CESARONI
TECHNOLOGY
INCORPORATED

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Instruction For Pro29 3G mellow Pellet Trimming
(Pro38 1G reload shown)

October 1 2020

Recently an issue with the ignition pellet has been discovered which affects the Cesaroni Pro 29 3G Mellow reload. A significantly higher ignition pressure spike has been observed. To resolve this issue a simple field modification is required for all reloads purchased prior to October 1 2020. This should also be applied to any reloads purchased after October 1 2020 which will have been labelled specifically by the Dealer for any of their current inventory. Any reloads manufactured by Cesaroni Technology Inc after October 1 2020 have the necessary changes/modifications conducted to the pellet and **DO NOT** require this procedure/modification. These reloads will have a "QC Approved" label on them.

NOTE 1: Pictures shown are for the Pro38 1G reload. If the grains for the Pro29 3G Mellow are a tight fit in the liner they may be left in place for this procedure.

*NOTE 2: This recall date **does not** apply based on the propellant date code stamped on the reload but on the date of purchase of the product.*

Figure 1: Modified pellet example

CAUTION

Work in a tidy area, away from other rocket motors and materials, well away from any open flame or heat source.
Perform this procedure in the field during rocket preparation and is safer done outside.
Follow all precautions and details as outline in the standard Pro38 Instructions www.pro38.com/pdfs/Pro38Instns.pdf

Pellet Removal:

1. Remove the reload kit from its packaging.
2. Remove the forward closure (Delay/Ejection Module) from the liner (as shown in Figure 2). Place the forward closure in a safe/clean location for re-assembly later.
3. If possible, remove/slide the propellant grain from the liner. Place the liner in a safe/clean location similar to the forward closure for re-assembly later.

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Figure 2: (LEFT) Forward closure removal (RIGHT) sliding grain out from liner in vertical position.

Note: If grains are a tight fit they can be left in the liner for this procedure

NOTE: If the grains do not slide out easily, perform this procedure with the grains left in the liner.

i. The nozzle can be removed from the liner allowing access to the grain core.
ii. Once the nozzle is removed place it in a safe/clean location until modification is made.
iii. Do this before proceeding to the next step.
iv. The following images show the grain removed from the liner for clarity.

Figure 3: Removal of nozzle to extract or modify propellant grain.

4. The top propellant grain will have a pellet located in the forward section. The forward side of this grain will have a bevel shape on its face, and the aft section will be flat.

Figure 4: Grain with pellet assembly in forward section (i.e. bevel).

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5. Remove the pellet installed into the grain. To conduct this procedure use an instrument/tool which will can be inserted through the aft bore of the grain. This will assist in pushing the pellet out the top/forward of the grain. Apply a constant pressure evenly on this tool to extract the pellet. **DO NOT** bang, hammer, pound, etc on the pellet since they are brittle. Only a few pounds of force are required to dislodge the pellet (See Figure 6).

    a. The instrument/tool can be any rod with a smaller diameter than the bore of the propellant grain (i.e. Ø5/16in).
    b. The instrument/tool **MUST** have a flat top (such as the back of pen, wooden dowel, etc). Ensure it is not pointed or sharp which may cause the brittle pellet to break up

