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Description

The present invention relates to an electrical connector and aims to provide a connector having a relatively simple vibration proof connection which is particularly suited for use on military vehicles, such as tanks.

According to the present invention there is provided an electrical connector comprising two housing portions, the housing portions carrying respective mutually engageable terminals which are connected to respective electrical leads, the housing portions being brought together to make an electrical connection between the respective leads, a threaded collar being rotatably mounted on one of the housing portions and arranged to engage with a thread on the other housing portion to hold the housing portions together, characterised in that an insert of relatively soft, resilient material is provided on one of the housing portions for gripping the thread on the other housing portion.

The relatively soft, resilient material insert has been found to deform and engage the cooperating thread sufficiently to prevent unscrewing of the threaded parts when subjected to a range of vibration, particularly that found on military tanks.

Other preferred features and advantages of the invention will be apparent from the following description and the accompanying claims.

The invention will be further described by way of example with reference to the accompanying single figure of drawings, which shows an axial cross-section through a connector in accordance with the invention.

In the drawing there is shown an electrical connector 2 embodying the invention. The connector 2 comprises two housing portions 4, 6. Housing portion 4 carries a plurality of male terminals 8 which are in use to be connected to respective wire leads (not shown). The outer end 10 of housing portion 4 is threaded for engagement of a ferrule or the like to grip a jacket or sleeve for the wire leads. Housing portion 6 carries a plurality of female terminals 12 which are arranged to receive and so electrically connect with the male terminals 8 when the housing portions 4, 6 are connected together. Terminals 12 are in use to be connected to respective wire leads (not shown) and the outer end 14 of the housing portion 6 is threaded, as for housing portion 4.

The two housing portions 4, 6 are of aluminium and a keyway (not shown) is provided to align the portions and prevent relative rotation as the housing portions are brought together. A non-conducting polymer material 16 may fill the connector to insulate and stabilise the terminals.

Housing portion 4 has a sleeve 18 which slides inside a sleeve 20 on housing portion 6.

The outside of the sleeve 20 has a male thread 22. A collar 24 is rotatably mounted on a flange 26 on the housing portion 4 by means of a circlip 28 and has a female thread 30 which engages the thread 22.

To assemble the connector, the housing portions 4, 6 are brought together, sleeve 18 sliding inside sleeve 20, and the collar 24 is screwed on to the thread 22, the thread providing a mechanical advantage to assist coupling of the connector portions.

An annular insert 32 of polytetrafluoroethylene is provided on the inside of the collar 24, in an annular recess 34 at the inner end of the thread 30. As the collar 24 is screwed home on the thread 22, the thread 22 bites into the PTFE ring 32, deforming the ring which thus grips the thread 22. The ring 32 is dimensioned so that the thread 22 penetrates or deforms the ring to about 20 per cent of its radial thickness. A particular advantage of the PTFE material is that a thread is formed in the material when first coupling the housing portion 4, 6 and on continued uncoupling and coupling it has been found that the originally formed thread pattern is used repeatedly, thus minimising damage to the PTFE insert, which remains sufficiently resilient to grip the thread 22.

To insert the ring 32 into the recess 34, the ring can be split and coiled slightly as it is slid in to the collar 24.

Claims

1. An electrical connector comprising two housing portions, the housing portions carrying respective mutually engageable terminals which are connected to respective electrical leads, the housing portions being brought together to make an electrical connection between the respective leads, a threaded collar being rotatably mounted on one of the housing portions and arranged to engage with a thread on the other housing portion to hold the housing portions together, characterised in that an insert (32) of relatively soft, resilient material is provided on one of the housing portions (4) for gripping the thread (22) on the other housing portion (6).

2. A connector as claimed in claim 1, characterised in that the relatively soft, resilient material is polytetrafluoroethylene.

3. A connector as claimed in claim 1 or 2, characterised in that the insert is annular.

4. A connector as claimed in claim 1, 2 or 3, characterised in that the insert is positioned to engage the thread (22) on the other housing portion (6) after the threads (30, 22) on the housing portions (4, 6) are engaged.

5. A connector as claimed in claim 1, 2, 3 or 4, characterised in that the insert engages a male thread portion (22).

6. A connector as claimed in any one of claims 1 to 5, characterised in that the insert is carried by a collar (24).

7. A connector as claimed in claim 6, characterised in that the collar carries a female thread (22).

Patentansprüche

1. Elektrischer Steckverbinder, der zwei Gehäuseabschnitte aufweist, wobei die Gehäuseabschnitte entsprechende Klemmen, die ineinander eingreifen können, tragen, welche mit den entsprechenden elektrischen Anschlußdrähten verbunden sind, wobei die Gehäuseabschnitte zusammengebracht werden, um eine elektrische Verbindung zwischen den entsprechenden Anschlußdrähten herzustellen, wobei an einem der Gehäuseabschnitte eine mit einem Gewinde versehene Manschette drehbar befestigt und so angeordnet ist, daß sie in ein Gewinde auf dem anderen Gehäuseabschnitt eingreifen kann, um die Gehäuseabschnitte zusammenzuhalten, dadurch gekennzeichnet, daß an einem der Gehäuseabschnitte (4) eine Einlage (32) aus einem verhältnismäßig weichen, elastischen Material bereitgestellt wird, um das Gewinde (22) auf dem anderen Gehäuseabschnitt (6) festzuklemmen.

2. Steckverbinder nach Anspruch 1, dadurch gekennzeichnet, daß das relativ weiche, elastische Material Polytetrafluorethylen ist.

