

MIL-STD-1524  
 NOTICE 1  
 10 MARCH 1987

MILITARY STANDARD

TABLE OF DIFFERENTIAL PRESSURE IN RELATION TO  
 CALIBRATED AIRSPEED

TO ALL HOLDERS OF MIL-STD-1524:

1. THE FOLLOWING PAGES OF MIL-STD-1524 HAVE BEEN REVISED AND SUPERSEDE THE PAGES LISTED:

NEW PAGE	DATE	SUPERSEDED PAGE	DATE
i	31 July 1972	i	REPRINTED WITHOUT CHANGE
ii	10 March 1987	ii	31 July 1972
1	10 March 1987	1	31 July 1972
2	31 July 1972	2	REPRINTED WITHOUT CHANGE

2. RETAIN THIS NOTICE AND INSERT BEFORE TABLE OF CONTENTS.

3. Holders of MIL-STD-1523 will verify that page changes and additions indicated above have been entered. This notice page will be retained as a check sheet. This issuance, together with appended pages, is a separate publication. Each notice is to be retained by stocking points until the military standard is completely revised or canceled.

Custodians:  
 Army - AV  
 Navy - AS  
 Air Force - 11

Preparing activity:  
 Air Force - 11

Project 6610-0140

User activity:  
 Army - ME

AMSC: N/A

FSC 6610

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.



MIL-STD-1524

31 July 1972

MILITARY STANDARD

TABLE OF DIFFERENTIAL PRESSURE IN RELATION TO  
CALIBRATED AIRSPEED



FSC 6610

MIL-STD-1524  
NOTICE 1  
10 March 1987

DEPARTMENT OF DEFENSE  
WASHINGTON DC 20402

Table of Differential Pressure in Relation to Calibrated Airspeed

1. This military standard is approved for use by all Departments and Agencies of the Department of Defense.
2. Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: ASD/ENES, Wright-Patterson AFB OH 45433-6503 by using the self-addressed Standardization Document Improvement Proposal (DD Form 1425) appearing at the end of this document or by letter.

Supersedes page ii dated 31 July 1972



MIL-STD-1524  
31 July 1972

5.1.1 Formulae. The formulae relating to calibrated airspeed,  $V_c$ , and differential pressure,  $Q_c$ , shall be as follows:

a. For  $V_c \leq A_0$

$$(1) Q_c = P_0 \left[ \left( 1 + \frac{(\gamma-1)}{2\gamma} \frac{\rho_0}{P_0} V_c^2 \right)^{\frac{\gamma}{\gamma-1}} - 1 \right]$$

$$(2) Q_c = 29.9213 \left[ (1.000 + .457090 \times 10^{-6} V_c^2)^{7/2} - 1.000 \right]$$

b. For  $V_c > A_0$

$$(1) Q_c = \frac{(1+\gamma)}{2} \left( \frac{V_c}{A_0} \right)^2 P_0 \left[ \frac{(\gamma+1)^2}{4\gamma-2(\gamma-1)(A_0/V_c)^2} \right]^{\frac{1}{\gamma-1}} - P_0$$

$$(2) Q_c = .820610 \times 10^{-4} V_c^2 \left[ \frac{5760 V_c^2}{5.600 V_c^2 - 35.003913 \times 10^4} \right]^{5/2} - 29.92126$$

5.1.2 Symbols. Symbols shall be as follows:

a.  $P_t$ : Total pressure or ram pressure (in. Hg)

b.  $P_s$ : Static pressure (in. Hg)

c.  $P_0$ : Static atmospheric pressure at sea level (in. Hg)

d.  $Q_c$ : Differential pressure,  $P_t - P_s$  (in. Hg)

e.  $\rho_0$ : Mass density of dry ambient air at sea level ( $P_0 = 29.92126$ ) and standard temperature of 15°C

f.  $V_c$ : Calibrated air speed (knots)

g.  $A_0$ : Speed of sound at sea level and 15°C (knots)

h.  $\gamma$ : Ratio of specific heats of air (dimensionless).

5.1.3 Alternate formulae and symbols. The following alternate formulae and symbols may be used to permit the use of units other than inches Hg:

a. Alternate formulae

(1) For  $V_c \leq A_0$

$$(a) Q_c = P_0 \left[ \left( 1 + 0.2 \left( \frac{V_c}{A_0} \right)^2 \right)^{7/2} - 1 \right]$$