

INCH-POUND

MS90557F

14 JUNE 1995

SUPERSEDING

MS90557E

7 February 1980

MILITARY SPECIFICATION SHEET

CONNECTOR, PLUG, ELECTRICAL, CABLE CONNECTING
(WITHOUT COUPLING RING), CLASS L

This specification is approved for use by all Departments
and Agencies of the Department of Defense.

The requirements for acquiring the product described herein shall consist of this specification sheet and the issue of the following specification listed in that issue of the Department of Defense Index of Specifications and Standards (DODISS) specified in the solicitation: MIL-C-22992.

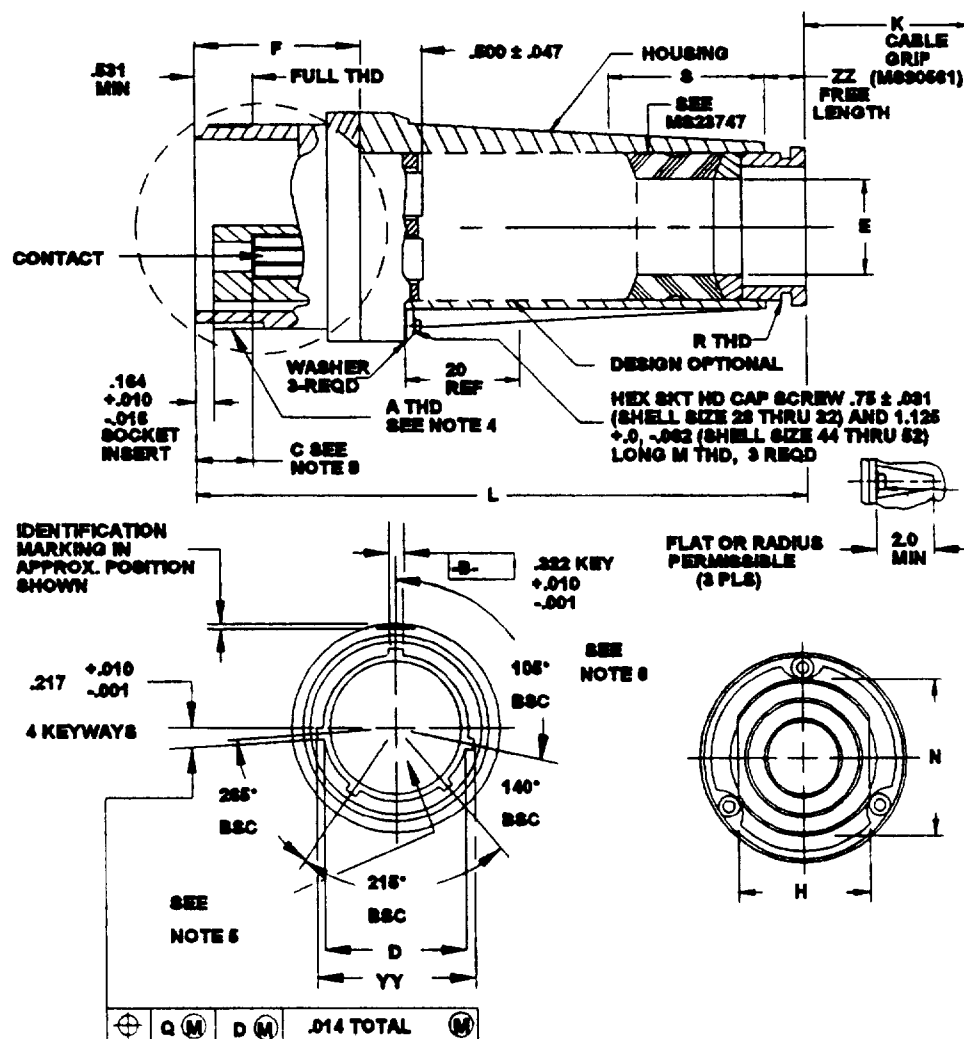


FIGURE 1. Dimensions and configurations.

