DEPARTMENT OF THE NAVY
COMMANDER SURFACE WARFARE DEVELOPMENT GROUP
2200 AMPHIBIOUS DRIVE
NORFOLK, VIRGINIA 23521-2896

COMSURFWARDEVGRUNOTE 5200
N5
28 July 2003

COMSURFWARDEVGRU NOTICE 5200

Subj: WEB-BASED TACTICAL BULLETIN WRITING/FORMATTING GUIDANCE

Ref: (a) COMSURFWARDEVGRUINST 3510.5, Tactical Publication Development and Review Procedures
(b) COMSURFWARDEVGRUINST 5216.1, SWDG Style Guide

Encl: (1) Sample Unclassified Tactical Bulletin (MS Word Format)
(2) Sample Classified Tactical Bulletin (MS Word Format)

1. Purpose. To issue writing and formatting guidance to be used when developing tactical bulletins at SWDG.

2. Background.

a. Tactical bulletins are time critical tactics, techniques, and procedures (TTP) that are normally narrow in scope and are disseminated by SWDG to trainers, operators, and warfighters before they are incorporated into:

(1) Navy warfare publications (NWPs)

(2) Navy tactics, techniques, and procedures (NTTP) manuals

(3) Navy tactical reference publications (NTRPs)

(4) Tactical memoranda (TACMEMOs).

Tactical bulletins also provide a standard vehicle for delivering electronic warfare (EW) racket and air defense (AD) heads-up messages. The goal is to hasten innovation and get these valuable tools into the fleet swiftly.

b. Tactical bulletins shall:

(1) Be developed in collaboration with other Warfare Centers of Excellence or alone

(2) Be updated through:

(a) Tactics development teams

(b) Direct input from units, staffs, and fleet commanders

(c) Lessons learned

(d) Post-deployment briefs

(e) Unit/strike group work-ups

(3) Provide a basis for instruction at various training commands such as Surface Warfare Officers School

(4) Be reviewed annually for transition to tactics or doctrine. In the absence of a target document, they will be reviewed quarterly as part of the SWDG Doctrine Review Board meeting.

c. Tactical bulletins span across warfare areas and are divided into two major categories:

(1) Unproven (experimental) tactics that require validation but can be employed if desired

(2) Proven (validated), but previously undocumented, TTP ready for immediate inclusion in ship and strike group training.

d. Tactical bulletins less than 90 days old are identified with a NEW symbol. Points of contact are provided with each bulletin to assist with answering questions and providing additional amplification.

3. Organization. Tactical bulletins are organized by warfare area and assigned a unique number consisting of the following:

a. Warfare area (e.g., surface warfare (SUW))

b. Calendar year of issue

c. Sequential number within a designated calendar year.

For example, TB SUW-03-01 is the first tactical bulletin promulgated in calendar year 2003 in the SUW area.

4. Development Process.

a. Any subject matter expert (SME) at SWDG can identify the need for a tactical bulletin and develop an initial draft copy.

When developing the initial draft, be as brief as possible and refrain from including superfluous background and "nice to know" information. Stick to the tactics, techniques, and procedures. This will help in getting the information to the fleet as quickly as possible.

b. During the initial draft process, the SME must identify the ultimate “resting place” (i.e., NWP, NTTP, NTRP, or TACMEMO)

for the information in the tactical bulletin once it is ready to transition. Include this information in the first section of the tactical bulletin with the purpose and introductory information.

c. Upon completion, the SME must route the initial draft copy through the cognizant warfare director, CSO, and CO for approval before any further work is performed.

d. Once command approval is received, the tactical bulletin can be passed to the Technical Support Directorate for applicable formatting and tech editing. (Individual Word and graphic files can be copied to N:\FILES\ on the LAN or e-mailed to N5B. An editor will perform editing and formatting functions using a Word template specifically developed for tactical bulletins.) Afterwards, the final draft copy must be routed again through the cognizant warfare director, CSO, and CO for final approval before it can be converted to Portable Document Format (PDF) and Hypertext Markup Language (HTML) format by the Technical Support Directorate staff and posted on the SIPRNET Web site.

e. For additional information on the tactical bulletin development process, refer to reference (a).

5. Formatting.

a. **General Guidance.**

(1) SMEs shall create draft tactical bulletins in MS Word using:

(a) Eleven-point Arial font with black lettering and flush left alignment for body text

(b) Six-, 8-, or 10-point Arial font for table and figure text.

