

ACORN

A320 User & Safety Manual



CONTENTS

• General Trap Safety	3
• Visual Safety Guide	4
• AutoClay 320 Checklist	5
• AutoClay 320 Assembly and Setup	6-15
• ATTACHING THE MAIN UNIT TO THE BASE	6
• ATTACHING THE LAUNCH-PLATE SUPPORT / GUARD STRUT	8
• ATTACHING THE LAUNCH PLATE	9
• SETTING THE HEIGHT OF THE LAUNCH PLATE	11
• ATTACHING THE CONTROLLER BRACKET AND GUARDS	12
• ASSEMBLING THE CAROUSEL	13
• ATTACHING THE CAROUSEL	15
• AutoClay 320 Operation Instructions	16-18

GENERAL TRAP SAFETY

It is important to familiarise yourself with the following safety information before operating the trap.

All of our traps employ a tensioned spring mechanism whereby the rotation of the motor applies tension to a large spring until a certain point when the spring's tensile force acts in the same rotational direction as the motor, causing the arm to rapidly whip around the rest of the way, and so launching the clay. It has a one way clutch system meaning it cannot be unwound. Thus the the trap is safest at the point where the least tension is felt by the spring, or near the 12 o'clock arm position. The state of the trap and its safety can be determined by the position of the arm. Please refer to the **Visual Safety Guide** to understand the different states of the equipment.

Safety Essentials

- Use the guards provided.
- Disconnect power when handling or reloading the trap.
- Disconnect power and spring during transit.
- Keep body parts, loose clothing or jewellery clear of moving parts.
- Do not walk in front of trap when the trap is is use, or when the spring is under tension.
- Connect and disconnect spring while launch arm is in approximately the 12 o'clock position.
- Ensure inclination adjustment fixing nuts are tightened before activating trap.
- Do not use trap during darkness or inadequate lighting.
- Only use 12 volt power supply and with secure connections.
- Do not reverse the polarity of the power supply (will damage trap, blow fuse and may cause injury).
- Do not use deteriorated or uncharged batteries.
- Exercise caution at all times and treat the trap like a loaded gun.
- Keep out of reach of children.

Visual Safety Guide

Armed

The main spring is under tension, the Crank Drive Linkage is engaged and the trap is ready to fire, the Launch Arm is in the armed position at 7 O'clock.



Armed - 7 o'clock

Disarmed

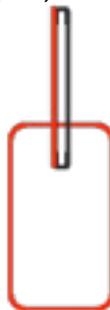
The clay has just been fired, there is not a lot of tension in the main spring. The Crank Drive Linkage is not engaged, and the Launch Arm is in the Disarmed position at 10 O'clock.



Disarmed - 10 o'clock

Make Safe

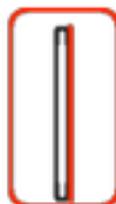
The battery **is not** connected, there is zero tension in the Launch Spring, the Crank Drive Linkage is not engaged, and the Launch Arm is in the Make Safe position at 12 O'clock.



Safe - 12 o'clock - connect and disconnect main spring during zero tension

Stored

The battery **is not** connected, the Launch Spring is removed, and the Launch Arm is in the Stored position at 6 O'clock.



Storage and transport - (spring removed)

AUTOCLAY 320 CHECKLIST

Our traps are often shipped with some assembly required to greatly reduce the volume occupied during shipping.

Requirements for setting up your machine

- **1x** 19mm Spanner/Wrench (M12)
- **2x** 13mm Spanners/Wrenches (M8)
- **1x** 10mm Spanner/Wrench (M6)
- **1x** Clay Target (to fine tune the launch-plate height)
- *(Recommended) Power driver with a 10mm socket (M6)*
- *(Recommended) Vice or clamping tool*

Box Contents Checklist

1. Main Unit

Caution! Unit weighs around 25Kg, assistance in handling is recommended.

2. Base

Including dual bolt brackets x2

3. Carousel Parts

Including the base, top and bottom plates, 32x long tubes, bag of 32x short tubes, 32x bolts, 32x washers.

4. Safety Guards x 4

5. LaunchPlate

6. Guard Struts x 2

7. Release Option

Standard release option is the single button basic trap release.

