WHITE RESISTANCE MANUAL

V - 2.4

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-AQUILIFER

http://members.odinsrage.com/white88/WRMMainpage.htm

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Introduction

As we witness the dawn of a the new millenium so to have we witnessed the birth of a new era of Leaderless Resistance in the struggle for White survival. No longer do we look to politicians and law-makers for a solution, they have been bought, their lips are sealed with green paper; they have grown rich and powerful through sucking the lifeblood of the crumbling ruin that Western Civilization has become. However their power has come at a price; greed, corruption and sloth are the adornments of their wealth. This leaves western society in a position ripe for upheaval and revolution. We will cast off our wishful belief in democratic salvation, our votes will now be cast with bullets and bombs. No longer will the yoke of race-denying, religious systems restrain us. As in the past we must rekindle a faith not in false, alien gods but in ourselves and our ability to struggle and overcome without prostrations before any Kosher world-deity. No longer will we allow the Jews to live like parasites upon the body of our race. No longer will we tolerate any Jewish influence in our political system, our legal system or our mass-media. No longer will our children be taught the suicidal and baseless dogma of egalitarianism and racial equality. No longer will we allow dysgenic breeding to damage the health of our race. No longer will we tolerate any non-White colonizers living and breeding among us. In this new era we fight for nothing less than the absolute physical separation of the White race from all Jews and non-Whites. Along with this we will purge from our midst the traitorous and degenerate elements of our race. We demand swift and brutal justice for those who assisted in, or profited from, the murder of our Race and the colonization of our lands by non-Whites. May their time be short upon the earth.

The purpose of this document is not to explain the Whys? of armed struggle, any White person with a pair of eyes can appreciate the desperate situation we are in as a Race. Anyone can see that this situation cannot be turned around at the ballot box or through negotiation and compromise, it will end in tears and bloodshed. Of this there is really no doubt. Western civilization will fall in a similar way and for the same reasons as ancient Egypt, Aryan India, ancient Greece, Rome and every other nation which failed to protect its blood from the poisoning effects of race-mongrelization. The situation is simple, a violent struggle will come about and if it happens soon we will win. If we are unable to coalesce our movement into a fighting force capable of initiating and seizing victory in this conflict within the next decade or so we will lose. To lose in this struggle means that the White race will be butchered by the sub-humans who have colonized our lands and our women and children will be brutally raped and murdered in the streets.

My purpose here is to provide information on the Hows? of armed struggle. How to select or fabricate weapons useful in an armed struggle, how to manufacture, handle and employ explosives as part of an armed struggle, how to conduct a guerilla campaign and how to select targets according to their value to our movement.

"Out of the closet" Racialists, Cells and the Lone Wolf

There are two paths to choose from for those of us who take up the struggle. The first option is what I term the "out of the closet" activist. These individuals fight to the best of their abilities to spread the message of White survival and rebirth to as many of our racial kin as possible. These White activists use printed material, newspapers, radio, television and most notably the Internet to this end. These courageous individuals walk a dangerous line because the more effective they are the more attention they draw to themselves from law enforcement and from various other enemy organizations.

Just about every major city in the western world has a "Hate Crimes Unit" or a similar apparatus which works as a liaison between Jewish interests and the police. These agencies work to identify and build dossiers on White activists who are at work in the area. Their ultimate aim is to infiltrate any White activist group in order to:

- Gather incriminating evidence against its members
- Discover connections to other groups for further investigation
- Undermine, discredit and destroy these groups

Undercover agents of these units will attend meetings and rallies held by racial activists and information such as names and descriptions of individual members will be obtained. The Hate Crimes Unit will also collect literature, posters and other materials distributed by activists. These materials will be analyzed for fingerprint evidence in order to begin to identify the members of the group. These fingerprints will be added to the files which law enforcement keeps on those involved in racial activism.

The next step in the work of the Hate Crimes Unit is to infiltrate the group in order to gather evidence of the commission of any crimes or any conspiracy to commit crimes by the group. This work is usually done by a lone agent but the use of two or even more infiltrators is not unheard of.

If no evidence of criminality is at first obtained the infiltrator will begin to try to push the group to commit a serious or violent crime of some sort or to provide him or her with the means to commit some violent crime and to help plan it. If members of the group are foolish enough to trust the infiltrator they will soon find themselves in jail. This type of activity by law enforcement is well documented. The "Forth Reich Skinheads" case in Los Angeles, the infiltration of "Combat 18" in England and the Grant Bristoe affair involving the "Heritage Front" in Canada are good examples of the use of an "agent-provocateur" to destroy White Nationalist movements and to imprison White men and women.

How is this process of law enforcement infiltration and sabotage to be prevented? It can be summed up with one simple rule... No one who is an open activist, known to the media and to police, should ever even entertain the idea of involving themselves in armed struggle. A real separation must exist between those who wage a war of words and those who let actions speak for them. Whenever the open White activist is approached about the idea of armed struggle, he must explain that it is his own personal choice to reject violence but that he also does not condemn those who take up armed struggle in defense of their people. In this way we can neutralize law enforcement use of infiltrators against us.

Just as the "out of the closet" White Nationalist must be strictly non-violent, those who choose violent struggle must keep their identities and beliefs secret from all except those directly involved in the movement. This will be a difficult task, made increasingly difficult the more people are involved. For this reason we must employ an organizational structure of small "cells". Each of these cells will have only a few members and will be capable of taking action independently of the others. Only long time acquaintances, with history of trustworthiness, should make up a cell. A handful of dedicated soldiers (no more than 4 or 5) can create an impenetrable, cohesive and effective weapon against the tyranny we face. A single, highly motivated, individual or "Lone Wolf" can also take action on his own. This one-person cell will obviously be impenetrable to law enforcement, however the Lone Wolf may by limited in the scale of attacks he can mount. It is precisely this type of cell structured resistance movement which the traitorous, power-whores who sit in the seat of government fear most. They have no idea how to deal with this type of movement, it has no hierarchical power structure so it cannot be toppled and its cells are too small and too may to infiltrate.

Every person who enters this movement must understand that we are a **nation in exile**, waiting to assume power in the vacuum which will be created by the fall of Western civilization.

Citizens of this nation in exile are obligated to be:

Aware - The citizenry must educate themselves to a reasonable level on all the issues of concern to White survival. Our enemies must never be able to ask "Why?" without response.

Armed - The citizenry must posses weapons suitable for guerilla warfare and understand and how to use them with reasonable proficiency. In some circumstances this will be difficult but it is absolutely imperative that the citizenry of our nation be capable of seizing power when the time comes.

Prepared - The citizenry must be both physically and psychologically fit for the coming conflict. It is essential that the citizenry train themselves, like soldiers, and be physically able to fight, perform heavy work and resist exhaustion. Also, like soldiers, it is essential for the citizenry to purge any feelings of sympathy toward our enemies or guilt over the actions which we must take. Feeling of this nature are a symptom of the greatest evil possible in nature's design ...weakness.

Control of Information

Hercule Poirot, Sherlock Holmes and Lt. Colombo are fictional characters, equally fictional is the concept that police detectives solve crimes by applying deductive reasoning to the clues of the case. Certainly crime-scene evidence and eye-witnesses are of great importance in police work but when one examines the reality of <u>criminal investigations</u> it becomes apparent that without informants, "rats", and confessions the vast majority of crimes would go unsolved.

Police routinely offer cash rewards and set up "hotlines" to entice the acquaintances of criminals to come forward. Once police have a suspect in mind they will attempt to interrogate everyone around him, friends, co-workers, family members. With the use of threats, lies and deceit the police are usually successful in extracting information from these sources. Friends and co-workers will be told that they have been implicated in the crime by the suspect and will be charged along with him unless they tell their side of the story. Family member will be told that the suspect has confessed or that evidence proving his guilt exists and that the police want to act in his "best interests" and the testimony of family members would allow him to "get the help he needs". The suspect's spouse or intimate partner will be told that during the course of their investigation the police have discovered evidence of the suspect's infidelity in an attempt to break the unique protective feelings developed in an intimate relationship.

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Control of information thus becomes the most vital element in the security of our movement. Information is more valuable than any material resource, it can make you rich or it can send you to the gallows. Even the slightest leak can provide investigators a new lead and they are tenacious especially when confronted with a difficult case. We must assure that no piece of information, no matter how seemingly irrelevant, is transformed from our secret into a law-enforcement resource. How can secrets be kept? How can information be controlled? Ben Franklin once said "Three men can keep a secret, if two of them are dead!"... this is a realistic assessment. We all have our own secrets, a dark deed committed alone, a childhood indiscretion, or a act of foolishness in our past which we shall never reveal to the world. These personal secrets are given a level of protection by us that can never be equaled by the swearing and blood-oaths which protect communal secrets. The truth will come out eventually in nearly every case, the best we can do for our communal secrets is to prolong their revelation for as long as possible. Here are some points to consider in the control of information.

- Share no secret which does not have to be shared. In military terminology this is referred to as the "need to know" and is applied so that each individual is given only enough information to perform the mission required.
- When confronted by law enforcement offer absolutely no information. Remember these five words: "I have nothing to say". Know your rights. Make no statement either written or verbal. Demand to see a lawyer immediately. Do not submit to any voluntary search of your person, property, vehicle or residence. Do not waive any of your rights or voluntarily allow them to be violated. The decisions you make when dealing with law enforcement are deadly serious, make no mistakes.
- Do not discuss any aspect of your guerrilla activities on communication systems which are not secure. Such systems include, telephones, cellular phones, faxes and e-mail. Even secure systems, such as digitally encrypted cellular phones and e-mail, should be used with great caution. Who knows what encryption Big Brother really can or can't break.
- Employ the best encryption possible for computer files (including this one) which deal with racialist ideas, revolutionary struggle, firearms and explosives etc.
 - Use "disinformation" in order to confuse and deceive law enforcement.

- Don't discuss your belief in violent action with anyone who is not directly involved in our struggle. Profess adherence to non-violence in public.

The Goals Of Our Struggle

We can identify four short and long term goals of our revolutionary struggle:

To exacerbate existing racial tensions to the point where a situation of open conflict exists between Whites and non-Whites. We must also encourage violent racial conflict among the various non-White races within our borders. We can place no goal higher because none of the others can be completed without it. Only the violence and life-or-death imperative of an open racial conflict, a Race War, will rouse the majority of our racial kin from their sleep. Only racial conflict at this level will drive home the fact that the idea of a peaceful and prosperous multi-racial state is lunacy and only with the civil breakdown during a violent racial conflict will we gain the opportunity to proceed with the rest of our program. Our strategy must be to make all of the emerging multiracial states as ungovernable as possible. Life must become quite a bit more miserable before "Joe six-pack" and "Jane tax-payer" will get off the fence. Our goal is to shake that fence so hard that the issues become quite clear to all of our racial kin. We must immediately begin to make it clear to the world that non-Whites are not welcome in our territory and will eventually face forced deportation or death at the hands of our growing movement. Our lands must no longer be seen as safe havens for the excrement of the world but as places of great danger for non-White colonizers.

The use selective assassination, arson attacks, bombings, sabotage and vandalism against non-Whites must be employed with the goal of creating a maximum amount of animosity, outrage and fear within the hearts of our enemies. High profile targets, such as non-White entertainers, sports figures, religious and political leaders must be targeted for selective assassination. Non-Whites must also be attacked anywhere they can be stuck in large numbers, such as in high-rise apartments, subways, shopping malls or packed nightclubs in order to produce maximum causalities. The symbols of the non-White presence on our land; churches, temples, Mosques, businesses and political institutions must be considered valuable targets as well. The idea is to drive them into the streets in outrage, to force them to retaliate. Because our movement is underground and leaderless they will be unable to strike back against us directly so their rage will be leveled against White society in general and law enforcement and authority figures in particular.

It will also be necessary to do our best to exploit the tribal resentments and ethnic hatreds which the various non-White groups within our borders harbor for each other. Some good examples where violence has occurred in western nations involving rival non-White groups include the conflicts between Hindus and Muslims (especially strong between Pakistanis and Indians), Sikhs and Muslims, Somalis and Ethiopians, Blacks and Koreans (U.S.), Blacks and Hispanics (U.S.) Koreans and Chinese, Japanese and most other Asians and of course the Jews and just about everybody else. In order to successfully use these issues to our advantage the operative must research and understand the origins and issues at hand in the various conflicts. I will make no attempt here to try to explain any of these conflicts as that would be far beyond the scope of this work.

To smash Jewish power and influence both in our own respective nations and worldwide. The Jews are now, always have been and always will be the enemies of the White race and jealous murderers of anything beautiful and healthy in this world. Any individual, organization or movement which fights for the future of the White race will be doomed to failure without a clear understanding of this fact. No movement for social reform has any hope of success unless it is specifically and overtly anti-Jewish. It is essential to understand that all of our goals are anti-Jewish in nature.

We must attack Jewish power wherever it exists and at all levels. Our focus must be placed upon high-profile Jewish influence in government, big-business, the mass-media and entertainment. Destruction of high level Jewish targets will have a great propaganda effect and will be a boost to the morale of our fighters. It is of great importance to demonstrate to our movement that it is possible to attack and crush high level Jewish power. Of secondary importance will be low level Jewish targets such as individuals of only local importance, Synagogues, Jewish owned small business and other symbols of Jewish power. Remember that, because of their power and influence, any attack upon a Jewish target will receive national if not international media attention. This is exactly the propaganda effect we need and we will use the media power of the Jews against them in order to achieve it. There is no undeserving Jewish target!

To destroy the legitimacy of current government and to offer legitimate government in its place. We must strike at the heart of the traitorous, Jew-controlled governments which have done their best to murder and pollute our race. The apparatus, infrastructure and property of government must be placed high on our target list. This would include any and all individuals involved in forming policy, the services provided by government and any buildings or other physical property. All of the present day governments of White nations must be discredited and toppled. In most cases even the constitutional documents which give them legitimacy must be rejected.

Individuals in decision making positions in government should be targeted for selective assassination. Those most outspoken in the campaign to rob our children of a future should be placed at the top of the list, however, just about any high ranking official in government will make a deserving target. Only those tiny fraction of government officials who have fought against our destruction should be exempted. Any successes in this campaign will have a positive propaganda effect in favor of our movement.

Striking the symbols and services of government which the average citizen associates with legitimacy and power is part of our campaign to break down the rule of present government. Buildings and monuments symbolic of our present governments or the sick ideologies which they serve must be defaced, vandalized or destroyed. The services we will target include, the military, law enforcement, electrical power generation and delivery, food supplies, fuel supplies, electronic communications, tax collection, postal services, roads, railways, airports, shipping etc. Disruption and denial of these services will both discredit the effectiveness of present government and hinder them in their war against the White race. When conducting attacks against government every effort must be made to avoid casualties among low-level White employees.

To punish those Whites who have committed treasonous acts against their own people. A heavy emphasis must be placed upon those, high profile, individuals in

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government, the media, entertainment, clergy and academia who have presented lies as truth, promoted race-mixing, drug abuse and degeneracy, encouraged non-White immigration or have schemed to profit from policies which damage the health of our race and rob White children of a future. We can never really hope to taken seriously as a Nation if we are unwilling to punish traitors in the way any healthy Nation would, by death. A campaign of attacks targeting these individuals and their property will have a significant propaganda effect, both discouraging traitorous behavior and, with high profile targets being struck, boosting the morale of our movement.

Other targets will include businesses or institutions which, through their advertising, employment policies, business or political activities, have promoted our racial destruction. This will include nearly all large corporations and big businesses. Of greater importance are institutions which provide foreign aid, arrange for the adoption of non-Whites into our Nations, assist non-White immigrants, do research into diseases that inflict mostly non-Whites, such as AIDS or Malaria, or engage in any other activity which damages the health and security of the White race. The property, capital and those in decision making positions of these businesses and institutions should be targeted with every effort made to ensure that low-ranking White employees are not injured or killed in our attacks.

Of secondary importance will be targets such as low level individuals involved in race-mixing, degeneracy and drug abuse. There is no propaganda effect to be gained by attacking low profile homosexuals, degenerates, drug dealers etc. Only those who have committed crimes against the White race, such as race-mixers, rapists, child molesters etc. should be attacked. Selective assassination, arson or bomb attacks should be used against these low-level targets.

Firearms

One can easily become bewildered by the sheer number of different firearms being produced and marketed today. I have attempted to provide an overview of the categories of firearms which will be of use to the insurgent White separatist and then go into specifics of the action types, effectiveness, availability of ammunition and practicality of specific weapon types.

Shotguns

If a person of limited means could only afford one weapon to defend his family and property I would recommend a 12 gauge semi-automatic or pump action shotgun for a number of reasons;

Effectiveness -The 12 gauge is really unsurpassed for close range lethality when loaded with any of the various buckshot loads. Number 4 buckshot is probably the best general purpose load, it contains 27 projectiles of .25 caliber each and will produce a four-foot-diameter killing pattern at 40 yards, making each trigger pull nearly as lethal as the emptying of a full magazine from a submachinegun. This makes the combat shotgun suitable for any close to medium range combat situation, in built up areas, in dense forest or jungle and indoors. Powerful and versatile the combat shotgun is not only capable of inflicting devastating damage with buckshot at close range but is also reasonably accurate with rifled slugs out to about 100 yards. Rifled slugs are capable of penetrating wooden walls and barriers, car bodies, body armor and can tear a basketball sized hole in a human target at 50 yards.

Flexibility -A myriad of specialized loads make the 12 gauge shotgun also unsurpassed in its flexibility. Buckshot, rifled slug, incendiary, explosive, flechette, tear gas, oleoresin capsicum(pepper spray), flare, sabot, tracer and rubber low-lethality rounds are all being commercially produced. See the Modified Ammunition section for instructions for the construction of specialized 12 gauge loads. Another advantage of the shotgun is the inability of investigators to link a shotgun to a murder through projectile analysis. This is because the smooth bore of the shotgun doesn't leave any traceable marks on the projectiles. However a spent shell casing can be linked to a shotgun by studying the marks left on the primer by the firing pin and also by analyzing other marks left on the shell by the gun. The shotgun's spread pattern can be analyzed and matched, with some reliability, to the crime scene evidence. This limited traceablity, coupled with the 12 gauge shotgun's awesome lethality at close range, give the shotgun some potential as a weapon of assassination.

Practicality -The 12 gauge shotgun is used worldwide for hunting, sport shooting and for military/law enforcement purposes. The universal nature of the 12 gauge shotgun means that ammunition will be available and access to it will be relatively difficult for governments to control. Along with bolt-action rifles, shotguns will probably be among the last firearms to be banned by repressive governments.



Winchester 1300 Defender with pistol grip and 8rnd tube magazine

Remington 870 with synthetic stock and short barrel



Notes:

- Only semi-automatic or pump-action models have any combat value. However single shot or double barrel break-open type shotguns may be desired for <u>selective assassination</u> because they don't eject the spent shells, leaving little forensic evidence.
- Try to obtain a shotgun chambered for standard 2 3/4" as well as the more powerful 3"and 3 1/2" magnum shells.
- Be sure your shotgun has at least a five round tube magazine or better yet a seven or eight round magazine. Some shotguns on the market today have detachable box magazines or revolving cylinder magazines, again be sure to choose one with high capacity.
- Never purchase shells smaller than no. 4 lead buckshot. Lead shotshells are numbered from smallest projectiles No.12 and 11 which are unsuitable for combat, downward through No.10 to No.2 then BB then through the numbered buckshot loads to 0 buck, 00 buck and 000 buck. Each step downward represents a load with fewer but larger projectiles. Steel shells are numbered a bit differently but lead should be chosen over steel if possible.
- It may be advisable to choose one of the more popular shotgun models, such as the Remington 870, Remington 1100, Winchester 1200 or 1300 series, Mossberg 500 or 600 series etc. Accessories such as pistol grips, shell saddles, folding stocks and magazine extensions are available for these and other popular models.
- Synthetic stocks should be chosen over wood for combat weapons. I like the feel and weight of wood for hunting weapons but synthetics are stronger, more wear resistant and unaffected by moisture.

- Many jurisdictions outlaw any alteration of the barrel or stock of a weapon in order to make it more compact or concealable. It is probably unwise to alter any legally purchased weapon by cutting its barrel or stock. A weapon procured on the black market and stored somewhere other than in your residence is best suited for such a purpose.

Rifles

There are really only two general categories of rifle with which the guerrilla fighter needs concern himself. The first of these is the long range or sniper rifle and the other is the so-called "assault rifle".

Sniper Rifles

Effectiveness - The long range killing power of the sniper rifle make it possibly the most fearsome weapon in the insurgent's arsenal. Given the right terrain and equipment a single, well trained, sniper could hold down a whole platoon for several hours. The psychological effect of sniper attacks on enemy troops is devastating to morale. Even more significant is the use of the sniper rifle for selective assassination. A dedicated White revolutionary with a good rifle could, single-handedly, strike some very serious blows against our enemies. I have provided ballistic information for the various rifle calibers, which could be used for sniping in the <u>selective assassination</u> section.

These weapons are capable of producing lethal wounds even at extremely long range, they are capable of penetrating buildings, body armor and even light vehicle armor when loaded with FMJ (Full Metal Jacket) rounds. Any good quality rifle with at least a 22" barrel and chambered for one of the full-length rifle cartridges can be put into service as a sniper rifle. Semi-automatic or better yet bolt action rifles should be chosen over pump or lever action for this purpose. If possible a rifle with a heavy tactical barrel and a detachable box magazine should be selected. Good quality optical sights, properly zeroed in, will greatly improve target spotting and acquisition.

Practicality -Bolt action hunting rifles are available worldwide in a variety of powerful chamberings. The bolt-action rifle, with its humble appearance and widespread hunting use will be last on the list of targets for gun-grabbing governments. Availability of ammunition and ballistic characteristics should be considered when selecting a rifle. The .30-06 and .308 (7.62mm NATO) are the most universally available cartridges for sniping purposes. Both of these are very powerful and have impressive ballistic characteristics with the .30-06 being a bit more powerful and the .308 (because of its adoption by NATO) being in wider military use. Many of the major firearms manufacturers produce bolt-action and/or semi-automatic rifles in these two calibers. Through my own experience I can recommend bolt-action rifles such as the Remington 700 series, the Winchester 70 series, Savage 110FP Tactical, Savage 111 series and the Ruger 77R mk11 series. This is by no means an exhaustive list and quality weapons of this type are produce by a number of manufacturers including Sako, Dakota Arms, Parker-Hale, Browning, Marlin and others. Semi-automatic rifles I will recommend include the Remington 7400 series and any of the semi-automatic or select-fire military weapons chambered in .30-06 or .308, included in this group are the M14, the FN FAL, as well as some of the older rifles including the M1 Garand. Remember that a good weapon is no substitute for good marksmanship, this skill can only be developed through training.



Winchester Model 70 with scope and heavy tactical barrel



Remington 700 with camouflage stock and heavy tactical barrel

Notes:

- Chose only .30-06 or .308 caliber rifles with Bolt or semi-automatic action.
- Don't be tempted by the very impressive ballistic characteristics of some of the more obscure chamberings such as the 358 or 375 H&H Magnum, .378 Weatherby, .458 Winchester Magnum, 460 Weatherby etc. Without an assured supply of ammunition these weapons will be totally useless.
 - Again synthetic stocks are superior to wood for combat purposes.
- Familiarize yourself with the ballistic characteristics of the rifle you choose and practice shooting from a variety of positions and ranges.
- A heavy barreled weapon with detachable box magazine and telescopic sights will make a superior sniper rifle.

A few of you will be wondering why I haven't included the .50 BMG long-range rifle systems in my consideration of sniper rifles. In recent years a number of .50 caliber long range rifles have become available on the civilian market. The .50 BMG is capable of penetrating heavy vehicle armor, body armor, buildings and just about any target on the modern battlefield. These weapons offer superior ballistic power even at extremely long range and are even capable of hitting aerial targets such as helicopters and low-flying

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airplanes. A reasonably well-trained sniper with one of these weapons can achieve reasonable accuracy out to around 1600 meters and the .50 BMG is lethal to human targets at up to 4 miles! These weapons have been used to neutralize armored targets such as tanks, APCs and missile launchers at ranges of a mile or more. However these weapons are prohibitively expensive with a base price of around \$4,000 US (probably at least twice that on the black market) and ammunition costing as much as \$5 per round. Also because of the extremely high power of the .50 BMG cartridge, weapons chambered for it are made of thick steel, resulting in a very heavy, cumbersome weapon often weighing in at over 30lbs fully loaded. These rifles are clearly not suited to "shoot and move" sniper tactics but are really better classified as heavy weapons. A White revolutionary with access to this type of weapon could wreak serious havoc against the system. Of course steps are being taken to deny civilian ownership of this type of weapon in almost every White nation... get one now if you can.



Barret .50 BMG semi-automatic rifle

Assault-Rifles

For the purposes of this discussion I will define the assault-rifle as a short barreled rifle (20" or less) with a semi-automatic or selective fire action and detachable box magazine. Weapons of this type have their origins in WWII when the need for a street fighting weapon with more power and range than a submachinegun but lighter, handier and firing a smaller cartridge than the standard infantry rifle. The result of this need were various weapons including the U.S. M1 Carbine, German MP-44 and later the AK-47. All of these weapons use an intermediate cartridge, larger than the pistol cartridges used in most submachineguns but smaller than full-sized rifle cartridges.

Effectiveness: -The assault-rifle is essential to any sustained guerrilla campaign though a small cell of resistance fighters could make do without them. These weapons have a firepower advantage over other small arms at medium to long range. The light weight, compact size and minimal recoil of assault-rifles make them the weapon of choice for combat in urban, forest and jungle situations. Large capacity detachable box and drum magazines increase the firepower of the assault rifle and should be obtained if possible. Weapons with flash suppressors and/or bayonet mounts should be chosen over those without these features. The effectiveness of the assault-rifle may be improved with the addition of low magnification telescopic sights. Folding, telescoping and bullpup stocks make these weapons more compact and handier even concealable in some situations. The evolution of the assault-rifle has recently resulted in the creation of an entirely new weapon system; the Combination Weapon, which usually consists of an assault rifle coupled with a grenade launcher or shotgun in an over-under configuration. A good example of this is the M16 A2 rifle coupled with the M203 grenade launcher. These new

weapons are finding increasing favor among the world's armed forces and for this reason I have included plans for constructing a grenade launcher similar to those used in these modern weapon systems.

Practicality: - 90+% of the world's infantry units use rifles chambered for either 5.56mm NATO (.223 Remington) or 7.62x39mm (Russian). The assault-rifles selected by White separatists must use one of these two cartridges. Happily there are a great number of rifles which meet this criteria, however many governments worldwide have outlawed their ownership by civilians making it necessary for the operative to obtain them on the gray or black market. Specific assault-rifles which should be considered include the Ruger Mini-14, Colt AR-15/M-16, Styer AUG, FAMAS, MAS223, Galil, SA80, Heckler & Koch, AK-47 and SKS series rifles to name but a few of the better known models. I have handled and fired a number of these weapons and found the AR-15 A2 and Styer AUG to be quite superior, the Mini-14 to be satisfactory and the Norinco (Chinese) SKS models to be of poor quality workmanship but entirely functional and reliable. "You get what you pay for" has never been truer than in the field of assault-rifles. Many of these rifles can be easily and safely converted to full-automatic fire.



M16 A-2 With 30rnd magazine



Styer-Aug - a good example of an assault rifle with a bullpup stock



A4 with M-203 grenade launcher and telescoping stock

Notes

- Only weapons chambered in 5.56mm NATO or 7.62X39mm should be considered.
- Try to obtain large capacity box or drum magazines.
- Low magnification scopes will simplify target spotting and acquisition.
- Weapons fitted with flash suppressors, bayonet mounts and telescoping, folding or bullpup stocks make more versatile weapons.
- A superior Combination Weapon can be built using my plans for a home-built grenade launcher.

Submachineguns

Submachineguns (SMGs)

This class of weapons is sometimes referred to as assault pistols or machine pistols. These weapons are generally compact, pistol caliber weapons with very short barrels. They are capable of very high rates of fully-automatic fire and are usually equipped with high capacity (20, 30 or even 50 rounds) magazines.

Effectiveness - The submachinegun is intended for very close range combat and is considered by S.W.A.T. teams to be ideal as an entry weapon. SMGs are most effective when employed in confined spaces, indoors and in very dense forest and jungle settings.

The compact size and high rate of fire of these weapons gives them an edge at very close range and makes them excellent weapons of surprise and assassination.

Practicality - Submachineguns have been produced in a variety of chamberings including 7.65mm, .380 ACP, 5.7mm FN, 9mm Makarov, 9mm Parabellum, 10mm, .40S&W, .45 ACP and others. Of these only the 9mm Parabellum, 10mm, and .40 S&W are in widespread use today as a SMG caliber therefore any submachinegun cambered for the 9mm is a good choice. Also a number of SMGs chambered in .45 ACP,

most notably the Thompson submachinegun, were once part of US military/law enforcement arsenals. This fact together with the widespread use of .the 45 ACP as a handgun cartridge, make SMGs chambered in .45 ACP also an acceptable choice for the guerrilla fighter.

Most jurisdictions worldwide outlaw the civilian ownership of SMGs, and in those areas where they are still legal steps are being taken to ban them. A number of semi-automatic only versions of SMGs have been produced for the civilian market. These are truly unacceptable substitutes for the fully-automatic SMG and are little better than handguns for combat purposes. This type of over-the-counter weapon must be converted to full-automatic fire. I will recommend the H&K MP-5 (good luck getting one of these), Mac-10, Mac 11, Colt 9mm SMG, Uzi, Mini Uzi, Tec-9, KG-9 to name a few, some of the older weapons such as the Sterling or the Thompson SMG could be pressed into service.

When fitted with a silencer the SMG becomes a very formidable weapon of ambush, surprise and assassination. The .45 ACP is ideally suited for this but the 9mm, 10mm and .40S&W must be loaded with subsonic ammunition in order for it to be effectively silenced. I have included plans for an SMG silencer. The SMG is probably the only weapon which will benefit from laser sights in a combat situation. Equipped with laser sights the SMG can be accurately fired "from the hip" with both eyes open, a great advantage in close combat.



HK MP-5, 9mm select-fire submachinegun with telescoping stock and suppressor



Colt RO-635. 9mm select-fire submachinegun with telescoping stock



MAC-10 .45 ACP

Notes

- Only 9mm, 10mm, .40S&W or .45 ACP weapons should be selected
- Any over-the-counter model must be converted to full-auto
- High capacity magazines should be obtained if possible
- Silencers and laser sights improve the versatility and effectiveness of the SMG

Sidearms

In the world of firearms, nothing is more contentious or tainted by misinformation than the subject of the relative superiority of pistol and revolver models and cartridges. I will not attempt to resolve this debate but will simply try to put it into the context of what is effective and practical in the world of today. There are a vast array of pistol and revolver cartridges available today, so many in fact that one can easily become confused. What we must remember is that we are only concerned with those cartridges capable of satisfactory stopping power and which are in widespread enough use by military/law enforcement to guarantee availability of ammunition.

Effectiveness – A number of handgun cartridges exist which are sufficiently powerful to class them as acceptable for combat purposes. Among these we include the .38 Special .357 Magnum, .41 Magnum .44 Special and .44 magnum for revolvers; and 9mm Parabellum, 10mm Auto, .45 ACP, 38 Super, 9mm AE, .41 AE, 9mm Makarov, .357 Sig, 9mm Police/Ultra and .40 S&W for semi-automatic pistols. Generally unacceptable for combat purposes are the .22 Short, .22 LR and .25 ACP. In a borderline category are the .32 ACP, .380 ACP and the 5.7mm FN. Besides the ballistic characteristics, the firepower of a given handgun must be taken into consideration. This is where the semi-automatic pistols have the revolvers beat. Most modern combat pistols have magazine capacities of from 10 – 20 or even more rounds. This makes the six-shooters look like antiques by comparison.

The handgun only has combat value in at very close range and in confined spaces, usually under 30 feet. Even an experienced handgunner would have difficulty making hits in a combat situation past about 50 feet. The handgun is best suited as a weapon of surprise, assassination and of last resort, but as a US combat veteran told me "If you find yourself in real combat and all you've got is a pistol, you're in a world of shit!" The small size of the handgun and its concealability are its real strengths making it ideal for personal defense. Handgun accessories such as laser sights and scopes are just toys and are more of a hindrance than an advantage in real combat.

Practicality – Of the revolver cartridges mentioned only the .38 Special and the .357 Magnum have any practical value today. Although no longer in widespread use by police departments there are still a awful lot of these revolvers around making it likely that ammunition will continue to be available for some time. Revolvers chambered for .357 Magnum will also accept and fire the shorter .38 Special cartridge making them more practical than the standard .38 Special revolvers. A number of good quality revolvers are still being produced by manufacturers, your best bet is probably to stick with one of the established names such as Smith & Wesson, Colt or Ruger. However the limited capacity, slower reloading and decreasing use by law enforcement of revolvers leaves me skeptical of their combat value to the White revolutionary. The revolver does, however, have a couple of advantages over semi-autos for selective assassination; they cannot jam and they do not eject their cartridge cases, thereby denying the firearms investigator any cartridge case evidence.

Moving to the semi-automatic pistol cartridges we can identify four which are practical due to their overwhelming use by law enforcement/military. These are the 9mm Parabellum, 10mm Auto, .45 ACP, and the .40 S&W. A number of good quality pistols offered in single and double action are available in these calibers. The 9mm and .45 ACP have been cornerstones of the combat pistol for decades and are still very widely used by law enforcement/military as well as by civilians. The .40 S&W cartridge, most notably in the Glock 20, has experienced a meteoric rise in popularity within law enforcement circles with many police forces adopting it throughout North America and the world. The 10mm Auto has so far been less successful but I predict that its fantastic ballistic characteristics will make it a powerful contender in the future. Competition in the combat pistol market today is fierce. Good quality pistols in the four calibers mentioned are produced by Colt, Beretta, Ruger, Glock, Sig Sauer, Smith & Wesson, Para-Ordanance, CZ, EAA, Taurus, and a number of others. My personal preference is for the doubleaction 9mm pistol which with its adoption by NATO, its good stopping power and the staggering high-capacity magazines it allows will keep it the most popular combat pistol for may years to come.

Handguns are already banned in many parts of the world and restrictions on the type and magazine capacity of handguns exist in many countries. Wherever handguns are still unrestricted governmental pressure is being exerted to limit or deny law-abiding White civilians ownership of these weapons (while at the same time ensuring that non-White criminals have every opportunity to obtain them on the black market).



Glock 20 semi-automatic pistol (.40 S&W); Standard issue for many police forces throughout the world



Beretta M9 semi-automatic pistol (9mm); Standard US Army sidearm



Ruger GP-161 .357 magnum double-action revolver

Notes

- If a revolver is chosen it should be chambered for .357 Magnum or .38 Special
- Semi-automatic pistols should be chambered for 9mm, .45 ACP, .40 S&W, or 10mm Auto.
 - Chose pistols which accept high capacity magazines if possible.

.22 Rimfire Weapons

The .22 long rifle (.22 LR) is the most widely used firearm cartridge in the world. The very low cost of ammunition is the major strength of .22 LR rifles and handguns. The low noise and lack of recoil of this class of weapons has also added to their popularity.

The .22 LR is, however, a low powered cartridge which propels a small (usually under 45grain) bullet. The effective lethal range against human targets would be a maximum of 50 yards for rifles and less than half that for handguns. I will hasten to add that the lack of penetrating power of these weapons makes a hit to a vital area, such as the heart or brain, necessary. The .22 LR cannot be relied upon to penetrate a target's skull or even thick clothing except at close range.

The only use the White resistance fighter will have for .22 LR weapons is as silenced tools of assassination and sabotage. The .22 LR cartridge is ideally suited for use in a silenced, assassination weapon due to these factors:

- It is subsonic when fired from most weapons. When fired from a very tight, long barreled weapon it will be just barely supersonic and will produce a brief sonic crack.
 - Its muzzle blast is minimal and easily muffled with a well constructed silencer.
- The small size of the bullet itself offers us a secondary benefit: If a jacketless hollow-point bullet is used, forensic firearms investigators will have a nearly impossible task in trying to match the bullet to the firearm which fired it with any certainty. (Note: this will not prevent paid "expert" witnesses from claiming otherwise.)
- Subsonic loadings of this cartridge, should they be necessary, are widely available. Subsonics are used for pest and vermin control in urban areas where noise would disturb and alarm neighbors. (Coincidentally this is exactly how we plan to use them as well!)

Silenced .22 LR Rifles

The .22 LR rifle can be silenced quite effectively with a very simple silencer. This type of weapon is ideal for use as an assassination weapon to be fired from concealment at close to medium range. A good scope of between 3x and 6x power, well zeroed in, is essential for effective work with this type of weapon because precision will be necessary to ensure a kill. Aim for the target's head if at all possible, remembering that the eye sockets are the most vulnerable part. The low power of the .22LR makes this the only really reliable target for assassination with this type of weapon at anything beyond very close range. Hollow point bullets or modified ammo should be used to increase lethality.

Semi-automatic rifles will make a superior assassination weapon because quick follow-up shots almost certainly will be necessary to ensure target destruction. However any reliable .22 LR rifle can be used if a semi-auto cannot be obtained. I will recommend the Ruger 10-22, the Marlin 90 series and the Remington 597 series semi-auto rifles to name but a few of the good quality rifles you should consider. Be sure that the rifle has a 3/8th" dovetail receiver scope mount or can be fitted with a scope mount. A weapon which uses detachable box magazines should be selected over tube magazine or single shot weapons. The stock of a weapon of this type should be camouflage or flat, non-reflective black synthetic.

Build the silencer and install it on the weapon as described later. The rifle should then be test fired to determine the following:

- Does the silencer effectively muffle the muzzle blast?

- Does the rifle produce a sonic crack? (this is unlikely but can be remedied with the use of subsonic ammo or a larger silencer)
- Is the weapon's action able to function with the silencer in place? (this applies only to semi-autos and it is very unlikely that the presence of a silencer will hinder the cycling of the action)
- Is the weapon's accuracy drastically affected by the addition of the silencer? (some loss of accuracy is normal but drastic inaccuracy will likely be due to misalignment of the silencer and will have to be corrected)

Once the silencer installation is finalized, zero the scope in with the silencer attached. Using a benchrest or a bipod you should be able to shoot a 1-4" grouping at fifty yards. This will depend on a number of factors including your own marksmanship, how accurate the weapon is and how well aligned the silencer is with the barrel. Be sure that the weapon can penetrate a good sized phone book or a piece of ¼" plywood at fifty yards, this will be sufficient for headshot penetration at this range.



Ruger 10-22, a reliable and affordable .22lr rifle



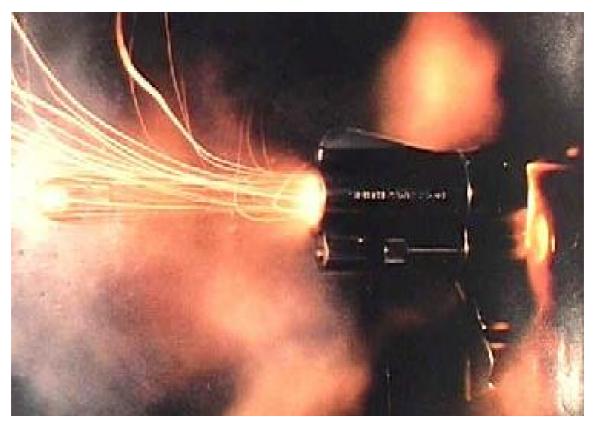
A professionally silenced 10-22

Notes:

- Choose semi-automatic rifles with detachable magazines over other action types
- Be sure that a scope of between 3x and 6x power can be mounted on the weapon
- Camouflage or flat-black synthetic stocks are preferred to wood for this weapon system
- Be sure the weapon functions accurately and reliably with silencer installed before using it in the field
 - Use hollow-point or other modified ammunition

Silenced .22LR Pistols

Close range assassination work can be done with a semi-automatic pistol fitted with a silencer. The basic pistol should be a .22LR (.22 short will also be serviceable for this type of work) semi-automatic pistol with a fixed barrel. A good example of the type of weapon required is the Ruger MK I to MK IV series pistols. In fact these very pistols have seen a lot of use by government spooks, underworld hitmen and various other homicidal types the world over for many years. Don't try to use a revolver, it cannot be effectively silenced because the cylinder/frame junction is generally not tight enough to contain the propellant gasses.



Discharging revolver - notice the hot gasses escaping at the cylinder/frame junction

The effective killing range of this type of weapon is a maximum of 25 yards. To be really effective shots should be fired from between 3-12 feet. Fire at least three shots into a vital area such as the heart or head. Be sure not to be at point blank or contact range as you will be splattered with your victim's blood. Use hollow-point or other modified bullets to increase lethality.

Choose a deep gun-blue or flat-black weapon with dark, non-reflective grips. Most .22lr pistols use 10 round detachable magazines, be sure to have at least two extras... you may have to shoot your way out of a sticky situation.

Build and install the pistol silencer described in the <u>Improvised Silencers</u> section. The pistol should then be test fired as described for the silenced rifle.

Once silencer installation is complete test the weapon's accuracy and penetrating power at 25 yards. If you are able to shoot a 2-5" grouping at this range that will be good enough, this weapon is really meant for close-up work. It should be able to punch through a thick telephone book or ¼" plywood at this range.



Ruger MK-2 semi-automatic pistol



A professionally silenced MK-2

Notes:

- Only semi-automatic pistols with fixed barrels should be considered
- Choose a pistol which is gun-blued or flat black with dark grips
- Obtain extra magazines if possible
- Use hollow-point or modified ammo

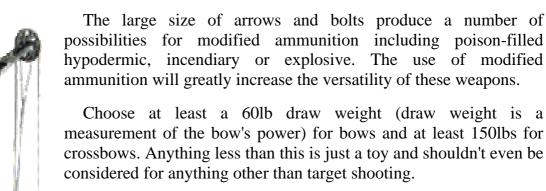
Non-Firearm Systems

Bows and Crossbows

The bow is among the oldest weapons in the world and even the latest, high-tech bows use the same basic principles of the earliest bows. The idea is to silently deliver lethal force at a distance by using elastic energy to propel an arrow at the target. Modern bows are capable of reasonable accuracy and power but require a fair amount of practice to become proficient. Modern crossbows on the other hand, require less training, (they are aimed and fired much like a rifle) are more powerful and are more accurate than bows.

Bows and crossbows can only serve one purpose to the White revolutionary and that is assassination. These weapons are capable of operation so quiet it would make a professional, machine shop silencer envious. The killing range of these weapons is quite limited and accuracy is a problem. 50 yards is the absolute maximum effective range but I would suggest less than half that for practical purposes. Hunting tipped arrow or bolts must be used for assassination work, target tips will not produce sufficient penetration. A clean shot to the heart will be necessary to ensure fatality, even a razor tipped arrow can't be counted on to make penetration with a headshot. Firing a bow or crossbow at a target wearing heavy clothing or who is behind vehicle or building window glass will greatly reduce your chances of success.

A great deal of planing must be used to make the use of bow or crossbow for selective assassination a success. Reloading time is rather slow (faster for bows than crossbows) so a follow up shot probably won't be a possibility... you've got to make your shot count. You will have to make your shot from fairly close range, somewhat like a Silenced .22 LR Rifle.



70lb Draw weight compound bow



165lb draw weight crossbow with scope and camouflage stock

Notes:

- Choose a bow with at least a 60lb draw weight
- Choose a crossbow with at least a 150lb draw weight
- Select weapons with flat black or camouflage stocks and limbs
- Hunting tips must be used for selective assassination
- Optical sights will increase crossbow accuracy
- Modified ammunition will increase the versatility of these weapons

Air Guns + Slingshots

Pellet guns, BB guns and slingshot are all useful for certain acts of vandalism and sabotage. These types of weapons are widely available and are unlikely to be banned by even the most repressive governments.



Weapons of this type can be used to break windows and damage property at a distance with little noise.

Air rifles can be modified to fire poisoned darts or pellets. Only powerful toxins, such as ricin, should be considered for this application. See the <u>poisons</u> section for instructions on producing appropriate toxins.

Knives + Other Close Combat Weapons

A heavy bladed knife with at least a 5" blade is an absolutely essential and universally available tool. You may choose either a single or double-edged blade, according to your preference but be sure its sharp and tough.

When using a knife for sentry removal or <u>selective assassination</u>, approach the target from behind, grab his face and tilt it back. Simultaneously stab the knife into the side of his neck and push in forward. This will sever the arteries and wind pipe. Don't attempt to slash across the throat as this is a more awkward motion and is much less effective. A stabbing wound to a kidney is also very effective but may leave the target able to make

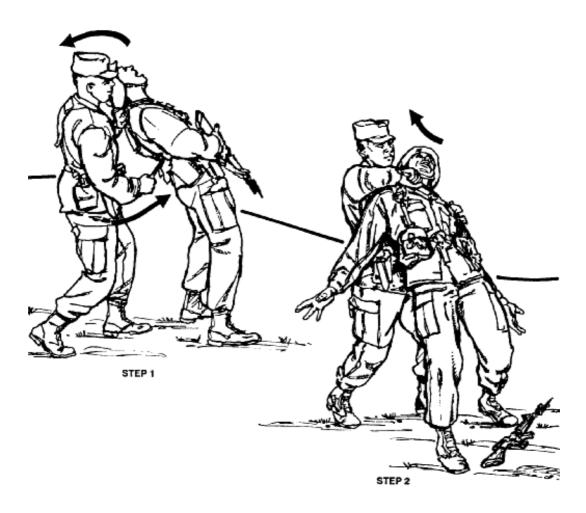


quite a scene before dying. Approach the target from behind, grab the shoulder with one hand and stab the knife into the kidney area as deep as it will go with the other hand. Turn the knife sharply it and rip it out. This will leave a gapping wound which will be nearly impossible to close.

The US Army FM 21-150 offers several sentry removal techniques with the combat knife. These two are the most suitable for selective assassination:

Kidney Stab, Throat Cut:

This technique relies on a stab to the kidney to induce immediate shock. The kidney is relatively accessible and by inducing shock with such a stab, the operative has the time to cut the target's throat. The operative completes his stalk and stabs the kidney by pulling the target's balance backward and downward and inserts the knife upward against his weight. The target will possibly gasp at this point, but shock immediately follows. By using the target's body weight that is falling downward and turning, the operative executes a cut across the front of the throat. This completely severs the trachea and carotid arteries.



Nose Pinch, Mouth Grab, Throat Cut:

In this technique, completely pinch off the target's mouth and nose to prevent any outcry. Then cut his throat or stab his subclavian artery. The danger with this technique is that the target can resist until he is killed, although he cannot make a sound.

If it is necessary to strike the target from the front or if you are in a self-defense situation, keep the knife out of view until you plunge it into the enemy. Use a backhand grip and hide the knife behind your wrist. At the last instant flip it to a front grip and thrust it upwards dead-center into the solar plexus. Pull it down and turn it as you rip it out. The target's guts will spill out along with copious amounts of blood. He will make very little sound if any but you will be soaked with blood.



An icepick or a similar thrust-only type weapon can be used to produce wounds which will bleed much less than those inflicted by a knife. This is a definite advantage for selective assassination where the operative must make a getaway without being spotted with bloodsoaked clothes. The wounds are, however, not nearly as lethal as those produced by a knife. The kidney attack can be made with an icepick but a direct thrust into the heart or brain will be more likely to produce a fatal wound.

A hammer can be used to produce lethal injuries silently and almost completely bloodlessly. A very hard blow to the head with a standard claw-hammer its almost certain to kill, a follow up blow or two will certainly do the trick. Again an attack from behind will be most effective, strike as hard as you can.