(2) No other formatting is required.

(3) SMEs shall ensure that line drawings/graphics are created using Corel Draw (version 9 or below) and saved in CDR format. Photos shall be provided in JPEG or GIF format and shall be of print quality (i.e., 266 pixels per inch or 104 pixels per centimeter). PowerPoint files are acceptable. Graphics and photos shall be provided in individual files, whenever possible.

(4) The point of a tactical bulletin is to be hard hitting (i.e., present the tactics to the reader early in the document). With this in mind, tactical bulletins shall be organized as follows:

(a) Section 1 - Introduction: purpose, category, introductory information, and target publication

This section must identify which of two categories the bulletin falls into:

- "Unproven (experimental) tactics that require validation but can be em ployed if desired"
- "Proven (validated) tactics ready for immediate inclusion in ship and strike group training."

(b) Section 2 - Tactics

(c) Section 3 - Techniques

(d) Section 4 - Procedures

Sections 2, 3, and 4 (tactics, techniques, and procedures) may be combined into a single section.

(e) Section 5 - Background

(f) Section 6 - Related References (optional)

(g) Section 7 - Point of Contact Information.

(5) To view recent tactical bulletins for content, organization, layout, and formatting examples, go to our SIPRNET Web site and click on the "Time Critical TTP" button or "What's New" on the top menu bar.

b. **Guidance for Formatting Word Document.** (See enclosures for examples.)

Information in this section is for use by the Technical Support Directorate staff. SMEs need only be concerned with content, not formatting. This will help expedite the tactical bulletin development process.

To accomplish the goal of getting innovative/informative tactical bulletins into the fleet swiftly, tactical bulletins will be kept as short as possible and will not be heavily formatted. Use the following guidance, in addition to the applicable Word template

(F:\Tactical Bulletin\Templates\Word Templates\), when formatting a tactical bulletin in Word:

(1) Covers - do not include front and back covers; instead, center the tactical bulletin number, title, and month/year of promulgation at the top of the first page, followed by the section number and title. Use a 14-point Arial bold (Navy blue) font for the number, 16-point Arial bold (Navy blue) font for the title, and 12-point Arial bold (black) font for the promulgation month/year.

(2) Headers and Footers - include the overall classification of the tactical bulletin (20-point Arial bold font) in all headers and footers regardless of whether the bulletin is classified or unclassified. In addition, for classified bulletins:

(a) In the headers of multiple-section tactical bulletins, indicate the section classification (14-point Arial bold font) below the overall classification.

(b) In the footers of multiple-section tactical bulletins, indicate the section classification (14-point Arial bold font) above the overall classification. In the footer for the first page only, include "Derived from" and "Declassify on" information (10-point, Arial, black font). The drafter is responsible for providing this information.

Note: Use the following color codes for classification markings in headers and footers: **red** - secret, **blue** - confidential, and **green** - unclassified.

All headers, with the exception of the first page, shall include the tactical bulletin number on the right using a 10-point Arial bold (black) font.

(3) Blank Pages - do not include blank pages with "(This page is intentionally left blank.)" for sections ending on an odd numbered page.

(4) Front Matter - do not include front matter since tactical bulletins are normally short in length (less than 10 pages in PDF format). Bookmarks serve as the table of contents and shall be created using initial caps. (This will require manually typing the bookmark text vice copying the text from a section and pasting it as a bookmark.)

(5) Sections - do not use chapters and appendixes to organize information in a tactical bulletin; instead, use sections. The section number and title shall be centered and underlined at the top of the first page of each section, using a 16-point Arial bold (black) font with initial caps.

(6) Related References - this portion of the tactical bulletin is optional; however, if used, it should include publications related to the tactical bulletin, references used in developing it, or publications that the reader should be familiar with to better understand the information presented in the bulletin.

(7) Point of Contact - include point-of-contact information as the last item in each tactical bulletin. Provide the following information for the point of contact (drafter) regarding questions, comments, or requests for additional information:

(a) Name (including rank)

(b) Code

(c) Phone numbers (DSN and commercial)

(d) E-mail address (SIPRNET)

(e) SWDG Web site uniform resource locators (URLs) (addresses) for the SIPRNET and NIPRNET.

