

Twilight: 2013 Stage III Ballistics

All Stage III rules in the Reflex System are options that allow play groups to add additional realism and complexity to specific elements of play. This document adds to the basic Reflex System mechanics for firearm Damage and Penetration, providing separately-calculated values for each caliber in each plausible range band.

In each table, values are given in a "D/P" format: the first number is Damage and the second is Penetration. All values are for full metal jacket

(FMJ or "ball") ammunition; when using armor-piercing or hollowpoint rounds, remember to apply the standard modifiers to both Damage and Penetration.

A bullet will travel much farther than the outer limit of a gun's accuracy. Many of the calibers described herein have Damage and Penetration values for range bands beyond the capabilities of any weapon that fires them. What can we say? We like math.

Handgun Cartridges

.22 LR

Range

Personal	3/x3
Gunfighting	3/x3
CQB	3/x3
Tight	3/x4

5.7x28mm FN

As with many handgun cartridges also used in submachine guns, the longer barrel of an SMG adds muzzle velocity, which translates to more kinetic energy. For 5.7x28mm, this results in a noticeable increase in effectiveness. Note that, although values are given here for FMJ rounds as per this document's standards, most law enforcement and military loads are AP. When a character acquires 5.7x28mm ammunition, roll 1d10: 1-7 AP, 8-9 hollowpoint, 10 FMJ.

Range	Handgun	SMG
Personal	5/x3	5/x2
Gunfighting	5/x3	5/x2
CQB	4/x3	5/x2
Tight	4/x3	5/x3

.25 ACP (6.35mm)

Range

Personal	3/Nil
Gunfighting	3/Nil
CQB	3/Nil
Tight	3/Nil

.32 ACP (7.65x17mm Browning)

Range

Personal	4/x4
Gunfighting	4/x4
CQB	4/x4
Tight	4/Nil

.380 ACP (9mm Browning, 9mm Kurz, 9x17mm)

Range

Personal	4/x4
Gunfighting	4/x4
CQB	4/x4
Tight	4/x4

.38 Special

This cartridge is available in a variety of loadings. Through an accident of game design, the Reflex System ballistics are the same for virtually all data sets, from a standard round fired from a 2" barrel to a high-velocity ("+P") round fired from a 4" barrel.

Range

Personal	4/x4
Gunfighting	4/x4
CQB	4/x4
Tight	4/x4

.38 Super

Range

Personal	5/x3
Gunfighting	5/x3
CQB	5/x3
Tight	4/x3

9mm Makarov (9x18mm)

9mm Makarov ammo is available in both standard and +P loadings. When a character acquires 9mm Makarov ammo, there is a 90% chance that the ammo is the standard load. The following values apply to both handgun- and submachinegun-length barrels. If using the +P load, add 20% (minimum +1) to the weapon's Recoil.

Range	Standard	+P
Personal	4/x4	5/x3
Gunfighting	4/x4	5/x3
CQB	4/x4	5/x3
Tight	4/x4	4/x3

.357 Magnum

Range	
Personal	5/x3
Gunfighting	5/x3
CQB	5/x3
Tight	4/x3

.357 SIG

Range	
Personal	4/x3
Gunfighting	4/x3
CQB	4/x3
Tight	4/x3

9mm Parabellum (9mm Luger, 9x19mm)

Range	Handgun	SMG/Carbine
Personal	4/x3	5/x3
Gunfighting	4/x3	5/x3
CQB	4/x3	5/x3
Tight	4/x4	5/x3

10mm Auto

The original 200-grain load for 10mm Auto had a significantly higher muzzle velocity than the 180-grain load eventually adopted as the FBI standard. When a character acquires 10mm Auto ammunition, there is an 80% chance that the ammo is the lower-powered 180-grain load. If using the 180-grain load, reduce the weapon's Recoil by 20% (minimum -1). The following values apply to both handgun- and submachinegun-length barrels.

Range	200gr	180gr
Personal	5/x3	4/x3
Gunfighting	5/x3	4/x3
CQB	5/x3	4/x3
Tight	5/x3	4/x3

.40 S&W

The following values apply to both handgun- and submachinegun-length barrels.

Range	
Personal	5/x3
Gunfighting	5/x3
CQB	5/x3
Tight	5/x3

.44 Magnum

Range	
Personal	5/x3
Gunfighting	5/x3
CQB	5/x3
Tight	5/x3

.45 ACP

Range	Handgun	SMG/Carbine
Personal	5/x3	5/x3
Gunfighting	5/x3	5/x3
CQB	5/x3	5/x3
Tight	5/x4	5/x3

.454 Casull

Range	
Personal	7/x2
Gunfighting	6/x2
CQB	6/x2
Tight	6/x2

.50 Action Express (.50 AE)

Range	
Personal	6/x3
Gunfighting	6/x3
CQB	6/x3
Tight	6/x3

Rifle Cartridges

5.45x39mm Soviet

The performance of a 5.45mm round depends on the length of barrel through which it's fired. For game purposes, two barrel lengths are available: *Krinkov* (8" to 10", as in the AKS-74) and *full-length* (as in the AK-74).

