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AIR PUBLICATION

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**CONNECTORS, HELLERMAN  
DEUTSCH, LPT, SLPT AND  
NLPT SERIES**

**GENERAL AND TECHNICAL INFORMATION**

BY COMMAND OF THE DEFENCE COUNCIL

*J. Dunnett*

Ministry of Defence

FOR USE IN THE  
ROYAL NAVY  
ROYAL AIR FORCE

(Prepared by the Ministry of Technology)

# AMENDMENT RECORD SHEET

To record the incorporation of an Amendment List in this publication, sign against the appropriate A.L.No. and insert the date of incorporation

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~~HELLERMAN~~  
HELLERMAN

1 CONNECTORS, ~~HELLERMAN~~ DEUTSCH, LPT, SLPT AND NLPT SERIES

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## CONNECTORS, HELLERMAN DEUTSCH, LPT, SLPT AND NLPT SERIES

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## LEADING PARTICULARS

|                    |     |     |     |     |     |     |     |                                                                                         |
|--------------------|-----|-----|-----|-----|-----|-----|-----|-----------------------------------------------------------------------------------------|
| Current rating     | ... | ... | ... | ... | ... | ... | ... | Size 20 contact 7.5A<br>Size 16 contact 20A                                             |
| Voltage rating     | ... | ... | ... | ... | ... | ... | ... | 500V d.c. working<br>900V a.c. working                                                  |
| Contact detail     | ... | ... | ... | ... | ... | ... | ... | Beryllium copper, gold plated                                                           |
| Contact resistance | ... | ... | ... | ... | ... | ... | ... | Size 20 contacts 15 millivolt drop at 7.5A<br>Size 16 contacts 21 millivolt drop at 20A |
| Temperature range  | ... | ... | ... | ... | ... | ... | ... | LPT and SLPT -60 deg. C to +190 deg. C<br>NLPT -40 deg. C to +125 deg. C                |
| Lubricant          | ... | ... | ... | ... | ... | ... | ... | MS4 Ref.No.33C/9424829                                                                  |

## INTRODUCTION

1. Connectors in the Hellerman Deutsch LPT range are miniature bayonet locking connectors with a variety of insert materials to meet the requirement of DEF. specification 5326/3 pattern 603 PRL.54125 and MIL-C-26482.

2. The following types are contained within this range.

(1) The LPT series is qualified to MIL-

C-26482C and incorporates a fluorinated silicone insert for high temperature and fluid resistant applications.

(2) SLPT utilises the same contact insert and shell as the LPT, except the nylon follower is replaced by one of aluminium alloy.

(3) The NLPT, again utilises the same contacts and shells but has a neoprene insert.

## SIGNIFICANCE OF CODE NUMBERS:-

3. N LPT 00 E 18-32 P : W \*\*\*\*

MODIFICATION STATE

ORIENTATION POSITION, AVAILABLE IN W, X, Y & Z or B, C, E & F.

(P) DENOTES PINS (S) DENOTES SOCKETS

DENOTES INSERT ARRANGEMENT

DENOTES SHELL SIZE

DENOTES TYPE i.e. E ENVIRONMENTAL

F STRAIN RELIEF CLAMP

DESCRIBES LPT CONNECTOR MODEL

00 - SQUARE FLANGE

01 - CABLE CONNECTING RECEPTACLE

07 - SINGLE HOLE MOUNTING RECEPTACLE

06 - PLUG

09 - PUSH/PULL BAYONET PLUG

IDENTIFIES HELLERMAN DEUTSCH MINIA-TURE BAYONET LOCK CONNECTOR

(N) NEOPRENE INSERT

(S) ENVIRONMENTAL L.P.T. SPECIAL

## DESCRIPTION

## 4. SQUARE FLANGE

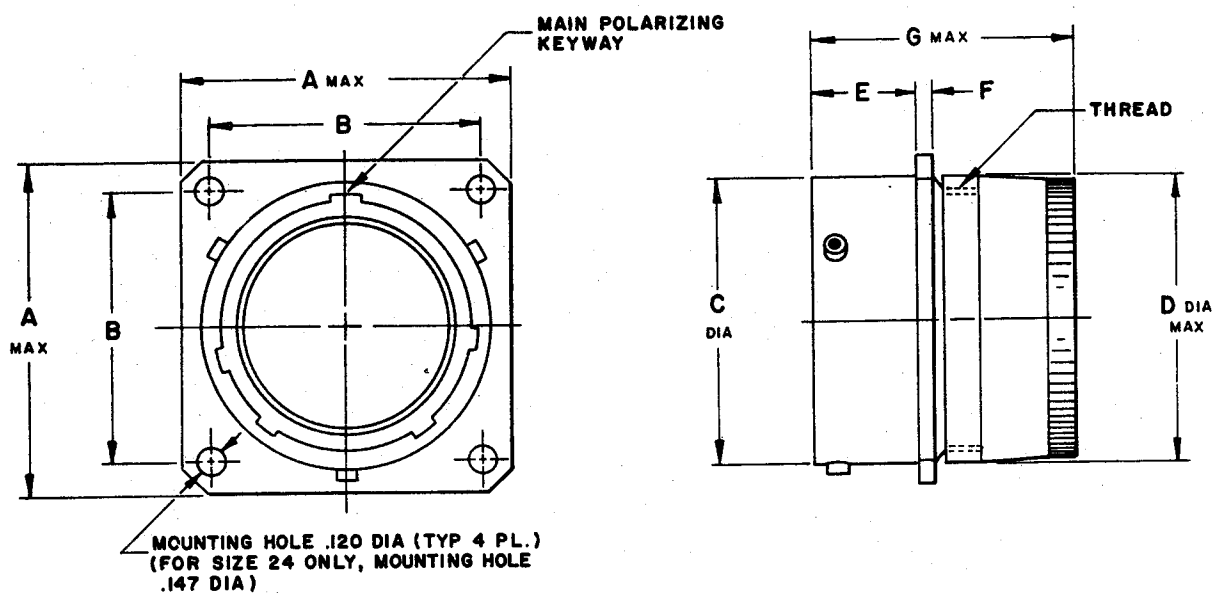


Fig. 1. Square flange receptacle

TABLE 1

Dimensions of square flange receptacle

| PART NO.        | A MAX | B     | C $\begin{smallmatrix} +.001 \\ -.005 \end{smallmatrix}$ | D DIA MAX | E $\begin{smallmatrix} +.031 \\ -.000 \end{smallmatrix}$ | F $\pm .016$ | G MAX | THREAD                    | WEIGHT IN LBS.   |
|-----------------|-------|-------|----------------------------------------------------------|-----------|----------------------------------------------------------|--------------|-------|---------------------------|------------------|
| LPT00E-8-* P S  | .828  | .594  | .473                                                     | .560      | .431                                                     | .062         | 1.328 | $\frac{7}{16}$ - 28 UNEF  | P .017<br>S .018 |
| LPT00E-10-* P S | .954  | .719  | .590                                                     | .685      | .431                                                     | .062         | 1.328 | $\frac{9}{16}$ - 24 NEF   | P .024<br>S .029 |
| LPT00E-12-* P S | 1.047 | .812  | .750                                                     | .813      | .431                                                     | .062         | 1.328 | $\frac{11}{16}$ - 24 NEF  | P .038<br>S .039 |
| LPT00E-14-* P S | 1.141 | .906  | .875                                                     | .930      | .431                                                     | .062         | 1.328 | $\frac{13}{16}$ - 20 UNEF | P .042<br>S .047 |
| LPT00E-16-* P S | 1.234 | .969  | 1.000                                                    | 1.057     | .431                                                     | .062         | 1.328 | $\frac{15}{16}$ - 20 UNEF | P .054<br>S .058 |
| LPT00E-18-* P S | 1.328 | 1.062 | 1.125                                                    | 1.175     | .431                                                     | .062         | 1.328 | 1 $\frac{1}{16}$ - 18 NEF | P .067<br>S .074 |
| LPT00E-20-* P S | 1.453 | 1.156 | 1.250                                                    | 1.301     | .556                                                     | .094         | 1.359 | 1 $\frac{3}{16}$ - 18 NEF | P .084<br>S .091 |
| LPT00E-22-* P S | 1.578 | 1.250 | 1.375                                                    | 1.428     | .556                                                     | .094         | 1.359 | 1 $\frac{5}{16}$ - 18 NEF | P .087<br>S .108 |
| LPT00E-24-* P S | 1.703 | 1.375 | 1.500                                                    | 1.533     | .589                                                     | .094         | 1.422 | 1 $\frac{7}{16}$ - 18 NEF | P .118<br>S .134 |