AUTOCLAY ASSEMBLY & SETUP

STEP 1: ATTACHING THE MAIN UNIT TO THE BASE

NOTE: It is recommended that two people perform the first step of this assembly guide.

- a. Carefully stand the Main Unit nose-down (ideally on a soft surface to avoid scratches) and have your dual-bolt brackets ready to hand.
- b. Introduce the Base to the Main Unit, with the straight edges facing downward as shown.



Instructions continue overleaf.....

- c. Align the holes on the base with the slots and holes of the main unit, and insert the brackets (with washers) as shown below (be careful not to pinch the wires).

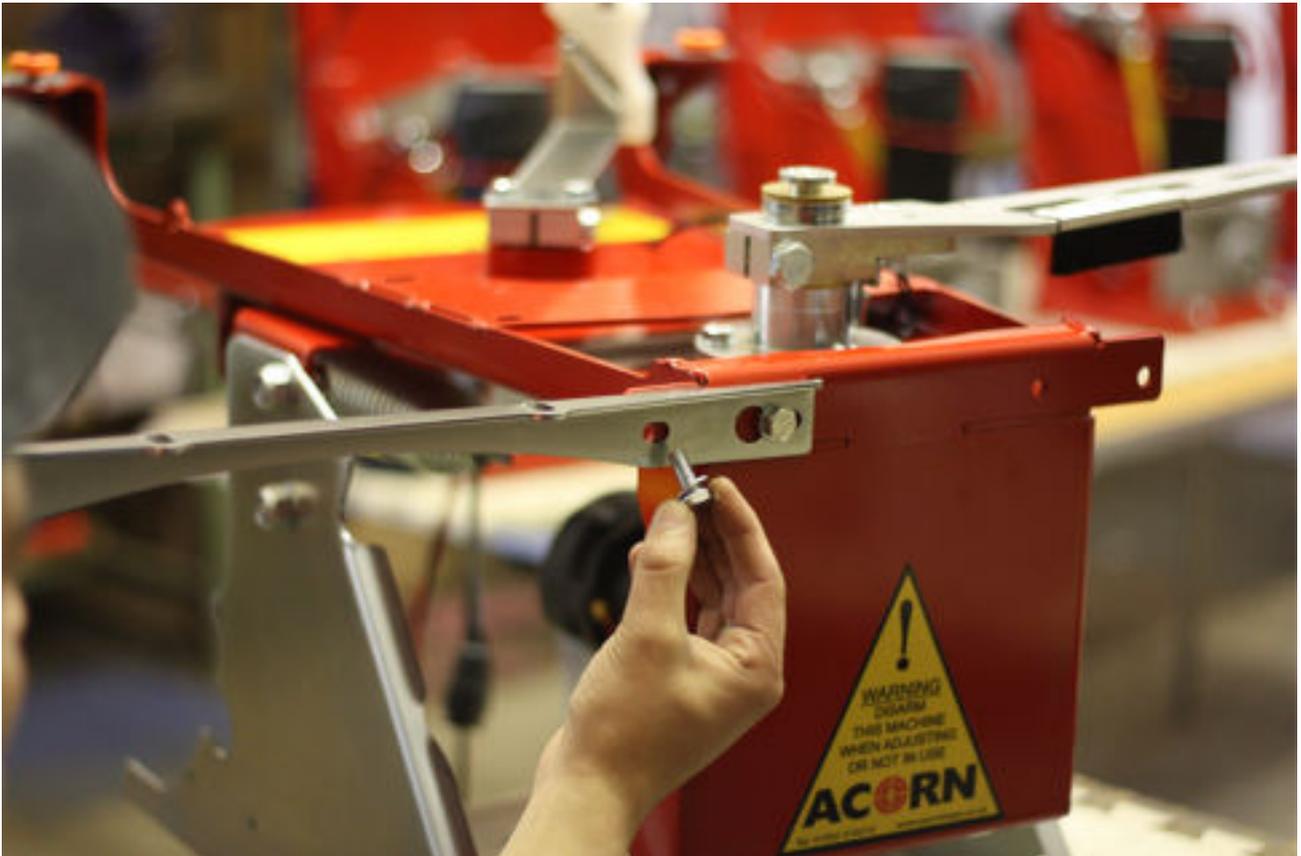


- d. After both brackets are inserted, use the large M12 size 'Nyloc' nuts and washers to secure the base to the main unit as shown.



