

INCH-POUND

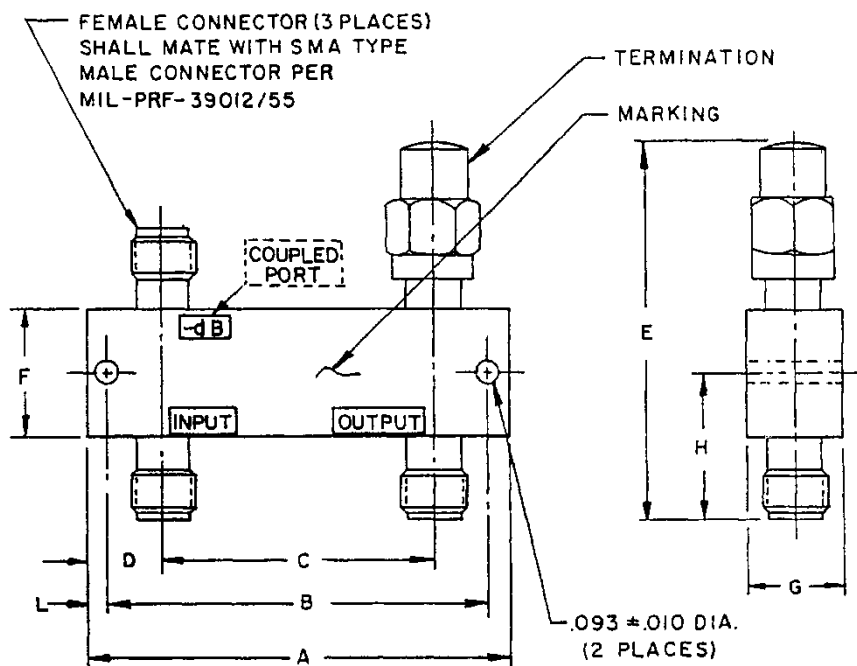
MIL-DTL-15370/10E  
22 October 2012  
SUPERSEDING  
MIL-DTL-15370/10D  
7 May 2008

# DETAIL SPECIFICATION SHEET

## COUPLERS, DIRECTIONAL (COAXIAL, SMA CONNECTORS) (.50 to 18 GHz)

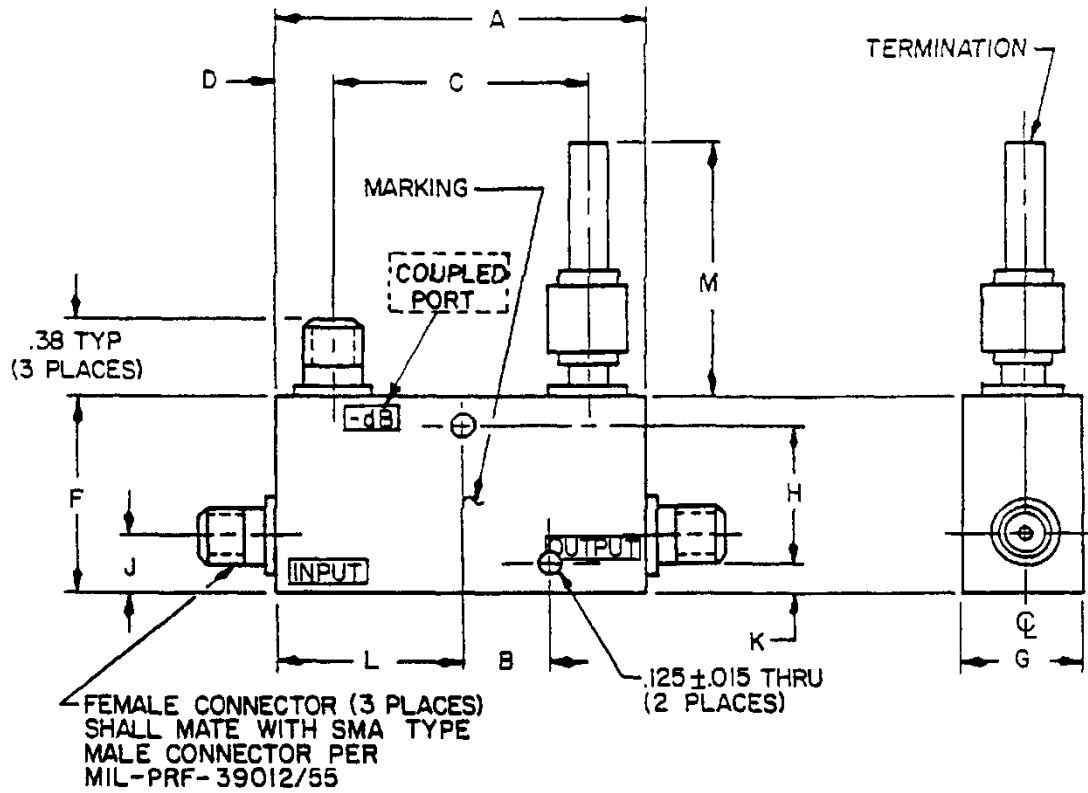
This specification is approved for use by all Departments  
and Agencies of the Department of Defense.

