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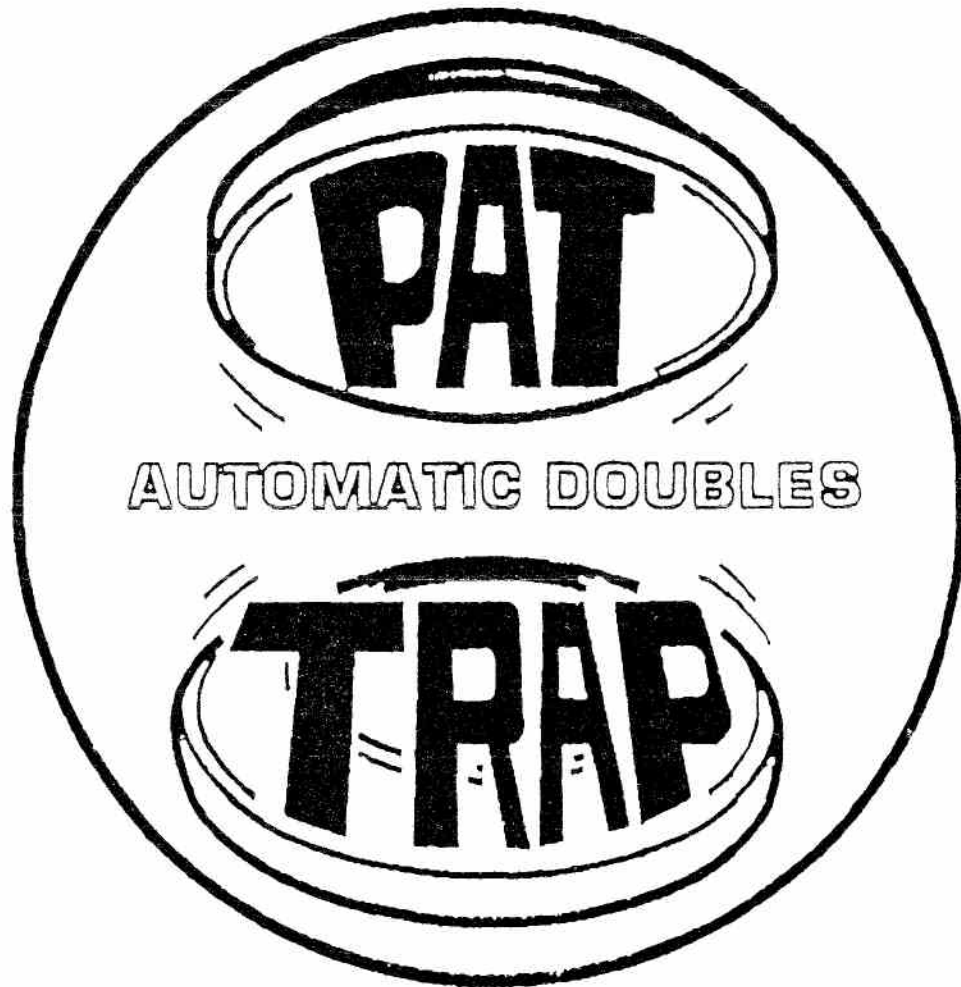
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INSTALLATION - SAFETY - MAINTENANCE

Manual

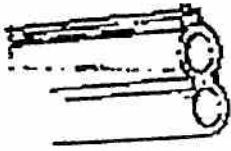


Singles To Doubles In Seconds!

Serial #

#1 through SW 2417 XR

Date: __



WARNING

This Manual discloses details of a patented apparatus or device for throwing clay targets. The apparatus is clearly disclosed and claimed in our U.S. Patent No. 5,249,563. It is unlawful under United States Patent Law to practice, i.e. to make, use or sell a patented invention without the express permission of the owner/inventor thereof. Permission is expressly granted, only to the purchaser, or their designees and members of the household of the purchaser, only to use, the patented apparatus. The unauthorized making, using or selling of the patented apparatus constitutes patent infringement. It is the intent of the owner/inventor to prosecute infringers of the Patent to the full extent of all applicable laws.

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The PAT-TRAP®

NEVER STAND IN FRONT OF A TRAP MACHINE. THE TRAP MACHINE MUST BE TURNED OFF AND THE SPRING RELEASED *BEFORE* ENTERING THE TRAP HOUSE. IF YOU ARE UNFAMILIAR WITH THE TRAP MACHINE:

DO NOT TOUCH ~ GET HELP

NEVER ATTEMPT TO LOAD THE TRAP WHEN IT IS COCKED. ALWAYS RELEASE THE TARGET FROM THE TRAP MACHINE.

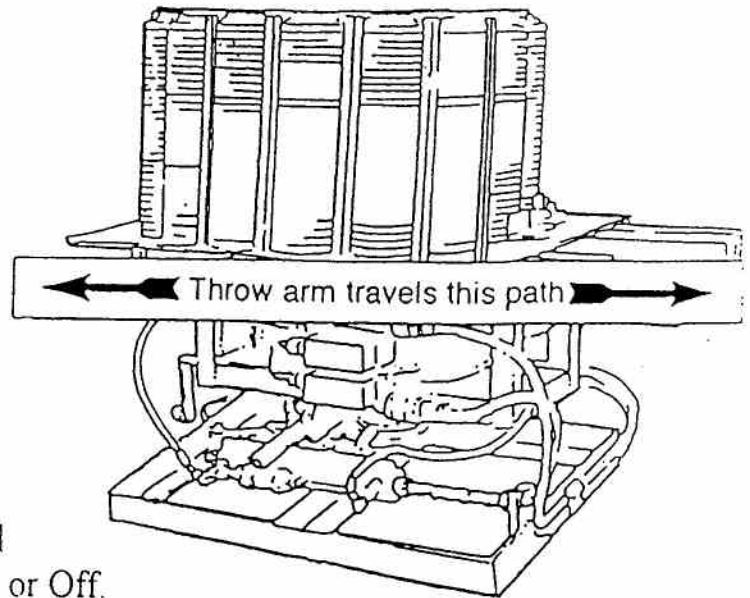
NEVER ADVANCE THE THROW ARM BY HAND WHEN THE ON/OFF/RELEASE SWITCH IS IN THE ON POSITION. THIS MAY DAMAGE THE MACHINE.

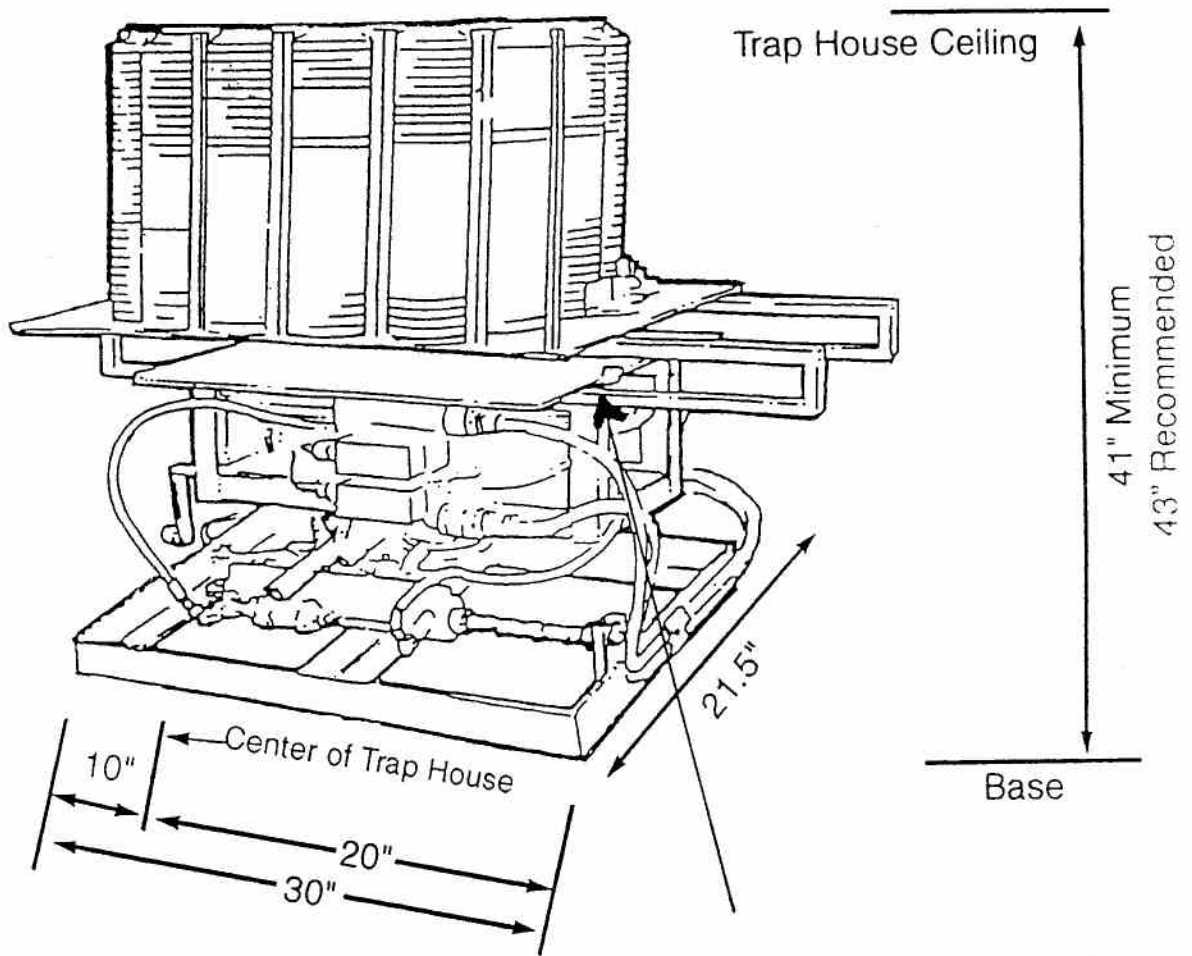
The target throw arm extends 4" beyond the plates. Keep away from the moving parts. Never stand in front of the trap machine.

