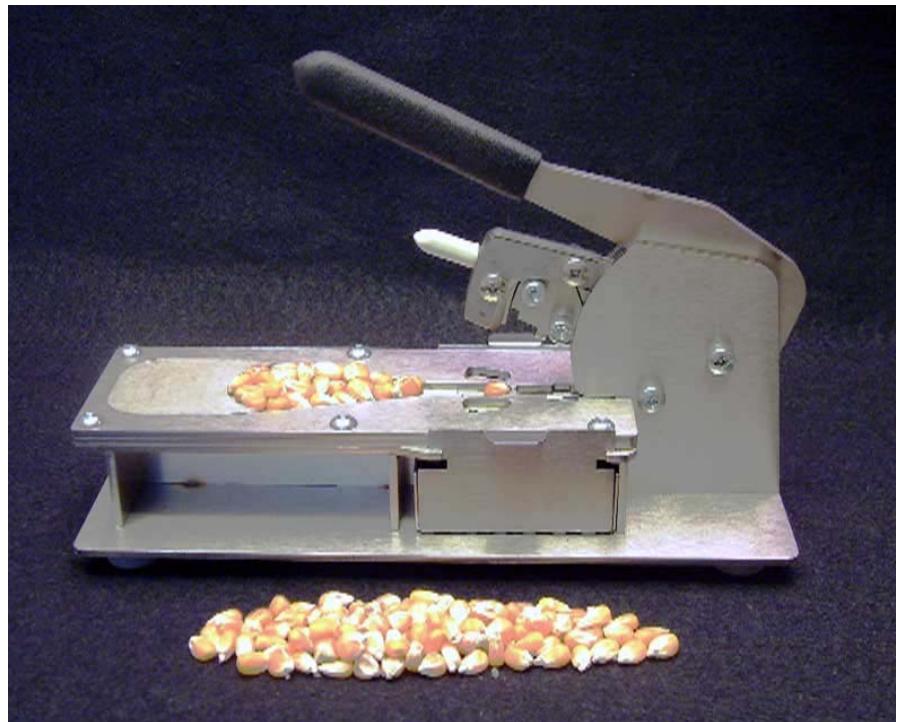




Maize Splitter

- *Simple design principles ensures non-skilled operatives achieve rapid and reliable splitting of natural maize.*
- *Stainless steel construction for easy cleaning.*
- *A development of the well proven grain splitter that has already attained a world wide reputation for durability and reliability*
- *Uses low cost blades*
- *Minimal maintenance*
- *Simple lubrication.*



The Pneumac maize splitter has been designed to reliably and accurately split natural maize grains with the intention of exposing the germ in readiness for viability stain testing.

Constructed from stainless steel for visual durability and ease of cleaning, the simple design was conceived for use by unskilled operatives in either laboratory or field environments. The split grains are separated and then collected in small trays that lock into the machine.

A few simple design elements have been combined to produce a reliable functional machine that is both intuitive to use and maintain. This well proven design has been in demand from many parts of the world for splitting barley and wheat. This design variant has been developed to meet numerous requests from the industry.

Low maintenance, very long blade life and ease of use by non-skilled personnel make this a very cost effective quality control aid.

