

**HAMMER LOCK**  
(SEE NOTE 2)

**EXTENDED PRONG SQUARE CUT (PLAN)**  
(SEE NOTE 2)

**TABLE I CONFIGURATION DIMENSIONS**

| SIZE<br>NOMINAL<br>DIAMETER | A    |      | B    |      | C    | D   | HOLE SIZE<br>RECOMMENDED |
|-----------------------------|------|------|------|------|------|-----|--------------------------|
|                             | MAX  | MIN  | MAX  | MIN  | MIN  | MIN |                          |
| 1/32 - .031                 | .052 | .028 | .052 | .022 | .06  | .01 | .047                     |
| 3/64 - .047                 | .048 | .044 | .048 | .035 | .09  | .02 | .062                     |
| 1/16 - .062                 | .060 | .056 | .060 | .044 | .12  | .03 | .078                     |
| 1/8 - .078                  | .076 | .072 | .076 | .057 | .16  | .04 | .094                     |
| 3/32 - .094                 | .090 | .086 | .090 | .069 | .19  | .04 | .109                     |
| 1/8 - .125                  | .120 | .116 | .120 | .093 | .25  | .06 | .141                     |
| 5/32 - .156                 | .150 | .146 | .150 | .116 | .31  | .07 | .172                     |
| 3/16 - .188                 | .176 | .172 | .176 | .137 | .38  | .09 | .205                     |
| 1/4 - .219                  | .207 | .202 | .207 | .161 | .44  | .10 | .234                     |
| 1/4 - .250                  | .225 | .220 | .225 | .176 | .50  | .11 | .266                     |
| 5/16 - .312                 | .280 | .275 | .280 | .220 | .62  | .14 | .312                     |
| 3/8 - .375                  | .335 | .329 | .335 | .263 | .75  | .16 | .375                     |
| 1/2 - .438                  | .406 | .400 | .406 | .320 | .88  | .20 | .438                     |
| 1/2 - .500                  | .473 | .467 | .473 | .373 | 1.00 | .23 | .500                     |
| 5/8 - .625                  | .598 | .590 | .598 | .472 | 1.25 | .30 | .625                     |
| 3/4 - .750                  | .723 | .715 | .723 | .572 | 1.50 | .36 | .750                     |

1/ Not a preferred size. Do not use for new design.

**REQUIREMENTS**

- MATERIAL** CARBON, STEEL, BRASS, CORROSION RESISTANT STEEL AND NICKEL COPPER ALLOY IN ACCORDANCE WITH PROCUREMENT SPECIFICATION.
- PROTECTIVE COATING** CARBON STEEL SHALL BE CADMIUM PLATED IN ACCORDANCE WITH QQ-P-416, TYPE II, CLASS 3 OR PHOSPHATE COATED IN ACCORDANCE WITH MIL-P-16232, TYPE Z, CLASS 3 AND THE PROCUREMENT SPECIFICATION. BRASS SHALL BE BLACK CHEMICAL FINISH AS SPECIFIED IN MIL-P-495 AND IN ACCORDANCE WITH THE PROCUREMENT SPECIFICATION. CORROSION RESISTANT STEEL SHALL BE CLEANED, DESCALE AND PASSIVATED IN ACCORDANCE WITH ASTM A380 AND THE PROCUREMENT SPECIFICATION.

(F) ENTIRE STANDARD REVISED

**DISTRIBUTION STATEMENT A** Approved for public release; distribution is unlimited.  
 This military standard is approved for use by all Departments and Agencies of the Department of Defense.  
 Selection for all new engineering and design applications and for repetitive use shall be made from this document when applicable.

USER ACTIVITIES  
 ARMY - AT, ME, MI  
 NAVY - YD

REVIEWER ACTIVITIES  
 ARMY - AV, ER  
 AIR FORCE - 11, 82  
 NSA - NS  
 DLA - IS

|                          |              |                        |                                           |                          |
|--------------------------|--------------|------------------------|-------------------------------------------|--------------------------|
| P/A                      | AR           | INTERNATIONAL INTEREST | TITLE                                     | <b>MILITARY STANDARD</b> |
| Other Cost               | OS<br>99     |                        | PIN, COTTER (SPLIT)                       |                          |
| PROCURMENT SPECIFICATION | ANSI B18.8.1 |                        | SUPRESEDES                                | PAGE 1 OF 8              |
|                          |              |                        | BFAQ3, BFAQ3 1, BFAQ3.2, AN380, AND AN381 |                          |

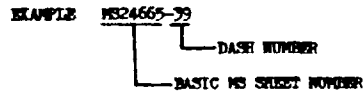
APPROVED 16 MAR 60  
 REVISED (F) 18 JUN 86

3. HARDNESS CORROSION RESISTANT STEEL COTTER PINS SHALL HAVE A HARDNESS AS FOLLOWS:

| NOMINAL COTTER PIN DIA      | VICKERS (10 Kg LOAD) | ROCKWELL 15N   |
|-----------------------------|----------------------|----------------|
| 1/16 - .062 AND LESS        | 200 TO 350 HV10      | 65 TO 78 HR15N |
| 5/64 - .078 AND 3/32 - .094 | 170 TO 245 HV10      | 60 TO 70 HR15N |
| 1/8 - .125 AND LARGER       | 140 TO 220 HV10      | 55 TO 67 HR15N |

CORROSION RESISTANT STEEL COTTER PINS SHALL BE TESTED FOR HARDNESS IN ACCORDANCE WITH MIL-STD-1312 TEST NO 6.

