



Positronic Industries  
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# PROFESSIONAL QUALITY, STANDARD DENSITY, COMPLIANT TERMINATION REPAIRABLE CONTACT, PRESS-FIT SUBMINIATURE-D CONNECTORS

D-Sub

FOR SHELTERED INDOOR/OUTDOOR ENVIRONMENTAL APPLICATIONS

Size 20 Contacts, Fixed  
Machined Contact,  
“Bi-Spring” or “Omega”  
Compliant Termination  
Repairable Contact

Professional Quality  
IEC 807-2 & IEC 352-5

U.L. Recognized  
File #E49351

Telecommunication  
U.L. File #140980



PCD Series connectors are professional quality rectangular connectors with compliant terminations. The low press-in force required to install the contacts into the board eliminates printed board pressure-warp and twisting stresses which can result in expensive repair or replacement of printed boards and back panels. Female connectors are available with closed entry contacts for high reliability applications.

These connectors were designed to allow removal and replacement of individual contacts damaged in manufacturing, testing, or field use without removing the connector from the board. The compliant section of the contact causes no damage or deformation of the plated-through-hole during installation or removal from the printed board. With a minimum axial push-out force of 5 lbs. [21 N], an individual contact may be removed from both the printed board and connector insulator. A virgin contact may then be pushed into the connector insulator and plated-through-hole, thereby accomplishing the repair of the connector without the removal of the connector from the printed board.

**Bi-Spring Compliant Contacts** have press-in and push-out forces of 2 lbs [8.4 N] to 2.5 lbs [10.5 N]. The requirement for finished printed board hole diameter is 0.047 inches [1.19 mm]. The compliant contact will permit up to

three replacement operations.

**Omega Compliant Contacts** have press-in and push-out forces of 4 lbs [16.8 N] to 6 lbs [25.2 N]. The requirement for the finished printed board hole diameter is 0.0394 inches [1.00mm]. This contact style offers an economically priced connector with a finished hole diameter common to many press fit contacts.

Five standard connector variants are offered in arrangement of 9, 15, 25, 37, and 50 contacts. PCD connectors are mateable and compatible with all D-Subminiature connectors conforming to IEC 807-2, IEC 807-3, and dimensional requirements of MIL-DTL-24308.



Contact Technical  
Sales for details.

## COMPLIANT PRESS-D CONNECTOR TECHNICAL CHARACTERISTICS

### MATERIALS AND FINISHES:

<b>Insulator:</b>	Glass filled polyester per MIL-M-24519, U.L. 94V-0, blue color.
<b>Contacts:</b>	Male and female contacts are precision machined—high tensile phosphor bronze.
<b>Contact Plating:</b>	Professional performance - Gold flash over nickel plate. Other finishes available upon request.
<b>Shells:</b>	Steel with tin plate or zinc plate with dichromate seal. Other materials and finishes available upon request.
<b>Mounting Spacers and Brackets:</b>	Brass with tin plate; zinc plate with dichromate seal.
<b>Jackscrew System:</b>	Steel; zinc plate with dichromate seal.
<b>Vibration Lock Systems:</b>	Lock tabs, nickel plated steel.

### ELECTRICAL CHARACTERISTICS OF COMPLIANT CONNECTION TO PLATED-THROUGH-HOLE OF PRINTED BOARD:

<b>Initial Contact Resistance of Connection:</b>	Less than 0.001 ohms per IEC 512-2, Test 2a.
<b>Change in Contact Resistance of Connection after Mechanical, Electrical or Climatic Conditioning:</b>	Less than 0.001 ohms increase per IEC 512-2, Test 2a.
<b>Gas-tight Connections Test:</b>	Less than 0.001 ohms increase in contact resistance after 1 hour per EIA 364, TP36, Method One.

### ELECTRICAL CHARACTERISTICS OF CONNECTOR:

<b>Contact Current Rating:</b>	7.5 amperes, nominal.
<b>Initial Contact Resistance:</b>	0.008 ohms maximum per IEC 512-2, Test 2a.
<b>Proof Voltage:</b>	1000 V r.m.s.
<b>Insulator Resistance:</b>	5 G ohms.
<b>Clearance and Creepage Distance [minimum]:</b>	0.039 inch [1.0mm].
<b>Working Voltage:</b>	300 V.