Step 2: ATTACHING THE LAUNCH-PLATE SUPPORT / GUARD STRUT

- a. Stand the trap the correct way up on the base and attach the guard struts to the front of the main unit with the M8 bolts, washers and nuts supplied, as shown below.



NOTE: Leave these nuts loose in order to make attaching the launch plate in the next stage much easier!

Step 3: ATTACHING THE LAUNCH-PLATE

- a. First remove the lowermost set of serrated nuts on each bolt of the launch plate. Then locate the launch-plate bolts with the slots of the support strut and main unit, and lower into place



- b. Now you can tighten the bolts holding the guard strut, ensure it is straight and level. A spirit-level can be used but it is not necessary.



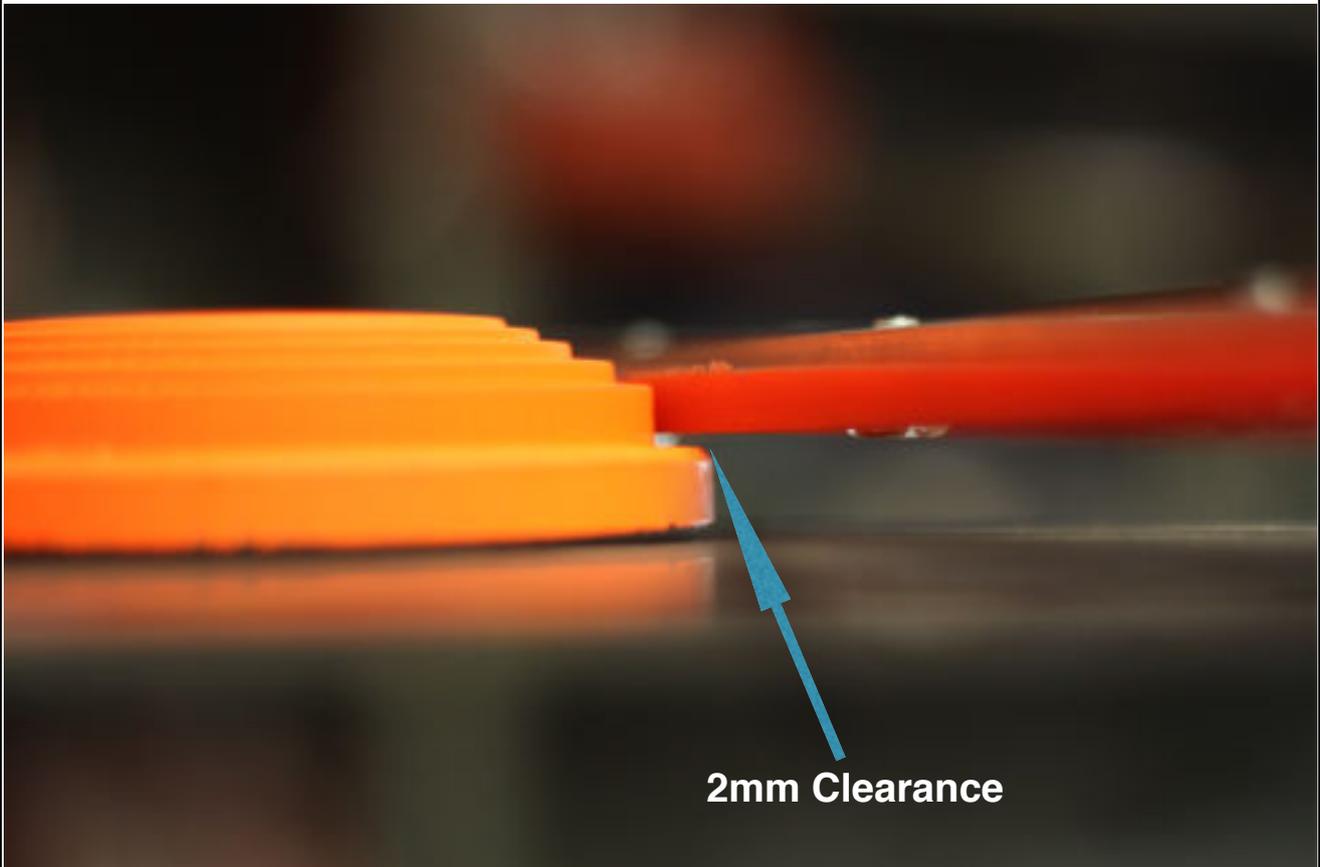
- c. Fit the lowermost serrated nuts back onto the bolts of the launch plate but do not over tighten, these will be fine tuned in the next step.