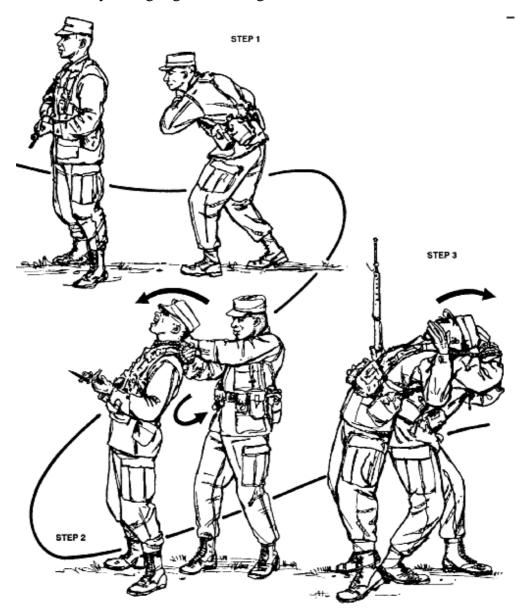
A thin length of strong rope, cod, or even a belt can be used to make a garrote which can be used from behind for silent and bloodless killing. Loops or handles are often added to the garrote in order to increase the effectiveness of the attack. Surprise is absolutely imperative when using one of these weapons.

The following technique is also form the US Army FM 21-150:

The Garrote:

In this technique, use a length of wire, cord, rope, or webbed belt to destroy a target. The operative carefully stalks the target from behind with the garrote ready The garrote is looped over the target's head across the throat and the operative forcefully pulls the target backward as he turns his own body to place his hips in low against the hips of the target. The target's balance is already taken at this point, and the garrote becomes crossed around

the target's throat when the turn is made. The target is thrown over the operative's shoulder and killed by strangling or breaking his neck.



Silencers

There exists a great deal of misinformation surrounding the topic of firearm silencers or low signature systems as they are more correctly termed by those in military circles. The main source of misinformation seems to be the depiction of silenced weapons as being whisper-quiet by Hollywood. Those who know me can attest to the fact that I have built dozens of silencers in many different designs over the years and I have found that it just isn't possible to produce a weapon which makes that slick "ffffhhhhhppp!" sound like in a James Bond movie. It is possible, however, to significantly reduce the level of noise which a discharging firearm makes and, more importantly, change the sound enough that it won't be recognized as a firearm.

In order to effectively silence a firearm it is necessary to understand the four sources of noise which occur when a firearm is discharged:

Muzzle Blast - This is the result of hot propellant gasses exiting the muzzle and contacting the cooler air. This sound can be very loud.

Sonic Crack – If a bullet has a muzzle velocity which is higher than the speed of sound (approx 1,000fps) it will produce a sonic boom as it travels through the air. This sonic crack can make up a significant part of firearm noise. In order for a silencer to be really effective, subsonic ammunition must be made or obtained for the weapon to be silenced. Many weapons, including most blowback-action pistols and SMGs and most gasoperated rifles, will function properly when using subsonic ammo. Some weapons, including many recoil-operated pistols, have actions which will not fully cycle when firing the lower-powered, subsonic ammo. A number of cartridges are subsonic in their standard form, including the .22LR .22short and the .45 ACP. Weapons using these cartridges can be much more easily and more reliably silenced.

Action Cycling – This is the sound of the physical movement of the firearm's action as it is discharged, the spent shell casing ejected and a fresh shell loaded. Semi and fully automatic weapons have heavy bolts which slam backward and spring forward upon discharge, making noise in the process. Fully-automatic, blowback weapons can produce quite a bit of noise just from the rapid cycling of their actions. Nothing can be done to reduce the noise of a cycling action.

Target Impact – The bullet striking its target will produce some impact sound. If it strikes something hard, such as metal or stone, quite a bit of noise will result. If, on the other hand, it strikes a soft target (i.e. human flesh) the resultant noise will be minimal. Beyond improving your marksmanship, there is little that can be done to prevent target impact noise.

A silencer is, of course, only capable of diminishing the sound of muzzle blast. A silencer works very much like a car's muffler, it contains and dissipates the hot gasses from the exploding propellant preventing them from escaping into the cooler air and producing a loud muzzle blast. I have included some simple plans for building a firearm silencer which is "field tested" and which I know will work. This silencer can be easily and cheaply constructed and will perform nearly as well as an expensive silencer built in a machine shop.

The first step in building a silencer is to determine how to affix it to the weapon. The juncture between the muzzle and the silencer must be airtight, strong and fairly rigid. The best way to achieve this type of connection is to use a tap and die set to cut external threading on the end of the barrel to match internal threading on the silencer. This can be a difficult job because barrel steel is quite hard. It may be necessary to anneal the end of the barrel. This is done by using an oxy-acetylene torch to briefly heat up the end of the barrel, and then let it cool slowly. Be sure not to heat the steel to red-hot as it will retain some of its original hardness when it cools. A threaded junction is air tight, rigid, and able to withstand the pressures of even the most powerful cartridges. This method has the advantage of quick and easy installation or removal of the silencer. Many military style

weapons come standard with threaded barrels in order to accept flash suppressors, compensators, bayonet lugs or rifle grenade launchers.

A second method is the split-tube and hose clamp approach. Without access to machine tools, this may be the method chosen by most operatives. The barrel extension tube, which makes up the core of the silencer, is slotted to fit past the sights and over the barrel. The slot is then tightened up behind the sights with a hose clamp of the appropriate size. With this method it may be necessary to use electrical tape on the barrel in order to ensure an airtight seal. This method is recommended for .22 caliber weapons only, anything more powerful would blow the silencer right off the gun.

Fastening a silencer to a firearm in this way makes it very difficult to keep the silencer aligned with the barrel. A very straight wooden dowel or a drill rod, of the proper diameter, can be placed in the barrel and through the silencer in order to make alignment simpler. Of course any jarring or rough treatment of the weapon may cause the alignment to be thrown out again. Installation and removal of the silencer are also made difficult with this method.

Improvised Silencer

The following instructions can be used to construct a simple, cheap and effective silencer for a .22 LR rifle or pistol. This design can be adopted to function for other firearm calibers, however, a threaded barrel/silencer junction is recommended for cartridges more powerful than .22 LR.

Materials Required:

Drill Rod 7/32" (for .22 weapons)

At least 12" of 1/4" brake line or other strong metal tubing

At least 12" of 1 1/2" PVC tubing and two end caps

Fiberglass resin and hardener

Several feet of fiberglass mat

One roll of masking tape

1/8" and 3/16" drill bits

Rubber bands

Razor blades

White lithium grease

Eye dropper

6 wood screws

Steel wool

80x sand paper

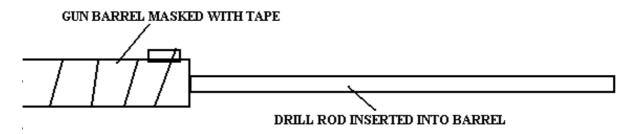
Construction:

Cut a 10" section from the brake line and drill a series of 1/8" holes along its length beginning 1 1/2" from the end.

Next, enlarge the holes using a 3/16" drill bit.

Using masking tape, mask off the end of the gun barrel and the first few inches. Be sure to keep the tape free of wrinkles to ensure a tight fit.

Place the drill rod down the barrel to keep the brake line aligned. Perfect alignment is extremely important. Sometimes the drill rod will be a little too large to fit into the barrel. In this case, chuck the drill rod into a drill and turn it down with a file or sandpaper, a little at a time, until it fits perfectly.

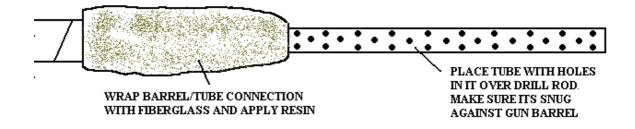


Wrap glass mat around the end of the gun barrel and brake line three times. Secure it in place with rubber bands every half inch. The glass mat should be wrapped about two inches behind the sight and up to the first holes on the brake line.

Now mix the resin. A few spoonfuls will do. Mix it two or three times hotter than the package directions.

Brace the weapon in an upright position and dab the resin onto the glass mat with a brush. Keep applying resin until the mat is no longer white but becomes transparent from absorption of the resin.

As soon as the resin starts to harden and becomes tacky, detach the brake line and fiberglass from the barrel. Do this quickly before the resin hardens completely.



First use a razor blade to cut a notch behind the front sight so that the whole piece can be removed. Then push on the fiberglass to slide it off. Do not pull it off from the other end as the alignment will be thrown off.

After removal from the gun barrel, peel out the tape and allow it to finish hardening.

Use a sander, grinder or 80x sandpaper to smooth out the hardened rough surface.

Next, grind the sides down about halfway, but do not grind past the point where the front sight makes contact. Cut it down until the barrel fits snuggly and easily.

Stand the glassed brake line upright in a vise.

Mix a small amount of resin and use an eyedropper to fill in any interior holes or air bubbles until the solid fiberglass is level with the steel tube end. This will give the junction between the brake line and fiberglass coupling added strength. Acetone can be used to clean the eyedropper.

Cut the PVC tubing to the desired length. A longer silencer will be necessary for more powerful cartridges.

Drill a large hole in the center of one end cap, making it large enough to fit on the fiberglass end to the point where the front sight makes contact.

Drill a series of 3/16" holes in the bottom of the end cap.

Wrap masking tape around the end cap to cover the holes.

Stand the cap with the inside tube inserted into a vise. Get the cap level and straight with the brake line.

Cut two dozen or so 1/2" squares of fiberglass mat and fill the end cap with it up past the level of the row of holes.

Mix resin and pour it over the cut matting to a point about 1/4" above the holes and allow it to dry before removing the cap from the vise. Don't worry about any resin that leaks out around the base hole. Resin fills the small holes, making the tube strong enough to withstand the muzzle blast.

When the inside is hardened, turn the assembly over and fiberglass around the backside of the end cap for added strength. Avoid getting resin in the opening where the barrel fits.

Place the finished cap and inner tube on one end of the PVC tubing that has already been cut to size. Center the brake line as you look in the open end of the PVC.

Now drill a 1/8" hole in three places around the tube about 1/4" from the lip of the cap.

Take the brake line out and enlarge the holes in the cap to 3/16"

Replace the brake line and tighten it down with three small wood screws.

Trim the brake line down until it extends about 1/2" beyond the PVC tube.

Sharpen one end of the drill rod to a point and use it as a center-punch. Stand the assembly up with the solid end cap down. Drop the drill rod down the brake line to get a true center mark.

Using a drill bit slightly larger than the outside diameter of the brake line, remove the end cap and drill the hole.

Cut a circle of 1/4" thick rubber which fits snuggly into the end cap. This rubber swipe will help prevent any hot gasses from escaping even after many shot have been fired through it because rubber tends to stretch and rip rather that have material blasted out of it by a gunshot. The hole will reseal itself after firing keeping the system nice and tight. Replace this swipe whenever the bullet hole becomes too large to contain gasses. This step will make a big difference, particularly in small silencers.

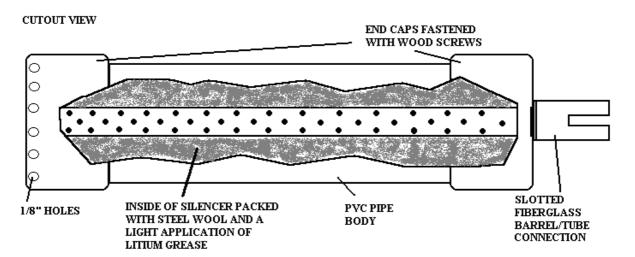
Replace the cap on the open end of the PVC tube and drill three 1/8" holes around the cap as before for wood screws.

The brake line should push into and slightly stretch the rubber swipe. The swipe should not stick out past the face of the cap. Grind off the end of the brake line to get a perfect fit.

Unfold sections of steel wool and roll into long strands.

Apply white lithium grease to each strand before feeding them into the silencer tube in a circular motion. The white grease helps to cool the hot gasses of the muzzle blast, thereby reducing the loudness of the gunshot. Pack the steel wool tight with a stick, continue this until the silencer tube is completely full.

Replace the end cap with the three screws.



Paint the finished silencer flat black and attach it to your weapon. Proper alignment can be ensured by using a hose clamp around the barrel extension behind the front sight. Test as described in the Silenced .22 LR Weapons.

This silencer can be counted on to function for over 300 rounds before it will be necessary to open it up and repack it with new steel wool and lithium grease.

Weapons Caching



With gun-control hysteria running rampant throughout our White nations, it is now essential that the White Nationalist have a good understanding of how to successfully cache weapons for future use. The operative should consider caching all weapons which are not going to be put into immediate use. Weapons which have been used in an attack and pose a risk due to forensic evidence should also be either altered to change their characteristics (see <u>Forensic Firearms Evidence</u>) or cached.

Sections of 4", 6" or 8" SDR (Sanitary, Drain, Refuse) pipe will make excellent cache tubes. This type of tubing isn't cheap but is often left lying around at construction sites, ready to be "liberated". Be sure to use tubing with heavy wall thickness, at least 3/8". Cut the tubing to about 60" in length, this will allow enough room for all but the longest rifles. Remember that a cache tube may have to be reused for different weapons so don't size the tube to fit a specific weapon. Slip-on type end caps are the best choice for sealing up the tube, avoid threaded caps or plugs as they are more expensive and tend to get fouled up with dirt, making them difficult to reopen after recovery of the cache.

Using epoxy or PVC cement, permanently seal up one end with an end cap and test to be sure the seal is airtight. This is best done by placing the tube into water, sealed end down, and

looking for leaks.

The next step is to prepare the weapons for caching. It is important to give the weapons a thorough coating with some type of thick, rust-preventative grease. There is some divergence of opinion on just what type to use but I would suggest that just about any type of thick grease will do the job if the cache is for a short to medium duration (1-7 years). Don't be tempted to apply the grease too thickly, a thin coating will do just fine



and will be MUCH easier to remove later (anyone who's experienced trying to remove grease from a cached weapon knows what I mean!). Care must be taken with telescopic or laser sights not to get grease into the optics or electronics. Keep the lens caps on and wrap the scope or laser with plastic bags and tape before applying grease to the weapon. Don't remove the scope from the weapon because it may be impossible for you to re-zero it back in later. Batteries should be removed from lasers before caching. Avoid disassembling weapons if possible as some small parts may become lost

in the process. Be sure that ammunition is not exposed to contact with grease or oil as they can penetrate into the cartridge and make the ammunition useless. Seal ammunition into airtight containers or "ziplock" bags to reduce deterioration.

Silica gel can be added to the tube, along with the weapons, just before sealing as a further rust-preventative measure. This step is not really necessary unless a very long-term cache is considered.

The tube is now sealed up with the other end cap. This can be done by either applying grease to the inside walls of the end cap and sliding it into place or by permanently cementing the end cap on. The cap should be cemented if a very long term (10-30 years) cache is being considered or a very hostile environment, such as underwater or in a swamp, is chosen for the cache.

You are now ready to chose a location to place the cache. A soil auger will be

necessary if you intend to bury your cache tube underground. A manual soil auger is the best way to dig a vertical hole for the cache tube. Soil augers are used to dig fence post holes and are sold in 6"- 12" models. Soil augers are connected to a turning handle on top with a length of 3/4" pipe. The device will dig down to a depth of about four feet. At this depth, you will have to add a three foot extension to the pipe in order to dig down deep enough to bury a 60" tube one foot underground. Don't even



consider burying your cache horizontally, it presents too large a target for metal detectors. When buried underground, a cache tube will be nearly impossible to remove as the soil settles in around it. For this reason be sure that the permanently sealed end of the tube is place down into the hole. In this way you can access, remove or replace weapons in the tube without removing it from the ground.



Be sure to place your cache at quite a distance from your residence or retreat. At 100 feet distance any searchers must cover 31,400 square feet in order to conduct a thorough search, not a difficult task with modern metal detectors. At 200 feet the area become 125,600 square feet, still not an insurmountable task with the latest equipment and a dedicated team. Move out to 1000 feet and the area becomes 3.14 million square feet... almost 71 acres!! If the operative was to scatter old nuts, bolts, nails and other pieces of scrap metal throughout this area,

even a very dedicated team with unlimited time and monetary resources would soon tire of false readings and move on to an easier case. A great place to hide a cache is right in the middle of a little-used rural dirt road. This way you can get to your cache quickly and easily while still having it located a great distance from your residence. In this case be sure to watch for any upcoming roadwork in the area as some construction worker may turn up your cache.

Some other good locations for your cache include; in grain bins and silos, piles of coal, gravel, firewood or boards, under pig pens and anywhere else that presents great difficulty to searchers.

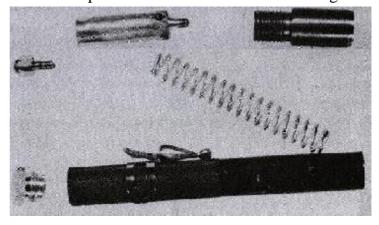
Improvised Firearms

To be armed is your duty as a member of the White race and as a White activist. You should make every effort to obtain weapons, for your own defense, by legal means. This is an essential element in building the strength of our movement. We must be armed and remain armed even if laws are passed to outlaw civilian ownership of firearms. Even if you have no intention of taking up armed struggle during these early days of resistance it is absolutely imperative that you be equipped to fight when the time comes.

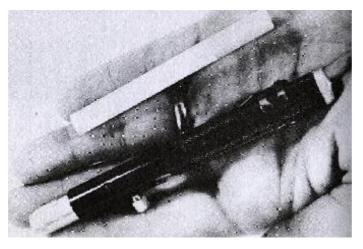
Weapons to be used in our struggle may have to be stolen, purchased from black market sources or improvised. The plans I have included will produce firearms which are much less reliable, powerful and accurate than commercially produced weapons. These improvised firearms serve a purpose not unlike the "Liberator" pistol (a .45 ACP single shot pistol made from cheap metal stampings which was air-dropped to partisans and resistance fighters by the US military during WWII) or the CIA "Deergun". (a 9mm single shot pistol made from cast and machined parts which saw limited use during the

Vietnam war.) The idea is to arm those who would otherwise be unarmed and to provide them with the means to obtain weapons from enemy troops through assassination or ambush.

Another purpose of these improvised weapons is to provide a source of weapons, to be used for up-close assassination, which have no paper trail, serial numbers or



markings of any type. The simplicity of these firearms means that they can be, like the weapons pictured above, disguised as or concealed within umbrellas, canes, pens, tire-pressure gauges etc., creating very effective weapons of surprise and assassination. These weapons can be produced clandestinely by just about anyone – sure makes gun-control look like a big joke!... but let's not get too worked up about gun-control; anyone who is foolish enough to give up their guns shouldn't be armed anyway.



"Slap" 12-Gauge Zipgun

This is the simplest zipgun design, the are parts cheap, readily available and can be assembled in less than an hour. It can be fired and reloaded several times a minute and has a moderate kick. Loaded, it weighs about 2-1/4 pounds. Basic cost, under \$5.00. It is made of common, galvanized plumbing pipe, obtained from a hardware store, plumbing supply store or even junkyard.

Materials Required:

1" Pipe 6" in length, threaded on one end.

1" Pipe-cap

3/4" Pipe 10" in length.

1" Dowel

No. 16 nail

1-1/8" Circle of thin cardboard

First try to insert the 3/4" pipe into the 1" pipe. It must slide through every time with no sticking or slowing. Make a reamer from 7" or 8" of your 1" dowel. Cut a piece 5 x 3-1/16" from a sheet of emery cloth, wrap it around the dowel and glue it in place.

When you buy your dowel take the 1" pipe and make sure the dowel goes in with some space to spare. If the dowel fits exactly, it's too big and you'll have to choose the next size down.

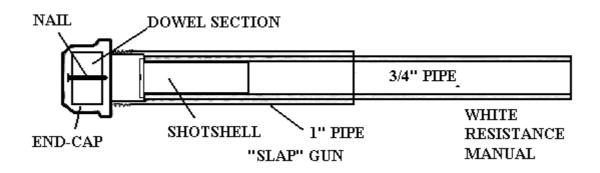
Use the reamer to enlarge the inside of the 1" pipe. Move it in and out of the 1" pipe along the sides a few times to get rid of any burrs or uneven areas. Try the 3/4" pipe again and if it won't fall through without slowing, do it again until it will. Go over the outside of the 3/4" pipe, a few times with the emery cloth.

Next make the hammer. First cut a 1/2" piece of the dowel. Choose a drill the same width as the No. 16 nail and drill a hole through the exact center of the dowel piece. With a hacksaw, cut the nail 5/8 of an inch past the head. Then cut a 1-1/8" wide circle of thin cardboard and with the nail point, punch a hole in its middle. Push the nail section through the dowel hole and push the cardboard over its end with the rough side on top. Next push the hammer unit into the cap, cardboard side up. The cardboard is to keep the dowel and hammer in the cap. In order to disassemble, just pick the hammer unit out by the nail.

Screw the cap on, put a 12 gauge shell in the 3/4" pipe, put the 3/4" pipe in the 1" pipe and it's ready to fire. Hold the 1" end-cap in the right hand and with the left hand slam the 3/4" pipe backwards to fire. Pull the 3/4" pipe out to reload.

This weapon can be improved by using a machine screw, nut and washer as the hammer assembly. Sharpen the machine screw to a shallow point and push it through the end cap then fasten it on the inside of the cap with the nut and washer. Cut a thumb groove it the rim of the 3/4" pipe to allow spent shells to be pulled out with the thumbnail.

Don't be tempted to fire 3" or 3-1/2" magnum loads in this weapon. For safety's sake stick with the 2-3/4" shells, the extra power of the magnums is just wasted in a weapon with a short barrel and no chamber anyway. This weapon is reliable only at very close range.



Simple Improvised 9mm (or .38 caliber) Pipe Pistol

A very simple 9 mm pistol can be made from 1/4" steel gas or water pipe and fittings. These plans can be modified to allow the use of just about any handgun or shotgun cartridge. I would discourage the use of very powerful loading such as the .44 magnum, .357 magnum or 12 gauge 3 1/2" magnum shells in these weapons. These more powerful cartridges will be dealt with in the section concerning Improvised Rifles.

Materials Required:

1/4" nominal size steel pipe 4 to 6 inches long with threaded ends.

1/4" Solid pipe plug

Two (2) steel pipe couplings

Metal strap - roughly 1/8" x 1/4" x 5"

Two (2) elastic bands

Flat head nail - 6D or 8D (approx. 1/16" diameter)

Two (2) wood screws #8

Wood 8" x 5" x 1"

Drill

1/4" wood or metal rod, (approx. 8" long)

Procedure:

- 1. Carefully inspect pipe and fittings.
- a. Make sure that there are NO cracks or other flaws in the pipe or fittings.
- b. Check inside diameter of pipe using a 9 mm cartridge as a gauge. The bullet should closely fit into the pipe without forcing but the cartridge case SHOULD NOT fit into pipe.
- c. Outside diameter of pipe MUST NOT BE less than 1 1/2 times bullet diameter (.536 inches; 1.37 cm)
- 2. Drill a 9/16" (1.43 cm) diameter hole 3/8" (approx. 1 cm) into one coupling to remove the thread. Drilled section should fit tightly over smooth section of pipe.
- 3. For a 9mm weapon, drill a 25/64" (1 cm) diameter hole 3/4" (1.9 cm) into pipe. Use cartridge as a gauge; when a cartridge is inserted into the pipe, the base of the case should be even with the end of the pipe. The barrel is now chambered for 9mmThread coupling tightly onto pipe, drilled end first.
- 4. For a .38 caliber weapon, drill a 25/64" (1 cm) diameter hole 1-1/8" (2.86 cm) into pipe. Use cartridge as a gauge; when a cartridge is inserted into the pipe, the shoulder of the case should butt against the end of the pipe. The barrel is now chambered for .38. Thread coupling tightly onto pipe, drilled end first.
 - 5. Drill a hole in the center of the pipe plug just large enough for the nail to fit through.

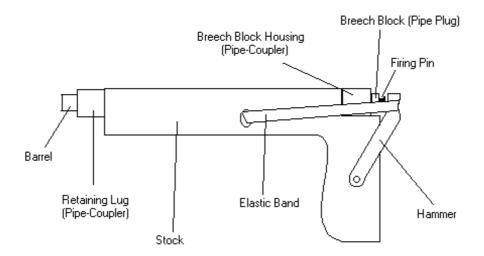
NOTE: Hole MUST be centered in plug.

- 6. Push nail through plug until head of nail is flush with square end. Cut nail off at other end 1/16" (.158 cm) away from plug. Round off end of nail with file.
- 7. Bend metal strap to "U" shape and drill holes for wood screws. File two small notches at top.
 - 8. Saw or otherwise shape 1" (2.54 cm) thick hard wood into stock.
- 9. Drill a 9/16" diameter (1.43 cm) hole through the stock. The center of the hole should be approximately 1/2" (1.27 cm) from the top.
- 10. Slide the pipe through this hole and attach front coupling. Screw drilled plug into rear coupling.

NOTE: If 9/16" drill is not available cut a "V" groove in the top of the stock and tape pipe securely in place.

- 11. Position metal strap on stock so that top will hit the head of the nail. Attach to stock with wood screw on each side.
 - 12. String elastic bands from front coupling to notch on each side of the strap.

Simple Pipe Pistol Design



WHITE RESISTANCE MANUAL

Test Fire This Weapon Before Hand Firing;

- 1. Locate a barrier such as a stone wall or large tree which you can stand behind in case the pistol ruptures when fired.
- 2. Mount pistol solidly to a table or other rigid support at least ten feet in front of the barrier.
 - 3. Attach a cord to the firing strap on the pistol.
 - 4. Holding the other end of the cord, go behind the barrier.
 - 5. Pull the cord so that the firing strap is held back.
- 6. Release the cord to fire the pistol. (If pistol does not fire, shorten the elastic bands or increase their number.)

Important: Fire at least five rounds from behind the barrier and then re-inspect the pistol before you attempt to hand fire it.

Pistol Operation:

- 1. To Load:
- a. Remove plug from rear coupling.
- b. Place cartridge into pipe.
- c. Replace plug making sure it is seated against rear of cartridge case.
- 2. To Fire:
- a. Pull strap back and hold with thumb until ready.
- b. Release strap to fire.

- 3. To Remove Shell Case:
- a. Remove plug from rear coupling.
- b. Insert 1/4" diameter steel or wooden rod into front of pistol and push shell case out.

22 LR or .22 short Improvised Pipe Pistol

Using the above plans a .22 Caliber pistol can be made from 1/8" nominal diameter extra heavy, steel gas or water pipe and fittings. Lethal range is approximately 33 yards (30 meters). This is also a rimmed cartridge so a chamber isn't necessary but a tighter and more powerful weapon will be produced if a chamber is reamed. To produce a chamber, drill a 15/64" (1/2 cm) diameter hole 9/16" (1-1/2 cm) deep in pipe for a .22 LR. (If a .22 short cartridge is used, drill hole 3/8" (1 cm) deep). When a cartridge is inserted into the pipe, the shoulder of the case should butt against the end of the pipe. The firing pin hole must be drilled off center because this is a rimfire weapon. Also the firing pin should be filed like a slot or flathead screwdriver with two flat surfaces opposite each other converging in a rounded point. This will provide more positive function. Spent cartridges will become jammed so a 1/8" wooden dowel will be required to force them out before reloading.

Materials Required:

Steel pipe, extra heavy, 1/8" (3 mm) nominal diameter and 6" (15 cm) long with threaded ends (nipple)

Solid pipe plug, 1/8" (3 mm) nominal diameter

2 steel pipe couplings, 1/8" (3 mm) nominal diameter

Metal strap, approximately 1/8" x 1/4" x 5" (3 mm x 6 mm x 125 mm or 12-1/2 cm)

Elastic bands

Flat head nail - 6D or 8D (approximately 1/16" (1-1/2 mm) diameter

2 wood screws, #8

Hard wood, 8" x 5" x 1" (20 cm x 12-1/2 cm x 2-1/2 cm)

Drill

Wood or metal rod, 1/8" (3 mm) diameter and 8" (20 cm) long

Saw or knife

Carbine (7.62 mm NATO)

A rifle caliber weapon can be made from water or gas pipe and fittings. Standard NATO 7.62mm (.308) cartridges are used for ammunition. Great caution must be used with this weapon and I must be honest and admit that I have not even attempted to make a weapon which fires high-powered rifle ammunition out of water or gas pipes and

fittings. I would recommend acquiring a 20" length of seamless (DOM) steel tubing to fabricate the barrel for this weapon. A steel supplier will have this type of tubing but be sure to ask for DOM (drawn over mandrel) seamless tubing. Be sure it's a good quality steel for this type of use. Ask for 4140 or 4130 steel. If you are questioned as to what the tubing is to be used for you should respond that you are replacing a part for a high-pressure boiler or hydraulic system. A standard pipe-die can be used to cut the threading on one end of the barrel. If you are unable to obtain seamless tubing then you should get a 20" length of water pipe, the ½" barrel pipe should fit inside this pipe and epoxy can be used to fasten it within the larger pipe. This will double the strength of the barrel. Make sure to leave enough of the threading on the ½" pipe exposed to allow it to be mated securely with the coupler.

Materials Required:

Wood approximately 2" x 4" x 30"

1/4" nominal size iron water or gas pipe 20" long threaded at one end.

3/8" to 1/4 reducer

3/8" x 1-1/2" threaded pipe

3/8" pipe coupling

Metal strap approximately 1/2" x 1/16" x 4".

Twine, heavy (100 yards approx.) and Shellac or duct tape or metal strapping and screws

3 wood screws and screwdriver

Flat head nail about 1" long

Hand drill

Saw or knife

File

Pipe wrench

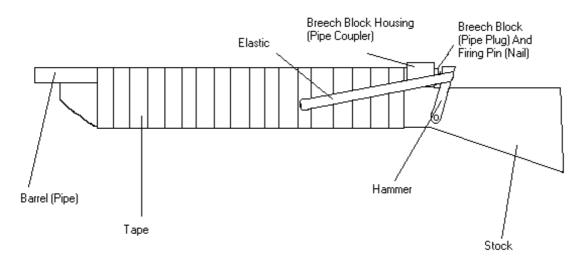
Elastic bands

Solid 3/8" pipe plug

Procedure:

- 1. Inspect pipe and fittings carefully.
- a. Be sure that there are NO cracks or flaws.
- b. Check inside diameter of pipe. A 7.62 mm projectile should fit into 3/8" pipe.
- 2. Cut stock from wood using saw or knife.

- 3. Cut a 1/4" deep "V" groove in top of the stock.
- 4. Fabricate rifle barrel from pipe.
- a. File or drill inside diameter of threaded end of 20" pipe for about 1/4" so neck of cartridge case will fit in.
 - b. Screw reducer onto threaded pipe using pipe wrench.
 - c. Screw short threaded pipe into reducer.
- d. Turn 3/8 pipe coupling onto threaded pipe using pipe wrench. All fittings should be as tight as possible. Do not split fittings.
- 5. Coat pipe and "V" groove of stock with shellac or lacquer. While still wet, place pipe in "V" groove and wrap pipe and stock together using two layers of twine. Coat twine with shellac or lacquer after each layer. Duct tape or metal strapping secured with wood screws can also be used to fasten the barrel to the stock.
 - 6. Drill a hole through center of pipe plug large enough for nail to pass through.
 - 7. File threaded end of plug flat.
 - 8. Push nail through plug and out of threaded end 1/32" (2 mm) past the plug.
 - 9. Screw plug into coupling.
- 10. Bend 4" metal strap into "L" shape and drill hole for wood screw. Notch metal strap on the long side 1/2" from bend.
- 11. Position metal strap on stock so that top will hit the head of the nail. Attach to stock with wood screw.
- 12. Place screw in each side of stock about 4" in front of metal strap. Pass elastic bands through notch in metal strap and attach to screw on each side of the stock.



WHITE RESISTANCE MANUAL

Simple Pipe-Rifle/Shotgun Design

Simple Improvised 12 gauge Shotgun

A 12-gauge shotgun can be made with the above plans from 3/4" water or gas pipe and fittings. It will not be necessary to bore a chamber in this weapon because the 12 gauge shell is a rimmed cartridge and the rim will shoulder up against the end of the pipe. The firing pin hole should be drilled dead center in the plug and the firing pin should be made from a larger nail, up to about 1/8". This weapon can be built as a pistol with a short barrel or with a long barrel (around 20" or so) and a full length stock. In the latter case the weapon can be fastened to the stock with metal strapping and screws or even with duct tape. Don't be tempted to experiment with any magnum loads in this weapon, just stick with standard 2 3/4" shells. You will need some sort of stick or dowel to force spent shells out of this weapon as they tend to become quite jammed in the chamber after firing.

Materials Required:

Wood 2" x 4" x 32"

3/4" nominal size water or gas pipe 20" to 30" long threaded on one end.

3/4" steel coupling

Solid 3/4" pipe plug

Metal strap (1/4" x 1/16" x 4")

Duct tape or metal strapping and screws

3 wood screws and screwdriver

Flat head nail 6D or 8D

Hand drill

Saw or knife

File

Elastic Bands

Note:

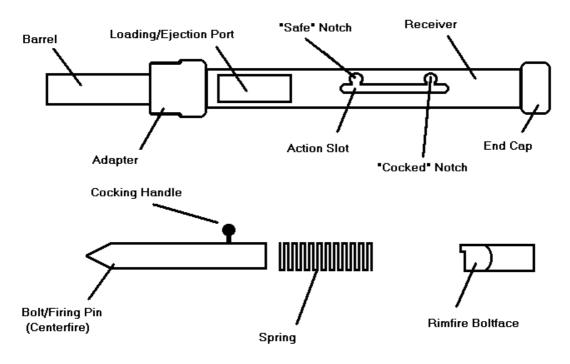
Some of you will recognize these simple, improvised firearm, designs from the FM 31-210 Improvised Munitions Handbook. I have added some ideas to make the instructions easier to follow and the final product safer. I have also provided some drawings which detail the finished product. The simplicity of this design was likely the key factor in its being included in the FM 31-210, however it has some serious drawbacks. It is very dangerous in that it is prone to accidental discharge upon dropping or other impact. It has no safety and the firing pin is held in place with only the forward pressure of the elastic upon the hammer. If the pipe plug is not tightened down far enough the backward movement of the fired cartridge could push and eject the firing pin at high speed into the shooter's eye. The potential for injury increases further with the

possibility of a ruptured primer. This occurs when the firing pin pierces the primer allowing the propellant gasses the vent out of the back of the cartridge; in the case of this firearm design a ruptured primer would force the firing pin out at very high speed into the face of the shooter. With caution these risks can be reduced. Remember these precautions;

- Always be sure the pipe plug is tightened until it contacts the back of the cartridge when loading, allowing no room for backward movement of the cartridge.
- Be sure that the elastic tension upon the hammer is not too excessive, just enough to reliably fire the weapon.
- Be sure that the firing pin is not sharpened or too long as this can cause rupture of the primer.
 - Don't carry or store these weapons loaded unless absolutely necessary.

I have experimented extensively with improvised firearms and have produced a number of functioning weapons including some magazine-fed semi and fully automatic models with rifled barrels. The plans for these are much too complex and the tools and skills required prevent me from including them in this work as they can in no way be considered "improvised" even though they are homemade. I have however, included plans for an improved version of the simple pipe gun which has a trigger-like mechanism, a simple safety and can be built with a bolt-action design, allowing faster and simpler reloading.

Improved Pipe Gun Design



WHITE RESISTANCE MANUAL

This design can be adapted to fire just about any cartridge the operative chooses, bearing in mind the requirement for stronger materials if very powerful loads are used.

Construction:

A barrel section can be made from a length of threaded pipe which has an internal diameter which is equal to the diameter of the bullet to be fired. The bullet section should fit snuggly into the barrel but the cartridge case should not. As always this pipe should be inspected for flaws and cracks. Cut this pipe to the desired length leaving one threaded end. The threaded end will be the chamber and the other end the muzzle.

The barrel must next be chambered for the cartridge to be used. Use a drill bit which has the same outside diameter as the cartridge case. Use this bit and drill into the chamber end of the barrel to a depth equal to the length of the cartridge case. Use a cartridge as a gauge; rimless cartridges should fit into the chamber right up to the base of the cartridge, rimmed cartridges should fit into the chamber until the rim shoulders up against the end of the pipe.

A pipe adapter is required which will adapt the barrel pipe to the receiver pipe. Pipe adapters are available which will couple just about any pipe size with a pipe one size larger or smaller.

The chambered barrel should be tightly screwed into the adapter.

Next a receiver pipe must be selected which will usually be one size larger than the barrel pipe and either 4" or 6" in length, depending on the length of the cartridge and threaded on each end. Check this pipe to be sure that a cartridge case can slide freely inside it. If it is too tight a file or length of wooden dowel with sandpaper glued to it can be used to ream it out slightly.

Cut the loading/ejection port in the receiver pipe. This port should have dimensions slightly larger than the cartridge to be used. Use a cartridge to check that it can be loaded and unloaded through this port.

Next the action slot should be cut. This slot should be cut in line with the loading/ejection port and should be made slightly longer than the total length of the cartridge. This slot guides the movement of the cocking handle and should, therefore, be made as straight, even and smooth as possible and should be wide enough for the cocking handle to move easily along its path.

The bolt for this weapon is made from a length of drill rod or similar material which has an outside diameter slightly less than the inside diameter of the receiver pipe. First tightly screw an end cap, of the appropriate size, to the end of the receiver pipe. Next place a compression spring, of sufficient power, into the receiver tube and force it down as far as it will go with one end of the bolt rod. Using a scribe, mark a line on the bolt rod where it meets the rearmost part of the loading/ejection port. This will be where the bolt must be cut off to allow the weapon to operate properly. Next mark a point on the bolt about 1/4" up from the rearmost part of the action slot. This will be the point where a hole is drilled to accept the cocking handle. Remove the rod and cut it at the marked line. If a centerfire cartridge is to be used file or grind this cut end of this rod to a shallow,

dead-center point as indicated in the diagram. For a rimfire cartridge, grind the bolt to look like a flathead screwdriver, then remove 3/4 of this point leaving one side with a protruding point as in the diagram. Next drill a hole at the point where the cocking handle will go. Drill this hole 3/4 of the way through the rod. If you have access to a tap and die you can use the appropriate drill bit which will allow tapping of this hole so that a threaded cocking handle can be used. Otherwise simply use a drill bit of the same diameter as the cocking handle and affix it later with epoxy. If epoxy is used, the weapon cannot be cleaned properly and a broken spring or firing pin will be difficult to replace.

The cocking handle can be made from a small drill bit or other small piece of steel rod. It should only protrude from the weapon about 1/4".

Place the bolt into the receiver and temporarily insert the cocking handle. Force the bolt back against the compression spring as far as it will go and mark a spot beside this point on the receiver adjacent to action slot. This will be the location for the "Cocked" position notch. Place a spent shell into the chamber and allow the bolt to be pushed forward slowly by the compression spring until it is touching the primer of the chambered case. Mark a point on the receiver beside the cocking handle and adjacent to the action slot. This will be the location for the "Safe" position notch.

Remove the bolt and then drill holes at the point marked with a drill bit slightly larger than the diameter of the cocking handle.

Next replace the bolt and affix the cocking handle, if epoxy is to be used it can be applied now.

Tightly screw the receiver into the adapter.

Some final fitting may be necessary to get this weapon to function reliably.

Test fire this weapon with the same caution as with other improvised firearms.

Match Gun

An improvised firearm can be built using safety match heads as the propellant and a metal object as the projectile. Lethal range is about 40 yards (36 meters). This weapon is very simple to construct and is well suited for use as a booby trap.

Materials Required

Metal pipe 24" (61 cm) long and 3/8" (1 cm) in diameter (nominal size) or its equivalent, threaded on one end.

End cap to fit pipe

Safety matches - 3 books of 20 matches each.

Wood - 28" x 4" x 1" (70 cm x 10 cm x 2.5 cm)

Safety fuse OR "Strike-anywhere matches" (2)

Electrical tape or string

Metal strap, about 4" x 12" and 1" x 3/16" (10 cm x 6 mm x 4.5 cm)

2 rags, about 1" x 12" and 1" x 3" (2-1/2 cm x 30 cm and 2-1/2 cm x 8 cm)

Wood screws

Metal object (steel rod, bolt with head cut off, etc.), approximately 7/16"(11 mm) in diameter, and 7/16" (11 mm) long if iron or steel, 1-1/4" (31 mm) long if aluminum, 5/16" (8 mm) long if lead. A large ball bearing, of the appropriate size, will fly straighter than a cylindrical object.

Metal disk 1" (2-1/2 cm) in diameter and 1/16" (1-1/2 mm) thick

Bolt, 3/32" (2-1/2 mm) or smaller in diameter and nut to fit

Saw or knife

Procedure

- 1. Carefully inspect pipe and fittings. Be sure that there are NO cracks or other flaws.
- 2. Drill small hole in center of end cap. If safety fuse is used, be sure it will pass through this hole.
 - 3. Cut stock from wood using saw or knife.
 - 4. Cut 3/8" (9-1/2 mm) deep "V" groove in top of stock.
 - 5. Screw end cap onto pipe until finger tight.
 - 6. Attach pipe to stock with string or tape.
- 7. Bend metal strap into "L" shape and drill holes for wood screw. Notch metal on long side 1/2" (1 cm) from bend.
- 8. Position metal strap on stock so that the top will hit the center of hole drilled in end cap.
- 9. Attach metal disk to strap with nut and bolt. This will deflect blast from hole in end cap when gun is fired. Be sure that head of bolt is centered on hole in end cap.
 - 10. Attach strap to stock with wood screws.
- 11. Place screw on each side of stock about 4" (10 cm) in front of metal strap. Pass elastic bands through notch in metal strap and attach to screw on each side of stock.

Operation

- 1. Cut off match heads from 3 books of matches with knife. Pour match heads into pipe.
- 2. Fold one end of 1" x 12" rag 3 times so that it becomes a 1" square of 3 thicknesses. Place rag into pipe to cover match heads, folded end first.

Tamp firmly WITH CAUTION.

- 3. Place metal object into pipe. Place 1" x 3" rag into pipe to cover projectile. Tamp firmly WITH CAUTION.
 - 4. Carefully cut off tips of heads of 2 "strike-anywhere" matches with knife.
 - 5. Place one tip in hole in end cap. Push in with wooden match stick.
- 6. Place second match tip on a piece of tape. Place tape so match tip is directly over hole in end cap.
 - 7. When ready to fire, pull metal strap back and release.

When safety fuse is available: (Recommended for Booby Traps)

- 1. Remove end cap from pipe. Knot one end of safety fuse. Thread safety fuse through hole in end cap so that knot is on inside of end cap.
 - 2. Follow steps 1 through 3 above.
 - 3. Tie several matches to safety fuse near outside of end cap.

NOTE: Bare end of safety fuse should be inside match head cluster.

- 4. Wrap match covers around matches and tie. Striker should be in contact with match bands.
 - 5. Replace end cap on pipe.
 - 6. When ready to fire, pull match cover off with strong, firm, quick motion.

Test fire as with other Improvised Firearms

Improvised Weapons

Improvised Grenade Launcher

The 40mm grenade launcher was designed as a close support weapon system for the infantry, and was intended to bridge the gap between the maximum throwing distance of a hand grenade, and the lowest range of supporting mortar fire. An area of between 50 and 300 meters. The M-79 and M-203 grenade launcher systems are presently in use by NATO forces and a great number of military and police organizations worldwide. These systems fire a single 40mm projectile at about 75 meters per second, out to a maximum range of 400 meters.



An M-79 40mm Grenade Launcher

The White Separatist will have use for powerful weapon systems like the 40mm M79 and M203 grenade launchers. The 40mm systems pumps projectiles out at low barrel pressures and spent casings for these weapons can be readily obtained at gun shows (at least in the US) or casings could, with the proper tools, be improvised. The US military designed the 40mm round to be easily reloaded by replacing the primer with a .38 blank. Civilian and law-enforcement application rounds, such as flare, tear gas and smoke are also available and can be modified to our use. These facts make the 40mm an ideal round to base an improvised grenade launcher upon. The design of these weapons is quite simple, not much more complicated than our improvised firearm designs.

M79 Design

This is a very simple design, but don't be fooled, it works very nicely. It is very similar in design to our "Slap" shotgun.



Materials Required:

16" length of 1-1/2" (inside diameter) standard weight steel pipe.

9" length of 2" (inside diameter) heavy-walled steel pipe.

1-1/2" length of 1-1/2" steel pipe

2" long 3/4" bolt.

Three heavy-duty hose clamps (approximately 4").

Twelve 1/4" x 28 Allen screws 3/4" long.

One heavy flat washer 2" diameter, at least 1/4" thick and with no greater than a 3/4" hole.

Three 5/16" machine-thread nuts, 3" long.

One 5/16" machine-thread bolt 3" long.

One surplus rifle stock or improvised substitute.

Although the internal pressures from the 40mm are quite low at 2,600 psi (compared to 40,000 psi for most centerfire rifles) it is still wise to construct this weapon out of very strong materials. The barrel should be constructed from seamless DOM (drawn over mandrel) steel tubing. You may be able to scrounge this part from a scrap-yard but it is more likely that it will have to be purchased from a steel supply store. If you cannot find DOM tubing or if the price is outrageous, get the strongest tubing available.

For the breech, scrounge or purchase a 9" long piece of 2" diameter heavy-walled steel pipe. Standard-walled 2" pipe will not do for this application. When purchasing this part, be sure to specify heavy-walled 2" pipe. Have the shop cut the stock to specifications at use there reamer to clean up the cut. This will remove the sharp edge and burrs and leave a nice neat finish along the cut surface.

The barrel of a standard issue M79 is 14" but the operative may want a barrel that is slightly longer for increased range and accuracy.

Select a piece of standard-weight steel pipe with a 1-1/2" inside diameter. Check to see that it is the correct diameter by pushing an empty 40mm case into the pipe. The empty case should fit snuggly into the pipe if pushed firmly. You will later polish the bore so that the round drops in easily.

Test the two pipes by ensuring that the barrel piece (16" long x 1-1/2" diameter) will slide closely inside the breech piece (9" long x 2" diameter). It may be advisable to purchase both tubes at the same time to be sure that they are of the correct size. This may, however, cause the metal shop employee to ask some questions which the operative will not want to answer honestly.

You will also need a piece of 1-1/2" diameter pipe 1-1/2" long. This can be cut and reamed at the metal shop as well.

The hose clamps will be used to affix the breech piece to the stock. The operative may require larger or smaller hose clamps depending on the type of stock selected.

Construction:

Polish out the chamber end of the barrel pipe until the 40mm case will slip into it without any trouble. Use very fine emery paper for this step.

Weld the 3/4" bolt on the other end of the barrel 3-1/2" up from the muzzle. Be sure to stand the bolt out perpendicular to the barrel, and weld it securely all the way around.

The 2" washer should be dressed down slightly using a bench grinder until it fits into the weapon's breech easily and evenly. Wear a pair of leather gloves while grinding the washer and let it spin freely against the grinding wheel. This will ensure even grinding and will allow the washer to fit smoothly into the breech.

Once the washer fitting is complete lay it on a large vise or anvil and place a 5/16" machine-thread nut in the center hole, being sure it is flat on the down side. Very carefully braze the nut into the center of the washer. Be especially careful to protect the nut's threads and to maintain its center alignment. This nut will eventually retain the firing pin, allowing adjustment of the pin in and out.

Lay the small 1-1/2" long ring of 1-1/2" pipe on the washer carefully and braze the two together evenly. The center hole of the washer must lay exactly in the center of the ring. Braze them all into one solid mass, again paying close attention to preserving the nut's threads in the center of the washer.

Using a 13/64 drill bit, make three opposing holes through the breech piece 3/4" from the rear of the piece. Tap them with a $1/4 \times 28$ tap. Try the new holes with the Allen screws, but do not set them permanently yet.