(8) Acronyms - do not include a list of acronyms and abbreviations because of the small size of tactical bulletins. Instead, define acronyms when first used.

c. **Guidance for Formatting HTML Document.**

The information in this section is for use by the Technical Support Directorate staff. SMEs need only be concerned with content, not formatting.

(1) Use the following guidance, in addition to the HTML template (F:\Tactical Bulletin\Templates\HTML Template\), when formatting an HTML version of a tactical bulletin:

(a) Covers - do not include covers; refer to paragraph 5.b.

(b) Headers and Footers – the header is included in the <title> tag; the footer is not. Refer to paragraph 5.b and chapter 3 of reference (b).

(c) Front Matter – do not include front matter.

(d) Sections – each section of a Web-based tactical bulletin shall have its own Web page with the navigation bar at the upper right corner. Refer to paragraph 5.b for additional information.

(e) Point of Contact – refer to paragraph 5.b.

(f) Related References – refer to paragraph 5.b.

(g) Acronyms – do not include a list of acronyms and abbreviations. Do not define acronyms in the body of the tactical bulletin as is done in the PDF version. Instead, use the <acronym> tag in the HTML code to define acronyms.

(2) Refer to chapter 4 of reference (b) for additional guidance on HTML formatting.

6. Changes.

a. Background. Tactical bulletins are not ordinarily changed but are cancelled when information is no longer relevant, major modifications are required, or information has transitioned to tactics or doctrine. When major modifications are required, the tactical bulletin is cancelled and reissued with another number. However, if errors, omissions, or safety issues require correction or new information is received prior to a tactical bulletin being cancelled/transitioned, a change can be issued.

b. Formatting.

(1) Obtain the Word file for the original tactical bulletin. Modify it to reflect the change information. Indicate changes to text and figures (including new material) by a black vertical line (1/16 inch in width) in the nearest outside margin. If a section is completely changed or new, place a vertical line in the right-hand margin by the section number and title.

(2) Replace the month/year of promulgation at the top of the first page with the dates originally posted and modified as shown in the example below.

Originally Posted: 21 July 2002 Modified: 30 June 2003

(3) After the CO has approved the changes to the tactical bulletin, convert the tactical bulletin to PDF and HTML formats. Refer to chapter 4 of reference (b) for HTML formatting guidance regarding changes.

J. J. NATALE

Distribution: (COMSURFWARDEVGRUINST 5216.2B)
List IA

Tactical Bulletin SUW-03-01

Sample Unclassified Tactical Bulletin

July 2003

Section 1 - Introduction

1.1 PURPOSE

The purpose of this tactical bulletin is to provide guidance on employing the Mk 95 Mod 1 twin .50-caliber machinegun weapon system, hereafter referred to as the "Mk 95 Mod 1."

1.2 CATEGORY

You *must* include a statement similar to one of the ones below to indicate which of two categories the tactical bulletin falls into: 1) proven tactics suitable for training or 2) experimental tactics ready for validation:

1. This tactical bulletin contains proven tactics that are suitable for inclusion in ship and strike group training.

2. Tactics in this tactical bulletin are experimental and require validation.

1.3 INTRODUCTORY INFORMATION

The Mk 95 Mod 1 machinegun mount consists of two .50-caliber, Browning, M2HB machineguns. The Mk 95 Mod 1 has an ammunition capacity of 500 rounds and is a belt-fed, recoil-operated, air-cooled, crew-served, machinegun system. The guns are capable of single-shot, as well as automatic fire, and can fire between 450 to 600 rounds per minute with a combined output of about 1,200 rounds per mount.

1.4 TARGET PUBLICATION

Once validated, the material in this tactical bulletin is intended for transition to a proposed future NTTP entitled "Littoral Surface Operations."

This is an example of a Warning. The graphic can be found on the LAN at F:\graphics\warning.gif. Remember to leave an extra space after the table. If the Warning text is too brief, you may want to add additional space at the start of the text to balance the look of the space.

Section 2 - Tactics

2.1 OPERATIONS

The heavy machineguns of the Mk 95 Mod 1 provide high volumes of accurate fire at ranges beyond that of small arms and medium-sized machineguns like the M60 machinegun. The lethality of their ammunition makes them ideal for engaging personnel, lightly armored boats, and other small craft.

2.1.1 Techniques for Target Engagement

The Mk 95 Mod 1 can be fired using one of four different rates of fire.

