

Bendix® Commercial Aircraft Cylindrical Connectors

12-101-3



Amphenol

Bendix® Commercial Aircraft Cylindrical Connectors

Bendix Commercial Aircraft Connectors consist of the DC Series which is a MIL-C-26482, front release crimp design using metal retention clips, and the 10-244 Series which is a MIL-C-5015 proprietary crimp design. Materials and finishes have been selected for improved temperature capability and for resistance to fluids associated with aircraft industry environments.

Also included in this publication is the BT high temperature aircraft connector which has ceramic inserts. See page 21 for a brief description and consult Amphenol, Bendix Connector Operations, Sidney, NY for further information on this aircraft cylindrical connector series. Other commercial aircraft specials and related connector products are shown on page 22.

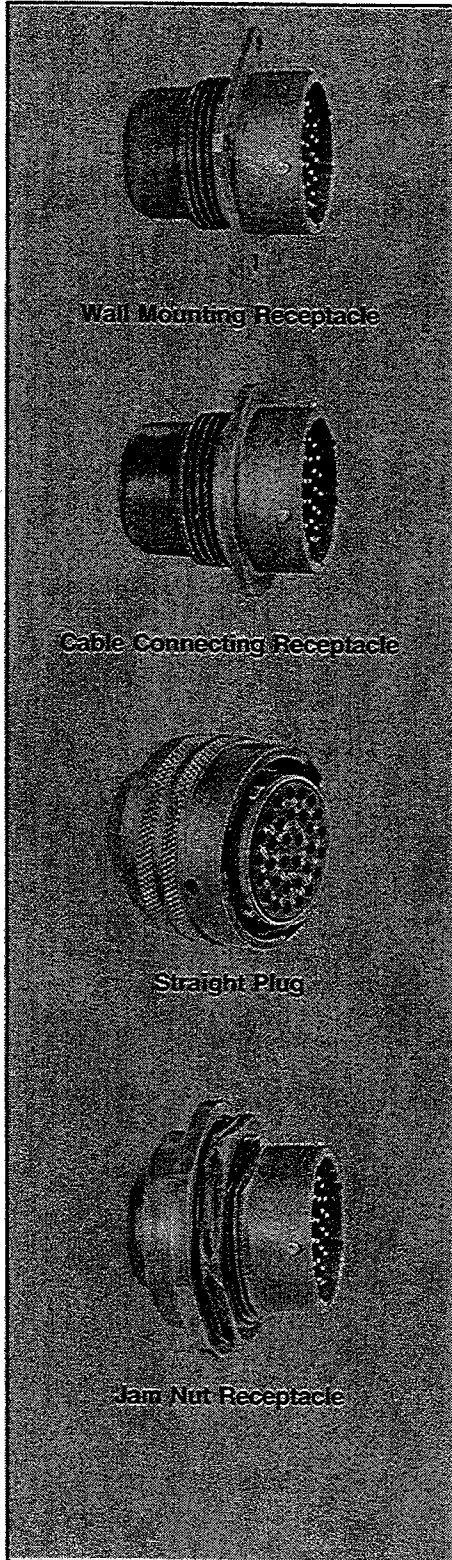
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Sales Office Listing

Bendix® DC Series Connectors

fluid resistant, resilient inserts



Wall Mounting Receptacle

Cable Connecting Receptacle

Straight Plug

Jam Nut Receptacle

The Bendix® DC connector series is approved for DC-8, DC-9, and DC-10 aircraft applications. This family of electrical connectors is designed to meet the applicable requirements of MIL-C-26482 and provides complete mating interchangeability with 3 point bayonet coupling connectors covered by MIL-C-26482. Contacts are crimp type in accordance with MIL-C-39029/31 and 32.

Components

- Shells and coupling nuts are made from high grade aluminum alloy and are cadmium plated to QQ-P-416 with olive drab chromate after treatment.
- Contacts are machined from high grade copper alloy and are gold plated.
- Resilient inserts, main joint gaskets, and strain relief glands are molded from EPT (Ethylene Propylene Terpolymer) material which exhibits the following characteristics:
 - excellent electrical properties.
 - operating temperature range from -65° to $+300^{\circ}$ F.
 - resistance to Ozone and Corona.
 - resistance to Skydrol and other synthetic oils, Hydrazine, and Oxydizing acids.
- Resilient O-ring on DC 24 jam nut is molded from a butyl material that exhibits characteristics which are similar to EPT.

How to Order

To more easily illustrate ordering procedure, part number DC26F-10-6PW(SR) less contacts is shown as follows:

DC	26	F	-	10	-	6	P	W	(SR)	<u>less contacts</u>
1	2	3		4		5	6	7	8	9

1. Connector type
2. Shell style
 20 designates wall mount receptacle
 21 designates cable connecting plug
 24 designates jam nut receptacle
 26 designates straight plug
3. Service class
 E—environmental open wire sealing
 F—environmental open wire sealing with strain relief
4. Shell size
 10 thru 22 are available (page 3)
5. Insert arrangements
 Complete listing of insert patterns (page 4)
6. Contacts
 P designates pin, S designates sockets
7. Alternate insert rotation (page 3)
8. (SR) Suffix may be specified on class "F" connectors for conventional clamp assembly
9. Connector assemblies may be purchased less contacts by so stating

DC

specifications and insert availability, identification, alternate positions

CRIMP WELL DATA

Contact Size	Wire Well Data	
	20	16
Conductor Well Dia.	.048 +.002 -.000	.066 +.002 -.000
Conductor Well Depth	.189 +.037 -.000	.250 +.031 -.000
Insulation Well Dia.	.091 +.002 -.000	Not Applicable
Insulation Well Depth	.072 +.006 -.000	Not Applicable

CONTACT RATING

Contact Size*	Test Current*	Potential Drop Millivolts*
20	7.5	55
16	13	50

*See requirements per MIL-C-23216

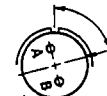
WORKING VOLTAGE

Service Rating	Maximum Working Voltage			
	Sea Level		70,000 ft.	
	AC rms	DC	AC rms	DC
I	600	840	300	420
II	1000	1400	450	630

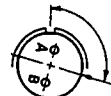
INSERT AVAILABILITY AND IDENTIFICATION — ALTERNATE POSITIONS

Insert Arrangement	Total Contacts	Contact Size		Service Rating	Alternate Positioning Degrees			
		16	20		W	X	Y	Z
10-6	6		6	I	90	*	*	*
12-3	3	3		II	*	*	180	*
12-8	8		8	I	90	112	203	292
12-10	10		10	I	60	155	270	295
14-5	5	5		II	40	92	184	273
14-15	15	1	14	I	17	110	155	234
14-18	18		18	I	15	90	180	270
14-19	19		19	I	30	165	315	*
16-8	8	8		II	54	152	180	331
16-26	26		26	I	60	*	275	338
18-11	11	11		II	62	119	241	340
18-32	32		32	I	85	138	222	265
20-16	16	16		II	238	318	333	347
20-39	39	2	37	I	63	144	252	333
20-41	41		41	I	45	126	225	*
22-21	21	21		II	16	135	175	349
22-55	55		55	I	30	142	226	314

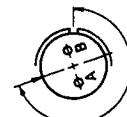
*Indicated positions are not available.



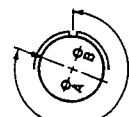
POSITION W



POSITION X



POSITION Y

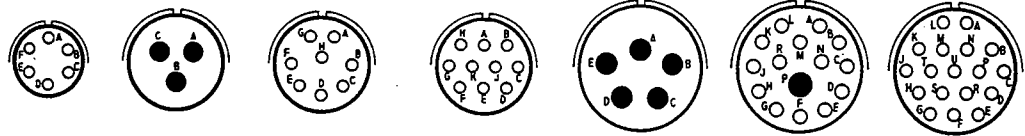


POSITION Z

Views looking into front face of pin insert or rear of socket insert.

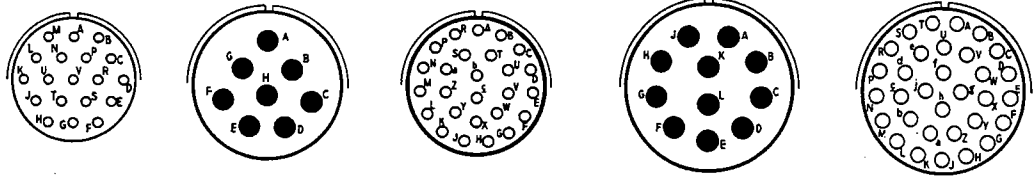
DC insert arrangements

front face of pin inserts illustrated



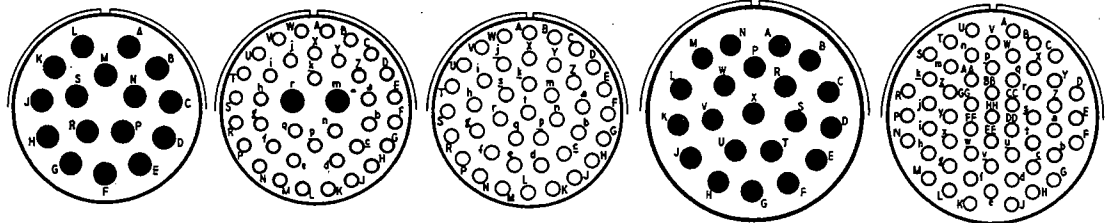
Insert Arrangement
Service Rating
Number of Contacts
Contact Size

10-6	12-3	12-8	12-10	14-5	14-15	14-18
I	II	I	I	II	I	I
6	3	8	10	5	1 14	18
20	16	20	20	16	16 20	20



Insert Arrangement
Service Rating
Number of Contacts
Contact Size

14-19	16-8	16-26	18-11	18-32
I	II	I	II	I
19	8	26	11	32
20	16	20	16	20

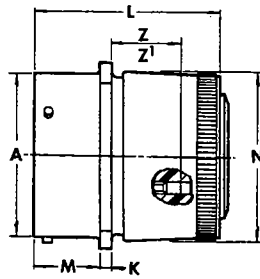
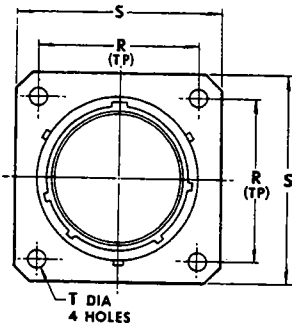


Insert Arrangement
Service Rating
Number of Contacts
Contact Size

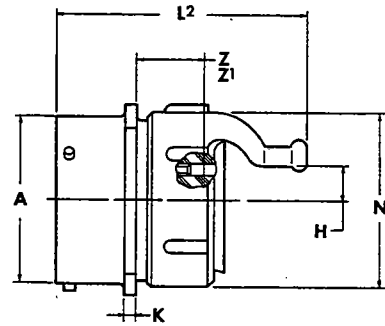
20-16	20-39	20-41	22-21	22-55
II	I	I	II	I
16	2 37	41	21	55
16	16 20	20	16	20

