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(54) **RF connector with reduced plated area**

(57) This invention relates to an RF connector interface.

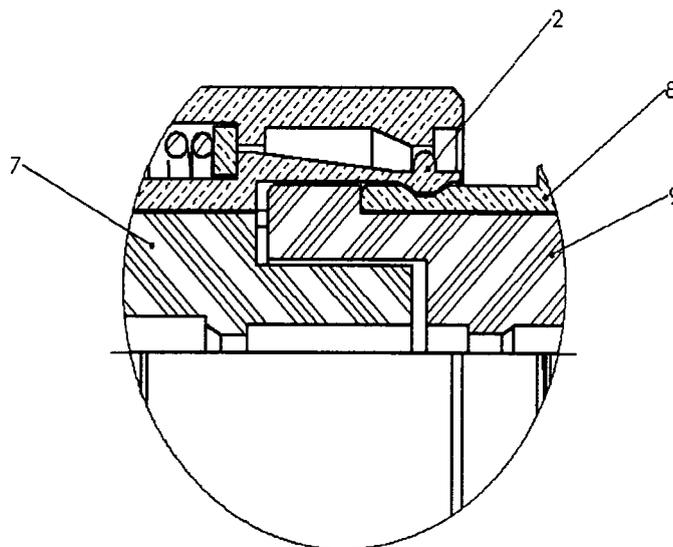
RF connector interfaces for male and female connectors typically contain outer bodies that latch together creating electrical continuity. In addition they contain centre contacts that engage creating electrical continuity. An insulator is typically positioned between the outer bodies and the centre contacts to provide insulation, support and in the case of RF connectors the insulator has a predetermined dielectric constant.

To maintain reliable electrical continuity between the outer bodies the component mating faces are gold plated. The area of gold plating is kept to a minimum to reduce cost but is mostly determined by the shape of the component and the plating process adopted. The typical gold

plating area of a male body is shown in Fig 1A.

The present invention is to reduce the amount of gold plating required on a male connector outer body while maintaining electrical performance and mechanical integrity while mated or unmated.

The current process for plating the outer body is by selective immersion in a gold solution while shielding the inside so as to only plate the outer surface. The gold is only required on the mating faces of the connector for reliable electrical continuity and to act as a lubricant during mating durability trials and in some cases reliable continuity after 250 mating cycles. Selectively plating just the contact area is not an option as wear will occur on the mating area of the female contact while mating with an unplated area of the male as shown in Fig 2.



**Fig 3**

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## Description

### [0001]

Fig 1 illustrates a male and female connector interface 5

Fig 1A shows an isometric view of a male connector with the typical gold plating area.

Fig 2 illustrates a proposed male and female connector interface with a reduced gold plating area. 10

Fig3 shows a sectional view of the proposed male connector mated with the female connector.

**[0002]** Hereinafter we explain about the modified interface of the male connector to reduce the gold plating area. 15

**[0003]** The male connector contains an outer body(8) with an area undercut to retain a sprung loaded mating half female connector. This area requires a gold plated finish to maintain reliable electrical continuity and therefore should be kept to a minimum to reduce cost. The invention shows this area reduced and replaced with an extension to the existing insulator(9) to provide mechanical stability of the mating connectors. The insulator extension is undercut to provide stability while the connectors are mated yet eliminating unnecessary wear from or to the mating female connector during extensive mating cycles. 20  
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### Claims

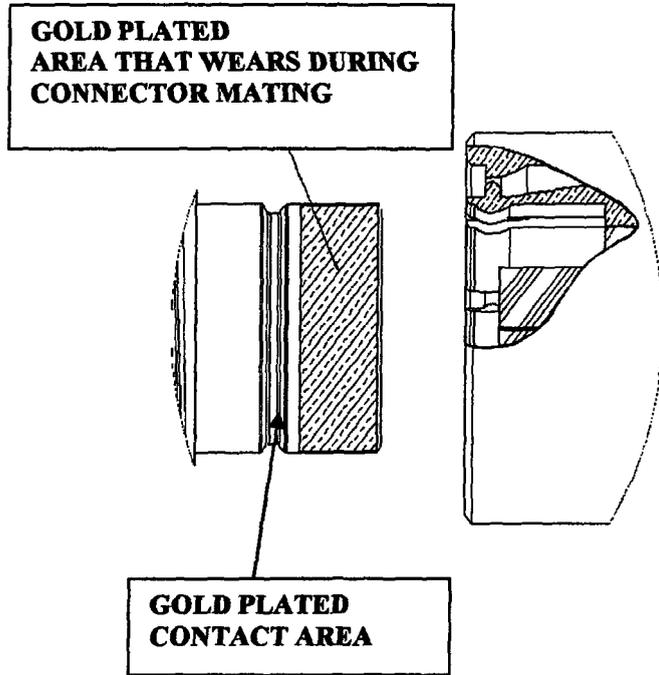
1. 0 An RF connector comprising an outer plated body; a central conductor existing in the inner part of said body; an insulator between said body and said central conductor whereby the outer body is reduced in length and replaced with an extension to the insulator. 35

