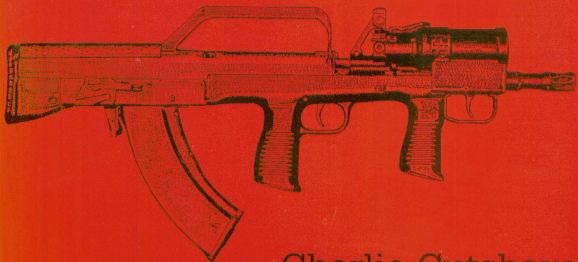


The New
World of

Russian Small Arms & Ammo



Charlie Cutshaw

Illustrations by Lyn Haywood

When Russian small arms come to mind, one usually thinks of the ubiquitous Kalashnikov AK-47 or one of its successors that have been the mainstay of Soviet and Russian small arms since 1949. Until recently, if one's interest went beyond SKS carbines, AK-type assault rifles, certain machine guns, and pistols such as the TT-33, PM Makarov, and APS Stechkin, little else was known. There was no information available in the West regarding new and developmental firearms, much less details on the latest ammunition both in traditional and new calibers.

With the demise of the Soviet Union, however, information began to trickle out to a small cadre of intelligence and defense analysts. It soon became obvious that Russian small arms designers had not been idle under Soviet rule, but had developed, and in several instances fielded, some of the most innovative small arms and accompanying ammo in history: underwater weapons; weapons that used silent ammunition; unknown families of submachine guns, pistols, and revolvers that demonstrated truly advanced thinking and design; and revolutionary new assault rifles, one of which appears destined to replace the Kalashnikov.

Several of these innovative weapons have been in Soviet military service since the early 1970s, completely unknown to the West or any of its intelligence services. At least one was actually used operationally in Afghanistan and Central America. The lack of knowledge concerning these weapons should come as no great surprise, as most of them were designed for use by special-operations forces—SPETsNAZ—whose use of them was understandably kept classified.

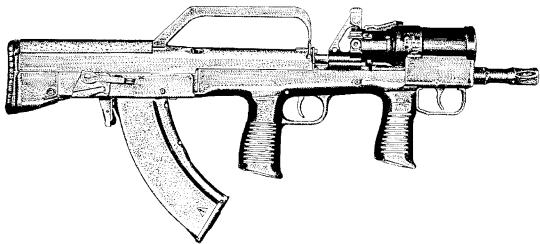
Little has been written about these remarkable new weapons outside the military small-arms community—until now. *The New World of Russian Small Arms and Ammo* throws open the doors on Russia's small-arms arsenals to all those aficionados who've been dying to get their hands on these weapons.

The New
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Russian Small Arms & Ammo

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Charlie Cutshaw

Illustrations by Lyn Haywood

Paladin Press • Boulder, Colorado

The New World of Russian Small Arms and Ammo
by Charlie Cutshaw
Illustrations by Lyn Haywood

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ISBN 0-87364-993-1

Printed in the United States of America

Published by Paladin Press, a division of
Paladin Enterprises, Inc., P.O. Box 1307,
Boulder, Colorado 80306, USA.
(303) 443-7250

Direct inquiries and/or orders to the above address.

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INTRODUCTION

When Russian small arms come to mind, one usually thinks of the ubiquitous Kalashnikov AK-47 or one of its successors that have been the mainstay of Soviet and Russian small arms since 1949. In recent years, especially in the United States, millions of Simonov (SKS) carbines have been sold commercially, and the little rifle is familiar to anyone who reads the firearms press. If one's interest went beyond SKS carbines, AK-type assault rifles, certain machine guns, and such pistols as the TT-33, PM Makarov, and APS Stechkin, little else was known. There was nothing available in the West regarding new and developmental firearms, much less details on new ammunition both in traditional and new calibers.

With the demise of the Soviet Union, however, things changed. It soon became obvious that Russian small-arms designers had not been idle under Soviet rule, but had developed, and in several instances fielded, some of the most innovative small arms in history. Included were underwater weapons; weapons that used silent ammunition; unknown families of submachine guns, pistols, and revolvers that demonstrated truly advanced thinking and design; plus innovative new assault rifles, one of which appears destined to replace the Kalashnikov in Russian service. During the same period, Russian designers also developed a variety of new types of ammunition to accompany their weapons.

What is remarkable is that several of these innovative weapons have been in Soviet military service since the early 1970s, completely unknown to the West or any of its intelligence services. One, at least, was actually used operationally in Afghanistan and Central America. Why this never came to light will become apparent to the reader upon perusal of the section on that peculiar weapon. The lack of knowledge concerning these weapons should come as no great surprise, as most of them were designed for use by special operations forces—SPETSNAZ, or special direction forces—whose use of them was understandably kept classified so that Western adversaries would be kept unaware of their potential opponents' armament. Despite their secrecy, there were usually hints in the West of new Soviet weapons development, but the existence of these remarkable small arms was successfully kept under wraps until the Russians chose to release information on them to sell them overseas to raise capital. Even so, there is still a sense of secrecy on the part of the Russian arms industry. For example, as of this writing, certain aspects of the new AN-94 assault rifle are still classified as state secrets, although the rifle has been seen and examined by several Westerners. The same is true with many of the other weapons described in this book; although the Russian small-arms industry desperately needs capital, its members are reluctant to divulge any more information than absolutely necessary to members of the press, authors, or visitors from Western small-arms manufacturers. The reader will, therefore, find a plethora of information on some weapons, but little more than brief outlines on others.

It is also difficult to differentiate between weapons that are merely prototypes or "trial balloons" for potential joint projects with Western manufacturers and weapons that are actually in service with Russian military or interior ministry forces. When asked, representatives of Russian arms makers will almost invariably state that the firearm in question is in use by the army or Ministry of Internal Affairs (MVD) or SPETSNAZ, yet personnel of these organizations may never be observed with them. This does not mean that a weapon in question is not in use as claimed; only that it has never been observed. Nonetheless, true confirmation of use comes only when a weapon is actually observed in the hands of operational forces. I will make every attempt in this volume to differentiate and categorize weapons.

New weapons are the subject of this book, although I will discuss the latest and probably final Russian versions of the venerable Kalashnikov series assault rifles. The Russian military's new assault rifle, the AN-94, has created a great deal of interest in the West, but little has been written about it outside the military small-arms community. This significant new weapon will be covered in as much detail as possible. I will also discuss several prototype weapons that never entered production, but which are important for the contribution they made to overall weapons design. The final portion of this book will cover Russian ammunition developments, which are every bit as fascinating and innovative as the firearms that use them.

A book such as this one is the product of many people besides the author whose name appears on the title page. First, I must thank Dave Markov, who first suggested the project and who provided much of the data that made this book possible. I also wish to thank my friend and colleague Valery Shilin without whose assis-

tance this book would never have been written. I also owe a deep debt to Cookie Sewell and Les Grau, who willingly translated many Russian-language documents for me at no cost. Again, I couldn't have done this without these gentlemen. Maj. Marc Moo Sang of the Canadian army is yet another without whose assistance this book would not have been possible. I owe Col. Rex Applegate a word of thanks for encouraging the project and using his good offices to help get the book published. Don Wood is yet another gentleman whose generous assistance made this book possible. My friend and colleague Terry Gander also gave inestimable help. I'd also like to thank my editor at Paladin, Donna DuVall, whose efforts and competence made the publication process painless for me. (I suspect that it was not so for her.) And finally, I must thank my wife, Dianne, whose encouragement and confidence in my abilities made possible not only this book but everything else.

RIFLES

AN-94 ASSAULT RIFLE

In 1993, a mysterious new assault rifle appeared at an arms display at the elite Taman Guards Division outside Moscow. The strange new rifle was displayed alongside the common AK-74 assault rifles and RPK-74 light machine guns that made up the standard light-weapons armament of the division and was labeled "ASN," which was subsequently learned to be a Russian abbreviation for *Avtomat Spetsialnyi Nikonov*.

Soldiers at the show could give no meaningful information on the weapon other than the basic data on the placard above the rifle displayed on the table. Shortly thereafter, more information began to emerge regarding the ASN, indicating that it was a developmental advanced combat rifle in the true sense of the word, but its official status remained a mystery. The Russian Ministry of Defense cleared up the mystery in 1996, however, by announcing that the ASN had passed all its troop trials and had officially been type-classified as the *Avtomat Nikonova-94 (AN-94)*, named for the head of the team that designed it, Gennady Nikonov. The number 94 indicates the year that the rifle was officially type-classified and adopted for military service to eventually replace the AK-47/AKM/AK-74 series rifles.

Rumors from Russia had it that the "grand old man" of

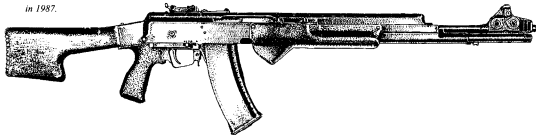
Russian small arms, Mikhail Kalashnikov, was not pleased by the new rifle, especially since a design team headed by his son had been contending for the honor of designing Russia's next assault rifle. Nonetheless, as time passed, it was clear that the AN-94 would almost certainly be the next Russian combat rifle, Kalashnikov's protestations notwithstanding.