When the machine is turned ON the throw arm will travel forward to the cocked position through the danger zone.

When the throw arm is fired, the arm will travel through the indicated danger area zone.

The throw arm can be fired by pushing the pullcord button. It can also be fired by hand ~ by pushing the arm forward off the brake when the machine is either On or Off.





The Serial Number is stamped on the edge of the 1/4" steel plate.

INSTALLATION OF THE TRAP MACHINE AND PUMP

1. Place the trap machine in the trap house with the front of the machine as close as possible to the front wall. The platform which the trap machine sits on **must be level**. See Diagram 2. If necessary, the turret may be removed from the machine to place the trap into the house. See directions below.
2. The trap is to be set *off center* of the trap house. See Diagram 2.

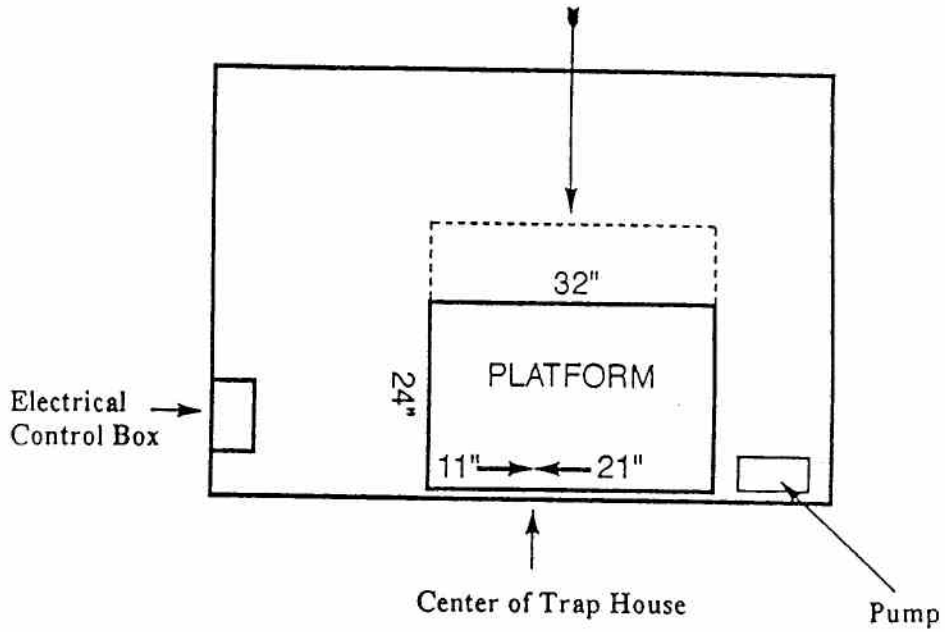
Measure and mark the center of the trap house. The front of the base is "marked" with a *notch* 10 inches in from the left facing the front of the machine. Set the machine so this line is now at the center of the trap house. The base of the trap machine should be set at 41 inches minimum from the ceiling; however, a setting of approximately 43 inches is best for loading targets.
3. Holes are provided in the corners of the base to secure the machine.
4. The pump reservoir is filled at the factory.
5. Place the pump on the floor on the left side of the trap house. See Diagram 2.
6. Connect the quick release fittings from the hydraulic hoses to the front of the trap machine. Slide back the outer sleeve of the female fitting while pushing onto the male fitting. Allow the female sleeve to slide forward to lock. Gently tug on the connections to ensure that they are securely fastened. See diagram 5.
7. To hold the hydraulic hoses in position, clamp to the right side of the machine approximately 3 feet (of hose) from the quick release fittings. Hoses must be positioned so they do not rub against each other or the wall of the trap house, when oscillating. See Diagram 6.

REMOVAL/REPLACEMENT OF TURRET

1. Note how the drive engages the turret. **This must be replaced the same way.** Observe how the cogs are meshed with the pinion.
2. Two people, one on each side of the machine, must lift evenly and take the turret off. Place the machine inside the house. Replace the turret in the same way that it was removed.
3. The turret must be rotated by hand; turn the clutch clockwise to ensure that the cogs are enmeshed properly **before** the electrical power is turned on. ***Never push the turret directly or you risk damaging the turret.*** If the turret cannot be easily advanced, the cogs are not meshed. Pick up the turret and set it down again.

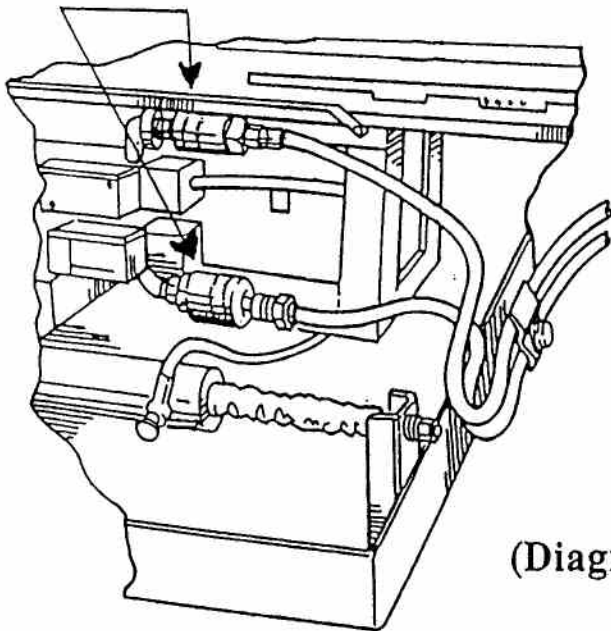
(Diagram 2)

The platform can be extended back if you want a place to set targets or tools.

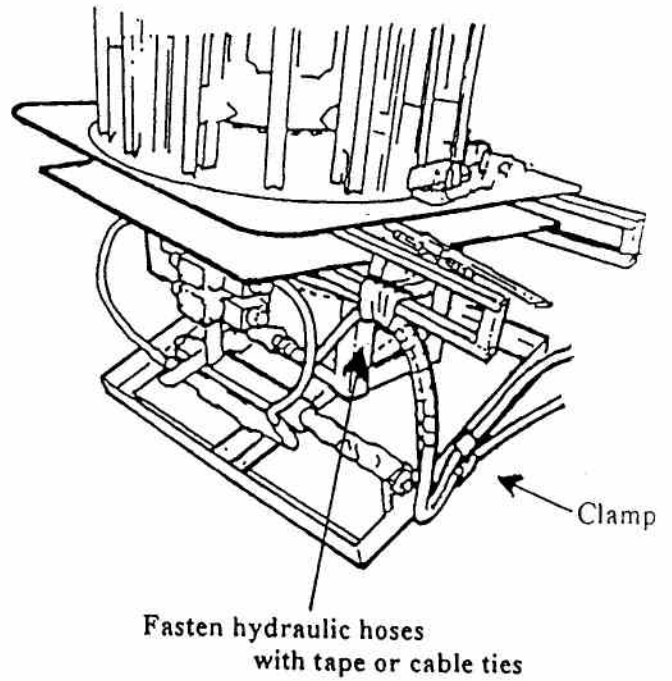


(Diagram 6)

Quick Release Fittings



(Front)



(Diagram 5)

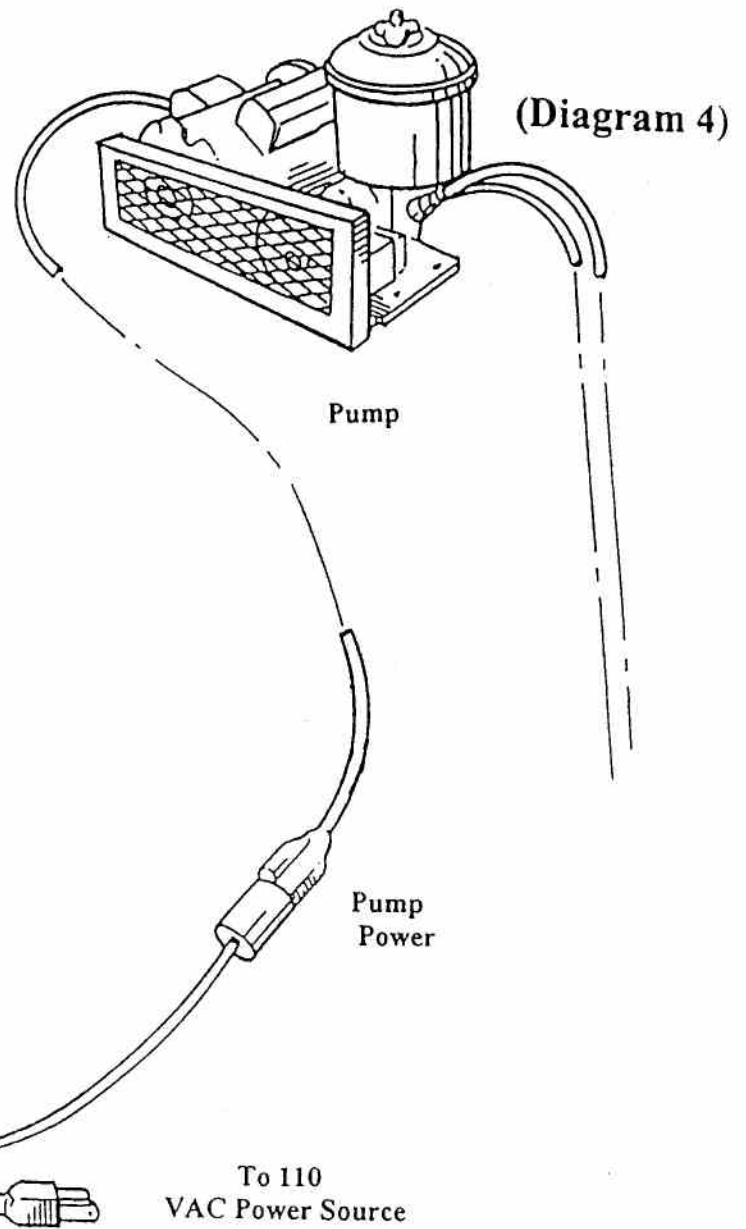
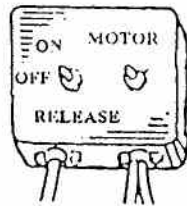
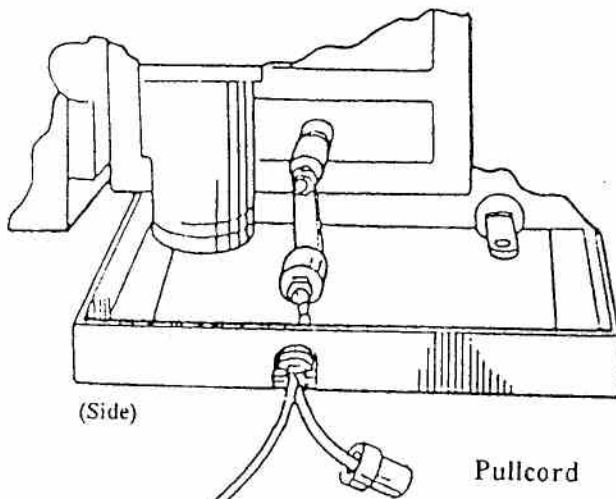
MOUNTING THE POWER CONTROL BOX