2.1.2 Targeting Considerations During Engagement

When a burst is fired, the vibrations of the gun and mount, variations in ammunition, and conditions of the atmosphere will make each bullet have a slightly different trajectory from all other bullets. The resulting group of trajectories is known as the cone of fire.

2.2 PREPARATORY EXERCISES

Preparatory exercises in marksmanship training teach the essentials of marksmanship. A thorough, carefully supervised course in the preparatory exercises conserves time and ammunition during practice.

Speeds, at which 35-foot targets should be run to represent speeds at various ranges, are shown in figure 2-1.

Target Speeds in Knots	Crossing Target Speeds in Inches Per Second		
	300 Yards	500 Yards	900 Yards
5	6	4	2
15	12	8	4
30	24	15	9

Figure 2-1. Target Speeds

Section 3 - Techniques

3.1 SAFETY AND INSPECTION

After inspection, guns should be completely assembled and mounted with headspace and timing properly set. Inspecting personnel should look for dirt, cracks, burrs, and rust. Operate each gun manually to ensure that it is functioning properly.

This is an example of a Note. The graphic can be found on the LAN at F:\graphics\noteclip.gif. Remember to leave an extra space after the table.

3.2 CARE, HANDLING, AND PRESERVATION OF AMMUNITION

Do not open ammunition containers until you are ready to use the ammunition. Ammunition removed from airtight containers, particularly in damp climates, is likely to corrode.

Section 4 - Procedures

4.1 MAINTENANCE

Under typical sea/salt exposure, the M2HB machineguns exhibit normal corrosion effects. Actual ship experience has shown that the feed arm assembly is more readily susceptible to corrosion due to its steel construction; therefore, special attention must be given to this area during inspection, operation, and maintenance. (See figure 4-1 for additional info.)

4.2 DISCUSSION

A sample format for lists follows:

1. **Single Shot**. This method is used to engage a target with well-aimed shots.

2. **Slow Fire**. In automatic mode, slow fire is less than 40 rounds per minute per weapon fired in bursts of 6 to 9 rounds per weapon in use, at 10- to 15-second intervals.

10. **Cyclic Fire**. The cyclic rate for the Mk 95 Mod 1 is 450 to 600 rounds per minute per weapon fired, or a total of between 900 and 1200 rounds per mount. This represents that maximum amount of ammunition that can be expended by the weapon without a break in firing

    a. Fire the weapon using short bursts of approximately 3 to 5 rounds per weapon fired (6 to 10 rounds per mount) until consistent hits are registered on the target.

        (1) Once the target is being consistently hit, increase the rate of fire to bursts of 7 to 10 rounds per burst per weapon fired (14 to 20 rounds per mount) until the target is destroyed.

        (10) When firing at short ranges in open ocean, the strike of the bullet is visible. (a) When firing at greater distances, the strike of the bullet cannot always be seen. In this event, the tracers will allow the gunner or crew to note the strike of the burst in relation to the target.

            (a) (U) When firing at greater distances, the strike of the bullet cannot always be seen. In this event, the tracers will allow the gunner or crew to note the strike of the burst in relation to the target.

	Characteristics	Weights/Measurements/Specifics
Weights/ Measurements	Weight of guns and ammo	420 pounds
	Weight of receiver	60 pounds
	Weight of barrel	24 pounds
	Length of gun	65 inches
	Length of barrel	45 inches
	Muzzle velocity (M2 ball)	3,050 feet per second
	Rifling	Eight lands and grooves with a right-hand twist, one turn in 15 inches
Ranges	Maximum (M2 ball)	7,400 yards (approximate)
	Maximum effective	2,000 yards
	Grazing fire	700 meters
Ammunition	Caliber	.50 caliber
	Types in use	Ball, tracer, armor piercing, incendiary, armor-piercing incendiary, armor-piercing incendiary-tracer, blank, and dummy
	Weight of 100 rounds in ammunition can	approximately 35 pounds
Rates of fire	Sustained	40 rounds or less per minute
	Rapid	More than 40 rounds per minute
	Cyclic	450 to 600 rounds per minute

Figure 4-1. General Data Regarding the Mk 95 Mod 1

Section 5 - Background

5.1 TARGETING CONSIDERATIONS DURING ENGAGEMENT

When a burst is fired, the vibrations of the gun and mount, variations in ammunition, and conditions of the atmosphere will make each bullet have a slightly different trajectory from all other bullets. The resulting group of trajectories is known as the cone of fire. The dispersion cone can be excessive if the weapon is not properly supported and controlled by the gunner. To minimize the dispersion cone, the gunner should seize the grips firmly with both hands and brace the gun with their body. For changes in elevation, the gunner should also stand erect and make changes in elevation by moving their hands and arms up and down. For changes in azimuth, the gunner should shift their feet and move around the mount.

