



PSRL Shooting Simulator Product Overview

Purpose

Economically train operators to obtain the marksmanship skills needed to significantly improve first round hits with the PSRL launcher.

Background – RPG Rocket Inaccuracies

- Contrary to popular belief, the RPG rockets can be significantly more accurate when launched from a high-quality launcher barrel.
- Such a weapon is more precise when the shooter can physically steady the weapon.
- RPGs are unguided free flight type rockets which require marksmanship compensation fundamentals similar to any rifle shooting (i.e. estimating range, wind, barometric pressure, and target velocity).

Improving RPG Rocket Accuracy

- High-quality launcher barrels are the core design element of a PSRL.
- Training shooters via extensive live fire range time and drills will allow them to significantly improve first round hits.

Issues with Extensive Range Training

- Large quantities of ammunition are required. These quantities are multiplied by the number of shooters who need training resulting in high ammunition costs.
- Using live ordinance will increase the chances of training accidents and need to clear the range of any unexploded ordnance.
- Replicating moving targets is difficult.
- Environmental factors are uncontrollable.
- Targets cannot shoot back thereby simulating reduced stress during training as opposed to the high stress levels of real combat.

Simulator System

An electronic simulator system which allows the user to hold a real launcher and fire virtual rounds which allow shooters to get more training time at significantly lower logistical costs.

The PSRL Shooting Simulator is completely transportable. The only additional required assets are an indoor room with electrical power.

PSRL Simulator Specifications

Complete kit ready to begin training. Included items are the following;

1. PSRL Launcher – Complete actual rocket launcher (same as any field launcher)
2. Scope – Rifle scope type scope with a micro-screen which magnifies the projected screen image when looking through the scope.
3. Rocket – simulated shape and weight of a RPG rocket which houses the high accuracy laser pointer to tell the software where the shooter is aiming.
4. Training System Kit – all items needed to run the simulator
 - a. Multi Series Laser Detection Camera – senses rocket laser emission point
 - b. LS Mini Gaming Computer (x2) – computer which runs the simulation
 - c. Wireless Keyboard and Mouse (x2) – for the computer
 - d. 23” Monitor – for the computer
 - e. VBS III License (x2) – Virtual Battle Space software
 - f. LS Ultra Short Throw Video Projector
 - g. LS Surround Should Speaker System
 - h. 83x144” Projection Screen complete with HD Legs
 - i. Ruggedized Shock Mount Case
 - j. Hard Carry Case

How Does the Simulator Work?

(see appendix Figure 1 for a diagram on the system overview)

The simulator works by utilizing a real PSRL launcher and mock rocket which houses the laser pointer. When the shooter points the sights at the screen environment, the invisible laser beam is reflected off the screen and back to the laser beam sensor. This laser beam sensor then overlays the projected aiming point with the target environment which is projected onto the screen.

When the shooter pulls the trigger, and fires the weapon, the actual firing pin mechanism strikes the mock rocket primer sensor. Thereby signaling to the computer that a shot has been fired. The sight location is then overlaid with the screen target environment. If the sights were properly positioned with the target at the time of primer strike, then a hit will result.

The target environment can be designed to simulate nearly any scenario or course of fire. The standard system is intended to take the shooter on a set of scenarios of increasing complexity to establish and then improve the shooter’s marksmanship skill set for each particular variable.

The standard software will contain the following preloaded scenarios;

1. Single Static Target Range
 - a. Consists of a target at known location, size, and minimized environmental effects (projectile drop only).
 - b. Intended to help new shooters practice basic marksmanship fundamentals such as;

- Sight Alignment
 - Sight Picture
 - Eye Relief
 - Cheek Weld
 - Trigger Control
 - Breathing Control
2. Multiple Static Target Range
 - a. Consists of multiple targets at known locations, sizes, and minimized environmental effects (projectile drop only).
 - b. Intended to expand the basic marksmanship fundamentals to included adjusting the sights for different ranges.
 3. Unknown Target Range
 - a. Consists of a target which appears at unknown ranges.
 - b. Intended to force the shooter to estimate the target range, make proper sight adjustments, and finally shoot the target.
 4. Known Environmental Effects Range
 - a. Consists of a known target range and wind vector.
 - b. Intended to help the shooter understand how the properly compensate for these hold overs or sight adjustments.
 5. Combat Scenario
 - a. Consists of a simulated mission where actual targets (such as tanks) drive around on the battlefield.
 - b. Intended to combine all marksmanship fundamentals into one advanced training simulation.

Upon customer request, additional simulation scenarios or missions can be programed and uploaded to the system's software for extended product life.

What Can the Simulator Train?

