



SW SERIES TROUBLE SHOOTING

NEVER STAND IN FRONT OF A TRAP MACHINE. THE TRAP MACHINE MUST BE TURNED OFF AND THE SPRING RELEASED BEFORE ENTERING THE TRAP HOUSE. NEVER ATTEMPT TO MAKE ANY ADJUSTMENT WHILE THE THROW ARM IS COCKED.

OSCILLATION PROBLEM for Standard Pat-Trap machine (Wobble machine)

Stand to right and rear of the machine near the Electrical Enclosure Box. Turn the machine on. Put the Auto/Manual switch into the manual position. If the left and right push buttons work then the Hydraulic Solenoid valve is good. If the buttons do not work, check the fuse. If the fuse is blown this usually indicates that the Soft Shift Valve (P/N 9061) is bad.

AUTO MODE #11 & #12 (11A & 12A) SWITCHES

If the **#11 (11A) Switch** (N/C Right Angle Limit Reed Switch P/N 9223-G) is stuck “closed” then the machine will travel left (down) as usual. Then it will travel all of the way to the right (up) and will not return to the left (down). This will cause the relief valve to the pump to engage and create a loud noise.

Switch to Manual Mode and use the manual push button to bring the machine back to center and replace the switch

If the **#12 (12A) Switch** (N/O Left Angle Limit Reed Switch P/N 9222-G) is stuck “open” then the machine will travel all of the way to the left (down) past the limit switch, and will not return to the right (up). This will cause the relief valve in the pump to engage and create a load noise.

Switch to Manual Mode and use the manual push button to bring the machine back to center and replace the switch.

If the **#11 (11A) Switch** (N/C Right Angle Limit Reed Switch P/N 9223-G) is stuck “open” then the machine will travel left (down) as usual. Then it will travel to the right (up) only 5/8” and then return left (down) and repeat the same travel pattern.

Switch to Manual Mode and use the manual push button to bring the machine back to center and replace the switch.



If the **#12 (12A) Switch** (N/O Left Angle Limit Reed Switch P/N 9222-G) is stuck “closed” then the machine will travel all of the way to the right (all the way up) past the limit switch, and will not return to the left (down).

Switch to Manual Mode and use the manual push button to bring the machine back to center and replace the switch.

THE MACHINE DOES NOT OSCILLATE IN “MANUAL” MODE

Check the **Fuse**

If the Fuse is bad then the Oscillation Soft Shift Valve might be bad

Check the **Left or Right Push Button** for the fault

Check the **Auto/Manual Switch** for fault.

THE MACHINE DOES NOT OSCILLATE IN “AUTO” MODE

Check the **Fuse**

Replace the **Interrupter**

Check the **#3 Switch and the #5 Switch**

Replace the **#2 Relay**

If the **Fuse** is bad then the **Oscillation Soft Shift Valve** might have a short.

Check the **Auto/Manual Switch** for a fault.

THE THROW ARM INTERMITTENTLY OR CONTINUOUSLY THROWS TAGETS:

Allow the pump to run long enough to warm up the oil if the air temperature is cold.

Check **Switch #1**. Make sure that there is nothing wrong with the pull cord or voice release system: is the switch stuck on or is there a short in the wire?
Disconnect the release system before proceeding any further.

Check the **Throw Arm Brake Assembly**: check to see if the Brake Rubber is worn or if the Flat Spring is broken or missing.

Check the **#2 and #3 Switch Bracket**. The bracket might need to be moved forward to shut the Solenoid Valve off sooner, thus stopping the Throw Arm earlier -- especially if the air temperature is cold.



If the **#2 and #3 Switch Bracket** is all of the way forward in its adjustment slot then the **Throw arm/ Turret Valve** (P/N 9060SW) might be worn and needs to be replaced.

THE THROW ARM CONTINUOUSLY FIRES THROUGH:

Check the position of the **#2 and #3 switch bracket**.

Turn off the power to the trap machine. Pull the Throw Arm forward to the Brake to the normal cocked position. Turn the power on to see if the Throw Arm stays or fires.

If the Throw Arm stays on the Brake then switch #2 is good and the Solid State Relay (SSR) is good. If after firing the Throw Arm and the arm will not stop on the Brake then the valve is worn out and needs to be replaced.

If the Throw Arm fires off of the Brake when turning on the power then:

Make sure that there is not a short in the Release (Pull Cord) Power Wire or Twist Lock Plug.

Check the #2 switch to see if it is "stuck closed." If the #2 switch is good then the SSR is probably "stuck closed." Replace the SSR.

