

**For Collectors Only®**

Revised, 2nd Edition

# The Swedish Mauser Rifles

Steve Kehaya  
and  
Joe Poyer



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**North Cape Publications® , Inc.**

# Dedication

This book is dedicated to Captain Iwan Hedman-Morelius, Royal Sodermanland Regiment, P10, Army of Sweden (Ret.) for his friendship, generous assistance, translations and constant encouragement over the years.

And, to Matt and Alex, and all other young firearms enthusiasts. Keep shooting!

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# INTRODUCTION

The "Swedish Mauser" is perhaps the finest military rifle ever produced. The rifles manufactured at the Mauser Oberndorf factory in Germany and the Carl Gustaf factory in Eskilstuna, Sweden resemble fine sporting rifles in fit and finish. Even the wartime m/38 rifles produced by Husqvarna are several cuts above those of other countries in attention to detail.

The Swedish Mauser was a major milestone in the development of the bolt action rifle. The guide rib on the bolt eliminated the binding to which previous models were prone and made it possible to increase the rate of firepower by allowing the soldier to manipulate the bolt faster. The 6.5 mm diameter of the bullet allowed the rifle to be made lighter, and the 55 mm case length provided sufficient powder to produce one of the flattest shooting military bullets ever designed.

The authors confess to a love affair with this product of Sweden and they found during the research and writing of this book that they did not share it alone. Through personal contacts and the Internet, they were able to gather reams of data about the rifle, its history and development from willing helpers around the world. Which was a very good thing as the authors were unable to locate any original production records. They were told repeatedly by sources in the Swedish government and arms industry that the ownership of the principal factory, Carl Gustaf, had changed hands so many times after World War II that the records can no longer be located.

So, we are indebted to many people for their help and assistance. Chief among them are Colonel Axel Eckfeldt and Captain Iwan HedmanMorelius, both retired from the Swedish Army; Mats Persson who never stinted in trying to track down obscure clues and references; Ken Fladrich who provided technical editing; John Giles who made his collection available for study; Hans Olov Hellstom who provided us with hard-to-find historical photos; Fred Rackers who photographed specimens from his collection and Britt Osgood-Treston for her fine editing work.

This book is a product of observation for the most part, and dependence on the few verifiable records that do exist. We have endeavored to explore all facets of the rifle, its history and use and if there are any mistakes or misinterpretations, the fault is that of the authors alone.

This book is intended for those who collect and shoot the Swedish Mauser rifle. The authors hope to lay to rest a few of the myths that have grown up around these fine rifles, provide a history of their development, production and use and enable the collector to determine if his or her rifle or carbine is original as manufactured.

It is interesting to note that the Light Infantry Rifle, to give the Swedish Mauser its proper

name, was so well-designed originally, that few changes-other than length of barrel and rear sights for a new cartridge introduced 1941-were ever required.

The collector should pay close attention to serial numbers. All Swedish Mausers show a complete serial number on the receiver and barrel plus the last three digits of that serial number on all major parts until the advent of the m/38 rifle as manufactured by Husqvarna. Keep in mind that when parts were repaired or otherwise changed, the armorer was required to restamp the last three digits of the receiver serial number on the replaced part. Accordingly, replacement barrels will show only the last three digits of the serial number rather than the full serial number of an original barrel. Review the chapter dealing with serial numbers and inspection markings carefully. They are the keys to determining the originality of a particular rifle or carbine.

## CONVENTIONS

- 1) "Right side" or "left side" refers to the side of the firearm to the shooter's right or left when shouldered properly.
- 2) All directions are given from the shooter's point of view - i.e., looking toward the muzzle unless stated otherwise.
- 3) Where a part was manufactured in two or more variations, they are referred to as "Type 1", "Type 2" and so on. The word "type" is a convention of the "For Collectors Only®" series and not part of the Swedish military nomenclature.
- 4) Quotation marks are often used in the text to indicate factoryapplied markings. The quotation marks were not part of the factoryapplied marking unless noted otherwise.
- 5) Although the Swedish Mauser was designed and manufactured according to the metric standard of measurement, the decimal inch system is used throughout this book as it is more familiar to the North American reader for whom this book was primarily written. Measurements can quickly be converted from decimal inches to centimeters by multiplying by 2.54, or to millimeters by multiplying by 25.4. Example: 2.3 inches x 2.54 = 5.84 cm or, 2.3 inches x 25.4 = 58.4 mm.
- 6) The proper military designation for Swedish shoulder arms during the period the "Light Infantry Rifle" was in use is as follows: Carbine or Rifle (Karbin or Gevar), m/ model (model) followed by the year the model was adopted, followed by prefix indicating a major modification. Example: Gevar m/96B means Rifle, model 1896, altered for the blank firing device.
- 7) The m/96-38 and the m/38 "short" rifles were never referred to as "carbines" (karbin) in Swedish military service, but as rifles (Gevar).

8) Target rifles manufactured for civilian and military use did not carry a military designation unless used by the military. Example, the CG 63 was remanufactured from m/96 rifles and equipped with a new heavy barrel, a target stock and micrometer peep sights. The CG stands for Carl Gustafs stad gevarsfaktori where the rifles were built and 63 indicates the year, 1963, in which it was standardized. The military model of the CG 63 is designated the m/6 if in 6.5 x 55 mm caliber and m/7 if in 7.62 NATO caliber. In this case, the number following the m/ obviously refers to the caliber and not the year of adoption.

9) Screw hole measurements are from the point used as an index to the center of the hole, unless otherwise stated.

10) All dimensions contained herein are the result of careful measurement of at least two samples of every part. Even so they should be treated as nominal. Keep in mind that slight variations in manufacturing techniques, final machining and polishing of non-critical fit parts will vary slightly depending on wear and usage. Likewise, wood stocks and hand guards will vary slightly according to final fitting and temperature and climactic conditions over the last 55 to 105 plus years.

11) The reader may find information repeated several times throughout the text. This has been done deliberately to save having to turn back and forth, on the theory that paper and ink are cheaper than your time.

12) The arrangement of this book is simple: Chapter 1 contains an introduction to Sweden and its military arms. Chapter 2 provides the "For Collector's Only®" series part-by-part analysis of the various shoulder arms. Chapter 3 contains a detailed discussion of markings and serial numbers; And Chapter 4 discusses the various sniper configurations in detail and Chapter 5 describes both the standard accessories issued to the soldier and a few others than are unique. The appendices contain material ancillary to, but necessary for, a complete understanding of these fine rifles.

13) Do you have rifle or carbine in need of repairs or a thorough cleaning. See Appendix G for the proper way to disassemble it so that you do not ruin the arm's value.

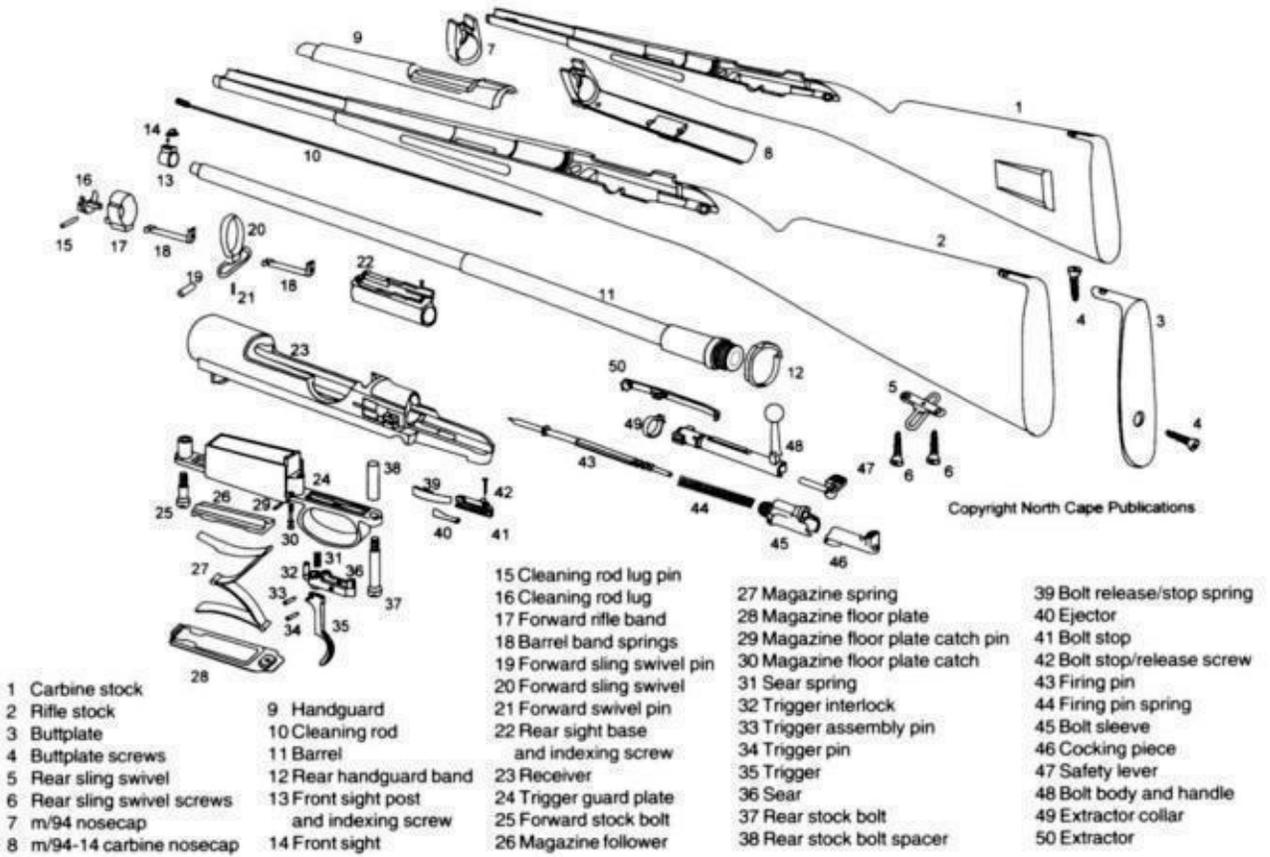
14) An exploded view of the Swedish Mauser Carbine and Rifle are included on page xvi to assist in disassembling and reassembling your carbine or rifle.

15) As always, the authors are eager to hear from readers with additional information or corrections. Please send them in care of the publisher.

Steve Kehaya, Vermont

Joe Poyer, California

1 X



- 1 Carbine stock
- 2 Rifle stock
- 3 Buttplate
- 4 Buttplate screws
- 5 Rear sling swivel
- 6 Rear sling swivel screws
- 7 m/94 noscap
- 8 m/94-14 carbine noscap

- 9 Handguard
- 10 Cleaning rod
- 11 Barrel
- 12 Rear handguard band
- 13 Front sight post and indexing screw
- 14 Front sight

- 15 Cleaning rod lug pin
- 16 Cleaning rod lug
- 17 Forward rifle band
- 18 Barrel band springs
- 19 Forward sling swivel pin
- 20 Forward sling swivel
- 21 Forward swivel pin
- 22 Rear sight base
- 23 Receiver
- 24 Trigger guard plate
- 25 Forward stock bolt
- 26 Magazine follower

- 27 Magazine spring
- 28 Magazine floor plate
- 29 Magazine floor plate catch pin
- 30 Magazine floor plate catch
- 31 Sear spring
- 32 Trigger interlock
- 33 Trigger assembly pin
- 34 Trigger pin
- 35 Trigger
- 36 Sear
- 37 Rear stock bolt
- 38 Rear stock bolt spacer

- 39 Bolt release/stop spring
- 40 Ejector
- 41 Bolt stop
- 42 Bolt stop/release screw
- 43 Firing pin
- 44 Firing pin spring
- 45 Bolt sleeve
- 46 Cocking piece
- 47 Safety lever
- 48 Bolt body and handle
- 49 Extractor collar
- 50 Extractor

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# CHAPTER 1

## THE DEVELOPMENT OF FIREARMS IN SWEDEN

Konungariket Sverige (Kingdom of Sweden) is the fourth largest country in Europe but it has a population today of less than nine million. Commanding the eastern part of the long Scandinavian peninsula, its further reaches are above the Arctic circle, its lowest only a few miles across the Baltic from Germany. Its border with Norway is formed by the long spine of the Kjolen mountains. The country is rich in natural resources-copper, iron, coal and water power-in dense forests and rich farmland. And this same rich farmland offers easy passage for an armed foe to, or from, Russia. Paradoxically, the great Russian land was first settled by Swedes and Russia has since been her greatest enemy, see Figure 1-1.



Fig. 1-1. Rifles field-stacked in the snow using a cleaning rod for support.

### ARMS FOR SWEDEN

After gaining her independence from Denmark, Sweden became a major European power, courted by all the northern states and feared by Russia. She played an early and pivotal role in the downfall of Napoleon's vast empire, exchanging her Baltic provinces for Norway (in a

loose confederation that endured until 1905) but relinquish ing Finland to Russia. After Waterloo, Sweden, along with much of the rest of Europe, settled back to enjoy the fruits of peace. But in 1864, the Prussians defeated the Danes and annexed the southern Danish province of Schleswig-Holstein, thereby demonstrating the power of a modern army equipped with modern rifles. If the American Civil War had been the testing grounds for new breechloading artillery pieces, the Continental wars of the 1860s and 1870s were the proving ground for breechloading rifles.

The ignominious defeat of Denmark shocked the Swedish and Norwegian governments. The Prussians had equipped their army with the Dreyse needlefire breechloader while the Danes continued to use percussion muzzle-loading muskets. Like the Danes, the Swedish and Norwegian armies were still equipped with muzzle-loading percussion muskets. The government moved quickly to rearm the military of both countries with a rifled breechloader.

In Sweden, the first step was to equip all frontline troops with the Model 1864 needlefire rifle based on the Hagstrom system, which used a hinged breech. Then, on November 15, 1866 a new SwedishNorwegian Arms Commission met to select a more modern rifle. They hoped to find a rifle design that would not only fire a metallic cartridge but to which they could convert their muzzle-loaders in the interest of economy. Three needlefire designs (Dreyse and two Swedish systems), two repeating rifles (Spencer and Henry) and two single shot rifles (Peabody and Remington) were selected for extensive testing. The Remington Rolling Block system using the Danish 12.17 mm rimfire cartridge proved superior and was chosen, see Figure 1-2. The Norwegians preferred their "Lund" design but acquiesced in the decision, reserving only the right to use a different rear sight.

The commission's report was approved by the King on April 12, 1867. The new rifle was designated the Model 1867 and was produced in Sweden at the Carl Gustaf and Husqvarna factories. The first 10,000 complete rifles were manufactured at the Remington factory in Ilion, New York. An additional 20,000 actions were also purchased and were used to convert the Model 1860 muzzle loading percussion rifles. Subsequent production was manufactured at Husqvarna (marked "H" on the right side of the receiver) and the Carl Gustaf factory (marked with a Crown/C on the right). The Model 1867 rifle was equipped with a 20 inch long socket bayonet as a standard accessory. Those rifles used by the Navy and the Cavalry were equipped with a saber bayonet.



Fig. 1-2. Model 1867 Swedish Rolling Block Rifle. Courtesy, Roy Marcot, Old Fort Lowell Press.

Norway initially adopted the Remington Model 1867 as well but in 1881 decided that an increase in firepower over that provided by the cumbersome rolling block mechanism was needed. The Norwegian military adopted the single shot, bolt action rifle in 10.15 caliber designed by the Norwegian Jacob Jarman, to replace their M1867 Remingtons. In 1887, the Jarman was modified with an eight round tubular magazine under the barrel. The system was similar to that developed for the Austrian Fruwirth in which an elevator carrying a cartridge is raised in line with the bore as the bolt is drawn back. When the bolt is pushed forward to chamber the round, the elevator drops and a new cartridge is pushed into its cradle from the springdriven magazine.

## SMOKELESS POWDER

The invention of smokeless powder in 1885 by the French Chemist M. Vieille set off a worldwide scramble to convert to smaller, faster cartridges. Virtually every military of the day was using 11 or 12 mm cartridges with black powder as the propellant. Even compressed powder charges could rarely boost the heavy projectiles to more than 1,500 feet per second. But the new smokeless powders with their greater energies made it possible to use smaller diameter, lighter weight bullets that were faster and produced flatter trajectories. In turn, this meant that rifles could be streamlined and lightened, thereby reducing the soldier's burden and enabling him to carry more ammunition.

A new arms race was on. It would later be characterized as the "Golden Age" of firearms development. National governments demanded light weight, repeating firearms with ranges out to 2,000 meters and were willing to pay whatever was required to obtain them

In 1889, the Swedish and Norwegian militaries followed the trend to the small caliber, high velocity cartridge. A joint commission was established to select the optimum caliber, cartridge and rifle. Even though either army in the Norwegian-Swedish Confederation could

select their own rifle and cartridge, it made economic sense to work together as much as possible. The first result came almost immediately; both countries adopted a rimmed cartridge, the 8 x 58R mm with a smokeless powder load, a 237 grain round nose bullet and a muzzle velocity of 1,986 feet per second. This cartridge had been developed in Norway and adopted by Denmark for use in the new Model 1889 Krag-Jorgensen rifle. Sweden and Norway also adopted the cartridge in the interim and began to rebarrel their Jarman and Rolling Blocks rifles in the new caliber while continuing the search for the optimum rifle. As a side note, in 1908, a new 196 grain spitzer bullet was substituted for the 237 grain round nosed bullet, which raised the muzzle velocity to 2,460 feet per second. But by then, the new 6.5 x 55 mm Mauser cartridge and rifle combination was wellensconced as the front line infantry weapon system, and only the old converted Rolling Block and Jarman rifles issued to the Home Guard and to shooting clubs used the new cartridge.

The Joint Commission worked assiduously to find a new rifle. Extensive testing was conducted of the then current military rifles, including Mauser, Krag-Jorgensen, Lee, Mannlicher, Kropatschek, Marga and Schmidt Rubin. At the same time, development of the cartridge moved ahead. Sweden initially preferred a semi-rimmed cartridge, but the advantages of a rimless case soon became apparent. A new rimless design, based on the Austrian Roth 7 mm cartridge, was developed for a 6.5 mm bullet and became the leading contender over the rimmed 8 mm Krag-Jorgensen round.

The commission met in Kristiania, Norway on November 3, 1893 to finalize the cartridge selection. The 6.5 x 55 mm cartridge was adopted by both Norway and Sweden. It had a 10.1 gm (156 grain) round nose bullet with a maximum diameter of 6.7 mm (0.264 inches). It would be loaded with a smokeless powder of sufficient quantity to propel the bullet at 699.2 meters per second (2,296 feet per second).

The Norwegians selected the Krag-Jorgensen as their new infantry rifle while the Swedes chose the Mauser. Both rifles were to be chambered for the new "Union Cartridge" to honor the joint commission's work and promote solidarity between the two countries.

The Mauser rifle, as modified by the commission's experts, remained unchanged from 1896 to 1938 when the barrel was shortened somewhat to make it handier for the soldier to carry and use.

## SWEDISH MAUSER PRODUCTION

First of all, the reader should understand that the rifles and carbines which are the subject of this book were never called the "Swedish Mauser" by the military in Sweden. Swedish Mauser is a term first applied either in Germany or the United States by collectors after these very fine rifles reached the surplus arms market. The correct designation is "Light Infantry Rifle." Sweden applied model designations by year with variations designated by alphabetical suffixes: i.e., m/38B refers to the rifle model of 1938 with the barrel threaded at the muzzle

for the blank firing adaptor.

Because the term "Swedish Mauser" has become so ingrained in the American firearm's collector and shooter's mind, we will refer to the total production collectively as the "Swedish Mauser" and individual models and variations by their official model designations.

All Swedish Mausers were manufactured by one of three companies: Mauser, Oberndorf am Neckar, Germany; Carl Gustafs Stads Geværsfaktori, Eskilstuna, Sweden (Carl Gustaf's City Rifle Factory) and Husqvarna Vapenfabriks AB, Husqvarna, Sweden. Production began in 1894 with 52 prototype carbines and continued uninterrupted at Carl Gustaf from 1898 to 1925 and intermittently into the 1930s. Production was resumed in 1941 at Husqvarna and ended in 1944. Production at the Mauser factory took place from 1895-1896 (m/94 carbines) and again in 1899-1900 when rifles only were manufactured.

The authors define production as "receivers" manufactured, not "finished rifles." The Carl Gustaf factory continued to assemble some rifles from stockpiled parts well into the 1930s, but no additional receivers are thought to have been manufactured there after 1925.

To make as accurate an count of rifles and carbines produced, the authors have therefore chosen to count only receivers manufactured as shown in Table 1-1. Many rifles were rebuilt more than once, and various records include them in "rifle" production figures. Listing only receivers manufactured should eliminate much of the confusion and, it is hoped, produce a more accurate list. The Swedish Army originated the production data for the Carl Gustaf m/94, m/96 and m/38 production which was subsequently furnished to the authors by Glenn M. Gilbert, Assistant Technical Editor, American Rifleman magazine, see Bibliography, Appendix K.

Table 1-1 then shows a total of 722,237 receivers manufactured. How does that square with the annual serial number range chart shown as Table 3-4 in Chapter 3 and also in Appendix A? Both tables provide a total of 705,525 serial numbers, obtained by adding together the serial number totals for Mauser, Carl Gustaf and Husqvarna (including the Fsr rifles) production, a difference of 2.98%.

First, keep in mind that the authors were only able to examine a small fraction (487) of the total production, and this has introduced an unknown degree of error. For instance, although Mauser is known to have manufactured 12,000 m/94 carbines and 40,000 m/96 rifles, our serial number chart only encompasses a range of 10,006 carbines and 37,112 rifles. Although we did not observe any Mauser carbine with a serial number under 1,895 or over 11,961, that does not mean they were not manufactured.

**Table 1-1  
m/94, m/96 and m/38 Receiver Production Table**

<b>Manufacturer</b>	<b>Model</b>	<b>Years</b>	<b>Total by Factory</b>	<b>Total Receivers Produced</b>
Mauser Obembdorf	m/93' (a)	1894	52	52,237
Mauser Oberndorf	m/94 1st Contract (b) 2nd Contract (c)	1895 1896	5,000 7,185	
Mauser Oberndorf	m/96 (e)	1899-1900	40,000	
Carl Gustafs Stad	m/94 (d)	1901-1907 1914-1918	115,000	590,000
Carl Gustafs Stad	m/96 (f)	1898-1925	475,000	
Carl Gustafs Stad	m/96-38 <sup>2</sup>	1938-1940	30,000 <sup>3</sup>	
Carl Gustafs Stad	m/41 and M/41B Sniper Rifle <sup>4</sup>	1941-1943 1955+	5,300 <sup>3</sup>	
Husqvarna	m/96 <sup>5</sup> (g)	1943-1944	20,000	80,000
Husqvarna	m/38 <sup>6</sup> (h)	1942-1944	60,000	
Total Receiver Production, m/93 series carbines (a), (b), (c), (d)				127,237
Total Receiver Production, m/96 rifles (e), (f), (g)				535,000
Total Receiver Production, m/38 rifles (h)				60,000
Total Receiver Production, all Swedish Carbines and Rifles				727,237

1. Private communication to the authors from Colonel Axel Ekfeldt, former director, Carl Gustafs Stad Gevärsfaktori.

2. Converted from m/96 rifles, 24.5 inch barrels installed, no new receiver production

3. Not included in "Total" receivers manufactured as existing m/96 rifles were used

4. Converted from m/96 rifles, not new receiver production

5. Rifles with 29.5 inch barrels for the *Frvilliga skytterörelsen*.

6. Manufactured with 24.5 inch barrels, new receiver production

Secondly, we know that Husqvarna used 25% more serial numbers than they produced rifles - the m/38 serial number spread encompasses a range of 106,000 numbers, but only 80,000 rifles were manufactured as stipulated in the contracts. Col. Axel Ekfeldt pointed out

that there was always a certain amount of wastage endured during the critical heat treating process. Since the serial numbers were already roll die marked on the receivers, those numbers were lost when the receiver was rejected. Unfortunately, we do not know what that wastage rate was. The serial number chart in Chapter 3 and Appendix A should be used as a guide to yearly production only.

## MODELS OF THE SWEDISH MAUSER

In all, only three models of the Swedish Mauser were originally manufactured. They were: 1) m/94 carbine, 2) the m/96 rifle and 3) the m/38 rifle. Fourteen other "variations" were produced from these original three models.

They are: 1) m/94-96 carbine, 2) m/94-14 carbine, 3) m/96-38 rifle, 4) Frivilliga skytterorelsen rifle, 5) m/41 sniper rifle, 6) m/41B sniper rifle, 7) fm/23 match rifle, 8) fm/23-36 match rifle, 9) m/38 .22 caliber trainer, 10) CG 63-m/6 match rifle (6.5 mm caliber), 11) CG 63-m/7 match rifle (7.62 NATO caliber), 12) CG 80 match rifle, 13) m/63 sniper rifle and 14) fm/90 sniper rifle.

The Swedish military was armed with the m/94 carbine and m/96 and/or m/38 rifle from 1895 to 1978 when the last m/38 rifles were officially removed from service. The m/41B sniper rifle continued in use through the 1980s.

### Karbin m/94

The very first version of the so-called m/94 carbine could more correctly be referred to as the m/93 carbine. These first test carbines were basically the Spanish Model 1893 carbine, and they were manufactured at Mauser in Oberndorf, Germany. Fifty-two were purchased, and they can be distinguished from later Mauser-made carbines by the fact that the receivers were marked only with the serial number (1 to 52) and did not carry a maker's name on the receiver ring, nor the year of production (see Col. Axel Eckfeldt, Appendix H, Bibliography).

The initial field tests were successful, and a new contract for 5,000 carbines was arranged with the Mauser factory in August 1894. Designated the "Karbin m/94," it had a 17.7 inch barrel and a Mannlicherstyle stock that ended in a heavy nose cap similar to that used on the British SMLE Mk I and Mk III rifles, see Figure 1-3.



Fig. 1-3. m/94 Carbine. Fred Rackers collection.

Two ears on either side of the nose cap protected the pyramidshaped (barleycorn) front sight. Three other features distinguished the Swedish m/94 from previous versions of the Mauser carbine as used by Spain and Argentina; these were 1) a "cutout" on the left side of the receiver directly below the clip guide that made it easier to push cartridges down into the magazine, 2) a vertical projection on the bolt's cocking piece that allowed the shooter to decock the rifle without pulling the trigger and 3) a receiver rear sight hinged at the front or muzzle end, exactly the opposite of the standard Mauser rear sight. Following Mauser's practice at the time, all bolt components were left in the white and highly polished. The sling was attached to the carbine via a sling bar mounted on the left side of the rear barrel band. The other end was threaded through the left side of the stock, through a slot, and fastened with a buckle attached to the right side with brass screws. The carbine was not equipped with a cleaning rod but instead, a pull-through brush and jag were issued in a cleaning kit.

The entire first order of carbines were delivered in 1895. In June of that same year, an additional 7,185 carbines were ordered. In 1896, production of the carbine began at the Carl Gustafs stad gevarsfaktori in Eskilstuna, Sweden. An estimated 115,000 carbines were built in all before production ended in the 1930s (manufacture of receivers actually ended in 1925 but some carbines and m/96 rifles, continued to be assembled at the factory into the 1930s).

In 1896, two changes were made to the carbine. A thumb cut was added to the left side of the receiver to permit faster clip loading and sling swivels were moved from the side of the barrel band and buttstock to the bottom of both parts to allow the carbine to be slung over the shoulder in the conventional manner. These carbines were issued to military cadets and fortification troops who were not mounted and carried a standard infantry back pack. All m/94-96 carbines were manufactured at the Carl Gustaf factory.

It has been estimated that between 1914 and as late as 1950, nearly 75 percent of all m/94 carbines were converted to the m/94-14 pattern. A program to convert m/94 carbines to the m/94-14 pattern for the Swedish Navy took place between 1915 and 1920. All m/94-96 and m/94-14 carbines were either manufactured originally or converted at the Carl Gustaf factory. To determine if an m/94-14 is a conversion or original manufacture, the collector only need glance at the date on the receiver ring: if manufactured by Mauser or if dated before 1914, it is a conversion; if it is dated 1914 or later, it is probably original manufacture.

It should be noted that any m/94 carbine is quite rare today. Many were sold to Denmark for use by their military and home guard after World War II, and more were sold in Germany on the civilian market. It is estimated that less than 2,000 Swedish Mauser carbines-mostly of the m/94-14 configuration - were imported into the United States and Canada beginning in the early 1950s by Pasadena Firearms and InterArms Co. Most of those had a muzzle extension pressed or brazed to the barrel muzzle to meet the barrel length requirement of eighteen inches imposed by Federal law. Pasadena Firearms carbines were sold through Golden State Arms. Carbines marked on the receiver "INTERARMCO/G33/50" were imported by Interarms of Alexandria, Virginia. The designation is theirs and has nothing to do with Sweden. See below

for information regarding the importation of the Swedish Mauser into Denmark, Germany, Canada and the United States of America.

Table 1-2 m/94 Carbine Specifications	
Caliber	6.5 x 55 mm
Magazine Capacity	5
Action	Bolt
Weight	7.5 lbs (3.4 kg)*
Overall Length	37.3 (95 cm)
Barrel Length	17.7 inches (45 cm)
Bayonet	m/94 and m/94-96, no; m/94-14 yes m/14 and m/15
* Weight will vary according to stock wood used and density	

#### Karbin m/94-96

Engineer and coastal artillery troops preferred a short, fast-handling rifle that provided the same firepower as the infantry rifle but in a lighter, shorter package. Since neither service branch were mounted, they carried backpacks and slung their rifles over the shoulder.

With the advent of powerful battleships and cruisers with large caliber guns able to reach miles inland, coastal nations rushed to construct powerful batteries and fortifications to defend their territory. Sweden chose to place the responsibility for the coastal forts and batteries with the Navy, who deployed specialized troops in cleverly constructed and concealed fortifications with long range guns along the coastline. Coastal artillery troops were used to meet and hold an invading force until reinforced by regular infantry, see Figure 1-4.



Fig. 1-4. m/94-96 Carbine. North Cape Collection.

The forward sling swivel on the m/96-96 carbine was moved from the left side to the bottom of the barrel band, and a rifle-style sling swivel and plate were inletted into the bottom of the stock. No other change was made. Many of this model were rebuilt between 1914 and 1920 into the m/94-14 carbine.

#### Karbin m/94-14

With the outbreak of World War I, it became imperative that Sweden build up its coastal defenses if its neutrality was to be preserved. Coastal fortifications were modernized and the coastal artillery and naval forces expanded. Sweden's Navy was composed primarily of coastal craft, ranging from shallow-draft cruisers and monitors to motor torpedo boats, minelayers and smaller patrol vessels operating exclusively in the Gulf of Bothnia, the Baltic Sea and the Kattegat. Naval personnel were trained to fight on land as well as at sea to supplement the landbased coastal fortification forces when necessary. The nature of their operations against invading infantry made it sensible to equip them with a bayonet.



Fig.1-5. m/94-14 Carbine. Courtesy, Armory of Orange.

In 1914, the m/94 carbine was redesigned once again, this time to accept a bayonet, see Figure 1-5. A reinforcing band was added to the rear of the nosecap and extended rearward to the barrel band. A Mauserstyle lug was brazed into a cutout in the bottom of the reinforcing band, and a stud was added to the front of the nose cap. Two types of bayonets were issued: the coastal fortification troops received a bayonet with a 13.6 inch blade, see Figure 1-6. Naval personnel received a 15 inch bladed bayonet. Many earlier m/94 and m/94-96 carbines were modified to accept the bayonet.



Fig. 1-6. m/14 Bayonet.

#### Gevar m/96

The Gevar m/96 was designed and deployed as an infantry rifle, see Figure 1-7. Its 29.1 inch long barrel was believed necessary to burn all the powder in the 55 mm-long cartridge case to

achieve maximum velocity and stabilize the 156 grain bullet in the m/1894 cartridge. Cavalry was still an integral part of all military forces. An infantryman armed with the m/96 rifle with its bayonet mounted provided the infantryman with an doubly-effective weapon-a five-shot rifle and a pike with a two meter reach.



Fig. 1-7. m/96 Rifle. North Cape collection.

The first rifles were built at the Carl Gustaf factory with receiver dates starting in 1898 and serial numbers beginning at " 1 " and ending in 1925 at circa serial number 517,277 or later. The Swedish government paid Mauser a royalty of 2,25 Kronor (Crowns) for each rifle (about US \$0.612 or at the time or an estimated total of \$445,000 ).

In 1899, Mauser was granted a contract to build 40,000 rifles to supplement production at the Carl Gustaf factory using the best "Swedish steel" (the Swedes considered their steel so superior that its composition never changed from start to end of production). The contract was so important to Mauser that a new building was constructed at the Oberndorf works and was known as the "Swedish Building." It still exists today and serves as the Mauser Arms Museum.

All m/96 rifles were built with the long 29.1 inch barrel and rear sights calibrated to 2,000 meters. Those rifles with barrels threaded at the muzzle for the blank firing device were designated with a "B" prefix, i.e., " Gevar m/96B," see Figure 1-8.

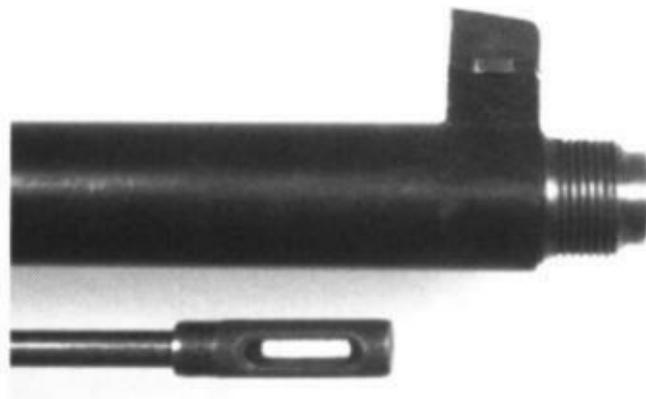


Fig. 1-8. m/96 rifle muzzle threaded for the blank firing device. All such rifles have a "B" suffix in the model designation.

Note: A "B" prefix was applied by the Swedish military to all rifles with barrels threaded at the muzzle for the blank firing device- "Gevar m/96B," "Gevar m/96-38B," and Gevar m/38B." Blanks were never permitted to be fired from the sniper rifles, and therefore, their barrels were never threaded at the muzzle. The suffix, "B", in m/41B indicates a sniper rifle modified to 1955 standards.

Table 1-3 m/96 Rifle Specifications	
	6.5 x 55 mm
Magazine Capacity	5
Action	Bolt
Weight	9.2 lbs (4.2 kg)*
Overall Length	49.25 inches (125.1 cm)
Barrel Length	29.1 inches (73.91 cm)
Bayonet	m/96
* Weight will vary according to stock wood used and density	

### Gevar m/96-38

Some 30,000 m/96 rifles were rebarreled at the Carl Gustaf factory beginning in 1938 with a 24.5 inch barrel to make the rifle handier for the foot soldier, see Figure 1-9. The shorter barrel and the adoption of the new m/94/41 cartridge with the 139 grain Spitzer bullet required that the rifle be equipped with a new rear sight. A quantity of new rear sights were manufactured for the m/96-38 by a local firm, but it proved more economical and with a little training-just as effective to simply attach a metal plate or paper decal to the butt stock which gave the soldier a chart by which to quickly calculate the amount of hold "over" or "under." These decals or plates were attached to the stocks after the adoption of the new cartridge in 1941, see Figure 1-10. They were attached upside down so that the shooter could read them with the rifle at the shoulder simply by rotating the stock to the left.



Fig. 1-9. m/96-38 Rifle. Note the straight bolt handle. North Cape collection.



Fig. 1-10. Range correction chart for the m/38. They were installed upside down.

The exact designation applied by the Swedish military to the m/96-38 rifle was "Gevar m/96-38." Those rifles with barrels threaded at the muzzle for the blank firing device were designated "Gevar m/96-38B."

Table 1-4 m/96-38 Rifle Specifications	
Caliber	6.5 x 55 mm
Magazine Capacity	5
Action	Bolt
Weight	8.5 lbs (3.85 kg)*
Overall Length	44 inches (111.76 cm)
Barrel Length	23.1 (58.67 cm)
Bayonet	m/96
* Weight will vary according to stock wood used and density	

### Gevar m/38

The Gevar m/96-38 proved so successful that when new rifles were ordered for the military in 1941, the contract issued to Husqvarna specified that the new rifle be built to the same pattern, see Figure 111. In all, 60,000 new rifles with the 24.5 inch barrel were built at the Husqvarna factory between 1941 and 1944. They can be identified primarily by the marking and date on the receiver-HUSQVARNA VAPENFABRIKS AKTIEBOLAG and a date between 1941 and 1944.



Fig. 1-11. m/38 Rifle. Note the bent bolt handle which is characteristic of the Husqvarna-manufactured series. North Cape collection.

These rifles were stocked in beech. Only differences in factory and inspection markings, plus the turned-down bolt handle and a new rear sight design show that they are different. The new rear sight was also hinged at the front, but two vertical ears at the rear protected the sight leaf which was re-calibrated only to 600 meters. Two sight leaf variations are found those calibrated for the original m/94 156 grain bullet and those for m/94/41 139 grain bullet. The latter sight leaf is marked with a "T" at the top. Figure 1-12 shows both the different markings and the redesigned rear sight use on the m/38 rifle.



Fig. 1-12. Redesigned rear sight for the m/38 rifle. Note the protective ears behind the elevator and the 'T' marked sight leaf.

An estimated 1,000 .22 caliber versions of the m/38 in .22 caliber were also manufactured by Husqvarna. Stock, trigger assembly group and barrel bands were all standard m/38, but a .22 caliber barrel, bolt and magazine assembly was substituted.

Interestingly enough, a version of the British Morris Aiming Tube was also manufactured for use in the m/38B models. The device is a sub-caliber insert for indoor gallery practice and is described in Chapter Five, The Soldier's Carbine and Rifle Accessories.

<b>Table 1-5 m/38 Rifle Specifications</b>	
Caliber	6.5 x 55 mm
Magazine Capacity	5
Action	Bolt
Weight	8.5 lbs (3.85 kg)*
Overall Length	44 inches (111.76 cm)
Barrel Length	23.1 (58.67 cm)
Bayonet	m/96
* Weight will vary according to stock wood used and density	

## TARGET VERSIONS OF THE M/96 RIFLE

Over the years, a number of m/96 and m/38 rifles were altered for use by civilian target shooters. Swedish government policies regarding the provision of rifles for shooting society members has always been quite liberal, and as a result, the shooting sports-from hunting to match shooting-are quite popular in the country. At least five types of rifles are known that were altered, and in one case, manufactured for target shooting: the fm/23 and fm/23-36, the Fsr rifle (m/38-96) and the CG 63 and CG 80 rifles.

### Fm/23 Rifles

Approximately 500 m/96 rifles were rebuilt some time after World War I as target rifles. The fm/23 was a standard m/96 rifle equipped with a heavier barrel and a stock shortened to a sporting or target match configuration. Lyman receiver sights (M48) were installed, providing a range of 100 to 1,000 meters. The bolt had the thumbpiece removed to decrease lock time, and the trigger pull was lightened for competitive shooting. The fm/23-36 differed only in that it was equipped with a thumb-hole target-style stock and the receivers lacked the thumbcut for clip loading. It is not known if these receivers were manufactured exclusively for this rifle without the thumbcut, or if they were made from pre-1896 receivers. Both rifles were issued to military officers for match shooting.

**Table 1-6  
fm/23 and fm/23-36 Target Rifle**

Caliber	6.5 x 55 mm
Magazine Capacity	5
Action*	Bolt, thumbpiece removed
Weight	11 lbs (5 kg)**
Overall Length	49.6 inches (126 cm)
Barrel Length	29.5 (75 cm)
Barrel Diameter	1.16 inches (2.95 cm) Breech 0.82 inches (2.1 cm) Muzzle
Rear Sight	Lyman Diopter (M48)
Stock	Target style, free-floated barrel

\* No thumbcut in the fm/23-36 receiver.

\*\* Weight will vary according to stock wood used and density

## Frivilligia skytterorelsen Rifles (m/38-96)

When World War II began, the Swedish National Shooters Association saw an explosive increase to 300,000 as fears of invasion mounted. The military lacked sufficient rifles to equip the association members for scheduled training and competition. Fsr members also served as a reserve military force to be called up if an invasion occurred. The Carl Gustaf factory was working to capacity filling orders for automatic and recoilless weapons, and so the government turned to Husqvarna, who was already manufacturing the m/38 rifle. Husqvarna produced 20,000 m/96-type rifles with 29.1 inch barrels in 1943 and 1944, see Figure 1-13.



Fig. 1-13. Fsr rifle manufactured in 1944, equipped with Soderin receiver sight and the Elit front sight assembly. North Cape collection.

These rifles were manufactured for civilian shooters rather than for the military and sold to members of the Swedish shooting association, Frivilligia skytterorelsen, on the condition that the owners would sell them back to the military at the same price if Sweden were drawn into the war. Their rear sights were calibrated for the m/94/41 136 grain spitzer bullet, and the slides are calibrated to 600 meters and marked at the top with a "T".

There is no official designation for the 29.1 inch barreled m/3896 rifle as manufactured by Husqvarna as they were intended for civilian sale and use. The authors have with some recklessness applied the Swedish title of the Swedish National Shooters Association to these as "Frivilligia skytterorelsen" or "Fsr" rifles.

Over the years, many of these were equipped with a variety of precision match-style rear and front sights. Anyone who has participated in "match" shooting of any type is well aware that shooters will customize their firearms with any accessory allowed by match rules in the hopes of adding another few points to their score.

Table 1-7 Fsr m/38-96	
Caliber	6.5 x 55 mm
Magazine Capacity	5
Action	Bolt
Weight	9.9 lbs (4.49 kg)
Overall Length	49.25 inches (125.1 cm)
Barrel Length	29.1 inches 73.91 cm)
Bayonet	Equipped for but not used

### CG 63 and CG 80 Rifles

Any Swedish citizen of good character and without criminal background or history of mental illness can obtain a rifle, submachine gun or pistol with certain restrictions regarding storage and use if he or she belongs to one of the many shooting clubs and participates regularly in matches. Some of the firearms are available from the government through the shooting clubs in a manner similar to the U.S. government's Civilian Marksmanship Program.

In past years, serious shooters were able to obtain m/96, m/96-38 and m/38 rifles and ammunition for training and participation in matches at reasonable cost. Gunsmiths smoothed trigger actions and supplied a variety of adjustable rear sights for many of these rifles.

When Sweden formalized the rules for 300 meter military-civilian matches, two new rifles were developed for competitors, the CG 63 and CG 80, see Figure 1-14.

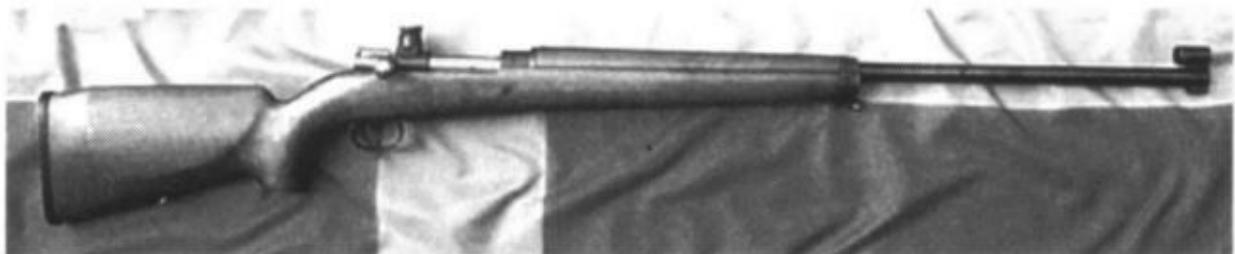


Fig. 1-14. The CG 63 target rifle was developed from the m/96 for 300 meter match competition. North Cape collection.

At the Carl Gustaf factory, a new, heavy, non-stepped barrel was attached to an m/96 or m/38 receiver. The trigger assembly was adjusted and smoothed to match quality. A new

beech Monte-Carlo style stock with identical, if shallow cheekpieces, on either side for right- or left-handed shooters, a pistol grip and a short forend and handguard that allowed the barrel to float, were developed. Match quality adjustable micrometer aperture rear sights from several Swedish manufacturers were installed, as well as the American-made Lyman and Redfield adjustable rear sights, although these latter appear to have been added by the owners. Hooded front sights with interchangeable inserts were added to the new barrel. The distinctive vertical thumbpiece was removed from the bolt to increase lock time. The rifle, which averaged 4.6 kg (10.14 lbs), was available in both 6.5 x 55 mm, 7.62 x 51 mm NATO and .22 rimfire calibers. The military match versions were designated m/6 in 6.5 x 55 mm and the m/7 in 7.62 x 51 NATO. The m/6 military version was equipped with a short cleaning rod beneath the barrel.

Table 1-8 CG 63 and CG 80 Specifications	
Caliber	6.5 x 55 mm
Magazine Capacity	5
Action	Bolt
Weight	9.92 to 10.36 lbs (4.5 to 4.7 kg)*
Overall Length	49.0 inches (124.5 cm)
Barrel Length	29 inches (73.7 cm)
Barrel Diameter	0.748 inches (1.89 cm)
Trigger Pull Weight	3.9 lbs (1.8 kg)
* Weight will vary according to stock wood density and micrometer sights installed	

The CG 80 is an improved version of the CG 63. It featured a new beech-wood stock that also included a pistol grip, Monte-Carlo style cheekpieces and a short forend. The CG 80 did not have a handguard. It did have an aluminum rail inletted into the bottom of the forend to allow the attachment of an adjustable sling.

## SNIPER RIFLES

The exact designation applied by the Swedish military to the original sniper rifle equipped with the AJACK, AGA 42 or AGA 44 scopes was "m/41." These were standard m/96 rifles manufactured by Carl Gustaf or Mauser and selected for their accuracy, see Figure 1-15. A

telescopic sight mount and base were manufactured by the German firm of Jackenroll and bolted and pinned to the left side of the receiver. Standard European rings were used to mount the telescope.



Fig. 1-15. m/41 sniper rifle with AGA 41 scope mounted.

Beginning in 1955, three important modifications were made to the sniper rifle which was then redesignated the m/41B: 1) AJACK scopes were substituted for the AGA 42 and AGA 44, 2) a set screw mount stop was attached to the base to prevent the mount from moving forward under recoil and 3) a new rear sight was installed for use in those instances when the telescopic sight was damaged. It was designated the "SM-Sikte m/55."

<b>Table 1-9</b> m/41 and m/41B Specifications	
Caliber	6.5 x 55 mm
Magazine Capacity	5
Action	Bolt
Weight (with telescopic sight, mount and base)	11.2 lbs (5.0 kg)*
Overall Length	49.25 inches (125.1 cm)
Barrel Length	29.1 inches (73.91 cm)
Telescopic Sight	m/41: AJACK m/41; m/42 AGA; m/44 AGA M/41B: AJACK m/55
Telescopic Sight Mounts	m/41: Jackenroll m/41B: Jackenroll m/55 (modified with set screw)
* Weight will vary according to stock wood density	

It should be noted that blank rounds were not allowed to be fired from the sniper rifle, and so neither the m/41 or the m/41 B ever had a threaded muzzle.

When first issued in 1941-42, six m/41 sniper rifles were issued per company of infantry.

## THE LUXEMBOURG RIFLE

At the end of Mauser production in 1900, between 500 and 1,000 m/96 rifles were built and sold to the Duchy of Luxembourg. They are identical to the Swedish m/96 with the following exceptions: 1) receiver ring marking.

WAFFENFABRIK  
MAUSER  
OBERNDORF<sup>A</sup>/<sub>N</sub>  
1900

2) barrels were marked "L 205," 3) the standard Mauser 1893 upper band was substituted for the Swedish upper band to permit the use of a conventional Mauser bayonet. All parts including the barrel were stamped with the Swedish Crown inspection stamp

## AMMUNITION

The Karbin m/94 was chambered in the Swedish 6.5 x 55 mm military cartridge adopted in 1894. All subsequent carbines and rifles produced used the same cartridge and were rifled with the quite fast 1 turn in 7.5 inches to stabilize the very long 6.5 mm round nose bullet. The original cartridge used a round-nosed bullet weighing 156 grains (10.1 gm) and was designated the skarp patron m/94. In Sweden, this bullet is referred to as the "ogival" bullet. A new cartridge had been developed in Norway and adopted there in 1925 but was not standardized in Sweden until 1941 when it was first used in the m/38 and m/41 sniper rifles. It had a spire-point or, spitzer, boat-tailed bullet weighing 139 grains (9 gm) and was referred to as the skarp patron m/94 projektil m/41 prickskytte. The term for the pointed, or spitzer, bullet in Swedish is "torped." The new bullet had a nickel-plated, mild steel jacket surrounding a lead core.

See Appendix F for a full description of the 6.5 x 55 mm cartridge and all its variations.

## IMPORTING THE SWEDISH MAUSER

Sweden first exported the Swedish Mauser rifle in January 1940 when 86,000 rifles and ammunition were shipped to Finland to aid that country's beleaguered armed forces during the Winter War against the Soviet Union. An additional 8,000 m/96 rifles went to Finland with the Swedish Volunteers who arrived fully equipped on the Salla line in February 1940 and helped to hold back Soviet troops, freeing Finnish soldiers for transfer south where the main fighting

was taking place between the city of Viipuri and the Gulf of Finland. Sweden later bought back 28,000 of these rifles. After World War II, Sweden agreed to sell Denmark and Norway a large but unknown quantity of m/94 carbines and m/96 rifles to reequip their armies following the Nazi occupation. Both countries later adopted the American M1 Garand as their standard service rifle.

The Swedish Mauser was withdrawn from service with the Swedish Army, Navy, Air Force and finally the Home Guard, over more than three decades beginning in the early 1950s. First to be disposed of were the m/94 carbines. In addition to those sent to Denmark, 40,000 were sold, 20,000 each to Pasadena Firearms of Pasadena, California and InterArms of Alexandria, Virginia.

The carbines were shipped to Husqvarna where they were cleaned, inspected, headspaced and had the decal with the trajectory information added. Existing U.S. law at the time required rifle barrels to be a minimum of 18 inches long. The 17.7 inch carbine barrel did not qualify, and so a muzzle extension had to be fabricated. According to Bob Brenner, a former vice-president of Pasadena Firearms, the muzzles of the carbine barrels were drilled out using a drill press to slightly over 1/2 inch deep and the extension, slightly larger in diameter than the bore, was pressed into place with an arbor press. All but a few thousand of the carbines had muzzle extensions added before the law was changed to legalize rifle barrels over 16 inches.

The vast majority of the carbines imported by Pasadena Firearms and InterArms were the m/94-14 configuration and equipped for the m/(19)14 bayonet. The carbines were sold by both InterArms and Golden State Arms, the domestic sales arm of Pasadena Firearms. Swedish Mauser rifles and carbines were also imported and sold by Kleins Sporting Goods of Chicago, Illinois and others.

The importation of these fine carbines was ended by the 1968 Gun Control Act. It did not resume until 1986 when Congress again allowed "collectible" military rifles to be imported, providing they were designed before 1945 and not the product of the Lend-Lease Act of World War II or other similar American military aid agreements.

In 1982, 360,000 rifles were again offered by the Swedish government for sale. Some 60,000 were sold that year and the rest over the following five years as they were withdrawn from Home Guard service. Century International Arms, SARCO and Navy Arms imported the Swedish Mauser into the United States. In 1985-86, Waffen Frankonia of Germany also purchased m/96 rifles. Samco Global Arms of Miami, Florida purchased the last of the inventory including m/38 rifles and the remaining stock of m/41B sniper rifles.

Almost from the beginning, the Swedish government had made the Swedish Mauser in its various configurations available to shooting clubs and to individual sportsmen and target shooters in Sweden. The rifle remains exceedingly popular in its home country as a hunting rifle, target rifle and a collectible firearm. In the "golden years" of its use for target shooting, a

small industry grew up in Sweden providing dozen of different accessories, ranging from target sights to cleaning kits, for this outstanding rifle.

## CHAPTER 2

### PART-BY-PART ANALYSIS

Unless otherwise noted, all references to the "Swedish Mauser" include the military models only: m/94 carbine series and the m/96 and m/38 series of rifles. Specific references will be made to the civilian match and target rifles.

#### BUTT PLATES

Two types of butt plates were installed on the Swedish Mauser rifle. The Type 1 military butt plate was installed on all models of the military rifle and carbine and all are interchangeable within the military models - m/94, m/96, m96-38 and m/38 and the civilian Frivilliga skytte rolsen Rifles (Fsr).

The Type 1 butt plate was 1.5 inches wide at the widest point by 4.37 inches high. The butt plate was 0.7 inches thick at the midpoint and 0.13 inches thick at the toe, see Figure 2-1.



Fig. 2-1. Type 1 butt plate.

The butt plate had an upper tang 1.9 inches long and 0.57 inches wide at across the tang screw hole.

Note: Butt plates were fitted to the rifle stock, marked, then machined to final shape during

the manufacturing process. Therefore, slight variations from the median values given above can be expected. Butt plates attached to the m/96-38 rifles rebuilt from the full length m/96 rifles can be as much as 0.1 to 0.25 inches smaller due to remachining.

The butt plates had two screw holes: the screw hole through the tang was 0.275 inches in diameter, countersunk to 0.45 inches in diameter to allow the butt plate screw to sit flush with the top of the tang. The bottom screw hole was 1.34 inches above the toe. It was 0.255 inches in diameter and countersunk to 0.4 inches.

The butt plates were not reinforced on the inside nor did they have trap doors or other openings to an accessory compartment in the buttstock. They were stamped from mild steel and polished white.

The Type 2 butt plates were installed on the CG 63 and CG 80 match rifles, the fm/90 sniper rifle and the m/63 sniper rifles sold to the Singapore Police, in two variations, see Figure 2-2.



Fig. 2-2. Type 2 butt plate.

Variation 1 was an aluminum plate covered with a heavy rubber pad. The pad was cut horizontally with 50 raised ridges. The Swedish crown over "C" in an oval was molded into the buttpad. The oval was 1.03 wide by 1.8 inches high. The crown was 0.765 inches wide by 0.7 inches high. The "C" was 0.52 inches wide by 0.74 inches high.