### CLIMATIC CHARACTERISTICS:

**Temperature Range:** -55°C to +125°C.

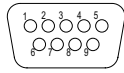
### MECHANICAL CHARACTERISTICS:

<b>Repairable Contacts</b>	Size 20 contact male – 0.040 inch [1.02mm] diameter; female contact – rugged open-entry design or closed entry design.
<b>Solid Metal Construction:</b>	
<b>Contact Retention In Insulator:</b>	5 lbs. [21 N] minimum.
<b>Compliant Termination Bi-Spring Construction:</b>	0.053 inch [1.35mm] diameter with 0.034 inch [0.86mm] lead-in diameter. Offered with three termination lengths for 0.063 inch [1.60mm] 0.093 inch [2.36mm] 0.125 [3.18mm] thick printed boards or back planes.
<b>Press-In Force of Contact into plated-through-hole of 0.125 inch [3.18mm] printed board:</b>	2.5 lbs. [10.5 N].
<b>Push-Out Force of Contact from plated-through-hole of 0.125 inch [3.18mm] printed board:</b>	2 lbs. [8.4 N].
<b>Compliant Termination Omega Construction:</b>	0.047 inch [1.18mm] diameter with 0.022 inch [0.56mm] lead-in diameter. A single termination length accommodates any thickness printed board or backplane.
<b>Press-In Force of Contact into plated-through-hole of 0.125 inch [3.18mm] printed board:</b>	4 lbs. [16.8 N].
<b>Push-Out Force of Contact from plated-through-hole of 0.125 inch [3.18mm] printed board:</b>	6 lbs. [25.2 N].
<b>Vibration Test per MIL-STD 1344, Method 2005, Test Conditioning:</b>	No electrical discontinuity of 1 µs or greater.
<b>Connector Polarization:</b>	Trapezoidal shaped shells and polarized jackscrews.
<b>Locking System:</b>	Jackscrews and vibration locking systems.
<b>Mechanical Operations:</b>	500 operations per IEC 512-5.