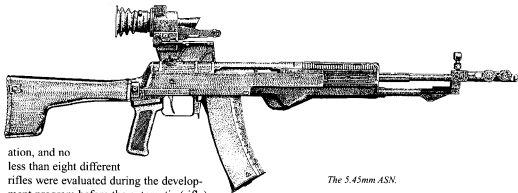
The genesis of the AN-94 actually begins with the adoption of the AK-74 more than 20 years ago. At the time, the 5.45x39mm cartridge of the AK-74 was tacit acknowledgment by the Soviet military of the combat effectiveness of small-caliber high-velocity projectiles at normal battlefield ranges that had been proven in Vietnam by the 5.56x45mm M16A1. The new cartridge was derived from the M1943 7.62x39mm cartridge. Although the 5.45mm's terminal effects were sufficiently lethal to earn it the nickname "the poison bullet" by the Mujahideen in Afghanistan, the Soviet military was not completely satisfied with the overall performance of the AK-74. The military had probably concluded that the AK-74 effectively represented the end of the practical development life of the Kalashnikov assault rifle design and that a new rifle would be necessary by the turn of the century.

The primary requirement of a new rifle was that it would achieve a probability of hit (or effectiveness) of 1.5 to 2.0 times that of the AK-74. The military had also apparently felt that a reduction in recoil was necessary to improve hit probability—ironically, a consideration in light of the fact that reducing recoil and improving control and hit probability had been part of the reason for the development of the AK-74. The AK-74 had reduced recoil in comparison with the older 7.62x39mm AK-47s and AKMs, but the reduction was due to the ammunition change and, to a lesser extent, the extremely effective AK-74 compensator/flash suppressor design. However, the reduction was considered inadequate, and a program was initiated to develop a new, advanced-technology assault rifle to replace the entire Kalashnikov family. In addition to increased effectiveness and reduced recoil, the new rifle would also have to meet stringent increased reliability requirements.

The development program was nicknamed *Abakan* for a village in Siberia where a great deal of the testing of the candidate rifles was conducted. This led to the AN-94's being mistakenly called *Abakan* when it was first observed in the hands of Russian troops several years ago. *Abakan* was also used by the Russians as a generic term for all rifles that were competing to be the next Russian combat rifle, further confusing the issue. According to Gennady Nikonov, designer of the AN-94, every official Soviet firearms designer submitted a candidate for consider-

The 5.45mm ASN. This 1980s design was contemporary with the Abakan design by G.H. Nikonov. It was followed by two designs, the AS and the ASN, the latter completed in 1987.





The 5.45mm ASN.

ation, and no less than eight different rifles were evaluated during the development program before the automatic (rifle) system Nikonova (ASN) was eventually selected and type-classified as the AN-94.

Interestingly, in 1992 the usually plain-spoken Mikhail Kalashnikov refused to comment on the ASN, then undergoing troop trials. He was quoted as saying, "I don't feel I am entitled to give an assessment of the new product." Kalashnikov went on to state that his son Viktor had a design in the Abakan competition, hence his reluctance to comment. The senior Kalashnikov's reluctance to comment apparently disappeared after Viktor's candidate lost. No direct quotes have been made public, but informal information from Russia was to the effect that the elder Kalashnikov was furious that his son's rifle had lost and that Kalashnikov senior did everything in his power to reverse the decision. It is thus apparent that the Kalashnikov design was a "loser" in the competition, especially given Kalashnikov's protestations about adoption of the AN-94. Viktor Kalashnikov's design has yet to be made public.

As of early 1998, the AN-94 was in limited production at the Izmash Joint Stock Company and is truly a complete departure from earlier Soviet/Russian designs. For that matter, it can truly be stated that the AN-94 is unique. The weapon shares only five components with the AK-74: the magazine, folding stock hinge, pistol grip, optical sight base, and cleaning kit. Full production of the AN-94 has been delayed by lack of funds and perhaps by political efforts of Mikhail Kalashnikov to have his son's rifle replace the AN-94. Despite Kalashnikov's efforts, authoritative Russian sources have stated that the AN-94 will eventually enter Russian military service and replace the AK series. The AN-94 can essentially be considered as a Russian version of the U.S. advanced combat rifle—perhaps even the objective individual combat weapon without all the bells and whistles of the latter. This becomes apparent when the capabilities of the AN-94 are compared with any other combat rifle in the world, either in service or in development.

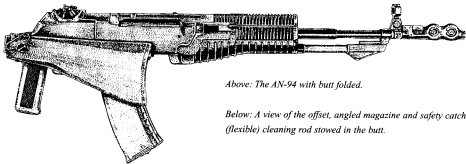
It is possible that the Kalashnikov-derived 6x49mm rifle and machine gun, which were shown by the Precision Mechanical Engineering Central Research Institute (TsNIITochmash) at numerous international arms shows in the mid-1990s for potential joint production with overseas partners, were among the losers in the

Abakan competition. Losing in the Abakan competition was probably due to the Kalashnikov weapons' being no better in performance than the AN-94 and their having to use a new cartridge to achieve their proclaimed superiority.

Although the Kalashnikov derivatives would have led to simplified training because of their being based on existing designs, they would have placed a tremendous, probably unacceptable, demand on an ammunition program that already has three rifle and light/general-purpose machine gun calibers. The advantage of the AN-94 over the Kalashnikov designs is that it achieves the same or better performance while simplifying logistics by using existing ammunition, not to mention claimed AN-94 reliability improvements over the Kalashnikov rifles. Moreover, the capabilities and overall design of the AN-94 indicate that the Russian military has undergone a change in its small-unit tactical thinking, as will be elaborated upon.

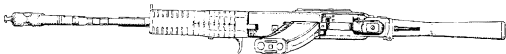
Construction methods of the AN-94 were likely another reason for its adoption over its competitors. Unlike the Kalashnikov designs, the AN-94 is a far more modern rifle, using state-of-the-art manufacturing techniques. The AN-94's furniture is completely manufactured of polymer, as is that of the AK-100 series, but there the similarity between the two weapons ends. What appears to be a gas tube beneath the barrel of the AN-94 is actually a fixed rod extending from the stock group. This rod incorporates a guide for the rifle's firing unit (barrel-receiver assembly) at the front and a dual-purpose stud at its center. One purpose of the stud is to stabilize the rifle when it is being fired in fully automatic mode. The barrel and gas tube of any fully automatic firearm tend to resonate, and the stud counters this tendency, thereby increasing accuracy. A second purpose of the stud is to prevent the rifle from sliding out of place while it is engaged in the firing port of an infantry fighting vehicle. The actual gas cylinder of the AN-94 is located above the barrel and underneath the handguard and is quite short. The reason for this will become apparent as I discuss the functioning of the AN-94.

The entire operating mechanism of the AN-94 is inside the stock, referred to in Russian documents as a "carrier-stock." The reason for this is that the barrel and



Above: The AN-94 with butt folded.

Below: A view of the offset, angled magazine and safety catch, and the (flexible) cleaning rod stowed in the butt.



receiver are integrated into a firing unit that reciprocates on guide rails inside the stock. The bolt carrier and bolt are carried by and operate inside the rifle's internal receiver. The AN-94 has two internal buffers, one in the forearm and another in the rear of the receiver. The forearm buffer not only absorbs shock, but also accelerates return travel of the firing unit as it moves forward in counterrecoil. The rear buffer boosts forward acceleration of the bolt carrier and also prevents the receiver-firing unit from striking the rear of the stock as it recoils. The magazine, which is interchangeable with those of the AK-74 and RPK-74, is offset to the right and inserted at a slight angle.

One of the key principles of the AN-94's operation is referred to as a *blow-back shifted pulse*, or BBSP. This stems from the fact that the receiver-barrel assembly reciprocates independently from the bolt and its carrier, although the latter reciprocate in the receiver-barrel assembly. A simplified functional explanation of the two-round burst feature of the AN-94 will clarify the BBSP principle.

When the first round is fired, the entire barrel-receiver assembly begins moving to the rear under recoil forces, taking the bolt carrier with it and compressing the forward buffer. The bolt is still locked to the barrel at this point. As the bullet passes the gas port, gas is bled off into the gas cylinder, driving the bolt carrier to the rear inside the receiver-barrel assembly, and at the same time unlocking the bolt and extracting and ejecting the spent cartridge case. The bolt carrier is moving much faster than the barrel-receiver assembly and strikes against the rear buffer, which in conjunction with the return spring propels it forward, temporarily inactivating the sear while stripping a fresh round from the magazine and chambering it. As the bolt locks, the sear is released and the second round is fired before the receiver completes its rearward motion. In essence, the first two bullets have left the barrel of the rifle while the receiver is still moving to the rear and has not had a chance to hit the rear buffer. The cyclic rate of this two-round burst feature is 1,800 rounds per minute (RPM). As can be seen, the AN-94 is both gas and recoil operated. Although this complex yet robust BBSP system is not all that makes the AN-94 unique, it is the central principle that makes the dual cyclic rate possible, and this capability is in turn what gives the AN-94 its remarkable performance improvements over all currently produced assault rifles.

The functioning of the AN-94 is unique. When set for fully automatic fire, the first two rounds out of the AN-94's barrel will always be at the "high" rate of 1,800 RPM, so fast that the bullets will be on their way downrange before the rifle has a chance to recoil in the shooter's hands, thereby increasing the probability of a hit over the entire effective range of the rifle. Once the first two rounds are on their way, the rifle automatically cycles down to 600 RPM. When the trigger is released, the mechanism resets for 1,800-RPM two-round burst fire.

To say that the AN-94 is "different" from any currently produced combat rifle in the world is an understatement. Not only are the capabilities unique, but so is the method used to achieve them.

The AN-94's functioning can best be understood in the context of the small arms cycle of operation. It is difficult to describe the functioning of a firearm without having examined it; the technical description of the AN-94's functioning is

based solely on data provided to me by its manufacturer and is subject to my judgment in interpreting them. When and if an actual AN-94 is placed in my hands for examination, the following description may have to be revised. Because of length considerations, only the fully automatic cycle of the AN-94 will be described, because this captures all of the rifle's unique operating features.