4. LENGTH TOLERANCE THE COTTER PINS SHALL MEET THE LENGTH TOLERANCE AS SPECIFIED IN THE PROCUREMENT SPECIFICATION.
5. PART NUMBER. THE PART NUMBER SHALL CONSIST OF THE BASIC MS SHEET NUMBER PLUS THE DASH NUMBER TAKEN FROM TABLES II, III, IV, V AND VI AS APPLICABLE.



MS24665-39 INDICATES - PIN, COTTER (SPLIT), BRASS WITH BLACK CHEMICAL FINISH  
NOMINAL DIAMETER 1/32 INCH, LENGTH 1/2 INCH.

6. QUALITY ASSURANCE PROVISIONS. QUALITY ASSURANCE PROVISIONS SHALL BE IN ACCORDANCE WITH ANSI B18.18.1M.
7. PACKAGING. PACKAGING SHALL BE IN ACCORDANCE WITH ASTM D3951

NOTES

- ALL DIMENSIONS ARE IN INCHES
- PREFERRED POINT TYPES SHALL BE THE EXTENDED PRONG SQUARE (PLAIN) CUT OR HAMMER LOCK TYPES AS DEPICTED HEREIN OTHER OPTIONAL COTTER PIN DESIGN SHALL BE IN ACCORDANCE WITH PROCUREMENT SPECIFICATION
- IN THE EVENT OF A CONFLICT BETWEEN THE TEXT OF THIS STANDARD AND THE REFERENCES CITED HEREIN, THE TEXT OF THIS STANDARD SHALL TAKE PRECEDENCE.
- REFERENCED GOVERNMENT (OR NONGOVERNMENT) DOCUMENTS OF THE ISSUE LISTED IN THAT ISSUE OF THE DEPARTMENT OF DEFENSE INDEX OF SPECIFICATIONS AND STANDARDS (DOISS) SPECIFIED IN THE SOLICITATION FORM A PART OF THIS STANDARD TO THE EXTENT SPECIFIED HEREIN.

APPROVED 16 MAR 80 REVISED (F) FOR CHANGES SEE PAGES 1, 2, 3, 4, 5, 6, 7 AND 8

USER ACTIVITIES  
ARMY-AT, ME, M  
NAVY-YD

REVIEWER ACTIVITIES  
ARMY-AVER  
AIR FORCE - I, 82  
NSA-NS  
DLA-IS

This military standard is approved for use by all Departments and Agencies of the Department of Defense. Selection for all new engineering and design applications and for repetitive use shall be made from this document when applicable.

|                                           |                |                                                       |                             |                              |
|-------------------------------------------|----------------|-------------------------------------------------------|-----------------------------|------------------------------|
| P.A.<br>Other Cont                        | AR<br>OS<br>99 | INTERNATIONAL INTEREST                                | TITLE<br>PIN, COTTER(SPLIT) | MILITARY STANDARD<br>MS24665 |
| PROCUREMENT SPECIFICATION<br>ANSI B18.8.1 |                | SUPERSEDES<br>BFAX3, BFA3.1, BFA3.2, AN380, AND AN381 |                             | PAGE OF<br>2 8               |

TABLE II DASH NUMBERS AND DIMENSIONS - BRASS

| L<br>LENGTH         | NOMINAL DIAMETER |         |         |                    |         |         |         |         |                    |                   |                   |                   |                    |                   |                   |                   |
|---------------------|------------------|---------|---------|--------------------|---------|---------|---------|---------|--------------------|-------------------|-------------------|-------------------|--------------------|-------------------|-------------------|-------------------|
|                     | 1/32             | 3/64    | 1/16    | 5/64 <sup>1/</sup> | 3/32    | 1/8     | 5/32    | 3/16    | 7/32 <sup>1/</sup> | 1/4               | 5/16              | 3/8               | 7/16 <sup>1/</sup> | 1/2               | 5/8               | 3/4 <sup>1/</sup> |
|                     | DASH NO          | DASH NO | DASH NO | DASH NO            | DASH NO | DASH NO | DASH NO | DASH NO | DASH NO            | DASH NO           | DASH NO           | DASH NO           | DASH NO            | DASH NO           | DASH NO           | DASH NO           |
| 1/4                 | 35               | 99      |         |                    |         |         |         |         |                    |                   |                   |                   |                    |                   |                   |                   |
| 1/2                 | 39               | 105     | 170     | 246 <sup>1/</sup>  | 315     | 383     |         |         |                    |                   |                   |                   |                    |                   |                   |                   |
| 3/4                 | 41               | 105     | 172     | 248 <sup>1/</sup>  | 317     | 385     | 454     | 526     |                    |                   |                   |                   |                    |                   |                   |                   |
| 1                   | 43               | 107     | 174     | 250 <sup>1/</sup>  | 319     | 387     | 455     | 527     | 591 <sup>1/</sup>  | 651               | 713               |                   |                    |                   |                   |                   |
| 1-1/4               | 44               | 108     | 176     | 252 <sup>1/</sup>  | 321     | 389     | 457     | 529     | 592 <sup>1/</sup>  | 652               | 714               |                   |                    |                   |                   |                   |
| 1-1/2               | 45               | 109     | 178     | 254 <sup>1/</sup>  | 323     | 391     | 459     | 531     | 595 <sup>1/</sup>  | 653               | 715               | 779               | 863 <sup>1/</sup>  |                   |                   |                   |
| 1-3/4               | 46               | 110     | 180     | 256 <sup>1/</sup>  | 325     | 393     | 461     | 533     | 594 <sup>1/</sup>  | 654               | 716               | 780               | 864 <sup>1/</sup>  |                   |                   |                   |
| 2                   | 47               | 111     | 181     | 257 <sup>1/</sup>  | 326     | 394     | 462     | 534     | 595 <sup>1/</sup>  | 655               | 717               | 781               | 865 <sup>1/</sup>  | 919               |                   |                   |
| 2-1/4               |                  |         |         |                    | 327     | 395     | 463     | 535     | 596 <sup>1/</sup>  | 656               | 718               | 782               | 866 <sup>1/</sup>  | 920               |                   |                   |
| 2-1/2               | 48               | 112     | 182     | 258 <sup>1/</sup>  | 328     | 396     | 464     | 536     | 597 <sup>1/</sup>  | 657               | 719               | 783               | 867 <sup>1/</sup>  | 921               |                   |                   |
| 2-3/4               |                  |         |         |                    |         |         | 465     | 537     |                    |                   |                   |                   |                    |                   |                   |                   |
| 3                   | 49               | 113     | 183     | 259 <sup>1/</sup>  | 329     | 397     | 466     | 538     | 598 <sup>1/</sup>  | 658               | 720               | 784               | 869 <sup>1/</sup>  | 922               | 959               | 999 <sup>1/</sup> |
| 3-1/2               |                  |         |         |                    |         |         | 467     | 539     | 599 <sup>1/</sup>  | 659               | 721               | 785               | 870 <sup>1/</sup>  | 923               | 960               | 990 <sup>1/</sup> |
| 4                   |                  |         |         |                    |         |         | 468     | 540     | 600 <sup>1/</sup>  | 660 <sup>1/</sup> | 722               | 786               | 871 <sup>1/</sup>  | 924               | 961               | 991 <sup>1/</sup> |
| 4-1/2 <sup>1/</sup> |                  |         |         |                    |         |         |         |         |                    | 661 <sup>1/</sup> | 723 <sup>1/</sup> | 787 <sup>1/</sup> | 872 <sup>1/</sup>  | 925 <sup>1/</sup> | 962 <sup>1/</sup> | 992 <sup>1/</sup> |
| 5                   |                  |         |         |                    |         |         |         |         |                    | 662               | 724               | 788               | 873 <sup>1/</sup>  | 926               | 963               | 993 <sup>1/</sup> |
| 6                   |                  |         |         |                    |         |         |         |         |                    | 663               | 726               | 790               | 874 <sup>1/</sup>  | 927               | 964               | 994 <sup>1/</sup> |

