

# ACORN



## **AutoClay 300**

Instruction & Operation Manual



**Acorn Target Systems Ltd**

**Thank you for choosing Acorn for your clay target launcher. Please take the time to read these instructions carefully in order to set up your machine correctly.**

The assembly of your Acorn traps allows you to become familiar with the mechanics of your new toy so that field adjustment and maintenance can be efficiently mastered, giving you an extended working life and more pleasant shooting experience.

**Tools list:** What you will need to complete the assembly of your Acorn trap.

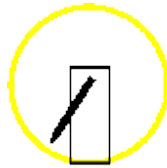
- ✓ 2 × 10mm combination spanners, or 1× 10mm spanner and either a 10mm socket or an adjustable spanner.
- ✓ 2 × 13mm Combination spanners or spanner and socket / adjustable.
- ✓ 1 × 19mm Combination spanner socket / adjustable.
- ✓ 1 × 22mm Combination spanner or Socket / adjustable (To remove the Carousel from the Top Plate if necessary)
- ✓ 1 × Flat bladed screwdriver.
- ✓ 1 × Standard size Clay Pigeon.
- ✓ A little TLC.

# Visual Safety Guide

It is important that users familiarize themselves with the following four phases of trap operation.

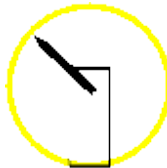
## ***Armed***

The Battery is connected, there is tension in the Launch Spring, the Crank Drive Linkage is engaged, and the Launch Arm is in the Armed launch position at 7 O'clock.



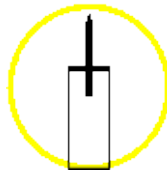
## ***Disarmed***

Battery is connected, there is some tension in the Launch Spring, Crank Drive Linkage is not engaged, and the Launch Arm is in the Disarmed position at 10 O'clock.



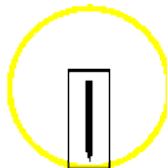
## ***Make Safe***

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.



