparation for Patch Repairing (Plywood)

10. Before a ply patch is offered up to a repair, the mating ply surface must be scraped clean (see paras. 8 and 9) and the surface moistened to raise the grain.

Ply Bending

11. When a plywood panel with a pronounced curvature has to be renewed, it will be found difficult to bend a flat panel to shape. A former should be shaped to reproduce the requisite curvature and the panel is then bradded over the former after being steamed for a suitable period; it should be left on the former until perfectly dry.

The use of plywood strips (see Fig. 1/1) bradded through the panel to the former will be found to assist in shaping.

Scarf Joints in Wooden Components

12. When making scarf joints, the taper must be at least 1 in 15 unless there is a specific instruction otherwise on the drawing illustrating the repair. Wooden packing members should always be fixed behind any ply when cutting and making the joint, to ensure an even taper and a true edge.

Woodscrew Holes

13. When old screw holes are picked up in securing a member, the next larger size or $\frac{1}{4}$ in. longer screws must be used. See Fig. 1/3 for screwing data.

Drainage Holes

14. Take care when repairing a wooden component lest an air-locked compartment is created. No. 30 drill holes should be drilled at the lowest corner in any compartment unavoidably created and the edges of the holes should be treated with K4/10612 (Tropic Proofing Lacquer).

Sheet Metal Repairs

15. These remarks are of a general nature and are complementary to those dealing with particular components and the

chapters following.

- (a) Repair material used is to be the same specification as the damaged sheet and attachment medium is to be of the same metal.
- (b) Protective treatment—see para. 27.
- (c) Methods of riveting, faults to avoid, and removal of rivets, etc., in addition to notes in para. 25, see A.P. 1982A, Standard Technical Training Notes.
- (d) Before commencing a repair, clean up the damaged area, ensure that $\frac{1}{8}$ in. dia. holes drilled at end of cracks do definitely terminate the cracks. Remember that cracks in sheeting may indicate internal members are damaged. Dress local distortion back to shape with a mallet, or hammer with wooden block, taking care not to start further fractures. Cut and file all ragged holes to smooth regular shapes, preferably with large corner radii.

16. Note that repairs in sheet metal for very small damage, are concerned more with restoring the original stiffness rather than with carrying the load across the opening, whereas repairs to larger damage must always restore the lost strength of the sheet.

17. Metal skins normally are all manufactured from sheet to Specification DTD. 390; where desired, this can be repaired or replaced with sheet of Specification DTD. 610.

Bowed Tubes

18. The limit of bowing in tubular members which can be considered negligible is 1 in 600. Tubes which are bowed to an extent of 1 in 15 maximum, need not be replaced if they can be straightened to an eccentricity of 1 in 600. When this is not possible, or when tubes develop cracks in straightening, the damaged tubes must be replaced. Bowed tubular members should be cold straightened. Engine mounts are dealt with separately, see Chap. 2.

Heat Treatment

19. Light alloy rivets to Specification DTD. 327 which are used on the aircraft, are supplied in the finally heat-treated condition and require no further treatment before use. When using duralumin rivets or alclad sheet in repairs, they must be heat-treated before forming. For information on heat treatment of light alloys, see Aircraft Engineering Instruction, Part 1, Sectn. 1, Instn. Nos. 5 and 6.

Fig. 1/4 shows the type of rivets used on

this aircraft and a certain amount of data is given for general information.

Canopy

20. Repairs to the canopy (perspex and frame) must not be attempted. Any damage will necessitate the fitting of a complete new canopy. See A.P. 2656A, Vol. 1, Sectn. 13, for care of Transparent Panels, and A.A.P. No. 828, Sectn. 5, Para. 147, for fitting a replacement canopy.

Wear Limits

21. Certain limits of wear have been laid down for various attachment holes and fittings, and details of these are listed in the tables in each chapter. The amount of permissible wear is assessed by the use of special Plug Gauges, details of which and instructions for their application will be found in Figs. 1/5 and 1/6 of this chapter. See also Aircraft Engineering Instruction, Part 1, Sectn. 1, Instn. No. 2.

Glazing and Sealing

22. Bostik 252 is the only compound to be used around the laminated windscreen. On no account must other compounds be used, as these could have a detrimental effect on the laminating compound with resultant clouding of the glass.

For attaching the rubber strip to Inner Flaps, use Bostik 771, which is most suitable for areas likely to be contaminated by kerosene.

For cabin sealing, use Peraclor Primer and Peratol Compound, or Bostik 1751 and 1790. For further information, see A.P. 1464B, Vol. 1, Part 2, Sectn. 4.

Welding

23. All welding repairs should conform to the instruction laid down in the relevant part of A.P. 880. Unless otherwise stated in the text or figure, no welding should be carried out on any existing part or on any replacement part unless the original part was welded in the first instance, and any welding done should be similar to that on the original part. Tack welding, for instance, should be replaced by tack welding.

Fitting of Bolts

24. Care should be taken to guard against overtightening bolts securing fittings to wooden members in the aircraft.

All bolts must be a good fit, and care should be taken to ensure that all bolts have a sufficient length of plain shank for bearing. Where self-locking or slotted nuts are not used, the projecting end of the threaded portion should be burred over lightly, or centre punched in 3 places. For additional information regarding locking of bolts, see

D.T.S. Design Memo C. 90, also Aircraft Engineering Instructions, Part 1, Sectn. 1, Instn. Nos. 8 and 9.

Riveting

25. All rivets should be a neat fit, swaged centrally and must not be bowed internally. The riveting must copy that in the nearest parallel edge of the sheet in regard to type, diameter and pitch. Rivet landings—distance between centres of rivets and edge of material—must not be less than twice the rivet diameter.

Before riveting, draw the sheets firmly together to ensure correct alignment of holes and hold in position with grippers or small nut, bolt and washer assemblies. Always close the corner rivets first, then the middle ones, and then proceed to halve the distance each time, as the action of riveting tends to stretch the metal. If rivets were closed consecutively, the final holes in a row might not line up.

Methods of riveting, faults to avoid, and rivet removal are described in Standard Training Notes, A.P. 1982A. Attention is also drawn to Para. 9 in Chap. 6 of this publication (Wing Rivets).

Marking Off

26. New parts which are made up for the replacement of members or fittings should be accurately marked off on a surface plate to the dimensions given in these instructions or in the appropriate major repair drawings which are issued from time to time.

