

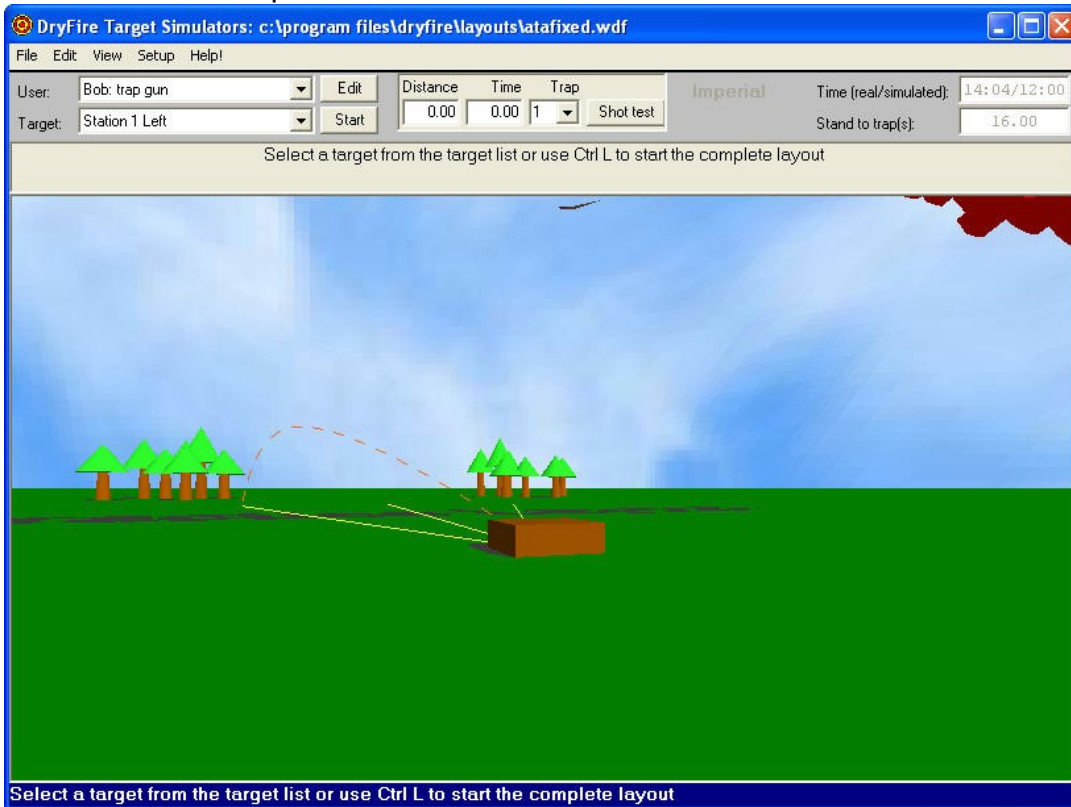
# Stop Motion Feature

Software Version 3.1.0    March 17, 2011    Document Rev: None

**Question:** Have you ever wondered if the required Lead changes as the target travels along its trajectory?

DryFire's Stop Motion feature will allow you to investigate if and how the lead changes along the trajectory. You can pick any point along the trajectory to “Learn and See the Lead.”

Here's a picture of the main screen. Located in the top center portion are the controls for the Stop Motion feature.



Here's a close up view of the three (3) windows and one (1) switch, which you will use to control the Stop Motion feature.



**Distance window:** You will enter a distance, in feet, that tells DryFire how far down the trajectory you want the target to stop. For instance, an ATA trap target will travel a little over 157 feet in the air while covering 150 feet on the ground. You can stop the target any where along the 157-foot trajectory by simply entering a number in the “Distance” window.

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**Time window:** Another method of stopping the target is to tell DryFire to stop the target after a fixed length of time (example: 1.05 seconds).

Keep in mind you will only enter the stop point in one window, therefore, you decide if you are going to use “Distance” or “Time.”

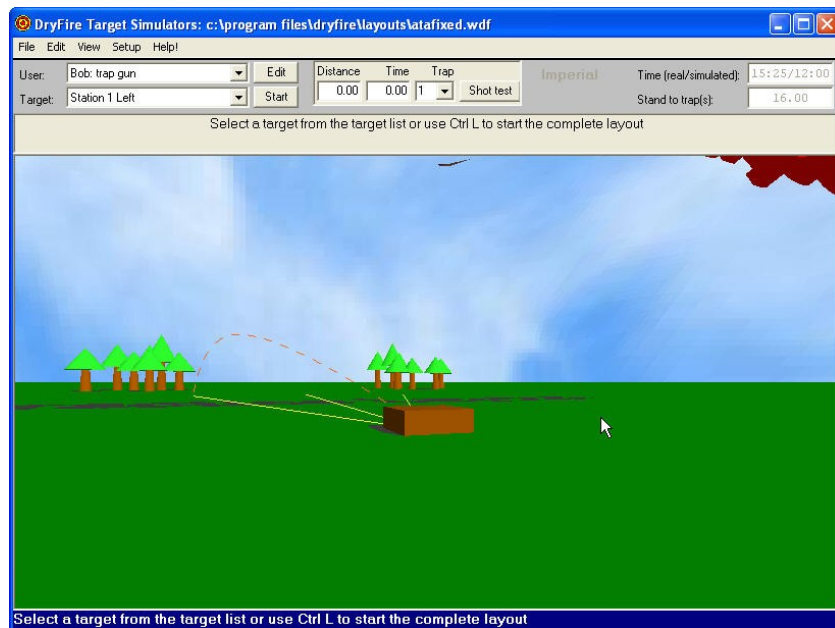
**Trap window:** If the target you select is a Single Target, you will only be able to select “Trap 1.” If, however, you have selected a target, which is a pair, you will be able to determine which target you are investigating by selecting either Trap 1 or 2.

