

**Heavy Duty  
Cylindrical Connectors**  
MIL-DTL-22992, Class L  
Military tested and approved

# Heavy Duty Cylindrical Connectors

## MIL-DTL-22992, Class L

The Military Approved Class L heavy duty connectors are the largest size cylindricals, highly suitable for industrial or military applications, and designed to meet the demands of heavy power interconnections.

### The design features of this connector series provide:

#### › Greatest Capacity

current ranges 40 to 200 amps,  
conductor sizes 6 to 4/0

#### › Safety

complete protection of personnel  
and equipment if connectors are  
inadvertently disconnected under  
load

#### › Foolproof Mating

design incorporates specific voltage,  
current, frequency, phase and  
grounding requirements

#### › Standardization

MIL-DTL-22992 Class L insert  
arrangements specify connector/  
cable combinations for maximum  
reliability

#### › Serviceable Contacts

contacts are normally crimped to the  
cable before connector assembly. No  
insertion tools required. Bushings are  
available to adapt smaller diameter  
wires to larger contacts



# Heavy Duty Cylindrical Connectors

## MIL-DTL-22992, Class L



Class L connectors are available in the specific configurations prescribed by MIL-DTL-22992 for either military or industrial applications. This rigid configuration control assures correct interconnection of electrical circuits for maximum safety and reliability. Controlled parameters include:

**Connector shell style and contact type** – wall mount and cable connecting receptacles are supplied with socket contacts only and always lead from the power source. Plugs (with coupling rings) have pin contacts only and always lead to the equipment end.

**Shell size** – the direct relationship of shell size to current carrying capability reduces the possibility of inadequate wiring for heavy electrical loads.

Shell Size	Current Rating (Amperes)	Contact
28	40	6
32	60	4
44	100	1/0
52	200	4/0

**Keyway position** – five positions of the main keyway are used to discriminate between the following power sources:  
 two wire D.C  
 two wire single phase A.C.  
 three wire single phase A.C.  
 three wire three phase A.C.  
 four wire three phase A.C.

**Insert rotation** – when carrying alternating current (A.C), different angular rotations of the insert within the connector shell are used to distinguish between 60 Hertz and 400 Hertz circuits.

### Other outstanding design features:

**Arc quenching design** – recessed socket contacts within the insert create an arc suppressing chamber which protects the user when connectors are separated under load.

**Programmed coupling sequence** – grounding and neutral contacts engage before power contacts.

**Waterproof design** – a unique combination of grommets and seals provides waterproofing in any condition-mated or unmated, capped or uncapped.

**Rugged construction** – machined from high strength aluminum. Straight-line attachment of accessories eliminates possibility of cable twisting or misalignment.

**Accessories** – supplied with all Class L connectors as indicated on the individual connector descriptions. Replacement accessories may be ordered separately. See pages 12 through 15.

United Electronics heavy duty Class L connectors have been exposed to the most rigorous recently updated military environmental conditions, without compromise of mechanical integrity or degradation of electrical performance. Parameters include:

### MIL-DTL 22992 environmental and mechanical testing:

Condition	Test Procedure
Vibration	28 of EIA-364
Drop (class L) 2/	Drop test of MIL-DTL-22992
Dielectric withstanding voltage	20 of EIA-364
High impact shock 2/	In accordance with method 207 of MIL-STD-202
Water immersion	In accordance with MIL-DTL-22992
Insulation resistance	21 of EIA-364
Heat rise (class L) 2/	In accordance with MIL-DTL-22992
Arc rupture (class L) 2/	In accordance with MIL-DTL-22992
Fluid immersion	In accordance with MIL-DTL-22992
Permeability	In accordance with MIL-DTL-22992
Shell-to-contact resistance grounding	In accordance with MIL-DTL-22992
Contact retention (class L)	In accordance with MIL-DTL-22992
Contact resistance	06 of EIA-364
Temperature cycling	32, condition I, 5 cycles, of EIA-364
Air leakage	In accordance with MIL-DTL-22992
Insert retention	In accordance with MIL-DTL-22992
Humidity	106 of MIL-STD-202
Durability	In accordance with MIL-DTL-22992
Salt spray (corrosion)	26 of EIA-364
Tensile	In accordance with MIL-DTL-22992

# How to Order

## MIL-DTL-22992, Class L



Connectors are supplied with removable contacts unassembled and applicable accessories as listed in the individual connector style descriptions, pages 8 through 11. Additional/replacement contacts or accessories may be ordered by their MS designations.

Connectors are ordered by MS designation. To illustrate the ordering procedure, part number MS90555C32412SY is shown as follows:

### 1 :: MS Number

- MS90555 designates wall mount receptacle (power source)
- MS90556 designates straight plug
- MS90557 designates cable connecting receptacle without coupling ring
- MS90558 designates wall mount plug with coupling ring (equipment end)

### 2 :: Shell Finish

C (conductive) for AC or N (nonconductive) for DC circuits.

#### Ground Assemblies: Finish C

		Shell Master Key/Keyway Position						
		60Hz & 400Hz						
		1 Phase			3 Phase			
Shell Size	Current Rating Amps	2 Wire		3 Wire	3 Wire	4 Wire		
		120 VAC	240 VAC	120/240 VAC	450/480 VAC	120/208 VAC	240/416 VAC	277/480 VAC
28	40	4 (120°)	5 (135°)	4 (120°)	—	4 (120°)	5 (135°)	6 (150°)
32	60	4 (120°)	5 (135°)	4 (120°)	—	4 (120°)	5 (135°)	6 (150°)
44	100	4 (120°)	—	4 (120°)	1 (60°)	4 (120°)	5 (135°)	6 (150°)
52	200	—	—	4 (120°)	—	4 (120°)	5 (135°)	6 (150°)

### 3 :: Shell Size – related directly to current carrying capability.

- Size 28 - 40 amperes
- Size 32 - 60 amperes
- Size 44 - 100 amperes
- Size 52 - 200 amperes

### 4 :: Master Key/Keyway Position – N designates normal position. Positions 1, 4, 5 and 6 of the master key/keyway prevent cross-mating of incompatible voltages. Refer to the adjacent illustration.

### 5 :: Insert Arrangement – determined by connector size (current carrying capability) and cable configuration to be accommodated. Refer to pages 5 & 6.