Step 4 is on the next page.....

Step 4 - SETTING THE HEIGHT OF THE LAUNCH-PLATE

The essence of this step is to adjust the uppermost serrated nuts on the launch plate bolts in order to **maintain a 2mm clearance between the clay and the arm across the entire plate**.

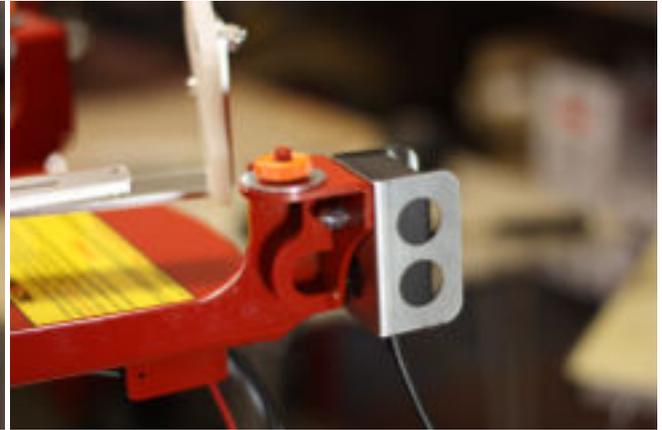


Once this clearance has been achieved across the entire plate, lock the plate setting by tightening the lowermost serrated nuts. Once locked, you should never have to adjust these nuts again.

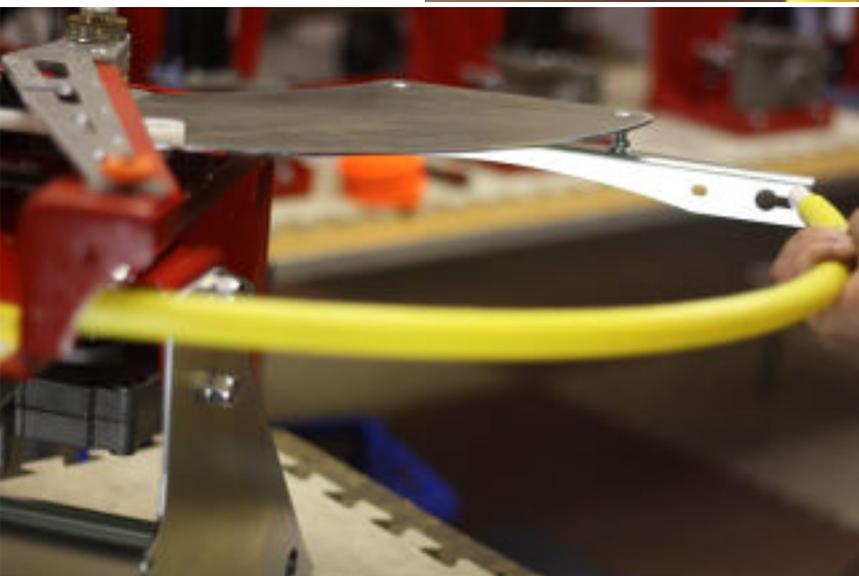
If clays are breaking upon launch or the clays exhibit non-uniform flight characteristics: first check that this clearance is correct across all areas of the launch plate, and that the plate is free from protrusions or excessive deposits.

Step 5 - ATTACHING THE CONTROLLER BRACKET AND GUARDS

- a. Attach the Controller Bracket to the main unit as shown.



- b. Combine two guard tubes to create one long open-ended guard section for the forward part of the guard loop.



- c. Use the two remaining guard tubes for the sides, by inserting them as pictured.

- d. Now attach the longer forward guard section using the two white protrusions provided by the side guards.

Step 6 - ASSEMBLING THE CAROUSEL

TIP: A vice or clamp makes this assembly task much easier!