The requirements for acquiring the couplers described herein  
shall consist of this specification sheet and MIL-DTL-15370.



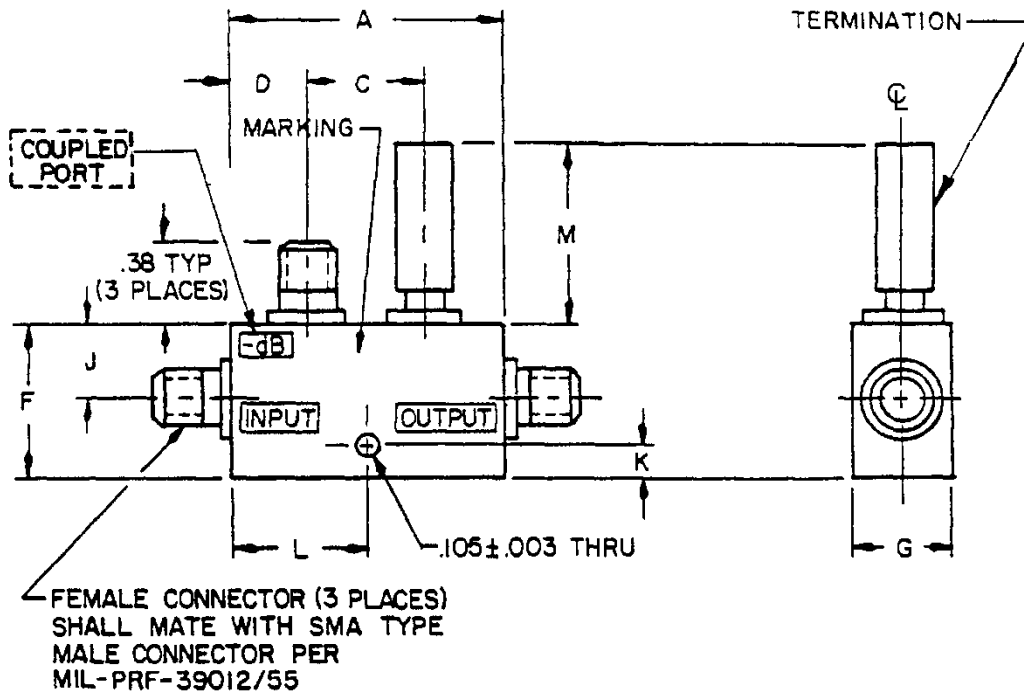
| Inches | mm   |
|--------|------|
| .010   | 0.25 |
| .093   | 2.36 |

FIGURE 1. Dimensions and configuration for part numbers M15370/10-001 through M15370/10-011, and M15370/10-019.



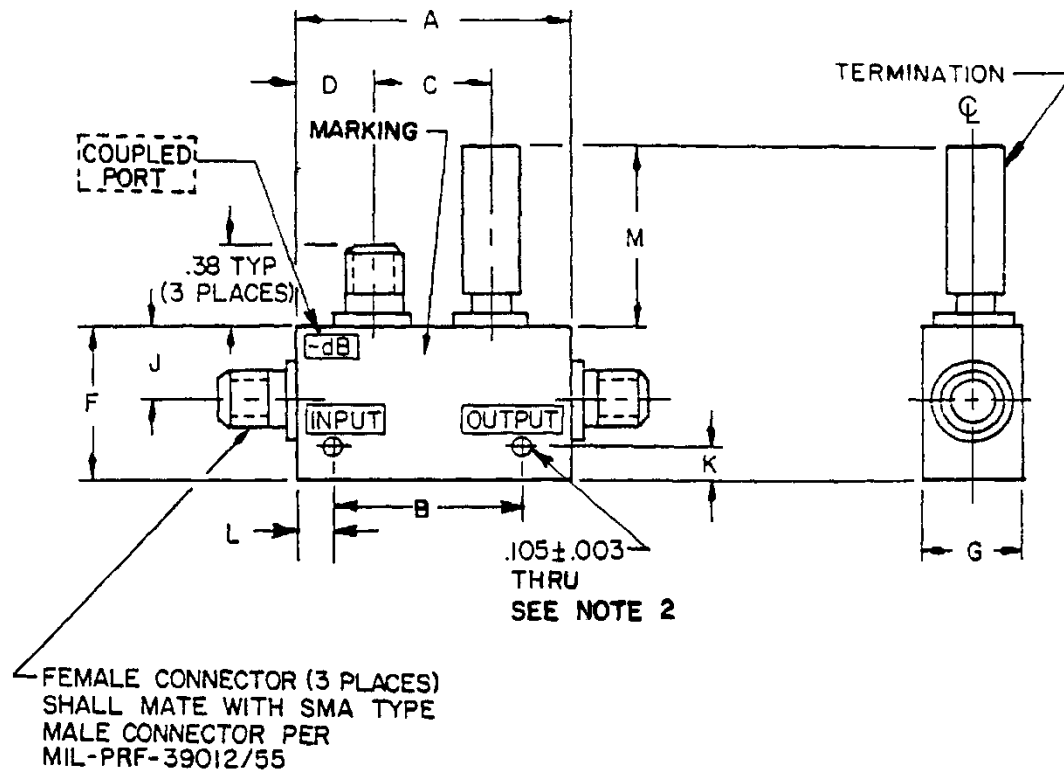
| Inches | mm   |
|--------|------|
| .015   | 0.38 |
| .125   | 3.18 |
| .38    | 9.65 |