A green plastic spacer was inserted between the buttpad and the buttstock on one example examined.

Variation 2 was identical to Variation 1 except that it was made of black plastic rather than rubber.

### Butt Plate Markings

m/94 and m/96 butt plates manufactured at the Carl Gustaf factory were marked on the tang behind the top butt plate screw with the last three digits of the receiver serial number and the crown inspection marking.

The m/38 butt plates manufactured at Husqvarna are marked on the face of the butt plate with the crown inspection marked tipped to the right and the last three digits of the serial number.

Type 2 butt plates show the "Crown over C" mark of the Carl Gustaf factory on the rear face but no serial number or inspection markings.

Occasionally, other markings will be found on military butt plates. These are usually located below the serial number digits on the tang. An example of the most common type of marking is as follows:

**I-KS**  
**No. 1176**

The top line indicates the branch of service (Infantry) and regiment, district or other military unit which in this case is the "Krisgsskolan" (School of Warfare) while the bottom line is a unit or rack number. Regimental markings were also stamped on metal disks inset into the buttstock. See the section on "Stock Disks," below.

### Butt Plate Screws

Two wood screws were used to install the butt plate on the stock, see Figure 2-3. They were 1.6 inches in length and had a slotted head 0.405 inches in diameter. The screws were threaded approximately 9 threads to the inch, or 3.5 threads per centimeter. The buttstock screws were unchanged during the production life of the rifle.

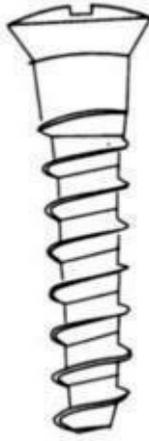


Fig. 2-3. Butt plate screw.

The butt plate tang screw head was fitted to the curve of tang around the countersink by polishing and so will be as much as 0.01-0.02 inches smaller in width than in length. When replacing the screws in the butt plate, make certain that the proper screw is inserted into the tang, otherwise the screw heads will not seat properly in their countersink.

## STOCKS

### Common Features

All stocks for the Swedish Mauser carbines, rifles and target or match rifles were originally to be made of European walnut. Beech, ash, maple, elm and oak were substituted after 1914 during the years shown in Table 2-1, when the scarcity of the proper grade of walnut made it necessary to use other woods. Beech is the most common wood used. It is fine-grained with little figure or inherent color. When treated with linseed oil, it takes on a color ranging from blonde to reddish brown. The walnut used was straight-grained European walnut with little figure. When treated with linseed oil, it takes on a reddish brown color.

Table 2-1 Stock Wood		
Model	Year	Type of Wood
m/94 m/94-96	All	Walnut
m/94-14 Type 3 m/96 and m/96-38	1896-1914	Walnut
	1915	Beech
	1916-1917	Beech, Ash, Maple, Elm or Oak*
	1917-1918	Beech, Ash, Walnut, Elm or Oak*
	1919-1925	Beech
	1926-1938 (includes replacement stocks)	Beech, Walnut
m/38	1941 to End of Production	Beech
* While elm and oak were used as stock wood, they are rare.		

Only walnut stocks were manufactured for the original m/94 and m/ 94-96 carbines. Substitute woods (refer to Table 2-1) were used on the m/94-14 carbines.

The m/96-38 rifles used original m/96 rifle stocks - walnut before 1915, beech, ash, maple, elm or oak after - which were shortened to fit the 24.5 inch barrel.

All stocks were manufactured on power machinery and therefore cuts will be sharp-edged and flats and curves will not show the dips or scratches that are characteristic of handwork. All stocks were linseed oil-finished.

All stocks show the serial number of the original receiver in the area ahead of the magazine well. All stocks will show an inspection crown in the area directly behind the trigger plate.

m/96 or m/96-38 rifles fitted with stocks which do not show inspection markings, or do not have the correct serial number plus inspection marks in the area of the magazine well, or which show the original serial number "X"ed out and a new serial number stamped in, have been restocked. Figure 2-4 shows the standard rifle stock.

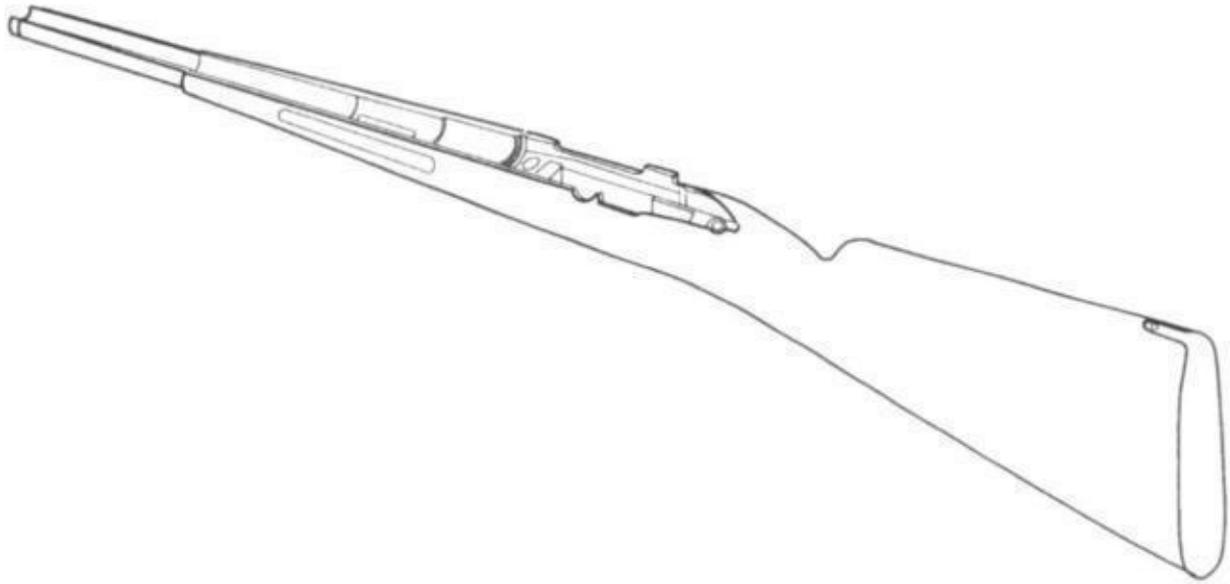


Fig. 2-4. Typical m/96 rifle stock.

All stocks follow the same basic design - straight grip, raised comb, finger grooves ahead of the receiver ring, cutout beneath the clip guide and a stepped forend ahead of the single barrel band. Within this basic pattern there are three major styles of stocks for military rifles and two additional stock styles for the CG 63 and CG 80 match rifles and variations. Each style is illustrated below in its respective section.

The semicircular cutout seen on the left side of the stock (Figure 2-5, arrow) above the magazine well was an innovation with the m/96 rifle. It was accomplished to make it easier to charge the rifle's magazine using a clip inserted into the clip guide. The cartridges were pushed down into the magazine with the thumb. The additional clearance made it more convenient and faster to load the rifle in this manner. The cutout on all stocks was 0.9 inches wide by 0.2 inches deep. Many, if not most m/ 94 carbines manufactured by Mauser before 1896 had the thumbcut added to their receivers and stocks.

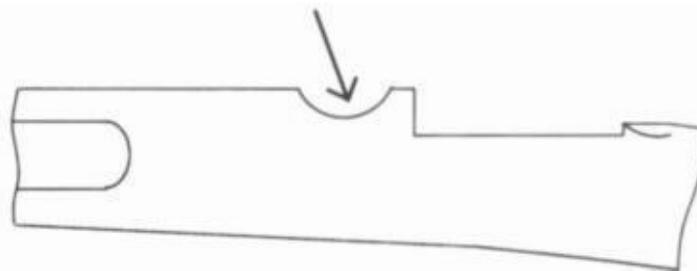


Fig. 2-5. Thumb cut for charger loading.

All stock shaping and inletting for all models was accomplished on power machinery. Metal parts such as the butt plate and nose cap were attached to the stock for final fitting. The metal parts were marked and then removed to be polished by machine. Therefore, original stocks

that have not been sanded or refinished will be "proud" in all areas surrounding the metal parts, i.e., the wood will rise above the level of the metal parts enough to catch a fingernail.

Specifications required that all stocks show the serial number stamped on the receiver. The serial number was stamped on the stock inside the barrel channel just forward of the milled cut for the receiver ring.

Note: Many m/96-38 rifle stocks show the original serial number over stamped with "X"s and a new full or partial serial number stamped below. This indicates that the stock was originally mounted on another carbine or rifle and is commonly seen in the m/96-38 rifles which were rebuilt from m/96 rifles.

Original factory stock markings included the inspector's initial(s) and the Crown inspection marking on Carl Gustaf-made stocks or a Crown or a Crown over a letter or number on Husqvarna-made stocks. This mark was stamped in the wood behind the trigger guard. A second or even a third crown in the same area signifies that the stock was reinspected, usually after repairs or refurbishment.

Note: See Chapter 3 for a complete description and listing of all stock markings.

All stocks were shaped for the butt plate, which had a tang at the heel (top). The same butt plate was used on all variations of the military Swedish Mausers, and therefore, all shaping and inletting is the same. No matter the type of stock, the butt plate inletting was 4.15 inches high from the toe (bottom of the stock) to the butt plate inletting at the heel (top of the stock). The rear of the buttstock is 1.65 inches at its widest point but will vary slightly due to manufacturing variances and wood shrinkage over the years. The tang inletting at the heel is 0.58 inches wide and 1.75 inches long. The front of the inletting is rounded to match the rounded tang of the butt plate.

All Swedish Mauser stocks except for the m/94, m/94-96 and m/9414 carbines were drilled from the nose to just ahead of the magazine well to accept the cleaning rod. A threaded metal nut was inserted into a cut in the wood just ahead of the forward trigger guard screw. The threaded end of the cleaning rod screwed into the threaded metal plate to hold it in place against recoil.

Note: The CG 63 and 80 series of stocks did not have provision for the cleaning rod with the single exception of those stocks manufactured for military match use, the CG 63 m/6 and m/7, which did use a cleaning rod.

All Swedish Mauser stocks have either a brass disk inletted into the right side of the buttstock and/or a paper decal attached to the buttstock (and usually coated with varnish for protection) or a black enameled plate nailed to the right side which provided corrected sight settings for the m/41 cartridge. See the section on rear sights later in this chapter for a further explanation.

Note: A common feature of all m/96 and m/38 rifle stocks were the lightening cuts milled into their barrel channels, see arrows in Figure 2-6. Lightening cuts were not milled in the barrel channels of the m/94 series of Mannlicher-style carbine stocks. Examine m/94, m/9496 and m/94-14 barrel channels carefully. Any indication of lightening cuts filled in with wooden blocks may well indicate a stock made from a rifle stock, i.e. a fake.

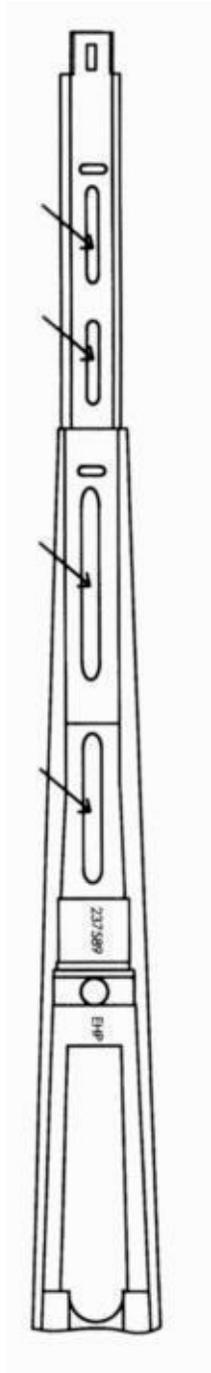


Fig. 2-6. m/96 rifle stock lightening cuts.

#### Stock, m/94 Carbine

The m/94 carbine stock (see Figure 2-7) includes three types: the m/94, m/94-96 and the m/94-14. Each used the same basic stock with slight variations as described below. These

carbines were issued to all mounted troops and certain naval forces.

Note: The carbine stock differs from the rifle stock in that it is shorter, is inletted for a nose cap instead of a forward barrel band and the receiver inletting is set back further toward the butt than for rifles. The distance from the rear face of the carbine buttstock to the front of the receiver ring is 20.3 inches; the distance from the rear face of the rifle buttstock to the receiver ring is 21.0 inches, a difference of 0.07 inches. The finger grooves will also be set back the same distance compared to the rifle.

All original m/94 and m/94-96 carbine stocks were made of walnut; m/94-14 stocks were made primarily of beech, ash and occasionally elm or oak (refer to Table 2-1).

### Stock, m/94 Carbine, Type 1

The m/94 Carbine was the first Mauser design ordered by Sweden's War Ministry. The Mannlicher-type stock ended at the muzzle. The stock was 36.75 inches long overall (nose to toe) without butt plate and nose cap.

The Type 1 carbine stock was used on the Type 1 m/94 carbine as manufactured at Mauser Oberndorf and at the Carl Gustaf factory, refer to Figure 2-7.

Very early Variation 1 carbine stocks manufactured before 1896 did not have a semicircular cut for the clip guide on the left side as did later carbine and rifle stocks.

Variation 2 Type 1 carbine stocks were manufactured during and after 1896 and did have the 0.9 inch wide by 0.2 inch deep circular cut in the side ahead of the charger guide to make it easier to load a cartridge clip into the magazine. All Type 1 stocks of both variations had the same dimensions, otherwise.

The butt was 11.5 inches long from toe to the end of the trigger guard and 4.18 inches high from toe to heel. The comb was 8 inches long. The wrist measured 5.5 inches in circumference.

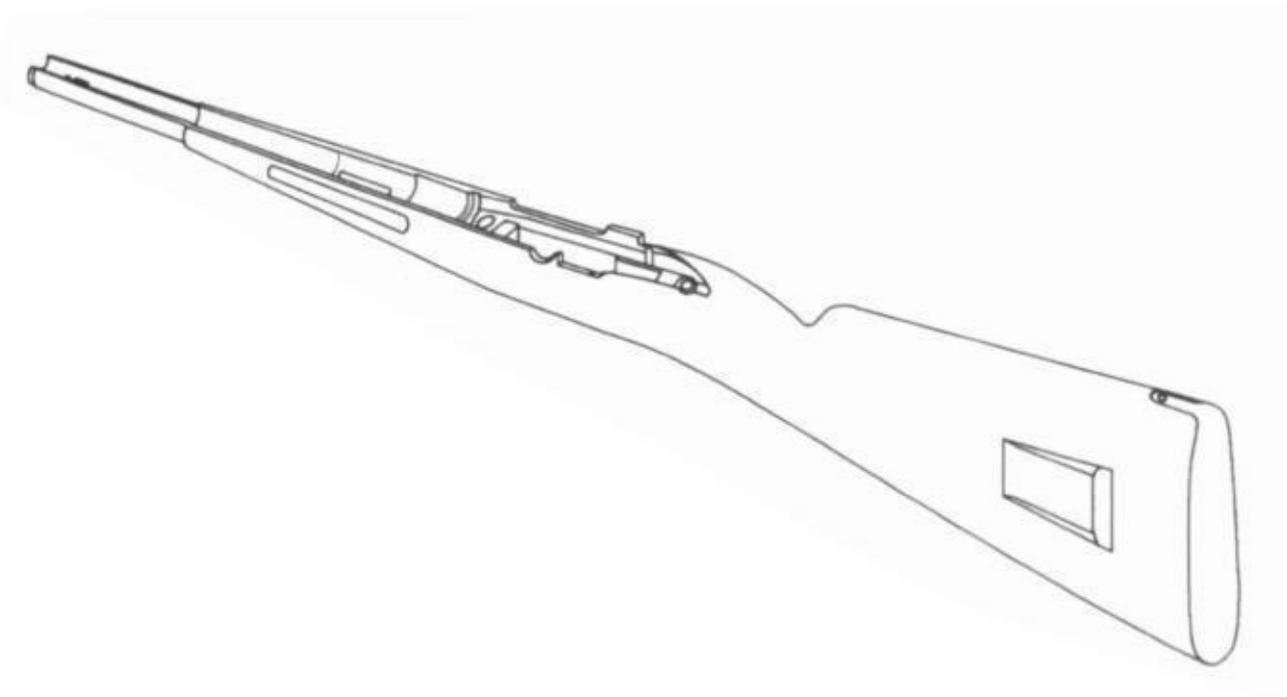


Fig. 2-7. Typical m/94 series carbine stock. The m/ 94-96 stock will not have the cut for the sling.

The forend was 7.875 inches long from the rear of the barrel band inletting to the nose and 1.375 inches wide at that point.

A finger groove 4.375 inches long by 0.625 inches wide was milled on each side of the stock.

The stock was inletted to receive the barreled receiver, trigger guard/ magazine assembly, nose cap, stock disk and rear barrel band and barrel band springs. The buttstock was drilled through to receive the rear sling attachment.

A hole was drilled and counterbored through the barrel channel 2.263 inches behind the tip. The hole was 0.223 inches in diameter and the counterbore was 0.394 inches in diameter. The hole allowed a thinshanked, threaded screw to be inserted into a stud on the forward barrel band spring to hold it securely in place. The tip of the screw was visible at the rear of the band spring.

Receiver inletting was 1.375 inches long and 1.330 inches wide at its widest point. The forward end of the stock, or nose, was reduced in size to 0.940 inches wide to receive the heavy nose cap.

Note: Knowing exact barrel channel dimensions for the m/94 carbine stock will help the collector to determine the difference between a real and a faked stock. A reminder: lightening cuts were never made in carbine stocks. Dimensions are shown in Figure 2-8.

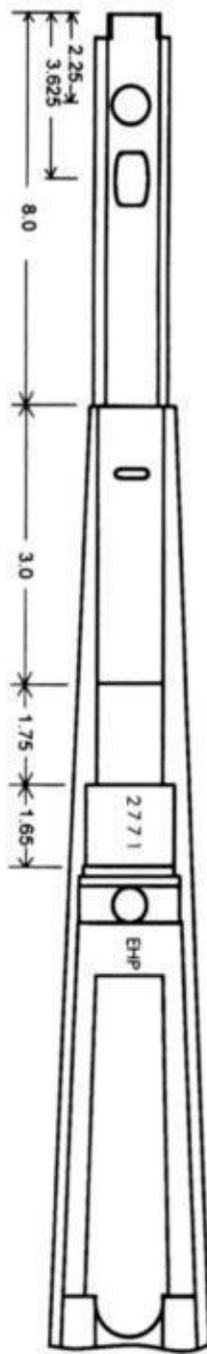


Fig. 2-8. Carbine stock interior dimensions.

Original Type 1 m/94 stocks will have a sling buckle fastened with screws on the right side of the stock, behind the unit marking disk. The buckle is sewn to a leather strap 1.280 inches wide by 1.715 inches long. The buckle and strap are fastened with either two or four brass wood screws to the stock which was inletted for this purpose, see Figure 2-9.

The inletted area on the right side of the butt stock for the sling buckle was centered 2.42 inches ahead of the butt. It was 1.438 inches wide at the front, narrowed to 1.317 inches wide after inches and was 2.157 inches long by 0.180 inches deep. A slot 1.245 inches wide by 0.201 inches front to back was cut through the stock for the sling.

The barrel band step was cut 8 inches behind the nose and reduced the width of the forend by 0.07 inches.

Barrel band springs were mounted in inletted areas on the bottom of the stock. The inletted areas were 0.370 inches wide by 2.50 inches long and 0.07 inches deep. They were cut to the rear of the nose cap step and the forend step.

The trigger guard and magazine assembly inletting began 11.50 inches ahead of the toe and was 8.375 inches long and 1.1 inches wide at its widest point. Two holes were drilled at either end of the inletting to accept the trigger guard screws.

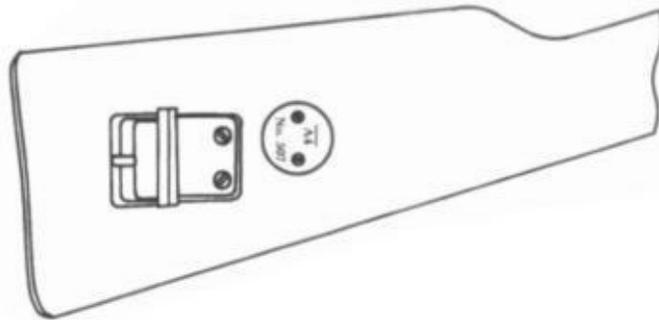


Fig. 2-9. Sling buckle.

Note: The m/94 carbines were issued to mounted troops. An unknown number were converted to the m/9414 pattern after 1914.

### Stocks, m/94 Carbine, Type 2

The Type 2 stock was manufactured for the m/94-96 carbine. It was identical to the Type 1 carbine stock except that it lacked the slot and inletting in the butt stock for the carbine sling and buckle.

Instead, a sling swivel similar to that used on the rifles was inletted into the bottom of the buttstock, see Figure 2-10. The sling buckle on the left side of the Type 1 barrel band was eliminated in favor of a rifle-type sling swivel attached to the bottom of the barrel band. Dismounted troops carried knapsacks which did not permit the carbine to be slung diagonally across the back in the manner of mounted troops. A sling swivel on the bottom of the barrel band and butt stock made it possible for dismounted troops to carry the carbine slung like a rifle over a shoulder.



Fig. 2-10. Sling swivel mounted on m/ 94-96 carbine stock.

Note: The m/94-96 carbines were issued to military cadets and Coastal Artillery troops. An unknown number were converted to the m/94-14 pattern after 1914.

### Stock, m/94 Carbine, Type 3

The Type 3 stocks manufactured for the m/94-14 carbines were identical to the Type 1 carbine stock except that they were designed to accept a bayonet attachment, see Figure 2-11.



Fig. 2-11. m/94-14 carbine with m/1914 bayonet.

[Stocks manufactured \(or remanufactured from original m/94 stocks\) for the m/94-14 carbine had a rectangular cut 0.834 inches wide by 1.612 inches long milled into the bottom of the forend for the rear bayonet stud's rectangular metal reinforcing plate.](#)

The m/94-14 series of carbine stocks had a metal stud set into the barrel channel in an inletted area 3.349 inches behind the tip to reinforce the forend beneath the nose cap. The inletted area was 0.440 inches wide by 0.788 inches long and 0.05 inches deep. A screw passed through the nose cap and reinforcing plate and screwed into the stud. The screw head was polished to match the curve of the counterbore in the nose cap reinforcing plate. See Figure 212.

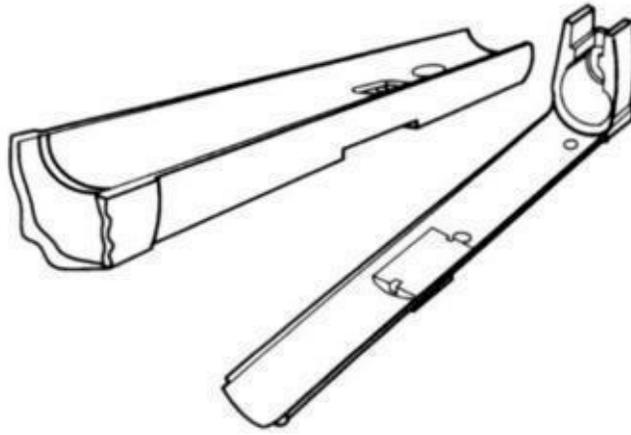


Fig. 2-12. m/94-14 nosecap and reinforcing plate.

Note: Do not attempt to remove the nose cap from the m/94-14 carbine without first removing the reinforcing plate screw. The proper procedure to avoid damage is as follows: 1) remove the reinforcing plate screw. Use a screwdriver with a head the approximate width of the barrel band spring. 2) Cover the tip with masking tape to prevent the metal from being scratched. 3) At the junction of the barrel band and the rear barrel band spring depress the band spring with a screw driver blade. With the band spring depressed, press the screwdriver tip down again and move it forward at the same time to unhook the spring from the band. Turn the screw driver blade counterclockwise to move the barrel band forward away from the hook on the band spring. 4) Press a punch through the first hole in the nose cap to depress the forward barrel band spring. 5) Move the nose cap forward and off the stock.

Note: Some m/94-14 stocks were remade from m/94 or m/94-96 stocks. These can be identified by the fact that the original serial number in the barrel channel will have been over stamped with "X"s and a new complete or partial serial number stamped nearby. These stocks will show more than one "Crown" behind the trigger guard plate.

### Stock, m/96 Rifle

The m/96 rifle stock was manufactured of European walnut, ash, beech, maple, elm or oak depending on year of manufacture, refer to Table 2-1. The rifle stock differs from the m/94 Carbine stocks in four respects: 1) it has a longer forend, 2) the receiver is mounted 0.7 inches further forward, 3) the forend is inletted for a barrel band rather than a nose cap and 4) the stock is drilled to accept a cleaning rod. Refer to Figure 2-4.

There were two types of the m/96 rifle stock. The Type I was manufactured by Mauser and Carl Gustaf and show all the government inspection markings unique to those factories. The Type 2 was manufactured by Husqvarna and used on the "long" rifle manufactured in 1944-45 for the Frivilliga skytterøvelsen. It has Husqvarna-style markings. Other than markings, both types stock are interchangeable.

The buttstock was 12.5 inches long from the end of the receiver tang to the heel and 12.45 inches long from the end of the trigger guard to the toe. It was 4.2 inches high from toe to heel. The comb was 8.6 inches long. All measurements are without the butt plate attached.

Note: The distance from the rear face of the rifle buttstock to the front of the receiver ring is 21.0 inches.

The forend was 10.8 inches long, 1.1 inches wide at the rear and 1.03 inches wide at the front. The tip was rebated 0.1 inches for 0.79 inches to receive the front barrel band.

Four lightening cuts were made in the forend and are visible when the barrel has been removed. From front to back, they measure (1) 2.6, (2) 3.4, (3) 2.4 and (4) 2.4 inches long. All are 0.25 inches wide and 0.65 inches deep. The ends of the cuts were rounded. Refer to Figure 2-6.

The left side of the stock just ahead of the charger guide was cut away in an arc to facilitate clip loading. The cut was 0.9 inches wide by 0.2 inches deep. Refer to Figure 2-5.

A finger groove 7.4 inches long by 0.6 inches wide was milled on each side of the stock.

The stock was inletted to receive the barreled receiver, trigger guard/ magazine assembly, front barrel band, stock disk and barrel band, barrel band springs and rear sling swivel plate.

The receiver inletting was 8.8 inches long from the receiver ring to the receiver tang and 1.056 inches wide at it widest point. The barrel channel was 23.6 inches long, 1.12 inches wide at the breech end and 0.92 inches wide at the nose.

The stock disk inletting (see Figure 2-13) was a circular cut 1.18 inches in diameter and 0.02 inches deep into which a brass (or zinc or aluminum) disk was fitted. See the section on Stock Markings below for an explanation of the stock disk's purpose.

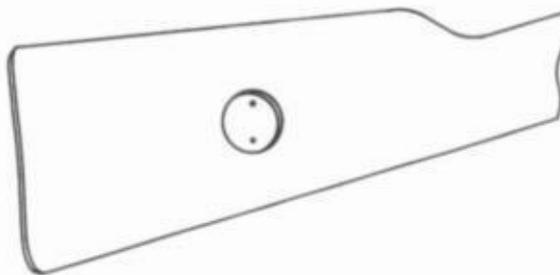


Fig. 2-13. Stock disk inletting.

Two barrel band springs were mounted in inletted areas on the bottom of the stock. The inletting for both was 0.39 inches wide by 2.89 inches long. The inletted areas were cut to the

rear of the forward barrel band step and the forend step. See Figure 2-14.

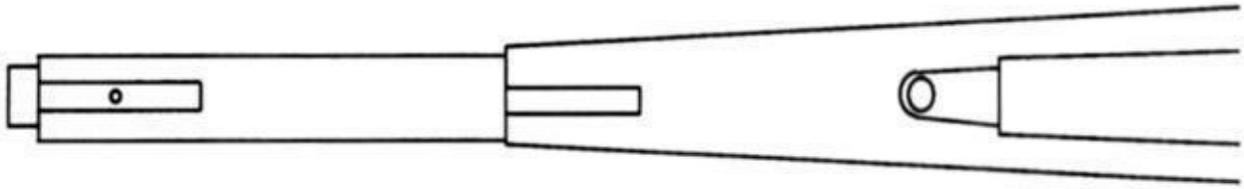


Fig. 2-14. Barrel band spring inletting.

The trigger guard and magazine assembly inletting began 12.45 inches ahead of the toe and was 8.35 inches long and 1.1 inches wide at its widest point. Two screw holes were drilled at either end of the inletting to accept the trigger guard screws.

The hole for the cleaning rod was drilled entirely within the stock along the bottom side. With the barreled action removed, the cleaning rod can be observed along the bottom of the lightening cuts. A square nut accepted the threaded end of the cleaning rod and was inserted in the forward end of the receiver inletting, just ahead of the drilled hole for the front trigger guard screw.

**Caution:** Inserting the cleaning rod into an empty stock may drive the threaded nut backward into the hole for the front guard screw. If the magazine plate will not seat flush with the wood during reassembly, check to see if this has happened. Drive the nut forward with a gentle tap or two.

The m/96 rifle sling swivel was inletted into the bottom of the stock 5.3 inches ahead of the toe. The sling swivel base inletting was 0.56 inches wide, 1.732 inches long and 0.115 inches deep. An inspector's initial will often be found in the inletted area.

#### Stock, m/96-38 Rifle

The m/96-38 rifle stocks were originally installed on the m/96 rifle, but with the forend shortened to accept the 24.5 inch barrel. The forend was recut at the tip to accept the same forward barrel band as used on the m/96 stock. See Figure 2-15.

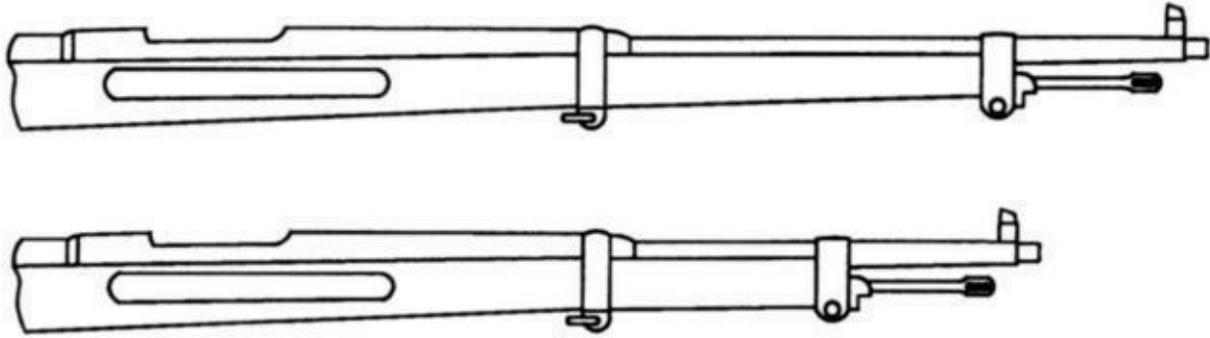


Fig. 2-15. m/96 (top) and m/96-38 (bottom) forearms compared.

The stock wood was either walnut, beech, ash, maple elm or oak, according to the year the original rifle was manufactured (refer to Table 2-1).

Note: The same stock and handguard was not always reinstalled on the original rifle after remanufacture. The original serial number will be over stamped with "X"s and the new number stamped below.

Dimensions were the same as for the m/96 rifle stock, with the following exceptions: 1) the forend was 5.312 inches long from the lower barrel band inletting ( 1.09 inches wide) to the stock tip; 2) the forward end of the stock was reduced in size by 0.970 inches at the forward barrel band, and the tip was cut to 0.748 inches long to receive the upper barrel band

Inletting for the forward barrel band began 1.950 inches forward of the rear barrel band step. The same barrel band spring as used on the full length rifle stock was installed on the m/96-38 rifle stock.

The one and one-half lightening cuts in the forend that remained after shortening were filled with pieces of wood to strengthen it and to anchor the pin that secured the bayonet stud in place.

### Stock, Model m/38 Rifle

The m/38 rifle stock was manufactured of beech, a white, dense wood plentiful in Scandinavia. These stocks were identical in dimensions to the m/96-38 stocks but were newly manufactured by Husqvarna.

The m/38 stock was marked with the Crown inspection stamp over the letter "C" at the rear of the trigger guard, see Figure 2-16. Two or more such markings indicate a repair and/or re-inspection of the stock.

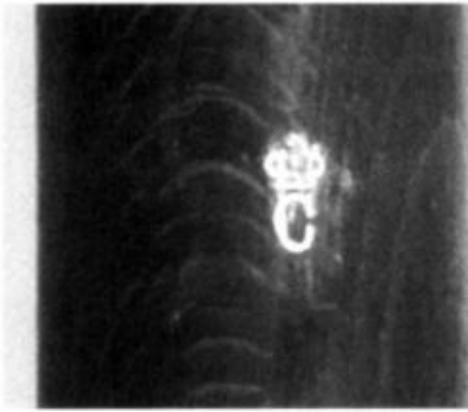


Fig. 2-16. Crown inspection stamp found on m/38 rifles.

The serial number of the original receiver was stamped in the barrel channel. Check to make certain that it is the same as the receiver serial number.

The forend was 5.312 inches long from the lower barrel band inletting (1.09 inches wide) to the stock tip. The forward end of the stock was reduced in size by 0.970 inches at the forward barrel band, and the tip was 0.748 inches long to receive the upper barrel band

Two lightening cuts in the forend are visible when the barrel has been removed. From front to back, they measure (1) 3.375 inches long and (2) 2.530 inches long. Both are 0.244 inches wide. The ends of the cuts are rounded and are not filled in as in the m/96-38 stock.

The raised area ahead of the bolt handle appears higher on Husqvarna-manufactured stocks (although it is not) than on the stocks manufactured at Carl Gustaf because of the more severe curve to the top of the stock in this area. This point can often be used to differentiate the two stocks without removing the barreled action if the crown inspection stamps are missing. See Figure 2-17.

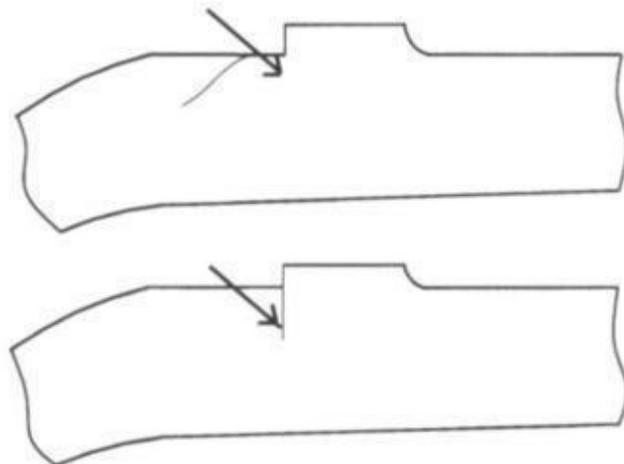


Fig. 2-17. Area under the bolt handle compared, Carl Gustaf above, Husqvarna below.

Note: Dimensionally, the stock for the m/96-38 and the m/38 rifles are identical. The collector should observe caution when determining whether a stock on a "short rifle" was manufactured for the m/96-38 or the m/38. Stock markings are the best determinate.

Next check to make certain that the area surrounding the bayonet stud in the barrel channel has not been filled in, as it would be in the m/96-38 stock. Finally, check to see if the stock on the right side behind the bolt handle conforms to the pattern shown above in Figure 2-17.

Inletting for the forward barrel band began 1.950 inches forward of the rear barrel band step so the same barrel band spring as used on the full length rifle stock was installed on the m/96-38 rifle stock. Inletting for the forward barrel band began 1.950 inches forward of the rear barrel band step. The same barrel band spring as used on the full length rifle stock was installed on the m/96-38 rifle stock.

The m/38 rifle bolt handle was bent downward at an acute angle. But because the bend was made past the square anvil, a cut was not required beneath it in the stock.

Note: A .22 caliber variation of the m/38 rifle was built and designated the m/38-22 Training Rifle. No changes were made to these stocks as a .22 caliber sleeve was simply installed in the barrel to reduce the caliber.

#### STOCK, M/41 AND M/41B SNIPER RIFLE

The m/41 and m/41B Sniper Rifle stock were identical to the m/96 Rifle stock with the exception of a cut made to the left side of the receiver behind the receiver ring. The cut allowed the mount for the telescopic sight to be bolted to the receiver. See Figure 2-18.

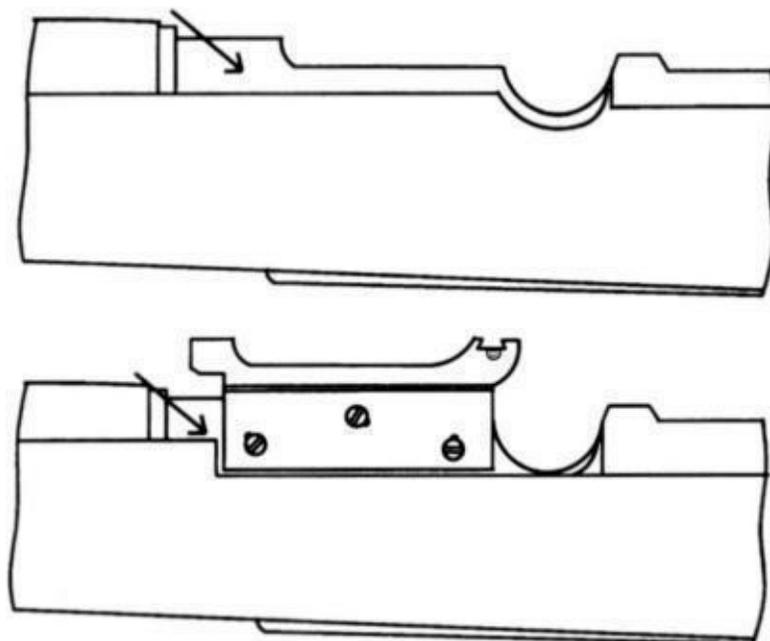


Fig. 2-18. m/96 (top) and m/41 stocks (bottom) compared.

The cut was made 0.55 inches behind the forward edge of the receiver ring and was 3.6 inches long and 0.28 inches deep. The cut extended to the front of the bolt release. Original m/41 Sniper Rifle stocks can be distinguished from non-factory stocks by the fact that this cut is deeper than on the standard m/96 stock, and the wood at the end of the cut ends in the curve originally made to allow the clip charger to be used. Most of the m/96 stocks used to make up aftermarket m/41B sniper rifles in the mid-1990s from parts, were simply cut straight back to the bolt release.

The majority of m/41 sniper rifles were made from Mauser and Carl Gustaf-manufactured m/96 rifles in 1941-42 and will retain their original markings, plus a Crown/S inspection mark on the bottom of the butt stock.

The m/41/41B bolt handle was bent downward at an acute angle similar to the m/38 rifle bolts, but because the bolt handle was bent beyond the square anvil, a cut in the stock was not required beneath it.

Note: The "B" suffix in "m/41B" designates a sniper rifle with either the "SM-Site m/55" or "SM-Site m/58" receiver sight and the m/41B telescopic sight and mount, see Chapter 4. The "B" prefix in this case does not indicate a barrel threaded at the muzzle for the blank firing device - or as ill-informed legend has it, a sound suppressor.

## STOCKS, TARGET RIFLES

Five types of target rifles were produced for military and civilian match shooting as distinguished from those stocks intended for military combat. 1) During the 1920s, a target rifle designated fm/23 was developed from the m/96 rifle with a "heavy" barrel installed. The barrel channel only of standard m/96 stocks were altered for this rifle. 2) During the early 1930s, a small number of rifles designated the fm/23-36 were built with a target-style stock, a shortened forend and a thumbhole pistol grip. The authors were unable to locate an example of either the fm/23 or the fm/23-36 and believe they were never imported into North America. 3) During 1943-1944, Husqvarna manufactured 20,000 m/96-type rifles for the Frivilliga skytter6relsen. In the 1960s, and again in the early 1980s, two rifles were produced for 300 meter match competition and used by military personnel and civilian shooters alike. These were the 4) CG 63 and 5) CG 80 rifles.

### Stocks, CG 63 and CG 80 Match Rifles

The Type I stock was a target-style stock made from beech, see Figure 2-19. The forend was shortened considerably to end at the rear barrel band position, which was replaced with a sheet metal nose cap. The stock channel was larger than that of the m/96 or m/38 stock to allow the heavy barrel to float free (nominally 1.256 inches wide at the front of the receiver and tapering

to 0.875 inches wide at the nose cap).

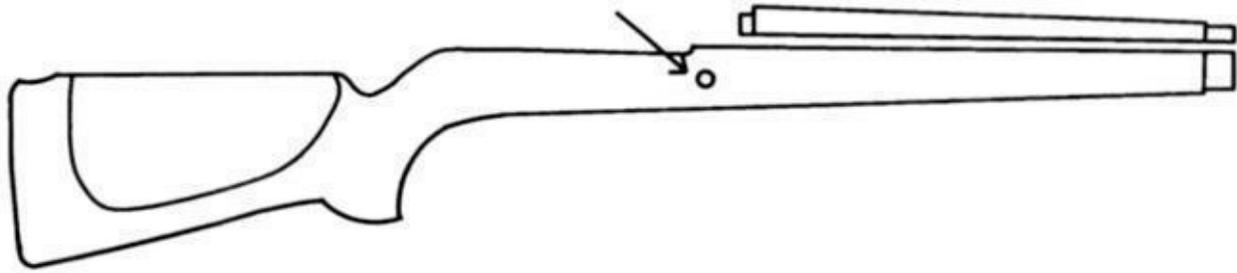


Fig. 2-19. CG 63 match rifle target-style stock.

The butt stock was 5.25 inches high at the butt plate. As the stock was intended to be used by both right and left handed shooters, it had an identical Monte Carlo cheekpiece on both sides of the comb, which was 7.5 inches long and 3.85 inches top to bottom. It was raised only slightly above the top of the buttstock. The buttstock had a pronounced pistol grip with a steep curve.

The forend was 13.0 inches long from the receiver ring to the tip. It was 1.935 inches wide at the receiver ring and tapered to 1.580 inches wide at the nose cap. The tip was 0.715 inches long and rebated to 1.484 to receive the nose cap.

The CG 63 stock had a shotgun butt and butt plate and pronounced pistol grip. The buttstock face was drilled with two holes to hold either the Type 1 or Type 2 rubber-covered or plastic butt plate in place. The top screw hole was centered 0.868 inches below the heel, the bottom screw hole was centered 1.15 inches above the toe. The rear sling swivel (standard military model) was inletted into the bottom of the buttstock 4.765 inches ahead of the toe.

The thumb relief cut for clip loading on the left side of the receiver was straight for 2.848 inches, then stepped down 0.025 inches for the bolt release. The relief cut did not curve upward to the bolt release as it did the m/96 and m/38 stocks. The rear sling swivel was mounted in the same location as on the m/96 rifle.

Note: The CG-63 match rifle was produced in two calibers, 6.5 x 55 mm and 7.62 mm NATO. Their subdesignations were m/6 and m/7, respectively. As the same diameter barrel was used for both calibers, there was no difference in barrel channel dimensions.

A metal tube 0.266 inches in diameter was fitted into the rear receiver screw hole to prevent the wood from being crushed when the stock bolt screw was tightened. A metal reinforcing plate was fitted for the same reason at the front screw position,

To prevent the stock from splitting due to the tight wood-to-metal fit (refer to Figure 2-19,

arrow), a reinforcing bolt was installed in the stock 1.2 inches behind the front of the receiver ring cut. The stock reinforcing bolt was 1.847 inches long. The slotted flat head was 0.364 inches in diameter and 0.132 inches high. The screw was threaded for 0.4 inches at the tip. Note that the threaded end will vary in length slightly depending on the thickness of individual stocks. The bolt tip entered the stock from the left and screwed into a retaining nut embedded in the stock on the right side. The bolt tip was dimpled to allow it to be upset with a punch to prevent removal.

There were no lightening grooves in the CG 63 or CG 80 barrel channel, which were nominally 1.256 inches wide at the front of the receiver and tapered to 0.875 inches wide at the nose cap. The depth of the barrel channel varied slightly from rifle to rifle to prevent any part of a heated barrel from touching the stock.

Because the CG 63 barrel was free-floated, a nose cap with a sling swivel was fitted to the forend in place of a barrel band. The stock was reduced to 1.455 inches in diameter for 0.705 inches behind the forend tip. A metal plated drilled and threaded to accept the nose cap screw was inletted into the barrel channel. A slot was cut 1.2 inches behind the forend tip for the nose cap/forward sling swivel nut. The nut was square, 0.405 inches on a side and 0.190 inches thick. It was simply dropped into the slot. See Figure 2-29 and the section on Nose Caps, below.

The Type 2 target stock was identical to the Type 1 target stock except that the barrel channel was cut for the slightly smaller diameter .22 caliber barrel of the CG 63-22 Match Rifle.

The Type 3 target stock was installed on the CG 80 rifle. The barrel channel was enlarged to allow the barrel to float free, as with the CG 63 stock. A wooden cheekpiece adjustable for height and a butt plate adjustable vertically to fit the shooter were mounted on the stock. The front sling swivel was attached to a recessed rail on the bottom of the forend. A nose cap was not used. The rear sling swivel was moved forward and mounted on a swiveling drum that was screwed into the stock. The barrel channel was enlarged to allow the barrel to float free (nominally 1.256 inches wide at the front of the receiver and tapered to 0.875 inches wide at the nose cap).

Note: Bolts with the turned down bolt handle manufactured for the m/94 series of carbines (Type 1) and the m/38 rifles (Type 5) can be used in m/96 rifles (Type 2 and 3) if the stock wood immediately below the bolt handle is trimmed away to allow the bolt to lock closed. The m/96 rifle bolts can be used in the m/94 series carbines and the m/38 rifle without alteration to the stock. The Type 5 bolt body with the bent bolt handle for m/38 rifle was not used in the m/96-38 "short" rifle, but it will fit if the stock is relieved beneath the handle. It is important to remember that if the serial number on a bolt does not match that of the receiver, it must be checked for headspace by a competent gunsmith, otherwise serious injury can result if fired.

## STOCK MARKINGS

Swedish military specifications required that all stocks show the serial number stamped on the original receiver in the barrel channel just forward of the milled cut for the receiver ring.

Original stocks will show the full serial number as on the receiver. Replacement stocks will show a full or partial serial number, consisting of the last three digits, matching that of the receiver.

Original factory stock markings were primarily in the form of inspector's marks and will show as an inspector's initial and the crown inspection marking on Carl Gustaf-made stocks and a Crown over a letter or number on Husqvarna-made stocks, stamped in the wood behind the trigger guard. A second or even a third crown in the same area signifies that the stock was inspected a second or third time when the stock may have been repaired or even replaced with one taken from another m/96 rifle. These will usually show the original number over stamped with "X"s and a full or partial serial number stamped below it.

See Tables 3-2 and 3-3 in Chapter 3 for a complete list of known factory stock markings and their meanings

The target stocks installed on the CG 63 and CG 80 rifles were not marked in any way.

## STOCK DISKS

The stock disk inletting was a circular cut 1.18 inches in diameter and 0.02 inches deep into which the metal disk was fitted. Two types were used.

Before the adoption of the new 139 grain bullet in the m/94/41 cartridge in 1941, the Type 1 disk was used for unit identification and was made of brass, zinc or later, of aluminum. The Type 1 stock disk was marked with the branch of service, regimental or other unit number and often the rack number of the weapon. Branches of service are indicated by the initials "I" for infantry, "A" for Artillery, "K.FL" for Navy and "T" for reserves, etc. See Tables 3-6 and 3-7 in Chapter 3 for a complete discussion of unit designations.

The disk was attached with two small wood screws and oriented so that the lettering was parallel with the butt plate and fastened in the recess with two wood screws. The example shown in Figure 2-20 was found on an original m/94 carbine. It was a brass disk and was marked in letters and numbers with serifs:

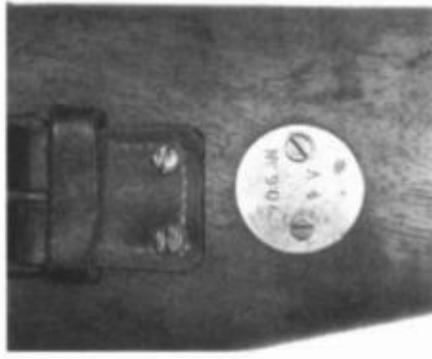


Fig. 2-20. Example of a stock disk with unit marking.

      
 A 4  
 N<sup>o</sup> 906

The disk marking indicates that this m/94

Carbine was assigned rack number 904 when issued to the 4th Regiment of Artillery.

Similar markings may also be found stamped into the butt plate tang.

The Type 2 disk was installed after the m/94/41 cartridge was adopted in 1941, see Figure 2-21. Two variations were used and both were divided into three sections. The largest section of the disk contained information regarding the bore at the chamber throat. At periodic intervals, the barrel was checked to measure the extent of erosion in the vital throat area. If it had changed, a new brass disk with the new measurement replaced the old. On a few occasions when new disks were not available, a second number may be indicated, if so, the higher number is the most recent measurement.

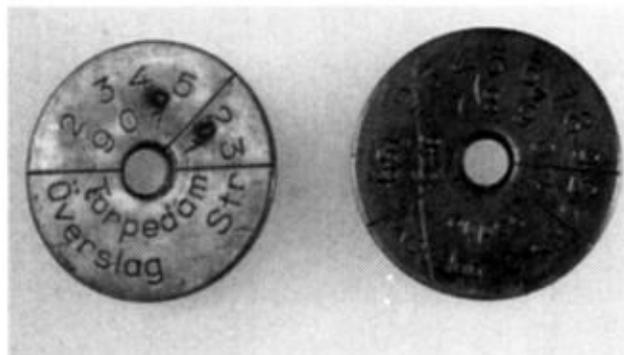


Fig. 2-21. Type 2, 1st and 2nd variation stock disks with throat and bore information.

The 1st Variation was marked with the numbers "2," "3," "4" and "5" on the top line and "9", "0" and "1" on the bottom line. The bottom line should be read as 6.49 to 6.51 and the top row from 6.52 to 6.55. When the throat erosion reached 6.55 mm, the rifle was taken out of service

and the barrel replaced.

The 2nd Variation was marked "6.51" followed by "2 through 9" on the top line and "6.46" followed by "7," "8," "9" and "0" on the bottom line. The bottom line indicates the minimum acceptable bore diameter and should be read as 6.46 with the number indicated by a triangle above it substituted for the "6." Thus a triangle mark over the 9 on the bottom line would indicate a minimum bore diameter of 6.49. If no number is marked, then the minimum bore diameter is 6.46.

Likewise, the top line indicates the maximum allowable bore diameter. The number indicated should be substituted for the "1" in "6.51." If the bore exceeded 6.59, it was removed from service until the barrel could be replaced.

The smallest wedge section indicates the bore condition: "1" means the bore is only slightly worn, "2" that it shows a moderate amount of wear and "3" that the barrel shows heavy wear but remains serviceable. When marked "3", barrels were usually changed at the next examination.

The third wedge section contains the abbreviations "Torped," and "Str" and the word "Overslag." Originally, it was intended to indicate that the amount of "hold over" that the shooter had to apply when using the m/94/41 cartridge in rifles and carbines sighted for the m/94 cartridge. The word, "Torped" means "spitzer - boattail" bullet; "Overslag" = "impact above" and "Str" was the abbreviation for "point" which would have indicate how many decimeters to hold over or under. It was replaced by the "range charts" attached to the buttstock, and so only a few rifles will be found with any marking in this section.

Note: For a complete description of the stock disks, see Chapter 3.

## HANDGUARDS

The handguard for the Swedish Mauser was similar for all models except the m/94 carbines and the CG 63 and CG 80 match rifles. All handguards were made of the same wood (walnut, beech, ash, maple or elm) as the stock (refer to Table 2-1). Original m/38 handguards were all made of beech. The following paragraphs list differing details for the three types of handguards as used on each model.

All handguards were milled on power machinery and will show crisp edges and cuts. Like the stocks, they were finished with linseed oil.

### Handguard, m/94 Carbine, Type 1

The Type 1 handguard was used on all models of the m/94 carbine. It was 10.2 inches long, 1.710 inches wide at the rear (not including the lip) and 1.010 inches wide at the front. A lip

0.010 inches long and 0.070 inches wide was milled at the rear to fit under the handguard band. The front of the handguard was reduced in size by 0.080 inches for a distance of 1.10 inches to allow it to be inserted under the nose cap, see Figure 2-22.

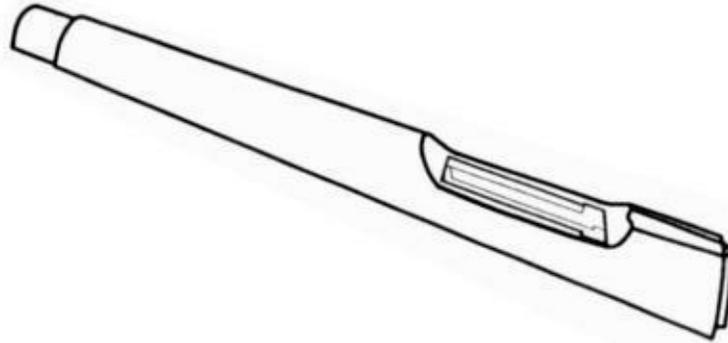


Fig. 2-22. m/94 Handguard

The carbine handguard had a sighting groove milled in the top rear 1.68 inches long, 0.412 inches wide at the rear and 0.567 inches wide at the front.

Immediately ahead of the sight groove was a "T"-shaped cutout for the rear sight. The "T" end was closest to the breech. It was 0.885 inches wide by 0.559 inches long before narrowing to 0.617 inches wide and 1.214 inches long. The edges leading to the sight cutout were beveled.

All m/94 and m/94-96 carbine handguards were made of walnut. New handguards made for the m/94-14 carbine were usually made of beech.

Note: Because of the increased value of the m/94 carbine variations, the collector should beware of fakes. Examine all stocks and handguards for machine-made cuts. All metal parts should likewise be cut by machine, highly polished and deeply blued without rounded edges or polishing marks visible. Check carefully for the proper proofmarks and correct serial number (see Chapter 3). If they are missing, the handguard is probably a reproduction.

