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# Sporter • ATA & Skeet Machines

## Setup and Operation

There are important  
Safety and Operation Guidelines  
contained in this manual.

When you see this symbol  important  
information is presented for your safety in  
the operation of this machine.

Read this manual thoroughly before  
setting up or operating your machine.

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## **A. INTRODUCTION**

**Before you begin, please observe the following information.**



**When you see this symbol, important operation information is presented for safety of personnel and to prevent damage to the trap machine.**

Congratulations on the purchase of your new Clay Trap Machine. It has been designed to give you many years of trouble free service. By carefully following the instructions contained in this manual you will be able to install and operate your machine simply, safely and easily.

As this and other clay target machines have several moving parts, strong springs and electrical power, there are certain risks involved in the use and operation of this machine. By following the instructions, training operators and servicing on a regular schedule, this equipment can be used safely. Failure to follow the safety, operation and maintenance guidelines can cause injury or possibly death.

## **B. UNPACKING YOUR MACHINE**

1. Remove wooden packaging carefully to assure against damage.
2. Unbolt machine from base.
3. Check for shipping damage.

Contents of package should be as follows:

<u>Quantity</u>	<u>Description</u>
1	Clay target trap machine
1	Release cord and switch
1	3/4 inch combination wrench
1	Safety instruction placard
1	Setup and Operations manual

## **C. INSTALLATION**

1. General Warnings:

**Read all instructions before installing or using this equipment. Failure to read and follow all instructions can lead to personal injury and/or damage to equipment.**

**All new operators shall be given instructions in all safety precautions in the operation of this equipment and reviewed these instructions on regular intervals.**

- ▲ **The throwing arm, springs and clay targets when released, can cause injury or death if you are struck by them.**

2. Installation Steps:

**The installation of this equipment should be performed by a person knowledgeable in safe electrical wiring. In some areas a licensed electrician is required to install this equipment. Check with your local building department for requirements.**

3. Tools Required:

A. 3/4" wrench combination box, open end **Supplied.**

**Items not supplied:**

- B. Four 1/2" bolts, washers and nuts suitable for mounting base.
- C. Electrical supply suitable for machine. 12 Volts DC or 110 volts 50/60 Hz.
- D. Safety disconnect switch.
- E. Ground fault interrupter.



## Steps Required to Install System

1. Align thrower to area of shooting.  
The thrower should be facing the area where the target is thrown.  
It should be clear of obstructions and personnel.
  2. Clamp thrower to mount.  
We recommend the use of a hard wood cushion at least 1-1/2" thick between the thrower and the permanent mounting base. The permanent mounting base should be a solid rugged structure that will support the machine and allow loading and maintenance. Use the 4 1/2" mounting holes provided in the base to secure the machine to the wood cushion, the wood cushion should be attached firmly to base.
  3. Install electrical supply, 12 V or 110 V.  
We recommend installing a GROUND FAULT INTERRUPTER on 110 Volt units. This will give operators added protection from electric shock. 110 Volt units must be plugged into 110 volt 50/60 cycle three prong plug with suitable ground.
  4. Before making connections to electrical power, it is important to do the following:
    - ▲ **Make sure you and all others are clear of the flight path of the target and the movement of the throwing arm.**
    - ▲ **Machine operating ON/OFF Toggle Switch shall be in the OFF (DOWN) position.**
  5. Connect to power source.
- ▲ **NOTE: On 12 Volt units, be sure of the polarity. Positive RED lead to positive terminal. Failure to do this will cause the machine to run backward, damaging the machine and VOIDING the warranty.**

## Installation Check

1. Is the machine firmly mounted with all mounting bolts tight, in proper position?
2. Is electrical wiring safe, secure, and not in the way of the thrower, targets, or operation of the machine?
3. Is the thrower is free to move in its normal manner?

▲ **NOTE: Before making any adjustments, moving, maintenance or repair on the machine, you must do the following HALF-COCK PROCEDURE (as described on next page). This is an important safety operation, that failing to be performed can cause injury or death to you or others!**

## **D. HALF-COCK PROCEDURE** ▲ ▲ ▲

- A. Turn Machine operation Switch OFF (DOWN) position.
- B. **Momentarily** Push the arm release button. This button is located next to the ON/OFF switch. Make sure arm is released to the half-cock position.

▲ **The safe, half-cock position** is with the throwing arm parallel to the front rectangle frame the machine.

▲ Do not hold the release button down as this will COCK the throwing arm.

▲ Holding the button down will cause the arm to prematurely release, causing injury and damage. Just a quick push of the button is all that is needed.

▲ The throwing arm should not be released without a clay target on the arm. Without a target on the throwing arm, it may rotate to the cocked position.

▲ The machine is not safe until the arm is released to the half-cocked position.

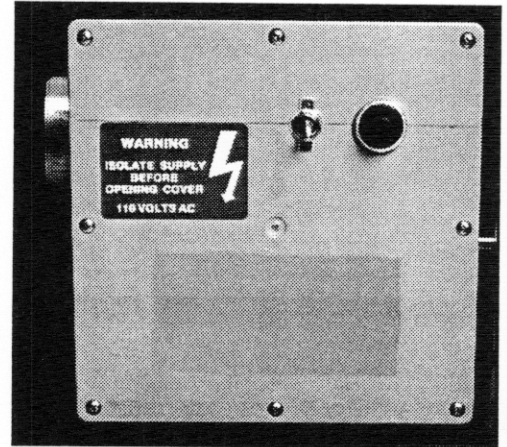


Photo 1. Remote Control Box. Note "Button" on right is arm release. Pushing button will release throwing arm.

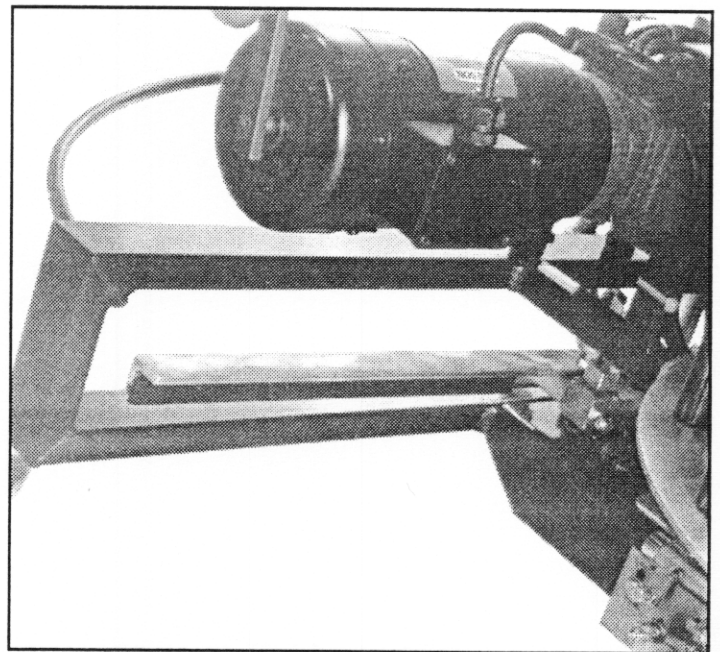


Photo 2. Throwing arm position when in the released Half-Cocked safe position.

## **E. ADJUSTMENT REQUIRED FOR THE SKEET • ATA • SPORTER TRAP MACHINES**

▲ Before making any adjustments follow the  
**Half-Cock Procedure**:

**The Half-Cock Procedure** (Reference Section D, page 6)

1. Turn Machine operation Switch OFF.
2. "Momentarily" push the arm release button. This button is located next to the ON/OFF switch (remember just a quick push is all that is needed). Make sure arm is released to the **Half-Cock position**. The safe, **Half-Cock position** is with the throwing arm parallel to the front rectangle frame of the machine (See Photo 2 on page 6).

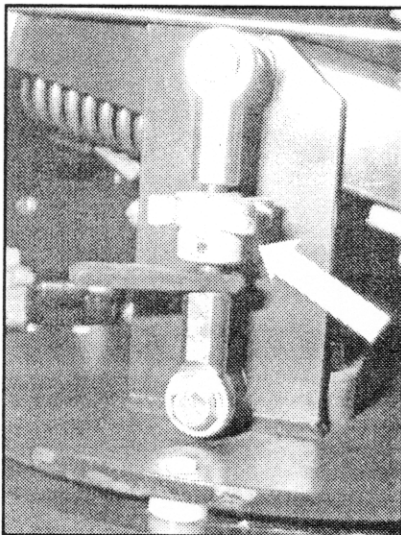
▲ The machine is **not safe until** the arm  
is released to the **Half-Cock position**.