5.2 SINGLE SHOT OPERATION CONSIDERATIONS

To fire the gun in single-shot operation, the bolt latch release must be in the up position. The latch engages the notches on top of the bolt when the bolt is to the rear after each round is fired. When the bolt latch release is depressed, the latch assembly is raised, allowing the bolt to be driven forward into battery. The gun may then be fired by pressing the trigger. When the bolt latch release is locked down by the bolt latch release lock on the buffer tube sleeve, the gun functions as an automatic weapon.

5.3 MARKSMANSHIP FUNDAMENTALS

To become accurate and proficient in machinegun marksmanship, a gunner should be thoroughly trained in the following fundamentals:

1. Accurate delivery of initial round (burst) of fire on either stationary or moving targets.

2. Mechanical skill in manipulating the gun and rapid shifting of fire to new targets.

3. Adjustment of fire by the following methods:

   a. Observation of projectile strike

   b. Observation of tracer flight

c. Frequent relaying of the gun during firing.

5.4 PREPARATORY EXERCISES

Preparatory exercises in marksmanship training teach the essentials of marksmanship. A thorough, carefully supervised course in the preparatory exercises conserves time and ammunition during practice. The preparatory exercises consist of the following steps:

1. Manipulation exercises
2. Fire adjustment
3. Range determination
4. Tracking and leading exercises
5. Examination before range firing.

CAUTION

- ➔ This is an example of a Caution with two bullets. The graphic can be found on the LAN at F:\graphics\caution.gif. Remember to leave an extra space after the table.
- ➔ Second bullet.

Section 6 - Related References

Related References:

(a) **NAVSEA SW226-AB-MMO-010, Ballistic Wind & Density for Naval Gunfire**

(b) **NWP 3-20.32, Surface Ship Gunnery (U)**
http://www.swdg.navy.smil.mil/ftproot/publications/NWPs/3-20.32.pdf

(c) **SWDG TB SUW-02-01, SUW Anti-Small Boat Swarm Tactics**
http://www.swdg.navy.smil.mil/ftproot/publications/tacticalbulletins/SUW/SUW-02-01/files/SUW-02-01.pdf

(d) **NAVSEA SWO30-AA-MMO-010, Navy Gun Ammunition, Second Revision**

(e) **NWP 3-20.3, Surface Ship Antisurface Warfare Tactics (U)**
http://www.swdg.navy.smil.mil/ftproot/publications/NWPs/3-20.3.pdf

Section 7 - Point of Contact Information

Point of Contact
Name: LCDR Louis Romano
Code: N72
Phone: (757) 462-8208 (x2701)
DSN: 253-8208 (x2701)
E-Mail: romanol@swdg.navy.smil.mil
SWDG Web Site URLs: www.swdg.navy.smil.mil (SIPRNET) www.swdg.navy.mil (NIPRNET)

Tactical Bulletin SUW-03-01

Sample Classified Tactical Bulletin (U)

July 2003

Section 1 - Introduction

1.1 PURPOSE

The purpose of this tactical bulletin is to provide guidance on employing the Mk 95 Mod 1 twin .50-caliber machinegun weapon system, hereafter referred to as the "Mk 95 Mod 1."

1.2 CATEGORY

You *must* include a statement similar to one of the ones below to indicate which of two categories the tactical bulletin falls into: 1) proven tactics suitable for training or 2) experimental tactics ready for validation:

1. This tactical bulletin contains proven tactics that are suitable for inclusion in ship and strike group training.

2. Tactics in this tactical bulletin are experimental and require validation.

1.3 INTRODUCTORY INFORMATION

The Mk 95 Mod 1 machinegun mount consists of two .50-caliber, Browning, M2HB machineguns. The Mk 95 Mod 1 has an ammunition capacity of 500 rounds and is a belt-fed, recoil-operated, air-cooled, crew-served, machinegun system. The guns are capable of single-shot, as well as automatic fire, and can fire between 450 to 600 rounds per minute with a combined output of about 1,200 rounds per mount.