#### Handguard, m/96 Rifle, m/96-38 and m/38 Carbine, Type 2

The Type 2 handguard was used on all m/96 and m/38 rifles, see Figure 2-23. It was 14.5 inches long by 1.65 inches wide at the rear and 0.7 inches wide at the front. The front end was rebated 1.5 inches long by 0.06 inches deep to allow the front barrel band to slide over it. A lip 0.15 inches long by 0.06 inches deep was milled onto the rear to slip under the handguard band.

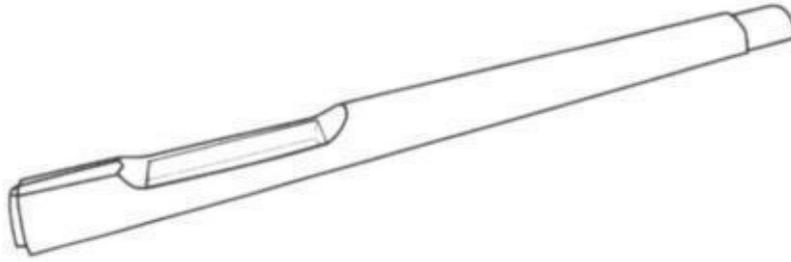


Fig. 2-23. Rifle handguard used on the m/96 and m/38 series.

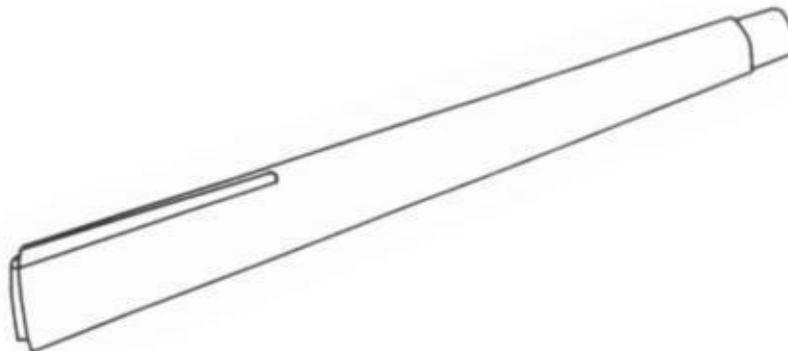
A slot 2.95 inches long and 0.9 inches wide was cut in the handguard 2.16 inches ahead of the rear for the rear sight which was attached to the barrel. The front and rear of the cut sloped up to the surface in a crescent shape. A groove 1.64 inches long was cut in the top surface of the cut from the rear of the handguard - above the lip - to allow a proper sight line. The front of the groove impinged on the rear curve above the rear sight slot.

#### Handguard, m/41 and m/41B Sniper Rifle

The Type 2 m/96 Rifle handguard was used on the sniper rifles. No changes or modification were made to it.

#### Handguard, Target Rifles

The Type 3 CG 63 Match Rifle handguard was made of beech but not cut for a barrel-mounted rear sight, see Figure 2-24. It is slightly shorter than the Type 2 m/96 handguard at 13.375 inches long. It was 1.72 inches wide at the rear, tapering to 1.328 inches wide where it butts against the barrel band. The rebated tip that passed under the barrel band is 0.790 inches long and 1.230 inches wide. The rear of the handguard was reduced in diameter by 0.105 inches for 0.166 inches in length to slide under the receiver ring. A narrow sighting groove 6.25 inches long, 0.30 inches wide and 0.04 inches deep was milled from the rear of the handguard forward.



## Fig. 2-24. CG 63 handguard.

Note: The underside of some CG 63 handguards will show milling or other marks where the handguard was relieved to prevent contact with a heated barrel.

The handguard used on the CG 63-22 match rifle was identical to that used on the CG 63 in 6.5 x 55 mm or 7.62 x 51 mm.

Handguards made for target rifles with set triggers were identical to the CG 63 handguard but without the sighting groove. They were marked with an inspection crown, serial number and "D." The CG 80 match rifle did not have a handguard.

### Handguard Markings

All m/94/96 and m/38 handguards were stamped on the underside ahead of the rear sight cutout with the serial number of the original receiver and an inspector's initial. It will also show a Crown inspection mark in the same area.

Note: Examination of numerous handguards shows that many, but not all handguards, were renumbered when installed on a different rifle during repair or refurbishment. The original serial number is usually marked out with a series of "X"s and either the full serial number or the last three digits of the new receiver serial number stamped nearby.

CG 63 handguards were not marked.

See Chapter 3 for a complete discussion of handguard markings.

### BARREL BANDS

Front and rear barrel bands were used on the Swedish Mauser rifle to hold the stock in alignment with the barrel, the handguard in place and provide an attachment point for the sling. A nose cap substituted for the front barrel band on the m/94, m/94-96 and m/94-14 carbines and on the CG 63 rifle. All barrel bands were blued and milled from steel except for the CG 63 barrel band which was stamped from sheet metal.

Note: Removing barrel bands is one of the few frustrating aspects of the Swedish Mauser. Apparently Swedish soldiers at the turn of the century had thumbs of iron. The rest of us need help.

Remove the cleaning rod.

Obtain a screwdriver with blade slightly narrower than the width of the band spring. A hollow ground machinist's screw driver works best. Wrap several turns of masking tape across

the tip to prevent marring the band spring. Place the tip of the screwdriver at the junction of the barrel band and barrel band spring. Push straight in. Holding that pressure, angle the screwdriver toward the barrel band and push in again. The screwdriver tip should slip into the notch at the front of the band spring. Now twist the screwdriver slowly counter clockwise (clockwise if working with your left hand) while maintaining pressure. The barrel band will start to move. Continue to twist the blade until it is at right angles to the barrel band, then use it to pry the band forward, using the notch in the band spring as a fulcrum.

## Barrel Bands, Rear

Two types of rear barrel bands were installed on the Swedish Mauser. The Type 1 rear barrel band was used on the m/94, m/94-96 and m/94-14 carbines, see Figure 2-25. It was 1.30 inches in diameter at its widest point, 1.790 inches high and 0.50 inches deep, front to back. The opening was 1.095 inches wide by 1.589 inches high. A slot was milled in the inside bottom 0.2 inches wide by 0.490 inches long to accept the rear barrel band spring lip.

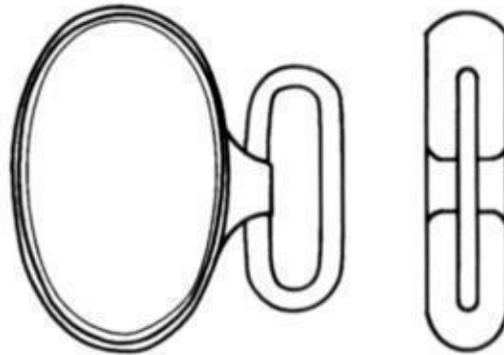


Fig. 2-25. Type 1 rear barrel band.

A boss was formed on the left side 0.392 inches wide by 0.341 inches high and drilled to accept the sling swivel. The hole was 0.155 inches in diameter.

The sling swivel was made of iron wire 0.154 inches in diameter. The swivel was 1.680 inches high by 0.633 inches wide.

The Type 2 rear barrel band was installed on the m/94-96 carbine and on the m/96, m/96-38 and m/38 rifles. It was slightly larger than the Type 1 barrel band and the sling swivel boss was on the bottom of the band rather than the side. The sling swivel was also thicker and wider than that used on the Type 1, see Figure 2-26.

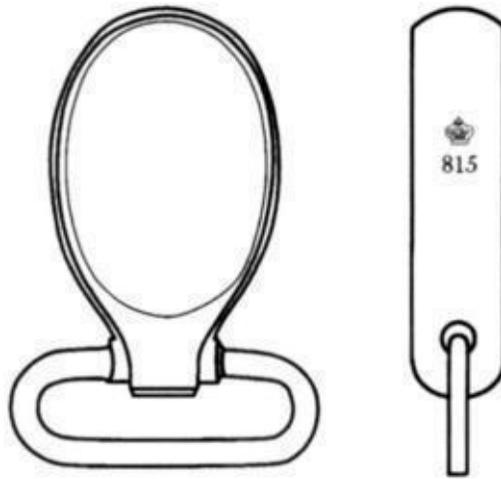


Fig. 2-26. Type 2 rear barrel band.

A boss was formed on the bottom, 0.45 inches deep by 0.40 inches wide at the front. A tubular socket for the sling swivel was drilled through the boss 0.22 inches in diameter, and which protruded 0.10 inch on either side of the boss. The opening in the tube was 0.155 inches in diameter.

The sling swivel was formed from steel or iron wire 0.160 inches in diameter. The swivel was 1.715 inches high and 0.64 inches wide.

The rear barrel band was marked on the left side with a Swedish crown. Those manufactured at the Carl Gustaf factory for the m/96 rifle (and m/96-38) also were marked with the last three digits of the receiver serial number. Husqvarna rear barrel bands did not show the serial number.

#### Rear Barrel Band, CG 63 and CG 80

No rear barrel band was used on the CG 63 or the CG 80 target rifles.

#### NOSE CAPS

Nose caps were used in place of forward barrel bands on the m/94, m/94-96 and m/94-14 carbines and on the CG 63 Match Rifle.

#### Nose Cap, m/94

Two types of nose cap were installed on the m/94, m/94-96 and m/94-14 carbines. The Type 1 was installed on both the m/94 and m/94-96 carbine in place of the forward rear barrel band used on the rifle. It resembled those nose caps used on Mausers manufactured for other countries such as Argentina, China, Germany, Paraguay, Serbia and Turkey. This style of nose cap allowed the use of the Mannlicher-style stock which was thought preferable for mounted troops. The large vertical ears at the front protected the front sight, see Figure 2-27.

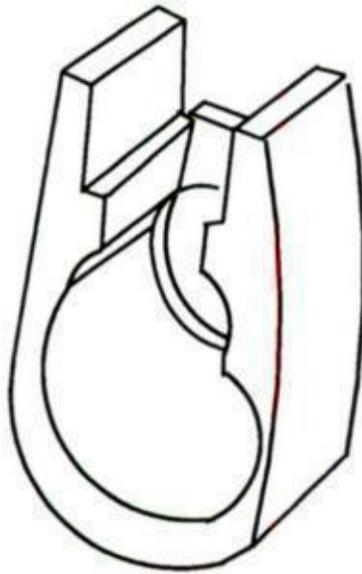


Fig. 2-27. m/94 nosecap.

Unlike American mounted troops who at that time carried their carbines in a scabbard attached to the saddle, most European mounted troops carried their carbines slung across their backs with the muzzle above the left shoulder. In case of a fall, the massive nose cap protected the front sight and muzzle.

The Type 1 nose cape did not have a bayonet mount. It was 1.074 wide, 0.590 inches deep and 1.846 inches high. The front face was flat. A hole 0.606 inches in diameter was drilled through the face for the muzzle. Two ears protected the front sight and protruded 0.391 inches above the sight base. A slot was milled in the inside bottom 0.2 inches wide by 0.490 inches long to accept the rear barrel band spring lip.

The Type 2 was used on the m/94-14 carbines which were either newly manufactured or altered m/94 carbines. The Type 2 nose cap had a round projection at the front and a reinforcing plate that extended to the rear barrel band, see Figure 2-28. A Mauser-style stud was attached to the reinforcing bar to secure the m/(19)14 bayonet.

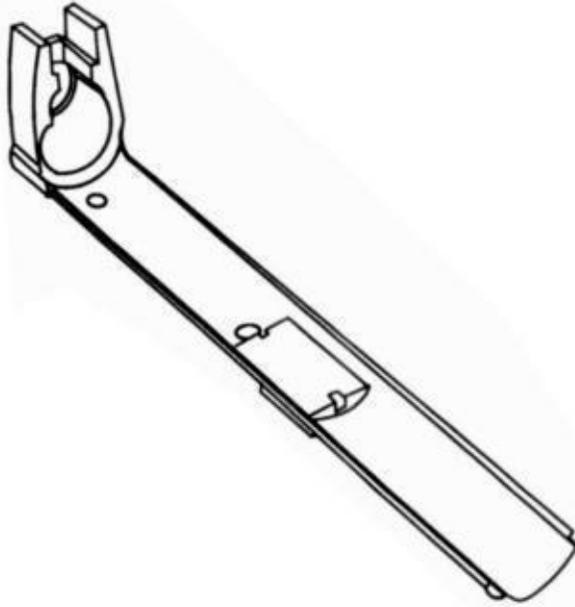


Fig. 2-28. m/94-14 Nosecap and reinforcing plate.

The dimensions for the Type 2 nose cap were identical to those for the Type 1 with the following additions: the nose cap was extended to the rear in a reinforcing plate 0.440 inches wide by 7.88 inches long and 0.05 inches thick; a hole 0.194 inches in diameter was drilled through the reinforcing plate tang 0.198 inches in diameter and 0.817 inches behind the face. It allowed the bandspring to be depressed for removal.

A second hole 0.119 inches diameter and countersunk to 0.283 inches in diameter was drilled 3.525 inches behind the face. An oval-head screw 0.725 inches long with 32 threads per inch passed through the tang and screwed into a metal plate inset into the interior of the stock barrel channel.

A circular forward bayonet stud or boss 0.605 inches in diameter and 0.504 inches long was mounted on the front of the nose cap. This stud engaged the bore of the bayonet guard.

The rear bayonet stud was mounted on the reinforcing plate. A rectangular block of steel 0.714 inches wide and 1.41 inches long and notched on both ends was soldered to the inside of the reinforcing plate. The stud itself was 0.991 inches long, 0.380 inches wide and depended 0.316 inches through and below the reinforcing plate. The stud was rounded on its forward end and the left side had a locking notch 0.084 inches deep. The rear bayonet stud was inserted through a 0.516 by 1.021 inch hole cut through the tang and soldered in place.

Note: To remove the Type 2 nose cap, first remove the securing screw just ahead of the bayonet stud. Insert a small screw driver or other tool through the first hole behind the nose cap and push up to disengage the nose cap band spring. Slide the nose cap and its reinforcing plate ahead slightly. If necessary, also depress the rear band spring as described above, then

remove the nose cap.

## Nose Cap, CG 63 Rifle

The CG 63 match rifle was equipped with a nose cap fabricated from sheet metal and fitted over the tip of the forend and handguard. A slot was cut in the bottom surface for the forward sling swivel post, and a single screw held the nose cap and swivel to the forend, see Figure 2-29.

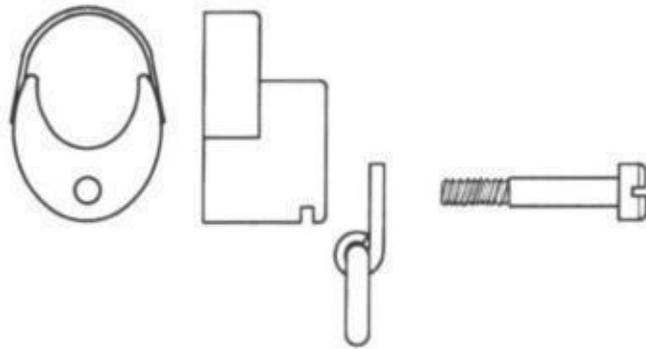


Fig. 2-29. CG-63 nosecap, front and side views.

The nose cap was 1.586 inches in diameter and 0.830 inches front to back. The top surface of the nose cap was curved downward to beneath the barrel. A curved, rectangular piece of sheet steel 0.391 inches wide curved over the top of the barrel to hold the handguard tip in place and was soldered to the nose cap in slots cut on either side for it.

The CG 63 nose cap was blued and unmarked.

Note: For the best accuracy, a thin slip of typing paper 1/8 to 1/4 inches wide (3 to 6 mm) wide should slide easily between the barrel and nose cap and not bind against the inside of the stock. If it does, relieve the wood in the stock channel under the nose cap.

## Nose Cap Markings

The Type 1 and Type 2 nose caps were marked on the right side of the nose cap itself with the inspection Crown and serial number of the original receiver. The CG-63 nosecap was not marked in any way.

## FORWARD BARREL BAND

The same forward barrel band (see Figure 2-30) was used on all variations of the m/96 and m/38 rifles. It was 1.05 inches in diameter, 1.75 inches high and 0.840 inches deep, front to rear. The bottom ended in a boss 0.48 inches wide at the front and 0.35 inches long top to bottom (A). A double projection depended from the front: the top projection (B) was 0.49

inches wide and 0.49 inches high. The top and bottom sides were slightly rounded.

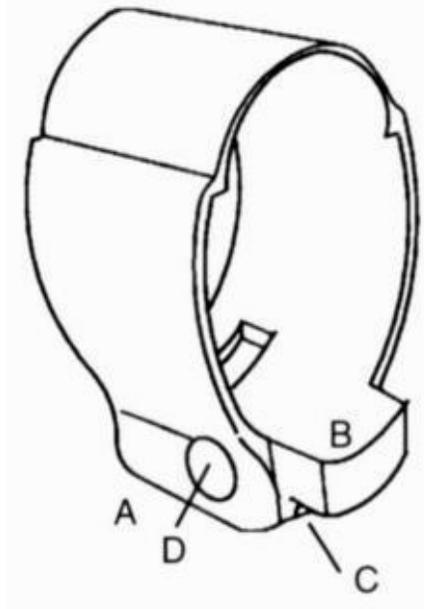


Fig. 2-30. Forward rifle barrel band.

Below and rebated 0.15 inches was a step. The bottom of the step angled back to the boss on the bottom of the barrel band. A blind hole was drilled in this area 0.29 inches in diameter and 0.07 inches deep into which the securing nut on the bayonet fit (C).

A hole 0.21 inches in diameter was drilled through the bottom of the barrel band from side to side 0.31 inches behind the front of the band proper (D) to the hole's center. This hole was intended to be used with a monopod, but that piece of equipment was never issued.

Those barrel bands manufactured by Husqvarna and used on all m/38 rifles were nearly identical to those manufactured at Carl Gustaf except for a slight variation in dimensions and markings. They were 1.04 inches in diameter, 1.76 inches high and only 0.826 inches front to back. The monopod hole was 0.191 inches in diameter.

Note: The monopod hole could be used to stack rifles in the field. A cleaning rod inserted through the monopod hole of three or more rifles, with the trigger guards alternating front and rear, served to support them muzzle up, refer to Figure 1-1.

### Forward Barrel Band Markings

Front barrel bands manufactured at Carl Gustaf were marked on the left side with the last three digits of the receiver serial number and the crown inspection stamp.

Front barrel bands manufactured by Husqvarna were marked only with the inspection Crown (tilted to the right) on the left side and not with the receiver serial number.

Note: Removing barrel bands is one of the few frustrating aspects of the Swedish Mauser. Ostensibly, the band springs were designed to be depressed by thumb pressure. However, a screwdriver works best. Obtain a screwdriver with blade slightly narrower than the width of the band spring. A hollow ground machinist's screw driver works best. Cover the tip with masking tape to prevent scratching. Remove the cleaning rod. Place the tip of at the junction of the barrel band and barrel band spring. Push straight in. Holding that pressure, angle the screwdriver slightly toward the barrel band and push in again. The screwdriver tip should slip into the notch at the front of the band spring. Now twist the screwdriver slowly counter clockwise (clockwise if working with your left hand) while maintaining pressure. The barrel band will start to move. Continue to twist the blade until it is at right angles to the barrel band, then use it to pry the band forward, using the notch in the band spring as a fulcrum.

## Sling Swivels

Two types of sling swivels were manufactured. Both were formed from iron wire 0.150 inches in diameter bent into an oval with flattened ends. The Type 1 sling swivel was used on the m/94 series of carbines and on the CG 63 target rifle. The Type 1 sling swivel was 0.636 inches to bottom and 1.581 inches wide, refer to Figure 2-25.

The Type 2 sling swivel was formed from iron wire 0.162 inches in diameter and was used on the m/96 and m/38 rifles. It differed only from the Type 1 in dimensions. It is 0.643 inches from top to bottom and 1.728 inches wide. Refer Figure 2-26.

The sling swivel used on the CG 63 Target rifle was not attached directly to the nose cap. Instead, it was suspended from a steel strap 0.471 inches wide and 0.982 inches long. A hole 0.196 inches in diameter is drilled in the top of the strap to allow the nose cap screw to pass through into the stock. Refer to Figure 2-29.

## Barrel Band Springs

Three types of barrel band spring were used on all Swedish Mauser rifles except the CG 63 and CG 80 target rifles. All were forged and machined to shape from steel, spring tempered and blued. All were similar in shape and bowed outward slightly so that positive pressure was exerted on the barrel band at all times.

The Type 1 band spring was installed on the m/94, m/94-96 and the m/94-14 carbines to secure the nose cap. It was 2.379 inches long and 0.301 inches wide at the rear tapering to 0.314 inches wide at the front. The end was rounded, see Figure 2-3 1.



Fig. 2-31. Type 1 bandspring.

The rear of the band spring ended in a round stud 0.234 inches in diameter and 0.286 inches high. The stud was drilled and threaded to accept a screw which was countersunk into the barrel channel to secure the band spring.

At the front, the band spring was notched to hold the barrel band securely. The notch was the width of the spring, 0.291 inches front to back and 0.105 inches deep. Type 1 barrel band studs were not drilled for the cleaning rod as cleaning rods were not issued with the m/9496-14 carbines.

The Type 2 barrel band spring was used on the m/94 and m/94-14 carbines to secure the rear barrel band. It had a rectangular stud held in the stock by friction. It was 0.314 inches wide at its widest point and 2.312 inches long. Its stud was 0.310 inches wide, 0.152 inches front to back and 0.785 inches high, see Figure 2-32.



Fig. 2-32. Type 2 bandspring.

The Type 3 barrel band was used on all m/96, m/96-38 and m/38 rifles in two variations. Both were 0.390 inches wide and 2.895 inches long. The notch or catch at the front was the width of the spring, 0.295 inches front to back and 0.123 inches deep. A rectangular stud at the rear fitted into a square hole in the stock but was otherwise unsecured. The stud was the width of the spring, 0.194 inches front to back and 0.77 inches high. A hole 0.254 inches in diameter was drilled through the stud to permit the cleaning rod to pass.

There were two variations of the Type 3 barrel band, see Figure 233. The 1st Variation (A) was used to secure the forward barrel band. It had a shallow groove on top of the notch cut to allow the cleaning rod to pass. The cleaning hole drilled through the stud at the rear was centered 0.301 inches above the bottom surface. The top of the stud was milled in a shallow arc 0.05 inches deep to accommodate the barrel.



Fig. 2-33. Type 3 barrel band with 1st and 2nd variation studs (I-r).

The 2nd Variation (B) was used to secure the rear barrel band. Its stud was flat across the top and its cleaning rod hole was centered 0.451 inches above the bottom surface, see Figure 2-34.

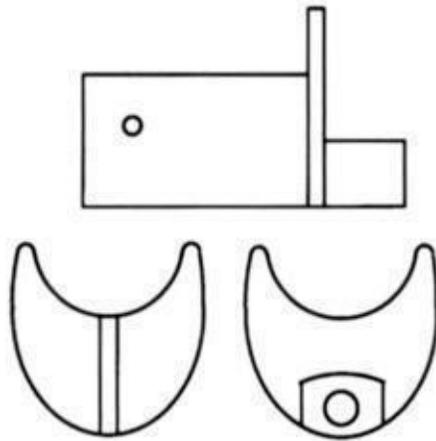


Fig. 2-34. Cleaning rod lug.

#### CLEANING ROD LUG

The cleaning rod lug was pinned to the forend tip, see Figure 2-34. The lug was 0.47 inches wide by 0.36 inches front to back by 0.449 inches high (the top and bottom are rounded). A hole 0.176 inches in diameter was drilled through the lug for the cleaning rod. The lug was mounted on a crescent-shaped plate that fitted against the stock tip. A plate 0.162 inches wide and 0.88 inches long protected from the rear of the crescent-shaped plate and was pinned in the stock. The lug was stamped with the crown inspection marking on the front of the plate above the lug.

The CG 63 and CG 80 target rifles were not equipped with cleaning rod lugs or cleaning rods.

# RECEIVERS

The Swedish Mauser receiver is essentially a tube open at both ends, see Figure 2-35, overleaf. The barrel screws into the forward end and the bolt is inserted from the rear. The same receiver was used for all models, but with different markings. It can be distinguished from previous Mauser receivers by thumbcut on the left side of the receiver just ahead of the bridge to make it easier to insert a clip into the guide (see Figure 2-36) and push the cartridges down into the magazine; a notch in the underside of the bridge through which the bolt's guide rib moves (see Figure 2-37) and a receiver ring diameter of 1.30 inches.

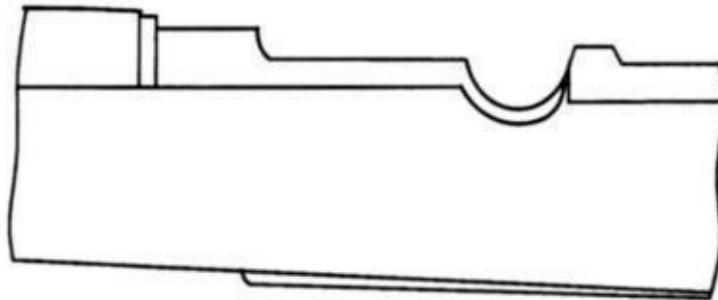


Fig. 2-36. The m/96 rifle receiver was the first Mauser to have the clip guide thumbcut.

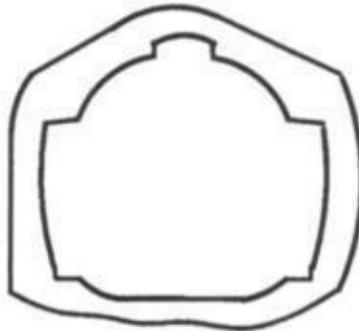


Fig. 2-37. The notch in the underside of the receiver for the bolt's guide rib prevented binding.

Note: The Swedish Mauser receiver was proofed at the factory with a proof cartridge known as a "blue pill" that developed 66,000 psi of breech pressure. However, the receiver was designed to routinely withstand breech pressures of only 44,000 psi. If you are a hand loader, it is both foolish and dangerous to develop loads that exceed 44,000 psi.

## RECEIVER TYPES

Three types of receivers were manufactured, but all with a single exception are exactly alike except for their markings. The Type 1 receiver was manufactured by Mauser Oberndorf; the Type 2 was manufactured both by Mauser Oberndorf and Carl Gustaf while the Type 3 was manufactured by Husqvarna. The Type 1 differs from the Type 2 and Type 3 in that it lacks the

clip guide notch on the left, just ahead of the bridge. It was added beginning with m/96 rifle production in 1896 at Carl Gustaf. The clip guide notch was later added to many Type 1 receivers.

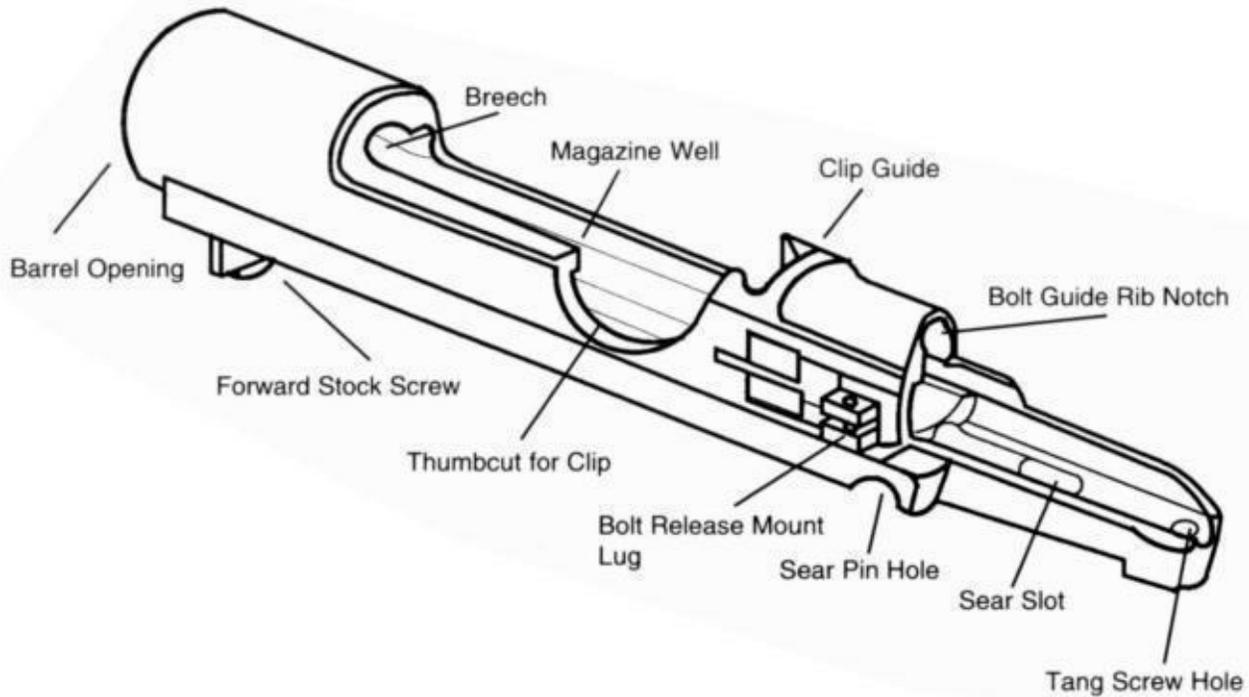


Fig. 2-35. Swedish Mauser Receiver.

Type 1 receivers are dated 1896 or earlier and are quite rare. Type 2 receivers are dated 1896 to 1925, although a few will be found with dates into the 1930s. Factory name, date (year) markings and serial number were roll stamped into the receiver during manufacturing before the final polishing and hardening. The year marked on the receiver refers to its manufacture and not the assembly of the completed carbine or rifle. Finished receivers were inspected after polishing and hardening. Those that passed inspection were marked on the left side with the inspector's initials.

See Chapter 3 for a complete discussion of inspection markings.

Note: Receivers with receiver dates after 1925 were used to repair or assemble new rifles after production ended at Carl Gustaf in 1925.

While the original Type 1 and very early Type 2 Swedish Mauser receivers did not have a gas port(s) in the sense that the later Mauser, Model 1903 Springfield and Arisaka models did; provisions were made to channel gas escaping from a ruptured cartridge case away from the shooter. The receiver bridge was "hooded" on its forward face to deflect the gas from the shooter's face and eyes. Some of this gas is channeled into the magazine well and it can blow out magazine floor plate. It is never a good idea to rest the off-hand on the floor plate when

firing a rifle. For a more complete discussion, see Gas Ports in the Bolt section below.

Note: Even though receivers were made without gas escape ports during their production run, some receivers will show one or even two gas escape ports drilled into the receiver ring. These were added at a later date, usually during refurbishment or rebuilding. The location and diameter of the ports will vary on the receiver ring. Many Fsr rifles have at least one and often two gas ports drilled through the receiver ring.

## Receiver Dimensions

The receiver is 8.7 inches long by 1.315 inches in diameter. The opening in the top for the bolt is 2.912 inches long by 0.91 inches wide. At the rear of the bolt opening is a cut, or notch, which forms the cartridge clip guide. It is 0.45 inches deep and 0.81 inches wide at its widest point.

Two rails on either side of the receiver form the bolt raceway; the right rail is 0.2 inches wide and the left is 0.15 inches wide.

The rear section of the receiver behind the bridge is 2.36 inches long and 0.85 inches wide at its widest point. The trigger assembly mounts below this section. The receiver bridge is 1.28 inches long 1.31 inches in diameter. The bolt release is mounted on the left of the bridge.

The receiver has 8 holes, refer to Figure 2-35. From the rear forward, they are for the tang screw, sear, sear pin, bolt stop/release lug, magazine well, breech, forward stock screw and barrel opening at the front. The clip guide notch in the left side of the receiver, just ahead of the bridge, was 0.98 inches wide by 0.51 inches deep and cut in the shape of a semicircle.

The receiver had a split lug machined onto the left rear of the receiver on which the Bolt Stop/Release Assembly was mounted. The lug was 0.30 inches wide by 0.31 inches long and 0.03 inches deep. The lug was split horizontally and each section was 0.11 inches wide. A 0.12 inch hole was drilled vertically through the lug to accept the Bolt Stop/Release Assembly screw.

All receivers were forged, machined to shape, stamped with the factory mark and/or name and year of manufacture. They were then polished and case hardened in oil, which provided a very hard surface, a malleable interior and a dark grey to black coloration.

## Receiver Markings

Factory Name - The manufacturing factory name was marked on the top of receiver ring (see Figures 2-38-40). On those receivers manufactured at the Oberndorf Mauser factory in Germany (m/94 carbines and m/96 rifles, 1894-96 and 1900) it read:

WAFFENFABRIK MAUSER OBERNDORF A/N Year



Fig. 2-38

Those manufactured at the Carl Gustaf factory in Eskilstuna (1898-1925), Sweden read:

(Crown over C marking) CARL GUSTAFS STADS GEVARSFAKTORI  
Year



Fig. 2-39

Those manufactured in Husqvarna, Sweden (1941-1944) read:

HUSQVARNA VAPENFABRIKS AKTIEBOLAG Year



Fig. 2-40

For a complete discussion of receiver markings, See Chapter 3.

Note: Production of new receivers ended in 1925 at the Carl Gustaf factory. New rifles continued to be assembled for a number of years and these receivers were then struck with that year as can be seen in Figure 2-41.



Fig. 2-41. Post-production m/96 rifle with 1935 dated receiver. John Giles collection.

Serial Number - The serial number was stamped on the left side of the receiver between the ring and the clip guide cut (see Figure 2-42).

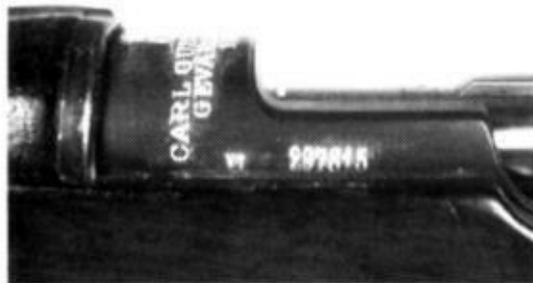


Fig. 2-42. Serial number and inspector's initials placement.

Serial numbers struck at the Mauser factory were nominally 0.12 inches high and had serifs.

Serial numbers struck at the Carl Gustaf factory were nominally 0.12 inches high and had serifs.

Serial numbers struck at the Husqvarna factory were nominally 0.10 inches high and lacked serifs.

Note: The height of serial number stampings will seem to vary from the dimensions given above on many rifles and carbines. The apparent height will depend on how deeply the serial number stamp was struck

Inspector Markings - The principal inspection stamp precedes the serial number on the left side of the receiver on those manufactured at both the Mauser and Carl Gustaf factories and consists of the initials of the military inspector in charge of accepting the rifles for the government, refer to Figure 2-42. Receivers manufactured at the Husqvarna factory were not marked by accepting inspectors. Instead, they marked their initials on the sight base at the rear, see Figure 2-44. See Chapter 3 for a complete discussion of inspectors markings and the names of all inspectors and their periods of duty.

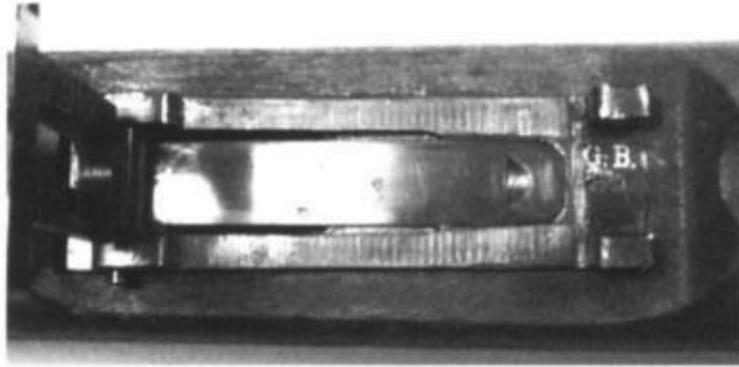


Fig. 2-43. Inspector's initials on m/38 rifles.

On all receivers accepted for military service, the Swedish crown was stamped on either side of the receiver, below the ring on the horizontal flat reinforcing rib.

#### BOLT STOP/RELEASE ASSEMBLY

The Bolt Stop/Release Assembly is composed of five parts: 1) spring, 2) bolt stop, 3) lug, 4) ejector and 5) bolt release screw. The Bolt Stop/Release Assembly is mounted on a split lug on the left side of the receiver at the rear of the bridge, with the bolt release screw, see Figure 2-44.

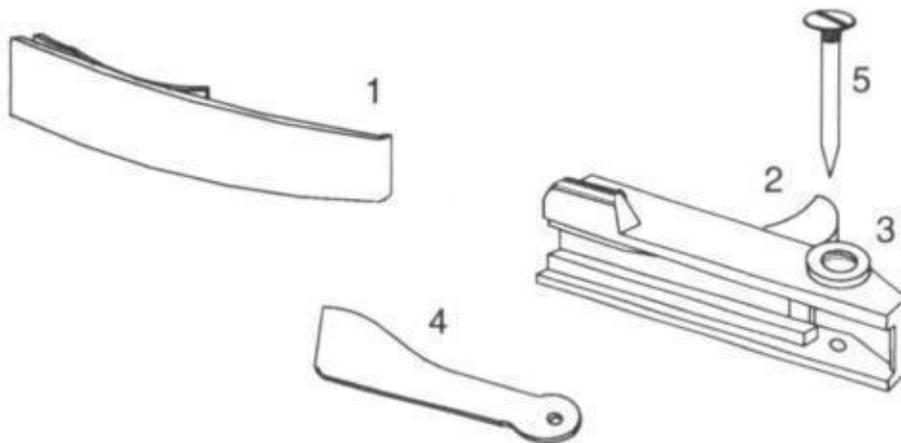


Fig. 2-44. Bolt stop/release assembly, exploded view.

What at first glance appears to be the bolt release housing is actually made in two parts, the spring and the bolt stop dovetailed together with extreme precision.

The bolt stop, when closed, interposes a lug that blocks the left bolt lug and prevents the bolt from being with drawn through the bridge and removed from the receiver. The ejector is a spring-loaded blade that kicks the empty cartridge out of the receiver when the bolt is opened after firing. It is contained within the bolt stop and held in place by the bolt release screw.

When the bolt stop is pulled outward, both the ejector and bolt stop lug are withdrawn far enough to the left to allow the bolt to be removed from the receiver.

Note: There is no functional or measurable dimensional difference between those bolt release assemblies manufactured by the Mauser, Carl Gustaf or Husqvarna factories, and all are interchangeable. They can be differentiated, however, by the fact that Mauser and Carl Gustaf bolt stops are stamped with the last three digits of the receiver serial number on the right of the thumb piece while the Husqvarna bolt stops are not. Also, the inspection Crown on Mauser and Carl Gustaf-manufactured parts is vertical while those stamped on Husqvarna-made parts are tilted to the right.

The bolt release assemblies used on the CG 63 and CG 80 target rifles were the same as those use on the m/96 and m/38 rifles.

### Spring

The spring (refer to Figure 2-44, 1) is dovetailed into the bolt stop and powers the ejector. It was made of spring steel and heat blued.

### Bolt Stop

The bolt stop (refer to Figure 2-44, 2) is 1.71 inches long and 0.48 inches high and has a thumbpiece which has three groves milled along its length to make it easier to manipulate. On its inside surface, the bolt stop lug is 0.24 inches long and 0.25 inches deep.

The thumbpiece is 0.12 inches high by 0.45 inches long at the base tapering to 0.33 inches wide at the top.

The bolt stop was milled from steel and was heat-blued.

### Ejector

The ejector (refer to figure 2-44, 4) is a vaguely triangular piece of steel 1.22 inches long, 0.05 inches thick and 0.385 inches wide at the widest end. The after end is pierced with a hole 0.09 inches in diameter through which the bolt stop screw passes to secure it in place within the

## Bolt Stop/Release Assembly.

When the cartridge case, gripped by the extractor mounted on the bolt, is drawn out of the breech, its rim strikes the ejector and is kicked out of the receiver to the right.

The ejector was originally case-hardened in oil and shows a mottled blackish coloration.

## Bolt Stop/Release Screw

The bolt stop/release screw (refer to Figure 2-44, 5) also serves as the pivot for the Bolt Stop/Release Assembly. It is a filister head slotted screw 0.85 inches long overall. It is threaded only at the head end, and the tip tapers to a sharp point which embeds in the stock.

## Bolt Stop/Release Assembly Markings

The bolt stop and spring are marked with the Crown inspection marking on the outside face of both pieces, below the thumb piece. Additionally, Mauser and Carl Gustaf-manufactured bolt stops are marked with the last three digits of the receiver's serial number, inside the thumb piece. Those made by the Husqvarna factory do not show the serial number.

The ejector and screw are unmarked.

## MAGAZINE ASSEMBLY AND TRIGGER GUARD ASSEMBLY

The trigger guard and magazine assembly manufactured for the m/94, m/96 and m/38 Swedish Mausers carbines and rifles contain the magazine assembly the trigger guard plate and the trigger assembly, see Figure 2-45.

## Trigger Guard Plate

The trigger guard plate (Figure 2-45, 1) is milled from a single steel forging. It is 8.2 inches long. At the front, it is 0.89 inches wide and at a point 1.45 inches behind the front of the plate widens to 0.911 inches wide. At the rear of the magazine, it is inches wide, curving to 0.69 inches wide at the start of the trigger bow to the end. All trigger guard plates were blued, see Figure 246.

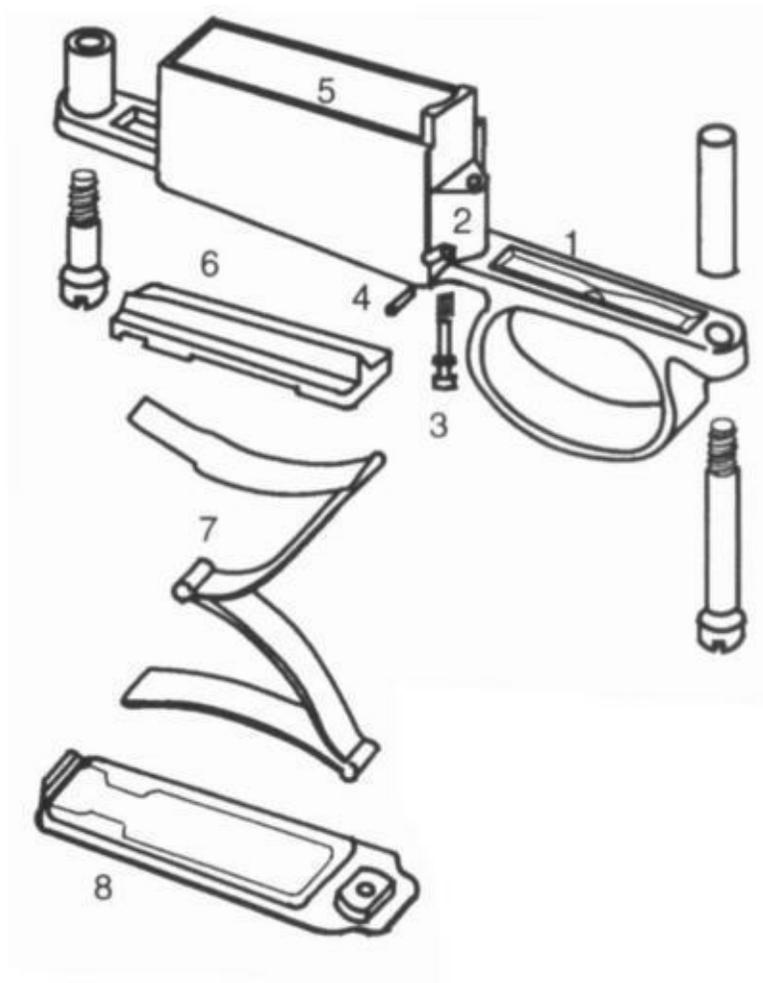


Fig. 2-45. Magazine and trigger guard assembly.

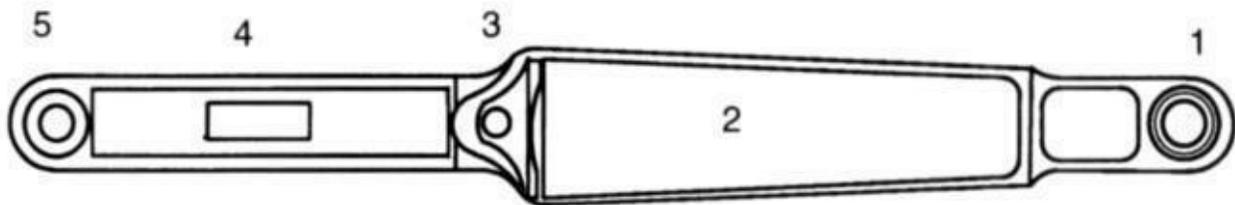


Fig. 2-46. Trigger guard plate.

The trigger guard plate has five holes or slots cut through it. From front to rear, they are: 1) front guard screw hole, 2) magazine well, 3) floor plate catch hole, 4) floor plate catch pin hole, 5) trigger slot and 5) rear guard screw hole.

The trigger bow is in the shape of an oval 2.15 inches long by 1.26 inches high and 0.07 inches

thick.

The trigger guard slot is 0.675 inches long and 0.255 inches wide, centered 1.8 inches ahead of the rear of the trigger guard plate.

Trigger guard plates are marked on the bottom behind the front guard screw with the Swedish Crown inspector's stamp.

Note: As a point of further identification, Husqvarna-manufactured trigger plates received less final polishing than did Mauser or Husqvarna trigger plates, and machining marks are visible externally.

The trigger bow of the m/94, m/96 or m/38 trigger guard plates installed on the CG 63 and CG 80 match rifles were roll-stamped in a pattern of raised squares on the bottom surface of the bow. The pattern was 30 rows long by nine squares wide.

The front and rear guard screw holes are 0.27 inches in diameter. The front guard screw hole is countersunk 1.7 inches deep and 0.385 inches in diameter to accept the guard screw head. The rear guard screw countersink varies from 0.22 inches at the front to 0.27 inches at the rear due to the taper at the rear of the trigger guard plate.

### Magazine Catch Housing

Immediately behind the magazine well is semicircular housing 0.35 inches wide by 0.65 inches high which houses the floor plate catch mechanism. A 0.12 inch diameter hole is drilled from side-to-side through the housing for the floor plate catch pin, refer to Figure 2-45 (2).

A rectangular recess 0.177 inches deep by 0.526 inches wide by 0.499 inches long was milled into the bottom of the floor plate catch housing. Into it was drilled a hole 0.22 inches in diameter at the bottom tapering to 0.15 inches at the top. The magazine release catch and its spring are inserted into this hole.

The rear wall of the magazine well on trigger guard plates manufactured by the Carl Gustaf factory is stamped with the last two or three digits of the receiver serial number. Those manufactured by Husqvarna are not marked with a serial number.

### Magazine Floor Plate Catch

The magazine floor plate catch is 0.884 inches long. It has a head 0.224 inches in diameter and its shaft is 0.12 inches in diameter. One side of the shaft is rebated for 0.467 inches. The catch is held in place by a pin 0.12 inches in diameter which slides past the rebated part of the shaft. The catch is marked with the Crown inspection mark and remained unchanged during its production life for all models, refer to Figure 2-45, 3.

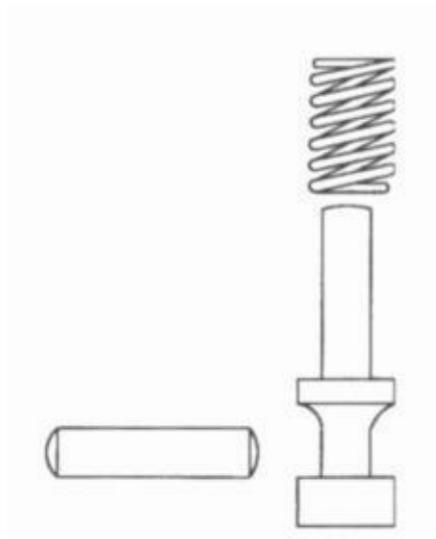


Fig. 2-47. Magazine floor plate catch assembly

Magazine Floor Plate Catch Spring, Pin This spring is 0.34 inches long and 0.15 inches in diameter. It fits over the shaft of the magazine floor plate catch and above the pin to force the magazine floor plate catch downward. The pin is 0.495 inches long by 0.160 inches in diameter and is inserted through the walls of the magazine floor plate catch housing. Refer to Figure 2-47.

## MAGAZINE ASSEMBLY

The magazine assembly consists of six parts: 5) magazine well, 6) magazine follower, 7) magazine spring and 8) magazine floor plate, refer to Figure 2-45, 5.

The magazine well is an integral part of the trigger guard plate. The magazine well is 0.725 inches wide at the front end and tapers to 0.91 inches wide at the rear. It is 3.24 inches long and 1.10 inches high at the front and 1.32 inches high at the rear - measurements are inside dimensions. The rear of the magazine well forms a "wall" 0.3 inches high by 0.9 inches wide above the magazine well walls. The top front edge of the wall is dished to allow the cartridges to move smoothly into the magazine. A slot is cut into the forward bottom end of the magazine well to accept the retaining lip milled into the forward end of the floor plate.

## Magazine Follower

The same magazine follower was used for the m/94 Carbine, m/96 and m/38 rifles, plus all other variations. No changes were made to the magazine follower during its production life. It was 2.972 inches long, 0.805 inches wide at the rear and 0.640 inches wide at the front. The raised guide was 0.260 inches high at the rear and tapered to 2.10 inches high at the front. It was 0.249 inches wide at the rear and 0.250 inches wide at the front. The underside was milled out leaving two lips at the front and two at the rear under which the top of the magazine spring was held. The magazine follower was left in the white and polished, refer to Figure 2-45, 6.

## Magazine Spring

The magazine spring is in the form of a letter "M." It was 0.51 inches wide and made of spring steel. The upper end of the spring slides into the fingers on the underside of the magazine follower and the lower end into two fingers machined into the forward, inside end of the magazine floor plate, refer to Figure 2-45, 7.

The spring is 0.468 inches wide at the upper forward end and 0.507 inches wide at the lower forward end.

The same magazine spring was used in all variations of the m/94 carbine and the m/96 and 1938 rifles. Magazine springs were not marked and do not show an inspector's marking.

Magazine springs are blued and are not marked.

## Magazine Floor Plate

The magazine floor plate was 3.936 inches long. It was 1.06 inches wide at its widest point, 0.880 inches wide at the front and 0.696 inches wide at the rear of the tang, refer to Figure 2-45, 8.

A rear boss 0.527 inches wide by 0.416 inches wide and 0.151 inches high was machined 0.304 inches ahead of the rear tang. A hole 0.276 inches in diameter was drilled into the tang and through the boss for the magazine floor plate catch. A lip was machined on the forward edge of the boss to engage a matching slot on the inside of the trigger guard plate cutout for the magazine floor plate catch. A second slot was milled at the front of the magazine floor plate to engage a matching slot at the front of the trigger guard well.

The magazine floor plate was removed by depressing the magazine floor plate catch on the trigger guard plate far enough that the plate could be moved backward out of engagement.

The interior surface of the magazine floor plate was milled to accept the magazine spring, as noted above.

The magazine floor plate was machined from a steel forging and was polished and blued. No changes were made to it during the production life of the m/94 carbine and the m/96 and m/38 rifles.

The magazine floor plate was marked with a Crown inspection stamp. Those manufactured at the Mauser and Carl Gustaf factory were stamped with the last three digits of the serial number. Those made at Husqvarna were not.

Note: To remove the magazine floor plate, depress the magazine catch with the point of a

cartridge or other non-marring tool and slide the magazine floor plate backward until the catch disengages. Lift off. To reassemble, insert the rear boss into its well, press down and slide forward at the same time until the catch engages.

## TRIGGER ASSEMBLY

The trigger assembly, see Figure 2-48, consists of the following parts: 1) trigger, 2) trigger pin, 3) sear bar, 4) sear, 5) trigger interlock stud, 6) sear spring and 7) trigger assembly pin.

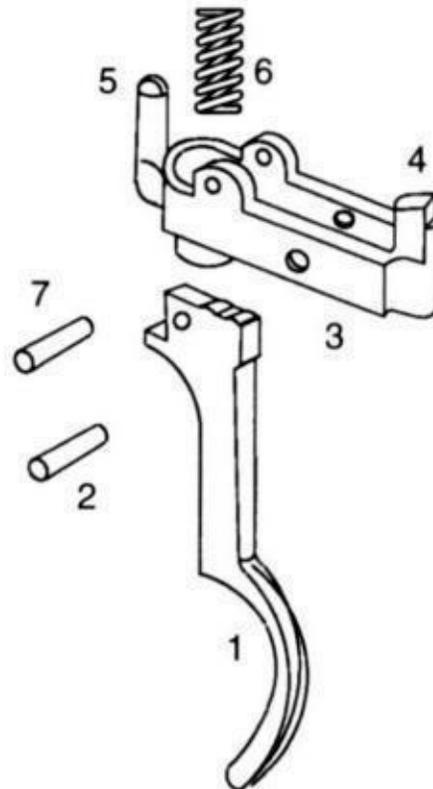


Fig. 2-48. Trigger Assembly

The trigger assembly is pinned to the bottom of the receiver with the trigger assembly pin. Only one type of trigger assembly was used on all m/94 carbines and m/96, m/96-38 and m/38 rifles. It was also used on the CG 63 and CG 80 match rifles. Set triggers were also developed but do not appear to have been military in origin. They are found installed mostly on the match rifles. One variation is described below.

### Trigger Assembly

The trigger is 2.54 inches long and 0.234 inches wide, refer to Figure 2-48, 1. The finger lever segment is nearly half round and 1.84 inches high. It is pinned to the sear bar at its top. The trigger is marked on the right side with a Swedish crown inspection mark and was heat blued with the top 0.5 to 0.7 inches left in the white.

The trigger has two humps on the top which press against the bottom of the receiver. When the trigger is pulled part way to the rear, the first hump depresses the sear slightly, pulling it down out of full engagement with the sear notch on the bolt but not releasing it. When the trigger is pulled all the way to the rear, the second hump (sometimes referred to as the "heel") presses against the bottom of the receiver, depressing the sear completely out of engagement with the sear notch. These two humps produce the "Stage 1," which is relatively long and heavy, and "Stage 2" feel, which is short and crisp. This two-stage trigger is a characteristic of many military and all post-1889 Mauser-derived rifles.