<sup>1/</sup> NOT A PREFERRED SIZE. DO NOT USE FOR NEW DESIGN.

TABLE III. DASH NUMBERS AND DIMENSIONS - STEEL, PHOSPHATE COATED

| L<br>LENGTH | NOMINAL DIAMETER |         |         |                    |         |         |         |         |                    |         |         |         |                    |         |         |                   |
|-------------|------------------|---------|---------|--------------------|---------|---------|---------|---------|--------------------|---------|---------|---------|--------------------|---------|---------|-------------------|
|             | 1/32             | 3/64    | 1/16    | 5/64 <sup>1/</sup> | 3/32    | 1/8     | 5/32    | 3/16    | 7/32 <sup>1/</sup> | 1/4     | 5/16    | 3/8     | 7/16 <sup>1/</sup> | 1/2     | 5/8     | 3/4 <sup>1/</sup> |
|             | DASH NO          | DASH NO | DASH NO | DASH NO            | DASH NO | DASH NO | DASH NO | DASH NO | DASH NO            | DASH NO | DASH NO | DASH NO | DASH NO            | DASH NO | DASH NO | DASH NO           |
| 1/2         |                  |         | 814     |                    |         |         |         |         |                    |         |         |         |                    |         |         |                   |
| 3/4         |                  |         | 816     |                    |         | 850     |         |         |                    |         |         |         |                    |         |         |                   |
| 1-1/4       |                  |         |         |                    |         | 854     |         |         |                    |         |         |         |                    |         |         |                   |

<sup>1/</sup> NOT A PREFERRED SIZE. DO NOT USE FOR NEW DESIGN.

USER ACTIVITIES  
ARMY - AT, ME, MI  
NAVY - YD

REVIEWER ACTIVITIES  
ARMY - AV, ER  
AIR FORCE - I, B2  
NSA - NS  
DLA - IS

This military standard is approved for use by all Departments and Agencies of the Department of Defense. Selection for all new engineering and design applications and for repetitive use shall be made from this document where applicable.

|                                           |                                                       |                        |                              |                              |
|-------------------------------------------|-------------------------------------------------------|------------------------|------------------------------|------------------------------|
| P.A.<br>Other Cont                        | AR<br>OS<br>99                                        | INTERNATIONAL INTEREST | TITLE<br>PIN, COTTER (SPLIT) | MILITARY STANDARD<br>MS24665 |
| PROCUREMENT SPECIFICATION<br>ANSI B18 8.1 | SUPERSEDES<br>BFAX3, BFA3-1, BFA3.2, AN380, AND AN381 | PAGE<br>3              |                              | OF<br>8                      |