Care should be taken when scribing to avoid heavy marking of the material, as this tends to weaken the material and may possibly develop into a crack. (See A.P. 1464B, Vol. 1, Part 2.)

Protective Treatment

27. Protective treatment must be given to repaired parts, and to the completed repair in accordance with information set out in Tables Nos. 1 and 2 at the end of this chapter. Remember that the exterior paint finish presents a highly efficient aerofoil surface in addition to weather protection; therefore, in the event of repairs being carried out, fill and rub down to build a surface blending in with adjacent surfaces.

For further information, see A.P. 1464D, Vol. 1, Sectn. 1, and A.P. 2656A, Sectn. 9, Chap. 2.

Major Repairs

28. Repair schemes outlined in this volume are of a minor character and schemes of a major character will be issued by Instruction Leaflet as and when required.

TABLE 1
PROTECTIVE TREATMENT

(See Table No. 2 for explanation of Symbol 'C', etc.).

Component.	Position.	Treatment.
FUSELAGE	Internal—Cockpit Internal—Remainder External	'C' 'B' See D.H. Dwgs. 00Z5 and Z001410
WING (including Wing Tip, Aileron, etc., except as below)	Internal External	A.P.S. 10 'E' and D.H. Dwg. 00Z3
Inside of Tank Bays	—	'A'
Inside of Wheel Well	—	'D'
WOODEN BULKHEADS	Internal	None
ELEVATOR, TAILPLANE AND BOOMS, FIN, SPLIT FLAPS, AIRBRAKES, RUDDER	Internal External	A.P.S. 10 'E' and D.H. Dwg. 00Z3
METAL FUEL TANK (including Drop Tanks)	Internal External	None None if self-sealed, otherwise 'E'
COWLINGS: Engine and General (including Chassis)	Internal External	'D' 'E' and D.H. Dwg. 00Z3
FLEXIBLE CABLES	—	'F'
CHASSIS STRUCTURE	—	'D'
ACCUMULATOR STOWAGE AND ADJACENT PARTS	—	'J' over existing treatment
LIGHT ALLOY STAMPINGS, FORGINGS AND PARTS MADE FROM BAR	—	'G' after machining
STEEL STAMPINGS, FORGINGS, AND PARTS MADE FROM BAR	—	'H' after machining
MAGNESIUM ALLOY CASTINGS	—	'I', and see Note 19 in Appendix
FITTINGS MADE FROM STEEL PLATE	—	'H' or 'U' or 'C'
FITTINGS MADE FROM DURAL PLATE	—	'G'
STEEL TUBING (except Chassis and Hydraulic Pipes)	Internal External	'F' 'U' or 'C'
STEEL SPRINGS (except Stainless) and where otherwise specified	—	'H'
AMMUNITION BOX, INTERIOR	—	Synthetic Paint, see D.H. Dwg. 00Z7
MILD STEEL TUBING USED IN PIPING SERVICES FOR MINERAL OIL	Internal External	Fluid hydraulic mineral, DTD. 585 'U'
INSTRUMENT AND ELECTRICAL PANELS	—	'C'

TABLE 2
PROTECTIVE TREATMENT

Symbol.	Process Specn.	Descriptive Application.
A	DTD. 901	Cleaning (Deoxidene).
	R.A.A.F. K7	Spray one coat Zinc Chromate Primer, Stores Ref. K3/175, thinned with two parts Chromate Thinners, Stores Ref. K3/176.
	DTD. 63A	Spray one coat White Enamel, Stores Ref. K3/156, thinned with equal parts Thinners, Stores Ref. K3/174.
B	R.A.A.F. K19	Brush one coat Copper Naphthenate Solution, Stores Ref. K4/37.
	—	Brush or spray two coats Tropic Proofing Lacquer, Stores Ref. K4/10612 (thinned 30% with Thinners, Stores Ref. K3/174 if spray). Air dry 30 mins. between coats.
	R.A.A.F. K18	Apply two coats Cockpit Green Enamel, Stores Ref. K3/322 (thinned 50% with Thinners, Stores Ref. K3/174, if necessary).
C	ON WOOD—	
	R.A.A.F. K19	Brush one coat Copper Naphthenate Solution, Ref. K4/37.
	—	Brush or spray two coats Tropic Proofing Lacquer, Ref. K4/10612 (thinned 30% with Thinners K3/174 if spray). Air dry 30 mins. between coats.
	R.A.A.F. K18	Apply two coats Non-Reflecting Matt Black Enamel, Ref. K3/321 (thinned 50% with Thinners K3/174 if necessary).
	ON METAL—	
	DTD. 901	Cleaning (Deoxidene for Alclad).
D	R.A.A.F. K7	Spray one coat Zinc Chromate Primer, Ref. K3/175, thinned with two parts Chromate Thinners, Ref. K3/176.
	DTD. 63A	Spray two coats Aluminium Enamel, Stores Ref. K3/162, thinned with equal parts of Thinners, K3/174.
	DTD. 901	Cleaning (Deoxidene for Alclad).
E	R.A.A.F. K7	Spray one coat Zinc Chromate Primer, Ref. K3/175, thinned with two parts Thinners, Ref. K3/176.
	—	External finish and markings; see D.H. Dwgs. 00Z3 and Z003527.
F	DTD.279A	Treat with Lanoline Pigmented Resin Solution, Stores Ref. K4/10036.
G	DTD. 901	Clean.
	DTD. 910	Anodic treatment. NOTE: DTD.910B, Part 3 (Sulphuric Acid Process) is NOT to be used for crack detection on castings or on assemblies.
H	DTD. 901	Clean.
	DTD. 904	Cadmium Plate.
I	DTD. 911	Chromate treatment.
	R.A.A.F. K7 }	Same treatment as for 'D'.
	DTD. 63A }	
J	B.S. — X19	One or two brush coats of Acid and Alkali Resistant Paint, Stores Ref. K4/86. Air dry four hours.
O	—	Apply two brush or spray coats of Tropic Proofing Lacquer, Ref. K4/10612 (reduced 30% with Thinners K3/174 for spray), to end and side grain of exposed timber. Air dry for 30 mins. before application of dope.
R	See D.H. Dwg. 00Z5 and Z001410	Mercerised Cotton Fabric covering, weather proofing and doping scheme over plywood surfaces.
U	DTD. 901	Clean.
	R.A.A.F. K7	Spray one coat Chromate Primer, Ref. K3/175, thinned with two parts Thinners, Ref. K3/176. Air dry for 3 hours.
	R.A.A.F. K18	Spray two coats Cockpit Green, Ref. K3/322, thinned 50% with Thinners, Ref. K3/174.