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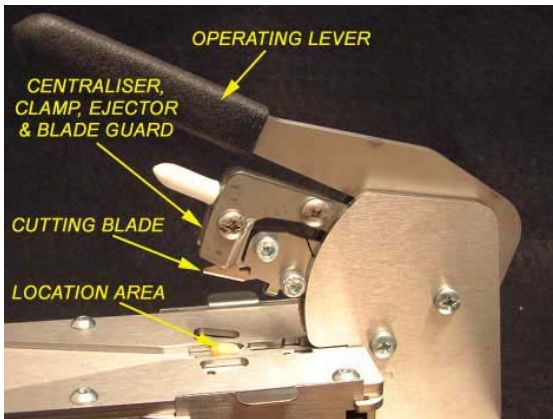
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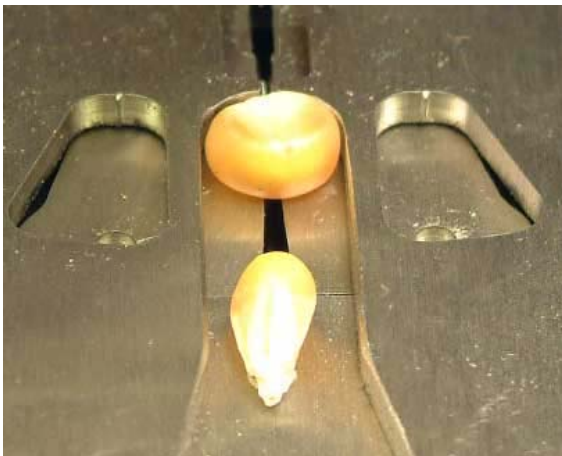
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INSTRUCTIONS FOR USING AND MAINTAINING THE PNEUMAC MAIZE SPLITTER

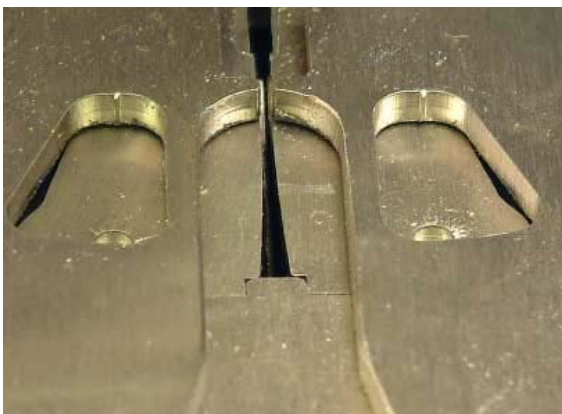


The Pneumac maize splitter has been designed to give accurate cutting over long periods without significant maintenance. To help achieve this goal it has been manufactured from stainless steel which is a hard wearing and mechanically stable material. It is important that the maize samples are not contaminated with lubricant. However, without lubrication at certain key points, premature wear WILL occur. The following procedures show how careful and regular lubrication can be achieved without risk of contaminating the samples.

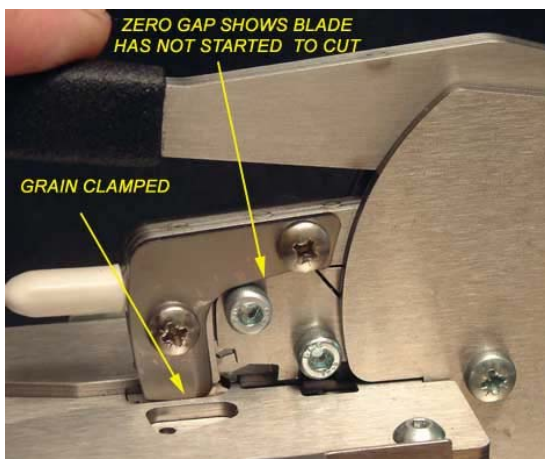


To achieve good splitting it is desirable that the germ end of the grain is slid into (or aligned with) the small slot in the end stop. This guarantees the germ is centrally split even if the rest of the grain is not aligned properly. Maize has a wide variation of grain size and experience has shown that the "V" shaped clamp will usually pull the grain into good alignment and symmetrical splitting will occur even if the germ end is not against the end stop.

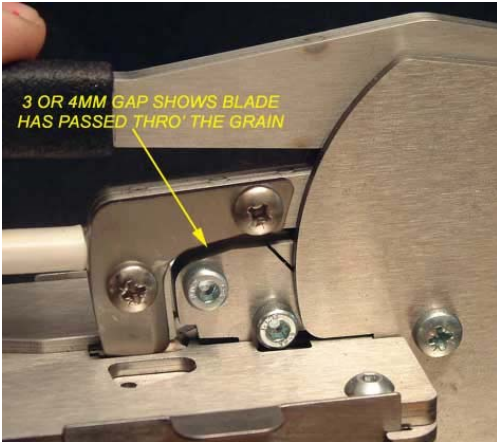
This picture shows typical max and min size grains