APPROVED 16 MAR 60 REVISED (F) FOR CHANGES SEE PAGES 1, 2, 3, 4, 5, 6, 7 AND 8

TABLE IV. DASH NUMBERS AND DIMENSIONS - STEEL, CADMIUM PLATED

| L<br>LENGTH         | NOMINAL DIAMETER |         |         |                    |         |         |         |         |                    |                   |                   |                   |                    |                   |                   |                   |
|---------------------|------------------|---------|---------|--------------------|---------|---------|---------|---------|--------------------|-------------------|-------------------|-------------------|--------------------|-------------------|-------------------|-------------------|
|                     | 1/32             | 3/64    | 1/16    | 5/64 <sup>1/</sup> | 3/32    | 1/8     | 5/32    | 3/16    | 7/32 <sup>1/</sup> | 1/4               | 5/16              | 3/8               | 7/16 <sup>1/</sup> | 1/2               | 5/8               | 3/4 <sup>1/</sup> |
|                     | DASH NO          | DASH NO | DASH NO | DASH NO            | DASH NO | DASH NO | DASH NO | DASH NO | DASH NO            | DASH NO           | DASH NO           | DASH NO           | DASH NO            | DASH NO           | DASH NO           | DASH NO           |
| 1/4                 | 1                | 65      |         |                    |         |         |         |         |                    |                   |                   |                   |                    |                   |                   |                   |
| 1/2                 | 5                | 69      | 132     | 208 <sup>1/</sup>  | 281     | 349     |         |         |                    |                   |                   |                   |                    |                   |                   |                   |
| 3/4                 | 7                | 71      | 134     | 210 <sup>1/</sup>  | 283     | 351     | 418     | 490     |                    |                   |                   |                   |                    |                   |                   |                   |
| 1                   | 9                | 73      | 136     | 212 <sup>1/</sup>  | 285     | 353     | 419     | 491     | 561 <sup>1/</sup>  | 621               | 681               |                   |                    |                   |                   |                   |
| 1-1/4               | 10               | 74      | 138     | 214 <sup>1/</sup>  | 287     | 355     | 421     | 493     | 562 <sup>1/</sup>  | 622               | 682               |                   |                    |                   |                   |                   |
| 1-1/2               | 11               | 75      | 140     | 216 <sup>1/</sup>  | 289     | 357     | 423     | 495     | 563 <sup>1/</sup>  | 623               | 683               | 747               |                    |                   |                   |                   |
| 1-3/4               | 12               | 76      | 142     | 218 <sup>1/</sup>  | 291     | 359     | 425     | 497     | 564 <sup>1/</sup>  | 624               | 684               | 748               | 840 <sup>1/</sup>  |                   |                   |                   |
| 2                   | 13               | 77      | 143     | 219 <sup>1/</sup>  | 292     | 360     | 426     | 498     | 565 <sup>1/</sup>  | 625               | 685               | 749               | 841 <sup>1/</sup>  | 899               |                   |                   |
| 2-1/4               |                  |         |         |                    | 293     | 361     | 427     | 499     | 566 <sup>1/</sup>  | 626               | 686               | 750               | 842 <sup>1/</sup>  | 900               |                   |                   |
| 2-1/2               | 14               | 78      | 144     | 220 <sup>1/</sup>  | 294     | 362     | 428     | 500     | 567 <sup>1/</sup>  | 627               | 687               | 751               | 843 <sup>1/</sup>  | 901               |                   |                   |
| 2-3/4               |                  |         |         |                    |         |         | 429     | 501     |                    |                   |                   |                   |                    |                   |                   |                   |
| 3                   | 15               | 79      | 145     | 221 <sup>1/</sup>  | 295     | 363     | 430     | 502     | 568 <sup>1/</sup>  | 628               | 688               | 752               | 845 <sup>1/</sup>  | 903               | 947               | 977 <sup>1/</sup> |
| 3-1/2               |                  |         |         |                    |         |         | 431     | 503     | 569 <sup>1/</sup>  | 629               | 689               | 753               | 846 <sup>1/</sup>  | 904               | 948               | 978 <sup>1/</sup> |
| 4                   |                  |         |         |                    |         |         | 432     | 504     | 570 <sup>1/</sup>  | 630               | 690               | 754               | 847 <sup>1/</sup>  | 905               | 949               | 979 <sup>1/</sup> |
| 4-1/2 <sup>1/</sup> |                  |         |         |                    |         |         |         |         |                    | 631 <sup>1/</sup> | 691 <sup>1/</sup> | 755 <sup>1/</sup> | 848 <sup>1/</sup>  | 906 <sup>1/</sup> | 950 <sup>1/</sup> | 980 <sup>1/</sup> |
| 5                   |                  |         |         |                    |         |         |         |         |                    | 632               | 692               | 756               | 849 <sup>1/</sup>  | 907               | 951               | 981 <sup>1/</sup> |
| 6                   |                  |         |         |                    |         |         |         |         |                    | 633               | 694               | 758               | 850 <sup>1/</sup>  | 908               | 952               | 982 <sup>1/</sup> |

<sup>1/</sup> NOT A PREFERRED SIZE. DO NOT USE FOR NEW DESIGN.

USER ACTIVITIES  
ARMY-AT, ME, MI  
NAVY-YD

REVIEWER ACTIVITIES  
ARMY-AV, ER  
AIRFORCE-II, 82  
NSA-NS  
DLA-IS

This military standard is approved for use by all Departments and Agencies of the Department of Defense.  
Selection for all new engineering and design applications and for repetitive use shall be made from this document when applicable.