● ○
CONTACT LEGEND 16 20

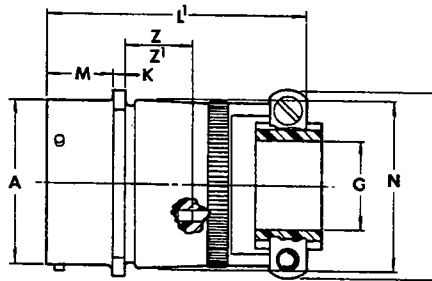
DC20 wall mounting receptacle



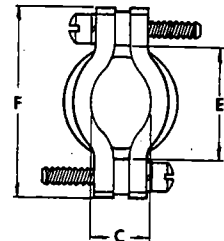
DC20E-XX-XX*



DC20F-XX-XX*



DC20F-XX-XX(SR)*



Z for pin contacts
Z' for socket contacts

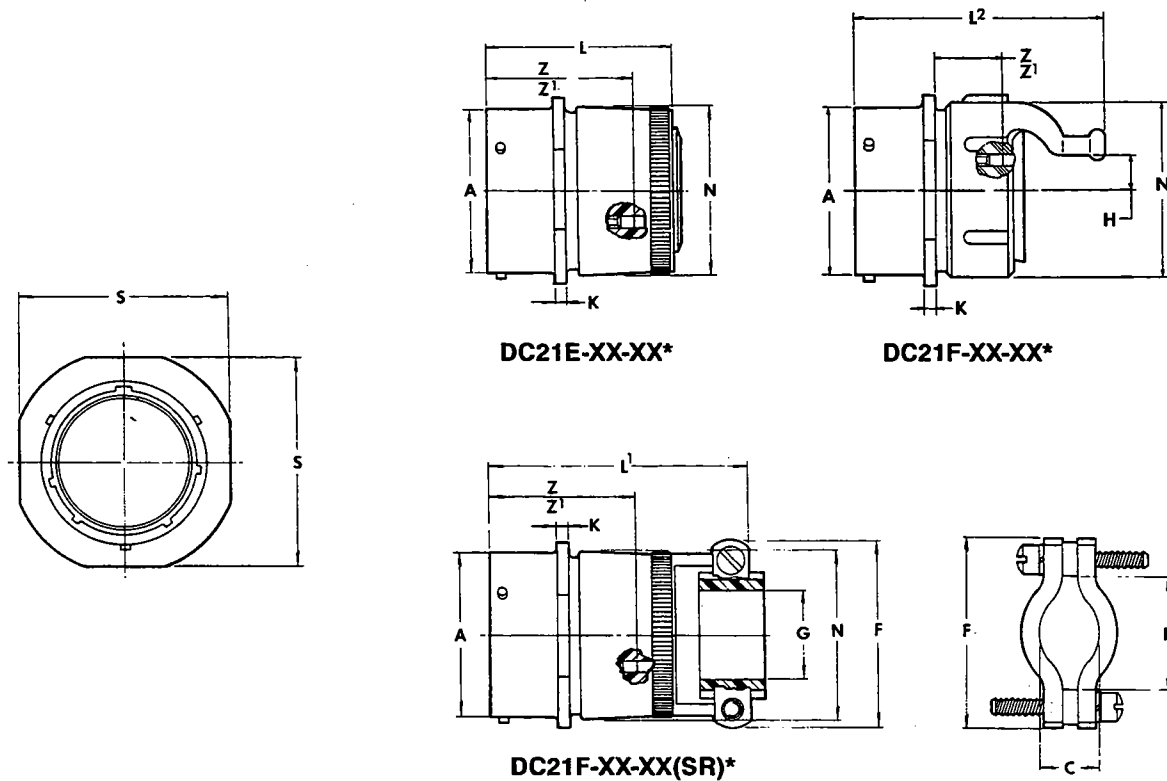
*To complete order number, see page 2.

Shell Size	A Dia. +.001 -.005	K ±.016	M +.031 -.000	R (TP)	S Max.	T Dia. ±.005	L Max.	N Max.	L' Max.	L ² Max.	F Max.	G +.010 -.025 Free Dia.	H Radius ±.015	E Min.	C Closed Max.	Z ±.055	Z' ±.055
10	.590	.062	.431	.719	.954	.120	1.328	.691	1.922	2.656	.891	.188	.113	.297	.187	.509	.443
12	.750	.062	.431	.812	1.047	.120	1.328	.827	1.922	2.656	1.016	.312	.150	.422	.281	.509	.443
14	.875	.062	.431	.906	1.141	.120	1.328	.941	1.922	2.906	1.141	.375	.188	.547	.325	.509	.443
16	1.000	.062	.431	.969	1.234	.120	1.328	1.067	2.000	2.906	1.203	.500	.223	.609	.356	.509	.443
18	1.125	.062	.431	1.062	1.328	.120	1.328	1.191	2.000	2.906	1.469	.625	.281	.734	.456	.509	.443
20	1.250	.094	.556	1.156	1.453	.120	1.359	1.327	2.172	2.938	1.469	.625	.281	.734	.519	.414	.353
22	1.375	.094	.556	1.250	1.578	.120	1.359	1.452	2.172	2.938	1.656	.750	.303	.922	.519	.414	.353

All dimensions for reference only

DC21

cable connecting plug



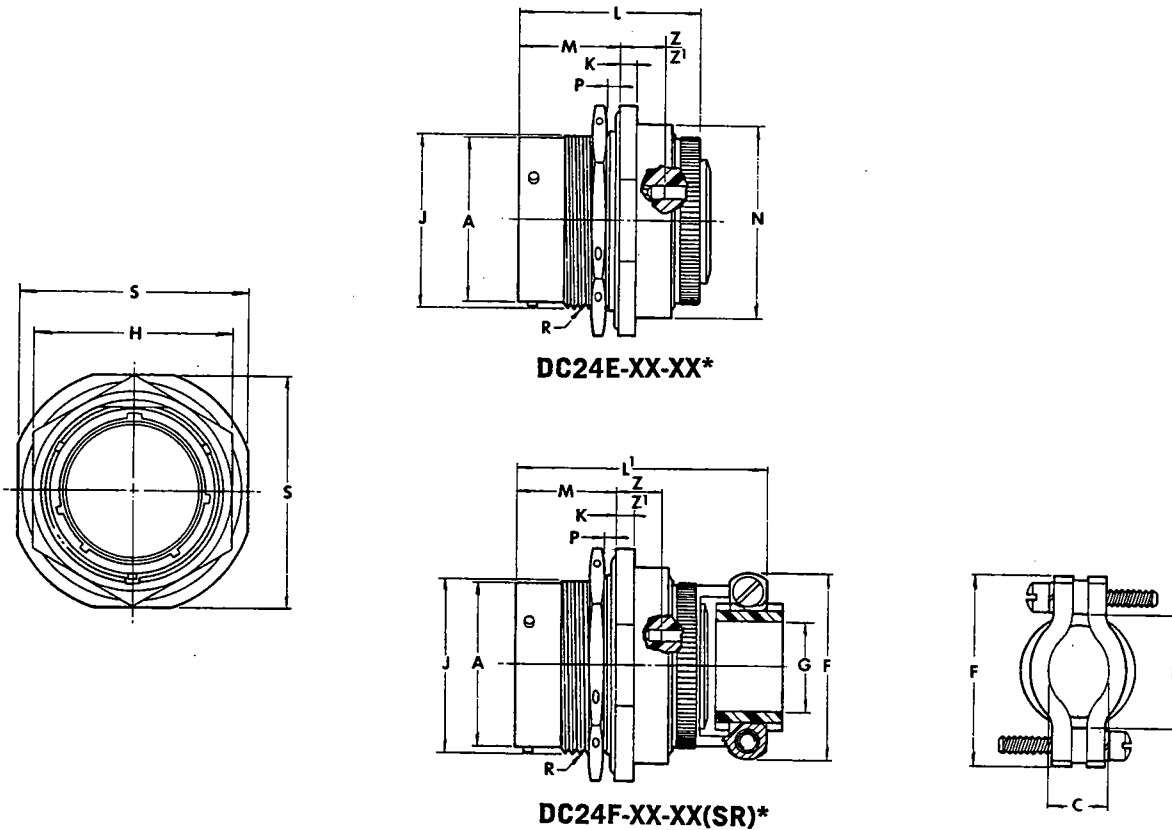
Z for pin contacts
 Z' for socket contacts

*To complete order number, see page 2.

Shell Size	A Dia. +.001 -.005	K ±.016	S Max.	L Max.	N Max.	L ¹ Max.	L ² Max.	G +.010 -.025 Dia. Free	F Max.	Z ±.035	Z' ±.035	H Radius ±.015	E Min.	C Closed Max.
10	.590	.094	.955	1.328	.691	1.922	2.656	.188	.891	1.002	.941	.113	.297	.187
12	.750	.094	1.048	1.328	.827	1.922	2.656	.312	1.016	1.002	.941	.150	.422	.281
14	.875	.094	1.142	1.328	.941	1.922	2.906	.375	1.141	1.002	.941	.188	.547	.325
16	1.000	.094	1.236	1.328	1.067	2.000	2.906	.500	1.203	1.002	.941	.223	.609	.356
18	1.125	.094	1.329	1.328	1.191	2.000	2.906	.625	1.469	1.002	.941	.281	.734	.456
20	1.250	.115	1.455	1.359	1.327	2.172	2.938	.625	1.469	1.064	1.003	.281	.734	.519
22	1.375	.115	1.579	1.359	1.452	2.172	2.938	.750	1.656	1.064	1.003	.303	.922	.519

All dimensions for reference only

DC24 jam nut receptacle



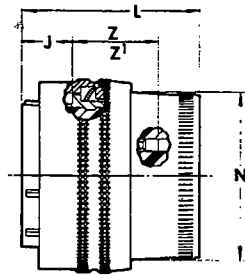
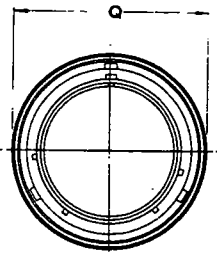
Z for pin contacts
Z' for socket contacts

*To complete order number, see page 2.

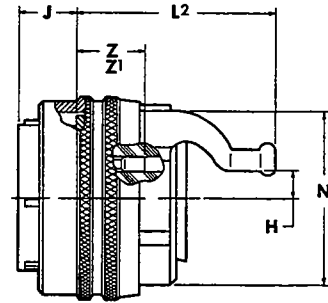
Shell Size	A Dia.	J Flat	K	M	H Hex Max.	P Panel Thickness		S Max.	L Max.	N Max.	L' Max.	F Max.	G +.010 -.025 Dia. Free	E Min.	C Closed Max.	R Thread Class 2A	Z ±.030	Z' ±.030
	+.001 -.005	+.000 -.010	+.011 -.010	±.005	Min.	Max.												
10	.590	.655	.125	.696	.892	.062	.125	1.078	1.438	.874	1.922	.891	.188	.297	.187	.6875-24UNEF	.293	.232
12	.750	.818	.125	.696	1.079	.062	.125	1.266	1.438	.999	1.922	1.016	.312	.422	.281	.8750-20UNEF	.293	.232
14	.875	.942	.125	.696	1.205	.062	.125	1.391	1.438	1.124	1.922	1.141	.375	.547	.325	1.0000-20UNEF	.293	.232
16	1.000	1.066	.125	.696	1.329	.062	.125	1.516	1.438	1.249	2.000	1.203	.500	.609	.356	1.1250-18UNEF	.293	.232
18	1.125	1.191	.125	.696	1.455	.062	.125	1.641	1.438	1.374	2.000	1.469	.625	.734	.456	1.2500-18UNEF	.293	.232
20	1.250	1.316	.156	.884	1.579	.062	.250	1.828	1.625	1.530	2.172	1.469	.625	.734	.519	1.3750-18UNEF	.167	.106
22	1.375	1.441	.156	.884	1.705	.062	.250	1.954	1.625	1.655	2.172	1.656	.750	.922	.519	1.5000-18UNEF	.167	.106

All dimensions for reference only

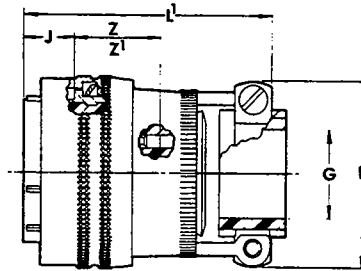
DC26 straight plug



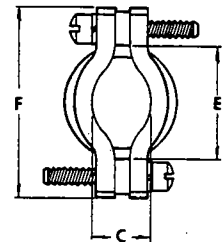
DC26E-XX-XX*



DC26F-XX-XX*



DC26F-XX-XX(SR)*



Z for pin contacts
Z' for socket contacts

*To complete order number, see page 2.

