

CONFIRMED
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Specification for

Swaged cable-end assemblies (unified threads)* for preformed non-corrodible steel wire rope (W. 11)† for aircraft

* Assemblies with fittings incorporating B.A. and B.S.F. threads are specified in BS SP 53 and BS SP 54.

† Assemblies suitable for use with British Standard W. 9 steel wire rope are specified in BS SP 105.

Foreword

This revision of BS SP 106 has been prepared under the authority of the Aircraft Industry Standards Committee to provide a distinctive coding for assemblies with all-Unified threads to replace the B.A./UNF assemblies, included in the first issue of the standard, following a decision to extend the range of fittings in BS SP 101–BS SP 104, “*Turnbarrels, tension rods and swaged cable-end connections (UNF threads) for aircraft*”, to include sizes with No. 8 (0.164)–32. UNC and No. 10 (0.190)–32. UNF threads. In addition, the requirement in regard to the distance of the swage from the inspection hole (Figure 1) has been modified and a requirement for a magnetic flaw detection test (Clause 6) has been included in the standard.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 16 and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

Amendments issued since publication

Amd. No.	Date of issue	Comments
2472	May 1956	
4202	June 1961	
4421	January 1962	Indicated by a sideline in the margin

This British Standard, having been approved by the Aircraft Industry Standards Committee and endorsed by the Chairman of the Engineering Divisional Council, was published under the authority of the General Council of the Institution on 29 March 1955

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The following BSI references relate to the work on this standard:—
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1 Scope

This British Standard specifies the fittings, requirements and coding for aircraft swaged cable-end assemblies incorporating Unified threads on preformed non-corrodible steel wire rope complying with the requirements of British Standard W. 11.

Requirements for the locking of the assemblies are not covered by this British Standard. For this information reference should be made to the relevant publications of the appropriate airworthiness authority.

The fittings comprising the assemblies, and turnbarrels and tension rods for use with them, are covered by British Standards in the aircraft series, as follows:—

Fittings	British Standard No.
Turnbarrels	BS SP 101
Screwed ends	BS SP 102
Tension rods	BS SP 103
Tapped ends	BS SP 104
Eye ends	BS SP 37
Fork ends	BS SP 38
Eye ends for chain	BS SP 39
Ball ends —	
with shank	BS SP 49
without shank	BS SP 50
Identification tags	BS SP 51 and BS SP 52

2 Selection of fittings

The fittings comprising the swaged cable-end assemblies shall be selected in accordance with the relevant tables of this British Standard.

3 Swage form

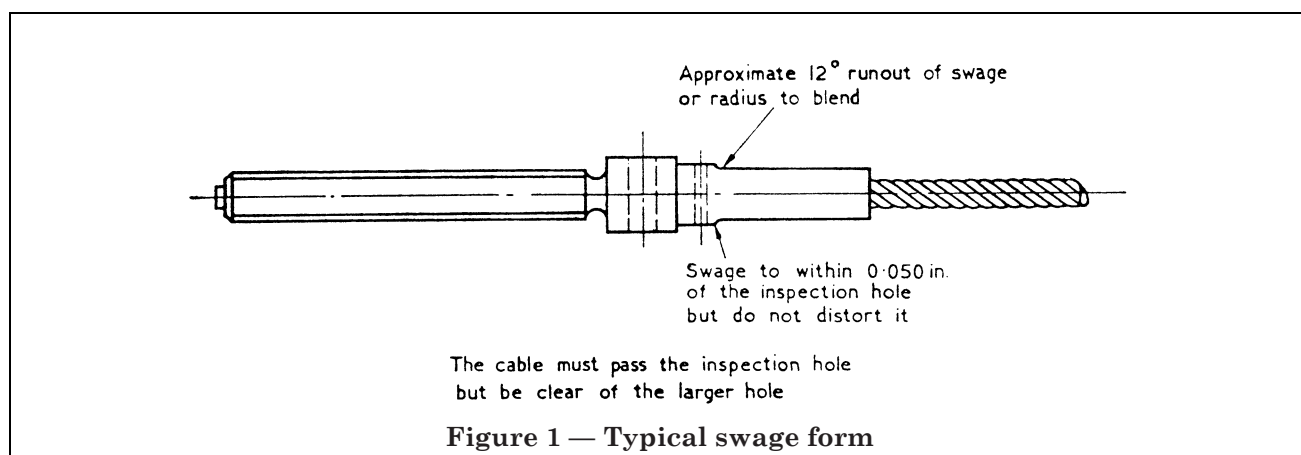
Dimensional details of individual end fittings are specified in the relevant British Standards, listed in Clause 1. A typical swage form is shown in Figure 1.