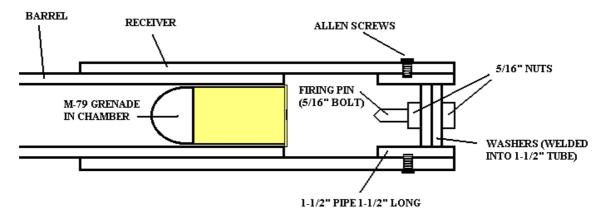
Slide the washer, with nut and 1-1/2" ring attached, into the breech pipe and tighten down the three Allen screws to mark the breech block ring inside. Withdraw the ring and drill shallow craters at the places marked. Replace the ring again, this time tightening the Allen screws and securing it solidly into the main breech piece. Torque down the Allen screws as securely as possible. Some of them might break during this process.

Making the adjustable firing pin is the only part of this project which requires any real machining. Using a hacksaw, cut the head off of the bolt and carefully grind the cut end flat.

Next, carefully wrap tape around the end of the bolt to protect the threads. Chuck the bolt, tape end first, into a 1/2" drill. This drill is about to become an improvised lathe with which the operative can turn the bolt into a firing pin. Clamp the drill into a vise or tie it securely to a tabletop.

Turn the drill on, rotating the bolt shaft. Using a 4" fine flat file, work the bolt down to a fine pin diameter of about 1/16" wide. Cut the pin back only 3/8" from the end of the bolt. When the pin is the correct diameter, put a sharply beveled point on it.

Take the pin out of the drill, remove the tape, and cut a shallow screwdriver slot on the opposite end with a hacksaw. The adjustable firing pin is now complete and ready to be screwed into the breech block piece. Set it in the block so that it barely protrudes through the washer and nut. If it is set too long it will bend or break, if it is too short it will fail to fire the round.



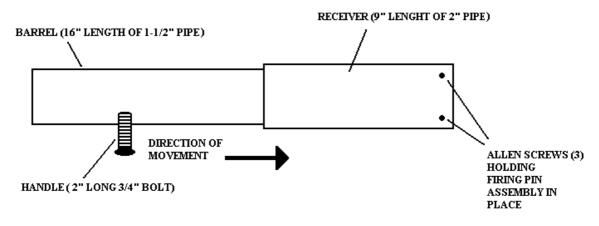
IMPROVISED M-79 INTERNAL PARTS

Secure the breech piece with firing pin installed, to the rifle stock using three hose clamps. Although the recoil from the weapon is more of a gentle nudge than a sharp kick, it is still strong enough to knock the breech piece loose from the hose clamps. Make sure that the three hose clamps are installed very tightly.

This is a very dangerous and powerful weapon and the same caution must be taken in test firing it as is used for testing the improvised firearms, presented earlier. Be sure to use military rounds during test firing (if possible).

How to operate:

Load the weapon and then, using the 3/4" bolt as a handle, slam the loaded barrel lock into the breech to discharge the weapon. This weapon produces very little noise upon firing and can be test fired in populated areas without much worry of alerting the authorities. The range of this weapon may be greater than the operative would expect, so use caution not to drop a practice round into your neighbors' pool.



IMPROVISED M-79 --- EXTERNAL PARTS

If the firing pin has been adjusted properly and the breech is torqued in securely, there should be no problems. Just be sure you haven't cut any corners... this is a big, powerful weapon that can maim or kill you if things are not done right.

Burnish the final product with a wire brush wheel in your bench grinder, then apply a coat of flat black paint.

Mortars

The portable mortar has, over the last 100 years, become an absolutely essential infantry weapon. It can be set up quickly, fired very rapidly and will drop rounds down at very high angles, making discovery of the mortar's position nearly impossible without modern electronic countermeasures. All of these factors make the mortar a desirable weapon for White resistance fighters. With a little practice the operator will be able to drop explosive rounds onto targets from a safe distance with great accuracy. The IRA has made use of a number of different improvised mortars, some of them very large, proving that it is not beyond the means of dedicated guerrillas to produce and deploy this type of weapon. The mortar system I will present is relatively cheap and easy to build, is highly portable and will perform nearly as well as a comparable military mortar. Ammunition for the improvised mortar is quite simple to produce with just simple home workshop tools, reusable practice rounds can be produced; allowing the resistance fighter to gain valuable practice with the mortar.

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Most modern mortars use unrifled steel tubing for their barrels, meaning that their design is really quite simple. As with any weapon system, high-quality DOM tubing should be used to produce this weapon. Mortar tubes can be constructed from 3" tubing in just about any length from 18" up to several feet. Shorter length makes for a lighter, more portable mortar but the sacrifice is range. A length of between 36" - 44" will yield the most favorable results. A 40" long piece of 3" DOM tubing could cost as much as \$120 new, which I think is a good price but others may not have the resources to spend in this way. Attempt to scrounge or "liberate" a piece of this material... try scrapyards and construction sites. If the operative is unable to locate DOM tubing, simple steel plumbing pipe will work since the pressures are not that high in this weapon.

If you choose to purchase the tubing, have the shop put threading on one end. Inquire about having a custom-made, solid steel end-cap made for the tube. This may cost a few bucks but it will be well worth it. Tell any curious shop employees that the parts are for a steel fence post pounder. If this solid steel end-cap cannot be obtained, a simple, off the shelf, cast end-cap will work but may develop cracks after several firings of the weapon. Whatever type of cap you obtain it will be necessary to drill a hole in the exact center of the cap. Use a center punch and start with a 5/32" pilot hole. Purchase a 3/8" machine bolt 4" long and two machine thread nuts of the appropriate size for the bolt.

Using a standard 3/8" x 24 die, cut threads from top to bottom on the bolt. Carefully sharpen the end of the bolt to a beveled point. Do not make a long, sharp point because it will break too easily. Drill out the pilot hole in the tube cap to 21/64". Thread with a 3/8" x 24 NF tap. Be very careful to thread the cap in a perfectly vertical manner. This is the most complex part the improvised mortar. An adjustable firing pin is required for the mortar to function reliably. The firing pin will be adjusted so that it just barely detonates the cap on the projectile when it is dropped down the barrel.

Place a locking nut on the back of the bolt. Thread the bolt through the cap with the pin extending through the concave portion of the cap. Extend the point up past the surface of the cap about 1/2". This is a trial-and-error procedure that is best done with inert rounds containing a primer but no propellant. Drop sufficient inert rounds till you

are certain that the firing pin protrudes up through the cap just enough to detonate the primer and that it is centered properly.

Unscrew the cap off the tube. Using a camp stove, propane torch, or other heat source, melt about two pounds of plumber's lead containing at least 5% tin. After the lead is liquefied, pour it into the concave portion of the mortar tube end cap. Pour it only into the bottom edge of the threaded portion of the cap, not up in the area where it will prevent the cap from being securely screwed to the mortar tube. This quantity of lead will warp when cooling but, in spite of this, will cushion the cap, extending its life considerably.



Give the bolt firing pin a quick turn or two, loosening it as the lead hardens. After the assembly cools, tighten the buck nut down onto the back of the cap, securing it to the cap and lead buffer. It is imperative that the firing pin be adjustable in and out after the lead cools and that it be adjusted down so that the firing assembly reefs against the lead block.

Leading the cap will strengthen it, but after prolonged firing with heavier charges, the cap will still crack. It is best to make two or three extra caps at the same time rather than waiting until the first one fails during use and a replacement cap is unavailable.

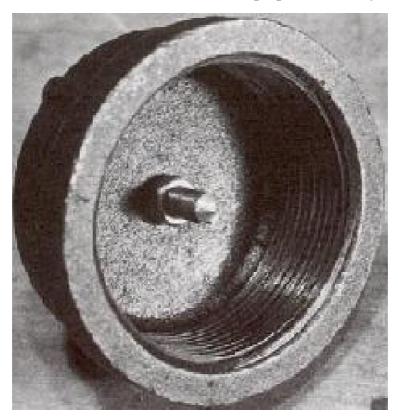
Obtain a 15" long piece of 1" x 1/4" mild steel strapping. Use a piece of tubing with the same outside diameter as the mortar tube, hammer the strapping into rounds that clasp tightly around the tube.

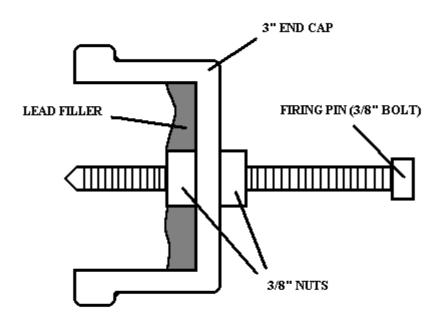
Drill holes through the ends of the strapping and, using 1/2" bolts, securely fasten the strap about 12" down from the top of the upright mortar tube.

Purchase two pieces of 3/4" to 1" diameter steel rod 30" long, which will serve as bipod legs. Weld or braze two 1/2" washers to the top of each steel leg. Run the 1/2" bolt used to secure the tube clamp through the washers on the two legs. Since

the legs have to move in and out a bit, it helps to place a couple of flat washers next to the welded washers. Ideally, the legs should flex in and out so that the tube can be angled up or down a bit.

These legs become an upright support for the mortar. The shooter can move them to provide more horizontal distance as opposed to additional vertical distance when launching the projectile. This arrangement is not very accurate, but it will function acceptably at ranges of 400-700 yards. Since the blast radius of the anti-personnel mortar bombs is about 30', the shooter doesn't have to have pinpoint accuracy to be effective.

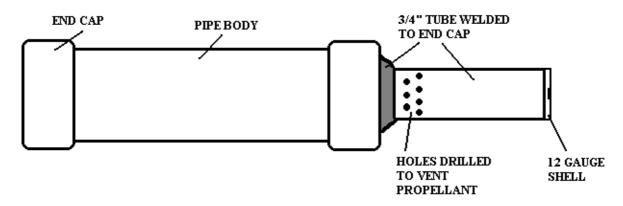




MORTAR FIRING PIN (CUTAWAY VIEW)

Constructing mortar bombs is a bit more difficult, but shouldn't be beyond the abilities of anyone who puts they're mind to it. Purchase or "liberate" a 2" black, plumbing pipe nipple 6" long, two 2" end caps, and a 4" long 3/4" nipple. You will also need a 1/2" fender washer, which conveniently is just shy of 2" in diameter. Also obtain a 1/4" washer.

Find the exact center of one of the 2" end caps and drill a 5/32" pilot hole through one cap. If a 3/4" x 14" pipe tap is available, drill the center out to 15/16". Thread the hole in the cap so that the 4" x 3/4" pipe can be screwed securely into the 2" end cap. As an additional measure, braze the nipple top and bottom to the cap. This assembly must be



MORTAR BOMB

exactly centered or it will misfire.

Measure down from the pipe cap 1-1/2" on the threaded 3/4" nipple. Working only above this line, drill at least ten 5/16" holes through the pipe, perforating it thoroughly. These holes bleed off the propellant charge from a 12 gauge shotshell when it fires.

A 12 gauge shotshell will fit nicely into the end of the 3/4" nipple. A small piece of electrical tape may be needed to bush the shell so that it does not fall out of the pipe during transport. Use only shotshell primers to test the mechanism. When certain that the mechanism is working, graduate to propellant and inert practice rounds.

Propellant should be 30 to 60 grains of Bullseye or Herco shotgun powder or a shotshell full of Hodgins' Pyrodex CTG. Exact loading will depend on the weight of the projectile, the distance the shooter wishes to fire and the quality of the tubing used for the mortar tube.

Dummy rounds can be made by filling the projectile body with 1-1/2 lbs of sand or some other convenient filler. Screw the cap on tightly and bush both end caps with electrical tape so that the round will fall straight down the barrel. A full 6" long piece of 2" pipe should be used as the projectile body so that sufficient distance between contact surfaces holds

the propellant tube (3/4" tube) rigidly in the center of the tube. Off-center propellant tubes are prone to misfires. Misfires will be a constant problem in the beginning. To

correct these simply dump the round out of the tube, adjust the firing pin, change the end caps or straighten the 3/4" nipple on the round.

It will be necessary for the operative to test fire this weapon in order to work out the misfires and then to gain shooting experience. Paint your practice rounds red or silver to make them easier to retrieve and re-use. Don't even consider using this weapon in an actual attack until you have fired at least 100 practice rounds and can drop bombs on target after the second or third shot.

Building explosive rounds is relatively straightforward. Impact detonating rounds are much too dangerous for home manufacturers to attempt, therefore, I have provided instructions for building fused rounds charged with improvised C-4.

Start with a length of dynamite fuse which will provide 12 seconds of burn time before detonation.

Using epoxy, secure a small 1/4" washer inside a 1/2" fender washer. Fortunately, the outside diameter of the 1/4" washer just about matches the inside diameter of the 2" fender washer. Allow the two to dry thoroughly.

Push the length of dynamite fuse through the 1/4" hole and split it back about 1/2". Securely glue these split halves onto the washer face. Be careful that no glue gets onto the internal powder train of the fuse. Cut a match head from a strike-anywhere match and, using a little dab of contact cement or glue, fasten the match head into the center of the powder train. Crimp a #6 dynamite cap or an improvised blasting cap.

After securely fastening the bottom cap with the 3/4" pipe nipple attached, drop the fender washer and fuse in from the top of the projectile body. The fuse and match head should be pointing straight down the center of the propellant tube so that it can be reliably ignited by the blast of shotshell propellant.

Using epoxy, secure the fender washer in place within the projectile body. Be sure the epoxy is hardened before continuing.

Using a blunt wooden object, such as a tongue depressor, tamp a lightweight plastic bag into the pipe body. This is a difficult task, given the fuse and cap sticking back into the pipe center, but make sure every corner is filled with the plastic bag. This plastic liner seals the chamber and keeps air and moisture out of the powdered **ammonium nitrate**, which is easily ruined by air or moisture.

Carefully tamp in layer after layer of tightly packed, washed ammonium nitrate into the tube. Keep track of the amount so that the correct amount of Nitromethane can be set aside for later use. After filing with ammonium nitrate, seal the plastic bag and set the top end cap securely in place. Make sure that enough pressure is exerted on the fuse assembly, packing the powder into place. The force of the firing blank tends to dislocate the washer and fuse. Code the small plastic of Nitromethane and keep it with the round. Shortly before use remove the top cap, open the bag, and pour in the Nitromethane. Charged rounds can be held several weeks in this ready state, but storage of this type of ordinance is very dangerous.

12-gauge propellant cartridges can be prepared ahead of time. Remove the shot and shot-cup from the cartridge and then push a thumb-tip-sized piece of cotton as wadding over the powder and secure it in place with a bit of glue.

Building a functioning, reliable mortar, complete with high explosive rounds is not quite as easy as this brief description would indicate. Misfires, dud rounds and other problems will plague the operative at first... be patient though because this very valuable weapon can be completed with a little persistence.

Modified Ammunition

Hollow-Point Ammo

Many jurisdictions outlaw the sale or possession of handgun caliber hollow-point ammo. It is a simple matter to make your own.

First file the point of the bullet flat without removing too much material then chuck the round into a drill (preferably a drill-press). Use a vice to hold a drill bit of the appropriate size and then ream a hole in the dead center of the bullet. Be careful not the drill too deeply.

You may want to increase the expansion of the bullet by taking a sharp knife and marking criss-crossed cuts on the rim of the bullet's hollow point.

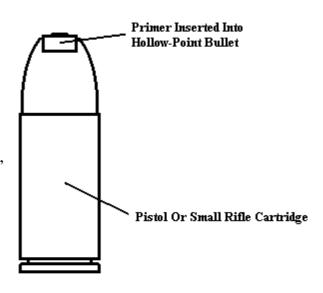
Poisoned Ammo

The hollow-point cavity of a bullet can be filled with any strong poison such as ricin and then sealed with melted wax. This trick is well suited for close-up selective assassination work. Consult the <u>poisons</u> section for details on producing suitable toxins for this application.

Hotloads

A hotload is a type of modified ammunition which explodes impact with the target, causing horrific, gaping wounds and increasing the lethality of each shot. The hotload is produced with hollow point ammunition, primers and epoxy. Ammunition primers are available wherever reloading supplies are sold and come in a variety of sizes.

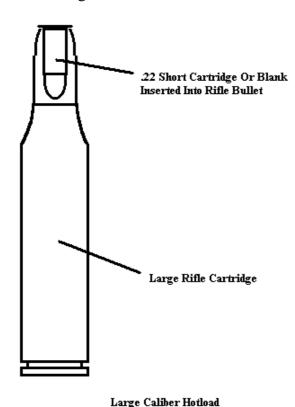
First determine what size of primer will fit into the cavity of the hollow



Small Caliber Hotload

point bullet. You may have to ream out the cavity slightly in order to get the primer to fit neatly.

Next simply epoxy the primer into the hollow point bullet, being careful to keep everything neat and even in order not to excessively affect the bullet's flight stability. Changing a bullet in this way will change its ballistic characteristics. The operative will have to be familiar with how the hotload ammunition will perform before attempting to use it for long-range sniper work. Hotloads are ideal for close up work with handguns or submachineguns.



An even more powerful hotload can be produced by inserting a .22 short or blank round, primer end forward, into the drilled out cavity of a large rifle bullet or a rifled slug. These will make a real mess!

Shotshell Dispersion Control

When desired, a shotshell can be modified to reduce shot dispersion, keeping the shot in a tighter pattern. This is very useful when buckshot loads are unavailable and only bird and small game loads are at hand.

Procedure

1. Carefully remove crimp from shotshell using a screwdriver or knife.

NOTE: If cartridge is of roll-crimp type, remove top wad.

- 2. Pour shot from shell.
- 3. Replace one layer of shot in the cartridge. Pour in a filler material, such as flour, to fill the spaces between the shot.
 - 4. Repeat Step 3 until all shot has been replaced.
 - 5. Replace top wad (if applicable) and re-fold crimp.
 - 6. Roll shell on flat surface to smooth out crimp and restore roundness.
 - 7. Seal end of case with wax.

Notes

This round is loaded and fired in the same manner as standard shotshell. The shot spread will be about 2/3 that of a standard round.

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Improvised Ammunition

It is possible to make firearm or 40mm grenade launcher ammunition from recycled ammunition components. The increasing pressure for gun control in our Nations means that purchasing ammunition without a paper trail may not always be possible.

Reusable Primer

Small arms ammunition primers can be re-used with the following method.

Materials Required:

Cartridge case

2 long nails having approximately the same diameter as the inside of the primer pocket

"Strike-anywhere" matches - 2 or 3 are needed for each primer

Procedure

- 1. File one nail to a needle point so that it is small enough to fit through hole in primer pocket.
 - 2. Place cartridge case and nail between jaws of vise. Force out fired primer with nail.
 - 3. Remove anvil from primer cup.
 - 4. File down point of second nail until tip is flat.
 - 5. Remove indentations from face of primer cup with hammer and flattened nail.
- 6. Using a knife, cut off tips of the heads of the "strike-anywhere" matches. Carefully crush the match tips on dry surface with a wooden match stick until the mixture is the consistency of sugar.

CAUTION: Do not crush more than 3 match tips at one time as the mixture may explode.

- 7. Pour mixture into primer cup. Compress mixture with wooden match stick until primer cup is fully packed.
 - 8. Place anvil in primer pocket with legs down.
 - 9. Place cup in pocket with mixture facing downward.
- 10. Place cartridge case and primer cup between vise jaws, and press slowly until primer is seated into bottom of pocket. The primer is now ready to use.

Cartridge

The improvised primer above can be coupled with this improvised cartridge. If the operative has access to a reloader's press and bullet dies it is preferable to produce ammunition in the standard way rather than using the following process.

Materials Required:

Empty cartridge, be sure that it is not too deformed to fit inside gun.

Threaded bolt that fits into neck of cartridge at least 1-1/4" (3 cm) long.

Safety or "strike-anywhere" matches (about 58 matches are needed for 7.62 mm cartridge)

Rag wad (about 3/4" (1-1/2 cm) square for 7.62 mm cartridge)

Knife

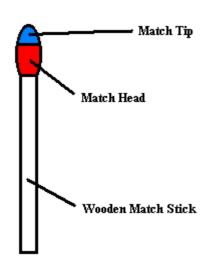
Saw

NOTE: Number of matches and size of rag wad depend on particular cartridge used.

Procedure:

1. Remove coating on heads of matches by scraping match sticks with knife.

CAUTION: If wooden "strike-anywhere" matches are used, cut off tips first. Discard tips or use for Reusable Primer.



"Strike Anywhere" Match

2. Fill previously primed cartridge case with match head coatings up to its neck. Pack evenly and tightly with match stick.

CAUTION: Remove head of match stick before packing. In all packing operations, stand off to the side and pack gently. Do not hammer.

- 3. Place rag wad in neck of case. Pack with match stick from which head was removed.
- 4. Saw off head end of bolt so remainder is approximately the length of the standard bullet.
- 5. Saw bolt in cartridge case so that it sticks out about the same length as the original bullet.

NOTE: If bolt does not fit snugly, force paper or match sticks between bolt and case, or wrap tape around bolt before inserting in case.

Explosives:

An explosive is any solid, liquid, or gas that when subjected to stimuli such as shock or heat undergoes a rapid chemical reaction and converts into gaseous form. This chemical reaction releases heat and pressure equally in all directions. Explosives fall into three categories, low explosives, high explosives and primary explosives according to the detonating velocity or speed at which the chemical reaction takes place as well as their role in the reaction. I recommend that the operative read the US Army FM 5-250, which is an excellent resource of information on the handling and application of military and commercial explosives.

Low Explosives

Low explosives change from a solid to a gaseous state relatively slowly over a sustained period of time (up to 1,300 feet per second). These are generally the easiest explosives to manufacture. The effect that occurs in low explosives when they are ignited is called "deflagration" which is actually a very rapid burning rather than the "detonation" which occurs in high explosives. Low explosives are usually ignited by a spark or flame. Because of the their slow burning explosion they must be confined in a strong container in order to produce a powerful blast. If ignited without proper containment they produce flame and smoke but no explosion.

Low explosives are really only effective against soft targets such as light buildings, unarmored vehicles and, of course, personnel. Examples of low explosives are Black powder, Smokeless powder, and Chlorate powder.

High Explosives

Unlike low explosives, high explosives undergo a "detonation" when initiated. This detonation is an almost instantaneous chemical reaction at a speed of between 3,000 an 28,000 feet per second depending on the type of explosive. A blasting cap or detonator is required to initiate this reaction. A "low order" detonation may occur when an insufficiently powerful detonator is used or when the explosive mass is loose or degraded. Characteristics of a "low order" detonation include relatively little blast, lots of smoke and little target damage.

High explosives are essential for effective attacks on buildings, armored vehicles, bridges and most other modern infrastructure. Examples of high explosives are TNT, Dynamite and C-4.

Primary Explosives:

Primary explosives are highly sensitive compounds which are used in detonators and small arms primers. The are easily detonated by heat, spark, impact and friction. Because of this sensitivity they are only used in small amounts, usually less than a gram, in detonators. This tiny amount of explosive is used to initiate a larger charge of less-sensitive explosive, the "base" or booster charge, in a blasting cap. This base charge, in turn, has sufficient energy output to detonate the main explosive charge or , in some cases, a secondary booster, if an extremely insensitive explosive (such as ANFO) is used.

Examples of primary explosives are HMTD, lead azide and mercury fulminate.

Improvised Explosives:

Safety

Manufacturing explosives is extremely dangerous. Homemade explosives are far more sensitive and unpredictable than commercially available ones. One must approach the preparation and handling of explosives with great care. Here is a list of some equipment you must have to make these operations as safe as possible.

Goggles – Eye protection is a must. Not only are most of the chemicals potentially damaging, but the risk of accidental fire and/or explosion is very real. Most hardware stores sell safety goggles.

Gloves – Be sure to use rubber gloves when handling and mixing explosives especially when working with acids and oxidizers. Consider a pair of welder's gloves when handling particularly sensitive compounds such as flash powder.

Apron – An apron will give you some protection against chemical splashes and fires.

Fire Extinguisher – This is an absolute must for obvious reasons.

Respirator – Get a good quality respirator as most of the dusts and chemical fumes you will be exposed to are quite toxic. Be sure to select a cartridge type respirator and not one of those cheap paper masks.

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Improvised Low Explosives:

Low explosives are simple combinations of two or more ingredients, one of which will be an oxidizer and another a fuel. I have included a few low explosive mixtures here, chosen on the basis of ease of manufacture (none of these require anything more than mixing of the ingredients) and availability of ingredients.

Low Explosive Mixtures (measurements are by weight)

Chlorate Powder-

1 part potassium chlorate or sodium chlorate

1 part sugar

Flash Powder-

4 parts potassium Perchlorate

1 part aluminum powder

1 part sulfur

or

7 parts potassium Perchlorate

5 parts aluminum powder

Firecracker Powder-

6 parts potassium nitrate

3 parts aluminum powder

1 part sulfur

or

4 parts potassium nitrate

1 part aluminum powder

1 part sulfur

or

2 parts potassium chlorate

1 part aluminum powder

1 part sulfur

or

- 5 parts potassium nitrate
- 2 parts aluminum powder
- 3 parts sulfur

Permanganate Powder-

- 3 parts potassium permanganate
- 2 parts aluminum powder

Ammonpulver-

4 parts finely powdered ammonium nitrate

1 part charcoal

Potassium Nitrate Production:

Potassium nitrate (saltpeter) can usually be found on the civilian market. It is used as a fertilizer supplement, a diuretic and for stump removal. If you can't obtain any it can be extracted from nitrate bearing soil. The yield ranges from .1 to 10% by weight, depending on the fertility of the soil.

Sources:

Nitrate bearing earth or other soil containing old decayed materials, about 3-1/2 (13-1/2 liters) gallons vegetable or animal matter.

Manure piles which have been left to sit for several months.

Earth from old burial grounds.

Decayed stone or mortal buildings.

Foundations.

Caves.

Materials Required:

Fine wood ashes, about 1/2 cup totally burned whitish wood ash powder.

Bucket or similar container about 5 gallons (19 liters) in volume (plastic, metal, or wood)

2 pieces of finely woven cloth, each slightly larger than bottom of bucket

Shallow pan or dish, at least as large as bottom of bucket

Shallow heat resistant container (ceramic, metal, etc.)

Water - 1-1/3 gallons (6-3/4liters)

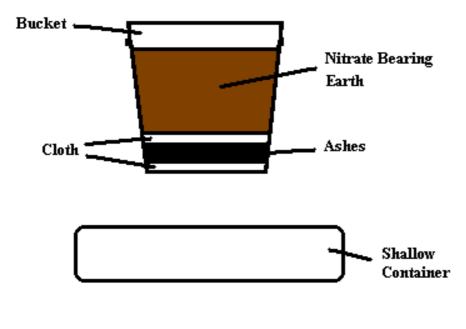
Alcohol about 1 gallon (4 liters) (rubbing alcohol, etc.)

Heat source (fire, electric heater, etc.)

Note: Only the ratios of the ingredients are important. Thus, for twice as much potassium nitrate, double quantities used.

Procedure:

- 1. Punch holes in bottom of bucket. Spread one piece of cloth over holes inside of bucket.
- 2. Place wood ashes on cloth and spread to make a layer about the thickness of the cloth. Place second piece of cloth on top of ashes.
 - 3. Place dirt in bucket.
 - 4. Place bucket over shallow container...



Potassium Nitrate Production

5. Boil water and pour it over earth in bucket a little at a time. Allow water to run through holes in bucket into shallow container. Be sure water pours through all of the earth. Allow drained liquid to cool and settle for 1 to 2 hours.

Note: Do not pour all water at once, since this may cause stoppage.

6. Carefully drain off liquid into heat

resistant container. Discard any sludge remaining in bottom of the shallow container.

- 7. Boil mixture over hot fire for at least 2 hours. Small grains of salt will begin to appear in the solution. Scoop these out as they form, using a strainer.
- 8. When liquid has boiled down to approximately half its original volume, remove from fire and let sit. After half an hour add an equal volume of alcohol. When mixture is poured through paper, small white crystals will collect on top of it.
- 9. To purify the potassium nitrate, re-dissolve the dry crystals in the smallest possible amount of boiled water. Remove any salt crystals that appear (step 7); pour through an improvised filter made of several pieces of paper and evaporate or gently heat the concentrated solution to dryness.
- 10. Spread crystals on flat surface and allow to dry. The potassium nitrate crystals are now ready for use.

Improvised Black Powder-

Black Powder can be prepared in a simple, safe manner. It may be used as pipe-bomb filler or gun powder.

Materials Required:

Potassium nitrate, granulated, 3 cups (3/4 liter)

Wood charcoal, powdered, 2 cups (1/2 liter)

Sulfur, powdered, 1/2 cup (1/8 liter)

Alcohol, 5 pints (2-1/2 liters) (whiskey, rubbing alcohol, etc.)

Water, 3 cups (3/4 liter)

Heat source

2 Buckets - each 2 gallon (7-1/2 liters) capacity, at least one of which is heat resistant (metal, ceramic, etc.)

Flat window screening, at least 1 foot (30 cm) square

Large wooden stick

Cloth, at least 2 feet (60 cm) square

Note: The above amounts will yield two pounds (900 grams) of black powder. However, only the ratios of the amounts of ingredients are important. Thus, for twice as much black powder, double all quantities used.

Procedure:

1. Place alcohol in one of the buckets.

- 2. Place potassium nitrate, charcoal, and sulfur in the heat resistant bucket. Add 1 cup water and mix thoroughly with wooden stick until all ingredients are dissolved.
- 3. Add remaining water (2 cups) to mixture. Place bucket on heat source and stir until small bubbles begin to form.

Caution: Do not boil mixture. Be sure all mixture stays wet. If any is dry, as on sides of pan, it may ignite.

- 4. Remove bucket from heat and pour mixture into alcohol while stirring vigorously.
- 5. Let alcohol mixture stand about 5 minutes. Strain mixture through cloth to obtain black powder. Discard liquid. Wrap cloth around black powder and squeeze to remove all excess liquid.
- 6. Place screening over dry bucket. Place workable amount of damp powder on screen and granulate by rubbing solid through screen.

Note: If granulated particles appear to stick together and change shape, recombine entire batch of powder and repeat steps 5 and 6.

7. Spread granulated black powder on flat dry surface so that a layer about ½ inch (1-1/4 cm) is formed. Allow to dry. Use radiator, or direct sunlight. This should be dried as quickly as possible, preferably in one hour. The longer the drying period, the less effective the black powder.

Caution: Remove from heat as soon as granules are dry. Black powder is now ready for use.

"Red or White Powder" Propellant

"Red or White Powder" Propellant may be prepared in a simple, safe manner. The formulation describes below will result in approximately 2-1/2 pounds of powder. This is a small arms propellant and should only be used to reload ammunition for weapons with 1/2" or less bore diameter, but not pistols. This propellant also makes an excellent pipe-bomb filler.

Materials Required:

Heat source (Kitchen stove or open fire)

2 gallon metal bucket

Measuring cup (8 ounces)

Wooden spoon or rubber spatula

Metal sheet or aluminum foil (at least 18 in. sq.)

Flat window screen (at least 1 ft. sq.)

Potassium nitrate (granulated) 2-1/3 cups

White sugar (granulated) 2 cups

Powdered ferric oxide (rust) 1.8 cup (This can be obtained from steel filings + water)

Clear water, 3-1/2 cups

Procedure:

- 1. Place the sugar, potassium nitrate, and water in the bucket. Heat with a low flame, stirring occasionally until the sugar and potassium nitrate dissolve.
- 2. If available, add the ferric oxide (rust) to the solution. Increase the flame under the mixture until it boils gently.

NOTE: The mixture will retain the rust coloration.

- 3. Stir and scrape the bucket sides occasionally until the mixture is reduced to one quarter of its original volume, then stir continuously.
- 4. As the water evaporates, the mixture will become thicker until it reaches the consistency of cooked breakfast cereal or homemade fudge. At this stage of thickness, remove the bucket from the heat source, and spread the mass on the metal sheet.
- 5. While the material cools, score it with the spoon or spatula in criss-crossed furrows about 1 inch apart.
- 6. Allow the material to air dry, preferably in the sun. As it dries, rescore it occasionally (about every 20 minutes) to allow air-drying.
- 7. When the material has dried to a point where it is moist and soft but not sticky to the touch, place a small spoonful on the screen. Rub the material back and forth against the screen mesh with spoon or other flat object until the material is granulated into small worm-like particles.
 - 8. After granulation, return the material into direct sunlight to dry completely

Notes on commercially available low explosives:

Black Powder: This is the oldest known explosive and is still used today in muzzle-loading firearms. I have provided a recipe for this very simple compound, however commercial black powder is usually more powerful and more reliable than the homemade variety. Most gun stores stock commercial black powder. It comes in various grain sizes graded from largest to smallest as, Fg, FFg, FFFg, FFFFg. Naturally FFFFg is the best choice as an explosive filler but any grade will do in a pinch. Pyrodex is a substitute for black powder which produces less fouling in firearms but is interchangeable with black powder as an explosive filler. Black powder is sensitive to shock, spark and friction. It must be dried before use if it becomes wet.

Smokeless Powder: This is the propellant used in modern firearms. It is available commercially to those who reload their own cartridges and shells. Smokeless powder comes in two basic forms... single-base (SBSP), which is composed of nitrocellulose (guncotton) along with various stabilizers, and double-base (DBSP), which is of the same

basic composition but also contains a small amount of nitroglycerin to increase its power. SBSP is used in most center-fire rifle cartridges and is less powerful than DBSP which is used in most pistol and shotgun ammunition. Smokeless powder is less sensitive to shock, spark and friction than black powder. It also must be dry to function.

Match Heads: Match heads are a very simple and universally available low-explosive filler. They require no mixing and can be obtained without any paper trail or suspicion. This type of filler is, however, less powerful than many of the other fillers mentioned and therefore must be tightly confined to produce a good blast. A box of 50 matchbooks usually sells for around a dollar or so at a convenience store but much less from a wholesale depot which services bars and restaurants. Be certain to only use paper matches and not the wooden, "strike-anywhere" type as these are extremely sensitive to friction and shock. Match heads should be cut off from their paper stems with a pair of sharp scissors. You will find that you must use up quite a few books of matches to produce enough filler for an average sized pipe bomb. Once cut, match heads can be stored safely for long periods in an airtight container. This type of filler will not function when wet and is very difficult to dry out completely.

High Explosives

Potassium Chlorate Production:

Potassium chlorate is an easily produced chemical, which is useful in the production of both low and high explosives. The simplest method of production is conversion from calcium hypochlorite (HTH swimming pool chlorinator) HTH is about 65-percent calcium hypochlorite and is commercially available wherever swimming pool supplies are sold. There are a number of different pool chlorinators available but calcium hypochlorite is the only one we are interested in.

The HTH is converted into potassium chlorate by adding a potassium donor, which may be either potassium carbonate (potash), potassium chloride (salt substitute) or potassium sulfate (often used as a garden fertilizer). In the reaction which occurs, the calcium in the HTH will convert into either the carbonate, chloride or sulfate, depending on what was used as the donor. All of these calcium compounds are insoluble in water and will drop out of the solution in step 3.

- In a large Pyrex or enameled steel pan, place 454 grams (a 1-pound bag) of HTH and 84 grams of the potassium donor.
 - Add boiling water, using just enough to dissolve the powders completely.
- Place the pan on a heat source and boil until it reaches a specific gravity of 1.3 (full charge in a battery hygrometer). A chalk-like substance will form and drop out of the liquid.
- Filter the liquid while it is still hot. Discard the solids in the filter. This is the calcium compound mentioned earlier.

- Allow the solution to cool to room temperature. As it cools, crystals of potassium chlorate will precipitate from the solution and can be filtered out.
- Return the liquid to the heat source and repeat steps 3 to 5 twice more to recover more chlorate crystals.
- Combine all recovered crystals and dissolve them in a minimum amount of boiling water. Filter and allow to cool. This will remove most of the calcium and sodium contaminants.
- Powder the crystals very finely and allow them to dry on newspaper. Once dry the potassium chlorate will be ready to use.

If HTH is unavailable, common household bleach can also be used to produce potassium chlorate, which can be extracted through a process called fractional crystallization. The procedure is similar to that above.

- In a large Pyrex or enameled steel pan, place one gallon of bleach and begin heating it to a low boil.
 - Once boiling add 63 grams of potassium chloride (salt substitute)
- Check the solution being boiled with a hydrometer, and boil until you get a reading of 1.3. If using a battery hydrometer, boil until you read a FULL charge.
- Remove the solution from the heat source and allow it to cool in a refrigerator until it falls to between room temperature and 0 degrees Celsius.
 - Crystals will form at this point, filter them out and save them.
 - Boil the remaining solution again and cool as before. Filter and save the crystals.
- Take the crystals that have been saved, and mix them with distilled water in the following proportions: 56 grams per 100 milliliters distilled water. Heat this solution until it boils and allow it to cool. Filter the solution and save the crystals that form upon cooling. These crystals should be relatively pure potassium chlorate.
- Powder the crystals very finely and allow them to dry on newspaper. Once dry the potassium chlorate is ready to use.

Notes: Try using a very fine stainless steel reusable coffee filter, a fiberglass cloth pad or an EEC canister filter in these operations. A regular paper coffee filter may not stand up to the hot liquids.

Sodium Chlorate Production:

Sodium chlorate is a strong oxidizer used in the manufacture of explosives. It can be used in place of potassium chlorate in low and high-explosive mixtures.

Materials Required:

2 carbon or lead rods (1 in. Dry cell batteries (2-1/2" diameter x 5 in. long) diameter x 7" long)

Water

2 wires, 16 gauge (3/64" diameter approx.), 6' long, insulated

Gasoline

1 gallon glass jar, wide mouth (5" diameter x 6" high approx.)

Salt

Sulfuric Acid

Sticks

String

Teaspoon

Trays

Cup

Heavy cloth

Knife

Large flat pan or tray

Procedure:

- 1. Mix 1/2 cup of salt into the one gallon glass jar with 3 liters (3 quarts) of water.
- 2. Add 2 teaspoons of sulfuric acid to the solution and stir vigorously for 5 minutes.
- 3. Strip about 4 inches of insulation from both ends of the 2 wires.
- 4. With knife and sticks shape 2 strips of wood 1" x 1/8" x 1-1/2". Tie the wood strips to the lead or carbon rods so that they are 1-1/2 inches apart.
 - 5. Connect the rods to the battery in a motor vehicle with the insulated wire.
 - 6. Submerge 4-1/2" of the rods into the saltwater solution.
- 7. With gear in neutral position, start the vehicle engine. Depress the accelerator approximately 1/5 of its full travel.
- 8. Run the engine with the accelerator in this position for 2 hours; then shut it down 2 hours.
- 9. Repeat this cycle for a total of 64 hours while maintaining the level of the acid-salt water solution in the glass jar.

CAUTION: This arrangement employs voltages which may be dangerous to personnel.

Do not touch bare wire leads while engine is running.

- 10. Shut off the engine. Remove the rods from the glass jar and disconnect wire leads from the battery.
- 11. Filter the solution through the heavy cloth into a flat pan or tray, leaving the sediment at the bottom of the glass jar.
- 12. Allow the water in the filtered solution to evaporate at room temperature (approx. 16 hours). The residue is approximately 60% or more sodium chlorate which is pure enough to be used as an explosive ingredient.

Chlorate explosives:

Using the potassium chlorate produced with one of the earlier described methods you can produce a primitive type of plastic explosive. I have included two variations for the fabrication of potassium chlorate high explosives, both of which are tried and true. These recipes are at least fifty years old.

Composition M:

9 parts potassium chlorate or sodium chlorate

1 part Vaseline

Minelite B:

9 parts potassium chlorate or sodium chlorate

1 part wax

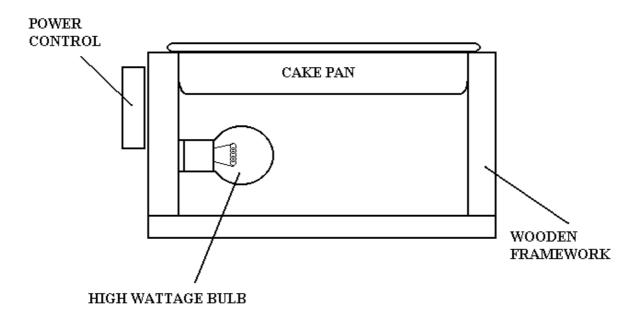
Notes on chlorate explosive production:

Whichever formula is used and addition of 10% by weight of hydrocarbon fuel will assist in balanced combustion. If homemade chlorates are used, blocks of explosive should be made up only as needed. This is due to the possibility of sodium or calcium contaminants remaining in the crystals, which makes their storage life uncertain. Commercial chlorates do not present this problem and explosives made from them will remain reliable even after long storage.

The chlorate must be finely powdered to the consistency of flour in order to ensure positive detonation. The hydrocarbon fuel must be evenly distributed throughout the chlorate powder. The completed mixture must be pressed in a block or stick press to the proper density of 1.3 grams/cc if potassium chlorate is used or 1.5 grams/cc if sodium chlorate is used. It is important to do this pressing properly if optimum performance is to

be obtained from the explosive. Although the potassium chlorate/Vaseline mixture is touted as a plastic explosive, it is still wise to do this.

A block or stick press, such as is covered in the <u>Improvised Plastic Explosives</u> section, will be required. You may need to improvise a hydraulic addition to the press. A pan heater may also be built to make this task much easier.



PAN HEATER

 $T_{}^{1}$

e framework of the pan heater is made up from scrap wood to whatever size is required. The pan rests on the rim and has the bottom painted black to absorb the heat from the bulb. A rheostat or power control may be used to vary the heat.

Block Production

- 1. Place the fuel in a heated pan on a double boiler and allow it to liquefy.
- 2. Place finely ground chlorate in the heater pan. Spread it out in an even layer and let it heat for several minutes to drive off any acquired moisture.
- 3. Pour the melted fuel as evenly as possible over that crystals. The heat from the pan should cause the fuel to distribute itself throughout the chlorate, but a little stirring with a spatula may be necessary.
- 4. Remove the pan from the heater and allow the mixture to cool somewhat. Rub the soft chlorate through a piece of screen to form granules.

5. Place granules in the press and process as covered in the plastic explosives section. NOTE: If sticks are being made, they could be pressed and packaged in thin PVC tubes. The ends may be sealed with PVC end caps or dipped in wax. The extra rigidity afforded by the tubes seems to increase the reliability of detonation.

CO-OP sugar

This compound has long been a favorite of the IRA. Composed of a simple mixture of 10 parts sodium chlorate and 1 part nitrobenzene, it is comparatively cheap, easy to make, and cap sensitive. They prefer to use it in their large car and culvert bombs, as it offers substantial increases in power over AN-FO and is just as easy to make. It is roughly equivalent to 50% nitroglycerine dynamite. Sometimes detonating cord is laced through the mixture in an effort to boost its velocity of detonation.

CO-OP sugar is based on a late 19th century commercial explosive called Rack-a-Rock, which was used extensively in that period along with a number of other potassium chlorate based explosives. A few are listed here:

3-4 parts potassium chlorate

1 part nitrobenzene

or

3-4 parts potassium chlorate

1 part nitrobenzene

1-3% sulfur (added after the other two parts are combined, usually by dusting the outside of the cartridges)

or

8 parts potassium chlorate

1 part turpentine

Another mixture of this type is 9 parts chlorate and 1 part kerosene. Either sodium or potassium chlorates may be used, but the potassium chlorate compound will be slightly more powerful. SC is more hygroscopic, however, and so must be protected from moisture prior to the "soak", but then again it costs only about half of what PC does.

SC may be found in "Solidox" oxygen pellets used in the home welder of the same name. They consist of about 80-90% SC and 10-20% catalyst and fiberglass binder. The crushed pellets, soaked in various flammable liquids, have turned up in a number of improvised explosive devices over the past few years. In fact, a fairly good explosive can be made by simply soaking the required amount of nitrobenzene into the uncrushed pellets. Theoretically, most liquid hydrocarbon oils, such as gasoline or diesel, should work in this type of explosive.

The primary problem is volatility. If the explosive is sealed in an airtight container, as CO-OP sugar usually is, this ceases to really matter. Due to the toxicity of the nitrobenzene, this is a good idea anyway. **Never allow this liquid to touch your skin and don't inhale its vapors.**

The level of power of the various mixtures will have to be determined by experimentation. No hard data exists on this factor.

Sodium Chlorate and Sugar or Aluminum Explosive

An explosive munition can be made from sodium chlorate combined with granular sugar, or aluminum powder. This explosive can be detonated with a #8 commercial blasting cap or improvised detonator.

Materials Required:

Sodium chlorate

Granular sugar

Aluminum Powder

Wooden rod or stick

Bottle or jar

Blasting cap

Steel pipe (threaded at one end), end cap and tape

Wax

Measuring container (cup, quart, etc.)

Procedure:

Pour 3 parts sodium chlorate and 1part aluminum powder or 2 parts granular sugar, into a bottle or jar.

Mix ingredients well by stirring with the wooden rod or stick.

How To Use:

- Coat the blasting cap, inside of pipe and end cap with melted wax.
- Thread end cap onto pipe.
- Pour mixture into pipe.
- Insert and tape blasting cap just beneath surface of mixture.

Note: Confining the open end of the pipe will add to the effectiveness of the explosive.

Ammonium Nitrate Explosives AN-FO and AN-AL:

Ammonium Nitrate is arguably the single most important chemical in improvised explosives production. It may be manipulated in various ways not only to form explosives but also to be converted into various other chemicals useful in this work. Even if it weren't so easy to procure (it is widely available as a chemical fertilizer), it would still be an invaluable material.

The most basic AN explosive is called AN-FO (Ammonium Nitrate/fuel oil). AN fertilizer comes in the form of prills (pellets) that can be mixed in a proportion of 96% AN and 4% fuel oil to form AN-FO. The only problem with AN-FO is that it requires a booster of about 1 LB of TNT or its equivalent to detonate. It is best if the booster is in the form of a short, squat cylinder, like a food can, rather than a stick.

AN-FO has been in commercial use as a blasting agent since the 1950s and remains in very widespread use. It has found most covert use in car and truck bombs (i.e. Oklahoma City) where it is used in very large quantities. A cement mixer should be used to prepare large quantities of this explosive. The AN is poured into the mixer with the required amount of fuel oil (100lbs AN per gallon of fuel oil if powdered AN is used, or ½ gallon if prills are used). Tumble the mixture for 20-30 minutes, or until a homogenous mixture is obtained. AN and moisture react to quickly rust metal, be sure to wash any metal equipment well after exposure to AN.

Powdered AN in this mixture will yield greater power however this will probably be limited to very small quantities as the time it would take to grind hundreds of pounds of AN into powder would be prohibitive. If a box of commercial laundry detergent is added to the mix (1 LB per 100 lbs. of AN), the performance of the explosive can be substantially increased (as much as 30%). 2 lbs. of aluminum powder will increase power even more.

Pour the mixture into charge containers, add the booster charges and seal. The larger the booster the better. A 55-gallon charge container will require about a 10 LB booster for positive function. If possible, place the booster as near to the center of the charge as possible. A good, strong booster can accelerate the detonation speed of the main charge substantially; a weak booster can reduce it.

Another high explosive made from ammonium nitrate is AN-AL (ammonium nitrate/aluminum powder). This is a very simple compound requiring only mixing of 4 parts finely powdered AN with 1 part aluminum powder and resulting in a very powerful explosive. The AN must be powdered and then all moisture driven out of it in an oven at low temperature before mixing with the aluminum powder and the finished explosive must be protected from moisture. This explosive should be not be stored for very long and should probably be used up soon after production. Even the smallest amount of moisture in the AN will cause it to react with the aluminum to produce hydrogen gas. This can and has caused explosions in canisters of this type of explosive. AN-AL is more cap sensitive than AN-FO but a booster should still be used to guarantee ignition.