Range	Krinkov	Full-Length
Personal	6/x2	6/x2
Gunfighting	6/x2	6/x2
CQB	6/x2	6/x2
Tight	5/x2	6/x2
Medium	4/x2	6/x2
Open	3/x3	4/x2
Sniping	-	3/x3
Extreme	-	-

5.56x45mm NATO (.223 Remington)

The performance of a 5.56mm round depends on the length of the barrel through which it's fired. For game purposes, three barrel lengths are available: *compact* (approximately 10"), *carbine* (14.5" to 16"), and *full-length* (18" to 20").

Range	Compact	Carbine	Full-Length
Personal	6/x2	7/x2	7/x2
Gunfighting	6/x2	7/x2	7/x2
CQB	6/x2	7/x2	7/x2
Tight	6/x2	6/x2	7/x2
Medium	5/x2	6/x2	6/x2
Open	4/x2	5/x2	5/x2
Sniping	-	-	3/x3
Extreme	-	-	-

5.8x42mm

Range	
Personal	7/x2
Gunfighting	7/x2
CQB	7/x2
Tight	7/x2
Medium	6/x2
Open	5/x2
Sniping	3/x3
Extreme	-

.243 Winchester

Range	
Personal	8/x2
Gunfighting	8/x2
CQB	8/x2
Tight	8/x2
Medium	7/x2
Open	6/x2
Sniping	4/x2
Extreme	-

6.5x55mm Swedish

Range

Personal	8/x2
Gunfighting	8/x2
CQB	8/x2
Tight	8/x2
Medium	7/x2
Open	6/x2
Sniping	4/x2
Extreme	-

7mm Remington Magnum

Range

Personal	9/x1
Gunfighting	9/x1
CQB	9/x1
Tight	9/x1
Medium	9/x2
Open	8/x2
Sniping	5/x2
Extreme	4/x3

.270 Winchester

Range

Personal	11/x1
Gunfighting	11/x1
CQB	11/x2
Tight	10/x2
Medium	10/x2
Open	8/x2
Sniping	5/x2
Extreme	4/x3

.30 Carbine

Range

Personal	6/x2
Gunfighting	6/x2
CQB	6/x2
Tight	5/x2
Medium	4/x3
Open	4/x3
Sniping	-
Extreme	-

7.62x39mm Soviet

Range

Personal	8/x2
Gunfighting	8/x2
CQB	7/x2
Tight	7/x2
Medium	6/x2
Open	4/x2
Sniping	4/x3
Extreme	-

7.62x51mm NATO (.308 Winchester)

Range

Personal	9/x2
Gunfighting	9/x2
CQB	9/x2
Tight	9/x2
Medium	8/x2
Open	7/x2
Sniping	5/x2
Extreme	4/x3

7.62x54mm Soviet

Range

Personal	9/x2
Gunfighting	9/x2
CQB	9/x2
Tight	9/x2
Medium	8/x2
Open	7/x2
Sniping	5/x2
Extreme	4/x3

.30-30

As with many commercial hunting cartridges, ballistics vary widely depending on bullet weight and muzzle velocity. The following values are for the two most common loads, a 170-grain bullet moving at 2,000 fps and a 150-grain round launched at 2,400 fps. When a character acquires .30-30 ammunition, there is a 50/50 chance of receiving either load. If using the 150-grain load, add 10% (minimum +1) to the weapon's Recoil.

Range	170gr	150gr
Personal	7/x2	8/x2
Gunfighting	7/x2	8/x2
CQB	7/x2	8/x2
Tight	6/x2	7/x2
Medium	5/x2	5/x2
Open	4/x2	4/x3
Sniping	-	-
Extreme	-	-

.300 Winchester Magnum

Range

Personal	10/x1
Gunfighting	10/x1
CQB	10/x1
Tight	10/x1
Medium	9/x2
Open	8/x2
Sniping	5/x2
Extreme	4/x3

.30-06 Springfield

Range

Personal	9/x2
Gunfighting	9/x2
CQB	9/x2
Tight	9/x2
Medium	8/x2
Open	7/x2
Sniping	5/x2
Extreme	4/x3

