BRITISH STANDARD AEROSPACE SERIES

BS 2C 4:1973

Incorporating Amendment Nos. 1 and 2

Specification for

Coupling dimensions for aero-engine refrigerant pressure replenishment connections

Confirmed January 2012

UDC 629.7.03:621.43 – 713:629.7.063.4:621.643.415

Foreword

This British Standard relates only to features affecting the coupling to an aircraft of the hose unit or adaptor for the delivery under pressure of supplies of aero-engine refrigerant: it does not specify all the requirements for the connections. The standard implements the requirements of ISO 485 "*Aircraft water-methanol pressure connections*" of the International Organization for Standardization, prepared at the request of the International Air Transport Association as one of a series of standards for aircraft ground servicing connections suitable for adoption on an international basis.

This revision enlarges the scope of the standard from methanol-water to aero-engine refrigerant applications and incorporates editorial amendments consequent on the publication of ISO 485. It includes a change of position tolerances on the mating features of the ¾ inch connection to ensure engagement in the extreme adverse tolerance condition and interchangeability with that of ISO 485.

This standard makes reference to the following British Standard:

BS 2856 "*Precise conversion of inch and metric sizes on engineering drawings*".

NOTE Where metric equivalents are stated the figures in inch units are to be regarded as the standard. The metric conversions are approximate. A table is given in Appendix A to provide a ready means of calculating the approximate metric equivalents of the inch values. More accurate conversions should be based on the table in BS 350, "*Conversion factors and tables*" or in BS 2856, "*Precise conversion of inch and metric sizes on engineering drawings*".

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 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.

This British Standard, having been approved by the Aerospace Industry Standards Committee, was published under the authority of the Executive Board on 31 October 1973

The following BSI references relate to the work on this standard:
Committee reference ACE/14
Draft for approval 72/34767

ISBN 0 580 07816 7

Amendments issued since publication

Amd. No.	Date	Comments
2643	June 1978	
3326	August 1982	Indicated by a sideline in the margin

Contents

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1 Scope

This British Standard specifies the basic dimensional requirements for connections on aircraft to ensure coupling to ground equipment supplying engine refrigerant under pressure.

Provision is made for two sizes of connection:

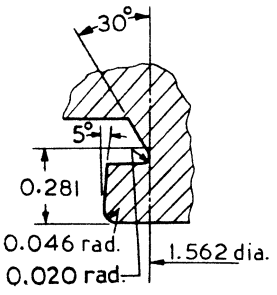
¾ inch — suitable for rates of flow up to 25 gallons (114 litres) per minute.

1½ inch — suitable for rates of flow up to 120 gallons (546 litres) per minute.

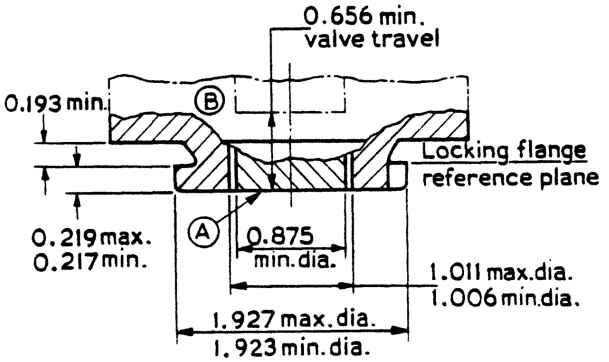
2 Dimensions

2.1 The dimensions of the connection shall conform to the basic requirements shown in Figure 1 or Figure 4.

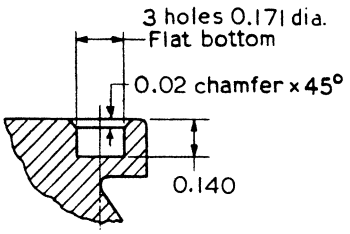
2.2 The clearance allowed in the aircraft structure surrounding the connection for the introduction and handling of the hose unit shall be as indicated in Figure 2 or Figure 5.