FIGURE 2. Dimensions and configuration for part number M15370/10-012.



| Inches | mm   |
|--------|------|
| .003   | 0.08 |
| .105   | 2.67 |
| .38    | 9.65 |

FIGURE 3. Dimensions and configuration for part numbers M15370/10-013, M15370/10-021, M15370/10-023, and M15370/10-024.

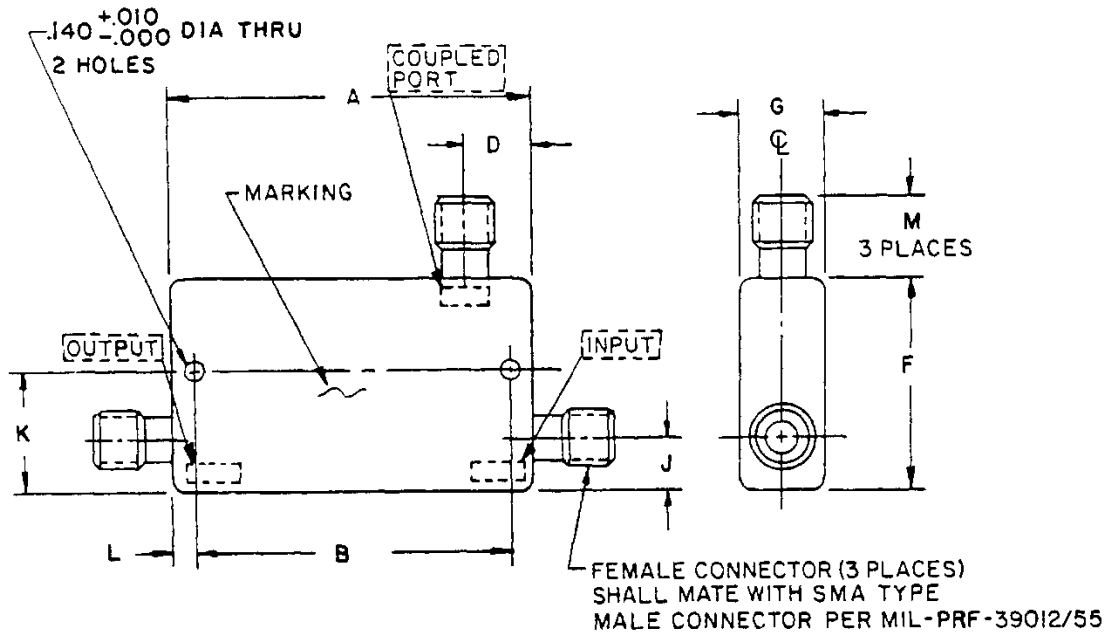


| Inches | mm   |
|--------|------|
| .003   | 0.08 |
| .105   | 2.67 |
| .38    | 9.7  |

## NOTES:

1. Sealant thickness, .031 maximum for dash numbers M15370/10-016, M15370/10-017, and M15370/10-018.
2. Four mounting holes are permitted, providing they are symmetrical with the two holes shown.

FIGURE 4. Dimensions and configuration for part numbers M15370/10-014 through M15370/10-018, and M15370/10-020.

