

POLICE WEAPONS CENTER

SUBMACHINE GUNS IN POLICE WORK

DAVID E. STEELE

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Management and Research Division International Association of Chiefs of Police
1319 EIGHTEENTH ST., N.W. • WASHINGTON, D.C. 20036 • AREA CODE 202—TEL. 265-7227

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SUBMACHINE GUNS

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SUBMACHINE GUNS IN POLICE WORK

INTRODUCTION

A submachine gun is generally defined as a hand held weapon utilizing a fixed or retractable shoulder stock, capable of burst or automatic fire with pistol ammunition.

The first weapon to fire pistol ammunition automatically was the Villar Perosa developed by Italy during World War I. This was the first true submachine gun though it bore little resemblance to its modern counterpart. With two barrels, two handgrips, and two trigger buttons, the Villar Perosa weapon resembled the later Browning .50 caliber heavy machine gun. The Villar Perosa failed as a light machine gun because its ammunition did not have the range or penetration of rifle cartridges. Later it was modified to rifle configuration with a shoulder stock and single barrel so that it could be carried and fired by hand, eliminating the need for vehicle or tripod mounting.

The modern phase of submachine gun history began with the weapon's popularization following the introduction of the Thompson submachine gun in 1921. The Thompson was the first mass-produced submachine gun and it sold in the millions. The Capone era gang wars in Chicago gave it a lasting, but unsavory image in police circles. However, in order to keep parity with criminal arsenals, Thompsons gradually became part of law enforcement armories in many cities.

The first major use of submachine guns in warfare occurred during the Spanish Civil War, 1935-1938. As mass production techniques began to improve, it was found that submachine guns made from metal stampings would perform as well at normal operating distances as the more expensively machined weapons such as the Thompson.

During World War II, Germany developed the MP38 and later the MP40 "burp guns." The United States introduced the M3 "grease gun," England made the "Sten gun," and the Soviet Union developed the PPSH41 "Shpagin" still used by Soviet border police. All these could be manufactured cheaply, and the submachine gun became the primary weapon of Soviet infantry in World War II and later for the Chinese forces in Korea.

The next step in the evolution of the submachine gun was its reduction in size. Folding stocks, often of skeletonized metal construction, became standard. The Czech ZK476 introduced the concept of telescoping part of the bolt over the rear of the barrel to reduce overall length. Soon after World War II, the idea of grip-feed came into prominence because a weapon that feeds through its pistol grip is not only shorter but is easier to load at night by the "hand-finds-hand" method. In another new development, plastic superseded wood in solid stock and foregrip construction. All these improvements were included in the Israeli-made Uzi submachine gun, which is now the most widely marketed machine pistol in the free world.

The trend in submachine gun design now seems to be toward a weapon which is lightweight and handles easily. The first submachine gun, the bulky Villar Perosa, fired 3,000 rounds per minute, the highest cyclic rate of any submachine gun developed to date. With the advent of a rifle-shaped submachine gun, the weight, as well as the cyclic rate, was reduced. Currently a rate of about 600 rounds per minute is favored in Europe, while the Soviets prefer a rate approaching 1,000 rounds per minute. The critical issue in design is one of weight versus controllability in full automatic fire.

As submachine guns approach pistol size, it is necessary to find ways of increasing accuracy and lessening muzzle climb while maintaining a cyclic rate high enough for suppression fire, as used in military attacks. The addition of muzzle breaks or compensators, recoil buffers, front handgrips, and straight-line stocks are all attempts to increase accuracy through greater controllability.

POLICE APPLICATIONS

The modern submachine gun is an extremely lethal weapon of war. It is designed primarily for combat situations where a high volume of fire can be employed indiscriminately to kill or suppress enemy forces. Because of the need for controlled and discriminate use of firepower in the typical law enforcement environment, the submachine gun has seldom been a weapon of choice for police agencies in the United States.

To supplement the handgun, most municipal and county law enforcement agencies have adopted the riot shotgun. The shotgun has lower penetration, higher first-round stopping power, and higher first-round hit probability for the nonexpert. An added advantage is the lower cost of shotgun training. It is generally agreed that shotgun qualification can be achieved in less time than submachine gun qualification and personnel entering police service are far more likely to be familiar with the shotgun than the submachine gun.

Considering the lack of formal acceptance of submachine guns by United States law enforcement agencies and the almost total absence of training doctrine and policy guidelines for their use, there is a surprising number of these weapons on hand in departments of all sizes in this country. A recent IACP Police Weapons Center survey indicated that there is also a wide assortment of these submachine guns, as summarized in figure 1.

Many police agencies are stocking submachine guns for which they have neglected to provide either training or policy guidance. In view of the nature of these weapons and the ramifications of their use, police administrators would be well advised to consider either disposing of submachine guns, or integrating them into the total police weapons system.

Tactical Requirement

Considering the nature of the submachine gun and the environment in which the agency operates, what tactical situations would lend themselves to the effective use of such weapons? Put another way, in what police combat situations would the characteristics of the submachine gun maximize the chances of successful police action with minimum risk of injury to innocent persons? Unlike the soldier, whose mission is destruction of the enemy, the police officer must always be prepared to waive efficiency or even self-defense in favor of public safety.

Can a tactical role for the submachine gun be identified in the average police department? For most police agencies, almost all possible tactical applications fall into one of three categories:

1. **Protection of Dignitaries.** While the compactness, firepower and mobility of some modern submachine guns have led to this weapon's use in the protection of important officials, the typical crowded environment engendered by the public appearance of certain politicians would severely limit the utility of the submachine gun. The use of an automatic weapon in a crowd by a well-trained security expert to protect the President of the United States might be justified, but the acceptance of such risk in more routine protective work would be more difficult to support.

FIGURE 1
SUMMARY OF SUBMACHINE GUN SECTION
1970 IACP WEAPONS SURVEY

Types of Submachine Gun (SMG)	(26)* Over 1,000,000		(35) 999,999-250,000		(34) 249,999-100,000		(73) 99,999-50,000		(95) 49,999-25,000		(133) 24,999-10,000		TOTALS	
	Number of Departments	Approximate number of weapons on hand	Dept.	Weapons	Dept.	Weapons	Dept.	Weapons	Dept.	Weapons	Dept.	Weapons	Dept.	Weapons
Danish Madsen SMG (9 mm)	1	2							1	6	1	1	3	9
Eagle Carbine (Converted to SMG) (.45 a.c.p.)								1	1			1	1	1
German Schmeisser MP 38/40 (9 mm)							3	4	2	3	4	5	9	12
Ingram Model 6 SMG (.45 a.c.p.)	1	2	1	2	1	1	2	2			3	3	8	10
Italian Beretta 38/42 (9 mm)							2	2				1	3	3
Reising (Harrington & Richardson) M50, M55 & M60 SMG (.45 a.c.p.)	5	47	10	57	9	34	16	40	21	42	21	39	82	259
Smith & Wesson M76 SMG (9 mm)	2	130					4	19	4	19	3	5	13	192
Spitfire Carbine (converted to SMG) (.45 a.c.p.)	1	2					1	2			2	2	4	6
Thompson SMG Models: 1921, 1928, 1928A1, (.45 a.c.p.)	13	183	20	114	23	60	40	80	44	75	35	45	175	557
U.K. Sten MK11 (9 mm)											1	1	1	1
U.S. M3 or M3A1 "Grease Gun" SMG (.45 a.c.p.)			1	1					1	2	1	1	3	4
Uzi SMG (Fabrique Nationale) (9 mm)	2	31											2	31
Totals	25	397	32	174	33	95	68	149	74	148	72	103	304	1,085

*Agencies reporting in each population category.

2. **Security.** The submachine gun is also employed in the security of certain critical governmental installations. Again, firepower, compactness and mobility are both useful and usable in carefully controlled situations involving national security. Short of full-scale urban warfare, however, the use of submachine guns in routine physical security work would probably generate more problems than solutions.
3. **Raids and Assaults.** The submachine gun is most compatible with its designed function in police operations involving raids or assaults on fortified or heavily defended positions. In instances where police encounter substantial armed resistance and the environment permits the use of automatic weapons without risk to innocent lives, the discriminate use of the submachine gun against barricaded criminals may be effective.¹

The more closely police operations approximate military combat, the more useful the submachine gun. The three characteristics of firepower, compactness and mobility that make the submachine gun a useful military weapon can also reduce the risk of police casualties by terminating what might otherwise be a prolonged fire fight.

In the final analysis, the decision to train and equip law enforcement officers with submachine guns will have to be made on the basis of an assessment of local tactical requirements as weighed against the disadvantages of these weapons. In any event, at the present time in the United States, the submachine gun is regarded as a highly specialized weapon with a narrow range of applications in general police service. As with any special purpose weapon, there is always a strong possibility that the submachine gun will be overlooked in both the formulation of policy and the design of training.

Policy Formulation

Policy formulation involves deciding *what* will be done and procedure directs *how* it will be accomplished. In any law enforcement agency, firearms policy will either be formulated by executive leadership and clearly stated to operations personnel, or it will be formulated and executed on the street by each officer in response to his perception of each situation. Policy covering all firearms, especially potentially controversial and dangerous automatic weapons, must be established and disseminated.

For example, policy relating to submachine guns should, as a minimum, answer the following questions:

- **WHY** will the agency employ the submachine gun as a component of the weapons system?
- **WHO** will use the submachine gun? What personnel will be authorized to use a submachine gun: How will they be identified? How will their qualification be established and maintained?
- **WHEN** and **WHERE** will submachine guns be employed? Under what conditions will use of automatic weapons be authorized? Who will make the decision to employ these weapons in the field?

¹If, however, greater penetration is desired, a rifle would be a better choice than a submachine gun. For example, 5.56 mm assault rifles such as the Colt AR15, the Armalite AR180, and the Stoner 63 all offer greater range, penetration and accuracy.

- **HOW** will the submachine gun be used? What tactics and general operational guidelines will be employed?
- **WHAT** procedures will be employed for managing the submachine gun subsystem? How will submachine guns be procured, secured, maintained, and transported? How will users be selected, trained, and maintained at an acceptable level of performance? How will controls be provided?

Once policy has been developed, it must be implemented by the dissemination of clear procedural guidelines. Figure 2 illustrates one format that might be adopted to insure that important points are covered. However, the format is less important than the content, which must be clear and concise.

Organization

Because of its highly limited police applications, the submachine gun, if used at all, will for the foreseeable future remain a secondary weapon for carefully selected and trained officers assigned to special response units.

If personnel with prior civilian or military experience in the use of automatic weapons are selected for submachine gun training, the cost of such training can be reduced substantially. Even extensive experience with rifles or shotguns will increase the rate at which submachine gun training can be absorbed.

Regardless of background, however, the police officer to be selected for submachine gun training must be emotionally stable, mature, and naturally restrained in the use of force. Unfortunately, personnel attracted to special weapons units are not always the most psychologically suited to such assignment. The submachine gun has a great potential for destructive misuse that can only be balanced by human discretion.

FIGURE 2
PROCEDURE FOR USE OF SUBMACHINE GUNS

PROCEDURE NUMBER

Field Operations and Enforcement

TO: ALL MEMBERS

RE: SUBMACHINE GUNS

A. OBJECTIVES

1. Departmental

To assure the public maximum personal safety and convenience by providing protection and assistance.

2. This order

To establish policy and procedures for the use of submachine guns (automatic weapons firing pistol ammunition) by departmental members.

B. POLICY

1. Only authorized members may use the submachine gun furnished by the department as an offensive or defensive weapon in accordance with this order.
2. The use of the submachine gun shall be considered an alternate action to the use of the police shotgun under appropriate circumstances and is not intended as a replacement for the shotgun or high-power rifle.
3. Submachine guns shall not be discharged in any situation where there exists any risk of injury to innocent persons. Personnel armed with submachine guns will withhold automatic fire rather than risk accidental injury or death.

C. GENERAL

1. Submachine guns are intended for use in those cases wherein the authorized member is attempting to subdue an armed attacker or an entrenched suspect resisting with firearms or under other circumstances, within the rule of law, which permits the lawful and necessary use of extreme force and which is best accomplished by the use of a medium-range shoulder weapon capable of automatic or single fire.
2. Submachine guns shall not be used indiscriminately or in anticipation against mere threat of armed attack or resistance.
3. The submachine gun shall be carried by means of a canvas web sling for uniform wear, or by means of a sling or special holster for concealment under plain clothes.

FIGURE 2
PROCEDURE FOR USE OF SUBMACHINE GUNS (Continued)

D. PROCEDURES FOR USE

1. Submachine guns furnished under this order are manufactured with a retractable metal stock which should be carried extended for uniform wear, and retracted for concealment under plain clothes.
 - a. The gun shall be carried with stock extended in anticipation of use except when transporting the weapon or concealing it under plain clothes.
 - b. An "open-bolt" firing gun shall be carried with the bolt closed and the selector lever pointing to the "semiautomatic" position.
 - c. A "closed-bolt" firing gun shall be carried with a round in the chamber and the selector lever pointing to the "safe" position.
 - d. Submachine guns shall be carried with the muzzle of the gun pointing either upward or downward, in a safe direction.
2. Use of submachine guns shall normally be limited to a range of 200 yards for semiautomatic fire and 50 yards for full automatic fire.
3. The submachine gun shall be fired from the shoulder unless the range to the target is less than ten yards *and* the imminence of armed attack precludes bringing the weapon to the shoulder.
4. Fleeing dangerous felons shall normally be fired upon with semiautomatic fire only.
5. Authorized members shall carry one loaded magazine in the gun and one spare loaded magazine.
6. Following are the normal uses of the submachine gun to be authorized by the commander:
 - a. Stakeouts for known armed, dangerous felons.
 - b. Raids on sandbagged or otherwise fortified criminal positions.

FIGURE 2
PROCEDURE FOR USE OF SUBMACHINE GUNS (Continued)

7. In normal operations, only one man on any raid or stakeout shall be authorized to carry or use the submachine gun.
 - a. This will minimize the risk of indiscriminate crossfire.
 - b. All others should carry shotguns, carbines, or rifles depending on tactical needs.
 - c. Additional submachine gun authorizations will be made only by the operation commander.
8. If sniper fire can be determined to come from a particular window, the submachine gunner shall accurately place two or three-shot bursts into that window while other officers advance on the building.
 - a. Countersniper fire shall *not* be returned with pistols or revolvers after heavier weapons have been brought to the scene.
 - b. High-power rifle fire shall not be directed against a sniper except by expert marksmen.
 - c. Shotgun-armed members may direct countersniper fire at the discretion of the operation commander.
9. Submachine guns shall not be fired from moving vehicles.
10. Submachine guns shall be fired at moving vehicles only under emergency conditions and when the public safety shall be endangered less by their use than by their nonuse.

E. PROCEDURE AFTER USE

1. The immediate superior of the authorized submachine gun user shall check the number of rounds expended from each issued magazine at the end of each operation or tour of duty.
 - a. The submachine gun user is not authorized to carry extra ammunition for his submachine gun during his tour of duty.
 - b. The command to resupply ammunition during an operation will be made by the operation commander.
 - c. The submachine gunner may be issued more than two magazines for an operation only by the direction of the operation commander.

FIGURE 2
PROCEDURE FOR USE OF SUBMACHINE GUNS (Continued)

2. Department submachine guns shall be stripped and cleaned only by the department armorer. They shall be cleaned thoroughly after every use, and they shall be inspected for dirt and rust before and after each time they are issued by the officer in charge of the armory. In addition, submachine guns in the armory shall be inspected at least once every sixty days and the inspection noted in the records of the armorer.

F. REPORTING

1. Standard Form _____, After Action Report, shall be completed in detail each time the submachine gun is fired other than on the range.
2. Standard Form _____, Fatality (Other Than Motor Vehicles), shall be completed whenever someone is injured or killed with the submachine gun, and a detailed statement on circumstances surrounding the incident shall be dictated by the officer involved and copies sent to the Internal Affairs Division and the department's legal advisors.