Figure 5: Type of tool to use

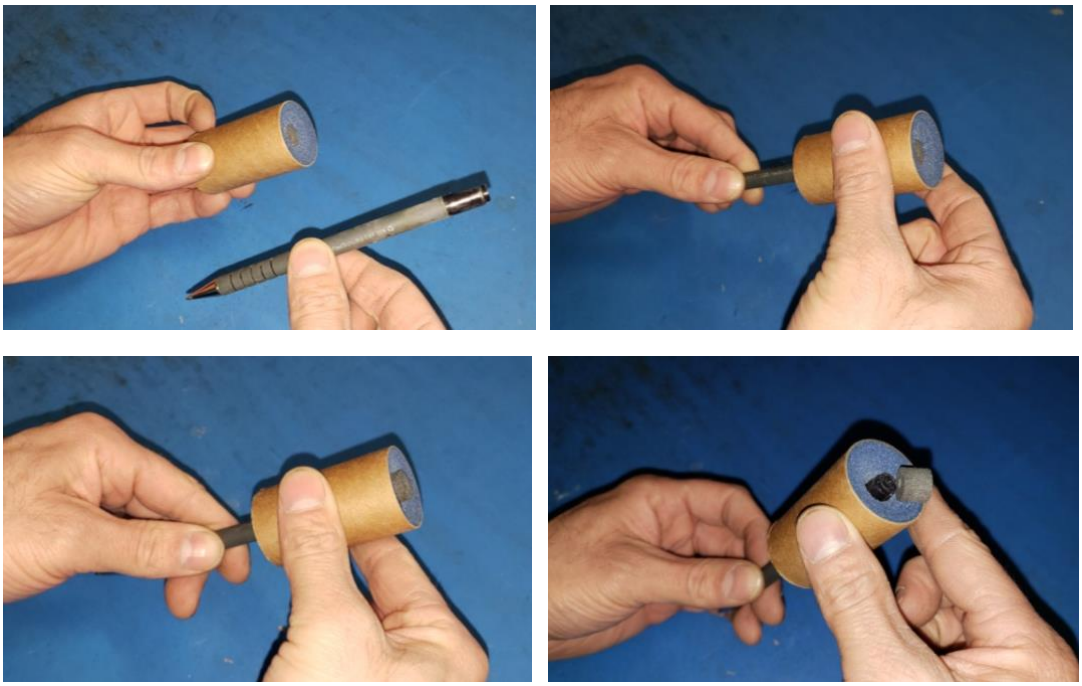

Figure 6: Pellet removal from grain.

6. Place the grain (now without a pellet) in a clean & safe location away from where the "Pellet Trimming" will go on within the next steps

    NOTE: occasionally a very small amount of propellant tailings may be left after removal. These are not of concern and simply discard the small excess propellant tailings.

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Pellet Trimming (approx ½ size):

7. Using a sharp X-Acto knife cut the pellet into approximately half. The best method for cutting the pellets is to set the pellet on a flat surface (preferably wood) with it oriented like a tire on the ground. Then place the knife blade on the pellet's outer diameter where the cut is to occur (i.e. approx half the axial distance).

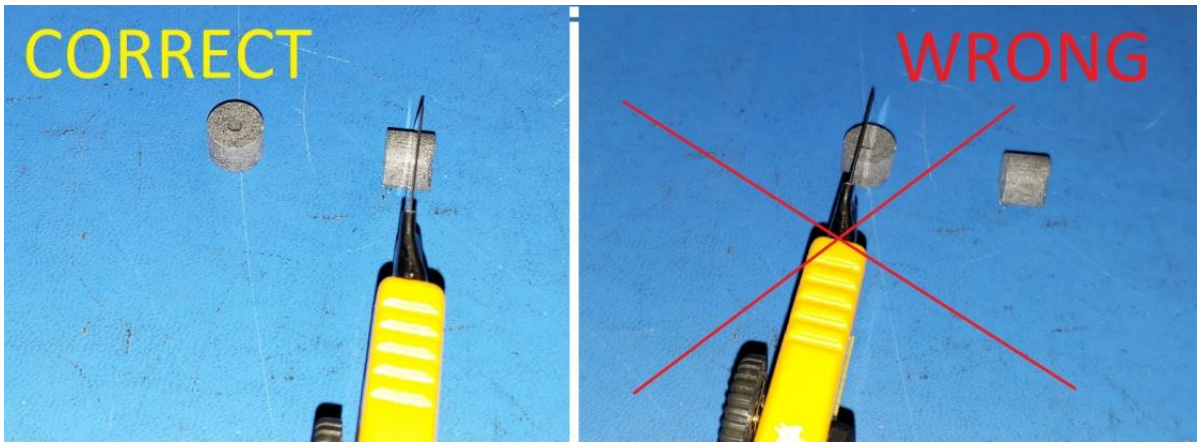

Figure 7: Pellet cutting orientation

With the blade resting on the pellet apply a **light** amount of pressure to the knife blade and slowly roll the pellet effectively "scoring" the outside edge of the pellet. Do not try to completely cut through the pellet in one motion. Instead continue to roll the pellet until 3-4 complete revolutions are done while still applying the same light amount of pressure on the knife.