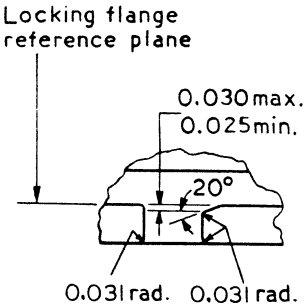
Detail of locking flange



NOTE In this revised drawing, arrow A has been amended to terminate at the face of the valve.

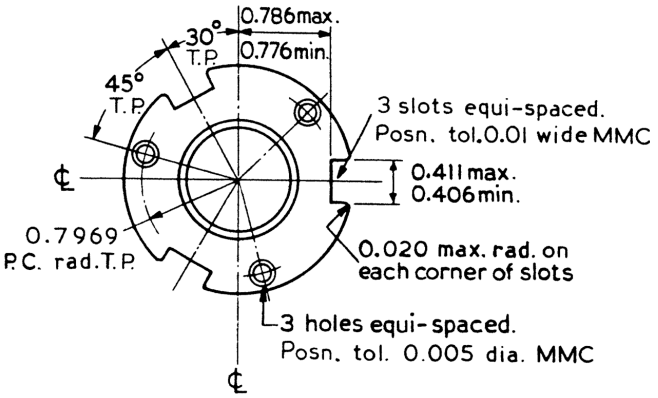


Section of selective pin holes



NOTE 3 slots are identical.

Enlarged scrap view in direction of slot



NOTE A The valve face is to be flat within this diameter and no part of the valve may extend beyond this face, but it may be recessed up to 0.030 in to allow for compressibility of valve seal. Configuration of the valve behind this face is optional.

NOTE B The valve is to be spring-loaded. Loading at 0.656 in travel is not to exceed 10 lbf (44.5 N) and loading in the valve shut position is to be 3½ lbf to 5 lbf (15.6 N to 22.25 N).

Dimensions are in inches

Dimensional tolerance ± 0.005 in

Angular tolerance ± 15

Third angle projection

Figure 1 — Coupling dimensions and connection detail for ¾ inch aero-engine refrigerant pressure replenishment connection

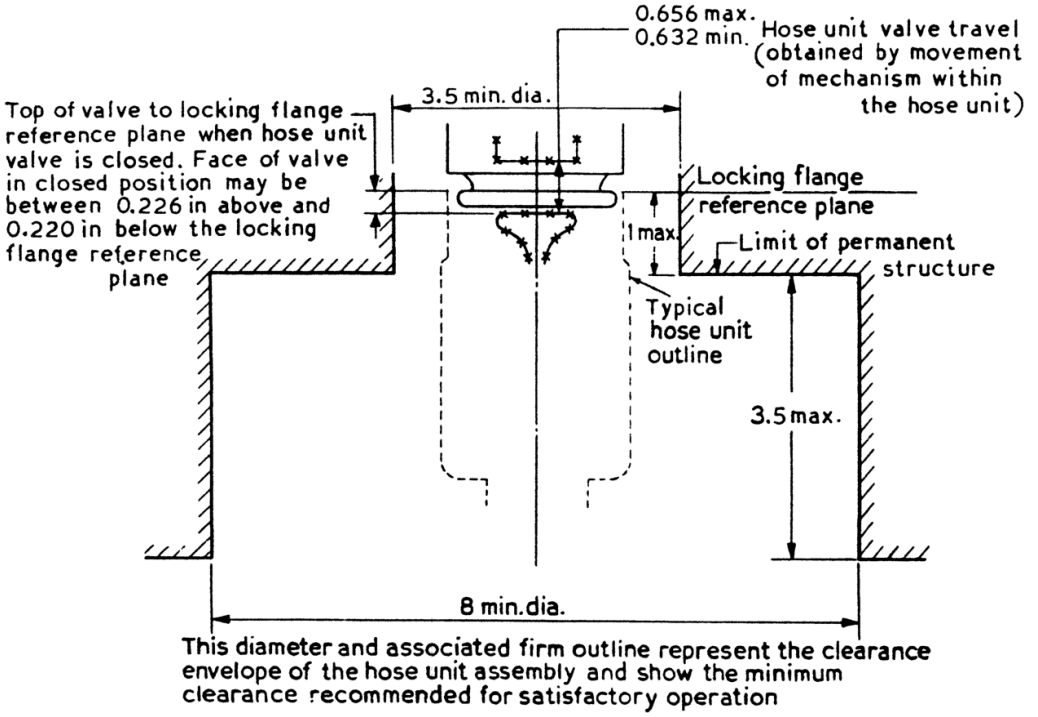
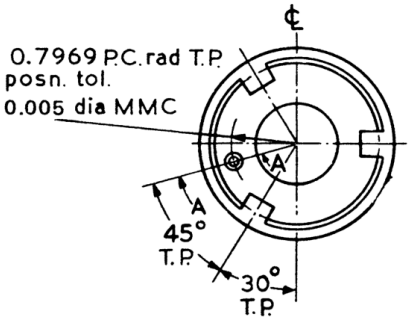
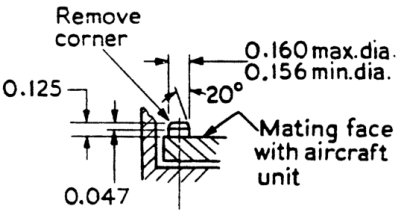


