

## MP Sniper Notes:

### SELECTION, OCCUPATION, AND CONSTRUCTION OF SNIPER POSITIONS

Selecting the location for a position is one of the most important tasks a sniper team accomplishes during the mission planning phase of an operation. After selecting the location, the team also determines how it will move into the area to locate and occupy the final position.

#### SELECTION

Upon receiving a mission, the sniper team locates the target area and then determines the best location for a tentative position by using one or more of the following sources of information: topographic maps, aerial photographs, visual reconnaissance before the mission, and information gained from units operating in the area.

- a. The sniper team ensures the position provides an optimum balance between the following considerations:
  - Maximum fields of fire and observation of the target area.
  - Concealment from enemy observation.
  - Covered routes into and out of the position.
  - Located no closer than 300 meters from the target area.
  - A natural or man-made obstacle between the position and the target area.
- b. A sniper team must remember that a position that appears to be in an ideal location may also appear that way to the enemy. Therefore, the team avoids choosing locations that are:
  - On a point or crest of prominent terrain features.
  - Close to isolated objects.
  - At bends or ends of roads, trails, or streams.
  - In populated areas, unless it is required.
- c. The sniper team must use its imagination and ingenuity in choosing a good location for the given mission. The team chooses a location that not only allows the team to be effective but also must appear to the enemy to be the least likely place for a team position. The following are examples of such positions:
  - Under logs in a drift area.
  - Tunnels bored from one side of a knoll to the other.
  - Swamps.
  - Deep shadows.
  - Inside rubble piles.

#### OCCUPATION

During the mission planning phase, the sniper also selects an final rendezvous point (FRV). From this point, the sniper team then reconceals the hide position to determine the exact location of its final position. The location of the FRV should provide cover and concealment from enemy fire and observation, And be located as close to the selected area as possible, and have good routes into and out of the selected area.

- a. From the FRV, the team moves forward to a location that allows the team to view the hide position area . One member remains in this location to cover the other member who reconceals the area to locate a final position. Once a suitable location has been found, the covering team member moves to the position. While conducting the reconnaissance or moving to the position, the team Moves slowly and deliberately,
  - using the sniper low crawl.
  - Avoids unnecessary movement of trees, bushes, and grass.
  - Avoids making any noises.
  - Stays in the shadows, if there are any.
  - Stops, looks, and listens every few feet.

b. When the sniper team arrives at the firing position, it Conducts a detailed search of the target area. Starts construction of the firing position, if required. Organizes equipment so that it is easily accessible. Establishes a system of observing eating resting, and latrine calls.

## CONSTRUCTION

A sniper mission always requires the team to occupy some type of position. These positions can range from a hasty position, which a team may use for a few hours, to a more permanent position, which the team could occupy. for a few days. The team should always plan to build its position during limited visibility.

a. Sniper Position Considerations. Whether a sniper team is in a position for a few minutes or a few days, the basic considerations in. choosing a type of position remain the same.

### (1) Location:

(a) Type of terrain and soil. Digging and boring of tunnels can be very difficult in hard soil or in fine, loose sand. The team takes advantage of what the terrain offers (gullies, holes, hollow tree stumps, and so forth).

(b) Enemy location and capabilities. Enemy patrols in the area may be close enough to the position to hear any noises that may accidentally be made during any construction. The team also considers the enemy's night vision and detection capabilities.

### (2) Time:

(a) Amount of time to be occupied. If the sniper team's mission requires it to be in position for a long time, the team constructs a position that provides more survivability. This allows the team to operate more effectively for a longer time.

(b) Time required for construction. The time required to build a position must be considered, especially during the mission planning phase.

### (3) Personnel and equipment:

(a) Equipment needed for construction. The team plans for the use of any extra equipment needed for construction (bow saws, picks, axes, and so forth).

(b) Personnel needed for construction. Coordination is made if the position requires more personnel to build it or a security element to secure the area during construction.