## 5. CABLE CONNECTING RECEPTACLE

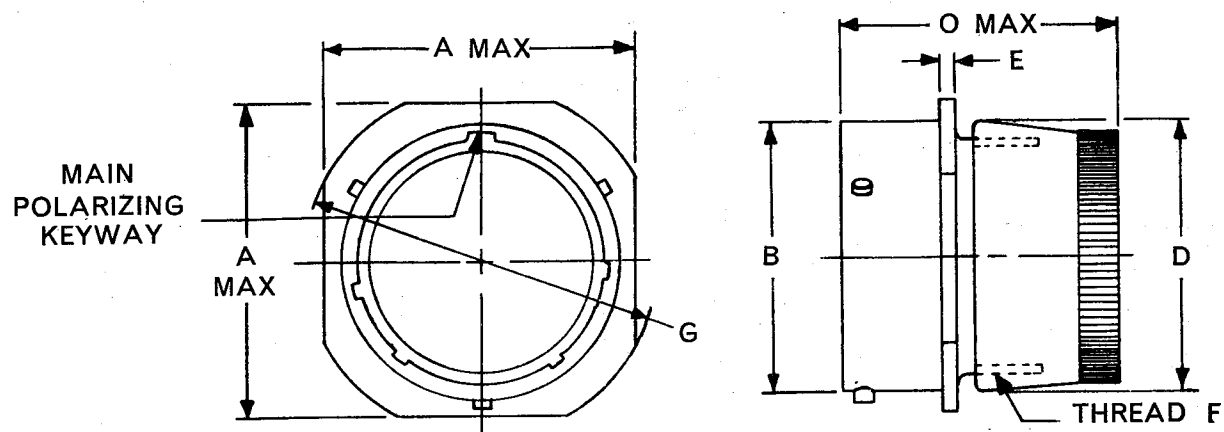


Fig. 2. Cable connecting receptacle

TABLE 2

Dimensions of cable connecting receptacle

| PART NO.        | A<br>Max. | B $\pm .001$<br>Dia. $-.005$ | C<br>Max. | D<br>Max. Dia. | E<br>Max. | THREAD "F"                | G $\pm .020$<br>Dia. | Weight<br>in lbs. |
|-----------------|-----------|------------------------------|-----------|----------------|-----------|---------------------------|----------------------|-------------------|
| LPTOIE-8-* P/S  | .830      | .473                         | 1.328     | .560           | .110      | $\frac{7}{16}$ - 28 UNEF  | .937                 |                   |
| LPTOIE-10-* P/S | .955      | .590                         | 1.328     | .685           | .110      | $\frac{9}{16}$ - 24 NEF   | 1.062                |                   |
| LPTOIE-12-* B/S | 1.048     | .750                         | 1.328     | .813           | .110      | $\frac{11}{16}$ - 24 NEF  | 1.156                |                   |
| LPTOIE-14-* P/S | 1.142     | .875                         | 1.328     | .930           | .110      | $\frac{13}{16}$ - 20 UNEF | 1.250                |                   |
| LPTOIE-16-* P/S | 1.236     | 1.000                        | 1.328     | 1.057          | .110      | $\frac{15}{16}$ - 20 UNEF | 1.344                |                   |
| LPTOIE-18-* P/S | 1.329     | 1.125                        | 1.328     | 1.175          | .110      | $1\frac{1}{16}$ - 18 NEF  | 1.438                |                   |
| LPTOIE-20-* P/S | 1.455     | 1.250                        | 1.359     | 1.301          | .131      | $1\frac{3}{16}$ - 18 NEF  | 1.562                |                   |
| LPTOIE-22-* P/S | 1.579     | 1.375                        | 1.359     | 1.428          | .131      | $1\frac{5}{8}$ - 18 NEF   | 1.688                |                   |
| LPTOIE-24-* P/S | 1.704     | 1.500                        | 1.422     | 1.533          | .131      | $1\frac{7}{8}$ - 18 NEF   | 1.812                |                   |

## 6. SINGLE HOLE MOUNTING RECEPTACLE

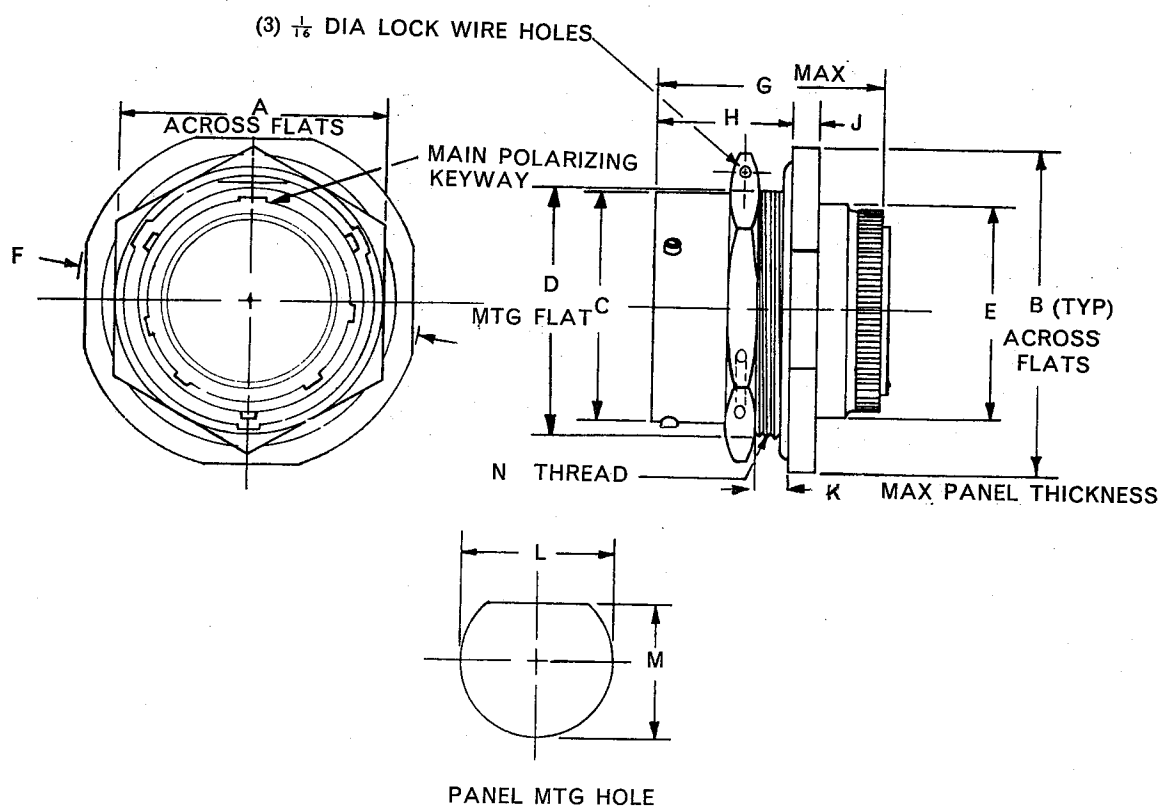


Fig. 3. Single hole mounting receptacle

TABLE 3

Dimensions of single hole mounting receptacle

| PART NO.       | A Max | B Max | C $\begin{smallmatrix} +.001 \\ -.005 \end{smallmatrix}$ | D $\begin{smallmatrix} +.000 \\ -.010 \end{smallmatrix}$ Flat | E Max | F               | G Max | H    | J $\begin{smallmatrix} +.011 \\ -.010 \end{smallmatrix}$ | K Max | L $\begin{smallmatrix} +.010 \\ -.000 \end{smallmatrix}$ | M $\begin{smallmatrix} +.000 \\ -.010 \end{smallmatrix}$ | N-THREAD               |
|----------------|-------|-------|----------------------------------------------------------|---------------------------------------------------------------|-------|-----------------|-------|------|----------------------------------------------------------|-------|----------------------------------------------------------|----------------------------------------------------------|------------------------|
| LPT07E-8-*P/S  | .767  | .954  | .473                                                     | .530                                                          | .729  | $1\frac{1}{16}$ | 1.438 | .696 | .125                                                     | .125  | .572                                                     | .542                                                     | $\frac{7}{16}$ -24 NEF |
| LPT07E-10-*P/S | .892  | 1.078 | .590                                                     | .655                                                          | .874  | $1\frac{3}{16}$ | 1.438 | .696 | .125                                                     | .125  | .697                                                     | .669                                                     | $\frac{1}{2}$ -24 NEF  |
| LPT07E-12-*P/S | 1.079 | 1.266 | .750                                                     | .818                                                          | .999  | $1\frac{1}{2}$  | 1.438 | .696 | .125                                                     | .125  | .884                                                     | .830                                                     | $\frac{7}{8}$ -20 UNEF |
| LPT07E-14-*P/S | 1.205 | 1.391 | .875                                                     | .942                                                          | 1.124 | $1\frac{1}{2}$  | 1.438 | .696 | .125                                                     | .125  | 1.007                                                    | .955                                                     | 1-20 UNEF              |
| LPT07E-16-*P/S | 1.329 | 1.516 | 1.000                                                    | 1.066                                                         | 1.249 | $1\frac{5}{8}$  | 1.438 | .696 | .125                                                     | .125  | 1.134                                                    | 1.084                                                    | $1\frac{1}{8}$ -18 NEF |
| LPT07E-18-*P/S | 1.455 | 1.641 | 1.125                                                    | 1.191                                                         | 1.374 | $1\frac{3}{4}$  | 1.438 | .696 | .125                                                     | .125  | 1.259                                                    | 1.208                                                    | $1\frac{1}{4}$ -18 NEF |
| LPT07E-20-*P/S | 1.579 | 1.828 | 1.250                                                    | 1.316                                                         | 1.530 | $1\frac{7}{8}$  | 1.625 | .884 | .156                                                     | .250  | 1.384                                                    | 1.333                                                    | $1\frac{3}{8}$ -18 NEF |
| LPT07E-22-*P/S | 1.705 | 1.954 | 1.375                                                    | 1.441                                                         | 1.655 | $2\frac{1}{8}$  | 1.625 | .884 | .156                                                     | .250  | 1.507                                                    | 1.459                                                    | $1\frac{1}{2}$ -18 NEF |
| LPT07E-24-*P/S | 1.829 | 2.078 | 1.500                                                    | 1.566                                                         | 1.780 | $2\frac{3}{8}$  | 1.688 | .917 | .156                                                     | .250  | 1.634                                                    | 1.575                                                    | $1\frac{5}{8}$ -18 NEF |