APPROVED 16 MAR 80 REVISED (F) FOR CHANGES SEE PAGES 1, 2, 3, 4, 5, 6, 7 AND 8

|                                          |                                                         |                        |                              |                              |
|------------------------------------------|---------------------------------------------------------|------------------------|------------------------------|------------------------------|
| P.A.<br>Other Cont                       | AR<br>OS<br>99                                          | INTERNATIONAL INTEREST | TITLE<br>PIN, COTTER (SPLIT) | MILITARY STANDARD<br>MS24665 |
| PROCURMENT SPECIFICATION<br>ANSI B18.8.1 | SUPERSEDES<br>BFA33, BFA33.1, BFA33.2, AN380, AND AN381 |                        | PAGE<br>4                    | OF<br>8                      |

TABLE V. DASH NUMBERS AND DIMENSIONS - CORROSION RESISTANT STEEL

| L<br>LENGTH         | NOMINAL DIAMETER |         |         |                    |         |         |         |         |                    |                   |                   |                   |                    |                   |                   |                   |
|---------------------|------------------|---------|---------|--------------------|---------|---------|---------|---------|--------------------|-------------------|-------------------|-------------------|--------------------|-------------------|-------------------|-------------------|
|                     | 1/32             | 3/64    | 1/16    | 5/64 <sup>1/</sup> | 3/32    | 1/8     | 5/32    | 3/16    | 7/32 <sup>1/</sup> | 1/4               | 5/16              | 3/8               | 7/16 <sup>1/</sup> | 1/2               | 5/8               | 3/4 <sup>1/</sup> |
|                     | DASH NO          | DASH NO | DASH NO | DASH NO            | DASH NO | DASH NO | DASH NO | DASH NO | DASH NO            | DASH NO           | DASH NO           | DASH NO           | DASH NO            | DASH NO           | DASH NO           | DASH NO           |
| 1/4                 | 18               | 82      | 1010    |                    |         |         |         |         |                    |                   |                   |                   |                    |                   |                   |                   |
| 5/16                | 1001             |         | 1011    |                    |         |         |         |         |                    |                   |                   |                   |                    |                   |                   |                   |
| 3/8                 | 1002             |         | 1012    |                    |         |         |         |         |                    |                   |                   |                   |                    |                   |                   |                   |
| 7/16                | 1003             |         | 1013    |                    |         |         |         |         |                    |                   |                   |                   |                    |                   |                   |                   |
| 1/2                 | 22               | 86      | 151     | 227 <sup>1/</sup>  | 298     | 366     |         |         |                    |                   |                   |                   |                    |                   |                   |                   |
| 3/4                 | 24               | 88      | 153     | 229 <sup>1/</sup>  | 300     | 368     | 436     | 508     |                    |                   |                   |                   |                    |                   |                   |                   |
| 1                   | 26               | 90      | 155     | 231 <sup>1/</sup>  | 302     | 370     | 437     | 509     | 576 <sup>1/</sup>  | 636               | 697               |                   |                    |                   |                   |                   |
| 1-1/4               | 27               | 91      | 157     | 233 <sup>1/</sup>  | 304     | 372     | 439     | 511     | 577 <sup>1/</sup>  | 637               | 698               |                   |                    |                   |                   |                   |
| 1-1/2               | 28               | 92      | 159     | 235 <sup>1/</sup>  | 306     | 374     | 441     | 513     | 578 <sup>1/</sup>  | 638               | 699               | 763               | 851 <sup>1/</sup>  |                   |                   |                   |
| 1-3/4               | 29               | 93      | 161     | 237 <sup>1/</sup>  | 308     | 376     | 443     | 515     | 579 <sup>1/</sup>  | 639               | 700               | 764               | 852 <sup>1/</sup>  |                   |                   |                   |
| 2                   | 30               | 94      | 162     | 238 <sup>1/</sup>  | 309     | 377     | 444     | 516     | 580 <sup>1/</sup>  | 640               | 701               | 765               | 853 <sup>1/</sup>  | 909               |                   |                   |
| 2-1/4               |                  |         |         |                    | 310     | 378     | 445     | 517     | 581 <sup>1/</sup>  | 641               | 702               | 766               | 854 <sup>1/</sup>  | 910               |                   |                   |
| 2-1/2               | 31               | 95      | 163     | 239 <sup>1/</sup>  | 311     | 379     | 446     | 518     | 582 <sup>1/</sup>  | 642               | 703               | 767               | 855 <sup>1/</sup>  | 911               |                   |                   |
| 2-3/4               |                  |         |         |                    |         |         | 447     | 519     |                    |                   |                   |                   |                    |                   |                   |                   |
| 3                   | 32               | 96      | 164     | 240 <sup>1/</sup>  | 312     | 380     | 448     | 520     | 583 <sup>1/</sup>  | 643               | 704               | 768               | 857 <sup>1/</sup>  | 913               | 953               | 983 <sup>1/</sup> |
| 3-1/2               |                  |         |         |                    |         |         | 449     | 521     | 584 <sup>1/</sup>  | 644               | 705               | 769               | 858 <sup>1/</sup>  | 914               | 954               | 984 <sup>1/</sup> |
| 4                   |                  |         |         |                    |         |         | 450     | 522     | 585 <sup>1/</sup>  | 645               | 706               | 770               | 859 <sup>1/</sup>  | 915               | 955               | 985 <sup>1/</sup> |
| 4-1/2 <sup>1/</sup> |                  |         |         |                    |         |         |         |         |                    | 646 <sup>1/</sup> | 707 <sup>1/</sup> | 771 <sup>1/</sup> | 860 <sup>1/</sup>  | 916 <sup>1/</sup> | 956 <sup>1/</sup> | 986 <sup>1/</sup> |
| 5                   |                  |         |         |                    |         |         |         |         |                    | 647               | 708               | 772               | 861 <sup>1/</sup>  | 917               | 957               | 987 <sup>1/</sup> |
| 6                   |                  |         |         |                    |         |         |         |         |                    | 648               | 710               | 774               | 862 <sup>1/</sup>  | 918               | 958               | 988 <sup>1/</sup> |