Construction Techniques. Belly and semipermanent hide positions can be constructed of stone, brick, wood, or turf. Regardless of material, every effort is made to bulletproof the front of the hide position. The team can use the following techniques:

Pack protective jackets around the loophole areas.

Emplace an angled armor plate with a loophole cut into it behind the hide loophole.

Sandbag the loopholes from the inside.

(1) trench. Hide construction begins with the trench since it protects the sniper team. All excavated dirt is removed (placed in sandbags, taken away on a poncho, and so forth) and hidden (plowed fields, under a log, or away from the hide site).

(2) Overhead cover. In a semipermanent hide position, logs should be used as the base of the roof. The sniper team places a dust cover over the base (such as a poncho, layers of empty sandbags, or canvas), a layer of dirt, and a layer

of gravel, if available. The team spreads another layer of dirt, and then adds camouflage. Due to the various materials, the roof is difficult to conceal if not countersunk.

(3) Entrance. To prevent detection, the sniper team should construct an entrance door sturdy enough to bear a man's weight.

(4) Loopholes. The construction of loopholes requires care and practice to ensure they afford adequate fields of fire. Loopholes must be camouflaged by foliage or other material that blends with or is natural to the surroundings.

(5) Approaches. It is vital that the natural appearance of the ground remains unaltered and camouflage blends with the surroundings. Construction time is wasted if the enemy observes a team entering the hide; therefore, approaches must be concealed. Teams try to enter the hide during darkness, keeping movement to a minimum and adhering to trail discipline. In built-up areas, a secure and quiet approach is needed. Teams must avoid drawing attention to the mission and carefully plan movement. A possible ploy is to use a house search with sniper gear hidden among other gear. Sewers may be used for movement also.

(6) Equipment. Weapons must be kept clean and functional at all times. Ammunition must be visually inspected prior to loading. Environmental considerations, are of utmost importance. The weapon must be kept dry, as much as is possible. Use of suppression devices, is acceptable at ranges under 400m. Outside of that range, hit probability is severely compromised. Use of a carpenter's level and small plumb bob will, aid in establishing Point of Aim. Use of portable concealment (Ghillie suits) are advisable when either away from main firing position, or in the field. Scopes should be kept clean, dry and servicable whenever possible. Jarring, bumping or frantic movement of the weapon should be avoided at all costs.

(7) Personnel. Whenever possible the use of a spotter is desired. This person's primary tasks are as follows:

1. Identify targets. This is done, by detecting the salient facts of a situation, and identifying the best target of opportunity. This may be the leader, best armed, or in some cases the most vocal. The use of enhanced optics in this and all other considerations, is a necessity.
2. Review and Log results. The review phase is to establish results of the shots and log same for after action follow through reports.
3. Identify new targets.
4. Provide cover fire. This is done to allow the team to extract, through previously selected routes. Using the hop-scotch approach, the team can escape and evade while covering each other.
5. Provide on-site intel. This can be invaluable if the sniper team is covering the insertion of ground forces into the target area. The ability to coordinate attacks on sentries etc, is again invaluable.
6. Close in fire suppression. The spotter can utilize their own weapons to provide close-in fire suppression from attacking hostile forces.
7. Act as backup. Especially useful when two targets are in view of each other. This adds the capability of eliminating additional targets, or assuming primary duties, in the case of sniper incapacitation.

## **First shot Task resolution.**

1. Select Target
2. Determine Range
3. Calculate Windage/Drop
4. Prepare
5. Fire

Explanation:

Select Target: Identify who would be best target for overall task accomplishment. Leader, most dangerous, best armed etc.

Determine Range: This can be accomplished with MP Laser range finder, integral range finder (scope) if available or guess.

Calculate Windage/Drop: Wind can be a factor on an accurate shot at long range. The ballistic characteristics of fired rounds are also a factor. As a round travels, it loses momentum. This causes the round to fall. Someone familiar with their weapon and ammo will know this and can factor this into their calculations.