4 Proof loading

With the exception of assemblies 0579–0591 (Table 3), which have an ultimate tensile value of 448 lb and a proof load of 224 lb, the complete cable assembly shall be proof loaded as indicated in Table 1.

Table 1 — Assembly loads

Cable		Load for measuring length (2 per cent ultimate)	Proof load ($\frac{1}{2}$ ultimate)	Minimum ultimate breaking load
Capacity	BS W. 11 Item No.			
cwt		lb	lb	lb
5	4 PNC	11	280	560
10	5 PNC	22	560	1 120
15	6 PNC	34	840	1 680
20	3 PNC	45	1 120	2 240
25	51 PNC	56	1 400	2 800
30	52 PNC	67	1 680	3 360
40	53 PNC	90	2 240	4 480



5 Length of assemblies

The positions to which the cable assemblies shall be measured for length and the tolerance on length are illustrated in Figure 2. Lengths should be quoted to the nearest $\frac{1}{4}$ in.

Except for assembled cables under 4 ft in length, which shall be measured without a tension load applied, the assembled cable shall be measured to the satisfaction of the Inspecting Authority with a tension of 1 cwt or two per cent of the ultimate load, whichever is the less, immediately after proof loading (see Clause 4) and before coiling.

6 Flaw detection

After proof loading, the assembly shall be examined for flaws to the satisfaction of the Inspecting Authority, by the electro-magnetic method or by any other method agreed by the Inspecting Authority. The presence of any crack shall involve rejection of the fitting.

7 Production tests

Production samples of swaged cable-end assemblies or test samples typical thereof shall be periodically submitted to the following tests:—

- Sectioning and critical examination of the swaged ends.
- Tensile tests to verify that the swaging does not slip and that the assembly does not fail at a load below that specified on the product or in the specification.

The minimum frequency of such tests shall be as follows:—

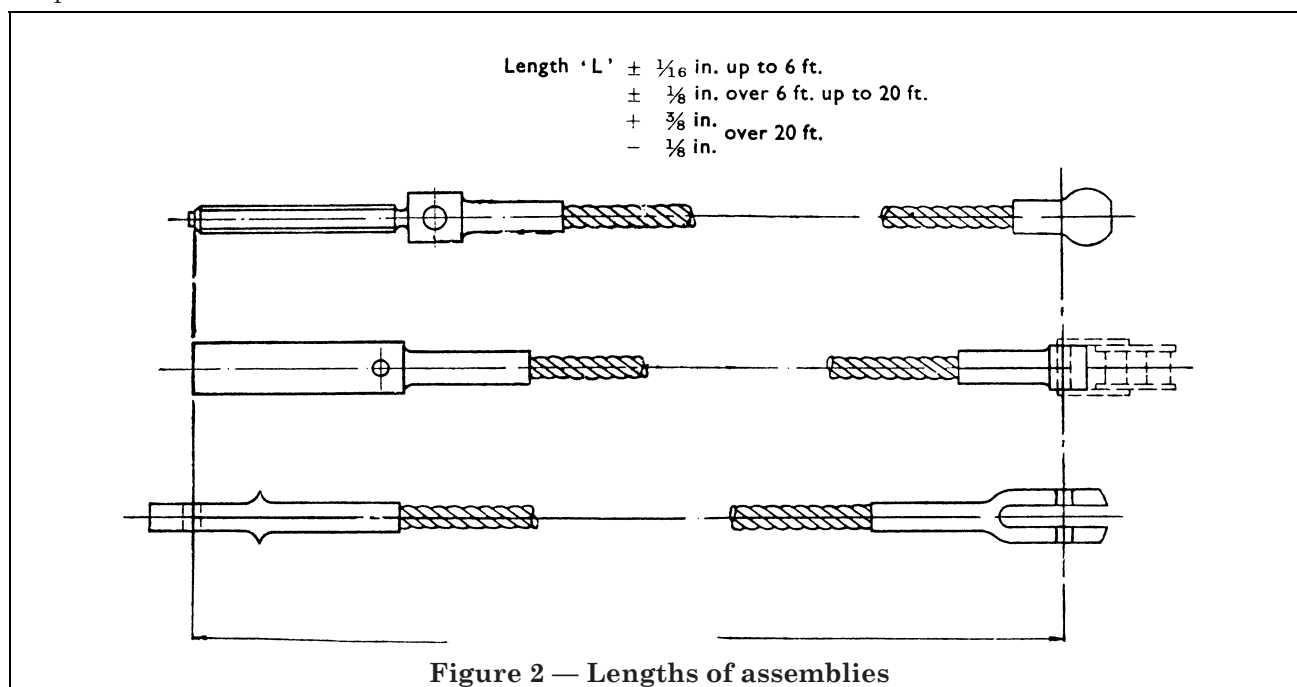
- at the beginning of manufacture on any one machine by any one operator of each size of cable;
- during manufacture, one cable of each size in every 500 produced on any one machine by any one operator;
- one cable of each size manufactured on any one machine by any one operator at not greater intervals than six months.