APPENDIX TO TABLES 1 & 2

NOTES ON PROTECTIVE TREATMENT

1. Aluminium Rich Alloy Castings to Spec. DTD.298 and DTD.304 should be anodised before machining and painted 'D' after machining. Casting to Spec. DTD.300 should not be anodised but painted 'D' after machining.
NOTE: Omit paint 'D' from parts in Fuel, Oil or Hydraulic Systems where in contact with the fluid.
2. One coat of Seaming Compound (DTD. 369A), R.A.A.F. Ident No. K4/10026, is to be used on contacting surfaces of all dissimilar metals except bolts.
3. Aluminium Alloy and all Steel fittings bolted or screwed to wooden parts must be assembled with a wet coat of Tropic Proofing Lacquer, R.A.A.F. Ident No. K4/10612, on the contact surfaces of wood and fittings.
4. Tubing to DTD. 310 need not be anodised.
5. Fittings, bolts, pins, and screws which are sliding fits on, or in, any other components, are to be painted after assembly in common with surrounding structure.
6. Anodised parts may be drilled, punched or sheared after anodising.
7. Non-corrodible parts to Spec. DTD. 166, DTD.171 and S-80 require no treatment.
8. All brass screws in contact with aluminium alloy are to be cadmium plated.
9. Brass in contact with aluminium and magnesium alloys is to be cadmium plated and contacting surfaces are to be treated with seaming compound DTD. 369A, R.A.A.F. Ident No. K4/10026.
10. Stampings and forgings in light alloy and steel and magnesium castings require painting in common with surrounding structure after assembly.
11. In doping schemes for fabric-covered ply surfaces, thinners B.A.L.M. Brushing S-13303 may be substituted for thinners, R.A.A.F. Ident No. K3/174.
12. Bolt holes through wooden members are to be treated with Lanoline or Shell Rust Seal No. 300, Symbol 'F', R.A.A.F. Ident No. K4/10036.
13. All bolts or screws cut off or filed are to be protected by Zinc Chromate Primer K3/175 on unplated parts.
14. All Drying Tables tabulated may be varied at the discretion of an Engineer Officer, having regard to particular weather conditions.
15. For proofing canvas, webbing, tie cords, thread, etc., used for covers, and all fabric of felt, use Zinc Naphthenate Solution to DTD. 921, Sections 1 and 2, or approved alternative.
16. For treatment of screw threads on unions, etc., in systems, see Aircraft Engineering Instruction, Part 6, Sectn. 1, Instn. No. 1, Para. 12.
NOTE: Seaming Compound DTD. 369A must not be applied.
17. For protective treatment of Breeze plugs and sockets, see D.H. Dwg. No. Z981700.
18. Under no circumstances must paint be introduced to internal surfaces of ammunition feed systems.
19. Where Treatment 'I' on magnesium alloy castings or bar has been removed during any fitting operation, local treatment with selanious acid to DTD. 911 must be used.
20. Aluminium and alclad parts on which no finish is called for must be treated with at least one coat of Zinc Chromate Primer to R.A.A.F. Specn. K7. Before application, the parts must be cleaned and etched with deoxidene, and finish treatment will be required to match cockpit or external surfaces, etc.
21. Alternative to cadmium plating of steel machined parts — Parkerise P.6, followed by
 one coat primer,
 one coat finish
to match surrounding structure on assembly.
Excepting screw threads and moving contact surfaces, which are to be Parkerised and oiled only.
22. Thinners should be made by the same supplier as the primers and finishers with which it is used.
23. Copper bonding strip to be painted after assembly in aircraft to match surrounding structure.
24. All steel bolts, nuts, split pins, screws and fasteners, unless of non-corrodible material, must be finished with 'H' unless otherwise stated.

TABLE 3
REPAIR MATERIALS

Item No.	Stores Reference.	Part No.	Description.	Size.	Specn.
1.	I31A.1026	—	Birch Ply	1/16"	6V3
2.	I31A.1018	—	Birch Ply	5/64"	6V3
3.	I31A.1028	—	Birch Ply	1/8"	6V3
4.	I31A.1010	—	Spruce: Available random widths and lengths up to 9.0 feet	1/4"	DTD. 36B Grade 'A'
5.		—		3/8"	
6.		—		1/2"	
7.		—		5/8"	
8.		—		3/4"	
9.		—		7/8"	
10.		—		1.0"	
11.		—		1.5"	

METAL SHEET:

12.	I1.9625	—	Manganese Aluminium Alloy	18 SWG	(E)2D629 or DTD. 213A
13.	I1.2554	—	Alclad Sheet	10 SWG	DTD. 390 or DTD. 610
14.	I1.2568	—	Alclad Sheet	12 SWG	
15.	I1.2569	—	Alclad Sheet	14 SWG	
16.	I1.2570	—	Alclad Sheet	16 SWG	
17.	I1.2559	—	Alclad Sheet	18 SWG	
18.	I1.2561	—	Alclad Sheet	20 SWG	
19.	I1.2563	—	Alclad Sheet	22 SWG	
20.	I1.2565	—	Alclad Sheet	24 SWG	

SPECIAL SECTIONS:

21.	I2.11218-10	A1154	Reynolds Section Stringer	—	L. 40 or DTD. 364
22.	I2.11222-10	X22	Standard Section	—	
23.	I2.11228-10	NA.7785	Special Section Stringer	—	

RIVETS:

