

LYNX[®] CRS9100 Cable System Target Retrieval Kit

INSTALLATION / OPERATION MANUAL



⚠ WARNING

Read, understand and follow all installation and operation instructions included in this manual.

Failure to follow instructions could result in death or serious injury or damage to the system.



INTRODUCTION

The Cable System Target Retrieval Kit has been designed as a reliable target retrieval system which can be maintained easily and inexpensively. The kit includes all the required components for a fully functional, one position target retrieval system. See the **RANGE LAYOUT DIAGRAM** below for a typical layout of the system.

This system is not ballistic rated. All downrange hardware components of this system which are exposed to gunfire will require replacement. Replacement parts are off-the-shelf items available at most local hardware stores.

The motor housing and all components within the motor housing have a **ONE-YEAR WARRANTY** from time of purchase. The warranty covers any malfunction or defect occurring under **normal operation** of the system. Damage to the motor housing or any components within the motor housing caused by improper use will not be covered under warranty.

The motor housing is not waterproof. When installing the system in an outdoor location, the motor housing must be covered to prevent rain, snow, etc. from damaging the electrical components inside the motor housing. Damage to the motor housing or any components within the motor housing caused by exposure to water or moisture will not be covered under warranty.

This manual has been designed for your help. It will assist you and instruct you on the proper installation and operation of this system. **Failure to read, understand and follow the instructions in this manual may result in poor system operation, damage to the system, personal injury, even death.**

Refer to the table of contents for an outline of this manual.

RANGE LAYOUT DIAGRAM

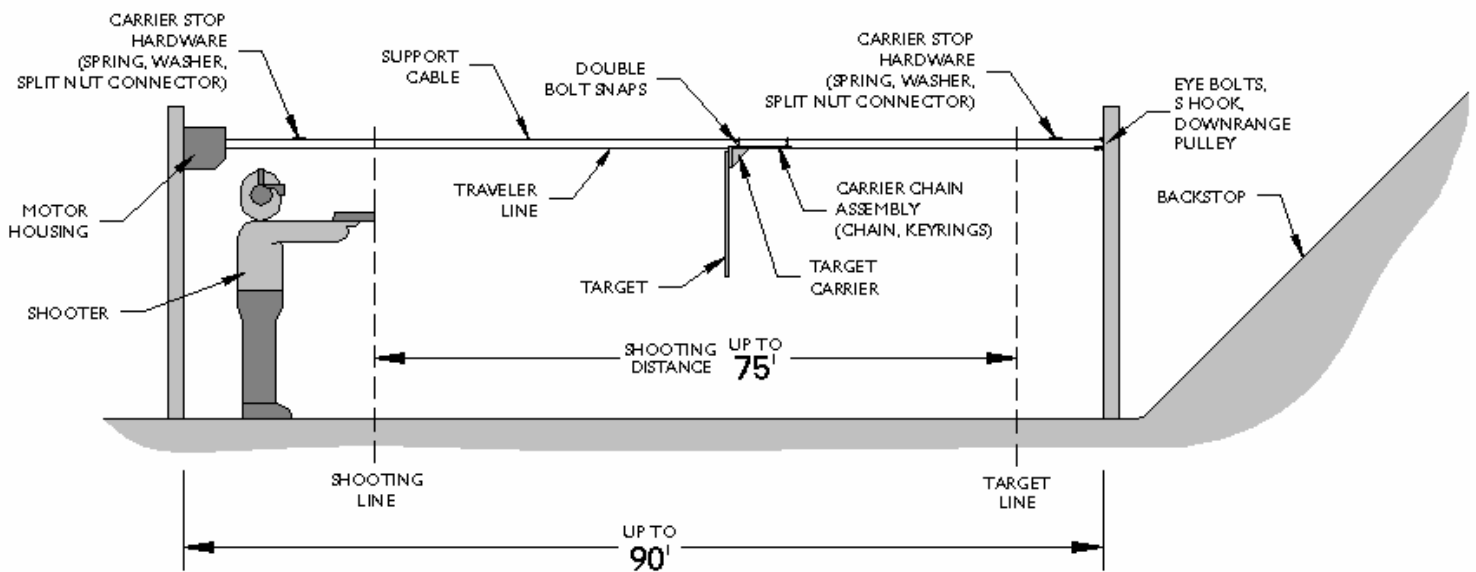
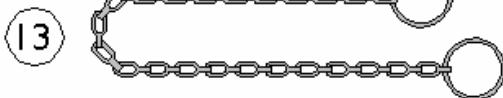
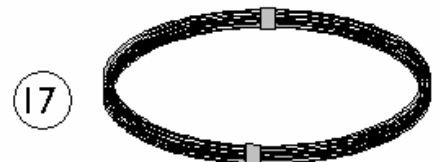
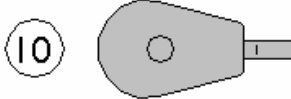
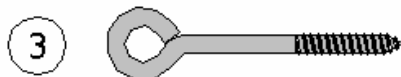
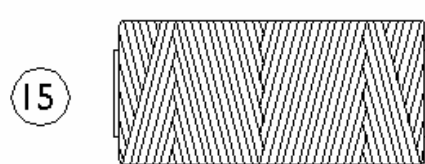
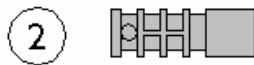


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LIST OF SUPPLIED (NON-WARRANTY) HARDWARE ITEMS

Reference Number	Item	Description	Quantity Supplied
1	lag screw	1/4" x 1 1/2"	2
2	lag shield	1/4" long	2
3	lag eye screw	1/4" x 3 3/4"	2
4	lag shield	5/16" long	2
5	eye bolt	5/16"-18 x 4"	2
6	nut	5/16"-18	4
7	washer	5/16"	4
8	split nut connector	#8-14 AWG	4
9	S hook	3/16" diameter x 2" long	2
10	downrange pulley	3/4" single, fixed eye	2
11	spring	1/4" diameter x 2" long	4
12	washer	#10 SAE	4
13	carrier chain assembly	(2) 1" key rings, 11.4" furnace chain	2
14	bolt snap	3/8" double	4
15	traveler line	nylon string	225'
16	hex wrench	5/32"	1
17	support cable	3/32" diameter aircraft cable	100'



