

INCH-POUND

MS90543B  
 7 September 2007  
 SUPERSEDING  
 MS90543A  
 27 November 1973

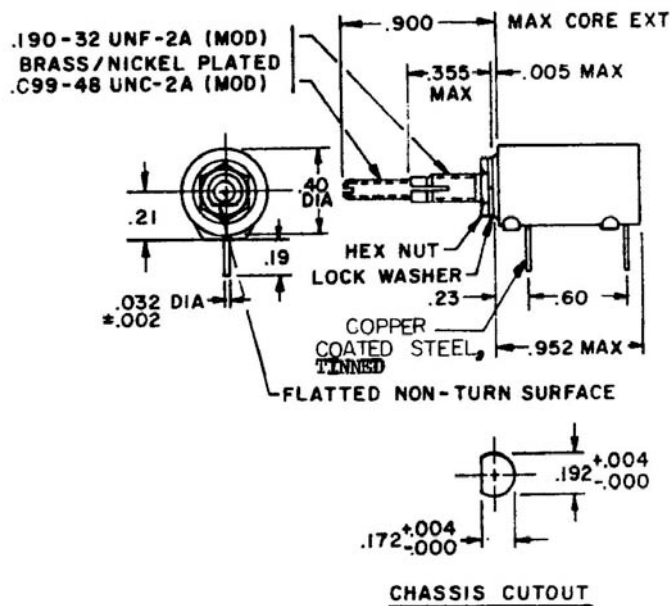
## MILITARY SPECIFICATION SHEET

COILS, RADIO FREQUENCY, MOLDED, VARIABLE,  
 POWDERED IRON CORE (PRINTED CIRCUIT MOUNTING),  
 TYPES LT12V001 TO LT12V031, INCLUSIVE

Inactive for new design.

This specification is approved for use by all Depart-  
 ments and Agencies of the Department of Defense.

The requirements for acquiring the products described  
 herein shall consist of this specification and MIL-PRF-15305.



INCHES	mm
.002	.05
.004	.10
.005	.13
.032	.18
.099	2.51
.172	4.37
.19	4.83
.192	4.88
.21	5.33
.23	5.84
.355	9.02
.40	10.16
.60	15.24
.900	22.86
.952	24.18

## NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Unless otherwise specified, tolerances are .XX ±.02 and .XXX ±.005.

FIGURE 1. Dimensions and configuration.

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## REQUIREMENTS:

Design, construction, and physical dimensions: See figure 1.

Style: LT12

Grade: 3  
Class: A

Weight:      Approximate weight:  
                    Dash number 32 thru 42 - 5.8 grams.  
                                    43 thru 52 - 6.6 grams.  
                                    53 thru 62 - 7.0 grams.

Operating temperature range: -55°C to +105°C.

Ambient temperature: +90°C ±5°C.

Temperature rise: 15 °C, maximum.

Altitude: 70,000 feet.

Shock (specified pulse): Method 213 of MIL-STD-202, test condition I, is applicable. Coil shall be mounted by its mounting stud securely fastened with mounting hardware for vibration and shock testing.

Dielectric withstanding voltage (sea level): Method 301 of MIL-STD-202, test voltage 1000 V rms for a minimum of 60 seconds.

Barometric pressure (reduced): Method 105 of MIL-STD-202, test condition C, test voltage of 200 V rms for a minimum of 60 seconds.

Terminals: Terminals shall be in accordance with ASTM B227.

Terminal pull: 5 pounds, minimum.

Electrical characteristics: See tables I and II.

Inductance: See table I.

Q values: See table I.

Self-resonant frequency (SRF): See table I.

DC resistance (DCR): See table I.