### 6 :: Contact Type – P for pin, S for socket. MS90555 and MS90557 are supplied with socket contacts only. MS90556 and MS90558 are supplied with pin contacts only.

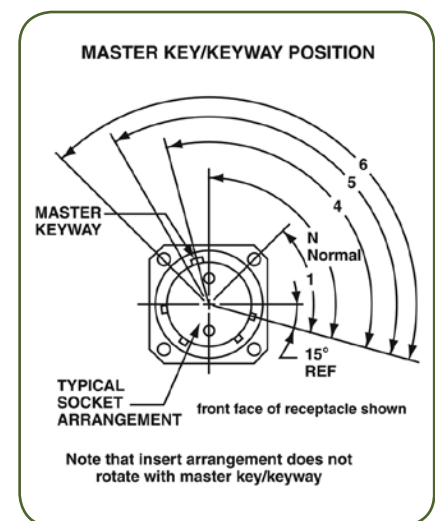
### 7 :: Alternate Insert Rotation – used to prevent cross-mating of incompatible frequencies. Absence of a letter in this space indicates normal (0°) position of the insert. Refer to page 7.

### PART NUMBER

MS90555*	C	32	4	12	S	Y
1	2	3	4	5	6	7

- MS90555\*
- MS90556\*
- MS90557\*
- MS90558\*

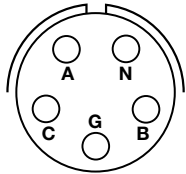
		Shell Master/Key Keyway Position
		DC
Shell Size	Current Rating Amps	2 Wire
		28 VDC
28	40	N (105°)
32	60	N (105°)
44	100	N (105°)
52	200	N (105°)



# Contact Arrangements

## MIL-DTL-22992, Class L

### Shell Size 28, 40 amp rating



28-12, 28-13  
Three phase AC, 4 wire, grounding

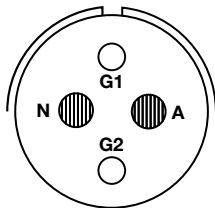
#### Cable:

28-12	IPCEA, type G, round, four #8 conductors
28-13	CO-04 HDF, (4/6-4/12R) 1090 per MIL-C-3432

#### Contacts:

Position	Size	Pin M39029/48	Socket M39029/49
A, B, C	6	-317	-329
N, G	6N	-318	-329

### Shell Size 32, 60 amp rating



32-04, 32-05  
Single phase AC, 2 wire, grounding

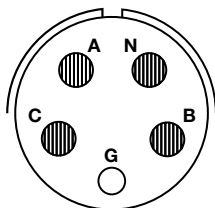
#### Cable:

32-04	IPCEA, type G, round, two #6 conductors
32-05	CO-02 HDF, (2/4-2/8R) 1100 per MIL-C-3432

#### Contacts:

Position	Size	Pin M39029/48	Socket M39029/49
A	4	-320	-331
N	4N	-321	-331
G1, G2	6N	-318	-329

### Shell Size 32, 60 amp rating



32-12, 32-13  
Three phase AC, 4 wire, grounding

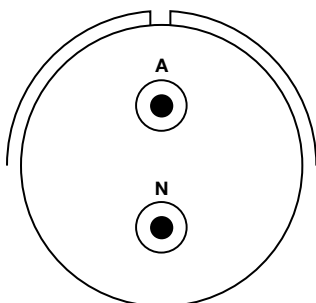
#### Cable:

32-12	IPCEA, type G, round, four #6 conductors
32-13	CO-04 HDF, (4/4-4/12R) 1290 per MIL-C-3432

#### Contacts:

Position	Size	Pin M39029/48	Socket M39029/49
A, B, C	4	-320	-331
N	4N	-321	-331
G	6N	-318	-329

### Shell Size 44, 100 amp rating



44-02, 44-03  
28 Volts DC, 2 wire

#### Cable:

44-02	IPCEA, type W, round, two #2 conductors
44-03	CO-02 HDF, (2/1) 1385 per MIL-C-3432

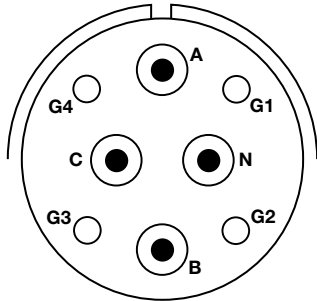
#### Contacts:

Position	Size	Pin M39029/48	Socket M39029/49
A	1/0-1	-323	-333
N	1/0N-1	-324	-333

# Contact Arrangements

## MIL-DTL-22992, Class L

### Shell Size 44, 100 amp rating



44-12, 44-13  
Three phase AC, 4 wire, grounding

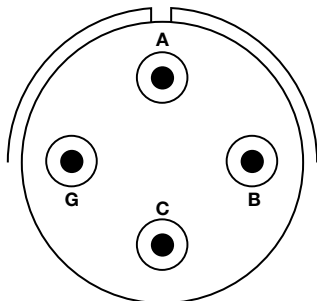
#### Cable:

44-12	IPCEA, type G, round, four #2 conductors
44-13	CO-04 HDF, (4/1-4/8R) 1620 per MIL-C-3432

#### Contacts:

Position	Size	Pin M39029/48	Socket M39029/49
A, B, C	1/0-1	-323	-333
N	1/0N-1	-324	-333
G1, G2, G3, G4	6G	-319	-330

### Shell Size 44, 100 amp rating For Navy Ground Support Equipment uses only.



44-50, 44-51, 44-52, 44-56  
Three phase AC, 3 wire, grounding

44-50	Available in MS90555 & MS90558 only 4 each #1 conductors
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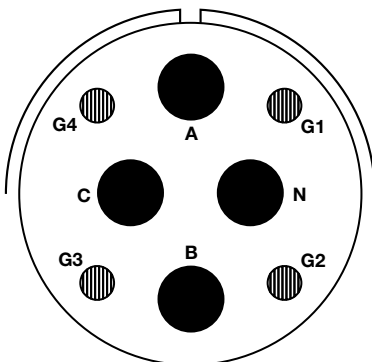
#### Cable:

44-51	Available in MS90556 & MS90557 only IPCEA, type W, round, four #1 conductors
44-52	Available in MS90556 only IPCEA, type W, round, four #2 conductors
44-56	Available in MS90556 only IPCEA, type W, round, four #6 conductors

#### Contacts:

Position	Size	Pin M39029/48	Socket M39029/49
A, B, C	1/0-1	-323	-333
G	1/0N-1	-324	-333