SELECTING A LOCATION

**THE MOST IMPORTANT FACTOR TO BE CONSIDERED
IN SELECTING A LOCATION IS **SAFETY.****

When deciding on a location for your target retrieval system, ask yourself the following questions:

a) **"Am I permitted to shoot here?"**

Most towns and regions have laws governing the usage of firearms within certain boundaries. Consult local bylaws to determine whether the law permits you to do so.

b) **"Does this location enable me to have a clear view of the target at all times?"**

The shooting lane or line of fire between the shooter and the target should always be completely visible and free of obstructions. Be sure that there is nothing (tree branches, clothes on a clothesline, flags, etc.) that could move into the shooter's sight line and prevent them from having a clear view of the target at all times.

c) **"Is there sufficient protection behind the target?"**

Remember that the line of fire extends beyond the target line. A bullet will not stop at the target. Depending on the type of firearm used, the bullet can travel for hundreds of yards - even miles – beyond the target. You should always be aware of the dangerous range of the firearm and ammunition you are using. It is strongly recommended that a backstop of some sort be used behind the target. In outdoor applications, this can be as simple as firing into the side of a hill. Be sure that you are aware of what is behind the target at all times.

d) **"Is there anything in the line of fire, either in front or beside or behind the target that could cause ricochets?"**

Hard objects (rocks, concrete walkways, steel posts/structures, etc.) can cause a fired bullet to ricochet and change direction. This may result in the whole bullet or bullet fragments traveling back towards the shooter, causing serious injury, even death.

INSTALLATION:

NOTE: While installing the system, refer to the **ASSEMBLY DIAGRAM** located on page 15. Be sure that all items are installed as shown on the diagram.

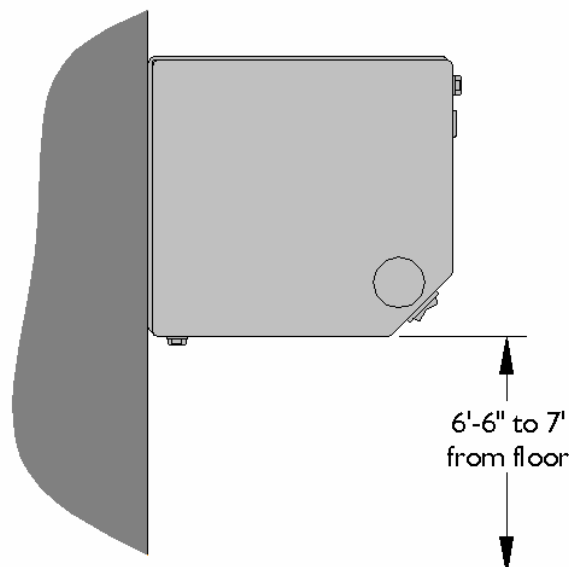
TOOLS REQUIRED FOR INSTALLATION

- Electric drill
- Twist drill bits (3/16", 3/8")
- Masonry drill bit (1/2")
- Hammer
- Level
- Wrenches (3/8", 7/16", 1/2")
- Aircraft cable cutters (recommended) or large wire cutters
- Electrical tape
- Scissors
- Stapler (pliers-type recommended)

A MOTOR HOUSING

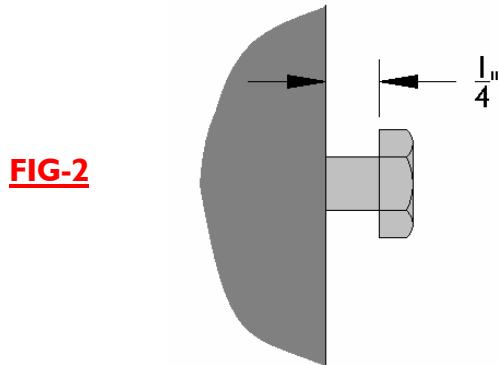
The motor housing should be mounted directly behind the shooting position. It must be secured to a solid vertical surface that will withstand the tensioning of the support cable. **The motor housing is not waterproof.** When mounting the system outdoors, the housing must be protected from the rain by some type of roof structure. The motor housing should be mounted at a height of approximately 6'-6" to 7'-0" above the ground (to the bottom of the housing). See **FIG-1**. Ideally, the support cable will pass approximately 12" above the shooter's head. Keep in mind that the control switch located on the front of the housing should be easily accessible.

FIG-1



Installation Instructions:

1. Position the mounting template in the desired location, lining up the shooting lane line on the template with the center of the desired shooting lane. Ensure that the template is level and square to the shooting lane. The template can be held in place with tape. Mark the location of the two mounting holes to be drilled.
2. For installing into concrete, use a 1/2" drill bit and drill the two holes at least 1 1/2" deep. Insert the 1/4" lag shields using a hammer. For installing into wood, use a 3/16" drill bit and drill two pilot holes in the locations shown. Install the 1/4" lag screws using a 7/16" wrench, so that the heads of the screws are approximately 1/4" from the wall. See **FIG-2**.

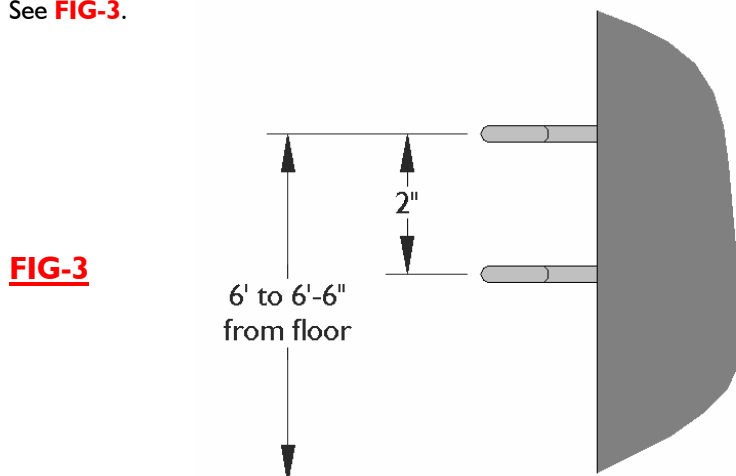


3. Remove the two side cover plates on the motor housing. To remove the left side cover plate, loosen the black thumbscrew on the left side of the housing. To remove the right side cover plate, loosen the button head screw located on the right side using a 5/32" hex key (supplied with hardware items). Slide the motor housing onto the screws by using the two keyhole slots on the back of the housing. Be sure that the housing is seated entirely on the screws, and tighten the screws all the way to secure the housing in place. Check again to ensure that the unit is level and square to the shooting lane.