Firing the AN-94

To fire, the (separate) safety is set on *O*, or *ogon* (fire in Russian), and the selector switch is set to *AB*, an abbreviation for *avtomatichesky* (automatic). This shifts the disconnector into contact with one of the shoulders of the trigger plate.

Feeding and Chambering

The operator pulls the operating handle to the rear. As he does so, a mechanism consisting of a pulley and cable carries out preliminary feeding, stripping a round from the magazine and placing it in line with the bolt. This operation occurs each time the bolt carrier moves to the rear. It is essentially a "half-loading" of the rifle. The cable assembly also limits rearward travel of the bolt carrier, preventing it from overrunning the magazine. When the operating handle is released, pressure of the return spring and rear buffer drive the bolt carrier forward, ramming the cartridge into the chamber. As can be seen, feeding is a two-stage process, although the operating handle is pulled to the rear only once.

Firing, First Round

Pulling the trigger moves the trigger plate on its axis, releasing the sear, which in turn releases the striker and fires the cartridge.

Unlocking, First Round

Driven by recoil, the barrel-receiver assembly (firing unit) moves to the rear on its guide rails inside the carrier-stock and begins to compress the forward buffer. The bullet passes the gas port, allowing gas into the cylinder, pressing against the gas piston and driving the bolt carrier to the rear inside the moving receiver. The bolt is cammed by the carrier to turn and unlock from the barrel extension. Again, it should be noted that the barrel-receiver unit is moving to the rear as this operation takes place.

Extracting, First Round

As the bolt continues to the rear, it pulls the spent cartridge case from the rifle chamber.

Ejecting, First Round

As the spent cartridge case clears the base of the chamber, it is thrown clear of the rifle out the ejection port.

Second Round, Feeding, Chambering, and Locking

As the bolt carrier and striker reach their rearmost position, the return spring

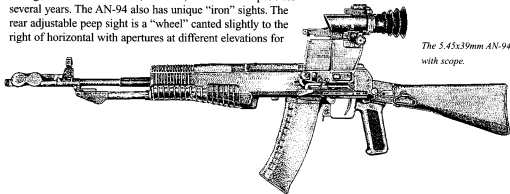
and buffer press them back forward to complete feeding and then chamber and lock the second round for firing at the high cyclic rate. The barrel-receiver is still moving to the rear. Since this unit is further to the rear than when the first round was fired, the second cartridge has a shorter distance to travel from the magazine to the chamber, thereby assisting in achieving the 1,800-RPM rate of fire. This action is further assisted by the "pre-feeding" of each cartridge as the bolt carrier moves to the rear. As the barrel-receiver unit moves to the rear, the sear is temporarily deactivated and the striker freed to fire the second cartridge. Whether the striker follows the bolt forward or is released by the sear as the bolt locks is not clear at the time of this writing. Regardless, the second round fires while the barrel-receiver assembly is still moving rearward. This completes the high cyclic rate.

Third Round, Low Rate

The bolt carrier and bolt again begin to move rearward, driven by gas from the second cartridge. The sear is retained by the trigger plate. The disconnecter and trigger plate return to their original positions. The rear buffer and return spring drive the bolt carrier forward again, ramming a preloaded round into the chamber. The barrel-receiver unit is driven forward by the buffers and the return spring. The disconnecter moves forward with the barrel-receiver unit after the third round is chambered and the rifle locked, releasing the striker and firing the rifle. Further details of the operation of the AN-94 have not been released by the manufacturer.

Izmash, the Russian manufacturer of the AN-94, claims that the probability of a first-shot hit with the AN-94 is 1.5 to 1.7 times better than the AK-74 by actual troop tests in combat units. Russian sources have also stated that the overall efficiency of the AN-94 is "twice that of the AK-74 and 50 percent greater than the American M16." Whether the M16 referred to was the M16A1 or M16A2 is not clear; the M16A2 is a significant improvement over its predecessor in terms of overall performance. Regardless, it is clear that the AN-94 has achieved the design requirements of the Russian military.

The AN-94 can be equipped with an optical sight, the familiar IL29 4x optical sight used on the AK-74, RPK-74, and PKM weapons for several years. The AN-94 also has unique "iron" sights. The rear adjustable peep sight is a "wheel" canted slightly to the right of horizontal with apertures at different elevations for



The 5.45x39mm AN-94 with scope.

adjusting aimed fire. According to Russian sources, the AN-94 is sighted out to 1,000 meters, but increments of sight adjustment are unknown at the time of this writing, and 1,000-meter accuracy and effectiveness of the 7N6 52.5-grain or 7N10 55.5-grain bullets are questionable at best. The "canted drum" diopter rear sight is similar in concept to that used by Heckler & Koch, among others. Each aperture is clearly marked on top with its sighted range, and a quick twist by the rifleman allows him to change his range almost instantly, even when wearing gloves or trigger-finger mittens. The disadvantage of the AN-94 system is the inability to make precise changes in elevation, as can be done with M16A2 sights, but the AN-94 sights are well suited for use on a combat rifle. Windage is changed by moving the front sight side to side.

In addition to using the same optics as other Russian weapons, the AN-94 also accommodates the GP-25/GP-30 40mm underbarrel grenade launcher. The bayonet for the AN-94 is similar to older designs, but those seen lack the "saw-back" feature of earlier bayonets, and the point is tapered. The AN-94 bayonet retains the wire-cutting ability of earlier bayonets. Unlike older bayonets, however, the AN-94 bayonet mounts on the right side of the barrel, rather than underneath.

The AN-94 probably reflects a change in Russian infantry tactical thinking. (Russian sources have informally confirmed this fact in personal conversations, but there has been no official announcement, so I have retained the word *probably* in the text.)

There are a number of features of the AN-94 that support this notion. The burst-fire feature and emphasis on accuracy are clear indicators that accurate aimed fire has worked its way into Russian military thinking. All AK-series weapons place an emphasis on full-automatic capability because massed automatic fire was paramount in Soviet infantry tactics at the time of the AK's design in the late 1940s. Accurate aimed fire was a secondary consideration. The AN-94's adjustable, relatively sophisticated, open sights are also a clear indication of a departure in Russian tactical small-arms thinking. Unlike the rudimentary "notch" sights of the AK-series weapons, the open sights of the AN-94 are, as described above, much more sophisticated, lending to accurate placement of fire on the target. Finally, the 1,800-RPM, two-round burst feature of the AN-94 is specifically intended to raise the probability of a hit and increase the effective range of the rifle. These requirements are the antithesis of fully automatic massed fire, which achieves hits by sheer numbers of rounds fired toward the target.

According to Russian sources, the AN-94 is disassembled by "traditional methods," but reliability and maintenance are claimed to be greatly improved over even the latest versions of the AK-series weapons by the aforementioned use of modern materials and production processes. It is difficult to imagine that AK reliability could be improved upon, given the reputation of the Kalashnikov weapons for ruggedness, but the Russians claim that the AN-94's mean number of rounds between failure is 40,000, a 150 percent improvement over the AK-74!

In sum, Gennady Nikonov has apparently designed a thoroughly modern replacement for the venerable Kalashnikov series of assault rifles, which have dominated not only Soviet/Russian but also the world's military small-arms market

for nearly 50 years. There are other significant military rifles, but none can compare to the AK series in terms of either numbers, technical qualities, or historical influence. Since the introduction of the AK-47 in 1949, there have been some 50 million AK-type weapons manufactured worldwide. The AK defined the term *assault rifle* and has seen action in virtually every war since the early 1950s. It has even been used on a limited basis by some U.S. military forces. The Kalashnikov continues today as the AK-100 series, which will be discussed in a separate section of this book. These latest versions of the AK design are available in not only traditional Russian chamberings, but in North Atlantic Treaty Organization (NATO) calibers as well. So the AN-94 will never totally supplant its predecessor, at least not for many years. The Russians have wisely begun to replace their basic infantry weapon while the earlier design is still viable; it will take many years to completely replace the AK inventory in the Russian military, and the AK will therefore remain a viable combat rifle well into the 21st century.

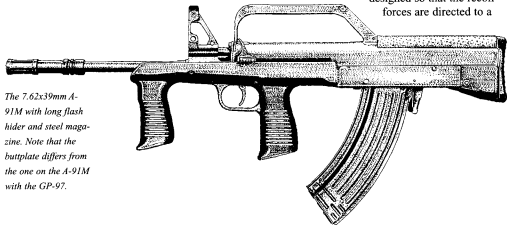
AN-94 SPECIFICATIONS

Caliber	5.45x39mm
Operation	Gas, Select Fire
Weight	8.47 lbs. (3.8 kg.)
Length, Stock Extended	37.1 in. (943mm)
Stock Folded	28.6 in. (728mm)
Barrel Length	15.9 in. (405mm)
Effective Range	600 m.
Cyclic Rate	1,800 & 600 RPM
Magazine Capacity	30 & 45 Rounds
Sights	Front, Blade; Rear, Aperture, Adjustable

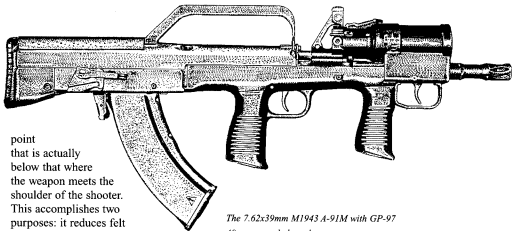
TULA KBP 7.62X39mm A-91M BULLPUP ASSAULT RIFLE

A real surprise came in early 1998 when Tula Instrument Design Bureau (KBP) announced that it had a new assault rifle available for production. In discussions with me, Tula representatives were reluctant to discuss details regarding the rifle, other than the fact that it is not actually in full production. Nonetheless, the A-91M is a very innovative new rifle that appears to be among the best of the new bullpup rifles that many firearms manufacturers are currently producing. Many of these rifles are based on the Kalashnikov, e.g., the recently announced South African CR-21, the Armenian K-3, the Chinese Type 86, and the Tula OTs-14 *Groza*. Despite grandiose claims, all these rifles are in essence no more than Kalashnikov "spinoffs" modified to bullpup configuration.