Nitric Acid/Nitrobenzene ("HELLHOFFITE") Explosive

An explosive munition can be made from nitrobenzene and nitric acid. It is a simple explosive to prepare. Just pour the nitrobenzene into the acid and stir.

Materials Required:

Nitric acid field grade or 90% concentrated (specific gravity of 1.48) nitrobenzene

Acid resistant measuring containers (glass).

Acid resistant mixing rod

#8 Blasting cap or improvised equivalent.

Wax

Steel pipe, end cap and tape

Bottle or jar

Note: Prepare mixture just before use. Do not store this explosive.

Procedure

Pour 1 part nitrobenzene to 2 parts nitric acid into bottle or jar.

Mix ingredients well by stirring with acid resistant rod.

Caution: Nitric acid will burn skin and destroy clothing. If any is spilled, wash off immediately with a large amount of water. Nitrobenzene is toxic; do not inhale fumes.

How To Use:

Coat blasting cap, inside of pipe and end cap with melted wax.

Thread end cap onto pipe.

Pour mixture into pipe.

Insert and tape blasting cap just beneath surface of mixture.

Note: Confining the open end of the pipe will add to the effectiveness of the explosive.

Cellulose/Acid Explosive

An acid type explosive can be made from nitric acid and white paper or cotton cloth. This explosive can be detonated with a #8 blasting cap or an improvised equivalent.

Materials Required:

Nitric acid 90% concentrated (specific gravity of 1.48)

White unprinted, unsized paper, paper towels, napkins

Clean white cotton cloth

Acid resistant container

Heavy-walled glass container

Aluminum foil

Protective gloves

#8 Blasting cap

Wax

Procedure:

Put on gloves.

Spread out a layer of paper or cloth on aluminum foil and sprinkle with nitric acid until thoroughly soaked.

Caution: Acid will burn skin and destroy clothing. If any is spilled, wash it away with a large quantity of water. Do not inhale fumes.

Place another layer of paper or cloth on top of the acid-soaked sheet and repeat step 2 above. Repeat as often as necessary.

Roll up the aluminum foil containing the acid-soaked sheets and insert the roll into the acid resistant container.

Coat blasting cap with melted wax.

Insert the blasting cap in the center of the rolled sheets. Allow at least 5 minutes before detonating the explosive. **Do not store this explosive.**

C-4

Military grade C-4 (composition #4) detonates at a velocity of about 26,400fps which is a whopping 7,400fps faster that commercial 60% dynamite, which is the most powerful explosive made available for civilian use. C-4 is the preferred explosive for military demolitions work, it is capable of cutting steel and shattering rock and concrete. It is cap sensitive and stands up to environmental conditions very well.

Military grade C-4 is very difficult to obtain. Military supplies of this explosive are generally well guarded and kept track of. Any operative who is a member of the military should make every effort to obtain this explosive as well as other explosives and weapons for our movement. Of course, the operative should be cautious not to get caught in these efforts... you're more valuable as an infiltrator within the military than as a petty thief.

Black market sources of C-4 exist but the price will be high. Motorcycle gangs and other organized crime groups seem to be able to obtain C-4 from time to time for use in their mindless turfwars.

Finally the operative may choose to make C-4 by following the directions outlined here. This explosive is extremely dangerous, the process for making it is dangerous and manufacturing or possessing it is illegal. The power and versatility of C-4 may not be worth the risks involved in making it. I considered not providing instructions for manufacturing C-4 in this manual, but upon second thought, I realized that instructions are out there and those of you who feel that you must have it will attempt to make it regardless of what my opinion is. I have, therefore, provided the safest instructions possible for producing homemade C-4.

Improvised C-4

Materials Required:

Ammonium Nitrate fertilizer 34-0-0

Nitromethane

Denatured Ethyl Alcohol

Ammonium Nitrate fertilizer has been dealt with in the section on AN-FO and AN-AL. Nitromethane (CH3NO2) is used as a solvent and more commonly as a fuel additive for drag-racers, remote-control model airplane engines, go-carts and various other high speed engines. The operative should have no trouble obtaining a few gallons of this stuff from the local dragstrip or street racing hangout. A few phone calls should track this stuff down but you may have to pay outrageous chemical supply house prices. Avoid using the small bottles of Nitromethane which are available at hobby stores, these contain only 15%-20% Nitromethane and will not work consistently.

Procedure:

The first step is to dry the ammonium nitrate and keep it dry. In conditions of high humidity, this will be a difficult task. Fill a 1-pound coffee can with ammonium nitrate and place it in an oven at 150*F for three hours. An accurate thermometer is essential for this work as the AN will melt and liquefy at 170*F and will explode at 400*F. Once the heating cycle is complete, remove the coffee can and put it in two sealed plastic bags. After about two weeks the AN will have re-absorbed too much moisture and the process will have to be repeated.

Place about 430 grams of the dried AN into an oven-proof dish. Pour denatured ethyl alcohol over the AN and stir for about 3 minutes. The alcohol will turn a brownish color. Strain the alcohol off and dump the AN back into the dish and heat gently at below 150*F until all the alcohol is evaporated.

Next, using a mortar and pestle or an electric coffee grinder, grind the AN into talcum powder consistency. It is essential to grind the AN very finely. As soon as the grinding is

done it will be necessary to pack the powder into an airtight container. The AN is very deliquescent (moisture-absorbent) at this point so an airtight container is absolutely essential.

The safest way to complete the process is to combine the AN and Nitromethane at the blast sight, about 20 minutes prior to use. This may not be possible, of course, but bear in mind that the sooner the C-4 is used after final mixing, the better.

Mix 80 milliliters of Nitromethane into the 430 grams of AN. The ratio should be approximately 1/3rd Nitromethane by volume or 2 parts Nitromethane to 5 parts AN by weight. Because of the inconsistencies of civilian market AN and Nitromethane, some trial and error tweaking of the formula may be necessary. Wait about 20 minutes for the Nitromethane to be soaked into the AN. The mixture should have a thick porridge-like consistency (Too much Nitromethane added to the mixture will make it too thin to fire). At this point, the material will be cap sensitive but not shock sensitive. The C-4 will have a shelf life of about 2 weeks maximum, after that it will start to become less sensitive to cap detonation.

The finished product is soft and pliable. It can be put in a plastic bag and molded to fit into or around just about anything. Packing the C-4 into a rigid container will cause it to detonate with a bit more power. Adding about 5%, by weight (about 20 grams), of powdered aluminum to the AN and Nitromethane mixture will increase power further still.

Lets look at the procedure step by step;

Use fresh, pure Ammonium Nitrate.

Dry the AN in an oven at low heat (less than 150*F) for at least 3 hours.

Wash the AN in alcohol until the alcohol turns muddy brown.

Dump the AN into a metal container and dry thoroughly over low heat (Less than 150*F).

Grind the AN as fine as talcum powder.

Pack a premeasured amount in a rigid airtight container.

Pour in 1/3rd Nitromethane by volume.

Wait twenty minutes.

Detonate with #6 - #8 blasting cap or improvised equivalent.

Sheet Explosives

Sheet explosives are very powerful and versatile. They can be shaped to fit into the most unlikely places and are essential for producing letter bombs.

Materials Required

- 1. Explosive Both RDX and PETN are suitable, but the latter is preferred, as it is easier to detonate.
- 2. Binder The binder consists of a solid rubber-like material dissolved or suspended in a solvent. The amount to be used is based on the solid's content. This may be determined most simply by weighing out a 10-gram sample and allowing it to harden fully. It is then weighed to determine how much of the weight in solvent was lost. The amount needed is calculated based on this loss. Many different materials are suitable as binders.
- A. Rubber Molding Compound Available from hobby shop and hardware. This usually consists of the molding compound and a catalyst. Follow the directions on the label for mixing.
- B. Liquid Latex Commonly used in stage makeup, it is probably the best due to its use of nontoxic, non-reactive solvents. It is quite expensive, however. Small amounts sell in theatrical supply houses for about \$3-\$5 per 2-ounce bottle.
- C. Rubber Cement Another good choice and commonly available. There is some concern that residual acetic acid used as a solvent in this material may cause storage and reactivity problems. PETN is particular is very sensitive to acid contamination, so this is a valid concern.

The sheet should be pressed to a density of about 1.4 gm/cc.

Improvised Plastic Explosives

A reliable plastic explosive, suitable for all types of applications, can be improvised from a mixture of high-explosives and Vaseline. The preferred base explosives are RDX or PETN. This particular mix is based upon the original Composition C but would work equally well for the production of Semtex-type explosives. Simply use half RDX and half PETN, and substitute a vegetable oil for the Vaseline.

- 1. Spread the explosive crystals evenly in the pan heater. Allow to heat for a few minutes to remove any moisture.
- 2. Pour the melted Vaseline over the crystals. Allow a few minutes for it to distribute itself evenly throughout the crystals.
 - 3. Stir and fold the mixture with a plastic spatula to ensure even mixing.
- 4. Remove the mixture from the pan onto a flat, smooth surface. A sheet of auto safety glass will work perfectly, especially if placed over a heating pad to warm the surface. This makes blending easier.
- 5. Using a rolling pin, roll the explosive mixture as flat as possible, applying moderate to heavy pressure. This process is called milling.
- 6. Use the spatula to lift the sheet from the glass and fold it over itself several times. Repeat step 5.

This process increases the density and consistency of the explosive and will improve its performance substantially. While a simple hand-kneaded mixture will explode it will not rival the performance of the commercially made variety.

Once its been rolled and folded several times, the PE should be pressed into blocks or cartridges for storage.

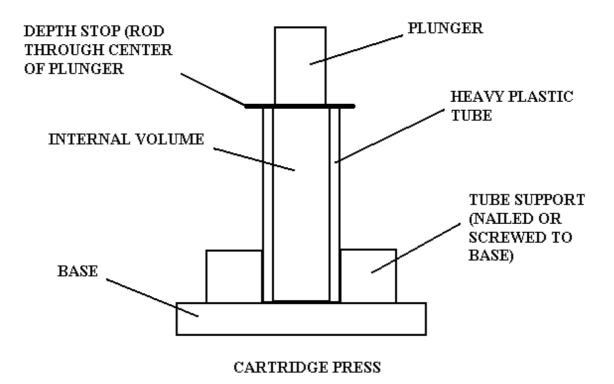
Since the density of an explosive has a direct bearing on its power, velocity and consistency of action, care should be taken when packaging to include this factor. Knockapart molds should be built to the proper dimensions to hold the volume of explosive at its proper density. For example, for optimum power Comp C should be pressed to a density of about 1.6 grams per cubic centimeter, therefore if the packages were to contain 500 grams of explosive:

500 grams (explosive weight)

Divided by 1.6 (density -grams/cc)

= 312.5 cubic centimeters of volume, which translates into a block of about 50mm x 125mm

If the operative wants to be spared the calculations, it is simple to build a mockup mold of the approximate length and width required. This mold can be made out of just about anything, but it must be waterproof. Carefully measure a volume of water equal to the number of cc's required (1cc = 1ml). Mark the depth of the water and build the real mold to these dimensions.



- 1. Weigh out the required amount of premilled explosive and place it on the warm milling glass. Let it get good and soft, but not so hot that the petroleum starts to exude.
- 2. Place strips of the warm PE into the mold, filling it evenly. Press it in by hand, if necessary.
- 3. Place cover on the mold and press until the cover is completely closed. This will yield a block compressed to the proper density.
- 4. Remove the cover and sides of the mold and expel the block. This will be easier if the explosive is allowed to cool down first.
 - 5. Package the block by wrapping it in plastic sheet or in a ziplock bag.

Sticks can be made in a similar manner as block but are forced out of the tube by using a piece of dowel with the same inside diameter as the tube.

Plastic explosives made by this process are heat sensitive and will start to get runny and sticky at high temperatures. This does not make them unsafe but performance will be affected by the oozing of the petroleum binder.

The completed product is safe to store and should keep for very long periods of time, provided they are stored in a cool dry place.

Guncotton

Guncotton (GC) was the first militarily useful high explosive. It was used widely in the late nineteenth and early twentieth centuries both for demolitions and as a filler for torpedoes and naval mines. When used wet it was very safe and insensitive, yet easily detonated using a priming charge of dry GC. It fell out of use when TNT and picric acid became widely available, but wet GC slabs were used by the British army for demolition purposes until late in WWII.

While guncotton can be easily made by nitrating cotton with a mixture of nitric and sulfuric acids, the resulting material is often unstable due to the difficulties involved in removing all the trace acids. Cotton fibers are essentially tiny tubes that serve to trap the acids inside. Improperly purified GC can become extremely dangerous with age, often resulting in spontaneous explosion. When GC was first discovered in 1840, it aroused great interest as a replacement for gunpowder in blasting. After several factories in Europe exploded due to improper purification, it was discarded for the next 30 years until a reliable method of purification was discovered.

What follows is a simplified method for extracting guncotton from common single-based gunpowder, in which it is the primary component. The resulting material is of high power, exhibiting more power when dry than wet.

Dry GC may be compressed into pipe bombs or other ordinance for use as a low explosive and will be many times more powerful than the original powder it was made from. In fact, if conditions are right, compressed dry guncotton can make the transition from deflagration to detonation very quickly.

Procedure:

- Place 1 pound of single-base powder into a jar and cover with about twice as much acetone. The powder will dissolve until the entire mass is a thick syrup resembling cold molasses.
- Fill a blender about half full of cold water and pour one quarter of the jellied powder into it. Blend at high speed for several minutes. A course green material resembling fiberglass will float to the top. This is guncotton.
- If wet GC is the goal, pour the mass into a coffee filter and squeeze out as much water as possible. Spread the moist GC onto several layers of newspaper and allow to dry thoroughly. Use a heat lamp if available but be careful not to allow the GC to get too hot!
- Weigh the dried GC. A small percentage of the stabilizers and other chemicals in the powder may have been lost in the water/acetone wash. How much depends on the type of powder used. Distilled water should then be added at a ratio of 3 ounces water per 16 ounces of dry GC. The material can be pressed into bricks and stored in plastic bags. (A British 1lb –19 ounce actual weight demolition slab was 6 x 3 x 11 ½" in size. It may also be pressed into jars and cans for storage.
- If dry GC is desired, drain off as much of the water from the blender as possible. Operate the blender on "grind" for several minutes, and use a plastic or wooden stirring rod to ensure that all of the GC is ground into a pulpy mass. The GC must be moist when ground. Dry guncotton is sensitive to shock and friction, so it would be extremely dangerous to perform this step on dry GC.
 - Remove the pulpy mass from the blender and dry as above.
- When completely dry, the GC may be compressed into pellets or cartridges using an improvised hydraulic press. The pellets may be given a quick dip in acetone to waterproof them. The acetone converts the outer layer of the GC into a form of celluloid, which is impervious to moisture. This outer shell will be a bit on the brittle side, and care must be taken to prevent it from being chipped. If damaged, moisture may enter the pellet and render it insensitive to initiation by a blasting cap. If full sized cartridges are made, they may be enclosed inside a condom for their protection.

Notes: Dry GC is sensitive to impact, friction, and sparks. In its pure state it is about as sensitive to impact as mercury fulminate or lead azide. The reprocessed form is a bit less sensitive but still should be handled carefully. It will detonate when struck by a rifle bullet. Likewise, extreme care should be used when pressing it into pellets or cartridges. All compression should be done slowly and carefully, using wooden and plastic molds.

AN-Gel

This is a fairly simple explosive mixture which can be detonated with a #6 blasting cap or an improvised equivalent. This explosive is roughly equivalent in power to 60% nitroglycerin dynamite. One significant drawback to this explosive is its uncertain storage

life. It tends to swell and vent gas as it ages. The addition of a retardant and buffer package will extend storage life to at least a year.

Materials Required: (1 LB Charge)

Chemical: Amount (Grams) % of total

Ammonium Nitrate 250g 55%

Potassium Nitrate 45g 10%

Aluminum powder 68g 15%

Sugar 23g 5%

Guar Gum 11g 2.5%

Borax 4.5g 1%

Water 68g 15%

Procedure:

- Separately grind and sift all materials.
- Store in individual containers.
- Mix guar gum and potassium nitrate together.
- Place the AN into a mixing bowl. Heat the water to boiling and pour it into the AN, stirring until all the AN is dissolved.
- Add the Guar gum and potassium nitrate mixture to the dissolved ammonium nitrate and stir briefly.
 - Add the aluminum and sugar. Stir until mixed evenly.
- Dissolve the borax in a couple of tablespoons of water and stir into the mix. Continue stirring until a smooth mixture is obtained.
- Pour the mixture into a mould or charge container and store in a warm spot to gel. The explosive is now ready to use.

Note: The Guar gum may be replaced with starch or gelatin, if necessary, but guar gum produces better gels. It is available at some health food stores.

When the boiling water is added to the AN, the operative will notice that the solution will become very cold. This endothermic reaction is the same as that harnessed in instant ice packs. These ice packs are a source of high-purity (and also high cost) ammonium nitrate.

Make this explosive in a well ventilated area or, at least, under the exhaust fan of a stove. Unlike many other explosives, its manufacture does not emit noxious fumes, but it does produce a horrible ammonia odor similar to cat urine.

Seal this explosive up in jars, cans or sealed plastic wrappings. If tin cans are used as containers the insides must be coated with a plastic sealer. The AN in the gel can react with the tin coating on the can to produce sensitive explosive compounds that are dangerous.

As mentioned earlier, the addition of three chemicals will greatly enhance the storage life of the explosive. The retardant, which reduces gas formation, is urea, a common garden chemical. It is used in a percentage of 0.5%, or 2.25 grams per 1lb charge. The buffer is made by mixing 100 grams of monobasic potassium phosphate with 1 gram of powdered lye. Place the chemicals in a jar and shake for several minutes to mix them completely. 1.5 grams of this mixture or 0.3% of the total charge weight, will be needed. These chemicals are added after all the others have been mixed and before warming.

Potassium or Sodium Nitrate and Litharge (Lead Monoxide)

Potassium or sodium nitrate is needed to prepare DDNP and Litharge is required for the preparation of lead picrate

- FF F
Materials Required:
Lead
Potassium (or sodium) nitrate
Methyl (wood) alcohol
Iron pipe with end cap
Iron rod or screwdriver
Paper towels
2 glass jars, wide mouth
Metal pan
Heat source
Scale
Cup
Water
Pan
Procedure:

1. Mix 12 grams of lead and 4 grams of potassium or sodium nitrate in a jar. Place the mixture in the iron pipe.

- 2. Heat iron pipe in a bed of hot coals or with blow torch for 30 minutes to 1 hour. (Mixture will change to a yellow color.)
- 3. Remove the iron pipe from the heat source and allow to cool. Chip out the yellow material formed in the iron pipe and place the chips in the glass jar.
 - 4. Add 1/2 cup (120 milliliters) of methyl alcohol to the chips.
- 5. Heat the glass jar containing the mixture in a hot water bath for approximately 2 minutes (heat until there is a noticeable reaction between chips and alcohol; solution will turn darker.
- 6. Filter the mixture through a paper towel into the other glass jar. The material left on the paper towel is lead monoxide.
- 7. Remove the lead monoxide and wash it twice through a paper towel using $\frac{1}{2}$ cup (120 milliliters) of hot water each time. Air dry before using.
- 8. Place the jar with the liquid (from Step 6) in a hot water bath (as in Step 5) and heat until the alcohol has evaporated. The powder remaining in the jar after evaporation is potassium or sodium nitrate.

NOTE: Nitrate has a strong tendency to absorb water from the atmosphere and should be stored in a closed container.

Nitric Acid

Nitric acid is used in the preparation of many explosives, incendiary mixtures, and acid delay timers. It may be prepared by distilling a mixture of potassium nitrate and concentrated sulfuric acid.

Materials Required:

Potassium nitrate (2 parts by Drug Store volume)

Sulfuric acid (1 Motor vehicle batteries part by volume)

2 bottles or ceramic jugs (narrow necks are preferable)

Pot or frying pan

Heat source

Tape

Paper or rags

IMPORTANT: If sulfuric acid is obtained from a motor vehicle battery, concentrate it by boiling it until white fumes appear. **DO NOT INHALE FUMES.**

NOTE: The amount of nitric acid produced is the same as the amount of potassium nitrate. Thus, for 2 tablespoons of nitric acid, use 2 tablespoons of potassium nitrate and 1 tablespoons of concentrated sulfuric acid.

Procedure:

- 1. Place dry potassium nitrate in bottle or jug. Add sulfuric acid. Do not fill bottle more than 1/4 full. Mix until paste is formed.
- 2. Wrap paper or rags around necks of 2 bottles. Securely tape necks of bottles together. Be sure bottles are flush against each other and that there are no air spaces.

CAUTION: Sulfuric acid will burn skin and destroy clothing. If any is spilled, wash it away with a large quantity of water. Fumes are also dangerous and should not be inhaled.

- 3. Support bottles on rocks or cans so that empty bottle is slightly lower than bottle containing paste so that nitric acid that is formed in receiving bottle will not run into other bottle.
 - 4. Build fire in pot or frying pan.
- 5. Gently heat bottle containing mixture by moving fire in and out. As red fumes begin to appear periodically pour cool water over empty receiving bottle. Nitric acid will begin to form in the receiving bottle.

CAUTION: Do not overheat or wet bottle containing mixture or it may shatter. As an added precaution, place bottle to be heated in heat resistant container filled with sand or gravel. Heat this outer container to produce nitric acid.

6. Continue the above process until no more red fumes are formed. If the nitric acid formed in the receiving bottle is not clear (cloudy) pour it into cleaned bottle and repeat Steps

2-6.

Note: Nitric acid should be kept away from all combustibles and should be kept in a sealed ceramic or glass container.

Picric Acid Production:

Picric acid can be used as a booster explosive in, a high explosive charge, or as an intermediate to preparing lead picrate or DDNP. This is by far the simplest method for picric acid production but, unless the ingredients can be obtained cheaply or stolen, it may be too expensive for large scale production. Using this method 1 LB of picric acid will cost about \$40, not much to pay for a small bomb but if a really large device is considered the price will become out of hand. This method will produce about ¼ LB of picric acid per batch.

Materials Required:

Concentrated sulfuric acid

Potassium Nitrate

Aspirin

Water

Procedure:

This procedure should be conducted in a well ventilated area, outdoors if possible.

- Crush 500 aspirin tablets into a fine powder, use a mortar and pestle or better yet a small coffee grinder. When obtaining aspirin always choose the cheapest, generic brand not just because of the cost but also because these cheaper types don't contain the fillers and coatings that will have to be filtered out before use.
 - Pour the powdered aspirin into a gallon glass jar containing 2 liters of sulfuric acid.
 - Place the jar in a simmering hot water bath and heat for 15 minutes.
- Remove the jar from the bath and stir it vigorously to make sure that all the aspirin has dissolved. The solution will gradually turn black
- Add 300 grams of potassium nitrate to the acid in three 100 gram portions. Stir vigorously between additions. The solution will turn a dark yellow-orange color.
- Allow the solution to cool to room temperature, stirring occasionally. Slowly pour the solution into a bucket containing about 2 gallons of cold water. Wear gloves, goggles and an apron throughout this procedure as the fumes and crystals produced are toxic.
- Yellowish crystals will form and should be filtered out and collected, this is picric acid.

Note: When the potassium nitrate is added to the acid/aspirin solution, the reaction will generate a great deal of red nitrogen dioxide gas. This gas is very toxic and must be vented away from the work area, this is really best done in an open air environment. The appearance of the dreaded "red gas" is a major danger signal when making most other explosives, such as nitroglycerine, but is perfectly normal for this one. The venting of this gas in a residential area will definitely attract the attention of law enforcement.

An excellent explosive can be made from picric acid by mixing 88 parts with 12 parts wax, using the same process covered in the chlorate explosives section. The grained explosive is then pressed into cartridges. It is easily detonated with a #8 blasting cap or a homemade equivalent. In this form the explosive is much less sensitive to shock, less reactive with metals and less toxic to handle than the pure material.

Primary Explosives:

Mercury Fulminate

Mercury Fulminate is used as a primary explosive in the fabrication of detonators. It is to be used with a booster explosive such as picric acid or RDX.

Materials Required:

Nitric Acid. 90% conc. (1.48 Specific gravity)

Mercury

Ethyl (grain) alcohol (90%)

Filtering material Paper towels

Teaspoon measure (1/4, 1/2, and 1 teaspoon capacity) - aluminum, stainless steel or wax-coated

Heat source

Clean wooden stick

Clean water

Glass containers

Tape

Syringe

Procedure:

- 1. Dilute 5 teaspoons of nitric acid with 2-1/2 teaspoons of clean water in a glass container by adding the acid to the water.
- 2. Dissolve 1/8 teaspoon of mercury in the diluted nitric acid. This will yield dark red fumes.

NOTE: It may be necessary to add water, one drop at a time, to the mercury-acid solution in order to start reaction.

CAUTION: Acid will burn skin and destroy clothing. If any is spilled, wash it away with a large quantity of water. Do not inhale fumes.

- 3. Warm 10 teaspoons of the alcohol in a container until the alcohol feels warm to the inside of the wrist.
- 4. Pour the metal-acid solution into the warm alcohol. Reaction should start in less than 5 minutes. Dense white fumes will be given off during reaction. As time lapses, the fumes will become less dense. Allow 10 to 15 minutes to complete reaction. Fulminate will settle to bottom.

CAUTION: This reaction generates large quantities of toxic, flammable fumes.

The process must be conducted outdoors or in a well ventilated area, away from sparks or open flames. Do not inhale fumes.

- 5. Filter the solution through a paper towel into a container. Crystals may stick to the side of the container. If so, tilt and squirt water down the sides of the container until all the material collects on the filter paper.
 - 6. Wash the crystals with 6 teaspoons of ethyl alcohol.
 - 7. Allow these mercury fulminate crystals to air dry.

CAUTION: Handle dry explosive with great care. Do not scrape or handle it roughly. Keep away from sparks or open flames. Store in cool, dry place.

DDNP

DDNP is a primary explosive used in the fabrication of detonators It is to be used with a booster explosive such as picric acid.

booster explosive such as picric acid.

Materials Required

Picric acid Flowers of sulfur

Lye (sodium hydroxide)

Sulfuric acid, diluted Motor vehicle batteries

Potassium or sodium nitrate

Water

2 glass cups, heat resistant,(Pyrex)

Stirring rod (glass or wood)

Improvised scale

Paper towels

Teaspoon

Tablespoon

Heat source Containers

Eyedropper

Tape

Procedure:

1. In one of the glass cups, mix 1/2 gram of lye with 2 tablespoons (30 milliliters) of warm water.

- 2. Dissolve 1 teaspoon (3 grams) of picric acid in the water-lye solution. Store until ready for step 5.
- 3. Place 1/4 teaspoon (1 milliliter) of water in the other glass cup. Add 1/2 teaspoon (2-1/2 grams) of sulfur and 1/3 teaspoon (2-1/2 grams) of lye to the water.
- 4. Boil solution over heat source until color turns dark red. Remove and allow solution to cool.
- 5. In three portions, add this sulfur-lye solution to the picric acid-lye solution (Step 2); stir while pouring. Allow mixture to cool.
- 6. Filter the mixture through paper towel into a container. Small red particles will collect on the paper. Discard the liquid in the container.
 - 7. Dissolve the red particles in 1/4 cup (60 milliliters) of boiling water.
- 8. Remove and filter the mixture through a paper towel as in step 6. Discard the particles left on the paper.
- 9. Using an eyedropper, slowly add the sulfuric acid to the filtered solution until it turns orange-brown.
- 10. Add 1/2 teaspoon (2-1/2 grams) more of sulfuric acid to the solution. Allow the solution to cool to room temperature.
- 11. In a separate container, dissolve 1/4 teaspoon (1,8 grams) of potassium or sodium nitrate in 1/3 cup (80 milliliters) of water.
 - 12. Add this solution in one portion, while stirring, to the orange-brown solution.

Allow the mixture to stand for 10 minutes. The mixture will turn light brown.

CAUTION: At this point the mixture is a primary explosive. Keep away from flame.

- 13. Filter the mixture through a paper towel. Wash the particles left on the paper with 4 teaspoons (20 milliliters) of water.
 - 14. Allow the particles to dry (approx. 16 hours).

CAUTION: Explosive is shock and flame sensitive. Store explosive in a capped container.

NOTE: The drying time can be reduced to 2 hours if a hot (not boiling) water bath is used.

Lead Picrate

Lead picrate is used as a primary explosive in the fabrication of detonators

Materials Required:

Litharge (lead monoxide)

Picric acid

Wood alcohol (methanol)

Wooden or plastic rod

Dish or saucer (china or glass)

Teaspoon

Improvised Scale

Containers

Flat pan

Heat source (optional)

Water (optional)

Procedure:

- 1. Weigh 2 grams each of picric acid and lead monoxide. Place each in a separate container.
- 2. Place 2 teaspoons (10 milliliters) of the alcohol in a dish. Add the picric acid to the alcohol and stir with the wooden or plastic rod.
 - 3. Add the lead monoxide to the mixture while stirring.

CAUTION: At this point the solution is a primary explosive. Keep away from flame.

- 4. Continue stirring the mixture until the alcohol has evaporated. The mixture will suddenly thicken.
- 5. Stir mixture occasionally (to stop lumps from forming) until a powder is formed. A few lumps will remain.

CAUTION: Be very careful of dry material forming on the inside of the container.

6. Spread this powdered mixture, the lead picrate, in a flat pan to air dry.

NOTE: If possible, dry the mixture in a hot, not boiling, water bath for a period of 2 hours.

<u>Improvised Initiators + Detonators</u>

All of the previously described low and high-explosives require an initiator or detonator for ignition. It is possible for the operative to produce initiators and detonators which are just as safe and reliable as commercially available ones.

Model Rocketry Match

Possibly the simplest initiator is what is know as a model rocketry match. This is a small wire with a blob of combustible material on the middle of it. It is design to be placed into the end of a model rocket engine with both ends of the wire sticking out and then ignited by placing a current of 9 volts through the wire. These matches are cheap and easy to use but you must make sure that the match itself is in intimate contact with the powder charge of your bomb. Using a setup such as that used for the lightbulb squib will make the match more reliable. A small model rocket engine, initiated with this type of match, would also make a very positive initiator for any low explosive bomb or for an incendiary device.

Burning Cigarette Delay

This is the simplest and least reliable type of delay mechanism. A book of paper matches is attached to a cigarette with tap or elastic bands. The cigarette is lit and left to smolder until it ignites the matches.

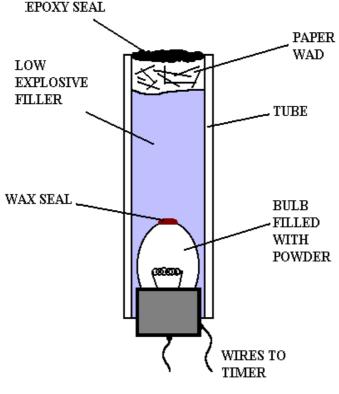
Cigarette companies have spent significant time and resources in developing cigarettes that won't go out if left unattended (so that the smoker will have to light another one upon return). Burn rates and reliability are different for each brand so do some tests if accurate delay times are required.

This device is perfect for arson attacks upon targets of low value such as mail-boxes.

Lightbulb Squib

A small lightbulb and a length of tubing are required to make this squib. Solder two wires to the contacts at the base of the lightbulb and then test the bulb with a battery to be sure its working. Carefully file a small hole in the tip of the bulb. Fill the bulb with a finely powdered, fast-burning, low explosive. Seal the hole with a drop of wax. Find a short length of cardboard, plastic or metal tubing which the bulb will fit snuggly into and glue the bulb into one end. Fill the tube with a low-explosive powder. Place a small wad of paper on top of the powder and then seal the end of the tube with wax or epoxy. You have just created a small explosive device so handle it accordingly. This squib will ignite even the most difficult to light low explosives such as Ammonpulver.

The best location for a squib is in the center of the low explosive filler. This step alone will decrease the burn time of a low explosive bomb by 50% and thus increase the power of the blast.



HOMEMADE SQUIB

Improvised Detonator

An overwhelming number of different detonator designs have been produced over the years. The IRA tends to use one improvised from a piece of 1/2" copper tubing containing 2.5 grams of mercury fulminate, ignited by a flashbulb. Detonators built from plastic tubes are being produced presently and the Soviet army was using cardboard tube detonators as early as WWII. Once you understand the basic principles of detonation it will be a simple thing to produce detonators in any configuration you choose.

As always I will attempt to keep things as straightforward as possible. The improvised detonator I will describe is produced from a spent .223 cartridge case though just about any piece of small tubing will do. It will be equivalent to a commercial #8 blasting cap, both in power and physical dimensions. The base explosive will be picric acid and the primary explosive will be HMTD. There are a number of different primary explosives that could be substituted but HTMD is the easiest to produce and is made from readily available materials. A word of warning, however, HTMD is not stable at elevated temperatures so dets made with it must be protected from heat. It will also corrode the cartridge case if stored for any length of time. Corrosion can be eliminated if the inside of the cartridge case is coated with a plastic or silicone sealer.

HTMD Production

Materials:

Hexamine - These are the small fuel blocks used in backpacker's stoves. They may also be found in surplus stores as army surplus fuel pellets. The ones you want are the small round ones, about the diameter and thickness of a Lifesaver candy. Scrape off the outer wax coating. The larger commercial packages hold eight small blocks weighing a total of 6 1/2 oz. They contain a purer grade of Hexamine than the pellets and are actually cheaper than buying the bulk chemical on a pound-per-pound basis.

Citric Acid (sour salt) - Available at some supermarkets in the home canning section. Citric acid is used to adjust the pH of home canned products.

6% Hydrogen Peroxide - Hair Bleach, found in drug stores everywhere. This is not the same as the 3% antiseptic solution.

Procedure:

Pour 45ml (9 tsp.) of hydrogen peroxide into a small glass jar. Add 2 1/2 tsp. of finely powdered Hexamine in three portions. Stir vigorously between additions to make sure that all of the powder dissolves. Add a little more peroxide if necessary. Place the jar in a basin of cold water or in the refrigerator for 30 minutes.

Remove the jar from the cooler and add 4 1/2 tsp. Finely powdered citric acid in five portions. Stir vigorously between additions as before.

Let the jar sit overnight (8 to 24 hours) at room temperature. White crystals will have formed in the bottom of the jar. Filter the solution through a coffee filter. Rinse out any crystals sticking to the jar with a little cold water. Air dry the crystals on the filter and scrape into a secure plastic container. A 35mm film container is ideal for this purpose. Use care when scraping the crystals off of the filter because they are sensitive to shock and friction.

Igniter Match

An igniter match is similar to the Lightbulb Squib. Be sure that the bulb is small enough to fit into a the piece of 1/4" tubing described later. Using a nail file or emery board, file a small hole in the tip of the bulb. Fill the bulb with whatever finely powdered propellant you have decided to use. Seal the hole with wax, glue, silicone or a small piece of tape. Obtain a length of 1/4" tubing (any metal tubing will do) and cut a 3/8" length. Cut one end with a crimping cutter and the other end with a sharp cutter. A standard pipe cutter can be made to perform both of these tasks if you're careful; simply tighten up the cutter as far as it will go before cutting the crimped end and keep the pressure very tight throughout the cut. For the sharp cut use a very gentle cut with just enough pressure to make progressive scoring on the tube until its cut right through. Fit the bulb into the tube with the glass end just slightly protruding from the crimped end of the tube. Fill the gap between the tube and bulb body with epoxy or silicone and let it dry.

Detonator Assembly

Prepare the cartridge case by sawing off the rim portion and using a file, remove a bit of material from the base of the cartridge. This will give the case a more uniform thickness reducing the chances of a misfire. Force a tapered 5/16" metal rod down the

case mouth to enlarge the opening. Plug the primer hole in the base with a bit of epoxy and let dry. Spray plastic sealer inside the case to prevent corrosion and let dry.

Be sure that the picric acid base charge is very dry before loading. Dry it at about 80* C for two hours before loading. This can be accomplished with a heat lamp or a simple light bulb, be sure not to overheat. The HMTD should be dried at room temperature or slightly above, overheating it may cause it to become inert.

Pour half of the 1 gram picric acid base charge into the case. Use a 5/16" wooden or plastic rod to carefully press it into the bottom. Using a bench vise to slowly force the rod into the case will make a suitable substitute for a proper detonator press. A modified single stage reloader's press would also make a suitable press. Do not twist, tap or pound the rod in any way. A plastic bucket or a heavy cardboard box should be placed over the press in case of an accidental explosion, this will happen from time to time but the covering will protect you from injury. Add the second half of the base charge and press as before. Pour .75 to 1 gram of the HMTD into the case and press as above. Add a few grains of black powder to the top of the primary charge and then carefully slide the igniter match assembly into the case mouth and seal with epoxy. When the epoxy is dry, spray the entire unit with plastic sealer to waterproof it. The detonator is now complete and ready to use.

When using this det try to use more voltage than the bulb calls for. This will cause the filament to glow hotter and faster before it burns out providing more certain ignition of the propellant.

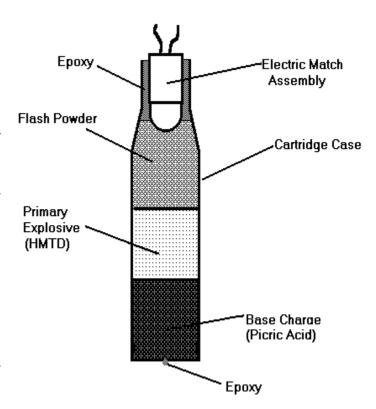
Improvised Detonator

Timers And Delay Mechanisms

Pyrotechnic Delays

Probably the simplest delay mechanism is the slow-burning fuse. The materials and skills required to assemble this type of delay are quite basic and the finished product is very easy to use. The drawbacks to this type of delay include the fact that smoke emitted by the burning fuse may betray the location of the device.

A pyrotechnic fuse can be made with a length of string made from natural fibers, gunpowder or any other low-explosive powder, and some glue. Simply apply a bit of glue to the string and then roll it in



the powder. Be sure to get plenty of powder to adhere to the glue and then allow it to dry. Once dry the fuse can be made more durable and moisture resistant by applying a thin coat of spray paint. The operative will have to experiment to determine delay time for these improvised fuses.

A sparkler can also be used as a pyrotechnic fuse. The sparkler burns at a consistent rate and is nearly impossible to extinguish once lit. The only drawback is that these devices are a bit difficult to ignite

Lead Break Fuse

This type of fuse has been in use since WWII and has proven itself to be rugged and reliable. A cocked striker, or firing pin, is restrained by a short length of lead solder wire. Pressure from the striker springs pulls the top of the striker shaft against the solder wire, slowly cutting its way through. When the solder can no longer restrain the load of the spring, it releases the striker to impact the primer and detonate the charge.

The length of the delay is determined by three factors:

- Spring Power This is, of course, is self-explanatory. If you press harder against something you are cutting, it cuts faster.
- Solder Type Solder wire varies in thickness and composition. Be sure you have conducted tests on the type of solder you intend to use before trying it with a real bomb.
- Temperature In cold weather, solder wire hardens somewhat and will deliver a longer delay than one at room temperature. Extremely high temperatures, conversely, will cause the wire to soften which will shorten the delay.

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Materials Required
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12-penny duplex nail (striker)

5/16" metal tube, 3" long (fuse body)

#6 washer (shear pin support)

1/4" x 1 3/4" spring

1/4" x 1 1/2" steel bolt (primer/detonator assembly)

Small rifle or pistol primer

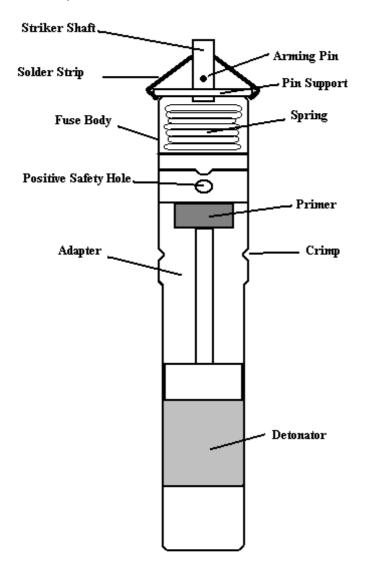
Blasting cap or improvised detonator

Coat hanger wire (arming and safety pins)

Solder wire (shear pin)

Procedure

- Striker Saw the head off the duplex nail and cut off any excess length. Chuck the nail in a drill, lock the trigger on and use a file to grind it into shape. Drill two 3/32" holes about 1 1/4" up the shaft from the tip at 90 degree angles to each other and 1/8" apart. File off any burrs. Chuck the nail back in the drill and polish it with a piece of emery paper until it is slick and smooth.
- Fuse Body Cut off a 3" length of the 5/16" metal tubing. The best tool for the job is a pipe cutter. Purchase a cheap one and dull the cutting wheel with a file so that it will crimp tubing quite a bit before it cuts through. This will create a secure seat for the spring. Drill a 3/32" hole through the tube about 1/2" from the bottom (uncrimped) end. This will hold the positive safety pin. Remove any burrs from the tube.
- Primer/Detonator Assembly Saw the head and all but 1/2" of the threads off the bolt. File both ends flat. Using a 11/64" bit, drill a hole in the center of the bolt (unthreaded end) just deep enough to seat the primer, no deeper. Next, drill a 3/32" hole in the center of the first hole all the way through the remainder of the bolt. This is not as easy as it sounds, so be sure to have extra bolts and drill bits handy. Chuck the bolt in the drill and



Lead Break Fuse

use a file to grind down the threaded portion until it will easily slide into the mouth of the blasting cap. Reverse the bolt in the drill and, using the edge of the file, cut a groove into the side, about 1/4" down from the primer end. Seat a primer into the larger hole using a vise padded with a piece of wood. Do this slowly carefully, and be sure to wear eye protection. Paint around the primer with a sealer, such as nail polish, to waterproof it.

- Shear Pin Support - Ream the center hole of the washer with an 11/64" drill bit.

Assembly:

- Apply a light coating of oil to the firing pin and spring, then slide them into the tube. Use a 1/4" rod to compress them until the striker shaft protrudes from the end of the tube. Slide the washer over the shaft and slip a short piece of coat hanger wire (arming pin) through the lower

hole. Release pressure on the rod. The striker will be retained in the tube by the arming pin.

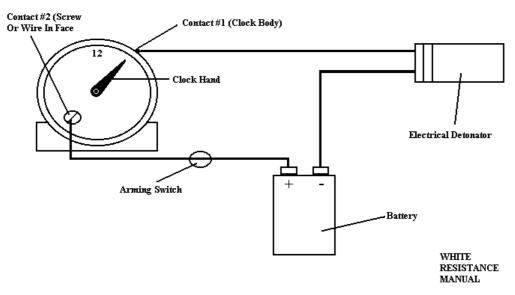
- Slip a length of solder wire through the upper hole and pull its ends down the sides of the fuzz body. Secure it in place with some tape.
- Slide the primer/detonator assembly into the tube. Estimate where the groove is located and use the dulled tube cutter to crimp it into place. Add a drop of superglue as security.
- Cover one of the positive safety pin holes on the fuse body with a short piece of tape. Pierce the center with a straight pin. Push the safety pin through this hole and into place. The grip of the tape will retain it.
- Pour a small amount of finely powdered low-explosive into the blasting cap and crimp or tape it into place. The fuse is now complete.

Operation

- Insert the fuse into the explosive charge. Withdraw the arming pin. The striker shaft will snap down onto the solder wire and slowly begin cutting through the solder wire. If the solder fails to hold, for any reason, the striker will be caught by the positive safety pin.
 - If the solder holds, withdraw the safety pin.
 - The fuse is now fully armed.

Clockwork Electrical Delay

The use of mechanical (analog) clocks and wristwatches is a common and effective method of delayed ignition. This fuse can be built from a wristwatch or an alarm clock. Both work on essentially the same principle, with some variation in construction. The basic idea of this fuse is to use the rotating hands of the clock to complete an electrical circuit and fire the bomb.



Basic Analog Electrical Delay Circuit

Construction

- Remove the plastic dial cover from the clock face.
- If a delay of less than 1 hour is required, remove the hour hand. If more than an hour is required, remove the minute hand. Remove and discard the second hand, if present.
- Scrape the finish off the leading edge of the hand where it touches contact #2. This will ensure a good connection.
- Drill a hole through the dial cover just big enough to receive the contact (#2). A small screw should be used as the contact, but if a wristwatch is used, it is best to use the end of the connecting wire as the contact. Tape or glue the contact in place. (NOTE: a blob of model airplane glue works well but avoid the use of cyanoacrylic "super-glues", as the capillary action of this type of adhesive has a tendency to coat the contact, effectively insulating it.)
- Replace the dial cover on the clock face. Check to ensure that the hand will touch the contact.
- Attach the other contact wire to the case of the clock. For alarm-type clocks, there is usually an external screw used for disassembly. This screws straight into the chassis of the mechanism and makes a perfect contact. For a wristwatch, the wire should be soldered to the case to ensure a good contact.
- Assemble the rest of the circuit as shown in the drawing. Make sure that the arming switch is in the OFF position. It is wise to use a light bulb to test the circuit to ensure its safety before a detonator is attached.

Collapsing Circuit

A collapsing circuit is a simple, cheap, and reliable delay that has seen long service with many terrorist groups. This circuit is so simple that it can be built by just about anyone... even if you don't have any electronics skills.

An electric relay is the heart of this delay mechanism. A relay is basically an electromagnetic switch. Current from a battery flows through its coil and generates a magnetic field, which moves a flexible contact towards or away from a fixed contact.

The two fixed contacts are known as "Normally Open" (NO) or "Normally Closed" (NC). When the relay is not energized, the moveable contact is positioned by spring tension against the NC contact. When the relay is energized, the moveable contact is drawn against the NO contact. One wire in the firing circuit is attached to the NC contact lead; the other is attached to the moveable contact lead (consult circuit drawing). When the relay is energized, the NC contacts are open and the firing circuit is incomplete. When the battery power degrades to the point where the magnetic coil can no longer hold the moveable contact against spring pressure, it touches the NC contact, completes the circuit, and fires the initiator.

The amount of time required for this action to take place depends primarily on the ohmic resistance of the relay coil and the type of battery used. Certain batteries, such as those used in camera photoflashes, have high voltage but can only sustain their level of power far a comparatively short length of time. Therefore, if one of these is used, the delay will be shorter. The more ohms a really is rated for the longer the delay will be.

Regular flashlight batteries of the same voltage rating will hold the contacts open for a much longer period of time than the aforementioned type, and alkaline batteries will hold them longer still. So, the combination of parts is dependent on the length of delay required. For a longer delay, use a relay with a high ohmic resistance and a battery made to deliver its rated voltage for long periods. For shorter delays, a relay with a low ohmic resistance and a battery of short current delivery is required.

With the proper combination, delays can be achieved ranging from about 15 minutes to several months. Its only drawback is that the accuracy is ballpark at best. Depending on temperature, battery condition, and other variables, the delay can swing as much as 25 percent or more either way. Use an electronic timer if split-second accuracy is required.

Materials Required:

1 DC relay

1 relay battery

2 toggle or other spst switches

1 firing battery

1 electric initiator

1 green relay lamp

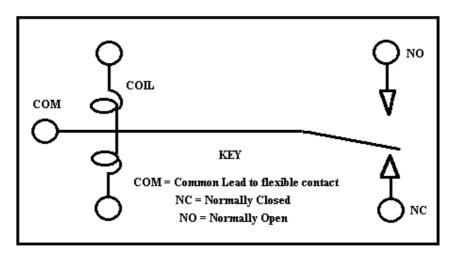
1 red relay lamp

Mounting board (wood, plastic or cardboard)

The voltage a relay is rated for can usually be exceeded by up to 50% without burning the coil out. For instance, a 6-volt relay can use up to 9 volts safely. This will usually give a longer delay, but this is dependent on the type of battery used. Conversely, if shorter delays are required, the relay can sometimes be run at a lower voltage. Testing is required to find out exactly how low it can go.