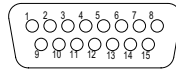


PCD CONTACT VARIANTS

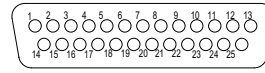
FACE VIEW OF MALE CONNECTOR OR REAR VIEW OF FEMALE CONNECTOR



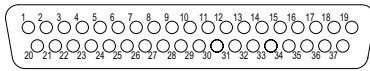
PCD 9



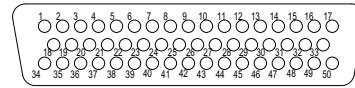
PCD 15



PCD 25

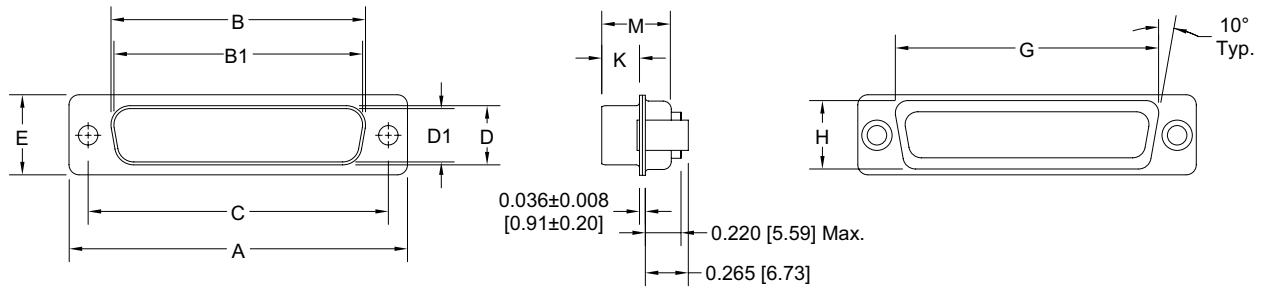


PCD 37



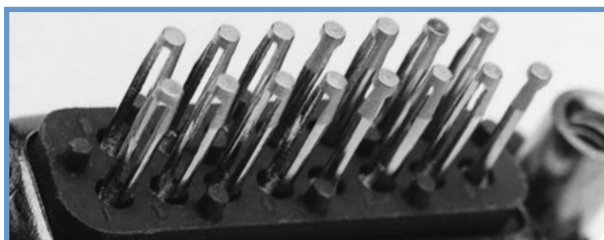
PCD 50

STANDARD SHELL ASSEMBLY



CONNECTOR VARIANT SIZES	A ±0.015 [0.38]	B ±0.005 [0.13]	B1 ±0.005 [0.13]	C ±0.005 [0.13]	D ±0.005 [0.13]	D1 ±0.005 [0.13]	E ±0.015 [0.38]	G ±0.010 [0.25]	H ±0.010 [0.25]	K ±0.005 [0.13]	M ±0.010 [0.25]
PCD 9 M	1.213 [30.81]		0.666 [16.92]	0.984 [24.99]		0.329 [8.36]	0.494 [12.55]	0.759 [19.28]	0.422 [10.72]	0.233 [5.92]	0.422 [10.72]
PCD 9 F	1.213 [30.81]	0.643 [16.33]		0.984 [24.99]	0.311 [7.90]		0.494 [12.55]	0.759 [19.28]	0.422 [10.72]	0.243 [6.17]	0.429 [10.90]
PCD 15 M	1.541 [39.14]		0.994 [25.25]	1.312 [33.32]		0.329 [8.36]	0.494 [12.55]	1.083 [27.51]	0.422 [10.72]	0.233 [5.92]	0.422 [10.72]
PCD 15 F	1.541 [39.14]	0.971 [24.66]		1.312 [33.32]	0.311 [7.90]		0.494 [12.55]	1.083 [27.51]	0.422 [10.72]	0.243 [6.17]	0.429 [10.90]
PCD 25 M	2.088 [53.04]		1.534 [38.96]	1.852 [47.04]		0.329 [8.36]	0.494 [12.55]	1.625 [41.28]	0.422 [10.72]	0.230 [5.84]	0.426 [10.82]
PCD 25 F	2.088 [53.04]	1.511 [38.38]		1.852 [47.04]	0.311 [7.90]		0.494 [12.55]	1.625 [41.28]	0.422 [10.72]	0.243 [6.17]	0.429 [10.90]
PCD 37 M	2.729 [69.32]		2.182 [55.42]	2.500 [63.50]		0.329 [8.36]	0.494 [12.55]	2.272 [57.71]	0.422 [10.72]	0.230 [5.84]	0.426 [10.82]
PCD 37 F	2.729 [69.32]	2.159 [54.84]		2.500 [63.50]	0.311 [7.90]		0.494 [12.55]	2.272 [57.71]	0.422 [10.72]	0.243 [6.17]	0.429 [10.90]
PCD 50 M	2.635 [66.93]		2.079 [52.81]	2.406 [61.11]		0.441 [11.20]	0.605 [15.37]	2.178 [55.32]	0.534 [13.56]	0.230 [5.84]	0.426 [10.82]
PCD 50 F	2.635 [66.93]	2.064 [52.43]		2.406 [61.11]	0.423 [10.74]		0.605 [15.37]	2.178 [55.32]	0.534 [13.56]	0.243 [6.17]	0.429 [10.90]

“Bi-Spring” Compliant Termination



“Omega” Compliant Termination





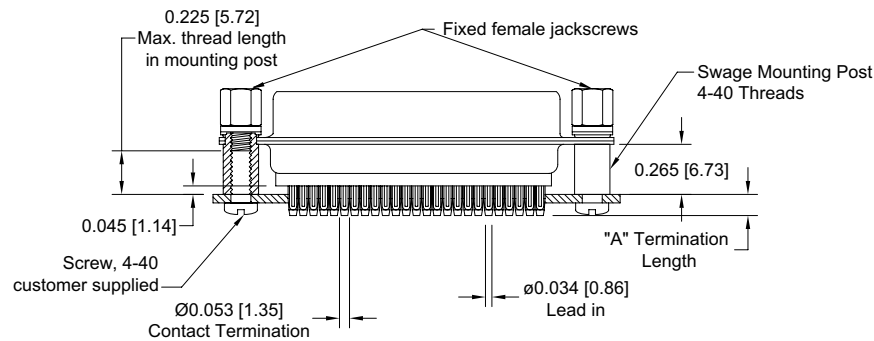
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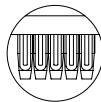
D-Sub