Figure 8: Pellet cutting procedure.

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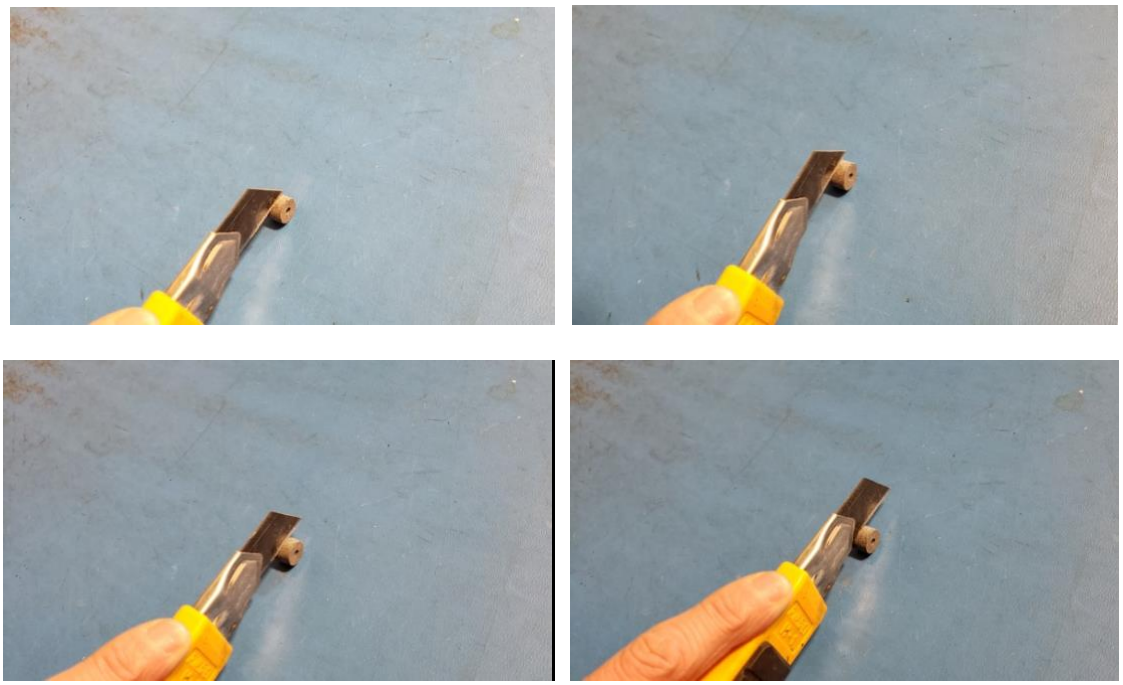

Figure 9: Scoring the OD of the pellet by rolling with light pressure on the knife.

Once the entire OD is scored then more pressure can be applied downward on the knife to completely cut the pellet in half (See Figure 10)

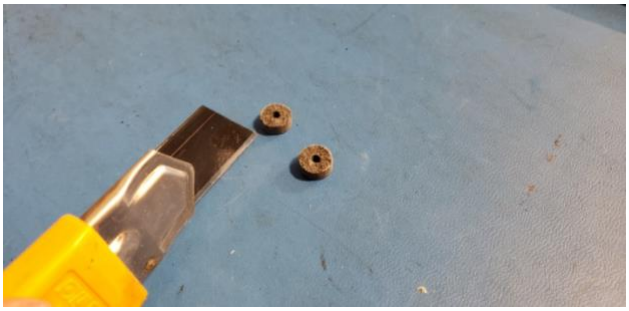

Figure 10: Pellet final cutting

8. The ideal size for the final pellet would be approximately 50% (3/16" length or 0.35g by weight). CTI has successfully conducted testing of Pro29 3G Mellow motors using both 60% & 30% size pellets. Therefore detailed measurement of the final dimensions or weight is not required and a simple visual judgement is sufficient for determining the final pellet size.