Shell Size	Q Dia. Max	L Max.	N Max.	L ¹ Max.	L ² Max.	G +.010 - .025 Dia. Free	F Max.	E Min.	H Radius ±.015	C Closed Max.	Z ±.045	Z' ±.045	J ±.010
10	.859	1.328	.691	1.922	2.281	.188	.891	.297	.113	.187	.640	.579	.353
12	1.031	1.328	.827	1.922	2.281	.312	1.016	.422	.150	.281	.640	.579	.353
14	1.156	1.328	.941	1.922	2.531	.375	1.141	.547	.188	.325	.640	.579	.353
16	1.281	1.328	1.067	2.000	2.531	.500	1.203	.609	.223	.325	.640	.579	.353
18	1.391	1.328	1.191	2.000	2.531	.625	1.469	.734	.281	.456	.640	.579	.353
20	1.531	1.297	1.327	2.109	2.406	.625	1.469	.734	.281	.519	.578	.517	.415
22	1.656	1.297	1.452	2.109	2.406	.750	1.656	.922	.303	.519	.578	.517	.415

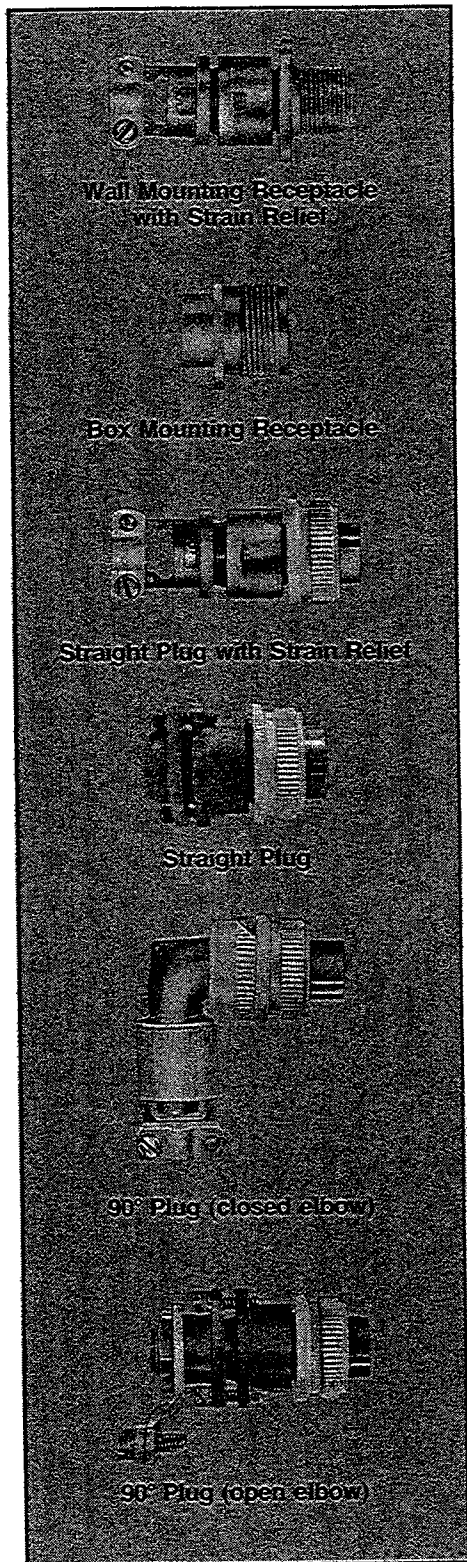
All dimensions for reference only

DC**contacts and application tools**

Size	Contact	Crimp Tool	Turret Head	Inspection Tool	Removal Tool
20	Pin 10-314980-20P Socket 10-597820-355	M22520/1-01	M22520/1-02	11-8107-20 or 11-7401-20	11-7880-20
20/16WW	Pin 10-330930-20F Socket 10-330931-20F	M22520/1-01	M22520/1-02	11-8107-16 or 11-7401-16	11-7880-20
16	Pin 10-314980-16P Socket 10-257982-16F	M22520/1-01	M22520/1-02	11-8107-16 or 11-7401-16	11-7880-16
16/20WW	Pin 10-330932-16F Socket 10-330933-16F	M22520/1-01	M22520/1-02	11-8107-16 or 11-7401-20	11-7880-16

Bendix® 10-244 Series Connectors

operating temperature up to 400°



Bendix®10-244 type connectors have been specifically designed for aircraft engine compartment applications.

The combination of fluoroelastomer resilient parts, gray anodized hardware, and rhodium plated crimp contacts enables the connector to withstand operating temperatures up to 400°F.

Components

- The plug shells are machined from high grade aluminum alloy and the receptacle shells are die cast aluminum. This combination provides plugs with greater strength. All aluminum parts incorporate a gray anodized finish which provides added corrosion resistance.
- All of the resilient components are molded from a specially formulated fluoroelastomer compound which is highly resistant to turbine oils, kerosene and JP-4. This material will provide satisfactory operation when subjected to splashing of Skydrol 500.
- All connectors employ crimp type copper alloy rhodium plated contacts which are supplied with the connector. Nylon pilot pins are also supplied to aid in the insertion of the socket contacts.

How to Order

To more easily illustrate ordering procedure, part number 10-244218-1P is shown as follows:

$\frac{10-2442}{1} \quad \frac{18}{2} \quad - \quad \frac{1}{3} \quad \frac{P}{4}$

1. Connector type and shell style (pages 15–19)
2. Shell style
8 thru 28 (page 12)
3. Insert arrangement
Complete listing of insert patterns (pages 13–14)
4. Contact type and insert rotation (page 12)
P for pins, S for sockets in a normal rotation

Typically when an alternate position of the insert is required, this is indicated by adding another letter such as "W" to the ordering number. This part numbering system requires a single letter designation for insert rotations. Therefore, when alternate insert location is desired, select from the table below the one letter that indicates both the type of contacts and the insert location required and add it to the order number.

MS Letters	Bendix Letters	MS Letters	Bendix Letters
PW	G	SW	H
PX	I	SX	J
PY	K	SY	L
PZ	M	SZ	N

The order number for a 10-2442XX-XXX mounting receptacle in shell size 18 with an MS arrangement of 18-1 with pin contacts and with the insert located in alternate position "W" would be: 10-244218-1G.

10-244

specifications

CONTACT PART NUMBERS

Size	Pin Contact	Socket Contact
16 (Long)	10-229192-166	10-229193-166
16 (Short)	10-229192-156	10-229193-156
12	10-229192-126	10-229193-126
8	10-229192-86	10-229193-86

PILOT PINS

Size	Part No.
12	10-242758-12
16	10-242758-16
8	10-242758-8

WIRE WELL DATA

Contact Size	8	12	16
Well Dim.	.179 ^{+.004} -.002	.098 ^{+.004} -.000	.063 ^{-.004} -.000
Well Depth +.031 -.000	.500	.250	.250

CONTACT RATING

Contact Size	Rated Current	Test Current	Potential Drop Millivolts Max.*
16	13	13	35
12	23	23	30
8	46	46	25

*End to end.

CONTACT ARRANGEMENT SERVICE RATING

MS Service	Recommended Operating Voltage at Sea Level		Test Voltage AC rms
	DC	AC rms	
Inst.	250	200	1000
A	700	500	2000
D	1250	900	2800
E	1750	1250	3500
B	2450	1750	4500
C	4200	3000	7000

10-244

insert availability, identification, alternate positions

Insert Arrangement	Total Contacts	Insert		Contact Size				Service Rating	Grommet			Alternate Positioning Degrees			
		Pin	Socket	4	8	12	16		90° Plug (Closed)	Wall Mt. Rec. Str. Plug	90° Plug (Open)	W	X	Y	Z
8S-1	1		X				1	A				*	*	*	*
10S-2	1		X				1	A	X	X		*	*	*	*
10SL-3	3	X	X				3	A	X	X	X	*	*	*	*
10SL-4	2	X	X				2	A	X	X		*	*	*	*
12S-3	2	X	X				2	A	X	X	X	70	145	215	290
14S-2	4	X	X				4	Inst.	X	X		*	120	240	*
14S-5	5	X	X				5	Inst.	X	X	X	*	110	*	*
14S-6	6	X	X				6	Inst.		X		*	*	*	*
14S-7	3	X	X				3	A	X						
14S-9	2	X	X				2	A	X	X	X	70	145	215	290
16S-1	7	X	X				7	A	X	X		80	*	*	280
16S-8	5	X	X				5	A	X	X		*	170	265	*
16-11	2	X	X			2		A		X		35	110	250	325
16-13	2	X	X			2		A		X		35	110	250	325
18-1	10	X	X				10	**	X	X		70	145	215	290
18-4	4	X	X				4	D		X		35	110	250	325
18-8	8		X			1	7	A		X		70	*	*	290
18-12	6	X	X				6	A		X		80	*	*	280
18-19	10	X	X				10	A	X	X		*	120	240	*
18-22	3		X				3	D	X			70	145	215	290
20-15	7	X	X			7		A				80	*	*	280
20-27	14	X	X				14	A		X		35	110	250	325
20-29	17	X	X				17	A	X	X		80	*	*	280
22-14	19	X	X				19	A		X		80	110	250	280
22-19	14	X	X				14	A	X			80	110	250	280
22-22	4		X		4			A		X		*	110	250	*
22-28	7		X			7		A		X		80	*	*	280
24-2	7		X			7		D		X		80	*	*	280
24-22	4	X	X		4			D		X		45	110	250	*
28-2	14	X	X			2	12	D		X		35	110	250	325
28-9	12	X	X			6	6	D		X		80	110	250	280
28-11	22		X			4	18	A		X		80	110	250	280
28-21	37	X	X				37	A		X		80	110	250	280
28-22	6		X	3			3	D		X		70	145	215	290

*Indicated positions are not available.