G. DISTRIBUTION OF SUBMACHINE GUNS

Submachine guns, ammunition, and special purpose carrying devices may be obtained by authorized members through requisition procedures contained in chapter ___ of the *Administrative Procedures Manual*.

TRAINING

In training police personnel to fire the submachine gun, it must be emphasized that the degree of accuracy and safety required will greatly exceed that necessary in most military operations. As a result, certain military practices are not included in police training. For example, the hip-fire or assault position is not employed at distances exceeding 10 yards, and the technique of "walking" rounds onto a target is eliminated completely.

For distances beyond the 10-yard hip-fire limit, a shoulder pointing technique similar to the Army's "quick kill" rifle training can be used. In this technique the weapon is held at the shoulder, but the eyes look *over* the sights at the target. With practice, the shooter and gun become a single unit so that the officer can hit whatever he looks at. This technique, good up to about 50 yards, allows the shooter to readily "spot" his hit so that he can adjust his shots on target. For precise one or two-shot hits on targets out to 100 yards, the sights should be used and both eyes should remain open during firing to judge distances and to spot hits.

Basic Positions

The shooter should be thoroughly instructed in proper body positions. This is especially important in submachine gun firing. For police work, four of the basic military firing positions are recommended:²

Standing. This is normal firing position. To assume this position, stand facing the target, then make a half right face. Move the left foot forward one step, pointing the left toe toward the target. Lean forward; bend the left knee slightly, keeping the right leg straight, with about two-thirds of the body weight on the left foot. Grasp the magazine or foregrip with the left hand and the pistol grip with the right hand. Place the butt of the stock against the right shoulder, and twist the body at the waist to the left to bring the right shoulder forward. The left elbow should be under the weapon, and the right elbow should be shoulder high. Press the cheek against the stock. The recoil is slight for single shots but recoil in automatic fire tends to push the shoulder rearward. Therefore, the gun will move off the target if the firer is not well braced and in the proper position. This position is illustrated in figure 3.

Kneeling. The kneeling position which is shown in figure 4, affords a steadier aim than the standing position and is useful when the firer can crouch behind a rock, log, or other protection. The kneeling position is frequently used on level ground or ground that slopes upward. To assume this position, face the target, half face to the right, and kneel on the right knee. Sit on the right heel, with the right thigh forming an angle of 90 degrees to the line of aim. The entire surface of the lower right leg, from knee to toe, is in contact with the ground. The left foot should be placed about 18 inches to the front, with the toe pointing at the target. The left lower leg is vertical when viewed from the front. Move the weight of the body forward, and place the point of the left elbow a few inches forward of the knee. The right elbow is raised to the height of, or slightly below, the right shoulder.

²Department of the Army, *FM23-41: Submachine Guns Caliber .45, M3 and M3A1* (Washington, D.C.: Headquarters, Department of the Army, 1957) pp. 53-54.

FIGURE 3
STANDING POSITION

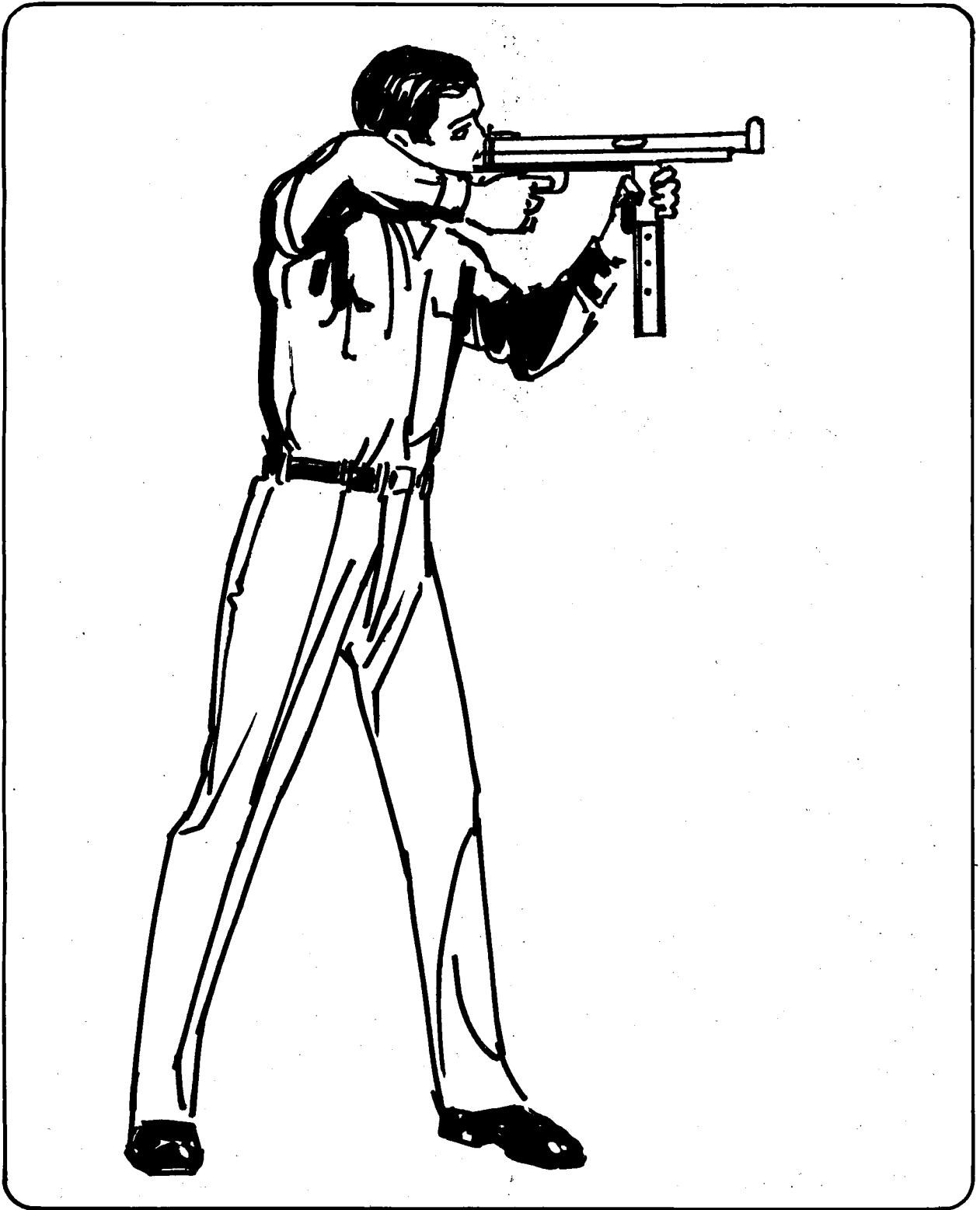
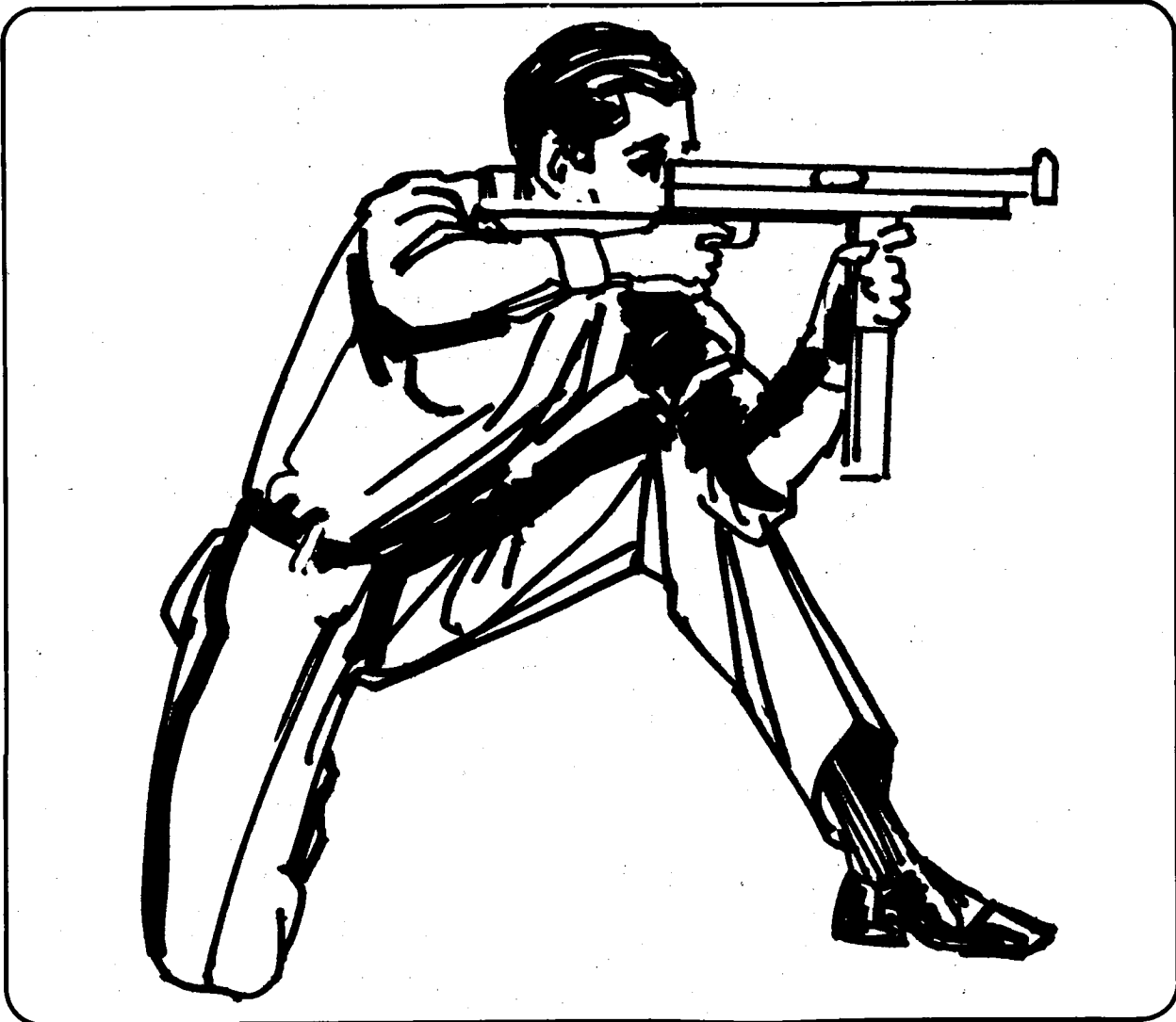


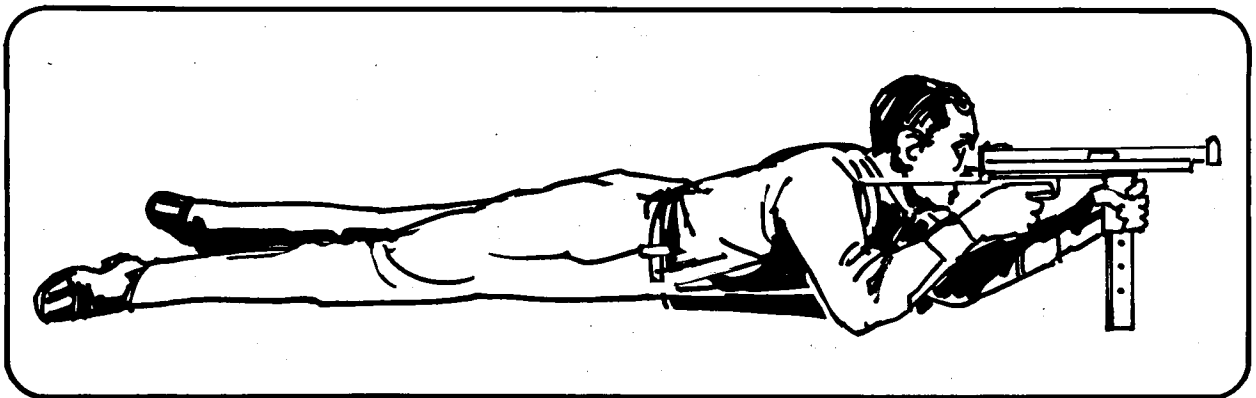
FIGURE 4
KNEELING POSITION



Prone. This position is the steadiest and should be used whenever time and terrain permit. Take a prone position, with the body inclined to the left of the line of aim at an angle of 20 degrees or less. Spread the legs a comfortable distance apart, with the toes pointed outward, and keep the spine straight. Place the left elbow under the gun, with the left hand grasping the magazine or foregrip. The right elbow is out from the body so that the shoulders are level. Place the butt of the stock in the pocket formed by the shoulder, and press the cheek against the stock, as illustrated in figure 5.

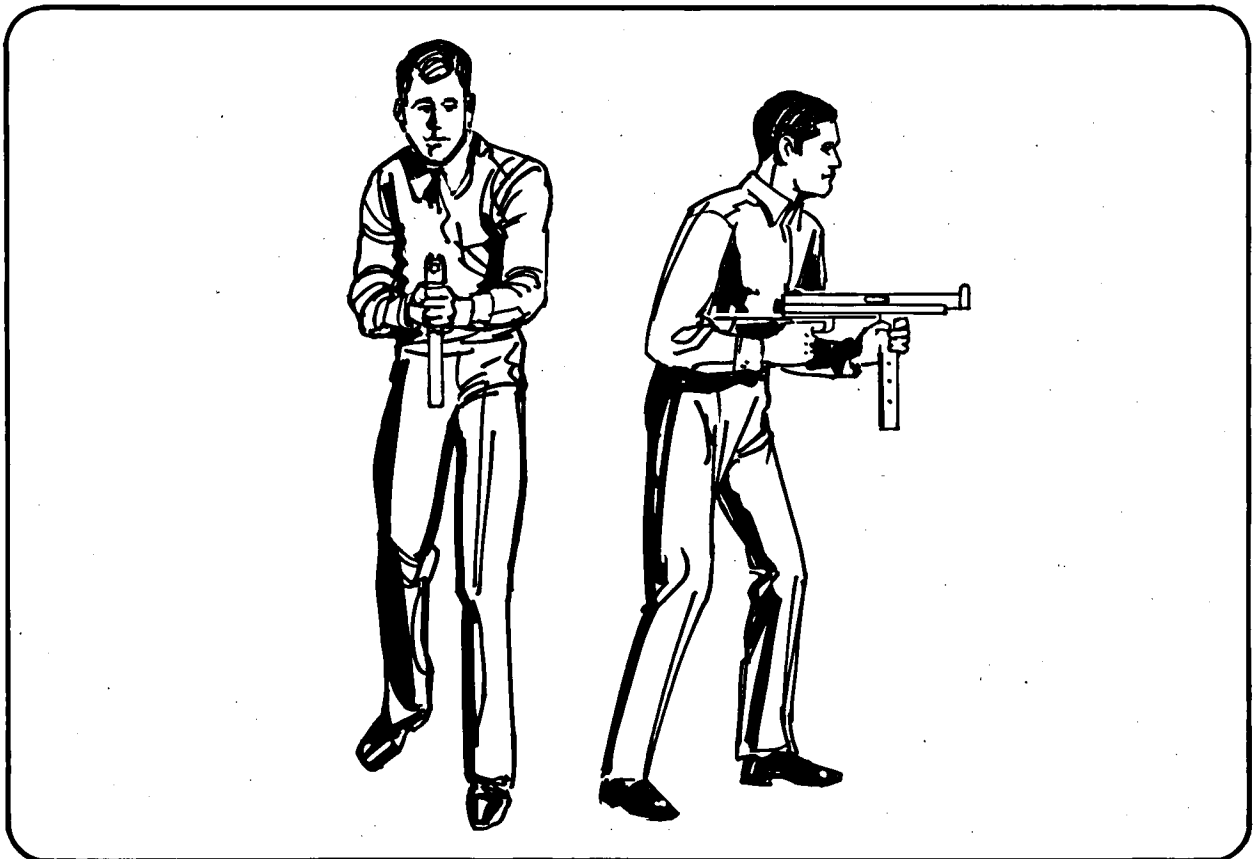
Hip-Fire (Assault). This position, usually called the hip position or underarm position, is used at ranges up to 10 yards. The sights are not used to aim the weapon; the firer simply points the weapon toward the target and commences firing. The shooter must have a great deal of practice before he can do accurate shooting. To assume this position, press the stock against the side of

FIGURE 5
PRONE POSITION



the hip with the right arm, or place the stock under the armpit and press it against the body. The body should be in a crouched position, as shown in figure 6, and the firer should walk with his weight forward so that he can quickly shift his body to fire at targets to his side.