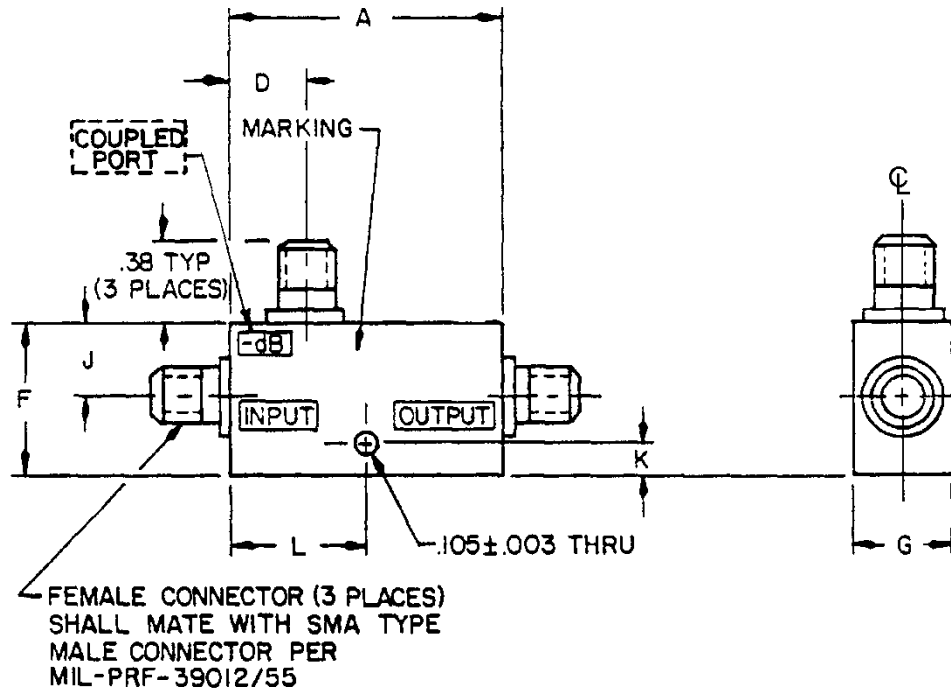


NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for information only.

| Inches | mm   |
|--------|------|
| .010   | .25  |
| .140   | 3.56 |

FIGURE 5. Dimensions and configuration for part numbers M15370/10-022, M15370/10-025, M15370/10-026, and M15370/10-028 through M15370/10-030.



| Inches | mm   |
|--------|------|
| .003   | 0.08 |
| .105   | 2.67 |
| .38    | 9.7  |

FIGURE 6. Dimensions and configuration for part number M15370/10-027.

TABLE I. Dimensions and physical requirements.