## 7. PLUG

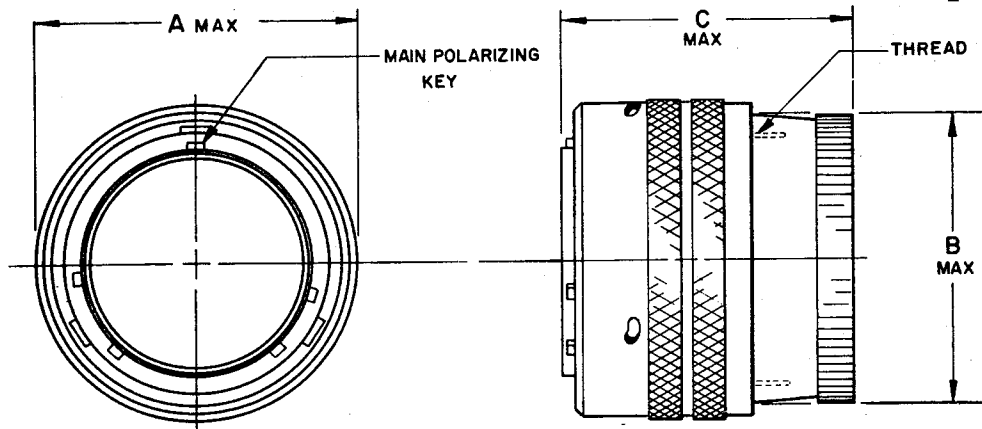


Fig. 4. Plug

TABLE 4  
Dimensions of plug

| PART NO.                             | A MAX | B MAX | C MAX | THREAD                    | WEIGHT<br>IN LBS |
|--------------------------------------|-------|-------|-------|---------------------------|------------------|
| LPT06E-8-* <sub>P<sub>S</sub></sub>  | .750  | .560  | 1.328 | $\frac{7}{16}$ - 28 UNEF  | P .023<br>S .024 |
| LPT06E-10-* <sub>P<sub>S</sub></sub> | .859  | .685  | 1.328 | $\frac{9}{16}$ - 24 NEF   | P .033<br>S .038 |
| LPT06E-12-* <sub>P<sub>S</sub></sub> | 1.031 | .813  | 1.328 | $\frac{11}{16}$ - 24 NEF  | P .047<br>S .051 |
| LPT06E-14-* <sub>P<sub>S</sub></sub> | 1.156 | .930  | 1.328 | $\frac{13}{16}$ - 20 UNEF | P .057<br>S .061 |
| LPT06E-16-* <sub>P<sub>S</sub></sub> | 1.281 | 1.057 | 1.328 | $\frac{15}{16}$ - 20 UNEF | P .072<br>S .076 |
| LPT06E-18-* <sub>P<sub>S</sub></sub> | 1.391 | 1.175 | 1.328 | 1 $\frac{1}{16}$ - 18 NEF | P .088<br>S .092 |
| LPT06E-20-* <sub>P<sub>S</sub></sub> | 1.531 | 1.301 | 1.297 | 1 $\frac{3}{16}$ - 18 NEF | P .098<br>S .108 |
| LPT06E-22-* <sub>P<sub>S</sub></sub> | 1.656 | 1.428 | 1.297 | 1 $\frac{5}{16}$ - 18 NEF | P .115<br>S .123 |
| LPT06E-24-* <sub>P<sub>S</sub></sub> | 1.777 | 1.533 | 1.359 | 1 $\frac{7}{16}$ - 18 NEF | P .139<br>S .153 |



## 8. PUSH PULL BAYONET CONNECTOR

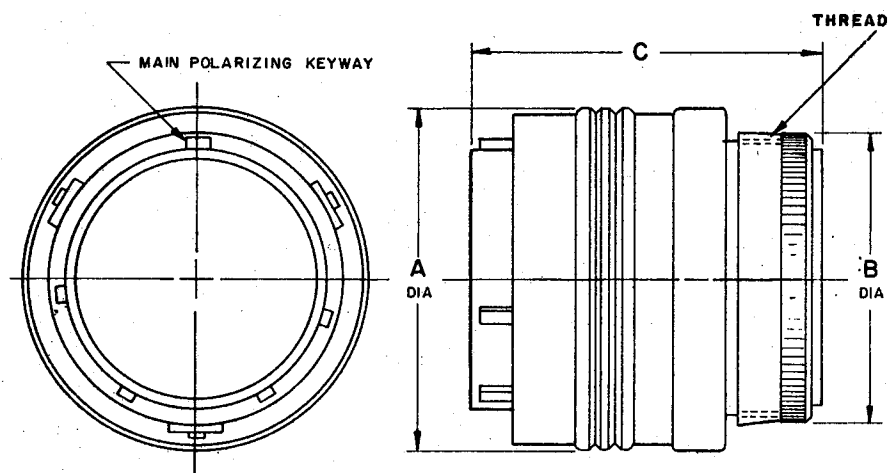


Fig. 5. Push pull bayonet connector

TABLE 5

Dimensions of push pull bayonet connector

| PART NO.                  | A MAX | B MAX | C MAX | THREAD                    | WEIGHT<br>IN LBS. |
|---------------------------|-------|-------|-------|---------------------------|-------------------|
| LPT09E-8-* <sub>PS</sub>  | .740  | .540  | 1.395 | $\frac{7}{16}$ - 28 UNEF  | <sub>PS</sub>     |
| LPT09E-10-* <sub>PS</sub> | .863  | .660  | 1.395 | $\frac{9}{16}$ - 24 NEF   | <sub>PS</sub>     |
| LPT09E-12-* <sub>PS</sub> | 1.030 | .785  | 1.395 | $\frac{11}{16}$ - 24 NEF  | <sub>PS</sub>     |
| LPT09E-14-* <sub>PS</sub> | 1.145 | .905  | 1.395 | $\frac{13}{16}$ - 20 UNEF | <sub>PS</sub>     |
| LPT09E-16-* <sub>PS</sub> | 1.275 | 1.030 | 1.395 | $\frac{15}{16}$ - 20 UNEF | <sub>PS</sub>     |
| LPT09E-18-* <sub>PS</sub> | 1.390 | 1.145 | 1.395 | 1 $\frac{1}{16}$ - 18 NEF | <sub>PS</sub>     |
| LPT09E-20-* <sub>PS</sub> | 1.523 | 1.270 | 1.395 | 1 $\frac{3}{16}$ - 18 NEF | <sub>PS</sub>     |
| LPT09E-22-* <sub>PS</sub> | 1.639 | 1.400 | 1.395 | 1 $\frac{5}{16}$ - 18 NEF | <sub>PS</sub>     |

## ORIENTATION FEATURES

Insert orientations W, X, Y and Z

9. In the insert orientations fig. 6 the pin insert is rotated clockwise relative to the main polarizing key or keyway as indicated:- The socket insert would thus be rotated anti-clockwise the same number of degrees. All the insert arrangements fig. 6, 7 and 8 show the mating face of the pin insert in the normal position.

Keyway orientation B, C, E and F

10. Further orientations are made available

by providing shells with the minor keys or keyways machined in different angular positions, relative to the main polarizing key or keyway. Angle  $\theta$  will therefore vary for orientations B, C, E and F and is measured clockwise for the plug shells and anti-clockwise for the receptacles. The position of the insert relative to the main polarizing key or keyway does not alter.

Note . . .

Positions A and D Table 6 are not recommended for new applications, positions B, C, E or F should be used. A and D are available for replacement purposes.

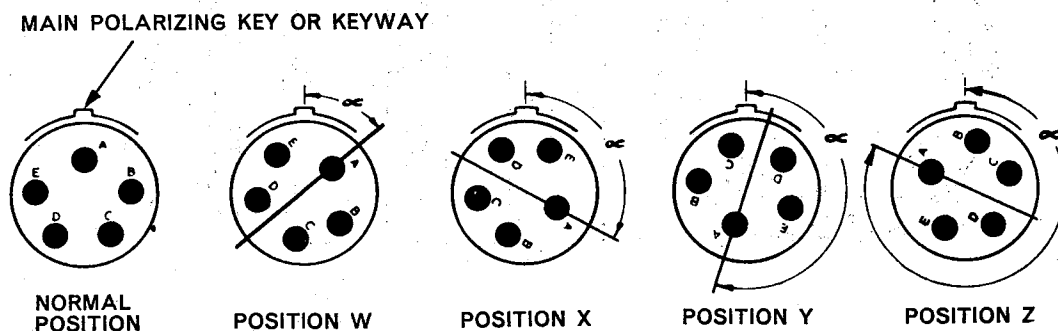


Fig. 6. Orientation features

TABLE 6  
Key orientations

| Shell<br>size | Normal | in degrees |    |     |     |     |     |
|---------------|--------|------------|----|-----|-----|-----|-----|
|               |        | A          | B  | C   | D   | E   | F   |
| 8             | 105    | 92         | -  | -   | 118 | *   | *   |
| 10            | 105    | 95         | 85 | 125 | 115 | 115 | 85  |
| 12            | 105    | 97         | 89 | 121 | 113 | 115 | 85  |
| 14            | 105    | 98         | 91 | 119 | 112 | 75  | 120 |
| 16            | 105    | 99         | 93 | 117 | 111 | 75  | 120 |
| 18            | 105    | 100        | 95 | 115 | 110 | 75  | 120 |
| 20            | 105    | 100        | 95 | 115 | 110 | 75  | 120 |
| 22            | 105    | 101        | 97 | 113 | 109 | 75  | 120 |
| 24            | 105    | 101        | 97 | 113 | 109 | 75  | 120 |

