

## FAULT FINDING MECHANICAL – MEC 306, 408 & CHANDELLE

**CAUTION: ANY MEC MACHINE MUST BE IN THE DISARMED STATE WITH THE BATTERY DISCONNECTED PRIOR TO MAKING ANY ADJUSTMENTS, LOADING WITH CLAYS OR TRANSPORTING**

### **1. The Machine breaks clays!**

A point to consider here is that if you have other traps, which have suddenly started to break clays, then it is probably the clays, which are at fault.

Sometimes the clay will be unable to absorb the actual throwing forces consistently. The maximum acceptable level of no birds is 5%, but should in practice be less.

A simple process should be followed which differentiates between the loading of the clay prior to throwing and the throwing of that same clay.

Check loading cycle first:

(a) Check that clay in the magazine is intact, not chipped or cracked. If in doubt, remove suspect clays and refill with ones known to be intact.

(b) With the machine switched “OFF”, rotate the magazine by hand, removing each clay as it drops onto the casting plate. Check for cracks and chips. If the clays arrive on the plate intact, then move on to the throwing section below.

(c) If they arrive chipped or cracked then remove the magazine and check that the thickest clay you can find slides easily under both inner and outer knife edges, i.e. just free enough not to be squeezed onto the carousel plate. Check of course that the knife-edges are not excessively high, although this would tend to shave the bottom off the next clay, not break it. Adjust both knife-edges accordingly.

(d) If damaging contact occurs on all columns then the knife-edge is damaged and must be realigned by refitting or possibly filing or grinding to give minimal clearance. The knife-edges are adjustable with a 7/16” wrench. Each Knife Edge has three slotted holes for ease of adjustment.

(e) Check each clay for chipping or cracking, remove the cloth and repeat the process. This time if any of the clays break or crack as they land on the casting plate, then the clay is unsuitable or too soft.

(f) Check that there are no tight spots in any of the carousel pockets.

Occasionally machines can suffer slight damage in shipping to the carousel. This can be easily adjusted with a suitable piece of wood or the handle of a hammer.

Ensure that a handful of clays move up and down each of the pockets once adjusted. If the clays arrive on the plate intact, then the fault lies in the throwing cycle.

Check throwing cycle next:

- (a) Check arm for straightness, for chunks missing from the black arm rubber or any other physical damage to the arm. If the arm cannot be straightened then it should be replaced. A new arm rubber can be fitted to an old arm if necessary.
- (b) Check for damage to the throwing plate especially the front edge of the plate in case it has been dented, bent or burred. Check for flatness; ensure that no screw heads protrude and that there are no other obstructions to the clay's path.
- (c) Check the height of the arm over the plate across its whole surface to ensure that the clay fits under the friction strip with about 1/16" clearance. Any more than this clearance can cause the arm to break the clay by riding over it.
- (d) Check that the bolt holding the arm to its clamp block is tight.
- (e) Check the arm-crank timing relationship. If this relationship is incorrect the trap will definitely break clays when throwing.

As each of the above elements is checked, something incorrect should be discovered. If the machine still breaks clays, then there is one final check. Slacken the main spring to its minimum extension, i.e. with the throwing arm in the forward position the coils are just open. Operate the trap a few times in this mode, which puts hardly any stress into the clay because of the slack mainspring. If the clays still break then it is very likely that the actual clays are sub-standard and a new batch should be obtained.

## **2. Machine will not throw clays.**

It is usually obvious what is wrong with a machine which does not throw clays at all. It is more likely that the following situation arises:

Machine throws clays but:

- (a) The clay flicks up in the air.** The arm is probably bent down or the casting plate bent up, squeezing the clay between them. The arm or plate should be replaced or straightened.
- (b) The clay goes no distance** (even though the main spring is wound up tight). The arm is probably bent upwards causing clay to go under it at its tip. This will also cause clays to break. The solution is to straighten the arm.
- (c) The clays are inconsistent in direction.** The clay is being jammed under the arm towards the end. This is usually caused either by the arm being bent down, then the tip bent up or more likely clays varying in thickness. The solution if the arm is bent is to straighten it. If it is the clay thickness, then lower the casting plate to accommodate the thickest one you can find. Adjust each nut exactly the same amount, until 1/16" clearance is achieved between the bottom of the friction strip and the clay.