4. Replace the right side cover plate on the housing again and secure it in place using the button head screw. Do not replace the left side cover plate at this time.

B EYE BOLTS AND DOWNRANGE PULLEY

The two eye bolts are installed at the downrange end of the range and will support the cable and traveler line. The eye bolts must be located **no further than 90'** away from the motor housing. The line between the motor housing and the eye bolts will represent the shooting lane or line of fire. **Be sure that this area is free of all obstructions.** The top eye bolt should be mounted at a height of approximately 6'-0" to 6'-6" above the ground. The bottom eye bolt should be installed 2" below the top eye bolt. See **FIG-3**.



Installation Instructions:

1. For installing into concrete, use a 1/2" drill bit and drill the mounting holes at least 1 3/4" deep. Insert the 5/16" lag shield anchors with a hammer and screw in the lag eye bolts. For installing into wood, use a 3/16" drill bit and drill two pilot holes. Screw in the lag eye bolts.
2. For installing into steel plate, steel angle, or plywood, use a 5/16" drill bit and drill two holes in the desired locations. Insert the 5/16" threaded eye bolts through the hole and secure on either side with a nut and a washer.

NOTE: When using steel structures downrange, be sure that **all exposed steel surfaces are angled down towards the ground**. This will reduce – **but not eliminate** – the risk of bullet fragments deflecting back at the shooter. **ALWAYS EXERCISE CAUTION WHEN FIRING AT OR AROUND SOLID OBJECTS.**

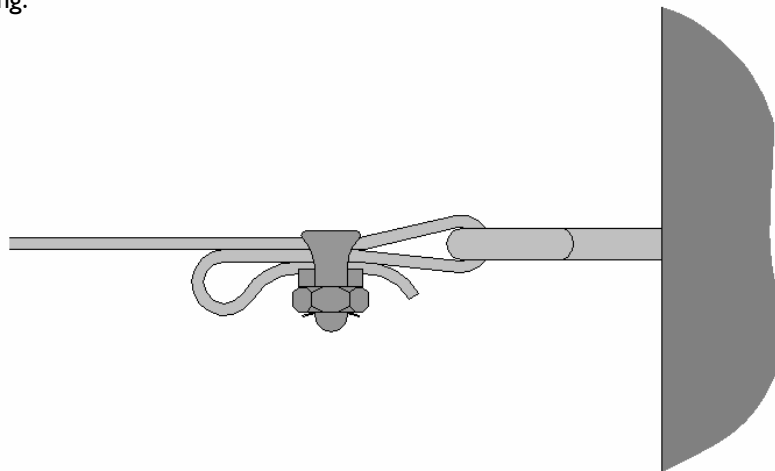
C SUPPORT CABLE

The support cable acts as a guide for the target carrier and will support the weight of the target and carrier as they travel down the range and back.

Installation Instructions:

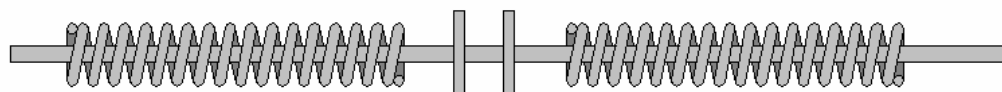
1. Loop one end of the cable through the **top** eye bolt installed downrange and secure it using a split nut connector. It is recommended that you loop the cable back towards the eye bolt, allowing you to have three pieces of cable clamped in the split nut connector. This will create a stronger grip on the cable. See **FIG-4**. To tighten the split nut connector, grip the fixed side of the connector with a 3/8" wrench, and turn the nut using a 1/2" wrench. The nut will squeeze the cables together and prevent them from slipping.

FIG-4



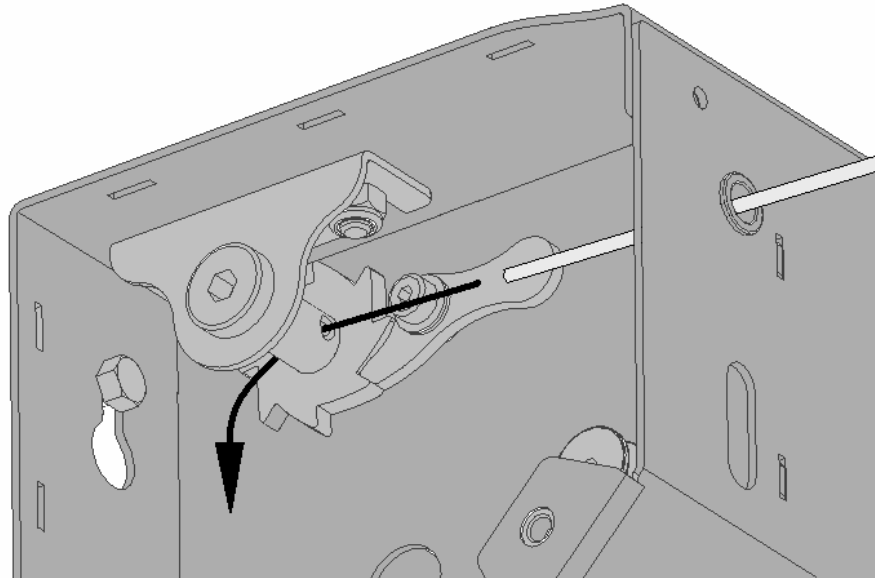
2. Pull the free end of the cable towards the motor housing location. Be sure that the cable is not twisted or tangled. Place the carrier stop hardware (two springs and two #10 SAE washers) on the cable at this time. These items will control the maximum traveling distance of the carrier. The hardware goes on the cable in the following order: **spring – washer – washer - spring**. See **FIG-5**.

FIG-5



3. Slide the end of the cable through the round hole in the front of the motor housing (above the slot) and through the hole in the ratchet screw located inside the motor housing. See **FIG-6**. Pull the cable through the ratchet screw hole as far as possible to remove the maximum amount of slack from the cable.