**B, C, F, G = A, Balance = Inst.

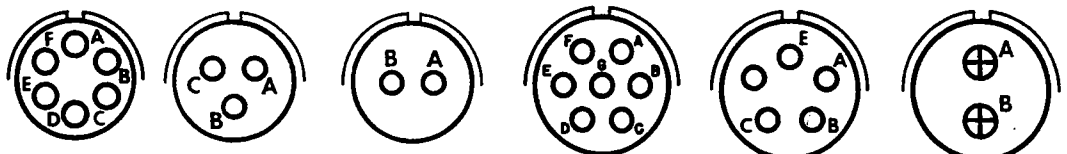
10-244

insert arrangements

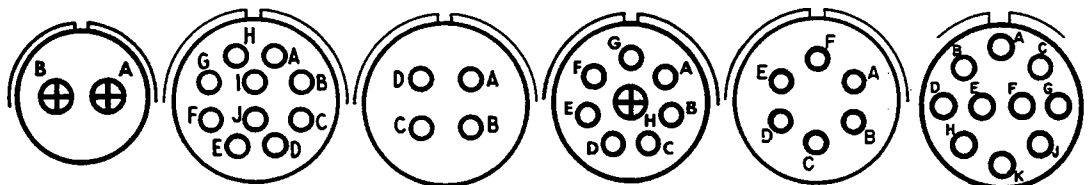
front face of pin inserts illustrated



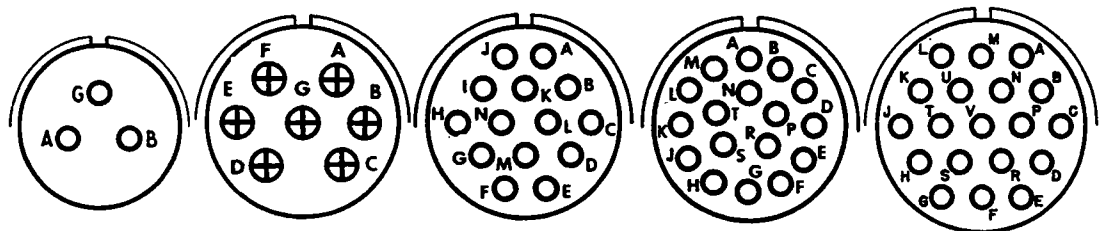
Insert Arrangement	8S-1	10S-2	10SL-4	10SL-3	12S-3	14S-2	14S-5
Service Rating	A	A	A	A	A	Inst.	Inst.
Number of Contact	1	1	2	3	2	4	5
Contact Size	16	16	16	16	16	16	16



Insert Arrangement	14S-6	14S-7	14S-9	16S-1	16S-8	16-11
Service Rating	Inst.	A	A	A	A	A
Number of Contacts	6	3	2	7	5	2
Contact Size	16	16	16	16	16	12



Insert Arrangement	16-13	18-1	18-4	18-8	18-12	18-19
Service Rating	A	*	D	A	A	A
Number of Contacts	2	10	4	1 7	6	10
Contact Size	12	16	16	12 16	16	16



Insert Arrangement	18-22	20-15	20-27	20-29	22-14
Service Rating	D	A	A	A	A
Number of Contacts	3	7	14	17	19
Contact Size	16	12	16	16	16



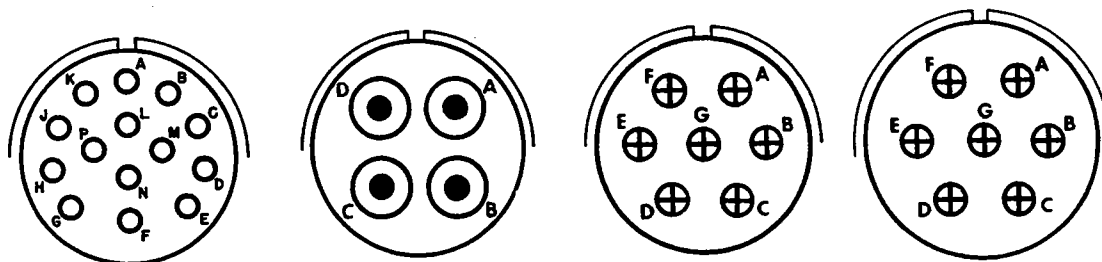
*B, C, F, G = A, Balance = Inst.

CONTACT LEGEND

10-244

insert arrangements

front face of pin inserts illustrated



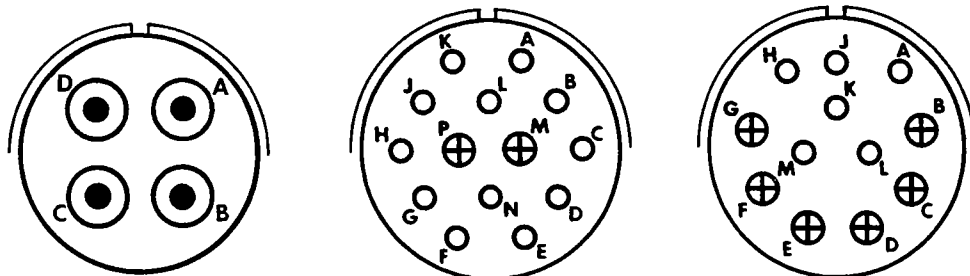
Insert Arrangement
Service Rating
Number of Contacts
Contacts Size

22-19
A
14
16

22-22
A
4
8

22-28
A
7
12

24-2
D
7
12

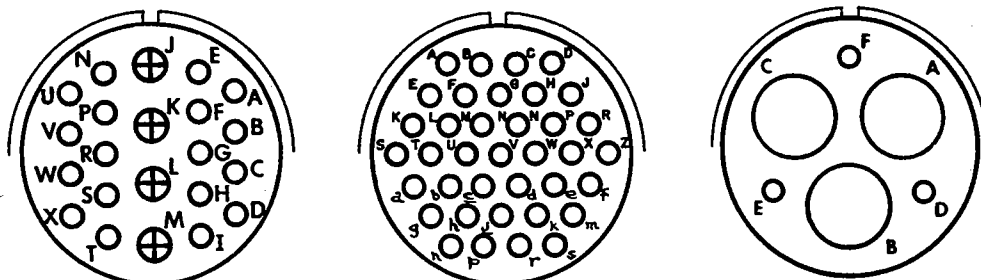


Insert Arrangement
Service Rating
Number of Contacts
Contact Size

24-22
D
4
8

28-2
D
2 12
12 16

28-9
D
6 6
12 16



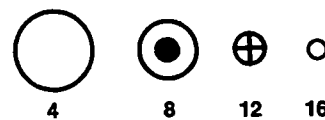
Insert Arrangement
Service Rating
Number of Contacts
Contact Size

28-11
A
4 18
12 16

28-21
A
37
16

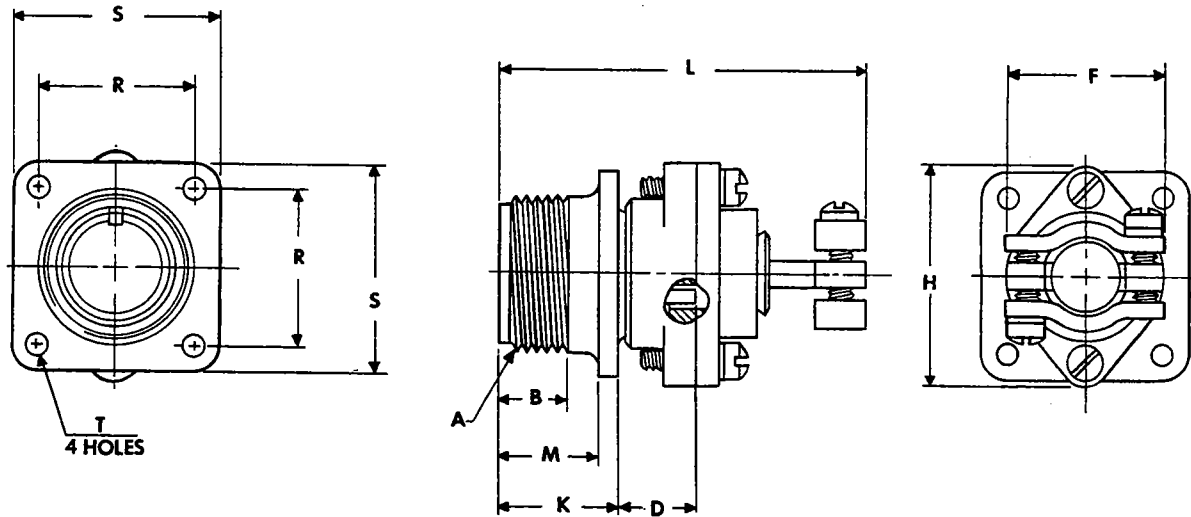
28-22
D
3 3
4 16

CONTACT LEGEND



10-2440

wall mounting receptacle



10-2440XX-XX*

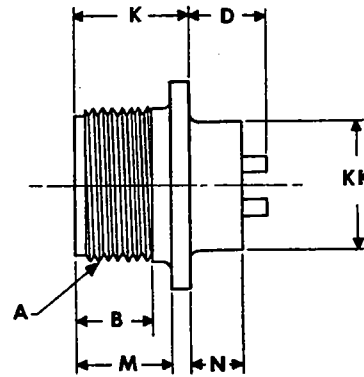
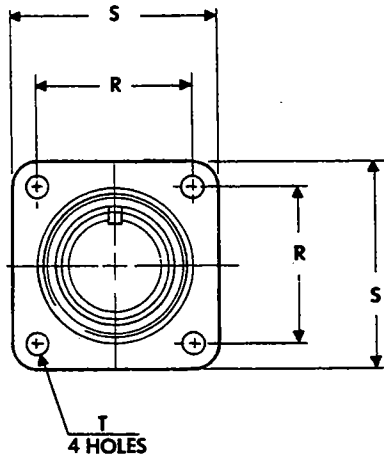
*To complete order number, see page 10.
For insert and grommet availability, see page 12.

Order Number*	Shell Size	A Thread Class 2A	B Min. Full Thread	F Max.	H Max.	K +.020 - .010	L Max.	M +.010 - .000	R ±.005	S	T Dia. +.004 - .002	D ±.060
10-244010	10S	.6250-24NEF	.391	.775	1.026	.672	2.192	.562	.719	1.000	.120	.469
10-244011	10SL	.6250-24NEF	.391	.837	1.120	.672	2.192	.562	.719	1.000	.120	.469
10-244012	12S	.7500-20UNEF	.450	.837	1.120	.672	2.192	.562	.812	1.094	.120	.469
10-244013	12	.7500-20UNEF	.625	.837	1.120	.860	2.536	.750	.812	1.094	.120	.672
10-244014	14S	.8750-20UNEF	.450	.963	1.307	.672	2.192	.562	.906	1.188	.120	.469
10-244015	14	.8750-20UNEF	.625	.963	1.307	.860	2.536	.750	.906	1.188	.120	.672
10-244016	16S	1.0000-20UNEF	.450	1.087	1.432	.672	2.192	.562	.969	1.281	.120	.469
10-244017	16	1.0000-20UNEF	.625	1.087	1.432	.860	2.536	.750	.969	1.281	.120	.672
10-244018	18	1.1250-18NEF	.625	1.150	1.557	.891	2.661	.750	1.062	1.375	.120	.641
10-244020	20	1.2500-18NEF	.625	1.399	1.744	.891	2.661	.750	1.156	1.500	.120	.641
10-244022	22	1.3750-18NEF	.625	1.399	1.869	.891	2.661	.750	1.250	1.625	.120	.641
10-244024	24	1.5000-18NEF	.625	1.587	1.994	.953	2.739	.812	1.375	1.750	.147	.578