The A-91, however, is quite different from any other bullpup, despite its being manufactured by the same Russian firm that produces the OTs-14 *Groza*, a Kalashnikov derivative. At first, the A-91M itself appears to be just another Kalashnikov modified into bullpup configuration, but upon examination, it becomes clear that this is not just another Kalashnikov in bullpup clothing. There is no apparent ejection port, just a small oval hole at the right rear of the carrying handle. This small aperture is indeed the ejection port: spent cases are ejected forward, not to the side as in more conventional firearms. Other than that small aperture, the receiver is completely sealed once the magazine is inserted. The flash suppressor is a Western style "birdcage," rather than the unusual suppressors usually seen on Russian firearms. It is also clear that the gas system is different from that of the Kalashnikov. All furniture is polymer. The nonreciprocating charging handle is located at the left front of the carrying handle and can be pivoted up or down by the shooter. The selector lever is located in the traditional Kalashnikov position, but given the fact that the A-91M is claimed to be fully ambidextrous, there is probably a mirror image selector on the left side of the receiver. The rifle is designed so that the recoil forces are directed to a



The 7.62x39mm A-91M with long flash hider and steel magazine. Note that the buttplate differs from the one on the A-91M with the GP-97.



point that is actually below that where the weapon meets the shoulder of the shooter. This accomplishes two purposes: it reduces felt recoil and enhances the ability of the shooter to control the rifle when firing fully automatic. The only component from the Kalashnikov that appears to be shared by the A-91M is the magazine.

The 7.62x39mm M1943 A-91M with GP-97 40mm grenade launcher.

Although the new rifle is designated A-91M, indicating that it is derived from the A-91 compact assault rifle, the functioning and design of the A-91M appear to be either completely different from the A-91 or very extensively modified in the transition from the original rifle's conventional configuration to a bullpup design. It should be noted, for example, that the A-91 is a conventional gas-operated rifle that ejects to the right from a conventional ejection port and has a reciprocating charging handle, while the A-91M functions in quite a different fashion. Because it only recently came to light and there is presently a lack of information regarding it, a full explanation of the role and detailed technical aspects of the A-91M rifle will have to wait. Perhaps it was a loser in the Abakan competition, which resulted in the AN-94. Whatever, the A-91M appears to be a well-executed and fully developed system.

The A-91M's barrel-mounted grenade launcher is designated the GP-97, and it appears to be an upside-down-mounted GP-95 (see Chapter 5), but this has yet to be confirmed. The GP-97 probably mounts onto the rings visible midway between the rear of the flash suppressor and the fore-end. The GP-97's trigger mechanism is ergonomically positioned so that the trigger finger of the support hand can easily access it. The GP-97 fires standard VOG-25 and VOG-25P 40mm grenades. The flash suppressor of the A-91M will also accept muzzle-launched projected grenades. Whether the muzzle is standard NATO 22mm diameter has not been stated.

Why Tula chose to retain the 7.62x39mm cartridge rather than chambering the new rifle in 5.45x39mm, 9x39mm, or even 5.56x45mm as it has done with other rifles is another mystery, particularly considering the Russian military's desire to reduce recoil. Any rifle chambered for the 7.62x39mm cartridge can easily be con-

verted to fire any of the others mentioned. If Tula is serious about marketing this innovative rifle, it will be chambered in alternative calibers in the very near future.

A-91M SPECIFICATIONS

Caliber	7.62x39mm
Operation	Gas, Select Fire
Weight	6.6 lbs. (3 kg.)
Length	23.4 in. (595mm)
Barrel Length	15.7 in. (400mm)
Effective Range	800 m.
Cyclic Rate	600-800 RPM
Magazine Capacity	30 Rounds
Sights	Front, Protected Blade; Rear, Protected Notch (Estimate)

KALASHNIKOV AK-100 SERIES AND OTHER KALASHNIKOV DERIVATIVES

Background

Although the subject of this book is new Russian small arms, the Kalashnikov AK-100 weapons are included because they are relatively unknown in the West and because they are actually new versions with significant changes from their predecessors. But before we delve into the subject, it is appropriate to briefly examine the history of the AK weapons family, setting aside a few myths and misconceptions surrounding the weapons.

Mikhail Timofeyevich Kalashnikov is reputed to have designed the AK-47 while recuperating from battle wounds. Although this story certainly adds to the Kalashnikov mystique, it is false. Kalashnikov was wounded in 1941 and while recuperating did dream of Soviet troops armed with thousands of submachine guns attacking the hated Germans. After his release from the hospital, Kalashnikov was sent to work in a political office. It was here that he designed his first weapon, a submachine gun designed around the TT-33 cartridge. Kalashnikov got the design as far as trial production, but his 1942 submachine gun was not adopted by the Soviet military. What it did get him was the attention of very influential people in the Soviet small-arms industry, who recognized his talent and ensured that he was first properly trained in weapons design and then put to work to exploit his innate genius. Kalashnikov was given the project of designing an *avtomat*, or assault rifle, in 7.62x39mm, a cartridge that had already been adopted by the Soviet military as the M1943. The Russians had been very impressed by the German *Sturmgewehr* (MP43/MP44/StuG44) designs and began working to improve them and adapt them to their own military doctrine. This was the project that was given to the young Kalashnikov.

In typical Russian fashion, Kalashnikov was only one of several designers working on the *avtomat* project. Besides Kalashnikov, several other noted Soviet small-arms designers, including Simonov (designer of the SKS) and Sudayev (who designed the PPs43 submachine gun) were competing for the honor of having their design accepted into service. Compared to these men, young Kalashnikov was a "Johnny come lately," and Sudayev's candidate weapon was considered at the time to have the best chance for adoption, as he had prototypes under test as early as 1944.

Testing of Kalashnikov's design did not begin until 1946, but it was so clearly superior in early evaluations that it immediately got attention at the highest levels of the Soviet military. Continued testing revealed some problems, but these were overcome, and Kalashnikov's design was type-classified in 1947. Sudayev's design was not totally rejected, however. The final AK used the magazine from Sudayev's candidate rifle. Despite its designation of AK-47, the AK did not formally enter service until 1949. This original AK-47 is referred in the West as the Type I AK-47. It has a stamped sheet-metal receiver with machined internal components held together by rivets. In service, however, this weapon unexpectedly turned out to be unreliable. The receiver reportedly developed cracks, and the riv-

ets came loose; the weapon literally shook itself to pieces when fired extensively. Kalashnikov quickly designed a new machined receiver, which became known in the West as the Type II AK-47.

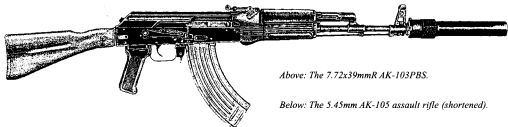
The Type II AK-47 began the legendary AK's reputation for reliability, but the rifle was extremely costly and laborious to produce. The Type II receiver began as a 2.6-kilogram (5.72-pound) block of solid steel; 120 machining operations later, it emerged as a 645-gram (1.4-pound) AK-47 receiver! The production process for the Type II AK-47 was so inefficient that it was unacceptable even to the Soviets. This inefficiency and cost led to the development of more efficient production methods, resulting in the definitive AK-47, known in the West as the Type III. The detailed differences between the varying types of AK-47 are beyond the scope of this book. If the reader is curious about the detailed history of Kalashnikov weapons and seeks more detail on the many different types, there are several excellent books on the subject.

The intermediate version of the AK assault rifle family is the AKM (Avtomat Kalashnikova Modernizirovanniyi), which marked the return to a stamped receiver. The new design was far more complex than the original AK-47 stamped receiver and required many operations to complete, but it reduced both production costs and weapon weight over that of the Type III AK-47, with no sacrifice in reliability, and was adopted as the AKM in 1959. The AKM also incorporated a muzzle compensator to offset muzzle rise on full-automatic fire, modifications to the receiver cover, and a new bayonet.

The final AK weapon prior to the AK-100 series was the AK-74, which was developed to reduce recoil and increase accuracy. The development of this weapon has already been discussed in the section on the AN-94.

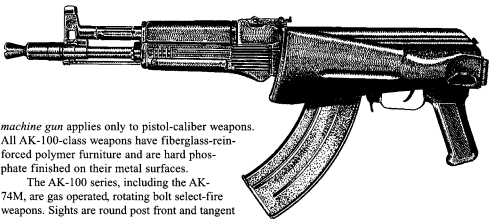
General

The new generation of Kalashnikov rifles is designated AK-74M and AK-101 through AK-105. These weapons will be discussed in further detail below. The question arises, however, as to why the Russians have taken up new designations for their rifles. The designation was not arbitrary. First, all of the new generation of Kalashnikov rifles have a folding buttstock. (The short folding stock version of the AK-74, the AKS-74U, is not manufactured by Izmash, but by Tula KBP, although it was designed by the Kalashnikov Bureau at Izmash.) The folding stock distinguishes the AK-74M from the original AK-74, hence the designation. The other members of the new AK generation, the AK-100s, are based on the AK-74, but in different calibers. According to Izmash representatives, the designation for the new rifles was derived from the AK (Avtomat Kalashnikova) designation for Kalashnikov weapons combined with the number 100, an old manufacturing code for the Izmash Armory. Models of the new generation weapons were designated by successive numbers. The AK-74M, AK-101, and AK-103 all have standard-length 415mm (16.3 inch) barrels, while the AK-102, AK-104, and AK-105 all are folding-stock carbines with 314mm (12.3 inch) barrels. There is no weapon actually designated AK-100. The Russians refer to all of these weapons as submachine guns, but this is a misnomer, because the term *sub-*



Above: The 7.7x39mm AK-103PBS.