FOR SHELTERED INDOOR/OUTDOOR ENVIRONMENTAL APPLICATIONS

## BI-SPRING COMPLIANT PRESS-FIT CONNECTOR



Typical Part Number: **PCD25F9S0T20**



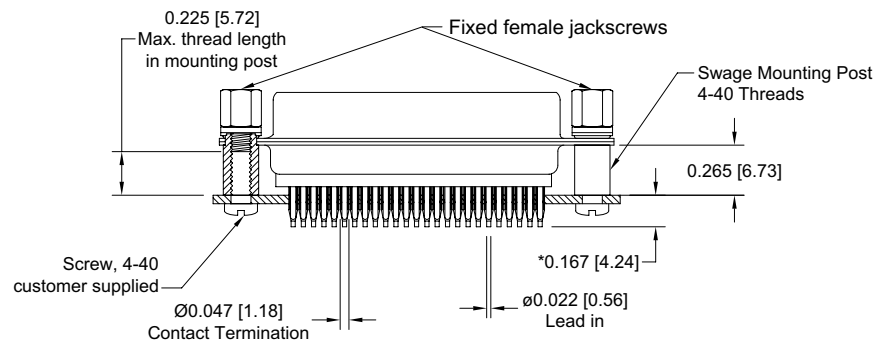
Detail of  
Bi-Spring contacts

For "Bi-Spring" Press-Fit contacts,  
specify code 9, 92 or 93 in step 4  
of ordering information.

\*CONTACT TERMINATION LENGTH

BOARD THICKNESS	A	CONTACT TYPE
0.063 [1.60]	0.153 [3.89]	9
0.093 [2.36]	0.183 [4.65]	92
0.125 [3.18]	0.218 [5.54]	93

## OMEGA COMPLIANT PRESS-FIT CONNECTOR



Typical Part Number: **PCD25F98S0T20**



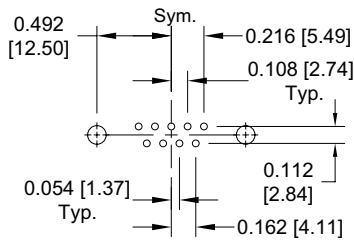
Detail of  
Omega contacts

For "Omega" Press-Fit con-  
tacts, specify code 98 in step 4  
of ordering information.

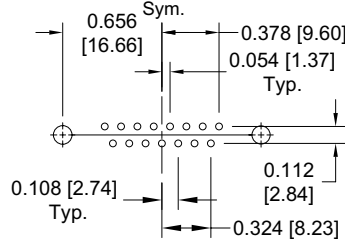
\*The effective length of the compliant section may also be varied [longer or shorter] and can be selectively positioned and centered at several points along the contact termination length, permitting high or low profile mounting of the connector on printed boards.