All dimensions for reference only

10-2442

box mounting receptacle



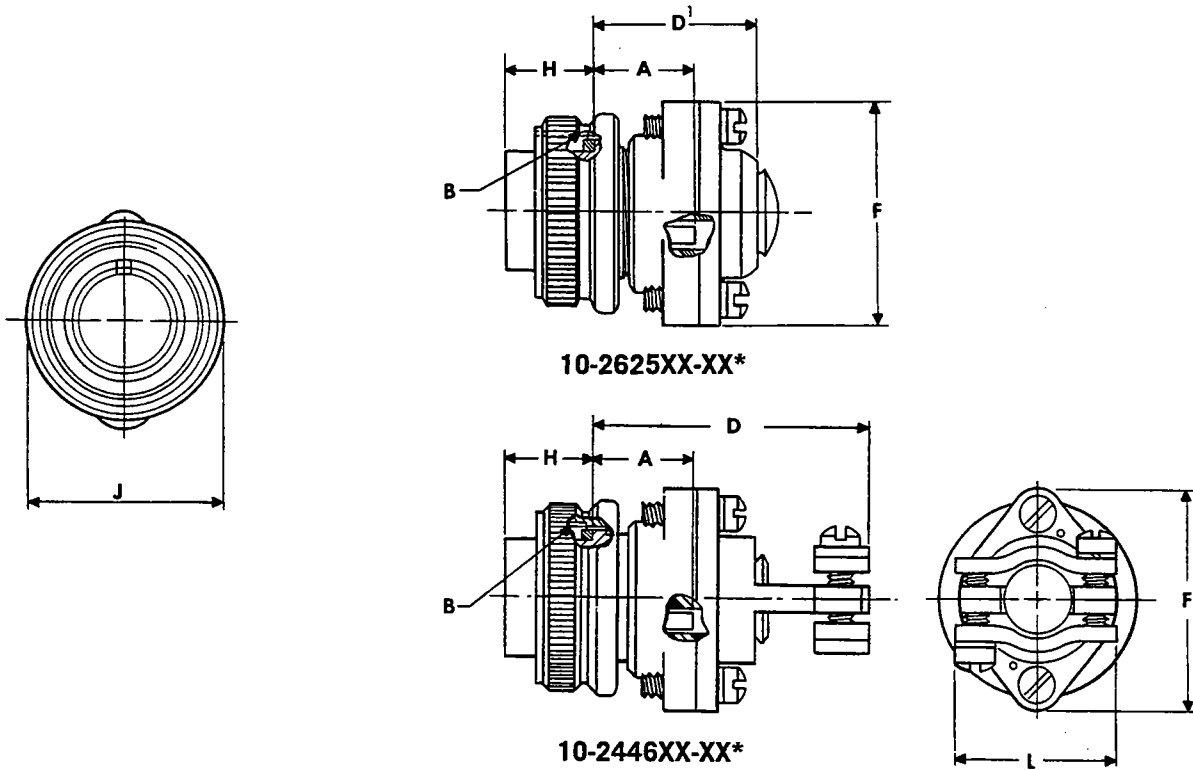
10-2442XX-XX*

*To complete order number, see page 10.
For insert and grommet availability, see page 12.

Order Number*	Shell Size	A Thread Class 2A	B Min. Full Thread	K +.020 -.010	M +.010 -.000	N +.000 -.010	R ±.005	S	T Dia. +.004 -.002	D +.050 -.060	KK Dia. +.010 -.000
10-244210	10S	.6250-24NEF	.391	.672	.562	.297	.719	1.000	.120	.679	.500
10-244211	10SL	.6250-24NEF	.391	.672	.562	.297	.719	1.000	.120	.679	.625
10-244212	12S	.7500-20UNEF	.450	.672	.562	.297	.812	1.094	.120	.679	.625
10-244213	12	.7500-20UNEF	.625	.860	.750	.484	.812	1.094	.120	.672	.625
10-244214	14S	.8750-20UNEF	.450	.672	.562	.297	.906	1.188	.120	.679	.750
10-244215	14	.8750-20UNEF	.625	.860	.750	.484	.906	1.188	.120	.672	.750
10-244216	16S	1.0000-20UNEF	.450	.672	.562	.297	.969	1.281	.120	.679	.875
10-244217	16	1.0000-20UNEF	.625	.860	.750	.484	.969	1.281	.120	.672	.875
10-244218	18	1.1250-18NEF	.625	.891	.750	.453	1.062	1.375	.120	.641	1.000
10-244220	20	1.2500-18NEF	.625	.891	.750	.453	1.156	1.500	.120	.641	1.125
10-244222	22	1.3750-18NEF	.625	.891	.750	.453	1.250	1.625	.120	.641	1.250

All dimensions for reference only

10-2446 straight plug



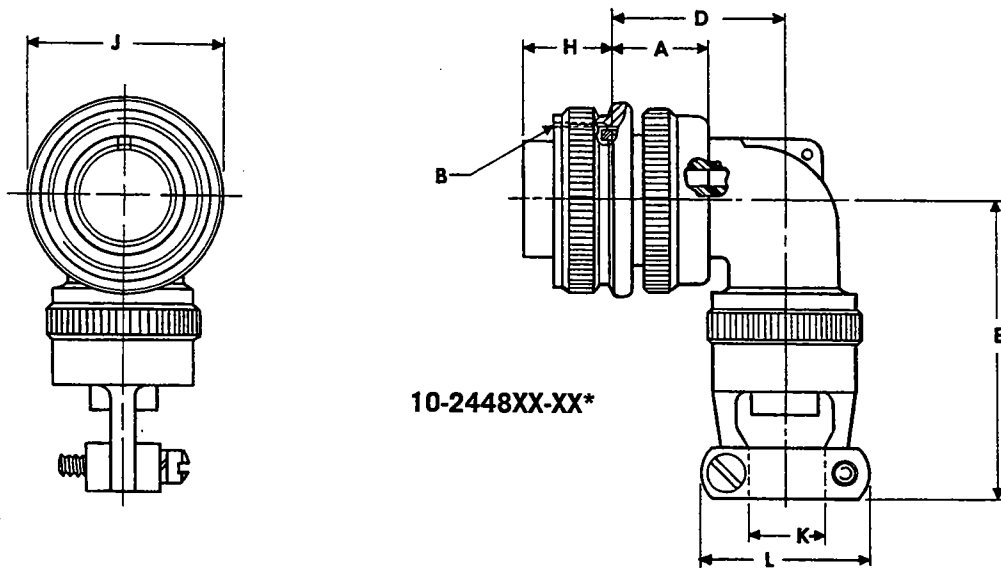
*To complete order number, see page 10.
For insert and grommet availability, see page 12.

Order Number*		Shell Size	A ±.045	B Thread Class 2B	D Max.	D' Max.	H ±.005	J Dia. Max.	F Dia. Max.	L Max.
Without Strain Relief	With Strain Relief									
10-262581	10-244610	10S	.609	.6250-24UNEF	1.661	1.057	.531	.869	1.026	.775
10-262582	10-244611	10SL	.609	.6250-24UNEF	1.661	1.057	.531	.945	1.120	.837
10-262583	10-244612	12S	.609	.7500-20UNEF	1.661	1.057	.531	.955	1.120	.837
10-262584	10-244613	12	.812	.7500-20UNEF	1.817	1.212	.719	.955	1.120	.837
10-262585	10-244614	14S	.609	.8750-20UNEF	1.661	1.057	.531	1.123	1.307	.963
10-262586	10-244615	14	.812	.8750-20UNEF	1.817	1.212	.719	1.123	1.307	.963
10-262587	10-244616	16S	.609	1.0000-20UNEF	1.661	1.057	.531	1.250	1.432	1.087
10-262588	10-244617	16	.812	1.0000-20UNEF	1.942	1.212	.719	1.250	1.432	1.087
10-262589	10-244618	18	.812	1.1250-18UNEF	1.942	1.212	.719	1.333	1.557	1.150
10-262590	10-244620	20	.812	1.2500-18UNEF	1.942	1.212	.719	1.461	1.744	1.399
10-262591	10-244622	22	.812	1.3750-18UNEF	1.942	1.212	.719	1.588	1.869	1.399
10-262592	10-244624	24	.812	1.5000-18UNEF	2.021	1.291	.719	1.715	1.994	1.587
10-262593	10-244628	28	.812	1.7500-18UNS	2.021	1.291	.719	1.968	2.166	1.587

All dimensions for reference only

10-2448

90° plug (closed)



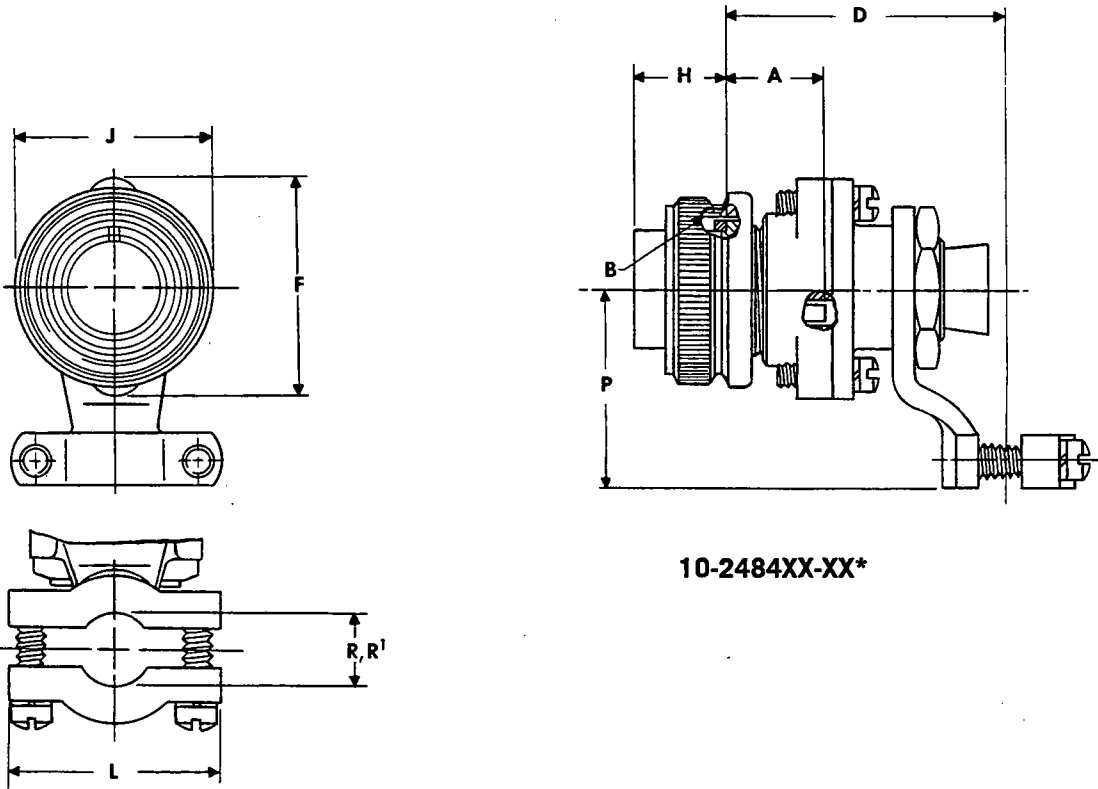
*To complete order number, see page 10.
For insert and grommet availability, see page 12.

Order Number*	Shell Size	A ±.045	B Thread Class 2B	D Max.	E Max.	H ±.005	J Dia. Max.	K Dia.	L Max.
10-244810	10S	.609	.6250-24UNEF	.927	1.706	.531	.869	.250	.775
10-244811	10SL	.609	.6250-24UNEF	.951	1.769	.531	.945	.312	.837
10-244812	12S	.609	.7500-20UNEF	.956	1.769	.531	.995	.312	.837
10-244813	12	.812	.7500-20UNEF	1.143	1.769	.719	.995	.312	.837
10-244814	14S	.609	.8750-20UNEF	1.020	1.831	.531	1.123	.438	.963
10-244815	14	.812	.8750-20UNEF	1.207	1.831	.719	1.123	.438	.963
10-244816	16S	.609	1.0000-20UNEF	1.146	1.894	.531	1.250	.562	1.087
10-244817	16	.812	1.0000-20UNEF	1.333	1.894	.719	1.250	.562	1.087
10-244818	18	.812	1.1250-18UNEF	1.395	2.099	.719	1.333	.625	1.150
10-244820	20	.812	1.2500-18UNEF	1.598	2.224	.719	1.461	.750	1.400
10-244822	22	.812	1.3750-18UNEF	1.598	2.286	.719	1.588	.750	1.400

All dimensions for reference only

10-2484

90° plug (open)



10-2484XX-XX*

*To complete order number, see page 10.
For insert and grommet availability, see page 12.