Below: The 5.45mm AK-105 assault rifle (shortened).



machine gun applies only to pistol-caliber weapons. All AK-100-class weapons have fiberglass-reinforced polymer furniture and are hard phosphate finished on their metal surfaces.

The AK-100 series, including the AK-74M, are gas operated, rotating bolt select-fire weapons. Sights are round post front and tangent rear with "U" notch. Sights are graduated to 1,000 meters, but this is hugely optimistic for weapons of this class, whose actual effective range in the hands of typical soldiers is no more than 300 to 500 meters. There is a standard mount on the left side of the receiver for installation of optical sights or night-vision devices.

These weapons represent what is probably the ultimate development of the superb Kalashnikov design. No matter how good a firearms design, there is only so much that can be done to effectively upgrade it, and there is little remaining that may be done to further improve the basic Kalashnikov design, which is truly the most successful small arm in military history both in terms of longevity and numbers produced. With the incorporation of modern materials and production processes into the design, the AK-100-series weapons have been upgraded to thoroughly modern standards, which will ensure their presence in the world's military forces for the foreseeable future.

The final Kalashnikov weapon that I will discuss is the AKS-74U/UB. Although this specialized version of the AK-74 has been in service for some years, there have been very few data released about it. The PBS-1 suppressor of the AKS-74U is conventional, with baffles and a rubber plug that must be replaced after only a few rounds are fired through it. An unusual feature of the AKS-74U is the fact that it incorporates the BS-1 suppressed grenade launcher (see Chapter 5)

5.45x39mm ammunition for the AKS-74U is subsonic and fires a special heavy bullet of greater sectional density than standard 5.45x39mm rounds. This special cartridge is discussed in the ammunition section of this book.

A second version of the AKS-74U is the AKS-74UB, which, according to Russian press articles, fires a cartridge similar to that of the PSS-1 silent pistol (see Chapter 2). This weapon is virtually unknown except for a few references to it in Russian firearms books and press articles. To the best of my knowledge, the AKS-74UB has never been illustrated or publicly shown. It can be assumed that the AKS-74UB has no external suppressor, because the cartridge obviates the need for one. It can also be assumed that the internal mechanism of the AKS-74UB has been completely redesigned because gas-trap cartridges cannot possibly function in a gas-operated rifle. This being the case, the AKS-74UB is probably blowback operated.

AK-100 SERIES SPECIFICATIONS

	AK-74M/101/103	AK-102/104/105
Caliber	5.45x39/5.56x45/ 7.62x39mm	5.56x45/7.62x39/ 5.45x39mm
Operation	Gas, Select Fire	Gas, Select Fire
Weight	7.48 lbs. (3.4 kg.)	6.8 lbs. (3 kg.)
Length, Extended	37.1 in. (943mm)	32.4 in. (824mm)
Folded	27.5 in. (700mm)	23 in. (586mm)
Barrel Length	16.3 in. (415mm)	12.3 in. (314mm)
Effective Range	800 m.	800 m.
Cyclic Rate	600 RPM	600 RPM
Magazine Capacity	30 Rounds	30 Rounds

OTs-14 GROZA (THUNDERSTORM)

During the Chechnya unpleasantness in Russia, several news photos showed Russian Ministry of Internal Affairs troops armed with what appeared to be bullpup variants of a Kalashnikov weapon, but details of the design were not forthcoming. What the compact weapon turned out to be was the OTs-14 *Groza* small-arms system. The OTs-14 is truly a “weapon system” because it can be arranged by the operator in any one of four configurations. The weapon became a favorite of MVD troops long before they employed it in Chechnya, but it was in that conflict that the rifle first achieved notoriety, and thereafter it was adopted by the military for special operations use. The OTs-14 will be with the Russian military and Interior Ministry for quite some time for reasons that will become apparent later in this section.

The OTs-14 began life as an idea of Valery Telesh, who is better known for his design of the GP-25 and GP-30 underbarrel grenade launchers. Telesh noticed the effectiveness of the U.S. M203 but felt that the weapon was hampered by many drawbacks for combat use, not the least of which was that the rifle-grenade launcher combination was overly heavy and cumbersome. Telesh believed that the addition of the M203 destroyed the balance of the weapon and made it too hard to use. He therefore set out to design an integrated system that would incorporate all the desirable features of a close-combat arm into one manageable package, using the basic Kalashnikov rifle as a starting point. Telesh and a gentleman named Yuri V. Lebedev began work on the project in December 1992; prototypes were ready in less than a year, and the OTs-14 was ready for production early in 1994—a remarkable record for development of a small-arms system such as the OTs-14.

The original weapon was conceived as being able to use any one of four cartridges: the 5.45x39mm, the 5.56x45mm, the 7.62x39mm, or the 9x39mm. The latter cartridge is used in a number of Russian special weapons and is fully described in the ammunition chapter of this book.

Telesh and the Tula Armory thought they had a winner, but nobody noticed, and the weapon seemed destined to end up like so many other Russian small arms designs—relegated to the files and museum of the armory where it originated. Apparently it was at the last minute that the OTs-14 came to the attention of the Russian MVD, which had a requirement for a compact weapon for urban combat, based on actual demands from operational units. The OTs-14 was tested and found to be exactly what the MVD troops were seeking, and it was adopted by them for use by rapid-reaction forces and special-purpose militia (police) units. It was in the hands of these special troops that the 9x39mm OTs-14 made its public debut in Chechnya.

The OTs-14 came to the attention not only of the news media, but also of the Russian Defense Ministry, which also had a requirement for such a weapon. After testing, the Defense Ministry adopted the OTs-14 in 7.62x39mm for SPETSNAZ forces use. The primary difference between the MVD and military versions of the OTs-14 is the caliber: the military version was adopted in 7.62x39mm rather than 9x39mm. (I will discuss later why the OTs-14 weapons are chambered for these calibers rather than others.)



The Groza OTs-14 family of weapons.

Top Left: Groza OTs-14-4A basic version.

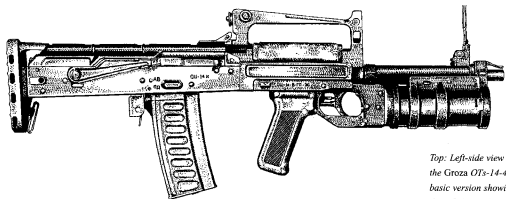
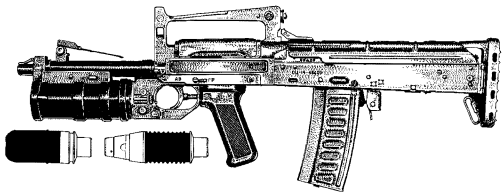
Middle Left: Groza OTs-14-4A-01 special assault rifle.

Bottom Left: Groza OTs-14-4A compact version.

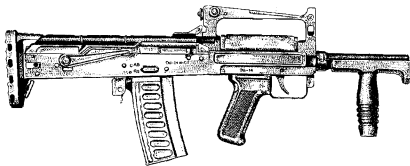
Top Right: Groza OTs-14-4A special weapons system component parts.

Bottom Right: Groza OTs-14-4A-03 special-mission version.

The OTs-14 is issued in an aluminum carrying and storage case and is equipped with virtually all of the necessary equipment to adapt it for any imaginable mission. There are two different grip and trigger assemblies, one for use with the GP-25/30 grenade launcher and another for use when the grenade launcher is detached. When the grenade launcher is attached, the single OTs-14 trigger fires both it and the rifle. A selector on the left side of the grip allows the operator to select either the rifle or grenade barrel. When the grenade launcher is detached, a vertical grip is fitted to the barrel. A suppressor is standard issue, as is a telescopic sight which mounts directly onto the carrying handle. There is also a quick-change barrel for use with the suppressor or when maximum compactness is required. Interestingly, the OTs-14 is given a different designation for each of its four configurations. The full designation of the basic version of the OTs-14 with grenade launcher in place is OTs-14-4A. When the grenade launcher is removed, the designation changes to OTs-14-4A-01. Changing to the short-barrel version alters the designation to OTs-14-4A-02, and adding the suppressor gives the designation OTs-14-4A-03. Specific designations for each configuration is probably so that operators can be quickly informed as to which configuration to use for a specific



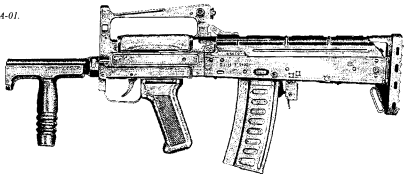
Top: Left-side view of the Groza OTs-14-4A basic version showing the rifle/grenade selector lever above the trigger guard, baton round, and VOG-25P.



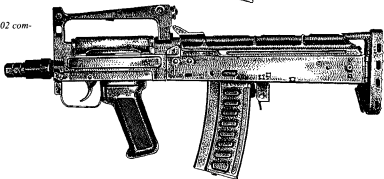
Middle: Right-side view of the Groza OTs-14-4A basic version.

Left: Short-barreled version of the Groza.

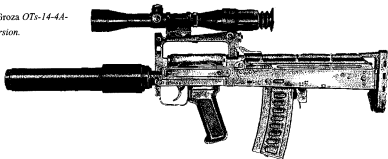
The 9x39mm OTs-14-4A-01.