The sear bar, refer to Figure 2-48, 3, is 2.05 inches long and 0.47 inches wide. It performs two very important functions; the rear end is machined into the sear (4) proper, which is 0.271 inches high and which holds the spring-loaded firing pin to the rear when the rifle is cocked, and the trigger interlock (5), which does not permit the sear to release until the bolt is locked into the breech.

The trigger interlock stud is a post 0.336 inches high and 0.322 inches in diameter. The top of the post is machined into a stud 0.088 inches wide and 0.322 inches long which slides through the receiver floor into a crescent cut in the bottom of the bolt body only when the bolt is closed completely. This tilts the trigger bar at the proper angle to allow the sear to disengage from the sear notch when the trigger is pulled to the rear. If the bolt is not completely closed, the trigger bar will not tilt down far enough to allow the sear to disengage from the sear notch.

Note: While the trigger interlock did prevent the firing pin from falling and igniting a primer before the bolt was closed, that was not its most important function. Interference between the cocking piece and bolt rim would normally prevent ignition before the bolt was closed, either by blocking the firing pin fall or forcing the bolt closed while slowing the firing pin below the necessary level of energy needed to set off the primer. The trigger interlock's most important and lesser known function was to signal the shooter that the bolt was not closed and thus avoid a misfire - a potentially lethal situation in the heat of combat.

The trigger bar was case hardened and stamped with the Crown inspector's mark on the bottom surface.

The sear spring (6) was wound from steel wire 0.032 inches in diameter. The spring is 0.249 inches in diameter and has a nominal length of 0.710 inches and nine coils.

The trigger and trigger assembly pins (Figure 2-48, 2 and 7) are 0.120 inches in diameter, 0.507 inches long and case hardened.

Note: The triggers installed on the CG 63 and CG 80 target rifles will often show evidence of careful stoning to achieve a glass-smooth action and release. Only an experienced gunsmith should attempt this work. Changing the trigger hump and sear angles will produce an unsafe trigger assembly unless done correctly.

## Type 2 Set Trigger Assembly

Examples of set triggers for the Swedish Mauser rifle exist. One example in one of the authors collections is representative, see Figure 2-49.



Fig. 2-49. Set trigger installed on a CG 63 rifle. Steve Kehaya collection.

The set trigger assembly is not mounted to the bottom of the receiver as normally but is pinned into the trigger guard plate. The forward finger lever is the actual trigger, and the rear finger lever is the set.

The top of the trigger is machined into a rear-facing hook, which engages the sear which in turn is powered by a heavy bar spring. When the set lever is pulled to the rear, the sear (1) is depressed and engages the hook (2) on the top of the trigger. When the trigger is pulled to the rear, the sear moves out of engagement with the trigger hook and the sear bar snaps up against a release pinned to the trigger plate which releases the firing pin. The set trigger assembly is mounted on flat plate which is pinned to the trigger guard.

# BOLT ASSEMBLY

The bolt used in the Swedish Mauser is similar to the Model 1893 and prior bolt designs. It is distinguished from them by the presence of a gas deflector hood on the bolt sleeve, a half cock notch, an upturned cocking piece and a guide rib on the top of the bolt. The bolt had two opposed locking lugs with the anvil at the base of the bolt handle serving as a third locking point.

The same bolt assembly was used in all models of the Swedish Mauser rifle. Variations are found only in the gas ports and the shape of the bolt handle as described below.

The Bolt Assembly (see Figure 2-50) consists of eight parts: 1) bolt body, 2) extractor collar, 3) extractor, 4) firing pin, 5) firing pin spring, 6) bolt sleeve, 7) safety and 8) cocking piece. The most noticeable difference between the Swedish Mauser bolt and its predecessor, the Model 1893 Spanish Mauser bolt, is the solid rib (arrow) milled from the right side of the bolt body (in the closed position) in all but the original fifty-two carbine bolts ordered in 1894. When the bolt is rotated to open, the guide moves around the bolt body to a vertical position so that it can slide through a matching cut in the top of the receiver bridge. This feature eliminated binding as the bolt moves back and forth in the barrel channel. The Swedish Mauser bolt is 0.100 inch longer than the Model 1893 bolts used in the 7 mm caliber rifles.

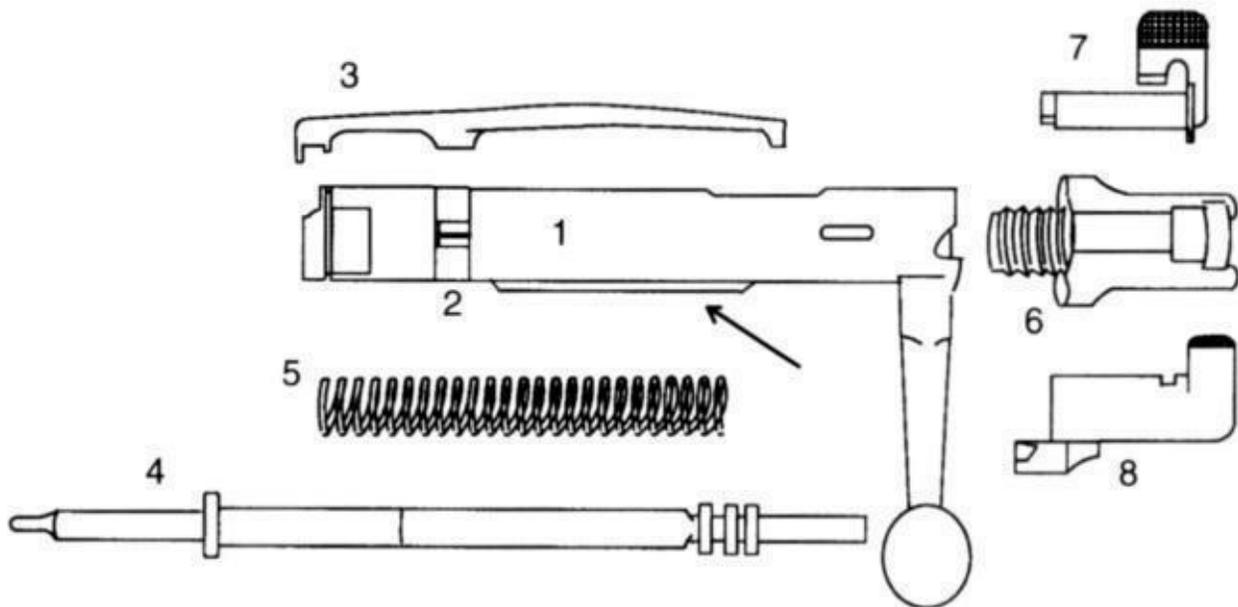


Fig. 2-50. Bolt Assembly

The bolt used on all models of the Swedish Mauser cocks on closing. That is, lifting and pulling back the handle does not cock the firing pin. Pushing the bolt forward does as the trigger bar is tilted downward by action of the bolt body passing over its forward end which

raises the sear sufficiently to catch and hold cocking piece to the rear.

Note: Many Swedish rifle components - especially bolts - were heavily coated with protective grease during storage. Most of the rifles imported into North America retain this grease. Before shooting the rifle, the owner should remove it with a strong detergent or solvent, then oil the cleaned parts lightly and reassemble. Grease should never be applied to internal bolt parts as a lubricant. Grease congeals in cold weather (a major concern in Sweden) and hardens over time. With a broken or stretched firing pin spring, congealed or hardened grease can force the firing pin to protrude through the bolt face which can cause a "slam fire" when the bolt is closed on a chambered cartridge.

Caution: As with any bolt action rifle, bolts should never be interchanged from one rifle to another without checking that the head space is within specifications. Head space in the Swedish Mauser - and in all Mausers firing rimless cartridges - is the distance between the cartridge shoulder and the matching shoulder in the breech wall. Head space that is too tight or too loose is dangerous and can cause extensive damage to the rifle and to you and other shooters by increasing pressures inside the breech to the point where the cartridge case ruptures or cracks, releasing white hot gas under tremendous pressure.

## Bolt Body

The bolt body is milled from a single steel forging, see Figure 2-51. It is 5.6 inches long and 0.695 inches in diameter. The bolt body includes the 1) bolt handle, 2) two locking lugs, 3) extractor collar groove, 4) bolt guide, 5) trigger bar interlock slot, 6) gas escape ports, 7) extractor guide slot and 8) cartridge recess. The rear interior of the bolt body is threaded to hold the bolt sleeve in place. The bolt body and handle were milled from a single steel forging and given a very high polish. The forging process assured that the handle is integral to the bolt body in all respects.

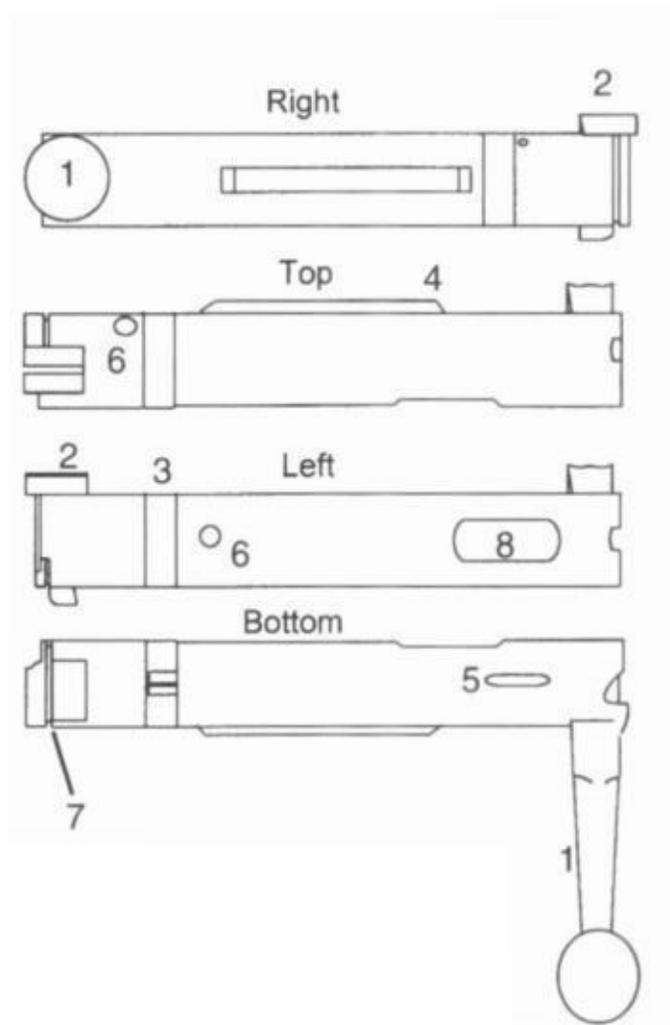


Fig. 2-51. Bolt Body.

When the cartridge is stripped from the magazine, it is centered and held against the bolt face by the recessed rim and the springloaded extractor to produce a "controlled feed" situation which keeps the soldier from short stroking the action thus double feeding and jamming the rifle. The recess is 0.060 inches deep. The bolt face has a slot 0.084 inches wide by 0.065 inches high directly above the left lug (when the bolt is open) to allow the extractor to pass through and knock the cartridge case loose. This and a second bolt lug lock into the receiver wall when the bolt is closed. The bolt body is bored through for the firing pin. The rear portion of the firing pin tunnel is 0.595 inches in diameter and 4.02 inches long. It narrows to 0.42 inches in diameter and tapers to 0.09 inches in diameter at the front face, through which the firing pin nose protrudes.

Five types of the bolt bodies were manufactured, and two rebuilt. They can be distinguished by the number of gas escape ports and the curve and length of the bolt handle, see Figures 2-52 and 2-53.

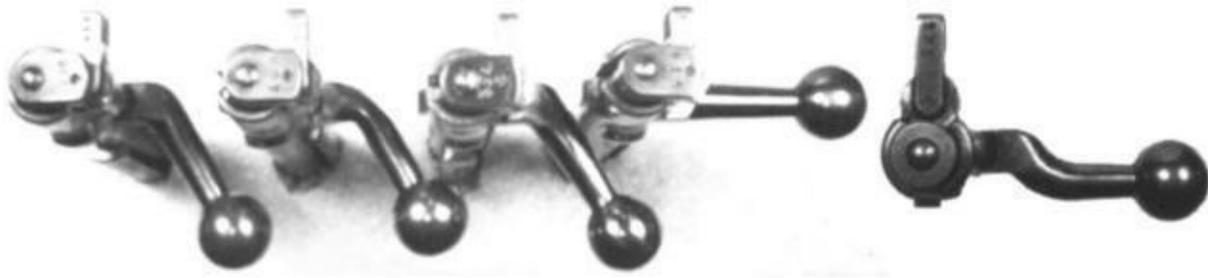


Fig. 2-52. Bolt handles: (I-r) m/94 carbine; m/41 and m/41 B sniper rifle; m/38 rifle; m/96 and m/96-38 rifle; alternate bolt for the CG 63 and CG 80 rifles.



Fig. 2-53. Top view, bolt handles: (I-r) m/94 carbine, m/38 rifle, m/41 and m/41 B sniper rifle and m/96 and m/96-38 rifle.

The Type 1 bolt body was manufactured by Mauser and used on the m/94 carbine (and may be found retrofitted to m/94-96 and m/94-14 carbines). The overall length of the bolt handle was 2.875 inches. m/94 carbine bolts manufactured before 1896 (Mauser, circa serial #12,000) did not originally have a gas escape port.

The bolt handle protrudes 90 degrees from the right side for 0.4 inches and is square, 0.425 inches on a side—although the top, right side curves inward slightly 0.09 inches. This squared area is the anvil. It is undercut to allow the cocking piece to come to rest. Past the anvil, the handle is round. Diameter at the anvil end is 0.425 inches tapering to 0.325 at the ball end.

The round tapered portion of the handle is bent downward at a 55 degree angle. The bolt handle ends in a ball 0.920 inches in diameter to make it easy to grasp.

The Type 2 bolt body (manufactured after circa serial # 12,000 at Carl Gustaf) had a single gas port at the 2 o'clock position (when closed) and a down-turned bolt handle for use in the m/94 carbine. The gas port was 0.124 inches in diameter and 0.965 inches behind the bolt face. The gas port allowed gas from a ruptured cartridge to be vented away from the shooter's face. It

was identical in all other respects to the Type I bolt body.

Note: The gas port was often added to Type 1 bolt bodies during repair or refurbishment after 1896.

The Type 3 bolt also had a single gas port at the 2 o'clock position (when closed) but a straight bolt handle for use on the m/96 infantry rifle. It was used from 1896 to circa 1905 when a second gas port was added.

The bolt handle of the Type 3 protruded at a 90 degree angle from the right side of the bolt body when the bolt was closed and was 2.375 inches long. The anvil was 0.425 inches on a side and was undercut to the rear to allow the cocking piece to come to rest. The bolt handle was round between the handle and ball, 0.425 inches at the anvil end tapering to 0.325 inches at the ball end. The ball was 0.920 inches in diameter.

The Type 4 bolt body was in use from circa 1905 to the end of production at Carl Gustaf on all m/96, m/96-38 and many CG 63 and CG 80 rifles not made from carbines. It had a second gas port added at the 9 o'clock position (when closed) 0.124 inches long. Its function was to direct gas from a ruptured cartridge that could not pass through the first gas port at the 2 o'clock position into the magazine well. It was identical in all other respects to the Type 3.

Note: The second gas port was often added to Type 2 and 3 bolt bodies during repair or refurbishment after circa 1905.

The Type 5 bolt body was manufactured by Husqvarna and installed on the m/38. It is distinguished by its bent bolt handle which is almost identical to the Type 1 bolt handle but with the single exception that the ball measures 0.905 inches in diameter, 0.015 inches smaller. The Type 5 also has two gas ports 0.124 inches in diameter at the 2 and 9 o'clock positions.

The Type 6 bolt body was used on the m/41 and m/41B sniper rifles. They were originally Type 4 bolt bodies as used on the m/96 rifle. The bolt handle was bent downward at a 50 degree angle to allow the bolt to be rotated to the open position when the telescopic sight was mounted. The overall length of the bolt handle was 2.81 inches.

To make the bend in the Type 6 bolt handles, the handle was cut through just past the anvil and an additional metal section 0.41 inches in length welded in place. The bolt handles were then bent into position. Except for the overall length of the bolt handle, which is slightly longer depending on the length of the metal piece welded in, all other dimensions are the same as for the Type 4.

Two variations of the Type 6 bolt body were used: the 1st Variation was installed in the m/41 sniper rifles and retained the bright polish it was given as an m/96 bolt. The 2nd Variation was

blued and installed in the m/41B sniper rifle when they were rebuilt in 1955 and later. No other changes were made.

The Type 7 bolt body was used in the CG 63 and CG 80 match rifles together with the Type 4 bolt body. The Type 7 bolt body was made from the Type 2 bolts installed in the m/94 series carbines. The handle was heated at the anvil and bent upward so that it protrudes at a 90 degree angle with a shallow crook.

Note: Bolts with the turned down bolt handle manufactured for the m/94 series of carbines (Type 1) and the m/38 rifles (Type 5) can be used in m/96 rifles (Type 2 and 3) if the stock wood immediately below the bolt handle is trimmed away to allow the bolt to lock closed. The m/96 rifle bolts can be used in the m/94 series carbines and the m/38 rifle. The Type 5 bolt body with the bent bolt handle for mounted use was never intended to be used in the m/96-38 "short" rifle.

### Locking Lugs

The bolt body has two opposed locking lugs at the front which are perpendicular to the bolt handle, see Figure 2-54. When the bolt is fully forward with the bolt handle in the horizontal position (battery) the locking lugs engage shoulders milled into the receiver ring. This arrangement holds the bolt securely to the breech face of the barrel.

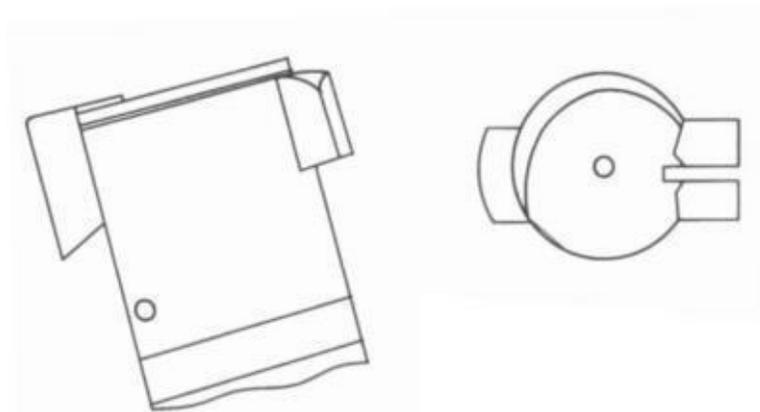


Fig. 2-54. Bolt locking lugs.

The left locking lug (as viewed from the front with the bolt locked closed) is 0.424 inches wide by 0.323 inches long and 0.174 inches high. The right locking lug is 0.424 inches wide by 0.552 inches long by 0.151 inches high.

The left locking lug is split in two parts by a channel 0.09 inches wide that allows the ejector to pass.

The locking lugs are perpendicular to the bolt handle. When the bolt is fully forward and in battery, the locking lugs engage locking shoulders milled in the receiver ring.

## Extractor Collar Groove

The extractor collar groove is milled completely around the bolt body's circumference 0.128 inches behind the face. The groove is 0.280 inches wide 0.040 inches deep, refer to Figure 2-51, 3.

## Guide Rib

The guide rib is milled from the bolt body. It is 2.2 inches long by 0.23 inches wide and 0.08 inches high. It rides in a matching groove cut in the top of the receiver bridge and prevents the bolt body from binding when run in and out quickly. It is one of the main distinguishing features between previous and subsequent Mauser bolt designs.

The original 52 carbines manufactured by Mauser in 1893 for testing did not have the guide rib on the bolt body, refer to Figure 2-51, 4.

## Trigger Bar Interlock Slot

This slot is milled into the bottom of the bolt body 0.51 inches ahead of the rear face. It is 0.125 inches wide by 0.530 inches long and 0.05 inches deep. The front and rear ends of the slot are ramped to allow the trigger bar interlock stud to ride in and out smoothly, refer to Figure 2-51, 5.

## Gas Escape Ports

Gas ports were drilled into the bolt body to provide an escape route for hot gases in the event a primer blew out or a cartridge ruptured in the chamber. The escaping hot gas flowed back into the firing pin hole and out through the gas escape ports into the receiver and away from the shooter's face, see Figure 2-55.

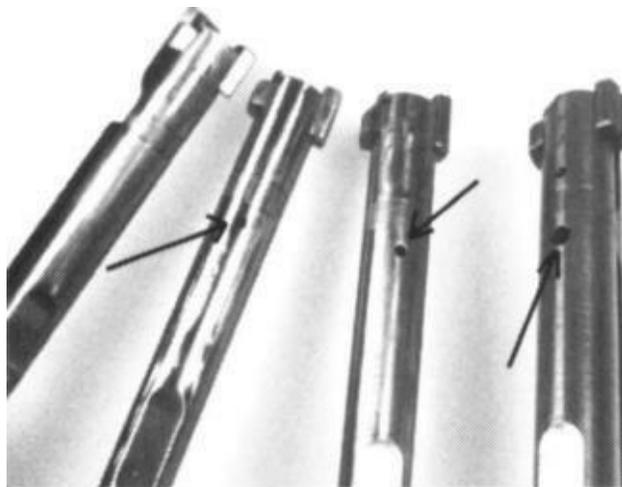


Fig. 2-55. Gas escape ports: (l-r) pre1896 (s/n 12,000), pre-1905 single gas port, post-1905

double gas port (arrow) and modified with a third gas port.

Very early bolt bodies manufactured by Mauser before circa serial #12,000 (1896) did not have gas escape ports. These were added to those bolts beginning in 1896.

From 1896 a single gas escape port 0.124 inches in diameter was drilled into the bolt body 0.980 inches behind the bolt body face at the 2 o'clock position when the bolt was closed. This channeled the escaping gas away from the shooter's face. This gas escape port was based on Paul Mauser's patent (Belgium) #120,477 of March 12, 1896.

From 1905 on, Swedish ordnance officials decided to drill a second gas escape port in the bolt body. This second port was also 0.124 inches in diameter but was 1.575 inches behind the bolt face at the 9 o'clock position when the bolt was closed. It allowed hot gases to flow back through the ejector cut in the left lug where some of it flowed along the bolt body to be deflected away from the shooter's face by the flared gas deflector on the bolt sleeve while the rest blew down into the magazine well where it could have sufficient force to blow the magazine floor plate off. For this reason, the shooter should never rest the off hand below the magazine well in any Mauser-type rifle.

Note: Because gas ports were added as a safety measure during rebuilding or repair, their absence, but not their presence can be used to identify a bolt manufactured before circa serial #12,000.

Note: A third gas port will be observed in some bolts. This third gas port varies in diameter but is usually larger than those drilled by the factories or military armorers, refer to Figure 2-55, arrow.

### Extractor Guide Slot

The extractor slot is a groove 0.074 inches wide and 0.06 inches deep milled in a semicircle just behind the bolt face. The milled groove runs from the 5 to the 11:30 o'clock positions when looking at the bolt face in the closed position, from the front. The extractor guide rides in the slot to keep the extractor nose properly located, refer to Figure 252, 7.

### Extractor Collar

The extractor collar (see Figure 2-56) is a split metal ring with a rectangular boss at either end which holds the extractor in place. The extractor collar is 0.290 inches wide and 0.040 inches thick. The boss at either end is 0.120 inches wide by 0.265 inches long by 0.151 inches high. The top edges of both bosses are chamfered to make insertion into the extractor groove easier.

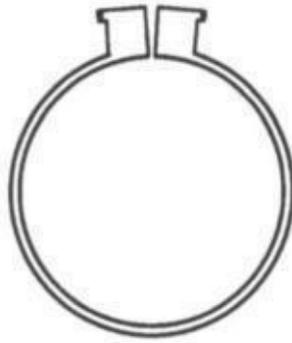


Fig. 2-56. Extractor collar.

Note: The extractor collar should not be removed from the bolt unless it is to be replaced. Doing so may cause it to lose its shape.

### Extractor

The extractor is a steel bar 4.1 inches long by 0.425 inches wide and sprung slightly so that it presses against the right side of the receiver bridge as it moves back and forth. This helps to create a positive and smooth bolt movement, see Figure 2-57.

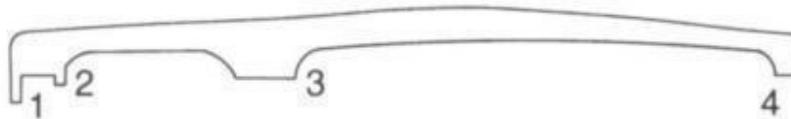


Fig. 2-57. Extractor.

The top surface of the extractor is highly polished, and the ends are slightly rounded. The interior surface of the extractor contains four specific areas: 1) the extractor lip, which grasps the cartridge rim; 2) the extractor guide, which allows the extractor to revolve with the bolt body while still retaining the cartridge rim; 3) the extractor slot, which slips over the boss on the extractor guide and 4) the extractor rim, which bears against the bolt body at the rear to produce the springing action which serves both to increase the grasping pressure on the cartridge rim as well as against the receiver bridge to assist in providing a smooth, straight action.

### Extractor Relief Cut

Opposite the guide rib on the bolt body is a relief cut 1.125 by 0.400 inches. This relief cut makes it easier to remove the extractor - turn the extractor so that its tail is resting in the relief cut and push forward. The extractor will snap off its lug. Reverse the procedure to replace, lifting the extractor nose slightly to clear the front of the bolt body and allow it to snap into its groove. Turn the extractor back until it covers the right bolt lug and reinsert into the receiver.

## Firing Pin

The firing pin is milled from bar steel and highly polished. It is 7.187 inches long (0.100 inches longer than its predecessors) and divided into 1) firing pin nose, 2) body and 3) threaded after end that screws into the cocking piece, see Figure 2-58. Those firing pins used in CG-63/80 and other target rifle bolts with shortened cocking pieces (thumbpiece removed) to speed lock time, were cut down to 6.937 inches.

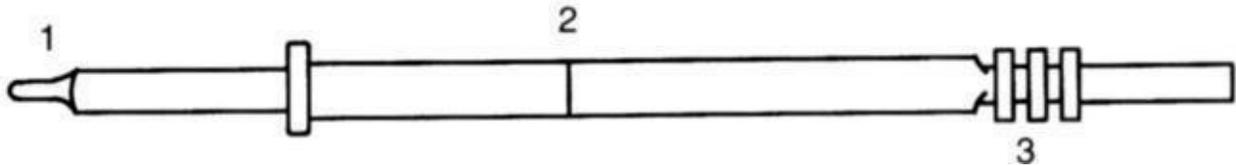


Fig. 2-58. Firing pin.

The firing pin nose is 1.65 inches long. The nose itself is a reverse taper 0.4 inches long leading to a shaft 0.21 inches in diameter that ends in a collar 0.46 inches in diameter. The collar bottoms against the forward portion of the firing pin tunnel in the bolt body where it narrows to 0.42 inches in diameter.

The body is 0.33 inches in diameter and extends for 3.95 inches behind the collar. At 1.530 inches behind the collar, the top and bottom surfaces are milled flat to 0.25 inches thick.

The after end of the firing pin is contains three large flat-tipped splines 0.395 inches wide by 0.25 inches thick which engage similar splines on the inside of the cocking piece. The very rear of the firing pin (0.215 inches in diameter) protrudes through the cocking piece to form a boss.

Firing pins show the last three numbers of the original receiver serial number and inspector's crowns.

## Firing Pin Spring

The firing pin spring for the Swedish Mauser firing pin varied between 3.7 and 4.2 inches in length and was 0.461 inches in diameter. The wire diameter was 0.05 inches and the spring had 26 coils, refer to Figure 2-50, 5. The carbine springs examined appear to be stretched to the longer size while rifle springs tended toward the shorter side.

## Bolt Sleeve

The bolt sleeve slides over the firing pin splines and threads into the bolt body, see Figure 2-59. It was 0.782 inches in diameter and 1.415 inches long. It flared at the front at the 3 and 9

o'clock positions and had a tunnel (2) for the safety lever at 12 o'clock. The top of the tunnel bore against the under cut area at the rear of the bolt handle when fully engaged. The tunnel was 0.251 inches in diameter and extended the length of the bolt sleeve. A collar 0.136 inches wide (3) surmounted the safety lever tunnel; the retaining notch on the safety lever thumbpiece rode against the collar. The collar was rebated on the right side to allow the safety lever to be removed.

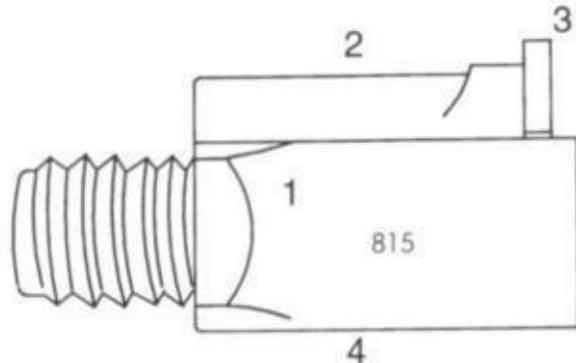


Fig. 2-59. Bolt sleeve.

The bottom of the bolt sleeve (5) was slotted (0.25 inches wide) to allow the protruding sear boss on the cocking piece to move back and forth.

### Safety Lever

The safety lever consists of three parts, a 1) thumbpiece and 2) an axial shaft which allows the safety lever to rotate in the tunnel in the cocking piece to bring the 3) flange into or out of contact with the notch on the cocking piece, see Figure 2-60.

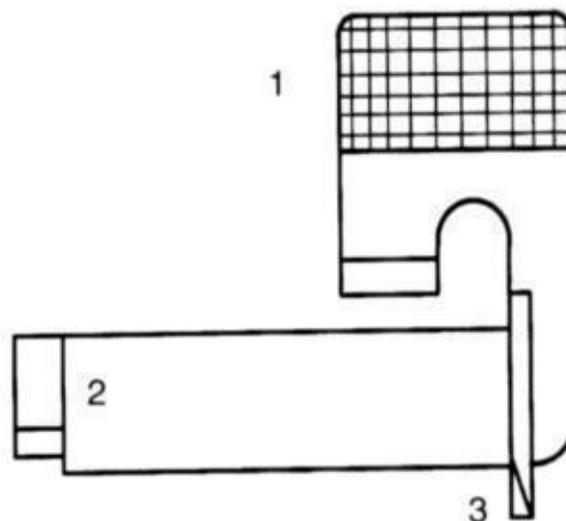


Fig. 2-60. Safety lever.

The safety lever thumbpiece is 0.246 inches wide by 0.683 inches long and 0.050 inches high.

The bottom rear of the thumbpiece has a partial hole from side-to-side. The front edge of the hole is captured by the collar on the bolt sleeve to hold the safety lever in place.

The front and rear surfaces of the thumbpiece are knurled with 14 teeth across and seven teeth vertically to provide a better grasping surface.

The axial shaft is 0.250 inches wide by 1.210 inches long. It is rebated i at the front end so that when installed, it cannot be turned all the way to the right and accidentally withdrawn.

The flange forms a partial circle at the rear, below the thumbpiece. It is milled at the rear face to allow it to enter the safety notch on the cocking piece just ahead of the upturned grasping piece. It is 0.506 inches in diameter and 1.773 inches long overall.

The flange also engages the front of the cocking piece, opposite the boss to prevent the tiring pin from going forward when the bolt is fully cocked.

Note: This safety position was designed for use by soldiers in combat situations and should not be used by target or casual shooters as it leaves the rifle fully cocked, possibly with a round in the chamber. If you do use this safety position, turn the safety thumb piece up vertically, rather than to the right, where it will serve as a reminder that the rifle is cocked.

### Cocking Piece

The cocking piece designed for the Swedish Mauser is unique to that model and is as distinctive as the cocking piece for the Arisaka rifle. It consists of three parts: 1) grasping piece, 2) barrel and 3) sear lug, see Figure 2-61.

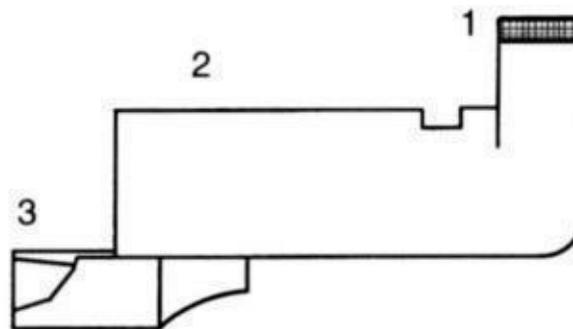


Fig. 2-61. Cocking piece.

It is 0.506 inches in diameter and 1.773 inches long overall including the boss at the forward end which is engaged by the sear as the bolt is moves forward into battery. The firing pin, which is connected to the cocking piece by its interrupted threads, is held to the rear and compresses the firing pin spring. When the trigger is pulled, the sear is tipped down, releasing the cocking piece which drives the firing pin forward under spring pressure.

Three types of cocking piece were used. The Type 1, designed for the m/94 carbine, is 0.350 inches shorter overall than the Type 2 cocking piece designed for the m/96 and all subsequent models. The Type 2 cocking piece will fit on and operate the m/94 bolt, but the m/94 cocking piece (Type 1 or 2) will not fit the m/96 bolt. The Type 3 cocking piece was the Type 2 with the upturned thumb or grasping piece removed to speed lock time. It was used only on the CG 63 and CG 80 match target rifles. It should be noted that some military armorers and civilian gunsmiths removed the thumb or grasping piece on m/96 and other rifles used for target shooting for the same reason. The cocking piece has a "safety" slot milled just forward of the thumb piece 0.102 inches wide and 0.305 inches long. This safety slot is used when the rifle is cocked and immobilizes the cocking piece-tiring pin assembly in the bolt. When used to "safe" a loaded and cocked rifle, the thumb piece on the safety should be turned up vertically so that it blocks the rear sight and reminds the shooter that he or she may have a round in the chamber of a cocked rifle.

Note: Swedish military instructors taught the art of the "trigger squeeze" by inserting a block of wood 27.5 mm (1.09 inches) wide between the cocking piece and the bolt sleeve. This prevented the cocking piece from moving forward when the trigger was pulled but produced a "click" that told the instructor the trigger had been pulled. By observing the muzzle's movement, the instructor could determine whether or not the trainee had pulled the trigger properly.

### Finish, Bolt Parts

All bolts and bolt parts for the Swedish Mauser - with the exception of the m/41B Sniper Rifles - were left in the white and polished. Bolts used in the m/41B sniper rifles were blued.

### Markings, Bolt Parts

Crown Inspection Marking - m/94, m/96, m/96-38: Bolts and bolt parts were marked as follows with the Swedish Crown inspection marking: 1) bolt handle, 2) extractor collar, 3) bolt sleeve, 4) safety, 5) extractor, 6) cocking piece and 7) firing pin. The firing pin will show two Crowns, a large and a small.

Serial Number - m/94, m/96, m/96-38: Bolt and bolt parts were marked with the partial serial number - usually the last three or four digits - as follows: 1) bolt body (handle), 2) bolt sleeve, 3) safety, 4) cocking piece and 5) firing pin. Rifles with mismatched bolt parts should not be fired until the headspace is checked by a gunsmith. Severe injury could result from too tight or too loose headspace.

Crown Inspection Marking - m/38: Bolts parts were marked on Husqvarna-manufactured bolts as follows with the Crown inspection marking, tipped to the right: 1) bolt body (handle), 2) extractor collar, 3) bolt sleeve, 4) safety, 5) extractor, 6) cocking piece and 7) firing pin.

Serial Number - m/38: The partial serial number (last three digits) of the receiver were marked on Husqvarna-manufactured bolt parts as follows: 1) bolt body (handle), 2) safety and 3) firing pin. They may either be stamped or etched into the metal with an electric pencil.

# BARREL ASSEMBLY

The barrel assembly for the Swedish Mauser consisted of five parts: 1) barrel, 2) handguard band, 3) rear sight base, 4) front sight base and front sight base indexing screw, and 5) front sight, see Figure 262. The rear sight base is considered part of the barrel assembly, see Figure 2-63.

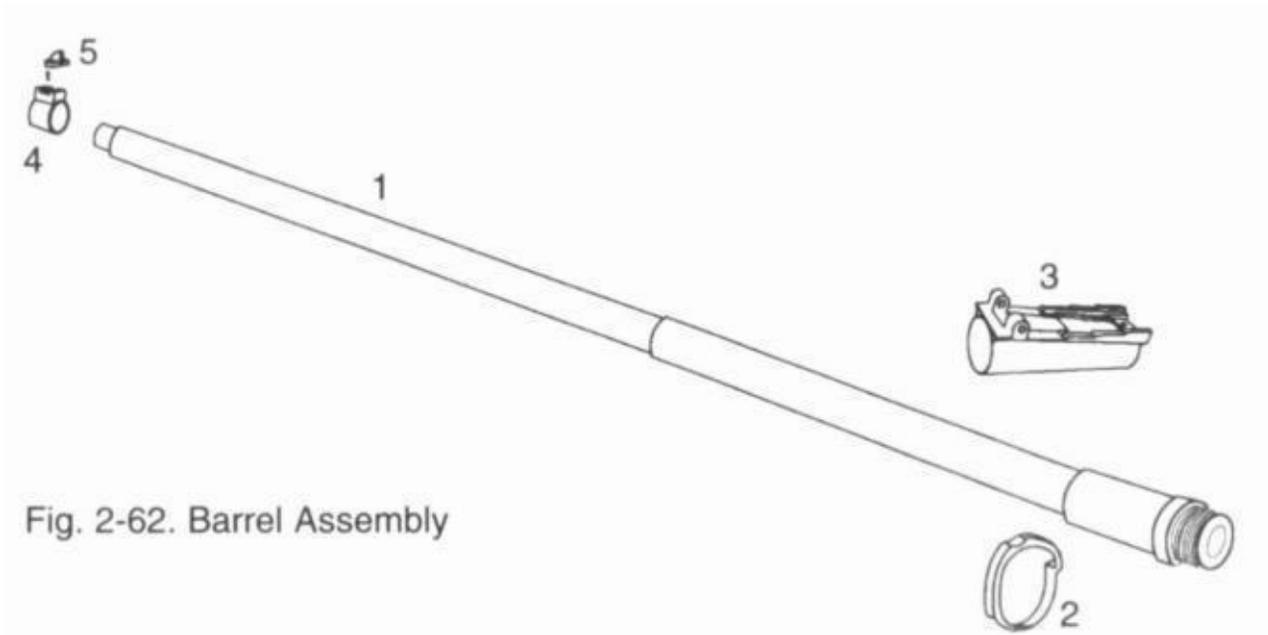


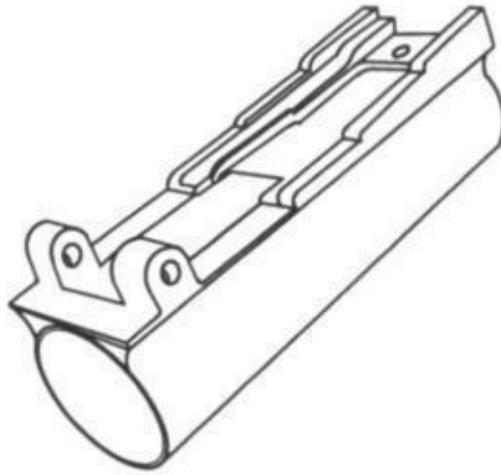
Fig. 2-62. Barrel Assembly

## BARRELS

All Swedish Mauser series of rifles and carbines except the CG 63 and CG 80 Match Rifles employed the Mauser-system stepped barrel which, coupled with interior stepped-contour bedding in the barrel channel, allowed the barrel to expand when hot without binding against the stock. A barrel vibrates at a discrete frequency when fired. If the vibration is disturbed-by the barrel touching any part of the stock the rifle will not shoot accurately.

All barrels installed on the Swedish Mauser of whatever model, with the exception on the CG 63 and CG 80 barrels made in 7.62 x 51 NATO caliber, have these same features in common: 1) all barrels have four lands and grooves and a rifling rate of 1 turn in 7.87 inches, 2) land-to-land diameter is 6.5 mm (0.256 inches) and groove-to-groove diameter is 6.7 mm (0.263 inches).

Fig. 2-63. Rear sight base. The base's band is indexed and soldered to the barrel.



All Swedish Mauser barrels are threaded at the breech end to screw into the receiver. All threads are cut to the metric pattern with 12 threads to the inch. The threaded portion of the barrel is 0.980 inches in diameter and 0.645 inches long. All barrels have a flange that butts against the receiver face. Dimensions for the contours of the barrels installed on Swedish Mauser rifles are listed in Table 2-3, below.

Note: Because all Swedish Mauser barrels fit all Swedish Mauser receivers regardless of manufacturer or model, the full serial number matching that of the receiver must be present on the right side of the barrel. If the barrel shows only the last three digits of the serial number, it is a replacement. Check for inspection markings indicating repair or replacement - see Chapter 7.

All Swedish Mauser barrels have rear sights mounted on a band which encircles the barrel just ahead of the breech step, refer to Figure 2-64. The rear sight band is indexed by a set screw and soldered to the barrel. Front sights are mounted differently on the carbine and rifle barrel as explained below.

Barrels installed on the m/96, m/96-38 and m/38 rifles may be threaded at the muzzle, see Figure 2-64. This was done to permit the attachment of a blank-firing device which shredded the wooden bullets used during blank-fire training exercises. Those rifles which had threaded muzzles were designated "B" models as follows: m/96B, m/96-38B and m/38B. This designation does not apply to the m/41 and m/41B sniper rifles. Blanks were not permitted to be used in sniper rifles and consequently, their muzzles were not threaded. Nor does it apply to the m/94 carbine series as the Mannlicher-style stock and nose cap did not allow the blank-firing device to be attached.

**Table 2-2  
Swedish Mauser Barrel Dimensions by Model (inches)**

	m/94 Carbine	m/96 Rifle	M/96-38 Rifle	m/38 Rifle	m/38 Rifle with 29.1 Inch Barrel*	m/41/41B Sniper Rifle	CG 63/80 Target Rifle
<b>Length</b>	17.71	29.1	23.1	23.1	29.1	29.1	29.1
<b>Rifling Twist</b>	1:7.9	1:7.9	1:7.9	1:7.9	1:7.9	1:7.9	6.5 mm 1:8.66  7.62 mm 1:12
<b>Rear Sight Range (Meters)</b>	300 to 600	300 to 2000	100 to 600	100 to 600	300 to 2000	Telescopic Sight	100 to 600

\* 20,000 29.1 long barrels were installed on m/38 receivers for the *Friwilliga skytte rölser*. These rifles were manufactured at Husqvarna and intended for use in civilian target shooting and marksmanship training.



Fig. 2-64. Threaded muzzle of "B"-suffix rifles for the blank firing adaptor.

### m/94 Barrels - Specifics

The 17.71 inch long barrel was used on the m/94, m/94-96 and m/9414 carbines only. Dimensions are given above in Tables 2-2 and 2-3.

The carbine barrel was 0.29 inches shorter than the Federal legal minimum for rifle barrels in the early 1950s, which was 18 inches. In order to bring the carbine into the United States, some importers added a 0.30 inch long extension to the barrel, see Figure 2-65.

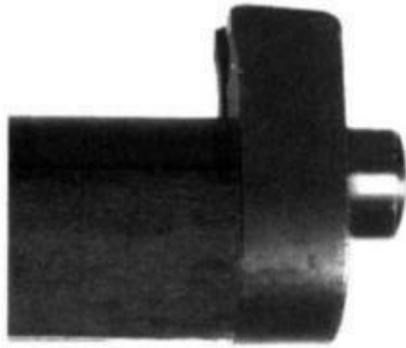


Fig. 2-65. Muzzle extension fitted to an m/94 carbine.

According to Bob Brenner of Pasadena Firearms, who was instrumental in arranging for the importation of the original lot of 40,000 m/94 series carbines, the barrels were held vertically in a drill press fixture. The bore was drilled to a little over 1/2 inch deep and the muzzle extension, just slightly larger in diameter, was press fitted into the enlarged bore. All but the last few thousand carbines were so fitted before the law was changed to permit rifle barrels as short as 16 inches.

<b>Table 2-3 Barrel Step Dimensions (diameter x length in inches)</b>					
<b>Manufacturer and/or Model</b>	<b>Flange (a)</b>	<b>Breech Section (b)</b>	<b>First Step (c)</b>	<b>Second Step (d)</b>	<b>Muzzle Step (e)</b>
<b>Mauser m/94</b>	1.110 x 0.2	0.965 x 1.632	0.775 x 6.5	0.685 x 7.8	0.600 x 0.675
<b>Carl Gustaf m/94</b>	1.110 x 0.2	0.960 x 1.632	0.769 x 6.70	0.691 x 7.835	0.619 x 0.695
<b>Mauser m/96</b>	1.110 x 0.2	0.960 x 1.632	0.769 x 6.70	0.691 x 7.835	0.619 x 0.695
<b>Carl Gustaf m/96</b>	1.110 x 0.215	0.980 x 1.695	0.798 x 7.96	0.709 x 15.15	0.621 x 0.531
<b>Husqvarna m/38-96 (Fsr)</b>	1.106 x 0.215	0.902 x 1.673	0.783 x 7.96	0.686 x 14.8	0.635 x 0.886
<b>Husqvarna m/38</b>	1.110 x 0.215	0.965 x 1.660	0.765 x 7.96	0.682 x 9.7	0.601 x 4.6
<b>CG 63/80</b>	None	Breech tapering to 0.760			0.612 x 0.932 with 11 degree crown
(a-e) Refer to Figure 2-63 for locations					

The front sight installed on the m/94, m/94-96 and m/94-14 carbines was similar to the British "barleycorn" sight used on the Lee-Enfield rifles. It was mounted on a post which in turn was

welded to a ring which encircled the barrel, see Figure 2-66. The post was 0.361 wide x 0.438 inches long and 0.310 inches high.

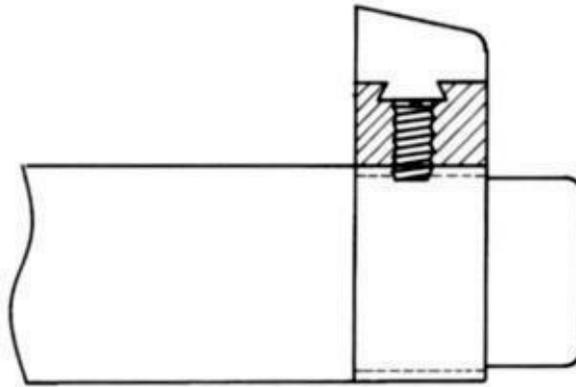


Fig. 2-66. Carbine front sight post and sight.

### m/96 Barrels - Specifics

The 29.1 inch long barrel used on the m/96 was manufactured at three factories, Mauser, Carl Gustaf and Husgvarna. The dimensions of all three are shown above in Tables 2-2 and 2-3, and all are completely interchangeable. They are distinguished only by the type of inspection markings.

Barrels manufactured for rifles were turned down at the muzzle to a diameter of 0.621 inches for 0.531 inches behind the muzzle to accept the bayonet, refer to Figure 2-62.

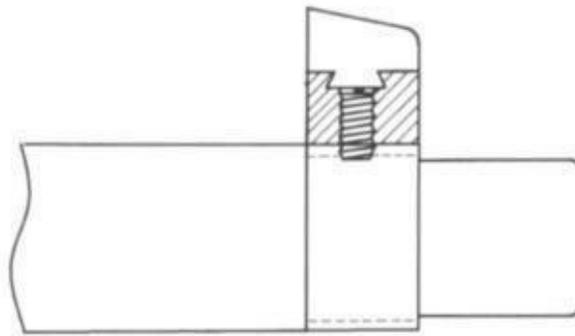


Fig. 2-67. Rifle front post and sight

The rifle front sight is mounted on a post 0.356 inches wide, 0.446 inches long and 0.316 inches high welded to a ring which encircled the barrel, 0.504 inches behind the muzzle, refer to Figure 2-67. The mounting ring can often be detected by careful examination under a strong magnifying glass in good light.

The post and ring was indexed to the barrel with a small set screw which penetrated the post and ring from the top. The front of the post was marked with a small Crown inspection stamp and an index mark indicating that the sight blade was centered in the dovetail. The right side

of the base was marked with the blade size to be installed.

The front sight was set into the post by a dovetail milled in the top of the post as shown in Figure 2-67.

See Front Sights, below, for details and dimensions.

#### m/96-38 Barrels - Specifics

m/96-38 barrels manufactured by Mauser or Carl Gustaf were simply m/96 barrels shortened by 6 inches. Dimensions are shown in Tables 2-2 and 2-3. The same barrel was not always reinstalled on the same receiver afterward, and so the original serial numbers will often not match, but the old serial number will be deleted by marking through the numbers with a stamped "X", and either the full serial number or the last three digits of the new receiver serial number will be stamped on the barrel below.

The front sight dovetail base was identical to that installed on the m/96 long rifles.

#### m/38 Barrels - Specifics

New barrels (23.1) inches long were manufactured at Husqvarna for the m/38 carbine. Their dimensions are shown in Tables 2-2 and 2-3 above. Husqvarna-made barrels can be distinguished by their markings (Crown over S) and the inspection Crown above the rear sight cutout (tilted to the right).

In 1944, Husqvarna also produced 20,000 m/96-type rifles with 29.1 inch barrels for the Swedish national shooting society, Frivilliga stytterhelsen. These rifles were identical in all respects to the Mauser and Carl Gustaf-manufactured m/96 rifles except for Husqvarna markings on parts and receiver. These were not manufactured as rifles for the Swedish Army but were sold to members of the Fsr.

Note: As the Fsr rifles were used by civilians for target shooting and hunting, expect to find that many of these rifles have had barrels changed, military-style sights removed and replaced by civilian target rear and front sights and other modifications made for target shooting.

#### m/41 and m/41B Barrels - Specifics

Barrels for the m/41 and m/41 B Sniper Rifle were selected for accuracy. Unless worn in subsequent military service, these barrels will show a tighter-than-average bore, lands and grooves in excellent condition and smooth chambers adhering rigidly to specification. Otherwise, they have no distinguishing features.

The collector should keep in mind that only 5,300 m/41 sniper rifles were actually built for the

Swedish military and that the m/41 B sniper rifles were refurbished m/41 Is. An unknown number of additional sniper rifles were assembled by some North American importers in the mid1990s when a stock of telescopic sights and mounts were also imported. Workmanship ranged from fair to excellent and it is often difficult to tell the difference between an original sniper rifle, and a commercially assembled sniper rifle but the collector should keep in mind that the original Swedish Army m/41 and m/41 B sniper rifle barrels were never threaded for the blank firing device.

## MARKINGS

### Crown Inspection Marking

Both Mauser and Carl Gustaf barrels of any model are marked with the inspector's crown on the bottom of the breech section. Each time the barrel was inspected, it was marked with an additional crown

Husqvarna barrels will be marked with a large Crown/S inspector stamp on the top of the breech section. Crown inspection markings applied by factory inspectors are tipped to the right on these barrels.

### Serial Number

Mauser, Carl Gustaf and Husqvarna-manufactured barrels all show the full serial number on the left side of the breech section, below the stock line. If only the last three digits of the receiver serial number appear, the barrel is a replacement.

### Replacement Barrels

Barrels that show only the last three digits of the receiver serial number are replacement barrels.

Barrels manufactured in the 1950s and 1960s as spare parts will show the last digit of the bore's diameter stamped near the muzzle.

## REAR SIGHT ASSEMBLIES

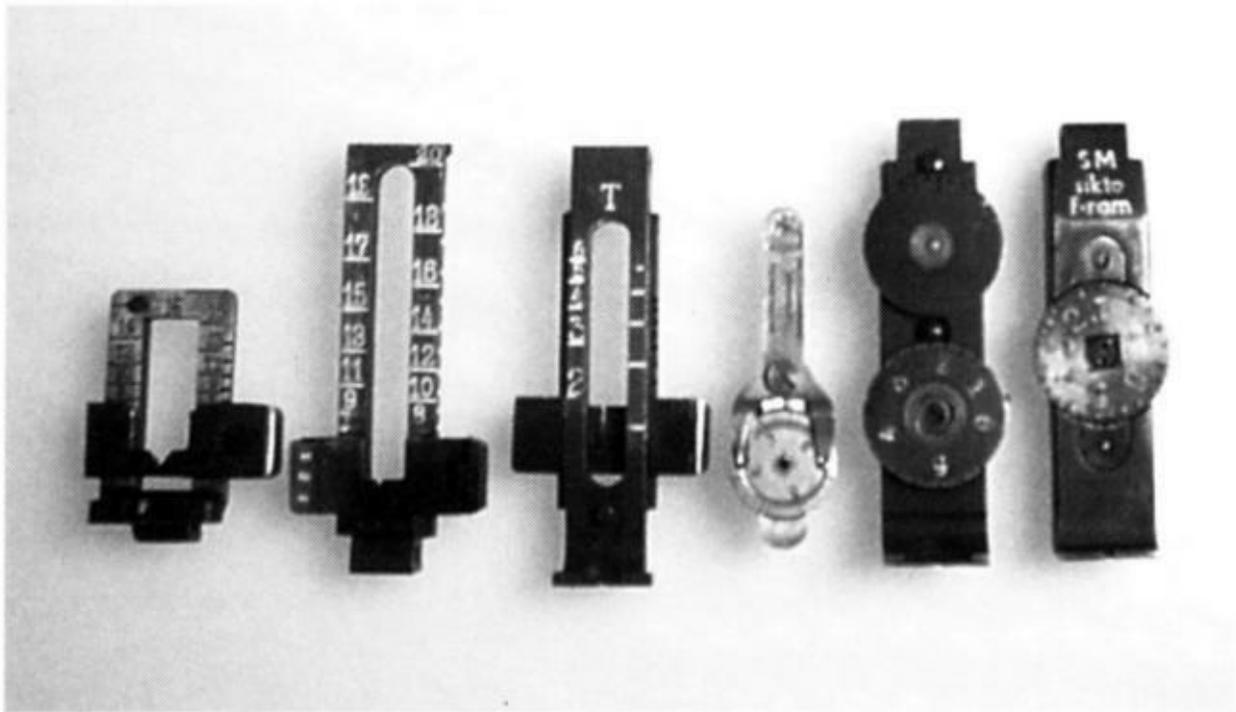
Four basic types of rear sight assemblies were used on the military Swedish Mauser, with several variations in each type, see Figure 268, overleaf. 1) The m/94 carbine sight was used on the m/94, m/9496 and m/94-14 without change. 2) The m/96 rear sight was used on the m/96 rifle. 3) The m/38 rear sight was used in two variations on the m/38 rifles and some m/96-38 rifles. 4) The refined sight adaptor was manufactured in two variations and installed on the m/96-38. 5) A number of target rear sights were developed . At the far right 6) is a prototype of the Fineviser m/55 installed on the m/41 B.

