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MALE TERMINAL SEAT

FIELD OF THE INVENTION

5 The present invention relates to a male terminal seat,
and more particularly to a male terminal seat capable
of rectifying bias soldering pins of male terminals
inserted into the male terminal seat to ensure an
accurate alignment of the soldering pins with soldering
10 points on a circuit board to which the male terminal
seat is mounted.

BACKGROUND OF THE INVENTION

15 It is a trend for various kinds of electronic products
to have reduced dimensions and increased functions at
the same time. Therefore, there must be more connecting
terminals to exist in a quite limited space. The
surface mounting technique (SMT) is one of many ways
20 to allow a high density of terminals in a limited space.
And, a successful SMT necessitates highly precise
arrangements of terminals corresponding to soldering
points on a circuit board.

It is known a connecting terminal usually includes a male terminal and a female terminal. The female terminal is generally mounted on a removable part, such as, for example, a memory card. On the other hand, the male terminal is generally mounted on a fixed part, such as, for example, a terminal seat or a male seat for the memory card.

Figs. 1 and 2 are top plan view and side view, respectively, of a general male terminal 1. As shown, the male terminal 1 includes from a front end to a rear end a connecting pin 11 forward projected for connecting to a female terminal, an insertion section 12 for inserted into a male terminal seat, and a soldering pin 13 for soldering to a circuit board. The soldering pin must be bent in a predetermined manner to enable soldering of the male terminal to the circuit board through the SMT.

A male seat for memory card will now be exemplified to describe the structure of a conventional male terminal seat. Please refer to Figs. 3 and 4 that are top plan and sectioned side views, respectively, of a conventional male terminal seat 2. As shown, the male

terminal seat 2 mainly includes a seat portion 21 having a plurality of axially extended insertion slots 22 provided across the seat portion 21 for a plurality of male terminals 1 to insert thereinto. In some types of male terminal seats, such as the male seat for a memory card, there are two rows of staggered upper and lower insertion slots to increase the number of the male terminals 1 that may be provided on the male terminal seat 2.

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Fig. 5 is a sectioned side view showing the male terminal seat 2 with the male terminals 1 inserted in the insertion slots 22 thereof. As shown, the male terminals 1 are fixedly located in the male terminal seat 2 by inserting the insertion section 12 into the insertion slots 22. At this point, the connecting pins 11 of the male terminals 1 forward project to engage with female terminals (not shown), and the soldering pins 13 rearward project to be soldered to soldering points on a circuit board 3.

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Generally, the male terminals 1 tend to have laterally or vertically biased soldering pins 13 due to external forces improperly applied thereto when the male

terminals 1 are further processed or inserted into the male terminal seat 2.

When the male terminals 1 are inserted into the
5 above-described male terminal seat 2, only the
insertion sections 12 of the male terminals 1 are located
in the insertion slots 22 on the male terminal seat
2. The soldering pins 13 of the male terminals 1 are
suspended in the air without being supported. And, any
10 bias or deflected condition of the soldering pins 13
is not rectified. As a result, the soldering pins 13
could hardly be precisely aligned with soldering points
on the circuit board 3, leading to incomplete soldering
or short circuit and high rate of defective products
15 to increase the manufacturing costs.

SUMMARY OF THE INVENTION

It is therefore a primary object of the present invention
20 to provide an improved male terminal seat to eliminate
the drawbacks existing in the conventional ones.

To achieve the above and other objects, the male terminal
seat of the present invention mainly includes a seat

body, which is provided at a rear end with a plurality of guide channels corresponding to insertion slots provided in the seat body for each receiving a male terminal therein, so that soldering pins at rear ends
5 of the male terminals are separately orderly located in the guide channels, ensuring that an error between the soldering pins and soldering points on a circuit board is always within an acceptable linear tolerance.

10 The male terminal seat further includes a top cover mounted above the guide channels of the seat body, and having projected legs pressed against the soldering pins located in the guide channels, so that the soldering pins are always kept at the same level on the male
15 terminal seat to accurately align with soldering points on a circuit board, enabling the male terminals to be precisely soldered to the circuit board to effectively reduce the rate of bad yield and the manufacturing cost of the male terminal seat.

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BRIEF DESCRIPTION OF THE DRAWINGS

The structure and the technical means adopted by the present invention to achieve the above and other objects

can be best understood by referring to the following detailed description of the preferred embodiments and the accompanying drawings, wherein

5 Fig. 1 is a top plan view of a general male terminal;

Fig. 2 is a side view of the male terminal of Fig. 1;

Fig. 3 is a top plan view of a conventional male terminal
10 seat;

Fig. 4 is a sectioned side view of the conventional male terminal seat of Fig. 3;

15 Fig. 5 is a sectioned side view showing the conventional male terminal seat of Fig. 4 with the male terminal of Fig. 1 inserted therein;

Fig. 6 is a perspective view of a male terminal seat
20 of the present invention with a plurality of male terminals of Fig. 1 inserted therein and a top cover to be mounted thereon;

Fig. 7 is a perspective view of the male terminal seat

of the present invention with the top cover mounted thereon;

Fig. 8 is a sectioned side view of the male terminal
5 seat of the present invention;

Fig. 9 is a sectioned side view of the male terminal seat of Fig. 8 with the male terminals of Fig. 1 inserted therein and the top cover mounted thereon;
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Fig. 10 is a fragmentary top plan view showing the male terminal seat of the present invention with the male terminals inserted therein;

