



# TR-01-95 Comparative Performance of 9 mm Parabellum, .38 Special and .40 Smith & Wesson Ammunition in Ballistic Gelatin

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#### **Executive Summary**

Currently the trend in police issue sidearms is the adoption of a high capacity pistol. in Calibre 9 mm Parabellum or .40 Smith and Wesson. The purpose of this paper is to compare terminal ballistic performance of commercially manufactured 9 mm Parabellum and .40 Smith and Wesson ammunition with the current Royal Canadian Mounted Police issue .38 Special 158 grain semi-wadcutter hollow-point (SWCHP) cartridge.

Ammunition supplied by various commercial manufacturers was chronographed and fired into 10% ordnance gelatin blocks under three conditions at distances of three metres and twenty-five or fifty metres. depending upon the barrel length of the firearm utilized as dictated by R.C.M. Police training standards. At each distance, 5 rounds of each type of ammunition was fired into bare gelatin, gelatin covered with clothing. and gelatin with pigs' ribs embedded one to two inches under the entrance surface.

The ability of a projectile discharged from a handgun, to incapacitate a human should be a subject of crucial importance to law enforcement agencies. since the handgun is usually the law enforcement agent's primary weapon of defence. Based on previous research, it is generally accepted that at handgun velocities temporary cavitation produced by a projectile is a minimal wounding agent, particularly in the case of torso shots. In such cases, the espansion of the bullet must be relied upon to physiologically incapacitate an individual. There must be sufficient blood loss to effectively disrupt the central nervous system, since psychological incapacitation is unpredictable. To achieve this desired result, a projectile should reach vital organs within the body and damage as much tissue as possible.

In 1982. Dr. M. Fackler of the Wound Ballistics Laboratory of the Letterman Army Institute of Research developed a scientific approach to the study of wound profiles based on an understanding of the effects of projectiles on body soft tissues. The procedure for the RCMP study was developed on the basis of Dr. Fackler's research with some additional modifications that more closely simulate actual field conditions.

The terminal performance of Calibers 9 mm Parabellum and .40 Smith and Wesson ammunition were measured with respect to penetration depth. expansion. weight retention. and percent weight retention. Results were recorded and compared to similar tests conducted for Calibre .38 Special .158 grain semi-wadcutter hollow-point ammunition. An easily interpreted tabular form of the resulting data was developed to assist law enforcement agencies in the selection of a suitable calibre and ammunition type for police use.

From the limited ammunition types tested, there are both Calibre 9 mm Parabellum and .40 Smith and Wesson ammunition which are comparable or exceed the terminal performance of the R.C.M. Police issue Calibre .38 Spl. 158 gr SWCHP ammunition. The significance of the performance difference is an issue which may only be determined by those agencies involved in the selection of a suitable firearm ammunition combination for law enforcement use. This selection process must be based upon individual force protocol and may rely upon factors outside the listed test events such as shooting through intermediary targets.

#### SUMMARY

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		Penetration	Expansion	Retained Wt.**	% Retention	Penetration	Expansion	Retained Wt.**	% Retention	Penetration	Expansion	Retained Wt.**	% Retention
	38 SW 5" 158gr	12.0250	0.6290	156.0380	98.76	12.9000	0.5638	156.3440	98.95	14.6500	0.6111	156.5600	99.09
	115 Win ST	9 2500	0.6597	113.4820	98.68	11.6000	0.5717	115 2720	99 80	9.5750	0.6553	111,0800	96.52
	115 Fed JHP	9 9250	0.6170	107.5240	93 50	11.2000	0 5901	114 8420	99 74	12.7250	0.5073	82 4000	71.65
4"	124 PMC Starfire	11 0000	0.6355	123.8520	99 47	13.2000	0 5646	124 3460	99 91	11 9000	0.6252	123.4400	99 55
mm	147 Fed Hydra Shok	12 2250	0.6292	145.2380	98.80	13.5750	0.5804	147 1840	99 92	13.9750	0.6443	147 3800	99.76
	147 Rem GS	13 8500	0.6152	146 9980	99.84	15.1000	0.6109	146.0140	99.33	15 2250	0.6064	146 0600	99 20
	147 Win BT	13 7250	0.6258	144 8400	98 53	15.3250	0.6160	147 1840	99 57	14.1500	0.6251	146.4000	99.20
	147 CCI GD	15.5000	0.5171	146.2200	99 44	16.7750	0.4795	147.0400	99.97	15.8250	0.4906	146 7800	99.81
	147 Win FMJ	29.1000	0.3522	146.6400	99.76	27.8250	0.3512	146.4600	99.63	23.0750	0.3536	146.4800	99.65
	115 Win ST	9.9750	0.5319	73.2040	63.66	9.8500	0.6186	107.6180	93.32	9.5750	0.5497	85.7200	74.54
	115 Fed JHP	12.2250	0.4889	68.8820	59.90	13:3500	0.5208	85.5820	74.42	11.3500	0.5335	80.5400	70.03
	124 PMC Starfire	9.7500	0.7144	122 8340	99.06	10.7000	0.6591	123.4500	99.52	8.8500	0.7144	118.3000	94.92
)"	147 Fed Hydra Shok	12.6000	0 6754	145 8900	99.07	12.0500	0.6508	146.2300	99.38	12.6750	0.5825	120 5000	81.97
nm	147 Rem GS	13 4000	0.6733	143 4520	97 59	13.5500	0.6408	146.1980	99.26	15.4750	0.6503	142 1200	96.60
	147 Win BT	14 7750	0.6203	146.6920	98.73	14.0000	0.6694	146.9380	99.07	16.0250	0.6205	131 1800	89 24
	147 CCI GD	12 6000	0.7205	147 1000	99.99	14.6750	0.6002	147.1000	99.93	13.4000	0.6311	147 3600	100 00
	147 Win FMJ	37 4500	0 3478	146 4500	99.63	31.4250	0.3525	146.0200	99.33	33.8000	0.3523	146 5333	99 68
	155 Fed Hydra Shok	12 7750	0.6145	156 2980	99.48	14.7000	0 6031	156.6240	100.00	12.9250	0.6592	147 6800	95.21
	155 Win ST	11.7750	0.6824	156.7220	99.75	13.7750	0 6427	155.7660	99.99	11.0250	0.7139	155.2000	99.85
	455 001 00	42 4750	0.7400	455 0000	400.00	49.0050	0.0045	455 5555		40.775			

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			8/	ARE			CL	ОТН			F	RIB	
		Penetration	Expansion	Retained Wt.**	% Retention	Penetration	Expansion	Retained Wt.**	% Retention	Penetration	Expansion	Retained Wt.**	% Retention
	38 SW 5" 158gr	12 4500	0.6090	156.3480	98.95	13.3250	0.5847	156.3400	98.95	12 5250	0 6124	156 2000	98 86
	115 Win ST	10 4750	0.5831	114.6560	99 61	13.0500	0.5323	115.3400	99.90	9.8500	0.5956	110 1400	95.62
	115 Fed JHP	9.8750	0.6069	113.2340	98.39	13.5000	0.5250	114.9000	99 77	9.9250	0.6084	112.7600	98.05
4"	124 PMC Starfire	11.9250	0.5832	124.1920	99 87	15.8500	0.5255	124.8400	100.00	11.3750	0.6260	124 8000	100.00
9mm	147 Fed Hydra Shok	12.0250	0.6125	147.2140	99.82	13.8750	0.5738	146.8400	99.66	11.5500	0.6397	146,7800	99.76
	147 Rem GS	13.8000	0.6125	149.0980	100.00	14.8750	0.6187	147.1800	99.97	13.5750	0.6172	147.0800	99.95
	147 Wn BT	14.2000	0.6015	146.9700	99.95	16.0250	0.5864	147.4600	99.40	14.8250	0.6273	147.9000	99.89
	147 CCI GD	15.9750	0.4938	146.7600	99.82	17.3500	0.4639	146.8400	99 85	15.7250	0.4975	145.1600	98.73
	147 Win FMJ	24.1500	0.3520	146.6200	99.74	23.6500	0.3517	146.4400	99 62	29.3500	0.3510	146.8500	99.86
	115 Win ST	9 1750	0.6773	108.1600	94.00	9.7750	0.6342	114.8800	99.63	8.5250	0.6992	109,6200	95.32
	115 Fed JHP	10.2250	0.6471	108.2400	94 12	9.6500	0.6320	114.6400	99 44	9.5000	0 6129	103 4000	89.91
	124 PMC Starfire	11.0750	0 6780	123.5400	99 47	11.0250	0.6425	124.7000	99 98	9.9500	0.6630	124 0200	99 69
9*	147 Fed Hydra Shok	12 0750	0.7114	146.0000	99 32	12 8000	0.6352	146.8800	99 67	11.1750	0.6744	145.2800	98 83
9mm	147 Rem GS	13 0500	0.6634	146.0000	99.29	14.0750	0.7018	147.2800	99.95	11.8250	0.6797	141.3200	96 14
	147 Win BT	13.4250	0.7385	147.7400	99 76	13.4500	0.6780	148 3600	100.00	12.8000	0.6745	147.4600	99 73
	147 CCI GD	12.5500	0.6398	147.0400	99 93	14.5000 27.7250	0.5825	5 146.9200	99.90	12 9500	0.6307	146.8800	99.85
	147 Win FMJ	39.0000	•		•		0.3510		99.59	30.4500	0.3510	146.6000	99.73
	155 Fed Hydra Shok	13.0750	0.6491	155.4560	99.82	19.1250	0.4491	154.1600	99.43	12.9250	0.6146	142.9200	92.17
	155 Win ST	13.6500	0.6170	156.8480	100.00	17.0500	0.5578	155.2400	99.97	12.4500	0.6425	155.0400	99.92
	155 CCI GD	12.3000	0.6593	156,1800	99.96	14.1750	0.6145	155.2800	100.00	12.0000	0.6551	155 6600	100.00
4"	165 Fed Hydra Shok	12.9750	0.6235	163.7600	99.25	15.3250	0.5699	164.3000	99.58	13.5000	0.6092	164.3000	99.58
.40 S&W	180 Win Ranger SXT	13.5000	0.7167	179.7600	99.82	14.3000	0.7391	179.9800	99 94	12.6000	0.7245	178.3600	99.09
	180 Win Subsonic	13.4750	0.6625	179.7600	99.69	13.6500	0.6296	180.2600	99.66	12.4750	0.6500	177.4200	98 40
	180 Wn FMJ	32 9000	0.3961	180.6200	100.00	30.7000	0.3955	180.3800	99.98	28.1750	0.3945	180 6800	100.00
	180 PMC Starfire	12.0750	0 7042	180.4200	99.88	16.3000	0 6122	179.7000	99.69	11.3250	0.6906	180 9600	99.54
	180 CCI GD	13 9750	0.6326	180.2200	99.97	13.5750	0.6165	180.3400	99.98	12.8250	0.6441	179.9800	99.92
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155 CCI GD

40 S&W 180 Win Ranger SXT

180 Win FMJ

180 CCI GD

165 Fed Hydra Shok

180 Win Subsonic

180 PMC Starfire

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<sup>\*</sup> bullets not recovered

\*\* Retained weight is the average of the recovered bullets' retained weight, uncorrected when they exceed the manufacturer's advertised bullet weight

\*\*\* Retention figures are the average of the per cent retained weight. Recovered bullet weights greater than the manufacturer's advertised weight are recorded as 100% retained weight.

#### Introduction

Handguns have historically been the primary source of defence for regular duty law enforcement officers. Because it is the duty sidearm which is generally used in confrontational situations, the firearm ammunition combination must be relied upon to incapacitate a human aggressor.

In handgun projectile wounds, incapacitation is caused by two factors: 1) Psychological incapacitation and 2) Physiological incapacitation.

Psychological incapacitation is non-predictable and thus a model of reaction to being shot cannot be developed.' "Psychological incapacitation is completely independent of any inherent characteristics of a specific bullet and is totally unrelated to the potential for any given bullet to cause physiological incapacitation."'

Physiological incapacitation has been well documented and is the result of the mechanical effects of the projectile producing physical damage to the human body.

As a handgun bullet enters the human body it must first crush and destroy tissue. The space once occupied by this tissue is called the permanent cavity.3

Temporary cavity is "the lateral transient dispersion of tissue from the wound track" and at handgun projectile velocities the tissue generally does not stretch beyond its elastic limits and there is no significant contribution to the wounding mechanism.3.4-s

Certain organs within the body including the brain, spleen, liver, and bones are more susceptible to damage from the temporary cavity due to their inelasticity; however, damage to these is lim&d3 Overall, it is generally recognized that at handgun velocities temporary cavity is not a reliable wounding mechanism.

The only reliable method of stopping a human with a handgun bullet is to "decrease functioning capability of the central nervous system". This may be done in one of two ways: Type I is direct disruption of the central nervous system by bullet penetration. Type II is by lack of oxygen to the brain caused by bleeding. The only wounds which result in immediate incapacitation are those which damage the essential brain matter such as the brain stem or cervical spinal cord.'

Because the central nervous system occupies such limited space within the human body, it is not feasible to expect or tram for direct CNS shots, particularly in confrontational situations.

In non-direct central nervous system bullet injuries, the size and location of the wound are important. Wolberg states "The rate of incapacitation is directly proportional to the rate of blood flow and the organs or structures hit.'14

Bullets must be able to penetrate deeply enough in order to disrupt major organs and blood vessels within the human torso to cause hemorrhaging which results in incapacitation. However, an individual who has been shot in the heart or major blood vessels may not be affected for many seconds or minutes.3 Therefore, the expectation that a bullet striking a vital organ aside from the brain will cause immediate incapacitation is a dangerous misconception.6

The exact quantity of blood loss a person can tolerate before collapsing is difficult to determine because it is dependant upon age, health, activity, presence of drugs or alcohol and psychological state. h&Kenny, however, states 2000 m1 is the point at which "serious incapacitation" takes place.' Newgard states that for blood loss greater than 25% of total volume, compensation will not adequately keep the brain and heart supplied with sufficient oxygen and progression of this condition will lead to irreversible shock and death.3

Vital anatomical structures are located deep within the body protected by various layers of tissue. The average thickness of an adult human torso is 9.4". The major blood vessels in the torso are located approximately 6" from the ventral skin surface. From oblique and transverse angles the heart and major blood vessels of the torso can be over 7.9" deep.\* Bullets must be able to penetrate 12" of soft tissue the "minimum depth necessary to ensure disruption of the major organs and blood vessels in the torso from any angle and despite intermediate obstacles. 8\*9 Bullets that penetrate beyond 18" are wasting tissue disruption potential which could be used to make a larger hole in the ideal 12 to 15" range of penetration required for handgun bullets.\*

Of the bullets which attain desired penetration depth, those of larger diameter are the most effective, crushing more tissue.2.6\*9 Shape and configuration of the bullet can also be an important factor. Cutting is a variation of the crush factor and is far more efficient in disrupting tissue than is stretching.6 Expanded bullets which are sharp edged are more likely to cut tissue along the wound track compared to blunt edges which tend to stretch tissue aside during their passage.2-6

If handgun bullets fragment, wound severity is generally not increased since the bullet fragments are usually found within 1 cm of the main permanent cavity formed by the bullet path.\*-\*

The wound profile method for measuring the damage caused by penetrating projectiles was developed at the Wound Ballistics Laboratory of the Letterman Army Institute of Research in 1982. Its purpose was to clarify the interaction of penetrating projectiles with body soft tissues and establish a quantitative predictive model for human w~u.nds.'~ This method was based upon shooting projectiles into 10% ordnance gelatin at 4" C and recording the projectiles' penetration depth, its yaw pattern, its deformation (including fragmentation, and the size and location of the temporary cavity it produced). The wound ballistic profile method has been validated by Dr. Davis' colleagues at the Miami-Dade Medical Examiners office who conducted ballistic testing of swine tissue and gelatin and compared findings to that of gunshot victims at autopsy.5 Wolberg testing 147 grain

Subsonic Win 9 mm stated "this gelatin can be a useful predictor of this bullet's penetration and expansion characteristics in shots in the human torso."

Although 10% gelatin has many proponents, and Dr. M. Fackler's wound profile is currently used by many researchers and police agencies, there are also critics.

Dr. Ragsdale in a letter to the editor of the Journal of American Medical Association states "Gelatin is in fact a very misleading tissue simulant, since a body comprises a complex array of layers with different densities around organs, supported by bone and enveloped by elastic ~kin."'~

Ragsdale states a 20% gelatin concentration reproduces bullet retardation of animal tissue the size and shape of temporary cavities in pig muscle, and incurs a permanent cavity similar to tissue wounds.'3

Ragsdale further states, "The simple expedient of injecting epoxy glue into permanent cavities in gelatin blocks details the structural complexity of radial fissures. They are actually an overlapping series of lobulated leaf-like projections that spiral (due to bullet spin) from the central track of penetration. This fissure complexity is a major cause for the imprecise correlation of fissure calculations and actual temporary cavity." "The wound profile method of Fackler is basically the creation of a comparative series of sketches of the permanent cavities created in 10% gelatin with superimposed outlines of the temporary cavity, as inferred by mathematical calculations in view of the demonstrated lack of correlation between fissure calculations and actual temporary cavities, the Wound Profile diagrams cannot be taken as accurately showing likely cavitational effects in gelatin, let alone tissue.14

Various researchers have modified Dr. Fackler's wound profile method by inserting bones or organs into 10% gelatin blocks. Dr. Lane and Ted Hallabough, Firearms Training Unit FBI, have conducted tests inserting swine femur into 10% ballistic gelatin blocks, advising swine bone is similar to human bone."

Lewis, Clark and O'Connell stated, "The placement of organs in gelatin is of great value in studying the effects of missile trauma on various organs and tissues and produces a model which more closely simulates the human body than does gelatin alone." 6

"The symmetrical damage revealed in homogeneous translucent gelatin can be expected to be substantially modified if the incoming missile is destabilized by an intermediate target or strikes bone early in its penetration. Also, the complex structure of the human body has layers of variable density (skin, fat, muscle, fascia), and irregularly shaped viscera and visci variously filled with air and fluid. This complexity means there will be an almost infiite array of possible wound channel configuration, unlike those in homogeneous tissue simulant." "Gelatin/bone target probably has more relevance to human wounding than a plain gelatin block, since the latter cannot be compared to the complex regional density differences within the body.""

Fackler states, "Since most shots in the human body traverse various tissues, we would expect the wound profiles to vary somewhat, depending on the tissue traversed. However, the only radical departure has been found to occur when the projectile strikes bone: this predictably deforms the bullet more than soft tissue, reducing its overall penetration depth, and sometimes altering the angle of the projectiles course. Shots traversing only soft tissue in humans have shown damage patterns of remarkably close approximation to the wound profiles.""

Kinetic energy and tissue trauma has been a subject debated in the modem concept of terminal wound ballistics. Duncan MacPherson in a paper presented at the Wound Ballistic seminar at the FBI Academy in 1/19-22/93 stated there is a lack of correlation between kinetic energy and damage in some physical processes. The reason for this is that physical damage is the result of stress (force per unit area), not energy. Higher kinetic energy usually increases the induced stress, but this stress only creates damage if it produces strains above the elastic limit. Most body tissues have a relatively high elastic strain limit, well above the level produced by handgun bullet temporary cavities. Since much of the kinetic energy of a bullet is associated with producing the temporary cavity volume, there is a lack of correlation between handgun bullet kinetic energy and wound trauma."

Ragsdale states, "The severity of a wound is directly related to the amount of kinetic energy lost by the bullet in the body, because the kinetic energy of a missile is dissipated in bullet deformation and tissue damage.

. Nine millimetre pistol wounds of the abdomen create haemorrhagic lesions on the intestinal walls that may look innocent but may develop into dangerous intestinal perforations if they are left untreated. For a given aim point, the bullet producing the largest temporary cavity at the proper depth, defined by the location of vital organs, should have the greater likelihood of producing incapacitation."

In the spring of 1994 it was determined that the Royal Canadian Mounted Police would adopt a new duty sidearm and ammunition combination, based upon the expected need for a higher capacity firearm.

Because the Federal .38 Spl. SWC HP ammunition fired from the S & W Model 10 in both 5" and 2" barrels had performed as required in police involved shootings by the RCMP, it was decided that the adoption of a new firearm ammunition combination would have to be as reliable.

The Royal Canadian Mounted Police Armourers did an exhaustive series of tests of submitted commercially manufactured semi-auto pistols in Calibers 9 mm and 40 S & W. At the completion of testing, a short list of firearms were submitted to the Firearms Section of Forensic Laboratory Regina for ammunition testing.

Previous research in the field of ammunition testing and terminal wound ballistic studies suggested that the wound profile method for measuring damage caused by penetrating projectiles should be followed with very few exceptions. Perhaps the most notable exception to this profile was the addition of pigs' ribs into the gelatin

as one of the test procedures. The reason it was felt this was necessary was based upon RCMP protocol. Members of the RCMP who encounter situations where the use of "deadly force" is warranted are trained to shoot for the 'critical centre of mass". In order for the bullet to penetrate to the desired vital organs, it is apparent from previously examined shootings within the Firearms Section, Forensic Laboratory Regina, that the projectile must pass through not only soft tissue but a combination of rib, muscle, and cartilage.

The addition of the pigs' ribs used in testing, although similar in diameter to human ribs measured at autopsies and with connective tissue still present, was not meant to simulate human bone necessarily but to add a medium of different density that the bullet would likely strike in order to achieve desired outcome. The ribs were introduced during this test to determine and accentuate any undesirable attributes that a specific ammunition type may display during impact with a structure of different density, i.e. fragmentation, core jacket separation, non-expansion.

Based upon previous research and discrepancies in measuring temporary cavities, it was decided that no form of measurement for the temporary cavity would be included in this research.

Three tests were conducted with each firearm ammunition combination at two distances.

Distances of 3 m and 50 m were chosen based upon RCMP firearms training protocol. Three metres is the distance at which RCMP recruits must instinctively be able to hit critical centre of mass of their intended target, and 50 m is the maximum distance at which trainees are still expected and required to hit the centre of mass. The media used for the three test events were:

Test 1: bare 10% ballistic gelatin

Test 2: 10% ballistic gelatin covered with a layer of cotton undershirt material, 1 layer of shirt material, and a heavy RCMP stormcoat. Conditions which one would expect to encounter outdoors during a typical Canadian winter.

Test 3: 10% ballistic gelatin with marrow containing pigs' ribs and connective tissue embedded 1 to 2" behind the entrance side of the gelatin block.

The 10% gelatin blocks were produced in molds 2 1" x 19" x 16" with each mold weighing approximately 130 lbs., to more closely simulate an adult human and to ensure that movement of the block was not a factor during testing.

Five rounds of each ammunition type firearm combination was fired into the gelatin block for each test type. In each case, the orientation of the projectile at rest, penetration, remaining bullet length, expansion, and retained bullet weight were recorded.

Twenty shots were fired into each block, avoiding intersection of fissures.

The gelatin was reheated only a maximum of two times and not heated to above the maximum of 40" C, so a possible change in gelatin properties would not be an introduced factor to the test procedures. Gelatin which contained pigs' ribs was not reused for any further testing.

#### **Methods and Materials:**

Two potential service pistols were submitted for testing by the Royal Canadian Mounted Police Armourer's Shop:

A Smith and Wesson Model 5943, Calibre 9 mm Parabellum with a four-inch barrel, Serial No. VAC 127 1 and a Smith and Wesson Model 4046, Calibre .40 Smith and Wesson with a four-inch barrel, Serial No. VAA3369.

A Beretta 92 Centurion and compact variation of the forementioned Smith pistols were also submitted but chronographed variations upon test firing were no greater than lot to lot variations, so they were not used in testing.

Two Royal Canadian Mounted Police service sidearms were also used in testing: 1) A Smith and Wesson, Model 10-5 revolver, Calibre .38 Spl. with a five-inch barrel, Serial No. 3D014 11, and 2) A Smith and Wesson, Model 10-5, Calibre .38 Spl. with a two-inch barrel, Serial No. 2D87607. Also a Force issue, Heckler and Koch (H&K) Model MP5, Calibre 9 mm Parabellum with a nine-inch barrel, Serial No. C3 15857, was tested.

All of the test pistols had approximately ten thousand rounds fired through them as received. The service revolvers had approximately 1500 rounds fired through them prior to testing.

Ammunition was submitted for testing by five commercial manufacturers in Calibers 9 mm Parabellum and .40 Smith and Wesson and consisted of the following:

9 mm Parabellum: 115 grain Federal Jacketed Hollowpoint

115 grain Winchester Silver-tip

124 gram PMC Star-fine

147 grain Federal Hydrashok

147 grain Winchester Black Talon

147 grain Winchester Full Metal Jacket

147 gram Remington Golden Saber

147 grain Speer Gold Dot

.40 Smith & Wesson: 155 grain Winchester Silver-tip

15 5 gram Federal Hydrashok

155 grain Speer Gold Dot

165 grain Federal Hydrashok

180 grain Winchester Ranger SXT

180 grain Winchester Full Metal Jacket

180 grain Winchester Subsonic

180 grain PMC Starfire

180 grain Speer Gold Dot

In Calibre .38 Spl., the RCMP's adopted service round 158 gram Federal Semi-Wadcutter hollow-point ammunition was used for all tests.

Kind and Knox 250A ordnance gelatin Lot 30 was used as the tissue simulant for all tests. Dr. M. Fackler's recipe for manufacturing 10% ordnance gelatin as outlined by S. Post2' and E. Thompson2' was followed. The gelatin powder was mixed with cold water (7 - 10" C) in the ratio of 1000 g to 9000 ml.

The mixture was gently agitated and allowed to hydrate for two hours at room temperature.

The ordnance gelatin was heated in an Escan Model 104P60 60-gallon steam kettle and the solution was not allowed to exceed 40" C. Once the particulate matter had dissolved, the mixture was poured into plastic molds, measuring 2 1" x 19" x 16", which had previously been sprayed with vegetable oil to act as a release agent. The approximate weight of each completed mold was one hundred and thirty pounds.

Propionic acid was initially used in solution to prevent bacterial growth; however, because the molds were used within a five-day period, the addition of acid was eliminated and no bacterial growth was recorded as was initially reported by Lucien Haag.22

Once the solution was poured into the molds, any foam on the surface was skimmed off and the molds were placed in a walk-in cooler and stored at 5" C.

Initially, the molds were not covered to prevent a build up of condensation, but were subsequently covered after an initial cooldown period.

When racks of pigs' ribs were embedded into the gelatin molds, the gelatin was first allowed to slightly cool. The racks were cut to fit dimensions of the mold and the ribs and connective tissue were slightly dried by patting to remove moisture and grease prior to insertion. The racks were then placed into the molds and suspended in place approximately one to two inches from the entrance surface with wire.

All gelatin blocks were allowed to set a minimum of sixty hours before any tests were conducted.

Prior to any gelatin blocks being tested, they were calibrated by shooting into them with Calibre .177 copper-coated B.B.'s from a Crossman, Model 766 Pneumatic rifle, Serial No. 380004954, and measuring both the velocity and penetration of the B.B.'s Five pumps of the air rile generated a velocity approximately the desired 590 feet per second, at an instrumental distance of 10 feet. All blocks were calibrated to achieve 8.5 f 1.5 cm of penetration at a velocity of 590 feet per second. B.B.'s were fired initially into four comers of the blocks, two prior to testing and two after; however, after successive tests with very minute differences, only two comers were calibrated prior to testing.

Temperatures of the gelatin blocks were recorded prior to test shots and then again after to ensure no variation existed during test procedures. Once it was determined that only very slight (less than lo C) variation existed temperatures were taken only prior to testing, measuring both in the centre of the block and at one comer.

All tested ammunition was fired from the test firearms and chronographed through a Model 4040 Chronograph manufactured by the Electronic Counters Division of MV Ordnance Industries, at an instrumental distance of twenty feet.

All test were conducted in a 125 meter single lane indoor range at a temperature of between 60-68" F. Shooting was from a sand bag rest for all test events.

Three tests were conducted at two distances for each firearm ammunition combination. With each test event there was no overlap of fissures allowed within the gelatin block, or that specific result was retested.

Test Event I was firing into bare gelatin at a distance of 3 m. Five rounds of each firearm ammunition combination was fired for this test and a total of twenty rounds was fired into each block.

Test Event II was a block of gelatin covered with a layer of 65/35 polyester/cotton mix T-shut material whose weight was 145 grams/meteti. This in turn was covered with a shut produced with a 50/50 cotton/polyester mix and a weight of 200 grams/meter2 An RCMP issue storm coat covered the other two materials. The storm coat was comprised of three layers: a nylon cotton mix shell with a weight of 170 grams/meter', a polyester insulation with a weight of 300 grams/meter', and a nylon lining with a weight of 84 grams/mete?. Again, five rounds of each firearm ammunition combination was fired at the covered block, ensuring no random impact with buttons, zippers, etc.

The thud test was comprised of a gelatin block with pigs' ribs and connective tissue embedded one to two inches from the entrance surface. Five rounds of each firearm ammunition combination was recorded in this test as in the previous test.

At the completion of all firearm ammunition combinations for the three test events, distances were then varied to fifty meters, or twenty-five meters for the Smith and Wesson, Model 10-5, with a two-inch barrel following RCMP training protocol.

Upon completion of test events into each block (20 rounds), gelatin was removed in layers from the top surface using a fixed blade knife, so the bullet paths could be more easily observed. Bullet penetration depths were measured from the exterior of the entrance surface to the furthest point of the bullet, or in some situations to where the bullet path ended, the bullet having rebounded slightly within the gelatin.

Permanent cavity diameter was measured using a Mitutoyo Digimatic Caliper. This measurement, although recorded, was not presented for this particular research.

The bullets orientation at rest was recorded as well as fragmentation or core jacket separation.

Bullet penetration through the pigs' ribs was measured using a rod of known length to project into the bullet path. To determine what the bullet came into contact with when shooting through ribs, a finger was inserted into the block of gelatin to differentiate between muscle, or bone fragmentation. Measurements of the rib diameter was recorded for each test containing the racks of pigs' ribs.

When the bullets were removed from the gelatin, maximum and minimum expansions were recorded along with the remaining bullet length. Any protruding jacket fragments were included in these measurements. Black Talon bullets were measured from the tip of each protruding point for maximum expansion values.

Remaining length measurements of Hydrashok bullets were taken from the tip of the post to the base of the bullet or any portion of the jacket protruding beyond the base.

All recovered bullets were weighed after removing as much foreign material as possible. Those bullets which still weighed more than the reported weight were recorded as 100% weight retention. When bullets fragmented, the largest remaining fragment was measured and weighed.

#### Data:

The following data is presented in tabular form, Appendices 1 through 17 1

Photographs appearing in Appendices 172 through 182 depict examples of fired and unfired bullets of all ammunition types under all test events.

Appendix 183 contains 2 photographs depicting 10% ordnance gelatin before and after a test event.

#### **Results and Discussion:**

Although terminal performance of the R.C.M. Police issue Calibre .38 Spl. 158 gr. SWCHP has been satisfactory, there are commercially manufactured ammunitions in Calibers 9 mm Parabellum and .40 S & W which exceed these performances in test medium. The heavier Calibre 9 mm Parabellum 147 gram hollow-point ammunitions manufactured by Winchester in their Black Talon round, Remington Golden Saber, and Federal Hydrashok ammunition compared favourably to the Calibre .38 Spl. round in most test events when comparing penetration depth, degree of expansion, weight retention, and percent retained weight of the fired bullet. Slight differences in bullet expansion may not be significant due to the experimental limitations and sample size. The significance of differences in % weight retention must be analyzed with respect to remaining bullet weight and degree of secondary projectiles as a result of bullet fragmentation. The Full Metal Jacketed Winchester 147 gram ammunition failed to expand after excessive penetration.

CCI 147 grain Gold Dot ammunition, although providing adequate penetration, had inadequate expansion when compared to the Calibre .38 Spl. R.C.M. Police adopted round.

The lighter 115 gram and 124 grain bullets in Calibre 9 mm Parabellum were all unacceptable performers, failing to penetrate 10% ordnance gelatin to the desired 12" depth, and for both the 115 gram bullets in particular, there was excessive fragmentation. In addition, the 124 grain PMC Starfiie bullet, when discharged from the H & K Model MP5 submachine gun, failed to cycle the action due to the brass flowing into the fluted chamber preventing the cartridge case from being extracted or ejected from the weapon.

The majority of Calibre .40 Smith & Wesson ammunition types compared favourably to the current R.C.M. Police issue Calibre .38 Spl. round in all test events at both distances.

One exception to this acceptable performance was the Winchester 180 gram Full Metal Jacketed truncated cone bullet, which consistently had excessive penetration and inadequate expansion in all test events.

The Winchester Black Talon, or Ranger SXT bullet as it is now marketed, not only met all the terminal ballistic requirements in both Calibers 9 mm Parabellum and .40 Smith and Wesson, but it was the only bullet recovered which had extremely sharp deformed surfaces which may assist in the cutting of tissue along the wound track.

During the course of testing, many observations of ammunition/firearm performance were made and, although they do not pertain directly to the data recorded for this research, they may be significant to law enforcement agencies in the selection of a suitable duty sidearm ammunition combination:

The 158 grain SWCHP bullet when fired from the S & W Calibre .38 Spl. with a 2" barrel overpenetrates 10% ordnance gelatin and gelatin covered with layers of clothing; however, when ribs were embedded into the gelatin medium, both adequate penetration and expansion result. Although accuracy was not one of the test events in measuring ammunitions' terminal performance, it is obvious that a bullet must strike an intended target to achieve the desired result. For those test events at 50 m shooting the gelatin blocks from a sandbag rest using Calibre 9 mm Parabellum, 124 grain PMC Starfire ammunition was a challenge and a 200 round supply of ammunition was depleted prior to finishing the test events.

The H & K MP5 submachine gun was introduced as a test firearm because it is an R.C.M. Police issue firearm, and the adoption of any Calibre 9 mm Parabellum round would be used in this weapon as well as any handgun which may be chosen. From the tabular results, it is apparent that any performance problems associated with ammunition type were accentuated when fired from this submachine gun.

#### **Conclusion:**

From the limited ammunition types tested, there are both Calibre 9 mm Parabellum and .40 Smith and Wesson ammunition which are comparable or exceed the terminal performance of the R.C.M. Police issue Calibre .38 Spl. 158 gr SWCHP ammunition. The significance of the performance difference is an issue which may only be determined by those agencies involved in the selection of a suitable firearm ammunition combination for law enforcement use. This selection process must be based upon individual force protocol and may rely upon factors outside the listed test events such as shooting through intermediary targets.