### Shell Size 52, 200 amp rating



52-12, 52-13  
Three phase AC, 4 wire, grounding

#### Cable:

52-12	IPCEA, type G, round, four #4/0 conductors
52-13	CO-04 HDF, (4/0000-4/4R) 2380 per MIL-C-3432

#### Contacts:

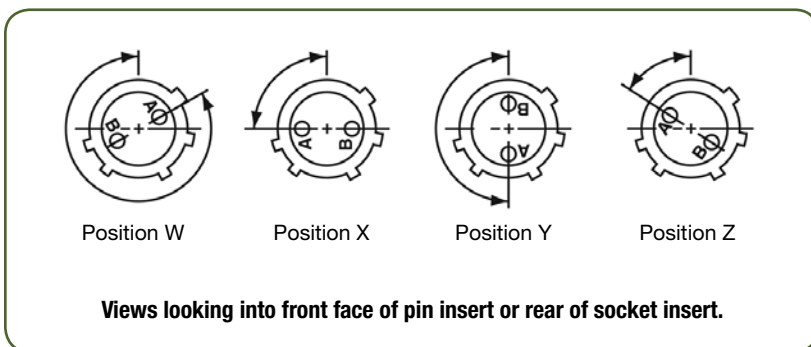
Position	Size	Pin M39029/48	Socket M39029/49
A, B, C	4/0	-327	-335
N	4/0N	-328	-335
G1, G2, G3, G4	4G	-322	-332

# Alternate Insert Rotations

## MIL-DTL-22992, Class L

To avoid cross-plugging problems in applications requiring the use of more than one connector of the same size and arrangement, alternate insert rotations are available as indicated in the accompanying chart.

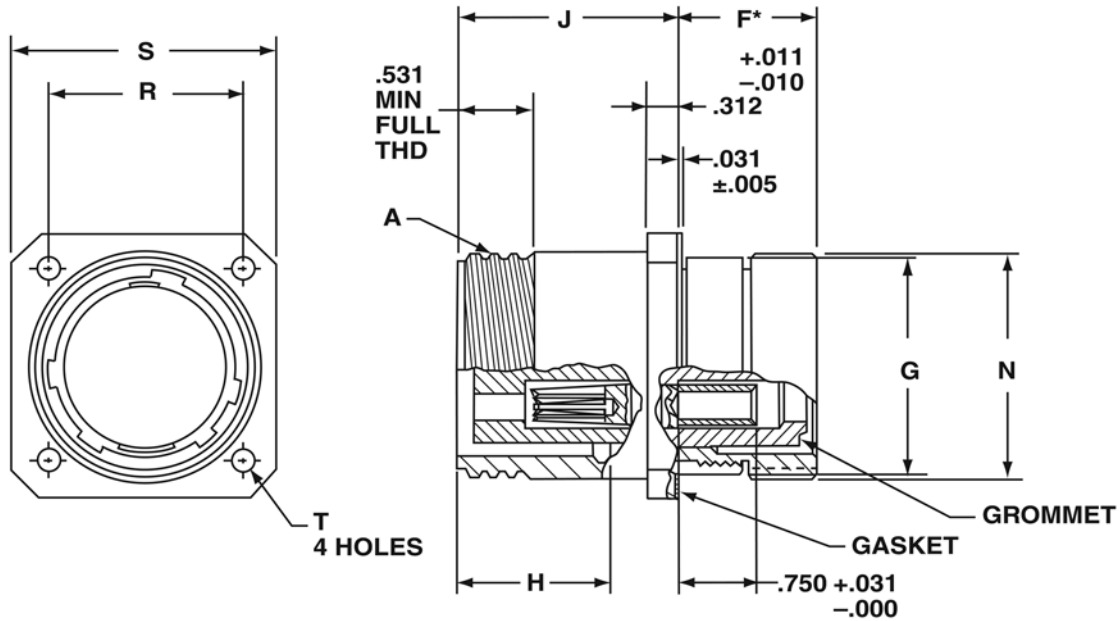
As shown in the diagram below, the front face of the pin insert is rotated within the shell in a clockwise direction from the normal shell key. The socket insert would be rotated counterclockwise the same number of degrees in respect to the normal shell key.



Insert Arrangements	Keying Position (degrees from normal position)				
	DC or 60Hz Normal	400Hz			
		W	X	Y	Z
28-12	0	-	-	180	-
28-13	0	-	-	180	-
32-04	0	-	90	-	-
32-05	0	-	90	-	-
32-12	0	-	-	180	-
32-13	0	-	-	180	-
44-02	0	-	-	-	-
44-03	0	-	-	-	-
44-12	0	-	-	-	60
44-13	0	-	-	-	60
44-50	0	-	-	-	-
44-51	0	-	-	-	-
44-52	0	-	-	-	-
44-56	0	-	-	-	-
52-12	0	300	-	-	-
52-13	0	300	-	-	-