In addition, a variety of nonmilitary rear sights and rear sight adaptors were developed for civilian target and match shooting. They are also described below.

### m/94 Carbine Rear Sight

The m/94 carbine rear sight assembly consist of six parts, the 1) sight base, 2) leaf, 3) elevator, 4) leaf pin, 5) leaf spring and 6) rear sight screw. The sight was calibrated for the m/94 cartridge with the 156 grain round-nose bullet. The same sight was used on all three variations of the carbine - m/94, m/94-96 and m/94-14, see Figure 2-69.

Fig. 2-68. Rear sight styles: (I-r) m/94 carbine; m/96 rifle; m/38 rifle (m194141 cartridge); m/96-38 rifle; match rear sight and experimental rear sight. Steve Kehaya collection.



The sight base was mounted on a ring that encircled the barrel, refer to Figure 2-63. It was indexed by the rear sight screw and soldered in place. The ring had an outside diameter of 0.834 inches, an inside diameter of 0.769 inches and was 1.32 inches long. The base was milled to provide two ears at the rear in which the leaf was mounted with a pin 0.01 inches in diameter and 0.905 inches long. Unlike subsequent models of the Swedish Mauser, the leaf was hinged at the rear.



Fig. 2-69. m/94 rear sight.

The leaf used on the m/94 carbine sight was 0.895 inches wide, 1.70 inches tall and 0.160 inches thick, see Figure 2-70. The center cutout was 0.415 inches wide and 1.150 inches tall. On the left, range markings started at 400 meters and ended at 1400 meters; on the right, they started at 500 meters and ended at 1500 meters. The 1600 meter range marking was at the top. The reverse side was blank.

The "V" shaped sight notch was centered on the aperture bar at the base of the leaf. When the leaf was in the down position, the sight notch provided a 300 meter battle sight. The leaf was serrated on the right side for the elevator catch. A single screw at the top, left of center, prevented the elevator from sliding off the leaf.

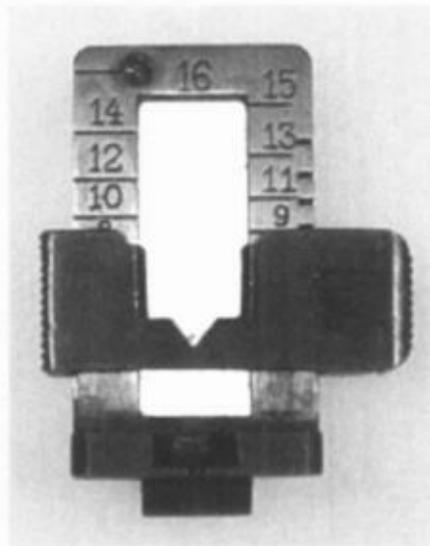


Fig. 2-70. m/94 rear sight leaf.

The elevator slide used on the m/94 carbine rear sight was 1.335 inches wide (including the

catch, but 1.25 inches wide without) and 0.512 inches high. The slide had a square cutout 0.345 inches wide by 0.345 inches high. The "V"-shaped sight notch was centered at the bottom of the cutout. The left side had six vertical rows of knurling to provide a positive grasping surface. The elevator slide was designed to wrap part way around the sides of the leaf.

The elevator slide had a single catch on the right side. Pushing in on the catch lifted the key from a notch on the right side of the leaf and allowed the slide to be moved to the appropriate range marking. The catch had five rows of vertical knurling on its right edge.

The elevator spring was made from spring steel and showed the blue color from heat tempering. It was 0.394 inches wide and 1.40 inches long. Two wings at the front slid into a dovetails on either side of the sight base rails to hold it in place.

The rear sight screw penetrated the rear of the sight base and held the rear sight in position.

#### m/94 Carbine Rear Sight Markings and Finish

The base was marked with the Crown inspection mark.

The leaf was marked with the Crown inspection mark on the aperture bar, and the last three digits of the receiver's serial number was stamped on the reverse of the leaf at the bottom of the cutout.

The elevator was marked with the Crown inspection mark on the top left side, and the last three digits of the receiver's serial number on the back, left side.

The elevator catch was also marked with the Crown inspection mark and the last three digits of the receiver serial number on the back, right side of the catch.

The elevator spring was marked with the Crown inspection marking.

All m/94 carbine sight parts were heat blued. Those sight parts showing a dull or chemical blue have been refinished.

#### m/96 Rifle Rear Sight

The m/96 rear sight consisted of eight parts: 1) base, 2) leaf, 3) spring, 4) leaf pin, 5) elevator bar housing, 6) elevator catch, 7) elevator spring and 8) elevator pin (7 and 8 are not visible), see Figure 2-71.

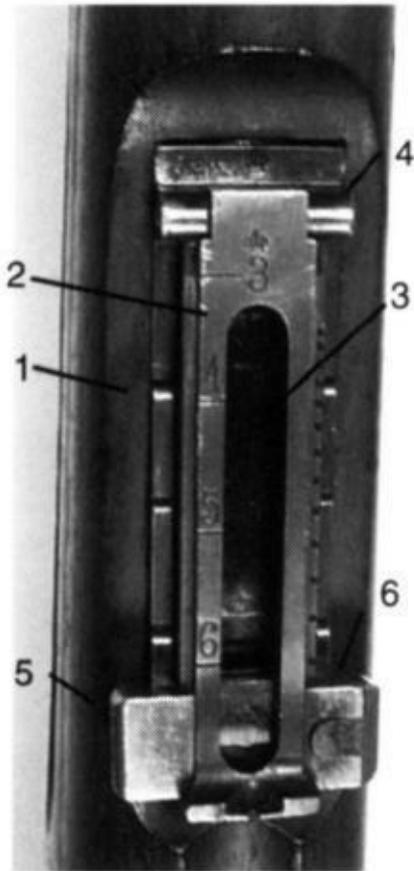


Fig. 2-71. m/96 rifle rear sight.

The rear sight used on the m/96 differed from the usual Mauser-type rear sight in that it was hinged at the front instead of the rear and had a "U"-shaped sighting notch, rather than a "V"-shaped notch.

The face of the leaf was marked from 300 to 600 meters in 100 meter increments and the underside of the leaf was marked in 100 meter increments from 700 to 2,000 meters, see Figure 2-72. To adjust the range, the shooter depressed the catch on the right side of the elevator and moved it to the next position. To set the range at 700 meters or beyond, the shooter raised the leaf to the vertical position and then moved the elevator to the desired range mark.

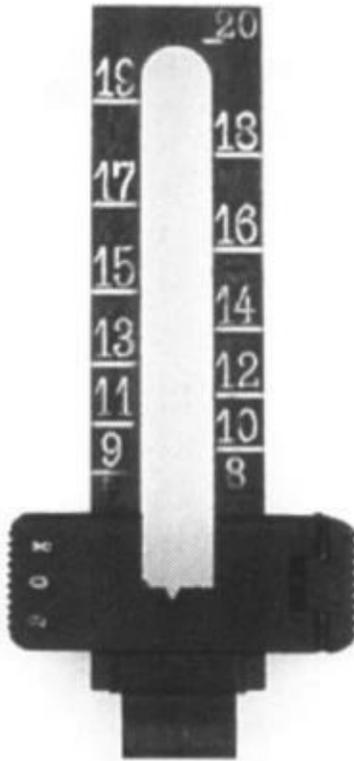


Fig. 2-72. m/96 sight leaf, reverse.

The sight base was mounted on a ring which encircled the barrel, refer to Figure 2-63. It was indexed by the rear sight screw and soldered in place. The base was 0.819 inches in diameter and 2.595 inches long. The base itself was 0.899 inches wide and had raised sides cut into three steps on which the elevator rested. The highest step at the rear was 0.289 inches high, the lowest was 0.133 inches high. Below this step was the flat top of the base on which the elevator rested in the 300 meter or "battle sight" position.

The leaf was 0.598 inches wide and 2.902 inches long. The leaf has an extended oval cutout through the center which was 0.271 inches wide by 2.206 inches long. The left side of the leaf was marked with the numbers "4", "5" and "6" above an index mark. The 300 meter position was marked by the number "3" at the top of the oval cutout indicating that the leaf should be flat against the base in the battle sight position, when used.

The reverse of the leaf was marked on the left "7", "9", "11", "13", "15", "17" and "19". The right side was marked "8", "10", "12", "14", "16", "18" and "20".

Spaced along the right side of the leaf were indentations, or notches, corresponding to the range gradations. The elevator catch engaged the notches.

The top end of the leaf ended in an upturned sighting bar with a "U" shaped sighting notch.

The axis end of the leaf was 0.432 inches wide and 0.201 inches long. It was drilled with a hole 0.11 inches in diameter to accept the leaf pin.

The rear sight spring was 0.420 inches wide by 2.58 inches long. Made from spring steel, it was highly polished, showed a brilliant blue color as a result of heat or niter bluing and had a small arc-shaped notch cut in the top surface 0.55 inches from the end to aid in removal. The spring rested in a groove in the sight base and was secured in a dovetail at the front end. The spring was slightly flexed to apply pressure to the leaf to hold it in place.

The leaf pin was 0.105 inches in diameter and 0.995 inches long. It held the leaf in place and acted as its pivot point.

The elevator catch assembly consisted of the elevator bar, catch, spring and pin. The elevator bar was 1.293 inches wide, 0.518 inches front to back and 0.243 inches thick. The center section which passed along the oval cutout in the leaf was 0.065 inches thick. A "U" shaped sight notch was centered in the elevator bar. The left side of the elevator bar was knurled. The right, rear face of the elevator bar was drilled with a hole 0.069 inches in diameter for the elevator pin.

The catch was "T"-shaped and was held in place in the right side of the sighting bar by the pin. The right side of the catch was knurled to form a thumbpiece. The underside of the thumbpiece was notched to match the notches on the right side of the leaf.

A small coil spring rested between the thumbpiece and the elevator bar. It pressed the catch outward to engage the range notches on the right side of the leaf.

The elevator bar, catch and its spring were held in alignment by the elevator pin which was inserted through the 0.069 inch diameter hole in the right rear of the elevator bar and passed through the vertical stroke of the "T"-shaped catch into another hole in the right front face of the elevator bar.

Note: To disassemble the catch from the elevator bar, the elevator pin must first be removed. To remove the elevator bar from the leaf, the leaf must be removed from the base by driving out the leaf pin. To remove the rear sight base from the barrel, the sight base ring must be heated to melt the solder used to fix it to the barrel.

The rear sight screw penetrated the rear of the sight base and ring and held the rear sight in position.

### m/96 Rear Sight Markings and Finish

The rear sight base was marked with the inspection Crown below the leaf axis pin.

The leaf spring was marked with the inspection Crown just below the removal notch.

The leaf was marked with an inspection Crown above the "3" (300 meter range mark) and with

the last three digits of the receiver's serial number on the reverse, just above the axis.

The elevator bar was marked both with the inspection Crown on the top, right edge and last three digits of the receiver's serial number on the left, reverse side.

The catch was marked with both the inspection Crown and the last three digits of the receiver's serial number on the reverse. The leaf spring, elevator spring and elevator pin are not marked.

All rear sight parts were heat blued.

### m/96-38 Rear Sights

Two types of rear sights were retrofitted to the m/96-38 rifle; the m/ 96-38 Type 1 rear sight was installed after the original barrels were shortened. The Type 2 was installed after the m/94/14 cartridge was adopted. Both were manufactured by the Vasteras Metallverkin factory and were known as the "Vasteras Metallverkin Refined Sight Adapter." Vasteras is a city near Eskilstuna famed for its precision manufacturing capabilities.

The Type 1 Vasteras Metallverkin Refined Sight Adapter (Figure 2-73) was graduated from 300 to 600 meters in 50 meter increments and was intended for use with the 156 grain bullet in the m/94 cartridge. When the m/94/41 ammunition with the 139 grain spire point (spitzer) bullet was adopted, the Type 2 was designed to accommodate the new round's ballistics. It was graduated from 250 meters to 600 meters in 50 meter increments. On both variations, the increments were further divided into 25 meter increments with a "dot."

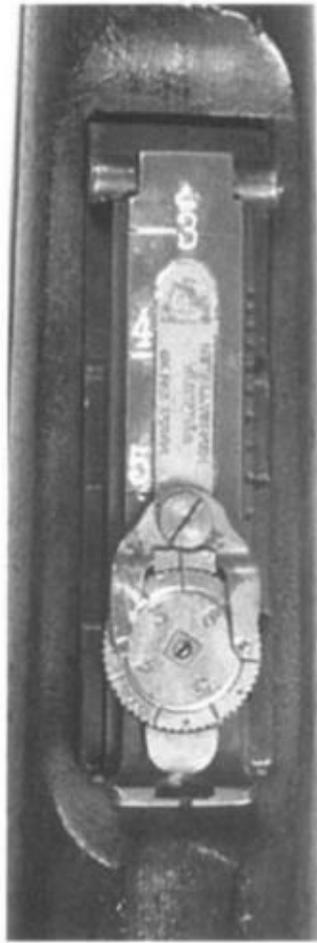


Fig. 2-73. m/96-38 rear sight.

The refined sight adapter sight was essentially a bar of nickel-plated brass fitted into the extended oval opening of the leaf and held in place with a set screw. A wheel was attached to the bar just ahead of the aperture with a set screw. A pair of arms rested in a circular groove on the top of the elevation wheel and eliminated side-to-side play. To set the range to 425 yards, the shooter turned the elevation wheel clockwise until the "4" marking was opposite the index line, then clockwise again to the first dot. The elevation wheel was attached to the set screw which bore on the base of the rear sight (actually on the leaf spring) to raise or lower the leaf according to the range selected.

Note: While the leaf could still be raised to expose the elevation setting from 700 to 2000 meters, it was no longer used as there was no elevation bar to mark ranges beyond 600 meters.

The Refined Sight Adapter had a small adjusting screw set in the middle of the elevation wheel which allowed the shooter to zero the sight. To use, the shooter fired at known range, say 300 meters. When he or she had established a satisfactory group, the adjusting screw was loosened and the elevation wheel rotated until the "3" lined up with the index mark. The adjusting screw was then tightened down and the rifle was zeroed at any other range.

## m/96-38 Rear Sight Markings and Finish

The Vasteras Metallverken Refined Sight Adapter SM-siktram m/38 (model of 1938) itself was not marked with a Crown inspection stamp. Its sole markings consisted of the company name and address and the patent number:

**Metallverken  
Västerås  
SV. PAT. 90944**

The m/96 rear sight base and leaf on which it was mounted carried their original markings. See m/96 Rear Sight Markings and Finish, immediately above.

This sight was manufactured for the 30,000 m/96-38 rifles that were remanufactured at Carl Gustaf with the shorter 23.1 inch barrel.

## m/38 Rear Sight

The rear sight used on the m/38 rifle was somewhat different than that used on the m/96 rifle, including dimensions, range and other markings, see Figure 2-74. The rear sight base was sturdier and the aperture bar at the end of the leaf was protected by two vertical ears. Two types of sight leaves were used and are described below.

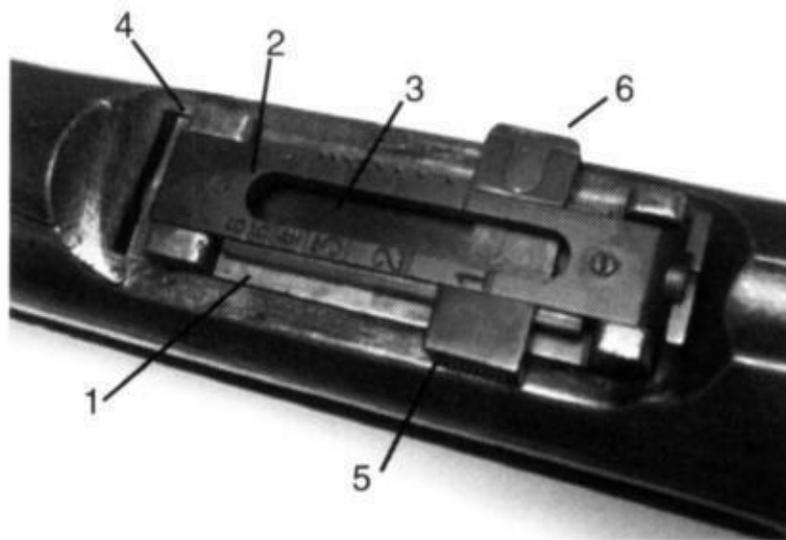


Fig. 2-74. m/38 rear sight assembly.

The differences only between the m/96 and the m/38 rifle rear sight components are described below. The sight was manufactured at Husqvarna.

The m/38 rear sight, like the m/96 rear sight consisted of eight parts: 1) base, 2) leaf, 3) spring, 4) leaf pin, 5) elevator bar housing, 6) elevator catch 7) elevator spring and 8) elevator

pin (7 and 8 are not visible).

The base was mounted on a ring which encircled the barrel and was indexed by the rear sight screw and soldered in place, refer to Figure 2-63. The base was 0.841 inches in diameter and 2.916 inches long. The base itself was 0.885 inches wide. The flat side rails did not have steps and the leaf was raised at all positions - except the 200 meter position and the 300 meter battle sight setting - to set the range.

The m/38 rear sight base is easily distinguished from the m/96 rear sight base by the two ears at the rear which are 0.175 inches wide by 0.306 inches front to back and 0.321 inches high.

The m/38 rear sight base center had two grooves milled on either side to hold the leaf spring in position.

m/38 Rear Sight Leaves - Two types of leaf were used on the m/38 rear sight. The Type 1 leaf was calibrated for the m/94 156 grain round-nose bullet, refer to Figure 2-74. The Type 2 leaf was calibrated for the m/94/41 139 grain spire point bullet, see Figure 275. The top of this leaf was marked with a large, capital "T", indicating its use with the "Torpedam" (spitzer) bullet.

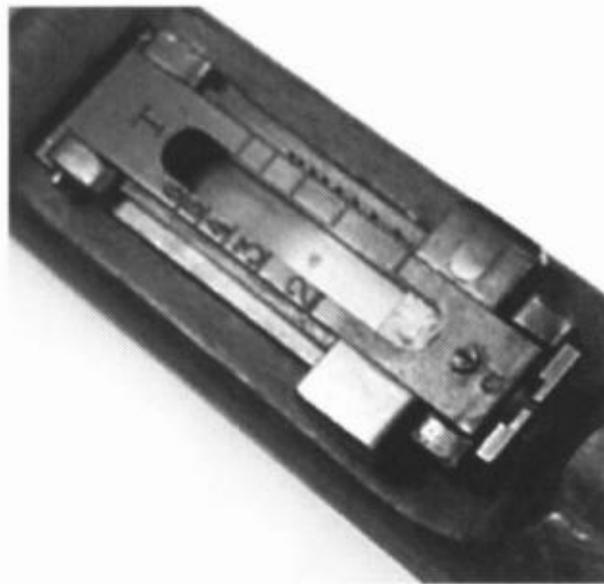


Fig. 2-75. m/38 rear sight leaf for the m/94/41 cartridge.

The left side of the Type 1 leaf was marked from 100 to 600 meters in 100 meter increments. On the right side, lines were scribed to indicate the intermediate 50 meter ranges between 250 and 550 meters. Range adjustment remained exactly as with the m/96 sight: the shooter depressed the catch on the right side of the elevator and moved it to the next position.

The left side of the Type 2 leaf was marked from 200 to 600 meters in 100 meter increments. On the right, the lines were scribed to indicate first, the 100 meter position, then every 50

meters between 200 and 500 meters.

m/38 rifles equipped with the Type 1 and 2 sight leaves for either the 156 grain round nosed bullet or the 139 spire point bullet also had a film decal attached to the right side of the butt stock with conversion factors that allowed the soldier to use either cartridge. See the section entitled "Range Charts" below for an explanation.

The 300 meter battle sight position was not marked other than with the "300" designation, but was set automatically when the sight leaf was prone.

### Target Rifle Rear Sights

A variety of non-optical rear sights were installed on the m/96, CG 63, CG 80 and Fsr rifles for target and match shooting, primarily for civilians. None of these non-optical target sights were officially used for military purposes, although the Swedish military did specify one rear sight, the GF diopter sight, for the CG-63 (m/6 and m/7) rifles used by military competitors.

At least nine different rear sights have been observed; seven are receiver-mounted and three are mounted on the barrel replacing the leaf in the issue rear sight. Civilian shooters often added other types of rear sights according to perceived need. Figures 2-75 through 2-79 show the most widely used of these sights.

The receiver-mounted diopter sights for the m/96 and CG 63 and CG 80 rifles were primarily manufactured for Swedish civilian shooting market by the firms of Soderin, Pram, Faldt, Elit and GF. GF diopter sights were manufactured by the Carl Gustafs Stads Gevarsfaktori of Eskilstuna, Sweden. The American-manufactured Lyman Model 48 (M) sight was also installed on many m/96 and some CG 63 rifles used for match shooting.

The GF diopter sight (refer to Figure 2-79) adopted in 1964 by the Swedish Army for use on the m/6 and m/7 variations of the CG 63 rifle is typical of the various diopter sights installed on the m/96 or CG 63 rifles. Windage could be adjusted with the left knob and elevation with the right knob to 600 meters. Interchangeable range rings were available: white for 6.5 x 55 mm and 7.62 x 51 mm NATO service ammunition and orange for competition ammunition furnished by the Army to both civilians and soldiers alike.



Fig. 2-76. Söderin target sight.



Fig. 2-77. Pram target sight.



Fig. 2-78. GF diopter target sight.

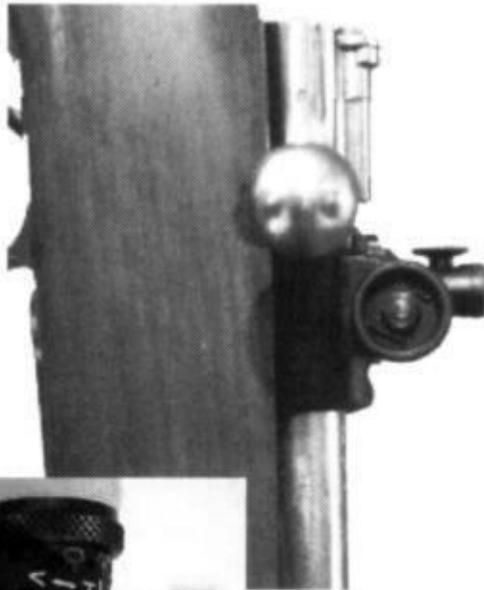


Fig. 2-79. Eilit diopter target sight.



All of the diopter sights required installation by a skilled gunsmith as mounting holes and, with certain sights, a groove, had to be drilled and cut in the top of the case-hardened receiver

bridge.

Elit receiver rear sights were manufactured by Elit Olle Edstrom AB of Ljusdal, Sweden and were used primarily on m/96, m-38, Fsr and CG 63 rifles used by civilian shooters. Elit provided a matching front sight with interchangeable inserts as well, see Figure 2-80. The Elit "bead holder" clamped around the muzzle and was indexed by the existing front sight. A rear insert screwed out to allow different types of inserts to be used as the front sight "bead." Most popular were the "ring bead" which was a circular aperture and a "bar bead" which provided a front aiming post. See the section of Target and Match Front Sights below for more details.



Fig. 2-80. Elit target front sight with interchangeable inserts.

Note: Bulltech Precision, a Swiss company offers a copy of the Elit rear sight. It is available through SAMCO Global Arms, PO Box 527323, Miami, FL 33152 (305 593-9782).

### Sniper Rifle Rear Sights

The m/41 sniper rifle retained the m/96 rifle rear sight leaf, although some of these were later removed for various reasons. The m/41 telescopic sights were calibrated for use with the m/94/41 cartridge which used the 139 grain spitzer bullet (Torpedam).

By 1955, it was decided that the sniper rifles should have a new nonoptical rear sight which did not require the shooter to estimate the amount of hold over or under. The "Precisionssikte SM m/55" was installed in the rear sight base and held in place with the sight leaf pin, see Figure 2-81. It was calibrated from 100 to 600 meters for the m/ 94/41 cartridge. The sight consisted on a replacement leaf with a thumbwheel adjusting screw that bore on the rear sight spring. The leaf was marked "SM/sikte/m55" at the top and with three stylized crowns at the aperture end. The thumbwheel was marked "1", "2" , "3", "4", "5", and "6".

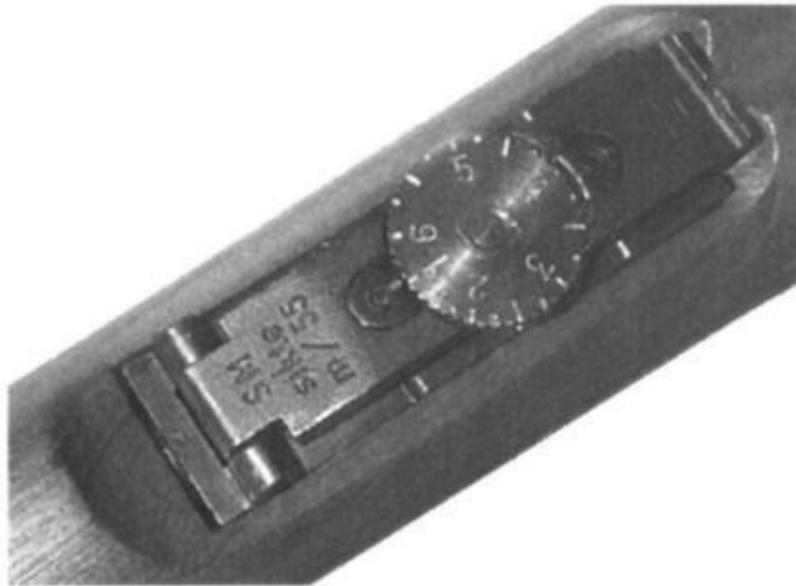


Fig. 2-81. The m/55 rear sight was installed on the m/41 B sniper rifle. It was adjustable to 600 meters.

Three years later, an improved rear sight adjustable for windage was approved as the "SM/sikte/m58. Its markings were identical to the m/55 with the exception of the model number. Thumbscrews on either side of the leaf provided adjustment.

Note: A number of different rear sight have been observed, some of which were clearly not military in origin. One rear sight leaf in the one of the author's collections is marked "SM/Sikte/F-ram" indicating that it was experimental. It was similar to the m/55 rear sight except that it was graduated to 800 meters. Markings were from 1 through 7 with 50 meter increments indicated by a bar and 25 meter increments by a dot.

### Marlings, Rear Sights

Crown inspection markings will be found on all parts of the Carl Gustaf-manufactured rear sight assemblies: 1) rear sight base, 2) leaf, 3) leaf spring, 4) slide and 5) slide lock.

Husqvarna rear sight assemblies will be marked with the inspector's initials on the rear sight base at the rear beside a vertical crown inspection marking. If components were repaired or replaced, an additional crown inspection marking tilted to the right, may be found at the front of the rear sight base, as well as a letter or number.

Diopter target sights found on m/96 and CG 63 target and match rifles will show manufacturer's markings but not military inspection markings as they were not intended for military use.

Sights manufactured for civilian sale and use will not have Crown inspection markings but may show other types of factory inspection or manufacturer's marks including name, model

and address.

## Serial Numbers, Rear Sights

Rear sight assembly parts manufactured at the Mauser or Carl Gustaf factories that will be marked with the partial serial number include: 1) leaf, 2) slide and 3) slide lock. Rear sight components manufactured by Husqvarna will not be marked with a partial serial number.

Occasionally, dipoter sights will show the serial number of the rifle's receiver. The numbers are stamped by hand, suggesting that the sight was installed by a military armorer and that the rifle was intended to be used by military personnel in target or match shooting. Otherwise, nonmilitary rear sights will not show Crown inspection markings or other proof marks.

## RANGE CHARTS

The Swedish Army adopted a new cartridge for all rifles in 1941. It was designated the "6.5 mm sk ptr m/94 prj m/41. " It contained a new 139 grain spire point boat tail bullet (torpedam) with a long ogive. Rather than replace all rear sights on rifles and carbines then in service or storage, either a metal plate or a film decal with a chart of corrected points of aim was issued to be attached to the right side of the stock. The chart was attached "upside down" on the stock so that when the rifle was held in the normal position, the chart could easily be read by the rifleman, see Figure 2-83.



G m/96	
Sikte för trubbkula	
Skjutning med spetikula	
Avstånd	Sikte/Rp
50	300/-2
100-250	300/-3
300	300/-2
350-400	300/0
450	400/-3
500	400/0
550	400/+3
600	500/-5

Fig. 2-82. Metal range charts were nailed to the butt stock. Paper decals were pasted on.

Four different ballistic charts were issued for each carbine and rifle model. A few minutes spent studying the charts and the progression of sight settings will quickly reveal the ballistic path of the lighter bullet.

(Table 2-4) K m/94 Sikte för trubbkula Skjutning med spetskula*	
Avst nd	Sikte/Rp
50	300/-2
100	300/-3
150-250	300/-4
300	300/-3
350-400	400/-4
450	400/-4
500	400/-1
550	400/+3
600	500/-6
* Translation Carbine m/94/Sight for ogive (round) bullet/Firing with pointed (spitzer) bullet Avst nd = Range, Sikte/Rp=Sight Setting	

m/94 Carbine Range Chart - If the soldier was firing the 139 grain m/ 94/41 cartridge from a m/94 carbine at a range (Avstand) of 50 meters, he would set the elevator slide to the 300 meter mark and subtract two decimeters (a decimeter is 10 centimeters or 3.9 inches) and aim 8 inches lower on his target, see Table 2-4.

m/96 Rifle Range Chart - If the soldier was firing the 139 grain bullet, m/94/41 cartridge at 300 meters from a m/96 rifle (Table 2-5), he would set the elevator slide to the 300 meter mark and estimate two decimeters under in elevation (about 8 inches) low. With this setting, if aiming at a man-size target, he would center the front sight in the middle of the chest and, all else being equal, be confident of striking somewhere in the torso.

(Table 2-5)

G m/96  
Site f r trubbkula  
Skjutning med spetskula.\*

Avst nd	Site/Rp
50	300/-2
100-250	300/-3
300	300/-2
350-400	300/0
450	400/-3
500	400/0
550	400/+3
600	500/-5

\* Translation: Rifle m/96/ Sight for ogive (round) bullet/ Firing with pointed (spitzer) bullet.  
Avst nd = Range; Site/Rp = Sight Setting

m/38 Ritle Range Chart - With the new rear sight ("T"-marked leaf) calibrated for the 139 grain bullet, if the soldier was firing the old 156 grain bullet in the original m/ 1894 cartridge from a m/38 short rifle or carbine at 450 meters, he would move the elevation slide to the 600 meter mark. If he wished to set the range for 500 meters, he would move the elevation slide to 600 meters and estimate 4 decimeters over (15.6 inches), see Table 2-6.

(Table 2-6)

G m/38  
Site f r Spetskula  
Skjutning med trubbkula\*

Avst nd	Sikte/Rp
50	150/0
100	150/0
150	200/0
200	250/0
250	300/0
300	350/0
350	450/0
400	500/0
450	600/0
500	600+4
550	600+13
600	600+20

\* Translation Rifle m/38/Sight setting for pointed (spitzer) bullet/Firing with ogive (round) bullet Avst nd = Range; Site/Rp = Sight Setting

## FRONT SIGHTS

Two types of front sights were developed and used for the Swedish Mauser military series of rifles. Both types were blued and mounted in a dovetail on a post 0.352 inches wide by 0.451 inches long and 0.321 inches high soldered to the top of the barrel, 0.568 inches behind the muzzle.

## Military

The Type 1 front sight was an inverted-"V" or "barley corn-"style front sight used on the m/94-96-14 carbines, see Figure 2-83. To use, the soldier centered the front sight in the notch in the rear sight, taking care to keep the top of the front sight even with the top of the rear sight bar.

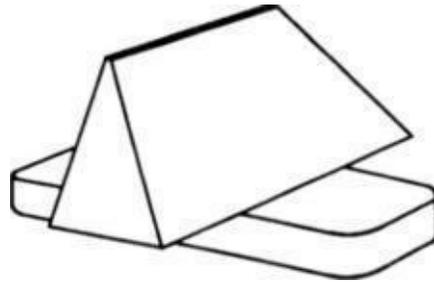


Fig. 2-83. Carbine front sight.

The Type 2 was a "partridge"-type front sight (square cross-section) installed on all m/96 and m/38 rifles, see Figure 2-84. It was 0.075 inches wide at the front and 0.089 inches wide at the rear. The standard blade was marked "0" and it was 0.222 inches (5.6 mm) high at the rear.

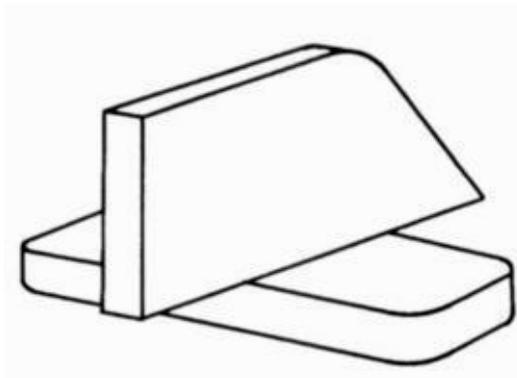


Fig. 2-84. Rifle front sight.

Because of manufacturing variations compounded by variations induced in mounting the front sight, nine different heights of sight blades were manufactured, differing in 0.5 mm height increments from minus 0.1 to plus 3 mm for the m/96, and from minus 2 mm to plus 0.75 mm in 0.25 mm increments for the m/38 front sights. Each rifle was fired at the factory with a different height sight blade until it was sighted in at 300 meters. Windage was adjusted by moving the front sight right or left. Then a vertical line was scribed on both the sight post and

the sight blade. Finally, the correct sight height used was stamped on both the sight blade and the post on the left side.

### Target and Match Rifle Front Sights

Fsr and m/96 and m/38 rifles as issued from the factory had the standard Type 2 front sight blade installed. But if used for target and match shooting, the individual owner or rifle club often had the Swedish-made Elit Kornring hooded front sight mounted, see Figure 2-85.



Fig. 2-85. Elit Korn ring front sight assembly.

The CG 63 and CG 80 match rifles were rebuilt from both m/94 carbines and m/96 rifles with the Elit Kornring front sight replacing the standard Type 2 sight blade. Other popular front sights for match shooting were the American-made Lyman and Redfield globe or hooded front sights.

The Elit front sight assembly consisted basically of two tubes, mounted one above another with a screw-in retainer at the rear of the top tube which held an interchangeable aperture in place, see Figure 2-85. The top tube was 0.788 inches in diameter and 1.025 inches long. The bottom tube was 0.774 inches in diameter and 0.845 inches long. A slot 0.371 inches wide by 0.631 inches long was cut from the back to clear the top of the sight post. The bar connecting the two tubes was 0.344 inches wide and 0.401 inches long. It had a threaded hole drilled lengthwise for a set screw that centered the front sight against the front sight post. The clamps on the bottom tube had two threaded holes, counterbored on the right side, for the clamping screws. Two nuts were used to secure the clamping screws.

The Elit front sight assembly was installed so that it clamped around the barrel behind the second step and the rear of the vertical connecting bar rested against the front sight post (the front sight blade was removed). The set screw was turned tight against the front of the sight

post to prevent the sight assembly from moving. The two most common apertures used with the Elit front sight were a "peep" and a "Partridge"-style post.

Elit front sights were finished by bluing or black oxidizing and were unmarked. They were manufactured by Olle Edstrom AB of Ljusdal, Sweden.

### Markings, Front Sight

The military front post was marked on the left side with a the correct sight blade height after the rifle was sighted in. For instance, if the rifle shot at point of aim with a sight blade 0.50 mm higher than normal, "+50" would be stamped on both the post.

The Crown inspection marking was stamped on the front of the post but not on the sight blade.

Note: Front sight posts installed on the Fsr target rifles and for the CG 63 and CG 80 rifles will often shown the original inspection marks ground all or partially away. This was done during fitting of the hooded front sight assembly and not for any other reason.

### CLEANING RODS

All Swedish m/96 and 1938 rifles were equipped with steel cleaning rods. The m/94-96-14 carbines were issued with pull-through cleaning kits.

The cleaning rod (Figure 2-86) was made of tempered steel to allow it to bend without deforming. The head was knurled to make it easier to grasp and slotted to hold a cleaning cloth. This end of the rod was too big to enter the bore and was used to clean the chamber only. The opposite end was threaded both to screw into the steel plate set into the stock ahead of the magazine assembly and to allow a "cleaning rod extension" to be attached. The cleaning rod extension was made of brass and allowed the entire bore to be cleaned from the breech end. Without the cleaning rod extension, the bore had to be cleaned from the breech end first and then from the muzzle to reach all of it. When cleaning from the muzzle end, the soldier was required to use a "muzzle rod guide." Cleaning rod extensions and muzzle rod guides are discussed in Chapter 5, Soldier's Rifle and Carbine Accessories.

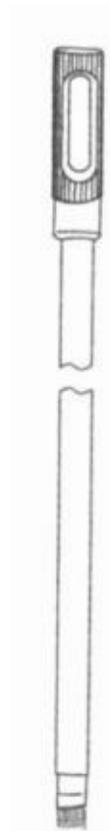


Fig. 2-86. Cleaning rod tip.

The cleaning rod was manufactured or modified into two types. The Type 1 was issued for the long m/96 rifle. It was 27.56 inches long. The head was 1.0, the shaft was 24.06 and the threaded end was 2.5 inches long.

The diameter of the head varied from 0.270 to 0.275 inches in diameter. An oval slot 0.416 inches long and 0.1385 inches wide was milled through the cleaning head for the cloth patch. The head was knurled with 18 grooves, nine on either side of the slot.

The end of the cleaning rod was threaded 35 turns per inch.

Type 1 cleaning rods are marked with the serial number of the original rifle. They also show the Crown inspection marking on the top of the cleaning head.

Note: The authors have been unable to determine any feature that would identify a cleaning rod as having been made by Mauser as opposed to Carl Gustaf.

The Type 2 cleaning rod is found in two variations. The 1st Variation was the m/96 Type 1 cleaning rod which was shortened to 22.187 inches for use in the m/96-38 Rifle.

The 2nd Variation cleaning rod was newly manufactured by Husqvarna for the m/38 rifle. These were also 22.187 inches long.

Except for length, all other dimensions were the same as the Type 1 Cleaning Rod.

Cleaning rods were not issued for the CG 63 or CG 80 made for civilian sales. But a standard Type 2 m/96-38 or m/38 cleaning rod was issued with the CG 63 m/6 or m/7 intended for military target use.

### Markings, Cleaning Rod

Type 2, 1st Variation cleaning rods will show the serial number of the original m/96 rifle. The Type 2 2nd Variation cleaning rods made by Husqvarna were not marked with a serial number. Both variations will show the Crown inspection marking at the top of the cleaning head

Note: The cleaning rod is the one part of the Swedish Mauser most likely to have a serial number which does not correspond to the receiver serial number.

### CLIPS, CARTRIDGE

When the Swedish version of the Mauser action was adopted in 1894, the concept of clip loading was relatively new. Repeating rifles required a faster means of reloading and several techniques were tried. In 1889, Mauser introduced the cartridge strip, or clip, into which five cartridges were inserted and held by their rims. The clip was formed from a strip of steel with the sides bent over to form a rim on either side. A strip of spring steel bent into a shallow "S" was slipped under the rims. When the cartridges were inserted, the spring provided upward pressure that held the cartridges in place. The design was both economical to produce and quite reliable. Soldiers could carry their ammunition preloaded into clips in flat leather or cloth pouches attached to a belt.

At the same time that Sweden adopted the Mauser action with its clip loading feature, they made a seemingly minor, but in fact, very important improvement. They requested that the receiver be cut away on the left side to allow room for the soldier's thumb when pushing the cartridges out of the clip into the magazine. This simple alteration more than cut in half the time required to reload a rifle. While this does not sound all that important, it significantly improved the soldier's chances of survival in combat.



Fig. 2-87. Cartridge clips for the Swedish Mauser held five rounds.

The cartridge clip for the 6.5 x 55 mm ammunition is 0.569 inches wide by 1.376 inches long by 0.197 inches high. It has two tabs on either side to aid in centering in the clip guide on the receiver. The clip was made of thin rolled steel, bent to shape. Most were left in the white but blued and parkerized versions have been observed. A variety of numbers and initials will be found stamped on the back as well as unmarked.

## CHAPTER 3

### MARKINGS

#### MANUFACTURER'S MARKINGS

Manufacturer's markings are found on all receivers of each model of the Swedish Mauser Rifle. There are three basic types, representing the three manufacturers plus one applied by a North American importer. The individual factory markings are identical within models.

m/(18)93 Carbine

No manufacturer's marking on receiver.

m/94 Carbine (Figure 3-1).

WAFFENFABRIK  
MAUSER  
OBERNDORF<sup>A</sup>/<sub>N</sub>

m/94, m/94-96 and m/94-14 Carbines

CARL GUSTAFS STADS  
GEVÄRSFAKTORI

m/96 and m/96-38 Rifle, (Figure 3-2).

WAFFENFABRIK  
MAUSER  
OBERNDORF<sup>A</sup>/<sub>N</sub>

CARL GUSTAFS STADS  
GEVÄRSFAKTORI

m/38 Rifle, Figure 3-3.

HUSQVARNA VAPENFABRIKS  
AKTIEBOLAG

Fsr Rifle (m/38-96)

HUSQVARNA VAPENFABRIKS  
AKTIEBOLAG

m/41 Sniper Rifle

CARL GUSTAFS STADS  
GEVÄRSFAKTORI

WAFFENFABRIK  
MAUSER  
OBERNDORF<sup>A</sup>/<sub>N</sub>

m/41B Sniper Rifle

CARL GUSTAFS STADS  
GEVÄRSFAKTORI

WAFFENFABRIK  
MAUSER  
OBERNDORF<sup>A</sup>/<sub>N</sub>

HUSQVARNA VAPENFABRIKS  
AKTIEBOLAG

CG 63 and CG 80 Match Rifles

CARL GUSTAFS STADS  
GEVÄRSFAKTORI

WAFFENFABRIK  
MAUSER  
OBERNDORF<sup>A</sup>/<sub>N</sub>

HUSQVARNA VAPENFABRIKS  
AKTIEBOLAG

Interarms Company (Figure 3-4).

WAFFENFABRIK  
MAUSER  
OBERNDORF<sup>A/N</sup>  
INTERARMCO  
G33/50

CARL GUSTAFS STADS  
GEVÄRSFAKTORI  
INTERARMCO  
G33/50



Fig. 3-1.



Fig. 3-2.

Fig. 3-3.

In the late 1950s, InterArms Company of Alexandria, Virginia imported a number of m/94 carbines. The company marked their receivers with their own designation. It is not an official Swedish military or civilian marking but a North American commercial mark.



Fig. 3-4. Non-military Interarmco marking.

#### ADDITIONAL RECEIVER MARKINGS

The year the receiver was manufactured is found on the receiver ring directly under the manufacturer's marking. The ordnance inspector's initials are found on the left side of the receiver just before the serial number on receivers manufactured at Mauser and Carl Gustaf, see Figure 3-5. The Ordnance inspector's initials were not marked on Husqvarna-manufactured

receivers; instead, they were stamped on the rear sight base, under the leaf.

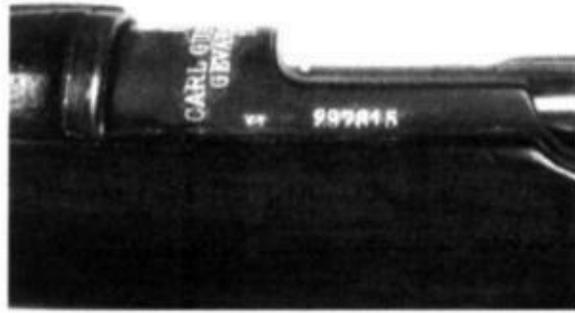


Fig. 3-5. Receiver serial number location.

The serial number was stamped on the left side of all receivers during the manufacturing phase but before final polishing and hardening.

The CG 63 and CG 80 match rifles have a second proof mark, a rune which appears as a bent line, on the left side of the receiver, see Figure 3-6.

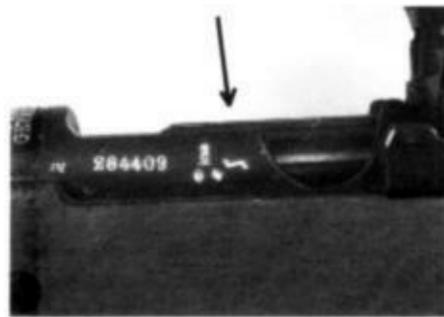


Fig. 3-6. Rune marking on CG 63 rifles.

### Crown Inspection Marks

A stylized crown surmounted by a cross was used by the Swedish government to mark government-owned military property - often referred to as "Crown property." The crown inspection mark is seen in two major variations in shape, three in orientation and two in size. The Crown stamp used at Carl Gustaf was slightly more bulbous than that used by Husqvarna, see Figure 3-7.

Crown inspection stamps applied at the Mauser and Carl Gustaf factories are vertical; those applied at Husqvarna are tilted so that the cross points to the 2 o'clock position. Those applied to some replacement parts are tilted so that the cross points to the 11 o'clock position and may indicate they were made by an independent contractor. Two sizes of inspector's crown stamps were used. The larger size was applied to major parts such as receivers, barrels, bolts, etc. The smaller size was applied to smaller parts such as the components of the bolt release assembly and cleaning rod tip

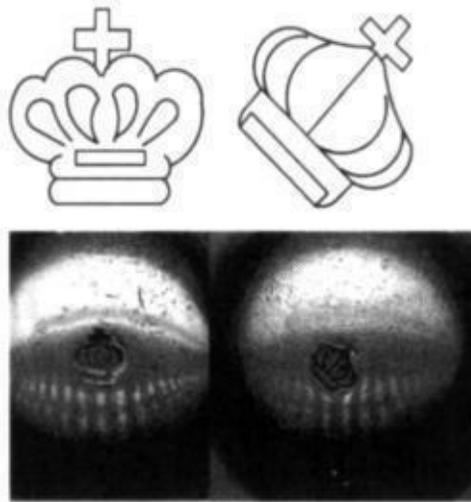


Fig. 3-7. Carl Gustaf and Husqvarna inspection crowns.

### Principle Arms Inspectors

The principle arms inspectors were responsible for seeing that the newly-made carbines or rifles met all specifications established by the Ordnance Department. They were responsible for inspecting all rebuilt arms as well. All were military officers, and they served as arms inspectors for varying periods of time. The principle arms inspectors during the manufacture of the Swedish Mauser at all three factories are shown below in Table 3-1, the data for which was compiled by Malts Persson of Goteborg, Sweden. It is used with his kind permission. See his internet web site at <http://www.mtek.chalmers.se/~m95perm/vapen/>

### Master of Weapons Carbines and Rifles

Soldiers assigned as "Master of Weapons" for a regiment were active duty military officers. It was their responsibility to be completely familiar with all of the regiment's weaponry and they attended various course to become so. One course concerning rifles and carbines was given at the Carl Gustaf factory. At the end of the course, the officers were required to assemble a carbine or rifle to demonstrate their knowledge of the manufacturing and inspection processes. They were marked with the officer's name on the receiver, see Figure 3-8.

**Table 3-1  
Principle Arms Inspectors and Period of Service\***

<b>Initials</b>	<b>Period of Service</b>	<b>Name</b>
G.F	May 2, 1894 to Dec. 21, 1902	Gustaf F. V. Fredenberg
O.G.	May 1, 1898 to May 31, 1902	Olof D. Gibson
K.B.	April 1, 1902 to Sept. 31, 1905	Konrad A. Berglund
H.R.	January 1, 1903 to Dec. 31, 1906	E. Herman Ribbing
J.V.	Oct. 1, 1905 to Dec. 31, 1906	Paul Jaques R. Virgin
R.L.	Jan. 1, 1907 to Mar. 31, 1909	G. Ragnar A. H. Lindgren
W.L.	April 1, 1909 to Mar. 31, 1912	Wolthar F. Langèen
Y.T.	Oct. 1, 1911 to Sept. 31, 1914	F. Yngve Tellander
H.K.	April 1, 1912 to Feb. 28, 1923	Helge G. L. Kolthoff
M.B.	Oct. 1, 1914 to Sept. 31, 1917	T.F. Magnus Berggren
B.H.	Oct. 1, 1917 to Sept. 31, 1920 April 7, 1926 to Jan. 10, 1934	S. H. Bertel Hård af Segerstad
H.A.	Oct. 1, 1920 to Sept. 31, 1923	F. Harald Andreasson
B.F.	March 1, 1923 to April 6, 1926	J.A. Birger Fagergren
GB**	Jan. 10, 1934 to Sept. 30, 1942	C. Gustaf Björkenstam
SS**	Oct. 1, 1942 to Mar. 31, 1946	Sten W. Stenmo

The practice of marking these rifles and carbines differed somewhat over the years. Most show the officer's name in place of the serial number on the left side of the receiver. Some officer's rifles and carbines will show a one, two or three digit serial number followed by a "/" and the year they were assembled. On many, other parts are marked with the same number sequence but not the year. Others will show a " + " on the receiver and on all or most major parts rather than the serial numbers. The officer was allowed to keep the weapon he assembled

as his personal property.

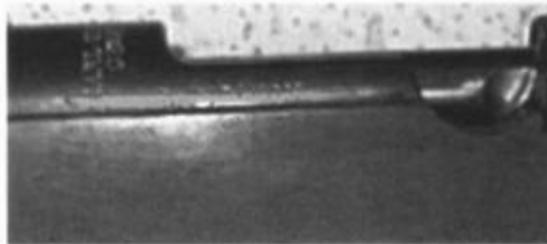


Fig. 3-8. "Master of Weapons" course rifle with name of attending officer.

<b>Table 3-1, con't. Principle Arms Inspectors and Period of Service*</b>	
<b>Initials</b>	<b>Name</b>
<b>Other Swedish Inspection Markings</b>	
SS	Sten Stemno, found on Husqvarna m/38 rifles, on rear sight base
GB	C. Gustaf Björkenstam, found on Husqvama m/38 rifles, on rear sight base
Crown/S	Stockholm Arms Station (repair facility)
Crown/C	Garl Gustaf factory (repairs or special production)
Crown/J	Jemmanufakturaktiebolag, Eskilstuna (repairs) usually marked on stock wrists
Crown/C/ two digit date	Alteration or major repair at Carl Gustaf factory and date. Also on the CG 63 match rifle
SA (Boxed)	Suomen Armeija (Army of Finland)
FKF	Denmark
* Officers assigned as arms inspectors to the Carl Gustaf factory. ** Applied to m/38 rifles, on rearsight base	

## INSPECTOR'S MARKINGS

The m/94 Carbine and m/96 Rifle - Mauser or Carl Gustaf - will show inspector's markings on virtually every part. The m/38 rifle will show inspectors markings on major parts only.

Four types of inspection markings were used:

1) the initials of the Ordnance inspector assigned to inspect and gauge all parts. His initials are usually found on the left side of the receiver, refer to Figure 3-5.

2) a crown stamping signifies that the part has been inspected according to specifications (refer to Figure 3-7) and has been passed. If the crown is straight up and down, it was applied by inspectors at the Mauser or Carl Gustaf factory; if tipped to the right, the Husqvarna factory and if tipped to the left, a subcontractor manufactured or possibly a replacement part. The crown mark is usually found in two sizes. It is not known if the different sizes have any significance except that they were sized to the part, i.e., larger part, large crown; small part, small crown.

3) individual working group inspection marks are usually single numbers or letters found on the bottom of the receiver.

4) arms depot markings indicating the rifle has undergone refurbishment or repairs. Table 3-2 provides a list of all parts which will show inspection markings.

Note: m/94 carbines manufactured by Mauser before 1896 will not show the inspector's initials before the serial number.

#### MAJOR AND MINOR REPAIR MARKINGS



Fig. 3-9. Carl Gustaf repair marking.

If major repairs were performed on a rifle or carbine, they were done either at the Carl Gustaf factory or at an "ordnance station," and often the part was marked with a Crown over the initial of the depot or factory, see Figure 3-9. The mark may or may not appear on the part replaced or repaired but will always be stamped on a replaced or repaired barrel. All CG 63/80

rifles will show this mark. Table 3-3 lists all known repair depot marks. If the rifle or carbine was received for minor repairs, some armorers would mark the trigger guard with a center punched dot. If they made another modification to the same weapon, they stamped a second dot, and so on. This was not an official practice.