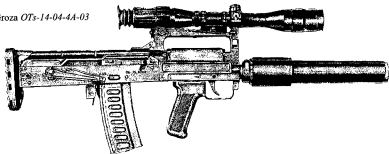
The Groza OTs-14-4A-02 compact version.

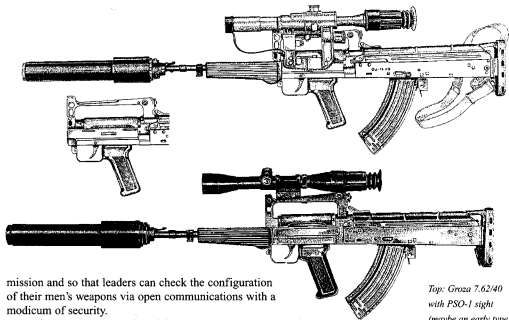


Left-side view of the Groza OTs-14-4A-03 special-mission version.



Right-side view of the Groza OTs-14-04-4A-03 special-mission version.





mission and so that leaders can check the configuration of their men's weapons via open communications with a modicum of security.

The OTs-14, as mentioned, has a suppressor as standard equipment. Suppressors are used by special-operations forces on raids so that they can communicate with each other, reduce sound signature, and keep muzzle flash to a minimum. They may be forced to rapidly install or remove their suppressors to meet changing mission needs. The OTs-14 fulfills this requirement by incorporating an interrupted-thread "snap-on" interface for the suppressor. The use of a suppressor also mandates the use of ammunition that does not depend upon high velocity for its effectiveness. High-velocity ammunition invariably leaves the muzzle of the weapon from which it is fired at supersonic velocity and as a result, there is a "crack" at the muzzle as the weapon is fired and the bullet breaks the sound barrier. Using a suppressor with such a round would be only partly effective and would still give a noise signature for adversaries to shoot at. The use of subsonic ammunition eliminates the sonic "crack," but small, light bullets designed to achieve terminal effects via high velocity are virtually useless at subsonic velocities. The Russians, therefore, developed the 9x39mm cartridge for use in special operations and suppressed weapons. There is also a special subsonic round in 7.62x39mm, and it costs less to produce than the 9x39mm round and standard 7.62x39mm can be used for training, hence its adoption for the OTs-14 by the Russian military. As previously mentioned, both of these rounds are covered in detail in the ammunition chapter of this book.

The OTs-14 is not for general issue, but is intended for special operations forces. According to an article in a Russian periodical, it is "a weapon for high

Top: Groza 7.62/40 with PSO-1 sight (maybe an early type or prototype). Inset shows the PSO-1 brackets in the receiver.

Bottom: Groza with commercial sights (notice that the bottom weapon has no fittings for PSO-1).

class professionals." Whatever its purpose, the OTs-14 is a light, compact, versatile weapon of ingenious design. It will certainly be a part of the SPETsNAZ and MVD inventory for years to come.

OTs-14 GROZA SPECIFICATIONS

	Military Version	MVD Version
Caliber	7.62x39mm	9x39mm
Operation	Gas, Select Fire	Gas, Select Fire
Weight	6.82 lbs. (3.1 kg.)	5.94 lbs. (2.7 kg.)
Length	27.5 in. (700mm)	22.8 in. (580mm)
Barrel Length	App. 18 in. (457mm)	App. 12 in. (304mm)
Effective Range	600 m.	400 m.
Cyclic Rate	750 RPM	700 RPM
Magazine Capacity	30 Rounds	20 Rounds
Sights	Front, Blade; Rear, Notch	Front, Blade; Rear, Notch

SVD, SVDS, AND SVU DRAGUNOV SYSTEMS

The SVD Dragunov is well known in the West, so we will not go into great detail about its development and design. The SVD was adopted by the Soviet military in 1963, and although it was not specifically designed by Kalashnikov, it is obvious that Dragunov started with the AK as a baseline and went from there to develop a reliable semiautomatic "sniper" rifle in the Russian/Soviet tradition, which is markedly different from that of Western armies.

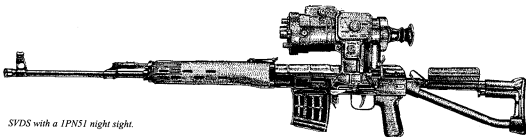
Russian snipers are really *marksmen* in the Western meaning of the word, and their abilities are far removed from those of Western snipers. The typical engagement range of Soviet/Russian snipers is no more than 500 meters, whereas Western snipers regularly engage targets out to 1,000 meters. When the SVD was first examined by Western technical intelligence personnel, they were surprised at the rifle's lack of precision accuracy. It was only when they noted the Soviet tactical employment of the rifle that they realized that it was more than satisfactory from the Russian tactical standpoint. The legend about the phenomenal accuracy of the SVD, to the effect that it is more accurate than Western bolt-action sniper rifles, is patently false. In fact, other semiautomatic precision rifles such as the Armalite AR-10 (T) and Heckler & Koch's PSG-1 achieve accuracy far superior to that of the SVD.

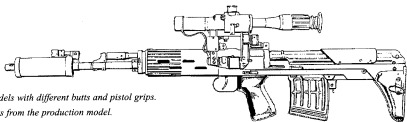
Curiously, Izmash experimented with a fully automatic version of the SVD, which never reached production. Izmash's failure to produce this version of the SVD is not surprising; a fully automatic sniper rifle is something of an oxymoron, although some machine guns achieve excellent levels of accuracy when fired on semiautomatic.

The 7.62mm SVDS with PSO-1 sight. Points to note are plastic pistol grip, plastic handguard, new short flash hider, and rubber cheek pad on folding-ink stock. The rifle is not designed to fire with the stock folded. Both the cocking handle and trigger are obstructed by the stock.

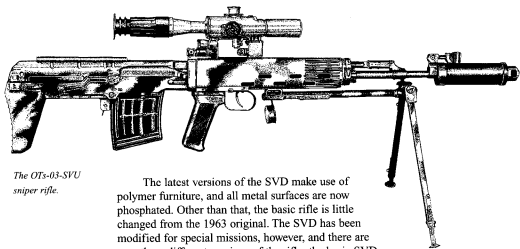


SVDS with a 1PN51 night sight.





*Preproduction models with different butts and pistol grips.
The foregrip differs from the production model.*



*The OTs-03-SVU
sniper rifle.*

The latest versions of the SVD make use of polymer furniture, and all metal surfaces are now phosphated. Other than that, the basic rifle is little changed from the 1963 original. The SVD has been modified for special missions, however, and there are now three different versions of the rifle: the basic SVD, the SVDS, and the OTs-03 SVU. The latter rifle is manufactured by Tula KBP, rather than Iz mash. The SVD, as mentioned, is well known and has even been sold commercially in the West, so it will not be further discussed.

The SVDS is less well known than the SVD, but it has been offered for military sale and has been reported on in the Western press. The SVDS is intended for use by airborne and motor-rifle (mechanized) troops. The SVDS fires the same 7.62x54R ammunition as the SVD, but the presence of the following features distinguish it from the basic Dragunov:

- Folding stock
- Adjustable cheekpiece
- Shorter, heavier barrel
- Different flash hider
- Pistol grip
- No bayonet lug

The folding stock of the SVDS is made of tubular steel and folds to the right. In the "carry" or "march order" position, the stock is folded, and the adjustable cheekpiece is rotated down. When the stock is open for firing, the adjustable cheekpiece is rotated "up" for using the telescopic sight and "down" if the backup open sights are to be used. The pad itself is made of fiberglass-reinforced polymer.

The new flash suppressor is interesting in that it is much smaller than the original SVD flash suppressor, which remains in use on the latest SVD rifles. The SVDS suppressor is not only shorter and conical, it has asymmetrical, teardrop-shaped slots and a wide web at the bottom to preclude muzzle rise and prevent dust from being kicked up when the rifle is fired. Data on both the SVD and SVDS are contained in the table at the end of this section.

The OTs-03 SVU is the sniper rifle counterpart of the OTs-14 discussed above and is made by Tula KBP. Oddly for a sniper rifle, the OTs-03 is manufactured in a select-fire version. As mentioned, Izmash produced a few select-fire SVD rifles in the 1980s, but they were experimental and never went into full production. The OTs-03 is intended for use by special forces of both the MVD and military, the idea being to provide the user with a rifle that combines the firepower of an assault rifle with the accuracy of a sniper rifle. This select-fire capability is not only unusual but highly questionable, given the fact that the SVD is chambered for the 7.62x54R cartridge, which probably is very difficult to control on full automatic. Moreover, the OTs-03 uses the standard 10-round SVD magazine, and, at a cyclic rate of fire of 880 RPM, 10 rounds can be fired almost instantly.

There has been very little written about this rifle in the open press. As was the OTs-14, the OTs-03 was used by MVD troops in Chechnya, and, as is the OTs-14, the OTs-03 is produced by Tula KBP. Although there have been no specific statements to the effect in the Russian press, the OTs-03 was also probably designed by Valery Telesh. It should be noted that the OTs-03 has almost invariably been observed with a suppressor attached, leading to the conclusion that this is part of the overall OTs-03 weapons system. The Russians have also probably developed subsonic 7.62x54Rmm ammunition for use in suppressed weapons.

The OTs-03 uses the tried and true PSO-1 4x telescopic sight that has been mounted on the SVD rifles since their adoption in 1963. The PSO-1 is also used on virtually every other Russian rifle that uses a telescopic sight, even the massive V-94 and OSV-96 12.7x108mm antimateriel rifles (see below), albeit in 13x rather than the usual 4x. Like the other variants of the SVD, the SVU has backup iron sights, but those of the SVU fold down when not in use and are quite different from those of either of the other rifles.