FIGURE 6
HIP-FIRE POSITION



Curriculum

While the nature and scope of submachine gun training may vary somewhat in response to local conditions and the previous experience of the trainees, any program that falls short of the minimum standards suggested below should be carefully reviewed to insure that adequate instruction is being provided. For example, military doctrine, as expressed in FM 23-41, calls for 30 hours of training to qualify personnel armed with the M3 and M3A1 submachine guns. With greater accuracy and safety requirements, police training could hardly hope to accomplish substantially more in any shorter period of time. A comparison of the military and civilian training schedules is made in figure 7.

FIGURE 7
MILITARY AND POLICE TRAINING SCHEDULE COMPARISON

MAJOR TOPIC	Recommended Hours	
	Military	Police
Mechanical Training	5	5
Preparatory Marksmanship	13	13
Agency Policy	0	1
Tactics	0	5
Range Firing*		
Instruction Firing	9	24
Qualification Firing	3	8
Total	30	56

*Required hours depend upon the capacity of range facilities

Mechanical Training (5 hours). This segment of the training can be conducted in a classroom if tables are available. Unlike similar military training, instruction will not be provided in detailed disassembly and assembly, since such work will be performed only by the agency armorer.

Hours	Subject Area
1	Introduction to submachine guns, identification and characteristics of common submachine guns
1	Characteristics, general data, nomenclature, field disassembly and assembly of weapon used by the police agency, including operation check, ammunition, and magazine loading.

1	Functioning.
1	Malfunctions, stoppages, and immediate action; care and cleaning.
<u>1</u>	Examination by demonstration of mechanical skills.
5	

Preparatory Marksmanship (13 hours). As with any firearms training, the preparatory marksmanship portion of submachine gun instruction is critical to the ultimate success of the trainee in actual firing exercises. While some time may be saved by reducing this segment of the training for experienced personnel, excessive cutting will almost certainly result in increased range time and/or trainee failure.

Hours	Subject Area
2	Orientation on marksmanship: sighting, and aiming exercises.
2	Firing positions: standing, kneeling, prone, and hip-fire.
1	Trigger manipulation, safety precautions, loading and unloading.
6	Marksmanship exercises.
1	Special techniques for firing at moving targets or from vehicles at stationary or moving targets.
<u>1</u>	Examination
13	

Agency Policy (1 hour). Instruction in agency policy relating to the employment of the submachine gun in police operations.

Tactics (5 hours). Classroom instruction, demonstration, and practice in tactical employment of the submachine gun in those situations where its use is approved or required by agency policy.

Range Firing (32 hours). For instructional and qualification firing, a 100-yard range will be required. Damage produced to target frames and butts will generally preclude the use of existing standard pistol ranges, but those agencies large enough to consider submachine gun training should be capable of providing at least minimum adequate range facilities.

A recommended firing course, summarized in figure 8, consists of a three-stage sequence employing four basic positions and 58 rounds of automatic and semiautomatic fire.

At each stage of the dismounted course, the trainee will fire at three silhouette targets (figure 9), spaced four feet apart, to develop and demonstrate skill in engaging multiple targets in quick reaction time. Wherever possible, the bobbing or pivoting type illustrated in figure 10 and 11 should be employed to add realism and develop quick response. Targets should be engaged from left to right during training to promote safety and ease of scoring even though the order of target engagement will vary in combat situations.

Trainee action at each stage of the dismounted course is summarized below:

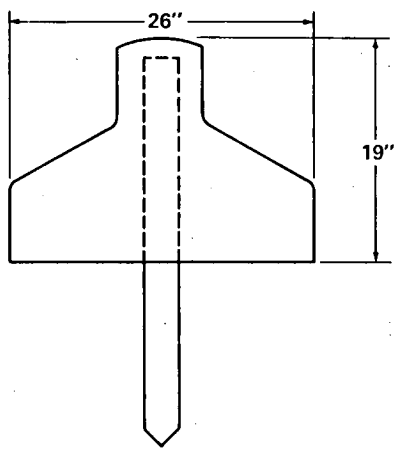
- **10 yards** – Trainee loads six rounds and takes the hip-fire position, with the weapon held firmly in line with the eyes. On command, two rounds are fired on each of the three targets. The trainee reloads eight rounds and on command fires an automatic burst of not more than three rounds at each silhouette.

FIGURE 8

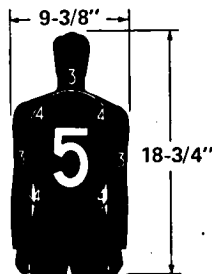
SUBMACHINE GUN FIRING COURSE

Range	Targets	Position	Maximum Time	Rounds
10 yards	Army F	Hip-Fire	10 sec.	6 semiautomatic
	or NRA B-29		10 sec.	8 automatic
50 yards	Army E	Shoulder	10 sec.	6 semiautomatic
	or NRA B-27		10 sec.	8 automatic
100 yards	Army E	Kneeling	150 sec.	15 semiautomatic
	or NRA B-27	and Prone	150 sec.	15 semiautomatic

FIGURE 9
SUBMACHINE GUN COURSE TARGETS

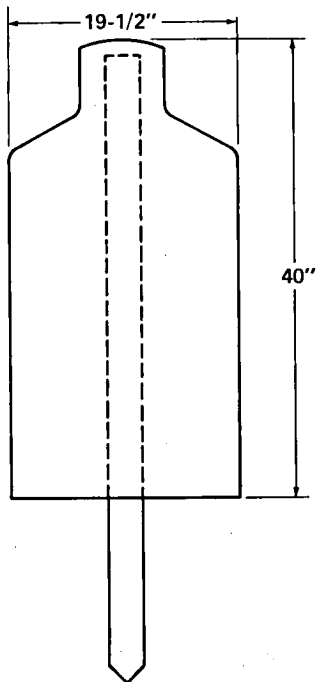


ARMY TARGET F

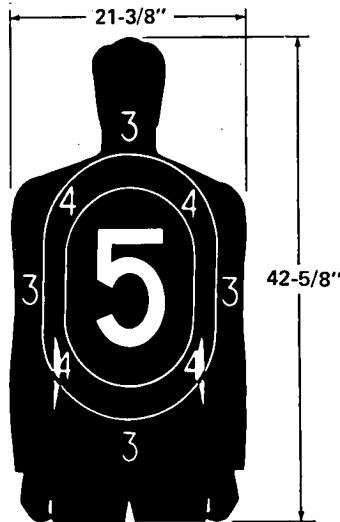


NRA B-29
TARGET

10 yards



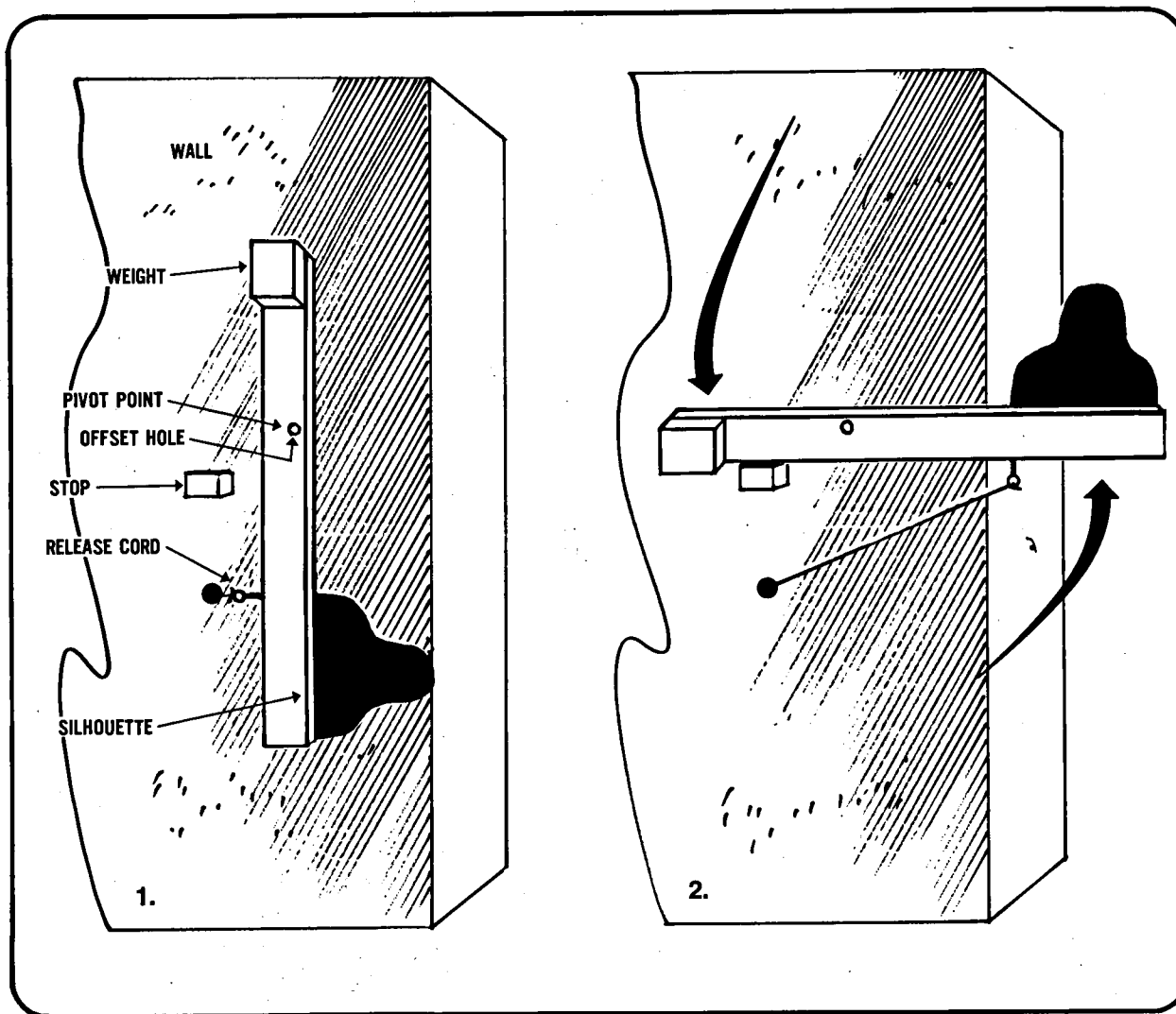
ARMY TARGET E



NRA B-27
TARGET

50 and 100
yards

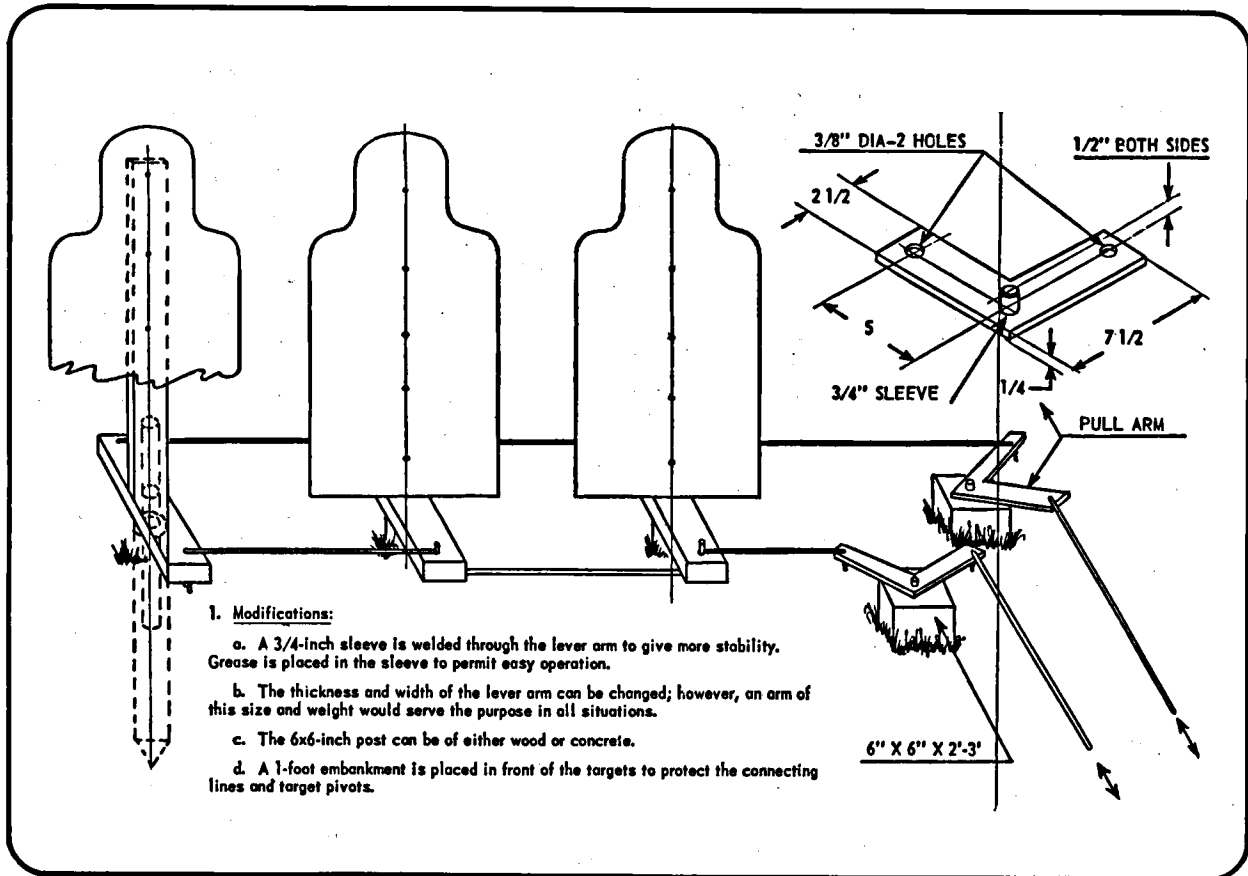
FIGURE 10
IMPROVISED BOBBING OR POP-UP TARGET



- **50 yards** – Trainee loads six rounds. On command, he assumes the shoulder position and without using the sights, fires two semiautomatic rounds at each of three targets. In this point, or “quick-kill” aiming technique, the firer looks *over* his sights at the target and if his position is correct, his shots will follow closely his line of sight.

This aiming technique allows extremely rapid engagement of targets without the blocking of depth and movement perception that occurs when one eye is closed in sighting. Also, in night shooting, the policeman should have confidence in his ability to engage targets up to 50 yards without the use of sights. When the shooter engages multiple targets from this position, as with the hip-fire position, he should move his upper body in line with each new target. If the targets are more than a few degrees apart, he should move his entire body in order to stay in line and on balance.

FIGURE 11
PIVOT TYPE TARGETS (FM 23-31)



- 100 yards – Trainee loads fifteen rounds. On command, he assumes the kneeling position, and using the sights, fires five semiautomatic rounds at each of three targets. Aim should be at the low middle of the targets to avoid shooting over the target and to spot hits more accurately. The firer should keep both eyes open in order to observe the location of hits and should attempt to “follow through” so that he is aware of the position of the front sight on the target at the instant the weapon fires.