# Wall Mount Receptacle (power source)

MIL-DTL-22992, Class L, MS90555

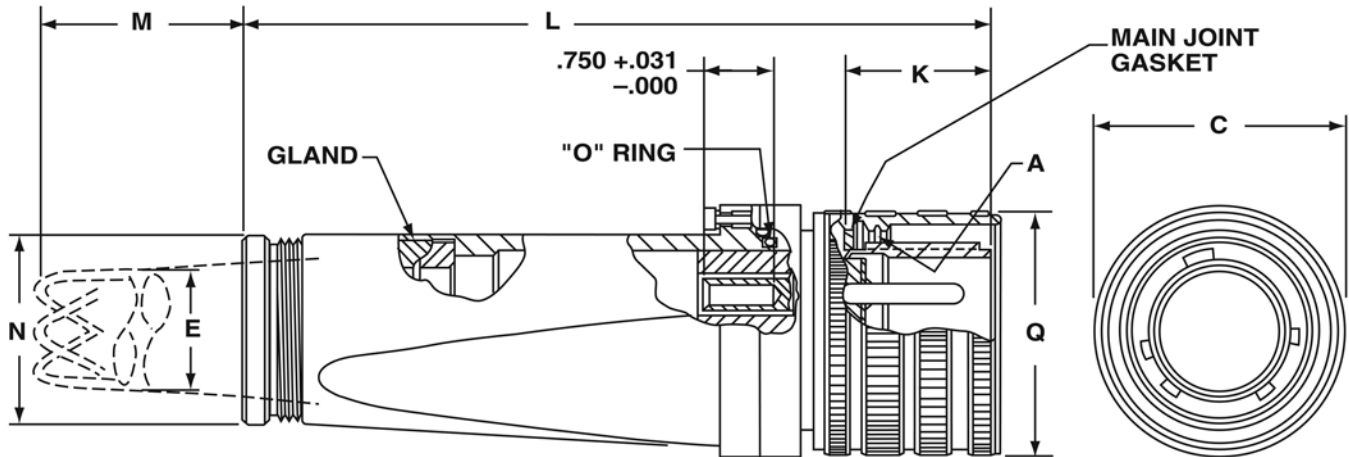


Shell Size	A Thread Class 2A .1428P-.2857L Double Stub	F* ±.031	G Dia. +.006 -.010	H ±.005	J +.016 -.000	N Dia. +.011 -.020	R (BSC)	S +.021 -.020	T Dia. ±.005
28	2.000	1.376	1.938	1.514	2.188	2.000	1.844	2.375	.177
32	2.250	1.376	2.188	1.514	2.188	2.250	2.062	2.625	.209
44	3.00	1.438	3.062	1.733	2.532	3.125	2.812	3.375	.281
52	3.500	1.438	3.062	1.733	2.532	3.625	3.156	3.875	.281

To complete MS Part number see how to order, pg. 4.  
 Protective cover MS90563 is supplied as part of this connector assembly. Refer to page 15 for dimensions.  
 \*F dimension applies only when rear nut is fully tightened

# Straight Plug

MIL-DTL-22992, Class L, MS90556



Shell Size and Arrangement	A Thread Class 2B .1428P-.2857L Double Stub	C Dia. Max	E Cable Range	K $\pm .005$	L Max Free Length	M Approx. Free Length	N Dia. $+ .011 - .020$	Q Dia. Max
28-12	2.000	2.439	1.047-.922	1.557	8.188	7.188	2.000	2.312
28-13			1.130-1.005			7.188		
32-04	2.250	2.689	.969-.844	1.557	8.188	7.188	2.000	2.562
32-05, -12			1.130-1.005			7.188		
32-13			1.342-1.217			8.688		
44-02	3.000	3.667	1.312-1.187	1.776	10.172	10.688	2.500	3.531
44-03			1.438-1.313			9.688		
44-12			1.56-1.391			10.688		
44-13			1.672-1.547			12.688		
44-51	3.000	3.667	1.734-1.609	1.776	10.172	11.688	2.500	3.531
44-52			1.525-1.435			11.188		
44-56			1.135-1.065			7.188		
52-12	3.500	4.167	2.328-2.183	1.776	11.109	17.188	3.250	4.016
52-13			2.453-2.308			18.188		

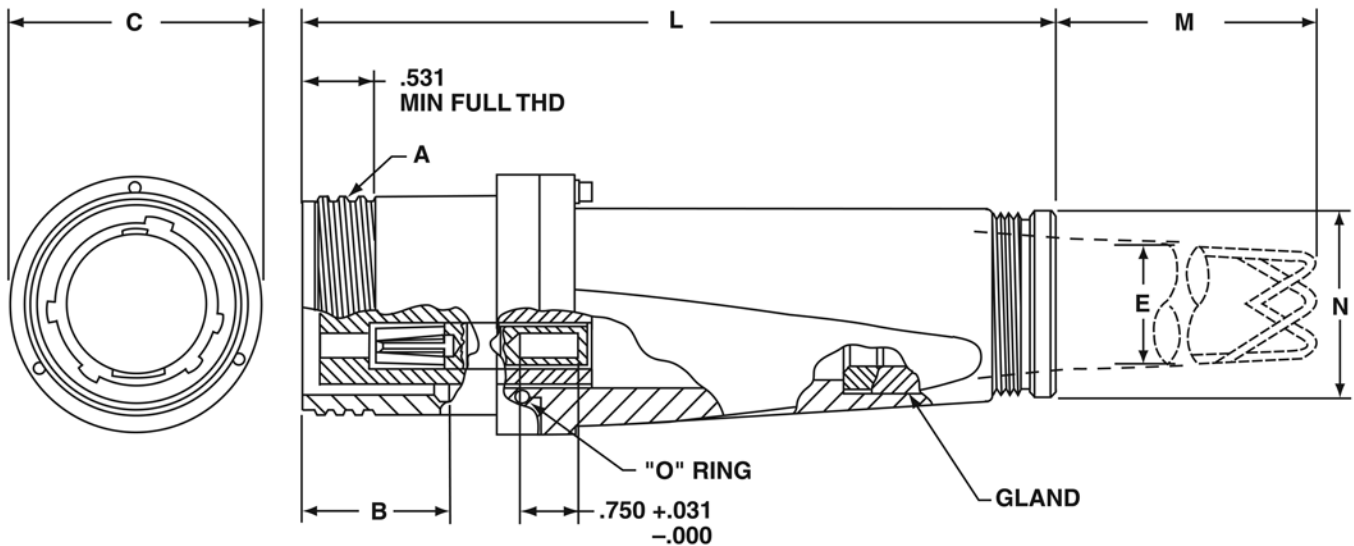
To complete MS Part number see how to order, pg. 4.

Protective cover MS90564 is supplied as part of this connector assembly. Refer to page 15 for dimensions.

Contact bushings MS3348 are supplied as part of connector as required. Refer to page 13 for dimensions.