TABLE 7  
Orientation arrangements

| Insert Arr. | Insert position degrees |     |     |     | Contacts                 |
|-------------|-------------------------|-----|-----|-----|--------------------------|
|             | W                       | X   | Y   | Z   |                          |
| 8-33        | -                       | -   | -   | -   | 3 #20                    |
| 8-98        | -                       | -   | -   | -   | 3 #20                    |
| 10-98       | 90                      | 180 | 240 | 270 | 6 #20                    |
| 10-6        | 90                      | -   | -   | -   | 6 #20                    |
| 12-8        | 90                      | 112 | 203 | 292 | 8 #20                    |
| 12-10       | 60                      | 155 | 270 | 295 | 10 #20                   |
| 12-3        | 140                     | 220 | 180 | -   | 3 #16                    |
| 14-18       | 15                      | 90  | 180 | 270 | 18 #20                   |
| 14-19       | 30                      | 165 | 315 | -   | 19 #20                   |
| 14-15       | 17                      | 110 | 155 | 234 | 1 #16                    |
| 14-12       | 43                      | 90  | -   | -   | 14 #20<br>4 #16<br>8 #20 |
| 14-5        | 40                      | 92  | 184 | 273 | 5 #16                    |
| 16-99       | 66                      | 156 | 223 | 340 | 2 #16<br>21 #20          |
| 16-26       | 60                      | -   | 275 | 338 | 26 #20                   |
| 16-8        | 54                      | 152 | 180 | 331 | 8 #16                    |
| 18-28       | 49                      | 158 | 207 | 329 | 2 #16<br>26 #20          |
| 18-32       | 85                      | 138 | 222 | 265 | 32 #20                   |
| 18-11       | 62                      | 119 | 241 | 340 | 11 #16                   |
| 20-39       | 63                      | 144 | 252 | 333 | 2 #16<br>37 #20          |
| 20-41       | 45                      | 126 | 225 | -   | 41 #20                   |
| 20-16       | 238                     | 318 | 333 | 347 | 16 #16                   |
| 22-32       | 72                      | 145 | 215 | 288 | 32 #20                   |
| 22-55       | 30                      | 142 | 226 | 314 | 55 #20                   |
| 22-21       | 16                      | 135 | 175 | 349 | 21 #16                   |
| 22-41       | 39                      | -   | -   | -   | 14 #16<br>27 #20         |
| 24-61       | 90                      | 180 | 270 | 324 | 61 #20                   |
| 24-31       | 46                      | 74  | 122 |     | 31 #16                   |

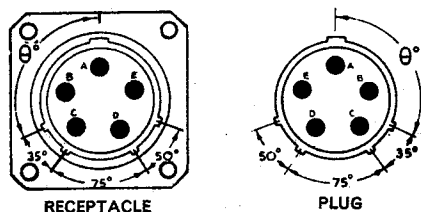


Fig. 7. Keyway orientation

## Protective caps

11. Protection against damage and contamination of contacts when coupling units are disconnected can be provided by protective caps. Caps will fit all types of connectors whether neutral or orientated and have an internal gasket which is both water and kerosine resistant; which are supplied with ball chain and fixing tab for securing to the panel fixing bolt.

TABLE 8  
Protective caps

| Shell size | Protective cap<br>for plug<br>(with chain) | Protective cap<br>for receptacle<br>(with chain) |
|------------|--------------------------------------------|--------------------------------------------------|
| 8          |                                            | 416125/8                                         |
| 10         | 0003-041-000                               | 416125/10                                        |
| 12         | 0003-042-000                               | 416125/12                                        |
| 14         | 0003-043-000                               | 416125/14                                        |
| 16         | 0003-044-000                               | 416125/16                                        |
| 18         | 0003-045-000                               | 416125/18                                        |
| 20         | 0003-046-000                               | 416125/20                                        |
| 22         | 0003-047-000                               | 416125/22                                        |
| 24         | 0003-048-000                               | 416125/24                                        |

## DUMMY STOWAGES

12. Dummy stowage receptacles are supplied for the protection of temporarily disconnected connectors. The panel mounting dimensions for the dummy stowage receptacles are as for the square flange receptacles fig. 1.

## CRIMPING TOOLS

13. The approved crimping tool will be required for the LPT, SLPT and NLPT contacts which are given in Table 10.

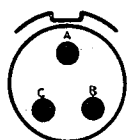
## CONTACTS

14. The contacts are of a high grade conductive material and are gold plate; they are available in two sizes, 20 for 7.5A rating and 16 for 20A rating. Contacts are inserted into the connector after wiring and can easily be removed using the appropriate tool listed in Table 10.

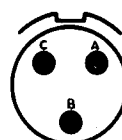
TABLE 9

## Dummy stowages

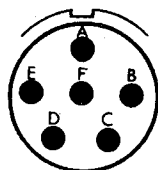
| Shell Size | Dummy stowage receptacle |
|------------|--------------------------|
| 10         | 23090-10                 |
| 12         | 23090-12                 |
| 14         | 23090-14                 |
| 16         | 23090-16                 |
| 18         | 23090-18                 |
| 20         | 23090-20                 |
| 22         | 23090-22                 |
| 24         | 23090-24                 |