Order Number*	Shell Size	A ±.045	B Thread Class 2B	D Max.	F Dia. Max.	H ±.005	J Dia. Max.	L Max.	P Max.	R Max. Cable	R ₁ Min. Cable
10-248481	10S	.609	.6250-24UNEF	1.463	1.026	.531	.869	.755	1.016	.172	.082
10-248482	10SL	.609	.6250-24UNEF	1.463	1.120	.531	.946	.817	1.078	.281	.114
10-248483	12S	.609	.7500-20UNEF	1.518	1.120	.531	.995	.817	1.078	.281	.114
10-248484	12	.812	.7500-20UNEF	1.674	1.120	.719	.995	.817	1.078	.281	.114
10-248485	14S	.609	.8750-20UNEF	1.674	1.307	.531	1.123	.943	1.203	.406	.176
10-248486	14	.812	.8750-20UNEF	1.830	1.307	.719	1.123	.943	1.203	.406	.176
10-248487	16S	.609	1.0000-20UNEF	1.731	1.432	.531	1.250	1.067	1.265	.500	.238
10-248488	16	.812	1.0000-20UNEF	1.883	1.432	.719	1.250	1.067	1.265	.500	.238
10-248489	18	.812	1.1250-18UNEF	1.933	1.557	.719	1.333	1.149	1.328	.531	.208
10-248490	20	.812	1.2500-18UNEF	2.025	1.744	.719	1.461	1.399	1.359	.656	.302
10-248491	22	.812	1.3750-18UNEF	2.072	1.859	.719	1.588	1.399	1.421	.750	.302

All dimensions for reference only

10-244

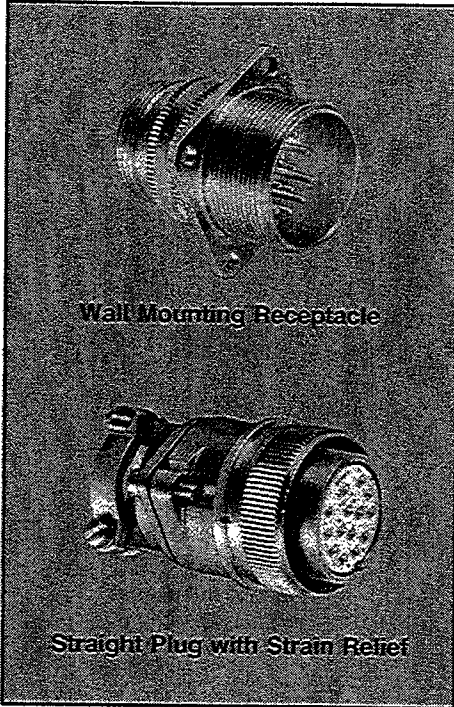
contacts and application tools

Size	Contacts	Pilot Pins	Crimp Pins	Turret Hd. Daniels Mfg. Corp.	Turret Hd. Buchanan	Insertion Tool	Removal Tool
16L	Pin 10-229192-166	—	M22520/1-01	TH29-1	616266	11-7345	11-8250
	Socket 10-229193-166	10-242758-16	M22520/1-01	TH29-1	616266	11-7345	11-8250
16S	Pin 10-229192-156	—	M22520/1-01	TH29-1	616266	11-7345	11-8250
	Socket 10-229193-156	10-242758-16	M22520/1-01	TH29-1	616266	11-7345	11-8250
12	Pin 10-229192-126	—	M22520/1-01	TH29-1	616266	11-7082	11-8250
	Socket 10-229193-126	10-242758-12	M22520/1-01	TH29-1	616266	11-7082	11-8250
8	Pin 10-229192-86	—	11-7838-1 and locator 11-7740-5			11-8220	11-8250
	Socket 10-229193-86	10-242758-8	11-7838-1 and locator 11-7740-5			11-8220	11-8250

See L-757 for installation instructions.
11-8250 Kit includes tips for contact size 16, 12, and 18.

Bendix® BT High Temperature Connectors

ceramic inserts



BT-M Connectors

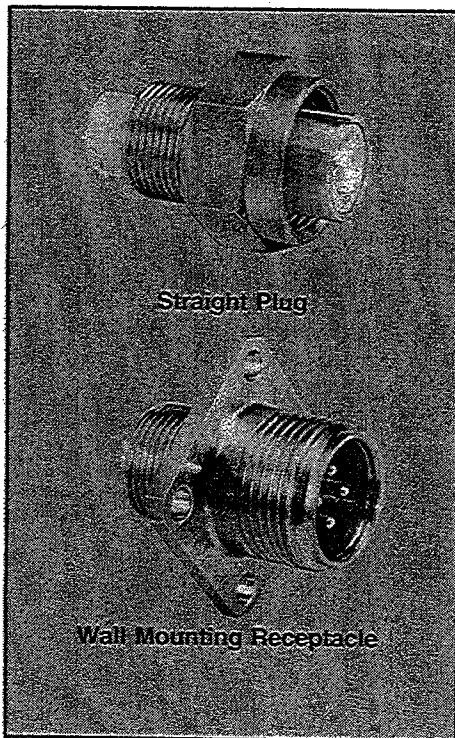
The Bendix® "BT-M" firewall electrical connectors were specially designed for service where high temperature performance and direct exposure to flame are prevalent.

It is important to note that the "BT-M" series is divided into two categories. The first category, "BT-M", utilizes a MS-R type silicone grommet and clamp for termination of open wiring. The second category, the "BT-MA", utilizes a conduit adapter for termination of cable conduit.

The "BT-M" series connector will maintain a functional circuit under extreme heat of 2000°F for 5 minutes. It will also sustain a flame barrier for an additional 15 minutes. Continuous duty at an elevated temperature up to 450°F is assured.

Components

- Stainless Steel Shells provide added durability and resistance to corrosion.
- High density alumina oxide/silicone inserts provide increased performance in the following characteristics:
 - High resistance to vibration damage
 - Durability
 - Over all connector reliability
- Crimped type, gold plated contacts designed for use with wire conforming to MIL-W-5086 requirements.



BT-RA Connectors

The Bendix® BT-RA connector meets the applicable requirements of Class A connectors to MIL-C-5015D and will operate continuously at temperatures up to 1000° F. Interchangeability and interchangeability with MIL-C-5015 connectors is assured. This connector series features rear removable crimp type contacts to ease assembly procedures and provides very little change in millivolt drop (contact resistance) during and after exposure to high temperature and vibration.

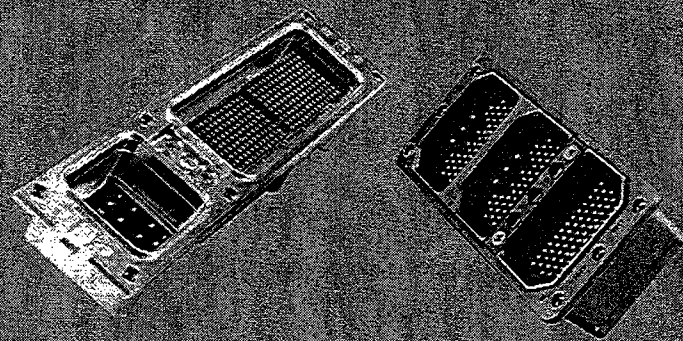
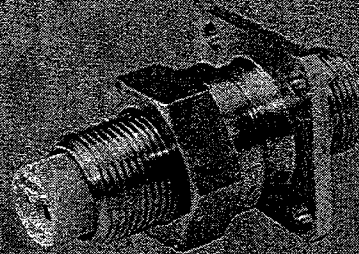
Components

- Shells and coupling nuts are fabricated from stainless steel to provide durability and resistance to corrosion and high temperature.
- Contacts are machined from nickel and are heavy gold plated for excellent electrical properties at high temperatures.
- Inserts are ceramic moldings and contain spring clips for retaining contacts. This combination of materials and plating also provides resistance to radiation and oxidation.

Note: Consult factory regarding availability and how to order of BT Connectors.

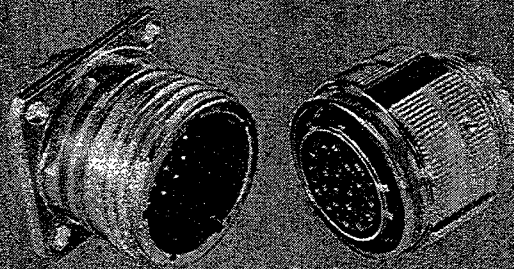
Bendix® Commercial Aircraft specials

A BT-RA type electrical connector in PC miniature cylindrical shell sizes and insert arrangements is presently available in a limited number of insert arrangements. This connector series is designated POBT-RA and will meet all the performance characteristics of the standard BT-RA. For specific information on this connector series, consult our factory.



In addition to the cylindricals covered in this section, Amphenol/Bendix has available many rectangular connectors, such as the ARINC 404 and 600, that are applicable to aircraft installations. Ask for publications SL-378 and SL-379, both ARINC Back and Panel Connectors, and SL-375, ARINC Transient Protection Connectors.

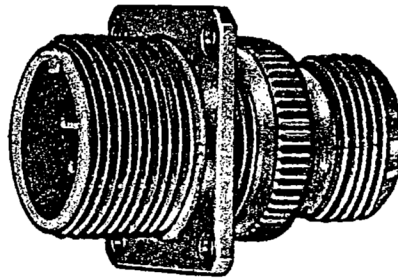
Stainless Steel Connectors for engine and firewall applications are available in military and commercial designations. Bendix® and Pyle® connectors meet or exceed the firewall/high temperature requirements of MIL-C-38999 and MIL-C-83723. Contact the factory for additional information.



Service Instructions

Bendix[®]

HIGH TEMPERATURE ELECTRICAL CONNECTORS HT, BT-MA, BT-M



Scintilla Division
SIDNEY, NEW YORK

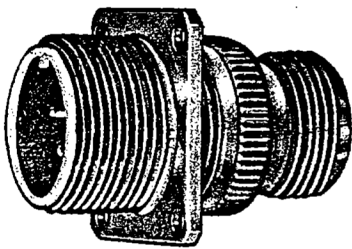


INTRODUCTION

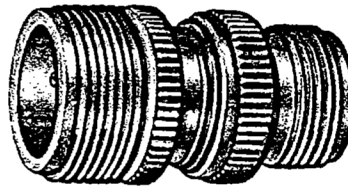
This publication contains instructions for installing, disassembling, inspecting and reassembling the Bendix High Temperature Electrical Connectors manufactured by the Scintilla Division. The HT connectors are designed according to requirements of MIL-C-5015B, while the BT-M and BT-MA connectors are designed to the requirements of MIL-C-5015D. The BT-M and BT-MA series connector incorporates ceramic inserts while the HT series connector incorporates mycalex inserts. The BT-MA and HT series connectors utilize a conduit adapter for termination of cable conduit, while the BT-M series connectors utilize a MS-R type silicone grommet and clamp for termination of open wiring.