# Cable Connecting Receptacle (without coupling ring)

MIL-DTL-22992, Class L, MS90557



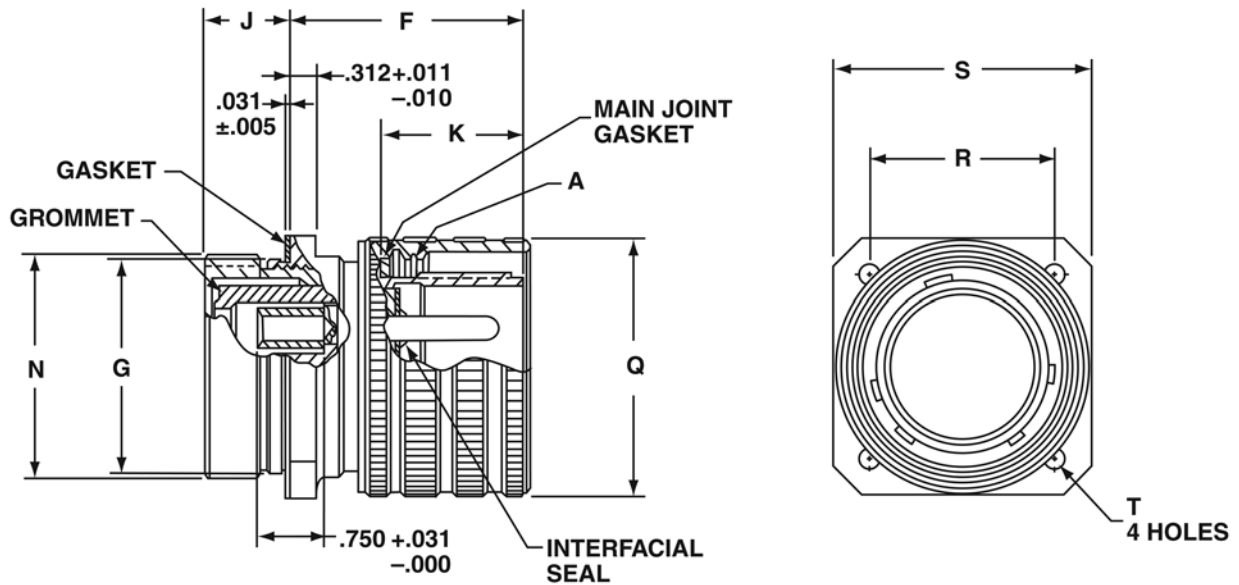
Shell Size and Arrangement	A Thread Class 2B .1428P-.2857L Double Stub	B ±.005	C Dia. Max	E Cable Range	L Max Free Length	M Approx. Free Length	N Dia. +.011 -.020
28-12	2.000	1.514	2.439	1.047-.922	8.188	7.188	2.000
28-13				1.130-1.005		7.188	
32-04	2.250	1.514	2.689	.969-.844	8.188	7.188	2.000
32-05, -12				1.130-1.005		7.188	
32-13				1.342-1.217		8.688	
44-02	3.000	1.733	3.667	1.312-1.187	10.125	10.688	2.500
44-03				1.438-1.313		9.688	
44-12				1.56-1.391		10.688	
44-13				1.672-1.547		12.688	
44-51				1.734-1.609		11.688	
52-12	3.500	1.733	4.167	2.328-2.183	11.062	17.188	3.250
52-13				2.453-2.308		18.188	

To complete MS Part number see how to order, pg. 4.  
 Protective cover MS90563 is supplied as part of this connector assembly. Refer to page 15 for dimensions.  
 Contact bushings MS3348 are supplied as part of connector as required. Refer to page 13 for dimensions.

# Wall Mount Plug with Coupling Ring

(equipment end)

MIL-DTL-22992, Class L, MS90558



All Dimensions for reference only.

Shell Size	A Thread Class 2B .1428P-.2857L Double Stub	J ±.031	G Dia. +.006 -.010	F* +.016 -.000	K ±.005	N +.011 -.020	Q Dia. Max	R (BSC)	S +.021 -.020	T Dia. ±.005
28	2.000	.959	1.938	2.639	1.557	2.000	2.312	1.844	2.375	.177
32	2.250	.959	2.188	2.639	1.557	2.250	2.562	2.062	2.625	.209
44	3.00	1.021	3.062	2.998	1.776	3.125	3.531	2.812	3.375	.281
52	3.500	1.021	3.562	2.998	1.776	3.625	4.016	3.156	3.875	.281

To complete MS Part number see how to order, pg. 4.

Protective cover MS90564 is supplied as part of this connector assembly. Refer to page 15 for dimensions.

\*F dimension applies only when rear nut is fully tightened

# Contacts

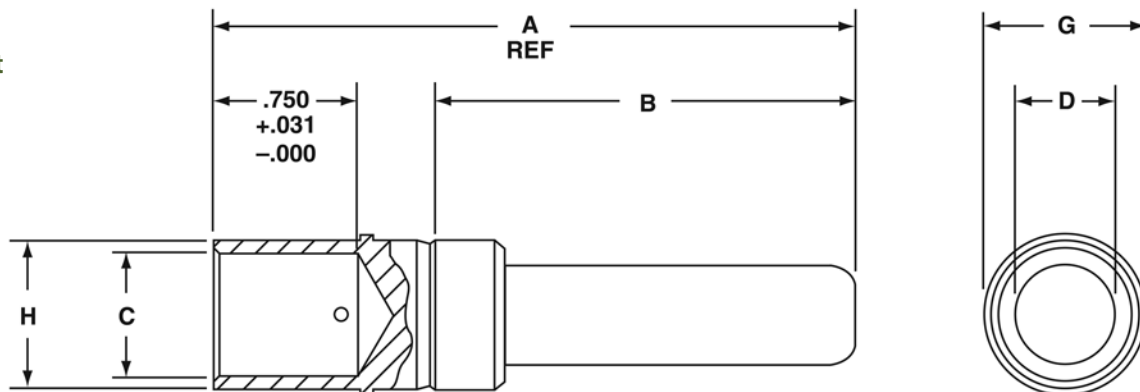
MIL-DTL-22992, Class L Accessories



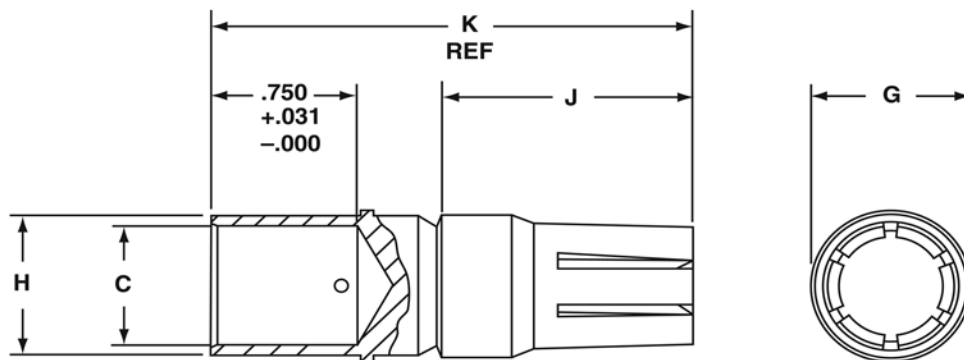
United Electronics Corporation

The Power to Connect

**M39029/48**  
pin contact



**M39029/49**  
socket contact



All Dimensions for reference only.

