TROUBLE SHOOTING

CAUTION! WHEN PERFORMING THESE CHECK POINTS, PLEASE MAKE SURE THAT NOBODY IS IN FRONT OF THE MACHINE, OR IN THE TARGET LAUNCH AREA..

PROBLEMS:	CHECK POINTS
ABNORMAL TARGET BREAKAGE	1. Check that the launching arm is adjusted to a proper height on the target (see 'launching arm adjustment' on the plastic laminated instruction card). Remove and check the launching arm. It must be straight; if not, replace or straighten the arm. Normal life expectancy of the launching arm for American Trap should be about 200,000 targets, American Skeet up to 200,000, International Skeet 75,000 - 100,000 targets, and approximately 50,000 - 75,000 for Olympic Trap. (See "Launching arm" in this manual).
	2. Check and make sure that the targets in the magazine are not damaged. (If the 3 bottom targets in the magazine are damaged, proceed with check point 3).
	3. Check that the O-rings on the inner target retainer are intact. Also, check that the nylon wheel is turning freely. If in fact the nylon wheel is "frozen" on its shaft, or the rubber O-rings are missing, chances are that the targets are being damaged at this point. Correct the problem and remove the damaged targets from the magazine.
	4 Check leaf spring function and adjustment. If broken, - replace the spring - (see picture on the LAMINATED INSTRUCTION card for proper alignment of the spring). The purpose of the spring is to prevent the target stack from "falling too hard" onto the magazine plate after that the one target has been launched.
	5 Check the elevator position. When this check is performed, the launcher must be released by hand with the power shut off. Do not use the safe release feature, since this will advance the mechanism slightly. The elevator should then be a minimum of a 1/4" (6mm) to 1/2" (13mm) below the surface of the launching table, measured from the highest point of the elevator, to the bottom rim of the target. (See picture on the laminated instruction card, and adjust accordingly).

ABNORMAL TARGET BREAKAGE, CONT'D	If the target separator knife has been activated, it must be adjusted 100% accurately, or it WILL cause severe target breakage (see "target separating knife" in this manual).
	7. THE FOLLOWING CHECK IS DONE BY OPERATING THE LAUNCHER FROM THE REAR OF THE MACHINE. - NEVER WALK IN FRONT OF, OR TO THE LEFT SIDE OF THE LAUNCHER, AND ABSOLUTELY NO HANDS INSIDE THE LAUNCHING ARM GUARD RAIL. Turn on power to the launcher. The launcher is now loading a target. SHUT OFF POWER and proceed with the following: NOTE THAT THE LAUNCHER REGARDLESS OF THE FACT THAT POWER IS SHUT OFF, CAN NOW FIRE THE TARGET LOADED AT ANY MOMENT OFF CARELESSNESS. MAKE SURE THAT NO PERSONNEL IS IN THE TARGET LAUNCH AREA. Check the launching arms position in relation to the distance between the target and the leading edge of the arm. This must not exceed 1/4" or 5-6mm. The ideal is no distance at all. Check that the target stop brush is correctly aligned. Note, that it must not interfere with the targets elevator transport from the magazine down to the launch table. If the brush bristles are substantially bowed, either install a new brush or reverse the existing brush.
ERRATIC TARGET PATH	SEE CHECK POINT 1 above. The launching arm is either bent or adjusted too low. Also, see check point 5 above. The possibility that the elevator is too high, may cause either target breakage and/or an erratic target path.
THE LAUNCHER IS THROWING TARGETS OCCASIONALLY OR FREQUENTLY ON ITS OWN.	8. Disconnect the release cord. If the problem stops, the cause is in the release cord, switch or button box.
	9. Check the launching arm. It may be bent, thus not activating the micro switch timely. If so, replace the arm.
	10. Check micro switch adjustment, (see "micro switch" in this manual, adjust or replace as needed). The switch may be adjusted up or down or sidewise, thus advancing, or retarding the launching arm. On earlier models, this is accomplished by shaping or bending the bracket on which the switch is installed . Do not bend the lever on the micro switch. The launcher mechanism may thus be adjusted BEFORE-ON-OR AFTER "TOP DEAD CENTER".IF ADJUSTED AFTER "TDC", THE LAUNCHER WILL FIRE THE LOADED TARGET WHEN THE POWER IS SHUT OFF. WE DO NOT RECOMMEND THIS SETTING.