FIG-6

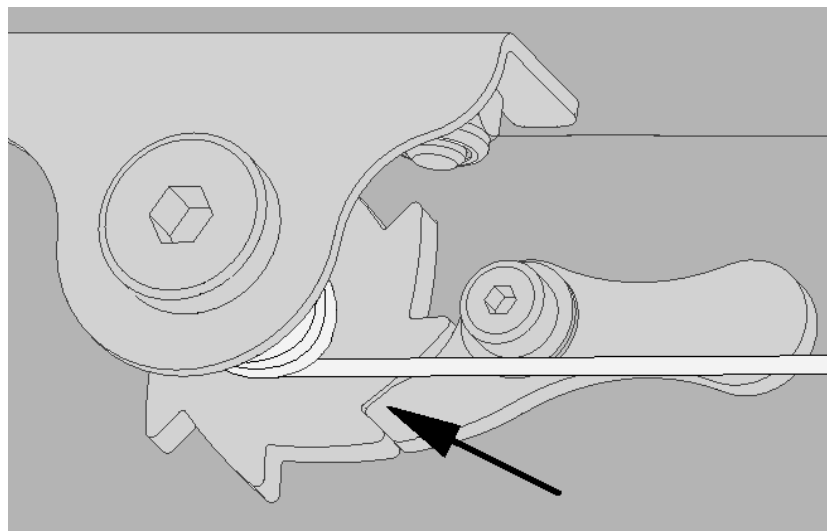


4. While holding the free end of the cable, use the hex key provided in the housing (just below ratchet screw) to turn the ratchet screw several clockwise rotations - until the cable no longer wants to slide back out of the hole. You can cut off the excess cable at this time. **Leave several inches of extra cable** so that you do not risk letting the cable slide out of the ratchet screw.

NOTE: Aircraft cable cutters are recommended for cutting the support cable. If these are not available, large wire cutters can be used instead. When cutting the cable, wrap a strip of electrical tape around the area of the cable that you wish to cut. Cut through the tape. This prevents the wire from fraying. Always wear safety glasses when cutting aircraft cable.

5. To tension the cable fully, continue turning the ratchet screw in a clockwise direction. The cable should be tightened enough so that there is a minimal amount of sag in the middle of the cable. **Do not over-tighten the cable.** Before letting go of the hex key in the ratchet screw, **be sure that the pawl is engaged in the teeth of the ratchet.** See **FIG-7**.

FIG-7



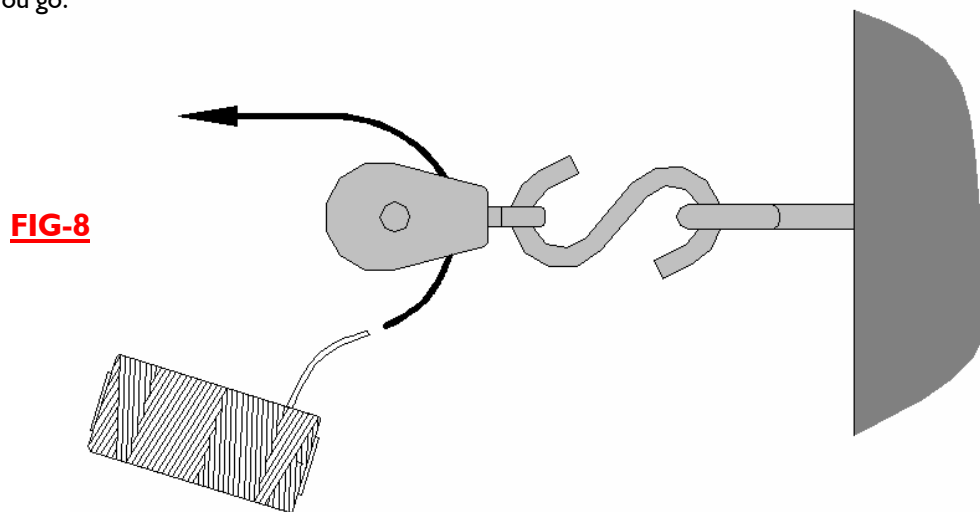
6. Be sure that any excess cable inside the housing will not interfere with the motor pulley. Trim back any excess cable. Do not replace the left side cover plate at this time.

D TRAVELER LINE

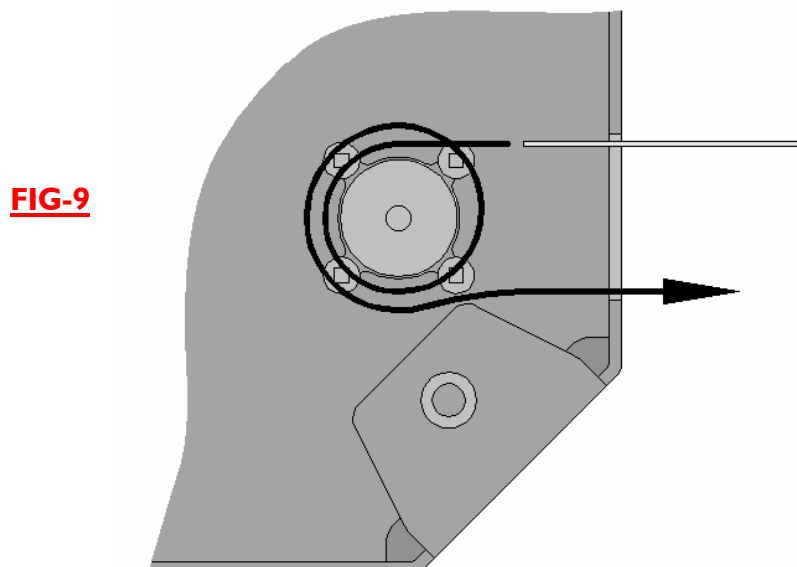
The traveler line (nylon string) will be connected to the target carrier and will pull the target downrange and back along the support cable.

Installation Instructions:

1. Hang the S hook and pulley on the lower of the two eye bolts. Slide one end of the string through the **bottom** of the pulley. See **FIG-8**. While holding the free end of the string and the roll, walk towards the motor housing, unraveling the string from the roll as you go.

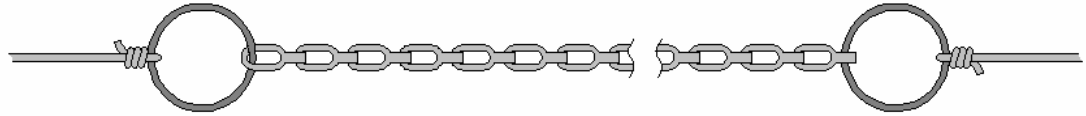


2. Insert the free end of the string through the slot on the front of the motor housing. Guide the string around the **top** of the motor pulley. Wrap the string around the pulley **one and a half rotations**, and pull it back out the slot on the front of the housing. See **FIG-9**. Tie the free end of the string to one of the two key rings connected to the carrier chain assembly.



