

## OWNERS HINT SHEET AND FREQUENTLY ASKED QUESTIONS

Please use this hint sheet in conjunction with the owner's manual –also available from [www.venco.com.au](http://www.venco.com.au)

### **EFFICIENT BLENDING AND RECYCLING**

The Super-twin will effectively blend both wet and dry scraps and even broken green-ware. The twin-auger mixing chamber also makes easy work of blending different bodies together.

It is more effective to blend/ recycle a large batch, as this greatly reduces handling and processing time. Also this allows broken green-ware etc. to be soaked for a period of time until stocks accumulate.

General blending: It is important to first remove the shredding screen before feeding dry scraps otherwise it will get blocked by dry lumps. The vacuum pump should not be used while blending. Start by adding a mix of the ingredients to be blended. It is best to start with a majority of moist clay and add the dry turnings and slip alternatively. Keep adding this mix of clay and scrap until clay starts to be extruded from the nozzle. Feel for consistency and for moisture content. If the mix is too stiff, either re-feed with some more slip or a little water (see below). If the pugged mix is too wet, re-feed with some powdered clay (see below) or with some dry scraps. Just re-feed the pugged mix and alter to suit your requirements.

Once you are satisfied with the consistency of the pugged mix, the pugs may be cut into lengths, bagged and stored for future use or de-aired for immediate use after re-fitting the shredding screen and the vacuum kit.

Adding water: The best way to add water is to open the feed bucket and tip a little water at a time down the front of the feed chute. This will prevent the feed bucket getting wet and becoming sticky, hampering feeding. If too much water is poured in at one time, the clay in the barrel can 'core'. The term coring refers to a situation where skin friction between the clay on the auger and the barrel is lost resulting in the auger turning with a solid core of clay on it. Once this happens output is severely reduced or even stops. If this happens, keep the pugmill operating and try removing the nozzle or feeding some dry scraps. After a little while the problem will disappear and production will resume.

Adding powdered clay: Powdered clay is best added in the same fashion as adding water. Open the feeding bucket (handle up) and sprinkle a little powdered clay down the gap between the front of the hopper and the feed bucket. Sprinkle approximately 1 cup per time into the moist mix within the mixing chamber. It is best to use a square/flat edged scoop about the same width as the hopper. If powder is added directly to the feed bucket it may form a sticky sludge that can hamper feeding. Alternate the feeding powder with moist clay and water etc. to arrive at the desired mix.

Broken green-ware: Broken green-ware and hard lumps should be limited in size to approximately 2.5cm (1"). If possible, it is advised to soak hard/ dry scrap first before recycling, this will reduce processing time and also minimize load on the pugmill. It is advised to remove the nozzle when recycling dry scraps and green-ware. Feed the pugmill with a blend of slip, dry scrap and some clay. The pugged mix will then fall out of the end of the barrel in spirals. These spirals are uncompacted and easier to examine for hard/ dry lumps and desired moisture content. It may take a number of passes to fully crush and blend the hard scraps throughout the mix. Once the complete batch of blended clay has been processed and you are happy with the consistency (and with no dry lumps) you can re-fit the nozzle and pug the complete batch. Some operators find it better to bag-up these pugs overnight and then de-air the next day. This method ensures an even distribution of moisture content. Alternatively, the complete batch can be de-aired for immediate use if required.

### ***So in short, to reclaim dry scrap and slip;***

- 1) remove and set-aside the **shredder screen** and **vacuum chamber**
- 2) remove barrel nozzle if reclaiming dry scraps (broken greenware)
- 3) feed alternating loads of dry and wet scraps with moist clay
- 4) feel clay for consistency as it comes out of barrel. Re-feed with water/ more dry to adjust consistency
- 5) continue re-feeding the pugged clay until complete batch is homogenous and correct consistency (this may take up to 4 passes)
- 6) re-fit nozzle (if it was removed) and pug non-deaired logs for storage (or)
- 7) fit shredder screen, de-air kit and de-air complete batch or as needed.