#### **Acknowledgements:**

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For their significant technical support we also thank Mrs. Nancy Wilson, Mr. Ed Perreaux, Mr. Alan Laughlin, Mr. Brent Ostrum, and S/Sgt. Dave Hepworth.

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Per cent Retained Weight 99.46 98.86 98.86 98.72 98.87 Ç, c. Eg grains Kinetic Energy at 20 ft.: 223.44 ft.lbs. 0291018 Retained Weight Bullet Type: SWC HP 155.59 156.20 156.20 156.20 155.97 grains Ammo Mfg.: Federal 590.88 5 8.3 Bullet Wt.: 158 Lot No.: 597.16 5 8.3 0.5213 0.5468 0.5410 0.5351 0.4979 inches **Bullet Expansion** 3m Z5m X Calibration penetration: Calibration Velocity: Calibration Temp.: Distance 0.5120 0.5355 0.5350 0.5310 0.4932 nches 틑 2D87607 38 Spl 0.5305 0.5580 0.5470 0.5391 0.5025 arches Gelatin X
Heavy Clothing 
 Penetration Depth
 Remaining Bullet Length

 13.250
 0.617

 12.250
 0.582

 12.250
 0.589

 13.000
 0.586

 12.750
 0.656

 12.750
 0.604

 mones
 mones
 Bbl. Length: Serial No.: Test Type Caliber: Chronographed Velocity at 20 ft. 795.17 787.65 807.62 808.02 792.14 AVG 798.12 N'Sec 94 APR 18 S&W 10-5 Nose Forward Nose Forward Nose Forward Nose Forward Nose Forward Make: Model: - 4 6 4 6 Date: Notes:

<b>U</b> >	Chronographed Velocity at 20 ft.	نو ج	•	(inetic Ener	Kinetic Energy at 20 ft.:	223.44	n.lbs.
			Colibratio	Velocity:	801	24	<b>*</b>
,			Calibrati	on Temp	) }	4	٠.
			Calibration	penetration.	, G	, 6	) <b>[</b>
	1				2	}	į
∢							
		Test Type		Distance			
		-46.					
		Gelatin		Æ			
	3	] [athing					
		£					
	Penetration	Remaining	<u>a</u>	llet Expans		Retained	Per cent
		Though I	2	Ş	576		Weight
•					,		
-	13.250	0.610	0.4985	0.4890	0.4938	156.32	96 76 76
8	13.875	909.0	0.4785	0.4765	0.4775	156.17	98.84
<del>ب</del>	11.625	0.578	0.5280	0.5200	0.5240	155.55	98.45
4	12.250	0.639	0.4385	0.4315	0.4350	155.55	98.45
40	11.750	0.589	0.5235	0.5070	0.5153	156.17	98 88
AVG	12.550	0.607	0.4934	0.4848	0.4891	156.96	98.70
	inches	inches	inches	inches	inches	grains	×
Notes:							
Nose Forw	vard						
Nose Form	vard						
Nose Form	vard						
	1 2 3 3 4 4 5 5 AVG	Penetratio  1 795.17 2 787.65 3 807.62 4 808.02 6 792.14  Avo 798.12  19.250 13.250 13.875 11.750 11.750 11.750 11.750 11.750 11.750 11.750 11.750	785.17 787.65 808.02 782.14 788.12 788.12 19.250 11.750 17.550 11.750 17.550 17.550 17.550	795.17 797.65 797.65 797.65 798.12 798.12 798.12 798.12 798.12 798.12 798.12 798.12 798.13 798.13 799.14 799.14 799.14 799.14 799.14 799.14 799.14 799.14 799.14 799.17 79	795.17 787.65 787.65 787.62 Calibra 792.14 788.12 1788.12 Fish Calibra Calibra Calibra Remaining Depth Remaining Bullet Length Rib 13.250 0.610 0.438 11.250 0.639 0.438 11.250 0.699 0.6738 12.250 0.697 0.6934 0.6938 0.6338 0.6338 0.6338 0.6338 0.6338 0.6338 0.6338 0.6338 0.6338 0.6338 0.6338 0.6338 0.6338 0.6338 0.6338 0.6338 0.6338	785.17 787.65 807.62 80.002 80.002 Calibration Temp: 722.14 Calibration Temp: 722.16 Calibration Temp: 722.17 Calibration Temp: 723.17 Calibration	785.17 787.65 807.62 808.02 787.62 Calibration Velocity: 601.18 782.14  Test Type Geletin X 3m

grains

2087607 38 Spl

Bbl. Length: Serial No.: Caliber:

94 MAY 03 S&W 10-5

Make: Model: Date:

Bullet Type: SWC HP Bullet Wt.: 158

Ammo Mfg.: Federal

- Nose Forward
- Base Forward

r cent tained 'eight 88.84 98.94 99.30 \$8.89 Desc Ca Ca grains Kinetic Energy at 20 ft.: 223.44 ft.lbs. 0291018 Bullet Type: SWC HP Ammo Mfg.: Federal 590.88 5 8.3 Bullet Wt.: 158 Lot No.: 597.16 5 8.3 Calibration Velocity: Calibration Temp.: Calibration penetration: 3m X 25m — 50m Distance 2D87607 38 Spl Gelatin
Heavy Clothing X
Rib Bbl. Length: Serial No.: Test Type Callber: Chronographed Velocity at 20 ft. 795.17 787.65 807.62 808.02 792.14 94 APR 18 Avc 798.12 ft/sec S&W 10-5 Model: Make: Date:

	Penetration R	Remaining Bullet	Ď	Sullet Expansion	sion	Retained	Per
		Length	тах	Ē	Ď/e		×
-	15.500	0.663	0.3770	0.3570	0.3670	156.17	88
~	18.750	0.650	0.3880	0.3805	0.3843	156.01	86
е	18.250	0.651	0.3985	0.3940	0.3963	155.86	88
4	23.750	0.659	0.3702	0.3600	0.3851	156.32	86
so	24.125	0.671	0.3725	0.3675	0.3700	156.90	8
AVG	20.076 inches	0.669 mches	0.3812 riches	0.3718 inches	0.3766 inches	166.25 grains	8 *

## Notes:

- Base Forward RCMP Storm Coat 3280-209 Sept/88
- Nose Forward
- Sideways
- Nose Forward Hollow Point did not expand to bullet diameter
- Nose Forward Hollow Point did not expand to bullet diameter

					1		
Make:	S&W	Serial No.:	2D87607		Bullet Wt.:	158	grains
Model:	10-5	Caliber:	.38 Spl		Bullet Type:	SWCHP	
					Lot No.:	0291018	_
	Chronographed Velocity at 20 ft.	ا ال	•	(inetic Enel	Kinetic Energy at 20 ft.:	223.44 ft.lbs.	r lbs
	1 795.17 2 787.65 3 807.62		Calibration	Calibration Velocity:	602.95	604.89	ff/sec
	4 808.02 6 792.14		Calibration	Calibration Temp.: Calibration penetration:	ο 8. 4.	8.7	٠ E
	Avg 798.12 fVsec						ı
		Test Type		Distance			
	Ĭ	Gelatin Heavy Clothing X		3m 25m ×			
		eg.		-			
	Penetration	Remaining Bullet	<b>a</b>	Bullet Expansion	- tou	Retained	Per cent
	•	Length	max	ᄪ	Ď/s		Weight
-	15.375	0.641	0.4440	0.4370	0.4405	156.90	99.30
7	15.375	999'0	0.3940	0.3880	0.3910	156.60	99.11
m	23.750	9990	0.3580	0.3550	0.3565	157.30	99.56
₹ !	21.875	0.656	0.3580	0.3520	0.3550	156.30	98.92
6	25.250	0.673	0.3650	0.3510	0.3580	156.80	99.24
AVG	20.326	0.661	0.3838	0.3766	0.3802	166.78	99.23
	anches	inches	inches	inches	inches	grains	*

Ammo Mfg.: Federal

2

Bbl. Length:

94 MAY 31

Date:

- Nose Forward RCMP Storm Coat 3280-055 Sept/88
- Nose Forward
- Nose Forward Curved Trajectory
- Nose Forward
- Nose Forward

Per cent Retained Weight 98.99 99.05 99.24 99.43 100.00 fivsec Cm grains Kinetic Energy at 20 ft.: 223.44 ft.lbs. Bullet Type: SWC HP 0291018 Retained Weight Ammo Mfg.: Federal 602.48 6 9.9 156.40 156.50 156.80 157.10 161.20 167 60 Bullet Wt.: 158 Lot No.: 0.4555 0.5370 0.5505 0.5515 0.5425 602.41 0.5274 inches 9 7 **Bullet Expansion** Calibration Velocity: Calibration Temp.: Calibration penetration: 3m 25m 50m Distance Nose Forward Muscle Rib Diameter .4400, .3275 inches 0.4490 0.5280 0.5410 0.5390 0.5380 0.5180 inches 2D87607 .38 Spl 0.4620 0.5460 0.5600 0.5640 0.5470 0.6368 inches Bbl. Length: 2" Gelatin
Heavy Clothing
Rib Penetration Remaining Depth Bullet Length Serial No.: Test Type 0.634 0.574 0.567 0.588 0.588 nohes Nose Forward Curved Trajectory Caliber: Nose Forward Bone/Muscle+ Chronographed Velocity at 20 ft. 795.17 787.65 807.62 808.02 792.14 94 JUN 07 798.12 fl/sec 15.000 12.500 13.500 12.875 13.625 Nose Forward Bone Nose Forward Bone 13.500 inches S&W 10-5 AVG Model: Make: Notes:

- 1 Nose Forward Bone Rib Diameter 4325 3015 inches
- 2 Nose Forward Bone
- Nose Forward Bone
- Nose Forward Cartilage
- Nose Forward Bone

Per cent Retained Weight 99.00 98.92 99.44 99.17 98.76 § 0 € grains Kinetic Energy at 20 ft.: 298,02 ft.lbs. 0291018 Bullet Type: SWC HP Retained Weight Ammo Mfg.: Federal 156.42 156.30 157.11 155.11 156.04 grains 590.88 5 8.3 Bullet Wt.: 158 Lot No.: 597.16 0.6323 0.6365 0.6308 0.6180 0.6275 0.6290 inches S 8.3 **Bullet Expansion** Distance
3m X
25m T Calibration penetration: Calibration Velocity: Calibration Temp.: 0.6225 0.6255 0.6160 0.6145 0.6183 inches 3001411 .38 Sp/ 0.6420 0.6455 0.6245 0.6390 0.6397 prches Bbl. Length: 5" Gelatin X
Heavy Clothing Penetration Remaining
Depth Bullet
Length Serial No.: Test Type Caliber: 0.459 0.454 0.463 0.476 0.450 Chronographed Velocity at 20 ft. 94 APR 18 1 885.27 2 937.03 3 935.10 4 926.78 6 924.56 Avg 921.76 fVsec 12.000 11.750 12.750 11.500 12.026 inches S&W 10-5 Nose Forward Nose Forward Nose Forward Sideways Sideways Model: Make: Date: Notes:

					Lot No.:	0291018	_
	Chronographed Velocity at 20 ft.	79. 22		Kinetic Ener	Kinetic Energy at 20 ft.:	298.02	f.lbs.
	1 885.27 2 937.03			: :	!		i
	4 926.78		Calibra	Calibration Velocity: Calibration Temp :	92 128 4	602.34	Jesu J.
	5 924.56		Calibration	Calibration penetration:	0.6	8.9	> E
	AVG 921.75 fVsec	!					
		Test Type		Distance			1
	Ī	Gelatin X		ج ب <sub>و</sub>			
		. ₩					
	Penetration	ž	ď	Bullet Expansion	<u> </u>	Retained	Per cent
	fi Des	Bullet	ě	<u> </u>		Weight	Retained
_	12 750	2607	65.5	29830	•	9	
~	12.250	0.519	0,6190	09090	0.5350	155.70	75.86
6	11.875	0.504	0.6200	0.5890	0.6045	157.56	99 72
•	12.625	0.526	0.6120	0.5950	0.6035	156.32	98.94
40	12.750	0.468	0.6350	0.6170	0.6260	155.86	98.65
AVG	12.450	0.605	0.6198	0.6982	0.6090	166.35	98.96
	inches	inches	and and				-

grains

Ammo Mfg.: Federal Bullet Wt.: 158

Serial No.: 3D01411 Bbl. Length: 5"

94 MAY 02

Date:

Make: S&W

## Notes:

- Base Forward
- Nose Forward
- Nose Forward

Nose Forward

Sideways

Bullet Wt.: 158 grains Bullet Type: SWC HP 0291018 Ammo Mfg.: Federal Lot No.: 3001411 38 Spl Bbl. Length: Serial No.: Callber: Chronographed 94 APR 18 Make: S&W Model: 10-5

Bbl. Length:

94 MAY 30

Date:

Ammo Mfg.: Federal

\ Sek	Velocity at 20 ft.	Kinetic Energy at 20 ft.:	ly at 20 ft.:	298.02 ft.lbs.	f.lbs.
-	885.27				
7	937.03				
~	935.10	Calibration Velocity: 597.16	597.16	590.88	£/se
•	926.78	Calibration Temp.:	2	S	ပ္
•	924.56	Calibration penetration:	8.3	8.3	E
AVG	AVG 921.76 f/sec				

3m 25m × Distance Test Type
Gelatin
Heavy Clothing X
Rib

	Penetration	Remaining	8	Bullet Expansion	slon	Retained	Per cent
		Length	XeE	Ē	Bve		Weight
-	12.750	0.501	0.6200	0.6055	0.6128	156.82	99.25
7	12.000	0.514	0.6045	0.5985	0.6015	156.63	99.13
m	13.000	0.550	0.5470	0.5385	0.5428	157.13	99.45
4	12.000	0.513	0909'0	0.5955	90090	155.72	98.56
s	14.750	0.640	0.4660	0.4560	0.4610	155.42	98.37
AVG	12.900	0.644	0.5687	0.6688	0.5638	156.34	98.96
	inches	inches	inches	inches	inches	grains	*

## Notes:

- 1 Nose Forward RCMP Storm Coat 3280-209 Sept/88
- Nose Forward
- Sideways
- Nose Forward
- Nose Forward

Make:	S&W	Serial No.:	3D01411		Bullet Wt.:	158	grains
Model:	10-5	Caliber:	38 Spl		<b>Bullet Type:</b>	SWC HP	
		:			Lot No.:	0291018	
	Chronographed Velocity at 20 ft.	26 €	×	(Inetic Ene	Kinetic Energy at 20 ft.:	298.02 ft	fi.lbs.
	1 885.27						
	3 935.10		Calibratio	Calibration Velocity:	591.93	584.80	fVsec
			Calibrati	Calibration Temp.:		9 ;	ပ္
	924.56		Calibration	Calibration penetration:	9.2	9.2	Ę,
	AVG 921.75 N'Sec						
		Test Type		Distance			
		Gelatin		₩,	_		
	Í	Heavy Clothing X					
		2		20m	<b>-</b> 1		
	Penetration	Remaining	<b>B</b>	Bullet Expansion	LO S	Retained	Per cent
		Length	max	Ē	gve		Weight
_	14.250	0.544	0.5810	0.5790	0.5800	156.30	98.92
7	13.250	0.556	0.5790	0.5710	0.5750	157.10	99.43
<del>س</del>	13.125	0.532	0.6000	0.5910	0.5955	156.30	98.92
•	13.000	0.545	0.5900	0.5820	0.5860	156.20	98.86
<b>40</b>	13.000	0.515	0.5940	0.5800	0.5870	155.80	98.61
AVG	13.326	0.638	0.6888	0.5806	0.6847	156.34	98.96
	inches	inches	inches	inches	inches	grains	*

## Notes:

- 1 Nose Forward RCMP Storm Coat 3280-055 Sept/88
- Nose Forward
- Nose Forward
- Nose Forward
- Nose Forward

	Make.	24 MA	94 MAY 24	Bbl. Length:	5"		Ammo Mfg.:	Federal	ļ
	Make.	2677		Serial No.:	114100		Bullet Wt.:	128	grains
	Model:	10-5		Callber:	38 Spl		<b>Bullet Type:</b>	SWCHP	
- 1	1						Lot No.:	0291018	
		Chrone	Chronographed	2					
		Velocity	Velocity at 20 ft.	نے	_	Kinetic Ene	Kinetic Energy at 20 ft.:	298.02 ft.lbs.	ş
		1 88	885.27						
		2 93	937.03						
		3	935.10		Calibrati	Calibration Velocity:	610.50	614.78	fVsec
		4 92	926.78		Calibrat	Calibration Temp.:	ĸ	9	ပ္
		6 92	924.56		Calibration	Calibration penetration:	10.0	10.5	Ę
		AVG 92	921.76 N'sec						
				Test Tvne		Oktanoe			
							ſ		
			j	Gelatin		로 [ 동 년	-a-c		
			Ē	Rib X		. &			
		Pene	Penetration	Remaining	ď	Bullet Expansion	uo)s	Retained	Per cent
		š 		Length	max	Ę	gve	weeding	Weight
	-		14.250	0.427	0.6250	0.6170	0.6210	156.60	11.98
	7	- 15	15.000	0.419	0.6210	0.6010	0.6110	156.80	99.24
	ო .	13	13.875	0.408	0.6280	0.5930	0.6105	157.40	99.62
	•		15.125	0.402	0.6440	0.6120	0.6280	156.30	88.92
	D		OM CL	0.444	0.6110	0.000	0.3830	155.70	7. 20.
	AVG		14.650	0.420	0.6268	0.6964	0.6111	166.66	88.09
		¥	Eches	inches	inches	inches	inches	grains	*
Notes:	••								
	Nose Fo	rward A	Auscle	Nose Forward Muscle Rib Diameter .32303910 inches	.32303	1910 inches			
	Nose Fo	Nose Forward Muscle	Auscle						
	Sideway	Sideways Bone							
	Base Fo	Base Forward Bone	one						

						t pe	¥										
grains		ft.lbs.	fVsec C	E .		Per cent Retained	Weight	99.37	8 86	98.61	98.86						
Federal 158	7H C	298.02 ft	600.89	85: 86:		Retained Weight	•	157.00	156.10	155.80	166.20 grams						
Ammo Mfg.: Bullet Wt.:	Bullet Type: Lot No.:	Kinetic Energy at 20 ft.:	φ.	1.60		lon	avg	0.6110	0.5815	0.6565	0.6124 inches						
		Kinetic Ener	Calibration Velocity: Calibration Temp.:	Calibration penetration:	Distance 3m 25m 50m _K	Bullet Expansion	ᄪ	0.6030	0.5620	0.6910	0.6104 inches		80 inches				
5" 3D01411	38 Spl		Calibrati Calibrat	Calibration		ő.	max	0.6190	0.8010	0.6190	0.6144 inches		.37753680 inches				
Bbl. Length: Serial No.:	Caliber:	7 2			Test Type Gelatin	Remaining Bullet	Length	0.503	0.527	0.501	0.509 inches		Rib Diameter			3/Bone	
94 JUN 09 S&W	10-5	Chronographed Velocity at 20 ft.		924.56 s 921.75 ft/sec	ž	Penetration Depth		12.000	14.000	12.125	12.526 inches		Bone	rd Bone	rd Bone	rd Cartilage/Bone	rd Cartilage
Date: 9 Make: S&		to \$	- 4 6 4	AV 6					<b>,</b> 6	4 10	AVG		Nose Forward	Nose Forward	Nose Forward	Nose Forward	Nose Forward
				·						-		Notes:	-	8	m	4	6

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94 MAY 03 Bbi. Length: \$\$AV
343 :hronographe elocity at 20 1 1170 96 2 1140 25 3 113302 4 1152 87 6 1143 38 oc 1148 10

- 1 Sideways
- Sideways Jacket Fragmentation
  - Sideways
- Sideways Jacket Fragmentation
- Sideways

Date:	94 APR 20	Bbl. Length:	4	Ammo Mfg.: Winchester	Winche	ter
Make:	S&W	Serial No.:	VAC 1271	Bullet Wt.: 115	115	grains
Model:	5943	Caliber:	9mm	Bullet Type: Silvertip HP	Silvertip	Ħ
				Lot No.:	26DH3276	9/
	Chronographed Velocity at 20 ft.	B €	Kinetic Ene	Kinetic Energy at 20 ft.:	336.62 ft.lbs.	A.Ibs.
	1 1170.96					
	3 1133.02		Calibration Velocity:	560 27	595.41	D/Sec
	4 1152.87		Calibration Temp.:	7	7	ပ္
	6 1143.38		Calibration penetration:	8.5	9.5	Ę
	AVG 1148.10					

Distance	3m X	25m 🗆	50m
Test Type	Gelatin	Heavy Clothing X	 dig

	Penetration	Remaining	á	ullet Expansion	lon	Retained	Per cent
		Length	тах	Ē	avg		Weight
-	11.750	0.379	0.5800	0.5590	0.5695	116.04	100.00
7	12.250	0.369	0.5750	0.5345	0.5548	115.74	100.00
e	11.250	0.393	0.5970	0.5435	0.5703	114.19	99.30
4	11.000	0.396	0.6160	0.5745	0.5953	114.65	99.70
40	11.750	0.360	0.5805	0.5565	0.5685	115.74	100.00
AVG	11.600 Inches	0.379 inches	0.5897 inches	0.5536 inches	0.5717 inches	115.27 grains	98.80 *

## Notes:

- Sideways RCMP Storm Coat 3280-209
- Sideways
- Sideways Jacket Fragmentation
- Sideways Jacket Fragmentation
- Sideways

	_	1170.96				
	7	1140.25				
	e	1133.02	Calibration Velocity:	906.50	610.05	ft/sec
	•	1152.87	Calibration Temp.:	9	9	ပ္
		1143.38	Calibration penetration:	8.8	10.0	E
<	وِ	1148.10 f/sec				
•	و ٰ	AVG 1148.10 fVsec				

7. c. E.

Ammo Mfg.: Winchester Bullet Wt.: 115 grains

VAC 1271 9mm

Make: S&W Model: 5943

94 MAY 18 Bbl. Length: 4" Serial No.: Caliber:

Bullet Type: Silvertip HP

26DH3276

Lot No.:

Distance	 Æ		20m x
Test Type	Gelatin	Heavy Clothing X	□ æ

	Penetration	Remaining	ă	Bullet Expansion	slon	Retained	Per cent
		Length	Xem	Ē	gve.	Weight	Weight
-	14.500	0.324	0.5460	0.5005	0.5233	116.00	100.00
7	14.000	0.316	0.5440	0.4945	0.5193	114.40	98.48
m	13.000	0.317	0.5675	0.4945	0.5310	115.10	100.00
•	11.875	0.301	0.5870	0.5190	0.5530	115.80	100.00
so.	11.875	0.311	0.5640	0.5080	0.5350	115.40	100.00
AVG	13.050 inches	0.314 inches	0.6617 inches	0.6029 inches	0.6323 inches	115.34 grains	99.90 *

- Nose Forward RCMP Storm Coat 3250-105 Nov/87
- Sideways Jacket Fragmentation
- Base Forward
- Nose Forward
- Nose Forward

	94 MAY 25	Bbl. Length:	4		Ammo Mfg.:	Winchester	<u>.</u>
Make:	S&W	Serial No.:	VAC 1271	_	Bullet Wt.:	115 9	grains
Model:	5943	Callber:	9mm		<b>Bullet Type:</b>	Silvertip HP	d,
					Lot No.:	26DH3276	
	Chronographed Velocity at 20 ft.	모르	-	(inetic Ene	Kinetic Energy at 20 ft.:	336.62 R.lbs	<u> </u>
	1 1170.96 2 1140.25						
	3 1133.02		Calibratio	Calibration Velocity: Calibration Temp :	598.95	601.03	f/sec
	,		Calibration	Calibration penetration:	-	10.1	) <b>E</b>
	AVG 1148.10 fVsec						
		Test Type		Distance			
		Golatin					
	Ĭ	Heavy Clothing			3 □		
		ag X					
	Penetration Depth	Remaining	<b>6</b>	Bullet Expansion	sion	Retained	Per cent Retained
	<u>.</u>	Length	max	重	gve gve		Weight
-	9.375	0.294	0.6640	0.6320	0.6480	111.40	96.87
~	9.125	0.339	0.6890	0.6280	0.6585	114.30	88.38
m <b>◄</b>	10.000	0.296	0.6880	0.6040	0.6460	115.40	0.00
- 10	11.000	0.335	0.6710	0.5630	0.6170	101.00	87.83
AVG	9.576	0.316	0.6926	0.6180	0.6563	111.08	96.62
	inches	Inches	inches	inches	inches	grains	*
Notes:							
1 Sideways		Jacket Fragmentation Fat Rib Diameter .3415 - 4980 inches	t Rib Diame	ter .3415 -	4980 inches		
2 Sideways	s Jacket Fragmentation		Bone/Muscle				
3 Sideways	s Bone/Muscle	<b>6</b> 1					
4 Sideways	rs Jacket Fragmentation		Muscle				

	Chronographed Velocity at 20 ft.	모르		Kinetic Energy at 20 ft.:	gy at 20 ft.:	336.62	.# BS.
	1 1170.96 2 1140.25						
	3 1133.02		Calibrati	Calibration Velocity:	807.68	806.65	fVsec
	4 1152.87		Calibra	Calibration Temp.:	ဖ	60	ပ္
	6 1143.38		Calibration	Calibration penetration:	9.3	9.1	Ę
7	AVG 1148.10 fVsec						
		Test Type		Distance			ŀ
	ż	Gelatin		[ ৄ			
	Ē	Rib X		 			
	Penetration	Remaining	, as	Bullet Expansion	5	Retained	
		Length	Xen	m Li	D\6	Veign	Weight
-	11.000	0.390	0.5980	0.5580	0.5780	113.20	88.43
7	9.625	0.388	0.6410	0.5630	0.6020	102.20	88.87
ო	9.250	0.365	0.7000	0.5550	0.6275	104.40	90.78
4	9.250	0.420	0.6280	0.5600	0.5940	115.00	100.00
40	10.125	0.389	0.5970	0.5560	0.5765	115.90	100.00
AVG	9.860	0.390	0.6328	0.5584	0.5956	110.14	96.62
	1						

Ammo Mfg.: Winchester
Bullet Wt.: 115 grains
Bullet Type: Silvertip HP
Lot No.: 26DH3276

Bbi. Length: 4"
Serial No.: VAC 1271
Caliber: 9mm

94 JUN 09

 Date:
 94 JUN

 Make:
 S&W

 Model:
 5943

- Sideways Jacket Fragmentation Muscle Rib Diameter 3905-4280 in.
- Sideways Jacket Fragmentation Bone/Muscle
- Sideways Jacket Fragmentation Bone Core Fragmentation
- Sideways Bone
- Sideways Muscle

	Date:	94 APR 27	Bbl. Length:	3.55	Ammo Mfa.:	Winchester	
_	1	C P 14/	. on lebes	777 2004		1,6	
	Make.	3043	Serial No.:	122 2394	Dullet Wt.:	10 CL1	grains
=					Lot No.:	26DH3276	L
		Chronographed Velocity at 20 ft.	ed F	Kinetic	Kinetic Energy at 20 ft.:	328.02 A.lbs.	S S
				Calibration Velocity:	city:		fVsec
		4 1121.08 6 1096.25		Calibration Temp.: Calibration penetration:	np.: ation:		င် နို
		AVG 1133.50 fVsec					
I		_	Test Type Geletin	Distar 3m 25m 50m	Distance 3m   25m   50m		
<b></b>		Penetration	n Remaining	Bullet	Bullet Expansion	Retained	Per cent
	- 8		Length	max min	avg avg		Weight
	A 4 8	inches	Inches	inches	Pa Proches	grains	*
Notes:							
-							
7							
60							
•							
<b>10</b>							

Chronographed Velocity at 20 ft. 1200 77  1 1200 77  2 1186 52  3 1183 17  Ava 1171 16  Ava 1171 16  Depth   Penetration   Remaining   Bullet Expansion   Retained   Per cent    Depth   Bullet   Remaining   Bullet Expansion   Retained   Per cent    Depth   Bullet   Remaining   Bullet Expansion   Retained   Per cent    Depth   Carlos   Casas   Casas   Casas   Casas   Casas    A	~ 2	Make: Model:	94 AFR 20 S&W 5943	Serial No.: Caliber:	4 VAC 1271 9mm		Ammo Mig.: Bullet Wt.: Bullet Type: Lot No.:	715 715 JHP 22-C-95	grains 93
Type Calibration Velocity: 598 44 600.10 ft/ Calibration Femp: 7 7 7 7 Calibration Penetration: 10.0 10.11 cn  Litype Distance  asin X 3m X 7 7 7 Som IX Som			Chronograph Velocity at 20	Pa ±		(inetic Enel	rgy at 20 ft.:	360.18	r. P. Bos.
113.27   Calibration Temp: 10.0   10.1   cn					Calibratic	on Velocity:	598.44	600.10	1V80c
Penetration   Remaining   Bullet Expansion   Penetration   Remaining   Penetration   Remaining   Bullet Expansion   Penetration   Retained   Depth   Bullet   Depth   Bullet   Depth   Bullet   Depth   Depth   Depth   Bullet   Depth   Dep					Calibrati Calibration	on Temp.: penetration:		7 10.1	₽ <b>£</b>
Penetration   Remaining   Som   Expansion   Retained	'								1
Heavy Jacket Fragmentation   Rebail   Response   Peretration   Remaining   Rullet Expansion   Weight   Weight   Weight   Peretration   Peretration   Remaining   Rullet Expansion   Remaining   Rullet Expansion   Remaining   Rullet Expansion   Remaining				Test Type		Distance			
Penetration				Gelatin					
Penetration   Remaining   Bullet Expansion   Retained   Weight   Depth   Bullet   max min avg   110.33   10.250   0.320   0.6355   0.6045   0.6250   110.33   107.40   10.250   0.332   0.6210   0.6840   0.6025   107.40   107.11   10.155   0.285   0.6485   0.6085   0.6285   107.40   107.11   10.155   0.258   0.6485   0.6285   0.6296   107.71   10.155   0.6390   0.6170   0.6390   0.6170   107.71   10.155   10.478			ı	leavy Clothing		25 m 20 m 20 m	<b>-1</b> (-1		
1         Length         max         min         avg           1         10.250         0.320         0.6355         0.6045         0.6200         110.33           2         10.500         0.332         0.6210         0.5840         0.6025         107.40           3         9.250         0.285         0.6085         0.6285         107.40           4         9.500         0.352         0.6480         0.5865         0.6285         107.71           AVG         9.826         0.310         0.6390         0.5895         0.6133         104.78           Heavy Jacket Fragmentation         Inches         Inches         Inches         Inches         praise           Heavy Jacket Fragmentation         Inches         Inches         Inches         Inches         Inches	L		Penetration Depth		e e	llet Expans	uo <u>k</u>	Retained Weight	
10.250   0.320   0.6355   0.6045   0.6200   110.33     2				Length	ж	Ē	avg		Welght
10 500   0.332   0.6210   0.5840   0.6025   107.40     3   9 250   0.285   0.6285   0.6285   107.71     4   9 500   0.259   0.6290   0.5955   0.6706     5   10.125   0.259   0.6290   0.5975   0.6133   104.78     AVG   9.926   0.310   0.6360   0.6900   0.6170   107.62     Heavy Jacket Fragmentation     Heavy Jacket Fragmentation     Heavy Jacket Fragmentation     Heavy Jacket Fragmentation		<del>-</del> (	10.250	0.320	0.6355	0.6045	0.6200	110.33	8
4         9 500         0.352         0.6460         0.5955         0.6208         107.71           AVG         9 250         0.259         0.6290         0.5975         0.6133         104.78           AVG         9 256         0.310         0.6360         0.5975         0.6130         104.78           Heavy Jacket Fragmentation         Inches         Inches         Inches         printes         printes           Heavy Jacket Fragmentation         Heavy Jacket Fragmentation         Property Jacket Fragmentation         Property Jacket Fragmentation		N 6	10.500	0.332	0.6210	0.5840	0.6285	107.40	93.38
5         10.125         0.238         0.6290         0.5975         0.6130         104.78           AVG         9.925         0.310         0.6390         0.6990         0.6170         107.62           Inches         Inches         Inches         prans           Heavy Jacket Fragmentation           Heavy Jacket Fragmentation           Heavy Jacket Fragmentation		4	9.500	0.352	0.6460	0.5955	0.6208	107.71	93.66
AVG 9:926 0.310 0.6990 0.6170 107.62 grans Inches Inches Inches grans grans Heavy Jacket Fragmentation Heavy Jacket Fragmentation Heavy Jacket Fragmentation		ĸ	10.125	0.259	0.6290	0.5975	0.6133	104.78	91.11
Heavy Jacket Fragmentation Heavy Jacket Fragmentation Heavy Jacket Fragmentation Heavy Jacket Fragmentation		AVG		0.310 inches	0.6360 inches	0.5980 inches	0.6170 inches	107.62 grains	93.60
Heavy Jacket Fragmentation Heavy Jacket Fragmentation Heavy Jacket Fragmentation			_						_
Heavy Jacket Fragmentation Heavy Jacket Fragmentation Heavy Jacket Fragmentation	_	Чевиу J	lacket Fragment	ation					
Heavy Jacket Fragmentation Heavy Jacket Fragmentation	_	Чеачу J	lacket Fragment	ation					
Heavy Jacket Fragmentation	_	Чевиу J	lacket Fragment	ation					
	_	Чевиу Ј	lacket Fragment	ation					