Socket M Part Number*	Pin M Part Number	Contact Size	Wire Well Size	A Ref.	B ±.005	C Dia	D Dia ±.001	G Dia	H Dia	J ±.005	K Ref
M39029/49-335	M39029/48-327	4/0	4/0	3.207	2.097	.641 $^{+.004}_{-.003}$	.500	.781 ±.003	.750 $^{+.004}_{-.003}$	1.283	2.393
---	M39029/48-328	4/0N	4/0	3.325	2.215	.641 $^{+.004}_{-.003}$	.500	.781 ±.003	.750 $^{+.004}_{-.003}$	---	---
M39029/49-333	M39029/48-323	1/0	1	3.207	2.097	.406 $^{+.004}_{-.003}$	.357	.609 ±.003	.506 $^{+.004}_{-.003}$	1.283	2.393
---	M39029/48-324	1/0N	1	3.325	2.215	.406 $^{+.004}_{-.003}$	.357	.609 ±.003	.506 $^{+.004}_{-.003}$	---	---
M39029/49-331	M39029/48-320	4	4	2.786	1.738	.281 ±.002	.225	.417 ±.002	.374 ±.002	1.158	2.206
---	M39029/48-321	4N	4	2.904	1.856	.281 ±.002	.225	.417 ±.002	.374 ±.002	---	---
M39029/49-329	M39029/48-317	6	6	2.786	1.738	.234 ±.002	.178	.342 ±.002	.312 ±.002	1.158	2.206
---	M39029/48-318	6N	6	2.904	1.856	.234 ±.002	.178	.342 ±.002	.312 ±.002	---	---
M39029/49-332	M39029/48-322	4G	4	2.856	1.746	.281 ±.002	.225	.417 ±.002	.374 ±.002	1.752	2.862
M39029/49-330	M39029/48-319	6G	6	2.856	1.746	.234 ±.002	.178	.342 ±.002	.312 ±.002	1.752	2.862

\*Order by M39029 part number listed for either socket or pin.

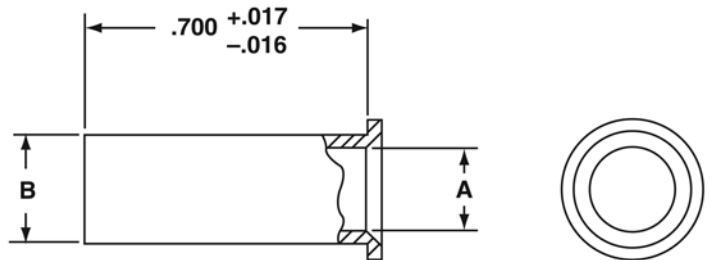
# Contact Bushing/Removal Tool

## MIL-DTL-22992, Class L Accessories

### MS3348 contact bushing

All Dimensions for reference only.

MS Part Number*	Contact Wire Barrel Size (Ref)	Wire Size (Ref)	A Dia +.010 -.003	B Dia +.010 -.003
MS3348-1 - 2L	1	2	.359	.396
MS3348-4 - 5L	4	5	.250	.272
MS3348-4 - 6L	4	6	.225	.272
MS3348-6 - 8L	6	8	.185	.225
MS3348-6 - 9L	6	9	.155	.225
MS3348-1 - 6L	1	6	.225	.396
MS3348-4 - 8L	4	8	.185	.272
MS3348-6 - 10L	6	10	.136	.225
MS3348-4/0 - 2/0L	4/0	2/0	.500	.629

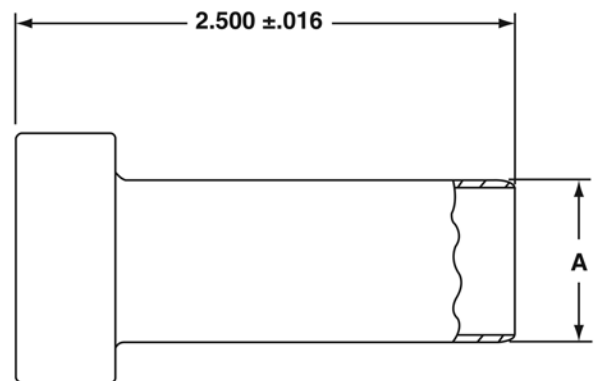
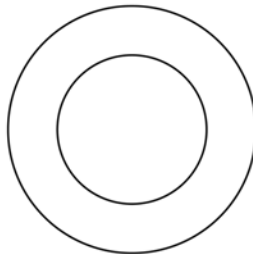


\* Order by MS part number listed.

### MS90562 contact removal tool

All Dimensions for reference only.

MS Part Number*	Contact Size	A Dia +.000 -.002
MS90562-1	4/0	.790
MS90562-2	2/0	.696
MS90562-3	1/0	.558
MS90562-4	2	.462
MS90562-5	4	.376
MS90562-6	6	.354



\* Order by MS part number listed.

# Cable Strain Relief/Cable Sealing Gland

## MIL-DTL-22992, Class L Accessories

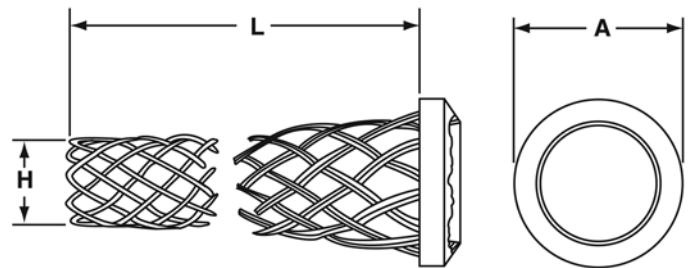


### MS90561

#### Cable Strain Relief

All Dimensions for reference only.