## **EASY REMOVAL OF BARREL AND NOZZLE**

Removal of the nozzle and barrel can be made infinitely easier if the mating sections of the two components are thoroughly cleaned before assembly using a wet cloth. i.e. all grog/grit is removed. It is important to clean both surfaces (for example - the inside of the nozzle and the outer tip of the barrel). Then smear a liberal coat of petroleum jelly (or grease but petroleum jelly is better for your hands) on both these surfaces.

Before trying to remove the barrel from the mixing chamber, remember to run all the clay from the unit. Turn the pugmill on and run it until clay stops coming from the nozzle. Remove the nozzle and run the unit again, some more clay will usually come out.

### **The best way to remove the nozzle**

Un-clip by twisting (this is quite easy when petroleum jelly has been used). Run the pugmill for a few seconds until the nozzle is pushed off the barrel by a few centimetres (an inch or so) then turn off again. Wire-cut the pug between the barrel and the nozzle to remove the nozzle.

The reason why it can be difficult to just twist and pull the nozzle off is because the clay in this section is de-aired and well compacted. It is best to let the Super-twin do the work and push it off and then cut the clay with a wire.

### **The best way to remove the barrel**

Firstly run the barrel out of all clay (remove the nozzle to make sure). There will always be resident clay in the barrel but running until no more comes out makes this so much easier. Remove the vacuum chamber and set aside. Ensure the pugmill is off. Grasp the handles and turn to un-clip them from the latches. Then continue turning to un-screw the barrel from the auger - like removing a cork from a cork screw. Some users hold the handles and drive it off with the auger, which is quite easy, but probably best not done by inexperienced students. Once again this process is easy if the mating sections are clean and have a smear of petroleum jelly.

### **The best way to remove the shredder screen.**

The barrel need only be 'unscrewed' down the auger about 5cm ( a few inches) to expose the shredder screen. Rotate the shredder screen on the auger shaft until the little keeper plate is facing up. Grasp the screen by placing one hand on either side of the keeper plate and push down on the auger firmly. This should push the keeper plate out and the screen will fall off under the auger. (remember to re-install it the correct way around - mesh side must face the motor)



## **FREQUENTLY ASKED QUESTIONS**

### **The feed bucket is sometimes held in the down position, after I have dropped a load of clay in**

You are probably feeding too fast. The clay must be given a second or two to fall from the feed bucket into the mixing chamber once the handle is brought fully forward. This is more common with sticky de-aired clay or wet scraps. A gentle thump of the handle on the rim as it is brought forward may also help the clay fall off.

### **Clay is building up on the rear face of the feed hopper**

It is normal for some clay to build-up within the feed hopper and it should not hamper operation. Just use a thin spatula to scrape this off and push it into the mix. If it has dried out, it is best left until you next have the screen out before dislodging it - this will prevent the dry clay blocking the shredding screen.

### **Why must I use a lot of force to remove the nozzle and barrel. Is something wrong?**

Remember to run all the clay from the unit before attempting to remove the barrel. Remove the nozzle and run again to ensure all is removed. Make sure the mating surfaces of the nozzle and barrel cleaned and lubricated before assembly. For more information see above.

### **I want to completely clean the barrel and mixing chamber. How do I do it?**

Run the unit until clay stops coming out of the nozzle. Then remove the nozzle and run again. Turn off the pugmill and disconnect it from the wall socket. Remove the barrel as described above. Using a 13mm spanner, remove the 7 bolts around the mixing chamber flange. Draw the mixing chamber forward off the auger. The mixing chamber can be left overnight for the clay to dry/shrink and most of it will fall out. Soak the barrel and nozzle and clean with a soft brush. The auger can be cleaned with a bristle brush. Do not use a wire brush as the steel bristles can contaminate the stainless steel and cause staining which may be a concern with porcelains.