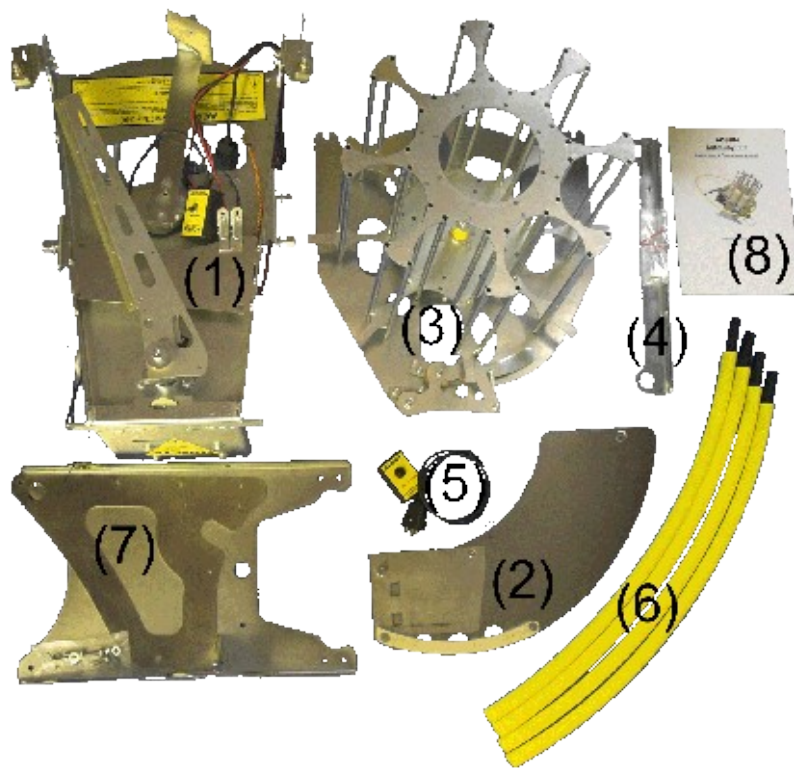
## ***Stored***

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



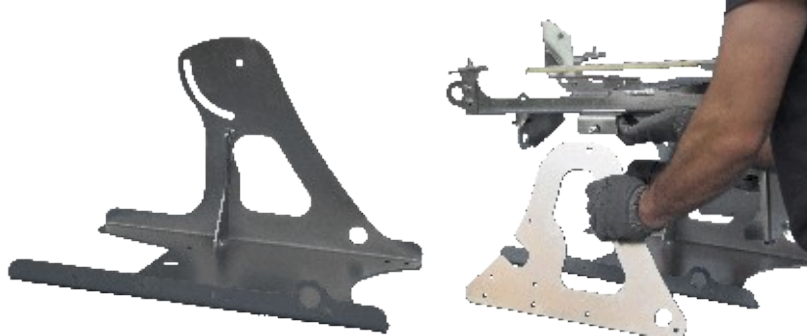
## Parts List

1. Main Unit – **Caution!** Unit weighs around 25Kg, assistance in handling is recommended. Includes Launch Arm, Spring and Motor. Please note that the Carousel locking plate is stored in the front of the main unit adjacent to the launch arm pivot.
2. Launch Plate.
3. Ready assembled Carousel unit.
4. Yellow Plastic Safety Guards × 4.
5. Launch “Trigger” – Standard hand button as shown or optional footswitch, Radio release etc.
6. Guard Struts × 2 and fastenings.
7. Base, Side Plate and fastenings.
8. This instruction book.



## Assembly Instructions

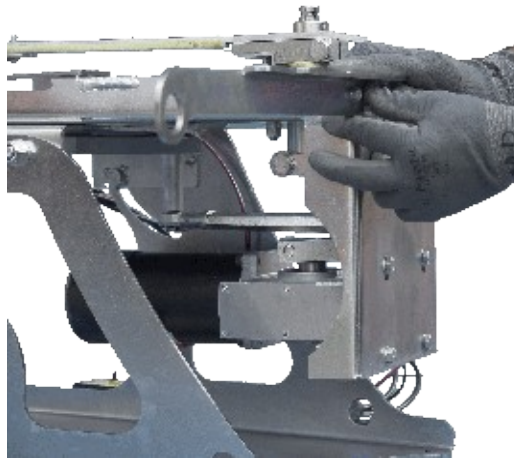
### **Fitting the Base & Main Unit**



First attach the main unit to the base, the studs on either side of the main unit fit into the holes at the top of the base unit, left hand side plate and the elevation slot on the side of the base unit, tighten the nuts on the studs. The left hand side plate is then attached to the base unit by the four M8 screws and nuts.

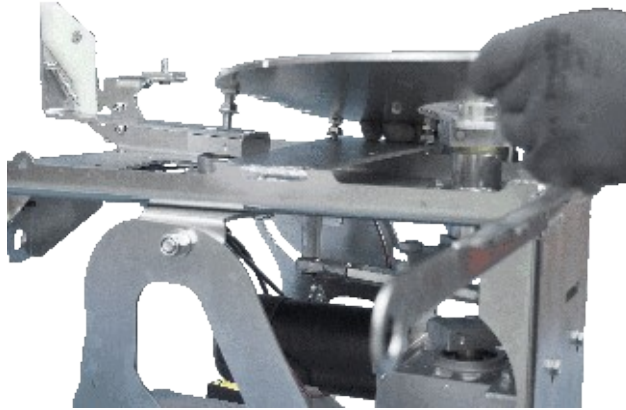
### **Fitting the Guard Struts**

Attach the left and right guard struts with the 4 × M6×16mm screws & nyloc nuts, to the front of the main unit. Make sure that the angle is uppermost and facing forwards, do not fully tighten the fastenings to allow ease of assembly later.



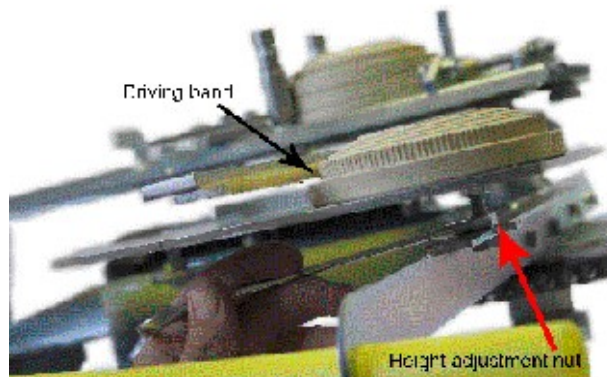
### **Fitting the Launch Plate**

Connect the power leads to a suitable 12v battery. It is essential to connect the RED positive (+ve) and Black Negative (-ve) terminals correctly to prevent damage the clutch. Using the decock position of the main switch; (momentarily push the switch up to drive the trap motor) turn the throwing arm so that it is pointing forwards (12 O'clock **make Safe position**). **Disconnect the battery!** The launch plate is then fitted with the studs on the bottom of the launch plate dropping into the holes in the main unit.