Stainless steel metal parts and a silicone middle insert are also used. Inserts are retained within the shell by a threaded retaining ring. Silver plated crimp type contacts are used with wire wells designed for use with wire conforming to Military Specification MIL-W-5086.

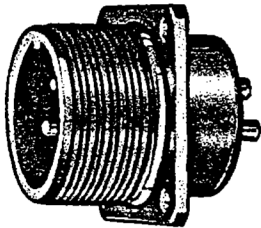
Figures 1 through 5 show typical assemblies of the HT and BT-MA series connectors. Figure 6 through 10 show typical assemblies of the BT-M series connector.



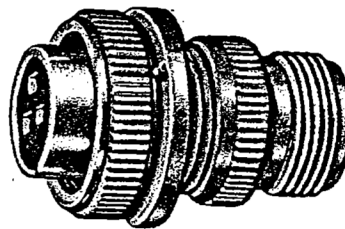
BT00MA or HT3100
Wall Mounting Receptacle
Figure 1



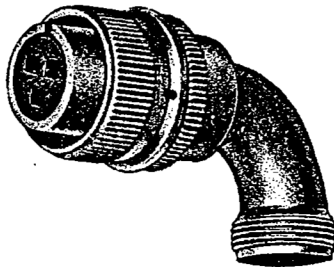
BT01MA or HT3101
Cable Connecting Receptacle
Figure 2



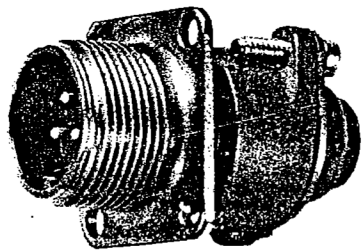
BT02MA or HT3102
Box Mounting Receptacle
Figure 3



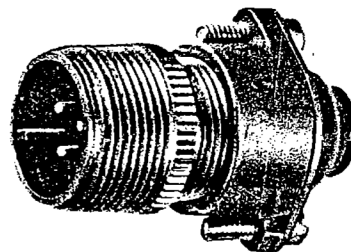
BT06MA or HT3106
Straight Plug
Figure 4



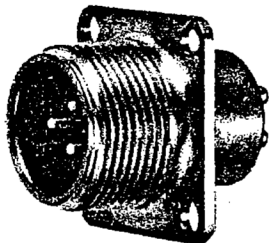
HT3108
90 Degree Plug
Figure 5



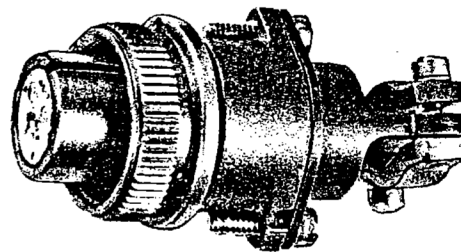
BT00M
Wall Mounting Receptacle
Figure 6



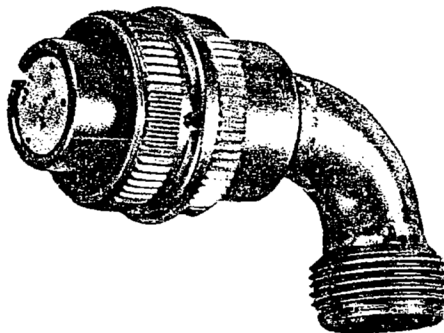
BT01M
Cable Connecting Receptacle
Figure 7



BT02M
Box Mounting Receptacle
Figure 8



BT06M (SR)
Straight Plug
Figure 9



BT08M
90 Degree Plug
Figure 10

SECTION I GENERAL INFORMATION

Reference should be made to the exploded views, figures 11 and 12, for typical parts identification. Figure 11 shows the HT or BT-MA wall mounting receptacle, and figure 12 shows the BT-M wall mounting receptacle. The cutaway view of a HT 90 degree plug assembly shown in figure 13 illustrates the construction and the relationship of parts when assembled.

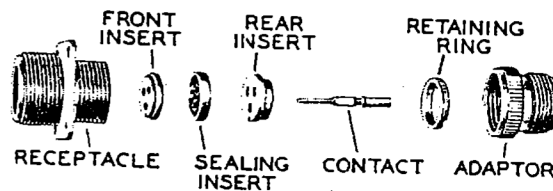


Figure 11

BENDIX ELECTRICAL CONNECTORS

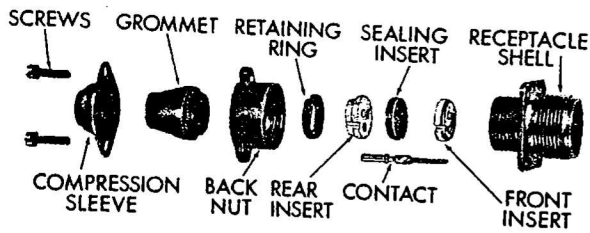


Figure 12

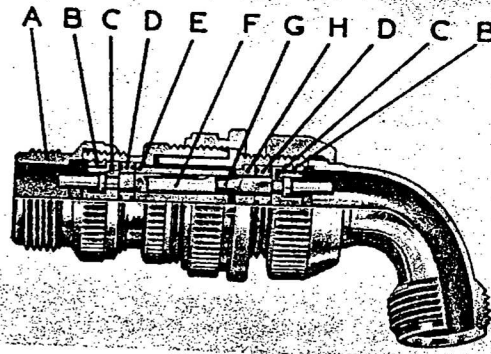


Figure 13

TABLE I

Contact P/N	Size	Pin or Socket	Crimping Tool	Locator or Positioner	Wire Approval
10-74661 **10-101649-17P	16L	PIN	11-6941-4	11-6932-6	
			11-7295	11-7771-22	MIL-W-7139A AWG 18 & 20 MIL-W-8777 AWG 20
10-74663 **10-101649-17S	16L	SOCKET	11-6941-4	11-6932-28	
			11-7295	11-7771-24	MIL-W-7139A AWG 18 & 20 MIL-W-8777 AWG 20
10-74670 **10-101649-16P	16	PIN	11-6941-4	11-6932-40	
10-74675 **10-101649-16S	16	SOCKET	11-7295	11-7771-23	MIL-W-8777 AWG 20 MIL-W-7139A AWG 18 & 20
10-407804-210 Chromel	16L	PIN	11-6941-4	11-6932-5	MIL-W-5846 Type I, Class E (#20) Type II, Class A (#16)
10-407804-220 Alumel			11-7295	11-7771-22	
10-407805-210 Chromel	16L	SOCKET	11-6941-1	11-6932-4	MIL-W-5846 Type I, Class E (#20) Type II, Class A (#16)
10-407805-220 Alumel			11-7295	11-7771-24	
10-74691 **10-101649-12P	12	PIN	11-6941-4	11-6932-4	MIL-W-5086 AWG 16*, 14, & 12
10-74695 **10-101649-12S	12	SOCKET			
10-74665	8	PIN	*MY29		
10-74666	8	SOCKET			
10-74678 **10-101649-4P	4	PIN	*MY29		
10-74684 **10-101649-4S	4	SOCKET			

Available from Burndy Engineering Co., Inc., Bruckner Blvd., New York 54, N.Y.

*These contacts are the same as the 10-746xx series except they are plated with .000050 gold over silver.

SECTION II INSTALLATION INSTRUCTIONS

1. GENERAL

In handling connector parts, keep inserts, contacts, and inside surfaces of shells free of oil, grease, and dirt. Remove foreign material with a clean cloth dampened in proprietary denatured ethyl alcohol (Federal Specification O-E-760 Grade IV).

When tightening or loosening threaded parts of connectors, support plug assemblies by mating them with the proper receptacle. Be sure the coupling nut is fully engaged. Support receptacles by clamping flanges in a vise having well-padded jaws. Standard connector pliers, Scintilla No. 11-6147-1, or strap wrenches are recommended for tightening or loosening threaded parts.

In order to crimp contacts to wires, the connector must be disassembled and contacts removed. Disassembly instructions are covered in Section III.

2. WIRE PREPARATION

Strip insulation from wires to the dimensions indicated in figure 14. Hot wire stripping methods are recommended where applicable. If other methods are employed, use extreme care to avoid nicking or cutting wire strands.

3. CRIMPING CONTACTS TO WIRES

The 11-6941-4 or -1, (figure 15) Crimping Tool Kit is recommended for crimping size 12 or 16 contacts to wires. The 11-7295 (MS3191-1) (figure 16) Crimping Tool is also recommended for crimping of size 16 contacts to wires. With these tools, positive crimping is insured by use of ratchet type handles. Once the crimping cycle is started, the handles must be pressed together all the way before they can be released and the contact removed.

The 11-6941-4 or -1 kit includes locators which are designed to locate the contacts so that crimping is done at the proper location on the wire well. The 11-7295 (MS3191-1) Hand Crimping Tool uses positioners which are designed to locate the contact with respect to the tool's indentors and to determine depth of crimp and point of ratchet release. The 11-6941-4 or -1 kit utilizes a trip screw on the handle to control the depth of the crimp and point of ratchet release. Refer to Scintilla publication MG-1026, furnished with the 11-6941-4 or -1 kit, for recommended procedure of operation. Refer to Table I for the proper locator or positioner and tool to be used for the contact being crimped.

In applications where a contact must be crimped to a small gage wire, it is necessary to utilize a wire-

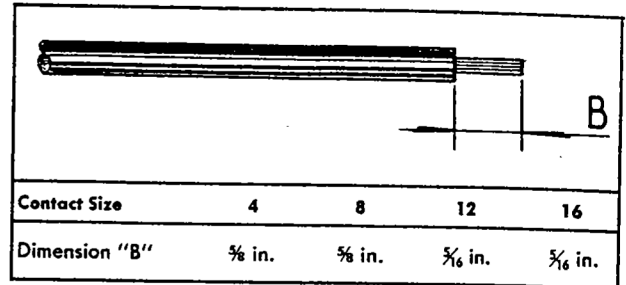


Figure 14

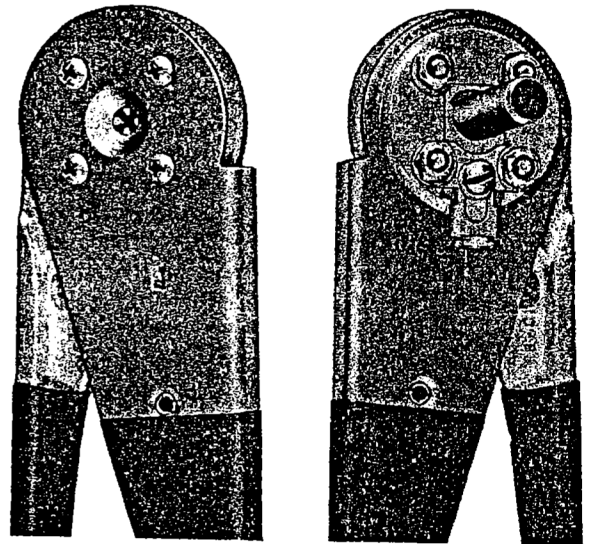


Figure 15

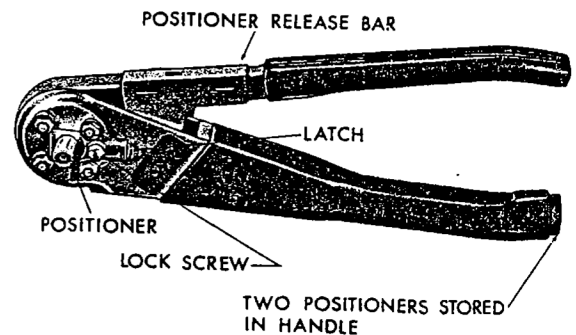


Figure 16

well adapter to obtain a satisfactory crimp joint. Insert the adapter in the contact wire well prior to insertion of the smaller gage wire. Table II lists the applicable wire-well adapters for the various wire and contact combinations.

