**Soldier Selection**
- Rifleman and Support seem to have a 7% advantage for taking hits.
- Stun - When a soldier is hit he/she will be "stunned". This "stun" can allow the opponent to get several more hits on the soldier before receiving return fire.
- Injured solders move slower and have longer stabilization times than healthy soldiers.

**Stance and Moving:**
**Prone** - A weapon will always be more accurate while prone, especially for recoil.
**Standing** - Leaves the weapon less accurate and recoil has a more adverse effect.
**Crouched** - Accuracy is at it's worst, recoil greatly exaggerated. While motionless, most guns have same accuracy as while standing. Soldier must be still to see the effect. Once soldier moves, normal effects apply. Firing prone is still more accurate than the crouch effect.
**Strafing While Turning** - Moving sideways or turning while running magnifies the effect of "Overall Stabilization Rank" on accuracy. Weapons with high ranks will take longer to stabilize.
**Strafing Sideways** - Moving soldier sideways with NO TURNING will still decrease accuracy, but not as much as TURNING while moving sideways.

Team Colors=Camo Type
**Blue** = Ghost
**Red** = Georgian Rebel
**Yellow**=Chechnyan Rebel
**Green**=Russian Rebel

**Table Notes:**
**Total Rounds -** Assumes kit without extra ammo chosen, when option is available.
**Zoom** - The zoom factor used by industry standards takes the actual distance of an object compared to what the distance "looks" like through the device. Unfortunately this was not very practical to calculate for game purposes. Measurements of a door or window were taken and found to be 8 mm wide, for example. When using zoom feature with the OICW the object now was 32mm wide. This is 4x as big as 8mm, so the zoom factor ist 4x.
**Maximum Rate of Fire -** # Shots per second when emptying a magazine.
**ROF Including Mag. Reload -** # shots per second including magazine re-loading time.
**Crouch Effect -** Certain weapons will be slightly more accurate while crouched, but only while soldier is not moving. Approximately 5% more accurate.
**Overall Stabilization Rank -** 1 being the best, 10 being the worst. How fast pips will close from weapon recoil and/or when stopped after running straight.
**Accuracy -** This is the spread of bullets, measured in mm, from fixed distance. For single and burst fire, 3 second pause between shots for weapon stabilization.
**Single Fire Accuracy -** Two tests, one at 40m, the other at 80m. Special test at 165.7m for sniper rifles. A weapon with a spread of 7.4m at a range of 40m should have a spread of 14.8m when fired at a range of 80m. This, however, is not the case for any weapons in this game except for the 7.62 Carbine and the M-4 Carbine. Target pattern is measured from a distance of 1m. A soldier at 1m distance will have a width of 14.5mm.
**Burst and Full Auto Accuracy -** Both tests are at a range of 4m. Longer distances were not measured due to 1) absence of a large enough target that clearly shows hits and 2) the difficulty of measuring such a large spread on the screen. Target pattern is measured from a distance of 4m. A soldier at 4m distance will have a width of 5mm.
**Stopping Power Rank -** 1 being the best, 10 being the worst. There is a damage variable in the game, every hit has a potential to cause more or less damage than the weapon's average casualty rate. This makes calculations very difficult as a huge sample size is required. For example, on one trial, it took only 66 shots to score 45 kills with the 7.62 rifle. In two other "45 kill" tests, it took 99 shots or more. It is easy to see how a small sample size can throw off results. Sample size here is 65 kills for each weapon. This sample size of 65 kills is really too small, a larger one should be taken.
**Claymore -** Kills everything in a 180° forward arc within a radius of 15 meters. At 15.1 meters soldiers are safe. If soldier detonates the mine immediately after deployment, soldier will be wounded. If soldier is more than 2 meters away behind the mine and standing up, no damage will be incurred. Soldier can go prone immediately behind the mine and detonate it, and still be uninjured. No checking was done for laying prone within the 15-meter blast area resulting in mitigating the damage, indications are that a blast would still result in death.