Derived from: Multiple Sources
Declassify on: X3

1.4 TARGET PUBLICATION

Once validated, the material in this tactical bulletin is intended for transition to a proposed future NTTP entitled "Littoral Surface Operations."

This is an example of a Warning. The graphic can be found on the LAN at F:\graphics\warning.gif. Remember to leave an extra space after the table. If the Warning text is too brief, you may want to add additional space at the start of the text to balance the look of the space.

Section 2 - Tactics (U)

2.1 (U) OPERATIONS

(C) The heavy machineguns of the Mk 95 Mod 1 provide high volumes of accurate fire at ranges beyond that of small arms and medium-sized machineguns like the M60 machinegun. The lethality of their ammunition makes them ideal for engaging personnel, lightly armored boats, and other small craft.

2.1.1 (U) Techniques for Target Engagement

(U) The Mk 95 Mod 1 can be fired using one of four different rates of fire.

2.1.2 (U) Targeting Considerations During Engagement

(C) When a burst is fired, the vibrations of the gun and mount, variations in ammunition, and conditions of the atmosphere will make each bullet have a slightly different trajectory from all other bullets. The resulting group of trajectories is known as the cone of fire.

2.2 (U) PREPARATORY EXERCISES

(U) Preparatory exercises in marksmanship training teach the essentials of marksmanship. A thorough, carefully supervised course in the preparatory exercises conserves time and ammunition during practice.

(C) Speeds, at which 35-foot targets should be run to represent speeds at various ranges, are shown in figure 2-1.

Target Speeds in Knots	Crossing Target Speeds in Inches Per Second		
	300 Yards	500 Yards	900 Yards
5	6	4	2
15	12	8	4
30	24	15	9

UNCLASSIFIED

Figure 2-1. (U) Target Speeds

Section 3 - Techniques (U)

3.1 (U) SAFETY AND INSPECTION

(U) After inspection, guns should be completely assembled and mounted with headspace and timing properly set. Inspecting personnel should look for dirt, cracks, burrs, and rust. Operate each gun manually to ensure that it is functioning properly.

(U) This is an example of a Note. The graphic can be found on the LAN at F:\graphics\noteclip.gif. Remember to leave an extra space after the table.

3.2 (U) CARE, HANDLING, AND PRESERVATION OF AMMUNITION

(C) Do not open ammunition containers until you are ready to use the ammunition. Ammunition removed from airtight containers, particularly in damp climates, is likely to corrode.

Section 4 - Procedures

4.1 MAINTENANCE

Under typical sea/salt exposure, the M2HB machineguns exhibit normal corrosion effects. Actual ship experience has shown that the feed arm assembly is more readily susceptible to corrosion due to its steel construction; therefore, special attention must be given to this area during inspection, operation, and maintenance. (See figure 4-1 for additional info.)

4.2 DISCUSSION

A sample format for lists follows:

1. **Single Shot**. This method is used to engage a target with well-aimed shots.

2. **Slow Fire**. In automatic mode, slow fire is less than 40 rounds per minute per weapon fired in bursts of 6 to 9 rounds per weapon in use, at 10- to 15-second intervals.

10. **Cyclic Fire**. The cyclic rate for the Mk 95 Mod 1 is 450 to 600 rounds per minute per weapon fired, or a total of between 900 and 1200 rounds per mount. This represents that maximum amount of ammunition that can be expended by the weapon without a break in firing

    a. Fire the weapon using short bursts of approximately 3 to 5 rounds per weapon fired (6 to 10 rounds per mount) until consistent hits are registered on the target.

        (1) Once the target is being consistently hit, increase the rate of fire to bursts of 7 to 10 rounds per burst per weapon fired (14 to 20 rounds per mount) until the target is destroyed.

        (10) When firing at short ranges in open ocean, the strike of the bullet is visible.

            (a) (U) When firing at greater distances, the strike of the bullet cannot always be seen. In this event, the tracers will allow the gunner or crew to note the strike of the burst in relation to the target.

