BRITISH STANDARD

BS 5507-3: 1982

Methods of test for

Falsework equipment —

Part 3: Props

UDC [69.057.5:624.023.9]:620.17

Confirmed January 2010

Cooperating organizations

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This British Standard, having been prepared under the direction of the Civil Engineering and Building Structures Standards Committee, was published under the authority of the Board of BSI and comes into effect on 26 February 1982

The following BSI references relate to the work on this standard:
Committee reference CSB/46
Draft for comment 81/10645 DC

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Amendments issued since publication

Amd. No.	Date of issue	Comments

Contents

Foreword

This British Standard, prepared under the direction of the Civil Engineering and Building Structures Standards Committee, is the third Part in a series of test methods for common types of falsework equipment. Other Parts in the series are:

— *Part 1: Floor centres*;

— *Part 2: Prefabricated heavy duty support towers*[1)].

Appendix A of BS 4074:1966 described a method of test for props. During revision of the standard it was considered useful to publish the method as a separate document. This should facilitate application of the method in the testing and assessment of equipment to verify its load carrying capacity either in conjunction with the performance requirements of BS 4074 or as part of a test programme for the assessment of novel designs of equipment not complying with the requirements of BS 4074. BS 4074 describes a method of assessment using the results obtained from tests carried out in accordance with this standard.

This method of test differs from that described in Appendix A of BS 4074:1966. The latter described a load test method requiring the use of spherical joints at each end of the prop under investigation. However, continued use of the method indicated that the results obtained could not be directly related to propping practice. This limited the usefulness of the results. This revised method requires that the prop under test be positioned such that its verticality and the point of application of the load are more typical of site conditions[2)]. It requires that the prop be erected 1° 30' out of plumb as research has shown that this is the maximum tolerance from vertical that should be allowed. To avoid an excessive amount of testing only one loading condition is considered, that is with the load applied concentrically. Eccentric loading may occur on site and this condition is considered in BS 4074.

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Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 4, an inside back cover 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.

[1)] In course of preparation.

[2)] For further information on the principles and development of this method of test, reference should be made to CIRIA Technical Note No. 79 *Safe working loads for adjustable props: the influence of prop conditions and site workmanship,* 1977.

1 Scope

This British Standard describes a method of test for the purpose of determining the ultimate load carrying capacity of props.

2 References

The titles of the standards publications referred to in this standard are listed on the inside back cover.

3 Principle

The test simulates the condition of a prop erected 1° 30' out of plumb and supporting a concentrically positioned compressive load.

4 Apparatus

4.1 *Compression testing machine.* A compression testing machine of suitable capacity[3)] for the test that is capable of applying the load at the rate specified in **5.6** and that complies with the requirements for grade B of BS 1610 as regards repeatability and accuracy.

4.2 *Steel joist.* A steel joist of section 76 mm × 76 mm having a density of 12.65 kilogram per metre length.

NOTE The joist specified for the test has characteristics to simulate loading the props through a concentrically positioned 175 mm × 75 mm timber beam. Timber joists have not been used as experience has shown that they produce variable test results, particularly at higher loads.

5 Test procedure

NOTE The following procedure refers to the prop being tested in the vertical position. However, props may be tested either vertically or horizontally. If the test is carried out with the prop horizontal it is permissible to counteract the initial deflection of the prop due to its own mass by applying an upward force at the centre of the prop equal to one-half the mass of the prop. This force should act throughout the test.

5.1 Arrange the apparatus as shown in Figure 1. The test load shall be restrained against lateral movement.

5.2 Erect the prop under test such that it is 1° 30' out of plumb and orientated such that the pin holes and slots are in the most adverse bending direction (as shown in Figure 1). Support the base plate of the outer tube on a flat surface of steel or concrete. Do not fix or clamp the base plate on any surface.

5.3 For the purpose of testing in the fully closed position insert the pin in the top-most hole of the inner tube and adjust the screwed collar so that there is a minimum gap of 5 mm between the end of the inner tube and the adjacent base plate of the outer tube. Additionally, there shall be a minimum gap of 3 mm between the pin and the bottom of the slot. For the fully extended position insert the pin in the lowest hole of the inner tube and adjust the screwed collar so that the gap between the pin and top of the slot is approximately 3 mm.