Prepare: This is an abstract involving breathing, frame of mind, vision, nerves etc. It is included here for accuracy.

Fire: Actually taking the shot.

## **Second and successive round task resolution.**

1. Recover
2. Select Target
3. Prepare
4. Fire
5. Recover

Recover: This involves relaxing tensed muscles, and mind. It also involves checking the target for hit, effect etc.

Select Target: Identify who would be best target for overall task accomplishment. Leader, most dangerous, best armed etc.

**Note: Re-calculation is not necessary if second and successive targets are within +/- 50 meters of Zero Target. (first target). If not then add this step in.**

Prepare: This is an abstract involving breathing, frame of mind, vision, nerves etc. It is included here for accuracy.

Fire: Actually taking the shot.

Recover: This involves relaxing tensed muscles, and mind. It also involves checking the target for hit, effect etc.

This assumes that your shooter has 5 movements per round. In the case of a shooter who moves more slowly these tasks will roll over to the next and or successive rounds.

In the case of a team sniper, the P.D. should consider providing ammunition different from the standard "ball" type ammo, typically deployed with MP teams.

## AMMUNITION VARIATIONS

**Armor Piercing:** This type of round has a steel core below its copper jacket, allowing greater armor penetration. See conventions sheet.

**Armor Piercing Incendiary:** Use the above rules for armor piercing, but use the information on pg 22 MP TM 1-1 for the incendiary round.

**Armor Piercing Incendiary Tracer:** Use the above rules for armor piercing, but use the information on pg 22 MP TM 1-1 for the incendiary, and tracer rules.

### Depleted Uranium Core Ammunition

Uranium is extremely heavy, making it perfect as a armor penetrator. DUCA rounds can only be used in military weapons. Effects: Armor is only worth .25% of its original value.

### Dual Purpose

This type of ammunition has a heavy metal core surrounded by a lead jacket. When the round hits, the soft lead jacket expands like a hollowpoint. If it hits armor the soft lead jacket is stopped and the heavy metal core tears through the armor, as an armor piercing round.

### DumDum

Bullets with small cuts in the metal jackets that cause them to break up in the body, causing bad wounds. Effects: Armor is increased by 50%. Damage is doubled. If armor is penetrated thus, a 9mm round (E-Factor 9) hitting resist-weave (armor 7 increased would be 11) would cause no damage. If it hit bare skin however, it would cause 16 points damage, probably killing the target.

### Flechette ammunition, Handguns and rifles.

These contain a single sabot flechette, which is fired like a normal bullet. When the round leaves the gun the sabot falls away allowing the flechette to fly free at very high speeds. Effect: This round penetrates any armor except hardened. When it hits, it bends and twists upon entering the target. The wounds are more punctures and tears. Typically, the round is lodged in the target, requiring surgery to remove.

### Flechette Options

**Fragmentation Flechette rounds.** This type of flechette is designed to break up upon entering the target, increasing the damage caused. It can be used with both the shot gun and the handgun and rifle rounds. Damage caused is increased by .25%. This is cumulative with the range damage modifier.

**Poison.** The flechette rounds have tiny hollows which contain poison that is injected directly into the target upon impact. So, not only does the target suffer the damage, but they then have to check against the poison.

### Hollow-points

Bullets with hollowed out tips to allow them to expand upon impact Effects: Armor is doubled As mentioned with DumDum rounds, hitting armor would be ineffective, but hitting bare flesh would be devastating.

### Jacketed Hollow-points

Hollow-point rounds with metal jackets that reduce expansion, to increase armor penetration Effects: Armor is increased by 25% as is damage. Again, if a 9mm round (E-Factor 9) hits resist-weave (armor 7, increased to 9) it would cause no damage. If it hit an un-armored location, it would cause 11 points of damage.

### Magnum

This type of ammunition is larger than normal, to accommodate more grains, increasing the rounds E-Factor. Effects: The E-Factor is increased by 50%. Example. A 9mm round with an E-Factor of 9 would be increased to 14. The round can then be made into any other type of ammunition, such as armor piercing, hollow-points, etc. Makes for a nasty combination.

