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# GRIPPER TEST CLIPS COMPARISON WITH THE PARROT CLIP

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**Abstract:** The invention Parrot Clip is a new test and measurement gripper clip to be used for multimeter test leads and probes or for other electrical connections.
Comparison between the Parrot clip and the other test clips or grippers: alligator, one hook, two hooks, reveal advantages of the Parrot Clip at the majority of the parameters which are important for test probes.
The novelty and main advantage of the Parrot invention is the metal tube tip. The metal tube is oval and has a sharp tip on one side. On the other end of the tube is soldered the wire lead. On previous test clips (one hook, two hooks) the lead is connected to the hooked metal rode.
A hooked rode with an insulated, spring loaded, push-button is moving inside the metal tube. The button is pressed with the finger and then released to provide a very good grip between the metal hook of the rode and the metal tube tip.
The Parrot Clip has a metal tip always available for test pointing providing reliable, accurate 1) hands–on, point contact and 2) hands-free, clip-on, connection made between 2 metal parts.

**Key words:** test, leads, probe, clip, gripper

**The problem**: Choosing parameters for test clips and comparison with new device ( Fig.3). Alligator, one hook, two hooks test clips perform two kinds of removable contacts and connections: 1) Hands-on, point contact, when the probe is hand-held and pointed to the test probe performing a direct point contact 2) Hands-free, clip–on, when the clip is connected to the test point and the hands are taken away from the clip .

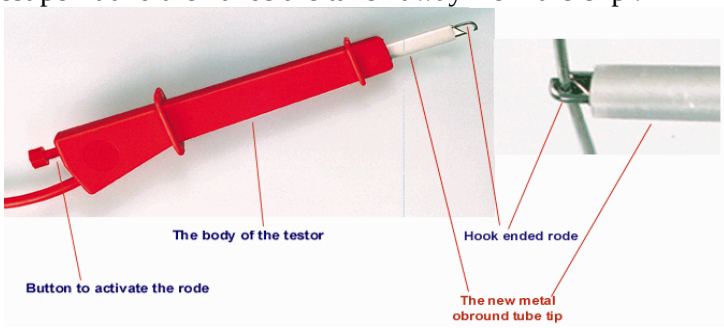



Fig.1

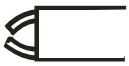
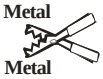
A new device[2], the **Parrot clip** (Fig.1,2), has as a novelty a metal tube tip[1].
The metal tube is oval and has a sharp tip on one side. On the other end of the tube is soldered the wire lead ( Fig.1,2).
A hooked rode is moving inside the metal tube. . The metal rode has a hook on one end and an insulated, spring loaded,(Fig 2)push-button on the other. The button is pressed with the finger and then released to provide a very good grip between the metal hook of the rode and the metal tube tip. The body of the clip assures high insulation, convenient handling and is equipped with barriers for the fingers to meet IEC insulation Cat II, III

requirements. The end of the metal tube tip is directly connected to the lead, so the direct contact resistance and also the connection resistance are very low.

The connection is accurate as is made between the metal tip and the steel gripper.

The table(Fig.3) compares test clips. The marks are from 0 for worse, and 10 for best performance:

Fig.3

| | Parrot Clip | Alli-gator Clip | One Hook Clip | Two Hooks Clip | Test lead |
|---|---|---|---|---|---|
| Photo / Parameter | | | | | |
| 1) Direct point measurement comfort and Accessibility in narrow places (Hands-on) | 9 Sharp Tip | 3 Rounded Tip | 3 | 3  | 10 Sharp Tip |
| 2 Direct point Contact Resistance (Hands-on) | 9<br>5 mOhm | 3<br>10 mOhm | 3<br>10 mOhm | 3<br>20 mOhm | 10<br>3 mOhm |
| 3) Signal- Operator Insulation (Hands-on) | 10 | 3 | 5 | 6 | 10 |
| 4)Connection Reliability Mechanical and at High Temp. (Hands-free) | 10 Metal Metal | 10 Metal  Metal | 3 Metal Plastic | 8 Metal Plastic | 0 |
| 5) Connection Resistance (Hands-free) | 10<br>3 mOhm | 10<br>3 mOhm | 5<br>9 mOhm | 8<br>8 mOhm | 0 |
| 6) Connection measurement comfort and Accessibility in narrow places (Hands-free) | 9 | 3 | 9 | 9 | 0 |
| TOTAL | 57 | 32 | 28 | 37 | 30 |

**Conclusions:** There are applications where one particular probe is most efficient. For large devices the Alligators clip is a good solution. But in most applications the Parrot clip provides advantages: high insulation, better accessibility, better direct contact due to the sharp tip. Connections on some SMD can be made with Parrot Clips or 2 hooks clips.

**References:** 1.Prof. Nihal Sinnadurai, UK, *Discovering a heroic connection*, Microelectronics International,Nr.1 Jan.2000, 2.Patents: USA 5457392, Europe 0563234