**Size 8**

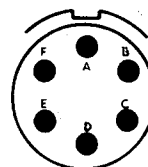
8-33



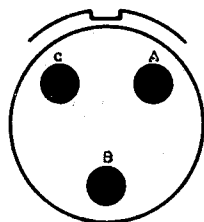
8-98

**Size 10**

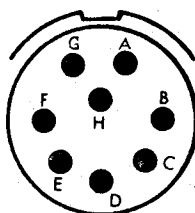
10-98



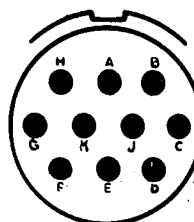
10-6

**Size 12**

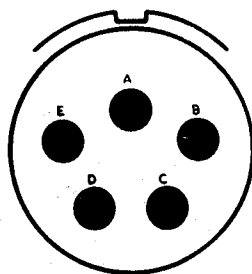
12-3



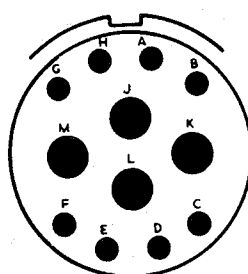
12-8



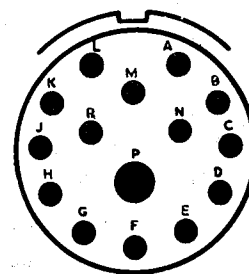
12-10

**Size 14**

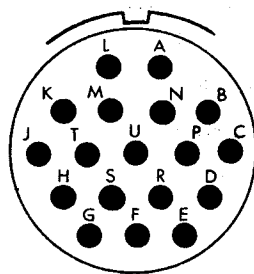
14-5



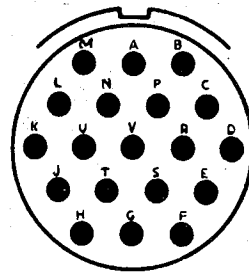
14-12



14-15



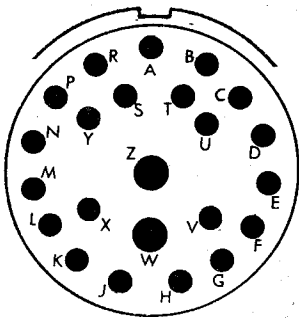
14-18



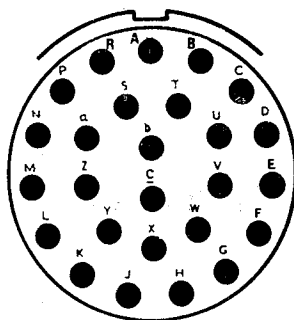
14-19

Fig. 8a. Insert arrangements size 8-14

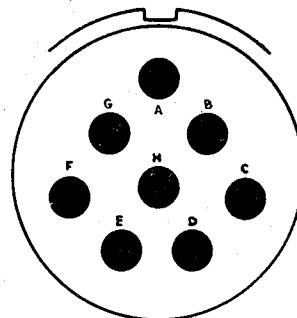
## Size 16



16-99

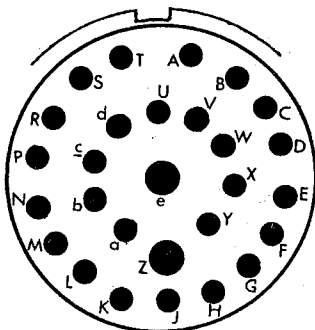


16-26

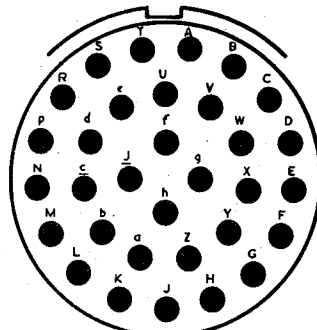


16-8

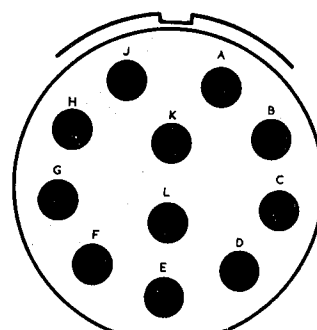
## Size 18



18-28

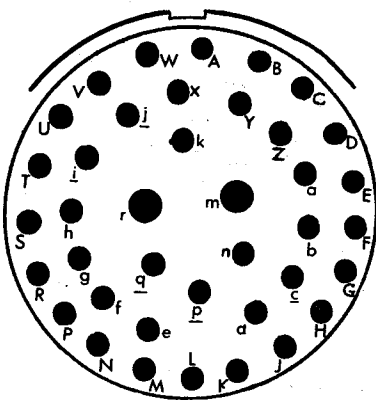


18-32

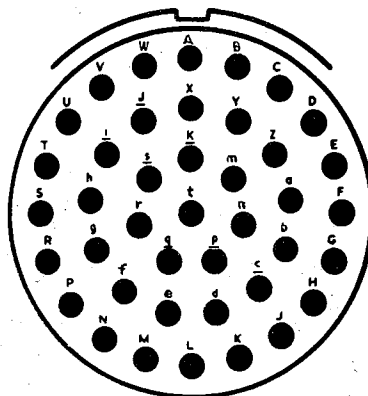


18-11

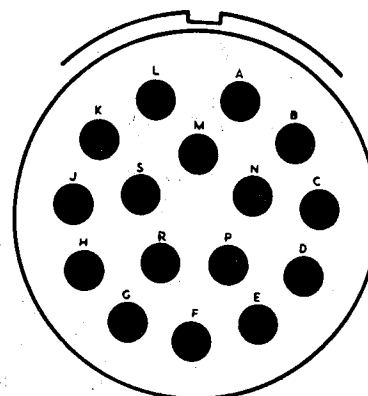
## Size 20



20-39



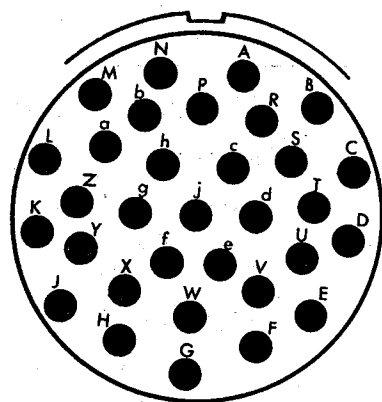
20-41



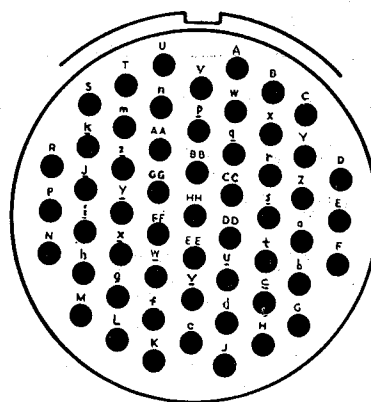
20-16

Fig. 8b. Insert arrangements size 16-20

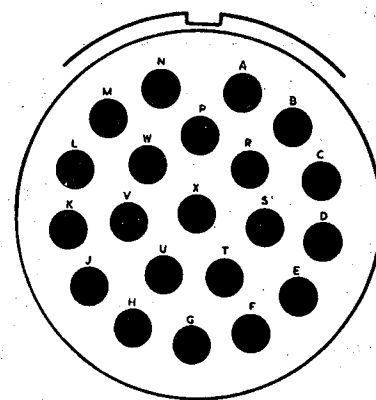
# Size 22



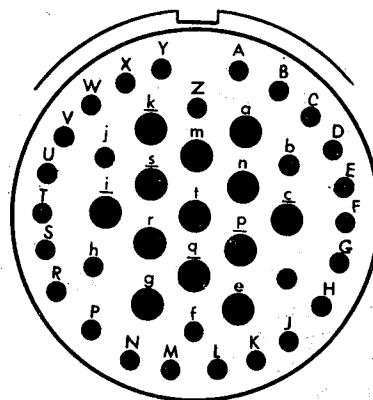
22-32



22-55

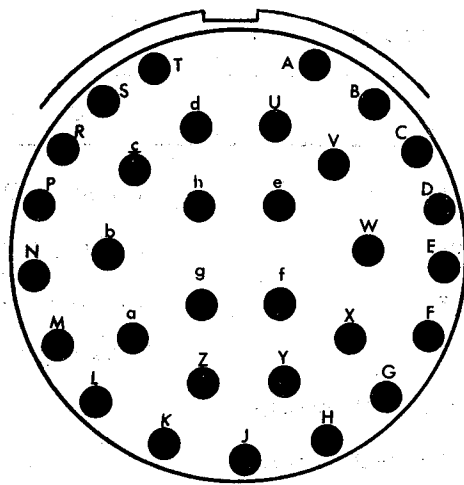


22-21

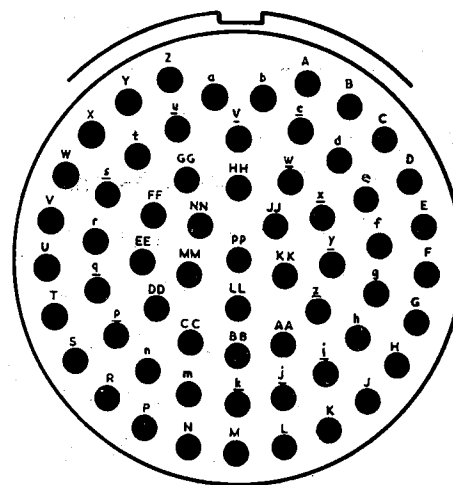


22-41

# Size 24



24-31



24-61

Fig. 8c. Insert arrangements size 22-24

TABLE 10

## Tools

| Ref. No. | Description                    | Pt. No.     |
|----------|--------------------------------|-------------|
| 1H/279   | Buchanan crimping tool         | MS 3191     |
| 1H/414   | Locator size 20 contact        | 611062      |
| 1H/415   | Locator size 16 contact        | 602520      |
| 1H/530   | Insertion tool size 20 contact | M15513-20-5 |
| 1H/424   | Insertion tool size 16 contact | 15513-16    |
| 1H/426   | Removal tool size 20 contact   | M15514-20   |
| 1H/427   | Removal tool size 16 contact   | M15514-16   |

## PRESSURE SEAL

15. The sealing effect of the assembled connector ensures that the maximum leakage rate through the seal at 30 lb/sq.in. differential is 1 c.c./hr.

## FILLER PLUGS

16. It is necessary to assemble all contacts even though they may not be connected to conductors. For the unconnected contacts filler plugs of the appropriate size are pressed into the insulator by hand pressure behind the contact; they can be removed when required using the appropriate ejector tool Table 10. Filler plugs are supplied in two sizes for the size 16 and 20 contacts (Table 11).

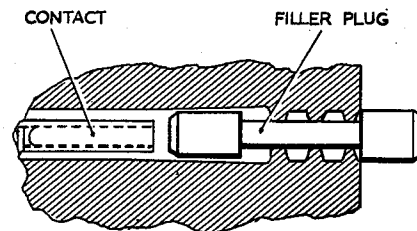


Fig. 9. Filler plug Type 419206 positioned in rear of LPT insert

## ASSEMBLY INSTRUCTIONS

## PREPARATION OF CONDUCTOR

17. Stripping length is to be between  $\frac{3}{16}$  in. and  $\frac{7}{32}$  in.

TABLE 11

## Contacts, filler plugs and retention clips

| Ref. No. | Pt. No.      | Description            | Remarks                |
|----------|--------------|------------------------|------------------------|
| 5X/10848 | 0004-135-000 | Contact                | Pin size 20            |
| 5X/10849 | 0007-044-000 | Contact                | Socket size 20         |
| 5X/11606 | 0004-065-000 | Contact                | Pin size 16            |
| 5X/11605 | 0007-013-000 | Contact                | Socket size 16         |
| 5X/      | 0143-013-000 | Contact retention clip | Contact size 20        |
| 5X/      | 0143-004-000 | Contact retention clip | Contact size 16        |
| 5X/10656 | 419206       | Filler plug            | Socket and pin size 20 |
| 5X/10657 | 4113-3-1601  | Filler plug            | Socket and pin size 16 |



## CONTACT CRIMP (PIN OR SOCKET)

18. (1) Check the correct crimping tool setting for contact, also the correct locator Table 10.
- (2) Drop contact into crimping tool and insert the prepared end of conductor into the back of the contact.
- (3) Depress the crimping tool lever, the crimping tool will not release until crimping cycle has been completed.
- (4) Check the inspection hole at contact end of crimp to ensure that the cable is correctly located. The depression allows check on length of conductor crimped fig. 10.

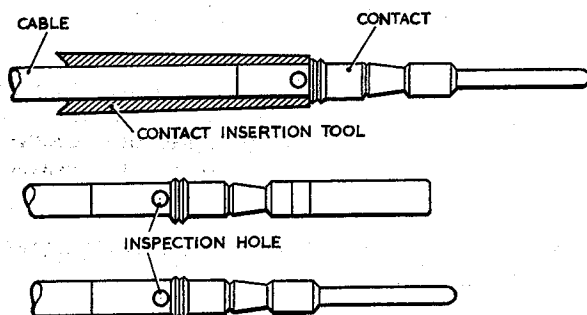


Fig. 10. Insertion detail

## CONTACT INSERTION (PIN OR SOCKET)

19. (1) Check correct insertion tool for size of contact Table 10.
- (2) Apply insertion tool to crimped contact and cable ensuring that the end of the insertion tool is butted against the shoulder of the contact fig. 10.
- (3) Push the insertion tool, contact and cable straight into the rear face of connector insert cavity until the contact snaps into its retained position.