<sup>1/</sup> NOT A PREFERRED SIZE. DO NOT USE FOR NEW DESIGN

USER ACTIVITIES  
ARMY - AT, ME, MI  
NAVY - YD

REVIEWER ACTIVITIES  
ARMY - AV, ER  
AIR FORCE - I, I, 82  
NSA - NS  
DLA - IS

This military standard is approved for use by all Departments and Agencies of the Department of Defense. Selection for all new engineering and design applications and for repetitive use shall be made from this document when applicable.

|                           |                                         |                        |                     |                   |
|---------------------------|-----------------------------------------|------------------------|---------------------|-------------------|
| P.A.                      | AR                                      | INTERNATIONAL INTEREST | TITLE               | MILITARY STANDARD |
| Other Curt                | OS 99                                   |                        | PIN, COTTER (SPLIT) | MS24665           |
| PROCUREMENT SPECIFICATION | SUPERSEDES                              |                        | PAGE                | OF                |
| ANSI B18.8.1              | BFAX3, BFA3.1, BFA3.2, AN380, AND AN381 |                        | 5                   | 8                 |

APPROVED 16 MAR 80 REVISED (F) FOR CHANGES PAGES 1, 2, 3, 4, 5, 6, 7 AND 8

TABLE VI DASH NUMBERS AND DIMENSIONS - NICKEL-COPPER ALLOY

| L<br>LENGTH | NOMINAL DIAMETER |         |         |                    |         |         |         |         |                    |         |         |         |                    |         |         |                   |
|-------------|------------------|---------|---------|--------------------|---------|---------|---------|---------|--------------------|---------|---------|---------|--------------------|---------|---------|-------------------|
|             | 1/32             | 3/64    | 1/16    | 5/64 <sup>1/</sup> | 3/32    | 1/8     | 5/32    | 3/16    | 7/32 <sup>1/</sup> | 1/4     | 5/16    | 3/8     | 7/16 <sup>1/</sup> | 1/2     | 5/8     | 3/4 <sup>1/</sup> |
|             | DASH NO          | DASH NO | DASH NO | DASH NO            | DASH NO | DASH NO | DASH NO | DASH NO | DASH NO            | DASH NO | DASH NO | DASH NO | DASH NO            | DASH NO | DASH NO | DASH NO           |
| 1/2         |                  |         | 189     | 265 <sup>1/</sup>  | 332     | 400     |         |         |                    |         |         |         |                    |         |         |                   |
| 3/4         |                  |         | 191     | 267 <sup>1/</sup>  | 334     | 402     | 472     | 544     |                    |         |         |         |                    |         |         |                   |
| 1           |                  |         | 193     | 269 <sup>1/</sup>  | 336     | 404     | 473     | 545     | 606 <sup>1/</sup>  | 666     | 729     |         |                    |         |         |                   |
| 1-1/4       |                  |         | 195     | 271 <sup>1/</sup>  | 338     | 406     | 475     | 547     | 607 <sup>1/</sup>  | 667     | 730     |         |                    |         |         |                   |
| 1-1/2       |                  |         | 197     | 273 <sup>1/</sup>  | 340     | 408     | 477     | 549     | 609 <sup>1/</sup>  | 668     | 731     | 795     | 875 <sup>1/</sup>  |         |         |                   |
| 1-3/4       |                  |         | 199     | 275 <sup>1/</sup>  | 342     | 410     | 479     | 551     | 609 <sup>1/</sup>  | 669     | 732     | 796     | 876 <sup>1/</sup>  |         |         |                   |
| 2           |                  |         | 200     | 276 <sup>1/</sup>  | 343     | 411     | 480     | 552     | 610 <sup>1/</sup>  | 670     | 733     | 797     | 877 <sup>1/</sup>  | 928     |         |                   |
| 2-1/2       |                  |         | 201     | 277 <sup>1/</sup>  | 345     | 413     | 482     | 554     | 612 <sup>1/</sup>  | 672     | 735     | 799     | 879 <sup>1/</sup>  | 930     |         |                   |
| 3           |                  |         | 202     | 278 <sup>1/</sup>  | 346     | 414     | 484     | 556     | 613 <sup>1/</sup>  | 673     | 736     | 800     | 881 <sup>1/</sup>  | 932     | 965     | 995 <sup>1/</sup> |
| 4           |                  |         |         |                    |         |         | 486     | 558     | 615 <sup>1/</sup>  | 675     | 738     | 802     | 883 <sup>1/</sup>  | 934     | 967     | 996 <sup>1/</sup> |
| 5           |                  |         |         |                    |         |         |         |         |                    | 677     | 740     | 804     | 885 <sup>1/</sup>  | 936     | 969     | 997 <sup>1/</sup> |
| 6           |                  |         |         |                    |         |         |         |         |                    | 678     | 742     | 806     | 886 <sup>1/</sup>  | 937     | 970     | 998 <sup>1/</sup> |

<sup>1/</sup> NOT A PREFERRED SIZE. DO NOT USE FOR NEW DESIGN.

USER ACTIVITIES  
ARMY-AT, ME, MI  
NAVY-YD

REVIEWER ACTIVITIES  
ARMY-AV, ER  
AIR FORCE-11, B2  
NSA-NS  
DLA-LS

This military standard is approved for use by all Departments and Agencies of the Department of Defense. Selection for all new engineering and design applications and for repetitive use shall be made from this document when applicable.