24.	H128F/30267	AS2227/404	Rivet, Snap Head	1/8" dia.	DTD. 327
25.	H128F/61505	AS2227/405	Rivet, Snap Head	1/8" dia.	
26.	H128F/30269	AS2227/406	Rivet, Snap Head	1/8" dia.	
27.	H128F/30271	AS2227/408	Rivet, Snap Head	1/8" dia.	
28.	H128F/31594	AS2227/504	Rivet, Snap Head	3/32" dia.	
29.	H128F/30281	AS2227/506	Rivet, Snap Head	3/32" dia.	
30.	H128F/30283	AS2227/508	Rivet, Snap Head	3/32" dia.	
31.	H128F/31781	AS2227/605	Rivet, Snap Head	3/16" dia.	
32.	H128F/30288	AS2227/606	Rivet, Snap Head	3/16" dia.	
33.	H128F/30290	AS2227/608	Rivet, Snap Head	3/16" dia.	
34.	H128F/30236	AS2229/404	Rivet, C's'k Head, 90 deg.	1/8" dia.	
35.	H128F/30238	AS2229/406	Rivet, C's'k Head, 90 deg.	1/8" dia.	
36.	H128F/30240	AS2229/408	Rivet, C's'k Head, 90 deg.	1/8" dia.	
37.	H128F/62252	AS2229/504	Rivet, C's'k Head, 90 deg.	3/32" dia.	
38.	H128F/62071	AS2229/506	Rivet, C's'k Head, 90 deg.	3/32" dia.	
39.	H128F/30249	AS2229/508	Rivet, C's'k Head, 90 deg.	3/32" dia.	
40.	H128F/62072	AS2229/606	Rivet, C's'k Head, 90 deg.	3/16" dia.	
41.	H128F/62264	AS2229/608	Rivet, C's'k Head, 90 deg.	3/16" dia.	
42.	H128F/10412	AS2230/404	Rivet, C's'k Head	1/8" dia.	
43.	H128F/5735	AS2230/406	Rivet, C's'k Head	1/8" dia.	
44.	H128F/6336	AS22301408	Rivet, C's'k Head	1/8" dia.	
45.	H128F/6040	AS2230/505	Rivet, C's'k Head	3/32" dia.	
46.	H128F/6060	AS2230/510	Rivet, C's'k Head	3/32" dia.	
47.	H128F/60385	AGS.2046/406	Rivet, C's'k Head	1/8" dia.	
47(a).	H128F/60393	AGS.2045/408	Rivet, Chobert Snap Head	1/8" dia.	
48.	H128F/60386	AGS.2046/408	Rivet, Chobert C's'k Head	1/8" dia.	
49.	H128F/60389	AGS.2046/508	Rivet, Chobert C's'k Head	5/32" dia.	
50.	H128F/60390	AGS.2046/510	Rivet, Chobert C's'k Head	5/32" dia.	
51.	H128F/62310	AGS.2046/512	Rivet, Chobert C's'k Head	5/32" dia.	
52.	H128F/60396	AGS.2045/506	Rivet, Chobert Snap Head	5/32" dia.	
53.	H128F/60397	AGS.2045/508	Rivet, Chobert Snap Head	5/32" dia.	
54.	H128F/60398	AGS.2045/510	Rivet, Chobert Snap Head	5/32" dia.	
55.	H128F/62312	AGS.2041/508	Rivet, Chobert C's'k	5/32" dia.	S. 1
56.	H128F/62313	AGS.2041/510	Rivet, Chobert C's'k	5/32" dia.	
57.	H128F/62314	AGS.2041/609	Rivet, Chobert C's'k	3/16" dia.	

TABLE 3 (Continued)

Item No.	Stores Reference.	Part No.	Description.	Size.	Specn.
57(a).	H128F/62285	AGS.2049/420BS	Rivet, Tucker C's'k Head	1/8" dia.	DTD. 303
57(b).	H128F/62316	AGS.2049/429BH	Rivet, Tucker C's'k Head	1/8" dia.	
57(c).	H128F/62315	AGS.2049/423BH	Rivet, Tucker C's'k Head	1/8" dia.	
57(d).	H128F/61195	AGS.2051/429BH	Rivet, Tucker C's'k Head	1/8" dia.	DTD. 10B
58.	H128F/60434	AGS.2047/406	1/8" Rivet Shear Pin	—	L. 1 or DTD. 423
59.	H128F/60436	AGS.2047/408	1/8" Rivet Shear Pin	—	
60.	H128F/60423	AGS.2047/506	5/32" Rivet Shear Pin	—	
61.	H128F/60425	AGS.2047/508	5/32" Rivet Shear Pin	—	
62.	H128F/60409	AGS.2047/510	5/32" Rivet Shear Pin	—	
63.	H128F/62311	AGS.2047/512	5/32" Rivet Shear Pin	—	S. 1
64.	H128F/60442	AGS.2042/508	5/32" Rivet Shear Pin	—	
65.	H128F/60444	AGS.2042/510	5/32" Rivet Shear Pin	—	
66.	H128F/60448	AGS.2042/609	3/16" Rivet Shear Pin	—	
66(a).	H128F/60436	AGS.2042/408	1/8" Rivet Shear Pin	—	

SCREWS, WASHERS, ETC.:

67.	H28C/2863	AGS.245/22	Screw	4BA
68.	H28/5315	A16Y/BP	Nut	4BA
69.	H28C/35177	AGS.250/1A	Woodscrew, Brass	No. 3 x 1/4"
70.	W3/1372	—	Brad, Brass	1/2" x 20 SWG
71.	W3/2008	—	Brad, Brass	3/4" x 20 SWG
72.	W3/1371	—	Brad, Brass	1" x 20 SWG
73.	W3/2077	—	Brad, Brass	1/2" x 18 SWG
74.	W3/2079	—	Brad, Brass	3/4" x 18 SWG
75.	W3/2080	—	Brad, Brass	1" x 18 SWG

MISCELLANEOUS:

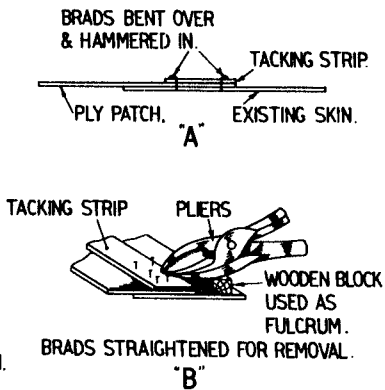
76.	I31A/1001	—	Balsa	(Density 8 1/2 lbs. cb. ft. aircraft quality)
77.	K4/180	—	Glue, Casein	B.S.S.V. 2
78.	I32B/5125	—	Fabric, Mercerised Cotton	36" wide
79.	I32B/5126	—	Fabric, Mercerised Cotton	48" wide
80.	I32B/705	—	Fabric, Mercerised Cotton Strip	2 1/2" wide
81.	I32B/706	—	Fabric, Mercerised Cotton Strip	3 1/2" wide
82.	I32B/682	—	Fabric, Mercerised Cotton Strip	5" wide

MISCELLANEOUS—PROPRIETARY MATERIALS—See also Table No. 3A:

