



Technical Topics

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BATTERY PACKS

The FS-9, FS-10 and FS-17 Fire Sets used for firing EBW's, contain built-in battery chargers with rechargeable Nickel Cadmium Batteries. Normally, an overnight recharge is sufficient to bring the battery up to full strength, but periodically nickel cadmium batteries need to be conditioned for optimum efficiency. This should be done every 6-12 months or if the fireset has not been used for 3 months.

Conditioning is performed by:

- 1) Charging the battery for a minimum of 16 hours,
- 2) Placing a 100 ohm, 20 watt resistor plus a voltmeter across the output of the Control Unit,
- 3) Arming the control unit until the battery discharges to 32-34 volts - DO NOT DISCHARGE BELOW 31 VOLTS,
- 4) Recharging the battery for a minimum of 16 hours,
- 5) Repeating steps 1 through 4 another two times.

This should bring the Nickel Cadmium battery back to its original condition. Sounds like a lot of work to us, but the battery manufacturer swears it's the right way to treat a battery. You might try this, if your battery is giving you problems.

Many users of FS-9, FS-10 or FS-17 keep their control units plugged in to 110 volts all the time even during test firing. That's a NO-NO, since overcharging can damage the batteries and charging while firing can blow fuses.

SHORTING PLUGS

Recently we heard of an inadvertent firing by a customer incorrectly using the shorting plug on an FS-17 Fireset. This customer did everything right - up to a point. He installed the detonator in the shot, removed the shorting plug from the Firing Module and inserted it into the Control Unit where it became an enable switch - so far so good. He then engaged the arm switch and prepared to push the fire button - still doing everything right. He then changed his mind and disengaged the arm switch - still doing everything right. Then he removed the shorting plug - changed his mind again and reinserted the shorting plug in the Control Unit - and the shot fired. This will happen almost everytime that the shorting plug is reinserted before the fireset capacitor has a chance to discharge, and also even sometimes when the shorting plug is removed before the capacitor has a chance to discharge. This applies to all RISI Firing Units. IF YOU ABORT A TEST, DISENGAGE THE ARM SWITCH AND WAIT A MINIMUM OF 5 MINUTES BEFORE REMOVING THE SHORTING PLUG. This will provide sufficient time for the capacitor to discharge. Customers are hard to find so be careful out there.

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Sometimes the simplest tasks are the hardest ones to accomplish. A customer needed an EBW with the output of a No. 8 Blasting Cap. No problem (we thought). We would just modify the output pellet of one of our standard EBW detonators and create our own No. 8 EBW detonator. First, we had to find what a No. 8 detonator is and there the problem began. After many, many calls we eventually discovered Robert Hopler of IRECO - who knows more about Blasting Caps than any person has a right to know. Originally a No. 8 implied the same "strength" as 2 grams of a fulminate of mercury/potassium chlorate mixture. However, modern blasting caps achieve the same "strength" with significantly less explosive. Unfortunately, there is no universally accepted definition of "strength" although many tests have been devised to measure it. Our favorite is the "nail" test. Here a detonator is taped to a nail and fired. The resulting bend is a measure of the detonator's "strength." Other "Strength" tests measured the amount of sand crushed or the amount of cottonseed oil that duds picric acid? Thanks for the education Bob.

After all that research, our conclusion was that the easiest thing to do was build our own version, claim it has the strength of a No. 8 and see if anyone can prove us wrong. So here goes - introducing the RP-81 EBW Detonator, P/N 188-7405, containing 0.082 grams of PETN as the initiating explosive and 0.454 grams of PBX-9407 (94% RDX, etc.) as the output explosive. Try some, and prove us wrong (or right).

For Technical Contract and
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