### **CANT adjustment (upper body of machine):**

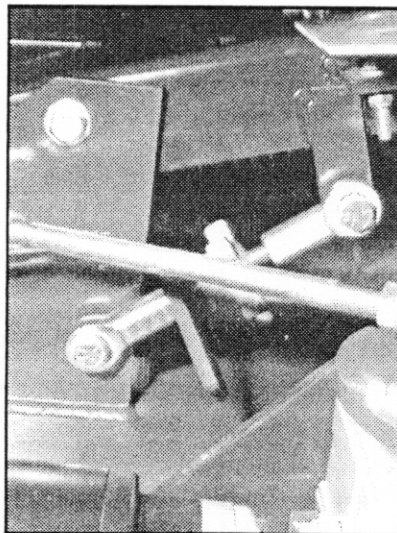
This adjustment will allow the flight of the target to be leveled or to remove the cant by adjustment of the upper body frame of the throwing machine.

#### **Steps required:**

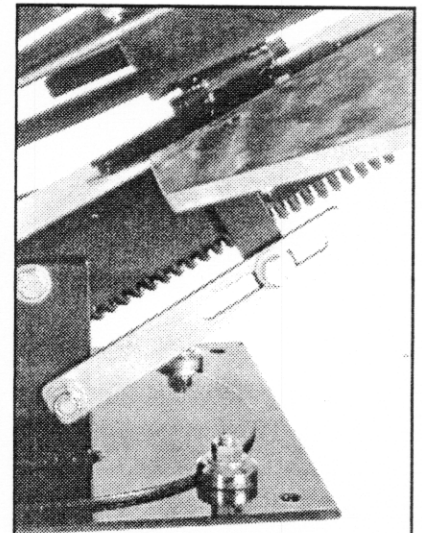
1. Loosen Yellow locking clamp arm, located on the base plate.
2. Adjust yellow adjustment knob, up or down as required.
3. Lock clamp arm.
4. Adjust elevation by loosening elevation clamp bolt in slotted bar, on lower right side above base. Adjust to proper height and tighten elevation clamp bolt.



**Photo 3A. Cant adjustment knob on Skeet, ATA machines.**



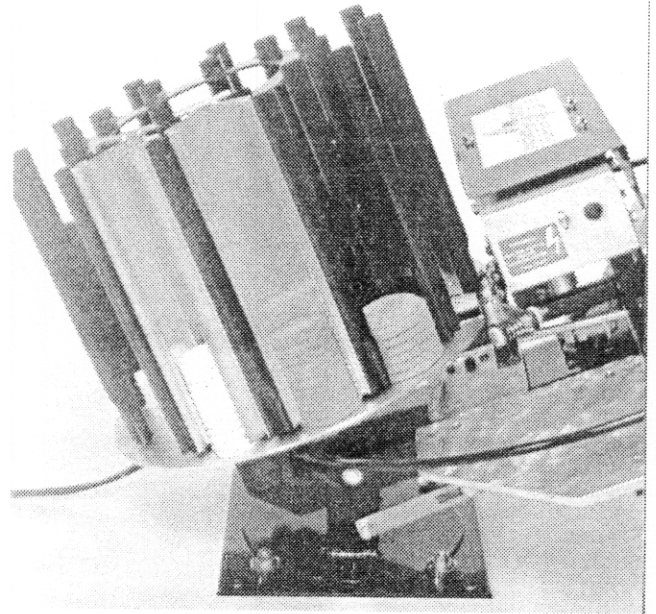
**Photo 3B. Elevation adjustment on Skeet, ATA machines.**



**Photo 3C. Elevation adjustment on Sporter machine.**

## **E. Adjustment for the Skeet • ATA • Sporter machines, *continued***

5. Load targets into target carousel while standing at back or side of machine. Fill some targets into all positions. Make sure the targets are stacked equally in all carousel positions.
6. Plug in release unit. If you are using as release Cord it is polarized to fit only one direction. If you are using a radio or other type of remote release follow directions of release manufacturer for connection of the unit. Keep hands away from machine and target throwing area while plugging in release. A shorted release will cause the machine to throw a target if the power is on.
7. **Stand at rear of machine, away from arm. Turn machine operating toggle switch ON.**



**Photo 4.** Carousel can be loaded with wide range of targets using target inserts. Carousel (shown) has 60mm on the left, 90mm in center, 108/110 mm on the right.

▲ **Note:** The machine is now on and care should be taken to remain away from the arm and front area of machine.

▲ **NOTE:** Before making any adjustments on the machine, you must do the following:

- Turn Machine operation Switch to OFF (DOWN) position.
- Push the arm release button. This button is located next to the ON/OFF switch. Make sure arm releases to the half cock position.

SEE half cock procedure.



## **F. OPERATION**

### **▲ Safety Guidelines**

Failure to follow these instructions can cause personal injury, death or damage to equipment. If you do not understand any instruction, request training by knowledgeable person. With proper use and care this machine is safe. Read and understand all safety instructions.

1. Turn machine operation switch OFF and release the throwing arm to the half cock position when loading or adjusting machine.
2. Disconnect the power before working on the machine.
3. Remain behind the machine and away from the throwing arm.
4. Do not operate this equipment while standing in water.  
Use machine cover when exposed to rain.
5. Do not use this equipment if it is not in good working order. Damaged electrical components and safety limit switches being out of adjustment can cause personal injury or damage to machine.
6. Keep hands, fingers or other parts of the body away from moving parts of the machine.
7. Only properly trained persons, capable of following instructions, should load targets and operate this equipment.
8. Fill all slots in the carousel evenly, with targets in good condition and not cracked or broken. Do not load the carousel above the top of the target carousel.
9. By pressing the release button, the machine will release the throwing arm, throwing a target. Each time the release button is pressed, the arm will release.
10. Do not leave the machine unattended in the cocked position.
11. At the end of the day, unplug machine from power source. The electrical components are always energized when plugged into power source. Unplugging will protect electrical components from excessive use and possible damage due to lightning.

## G. MAINTENANCE

- ▲ Before doing any maintenance follow the **Half-Cock Procedure**:  
The **Half-Cock Procedure** (Reference Section D, page 6)

1. Turn Machine operation Switch OFF.
2. **Momentarily Push** the arm release button. This button is located next to the ON/OFF switch. Make sure arm is released to the half cock position. The safe, half cock position is with the throwing arm parallel to the front rectangle frame of the machine.

Do not hold the release button as this will cock the throwing arm.

*The arm should not be released without a clay target on the arm. Without a target on the throwing arm, the throwing arm may rotate to the cocked position.*

- ▲ The machine is not safe until the arm is released to the half-cocked position.

### Monthly Maintenance

1. Clean the throwing plate surface, using a good solvent to remove the pitch residue of the clay targets from this surface.
2. Clean chips and pieces of clay targets from thrower.
3. Check tightness of carousel retaining bolt in center of carousel. This bolt should be tightened firmly till the bolt bottoms out.
4. Check throwing arm wear pattern on the rubber surface of the throwing arm shooting section.

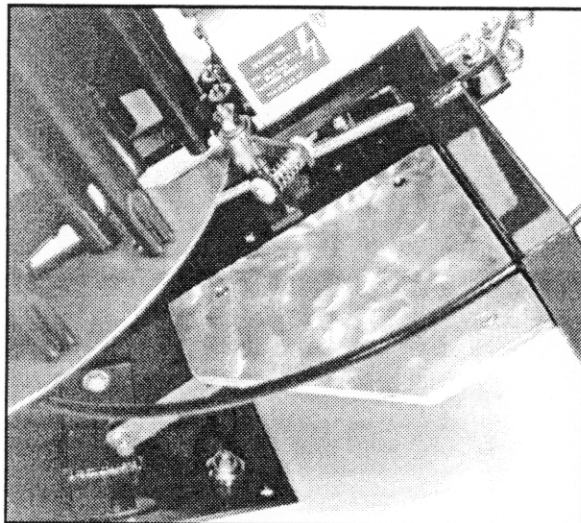


Photo 5. Clean tar and pitch from area of throwing arm plate where targets traverse.