5.4 If, when erected and before the application of a load, the prop takes up a natural "set" in which the centreline of the two halves of the prop are not exactly in line, measure the angle of inclination as indicated in Figure 2. No wedges or packing of any description shall be inserted between the inner and outer tubes in an attempt to improve the initial straightness of the prop.

5.5 Record the actual overall length of the prop from base plate to head plate before applying the test load.

5.6 Place the steel joist concentrically on, but do not fix it to, the end plate of the inner tube of the prop. Apply an axial compressive load at a rate not exceeding 5 kN/min until the prop fails. Take the failure load as the maximum load attainable during the test.

NOTE The joist may be used for a number of tests but should be discarded when it becomes visibly distorted.

6 Recording of test load

Record the load achieved on the completion of the test, quoting it in kilonewtons to the nearest 0.5 kN.

7 Test report

7.1 Contents. The test report shall include the following information.

a) Adequate information by means of which the specimens tested can be reliably identified; this may be in the form of manufacturers' drawings, specially prepared sketches or extracts from trade catalogues. The type, the mark and the year of manufacture (if known) of the units shall be given.

b) Sufficient information on the arrangement of the test apparatus and any special features of it to allow the test to be repeated in all its essentials solely on the basis of the information contained in the report and in this standard.

c) The test results (see clause **6**).

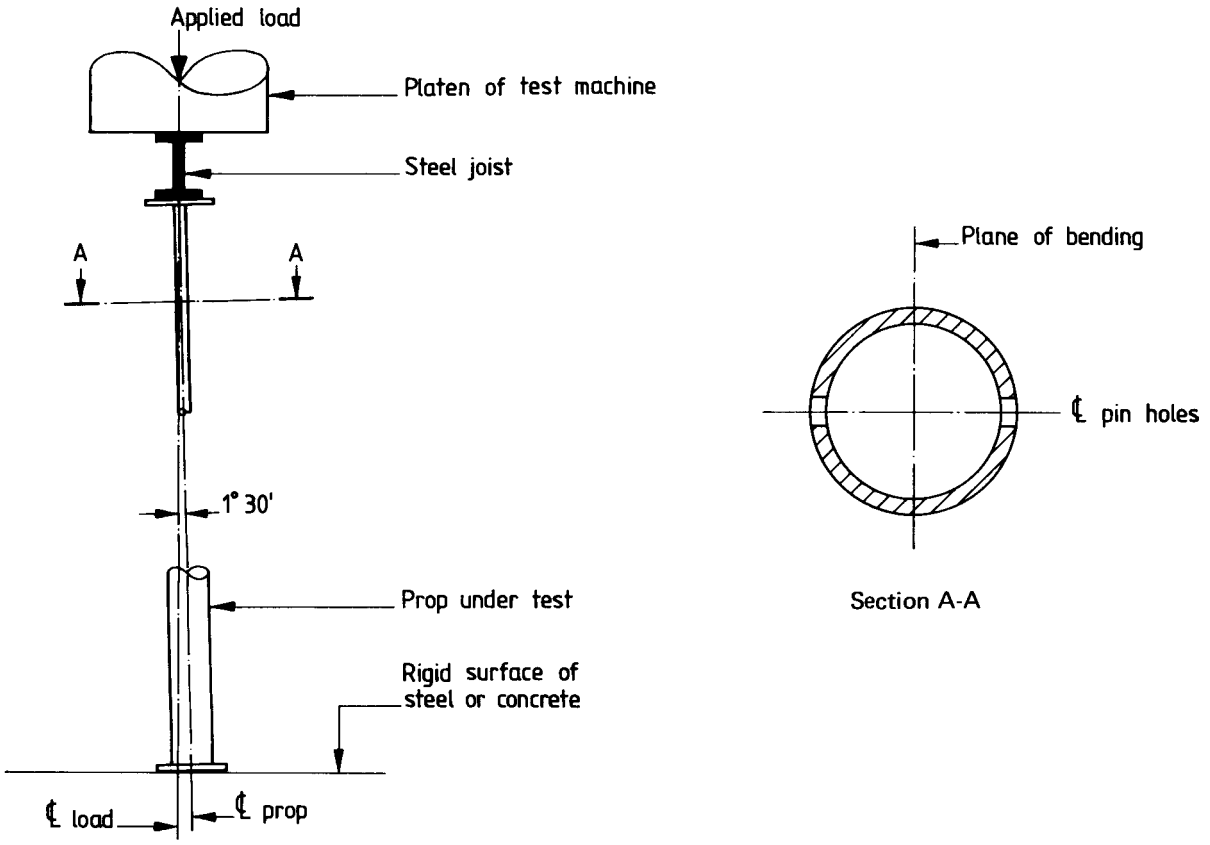
[3)] The capacity of a testing machine is suitable when the expected load of failure of the prop lies in the upper four-fifths of the selected range of the machine being used.