In sum, the SVU is clearly another special-purpose rifle whose use will be

limited to special-operations units. Even so, the short barrel, which appears to be approximately 16 to 18 inches in length, cannot help but reduce accuracy to some extent, and there appears to be overlap between the mission profile of the SVU and the SVDS. Perhaps the Russian special forces, like their Western counterparts, can purchase almost any weapon they desire without regard for standardization regulations. Whatever the mission need that drove its development and fielding, the SVU/OTs-03 is an interesting spinoff of the Dragunov.

SVDS/OTS-03 SVU SPECIFICATIONS

	SVDS	OTs-03 SVU
Caliber	7.62x54mm	7.62x54mm
Operation	Gas, Semiautomatic	Gas, Select Fire
Weight	10.3 lbs. (4.68 kg.)	12.1 lbs. (5.5 kg.)
Length, Extended	44.7 in. (1,235mm)	35.4 in. (900mm)
Folded	34.5 in. (875mm)	NA
Barrel Length	22.3 in. (565mm)	App. 20 in. (508mm)
Effective Range	1,200 m.	800 m.
Cyclic Rate	NA	NA
Magazine Capacity	10 Rounds	10 Rounds
Sights	Optical, Iron Backup	Optical, Iron Backup

AS VAL (RAMPART) SILENT ASSAULT RIFLE AND THE VSS VINTOREZ (THREAD CUTTER) SILENT SNIPER RIFLE

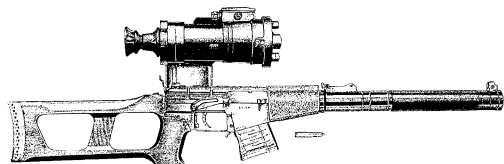
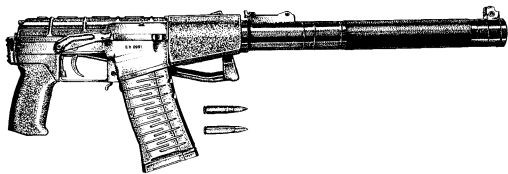
It is not clear how small-arms nicknames are derived in Russia, but they tend to be unusual, to say the least. These two rifles are clear indicators of that fact. The *Val* and *Vintorez* are essentially the same rifle with modifications for different tactical employment. Both share receivers with the MA *Vikhr* (see p. 37) compact assault rifle, also chambered for the 9x39mm cartridge. According to Russian sources, both the AS and VSS rifles have been in use by SPETsNAZ and MVD forces for some years. As stated, the rifles are, for all intents and purposes, identical save for two differences: the AS cannot be completely disassembled and covertly packed into a briefcase, and the AS has a folding metal stock similar to that of the SVDS and a pistol grip, rather than a "Dragunov-style" fixed skeleton wood stock like the VSS. Having described the design differences of the two rifles, I will treat them together for the balance of this section.

The rifles were designed at TsNIITochmash, located at Klimovsk, by a team headed by Pyotr Ivanovich Serdyukov. According to Russian sources, Serdyukov carefully studied ballistics before designing his silenced rifles and arrived at a suppressor design that reduces not only noise and gas pressure but heat as well. According to a 1994 article in *Krasnaya Zvezda (Red Star)*, the official Russian military newspaper:

The surprising success of this weapon comes from its relationship between the two main enemies of noiseless firing: pressure and heat. Gases, once the bullet has immediately cleared the muzzle, begin to immediately fan out in all possible directions; as they do, there is an intense increase in pressure in the immediate area. But here—in the first chamber of the silencer, where they disperse—the simultaneous reduction in temperature also has an immediate effect upon the pressure. Finally, the item referred to as the separator ultimately "breaks up" the wave which follows the bullet, by running it through a multi-baffle set which sends the shock wave in various different directions. The set ensures that it always stays cool. These are the principles. (*Krasnaya Zvezda*, 4 March 1994, p. 2)

Although this hardly clears up the design principles of the AS/VSS suppressor, it appears to be fairly conventional. Whatever the technology involved in its construction, the AS/VSS suppressor is effective. The author has fired both weapons, and at the time literally hundreds of rounds were put through each with no apparent degradation of suppression. The Russian hosts would not, however, allow the suppressors to be taken apart, nor would they answer any detailed questions about their construction.

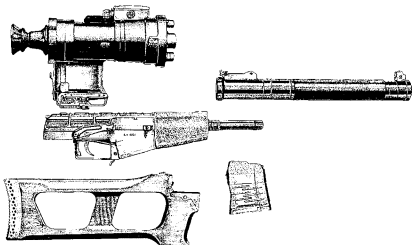
The design of both rifles is conventional, apart from their suppressors. They are gas-operated, select-fire, magazine-fed compact rifles with very short ventilat-



Top: AS Val special assault rifle in 9x39mm (AP).

Above: VSS Vintorez in 9x39mm with 1LH51 second-generation night sight.

Right: VSS rifle taken down for discreet transport.



ed barrels covered by an integral suppressor. From their design it is clear that they are not intended to be fired unsuppressed. Both are obviously Kalashnikov derived, but with some significant differences. The receiver cover, for example, is nondetachable. When the release on the rear of the cover is pressed, it hinges up at the front to reveal the weapon's operating mechanism, which is similar to that of the Kalashnikov, although the gas system is quite different and the weapons are striker fired rather than hammer fired like the AK-series weapons. The weapons apparently will not function without the suppressors in place because they were designed with the suppressors as an integral part of the operating system, which does not generate sufficient gas pressure for system operation without the suppressor.

As mentioned previously, the term *sniper* has different connotations for the Russian military than it does for its Western counterparts. With this in mind, the 400-meter effective range of the VSS should come as no surprise. The author has fired this rifle at ranges of up to 200 meters, and it is accurate to approximately 2 minutes of angle at that range. There is every reason to believe that it would hold similar accuracy for another 200 meters, given its ammunition. This is hardly within the purview of Western sniper weapons, but well within the standards for Russian snipers whose targets (and the ranges at which the snipers engage them) are quite different from those common in the West.

The VSS is issued as a part of the VSK sniper system, different from the VSK-94 described below, which comes in its own aluminum carrying case and includes a disassembled VSS rifle, a PSO-1 4x day optical sight (albeit with a reticle different from that of the PSO-1 issued for use with the SVD), a 1PN75 night-vision optic, spare magazines, and operator's tool kit. Magazines are polymer and are provided in both 10- and 20-round versions. The 10-round versions are intended for use with the VSS sniper rifle, and the 20-round magazine is intended for the AS, although the magazines are interchangeable between both rifles.

AS AND VSS SPECIFICATIONS

	AS	VSS
Caliber	9x39mm	9x39mm
Operation	Gas, Select Fire	Gas, Select Fire
Weight	5.5 lbs. (2.5 kg.)	5.7 lbs. (2.6 kg.)
Length, Extended	34.5 in. (878mm)	35.1 in. (894mm)
Folded	24.2 in. (615mm)	NA
Barrel Length	App. 12 in. (304mm)	App. 12 in. (304mm)
Effective Range	400 m.	400 m.
Cyclic Rate	App. 700 RPM	App. 880 RPM
Magazine Capacity	20 Rounds	20 Rounds
Sights	Front, Blade; Rear, Notch	Optical, Iron Backup

VSK-94 SNIPER RIFLE

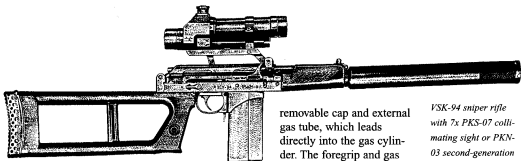
The Tula Arsenal VSK-94 sniper rifle is a development of the A-91 (see below) compact assault rifle in much the same way that the VSS was derived from the MA. Why the Russians would market two weapons with essentially identical capabilities is something of a mystery unless one considers the Russian system of small-arms development.

The Russians, and the Soviets before them, typically give a military requirement to several design teams, which then compete against each other to produce the final product. This practice dates back to the Great Patriotic War (World War II). Readers will recall that Kalashnikov competed against other designers when he designed the AK-47 and also that the latest Russian assault rifle, the AN-94, was the result of a design competition. Given this background, we can surmise why there are so many virtually identical designs now being marketed by Russian small-arms manufacturers. There can be only one "winner" in any competition, and with the economic disaster that is currently plaguing Russia, the "losers" cannot simply shrug their shoulders, walk back to the factory, and go on to an alternative project. In the old days of the Soviet Union, the government meted out projects to keep each production facility viable. But in today's Russia there are very few "next projects"; the government no longer subsidizes arms manufacturers, and if one loses in a government weapons competition, there is no civilian market for the design. Manufacturers must thus seek recourse in the international arms market.

Alternatively, the Russian military and police may be purchasing both the VSK-94 and VSS/VSK systems, but this is not likely. Nonetheless, both Tula KBP and TsNIITochmash claim that their nearly identical rifles are in use by Russian Federation MVD troops.

The VSK-94 is a conventional design and differs in capability from the VSS mentioned above primarily in that the VSK-94 is intended to be fired without its suppressor in place and, unlike the TsNIITochmash weapons, will function with or without the suppressor. Otherwise, the VSK-94 is a gas-operated, magazine-fed, select-fire, compact rifle and is unusual only in its 9x39mm ammunition. The VSK suppressor appears to be similar in design to the VSS, but the VSS suppressor is integral to the design and not an add-on, as is the case with the VSK suppressors. The VSK-94 uses a variant of the PSO-1 day optic designated PSO-1-1. It is probably the same as that used by the VSS, presumably with the same reticle, because the VSK-94 fires the same 9x39mm cartridge as the VSS and has the same capabilities. Since Russian small arms use standard mounting hardware, the VSK-94 will accept any standard Russian optical device, including the PKN-032 night-vision optic and the PKS-07 collimating sight. The latter appears very much like the Aimpoint and similar 1x optics. The fixed wooden stock of early VSK-94 rifles appears to be virtually identical to that of the VSS, but latest versions of the VSK-94 have a "skeleton" polymer stock.

