



## Advanced Training Systems

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# ST-71 Long Distance Sniper Target with Auto-Reset

## Operations Manual



Read and fully understand the operations manual before using ST-71 Sniper Target

# ST-71 Auto-Reset Sniper Target

## Quick Start Guide and Manual

Your new system will come in three separate boxes. They will be the following.

1. 6x6x26 box contains the ST-71 Lifter with hardware and Frag. Catcher
2. 1x12x24 box contains the White AR-500 Target Plate
3. 1x7x14 box contains the Black AR-500 Barrier

Remove all items from the boxes. It is a good idea to keep the box the ST-71 arrived in in case you need to send the unit back for service or warranty repair.

Before you Shoot, Charge your unit fully and inspect for any signs of damage. Check the 2 nuts that hold the plate in place. Due to the harmonic vibration in the plate they will need to be tightened from time to time.

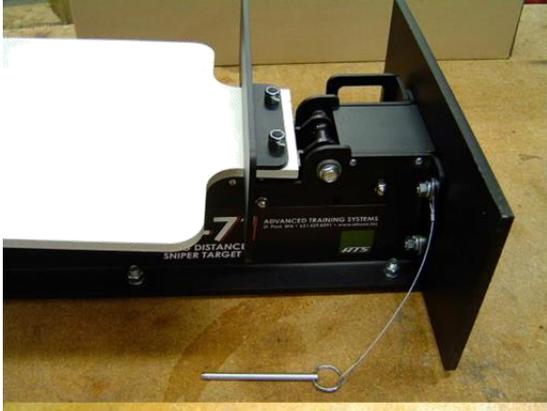
Caution: The shooter MUST allow 2 seconds from the time target plate is raised until the round is sent to allow the mechanism to disengage. The shooter should not engage the target while in motion as damage may occur. Failure to allow the mechanism to disengage may cause mechanical failure, which is not covered under warranty.

Assembly of the ST-71 is quite simple, all you will need is two 9/16" box end wrenches.

1. Using the 4 – 3/8x1 1/2" bolts, Lock Washers and Hex Nuts, install the Ballistic Plate as shown in the picture below. The bolts should insert from the front, the nuts and lock washers are located on the back. Tighten securely using the wrenches. Attach the handle to one side and the locking pin to the other, the cable tether can be retained between the chassis and a flat washer on the side opposite the handle.
2. To assemble the target plate and Frag. catcher, simply slide the plate over the studs first. It may be necessary to use both hands and squeeze the plate onto the studs from both sides of the pivot mechanism. Once the plate is fully seated on the studs repeat the process with the Frag. catcher as shown below. The shelf should be towards the top with the mounting holes to the bottom. Once both parts are located on the studs secure both using the 3/8" Nyloc Nuts provided. NO washers are used on this assembly. Check the nuts often as they will loosen with use and the vibration for bullet impacts, this is normal.

Caution: Do not operate the ST-71 without the Frag. Catcher installed. When the bullet impacts the plate it fragments and directs the bullet spray down and outward. This spray will cut metal, plastic and any other objects within the plane of the target plate.

3. Test the operation of the pivot mechanism by lifting the plate from the down position to the up position. The plate should pivot freely and should not bind at any point during the travel. If everything seems good you are ready to deploy the lifter.