#### Mercury Tipped Hollow-points

Hollow-points that are filled with mercury to greatly increase expansion upon impact, causing terrible exit wounds. Effects: Armor is doubled. Again, using 9mm rounds, odds are it will not penetrate most armor. But if it hits an un-armored target, the damage it causes is hideous. On top of that, if the target actually survives the round, they are subject to mercury poisoning, which is equal to poison class C.

#### Titanium Rounds

The bullet is solid titanium with a Teflon jacket. Titanium is almost half the weight of steel, yet has the same strength, so the bullet travels a lot faster than a standard round and slows down quicker in the target. Unfortunately it also slows a lot faster in normal travel, making it armor piercing only at point blank to medium ranges. Effects: Armor is halved if range is medium or less. No matter the range, E-Factor remains the same. At any range beyond medium, the round will only cause 1 point of damage.

Tracers: See page 22 of MP TM 1-1 for details.

#### Tungsten Carbide

Tungsten carbide is very heavy and very hard. It is very doubtful that anyone except the project will have this type of ammo, as the tools and the knowledge would have disappeared over the past 150 years. This type is an excellent armor piercing round. Effects: Armor is at 30% of its value.

Glaser Safety rounds: This is a hollow round, containing # 12 lead shot suspended in liquid Teflon. Against hard armored targets, it ignores armor. Against soft armor, like Resist-weave, damage is sub-dual and blunt trauma only. Against non-armored opponents, this round is a man-killer. Only 10% of all victims hit with type of round survive it.

Frangible Rounds: This composite material is highly effective in dealing with urban pacification situations. The round is made up of a material, (usually powdered lead) and a epoxy glue. These are then molded to the appropriate caliber and fired as normal. Due to their lighter weight, range is increased 10% in all categories. Additionally, this round is designed to shatter upon contact with a hard surface. Armored opponents take sub-dual/blunt trauma injuries. Non-armored opponents are dealt grievous wounds. This is due to the fact that if the round hits bone, ALL of its imparted energy is directed into the target. Damage would be increased by 25%.

## WEAPON CONVENTIONS

Tracers: Add 5% to hit per round of tracers used.

Armor Piercing: Ignores Armor Value less than E-Factor of round used. Damage is as follows:

AV < E-Factor = Full E-Factor Damage

AV = E-Factor = 1 point of Damage

1 + AV > E-Factor = 75% Damage (Sub-dual)

2 + AV > E-Factor = 50% Damage (Sub-dual)

3 + AV > E-Factor = 25% Damage (Sub-dual)

4 + AV > E-Factor = No Damage

Point Blank Range: E-Factor X 2

Short Range: E-Factor X 1

Medium Range: E-Factor X .5

Long Range: E-Factor X .25

To Hit Rolls:

01 - 05 = Called Shot (Player's Choice)

96 - 00 = Jam or Misfire (Automatics Only)

98 - 00 = Revolver Misfire

Called Shot Modifier: -25%

|                  | Round 2 | Round 3 | Round 4 | Round 5 |
|------------------|---------|---------|---------|---------|
| Successive fire: | -11%    | -33%    | -66%    | -99%    |

To Hit Modifiers Misc.

| Weapon      | PB     | Short  | Medium | Long  |
|-------------|--------|--------|--------|-------|
| Single Shot | Normal | -----  | -----  | ----- |
| Scope Sight | Normal | Normal | +20    | +10   |

To Hit Modifiers Positions (shooter)

| Position | PB  | Short | Medium | Long |
|----------|-----|-------|--------|------|
| Prone    | +30 | +20   | +15    | +10  |
| Kneeling | +15 | +10   | +05    | ---- |
| Braced   | +20 | +15   | +10    | ---- |
| Standing | +10 | +05   | ----   | ---- |