3. Steckverbinder nach Anspruch 1 oder 2, dadurch gekennzeichnet, daß die Einlage ringförmig ist.

4. Steckverbinder nach Anspruch 1, 2 oder 3, dadurch gekennzeichnet, daß die Einlage so angeordnet ist, daß sie in das Gewinde (22) auf dem anderen Gehäuseabschnitt (6) eingreift, nachdem der Eingriff der Gewinde (30, 22) auf den Gehäuseabschnitten (4, 6) erfolgt ist.

5. Steckverbinder nach Anspruch 1, 2, 3 oder 4, dadurch gekennzeichnet, daß die Einlage in einen Außengewindeabschnitt (22) eingreift.

6. Steckverbinder nach einem der Ansprüche 1 bis 5, dadurch gekennzeichnet, daß die Einlage von einer Manschette (24) getragen wird.

7. Steckverbinder nach Anspruch 6, dadurch gekennzeichnet, daß die Manschette ein Innengewinde (22) trägt.

Revendications

1. Un connecteur électrique comprenant deux parties de boîtier, les parties de boîtier supportant des bornes respectives à engagement mutuel, connectées à des conducteurs électriques respectifs, les parties de boîtier étant assemblées pour établir une connexion électrique entre les conducteurs respectifs, un manchon fileté étant monté par rotation sur l'une des parties de boîtier et agencé de sorte à s'engager dans un filet sur l'autre partie du boîtier, pour maintenir l'assemblage des parties de boîtier, caractérisé en ce qu'un insert (32) composé d'un matériau relativement doux et résilient, est agencé sur l'une des parties du boîtier (4) pour fixer le filet (22) sur l'autre partie du boîtier (6).

2. Un connecteur selon la revendication 1, caractérisé en ce que le matériau relativement doux et résilient est du polytétrafluoréthylène.

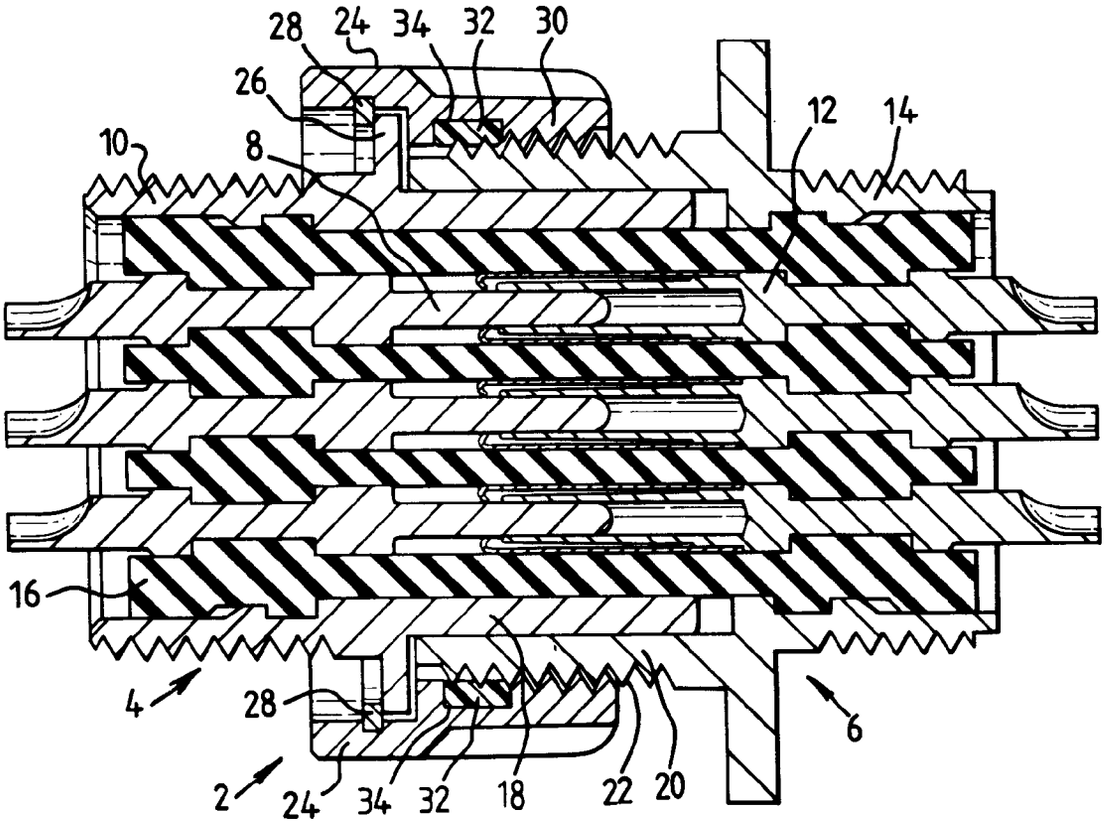
3. Un connecteur selon les revendications 1 ou 2, caractérisé en ce que l'insert est annulaire.

4. Un connecteur selon les revendications 1, 2 ou 3, caractérisé en ce que l'insert est positionné de sorte à s'engager dans le filet (22) sur l'autre partie du boîtier (6), après l'engagement des filets (30, 22) sur les parties du boîtier (4, 6).

5. Un connecteur selon les revendications 1, 2, 3 ou 4, caractérisé en ce que l'insert s'engage dans une partie à filet extérieur (22).

6. Un connecteur selon l'une quelconque des revendications 1 à 5, caractérisé en ce que l'insert est supporté par un manchon (24).

7. Un connecteur selon la revendication 6, caractérisé en ce que le manchon supporte un filet intérieur (22).


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