	Characteristics	Weights/Measurements/Specifics
Weights/ Measurements	Weight of guns and ammo	420 pounds
	Weight of receiver	60 pounds
	Weight of barrel	24 pounds
	Length of gun	65 inches
	Length of barrel	45 inches
	Muzzle velocity (M2 ball)	3,050 feet per second
	Rifling	Eight lands and grooves with a right-hand twist, one turn in 15 inches
Ranges	Maximum (M2 ball)	7,400 yards (approximate)
	Maximum effective	2,000 yards
	Grazing fire	700 meters
Ammunition	Caliber	.50 caliber
	Types in use	Ball, tracer, armor piercing, incendiary, armor-piercing incendiary, armor-piercing incendiary-tracer, blank, and dummy
	Weight of 100 rounds in ammunition can	approximately 35 pounds
Rates of fire	Sustained	40 rounds or less per minute
	Rapid	More than 40 rounds per minute
	Cyclic	450 to 600 rounds per minute

Figure 4-1. General Data Regarding the Mk 95 Mod 1

Section 5 - Background (U)

5.1 (U) TARGETING CONSIDERATIONS DURING ENGAGEMENT

(C) When a burst is fired, the vibrations of the gun and mount, variations in ammunition, and conditions of the atmosphere will make each bullet have a slightly different trajectory from all other bullets. The resulting group of trajectories is known as the cone of fire. The dispersion cone can be excessive if the weapon is not properly supported and controlled by the gunner. To minimize the dispersion cone, the gunner should seize the grips firmly with both hands and brace the gun with their body. For changes in elevation, the gunner should also stand erect and make changes in elevation by moving their hands and arms up and down. For changes in azimuth, the gunner should shift their feet and move around the mount.

5.2 (U) SINGLE SHOT OPERATION CONSIDERATIONS

(C) To fire the gun in single-shot operation, the bolt latch release must be in the up position. The latch engages the notches on top of the bolt when the bolt is to the rear after each round is fired. When the bolt latch release is depressed, the latch assembly is raised, allowing the bolt to be driven forward into battery. The gun may then be fired by pressing the trigger. When the bolt latch release is locked down by the bolt latch release lock on the buffer tube sleeve, the gun functions as an automatic weapon.

5.3 (U) MARKSMANSHIP FUNDAMENTALS

(U) To become accurate and proficient in machinegun marksmanship, a gunner should be thoroughly trained in the following fundamentals:

1. (U) Accurate delivery of initial round (burst) of fire on either stationary or moving targets.
2. (U) Mechanical skill in manipulating the gun and rapid shifting of fire to new targets.
3. (U) Adjustment of fire by the following methods:
   a. Observation of projectile strike

b. Observation of tracer flight

c. Frequent relaying of the gun during firing.

5.4 (U) PREPARATORY EXERCISES

(U) Preparatory exercises in marksmanship training teach the essentials of marksmanship. A thorough, carefully supervised course in the preparatory exercises conserves time and ammunition during practice. The preparatory exercises consist of the following steps:

1. Manipulation exercises
2. Fire adjustment
3. Range determination
4. Tracking and leading exercises
5. Examination before range firing.

CAUTION

➔ (U) This is an example of a Caution with two bullets. The graphic can be found on the LAN at F:\graphics\caution.gif. Remember to leave an extra space after the table.

➔ (U) Second bullet.

Section 6 - Related References

Related References:

(a) **NAVSEA SW226-AB-MMO-010, Ballistic Wind & Density for Naval Gunfire**

(b) **NWP 3-20.32, Surface Ship Gunnery (U)**
http://www.swdg.navy.smil.mil/ftproot/publications/NWPs/3-20.32.pdf

(c) **SWDG TB SUW-02-01, SUW Anti-Small Boat Swarm Tactics**
http://www.swdg.navy.smil.mil/ftproot/publications/tacticalbulletins/SUW/SUW-02-01/files/SUW-02-01.pdf

(d) **NAVSEA SWO30-AA-MMO-010, Navy Gun Ammunition, Second Revision**

(e) **NWP 3-20.3, Surface Ship Antisurface Warfare Tactics (U)**
http://www.swdg.navy.smil.mil/ftproot/publications/NWPs/3-20.3.pdf

Section 7 - Point of Contact Information

Point of Contact
Name: LCDR Louis Romano
Code: N72
Phone: (757) 462-8208 (x2701)
DSN: 253-8208 (x2701)
E-Mail: romanol@swdg.navy.smil.mil
SWDG Web Site URLs: www.swdg.navy.smil.mil (SIPRNET) www.swdg.navy.mil (NIPRNET)