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TABLE 1. Plug dimensions.

| Shell size | M thread | S max | R THD class 2 left hand | DD dia basic | GG dia | HH thread class 2B | KK thread | | JJ dia | EE dia | FF dia |
|------------|------------|-------|-------------------------|--------------|----------------|--------------------|------------|--------------------|--------------|----------------|----------------|
| | | | | | | | Class 2B | Modified minor dia | | | |
| 28 | .164-32UNC | 1.817 | 1.8750-16UN | 2.104 | 2.439 2.428 | .164-32UNC | .164-32UNC | .143/.137 | .198 .187 | 1.693 1.687 | 1.776 1.765 |
| 32 | .164-32UNC | 1.817 | 1.8750-16UN | 2.354 | 2.689 2.678 | .164-32UNC | .164-32UNC | .143/.137 | .198 .187 | 1.943 1.937 | 2.026 2.015 |
| 44 | .250-28UNF | 1.943 | 1.3125-16UNS | 3.156 | 3.667 3.646 | .250-28UNF | .164-32UNF | .229/.223 | .286 .275 | 2.693 2.687 | 2.776 2.765 |
| 48 | .250-28UNF | 2.130 | 2.7500-16UN | 3.406 | 3.917 3.896 | .250-28UNF | .164-32UNF | .229/.223 | .286 .275 | 2.943 2.937 | 3.026 3.015 |
| 52 | .250-28UNF | 2.193 | 3.0000-16UN | 3.656 | 4.167 4.146 | .250-28UNF | .164-32UNF | .229/.223 | .286 .275 | 3.193 3.187 | 3.276 3.265 |

| Shell size | B dia max | G $\pm .005$ | C maximum | | Packing preformed | Hex socket head size | AA dia | BB dia | CC dia min | LL | MM |
|------------|-----------|--------------|-----------|---------|-------------------|----------------------|----------------|----------------|------------|--------------|--------------|
| | | | Phase | Neutral | | | | | | | |
| 28 | 1.281 | 1.514 | .913 | .913 | MS29513-128 | 9/64 | 1.685 1.674 | 1.539 1.531 | 1.405 | .417 .406 | .338 .322 |
| 32 | 1.562 | 1.514 | .913 | .913 | MS29513-132 | 9/64 | 1.935 1.924 | 1.789 1.781 | 1.655 | .417 .406 | .338 .322 |
| 44 | 2.239 | 1.733 | 1.138 | .663 | MS29513-144 | 3/16 | 2.685 2.674 | 2.539 2.531 | 2.405 | .605 .594 | .526 .510 |
| 48 | 2.494 | 1.733 | 1.156 | .663 | MS29513-148 | 3/16 | 2.935 2.924 | 2.789 2.781 | 2.655 | .605 .594 | .526 .510 |
| 52 | 2.744 | 1.733 | 1.156 | .663 | MS29513-151 | 3/16 | 3.185 3.174 | 3.039 3.031 | 2.905 | .605 .594 | .526 .510 |