	Date:	94 MAY 03	Bbl. Length:	<del>.</del>		Ammo Mfg.:	Federal		
	Make:	S&W	Serial No.:	VAC 1271		Bullet Wt.:	115	grains	
		5943	Callber:	9mm		Bullet Type:	JHP		
						Lot No.:	22-C-9593	13	
		Chronographed Velocity at 20 ft.	모르	¥	netic Ener	Kinetic Energy at 20 ft.:	350.18 ft.lbs.	f. lbs.	ı
		1 1200.77							
				Calibration	Calibration Velocity:	615.23	604.38	ft/sec	
		4 1152.07		Calibration Temp.:	n Temp.:	۰ ۵	۲ <sub>د ه</sub>	ပုံ (	
	•	' (5					3	Ī	
			Test Type		Distance			ı	
			of the let		_ <u>ئ</u>	_			
		Ī	Geladon (X)			700			
		Penetration	Remaining	Bal	Bullet Expansion	Hon	Retained	Per cent Retained	
			Length	max	ᄠ	avg		Weight	
	<b>*</b>	9.875	0.380	0.6170	0.5870	0.6020	114.50	99.57	
	<b>7</b> 6	9.625	0.309	0.6190	0.6000	0.6085	107.40	93.39	
	• •	9.750	0.400	0.6390	0.5890	0.6140	11,96	96.97	
	NO.	10.250	0.357	0.6370	0.5920	0.6145	115.43	100:00	
	AVG	9.876	0.364	0.6248	0.6890	0.6068	113.23	98.39	
			BC NOT	a constant		Berries .		•	7
Notes:									
-	Sideways	Jacket Fragmentation	nentation						
7	Sideways	Jacket Fragmentation	nentation						
m	Sideways								
•	Sideways								
ĸ	Sideways								

Model: 5943   Caliber: 9mm   Bullet WI: 155 gains		Date:	94 APR 20	Bbl. Length:	.4	•	Ammo Mfg.:	Federal	
Chronographed		Make:	S&W	Serial No.:	VAC 1271		Bullet Wt.:		grains
Chronographed		Model:	5943	Callber:	9mm	_	Bullet Type:	JHP	
1   120   7   1   120   7   1   120   7   1   120   7   1   120   7   1   120   7   1   120   7   1   120   7   1   120   7   1   120   7   7   120   120   12							Lot No.:	22-C-95	93
1 1200 77			Chronograph Velocity at 20	Q 본	¥	inetic Ener	gy at 20 ft.:	360.18	n. ibs.
Test Type   Distance   Section   S					Catibratio	n Velocity: on Temp ·	560.27	595.40	Plysec C:
Penetration		,			Calibration	penetration:		. 66 . 52	)
Penetration   Remaining   Som   I				Test Type		Distance			
Penetration   Remaining   Som   So				Gelatin			]		
Penetration   Remaining   Bullet Expansion   Retained   Weight   Depth   Bullet   max   min   avg   11481   11.375   0.380   0.5805   0.5805   0.5805   114.81   11.375   0.380   0.5805   0.5805   0.5805   114.82   115.27   12.00   0.384   0.6120   0.5875   0.5898   114.35   115.27   11.000   0.381   0.6120   0.5875   0.5898   114.35   114.84   11.200   0.381   0.6024   0.6777   0.6907   114.84   114.84   11.000   0.381   0.6024   0.6777   0.6907   114.84   114.84   114.84   11.000   0.381   0.6024   0.6777   0.6907   114.84			•	leavy Clothing x Rib					
1			Penetration		Bu	llet Expans	Hote	Retained	-
11.375   0.360   0.5780   0.5890   114.81   11.375   12.000   0.370   0.5685   0.5425   0.5695   115.27   11.200   0.370   0.5685   0.5425   0.5695   114.35   114.35   110.875   0.384   0.0830   0.5890   0.6145   115.43   115.43   11.000   0.381   0.6624   0.6777   0.6901   114.84   114.84   11.200   0.381   0.6624   0.6777   0.6901   114.84			Gebit Cept	Bullet	Max	Ē	gv <b>e</b>	Veight	Retained Weight
1,000   0,370   0,5885   0,5425   0,5505   115,27     1,000   0,386   0,6120   0,5895   0,5895   114,35     1,000   0,381   0,6624   0,6177   0,5801   114,84     1,000   0,381   0,6624   0,6777   0,5801   114,84     1,000   0,381   0,6624   0,6777   0,6801   114,84     1,000   0,381   0,6624   0,6777   0,6801   114,84     1,000   0,381   0,6624   0,6777   0,6801   114,84     1,000   0,381   0,6624   0,6777   0,6801   114,84     1,000   0,381   0,6624   0,6777   0,6801   114,84     1,000   0,381   0,6801   114,84     1,000   0,381   0,6801   114,35   114,35     1,000   0,381   0,6801   114,35   114,35     1,000   0,381   0,6801   114,35   114,35     1,000   0,381   0,6801   114,35   114,35     1,000   0,381   0,6801   114,35   114,35     1,000   0,381   0,6801   114,35   114,35     1,000   0,381   0,6801   114,35   114,35     1,000   0,381   0,6801   114,35   114,35     1,000   0,381   0,6801   114,35   114,35     1,000   0,381   0,6801   114,35   114,35     1,000   0,381   0,6801   114,35   114,35     1,000   0,381   0,6801   114,35   114,35     1,000   0,381   0,6801   114,35   114,35     1,000   0,381   0,6801   114,35   114,35     1,000   0,381   0,6801   114,35     1,000   0,381   0,6801   114,35     1,000   0,381   0,6801   114,35     1,000   0,381   0,6801   114,35     1,000   0,381   0,6802   0,6803   114,35     1,000   0,381   0,6802   0,6803   114,35     1,000   0,381   0,6801   114,35     1,000   0,381   0,6802   0,6803   114,35     1,000   0,381   0,6802   114,35     1,000   0,381   0,6802   114,35     1,000   0,381   0,6802   114,35     1,000   0,381   0,6802   114,35     1,000   0,381   0,6802   114,35     1,000   0,381   0,6802   114,35     1,000   0,381   0,6802   114,35     1,000   0,381   0,6802   114,35     1,000   0,381   0,6802   114,35     1,000   0,381   0,6802   114,35     1,000   0,381   0,6802   114,35     1,000   0,381   0,6802   114,35     1,000   0,381   0,6802   114,35     1,000   0,381   0,6802   114,35     1,000   0,381   0,6802   114,35     1,000   0,381   0,6802   114,35     1		-	11.375	0.360	0.6020	0.5780	0.5890	114.81	99.83
4         10.750         0.364         0.6300         0.5990         0.6145         115.43           AVG         11.000         0.381         0.6524         0.6377         0.5991         114.35           Sideways         RCMP Storm Coat         3280 - 209         0.6120         0.6977         0.6901         114.84           Sideways         RCMP Storm Coat         3280 - 209         0.6120         0.6901         114.84           Sideways         Sideways         Sideways         3280 - 209           Sideways         Jacket Fragmentation		N 67	12.000	0.370	0.5565	0.5835	0.5965	115.27	100:00
5         11.000         0.386         0.6120         0.5875         0.5988         114.35           AVG         11.200         0.381         0.6024         0.6777         0.6801         114.84           sideways           Sideways           Sideways           Sideways           Sideways           Sideways           Sideways           Sideways		-	10.750	0.364	0.6300	0.5990	0.6145	115.43	100.00
AVG         11.200         0.381         0.6077         0.6901         114.84           Sideways         RCMP Storm Coat         3280 - 209           Sideways         Sideways           Sideways           Sideways		40	11.000	0.366	0.6120	0.5875	0.5998	114.35	99.43
Sideways Sideways Sideways Nose Forwe		AVG		0.381 inches	0.5024 inches	0.6777 nches	0.5901 Inches	114.84 grains	99.74
Sideways Sideways Sideways Nose Forwer Sideways	Notes	i.							
	-	Sidewa		m Coat 3280 -	500				
	8	Sidewa)	Ş						
	m	Sidewa	8/						
	4	Nose Fc	orward						
	40	Sidewa	vs Jacket Frag	mentation					

1		Ţ,		7
grains 93	ibs. C cm	Per cent	Retained Weight 100.00 99.83 100.00 99.22 99.83	
115 gr JHP 22-C-9593	360.18 ft.lbs. 595.73 ft/s 7 °C 8.3 crf	Retained	Weight 115.30 114.80 115.50 114.10 114.80 grains	
Bullet Wt.: Bullet Type:	Kinetic Energy at 20 ft.: ion Velocity: 596.52 tion Temp.: 7 n penetration: 9.0	ë □□⊠   eisn	avg 0.4815 0.5655 0.5025 0.5275 0.5260 nches	
	Kinetic Ener Calibration Velocity: Calibration Penetration:	Distance 3m   25m   50m   X	min 0.4620 0.5580 0.4900 0.5420 0.5140 0.6132 hiches	Now87
VAC 1271 9mm	Calibration Calibration	<b>6</b>	0.5010 0.5730 0.5150 0.5540 0.5540 0.6368 inches	3250-105 Now87
Serial No.:	نه م	Test Type Gelatin Heavy Cicthing X Rib	Bullet Length 0.441 0.362 0.418 0.417	
S&W 5943	Chronographed Velocity at 20 ft. 1200.77 2 1186.52 3 1183.15 4 1152.07 6 1133.27 Avg 1171.16	0	15.625 11.625 15.250 12.000 13.000 13.600	
Make: St Model: 59	Chr. Vek. Vek. Vek. Vek. Vek. Vek. Vek. Vek		+ 0 0 4 m 8	Nose Forward Nose Forward Nose Forward Sideways
		<del></del> -		Notes: _ 4 4 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5

Bbl. Length: 4" Ammo Mfg.: Federal Date: 9
Serial No.: VAC 1271 Bullet Wt.: 115 grains Make: S6

94 MAY 24

S&W

Date: Make:

JHP 22-C-9593	3 <b>60.18</b> ft.lbs.		611.70 ft/sec	2	10.0 cm	
Bullet Type: JHP Lot No.: 22-C	ly at 20 ft.:		609.16	9	10.0	
	Kinetic Energy at 20 ft.:		Calibration Velocity:	Calibration Temp.:	Calibration penetration:	
9mm			S	ບໍ່	Calib	
Callber:	hed O ft.					
5943	Chronographed Velocity at 20 ft.	1 1200.77	3 1183.15	4 1152.07	6 1133.27	AVG 1171.16 f/sec
Model: 5943						

	Penetration	Remaining	ă	<b>Bullet Expansion</b>	slon	Retained	Per cent
		Length	тах	Ē	avg		Weight
-	11.500	0.376	0.6450	0.6050	0.6250	109 00	94.78
7	15.000	0.443	0.4750	0.4130	0.4440	95.50	83.04
m	13.000	0.207	0.4740	0.4150	0.4445	57.20	49.74
<b>~</b>	11.875	0.332	0.6490	0.4810	0.5850	95.30	82.87
S	12.250	0.205	0.4900	0.4260	0.4580	95.00	47.83
AVG	12.726	0.313	0.6466	0.4680	0.6073	82.40	71.66
	hoches	inches	inches	inches	inches	grains	*

## Notes:

- Sideways Jacket Fragmentation Muscle Rib Diameter .3235 -.3910 inches
- Nose Forward Heavy Jacket Fragmentation Bone
- Nose Forward Jacket Fragmentation Jacket/Core Separation Bone
- 4 Nose Forward Jacket Fragmentation Core Fragmentation Bone
- Nose Forward Jacket /Core Fragmentation Jacket/Core Separation Bone

Date:	94 JUN 09	Bbl. Length:	4.	Ammo Mfg.: Federal	Federal	
Make:	S&W	Sertal No.:	VAC 1271	Bullet Wt.: 115	115	grains
Model:	5943	Caliber:	9mm	Bullet Type: JHP	JHP	
				Lot No.: 22-C-9593	22-C-95	93
	Chronographed Velocity at 20 ft.	^ 10 년	Kinetic Ener	Kinetic Energy at 20 ft.:	350.18 ft.lbs.	f.ibs.
	1 1200.77 2 1186.52					
	3 1183.15		Calibration Velocity:	604.08	605.55	fVsex
	4 1152.07		Calibration Temp.:	9	9	ပ္
	6 1133.27		Calibration penetration:	89.	9.2	통
	Avg 1171.16 f/sec					

	Penetration	Remaining	<b>1 6 6</b>	Bullet Expansion	slon	Retained	Per cent
		Length	шах	mlm	Ď\e		Weight
-	9.875	0.257	0.6270	0.5990	0.6130	113.50	98.70
7	10.750	0.284	0.6210	0.5850	0.6030	112.40	97.74
m	10.125	0.295	0.6040	0.5880	0.5960	114.10	99.22
•	9.250	0.264	0.6320	0.5800	0.6060	111.00	96.52
10	9.625	0.293	0.6400	0.6080	0.6240	112.80	88.09
AVG	9.926 inches	0.279 inches	0.6248 inches	0.5920 inches	0.6084 Inches	112.76 grains	\$8.05

Distance
3m 
25m 
50m ×

Test Type
Gelatin
Heavy Clothing

Distance
3m x
25m 
50m

Test Type
Gelatin
Heavy Clothing
Rib

- Sideways Jacket Fragmentation Muscle Rib Diameter 3570 3745 inches
- Sideways Jacket Fragmentation Cartilage
- Sideways Jacket Fragmentation Bone
- Sideways Jacket Fragmentation Bone
- Sideways Jacket Fragmentation

grains ELD9SFB054 Bullet Type: Starfire JHP Bullet Wt.: 124 Ammo Mfg.: PMC Lot No.: VAC 1271 9mm Bbl. Length: 4" Sertal No.: Callber: 94 APR 19 S&W 5943 Make: Model:

Test Type	Distance			
Gelatin	X	3m	X	
Heavy Clothing	25m	Rib	50m	

 Penetration Depth Length
 Reulet Expansion
 Retained Veright
 Per cent Neight
 Per cent
 Per cent Neight
 Per cent Neight
 Per cent Neight
 Per cent Neight
 Per cent Neigh
 Per cent Neight
 Per cent Neight
 Per cen

Notes:

1 Sideways

2 Sideways

Sideways

Sideways

Sideways Jacket Fragmentation

Date:	94 MAY 03	Bbl. Length:	<b>.</b>	•	Ammo Mfg.:	PMC	
Make:	S&W	Serial No.:	VAC 1271		Bullet Wt.:	124	grains
Model:	5943	Callber:	9mm	•	Bullet Type:	Starfire JHP	JHP
					Lot No.:	ELD9SFB054	B054
	Chronographed	7 =	3	netic Fner	Kinetic Franco at 20 0	21 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	<u>,                                    </u>
	1 1087 10	}					
	2 1052.19						
	3 1082.02		Calibration Velocity:	Velocity:	19:609	806.58	fVsec
	4 1050.64		Calibration Temp.:	n Temp.:	7	7	ç
	6 1094.57		Calibration penetration:	enetration:	0.6	9.0	Ę
	AVG 1073.32 R/sec						
		Test Type		Distance			!
		Gelatin		 &			
	Ĭ	Heavy Clothing		<b>₽</b>			
		] }		_			
	Penetration	Remaining	Ba	Bullet Expansion	5	Retained	Per cent
		Length	max	Ë	D/6		Weight
-	12.125	0.421	0.6470	0.5585	0.6028	123.76	99.81
~	11.625	0.443	0.6460	0.5600	0.6030	124.53	100.00
es	11.875	0.434	0.5715	0.5400	0.5558	124.69	100.00
<b>→</b>	12.500	0.458	0.6110	0.5390	0.5750	124.53	100.00
۰۰	11.500	0.435	0.6040	0.5550	0.5795	123.45	98:26
AVG	11.925	0.438	0.6159	0.6506	0.6832	124.19	99.87
_	inches	inches	inches	inches	inches	grains	*

Notes:

Sideways Jacket Fragmentation

2 Sideways Jacket Fragmentation

3 Nose Forward

Sideways

Sideways

Per cent Retained Weight 100.00 100.00 100.00 100.00 g c E ELD9SFB054 Bullet Type: Starfire JHP Kinetic Energy at 20 ft.: 317.14 ft.lbs. Retained Weight 124.69 124.53 123.45 124.53 124.53 124.36 grains 597.94 7 9.0 Ammo Mfg.: PMC Bullet Wt. 124 Lot No.: Calibration Velocity: 598.09
Calibration Temp.: 7
Calibration penetration: 10.0 0.5473 0.5683 0.5723 0.5878 0.5675 nobes **Bullet Expansion** 25 3m Distance 0.5290 0.5275 0.5420 0.5355 0.5450 0.6368 nrches 퉏 VAC 1271 0.5890 0.6025 0.6400 0.5700 nches 0.5855 mm6 Sideways RCMP Storm Coat 3280-209 Heavy Clothing X Bbl. Length: Penetration Remaining
Depth Bullet
Length Serial No.: Test Type Caliber: 0.465 0.450 0.450 0.456 0.456 inches Gelatin Sideways Jacket Fragmentation Chronographed Velocity at 20 ft. 1 1087.19 2 1052.19 3 1082.02 4 1050.64 6 1094.57 AVG 1073.32 ft/sec 13.250 13.000 13.125 12.875 13.750 94 APR 19 13.200 inches S&W 5943 Sideways Model: Make: Date: - 2 6 4 5 Notes:

	Chronographed Velocity at 20 ft.	ם ב	_	(Inetic Ener	Kinetic Energy at 20 ft.:	317.14 ft.lbs.	rr Sibs
	1 1087.19 2 1052.19						
	3 1082.02		Calibration	Calibration Velocity:	599.88	605.62	f/sec
	4 1050.64		Calibrat	Calibration Temp.:	9	ø	ပ္
	6 1094.57		Calibration	Calibration penetration:	8.8	10.0	E
-	AVG 1073.32 f/sec						
		Test Type		Distance			I
		Gelatin		<u>س</u>			
	Ĭ	Heavy Clothing x		75m			
		<b>₽</b>		× wos	_		
	Penetration Depth	Remaining Bullet	ă	Bullet Expansion	- For	Retained Weight	Per cent
		Length	max	ᄪ	avg		Weight
-	16.125	0.395	0.5390	0.5075	0.5233	124.90	100.00
7	14.875	0.426	0.5430	0.4995	0.5213	125.10	100.00
<b>6</b>	16.000	0.413	0.5375	0.4785	0.5080	124.80	100.00
4	16.750	0.410	0.5330	0.4815	0.5073	125.20	100.00
40	15.500	0.465	0.6190	0.5165	0.5678	124.20	100.00
AVG	15.860	0.422	0.5543	0.4967	0.6255	124.84	100.00
	inches	nches	inches	inches	inches	SURED	*

grains

Ammo Mfg.: PMC Bullet Wt.: 124

> VAC 1271 9mm

Bbl. Length: Serlal No.: Caliber:

94 MAY 18 S&W 5943

Make: Model:

Bullet Type: Starfire JHP

## Notes:

- 1 Nose Forward RCMP Storm Jacket 3250-105 Now87
- Nose Forward
- Nose Forward
- Nose Forward

Sideways

Sideways

Base Forward

S

				•			)	
ž	Make:	S&W	Serial No.:	VAC 1271	_	Bullet Wt.:	124	grains
Ž	Model:	5943	Caliber:	9mm		Bullet Type:	Starfire JHP	JHP
						Lot No.:	ELD9SFB054	-B054
		Chronographed	7					
		Velocity at 20 ft.	<u>ا</u> ج	-	(Inetic Ene	Kinetic Energy at 20 ft.:	317.14 fulbs.	T. DS
		1 1087.19						
				Calibratic	Calibration Velocity:	620.66	618.81	fVsec
				Calibrat	Calibration Temp.:		so j	ပ္
		AVG 1073.32		Calibration	Calibration penetration:	4.01	0.0	£
I								ı
			Test Type		Distance			
			Gelatin		×.	T		
		I	Heavy Clothina			, <sub>[</sub>		
			€		] [] &	. —		
		Penetration	8	96	Bullet Expansion	Non	Retained	-
		Depth	Bullet		•		Weight	Retained
			Length	×eE	Ē	<b>0</b>		Wegh
_	- (	11.750	0.362	0.6480	0.6210	0.6345	124.00	100.00
	N 6	11.125	0.391	0.6740	0.6100	0.6420	124.00	100.00
	, ,	10.625	0.334	0.6640	0.6300	0.6350	123.30	4.6
	• •	14.000	0.443	0.5400	0.5300	0.5350	124.00	30.00
	0	12.000	0.385	0.6960	Osto.	0.65/5	121.80	15.00
	AVG	11.900 inches	0.379 inches	0.6484 inches	0.6020 inches	0.6262 inches	123.44 grains	99.66 *
Notes:								
Š	Sideways	Jacket Fragmentation		ne Rib Diar	meter .2690	Bone Rib Diameter 2690, 3725 inches		
Š	Sideways	Jacket Fragmentation	mentation Bone	ē				
ŠĶ	Sideways	_	-	Bone/Muscle	•			
Ŋ	se For	ward Jacket I	Nose Forward Jacket Fragmentation Bone/Muscle	Bone/Musc	cle			

Calibration Velocity: 607.68 606.65 M   Calibration Temp.: 6 6 6 70 6 6 70 6 6 70 6 6 70 6 70 6 7	Kinetic Energy at 20 ft.: 317.14 ft.lbs.     Calibration Velocity: 607.68 606.65 ft/s	Calibration Velocity: 607.68 606.65 M   Calibration Penetration: 9.3 9.1 or   Som   X    Som	Calibration Velocity: 607.68 606.65 M   Calibration Penetration: 9.3 9.1 cr   Som   X     Som   Som   X     Som   Som   X     Som   Som   Som   Som     Som   Som   Som   Som   Som     Som   Som   Som   Som   Som   Som   Som     Som   So	Calibration Velocity: 607.68 606.65 M Calibration Penetration: 9.3 9.1 cr Calibration penetration: 9.3 9.1 cr Calibration penetration: 9.3 9.1 cr Som X Som X Som X  Calibration penetration: 9.3 9.1 cr Calibration Temps: 9.3 9.1 cr Calibration Temps: 9.3 9.1 cr Calibration Penetration: 9.3 p. 1 cr Calibration Penetration: 9.3 p. 1 cr Calibration Penetration Penetra	Calibration Velocity: 607.68 606.65 N   Calibration Penetration: 9.3 9.1 or   Calibration penetration: 9.3 0.1 or   Calibration penetration penetr	Calibration Velocity: 607.68 606.65 ft Calibration Penetration: 9.3 9.1 or Calibration penetration: 9.3 9.1 or 25m   3m   25m   25m
Calibration Velocity: 607.68 606.65 M Calibration penetration: 9.3 9.1 cr Calibration penetration: 9.3 9.1 cr  Distance  3m	Calibration Velocity: 607.68 606.65 ft/ Calibration penetration: 9.3 9.1 cr Calibration penetration: 9.3 9.1 cr  Distance 3m	Calibration Velocity: 607.68 606.65 M Calibration penetration: 9.3 9.1 cr Calibration penetration: 9.3 9.1 cr  Distance  3m	Calibration Velocity: 607.68 606.65 M Calibration penetration: 9.3 9.1 cr  Distance  3m	Calibration Velocity: 607.68 606.65 ft/ Calibration penetration: 9.3 9.1 or 25m	Calibration Velocity: 607.68 606.65 ft/ Calibration penetration: 9.3 9.1 or 2sim	Calibration Velocity: 607.68 606.65 M Calibration penetration: 9.3 9.1 cr  Calibration penetration: 9.3 9.1 cr  Distance  3m
Distance   3.5   5.1   6.2	Distance   3.5   3.1   3.7	Distance   3.0   25m   3.0   3.1   3.0   3.1   3.0	Distance   3	Distance   3	Distance   3	Distance   3
Distance   3m	Distance   3m	Distance   3m	Distance   3m	Distance   3m	Distance   3m	Distance   3m
3m	3m	25m	25m	25m	25m	25m
Bullet Expansion   Retained   Weight   Weight   Weight   Weight   0.6915   0.5805   0.6260   124.80	Builet Expansion   Retained   Weight   Weight	Bullet Expansion   Retained   Weight   Weight   Weight   Weight   0.6915   0.5805   0.6260   124.80	Bullet Expansion   Retained   Weight	Bullet Expansion   Retained   Weight   Weight     Weight	Bullet Expansion Retained Weight Max min avg 0.6915 0.5605 0.6260 124.80 0.6916 0.6606 0.6260 124.80 0.6916 0.6606 0.6260	Bullet Expansion Retained Weight weight 0.6915 0.5905 0.6290 124.80 0.6916 0.6916 0.6906 0.6290 124.80 0.6916 0.6916 0.6906 0.6290 0.62
0.6915 0.5605 0.6260 124.80 0.6916 0.6606 0.6260 124.80 Inches Inches grains	0.6915 0.5605 0.6260 124.80 0.6916 0.6606 0.6260 124.80 Inches Inches grains	0.6915 0.5605 0.6260 124.80 0.6916 0.5606 0.6260 124.80 Inches Inches prairs	0.6915 0.5605 0.6260 124.80	0.6915 0.5605 0.6260 124.80 0.6916 0.6606 0.6260 124.80 inches inches inches grains	0.6915 0.5605 0.6260 124.80 0.6916 0.6606 0.6260 124.80 Inches inches inches grains	0.6915 0.5605 0.6260 124.80 0.6916 0.6606 0.6260 124.80 Inches Inches Inches grants
0.6916 0.6606 0.6260 124.80 inches inches grains	0.6916 0.6606 0.6260 124.80 inches inches prains	0.6916 0.5606 0.6260 124.80 inches inches grains	0.6916 0.5606 0.6260 124.80 inches inches oranis	0.6916 0.6606 0.6260 124.80 inches inches grains	0.6916 0.6606 0.6260 124.80 inches inches grain	0.6916 0.6606 0.6260 124.80 inches inches grains

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							ä							Per cent	Weight	100.00	90.00	100.00	100.00	99.82	*						
/B	grains	Hydra-Shok JHP	2230603470	328 48 ***********************************					E					-		4			- 22	 							
.: Federal	147		2230				601.40	S.	E.					Retained		148.14	147.22	147.52	147.52	147.21	grains						
Ammo Mfg.:	Bullet Wt.:	<b>Bullet Type:</b>	Lot No.:	Kinetic Fleray at 20 ft			606.35		E.			, _		E S	avg	0.6025	0.6150	0.6250	0.6020	0.6125	inches						
				Inetic Fine			Calibration Velocity:	Calibration Temp.:	Calibration penetration:	Distance	Æ		× 20m	Bullet Expansion	Ē	0.5910	0.8030	06090	0.5800	0.6972	inches						
<b>,</b>	VAC 1271	9mm			•		Calibratio	Calibrati	Calibration					B	Тах	0.6140	0.6270	0.6410	0.6240	0.6278	inches						
Bbi. Length:	Serlal No.:	Callber:		7.						Test Type	Gelatin	2	<b>□</b>	Remaining	Length	0.490	0.522	9090	0.511	0.608	inches				nentation	nentation	
94 MAY 04	S&W	5943		Chronographed	1 998.60				Avg 1003.26 ft/sec			f		Penetration		12.125	12.000	11.500	12.000	12.026	inches		ard		Jacket Fragmentation	Jacket Fragmentation	
0				0 >	•		67	•	- 4							-	N 6	•	. 20	AVG			Nose Forward	Sideways	Sideways	Sideways	Sideways
Date:	Make:	Model																					Ž	Š	Š	Š	S
Date:	Make:	Model:																				otes:				Š	
			20				Nsec	ů						Per cent	Weight	99.10	98.05	20.00	97.62	08.86	zi.	Notes:		2 Si	S E	ĬŠ	va va
Federal	147 grains Make:	Hydra-Shok JHP	2230603470	478 Ab 8 kg		-	594.67 N/sec		CB					Retained Per cent			144.13 98.05			 	graine %	Notes:				(S) **	
: Federal	grains		Lot No.: 2230603470			-		40			×			-		145.67		1.66 75	143.50	145.24	_	Notes:				8 4	

Calibration Velocity: 593.00 Calibration Temp.: 6 Calibration penetration: 8.4

1 998.60 2 1003.21 3 1008.47 4 1003.81 6 1002.20 Avg 1003.26 ft/sec

VAC 1271

Serial No.:

Make: S&W Model: 5943

Caliber:

Chronographed Velocity at 20 ft.

Bbl. Length: 4"

94 APR 19

0.6415 0.6305 0.6425 0.6585 0.6370 0.6420 mches

Sideways Jacket Fragmentation Sideways Jacket Fragmentation

Notes:

Sideways Jacket Fragmentation

Sideways Sideways

 Penetration
 Remaining

 Depth
 Bullet

 Langth
 Langth

 11750
 0.447

 11750
 0.445

 11750
 0.446

 13125
 0.446

 12226
 0.466

 robes
 nother

Gelatin X
Heavy Clothing

Test Type

Per cent Retained Weight 100.00 99.94 100.00 99.83 99.83 **38** ℃ E5 Bullet Type: Hydra-Shok JHP Bullet Wt.: 147 grains 2230603470 Kinetic Energy at 20 ft.: 328.48 ft.ibs Retained Weight Ammo Mfg.: Federal 148.14 146.91 146.75 146.75 592.17 6 9.3 Lot No.: 0.5883 0.5883 0.5513 0.5950 0.6093 0.6804 inches **Bullet Expansion** Calibration penetration: Distance Calibration Velocity: Calibration Temp.: 0.5300 0.5435 0.5425 0.5560 inches 3m 25m 50m VAC 1271 0.5995 0.5725 0.6080 0.6760 0.5730 0.6068 inches Base Forward RCMP Storm Coat 3280 - 209 9mm Gelatin
Heavy Clothing X
Rib Bbl. Length: Penetration Remaining
Depth Bullet
Length Serial No.: Test Type 0.560 0.522 0.541 0.513 0.554 0.538 inches Caliber: Chronographed Velocity at 20 ft. 1 998.60 2 1003.21 3 1008.47 4 1003.81 5 1002.20 AVG 1003.26 f//sec 94 APR 19 14.750 12.000 14.750 12.500 13.875 13.575 inches S&W 5943 Make: Model: - 4 6 4 6 Notes:

	<b>.</b>	Chronographed Velocity at 20 ft.	hed 7.	_	Kinetic Ene	Kinetic Energy at 20 ft.:	328.48 ft.lbs.	f.lbs.
		1 998.60						
				Calibrati	Calibration Velocity:	596.52	595.73	#/sec
		4 1003.81		Calibrat	Calibration Temp.:	7	7	ပ္
		6 1002.20		Calibration	Calibration penetration:	0.6	8.3	Ę
	•	AVG 1003.26						
		fVsec						1
			Toes Time					
			odk i seat					
			Gelatin		톬	_		
		-	Heavy Clothing X					
		Penetration	n Remaining	ă	Bullet Expansion	you	Retained	Per cent
			Length	max	ᄩ	avg		Weight
	-	13.750	0.459	0.5940	0.5430	0.5685	146.50	98 88
	~	13.000	0.457	0.6000	0.5510	0.5755	146.80	98. 66.
	m ·	13.125	0.459	0.5790	0.5610	0.5700	147.20	100.00
	•	14.500	0.459	0.6680	0.5220	0.5950	145.20	98.78
	۵.	15.000	0.491	0.6210	0.4890	0.5600	148.50	100.00
	AVG	13.876	0.466	0.6124	0.6362	0.5738	146.84	99.66
		inches	inches	nches	inches	inches	grains	*
Notes:	•							
-	Nose Form	vard Jacket	Nose Forward Jacket Fragmentation RCMP Storm Coat 3250-105 Nov/87	RCMP Stor	m Coat 32!	50-105 Nov	/8/	
7	Nose Forward	vard						
m	Sideways							
4	Base Forward		Jacket Fragmentation					
S	Sideways		4					

Bullet Type: Hydra-Shok JHP

Ammo Mfg.: Federal Bullet Wt.: 147

VAC 1271

Bbl. Length: Serial No.: Callber:

Date: 94 MAY 17 Make: S&W Model: 5943 2230603470

Lot No.:

Nose Forward Jacket Fragmentation

Nose Forward Nose Forward

Sideways

Sideways Cartilage Rib Diameter 4115 - 4080 inches

Sideways Jacket Fragmentation Muscle/Cartilage

Nose Forward Cartilage Nose Forward Cartilage

Sideways Cartilage

Model: \$543   Caliber: 9mm   Bullet Type: Hydre-Shot APP   Avid Caliber: 9mm   Bullet Type: Hydre-Shot APP   Avid Caliber: 9mm   Bullet Type: Hydre-Shot APP   Avid Calibration Penetration   Calibration Penetration: 10.4   10.0		Date:	94 MAY 26	Bbl. Length:	<b>.</b> 4		Ammo Mfg.:	Federal	
Chronographed		Make:	S&W	Serial No.:	VAC 1271		Bullet Wt.:		grains
Chronographed   Velocity at 20 ft.   328 49 https:   1 998 60   2 1003 21   3 1008 47   3 1008 47   3 1008 47   3 1008 47   3 1008 47   3 1008 47   3 1008 47   3 1008 47   3 1008 47   3 1008 47   4 1003 81   4 1003 81   4 1003 81   4 1003 81   4 1003 81   4 1003 81   4 1003 81   4 1003 81   4 1003 81   4 1003 81   4 1003 81   4 1003 81   4 1003 81   4 100 81		Model:	5943	Callber:	9mm		Bullet Type:	Hydra-Shol	OHE)
Chronographed							Lot No.:	22306034	021
1 996 60   1 1003 21   2 1003 21   2 1003 21   2 1003 21   2 1003 21   2 1003 21   2 1003 21   2 1003 20   2 1003 20   2 1003 20   2 1003 20   2 1003 20   2 1003 20   2 1003 20   2 1003 20   2 1003 20   2 1003 20   2 1			Chronographe Velocity at 20	ي ج	•	(Inetic Ene	rgy at 20 ft.:	328.48	Libs.
Nose Forward   Bone   Bullet   Bullet   Bullet   Sideways   Bone   Rib Diameter   2500 - 3720 inches   Rib Diameter   2500 - 3720 inches					Calibratio	an Velocity:	620.66	618.81	1/Sec
Test Type   Distance					Calibration	ion Temp.: penetration:		5 001	ა <u>წ</u>
Test Type   Oistance   3m   X							l		i ,
Penetration   Season   Seaso				Test Type		Distance			
Penetration   Remaining   Builet Expansion   Weight			Í	Gelatin Geavy Clothing		3m 25m 50m			
1   13.500			Penetration Depth		8	illet Expans	slon	Retained Weight	Per cent Retained
1   13.500   0.452   0.6550   0.6415   147.40     2			-	Length	max	ᄠ	gve		Weight
14.125		-	13.500	0.452	0.8550	0.6280	0.6415	147.40	100.00
AVG 13.975 0.467 0.6570 0.6500 145.20 AVG 13.976 0.469 0.6608 0.6078 0.6270 146.20 AVG 13.976 0.489 0.6608 0.6078 0.6443 147.38  Nose Forward Bone  Sideways Bone  Nose Forward Jacket Fragmentation Bone  Sideways Bone			14.125	0.532	0.6920	0.5880	0.6400	147.60	90.8
Sideways         Bone         Rib Diameter         2690         0.6430         0.6110         0.6270         148.20           AVG         13.876         0.489         0.6078         0.6078         0.6443         147.38           Sideways         Bone         Rib Diameter         26903720 inches         sideways         Bone           Sideways         Bone         Bone         sideways         Bone           Sideways         Bone         Sideways         Bone           Sideways         Bone-Muscle         Sideways         Bone		•	14.750	0.462	0.6570	0.5790	0.6180	145.20	98.78
AVG         13.975 nches         0.489 nches         0.6808 nches         0.6043 nches         147.38 nches		40	14.125	0.467	0.6430	0.6110	0.6270	148.20	100.00
Sideways Bone Rib Diameter .26903720 inches  Nose Forward Bone  Sideways Bone  Nose Forward Jacket Fragmentation Bone  Sideways Bone/Muscle		AVG	1	0.489	0.6808	0.6078 inches	0.6443	147.38 orains	99.76
	Notes								
Nose Forward Bone Sideways Bone Nose Forward Jacket Fragmentation Sideways Bone/Muscle	-	Sideway	s Bone Rib l	Diameter .2690	3720 incl	hes			
Sideways Bone Nose Forward Jacket Fragmentation Sideways Bone/Muscle	8	Nose Fo	orward Bone						
Nose Forward Jacket Fragmentation Sideways Bone/Muscle	က	Sideway	's Bone						
	4	Nose Fo	ward Jacket F	Fragmentation	Bone				
	40	Sideway	s Bone/Musck	t)					

<del></del> .	Penetration Depth	œ		Bullet Expansion	ion	Retained Weight	
	Penetration Depth		Bax Bax	ullet Expans min	avg	Retained Weight	
-	12.000	0.531	0.6390	0.5990	0.6190	145.90	99.25
7	11.875	0.471	0.6310	0.6820	0.6565	146.30	99.52
e	11.125	0.505	0.6660	0.6240	0.6450	147.40	100:00
•	11.625	0.509	0.6440	0.6120	0.6280	147.20	100 00
• •	11 125	0.308	0.0440	0.0120	0.9290	147.20	0000
·0	11.125	0.426	0.6710	0.6290	0.8500	147.10	100.00
AVG	11.550	0.488	0.6502	0.6292	0.6397	146.78	99.76
	inches	inches	inches	inches	inches	Smirrs	*

Ammo Mfg.: Federal
Bullet Wt.: 147 grains
Bullet Type: Hydra-Shok JHP
Lot No.: 2230603470

VAC 1271 9mm

Bbi. Length: 4"
Serial No.: VAC 1
Callber: 9mm

 Date:
 94 JUN

 Make:
 S&W

 Model:
 5943

94 JUN 09

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Sideways

Sideways

Sideways Sideways Sideways

Notes:

Date: 94 A  Make: \$54/3  Model: 5943  Avg  Avg  Avg  1 Sideways 2 Sideways 3 Sideways 4 Sideways 5 Nose Forward 5	cent sined sight sined sight (173 / 173 /	Per cent Retained Weight 99.83 100.00 99.83 99.73 99.83 99.73 99.83 99.73 99.83 99.73 99.83 99.73 99.84 **	## # # ## ## ## ## ## ## ## ## ## ## ##
	r cent tained eight eight 88.3 88.73 88.4 *		Retained Weight 146.75 146.75 146.75 146.75 146.75 146.75 146.75 146.75 146.75 146.75 147.00 grawn

 Penetration
 Remaining

 Depth
 Bullet

 Langth
 Langth

 14.750
 0.425

 14.000
 0.544

 13.000
 0.543

 14.000
 0.488

 13.860
 0.488

 riches
 riches

AVG

Gelatin X
Heavy Clothing

Test Type

Serial No.: VAC 1271

Bbl. Length: 4"

94 APR 19

Date:

S&W 5943

Make: Model:

9mm

Callber:

Chronographed Velocity at 20 ft.