## **3. Carousel does not rotate.**

Check the following:

- (a) The Carousel pusher arm is not jammed with broken clays or dirt.
- (b) The pusher return spring is broken or missing.

(c) With the pusher arm withdrawn, the carousel should be free to rotate with a small amount of friction. This is adjusted by tensioning the locknut holding the carousel on against the grey plastic sleeve underneath it.

(d) Carousel pusher timing is correct, i.e. when the gearbox crank and connecting rod are in line at maximum extension, the Rear Pusher Shaft flat bar should be 1/16" clear of the nylon Top Plate Support Spacer at the right side of the machine. (On left handed machines the clearance needs to be on the left side of the machine) If this is not the case then the clamp on the rear pusher shaft should be adjusted accordingly. It must be tightened before operation of the machine.

## **FAULT FINDING ELECTRICAL – MEC 306, 408 & CHANDELLE**

**CAUTION: ANY MEC MACHINE MUST BE IN THE DISARMED STATE WITH THE BATTERY DISCONNECTED PRIOR TO MAKING ANY ADJUSTMENTS, LOADING WITH CLAYS OR TRANSPORTING**

### **1. Machine does not cock** (i.e. come to the loaded position.)

Check:

- (a) Battery is charged and that connections are tight.
- (b) Toggle switch is in the down ON position.
- (c) Arm is clear of roller limit switch under casting plate. If not, then press toggle up to the DISARM position until the arm is clear, then back down to the ON position.

### **2. Machine still does not cock.**

- (a) Check all connections are tight including those inside the electrical box. Check for broken wires and damaged connections.
- (b) If there are no broken connections (battery connected, all switches on) press toggle up to DISARM, listen and watch for the 12v relay operation in the control box.

(c) If the relay operates but the motor does not turn - short across the 2 large contacts on the relay with a screw driver or piece of wire. (These are the two terminals with red wires connected to them).

If the motor does not turn - then the motor is suspect.

If the motor does turn - then the relay is faulty. Contacts may be dirty or worn out.

(d) If the relay does not operate – check the fuse has not blown. Replace fuse if it has blown and try again.

(e) If the motor does not turn - then short the brown wire to the yellow/green wire on the back of the toggle switch with the switch in the “NUDGE” position.

If the relay operates and the motor turns - then the toggle switch is faulty.

If the relay still does not operate then it is faulty.

### **3. Machine runs in DISARM position, but not in the ON position.**

- (a) If the arm is clear of the roller limit switch then the roller limit switch is faulty.

Check that the roller arm is not seized. If so, strip, clean and Re-assemble. Otherwise replace the switch.

#### **4. Machine arms, but will not fire on the Pull Cord button.**

(a) Either the connections, cable or command push button are faulty. Disconnect the three pin plug on the Pull Cord and short the 2 outer sockets (do not put anything into the center socket - this carries continuous +12v for radio use.) If the trap does not fire then there is a broken wire in the cable or a bad connection in the three pin plug or control box.

(b) If the trap does fire then reconnect the Pull Cord, remove the cover on the push button box and short across the two spade connectors. If the trap fires - then the push button is faulty. If the trap does not fire - then there is a broken wire in the Pull Cord or a bad connection in the three pin plug.

#### **5. Trap fires by itself!**

(a) Disconnect the Pull Cord and switch the trap back on.

If the trap cocks normally - then the Pull Cord is damaged or shorted out.

Alternatively, the push button switch is stuck in or faulty.

(b) If the trap continues to fire - then check the arm to crank timing relationship as described on page five in this manual. If the above relationship is correct then, after having put the trap into the disarmed/safe position, move the roller limit switch to the left of the mainframe along the slotted bracket to its maximum. If the machine now arms normally - then move the limit switch back to within  $\frac{1}{4}$ " of its original position. If the trap now fires by itself again then move the switch to  $\frac{1}{2}$ " of its original position and so on until the trap cocks normally under all conditions.

(c) If the machine still fires by itself - check if the relay contacts have stuck together, and if so replace. If the relay operates correctly, but the trap still fires by itself, then the roller limit switch is faulty and should be replaced.