APPROVED 16 MAR 60 REVISED (E) FOR CHANGES SEE PAGES 1, 2, 3, 4, 5, 6, 7 AND 8

|                                           |                                                       |                     |                   |
|-------------------------------------------|-------------------------------------------------------|---------------------|-------------------|
| P.A.<br>AR                                | INTERNATIONAL INTEREST                                | TITLE               | MILITARY STANDARD |
| Other Cont<br>OS<br>99                    |                                                       | PIN, COTTER (SPLIT) | MS24665           |
| PROCUREMENT SPECIFICATION<br>ANSI B18.8.1 | SUPERSEDES<br>BFAX3, BFA3.1, BFA3.2, AN380, AND AN381 | PAGE<br>6           | OF<br>8           |

USER ACTIVITIES  
ARMY - AT, ME, MI  
NAVY - YD

REVIEWER ACTIVITIES  
ARMY - AV, ER  
AIR FORCE - 11, 82  
NSA - NS  
DLA - IS

This military standard is approved for use by all Departments and Agencies of the Department of Defense. Selection for all new engineering and design applications and for repetitive use shall be made from this document when applicable.

TABLE VII. CANCELLATIONS

THE PINS COVERED BY THE FOLLOWING DASH NUMBERS LISTED IN MS24665, REV. A ARE CANCELLED

| CANCELLED         | USE               | CANCELLED         | USE               | CANCELLED         | USE                |
|-------------------|-------------------|-------------------|-------------------|-------------------|--------------------|
| MS24665<br>REV. A | MS24665<br>REV. E | MS24665<br>REV. A | MS24665<br>REV. E | MS24665<br>REV. A | MS24665<br>REV. E. |
| DASH NUMBER       |                   | DASH NUMBER       |                   | DASH NUMBER       |                    |
| 3                 | 52 <sup>2/</sup>  |                   | 155 <sup>2/</sup> |                   | 368 <sup>2/</sup>  |
| 20                | 22 <sup>2/</sup>  | 154               | 155 <sup>2/</sup> |                   | 369 <sup>2/</sup>  |
|                   | 24 <sup>2/</sup>  |                   | 157 <sup>2/</sup> | 369               | 370 <sup>2/</sup>  |
|                   | 24 <sup>2/</sup>  |                   | 159 <sup>2/</sup> | 371               | 372 <sup>2/</sup>  |
|                   | 26 <sup>2/</sup>  |                   | 161 <sup>2/</sup> | 375               | 374 <sup>2/</sup>  |
| 37                | 39 <sup>2/</sup>  | 168               | 170 <sup>2/</sup> | 375               | 376 <sup>2/</sup>  |
| 67                | 69 <sup>2/</sup>  | 228               | 229 <sup>2/</sup> | 417               | 418 <sup>2/</sup>  |
| 83                | 86 <sup>2/</sup>  | 230               | 231 <sup>2/</sup> |                   | 436 <sup>2/</sup>  |
| 84                | 86 <sup>2/</sup>  | 232               | 233 <sup>2/</sup> |                   | 436 <sup>2/</sup>  |
| 85                | 86 <sup>2/</sup>  | 234               | 235 <sup>2/</sup> |                   | 436 <sup>2/</sup>  |
| 87                | 88 <sup>2/</sup>  | 236               | 237 <sup>2/</sup> | 435               | 436 <sup>2/</sup>  |
| 89                | 90 <sup>2/</sup>  |                   | 298 <sup>2/</sup> |                   | 437 <sup>2/</sup>  |
| 101               | 103 <sup>2/</sup> |                   | 298 <sup>2/</sup> | 438               | 439 <sup>2/</sup>  |
| 130               | 132 <sup>2/</sup> |                   | 300 <sup>2/</sup> | 440               | 441 <sup>2/</sup>  |
| 148               | 151 <sup>2/</sup> | 299               | 300 <sup>2/</sup> | 442               | 443 <sup>2/</sup>  |
| 149               | 151 <sup>2/</sup> | 301               | 302 <sup>2/</sup> |                   | 513 <sup>2/</sup>  |
| 150               | 151 <sup>2/</sup> | 303               | 304 <sup>2/</sup> | 514               | 515 <sup>2/</sup>  |
|                   | 153 <sup>2/</sup> | 305               | 306 <sup>2/</sup> | 757               | 758 <sup>2/</sup>  |
|                   | 153 <sup>2/</sup> | 307               | 308 <sup>2/</sup> | 775               | 774 <sup>2/</sup>  |
| 152               | 153 <sup>2/</sup> |                   | 366 <sup>2/</sup> | 789               | 790 <sup>2/</sup>  |

<sup>2/</sup> SUGGESTED REPLACEMENT, DASH NUMBER INDICATED IS NEXT LONGER LENGTH.

APPROVED 16 MAR 60 REVISED (F) FOR CHANGES SEE PAGES 1, 2, 3, 4, 5, 6, 7, AND 8

|                                          |                |                                                       |                                  |                                  |
|------------------------------------------|----------------|-------------------------------------------------------|----------------------------------|----------------------------------|
| P.A.<br>Other Cost                       | AR<br>OS<br>99 | INTERNATIONAL<br>INTEREST                             | TITLE<br><br>PIN, COTTER (SPLIT) | MILITARY STANDARD<br><br>MS24665 |
| PROCURMENT SPECIFICATION<br>ANSI B18.8.1 |                | SUPERSEDES<br>BFAX3, BFA3.1, BFA3.2, AN380, AND AN381 |                                  | PAGE<br>7                        |
|                                          |                |                                                       |                                  | OF<br>8                          |

TABLE VIII. INTERCHANGEABILITY

THE PINS COVERED BY THE FOLLOWING DASH NUMBERS LISTED IN AN380 AND AN381 ARE INACTIVE  
USE ONLY INTERCHANGEABLE PINS LISTED IN THIS TABLE.