8 Identification

The cable assemblies shall be identified on drawings and for ordering purposes by the number of this British Standard [unless it is indicated in the relevant table (Table 3–Table 9) that the British Standard number BS SP 54 is to be used], the appropriate code number given in the relevant table and the length of the assembly in inches, for example:

A 20 cwt cable assembly with “L” length $25\frac{3}{4}$ in., having a $\frac{1}{4}$ in. UNF left-hand screwed end at one end and a $\frac{5}{16}$ in. UNF right-hand tapped end at the other, is BS SP 106/2008/25 $\frac{3}{4}$.

NOTE The first two figures of the code number indicate the cable capacity in hundredweight.



9 Marking

a) Except as provided in b), the cable assembly shall bear the appropriate assembly number marked on a tag or sleeve. When a tag is used it shall comply with the requirements of BS SP 51 or BS SP 52, and shall be wired to the assembly independently of the wire locking the assembly, as shown in Figure 3. When identification tags are used for cable ends without locking wire holes they shall be secured by other means in accordance with the approved cable assembly drawings.

NOTE After inspection approval of the installation of the cable assembly in the aircraft, the identification tags will be required to be removed if any likelihood exists of the tag subsequently coming loose and causing jamming. On removal, the particulars on the tag will be entered in the appropriate log book or maintenance record.

The tags are suitable for various sizes of cable by use of the correct size hole as indicated in Table 2.

b) Alternatively, the relevant information may be rolled on to the swaged portion of the end fitting. The clarity of such marking shall be to the satisfaction of the Inspecting Authority.

10 Protective treatment

The complete cable assembly shall be dipped in lanolin complying with the requirements of the latest issue of Ministry of Supply aircraft specification D.T.D. 663.

Table 2 — Sizes of identification tags

Cable size	Identification tag	
	British Standard No.	End for use on cable hole diameter
cwt		in.
5	BS SP 51	"A" ... $\frac{9}{64}$
10	BS SP 51	"A" ... $\frac{9}{64}$
15	BS SP 51	"B" ... $\frac{13}{64}$
20	BS SP 51	"B" ... $\frac{13}{64}$
25	BS SP 51	"B" ... $\frac{13}{64}$
30	BS SP 52	"A" ... $\frac{15}{64}$
40	BS SP 52	"B" ... $\frac{17}{64}$

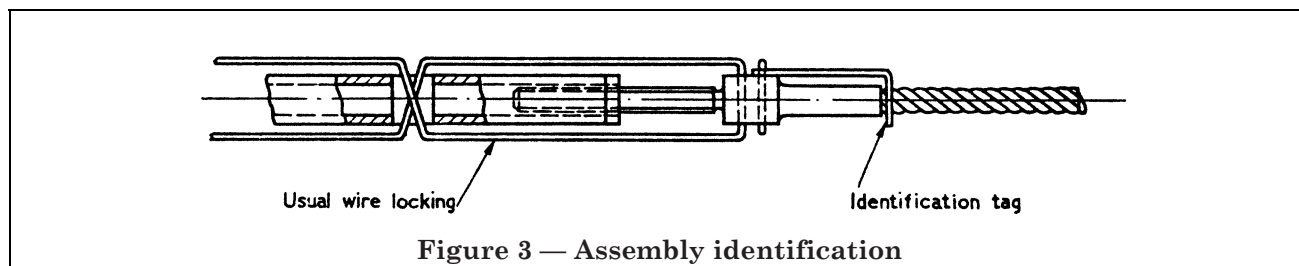


Figure 3 — Assembly identification