| Dash No. | Mounting configuration (figure) | Dimensions <u>1/</u> <u>2/</u> <u>3/</u> |                       |                         |                       |               |                        |              |                        |                        |               |                        |               | Weight (max) |     |      |
|----------|---------------------------------|------------------------------------------|-----------------------|-------------------------|-----------------------|---------------|------------------------|--------------|------------------------|------------------------|---------------|------------------------|---------------|--------------|-----|------|
|          |                                 | A (max)                                  | B ±.005 (0.13)        | C ±.02 (0.51)           | D ±.020               | E ±.02 (0.51) | F (max)                | G (max)      | H ±.02 (0.51)          | J (max)                | K ±.010 -.000 | L ±.010                | M (max)       | lbs          | g   | oz   |
| 001      | 1                               | 3.320 (84.33)                            | 3.130 (79.50)         | 2.710 (68.83)           | .290 (7.37)           | 1.495 (37.97) | .530 (13.46)           | .405 (10.29) | .580 (14.73)           | ---                    | ---           | .080 (2.03)            | ---           | .16          | 71  | 2.5  |
| 002      | 1                               | 3.320 (84.33)                            | 3.130 (79.50)         | 2.710 (68.83)           | .290 (7.37)           | 1.495 (37.97) | .530 (13.46)           | .405 (10.29) | .580 (14.73)           | ---                    | ---           | .080 (2.03)            | ---           | .16          | 71  | 2.5  |
| 003      | 1                               | 3.320 (84.33)                            | 3.130 (79.50)         | 2.710 (68.83)           | .290 (7.37)           | 1.495 (37.97) | .530 (13.46)           | .405 (10.29) | .580 (14.73)           | ---                    | ---           | .080 (2.03)            | ---           | .16          | 71  | 2.5  |
| 004      | 1                               | 2.563 (65.10)                            | 2.391 (60.73)         | 1.954 (49.63)           | .290 (7.37)           | 1.495 (37.97) | .530 (13.46)           | .405 (10.29) | .580 (14.73)           | ---                    | ---           | .080 (2.03)            | ---           | .16          | 71  | 2.5  |
| 005      | 1                               | 2.563 (65.10)                            | 2.391 (60.73)         | 1.954 (49.63)           | .290 (7.37)           | 1.495 (37.97) | .530 (13.46)           | .405 (10.29) | .580 (14.73)           | ---                    | ---           | .080 (2.03)            | ---           | .16          | 71  | 2.5  |
| 006      | 1                               | 2.563 (65.10)                            | 2.391 (60.73)         | 1.954 (49.63)           | .290 (7.37)           | 1.495 (37.97) | .530 (13.46)           | .405 (10.29) | .580 (14.73)           | ---                    | ---           | .080 (2.03)            | ---           | .16          | 71  | 2.5  |
| 007      | 1                               | 1.715 (43.56)                            | 1.525 (38.74)         | 1.105 (28.07)           | .290 (7.37)           | 1.495 (37.97) | .530 (13.46)           | .405 (10.29) | .580 (14.73)           | ---                    | ---           | .080 (2.03)            | ---           | .16          | 71  | 2.5  |
| 008      | 1                               | 1.210 (30.73)                            | 1.020 (25.91)         | .600 (15.24)            | .290 (7.37)           | 1.495 (37.97) | .530 (13.46)           | .405 (10.29) | .580 (14.73)           | ---                    | ---           | .080 (2.03)            | ---           | .06          | 29  | 1.02 |
| 009      | 1                               | 1.100 (27.94)                            | .920 (23.37)          | .500 (12.70)            | .290 (7.37)           | 1.620 (41.15) | .655 (16.64)           | .405 (10.29) | .642 (16.31)           | ---                    | ---           | .080 (2.03)            | ---           | .06          | 29  | 1.02 |
| 010      | 1                               | 1.100 (27.94)                            | .920 (23.37)          | .500 (12.70)            | .290 (7.37)           | 1.620 (41.15) | .655 (16.64)           | .405 (10.29) | .642 (16.31)           | ---                    | ---           | .080 (2.03)            | ---           | .06          | 29  | 1.02 |
| 011      | 1                               | 1.100 (27.94)                            | .920 (23.37)          | .500 (12.70)            | .290 (7.37)           | 1.620 (41.15) | .655 (16.64)           | .405 (10.29) | .642 (16.31)           | ---                    | ---           | .080 (2.03)            | ---           | .06          | 29  | 1.02 |
| 012      | 2                               | 1.560 (39.62)                            | .375 <u>4/</u> (9.53) | 1.090 <u>5/</u> (27.69) | .220 <u>5/</u> (5.59) | ---           | .843 <u>5/</u> (21.41) | .530 (13.46) | .605 <u>5/</u> (15.37) | .281 <u>4/</u> (7.14)  | .130 (3.30)   | .770 <u>5/</u> (19.56) | 1.380 (35.05) | .16          | 71  | 2.5  |
| 013      | 3                               | 1.040 (26.42)                            | ---                   | .500 <u>5/</u> (12.70)  | .250 <u>5/</u> (6.35) | ---           | .843 <u>5/</u> (21.41) | .415 (10.54) | ---                    | .410 <u>5/</u> (10.41) | .125 (3.18)   | .521 <u>5/</u> (13.23) | .800 (20.32)  | .08          | 29  | 1.02 |
| 014      | 4                               | 3.20 (81.3)                              | 1.500 (38.10)         | 2.700 (68.58)           | .270 (6.86)           | 1.45 (36.8)   | .800 (20.32)           | .415 (10.54) | ---                    | .585 (14.86)           | .080 (2.03)   | .800 (20.32)           | .650 (16.5)   | .46          | 207 | 7.3  |
| 015      | 4                               | 3.030 (76.96)                            | 1.000 (25.40)         | 2.500 (63.50)           | .270 (6.86)           | 1.00 (25.4)   | .750 (19.05)           | .415 (10.54) | ---                    | .440 (11.17)           | .110 (2.79)   | 1.013 (25.73)          | .250 (6.35)   | .09          | 43  | 1.5  |
| 016      | 4                               | 3.050 (77.47)                            | 1.500 (38.10)         | 2.520 (64.01)           | .270 (6.86)           | 1.00 (25.4)   | .590 (14.99)           | .415 (10.54) | ---                    | .340 (8.64)            | .110 (2.79)   | .790 (20.06)           | .470 (11.93)  | .09          | 43  | 1.5  |
| 017      | 4                               | 3.050 (77.47)                            | 1.750 (44.45)         | 2.500 (63.50)           | .270 (6.86)           | 1.00 (25.4)   | .530 (13.46)           | .415 (10.54) | ---                    | .300 (7.62)            | .110 (2.79)   | .650 (16.51)           | .470 (11.94)  | .09          | 43  | 1.5  |
| 018      | 4                               | 3.050 (77.47)                            | 1.750 (44.45)         | 2.500 (63.50)           | .270 (6.86)           | 1.00 (25.4)   | .530 (13.46)           | .415 (10.54) | ---                    | .300 (7.62)            | .110 (2.79)   | .650 (16.51)           | .470 (11.93)  | .09          | 43  | 1.5  |
| 019      | 1                               | 2.651 (67.34)                            | 2.391 (60.73)         | 1.969 (50.01)           | .385 (9.78)           | 1.628 (41.35) | .530 (13.46)           | .415 (10.54) | .578 (14.68)           | ---                    | ---           | .125 (3.18)            | ---           | .09          | 43  | 1.5  |
| 020      | 4                               | 1.200 (30.48)                            | .340 (8.64)           | .660 (16.76)            | .270 (6.86)           | 1.45 (36.8)   | .800 (20.32)           | .415 (10.54) | ---                    | .585 (14.85)           | .080 (2.03)   | .410 (10.41)           | .650 (16.51)  | .46          | 207 | 7.3  |