| Inches | mm | Inches | mm | Inches | mm | Inches | mm | Inches | mm |
|--------|-------|--------|-------|--------|-------|--------|-------|--------|--------|
| .005 | 0.13 | 1.138 | 28.91 | 1.935 | 49.15 | 2.678 | 68.02 | 3.156 | 80.16 |
| .137 | 3.48 | 1.156 | 29.36 | 1.937 | 49.20 | 2.685 | 68.20 | 3.174 | 80.62 |
| .143 | 3.63 | 1.281 | 32.54 | 1.938 | 49.23 | 2.687 | 68.25 | 3.185 | 80.90 |
| .187 | 4.75 | 1.405 | 35.69 | 1.943 | 49.35 | 2.689 | 68.30 | 3.187 | 80.95 |
| .198 | 5.03 | 1.514 | 38.46 | 2.015 | 51.18 | 2.693 | 68.40 | 3.193 | 81.10 |
| .223 | 5.66 | 1.531 | 38.89 | 2.026 | 51.46 | 2.744 | 69.70 | 3.265 | 82.93 |
| .229 | 5.82 | 1.539 | 39.09 | 2.104 | 53.44 | 2.765 | 70.23 | 3.276 | 83.21 |
| .275 | 6.99 | 1.562 | 39.67 | 2.125 | 53.97 | 2.776 | 70.51 | 3.406 | 86.51 |
| .286 | 7.26 | 1.655 | 42.04 | 2.188 | 55.58 | 2.781 | 70.64 | 3.646 | 92.61 |
| .322 | 8.18 | 1.674 | 42.52 | 2.239 | 56.87 | 2.789 | 70.84 | 3.656 | 92.86 |
| .338 | 8.59 | 1.685 | 42.80 | 2.354 | 59.79 | 2.905 | 73.79 | 3.667 | 93.14 |
| .406 | 10.31 | 1.687 | 42.85 | 2.405 | 61.09 | 2.924 | 74.27 | 3.896 | 98.96 |
| .417 | 10.59 | 1.693 | 43.00 | 2.428 | 61.67 | 2.935 | 74.55 | 3.917 | 99.49 |
| .510 | 12.95 | 1.733 | 44.02 | 2.439 | 61.95 | 2.937 | 74.60 | 4.146 | 105.31 |
| .526 | 13.36 | 1.765 | 44.83 | 2.494 | 63.35 | 2.943 | 74.75 | 4.167 | 105.84 |
| .594 | 15.09 | 1.776 | 45.11 | 2.531 | 64.29 | 3.015 | 76.58 | | |
| .605 | 15.37 | 1.781 | 45.24 | 2.539 | 64.49 | 3.026 | 76.86 | | |
| .663 | 16.84 | 1.789 | 45.44 | 2.655 | 67.44 | 3.031 | 76.99 | | |
| .913 | 23.19 | 1.924 | 48.87 | 2.674 | 67.92 | 3.039 | 77.19 | | |

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TABLE II. "U" diameter by contact size.

| Contact size | "U" diameter (metric equivalent in parentheses) |
|--------------|--|
| 4/0 | .510/.515 (12.95/13.08) |
| 2/0 | .416/.421 (10.57/10.69) |
| 1/0 | .367/.372 (9.32/9.45) |
| 4 | .235/.240 (5.97/6.10) |
| 6 | .188/.193 (4.27/4.90) |

TABLE III. Accessory interface dimensions.

| Size | Arrangement no. | E cable range | K approx free length | H +.001 -.010 | L max free length | N dia +.011 -.020 | F +.011 -.005 | YY dia +.010 -.006 | ZZ ±.035 free length | A thread class 2A | D dia +.005 -.010 | J +.020 -.010 | Phase & Ground neutral |
|------|--|--|--|------------------|-------------------|----------------------|------------------|-----------------------|-------------------------|---------------------|----------------------|------------------|------------------------|
| 28 | -02, -04 -03, -05, -06 -07, -12 -13 | .844/.719 .969/.844 1.047/.922 1.130/1.005 | 6.688 7.188 7.188 7.188 | 1.750 | 8.156 | 2.000 | 2.448 | 1.692 | .562 | 2.000-.1428P-.2857L | 1.536 | .523 | .523 |
| 32 | -02, -04 -03, -05, -12 -06 -07 -13 | .969/.844 1.130/1.005 1.047/.992 1.259/1.135 1.342/1.217 | 7.188 7.188 7.188 8.188 8.688 | 1.750 | 8.156 | 2.000 | 2.448 | 1.942 | .562 | 2.250-.1428P-.2857L | 1.786 | .523 | .523 |
| 44 | -02, -04 -03, -05 -06 -12 -13 -51 | 1.312/1.187 1.438/1.313 1.375/1.250 1.516/1.391 1.672/1.547 1.734/1.609 | 10.688 9.688 9.688 10.688 12.688 11.688 | 2.250 | 10.125 | 2.500 | 2.854 | 2.692 | .672 | 3.000-.1428P-.2857L | 2.545 | .742 | .273 |
| 48 | -13 | 2.000/1.867 | 14.188 | 2.750 | 10.688 | 2.953 | 2.854 | 2.911 | .672 | 3.250-.1428P-.2857L | 2.755 | .742 | .273 |
| 52 | -02 -06 -12 -13 | 1.703/1.558 1.797/1.652 2.328/2.183 2.453/2.308 | 13.688 13.688 17.188 18.188 | 2.875 | 11.062 | 3.250 | 2.854 | 3.161 | .672 | 3.500-.1428P-.2857L | 3.005 | .742 | .273 |