**Table 3-2  
Inspector's Marks**

Parts	Marking	
	Mauser and Carl Gustaf Factories <sup>1</sup>	Husqvarna factory <sup>2</sup>
Buttplate	Crown	Crown
Stock	1. Inspector's initials behind rear of trigger guard plate. 2. Crown behind trigger guard plate <sup>3</sup> 3. Inspector's initial(s) on flat ahead of magazine well. 4. Crown on flat ahead of magazine well. 5. Inspector's Initials inside sling swivel plate inletting.	Crown/S behind trigger guard plate
Nose Cap (m/94)	Crown (right side)	N/A
Cleaning Rod Lug	Crown (front)	Crown (front)
Forend	Inspector's initials	Inspector's initials
Handguard	Crown (underside), inspector's initials	Inspector's Initials
Barrel Band, Rear	Crown	Crown
Barrel Band, Front	Crown "S," Type 1 and Type 2 Barrel bands (inside)	Crown
Barrel Band Springs	Crown	Crown

Table 3-2, con't.  
Inspector's Initials

Receiver	1. Principle inspector's initials on left side before serial number, except on m/94 carbines mfg'd by Mauser before 1896	1. No principle inspector's initials on left of receiver. Stamped on rear sight base instead
Bolt Stop	Crown	Crown
Bolt Stop Spring	Crown	Crown
Receiver Ring	Crown	None
Ejector	Crown	Crown
Trigger Guard Plate	Crown	Crown
Magazine Well	Crown (rear wall, interior)	Crown (rear wall interior)
Cartridge Guide	Crown	Crown
Magazine Floor Plate Release Button	Crown	Crown
Magazine Floor Plate	Crown	Crown
Sear	Crown	Crown
Trigger	Crown	Crown
Barrel	Crown	Crown
Front Sight Post	Crown	None
Front Sight Blade	None, + or - and digit indicating blade height	None, + or - and digit indicating blade height

**Table 3-2, con't.  
Inspector's Initials**

Rear Sight	<ul style="list-style-type: none"> <li>1. Base, Crown</li> <li>2. Spring, Crown</li> <li>3. Slide, Crown</li> <li>4. Leaf, Crown</li> <li>5. Slide Lock, Crown</li> </ul>	<ul style="list-style-type: none"> <li>1. Base, Crown, principle inspector (SS or GB), additional inspector's initials at front of base</li> <li>2. Spring, Crown</li> <li>3. Slide, Crown</li> <li>4. Leaf, Crown</li> <li>5. Slide Lock, Crown</li> </ul>
Bolt, handle	Crown	<ul style="list-style-type: none"> <li>1. Crown</li> <li>2. Inspection number, cut at junction of bolt body and bolt handle</li> </ul>
Extractor Collar	Crown	Crown
Bolt Sleeve	Crown	Crown
Safety Lever	Crown	Crown
Extractor	Crown	None
Cocking Piece	Crown	Crown
Firing Pin	Crowns (1 large, 1 small)	Crown
Cleaning Rod	Crown (tip)	Crown (tip)

1. The crown inspection stamps applied at the Carl Gustaf factory were oriented straight up and down.
2. The crown inspection stamps applied at the Husqvarna factory were tilted 45 degrees to the right (the cross on top of the crown points to the 2:00 o'clock position).
3. Crown inspection stamps tilted 45 degrees to the left (cross pointing to the 11 o'clock position) may indicate a contractor-made or replacement part.

**Table 3-3  
Major Repair Markings**

<b>Mark</b>	<b>Origin</b>
Crown/C	Carl Gustaf Stads Gevarsfaktori
Crown/S	Stockholms Tygstation, Stockholm
Crown/K	Karlsborgs Tygstation, Karlsborg
Crown/CB	Karlsborgs Tygstation, Karlsborg
Crown/B	Bodens Tygstation, Boden
Crown/J	Jönköpings Tygstation, Jönköpings
Crown/Ch	A3 Tygstation, Kristianstad
Crown/Ö	A4 Tygstation, Östersund
Crown/G	A7 Tygstation, Gotland

### Reinspection Markings

A second or third crown indicates that the part was reinspected after a major repair or replacement. These are often smaller crowns than the original factory inspector's crown. Check any serial number, or partial serial number to make certain it is the same as that on the receiver.

### Replacement Part Markings

When a rifle was returned to an arms depot or the factory for repairs that required that parts be replaced, the armorer tried several parts before he found one that fit properly. Hand-fitting was discouraged as the part might be altered so that it could never be fitted to any other rifle. When the armorer found a part that fitted properly, he stamped it with the last three digits of the serial number from the rifle's receiver. It is sometimes possible for the collector to detect these replacement parts since the serial numbers were stamped by hand. The numbers will be uneven and some will be stamped more deeply than others. The type face (font) of the number will differ from that used on the rifle's receiver and on other parts. Parts for the m/96 and m/96-38 with the last three digits of the serial number etched with an electric pencil are always replacement parts. However, on the m/38 rifles, many parts had the last three digits of the serial number etched with an electric pencil during manufacture.

### Miscellaneous Inspection Markings

Swedish industry was known then, and now, for its innovative approach to mass production, including, among others, the concept of "work groups." These were teams of workers responsible either for specific manufacturing techniques or for producing a complete assembly or even a finished product. This technique was introduced to eliminate the number one quality control problem in assembly line manufacture, the mind-numbing repetition of the same work task repeated over and over again. Evidence of this technique is often seen on the bottom of receivers which show a wide variety of letters and numbers which are the control and inspection marks of work groups as well as individual inspectors. It has not proven possible to identify specific letters and numbers by time periods.

Barrels manufactured in the 1950s and 1960s as spare parts will show the last digit of the bore's diameter stamped near the muzzle.

### Condemned or Dismissal Markings

When a military rifle or carbine was dismissed or condemned from service in Britain or the United States, it was marked with a "C," usually on the receiver and other major parts. In Sweden, when a firearm was dismissed from service, it was marked with an "X" on the receiver in the vicinity of the serial number. Do not confuse this with the "+" sign stamped on many Master of Arms carbines or rifles assembled by Ordnance inspectors at the end of their course work.

### Finnish Acceptance Markings

During Finland's Winter War (1939-40) Sweden sold 86,000 m/96 rifles to the Finnish military. Those accepted by the Finnish army were marked "SA" (Suomen Armeija); those accepted by the Finnish Civil Guard were marked "SkY" (Suojeluskuntain Yleisesikunta).

If repairs were made to the rifles used by the Finnish Army or Home Guard, they were marked by the depot making the repairs: AV 1 (Arms Depot No. 1, at Helsinki; AV 2 (Arms Depot No. 2) at Viipuri; AV 3 (Arms Depot No. 3) at Kuopio.

### SERIAL NUMBERS

Each receiver was stamped with a serial number in addition to the factory's name and year of manufacture during production but before the final polishing, hardening and assembly into a completed rifle or carbine. The Model 1893 carbines purchased for testing prior to manufacture were serial numbered 1 through 52. Serial numbering of production models started at number 1 applied to the first m/94 carbine manufactured by Mauser. Carl Gustaf also began their serial number sequence with 1 in 1898 with the first of their m/96 rifles. All serial numbers were stamped sequentially onto the left side of each receiver. Carl Gustaf and Mauser serial numbers were intermingled in blocks assigned to each factory, see Table 3-4.

## Serial Number Blocks

Because of the three different manufacturers, Swedish Mauser serial number ranges can be confusing when trying to determine whether or not a rifle or carbine is correct, especially in the early years.

Carbines - Mauser built 12,000 m/94 carbines in 1895, circa serial number range 1 to 12,000.

Carl Gustaf built 115,000 m/94 carbines from 1901 to 1907 and 1914 to 1918, circa serial number range 10,000 to 112,000. A few m/ 94-14 carbines appear to have been built as needed until as late as 1932.

Table 3-4  
Serial Number Ranges and Inspectors Observed by Year  
m/94, m/96 and mv/38

Year	Serial # (start/end)		Factory/Inspectors
<b>Carbines</b>			
1894	1 - 52		Mauser/None
1895	13 - 11,961		Mauser/GF
1901-1907	10,486 - 53,762		C Gustaf, GF, KB, HR, JV
1914-1918	59,028 - 112,000		C Gustaf, YT, HK, MB, BH
<b>Rifles</b>			
	<b>Car Gustaf</b>	<b>Mauser</b>	
1898	17 - 3,112	None	OG
1899	3,324 - 19,874	20,378 - 34,369	OG, GF
1900	60,136 - 82,694	35,480 - 57,490	OG, JF, JV, HK
<b>Carl Gustaf Only</b>			
1901	83,538 - 99,566		OG, OF
1902	103,032 - 124,508		GF, KB
1903	125,642 - 139,981		HK, KM, KB
1904	142,028 - 151,888		KB
1905	152-962 - 176-625		KB, JV
1906	178,302 - 205,769		JV
1907	204,107 - 213,962		JV
1908	215,188 - 236,704		JV
1909	238,284 - 258,609		JV

**Table 3-4, con't.**  
**Serial Number Ranges and Inspectors Observed by Year**  
**m/94, m/96 and m/38**

<b>Year</b>	<b>Serial # (start/end)</b>	<b>Inspectors</b>
1910	261,544 - 269,871	JV
1911	280,693 - 294,949	JV, YT
1912	296,319 - 322,680	YT, HK
1913	312,014 - 325,790	YT
1914	327,380 - 332,031	HK
1915	334,451 - 369,074	HK
1916	371,474 - 401,598	HK, MB
1917	401,990 - 445,475	HK
1918	445,969 - 461,858	HK
1919	462,264 - 480,551	HK
1920	481,396 - 489,625	HK
1921	491,829 - 495,000	HK
1922	499,980 - 503,212	HK
1923	504,145 - 508,800	BF
1924	509,330 - 511,145	BF, BH
1925	511,948 - 517,277	BH
<b>Husvarna Production - m/38</b>		
1941	600,867 - 628,717	SS, GB
1942	628,822 - 667,603	SS, GB

**Table 3-4, con't.**  
**Serial Number Ranges and Inspectors Observed by Year**  
**m/94, m/96 and m/38**

Year	Serial # (start/end)	Inspectors
1943*	669,783 - 692,972	SS
1944*	697,251 - 705,686	SS
* Includes 20,000 m/96-type rifles, manufactured at Husqvarna for the Frivilliga skytterörelsen.		

Rifles - Mauser built 40,000 m/96 rifles in 1899 and 1900, circa serial number range 20,000 to 60,000. Carl Gustaf built 20,000 m/96 rifles in 1898 and 1899, circa serial number range 1 to 20,000 and 1 420,000 more m/96 rifles between 1900 and 1925, circa serial number range 60,000 to 518,000. Husqvarna built 60,000 m/38 rifles between 1941 and 1944, circa serial number range 600,000 to 706,000, plus 20,000 m/96-type rifles for the Frivilliga skvttterorelsen (shooting society) within this same serial number range. Twenty-five percent more serial numbers were assigned to Husqvarna than rifles were actually manufactured.

### Serial Number Overlap

Because of the way serial numbers were allotted to Mauser and Carl Gustaf for carbines and rifles, carbine and rifle serial numbers were duplicated, but no carbine or rifle serial number was. The Swedish military was apparently unconcerned with overlap between carbines and rifles as in returns, firearms were always identified by model number; therefore, an m/94 carbine with serial number 11,235 would not be mistaken for serial number 11,235 m/96 rifle.

### Serial Numbers Beyond Production Ranges

The highest production Carl Gustaf serial number the authors observed is 513,329 on a 1925 dated receiver. Carsten Schinke reported 517,277 in his book, "Die leichten schwedischen Infanteriegewehre Armee and Heimwehr. " But the authors have observed higher numbers - 657,006 on a 1935 dated receiver and 800,000 on a 1938 dated receiver. We believe that these "high" numbers were not applied to the receivers during the factory production run but instead were stamped on "spare parts" receivers used to rebuild rifles. The fonts and method of stamping on these high number rifles were not consistent with factory applied stamps.

In Sweden, as in most countries, serial numbers were applied to military arms for a variety of reasons, not the least of which was production accounting. Governments want to know how many rifles they are paying for, and military planners need to know if they will have sufficient weapons for a given number of troops. At the same time, any ordnance officer worth his salt knows that rifles will be damaged or lost and must be repaired or replaced.

Accordingly, he will build into his budget request a reserve of spare parts.

The spare parts, including receivers, may not be used for years and in fact, may not be used until after production has ended. The authors believe that this is what happened to produce the "high number" receivers dated after 1925. Because these receivers were intended as spares, they had been stamped with the manufacturer's name but not the date or serial number, then polished and hardened. Swedish military regulations required that all parts bear a serial number to assure they had been properly fitted. When the receivers were drawn from the spare parts inventory and assembled into complete rifles, they received a serial number from a "replacement parts" sequence that alerted all other armorers that the receiver on this rifle was a replacement at the year stamped on. Examine the year and serial number on all such receivers and it will be clear that they were stamped into hardened metal, and usually in a different font as well.

### Serial Number Ranges

The authors recorded 487 serial numbers for all types of Swedish Mausers in an attempt to ascertain serial number ranges by year of manufacture and to determine if any blocks of serial numbers were assigned for specific purposes. While a great deal of information is purportedly known about the Swedish rifles and their manufacture, little of it is verifiable from factory production records, if in fact these still exist. The authors were unable to locate any significant factory records dealing with production numbers or with the assignment of serial numbers. Although these must exist somewhere, repeated requests to a variety of sources in Sweden failed to turn them up. Part of the problem may lie in the fact that the Carl Gustaf factory changed ownership a number of times between the end of World War II and its acquisition by Bofors.

Of the 487 serial numbers recorded, we were able to examine nearly 200 rifles and carbines closely to determine authenticity and originality, and the many of these were disassembled for a thorough examination.

Carbines - The earliest serial numbers the authors have recorded for the m/94 carbine is serial number 1 for the prototype carbines manufactured by Mauser Oberndorf, as observed by Colonel Axel Ekfeldt. The earliest Mauser-production carbine serial number observed by the authors was 11, dated 1895. Mr. Rolf Lindqvist, a former Swedish Army workshop employee, reported that the lowest Mauser-manufactured m/94 carbine serial number he had observed was 13, dated 1895, and the highest was 11,035, also dated 1895. A Mauser-made m/94 carbine has been reported to us with a receiver date of 1897 but no serial number was furnished, and we were unable to observe the carbine.

The lowest Carl Gustaf-manufactured m/94 carbine serial number observed by the authors was 40,070, dated 1900. Mr. Rolf Lindqvist reported that the lowest Carl Gustaf m/94 carbine serial number he had observed was 10,486, but dated 1901.

The authors have recorded a string of m/94 carbine serial numbers, dated 1900 ranging from 40,070 to 77,744. These may be service-replacement receivers or they may have been assembled from parts. All were observed in North America and all were early, unmarked imports.

The authors have also recorded m/94 carbines manufactured by Carl Gustaf ranging as high as 312,851, dated 1912, and also, a 1916dated m/94 carbine, serial number 80,854. Other high serial numbers were scattered through the years 1901 to 1912, leading us to believe that these were either m/96 rifle receivers used to build m/94 carbines or else were replacement receivers for carbines manufactured earlier or later than their receiver ring dates, or, worst case, fake carbines made up using rifle receivers and carbine parts. The current high price of the carbines relative to the rifles has engendered a mini-industry of fakery in this regard. Use caution when considering the purchase of an m/94 carbine. Keep in mind that these were military firearms made to rigid specifications, and if they do not conform, do not buy. Review the relevant sections in Chapter 2 carefully.

Our study of Swedish carbine serial numbers have led us to the following tentative conclusions: 1) The original 52 prototype carbines were not numbered in the m/94 serial number sequence. 2) Mauser Oberndorf manufactured carbines in 1895-1896 with possibly a few dated in 1897 as the contract was finished. 3) A total of 115,000 m/94 series carbines were manufactured at Carl Gustaf. They fall into two groups of serial numbers, circa 10,000 to 54,000 manufactured between 1901 and 1907 and circa 59,000 to 112,000, manufactured between 1914 and 1918. These total approximately 97,000 carbines which combined with the 12,000 manufactured at Mauser account for 109,000 of the reported 115,000 carbines manufactured.

Rifles - The earliest Carl Gustaf-manufactured m/96 rifles were serial numbers 17 and 18, dated 1898 and reported by Rolf Lindqvist. The authors observed more than 20 m/96 rifles manufactured by Carl Gustaf, dated 1900; the lowest serial number was 461 and the highest was 19,878.

The first m/96 rifle manufactured by Mauser found in our survey was serial number 21,883, manufactured in 1898, and the highest was 36,953. No a single instance of duplicate Mauser and Carl Gustaf rifle serial numbers have been encountered. The last "production" m/96 rifle observed and examined by the authors was 513,329, dated 1925. As noted above, Carsten Schinke reported serial number 517,277, with a receiver date of 1925.

The earliest m/38 rifle produced at Husqvarna in our data base is 600,867, and the highest is 705,686, in 1944. Again, "a number of out-of-sequence" serial numbers and dates have been observed that we feel were replacement receivers on repaired rifles and which were not part of serial production. See "Rebuild Serial Numbers," below.

Our conclusions regarding the m/96 and m/38 rifles are as follows: 1) Carl Gustaf rifle

production ran from 1 in 1898 to 19,999 in 1899 and from 60,000 in 1900 to at least 517,277 in 1925. 2) Rifle production began at Mauser Oberndorf at circa serial number 20,000 in 1899 and continued through circa 59,999 in 1900. 3) An unknown number of receivers were manufactured as spare parts and used to repair rifles. These were serial numbered in their production run, dated in the year they were produced and placed in storage. They are found scattered through the entire range of rifle serial numbers. 4) Husqvarna production of the m/38 began in 1941 at circa 600,000 and continued through 1944 ending at circa 706,000. 5) Both m/96-38 and m/41 sniper rifles were made from m/96 rifles manufactured by Mauser and Carl Gustaf at any time between 1898 and 1925.

### Serial Number Type Styles

Three types of serial number type styles were observed on receivers, one each at Mauser, Carl Gustaf and Husqvarna. Mauser and Carl Gustaf both employed a type style with serifs. The Mauser stamps appear to have a more pronounced serif than do the Carl Gustaf stamps. The Husqvarna serial number stamps used on receivers lacked serifs, but those dies used to stamp the last three digits on other parts did have serifs. See Figure 3-10 for examples.



Figure 3-10. L-R, Serial number die stamps used at Mauser, Carl Gustaf and Husqvarna. Note carefully the differences in serifs and strokes.

Several different sizes of serial number have been observed for Carl Gustaf, but it is difficult to tell if these are really different size dies or the same die stamped to a different depth. Those stamped with more pressure, and therefore more deeply, will appear larger than lightly stamped numbers.

An electric pencil etching method was also employed at Husqvarna, and the last three digits of the receiver serial number were often etched rather than stamped on bolt parts, see Figure 3-11.



Fig, 3-11. Example of etched partial serial number on a Husqvarna thumb piece.

Generally, only the last three digits of the receiver serial number were applied to parts other than the receiver and original barrel with the exception of the earliest m/ 94 carbines with four digit or lower serial numbers. Their parts were marked with a two-digit or even one-digit serial number.

Serial number conventions differed by factory. All but a very few minor parts of the carbine and rifle manufactured by Mauser and Carl Gustaf were marked with the last three digits of the receiver's serial number. Only the major parts of Husqvarna-manufactured rifles and carbines were marked with inspection stamps as shown in Table 3-5. The collector can use these partial serial numbers to determine which parts are original to the rifle and which are not.

**Table 3-5  
Serial Numbered Parts**

Parts	Marking	
	Mauser and Carl Gustaf Factories <sup>1</sup>	Husqvarna factory <sup>2</sup>
Buttplate	1. Buttplate tang 2. m/41 and m/41B sniper rifle buttplates show an additional hand stamped number	Exterior, centered
Stock	Interior, forward of magazine well	Interior, forward of cut for receiver ring; last 3 digits stamped on butt, under buttplate
Nose Cap (m/94)	Right side	N/A
Handguard	Underside	Underside (last 3 digits)
Barrel Band, Rear	Left side	None
Barrel Band, Front	Left side	None
Receiver	1. Left side 2. Sniper rifle serial number is covered by the scope mount	Left Side
Bolt Stop	Inside thumbpiece	None
Ejector	None	None
Trigger Guard	Interior, rear wall of magazine well	None
Magazine Floor Plate	Bottom, exterior	None
Bolt Handle	Ball, top	Ball, top
Bolt Sleeve	Right side	Left side <sup>1</sup>

**Table 3-5, con't.  
Serial Numbered Parts**

Parts	Marking	
	Mauser and Carl Gustaf Factories <sup>1</sup>	Husqvarna factory <sup>2</sup>
Safety Lever	Rear face	Rear face
Cocking Piece	Rear	Rear flat <sup>1</sup>
Firing Pin	Flat	Flat
Barrel	Left side, below stock line. Original barrels include full serial number, replacement barrels last 3 digits	Left side, below stock line. Original barrel include full serial number, replacement barrels last 3 digits
Rear Sight Leaf	Bottom	None
Rear Sight Slide Lock	Bottom	None
Rear Sight Base	None	None
Cleaning Rod	Below head	None

1. On none of the "original" sniper rifles examined was the receiver serial number re-stamped to make it visible. The serial number of M/41B sniper rifles only is engraved on the base and mount.  
2. Serial number may be engraved with an electric stylus.

However, the collector should keep in mind that as an estimated 722,000 rifles and carbines were built between 1893-1925 and 1941-1944, there can be up to 721 sets of parts with the same three digit combination (after subtracting the first 1,000 carbines which were marked with two- or one-digit numbers).

Serial numbers inscribed with an electric pen will be encountered on some parts. If found on Mauser- or Carl Gustaf-manufactured parts, they can be assumed to be later replacement parts. If found on Husqvarna parts - particularly bolt parts - they are usually original.

### Rebuild Serial Numbers

As with any military service, economy was a constant watchword. Rifles and carbines were rebuilt, modified, updated and converted from one model to another and from one type of firearm to another - military rifles and carbines to target, match and sniper rifles.

Rifles and carbines often had major parts replaced. When this was done the regulations called for the parts to be replaced as described above in the sections under Major and Minor Repair Markings, Rebuild Markings, Reinspection Markings and Miscellaneous Markings. But regulations were not always followed to the letter.

Parts, including receivers, were often replaced during rebuild or repair procedures to which the original receiver serial number was applied. For instance, if a bolt assembly was replaced, all the components were required to be stamped with the last three digits of the receiver number to indicate that the bolt has been properly head spaced in that particular receiver. It is sometimes possible to determine if this has happened: a close examination will often show the remains of the original serial number beneath the new. Also, the type face or size will not always match the original. Mauser, Carl Gustaf and Husqvarna (all parts but the receiver serial number) serial numbers were all applied with type styles that have serifs but all three were slightly different in appearance, refer to Figure 3-10. Numbers stamped on replacement parts by military or factory armorers will sometimes be marked in a non-serif type face, or in a different size die.

## STOCK DISKS

Stock disks were inletted into the right side of the butt stock on all rifles and carbines. A circular cut was made 1.18 inches in diameter and 0.02 inches deep into which the brass disk was fitted and secured with a brass or steel wood screw. Two types stock disks were used.

### Type 1 Stock Disk

The Type 1 disk was originally designed as a unit identification device, See Figure 3-12. They were made of brass, zinc or later, of aluminum and attached with two brass screws. The disk was always turned so that the lettering was parallel with the butt for easy reading when racked. They were marked with the branch of service, regimental or other unit number and often the rack number of the weapon which served as an inventory control number within the unit.

Fig. 3-12. Type 1 Stock disk with unit markings.



The carbines and rifles were placed in racks with numbered slots. When the rifles were "racked," the unit commander could tell at a glance if any were missing and if they were in correct order. Following are examples of the various types of disk markings found on Swedish Mauser rifles in use before the Type 1 stock marking disk was changed to the Type 2. All are examples from actual weapons, and we are indebted to Mats Persson for his assistance with this section.

A 4  
Nº 906

The disk marking indicates that this m/94 Type 1 Carbine was assigned rack number 906 when issued to the 4th Regiment of Artillery.

5  
No. 7  
I.2

The stock disk on this m/96 rifle indicated that the rifle was number 7 in the 5th Company, 2nd Infantry Regiment.

L  
No.72 No. 5  
I.10

This m/96 rifle was number 5, 72nd Landstormen Area, attached to the 10th Infantry Regiment.

VO  
No. 20  
III AF

This m/94 carbine was number 20, Bicycle Dispatch Unit (Velocipedordonnans), 3rd Army Division.

In general, the letter before the regimental or divisional number indicates the branch of service. Tables 3-6 and 3-7 provide lists of Swedish units and their abbreviations.

Letters were substituted for the number above the horizontal line, with or without the regiment.

Occasionally similar markings may also be found stamped into the buttplate tang, or even into the stock wood although this last was generally frowned upon by the military authorities.

The Type 2 disk was installed after the m/94/41 cartridge was adopted in 1941. Two

variations were used and both were divided into three sections. The largest section of the disk contained information regarding the bore at the chamber throat. At periodic intervals, the barrel was checked to measure the extent of erosion in the vital throat area. If it had changed, a new brass disk with the new measurement replaced the old. On a few occasions when new disks were not available, a second number may be indicated; if so, the higher number is the most recent measurement.

The 1st Variation (Figure 3-13) was marked with the numbers "2," "3," "4" and "5" on the top line and "9," "0" and "1" on the bottom line. The bottom line should be read as 6.49 to 6.51 and the top row from 6.52 to 6.55. When the throat erosion reached 6.55 mm, the rifle was taken out of service and the barrel replaced.



Fig. 3-13. Type 2 Stock Disk, 1st Variation, with barrel condition information.

**Table 3-6  
Branch of Service Designations**

<b>Regiments</b>		
I	Infanteri (I 1 to 29)	Infantry
K	Kavallen (K 1 to 9)	Cavalry
A	Artilleri (A 1 to 9)	Artillery
T	Trängen (T 1 to 4)	Engineers
IK	Ingenjörskåren	Engineers
IB	Ingenjörsbataljon	Earlier designation for Engineers
<b>Other Army Units</b>		
KS	Krigsskolan	School of Warfare
K-g	Volontärskolan i Karlsborg	Volunteer School in Karlsborg
N-g	Volontärskolan i Norrköping	Volunteer School in Norrköping
<b>Naval Units</b>		
Klg fl	Kungliga flottan	Royal Fleet
MDÖ	Östkustens Marindistrikt	Eastern Naval Command
MDS	Syd kustens Marindistrikt	Southern Naval Command
MDN	Norrlandskustens Marindistrikt	Northern Naval Command
MDV	Väst kustens Marindistrikt	Western Naval District

**Table 3-6, con't**  
**Branch of Service Designations**

**Coastal Artillery**

SK	Stockholms Kustartilleriförsvär, posted to KA1, Vaxholm	Stockholm
BK	Blekinges Kustartilleriförsvär, posted to KA2, Karlskrona	Blekinge
GK	Gotlands Kustartilleriförsvär, posted to KA3. Gotlands	Gotland
GbK	Göteborgs, Kustartilleriförsvär, posted to KA4, Göteborg	Göteborg
HK	Hemsö Kustartilleriförsvär posted to KA4H in Härnösand HK later changed to NK, and KA4H changed to KA5)	Hemsö

**Air Force**

F	Flygflottilj (F 1-to 22)	Air Force Wing
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**Table 3-7**  
**Other Markings**

S	Skarpskjutningsvapen	Weapon used for practice with live ammunition
L	Lösskjutningsvapen	Weapon used for blank firing
K	Kammarvapen	Weapon used for gallery practice
B	Befälsvapen	Weapon used for officers practice

The 2nd Variation (Figure 3-14) was marked "6.51" followed by "2 through 9" on the top line and "6.46" followed by "7," "8," "9" and "0" on the bottom line. The bottom line indicates

the minimum acceptable bore diameter and should be read as 6.4 plus the number indicated by a triangle above it substituted for the "9." The triangle mark over the 9 on the bottom line would indicate a minimum bore diameter of 6.49. If no number is marked, then the minimum bore diameter is 6.46.



Fig. 3-14. Type 2 Stock Disk, 2nd Variation.

Likewise, the top line indicates the maximum allowable bore diameter. The number indicated should be substituted for the "1" in "6.51." If the bore exceeded 6.59, it was removed from service until the barrel could be replaced.

The smallest wedge section indicates the bore condition. The numbers indicated mean:

0 No rust, corrosion or abrasion

1 One to a few darkened areas between lands and grooves

2 Rust or corrosion along the borders between lands and grooves, some rust or corrosion in the grooves

3 Some spots of rust throughout the length of the bore, but the rust is diffuse without sharp edges

4 Sharp edges between rusted or corroded edges. When this evaluation was made, the rifle was taken out of service for barrel replacement.

The third wedge section contains the abbreviations "Torped," and "Str" and the word "Overslag." Originally, it was intended to indicate the amount of "hold over" that the shooter had to apply when using the m/94/41 cartridge in rifles and carbines sighted for the m/94 cartridge. The word "Torped" means "spitzer - boattail" bullet; "Overslag" = "impact above" and "Str" was the abbreviation for "point" (streck) which indicated how many decimeters to hold over or under at 100 meters. There are 6,300 streck in a 360 degree circle with 1 streck equal to 0.1 meters or 1 decimeter (10 cm) at a distance of 100 meters. If the disk was marked "2" in this area, the bullet from the m/94/41 cartridge will strike 0.4 meters or 4 decimeters above the point of aim at 200 meters.

This section was rarely marked and was soon replaced by the "range charts" attached to the buttstock. So, only a few rifles will be found with any marking in this section.

### Other Stock Disks

Two other kinds of stock disks will be found on m/94 carbines. Those carbines sold to Denmark after World War II will have a Danish coin inset into the stock in place of the Type 1 or 2 stock disks.

Those 20,000 carbines imported in the early 1950s by InterArms Company will often show a brass or aluminum disk inset into the stock replacing the original Type 1 stock disk. The marking reads: "Cal./6.5 mm/Swedish/Made in Sweden." See Figure 3-15.



Fig. 3-15. Stock disk applied by InterArmco to carbines that company imported in the early 1950s.

## CHAPTER 4

### SNIPER RIFLES

#### A SHORT HISTORY OF SNIPING IN SWEDEN

In spite of the fact that Sweden bred marksmen of almost legendary skill both in the military and among civilian hunters and target shooters, the Swedish Army did not develop a military sniper rifle until the Finns hammered home the effectiveness of such a rifle against the Red Army during the winter of 1939-40.



Figure 4-1. Marshall Carl Gustaf Mannerheim, Commander-in-chief of Finland's Armed Forces, personally thanks a Swedish Volunteer for service during the Winter War against Soviet Russia, 1939-1940.

When the Swedish military opted to develop a sniper rifle in early 1940, they turned the project over to the technicians at the Carl Gustaf factory in Eskilstuna. They devised a suitable

sniper from the Gevar m/96 long rifle by selecting one of the best telescopic sights then available in Europe, the AJACK 4 x 90 sight and mount, and hand-fitting them to m/96 rifles chosen for accuracy. The new sniper rifle was designated the m/4 1, and it was set up to fire the new m/94/41 cartridge with the 139 grain spitzer bullet.

## Sniper Rifle?

Since Sweden was neutral, it would seem that the Swedish Army could have had its pick of any telescopic sight and mount in the world, or any sniper rifle for that matter. Two circumstances dictated otherwise. First, at the start of World War II in September 1939, the British had only a few Pattern 1914 Enfields equipped as sniper rifles and were just beginning work to develop what would become the Enfield No. 4, Mk 1 (T) Sniper Rifle equipped with the British-built No. 32 telescopic sight and a mounting system from the firm of Holland and Holland.

The United States had no sniper rifles in inventory in 1940 and would not have until the Model 1903A4 appeared in the autumn of 1943. And its M 1 C Garand was developed so late in the war it is doubtful it ever saw combat. The French lacked an effective sniper rifle, as did the Poles, Austrians, Dutch, Spanish, Hungarians or any other country in Europe. Only Germany and the Soviet Union had fielded sniper rifles, but the latter were not likely to sell a potential enemy anything in the way of armaments.

And secondly, Sweden had long ago made the decision that it would not rely on foreign countries for anything involving its own security, if at all possible. It would manufacture whatever implements of war it needed, including sniper rifles.

During World War I, both the British Army and the Imperial German Army had developed sniping into a high art. During the interwar period the British had all but abandoned the concept of sniping, but in Germany sniper units had been maintained in the civilian police forces. When the Nazis expanded the Wehrmacht after 1933, they emphasized the need for sniper units and gave priority to optical manufacturers.

Germany had long been dependent on Swedish iron and chrome, which was sent by railroad to ports in western Norway and shipped south to Germany through the fringe of islands along the Norwegian coast. In 1940, the British began naval operations inside Norwegian coastal waters to interdict these supplies. Fearing a British invasion of Norway, Germany moved first and invaded Norway in May of that year. In a quick campaign, in spite of British naval superiority, it evicted a British-French expeditionary force in less than two months and secured the coastal shipping lanes. Its badly needed supplies of Swedish ore were now protected.

While it would seem that Germany desperately needed all the arms she could get, her relatively easy victories over Poland, Denmark, Norway, Belgium, The Netherlands and

France, and the Battle of Britain, which had left England reeling, all in less than a year, had given Hitler such a false sense of inviolability that he allowed the sale of limited arms and optical equipment to Sweden. He considered them at best a potential ally and at worst a neutral block against a flank attack by the Soviet Union.



Figure 4-2. m/41 Sniper Rifle with later m/41 B sling. North Cape collection.

### Germany Provides the Resources

Between 1941 and 1942, Germany not only delivered several thousand Kar98 Mausers, Czech machine guns, ammunition and some artillery pieces, but also between two and three thousand telescopic sights, mounts, lens covers and protective cases to the Carl Gustaf factory where they were quickly turned into one of the finest sniper rifles of the period, the m/41 Sniper Rifle, see Figure 4-2.

By the end of 1942, the tide of war had begun to turn against Germany. Gone was the euphoria of the previous autumn when it seemed as if German tanks would smash Moscow and the Red Army. The spring offensives of 1942 had ended in stalemate after massive losses. It was clear now that the blitzkrieg had degenerated into a war of attrition, the kind of war that Hitler had wished to avoid at all costs. Preparing for a long and vicious war in the East, he ordered that all armaments, including telescopic sights and mounts, be reserved for the German war machine.

### Sweden's Telescopic Sight

Faced with the loss of a vital component of its infantry force - the sniper rifle - the Swedish military moved quickly to find an alternative. She had several excellent optical companies in her industrial base, and one was chosen to develop a new telescopic sight to replace the German scope. By the end of 1942, the AGA 42 was being delivered to the Carl Gustaf factory for installation on selected m/96 rifles. Because of the haste with which it was designed and manufactured, it had several shortcomings, and a new telescopic sight replaced it two years later. This model proved so effective and reliable it remained in service until 1955.

Within three years of the end of World War II, the planet was again embroiled in a new conflict. The threat to freedom was no longer from the Fascist right but the Communist left.

The Soviet Union had swallowed up all of Eastern Europe and was positioning its forces for a grab at Western Europe. To the east, Sweden's neighbor, Finland, was, in spite of a determined neutrality, dominated by the Soviet Union. When the Nordic Council failed to develop into a mutual defense force, Norway and Denmark joined the North Atlantic Treaty Organization in a bid to preserve their independence. Sweden refused to follow their lead. Instead, she reconfirmed her neutrality and began to build up her military forces once again. Her defensive strategy lay in making it too costly for both the Warsaw Pact or NATO to use her territory in a flanking attack.

As new weapons were developed and refined, the turn of the m/41 sniper rifle came. It had proven itself an excellent weapon in the harsh Scandinavian climate. The AJACK and AGA 44 scopes had stood up to the worst of the sub-Arctic winters, as had the rifles. But some refinement was needed. The AGA 44 scope, with its 3X magnification, had proven marginal at distances beyond 600 meters. The Swedish Army, ever mindful of the limited resources of a country of less than nine million, felt that a new scope was needed, one that was somewhat more powerful. The AJACK scope, with its larger diameter lenses, met their minimum needs. Orders were issued that all m/41 sniper rifles remaining in inventory were to be refurbished and reissued. They received a new short rail mount with a recoil stop, an AJACK 4 x 90 scope and a new rear sight. Redesignated as the m/41B, the sniper rifle system continued to serve with the Swedish military and Home Guard until the last such rifles were replaced and removed from service by the early 1990s.

## M/41 SNIPER RIFLE

The first standard Swedish sniper rifle (prickskyttegevar) was the Gevar m/41. It was built using the standard m/96 with the 29.1 inch barrel equipped with a telescopic sight designated the m/41. These rifles were selected from the inventory of Carl Gustaf- and Mauser-built rifles for their better-than-average accuracy. A total of 5,300 m/41s were built between 1941 and 1944 at the Carl Gustaf factory in Eskilstuna. They were intended to be issued at the rate of six per infantry company. The telescopic sights were calibrated for the new m/94/41 ammunition with the 139 grain spitzer bullet.

The barreled receiver was not bedded in any special way in the stock. The standard front sight and m/96 rear sight leaf calibrated to 2,000 meters for the m/94 cartridge with the old 156 grain round nose bullet were not changed. More rarely, a m/38 sight leaf calibrated to 600 meters for the new cartridge was installed sometime between 1941/42 and 1955.

The straight bolt handle struck the telescopic sight when lifted and prevented the bolt from being withdrawn. The Type 6 bolt body was quickly developed; the m/96 bolt handle was cut through just ahead of the anvil, and a steel segment 0.41 inches long was welded in place. The bolt handle was then bent downward at a 50 degree angle which cleared the scope tube when the bolt was opened. Three different telescopic sights were eventually installed on the m/41.

**Table 4-1**  
**m/41 and m/41B Sniper Rifles Compared**

Part	m/41	m/41B
Rifle	m/96 by Mauser or Carl Gustaf, selected for accuracy	m/96 by Mauser, Carl Gustaf or Husqvarna, selected for accuracy
Front Sight Protector	None	Issued
Rear Sight	m/96	Replaced with Feinviser SM m/55, marked with three crowns
Bolt Assembly	Bright	Blued
Cheek Piece	None	Adopted, but it is not known if they were issued in any quantity
Sling	m/96	m/41B
Telescopic Sight	AJACK (4x), AGA 42 (3x), AGA 44 (3x)	AJACK (4X) refurbished, coated lenses
Mount	Jackenroll, base and mount numbered together but not to scope or rifle	Modified Jackenroll with set screw stop on base made in Sweden, base and mount serial numbered to rifle
Telescope Case	Leather case with screwdriver	Leather case, no screwdriver

#### m/41 AJACK Telescopic Sight, Base and Mount

The telescopic sight and mount originally selected for the rifle was manufactured by Adolph Jackenroll Optische Anstalt GmbH of Berlin, see Figure 4-3. The scope and mount had been designed in the early 1930s for use by police forces who had to deal with the civil unrest that had rocked the nation since the end of World War 1. The scope had a 44 mm objective and a 38 mm ocular lens. The tube was 27.9 cm long, and the scope provided a 4X magnification. The lenses in the original AJACK scopes were uncoated. The tube was 26 mm in diameter. Range, from 100 to 800 meters, was selected by turning a wheel mounted in turret atop the

tube which was locked with a set screw. The reticle was the standard "picket and post" favored by the German military and moved up or down in the tube as the range dial was turned, see Figure 4-4. The scope could be focused between +3 and - 3 diopters to suit the eyesight of various shooters. The scope tube was steel and the focusing ring was brass chemically darkened to match the gloss blue finish on the steel parts. Watertight integrity was provided by a sheet rubber seal. Eye relief was nominally 3 inches. The value "90" in the designation does not refer to diameter of the objective but to an arbitrary scale of luminosity. The scope was calibrated for the m/94/41 cartridge with the 139 grain spitzer bullet. The scope was marked with the Swedish inspection Crown, but the base and mount were not.



Fig. 4-3. Original AJACK telescopic sight mounted on the m/41 sniper rifle. Photo courtesy of Robert W.D. Ball from "Military Mausers of the World."



Fig. 4-4. Picket and post reticle used in all Swedish Mauser telescopic sights

The Jackenroll short side rail base and mount were made of steel and were similar to the American-made Griffen & Howe base and mount in that a dovetail joint allowed the mount with scope attached to be removed from the base, which remained attached to the receiver,

thus preserving the system's "zero," see Figure 4-5. The base was permanently attached to the left side of the receiver, obscuring the serial number and inspector's initials, and indexed by two pins. Three 4 mm screws held the base to the receiver wall, which penetrated into but not through the receiver wall. The German police had discovered that the three base screws tended to back out under recoil, and so the base had been modified to accept three 3 mm locking screws that secured the base screws. Part of the base screw head was cut away in a semicircle, and the locking screw head tightened down into the cut away portion so that the base screw could not move, refer to Figure 4-5.

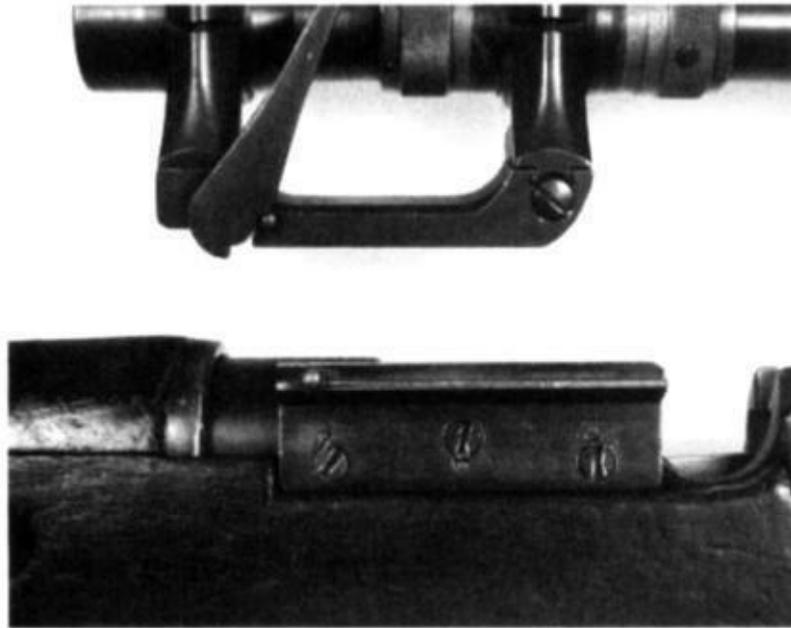


Fig. 4-5. The Jackenroll base was permanently attached to the receiver and a dovetail joint allowed the mount and scope to be removed while preserving the sight's "zero." Note the locking screws on the base.

The mount was in the shape of a broad "U" with a dovetailed rail that slid into the matching dovetail on the base. A pivoting lever on the mount secured it to the base by locking over a pin. The arms of the "U" were finished in a half ring to which separate half-rings were fastened with two screws, one on either side, to hold the scope tube in a slight "crush" fit. While range adjustments were made through the scope range control, windage adjustments with the Jackenroll mounting system were made through the mount by alternately loosening and tightening the two 3 mm screws under the rear ring support, see Figure 4-6.

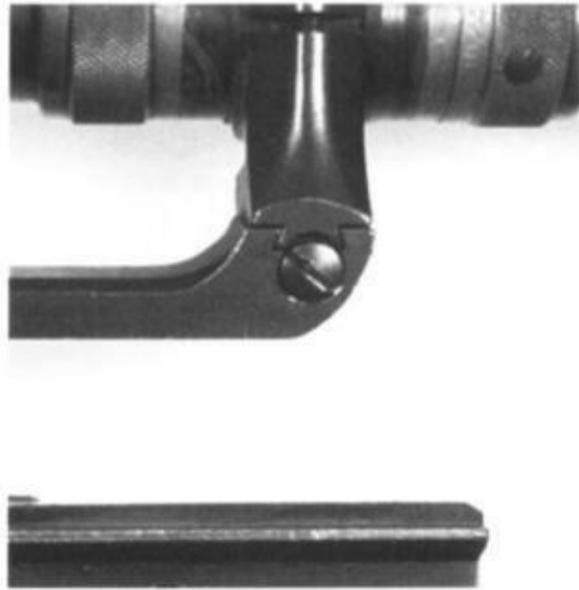


Fig. 4-6. Windage adjustments were made by alternately loosening and tightening the screws under the rear ring support.

The AJACK mount and base were hand-fitted to assure a tight fit. This meant that bases and mounts supposedly were not interchangeable. Although the Germans were very methodical about numbering base, mount and rings to make certain they stayed together, the Swedes did not seem to be overly concerned about it or the fact that the receiver serial number was obscured. Bases and mounts were stamped with the same number but were not necessarily matched to the receiver serial number. This practice changed with the advent of the m/41 B. The scopes were serial numbered at the factory, but this number was independent of the base and mount. Base and mount numbers were usually stamped on the front faces of both. Collectors should note that after forty years of service, few matching bases and mounts remain together.

Also issued with each m/41 sniper rifle was a set of lens protectors (see Figure 4-7) which were leather cups connected by a strap, and a sheet metal carrying case padded inside with leather in which the scope and mount was stored when not attached to the rifle. The carrying case had a leather strap attached with rivets that allowed it to be carried slung over a shoulder or tightened to fasten to a belt or other equipment, see Figure 411. According to regulations, the scope was dismounted and stored in the carrying case any time it was not in immediate use.



Fig. 4-7. Leather lens protectors were an issue accessory for the sniper rifles.

Each base and mount was installed on the rifle's receiver by hand and thus exact placement of screws and pins can vary from rifle to rifle, often making it difficult to neatly reinstall a base taken from one rifle onto another.

#### m/42 AGA Telescopic Sight

After the Nazi government declared the optical industry a war resource and forbade the sale for sporting use and export of all optical items, the Swedish company Svenska Akkumulatoraktiebolaget Jungner was asked to provide a new telescopic sight for the m/41, and they developed the AGA 42 telescopic sight, see Figure 4-8. Designated the m/42 AGA, it was 22.7 cm (8.93 inches) long and had a tube diameter of 2.22 cm (0.870 inches). The objective lens was 26 mm (1.02 inches) in diameter, and the magnification was 3 power. Eye relief was 8.89 cm (3.5 inches). The elevation was adjusted by turning the forward ring, which was marked 1 through 9 (hundred meters). The rear ring adjusted the focus for each shooter from +3 to -3 diopters. An index with four hash marks was engraved on the ring. The ring was also marked "m/42 AGA 3 x 65. " The inspection crown was stamped at the end of the line. The adjusting rings (Figure 4-9) were brass and chemically blackened, although in most examples observed, the blackening had been rubbed away by use. The scope tube was given a black oxide finish.



Fig. 4-8. The m/42 AGA Telescopic Sight.

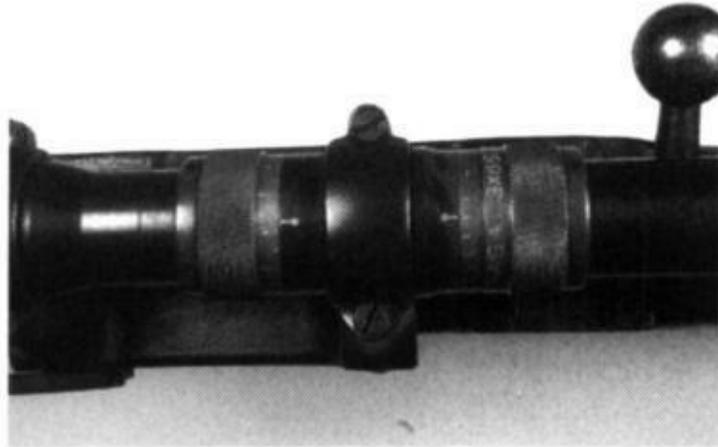


Fig. 4-9. Brass adjusting rings on the m/42 AGA Scope.

The m/42 AGA was installed in the same Jackenroll mount and base as the m/41 AJACK. Because of the smaller diameter scope tube, a brass shim was often inserted between the tube and rings. A serial number was often but not always stamped on the base and mount and sometimes the telescope. These were originally matching but did not relate to nor match the serial number stamped on the rifle's receiver.

The m/42 AGA was not watertight but was characterized as water-resistant. Its smaller diameter objective (26 mm as compared to the 44 mm of the AJACK) did not provide as much light-gathering potential and was therefore nowhere near as effective in low light situations - a major concern in the sub-Arctic areas of Sweden. Scope covers identical except in diameter to those provided with the AJACK m/41 scope were also furnished with the m/42 AGA scope. But no carrying case seems to have been provided.

## m/44 AGA Telescopic Sight

The third telescopic sight installed on the m/41 Sniper rifle was the m/ 44 AGA, See Figure 4-10. It was manufactured also by Svenska Akkumulatoraktiebolaget Jungner and was an improved version of the m/42 AGA. The magnification remained 3X. The tube diameter was 27 mm (1.06 inches), both objective and ocular were 30 mm (1.18 inches) and the tube was 22.8 cm (8.97 inches) long. Several improvements were made to the design besides the increased ocular diameter. The new scope was adjustable for elevation from 1 to 900 meters via a turret adjustment mounted atop the scope tube rather than the annular ring of the m/42. This made it far easier to make the scope water tight. The telescope was also focused by turning the eye piece in or out rather than by a turning a second annular ring. The mounting system was the same Jackenroll mount and base as used previously. The scope tube was finished in black oxide and will show the crown inspection marking and a serial number. Serial numbers of the base and mount were matched, but not with the serial number stamped on the rifle's receiver.



Fig. 4-10. The m/44 AGA Telescopic Sight. The same Jackenroll mount and base was used. Photo courtesy of Robert W.D. Ball from "Military Mausers of the World."

The m/44 AGA remained in service until 1955 when the m/41 sniper rifle was replaced by the m/41B.

## M/411B SNIPER RIFLE

The m/4113 was not a new design but a refinement of the m/41. The m/96 infantry rifle as manufactured by Mauser or Carl Gustaf was still used as the basic sniper rifle although a few rifles manufactured by Husqvarna are reported to have been used to replace worn out original m/41 sniper rifles, see Figure 4-11.



Fig. 4-11. m/41 B Sniper Rifle. Photo courtesy of Samco Global Arms, Inc.

Note: The "B" in the model designation, "m/41B" does not refer to a barrel threaded at the muzzle for the blank firing device as it does with the m/96, m/96-38 and m/38 rifles but to the changes made in 1955 to the m/41, as described below. Regulations specifically forbade the firing of blank rounds in both the m/41 and the m/41 B.

Only two significant changes and one minor were introduced in the m/41B (refer to Table 4-1). The minor change was the bluing of all bolt bodies used in the m/41B. The first major change was the scrapping of all m/42 AGA and m/44 AGA scopes. In their place, the original AJACK scope was reintroduced. These were completely dis assembled, cleaned and repaired. In many cases, the optics were replaced and all lenses were coated to enhance light gathering. Finally, all metal components were refinished.

The second major change involved new scope bases and mounts that were an improvement over the original Jackenroll base and mounts. The original mount had a tendency to move forward under recoil and jam solidly on the base. To remove it, the shooter often had to grasp the scope itself and pull back, or tap the mount loose with a hammer or other object. Neither technique was conducive to accuracy. The new mount had a small hump at the front which faced a set screw which was now made part of the base. When the scope was in place, the set screw was turned until it touched the hump, or stop, on the front of the mount. This stop prevented the scope and its mount from moving forward on the base under recoil, see Figure 4-12. The new base and mount were not as finely finished as the original, and both were given a black oxide finish. The telescopic sight was mounted in nearly the same manner as the original m/41 Jackenroll mount - two indexing pins plus three 4 mm screws set into the receiver wall held the base. But the securing 3 mm set screws were omitted; instead, a punch was used to upset the screw heads in their recesses to keep them from backing out.

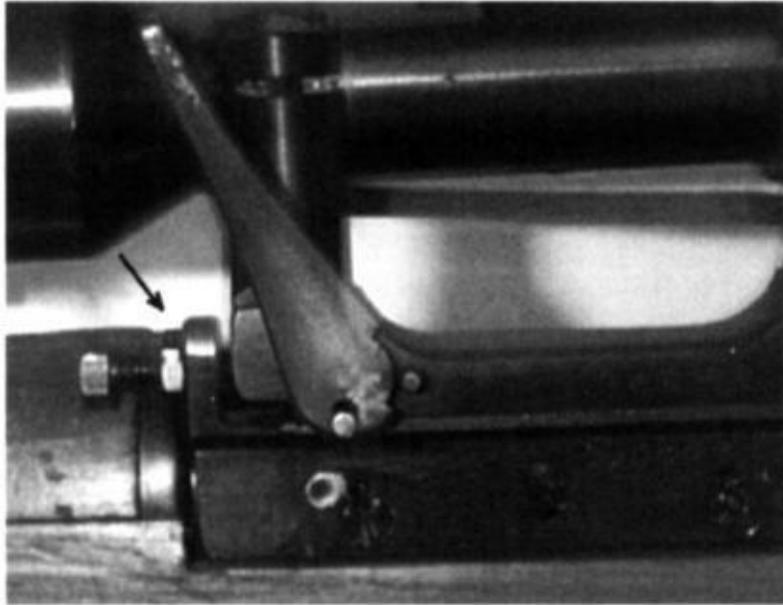


Fig. 4-12. m/42B base with stop for mount to prevent it from moving forward under recoil.

The m/41 B bases and mounts were also hand-assembled and fitted to each rifle and so are not readily interchangeable without additional hand-fitting. But the base and mount were now stamped with the serial number of the rifle, thus making it easier to keep the components together. It also made it easier to run inventory checks.

As with the original m/41 mounting system, windage adjustments are made through the base by alternately loosening and tightening the two 3 mm screws under the rear ring support.

The rebuilt AJACK scopes provided more light gathering power with their coated 40 mm ocular. This was of some concern to the Swedish military as under most projected invasion scenarios from the east, much of the fighting would have been done in the Arctic regions which meant long twilight hours, summer or winter.

Note: The soldier was required to dismount the telescopic sight from the m/41 and m/41 B sniper rifles when not actually in use. The scopes were placed in the issue leather carrying case during transportation and storage.

## FM/90 SNIPER RIFLE

During the search for a new sniper rifle which ended with the adoption of the PSG 90 described below, the Carl Gustaf factory designed an improved m/4113 sniper rifle based on the CG 80 Match Target Rifle in 7.62 x 51 mm NATO caliber. Existing m/96 actions in excellent condition were used, and a new barrel was installed and threaded to accept a flash hider. A new stock similar to that used on the CG 80 with an adjustable wood cheek piece and a full pistol grip was used. This stock allowed the barrel to be free-floated. No handguard was

used and therefore a barrel band was unnecessary. Front and rear sling swivels were installed. The front sling swivel is adjustable along a track similar to that used in the CG 80 target rifle. The rear sling swivel is located in the conventional position on the bottom of the butt stock. The standard m/96 bolt assembly was retained, but the bolt handle was bent to clear the scope, as with the m/41 bolt. The bolt handle knob was also coated with black rubber to assure a better grip.

A new mounting system was designed for the fm/90 to hold the Swarovski 6x40 telescope. The mount does not permit stripper clips to be used, and so cartridges have to be loaded singly through the open breech.