Mount the power control box just inside the trap house on the right wall near the ceiling of the trap house. This should be the side of the trap where personnel enter/exit the trap house. The power control box should be easily accessible so that it can be operated by placing your hand around the corner of the wall and not exposing your body to the front of the trap machine. The power control box will also be accessible to trap personnel when setting the machine for Doubles. Proper location of the control box is important to insure safety. *Never stand in front of a trap machine without having first released the target.* See Diagram 2.

CONNECTING THE TRAP TO THE POWER SOURCE

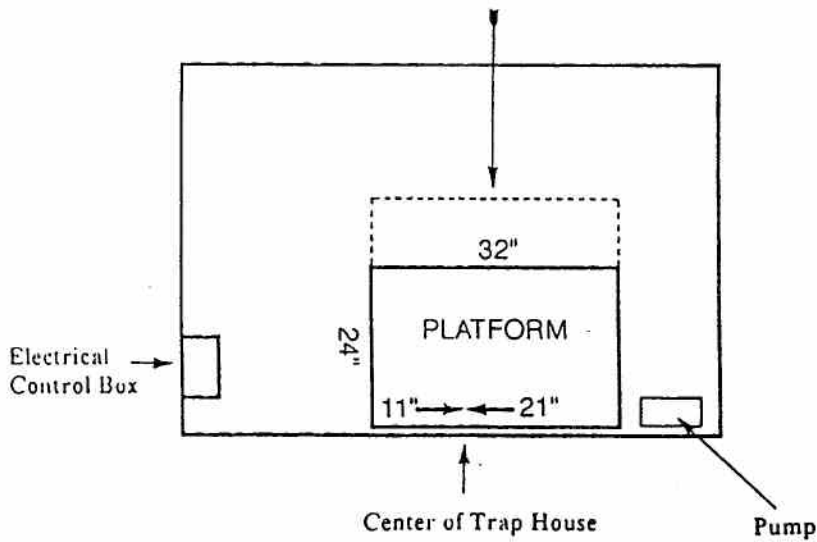
1. Check the power control box to confirm that the Motor and the On/Off/Release switches are in the *off position*. When both toggle switches are snapped downward they are in the off position. See Diagram 3.
2. Connect the pump to the power control box by plugging the pump motor into the outlet coming from the power control box. See Diagram 4.
3. The trap machine uses 110 volt AC power. Connect the trap machine to the power source using the plug from the power control box.
4. Connect the pullcord to the machine. The pullcord must have a male Bryant adapter (Winchester type pullcord). See Diagram 3.

(Diagram 3)



(Diagram 2)

The platform can be extended back if you want a place to set targets or tools.



HOW THE PAT-TRAP® AUTOMATIC DOUBLES MACHINE WORKS

Turn on the trap machine. The throw arm advances to a point where the activator comes to Switch #2 and stops the throw arm in the *cocked position*. See Diagram 10.

When the pullcord button is pushed, Switch #1 overrides Switch #2; which then advances the throw arm off the throw arm brake causing the machine to fire. See Diagram 9.

As the activator leaves Switch #2, it passes Switch #4, which activates Relay #1, causing the elevator to go up, the turret to index and the oscillation interrupter/timer to start for a pre-determined length of time.*

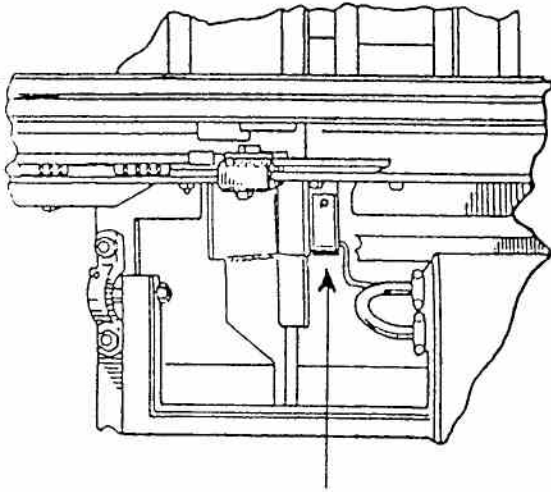
Switch #5, which is under the elevator, holds Relay #1 until Switch #4, which is under the turret, is activated. See Diagram 8.

Switch #4 is turned off when the turret is indexed and Relay #1 disengages and advances the throw arm to Switch #2 which then stops the throw arm in the cocked position. See Diagram 7.

*The machine angles to the left until it comes to Switch #12 activating Relay #2, causing the machine to change directions to the right. Switch #11 holds the Relay engaged until the machine reaches it, breaking the circuit which then disengages Relay #2 causing the machine to cycle left. See Diagram 22 on page 18.

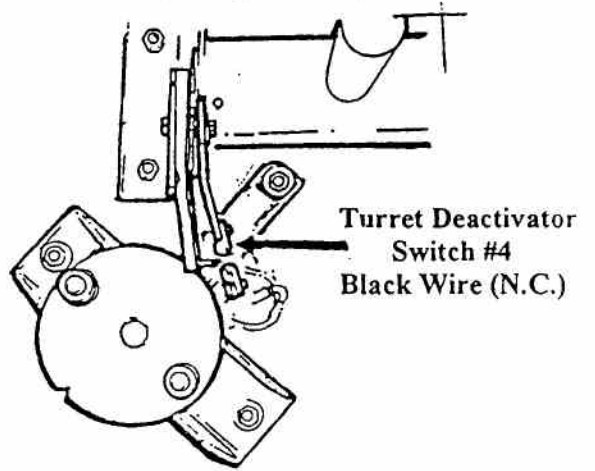
Switch #1	Pullcord button switch
Switch #2	Throw arm limit switch (black wire) connected to the white and black wires
Switch #3	Turret activator switch (red wire) connected to the green and red wires
Switch #4	Turret deactivator switch (black wire)
Switch #5	Elevator switch (red wire)
Switch #11	Right-angle limit switch (black wire)
Switch #12	Left-angle limit switch (red wire)

(Diagram 8)



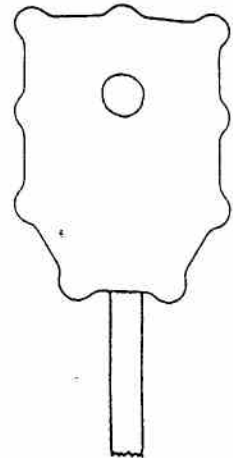
View from back of trap elevator
Switch #5
Red Wire (N.O.)

(Diagram 7)



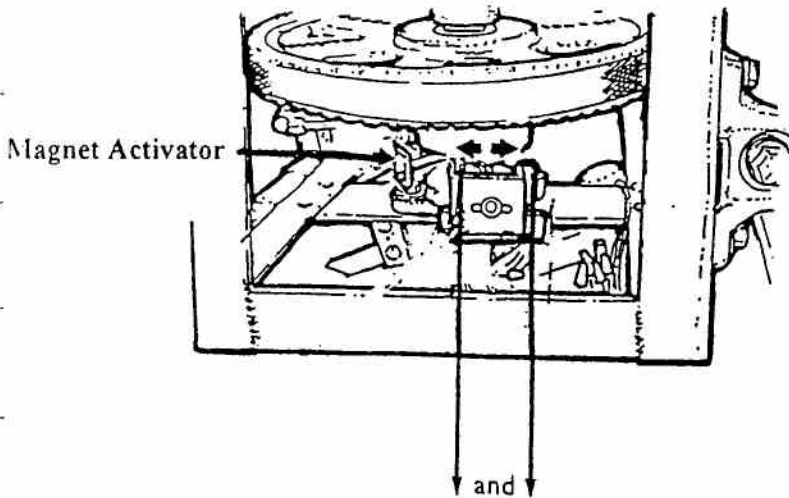
Turret Deactivator
Switch #4
Black Wire (N.C.)

(Diagram 9)



Pullcord Button
Switch #1

(Diagram 10)



Magnet Activator

and

Throw Arm Limit Switch
Switch #2
Black Wire (N.C.)

Turret Activator Switch
Switch #3
Red Wire (N.O.)

TURNING YOUR PAT-TRAP® MACHINE “ON”

1. Push the Pump Motor toggle switch *up* to the ON position. See Diagram 11.

IMPORTANT: Turn the motor switch ON *first* so that the hydraulic system is pressurized to prevent any air from entering the system. Allow the pump to warm up the hydraulic oil before operating the machine. In warm weather this will not matter. Colder temperatures may cause the throw arm to cycle repeatedly if the hydraulic oil is not warm. See page 25.