Calibration Velocity: Calibration Temp.:

1 1029.65 2 1000.88 3 1007.05 4 1012.35 6 1023.75 Avg 1614.74 f\sec

Per cent Retained Weight 97.31 99.73 98.73 99.94 **80**.33 Bullet Type: Golden Saber JHP Desperation Es Bullet Wt.: 147 grains LY14SA5801 Kinetic Energy at 20 ft.: 336.04 ft.ibs. Ammo Mfg.: Remington Retained Weight 592.17 6 9.3 143.05 146.60 146.91 146.91 146.91 9mbs Lot No.: 597.62 0.5695 0.6185 0.6220 0.6158 0.6285 0.6109 inches 9 0.6 **Bullet Expansion** Sideways Jacket Fragmentation RCMP Storm Coat 3280-209 25 25 × Calibration penetration: Calibration Velocity: Calibration Temp.: Distance 0.5470 0.5975 0.6095 0.5865 0.6070 0.6896 inches VAC 1271 0.5920 0.6395 0.6345 0.6450 0.6500 0.6322 inches 9mm Heavy Clothing X Bbl. Length: Penetration Remaining Depth Bullet Length Serial No.: Test Type 0.469 0.475 0.480 0.500 0.473 inches Callber: Gelatin Chronographed Velocity at 20 ft. 1 1029.65 2 1000.88 3 1007.05 4 1012.35 1023.75 AVG 1014.74 fVsec 16.250 14.500 15.250 15.000 94 APR 19 15.100 inches S&W 5943 Sideways Sideways Sideways Sideways Make: Model: Date: Notes:

					Lot No.:	LY14SA5801	5801
	Chronographed Velocity at 20 ft.	ΔF		(inetic Ener	Kinetic Energy at 20 ft.:	336.04	ft.lbs.
	1 1029.65 2 1000.88						
	3 1007.05		Calibratic	Calibration Velocity:	600.30	595.52	f/sec
			Calibrati	Calibration Temp.:		9	ပ္
	<b>6</b> 1023.75		Calibration	Calibration penetration:	9.7	9.0	Ę
	AVG 1014.74 NSec						
		Test Type		Distance			!
		Gelatin		Æ			
	Ĭ	Heavy Clothing X			_		
		₽		× ×			
	Penetration	ž	<b>18</b>	Bullet Expansion	lon	Retained	<u> </u>
	nden Oeba	Length	max	ë	₿∧₽	weign	Weight
-	15.500	0.481	0.6310	0.6020	0.6165	147.10	100.00
7	15.000	0.458	0.6410	0.5960	0.6185	147.50	100:00
<del>ر</del>	14.000	0.450	0.6550	0.5910	0.6230	147.40	100.00
<b>→</b>	15.500	0.471	0.6300	09090	0.6180	147.10	100:00
10	14.375	0.477	0.6330	0.6020	0.6175	146.80	98.66
AVG	14.876	0.467	0.6380	0.6994	0.6187	147.18	99.97
	inches	inches	inches	inches	inches	grains	*

Bullet Wt.: 147 grains Ammo Mfg.: Remington

Bbl. Length:

94 MAY 17 S&W

Date:

Sideways RCMP Storm Coat 3250-105 Nov/87

Sideways

Sideways

Nose Forward

Nose Forward

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4" VAC 1271 9mm	Kinetic Calibration Velo Calibration Ten Calibration peneti		Bullet Es max ml 0.6440 0.58 0.6390 0.60 0.6390 0.60	0.6170 0.6384 Inches	<b>4</b> 5 in			
	S S HE		max 0.6440 0.6450 0.6390 0.6390	9.0	037			
Bbl. Length: Serial No.: Callber:	2 t	Test Type  Gelatin  Heavy Clothing  Rib	8 -	0.496 0.456 inches	Bone Rib Diameter .35703745 inches			
94 JUN 09 S&W 5943	Chronographed Velocity at 20 ft. 1 1029.65 2 1000.88 3 1007.05 6 102.35 6 102.37 Ave 1014.74 Risec.	Ĭ	Penetration Depth 13.000 12.500 13.500	14.875 13.676 Inches		Bone	Cartilage	Sideways Cartilage Base Forward Bone
Date: Make: %				AVG	Sideways	Sideways	Sideways	Sideways Base Forw
					Notes:	7	m	4 10
			<b>45</b>					
n grains en JHP 801	ribs. rVsec cm		Per cent Retained Weight 100.00 95.89 100.00	99.20 *				
ernington 17 grains Mden Saber JHP 114SA5801	36.04 ft.lbs. 01.03 fVsec 5 °C 10.1 cm			-				
Reming 147 Golden S LY14SA	336.04 P.J. 601.03 5 10.1			147.50 100.00 146.06 99.20 praim %				
Ammo Mfg.: Remington Bullet Wt.: 147 grains Bullet Type: Golden Saber IHP Lot No.: LY14SA5801	rgy at 20 ft.: 336.04 ft.1 598.04 ft.1 598.95 601.03 5 5 5 9.9 10.1	<b>9</b> N	Retained Weight   Weight   1	-				
Ammo Mfg.: Bullet Wt.: Bullet Type: Lot No.:	rgy at 20 ft.: 336.04 ft.1 598.04 ft.1 598.95 601.03 5 5 5 9.9 10.1	Distance 3m   X  25m   50m	Bullet Expansion Retained Weight I Weight 0.5670 0.6080 147.50 0.5440 0.5875 141.10 0.5800 0.6110 147.10 0.5800 0.6110 147.10 0.5800 0.6110 147.10	0.5700 0.6020 147.50 0.5654 0.6064 146.06 grafts	4985 inches			
	336.04 P.J. 601.03 5 10.1	Distance 3m X 25m	Bullet Expansion Retained Weight I Weight 0.5570 0.6090 147.50 0.5440 0.5975 141.10 0.5800 0.6110 147.10 0.5900 0.6110 147.10	0.6064 146.06 niches grains	3410 - 4985 inches	Sone		
Ammo Mfg.: 1271 Bullet Wt.: Bullet Type: Lot No.:	Kinetic Energy at 20 ft.: 336.04 ft. Calibration Velocity: 589.95 601.03 Calibration Penetration: 5.5 Calibration penetration: 9.9 10.1	Distance 3m 25m 50m	Remaining         Bullet Expansion         Retained           Bulket         Weight         Weight           Length         max         min         avg           0.369         0.6460         0.5670         0.6900         147.50           0.438         0.8510         0.5440         0.5975         141.10           0.362         0.6470         0.5800         0.6135         147.10           0.391         0.6560         0.5690         0.6110         147.10	0.5700 0.6020 147.50 0.5654 0.6064 146.06 grafts	Rib Diameter .34104985 inches	Fragmentation Bone		
4" Ammo Mfg.: VAC 1271 Bullet Wt.: 9mm Bullet Type: Lot No.:	rgy at 20 ft.: 336.04 ft.1 598.04 ft.1 598.95 601.03 5 5 5 9.9 10.1	Distance 3m 3m 25m 85m	Bullet   Bullet Expansion   Retained   Weight   Weight	0.6340 0.5700 0.6020 147.50 0.6474 0.6064 0.6064 146.06 riches riches palms	Sideways Fat/Muscle Rib Diameter 3410 - 4985 inches	Base Forward Jacket Fragmentation Bone	Sideways Bone	Base Forward Bone Sideways Bone

Per cent Retained Weight 100.00 100.00 99.86 99.86 100.00

147.40 147.20 146.80 147.20 147.08 grains

0.6120 0.6270 0.6235 0.6210 0.6025 inches

min 0.5800 0.6090 0.5950 0.5950 0.5880 notes

Notes:

Retained Weight

**Bullet Expansion** 

Distance
3m 
25m 
50m | x

fysec Cm

605.55 6 9.2

604.08 6 8.8

Calibration Velocity: 6
Calibration Temp.:
Calibration penetration:

Builet Type: Golden Sabra JHP Ammo Mfg.: Remington Bullet Wt.: 147 grains

Lot No.: LY14SA5801

Kinetic Energy at 20 ft.: 336.04 ft.lbs.

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			Penetration Depth 14875 2 13500 3 14875 4 14000 6 13750	AVG 14.200 hohes:		2 Sideways 3 Sideways	4 Sideways 5 Sideways
Winchester 147 grains Black Talon SXT 30GF3133	382.46 ft.lbs. 594.67 ft/sec 6 °C 8.3 cm		Retained Veight         Per cent           Veight         Neight           144.75         98.47           146.80         99.73           141.97         96.58           146.44         98.26           144.44         98.26	<u>'</u>			
Ammo Mfg.: Winchester Bullet Wt.: 147 gra Bullet Type: Black Takon S Lot No.: 30GF3133	gy at 20 ft.: 593.00 6 8.4	8 x 🗆 🗆	NVG 6258 6137 6300 5206 5380	0.6258 Inches			
4" VAC 1271 9mm	Kinetic Ener Calibration Velocity: Calibration Penetration:	Distance 3m   x 25m   Som	Butlet Expansion  max min a  0.6525 0.5990 0. 0.6335 0.5895 0.0 0.6645 0.5755 0.0 0.6805 0.5975 0.0	0.6649 0.6868			
Bbl. Length: Serial No.: Callber:		Test Type Geletin K Heavy Clothing	Remaining Bullet Length 0.448 0.448 0.448	<del>'</del>	Jacket Fragmentation	Heavy Jacket Fragmentation	Jacket Fragmentation
94 APR 19 8&W 1943	Chronographed Velocity at 20 ft. 1044 83 2 1021.66 2 1021.66 4 1039.50 6 1049.32 Avg. 1039.24 ftsec	Í	Depth 13.500 13.500 14.000 13.125 14.500	13.726 Inches	et Fragr	ry Jacke	et Fragn

Per cent Retained Weight

Retained Weight

o. c.

601.40 5 9.3

606.35 5 9.3

Kinetic Energy at 20 ft.: 352.46 ft.lbs.

Bullet Wt.: 147 grains Bullet Type: Black Talon SXT

30GF3133

Lot No.:

Ammo Mfg.: Winchester

100.00 100.00 97.73 100.00 100.00

147.37 148.45 147.37 147.39 146.97 grams

avg 0.6020 0.5945 0.6085 0.5915 0.6110 0.6016 inches

Date:		94 APR 19	Bbl. Length:	<u>*</u>	Ammo Mfg.: Winchester	Winches	te,
Make:	S&W	_	Serial No.:	VAC 1271	Bullet Wt.: 147 grains	147	grains
Model:	5943	•	Caliber:	9mm	Bullet Type: Black Talon SXT	Black Tak	n SXT
					Lot No.:	30GF3133	33
	Chr.	Chronographed Velocity at 20 ft.	\$ €	Kinetic Ene	Kinetic Energy at 20 ft.:	362.46 ft.lbs.	f.ibs.
	-	1044.93					
	7	1021.66					
	က	1040.80		Calibration Velocity:	598.09	597.94	Z Se
	4	1039.50		Calibration Temp.:	7	1	ပ္
	ю	1049.32		Calibration penetration:	10.0	9.0	Ę
	Y AVG	AVG 1039.24					
		17/Sec					

	Penetration Rei	Remaining	á	ullet Expansion	los	Retained	_
		Length	max	Ē	gv.		
-	17.000	0.509	0.6560	0.5695	0.6128	143.82	97.84
7	14.500	0.492	0.6640	0.5665	0.6153	147.83	100.00
m	14.250	0.485	0.6585	0.5825	0.6205	148.76	100.00
4	15.375	0.510	0.6570	0.5820	0.6195	147.52	100.00
10	15.500	0.484	0.6465	0.5770	0.6118	147.99	100.00
AVG	16.326 inches	0.496 inches	0.6564 enches	0.5755 inches	0.6160 inches	147.18 grains	<b>99.67</b>

Distance
3m X
25m 
50m

Test Type
Geletin
Heavy Clothing X
Rib

### Notes:

- Sideways Jacket Fragmentation RCMP Storm Coat 3280-209
- 2 Sideways Jacket Fragmentation
- 3 Sideways Jacket Fragmentation
- Base Forward Jacket Fragmentation
- Sideways Jacket Fragmentation

Make.							1
	S&W	Serlal No.:	VAC 1271		Bullet Wt.:	147	grains
Model:	5943	Caliber:	9тт		Bullet Type:	Black Talon SXT	on SXT
					Lot No.:	30GF3133	33
	Chronographed	<b>T</b>	:	!			
	Velocity at 20 ft.	낟	X.	Jetic Ener	Kinetic Energy at 20 ft.:	352.46 ft.lbs.	7. Ds.
	1 1044.93						
	2 1021.66						
	3 1040.80		Calibration Velocity:	Velocity:	600.30	595.52	ft/sec
	4 1039.50		Calibration Temp.:	Temp.:	9	9	ပ္
	<b>5</b> 1049.32		Calibration penetration:	enetration:	•	9.0	Ę
			•				
	AVG 1039.24						
	f/sec						
	٠						i
		Test Type		Distance			
		Gelatin		돐			
	Ĭ	Heavy Clothing X					
		<b>₽</b>		× ×	. –		
							-
	Depth	Bullet		builet Expansion		Welght	Retained
		Length	W X	Ē	gve		Weight
-	15.000	0.418	0.6160	0.5440	0.5800	148.40	100.00
7	16.500	0.435	0.6360	0.4940	0.5850	142.60	97.01
~	16.375	0.471	0.6920	0.5720	0.6320	148.60	100.00
*	15.500	0.533	0.6280	0.4880	0.5580	149.10	100.00
6	16.750	0.480	0.6800	0.5140	0.5970	148.60	100.00
AVG	16.026	0.463	0.6504	0.5224	0.5864	147.46	99 40
	_						

- Sideways RCMP Storm Coat 3250-105 Nov/87
- Nose Forward Core Fragmentation
- Sideways
- Sideways
- Base Forward

Serial No caliber:  Cest Typ Gelatin Ny Clothin Ny Clot	Serial No.: VAC 1271 Bullet Wt.: 147	Caliber: 9mm Bullet Type: Black Talon SXT	Lot No.: 30GF3133	Kinetic Energy at 20 ft.: 352.46 ft.bs		Calibration Velocity: 598.95 601.03 Calibration Temp.: 5	Ë		pe Distanc	Ceaun Jm ( <u>X</u> ) Heavy Clothing	Retained Bullet Expansion Retained Welght	max min avg	0.6330 0.5910 0.6120	0.6310 0.5810 0.6505	0.6660 0.5880 0.6270	0.6620 0.5980 0.6300	0.385 0.6568 0.5944 0.6251 146.40 inches inches prairies		Bone Rib Diameter .3410 - 4985	Core Fragmentation Bone		
--	--------------------------------------	---	-------------------	--	--	--	---	--	------------	--------------------------------------	---	-------------	----------------------	----------------------	----------------------	----------------------	--	--	--------------------------------	-------------------------	--	--

Maxe:	S&W	Serial No.:	VAC 1271		Bullet Wt.:	147	grains
Model:	5943	Callber:	9mm	_	Bullet Type:	Black Talon SXT	SXT
					Lot No.:	30GF3133	6
	Chronographed Velocity at 20 ft.	78 €	· ×	Inetic Ener	Kinetic Energy at 20 ft.:	362.46 ft.lbs.	SQ :
	1 1044.93						
	3 1040.80		Calibratio	Calibration Velocity:	605.62	602.26	f/sec
	4 1039.50		Calibrati	Calibration Temp.:	9	ဖ	ပ္
	6 1049.32		Calibration	Calibration penetration:	9.0	8.5	c <sub>m</sub>
	AVG 1039.24 fl/sec						
		Test Type		Distance			
		Gelatin		ال چ			
	Í	Heavy Clothing ☐ Rib 🕱		25m 50m			
	Penetration	~	8	Bullet Expansion	ro,	Retained	Per cent
	Depth	Bullet	Xe	Ē	DAR	Weight	Retained
-	15.000	0.511	0.6990	0.6160	0.6575	148.60	100.00
7	15.875	0.527	0.6740	0.5820	0.6280	149.00	100.00
ო	14.500	0.501	0.6870	0.5960	0.6415	146.30	99.52
*	14.625	0.508	0.6130	0.5390	0.5780	148.70	100.00
40	14.125	905.0	0.6700	0.5970	0.6335	146.90	S 66
AVG	14.826	0.611	0.6686	0.6860	0.6273	147.90	68.66

- 1 Sideways Bone Rib Diameter 4115 4080 inches
- Sideways Bone
- Sideways Jacket Fragmentation Bone
- Nose Forward Bone
- Sideways Muscle

Chronographed Kinetic Energy at 20 ft.: 362.10 ft.lbs. 1 1047.12 2 1046.46 3 1046.45 3 1046.45 4 1013.58 Calibration penetration: Calibration penetration penetration penetration penetration: Calibration penetration	Calibration Calibr	Model: 3913
1 1047.12 2 1046.46 3 1041.02 Calibration Velocity: Calibration Penetration: Avc. 1038.71 Reavy Clothing	Calibratic Calibratic Calibration of Calibratic of Calibratic of Calibration of Calibratic o	Chronograph Velocity at 20
1013.58   Calibration Velocity:   4   1013.58   Calibration Penetration:	Test Type Galibration Penetration: Calibration penetration: Calibration penetration: Calibration penetration: Calibration penetration: Salibration penetration: Calibration penetration: Salibration penetration: Ambier Salibration penetration: Salibration penetration penetration: Salibration penetration penetr	1 1047.12
Avg Inches Inches   1013.58   Calibration Tempi: Calibration Penetration:  Avg 1038.71   Rest Type   Distance   Celatin   3m   Som	Test Type Galibration penetration: Calibration penetration: Calibration penetration: San Calibration penetration: San Calibration Calibration San Calibration San Calibration San Calibration: San Calibration San Calibration San Calibration: San	
Avc 1038.71  Avc 1038.71  Test Type  Gelatin	Test Type  Galatin  Galatin  Galatin  Galatin  Saw Clothing  Saw Clothin	
Penetration Remaining Builet Expansion Depth Builet max min avg	Test Type  Gelatin	- 1
Penetration Remaining Builet Expansion Builet Expansion Builet Builet max min avg states inches inch	Remaining Builet Expansio Builet Length max min	
Remaining Builet Expansion  Penetration Remaining Builet Expansion  Builet Builet Expansion  AVG httes httes httes httes httes	Remaining Bullet Expansion Bullet Length max min	
Heavy Cictuing 25m   Som   Som   Som   Som   Som   Som   Som   Length   Max min avg   4 Som   Niches	Remaining Builet Expansion Bullet Bullet Expansion Bullet Bulle	
Penetration Remaining Bullet Expansion  1	Remaining Bullet Expansion Bullet Bulle	•
Penetration Remaining Bullet Expansion  1 Length max min avg 3 4 4 5 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	Remaining Bullet Expansio Bullet Expansio Bullet Expansion max min mohes inches inches	
AVG niches niches niches inches	max min	Penetration
2 3 4 4 5 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	nothes inches	
AVG triches inches inches	nches inches	
AVG Inches Inches Inches Inches	riches Inches	3 5
AVG Inches Inches Inches Inches	nches inches	4
AVG inches inches inches inches	riches biches	<b>1</b> 0
;; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ;		

Date:	94 APR 27	Bbl. Length:	4.37	Ammo Mfg.:	Winchester	
Make:	Berretta	Serial No.:	E94986Z	Bullet Wt.:	147 91	grains
Model:	92 Centurian	Callber:	9тт	<b>Bullet Type:</b>	Black Talon SXT	sxt
				Lot No.:	30GF3133	
	Chronographed Velocity at 20 ft.	중론	Kinetic	Kinetic Energy at 20 ft.:	360.16 m	F.Bs.
	1 1044.71 2 1040.58		e distantian de la constantian del constantian de la constantian d	į		
			Calibration Temp.: Calibration penetration:	i. Bion:		5 t £
	Avs 1050.52 f/sec					
	ī	Test Type Gelatin Heavy Clothing	Distance 3m [ 55m [ 50m [	° 000		
- 7	Penetration Depth	Remaining Bullet Length	Bullet Expansion	anslon avg	Retained Weight	Per cent Retained Weight
AVG 5 4 3	inches	inches	inches inches	Inches	shing	*
Notes:						
					•	

Per cent Retained Weight 99.93 99.58 100.00 97.82 8 4 \* 2 c E Bullet Wt.: 147 grains Kinetic Energy at 20 ft.: 281.01 ft.lbs. Bullet Type: Gold Dot HP Retained Weight E12Y21 146.90 146.40 146.80 147.20 613.12 6 10.0 146.22 grains Ammo Mfg.: Speer Lot No.: avg 0.5165 0.5330 0.4960 0.5240 0.5160 612.59 0.5171 inches 9.8 **Bullet Expansion** Calibration Velocity: 6
Calibration Temp.:
Calibration penetration: 3m 25m X Distance min 0.4990 0.5160 0.4880 0.4990 0.4968 inches VAC 1271 0.5340 0.5500 0.5040 0.5490 0.5500 0.5374 inches mm6 Bbl. Length: 4" Gelatin X Heavy Clothing Rib Penetration Remaining
Depth Bullet
Length Serial No.: 0.424 0.445 0.445 0.437 0.438 inches Test Type Callber: Chronographed Velocity at 20 ft. 931.27 936.33 932.84 921.15 AVG 927.94 N/Sec 15.000 16.375 16.000 15.750 14.375 16.600 inches 94 JUN 21 6 918.11 S&W 5943 1 Nose Forward Nose Forward Nose Forward Nose Forward Base Forward Model: Make: - 4 6 4 6 Date: Notes:

Model: 584   Serial No.: VAC 1277   Bullet Wt.: 5		Date:	94 JUN 23	Bbl. Length:	<b>.</b> *	`	Ammo Mfg.:	Speer		
Chronographed		Make:	S&W	Serial No.:	VAC 1271		Bullet Wt.:		grains	
Chronographed		Model:	5943	Caliber:	9тт		<b>3ullet Type:</b>	Gold Dot HP	₫.	
1   931 27     2   936 33     3   922 84   Calibration Velocity: 602 85     4   931 15   Calibration penetration: 9 5     5   918 11   Calibration penetration: 9 5     Avc   927 14   Calibration penetration: 9 5     Avc							Lot No.:	E12Y21		ı
1 931.27   2 998.33   Calibration Velocity; 602.85   4 921.15   Calibration Temp 6 6 6 918.11     1			Chronograph Velocity at 20	B 본	ž	netic Ener	gy at 20 ft.:	281.01 ft.lbs.	f.lbs.	
1					ر د د د د د د د د د د د د د د د د د د د	Velocity	28 003	99		
Test Type   Distance					Calibration	Temp.:	8 9	9 9	3 O	
Test Type   Distance			)				o 6	o n	5	
Penetration				Test Type		Distance			Ī	
Penetration   Remaining   Som   X			•	Gelatin X		ا ل پ				
Penetration			•	£ €						
Length max min avg     16.125			Penetration		Bulk	et Expans	- S	Retained	Per cent	<u>.</u>
16.125   0.522   0.4950   0.4850     2			8	Length	жещ	Ę	D\ e		Weight	3
AVG   15:500   0:525   0:5050   0:4850		- (	16.125	0.522	0.4950	0.4750	0.4850	146.40	99.59	
AVG 16.250 0.544 0.5010 0.4860 0.4835  5 16.250 0.523 0.5460 0.5210  AVG 16.876 0.630 0.5908 0.4790 0.5210  Nose Forward  Nose Forward  Sideways:		<b>N</b> 10	16.250	9850	0.4980	0.4730	0.4855	146.90	98.93	
AVG 16.250 0.523 0.5480 0.5210  AVG 16.876 0.630 0.6086 0.4790 0.4938		4	15.750	0.544	0.5010	0.4660	0.4835	146.50	99.66	
AVG 16.976 0.530 0.5086 0.4790 0.4938 Inches		40		0.523	'	0.4960	0.5210	147.10	100.00	1
		AVG		0.630 inches		0.4790 inches	0.4938 inches	146.76 grains	99.82	
Nose Forward Nose Forward Sideways	8	. <u>.</u>								
Nose Forward Nose Forward Sideways		Nose Fo	orward							
Nose Forward Sideways		Nose Fo	orward							
Sideways		Nose Fo	orward							
J		Sidewa)	S.							
SIGEWBYS		Sideways	S.							

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Date:	94 JUN 21	Bbl. Length: 4"	<u>*</u>	Ammo Mfg.: Speer	Speer	
Make:	S&W	Serial No.:	VAC 1271	Bullet Wt.: 147	147	grains
Model:	5943	Caliber:	9mm	Bullet Type: Gold Dat HP	Gold Dot	£
				Lot No.:	E12Y21	
	Chronographed	hed				
	Velocity at 20 ft.	10 Ft.	Kinetic Ene	Kinetic Energy at 20 ft.:	281,01 ft.lbs.	f. lbs.
	1 931.27					
	2 936.33					
	3 932.84		Calibration Velocity:		611.77	
	4 921.15		Calibration Temp.:	7	7	ပ္
	5 918.11		Calibration penetration:	4.6	9.6	Ę
	AVG 927.94					
	fl/sec					

	Ť	Test Type Gettin		Distance 3m   x   25m   50m				
	Penetration Depth	Remaining Bullet	ď.	Bullet Expansion	slon	Retained Weight	Per cent Retained	
	•	Length	max	를	avg	,	Weight	
-	17.250	0.465	0.4960	0.4730	0.4845	147.00	100.00	
7	16.750	0.448	0.4890	0.4670	0.4780	147.00	100.00	
က	16.750	0.471	0.4820	0.4640	0.4730	147.00	100.00	
4	16.375	0.461	0.4980	0.4730	0.4855	146.80	99.96	
40	16.750	0.468	0.4860	0.4670	0.4765	147.40	100.00	
AVG	16.776 inches	0.463 inches	0.4902 inches	0.4688 inches	0.4796 inches	147.04 grains	78.99	

# Notes:

- Nose Forward RCMP Storm Coat 3280-055 Sept/88
- Base Forward
- Base Forward
- Base Forward
- Nose Forward

- Bbl. Length: 4" 94 JUN 23 Make: S&W Model: 5943
- VAC 1271 mm6 Serial No.: Caliber:
- Ammo Mtg.: Speer Bullet Wt.: 147 grains Bullet Type: Gold Dot HP
  - E12Y21

Lot No.:	gy at 20 ft.:			596.81	9	6.9	
	Kinetic Energy at 20 ft.:			Calibration Velocity:	Calibration Temp.:	Calibration penetration:	
	Chronographed Velocity at 20 ft.	931.27	936.33	932.84	921.15	918.11	927.94 fVsec
	Chrc	-	7	<b>6</b>	•	vo	NG.