Figure 2 — Space envelope and connection detail for ¾ inch aero-engine refrigerant pressure replenishment connection

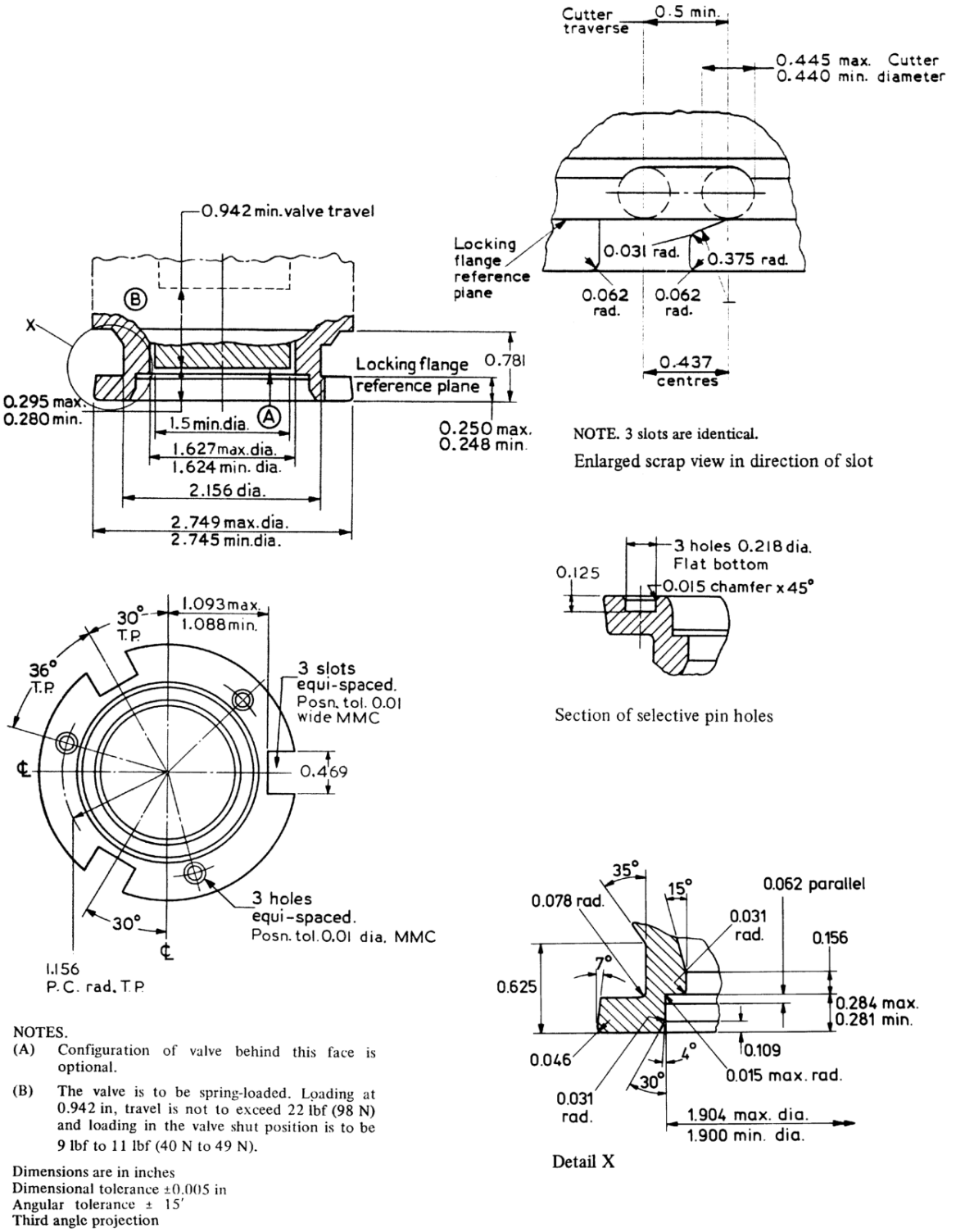




Section of selective pin on A–A

Dimensions are in inches
Dimensional tolerance ±0.005 in
Angular tolerance ± 15′
Third angle projection

Figure 3 — Typical ground half view



NOTES.

(A) Configuration of valve behind this face is optional.

(B) The valve is to be spring-loaded. Loading at 0.942 in. travel is not to exceed 22 lbf (98 N) and loading in the valve shut position is to be 9 lbf to 11 lbf (40 N to 49 N).

Dimensions are in inches
Dimensional tolerance ±0.005 in
Angular tolerance ± 15′
Third angle projection

Figure 4 — Coupling dimensions and connection detail for 1½ inch aero-engine refrigerant pressure replenishment connection