2. Push the On/Off/Release toggle switch *up* to the ON position.

TURNING THE PAT-TRAP® MACHINE “OFF”

1. Standing outside and to the side of the trap house; push the On/Off/Release toggle switch all the way *down* to release. The trap will throw the target and not cock the spring.
2. Push the Motor toggle switch *down* to the OFF position.

LOADING THE MACHINE

The PAT-TRAP® machine holds four (4) full cases of clay targets.

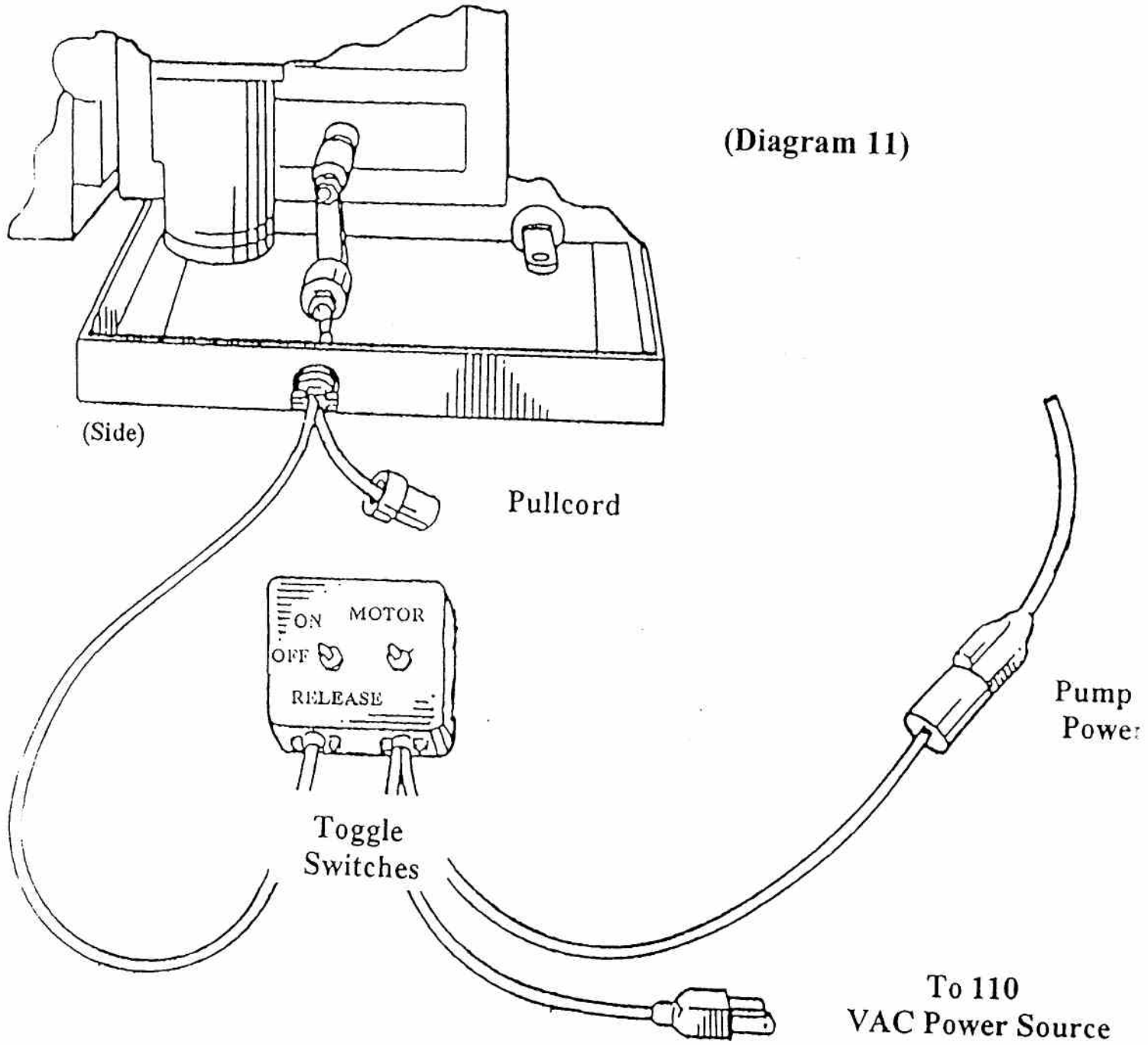
Never attempt to load the clay targets without first releasing the trap machine.

Leave the On/Off/Release switch in the Release position. If the machine's target stalls are empty or the targets are below the rollers, load all the turret stalls except those in front of the rollers. Use the clutch to advance the turret until the target drops through the hole and the stalls ahead can be filled. Remove the dropped target from the machine, then fill the empty target stalls.

IMPORTANT

If the machine is not released, the throw arm may accidentally be hit and discharge a target.

(Diagram 11)



PAT-TRAP® SINGLES

1. Standing clear of the trap machine, *release the target*. Push the On/Off/Release toggle switch all the way down to the Release position.
2. Advance the turret ahead until the pressure is off the lower roller and targets. To advance the turret, turn the clutch *clockwise*. *Never push the turret directly or you risk damaging the turret.*
3. The lower roller must be turned so the stamped "S" is facing upward. Slide the roller off, invert and replace the roller. See Diagram 12A.
4. Spring tension can be adjusted by rotating the spring crank *clockwise to increase tension, counter-clockwise to reduce tension*. If changing from Doubles to Singles, rotate the spring crank counter-clockwise the same number of turns that were used to increase the tension for Doubles, approximately 10 rotations. See Diagram 13.
5. On the trap machine electrical box, the toggle switch must be pushed down to the AUTO position. This will return the machine to automatic horizontal oscillation. See Diagram 13.
6. *Before exiting* the trap house, staying clear of the trap, reach over to the power control box and release the target to prevent accidental target release.
7. Once out of the trap house, push the On/Off/Release toggle switch up to the ON position.

PAT-TRAP® DOUBLES

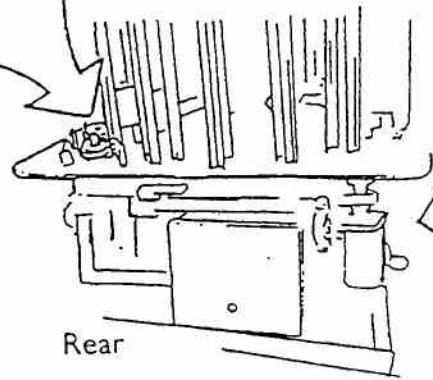
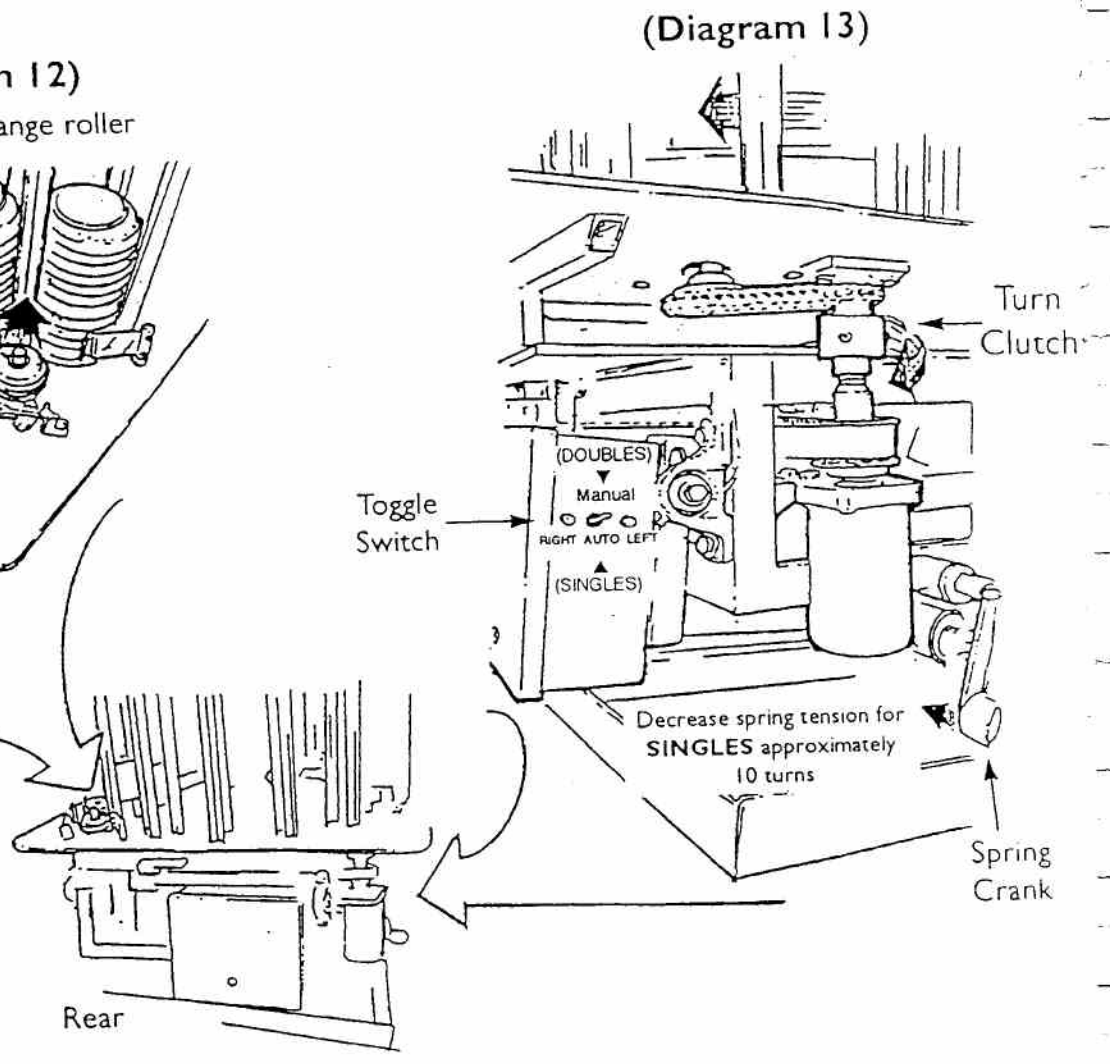
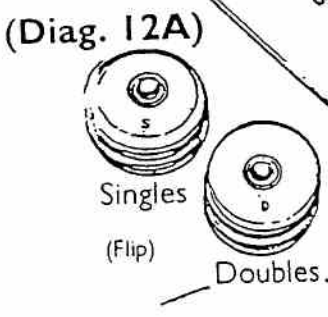
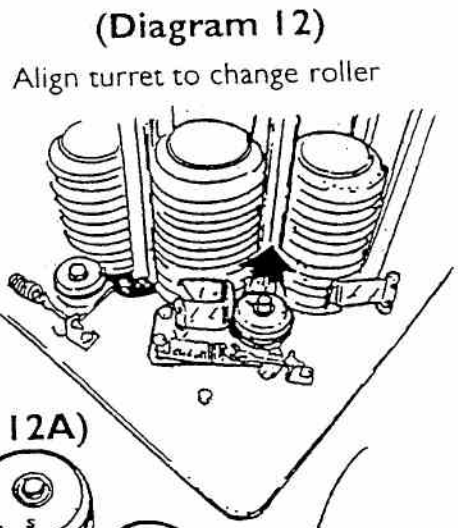
IMPORTANT: BE SAFE --- Stay clear of the throw arm travel path and *never* stand in front of the trap machine.