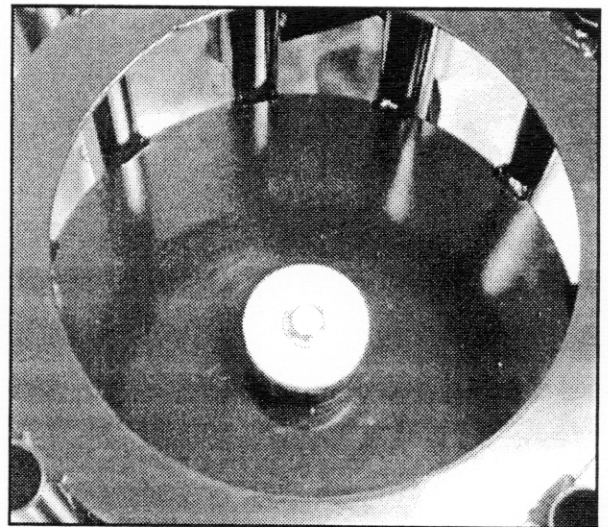


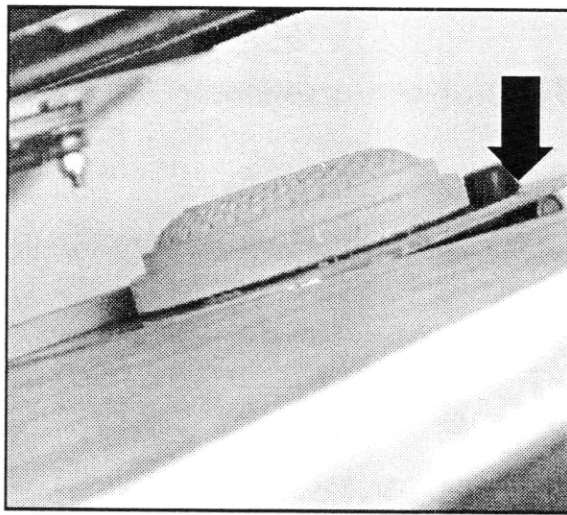
Photo 6. Bolt in center of carousel is to be kept tight for machine to operate properly. Check monthly.



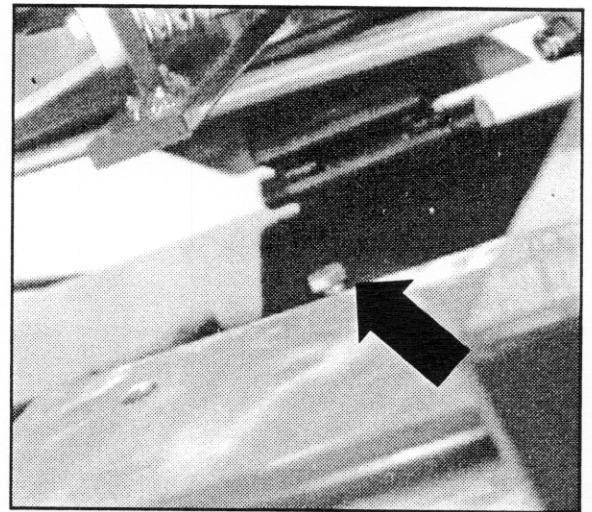
## **G. Maintenance, *continued***

### **Six Month Maintenance**

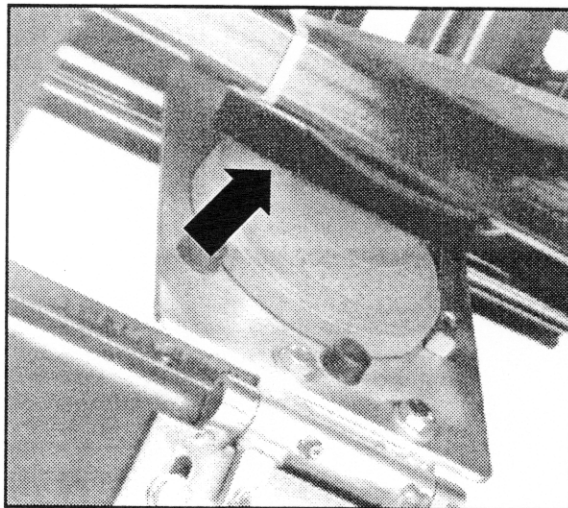
1. Lift plate height adjustment bolt should be adjusted, so that the lift plate is approximately .020" (thickness of match book cover) higher than the throwing plate when in the down position. See Photo 7.
2. Lift plate hinge. Grease the two grease fittings using good quality medium weight grease.
3. The power train gear box is filled for the life of the machine and requires no maintenance.



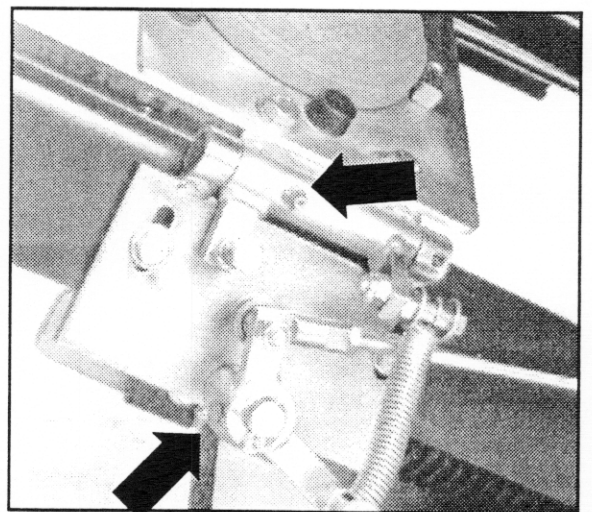
**Photo 7. Lift plate.**



**Photo 8. Target height adjustment on lift plate is noted with arrow. Use 1/2" wrench to adjust. Turning the bolt clockwise lowers the lift plate. CCW raises the lift plate.**



**Photo 9. Lift plate with target showing relationship of plate to frame and guide brush.**



**Photo 10. Grease fittings should be greased yearly. Over greasing can cause problems, once a year is enough.**

## H. SPRING REPLACEMENT

▲ Before replacing and/or adjusting the spring, follow the Half-Cock Procedure:

The Half-Cock Procedure (Reference Section D, page 6)

1. Turn Machine operation Switch OFF.
2. "Momentarily" push the arm release button. This button is located next to the ON/OFF switch (remember just a quick push is all that is needed). Make sure arm is released to the Half-Cock position. The safe, Half-Cock position is with the throwing arm parallel to the front rectangle frame of the machine (See Photo 4 on page 7).

▲ The machine is not safe until the arm is released to the Half-Cock position.

▲ When the trap machine is in the Half-Cock position, you are ready to replace the spring.

1. Un-screw the main spring adjustment nut on the end of the spring bolt.
2. Replace spring. There are two choices in spring power, Blue and Gold. Blue is a medium strength spring and Gold is a heavy strength spring.
3. Replace the spring bolt through the spring and reinstall. Adjust as required.

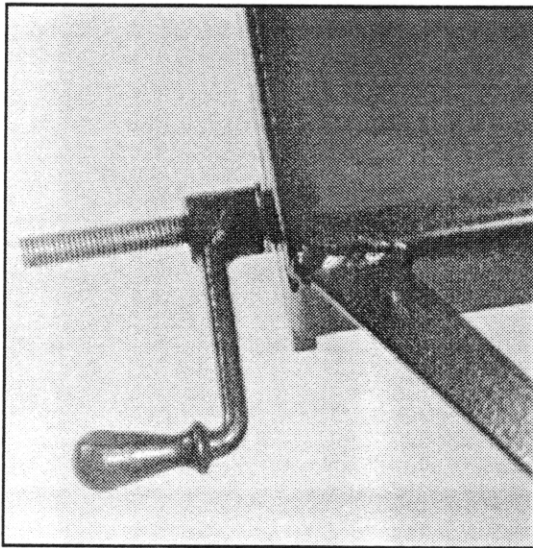


Photo 11. Winged nut on Skeet and ATA is turned to adjust and remove spring.