.303 British

Range

Personal	9/x2
Gunfighting	9/x2
CQB	9/x2
Tight	8/x2
Medium	7/x2
Open	6/x2
Sniping	4/x2
Extreme	4/x3

8mm Mauser

Range

Personal	8/x2
Gunfighting	8/x2
CQB	8/x2
Tight	8/x2
Medium	7/x2
Open	5/x2
Sniping	4/x3
Extreme	4/x3

.338 Lapua

Range

Personal	12/x1
Gunfighting	12/x1
CQB	12/x1
Tight	11/x1
Medium	11/x1
Open	10/x2
Sniping	8/x2
Extreme	5/x2

.338 Winchester Magnum

Range

Personal	11/x1
Gunfighting	11/x1
CQB	11/x2
Tight	10/x2
Medium	10/x2
Open	8/x2
Sniping	5/x2
Extreme	4/x3

.375 H&H

Range

Personal	11/x2
Gunfighting	11/x2
CQB	11/x2
Tight	10/x2
Medium	8/x2
Open	6/x2
Sniping	4/x3
Extreme	4/x3

.460 Weatherby

Range

Personal	14/x1
Gunfighting	14/x1
CQB	14/x1
Tight	13/x2
Medium	11/x2
Open	8/x2
Sniping	5/x2
Extreme	5/x3

.50 BMG

Range

Personal	18/x1
Gunfighting	18/x1
CQB	18/x1
Tight	17/x1
Medium	17/x1
Open	15/x1
Sniping	12/x2
Extreme	6/x2

12.7x108mm Soviet

Range

Personal	17/x1
Gunfighting	17/x1
CQB	17/x1
Tight	16/x1
Medium	16/x1
Open	14/x1
Sniping	10/x2
Extreme	6/x2

14.5x114mm Soviet

Range

Personal	22/x½
Gunfighting	22/x½
CQB	22/x½
Tight	21/x½
Medium	21/x½
Open	19/x1
Sniping	17/x1
Extreme	9/x2

Shotgun Shells

.410 Bore

Range	Slug	Buckshot
Personal	8/x4	4/Nil
Gunfighting	8/x4	4/Nil
CQB	8/x4	4/Nil
Tight	7/Nil	4/Nil

20 Gauge

Range	Slug	Buckshot
Personal	9/x4	5/Nil
Gunfighting	9/x4	5/Nil
CQB	9/x4	5/Nil
Tight	8/x4	4/Nil

12 Gauge

Range	Slug	Buckshot
Personal	10/x4	5/Nil
Gunfighting	10/x4	5/Nil
CQB	10/x4	5/Nil
Tight	9/x4	5/Nil

10 Gauge

Range	Slug	Buckshot
Personal	10/x4	5/Nil
Gunfighting	10/x4	5/Nil
CQB	9/x4	5/Nil
Tight	9/x4	5/Nil

Quirks

All firearms are not created equal. Hopologists and gunfondlers can argue the respective merits of design, caliber, and creator *ad infinitum*. The Reflex System prefers to focus on the man wielding the weapon rather than the weapon itself. Thus, in the core rules, we didn't go into excruciating detail regarding the technical minutiae of a given firearm and the game effects of those details.

With this said, we'll admit certain weapons do have shared or unique characteristics that set them apart from the majority of their brethren. We represent these qualities with *quirks*, optional traits that work outside the basic rules template of Damage, Penetration, Size, Bulk, and other standard values. Each quirk is a self-contained special rules case that can, like all Stage III options, be applied or ignored at the GM's discretion.

Autoloaders

Colt Model 1911A1

The game traits for this handgun represent a typical middle-of-the-road commercial model made in the last three decades or so. A character fortunate enough to possess an older military production model (which were made only in .45 ACP) has a weapon with Street Price \$2,500, Barter Value GG1,250, and the following quirks:

Needy x2: The M1911A1's base maintenance requirement is doubled (to 1 hour per period of use).

Reliable 1: For the purposes of triggering breakdowns, the M1911A1's Abuse is considered to be 1 lower than its actual value.

In addition, *all* .45 ACP M1911A1s have the following trait:

Ubiquitous: It's a century-old gun that's still popular. What would you call it? Outside regions that banned all firearms, spare parts cost half normal.

Glock 17

Reliable 1: For the purposes of triggering breakdowns, the Glock 17's Abuse is considered to be 1 lower than its actual value.

Revolvers

All generic revolvers presented in the core rules have the following quirk:

Reliable 1: For the purposes of triggering breakdowns, the weapon's Abuse is considered to be 1 lower than its actual value.

Submachine Guns

FN P90

Bullpup: Reloading the P90 takes twice as many ticks as normal.