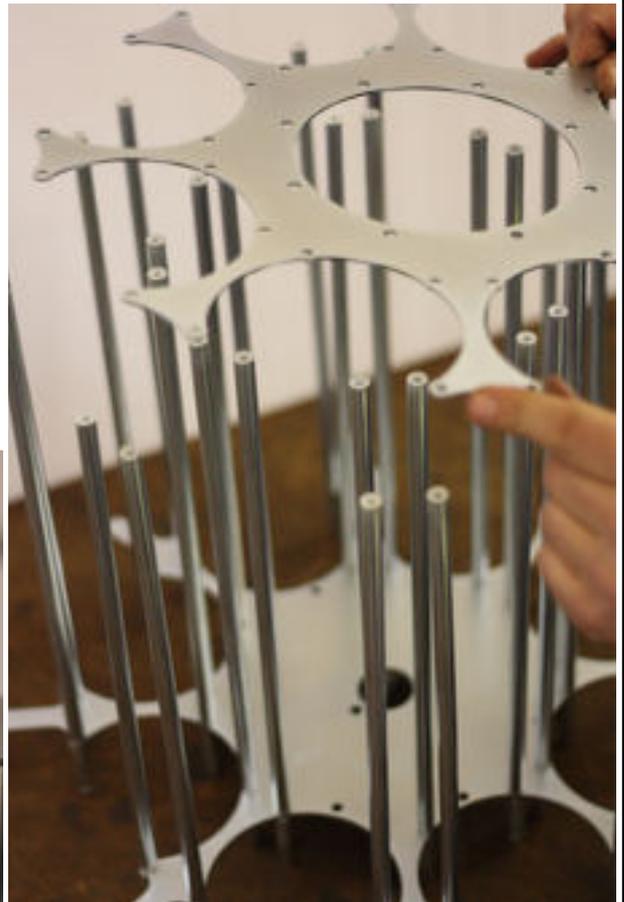
- a. Secure the carousel bottom plate in a vice or clamp as shown.
- b. Insert the small carousel tubes into the plate as below. Notice that not all of the holes are used (these are for optional mods sold separately).



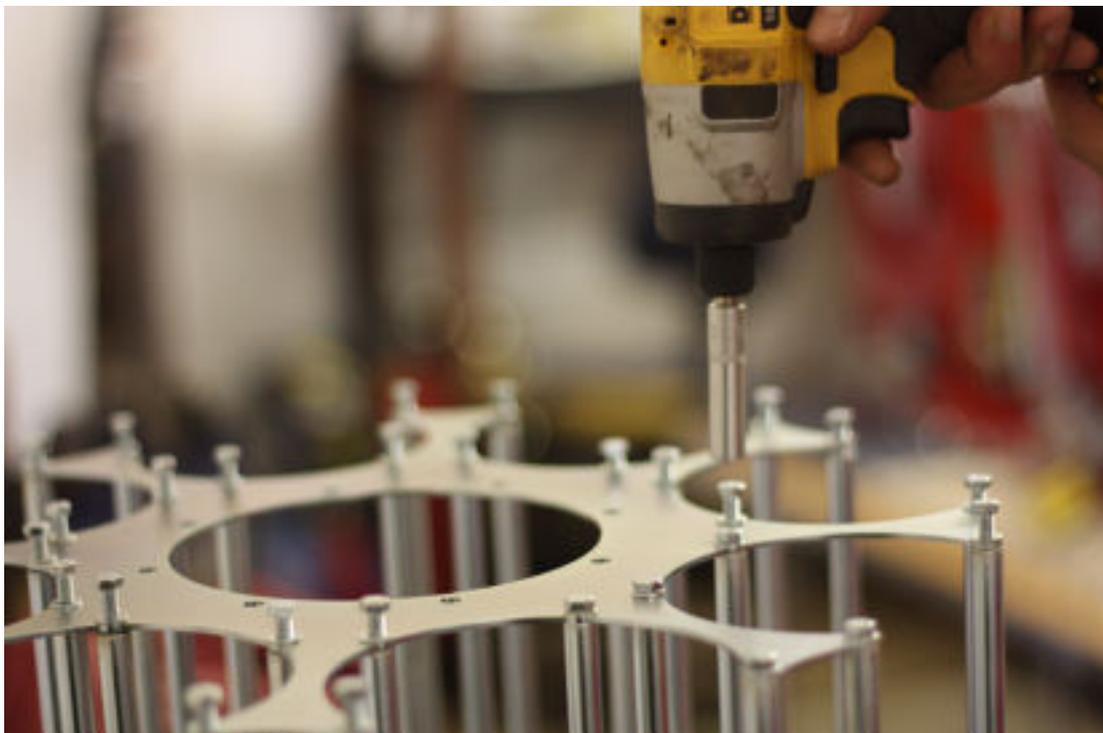
- c. Now take the long carousel tubes and screw them onto the bolts from the shorter tubes. Do this for all 32 carousel tubes. Tighten them by hand or carefully using a power driver on a low speed setting.