To Hit Modifiers Concealment (target)

| Concealment | PB     | Short  | Medium | Long |
|-------------|--------|--------|--------|------|
| 1/4 Mansize | Normal | -10    | -30    | -40  |
| 1/2 Mansize | Normal | -05    | -15    | -20  |
| Mansize     | Normal | Normal | -05    | -10  |
| 2X Mansize  | +20    | +15    | +10    | +05  |
| 3X Mansize  | +30    | +25    | +20    | +15  |
| 4X Mansize  | +40    | +35    | +30    | +25  |

### **Recommended Weapons:**

**Nomenclature:** Barrett M82A1

**Caliber:** .50 BMG

**Magazine:** 10-shot detachable box magazine

**Barrel:** 29"

**Weight:** 32.5 lbs

**Length:** 57" overall

**Stock:** Composite with Sorbothane recoil pad.

**Sights:** Scope with ironsights.

**Max Eff. Range** 1830 meters

**E-Factor: 33**

**Features:**

- Semi-automatic
- Recoil operated
- Recoiling barrel to reduce felt recoil
- Highly effective Muzzle Brake
- Three-lug locking bolt
- Self leveling bi-pod
- Barrett claims 1 MOA with match ammunition

Believe it or not, the M82A1 is not that bad to shoot. The spotter actually suffers more than the shooter (Due to the muzzle brake sending the concussion out and back, usually right into the spotters face). While the potential for extreme long range shooting is there, the current military ammo is not up to the task. There is no military match ammo, and that really kills the accuracy potential of this rifle. Even with match ammo, the rifle will have a hard time holding its claimed 1 MOA, there is just too many moving parts. But, for its designed purpose as a long range hard target interdiction rifle, the M82A1 is hard to beat! Its semi-auto, 10 round capability against a light skinned APC is outstanding.

**Nomenclature:** M21

**Caliber:** 7.62x51mm NATO (.308 Win.)

**Capacity:** 20 or 5 round detachable box magazine

**Mechanism:** Rotating bolt, gas operated, air cooled, semi-automatic magazine fed rifle

**Weight:** 11.25 lbs (5.11kg)

**Length:** 44.1" (112cm)

**Barrel:** Match Grade 22 inches 1:10 RH twist

**Trigger Pull:** Specially tuned 4 1/2 pound match two-stage military trigger

**Sight:** Redfield/Leatherwood 3-9x Automatic Ranging Telescope (ART)

**Max Effective Range:** 900 yards (822m)

**E-Factor: 18**

The M21 is essentially a modified M14 National Match rifle. The earlier versions had a specially selected walnut stock, but this was later changed to a fiberglass stock, often camouflaged. The XM21 began to be fielded in the second half of 1969 and remained the U.S. Army's primary Sniper Weapon System until it began to be replaced by the M24 SWS in 1988. Some National Guard units and even a few active duty units (The OPFOR at JRTC for example) still use the M21. The M21 is a very practical sniper weapon maintaining acceptable accuracy out to about 700 meters. Given the problem that it is semi-auto and sends brass flying, it would make an almost ideal spotters weapon. The 10th SFG, in conjunction with the U.S. Navy SEALs has developed an improved version of the M21 known as the M25. The M25 was designed out of a need for a semi auto sniper rifle, and it was the weapon of choice for SEAL snipers during Desert Storm. The M21 holds a dear spot in many U.S. Army snipers hearts, and rightfully so.



**Nomenclature: Stoner SR-25****Caliber:** 7.62x51mm NATO (.308)**Operation:** Gas operated semi-automatic**Barrel:** 24" heavy match, 1:11.25" twist**Weight:** 10.75 lbs (4.88kg) empty, no scope**Feed Mechanism:** 20 round detachable box magazine.**Stock:** Black synthetic AR-15A2 design. Full floating forend of glass-reinforced synthetic attaches to upper receiver at a single point.**Sights:** None provided, Integral Weaver-Style rail provided for scope mount.**Price:** \$2495**Trigger:** Modified AR-15, fully adjustable for over-travel and sear engagement.**Accuracy:** Can expect 3/4 MOA**E-Factor:** 20

Developed by Eugene Stoner, This rifle exhibits some of the characteristics of his former designs, notably the AR-10 and the M-16. However, this is not just an upgraded assault rifle, but was designed from the beginning as a sniper rifle. There has been mixed results about this rifle. Some people swear by them, and others do not like them at all. (The 1st SFG comes to mind here) The SR-25 is manufactured by Knights Mfg Co.