   Note: if one side of the pellet is damaged or broken beyond use, the second half of the pellet can also be used.

9. Only use one half of the pellet. If the pellet is not cut perfectly due to the brittleness of the pellet (or if the remaining pellet is larger than ½ the original size) this is not an issue. The pellet can still **easily** be further trimmed (anywhere from ½ to ⅓ is satisfactory). Simply hold the pellet firmly and with light pressure run the knife blade against the surface just cut previously

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(essentially scraping or shaving the pellet). This will allow the face to be "squared" and/or remove any excess pellet surface which is greater than half. Continue to reduce the pellet size until approx 50% of the original pellet is left.

Figure 11: Pellet examples after cutting (LEFT) not cut perfectly and oversized (CENTER) additional trimmed pellet (RIGHT) as cut pellet approx 50%.

10. Dispose of any extra portion of the pellet or granulars from the trimming process in compliance with all relevant state/federal laws & regulations. Powder can be burned in very small quantities and in very thin layer and must only be ignited from a safe distance. Please see the ProX instructions for similar disposal methods with disposal of the delay/ejection charge.

Re-Assembly of Motor

11. Insert the newly trimmed pellet back into the forward end of the grain (i.e. bevel section) where it was originally removed from. Ensure the pellet is fully seated. The top of the pellet should be flush with the bore edge.

Figure 12: Pellet installation procedure, press into place with light pressure

12. If the grains were removed from the liner, insert the 2 propellant grains (without pellet) back into the forward end of the liner with bevels facing up until they bottom out on the nozzle. Then push the grain with pellet down against the first 2 grains. Ensure the nozzle does not come apart from the liner. If the grains weren't removed from the liner skip this step. The pellet (i.e. bevel) side MUST be located in the forward section of the reload. See Figure 13.

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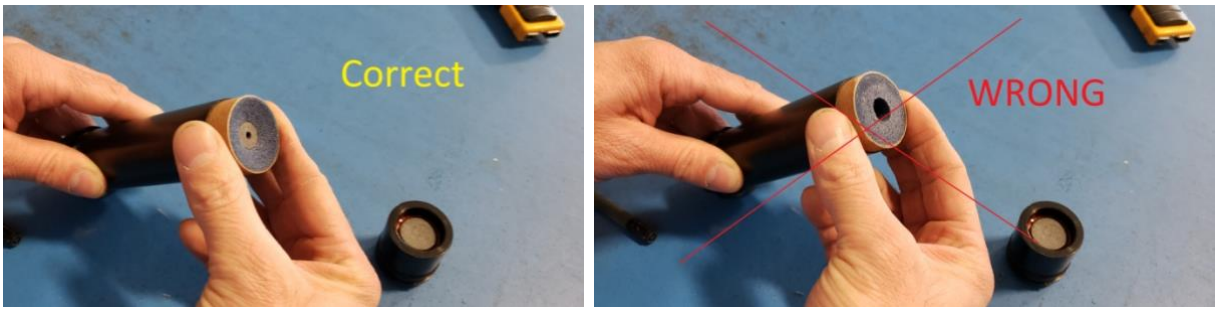

Figure 13: Re-assembly of propellant grain (LEFT) correct forward facing orientation (RIGHT) wrong orientation

13. Re-assemble the forward closure from step 2 and insert it into the liner. Press the forward closure into the liner until it bottoms out on the liner or the grains and ensure the o-ring is properly seated into the liner. Take care to ensure there is no damage done to the o-ring.

Figure 14: Re-assembly of forward closure , make sure the o ring is engaged into the liner.

14. The reload is now ready for use in its nominal configuration. Please follow the standard Pro38 instructions for preparation of flight http://www.pro38.com/pdfs/Pro38Instns.pdf.

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