Image: Despite being found around the globe by the time of the Collapse, the P90's combination of ballistics and science fiction appearance causes it to be perceived as the weapon of elite special operators. Possession of a mil-spec P90 (but not a semi-auto civilian version) grants a +1 bonus to all uses of the character's Force reputation aspect. This bonus becomes a penalty if the character demonstrates gross incompetence with the weapon.

Weird: The P90's ergonomics are just plain odd for shooters accustomed to more conventional longarms. If a character isn't experienced with the P90, he suffers a -1 penalty to all attacks, and readying or reloading the weapon takes twice as many ticks as normal. These penalties are removed after a "familiarization fire" session of at least 100 rounds, or if the P90 becomes part of the character's personal equipment.

Izmash PP-19 Bizon

Bullpup: Reloading the Bizon takes twice as many ticks as normal.

Assault Rifles

Generic Bullpup Assault Rifle

Bullpup: Reloading this rifle takes twice as many ticks as normal.

AK-47

Reliable 2: The AK-47 is the poster child for "too cheap, simple, and ugly to break." For the purposes of triggering breakdowns, the AK-47's Abuse is considered to be 2 lower than its actual value.

Ubiquitous: The AK-47 was a worldwide cultural phenomenon. Outside regions that banned all firearms, spare parts cost half normal.

AK-74

Reliable 2: For the purposes of triggering breakdowns, the AK-74's Abuse is considered to be 2 lower than its actual value.

AKS-74U

Reliable 1: The shorter barrel and heavier recoil of the AKS-74U rob it of some of the parent design's reliability, but it's still a cut above the norm. For the purposes of triggering breakdowns, the Krinkov's Abuse is considered to be 1 lower than its actual value.

M16A4

Needy x2: As a consequence of its direct impingement operating system, the M16A4's base maintenance requirement is doubled (to 2 hours per period of use).

M4A1

Needy x2: As with its parent design, the M4A1 needs additional care. Its base maintenance requirement is doubled (to 2 hours per period of use).

QBZ-95

Rare x10: The QBZ-95 is almost unknown outside Chinese-occupied territory. Spare parts cost 10x normal. This is reduced to 3x within Chinese holdings, as the remnants of the Chinese military still keep a tight hold on supplies.

Steyr AUG (regular and carbine)

Bullpup: Reloading the AUG takes twice as many ticks as normal.

Target and Hunting Rifles

All generic bolt-action target and hunting rifles presented in the core rules have the following quirk:

Reliable 1: For the purposes of triggering breakdowns, the weapon's Abuse is considered to be 1 lower than its actual value.

Bolt-Action Service Rifles

All bolt-action service rifles presented in the core rules have the following quirk:

Reliable 1: For the purposes of triggering breakdowns, the rifle's Abuse is considered to be 1 lower than its actual value.

Semi-Automatic Service Rifles

M1 Garand

Reliable 1: For the purposes of triggering breakdowns, the Garand's Abuse is considered to be 1 lower than its actual value.

SKSz

Reliable 1: For the purposes of triggering breakdowns, the SKS' Abuse is considered to be 1 lower than its actual value.

Bolt-Action Sniper Rifles

All bolt-action service rifles presented in the core rules have the following quirk:

Reliable 1: For the purposes of triggering breakdowns, the rifle's Abuse is considered to be 1 lower than its actual value.

AI AW/AWM

In addition to Reliable 1, all of the AW and AWM models presented in the core rules have the following trait:

Cold Tolerance: The AW family is designed for use in arctic conditions. The rifle's maintenance requirements are not increased by cold weather and extreme cold is treated as cold.

Semi-Automatic Sniper Rifles

M16 DMR

Needy x3: The maintenance needs of an M16-based DMR are exacerbated by its more exacting tolerances. Its base maintenance requirement is tripled (to 3 hours per period of use).

Break-Action Shotguns

All generic break-action shotguns presented in the core rules have the following quirk:

Reliable 2: For the purposes of triggering breakdowns, the weapon's Abuse is considered to be 2 lower than its actual value.

Pump-Action Shotguns

All generic pump-action shotguns presented in the core rules have the following quirk:

Reliable 1: For the purposes of triggering breakdowns, the weapon's Abuse is considered to be 1 lower than its actual value.

Semi-Automatic Shotguns

Saiga 12, 20, 410

Reliable 1: All of the Saiga shotguns inherited at least some of their parent design's ruggedness. For the purposes of triggering breakdowns, a Saiga's Abuse is considered to be 1 lower than its actual value.

Machine Guns

None of the SAWs, GPMGs, or HMGs presented in the core rules have quirks.