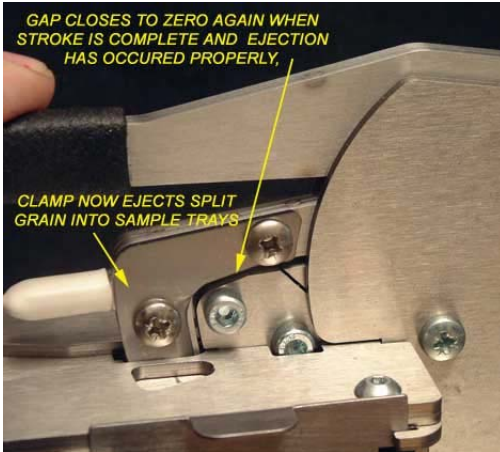
The shutters are purposely designed with a wider slot at one end to allow for distortion at the blade tip that occurs when cutting the very hard maize grains. For this reason, it is important that the grain is slid up to the end stop and ideally located into the central gap.



When the operating lever is pulled down there are three distinct phases to the cutting cycle which can be felt. The first resistance is felt when the "V" clamp aligns and locks the grain. At this point the knife has still not yet started cutting the grain.



With maize being such a hard grain, a significant increase of effort at the operating lever will be required to initiate the second phase. Once started, phase two occurs with little effort as the knife passes right through the clamped grain. The handle then experiences distinct resistance as the “tooth” cam engages with the shutters.



Further pressure on the operating lever opens the shutters and allows the sprung loaded “V” clamp to pass through the shutters, this clamp then becomes an ejector to send the split grain into the two collecting trays.



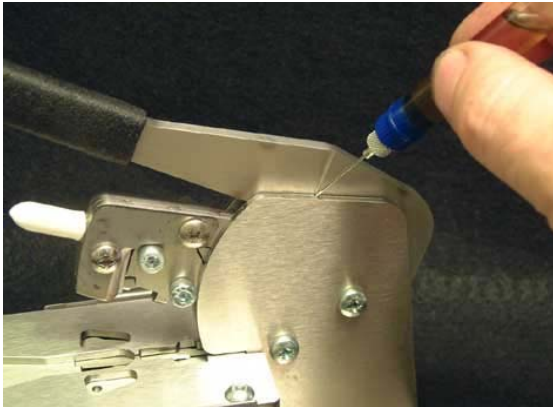
Provision to clear any residual test grains has been made. One of the sample trays can act as a collector tray.

RECOMMENDED LUBRICATION

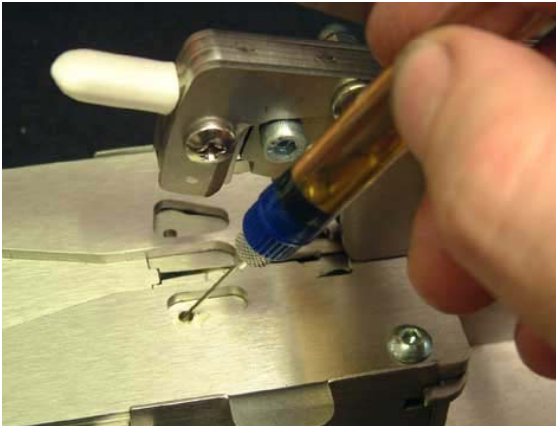


The splitter is supplied with a small oiler pen that contains a suitable lubricant. **DO NOT USE LIGHT MULTI-PURPOSE LUBRICANT.** Any multi-grade engine oil or gearbox oil can be used. These oils contain additives that will resist high pressures (surface stresses) and will protect key features against wear, **HOUSEHOLD OILS WILL NOT!**