**Nomenclature: Heckler & Koch PSG-1****Caliber:** 7.62 x 51mm NATO (.308 Win)**Magazine:** 5 or 20 round detachable box**Barrel:** 25.59" (650mm), Heavy, 4 grooves, right hand twist.**System of Operation:** Roller locked, delayed blowback.**Overall length:** 47.56" (120.8 cm)**Total Weight:** 17.81 lbs (8.10kg) (HEAVY!!!)**Price:** \$9,325.00 (Wow!)**Scope:** Hensoldt 6x42, with reticle illumination. 6 settings from 100 to 600 meters**Stock:** Matte black high impact plastic, adjustable for length, pivoting butt cap, vertically-adjustable cheekpiece; target-type pistol grip with adjustable palm shelf.**Trigger:** Adjustable for pull, removable from pistol grip.**E-Factor:** 17

**Features:** Uses HK-91 action with low-noise bolt closing device; special fore end with T-way rail for sling swivel or tripod. The PSG-1 is said to be the most accurate semi-auto in the world. There are a lot of other rifle manufacturers that will dispute this, but the PSG-1 has become the standard that the others must meet. The accuracy standard that all PSG-1's must meet is 50 rounds of match ammo into an 80mm (3.14") circle at 300m. (1 MOA). Keep in mind this is 50 rounds, not a 3 shot group. The PSG-1 is popular in some Special Op units and elite anti-terrorist units. It really does not lend itself well to the Military environment because of 2 reasons. First it ejects the shells about 10 meters, and this can easily give away a position, and also is a pain to try and police your brass to prevent leaving a target identifier. The second reason is that it only can be fitted with the Hensoldt 6x42 sight. No other sight can be used (Short of grinding off the mount and welding on your own type base). The 6x is only set up to be used out to 600 meters, and that is the start of the optimal engagement range for military snipers (From 600-700 meters). It is an outstanding Police Sharpshooter weapon, but most agencies cannot afford the price tag, which is why it usually shows up in only the most elite units.

**Nomenclature: Walther Wa-2000****Standard Caliber** ..... .300 Win mag**Optional Calibers** ..... .308 (7.62x51mm NATO) or 7.5x51mm Swiss**Operation** ..... Semi-Auto (Bullpup)**Length** ..... 35.62" (90.5 cm)**Weight Unloaded** ..... 15.9 lbs 5oz (6.95 kg) YIKES!**Barrel Length** ..... 25.59" (65 cm)**Barrel** ..... Fluted, with muzzle brake**Stock** ..... Thumb-hole (Wood) - Fully adjustable**Magazine** ..... 6 round detachable box

**Trigger** ..... Fully adjustable  
**Standard Sight** ..... Schmidt & Bender 2.5-10x56mm  
**Max Effective Range** ..... 1000+ meters with .300 win mag  
**E-Factor:** 21

This rifle was designed from the ground up as a sniper rifle, it is not an adaptation from an existing rifle. No expenses were spared in the design and construction of the WA2000. The .300 was chosen as the primary caliber because of its long range accuracy and its consistency at all ranges. The entire rifle is designed around the barrel. The adjustable trigger operates a hammer, and the entire firing mechanism can be removed as a unit from the lower frame. The bull-pup configuration allows a compact design while still maintaining a 26" barrel. The US Army M24 has a 24" barrel and is over 7" longer. The WA2000 fires from a closed bolt and uses a bolt with 7 locking lugs. Only 72 total rifles were produced in 2 different variants.