Here is how accuracy was determined:

If you use the binoculars on the north Hotel door (Embassy Map), a distance measurement is given. There is very little play in the distance of .1 meter as shown by the binocs in the game. In fact, when re-testing the weapons (and another test I show below) showed 99% identical results, so apparently this was not enough to throw off any resulting numbers.

Here is how the 40 meter test was done.

Enter the multiplayer mode with each weapon. Each soldier was precisely located, for example, 150 meters from a target surface using both binoculars (when possible) and environment graphics. The solder fired 100 shots at the door, clearly allowing enough time for the weapon to stabilize between each shot. After 100 hits, bullets start disappearing, so no larger sample size can be taken other than repeating the test again.

A solder was then equipped with binoculars and placed 1 meter from the target surface, looking at the spread pattern. The physical measurement of the spread pattern was taken. This was done for each weapon, and then repeated. Several weapons were tested an additional time to ensure accuracy. Results could clearly be replicated over and over with the same results.

This spread pattern was then compared to soldier dimensions to calculate a hit probability.

At closer ranges than the chart shows the chances of hitting a solder are basically 100% for all weapons This works well with our testing method since it allows enough distance for weapon accuracy to begin to show in larger increments. For example, if I measure a spread for the OICW it would be, say 8 millimeters. If I measure the spread for the next weapon, it would be something like 8.3 millimeters. Even if the measurements were off, they would not be off so far that there would be a .15 millimeter error by the reader on both measurements. Furthermore, when going to a distance like 80 meters to test, there is an easily measurable spread factor. Ranking of the guns becomes almost as easy as apples vs. oranges.

Other Notes on accuracy:
1. A good point has been raised about measuring how a spread "looks" on my screen vs. being able to get the ruler on to the door to take a measurement of actual spread will cause inaccuracy.
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Granted, I would not want to build a frame house that was measured by the carpenter standing back with a ruler and saying, "yep, that there is a 4' 8" piece of lumber, install it above the door frame." Fortunately with the television and game environment we have an advantage.

With the benefit of binoculars we can know the distance the measurer is from the door with pretty darn good accuracy. If that is the case, then simple math will reveal the spread on the door. Since the distance the measurer is from the door can be measured precisely, and spread on the door can be measured on the screen precisely, simple geometric principles allow us to calculate the actual spread on the door.

Fortunately this calculation is not necessary since we don't need the actual measurement of the spread on the door itself, simply the look of the spread vs. the look of other weapon spreads.

2. Additional backup test.
In the insertion zone of the Embassy there is a wall that is about waist high. I would walk a player directly into this "planter" and have the character shoot at an adjacent wall. this test method results in exact placements and resulted in a replication of the same weapon ranking. This did not work for sniper rifles since they are so accurate at close range, a determination could not be made. However, since the same ranking ensued, this was enough evidence for me that my principle testing method was accurate.

3. But what if graphically appearing bullet holes do not match up with where a soldier is actually hit, what if it is simply a random calculation?
Fortunately I did some exploring on this. It seems that the programming sees the "Soldier" in the exact same way it sees the wall, so a hit on this part of the wall is a set of coordinates. A hit on a soldier is also a set of coordinates. Here is how I tested that. I lined up a solder in front of the embassy door so that he was in only half of the crosshairs of the shooter. When the soldier was hit, no mark on the door. When a soldier was missed, there was a mark on the door. After doing this several times with several weapons, this was good enough for me to assume that the bullet hole coincided with the actual bullet trajectory. By the way, this is the way that Perfect Dark and Goldeneye worked. I concluded that a complete lack of every bullet that was graphically shown to:

hit the solder and also hit the door
or
not hit the soldier and not hit the door

showed that the graphical bullet hole and actual hit location are linked.

4. Just a side bar, a tracer bullet will hit the door, followed by the actual tracer light later. So you can be killed by a tracer bullet before the tracer light actually hits you. Also, the tracer light will go through the center of the reticule regardless of stabilization or the actual trajectory of the bullet. Try it out, if you shoot a tracer over a long distance with another soldier at the hit spot, it is pretty strange to see this happen.