- 1/ Arrangements 44-52 and 44-56 are for stub cable applications only; they are not to be used in a cable assembly
 2/ Arrangement 44-56 to include 4 each MS3348-1-6L contact bushings.

| Inches | mm | Inches | mm | Inches | mm | Inches | mm | Inches | mm |
|--------|-------|--------|-------|--------|-------|--------|--------|--------|--------|
| .001 | 0.03 | 1.130 | 28.70 | 1.609 | 40.87 | 2.453 | 62.31 | 8.688 | 220.68 |
| .005 | 0.13 | 1.135 | 28.83 | 1.672 | 42.47 | 2.545 | 64.64 | 9.688 | 246.08 |
| .010 | 0.25 | 1.187 | 30.15 | 1.692 | 42.98 | 2.692 | 68.38 | 10.125 | 257.18 |
| .011 | 0.28 | 1.217 | 30.91 | 1.703 | 43.26 | 2.750 | 69.85 | 10.688 | 271.48 |
| .020 | 0.51 | 1.250 | 31.75 | 1.734 | 44.04 | 2.755 | 69.98 | 11.062 | 280.97 |
| .035 | 0.89 | 1.259 | 31.98 | 1.750 | 44.45 | 2.854 | 72.49 | 12.688 | 322.28 |
| .273 | 6.93 | 1.312 | 33.32 | 1.786 | 45.36 | 2.875 | 73.02 | 13.688 | 347.68 |
| .523 | 13.28 | 1.313 | 33.35 | 1.797 | 45.64 | 2.911 | 73.94 | 14.188 | 360.38 |
| .562 | 14.27 | 1.342 | 34.09 | 1.867 | 47.42 | 2.953 | 75.01 | 17.188 | 436.58 |
| .672 | 17.07 | 1.375 | 34.93 | 1.942 | 49.33 | 3.005 | 76.33 | 18.188 | 461.98 |
| .719 | 13.36 | 1.391 | 35.33 | 2.000 | 50.80 | 3.161 | 80.29 | | |
| .742 | 18.85 | 1.438 | 36.53 | 2.183 | 55.45 | 3.250 | 82.55 | | |
| .844 | 15.37 | 1.516 | 38.51 | 2.250 | 57.15 | 6.688 | 169.88 | | |
| .922 | 18.26 | 1.536 | 39.01 | 2.308 | 58.62 | 7.188 | 182.58 | | |
| 1.005 | 25.53 | 1.547 | 39.29 | 2.328 | 59.13 | 8.156 | 207.16 | | |
| 1.047 | 26.59 | 1.558 | 39.57 | 2.448 | 62.18 | 8.188 | 207.98 | | |

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TABLE IV. Insert arrangements, crimp bushings, and contacts.