### **My vacuum chamber is filling with clay. Why? Will it hinder de-airing?**

It is normal for some clay to be drawn into the vacuum chamber while operating. The main factors that will increase this are soft/fine clay or a restrictive extrusion die. Venco's specially designed auger constantly swipes the area beneath the de-air slot. Hence in most circumstances the slot area will be kept open enough for perfect de-airing. If the vacuum chamber becomes filled, it is a good idea to turn off the pugmill and dump the vacuum (using the little tap adjacent to the vacuum gauge). The vacuum chamber may then be un-clipped and clay removed for re-cycling. Another tip, is to quickly flick the dump tap on/off while operating the pugmill. This will suck the clay immediately around the slot area back into the barrel. It will also make sure that an orifice exists between the barrel and the vacuum chamber, which is necessary to draw air from the clay within the barrel.

### **What electrical requirements are needed to operate the Super-twin?**

The motor of the pugmill and vacuum pumps are designed to operate from 220-240V 50/60hz, single phase power. A 10A power outlet should be used. A transformer is available to operate the unit from 208V outlets. If extension cords or power boards are being used, they should be correctly rated to prevent a voltage drop to the pugmill that can hinder its operation.

### **My clay is not being de-aired well. What should I check?**

Firstly check the vacuum reading on the gauge. It should be greater than 90kPa [at sea level\*], ideally 95-98kPa. If the gauge is reading correctly, check whether the shredding screen was fitted and that the vacuum slot in the barrel is clear. It can take a couple of minutes for the clay within the barrel to de-air satisfactorily and then be extruded.

If the gauge reading is low (i.e. less than 90kPa),

- a) firstly start the vacuum pump and block the brass fitting inside the vacuum chamber with your finger. Now check the reading on the gauge is 90kPa or above. If it is, the problem lies with the vacuum chamber/gaskets. If it is still low, the problem lies with the pump, hoses fittings etc...
- a) check all connections and ensure the filter is sealed
- b) make sure the dump valve (small tap) is closed
- c) vacuum will only register when the barrel is full of clay.
- d) check the condition of the two gaskets on either side of the vacuum chamber. If there are any holes or cuts they should be replaced. Check that the vacuum chamber is fitted over the slot in the barrel and is seated well on the gasket.

\* If the pugmill is being used at altitude, the absolute reading will be reduced, but this will not affect the de-airing of the clay.

### **I was using my Super-twin and the motor cut-out. What should I check?**

The Super-twin motor is fitted with an overload cut-out to protect the motor.

- a) Are you using the correct power supply? (220-240V 50/60hz) Is the power outlet overloaded?
- b) If you are re-cycling firm/dry clay and blending this with softer clay, remove the nozzle until the processed clay is blended and all soft. This will dramatically reduce the load on the unit and decrease processing time.
- c) Remember to remove the shredder screen when blending dry clay – only re-fit once all dry lumps are blended.
- d) You may be loading the pugmill too fast, or with lumps that are too large. If the clay to be fed is stiff/firm, cut into smaller pieces and feed at a slower rate.
- e) If you are using dies to extrude various shapes, maybe you are restricting flow too much. Increase die extrusion area, maybe by drilling some extra holes.

### **Why does the oil in my vacuum pump turn milky-white?**

When water mixes with the oil in the vacuum pump, it will turn it milky. Some clays shed quite a lot of moisture while being de-aired. This is a property of the clay and little can be done without purchasing a very elaborate and expensive water/air separator. The best solution is to periodically drain the oil and set it aside. With time it should separate with the water floating on top of the oil. The oil can then be re-used again and the water discarded.

### **The motor is running, but not much clay is coming out.**

- a) The shredding screen may be blocked with grog, impurities or dry clay. Remember to remove the shredding screen when reclaiming/blending dry scraps. Remove the shredding screen and clean before re-fitting.
- b) The clay within the barrel may be coring. This is common if too much water has been poured into the mix at the one time. Add water a little at a time. With experience you will be able to judge how much to add to adjust the mix very quickly. Remove the nozzle and keep running the pugmill, after a few minutes the clay flow will resume.

*Any other questions??? Don't hesitate, we are only a phone call or email away*

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