



## Technical Topics

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### Shock Tube Initiators

It seems like everyone is developing new types of shock tube initiators and we're no exception. Some of our customers wanted something to allow their existing EBW Fire Sets to reliably initiate shock tube. We thought about it for a while and came up with the STI-8 (P/N 188-7422), a little gadget that can be used in conjunction with any of our firing units to safely and reliably initiate standard 1/8 inch diameter shock tube. Operation is very simple:

- Cut closed end off shock tube
- Insert shock tube into STI-8 housing and tighten retainer
- Connect the STI-8 to a maximum of 100 feet of RISI twin conductor blasting wire (PN 167-8559) or 300 feet of RISI coaxial "C" cable.
- Connect the RISI blasting wire or cable to a RISI Fire Set
- Fire

The STI-8 contains no explosive or propellant and comes with five replaceable headers. We did over 300 firings with one of the headers and it still was firing great (we just got tired of pushing the firing button).

Using the STI-8 with RISI firing cables allows a considerable savings of shock tube on each shot since the firing cables (with proper care) can be reused.

Call or fax for a data sheet and pricing.

### Explosive Books

Paul Cooper and Stanley Kurowski of Sandia National Laboratory recently wrote a book on explosives. We especially like it, not only because they spelled our name right but also because they discuss EBW's and EFL's. The title of the book is **Introduction to the Technology of Explosives**. Not only do they give a lot of worthwhile data on EBW'S and EFL's, but they also present an excellent overview of the entire explosive industry including Classification, Transportation, Good Work Practices, Scaling, Explosive Chemistry, Testing, Detonation Theory, etc. We liked the book so much that we purchased a quantity for resell. RISI's U.S. price including handling, postage, sales tax, etc. is \$55.00. Call for overseas pricing.

### Detonator Failures

Even though RISI detonators have a proven failure rate of less than 1 in a thousand, at times detonator failures do occur. This can be both expensive and embarrassing (especially if you invited the boss out to watch this particular test). One of Murphy's laws states that "The chance of a detonator failing is directly proportional to the importance of the test." Following are some hints on minimizing detonator failures (and maximizing your chances of keeping your job) . Please go to page 2



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Check the cabling: On the overwhelming majority of failure investigations we have participated in, the problem was with the cabling. You can use RISI high voltage cabling P/N 167-2669 or P/N 167-8559) almost indefinitely (or until you run over it with a pickup truck which ever comes first). Before an important test series, perform a high potential test on the cabling. All RISI cables are tested at a minimum of 5 KVDC before shipment and should pass this value throughout their life.

Check the cable layout. If you have a TA-10B (P/N 188-3754), install it on the actual test cabling and fire down the system. This will confirm that you are getting at least twice the threshold firing current to the proposed detonator location. This not only checks the cabling but also the fire set.

With the cable ends open, run through your normal firing schedule. If you hear arcing you have a problem. Note: this only works if you're close enough to the arc to hear it.

If you don't have a TA-10B-install two detonators in parallel at the proposed detonator location. Fire the system with witness plates on each detonator to confirm that you obtained a high order detonation. Firing two in parallel demonstrates that there is more than enough current to fire one reliably.

Check the detonator installation. Bare explosive detonators like the RP-1 and the RP-2 are quite sensitive to gaps between the output pellet and the acceptor explosive while "canned" detonators like the RP-87 or RP-80 are very tolerant of gaps (see RISI Tech Topic of 03-93). Be careful of metal detonator retainers cutting into the electrical leads.

Keep oils away from detonators. Oil migrating into the bridgewire area desensitizes the explosive and is a sure way of causing failures.

Don't invite your boss or any other important people to critical tests.

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