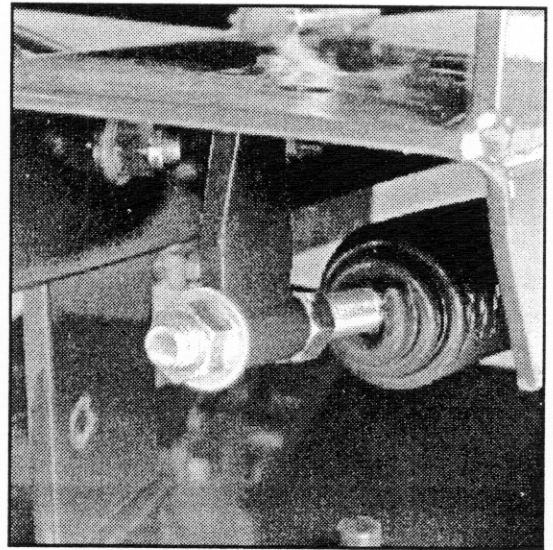


Photo 12. Older Sporter models have a nut similar to this, new models have a hand crank. Bot units are adjusted and removed in the same manner.



# I. TROUBLESHOOTING

Never adjust the carousel operation rods. These are set at the factory and will not need adjustment at any time. The adjustment nuts are covered to prevent adjustment. Removing the covering will void the warranty.

Problem	Reason and Solution
Two or more targets	Adjust support Roller travel limit bolt to drop to lift plate; 1/16" clearance when target is between first and second rollers. This adjustment must be done at each position of the carousel, until adjustment is balanced between all positions of the carousel. This adjustment must be done each time the size of the target is changed.



Photo 13. Support roller and adjustment spring. 1/16" clearance is required on bolt passing through the spring.

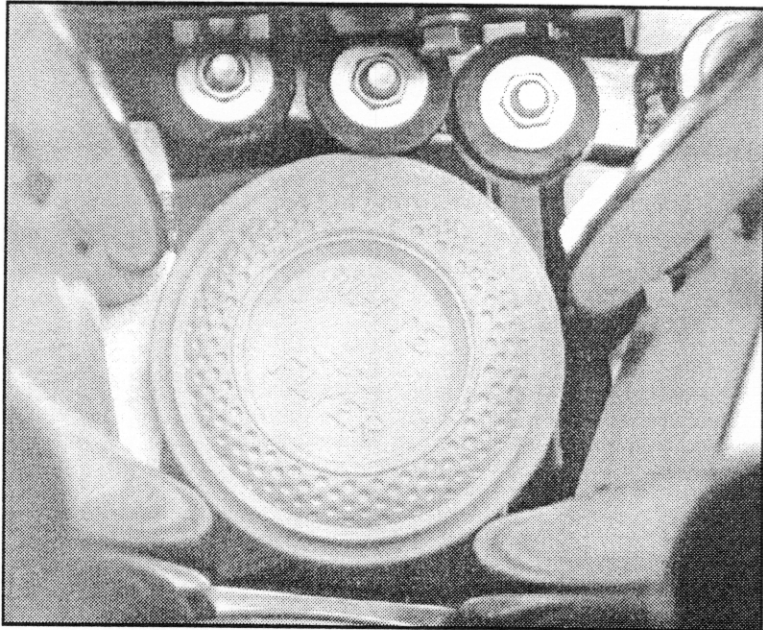


Photo 14. Position the targets evenly between the first two rollers for proper adjustment of support roller tension spring assembly. Photo shows the machine in the fully cocked position. Adjustment should be made in the Half-Cocked position. Hand rotate the carousel so that the target is located between the first two rollers. When machine is adjusted properly, target will set on center roller when in the cocked position.

▲ Refer to Half-Cock Procedure before attempting the adjust rollers.

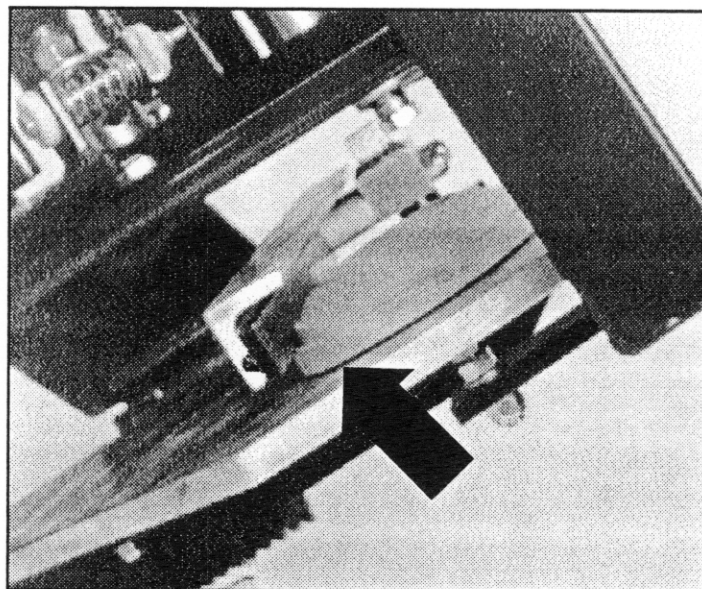
Problem	Reason and Solution
Broken targets	<ol style="list-style-type: none"><li>1. Improper or damaged targets.</li><li>2. Lift plate out of adjustment. Adjust lift plate hinge stop bolt. Target should slide smoothly from the carousel down the lift plate passing under the target retaining brush. Adjust the bolt IN to lower the plate adjust the bolt OUT to rise the plate.</li><li>3. Machine is elevated at too great of angle. Above 50 degrees a SPRINGING TEAL plate is required.</li><li>4. Throwing arm worn. <u>Replace arm.</u></li></ol> <p>▲ <b><u>Replacing the throwing arm</u> is a dangerous procedure and failure to follow instructions can cause injury or death.</b></p> <ul style="list-style-type: none"><li>• USE half cock procedure.</li><li>• Disconnect power supply.</li></ul> <p>Thread the manual motor crank into bell cover of motor clockwise.</p> <p><b><u>IMPORTANT</u></b></p> <p><b>Do not allow motor to turn counter clockwise. If motor is turned the wrong direction YOU WILL DAMAGE the machine.</b></p> <p>▲ <b>Keep your body and fingers out of the area of the arm travel while performing this operation.</b></p> <p><b><u>How to Replace the Throwing Arm</u></b></p> <p>Turn motor clockwise until throwing arm releases to the Half cock position, continue to turn the motor two turns, pushing arm to contact the gear box crank. Continue turning the motor two turns at a time and keeping contact with the gear box crank until arm follows gear box crank under spring tension. Turn motor until the arm is positioned over the throwing plate.</p> <p>Using 3/4" deep socket remove the main spring adjusting nut (see photos 11 and 12.). On</p>




**Photo 15. This photo shows motor crank installed into motor housing. Turn Clockwise Only. Remember to remove crank before turning power on. Failure to remove crank will produce strong vibration of the machine causing severe damage.**