MS Part Number*	Arrangement Number	A Dia +.000 -.010	H Dia Cable Range		L Approx.
			Max	Min	
MS90561-1	32-04	1.797	.969	.832	8.000
MS90561-2	28-13, 32-12	1.797	1.145	1.003	8.000
MS90561-4	28-02,-04	1.797	.844	.688	7.500
MS90561-12	28-12	1.797	1.047	.891	8.000
MS90561-13	32-13	1.797	1.342	1.185	9.500
MS90561-15	44-12	2.235	1.516	1.360	11.500
MS90561-16	44-13	2.235	1.688	1.531	13.500
MS90561-17	52-12	2.922	2.328	2.039	18.000
MS90561-18	52-13	2.922	2.500	2.211	19.000
MS90561-19	44-51	2.235	1.750	1.550	12.500
MS90561-20	44-52	2.235	1.578	1.375	12.000
MS90561-21	44-56	2.235	1.160	1.010	8.000



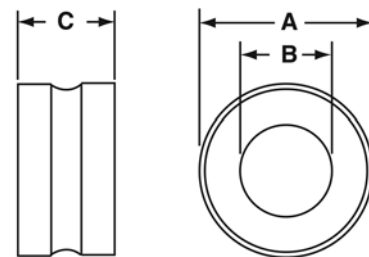
\* Order by MS part number listed.

### MS23747

#### Cable Sealing Gland

All Dimensions for reference only.

MS Part Number*	Arrangement Number	A Dia +.000 -.020	B Dia +.020 -.000	C ±.010	Min Cable Dia Ref.
MS23747-2	28-13, 32-05,-12	1.805	1.130	1.034	1.005
MS23747-12	28-12	1.805	1.047	1.034	.922
MS23747-13	32-13	1.805	1.342	1.034	1.217
MS23747-14	44-03	2.242	1.438	1.160	1.313
MS23747-15	44-12	2.242	1.516	1.160	1.391
MS23747-16	44-13	2.242	1.672	1.160	1.547
MS23747-18	52-12	2.927	2.328	1.284	2.183
MS23747-19	52-13	2.927	2.453	1.284	2.308
MS23747-20	44-51	2.242	1.734	1.160	1.609
MS23747-21	44-52	2.242	1.562	1.160	1.437
MS23747-22	44-56	2.242	1.150	1.160	1.025



\* Order by MS part number listed.

# Protective Covers

## MIL-DTL-22992, Class L Accessories

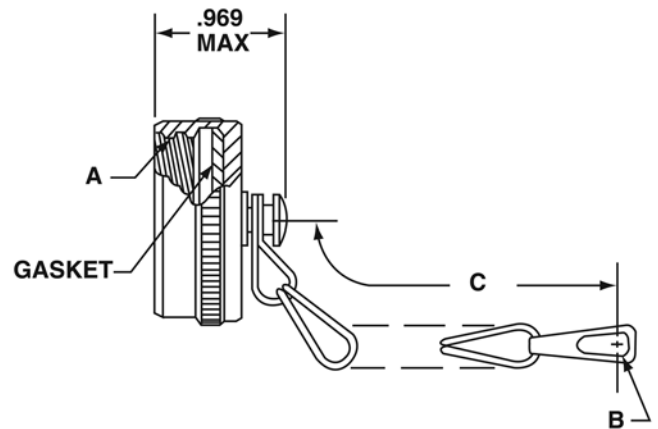
### MS90563 protective covers

Used with: **MS90555** wall mount receptacle  
**MS90557** cable connecting receptacle

All Dimensions for reference only.

MS Part Number*	Use with Shell Size	A Thread Class 2B .1428P-.2857L Double Stub	B Dia Ref		C Approx.
			For MS90555	For MS90557	
MS90563-1( )	28	2.000	.177	.177	6.000
MS90563-3( )	32	2.250	.209	--	4.500
MS90563-4( )	32	2.250	--	.177	6.000
MS90563-7( )	44	3.000	.281	.281	7.500
MS90563-11( )	52	3.500	.281	.281	7.500

\* To complete MS part number, add letter C (Conductive) for AC or N (Non-conductive) for DC connector assemblies.



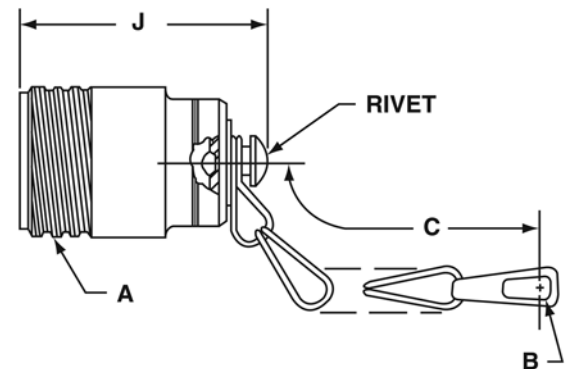
### MS90564 protective covers

Used with: **MS90556** straight plug  
**MS90558** wall mount plug

All Dimensions for reference only.

MS Part Number*	Use with Shell Size	A Thread Class 2A (Plated) .1428P-.2857L Double Stub	B Dia Ref		C Approx.	J Max
			For MS90556	For MS90558		
MS90564-1( )	28	2.000	.177	.177	7.500	2.266
MS90564-3( )	32	2.250	--	.209	6.000	2.266
MS90564-4( )	32	2.250	.177	--	7.500	2.266
MS90564-7( )	44	3.000	.281	.281	8.500	2.484
MS90564-11( )	52	3.500	.281	.281	8.500	2.484

\* To complete MS part number, add letter C (Conductive) for AC or N (Non-conductive) for DC connector assemblies.



# Installation Instructions

## MIL-DTL-22992, Class L

Complete installation instructions for Class L connectors are available on request. Reproduced below are condensed assembly instructions to familiarize the user with the Installation procedure and tooling required.

**Cable Preparation** (MS90556 and MS90557 connectors only) The following table shows the standard wire color coding, generator terminal markings, and connector contact identification used with Class L connectors.