The submachine gun course should be fired at least six times for instruction and once for qualification. To qualify, each officer should fire the course in the required time, achieving at least:

10 yards	Semiautomatic: 2 hits per target Automatic: 2 hits per target
50 yards	Semiautomatic: 2 hits per target Automatic: 2 hits per target
100 yards	Semiautomatic: 4 hits per target

During instructional firing, the emphasis should be upon accuracy and speed. As soon as the trainee can consistently place hits on the torso area of the silhouette, he should work for faster time before attempting to tighten up his shot groups.

The submachine gun qualification firing course recommended here may not be workable for certain weapons. For example, the trigger manipulation of the Smith and Wesson Model 76 makes two or three-shot bursts difficult, and for this weapon the National Rifle Association has developed the qualification course illustrated in Figure 12. However, any program that terminates with the trainee demonstrating less accuracy and control than that recommended herein should be considered inadequate.

Police personnel authorized to use the submachine gun should range-fire at least 100 rounds every sixty days and should fire for qualification annually. Only officers who are fully trained and qualified should be permitted to carry or fire the submachine gun in any police operation. For this reason, no "familiarization" training is provided for personnel not authorized to employ the weapon.

FIGURE 12
 SUGGESTED PRACTICAL SUBMACHINE GUN QUALIFICATION
 COURSE FOR SMITH & WESSON MODEL 76

Prepared by The National Rifle Association					
Stage	Distance	Position	Type of Fire	No. of Rounds	Time
A	15 yards	Standing Hip Level	Full automatic	36 total 6-shot bursts 2 bursts on each of the 3 targets, <i>right to left</i>	20 sec.
B	25 yards	Standing Aim-fire from shoulder	Single fire	36 total 12 rounds single fire, 4 rounds on each of the 3 targets, <i>right to left</i>	45 sec.
		Kneeling R.H. Aim-fire from shoulder	Full automatic	12 total 4-shot bursts on each of the 3 targets, <i>left to right</i>	
		Kneeling L.H. Aim-fire from shoulder	Full automatic	12 total 4-shot bursts on each of the 3 targets, <i>left to right</i>	
C	50 yards	Standing Aim-fire from shoulder	Single fire	36 total 18 rounds single fire, 6 rounds on each of the 3 targets, <i>right to left</i>	60 sec.
		Kneeling R.H. Aim-fire from shoulder	Single fire	9 rounds single fire, 3 rounds on each of the 3 targets, <i>left to right</i>	
		Kneeling L.H. Aim-fire from shoulder	Single fire	9 rounds single fire, 3 rounds on each of the 3 targets, <i>right to left</i>	

SELECTING A POLICE SUBMACHINE GUN

For most law enforcement agencies now holding submachine guns, the acquisition rationale is either lost in departmental history or nonexistent. For example, many of the Thompsons and Reising's now residing in police armories are collectors' items. Two or three modern submachine guns can be purchased for what a Thompson cost in 1921, not to mention what the same Thompson with original parts would be worth today. Tactically, the only advantage in retaining such an expensive gun as the Thompson is the psychological deterrence of its familiar shape.

In many cases, the police submachine gun was acquired by simple confiscation from a criminal or returning serviceman. Most of the Thompsons in use today by the Chicago Police Department were reportedly seized from suspects over the years.

In any event, if a rational decision is made to arm certain police personnel with submachine guns, both domestic and foreign weapons should be evaluated in order to select the submachine gun most suited to police requirements. It should be noted that most excellent submachine guns are manufactured outside the United States. This is primarily because the U.S. Army has not had a standard submachine gun since the M3A1 "grease gun" developed during World War II.

Evaluation Criteria

For use in police work, a submachine gun should be evaluated on at least the following basic criteria:³

1. The magazine should fit easily into the gun. A good arrangement is utilized in the Israeli Uzi and the Czech ZK476, in which the magazine feeds through the pistol grip. This makes it easy to insert the magazine in the dark just by joining hands. A poor arrangement is found on the Thompson M1A1 in which the weapon must be taken from the shoulder and turned on its right side so that the right hand can release the magazine release lever, while the left hand feeds the magazine in a manner that will allow a ridge on its back edge to engage a slot behind the magazine well.
2. The magazine should be capable of being loaded without tools. This criterion is met by most submachine guns but some have sharp projections on the follower lips that make them more difficult to load than others. A very strong magazine follower spring can also increase the difficulty of hand-loading cartridges without the use of a metal device that depresses the magazine follower while the cartridges are inserted.
3. The stock should retract or fold for compactness and concealability. This feature is important for carrying the weapon under plain clothes or in vehicles.
4. The submachine gun should be able to withstand prolonged usage without cleaning. This capability gives the modern submachine gun more reliability in sustained automatic fire than some automatic rifles.

³The first ten recommended evaluation criteria are adapted from those listed in Thomas B. Nelson's *The World's Submachine Guns* and are used with the author's permission.

5. **Ammunition should be readily available and standardized.** A police department should not stock weapons for which large emergency supplies of ammunition are not available.
6. **Ammunition should be lightweight and inexpensive.** The Thompson, Reising, and Ingram Model 6 are all chambered for the .45 caliber a.c.p. ammunition which is available in large stocks of U.S. Army surplus. Unfortunately, the .45 caliber weapons and their ammunition are considerably heavier than their 9 mm counterparts. However, 9 mm ammunition can be inexpensively obtained in quantity from Europe and the British Commonwealth, where the round is the standard military pistol and submachine gun cartridge. Importers can supply the necessary quantities of ammunition, but noncorrosive brands, such as Finnish "Lapua," should be specified. Corrosive primers used in some European ammunition will cause pitting of the barrel unless the weapon is cleaned thoroughly, immediately after use.
7. **The weapon should be lightweight.** It should not weigh over nine pounds unloaded. Optimally, its weight should approach six pounds. Its ammunition should not disproportionately increase its weight. For instance, a man can carry twice as much 9 mm ammunition by weight as he can .45 caliber a.c.p., although this consideration is not as important in police work as in the military since the policeman is not carrying an existence load as well as a combat load.
8. **The cost of the submachine gun should be low, both to produce and to purchase.** Rapid production techniques should be employed, including extensive use of stamped parts. Simplicity, reliability, ruggedness, and short-range accuracy should be the goals of design and manufacture.
9. **The weapon should possess a manual safety and, optimally, a grip safety** so that the gun will not fire if dropped. The grip safety should be automatically depressed when the firing hand is in position.
10. **The retracting handle for the bolt should be on top or on the left side of the receiver.** This allows a right-handed man to keep the weapon in firing position while cocking the piece or applying immediate action in case of stoppage.
11. **The safety should be clearly marked and accessible by quick feel.** The safety position and fire selector positions should be engraved with letters on the receiver and the letters filled with bright enamel paint.
12. **The safety and the fire selector should be incorporated in the same switch.** This switch should be accessible while the shooter's master hand remains on the pistol grip in firing position. If possible, there should be two connected switches, one on either side of the stock, with all safe and fire positions, for use by left as well as right-handed shooters.
13. **The ejection angle of spent cartridges should not interfere with use of the weapon from left-handed or underarm positions.** This interference could occur for left-handed shooters if the cartridges were ejected rearward, or even at a 90-degree angle in some short-stock models. If ejected directly upward, the hot cartridges might strike the face of a shooter firing a short-stock weapon from the hip. If the ejection port were on the bottom of the

gun, a shooter firing from the prone position might find himself lying in a pile of hot shell cases. The best direction would seem to be forward from a right side ejection port at a 45-degree angle to the gun barrel.

14. The submachine gun should have a straight-line shoulder stock. In both fixed-stock and folding-stock versions a straight-line stock will dampen the upward movement of the barrel on full automatic fire. The straight-line stock should also make it easier to see the sights quickly and to point-fire the weapon accurately without the use of the sights.⁴
15. A low cyclic rate of fire is preferable for accuracy and controllability in full automatic bursts. Preferably, for police use, the cyclic rate should not exceed 700 rounds per minute.
16. The weapon should utilize a box-type magazine. The box magazine is less likely to cause feeding problems than the drum-type. The magazine should hold at least twenty, preferably thirty, cartridges.
17. The submachine gun should be equipped with a canvas web sling. The sling should be attached on the left side of the weapon so that it can be carried around the neck or over the shoulder in the assault-fire position. This allows the weapon to be ready for instant use while freeing the shooter's hands.⁵
18. The front sight should be a post-type protected by a hood or wings. The rear sight should be an aperture-type, adjustable to 200 meters and protected by wings. The rear sight should be in position for instant use, not a flip-up leaf-type like that of the 1921 Thompson.
19. The weapon should fire from the open-bolt position. For carefully aimed semiautomatic fire, the closed-bolt position used in some submachine guns is more accurate due to a faster lock-time. However, the open-bolt position is more reliable since its firing pin hits the primer more solidly with the weight of the bolt behind it.⁶ Also, when the open-bolt is closed, the weapon can be seen to be safe, and when it is open, the ammunition is clearly visible. In some submachine guns the closed open-bolt serves as an effective dust-cover even under desert conditions. The open-bolt design is simpler, with fewer moving parts than the closed-bolt design. With constant firing, some closed-bolt actions are subject to "cook-off," in which the heat of the bolt face is sufficient to set off a cartridge.

⁴In the 19th Century, shoulder stocks angled downward sharply from the direction of the barrel. Modern full automatic rifles and light machine guns make extensive use of the recoil-dampening effects of the straight-line stock; for example, the M16A1 rifle and the M60 machine gun used in the U.S. Army.

⁵A specially designed holster should be used for carrying the submachine gun concealed under plain clothes. Seventrees Limited of New York City has manufactured special holsters for the Israeli Uzi and the Ingram Model 11. Similar holsters can be made for the Heckler & Koch MP5, the Walther MPK, and any other compact, lightweight submachine gun.

⁶"Open-bolt" action means that when the weapon is cocked the bolt remains open. When the trigger is pressed the entire bolt moves forward, stripping a round from the magazine into the chamber, and striking the cartridge primer by means of a firing pin machined on the bolt face. "Closed-bolt" action means that the weapon is cocked by drawing the bolt to the rear and releasing it, stripping a cartridge into the chamber. When the trigger is pressed it releases a cocked hammer which strikes a firing pin, setting off the cartridge. The release of a cocked hammer is faster and less jarring to the shooter's aim than the travel of an open-bolt from its rearward position.

To illustrate the application of the 19 evaluation criteria, ten submachine guns, listed in figure 13, were examined and test fired. The results are summarized in figure 14 and described in the following sections. Of the evaluated weapons, those which are available for purchase are listed below and may be obtained from the suppliers indicated.

Heckler & Koch MP5A3

Security Arms Company
Suite 1004
1815 Fort Myer Drive
Arlington, Virginia 22209

Smith & Wesson M76

Smith & Wesson, Incorporated
Springfield, Massachusetts 01101

Ingram Models 10 and 11

Military Armament Corporation
Powder Springs, Georgia 30073

Thompson M1928

Numrich Arms Corporation
West Hurley, New York

Walther MPK and I.M.I. Uzi

Interarms
10 Prince Street
Alexandria, Virginia

Domestic Submachine Guns

Thompson M1A1. The test gun of the Thompson series was the Army issue M1A1. This weapon differs somewhat from the original 1921 Thompson, shown in figure 15. For example, the cocking handle is on the right side rather than on the top as in the 1921 model. It does not have the ribbed barrel or the Cutts compensator, which is an improvement since neither of these characteristics of the 1921 model was effective or necessary. Its wooden stock is not detachable, unlike that of the 1921 Thompson. This is not a significant handicap for portability considering the normal bulk of the Thompson barrel and receiver assembly.

The M1A1's rear sight wings are triangular rather than rectangular, to compensate for the greater height of its fixed 100-yard aperture sight. The 1921 Thompson has a folding leaf sight that in its downward position exposes a "combat" open sight. In its upward position, the leaf provides a vertical ramp for an aperture sight that slides up and down for elevation adjustment, with a screw for windage adjustment.⁷ The M1A1 has a conventional forearm rather than a forward handgrip. Finally, the M1A1 is equipped with box-type magazines, not drum magazines as is the Model 1921.

The M1A1 is difficult to load. The magazine release must be pressed to insert as well as remove magazines. The magazine release lever is so far forward that, unless the shooter has very long thumbs, this release must be actuated by moving the right hand to the left of the handgrip, after removing the weapon from the shoulder. It may be possible to actuate the release with the left hand holding the magazine, but usually the left hand is occupied in getting the ridge in the back of the magazine into the groove behind the magazine well.

⁷This 1921 sight looks remarkably effective but the combat sight is often considerably off in elevation, and the aperture sight tends to slide down the ramp of its own accord. Also, the ramp is vulnerable to falls because the leaf extends well above the wing guards.

	Manufacturer	Country of Origin	Caliber	Operation	Type of Fire	Weight unloaded (pounds)	Length with Stock (inches)	Barrel Length (inches)	Cyclic Rate of Fire (r.p.m.)	Magazine Type & Capacity	Sights F = Front R = Rear	Minimum Muzzle Velocity Commercial Ammunition (feet per second)
Thompson M1A1	Auto-Ordnance Corp.	U.S.A.	.45 a.c.p.	Blowback	Full & Semi	10.45	32	10.5	700	Box 20, 30	F: Fixed Post R: Fixed 100-yard aperture	850 (.45 a.c.p.)
Reising M50	Harrington & Richardson	U.S.A.	.45 a.c.p.	Delayed Blowback	Full & Semi	6.75	35.75	11	550	Box 12, 20	F: Fixed Post R: Adjustable aperture 50-300 yards	850
U.S. M3A1	Ithaca Gun Co.	U.S.A.	.45 a.c.p. 9 mm parabellum	Blowback	Full	8.15	29.8	8	350-450	Box 30	F: Fixed Post R: Fixed 100-yard aperture	850
Ingram M6	Police Ordnance Company	U.S.A.	.45 a.c.p. 9 mm parabellum .38 super auto	Blowback	Full & Semi	7.25	30	9	600	Box 30	F: Fixed Post R: Fixed 100-yard aperture	850 (.45 a.c.p.) 1120 (9 mm) 1280 (.38 super)
Ingram M10	Military Armament Corporation	U.S.A.	.45 a.c.p. 9 mm parabellum	Blowback	Full & Semi	6.25	21	6	700	Box 30, 32, 36	F: Windage Adjustable Post R: Fixed 100-meter aperture	850 1120
Ingram M11	Military Armament Corporation	U.S.A.	9 mm Kurz (.38 a.c.p.)	Blowback	Full & Semi	3.5	18	5	850	Box 16, 32	F: Windage Adjustable Post R: Fixed 50-meter aperture	955 (.380 a.c.p.)
Smith & Wesson Model 76	Smith & Wesson	U.S.A.	9 mm parabellum	Blowback	Full & Semi	7.25	30.5	8	720	Box 36	F: Fixed Post R: Fixed 100-yard aperture	1120
Heckler & Koch MP5A3	Heckler & Koch	West Germany	9 mm parabellum	Delayed Blowback	Full, Semi, & 3-Round Burst	5.6	25.98	8.85	650	Box 30	F: Fixed Post R: Rotary Adjustable	1120
Walther MPK	Walther	West Germany	9 mm parabellum	Blowback	Full & Semi	6.2	25.96	6.75	550	Box 32	F: Fixed Post R: 75-meter notch and 125-meter aperture	1120
I.M.I. Uzi	Israeli Military Industries	Israel	9 mm parabellum	Blowback	Full & Semi	7.7	25.20	10.2	650	Box 25, 32, 40	F: Adjustable Post R: "L" aperture 100 & 200 meter	1120