1. *Release the target.* The power to the pump motor can be left on.
2. Advance the turret ahead until the pressure is off the Doubles roller and targets. To advance the turret, turn the *clutch clockwise*. **Never push the turret directly or you risk damaging the turret.** See Diagram 15.
3. The lower roller must be turned so that the stamped "S" is facing downward. Slide the roller off, invert and replace the roller. See Diagram 14.
4. The spring tension must be increased to throw Doubles. Rotate the spring crank *clockwise* approximately 10 rotations from the Singles setting. See Diagram 15.
5. On the trap machine electrical box, the toggle switch must be pushed up to the MANUAL position. See Diagram 15. This will stop the automatic horizontal oscillation and will activate the Right and Left buttons. When the trap is ON, the throw arm is ready to fire. The throw arm can be fired by pushing the pullcord button. **It can also be fired by hand** --- by pushing the arm forward off the brake when the machine is either *on or off*. Staying clear of the trap machine, reach over to the power control box and turn the On/Off/ Release switch to the On position. See Diagram 3.

Use the *Right* or *Left* button to move the trap machine to the center.
6. *Before exiting* the trap house, staying clear of the trap, reach over to the power control box and *release* the target to prevent accidental target release.
7. Once out of the trap house, push the On/Off/Release toggle switch up to the On position.

ADJUSTMENT FOR DOUBLES

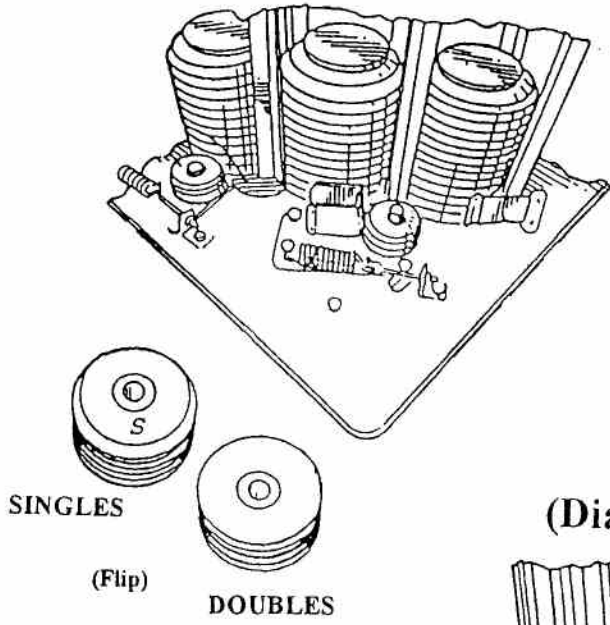
The adjustment for Doubles should only have to be done the very first time the machine is used. Using a 7/16" wrench, loosen the nut, move the target finger in 1/8" increments. Pull the target finger toward *self to lower* the height of the right target. Push *in to raise* the height of the right target. Tighten the nut. See Diagram 17. Refer to page 31 for correct positioning of the Double Finger ("X" Finger).



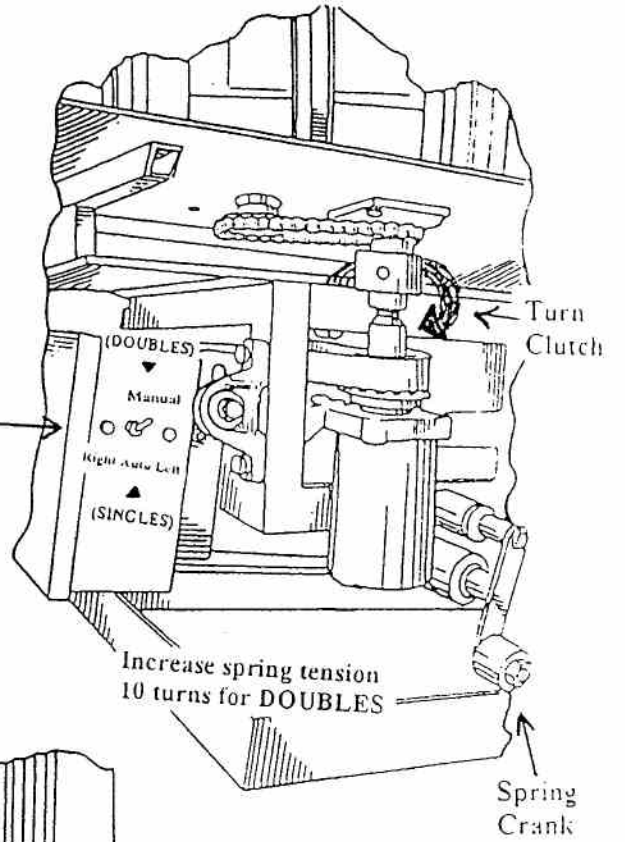
(Diagram 15)

(Diagram 14)

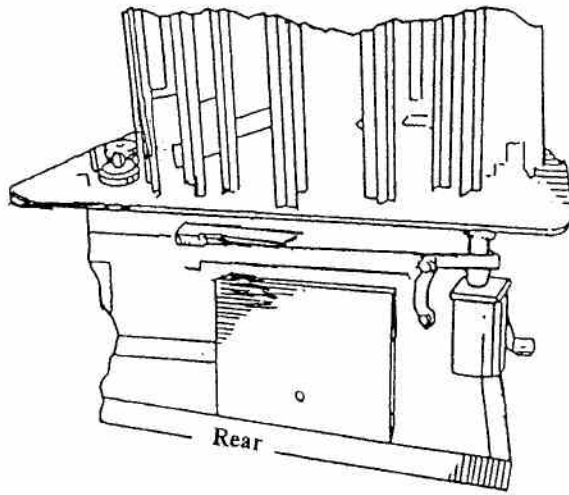
Align turret to change roller



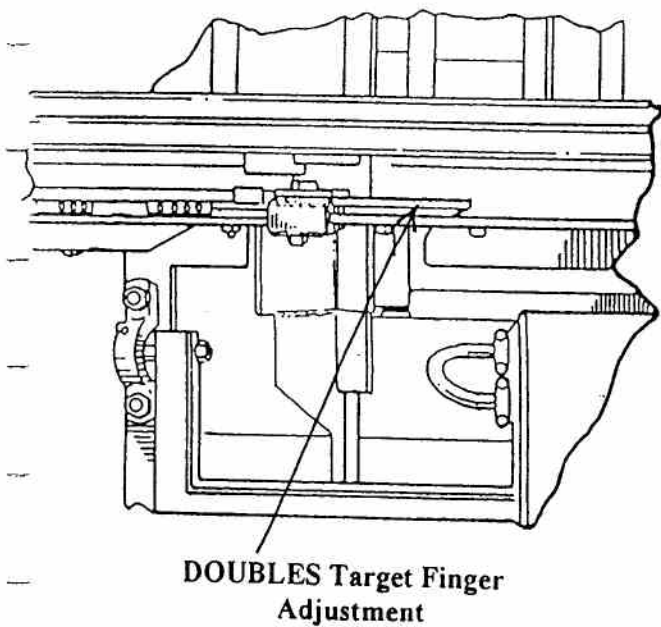
Toggle Switch



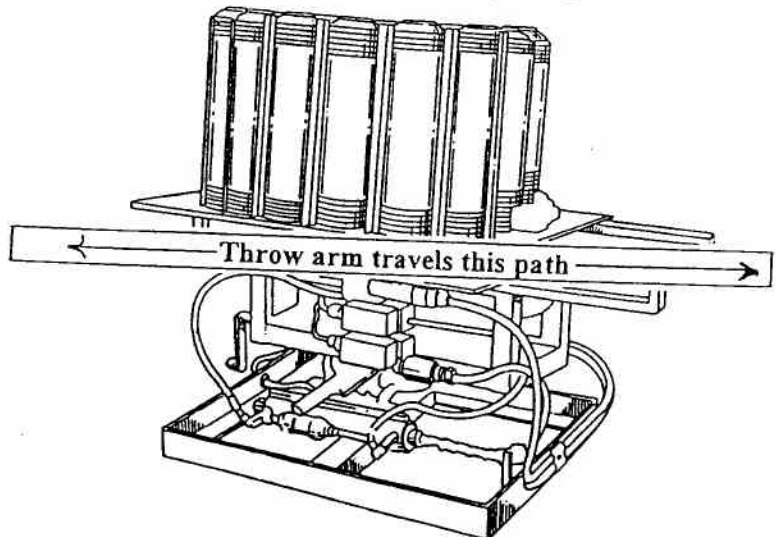
(Diagram 16)



(Diagram 17)



(Diagram 18)



PAT-TRAP® WOBBLE

The PAT-TRAP® with Wobble can be used in any of the following modes:

STATIONARY

- x Singles
- x Doubles

OSCILLATING HORIZONTAL

- x Singles
- x Doubles

OSCILLATING VERTICAL

- x Singles
- x Doubles

OSCILLATING HORIZONTAL/VERTICAL

- x Singles
- x Doubles

The PAT-TRAP® with Wobble has an interrupter for the horizontal and vertical modes.

