AERONAUTICAL MATERIAL SPECIFICATIONS

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AMS 7476B

Issued 6-15-50
Revised 1-15-58

BOLTS AND SCREWS, STEEL, CORROSION AND HEAT RESISTANT
Roll Threaded

1. ACKNOWLEDGMENT: A vendor shall mention this specification number and its revision letter in all quotations and when acknowledging purchase orders.

2. APPLICATION: High quality bolts and screws made from AMS 5721 steel for use up to 1150 F.

3. FABRICATION: Heads shall be formed by machining and not by upsetting. Threads ø shall be formed on the finished blanks by a single rolling.

4. TECHNICAL REQUIREMENTS:

4.1 Threads:

4.1.1 Flow lines at threads shall be continuous, shall follow the general thread ø contour, and shall be of maximum density at root of thread (see Figure 1).

4.1.2 Threads shall have no multiple or single laps at the root or on the sides (see Figures 2, 3, and 4), except that slight laps are permissible at the crest, on the non-pressure side inside the pitch diameter, and on the sides outside the pitch diameter (see Figures 5, 6, and 7). Slight deviation from thread contour is permissible at the crest of the thread as shown in Figure 8; the incomplete thread at each end of the threaded section may also deviate slightly from contour.

4.1.3 Parts having holes for locking devices are permitted to have slight ovalization of the hole and the countersink and slight flattening of the crest of the thread at the countersink, provided the diameter of the hole is within specified tolerances.

4.2 Stress Relief: Parts, after thread rolling, shall be heated at 1225 F ± 10 for 3 hr and air cooled.

4.3 Cleaning: Parts, after finishing, shall be degreased and then immersed for not less than 20 min. in a solution of 1 volume of nitric acid (sp gr 1.42) and 9 volumes of water at room temperature.

4.4 Hardness: Hardness shall be uniform and as specified on the drawing but hardness of the threaded portion may be higher as a result of the thread rolling.

4.5 Straightness, Concentricity, and Squareness: For purposes of these inspections, ø shank and threads shall be included but shall be considered as separate elements of the bolt.

4.5.1 Straightness of Shank and Threads: Shank and threads shall be straight within ø the limits specified on the drawing for the total length (L) of the bolt under the head (see Figure 9). Visibly abrupt changes in diameter or shape of the shank and threads which might cause stress concentrations are not permissible.

4.5.2 Concentricity of Thread Pitch Diameter: The concentricity of thread pitch diameter in relation to shank diameter shall be within the limits specified on the drawing for a distance of not less than 1.5 times the nominal bolt diameter away from the last full thread along the shank (see Figure 10). For bolts having a shank length less than 1.5 times the nominal bolt diameter, the concentricity of the shank diameter over its full length in relation to the thread pitch diameter shall be within the limits specified on the drawing.

4.5.3 Concentricity of Head: The concentricity of the head in relation to the shank diameter shall be within the limits specified on the drawing for a distance of not less than 1.5 times the nominal bolt diameter away from the washer face along the shank (see Figure 11). For bolts threaded to the head and for bolts having shank length less than 1.5 times the nominal bolt diameter, concentricity of head shall be measured in relation to thread pitch diameter in lieu of shank diameter.

4.5.4 Squareness of Washer Face: The squareness of the washer face with the shank diameter shall be within the limits specified on the drawing for a distance of not less than 1.5 times the nominal bolt diameter away from the washer face along the shank (see Figure 11). For bolts threaded to the head and for bolts having a shank length less than 1.5 times the nominal bolt diameter, squareness of washer face shall be measured in relation to thread pitch diameter in lieu of shank diameter.

5. QUALITY: Parts shall be uniform in quality and condition, clean, sound, smooth, and free from burrs and foreign materials and from internal and external imperfections detrimental to their performance.

5.1 Parts subject to fluorescent penetrant inspection shall not reveal indications of cracks, seams, pipes, or rolling laps as shown by Figures 2, 3, and 4 except that indications of slight laps as shown by Figures 5, 6, and 7 will be permitted.