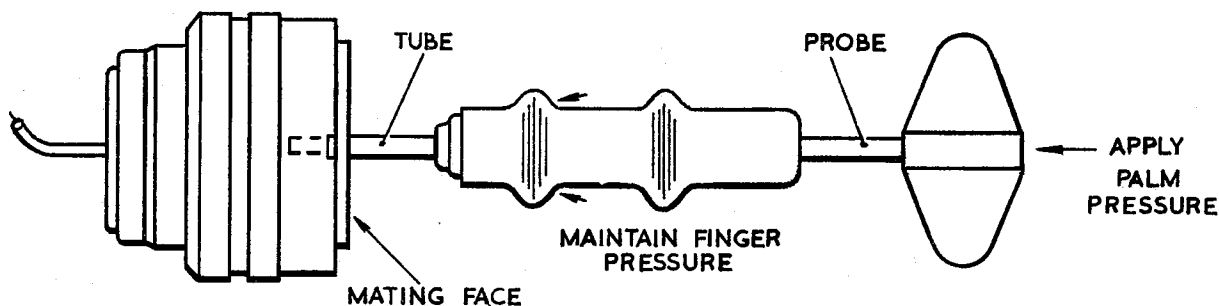


Fig. 11. Removal detail

- (4) Pull insertion tool straight back out of connector insert.

(5) A light pull on the cable will verify that the contact is in its retained position. If the contact is not retained it must be completely removed from the connector insert before reapplication of the insertion tool.

- (6) Slide the follower along cables and into position over rear of insert. Screw up retaining nut. Contacts should be fitted even if left unwired.

## Note...

Under no circumstances must an insertion tool be applied to a partially inserted contact.

## CONTACT REMOVAL (PIN OR SOCKET)

20. (1) Check correct contact removal tool for size of contact Table 10.
- (2) Slide the removal tool tube towards the tool handle.
- (3) Centre the removal tool probe on the selected contact but do not apply pressure on the probe.
- (4) Slide the removal tool tube, by moderate finger pressure into the mating face of connector insert fig. 11.
- (5) Maintain finger pressure on the removal tool tube and steadily apply pressure by palm of hand to the removal tool probe, until contact unseats from the retaining spring clip.
- (6) If the contact fails to release, pull the removal tube free, rotate the tool and repeat the procedure.
- (7) Pull the contact free of rear insert cavity and remove tools from mating face cavity.

## CONTACT RETENTION

21. Each contact must withstand a minimum of 15 lb pull.

Note . . .

All tools must be periodically examined for wear or damage.

## RETAINING CLIP REMOVAL

22. (1) Check correct clip removal tools for size of contact Table 10.

(2) Insert the clip insertion tool into rear face of selected cavity, push the tool with moderate pressure as far as possible.

(3) Place the plunger of clip probe over the pin end of clip insertion tool from the mating face of the connector.

(4) Slide the sleeve of clip probe, with moderate finger pressure over the plunger until the ears of the spring clip are depressed.

(5) Maintain the finger pressure.

(6) Apply pressure by palm of hand to handle of clip removal probe until the clip appears at rear face of connector.

(7) Remove both tools and discard clip.

## RETAINING CLIP INSERTION

23. (1) Check correct clip insertion tools for size of contact Table 10.

(2) Press clip into sleeve until clip ears are compressed fig. 13.

(3) Pass the square end of holder cup through other end of sleeve and over the compressed ears of the retaining clip.

(4) Remove sleeve over tapered end of holder cup.

(5) Apply insertion tool to retaining clip held in holder cup.

(6) Push insertion tool complete with retaining clip and holder cup from rear face of connector straight into selected cavity, until the clip is in retained position.

(7) Remove holder cup from mating face of connector.

(8) Remove insertion tool from rear face of connector.

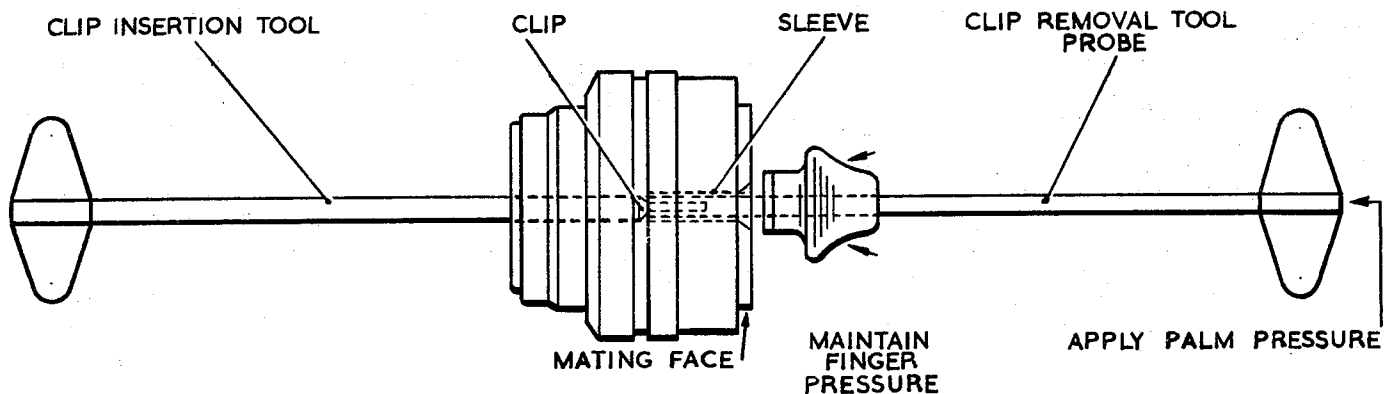


Fig. 12. Retaining clip removal

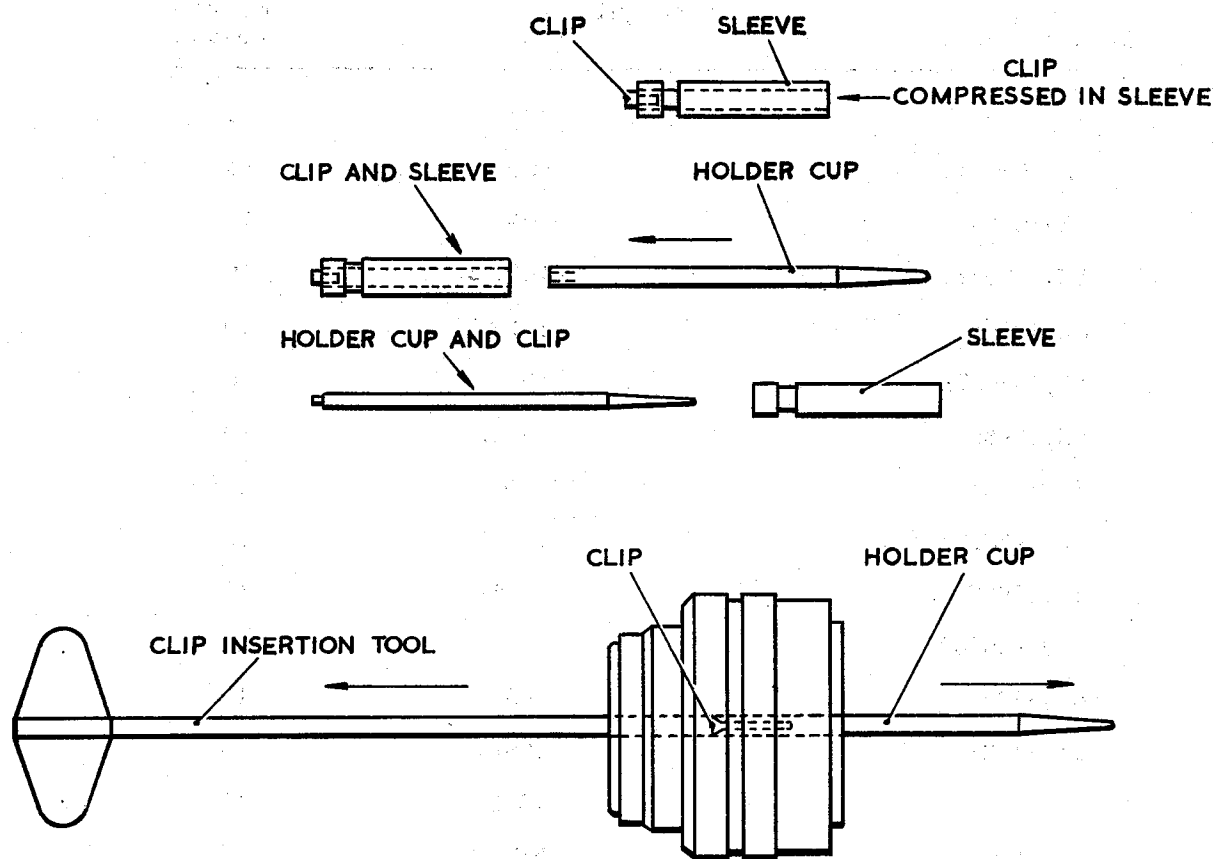


Fig. 13. Retaining clip insertion

TABLE 12

Connector Type and Ref. No.

| Reference Number | Description    | No. of Contacts |
|------------------|----------------|-----------------|
| 5X/10961         | SLPT-00E-8-33P | 3               |
| 5X/1930283       | -33B           | 3               |
| 5X/11017         | -33S           | 3               |
| 5X/1930343       | -33S           | 3               |
| 5X/10962         | 10-6P          | 6               |
| 5X/1930261       | -6P            | 6               |
| 5X/11018         | -6S            | 6               |
| 5X/1930350       | -6S            | 6               |
| 5X/11019         | -6SA           | 6               |

