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TAP Alert

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TECHNOLOGY ASSESSMENT PROGRAM

Testing Shows Weapons Should Be Inspected Before Police Service

One of the most important items of equipment a police officer carries is a service weapon. A properly functioning weapon can make the difference between life and death.

This alert summarizes the results of TAP's .38- and .357-caliber revolver and .38- and .357-caliber automatic pistols. The results of both the revolver and the automatic pistol testing show that police agencies should examine new weapons carefully before putting them into service. And that agencies interested in purchasing handguns ready for police service should specify in their purchase orders that the pistols or revolvers must comply with NIJ standards.

A copy of the full reports, Equipment Performance Report: .38- and .357-Caliber Automatic Pistols and Equipment Performance Report: .38- and .357-Caliber Revolvers, can be obtained by calling or writing to the TAP Information Center, Box 6000, Rockville, MD 20850, 800-24-TAPIC or 301-551-5060.

Revolvers

TAP tested 21 different models of revolvers against the minimum performance requirements established by NIJ Standard-0109.00 for .38- and .357-caliber revolvers. The standard establishes six broad categories that are critical to the safety and reliability of service weapons.

The six major requirements for .38- and .357-caliber revolvers include:

1. **User information requirements.** The manufacturer shall supply instructional materials with each revolver and certi-

fication that the revolver model complies with the standard.

2. **Dimensional requirements.** The barrel/cylinder gap, barrel bore diameter, and headspace shall meet the minimum measurements described in the standard.

3. **Functional requirements.** The single and double action of the revolver shall operate smoothly. The barrel and cylinder shall be aligned. Cartridges shall be ejected without hesitation. The cylinder support shall be tightly assembled and moving parts shall slide freely. The hammer and trigger shall operate properly as described in the standard. The revolver shall incorporate one or more safety features to prevent inadvertent discharge.

4. **Firing requirements.** The revolver shall fire 500 rounds of ammunition with no structural or mechanical failures and no more than one misfire. The revolver will be judged a failure if more than one of the four parameters measured during the firing test falls outside the specified range: headspace, barrel/cylinder gap, trigger pull, and barrel/cylinder alignment.

5. **Drop safety requirements.** The revolver shall not fire and the primer shall be free of any indentation after being dropped from a height of one meter.

6. **Hammer safety requirements.** The revolver shall not fire when the barrel is pointing down, the hammer is in the double action resting position, and the hammer receives an impact from above by an impactor of the same weight as the loaded revolver.

Results

None of the 22 models of revolvers tested complied with every requirement of the standard. Several models, however, did comply with the more critical requirements such as drop safety, hammer safety, and firing. (See Table 1.) In no case did the manufacturers comply with the user information requirements because they did not provide certification of compliance with the standard. In addition, most of the revolvers failed this requirement because the manufacturer did not include a statement concerning the acceptability of +P ammunition.

Autoloading Pistols

TAP tested 20 different models of autoloading pistols against the minimum

performance requirements established by NIJ Standard-0112.00 for 9mm and 45-caliber autoloading pistols. This standard has seven categories of pistol performance, including:

1. **User information requirements.** The manufacturer shall supply instructional materials with each autoloader and certification that the autoloader model complies with the standard.
2. **Visual inspection requirements.** The hammer shall have sufficient overtravel to assure achievement of the full-cocked position, and there shall be no loose shavings, chips, scratches, burrs, or rust spots.
3. **Dimensional requirements.** The barrel bore diameter and headspace shall meet the

Table 1
Summary of Revolver Test Results

C = Complies with the requirement of the standard
N = Does not comply with the requirement of the standard

Manu- facturer	Model	Caliber	Dimen- sional	Func- tional ^a	Firing	Drop safety	Hammer safety
Charter Arms	13820	.38	N	N (7)	N	N	C
	63521B ^b	.357	N	N (7)	N	#	#
	63542B	.357	C	N (7)	N	N	N
	73820P	.38	N	N (6)	N	N	C
Sturm Ruger	108 ^b	.38	C	N (5)	C	N	C
	208 ^b	.38	C	N (2)	C	N	N
	707 ^b	.357	C	N (2)	C	N	C
	717 ^b	.357	C	N (3)	N	C	N
	737 ^b	.357	C	N (3)	N	N	C
	GP100 ^b	.357	C	N (6)	C	N	N
Smith & Wesson	10 ^b	.38	C	N (7)	N	C	C
	13 ^b	.38	N	N (2)	C	C	C
	13 ^b	.357	C	N (3)	C	C	C
	15 ^b	.38	C	N (4)	C	C	C
	19 ^b	.357	C	N (4)	N	C	C
	36 ^b	.38	N	N (3)	C	C	C
	49 ^b	.38	N	N (5)	C	N	C
	60	.38	N	N (4)	N	N	N
	64 ^b	.38	C	N (4)	C	C	C
	586 ^b	.357	N	N (2)	C	C	C
	649	.38	C	N (7)	N	C	C
	686 ^b	.357	N	N (4)	N	C	C

^aTests of 25 functional parameters were conducted; numbers in parentheses are the number of characteristics of the functional requirement that did not comply with requirements.