d) Other information relevant to the test, for example the organization commissioning the test, the testing laboratory, the date of the test and comments on the behaviour of the units under test loads, including a description of failure modes and the location of any point of failure.

7.2 Presentation of test results. The test results shall be presented in the report in a concise and unambiguous manner, preferably in tabular form.

7.3 Test description. Without any of the information specified in **7.1** being omitted, the descriptive contents of the report should be as brief as practicable with the minimum information necessary to make it a self-contained document. Dimensioned sketches should be used in preference to purely verbal descriptions. The report may be supplemented by photographs and other descriptive material.

7.4 Authenticity of report. The test report shall be authenticated by a person in authority and his status and qualifications given.



NOTE Restrain the platen against lateral movement.

Figure 1 — Arrangement of test apparatus

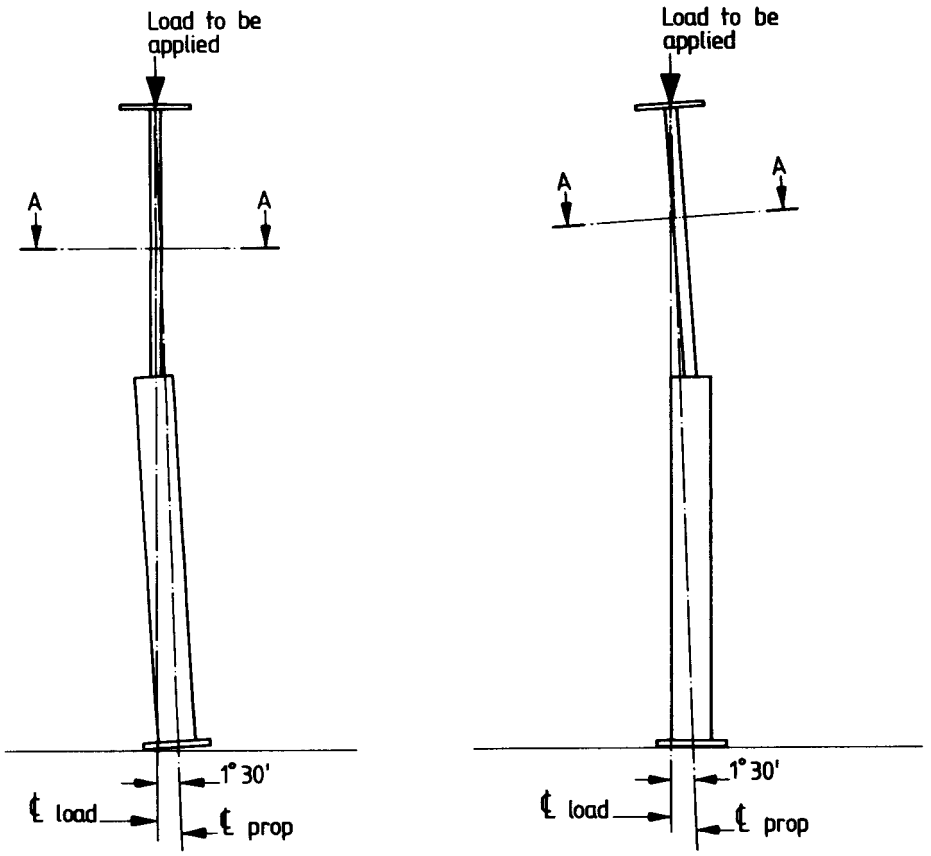


Figure 2 — Examples of props that have set with an angle at the junction of the two halves

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Publications referred to

BS 1610, *Methods for the load verification of testing machines.*
BS 4074, *Specification for metal props and struts*[4)].

[4)] Referred to in the foreword only.

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