281.01 ft.lbs.

jese Ç. u. S

596.00 6 8.9

- Distance
  3m 25m 25m x Test Type
  Gelatin
  Heavy Clothing X
  Rib
- Retained Weight 146.90 146.80 146.90 146.90 146.94 avg 0.4880 0.4700 0.4560 0.4540 0.4735 inches **Bullet Expansion** 0.4580 0.4540 0.4430 0.4430 0.4620 0.4618 inches 0.4760 0.4860 0.4680 0.4650 0.4850 0.4850 https://doi.org/10.0000 Penetration Remaining
  Depth Bullet
  Length
  17,000 0,551
  17,250 0,554
  18,000 0,560
  18,875 0,547
  17,350 0,663
  extres notices

Per cent
Retained
Weight
99.93
100.00
99.86
99.52
99.93

- 1 Nose Forward RCMP Storm Coat 3280 357 /87
- Nose Forward
- Nose Forward
- Nose Forward

Make: S&W   Setal No.: VAC 1271				Animo mig.	Speer	
	Serial No.:	VAC 1271		Bullet Wt.:	147	grains
•	Caliber:	9mm		Bullet Type:	Gold Dot HP	9-
				Lot No.:	E12Y21	
	Ţ					
	10 F.	¥	inetic Ene	Kinetic Energy at 20 ft.:	281.01	f.lbs.
		Calibratio	Calibration Velocity:	597.51	608.79	fVsec
		Calibration	Calibration Temp.:		60	ပ္
		Calibration	Calibration penetration:	9.5	9.6	Ę
· · · · · · · · · · · · · · · · · · ·						ı
	Test Type		Distance			
<u> </u>	[ 		<u>ا</u>	[		
<u> </u>				ם וכ		
	Heavy Clothing					
	on Remaining	Bu	Bullet Expansion	rols	Retained	Per cent
····					Weight	_
	Length	тах	트	gve.		Weight
<del></del>	0.527	0.5050	0.4740	0.4895	146.90	99.93
<del></del>	0.528	0.5030	0.4880	0.4955	146.50	99:66
	0.513	0.5140	0.4880	0.5010	147.10	100.00
	0.514	0.5090	0.5020	0.5055	147.20	100.00
	0.573	0.4800	0.4430	0.4615	146.20	99.46
	0.631	0.6022	0.4790	0.4906	146.78	99.81
	enches	inches	nches	inches	griens E	*
	Rib Diameter	37004095	inches			
	fe					
4 Base Forward Bone						
A Base Forward Cartilane	929					

æ ;	Make:	S&W	Serial No.:	VAC 1271		Bullet Wt.:	147	grains
2					_	The state of the state of	:	
E	Model:	5943	Callber:	9mm	-	Bullet I ype:	Gold Dot HP	H <sub>P</sub>
						Lot No.:	E12Y21	
	•	Chronographed	72.4	,	1	4		;
		Verocity at 20 IL	<u>.</u>	•	Allenc Eller	Anieuc Elleryy at 20 IL.	10.182	H. 105
		1 931.27						
		2 936.33						
		3 932.84		Calibratic	Calibration Velocity:	615.84	614.70	fVsec
		4 921.15		Calibrati	Calibration Temp.:	7	7	ပ္
		5 918.11		Calibration	Calibration penetration:	7.6	9.6	E
	-	AVG 927.94 fVsec						
ı			Test Type		Distance			
			Gelatin		33			
		Í	Heavy Clothing		[ 52w			
			å ∏×		20m			
1								
		Penetration	Remaining	ď	Bullet Expansion	noi	Retained	Per cent
		5	Length	max	#	D\e		Weight
	-	15.875	0.514	0.5550	0.4940	0.5245	147.10	100.00
	7	14.125	0.490	0.5060	0.4710	0.4885	144.30	98.16
	٣	15.625	0.526	0.5040	0.4920	0.4980	146.60	99.73
	•	16.750	0.547	0.4940	0.4740	0.4840	146.50	99.66
	40	16.250	0.536	0.5080	0.4770	0.4925	141.30	96.12
	AVG	16.726	0.623	0.5134	0.4816	0.4976	145.16	98.73
		inches	inches	inches	inches	inches	grains	*

- Nose Forward Bone
- Nose Forward Muscle/Cartilage
- Nose Forward Muscle/Cartilage

5 Nose Forward

	Date:	94 JUN 23 S&W	Bbi. Length:	4" VAC 1271		Ammo Mfg.: Bullet Wt.:	Winches 147	ster
_	Model:	5943	Callber	mme		Bulket Type:	Osqu	March
						Lot No.:	59GC3044	_
		Chronographed Velocity at 20 ft.	Z =	¥	Inetic Ener	Kinetic Energy at 20 ft.:	304.16 A.lbs.	ģ
				Š	1.0	0,000	5	
		978.28		Calibrati	Calibration Temp :	7	7	2 C
				Calibration	Calibration penetration:	9.7	9.7	. E
•		AVG 966.41 Nsec						
			Test Type		Distance			
			Gelatin			_		
		Í	2					
			<b>₩</b>			. —		
		Penetration	Remaining	<b>B</b>	Bullet Expansion	Log	Retained	Per cent Retained
			Length	тах	투	D\0		Weight
	-	31.625	0.654	0.3540	0.3500	0.3520	146.70	99.80
	8	27.625	0.654	0.3530	0.3510	0.3520	146.20	89.46
	m =	22.375	0.658	0.3530	0.3510	0.3520	46.90	88 8 88 5 88 5
	1 10	31.500	0.654	0.3530	0.3530	0.3530	8.86	98.96
	AVG	<u>'</u>	0.666	0.3632	0.3512	0.3622	146.64	89.76
		inches	Inches	inches	inches	inches	grains	*
Notes:								
	Nose Forward	nward						
	Base Forward	rward						
	Base Forward	rward						
	Base Forward	rward						

	Make.	SEW	. ON leines	VAC 1971		Bullet We	147	die
	Model	5043	Callher	ome o		Rullet Type.	FM! Subs	FM   Subsonic Match
		3				Lot No.:	59GC3044	t march
		Chronographed Velocity at 20 ft.	<b>2</b> 8 €	_	(Inetic Ene	Kinetic Energy at 20 ft.:	304.16 ft.lbs.	<u>8</u>
				;	:		1	i
		3 96/49		Calibratio	Calibration Velocity:	617.20	617.82	ll/sec
				Calibration	Calibration penetration:	•	9. 4.	> <b>5</b>
		AVG 965.41 N'sec						
			Test Type		Distance			
		Ι	Gelatin X Heavy Clothing		3m 25m 80m			
		Penetration	Remaining	ā	Bullet Expansion	Fois	Retained	Per cent Retained
			Length	<b>Max</b>	ᄪ	D\6		Weight
	-	25.000	0.660	0.3530	0.3510	0.3520	146.70	99.80
	~	25.250	0.663	0.3510	0.3510	0.3510	146.50	99.66
	m •	22.375	0.657	0.3540	0.3510	0.3525	146.60	5. E
	r 40	25.625	0.658	0.3530	0.3510	0.3520	146.96 6.90	8 86 50 50
	AVG	<u> </u>	0.659	0.3630	0.3610	0.3520	146.62	99.74
		inches	inches	inches	inches	inches	grains	×
Notes:	iá							
-	Base Forward	nward						
8	Base Forward	nward						
~	Base Forward	orward						
4	Base Forward	orward						

Ammo Mfg.: Winchester

Date: 94 JUN 24 Bbl. Length: 4"

Per cent Retained Weight 8 8 8 8 8 8 32 8 8 8 £9.63 Bullet Type: FMJ Subsonic Match ic e Bullet Wt.: 147 grains Kinetic Energy at 20 ft.: 304.16 ft.lbs. Ammo Mfg.: Winchester 59GC3044 Retained Weight 146.50 146.80 146.50 146.50 146.48 grains 612.67 7 9.7 Lot No.: 592.00 6 9.2 0.3510 0.3520 0.3505 0.3515 0.3510 0.3512 inches **Bullet Expansion** Calibration Velocity: 5
Calibration Temp.:
Calibration penetration: 3m 25m S0m Distance 0.3500 0.3510 0.3490 0.3500 0.3500 inches Base Forward RCMP Storm Coat 3280 - 357 /87 VAC 1271 0.3520 0.3530 0.3520 0.3530 0.3524 inches 9mm Bbl. Length: 4" Gelatin Heavy Clothing X 
 Penetration
 Remaining

 Depth
 Bullet

 Length
 35.250

 27.250
 0.655

 23.750
 0.654

 24.625
 0.654

 28.250
 0.654
 Serial No.: **Test Type** Callber: 0.654 inches Chronographed Velocity at 20 ft. 94 JUN 23 975.42 967.49 978.28 954.93 AVG 965.41 N'sec 950.93 27.826 inches S&W 5943 Nose Forward Base Forward Nose Forward Base Forward Make: Model: - 2 5 4 5 Notes:

	Date:	94 JUN 24		Bbl. Length:	<u>,</u>		Ammo Mfg.:	Winchester	<b>.</b>
	Make:	S&W	Š	Serial No.:	VAC 1271	_	Bullet Wt.:	147 9	grains
	Model:	5943	S	Caliber:	9mm		<b>Bullet Type:</b>	FMJ Subsonic Match	nic Match
							Lot No.:	59GC3044	4
		Chronographed Velocity at 20 ft.	aphed t 20 ft.		•	Kinetic Ene	Kinetic Energy at 20 ft.:	304.16 R	r.lbs.
		1 950.93 2 975.42 3 967.49	6 N G		Calibratic	Calibration Velocity:	618.66	624.28	Z Sec
		4 978.28 6 954.93	<b></b>		Calibrat Calibration	Calibration Temp.: Calibration penetration:		9.6 9.6	<b>₽</b> 5
		AVG 965.41 f/sec							
			Ë	Test Type		Distance			
			g See	Gelatin Heavy Clothing		۳ پر ۳ پر			
			Ì	£			] 🗷		
		Penetration Depth		Remaining Bullet	ď	Bullet Expansion	rols	Retained	Per cent Retained
		•		Length	тах	를	g/s		Weight
	- (	24.500		0.651	0.3520	0.3510	0.3515	146.20	99.46
	M 60	23.250	- 10	9590	0.3520	0.3510	0.3515	146.60	E 86
	*	24.750		959.0	0.3530	0.3510	0.3520	146.60	89.73
	40	22 375		0.652	0.3530	0.3510	0.3520	146.40	99.59
	AVG	23.660 inches		0.664 inches	0.3526 inches	0.3508 Inches	0.3517 inches	146.44 grains	99.62
Notes:									
-	Base Forward		MP Ston	RCMP Storm Coat 3280 - 357		/8/			
8	Nose Forward	orward							
6	Base Forward	orward							
4	Base Forward	orward							
49	Nose Forward	orward							

Hand.	445	Cellal No.	177		Danel VII.		2 2 2
Model:	5943	Callber:	9mm		<b>Bullet Type:</b>	FMJ Subsonic Match	onic Match
					Lot No.:	59GC3044	7
	Chronographed Velocity at 20 ft	ped 3		inetic Free	Kinetic Frency at 20 ft :	1 16°	<u> </u>
		1			A at 60		3
	95093						
			Calibratio	Calibration Velocity:	602.12	603.28	f/sec
			Calibrati	Calibration Temp.:	9	9	ပ္
			Calibration	Calibration penetration:	-	8.8	Ę
	AVG 966.41 N'Sec						
		Test Type		Distance			ı
					×.		
		Ę			<u> </u>		
		Rib X			<b>¬</b>		
	Penetration	n Remaining	<b>B</b>	Bullet Expansion	sion	Retained	Per ce
		Length	THEX	Ë	avg		Velg
_	24.500	0.657	0.3560	0.3500	0.3530	146.30	99.5
~	21.250	0.655	0.3530	0.3500	0.3515	146.50	86
<del>د</del>	24.125	0.651	0.3540	0.3510	0.3525	146.20	86
•	21.125	0.855	0.3520	0.3500	0.3510	148.60	88
به 	24.375	0.680	0.3670	0.3530	0.3600	148.80	86
AVG	23.076 Inches	0.660 inches	0.3564 inches	0.3508 inches	0.3636 inches	146.48 grains	9. ×
							_
Nose Forward		Bone/Muscle Rib-Die	Rib-Diameter .33154625	54625			
Nose Forward	ward Bone						
Base Forward	ward Cartilage	ge Stemum					
Nose Forward	ward Bone						
Month Control		C. C					
i de la constantina della cons							
	:						
		•	Appendix page 63	e 63			

Per cent Retained Weight

Bullet Wt.: 147 grains

Serial No.: VAC 1271 Bbl. Length: 4"

94 JUN 07

 Date:
 94 JUN

 Make:
 S&W

 Model:
 5943

Ammo Mfg.: Winchester

99.52 99.99 99.73 99.73 89.86 74

grains onic Match	ths.c.c.c.m		Per cent Retained Weight 100.00	99.73				
Winches 147 FMJ Subs 59GC30	304.16 R.lbs. 614.70 Rts 7 °C 9.6 crr		Retained Weight	146.60 146.85 grains	ches			
Ammo Mfg.: Bullet Wt.: Bullet Type: Lot No.:	Kinetic Energy at 20 ft.: lon Velocity: 615.84 ton Temp.: 7 n penetration: 9.7		avg avg	0.3510 0.3510	Rib Diameter ,3390 - ,3720 inches			
·	Kinetic Ener Calibration Velocity: Calibration Penetration:	Distance 3m 25m X	Bullet Expansion min a	0.3490 0.3496 inches	Diameter .3.			
4" VAC 1271 9mm	Calibrati Calibra Calibratio			0.3530 0.3626 inches		ģ	vered	
Bbi. Length: Serial No.: Callber:	70 25	Test Type Gelatin Heavy Clothing	Remaining Bullet Length 0.658	0.686 0.872 inches	is Not Reco	Not Recovered	s Not Recovered	<b>6</b> 3 <b>6</b> 3
94 JUN 22 S&W 5943	Chronographed Velocity at 20 ft. 1 950.93 2 975.42 3 967.49 6 954.93 6 954.93 Avg 986.41 ftsec	ž	Penetration Depth 32.000 32.000 32.000 27.000	23.750 29.360 inches	Cartilage through blocks Not Recovered	Bone through blocks	Cartilage through blocks	ard Cartilage ard Cartilage
Date: 9 Make: S Model: 5	0>		- 0 m <del>4</del>	5 AVG		Bone thn	Cartilage	Nose Forward Nose Forward
					Notes:	8	m	4 0

Date:	94 MAY 03	Bbl. Length: 9"	<b>.</b> 66	Ammo Mfg.:	Winchester
Make:	H&K	Serial No.:	C315857	Bullet Wt.:	Bullet Wt.: 115 grains
Model:	MP5	Callber:	9mm	Bullet Type:	ullet Type: Silvertip HP
				Lot No.:	26DH3276

Bullet Wt.: 115 grains Bullet Type: Silvertip HP Ammo Mfg.: Winchester

> C315857 9тт

Bbi. Length: 9
Serial No.: 0
Caliber: 9

Date: 94 MA
Make: H&K
Model: MP5

ō

94 MAY 16

Lot No.: 26DH3276

ate:	94	94 MAY 03	Bbl. Length:	.6	Ammo Mfg.: Winchester	Winches	ter	
ake:	ISK	L	Serial No.:	C315857	Bullet Wt.:	115	grains	
del:	MP5	5	Callber:	9mm	Bullet Type:	Silvertip HP	HP	
					Lot No.:	26DH3276	92	
	ا ق	Chronographed	1					
	Ş	Velocity at 20 ft.	<b>!</b> ≓	Kinetic Ene	Kinetic Energy at 20 ft.:	445.67	f.lbs.	
	-	1318.57						
	~	1346.62						
	m	1324.50		Calibration Velocity:	595.66	600.46	f/sec	
	4	1305.14		Calibration Temp.:	ø	60	ပ္	
	ю	1311.30		Calibration penetration:	6:9	9.0	E	
	¥	AVG 1321.23						
		f/sec						

ı								
	Per cent Retained	Weight	64.01	59.30	66.02	59.84	69.10	63.66
	Retained Welght	)	73.61	68.20	75.92	68.82	79.47	73.20 grains
• BUU	slon	avg	0.5638	0.5103	0.5218	0.5015	0.5620	0.5319 enches
Distance 3m   x   25m   50m	Bullet Expansion	ᄪ	0.5235	0.4895	0.4880	0.4585	0.4840	0.4887 inches
	•	Тах	0.6040	0.5310	0.5555	0.5445	0.6400	0.5750 inches
Test Type Gelatin 🗵 Heavy Clothing 🗌 Rib	Remaining Bullet	Length	0.466	0.312	0.539	0.530	0.463	0.462 inches
¥	Penetration Depth		10.000	9.625	10.000	9.875	10,375	9.975 inches
			-	7	e	•	40	AVG

Core & Jacket
Heavy Fragmentation
Sideways
_

Notes:

- Sideways Heavy Fragmentation Core & Jacket
- Nose Forward Heavy Fragmentation Core & Jacket
- Nose Forward Heavy Fragmentation Core & Jacket
- Sideways Heavy Fragmentation Core & Jacket

	Chronographed Velocity at 20 ft.	نو ہ	_	(inetic Ener	Kinetic Energy at 20 ft.:	445.67 ft.lbs.	f.lbs.
	1 1318.57						
	2 1346.62			:		;	i
	3 1324.50		Calibratic	Calibration Velocity:	96.009	601.47	28ec
	5 1311.30		Calibration	Calibration penetration:	9 6 8:0	9.7	ع د
•	AVG 1321.23						
		Test Type		Distance			1
		Gelatin		Ę,			
	Ī	Heavy Clothing		25m 50m x			
	Penetration	Remaining	ã	Bullet Expansion	Log	Retained	Per cent
	Depth	Bullet				Weight	Retained
		Length	max	를	DÎ/R		Weight
-	11,750	0.297	0.6450	0.4470	0.5460	82.70	71.91
7	8.875	0.292	0.7470	0.6740	0.7105	115.30	100.00
ო	7.375	0.295	0.7880	0.6810	0.7345	114.00	99.13
4	9:000	0.290	0.7090	0.6660	0.6875	114.50	99.57
10	8.875	0.308	0.7630	0.6530	0.7080	114.30	86 86
AVG	9.176	0.297	0.7304	0.6242	0.6773	108.16	2.00
	1						

# Notes:

- Sideways Jacket Fragmentation Core
- Sideways
- Sideways Jacket Fragmentation
- Sideways Jacket Fragmentation
- Sideways Jacket Fragmentation

Appendix page 66

Õ	Date:	94 MAY 03	Bbl. Length:	<b>.</b> 60		Ammo Mfg.:	Winchester	je,
ž	Make:	H&K	Serial No.:	C315857		Bullet Wt.:	115	grains
¥	Model:	MP5	Callber:	9mm		<b>Bullet Type:</b>	Silvertip HP	4
						Lot No.:	26DH3276	9.
		Chronographed	<b>7</b> t	-		· * Co	1	1
		velocity at £0	<u>.</u>	-		<b>y</b> at 20 ft.		Ś
		2 1346.62						
		3 1324.50		Calibratic	Calibration Velocity:	295.66	600.46	ft/sec
		4 1305.14		Calibrat	Calibration Temp.:	8	9	ပ္
		6 1311.30		Calibration	Calibration penetration:	6.8	0.6	СM
		AVG 1321.23 fVsec						
			Took Time		0[665			l
			lest type		2			
			Gelatin		3m	_		
		I	Heavy Clothing X		25m	_		
			₽		- w05			
			- delease	å	Colored Cycles	-	Definition	9
		Depth		Ś	e reference	<u> </u>	Weight	Retained
-		,	Length	Max		avg		Weight
	-	8.750	0.361	0.7120	0.6490	0.6805	112.49	97.82
	7	11.375	0.416	0.6035	0.5465	0.5750	106.48	92.59
	m	10.500	0.389	0.5950	0.4870	0.5410	89.65	77.96
	4	10.125	0 393	0.6350	0.5945	0.6148	116.51	100.00
	10	8.500	0.460	0.7190	0.6445	0.6818	112.96	98.23
	. !							
	AVG	9.860 Inches	0.404 Inches	0.6629 inches	U. 5843	0.6186 inches	97.707	25.52
Notes:								
S	Sideways		Jacket Fragmentation RCMP Storm Coat 3250-105 Nov/87	MP Storm (	oat 3250-	105 Nov/87		
S	Sideways		Core & Jacket Fragmentation	5				
ž	Nose Forward		Core & Jacket Fragmentation	ntation				
ž	Nose Forward	ward						
ž	Nose Forward		Core & Jacket Fragmentation	ntation				

	Date:	94 MAY 18	Bbl. Length:	<b>.</b> 6		Атто Mfg.:	Winchester	fer
	Make:	H&K	Serial No.:	C315857		Bullet Wf.	115	Grains
		MP5	Callber	mm <sub>6</sub>		Bullet Type:	g,	H.
						Lot No.:	26DH3276	92
	-	Chronographed Velocity at 20 ft.	요	<b>x</b>	(inetic Ene	Kinetic Energy at 20 ft.:	445.67 ft.lbs.	f.lbs.
				Calibratio	Calibration Velocity:	599.88	605.62	fVsec
	-	4 1305.14 5 1311.30 Avg 1321.23 f/sec		Calibration	Calibration Temp.: Calibration penetration:	9 89 9 6	6 0.01	ပ္ ဦ
			Test Type		- Siefaig			1
		Í	Geletin Geletin Rib		% % % % % % % % % % % % % % % % % % %			
		Penetration Depth	Remaining Bullet	76	Bullet Expansion	ion	Retained	Per cent Retained
		•	Length	max	ᄪ	avg	•	Weight
	-	10.250	0.303	0.6645	0.5810	0.6228	114.20	99.30
	~ ~	10.250	0.338	0.6375	0.5910	0.6143	114.60	88 89 89 89 89 89 89 89 89 89 89 89 89 8
	•	10,000	0369	0.6390	0.5935	0.6/30	114.80	99.53
	ю.	9.750	0.334	0.6875	0.5965	0.6420	116.50	100.00
	AVG	9.776 inches	0.329 inches	0.6690 inches	0.6994 inches	0.6342 inches	114.88 grains	99.63
Notes:	u							
-	Sideways	: Jacket Fragmentation		RCMP Storm Coat		3250-105 Nov/87		
8	Sideways	. Jacket Fragmentation	mentation					
٣	Sideways	Jacket Fragmentation	mentation					
•	Sideways	Jacket Fragmentation	mentation					
50	Sideways							

Caliber:   9mm   Bullet Wt.   115   grain		Date:	94 JUN 06	Bbl. Length:	, 6	٩	Ammo Mfg.:	Winchester	iter
Chronographed			H&K	Serial No.:	C315857		Bullet Wt.:	115	grains
Chronographed			MP5	Callber:	9mm		<b>3ullet Type:</b>	Silvertip	HP
Chronographed	]						Lot No.:	26DH32	92
1318.57   1318.57   2 1346.52   2 1346.52   2 1346.52   2 1346.52   2 1346.52   3 1324.50   Calibration Velocity: 594.04   599.38   Ft. 448.87   Ribs.   1331.30   Calibration penetration: 8.9   9.1   cn   6   1311.30   Calibration penetration: 8.9   9.1   cn   6   Calibration penetration: 8.9   9.1   cn   6   Calibration Major fragmentation: 8.9   9.1   cn   Calibration: 9.9   9.1   calibration: 9.9   0.1   0			Chronographe	5					
1318.57   1318.57   1324.62   1346.62   1305.14   1305.14   Calibration Penetration: 8.9   9.1   cn			Velocity at 20	: <del>L</del>	Kin	etic Energ	3y at 20 ft.:	446.67	f.lbs.
2 1346.62 3 1324.50 Calibration Velocity: 594.04 599.38 ftv. 1305.14 4 1305.14 Avc 1321.23									
1302.14   Calibration Velocity: 594.04   599.38 ftv									
1305.14   Calibration Temp.: 6   6   Calibration Penetration: 8.9   9.1   calibration: 8.9   9.1   calibration Penetration: 8.9   9.1   calibration: 8.9   6.1   calibration: 8.9   9.1   calibration: 8.9			3 1324.50		Calibration V	'elocity:	594.04	599.38	ft/sec
Note   1311.30   Calibration penetration: 8.9   9.1   cn			4 1305.14		Calibration	Temp.:	9	ဖ	ပ္
Test Type   Distance     Column   Col					Calibration per	netration:	8.9	<del>1</del> .	Æ
Test Type   Distance									
Heavy Clothing   25m   3m   K				Test Type	٥	Istance			1
Penetration   Remaining   Som				Gelatin					
Penetration   Remaining   Bullet Expansion   Weight   Weight   Depth   Bullet   max   min   avg   Weight   Length   max   min   avg   Weight   Length   max   min   avg   68.90   0.5300   0.5100   0.5240   68.90   0.7270   0.4000   0.6035   68.90   0.7270   0.4000   0.6035   0.7270   0.4000   0.6035   0.6000   0.7270   0.530			Ī	eavy Clothing					
Penetration   Remaining   Bullet Expansion   Weight   Weight   Depth   Bullet   max min avg   Weight   Length   max min avg   S250   0.410   0.5390   0.5100   0.5240   68.90   0.375   0.0452   0.7270   0.4800   0.6035   89.20   4   10.750   0.335   0.5800   0.5400   0.5405   0.4010   0.5405   0.64						 ₽			
Depth   Bullet   max min avg   Weight			Penetration		Buffe	Expans	5	Retained	Percent
1   9.250   0.410   0.5380   0.5100   0.5240   68.90     2   8.625   0.440   0.5380   0.5100   0.5240   68.90     3   9.875   0.482   0.7270   0.4800   0.6035   68.20     4   10.750   0.385   0.5890   0.5070   0.5530   78.00     5   9.375   0.403   0.5004   0.4990   0.5497   88.40     AVG   8.576   0.403   0.5004   0.4990   0.5497   88.72     Inches   Inches   Inches   Inches   Inches   Inches   grains     Sideways   Jacket   Core   Rib diameter   3423845   Separation   Major fragmentation   B.			Depth					Weight	
1   9.250   0.410   0.5380   0.5100   0.5240   68.90     2   8.625   0.482   0.7270   0.4800   0.6035   89.20     3   9.875   0.375   0.6660   0.4910   0.5495   104.10     4   10.750   0.385   0.5890   0.5070   0.5530   78.00     5   9.375   0.385   0.5320   0.5070   0.5195   88.40     AVG   9.576   0.403   0.5004   0.4990   0.5497   98.72     Sideways Jacket Core Rib diameter .3423945   Separation Major fragmentation Bo				Length	max		D\4		Weight
2         8.625         0.462         0.7270         0.4800         0.8035         89.20           3         9.875         0.375         0.6660         0.4910         0.5485         104.10           4         10.750         0.385         0.5890         0.5070         0.5300         78.00           AVG         9.576         0.403         0.5320         0.5070         0.5195         88.40           Inches         Inches         Inches         Inches         Inches         Inches         gath           Sideways         Jacket         Core         Rib diameter         3423945         Separation         Major fragmentation Bo		-	9.250	0.410		0.5100	0.5240	68.90	59.91
3 9.875 0.375 0.6060 0.4910 0.5495 104.10 4 10.750 0.385 0.5890 0.5070 0.5530 78.00 5 9.375 0.385 0.5890 0.5070 0.5195 88.40  AVG 8.576 0.403 0.6004 0.4990 0.5897 88.72  Inches		~	8.625	0.482		0.4800	0.6035	89.20	77.57
4         10.750         0.385         0.5890         0.5070         0.5530         78.00           5         9.375         0.365         0.5320         0.5070         0.5195         88.40           AVG         9.576         0.403         0.6004         0.4990         0.6487         86.72           inches         inches         inches         inches         inches         grains           Sideways         Jacket         Core         Rib diameter         3423945         Separation         Major fragmentation Bo		<u>س</u>	9.875	0.375		3.4910	0.5485	104.10	90.52
AVG         9.375         0.365         0.5320         0.5070         0.5195         88.40           AVG         9.576         0.403         0.8004         0.4990         0.6897         86.72           Inches         Inches         Inches         Inches         Inches         Inches         grafts           Sideways         Jacket         Core         Rib diameter         3423945         Separation         Major fragmentation Bo		•	10.750	0.385		5070	0.5530	78.00	67.83
AVG 9:576 0.403 0.8004 0.4990 0.6487 86.72 grafts inches inches inches inches inches grafts grafts Sideways Jacket Core Rib diameter 3423945 Separation Major fragmentation Bost Sideways Jacket Core Separation Major fragmentation Muscle		s.	9.375	0.365		0.5070	0.5195	88.40	76.87
Sideways Jacket Core Rib diameter 342 - 3945 Separation Major fragmentation Bone Schaways Lacket Core Separation Major fragmentation Bone		AVG	9.676	0.403		4990	0.6497	86.72	75.52
Sideways Jacket Sideways Jacket			inches	inches		inches	inches	grains	*
Jacket	S								
lacket Core Separation		Sideway	Jacket	re Rib diameter	.3423945	Separat	ion Majorfi	ragmental	tion Bone
		Sideway	Jacket			entation	Muscle		

_ •	Chronographed Velocity at 20 ft.	모본	¥	Inetic Ener	Kinetic Energy at 20 ft.:	445.67 ft.lbs.	i:lbs
	1 1318.57						
	2 1346.62		;		į		
	3 1324.50		Calibratic	Calibration Velocity:	603.72	288.82	fl/sec
	4 1305.14		Calibrati	Calibration Temp.:	S.	S)	ပ္
	6 1311.30		Calibration	Calibration penetration:	9.7	8.2	Ę
•	AVG 1321.23 f/sec						
							ı
		Test Type		Distance			
		Gelatin		Æ			
	Ī	Heavy Clothing		 25m			
		Rib		× ×	_		
	Penetration	ž	æ	Bullet Expansion	5	Retained	
	5	Length	Max	Ē	avg		Weight
-	8.875	0.285	0.7040	0.6580	0.6810	114.30	98.38
8	10.750	0.239	0.7360	0.6100	0.6730	106.00	92.17
m	7.875	0.264	0.8000	0.6310	0.7155	107.60	93.57
4	8.250	0.222	0.7430	0.6690	0.7060	113.60	98.78
60	6.875	0.255	0.7610	0.6800	0.7205	106.60	92.70
AVG	8.626	0.263	0.7488	0.6496	0.6992	109.62	96.32
	inches	Inches	inches	inches	inches	Granos	*

Bullet Wt.: 115 grains
Bullet Type: Silvertip HP

C315857

Bbl. Length: Serial No.: Caliber:

> Make: H&K Model: MP5

ő

94 JUN 08

Date:

9mm

Ammo Mfg.: Winchester

26DH3276

Lot No.:

### Notes:

- 1 Sideways Jacket Fragmentation Muscle Rib Diameter .3325-.3330 inches
- 2 Nose Forward Jacket Fragmentation Bone/Muscle
- Sideways Jacket Fragmentation Bone

Sideways Jacket Core Separation Major fragmentation Bone

Sideways Core Fragmentation Muscle Sideways Core Fragmentation Bone

- 4 Sideways Jacket Fragmentation Cartilage
- Sideways Major Jacket Fragmentation Bone

grains Kinetic Energy at 20 ft.: 389.86 ft.lbs. 22C9593 598.66 7 9.8 Ammo Mfg.: Federal Bullet Wt.: 115 Bullet Type: JHP Lot No.: 596.45 7 9.7 Calibration Velocity: Calibration Temp.: Calibration penetration: C315857 9mm Bbl. Length: 9" Serial No.: Caliber: Chronographed Velocity at 20 ft. AVG 1235.73 fVsec 1 1340.84 2 1239.16 3 1248.75 4 1187.93 94 APR 20 **5** 1161.98 H&K Model: MP5 Make: Date:

grains

Bullet Wt.: 115 Bullet Type: JHP Lot No.:

C315857

Ġ

Bbl. Length: Serial No.:

94 MAY 16

9mm

Caliber:

Make: H&K Model: MP5

Ammo Mfg.: Federal

22C9593

Distance	3m ×	25m 🗌	
Test Type	Gelatin	Heavy Clothing	Rib 

	Penetration	Remaining	<b>.</b>	ullet Expansion	sion	Retained	Per cent Retained
			Tax	를	gva		Weight
-	13.000	0.229	0.4890	0.4575	0.4733	65.89	57.30
7	10.625	0.284	0.5305	0.4950	0.5128	69.28	60.24
<b>m</b>	12.000	0.250	0.4890	0.4690	0.4790	66.82	58.10
4	12.750	0.252	0.5460	0.4565	0.5013	68.51	59.57
40	12.750	0.284	0.5005	0.4555	0.4780	73.91	64.27
AVG	12.226	0.260	0.5110	0.4667	0.4889	68.88	69.90
	Inches	inches	Inches	inches	inches	e ciento	¥

# Notes:

- Sideways Jacket Fragmentation & Core
- Sideways Heavy Jacket Fragmentation & Core

	Penetration	E.	ď	<b>3ullet Expansion</b>	slon	Retained	Per cent Retained
			T ax	重	avg		Weight
-	13.000	0.229	0.4890	0.4575	0.4733	65.89	57.30
7	10.625	0.284	0.5305	0.4950	0.5128	69.28	60.24
m	12.000	0.250	0.4890	0.4690	0.4790	66.82	58.10
4	12.750	0.252	0.5460	0.4565	0.5013	68.51	59.57
40	12.750	0.284	0.5005	0.4555	0.4780	73.91	64.27
AVG	12.225 inches	0.260 inches	0.5110 inches	0.4667 inches	0.4889 inches	68.88 grains	69.90

- Sideways Jacket Fragmentation & Core
- Nose Forward Jacket Fragmentation & Core
- Sideways Jacket Fragmentation & Core

<b>U</b> >	Chronographed Velocity at 20 ft.	호선		Kinetic Energy at 20 ft.:	gy at 20 ft.:	389.86	n.ibs.	
	1 1340.84							
	3 1248.75		Calibrati	Calibration Velocity:	609 16	603 94	#/sac	
	4 1187.93		Calibra	Calibration Temp.:	<b>6</b>	ø	ပ္	
	6 1161.98		Calibration	Calibration penetration:	10.0	9.5	Æ	
<	AVG 1235.73 N/sec							
		Test Type		Distance			1	
		Gelatin		Æ				
	Ĭ	Heavy Clothing		25m				
	Penetration	Remaining	60	Bullet Expansion	Ę.	Retained		<b>*</b> 3
		Length	max	Ë	avg		Weight	2 -
_	10.750	0.305	0.6500	0.6250	0.6375	107.60	93.57	_
~	9.500	0.374	0.6710	0.6470	0.6590	112.30	97.65	
<b>ش</b>	10.875	0.344	0.6760	0.6340	0.6550	107.20	93.22	
•	10.000	0.293	0.6710	0.6220	0.6465	105.10	91.39	
s.	10.000	0.399	0.8500	0.6250	0.6375	109.00	<b>2</b>	
 	10.226	0.343	0.6636	0.6306	0.6471	108.24	<b>8</b> .12	1
	inches	inches	inches	inches	inches	grains	*	

### Notes:

- Sideways Jacket Fragmentation

145ec grains Kinetic Energy at 20 ft.: 389.86 ft.lbs. 22C9593 Ammo Mfg.: Federal 598.66 7 9.8 Bullet Wt.: 115 Bullet Type: JHP Lot No.: 596.45 7 9.7 Calibration Velocity: Calibration Temp.: C315857 mm6 Bbl. Length: Serial No.: Callber: Chronographed Velocity at 20 ft. 1239.16 1248.75 1187.93 94 APR 20 1 1340.84 MP5 Model: Make:

Distance 3m 25m 50m Heavy Clothing X Rib Gelatin Test Type

Calibration penetration:

AVG 1235.73 N'sec

5 1161.98

Per cent Retained Weight 79.30 70.04 68.03 85.61 69.10 74.42 Retained Weight 79.47 91.20 80.55 78.24 98.45 86.68 grains 0.4913 0.5148 0.5208 inches **Bullet Expansion** 0.4540 0.4540 0.4690 0.4640 0.5475 0.4789 inches 듣 0.4945 0.5755 0.5470 0.5185 0.6775 0.6626 inches Penetration Remaining
Depth Bullet
Length 0.463 0.425 0.281 0.295 0.432 0.379 inches 13.500 13.750 13.250 13.500 13.350 inches - 2 5 4 5

Notes:

Base Forward Jacket Fragmentation RCMP Storm Coat 3280-209

Sideways Jacket Fragmentation

Sideways Jacket Fragmentation

Nose Forward Jacket Fragmentation

Sideways Jacket Fragmentation

ic ec grains 389.86 ft.lbs. 22C9593 Ammo Mfg.: Federal 599.66 7 9.5 Bullet Wt.: 115 Bullet Type: JHP Kinetic Energy at 20 ft.: Lot No.: 596.52 7 9.3 Calibration penetration: Calibration Velocity: Calibration Temp.: C315857 mm6 ö Bbl. Length: Serial No.: Caliber: Chronographed Velocity at 20 ft. 94 MAY 18 AVG 1235.73 fVsec 1 1340.84 2 1239.16 3 1248.75 4 1187.93 5 1161.98 H&K MP5 Model: Make:

	Penetration	Remaining	ā	Bullet Expansion	slon	Retained	Per cent
		Length	тах	重	avg		Weight
-	9.625	0.339	0.6465	0.6075	0.6270	113.10	98.35
7	10.250	0.452	0.6330	0.5890	0.6110	116.30	100.00
က	9.375	0.284	0.6620	0.6235	0.6428	113.90	99.04
4	9.500	0.276	0.6825	0.6070	0.6448	115.10	100.00
10	9.500	0.280	0.6555	0.6135	0.6345	114.80	99.83
AVG	9.660 inches	0.326 inches	0.6569 inches	0.6081 inches	0.6320 inches	114.64 grains	99.44 4

25m ×

Gelatin
Heavy Clothing X
Rib

Distance

Test Type

Notes:

Nose Forward Jacket Fragmentation RCMP Storm Coat 3250-105 Nov/87

Nose Forward

Nose Forward Jacket Fragmentation

Nose Forward

Sideways

grains Ammo Mfg.: Federal Bullet Wt.: 115 Bullet Type: JHP C315857 Bmm Bbl. Length: Serial No.: Callber: 94 JUN 06 MP5 Model: Make: Date:

22C9593 Lot No.:

Kinetic Energy at 20 ft.: 594 04 8.9 Calibration penetration: Calibration Velocity: Calibration Temp.: Chronographed Velocity at 20 ft. 1 1340.84 2 1239.16 3 1248.75 4 1187.93 AVG 1235.73 NSec 5 1161.98

389.86 ft.lbs.