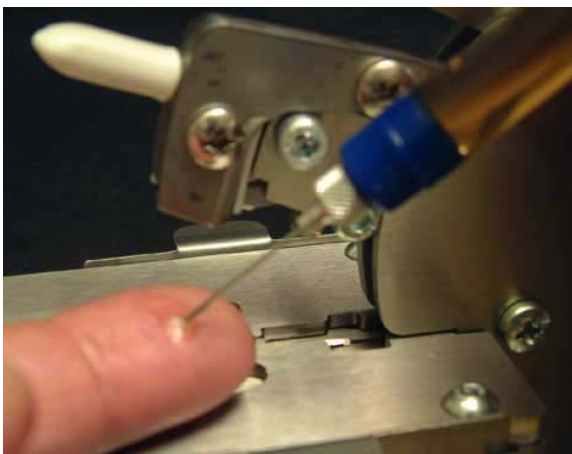
It is not possible to accurately recommend a lubrication interval because all users will operate at different capacities. Typical test sample batches are 50 grains (50 operations). Some sites may be doing several thousand cuts per day (heavy users) and others several hundred. (Light users)



For both heavy and light users, 3 or 4 drops of oil each side of the operating lever each WEEK will be adequate.

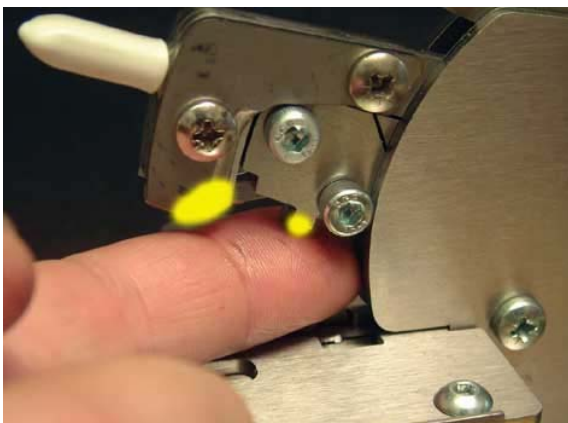


For both heavy and light users, 1 or 2 drops of oil in each shutter each WEEK will be adequate.



For heavy users "tooth" lubrication should be done approximately every 2000 operations (40 to 50 tests)
For light users, once a day would be ideal.

Put 2 or 3 drops of oil onto a finger and

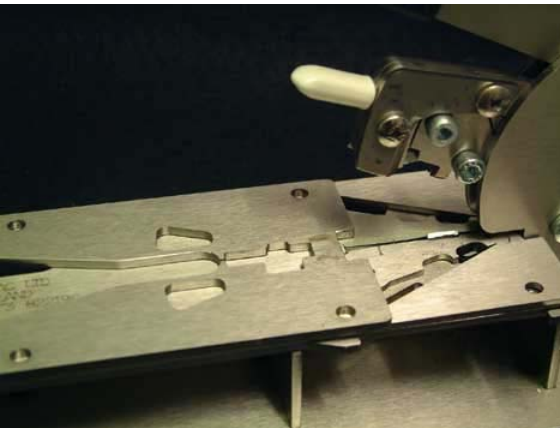


Apply a film of oil to both faces of the "tooth" and then apply a smear to each face of the "V" clamp. Note! Too much oil on the face of the "V" clamp will transfer to the shutters and could contaminate the sample. So, make sure it is just a film by wiping away the excess with a clean finger or a paper wipe. An invisible film will remain but this is adequate to ensure smooth operation.