**Nomenclature:** .300 Super Magnum  
**Caliber** . . . . .338 Lapua (8.60x70mm)  
                   .300 Win Mag  
                   7mm Rem Mag

**Operation . . . . . Bolt Action**

**Length** . . . . . 50 inches

**Weight** . . . . . 14.99 lbs (6.8kg) empty without telescope

**Barrel** . . . . . 27" (.338 Lapua)  
26" (.300 and 7mm)

**Twist, Right Hand . . . . .** 1 turn in 8" (.338 Lapua)  
1 turn in 10" (.300 and 7mm)

**Magazine Capacity** . . . . . 5 round box magazine

**Maximum Effective Range . . . 1100+ meters**

**E-Factor:** 20

### Additional Features:

- 1 piece scope mount
- Parker-Hale bipod
- Black, custom-fitted case
- Tool kit
- Cleaning kit

The PM Super Magnum, or Super Magnum (SM) as it is now known, is essentially an Arctic Warfare rifle upgraded to accept the high power cartridges, especially the .338 Lapua. The barrel is slightly longer to take full potential of the .338, and the range is increased significantly. This rifle is approaching the range of the .50 cal's, but yet it's only slightly heavier than the standard 7.62mm version of the rifle.

## Nomenclature: Model 85

**Caliber:** 7.62mm NATO (.308 Win)

**Magazine:** 10 shot detachable

**Barrel Length: 24.5"**

**Weight (with scope):** 12.57 lbs.

**Overall Length: 45.3"**

**Stock:** McMillan fiberglass (several color patterns available)

**Sights:** Post front adjustable for windage, fold down rear adjustable for elevation

**E-Factor:** 17

**Features:** Quick-detachable bipod, palm stop with rail, sling swivels, and matte finish.

The Model 85 is a first-rate sniper rifle, capable of precision fire to ranges of 900 meters. The synthetic stock is manufactured in different colors, according to preference, and is fitted with butt spacers to adjust overall length. A detachable bi-pod is standard, and is one of the finest ever put on a rifle! The M85 has been taken into the British Army to supplement the L96A1. The Model 85 has guaranteed first round hit capability up to 600 meters, and 85 percent first round hit capabilities from 600 - 900 meters. The weapon also has a silent safety catch, a threaded muzzle for flash suppressor, and an integral dovetail mount that

accepts a variety of sights. The standard scope is a 6x42mm Schmidt & Bender with a BDC from 200 - 900 meters. Emergency iron sights are also fitted.

**Nomenclature:** L96A1

**Caliber** . . . . . 7.62 NATO (.308 Win)

**Operation** . . . . . Bolt Action

**Length** . . . . . 44.3 - 47 inches

**Weight** . . . . . 14.33 lbs (6.5kg) empty without telescope

**Barrel Length** . . . . . 24 inches

**Twist, Right Hand** . . . . . 1 turn in 12 inches

**Magazine Capacity** . . . . . 10 or 12 round detachable box magazine

**Maximum Effective Range** . . . 1000 yards

**E-Factor:** 17

The L96A1 is the British Army designation of the standard AWC PM. The L96A1 won a British Army competition by a slight margin over the Parker-Hale M85 to become the standard sniper rifle for the British Army. The PM utilizes an aluminum frame over which is placed a high impact plastic stock. An adjustable Parker Hale Bi-Pod is fitted as standard. An upgraded version, the AW, features many minor improvements, including an easier bolt action, frost proof mechanism, muzzle brake and a 10x42 Hensoldt telescopic sight. The AW is imported to the US by Accuracy International, and is for sale to the public. Other Models in use: PM Counter-Terrorist Rifle, PM Covert Sniper Rifle, and the PM Super Magnum Sniper Rifle