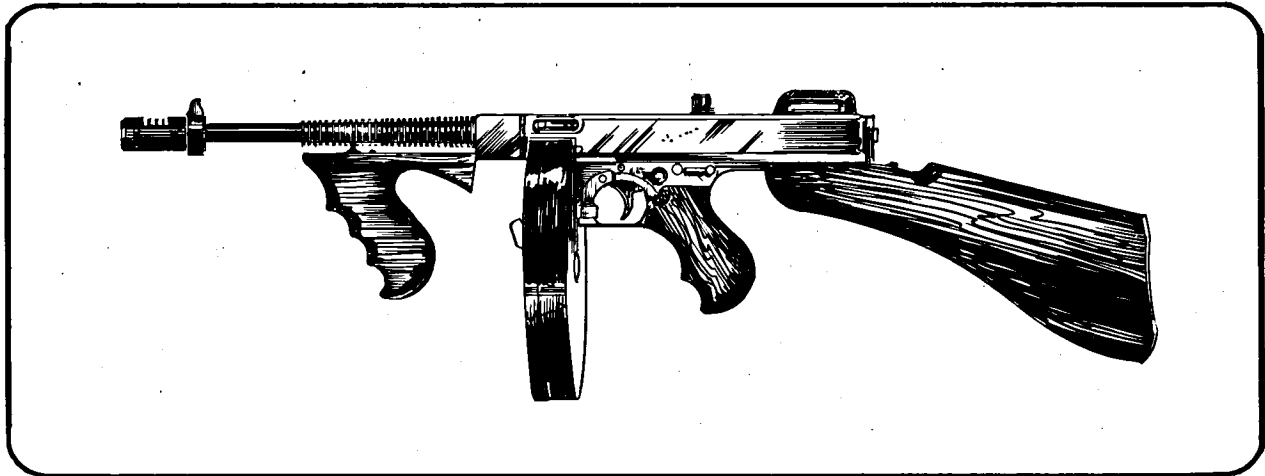
FIGURE 13
CHARACTERISTICS OF TEN SELECTED
SUBMACHINE GUNS

Criteria	Magazine fits easily into gun	Magazine can be loaded without tools	Folding Stock	Reliability without cleaning	Ammunition widely available	Ammunition light weight	Safety	Cost	Cocking handle position	Weapon light weight	Thumb safety easily accessible	Safety and fire selector one switch	Ejection Angle	Angle of Stock to Bore	Cyclic rate less than 700 r.p.m.	Box clip at least 20 rd.	Sling on left side	Protected adjustable sights	Bolt at time of firing
Thompson M1A1	Poor	Yes	No	Fair	Commercial and Military	.45 a.c.p. cartridge wt. 20.9 grams	Manual	No longer for civilian sale	Right	10.45 lb.	No	Two	Right Side	Poor	700	20, 30	Bottom	Protected Fixed	Open
Reising M50	Fair	Yes	No	Poor	C & M	20.9	Manual	No longer sold	Bottom	6.75 lb.	Yes	One	Right Side	Poor	550	12, 20	Right	Unprotected Adjustable	Closed
U.S. M3A1	Good	Yes	Yes	Good	C & M	20.9	None	Not for civilian sale	Right	8.15 lb.	None	None	Right Side	Good	450	30	Left	Unprotected Fixed	Open
Ingram M6	Poor*	Yes	No	Fair	C & M	20.9	Manual	No longer sold	Right	7.25 lb.	Yes	One	Right Side	Fair	600	30	Bottom	Unprotected Fixed	Open
Ingram M10	Good	Yes	Yes	Unknown	C & M	9 mm cartridge wt. 11.8 grams	Manual	Not yet available	Top	6.25 lb.	No	Two	Right Side	Poor	700	30, 32, 36	Left	Unprotected Fixed	Open
Ingram M11	Good	Yes	Yes	Unknown	Commercial only	.380 a.c.p. cartridge wt. 9.4 grams	Manual	Not yet available	Top	3.5 lb.	No	Two	Right Side	Poor	850	16, 32	Left	Unprotected Fixed	Open
Smith & Wesson Model 76	Good	Yes	Yes	Fair	C & M	11.8	Manual	\$73.44	Right	7.25 lb.	No	One	Right Side	Good	720	36	Left	Protected Fixed	Open
Heckler & Koch MP5A3	Good	Yes	Yes	Good	C & M	11.8	Manual	Not yet available	Left	5.6 lb.	Yes	One	Right Side	Good	650	30	Left	Protected Adjustable	Closed
Walther MPK	Good	Yes	Yes	Good	C & M	11.8	Manual	\$125	Left	6.2 lb.	Yes	One	Right Side	Good	550	32	Left	Protected Adjustable	Open
I.M.I. Uzi	Good	Yes	Yes	Good	C & M	11.8	Manual + bolt + grip	\$125	Top	7.7 lb.	Yes	One	Right Side	Good	650	25, 32, 40	Left	Protected Adjustable	Open

*The Ingram M6 magazine will fit into the gun backward.

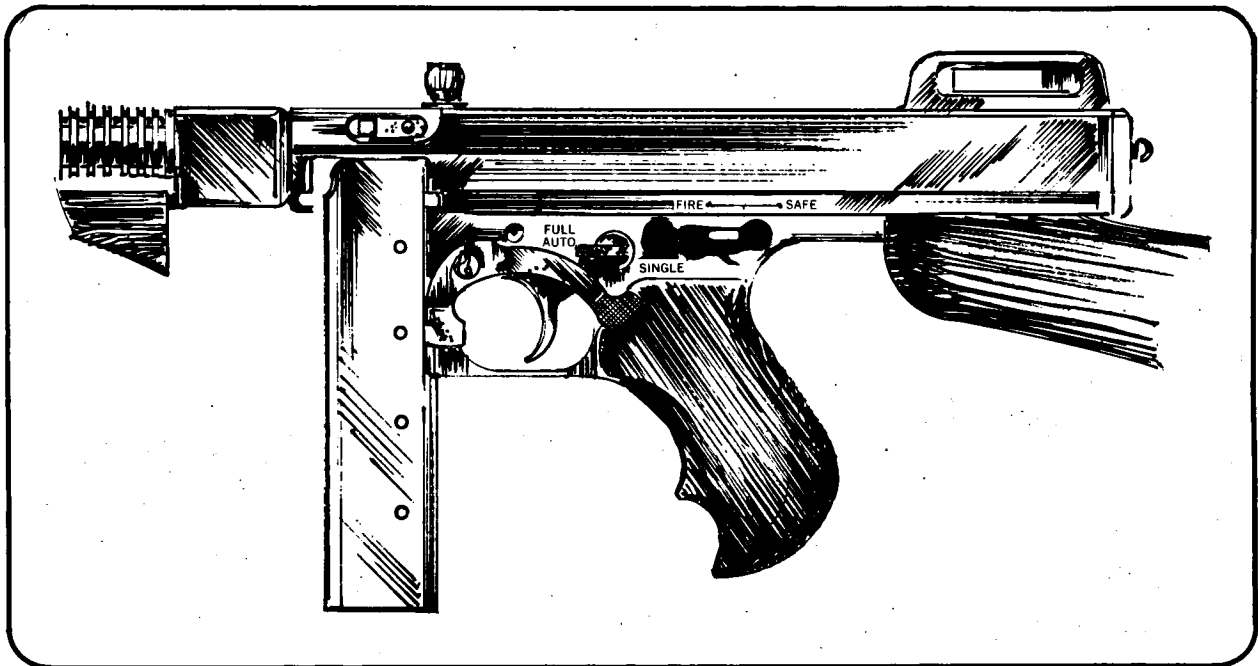
FIGURE 14
COMPARISON OF NINETEEN CHARACTERISTICS
OF TEN SELECTED SUBMACHINE GUNS

FIGURE 15
EARLY MODEL 1921 THOMPSON SUBMACHINE GUN



The Thompson firer can select full automatic or semiautomatic fire with a lever near the magazine release, as shown in figure 16. He should then put the weapon on safe with another lever near the fire selector. At this time, he can reach on the other side of the weapon and retract the bolt handle for firing. If he then wishes to shoot he can reach around with his thumb and put the safety lever into the "fire" position.

FIGURE 16
THOMPSON MODEL 1928A1



The Thompson has a heavy butt which is attached at a steep angle from under the rear of the receiver. This butt adds to the weight of the weapon (10.45 pounds unloaded). However, because of its angle to the bore, it does not significantly dampen the muzzle climb.

The M1A1's cyclic rate of fire is around 700 rounds per minute, which is not excessive for good controllability. It has a heavy trigger pull, and fires regular .45 caliber a.c.p. pistol ammunition, ball or tracer. There is no question about the manstopping ability of this cartridge, although it does not have the flat trajectory, penetration, or light weight of the 9 mm parabellum cartridge.

The M1A1 is 32 inches long. Its recoil is negligible due to its weight and straight blowback operation.

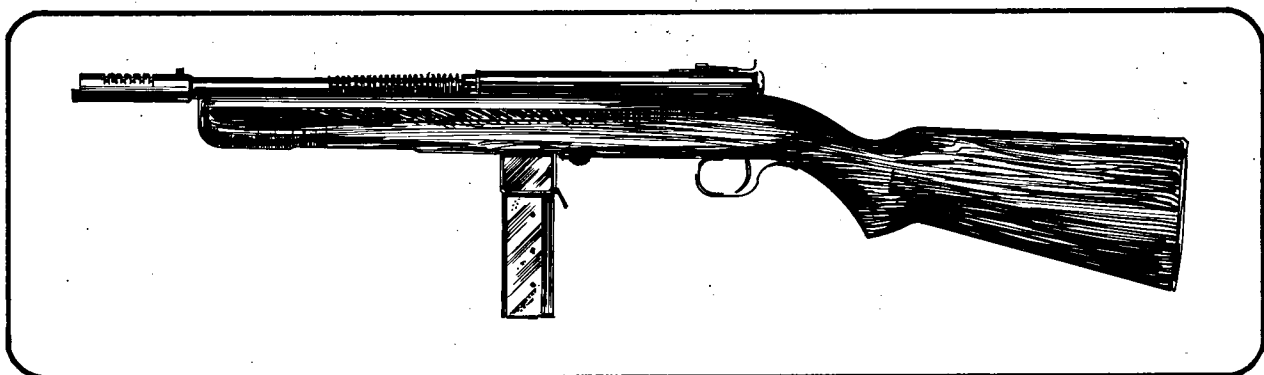
Commercial Thompson submachine guns are now available only from Numrich Arms Corporation in West Hurley, New York. This organization superseded Auto Ordnance Company, the original manufacturer. The current list price for the Model 1928 is \$295.

Reising M50. Harrington and Richardson in Worchester, Massachusetts, produced Reising submachine guns from 1941 to 1945. Approximately 100,000 guns were produced and most of the production went to the U.S. Marine Corps. Its lack of reliability and interchangeable parts caused its discontinuation as a military weapon. Since then, a number of M50, M55, and M60 Reising's have been acquired by some police departments. In police work the accuracy of the weapon's closed-bolt action can be an asset.

This weapon, illustrated in figure 17, utilizes a standard rifle stock, which is not particularly adapted to full automatic fire because of its angle to the bore. The weapon itself is quite light, 6.75 pounds unloaded. Its lightness, combined with its angle stock and its full power .45 caliber a.c.p. cartridge, make the weapon difficult to control in full automatic fire. It has a very rapid muzzle climb, in spite of its low cyclic rate of fire (550 r.p.m.).

The M50 is comparatively accurate in semiautomatic fire due to its light trigger pull, its closed-bolt fire position, and its adjustable aperture rear sight. The safety and selector are contained in one switch on the right side of the receiver. The switch is not easily activated from the shoulder position, but when the weapon is held low, as in the hip-fire position, the switch is quite convenient.

FIGURE 17
H&R REISING M50 SMG



The magazine well construction is rather crude. A stud on the magazine locks into a hole in the well. A piece of sheet metal holds the magazine in position and is pulled to release it. Magazines can be obtained that hold 12 or 20 rounds.

The cocking lever is in a groove under the forearm. A finger is placed in the slot to draw the lever to the rear. This must be done in a sharp motion since riding the lever forward may cause a closed-bolt weapon to fail to lock, resulting in faulty ignition, misfires, or hangfires and/or faulty extraction.

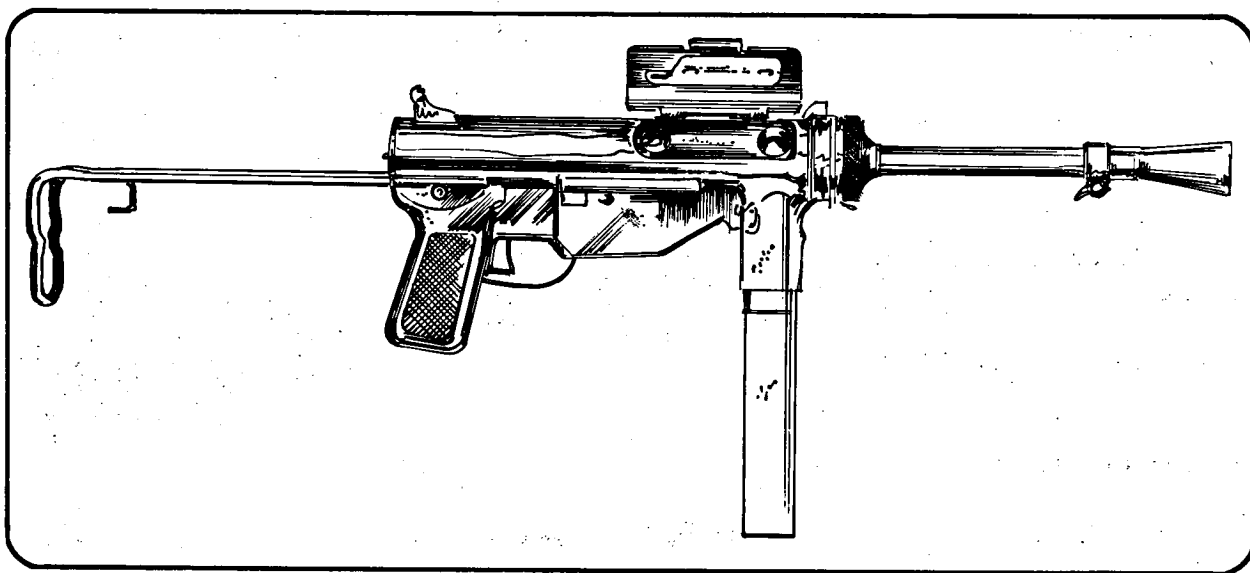
The Reising can be obtained with a sling attached to its right side. The right side position is better than an underside attachment since in the former position the clip will not bang against the gunner's back. Still, the position, except for left-handed shooters, is inferior to the left-side attachment.

M3A1 "Grease gun". The M3 was the first American submachine gun to make extensive use of sheet metal stampings and modern methods of manufacture. It replaced the Thompson as the U.S. military standard. The M3 was designed in 1941 and was later produced by Guide Lamp Division of General Motors and the Ithaca Gun Company.

The M3A1, shown in figure 18, differs from the M3 in several minor details. The most obvious differences are the enlarged ejection port and cover on the M3A1 and the cocking slot located in the bolt itself rather than externally.

The M3A1 is noted for its reliability. With its ejection port cover closed and its barrel plugged, it is virtually impervious to sand, mud, and moisture. Its loose tolerances allow it to function reliably even when a fair amount of mud or sand finds its way into the action. The M3A1 is about two pounds overweight by modern standards, uses the heavy .45 caliber a.c.p. cartridge, and has no

FIGURE 18
U.S. M3A1 SUBMACHINE GUN



thumb safety or semiautomatic selector, but is still one of the best submachine guns in the world today. Copies have been manufactured in Argentina, Nationalist China, Japan, Communist China, and North Vietnam. Its principal virtues are ruggedness and full automatic controllability.

This weapon is not currently available to U.S. police. Most of those produced have been going to military allies in the "third world." In these countries, South Korea for example, it is commonplace to see police as well as the military equipped with M3A1's. Of course, the paramilitary aspects of police work are more pronounced in these countries than in the United States.

The only safety on the M3A1 is the ejection port cover which, when closed, locks the bolt to the rear when the weapon is cocked. The bolt in its forward position serves as a second kind of safety. With practice, opening the cover with the left hand could become as fast or faster than flicking off the thumb safety on many submachine guns. Unless actually in combat, the weapon should be carried "bolt closed/cover open" or "bolt open/cover closed." The M3A1 can be readied easily from either position with the left hand while the right remains in firing position.