Shorter delays can also be produced by inserting a resistor into one of the power leads of the relay. Once again, some testing will be required to determine the approximate length of the delay. When doing this testing start with the lowest resistor available and go up in increments until you reach the desired length of time.

This type of delay can be built cheaply without the lamps and switches but they really make for a safe delay mechanism.



Schematic Diagram of Relay Contacts

Operation:

Flip switch A (relay) to ON position. The green lamp should come on with a constant, nonflickering light.

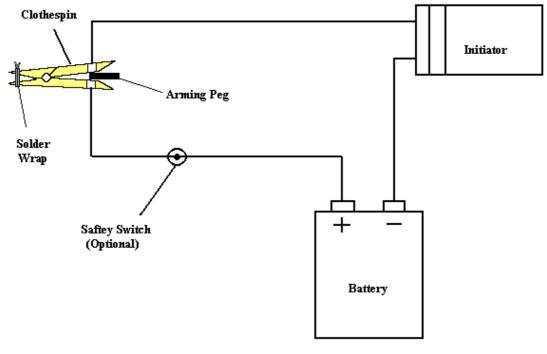
Flip switch B (firing) to ON position. The red lamp should NOT light.

Flip switch A to OFF position. The red lamp should now be lit.

Flip switch A back to ON position. The green lamp should light and the red lamp should go out. This shows that the circuit is safe.

If the red lamp is out, the detonator may be plugged in safely. The bomb is now armed. NOTE: If desired, the det jack may be replaced with two single strand wires, which are twisted around the leg wires of the detonator in standard fashion (Western Union pigtail splice).

Clothespin/Solder Delay



WHITE RESISTANCE MANUAL

Clothespin Delay Circuit

This is probably the simplest type of mechanical delays. A clothespin switch is created by wiring each jaw of a regular wooden clothespin so that a circuit is completed when the clothespin is in the closed position. The clothespin is then held open by wrapping its arms with solder wire. When spring tension from the clothespin stretches the wire enough, the jaws close, completing the circuit and firing the bomb. The length of delay is determined by the thickness of the solder and the number of wraps used. Experimentation will allow you to determine the average length of delay. A piece of wooden dowel or a similar insulator can be used as an arming pin by placing it in the jaws and removing it to arm the device.

Straight Chemical Delay Fuse

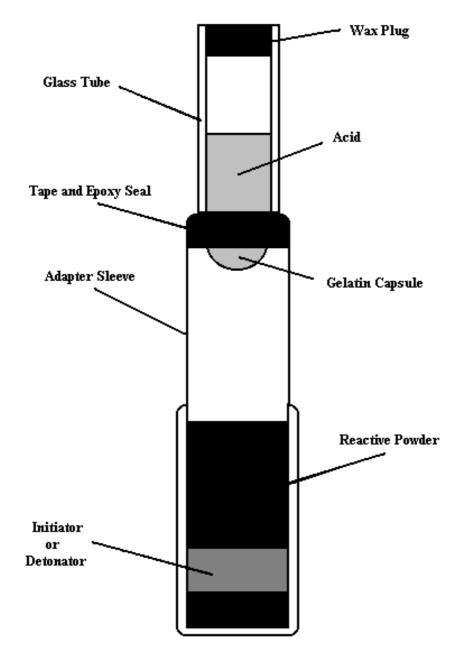
This type of delay uses a corrosive liquid which eats its way through a barrier material and comes into contact with a reactive substance, producing heat and flame needed for initiation. The most commonly used corrosive is concentrated sulfuric acid, which is readily available. The most commonly used reactive is a chlorate-based composition, such as potassium chlorate and sugar or match heads. The materials that have been used as barriers are many and varied. In the past, materials such as paper, cardboard, copper sheet, rubber sheet (balloons, condoms, etc.), gelatin capsules, even Ping-Pong balls.

The chemical delay I will present here uses a gelatin capsule barrier glued to the end of a tube of sulfuric acid. It has the unfortunate shortcoming common to most chemical timers; temperature variation. A great deal of variation in delay times occurs at the low and high ends of normal temperature. At very low temperatures (less than 32 degrees F) it becomes inoperative. This is a real drawback, however this chemical delay can be counted on to function reliably and fairly accurately within median temperatures and it costs about a quarter to produce. Some experimentation will be needed to determine delay time.

Materials Required:

Glass Tubing

Gelatin Capsules



Straight Chemical Delay Fuse

Small Birthday Candles Sulfuric Acid

Construction:

Cut off a 3" length of the glass tubing. If you don't have a tube cutter, use a three-cornered file to scratch a line around the circumference of the tube. As you work your way around, the groove gets deeper and deeper. When the glass gets thin enough it will simply snap off.

Heat the end of a birthday candle and shove it into the end of the tube to a depth of at least 3/8". Cut off the excess.

Place the tube upright in a stand and, using an eyedropper, carefully fill it about 3/4 full with concentrated sulfuric acid. Wipe off the area around the neck.

Paint the area around the side of the neck with a thin layer of epoxy and quickly slide the capsule half over the end. After the adhesive dries, dab additional epoxy on any seams that look weak. Let dry.

Wrap a piece of electrical tape around the seam as insurance. Store the completed fuse in an upright position to prevent activation. This type of fuse should only be made up as needed and never stored for very long. Great caution must be exercised in transporting this type of chemical fuse.

In order to get this fuse to initiate an explosive device it must be fitted into a short piece of tubing with the reactive powder between it and the detonator. The detonator, obviously, must be of a non-electric type and will be plugged into the other end of the tubing.

Warning: As the acid erodes the gelatin membrane, it becomes thinner and thinner, and so the fuse becomes more and more sensitive to shock. Once armed, this fuse must not be disturbed as the result may be instantaneous initiation. Bomb squad personnel are aware of the hazards of attempting to move or defuse this type of detonator and are unlikely to even make an attempt.

Straight Chemical Fuse, Type II

This fuse works on the same principle as the previous one. In this example, the sulfuric acid is contained in a small glass vial. It is activated by crushing the upper portion of the tube, which breaks the vial and allows the acid to come into contact with the thin rubber membrane and eat its way through to the reactive material. The small glass vial can be obtained from perfume samples, made from modified lightbulbs or purchased at those druggie "head" shops. Whatever type of vial is used, its stopper must be well coated with wax in order to protect it from the acid. The size of the crush tubing depends on the dimensions of the acid vial.

Materials Required:

Crush tube - Soft aluminum or copper tube with an inside diameter equal to the outside diameter of the acid vial, and about 3/4" longer than the vial.

Rubber membrane - The best material to use is the end portion of a long balloon. Avoid using a condom as the lubricants and spermicides they are coated with will prevent the acid from doing its work in a reliable way.

Support tube - Hard metal tube with an outside diameter the same as the inside diameter of the crush tube.

Adapter sleeve - May be needed if commercial blasting cap is used.

Acid vial - see above.

Reactive Material - Chlorate powder or match heads.

Construction:

- Cut the crush tube to the appropriate length.
- Cut about 1" off the closed end of the balloon and slip it over the end of the crush tube. Make sure it fits snugly. Secure with a strip of tape.
- Slide the acid vial into the crush tube and secure it in place near the top with a drop of epoxy. When dry, plug the top of the tube with a blob of epoxy putty or auto body filler.
- Prepare the adapter tube from a larger piece of metal or plastic tube. It must be about 2" long and have an inside diameter that will snugly (not too tight) accept the crush tube with the rubber membrane in place.
- Slide the crush tube, rubber end first, into the adapter tube to a depth of about 1". Wrap a piece of tape around the tube to secure it in place.
- Fill the detonator's open end with reactive powder or match heads, and slide it into the open end of the adapter as far as it will go. DO NOT FORCE IT! Tape it into place. (Note: It may be necessary to sleeve the det with a short piece of tube to make it fit into the adapter. Glue the det to the sleeve with epoxy or superglue. Add a strip of tape as a sealer.) The fuse is now complete.

To use, place the detonator into the explosive mass. Make sure that the top of the tube is pointing upward. It will not function reliably in any other position.

Flatten the upper portion of the tube with a pair of pliers. The fuse is now armed. The sulfuric acid will eat its way through the rubber membrane and contact the reactive material, which will flash on contact and ignite the detonator.

Chemical/Mechanical Delay Fuse

This fuse is based on the same principle used in most military "time pencils." A striker or firing pin is restrained by a thin wire or line. This wire is wrapped at one point by a

pad of absorbent material. A corrosive chemical is soaked into the pad and begins attacking the wire. After a period of time, the wire is unable to retain the load of the striker spring, breaks, and the striker impacts the primer. The primer in turn ignites the detonator, which detonates the charge.

The corrosive chemical is usually contained within a small glass vial, which the user crushes to activate the fuse. While this makes for handy operation, it poses problems for the improviser. First, it requires the machining of a two-part tube - one end of a hard metal to support the spring/firing mechanism, and one of a soft metal, which may be crushed by the fingers and which must be well sealed to prevent leakage. Second, the corrosive must be sealed into small, fragile glass vials that must fit into the narrow tube. This may all be more than the average operative cares to go through to obtain a delay of this type, however the finished product is an accurate and reliable delay mechanism.

The basic design may be modified for use with different solvent or corrosive and wire combinations. The solvent can be carried in a small plastic squeeze bottle such as is used to dispense nasal spray. The fuse is activated by squirting the solvent through the arming port onto the absorbent pad.

The illustrated example was built from 5/16" stainless steel tubing, but many different types of tubing or pipe (metal, plastic, etc.) may be used. The only alterations in the basic design will be due to the dimensional differences in the tubing used.

This version of the fuse uses a liquid solution of ferric chloride to corrode a copper restraining wire. This solution is readily available from electronics parts suppliers, where it is used to etch copper circuit boards. It is quite cheap, about \$15 a gallon. The solution is soaked into the absorbent pad and begins eating its way through the restraining wire. The length of time required for breakage to occur depends on the temperature, strength of the solution, and the thickness of the wire.

As purchased, the ferric chloride is a saturated solution. This means that the water contains as much ferric chloride as it can hold. Adding water will weaken the solution and so extend the time delay. As always, test to determine the length of delay.

Materials Required:

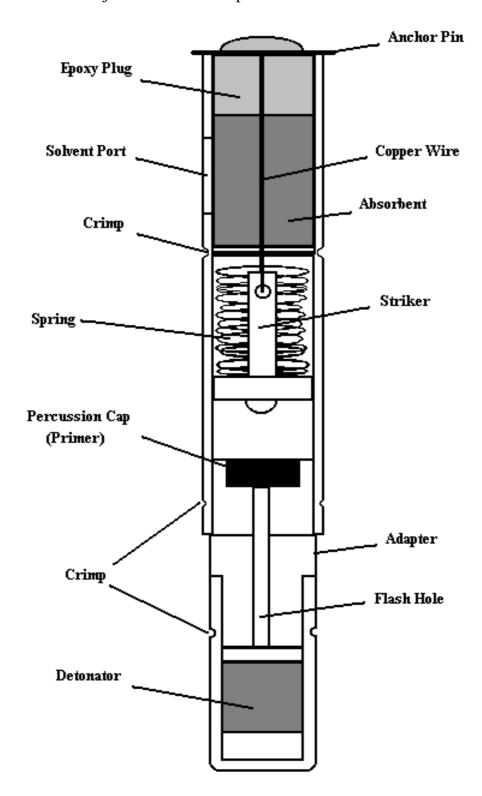
Firing Pin - The firing pin is made from a 12-penny duplex nail. The head and excess shaft length are cut off and the nail chucked into a drill. A file is used to grind the nail head down to the desired size and shape. The firing pin and spring fit together closely, eliminating the need for supporting spacers to keep it centered with the primer.

Absorbent Pad - The absorbent pad is a small wad of packed cotton.

Tube - The end of the tube is sealed with a plug of epoxy or auto body filler. On top of this filler is a short steel pin which serves as an anchor for the restraining wire. The wire is tied tightly to this pin before the epoxy is pressed into place.

Adapter - The primer/detonator adapter is identical to the one used for the lead break fuse.

Fuse Body - The fuse body is cut from a length of 5/16" tube, about 3" long. The dull cutter is used to crimp the tube about 3/4" down from the top. The arming port is a 1/8" hole drilled is the side just above the crimp.



Chemical/Mechanical Fuse

Assembly

- Attach one end of the copper wire to the firing pin. Give it a couple of twists and add a drop of solder to keep it from untwisting.
- Slide the spring over the firing pin and wire. Give it a light coat of oil and slide the whole assembly into the fuse body.
- Pull the wire through the other end. Pack the area above the crimp with cotton until it is about 1/4" from the top.
- Pull the wire up tight, compressing the spring. Wrap it around the anchor pin and cut off any excess. If there is excessive slack, it can usually be tightened further by rotating the pin a couple of times. Let the pin rest on the top of the tube.
 - Fill the open space above the cotton with epoxy or auto body filler.
- Assemble the primer/detonator adapter and install in the tube as in the lead break fuse.

SCR Modified Electronic Clocks

There are many commercial time pieces on the market today that may be modified for use as electronic time-delay fuses. Travel alarms, countdown timers and digital alarm watches are the three main types encountered. All are adapted using the same basic mechanism - an SCR (Silicon Controlled Rectifier) switching circuit, although the construction details will vary slightly due to the differences in the physical form of the time piece.

The SCR is an electronic switch that may be closed by the tiny electric pulse generated by the alarm buzzer of the time piece. An SCR has three prongs - power in (from the battery), power out (to the detonator), and gate (to the alarm buzzer). Refer to the drawing for details.

When the time piece emits its pulse to the SCR's gate prong (A-1), it closes the circuit, routing the power from the positive side of the battery to the detonator. The circuit drawing contains two optimal accessories - a momentary switch (B) and a power lamp (D). These are not entirely necessary, but they will enhance both the safety and ease of use of the fuse.

The momentary switch serves to cut the power from the battery to the SCR. This is necessary because the SCR will not reopen until this power is cut, even though the pulse from the time piece has been interrupted. Any type of on-off switch may be used, but a momentary is easier to use and, usually, smaller.

The power lamp serves to indicate whether there is power flowing through the firing wires that lead to the detonator. It is very important to know whether the detonator is being connected to a live power source, considering the consequences if it is (instant detonation).

The source for these time pieces can be almost any type of variety store - supermarkets, drugstores, electronics hobbyist stores, or even auto parts stores. These units are

produced very cheaply and can be purchased for as little as \$2. It will be necessary in many cases to replace the batteries with fresh, reliable ones.

Lets take a closer look at the three main types.

Travel Alarm - These types are usually pretty small, about 2"-3" long and maybe 1/2" thick. If small components are used, all of the additional circuitry (with the exception of the firing battery) can be fit inside of the case. It functions like an alarm clock, so the current time of day as well as the alarm time (detonation) desired must be set.

Digital Alarm Watch - This is the smallest of the three and functions as the previous one does, i.e., alarm clock fashion. A wire is run from the alarm contact through the watch case to the SCR. The hole in the case may be sealed if the watch is to work, and the short length of wire concealed under a piece of electrician's tape. The SCR circuit must be housed separately, as there is no room in the watch case to house the components.

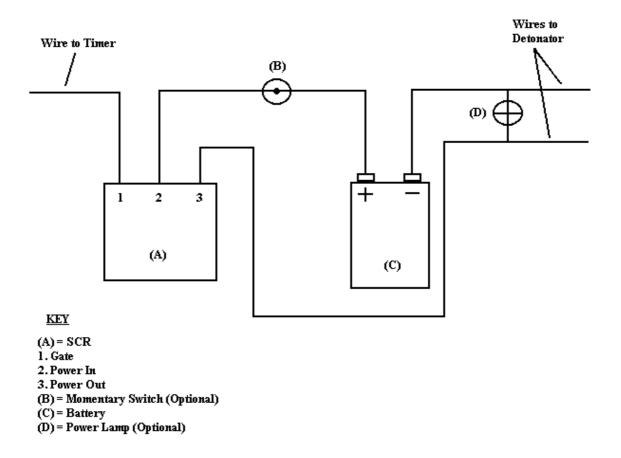
Countdown Timer - This is a modernized version of the old kitchen timer and is the best of the three to use. It is compact but still large enough to house all of the circuitry including the firing battery. It is also the simplest to set up.

The alarm contact varies with the type of time piece used. Watches generally use two small metal tabs that press against a flat disc to produce the alarm sound. The travel alarms generally use the same disc system, but the contacts are a pair of tiny brass springs. The countdown timer uses two wires to the buzzer, which may or may not be of the disc form.

Open the case on the time piece and expose the alarm buzzer. Test with a multimeter to find the positive contact on the buzzer. This is where the gate prong on the SCR is attached.

Construction:

Assembly of the circuit is very simple and really requires no detailed instruction. As an added safety precaution, a safety switch should be added to the det wires. This would allow greater ease and safety in operation, as the detonator could be connected to the circuit and the operative could still set and test the timer with complete safety. Another safety measure is to connect the wires that ordinarily go to the detonator to a miniature stereo headphone jack. The leg wires on the detonator would be attached to a mating headphone plug. After starting the timer and finding the circuit safe, the detonator is plugged into the jack.



SCR Switching Circuit

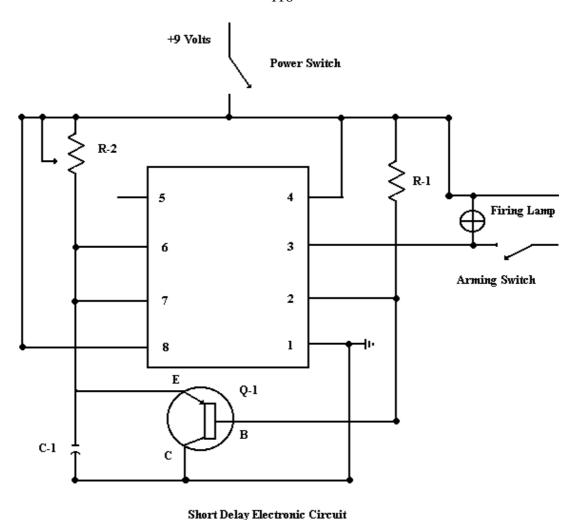
Operation:

- Set the timer or alarm to the desired delay.
- Check the power lamp to see if there is power to the det wires.
- If all checks out OK, connect the detonator.
- Start the countdown.

Notes: Test the delay a couple of times by connecting a buzzer to the detonator wires. After the delay is complete and the buzzer sounds, the battery must be disconnected or the momentary switch depressed to break power to the det wires by resetting the SCR.

Short Delay Electronic Circuit

This device is easy to build, accurate, reliable and cheap. The parts are readily available from electronics supply stores and will cost under \$5. Delays from under 10 seconds to about 3 hours can be obtained through different combinations of components. The length of delay is determined by the values of R-2 and C-1 (see chart)



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Lets take a look at the circuit and its parts:

- R-1 is a fixed resistor, valued at 4.7K. It never changes.
- R-2 is another resistor and may be fixed, variable, or a combination of the two. The use of a variable resistor (potentiometer) will allow the time delay to be adjusted if necessary, within a certain range.
- C-1, the capacitor, is a common electronic component. Increasing its value, either alone or in combination with R-2 (preferred), will give longer delays. Capacitors (and resistors) are found in many electronic appliances and may be scavenged from these sources.
- Q-1 is a 2N3906 transistor. Many different types can be substituted, so consult with an electronics supplier if you can't find this exact one.
- 555 IC chip is one of the most popular ICs yet developed and may be found in many different types of circuits. Cheap and versatile.

Before building this or any other circuit, the operative should do some studying of basic electronics. When experimenting with electronics it is a good idea to use a solderless "breadboard" in order to test delays and gain experience.

This circuit is maxed out at 14M resistance and 1,000 capacitance. Remember to raise the value of the capacitor when you raise the value of the resistor to any significant extent. After final assembly, retest the delay time to make sure it hasn't changed. The particular soldering technique used may have added some resistance to the circuit, thereby altering the timing. After everything has been assembled and tested, it should be smeared with a "potting" material such as epoxy resin, which will serve to protect the delicate electronic components from damage.

Some nice touches to add to this circuit are a power switch, arming switch, and a firing lamp. This enables the assembled device to be carried and armed with maximum safety. Upon arrival at the target, the power switch is activated. If the red firing lamp doesn't light, the arming switch is flipped on. The bomb is now activated and will fire after expiration of its delay.

Long-Range Electronic Timer

This device is similar to the previous one in that it uses a 555 IC chip as its heart. Extensions in delay are obtained by adding on 4017 Decade Counters. The 555 is wired so that it will periodically emit a pulse to the 4017. After receiving 10 such pulses, the first 4017 will multiply the time delay of the previous chip by a factor of 10. As many 4017s as needed can be added, but as shown in the example, five decade counters will provide over two months of delay.

The basic time (the frequency of pulses emitted by the 555) is varied by altering the component values, as in the previous example. Do not be tempted to use large-value components (as in the previous example) to avoid using more decade counters. This is not exactly the same type of circuit, and large-value components may introduce instability into the circuit and cause the operative many headaches. A reliable delay is absolutely imperative. This calculation chart shows how to determine the delay from the values of the components.

Calculation Chart

Example

F = (Frequency of output) 0.693 (Constant value for 555 IC) x 0.0001 (C-1, 100-uf capacitor) x 1,000,000 (R-1, 1M resistor) +2 x 4700 (R-2, 4.7K resistor)

OR

 $F = 0.693 \times 0.0001 \times 1,009,400$

OR

F = 69.95 seconds

Each 69.95 seconds, the 555 will send a pulse to the 4017 chip and automatically reset itself. After 10 pulses are received (a time delay of 699.5 seconds, or around 11 minutes,

39 seconds), it will send a pulse to the second 4017 and reset. After the second 4017 has received 10 pulses (a time delay of 116.5 minutes), it will emit a pulse and reset. And on and on, depending on how many 4017s are used. I've included a short list to show the possibilities for a given set of components. Remember: the components can be altered to achieve the required delay.

Example

555 + 100-uf capacitor (C-1) + 1M resistor (R-1) + 4.7K resistor (R-2) 555 = 69.95 seconds 4017-1 = 699.5 seconds 4017-2 = 116.5 minutes 4017-3 + 19 hours, 25 minutes 4017-4 = 194 hours, 18 minutes, or approximately 8 days 4017-5 = Approximately 80 days

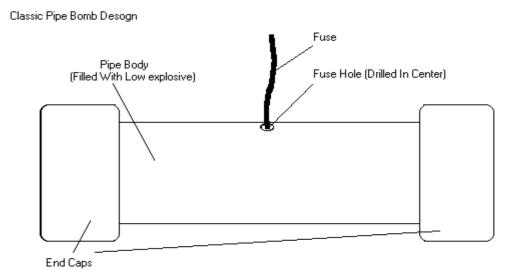
A Note On Batteries

Only fresh batteries should be used in any electronically powered explosive device. If any cold weather exposure (under 50 degrees F) is expected, alkaline batteries should be used. At temperatures below that the batteries should be insulated. Expanding foam insulation, the kind that is sprayed from a can, works well for this. This insulation will protect batteries and circuits at high temperatures as well.

Improvised Explosive Devices

Pipe-Bombs

The pipe-bomb is possibly the simplest of improvised explosive devices. It has been used by countless revolutionary movements, criminal organizations, guerillas, resistance fighters, and disgruntled, anti-social or homicidal individuals throughout the world to spread terror and mayhem. In its classic form the pipe-bomb consists of a short length of iron pipe sealed at both ends with threaded end caps, the pipe is filled with some type of low-explosive propellant (most commonly gun powder or match heads). High explosives can, of course, be used in a pipe-bomb but in this case the pipe functions only as a fragmentation jacket and plays no part in containing the blast and is therefore, technically, not a pipe-bomb. An igniter and delay mechanism or a fuse is inserted through a hole in the pipe body or one of the end caps. Extra shrapnel, often in the form of nails or ball bearings is sometimes affixed to the outside of the pipe body creating a device capable of inflicting lethal wounds on multiple targets within roughly a ten meter radius. A pipe bomb can be made from nearly any type of tubing but the stronger the pipe the better it can contain the explosion before rupturing and therefore the more powerful the blast. I have provided some ideas for producing pipe-bombs here with an eye toward safe construction, positive function and maximizing power and lethality.



Safe Construction

A pipe-bomb is a lethal and inherently unsafe device. Numerous bombers have been killed, crippled, maimed or blinded and ultimately caught due to the premature ignition of one of their devices. There are a number of causes of unplanned deflagration;

- 1: A spark caused by static electricity. The potential for such a spark can be reduced by lining the inside of the pipe with a plastic bag before filling it with propellant.
- 2: A spark or flame from a heat source. This one is so basic I don't really need to explain it. Obviously one should never bring any explosive device into contact with a heat source, open flame or spark this includes cigarettes, wood stoves, candles, gas lamps etc.
- 3: Heavy impact or explosive shock. If a pipe-bomb is dropped or stuck very heavily there is a chance, albeit a slim one, that it could explode. The shock wave from another explosive, a discharging firearm or even a powerful backfire from a vehicle engine could cause what is called a sympathetic explosion. This is fairly unlikely but anyone even considering constructing a pipe-bomb should be aware of the potential.
- 4: Powder caught in pipe threads: This is, apparently, a very common cause of unplanned ignition. A tiny bit of the propellant powder gets into the threads of the pipe and when the end cap is screwed on the powder is crushed and ignites blowing a gapping hole in its constructor. This situation can be avoided by using a toothbrush to clean the threads out and then lightly coating the pipe and cap threads with Vaseline prior to final construction. Also using the earlier suggestion of placing the powder inside a plastic bag or constructing the bomb with some alternative to the end caps, such as Bondo, will eliminate the potential for this problem occurring.

Maximizing Power

- If improvised propellant is to be used make it as fine as possible and be sure it is dry and well mixed. If commercial Black Powder is to be used FFFFg is very fine and makes

a good filler. If Smokeless Powder is available use DBSP rather than SBSP as it is more powerful. Probably the most powerful low-explosive filler is Potassium Chlorate powder.

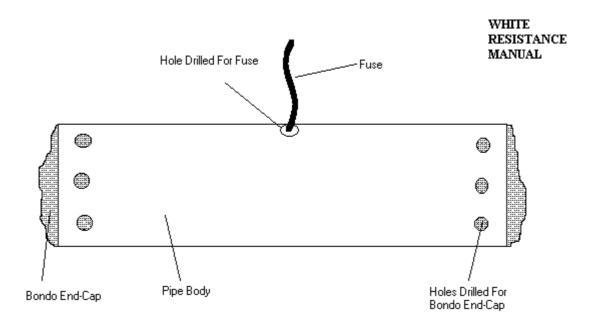
- Lethality can be greatly increased by strapping or taping shrapnel such as nails, BBs, nuts and bolts and any small bits of scrap metal you can scrounge onto the body of the pipe bomb.

Positive Function

- If a fuse is to be used make sure it is dry and in good condition, braiding three or four of them together is a good way of ensuring positive ignition. One of the very best improvised fuses if commercial fuses are unavailable is a "sparkler". These are the bright burning fireworks which are placed on children's birthday cakes. They consist of a straight piece of metal wire coated with some type of slow burning propellant. These things are cheap, very common and burn very slowly and positively; being nearly impossible to put out.
- If a homemade lightbulb squib is to be used inside the bomb be sure that it is of a design which you know to be functional. The inside of the bomb cavity must be well filled with propellant to ensure that the squib makes contact with the propellant when ignited.
- Double check the function of any timer, clockworks or delay mechanisms. Be sure any wires are in working order and use fresh batteries where applicable. Never use any untested design, system or propellant in an actual bombing.

Note: Remember an unexploded bomb is the Holy Grail for investigators from which they will obtain clues as to who you are and evidence which will hang you if you're caught. When a bomb is built its function is to explode... period!

Some ideas for constructing expedient pipe-bombs: Rather than constructing bombs from pre-cut and threaded 1 foot pipe sections and end caps try cutting 1 foot sections from a length of at least 1 inch I.D.(inside diameter) discarded pipe. Instead of purchasing end caps try using auto body filler such as Bondo to fill the ends. To do this first drill a series of six or eight 1/4 inch holes around the circumference of each end of the pipe section. Next mix up enough Bondo to fill one end of the pipe to a one inch depth. Heap the Bondo into a blob on top of a piece of paper and then place one end of the pipe into it. Be sure that the Bondo fills the pipe to a one inch depth and starts to ooze out of the holes you drilled. Let the Bondo harden then drill a hole in the center of the pipe section for your fuse or igniter wires. Next stand the pipe up with the Bondo end cap down and fill halfway up with propellant leaving enough room for your fuse or igniter to be secured against the opposite pipe wall with glue. After the glue dries continue filling the pipe with propellant until you reach 1 inch from the top then mix some more Bondo to fill the end, again making sure that the Bondo oozes out the holes you drilled earlier. Once hardened these Bondo end caps will contain the pressure of the exploding pipebomb long enough to ensure fragmentation of the iron pipe body itself. I have tried this pipe-bomb design and it really does work, it is vastly cheaper, safer to construct and produces less traceable evidence than using purchased pipe sections and end caps.



After some experimentation I produced a pipe bomb which could pass through a metal detector successfully. PVC pipe is used as the pipe body, this can either be in the form of purchased 1 foot threaded sections or preferably sections cut from discarded PVC pipe. End caps can be purchased and fastened on the ends with PVC cement or better yet Bondo end caps can be used as described earlier. In this design we must not use any metal so our fuse or igniter and delay mechanism must be non-metallic. Also our shrapnel cannot be metallic, therefore marbles, taped to the pipe body, will serve this purpose nicely. This bomb will not be as powerful or destructive as its metal counterpart because the PVC cannot contain the explosive gasses long enough to produce a really powerful explosion, but if well constructed it should be capable of inflicting lethal wounds within a five to seven meter blast radius.

Mail Bombs

This type of device consists of an envelope or small package containing an explosive device which will be detonated upon opening or alternately by remote control. This device is intended to be delivered right into the target's hands either through the postal system, a delivery company or by the bomber himself. The first two options leave a paper trail and possible witnesses at the point where the package was mailed and the third, while producing no paper trail, forces the bomber to be present at the crime scene. None of these options is particularly appealing however hand delivery may be preferable in the case of a target to be struck at his/her residence. This is due to the fact that there will in all likelihood be few witnesses to an early morning package delivery in a residential area. If the target is in a civilian/commercial or government building hand delivery will be difficult because of security cameras and numerous witnesses.

The main problem with this type of attack is the fact that the intended target is often not killed or maimed in the explosion but instead one of his or her underlings takes the brunt of the bomber's rage. This is particularly true for civilian/commercial or governmental targets where someone in the mailroom, a secretary or receptionist will most likely be the victim of this attack. Sometimes, in the instance of a Jewish, gay or some other degenerate or non-White activist group, this is perfectly acceptable. However

in the case of a civilian/commercial or government agency where the target is an individual or small group of individuals in policy making or leadership roles, a bomb attack which indiscriminately kills or injures innocent Whites is not acceptable. These types of targets will be better dealt with by directing mail bombs to their residences to reduce the possibility of innocent victims. Selective assassination may have to be considered for targets protected by such "human shields".

Mail bombs fall into two main types;

Letter Bombs

The letter bomb is less likely to raise suspicions than the package bomb and is therefore more likely to be opened by the intended target. This type of device consists of an envelope filled with explosive, set with a detonator and rigged to explode upon opening. Envelopes from the standard business size to the large folder type can be used. The drawback to this type of device is the limited amount of space within the envelope, requiring a very powerful high explosive in order to be effective. Sheet Explosives such as M-118 or M186 are best suited for this type of device and will produce a device capable of destroying it's intended target. Military sheet explosives are not easy to come by but I have provided a proven method for their construction in the Improvised Explosives section. The sheet explosive is sized to fit within the envelope, and a detonator is set. A proven method for rigging this device to explode upon opening is the use of a musical greeting card. This is the type of card which when opened plays a tune through a tiny speaker powered by a watch battery. This pre-existing circuitry can be rewired from the speaker to our detonator (a more powerful battery may be required) and the sheet explosive and detonator placed within the card. Some of our comrades in Germany have had great success in killing and maiming a number of immigration advocates and lawyers (most of them Jews of course) with this type of device, as of this writing those responsible have not been caught...Seig Heil!

The spatial constraints of this type of device don't offer the operator much room to make improvements. There is really no way to add to the lethality of the letter bomb without making it suspiciously heavy or oddly shaped. The whole point of this type of attack is to destroy the primary target and this can only be accomplished if that target is not made suspicious by your device.

Package Bombs

This type of device offers the bomber a number of options regarding what type of explosive device to deliver within the package. A low explosive pipe-bomb type device or a high explosive device can be used depending on what type of explosives are available to the bomber. Packages from the size of a video cassette case to about the size of a shoebox or larger can be used, offering, with the right explosive, enough room for a very powerful bomb. It is important to remember, however, that many of the individuals and groups which we might select as targets for this type of attack are already aware of this possibility. In many circles any unexpected package will arouse a great deal of suspicion.

Unlike the letter bomb this device is intended to act like a "Trojan horse". It will be brought into the targeted building and explode destroying individuals and property within.

For this reason very a powerful charge should be used and some form of shrapnel should be added to increase lethality.

A variation on this device is a hand delivered package, which is rigged with a wire or radio controlled initiator. This device is left at the doorstep of the target building or residence and when picked up or approached by the targeted individual the operative can initiate the explosive from a distance. Wire controlled systems are simple enough all that is required is very long wires which when touched together complete the circuit powering the initiator or detonator. Bear in mind that the longer the wires the more power is reduced in the circuit, therefore it would be wise to use more powerful batteries than required to power the initiator. This is a high risk type of attack and must be well planned to reduce the chances of capture.

Some ways to minimize suspicion;

- A package from an unfamiliar address will be viewed with some suspicion. A nasty trick is to label the package as having been sent from the address of a secondary target, usually an individual or organization familiar to the primary. That way the primary target will be more likely to accept and open a package from a familiar address but if the primary rejects the package it will be "returned" into the hands of the secondary target.
- The FBI has warned those who are concerned about the potential for package bombs to be suspicious of packages with excessive postage, no postage or excessive exterior tape. If a package is to be mailed, take the time to calculate the proper postage and use only that much. Be sure the exterior of the package looks in no way out of the ordinary.

Backpack Bomb

The backpack bomb is generally an anti-personnel device concealed in a backpack or large bag. The bomber carries the device to the target area and then leaves it behind to explode after he has made his escape. A backpack offers enough space to conceal a fairly large and powerful device (up to about 60-70lb) capable, with the right explosive and ample shrapnel, of producing lethal injuries upon a large number of individuals or of significantly damaging a building or other property. Low or high explosives can be used in this type of device, with low explosives requiring shrapnel in order to produce a lethal blast. Great care must be taken when deploying this type of device, if it is not built, set and handled properly it will blow the operative into fishfood.

A good precaution the operative can take is to place a large steel plate at least 1/8" thick (better yet ½" or 3/8") inside the backpack between the bomb and the operative's back. Be sure to use the largest steel plate you can fit inside the pack. This steel plate may save you from shrapnel damage in the event of a premature explosion however you will likely be knocked flat, injured, deafened and will not escape law enforcement.

This steel plate can also be used to direct shrapnel in a similar fashion as a shaped charge or a claymore mine. This will produce a more deadly killing pattern which can be targeted in a specific direction. A backpack bomb with a steel plate was used by Eric Rudolf at the 1996 Olympics in Atlanta. Unfortunately the backpack was moved by a security guard by just prior to the explosion, changing the direction of the blast from right into a crowd of dancing niggers to almost straight up. Anyone who has seen the

videotape of the blast understands the potential for murder and mayhem inherent in a surprise bomb attack in a crowded area, only one person was killed by the bomb but dozens were injured in the scramble to escape the area. If that bomb had functioned properly the death toll would have been very high.

Vehicle Bombs

Car and truck bombs have been used for many years by guerilla fighters throughout the world. The idea behind this type of device is to pack a vehicle with a huge amount of explosives and then move the vehicle into a position near enough to the target to do serious damage. The IRA has an effective practice of kidnapping the family of an employee of their intended target and then forcing them to deliver the bomb to the target. The bombing of the French embassy in Beirut was accomplished in a similar fashion, the bomb was concealed in the vehicle of an embassy employee without her knowledge. Once she was waved through the gate and had parked inside the compound, the bomb was detonated. These are known in terrorists circles as "proxy car bombs."

The widespread use of vehicle bombs in recent years has led to extreme countermeasures in some areas. Most high value targets will react swiftly to an abandoned Ryder van or any other suspicious vehicle. Good planning will have to be put to work in order to use vehicle bombs against hard targets. Softer targets may have to be selected for this type of attack.

The best type of vehicle for use as a bomb is a standard passenger van, although a full-sized sedan with a large trunk may be adequate. Avoid the use of large, rental moving vans; the Oklahoma City bombing has created a lasting sense of suspicion among law enforcement and civilians alike when they see these vehicles anywhere near a potential target.

Aside from the Trojan-horse effect the real strength of the vehicle bomb is the huge amounts of explosives which they can deliver. Cheap, improvised explosives should be used instead of more expensive and harder to obtain high explosives such as TNT or C-4. Save these for those jobs where their high power is needed. The most obvious choice here is AN-FO since it costs about \$15 to produce 100 lbs. of it from readily available ingredients.

Fragmentation Grenade

Effective fragmentation grenades can be made from a block or cartridge of high explosive with shrapnel, such as nails or ball bearings, affixed to the outside and a non-electric blasting cap and fuse as the initiator.

Materials Required:

High Explosive

Nails

Non-Electric blasting cap

Fuse cord

Tape, string, wire or glue

Procedure:

- If an explosive charge other than a standard TNT block is used, make a hole in the center of the charge for inserting the blasting cap. TNT can be drilled with relative safety. With plastic explosives, a hole can be made by pressing a round stick into the center of the charge. The hole should be deep enough that the blasting cap is totally engulfed by the explosive.
- Tape, tie or glue one or two rows of closely packed nails or other shrapnel to the sides of the explosive block. The shrapnel should completely cover the four surfaces of the block.
 - Place the blasting cap on one end of the fuse cord and crimp with pliers.

Note: To find out how long the fuse cord should be, check the time it takes a known length to burn. If 12 inches burns in 30 seconds, a 10 second delay will require a 4 inch (10 cm) fuse etc.

Insert the blasting cap in the hole in the block of explosive. Tape or tie fuse cord securely in place so that it will not fall out when the grenade is thrown.

Alternate Use:

An effective, directional anti-personnel mine can be made by placing nails on only one side of the explosive block. In this case an electric blasting cap will be used in order to facilitate the use of a tripwire, pressure plate or motion sensor as the explosive initiator.

Cylindrical Cavity Shaped-Charge

A shaped charge can be made from common pipe. It will penetrate 1-1/2 in.(3-1/2 cm) of steel, producing a hole 1-1/2 in. (3-1/2 cm) in diameter. A device of this type can be used to disable armored vehicles, breach security doors and safes, or destroy heavy industrial equipment.

Materials Required:

Iron or steel pipe, 2 to 2-1/2 in. (5to 6-1/2 com) in diameter and 3 to 4 in.(7-1/2 to 10 cm) long

Metal pipe, 1/2 to 3/4 in. (1-1/2 to 2 cm) in diameter an 1-1/2 in. (3-1/2 cm) long, open at both ends. (The wall of the pipe should be as thin as possible.)

Blasting cap

Non-metallic rod, 1/4 in. (6 mm) in diameter

Plastic Explosives

Procedure:

If plastic explosive is used:

Place larger pipe on flat surface. Hand pack and tamp explosive into pipe. Leave approximately 1/4 in. (6 mm) space at top.

Push rod into center of explosive. Enlarge hole in explosive to diameter and length of small pipe.

Insert small pipe into hole.

Important: Be sure direct contact is made between explosive and small pipe. Tamp explosive around pipe by hand if necessary.

Make sure that there is 1/4 in. (6 mm) empty space above small pipe. Remove explosive if necessary.

Turn pipe upside down and push rod 1/2 in. (1-1/4 cm) into center of opposite end of explosive to form a hole for the blasting cap.

Caution: Do not insert blasting cap in hole until ready to fire shaped charge.

How To Use:

Method I - If electrical blasting cap is used:

- 1. Place blasting cap in hole made for it. Caution: Do not insert blasting cap until charge is ready to fire.
- 2. Place other end of pipe flush against the target. Fasten pipe to target by any convenient means, such as by placing tape or string around target and top of pipe, if target is not flat and horizontal.

Caution: Be sure that the base of pipe is flush against target and that there is nothing between the target and the base of the pipe.

3. Connect leads from blasting cap to firing circuit.

Method II - If non-electrical blasting cap is used:

1. Crimp cap around fuse.

Caution: Be sure fuse is long enough to provide a safe delay.

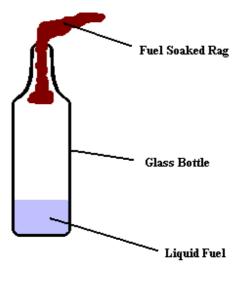
- 2. Follow Steps 1, 2, and Caution of Method I.
- 3. Light fuse when ready to fire.

Incendiaries

Incendiary devices are used to start arson fires and as anti-personnel devices.

Molotov Cocktail

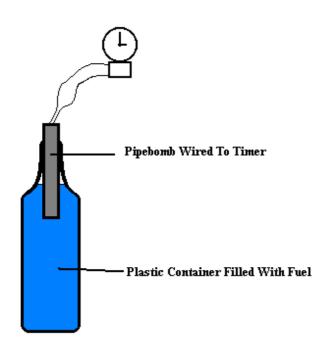
This is the simplest incendiary device, used first by civilians in Eastern Europe against Soviet invaders (the Soviet foreign minister was named Molotov). It consists of a glass bottle 1/4 filled with combustible liquid fuel and a fuel-soaked rag stuffed into the bottle's mouth as a fuse. Adding about 1/4, by volume, of liquid soap will make the fuel sticky and it will cling to whatever target it is thrown at. The fuse is lit and the bottle thrown at the target. It then shatters and spreads flames in a roughly 4' radius. Don't fill the bottle too full as it might explode in your hand when lit.



Classic Molotov Cocktail

"Drano" + Brake Fluid Firebomb

A type of Molotov cocktail, which doesn't require a fuse or initiator can be made by filling a glass bottle with brake fluid and placing it into a paper bag with "Drano" crystals in the bottom. When this device is thrown the bottle shatters allowing the brake fluid and "Drano" to mix, which causes the brake fluid to burst into flames.



Time Delay Firebomb

Time Delay Firebomb

This is essentially a Molotov cocktail with a time delay mechanism (see Improvised Initiators + Delay Mechanisms) which allows fires to be set at some time after the operative has left the scene. In this case the container is filled almost full with fuel. A plastic container works best for this application as it will not contain the burning fuel the way that glass might. effectiveness of this firebomb can be increased by inserting a small, waterproofed pipe-bomb into the top of the container and setting the delay to initiate this bomb. When the pipe-bomb explodes it will send jets of flame in all directions, causing a very large fire.

Mines & Booby Traps

The operative can use mines and booby traps for selective assassination or to defend a residence, perimeter or retreat. Any of these devices can also be used in an ongoing guerilla campaign when fighting against numerically superior forces. Mines and booby traps also have great potential for causing general mayhem when employed in non-White areas.

Claymore Mines



Claymore mines are anti-personnel, directional mines, which are used for perimeter defense, remote ambush and early warning when enemies trip them outside of a defensive perimeter. The claymore mine consists of a fiberglass casing which is concave in the front and convex in the rear. Inside is 900 grams of C-4 plastic explosive belted on the front with rows of steel shot. Two pairs of scissors legs extend from the bottom for placement on the ground and the weapon is sighted in using a slit between the detonator wells. The claymore mine can be initiated remotely by the user or can be set to explode with a tripwire. When detonated a claymore produces a 40' frontal kill zone. These weapons proved themselves to be essential to modern warfare during the Vietnam War, where thousands of them were used to thwart the Gooks' "human-wave" attacks. To the White resistance fighter, the claymore mine can be employed as a booby trap, a remotely detonated weapon of assassination or terror, or a defensive weapon to protect the operative's retreat.

Claymores can be deployed wherever the enemy is likely to move, park their vehicles, store goods or pass through choke points. These weapons are really only useful against personnel and their directional firing makes the blast much more devastating in crowded areas than a radius fragmentation bomb of similar power.

C-4 is the optimal explosive for this application but if none can be obtained or improvised other explosives can substituted with some loss of performance.

Start the assembly process by purchasing or "liberating" a length of heavy-duty 8" PVC waste pipe. Some plumbing shops will have scrap ends and pieces for sale at reduced prices.... But lets face it "liberating" several full-length pipes from a construction site is really a lot more satisfying. This pipe is very tough but easily worked. It measures 26.5" in circumference and has a wall thickness of about 1/4".

Measure around the rim of the pipe, marking it off in 9" segments. This will yield two 9" segments and one that is not quite 9"s. Using a wood saw, cut 10"s down the length of the sidewall at the three places marked. Cut these three pieces away from the main body of the pipe, yielding three 9" x 10" curved pieces of tough resilient PVC pipe. These pieces will be the back plates for three claymore AP mines.

Drill a 1/4" hole in the center top of the slab about 1/2" down the 9" side. This is the top of the device. The hole is for use with a nail or wire as a means of mounting in final position for firing.

Drill two 3/8" holes along each edge of the 10" side of the slab. Put one on top and one on the bottom with about 8" separating them. These holes will retain an 18" long, 1/4" diameter bolt, providing legs on which to punch the device into the ground. Weld an old washer to the bolts near the bottom as an aid in pushing the steel legs into the ground. Building the mine this way allows it to be deployed either by hanging it up or punching it into the ground.

Twist and bend the bolts so that they slip through the 3/8" holes that extend solidly below before proceeding to the next step.

Carefully cut the top lip of a 1-quart Ziplock bag measuring 7" by 8.5" down each on side to just above the plastic bag. Be careful not to puncture the Ziplock bag, as it must be absolutely airtight after being filled and mounted to the PVC slab. The plastic lip exposed by slicing the top of the bag is used as an anchor on which to tape the filled plastic bag.

Fill the plastic bag full of ground ammonium nitrate. About 1 lb should be packed into the bag. It is important that the bag be packed bulging full, if it is not the powder will not lay flat on the blast shield.

The explosive must lie in an even layer on the plate when placed in a vertical position. If it slumps to the bottom of the bag, the effectiveness of the device is compromised. Usually this is caused by the bag not being packed full of powdered ammonium nitrate. Keep track of the amount of fertilizer used so that the correct amount of nitromethane can be set aside for eventual inclusion in the Ziplock bag.

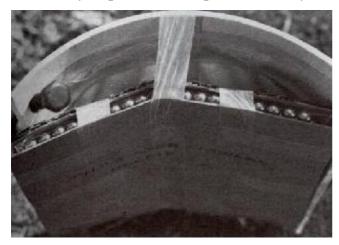
Carefully seal up the Ziplock bag, and test it to be sure it is zipped, locked, and airtight. This step is very important.

Use heavy-duty 1" wide fiberglass packing tape to attach the top lip of the filled Ziplock bag to the top of the PVC plate. Run a line of tape down the side of the bag as well as along the bottom. Before setting the plate and attached upright (vertical), run two

more very tight strips of tape over the face of the bag. They should placed so as to keep the explosive in the bag from settling down or sagging. In all cases, keep the layer of powder packed as flat as possible on the PVC plate.