THROWING TARGETS OCCASIONALLY CONT'D

11. Check the clutch adjustment at the drive unit. The clutch is located between the motor and the reduction gear. The 'gap' should be .008" - 012", or .2 - .3 mm. Use a feeler gauge to check the correct adjustment. If adjustment is needed, locate the two set screws by gently turning the reduction gear input shaft (located 90 degrees apart on the hub) on the portion of the clutch that is mounted on the drive gear input shaft. Loosen the screws. Employ a suitable tool to tap on the clutch HUB in the direction of adjustment. CAUTION, — DO NOT EVER PRY ON THE CLUTCH COMPONENTS, A DISTORTION OF THE CLUTCH PARTS WILL RENDER IT USELESS, see clutch adjustment in this manual. Make sure to tighten the set screws after adjustment.

LAUNCHER WILL NOT RELEASE TARGETS, BUT WILL LOAD A TARGET WHEN RELEASED MANUALLY

12. Check the pull cord that it is connected properly, & that it is not "open", or try another release cord.

13. Check that release power is available at the field connection; for trap machines it will always be 24v DC, for "Winchester compatible" skeet machines, it would be 110v AC. Machines equipped with a low voltage release system the voltage should be 24v DC. (if the machines are equipped with timers having a green LED as a control light the voltage will be 12v DC. This applies only to skeet machines produced in 1984-1986). If power is not present at this check point, proceed to check power at the machine.

14. Check fuses as available at three (3) possible locations. 1, on the face of the transformer* in the power distribution box. 2, in the side wall of the power distribution box.3, in the early style timer. (Timers with green or red LED as control lights, timers in plain aluminum enclosures doesn't require fuses). All fuses are of the standard size 5 x 20mm, readily available at any electronic store or Radio Shack Stores. While the fuses are of different amperage and SHOULD BE REPLACED BY LIKE KIND. DO NOT UNDER ANY CONDITION INSTALL FUSES WITH AMPERAGE GREATER THAN 1.0 AMP!

15. If electrical storms have been present in the area, the release relay may have been damaged. Try another relay or check the existing one. All relays for Winchester compatible machines will be 110v ac. All other relays will be 24v dc, except for the early production skeet machines that may have a 12v dc relay (1984 - 1986).

* In all production from 1992.

LAUNCHER WILL NOT RECOCK, THE ELECTRIC MOTOR NOT RUNNING	16. Check power supply and connections to the machine. Check the overload breaker at the motor; if tripped, push in to reset. 17. Remove the top cover on the motor junction box, check the capacitor,& also check the starting relay or try a new capacitor and relay.
THE ELECTRIC MOTOR IS RUNNING	18. Check that 24v dc is available at the terminals on the transformer in the power distribution box on the launcher.
THE LAUNCHER WILL NOT LOAD A TARGET--	19 Check the micro switch function (operated by the launching arm). 20. Check the electro magnetic clutch for proper operation. (See # 11).
--BUT THE LAUNCHER WILL "WINDMILL" WHEN RELEASE BUTTON IS HELD DOWN.	21 Replace micro switch.
THE LAUNCHING ARM STOPS PERPENDICULAR TO THE LAUNCHERS OWN LEFT SIDE, THE MOTOR SEEMS OVERLOADED OR STOPS RUNNING TRIPPING BREAKER	22. Check drive belt tension. Adjust as needed. 23. Check for proper house voltage, should be 120 to 122 volt, with no substantial voltage drop when motors are running.
EXCESSIVE VIBRATION IN LAUNCHER AFTER EACH THROW	24. Check and adjust back lash brake. (see adjustment, on the plastic laminated instruction card). If adjustment doesn't have any effect, do not tighten the adjusting bolt excessively. The sprague clutch may then be defective and should be replaced. 25. The nylock nut at the bottom end of the main shaft (main spring attachment point) may be loose. Tighten the nut, making sure that the cone/spring washers are aligning properly. When completely tightened, back off approximately 1/4 turn to allow the spring washer to work properly. (If the nylock nut should loosen up again, please repeat the above, but this time use blue 'locktite' to help the nylock stay in place).