- d. Once all 32 tubes are secured, take the carousel out of the vice and place upright, then introduce the top carousel plate and attach it using the supplied small bolts and washers (M6).



- e. Using a hand drill or wrench (10mm socket), tighten the 32 screws on the top of the carousel to complete the assembly. Do not over-torque.



- f. Finally, take this entire assembly and mount it onto the main carousel base plate using the 3 bolts and washers provided. The carousel is now assembled and ready to be attached to the main unit.

Step 7 - ATTACHING THE CAROUSEL

- a. First remove the two orange finger nuts from the top rear section of the red main unit. Then mount the carousel assembly onto the main unit nose-first by sliding the front slot under the top cap of the arm stem.



- b. Lower the rear part of the carousel base onto the two studs which locate in the slots, and secure using the orange finger nuts you removed earlier.



Your trap is now fully assembled and is ready for use. The spring is attached only when the trap is about to be used and should not be attached indoors or for transit. For spring attachment and operation instructions please refer to the **AutoClay Operation Instructions** in the next section or available separately online at acorntrips.co.uk.

AUTOCLAY OPERATION INSTRUCTIONS

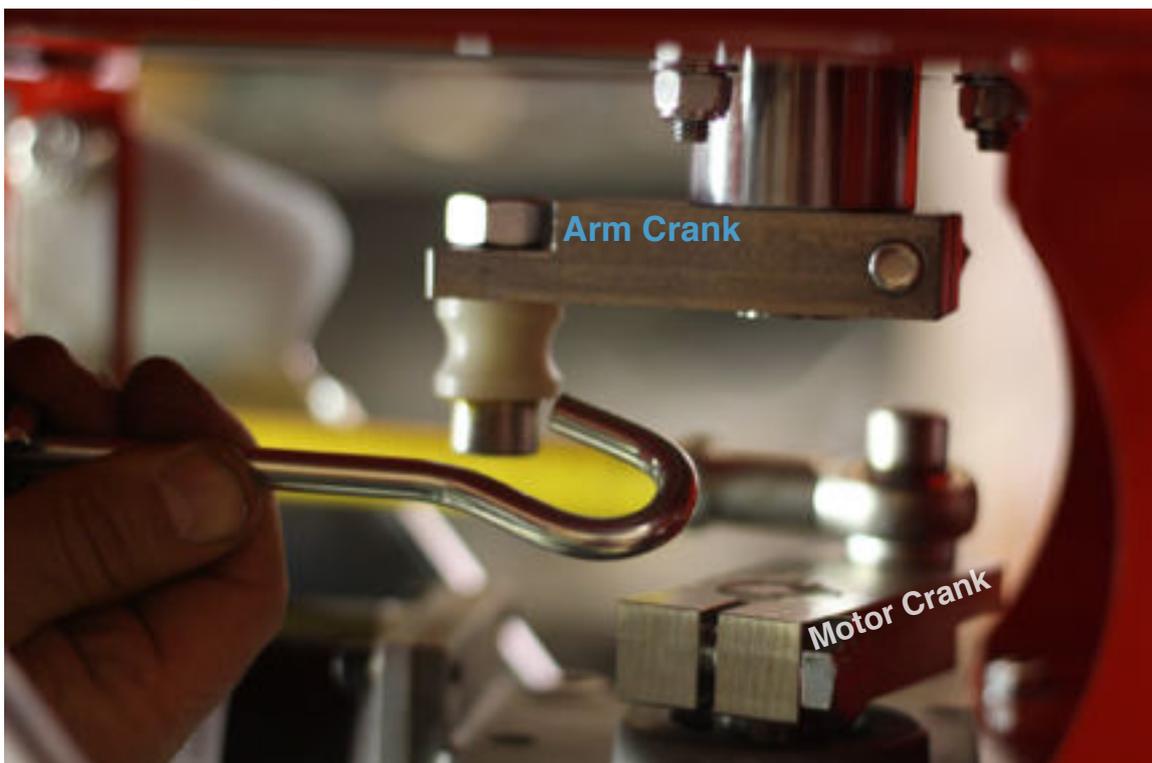
Checklist

- A. Guards are in place.
- B. Power is disconnected.
- C. The trap is stable on reasonably level ground.
- D. The inclination adjustment nuts are securely tightened.
- E. There are no pedestrians or members of the public in launch range.
- F. Batteries are sufficiently charged and in good condition.

How to Use

1. ATTACH THE MAIN SPRING -

- a. With the power **disconnected**, put the arm to the 12 o'clock position in order to have the shortest distance between the arm crank and the spring origin point. NOTE: If you cannot rotate the arm further because of the motor crank; temporarily connect the power and tap the "Disarm" function to rotate the motor crank clear, then disconnect from power. Do not attempt to force the arm around.
- b. With the arm in the 12 o'clock position (and therefore the arm crank underneath in approx. the 6 o'clock), carefully hook the spring onto the white nylon pivot as shown below.



- c. Now tighten the nut, which holds the spring at the back of the main unit, to apply some tension to the spring. This nut can be used to set the tension of the spring for further or shorter throws. Be careful on max setting! Always set the lowest tension setting when connecting or disconnecting the spring.