**Shot test switch:** After you have entered either a distance or time, and selected Trap 1 or 2, you will cause the target to travel to the point you have selected by Clicking the “Shot test” switch.

## How to Learn the Lead

You will start by selecting a layout. For my example I will select (atafixed.wdf). For an ATA trap shooter this layout will allow you to create a specific target angle at a specific target height for any one of the five (5) Stations.

I am going to choose a Station 1 Left target with the target angle set to 17.14 degrees and the height set to 9 feet. See picture below.



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In the picture below, I have set the distance down the trajectory to 65 feet and I am about to click on “Shot test.”



As soon as I click “Shot test” the information in the windows change. The distance window now displays the distance in metric measurements (meters – one meter = 39.4 inches, a little longer than one yard) because the DryFire unit is always working in the metric system. Don’t let this confuse you, because for what we are doing it isn’t important. We can learn something from the “Time” window, which shows the target travels the 65 feet in 1.15 seconds.

The moment you clicked the “Shot test” button, the DryFire laser moved a spot 65 feet down the trajectory and is now stationary on the shooting wall. The laser will automatically turn itself “off ” in 12 seconds unless you do something. If you allow it to turn off, you will need to click the “Clear” button, reload your distance in the distance window, and click “Shot test” again.

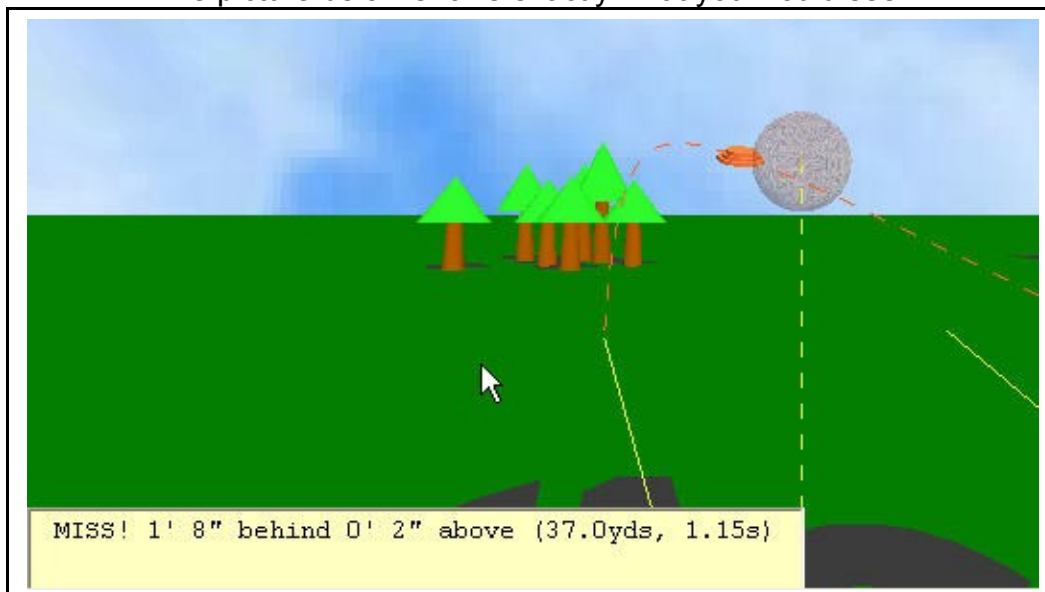


Let’s take a moment and discuss what we want to do. Our first step is to learn what the exact lead needs to be to perfectly center the clay in our pattern. We can accomplish this by shooting directly at the stationary laser target on the wall with a perfectly aligned gun. Because the Stop Motion feature has momentarily stopped time, we can take our time (not more than 12 seconds) and accurately shoot directly at the target like a rifleman would (slow, smooth, and deliberate). When the DryFire camera sees the infrared laser from the muzzle of your gun, it wakes up, and processes the shot in the same manner it would if the target were in motion. The results being a shotgun blast and a picture on your computer monitor showing what would happen if you put no lead on the target.

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The picture below shows exactly what you would see.