The M3A1 is gripped with the left hand holding the magazine. Such a forward handgrip can be pulled rearward as well as downward, an advantage in controlling full automatic fire. The barrel itself becomes very hot and cannot be gripped or touched while shooting.

Single shots can be obtained by quick-releasing the trigger, but the weapon's real advantage is its slow rate of fire which allows short, accurate bursts. First-round hits can be obtained by knowing how far off the crude sights are at various ranges. Second and third-round hits are not difficult since the M3A1 tends to recoil straight back and up. At close range the low cyclic rate of fire permits a trained man to keep an entire clip of 30 rounds on a man-size silhouette target.

Of course, in combat the usual shooting method is instinctive pointing, spotting the hit, and walking the bullets on target, but for U.S. police the objective is always a first-round hit. Suppressive fire is generally not appropriate in urban surroundings. Consequently, for police work the M3A1 with its crude sights and lack of semiautomatic capability would offer no advantage over the Thompson and Reising.

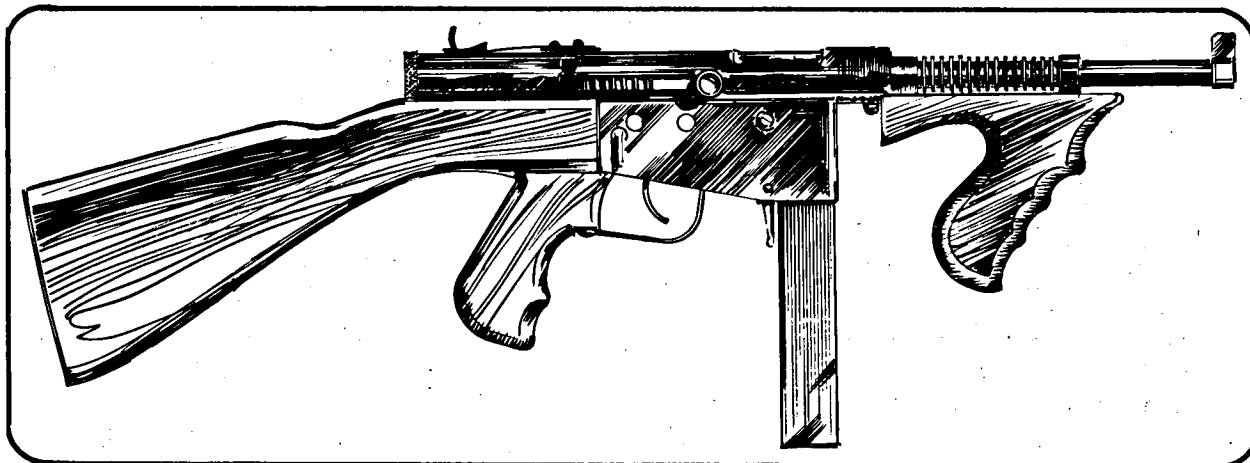
Ingram Model 6. The Ingram Model 6 SMG is a popular weapon in U.S. police departments, though not on a scale with the Thompson or the Reising. In appearance, the Model 6, illustrated in figure 19, resembles a simplified Thompson. The stock-to-barrel angle is similar to the Thompson's and is not a good design for automatic fire.

An unloaded Model 6 weighs 7.25 pounds and is two inches shorter than the Thompson. The sling on the military version is located on the bottom of the fixed shoulder stock. The rear sight is an adjustable aperture without protecting wings; the military version has a fixed 100-yard aperture.

The Model 6, designed by Gordon Ingram, was marketed in 1949 by Police Ordnance Company of Los Angeles, California. Model 6's were chambered to fire either .45 a.c.p. or 9 mm ammunition from the open-bolt position. The later Model 7 was designed to fire the Colt super .38 automatic cartridge from the closed-bolt position.

A selector switch and the bolt retracting handle are located on the right side of the weapon. The selector has the usual safe, semiautomatic, and automatic positions. In addition to the thumb

FIGURE 19
INGRAM MODEL 6 .45 a.c.p. SUBMACHINE GUN



safety, the Model 6 has a safety notch at the rear of the bolt retracting slot that can be used to lock the retracting handle.

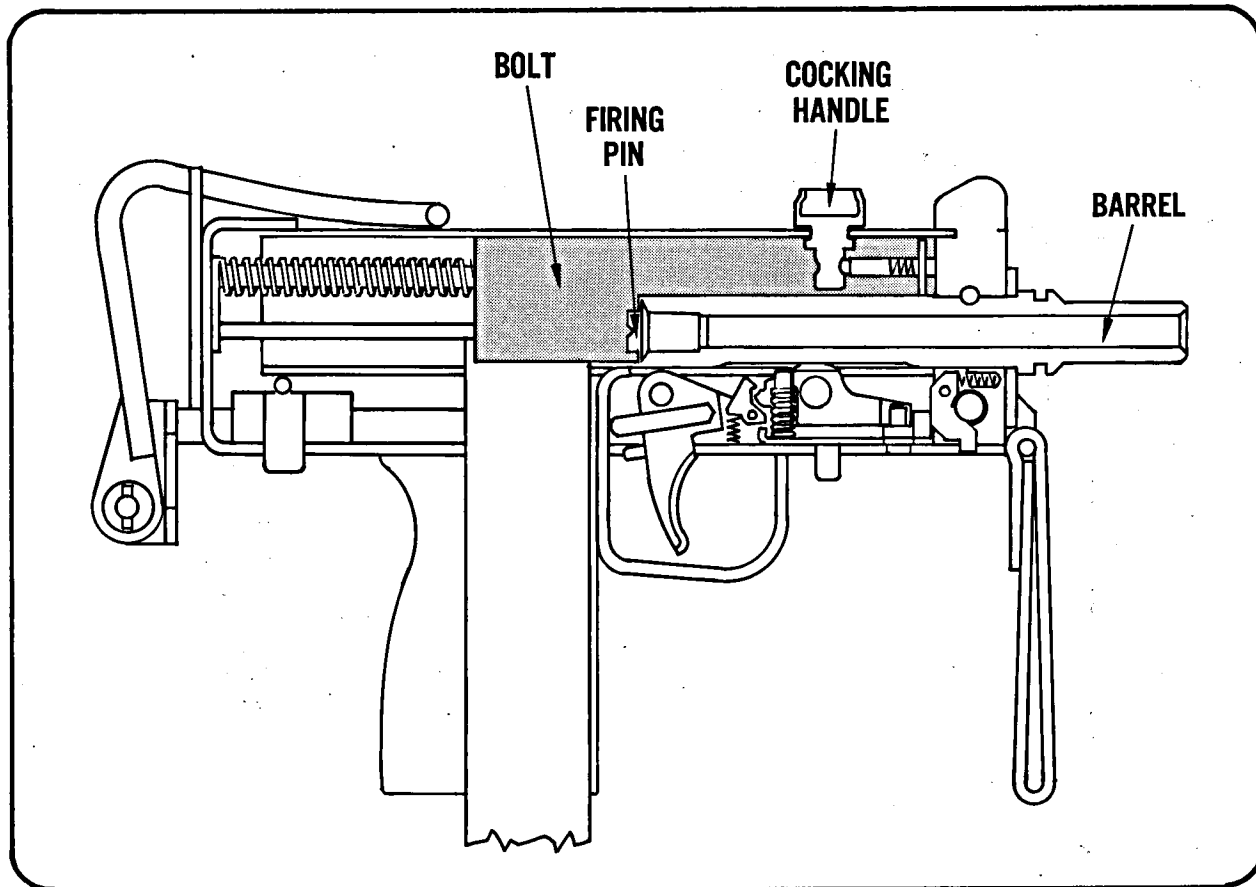
A two-stage trigger was built into the automatic fire mechanism of the Model 6. When the selector is placed on automatic and the trigger pressed, the first position the trigger comes to will fire single shots. When the trigger is pulled all the way to the rear, the gun will fire automatic. A great amount of pressure is needed to pull the trigger to the rear, making consistent 2 and 3-round bursts almost impossible. The usual four-or-more-shot bursts are disconcertingly interspersed with semiautomatic single shots.

The 30-round box magazine for the Model 6 is easy to load without tools, and it is easily fitted into or taken out of the gun. However, the firer must use care in loading the magazine since the cartridges can be accidentally loaded backward.

Ingram Models 10 and 11. These weapons are prototypes of the modern trend in submachine gun design. This trend is toward a real "machine pistol" whose basic unit is no larger than a service pistol. The firepower and handling characteristics of this type of weapon are far superior to those of a conventional pistol. The Czech Model 61 "Scorpion" and the Soviet "Stechkin" are examples of pistol-size submachine guns.

This type of weapon must have a design which is small and lightweight, yet controllable on full automatic fire. Although a light weapon climbs with recoil faster than a heavy one, there are several ways of offsetting this tendency. One such method is to design the weapons with a heavy bolt that telescopes around the barrel. The Model 11 Ingram submachine shown in figure 20 illustrates this approach. This design is also carried out in the Czech 61, the Israeli Uzi, the Beretta Model 12, and the Ingram M10. The Mauser Model 57 (not covered in this bulletin) and the Ingram models 10 and 11 have a collapsible forward handgrip. The Czech 61 has the recoil buffer in its handgrip. A muzzle compensator can be attached for control of full automatic fire. A straight-line collapsible or retractable buttstock can be employed. Finally, a cartridge or a powder-loading can be used to reduce the cyclic rate of fire.

FIGURE 20
CUT-AWAY VIEW OF INGRAM M-11 SHOWING TELESCOPING OPEN-BOLT SYSTEM

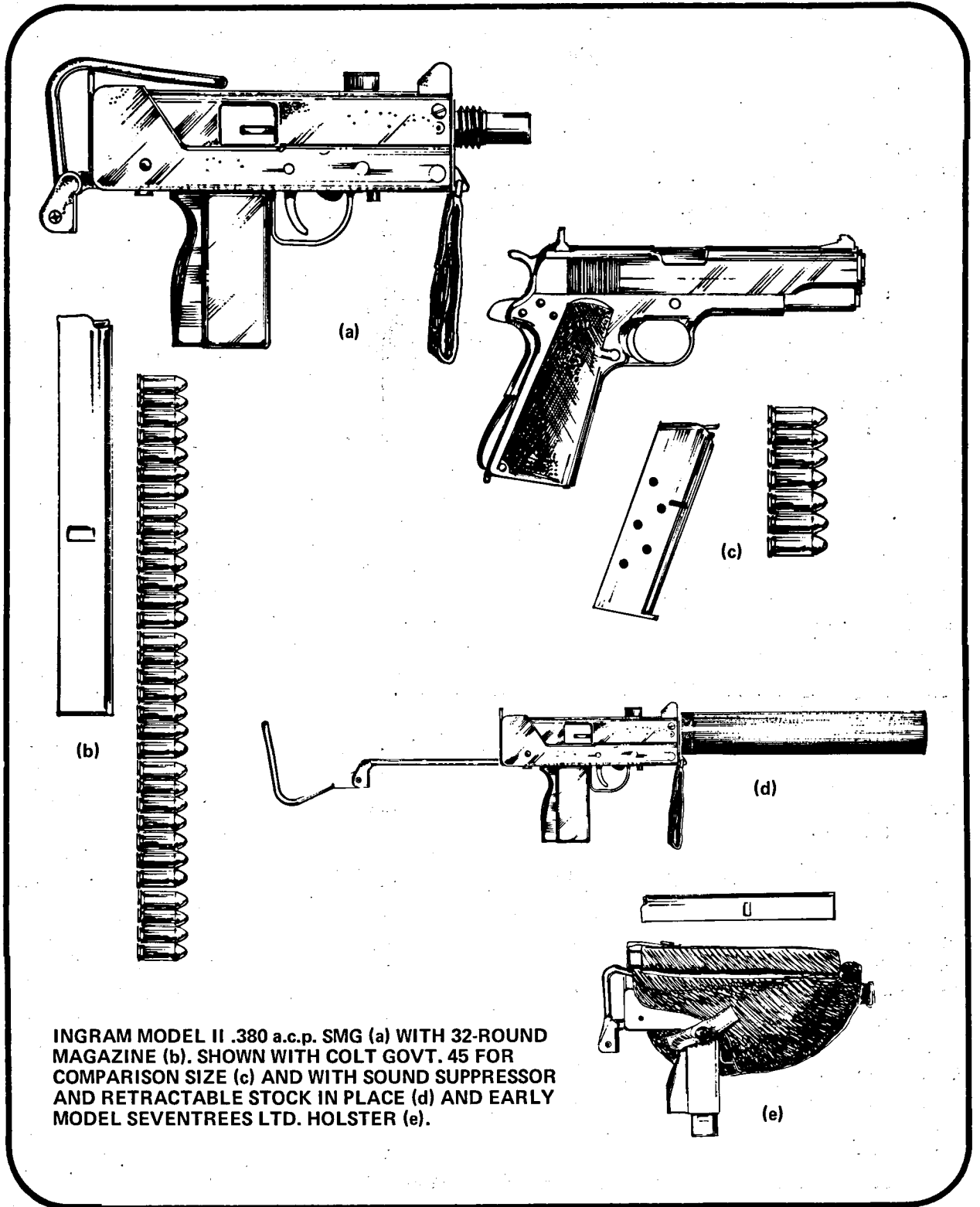


The Ingram Model 10 weighs 6.25 pounds and is chambered for .45 caliber a.c.p. or 9 mm parabellum. It is 10.5 inches long without stock and fires at a rate of 700 rounds per minute. The Model 11 is chambered for the .380 a.c.p. cartridge; it weighs only 3.5 pounds and is 8.75 inches long without stock, but it fires 850 rounds per minute.

The sound suppressors for these guns are probably the best "silencers" on the world market. The only sound from the .380 a.c.p. Model 11 and the .45 a.c.p. Model 10 is the bolt moving back and forth and the bullet striking the target. Two problems with other types of sound suppressors are the limited life of the suppressor itself from bullets passing through it, and overheating caused by the recycling of powder gases within it. The suppressors for the Ingram 10 and 11 have an indefinite life span, and a neoprene sleeve around the suppressor allows the shooter to grasp the suppressor with his left hand for extensive firing. The suppressor, which screws onto the barrel, makes a stable handgrip, particularly for hip-firing. The Ingram Model 10, and the Model 11 shown in figure 21, also have a web-strap foregrip for use when the sound suppressor is not attached.

The prototype buttstock is not adequate when used from the shoulder. If a submachine gun cannot be used from the shoulder, it can only be hand-fired like a pistol or fired from the hip. The M10 and M11 prototypes have aperture sights rather than open sights which makes pistol-type

FIGURE 21
INGRAM MODEL 11 .380 a.c.p.



INGRAM MODEL II .380 a.c.p. SMG (a) WITH 32-ROUND
MAGAZINE (b). SHOWN WITH COLT GOVT. 45 FOR
COMPARISON SIZE (c) AND WITH SOUND SUPPRESSOR
AND RETRACTABLE STOCK IN PLACE (d) AND EARLY
MODEL SEVENTREES LTD. HOLSTER (e).

shooting inaccurate since the hole through the rear sight cannot be seen at arm's length. When the weapon is fired from the hip, even with a sound suppressor attached, the high cyclic rate of fire makes short accurate bursts difficult.

The high cyclic rate of fire is still a matter of controversy among designers. Soviet designers feel that in modern warfare a very high cyclic rate is necessary and desirable for suppressive fire. Many think that the 450 r.p.m. cyclic rate of the M3A1 is too sluggish. About 700 rounds per minute is considered a maximum for police use, because this rate seems to be the upper limit for accurate short-burst fire on single point targets by a moderately trained shooter. U.S. police are not generally concerned with suppressive area fire as employed by troops in the assault. Both the Ingram Model 10 and the Model 11 tend to fire greater bursts than the three-round maximum desirable for police work.