Item No.	Stores Reference.	Description.	D. of Q.
83.	K4/10854	Peratol Sealing Compound N.250, Part 'A'	lbs.
84.	K4/10855	Peratol Activator N.250, Part 'B'	tabs.
85.	K4/10856	Peratol Activator N.250, Part 'C'	pints
86.	K4/10857	Peraclor Primer N.580	lbs.
87.	K4/10858	Peratol Thinners No. 604	pints
88.	K4/10859	Cellon Thermoplastic Adhesive D.3639	pints
89.	K4/10860	Polon Varnish	pints
90.	K4/10861	Titanine Stopper SA3	lbs.
91.	K4/10862	Cellulose Quick-Stop-Putty (BALM299-106)	lbs.
92.	K4/10863	Heavy Body Putty (BALM13260)	lbs.
93.	K4/10864	Glue, Beetle Type 'A'	lbs.
94.	K4/10865	Glue, Beetle Type 'AF'	lbs.
95.	K4/10866	Hardener, Beetle, Violet V.15	lbs.
96.	K4/10867	Hardener, Beetle, Yellow GP.30	lbs.
97.	K4/10868	Hardener, Beetle, Blue 2B	lbs.
98.	K4/10880	Bostik 252, Glazing Compound	lbs.
99.	K4/10881	Bostik 771, Glazing Compound	lbs.
100.	K4/10058	Bostik 292C, Glazing Compound	lbs.
101.	K4/10883	Bostik 1751, Primer	lbs.
102.	K4/10882	Bostik 1790, Filleting Compound	lbs.
103.	K4/10459	Dow Corning Production No. 4	oz.
104.	K4/342	Lanoline	oz.

TABLE 3A

Item.	Proprietary Material used for:
83	Sealing—pressurised points—cockpit.
84	In conjunction with Item 83.
85	In conjunction with Item 83.
86	In conjunction with Item 83.
87	In conjunction with Item 83.
88	Attaching fabric to aileron shrouds.
89	Sealing Breeze plugs at pressurised cabin.
90	Building up surface at wing leading edge, also fuselage.
91	Alternative to Item 90.
92	Stopping screw holes in fuselage.
93-97	See Para. 9, Chap. 1.
98-102	See Para. 22, Chap. 1.
103-4	Internal packing and lubrication of electrical connectors—A.N. and Breeze type.



THE TACKING STRIPS SHOULD BE MADE FROM 1/2 MM. 2 MM. OR 3 MM. PLYWOOD. THEY SHOULD BE BRADDED OVER THE EDGES OF THE PLY PATCH AS SHOWN. ON NO ACCOUNT MUST THESE STRIPS BE GLUED.

THE ADJOINING FACES OF THE TACKING STRIP & PLY PATCH SHOULD BE WELL WAXED TO PREVENT ADHESION.

ALL BRADS SHOULD BE BENT OVER & HAMMERED IN AS SHOWN IN SKETCH "A". TO ENABLE THEM TO BE STRAIGHTENED FOR WITHDRAWAL WITH PLIERS AS SHOWN IN SKETCH "B".

TACKING STRIP & BRADS TO BE REMOVED
AFTER GLUING TIME HAS ELAPSED.

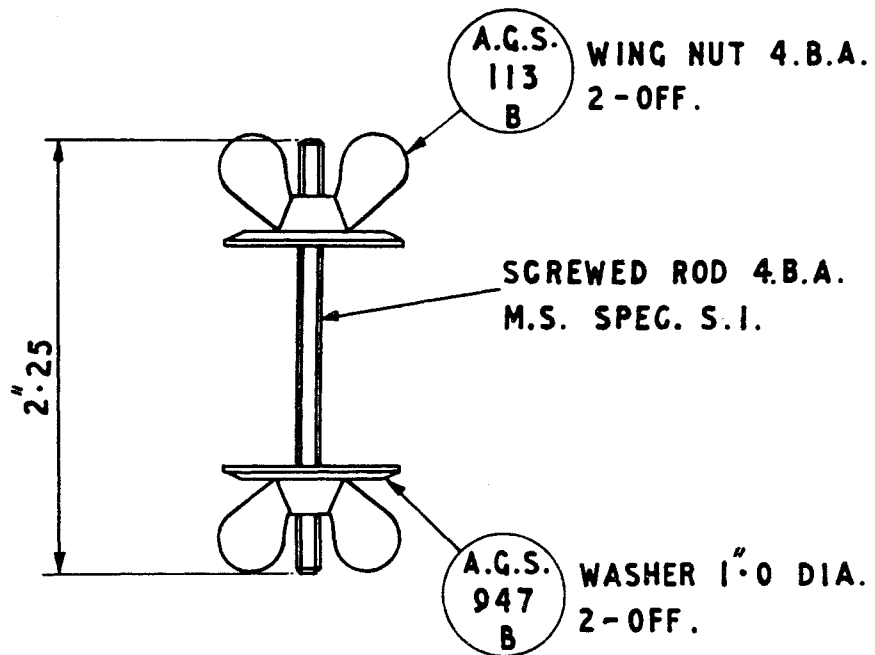
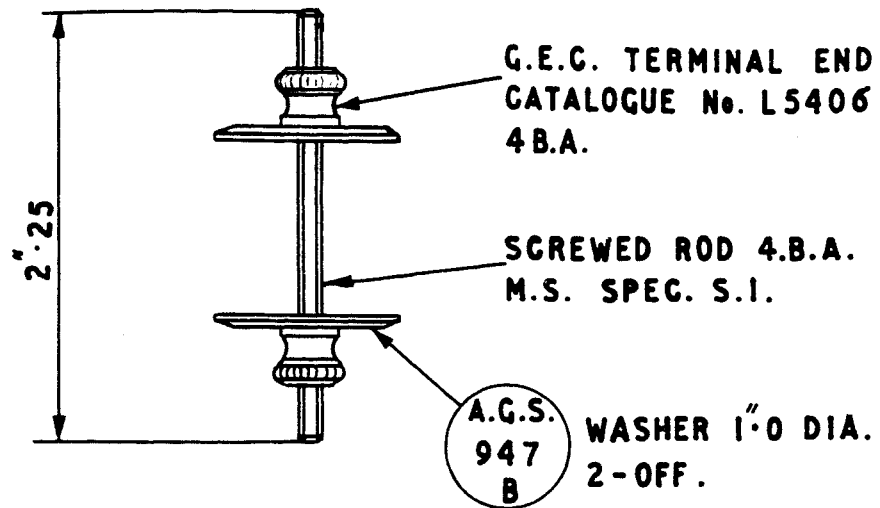
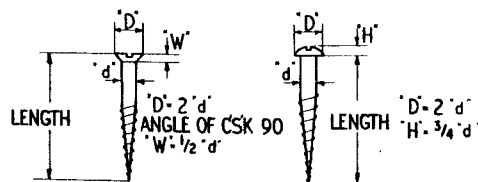
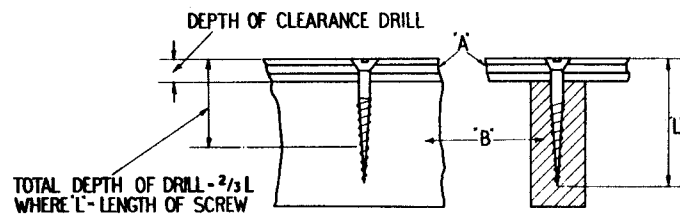