Be careful that you do not permanently seal the bag with tape; the Nitromethane must still be added prior to mine deployment.

Military issue claymores contain 700 .38 caliber hardened-steel balls imbedded in the C-4. Hardened steel is used because lead can be deformed by the blast and fly off erratically. Hardened steel balls are also marginally more effective against vehicles and slightly cheaper than lead. The operative may use any round lead, iron or steel ball available, provided they are between .28 and .45 caliber. It will almost certainly be necessary to purchase this part of the claymore.



Steel ball of .38 caliber is often sold as slingshot ammo, but it is not usually cheap. Lead shot for shotshell reloading can be purchased, without much hassle, at most gun stores. OO buckshot is probably the best bet. It is .35 caliber and numbers about 98 balls to the lb.

Seven hundred rounds of 00 buckshot will weigh about 7 lbs. This and the explosives will produce a device which weighs about 9 lbs, far more than military

models and too heavy for most applications. 3 - 4 lbs of shot will work nicely in front of the 1 lb C-4 charge. This will produce a weapon with a 35' frontal kill zone.

Once the shot has been obtained it is time to start the most difficult task involved in claymore construction; setting the shot in place. The resulting layer of projectiles must completely and evenly cover the explosive packet without any gaps in spacing and without layering them two deep in some places. This layer must lie vertically, tightly on the explosive.

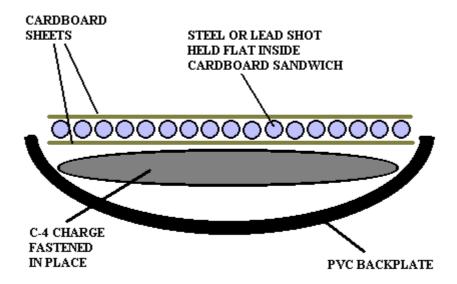
Shot in military issue claymores is pressed right into the C-4 charge but in our homebuilt claymore, this is not possible.

The best solution to this problem is to place just enough projectiles in a 7" x 8.5" Ziplock bag to fill it with no holes or gap but not allowing the projectiles to pile up in any one place. Suck all the air out of the bag and seal it. Having created a smooth, flat packet of projectiles, lay two pieces of stiff cardboard on front and back of the Ziplock packet. Tape these together rigidly, still holding the shot in a flat, smooth configuration.

Next tape the packet of shot to the packet of explosive, being sure to leave access to the ammonium nitrate so



that the Nitromethane can be added. Prime the C-4 charge with a #8 blasting cap or an improvised equivalent placed in the center of the charge. These weapons can initiated by wire remote, radio electronically, on a timer, by tripwire or motion detector... really any method the operative requires.



IMPROVISED CLAYMORE MINE

Once the Nitromethane is added the claymore should have a field life of around 4 months, however, as always when dealing with homemade C-4, they should be used soon after mixing and never stored.

Directional Shrapnel Trap

A directional shrapnel trap can be built in a similar fashion as the <u>Match Gun</u>. A larger pipe is used and less care is required in construction as the operative will not be firing this device from the shoulder but will instead set it up to a trip-wire or something similar.

Materials Required:

Iron pipe approximately 3 ft. (1meter) long and 2 in. to 4 in. (5 to 10 cm) in diameter and threaded on at least one end.

Threaded cap to fit pipe.

Black powder or similar propellant about 1/2 lb. (220 grams) total.

Electrical igniter (e.g. model rocketry match or lightbulb squib)

Safety or improvised fuse may also be used.

Scrap metal bits, large ball bearings or small stones about 1 in. (2-1/2 cm) in diameter of about 1lb. (454 grams) total.

Rags for wadding, each about 20 in. by 20 in. (50 cm x 50 cm)

Paper or rag

Battery and wire

Note: Be sure pipe has no cracks or flaws.

Procedure:

- Screw threaded cap onto pipe.
- Place propellant and igniter in paper or rag and tie package with string so contents will not fall out.
- Insert packaged propellant and igniter into pipe until package rests against threaded cap leaving firing leads extending from open end of pipe.
- Roll rag till it is about 6 in. (15-1/2 cm) long and the same diameter as pipe. Insert rag wadding against packaged propellant igniter. With caution, pack tightly using stick.
 - Insert stones and/or scrap metal into pipe.
- Insert second piece of rag wadding against stones and/or metal scrap. Pack tightly as before.

How To Use:

- Bury pipe in ground with open end facing the expected path of the enemy. The open end may be covered with cardboard and a thin layer of dirt or leaves as camouflage.
- Connect firing leads to battery and switch. Mine can be remotely fired when needed or attached to trip device placed in path of advancing troops.

Note: A non-electric ignition system can be substituted for the electrical ignition system as follows.

- Follow above procedure, substituting safety fuse for igniter.
- Light safety fuse when ready to fire.

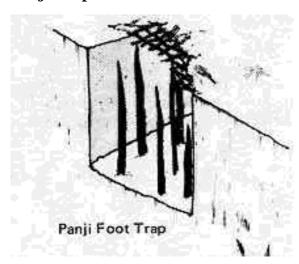
12 Gauge Shotgun Trap

A booby trap similar to the directional shrapnel trap can be made from an <u>Improvised Shotgun</u> or a shotgun which is otherwise unsuitable for combat purposes. A trip wire can be set up to fire this weapon with its trigger or it can be fired electrically. A very cheap and simple version of this booby trap can be built from a 2"x4" and a mousetrap.

Simply glue a cheap, spring type mousetrap to a 2"x4" then drill a 3/4" hole through the mousetrap and the 2"x4" so that the dead center of the hole is right under the striker of the mousetrap. Next glue a BB to the primer of a 12 Gauge shell and insert it into the hole. The striker of the mousetrap must hit this BB when the trap is triggered. Set the trap up to a tripwire. A larger board could accommodate a number of these assemblies and when fired would work nearly as well as a Claymore mine.

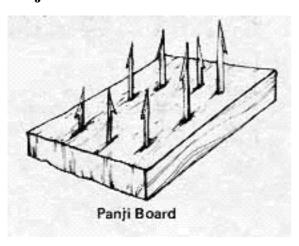
Any type of improvised firearm can also be used in a similar way as a <u>Mail Bomb</u>. For this application set improvised firearms to fire in 2-6 directions upon opening of the package to increase lethality. A mousetrap type manual trigger or an electric firing system can be used to initiate this device upon opening of the package.

Panji Trap



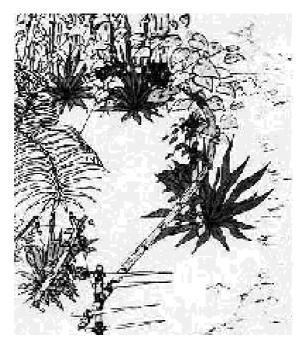
A very simple trap. A small pit is dug, lengths of sharpened sticks are cut and inserted vertically into the bottom of the pit, a thin covering of dirt and leaves over the top and there you have it.

Panji Board



A piece of board often with metal spikes, the ends filed to create sharp barbs. When the victim's foot is impaled on the trap it can't be immediately removed without causing intense pain and further damage. The tips can be smeared with <u>poison</u> or fecal matter to increase the risk of infection.

Whip Trap



Also called a Bamboo Whip Trap. Normally constructed of a length green Bamboo with spikes attached to one end. The Bamboo pole is bent and held in an arched position by a catch device triggered by a trip wire stretched across the track. When released the Bamboo pole whips back impaling the person triggering the trap. A branch from any springy wood will work as well as bamboo.

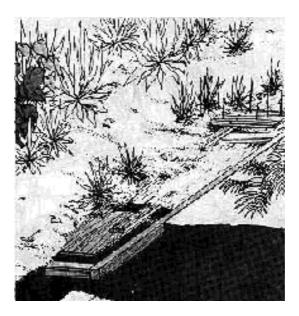
Venus Fly Trap



This consists of a frame work with overlapping barbs placed in a pit. Some are made from a metal container that is sunk flush with the surface of the ground. It is covered with

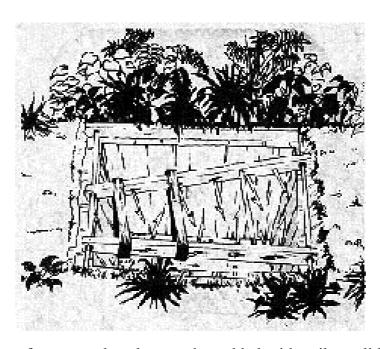
a grass or leaf camouflage. The barbs inflict injury especially when the victim attempts to withdraw his leg out of the trap.

Spike Board



The Spike Board is used with a pit and consists of a treadle board, one end of which is spiked. When the target steps on to the treadle the spiked end flies up striking him in the face or chest.

Side Closing Trap



This trap consists of two wooden slats, each studded with spikes, sliding along a pair of guide rods, and controlled by heavy rubber bands or surgical tubing. When the prop

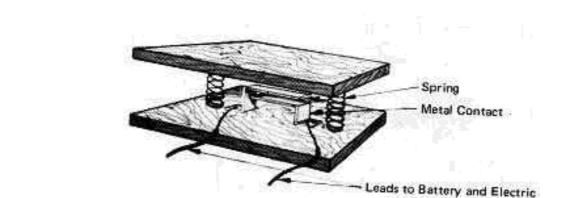
holding the slats apart is dislodged, the slats spring together impaling the portion of the body passing between them.

Grenade Trap

Pressure Plate



A hand grenade or improvised explosive can be used in many different ways. Such as in a can with the safety pin removed, which is then detonated by kicking or pulling the can from a balanced position. Grenades with pins removed can be placed under heavy objects so that when moved the grenade detonates. They can be tied to a number of objects such as trees, posts etc with a trip wire attached to the pin and tied across a track.



A firing circuit can be set up so that a target stepping on the pressure plate will fire a mine or initiate some other type of trap.

Detonator

Poisons

All preparation and handling of toxic substances must be conducted with great care. Work in a well-ventilated area, wear gloves, goggles and a respirator. The operative and those assisting can become poisoned by, fumes, dust, contacting toxins and dusts with bare skin or mucous membranes. **Be Very Cautious!**

I haven't provided much information on identifying the plants or mushrooms required for making some of these poisons because detailed information on this subject is widely available in books and on the internet. There are dozens of other toxins which the operative could produce or obtain but I have chosen to include only the most basic ones which are readily available (Cobra or pufferfish toxin may be very deadly but how are you going to obtain some without going to lengths which make it impractical?).

Ethylene Glycol

This is the active ingredient in automotive anti-freeze. Be sure to use the automotive rather than the plumbing variety, which is non-toxic. Ethylene Glycol is deadly poisonous and there isn't much that a doctor can do for a victim who has ingested more than a cup or so of it. Ethylene Glycol has (apparently) a sweet, pleasing taste and is easily masked with alcohol or strong tasting soft drinks, such as colas. A syringe full of this toxin will also kill, but not quickly enough to be considered for selective assassination.

The best application for this poison is to top up a half-empty liquor bottle with it and leave it where some unlucky non-White will find it. Ethylene Glycol is a bright yellow-green color and should be mixed with a dark beverage. The victim will be more likely to drink the poison if the original seal on the cap is unbroken, so purchase some new caps from a beer + winemaking supply store. Put the bottle in a paper bag from the liquor store, adding a receipt is a nice touch as well. Leave the bottle in a non-White neighborhood or where some particular target is likely to find it.

Methyl Alcohol

Also known as Wood Alcohol, this substance is deadly if more than just a few mouthfuls are swallowed and medical treatment is not received soon after ingestion. It is indistinguishable from alcohol in appearance, smell and taste. Methyl Alcohol can be purchased at hardware and paint stores where it is sold as paint remover. It and can be applied in a similar manner as Ethylene Glycol except that there is no need to mix it with any real booze.

Cyanide

Cyanide occurs naturally in the seeds of a number of common plants. Peach pits contain a very high concentration of cyanide. The pits must be crushed and powdered and the cyanide extracted from this powder. The process of extracting pure cyanide from these sources is nearly impossible without some specialized equipment, though a fairly

powerful toxin can be produced from a distilled solution of the powdered peach pits. Quite a large dose of unconcentrated cyanide must be ingested in order to be fatal.

The operative should try to obtain this toxin by other means. Cyanide has a number of legitimate uses which make it possible to obtain on the civilian market. The real advantage of cyanide is that it acts very quickly, killing the target within minutes rather than hours. Lethal dosage is at least 500 milligrams (mg). Deadly hydrocyanic gas is produced when cyanide is mixed with a strong acid. This gas is invisible and has a slight smell of almonds. Cyanide gas could be used effectively in crowded areas with poor ventilation such as nightclubs, subways or shopping malls.

Arsenic

Arsenic has been known since ancient times. The pure element can be obtained by heating a common ore called arsenopyrite (FeAsS). Other common minerals are realgar (As_2S_2) ; orpiment (As_2S_3) ; and arsenic trioxide (As_2O_3) ; occasionally the pure element is found in nature. Arsenic also occurs in place of some of the sulfur in the sulfides that are the principal ores of many of the heavy metals. When these ores are roasted at 613 Degrees C (1135 Degrees F), the arsenic sublimes (turns from solid directly into gaseous form) and can be collected from the dust as a by-product. This is dangerous work as the fumes can poison anyone not in a protective suit and a special chemical respirator. The operative would have an easier time trying to purchase this toxin. It is a very common element and has a number of legitimate uses.

Nicotine (Tobacco)

Nicotine is a deadly poison if ingested or injected in concentrated form. Smoking or chewing tobacco, nicotine patches, raw tobacco leaves and certain pesticides are good sources of Nicotine. The Nicotine must be extracted and concentrated. Place tobacco into a blender or food processor and grind it as fine as possible. Add water and blend into a pulpy, dark-brown liquid. Bring this liquid to a slow boil in a pot with a lid. Let this boil for several minutes until liquid becomes very dark. Strain the tobacco pulp out and simmer until a thick black syrup is obtained, this will be concentrated Nicotine... be careful not to burn it or it will be useless.

Quite a bit of time can be saved in producing pure Nicotine if the operative can find a product called Black Leaf 40, an insecticide which contains 40% pure Nicotine. The water can be evaporated from this product to produce nearly pure Nicotine.

Injection of this poison is the best method, but it kills quite slowly and the target will have time to fight back, alert witnesses and generally make a nuisance of himself before succumbing. Ingestion is possible but the strong and unpleasant odor and taste of Nicotine makes success unlikely. Don't even bother trying to use nicotine as a contact poison, it simply doesn't work.

Conium Alkaloids (Poison Hemlock + Water Hemlock)



Poison Hemlock is native to Europe. However, it is now widely distributed across the United States and Canada, especially in the Northern states. It is common along roadsides, hiking trails, ditches and field borders.

Poison Hemlock can grow to be about 6 to 10 ft. tall. It has leaves and white flowerheads resembling those of parsnips, carrots, and Water Hemlock. It has a fleshy, white taproot, a main stem with characteristic light red spots and a disagreeable smell. All plant parts are poisonous. However, the seeds contain the highest concentration of poison. The conium alkaloids

are volatile and can even cause toxic reactions when inhaled.

Water Hemlock does not have the same main taproot and stem. Instead, Water Hemlock has a branching, tuberous root stalk. The lower part of the stem of the Water Hemlock is divided into chambers which contain its toxicant.

The seeds of the Poison Hemlock or the lower stem of the Water Hemlock should be processed in a similar fashion as the castor bean (ricin). Ingestion is the most reliable method of application and hemlock lends itself to being concealed in food or drink. A solution made from the powdered toxin can be injected but, again, death is not quick and the target may be able to spoil the operative's plans for escape.

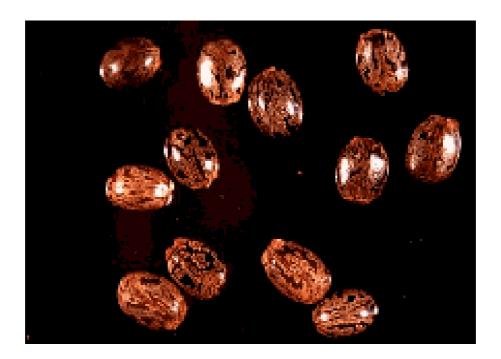


Belladonna

Belladonna is also known as deadly nightshade and contains a highly toxic substance known as Atropine. All parts of this plant are toxic but the highest concentrations are found in the berries. Ingestion of just a few of the raw berries can kill an adult. The berries can be processed into a purer toxin in a similar fashion as castor beans (Ricin). Ingestion is the best delivery method, but injection will also work.



Castor Bean (Ricin)



The fleshy pulp left over from the de-hulled castor bean is very highly toxic. The active toxin is Ricin, an extremely deadly poison, which, in its pure form, requires about 1 milligram (mg) to kill an adult.

Procedure:

- 1. Obtain some castor beans from a garden supply store.
- 2. Put about 2 ounces of hot water into a glass jar and add a teaspoon full of lye. Mix it thoroughly.

- 3. Wait for the lye/water mixture to cool
- 4. Place 2 ounces of the beans into the liquid and let them soak for one hour.
- 5. Pour out the liquid being careful not to get any on exposed skin.
- 6. Rinse the beans off with cool water and then remove the outer husks with tweezers.
- 7. Put the bean pulp into a blender or coffee grinder with 4 ounces of acetone for every 1 oz. of beans.
 - 8. Blend the pulp/acetone until it looks like milk.
 - 9. Place the milky substance in a glass jar with an airtight lid for three days.
- 10. At the end of three days shake the jar to remix everything that's started to settle then pour it into a coffee filter. Discard the liquid.
- 11. When no more liquid is dripping through the filter, squeeze the last of the acetone out of it without losing any of the bean pulp.
- 12. Spread the filter out on a pan covered with newspaper and let it dry stand until it is dry.
- 13. The final product must be as free of acetone and other contaminants as possible. If it is not powdery but still sort of moist and pulpy it must be combined with the appropriate amount of acetone again and let sit for one day. Then repeat steps 9-12 again until a nice dry powder is produced.

Ricin's big allure, besides its potency, is that it is virtually untraceable and produces food poisoning-like symptoms. This toxin takes from 12 to 24 hours to bring about death, given a sufficient dosage. If the target survives longer than this the chances of recovery are quite good. There is no effective antidote to this toxin..

Ricin can be applied by ingestion or injection, it is so toxic that even inhalation of the dust can be fatal. This poison lends itself to all sorts of application methods. For example; in 1978, Ricin was used to assassinate Georgi Markov, a Bulgarian journalist who spoke out against the Bulgarian government. He was stabbed with the point of an umbrella while waiting at a bus stop near Waterloo Station in London. A tiny metallic pellet was found embedded in his leg that had presumably contained the Ricin toxin.

The lethal dosage of this toxin is so small that the operative could mix a small amount with dextrose powder to make it look enough like cocaine that if it was left where a target could find it, they would get a lethal dose with just one snort.

Abrin (Rosary Pea)

Abrin is a highly toxic substance found in the seeds of the rosary pea. Abrin toxin inhibits protein synthesis, causing symptoms such as internal bleeding, intestinal upset,

and the irritation of mucous membranes. The rosary pea is extremely toxic and it would only take one fully chewed seed to cause death in humans.

The seeds should be processed in a similar fashion as the castor bean (Ricin). The high lethality of this toxin allows it to be applied reliably by injection or ingestion. Very little toxin is required to produce fatality in even a healthy adult.

Polypeptide (Amanita Mushroom)

The Aminita mushroom, also known as the Death Angel or Destroying Angel mushroom, contains a deadly polypeptide toxin. The distribution of the peptides varies in the different parts of the mushroom, with the cap being the most deadly part. The toxin is taken up by the liver where it begins to cause damage. The toxin is then secreted by the bile into the blood where it is taken up by the liver again, causing a cycle of damage and excretion. The liver is slowly destroyed and is unable to repair itself, and thus, the liver slowly dissolves with no hope of repair.



Dried caps from this mushroom can be powdered and applied by ingestion. The powder from 2-3 caps will be fatal. Symptoms, including diarrhea, vomiting and sever intestinal pain, will begin to occur within hours of ingestion. These symptoms will stop after about 6-9 hours but the damage will continue. This lag period may give the target a

false sense of security and he/she may not seek medical attention. However, if this poisoning is left untreated, death will result within 5-6 days.

Deadly Galernia

Also known as the Autumn Skullcap, this is another very deadly mushroom with poisoning effects identical to the Aminita. Dried and powdered caps cap be applied by ingestion.



Aconitum Napellus

This plant has had various names since antiquity including wolfsbane (because its root and raw meat were used as bait to kill wolves), monks-hood (because the hooded flower resembled a monk's cowl), leopard killer, brute killer, and woman killer. The root contains the highest concentration of toxin.

Once dried and powdered this toxin can be applied by injection or ingestion. This toxin was used in ancient times as an arrow poison throughout Europe and the Near East. In Roman times it was also used as an ingested poison. The active constituent, aconitine, has been shown to reduce the ion selectivity of sodium channels with a resultant increased uptake of sodium and other ions via these channels. This results ultimately in production of cardiac arrhythmia, depression of respiration and death within a few hours.

Oleander

Oleander, also known as Rose Laurel, is an evergreen shrub of the Dogbane family, native to the Mediterranean region of Europe. It has leathery leaves, which are opposite or in threes. The sap, used in rat poison, is very toxic; a single leaf may contain a lethal dose. The leaf tips contain the highest concentration of toxin. Dried leaves can be crushed into powder and applied by ingestion, dosage should be the powder of 3-4 leaves.



Chlorine Gas

A deadly gas can be produced by mixing pool chlorinating chemicals, such as HTH, with sulfuric acid. Prills, pucks, powdered or any other form of the HTH should be dropped into a container of the acid just before the attack. The larger the area to be filled with gas, the more HTH and acid will be required. The gas produced is visible, burns the eyes and throat and has a very strong chlorine smell. Use of this type of toxin will be most effective if deployed in crowded and poorly ventilated locations such as nightclubs, shopping malls, or subways.

Arson

Arson is one of the easiest crimes to commit and one of the most difficult for law enforcement to investigate. An arson attack can take the form of a sabotage or vandalism attack, a method of **selective assassination**, or as a terror attack against non-Whites.

Any type of infrastructure which can be destroyed or disabled by fire may be attacked with incendiary devices. Electrical power generation and delivery, food supplies, fuel supplies and various government and corporate capital make excellent targets for arson attacks.

Arson is a particularly effective weapon of mass-murder. Employed against targets such as high-density breeding facilities (i.e. - non-White filled high-rise apartments) or locations where non-Whites congregate in large numbers, an arson attack can be quite deadly. This type of attack is often more deadly even than a bombing. The lethality of the arson attack can be increased by ensuring that any possible escape routes are denied and that emergency services are occupied elsewhere.

In a high-rise apartment building, the elevators must be disabled before the attack. This is best accomplished by setting their interiors ablaze with flammable liquids. Next the main fires must be set in the hallways of the first few floors. Start the fires at the ends of the hallways near the stairwell doors in order to drive escapees away from the

stairwells and toward the (inoperative) elevators which are usually located in the middle of the hallway. Once this is accomplished the stairwells must next be filled with flame and smoke. A combination of 1/2 engine oil and 1/2 gasoline will make a great deal of smoke when set alight and can be used effectively to deter apartment dwellers from escaping by way of the stairs.

Most of the buildings which are inhabited by non-Whites are in sever states of disrepair and neglect. The landlords simply collect the rent and do the bare minimum or less in the way of ensuring the safety or security of tenants. This is to our advantage as sprinkler systems and emergency equipment are often absent or not functioning. Fire alarms are often pulled by pranksters and it is not uncommon to find that exasperated tenants will disable or muffle fire alarms for this reason.

Other targets where non-Whites can be struck in large numbers, such as night-clubs and concerts, can be attacked with similar methods as those used for high-rise apartments. Night-clubs are particularly vulnerable targets as quite a bit of mayhem occurs at these locations on a nightly basis and security personnel generally have their hands full dealing with unruly patrons.

The operative must conduct surveillance to determine where the exits are, if they are kept locked (as they often are in these places to keep people from sneaking in without paying), how many security personnel are usually on duty and how alert and effective they are. Again all possible exits must be denied. Firebombs thrown or placed at the exits will cause enough panic to result in injuries and fatalities as patrons trample each other to find a way to escape. Most casualties in fires of this type are from smoke inhalation or crush injuries caused by fleeing crowds. Choose a time for the attack when the greatest concentration of non-Whites will be present.

An arson fire will burn more quickly and thoroughly if fires are set in multiple locations around and within the target. Set fires where there is sufficient flammable material to allow flames to spread quickly. Fires burn upwards, of course, therefore fires should be set at the lower levels of a building or structure. Fuel containers, wooden furniture and building materials, plastics, carpets and curtains all make good fuel sources for arson fires. Simultaneous arson attacks at several locations will force emergency services to either "prioritize" one or two targets and let the rest burn or to spread themselves thin and try to deal with all of the targets. Either way the attacks will be much more effective than if they were conducted separately.

Arson investigations deal primarily with the question of whether or not a certain fire was an arson. Arson investigators are able to tell where a given fire originated, what type of incendiary device or chemical accelerant was used and if more than one fire was set. The operative will, for propaganda reasons, want any arson attacks conducted to be recognized as such by the "authorities". The operative must be aware that vapors from accelerants used often remain after a fire has been extinguished and can be analyzed by investigators. These tests can provide investigators with evidence if accelerants discovered in the operative's possession can be matched to evidence at the crime scene.

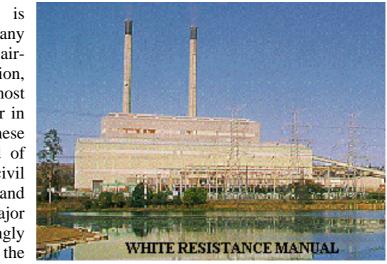
Sabotage

A significant amount of damage can be inflicted against government and corporate interests with the use of sabotage. Denial of services such as electrical power, fuel supplies, water, food supplies, communications or transportation will encourage the kind of civil unrest and panic we require in order to carry out more of our program. A sustained campaign of, even minor, sabotage can inflict serious financial damage upon our governmental and corporate enemies. It will be nearly impossible for law enforcement to protect all of these infrastructure targets.

The operative should consult the US Army FM 5-250 in order to calculate the type, size and setup of the explosive charge or charges required to destroy a specific target.

Electrical Power Generation and Distribution

The electrical power supply is absolutely essential to the life of any metropolitan area. Heating and airconditioning, food distribution, transportation, hospitals and most businesses require electrical power in order to function. Loss of these services for any extended period of time will cause very serious civil unrest. The power generation and distribution systems of most major cities Western are surprisingly With vulnerable to attack.



exception of nuclear power plants, most power systems are unguarded and can be taken down with **explosives**, **arson** or by damaging essential parts with **long-range rifle** fire.

Most of the world's electrical power is generated at coal powered generating plants, hydro-electric dams and nuclear power plants. Some power is generated from solar panels, windmills, geo-thermal generators and other clean technologies but Capitalists and Communists alike care little for the environment and therefore these technologies make up only a tiny percentage of the total power output.



Attacking the power supply at the source has the advantage of creating a total blackout of the supplied area with just one attack. The heart of the generating system must be destroyed. Hydro turbines, coal-powered boilers and nuclear reactors are very expensive and complex systems which cannot be quickly repaired or replaced. Destruction of these systems will force authorities to divert power from other plants in order to prevent disaster. Attacking during peak consumption times (Winter in cold climates and Summer in hot climates) will make power diversion impossible.

Coal Powered ----- Nuclear

Power distribution systems are also very vulnerable and nearly impossible to defend against attack. Again **arson**, **explosives** or **long-range rifle** fire can be used to disable substations, transformers and suspension pylons. A simultaneous attack against a number of these targets can shut down power for nearly as long as an attack upon the generation source with the advantage that service cannot be quickly restored by diverting power from another source. Each broken link in the power grid must be repaired in order to fully restore service.



Substation -----Pole Transformer

Explosives, incendiaries or long-range rifle fire can be used to disable substations. An individual, equipped with a silenced rifle or pistol, could easily destroy dozens of power transformers in a very short period of time. Suspension pylons can be destroyed with explosives or by whatever mechanical means are required to knock them down or short them out. A length of steel cable or chain with a weighted end can be simply thrown over the wires allowing power to arc from one wire to another and shorting out the system.

Fuel Supplies and Distribution

The economies of most Western nations are dependant upon the movement of workers and products. Attacking fuel supply and distribution can drive fuel prices skyward or even result in rationing of fuel. Without a steady supply of affordable fuel, vehicular travel will dwindle, resulting in very serious economic problems for governments and corporate interests. Gasoline, diesel, heating oil and natural gas systems are very vulnerable to arson attacks and explosives.





Storage Tanks ----- Pipeline



Oil refineries are massive operations and will require a carefully planned attack in order to put them offline. Stopping the supply of raw crude oil to a refinery would be a much simpler task.

Fuel storage tanks are constructed to withstand a certain amount of punishment, such as being run into by a truck, but can easily be ruptured with a powerful

charge of high explosives. These facilities are often unguarded and make for very tempting, high-value targets.

Pipelines are even more vulnerable to attack than storage tanks. Pipelines can be more readily destroyed with explosives or pipe sections can be unbolted, separated and the fuel ignited.

Water Supplies

Drinking water is absolutely essential to the stability of any urban area. Denial of this service will cause panic within hours. Water purification plants are surprisingly unguarded and vulnerable to attack. Massive holding tanks, pumps and filtering equipment can be destroyed with explosives.



Communications

Modern high-tech economies rely on fast, reliable communication systems in order to function. TV and radio transmitters, telephone and cell-phone towers, and satellite antennae dot the landscape at the outskirts of most urban areas. These targets are very vulnerable to arson attacks, explosives and long-range rifle fire.



Mobile Phone Tower-----Television Tower

Transportation

Highway systems, subways, rail lines, airports and shipping are essential to the continued functioning of the modern state. Attacks upon any of these services can cause

shortages of required supplies, immobility of workers and government operatives and serious economic disturbances.





Highway Interchange ----- Rail Lines

Highway systems are the easiest to disable and are completely unprotected. High explosives can be used to destroy overpasses or placed in culverts or tunnels to destroy highways above. Cratering charges can be set up to destroy highway surfaces. Debris, waste oil, nails, broken glass or specially designed tire-puncturing devices can be placed on highways just before peak service to cause major disruption.

Simple, cheap and effective tire puncturing devices can be made from nails, welded together or held together with epoxy or Bondo. Take three medium sized nails and grind the head ends sharp. Take two of the nails and weld or epoxy them together in an X formation. Weld or epoxy the third nail through the axis of the other two so that the resulting device always has sharpened points facing up regardless of how it is placed. A few hundred of these scattered over a busy highway will cause hours of absolute chaos.

Rail lines are also quite vulnerable to attack. Lines can be manually dismantled, destroyed with explosives or blocked with debris. Switches can also be thrown, diverting trains onto the wrong tracks and into hazards such as stopped rail cars.

Airports are difficult targets to strike as they are well monitored and protected by security guards. The control tower or the takeoff and landing strips must be destroyed in order to take an airport offline. Explosives or arson can be used to disable the control tower. It is essential that the sensitive communications equipment be damaged beyond repair. Ditching or cratering charges can be used to destroy the airstrip but this kind of damage can be quickly repaired. Airplanes can be struck with explosives as they sit on the tarmac or can be struck in the air upon takeoff or landing with heavy weapons or long range rifle fire.

Selective Assassination

Make no mistake, selective assassination is just a sanitized way of saying murder... plain and simple. An individual is selected according to his/her value as a target. This individual is then monitored, his/her movements and activities are recorded and analyzed. Great care must be taken during target surveillance not to alert the target, this is much like stalking wild game. Using the data collected, an assassination plan is made with the goal of striking the individual when they are most vulnerable and in the easiest, most effective way possible. A long-range sniper attack may be necessary for well protected targets but other targets could be struck more easily with a close range attack with a silenced pistol or even a knife. Arson, bombs, poison and a myriad of other means can be employed as assassination instruments. Lets first look at some simple guidelines and then run through a few assassination scenarios.

Notes:

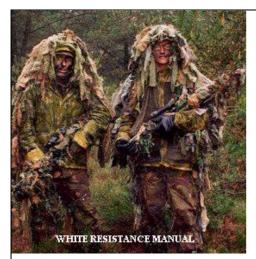
- -Strike the target at their most vulnerable point. People are generally less alert at night and in the early morning, therefore a home-invasion attack at night or a strike during the morning commute to the workplace would be most effective.
- -The target's routine must be analyzed to find the best opportunity to make a strike. Any point when the target is at rest or distracted will make a good strike zone. Be sure that there is ample concealment for any ambush or sniper points.
 - -Don't get fancy; a simpler plan is more likely to succeed than a complex one.
- -Be sure to have good escape routes and rendezvous points worked out. Leave as little forensic evidence behind as possible.
 - -Gloves and **sterile clothing** must be used.
 - -Weapons which produce less forensic evidence should be considered if possible.

The sniper attack is a good choice for targets which are protected or are alert to the possibility that they may be targeted. There is really no way for a target to be completely protected from a determined sniper without completely disrupting their life. Even the President of the USA is vulnerable, to a certain degree, to this type of attack.

A target which is motionless or walking slowly is easiest to hit from long range. Targets in moving vehicles, jogging or running should be struck from directly in front or behind their path of motion. Choose a good sniper's nest or point of concealment, being sure that there are at least 2 routes of escape. Remain as quiet and motionless as possible while lying in wait. Wear camouflage clothing or a <u>Ghille Suit</u>.

Ghillie Suit

A Ghillie Suit is an advanced form of camouflage often used by military snipers. This type of camouflage offers superior invisibility by really breaking up the sniper's silhouette and blending



him into the background. White resistance fighters will find the ghillie suit to be a valuable tool for both selective assassination and combat sniping. A ghillie suit can be easily and cheaply made.

Ghillie Suits - Notice The Camouflaged Rifles In The Image On The Left

Procedure:

Obtain a set of fatigues (a size or two larger than required) Stitch a 2' square netting on the back of the shirt.

Stitch netting along the backs of the sleeves from the back to about 6" before the cuffs. Stitch netting on the back of the pants and pant-legs to just below the knees. The net has to overhang on the shoulders and sides of the legs and arms but not on the front. The idea is to have burlap on the back and sides but nothing on the front to get tripped on, interfere with the action of the sniper's weapon or get tangled while "snake-walking" (low crawling on the belly). The operative may want to stitch a panel of heavy canvas on the front to make the suit last longer when "snakewalking" over rocks, dirt and sand.

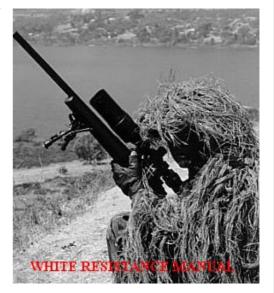
The hat can be made from a Boonie hat with net stitched to the top, back and sides, hanging to

the shoulders. Mosquito net can be stitched to the front of the hat.

Next begin cutting burlap strips into roughly 12" x 2" and tie them onto the netting, one by one. Painting or dyeing the burlap can increase the camouflage effect. Try to strike a balance between a well covered suit, which has excellent camouflage characteristics, and a sparse suit, which is lighter and won't produce as much heat.

Finally, treat the suit with a flame retardant. Even a small spark can set burlap ablaze.

The netting also allows the operative to add leafy branches, long grass etc to the suit, providing a more layered camouflage effect.



A target may be particularly vulnerable to a night sniper attack through a window into a well-lit residence. A target who is sitting near a window will make easy work for even a mediocre sniper.

It is important for snipers to have a good understanding of how the weapon they will use behaves at different ranges. The following charts provide information for the most commonly used sniper rounds.

Common Sniper Calibers:

```
5.56x45mm NATO
                   (.223 \text{ Rem})
6.16x51mm
                   (.243 Win)
6.5x55mm
                   (6.5mm Swedish)
7mm Rem Mag
7.7x56mm R
                   (.303 British)
7.62x51mm NATO
                   (.308 Win)
7.62x54mmR
                   (7.62 Rimmed)
7.62x63mm
                   (.30-06 Springfield)
.300 Win Mag
8.60x70mm
                   (.338 Lapua)
12.7x99mm
                   (.50 BMG)
```

Common Sniper Calibers:

5.56x45mm NATO (.223 Rem)

The .223 is commonly used for law enforcement sniping applications, largely because some agencies fear the over penetration of the .308 round in hostage type situations. The .223 generally splinters on impact, allowing almost no excess penetration that could possibly hit innocents, such as hostages. But with this fragmentation and lack of penetration comes a necessity for more precise shot placement, leaving almost no room for error. The .223 has a small temporary wound channel (Stretch cavity), requiring almost a direct hit on the spinal stem in order to get "lights out" on a target. The lighter .223 bullet is very susceptible to the effects of wind, which really limits its long range potential. While it is possible to achieve acceptable accuracy at 600 meters on a calm day, it is to risky on the windy days to really consider this round for long-range selective assassination sniping purposes. Due to the lack of penetration and lack of energy, the .223 should only be used in very rare circumstances and only on head shots. There is more than one instance when a target has been shot with a perfectly placed center mass shot, and it failed to incapacitate him.

Note: In order to stabilize the 69-gr. Bullets and heavier, the twist on the rifle barrel needs to be at least 1:8"

Recommendation: only use the .223 within 100 meters and only take head shots if at all possible. If the .223 is all that the operative has in the way of a sniper rifle, be sure to keep in mind the limitations of the round.

Ballistics: Some possible rounds and their ballistics have been listed below.

Federal Gold Medal match - 5.56x45mm NATO (.223) 69gr 3000fps

100y 91m	200y 183m	300y 275m	400y 366m	500y 458m	600y 549m	700y 641m	800y 732m	900y 824m	1000y 915m
+14.9	+26.6	+32.5	+31.3	+21.2	Zero	-35.6	-87.7	-160	-256
Energy - (Muzzle: 1380 ft-lbs.)									
1135	925	750	600	475	375	295	235	195	170
Wind Drift (Inches) - 10mph Crosswind									
.9	3.7	8.7	16.3	27.0	41.3	59.5	82.2	109.2	140.0

Federal Premium - 55gr Sierra Gameking BTHP 3240fps

Bullet Drop (Inches)

50y	100y	200y	300y
46m	91m	183m	275m
-0.3	Zero	-2.7	-10.8

Energy - (Muzzle: 1280 ft-lbs.)

N/A 935 670 465

Wind Drift (Inches) - 10mph Crosswind

N/A	1.3	5.8	14.2
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6.16x51mm (.243 Win.)

The .243 falls right in-between the .223 and the .308. The .243 has less recoil than the .308, and yet it sends bullets down range at near .223 speeds, with twice the bullet weight. This flat shooting cartridge doesn't suffer from some of the over penetration problems of the .308 and it doesn't suffer from some of the under penetration problems of the .223. In reality, this round is very suitable for the Law Enforcement arena but may be a little but underpowered for selective assassination. While there is no match grade ammo for the .243, there are quite a few premium quality loads out there. The .243 has never been used in any military rifle, but it would lend itself well to the 500-meter sniping role.

Recommendation: The .243 would be a suitable selective assassination caliber. It provides good energy and good trajectory with some mid weight bullets. Whenever there is no over penetration concerns the .243 is eclipsed by the .308. Anything the .243 can do, the .308 can also do, and at greater ranges.

Ballistics:

Federal Premium - .243 100gr Sierra Gameking BTSP, at 2960fps

Bullet Drop (Inches)

100y 91m	200y 183m	300y 275m	400y 366m	500y 458m
+3.8	+4.5	Zero	-10.7	-28.6

Energy (Muzzle - 1950 Ft-Lbs.)

1690 1460 1260 1080 925

Wind Drift (Inches) 10mph Crosswind

0.6	2.6	6.1	11.3	18.4
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Federal Premium - .243 70gr Nosler Ballistic Tip, at 3400fps

Bullet Drop (Inches)

50y	100y	200y	300y
46m	91m	183m	275m
-0.2	Zero	-3.1	-11.4

Energy (Muzzle - 1795 Ft-Lbs.)

N/A 146	55 1185	950
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Wind Drift (Inches) 10 mph Crosswind

N/A	0.8	3.4	8.1
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6.5x55mm (6.5 Swedish)

The 6.5 is somewhat of a new possibility to the sniping arena. Until recently the 6.5 has never really been considered, although to serious long range shooters its no real surprise. The 6.5 has long been know for its excellent accuracy. It generally shoots a lighter bullet then the .308, but heavier then the .243, falling nicely right in between. The only problem I can foresee is the lack of sniper grade weapons chambered for the 6.5. But most of the custom sniper rifle manufacturers will chamber their rifles in any caliber the purchaser wants (Sometimes for a small additional fee).

Ballistics:

Note: Included are two match loads, the Sierra with 120gr Sierra Match King and the PMC with a 140gr Sierra Match king. Both rounds perform well in military applications out to about 700 meters.

- Fed = Federal Gold Medal Match 6.5x55mm Swedish 120gr Sierra Match King, at 2600fps
- PMC = PMC Silver Line Match 6.5x55mm Swedish 140gr Sierra Match King, at 2560fps

Bullet Drop (Inches)

			300y 275m							1000y 915m
Fed	+17.7	+31.0	+37.2	+35.4	+23.5	Zero	-36.7	-90.8	-164.3	-261.7
PMC	+5.4	+6.1	Zero	-14.1	- 37.425	N/A	N/A	N/A	N/A	N/A

Energy (Muzzle: Fed -1800 Ft-Lbs., PMC - 2037)

Fed	1550	1325	1130	955	805	675	565	475	405	350
PMC	1788	1563	1361	1181	1020	N/A	N/A	N/A	N/A	N/A

Wind Drift (Inches) 10mph Crosswind

Fed	0.7	3.2	7.6	13.8	22.8	34.3	48.4	66.1	86.9	111.0
PMC	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

PMC Silver Line 6.5x55mm Swedish - 140gr Sierra Game King (SPBT) at 2560fps Bullet Drop (Inches)

50y	100y	200y	300y
46m	91m	183m	275m
N/A	Zero	-4.6	-16.4

Energy (Muzzle - 2037 Ft-Lbs.)

N/A	1769	1529	1315
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Wind Drift (Inches) 10 mph Crosswind

N/A	N/A	N/A	N/A
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7mm Remington Magnum

The 7mm has not gained wide acceptance as a sniping round, and the primary reason is because anything the 7mm can do, the .300 Win Mag does better. The 7mm doesn't kick as much but it shoots lighter bullets than the .300, which allows for quicker bleed off of energy, and greater susceptibility to wind drift at longer ranges. With the right ammo, the 0-600 meter ballistics are VERY impressive. The 7mm is easily capable of 1000 meter shooting, but it falls short of the .300, while steadily outpacing the .308.

Ballistics

Federal Premium 7mm Remington Magnum 165gr Sierra Game King SPBT at 2950fps

Bullet Drop (Inches)

100y	200y	300y	400y	500y
92m	183m	275m	366m	458m
+1.5	+0.0	-6.4	-18.4	-36.6

Energy (Muzzle - 3190Ft.-Lbs)

2865	2570	2300	2050	1825
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Wind Drift (Inches) 10mph Crosswind

0.5	2.0	4.6	8.4	13.5
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Federal Premium 7mm Rem Mag - 150 Nosler Ballistic tip at 3110fps

Bullet Drop (Inches)

100y	200y	300y
92m	183m	275m
Zero	-2.6	-9.9

Energy (Muzzle: 3220 Ft.-Lbs.)

2825	2470	2150
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Wind Drift (Inches) 10mph Crosswind

0.5	2.3	5.4
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7.7x56mm R (.303 British)

The inclusion of the .303 British in my list of sniping calibers is based solely on its historical significance. As far as I know there are no current sniper rifles chambered in the legendary .303. The reason is simply because the .308 (7.62x51 NATO) out performs the .303 in every aspect. The .303 saw extensive action in WWI and WWII as a sniping round, especially in the Enfield No 4 Mk1 (T). This rifle/ammo combination was an exceptional performer, and served the British troops until well after WWII, when the L42A1 was adopted. There are still plenty of these old rifles out there and they can usually be purchased very cheaply.

Ballistics

PMC Silver Line Match .303, 174gr Sierra Match King - 2425fps

Bullet Drop (Inches)

100y	200y	300y	400y	500y
92m	183m	275m	366m	458m
+6.2	+7.1	Zero	-16.4	-43.6

Energy (Muzzle - 2272 Ft.-Lbs.)

PMC Silver Line .303, 180gr Sierra Game King (SPBT) - 2450fps

Bullet Drop (Inches)

100y	200y	300y	400y	500y
92m	183m	275m	366m	458m
Zero	-5.22	-18.27	-40.58	-73.2

Energy (Muzzle - 2399 Ft.-Lbs.)

2	2071	1779	1521	1294	1096	
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7.62x54mmR (7.62 Rimmed)

The 7.62x54mmR is chambered primarily in the Russian SVD and the Mosin-Nagant Model 1891-30, which is a very popular sniper rifle in Eastern European countries. I am fairly impressed with the 7.62R, it is roughly the equivalent to the .30-06, offering plenty of energy and good ballistics. 600m hits should be no problem for a reasonably good sniper.

Ballistics

Russia 7.62x54mmR 185gr BT at 2700fps

Bullet Drop (Inches)

100y	200y	300y	400y	500y	600y	1000y
92m	183m	275m	366m	458m	549m	915m
+4.7	+5.3	Zero	-12.4	-32.9	-62.2	-304.7

Energy (Muzzle - 2994Ft.-Lbs.)

1 '	2595	2272	1991	1854	1518	1344	747
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Wind Drift (Inches) 10mph Crosswind

0.61	2.55	5.91	11.07	17.57	26.19	86.83

7.62x63mm (.30-06 Springfield)

The .30-06 served as the United States primary sniper round from WWI up until sniper rifles were standardized during the later part of the Vietnam conflict. The .30-06 offers good ballistics and served as an outstanding sniper round. The .30-06 falls in-between the .308 and the .300. I personally think this is the ideal selective assassination sniping caliber, it offers better ballistics than the .308, but doesn't punish the shooter like the .300.

Ballistics

Federal Gold Medal Match - .30-06 168gr Sierra Match King at 2700fps

Bullet Drop (Inches)

		300y 275m			600y 549m			900y 824m	1000y 915m
+16.2	+28.4	+34.1	+32.3	+21.7	Zero	-33.8	-82.8	-150.6	239.7

Energy (Muzzle - 2720 Ft.-Lbs.)

530	620	730	870	1040	1230	1460	1720	2010	2350	
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Wind Drift (Inches) 10mph Crosswind

	2.0	- -	10.0	0.1.4	22.4	4.5.0		00.4	105.5
0.7	3.0	7.2	13.2	21.4	32.4	45.9	62.4	82.4	105.5

Federal Premium .30-06 150gr Nosler Ballistic Tip at 2910fps

Bullet Drop (Inches)

50y	100y	200y	300y
46m	92m	183m	275m
-0.2	Zero	-3.3	-12.2

Energy (Muzzle - 2820 Ft.-Lbs.)

	N/A	2420	2070	1760
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Wind Drift (Inches) 10mph Crosswind

N/A	0.7	2.9	6.8
			I

.300 Winchester Magnum

The 300 is an outstanding sniping round, it offers superior power and penetration. The .300 is very capable of extending out past 1000 meters reliably, reaching 1200meters on a nice calm day without much effort. One big criticism of the .300 is the amount of recoil that the round produces. To be honest, it really does punish the shooter, making long sessions at the range a very grueling situation. If you are not careful, you can easily develop a flinch in your shooting cycle. But with proper training, and a gradual migration into the .300, you can overcome this problem.