Additional markings that identify the fm/90 are a wreath surrounding three crowns stamped into the left side of the stock below the receiver and the name, "Carl Gustafs," stamped into the bottom of the pistol grip. A small but unknown quantity of these rifles was manufactured before the model was replaced by the PSG 90.

#### PSG 90 SNIPER RIFLE

In 1981, the m/41B sniper rifle was ordered withdrawn after 26 years of service. The Swedish military instituted a study of sniper rifles and tactics to develop a dedicated sniper force. As the study progressed, the Swedes found that a combination of British Army and U.S. Marine Corps sniper tactics and techniques were best suited to their requirements. In 1983, the Swedish Ministry of Defense invited nine firearms manufacturers from around the world to submit their sniper rifle systems. After a lengthy testing, the Accuracy International Arctic Warfare Police rifle was chosen and designated the PSG 90, see Figure 4-13. A total of 1,105 PSG 90 rifles in 7.62 x 54 mm NATO were purchased and placed into service. A very similar rifle system has since been purchased by a number of other countries including Belgium, Ireland, New Zealand, Canada and Oman.



Fig. 4-13. The PSG 90 Sniper Rifle replaced the m/41 B in the early 1990s. Gary James

collection.

The PSG 90 is built around an aluminum frame to which the receiver and barrel are bolted and glued with special epoxies to the frame. The stainless steel barrel is free floating. The three-lug bolt locks into a ring that fits between the receiver and the end of the barrel. The ring takes all of the wear, and when head space must be readjusted, the ring is simply replaced. Barrels appear to have a life time of between 5,500 and 7,000 rounds on average. A fourth locking point or lug is the bolt handle itself.

The receiver is milled from a single piece of steel bar stock and includes a sight rail along the top. Gas ports are cut to direct gas away from the shooter's face in case of a ruptured cartridge. The safety system is similar to that developed by Winchester - when set, the firing pin is withdrawn and the bolt locked. When pushed into the middle position, the bolt can be opened to withdraw a round in the chamber, but the trigger stays locked. A two-stage trigger is used and it is set up as an antifreeze, anti-dirt system. Trigger pull weight is adjustable between 3.5 and 4.4 lbs.

The six groove, heavy match-grade stainless steel barrel has a right-hand twist with one turn in 12 inches (1:12). It is attached to the receiver through a long threaded part of the chamber which reduces the torque needed to set the barrel and thus, barrel stress. The rifle is equipped with ten-round, detachable box magazine.

The PSG 90 is equipped with a windage-adjustable rotating disk aperture sight similar to that used on the Canadian Cl rifle with elevation settings for 200 to 600 meters in 100 meter increments. The sight can be mounted and left on the rifle providing the telescopic sight does not have to be positioned to the rear, or else it can be stored in a carrying pouch.

A quick-detachable Parker-Hale bipod is mounted on the forend. Its legs can be adjusted to raise or lower the rifle's centerline (command height) from 8.5 to 12 inches. Five sling attachment points are provided - one each on the right and left sides of the buttstock, one on either side of the forearm plus one on the bottom. The nylon sling can be adjusted as a carrying or shooting sling. The rifle and components are finished in a black teflon.

## MODEL 63 SNIPER RIFLE

A very rare Sniper Rifle built on the m/96 is the CG 63 match rifle equipped with a telescopic sight manufactured by O.I.P. of Czechoslovakia in the standard m/41 Jackenroll mount and designated the m/ 63. These rifles were sold to the Singapore Police Force in the mid1960s. The work was done at the Carl Gustaf factory when that facility was part of FFV. In excess of seventy were believed to have been made.

The m/63 Sniper is characterized as follows: 1) the addition of a sling swivel 2 inches behind the forend tip as well as a rear sling swivel on the buttstock, 2) the bolt handle bent and

milled and ground flat to clear the scope, 3) the addition of an O.I.P. 3.6 X telescopic sight adjustable for elevation only to 800 meters, 4) the addition of a buttpad made of hard rubber or plastic with the "Crown/C" logotype of the Carl Gustaf factory molded in. The buttpad is the same as that used on the standard m/63 match rifle, 5) m/7 variation of the CG 63 chambered for the 7.62 x 51 mm NATO cartridge, 6) also with the GF diopter rear sight and globe front sights and 7) a serrated trigger.

The m/63 Sniper rifles were marked, in addition to the normal CG 63 markings, with "SPF" (Singapore Police Force) roll-stamped onto the top of the receiver and a two digit number stamped on the right side of the receiver ring. The two markings are parallel with the stock. The receiver marking can be either the Carl Gustaf or Husgvarna standard markings.

#### ACCESSORIES FOR THE M/41 AND M/41B Iron Sights for the m/41

The m/41 sniper rifle retained the m/96 rifle rear sight leaf, although some of these were later removed for various reasons. The m/41 AJACK, m/42 AGA and the m/44 AGA telescopic sights were all calibrated for use with the m/94/41 cartridge, which used a 139 grain Spitzer bullet. As the m/96 rear sight leaf was calibrated for the 156 grain, round nose m/94 bullet (see Figure 4-14), the brass or film transfer decal was added to the some but not all of the sniper rifle's buttstocks, see Figure 415. This allowed the shooter to use the iron sights if his scope was damaged or lost.

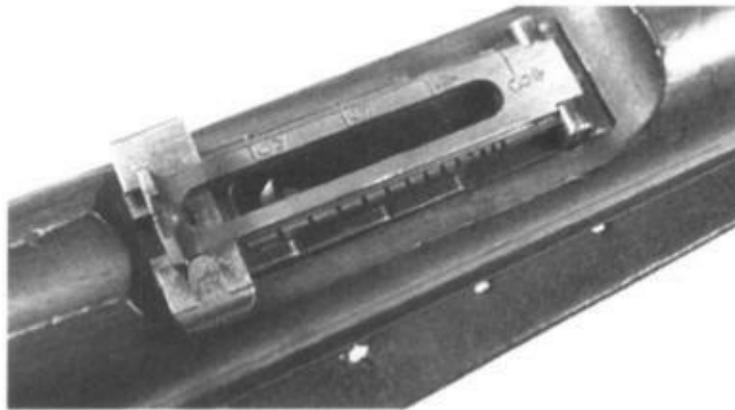


Fig. 4-14. Although the m/41 telescopic sights were calibrated for the m/94/41 cartridge, the standard m/96 rear sight calibrated for the m/ 94 cartridge was retained.

G m/96	
Sikte för trubbkula	
Skjutning med spelskula.	
Avstånd	Sikte/Rp
50	300/-2
100-250	300/-3
300	300/-2
350-400	300/0
450	400/-3
500	400/0
550	400/+3
600	500/-5

Fig. 4-15. m/96 range plates or decals providing corrected aiming points for the m/94/41 cartridge are often found on the m/41.

In 1955, it was decided that the sniper rifles should have a new rear sight which did not require the shooter to estimate the amount of hold over or under. The m/96 leaf was removed and the "Finsikte (also Precisionssikte) SM m/55" was installed in the empty rear sight base and held in place with the sight leaf pin. It was essentially a new leaf with a thumbwheel dial adjustment calibrated from 100 to 600 meters for the m/94/41 cartridge. The thumbwheel adjusting screw bore on the rear sight spring. The leaf was marked "SM/sikte/ m55" at the top and with three stylized crowns at the aperture end. The thumbwheel was marked "1,, "2", "3", "4", "5", and "6", see Figure 4-16.



Fig. 4-16. Finsikte SM m/55 rear sight for the m/41 B.

In 1958, a new, windage adjustable sight was developed and installed on some m/4113 rifles.

It was identical to the m/55 with the exception of its markings, SM/ sikte/m58," and two windage adjusting thumb screws below the sight bar.

### Front Sight

The standard rifle front sight was used on both the m/41 and m/41 B. A sheet metal sight hood was adopted for the m/41 B. It slipped over the muzzle and framed the front sight in a "tunnel" for sharper definition, see Figure 4-17.

Fig. 4-17. The sight hood for the m/41 B is higher than that for the m/96 and m/38 series rifles.



### Padded Check Rest

A padded cheek rest held to the buttstock with straps is shown in the "Beskrivning av Gevdr m/41 B" (Description of the Rifle m/41B) manual. But the cheek rest was apparently never issued, see Figure 4-18.

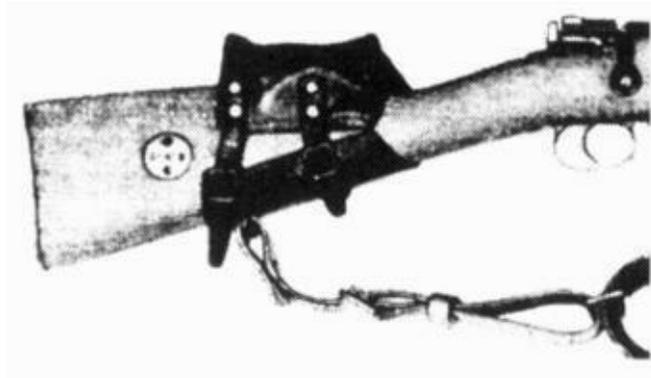


Fig. 4-18. Padded cheek rest (kindstod) for the m/41 B.

### Sling

While the standard rifle sling for the m/96, m/96-38, m/38 rifles and m/41 sniper rifles was little more than a carrying strap, the sling developed for the m/41 B sniper rifle was a true marksman's sling (see Figure 4-19) and resembled the U.S. Model 1907 rifle sling in function and somewhat in form. It was leather, made in two pieces and issued with the m/41B sniper rifles. It was composed of two separate straps connected by a brass "D" ring. The upper end was 45 inches (114.3 cm) long by 1.125 inches (2.85 cm) wide; the lower end was 25 inches (63.5 cm) long by 1.125 inches (2.85 cm) long. The buckle's tongue was mounted on the outside rim of the buckle and slipped through a hole in the strap to rest in a notch cut in the leather rolled around the inside rim of the buckle.



Fig. 4-19. The m/41 sniper rifle sling properly rigged. North Cape Collection.

The long strap was passed through leather keeper, a brass D-ring that connected the two parts, back through the leather keeper, then through the forward sling swivel on the rifle. It then was reversed and folded back so that the feed end next passed through the leather keeper sewn to the buckle, through the buckle itself with the tongue slipped through the correct hole.

The short strap was passed through its leather keeper, through the D-ring and folded back to pass through a leather keeper sewn to the buckle, then through the buckle itself. The feed end was left long enough to pass through the rear sling swivel and be doubled back on itself. A double-ended brass button was slipped through a slit in the sling to secure the loop.

The shooter adjusted the long, front strap so that a loop was formed at the rear through which he passed his left arm. His left wrist was doubled back over the sling and he grasped the rifle's forend with the left hand. The long strap was adjusted so that when the rifle was raised to the shooting position with the butt planted solidly in the hol low between collar bone and shoulder and the left elbow exactly perpendicular to the rifle, it was drawn taut and steadied the rifle. The lower strap was left loose as it played no part in stabilizing the rifle.

With the sling adjusted to the proper tension, the rifle could be fired very accurately from the standing, kneeling, sitting or prone positions.

## Telescope Element Cover

The scope element cover was essentially two closed leather tubes joined together with a leather strap. The covers, produced locally, were made of fine patent leather with a light brown finish. Dimensions were adjusted for the specific telescopic sight. A scope cover in the possession of one of the authors was manufactured for the m/42 AGA scope and is typical of all, except for the exact measurements, refer to Figure 4-7.

The objective cover was 1.2 inches in diameter and 0.74 inches long. A flat piece of leather was rolled and sewn along the seam with cotton thread. A flat disk of leather 1.09 inches in diameter was sewn inside the end of the tube. The eyepiece cover was 1.2 inches in diameter and 1.3 inches long. It was manufactured in the same way. The two tubes are joined by a leather strap 0.325 inches wide and 12 inches long. The edges of the strap were rolled.

## IMPORTED SWEDISH SNIPER RIFLES

The first and earliest m/4113 sniper rifle were imported in 1985 by Century International Arms. They were equipped with surplus m/42 AGA or m/44 AGA telescopic sights and Jackenroll mounts. The rifles were marked on the bottom of the barrel behind the muzzle, CENTURY ARMS INT'L/ ... USA.

In 1995, a quantity of m/41B sniper rifles equipped with the refurbished AJACK telescopic sight with coated optics and the m/55 Jackenroll mount with the set screw stop were imported by SAMCO Global Arms of Miami, Florida. They were equipped with the SM/sikte/m55 rear sight. At the time this book was written, a small quantity of these original m/41 B rifles and their accessories were still available from SAMCO Global Arms, Inc, PO Box 7323, Miami, FL 33152.

Much rarer are the original m/41 sniper rifles with the original AJACK 4 x 90 scope (uncoated lenses) and mounts, or the m/42 AGA or m/44 AGA scopes and mounts. These were not imported in any significant quantities between 1955 when they were released from service and 1968 when the federal Gun Control Act forbade further imports of military surplus rifles until 1986 when Congress amended those provisions. They are therefore available in far fewer numbers than the m/41B.

Collectors should be aware that several American companies (not including SAMCO) "built" m/41 sniper rifles from standard m/96 rifles by installing surplus AJACK or AGA scopes and Jackenroll mounts. It can be very difficult to detect the difference between one of these "after market" sniper rifles and an original m/41 rifle. Certainly, any AJACK scope with coated lenses would not be original, nor would any m/41 or m/41B sniper rifle with a threaded muzzle as blanks were never fired from the sniper rifles. AGA 42 or 44 scopes on Jackenroll mounts with the set screw bolt stop would also not be original.

Collectors can be assured that those m/41 rifles without "import" markings are probably original. Surplus scopes and mounts did not become available in North America until 1985 at the earliest, seventeen years after the federal government required all imported firearms to be marked with the name and address of the importer.

## CHAPTER 5

### SOLDIER'S RIFLE AND CARBINE ACCESSORIES

A wide variety of rifle and carbine accessories were issued to members of the Swedish Armed Forces. As the m/96 and m/38 rifles and their variants came into widespread use among civilian shooting associations and hunting clubs, even more accessories were developed. As this book deals primarily with the military use of the Swedish Mauser, only those accessories issued to the soldier, sailor and airman are described below in detail. Some of the more common civilian accessories seen in North America are described at the end of this chapter.

#### SLINGS

The carbine (Karbinsrem) and rifle sling (Gevarsrem) were intended for carrying the weapon and were seldom used as an aid to steady the shooter's aim. All slings were made of oiled russet leather. Early slings had brass rivets retaining the buckle, later, they were made of steel. Three types of slings were used.

#### Carbine Sling

The carbine sling was used on all of the m/94 series of carbines. It was nominally 54 inches long by 1.187 inches (137.16 cm x 2.85 cm) wide and made of a single piece of leather, see Figure 5-1.

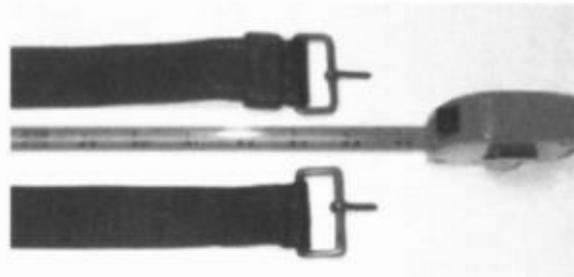


Fig. 5-1. Top, Rifle sling; below, carbine sling. The carbine sling lacks a keeper at the buckle and is longer.

The free end was passed through the barrel band sling swivel, through the buckle on its opposite end and the tongue pushed through a hole in the sling to secure it. The free end was led down along the side of the stock, through the slot in the left side of the butt stock and inserted into the buckle screwed into the recess on the right side. The sling was adjusted by moving the sling buckle forward or back. The carbine sling differed from the rifle sling in not having a leather keeper attached to the sling just ahead of the buckle. The buckle also had squared corners whereas the rifle sling buckle had rounded corners. The mounted soldier carried the carbine slung diagonally across his back.

## Rifle Sling

The rifle sling at 50 inches long with the buckle and 1.187 inches (127 cm x 2.85 cm) wide was shorter than the carbine sling. The free end was either slightly rounded or squared and slit to accept a brass button. The other end was doubled over a frame buckle and sewn closed. The frame buckle on all Swedish slings is unique in that its tongue was fastened to the outside edge of the buckle rather than the inside. The buckle was 0.875 inches wide by 1.18 inches long, see Figure 5-2.



Fig. 5-2. Sling buckle. The tongue is on the outside rim.

To install the sling, lay the rifle on a flat surface with the muzzle pointing to your right. With the free end of the sling in your right hand and the sling oriented so that the inside of the sling is facing out, pass the free end through the lower sling swivel on the butt stock.

Thread the free end back through the buckle (pull the tongue to the side out of the way) and then pull it through the upper sling swivel so that the short free end rests against the forend.

Insert the brass button (knapp) so that the flat end is also against the forend. Pull the sling taut and slide the tongue to the outside center of the buckle and push it through the nearest hole in the leather. Pull the sling out away from the rifle and the tongue will slip into the notch in the leather bight around the buckle frame and hold it securely in place. To adjust the sling, simply pull the sling outward and slip the tongue loose and reinsert it in the next hole. Again, pull the sling taut, see Figure 5-3.



Fig. 5-3. Rifle sling rigged. North Cape collection.

While the arrangement of the tongue on the buckle may seem peculiar, it is a simple and convenient way to adjust a carrying sling and has the added advantage in that the metal buckle never rests against the shoulder where it can chafe.

### Sniper Rifle Sling

The sniper rifle sling (gevarsrein m/41 B) was issued with the m/41 B sniper rifles. It was composed of two separate straps connected by a brass "D" ring. The upper end was 45 inches (114.3 cm) long by 1.125 inches (2.85 cm) long; the lower end was 25 inches (63.5 cm) long by 1.125 inches (2.85 cm) long, see Figure 5-4. Both straps were similar in form to the m/96 rifle sling but differed in length.

The free end of the long upper strap was passed through leather keeper, a brass D-ring that connected the two parts, then back through the leather keeper and through the forward sling swivel on the rifle. It then was reversed and folded back so that the free end next passed through a second leather keeper sewn to the buckle, through the buckle itself with the tongue slipped through the correct hole.

The free end of the short strap was passed through its leather keeper, through the D-ring and folded back to pass through a leather keeper sewn to the buckle, then through the buckle itself. The feed end was left long enough to pass through the rear sling swivel and be doubled back on itself. A double-ended brass button was slipped through a slit in the sling to secure the loop, see Figure 5-5.



Fig. 5-4. m/41 b Rifle sling. It is similar in design and function to the U.S. M1907 rifle sling.



Fig. 5-5. m/41 B sling rigged.

The shooter adjusted the long, front strap so that a loop was formed through which he passed his left arm. The leather keeper was moved down to secure its position on his upper arm. His left wrist was doubled back over the sling and he grasped the rifle's forend with the left hand. The long strap was adjusted so that when the rifle was raised to the shooting position with the butt planted solidly in the hollow between collar bone and shoulder and the left elbow exactly perpendicular to the rifle, it was drawn taut and steadied the rifle. The lower strap was left loose or even unattached as it played no part in stabilizing the rifle, see Figure 5-6.

With the sling adjusted to the proper tension, the rifle could be fired very accurately from the standing, kneeling, sitting or prone positions.

### Quick Release

A quick release metal clip (tillagshake) was manufactured for the sling (Figure 5-7). It was made of spring steel rolled at one end to secure a sling loop and bent back on itself at the other to form a clip that slipped over the sling swivel on the butt stock. It was 1.178 inches (3 cm) wide by 1.860 inches (4.72 cm) long. The clip end was rounded and tapered to make it slide easily over the sling swivel.



Fig. 5-6. m/41 B sling installed. North Cape collection.



Fig. 5-7. Quick release clip for sling.

To use, the free end of the sling was passed through the swivel on the clip, just as it would have been passed through the butt stock sling swivel. The clip was then slipped over the butt stock sling swivel. To release the sling, the soldier simply pushed the clip back through the butt stock sling swivel.

## BAYONET

Three types of bayonets (hajonetter) were issued for the Swedish Mauser. The original m/96 bayonet was issued for the m/96 rifle and later for the m/96-38 and the m/38 rifles. It could also be mounted on the m/41 and m/41B sniper rifle. Two separate, longer bayonets were issued for the m/94 carbine series.

### m/96 Bayonet

The m/96 blade and handle are made of fine Swedish steel, see Figure 5-8. The bayonet is 12.875 inches (32.70 cm) long overall. The blade is 8.1187 inches (20.79 cm) long and has a single cutting edge and a narrow fuller 0.187 inches (4.8 mm) wide by 6 inches (15.24 cm) long down the center of each side of the blade to the start of the spear point. The cross guard is steel with the upper end pierced (bore) for the rifle muzzle and the lower end rebated at the sides to save weight and curled back slightly at the tip. The separate handle is knurled and hollow, both for weight saving and to allow the bayonet to be attached with the cleaning rod in place on the rifle. The handle is attached to the blade with a tubular nut inside the hollow handle. A unique springloaded catch was attached at a 45 degree angle to the bottom of the pommel and engaged a recess on the bottom of the rifle's upper band.



Fig. 5-8. m/96 Bayonet and Scabbard. North Cape collection.

The blade was left bright but the handle, catch and scabbard were blued.

The blade was marked with either the Crown over C logotype of the Carl Gustaf factory or the Crown over anchor symbol of the Eskilstuna Jernmanufakturaktiebolag (Eskilstuna Hardward Manufacturing, Ltd.). The initials "EJ" and "AB" are on the opposite sides of the anchor in the latter. The reverse shows the Crown inspection mark and the last three digits of a serial number. The phrase, aktiebolag, indicates a "limited stock company.

The scabbard was 9 inches (22.86 cm) long and ended in a "ball" tip. The separate throat was bolted to the scabbard and a round front stud was attached to the right side. A crease down the center on each side simulated the fuller in the blade.

Bayonets and scabbards were stamped with a three digit serial number; on the ricasso, scabbard throat and ball. Examples of scab bards with on the serial number marked on the ball tip have been observed. These are usually marked "EAB" on the throat for the E. A. Bergs Fabriktebolag, Eskilstuna.

Bayonets that were issued are often marked with the designation of the military unit to which they were issued, and their rack number. Unit markings were usually stamped on the left side of the bayonet's cross guard and on the scabbards below the throat on the side opposite the stud. An example in the possession of the authors is stamped "I. 2 No. 508," indicating 2nd Infantry Regiment, Rack Number 508.

#### m/14 Bayonet

The m/1914 bayonet was developed for the m/94-14 carbine to provide the Coastal Artillery with an effective weapon against cavalry with swords and infantry equipped with long rifles, see Figure 5-9. Its overall length was 18.1 inches (46 cm). The scales were made of wood and attached to the grip with two screws. The attachment point to the carbine was a rectangular slot at the rear of the hilt which slid over the Mauser-style bayonet stud attached to the stock's forearm. The bore in the bayonet's cross guard slid over the lug on the nose cap. The blade was

double-edged, had a spear point and was polished bright, while the pommel, grip and cross guard were blued. The bluing on the grip extended onto the blades's ricasso 1/2 to 3/4 inches (12.7 to 19 mm). The scabbard was steel, blued and follows the lines of the m/96 scabbard except for its length. The m/14 bayonet was produced at Eskilstuna Jernmanufakturaktiebolag and shows the crowned anchor with the initials of the company, "EJ" and "AB."

Fig. 5-9. m/14 Bayonet developed for the Coastal Artillery forces. North Cape collection.



Janzen identifies two types of the long bayonet. The first he calls the Model 1913 and identifies it by a round press stud. The other he calls the Model 1914 and it has an oblong press stud.

#### m/15 Bayonet

The Navy wanted a longer bayonet for its m/94-14 carbines. The result was the 24.8 inch (63 cm) m/ 15 bayonet, a longer version of the m/14, see Figure 5-10. Besides its length, the m/15 differed from the m/14 only in having a long, thin fuller at the bottom of the blade and a semi-spear point. New m/15 bayonets were produced at Eskilstuna Jernmanufakturaktiebolag (with the crowned anchor and the initials of the company, "EJ" and "AB"). They were also remanufactured from the m/[18]60 and m/118164 naval bayonets. Again, the blade was polished bright but the pommel, grip and cross guard were blued. This bayonet is very rare in North America.

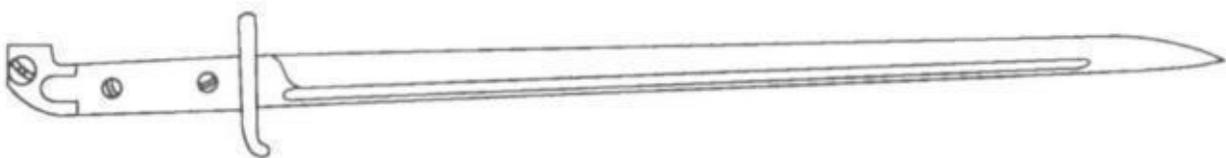


Fig. 5-10. m/15 "Naval" bayonet.

## Bayonet Frogs

Two different frogs were issued with the m/96, m/ 14 and m/ 15 bayonet and scabbard for the light infantry rifles and carbine-also issued with the m/42AG rifle-one for officers with twin belt loops (Figure 5-11) and one for enlisted men with a single belt loop (Figure 5-12). Both scabbards had a strap riveted or sewn to the base of the front that folded up and over the stud to secure the scabbard in the frog. Russet leather was used to make both the officer's and the enlisted frogs. The officer's leather had a patent finish while the enlisted men's scabbard turned the rough, unfinished side of the leather out so that the fair leather was on the inside of the belt loop and the scabbard pouch.



Fig. 5-11. Two styles of officer's frogs. E. Mailloux collection.

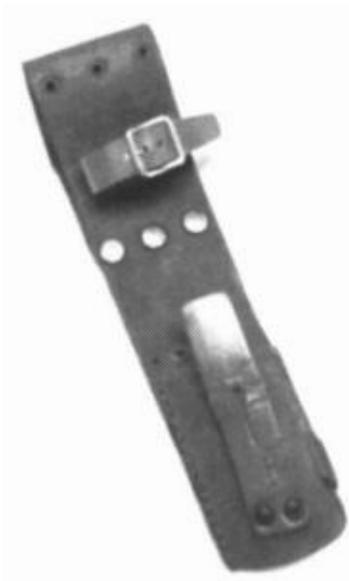


Fig. 5-12. One of many variations of the enlisted man's frog. The three holes at the top suggesting that the belt loop was lengthened.

The officer's model used two securing straps-one half ran diagonally from top left to the button, the other from the bottom right to the button. The belt attachment was at the top end of

either arm. The scabbard was secured to the belt with two nickel-plated frame buckles. Leather keepers were sewn below the buckles.

The enlisted frog used a single securing strap which was sewn at the bottom of the frog. A slit 0.875 inches (2.22 cm) long was made at the front to allow the scabbard stud to slide through. A second, horizontal strap was sewn or riveted near the bight and encircled the bayonet hilt on all but the very earliest frogs. The strap was secured by a conventional, nickelplated frame buckle. The leather was folded over itself at the top and secured either by sewing or with three brass (early) or steel (late) rivets to form the belt loop.

Frogs are found in several variations-primarily in the length of the belt loop. A long and short belt loop was used and many of the short frogs were lengthened and will show the original rivet holes near the bight. Frogs will be found with a variety of markings, mostly regimental. Most are marked with a capital "B" on the vertical retaining strap and with from one to three Crowns although it is not that unusual to find scabbards with no inspection markings at all. The example shown in Figure 5-13 was issued in 1912 to the 16<sup>th</sup> Regiment of Infantry, probably for rifle no. 71.



Fig. 5-13. Enlisted frog issued to 16th Infantry Regiment in 1912.

### Bayonet Clip

The bayonet clip (baljfd.stare) was made of spring steel, see Figure 514, and was used to secure the m/ 96 bayonet to its scabbard during bayonet practice. The open end of the clip gripped the bayonet's handle and the semicircular hole at the bottom slips over the bayonet scabbard stud.



Figure 5-14. The bayonet clip held the scabbard on during practice.

## MUZZLE ROD GUIDES

A surefire way to destroy a rifle's accuracy is to damage the barrel's crown by letting a steel cleaning rod rub against the lands at the muzzle end of the bore. Hence officials developed a tubular muzzle rod guide (muzzelrodsführer) that slipped over the muzzle end of the barrel and was turned clockwise to engage the front sight post in a slot to lock it in place. The cleaning rod was moved back and forth without coming in contact with the delicate lands below the muzzle, see Figure 5-15. They were then instructed to insert the cleaning rod into the breech end of the barrel and clean the chamber and the lower part of the bore.

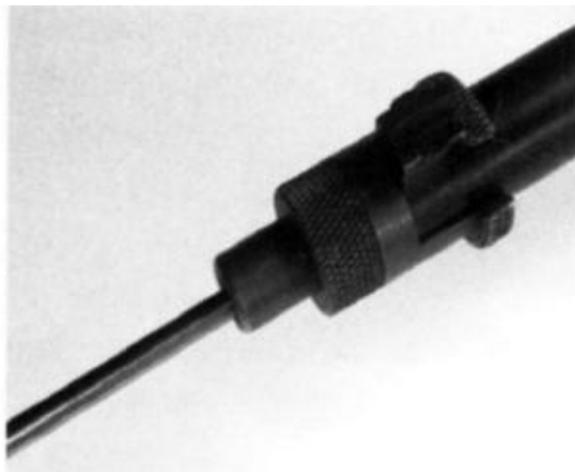


Fig. 5-15. Muzzle rod guide in place with cleaning rod inserted.

Two variations of the muzzle rod guide were developed, both identical in shape and differentiated only by the diameter at the front. The older style is 0.450 inches (11.43 mm) in diameter while the later style is 0.550 inches (13.97 mm) in diameter. All are marked with the Crown/C inspection. Most were left "in the white" but some were also case-hardened or blued.

## CLEANING KIT

Each soldier was issued a canvas roll with a cleaning rod guide for the breech, a cleaning rod extension and various tools as described below.

### Cleaning Rod Extension

To clean the bore properly from the receiver end, a cleaning rod extension (laskiinda) was issued in the soldiers kit. It screwed onto the threaded end of the cleaning rod, see Figure 5-16. At least five variations of the cleaning rod extension are known to exist. The measurements given in this section are nominal only. Variation in actual measurements was observed ( $\pm 0.025$  inches or 0.635 mm), suggesting that these pieces were made by various subcontractors over the years.

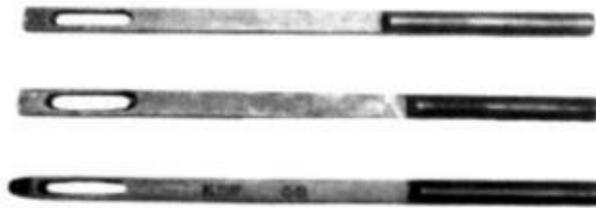


Fig. 5-16. Three types of cleaning rod extensions.

Three cleaning rod extensions were made of brass. All were 0.194 and 0.201 inches (4.9 and 5.1 mm) in diameter and 7.3 inches (18.5 cm) long. All had two flattened areas - the forward one 1.6 inches (4.06 cm) long and after 2.6 inches (6.6 cm) long turned at right angles to one another. The upper area was slotted to hold a cleaning patch. The slots were about 0.5 inches (12.7 mm) long. The tubular end (0.23 inches or 5.8 mm in diameter) was drilled and tapped to fit the cleaning rod's threaded end.

The fourth attachment was also made of brass but was 6 inches (15.24 cm) long - a similar cleaning rod attachment in steel was also manufactured but had a threaded female end. The flattened areas were each three inches in length. The forward end had a male thread to accept a cleaning brush. A knurled brass cap was manufactured to screw onto the male end to protect the threads.

The fifth variation of the cleaning rod extension was identical to the three brass ones described above except that it had a male threaded end for use with the barracks cleaning rod extension described below.

Note: A rifle should always be cleaned from the breech end whenever possible. If not, a cleaning rod guide should be used to prevent the cleaning rod from rubbing against the lands at the muzzle. The slightest deformation of the lands at the muzzle can produce an inaccurate rifle.

## Cleaning Rod

A wooden-handled cleaning rod (rengoringslask) was manufactured for use in the barracks or by an armorer. It was 33.94 inches long overall and had a pear-shaped beech handle attached to a brass rod 22.5 inches long secured in the handle by a slotted nut. The rod turned freely in the handle to allow the cleaning brush or patch to follow the rifling. See Figure 5-17. A steel cleaning attachment 6 inches long was permanently attached to the brass rod. The cleaning attachment has the usual opposed flats (3 inches long) but slotted for very thin cleaning patches. The end had a male thread for attaching a cleaning brush. When the cleaning brush was not used, a knurled brass cap was used to protect the threads.



Fig. 5-17. Barracks cleaning rod.

A brass extension was manufactured for the barracks cleaning rod. It was the same diameter but 5.3 inches long and had two female threaded ends. When attached to the barracks cleaning rod it was long enough to clean the m/96 rifle barrel with the use of the fifth variation cleaning rod extension described above.

## Cleaning Brushes

Cleaning brushes (borstviskare) for the Swedish Mauser were made of animal bristles held in twisted wire crimped into a female plug that screwed onto the end of the cleaning rod. The cleaning brushes observed were nominally 3.3 inches long and the diameter of the bristles varied between 0.410 and 0.440 inches in diameter. The female plug was nominally 0.93 inches long and 0.194 to 0.196 inches in diameter. Several different styles of crimps were observed. Both black and white bristles have been observed. See Figure 518. Cleaning brushes were usually carried in the empty chamber of the dual oil bottle.



Fig. 5-18. Three cleaning brush variations.

## OIL BOTTLES

One type of oil bottle (oljedosa) was developed and used with the Swedish Mauser rifle but it was manufactured in three materials: galvanized iron, polyethylene and polypropylene, in green, clear and opaque, see Figure 5-19.



Fig. 5-19. Four variations of oil bottles, (l-r) two galvanized iron, polyethylene and polypropylene.

Two bottles were fastened side-by-side and each had its own screw-on cap attached to the bottle proper with a short length of chain. One side held oil and the other cleaning solvent, or later, the cleaning brush and cleaning rod extension for the cleaning patch.

The earliest oil bottles were made of galvanized iron, were shorter and the container for the brush was smaller in diameter, see Figure 519a. These may have been issued originally for the m/94 carbines. Two tubes 3.184 inches long by 0.718 inches in diameter were formed from

a single sheet of metal and soldered closed along their lengths. A bottom piece and a threaded top were then soldered into the bottom and top of each tube. The caps were formed from a single piece of metal and knurled around the top edge to make it easier to handle. The retaining chains were fastened to the top with a rivet and soldered to the side of each tube.

The polyethylene oil bottles were slightly larger than the galvanized iron oil bottles at 0.798 inches in diameter by 3.736 inches long and were manufactured by injection molding. The caps were black, the bottles clear and the divider between the two bottles was pierced for the single length of retaining chain riveted to each cap and reinforced at the bottom. They were made in green and clear.

The polypropylene bottles were the last to be manufactured. They are similar in size and shape to the polyethylene bottles but are white and opaque.

Leather seals were used in the caps of the galvanized iron and polyethylene caps. The polypropylene caps were self-sealing.

The only markings observed on any of the three types of oil bottles were a single "A" stamped on the cap of one of the galvanized iron oil bottles.

## BLANK FIRING DEVICE

Every army prefers to train its troops under the most realistic conditions possible short of actual combat. Of great benefit to new recruits is training with live ammunition to accustom them to the noise and confusion of battle. Obviously, live ammunition in the hands of recruits is extremely unsafe and so blank cartridges are used to simulate the noise and recoil.

The blank firing device (losskjutningsanordning) was used with the wooded bullets described in Appendix G, Ammunition. It effectively shredded the wooden bullets so that there was no danger of being struck by a projectile from a few feet away. But soldiers were cautioned to never aim directly at anyone for safety reasons.

The device is essentially a tube within a tube, see Figure 5-20. It is 0.944 inches in diameter and 2.7 inches long. It has twelve holes around its outer circumference to vent gases and allow the bits of shredded bullet to escape.



Fig. 5-20. Blank firing device used with wooden bullets on the "B" suffix rifles only.

The device is screwed over the threaded muzzle end of any "B" suffix rifle and a retaining clip is folded down over the front post which also serves as a front sight hood. When the blank round is fired, the bullet smashes into the end of the tube and is powdered. Muzzle gases are vented through the ports around the circumference of the device.

## MUZZLE BRAKE

A commercial muzzle brake was manufactured and offered in Sweden for use in target shooting, see Figure 521. The muzzle brake is found primarily on rifles used in match competition.



Fig. 5-21. Muzzle brake for the m/96 and m/38 series rifles. John Giles Collection.

## NIGHT SIGHTS

The so-called night sights (morkerriktnaedel) are actually for use in low light situations. Because Sweden is situated so far north, long twilights are the norm. To assist troops during these hours of low light, clip-on sights with a phosphorescent compound were used, see Figure 5-22. The rear aiming device was attached to the rear sight with a small thumbscrew and had two dots of phosphorescent material (radium in early sights) on either side of the sighting notch and the one dot on the front sight that clipped around the barrel at the front sight post. The soldier aimed by lining up the three dots in a horizontal row against the darker mass of his target. The night sights were carried in a small leather pouch.



Fig. 5-22. Night sights.

### AMMUNITION CARRIERS

Three types of ammunition pouches were worn by the Swedish soldier. Two were leather pouches that clipped to the belt and the third was an ammunition belt.

The leather pouches were manufactured in two sizes; the smaller of the two held two 5-round clips of ammunition, one on top of the other (see Figure 5-23) and the larger also held two 5-round clips (see Figure 5-24) but side-by-side. The clips were held in place by a butterfly flange. Both pouches are commonly marked with the Swedish crown inspection marking.



Fig. 5-23. Ammunition pouch holding two stacked 5-round clips



Fig. 5-24. Ammunition pouch holding two 5-round clips side-by-side.

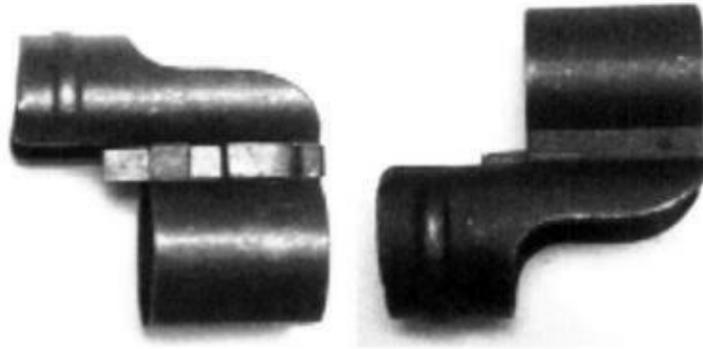
The ammunition belt (see Figure 5-25) was manufactured of welltanned, russet leather. It had five pockets, each holding five clips of ammunition for a total of 125 rounds. The pockets have green canvas gussets on the side to allow for expansion. The pocket flaps are held shut with a leather strap riveted to the bottom of the ammunition belt at the back and threaded through a slit in the front of the pocket. Each strap had two slits that could be slipped over a steel button riveted to the flap. A brass keeper was fastened with two brass rivets to the right (when worn) side. A long leather strap was riveted and sewn to the left side. A frame buckle with the tongue on the outside rather than the inside edge, similar to those used on the rifle slings but larger, was attached and clipped to the tongue on the right. The ammunition pouch was designed to be worn about the waist with the pockets at the front, but could be rigged to be worn across the chest. Two square frame buckles held by two leather keepers were riveted to the inside back. These served as attaching points for suspenders to relieve the weight of the belt about the waist.



Fig. 5-25. The ammunition belt held 125 rounds in clips.

## SIGHT HOODS

Two types of sight hoods were developed, one for the standard rifle (kornsk-Ydd), see Figure 5-26, and one for the m/41 B (kornskvdd m/ 41B) see Figure 5-27. The difference lay primarily in the fact that the hood was higher on the m/41B sight hood.



Figs. 5-26 and 5-27, sight hoods for the infantry rifle and sniper rifle respectively.

### **MISCELLANEOUS ACCESSORIES Pistol Grip**

A separate pistol grip was manufactured for match shooting and not for military use, see Figure 528. The pistol grip was made of beech, finished in a dark stain and was fastened to a steel plate. To attach it to the rifle, the rear trigger guard screw and the forward sling swivel screw were removed. The pistol grip plate was inserted and the screws replaced.



Fig. 5-28. Pistol grip for match shooting. Steve Kehaya collection.

### **Muzzle Protectors**

A large number of m/96, m/ 96-38 and m/38 rifles were given a "B" suffix designation after their muzzles were threaded for the blank firing device described above. To protect the

threaded end, a nylon cylinder (myvnningsring) was issued for use while in storage or when the blank firing device was not attached. The nylon cylinder was 0.61 inches (15.5 mm) in diameter and 0.55 inches (13 mm) high and was either transparent, yellow or colored green, see Figure 5-29.

A yellow plastic slip-on cap (myvnningskydd) was also issued. It was 0.595 inches (15.1 mm) in diameter and 0.545 inches (13.8 mm) high. Neither muzzle protector had any markings.

The majority of "B" suffix models imported into North America had muzzle rings rather than the plastic caps attached and most collectors discarded them, not knowing what they were. This provided a number of enterprising individuals the opportunity to produce steel or aluminum muzzle caps blackened to simulate a blued finish or left white. A typical example is shown in Figure 5-30. It is 0.605 inches (15.4 mm) in diameter and 0.571 inches (14.5 mm) high. It should be emphasized that this is not a Swedish military issue accessory but a North American-produced commercial item.



Fig. 5-29. Nylon muzzle protector.

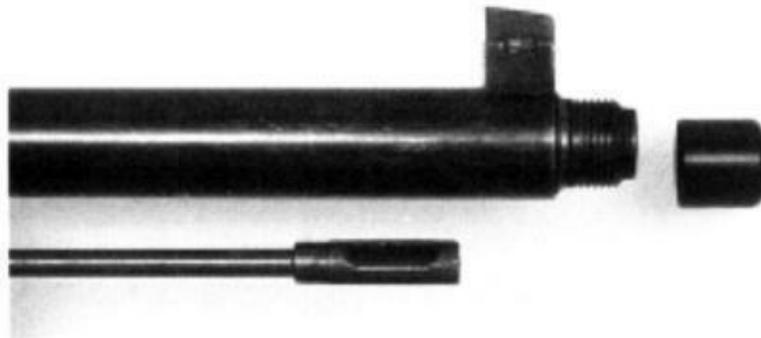


Fig. 5-30. Commercial, American-made muzzle cap for the "B" suffix rifles.

### Spent Cartridge Catcher

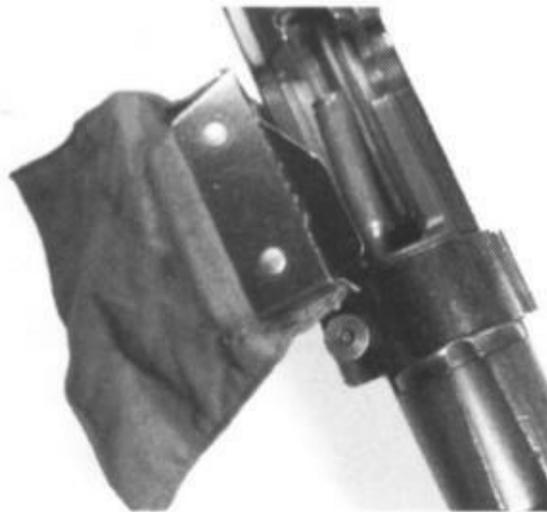
This last is not strictly an item of general issue to the soldier but it was widely used during both gallery and outdoor target practice, see Figure 5-31. Spent brass cartridge cases were reloaded for issue to various shooting societies and sport clubs. To make them easier to

gather up, a collecting bag (hylsfangare) was fastened to the receiver of the rifle with a metal clip that encircled the stock and oriented so that the opening of the bag was opposite the ejection port. When the bolt was drawn back, the spent case was ejected into the bag, see Figure 5-32.



Fig. 5-31. Spent cartridge collector. Steve Kehaya collection.

Fig. 5-32. Spent brass catcher installed on a rifle. The mount is opposite the breech.



### Sub-Caliber Insert

A device very similar to the British Morris Tube Aiming Device was developed for use in the m/96-38 or m/38 rifles, see Figures 5-33.and Figure 5-34 .

The breech end of the tube is reinforced with a greater wall thickness to 2.94 inches (7.46 mm) outside diameter for the cartridge. The inside diameter at the breech end remains 0.170 inches (4.3 mm). A flange at the forward end of the breech area bottoms against the forward end of the barrel's chamber.



Fig. 5-33. Sub-caliber insert for indoor rifle practice. Steve Kehaya collection.

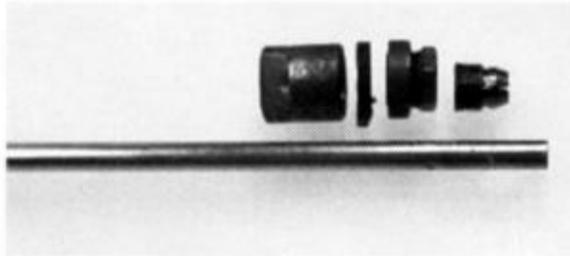


Fig. 5-34. Sub-caliber insert disassembled.

It consisted of a rifled tube 0.258 inches (6.55 mm) in outside diameter and 0.170 inches (4.3 mm) inside diameter by 23.875 inches (60.64 cm) long. The rifling stopped 1.764 (4.48 cm) inches short of the muzzle.

The muzzle end of the tube is squared. A compression fitting slides over the muzzle end and a brass adjusting nut screws around the compression fitting. Below, a rubber gasket separates the compression fitting from a nut which screws over the threaded muzzle of the "B" suffix m/96-38 or m/38 rifle to hold the assembly in place, see Figure 5-35.

A green plastic plate is inserted into the magazine well over the magazine floor plate. To use, the shooter slips the cartridge on the floor plate and pushes the bolt forward, see Figure 5-35. The authors were unable to determine the type or caliber of the cartridge used with this device.

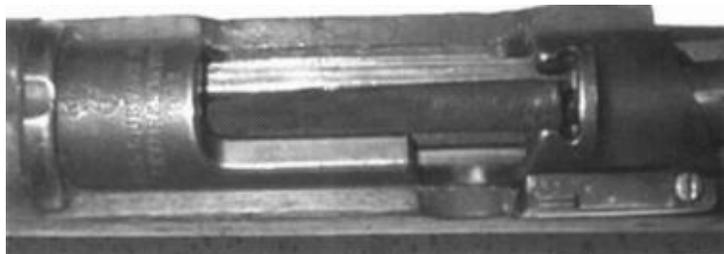


Fig. 5-35. Replacement magazine floor plate for use with sub-caliber insert.

# APPENDIX A

# PRODUCTION TOTALS AND SERIAL NUMBERS, OF THE SWEDISH MAUSER

All Swedish Mausers were manufactured by one of three companies: Mauser, Oberndorf am Neckar, Germany; Carl Gustafs Stads Gevarsfaktori, Eskilstuna, Sweden (Carl Gustaf's City Rifle Factory) and Husqvarna Vapenfabriks AB, Husqvarna, Sweden. Production began in 1894 with 52 prototype carbines and continued uninterrupted at Carl Gustaf from 1898 to 1925 and intermittently into the 1930s. Production was resumed in 1941 at Husqvarna and ended in 1944.

## SERIAL

Each receiver was stamped with a serial number, in addition to the factory's name and year of manufacture during production but before the final polishing, hardening and assembly into a completed rifle or carbine.

Table A-1 presents a study of serial numbers by year conducted by the authors and assisted by Mats Persson, based on a survey of 487 carbines and rifles. The serial number ranges charted are those observed and should be considered as approximate starting and ending numbers for each year. The authors were unable to uncover any master serial number list. We welcome additions. Please record model (m/94 carbine, m/96 rifle, m96-38 rifle, m/38 rifle, m41 or m41/B rifle, CG 63 or CG 80 rifle or Fsr rifle. Include manufacturer's name, year of manufacture found on the receiver, the full serial number and inspector's initials on the left side of the receiver. Mail this information to North Cape Publications, Inc., PO Box 1027, Tustin CA 92781, USA." Unfortunately, we cannot accept serial number information by mail or telephone.

See Chapter 3 for a complete discussion of serial numbers, production numbers and other markings.

Table A-1  
Serial Number Ranges and Inspectors Observed by Year  
m/94, m/96 and m/38

Year	Serial # (start/end)		Factory/Inspectors
Carbines			
1894	1-52		Mauser/None
1895	13-11,961		Mauser/GF
1901-1907	10,486 - 53,762		C Gustaf/GF, KB, HR, JV
1914-1918	59,028 - 112,000		C Gustaf, YT, HK, MB, BH
Rifles			
	Carl Gustaf	Mauser	
1898	17 - 3,112	None	OG
1899	3,324 - 19,874	20,378 - 34,369	OG, GF
1900	60,136 - 82,694	35,480 - 57,490	OG, JF, JV, HK
Carl Gustaf Only			
1901	83,538 - 99,566		OG, GF
1902	103,032 - 124,508		GF, KB
1903	125,642 - 139,981		HK, KM
1904	142,028 - 151,888		KB
1905	152,962 - 176,625		KB, JV
1906	178,302 - 205,769		JV
1907	204,107 - 213,704		JV
1908	215,188 - 236,704		JV
1909	238,184 - 258,609		JV

**Table A-1, con't.**  
**Serial Number Ranges and Inspectors Observed by Year**  
**m/94, m/96 and m/38**

Year	Serial # (start/end)	Inspectors
1910	261,544 - 269,871	JV
1911	280,693 - 294,949	JV, YT
1912	296,319 - 322,680	YT, HK
1913	312,014 - 325,790	YT
1914	327,380 - 332,031	HK
1915	334,451 - 369,074	HK
1916	371,474 - 401,598	HK, MB
1917	401,990 - 445,475	HK
1918	445,969 - 461,858	HK
1919	462,264 - 480,551	HK
1920	481,396 - 489,625	HK
1921	491,829 - 495,000	HK
1922	499,980 - 503,212	HK
1923	504,145 - 508,800	BF
1924	509,330 - 511,145	BF, BH
1925	511,948 - 517,277	BH
<b>Husvarna Production - m/38</b>		
1941	600,867 - 628,717	SS, GB
1942	628,822 - 667,603	SS, GB

**Table A-1, con't.**  
**Serial Number Ranges and Inspectors Observed by Year**  
**m/94, m/96 and m/38**

<b>Year</b>	<b>Serial # (start/end)</b>	<b>Inspectors</b>
1943*	669,783 - 692,972	SS
1944*	697,251 - 705,686	SS

\* Includes 20,000 m/96-type rifles, manufactured at Husqvama for the Frivilliga skytterörelsen.

## APPENDIX B

### GEVÄR M/39 AND M/40 MAUSER RIFLES

By 1938, it was plain to all but the most obtuse that a major European war was on the horizon. A survey of small arms in depots around Sweden revealed a potential shortage. In the anxious months and years ahead, steps were taken. A contract with the private arms manufacturer Husqvarna was negotiated to build the modified m/96-38, which was to be designated the m/(19)38. Another was to purchase arms from foreign manufacturers. The German government offered to sell at a very reasonable cost 5,000 Czech-manufactured ZGB 33 light machine guns in 7.92 x 57 mm Mauser, the model on which the British BREN gun was patterned. The offer was made in an effort to retain Swedish good will and assure the continuing delivery of shipments of iron ore and other minerals from Swedish mines, as well as wean the Swedes away from the influence of Great Britain. The offer was accepted in 1939, and the new light machine guns were added to the Swedish Army's inventory.

In the early 1920s, some Swedish military officials had become concerned that the 6.5 x 55 mm rifle cartridge was too small and light to be an effective machine gun cartridge. In 1931, a program was instituted to develop a new round combining the features of the U.S. .30-06 and the German 7.92 x 57 mm cartridge. The result was the m/ 32 8 x 63 mm cartridge, adopted in 1932, which used a bullet 8.2 mm (0.323 inches) in diameter and a case length 63 mm (2.48 inches) long. Sweden already had in inventory a variation of the M 1917 Browning water-cooled machine gun. These were rebarreled from 6.5 x 55 mm and chambered for the new 8 x 63 mm m/1932 cartridge. The new heavy caliber Brownings became the m/36 machine gun.

By 1940, Sweden then had three types of machine guns in service, all with their own troops, repair, maintenance and other support units and facilities: the Czech-made light machine gun in 7.92 x 57 mm Mauser, the original Browning machine guns chambered for the 6.5 x 55 mm caliber and the new heavy m/36 machine gun squads using the 8 x 63 mm cartridge. In an effort to reduce some of the logistical difficulties involved in furnishing the various types of machine gun as well as rifle ammunition to these units, the Swedish ordnance officials decided to furnish rifles in matching calibers to each type of machine gun squad. To this end, they purchased from Germany Kar98 rifles in 7.92 x 57 mm Mauser (designated the Gevar m/39) and Kar98 rifles chambered for the new m/36 heavy machine gun cartridge (designated Gevar m/40), see Figure B-1. The Browning-equipped machine gun units which still tired the 6.5 x 55 mm cartridge received the standard m/96-38 or m/38 rifles.

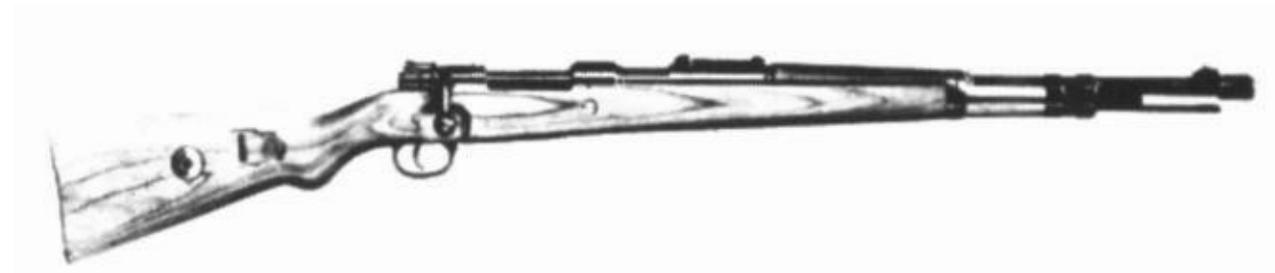


Fig. B-1. m/40 8.63 x 63 mm caliber rifle.