**Nomenclature: No.4 Mk1**

**Calibers:** .303 British (7.7x56mm R)

**Magazine:** 10 round detachable box magazine.

**Barrel Length:** 25.19" (640mm)

**Barrel Profile:** 5 Grooves, left-hand twist

**Weight:** 9.13 lbs (4.14 kg) without scope

11.63 lbs (5.28 kg) with scope

**Overall Length:** 44.5" (1130mm)

**Stock:** high quality walnut stock, with cheek piece

**Sights:** Iron sights plus a 3x No.32 or Mk3 telescopic sight

**E-Factor:** 18

**Features:** Conversion to sniper rifles done by Holland and Holland

The No.4 Mk1(T) is a legend. It served the British during WWII as an absolutely remarkable sniper rifle. Rugged, accurate, and comfortable to shoot, the No.4 Mk1(T) was a sniper's dream! These rifles started as standard No.4 Mk1's that were hand picked for their above average accuracy. They were then shipped to Holland and Holland, H&H, where they were restocked, scope mounts added, and a scope fitted to the rifle. The quality of work done by H&H was superb. The accuracy was nothing to write home about by today's standards, the requirement was a 3" group at 100yards, but it is an accepted fact that the No4 Mk1(T) rifles actually get more accurate the further you go out. You might shoot 3 MOA at 100 meters, but it will likely drop to around 1.5 MOA at 600 meters. These rifles served superbly throughout WWII (from 1942 on, when they were introduced) and actually served up through 1991 as the L42A1 (A slightly modified No4 Mk1(T)).

**Minute Of Angle**

A Minute of Angle (MOA) is a term of measurement which equals 1 inch at 100yds. This thin angle spreads out with distance. So that same MOA equates to 2 inches at 200yds, 3 inches at 300yds & so on. This makes MOA, as a term of measurement, convenient for shooting because we describe bullet trajectories in inches & distances in yards. Most quality scopes use windage & elevation increment adjustments of 1/4 MOA per click at 100yds. (check your scopes specifications to be sure) Some manufacturers don't usually tell you the MOA's in their advertisements, although they're saying the same thing when their specifications state "1 click equals 1/4 inch at 100yds." Shot placement, particularly at long distances, is now just a

question of learning how much to apply these incremental adjustments at various distances.

### **Elevation & Windage Formulas**

Lets say you've fired a shot at a 300yd target & it hit 15 inches low. How do you adjust your elevation? Simple, here's a formula I use to determine scope correction in MOA.

correction (in inches) = MOA of change  
distance (100's of yds)

Now with the Number's:  $\frac{15}{3} = 5$  MOA of change

On a scope with 1/4 MOA adjustment, we achieve this 5 MOA adjustment by raising the elevation 20 clicks. After all, 5 MOA divided by the 1/4 MOA (.25) adjustment on the scope equals 20. But you probably already new that.

### **Windage Adjustment**

Most shooter's I know, myself included, learn windage compensation by memorizing the commercial tables for their particular cartridge. This is usually located on the box along with the velocity & trajectory tables. All you have to do is memorize the effect for a 10mph, full value crosswind, then adjust this in your mind for faster or slower winds & the angle of the wind using the clock system. 6 o'clock at the rear, 12 o'clock blowing directly in your face.

An old USMC formula applies to the .30 caliber round, such as the .308 & the .30-06 Springfield. This formula only applies to targets 500yds & closer. After that the math constant changes.

Range (100's of ys) x windspeed (mph)  
15 = MOA of change

Example: your target is 300yds away, & there is a 10mph crosswind.

3x10=30  
15 = 2 MOA

3 (hundreds of yds) multiplied by 10 (mph wind) = 30  
30 divided by 15 (math constant) = 2 MOA

2 MOA converts to how many clicks? 8, see this stuff is easier than you thought. If it's a full value crosswind, click in the 2 MOA & aim dead on. If the wind is oblique, proportionally reduce your clicks until, of course, you have a 12 o'clock headwind (no value) or a 6 o'clock tailwind (no value). Most shooter's consider a head or tailwind so slight an effect, that it's not worth calculating.