| Insert arrangement | Contacts 1/ | | Cable conductors 1/ | | Contact bushing required | |
|--------------------|-------------|---------|---------------------|--------|--------------------------|-------------|
| | Quantity | Size | Quantity | Size | Quantity | PIN MS3348- |
| 28-02 | 2 | 6 | 2 | 8 | 2 | 6-8L |
| 28-04 | 2 | 6 | 2 | 8 | 2 | 6-8L |
| | 1 | 6 (G) | 2 | 10 (G) | --- | --- |
| 28-06 | 3 | 6 | 3 | 8 | 3 | 6-8L |
| | 1 | 4 (G) | 3 | 12 (G) | 1 | 4-8L |
| 28-07 | 3 | 6 | 3 | 6 | --- | --- |
| | 1 | 4 (G) | 3 | 10 (G) | 1 | 4-5L |
| 28-12 | 4 | 6 | 4 | 8 | 4 | 6-8L |
| | 1 | 6 (G) | 4 | 12 (G) | --- | --- |
| 32-02 | 2 | 4 | 2 | 6 | 2 | 4-6L |
| 32-04 | 2 | 4 | 2 | 6 | 2 | 4-6L |
| | 2 | 6 (G) | 2 | 10 (G) | 2 | 6-10L |
| 32-05 | 2 | 4 | 2 | 4 | --- | --- |
| | 2 | 6 (G) | 2 | 8 (G) | 2 | 6-8L |
| 32-06 | 3 | 4 | 3 | 6 | 3 | 4-6L |
| | 1 | 4 (G) | 3 | 12 (G) | 1 | 4-8L |
| 32-12 | 4 | 4 | 4 | 6 | 4 | 4-6L |
| | 1 | 6 (G) | 4 | 12 (G) | --- | --- |
| 44-02 | 2 | 1/0 | 2 | 2 | 2 | 1-2L |
| 44-04 | 2 | 1/0 | 2 | 2 | 2 | 1-2L |
| | 2 | 4 (G) | 2 | 6 (G) | 2 | 4-6L |
| 44-05 | 2 | 1/0 | 2 | 1 | --- | --- |
| | 2 | 4 (G) | 2 | 5 (G) | 2 | 4-5L |
| 44-06 | 3 | 1/0 | 3 | 2 | 3 | 1-2L |
| | 3 | 6 (G) | 3 | 8 (G) | 3 | 6-8L |
| 44-12 | 4 | 1/0 | 4 | 2 | 4 | 1-2L |
| | 4 | 6 (G) | 4 | 9 (G) | 4 | 6-9L |
| 44-13 | 4 | 1/0 | 4 | 1 | --- | --- |
| | 4 | 6 (G) | 4 | 8 (G) | 4 | 6-8L |
| 44-52 | 3 | 1/0 | 3 | 2 | 3 | 1-2L |
| | 1 | 1/0 (G) | 1 | 2 (G) | 1 | 1-2L |
| 44-56 | 3 | 1/0 | 3 | 6 | 3 | 1-6L |
| | 1 | 1/0 (G) | 1 | 6 (G) | 1 | 1-6L |
| 52-02 | 2 | 4/0 | 2 | 2/0 | 2 | 4/0-2/0L |
| 52-06 | 3 | 4/0 | 3 | 2/0 | 3 | 4/0-2/0L |
| | 3 | 4 (G) | 3 | 5 (G) | 3 | 4-5L |

1/ (G) designates grounding.

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REQUIREMENTS

Dimensions and configurations: See figure 1 and tables I, II, and III.

Mating. See MS90558 for mating receptacles.

Inserts and contacts: Removable.

For final installation: Contacts will be assembled in all insert holes.

Shell and nut finish: C (conductive) or N (nonconductive).

Normal keyway position: See figure 1.

Alternate keyway position: See figure 2.

Insert arrangements: See MS90565, MS90567, MS14054, MS14055, and MS14057.

Cover: In accordance with MS90563. Cover shall be attached to cap screw on body.

Crimp bushings: Shall be supplied with the contacts in accordance with MS3348 and table IV herein.

Cable sealing gland: In accordance with MS23747. Shall be supplied with each connector.

Cable grip: In accordance with MS90561. Shall be supplied with each connector.

Part or Identifying Number (PIN): The PIN shall include the shell finish, shell size, shell key alternate position, insert arrangement number, style (S), and insert alternate position.

