

Convenient Couplers for Lightning Thermo Tube™

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An earlier article^[1] addressed the characteristics and methods for the use of Lightning Thermo-Tube™^[2] (LTT). At about that time, some inexpensive plastic components that can be used to facilitate the coupling and branching of LTT were supplied for evaluation.^[3] This article reports on a brief study of the effectiveness and utility of those components.

The plastic components consisted of rigid tubing tees and soft plastic caps, as shown Figure 1. The new tubing tees,^[4] unlike those evaluated previously, are of sufficient internal diameter that the LTT fits snugly inside the ends of the tee, see the lower photograph in Figure 2. This direct coupling to the tee eliminates the need to use the three short lengths of rubber tubing, see upper photograph in Figure 2.

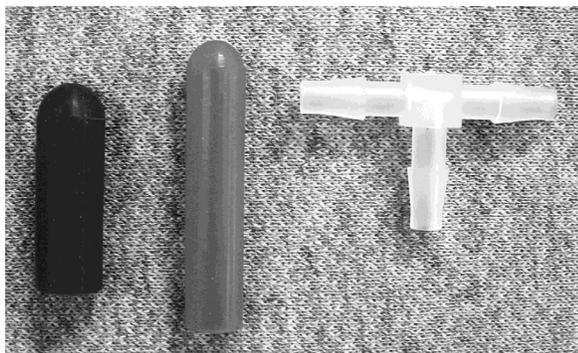


Figure 1. Photograph of the plastic components being evaluated for use with LTT.

Although there were only three trials using this direct coupling tee, all were successful. (It is possible to use these same tubing tees to couple LTT to visco or other pyrotechnic fuses; however, because the diameter of these fuses are typically smaller than LTT and the ID of the new tubing tee, the connection may not be sufficiently secure without taping or using some other means of securing the fuse into the tubing tee.)

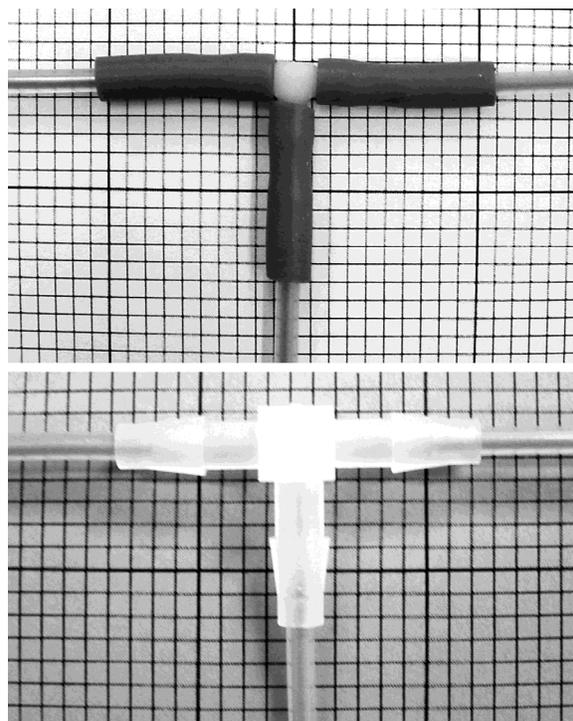


Figure 2. A comparison of the use of the previous (upper) and current (lower) tubing tees to branch LTT using tubing tees. [Each square is 0.10 inch.]

The two sizes of soft plastic caps^[5] shown in Figure 1, were also used to branch LTT. In these trials, four or five lengths of LTT were coupled (branched) by simply inserting the ends of the LTT a short distance into the two sizes of plastic caps, see Figure 3. While a somewhat similar method of branching LTT was evaluated previously, branching using these soft plastic caps can be accomplished much more quickly and with significantly less effort. Although there were only three trials using each of the two types of caps, using 4 and 5 LTT lines, all were successful.

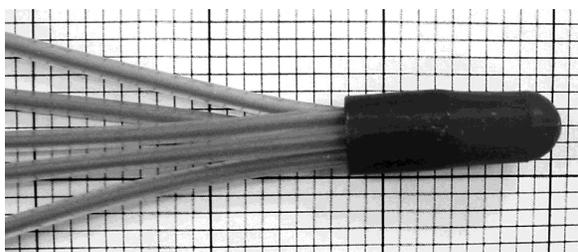


Figure 3. A simplified method for coupling (branching) larger numbers of LTT using soft plastic caps. [Each square is 0.10 inch.]

The coupling and branching methods reported on previously were quite successful and reasonably simple. The methods reported on in this article seem to be equally effective, but are even simpler and easier to use.

References / Notes

- 1) "An evaluation of Lightning Thermo Tube™ as a Pyrotechnic Ignition System", K. L. and B. J. Kosanke, *Journal of Pyrotechnics*, No. 24, 2006; *Selected Pyrotechnic Publications of K. L. and B. J. Kosanke, Part 8 (2005 through 2007)*, *Journal of Pyrotechnics*, 2009.
- 2) Lightning Thermo Tube, 12707 N. Freeway, Suite 330, Houston, TX 77060.
- 3) Mike Kroeger, Next Evolution Pyrotechnics, 323 Lonnie Dr., Muscle Shoals, AL, 35661; phone: 256-381-3123.
- 4) Ark-Plas Products, P.O. Box 340, Flippin, AR 72634.
- 5) Harman Corporation, P.O. Box 80665, Rochester, MI 48307.