FIG. 1/2

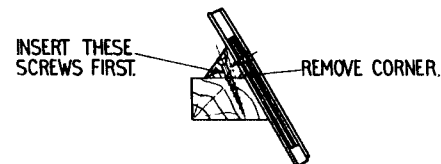
CLAMPING TOOL

FIG. 1/2



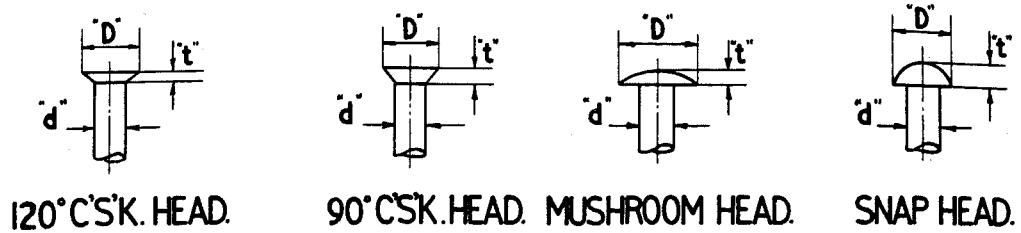
ALL DIMENSIONS IN INCHES.

SIZE OF SCREW	DIA OF SHANK	CLEARANCE HOLE IN 'A'	DRILL SIZE IN 'B'	DEPTH OF CLEARANCE DRILL
No. 4	.108"	No. 31 .120"	No. 44 .086"	FULL DEPTH OF MEMBER 'A'
No. 5	.122"	No. 29 .136"	No. 39 .0995"	
No. 6	.136"	No. 25 .1495"	No. 35 .110"	
No. 7	.15"	No. 19 .166"	No. 25 .125"	
No. 8	.164"	No. 15 .180"	No. 29 .136"	
No. 9	.178"	No. 9 .196"	No. 26 .147"	
No. 10	.192"	No. 3 .213"	No. 22 .157"	
No. 11	.206"	No. 1 .228"	1 1/64"	
No. 12	.22"	15/64"	No. 14 .182"	



INSTRUCTIONS FOR GLUING AND SCREWING JOINTS IN WOODEN MEMBERS.

1. THE SURFACES TO BE JOINED, PARTICULARLY THE GLAZED SURFACES OF PLYWOOD, SHOULD BE SLIGHTLY ROUGHENED WITH GLASS PAPER BEFORE APPLYING GLUE.
 2. ANY DUST FORMED BY THE ROUGHENING PROCESS ON PLYWOOD SURFACES SHOULD BE REMOVED WITH A DAMP CLOTH & THE PLYWOOD ALLOWED TO LIE UNTIL THE WATER STAINS DISAPPEAR.
 3. GLUE MUST NOT BE APPLIED TO A WET SURFACE.
 4. GLUE MUST BE APPLIED IN ACCORDANCE WITH CHAP. I PARA. 5.
 5. WOODSCREWS, WHERE CALLED FOR AT GLUED JOINTS, ARE TO BE INSERTED WHILE THE GLUE IS WET. TACKING STRIPS, IF USED, SHOULD CONTAIN HOLES THROUGH WHICH THE SCREW CAN BE INSERTED.
 6. WHERE CORNER STRENGTHENING BLOCKS ARE ADDED WITH WOODSCREWS AT DIFFERENT ANGLES, THOSE WITH THE MOST WEDGING EFFECT MUST BE INSERTED FIRST. SEE ABOVE FIGURE.
- WHERE PRESSURE IS APPLIED TO OBTAIN GLUED JOINT ON RIGHT ANGLED SURFACES, SUCH AS SCARF JOINTS, IN STRINGERS, CARE SHOULD BE TAKEN TO ENSURE THAT ONE SURFACE IS NOT CLAMPED OR SCREWED TO THE DETRIMENT OF THE OTHER.
8. ANY SURPLUS FILLETS OF GLUE SHOULD BE REMOVED WHILE STILL WET & MUST ON NO ACCOUNT BE REMOVED WITH A CHISEL WHEN DRY.



TYPE OF SOLID RIVET	$\frac{3}{32}$ "	$\frac{1}{8}$ "	$\frac{5}{32}$ "
ALL ROUND HEAD RIVETS	.12"	.16"	.19"
ALL C'S'K. HEAD RIVETS	.05"	.06"	.08"

LENGTH OF RIVET SHANK (PROUD
OF PLATE) REQUIRED FOR RIVETING.