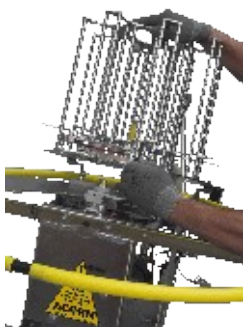
### **Setting up the arm height**

In order for clays to be correctly launched, it is imperative that the arm, clay and launch plate are adjusted correctly. **Do not attach the spring to the launch arm at this point.** Take a clay and place on launch plate; manually move the launch arm to the 7 O'clock (**armed position**). The arm needs to be pushing the clay on the drive band of the clay. By carefully adjusting the height-adjusting nuts underneath the launch plate, as you move the clay and arm around, the correct height can be easily set. The correct height should allow an even gap of around 1 to 1.5mm from the bottom of the Launch Arm to the outer rim of the clay. Once this correctly set, lock into position with the locking nuts. After this has been done, the alignment must be rechecked. Miss-setting of this is the most common cause of the trap repeatedly breaking clays. If you need to rotate the Launch Arm again once it has reached the 12 O'clock position attach a battery and use the decock switch to move the drive post back to the drive position.



### **Fitting the Top Plate & Carousel**

First hook the rear of the top plate under the lock nuts on the corresponding studs on the main unit, the front of the top plate is then lowered into place over the front bearing. Remove the lock plate from its stowage position at the front of the main unit slot it into place and lock into position with the lock screw.



### **Removing the Carousel from the top plate**

The carousel is shipped ready fitted to the Top Plate. Should it be necessary to remove the Carousel for maintenance, undo the 22mm nyloc nut at the top of the centre post, remove the washer and yellow plastic spacer and the Carousel can then be lifted from the Top Plate.



When replacing the Carousel do not over tighten the 22mm nyloc nut the carousel must be able to rotate!

### **Fit the main spring**



To fit the main spring, if the throwing arm is not already in the forwards position, attach the trap to a battery and using the disarm position of the main switch drive the throwing arm so that it points forwards away from the trap. **Disconnect the battery!** Slacken the rear nut on the spring so that there is enough play to enable the hook to pass around the white bushing on the spring crank. Tighten the spring so that it just starts to stretch and lock into place with the lock nut. It is important that the spring is properly tightened or serious damage to the trap will result.

### **IMPORTANT SAFETY INFORMATION**

**ONCE THE MAIN SPRING HAS BEEN FITTED THE YELLOW PLASTIC GUARDS SHOULD BE FITTED TOGETHER AND THEN INSERTED INTO THE GUARD STRUTS AND THE REAR OF THE MAIN UNIT.**

## Operation of the Autoclay 300

To operate the Autoclay 300 first set the required elevation and securely tighten the elevation lock nut on the side of the base unit. Load clays into the carousel by sliding them down from the top. Attach the footswitch via its plug to the to the three pin socket coming from the main unit. Ensuring that the **Autoclay 300 is SWITCHED OFF**; attach the RED +ve and BLACK -ve battery leads to the battery ensuring the correct polarity. Make absolutely sure that the area in front of the Autoclay 300 is clear of people, livestock and any other potential hazard; whilst standing behind the unit, switch the unit on. The throwing arm will be driven round to the cocked position and the trap is now ready and armed. **FROM NOW ON, TREAT THE TRAP LIKE A LOADED GUN!** To launch a target press and release the Release Button; if the Release Button is continually depressed the unit will keep cycling and launching targets.

### **WARNING!**

**BEFORE ADJUSTING THE AUTOCLAY 300 OR REFILLING THE CAROUSEL YOU MUST DISARM IT BY MOVING THE MAIN SWITCH TO THE DISARM POSITION AND RELEASING; THE LAUNCH ARM WILL BE RELEASED BUT WILL NOT RECOCK. THE BATTERY LEADS MUST ALSO BE DISCONNECTED.**

### **After use**

Disarm the AutoClay 300 as described above. Remove the carousel and top plate as a single unit. To remove the spring: With the trap disarmed and using a suitable piece of timber push the throwing arm round until the spring crank makes contact with the drive post. Reconnect the battery and using the decock switch move the drive post so that it is approximately 25mm (one inch) from the spring crank, use the piece of timber on the throwing arm to bring the spring crank back into contact with the drive pin. It is important that the throwing arm



passes over centre as you do this, you will know that this has happened as there will be a clunk as the spring asserts it's self. If this has not happened move the drive pin a little further and repeat the process. Once the drive pin is holding the spring use the decock switch to allow the tension to be removed from the spring, slacken the spring nut and remove the spring hook from the bushing. To store the trap use the disarm switch to drive the throwing arm so that it is pointing backwards over the trap.