2. LOAD CLAYS

Load the carousel with the desired clays. As stock, the carousel only holds standard sized clays unless you have purchased optional inserts which convert each carousel section individually to hold different sizes as may be desired.

3. ENSURE SETTING IS SET TO “OFF” AND CONNECT POWER

With guards in place and all checklist items fulfilled, ensure the controller switch is in the “OFF” position before connecting the power supply.

4. SWITCH TO “ON”

Now switch the controller to the “ON” position. The trap will cycle to the armed state and stop automatically.

5. PRESS “FIRE”

Depending on your trap release option, press “FIRE” (or say “Pull” aloud for acoustic systems) to fire a clay. The trap will automatically re-arm and stop, ready for the next shot. Hold the button down to cycle continuously.

NOTE: For more detailed instructions for using the many different release options and controllers, please refer to the instructions included individually with your trap release units, or online at acorntraps.co.uk

How to Disarm and Make Safe for Transit/Storage

1. Switch to “Disarm”

Momentarily switch the controller to “Disarm”. This will fire the last clay (if one is present) but will not initiate the re-arming cycle. The launch arm will stop at approximately the 10 o'clock position. Switch to “OFF”.



In this position, the trap is safe and there is no risk of the trap firing by accident, however the spring is still under some tension.

2. Safe Spring Removal Technique

NOTE: This process can be extremely dangerous or damage your machine if carried out incorrectly. For this reason it is strongly recommended that you fully understand the process before attempting to remove the spring. If the instructions are unclear please refer to the full tutorial video available online at acorntraps.co.uk.

During normal operation, the motor crank contact **pushes** the arm crank contact past the 12 o'clock position until the spring takes over and rapidly snaps around the rest of the way to launch the clay, however during the spring removal procedure, the arm needs to be manually rotated by hand to **follow** the motor crank past the 12 o'clock position so that the arm is prevented from rapidly snapping the rest of the way. The essence of this step therefore is to support the arm crank contact with the motor crank contact, past the snapping point so that the spring tension can be gradually alleviated for safe spring removal.