\$ 0 E

599.38 6 9.1

× □ □ Distance Heavy Clothing Test Type Gelatin

Per cent Retained Weight 64.52 88.17 62.61 58.09 76.78 70.03 Retained Weight 74.20 101.40 72.00 68.80 88.30 90.64 share 0.4915 0.5590 0.4470 0.5780 0.5920 0.6335 inches **Bullet Expansion** 0.4680 0.4840 0.4340 0.5290 0.4320 0.4694 inches 0.5150 0.6340 0.4600 0.6270 0.7520 0.6976 inches Penetration Remaining
Depth Bullet
Length 0.218 0.225 0.241 0.156 0.208 0.210 inches 11.750 11.125 14.000 7.875 12.000 11.350 inches - 20 4 40

### Notes:

- Nose Forward Jacket Fragmentation Bone Rib diameter 3421 3945
- Sideways Major Jacket & Core Fragmentation Bone
- Sideways Major Jacket & Core Fragmentation Muscle
- Sideways Major Jacket & Core Fragmentation Bone
- Sideways Major Jacket & Core Fragmentation Bone

Make:					<b>D</b>	5		
	H&K	Serial No.:	C315857		Bullet Wt.:	115	grains	
Model:	MP5	Callber:	9mm		Bullet Type:	JHP		
					Lot No.:	22C9593	ω.	
	Chronographed	₽.	,					
	VERUCITY AT AV IL	2	•	meuc cher	nineuc chergy at 20 ft.	389.86 T.IDS.	T.IDS.	
	1 1340.84							
	2 1239.16							
	3 1248.75		Calibratio	Calibration Velocity:	603.72	589.95	f/sec	
	4 1187.93		Calibrati	Calibration Temp.:	ıo	2	ပ္	
	5 1161.98		Calibration	Calibration penetration:	9.7	9.2	E	
	1							
	AVG 1236./3 f/5ec							
		Test Type		Distance		, i	Ī	
				,				
	1	Geleffin Leans Chapter		_  L	<b>-</b>			
	•	The state of the s						
					_			
	Penetration	Remaining	] <b>76</b>	Bullet Expansion	5	Retained	Per cent	1
	Depth					Weight	_	8
		Length	Max	드	avg	,	Weight	Ξ
_	8.000	0.299	0.6540	0.6060	0.6300	109.50	95.22	~
7	9.500	0.266	0.6670	0.6220	0.6445	105.20	91.48	_
m	9.625	0.232	0.6310	0.5960	0.6135	105.00	91.30	_
4	10.000	0.295	0.6180	0.5430	0.5805	98.30	85.48	_
<b>10</b>	10.375	0.274	0.6510	0.5410	0.5960	00.66	86.09	_
AVG	9.600	0.273	0.6442	0.5816	0.6129	103.40	89.91	l_
	1	4.1		and ord	-		-	

### Notes:

- Sideways Bone Rib Diameter 3875 3870 inches
- Sideways Jacket Fragmentation Cartilage
- Nose Forward Jacket Fragmentation Bone
- Sideways Jacket & Core Fragmentation Bone
- Sideways Jacket Fragmentation Bone

Per cent Retained Weight 32.88 44.89 15.89 86.89 99.06 99.81 **36** ℃ E grains ELD9SFB054 Bullet Type: Starfire JHP Kinetic Energy at 20 ft.: 399.49 ft.lbs. Retained Weight 612.52 6 9.5 122.22 122.06 123.76 122.37 123.76 122.83 Ammo Mfg.: PMC Bullet Wt.: 124 Lot No.: Calibration Velocity: 614.55 Calibration Temp.: 6 Calibration penetration: 9.8 0.7145 0.7275 0.7495 0.7180 0.6625 0.7144 inches **Bullet Expansion** 3m Z5m S0m Distance 0.6804 inches 0.6900 0.6720 0.6890 0.6990 0.6520 C315857 0.7390 0.7830 0.8100 0.7370 0.6730 0.7484 inches mm6 ģ Bbl. Length: Gelatin X Heavy Clothing Penetration Remaining
Depth Bullet
Length Serial No.: Test Type 0.310 0.282 0.243 0.276 0.333 inches Caliber: Sideways Jacket Fragmentation Sideways Jacket Fragmentation Sideways Jacket Fragmentation Sideways Jacket Fragmentation Chronographed Velocity at 20 ft. 1 1150.75 2 1201.35 3 1218.03 4 1224.29 5 1228.80 AVG 1204.64 fVsec 94 APR 27 9.750 9.000 9.375 9.750 9.750 inches Make: H&K Model: MP5 Sideways Date: Notes:

	0 >	Chronographed Velocity at 20 ft.	ا ج	•	Kinetic Energy at 20 ft.:	gy at 20 ft.:	399.49 ft.lbs.	r.lbs
		1 1150.75						
	.,	2 1201.35						
	•	3 1218.03		Calibration	Calibration Velocity:	617.44	604.08	fl/sec
	•	4 1224.29		Calibrat	Calibration Temp.:	9	9	ပ္
	•	6 1228.80		Calibration	Calibration penetration:	8.8	9.7	E
	₹	AVG 1204.64 f/sec						
								,
			Test Type		Distance			
			Gelatin		Ę			
		Ĩ	2					
			<b>₽</b>		× ×			
		Penetration	Remaining	ď	Bullet Expansion	LO CO	Retained	Per cent
			Length	max	Ę	avg		Weight
	-	10.375	0.383	0.7450	0.6100	0.6775	122.60	98.87
	8	11,000	0.378	0.6710	0.6350	0.6530	125.00	100.00
	m	11.375	0.371	0.8380	0.6340	0.7360	123.70	99.76
	4	11.250	0.358	0.6560	0.5780	0.6170	123.50	98.60
	40	11.375	0.388	0.8070	0.6060	0.7065	122.90	11.66
	AVG	11.076	0.376	0.7434	0.6126	0.6780	123.64	99.47
		inches	inches	Inches	inches	inches	grains	*
Notes:								
-	Sideways	Jacket Fragmentation	nentation					
~	Sideways	Jacket Fragmentation	nentation					
e	Sideways	Jacket Fragmentation	nentation					
•	Sideways							
ĸ	Nose Forward	ard						

grains

C315857 9mm

Bbl. Length: Sertal No.: Callber:

94 MAY 16

H&K MP5

Make: Model: Date:

Ammo Mfg.: PMC Bullet Wt.: 124 Bullet Type: Starfire JHP

Date: 94 APR 27 Bbl. Length: 9" Ammo Mfg.: PMC
Make: H&K Sertal No.: C315857 Bullet Wt.: 124 grains
Model: MP5 Callber: 9mm Bullet Type: Starfire JHP
Lot No.: ELD9SFB054

399.49 ft.lbs.				ပ္	Ę	
			593.75	9	8.8	
gy at 20 ft.:			599.74	9	0.6	
Kinetic Energy at 20 ft.:			Calibration Velocity:	Calibration Temp.:	Calibration penetration:	
Chronographed Velocity at 20 ft.	1150.75	1201.35	1218.03	1224.29	1228.80	1204.64 fVsec
Chre	-	~	ຕ	•	<b>w</b>	AVG

Distance	3m (x	25m 🗌	
Test Type	Geletin	Heavy Clothing x	- <del>2</del>

Distance
3m 
25m 
50m ×

Test Type
Gelatin
Heavy Clothing X
Rtb

	Denetretion	Demeining	ā	Rullet Expansion	Ş	Carteta	Der cent
	Depth	Butlet	5			Weight	Retained
	•	Length	max	Ē	avg	)	Weight
-	10.750	0.354	0.7420	0.6070	0.6745	123.76	18.66
~	10.250	0.434	0.6870	0.6540	0.6705	123.76	18.98
m	10.500	0.379	0.6590	0.6370	0.6480	122.37	69.86
4	11.000	0.381	0.6880	0.8040	0.6460	123.14	99.31
45	11.000	0.439	0.6970	0.6160	0.6565	124.22	100.00
AVG	10.700	0.397	0.6946	0.6236	0.6591	123.46	99.62
	nches	inches	inches	inches	inches	grains	*

# Notes:

- Sideways Jacket Fragmentation RCMP Storm Coat 3250-105 Nov/87
- 2 Sideways Jacket Fragmentation
- 3 Nose Forward Jacket Fragmentation
- 4 Sideways Jacket Fragmentation
- Nose Forward Jacket Fragmentation

Date:	94 MAY 18	Bbl. Length:	.6	Ammo Mfg.: PMC	PMC	
Make:	H&K	Serial No.:	C315857	Bullet Wt.: 124	124	grains
Model:	MP5	Caliber:	9mm	Bullet Type: Starfire JHP	Starfire	JHP
				Lot No.:	ELD9SFB054	B054
	Chronographed Velocity at 20 ft.	<b>19</b> 52	Kinetic Energy at 20 ft.:	1) at 20 ft.:	399.49 n.lbs.	r. Ibs.
	1 1150.75					
	3 1218.03		Calibration Velocity:	596.52	599.66	ft/sec
	4 1224.29		Calibration Temp.:	7	7	ပ္
	6 1228.80		Calibration penetration:	9.3	9.5	£
	AVG 1204.64					

	Penetration	Remaining	65	<b>3ullet Expansion</b>	you	Retained	Per cen
	Ē.	Length	max	ų.	gve	Meign	Weight
-	11,000	0.385	0.7110	0.5840	0.6475	125.40	100.00
7	10.875	0.322	0.6610	0.5800	0.6205	124.00	100.00
<b>m</b>	11.125	0.389	0.6780	0.6010	0.6395	123.90	99.92
4	11.500	0.329	0.7005	0.6040	0.6523	125.20	100.00
10	10.625	0.323	0.7175	0.5880	0.6528	125.00	100.00
AVG	11.025	0.362	0.6936	0.5914	0.6426	124.70	88.66
	inches	inches	inches	inches	inches	grains	

- 1 Sideways RCMP Storm Coat 3250 105 Nov/87
- 2 Sideways Jacket Fragmentation
- 3 Sideways
- Sideways
- Sideways

rs Cir grains ELD9SFB054 Bullet Type: Starfire JHP Kinetic Energy at 20 ft.: 399.49 ft.lbs. 604.15 Sideways Core Fragmentation Bone/Muscle Rib Diameter .3420 - .3945 inches Bullet Wt.: 124 o <u>r</u> Ammo Mfg.: PMC Lot No.: 601.25 Calibration Temp.: 6 Calibration penetration: 9.1 Calibration Velocity: Distance 25m 50m C315857 mm6 ò Bbl. Length: Gelatin Heavy Clothing X Serlal No.: Test Type Gelatin Caliber: Chronographed Velocity at 20 ft. 1 1150.75 2 1201.35 3 1218.03 4 1224.29 6 1228.80 AVG 1204.64 f//sec 94 JUN 06 H&K MP5 AVG Model: - 25 57 45 Make: Notes:

7. C. C.

599.95 5 9.2

603.72 5 9.7

Calibration penetration: Calibration Velocity: Calibration Temp.:

AVG 1204.64

6 1228.80

Distance
3m 25m X

Gelatin
Heavy Clothing
Rib
X

Test Type

grains

C315857 9mm

Caliber:

Bbl. Length: Serial No.:

94 JUN 08

ISK MP5

Model: Make:

Ammo Mfg.: PMC Bullet Wt.: 124 ELD9SFB054

Lot No.:

Bullet Type: Starfire JHP

Kinetic Energy at 20 ft.: 399.49 ft.lbs.

Chronographed Velocity at 20 ft.

1 1150.75 2 1201.35 3 1218.03 4 1224.29

enetration Depth	Remaining	Đ	Bullet Expansion	slon	Retained	Per cent
	Length	max	Ē	gve		Weight
8 500	0.345	0.8700	0.6250	0.7475	112.90	91.05
8.625	0.307	0.7960	0.7240	0.7600	124.10	100.00
9.250	0.346	0.7110	0.6620	0.6865	125.20	100.00
8.750	0.328	0.6710	0.6410	0.6580	103.60	83.55
9.125	0.458	0.7400	0.7040	0.7220	125.70	100.00
8.850	0.367	0.7676	0.6712	0.7144	118.30	94.92
enches	mches	5000	#CDes	100 PE		¢

- Nose Forward Bone
- Sideways Muscle
- Sideways Muscle
- Nose Forward Bone

		Penetration	Remaining	ď	Bullet Expansion	slon	Retained	Per cent
		5	Length	Max X	Ē	gvs.	Meign	Weight
	-	10.250	0.359	0.7470	0.6490	0.6980	125.10	10000
	7	9.250	0.356	0.6950	0.6020	0.6485	123.30	99.44
	е	10.625	0.385	0.6310	0.8050	0.6180	124.90	100.00
	•	9.625	0.325	0.7330	0.6320	0.6825	123.90	99.92
	10	10.000	0.390	0.7150	0.6210	0.6680	122.90	11.66
	AVG	9.960	0.363	0.7042	0.6218	0.6630	124.02	89.68
		Inches	inches	Inches	inches	inches	grains	*
Notes:	••							
-	Sideways	Bone/Cartilage		Rib Diameter .38753870 inches	. 3870 inch	es		
7	Sideways	Bone/Muscle						
<b>6</b>	Sideways	Bone/Cartilage	ę.					
4	Sideways	Bone/Cartilage	2					
45	Sideways	Sideways Jacket Fragmentation		Cartilage				

83
page
ppendix
₹

		Bb. Length:	i On		Ammo Mfg.:		
Make:		Serial No.:	C315857		Bullet Wt.:	147	grains
Model:	MP5	Callber:	9mm		<b>Bullet Type:</b>	Hydra-Shok JHP	JHP
					Lot No.:	2230603470	92
	Chronographed Velocity at 20 ft.	₽ €	¥	inetic Ene	Kinetic Eneray at 20 ft.:	399.75 P.15s	ž
							i
	1 1082.25						
			Calibratio	Calibration Valority:	605 84	ADR 65	- West
			Calibratic	Calibration Temp.:	9	80	با
			Calibration	Calibration penetration:	1.8	9.2	<b>.</b> E
	AVG 1106.77 f/sec						
		Test Type		Oletance			
					_		
		x [			<b>-</b>		
	T	Heavy Clothing			_		
		□ £			_		
	Penetration	ď	Bu	Builet Expansion	БО	Retained	Per cent
	<b>E</b>	Length	XBE	딕	D\@	Media.	Weight
-	14.250	0990	0.6720	0.6010	0.6365	145.21	98.78
7	13.375	0.598	0.6670	0.6300	0.6485	141.97	86.58
٣	13.000	0.524	0.7000	0.6680	0.6840	147.22	100.00
•	11.000	0.596	0.7330	0.6840	0.7085	147.83	100.00
10	11.375	0.555	0.7260	0.6730	9869.0	147.22	100.00
AVG	l ·	0.687	0.6996	0.6612	0.6764	145.89	89.07
	riches	inches	inches	inches	inches	grains	*
Notes:							
Sidewa	Sideways Jacket Fragmentation	mentation					
Sideways	ys						
Sideways	ski						
Sideways	ys Jacket Fragmentation	mentation					
;							

Make:	H&K	Serial No.:	C315857		Bullet Wt.:	147	grains
Model:	MP5	Caliber:	9mm	_	Bullet Type:	Hydra Shok JHP	JHP
					Lot No.:	2230603470	20
	Chronographed	7					
	Velocity at 20 ft.	نع	_	(inetic Ener	Kinetic Energy at 20 ft.:	399.76 ft	ft.lbs.
	1 1082.25						
	2 1122.59						
	3 1118.32		Calibratic	Calibration Velocity:	96.009	601.47	f/sec
	4 1105.71		Calibrati	Calibration Temp.:	9	9	ပ္
	1104.97		Calibration	Calibration penetration:	89.6	9.7	Ę
	Avg 1106.77 f/sec						
		Test Type		Distance			
		Gelatin		ا چ			
	Ī	Heavy Clothing		25m			
		₽		× wos	_		
!	Penetration	Remaining	ā	Ruillet Expansion	5	Retained	Percent
	Depth		1			Weight	Retained
		Length	Max	Ę	gvs	1	Weight
-	12.375	0.438	0.7260	0.6630	0.6945	145.10	12.88
7	11.875	0.578	0.7300	0.6550	0.6925	146.40	99.59
m	12.000	0.408	0.7380	0.6880	0.7130	146.60	99.73
4	12.250	0.597	0.7520	0.6720	0.7120	146.30	99.52
so	11.875	0.475	0.7910	0.6990	0.7450	145.60	98.05
AVG	12.076	0.499	0.7474	0.6764	0.7114	146.00	99.32

- 1 Sideways Jacket Fragmentation
- Nose Forward Jacket Fragmentation
- Sideways Jacket Fragmentation
- Nose Forward
- Sideways Jacket Fragmentation

	MP5 Chronographed	Serial No.: Callber:	Serial No.: Callber:	C315857 9mm	· -   :	Amino mig.: Bullet Wt.: Lot No.:	Federal 147 Hydra Shr 2230603	grains X JHP 1470
	Velocity at 20 ft. 1 1082 25 2 1122 59 3 1118 32 4 1105 71 6 1104 87 Avc 1106.77	20 20 E E E E E E E E E E E E E E E E E		Calibratic Calibratic	Kinedic Ener Calibration Velocity: Calibration Temp.: Calibration penetration:	Kinedic Energy at 20 TL: on Velocity: 599 74 tion Temp.: 6 n penetration: 9.0	399.75 593.75 6 8.8	The state of the s
		Test Type Golatin Heavy Clothing X Rib	Find X		Distance 3m K 25m C			
	Penetration Depth	ton Remaining h Bullet Length	lining Het gth	Br	Bullet Expansion min a	avg	Retained Weight	Per cent Retained Weight
- 2	12.125	5 0.482 0 0.519	19	0.6440	0.5680	0.6505	146.14	98.41 15.00.
ω ⋆	12.625	5 0.571	17.	0.6800	0.6120	0.6365	147.68	100.00
•	11.500	0.533	33	0.7300	0.6750	0.7025	145.83	99.20
AVG	12.060 inches	0.618 inches	æ :	0.6810 inches	0.6206 inches	0.6508 inches	146.23 grains	86.38 *
Notes:								
Nose Forward		RCMP Storm Coat 3250 - 105 Nov/87	ost 32:	50 - 105	Nov/87			
Nose Forward		Jacket Fragmentation	nfation					
Nose Forward	orward							
Nose Forward		Jacket Fragmentation	ntation					
Nose Forward		acitotacama con l'acitaci	a citota					

- /	Chronographed Velocity at 20 ft.	모르	-	Kinetic Ener	Kinetic Energy at 20 ft.:	399.75	f.lbs.
	1 1082.25 2 1122.59						
	3 1118.32		Calibratic	Calibration Velocity:	596.52	599.66	fVsec
	4 1105.71		Calibrat	Calibration Temp.:	7	^	ပ္
	6 1104.97		Calibration	Calibration penetration:	9.3	9.5	Ę
•	AVG 1106.77						
		Test Type		Distance			ı
		Gelatin		E.	_		
	Ĭ	Heavy Clothing X		25m 50m ×			
	Penetration	Remaining	ď	Bullet Expansion	S	Retained	Per cent
	Depth	Bullet Length	Шах	Ę	DAR	Weight	
_	13.625	0.449	0.6270	0.6040	0.6155	147.50	100.00
7	13.000	0.414	0.6535	0.6205	0.6370	148.00	100.00
<b>~</b>	12.625	0.389	0.6735	0.6270	0.6503	145.20	98.78
4	12.000	0.390	0.6775	0.6240	0.6508	146.40	99.59
ı,	12.750	0.426	0.6425	0.6025	0.6225	147.30	100.00
AVG	12.800	0.416	0.6648	0.6156	0.6362	146.88	29.62
	inches	inches	inches	inches	inches	grams	*

Ammo Mfg.: Federal
Bullet Wt.: 147 grains
Bullet Type: Hydra Shok JHP
Lot No.: 2230603470

C315857 9mm

Bbl. Length: Serlal No.: Callber:

 Date:
 94 MA

 Make:
 H&K

 Model:
 MP5

94 MAY 18

- Sideways RCMP Storm Coat 3250 105 Nov/87
- Sideways
- Sideways Jacket Fragmentation
- Nose Forward Jacket Fragmentation

Per cent Retained Weight 98.30 98.30 99.73 69.32 81.77 81.97 2 c E Bullet Type: Hydra Shok JHP grains 2230603470 Kinetic Energy at 20 ft.: 399.76 ft.lbs. Retained Weight Ammo Mfg.: Federal 604.15 6 9.1 89.30 144.50 146.60 101.90 120.20 120.50 grains Bullet Wt.: 147 Lot No.: 601.25 6 9.1 0.5340 0.6375 0.6780 0.5335 0.5295 0.5826 Inches **Bullet Expansion** 3m Z5m X Calibration Velocity: Calibration Temp.: Calibration penetration: Distance 0.4510 0.6040 0.6110 0.4050 0.4740 0.5090 inches 를 C315857 0.7450 0.6620 0.5850 0.6660 inches 0.6710 9mm ò Bbl. Length: Heavy Clothing ☐ Rib X Remaining Bullet Length Serial No.: Test Type 0.497 0.443 0.412 0.299 0.589 enches Callber: Gelatin Chronographed Velocity at 20 ft. Penetration Depth 1 1082.25 2 1122.59 3 1118.32 4 1105.71 4 1105.71 6 1104.97 Avg 1106.77 N'sec 14.000 11.500 11.500 12.250 14.125 12.676 94 JUN 06 18.K MP5 Make: Model:

### Notes:

- 1 Nose Forward Jacket Fragmentation Core Fragmentation Bone Rib Diameter .3420 .3945 inches
- 2 Nose Forward Jacket Fragmentation Bone
- 3 Nose Forward Jacket Fragmentation Bone
- 4 Nose Forward Major Jacket & Core Fragmentation Separation Muscle
- Nose Forward Core Fragmentation Bone

*	SCIED S	nches	INChes	nches	ncne3	Inches	
98.83	146.28	0.6744	0.6374	0.7114	0.477	11.176	AVG
99.93	146.90	0.6910	0.8610	0.7210	0.424	11.825	10
98.03	144.10	0.6780	0.6410	0.7150	0.484	11.125	₹
99.32	146.00	0.8610	0.6240	0.6980	0.564	12.375	m
87.89	143.90	0.6680	0.6070	0.7290	0.438	9.750	~
86.98	145.50	0.6740	0.6540	0.6940	0.473	11.000	-
Weight	)	avg	Ē	max	Length	•	
Per cent Retained	Retained Weight		Bullet Expansion	ď	Remaining Bullet	Penetration Depth	
			Distance 3m 25m		Test Type Gelatin	Ŧ	
						AVG 1106.77 ft/sec	*
E	9.1	8.8	Calibration penetration:	Calibration		6 1104.97	_
ပ္	'n	ις.	Calibration Temp.:	Calibrati		1105.71	-
ft/sec	599.66	605.62	Calibration Velocity:	Calibratic		3 1118.32	
						2 1122.59	
						1 1082.25	-
Ŕ	399.75 ft.lbs.	Kinetic Energy at 20 ft.:	(inetic Ener	_	بے	Velocity at 20 ft.	>

Bullet Wt.: 147 grains Bullet Type: Hydra Shok JHP

C315857

ō

Bbl. Length: Serial No.:

94 JUN 08

Date: Make: Model:

H&K MP5

9mm

Callber:

Ammo Mfg.: Federal

2230603470

Lot No.:

- 1 Nose Forward Cartilage Rib Diameter .3575 .3465 inches
- 2 Sideways Jacket Fragmentation Bone
- Sideways Cartilage
- Sideways Cartilage
- Nose Forward Bone/Cartilage

83
page
Xipu
Appe

	17 VLV *6	DO: Lengu:	מ	Ammo Mrg.:	Kemington	
Make:	H&K	Serial No.:	C315857	Bullet Wt.:	147 gn	grains
Model:	MP5	Callber:	9mm	Bullet Type:	Golden Saber JHP	r JHP
				Lot No.:	LY14SA5801	01
	Chronographed	p <sub>e</sub>	7 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2		•	<u>.</u>
	Verocity at 20	2		eigy at 20 it.	979	<u>.</u>
			Calibration Velocity:	6	612.52	fl/sec
			Calibration Temp.:		9	ပ္
	Avg 1128.71 f/sec		Calibration penetration:	8.66 ::	9. 9.	Ę
		Test Type	Distance	Q		
		Gelatin	Ę	×		
	I	Heavy Clothing	25m			
		Rie di	E09			
	Penetration	Remaining	Bullet Expansion	nsion	Retained	Per cent Retained
	<u> </u>	Length	max min	Dive.		Weight
-	13.750	0.542	0.7130 0.6500	0.6815	143.98	97.95
7	12.750	0.536	0.7820 0.6350	0.7085	148.14	99.41
ო	14.125	0.555	0.7800 0.6090	0.6945	143.20	97.41
4	12.875	0.538		0.6255	146.91	96.94
S	13,500	0.515	0.7440 0.5690	0.6565	137.03	93.22
AVG	13.400 inches	0.637	0.7376 0.6090 inches	0.6733 inches	143.46 grains	97.69
Notes:						
Nose Forward	orward					
Cidamane	•					
Sidewa	8					
Sidewa	Sideways Lead Core Fragmentation	Fragmentation				
Sideways	,s					

H&K   Serial No.: C315657   E	Date:					Ammo MTG.:	Keming	<b>L</b> o
H&K   Serial No.:   C315857     MP5   Caliber:   9mm		94 MAY 16	BM. Length:	'n	•			
Chronographed Velocity at 20 ft. 112461  2 112765 2 112765 4 112259 Calibration Velocity: 4 112259 Calibration Temp: 6 112740 Avo 1128.71 Avo 1128.71 Avo 1128.71 Avo 1128.72 Avo 112.875 Avo 112.875 Avo 1438 Avo 17280 Avo 1438 Avo 1	Make:	H&K	Serial No.:	C315857		Bullet Wt.:	147	grains
Chronographed Velocity at 20 ft.  1 112461 2 112765 3 114129 4 112259 6 112740 Avg 112871 Reav Clothing Remaining Remaining Bullet Calibration Remaining Bullet Calibration Resov Clothing Remaining Bullet Calibration Resov Clothing Remaining Bullet Calibration Remaining Bullet Calibration Remaining Bullet Calibration Remaining Bullet Calibration Remaining Calibration Calibration Calibration Calibration Calibration Calibration Calibra	Model:	MP5	Callber:	9mm	_	<b>3ullet Type:</b>	Golden Saber JHP	aber JHP
Chronographed Velocity at 20 ft.  1 112461 2 112765 3 114129 4 112259 Calibration Avg. 112871 Rib						Lot No.:	LY14SA5801	5801
1127.65   Calibration Velocity: 1127.65     1127.60   Calibration Temp:: 6   1127.40		Chronographe Velocity at 20	<u>ک</u> ج	¥	inetic Ener	gy at 20 ft.:	415.76	r. Ibs.
Avo. 1128.71  Avo. 1128.72  Avo. 1128.71  Penetration Remaining Bullet Expansic Depth Bullet Expansic Depth Bullet Expansic Depth Bullet Depth Depth Bullet Depth		1 1124.61						
Avc 1128.71  Avc 1128.71  Rib Calibration penetration:  Test Type Calibration penetration:  Reavy Clothing 3m		3 1141.29		Calibration	n Velocity:	617.44	604.08	fl/sec
Avc 1128.71    Risec   Test Type   Distance		4 1122.59		Calibratic	on Temp.:	9	9	ů
Penetration   Remaining   Bullet Expansis   Distance		6 1127.40		Calibration	penetration:	6.6	9.7	Ę
Penetration   Remaining   Distance								ı
Heavy Clothing   3m   3m   1			Test Type		Distance			
Penetration   Remaining   Som   X			Gelatin		톲	_		
Penetration   Remaining   Builet Expansic		Í	eavy Clothing					
Depth   Dept				3			1	-
12.875         0.435         0.6610         0.5900           12.750         0.408         0.8110         0.6320           13.250         0.455         0.7750         0.6220           13.375         0.443         0.7580         0.520           13.000         0.435         0.7060         0.8070           13.060         0.436         0.7322         0.6946		Depth			mer Expans	DA R	Weight	Retained Weight
12.750         0.408         0.8110         0.6320           13.250         0.455         0.7250         0.6220           13.375         0.443         0.7580         0.5220           13.000         0.435         0.7060         0.8070           13.060         0.436         0.7322         0.6946	-	12.875	0.435	0.6610	0.5900	0.6255	144.40	98.23
13.250         0.455         0.7250         0.6220           13.375         0.443         0.7580         0.5220           13.000         0.435         0.7060         0.8070           13.060         0.436         0.7322         0.6946	7	12.750	0.408	0.8110	0.6320	0.7215	147.00	100.00
13.060 0.435 0.732 0.520 13.060 0.435 0.732 0.6946	ო	13.250	0.455	0.7250	0.6220	0.6735	147.00	100.00
13.060 0.435 0.7060 0.6070 13.060 0.436 0.7322 0.6946	•	13.375	0.443	0.7580	0.5220	0.6400	144.40	98.23
13.050 0.436 0.7322 0.6946	40	13.000	0.435	0.7060	0.6070	0.6565	147.20	100.00
	AVG	13.060	0.436	0.7322	0.5946	0.6634	146.00	99.29

	Penetration Depth	Remaining Bullet	18	Bullet Expansion	slon	Retained Weight	Per cent Retained
	•	Length	max		gvs	)	Weight
-	12.875	0.435	0.6610	0.5900	0.6255	144.40	98.23
8	12.750	0.408	0.8110	0.6320	0.7215	147.00	100.00
ო	13.250	0.455	0.7250	0.6220	0.6735	147.00	100.00
4	13.375	0.443	0.7580	0.5220	0.6400	144.40	98.23
w	13.000	0.435	0.7060	0.6070	0.6565	147.20	100.00
AVG	13.050 inches	0.436 inches	0.7322 inches	0.5946 inches	0.6634 inches	146.00 grains	99.29 *

- 1 Sideways Jacket Fragmentation
- Sideways
- Sideways
- Sideways
- Sideways

Per cent Retained Weight 100.00 98.26 98.26 98.26 98.94 Bullet Type: Golden Saber JHP \$ 5 € C € Bullet Wt.: 147 grains LY14SA5801 Kinetic Energy at 20 ft.: 415.76 ft.bs. Ammo Mfg.: Remington Retained Weight 148.45 144.44 148.75 144.44 146.91 599.75 6 8.8 Lot No.: avg 0.6325 0.6285 0.6720 0.6440 0.6408 inches 599.74 6 9.0 **Bullet Expansion** Calibration Velocity: Calibration Temp.: Calibration penetration: Distance 0.6190 0.6020 0.5350 0.5350 0.5350 0.5920 inches Ē Sideways RCMP Storm Coat 3250 - 105 Nov/87 C315857 0.6460 0.6550 0.7590 0.7190 0.6960 enches 9mm Bbl. Length: 9" Gelatin Gelatin Heavy Clothing X Penetration Remaining
Depth Bullet
Length Serial No.: Test Type 0.377 0.387 0.399 0.408 0.403 0.396 inches Callber: Sideways Jacket Fragmentation Sideways Jacket Fragmentation Chronographed Velocity at 20 ft. 1 1124.61 2 1127.65 3 1141.29 4 1122.59 6 1127.40 AVG 1128.71 fVsec 94 APR 27 13.750 13.375 13.500 13.000 14.125 inches H&K MP5 Sideways Sideways Model: Make: Date: Notes:

Date: Make: Model:	* *	94 MAY 18 H&K MP5	Bbl. Length: Serial No.: Callber:	g" C315857 9mm		Ammo Mfg.: Bullet Wt.: Bullet Type:	Remingt 147 Golden St	grains abre JHP
	">	Chronographed Velocity at 20 ft.	<b>₽</b> €		(hetic Ene	Khetic Energy at 20 ft.:	416.76 #lbs	\$4 #
		1 1124.61		:				;
	•			Calibratio	Calibration Velocity: Calibration Temp.:	-	601.11	u,sec
	- 4	6 1127.40 Avg 1128.71 fVsec		Calibration	Calibration penetration:	10.0	3.5	Ę
			Test Type		Distance			
			Gelatin		بر چ			
		Í	Heavy Clothing x Rib		25 P2			
	-	Penetration Depth	Remaining Bullet	Bu	Bullet Expansion	uojs	Retained	Per cent
			Length	max	Ē	gve		Weight
	_	13.625	0.430	0.8250	0.6790	0.7520	147.90	100.00
	2 6	13.625	0.423	0.7435	0.6150	0.6793	147.60	100.00
	. 4	14.875	0.400	0.7730	0.5535	0.6633	147.00	10000
*£7	2	13.875	0.420	0.787.0	0.6710	0.7290	147.30	100.00
₹ 	AVG	14.075	0.418	0.7689	0.6347	0.7018	147.28	96.66
		thches	inches	Inches	inches	inches	gratha	*
Notes:								
1 Sidew	ways	RCMP Storn	Sideways RCMP Storm Coat 3250 - 105 Nov/87	105 Nov/8	_			
2 Nose	Nose Forward	ard						
3 Nose	Nose Forward	ard						
4 Sideways	ways							
5 Sideways	VAVS							

Sideways

Bullet Type: Golden Sabre JHP Kinetic Energy at 20 ft.: 415.76 ft.lbs. Lot No.: 0.6455 0.6455 0.6965 0.6260 0.6503 inches 620.66 5 10.4 **Bullet Expansion** Calibration Velocity:
Calibration Temp.:
Calibration penetration: 3m 25m × 50m Distance min 0.6310 0.6360 0.6390 0.6290 0.5070 0.5170 Sideways Muscle Rib Diameter 2690 - 3720 inches 0.6940 0.6550 0.7640 0.6400 0.6650 0.6836 inches Nose Forward Jackel Fragmentation Muscle 9mm Nose Forward Core Fragmentation Bone Sideways Core Fragmentation Bone Gelatin
Heavy Clothing
Rib
Kib Penetration Remaining
Depth Bullet
Length Test Type Callber: 0.408 0.396 0.392 0.451 0.411 Chronographed Velocity at 20 ft. Nose Forward Muscle 1 1124.61 2 1127.65 3 1141.29 4 1122.59 6 1127.40 AVG 1128.71 fVsec 14.625 15.625 14.000 16.375 16.750 16.476 inches