The gas operating system of the VSK-94 is derived from the Kalashnikov, but like the VSS, there are differences. The VSK-94 system more closely resembles the original Kalashnikov than the VSS. Gas is bled off near the muzzle through a



removable cap and external gas tube, which leads directly into the gas cylinder. The foregrip and gas tube assembly are retained

VSK-94 sniper rifle with 7x PKS-07 collimating sight or PKN-03 second-generation night sight.

by a knurled threaded ring, which is visible in the illustrations at the front of the foregrip. The bolt cover of the VSK-94 receiver is completely removable and the bolt and carrier are shorter, while being very similar to the Kalashnikov design, although the recoil spring is retained with the bolt cover, rather than being retained with the release latch as with the Kalashnikov.

Like the VSS, the effective range of the VSK-94 is claimed to be 400 meters, and given the configuration of the rifle and its ammunition, this is probably an accurate statement.

VSK-94 SPECIFICATIONS

Caliber	9x39mm
Operation	Gas, Select Fire
Weight	5.9 lbs. (2.7 kg.)
Length	35.4 in. (900mm)
Barrel Length	App. 12 in. (304mm)
Effective Range	400 m.
Cyclic Rate	700-900 RPM
Magazine Capacity	20 Rounds
Sights	Optical, PSO-1, PKN-032 Night Vision, PKS-07 Collimating (Red Dot)

A-91 COMPACT ASSAULT RIFLE

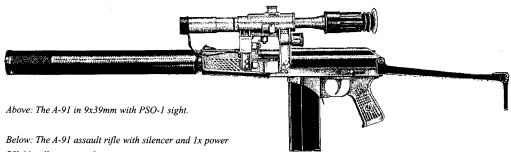
The A-91 is actually part of a family of compact assault rifles, which was designed to an Interior Ministry requirement for a small, select-fire assault rifle/carbine that could be used for both personal defense and close-quarters battle (CQB). According to Russian sources, compact rifles such as the A-91 are necessary because the standard AK-74 rifles are both too lethal and have too great a range for urban combat against criminals. Further, the chances of ricochets and overpenetration is a problem with the standard military rifle. Pistol-caliber 9mm cartridges, on the other hand, are not sufficiently lethal. They will not penetrate body armor or car bodies. This problem resulted in the development of the 9x39mm cartridge by TsNIITochmash, which is covered in the ammunition section of this book. Briefly, the 9x39mm cartridge fires a bullet of a very high sectional density at subsonic velocity, resulting in excellent terminal effects against both personnel and material. The A-91 was originally developed by the Tula KBP to chamber this new 9x39mm cartridge and in that caliber is designated the 9A-91. Other versions of the A-91 are likewise designated according to their caliber—namely, 5.45A-91 (5.45x39mm); 5.56A-91 (5.56x45mm); and 7.62A-91 (7.62x39mm). Other than caliber and ballistics, all versions of the A-91 are identical, save for modifications necessary to accommodate the various cartridges. It is clear that economics drive the various chamberings of the A-91; Tula is advertising the A-91 on the world arms market, stressing the versatility of the weapon in its various chamberings. As of the time of this writing (early 1998), there have been no known international sales of any version of the A-91. The 9A-91 has been widely demonstrated to Western military attachés and the press at Russian military shows, and Tula KBP states that it is in service with Russian MVD troops.

The A-91 is a gas-operated carbine derived from the basic Kalashnikov design. This is not surprising; the very similar AKS-74U is manufactured by Tula, although it was designed by the Kalashnikov Bureau at Izmash. The A-91's selector switch is ambidextrous, located just above the trigger so that it can be manipulated by the user's thumb without changing grip. The A-91 is generally made of sheet-metal stampings and plastic, thereby simplifying manufacturing.

The A-91 was designed to accommodate a variety of accessories and optics, including the ubiquitous PSO-1

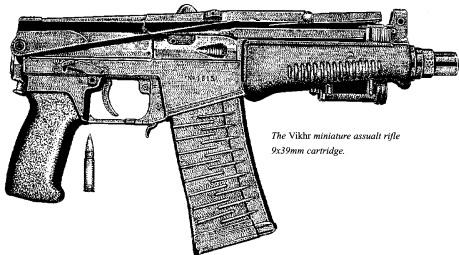
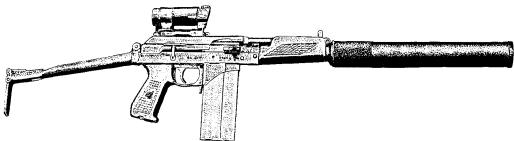


The A-91 is available in 5.45x39mm, 5.56x45mm Nato, and 7.62x39mm.



Above: The A-91 in 9x39mm with PSO-1 sight.

Below: The A-91 assault rifle with silencer and 1x power PK-01 collimating sight.



*The Vikhr miniature assault rifle
9x39mm cartridge.*

telescopic sight, laser aiming devices, and night-vision optics. It should be noted that the PSO-1 telescopes all seemingly carry the same designation, but I have observed some that have different reticles, and the PSO-1 used on the 12.7x108mm V-94/OSV-96 (see p. 43) is 13x, rather than the standard 4x. The A-91 probably accommodates the same range of optics as the VSK-94 rifle discussed above. The A-91 also comes equipped with a suppressor that is, according to Russian sources, specifically designed for the A-91. The suppressor is a "screw-on" design and is claimed to achieve a noise reduction level of 20 decibels. The life of the suppressor is not stated. The A-91 incorporates a standard compensator that must be removed by loosening a retaining nut prior to installing the suppressor. The A-91 will also accept GP-25, GP-30, and GP-95 underbarrel grenade launchers.

A-91 SPECIFICATIONS

Caliber	9x39mm (also available in 7.62x39mm, 5.45x39mm, and 5.56x45mm)
Operation	Gas, Select Fire
Weight	3.85 lbs. (1.75 kg.)
Length, Stock Extended	23.7 in. (604mm)
Stock Folded	15.2 in. (384mm)
Barrel Length	App. 12 in. (304mm)
Effective Range	200 m.
Cyclic Rate	700-900 RPM
Magazine Capacity	20 Rounds
Sights	Front, Protected Blade; Rear, Notch. Optical

MA VIKHR (WHIRLWIND) COMPACT ASSAULT RIFLE

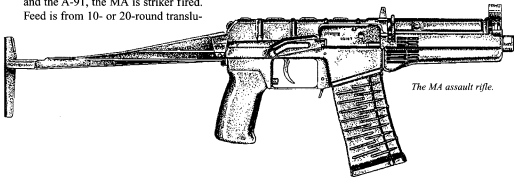
The MA is a product of TsNIITochmash and is a direct competitor with the previously described Tula A-91. Both are gas-operated, select-fire, compact assault rifle/carbines in 9x39mm caliber. The MA has two derivatives, also previously discussed, the AS silent assault rifle and the VSS silent sniper rifle.

The MA and all its derivatives are in Russian military and MVD service, a fact that has been confirmed by observation. It is possible that the MA competed with the A-91 and won, given that the MA has been observed in the hands of Interior Ministry troops and the A-91 has not, although Tula KBP claims that the A-91 is also used by MVD forces. Like the A-91, the MA is chambered for the 9x39mm SP5/SP6 cartridge. There is no evidence that the MA is available in any other caliber. TsNIITochmash brought the MA and other firearms to the United States for a demonstration, which I attended, and its representatives indicated that the MA had not been manufactured in any other calibers. Oddly, however, in Russian small arms publications, the AS, VSS, and A-91 are discussed and illustrated, but the MA is not. The reason for this anomaly is not known.

The MA's gas system is virtually identical to that of the basic Kalashnikov design, but, like that of the A-91, is shortened for use in a compact, short-barreled rifle. It is probable that the gas system of the AKS-74U served as the model for both the MA and the A-91, because both weapons are very similar to the compact Kalashnikov in design and appearance.

I have physically examined only the MA, but from detailed photographs, it appears that the MA is a slight improvement over the A-91 in terms of simplicity and execution. Quality of finish and fit on the MA seems to be slightly better than that of the A-91, but this does not necessarily affect the function of the weapon. All told, the differences between the two weapons are so slight that it is difficult to determine the selection process that the Russian government used to settle on one as opposed to the other, if this is indeed the case.

As can best be determined there is no suppressor for the MA; those desiring a weapon with a suppressor are apparently expected to use the similar AS silent assault rifle. Unlike the basic Kalashnikov and the A-91, the MA is striker fired. Feed is from 10- or 20-round translu-



The MA assault rifle.

cent phenolic magazines. The MA receiver cover is not directly removable; it is hinged at the forward end like that of the AKS-74U and lifts upward to allow access to the operating mechanism. The cover is released by a rear latch similar to that of the basic Kalashnikov. The selector switch is ambidextrous.

As mentioned previously, the MA has been shown in the United States, and it is possible that a few have been sold to U.S. military forces for test and evaluation and for training.

MA VIKHR SPECIFICATIONS

Caliber	9x39mm
Operation	Gas, Select Fire
Weight	4.4 lbs. (2 kg.)
Length, Stock Extended	24.4 in. (640mm)
Stock Folded	14.9 in. (380mm)
Barrel Length	App. 10 in. (254mm)
Effective Range	200 m.
Cyclic Rate	App. 750 RPM
Magazine Capacity	20 Rounds
Sights	Front, Protected Blade; Rear, Protected Notch, Adjustable