In this picture, the orange dashed line shows the trajectory the target was traveling. The yellow dashed line shows the route your pattern took from the muzzle of your gun to the point where it arrived at the target. Notice that the pattern is behind the target as you would expect, and if your pattern was 30 inches in diameter, you would have missed the target. Please notice in the lower left portion of the picture that DryFire has told us we were 1 foot 8 inches (20 inches) behind. Therefore, with a 30-inch pattern diameter (15 inches in front of center and 15 inches behind center), you would have missed the target by 5 inches.

MISS! 1' 8" behind 0' 2" above (37.0yds, 1.15s)

This shot was taken with a Point of Impact set at 60/40 and a muzzle velocity of 1200 feet per second. By looking at the data DryFire has presented, we learn that the vertical component is only slightly off when shooting directly at the target (2 inches above).

You may want to repeat this process several times to make sure that the rifle shot you took was extremely accurate (if your shot isn't accurate you will not get the right information from DryFire). By repeating the process several times you will be able to determine that your results are repeatable and therefore accurate. And once again, I want to remind you to make sure your gun is accurately aligned and that you have tested it on the patterning board before you try to **"Learn the Lead."**

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## How to See the Lead

Now we move on to “See the Lead.” We have learned that the perfect lead for a hard left on Station 1 would require your muzzle to be 20 inches ahead of the center of the target and 2 inches below the center of the target. This information is useful in a general sense, but it doesn’t tell you what that relationship looks like at the muzzle of the gun.

Please remember, that everything you are doing with DryFire indoors is scaled. Therefore, when you see a relationship between the muzzle of your gun and the target on the wall, you are seeing exactly what you see when you are outdoors. And because that is true, we will be able to show you exactly what this lead looks like by doing the following.



Send the target to the same point along the trajectory as you did when you were trying to learn what the exact lead should be, by using the Distance window and “Shot test” buttons.

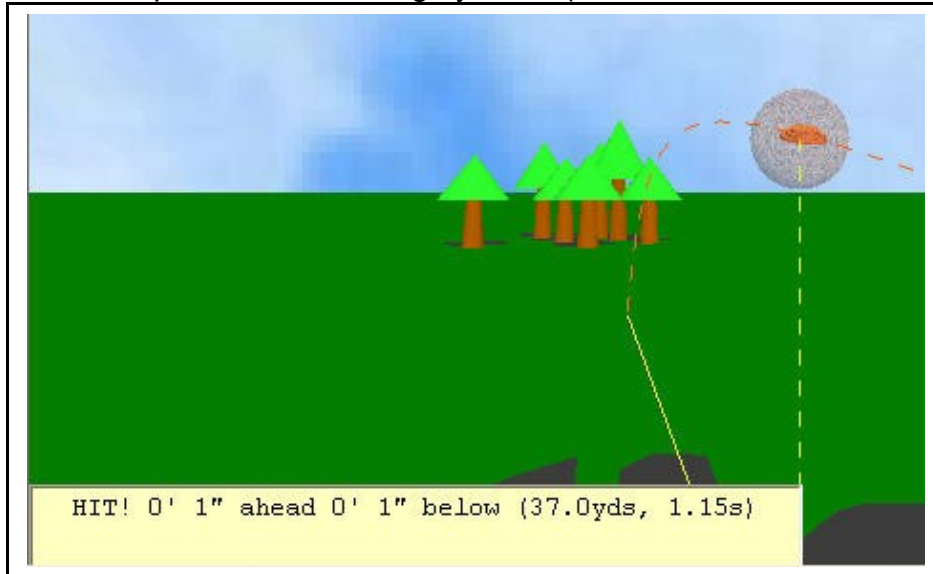
Now comes the interesting part. You know the exact lead in terms of inches (20 inches), but I am going to ask you to guess what that 20 inch lead looks like on the end of your barrel. Remember, you have 12 seconds to get the shot off or DryFire will turn off the laser.

As soon as you click “Shot test,” aim your shotgun (like a rifleman) at the exact point you think would be the perfect lead and pull the trigger. If your guess wasn’t quite right, do it again, and again until you can shoot the exact point that causes a perfectly centered pattern.

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This picture isn't perfect, but it is mighty close (1 inches off in both dimensions).



Now that you know what it looks like on the end of your barrel, take the next step, which would be to put the target in motion and learn how to dead center the target every time you shoot at it.

**Summary:** The Stop Motion feature is a very powerful tool when trying to teach your subconscious mind a lead picture. DryFire believes that your goal is to shoot instinctively, but we also believe that your conscious mind plays a big role in teaching your subconscious mind what the required leads look like. A small percentage of shooters have been blessed with all these leads built into their subconscious mind, but for a large percentage of shooters, it doesn't quite come that easily.

The process we have described will help you learn the lead pictures. Let DryFire teach you the leads indoors and then take your new found knowledge (in your subconscious mind) outdoors. You will find your confidence and scores have improved.

## The End