3. Pull the string tight and cut the string from the roll, leaving several excess feet at this time. Be sure the string is reasonably tight and free of twists. Typically the amount of sag in the string should match the amount of sag in the support cable. Tie the cut end of the string to the second key ring connected to the carrier chain. See **FIG-10**. Be sure that the knots connecting the string to the key rings are secure and will not come loose. Trim the excess string.

FIG-10



4. Replace the left side cover plate on the motor housing at this time using the black thumbscrew.

E TARGET CARRIER

The target carrier will be connected to the carrier chain assembly and will hold the target. The carrier will travel along the support cable, allowing the target to be moved to any distance away from the shooter. To fold the cardboard carrier correctly, follow the steps shown in **FIG-11** through **FIG-15**.

Folding Instructions

1. Lay the cardboard target carrier flat out on a table or other smooth surface so that the **label is facing DOWN**. The cardboard has been creased along all fold lines; however, it may be helpful to use a straight-edge along the fold lines when bending the cardboard.
2. Fold the tabs on one side of the carrier as shown in **FIG-11** to **FIG-13**. After folding the tabs as shown, staple the two triangular tabs together to hold the front flap at 90°. See **FIG-14**.

FIG-11

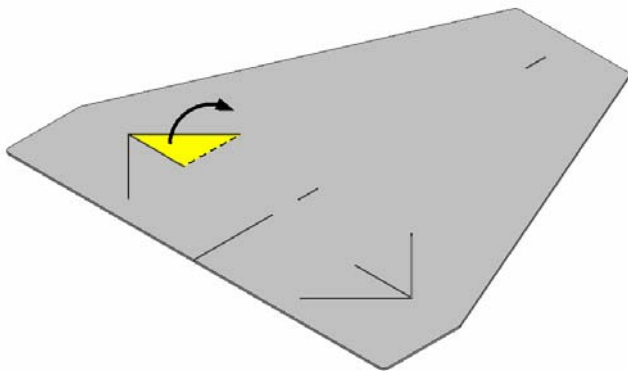


FIG-12

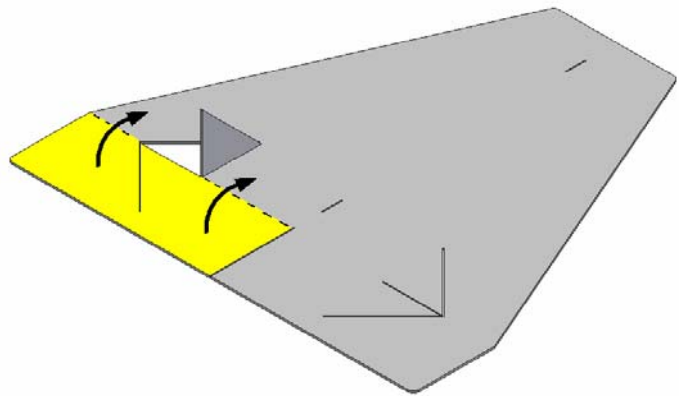


FIG-13

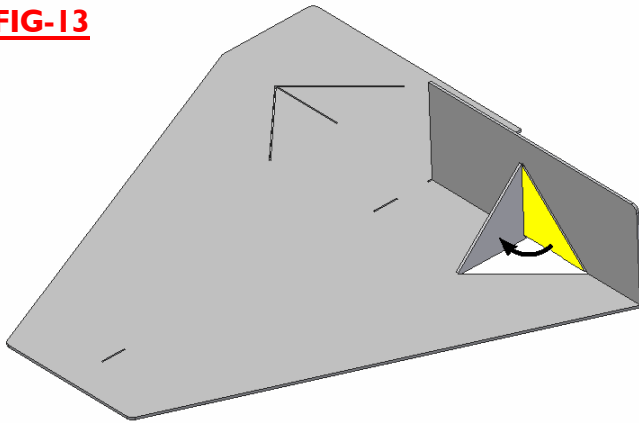
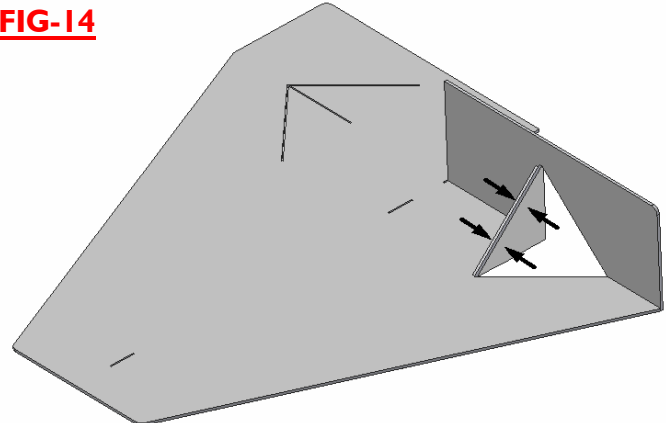
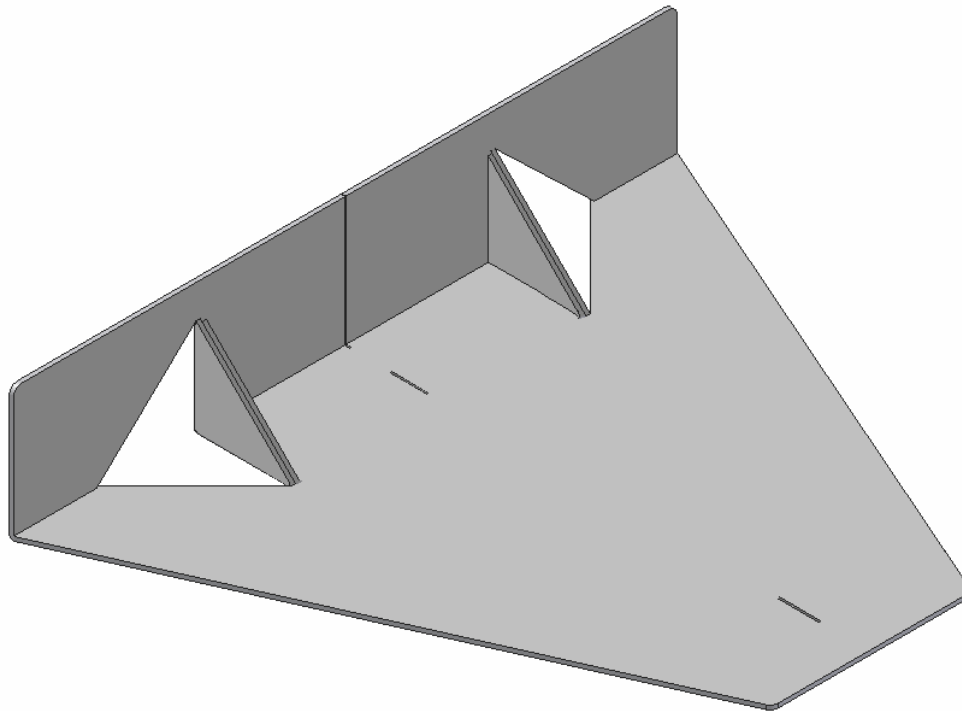