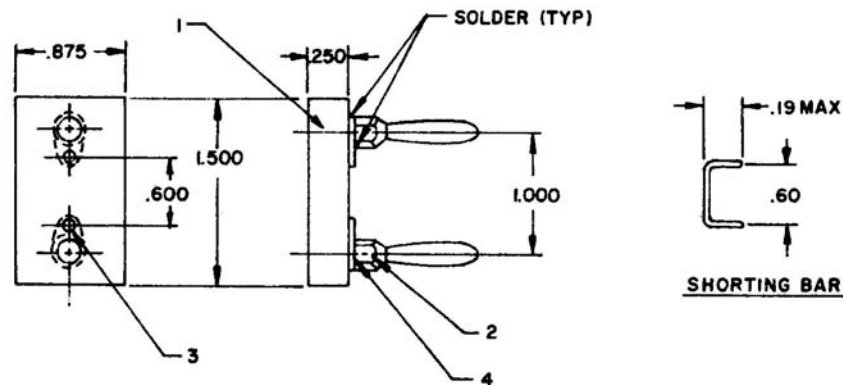
Part or Identifying Number (PIN): MS90543 - (dash number from table I).

TABLE 1. Electrical characteristics (initial).

Dash number MS90543	Former MS part number	Tuning range						SRF (min) at specified inductance	DC Resistance (max) (Ohms)	Rated DC current (mA)
		Inductance (min)	Q (min)	Test frequency	Inductance (max)	Q (min)	Test frequency			
-32	MS90543-01	.18μH	85	25 MHz	.28 μH	100	25 MHz	225 MHz	.05	1800
-33	MS90543-02	.25μH	95	25 MHz	.38 μH	110	25 MHz	200 MHz	.055	1720
-34	MS90543-03	.35μH	95	25 MHz	.52 μH	110	25 MHz	185 MHz	.06	1650
-35	MS90543-04	.45μH	105	25 MHz	.70 μH	110	25 MHz	165 MHz	.08	1430
-36	MS90543-05	.62μH	110	25 MHz	1.00 μH	110	25 MHz	125 MHz	.09	1340
-37	MS90543-06	.83μH	100	25 MHz	1.60 μH	65	7.9 MHz	100 MHz	.10	1280
-38	MS90543-07	1.30μH	65	7.9 MHz	2.50 μH	80	7.9 MHz	78 MHz	.23	840
-39	MS90543-08	1.70μH	70	7.9 MHz	3.40 μH	85	7.9 MHz	62 MHz	.35	680
-40	MS90543-09	2.60μH	70	7.9 MHz	5.50 μH	95	7.9 MHz	52 MHz	.75	465
-41	MS90543-10	3.80μH	80	7.9 MHz	7.30 μH	95	7.9 MHz	42 MHz	1.00	405
-42	MS90543-11	5.80μH	85	7.9 MHz	11.00 μH	90	2.5 MHz	34 MHz	1.40	340
-43	MS90543-12	9.30μH	65	7.9 MHz	18.00 μH	90	2.5 MHz	24 MHz	1.50	315
-44	MS90543-13	13.50μH	70	2.5 MHz	27.00 μH	90	2.5 MHz	18 MHz	2.00	274
-45	MS90543-14	20.00μH	75	2.5 MHz	40.00 μH	90	2.5 MHz	15.6 MHz	2.20	261
-46	MS90543-15	30.00μH	80	2.5 MHz	58.00 μH	90	2.5 MHz	12.5 MHz	3.00	223
-47	MS90543-16	46.00μH	80	2.5 MHz	87.00 μH	80	2.5 MHz	10.6 MHz	3.80	198
-48	MS90543-17	70.00μH	75	2.5 MHz	130.00 μH	85	790 kHz	8.0 MHz	4.20	189
-49	MS90543-18	105.00μH	75	790 kHz	170.00 μH	85	790 kHz	7.0 MHz	4.50	182
-50	MS90543-19	150.00μH	65	790 kHz	250.00 μH	80	790 kHz	5.5 MHz	6.00	158
-51	MS90543-20	225.00μH	55	790 kHz	390.00 μH	70	790 kHz	3.6 MHz	13.00	107
-52	MS90543-21	360.00μH	55	790 kHz	600.00 μH	60	790 kHz	2.8 MHz	17.00	94
-53	MS90543-22	570.00μH	35	790 kHz	1.25 mH	45	250 kHz	1.95 MHz	19.00	82
-54	MS90543-23	1.05 mH	40	250 kHz	2.00 mH	45	250 kHz	1.45 MHz	23.00	74
-55	MS90543-24	1.60 mH	35	250 kHz	3.20 mH	45	250 kHz	1.3 MHz	33.00	62
-56	MS90543-25	2.50 mH	35	250 kHz	5.00 mH	40	250 kHz	1.10 MHz	41.00	56
-57	MS90543-26	3.70 mH	35	250 kHz	7.50 mH	40	250 kHz	.80 MHz	61.00	46
-58	MS90543-27	5.00 mH	35	250 kHz	10.00 mH	35	250 kHz	.65 MHz	81.00	40
-59	MS90543-28	8.50 mH	35	250 kHz	16.00 mH	35	79 kHz	.46 MHz	120.00	32
-60	MS90543-29	12.50 mH	25	79 kHz	25.00 mH	35	79 kHz	.34 MHz	170.00	27
-61	MS90543-30	20.00 mH	20	79 kHz	38.00 mH	30	79 kHz	.28 MHz	230.00	23
-62	MS90543-31	30.00 mH	20	79 kHz	56.00 mH	30	79 kHz	.22 MHz	345.00	19