The 8 x 63 mm cartridge was used only by Sweden during the World War II period. It was equivalent in power to the American .3006 M 1 Ball cartridge. The bullet diameter was 0.323 inches compared to 0.308 for the .30-06; the cartridge length overall was 3.36 inches, only 0.02 inches longer than the .3-06, and the necked case was 2.48 inches long compared to 2.49 inches for the .30-06 case. The cartridge was also used in the Swedish m/42 (air cooled) machine gun.

The m/39 and m/40 rifles were standard Kar98s. They were marked with the German ordnance codes "243" (Mauserwerke, Berlin) or "147" or "CE", either of which indicate manufacture by J.P. Sauer. They are also distinguished by inspector C. Gustaf Bjorkenstam's initials, "G.B.," stamped on the left side of the receiver ahead of the serial number. As might be imagined, the recoil with the heavy cartridge was fierce. After many complaints from the troops, the rifles were recalled and fitted with muzzle brakes. This lessened the recoil force somewhat but increased the muzzle blast. It also made it impossible to attach a bayonet to the rifle.

After World War II, most of the m/39 and m/40 rifles were sold as surplus through Czechoslovakia to Israel, where they were used during the 1948-49 conflict and again during the 1956 Arab-Israeli War. Most of the rifles were refinished and rebarreled for either the 7.92 x 57 mm Mauser or the 7.62 x 51 NATO cartridge. The muzzle brake installed on the m/40 was discarded. But they can often still be identified by the remnants of Inspector Bjorkenstam's initials on the left side of the receiver. Two m/40's and one m/39 were examined by the authors. One m/40 had been rebarreled to 7.92 mm Mauser, the other m/40 and the m/39 were rebarreled to 7.62 NATO. Most of the original factory markings on the receivers had been removed during the refinishing process, but on all three the initials "G.B." were plainly visible on the left side just ahead of the designation "-Mod 98," see Figure B-2.



Fig. B-2. Swedish inspector, G Bjorkenstam's initials are still visible on refinished m/39 and m/ 40 rifles. Allen R. Geiger collection.

## APPENDIX C

### THE SWEDISH ARMS INDUSTRY — A SHORT HISTORY

Sweden obtained her independence from Denmark under the leadership of Gustavus Vasa after nearly two hundred years of revolution and war. Sweden played a leading part in the Thirty Years War and gained additional territory on the southern Baltic coast under the Treaty of Westphalia. But in 1700, a coalition of Russia, Poland and Denmark - led by Peter the Great - finally defeated Sweden under the leadership of Charles XII at the Battle of Poltava. The Peace of Nystad forced Sweden to give up Estonia and Livonia and part of Finland, Figure C-1.



Fig. C-1. Charles XII at the Battle of Poltava.

During the Napoleonic Wars, Gustav IV Adolph bitterly opposed Napoleon. In 1809, he was deposed by the Army, and his uncle was crowned King Charles XIII. Charles had served as high admiral of the Swedish navy and defeated the Russian fleet in the Gulf of Finland in 1788. Under his leadership, Sweden signed two treaties with Russia in 1809 and ceded Finland and the Aland Islands to her. In 1810, a treaty with France was also concluded, and Sweden adopted a conciliatory policy toward Napoleon.

The following year in an effort to appease Napoleon, the Riksdag, the Swedish parliament, offered the regency to Marshal Jean Baptiste Jules Bernadotte, prince of Pontecorvo and one of Napoleon's most trusted generals. In 1813, under threat of renewed war with a much stronger and better led Russia, Bernadotte withdrew Sweden from its alliance

with Napoleon and fought with the coalition led by England and including Russia against France. In 1814, Sweden forced Denmark - a French ally - to exchange Norway for the Baltic province of Pomerania. The union between Sweden and Norway was established but never really accepted by Norway (it was dissolved peaceably in 1905). In 1818, Bernadotte was crowned Charles XIV, establishing the present dynasty.

These were the last wars that Sweden fought but that did not mean that peace was assured. Throughout most of the 185 years since the end of the Napoleonic Wars, Sweden has been forced by restless and aggressive neighbors to maintain her armed forces in a high state of readiness. This in turn has forced the development of an arms industry among the best in the world. Her foreign policy, carried on without interruption for almost two centuries, has been one of strict neutrality backed by her willingness to fight on her own territory if need be to defend herself.

On the eve of World War II, Sweden again reiterated her policy of neutrality. An extensive rearmament program kept the Nazis at bay and Sweden out of the war in spite of German attacks on Swedish shipping in coastal waters, border incidents with Russia in the Arctic regions and British provocations in Norway and in the Baltic Sea.

As a consequence of her neutrality, Sweden has avoided the ravages of every war fought on the European continent since 1815, including two world wars and a 46 year-long cold war.

### Readiness Makes the Difference

In 1861, the Loshulthossan, a hand cannon believed manufactured in Sweden in the late 1400s was found in a peat bog in the southern part of the country. It was slightly more than 12 inches long and had a bore 1.18 inch in diameter. A second firearm of about the same age, the Knallbossan was recovered from Stockholm harbor a few years later. It was 5 inches long and had a bore of slightly more than .31 caliber.

The social changes that produced the Swedish arms industry really began during the 16th Century when the government decreed lower taxes for those making firearms. In the early 17th Century, the great Swedish king Gustav II Adolf required all gun smiths to produce a set number of firearms each year. In the 1620s, he further decreed that specific towns were to become gun manufacturing centers. Metal workers were relocated so that their skills would improve both the quantity and quality of the nation's firearms production. Each "gun smith" worked as an "independent contractor" in his own shop. But as the demand grew, they found it advantageous to cooperate with one another in the manufacture of various parts and assemblies. To support them, land owners, farmers and others were taxed in the form of wood for gunstocks, food, clothing and other necessities.

As the cooperation progressed, the government appointed certain gunsmiths to assemble components produced by others into finished firearms. These gunsmiths were called faktors

and their coalitions of gunsmiths, faktories. The concept of proofing completed firearms was introduced during this period, and government inspectors were appointed for this task. Between the government-sponsored faktories and those gunsmiths who remained in private business, the country was manufacturing between 15,000 and 20,000 firearms annually at the end of the Thirty Years War in 1648.

During the 1700s, the loose confederations that had made up the faktories were reorganized into seven state-owned arsenals. During the Great Northern War (1700-21) against Russia, each arsenal produced between 2,000 and 10,000 muskets annually.

## SWEDEN'S STATE ARMORIES

Nine great armories owned by the Crown were established in Sweden between 1560 and 1812, six of them in 1620 alone, see map overleaf. They produced all of the military arms from pistols to cannon used by the Royal Army and Navy until 1943 when the Carl Gustaf factory, the last of the government-owned arsenals, was sold to the commercial firm FFV.

- 1) Arboga Faktori, founded in the 1560s for the production of muskets and armor.
- 2) Gevarsfaktoret i Soderhamn, founded in 1620. It was burned by the Russians in 1721, rebuilt a few years later but then closed and moved to the Carl Gustafs Stads Gevarsfaktori in 1812 when its coastal location made it too vulnerable.
- 3) Jonkopings gevarsfaktori, founded in 1620. Its equipment and personnel were moved to the nearby town of Husqvarna in 1686 and it became the largest of the state factories during the Great Northern War (1700-1721) with more than 1,000 employees and an annual production of firearms in excess of 11,000.
- 4) Norrkoping gevarsfaktori, founded in 1620
- 5) Orebro gevarsfaktori, founded in 1620, closed in 1745.
- 6) Sundsvall gevarsfaktori, founded in 1620.
- 7) Norrtalje gevarsfaktori, founded in 1620. The factory and town were burned by the Russians in 1719 during the Great Northern War.
- 8) Linkoping gevarsfaktori, founded in 1800.
- 9) Carl Gustafs stad gevarsfaktori, was founded in 1813, Figure C2 . The last of the great state arms factories and the only one surviving today, it is located in the town of Eskilstuna, an hour or so drive west of Stockholm. The town was originally founded in 1771 as Carl Gustafs Stad (City of Carl Gustafs) as a tax-free zone for gunsmiths and other metal workers. After the

remaining area of Finland was ceded to Russia in 1809, the government reorganized the Swedish arms industry and founded a new factory in the town. In 1820, the first percussion musket lock was produced for the Swedish army making Sweden one of the first nations to be armed with percussion lock muskets at a time when many other countries, the United States included, remained dependent on the flint lock.





Fig. C-2. The Carl Gustafs stad gevarsfaktori in 1890. Photo courtesy of Carl Gustaf, Division of Bofors.

#### Carl Gustafs stad gevarsfaktori To the Present

The Carl Gustaf factory quickly became the premier arms factory in Sweden, partly due to the fact that it was the center of the country's steel production. In 1867, the Carl Gustaf factory was modernized and began the production of a licensed version of the Remington Rolling Block rifle for the Swedish military. Part of the modernization included the installation of machine tools acquired in the United States, including drop forges. For the next 100 years and more, the factory would utilize the drop forge method to produce finely machined parts, see Figure C-3.

In 1896, Sweden adopted a new small caliber, magazine-loading, bolt action Mauser rifle based on the Spanish Model 1893, but with improvements. Production of receivers and major parts continued through 1925, and additional rifles and carbines were assembled as needed into the 1930s.

Fig. C-3. View of the drop forge works, 1909. Photo courtesy of Carl Gustaf.



During World War II, employment grew to 1,200 as new and heavier weapons were produced. Among them were the world's first recoilless antitank weapon and a new semi-automatic rifle, the m/AG 42 and m/Ag 42(B) (aka Ljungman Rifle) based on a direct gas impingement system, Figure C-4. The m/ AG 42 never replaced the m/96-m/38 rifles but was issued as a squad automatic support weapon on the basis of several rifles per squad. The direct gas impingement system was later used in the French MAS 4956 Battle Rifle, the Stoner-designed M16/AR15 and the Fabrique Nationale FNC, which is produced in Sweden for the Royal Army as the Ak5.



Fig. C-4. m/42(B) Ljungman Rifle. North Cape collection.

In 1965, Sweden adopted a variation of the Heckler & Koch G3 as the Ak4 rifle, manufactured both by Carl Gustaf and Husqvarna. The Ak4 was replaced in the early 1980s by the Ak5, a 5.56 x 45 mm NATO assault rifle based on the Fabrique Nationale FNC, see Figure C-5. The factory also produced a wide range of firearms ammunition and other weapons such as the one man-portable-and-launched 84 mm Carl Gustaf M3 antitank and bunker-busting recoilless rifle. It also manufactures one of the world's finest commercially-produced hunt ing rifles, the Carl Gustaf 2000. The action of this rifle carries on the 103 year old tradition of Mauser actions fitted so well into their stocks that many suspect they have been fiber-glass bedded. In 1969, the factory moved from its original premises to a new location on the

outskirts of Eskilstuna.



Fig. C-5. The Swedish Ak5 is a licensed-built version of the Fabrique Nationale FNC rifle with improvements. Photo courtesy of Bofors.

In 1943, Carl Gustaf Gevarsfaktoriet became part of the FFV combine and the factory was renamed several times in the intervening years to the present: Gevarsfaktoriet (GF), GF-vapen, Carl Gustaf (CG), FFV-Carl Gustaf, in succession. In 1990, it was purchased by Bofors which in turn is currently owned by Celsius, one of Europe's largest defense manufacturing organizations. The company is now known as Bofors-Carl Gustaf, see Figure C-6.

#### GEVARSAKTORIET i HUSQVARNA

The Husqvarna factory was founded in 1689 to manufacture firearms barrel and the arms-making part of the company was sold 283 years later in 1972, having remained a private company during its entire life. The Husqvarna factory traces its beginnings to a mill works for drilling and rifling barrels. The original works was located near Lake Vattern to take advantage of the power supplied by the rivers and streams flowing into it.

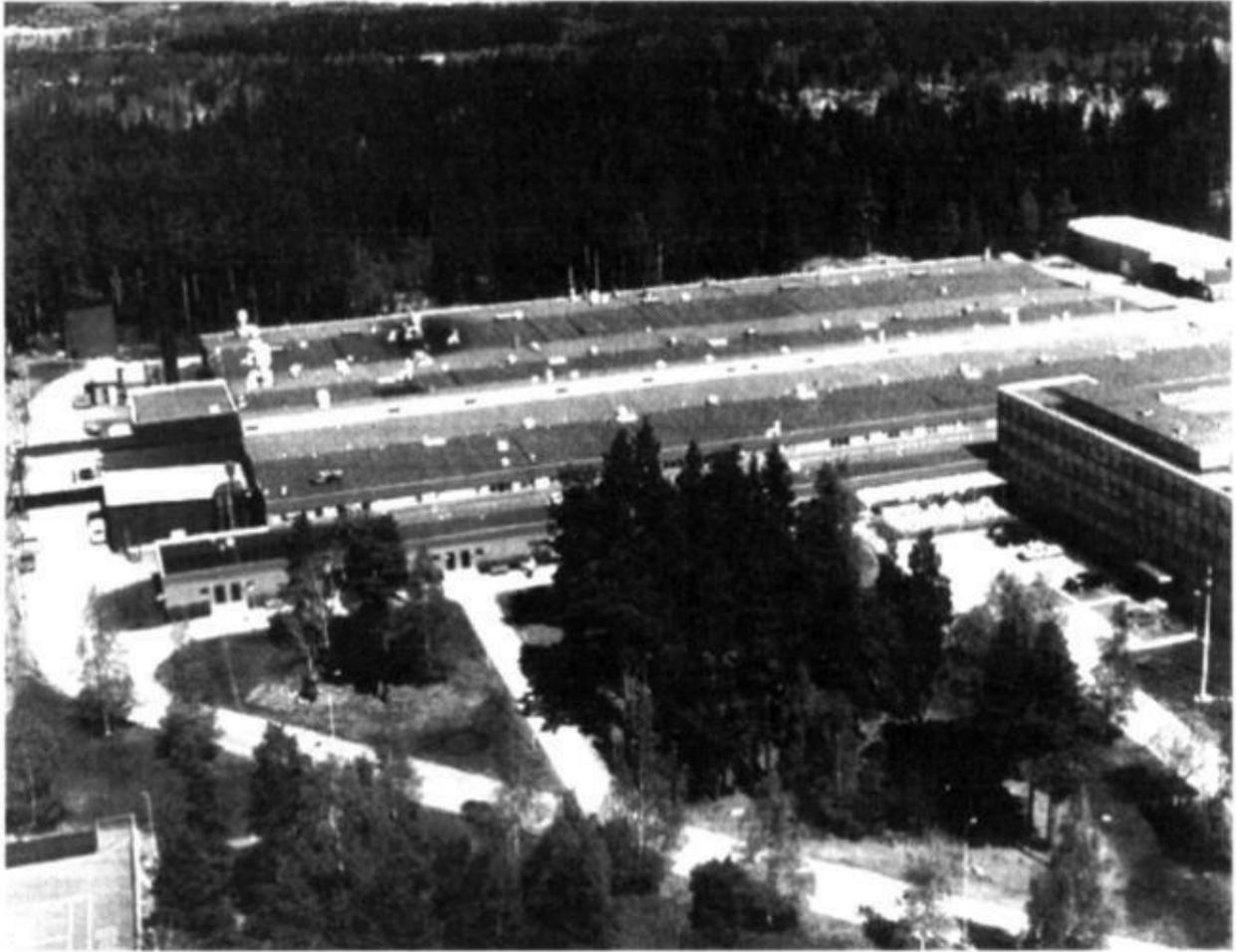


Fig. C-6. The Carl Gustaf factory today. It is now a division of Bofors, which in turn is part of the Celsius combine, one of Europe's largest defense conglomerates. Photo courtesy of Bofors.

A private gunmaking company was founded at Husqvarna in 1757, and exactly 100 years later, it became a limited company and issued stock. The Danish-Prussian and Franco-Prussian wars boosted output, but as orders dropped during the 1880s and later when the wars ended, the company "downsized" and branched out into non-defense industries.

In the late 20th Century, Husqvarna is best known for its sewing machines, chainsaws, small gasoline motors and motorcycles. It continued to manufacture firearms in the early and middle part of the century, most notably the m/38 rifle during World War II, and some very fine sporting rifles in the 1950s and '60s as well as the Swedish Ak4 Assault Rifle. The small arms division was sold to FFV in 1969 and became part of the Carl Gustaf works. All firearms production was moved to Eskilstuna.

Sweden continues to host a very fine arms-making industry today, and an enthusiastic and large population of hunters and target shooters.

## APPENDIX D

### A SHORT MILITARY HISTORY OF SWEDEN

#### THE SWEDISH SOLDIER

Paradoxically, a nation that evolved from ocean-ranging pirates has become one of the most peaceful nations on the planet, at least as far as participation in war is concerned. Sweden last fought a serious war at the start of the 19th Century against Napoleon's France. But the Swedish people have long recognized that standing on the northern flank of the European continent they are literally between a rock and a hard place. Two hot wars and one cold war have only emphasized their precarious position. Most recently, they have had the Russians to the east and the North Atlantic Treaty Organization alliance to the west. In two World Wars during the 20th Century, Germany to the south was a potential and very powerful enemy.

While military preparedness has waxed and waned according to the perceived threat level, the nation has always emphasized citizen participation in their own defense rather than a large standing professional army. Throughout much of the 19th Century and all of the 20th, all males have been subject to conscription for military service of varying periods.

As early as the 13th Century, a coastal fort was built at Slatsjon near what is today the capital, Stockholm. It was sited at the outlet of Lake Malaren, a large body of fresh water extending a third of the way into the country's interior. The fort was designed to prevent an attacking force from moving inland quickly.

#### LATE 1800S TO WORLD WAR I

Sweden began to build a modern military force in the 1890s. The Navy and Coast Artillery forces were upgraded with new ships and equipment, and the Army was reorganized and reequipped with modern rifles and field pieces. The best military rifle of the time was the Mauser bolt action repeating rifle which had just been purchased by Belgium, Argentina, Spain and Turkey. A combined Norwegian-Swedish military commission examined all the rifle designs available at the time, including the Norwegian Krag-Jorgensen recently adopted by Norway, Denmark and the United States, and settled on the Mauser design. The m/1894 carbine was adopted in 1894 and was followed almost immediately by the rifle in 1896. Both were chambered for the 6.5 x 55 mm cartridge developed in Norway for the Krags. By the turn of the century, Sweden was well on the way to building a selfsufficient, very well equipped and trained military force. See Figure D-1.

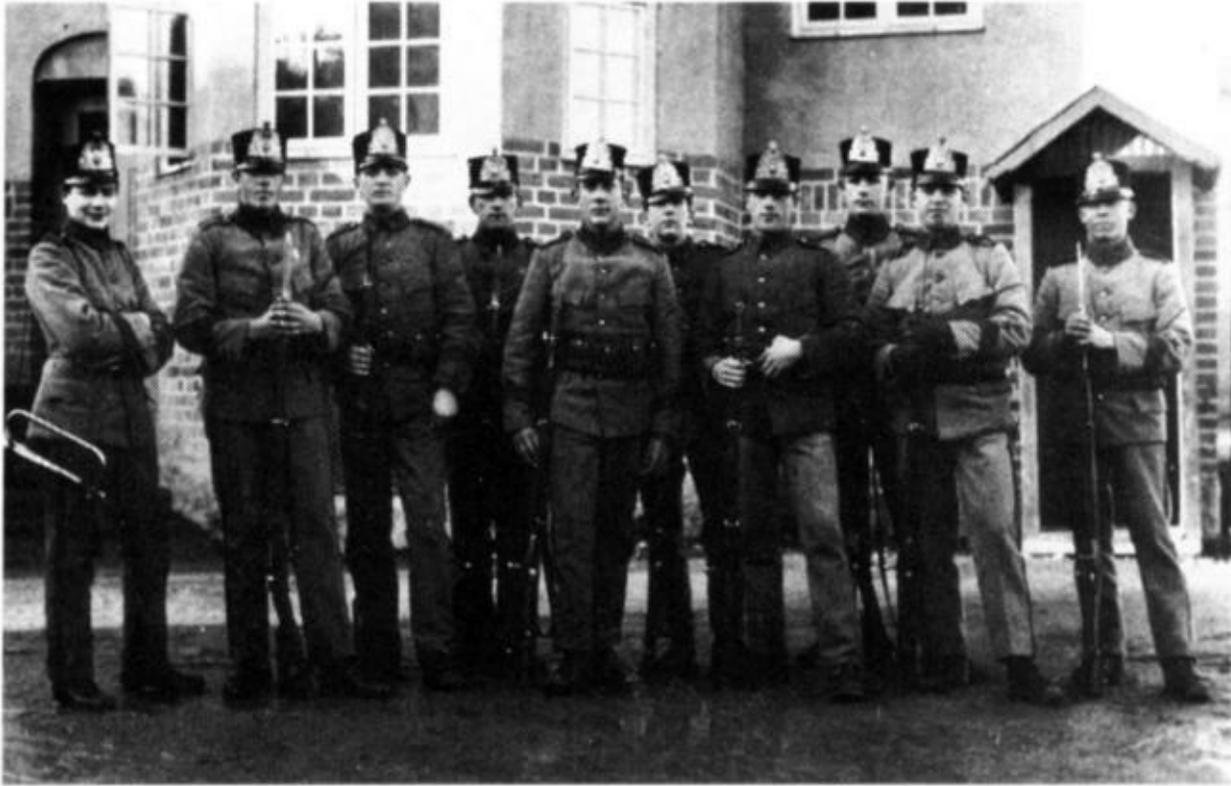


Fig. D-1. Swedish soldiers, circa 1905.

In 1914, the peacetime Swedish Army could muster some 48,999 officers and men in the regular or standing army; 29,335 were the 1914 levy of conscripts. But when the three classes of reservists were included, some 600,000 trained men could be called upon for defense. The Swedish Army included twenty-eight regiments of infantry, eight regiments of cavalry organized into one corps, six regiments of field artillery organized in one corps and three fortress artillery regiments plus supporting service and commissariat corps. All of these were cadre units, of course, and would be fleshed out with reservists if mobilized. The military establishment was entirely armed with the m/94 and m/96 carbine and rifle, see Figure D2.



Fig. D-2. A Swedish soldier, circa 1920. Photo courtesy of Hans Olov Hellstrom.

## THE INTERWAR PERIOD

Throughout the 1920s, it appeared as if the League of Nations had tamed the threat of war. The League was heartily supported in Sweden, and as a result, military preparedness declined. The regular army was cut and conscription reduced to four months of training, see Figure D-3. It was not raised again until 1936 when it was clear that the League of Nations was failing in its role of international peacekeeper and the threat of war from the Fascist nations was increasing.

## WORLD WAR II

When Germany attacked Poland on September 1, 1939, Sweden awoke to an all-out war just a few hundred miles south across the Baltic. Three days later, France and England declared war on Germany. Three months later, the Soviet Union, without a declaration of war, bombed Helsinki, the capital of Finland, and rushed an army into Finland's eastern provinces.



Fig. D-3. Inspection, Royal Sodermaland Regiment, circa 1920s.

Sweden's first inclination was to send troops to support Finland, but the powerful Soviet Union made it clear that a full scale attack would be launched upon her if she did. Instead, tons of military supplies and arms including some 77,000 Swedish Mauser rifles and machine guns were shipped across the Bay of Bothnia in the face of a Soviet submarine threat. Swedish volunteers, some 8,000 in all, took additional rifles and machine guns with them. After the March 1940 cease fire, they left these arms behind for the Finnish Army. It has been estimated that more than eight percent of all the military weapons used by Finnish forces in the Winter War of 1939-1940 and the Continuation War 1941-1944 were Swedish in origin.

When Germany attacked Denmark and Norway in May 1940, the entire military establishment in Sweden was put on full alert. The country could muster only 400,000 men, and there were barely enough arms for them. A non-party-affiliated government was quickly formed and the strength of the armed forces was raised to 600,000. Volunteers who were not eligible for military service because of infirmity or age were encouraged to enlist in the home guard or various other auxiliary services such as the aircraft observer and ambulance units.

By 1944, some 800,000 men were under arms in the military, either on active duty or in reserve units, see Figure D-4. They were organized into seven military areas, abbreviated MILO in Swedish. The basis of the military unit was the regiment and an example is given here of a rifle regiment according to the reorganization of 1943: one machine gun company, one Heavy Weapons Company and one supply and service unit.

Fig. D-4. Swedish soldier late in World War II. Photo courtesy of Hans Olov Hellström.



Weapons issued included the m/96, m/96-38 and m/38 rifles, m/AG42 selfloading rifle, m/31 Swedish-made version of the Suomi submachine gun, Browning Automatic Rifle (6.5 mm), m/42 ATR recoilless rifle and the m/40 Lahti and m/07 Browning pistols.

The armed forces assiduously patrolled the nation's borders and fought several skirmishes in the north with Nazi forces in Occupied Norway. Antiaircraft units were quick to fire on aircraft, whether Allied or Axis, that violated Swedish air space for any reason. An extensive series of prisoner of war camps in which soldiers from all belligerent nations were interned testified to their marksmanship. Sweden survived the war unscathed.

### The Cold War to the Present

As the Cold War heated up, both the Soviet Union and NATO coldly eyed the Scandinavian Peninsula as a vital flank if a shooting war should develop over the possession of Western Europe. The Swedes were very much aware of this and strove mightily to erect a defensive force of such magnitude that it would cause both sides to consider the cost of invasion to be excessive. Since the middle of the 19th Century in Sweden, all young men reaching 18 years of age were liable to a period of active military duty. During the Cold War, the period was eleven to thirteen months, depending on military specialty and rank, after which the citizen-

soldier progressed through a series of active and inactive reserves until age 55. The reservist is expected to spend so many weeks on active duty per year and maintain his military proficiency with small arms. While a member of the active reserve, he is required to keep his rifle or submachine gun and pistol, plus ammunition, at home and maintain a strict proficiency in small arms. At the same time, young people of both sexes are encouraged to participate in the shooting sports to reduce the cost of training when they reached military age.

Since 1945, the Swedish government has expended a significant portion of her gross national product every year in support of a strong military as the only guarantor of continued neutrality.

Over the years, the coastal defenses have evolved into a combination of fixed defensive positions and highly mobile, heavily armed rapid reaction forces. Since Sweden sits on solid rock, the Swedes have taken advantage of this fact and tunneled and blasted their way into the bedrock to build a "Gibraltar of the north." Many of these underground forts are as large as small towns with only their blockhouses, sallyports and non-essential buildings above ground. The forts are armed with 120 mm and 152 mm rapid fire cannon controlled and fired electronically, plus semi-automatic 75 mm cannon with a range of 12 km to engage enemy warships and troop transports. The Coastal Artillery force watches over a 1,500 mile long coastline. See Figure D-5.

A well-equipped and trained Air Force flies one of the most modern mid-range fighter aircraft operational today, the JAS 39 GRIPEN. Its army is highly mobile and well equipped with a turretless main battle tank, the Strv-103, designed expressly for Sweden's combination of open and forested terrain supported by a family of armored personnel carriers and self-propelled artillery and missile launchers. A Swedish armored brigade contains seventy-two main battle tanks, twelve TOW antitank missile launchers, twelve 155 mm artillery pieces, twelve 105 mm guns and six RBS-70 anti-aircraft missile launchers. The Swedish army was the first to deploy a recoilless rifle and the first to develop and deploy a one-man portable recoilless rifle, the AT4.

Fig. D-5. Swedish coastal defense forces on maneuvers. Photo courtesy of Ministry of Defense



At the height of the Cold War, the Army, including active reserves, comprised some 700,000 men, divided into field and local units plus 100,000 or more Home Guardsmen. The peacetime army is based on the regimental system but would shift to brigade formations in wartime and be formed into divisions as required.

The Swedish Armed Forces are supported by more than a million of their fellow citizens who have organized themselves in a number of private voluntary organizations which offer training in various aspects of defense. SkytteOS is the country's largest shooting organization and includes nearly three thousand rifle and pistol clubs with a membership of more than a quarter million. FBU is a voluntary officers organization and the Lottas, a Auxiliary, staff air control centers, catering and transport sections. An organization known as Blue Star trains women to assist farmers, another known by its acronym FRO is a voluntary radio organization. These and many others like them come under the umbrella group called People and Defense Federation which also includes labor, professional and economic groups.



Fig. D-6. Match shooting in Sweden.

Sweden is a nation that does not want war but which believes that the best way to prevent war is to be prepared to wage war against an aggressor. It has worked for nearly 200 years.

Note: The authors would like to thank Hans Olov Hellstrom and the other members of the Royal Sodermanland Regiment (P10) for their assistance in providing the photographs used in Figures DI through D4. Figure D-2 and D-4 were photographed with current members of the Regiment wearing uniforms and carrying the rifles of the period.

## APPENDIX E

### SWEDISH MAUSER STEEL

Sweden has long been known for its fine steel. The term "Swedish steel" conjurs up thoughts of high strength, durable products. This applies also to their fine weaponry. Iron ore is Sweden's most important natural resource and her deposits have been estimated at 2.5 billion metric tons. Germany also produces very good grades of steel although their deposits are not as extensive.

The steel used in building the Swedish Mauser rifle is a special alloy developed in Sweden. Its use was specified over German steels in the manufacture of those Swedish Mauser rifles and carbines manufactured in Germany between 1894 and 1900. It is a copper-bearing, high strength, low alloy steel. The copper imparts anti-rust properties to the final product. Bolt parts, for instance, were never plated or rust-proofed in any way. Yet, 100 years later, they have, for the most part, remained bright and rust and corrosion free.

Many of the wearing and bearing parts of the Swedish Mauser are case-hardened, a process by which carbon is fused into the surface of the steel to provide a hard, long-wearing surface while the interior remains ductile. Two methods of hardening were used. One type called case hardening involves packing the part in a source of carbon- usually charred leather or bone dust- and sealing it in an air-tight iron container. The container is then placed in an oven, brought to a redheat and held at that point for a specified period of time. The container is removed from the oven, opened and the part quickly immersed in water, oil or brine. If in water, the part takes on a characteristic mottled blue, yellow and red coloration. If the part is dropped into oil, the color is a deep gray-black, slightly mottled. Swedish Mauser receivers were case-hardened in oil while certain parts such as the ejector were case-hardened in water.

Great attention was paid to heat treating the Swedish Mauser. Receivers manufactured at Mauser and Carl Gustaf were hardened to 50 - 55 on the Rockwell Scale to a depth of 0.020 inch (RC); bolts were hardened to 60 - 65 RC inches and barrels to 25-30 RC. Husqvarna-made receivers were somewhat harder. Gun smiths drilling m/ 38 receivers for receiver sights usually are forced to spot anneal the area to be drilled and tapped for the mounting screws.

All markings, including the factory name, year and serial number but not the inspector's initials, were stamped on the receivers before the final polishing and hardening. To have done so after the hardening process would have shortened the life of expensive steel roll dies drastically. The inspector's initials were stamped after the hardening process because he had to gauge the receivers after they emerged from the ovens and had cooled. Under a strong magnifying glass, it is often possible to detect evidence of displaced metal around the inspector's initials, providing the receiver has not been refinished. When a die is struck into metal, it compresses the metal beneath it to make the impression. But the compression effect also pushes metal up around the edges of the impression. As this displaced metal is harder

than the surrounding metal, it is often possible to detect a difference in texture around the edges. Because the factory name and date (and crest in the case of the Carl Gustaf factory) were struck before polishing and hardening, the final polishing process removed the displaced metal. Husqvarna receivers are even harder than Carl Gustaf or Mauser receivers and it is probably for this reason that the inspector's initials were struck on the rear sight base rather than the left side of the receiver. The average die strike penetrated to 0.015 inch, well within the case hardening depth of 0.020 inch.

The steel used in the Swedish Mauser carbine and rifle was so well suited to its task that never once during production was the formula changed. The steel in an m/94 carbine manufactured in 1896 is exactly the same as that of a m/38 rifle manufactured in 1944.

# APPENDIX F

## AMMUNITION

Sweden and Norway worked jointly to produce the 6.5 x 55 mm cartridge. Each country had its own independent development team but periodically met to compare notes as they attempted to design a cartridge which would satisfy the military authorities of both nations.

Other countries such as Italy and Japan were using a 6.5 mm cartridge of their own design, but most of the world powers had settled on a 7 to 8 mm bullet. The joint Norwegian-Swedish committee felt that the 6.5 mm bullet would be just as effective as the larger diameter bullets but with less bullet drop over the same distance and at a reduction in the cartridge's weight. Since the 6.5 mm bullet was both smaller and lighter than the 7 and 8 mm bullet/cartridge combinations used by the French and Germans, the .303 of the British or the .30-40 Krag used by the United States, their soldiers were be able to carry more ammunition. It took the major powers another seventy years to reach that same conclusion.

No one single person can be credited with the development of the 6.5 x 55 mm cartridge as it appears that it really was a collaboration between the two national design teams. Many existing cartridges were examined, tested, modified, then tested again. The Swedish half of the team at first wanted to develop a rimmed 6.5 mm cartridge while the Norwegians thought a semi-rimmed cartridge a better idea. After running through numerous prototypes, the joint committee finally settled on the rimless version which became the 6.5 x 55 mm cartridge we know today.

This cartridge was similar in many respects to the cartridges developed by Paul Mauser for his rifles. But unlike Mauser's 7 x 57 mm cartridge - which was extremely popular at the time - the Swedish cartridge had a slightly larger body diameter and a sharper shoulder angle for added case capacity. It also differed in that its base diameter of 0.480 inches was approximately 0.010 inches larger than Mauser's cartridge design. The French 7.5 mm cartridge developed independently also shares this 0.480 base diameter.

The joint committee established a bullet weight of 10.1 grams (156 grains) and specified a velocity of 700 meters per second (2,296 feet per second) at 25 meters from the muzzle. Ballistite powder developed by the Swedish scientist Alfred Nobel (of Nobel prize fame) was selected for use in the new cartridge. The powder was changed when it was discovered that Ballistite was very erosive. A new powder was then purchased from United Cologne-Rottweil in Germany. Two government factories in each country were selected at that time to produce the new cartridge and given master cartridge gauges. Sweden's military ammunition production plants were at Karlsborg and Marieberg.



Fig. F-1. 6.5 x 55 mm military cartridges: (I-r) m/94 (156 gr bullet), m/94/41 (139 gr bullet), practice cartridge, blank cartridge (wooden bullet), guard cartridge and clip containing five rounds of the m/ 94/41 cartridge.

Only one difference existed between cartridges manufactured in Sweden and Norway; the Berdan primer in the Norwegian cartridges was 0.199 inches in diameter and the Swedish Berdan primer was 0.216 inches in diameter. The official designation of the Swedish cartridge was skarp patron m/94.

Sweden followed the European practice of using a tri-metal bullet, referred to as a steel-jacketed bullet in the United States. A lead core is surrounded by a mild steel jacket, lined both inside and out with a copper-zinc or copper-nickel alloy jacket. The three layers are heat-shrunk so that the two layers of copper alloy and steel are tightly bonded.

Production continued until 1925 in Norway when that country adopted a new 9 gm (139 grain) bullet. But it wasn't until 1941 that Sweden followed suit and adopted the 9 gm bullet as well. The shape of the bullet also changed from the old round-nosed variety to the more modern "spitzer" or spire point bullet. The muzzle velocity was increased to 800 mps (2,626.7 fps), nearly 100 mps (328 fps) more than the original round. The official designation for this cartridge was skarp patron m/94 projektil m/41 prickskytte.

Although only Sweden and Norway adopted the 6.5 x 55 mm cartridge for military use, production has also occurred in other countries, as shown in Table F-1.

Target shooting has always been popular in Sweden and organized shooting clubs have existed since the middle-1800s. The demand for inexpensive but accurate ammunition for target shooting prompted many of the Swedish ammunition firms to accept fired cases from the military which they reloaded for the shooting clubs at reduced prices. Since the cartridges were Berdan-primed, they were decapped hydraulically. The cases were stained to give them a silvery appearance to differentiate them from hunting loads. By the 1950s and 1960s, Norma was reloading more than 15 million rounds annually for Sweden's shooting clubs.

Like the old .45-70 cartridge, the 6.5 x 55 mm Swede is currently seeing a large resurgence in popularity in the United States. Fifteen years ago the only U.S.-manufactured rifle for this round was the Remington 40X Target Rifle and the only commercial source was imported Norma cartridges.

Now, most large U.S. rifle and ammunition manufacturers include 6.5 x 55 mm rifles and ammunition in their product lines. The cartridge is accurate, powerful and gentle on the shoulder which makes it a great choice for the recoil-sensitive. With the proper powder charge, it will quickly dispatch deer-sized game at great distances. U.S. shooters and hunters are discovering what the Swedes have known for 100 years - this is one great cartridge!

**Table F-1  
6.5 x 55 mm Ammunition Production**

Country	Factory	Headstamp
Austria	Hirtenberg	H, 586
	Keller & Co	K&C
Denmark	Haerens Ammunitionsarsenal <sup>1</sup>	HA, HA1
Finland	Lapua	L, VPT
France	Societe Francaise de munition	SFM
Germany	Deutsch Waffen & Munition Fabrik	DWM
	George Roth	GR
	RWS	T
Norway	Norrahammars Bruk <sup>2</sup>	24
Sweden	Karlsborg <sup>3</sup>	K; AMF
	Marieberg <sup>3</sup>	M or
	Carl Gustav-Bofors	CG
	Försvarets Fabriksverk	FFV, 070
	Lidköpings Tändsticksfabrik	32
	Nordiska Metallaktiebolaget	N
	Norma Projectilefabrik	Norma; NP; 27; 027
	Svenska Metallverken	SM, 26, 026
	Vanäsverken-Bofors	70
United States	Remington	REM
	Winchester	W

1. Numerous warnings have been issued about not shooting ammunition with this head stamp in the Swedish Mauser due to excessive fouling which creates unsafe bore pressures. Burst barrels have been reported. Do not use this ammunition!

2. Cartridge cases only.

3. Swedish military arsenal

Caution: A Danish cartridge was manufactured in 6.5 x 55 mm for the Danish Krag rifles. The bullet in this cartridge has a soft-rolled copper jacket. When fired in the Swedish Mauser

rifles, these bullets tend to deposit a great deal of copper fouling which raises pressures to unsafe levels.

Unless the bore is cleaned scrupulously with an anticopper fouling cleaner after each use, firing this Danish ammunition can cause the barrel to burst. This problem was widely reported in the 1950s and 1960s.

Large quantities of this Danish ammunition was imported into North America after World War II. Avoid all 6.5 x 55 mm ammunition with the following information stamped on the head: V 146, A, 48, HA (drawing number, rework mark, year of manufacture and factory which was Haerens Ammunitionsarsenal).

## SWEDISH MILITARY CARTRIDGES

The Swedish military have developed a number a cartridges, some specialized, for use in the Swedish Carbine and Light Infantry Rifle. These are listed in the Table F-2, overleaf, with their identifying characteristics.

**Table F-2**  
**Types of Ammunition for the m/94, m/96 and m/38 Rifles**

Type	Characteristics
m/94 6.5 x 55 mm	156 grain round nose bullet
m/94/41 6.5 x 55 mm	139 grain spitzer bullet
6.5 x 55 mm Blank.	Bright red wooden bullet
6.5 x 55 mm Dummy, Five variations:	
	Tinned m/94 bullet, three case rings
	Non-tinned m/94 bullet, three case rings,
	Green m/94 bullet, six case rings,
	Green m/94 bullet, three case rings,
	Green m/41 bullet, two case rings,
	Red m/41 wooden bullet, four longitudinal flutes, rifle
	Green m/41 bullet, four longitudinal flutes. machine gun
6.5 x 55 mm Gallery Practice, Two variations:	
	Flat-tipped lead bullet with gilding metal base, m/12
	Standard bullet jacket without core, reduced powder charge (kammarpatron — indoor cartridge, m/14
6.5 x 55 mm Armor Piercing, black tipped m/41 bullet	
6.5 x 55 mm grenade launching, blue painted wooden bullet, m/16	
6.5 x 55 mm Tracer, Two variations:	
7.62 x 51 mm NATO	White or red painted m/94 bullet
	White m/41 bullet
	.30 caliber cartridges, standard NATO ammunition for use in CG 63 m/7, CG 80 and fm/90 Sniper Rifle

## **APPENDIX G**

### **DISASSEMBLY/ASSEMBLY**

## **SWEDISH CARBINE (M/94 SERIES) AND SWEDISH LIGHT INFANTRY RIFLE (M/96 AND M/38 SERIES)**

The Swedish Carbine and Light Infantry Rifle were military firearms and expected to withstand a great deal of abuse from hard usage and inclement weather over several decades. As such, they were designed to be easily disassembled for cleaning and general maintenance by individual soldiers. Follow the instructions given below and you will find your rifle or carbine very easy to disassemble.

Note: Always make certain that a firearm is unloaded before handling for any reason. Do not load a firearm until you are ready to shoot it. Always place the safety in the "on" position when the firearm is not being fired, even if it is unloaded. Always have the barrel pointed in a safe direction and never at anything you do not intend to shoot.

Procedures for disassembly, reassembly, cleaning and maintenance of the carbine and rifle are nearly identical. Exceptions are noted.

To remove and disassemble the bolt:

- 1) Lift the bolt handle and draw back to cock the firing pin. Make certain the chamber and magazine are empty.
- 2) Turn the safety lever at the rear of the bolt straight up.
- 3) With the thumb of the other hand, push the bolt release on the left side of the receiver outward.
- 4) Draw the bolt out of the receiver.
- 5) Hold the bolt body in one hand and the bolt sleeve in the other, unscrew and remove the firing pin, firing pin spring and bolt sleeve from the bolt body.
- 6) Place the tip of the firing pin on a soft block of wood and with one hand holding the bolt sleeve and the thumb over the top of the safety lever, push down until the cocking piece clears the bolt sleeve. Turn the cocking piece 1 /4 in either direction and lift off the firing pin.
- 7) Still holding the safety lever, carefully let the firing pin spring expand and remove from the bolt sleeve.

- 8) Turn the safety as far to the right as it will go and pull out of the bolt sleeve. Notice the cam on the bottom of the safety lever. It fits into and is held in a matching recess on the bolt sleeve.
- 9) Turn the extractor until the front end slides out of the groove at the front of the bolt body.
- 10) Push the extractor forward until it slides off the lugs on the extractor collar.
- 11) DO NOT attempt to remove the extractor collar.

This completes the disassembly of the bolt.

To disassemble the stock:

12) Remove the magazine floor plate. Use a cartridge tip or other rounded object that will fit into the round hole in the floor plate just ahead of the trigger guard to depress the magazine floor plate catch. Slide the magazine floor plate back and off.

13) Remove the nose cap from the m/94 or m/94-96 by pressing up on the barrel band spring at the bottom of the forend. You may need to use a tool to do so as there is a lip, or latch, at the front of the barrel band spring. Slide the noscap off.

14a) If disassembling an m/94-14 carbine, you must first remove the reinforcing plate screw at the bottom of the forend. Then wrap several turns of masking tape across the tip of a screwdriver to prevent marring the band spring's finish. At the junction of the barrel band and the rear barrel band spring depress the band spring with a screw driver blade. With the band spring depressed, press the screwdriver tip down again and move it forward at the same time to unhook the spring from the band. Turn the screw driver blade counterclockwise to move the barrel band forward away from the hook on the band spring. Press a punch through the first hole in the nose cap to depress the forward barrel band spring. Move the nose cap forward and off the stock.

14b) If disassembling a rifle:

Make sure the cleaning rod has been removed. Obtain a screwdriver with blade slightly narrower than the width of the band spring. A hollow ground machinist's screw driver works best. Wrap several turns of masking tape across the tip to prevent marring the band spring's finish. Place the tip of the screwdriver at the junction of the barrel band and barrel band spring. Push straight in. Holding that pressure, angle the screwdriver slightly toward the barrel band and push in again. The screwdriver tip should slip into the notch at the front of the band spring. Now twist the screwdriver slowly counterclockwise (clockwise if working with your left hand) while maintaining pressure. The barrel band will start to move. Continue to twist the blade until it is at right angles to the barrel band, then use it to pry the band forward, using the notch in the band spring as a fulcrum. Repeat to remove both barrel bands.

15) Slide the barrel bands forward and off the stock.

16) Remove both magazine plate screws.

17) Lift the barrel carefully from the stock. If it does not come easily, do not force it. Time, oil and wax have glued the metal to the wood. First tap gently all around the barrel channel with a rubber hammer. Then turn the rifle upside down, and using a block of wood, gently tap on the edges of the magazine floor plate and the muzzle end of the barrel. If the wood and metal will not separate, daub lemon oil in the areas at the juncture of metal and wood and wait several hours. Have patience or you will splinter the stock. If the stock just fits tightly, you can turn the firearm right side up and gently tap the muzzle on a padded surface while holding the stock wrist. This will jar it loose. 18) Remove the butt plate by unscrewing the two wood screws holding it in place.

Further disassembly is not needed nor recommended for proper cleaning and maintenance.

Reassembly is accomplished in reverse order.

## APPENDIX H

### TWO UNIQUE SWEDISH MAUSER RIFLES

The Swedish Mauser military rifle was in continuous production from 1896 to 1925 and from 1941 to 1944. While the vast majority of these fine rifles were intended to arm the Swedish military, occasionally a few rifles were built for other purposes. Two of these are described in this appendix.

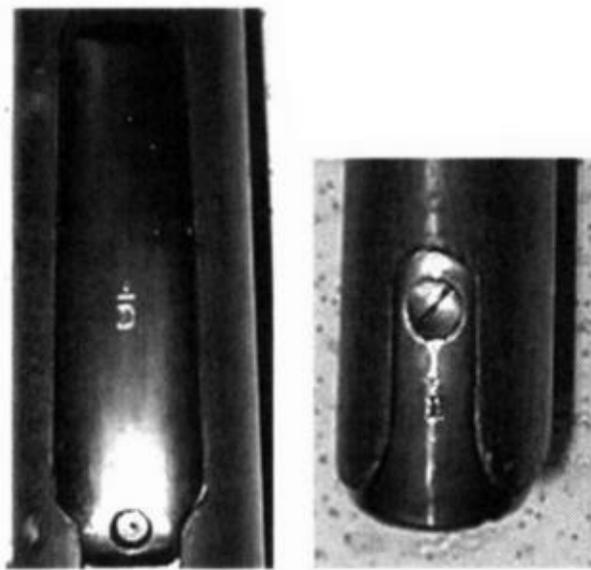
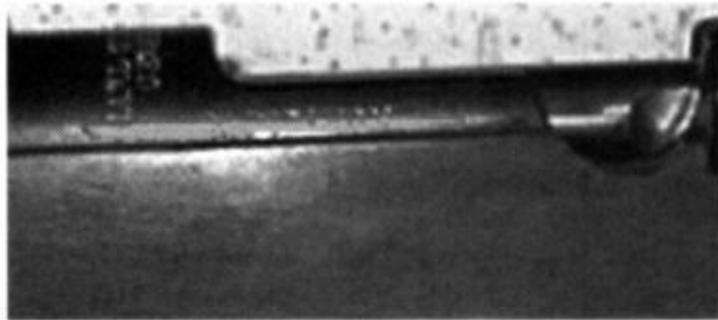
#### MASTER OF WEAPONS RIFLE

Military officers were selected from each regiment to serve as "Master of Weapons" or what would be called in the American military, an ordnance officer. They were required to be familiar with the regiment's armament, answer any questions regarding them and oversee the work of the regimental "armetekniker" (weapons technician). Officers selected for this duty were required to attend a course at the Carl Gustaf factory during which, they reviewed every aspect of the carbine and rifle including its design, production and use. At the end of the course, they were required to select and inspect all parts and build their choice of a carbine or rifle. These rifles are little known in North America where they are often referred to as "inspector's rifles."

One such rifle was assembled by Charles William Dickson in 1909. Dickson was born December 22, 1882. He entered the Army on June 8, 1903 and became an officer on December 5, 1905. On December 13, 1907, he was promoted to Lieutenant, First Class in the Swedish Royal Cavalry Regiment Nr. 3, the Kungl Livregementets Husarer, commanded by His Royal Highness, Prince Eugen, Duke of Ntirke, the brother of King Gustav V. In 1909, he served as Master of Weapons in his regiment following the completion of his course in at the Carl Gustaf factory. Lt. Dickson is reported to have died in an accident in 1917.

His "Master of Weapons" rifle was a standard military m/96 with the following characteristics that identify it as his course rifle. The left side of the rifle was marked "William Dickson" in place of a serial number, see Figure H-1. A medallion inset into the stock is inscribed with his signature and regiment, "KAV3" which is an abbreviation for "3rd Regiment of Cavalry, " one of eight regiments of cavalry in Sweden at the time. The receiver is dated 1909. The magazine floor plate and butt plate are marked with "+/D", Figures H-2 and H3. All major parts that would normally have an inspector's mark are stamped with "+ " instead of the "crown" and the bolt stop has a "D" stamped by the thumbpiece. No full or partial serial numbers are found on any part. The stock does not have the round cutout for the Type 1 stock disk. Instead, a German silver oval plate was inset with Dickson's signature and regiment inscribed, see Figure H-4.

Fig. H-1. Master of Weapons rifle by Senior Lt. William Dickson, 3rd Cavalry Regiment, 1909 showing his name instead of a serial number. Steve Kehaya collection.



Figures H-2 and H-3. "+/D" markings on magazine floor plate and buttplate. Steve Kehaya collection.

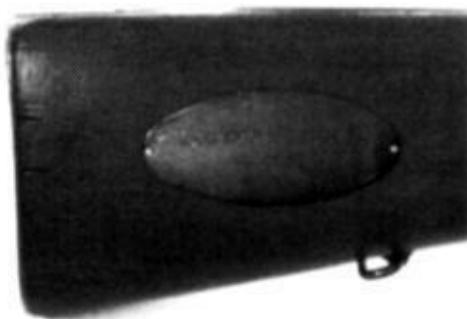


Fig. H-4. Inscribed butt stock plate.

A number of these "Master of Weapons" rifles and carbines are known and vary somewhat in the particulars of their markings. Some are marked with the officer's name on the crown of the receiver, some on the left side and some only on the stock. Most cavalry officers preferred to assemble a carbine and infantry officers a rifle. Lt. Dickson obviously wanted to assemble a rifle even though he was a cavalry officer.

M/96 MATCH RIFLE WITH SET TRIGGER

Military m/96 rifles with set triggers are quite rare. This example (Figure H-5) was built at the Carl Gustaf factory from a standard model m/96 in 1943 and intended for competition. The receiver serial number was 212999 and the number "501," separated by a hyphen, was stamped next to it. The significance of the additional number is not known but might have to do with the number of such rifles built. The set trigger assembly (described in Chapter 2) was professionally designed and constructed and shows the highest degree of workmanship, see Figure H-6.



Fig. H-5. A set trigger has been installed on this early match rifle built in 1943-44. Steve Kehaya collection.



Fig. H-6. Set trigger mechanism.

The barrel is stamped with the receiver serial number and also the number "501." The 29 inch barrel was heavier than the standard military rifle with only two steps: the first was 0.220 inches long by 1.120 inches in diameter; the second was 1.665 inches long and 0.96D inches in diameter. The remainder of the barrel was 22.5 inches long and 0.850 inches in diameter.

The rifle was half-stocked in walnut. The forend was cut and rounded just beyond the rear barrel band. A handguard was installed and was similar to that used later on the CG 63 match rifle but without the CG 63 handguard's sighting groove. A Lyman Model 48M receiver sight (Figure H-9) was installed in the usual position on the rear of the barrel. The stock was cut away on the right side to accommodate the Lyman receiver sight mounted on the m/96 rifle rear sight base.



Fig. H-7. American-made Lyman 48M receiver sight.

The front sight blade was replaced by a globe and blade sight assembly fitted into the sight post's dovetail. A straight handled, Type 4 bolt was used. The thumbpiece was milled off and the firing pin shortened to reduce lock time.

# APPENDIX I

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## ABOUT THE AUTHORS

Steve Kehaya has been a student of firearms all his life. He worked for twenty years for General Electric's Armament Department, including four years as a field service representative for the Vulcan Air Defense Systems in the United States and Europe. For eight years, he was a modelmaker in GE's Research and Development Laboratories where he helped to build prototypes of advanced rapid fire gun systems, including the G-CAL 50, GAU 8 and Goalkeeper.

For the past twelve years, Steve has worked for Century International Arms. He is currently Manufacturing Manager. He is also an avid handloader, trap shooter, hunter and collector. In his spare time, he builds custom rifles and helps his wife, Penny, with her business, North Country Industries, a commercial firearms refinishing business. He is also a technical adviser to the Association of Firearms and Toolmark Examiners (AFTE).

Steve has provided technical assistance to numerous authors writing books and magazine articles on firearms. He also coauthored *The Swedish Mouser Rifles* with Joe Poyer. He is currently working on his next book, *The CZ Mauser, A Collector's and Shooter's Guide*.

Joe Poyer is the author of more than 400 magazine articles on firearms, the modern military, military history and personal security. He written and published twelve novels with worldwide sales exceeding five million copies and authored or coauthored nine non-fiction books on the modern military.

He is the owner and publisher of North Cape Publications®, Inc. which publishes the "For Collectors Only" and "Shooter's and Collector's Guide" series of books for firearms collectors and shooters. He has written or coauthored, "The .45-70 Springfield," "U.S. Winchester Trench and Riot Guns, and other U.S. Combat Shotguns," "The M1 Garand 1936 to 1957," "The SKS Carbine," "The M 14-Type Rifles," "The SAFN-49 Battle Rifle," "The Swedish Mauser Rifles," "The M 16/AR 15 Rifles," "The Model 1903 Springfield Rifle and its Variations" and "The American Krag Rifle and Carbine."

Mr. Poyer has served as editor of the following magazines: *Safe & Secure Living*; *International Military Review*, *International Naval Review* and as field editor for *International Combat Arms*. He is currently at work on a new book in "The For Collectors Only" series; "The Colt Single Action: Four Generations" and in "The Shooter's and Collector's Guide" series, "The Kalashnikov Rifles."

Mr. Poyer was the on-camera Military Affairs Analyst and Reporter for a major television station in Los Angeles, California. He also imported the very fine L1A1A inch pattern FAL rifles from Australia in the late 1980s.

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