ALL DIMENSIONS IN INCHES									
DIMNS "d"	120° C'S'K. HEAD A.S. 2230.		90° C'S'K. HEAD A.S. 2229.		MUSHROOM H'D A.S. 2228.		SNAP HEAD. A.S. 2227.		
	"D"	"t"	"D"	"t"	"D"	"t"	"D"	"t"	
$\frac{3}{32}$	.193"	.036"	.170"	.041"	.21"	.038"	.16"	.06"	
$\frac{1}{8}$	.256"	.045"	.225"	.053"	.28"	.050"	.22"	.08"	
$\frac{5}{32}$	.318"	.056"	.279"	.065"	.35"	.063"	.27"	.09"	

DIMENSIONS OF RIVETS

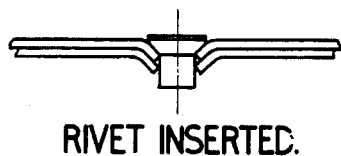
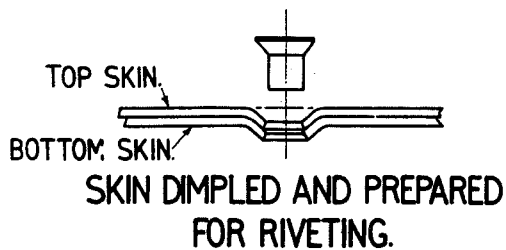
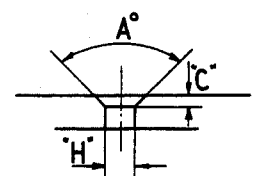
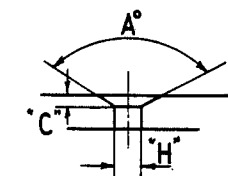


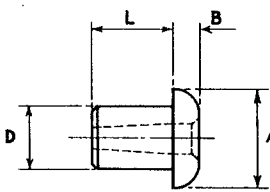
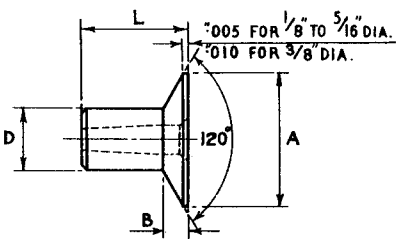
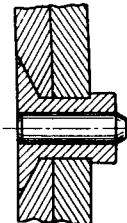
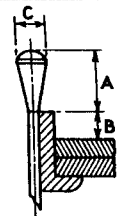
DIAGRAM SHOWING FLUSH RIVETING.



DIA. OF RIVET	120° C'S'K. HEAD		90° C'S'K. HEAD		H DRILL SIZE
	A°	"C"	A°	"C"	
$\frac{3}{32}$	120°	.031" .025"	90°	.036" .030"	No. 41 .096"
$\frac{1}{8}$	120°	.040" .034"	90°	.048" .042"	No. 30 .1285"
$\frac{5}{32}$	120°	.051" .045"	90°	.060" .054"	No. 21 .159"

DIMENSION 'H'
APPLIES TO ALL
TYPES OF RIVETS.

DIMENSIONS FOR DRILLING & COUNTERSINKING
PLATE FOR ALL TYPES OF COUNTERSUNK RIVETS.

																			
SNAP HEAD				COUNTERSUNK HEAD				SKETCH SHOWING SHEAR PIN IN POSITION.				MANDREL							
DIAMETER "D"		1/8"		5/32"		3/16"		1/4"		5/16"		3/8"		NOMINAL DIA. OF RIVET	MANDREL HD DIA. C. UNPINNED RIVETS	MANDREL HD DIA. C. PINNED RIVETS			
		SNAP HEAD	C'SK HEAD	SHEAR PIN	SNAP HEAD	C'SK HEAD	SHEAR PIN	SNAP HEAD	C'SK HEAD	SHEAR PIN	SNAP HEAD	C'SK HEAD	SHEAR PIN	SNAP HEAD	C'SK HEAD	SHEAR PIN			
DIAMETER "A"		.210	.210		1/4" (.25)	1/4" (.25)		11/32" (.343)	11/32" (.343)		13/32" (.406)	13/32" (.406)		17/32" (.531)	17/32" (.531)		5/8" (.625)	5/8" (.625)	
DEPTH "B"		.039	.025		.052	.027		.065	.045		.078	.045		.091	.063		.104	.072	
PART NUMBERS	ALUMINIUM ALLOY R2D327	TK*SNA	TK*CNA	—	TL*SNA	TL*CNA	—	R220*SNA	R220*CNA	—	R221*SNA	R221*CNA	—	R222*SNA	R222*CNA	—	R223*SNA	R223*CNA	—
	DURAL L37	TK*SD	TK*CD	K*PD	TL*SD	TL*CD	L*PD	R220*SD	R220*CD	R220*PD	R221*SD	R221*CD	R221*PD	R222*SD	R222*CD	R222*PD	R223*SD	R223*CD	R223*PD
	STEEL S.I.	TK*SS	TK*CS	K*PS	TL*SS	TL*CS	L*PS	R220*SS	R220*CS	R220*PS	R221*SS	R221*CS	R221*PS	R222*SS	R222*CS	R222*PS	R223*SS	R223*CS	R223*PS
LENGTH "L"	THICKNESS TO BE JOINED	* PART NUMBER																	
1/8"	UP TO .064	2	2	2				5	5	5									
5/32"	UP TO .064																		
3/16"	.064 TO .125	3	3	3	3	3	3	7	7	7									
7/32"	.064 TO .125																		
1/4"	.125 TO .188	4	4	4	4	4	4	9	9	9	9	9	9						
9/32"	.125 TO .188																		
5/16"	.188 TO .250				5	5	5	11	11	11	11	11	11	11	11	11			
11/32"	.188 TO .250																		
3/8"	.250 TO .312				6	6	6	13	13	13	13	13	13	13	13	13	13	13	13
13/32"	.250 TO .312																		
7/16"	.312 TO .375				7	7	7	15	15	15	15	15	15	15	15	15	15	15	15
15/32"	.312 TO .375																		
17/32"	.375 TO .437	THESE PART NUMBERS REPRESENT THE LENGTH IN 1/16"																	
19/32"	.437 TO .500							17	17	17	17	17	17	17	17	17	17	17	17
21/32"	.500 TO .562							19	19	19	19	19	19	19	19	19	19	19	19
23/32"	.562 TO .625										21	21	21	21	21	21	21	21	21
25/32"	.625 TO .687										23	23	23	23	23	23	23	23	23
27/32"	.687 TO .750										25	25	25	25	25	25	25	25	25
29/32"	.750 TO .812													27	27	27	27	27	27
31/32"	.812 TO .875													29	29	29	29	29	29
33/32"	.875 TO .937																31	31	31
35/32"	.937 TO 1.000																33	33	33
																	35	35	35
THESE PART NUMBERS REPRESENT THE LENGTH IN 1/32"																			

CHOBERT MOBILE RIVETING KIT DE H. PT N° ROOY36 OBTAINABLE FROM THE DE HAVILLAND SERVICE DEPT.