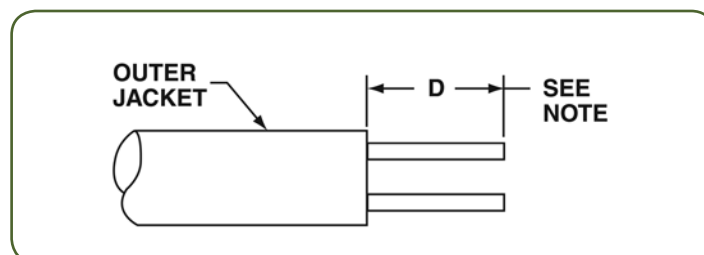
### Standardized Generator Wiring and Connections

Generator Terminal Marking	Current	Contact Designation	Conductor Circuit	Wire Color
+ (POS)	28Vdc	A	Positive	Black
- (NEG) ground	28Vdc	N	Negative	White
L <sub>1</sub>	AC	A	Phase A	Black
L <sub>2</sub>	AC	B	Phase B	Red
L <sub>3</sub>	AC	C	Phase C	Blue (Commercial maybe orange)
L <sub>0</sub>	AC	N	Neutral	White
G (or Gnd)	AC	G	Safety grounding	Green (Commercial maybe bare)

**Step 1)** Determine cable layout to facilitate alignment of contacts and insert holes without wire crossing.

**Step 2)** Strip cable jacket to dimension shown. Avoid cutting or nicking individual conductor insulation.

Connector Size	D Inches Approx.
28	3.000
32	3.000
44	4.250
52	5.000



**Note**

Some insert arrangements require that two or more ground wires be terminated into one contact. Dimension D must therefore be increased to permit routing these wires around the larger conductors.

**Step 3)** Install connector components in the order shown in the applicable assembly view illustrated on pages 17 and 18.

**Step 4)** Strip insulation of individual conductors to 3/4 inch from end of conductor.

# Installation Instructions

## MIL-DTL-22992, Class L

### MS90555 Connector



#### Wall Mount Receptacle Components:

- 1 :: Shell
- 2 :: Insert Assembly, Socket
- 3 :: Contact, Socket
- 4 :: Grommet Assembly, Socket
- 5 :: Nut, Retaining
- 6 :: Protective Cap Assembly (Not Shown)
- 7 :: Flange Gasket (Not Shown)

### MS90556 Connector



#### Straight Plug Components:

- 1 :: Shell and Coupling Nut Assembly
- 2 :: Insert Assembly, Pin
- 3 :: Contact, Pin
- 4 :: Spacer Assembly, Pin
- 5 :: Back Adapter
- 6 :: Compression Ring
- 7 :: Gland
- 8 :: Cable Grip
- 9 :: Gland Nut
- 10 :: Lockwasher (3 each)
- 11 :: Screw (3 each)
- 12 :: Protective Cap Assembly (Not Shown)

# Installation Instructions

## MIL-DTL-22992, Class L

### MS90557 Connector



#### Cable Connecting Receptacle Components:

- 1 :: Shell
- 2 :: Insert Assembly, Socket
- 3 :: Contact, Socket
- 4 :: Spacer Assembly, Socket
- 5 :: Back Adapter
- 6 :: Compression Ring
- 7 :: Gland
- 8 :: Cable Grip
- 9 :: Gland Nut
- 10 :: Lockwasher (3 each)
- 11 :: Screw (3 each)
- 12 :: Protective Cap Assembly (Not Shown)

### MS90558 Connector



#### Wall Mount Plug Components:

- 1 :: Shell and Coupling Nut Assembly
- 2 :: Insert Assembly, Pin
- 3 :: Contact, Pin
- 4 :: Grommet Assembly, Pin
- 5 :: Nut, Retaining
- 6 :: Protective Cap Assembly (Not Shown)
- 7 :: Flange Gasket (Not Shown)

# Installation Instructions

## MIL-DTL-22992, Class L



### Contact Installation

**Step 1)** Insert stripped conductors in contact wirewells. If contact bushing is used, insert conductor in bushing and bushing in contact wirewell. If two or more ground wires are inserted into a single contact, make sure all wires are fully seated in wirewell.

**Step 2)** Select correct crimping tool, locator and die combination from the table for contacts to be installed. With conductor or contact bushing in place, insert contact into tool. Close crimping die fully to form a uniform crimp.

Contact Part Number	Size	Type	Crimping Tool	Locator	Die	Removal Tool
M39029/48-327	4/0	P	Pico Model 400B or 400B-1	4297-1	414DA- 4/0N-1	MS90562-1
M39029/48-335	4/0	S				
M39029/48-328	4/0N	P				
M39029/48-323	1/0	P	Pico Model 400B or 400B-1	4297-3	414DA-1/0N	MS90562-1
M39029/48-333	1/0	S				
M39029/48-324	1/0N	P				
M39029/48-320	4	P	Pico Model 400B or 400B-1	4297-5	414DA-4N	MS90562-1
M39029/48-331	4	S				
M39029/48-321	4N	P				
M39029/48-322	4G	P				
M39029/48-332	4G	S				
M39029/48-317	6	P	Pico Model 400B or 400B-1	4297-6	414DA-6N	MS90562-1
M39029/48-329	6	S				
M39029/48-318	6N	P				
M39029/48-319	6G	P				
M39029/48-330	6G	S				

If crimping tools are unavailable, contacts may be affixed to conductors by soldering. Use rosin-alcohol solder flux, a good grade of 60/40 solder and a 500 watt soldering iron or probe type resistance soldering equipment. Pre-tin conductors before soldering. Solder must not be present on shoulder or retention area of contact.

### Connector Assembly

**Step 1)** If inserts are not already positioned in the connector shell, align large tab on insert with large slot in shell and push insert in until it bottoms in shell.

**Step 2)** Apply a thin coating of Dow Corning DC-4 lubricant to the periphery of contact holes in spacer or grommet assembly. Push contacts into rear of spacer or grommet assembly until locked into contact retainer clip.

**Step 3)** Align contacts with proper holes in insert. Small key of insert must be aligned with appropriate keyway in spacer or grommet assembly. Slide contacts into insert holes until spacer or grommet assembly butts against insert. A thin film of Dow Corning DC-4 lubricant applied to the periphery of insert contact holes will provide maximum sealing efficiency.

**Step 4)** Assemble accessories to connector. The back adapter "O" ring should have a very thin film of Dow Corning DC-4 lubricant applied. Avoid getting grease on inside surfaces of gland and on cable jacket.

**Step 5)** Tighten retaining nut or gland nut on shell or adapter. A metal-to-metal seating condition is desirable, but may not be attainable with maximum cable diameters.

### Contact Removal

**Step 1)** Loosen all rear accessories and slide back along cable.

**Step 2)** Remove spacer or grommet assembly with contacts from connector insert.

**Step 3)** Using the appropriate size contact removal tool, push tool over front of contact until it bottoms in spacer or grommet assembly hole. This will open contact retaining clip and allow contact to be removed from the spacer or grommet assembly from the rear. When using jacketed cable, all contacts should be released from contact retention clips before removal from spacer or grommet assembly is accomplished.



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