6. REJECTIONS: Parts not conforming to this specification or to authorized modifications will be subject to rejection.

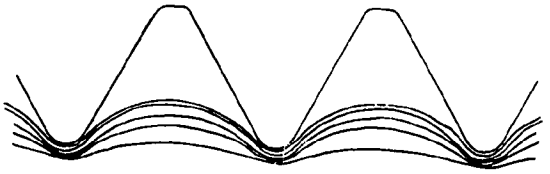

FIGURE 1
FLOW LINES
ROLLED THREAD

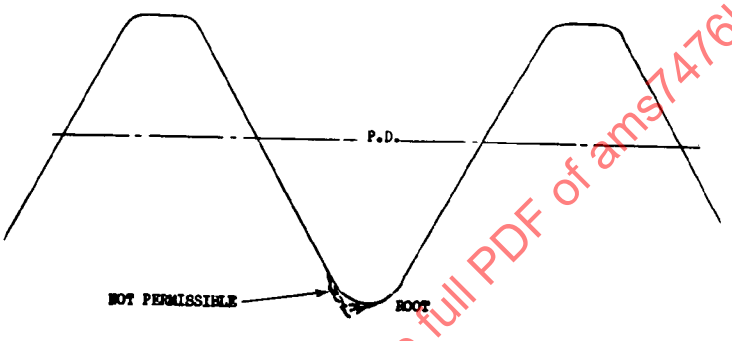

FIGURE 2
ROLLED THREAD

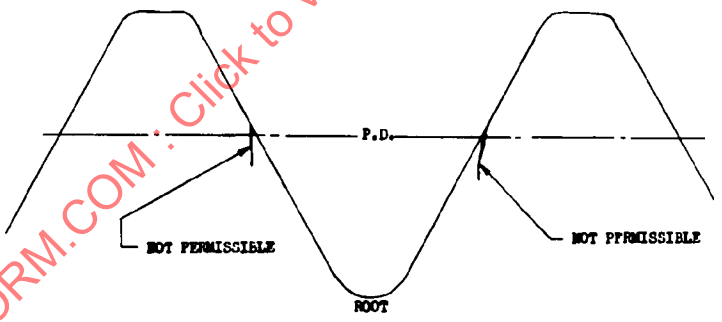

FIGURE 3
ROLLED THREAD

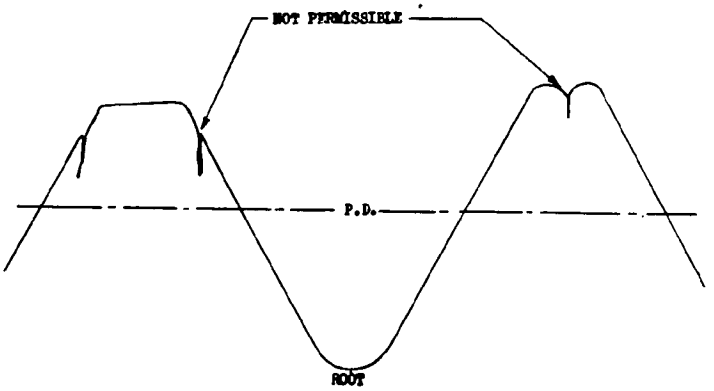

FIGURE 4
ROLLED THREAD

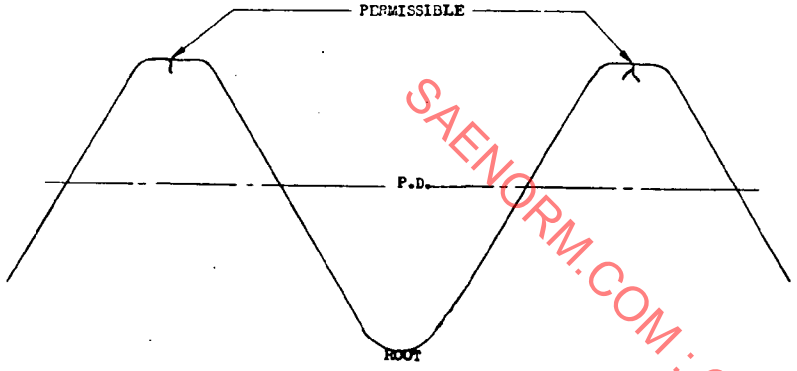

FIGURE 5
ROLLED THREAD

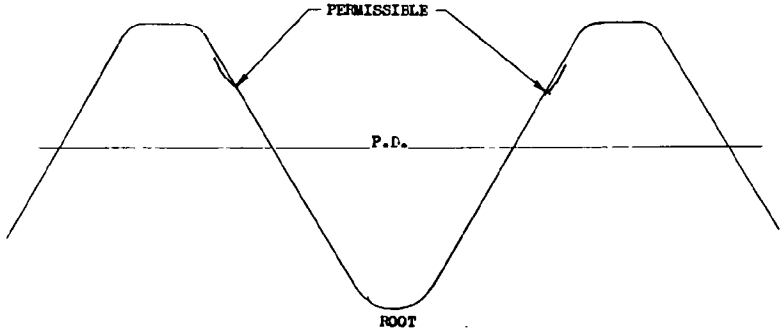

FIGURE 7
ROLLED THREAD

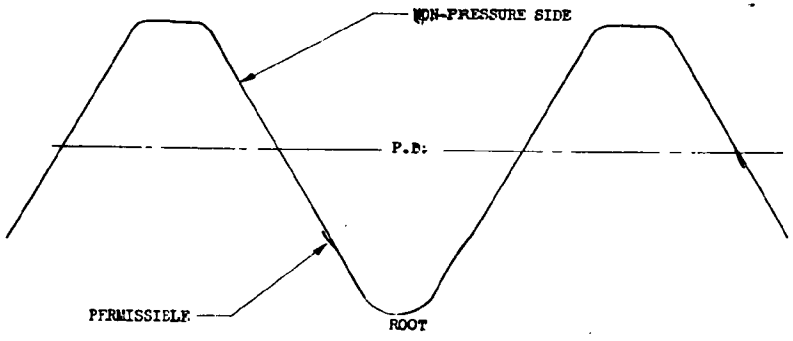

FIGURE 6
ROLLED THREAD

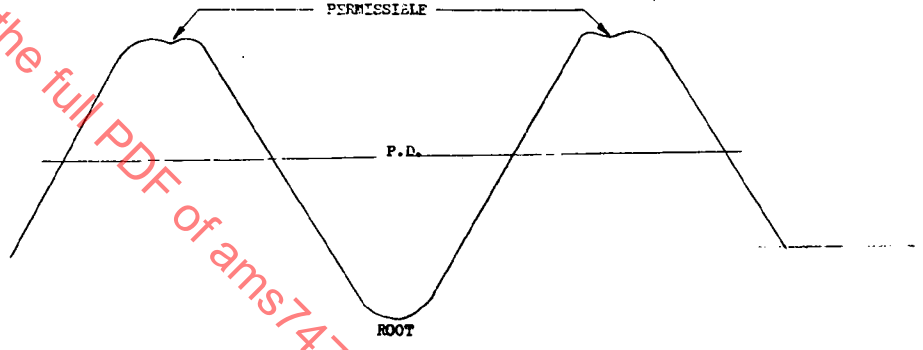

FIGURE 8
ROLLED THREAD