

Specifications for

Turnbarrels, tension rods and swaged cable-end connections (Unified threads),* cadmium plated, for aircraft

* Turnbarrels, tension rods and swaged cable-end connections in BA and BSF sizes are covered by BS SP 33 to BS SP 39 which also specify the requirements for swaged eye ends, fork ends and eye ends for chain.

These British Standards, having been approved by the Aircraft Industry Standards Committee and endorsed by the Chairman of the Engineering Divisional Council, were published under authority of the General Council of the Institution on 27 September 1956

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Foreword

Publishing information

This British Standard is published by BSI Standards Limited, under license from The British Standards Institution.

These revisions of BS SP 101-104:1953 have been prepared, under the authority of the Aircraft Industry Standards Committee, to provide — by the addition of items with No. 8–32 UNC and No. 10–32 UNF threads — complete range of cable-end connections with Unified threads. The BA threads previously used on SP 103 tension rods with odd ends have been replaced by threads in the Unified number sizes. These British Standards provide a tensioning device for aircraft control cables and a variable range of cable-end fittings incorporating the Unified screw thread as a safeguard against the crossing of controls. The turnbarrel and tension rod are designed to connect screwed-end and tapped-end fittings respectively; these in turn are swaged to cables.

Supersession

BS 2SP 101-104:1956+A3:2015 supersedes BS 2SP 101-104:1956+A2:2012, which is withdrawn.

Information about this document

Text introduced or altered by Amendments No. 2 and No. 3 are indicated in the text by tags **A2** **A2** and **A3** **A3**.

CAUTION. Products to BS SP 101-104 have cadmium as a plating material which has been restricted and/or banned for use in many countries owing to environmental and health concerns; they should not be used in new product designs. Local officials should be consulted about any concerns on using cadmium plated parts.

For each load rating of cable two alternative thread sizes are provided for the end fittings, each thread size having an alternative left-hand or right-hand thread. It is therefore possible to provide four turnbuckle assemblies for any one load rating of cable in such a way that no control run can be crossed when all are assembled. Details of such an arrangement of fittings, together with figures showing the dimensions and range of adjustment of the assemblies, are given in the Appendix to these British Standards.

This combined series of British Standards comprises the following four standards:

BS 2SP 101, *Turnbarrels (Unified threads)*.

BS 2SP 102, *Screwed ends (Unified threads)*.

BS 2SP 103, *Tension rods (Unified threads)*.

BS 2SP 104, *Tapped ends (Unified threads)*.

Contractual and legal considerations

This publications does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with a British Standard cannot 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 15 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.

BS 2SP 101:1956+A3:2015

Turnbarrels (Unified threads)

1 Material

The turnbarrels shall be manufactured from material complying with A_2 the latest edition (including any amendments) A_2 of one of the following British Standards:—

BS S 1, 35–45 ton carbon steel A_3 or BS S 154, Specification, 2½% nickel-chromium-molybdenum steel billets, bars, forgings and parts (880–1080 MPa: limiting ruling section 150mm). A_3

A_2 BS T 64, Specification for carbon-manganese steel tube (550 N/mm) A_2

BS T 45, 45-ton steel tubes (suitable for welding).

2 A_2 Protective finish A_2

The turnbarrels shall be cadmium plated in accordance with A_3 SAE AMS 03-19 A_3 or A_2 BS EN 2133 A_2 and dipped in temporary rust preventive complying with the latest issue of A_2 Def Stan 80-217. A_2

3 Dimensions

The turnbarrels shall conform to the dimensions and tolerances specified in Table 1 where these relate to Figure 1. The data relating to Figure 2 are given for information only.

4 Screw threads

a) The screw threads shall conform to the Class 2B limits and tolerances of the latest issue of A_2 BS 1580-1, *Unified screw threads. Screw threads*

with diameters ¼ in and larger. Requirements or BS 1580-3, *Unified screw threads. Screw threads with diameters below ¼ in. Requirements.* A_2

b) The screw threads shall be required to pass gauges approved by the Inspecting Authority.

5 Identification and marking

a) Turnbarrels in sizes ¼ in. UNF and above shall have the appropriate code letter [see Clause 5 c)] marked on the unthreaded portion of the barrel, in the position indicated in Figure 1, without distortion of the barrel, with the letters “LH” marked immediately below the code letter to indicate the end of the turnbarrel carrying the left-hand thread.

b) Turnbarrels in sizes below ¼ in. UNF shall be A_3 packaged in A_3 parcels which shall have the number of this British Standard and the appropriate code letter [see Clause 5 c)] clearly stated on the labels.

c) The British Standard number shall not be applied to the turnbarrels, but shall be used for the purpose of specifying turnbarrels on drawings and for ordering the fittings. For example, the complete part reference number for a ¼ in. UNF turnbarrel for ordering, etc., is SP101E but the corresponding marking on the turnbarrel will be E.

d) All turnbarrels shall be identified as “Unified” by a pattern of contiguous circles, e.g. $\infty\infty$, of ⅜ in. diameter indented on the unthreaded portion of the barrel before tapping.