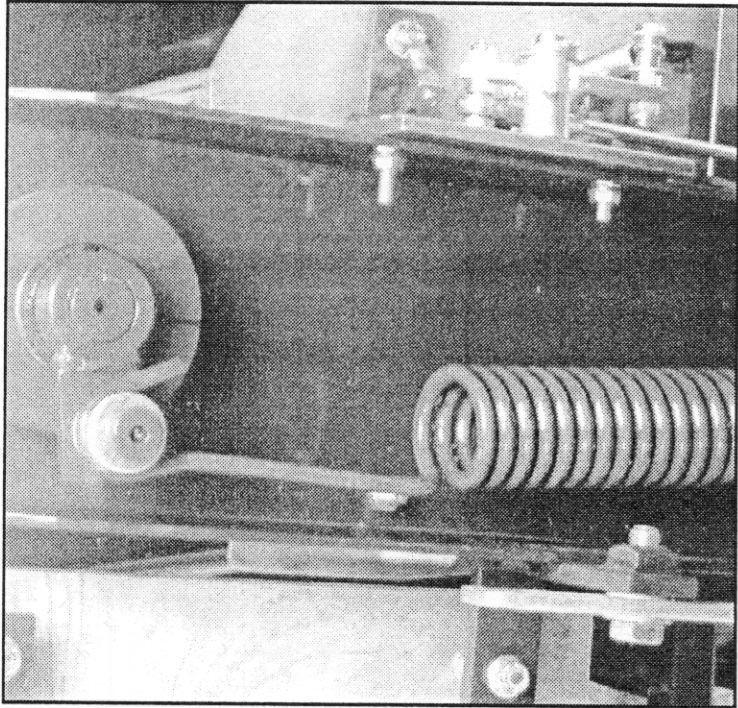
	Problem Reason and Solution
<b><u>How to Replace the Throwing Arm, continued.</u></b>	<p>newer models loosen the winged nut. Care should be given as the spring still has some tension.</p> <p>Remove arm clamp bolts. Using 9/16" wrenches.</p> <p>Remove arm.</p> <p>Replace with proper arm for your machine. Contact factory for replacement arm. Position target on throw plate and adjust arm to the height of the lip of the target, plus .020".</p> <p>(See photo 16. Bolt under target is throwing plate height adjustment.)</p> <p>Tighten clamp bolts to 35–45FT Lbs.</p> <p><b>NOTE:</b> Remove manual motor "crank" before turning on machine. <b>FAILURE TO DO THIS WILL DAMAGE THE MOTOR AND THE MACHINE.</b></p> <p>Test machine.</p>
<b>Broken targets, continued</b>	<p>5. Throw plate out of adjustment. Wear pattern on throwing arm rubber surface is uneven. Adjust the throwing plate adjustment bolt (1/2" wrenches) on the right hand side.</p> <p>Move up or down until the plate is aligned to the arm.</p> <p>See photo 16.</p>

Photo 16: Shows throwing arm adjustment in relationship to target. Arm rubber must rest on the first lip of the target to operate properly. If arm rubber contacts bottom ring of target, the target will be broken upon throwing.

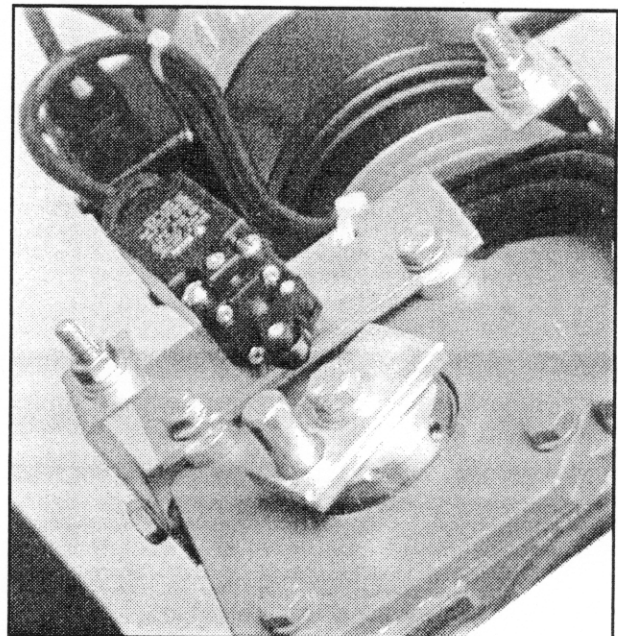
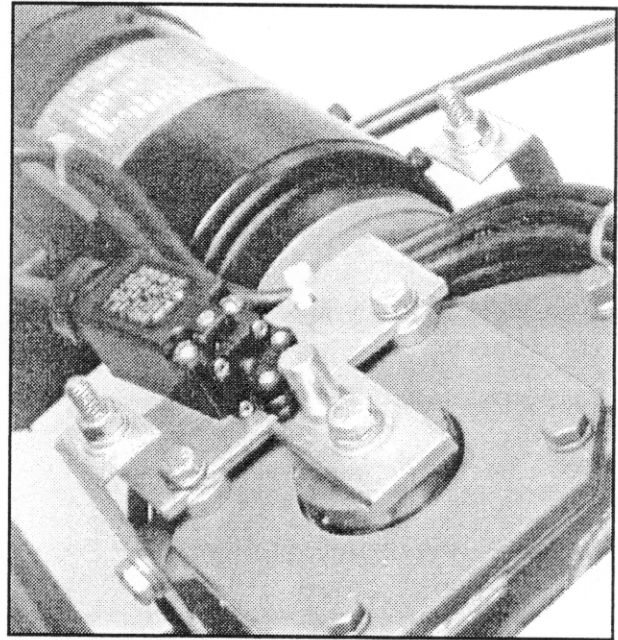


Problem	Reason and Solution
Motor will not run	<ol style="list-style-type: none"><li>1. No power, check power source.</li><li>2. Fuse or breaker open. Check and replace if bad.</li><li>3. Motor failure. Replace.</li><li>4. 12V models solenoid failure. Replace solenoid with Borg Warner S55. If unable to correct, contact the factory.</li></ol>
Targets will not throw when release cord button is pushed.	<ol style="list-style-type: none"><li>1. Carousel empty, fill with good targets</li><li>2. Motor bad, check by pushing arm release button.</li><li>3. Cord bad. Try another good cord. Repair or replace.</li><li>4. Connector bad. See above.</li><li>5. Weak battery, check and charge if needed.</li><li>6. Check limit switch, clean area of debris.</li><li>7. Main spring broken. Replace by following the main spring replacement procedure.<ol style="list-style-type: none"><li>A. Disconnect power supply.</li><li>B. Thread the manual motor crank into the bell cover of the motor, clockwise. Important, do not allow motor to turn counter clockwise, as this will damage the machine.</li></ol></li></ol> <p> <b>Keep your body and fingers out of the area of the arms travel while performing this operation.</b></p> <p>Turn motor clockwise until throwing arm releases to the half-cock position, continue to run the motor two turns, pushing the arm to contact the gear box crank. Continue turning the motor two turns at a time and keep contact with the gear box crank until the arm follows the gear box crank under spring tension. Turn motor until the arm is positioned at 12 o'clock. At this point it is safe to remove spring by loosening the spring bolt.</p> <p>On older models use a 3/4" wrench to remove bolt. On newer models turn hand crank to remove.</p>



Problem	Reason and Solution
<b>Targets will not throw when release cord button is pushed,</b> continued.	<p>Replace main spring. There are two choices in spring power, Blue and Gold. Blue is a medium strength spring and Gold is a heavy strength spring. The Gold is primarily for the ATA and Skeet machines, the Blue is standard for most all target presentations on Rabbit and Sporter machines.</p> <p>Replace spring and tighten nut or hand crank. Adjust tension for your requirements.</p> <p>8. Damaged carousel. Contact factory.</p> 
<b>Machine runs continuously</b>	<ol style="list-style-type: none"><li>1. Release cord shorted. Unplug cord. If motor stops, repair or replace cord.</li><li>2. Limit switch failed. Disconnect. If motor stops, replace limit switch.</li><li>3. Limit switch actuator bolt loose. Tighten and set timing.</li></ol>