NOTE: If the machine is located inside a trap house, oscillating doubles targets may hit the trap house walls.

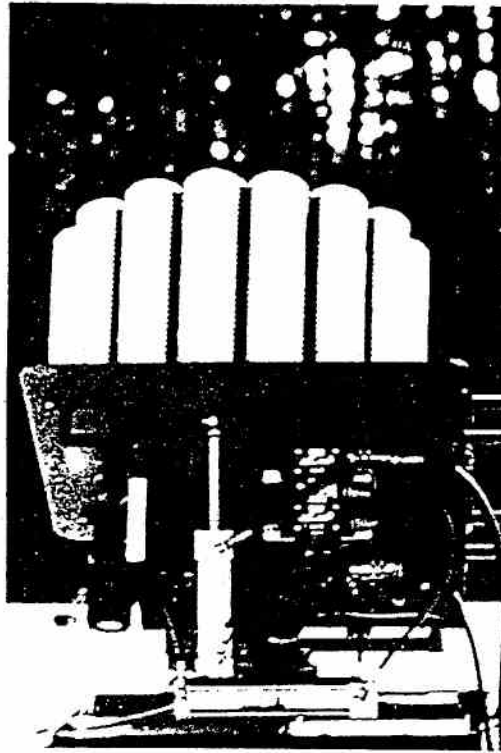
CHANGE OVER TO WOBBLE

Stand clear of the trap machine. Release the target. Use all safety procedures as stated in the previous "Singles" and "Doubles" section of this Manual.

The Oscillation Switch and the Wobbles Switch must be pushed down to the AUTO position on the trap machine electrical box. This engages the machine to the automatic horizontal/vertical oscillation mode.

HEIGHT ADJUSTMENT FOR WOBBLE

On the trap machine electrical box, the horizontal switch must be moved to the Manual position. For desired height, push the UP switch to go up; push the DOWN switch to go down.

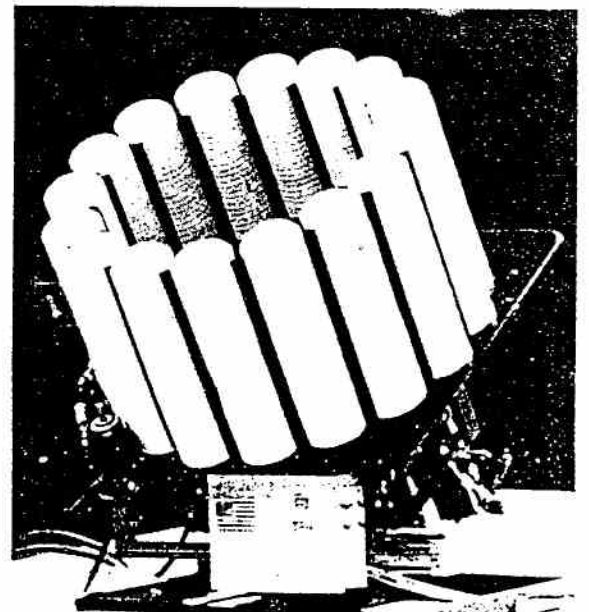
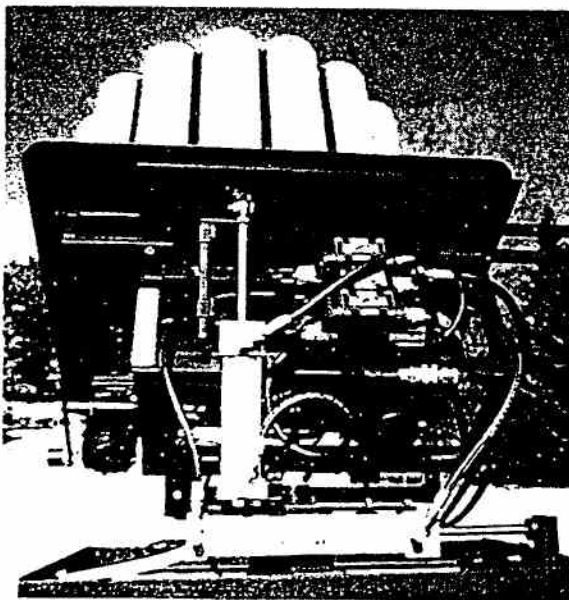
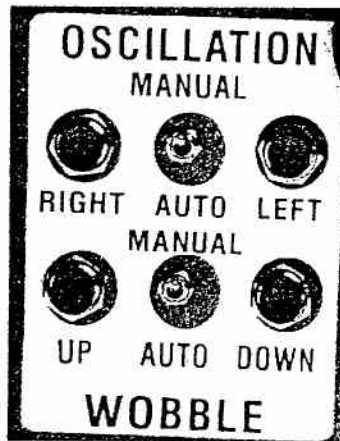


Pat-Trap® w/Wobble



Pat-Trap®

Stuart
Patenaude



SETTING DISTANCE/SPEED

Clockwise rotation of the crank *increases* the spring tension thus increasing the speed of the target and the distance it travels.

Counter-clockwise rotation of the crank *decreases* the spring tension. Continued counter-clockwise rotation will remove the tension from the crank and the spring tension lock-nut will hold. The elastic lock-nut holds the spring at the set minimum tension.

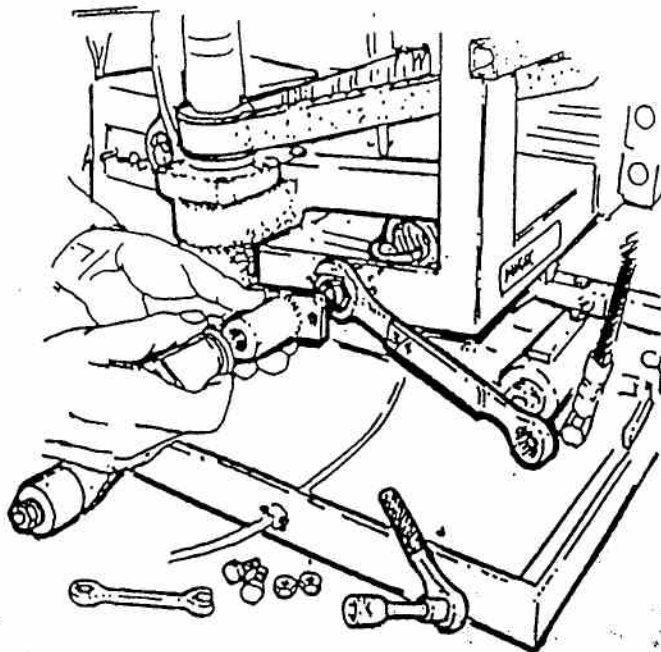
The standard minimum tension should be set so that the spring tension for a Singles target is as follows:

1. Remove the crank by rotating counter clockwise.
2. Remove the nylon washer,
3. Remove two (2) $\frac{1}{4}$ " bolts from the stand off collar.
4. Remove the stand off collar.
5. See the elastic lock-nut. Use a $\frac{3}{4}$ " wrench on this nut to adjust the distance/speed.
6. When the proper distance/speed is achieved, back off the elastic lock-nut three (3) turns.
7. Re-assemble the parts.
8. When the crank becomes snug, continue to turn three (3) more times for proper setting.

Whenever a SINGLES distance is to be set, back off the crank to neutral, crank back to snug, then give another three (3) turns for proper setting.

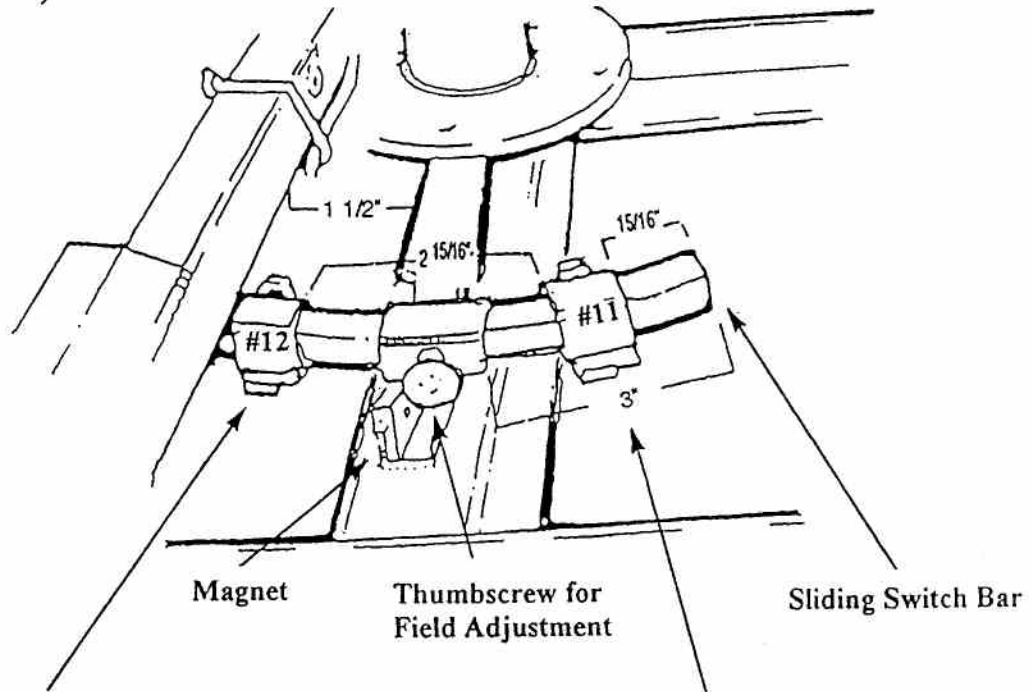
NOTE: SINGLES are always set first, then follow the procedures described for DOUBLES on page 11.