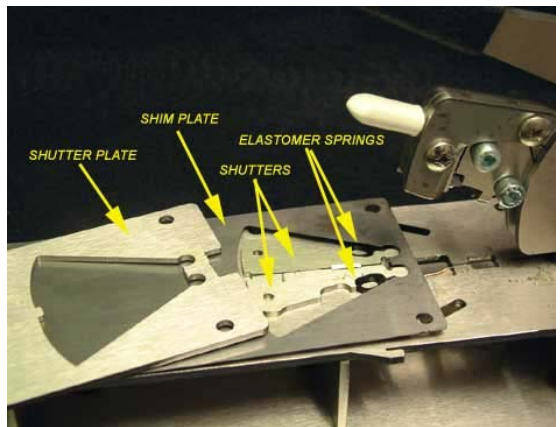
LOW LEVEL MAINTENANCE



The shutters have a tendency to collect husk debris beneath them. This is not normally a problem because the shutters have been designed to be self purging. A quick test to check the shutter action is to use something pointed in the shutter lubrication hole. Pull the shutter open 3 or 4mm then release the shutter quickly and it should move back to centre quickly and sit against its stop. If the response seems sluggish, then it's likely that the long term combination of oil and husk dust has combined to make a sticky "grease" which needs to be removed. The machine has been designed to make maintenance of the shutter system very easy. Use a 4mm hexagon key to remove the 6 top plate retaining screws. Place them in one of the sample trays for safe keeping



Slide the top plate off and wipe any oil from the underside



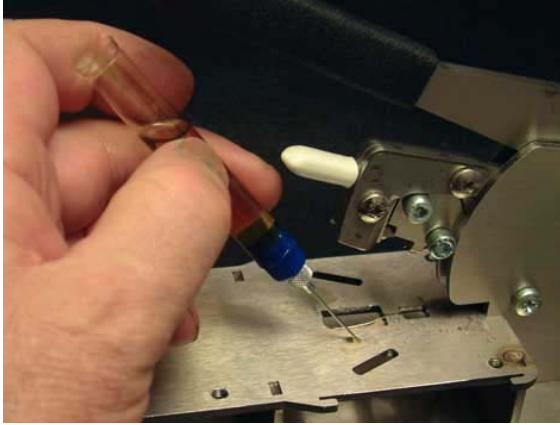
Carefully remove the shutter plate and place it on a clean flat surface before disassembling the shutters and springs. The polymer springs are circular when new but after a short time take up a distorted shape close to their assembled "squashed" shape. This does NOT impair their effectiveness.

Wipe any debris from the plate and from the shutters

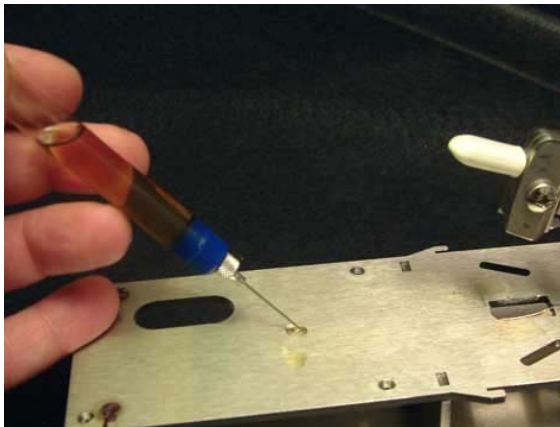


Remove the shim plate and wipe it clean. Note the shim plate is not stainless and some additives in certain oils may cause staining (this is not a functional problem).

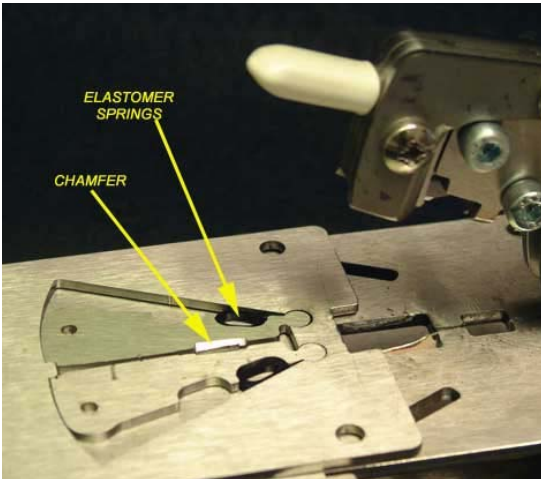
The main bed plate will now be exposed. Wipe any debris and oil from the surface.