## Deploying the Target on the range.

1. Once the target is assembled it is now ready to shoot. Pick a spot that is level, free of debris, and provides a solid base for the target to sit upon. Place the ST-71 in this location. If the ground is not level the unit may not stay standing when activated. As noted earlier bullet fragments travel down and outward from the plane of the target plate. Do not place the units on any surface than can be damaged by shrapnel. Furthermore do not place units close together as the spray from one unit may damage another. If you do need two units side by side either place a barrier between them for protection or stagger them front to back such that each unit is clear of the target plate plane from the adjacent unit.
2. Raise the target plate to the upright position. Check the plate to make sure it does not tip easily. The plate should have a slight forward lean. The impact from the round will tip it over. The forward lean will help the unit stay up when activated and keep it from blowing over in the wind.
3. Once the ST-71 is placed in a suitable location; with the plate in the upright position open the battery cover. To open the battery unscrew the knob, it will not come out; it is captive. Once you have unscrewed the knob, the cover should lift open. While hinging the cover upward you can pull it forward. This will allow the cover to clear on top of the rubber bumper and create access to the battery.
4. With the cover open connect the battery, Orange wire to + Red Positive Terminal, Black wire to the – Black Negative Terminal.
5. Close the battery door making sure the wires do not get pinched, mate the cover latch in its hole and screw into the fastener. The battery cover should now be secure, verify that it is, correct the issue if it is not.
6. With the plate still in the upright position Turn the power switch on, the target can be tested by placing a metal object near the Proximity sensor. This is demonstrated with the wrench in the pictures below. When the metal object gets close a little light will turn on indicating the object has been sensed. If you keep the object there the actuator will start to cycle. Once the actuator starts to move remove the object. Verify the actuator extends, pauses, retracts, pauses and then bumps slightly outward. The cycle is complete.
7. If the actuator completes the cycle the unit is now ready for action. Knock the plate over, wait and observe the ST-71 complete a lift cycle. If the cycle completes the ST-71 is ready for live fire. If there is an issue correct it before shooting at the lifter.





#### Storing the unit after use

1. Turn the power Off
2. Open the Battery Cover and disconnect both Orange and Black wires from the Battery. There is a power switch but it should not be used when transporting.
3. Charge the unit fully or place on Charger/ Maintainer (see charging section)
4. Store in a sheltered location. The ST-71 is not designed to be left outdoors in the elements on a continual basis. Although all items are resistant to most environmental conditions while in use, prolonged exposure to the elements will cause premature failure and is not covered under warranty.
5. The user may store the unit completely assembled or by removing any of the plates desired. There is no need to disassemble the unit.

#### Transporting the unit

1. Turn the power off.
2. If carrying short distances insert the locking pin to avoid having the plate flop open while handling the unit. It is very important the unit is not turned on with the pin inserted, as damage to the unit will occur. You may damage your actuator or short out your control module. This damage is not covered under warranty.
3. If transporting long distances or in a vehicle you should disconnect the battery and remove the plate to avoid damage to the unit. While transporting the unit it is best to remove the target plate to avoid damaging the pivot mechanism, damage to the pivot mechanism is not covered under warranty.

#### Charging the Battery

1. Open the battery Cover
2. Disconnect the Positive and Negative wires from the battery
3. Connect a 12VDC battery charger/maintainer with a current rating of 2A or less. Over-charging the battery will shorten its life and cause premature failure.

Note: To maximize battery life, Charge the unit after use and store with a fully charged battery. The user should also “top off” the battery before use of the ST-71. If using a maintainer it is acceptable to leave it connected until the ST-71 is ready to use.

## Periodic Inspection and Maintenance

The ST-71 is designed to be a service-free device. There is no scheduled service items or serviceable points within the actuator. If the user desires a small amount of lubricant can be applied to the shaft area where the bushings are located on either side of the unit. It would be good practice to wipe clean any excess oil and grease to prevent dust and dirt buildup.

The ST-71 has an AR-500 Steel Plate that the bullets impact. When the bullet impacts the plate it fragments. It is good practice to keep the inside of the ST-71 free from this debris. By tipping the ST-71 on its side and forward the debris can be guided out of the ST-71 from the pivot opening. Do not let debris build up inside the ST-71.

As stated earlier the nuts that secure the ballistic plate will become loose over time and will require tightening from time to time. The interval is determined by the number of rounds and the type of weapon used on the units. It is recommended that you check them before or after shooting.

## Trouble shooting:

If the ST-71 becomes jammed it will stop the lift cycle. To reset the ST-71 manually lift the plate into the upward position and use a metal object near the sensor to reactivate and reset the lift cycle.