TABLE II

Contact Size	Wire Size	Adapter for 10-746xx Contact	Adapter for 10-101649xx Contact
16	22	10-74696-6	10-242999-62
12	16	10-74696-4	10-242999-42
8	12	10-74696-5	10-242999-52
8	10	10-74696-1	10-242999-12
4	6	10-74696-2	10-242999-22

Insert the stripped end of wire into the contact wire-well and apply slight pressure until it is positively bottomed. Check visually to make certain the wire strands are visible in the inspection hole. With the wire in place, insert the contact into the 11-6941-4 or 11-7295 (MS3191-1) crimping tool, making sure the tool handles are fully opened. Make sure the contact and wire are inserted into the crimping tool as far as possible, using slight pressure with the hand. Close the tool handles to the fully closed position. The tool handles will not release until a complete uniform and reliable crimp is provided.

The Burndy Hytool, type MY29*, is recommended for crimping size 4 and 8 contacts to wires. For size 8 contacts, turn the knurled adjusting screw until the indexing line is aligned with the No. 8 line on the commercial cable index. For No. 4 contacts adjust until the index line is aligned with No. 4 on the cable index. Position the first shoulder on the contact from the wire well end against the nest (figure 17). Be sure the wire is fully seated in the wire well, then close the tool handles, release, and remove the crimped contact.

After crimping is completed with either tool, inspect the contacts to make certain the wire is visible

*Available from the Burndy Engineering Co., Inc., Bruckner Blvd., New York 54, N.Y.

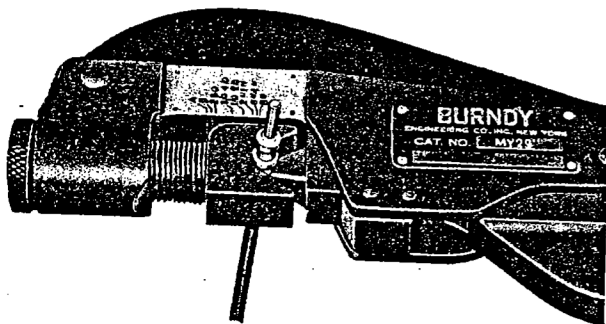


Figure 17

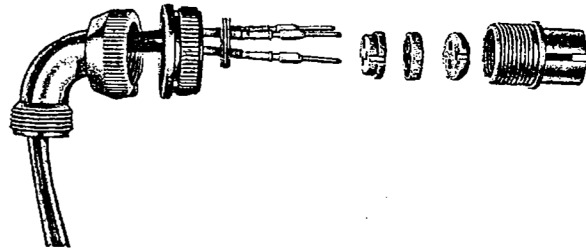


Figure 18

in the inspection hole. All strands of wire should be within the wire well. Inspect the wire well end of contact to be certain there is no evidence of rupture or excessive distortion.

4. INSTALLING COMPONENT PARTS

Any accessories to be used must be positioned on the wires before contacts are installed in the connector insert. The following is a general procedure and should be modified as required to suit individual installations.

a. When assembling the HT or BT-MA series connectors slide the elbow or adapter, retaining ring, and connector coupling nut on the wires. Make certain these parts are turned to face the connector shell as shown in figure 18.

b. When assembling the BT-M series, remove compression screws, sleeve and grommet. Remove back nut by unscrewing to the left. When preparing the 90° plug for assembly remove the elbow assembly and grommet by unscrewing the nut on the elbow. Slide the elbow assembly or sleeve, grommet, back nut, retaining ring, and coupling nut on the wire bundle, making sure they are turned to face the connector shell as shown in figure 19.

NOTE

Identifying letters on the rear face of the grommets are to be used as a guide in threading wires.

c. Install contacts with wires attached in proper holes of rear insert. Smallest outside diameter of rear insert must face toward wires. (Figure 20.) As each contact is installed, it must be rotated 90 degrees to lock it in the insert and properly align the flats so the sealing insert and front insert can be installed.

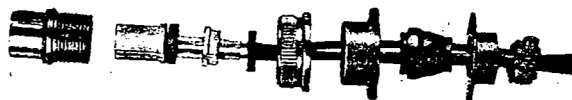


Figure 19

When wires are stiff, it may be necessary to twist contact and wire out of normal position far enough that when contact is installed in insert and is released it will turn back 90 degrees.

d. Align contact holes of sealing insert with contacts. Carefully work sealing insert down over contacts and position approximately $\frac{1}{16}$ of an inch from the front of the contacts. (Figure 20.) This will aid in holding the contacts in alignment while assembling the front insert.

e. Align keyway of front insert with keyway of back insert and start front insert, largest diameter first on contacts. After contacts are held by front insert, slide the sealing insert and front insert back along the contacts until the sealing insert butts against the rear insert.

NOTE

When assembling the socket inserts, it may be necessary to twist the front and rear inserts in opposite directions, thus aligning the flats on the contacts with the flats in the front insert.

f. Align keyway of assembled inserts with keyway in connector shell. Carefully push assembled inserts and contacts in back of shell (figure 21). If sealing insert catches on shell key, depress the insert at this point with a dull instrument passing it under the key.

g. Hold plug shell with a mated receptacle shell and tighten the retaining ring with proper spanner wrench (figure 22). A series of spanner wrenches have been designed for this application. The basic tool number is 11-4045. The dash number indicates the tool size for use on the same connector shell size. As an example, the 11-4045-24 spanner wrench should be used to install retaining rings of all size 24 connector assemblies. Use the 11-2934 Torque Wrench or a standard torque wrench handle ($\frac{1}{4}$ inch drive) with the spanner wrenches. Tighten retaining ring to torque value indicated in Table III.

TABLE III

Connector Size	Spanner Wrench	Torque
10S	11-4045-10	10 lb in.
10SL	11-4045-11	11 lb in.
12S & 12	11-4045-12	12 lb in.
14S & 14	11-4045-14	14 lb in.
16S & 16	11-4045-16	16 lb in.
18	11-4045-18	18 lb in.
20	11-4045-20	20 lb in.
22	11-4045-22	22 lb in.
24	11-4045-24	24 lb in.
28	11-4045-28	28 lb in.
32	11-4045-32	32 lb in.

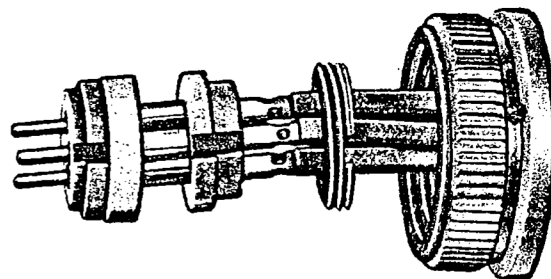


Figure 20

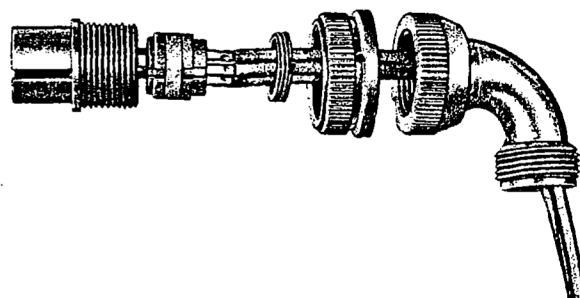


Figure 21

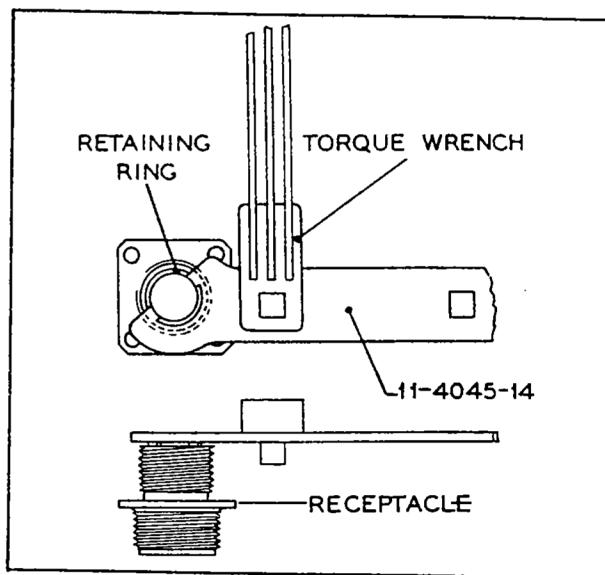


Figure 22

NOTE

Connectors as supplied do not have retaining ring tightened. The retaining ring is installed finger tight at the factory to hold parts in place for shipping.

h. When assembling the HT or BT-MA series connector, secure the adapter or elbow if used, to the shell using a standard strap wrench or 11-6147-1 connector pliers. Secure any accessory parts in a similar manner.

i. When assembling the BT-M series connector,

secure the back nut to the shell using a strap wrench or 11-6147-1 connector pliers. Seat the grommet into the back nut and over the contact wire wells. Press grommet until it is snug against the rear face of the insert. Place the compression sleeve over grommet, then thread and tighten the two compression screws

provided, thus sealing the grommet around the wires. When assembling the 90° plug, seat the grommet against the rear face of the insert, then slide the elbow over the grommet and tighten the elbow nut to the connector shell using a strap wrench or 11-6147-1 connector pliers.

SECTION III DISASSEMBLY

a. Support the shell and remove any accessories, with a suitable strap wrench or the 11-6147-1 Connector Pliers. Unscrew retaining ring using the proper size spanner wrench. See Table III.

b. Push insert and contact assembly out of shell. Remove front insert and sealing insert from contacts. Rotate contacts 90 degrees and push contacts

back through rear insert. Care should be taken not to tear or cut sealing insert. Rotate contacts 90 degrees and slide them from rear of back insert.

c. Clean connector parts by wiping with a clean cloth dampened with proprietary denatured ethyl alcohol (Federal Specification O-E-760 Grade IV).

SECTION IV INSPECTION

Carefully examine front and back inserts for cracks or chipping. If the connector has been subjected to extremely high temperatures, the sealing insert may require replacement. Check sealing insert for cuts or tears. Examine threads of shells, adapter, retaining rings, and coupling nuts. If lubrication is required, apply a light film of Uni-temp* grease or

equivalent conforming to Military Specification MIL-G-3278.

The crimp-type contacts should be inspected as follows: Pin and socket contact should be straight and smooth. Check socket contacts with the same size pin contact. Sockets should grip the pin contacts. Do not attempt to reshape the spring clip on socket contacts or attempt to straighten pin contacts. Replace defective parts.

*Available from The Texas Co. (Texaco), Chrysler Towers, New York, N.Y.

SECTION V REASSEMBLY

Information contained in this section is used only when connectors are being assembled to await further use and not when making an installation.

a. Slide contacts into holes in rear of back insert. Rotate contacts 90 degrees, this will lock contacts in back insert and align them for installation of the sealing insert and front insert.

b. Start sealing insert on contacts. Align keyway of front insert with keyway of back insert and slide front insert, large outside diameter end first, over contacts moving sealing insert to rear insert.

c. Align insert keyway with shell key. Carefully push the contact and insert assembly into the shell. Screw in retaining ring finger tight. Assemble adapter or elbow to connector shell.

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