Ballistics

3135

Federal Gold Medal Match .300 Winchester Magnum 190gr Sierra Match King at 2900fps Bullet Drop (Inches)

100y	200y	300y	400y	500y	600y	700y	800y	900y	1000y	
92m	183m	275m	366m	458m	549m	641m	732m	824m	915m	
+12.9	+22.5	+26.9	+25.1	+16.4	Zero	-25.8	-63.0	-112.2	-175.6	
Energy (Muzzle - 3550FtLbs)										

Wind Drift	(Inches)	10mnh	Crosswind
willa Dilit	HICHES	HOIIIOH	CIOSSWIIIU

2420

2115

0.6	2.4	5.5	10.1	16.4	24.2	34.2	46.6	61.1	78.0

1840

• PMC = PMC Silver Line .300 Win Mag - 150gr Sierra Game King SPBT at 3250fps

1595

1375

1185

1015

870

• Win = Winchester Supreme .300 Win Mag - 180 Nosler Ballistic Silvertip at 2950fps

Bullet Drop (Inches)

2760

	100y 92m	200y 183m	300y 275m
PMC	Zero	-2.4	-9.6
Win	Zero	-3.0	-11.3

Energy (Muzzle : PMC - 3517 Ft.-Lbs., Win - 3478)

PMC	2970	2498	2088
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Win 30	054 267	73 2331	
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Wind Drift information is not available for these rounds.

.300 Winchester Magnum

The 300 is an outstanding sniping round, it offers superior power and penetration. The .300 is very capable of extending out past 1000 meters reliably, reaching 1200meters on a nice calm day without much effort. One big criticism of the .300 is the amount of recoil that the round produces. To be honest, it really does punish the shooter, making long sessions at the range a very grueling situation. If you are not careful, you can easily develop a flinch in your shooting cycle. But with proper training, and a gradual migration into the .300, you can overcome this problem.

Ballistics

Federal Gold Medal Match .300 Winchester Magnum 190gr Sierra Match King at 2900fps Bullet Drop (Inches)

100y 92m		300y 275m	,		600y 549m	•	,	900y 824m	1000y 915m
+12.9	+22.5	+26.9	+25.1	+16.4	Zero	-25.8	-63.0	-112.2	-175.6

Energy (Muzzle - 3550Ft.-Lbs)

3135	2760	2420	2115	1840	1595	1375	1185	1015	870	
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Wind Drift (Inches) 10mph Crosswind

0.6	2.4	5.5	10.1	16.4	24.2	34.2	46.6	61.1	78.0
-----	-----	-----	------	------	------	------	------	------	------

- PMC = PMC Silver Line .300 Win Mag 150gr Sierra Game King SPBT at 3250fps
- Win = Winchester Supreme .300 Win Mag 180 Nosler Ballistic Silvertip at 2950fps

	100y	200y	300y
	92m	183m	275m
PMC	Zero	-2.4	-9.6

Win Zero -3.0	-11.3
---------------	-------

Energy (Muzzle : PMC - 3517 Ft.-Lbs., Win - 3478)

PMC	2970	2498	2088
Win	3054	2673	2331

Wind Drift information is not available for these rounds.

8.60x70mm (.338 Lapua)

The .338 is fairly new to the sniper community, but it does bear the distinction of being the first and only caliber designed specifically for sniping. While this round was actually developed back in 1983, it wasn't until the last few years that it has gained in popularity. The caliber was designed to arrive at 1000 meters with enough energy to penetrate 5 layers of military body armor and still make the kill. The effective range of this caliber is about 1 mile (1600meters) and in the right shooting conditions, it could come very close to the 2000 meter mark, provided you have the right rifle/ammo/optics/shooter/spotter combination. Realistically, 1200 meters is possible for the average sniper. This caliber is designed primarily as a military extreme range anti-personnel round. There are not a lot of rifles chambered for the .338, but the list is growing with the likes of Sako, AI, and others producing .338 sniping rifles. Ammo is another problem, match ammo is sometimes difficult to find, but it is becoming more widely available as time passes. Another concern is the heavy recoil of this caliber. Be sure to practice the fundamentals of shooting to try and prevent a flinch from developing.

Ballistics

.338 Lapua 250gr FMJ-BT (LockBase) at 3000fps

100y 91m		300y 275m						900y 824m	•
+11.1	+19.4	+23.0	+21.3	+13.9	Zero	-21.1	-50.3	-88.6	137.0

Energy & Velocity (Muzzle: 4996 Ft.-Lbs., 3000fps)

100y	200y	300y	400y	500y	600y	700y	800y	900y	1000y
91m	183m	275m	366m	458m	549m	641m	732m	824m	915m

Energy	4525	4091	3692	3325	2986	2676	2392	2133	1896	1682
Velocity	2855	2715	2579	2448	2320	2196	2076	1960	1848	1741

Wind Drift (Inches) 10mph Crosswind

100y	200y	300y	400y	500y	600y	700y	800y	900y	1000y
91m	183m	275m	366m	458m	549m	641m	732m	824m	915m
0.4	1.8	4.2	7.6	12.1	17.9	25.0	33.6	43.8	55.6

300gr bullet travelling at 2800fps.

.50 Browning Machine Gun (.50 BMG)

Just the mention of a .50 cal sniper rifle conjures up the imagination of 2500-meter kills on human targets. We need to be honest, due primarily to the lack of some really good quality match ammo for the .50, there is no hope of hitting a human target at 2500 meters. The sole purpose for the big .50 sniper rifles is to engage hard targets at extreme range, much like the British SAS used Barrett M82A1's to engage Scud missile launchers in the Gulf War. In this realm, nothing can touch the .50 when it comes to extreme range. There really is not a lot of purpose engaging human targets with a 750gr bullet. Of course, the recoil of the rifle, and the bulk and weight of a .50 sniper rifle (usually in excess of 30 lbs.) prevent it from being used as a serious sniper's rifle. But put that 30lb rifle into a defensive position in a target rich environment and you can really cause some havoc.

Ballistics

U.S. M2 .50BMG - 709gr FMJ-BT at 2850fps

100y 92m	200y 183m	300y 275m	400y 366m	500y 458m	600y 549m	700y 641m	800y 732m
+28.2	+51.9	+70.5	+83.6	+92.9	+89.3	+81.4	+65.0
900y	1000y	1100y	1200y	1300y	1400y	1500y	
824m	915m	1007m	1098m	1190m	1281m	1373m	

+18.2	Zero	-49.8	-112	-191	-288	-404	

Wind Drift (Inches) 10mph Crosswind

(0.5	1.9	4.2	7.5	12	18	25	33	43	56	69	84	101	121	143	
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The close range attack is possibly the most risky but also the most effective method of selective assassination. The target is approached or ambushed at a vulnerable point and destroyed, preferably with silenced, or close combat weapons. This method of assassination requires brutal swiftness of action. The operative must not attempt to make this action into a dramatic or theatrical scene. Don't say anything to the target or do anything which would indicate what is about to happen. Resist the urge to punish or torture the target or to explain why the assassination is being conducted. Simply destroy the target, confirm the kill and then escape. A successful assassination with no arrests or suspects is a far more powerful statement than even John Wilkes Booth's shout of "Sic Semper Tyrannus".

Close range attacks are best carried out at stopping points during the target's movement. Entering or exiting vehicles and buildings offers the operative a moment when the target will be distracted with keys, door handles etc. Good target surveillance may demonstrate vulnerabilities in the target's routine which can be exploited by the operative to conduct a quick, low-risk assassination.

A home-invasion attack is a very high-risk procedure. The target may be armed and there is significant risk of law enforcement being alerted to the attack. Any assassination attempt of this type must be thoroughly planned out. Target surveillance and research is absolutely imperative. It will be necessary to understand the layout of the residence, how many people are inside, if the target owns dogs, firearms or alarm systems and when and where the target is likely to sleep.

A lightning quick attack must be conducted. It will almost certainly be necessary for more than one operative to conduct this type of assassination. The residence should be entered by smashing down a door. A battering ram, similar to the ones used by law enforcement, may be required. A ram can be made by welding handles onto a 4"-6" x 20+" steel pipe then filling the pipe with cement. Swing the ram back and strike the door in the area where the lock is. Even a well-constructed door will be popped open with one or two good hits.

The target must then be located and destroyed as quickly as possible. The operatives should wear masks, gloves and **sterile clothing**. The whole operation should take less than 5 minutes.

Explosives have a long history of use in selective assassination operations. Most unsuccessful attacks of this type fail because the bomb fails to explode or explodes while the target is outside of the effective range of its blast. Avoid the use of **letter** or **package**

bombs for selective assassination; these are best suited as terror weapons. A bomb which is intended for use as an assassination weapon must be very powerful and should be wire or radio detonated by the operative when the target is in range. This is more risky than leaving a package bomb on the target's doorstep and hoping that the target will be the one who triggers it, but visual confirmation of the target's proximity to the weapon before detonation makes for a much more effective attack.

An **arson attack** may be chosen as a method of selective assassination. The layout of target's residence must be known as well the target's routine. Once the target is likely to be asleep, flammable liquids or incendiary devices should be used to completely consume the residence with flames and to block all exits. Certain conditions, such as the fire safety of the residence, distance from fire-stations, and the alertness and fitness of the target will affect the chances of success for this type of attack. Optimum conditions for an arson assassination include; and old building, at a great distance from emergency services, which contains plenty of exposed wood, carpeting, curtains etc., a target which has not been threatened beforehand and is not security conscious.

It is essential, in most cases, that there be no doubt that the attack was a homicide and that it was conducted by our movement. No attempt should be made to disguise the assassination as an accident of some type or the work of common criminals. The whole point of this type of action is propaganda effect.

Threats, Harassment and Vandalism

The White Resistance fighter should not underestimate the psychological impact of a sustained campaign of death threats and vandalism against non-Whites, Jews or traitors. Telephone, mail or electronic threats against individuals are the most effective and least likely to be investigated or solved by law enforcement. Vandalism to non-White owned businesses, government or private institutions which are involved in promoting degeneracy or working to bloat the Turd-World population with foreign aid, Synagogues, Mosques, Temples and other deserving targets will incite rage or inspire fear in our enemies. The purpose of threats and intimidation is to force the target to alter his/her behavior, go out of business, move away, or increase spending for security, or to somehow retaliate. Only a sustained campaign of threats or vandalism can accomplish this. It should be possible for a resistance cell or a lone-wolf to conduct several campaigns of this nature simultaneously.

- Telephone and Email threats should be made from pay-phones or public access computers, never from the operative's residence. When using a pay-phone, wear gloves and a simple disguise as present technology allows phone calls to be quickly traced and eyewitnesses and video cameras are everywhere.
- Mail threats should be mailed from mailboxes located far from the operative's residence or workplace. Use a different box each time. Treat the delivery of a mail threat as you would a letter-bomb.

- Death threats are most effective when directed at an individual. Use surveillance to discover some facts about the target and use these to increase the intimidation effect. A photo of the target, taken during surveillance and delivered along with the death threat, will convince the target that the threat should be taken seriously.

Acquiring Funds

In order to sustain a large-scale guerilla campaign, it will be necessary to have access to significant monetary resources. Obtaining funding for our struggle will be a difficult and perilous task. It may be possible in the future to expect contributions from our racial kin but we must first show that we really intend to fight this war. Until that day we will be forced to turn to criminal enterprise in order to fund our attacks.

The methods we use to acquire cash must never result in physical injury to innocent Whites. If we were to get involved in dealing drugs to White children or armed robberies in which some White bank teller or security guard gets killed, we would be little better than the criminal non-Whites which we despise. An analysis of the actions of other separatist movements, such as the IRA or ETA shows us that whatever early ideals these movements had, quickly became submerged when operatives got involved in smuggling drugs or robbing their own people to obtain funding.

We must make every effort to ensure that it is only our enemies who are the victims of our fundraising efforts. In this way our fundraising efforts will also, in a Robin Hood sort of way, be seen as attacks upon our enemies. Like any other action, acquiring funds must be well thought-out and researched. The operative should plan ahead so that acquiring funds is never an act of desperation.

Counterfeiting - This is becoming a more and more difficult crime to do well. It is nearly impossible to produce money or documents which will pass inspection with modern equipment. However, it is still possible obtain funds in this way as long as only small amounts are passed at a given time. Counterfeiting undermines a nation's currency and causes serious headaches for governments and law enforcement. For these reasons, counterfeiting is treated very seriously by the courts.

Fraud - This covers every imaginable type of scam and forgery. Bank fraud, credit card fraud, check fraud etc. are crimes which are relatively easy to conduct and rarely result in serious sentences for those convicted.

Robbery - Great care must be taken not to victimize innocent Whites in this type of action. Target our enemies for this type of action. Robbery is a serious crime, which will result in long jail terms for those convicted. The lowest risk type of robbery is the homeinvasion robbery conducted against drug dealers, wealthy corporate executives and other enemies who are known to have cash on hand. Intelligence gathering is the key to making this type of robbery work.

Smuggling - As stated, drug smuggling must be strictly off-limits. There are, however, plenty of other items which can be smuggled for profit. Firearms, electronics, jewelry, and just about anything which is controlled or taxed by governments can be smuggled for

profit. Penalties for smuggling range from a slap on the wrist to very lengthy jail terms depending on what has been smuggled and what jurisdiction is involved.

Police Investigations

It is essential for the operative to understand how criminal investigations are conducted and just what can and cannot be determined from crime scene evidence. This knowledge will allow the operative to reduce the risk that law enforcement will be able to identify, build a case against, and successfully prosecute him or her.

Fingerprints

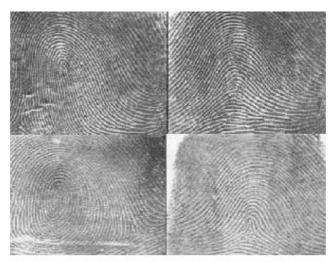
Fingerprints are possibly the most common type of physical evidence, and certainly one of the most valuable to investigators. Each person's fingerprints are unique to them and do not change significantly over time. Therefore, they offer the investigator the ability to identify the person who left them at the crime scene. There are three types of fingerprints which are collected as evidence;

- Direct or Inked Fingerprints which are collected from a suspect and use for comparison with crime-scene prints.
- Latent Fingerprints which are impressions caused by the perspiration through the sweat pores of the ridges of the skin being transferred to some surface.
- Residual Fingerprints which are produced when the ridges of the skin have been contaminated with substances such as oil, grease, dirt, blood etc.

Fingerprints deposited on hard, nonabsorbent, smooth surfaces, such as metal, glass, and finished wood, are the easiest investigators to find and record. Fingerprints deposited on porous, absorbent surfaces are the most difficult for investigators to find and process but the technology exists the obtain fingerprints off of nearly any surface, provided they are processed soon after being deposited.

Standards differ from jurisdiction to jurisdiction regarding the number and quality of prints which must be obtained from the crime-scene and matched to a suspect in order for them to be submitted as evidence in court. Police, however, could possibly identify an operative from just one partial fingerprint. This evidence would be useless in court, but would make the operative vulnerable to further, aggressive investigation.

The only way to avoid this is to simply not leave any fingerprints behind. Wearing surgical gloves during every stage of a given mission is the simplest way to achieve this. Every item the operative brings along on a mission must have none of the operative's (or any Comrade's) fingerprints on it. Special care must be taken to be sure that items, such as weapons, tools, and explosives, which have been handled before a mission, are free of incriminating fingerprints.



White Resistance Manual

Examples of fingerprint evidence. From top left; Loop, Arch, Whorl and Tented Arch.

Body Fluids

Body fluids are of great importance to the investigator. Because of the unique character of each individual's DNA, the crime lab can rule a suspect out based on DNA samples or make statements such as " there is a 1 in 9,000,529,200 chance that someone other than the suspect deposited the sample found at the crime scene". This type of evidence is obviously very powerful.

DNA samples can be obtained from liquid or dried blood, saliva, urine and perspiration. Samples can also be obtained from human milk and semen but these are not the types of samples the operative is likely to leave behind.

How can the White Resistance Fighter avoid leaving this type of evidence for investigators to find?

- Never urinate, eat, drink or smoke at or near the mission target. Saliva samples can be obtained from unfinished portions of food, beverage containers and cigarette butts. The operative may be forced to violate this guideline when lying in ambush or in a sniper's nest for extended periods. In this case the operative must use care not to leave samples behind for investigators to obtain.
- Never lick stamps or envelopes to be use to threaten enemies, to claim responsibility for acts of war or when making letter or package bomb attacks.
- The operative should do everything possible to avoid cuts and abrasions during the course of a mission. Chose routes of ingress and egress which are free of obstructions. Wear tough clothes, footwear and, of course, gloves.
- Whenever the operative is forced to come into physical contact with the enemy there is potential for body fluid samples to be deposited. The best way to prevent this is to become proficient in armed and unarmed combat so that enemies can be dealt with quickly and the risk of injury to the operative reduced.

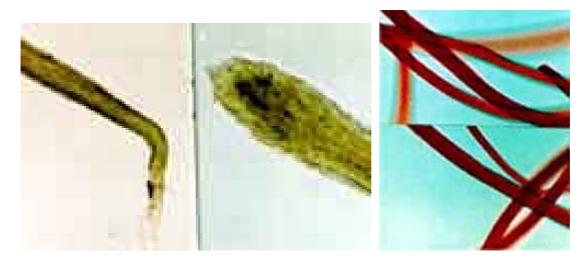
There is also potential for the body fluids of the target of an attack or some contaminants from the crime scene to be deposited on the operative during the course of a mission. This potential is particularly strong in missions of Selective Assassination. When using weapons such as knives and firearms fired at close range, the operative is sure to become contaminated with samples of the target's blood. There is also potential for gunshot residue, trace elements from explosives, hair + fiber, and soil evidence to be deposited upon the operative's person and clothing.

The operative must begin each mission with a set of sterile cloths and destroy them afterwards. The clothing and footwear worn by the operative during a mission should be obtained from second-hand clothing stores or from services which provide used clothing to the poor. The clothing should be kept sealed in the bag from the store and not washed or worn before the mission. This is a simple and cheap way for the operative to be supplied with sterile clothing, which will be free of hair, fiber and trace elements evidence from the operative's vehicle, residence or person. These clothes can be removed and destroyed after the completion of the mission.

Trace Elements

This type of evidence is also frequently referred to as hair and fiber evidence. Trace evidence can be loosely defined as materials which are small enough to be overlooked upon initial inspection, and which, because of their size, are easily exchanged through contact. Examples of trace evidence include, hair, fiber, gunshot residue, threads, soil, debris, dust and chemicals, adhesives, polymers, paints, wood, insulation from safes and metals.

The detection of trace evidence linking a suspect to the crime scene, coupled with good evidence standards, makes for a powerful investigative tool. The White resistance fighter must be aware of the potential links which law enforcement can make from trace evidence deposited at the crime scene or transferred from the crime scene to the operative's body, clothes, footwear, vehicle, residence etc.



Comparison of Hair Evidence-----Comparison of Wool Fibers

Most trace evidence is transferred by way of clothing and footwear so the use of sterile clothing will eliminate many of the links back to the operative which law enforcement will attempt to establish.

Hair evidence is a major concern. Human hair is constantly being shed and crime scene investigators will collect any hair evidence. Hair can be used to determine the following things:

- The race of the individual
- The part of the body from which the hair originated
- Whether or not the hair was forcibly removed
- Whether the hair had been cut with a dull or sharp instrument
- If the hair had been dyed or bleached
- Whether the hair had been burned or crushed
- It is possible, under certain circumstances, for the investigator to obtain a DNA sample from hair evidence.

Possible conclusions concerning hair sample analysis:

- That the hairs match in terms of microscopic characteristics and that they originated from either the same individual or another individual whose hair exhibits the same microscopic characteristics. (Note the qualification that is necessary with respect to precise identity.)
 - That the hairs are not similar and did not originate from the same individual.
 - That no conclusion can be reached

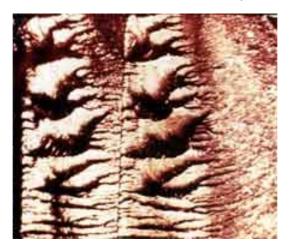
Very short cropped hair or a tight-fitting hat or knit cap will reduce the amount of hair evidence deposited at any crime scene. A hat, however, will contain a large number of the operative's hair and if the hat is left behind it will provide the investigators with a significant resource of evidence.

Tool Marks

For the purposes of this document, a tool will be considered as any object capable of making an impression on another solid object. A tool mark, therefore, is any impression, cut gouge or abrasion which results when a tool is brought into contact with an object. The most common tools dealt with by law enforcement are the various burglary tools, such as pry-bars, screwdrivers, lockpicks etc.

A tool will often impress its own outline, know as tool marks, into the material it comes into contact with. These tool marks can provide valuable evidence to an investigator as to what type of tool was used and can allow the investigator to identify a

recovered tool as being responsible for making the marks. Fractured parts of tools, even very small pieces, can be linked to the tool from which they came.



Comparison of Tool Marks

The operative should be well aware of the ability of investigators to identify just about anything you bring to the target location as having been there and this is especially true for tools. The operative may have to make forced entry into a residence or other buildings and vehicles in the course of planting explosives, selective assassination or for the purpose of acquiring funds or weapons needed. The tools used on such missions should be sterile, i.e. they should not have the operatives fingerprints on them or any residue evidence which link them back to the operative. Scrounge or liberate any tools needed and store them as described for sterile clothing, yard sale and flea markets are excellent sources for cheap tools. A sterile tool is best left at the crime scene, making it a dead end for investigation.

Any tool which must be kept due to its value should be altered by working its contact surfaces with a file or abrasive before and after any mission. Altering the tool before a mission is necessary because the tool may have been used or tested at the operative's residence, allowing an investigator to link the tool back to this earlier use.

Eyewitnesses

There is a well known saying amongst prosecutors that "the only thing worse than no evidence at all is eyewitness evidence". This reflects the fact that the average person who witnesses a crime has no training in observation skills. Most people don't really take note of what the suspect looks like, what kind of clothes the suspect wore, or what type of weapons or vehicles, if any, were used. This fact is a double-edged sword to the operative; on one hand any eyewitnesses will generally be of only marginal help to investigators but on the other hand, when investigators have the operative targeted as a suspect it is very easy for them to influence the testimony of eyewitnesses.

The operative must do everything possible to avoid being noticed by witnesses while conducting missions. Here are some things to remember:

- It is important to avoid making eye-contact with passersby while travelling to and from the target area. Eye-contact is both a sexual signal and a threatening gesture and will be sure cause witnesses to take note.

- Dress to fit into the surroundings at the target area.
- Earth tones and a drab appearance will go a long way to reducing the number of witnesses who take note of the operative.
- Don't exhibit signs of strength or alertness, keep the muscles of the chest and shoulders relaxed and slightly slouched. This will make witnesses dismiss you as unthreatening without a second glance.
- Don't wear a disguise which will draw undue attention. A good example is a police uniform; this is possibly the worst imaginable disguise and should only be used when absolutely necessary. A police officer's appearance and activities are usually noticed by everyone and people are likely to approach a police officer with questions or comments. A construction worker, on the other hand, will often be given the same level of unchallenged access as a cop but, at the same time, will draw less attention.
 - Don't speak or interact with anyone unless absolutely necessary

Video Surveillance

Surveillance cameras are a common resource for law enforcement. When investigating a crime, investigators will look at the tapes recorded by business security cameras in the area of the crime scene, near the suspect's residence and along any possible routes between the previous two locations. The sheer number of cameras in use today gives the investigator a good chance of obtaining damning evidence that a suspect was in the vicinity of the crime scene or traveled along a route to it before or away from it after the crime was committed. Many high-profile cases have included this element of evidence recently.

In order to avoid being caught with this type of evidence the operative should take a round-a-bout route to the target area, avoiding downtown storefronts, banks, jewelry or electronics shops or anywhere else that is likely to have security cameras. Vehicles owned by the operative, or which can be linked to the operative or any other comrade should not be used as transportation directly to and from the target area. If absolutely necessary drive to a spot which is several blocks from the target and walk from there. If a getaway car is required for the mission it must be a stolen vehicle, preferably one stolen very recently Use public transportation or walk to the target if possible, rush hour is the best time for this as anonymity can easily be maintained in a crowd. A disguise of some sort should be worn but don't get too fancy with this, a ball-cap, dark sunglasses and some uncharacteristic clothing will make a more convincing cover than a fake wig, beard or anything else which is too extravagant.

Forensic Firearm Evidence

In the event of most shootings and nearly all firearm homicides an investigation involving Forensic Firearm Identification is conducted. A racially motivated attack or the assassination of one of the System's elite will almost certainly result in all the available resources of law enforcement being brought to bear including a meticulous investigation of forensic firearms evidence. It is important for the operative to understand the nature of

this type of investigation and just what can and cannot be determined through forensic investigations. A good understanding of the investigative process will help the resistance fighter to reduce the chances of leaving useful evidence at a crime scene or of being caught in possession of such evidence later.

Forensic firearm identification, which is part of the broader science of forensics, is often wrongly referred to as ballistics. Firearms identification involves the identification of fired bullets, cartridge cases or other ammunition components as having been fired from a specific firearm. Firearms identification is actually a form of Tool Mark Identification where the firearm, because it is made of a material harder than the ammunition components, acts as a tool to leave impressions and striated markings on the various ammunition components that come into contact with the firearm.

Firearms evidence found at a crime scene or seized elsewhere will be submitted to a police lab's Firearms Section for investigation. This evidence will typically include a firearm, fired bullets, spent cartridge cases, spent shot shells, shot, shot shell wadding, live ammunition, clothing, or a number of other types of miscellaneous evidence.

Studies have shown that no two firearms, even those of the same make and model, will produce the same unique marks on fired bullets and cartridge cases. Manufacturing processes, use, and abuse leave surface characteristics within the firearm that cannot be exactly reproduced in other firearms.

Firearms do not normally change much over time. This allows for firearms recovered months or even years after a shooting to be identified as having fired a specific bullet or cartridge case. Tests have been conducted proving that even after firing several hundred rounds through a firearm the last bullet fired could still be identified to the first.

It should be noted that not all firearms leave consistent reproducible marks but around eighty percent of the firearms examined produce what is sometimes called a "mechanical fingerprint" on the bullets and cartridge cases that pass through them.

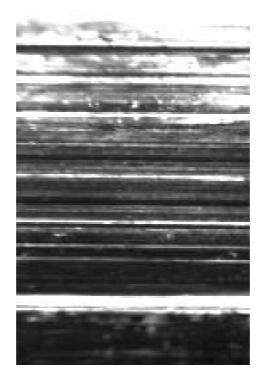
All cases that involve firearms identification start with preliminary examinations of the evidence for similar class characteristics. Class characteristics are **intentional or design** characteristics that would be common to a particular group or family of items.

The class characteristics of firearms that relate to the bullets fired from them include the caliber of the firearm and the rifling pattern contained in the barrel of the firearm.

Cartridges and Cartridge cases on the other hand are examined for class similarities in what are called breech marks, firing pin impressions, extractor marks, ejector marks and others.

Bullets collected for comparison to a specific firearm are examined first to see if they are of a caliber that could have been fired from the submitted firearm. They are then examined to determine if the pattern of rifling impressions on the bullet match the pattern of rifle contained in the barrel of the questioned firearm. If these class characteristics agree the next step is to try to make a positive match between the individual characteristics that may have transferred to the bullet from the barrel.

Located within the rifling impressions on a bullet can be microscopic striations or scratches like those seen on the bullet below. They sort of look like a bar code don't they? Well they can be as individualistic as a barcode.



Imperfections in the surface of the interior of the barrel leave striations on the projectiles. Striations have the potential to be consistently reproduced in a unique pattern on every bullet that passes down the barrel of a firearm.

Caliber

When a bullet is submitted for comparison to a firearm, one of the first examinations conducted will be to determine the bullet's caliber.

Measuring the bullet's diameter, weighing the bullet, and examining the physical characteristics of the bullet help firearm examiners to arrive at a basic caliber for the submitted bullet. Firearm examiners also can compare the questioned bullet to known reference standards. Most police labs have an ammunition reference collection and manufacturers catalogs that can be used as reference material in determining a bullet's caliber.

Making these determinations is not as easy as it sounds.



A firearm examiner could easily identify the above bullet as a Federal 9mm "Hydra-Shok" bullet



However a bullet like the one above will present serious problems for the examiner. Is the bullet from a 9mm Luger, a .38 Special, a 380 Auto, or a .357 Magnum cartridge? Sometimes firearm examiners can be very specific but there are times when its impossible to narrow things down to one particular caliber or cartridge. Confusion is often caused by the fact that firearms are normally designed to fire a specific type of cartridge, however, some firearms chambered to fire one cartridge can also fire another. One of the most common examples is that a revolver chambered for .357 Magnum cartridges can also fire a .38 Special cartridge. However, a firearm chambered for .38 Special cartridges cannot fire .357 Magnum cartridges.



If the caliber of the bullet submitted for examination matches the caliber of the submitted firearm or if it just isn't possible to be sure of the bullet's caliber, the firearm examiner will look for additional class characteristics in the form of rifling to further narrow their search.

Rifling

Most modern pistols, revolvers, rifles, and some shotgun barrels have what is called rifling in their barrels.

Rifling consists of grooves cut or formed in a spiral nature, lengthwise down the barrel of a firearm.

Rifling is placed in the barrels of firearms to impart a spin on the bullets that pass through it. Because bullets are oblong objects, they must spin in their flight, like a thrown football, to be accurate. Looking down the barrel of a firearm you might see rifling like that depicted on the right. This image shows a pattern of rifling containing eight grooves with a right twist.

Rifling is often described in reference to the number of lands & grooves it contains. The lands are the raised areas between two grooves. A rifling pattern will always have the same number of lands as grooves.

Firearms can be manufactured with any number of lands and grooves in their barrels. They can also spiral either left or right. A few of the more common rifling patterns are 4/right, 5/right, 6/right, 6/left, 8/right, and 16/right.

Rifling Impressions

A bullet is slightly larger in diameter than the bore diameter of the barrel in which it is designed to be fired. The bore diameter is the distance from one land to the opposite land in a barrel. As a result, a rifled barrel will impress a negative impression of itself on the sides of the bullet like those seen below.





Firearm examiners can run into problems determining any of the rifling characteristics on the bullet if the bullet is damaged like the one seen below.

A firearms examiner may still be able to determine the number of lands and groves, the direction of twist and possibly even the rate of twist from even a badly damaged bullet like the one above. All that is required is one intact land and grove.

Cartridge Case Identification

Like bullets, cartridge cases can be identified as having been fired by a specific firearm. As soon as cartridges are loaded into a firearm the potential for the transfer of unique tool marks exists. However, the cartridge does not have to be fired for these marks to be transferred. Simply loading a cartridge into a firearm can cause unique identifiable marks that can be later identified.

Cartridge cases like those above are most often made of brass but can also be made of other materials such as steel, aluminum alloys or plastics. Cartridge cases come in a variety of finishes but all are made of a material that is softer than the materials found in a firearm. Any surface of the cartridge case that meets the inner workings of the firearm may be marked.



Tool marks produced on the cartridge cases will be in two basic forms. As the microscopic striations found on bullets, cartridge cases can pick up striated action marks. These "scratches" are produced when the cartridge case moves laterally against the tool (inner surface of the firearm) producing a scrape or striated mark. The other form of marks that can be left on a cartridge case are impressed action marks. Impressed marks are created on cartridge cases when it impacts the tool (again, the firearm) with adequate velocity or pressure to leave an impressed or indented mark.

Cartridge cases are compared to fired standards from a firearm using a comparison microscope as described in the bullet identification section. Standards are first examined to determine what marks, if any, the firearm is consistently reproducing. Evidence cartridge cases are then directly compared to the standards to see if they too are also similarly marked.

Striated Action Markings

Striated action marks are common to cartridge cases that have passed through the action of an auto loading or repeating firearm. Striated action marks can be produced on cartridge cases by contact with a number of different areas within the firearm. Some of the more common striated action marks include chamber marks; shear marks, firing pin drag marks, extractor marks, and ejector marks.

Chamber Marks

One of the most common striated action marks are called chamber marks. Roughness in the chamber of a firearm can scratch the outer walls of a cartridge case when loaded and removed from the chamber. Most chamber marks occur after the cartridge is fired.

Cartridge cases expand when fired pressing out against the walls of the chamber. When they are pulled out of the chamber, the sides of the cartridge case can be scratched.

Shear Marks

Another common striated action mark are shear marks produced by Glock pistols on cartridge case primers. Glock pistols have a rectangular firing pin hole in their breech face. When a cartridge case is forced backwards from recoil the primer imbeds itself in the firing pin hole. As the slide of the pistol starts to recoil, the barrel will drop slightly as the action opens. The dropping barrel forces the cartridge case to move down slightly and when this happens the lower edge of the imbedded primer is sheared downward and out of the firing pin hole.

Firing Pin Drag Marks

In a similar process, striated marks called firing pin drag marks can be produced. When the firing pin springs forward to strike the primer of a cartridge, it may remain slightly forward and imbedded in the primer. Certain barrels (like in the Glock) drop down slightly as recoil is forcing the action open. The cartridge case drops with the barrel causing the nose of the protruding firing pin to drag across the primer as it leaves the firing pin impression.

Extractor Marks

Another action mark, usually found in a striated form, are those created by the extractor of most auto-loading or repeating firearms. The extractor is a small part sometimes resembling a hook that is used to remove a cartridge or cartridge case from the chamber of a firearm. The image below shows the extractor of a 9mm Glock pistol hooked into the extractor groove of a cartridge. As the slide of the pistol moves to the rear, the extractor pulls the cartridge case along with it until it is ejected from the pistol. The extractor may or may not leave an identifiable mark on the cartridge case. This is true if the cartridge is fired or simply hand chambered and extracted without firing.

Ejector Marks

As described above, the extractor pulls the cartridge case out of the firearm's chamber. As the cartridge case is pulled to the rear it will be struck somewhere on an opposing edge by a part as seen below called the ejector. The ejector is designed to expel the cartridge case from the action of the firearm. The resulting impact of the cartridge case with the ejector will cause another action mark that can be used as a means of identification. Ejector marks can be striated in nature but most of the time they are impressed action marks.

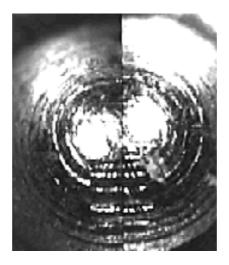
Impressed Action Markings

Impressed action marks, with a few exceptions, are produced when a cartridge case is fired in a firearm. The two most common impressed action marks are firing pin impressions and breech marks. As mentioned earlier ejector marks can also be in the form of an impressed action mark.

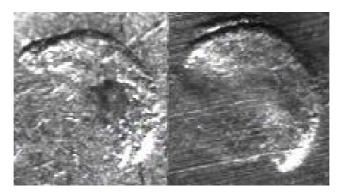
Firing Pin Impressions

Firing pin impressions are indentations created when the firing pin of a firearm strikes the primer of centerfire cartridge case or the rim of a rimfire cartridge case. If the nose of the firing pin has manufacturing imperfections or damage, these potentially unique characteristics can be impressed into the metal of the primer or rim of the cartridge case.

The comparison image below shows the firing pin impressions on two centerfire cartridge cases. As you can see, the firing pin impressions have both circular manufacturing marks and parallel marks from a defect in the nose of the firing pin.



The comparison image below shows firing pin impressions on two rimfire cartridge cases. Imperfections in the surface of the nose of the firing pin consistently produced these impressed marks.



Firing pin impressions also can be found on live cartridges. In some cases, the firing pin may miss the primer of a cartridge or fail to strike the primer of a cartridge with sufficient force for it to discharge. The cartridge may also misfire due to a contaminated or deteriorated primer compound. For whatever reason, the result will be the presence of a firing pin impression on the cartridge case of a live cartridge. This could be significant if the cartridge is say, left at the scene or found at a suspect's house.

Breech Marks

By far the most common impressed action marks on cartridge cases are breech marks. Most fired cartridge cases are identified as having been fired by a specific firearm through the identification of breech marks.

Very high pressures are generated within a firearm when a cartridge is discharged. These pressures force the bullet from the cartridge case and down the barrel at very high velocities. When a firearm is discharged, the shooter will feel the firearm jump rearward. This rearward movement of the firearm is called recoil. Recoil is for the most part caused by the cartridge case moving rearward as an opposite reaction to the pressures generated to force the bullet down the barrel.

When the head or base of the cartridge case moves rearward, it strikes what is called the breech face of the firearm. The image below shows the breech face of a 12 Gauge, single-shot shotgun.

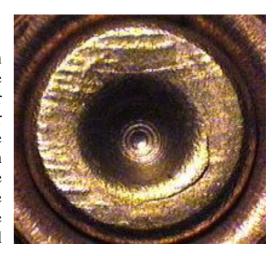


The breech face rests against the head of the cartridge case and holds the cartridge case in the chamber of the firearm. When the head of a cartridge case slams against the breech face, the negative impression of any imperfections in the breech face are stamped into either the primer of the cartridge case or the cartridge case itself. The image below shows the primer of a shotshell fired in the above shotgun.

Breech marks come in various forms. Those seen above are called parallel breech marks because the marks are a series of parallel lines. Another form of breech marks are circular breech marks. Breech marks can also show no obvious pattern. They may have a stippled or mottled appearance.

Ejector Marks

Ejector marks are sometimes created when cartridges or cartridge cases are ejected from the action of a firearm. Ejector marks can be either striated or impressed but the impressed ejector marks not only can be used to identify a cartridge case as having passed through a firearm's action they can also be an indication that the cartridge case was fired in the firearm. Ejector marks can only be produced when the cartridge cases were fired in the firearm and not by simply hand chambering and ejecting a live cartridge.



Minimizing Firearm Evidence

Forensic firearm evidence is an overwhelmingly powerful tool. How can the operative minimize the evidence he leaves behind at the scene of an assassination or sabotage attack with a firearm. Here are some guidelines to follow in order to minimize the evidence which a firearm attack will leave behind.

- With rifles and handguns, use only all-lead hollow point bullets unless the job requires FMJ ammo to be used. With an FMJ or other type of jacketed bullet, the jacket tends to get peeled back or right off but it retains the rifling marks mostly intact. With an all-lead, hollow point bullet, on the other hand, rifling marks tend to be obliterated. This is true even when fired into a soft target. In some jurisdictions handgun caliber, hollow point bullets are banned. In this case the operative will have to fabricate his own. Prefragmented bullets, which are made from powdered lead, are also available. These bullets strike the target and are smashed into powder. This type of ammo does not have the penetration power of the standard types but will leave not a trace of rifling impressions. Of course cartridge case evidence must also be considered.
- With shotguns the real concern is not the projectile (most shotguns do not have rifling and therefore impart no impressions on the shot or slug projectiles) but the spent shells. The firing pin impressions and other cartridge case marks can be used to match a shotgun to a crime if spent shells are left behind. The spent shells must be retrieved in order to prevent evidence from being obtained to link the weapon to the crime. This is usually not possible.
- Wear gloves in order to prevent fingerprints on the weapon if it must be discarded hastily and to prevent gunshot residue from being present on your hands if you are apprehended.
- Ammo to be used in an attack can be chambered in and then manually ejected from a firearm other than the one to be used. This will leave marks on the cartridge case which will confuse the examination and make positive matching of weapon to the ammunition components more difficult.
- A good trick is to use a weapon which does not eject spent shells (revolver or break-open type shotgun or rifle) or is equipped with a brass catcher and then intentionally leave spent shells of a similar type but fired from a different weapon behind. Spent shells used for this should be obtained wherever people go to shoot such as shooting ranges and garbage dumps. A .38 special or .357 magnum revolver can cause a great deal of confusion when employed this way because they can fire projectiles which are identical to those fired by a. 38 super, 9mm, .380 and a number of others. This means that with a .38 or .357 magnum if no shell casings are left behind the investigator can't be sure which type of weapon was used. If shell casings from a .38 super, for instance, are left at the scene of an attack where a .38 special was actually used the firearms investigator will have to conclude that a .38 super was used.
- After a firearm is used in an attack it will have to be destroyed, altered to remove identifiable characteristics or cached. If a weapon is to be destroyed, every part must be damaged enough to make examination impossible. The barrel, bolt head, firing pin, extractor and ejector must be damaged beyond the possibility of examination. In order to alter a weapon the barrel and firing pin, at minimum must be altered. The firing pin can be removed and replaced or ground slightly to change the shape of its impression without much trouble. The barrel is a different matter; the barrel will have to be replaced. Most handguns and rifles have barrels which can be removed. However replacement barrels can cost more than the weapon is worth, in this case the best option is to cache the

weapon safely and make it a resource for the future. See the section on Weapons Caching for notes on this.

Bomb Investigations

Police investigators are able to gain quite a bit of information from even an exploded bomb. Instrumental analyses of explosives and residues can determine whether substances are high explosive, low explosive, or explosive or incendiary mixtures; whether the composition of the substances is consistent with known explosive products; and the type of explosives. Explosive residue can be deposited on metal, plastic, wood, paper, or glass. Residue may be deposited after handling, storing, or initiating an explosive.

The operative must make every effort to minimize the amount and value of evidence which an investigator can obtain. Here are some guidelines for minimizing evidence in bombings:

- An exploded bomb will yield less evidence and will take much more time and effort to investigate than an unexploded one. Also, a bomb which fizzles makes you look unprofessional and less than committed, which reflects a similar appearance upon our whole movement. Make sure your bomb will function.
 - Use the most commonly available components you can obtain.
 - Don't purchase any parts which could be scrounged at junkyards or garbage dumps.
- Use homemade propellant unless you are sure that the commercial propellant you use can not be traced. Remember the police "Ident" lab will be able to identify almost any commercial explosive from just one grain of it, it is even possible to identify an explosive from its residue.
- Remove any labels, logos, serial numbers or distinguishing marks from bomb components such as batteries, clockworks, circuit boards or electronic delays as the investigator may be able to get batch or lot numbers from your components allowing them to discover when and where they were purchased.
- Be sure to wear gloves during the entire process of constructing and delivering the bomb to eliminate the possibility of leaving fingerprints behind.
- Don't leave any hair, saliva, blood, clothing, vehicle or furniture fibers upon or within the bomb. The bomb investigator knows that this type of evidence often gets caught within the threads of a pipe-bomb and can often survive the explosion. This is another good reason to be sure that these parts are well cleaned and lubed. Saliva can be used to obtain a DNA sample, which is better than a signed confession to prosecutors. Don't lick the envelope or postage (or anything else for that matter) on a package or mail bomb.
- Never purchase any bomb components with a credit card or check as this leaves a paper trail back to you. When buying parts be sure not to draw attention to yourself, a purchase of 24, 1' threaded pipe sections and 48 end caps will definitely raise suspicions

and ensure that store employees and other customers will take a good look at you. Remember never buy any parts which could be scrounged or made.

Forensic Computer Evidence

Forensic computer examinations can:

- Determine what type of data files are in a computer
- Compare data files to known documents and data files
- Determine the time and sequence that data files were created
- Extract data files from the computer
- Recover deleted files from the computer
- Search data files for keywords or phrases (Such as explosive, nigger, Hitler etc.)
- Recover and decrypt passwords
- Analyze and compare source code

The amount of forensic computer evidence obtained by investigators can be greatly reduced by using the best possible encryption programs with unique and complex passwords. Don't write your passwords down and don't include any obvious phrases or numbers.

Ink and Handwriting Evidence

Examinations can compare the formulation of known and questioned ink including pen, typewriter ribbon and stamp pad ink. When ink formulations are the same, it is not possible to determine whether the ink originated from the same source to the exclusion of others. Writing instruments should be "sterile", in that they should not be used by the operative before or after use in an action.

Handwriting evidence allows the examiner to determine, with reasonable accuracy, if an evidence sample of handwriting was produced by a given suspect.

This type of evidence is of concern to the operative in cases of Fraud, Death Threats, Mail Bombs and when signed receipts and other documents are part of a mission. Writing with the opposite hand, purposely distorting the natural writing method, and using block letters are all tricks which the operative can use to reduce this type of evidence.

Toxicology

Toxicology examinations can disclose the presence of drugs or poisons in biological specimens (i.e. deceased targets). The examinations can determine the circumstances surrounding drug- or poison-related homicides, suicides, or accidents.

The most readily identified toxins include:

- Volatile compounds (ethanol, methanol, isopropanol)

- Heavy metals (arsenic)
- Nonvolatile organic compounds (drugs of abuse, pharmaceuticals)
- Miscellaneous (strychnine, cyanide)

The operative should not store any poisons where investigators can find them. Make up poisons only as the are needed. Toxins such as Ethylene Glycol or Methanol are commonly used chemicals and do not have significant potential as evidence against the operative.

Criminal Profiling

Investigators will use a technique called profiling whenever there is a particularly difficult case or series of cases to solve. This process attempts to make an educated guess at the suspect's identity by analyzing crime scene evidence. Factors such as the suspect's age, race, level of education, employment, social status, and even where he or she lives can be deduced with reasonable accuracy.

In order to thwart the efforts of criminal profilers the operative must:

- Leave as little evidence as possible behind at crime scenes.
- Use simple language when making threats or claiming responsibility for actions.
- Never attack any target near your residence or any former residence, near your place of work, or along any routes which you travel often. Law enforcement profilers know that these types of attacks are often made upon targets which are in areas familiar to the perpetrator. The first attack an operative makes is particularly important because profilers know that a perpetrator almost always makes his first attack against a familiar target.
- Don't develop a pattern in your attacks which will allow law enforcement to predict when and where you will next strike. Vary the types of attacks, the time of day, day of the week and attack targets in as wide a geographical area as possible.

Commercial Explosives

I have included here the essentials of the US Army FM 5-250. Take the time to read this, it is like an undergraduate degree in explosive demolitions. This manual describes the characteristics and proper use of every type of explosive in military use today. The sections on specific demolition operations, such as destroying bridges, contain a wealth of information necessary to the White separatist. This Field Manual is reproduced **without** permission.

- Military Explosives
- 2. Initiating, Firing and Detonating Systems
- 3. Calculation and Placement of Charges
- 4. Bridge Demolition
- 5. Demolition Safety

Chapter 1

Military Explosives

Section I. Demolition Materials

- 1-1. Characteristics. To be suitable for use in military operations, explosives must have certain properties. Military explosives—
- Should be inexpensive to manufacture and capable of being produced from readily available raw materials.
- Must be relatively insensitive to shock or friction, yet be able to positively detonate by easily prepared initiators.
- Must be capable of shattering and must have the potential energy (high energy output per unit volume) adequate for the purpose of demolitions.
- Must be stable enough to retain usefulness for a reasonable time when stored in temperatures between -80 and +165 degrees Fahrenheit.
 - Should be composed of high-density materials (weight per unit volume).
 - Should be suitable for use underwater or in damp climates.
 - Should be minimally toxic when stored, handled, and detonated.
- 1-2. Selection of Explosives. Select explosives that fit the particular purpose, based on their relative power. Consider all characteristics when selecting an explosive for a particular demolition project.
- Table 1-1 contains significant information regarding many of the explosives described below.

1-3. Domestic Explosives.

- a. Ammonium Nitrate. Ammonium nitrate is the least sensitive of the military explosives. It requires a booster charge to successfully initiate detonation. Because of its low sensitivity, ammonium nitrate is a component of many composite explosives (combined with a more sensitive explosive). Ammonium nitrate is not suitable for cutting or breaching charges because it has a low detonating velocity. However, because of its excellent cratering affects and low cost, ammonium nitrate is a component of most cratering and ditching charges. Commercial quarrying operations use ammonium nitrate demolitions extensively. Pack ammonium nitrate in an airtight container because it is extremely hydroscopic (absorbs humidity). Ammonium nitrate or composite explosives containing ammonium nitrate are not suitable for underwater use unless packed in waterproof containers or detonated immediately after placement.
- b. Pentaerythrite Tetranitrate (PETN). PETN is a highly sensitive and very powerful military explosive. Its explosive potential is comparable to cyclonite (RDX) and

nitroglycerin. Boosters, detonating cord, and some blasting caps contain PETN. It is also used in composite explosives with trinitrotoluene (TNT) or with nitrocellulose. A PETN-nitrocellulose composite (Ml 18 sheet explosive) is a demolition charge. The PETN explosive is a good underwater-demolition because it is almost insoluble in water.