See footnotes at end of table.

TABLE I. Dimensions and physical requirements - Continued.

| Dash Number | Mounting configuration (figure) | Dimensions <u>1/</u> <u>2/</u> <u>3/</u> |                     |                    |              |                    |             |             |                    |           |                     |              |              | Weight (max) |    |      |
|-------------|---------------------------------|------------------------------------------|---------------------|--------------------|--------------|--------------------|-------------|-------------|--------------------|-----------|---------------------|--------------|--------------|--------------|----|------|
|             |                                 | A (max)                                  | B $\pm .005$ (0.13) | C $\pm .02$ (0.51) | D $\pm .020$ | E $\pm .02$ (0.51) | F (max)     | G (max)     | H $\pm .02$ (0.51) | J (max)   | K $+ .010$ $- .000$ | L $\pm .010$ | M (max)      | lbs          | g  | oz   |
| 021         | 3                               | 1.04 (26.4)                              | ---                 | .50 (12.7)         | .25 (6.4)    | ---                | .54 (13.7)  | .44 (11.2)  | ---                | .30 (7.6) | .110 (2.79)         | .520 (13.20) | .75 (19.1)   | .04          | 17 | 0.60 |
| 022         | 5                               | 2.02 (51.3)                              | 1.75 (44.5)         | ---                | .30 (7.6)    | ---                | 1.27 (32.3) | .44 (11.2)  | ---                | .30 (7.6) | .625 (15.87)        | .125 (3.18)  | .35 (8.9)    | .09          | 43 | 1.5  |
| 023         | 3                               | 1.04 (26.4)                              | ---                 | .50 (12.7)         | .25 (6.4)    | ---                | .50 (12.7)  | .395 (10.0) | ---                | .30 (7.6) | .093 (2.36)         | .507 (12.87) | .06 (1.5)    | .19          | 85 | 3.0  |
| 024         | 3                               | 1.04 (26.4)                              | ---                 | .50 (12.7)         | .25 (6.4)    | ---                | .54 (13.7)  | .395 (10.0) | ---                | .30 (7.6) | .093 (2.36)         | .521 (13.23) | .812 (20.62) | .04          | 17 | 0.60 |
| 025         | 5                               | 2.02 (51.3)                              | 1.75 (44.5)         | ---                | .25 (6.4)    | 2.0 (51.)          | 1.6 (41.)   | .395 (10.0) | ---                | .30 (7.6) | .625 (15.87)        | .125 (3.18)  | .40 (10.2)   | .09          | 43 | 1.5  |
| 026         | 5                               | 2.02 (51.3)                              | 1.75 (44.5)         | ---                | .25 (6.4)    | 2.0 (51.)          | 1.6 (41.)   | .395 (10.0) | ---                | .30 (7.6) | .625 (15.87)        | .125 (3.18)  | .40 (10.2)   | .09          | 43 | 1.5  |
| 027         | 6                               | 1.04 (25.4)                              | ---                 | ---                | .250 (6.35)  | ---                | .50 (12.7)  | .395 (10.0) | ---                | .30 (7.6) | .093 (2.36)         | .500 (12.70) | ---          | .06          | 28 | 1.0  |
| 028         | 5                               | 2.02 (51.3)                              | 1.75 (44.5)         | ---                | .35 (8.9)    | ---                | 1.27 (32.3) | .44 (11.2)  | ---                | .30 (7.6) | .625 (15.87)        | .125 (3.18)  | .35 (8.9)    | .09          | 43 | 1.5  |
| 029         | 5                               | 2.02 (51.3)                              | 1.75 (44.5)         | ---                | .30 (7.6)    | ---                | 1.27 (32.3) | .44 (11.2)  | ---                | .30 (7.6) | .625 (15.87)        | .125 (3.18)  | .35 (8.9)    | .09          | 43 | 1.5  |
| 030         | 5                               | 2.02 (51.3)                              | 1.75 (44.5)         | ---                | .30 (7.6)    | ---                | 1.27 (32.3) | .44 (11.2)  | ---                | .30 (7.6) | .625 (15.87)        | .125 (3.18)  | .35 (8.9)    | .09          | 43 | 1.5  |

1/ Dimensions are in inches.2/ Metric equivalents are given for general information only.3/ Metric equivalents are in parentheses.4/ Tolerance is  $\pm .010$  (0.25).5/ Tolerance is  $\pm .030$  (0.76).