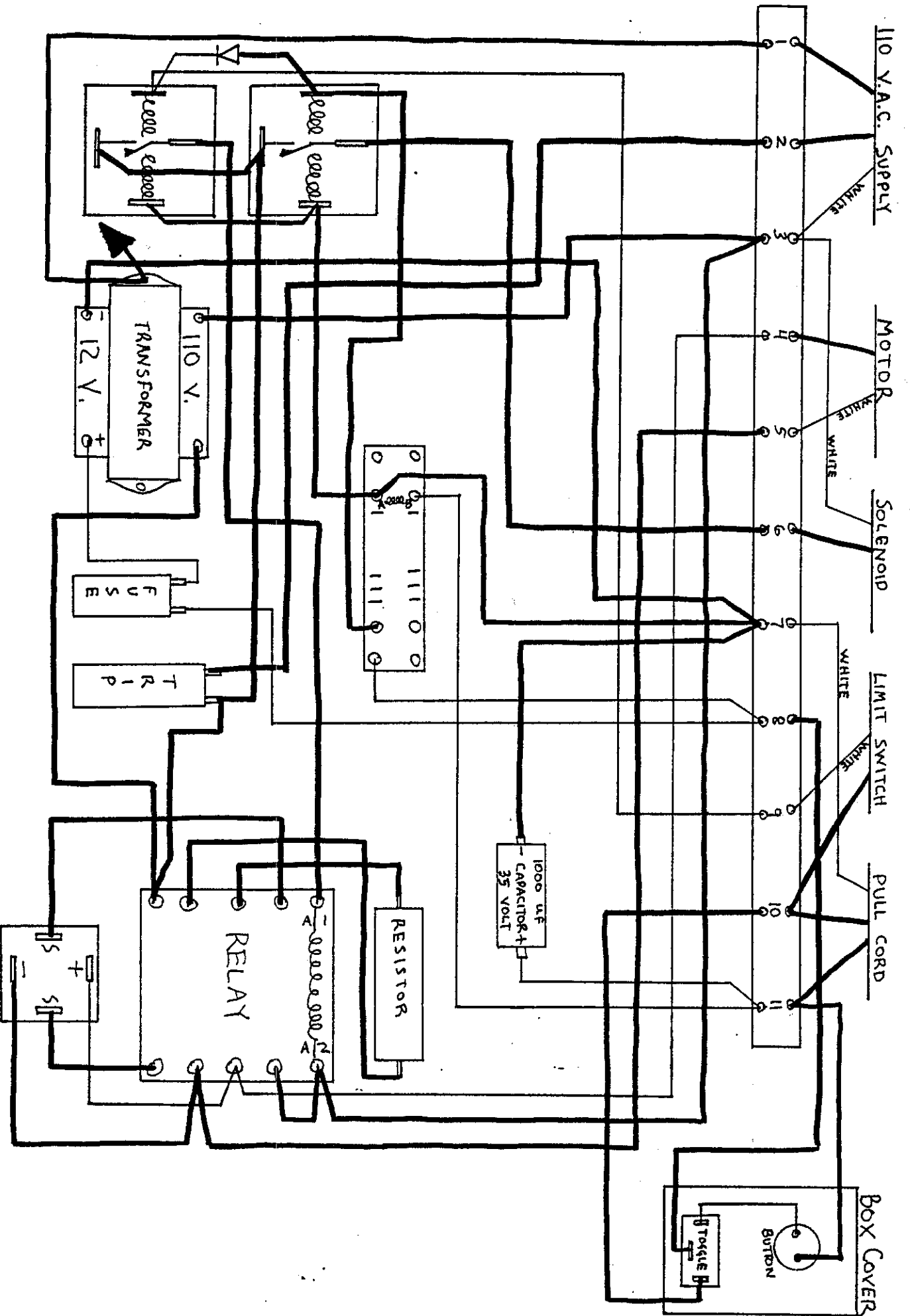
Problem	Reason and Solution
Target is delayed releasing	<p>1. Machine timing off, adjust timing. Remove upper cover. Tap limit switch actuator, using a small hammer. Clockwise stops throwing arm later in the cycle, CCW stops the throwing arm earlier in the cycle. Throwing arm should stop 3" to 4" from left side of the main body of machine in the cocked position. Tighten limit switch actuator bolt to 35FT. LBS.</p> <p><i>Photo 18. Rotate the stop activator by momentarily pressing the half-cock button. This will clear the limit switch allowing ease of adjustment and lessening the chance of damage to the limit switch when it's tapped. Care should be given when tapping, as hitting the switch will damage it.</i></p> <p><i>Photo 19. Limit switch activator arm moved away from the limit switch.</i></p>



## **J. WARRANTY**

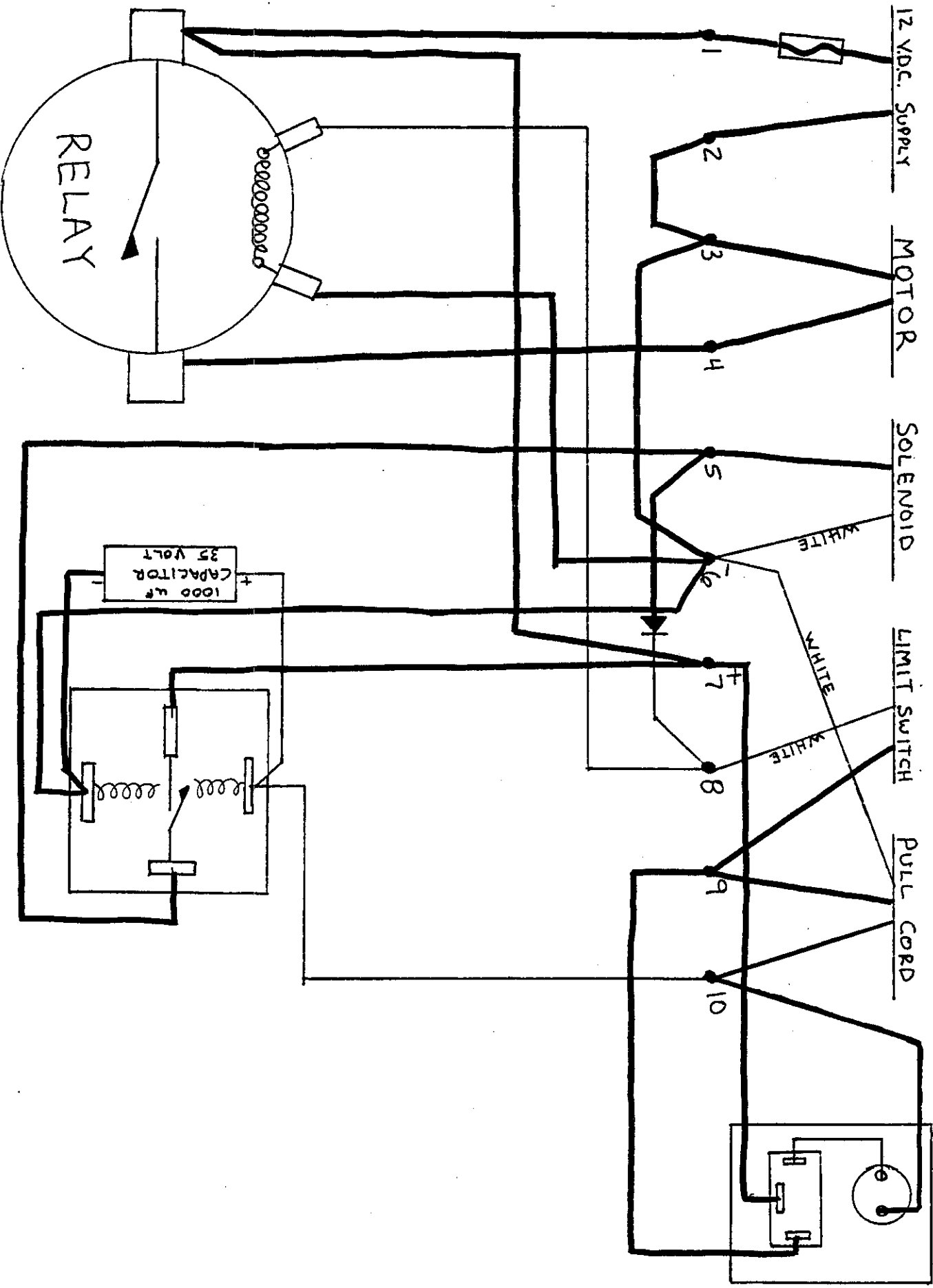
**Clay Target Machines** are warranted to be free from defects in materials, parts and workmanship for the period of twelve (12) months. Warranty is from the date of purchase for the original purchaser. In the event that warranty repair is required all parts and labor are covered. Repairs to Clay Target Machine Traps resulting from improper use or abuse are not covered by this Warranty. No other Warranties, either expressed or implied, including, but not limited to implied warranties of merchantability and fitness for a particular purpose, with regard to machines or manuals. This limited warranty gives you specific legal rights and other rights which vary from state to state.