WEAR LIMITS

DURING MAJOR INSPECTION PERIODS, IT IS OFTEN FOUND THAT BOLTS OR HOLES APPEAR TO BE WORN, AND DETERMINATION OF THE AMOUNT OF WEAR IN A HOLE BY VISUAL EXAMINATION ALONE IS EXCEEDINGLY DIFFICULT. PERMISSIBLE WEAR LIMITS FOR THE MALE AND FEMALE PARTS OF THE PRINCIPAL FITTINGS ON THE AIRCRAFT ARE GIVEN IN THE RELEVANT CHAPTER AND FIGURES. ANY PARTS WHICH ARE IN EXCESS OF THE LIMITS GIVEN SHOULD BE CONSIDERED UNSERVICEABLE. THE FIGURES SHOW EXPLODED VIEWS OF THE VARIOUS PARTS WITH EACH HOLE AND BOLT, KEY NUMBERED, WHILST THE KEY TO EACH DIAGRAM WILL BE FOUND ON THE ADJACENT SHEET GIVING THE PART NUMBERS AND DETAILS OF LIMITS. THE WEAR LIMITS GIVEN ARE TO BE APPLIED DIRECTLY TO THE NOMINAL DIAMETER AND NOT ON TOP OF EXISTING LIMITS. THE FOLLOWING IS AN EXAMPLE OF USING THE TABLES.

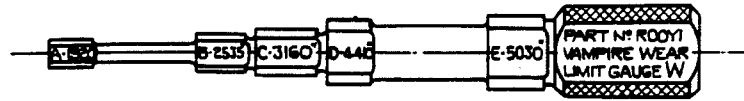
EXAMPLE :-

KEY No.	PART No.	DESCRIPTION OF PART.	NOMINAL DIA.	FEMALE HIGH OR MALE LOW LIMIT.	MAXIMUM WEAR LIMIT.	PLUG LIMIT.
1		PICK UP BOLT.	"4375	-.0012	-.0025	MICROMETER
2		EYE BOLT.	"4375	+.0004	+.002	Y B
3		FRAME L.H. & R.H.	"4375	+.0004	+.002	Y B

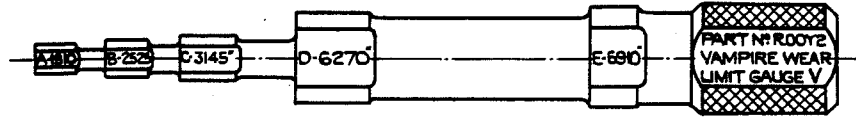
FROM THE ABOVE TABLE WE NOTE THAT THE ORIGINAL MAXIMUM DIAMETER OF KEY Nos. 2 & 3 WHEN NEW ARE ".4379 ($+.4375 + .0004$). THE MAXIMUM DIAMETER TO WHICH THE PARTS MAY WEAR BEFORE RENEWAL IS ".4395 ($+.4375 + .002$) IN BOTH CASES. IN THE CASE OF KEY No. 1 THE ORIGINAL MINIMUM DIAMETER IS ".4363 ($-.4375 - .0012$) AND THE MINIMUM DIAMETER TO WHICH IT MAY WEAR BEFORE RENEWAL IS ".4350 ($-.4375 - .0025$). IT SHOULD BE NOTED THAT PLUG GAUGE "Y B" IS TO BE USED FOR CHECKING THE HOLES. IF BUSHES ARE FITTED ON ANY PARTICULAR FITTING THE PART NUMBER WILL BE FOUND NOTED IN THE DESCRIPTION COLUMN OF THE TABLE. THIS WILL INDICATE THAT THE HOLE TO BE CHECKED IS IN THE BUSH AND CONSEQUENTLY IF THE WEAR LIMIT IN THE HOLE IS EXCEEDED A NEW BUSH MAY EASILY BE FITTED.

IDENTIFICATION OF PLUG GAUGES.

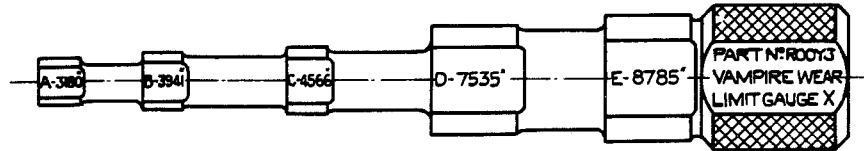
IN THE TABLES OF WEAR LIMITS PLUG GAUGES ARE INDICATED BY TWO LETTERS SUCH AS "Y B", THE FIRST LETTER DENOTES THE PLUG GAUGE AND IS ENGRAVED ON THE HANDLE, THE SECOND LETTER DENOTES THE PLUG DIAMETER, AND IS ENGRAVED, WITH THE DIAMETER, ON THE FLAT OF THE PLUG. IN THE ABOVE CASE PLUG "YB" IS PART No. R 00Y4 AND THE PLUG DIAMETER IS ".4395 (SEE FIG No 1/7)



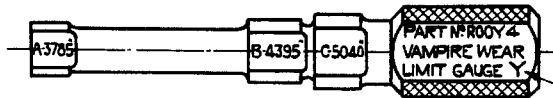
PART No. ROOY1.



PART No. ROOY2.

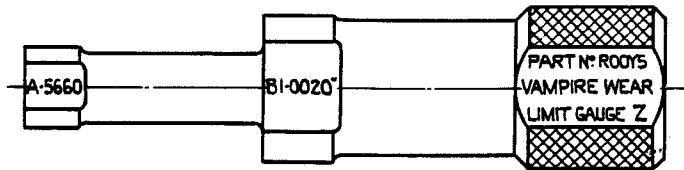


PART No. ROOY3.

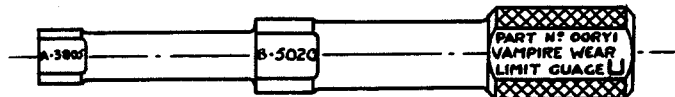


PART No. ROOY4.

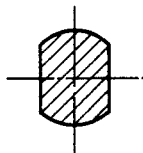
EXAMPLE
PLUG GAUGE 'Y B'.
SEE NOTES ON
FIG. 1/6.



PART No. ROOY5.



PART No. OORY1.



SCRAP VIEW.

NOTE:- PLUG GAUGES ARE MADE TO TOP LIMITS
i.e. NO GO, AND HAVE FLATS AS SHOWN
IN SCRAP VIEW. THIS IS TO ENABLE THE
OPERATOR TO FIND OUT IF THE HOLE IS
ELONGATED BY TRYING THE PLUG GAUGE
IN VARIOUS POSITIONS.

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