(Diagram 21)



FIELD-ANGLE ADJUSTMENT (Sliding Switch Bar Style)

(Diagram 23A)



Left-Angle Limit Switch #12 (Red Wire)	Loosen Thumbscrew to adjust	Right-Angle Limit Switch #11 (Black Wire)
--	-----------------------------------	---

The measurements in the above diagram are for 2-hole targets. The $2 \frac{15}{16}$ " spread between the switch holders allows $5 \frac{7}{8}$ " of total cylinder rod travel ---- which equals a 2-hole target. 7" of travel equals a 3-hole target.

If the flight-paths of both the right and left targets are too far to the left, slide the switch bar to the right. $\frac{1}{8}$ " will make a significant difference.

IMPORTANT: Be sure that the power is off and the trap machine has been released. NEVER attempt to make any adjustments when the arm is cocked. NEVER stand in front of a cocked trap machine. NEVER increase the limit switches beyond the travel path of the cylinder. This may cause the hydraulic cylinder to "bottom out" and damage the cylinder.

ADJUSTING HEIGHT OF TARGETS

THE TRAP MACHINE HAS BEEN RELEASED AND THE POWER IS OFF. NEVER ATTEMPT TO MAKE ANY ADJUSTMENT WHEN THE ARM IS COCKED. NEVER STAND IN FRONT OF A COCKED TRAP MACHINE.

Tilt the table by pushing up on the front of the machine. The rack can be positioned up or down. The rack can be roughly adjusted by loosening the assembly and sliding it up or down. See Diagram 22

ANGLE ADJUSTMENTS

RELEASE THE TARGET BEFORE ENTERING THE TRAP HOUSE. NEVER ATTEMPT TO MAKE ANY ADJUSTMENT WHEN THE ARM IS COCKED. NEVER STAND IN FRONT OF A COCKED TRAP MACHINE.

First, set the STRAIGHT-AWAY target; then follow the procedure for the right and left angle adjustment for 2-hole targets.

STRAIGHT-AWAY TARGETS

Set the toggle switch to the MANUAL position. Use the right and left buttons to achieve STRAIGHT-AWAY TARGETS. See Diagram 13

2-HOLE TARGETS

Loosen the thumbscrews. Slide the angle switch *toward the "magnet" to decrease the angle*. Slide the angle switch *away from the "magnet" to increase the angle*. See Diagram 22

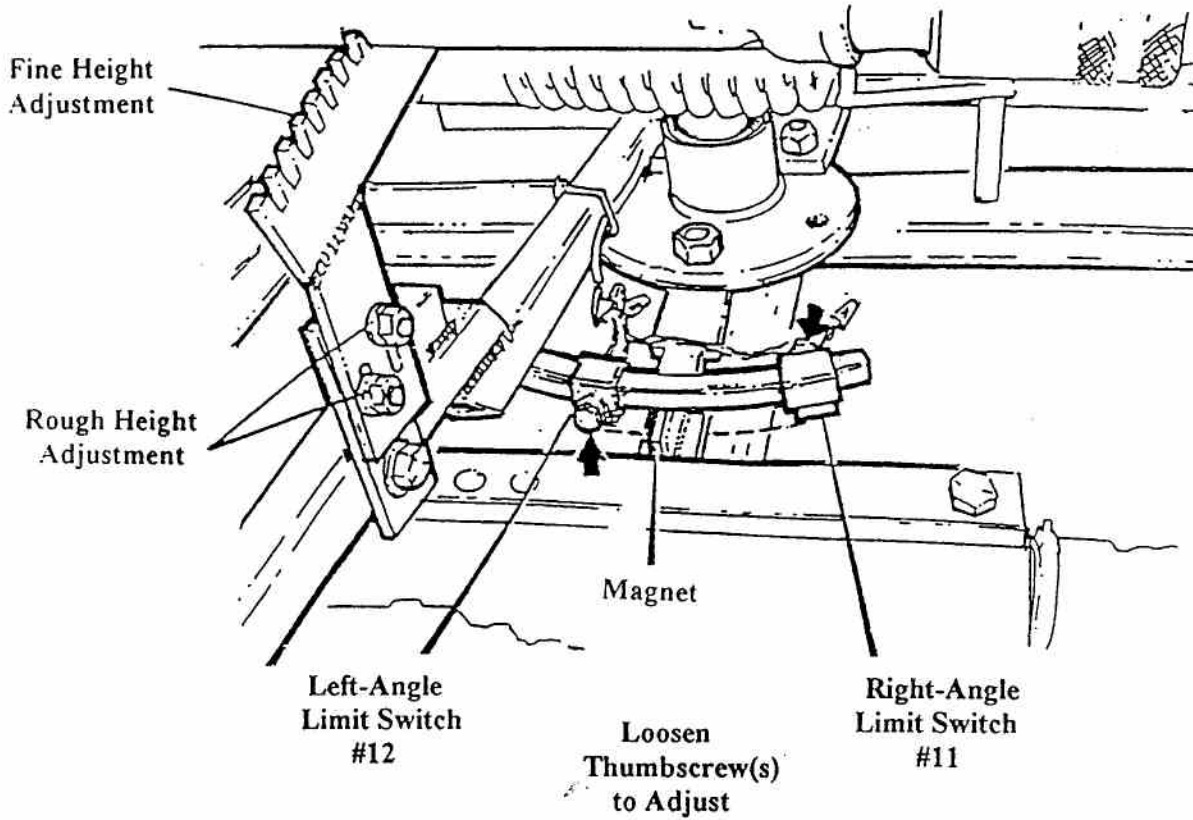
Measure and set the switch approximately $1 \frac{3}{4}$ " from the "magnet" to the front edge of the right-angle limit switch. Re-tighten the thumbscrew to hold the switch in place. See Diagram 23

Do the same for the left-angle switch. The total travel path of the oscillating cylinder rod is $5 \frac{7}{8}$ ". $2 \frac{15}{16}$ " left of center and $2 \frac{15}{16}$ " right of center.

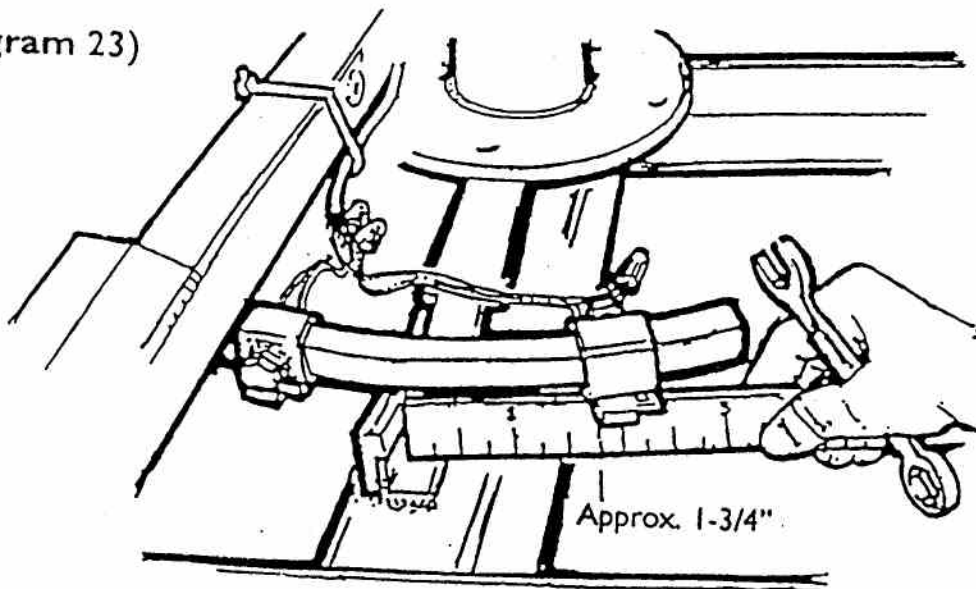
IMPORTANT: NEVER INCREASE THE LIMIT SWITCHES BEYOND THE TRAVEL PATH OF THE CYLINDER. THIS MAY CAUSE THE HYDRAULIC CYLINDER TO "BOTTOM OUT" AND DAMAGE THE CYLINDER.