On the original M10 and M11, the safety and the fire selector were underneath the front of the receiver and easily accessible to the shooter's firing hand. In later models, however, the full and semiautomatic switch is found on the left side of the receiver. The location of the fire selector away from the safety lever makes the weapon slower to operate.

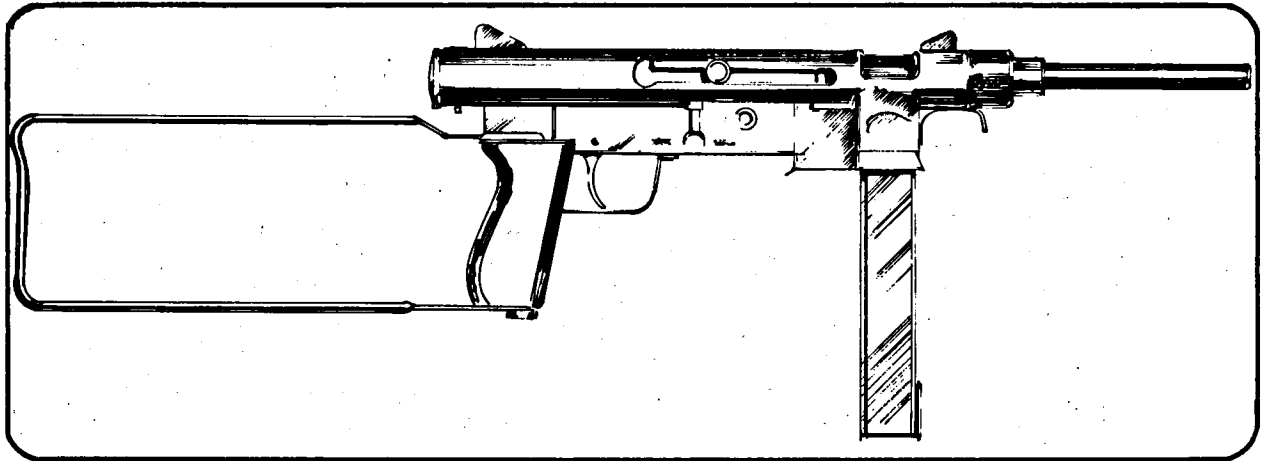
The retractable stock is a serious defect in the design of the prototype. It wobbles back and forth when placed against the shoulder, and because it is set at an awkward angle to the base, the shooter cannot rapidly see the sights. The stock was originally intended merely to steady the weapon when held against the body during hip-fire.

The current forms of the Ingram Models 10 and 11 have great potential for various modern military purposes such as clandestine raids, assassination, and as a sidearm for tank and helicopter crew members, engineers, artillerymen, officers, and N.C.O.'s. For police work, a special model could be equipped with a sturdy, detachable, wire shoulder-stock that could be carried in a shoulder rig on the opposite side of the gun holster. The weapon could also be used as a pistol with the addition of an open rear sight. With a sturdy buttstock the Ingram models are surprisingly accurate. Experimentally, an improvised wooden stock was fitted to a "suppressed" Model 11, and it was not too difficult to hit man-size targets at 100 yards using semiautomatic fire.

Smith & Wesson M76. Smith & Wesson, a subsidiary of Bangor Punta, introduced the M76 submachine gun in 1967. The M76 fires 9 mm ammunition at 720 rounds per minute. With stock folded the S&W measures 20.25 inches. The M76, shown in figure 22, weighs 7.25 pounds and is more portable than the 10.45-pound Thompson. At \$73.45, the M76 costs less than the \$295 Thompson.

This weapon uses the Carl Gustav-type magazine. Three M76 magazines were supplied with the test gun. Two of the three magazines were extremely difficult to load due to very heavy magazine follower springs. The heavy springs, combined with the sharp magazine lips, made loading beyond the fifteenth round quite difficult. If the stiff spring and sharp magazine lips are necessary for proper functioning, the manufacturer might consider including a loading tool with his guns. Jamming in submachine guns is most often due to faulty magazines. Four stoppages occurred during test firing with one of the three magazines; the other two magazines were reliable.

FIGURE 22
SMITH AND WESSON MODEL 76 9 mm SMG



The M76 has crude fixed sights. The rear sight is a simple protected aperture, and the front sight is a piece of metal pried up from the sight base to form a post protected by wings. These sights are adequate for short range shooting. The stock is made of plastic coated metal which is an advantage in cold weather to protect the cheek from contacting metal. The stock folds on the left side of the weapon. Open, the stock lengthens the M76 to 30.5 inches as compared with 32 inches for the Thompson or 25.2 inches for the Uzi. The stock is well designed with a straight-line configuration. Sling mounting slots are located on the left side of the weapon.

The bolt retracting handle, which is located on the right side, moves with the bolt in firing. There are longitudinal grooves inside the receiver to collect dirt from around the bolt.

The selector lever can be operated from either side of the gun, but is located halfway down the receiver from the normal thumb position. The heavy trigger pull causes the M76 to lose considerable accuracy.

Once the shooter has applied the force necessary to pull the trigger for full automatic fire, it is difficult to disengage rapidly. Consequently, when two and three-round bursts are attempted, four and five-round bursts are consistently produced. As with most submachine guns, the M76 climbs high-right, which means that if the first round is on target, successive rounds will go progressively off target with a round-to-round dispersion that increases with range. Thus, short bursts are required for accuracy and ammunition conservation.

The M76 takes advantage of several design ideas that have been current in Western Europe since World War II. It is easily manufactured, making extensive use of metal stampings, and fires the 9 mm parabellum round which is standard in NATO countries. The general configuration is most like the Swedish "Carl Gustav" or the Egyptian "Port Said." The design is not particularly compact, but it is better in that respect than a Thompson or a Reising. On the other hand, the M76 is not as compact, accurate, or reliable as the Uzi or the Walther MPK. Its biggest advantage is price. At \$73.45, the M76 costs only 3/5 the imported price of the Uzi or an MPK.

Foreign Submachine Guns

Heckler & Koch MP5. The MP5 submachine gun is produced by Heckler and Koch of Oberndorf, West Germany. It is a 9 mm parabellum scaled-down version of the 7.62 mm G3 assault rifle. The G3 is one of the world's best assault rifles and is sold in Germany, Portugal, Norway, Sweden, Denmark, Pakistan, and the Dominican Republic. Both weapons work on a roller-retarded, delayed-blowback, closed-bolt mechanism. Some 63 percent of the parts of the 9 mm MP5 interchange with G3 parts and another 20 percent are practically identical.

A selector lever is located above the MP5 pistol grip with positions marked F for full, E for semi, and S for safe. The latest version, the MP5A3, is marked with the international symbols: O for safe, 1 for semi, 30 for full, and 3 for 3-shot burst. The last symbol represents a revolutionary development in submachine gun design. Currently, only a handful of European assault rifles and the American-made Special Purpose Individual Weapon (S.P.I.W.) developed by the A.A.I. Corporation have the capability of firing three-shot bursts automatically. Since a large part of submachine gun training is conditioning men to fire short bursts, this option on the MP5 should prove quite valuable. In spite of the 4 positions, the selector lever shifts easily down from the "safe" position to the "3-shot" position with only a short movement of the shooter's thumb.

The MP5 cocking handle is on the upper left side of the receiver. As with any closed-bolt weapon, the shooter should remember not to ride the handle forward in cocking, but to let the bolt slam shut for positive locking.

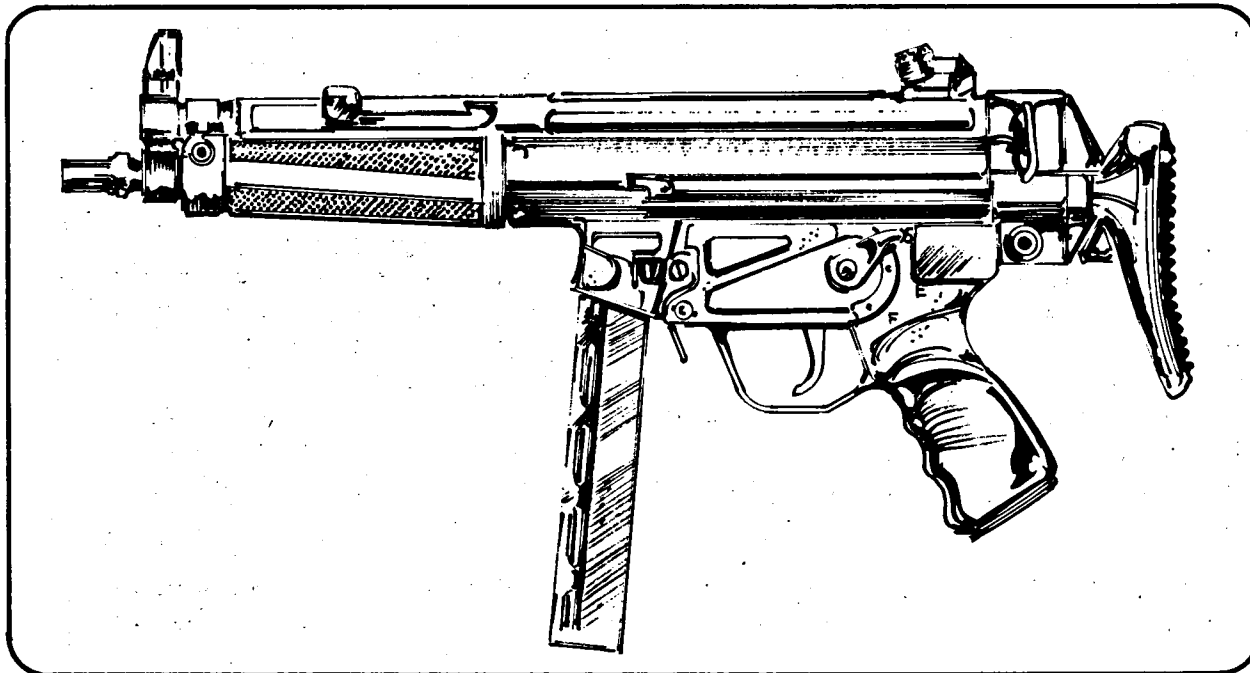
A rigid buttstock is standard on the MP5. The MP5A1, illustrated in figure 23, is the paratroop model with retractable buttstock, and the MP5A3 is a variation of the latter. The sling attaches on the left side and can be adjusted to accommodate several combat sling carrying positions. For carrying the weapon concealed, a retractable stock model with sling attached is recommended.

The MP5, like most modern submachine guns, is made primarily of metal stampings. The sights are protected blade front and aperture rear. The rear sight is of rotary design similar to the G3 assault rifle. It is adjustable (using a special tool) for windage and elevation, and for aperture size, with a very large aperture for speed in close combat and/or poor light conditions.

The MP5 has an 8.85-inch barrel and fires 650 rounds per minute. The overall length with rigid buttstock is 26.77 inches, 26 inches with retractable stock extended, and 19.29 inches with retractable stock closed. This compares with an overall length of 14.75 inches for the Walther MPK and 17.3 for the Uzi. The MP5 weighs 5.4 pounds unloaded with rigid butt, and 5.6 pounds with retractable stock. A box magazine holds 30 rounds and can be loaded by hand or with a special loading/unloading tool.

With a closed-bolt design, the MP5 has a decided advantage over open-bolt weapons for accuracy in semiautomatic fire. When the open-bolt moves forward after the trigger is pressed, it travels farther than the striker on a closed-bolt weapon, often jarring the shooter's aim somewhat at the moment of firing. For police work, the closed-bolt design is especially desirable if the weapon is to be employed with semiautomatic fire at a distance. Also, if close-range shooting is to be done in crowded areas, the submachine gun will probably be used on semiautomatic. In any case, the MP5 has been adopted as a standard weapon by the police forces of the Federal Republic of Germany and by the German Federal Border Police.

FIGURE 23
HECKLER & KOCH MP5A1 9mm SMG WITH STOCK RETRACTED



On semiautomatic the MP5 is accurate, with no jerk at the moment of firing. The 3-shot burst lever operates well in that when the trigger is held firmly to the rear only three rounds are discharged. When the lever is placed on full automatic (30), it is relatively easy to finger off two and three-shot bursts.

No malfunctions occurred during test firing using Finnish Lapua ammunition with semiautomatic, short burst, and 3-shot bursts fired continuously from six different magazines. The extraction process is hard on brass cases, but they can still be reloaded.

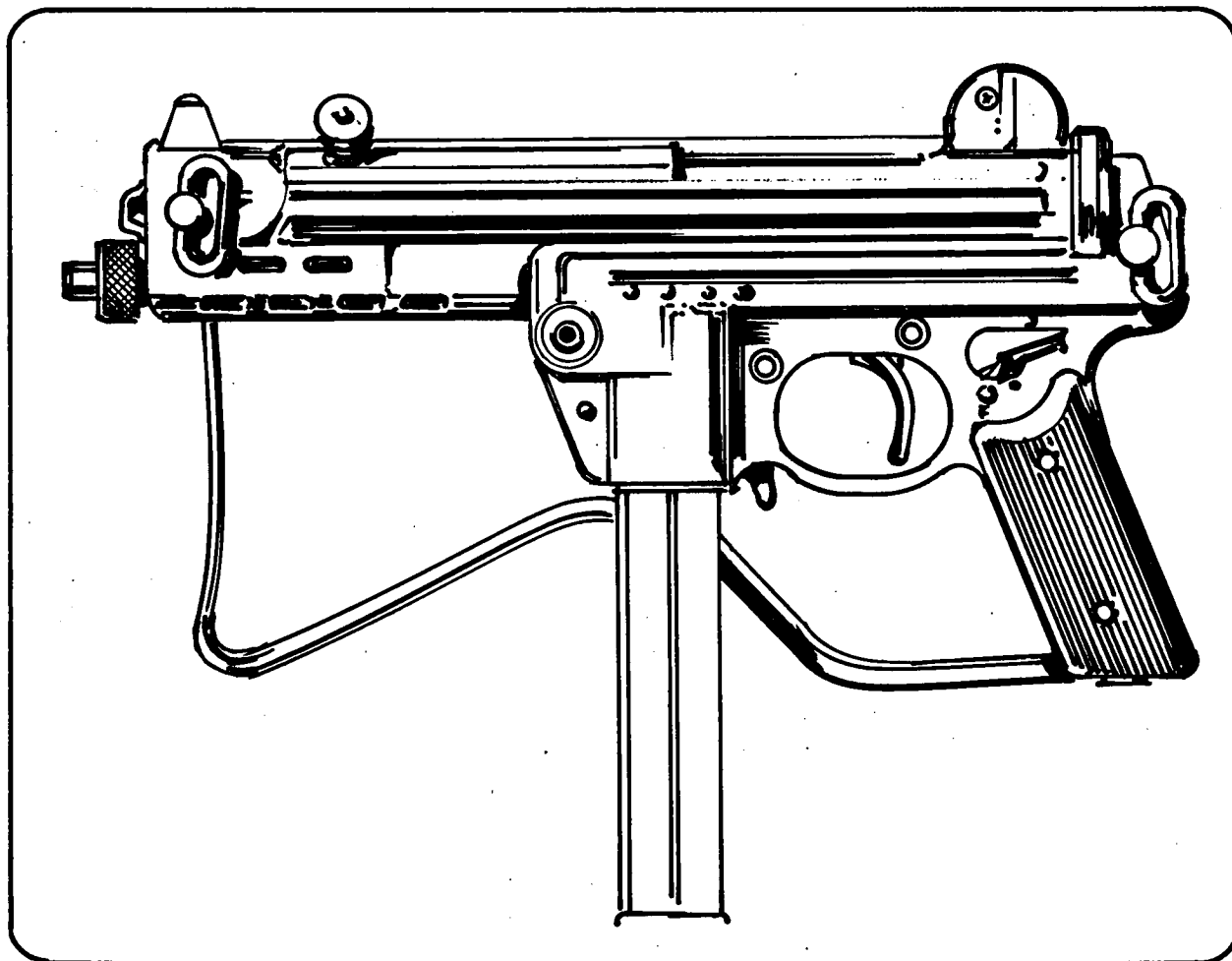
Very little recoil and muzzle rise were experienced. The retractable stock fitted well into the shoulder and aided controllability.