The Simulator can train the following and more;

- Target Identification – VBS 3 has an extensive suite of targets (tanks, APCs, trucks, etc.)
- Marksmanship Training - Preprogramed scenarios to improve fundamentals
- Combat Simulation – Scenarios with moving targets which fire back
- Corse of Fire/ Shooter Qualification - Custom scenarios can be programed
- Range Estimation – Simulated rocket trajectory based on real life firing data
- Windage Estimation – Simulated rocket trajectory based on real life firing data
- Moving Target Estimation – Based on rocket flight time
- Real Weapons Manipulation and Maintenance – Actual PSRL Launcher is used

Simulator Disadvantages

- Only one instructor and trainee can train at one time.
 - This effect can be minimized by an efficient training schedule. The more the system is used, the more it pays for itself.
- Simulations are not real life.
 - The effects of wind, target velocity, etc. are based off theoretically ideal conditions and predictions.

- Although, with the advances in computer technology, virtual reality simulators can mimic the real world better and better.
- Real live fire range time is recommended to fully train shooters.
 - After shooters, have trained in the simulator, they will understand the fundamentals.

Summary

The PSRL Shooting Simulator offers essentially unlimited virtual ammunition and a wide variety of scenarios. Which are intended to drastically reduce live fire ammunition expenditure costs while simultaneously produce a large number of well-trained shooters.

Appendix

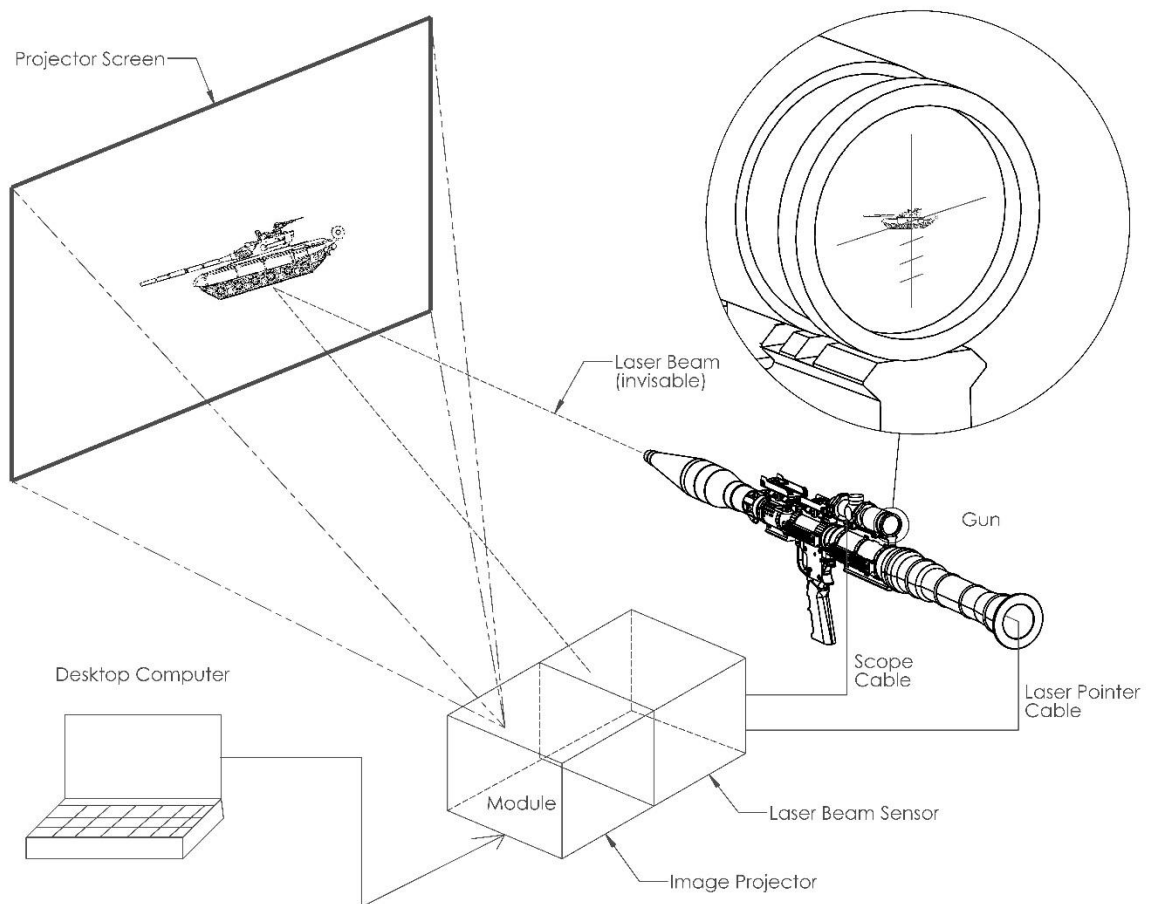


Figure 1 - PSRL Shooting Simulator System Overview