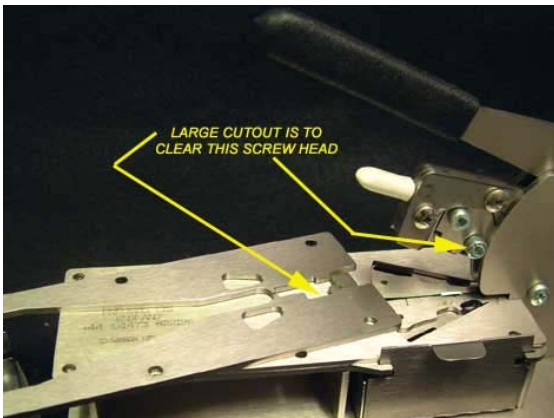
The bed plate around the shutter area should be oiled with a THIN film of oil - 5 or 6 drops of oil smeared around with a finger tip) and



A few drops on the remaining area of the bedplate should be smeared around into a thin film. Replace and align the shim plate on top of the bedplate and then apply a SMEAR of lubricant to the top face of the shim plate to prevent the risk of moisture ingress.

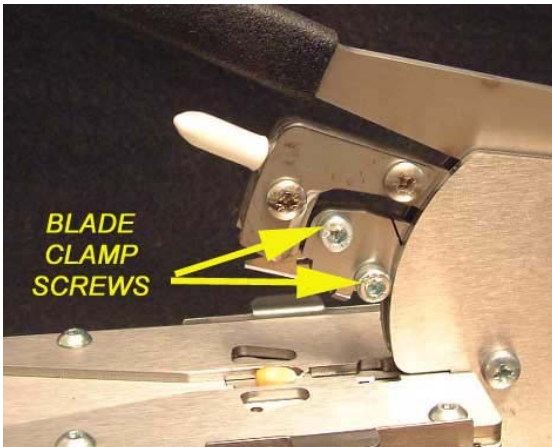


After cleaning, reassemble the shutter plate and shutters making sure that the polymer springs are in the correct slot and pushed flush/sub-flush to the surface. Assemble and align it on top of the shim plate.



Slide the top plate into alignment with the other plates and drop the 6 screws back into position. Screw the 6 fixings in about 2 turns each to ensure full alignment of all plates and then fully tighten all screws.

CHANGING THE BLADE

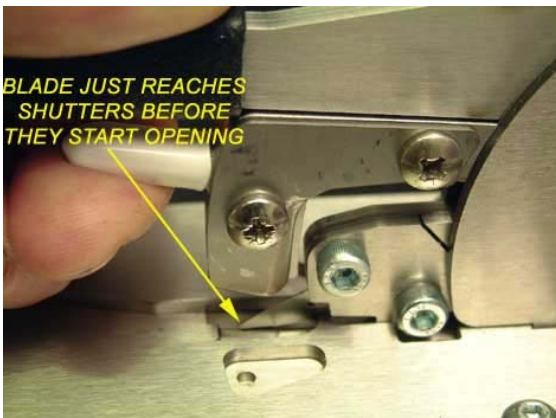


Changing the blade is not a regular task because blades last a long time on normal moisture content grain. The first time you change a blade it may be a good idea to completely remove the clamp screws and the blade clamp plate to see the blade location shim and understand how it locates the blade into a specific position. Replace the clamp plate and tighten the screws **WITHOUT** the blade in place. You can now proceed as if it was a normal blade change.



Loosen the two clamp screws by about 1/3 of a turn each.

The blade can now be withdrawn and replaced by a new blade, sliding it **CAREFULLY** back into the location slot. Make sure it is fully home in the slot before re-tightening the two clamp screws. If the clamp plate is loosened too much the blade will slide past the location shim and will clamp in the wrong position.



When the new blade has been fitted, take a few seconds to carry out this simple check to ensure correct functionality. Lift the "V" clamp clear of the blade with the white handle and carefully lower the blade with the operating lever. Check that the blade **JUST** passes into the shutters before they start to open. If the blade has been fitted incorrectly then the obvious signs will be that either, the truncated point of the blade will stick out the front edge of the blade guard **OR** the blade does not reach the shutters before they start to open.