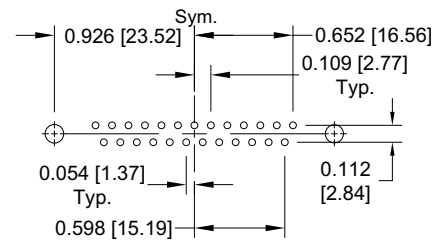
COMPLIANT PRESS-FIT CONNECTOR PRINTED BOARD  
CONTACT HOLE PATTERN



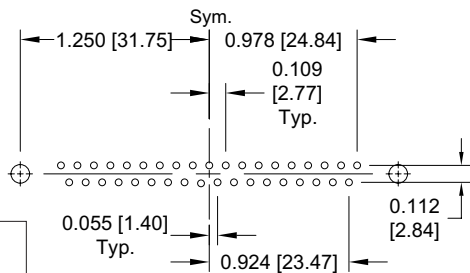
PCD 9



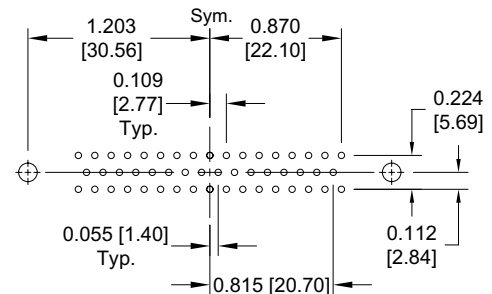
PCD 15



PCD 25



PCD 37



PCD 50

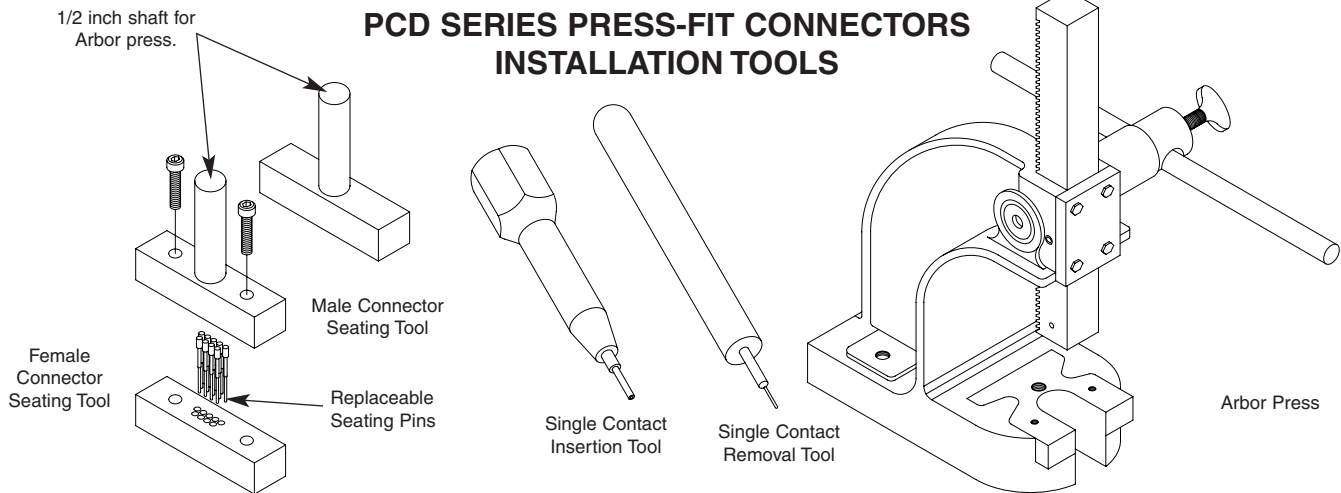
Suggest  
0.120 [3.05]Ø  
hole for mounting  
connector

**For Bi-Spring contact terminations:** Suggest hole with 0.0001 [0.003] minimum solder over 0.001 [0.03] minimum copper plate. Final hole size is  $\text{Ø } 0.047 \pm 0.002$  [1.19 ± 0.05].

**Note:** For other PCB plating compositions, i.e. ENIG, (Electroless Nickel, Immersion Gold), consult Technical Sales.

**For Omega contact terminations:** Suggest  $\text{Ø } 0.0453 \pm 0.0010$  [1.150 ± 0.025] hole with 0.0005 [0.013] minimum tin or tin/lead over 0.001 [0.03] minimum copper plate. Final hole size is  $\text{Ø } 0.0394 + 0.0035 - 0.0024$  [1.000 + 0.090 - 0.060].

PCD SERIES PRESS-FIT CONNECTORS  
INSTALLATION TOOLS



Positronic recommended tools for PCD Series Connectors and Contacts

Series	Connector Seating		Single Contact Insertion		Single Contact Removal
	Male	Female	Male	Female	
PCD 9	9512-1-0-41	9512-6-0-41	9512-100-0 FOR ALL SIZES	9512-101-0 FOR ALL SIZES	9512-102-0 FOR ALL SIZES
PCD 15	9512-2-0-41	9512-7-0-41			
PCD 25	9512-3-0-41	9512-8-0-41			
PCD 37	9512-4-0-41	9512-9-0-41			
PCD 50	9512-5-0-41	9512-10-0-41			
Arbor press for connector seating tools-9530-1-0			1 ton capacity		4 inch throat
Replacement pins for connector seating tools.			Female - 855-658-0-41		

DIMENSIONS ARE IN INCHES [MILLIMETERS].  
ALL DIMENSIONS ARE SUBJECT TO CHANGE.