TABLE 12 (Cont'd)

| Reference Number | Description     | No. of Contacts |
|------------------|-----------------|-----------------|
| 5X/1930349       | -6SB            | 6               |
| 5X/1930348       | -6SE            | 6               |
| 5X/10963         | 12-10P          | 10              |
| 5X/1930225       | -10P            | 10              |
| 5X/10964         | -10PA           | 10              |
| 5X/1930371       | 10PB            | 10              |
| 5X/10965         | 10PB            | 10              |
| 5X/10966         | 10PC            | 10              |
| 5X/1930272       | 10PC            | 10              |
| 5X/10967         | 10PD            | 10              |
| 5X/1930262       | 10PE            | 10              |
| 5X/11020         | 10S             | 10              |
| 5X/11021         | 10SA            | 10              |
|                  | 10SE            | 10              |
| 5X/10968         | 14-5P           | 5               |
| 5X/1930273       | -5P             | 5               |
| 5X/11022         | -5S             | 5               |
| 5X/1930346       | -5S             | 5               |
| 5X/10969         | -12P            | 12              |
| 5X/1930274       | -12P            | 12              |
| 5X/11023         | SLPT-00E-14-12S | 12              |
| 5X/11024         | 12SA            | 12              |
| 5X/1930345       | 12SE            | 12              |
|                  | 12SF            | 12              |
|                  | 18S             | 18              |
| 5X/10970         | 19P             | 19              |
| 5X/1930275       | 19P             | 19              |
| 5X/11026         | 19S             | 19              |
| 5X/11027         | 19SE            | 19              |
| 5X/11028         | 19SB            | 19              |
| 5X/1930355       | 19SB            | 19              |

TABLE 12 (Cont'd)

| Reference Number | Description      | No. of Contacts |
|------------------|------------------|-----------------|
| 5X/11029         | 19SC             | 19              |
| 5X/1930354       | 19SC             | 19              |
| 5X/11030         | 16-8S            | 8               |
| 5X/10971         | 26P              | 26              |
| 5X/1930276       | 26P              | 26              |
| 5X/10972         | 26PA             | 26              |
| 5X/11031         | 26S              | 26              |
| 5X/1930353       | 26S              | 26              |
| 5X/11032         | 26SA             | 26              |
| 5X/11033         | 26SB             | 26              |
| 5X/1930351       | 26SB             | 26              |
| 5X/1930352       | 26SE             | 26              |
| 5X/1930369       | 18-11S           | 11              |
| 5X/10973         | 32P              | 32              |
| 5X/1930277       | 32P              | 32              |
| 5X/11034         | 32S              | 32              |
| 5X/1930368       | 32S              | 32              |
| 5X/1930367       | 32SA             | 32              |
| 5X/11589         | 32SE             | 32              |
| 5X/1930366       | 20-16S           | 16              |
| 5X/11036         | 16SA             | 16              |
| 5X/1930364       | SLPT-00E-20-16SB | 16              |
| 5X/11037         | 16SB             | 16              |
| 5X/1930365       | 16SE             | 16              |
| 5X/1930278       | 39P              | 39              |
| 5X/11038         | 39S              | 39              |
| 5X/1930363       | 39S              | 39              |
| 5X/10974         | 41P              | 41              |
| 5X/1930269       | 41P              | 41              |
| 5X/10975         | 41PA             | 41              |

TABLE 12 (Cont'd)

| Reference Number | Description    | No. of Contacts |
|------------------|----------------|-----------------|
| 5X/1930279       | 41PE           | 41              |
| 5X/11039         | 41S            | 41              |
| 5X/1930362       | 41S            | 41              |
| 5X/11040         | 41SA           | 41              |
| 5X/1930404       | 41SE           | 41              |
| 5X/10976         | 22-21P         | 21              |
| 5X/1930280       | 21P            | 21              |
| 5X/10977         | 55P            | 55              |
| 5X/1930270       | 55P            | 55              |
| 5X/10978         | 55PA           | 55              |
| 5X/1930282       | 55PE           | 55              |
| 5X/11042         | 55SA           | 55              |
| 5X/11043         | 55SB           | 55              |
| 5X/11044         | 55SC           | 55              |
| 5X/1930403       | 55SC           | 55              |
| 5X/11045         | 55SD           | 55              |
| 5X/1930409       | 55SE           | 55              |
| 5X/1930407       | 55SF           | 55              |
| 5X/11046         | 24-61S         | 61              |
| 5X/1930408       | 61S            | 61              |
| 5X/11047         | 61SB           | 61              |
| 5X/11048         | 61SC           | 61              |
| 5X/10979         | SLPT-06E-8-33P | 3               |
| 5X/1930451       | 33P            | 3               |
| 5X/1930648       | 33PE           | 3               |
| 5X/10980         | 33PA           | 3               |
| 5X/11050         | 33S            | 3               |
| 5X/1930445       | 33S            | 3               |
| 5X/11051         | 33SA           | 3               |
| 5X/1930444       | 33SE           | 3               |
| 5X/10634         | 98S            | 3               |

TABLE 12 (Cont'd)

| Reference Number | Description      | No. of Contacts |
|------------------|------------------|-----------------|
| 5X/10981         | 10-6P            | 6               |
| 5X/1930649       | 10-6P            | 6               |
| 5X/10982         | 6PA              | 6               |
| 5X/10983         | 6PB              | 6               |
| 5X/11052         | 6S               | 6               |
| 5X/1930446       | 6S               | 6               |
| 5X/11053         | 6SA              | 6               |
| 5X/1930443       | 6SE              | 6               |
| 5X/1930442       | 12-3S            | 3               |
| 5X/11054         | 8S               | 8               |
| 5X/1930441       | 8S               | 8               |
| 5X/10984         | 10P              | 10              |
| 5X/1930452       | 10P              | 10              |
| 5X/10985         | 10PA             | 10              |
| 5X/1930647       | 10PE             | 10              |
| 5X/10637         | LPT-06E-12-10S   | 10              |
| 5X/11056         | SLPT-06E-12-10S  | 10              |
| 5X/1930440       | 10S              | 10              |
| 5X/11057         | 10SA             | 10              |
| 5X/11058         | 10SB             | 10              |
| 5X/1930438       | 10SB             | 10              |
| 5X/11059         | 10SC             | 10              |
| 5X/1930437       | 10SC             | 10              |
| 5X/11109         | SLPT-06E-12-10SD | 10              |
| 5X/1930439       | 10SE             | 10              |
| 5X/1930436       | 10SF             | 10              |
| 5X/10986         | 14-5P            | 5               |
| 5X/1930453       | 5P               | 5               |
| 5X/11060         | 5S               | 5               |
| 5X/1930415       | 5S               | 5               |

TABLE 12 (Cont'd)

| Reference Number | Description      | No. of Contacts |
|------------------|------------------|-----------------|
| 5X/10987         | 12P              | 12              |
| 5X/1930456       | 12P              | 12              |
| 5X/10988         | 12PA             | 12              |
| 5X/10989         | 12PD             | 12              |
| 5X/1930457       | 12PD             | 12              |
| 5X/10654         | LPT-06E-14-12S   | 12              |
| 5X/11061         | SLPT-06E-14-12S  | 12              |
| 5X/1930448       | 12S              | 12              |
| 5X/10644         | 12SA             | 12              |
| 5X/1930548       | 15P              | 15              |
| 5X/10655         | 15S              | 15              |
| 5X/10653         | 15SA             | 15              |
| 5X/10639         | 15SB             | 15              |
| 5X/10990         | 19P              | 19              |
| 5X/1930545       | 19P              | 19              |
| 5X/1930549       | 19PA             | 19              |
| 5X/10992         | 19PB             | 19              |
| 5X/10993         | 19PC             | 19              |
| 5X/1930543       | 19PC             | 19              |
| 5X/10991         | 19PE             | 19              |
| 5X/10651         | LPT-06E-14-19S   | 19              |
| 5X/1930449       | SLPT-06E-14-19S  | 19              |
| 5X/1930636       | 19S              | 19              |
| 5X/11062         | 19S              | 19              |
| 5X/10640         | LPT-06E-14-19SA  | 19              |
| 5X/11063         | SLPT-06E-14-19SA | 19              |
| 5X/11314         | LPT-06E-14-19SE  | 19              |
| 5X/1930450       | SLPT-06E-14-19SE | 19              |
| 5X/10994         | 16-8P            | 8               |
| 5X/10995         | 26P              | 26              |



TABLE 12 (Cont'd)

| Reference Number   | Description      | No. of Contacts |
|--------------------|------------------|-----------------|
| 5X/1930454         | 26P              | 26              |
| 5X/10996           | 26PA             | 26              |
| 5X/19997           | 26PB             | 26              |
| 5X/1930646         | 26PE             | 26              |
| 5X/10650           | LPT-06E-16-26S   | 26              |
| 5X/1930414         | SLPT-06E-16-26S  | 26              |
| 5X/10641           | LPT-06E-16-26SA  | 26              |
| 5X/11065           | SLPT-06E-16-26SA | 26              |
| 5X/1930447         | 26SE             | 26              |
| 5X/10642           | 99S              | 23              |
| 5X/10652           | 99SA             | 23              |
| 5X/10998           | 18-11P           | 11              |
| 5X/1930455         | 11P              | 11              |
| 5X/11066           | 11S              | 11              |
| 5X/1930432         | 11S              | 11              |
| 5X/10636           | 28S              | 28              |
| 5X/10999           | 32P              | 32              |
| 5X/1930645         | 32P              | 32              |
| 5X/11000           | 32PA             | 32              |
| 5X/1930644         | 32PE             | 32              |
| 5X/1930453 1951777 | LPT-06E-18-32S   | 32              |
| 5X/11067           | SLPT-06E-18-32S  | 32              |
| 5X/1930542         | 32S              | 32              |
| 5X/11001           | 20-16P           | 16              |
| 5X/1930456         | 16P              | 16              |
| 5X/11002           | SLPT-06E-20-16PA | 16              |
| 5X/11003           | 16PB             | 16              |
| 5X/1930551         | 16PB             | 16              |
| 5X/1930552         | 16PE             | 16              |
| 5X/11068           | 16S              | 16              |