Per cent Retained Weight

Retained Weight

618.81 5 10.0

grains

Bullet Wt.: 147

C315857

Serial No.:

H&K MP5

Bbi. Length: 9"

94 MAY 26

Date: Make: Model:

Ammo Mfg.: Remington

LY14SA5801

94.69 94.01 94.01

147.10 139.20 147.50 138.60 142.12 grains

	Date:	94 JUN 08	Bbl. Length:	<b>.</b> 6		Ammo Mfg.:	Remington	-
	Make:	H&K	Serial No.:	C315857		<b>Bullet Wt.:</b>	147	grains
	Model:	MP5	Caliber	9mm		Bullet Type:	Golden Sabre JHP	a JHP
						Lot No.:	LY14SA5801	901
		Chronographed	 					
	•	Velocity at 20 ft.	: ±	*	(inetic Ene	Kinetic Energy at 20 ft.:	416.76 ft.lbs.	:Ibs
		1 1124.61						
				Calibratio	Calibration Velocity	605.67	599 66	35/2
				Calibrati	Calibration Temp.:	2	2	ု
		5 1127.40		Calibration	Calibration penetration:	•	1.6	Ę
		AVG 1128.71 N'sec				:		
			Test Type		Distance			
						_		
			- Celation		' F	_		
		Ī	Heavy Clothing			_		
			Rib K		× 20m			
		Penetration	ž	<b>16</b>	Bullet Expansion	Fox	Retained	Per cent
		Depth	Bullet	i	1		Weight	Retained
				Y BEL		Š		
	-	11.500	0.442	0.6820	0.6260	0.6540	143.50	97.62
	~	11.625	0.407	0.7920	0.6010	0.6965	145.00	<b>8</b> 8
	m	13,125	0.492	0.7000	0.6260	0.6630	146.20	99.46
	4	10.625	0.431	0.6880	0.6190	0.6535	125.20	85.17
	<b>10</b>	12.250	0.439	0.8030	0.6600	0.7315	146.70	99.80
	AVG	11.826	0.442	0.7330	0.6264	0.6797	141.32	96.14
		inches	urches	inches	inches	inches	Supp	*
Notes:								
,	į							
-	Sideways	Bone	Rib Diameter .35/53465 inches	3465 inc	hes			
8	Sideways	Bone						
<b>~</b>	Sideways	Muscle						
	į							
4	Sideways	Jacket Fragmentation	mentation Bone	je je				
40	Nose For	Nose Forward Cartilage	9					

28 c E Bullet Type: Black Talon SXT Bullet Wt.: 147 grains Kinetic Energy at 20 ft.: 396.00 ft.lbs. 30GF31-33 Ammo Mfg.: Winchester 96.009 6 9.6 Lot No.: 603.21 6 10.0 Calibration Velocity: 6
Calibration Temp.:
Calibration penetration: C315857 Bbl. Length: 9" Sertal No.: Caliber: Chronographed Velocity at 20 ft. 94 APR 25 1 1028.81 2 1131.99 3 1106.19 4 1128.67 6 1112.10 AVG 1101.66 N/sec Make: H&K Model: MP5

Distance	m.	25m 🗌	50m _
Test Type	Gelatin	Heavy Clothing	□ dig

Distance
3m Z5m X

Test Type
Gelatin | X
Heavy Clothing |

	Penetration	Remaining	ig.	ullet Expansion	sion	Retained	Per cent
	ndan ndan	Length	max	Ē	D\ e	Weight	Weight
-	14.875	0.460	0.6750	0.5760	0.6255	147.37	100.00
~	14.375	0.529	0.7210	0.6130	0.6670	150.15	100.00
ო	14.875	0.385	0.6390	0.6040	0.6215	137.65	93.64
4	14.875	0.426	0.6940	0.5570	0.6255	148.76	100.00
9	14.875	0.412	0.5950	0.5290	0.5620	149.53	100.00
AVG	14.775	0.442	0.6648	0.5768	0.6203	146.69	\$8.73
	inches	Inches	inches	inches	inches	grains	*

### Notes:

- Sideways Slight Core Fragmentation
- 2 Sideways
- 3 Sideways Core Fragmentation
- 4 Nose Forward Slight Core Fragmentation
- Nose Forward Slight Core Fragmentation

Date:	94 MAY 16	Bbl. Length: 9"		Ammo Mfg.: Winchester	Winches	ter
Make:	H&K	Serial No.:	C315857	Bullet Wt.: 147	147	grains
Model:	MP5	Callber:	9mm	Bullet Type: Black Talon SXT	Black Tak	TXS IX
				Lot No.:	30GF3133	33
	Chronographed Velocity at 20 ft.	<b>2</b> €	Kinetic Energy at 20 ft.:	gy at 20 ft.:	396.00 ft.bs.	f.fbs.
	1 1028.81					
	3 1106.19		Calibration Velocity:	609.16	603,94	f/sex
	4 1128.67		Calibration Temp.:	9	9	ပ္
	6 1112.10		Calibration penetration:	10.0	9.5	Ę
	AVG 1101.56					

	Penetration	Remaining	ă	ullet Expansion	sion	Retained	Per cer
	epge G	Bullet	max X	Ē	gve	Weight	Retained Weight
-	13.250	0.380	0.7850	0.7130	0.7490	148.70	100.00
7	14.125	0.367	0.7350	0.7230	0.7290	145.20	98.78
٣	13.000	0.339	0.7670	0.6990	0.7330	149.70	100.00
*	13.250	0.402	0.7860	0.7090	0.7475	147.80	100.00
6	13.500	0.420	0.7870	0.7010	0.7340	147.30	100.00
AVG	13.426	0.382	0.7680	0.7090	0.7386	147.74	99.76
	inches	inches	anches	inches	inches	greins	_

- 1 Nose Forward
- 2 Sideways Jacket Fragmentation
- 3 Nose Forward
- Nose Forward
- Sideways Jacket Fragmentation

Ammo Mfg.: Winchester Bullet Wt.: 147 grains Bullet Type: Black Talon SXT 30GF3133 Lot No.: C315857 9mm Bbl. Length: 9" Serial No.: Caliber: 94 APR 26 Make: H&K Model: MP5 Date:

Bullet Type: Black Talon SXT Bullet Wt.: 147 grains Ammo Mfg.: Winchester

> C315857 9mm

Bbl. Length: Serial No.: Caliber:

94 MAY 18

Date: 94 MA Make: H&K

MP5

Model:

30GF3133

Lot No.:

Ü	Chronographed	3			į
Š	velocity at 20 rt.	Nineuc Energy at 20 IL:	Jy at 20 ft.:	396.00 ft.lbs.	T.IDS.
<b>,-</b>	1028.81				
~	1131.99				
m	1106.19	Calibration Velocity:	601.61	603.72	fl/sec
4	1128.67	Calibration Temp.:	9	9	ပ္
•	1112.10	Calibration penetration:	9.3	9.2	5
A A	Avg 1101.66				
	fVsec				

Distance	3m X	25m 🗌	
Test Type	Gelatin	Heavy Clothing x	<b></b>

Per cent Retained	Weight	100.00	89.83	95.53	100.00	100.00	29.07	*
Retained Weight		148.76	146.75	140.43	149.84	148.91	146.94	grains
slon	gve.	0.6855	0.6555	0.6720	0.6780	0.6560	0.6694	inches
ullet Expansion	툳	0.6350	0.6060	0.6100	0.6190	0.6100	0.6160	inches
i i i i i i i i i i i i i i i i i i i	max	0.7360	0.7050	0.7340	0.7370	0.7020	0.7228	inches
Remaining Bullet	Length	0.516	0.506	0.413	0.484	0.449	0.474	inches
Penetration Depth		14.375	14.250	13.625	13.875	13,875	14.000	inches
		-	7	m	4	6	AVG	

### Notes:

- Nose Forward RCMP Storm Coat 3250-105 Nov/87
- Nose Forward Core Fragmentation
- Sideways Slight Core Fragmentation
- Nose Forward Slight Core Fragmentation
- Nose Forward

	1 1028.81	Velocity at 20 ft.	_	Kinetic Energy at 20 ft.:	gy at 20 ft.:	396.00	f.lbs.
	2 1131.99						
	3 1106.19		Calibrati	Calibration Velocity:	606.50	610.05	fvsec
	4 1128.67		Calibrat	Calibration Temp.:	9	9	ပ္
	6 1112.10		Calibration	Calibration penetration:	8.8	10.0	Ę
	Avc 1101.66 ft/sec						
		Test Type		Distance			ı
		Gelatin		Æ			
	Ĭ	Heavy Clothing X Rib		25m 50m			
	Penetration	Remaining	ď	Bullet Expansion	- Lo	Retained	Per cent
	3	Length	Max	Ē	D\ R		Weight
-	13.500	0.356	0.7800	0.6745	0.7273	148.60	100.00
7	13.500	0.355	0.7370	0.6615	0.6993	148.50	100.00
m	13.500	0.358	0.7165	0.6180	0.6673	148.90	100.00
4	13.375	0.379	0.6790	0.6000	0.6395	148.30	100.00
<b>1</b> 0	13.375	0.370	0.6975	0.6155	0.6565	147.50	100.00
AVG	13.460	0.364	0.7220	0.6339	0.6780	148.36	100.00
	auches	inches	inches	inches	inches	SUESTI	*

- 1 Nose Forward RCMP Storm Coat 3250-105 Now87
- Nose Forward
- Sideways
- Nose Forward
- Nose Forward Core Fragmentation

H&K         Serial No.:         C315857         Bullet Wt.:         147         graphet           MP5         Callber:         9mm         Bullet Type:         Bick Talon           Chronographed         Lot No.:         30GF3133           Velocity at 20 ft.         Affinetic Energy at 20 ft.:         39e.00 ft.           1 1028 81         Klinetic Energy at 20 ft.:         39e.00 ft.           2 1131 99         Calibration Velocity:         62066         61881           4 1128 67         Calibration Temp.:         5         5           6 1112 10         Calibration penetration:         10.4         10.0	Date:	94 MAY 26	Bbl. Length:	.6	Ammo Mfg.: Winchester	Winche	iter
Caliber: 9mm Bullet Type: Black Takon Lot No.: 30GF3133 nographed Kinetic Energy at 20 ft.: 396.00 ft. 1131 99 Calibration Velocity: 5 5 1112.10 Calibration penetration: 10.4 10.0	Make:	H&K	Serial No.:	C315857	Bullet Wt.:	147	grains
Lot No.: 30GF3133  Kinetic Energy at 20 ft.: 396.00 ft.i  Calibration Velocity: 620.66 618.81  Calibration Penetration: 10.4 10.0	odel:	MP5	Caliber:		Bullet Type:	Black Tak	on SXT
Kinetic Energy at 20 ft.: 396.00 ft.  Calibration Velocity: 620.66 618.81  Calibration Temp.: 5 5  Calibration penetration: 10.4 10.0					Lot No.:	30GF31	33
Kinetic Energy at 20 ft.: 396.00 ft.:  Calibration Velocity: 620.66 618.81  Calibration penetration: 10.4 10.0		Chronograph	þ				
Calibration Velocity: 620.66 618.81 Calibration penetration: 10.4 10.0		Velocity at 20	Ę	Kinetic Ener	gy at 20 ft.:	396.00	f.ibs.
Calibration Velocity: 620.66 618.81 Calibration penetration: 10.4 10.0		1 1028.81					
Calibration Velocity: 620.66 618.81 Calibration penetration: 10.4 10.0		2 1131.99					
Calibration Temp.: 5 5 Calibration penetration: 10.4 10.0		3 1106.19		Calibration Velocity:	620.66	618.81	ff/sec
Calibration penetration: 10.4		4 1128.67		Calibration Temp.:	'n	ç	ပ္
Avc 1101.66		6 1112.10		Calibration penetration:	10.4	10.0	£
		AVG 1101.66					

	ž 5	To variable of va	ő	Distance 3m X 25m  Som  Bullet Expansion	e C	Retained	Per cent	
	Depth	Bullet Length	жеш	Ē	D) AR	Weight	Retained Weight	
-	17.000	0.340	0.5970	0.4470	0.5220	109.40	74.42	
7	15.000	0.392	0.7620	0.5970	0.6795	146.80	99.73	
m	16.500	0.376	0.6940	0.5690	0.6315	141.00	95.92	
4	15.625	0.366	0.6410	0.5810	0.6110	119.90	81.56	
16	16.000	0.415	0.7150	0.6020	0.6585	139.00	94.56	
AVG	16.026	0.378	0.6818	0.6592	0.6206	131.18	89.24	
	inches	inches	inches	inches	inches	grains	¥	

# Notes:

- Sideways Jacket/Core Fragmentation Jacket/Core Separation Rib Diameter .2690-.3725 inches
- Nose Forward Core Fragmentation Bone
- Nose Forward Core Fragmentation Bone/Muscle
- Nose Forward Jacket/Core Fragmentation Jacket/Core Separation Curved Trajectory Bone
- Sideways Core Fragmentation Muscle

Date:	94 JUN 08	Bbl. Length:	: On	•	Ammo Mrg.:	Winchester	ste/
Make:	H&K	Serial No.:	C315857		Bullet Wt.:	147	grains
Model:	MP5	Caliber:	9mm		Bullet Type:	Black Talon SXT	on SXT
					Lot No.:	30GF3133	33
	Chronographed Velocity at 20 ft.	<b>2</b> €	¥	Inetic Ener	Kinetic Energy at 20 ft.:	396.00	<u>\$</u>
	1 1028.81				1		
	2 1131.99						
	3 1106.19		Calibratio	Calibration Velocity:	605.62	299.66	ft/sec
	4 1128.67		Calibrativ	Calibration Temp.:	\$	S	ပ္
	6 1112.10		Calibration	Calibration penetration:	8.6	9.1	Ę
	AVG 1101.66 ff/sec						
		Test Type		Distance			
	Ĭ	Gelatin   Heavy Clothing		 % %			
		æ ×		E S			
	Penetration	Remaining Bullet	<b>B</b>	Bullet Expansion	ion	Retained	Per cent
	•	Length	тах	ᄪ	gve		
-	12.625	0.426	0.6930	0.6430	0.6680	148.20	100.00
7	12.500	0.402	0.7400	0.6610	0.7005	148.50	100.00
e	12.625	0.430	0.7070	0.6520	0.6795	147.40	100.00
₹	13.125	0.431	0.6720	0.6440	0.6580	148.20	100:00
40	13.125	0.415	0.7310	0.6020	0.6665	145.00	98.64
AVG	12.800	0.421	0.7086	0.6404	0.6745	147.46	99.73
	inches	inches	Inches	inches	inches	grama	*

### Notes:

- 1 Nose Forward Cartilage Rib Diameter 3465 3575 inches
- Sideways Cartilage
- Sideways Bone
- Sideways Bone
- Sideways Bone

Per cent Retained Weight 99.93 100.00 100.00 100.00 99.99 Sec of Bullet Wt.: 147 grains Bullet Type: Gold Dot HP Kinetic Energy at 20 ft.: 326.41 ft.lbs. E12Y21 Retained Weight Ammo Mfg.: SPEER 610.08 7 9.7 146.90 147.00 147.60 147.00 147.10 Lot No.: 0.7175 0.7385 0.7100 0.7365 0.6980 0.7205 inches 598.52 Calibration Velocity: 598 55
Calibration Temp.: 7
Calibration penetration: 9.3 **Bullet Expansion** Distance 0.6760 0.6700 0.6370 0.7030 0.6440 inches C315857 0.7590 0.8070 0.7830 0.7740 0.7520 0.7750 inches 9mm Bbl. Length: 9" Gelatin X
Heavy Clothing Penetration Remaining
Depth Bullet
Length Serial No.: Test Type Caliber: 0.423 0.417 0.413 0.421 0.431 0.421 inches Chronographed Velocity at 20 ft. 1 904.16 2 1022.70 3 1013.79 4 1031.14 6 1021.03 AVG 998.56 94 JUN 22 12.500 12.625 13.250 11.875 12.750 12.600 inches Make: H&K Model: MP5 Sideways Sideways Sideways Sideways Sideways Date: Notes:

	Velocity at 20 ft.	ليوا	-	Kinetic Energy at 20 ft.:	gy at 20 ft.:	326.41 ft.lbs.	r.lbs.
	1 904.16						
	2 1022.70						
	3 1013.79		Calibratic	Calibration Velocity:	617.20	617.82	Nsec
	4 1031.14		Calibrati	Calibration Temp.:	9	φ	ပ္
	6 1021.03		Calibration	Calibration penetration:	9.4	4.6	Ę
	AVG 998.56 f/sec						
							1
		Test Type		Distance			
		Gelatin		<u>၂</u>	_		
	Ĭ	Heavy Clothing		, kg			
	Penetration	Remaining	<u> </u>	Bullet Expansion	5	Retained	Per cent
	Depth	Buffet				Weight	Retained
		Length	Tax	를	avg		Weight
-	12.875	0.447	0.6810	0.5580	0.6195	147.00	100:00
7	12.500	0.449	0.6600	0.5880	0.6240	147.00	100.00
m	12.000	0.440	0.7360	0.6190	0.6775	146.50	99.66
₹	12.625	0.456	0.6770	0.5970	0.6370	147.60	100.00
<b>ب</b>	12.750	0.437	0.6850	0.5970	0.6410	147.10	100.00
AVG	12.660	0.446	0.6878	0.6918	0.6398	147.04	99.93
	inches	inches	inches	inches	Inches	grains	*

Bullet Wt.: 147 grains Bullet Type: Gold Dot HP

C315857 9mm

Bbl. Length: Serial No.: Callber:

94 JUN 24

H&K MP5

Date: Make: Model:

Ammo Mfg.: SPEER

- Base Forward
- Base Forward
- 4 Nose Forward
- Sideways

40

Per cent Retained Weight 100.00 100.00 98.86 100.00 99.80 Bullet Wt.: 147 grains Kinetic Energy at 20 ft.: 326.41 ft.lbs. Bullet Type: Gold Dot HP 147.30 147.40 148.80 147.30 147.10 E12Y21 Retained Weight Ammo Mfg.: SPEER 601.24 7 9.5 Lot No.: 0.6200 0.6455 0.6330 0.5640 0.5365 nches 608.31 7 9.7 **Bullet Expansion** Calibration Velocity:
Calibration Temp.:
Calibration penetration: Distance 0.5900 0.5930 0.5230 0.4860 0.6682 inches 3m 25m 50m 톧 C315857 Sideways RCMP Storm Coat 3280 - 357 /87 0.6500 0.6920 0.6730 0.6050 0.5910 0.6422 hrches 9mm Bbl. Length: 9" Geletin CHeavy Clothing X Penetration Remaining
Depth Bullet
Length Serial No.: **Test Type** 0.477 0.457 0.466 0.499 0.540 0.488 inches Callber: Chronographed Velocity at 20 ft. 904.16 1022.70 1013.79 4 1031.14 5 1021.03 AVG 998.56 94 JUN 22 14.750 13.500 14.625 14.750 15.750 14.876 inches 18K Model: MP5 Sideways Sideways Sideways Sideways Make: Date: - 2 5 4 5 Notes:

				1			•			
	Make:	H&K		Serial No.:	C315857		Bullet Wt.:	147	grains	
	Model:	MP5		Callber:	Этт		Bullet Type:	Gold Dot HP	(HP	
							Lot No.:	E12Y21		
		Chronographed Velocity at 20 ft.	graphe at 20 1	نو چ	•	(inetic Ener	Kinetic Energy at 20 ft.:	326.41 ft.lbs.	#.lbs	
		1 904.16	904.16							
			3.79		Calibratic	Calibration Velocity:	596.81	296.00	fVsec	
		4 1031	1031.14		Calibrat	Calibration Temp.:		9 8	ပ္	
		- 1	3		Camprano	Calibration penetration:	D)	n xo	Ę	
		AVG 998.56	8 y						1	
				Test Tyne		Distance			l	
							-			
			j	Genada Gentaria		_  <u> </u> 				
			Ĕ	Rib		E &				
		Penetrati Depth	Penetration Depth	Remaining Bullet	B	Bullet Expansion	rion	Retained Weight	Per cent Retained	# B
			_	Length	max	토	D'A		Weight	<u>_</u>
	_	13.500	8	0.498	0.6440	0.5930	0.6185	146.90	99.93	_
	~	13.750	8	0.479	0.6100	0.5480	0.5790	146.60	99.73	
	<b>-</b>	14.125	8 8	0.488	0.6180	0.5340	0.5760	146.80	98.66	
	• •	121.61	8 9	0 0	077670	0.3430	0.5825	02.741	999	~ .
	•		3	86.0	200	0.4020	0.0000	147.10	3	.
	AVG	14.500 inches	8 ;	0.496 inches	0.6260 inches	0.6400 inches	0.6826 inches	146.92 grains	98.80 %	
Notes:	isi									
-	Sideways		Storm	RCMP Storm Coat 3280-357	187 /87					
8	Sideways	s,								
က	Nose Forward	orward								
•	Sideways	ه								
40	Nose Forward	orward								

Ammo Mfg.: SPEER Bullet Wt.: 147

ò

Bbl. Length: Serial No.:

94 JUN 23

Date:

grains Gold Dot HP Ammo Mfg.: SPEER Bullet Wt.: 147 **Bullet Type:** C315857 9mm Bbl. Length: Serial No.: Caliber: 94 JUN 19 H&K MP5 Model: Make: Date:

326.41 ft.lbs E12Y21 Kinetic Energy at 20 ft.: Lot No.: Chronographed Velocity at 20 ft.

S C E 608.20 7 9.4 606.58 9.3 Calibration penetration: Calibration Velocity: Calibration Temp.: 1021.03 904.16 1022.70 1013.79 1031,14 AVG 998.56

Psec C Es

606.58 6 9.3

Calibration penetration:

AVG 998.56 fl/sec

Calibration Velocity: Calibration Temp.:

25m 50m 톥

Heavy Clothing ☐ Rib X

Gelatin

Test Type

Distance

609.31 9 9

326.41 ft.lbs.

Kinetic Energy at 20 ft.:

Chronographed Velocity at 20 ft.

904.16 1022.70 1013.79

1031.14 6 1021.03

Bullet Type: Gold Dot HP

E12Y21

Lot No.:

Ammo Mfg.: SPEER

Buillet Wt.: 147

C315857 9mm

Serial No.:

H&K MP5

Make: Model:

Callber:

å

Bbl. Length:

94 JUN 19

Date:

 $\blacksquare$ Distance 25m 50m 톥 Gelatin GHeavy Clothing X Test Type

Per cent Retained Weight 100.00 100.00 100.00 100.00 Retained Weight 147.40 147.10 147.30 147.60 147.40 147.36 0.6765 0.6895 0.6495 0.620 0.5180 0.6311 inches avg **Bullet Expansion** 0.6350 0.6180 0.6290 0.5890 0.4860 0.6914 inches 퉅 0.7610 0.6550 0.6708 Penetration Remaining Bullet Length 0.367 0.359 0.373 0.375 0.441 inches Depth 12.625 12.500 13.000 12.875 16.000 13.400 inches

### Notes:

- Sideways Muscle Rib Diameter 2415 3410 inches
- Sideways Muscle
- Sideways Bone/Muscle
- Sideways Bone/Muscle
- Base Forward Bone

	Penetration	Remaining	ă	Bullet Expansion	Non	Retained	Per cer
	<u> </u>	Length	max	Ē	D've	Mengar	Weigh
-	11.750	0.377	0.7520	0.6530	0.7025	147.00	100.00
7	13.125	0.379	0.6870	0.6090	0.6480	147.50	100.00
m	12.750	0.404	0.6390	0.5620	0.6005	146.60	52.66
4	12.750	0.377	0.6690	0.6140	0.6415	146.80	98.86
ю	14.375	0.452	0.5430	0.5790	0.5610	146.50	99.66
AVG	12.950 inches	0.398 inches	0.6580 inches	0.6034 inches	0.6307 Inches	146.88 grams	\$8.86

### Notes:

- Sideways Muscle Rib Diameter .3985 .4200 inches
- Sideways Bone
- Sideways Bone/Muscle
- Sideways Muscle

Base Forward Bone

-		Model: M	0 <b>3</b>	- 1	, ,	7	• •	*							-	~ .	n <b>→</b> κ	) <b>A</b>	2	Notes:	Nose Forward	Nose Forward	Not Recove	Not Recove	Mat Decore
43 NOC 46	ا	MP5	Chronographed Velocity at 20 ft.		2 1009.29			AVG 1054.20 fVsec			i	Ē	Penetration		32.250	35.000	0000	27.460	Inches		p.u	ard	Not Recovered - Through Blocks	Not Recovered - Through Blocks	Not Becovered Through Blocks
Sorial No.	Serial No.	Callber:	<u>ਤ</u> ਦ						Test Type	Cedadin	- 3	Rib Chouling	Remaining	Length	0.646	0.648		0.647	inches				h Blocks	h Blocks	. Direke
9	1313831	9mm	<del>2</del>		. Alternation Management	Calibration Temb.:	Calibration penetration:		J				Bulle	max	0.3510	0.3520		0.3646							
4			etic Energ			Venocity.	netration:		Distance	×			Bullet Expansion	돌	0.3440	0.3440		0777	inches						
Ammo wrg.:	Bullet W.C.:	Bullet Type: Lot No.:	Kinetic Energy at 20 ft.:		215 04	<b>1</b> 6	9.2						5	avg	0.3475	0.3480		0.2479	inches						
Winche	747	FMJ Subse 59GC3044	362.68 R.		000	67.210	0.6						Retained		146.30	146.60		146.48	grains						
	STIELDS	FMJ Subsonic Match 59GC3044	r. ibs.				. E						Per cent	Weight	99.52	99.73		60 63	*						

	Chronographed Velocity at 20 ft.	25 ≠ 25	Ž	netic Energ	Kinetic Energy at 20 ft.:	362.68	n.lbs.
	1 980.20						
	3 1073.42		Calibration Velocity	Velocity	615.84	612 29	Jes/e
			Calibration Temp.:	n Temp.	9	9	် ရှိ
	6 1067.01		Calibration penetration:	enetration:	9.2	9.0	£
	AVG 1064.20 fVsec						
		Test Type		Distance			ı
		Gelatin		Ę			
	Í	2		28 28			
		<b>₽</b>		× wos			
	Penetration	æ	<b>1</b> 98	Bullet Expansion	5	Retained	Per cent
	ndan	Length	max	를	gve	wengn	Weight
-	39.000						
7	39.000						
m	39.000	_					
<b>→</b>	39.000						
40	39.000						
AVG	39.000						
	inches	inches	inches	inches	Inches	grains	*

Ammo Mfg.: Winchester Bullet Wt.: 147 grains

 Date:
 94 JUN 24
 Bbl. Length:
 9"

 Make:
 H&K
 Serial No.:
 C315857

- Not Recovered Through Blocks

Nose Forward

50

Per cent Retained Weight Bullet Type: FMJ Subsonic Match 99.46 99.59 99.30 **88.33** grains Kinetic Energy at 20 ft.: 362.68 ft.lbs. Ammo Mfg.: Winchester 59GC3044 Retained Weight 612.29 6 9.0 146.20 145.50 146.40 148.10 146.02 grains Bullet Wt.: 147 Lot No.: 615.84 6 9.2 avg 0.3530 0.3525 0.3520 0.3520 0.3528 inches **Bullet Expansion** Calibration Velocity: Calibration Temp.: 35 m S Distance min 0.3500 0.3500 0.3480 0.3480 0.3500 0.3482 inches Nose Forward RCMP Storm Coat 3280 - 357 /87 C315857 0.3560 0.3560 0.3570 0.3540 0.3648 inches 9mm Bbl. Length: 9" Gelatin
Heavy Clothing X
Rib Penetration Remaining
Depth Bullet
Length Serial No.: Test Type Caliber: 0.646 0.648 0.647 0.650 0.648 hiches Chronographed Velocity at 20 ft. 1 980.20 2 1069.29 3 1073.42 4 1081.08 6 1067.01 Avc 1064.20 Nsec 36.250 30.500 33.000 27.375 inches 94 JUN 24 ISK Model: MP5 Nose Forward Nose Forward Base Forward Sideways Make: Date: Notes:

	Date:	94 JUN 24	Bbl. Length:	ō		Ammo Mfg.:	Winchester	<b>.</b>
	Make:	H&K	Serial No.:	C315857		Bullet Wt.:	147	grains
	Model:	MP5	Callber:	9mm		Bullet Type:	FMJ Sub	FMJ Subsonic Match
						Lot No.:	59GC3044	4
		Chronographed	<b>79</b>		:			
		Velocity at 20 ft.	ŧ.	Ź	netic Ener	Kinetic Energy at 20 ft.:	362.68 ft.lbs.	: <u>                                     </u>
		1 980.20 2 1069.29						
		3 1073.42		Calibration Velocity:	Velocity:	613.05	616.07	f/sec
		4 1081.08		Calibration Temp.:	n Temp.:	9	9	ပ္
		1067.01		Calibration penetration:	enetration:	9.2	9.2	Ę
		AVG 1064.20 f/sec					:	,
			Test Type		Distance			
		Ī	Gelatin Heavy Clothing x		₩ <sup>52</sup>			
			Zige		20m			
		Penetration	Remaining	Bet	Bullet Expansion	Hon	Retained	Per cent
			Length	max		D'e		Weight
	_	30.375	0.651	0.3550	0.3470	0.3510	146.60	57.88
	7	29.500	0.651	0.3550	0.3470	0.3510	148.50	99.66
	m	23.625	0.649	0.3550	0.3470	0.3510	146.00	96.32
	₹	28.000	0.652	0.3550	0.3470	0.3510	146.70	98.80
	40	27.125	0.647	0.3550	0.3470	0.3510	146.20	99.46
	A B B	27.726 inches	0.660 inches	0.3550 inches	0.3470 inches	0.3510 Inches	146.40 grains	99.58 *
Notes:								
-	Nose Fa	rward RCMP	Nose Forward RCMP Storm Coat 3280-357	80-357 /87				
8	Nose Forward	rward						
ю	Nose Forward	rward						
4	Nose Forward	rward						

Make: Model:		Bbl. Length:	<b>.</b>	•	Ammo Mfg.:		
Model:	S&W	Serial No.:	VAA 3369		Bullet Wt.:	155 gr	grains
	4046	Callber:	40 S&W		Bullet Type:	Hydra Shok JHP	JHb
					Lot No.:	110 168 H032	032
	Chronographed Velocity at 20 ft.	hed 0 ft.	Z	netic Ener	Kinetic Energy at 20 ft.:	433.60 R.lbs	<u>8</u>
	1 1135.59						
	3 1107.42		Calibration Velocity:	Velocity:	907.90	601.03	f/sec
	6 1116.82		Calibration penetration:	enetration:	8.7	8 6	> E
	AVG 1122.52 f/sec						
		Test Type		Distance			
		- Caladia			_		
		2					
		<b>2</b>		_	. —		
	Penetration	n Remaining	Bull	Bullet Expansion	- Los	Retained	Per cent
	<u></u>	Length	max	Ē	D\@		Weight
_	12.000	0.433	0.6200	0.6000	0.6100	154.30	99.55
7	12.250	0.497	0.6270	0.6020	0.6145	153.30	98.90
<b>е</b>	14.500	0.542	0.6080	0.5920	0.6000	160.80	100.00
<b>-</b>	12.375	0.468	0.6190	0.6020	0.6105	153.39	96.98
<b></b>	12.750	0.543	0.6580	0.6170	0.6375	159.70	100.00
AVG	3 12.776 inches	0.497 inches	0.6264 inches	0.6026 inches	0.6146 inches	166.30 grains	99.48
Notes:							
Sidewa	Sideways Jacket Fragmentation	gmentation					
Nose F	orward Jacke	Nose Forward Jacket Fragmentation	Core				
Sydewebis	y.						
	2						
Sideways		Jacket Fragmentation					
C. C. C. C.							