2. 0 A connector as set forth in claim 1.0 utilising a machined insulator. 40

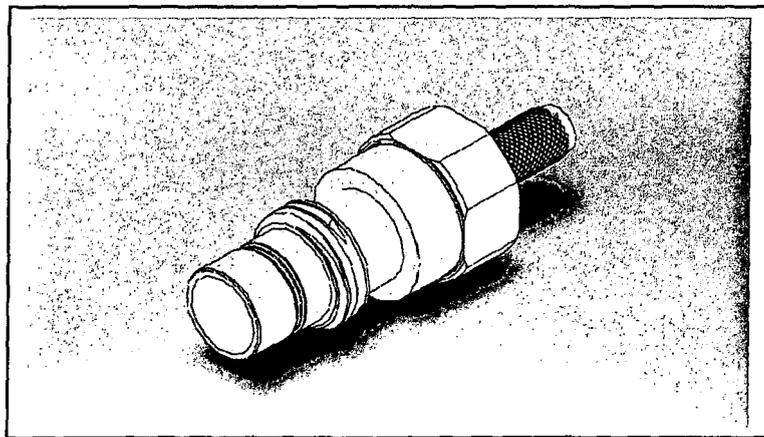
3. 0 A connector as set forth in claim 1.0 utilising an injection moulded thermoplastic insulator. 45

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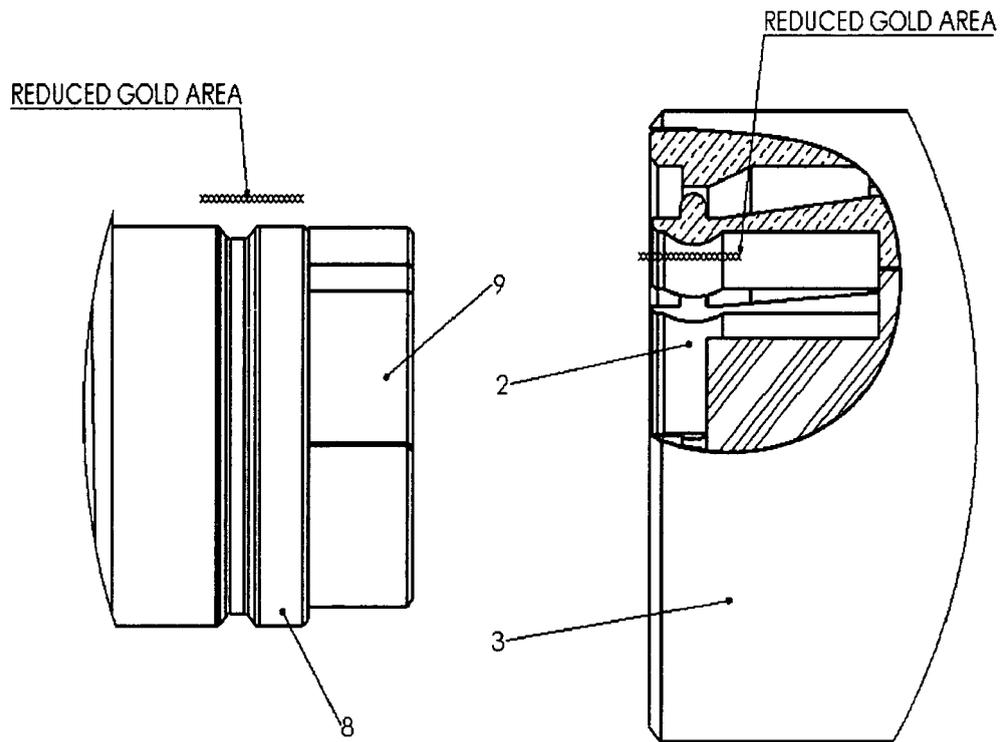
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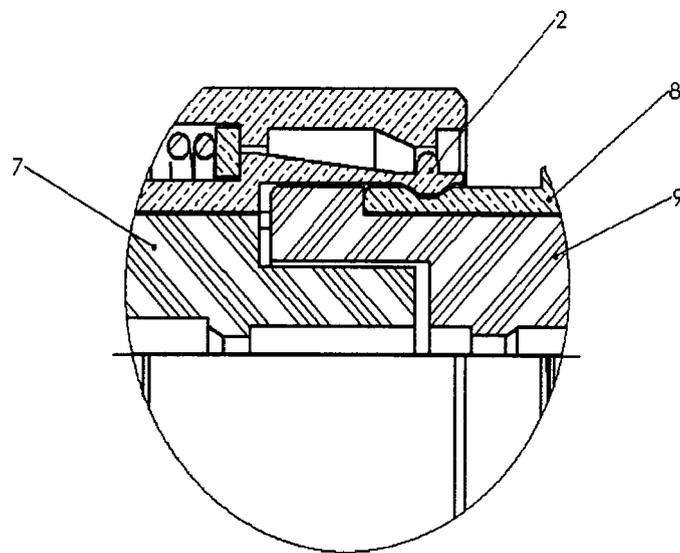
**Fig 1**



**Fig 1A**



**Fig 2**



**Fig 3**



| DOCUMENTS CONSIDERED TO BE RELEVANT   |   |                                  |   |
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| The present search report has been drawn up for all claims  |   |                                  | TECHNICAL FIELDS SEARCHED (IPC)         |
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| Place of search   |   | Date of completion of the search | Examiner                                |
| Munich  |   | 14 January 2008                  | Tappeiner, Roland                       |
| <p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone<br/>                     Y : particularly relevant if combined with another document of the same category<br/>                     A : technological background<br/>                     O : non-written disclosure<br/>                     P : intermediate document</p> <p>T : theory or principle underlying the invention<br/>                     E : earlier patent document, but published on, or after the filing date<br/>                     D : document cited in the application<br/>                     L : document cited for other reasons<br/>                     &amp; : member of the same patent family, corresponding document</p> |   |                                  |   |

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**ANNEX TO THE EUROPEAN SEARCH REPORT  
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EP 07 11 4746

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on  
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