Walther MPK. The Carl Walther Waffenfabrik firm in Ulm/Donau, West Germany, introduced a new submachine gun in 1963. This weapon comes in two models: the MPL with an 18.1-inch barrel, and the MPK⁸ with a 10.25-inch barrel. There is no apparent functional advantage to the longer barrel, and the MPK can be more readily concealed.

The military version of the MPK, illustrated in figure 24, is full automatic only, and not easily adaptable to police work. Those imported into this country are equipped with a semiautomatic capability activated by another position on the safety lever. In this model, the positions are marked D for full automatic, E for semiautomatic, and S for safe. The selector lever is well placed, just

⁸MP stands for *Maschinenpistole* or "Machine Pistol," the German word for submachine gun. K stands for *Kurz* which means "short."

FIGURE 24
WALTHER MPK



above the grip. This lever can be activated from either side of the gun to the benefit of left-handed shooters.

The magazine well is located immediately in front of the trigger guard, and is slightly funnel-shaped for ease of loading, especially in the dark. The magazine is of the Carl Gustav design and holds 32 rounds of 9 mm ammunition.

A metal skeleton stock can be folded to either side of the gun, and is well designed, bringing the eyes into line with the sights and effectively reducing recoil. The length of the MPK with the stock closed is 14.75 inches, compared to the Uzi's 17.3 inches. The 6.2-pound MPK is lighter than the 7.7-pound Uzi. The MPK is slightly bulkier because of the projection of the magazine in front of the trigger and the width of its stock, whereas the Uzi's stock folds under the receiver. However, when the magazine is removed, the MPK can be concealed under the jacket as easily as the Uzi.

The bolt retracting handle is not integral with the bolt and remains forward during firing. The handle, which has a large and comfortable shape, is located on the left upper side of the weapon.

The MPK fires from the open-bolt position, with most of the weight of the bolt above and forward of the bolt face. The bolt has longitudinal cuts in its sides which allow harmless accumulation of dirt.

An upper notch set for 75 meters and an aperture set for 125 meters provide the MPK with a dual sighting system. Both front and rear sights are protected.

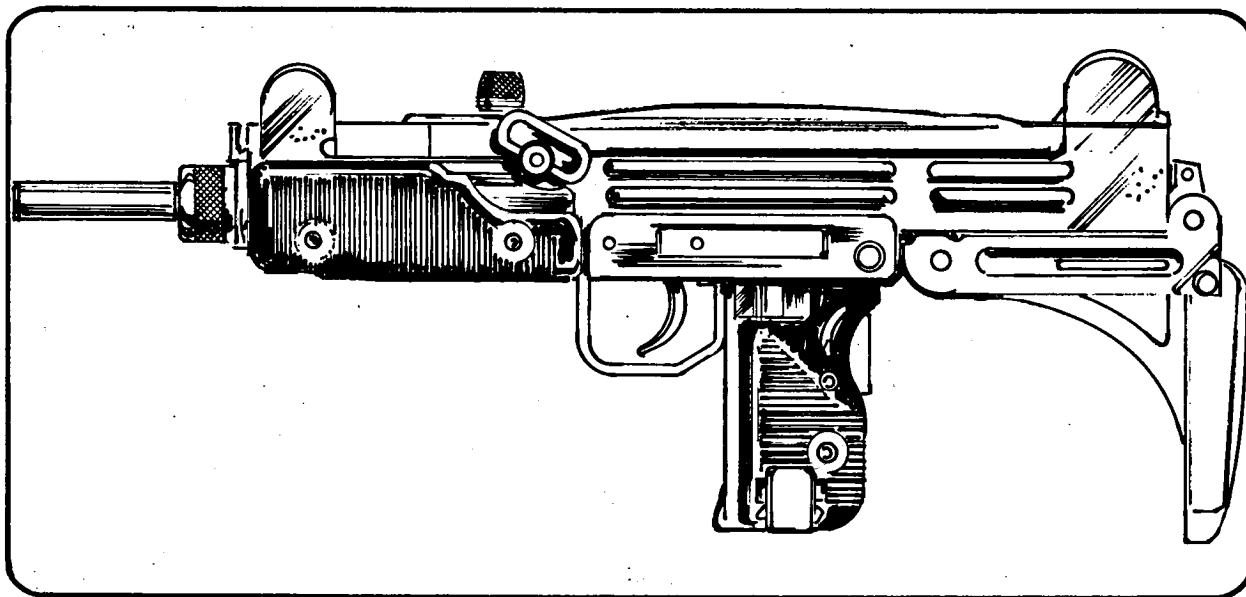
At 50 feet, using an aperture sight, it is possible to hit 6-inch by 6-inch targets easily with single shots or two-round bursts from the standing position. Since the retracting handle does not move and the barrel jacket does not heat up, it is possible to grip the weapon comfortably around the forearm and barrel. This makes the weapon comfortable to hold in both the shoulder or assault fire positions. The cyclic rate is 550 rounds per minute with 9 mm parabellum ammunition. A sling is mounted on the left side of the MPK for carrying around the neck.

The MPK costs approximately \$125 and takes about three months for delivery, since federal law prohibits keeping any number of such guns in inventory.

I.M.I. Uzi. The Uzi submachine gun is named for Major Uziel Gal of the Israeli Armed Forces who designed the weapon in 1950. Its design was based on certain Czech weapons including the ZK476. Czech small arms designs are internationally famous, and Czech weapons were the staple of Israel's 1948 war. Major Gal improved on the Czech design, and his weapon is now manufactured by "Ta'as" (Israeli Military Industries) and by Fabrique Nationale in Belgium.

Figure 25 illustrates the Uzi, which is the most widely marketed submachine gun in the free world. Recently the gun was used by the Sudanese rebels fighting the Arab regime in Khartoum. It is an official weapon of the Netherlands and West Germany. In Germany, it is known as the MP2.

FIGURE 25
ISRAEL UZI SUBMACHINE GUN PARATROOP MODEL WITH FOLDING STOCK



The Uzi has a grip safety and a thumb safety. The thumb safety is located on the left side of the weapon and acts also as a selector lever. The selector has three positions: forward for full automatic, middle for semiautomatic, and rearward for safe. These positions are marked D, E, S, respectively, in German, and A, R, S, in English-speaking export countries.

Both the MP2 and later model I.D.F. (Israeli Defense Force) Uzi submachine guns have an extra safety in the form of serrations on the underside of the weapon cover beneath the cocking handle. These serrations prevent the bolt from going forward if the cocking motion is interrupted. In other words, if the firer's finger slips off the cocking handle, the bolt will not slide forward and accidentally fire a round.

Its telescoping bolt forms a sleeve over the 10.2-inch barrel, making the Uzi quite compact. In addition, the weapon feeds through the pistol grip, which reduces the Uzi's overall length. The paratroop model has a sturdy metal stock which folds under the receiver. The metal stock version is the only one that should be considered by U.S. police since when folded, it increases the portability of the weapon, and while extended, it allows the Uzi to be used as a rifle. The standard wooden stock, long or short version, of the Israeli Army ("Tahal") Uzi can be detached with a single button and many soldiers remove the stock for portability, an extremely dangerous practice since it drastically limits the potential accuracy of the weapon.

The Uzi fires from the open-bolt position; when closed, the bolt serves as an effective dust cover. Longitudinal cuts in the receiver around the bolt serve to collect dirt and further increase the weapon's reliability. This weapon can be field-stripped for cleaning in a matter of seconds. However, stripping the weapon as well as adjusting the front sight should be a matter for the police armorer. The individual officer should know how to fire the weapon effectively and how to protect it from the elements, but maintenance responsibility should be centralized.

The Uzi has an adjustable front sight and an "L" type aperture rear sight with adjustments for 100 and 200 meters. Both front and rear sights are protected by wings.

A bolt retracting handle, which is located on the top of the receiver, does not move during firing. In later production, the handle was increased in size with a slit in the middle for sight visibility. The larger bolt handle is easier to grasp. A sling is mounted on the left side for carrying the weapon over the right shoulder. The Uzi fires from a 25, 32, or 40-round magazine at 650 rounds per minute.

The weapon weighs 7.7 pounds unloaded and can be easily controlled in full automatic fire. Short two and three-round bursts are not difficult to obtain.

The Uzi costs under \$125 in the United States, and as with the Walther MPK, the waiting period is about three months.

GLOSSARY

Aperture or peep sight: A rear (receiver) sight on a shoulder weapon consisting of a round hole cut in a piece of metal. The shooter looks through the rear sight and centers the front sight in the middle of the aperture.

Assault rifle: A light infantry rifle capable of semiautomatic and full automatic fire using a special intermediate cartridge between pistol and high-power rifle ammunition. Examples: German MP44 firing 7.9 mm *Kurz* cartridge, or Soviet AK47 firing 7.62 x 39 mm cartridge.

Automatic carbine: U.S. M2 military carbine with selective semiautomatic and full automatic fire.

Automatic or full automatic or machine weapon: A weapon that by recoil or gas pressure loads and fires each successive round from the magazine with a single continuous pressure on the trigger.

Automatic rifle: A shoulder weapon, with a self-contained magazine, which fires high-power rifle ammunition with full automatic burst capability. Often used to describe an infantry squad support weapon such as the Browning Automatic Rifle (B.A.R.) or the M14A2, though it can also refer to light rifles with full automatic selector switch such as the F.A.L. or the M16A1.

Blowback operated weapon: An unlocked breech weapon in which gas pressure in the chamber against the bolt face opens the action (using the fired case as a piston).

Caliber (cal.): Measurement of bullet width in fractions of an inch.

Cyclic rate (of fire): Optimum number of rounds per minute fired full automatic given infinite magazine capacity and zero parts wear. Not a measure of how many rounds can actually be fired in a minute but rather how fast rounds are cycled through the action during full automatic fire.

Gas operated weapon: Locked breech weapon in which gas is bled off from the barrel to a piston which unlocks and opens the action.

Kick: Rearward thrust of firearm against a shooter. Kick varies with ballistic recoil, stock configuration, muzzle brake, and method of holding the weapon.

Machine gun: A weapon capable of firing rifle ammunition full automatic for extended periods from a belt or enclosed magazine. A machine gun may be permanently attached to a mount or fixed on a tripod or carried in the assault or used as a support weapon with bipod. It usually is heavier than an automatic rifle and is capable of firing longer bursts accurately due to less recoil.

M: Model.

Machine carbine: British term for submachine gun current in World War II.

mm: millimeter.

MP: Maschinenpistole in German, machine pistol in English, an interchangeable term with submachine gun.

Open or notch sight: A weapon rear sight consisting of a notch or groove cut into a piece of metal. The shooter aligns the front sight within the notch so that the top of the front sight does not extend above the notch and an equal amount of light appears on either side of the front sight between it and the sides of the notch.

Post or blade sight: Front sight on a weapon that appears like a straight post when viewed from the rear sight.

Retarded or delayed blowback operated weapon: An unlocked breech weapon in which a mechanical system retards the opening of the bolt, caused by the gas pressure of the fired round.

r.p.m.: rounds per minute.

Selector switch: The switch that determines by changes in sear position (or other means) whether a weapon fires full automatic or semiautomatic.

Semiautomatic or autoloading weapon: A weapon that by recoil or gas pressure loads a new round into the chamber and cocks the hammer or firing pin after each preceding round is fired. The trigger of the weapon must be pressed for each succeeding shot.

Subcarbine: A submachine gun converted to fire semiautomatic only, or a short semiautomatic carbine firing pistol ammunition.

SMG: Submachine gun.

Submachine gun: A portable machine gun which fires pistol ammunition.

9 mm: Approximate width of a specific pistol bullet. The case length of various types of 9 mm cartridges may vary (e.g. 9 mm *Kurz* or .380 a.c.p., 9 mm Steyr, 9 mm luger or parabellum), and these cartridges are not to be considered interchangeable.

SELECTED SUBMACHINE GUN BIBLIOGRAPHY

BOOKS

Helmer, W.J. *The Gun That Made The Twenties Roar*. New York: Macmillan Co., 1969.

McLean, Donald B. ed. *F.N. Cal. 9 mm "Uzi" Submachine Gun*, Forest Grove, Oregon: Normount Armament Co., 1969.

McLean, Donald B., ed. *Reising Submachine Guns M50, M55 and M60*. Forest Grove, Oregon: Normount Armament Co., 1968.

McLean, Donald B., ed. *Submachine Guns Caliber .45, M3 and M3A1*. Forest Grove, Oregon: Normount Armament Co., 1967.

McLean, Donald B., ed. *Thompson Submachine Guns*. Forest Grove, Oregon: Normount Armament Co., 1967.

Nelson, Thomas B. and Lockhoven, Hans B. *The World's Submachine Guns (Machine Pistols)*. Cologne, Germany: International Small Arms Pub., 1963.

Smith, W.H.B. and Smith, Joseph E. *Small Arms of the World*. Harrisburg, Pa.: The Stackpole Co., 1966.

ARTICLES

Bearse, Ray. "The Thompson Submachine Gun: Weapon of War and Peace." *Gun Digest*, 1967, pp. 46-58.

Bierman, Harris. "Smith & Wesson Model 76." *Guns & Ammo 1971 Annual*, 1970, p. 307.

Forgett, Valmore, Jr. "Is The Tommy Gun A Police Weapon?" *Guns*, August, 1957, pp. 20-23.

"The Gun That Guards Mr. Nixon." *Newsweek*, February 9, 1970, p. 17.

Heiman, Leo, "Infantry in the Middle East War, Part One." *Infantry*, January-February, 1968, pp. 16-22.

Hobart, F.W.A. "Czech Model 61 Pistol Uses Low-Energy .32 Round." *The American Rifleman*, November, 1970, pp. 34, 35.

Kjellgren, G.L.M. "The Practical Range of Small Arms." *The American Rifleman*, March, 1970 pp. 40-44.

LaMont, Wyant. "Automatic Weapons." *Guns & Ammo 1970 Annual*, 1969, pp. 252-261.

Miller, Burton T. "Does America Have the World's Best Combat Rifle?" *Guns & Ammo 1970 Annual*, 1969 pp. 288-293.

Miller, Richard P. "Guns of the Six Day War." *Guns*, October, 1969, pp. 26-29.

"A New Communist Submachine Gun." *Guns & Ammo*, March, 1968, pp. 28, 29.

Simons, Lance. "Czech Model 61 'Scorpion'." *Guns & Ammo 1971 Annual*, 1970, pp. 308-309.

Smith, Don. "They Haven't Replaced the Tommy." *Guns and Hunting*, July, 1969, pp. 34-37.

- Steele, David E. "The Uzi Submachine Gun." *Ordnance*, May-June, 1970, pp. 634-635.
- Sterett, Larry S. "Submachine Guns Today." *Gun Digest*, 1962, pp. 114-122.
- Stevenson, Jan A. "New Smith & Wesson M-76." *Guns*, October, 1967, pp. 20-22.
- "Submachine Gun Bolt." *The American Rifleman*, September, 1964, p. 18.
- "Submachine Gun." *The American Rifleman*, September, 1964, p. 18.
- Waite, M.D., "Uzi Submachine Gun." *The American Rifleman*, September, 1970, pp. 48-51.
- Weller, Jac. "A Nation of Armed Citizens." *The American Rifleman*, September, 1970, pp. 48-51.
- Weller, Jac. "Small Arms of the Israeli Victory." *The American Rifleman*, February, 1968, p. 17-20.
- Williams, Roger. "Mitch WerBell: Gunsmith to the 'Right' Side." *The Washington Post*, December 27, 1970, P. D3.
- Zwirz, Bob. "S & W Caseless Cartridges." *Guns and Hunting*, January, 1969, p. 33.

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