^bFailed to state acceptability of +P ammunition in instructions.

[#]No test was performed.

required measurements described in the standard.

4. Functional requirements. The slide shall operate smoothly without binding or sticking. The ejection mechanism shall eject cases without hangup. The hammer and trigger shall operate as described. The pistol shall have one or more design features to prevent inadvertent firing and active safety devices shall be designed so that the pistol can be made fire-ready by releasing the safety(s) with the shooting hand. The magazine shall have a minimum capacity of six rounds and shall be capable of being released without removing the shooting hand from the pistol.

5. Firing requirements. The pistol shall fire 600 rounds of ammunition with no structural or mechanical failures and no more than five malfunctions.

6. Drop safety requirements. The pistol shall not fire during the drop test described in the standard.

7. Drop function requirements. After completing the drop safety test, the pistol shall fire 20 rounds with no more than three malfunctions.

Results

Like the results of the revolver testing, none of the 20 models of autoloading

Table 2
Summary of 9mm and .45-Caliber Autoloading Pistol Test Results^a

C = Complies with the requirements of the standard
N = Does not comply with the requirements of the standard

Manu- facturer	Model	Caliber/ mm	Visual	Dimen- sional	Func- tional ^b	Drop Safety/Func.	Firing
Astra	A90	.45	C	C	N (1)	Not com- pleted/N	N
	A90	9mm	C	C	N (1)	C/C	C
Beretta	92-F	9mm	N	C	N (1)	C/C	C
Glock	17	9mm	C	C	N (1)	C/C	N
Heckler & Koch	P7M8	9mm	C	N	C	C/C	C
	P7M13	9mm	C	C	N (1)	C/C	C
Sig Sauer	P220	.45	C	C	C	C/C	N
	P220	9mm	C	C	C	C/N	C
	P225	9mm	C	C	N (1)	C/C	N
	P226	9mm	C	C	N (1)	N/C	C
Steyr	GB	9mm	C	C	C	C/C	C
Walther	P5	9mm	N	C	N (2)	C/C	C
Smith & Wesson	439	9mm	C	C	C	C/C	C
	459	9mm	C	C	C	C/C	C
	469	9mm	C	C	N (1)	C/C	C
	639	9mm	N	C	C	C/C	C
	645	.45	N	C	C	C/C	C
	659	9mm	C	C	C	C/C	C
	669	9mm	C	C	C	C/C	N
Star	PD	.45	C	C	N (1)	C/C	N

^aUser Information: User information is not listed in the tables because none of the manufacturers met the requirement for proper user information; i.e., they did not provide certification of compliance with the standard. A majority of the weapons also failed this requirement because the manufacturer did not include a statement on ammunition known to be acceptable to use with the revolvers or pistols.

^bThe number of functions the model failed to comply with are in parentheses.

pistols complied with every requirement of the standard. Several models, however, did comply with all but the user information requirements. (See Table 2.) And also like the revolver testing, in no case did the manufacturers provide, with the user information, a certificate of compliance with the standard as required, and the majority of the models did not include a statement on ammunition known to be beyond the design limits of the pistol or known not to function in the pistol, or both.

Recommendations

No attempt has been made to rank pistols or revolvers according to their test results nor does TAP endorse particular products. However, because TAP reports are the product of carefully controlled tests and critical analysis of the data, the results will help law enforcement agencies identify those handguns that most clearly meet their needs.

TAP recommends that law enforcement agencies review the test results with an eye toward which requirements are most critical to their particular needs. A department may consider noncompliance with one or another of the functional requirements insignificant if the pistol or revolver can be easily adjusted to conform to the standard and the department has the personnel to do so.

Noncompliance with other parameters could, however, require major rework or modifications requiring the service of a skilled gunsmith to achieve an acceptable level of performance. For a department that does not have an armorer or gunsmith, every parameter is critical. For a department that does have an armorer, the department must decide if it wants a portion of its armorer's time used adjusting new guns straight from the box.

Thus, one agency's critical need may be unnecessary to another agency. Some requirements of the NIJ standard, however, such as the drop safety or firing requirements, should be scrutinized universally because they are essential to the basic performance and safety of the pistol or revolver.

The most important warning that TAP can offer as a result of this test program is that agencies should not assume that a weapon is ready for police service until it has been inspected by an armorer. Even though the pistols and revolvers that were tested were donated directly by their manufacturers or distributors, only a few were totally combat ready (acceptable for police service right out of the box). TAP therefore encourages all departments that purchase weapons for police use to stipulate in their purchase order that they must comply with the requirements of NIJ Standards.

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