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Item	Description	Qty
1	Lucite block	1
2	#103 banana plug or equivalent	2
3	Nugent PS-402-60 or equal	2
4	Copper lug	2

INCHES	mm
.19	4.83
.250	6.35
.600	15.24
.875	22.23
1.000	25.40
1.500	38.10

FIGURE 1. Test fixture for electrical measurements.

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TABLE II. Electrical characteristics (final).

Inspection group	Allowable variation from Initial measurement		Allowable percent from specified minimum value in electrical characteristics (initial) table	
	Inductance (percent)	DC resistance	Self-resonant frequency	Q
Qualification inspection				
Group II	$\pm 2$	---	---	-10
Group III	$\pm 5$	$\pm(2\% +.001 \text{ ohm})$	-5	-15
Group IV	$\pm 3$	$\pm(2\% +.001 \text{ ohm})$	-5	-5
Conformance inspection group C				
Subgroup I	$\pm 2$	---	---	-10
Subgroup II	$\pm 3$	$\pm(2\% +.001 \text{ ohm})$	-5	-5
Subgroup III	$\pm 5$	$\pm(2\% +.001 \text{ ohm})$	-5	-10

## Application notes:

1. Core shall be set at the maximum specified inductance value indicated in the electrical characteristics (initial) table prior to all inspection tests. This core setting shall not be changed until electrical characteristics (final) measurements are performed.
2. Temperature rise and terminal pull tests are applicable.
3. Barometric pressure (test condition C) is applicable.
4. Operating torque shall be maximum of 6 ounce-inches and a minimum of 0.5 ounce-inch for tuning coil.
5. The test fixture in the diagram below shall be used for electrical measurements. The effective inductance shall be determined for all coils whenever this measurement is specified. Allowance of approximately .03 $\mu$ H shall be determined for internal inductance of the Q-meter and test fixture when measuring inductance values of 10  $\mu$ H or less. The shorting bar shall be made of solid copper wire (AWG #20) bent to conform to the body configuration of the coil under test (see diagram above).

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Changes from previous issue. The margins of this specification are marked with vertical lines to indicate where changes from the previous issue were made. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations and relationship to the last previous issue.

Referenced documents.

MIL-PRF-15305  
MIL-STD-202  
ASTM B227

Custodians:

Army – CR  
Navy - EC  
Air Force - 11  
DLA – CC

Preparing activity:  
DLA – CC

Project 5950-2007-050

Review activities:

Army – AR, CR4, MI  
Navy – AS, CG, MC, OS, SH

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