# 110 VOLT SPORTER

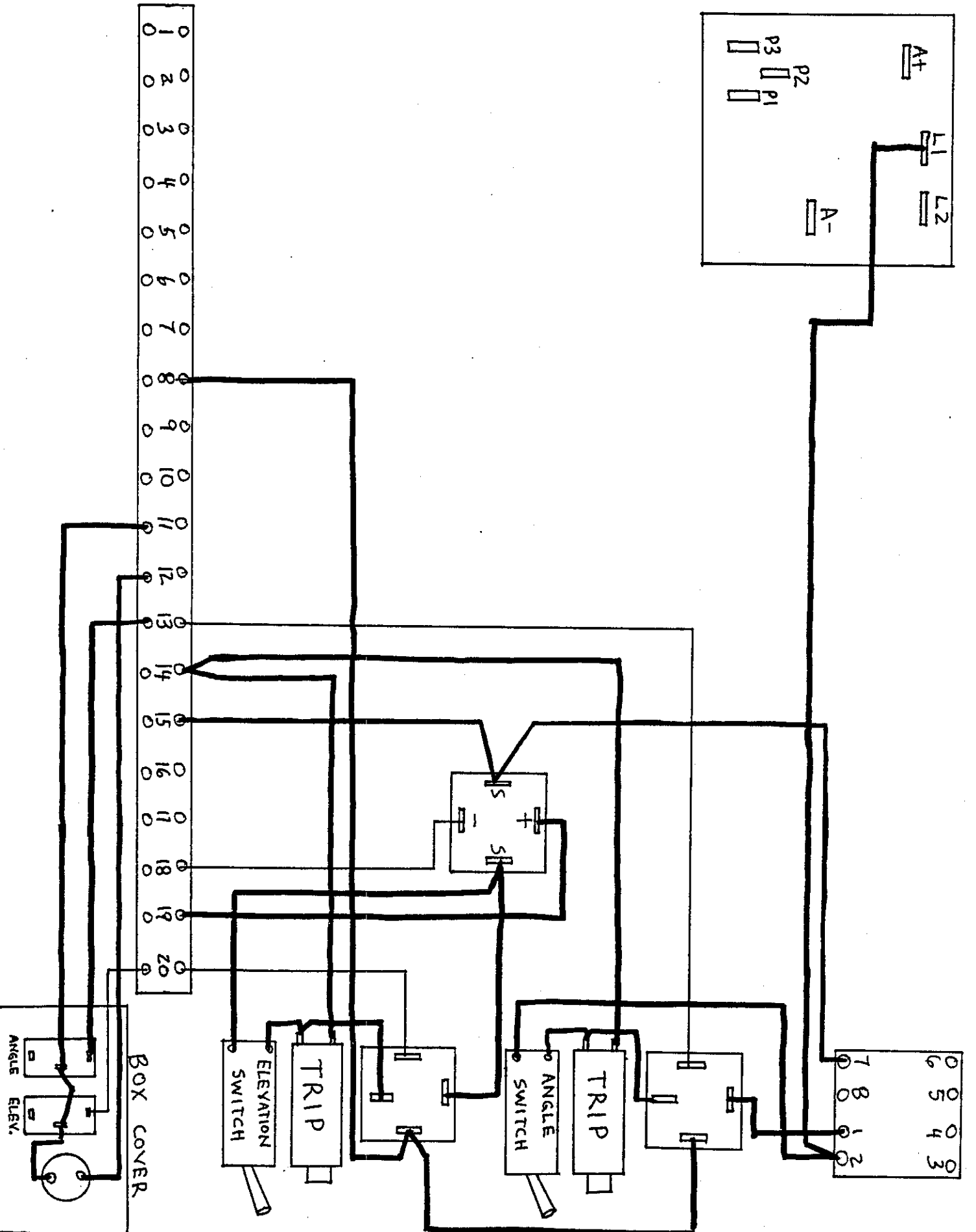




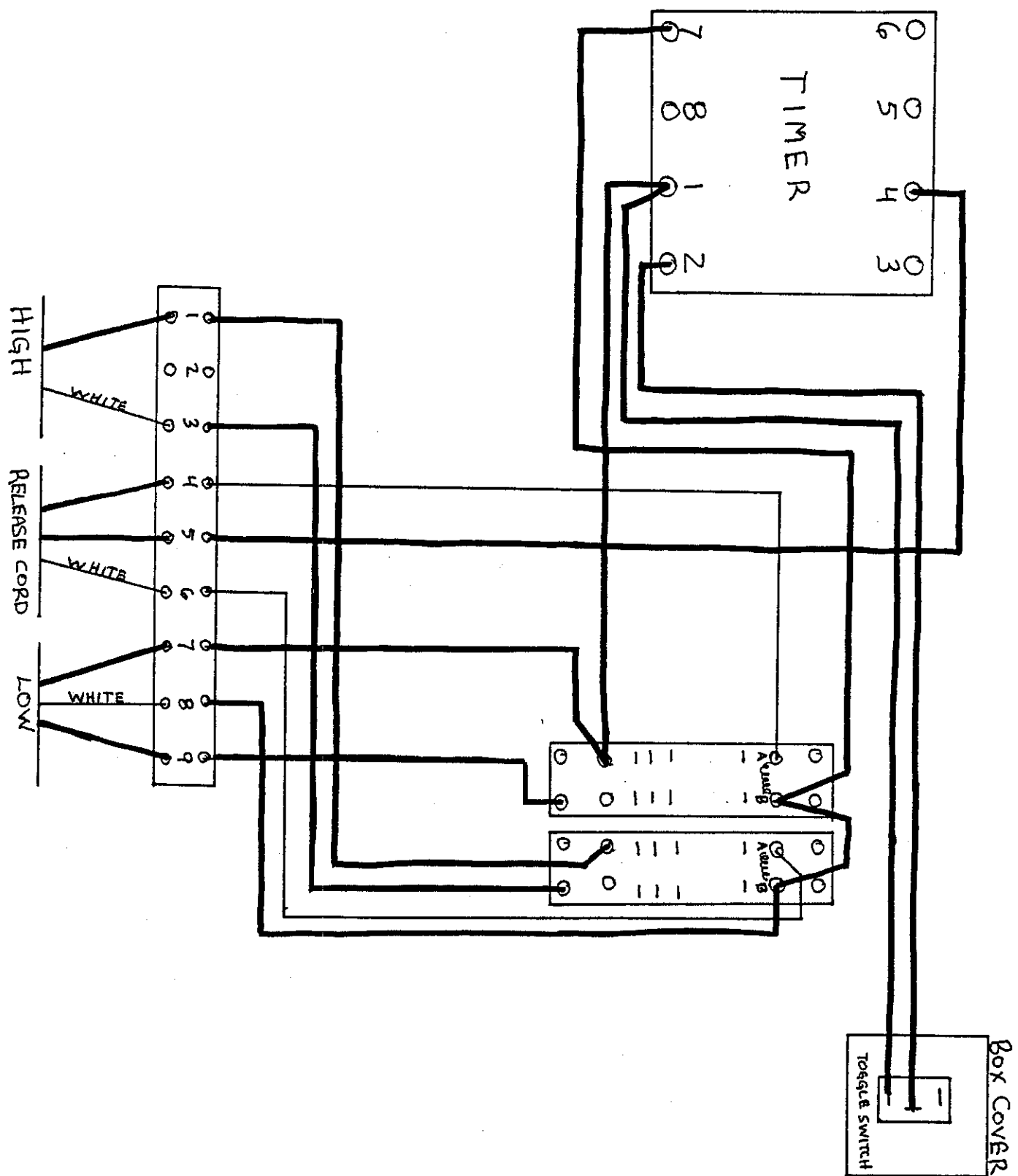
# 12 VOLT SPORTER



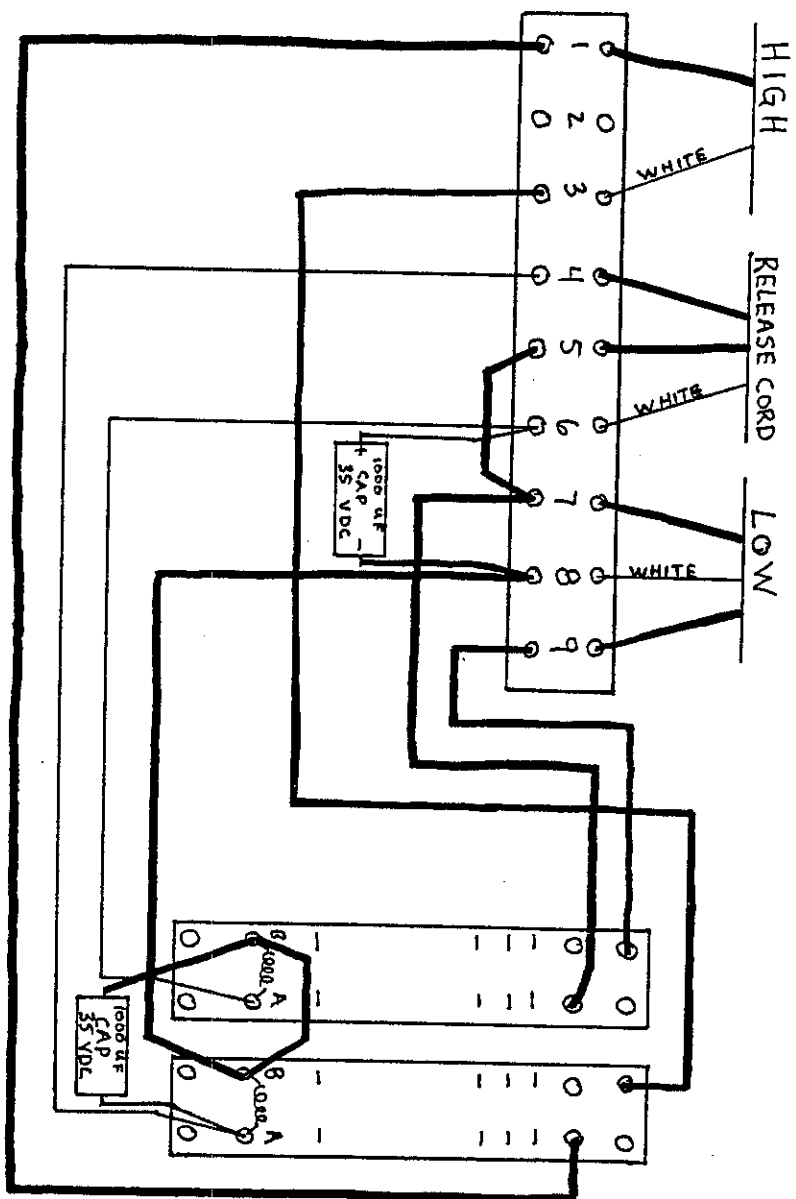
# WOBBLE TRAP REMOTE



# SKET (TIMER)



# SKELT JUNCTION BOX





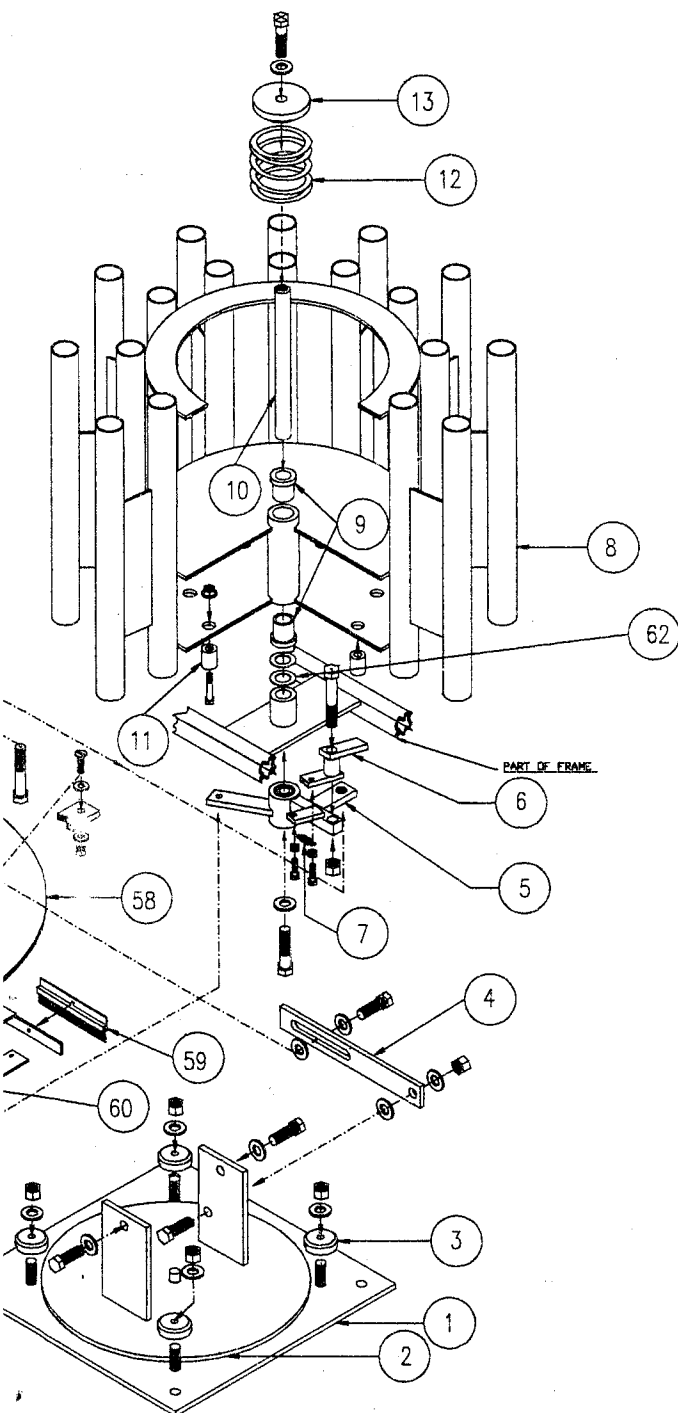
# Sporter Model

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- (ii) Not to reproduce or copy it.
- (iii) Not to reveal or publish it in whole or part.



1	BASE PLATE
2	SWIVEL BASE PLATE
3	PLATE-HOLD DOWN WASHERS - 4 REQUIRED
4	HEIGHT ADJUSTER STRAP
5	INDEXING LEVER WELDMENT
6	INDEXING ZEE PIECE
7	INDEXING LEVER SPRING
8	MAGAZINE
9	MAGAZINE BUSHINGS - 2 REQUIRED
10	MAGAZINE SHAFT
11	MAGAZINE INDEXING BUSHINGS - 12 REQUIRED
12	MAGAZINE PRESSURE SPRING
13	MAGAZINE PRESSURE SPRING BUSHING
14	THROW PLATE
15	PINCHROL SPRING BUSHING - 2 REQUIRED
16	PINCHROLLER SPRING
17	PINCHROLLER WELDMENT
18	PINCHROLLERS - 3 REQUIRED
19	PINCHROLLER NUTS - 3 REQUIRED
20	SPLITTER WASHER
21	PINCHROLLER SHIMS - 12 REQUIRED