TABLE II. Electrical requirements.

| Dash number | Frequency range | Coupling (dB) |           | Coupling variation (dB) max | Effective directivity (dB) min | Insertion loss (dB) max | VSWR max     |                | RF input power to primary |       |      | Reflected power (avg) max |
|-------------|-----------------|---------------|-----------|-----------------------------|--------------------------------|-------------------------|--------------|----------------|---------------------------|-------|------|---------------------------|
|             |                 | Nominal       | Tolerance |                             |                                |                         | Primary line | Secondary line | Over frequency range      | Avg   | Peak |                           |
|             | GHz             |               |           |                             |                                |                         |              |                | Watts                     | Watts | KW   | Watts                     |
| 001         | 0.5 - 1.0       | 6             | ±1.0      | ±0.6                        | 20                             | 0.2                     | 1.25:1       | 1.25:1         | 50                        | 50    | 0.25 | 2                         |
| 002         | 0.5 - 1.0       | 10            | ±1.0      | ±0.75                       | 20                             | 0.2                     | 1.25:1       | 1.25:1         | 50                        | 50    | 0.25 | 5                         |
| 003         | 0.5 - 1.0       | 20            | ±1.0      | ±1.0                        | 20                             | 0.2                     | 1.25:1       | 1.25:1         | 50                        | 50    | 0.25 | 50                        |
| 004         | 1.0 - 2.0       | 6             | ±1.0      | ±0.5                        | 20                             | 0.2                     | 1.25:1       | 1.25:1         | 50                        | 50    | 0.25 | 2                         |
| 005         | 1.0 - 2.0       | 10            | ±1.0      | ±0.75                       | 20                             | 0.2                     | 1.25:1       | 1.25:1         | 50                        | 50    | 0.25 | 5                         |
| 006         | 1.0 - 2.0       | 20            | ±1.0      | ±1.0                        | 20                             | 0.2                     | 1.20:1       | 1.20:1         | 50                        | 50    | 0.25 | 50                        |
| 007         | 2.0 - 4.0       | 6             | ±1.0      | ±0.5                        | 18                             | 0.2                     | 1.20:1       | 1.20:1         | 50                        | 50    | 0.25 | 2                         |
| 008         | 4.0 - 8.0       | 6             | ±1.0      | ±0.5                        | 18                             | 0.2                     | 1.20:1       | 1.20:1         | 50                        | 50    | 0.25 | 2                         |
| 009         | 8.0 - 12.4      | 10            | ±1.0      | ±0.5                        | 15                             | 0.25                    | 1.30:1       | 1.30:1         | 50                        | 50    | 0.25 | 2                         |
| 010         | 8.0 - 12.4      | 20            | ±1.0      | ±0.75                       | 15                             | 0.25                    | 1.30:1       | 1.30:1         | 50                        | 50    | 0.25 | 2                         |
| 011         | 12.4 - 18.0     | 6             | ±1.0      | ±0.5                        | 12                             | 0.25                    | 1.35:1       | 1.35:1         | 50                        | 50    | 0.25 | 2                         |
| 012         | 7.0 - 11.0      | 10            | ±1.0      | ±0.75                       | 15                             | 0.85                    | 1.25:1       | 1.25:1         | 100                       | 100   | 2.0  | 10                        |
| 013         | 7.0 - 11.0      | 20            | ±1.0      | ±1.0                        | 15                             | 0.40                    | 1.25:1       | 1.30:1         | 100                       | 100   | 2.0  | 100                       |
| 014<br>1/   | 0.5 - 1.0       | 10            | ±1.25     | ±0.75                       | 25                             | 0.20                    | 1.10:1       | 1.10:1         | 50                        | 50    | 3.0  | 5                         |
| 015         | 0.5 - 1.0       | 30            | ±1.0      | ±0.75                       | 25                             | 0.15                    | 1.10:1       | 1.10:1         | 50                        | 50    | 4.0  | 50                        |
| 016         | 0.5 - 1.0       | 10            | ±1.0      | ±0.75                       | 25                             | 0.2                     | 1.15:1       | 1.15:1         | 50                        | 50    | 3.0  | 5                         |
| 017         | 0.5 - 1.0       | 20            | ±1.0      | ±0.75                       | 25                             | 0.2                     | 1.15:1       | 1.15:1         | 50                        | 50    | 3.0  | 50                        |
| 018         | 0.5 - 1.0       | 30            | ±1.0      | ±0.75                       | 25                             | 0.2                     | 1.15:1       | 1.15:1         | 50                        | 50    | 3.0  | 50                        |
| 019         | 1.5 - 1.9       | 15            | ±1.0      | ±0.75                       | 20                             | 0.2                     | 1.20:1       | 1.20:1         | 5                         | 5     | 2.0  | 2                         |
| 020<br>2/   | 2.0 - 4.0       | 6             | ±1.0      | ±0.5                        | 20                             | 0.2                     | 1.30:1       | 1.30:1         | 50                        | 50    | 2.0  | 2                         |