THE THROW ARM WILL NOT COCK:

Check the **Fuse**

Check the **On/Off Release Switch**. If the switch is good (and the Throw arm does not cock) then you should still be able to make the machine oscillate using the left and right push buttons thus showing that there is power to the machine.

Put the On/Off Release Switch down to release. If the throw arm fires then you know that the throw arm solenoid valve is good.

Check the **#2 Switch**. If it is stuck open then replace it.

Replace the **#1 Relay**

Replace the **Solid State Relay**.



TURRET Trouble Shooting for the SW Series

Make certain that the Pinion Backstop and the #4 Switch assemblies are correctly installed.

THE TURRET DOES NOT INDEX OR ONLY PARTIALLY ADVANCES TO THE SINGLES AND DOUBLES HOLE.

Have a pullcord in your hand. Stand behind the machine and fire a target and watch the Target Elevator for any movement.

If the Target Elevator moves up about 3/4 of an inch and immediately goes back down then this shows that switches #3 and #5 are good. #4 switch or the wire to the #4 switch is the most likely problem.

Inspect the #4 switch and bracket for condition and/or adjustment. If you have the updated #4 Micro Switch then inspect its roller for damage.

Inspect the Pinion Backstop Plastic for wear: if the corner which rides on the Pinion Wheel is excessively rounded over then the #4 switch might not be getting activated.

Check for low voltage (power supply)

ELEVATOR HAS NO MOVEMENT AFTER FIRING THE THROW ARM.

The problem is either with Switch #3 or #5. Advance the turret one inch by turning the clutch by hand (as you do when advancing the turret to change the doubles roller). This causes the Pinion Backstop Plastic to move out of the Pinion Wheel notch and activate the #4 switch. If the turret advances the rest of the way to drop a target, after firing the throw arm, then #5 switch should be replaced. If the turret does not move in this situation then #3 switch must be replaced.

THE TURRET INTERMITTENTLY INDEXES TWICE:

Most likely the #4 Turret switch is bad. In this case the switch is a N.C. magnetic proximity switch. (P/N 9211).

If the Elevator pet-cock valve is partially closed the Elevator speed might be too slow thereby causing a double index. The valve needs to be 1 ½ turns open or slightly more to get the Elevator up in time to receive the target.



THE TARGET ELEVATOR GOES UP AND STAYS UP CAUSING THE TURRET TO CONTINUOUSLY DROP TARGETS:

Turn off power to the machine. Then turn the power back on. If the Elevator goes down and the Throw Arm re-cocks as normal then the #5 switch needs to be replaced. If the #4 switch is stuck closed the same problem will occur.

If, when you turn the power back on the Elevator stays up and the Turret continues to drop targets then replace the #3 switch.

There is a less likely case where #3 or #5 switch can intermittently stick closed, causing the Turret to continuously index but then return to normal operation. In this case, be certain that #4 switch is good. With the certainty that #4 switch is good, make your best guess and replace #3 or #5: it is a process of elimination.

Change the #1 Relay.

TARGETS BEGIN TO FALL SHORT OR THERE ARE AN UNUSUAL NUMBER OF TURNS ON THE CRANK HANDLE TO THROW A 50 YARD TARGET

Check for a broken **Uni-Band** (Main Spring)

Grease the **Main Shaft Bearing** with a low viscosity grease.

TARGETS ARE BEING THROWN MORE TO THE RIGHT

See **Target Brush** section

See **Throw Arm Maintenance** in **Maintenance** section

BROKEN TARGETS

Check the **Target Brush**

Check the **O-rings**

Check the **Elevator Springs**

Check the **Roller Plate Spring** tension

Check the **Throw Arm**

Check the **Throw Plate** surface for corrosion: Sand with 80 grit sand paper if needed.

Check **Pinion Timing**



If throwing Doubles, check the **Doubles Finger**: there will be a problem if the **Double finger** is bent upwards.

Check the **Singles Finger** and **Doubles Finger** measurement. See Diagram 50

Other Electrical Aspects of the SW Machine

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If the 3 amp fuse is blown then there will be no power to the machine. The Release side of the On/Off Release Switch will work because it bypasses the fuse. The throw arm can still be fired by pushing the release switch down, or holding the pull cord button down.

The most common reasons for the fuse to blow are:

The Soft Shift Valve (used for both oscillation and wobble modes) has a short.

The #4 Switch wire has a bare spot (as a result of a hungry mouse) and shorts out against the Top Plate surface.

Please call Pat Trap, Inc if you have any questions.