15 Fig. 11 is a sectioned side view corresponding to Fig. 10; and

Fig. 12 is an enlarged cross-sectional view of the circled area A of Fig. 7.
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DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Please refer to Figs. 6 to 12, in which a male terminal seat 4 according to the present invention for a plurality

of male terminals 1 to insert therein is shown. As shown, the male terminal seat 4 mainly includes a seat body 41 having a plurality of axially extended insertion slots 42 provided across the seat body 41 for each receiving a male terminal 1 therein. The seat body 41 is provided at a rear end with a plurality of rearward extended guide channels 43 corresponding to the insertion slots 42. When the male terminals 1 are inserted into the male terminal seat 4, the insertion sections 12 of the male terminals 1 are fixedly located in the insertion slots 42, and a bent section 14 near a bottom of each of the soldering pins 13 of the male terminals 1 is received in one corresponding guide channel 43. With the bent sections 14 separately received in the guide channels 43, the soldering pins 13 are naturally guided by the guide channels 43 to become laterally orderly spaced at fixed intervals, and any lateral bias of the soldering pins 13 produced during any processing of the male terminals 1 can therefore be rectified by the guide channels 43. Therefore, the soldering pins 13 of the male terminals 1 can be accurately aligned with soldering points on a circuit board 3, to which the male terminal seat 4 is mounted, to ensure a highly precise soldering of

the male terminals 1 to the circuit board 3.

A top cover 5 is provided above the guide channels 43 of the male terminal seat 4. The top cover 5 includes
5 a top board 51 and a vertical board 52 downward extending from a rear end of the top board 51. The top board 51 is mounted directly on the male terminal seat 4. The vertical board 52 has a plurality of downward projected legs 53 separately pointed toward the guide channels
10 43 to press against and flatten the soldering pins 13 of the male terminals 1 located in the guide channels 43. Therefore, the soldering pins 13 are always kept at the same level on the male terminal seat 4. That is, the top cover 5 of the male terminal seat 4 of the
15 present invention is adapted to keep the soldering pins 13 of the male terminals inserted therein to in the same vertical position to ensure accurate alignment of the soldering pins 13 with soldering points on the circuit board 3, and accordingly, precise soldering of the male
20 terminals 1 to the circuit board 3.

Fig. 7 shows the manner of mounting the top cover 5 to the male terminal seat 4, and Fig. 12 is a fragmentary enlarged view thereof. As shown, the male terminal seat

4 is provided at a top near two outer ends thereof with two slide channels 44. Each of the two slide channels 44 is provided at an inner end close to an outer edge thereof with a recess 45. The top board 51 of the top cover 5 is provided at two lateral ends with two sideward projected wing portions 54 adapted to separately extend into and engage with the two slide channels 44 on the male terminal seat 4. A hook portion 55 is formed on an outer side of each wing portion 54 corresponding to the recess 45 on the slide channel 44. And, a notch 56 is formed at an inner side of the wing portion 54 to provide the wing portion 54 with a certain resilience to move inward or outward. Thereby, the wing portions 54 of the top cover 5 could be mounted on the male terminal seat 4 with the wing portions 54 received in the slide channels 44. When the top cover 5 is fully pushed onto the male terminal seat 4 with the hook portions 55 in a position opposite to the recesses 45 on the slide channels 44, the hook portions 55 would immediately move outward to firmly engage with the recesses 45. At this point, the projected legs 53 on the vertical board 52 of the top cover 5 are pressed against and flatten the soldering pins 13 of the male terminals 1 located in the guide channels 43 of the male terminal

seat 4, keeping the soldering pins 13 at the same level
in the guide channels 43.

In conclusion, the male terminal seat of the present
5 invention is capable of rectifying lateral and vertical
biases of the soldering pins of the male terminals,
and thereby enables precise soldering of the male
terminals to the circuit board, and effectively reduces
the rate of bad yield and the manufacturing cost of
10 the male terminal seat.

What is claimed is:

1. A male terminal seat for receiving a plurality of male terminals therein, each of said male terminals including from a front to a rear end a connecting pin, an insertion pin, and a soldering pin, and said soldering pin being bent in a predetermined manner for soldering to a circuit board by means of a surface mounting technique, said male terminal seat comprising:

a seat body having a plurality of axially extended insertion slots provided across said seat body for each receiving one said male terminal therein, and said seat body being provided at a rear end with a plurality of rearward extended guide channels corresponding to said insertion slots; whereby when said male terminals are inserted into said male terminal seat with said insertion sections of said male terminals fixedly located in said insertion slots, a bent section on each of said soldering pins near a bottom thereof is received in a corresponding one of said guide channels to naturally guide said soldering pins into laterally orderly spaced

positions.

2. The male terminal seat as claimed in claim 1, further comprising a top cover located above said guide channels; said top cover including a top board and
5 a vertical board downward extending from a rear end of said top board; said top board being mounted directly on said seat body, and said vertical board having a plurality of downward projected legs
10 separately pointed toward said guide channels to press against and flatten said soldering pins of said male terminals located in said guide channels to always keep said soldering pins at the same level on said male terminal seat.

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3. The male terminal seat as claimed in claim 2, wherein said seat body is provided at a top near two outer ends thereof with two slide channels, each of said two slide channels being provided at an inner end
20 close to an outer edge thereof with a recess; and said top board of said top cover being provided at two lateral ends with two sideward projected wing portions adapted to separately extend into and engage with said two slide channels on said seat body; and

each of said two wing portions being formed at an inner side with a notch to provide said wing portion with a certain resilience to move inward or outward, and at an outer side with a hook portion corresponding to said recess on said slide channel for moving outward to firmly engage with said recess.