FIG-14



3. Repeat the steps shown in **FIG-11** to **FIG-14** on the other side of the target carrier. The completed carrier should appear as shown in **FIG-15**.

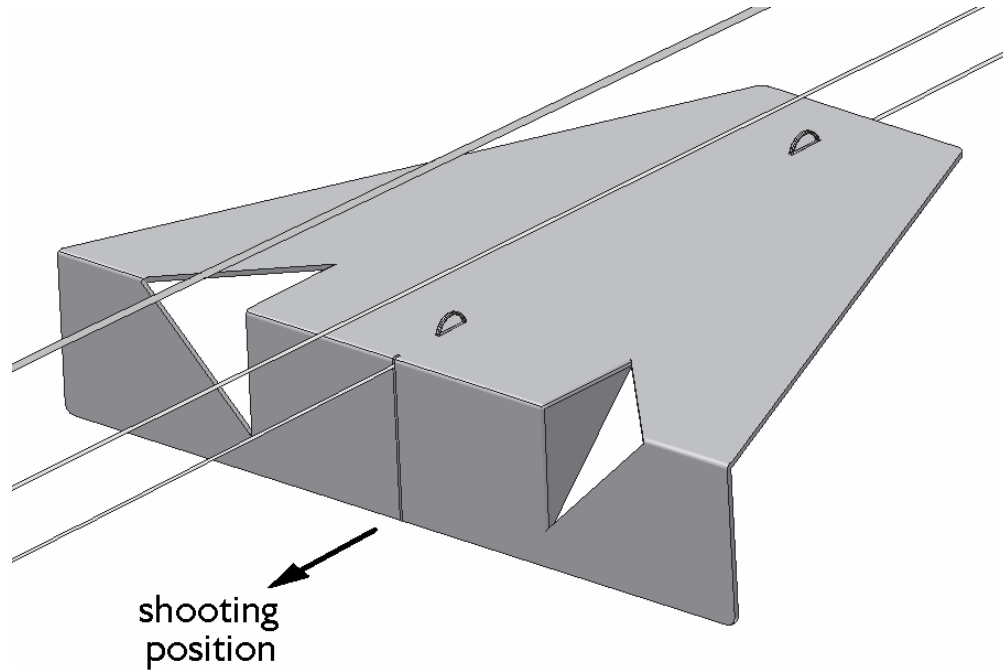
FIG-15



Installation Instructions:

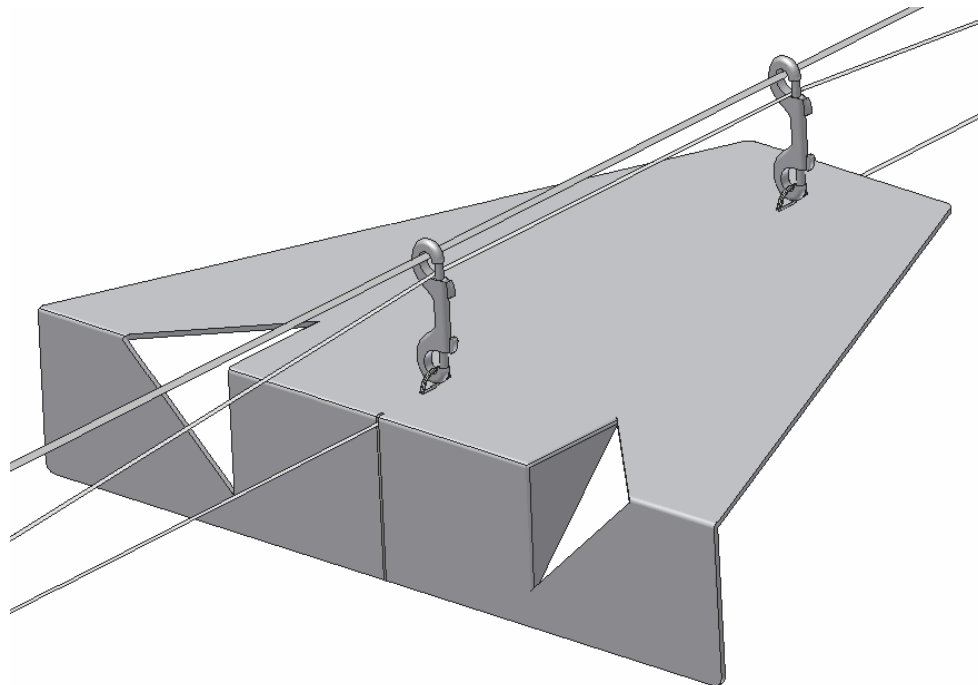
1. Install the cardboard carrier onto the carrier chain assembly by pushing the two key rings on the carrier chain through the two cuts in the centerline of the cardboard carrier. Approximately half of the key rings should protrude above the top of the carrier. The carrier should be oriented so that the wide, flat edge of the carrier is facing the shooting position. See **FIG-16**.

FIG-16



2. Attach one end of the double bolt snaps to the portion of the key rings protruding through the top of the carrier. Hook the other end of the bolt snaps around the support cable. The top line of the nylon string should be run through the top clasp of the bolt snaps with the support cable. This will prevent the string from rubbing along the top of the carrier as it travels. See **FIG-17**.