EXAMPLE:

| | | | | | | |
|-----------|--------------------------|------------|-------------------------------------|---|---------|--|
| MS90557 | N | 32 | N | 08 | S | W |
| MS number | Shell finish (C or N) | Shell size | Shell key position (see reqt) | Insert arrangement number (2 digits) | Style S | Insert alternate position (no letter required for normal position) |

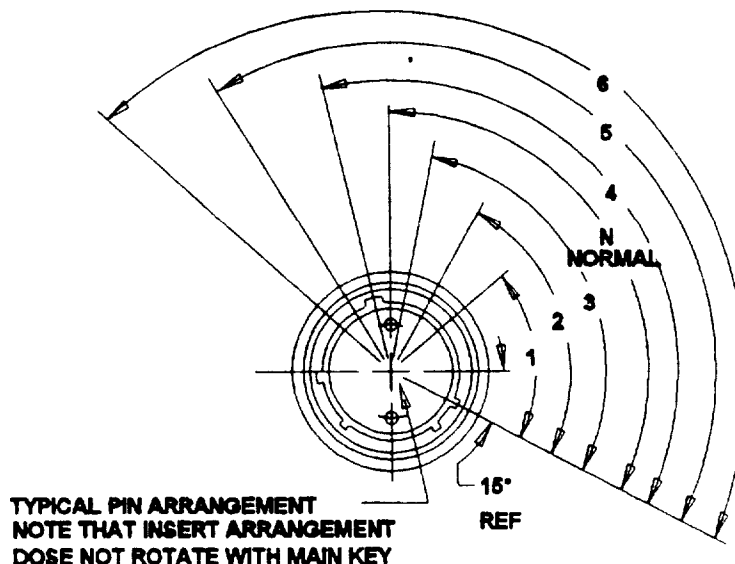


FIGURE 2. Alternate key position

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Finish N (nongrounding assemblies)

| Shell size | Shell main key positions 2 wire, 28 V dc |
|------------|---|
| 28 | N (105°) |
| 32 | N (105°) |
| 44 | N (105°) |
| 48 | N (105°) |
| 52 | N (105°) |

Finish C (grounding assemblies)

| Shell size | Shell main key position | | | | | | |
|------------|-------------------------------|----------|-----------|-----------|-----------|-----------|-----------------|
| | 60 Hz and 400 Hz (see note 1) | | | | | | |
| | 1φ | | | 3φ | | | 3φ (see note 2) |
| | 2 wire | | 3 wire | 4 wire | | | 3 wire |
| | 120 V | 240 V | 120/240 V | 120/208 V | 240/416 V | 277/480 V | 450/480 V |
| 28 | 4 (120°) | 5 (135°) | 4 (120°) | 4 (120°) | 5 (135°) | 6 (150°) | --- |
| 32 | 4 (120°) | 5 (135°) | 4 (120°) | 4 (120°) | 5 (135°) | 6 (150°) | --- |
| 44 | 4 (120°) | --- | 4 (120°) | 4 (120°) | 5 (135°) | 6 (150°) | 1 (60°) |
| 48 | --- | --- | 4 (120°) | 4 (120°) | 5 (135°) | 6 (150°) | --- |
| 52 | --- | --- | 4 (120°) | 4 (120°) | 5 (135°) | 6 (150°) | --- |

NOTES:

1. Discrimination of 60 Hz and 400 Hz assemblies is accomplished by alternate positioning of inserts.
See applicable insert drawing for keying.
2. For Navy ground support equipment use only.
3. Shell main key positions 2 and 3 are not used.

FIGURE 2. Alternate key position - Continued.

Revision letters are not used to denote changes due to the extensiveness of the changes.

CONCLUDING MATERIAL

Custodians.

Army - CR
Navy - EC
Air Force - 85

Preparing activity:

DLA - ES

Review activities:

Army - AT, AV, ME, MI
Navy - AS, CG, MC, OS, SH
Air Force - 11, 13, 14, 17, 19, 99

(Project 5935-3996-02)