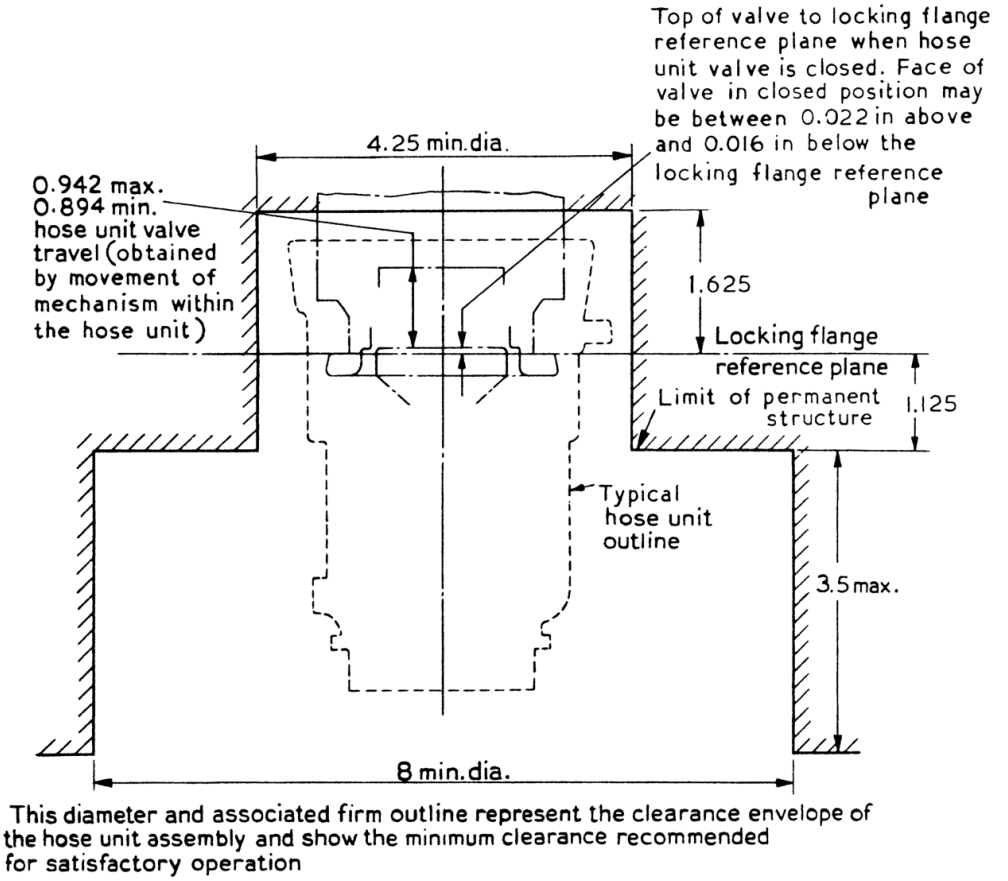
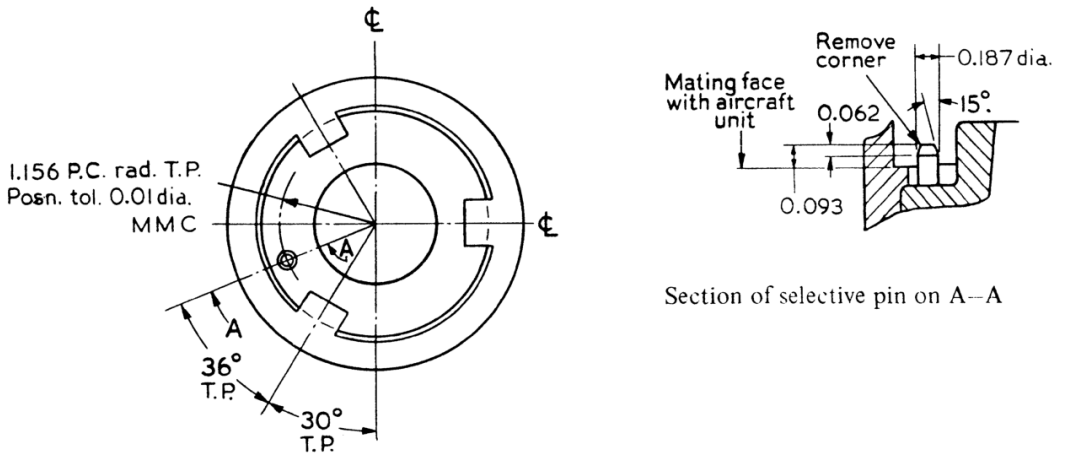


Figure 5 — Space envelope and connection detail for 1½ inch aero-engine refrigerant pressure replenishment connection



Dimensions are in inches
Dimensional tolerance ±0.005 in
Angular tolerance ±15′
Third angle projection

Figure 6 — Typical ground half view

Appendix A Table for conversion of inches to approximate millimetre equivalents

in	mm
1	25.4
2	50.8
3	76.2
4	101.6
5	127.0
6	152.4
7	177.8
8	203.2
9	228.6
10	254.0

Example of use of table:

$1\,^{9}/_{16}$ in = 1.56 in = 25.4 + 12.7 + 1.524 = 39.6 mm

0.875 in = 20.32 + 1.778 + 0.127 = 22.2 mm

These examples give arithmetic conversions. For conversion to the required accuracy to ensure dimensional interchangeability, use BS 2856.

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