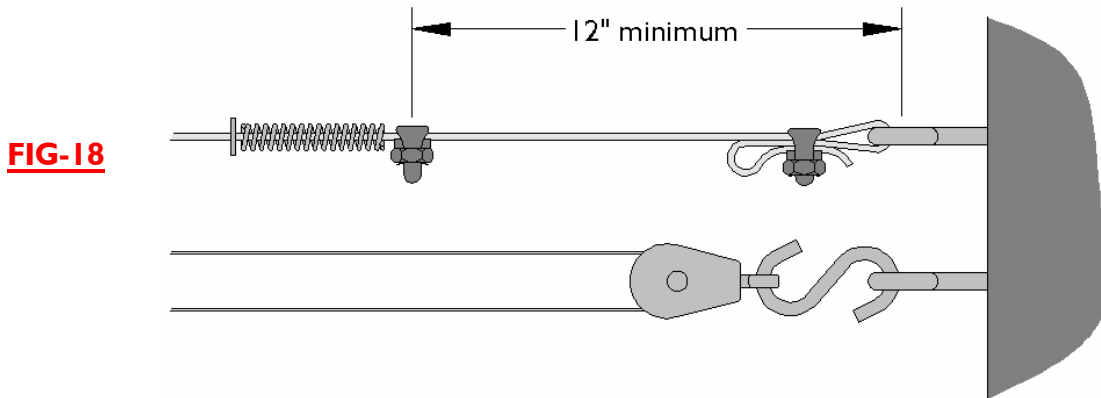
FIG-17



F CARRIER STOP HARDWARE

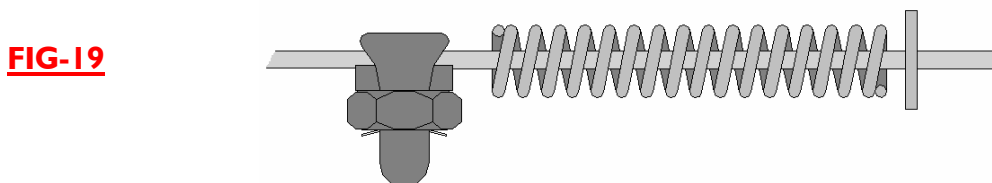
The carrier stop hardware consists of a washer, spring and split nut connector located at either end of the support cable. These prevent the carrier from running into the motor housing or the downrange pulley. The stop hardware can be set at any position along the cable and will dictate the maximum distances the carrier can travel in either direction.

1. Slide one spring and one washer (previously placed on the support cable) to the downrange end of the support cable. Secure a split nut connector behind the spring at a minimum distance of 12" in front of the eye bolts. Be sure that the carrier will not interfere with the downrange pulley or come into contact with the eye bolts. See **FIG-18**.



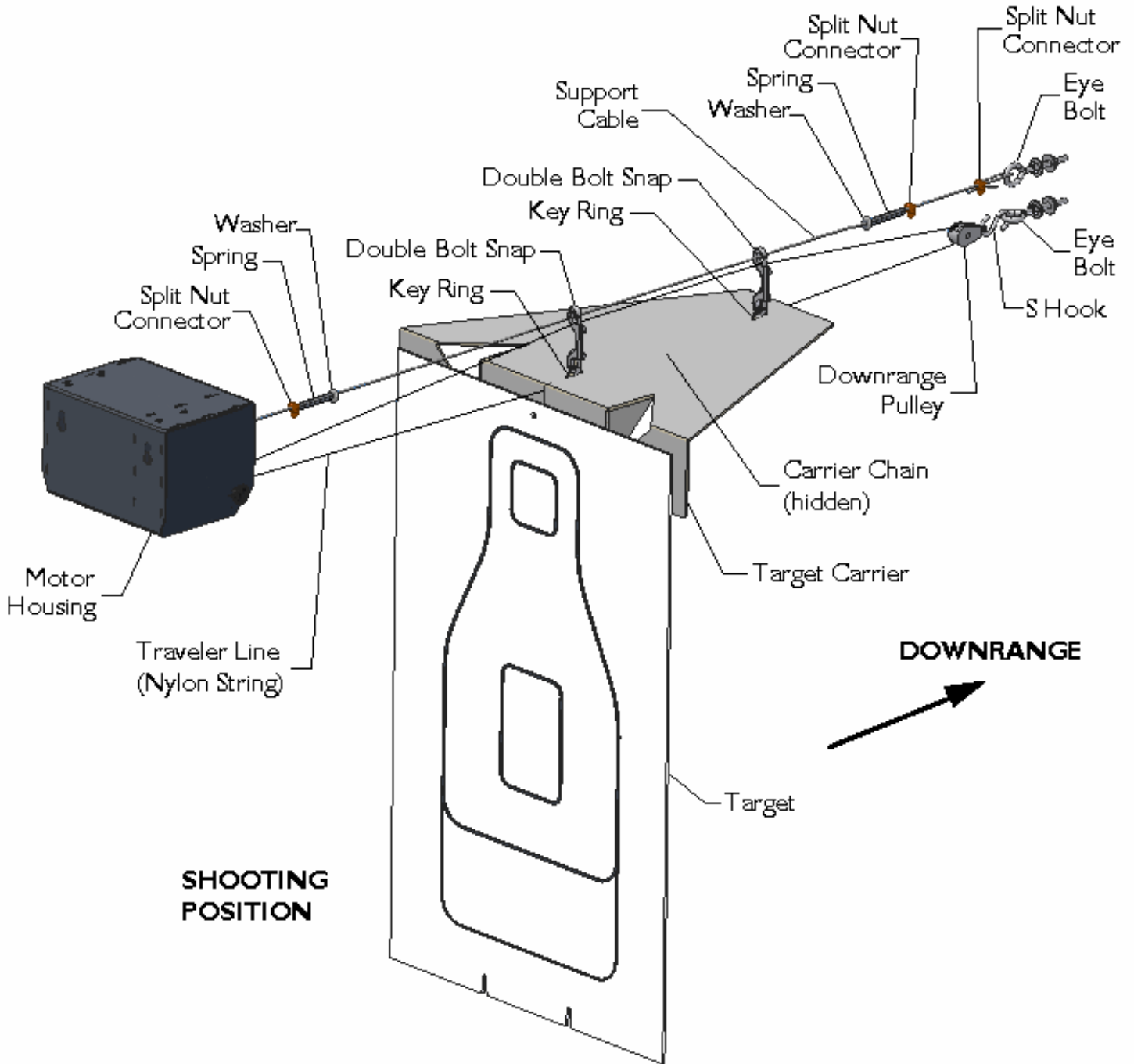
NOTE: The nuts on the split nut connectors used for the carrier stops do not need to be tightened with a wrench; hand tightening will be enough to hold the spring and washer in place and will allow for easy loosening and relocating of the stops if required.