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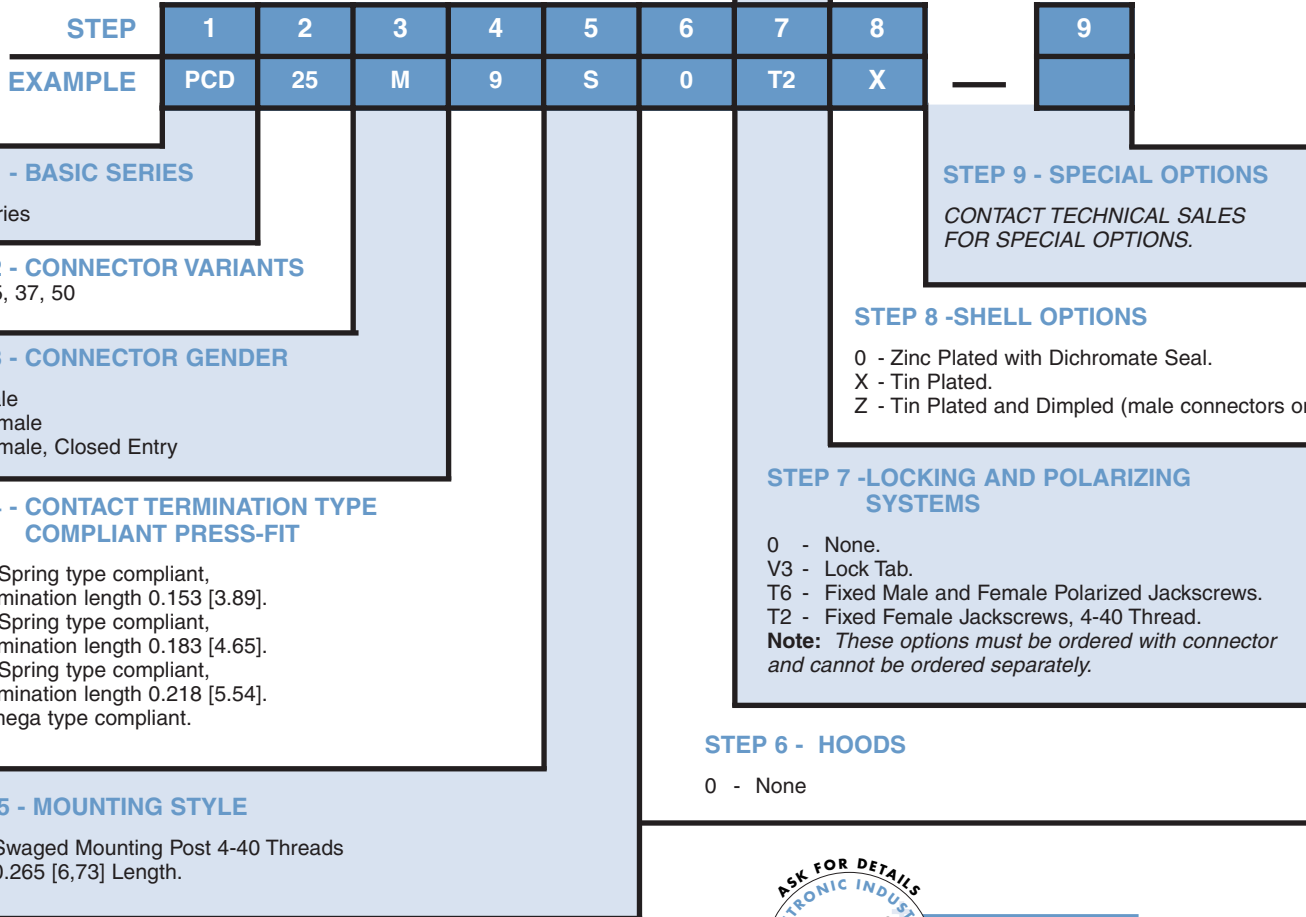
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**ORDERING INFORMATION - CODE NUMBERING SYSTEM**

Specify Complete Connector By Selecting An Option From Step 1 Through 8



PCD SERIES



Contact Technical Sales for details.

**REPLACEMENT CONTACTS PART NUMBERS**

CODE	MALE	OPEN ENTRY FEMALE	CLOSED ENTRY FEMALE
<b>9</b>	4305-13-1-*	4306-14-1-*	4306-139-1-*
<b>92</b>	4305-13-2-*	4306-14-2-*	4306-139-2-*
<b>93</b>	4305-13-3-*	4306-14-3-*	4306-139-3-*
<b>98</b>	4305-15-0-*	4306-17-0-*	4306-189-0-*

\* - PLATING OPTIONS FOR REPLACEMENT CONTACTS  
 -14 GOLD 0.000030 [0.76 MICRONS] OVER NICKEL PLATE  
 -51 GOLD FLASH OVER NICKEL PLATE