TABLE 12 (Cont'd)

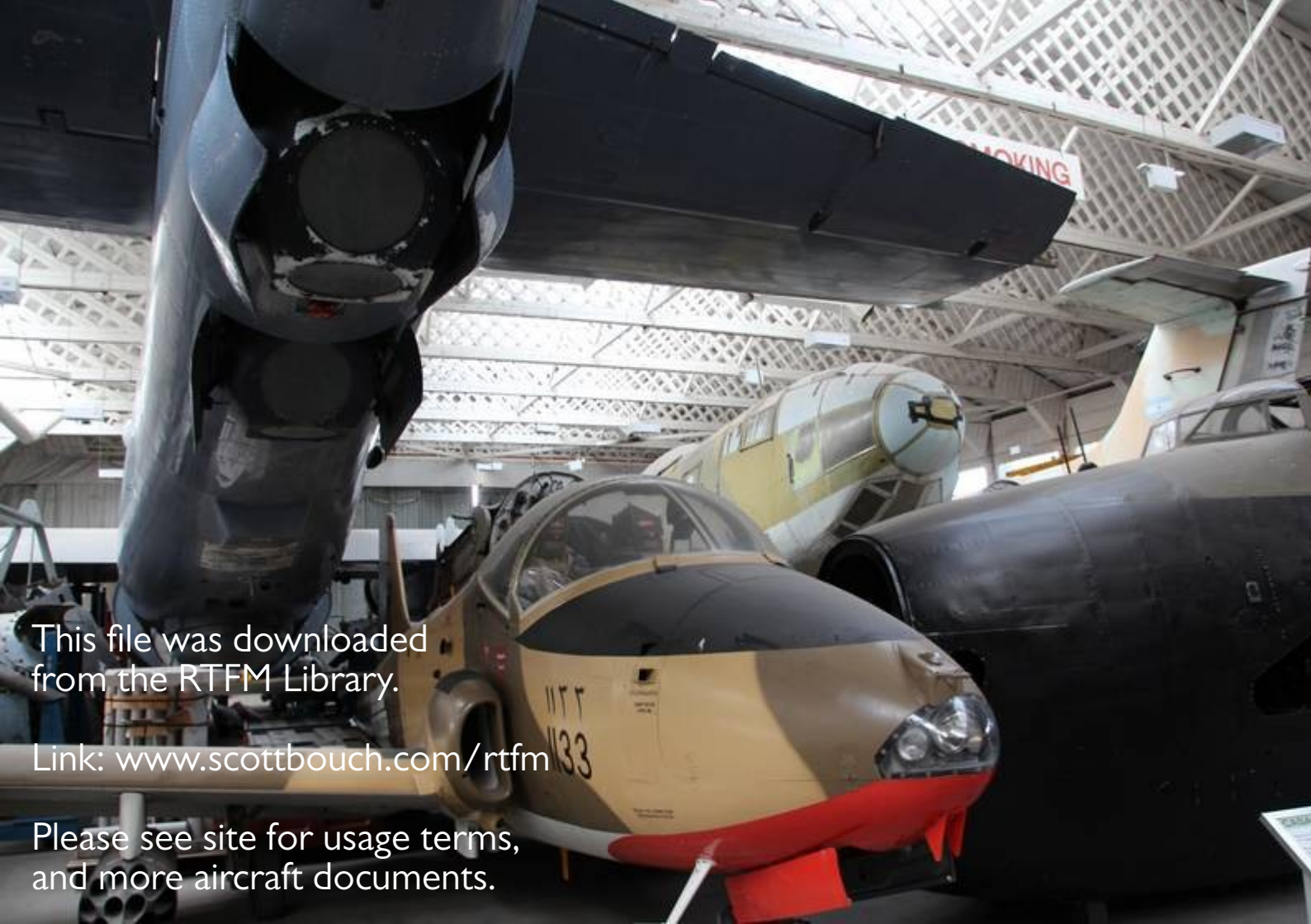
| Reference Number | Description     | No. of Contacts |
|------------------|-----------------|-----------------|
| 5X/1930433       | 16S             | 16              |
| 5X/11069         | 16SA            | 16              |
| 5X/1930538       | 16SE            | 16              |
| 5X/11004         | 39P             | 39              |
| 5X/1930550       | 39P             | 39              |
| 5X/10635         | LPT-06E-20-39S  | 39              |
| 5X/1930539       | SLPT-06E-20-39S | 39              |
| 5X/10638         | 39SA            | 39              |
| 5X/11005         | 41P             | 41              |
| 5X/1930554       | 41P             | 41              |
| 5X/11006         | 41PA            | 41              |
| 5X/1930553       | 41PE            | 41              |
| 5X/11070         | 41S             | 41              |
| 5X/11071         | 41SA            | 41              |
| 5X/1930541       | 41SE            | 41              |
| Applied for      | 22-21P          | 21              |
| 5X/1930434       | 21S             | 21              |
| 5X/11007         | SLPT-06E-22-55P | 55              |
| 5X/1930637       | 55P             | 55              |
| 5X/11008         | 55PA            | 55              |
| 5X/11009         | 55PB            | 55              |
| 5X/1930638       | 55PB            | 55              |
| 5X/11010         | 55PC            | 55              |
| 5X/1930639       | 55PC            | 55              |
| 5X/11011         | 55PD            | 55              |
| 5X/1930457       | 55PE            | 55              |
| 5X/1930640       | 55PF            | 55              |
| 5X/11072         | 55S             | 55              |
| 5X/1930536       | SLPT-06E-22-55S | 55              |
| 5X/11590         | 55SA            | 55              |
|                  | 55SE            | 55              |

TABLE 12 (Cont'd)

| Reference Number | Description     | No. of Contacts |
|------------------|-----------------|-----------------|
| 5X/11012         | 24-61P          | 61              |
| 5X/1930458       | 61P             | 61              |
| 5X/11013         | 61PA            | 61              |
| 5X/11014         | 61PB            | 61              |
| 5X/1930643       | 61PB            | 61              |
| 5X/11015         | 61PC            | 61              |
| 5X/1930641       | 61PC            | 61              |
| 5X/11016         | 61PD            | 61              |
| 5X/1930642       | 61PE            | 61              |
| 5X/11073         | 61S             | 61              |
| 5X/1930435       | 61S             | 61              |
| 5X/11074         | 61SA            | 61              |
| 5X/11075         | 61SB            | 61              |
| 5X/1930535       | 61SB            | 61              |
| 5X/1930534       | 61SE            | 61              |
| 5X/10630         | SLPT-07E-18-28P | 28              |
| 5X/1063          | 32P             | 32              |
| 5X/11093         | 32S             | 32              |
| 5X/1930656       | 32S             | 32              |
| 5X/11094         | 20-6S           | *               |
| 5X/1930570       | 6S              | *               |
| 5X/10632         | LPT-07E-20-39P  | 39              |
| 5X/11081         | SLPT-07E-20-39P | 39              |
| 5X/1930903       | 39P             | 39              |
| 5X/1067260       | 39PA            | 39              |
| 5X/11095         | 39S             | 39              |
| 5X/1930654       | 39S             | 39              |
| 5X/11096         | 41S             | 41              |
| 5X/1930653       | 41S             | 41              |

TABLE 12 (Cont'd)

| Reference Number | Description      | No. of Contacts |
|------------------|------------------|-----------------|
| 5X/11097         | SLPT-07E-22-21S  | 21              |
| 5X/11082         | 55P              | 55              |
| 5X/1930709       | 55P              | 55              |
| 5X/11083         | 55PA             | 55              |
| 5X/1930909       | 55PA             | 55              |
| 5X/11584         | 55PE             | 55              |
| 5X/11098         | 55S              | 55              |
| 5X/1930624       | 55S              | 55              |
| 5X/11099         | 55SA             | 55              |
| 5X/11100         | 55SB             | 55              |
| 5X/1930907       | 55SB             | 55              |
| 5X/11101         | 55SC             | 55              |
| 5X/1930961       | 55SC             | 55              |
| 5X/11102         | 55SD             | 55              |
| 5X/1930906       | 55SE             | 55              |
| 5X/11084         | SLPT-07E-24-61PB | 61              |
| 5X/1930901       | 61PB             | 61              |
| 5X/11103         | 61S              | 61              |
| 5X/1930678       | 61S              | 61              |
| 5X/11104         | 61SA             | 61              |
| 5X/1930905       | 61SB             | 61              |
| 5X/11105         | 61SC             | 61              |
| 5X/1930904       | 61SE             | 61              |
| 5X/10428         | SLPT-00F-10-6S   | 6               |
| 5X/10426         | SLPT-06F-8-3S    |                 |
| 5X/10425         | 10-6P            | 6               |
| 5X/10427         | 18-32S           | 32              |



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