2. The other spring and washer should be located slightly behind the shooting position (firing line). Secure another split nut connector to the aircraft cable behind the spring. See **FIG-19**.



ASSEMBLY DIAGRAM

Before operating the system, compare your installed system with the assembly diagram below. Be sure that all items are installed in the correct locations as shown.



OPERATING INSTRUCTIONS

A TARGETS

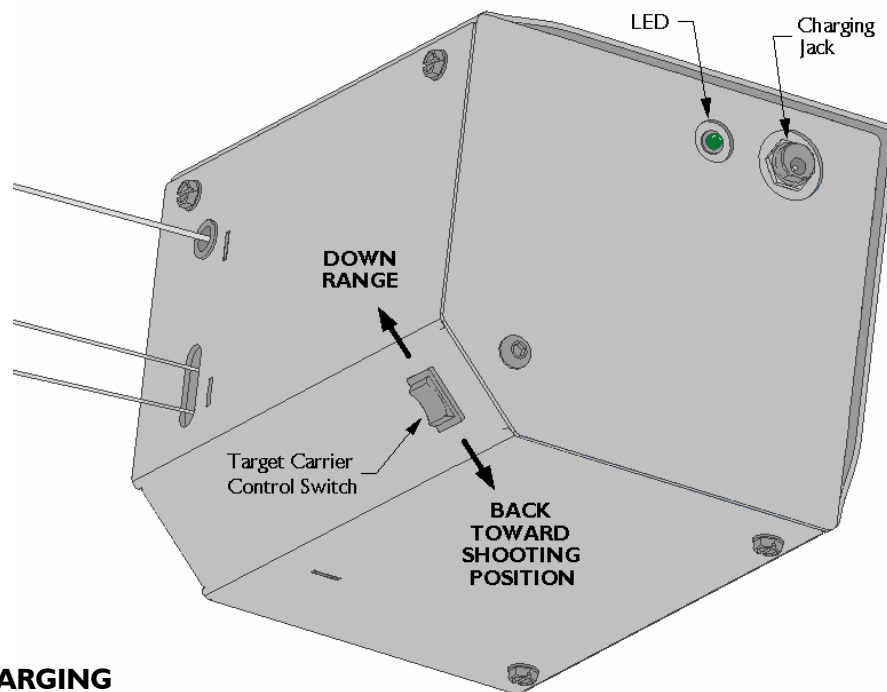
This system has been designed to work with **paper or cardboard targets only**. Do not attach plywood or other heavy targets to the target carrier. This will cause damage to the motor and cause the system to run poorly. The weight of the target being stapled to the target carrier should not exceed 1/2 pound.

Attach the paper or cardboard targets to the wide front flap on the target carrier so that it faces the shooter's position. To remove the targets from the target carrier, gently tear the target away from the staples, or remove the staples using a staple remover. **NOTE: Careful removal of the used targets will result in longer life for the target carriers.** Five target carriers have been provided with the system. Additional carriers can be ordered by calling **1-888-762-6266**.

B TARGET CARRIER CONTROL SWITCH

The target carrier control switch is located on the front of the motor housing. See **FIG-20**. It is a spring return switch, normally OFF (middle). To move the target carrier downrange, press and hold the switch in the **UP** position. Once the carrier has reached its desired location, release the switch and the target will stop. To move the target carrier back towards the shooting position, press and hold the switch in the **DOWN** position. Release the switch and the target carrier will stop.

FIG-20



C BATTERY / CHARGING

Located inside the motor housing is a 12 volt, 7 amp/hour battery. This battery provides power to the motor. To charge the battery, use the DC adapter included with the system. Plug one end of the adapter into the charging jack located on the right side of the motor housing, next to the green LED. See **FIG-20**. The other end of the adapter can be plugged into any standard 120 VAC wall outlet. The green LED will illuminate indicating that the battery is charging.

Although the system has been designed to run using only the power from the battery, the adapter can be left plugged in. This will provide a constant trickle-charge to the battery ensuring that it is always at full power.

D HELPFUL HINTS

Marking Shooting Distances

If setting consistent shooting distances is desired, this can be done by marking the traveler line with a colored marker. Move the target out to the desired distance (10 yards, for example) and then color a small section of the string near the shooter's position, using a common point as a reference. (The split nut connector on the cable near the spring could be used as a reference point.) Whenever the mark on the string is lined up with the reference point, the target will always be at the proper distance.

Repeat this procedure at different distances always using the same reference point for marking the line. Use different colored markings to indicate different distances.

TROUBLESHOOTING

Problem	Possible Cause	Solution
1. Motor doesn't turn.	<ul style="list-style-type: none"> - Dead battery. - Blown fuse. 	<ul style="list-style-type: none"> - Charge battery. - Replace fuse in motor housing. (Access fuse by removing right side cover plate. The fuse is located on circuit board behind green LED.)
2. Motor is turning but carrier doesn't move.	<ul style="list-style-type: none"> - Too much weight on target carrier. - Traveler line (nylon string) is too loose around motor pulley. - Traveler line (nylon string) has come off the downrange pulley. 	<ul style="list-style-type: none"> - Remove heavy object from target carrier. Use only paper or cardboard on target carrier (added weight of target should not exceed 1/2 pound). - Make sure string has one and a half wraps around motor pulley. Untie one end of the string from the key ring on the carrier chain, pull the string tight, and re-tie to the key ring. - Pull the string back around the downrange pulley.
3. Battery doesn't charge.	<ul style="list-style-type: none"> - Adapter isn't plugged in completely. - Worn-out battery. 	<ul style="list-style-type: none"> - Make sure both ends of the adapter are fully plugged in. The green LED on the motor housing will illuminate when charging circuit is active. - Replace battery.