						Lot No.:	110168H032	032
	<b>~</b> >	Chronographed Velocity at 20 ft.	72 €	_	(inetic Ener	Kinetic Energy at 20 ft.:	433.60 n.lbs.	t lbs.
		1 1135.59 2 1129.18						
				Calibrati	Calibration Velocity:	613.27	612.52	f/sec
				Calibrat	Calibration Temp.:	9	ဖ	ပ္
		6 1116.82		Calibration	Calibration penetration:	9.3	1.6	8
		AVG 1122.52 f0sec						1
			Test Type		Distance			
			Galatin		٤	_		
		Ī			<u>ا</u> ا	. –		
			. €		, E			
		Penetration	Remaining	ã	Bullet Expansion	lon	Retained	Per cent
			Length	T S	ᄩ	avg		Weight
	-	14.375	0.472	0.6940	0.5620	0.6280	153.70	99.16
	~	12.125	0.546	0.7380	0.5800	0.8590	156.32	100.00
	e	12.250	0.469	0.7490	0.6150	0.6820	156.01	100.00
	<b>~</b>	13.625	0.502	0.7010	0.5660	0.6335	156.32	100.00
	•••	13.000	0.400	0.6840	0.6020	0.6430	154.93	<b>56</b>
	AVG	13.075	0.478	0.7132	0.6850	0.6491	156.46	99.82
		inches	inches	inches	inches	inches	grains	*
Notes:	ı.							
-	Sideways	Jacket Fragmentation	nentation Ja	cket peeled	on all bullets	Jacket peeled on all bullets to almost jacket/core separation	cket/core se	paration
7	Sideways							
m	Sideways							
4	Sideways							
10	Sideways							

Ammo Mfg.: Federal
Bulket Wt.: 155 grains
Bullet Type: Hydra Shok JHP

 Date:
 94 MAY 04
 Bbi. Length:
 4"

 Make:
 S&W
 Serial No.:
 VAA 3369

 Model:
 40 S&W

Appendix page 116

2. E. E. Bullet Type: Hydra Shok JHP Bullet Wt.: 155 grains 110 168H032 Kinetic Energy at 20 ft.: 433.60 ft.lbs. Ammo Mfg.: Federal 594.67 6 9.5 Lot No.: 599.74 6 9.7 Calibration Velocity: Calibration Temp.: Calibration penetration: VAA 3369 40 S&W Bbl. Length: 4" Serial No.: Callber: Chronographed Velocity at 20 ft. 1 1135.59 2 1129.18 3 1107.42 4 1123.60 6 1116.82 AVG 1122.62 fVsec 94 APR 25 S&W Model: 4046 Make: Date:

	5	Remaining	Ď	<b>3ullet Expansion</b>	slon	Retained	Per cen
	Depth	Bullet	max	重	Đ <sub>A</sub> Đ	Weight	Retained Weight
-		0.450	0.7020	0.5710	0.6365	155.09	100.00
7	_	0.400	0.6970	0.5690	0.6330	157.40	100.00
က		0.433	0.6480	0.5530	0.8005	156.32	100.00
4		0.470	0.5910	0.5610	0.5760	158.30	100.00
40		0.455	0.5770	0.5620	0.5695	156.01	100.00
AVG	14.700	0.442	0.6430	0.5632	0.6031	156.62	100.00

Distance
3m X
25m 
50m

Gelatin
Heavy Clothing | X

Test Type

#### Notes:

- 1 Sideways RCMP Storm Coat 3250-105 Nov/87
- 2 Sideways
- 3 Sideways Core Fragmentation Small
- 4 Sideways
- Sideways

Date:	94 MAY 30	Bbl. Length:	<b>.</b>		Ammo Mfg.:	Federal	
Make:	S&W	Serlal No.:	VAA 3369	_	Bullet Wt:	155	grains
Model:	4046	Callber:	40 S&W	_	Bullet Type:	Hyde Shok JHP	k JHP
					Lot No.:	110168H032	1032
	Chronographed Velocity at 20 ft.	A 5	_	(Inetic Ener	Kinetic Energy at 20 ft.:	433.60 ft.bs.	R.Bos.
	1 1135.59 2 1129.18						
	3 1107.42		Calibratic	Calibration Velocity:	591.93	584.86	f/sec
	4 1123.60		Calibrati	Calibration Temp.:	9	9	ပ္
	<b>5</b> 1116.82		Calibration	Calibration penetration:	9.2	9.2	£
	AVG 1122.62 N'Sec						1
		Test Type		Distance			
	Ĭ	Gelatin   Heavy Clothing   X					
		₽			_		
	Penetration Depth	Remaining Bullet	<b>8</b>	Bullet Expansion	co	Retained	Per cent
		Length	шах	min	avg		Weight
-	19.375	0.485	0.4710	0.4430	0.4570	154.40	19.66
~	19.000	0.497	0.4740	0.4280	0.4510	155.20	100.00
m	18.875	0.578	0.4430	0.4160	0.4295	154.30	99.55
₹	20.000	0.492	0.3950	0.3910	0.3930	153.00	12.96
40	18.375	0.489	0.5870	0.4430	0.5150	153.90	88.29
AVG	19.126	0.610	0.4740	0.4242	0.4491	164.16	99.43
	inches	inches	inches	inches	inches	grains	*

#### Notes:

- 1 Base Forward Jacket Fragmentation RCMP Storm Coat 3280-055 Sept/88
- 2 Nose Forward
- Nose Forward Jacket Fragmentation
- Nose Forward
- Nose Forward Jacket Fragmentation

Appendix page 118

Date:	94 JUN 07	Bbl. Length:	4	Ammo Mfg.: Federal	Federal	
Make:	S&W	Serial No.:	VAA 3369	Bullet Wt.: 155		grains
Model: 4	4046	Callber:	40 S&W	Butlet Type: Hydra Shok JHP	Hydra Sho	¥ H
				Lot No.:	110168H032	032
<b>0</b>	Chronographed Velocity at 20 ft.	ed F	Kinetic Ene	Kinetic Energy at 20 ft.:	433.60 fl.lbs.	r.ibs.
	1 1135.59					
	2 1129.18					
	3 1107.42		Calibration Velocity:	602.41	602.48	
	4 1123.60		Calibration Temp.:	9	49	ပ္
	5 1116.82		Calibration penetration:	7.6	6.6	Ę
	AVG 1122.62					

Bullet Wt.: 155 grains
Bullet Type: Hydra Shok JHP
Lot No.: 110168H032

VAA 3369 40 S&W

Bbl. Length: Serial No.: Caliber:

94 JUN 08

Make: S&W Model: 4046

Ammo Mfg.: Federal

	Penetration		ã	ullet Expansion	ro!s	Retained	Per cent
	Depth	Bullet	Tax	Ē	avg	Weight	Weight
-	13.875	0.356	0.7040	0.6130	0.6585	155.50	100.00
7	13.375	0330	0.7670	0.6230	0.6950	154.90	99.94
n	12.250	0.373	0.7170	0.6270	0.6720	150.10	96.84
4	13.125	0.398	0.6810	0.6170	0.6490	152.10	98.13
9	12.000	0.371	0.6360	0.6070	0.6215	125.80	81.16
AVG	12.926	0.378	0.7010	0.6174	0.6692	147.68	96.21

#### Notes:

- Sideways Muscle Rib Diameter ,4400 ,3275 inches
- 2 Sideways Bone
- Sideways Jacket/Core Fragmentation Peeled Bone
- 4 Sideways Bone/Muscle
- Sideways Jacket/Core Fragmentation Peeled Muscle

*	grains	inches	inches	inches	inches	Inches	
92.17	142.92	0.6146	0.6700	0.6692	0.416	12.926	AVG
100.00	155.00	0.6515	0.5960	0.7070	0.374	12.875	10
80.32	124.50	0.5860	0.5320	0.6000	0.414	11.625	4
100.00	155.30	0.5985	0.5880	0.6090	0.527	12.875	m
99.87	154.80	0.6950	0.6120	0.7780	0.384	13.375	~
80.65	125.00	0.5620	0.5220	0.6020	0.368	13.875	-
Weight	wergin	gve.	Ē	шах	Length		
Per cent Retained	Retained Weight	- Lo	Bullet Expansion	8	Remaining Bullet	Penetration Depth	
			Distance 3m 25m X		Test Type Geistin	<b>₹</b>	
				, ,		AVG 1122.62 fVsec	*
<b>် ၌</b>	6 9.2	9. 4.	Calibration Temp.: Calibration penetration:	Calibration Calibration		t 1123.60 5 1116.82	
fVsec	592.68	606.80	Calibration Velocity:	Calibratic		2 1129.18 3 1107.42	
f.lbs.	Allegic Lifetyy at 20 tt. 453.50 A						

Distance
3m X
25m 
Som

Test Type
Gelatin
Heavy Clothing
Rib

#### Notes:

- 1 Sideways Jacket/Core Fragmentation Jacket/Core Separation Muscle Rib Diameter 3055-3575 in.
- 2 Sideways Core Fragmentation Bone
- Sideways Muscle
- 4 Sideways Core Only Bone
- Sideways Cartilage/Muscle

Appendix page 120

Sideways

Per cent Retained Weight 98.76 100.00 100.00 100.00 **88.78 28** 5 € Bullet Wt.: 155 grains Kinetic Energy at 20 ft.: 613.73 ft.lbs. Ammo Mfg.: Winchester Bullet Type: Silvertip HP 67EF6874 Retained Weight 601.03 6 8.9 157.88 153.08 159.41 155.55 157.71 166.72 grains Lot No.: 0.6805 0.6895 0.6925 0.6905 0.6590 607.90 0.6824 inches **Bullet Expansion** Calibration Velocity: 6
Calibration Temp.:
Calibration penetration: Distance 0.6700 0.6620 0.6820 0.6770 34 25m 50m 를 0.6684 inches VAA 3369 40 S&W 0.6910 0.7170 0.7030 0.7040 0.6870 0.8864 inches Bbl. Length: 4" Test Type
Gelatin X
Heavy Clothing Penetration Remaining
Depth Bullet
Length Nose Forward Jacket Fragmentation Serial No.: Callber: 0.367 0.399 0.378 0.393 Chronographed Velocity at 20 ft. 1 1234.57 2 1222.20 3 1226.69 4 1221.00 6 1204.82 94 APR 25 Avg 1221.86 fVsec 12.000 11.500 11.500 11.375 12.500 11.776 inches S&W Model: 4046 Nose Forward Sideways Sideways Sideways Make: Date: Notes:

	Date:	94 MAY 04	Bb. Length:	<b>.</b>		Ammo Mfg.:	Winchester	<u>.</u>
	Make:	S&W	Serial No.:	VAA 3369		Bullet Wt.:	155	grains
	Model:	4046	Callber:	40 S&W		Bullet Type:	Silvertip HP	
						Lot No.:	67EF6874	
		Chronographed Velocity at 20 ft.	72	2	netic Enel	Kinetic Energy at 20 ft.:	613.73 R	f. lbs.
		4 1221.00		Calibration Velocity: Calibration Temp.:	n Velocity: n Temp.:	613.2 <i>7</i> 6	612 52 6	ī/sec
		6 1204.82 Avg 1221.86		Calibration penetration:	enetration.	9.3	1.6	Ę
		i i	Test Type Gelatin X		Distance			•
		<b>.</b>	Rib			7.5		
		Penetration	Remaining Bullet	Ba	Bullet Expansion	uoja	Retained	Per cent Retained
		•	Length	Тах	Ē	D\Q		Weight
	-	13.750	0.419	0.6260	0.5660	0.5960	157.25	100.00
	~	14.000	0.435	0.6780	0.5700	0.6240	156.78	00.00
	~	14.250	0.417	0.6300	0.5950	0.6125	156.17	100:00
	t 10	12.375	0.462	0.6750	0.6200	0.6475	157.56	100.00
	AVG	13.650 inches	0.428 inches	0.6478 inches	0.5862 inches	0.6170 inches	166.86 grains	100.00
Notes:	]	<u> </u>						
-	Nose Forward	oward						
7	Sideways	શ્						
<b>6</b>	Nose Forward	orward						
4	Sideways	ş						

Caliber: A0 S6W Bullet Wt.: 7	Make:		DOI: LEILBUI.	4		Ammo Mfg.:		ē
Chronographed		S&W	Serial No.:	VAA 3369		Bullet Wt.:	155	grains
Chronographed	Model:	4046	Caliber:	40 S&W		Bullet Type:	Silvertip HP	4
Chronographed Velocity at 20 ft.  1 123457 2 12220 3 122869 4 122100 6 120482 Avo 122186						Lot No.:	67EF6874	4
1234.57   1232.20   3   1226.69   Calibration Velocity:   599.74   1221.00   Calibration Tamp::   6   6   1204.82   Calibration Penetration:   9.7		Chronographe Velocity at 20 1	및 ±	×	Inetic Ener	gy at 20 ft.:	613.73 ft.lbs.	r. Bas.
2 1222 20 3 1226 69 4 1231 00 6 1204 82 Avs 1221 86 Avs 1225 0 0.380 0 0.6820 0 0.6450 Bullet Depth Bullet Expansion Bullet Bullet Avs Octobroom 0.6430 0.6820 0 0.6430 0.6430 0.6830 0.6630 0.6630 0.6430 0.6830 0.6630 0.6630 0.6430 0.6830 0.6630 0.								
1226.69   Calibration Velocity: 599.74     4   1221.00   Calibration Penetration: 9.7     5   1204.82   Calibration Penetration: 9.7     10   121.86								
120.00   Calibration Temp.: 6				Calibratio	n Velocity:	599.74	594.67	f/sec
Test Type				Calibrati	on Temp.:	ø	φ	ပ္
Penetration   Penetration   Penetration   Penetration   Builet   Som				Calibration	penetration:		ຜ	Ę
Penetration			Tast Tune		Dietance			ſ
Penetration			lest lype		DISIDAGE			
Penetration   Remaining   Som   So			Gelatin			_		
Penetration   Remaining   Bullet Expansion     Depth   Bullet   max   min   avg     1   13.250   0.380   0.6890   0.6455     3   14.375   0.386   0.6850   0.6455     4   13.875   0.386   0.6850   0.6455     5   14.250   0.394   0.6712   0.6142   0.6370     AVG                                       Nose Forward   RCMP Storm Coat   3250-105   Nov/87     Sideways		Ĭ	eavy Clothing X					
Penetration   Remaining   Bullet Expansion     Depth   Bullet   max   min   avg     1			<b>₹</b>		_			
1		Penetration		Bu	ilet Expans	LOIS LOIS	Retained	Per cent
1			Length	max	Ē	avg		Weight
13.125   0.396   0.6520   0.6250   0.6455     3	-	13.250	0.380	0.6980	0.6150	0.6565	154.93	98:88
3   14,375   0,410   0,6580   0,6050   0,6315     4   13,875   0,386   0,6890   0,6430     5   14,250   0,393   0,6520   0,6220   0,6370     AVG   13,776   0,394   0,6712   0,6427     Inches   Inches   Inches   Inches   Inches     Nose Forward   RCMP Storm Coat   3250-105   Now87     Sideways	7	13.125	0.398	0.6620	0.6290	0.6455	155.09	100.00
AVG 13.875 0.388 0.6890 0.6430 0.6430 0.6430 0.6430 0.6430 0.6430 0.6530 0.6520 0.6520 0.6570 0.394 0.6712 0.6142 0.6427 0.6427 0.394 0.6712 0.6142 0.6427 0.6427 0.394 0.6712 0.6142 0.6427 0.6427 0.394 0.6712 0.6437 0.6427 0.394 0.6712 0.6437 0.4427 0.394 0.394 0.394 0.394 0.4427 0	e	14.375	0.410	0.6580	0.6050	0.8315	156.01	100.00
AVG         14.250         0.393         0.6520         0.6520         0.6370           AVG         13.776         0.394         0.6712         0.6142         0.6427           Nose Forward         RCMP Storm Coat         3250-105         Now87           Sideways         Sideways	•	13.875	0.388	0.6860	0.6000	0.6430	156.17	100.00
AVG         13.776 nches         0.394 nches         0.6112 nches         0.6127 nches           Nose Forward         RCMP Storm Coat         3250-105 Now87           Sideways         Sideways	s	14.250	0.393	0.6520	0.6220	0.6370	156.63	100.00
Nose Forward RCMP Storm Coat 3250-105 Now87 Sideways Sideways	AVG	ı	0.394	0.6712	0.6142	0.6427	166.77	89.99
Nose Forward Sideways Nose Forward Sideways		inches	inches	inches	inches	inches	grakns	*
	:2							
Sideways Nose Forward Sideways	Nose Fc		Storm Coat 32	50-105 NC	20/87			
Nose Forward Sideways	Sideway	۶,						
Nose Forward Sideways								
Sideways	Nose Fc	nward						
	Sideway	શ						
	or or or or	•						

Make:	26.0	Senal No.:	VAA 3369		Bullet Wt.:	133	grains
Model:	4046	Callber:	40 S&W		<b>Bullet Type:</b>	Silvertip HP	무
					Lot No.:	67EF6874	_
_	Chronographed	7					
	Velocity at 20 ft.	<b>4</b>	3	inetic Enei	Kinetic Energy at 20 ft.:	613.73	ft.lbs.
	1 1234.57						
	2 1222.20						
	3 1226.69		Calibration	Calibration Velocity:	800.38	99.909	f/sec
	4 1221.00		Calibratio	Calibration Temp.:	9	9	ပ္
	5 1204.82		Calibration penetration:	penetration:	9.5	8.8	Ę
•	AVG 1221 86						
•							
		!					ı
		Test Type		Distance			
		Gelatin		톬			
	Ĭ	Heavy Clothing X					
		₽ ₽		× w05			
	Penetration	Remaining	Bal	Bullet Expansion	rojs.	Retained	Per cent
		Length	Тах	m L	gvs.		Weight
_	17.625	0.381	0.5550	0.5150	0.5350	155.90	100.00
7	17.375	0.363	0.6090	0.5500	0.5795	155.10	100.00
<u>س</u>	18.125	0.391	0.5820	0.5000	0.5410	155.30	100.00
*	16.000	0.375	0.5940	0.5350	0.5645	154.80	99.87
<b>1</b> 0	16.125	0.369	0.5890	0.5490	0.5690	155.10	100.00
AVG	17.060	0.376	0.6868	0.6298	0.5678	166.24	99.97
	inches	inches	inches	inches	inches	grains	*

- Nose Forward RCMP Storm Coat 3280-055 Sept/88
- Nose Forward
- Nose Forward
- Nose Forward
- Nose Forward

		94 JUN 07	Bbl. Length:	<b>.</b> 4		Ammo Mfg.:		_
	Make:	S&W	Serial No.:	VAA 3369	6	Bullet Wt.:	155 gr	grains
	Model:	4046	Caliber:	40 S&W		Bullet Type:	Silvertip HP	Q.
						Lot No.:	67EF6874	
		Chronographed	<u> </u>		ļ			
		Velocity at 20 ft.	<b>,</b> 2	_	(inetic Ene	Kinetic Energy at 20 ft.:	613.73 R.	f.lbs.
		1 1234.57						
		2 1222.20						
				Calibratio	Calibration Velocity:	600.67	596.23	fVsec
				Calibrati	Calibration Temp.:		vo ¦	ပ္
		Avg 1221.86		Calibration	Calibration penetration:	<b>L</b> .66	80 80	£
			!		i			
			Test Type		ž	. Г		
		_	Gelatin Heavy Clothing		<u></u>	⊒ [		
		•	₽			1 —		
		Penetration	Remaining	18	Bullet Expansion	rols	Retained	Per cent
		<u>.</u>	Length	тах	e C	avg		Weight
	-	10.875	0.314	0.7210	0.7060	0.7135	156.10	100.00
	~	11.000	0.325	0.7520	0.6710	0.7115	155.90	100.00
	m =	10.750	0.326	0.7060	0.6620	0.6840	155.20	100.00
	t io	10.500	0.260	0.7360	0.6960	0.7160	153.90	8 8 8 8
	\$\ <b>\</b>	300 11	446.0	0.7384	7 600	0.7130	4KE 20	80 00
		inches	inches	inches	inchea	inches	grains	×
Notes:	:4							
-	Sideways		Muscle Rib Diameter .42455040 inches	455040 ii	nches			
7	Sideways	s Muscle						
	i							
m	Sideways	s Bone						
	Sideways	's Bone						
9	Sideways		Jacket Fragmentation Muscle	واد				

Date:	94 JUN 08	Bbl. Length:	. <del>.</del> 4		Ammo Mfg.:	Winches	<b>.</b>
Make: Model:	S&W 4046	Serial No.: Caliber:	VAA 3369 40 S&W		Bullet Wt.: Bullet Type:	155 grain	grains
					Lot No.:	67EF6874	:
	Chronographed Velocity at 20 ft.	₽ €	¥	netic Ener	Kinetic Energy at 20 ft.:	613.73 A	r lbs.
	1 1234.57				<b>:</b>		
			Calibration	Calibration Velocity:	603.72	599.95	fVsec
	4 1221.00 5 1204.82		Calibration	Calibration Temp.:	9 6	9 g	ပ္ (
	19				i	}	į
	Ĭ	Test Type Gelatin Heavy Clothing Rib		Distance 3m 25m			
	Penetration	Remainin	Bul		lon	Retained	Per cent
	<b>5</b>	Bullet	тах	Ē	avg	Weight	Retained Weight
-	13.875	0.414	0.6350	0.5830	0.6090	155.40	100.00
7	11,750	0.347	0.7300	0.6600	0.6950	155.00	100.00
•	12.125	0.398	0.7420	0.6240	0.6830	154.40	99.61
4	13.000	0.411	0.6100	0.5840	0.5970	155.10	100.00
S	11.500	0.353	0.6460	0.6110	0.6285	155.30	100.00
AVG	12.460	0.386	0.6726	0.6124	0.6426	166.04	99.92
	inches	inches	hoches	anches.	anches.	- cyan	•

### Notes:

- 1 Sideways Fat Rib Diameter .3330 .3325 inches
- Sideways Bone
- Sideways Bone
- Nose Forward Bone
- Sideways Bone

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			AR	RARE			2	LOTH				aid	
				•			,	:				9	
		Penetration	Expansion	Retained	% Retention	Penetration	Penetration Expansion	Retained	% Retention	Penetration	Expansion	Retained	% Retention
	38 SW 5" 158gr	12.0250	0.6290	156.0380	98.76	12.9000	0.5638	156.3440	98.95	14.6500	0.6111	156,5600	60.66
	115 Win ST	9.2500	0.6597	113 4820	89 80	11 6000	0.5717	115 2720	00	0 4750	0.6553	111 0800	66.67
	446 0.44	0 0 0 0	0.6470	107 5740	9 6	11.000	10090	111 0130	25.00	17.750	0.00	2000	30.05
	Luc par cil	3.3230	0.010	0470 101	00.00	0007	0.000	14.0420	4 / 50	007/7	0.007.3	07.4000	69.1
4	124 PMC Starfire	11 0000	0.6355	123,8520	99.47	13.2000	0.5646	124.3460	99.91	11,9000	0.6252	123,4400	99.55
9mm	147 Fed Hydra Shok	12.2250	0.6292	145.2380	98.80	13.5750	0.5804	147 1840	26.66	13.9750	0.6443	147,3800	92.66
	147 Rem GS	13.8500	0.6152	146.9980	99.84	15.1000	0.6109	146.0140	99.33	15.2250	0.6064	146,0600	99.20
	147 Win BT	13,7250	0.6258	144.8400	98.53	15 3250	0.6160	147 1840	99.57	14 1500	0.6251	146 4000	99.20
	147 CCI GD	15.5000	0 5171	146.2200	99.44	16.7750	0.4795	147,0400	26.66	15.8250	0.4906	146.7800	99 81
	147 Win FMJ	29 1000	0.3522	146.6400	92.66	27.8250	0.3512	146.4600	99.63	23.0750	0.3536	146.4800	99.65
	115 Win ST	9.9750	0.5319	73 2040	63.66	9.8500	0 6186	107,6180	93.32	9.5750	0.5497	85.7200	74.54
	115 Fed JHP	12.2250	0 4889	68.8820	29.90	13 3500	0.5208	85.5820	74.42	11,3500	0.5335	80.5400	70.03
	124 PMC Starfire	9.7500	0.7144	122.8340	90 66	10.7000	0.6591	123.4500	99.52	8.8500	0.7144	118,3000	94.92
<u>.</u> б	147 Fed Hydra Shok	12,6000	0.6754	145,8900	20 66	12.0500	0.6508	146.2300	98.38	12.6750	0.5825	120.5000	81.97
9mm	147 Rem GS	13.4000	0.6733	143.4520	97.59	13.5500	0.6408	146.1980	99.26	15.4750	0.6503	142,1200	09 96
	147 Win BT	14.7750	0.6203	146.6920	98.73	14 0000	0.6694	146.9380	20.66	16.0250	0.6205	131 1800	89.24
	147 CCI GD	12 6000	0.7205	147,1000	66 66	14.6750	0.6002	147,1000	99.93	13.4000	0.6311	147,3600	100.00
	147 Win FMJ	37 4500	0.3478	146.4500	99.63	31.4250	0.3525	146.0200	99.33	33.8000	0.3523	146.5333	89.66
	155 Fed Hydra Shok	12.7750	0.6145	156.2980	99.48	14,7000	0.6031	156.6240	100.00	12.9250	0.6592	147.6800	95.21
	155 Win ST	11 7750	0 6824	156.7220	99.75	13.7750	0 6427	155.7660	66.66	11.0250	0.7139	155,2000	99.85
	155 CCI GD	13 1750	0.7189	155.6600	100.00	13.0250	0.6645	155.2000	99.99	12.7750	0.6994	155.6400	100 00
. <del>4</del>	165 Fed Hydra Shok	13.4750	0.6261	159.9400	96.93	14.4750	0 6000	164,3000	99.58	13,3000	0.6151	162.4600	98.46
40 S&W	40 S&W 180 Win Ranger SXT	13.2500	0.7079	179.1600	99.42	14.2500	0.7499	180.0120	99.87	12.0750	0.7089	179,1600	99.53
	180 Win Subsonic	14.6250	0.6565	177.9880	98.62	14.4250	0.6296	181,1980	100.00	13.7000	0.6345	165,9800	92 21
	180 Win FMJ	28 5750	0.3959	180,5000	100 00	28.3250	0.3975	180 4000	96.66	29.4500	0.3968	180 8800	100 00
	180 PMC Starfire	11,9250	0.7101	180 9500	99.94	13.3250	0.6510	180.5180	100.00	11 2000	0.7192	177.8400	98.43
	180 CCI GD	13.4500	0.6914	182.6540	100 00	13.5500	0.6208	180.0260	26.66	13.3500	0.6555	179.9200	99.92

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		Penetration Expansion	Expansion	Retained Wt.**	% Retention	Penetration	Penetration Expansion	Retained Wt.	% Retention	Penetration	Expansion	Retained Wt. ••	% Retention
	38 SW 5" 158gr	12.4500	0609	156.3480	98.95	13.3250	0.5847	156.3400	98.95	12.5250	0.6124	156,2000	98.86
	115 Win ST	10.4750	0.5831	114,6560	99.61	13 0500	0.5323	115.3400	06:66	9.8500	0.5956	110.1400	95.62
	115 Fed JHP	9.8750	6909.0	113.2340	98.39	13 5000	0.5250	114 9000	77.66	9.9250	0.6084	112,7600	98.05
4	124 PMC Starfire	11.9250	0.5832	124,1920	29.87	15 8500	0.5255	124.8400	100.00	11,3750	0.6260	124,8000	100.00
9mm	147 Fed Hydra Shok	12.0250	0.6125	147,2140	99.82	13 8750	0.5738	146.8400	99.66	11,5500	0.6397	146.7800	99.76
	147 Rem GS	13,8000	0.6125	149.0980	100.00	14.8750	0 6187	147.1800	26.66	13.5750	0.6172	147,0800	99.95
	147 Win BT	14,2000	0.6015	146.9700	99.95	16.0250	0.5864	147.4600	99.40	14.8250	0.6273	147,9000	69.66
	147 CCI GD	15.9750	0 4938	146.7600	99.82	17.3500	0.4639	146.8400	99.85	15.7250	0.4975	145,1600	98.73
	147 Win FMJ	24.1500	0.3520	146.6200	99.74	23.6500	0.3517	146.4400	99.62	29.3500	0.3510	146,8500	98.86
	115 Win ST	9.1750	0.6773	108,1600	94.00	9.7750	0.6342	114.8800	99.63	8.5250	0.6992	109.6200	95.32
	115 Fed JHP	10.2250	0.6471	108.2400	94.12	9.6500	0.6320	114,6400	99.44	9.5000	0.6129	103.4000	89.91
	124 PMC Starfire	11 0750	0.6780	123,5400	99.47	11.0250	0.6425	124.7000	96.66	9.9500	0.6630	124,0200	69.66
<u>.</u>	147 Fed Hydra Shok	12.0750	0.7114	146.0000	99.32	12.8000	0.6352	146.8800	99.67	11.1750	0.6744	145.2800	98.83
9mm	147 Rem GS	13,0500	0.6634	146.0000	99.29	14.0750	0.7018	147.2800	99.95	11 8250	0.6797	141,3200	96.14
	147 Win BT	13.4250	0 7385	147.7400	99.76	13.4500	0.6780	148,3600	100 00	12 8000	0.6745	147,4600	99.73
	147 CCI GD	12.5500	0.6398	147,0400	99.93	14 5000	0.5825	146.9200	06.66	12 9500	0.6307	146.8800	99.85
	147 Win FMJ	39.0000				27.7250	0.3510	146.4000	99.59	30.4500	0.3510	146,6000	99.73
	155 Fed Hydra Shok	13 0750	0.6491	155.4560	99.82	19.1250	0.4491	154,1600	99.43	12,9250	0.6146	142,9200	92.17
	155 Win ST	13,6500	0.6170	156.8480	100.00	17.0500	0 5578	155.2400	26.66	12,4500	0.6425	155.0400	89 92
	155 CCI GD	12,3000	0 6593	156,1800	96 66	14.1750	0.6145	155,2800	100.00	12.0000	0.6551	155,6600	100.00
4	165 Fed Hydra Shok	12.9750	0 6235	163.7600	99.25	15.3250	0.5699	164,3000	99.58	13,5000	0 6092	164.3000	99 58
40 S&W			0.7167	179.7600	99.82	14,3000	0 7391	179 9800	99.94	12,6000	0 7245	178.3600	60 66
			0.6625	179.7600	69.66	13,6500	0.6296	180,2600	99 66	12.4750	0.6500	177.4200	98 40
	180 Win FMJ	32 9000	0.3961	180 6200	100:00	30.7000	0.3955	180,3800	86.66	28 1750	0 3945	180,6800	100 00
	180 PMC Starfire	12 0750	0.7042	180.4200	88.66	16.3000	0.6122	179,7000	69 66	11 3250	9069 0	180.9600	99 54
	180 CCI GD	13 9750	0 6326	180,2200	26.66	13 5750	0.6165	180.3400	96.66	12 8250	0.6441	179 9800	99 92

bullets not recovered
 Retained weight is the average of the recovered bullets' retained weight, uncorrected when they exceed the manufacturer's advertised bullet weight are recorded as 100% retained weight
 Recovered bullet weights greater than the manufacturer's advertised weight are recorded as 100% retained weight





## 9 MM Parabellum

115 grain Winchester Silvertip





















147 grain Winchester Black Talon

115 grain Federal Jacketed Hollowpoint











147 grain Speer Gold Dot

124 grain PMC Starfire









147 grain Winchester Full Metal Jacket

APPENDIX 172: UNFIRED BULLETS (9 mm Parabellum)

147 grain Federal Hydrashok

SCALE:

CENTIMETA

# SCALE:

.38 SPECIAL fired from S&W 10-5 5" BBL:











158 grain Federal Semi-wadcutter

3 metres





147 grain Remington Golden Saber













































9 MM Parabellum

fired from S&W 5943:

115 grain Winchester Silvertip







50 metres

3 metres













Black Talon

Jacketed Hollowpoint 115 grain Federal













147 grain Speer Gold Dot

124 grain PMC Starfire





147 grain Winchester Full Metal Jacket

.38 SPECIAL fired from S&W 10-5 5" BBL:

158 grain Federal Semi-wadcutter



50 metres



















50 metres

3 metres

115 grain Winchester Silvertip

fired from S&W 5943: 9 MM Parabellum

50 metres







147 grain Remington Golden Saber



























147 grain Winchester Black Talon

Jacketed Hollowpoint 115 grain Federal













147 grain Speer Gold Dot

124 grain PMC Starfire











147 grain Federal Hydrashok













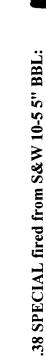






CENTIMETRES

SCALE:



158 grain Federal Semi-wadcutter



fired from S&W 5943: 9 MM Parabellum

115 grain Winchester Silvertip



50 metres



3 metres

50 metres





147 grain Remington Golden Saber





147 grain Winchester Black Talon

115 grain Federal Jacketed Hollowpoint

















147 grain Speer Gold Dot

124 grain PMC Starfire









CENTIMETER

APPENDIX 176: PIGS RIBS (9 mm Parabellum)

147 grain Federal Hydrashok

SCALE:

.38 SPECIAL fired from S&W 10-5 5" BBL:



50 metres







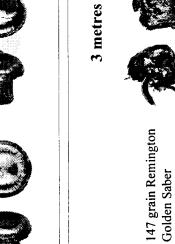






158 grain Federal Semi-wadcutter

50 metres



50 metres

3 metres

115 grain Winchester Silvertip

fired from H&K MP5: 9 MM Parabellum





























































































147 grain Winchester

Jacketed Hollowpoint 115 grain Federal

Black Talon













147 grain Speer Gold Dot

124 grain PMC Starfire







147 grain Federal Hydrashok



























SCALE:

.38 SPECIAL fired from S&W 10-5 5" BBL:

158 grain Federal Semi-wadcutter



50 metres









3 metres

50 metres



3 metres

50 metres



115 grain Winchester Silvertip





147 grain Remington Golden Saber

















































































































147 grain Winchester

Jacketed Hollowpoint 115 grain Federal

Black Talon















147 grain Speer Gold Dot

124 grain PMC Starfire









147 grain Winchester Full Metal Jacket

147 grain Federal Hydrashok



APPENDIX 178: HEAVY CLOTHING (9 mm Parabellum)

3 metres

50 metres

158 grain Federal Semi-wadcutter

.38 SPECIAL fired from S&W 10-5 5" BBL:



fired from H&K MP5: 9 MM Parabellum

115 grain Winchester Silvertip



50 metres

3 metres



3 metres

50 metres



147 grain Remington Golden Saber





147 grain Winchester Black Talon

115 grain Federal Jacketed Hollowpoint



124 grain PMC Starfire



147 grain Speer Gold Dot



147 grain Winchester Full Metal Jacket

3 metres



158 grain Federal Semi-wadcutter

.38 SPECIAL fired from

S&W 10-5 5" BBL:

50 metres

180 grain Winchester Ranger SXT



50 metres





























50 metres

3 metres

.40 SMITH & WESSON

fired from S&W 4046:

155 grain Federal Hydrashok





































180 grain Winchester Subsonic











180 grain Winchester Full metal Jacket

155 grain Winchester Silvertip









180 grain PMC Starfire

155 grain Speer Gold Dot









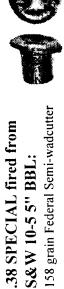
180 grain Speer Gold Dot







3 metres



S&W 10-5 5" BBL:







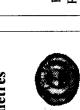
50 metres

3 metres

.40 SMITH & WESSON

fired from S&W 4046:

155 grain Federal Hydrashok







50 metres

3 metres











































180 grain Winchester Subsonic



























180 grain Winchester Full metal Jacket

155 grain Winchester Silvertip













155 grain Speer Gold Dot



















SCALE: 180 grain Speer Gold Dot 180 grain PMC Starfire 180 grain Winchester Ranger SXT 180 grain Winchester Subsonic 180 grain Winchester Full metal Jacket 50 metres APPENDIX 182: PIG RIBS (.40 Smith & Wesson) 3 metres 158 grain Federal Semi-wadcutter .40 SMITH & WESSON 155 grain Winchester Silvertip 165 grain Federal Hydrashok 155 grain Federal Hydrashok fired from S&W 4046: 155 grain Speer Gold Dot S&W 10-5 5" BBL:

Central

50 metres

3 metres

50 metres

3 metres

.38 SPECIAL fired from