22	PINCHROLLER BEARINGS - 3 REQUIRED
23	GEARBOX WELDMENT
24	GEARBOX SHAFT
25	INDEXING ROD-LONG
26	LIMIT-SWITCH WELDMENT
27	ELECTRICAL-BOX CLIPS
28	MOTOR AND GEARBOX COVER
29	MOTOR AND GEARBOX COVER CLIPS
30	LIMIT-SWITCH
31	MOTOR AND GEARBOX COVER CLIPS
32	LIMIT-SWITCH PLATE
33	GEARBOX
34	MOTOR
35	INDEX LINKAGE WELDMENT
36	INDEX LINKAGE SPACERS - 2 REQUIRED
37	INDEX LINKAGE - SHORT
38	INDEX LINKAGE SPACERS - 2 REQUIRED
39	GUIDE BAR - LIFT PLATE
40	RUBBER STOPS - LIFT PLATE - 2 REQUIRED
41	LIFT PLATE
42	THROWING ARM SPACERS - 2 REQUIRED
43	FRAME
44	THROWING ARM CRANK
45	THROWING ARM
46	LIFT PLATE HINGE-WELDMENT
47	HINGE LEVER-WELDMENT
48	HINGE LEVER SPRING SPACERS - 2 REQUIRED
49	HINGE LEVER SPRING
50	LIFT PLATE LINKAGE - LONG
51	LIFT PLATE LINKAGE - SHORT
52	LIFT PLATE LINKAGE-WELDMENT
53	SPRAG WELDMENT BOLT
54	MAIN SPRING
55	MAIN SPRING BUSHING
56	MAIN SPRING SPRAG-WELDMENT
57	MAIN SPRING SPRAG
58	TURRET PLATE
59	TARGET BRUSH ASSEMBLY
60	TARGET STOP
61	ELECTRICAL BOX
62	SPRING BOLT CRANK
63	MAGAZINE SHIMS