If the unit fails to operate check the battery voltage with a voltmeter. The battery should read between 11V and 13.5V. If the battery is low recharge it and test again.

If the battery voltage is within range, place a metal object near the sensor and verify that the sensor illuminates with a metal object near it and goes out when removed. Keeping the object near the sensor for 3 seconds should start the lift cycle.

If the unit does not complete the lift cycle verify that both springs inside the unit are intact and verify the leaf spring is intact and forces the actuator upward as it extends. It may be helpful to remove the barrier to gain access to the latch mechanism.

Due to impact of the plate and the location of the battery it is possible the battery can become damaged and stop functioning. The battery is mounted on foam strips and secured in place with rubber sleeve over the top bolt. This helps the battery from absorbing the impacts from the plate. If you need to replace the battery remove all 3 bolts that keep the battery in place and lift the battery out, tipping the terminal end up at an angle while pulling forward. When installing a new battery be very careful not to pinch any wires under the battery, all wires run alongside the battery. Batteries are not covered under warranty. Any 12VDC 7.5AH sealed lead acid battery with ¼" terminals will work. They are available at most battery suppliers. The battery can be replaced without taking the unit apart after removing the 3 bolts that keep it in place.

Unit cycles over and over, this is usually caused by a failed sensor. If the sensor fails it can be replaced by cutting the wires to it and using the butt splices included with the repair kit. Cut the wires in the middle of the cable do not cut too close to the module. Follow instructions in the repair kit. A failed sensor will either not sense metal objects and no light will come on or will cause the unit to cycle over and over again.

Light on Sensor not lighting indicates either a bad sensor or a dead battery.

## Spare Parts List

Part Number	Description
9000-0781	Target Plate, 12x22x3/8" AR-500 White
9000-0782	Barrier, 7x14x3/8" AR-500 Black
9000-0783	Frag. Catcher, Black
4900-0123	Battery, 7.5Ah 12VDC Sealed Lead Acid
9000-0773	Chassis Bottom
9000-0772	Chassis Right Side
9000-0771	Chassis Left Side
9000-0791	Pivot Arms
6900-0226	Pivot Bearing
9000-0782	Battery Cover
9000-0778	Mid Cover
9000-0779	Rear Cover
9000-0777	Front Cover
8000-1055	Actuator with Springs and Sear
6900-0243	Springs for actuator (set of 2)
9000-0785	Leaf Spring, Lift
4900-0219	Proximity Sensor with IDC connectors (repair kit)
8000-1052	Motor Control Module with Sensor
6900-0138	Rubber Bumper
9000-0774	Bumper Bar, Rear

# ST-71 Spec Sheet

## ST-71 Base Unit

Weight	40# (base unit only, w/ batt)
Foot Print (base unit)	26" x 6" x 6" (LxWxH)
Battery	Internal 7.5Ah SLA Rechargeable
Control Electronics	Auto Reset Standard
Reset Delay	Fixed, 5 seconds
Standby Time (Full Charge)	750 Hours
Run Time (Full Charge)	up to 800 Actuation's
Cycle Life Test (MTBF)	10,500 cycles
Motor	12V Actuator, IP65 rated
Speed	3 Second Lift
Max Plate Weight	25# @ 10" c.o.m.
Color	Matte Black
Construction	All Steel Chassis
Waterproof/Weatherproof	No/No (not rated for year round exposure)
Ballistic Protection	Front Barrier / Frag. Catcher
Radio Control	Optional ETX, Upgradeable
Maximum Radio Range	up to 500 meters line of sight

## Barrier

Material	AR500 Abrasion Resistant Steel
Size	7" x 14" x 3/8"
Weight	12#
Round Protection	To 300 win. mag.

## Target Plate

Material	AR500 Abrasion Resistant Steel
Size	12" x 22" x 3/8"
Weight	21#
Round Protection	To 300 win. mag.