## **General maintenance**

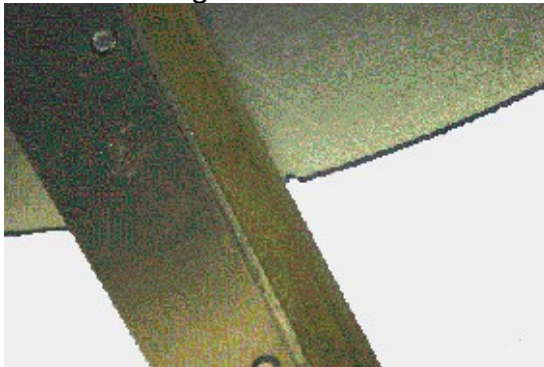
Occasionally lightly oil all the Pivots. Do not over lubricate, as this will impair the action of the mechanism.

Clean the launch plate to remove any build up of debris after each session. A wipe over with a solvent cleaner and a little light oil (Duck Oil) will protect the plate's surface and improve performance. We do not recommend the use of WD40 or other penetrating type oils that could affect the working of the clutch.

There is little else that requires attention except for any obvious loose screws etc. that may appear after prolonged usage.

## **Setting the throwing arm**

If the throwing arm and the spring crank become miss-aligned it will be necessary to reset the alignment. Start by slackening the throwing arm clamp bolt so that the throwing arm and spring crank rotate separately. To set the throwing arm first align the front edge of the arm with the notch on the edge of the launch plate. Once the arm is in position align the main spring crank, underneath the main unit, with the front edge of the unit and pointing toward the motor side of the unit. Once both the arm and the crank are aligned, tighten the clamp bolt on the throwing arm to lock them together; both the arm and the crank should now rotate together.



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# **Trouble shooting**

## **1. Clays breaking on launch.**

- a. Pick-ups: Check before use for chips or cracks before re-using clays.
- b. Clay being nipped by arm: Ensure launch plate height is set correctly
- c. Arm bent: Check that the launch arm is straight if the arm appears to be bent carefully straiten the arm
- d. Arm moved from correct setting: Check that the launch arm and spring crank are correctly aligned.
- e. Dirty launch plate: This can increase friction and cause breakage. Simply clean the plate with a suitable solvent cleaner.
- f. A build up of dirt underneath the soft landing plate: Clean out any residue from underneath this plate.
- g. Friction Strip on launch arm worn or damaged: Check and replace if necessary.

## **2. Failure to fire clays**

- a. Flat Battery: Make sure battery is fully charged.
- b. Poor Connection: Check for proper connections to battery.
- c. Fuse Blown: Replace fuse on power lead (15amp).
- d. Faulty Release Button: To check release button is making contact: Short OUTER contacts on socket to verify. (DO NOT make contact with the centre pin, this is used for an optional radio release)
- e. Motor Leads Disconnected: Check connection to motor.

## **3. Trap fires without stopping**

- a. Release button is stuck in the on position: Disconnect from the plug to verify. Check that the plug/socket is not full of water.
- b. Stop switch not working: Check reed switch and magnet are in position (not missing).

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- c. Crank arm is over 'Top Dead Centre': Advance reed switch by slackening mounting plate and moving towards rotation of arm: If set too finely this effect can sometimes appear after prolonged use or during hot weather when the mechanism has loosened up.  
**Warning! De-cock the trap before handling, as any movement of the stop switch will instantly fire the trap.**

#### **4. The Clays are not feeding.**

- a. The Clays be wet or sticky: Check the clay separator blade for damage.

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image here

- b. The Carousel is not turning: Check that the white nylon Pawl Block is freely moving and that the 22mm nyloc nut at the top of the top of the Top Plate centre post is not over tightened.

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image here

**For clarity the safety guards are not fitted in some of the illustrations in this manual.**

**The safety guards must always be correctly fitted while the trap is in use!**

# ACORN

## AutoClay Modular Upgrades

Acorn has developed a range of Modular Upgrade Solutions which, when combined, give the shooter a remarkably flexible clay launching platform.

### ***Oscillating Base***

The Acorn Oscillating Base allows the trap to be turned through 90° (45° to each side of centre) to build a down the line trap. The direction can be moved to any desired direction or the clay can be fired and the trap will then move randomly to a new position.

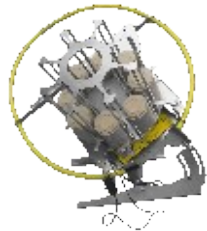
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### ***Vertical Lift Unit***

This allows movement in the vertical plane from a low grass cutter to almost vertical Teal. When combined with the Oscillating base and the RadioNav unit you have full 3D control of the clay.

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***Tilt base*** Allows the trap to be tilted sideways at up to 45°.



***Trolley*** Allows easy rapid single handed movement and placement of traps.



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