| IN-<br>ACTIVE | USE     | IN-<br>ACTIVE | USE     | IN-<br>ACTIVE | USE     | IN-<br>ACTIVE | USE     | IN-<br>ACTIVE | USE     |
|---------------|---------|---------------|---------|---------------|---------|---------------|---------|---------------|---------|
| AN380         | MS24665 | AN380         | MS24665 | AN381         | MS24665 | AN381         | MS24665 | AN381         | MS24665 |
| DASH NUMBER   |         | DASH NUMBER   |         | DASH NUMBER   |         | DASH NUMBER   |         | DASH NUMBER   |         |
| 1-1           | 2/      | 5-7           | 425     | 2-5           | 2/      | 3-22          | 2/      | 6-28          | 515     |
| 1-2           | 5       | 5-8           | 426     | 2-6           | 2/      | 3-24          | 306     | 6-32          | 516     |
| 1-3           | 7       | 5-10          | 428     | 2-7           | 2/      | 3-26          | 2/      | 6-36          | 517     |
| 1-4           | 9       | 6-6           | 495     | 2-8           | 151     | 3-28          | 308     | 6-40          | 518     |
| 2-1           | 2/      | 6-8           | 498     | 2-10          | 2/      | 3-32          | 309     | 6-48          | 520     |
| 2-2           | 132     | 6-10          | 500     | 2-12          | 153     | 4-8           | 366     | 7-32          | 580     |
| 2-3           | 134     | 6-12          | 502     | 2-14          | 2/      | 4-12          | 368     | 7-36          | 581     |
| 2-4           | 136     | 8-8           | 625     | 2-16          | 155     | 4-14          | 2/      | 7-40          | 582     |
| 2-5           | 138     | 8-10          | 627     | 2-20          | 157     | 4-16          | 370     | 8-32          | 640     |
| 2-6           | 140     | 8-12          | 628     | 2-24          | 159     | 4-18          | 2/      | 8-36          | 641     |
| 2-7           | 142     | 8-14          | 629     | 2-28          | 161     | 4-20          | 372     | 8-40          | 642     |
| 2-8           | 143     | 8-16          | 630     | 2-32          | 162     | 4-22          | 2/      | 8-48          | 643     |
| 3-2           | 281     |               |         | 25-8          | 227     | 4-24          | 374     | 8-56          | 644     |
| 3-3           | 283     | AN381         |         | 25-10         | 2/      | 4-26          | 2/      | 8-64          | 645     |
| 3-4           | 285     |               |         | 25-12         | 229     | 4-28          | 376     | 10-32         | 701     |
| 3-5           | 287     | 1-6           | 2/      | 25-14         | 2/      | 4-32          | 377     | 10-36         | 702     |
| 3-6           | 289     | 1-8           | 22      | 25-16         | 231     | 4-36          | 378     | 10-40         | 703     |
| 3-7           | 291     | 1-12          | 24      | 25-18         | 2/      | 5-8           | 2/      |               |         |
| 3-8           | 292     | 1-16          | 26      | 25-20         | 233     | 5-12          | 436     |               |         |
| 4-2           | 349     | 15-5          | 2/      | 25-22         | 2/      | 5-16          | 437     |               |         |
| 4-3           | 351     | 15-6          | 2/      | 25-24         | 235     | 5-18          | 2/      |               |         |
| 4-4           | 353     | 15-7          | 2/      | 25-26         | 2/      | 5-20          | 439     |               |         |
| 4-5           | 355     | 15-8          | 86      | 25-28         | 237     | 5-22          | 2/      |               |         |
| 4-6           | 357     | 15-10         | 2/      | 25-32         | 238     | 5-24          | 441     |               |         |
| 4-7           | 359     | 15-12         | 88      | 3-8           | 298     | 5-26          | 2/      |               |         |
| 4-8           | 360     | 15-14         | 2/      | 3-10          | 2/      | 5-28          | 443     |               |         |
| 4-10          | 362     | 15-16         | 90      | 3-12          | 300     | 5-32          | 444     |               |         |
| 5-2           | 2/      | 15-20         | 91      | 3-14          | 2/      | 5-36          | 445     |               |         |
| 5-3           | 418     | 15-24         | 92      | 3-16          | 302     | 5-40          | 446     |               |         |
| 5-4           | 419     | 15-28         | 93      | 3-18          | 2/      | 6-24          | 513     |               |         |
| 5-5           | 421     | 15-32         | 94      | 3-20          | 304     | 6-26          | 2/      |               |         |
| 5-6           | 423     |               |         |               |         |               |         |               |         |

2/ NO REPLACEMENT

USER ACTIVITIES  
ARMY-AT,ME,M  
NAVY-YD

REVIEWER ACTIVITIES  
ARMY-AV,ER  
AIR FORCE-II,82  
NSA-NS  
DLA-IS

This military standard is approved for use by all Departments and Agencies of the Department of Defense.  
Selection for all new engineering and design applications and for repetitive use shall be made from this document when applicable.

APPROVED 16 MAR 60 REVISED (F) FOR CHANGES SEE PAGES 1,2,3,4,5,6,7, AND 8

|                                           |                |                                                      |                             |                              |
|-------------------------------------------|----------------|------------------------------------------------------|-----------------------------|------------------------------|
| P.A.<br>Other Cust                        | AR<br>OS<br>99 | INTERNATIONAL<br>INTEREST                            | TITLE<br>PIN,COTTER (SPLIT) | MILITARY STANDARD<br>MS24665 |
| PROCUREMENT SPECIFICATION<br>ANSI B18.8.1 |                | SUPERSEDES<br>BFA3, BFA3.1, BFA3.2, AN380, AND AN381 |                             | PAGE<br>8 OF<br>8            |