See footnotes at end of table.

TABLE II Electrical requirements - Continued.

| Dash number | Frequency range | Coupling (dB) |           | Coupling variation (dB) max | Effective directivity (dB) min | Insertion loss (dB) max | VSWR max     |                | RF input power to primary |       |      | Reflected power (avg) max |
|-------------|-----------------|---------------|-----------|-----------------------------|--------------------------------|-------------------------|--------------|----------------|---------------------------|-------|------|---------------------------|
|             |                 | Nominal       | Tolerance |                             |                                |                         | Primary line | Secondary line | Over frequency range      | Avg   | Peak |                           |
|             | GHz             |               |           |                             |                                |                         |              |                | Watts                     | Watts | KW   | Watts                     |
| 021         | 2.6 - 5.2       | 20            | ±1.25     | ±0.75                       | 20                             | 0.25                    | 1.25:1       | 1.25:1         | 50                        | 50    | 3.0  | 50                        |
| 022<br>3/   | 2.6 - 5.2       | 20            | ±1.25     | ±0.75                       | 20                             | 0.25                    | 1.25:1       | 1.25:1         | 50                        | 50    | 7.5  | 50                        |
| 023         | 4.4 - 5.0       | 10            | ±0.45     | ±0.2                        | 20                             | 0.2                     | 1.25:1       | 1.25:1         | 20                        | 20    | 2    | 1                         |
| 024         | 7.0 - 11.0      | 6             | ±1.0      | ±0.6                        | 17                             | 0.5                     | 1.30:1       | 1.30:1         | 50                        | 50    | 3    | 2                         |
| 025         | 8.75 - 9.65     | 6             | ±0.5      | ±0.3                        | 17                             | 0.3                     | 1.20:1       | 1.20:1         | 1                         | 1     | 1    | 2                         |
| 026         | 8.75 - 9.65     | 30            | ±1.0      | ±0.5                        | 17                             | 0.3                     | 1.20:1       | 1.20:1         | 1                         | 1     | 1    | 50                        |
| 027         | 9.0 - 9.2       | 20            | ±0.6      | ±0.3                        | 18                             | 0.4                     | 1.35:1       | 1.35:1         | 50                        | 50    | 1    | 20                        |
| 028<br>4/   | 8.0 - 12.4      | 10            | ±1.0      | ±0.5                        | 15                             | 0.3                     | 1.30:1       | 1.30:1         | 5                         | 5     | 5    | 2                         |
| 029         | 8.0 - 12.4      | 25            | ±0.5      | ±0.3                        | 20                             | 0.3                     | 1.25:1       | 1.25:1         | 35                        | 35    | 5    | 50                        |
| 030         | 8.0 - 12.4      | 30            | ±1.0      | ±0.5                        | 20                             | 0.3                     | 1.25:1       | 1.25:1         | 35                        | 5     | 5    | 50                        |

1/ Inactive for new design, use dash number -002 for new design.

2/ Inactive for new design, use dash number -007 for new design.

3/ Inactive for new design, use dash number -021 for new design.

4/ Inactive for new design, use dash number -009 for new design.

REQUIREMENTS:

Design, construction, and physical dimensions: See figures 1 through 6 and table I.

Operating temperature range:

-54°C to +85°C for dash numbers 022 through 028.

-55°C to +100°C for dash numbers 014 and 020.

-54°C to +110°C for dash numbers 001 through 013, 015 through 019, 021, 023 through 027, 029, and 030.

Weight: See table I.

Electrical: See table II.

Marking: Part number (see tables I and II) shall be located as shown on figures 1 through 6.

Part number: M15370/10- (and a dash number from table I).

Referenced Documents: In addition to MIL-DTL-15370, this document references the following:  
MIL-PRF-39012/55

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Custodians:  
Army - CR  
Navy - EC  
Air Force - 85  
DLA - CC

Preparing activity:  
DLA - CC  
(Project 5985-2012-035)

Review activities:  
Navy - AS, CG, MC, OS, SH  
Air Force - 99

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at <https://assist.dla.mil/>.