

## **Visual Inspection of VPTs**

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### **Introduction**

The first batch of 100 production VPTs was received at RAL in early January 2002. These tubes have been subjected to a close visual inspection at RAL.

### **Summary of visual inspection**

The majority of the VPTs appear completely normal, but twenty display anomalous features of varying importance. These are summarised in Table 1.

In appearance, the VPTs are clean and well-finished. None of the tubes have the glass stub protruding beyond the resin plug, or “socle”.

The two areas of concern are:

1. The pins are poorly crimped onto the flying leads – some pins have already become detached in the course of testing. These pins will be plugged and unplugged several times during the VPT testing procedures, so it is essential that they are securely attached to the leads.

In addition, the insulation appears to have been thermally stripped in order to prepare for the pin. The insulation has not been cleanly removed on many crimps.

Some examples of poor crimping are shown in Figure 1 and Figure 2. Figure 3 shows the ideal method of attaching the pins.

2. A few of the VPTs have their grids significantly off-centre with respect to the axis of the cylinder. We would like to return these badly off centre devices to you. Figure 4 and Figure 5 show examples of misaligned grids.

We would appreciate your comments on this issue. What are the normal tolerances you would expect to achieve for the coaxial placing of the anode/dynode?

<b>Barcode</b>	<b>RIE prod. no.</b>	<b>Comment</b>
509	919	Loss of photocathode over 10% of faceplate
512	833	Loss of photocathode over 10% of faceplate
516	1077	Poor crimping (pin came off)
517	1106	Poor crimping (pin came off)
518	1119	Poor crimping (pin came off)
520	1137	Loss of photocathode over 5% of faceplate
528	1266	Loss of photocathode over 20% of faceplate
531	1288	Loss of photocathode over 10% of faceplate
539	1313	Unsatisfactory crimping of flying leads to pins
556	1361	Grid misaligned
558	1375	Loss of photocathode over 10% of faceplate
560	1387	Loss of photocathode over 30% of faceplate. Unsatisfactory crimping of flying leads to pins.
566	1406	Dark spot on faceplate
568	1420	Grid misaligned
569	1347	Loss of photocathode over 5% of faceplate
570	1422	Grid misaligned
583	1499	Grid misaligned
584	1482	Grid misaligned
587	1480	Loss of photocathode over 5% of faceplate
595	1485	Loss of photocathode over 20% of faceplate

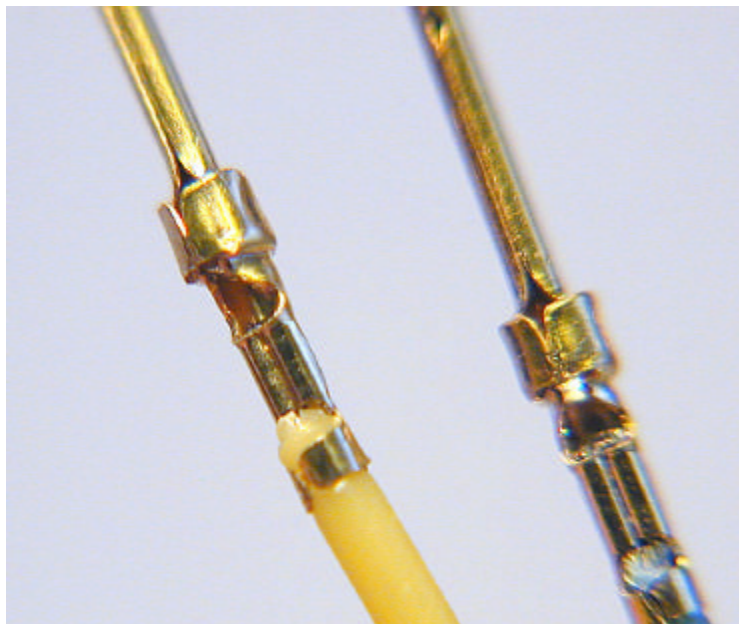
**Table 1. Summary of visual inspection**



**Figure 1. VPT 539 - poor crimping of pin to flying lead**



**Figure 2. VPT 560 - poor crimping of pin to flying lead**



**Figure 3. Example of ideal crimping of pins to leads**



**Figure 4. VPT 556 - grid misaligned.**



**Figure 5. VPT 570 - grid misaligned**