Step 1 - Disarm the trap

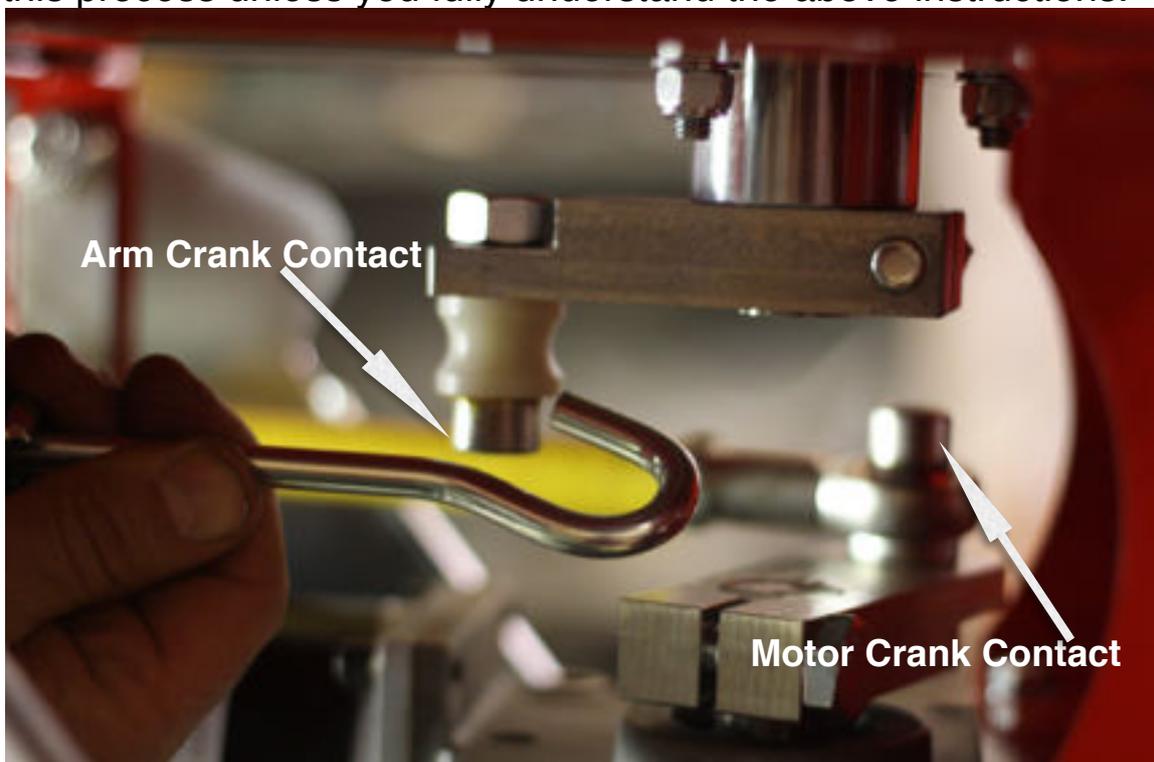
Tap the disarm switch (do not hold) to fire off the last clay (or to relieve the spring tension if no clays remain).

Step 2 - Manually rotate launch arm by hand

Manually rotate the arm up to the point where the arm crank contact meets the motor crank contact, and it cannot be pushed further

Step 3 - Tap disarm while continuing manual rotation of the launch arm

Now carefully inch the motor forward while continuing to manually push the launch arm around to follow it. When you push the launch arm past the 12 o'clock position it would normally want to snap the rest of the way violently. To prevent this, keep the two contacts of the arm crank and the motor crank in contact as you carefully inch past the snapping point. At this point you can gradually alleviate the spring's tension by continuing to tap "disarm". When the arm crank reaches the 6 o'clock position it will stop following the motor crank around and the spring is now safe to be removed. Do not attempt this process unless you fully understand the above instructions.



Additional Modular Upgrades from Acorn



Tilt Base

This simple attachment enables your machine to throw high-angle ascending and descending targets also called high-teal targets. It is easy to attach and is adjustable once attached.



Oscillating Base

Mounting your AC320 on this base enables powered horizontal oscillation to give more varied and randomised targets. Combine with the Vertical Lift mod for the ultimate in target variation.



Extreme Power Spring

This main spring replacement is not for the faint hearted. Known as the legendary Red Spring - use with extreme caution.



Midi / Mini Carousel Inserts

Allows you to customise each carousel column to feed either mini or midi size clays. You can even alternate each column with different size clays to keep the shooters on their toes.



Vertical Lift Mod

Gives your trap automatic elevation control. For best results, use with the Oscillating Base mod for the ultimate shooting challenge.

Please visit acorntraps.co.uk for all our modular upgrades and release options.



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