"OLD STYLE" SWITCH ADJUSTMENT

(Diagram 22)



(Diagram 23)



INSTALLING PLASTIC PINION BACKSTOP, SPRING and SWITCH BRACKET (Proximity Switch Style)

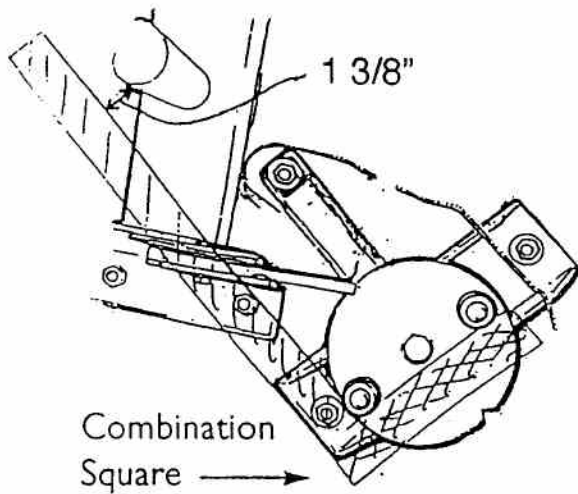
1. Remove the turret being careful not to loose the spacer washer between the kingpin base and the turret (most traps do not have a spacer washer).
2. Using the $\frac{1}{4}$ - 28 x 1 $\frac{1}{8}$ " bolt, install the backing, plastic and spring on to the kingpin base. See Diagram 25. To "time the turret" properly, use a combination square so that the pinion wheel's cam followers are up against the square and are at 90 degrees, at 1- $\frac{3}{8}$ " from the kingpin. See Diagram 24. Now, slide the plastic all the way into the notch. Tighten the bolt. Check to make sure the end of the spring is even with the end of the plastic.
3. Place the switch bracket on the kingpin base with the washer and nut. See Diagram 25. Set the switch so that the spring is as close to the switch as possible, because when the plastic backstop is out of the notch, the spring will bend in and move closer to the magnet. Use two $\frac{7}{16}$ " wrenches to tighten the nut, hold the head of the bolt so that the bolt doesn't spin when tightening the nut.

ADJUSTING SWITCH #4 (Proximity Switch Style)

Turn the power off to the machine. Disconnect the power wires to the proximity switch*. Use an ohm meter (or continuity tester) to check when the switch is activated. Rotate the pinion wheel by turning the clutch by hand. The gap between the end of the plastic and the notch in the pinion wheel *must be* $\frac{1}{8}$ " when the switch is activated (when the switch closes). Use a $\frac{1}{8}$ " hex key as a feeler gauge to set the gap. See Diagram 26.

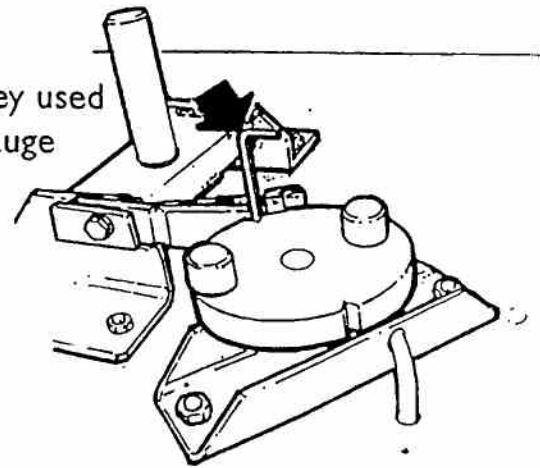
The correct setting is found by trail and error. Adjust the bracket by bending as necessary or use an adjusting screw. For example: If the turret does not stop indexing the gap is too little. Adjust by bending the bracket toward the front of the trap. See Diagram 26.

***NOTE: BE SURE TO DISCONNECT THE POWER WIRES; OR YOU MUST BLOCK THE ELEVATOR SWITCH BY PUTTING A STEEL RULER BETWEEN THE MAGNET AND THE PROXIMITY SWITCH.**



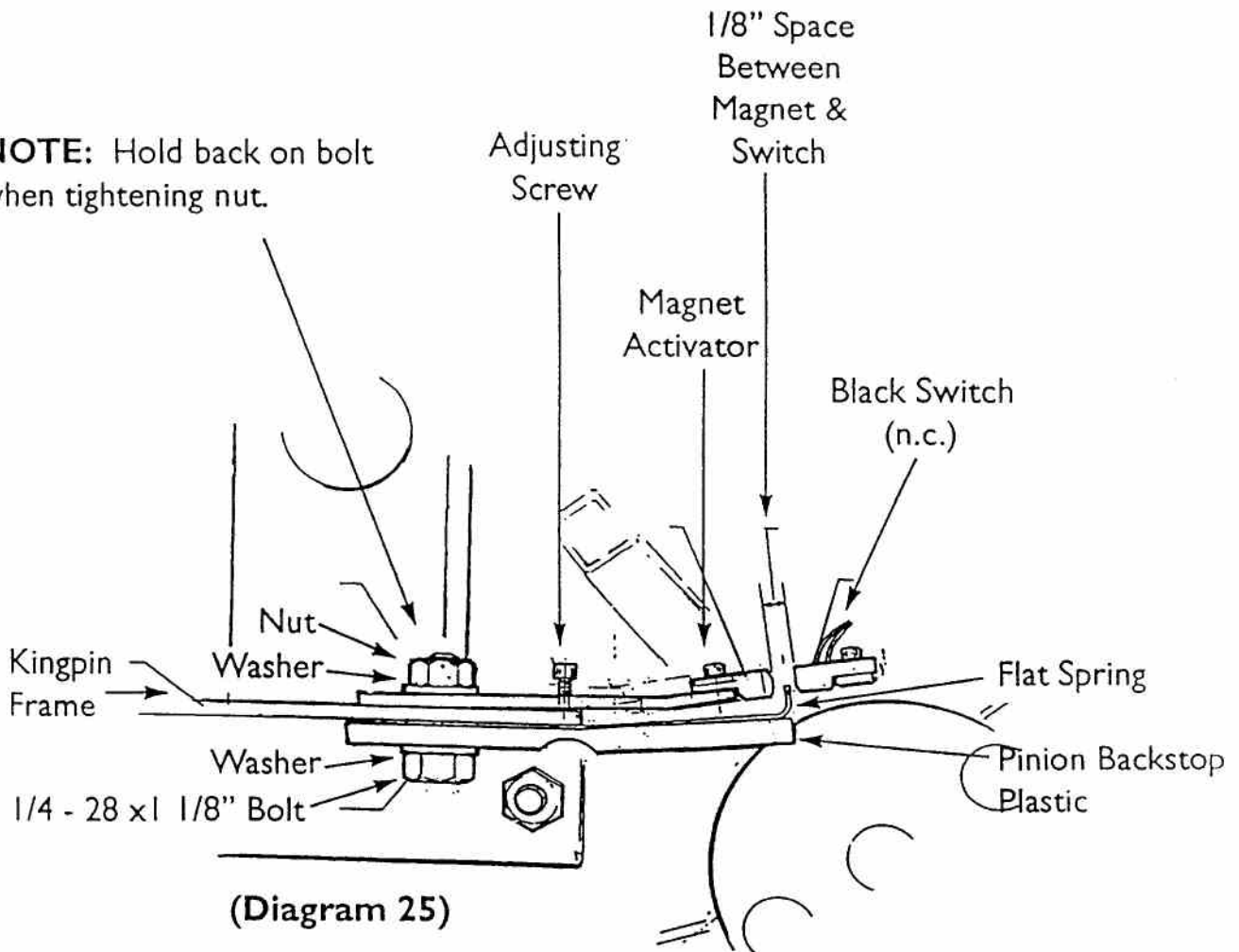
(Diagram 24)

1/8" hex key used as feeler gauge



(Diagram 26)

NOTE: Hold back on bolt when tightening nut.



(Diagram 25)

Spring to be near switch so when the pinion rotates, the spring moves in towards the activator magnet. Make sure that the spring does not hit switch or magnet.

**INSTALLING PLASTIC PINION BACKSTOP,
SPRING and SWITCH BRACKET
(New Roller Switch Style)**

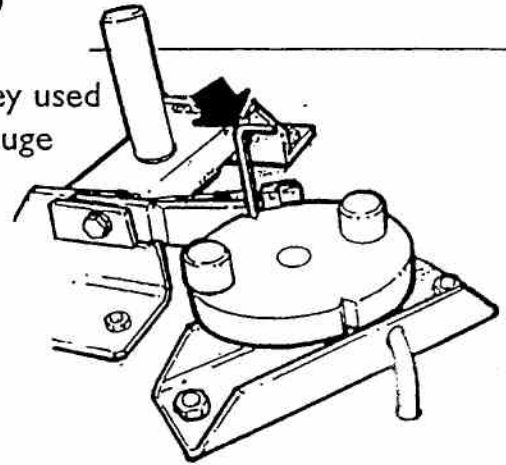
1. Remove the turret being careful not to loose the spacer washer between the kingpin base and the turret (most traps do not have a spacer washer).

2. Using the $\frac{1}{4}$ - 28 x 1-1/8" bolt, install the backing, plastic and spring on to the kingpin base. See Diagram 25A. To "time the turret" properly, use a combination square so that the pinion wheel's cam followers are up against the square and are at a 90 degree angle, at 1 3/8" from the kingpin. See Diagram 24. Now, slide the plastic all the way into the notch. Tighten the bolt.

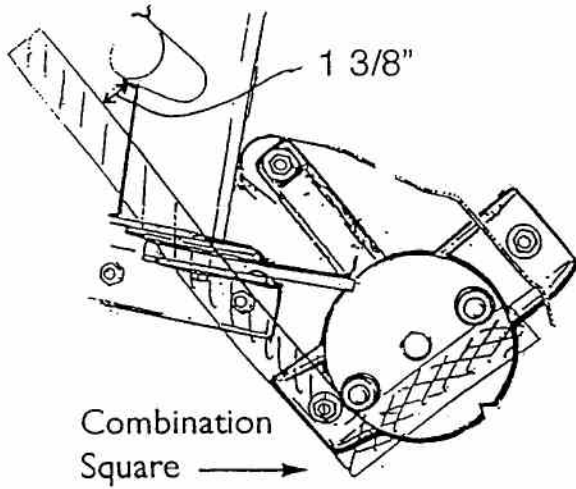
3. Place the switch bracket on the kingpin base with the washer and nut. See Diagrams 25A and 25B. Use two 7/16" wrenches to tighten the nut, hold the head of the bolt so that the bolt doesn't spin when tightening the nut.

(Diagram 26)

1/8" hex key used
as feeler gauge



(Diagram 24)



NOTE: Hold back on bolt
when tightening nut

(Diagram 25A)