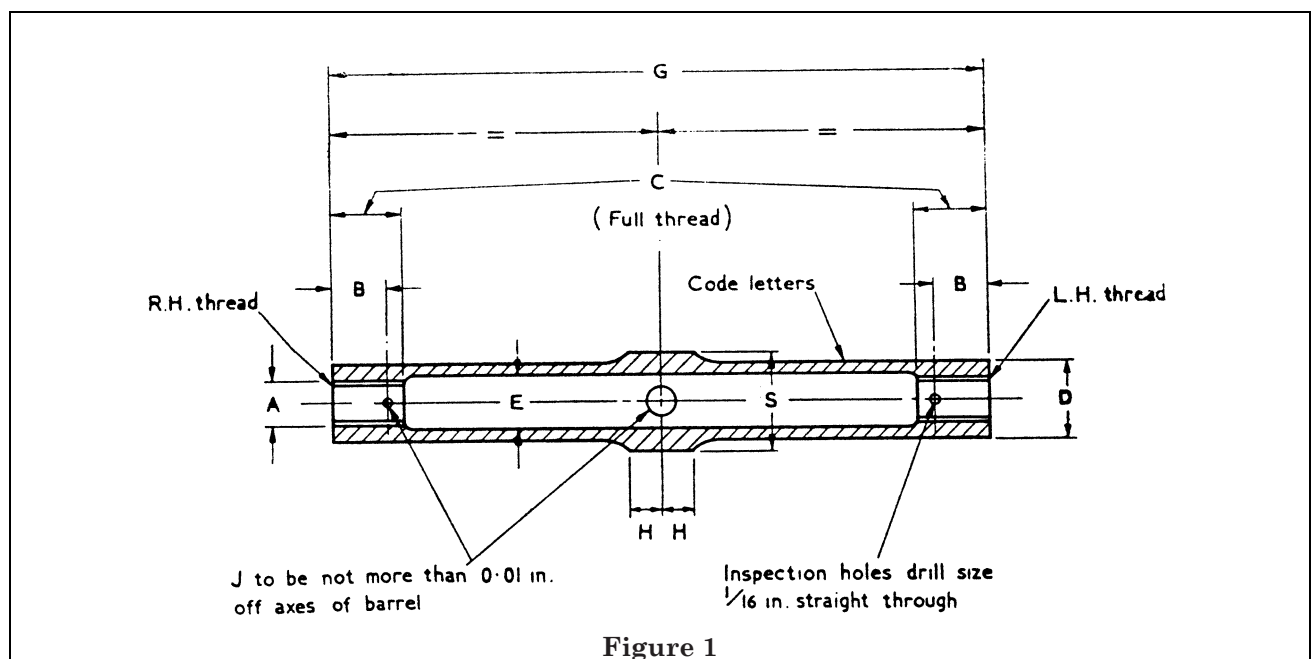
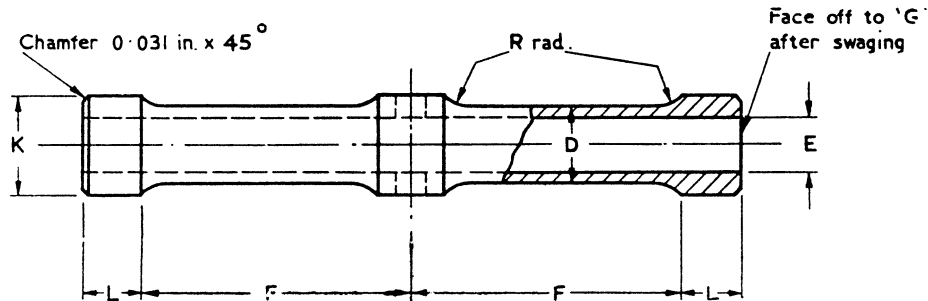


Figure 1

BS 2SP 101:1956+A3:2015

Turnbarrels (Unified threads)



This view shows dimensions before swaging for thread and is for reference only (see clause 3).

Figure 2

Table 1 — Dimensions of turnbarrels (Unified threads)

Code letter	A	B +0.010 -0	C min.	D +0 -0.005	E Drill	F +0 -0.05	G +0.020 -0	H +0.010 -0	J Drill ^a	K	L min.	R rad.	S +0 -0.005
C	No. 8 (0.164)—32 UNC—2B	0.20	0.25	0.266	$\frac{3}{16}$	0.75	1.91	0.100	$\frac{7}{64}$	0.32	0.20	0.50	0.320
D	No. 10 (0.190)—32 UNF—2B	0.25	0.30	0.325	$\frac{15}{64}$	1.38	3.26	0.125	No. 26	0.43	0.25	0.50	0.375
E	$\frac{1}{4}$ —28. UNF—2B	0.30	0.35	0.406	$\frac{9}{32}$	1.38	3.36	0.150	No. 26	0.50	0.30	0.75	0.500
G	$\frac{5}{16}$ —24. UNF—2B	0.35	0.40	0.500	$\frac{11}{32}$	1.40	3.50	0.175	No. 26	0.60	0.35	0.75	0.625

^a No. 26 drill = 0.147 in.