1-1

Table 1-1. Characteristics of US demolitions explosives

Name	Applications	Detonation Velocity		RE Fector*	Fume Toxicity	Water Resistance
		M/Sec	Pt/Sec	140101	-	**********
Black Powder	Time Fuse	400	1,300	0.55	Dangerous	Poor
Ammonium Nitrate	Cratering Charge	2,700	8,900	0.42	Dengerous	Poor
Ametol 80/20	Bursting Charge	4,900	16,000	1.17	Dangerous	Poor
M1 Dynamite	Demolition Charge	6,100	20,000	0.92	Dangerous	Fair
Detorating Cord	Priming	6,100 to 7,300	20,000 to 24,000	_	Slight	Excellent
TNT	Demoittion Charge Composition Explosive	6,900	22,600	1.00	Dangerous	Excellent
Tetrytol 75/25	Demolition Charge	7,000	23,000	1.20	Dangerous	Excellent
Tetryl	Booster Charge Composition Explosive	7,100	23,300	1.25	Dangerous	Excellent
Sheet Explosive M118 and M188	Cutting Charge	7,300	24,000	1.14	Dangerous	Excellent
Pentolite 50/50	Booster Charge Bursting Charge	7,450	24,400	_	Dangerous	Excellent
Nitroglycerin	Commercial Dynamite	7,700	25,200	1.50	Dangerous	Good
Bengalore Torpedo, M1A2	Demoition Charge	7,800	25,800	1.17	Dangerous	Excellent
Shaped Chargee M2A3, M2A4, and M3A1	Cutting Charge	7,800	25,600	1.17	Dangerous	Excellent
Composition B	Bursting Charge	7,800	25,600	1.35	Dangerous	Excellent
Composition C4 and M112	Cutting Charge Breaching Charge	8,040	26,400	1.34	Slight	Excellent
Composition A3	Booster Charge Bursting Charge	8,100	26,500	_	Dangerous	Good
PETN	Detonating Cord Blasting Cape Demolition Charges	8,300	27,200	1.66	Slight	Excellent
RDX	Blasting Cape Composition Explosives	8,350	27,400	1.80	Dangerous	Excellent

c. Cyclotrimethlenetrinitramine (RDX). RDX is also a highly sensitive and very powerful military explosive. It forms the base charge in the M6 electric and M7 nonelectric blasting caps.

When RDX is desensitized, it serves as a subbooster, booster, bursting charge, or demolition charge.

The principal use for RDX is in composite explosives, such as Composition A, B, and C explosives. RDX is available commercially under the name cyclonite.

- d. Trinitrotoluene. TNT is the most common military explosive. It maybe in composite form, such as a booster, a bursting, or a demolition charge, or in a noncomposite form. Since TNT is a standard explosive, it is used to rate other military explosives.
- e. Tetryl is an effective booster charge in its noncomposite form and a bursting or a demolition charge in composite forms. Tetryl is more sensitive and powerful than TNT. However, RDX- and PETN-based explosives, which have increased power and shattering effects, are replacing tetryl and composite explosives containing tetryl.
- f. Nitroglycerin. Nitroglycerin is one of the most powerful high explosives. Its explosive potential is comparable to RDX and PETN. Nitroglycerin is the explosive base for commercial dynamites. Nitroglycerine is highly sensitive and extremely temperature-sensitive. Military explosives do not use nitroglycerin because of its sensitivity. Do not use commercial dynamites in combat areas.
- g. Black Powder. Black powder is the oldest-known explosive and propellant. It is a composite of potassium or sodium nitrate, charcoal, and sulfur. Time fuses, some igniters, and some detonators contain black powder.
- h. Amatol. Amatol is a mixture of ammonium nitrate and TNT. It is a substitute for TNT in bursting charges. Some older bangalore torpedoes use 80-20 amatol (80 percent ammonium nitrate and 20 percent TNT). Because amatol contains ammonium nitrate, it is a hydroscopic compound.

Keep any explosives containing amatol in airtight containers. If properly packaged, amatol remains viable for long periods of time, with no change in sensitivity, power, or stability.

- i. Composition A3. Composition A3 is a composite explosive containing 91 percent RDX and 9 percent wax. The purpose of the wax is to coat, desensitize, and bind the RDX particles. Composition A3 is the booster charge in some newer shaped charges and bangalore torpedoes. High-explosive plastic (HEP) projectiles may also contain Composition A3 as a main charge.
- j. Composition B. Composition B is a composite explosive containing approximately 60 percent RDX, 39 percent TNT, and 1 percent wax. It is more sensitive than TNT. Because of its shattering power and high rate of detonation, Composition B is the main charge in shaped charges.

- k. Composition B4. Composition B4 contains 60 percent RDX, 39.5 percent TNT, and 0.5 percent calcium silicate. Composition B4 is the main charge in newer models of bangalore torpedoes and shaped charges.
- 1. Composition C4 (C4). C4 is a composite explosive containing 91 percent RDX and 9 percent nonexplosive plasticizers. Burster charges are composed of C4. C4 is effective in temperatures between -70 to+ 170 degrees Fahrenheit; however, C4 loses its plasticity in the colder temperatures.
- m. Tetrytol. Tetrytol is a composite explosive containing 75 percent tetryl and 25 percent TNT. It is the explosive component in demolition charges. Booster charges require different mixtures oftetryl and TNT. Tetrytol is more powerful than its individual components, is better at shatteringthan TNT, and is less sensitive than tetryl.
- n. Pentolite. Pentolite is a mixture of PETN and TNT. Because of its high power and detonating rate, a mixture of 50-50 pentolite (50 percent PETN and 50 percent TNT) makes an effective booster charge in certain models of shaped charges.

o. Dynamites.

- (1) Standard Dynamite. Most dynamites, with the notable exception of military dynamite, contain nitroglycerin plus varying combinations of absorbents, oxidizers, antacids, and freezing-point depressants. Dynamites vary greatly in strength and sensitivity depending on, among other factors, the percentage of nitroglycerin they contain. Dynamites are for general blasting and demolitions, including land clearing, cratering and ditching, and quarrying.
- (2) Military Dynamite. Military dynamite is a composite explosive that contains 75 percent RDX, 15 percent TNT, and 10 percent desensitizers and plasticizers. Military dynamite is not as powerful as commercial dynamite. Military dynamite's equivalent strength is 60 percent of commercial dynamiters. Because military dynamite contains no nitroglycerin, it is more stable and safer to store and handle than commercial dynamite.

1-4. Foreign Explosives.

a. Composition. Foreign countries use a variety of explosives, including TNT, picric acid, amatol, and guncotton. Picric acid is similar to TNT, but it also corrodes metals and thus forms extremely sensitive compounds.

WARNING

Do not use picric acid in rusted or corroded metal containers.

Do not handle picric acid. Notify explosive ordnance disposal (EOD) personnel for disposition.

b. Use. You may use the explosives of allied nations and those captured from the enemy to supplement standard supplies. Only expert demolitionists should use such explosives and then only according to instructions and directives of theater commanders. Captured bombs, propellants, and other devices may be used with US military explosives for larger demolition projects, such as pier, bridge, tunnel, and airfield destruction. Most

foreign explosive blocks have cap wells large enough to receive US military blasting caps. Since foreign explosives may differ from US explosives in sensitivity and force, test shots should be made to determine their adequacy before extensive use or mixing with US-type explosives.

Section II. Service Demolition Charges

1-5. Block Demolition Charges. Block demolition charges are prepackaged, high-explosive charges for general demolition operations, such as cutting, breaching, and cratering. They are composed of the high-explosive TNT, tetrytol, Composition-C series, and ammonium nitrate.

Block charges are rectangular inform except for the 40-pound, ammonium-nitrate block demolition charge, military dynamite, and the ¼-pound-TNT block demolition charge, which are all cylindrical in form. The various block charges available are described in the text that follows.

1-6. TNT Block Demolition Charge.

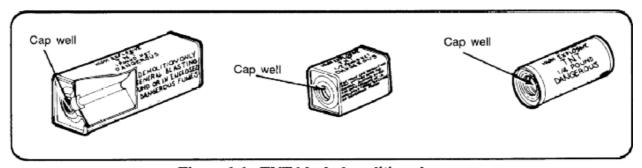


Figure 1-1. TNT block demolition charges

- a. Characteristics. TNT block demolitions are available in three sizes (Table 1-2). The ¼-pound block is issued in a cylindrical, waterproof, olive-drab cardboard container. The ½-pound and 1-pound blocks are available in similar rectangular containers. All of the three charges have metal ends with a threaded cap well in one end.
- b. Use. TNT block demolition charges are effective for all types of demolition work. However, the ¼-pound charge is primarily for training purposes.
- c. Advantages. TNT demolition charges have a high detonating velocity. They are stable, relatively insensitive to shock or friction, and water resistant. They also are conveniently sized, shaped, and packaged.
- d. Limitations. TNT block demolition charges cannot be molded and are difficult to use on irregularly shaped targets. TNT is not recommended for use in closed spaces because one of the products of explosion is poisonous gases.

1-7. M112 Block Demolition Charge.

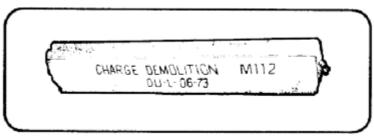


Figure 1-2. M112 block demolition charge

- a. Characteristics. The M112 block demolition charge consists of 1.25 pounds of C4 packed in an olive-drab, Mylar-film container with a pressure-sensitive adhesive tape on one surface (Figure1-2). The tape is protected by a peelable paper cover. Table 1-2 (page 1-5) lists additional characteristics of the M112 block.
- b. Use. The M112 block demolition charge is used primarily for cutting and breaching. Because of its high cutting effect and its ability to be cut and shaped, the M112 charge is ideally suited for cutting irregularly shaped targets such as steel. The adhesive backing allows you to place the charge on any relatively flat, clean, dry surface with a temperature that is above the freezing point. The M112 charge is the primary block demolition charge presently in use.

WARNING

Composition C4 explosive is poisonous and dangerous if chewed or ingested; its detonation or burning produces poisonous fumes. Cut all plastic explosives with a sharp steel knife on a nonsparking surface.

Do not use shears.

- c. Advantages. You can cut to shape the M112 block demolition charge to fit irregularly shaped targets. The color of the wrapper helps camouflage the charge. Molding the charge will decrease its cutting effect.
 - d. Limitations. The adhesive tape will not adhere to wet, dirty, rusty, or frozen surfaces.
 - 1-8. M118 Block Demolition Charge.

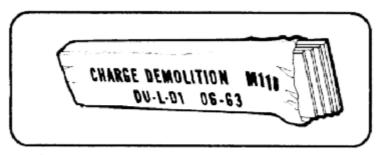


Figure 1-3. M118 block demolition charge

a. Characteristics. The M118 block demolition charge, or sheet explosive, is a block of four ½-pound sheets of flexible explosive packed in a plastic envelope (Figure 1-3). Twenty M118 charges and a package of 80 M8 blasting-cap holders are packed in a wooden box. Each sheet of the explosive has a pressure-sensitive

adhesive tape attached to one surface. Table 1-2 (page 1 -5) lists additional characteristics for the M118 charge.

- b. Use. The Ml18 charges are designed for cutting, especially against steel targets. The sheets of explosive are easily and quickly applied to irregular and curved surfaces and are easily cut to any desired dimension. The Ml18 charge is effective as a small breaching charge but, because of its high cost, it is not suitable as a bulk explosive charge.
- c. Advantages. The flexibility and adhesive backing of the sheets allow application to a large variety of targets. You can cut the ½-pound sheets to any desired dimension and apply them in layers to achieve the desired thickness. The Ml18 charge is not affected by water, making it acceptable for underwater demolitions.
 - d. Limitations. The adhesive tape will not adhere to wet, dirty, rusty, or frozen surfaces.
 - 1-9. M186 Roll Demolition Charge.

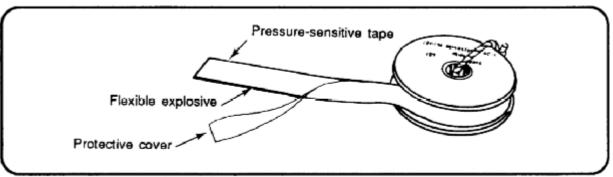


Figure 1-4. M186 roll demolition charge

- a. Characteristics. The Ml86 roll demolition charge, shown in Figure 1-4, is identical to the Ml18 block demolition charge except that the sheet explosive is in roll form on a 50-foot, plastic spool. Each foot of the roll provides approximately a half pound of explosive. Included with each roll are 15 M8 blasting cap holders and a canvas bag with carrying strap. Table 1-2 (page 1-5) lists additional characteristics for the M186 charge.
- b. Use. Use the M186 roll demolition charge in the same manner as the M118 block demolition charge. The M186 charge is adaptable for demolishing targets that require the use of flexible explosives in lengths longer than 12 inches.
- c. Advantages. The Ml86 roll demolition charge has all the advantages of the Ml18 block demolition charge. You can cut the M186 charge to the exact lengths desired.
- d. Limitations. The adhesive backing will not adhere to wet, dirty, rusty, or frozen surfaces.

Forty-Pound, Ammonium-Nitrate Block Demolition Charge

a. Characteristics. Figure 1-5 (page 1-8) shows the 40-pound, ammonium-nitrate block demolition charge or cratering charge. It is a watertight, cylindrical metal container with approximately 30 pounds of an ammonium-nitrate-based explosive and 10 pounds of TNT-based explosive booster in the center, next to the priming tunnels. The two priming tunnels are located to the outside of the

container, midway between the ends. One tunnel serves as a cap well for priming the charge with an M6 electric or M7 nonelectric military blasting cap. The other tunnel series as a priming path, with the detonating cord passing through the tunnel and knotted at the end.

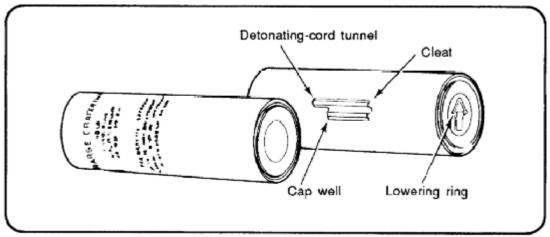


Figure 1-5. Forty-pound, ammonium-nitrate cratering charge

There is a cleat between the tunnels to secure the time blasting fuse, electrical firing wire, or detonating cord. There is a metal ring on the top of the container for lowering the charge into its hole. Table 1-2 (page 1-5) lists additional characteristics for the 40-pound, ammonium-nitrate block demolition charge.

- b. Use. This charge is suitable for cratering and ditching operations. Its primary use is as a cratering charge, but it also is effective for destroying buildings, fortifications, and bridge abutments.
 - c. Advantages. The size and shape of this charge make it ideal for cratering operations. It is inexpensive to produce compared to other explosives.
- d. Limitations. Ammonium nitrate is hydroscopic. When wet, it will not detonate. To ensure detonation, use metal containers showing no evidence of water damage. Detonate all charges placed in wet or damp boreholes as soon as possible.

1-11. Ml Military Dynamite.

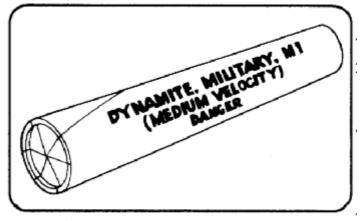


Figure 1-6. M1 military dynamite

a. Characteristics. M1 military dynamite is an RDX-based composite explosive containing no nitroglycerin (Figure 1-6). M 1 dynamite is packaged in ½-pound, paraffin-coated, cylindrical paper cartridges, which have a nominal diameter of 1.25 inches and a nominal length of 8 inches.

Table 1-2 (page 1-5) lists additional characteristics for MI military dynamite.

- b. Use. Ml dynamite's primary uses are military construction, quarrying, ditching, and service demolition work. It is suitable for underwater demolitions.
- c. Advantages. Ml dynamite will not freeze or perspire in storage. The Ml dynamite's composition is not hydroscopic. Shipping containers do not require turning during storage. Ml dynamite is safer to store, handle, and transport than 60-percent commercial dynamite. Unless essential, do not use civilian dynamite incombat areas.
- d. Limitations. MI dynamite is reliable underwater only for 24 hours. Because of its low sensitivity, pack sticks of military dynamite well to ensure complete detonation of the charge. MI dynamite is not efficient as a cutting or breaching charge.

Section III. Special Demolition Charges and Assemblies

1-12. Shaped Demolition Charge. The shaped demolition charge used in military operations is a cylindrical block of high explosive. It has a conical cavity in one end that directs the cone-lining material into a narrow jet to penetrate materials (Figure 1-7). This charge is not effective underwater, since any water in the conical cavity will prevent the high-velocity jet from forming. To obtain maximum effectiveness, place the cavity at the specified standoff distance from the target, and detonate the charge from the exact rear center, using only the priming well provided. Never dual prime a shaped charge.

a. Characteristics.

(1)Fifteen-Pound, M2A4 Shaped Demolition Charge. The M2A4 charge contains a 0.1 l-pound (50 gram) booster of Composition A3 and a 11.5-pound main charge of composition

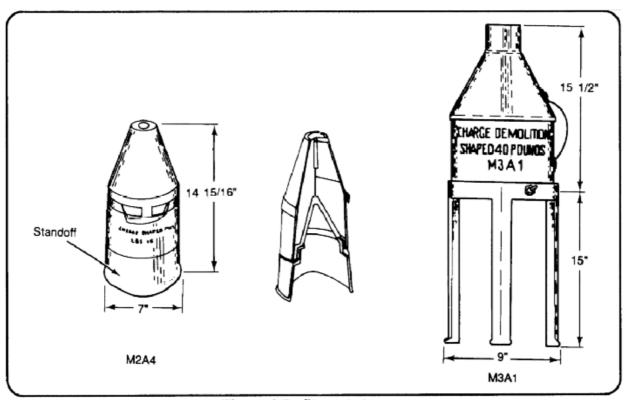


Figure 1-7. Shaped charges

- B. It is packaged three charges per wooden box (total weight is 65 pounds). This charge has a moisture-resisting, molded-fiber container. A cylindrical fiber base slips onto the end of the charge to provide a 6-inch standoff distance. The cavity liner is a cone of glass. The charge is 14+5/16 inches high and 7 inches in diameter, including the standoff.
- (2) Forty-Pound, M3A1 Shaped Demolition Charge. The M3A1 charge contains a 0.1 l-pound (50 gram) booster of Composition A3 and a 29.5-pound main charge of Composition B. It is packaged one charge per box (total weight is 65 pounds). The charge is in a metal container. The cone liner also is made of metal. A metal tripod provides a 15-inch standoff distance. The charge is 15 ½ inches high and 9 inches in diameter, not including standoff.
- b. Use. A shaped demolition charge's primary use is for boring holes in earth, metal, masonry,concrete, and paved and unpaved roads. Its effectiveness depends largely on its shape, composition, and placement. Table 1-3, lists the penetrating capabilities of various materials and the proper standoff distances for these charges.

Table 1-3. Characteristics of boreholes made by shaped charges

Material	Specifications	M2A4 Shaped Charge (15-Pound)*	M3A1 Shaped Charge (40-Pound)**	
Armor plate	Penetration Average hole diameter	12.00 in 1.50 in	At least 20.00 in 2.50 in	
Reinforced concrete	Maximum wall thickness Penetration depth in thick walls Average hole diameter Minimum hole diameter	36.00 in 30.00 in 2.75 in 2.00 in	60.00 in 60.00 in 3.50 in 2.00 in	
Concrete pavement (10-inch with 21-inch rock base course)	Optimum standoff Minimum penetration depth Maximum penetration depth Minimum hole diameter	42.00 in 44.00 in 91.00 in 1.75 in	60.00 in 71.00 in 109.00 in 6.75 in	
Concrete pavement (3-inch with 24-inch rock base course)	Optimum standoff Minimum penetration depth Maximum penetration depth Minimum hole diameter	42.00 in 38.00 in 90.00 in 3.75 in	_ _ _	
Permafrost	Hole depth (30-inch standoff) Hole depth (42-inch standoff) Hole depth (50-inch standoff) Hole diameter (42-inch standoff) Hole diameter (50-inch standoff) Hole diameter (normal standoff)	72.00 in 60.00 in — 1.50 to 6.00 in — 4.00 to 30.00 in	72.00 in 5.00 to 8.00 in 7.00 to 30.00 in	
Ice	Hole depth (42-inch standoff) Hole diameter (42-inch standoff)	7.00 ft 3.50 in	12.00 ft 6.00 in	
Soil	Hole depth (30-inch standoff) Hole depth (48-inch standoff) Hole diameter (30-inch standoff) Hole diameter (48-inch standoff)	7.00 ft — 7.00 in	7.00 ft — 14.50 in	
Graveled roads	Hole depth (30-inch standoff) Hole depth (48-inch standoff) Hole diameter (30-inch standoff) Hole diameter (48-inch standoff) naped Charge column indicates that a March standoff	7.00 ft 7.00 in	9.00 ft 7.00 in	

^{*}A dash in the M2A4 Shaped Charge column indicates that a M3A1 shaped charge is required.

**A dash in the M3A1 Shaped Charge column indicates that a M2A4 shaped charge is sufficient.

c. Special Precautions. To achieve the maximum effectiveness of shaped charges— Center the charge over the target point. Align the axis of the charge with the direction of the desired hole. Use the pedestal to obtain the proper standoff distance.

Suspend the charge at the proper height on pickets or tripods, if the pedestal does not provide the proper standoff distance.

Remove any obstruction in the cavity liner or between the charge and the target.

1-13. M183 Demolition Charge Assembly.

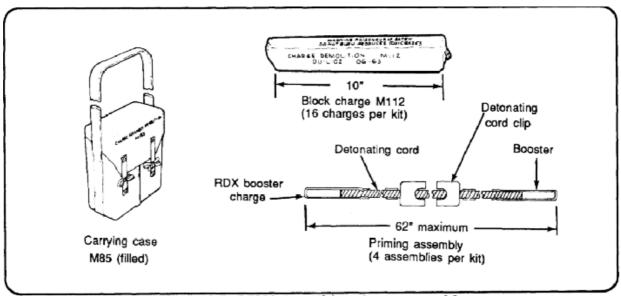


Figure 1-8. M183 demolition charge assembly

a. Characteristics. The Ml83 demolition charge assembly or satchel charge consists of 16 M112 (C4) demolition blocks and 4 priming assemblies. It has a total explosive weight of 20 pounds. The demolition blocks come in two bags, eight blocks per bag. The two bags come in an M85 canvas carrying case. Two M85 cases come in a wooden box 17 1/8 by 11½ by 12½ inches.

Each priming assembly consists of a 5-foot length of detonating cord with an RDX booster crimped to each end and a pair of Ml detonating-cord clips for attaching the priming assembly to a detonating cord ring or line main.

- b. Use. The M183 assembly is used primarily forereaching obstacles or demolishing structures when large demolition charges are required (Figure 1-8). The M183 charge also is effective against smaller obstacles, such as small dragon's teeth.
- c. Detonation. Detonate the Ml83 demolition charge assembly with a priming assembly and an electric or a nonelectric blasting cap or by using a detonating-cord ring main attached by detonating cord clips.

M1A2 Bangtlore-Torpedo Demolition Kit.

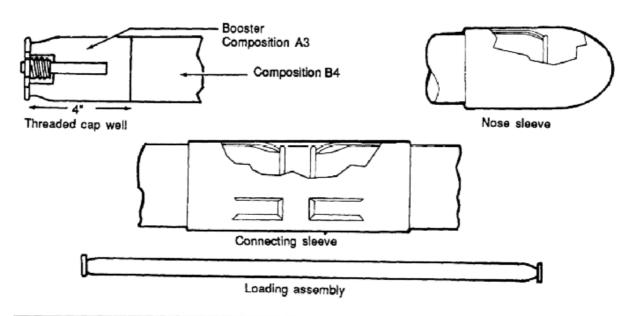


Figure 1-9. M1A2 Bangalore torpedo

- a. Characteristics. Each kit consists of 10 loading assemblies, 10 connecting sleeves, and 1 nose sleeve. The loading assemblies, or torpedoes, are steel tubes 5 feet long and 2 1/8 inches in diameter, grooved, and capped at each end (Figure 1-9, page 1-12). The torpedoes have a 4-inch, Composition A3 booster (½ pound each) at both ends of each 5-foot section. The main explosive charge is 10½ pounds of Composition B4. The kit is packaged in a 60¾- by 13¾- by 4 9/16-inch wooden box and weighs 198 pounds.
- b. Use. The primary use of the torpedo is clearing paths through wire obstacles and heavy undergrowth. It will clear a 3- to 4-meter-wide path through wire obstacles.

WARNING

The Bangalore torpedo may detonate a live mine when being placed. To prevent detonation of the torpedo during placement, attach the nose sleeve to a fabricated dummy section (approximately the same dimensions as a single Bangalore section) and place the dummy section onto the front end of the torpedo.

- c. Assembly. All sections of the torpedo have threaded cap wells at each end. To assemble two or more sections, press a nose sleeve onto one end of one tube, and then connect successive tubes, using the connecting sleeves provided until you have the desired length. The connecting sleeves make rigid joints. The nose sleeve allows the user to push the torpedo through entanglements and across the ground.
- d. Detonation. The recommended method to detonate the torpedo is to prime the torpedo with eight wraps of detonating cord and attach two initiation systems for detonation. Another method for priming the Bangalore torpedo is by inserting an electric or a nonelectric blasting cap directly into the cap well. Do not move the torpedo after it has been prepared for detonation. You may wrap the end with detonating cord prior to placing it, but do not attach the blasting caps until the torpedo is in place.

M180 Demolition Kit (Cratering).

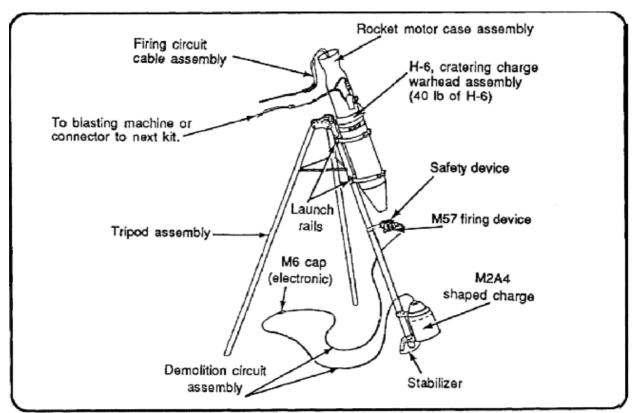


Figure 1-10. M180 demolition kit assembly

- a. Characteristics. This kit consists of an M2A4 shaped charge, a modified M57 electrical firing device, a warhead, a rocket motor, a tripod, and a demolition circuit (Figure 1- 10). The shaped charge, firing device, and warhead are permanently attached to the launch leg of the tripod. The rocket motor and the demolition circuit (packed in a wooden subpack) are shipped separately. The kit weighs approximately 165 pounds (74.25 kilograms). TM 9-1375-213-12-1 provides the assembly procedures, operational description, and maintenance instructions for the M180 kit.
- b. Use. The M180 is designed to produce a large crater in compacted soil or road surfaces, but not in reinforced concrete, arctic tundra, bedrock, or sandy soil. The charge produces a crater in two stages. The shaped charge blows a pilot hole in the surface. Then, the rocket-propelled warhead enters the hole and detonates, enlarging the pilot hole. Up to five kits can be set up close together and fired simultaneously to produce an exceptionally large crater. Up to 15 kits can be widely spaced and freed simultaneously for airfield pocketing.

WARNING

Regardless of the number of kits used, the minimum safe distances for the M180 cratering kit are 1,200 meters for unprotected personnel and 150 meters for personnel under overhead cover.

c. Detonation. When firing the M180, use the M34 50-cap blasting machine.

Section IV. Demolition Accessories

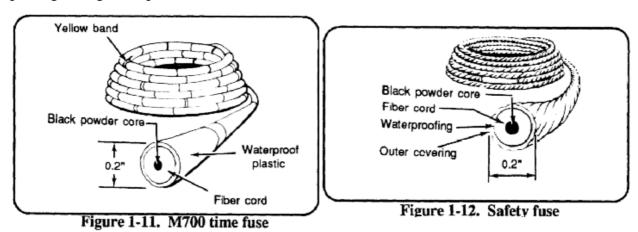
1-16. Time Blasting Fuse. The time blasting fuse transmits a delayed spit of flame to a non-electric blasting cap. The delay allows the soldier to initiate a charge and get to a

safe distance before the explosion. There are two types of fuses: the M700 time fuse and safety fuse. Although safety fuse is not often employed, it is still available.

a. M700 Time Fuse. The M700 fuse is a dark green cord, 0.2 inches in diameter, with a

plastic cover (Figure 1-1 1). The M700 bums at an approximate rate of 40 seconds per foot. However, test the burning rate as outlined in Chapter 2 (paragraph 2-lb(1), page 2-2).

Depending on the date of manufacture, the cover may be smooth or have single yellow bands around the outside at 12- or 18-inch intervals and double yellow bands at 60- or 90-inch intervals. These bands accommodate hasty measuring. The outside covering becomes brittle and cracks easily in arctic temperatures. The M700 time fuse is packaged in 50-foot coils, two coils per package, five packages per sealed container, and eight containers (4,000 feet) per wooden box (30 1/8 by 15 1/8 by 14 7/8 inches). The total package weighs 94 pounds.



b. Safety Fuse. Safety fuse consists of black powder tightly wrapped with several layers of fiber and waterproofing material. The outside covering becomes brittle and cracks easily in arctic temperatures. The burning rate may vary for the same or different rolls (30 to 45 seconds per foot) under different atmospheric and climatic conditions. This fuse may be any color, but orange is the most common (Figure 1-12). Test each roll in the area where the charge will be placed (paragraph 2-lb(l), page 2-2). Since safety fuse burns significantly faster underwater, test it underwater before preparing an underwater charge.

Safety fuse is packaged in 50-foot coils, two coils per package, and 30 packages (3,000 feet) per wooden box (24¾ by 15¾ by 12 ½ inches). The total package weighs 93.6 pounds.

Detonating Cord.

a. Characteristics. The American, British, Canadian, and Australian (ABCA) Standardization

Program recognizes this Type 1 detonating cord as the standard detonating cord. Detonating cord (Figure 1-13) consists of a core of high explosive (6.4 pounds of PETN per 1,000 feet) wrapped in a reinforced and waterproof olive-drab plastic coating. This detonating cord is approximately 0.2 inches in diameter, weighs approximately 18

pounds per 1,000 feet, and has a breaking strength of 175 pounds. Detonating cord is functional in the same temperature range as plastic explosive, although the cover becomes brittle at lower temperatures. Moisture can penetrate the explosive filling to a maximum distance of 6 inches from any cut or break in the coating. Water-soaked detonating cord will detonate if there is a dry end to allow initiation. For this reason, cut off and discard the first 6 inches of any new or used detonating cord that nonelectric blasting caps are crimped to. Also, leave a 6-inch overhang when making connections or when priming charges.

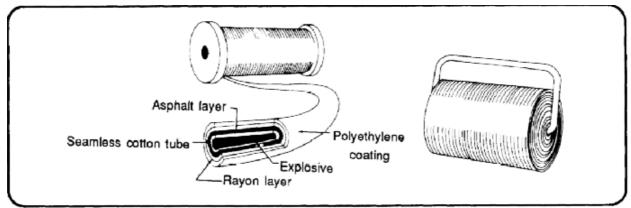


Figure 1-13. Detonating cord

- b. Use. Use detonating cord to prime and detonate other explosive charges. When the detonating cord's explosive core is initiated by a blasting cap, the core will transmit the detonation wave to an unlimited number of explosive charges. Chapter 2 explains the use of detonating cord for these purposes.
- c. Precautions. Seal the ends of detonating cord with a waterproof sealant when used to fire underwater charges or when charges are left in place several hours before firing. If left for no longer than 24 hours, a 6-inch overlap will protect the remainder of a line from moisture. Avoid kinks or sharp bends in priming, as they may interrupt or change the direction of detonation and cause misfires. Avoid unintended cross-overs of the detonating cord where no explosive connection is intended. To avoid internal cracking do not step on the detonating cord.

Blasting Caps. Blasting caps are for detonating high explosives. There are two types of blasting caps: electric and nonelectric. They are designed for insertion into cap wells and are also the detonating element in certain firing systems and devices. Blasting caps are rated in power, according to the size of their main charge. Commercial blasting caps are normally Number 6 or 8 and are for detonating the more sensitive explosives, such as commercial dynamite and tetryl.

Special military blasting caps (M6 electric and M7 nonelectric) ensure positive detonation of the generally less sensitive military explosives. Their main charge is approximately double that of commercial Number 8 blasting caps. Never carry blasting caps loose or in uniform pockets where they are subject to shock. Separate blasting caps properly. Never store blasting caps with other explosives. Do not carry blasting caps and other explosives in the same truck except in an emergency (paragraph 6-11, page 6-10).

WARNING

Handle military and commercial blasting caps carefully, as both are extremely sensitive and may explode if handled improperly.

Do not tamper with blasting caps. Protect them from shock and extreme heat.

a. Electric Blasting Caps. Use electric blasting caps when a source of electricity, such as a blasting machine or a battery, is available. Both military and commercial caps may be used.

Military caps (Figure 1-14, page 1-6) operate instantaneously. Commercial caps may operate instantaneously or have a delay feature. The delay time of commercial caps for military applications ranges from 1 to 1.53 seconds. Electric caps have lead wires of various lengths. The most common lead length is 12 feet. Electric caps require 1.5 amperes of power to initiate. The standard-issue cap is the M6 special electric blasting cap. TM 43-0001-38 gives additional information on blasting caps.

WARNING Do not remove the short-circuiting shunt until ready to test the cap.

Doing this prevents accidental initiation by static electricity.

If the cap has no shunt, twist the lead's bare ends together with at least three 180-degree turns to provide a shunting action.

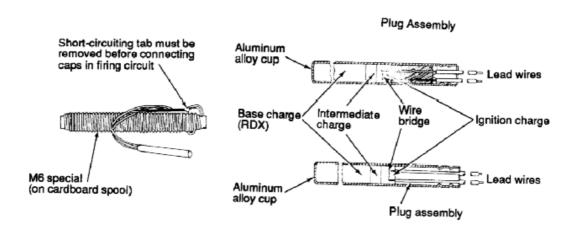


Figure 1-14. Electric blasting caps

b. Non-electric Blasting Caps. Initiate these caps with time-blasting fuse, a firing device, or detonating cord (Figure 1-15). Avoid using non-electric blasting caps to prime underwater charges because the caps are hard to waterproof.

If necessary, waterproof nonelectric blasting caps with a sealing compound. The M7 special nonelectric blasting cap is the standard issue.

The open end of the M7 special nonelectric blasting cap is flared to allow easy insertion of the time fuse. TM 43-0001-38 gives additional information on blasting caps.

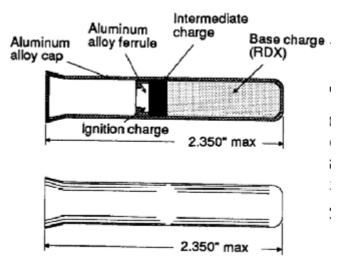


Figure 1-15. Nonelectric blasting cap

MIA4 Priming Adapter. The MIA4 priming adapter is a plastic, hexagonal-shaped device, threaded to fit threaded cap wells. The shoulder inside the threaded end will allow time blasting fuse and detonating cord to pass, but the shoulder is too small to pass a military blasting cap. To accommodate electric blasting caps, the adapter has a lengthwise slot that permits blasting cap lead wires to be quickly and easily installed in the adapter (Figure 1-16).

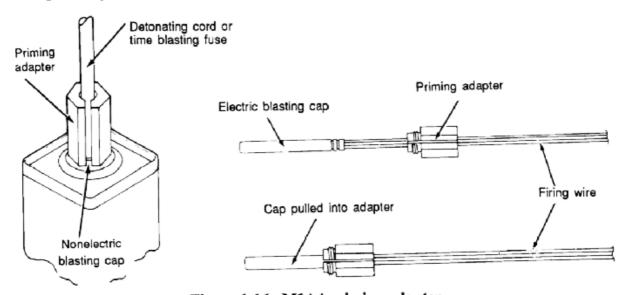


Figure 1-16. M1A4 priming adapter

M8 Blasting Cap Holder. The M8 blasting cap holder is a metal clip designed to attach a blasting cap to a sheet explosive (Figure 1-17). These clips are supplied with M118 sheet demolition charges and M186 roll demolition charges. The M8 blasting cap holder is also available as a separate-issue item in quantities of 4,000.

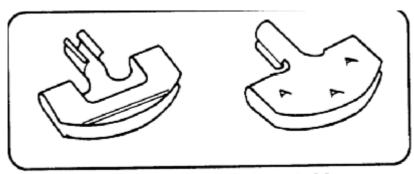


Figure 1-17. M8 blasting cap holder

- 1-21. Ml Detonating-Cord Clip. The Ml detonating-cord clip is a device for holding two strands of detonating cord together, either parallel or at right angles (Figure 1-18, diagram 1). Using these clips is faster and more efficient than using knots. Knots, if left for extended periods, may loosen and fail to function properly.
 - a. Branch Lines. Connect a detonating cord branch line by passing it through the trough of the Ml detonating cord clip and through the hole in the tongue of the clip. Next, place the line/ring main into the tongue of the clip so that it crosses over the branch line at a 90-degree angle and ensure the crossover is held secure by the tongue; it may be necessary to bend or form the tongue while doing this.

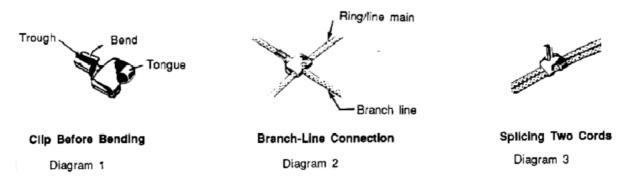


Figure 1-18. M1 detonating-cord clip

b. Splices. Splice the ends of detonating cords by first overlapping them approximately 12 inches. Then secure each loose end to the other cord by using a clip. Finally, bend the tongues of the clips firmly over both strands. Make the connection stronger by bending the trough end of the clip back over the tongue

Ml Adhesive Paste. Ml adhesive paste is a sticky, putty-like substance that is used to attach charges to flat, overhead or vertical surfaces. Adhesive paste is useful for holding charges while tying them in place or, under some conditions, for holding without ties. This paste does not adhere satisfactorily to dirty, dusty, wet, or oily surfaces. Ml adhesive paste becomes useless when softened by water.

Pressure-Sensitive Adhesive Tape.

a. Characteristics. Pressure-sensitive tape is replacing Ml adhesive paste. Pressure sensitive tape has better holding properties and is more easily and quickly applied. This tape is coated on both sides with pressure-sensitive adhesive and requires no solvent or heat to apply. It is available in 2-inch-wide rolls, 72 yards long.

- b. Use. This tape is effective for holding charges to dry, clean wood, steel, or concrete.
- c. Limitations. This tape does not adhere to dirty, wet, oily, or frozen surfaces.
- 1-24. Supplementary Adhesive for Demolition Charges.
 - a. Characteristics. This adhesive is used to hold demolition charges when the target surface is below freezing, wet, or underwater. The adhesive comes in tubes packed in water-resistant, cardboard slide boxes, with wooden applicators

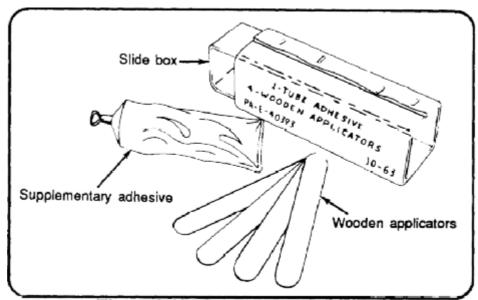


Figure 1-19. Supplementary adhesive

- b. Use. Apply the adhesive to the target surface and the demolition block with a wooden applicator and press the two together.
- 1-25. Waterproof Sealing Compound. This sealant is for waterproofing connections between time blasting fuses or detonating cords and nonelectric blasting caps. The sealing compound will not make a permanent waterproof seal. Since this sealant is not permanent, fire underwater demolitions as soon as possible after placing them.
- 1-26. M2 Cap Crimper. Use the M2 cap crimper for squeezing the shell of a nonelectric blasting cap around a time blasting fuse, standard coupling base, or detonating cord.

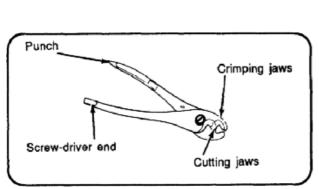


Figure 1-20. M2 cap crimper

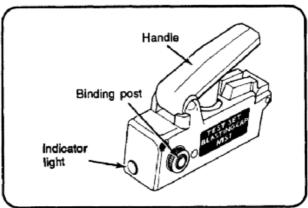


Figure 1-21, M51 blasting-cap test set

Crimp the shell securely enough to keep the fuse, base, or cord from being pulled off, but not so tightly that it interferes with the operation of the initiating device. A stop on the handle helps to limit the amount of crimp applied. The M2 crimper forms a water-resistant groove completely around the blasting cap. Apply a sealing compound to the crimped end of the blasting cap to waterproof it. The rear portion of each jaw is shaped and sharpened for cutting fuses and detonating cords. One leg of the handle is pointed for punching cap wells in explosive materials. The other leg has a screwdriver end. Cap crimpers are made of a soft, nonsparking metal that conducts electricity. Do not use them as pliers because such use damages the crimping surface. Ensure crimp hole is round (not elongated) and the cutting jaws are not jagged. Keep the cutting jaws clean, and use them only for cutting fuses and detonating cords.

M51 Blasting-Cap Test Set.

a. Characteristics. The test set is a self-contained unit with a magneto-type impulse generator, an indicator lamp, a handle to activate the generator, and two binding posts for attaching firing leads.

The test set is waterproof and capable of operation at temperatures as low as -40 degrees Fahrenheit

- b. Use. Check the continuity of firing wire, blasting caps, and firing circuits by connecting the leads to the test-set binding posts and then depressing the handle sharply. If there is a continuous (intact) circuit, even one created by a short circuit, the indicator lamp will flash. When the circuit is open, the indicator lamp will not flash.
 - c. Maintenance. Handle the test set carefully and keep it dry to assure optimum use.

Before using, ensure the test set is operating properly by using the following procedure:

- (1) Hold apiece of bare wire or the legs of the M2 crimpers between the binding posts.
- (2) Depress the handle sharply while observing the indicator lamp. The indicator lamp should flash.
 - (3) Remove the bare wire or crimper legs from the binding posts.
- (4) Depress the handle sharply while observing the indicator lamp. This time the indicator lamp should not flash.
 - (5) Perform both tests to ensure the test set is operating properly.
- 1-28. Blasting Machines. Blasting machines provide the electric impulse needed to initiate electric blasting-cap operations. When operated, the M32 and M34 models use an alternator and a capacitor to energize the circuit.
 - M32 10-Cap Blasting Machine. This small, lightweight blasting machine produces adequate current to initiate 10 electrical caps connected in series using 500 feet of WD-l cable. To operate the machine, use the following procedure:



Figure 1-22. M32 blasting machine

- (1) Check the machine for proper operation. Release the blasting machine handle by rotating the retaining ring downward while pushing in on the handle. The handle will automatically spring outward from the body of the machine.
- (2) Activate the machine by depressing the handle rapidly three or four times until the neon indicator lamp flashes. The lamp is located between the wire terminal posts and cannot be seen until it flashes, since it is covered by green plastic.
- (3) Insert the firing wire leads into the terminals by pushing down on each terminal post and inserting the leads into the metal jaws.
- (4) Hold the machine upright (terminals up) in either hand, so the plunger end of the handle rests in the base of the palm and the fingers grasp the machine's body. Be sure to hold the machine correctly, as the handles are easily broken.
- (5) Squeeze the handgrip sharply several times until the charge fires. Normally, no more than three or four strokes are required.
- b. M34 50-Cap Blasting Machine. This small, lightweight machine produces adequate current to initiate 50 electrical caps connected in a series. It looks like the M32 blasting machine (Figure 1-22) except for a black band around the base and a steel-reinforced actuating handle.

Test and operate the M34 in the same manner as the M32.

Firing Wire and Reels.

a. Types of Firing Wire. Wire for firing electric charges is available in 200- and 500-foot coils.

The two-conductor AWG Number 18 is a plastic-covered or rubber-covered wire available in 500-foot rolls. This wire is wound on an RL39A reel unit. The single conductor. AWG Number 20 annunciator wire is available in 200-foot coils and is used to make connections between blasting caps and firing wire. The WD-I/TT communication wire will also work, but it requires a greater power source if more than 500 feet are used (blasting machines will not initiate the full-rated number of caps connected with more than 500 feet of WD-I/TT wire). As a rule of thumb, use 10 less caps than the machine's rating for each additional 1,000 feet of WD-1/TT wire employed.

b. Reel. The RL39A reel, with spool, accommodates 500 feet of wire. The reel has a handle assembly, a crank, an axle, and two carrying straps (Figure 1-23). The fixed end of the wire extends from the spool through a hole in the side of the drum and fastens to two brass thumb-out terminals.

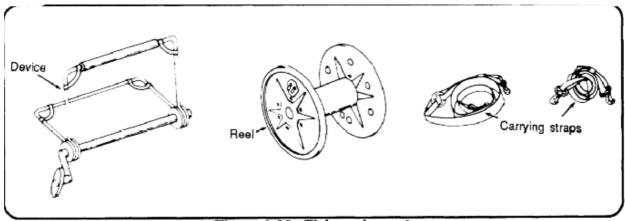


Figure 1-23. Firing-wire reel

The carrying handles are two U-shaped steel rods. A loop at each end encircles a bearing assembly to accommodate the axle. The crank is riveted to one end of the axle, and a cotter pin holds the axle in place on the opposite end.

1-30. Firing Devices and Other Accessory Equipment

a. M60 Weatherproof Fuze Igniter. This device is for igniting timed blasting fuse in all weather conditions, even underwater, if properly waterproofed. Insert the fuse through a rubber sealing grommet and into a split collet. This procedure secures the fuse when the end capon the igniter is tightened. Pulling the pull ring releases the striker assembly, allowing the firing pin to initiate the primer, igniting the fuse. Chapter 2 gives detailed operating instructions for the M60 igniter.

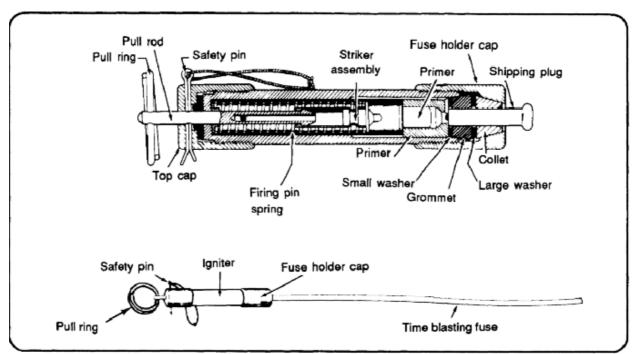


Figure 1-24. M60 fuze igniter

b. Demolition Equipment Set. This set (Electric and Nonelectric Explosive Initiating Demolition Equipment Set) is an assembly of tools necessary for performing demolition operations.

Table 1-4. Demolition equipment set

Quantity	Nomenclature	Quantity	Nomenclature	
3	Bag, Demolition Equipment	1	Machine, Blasting, M34	
5	Box, Blasting Cap, Plastic, 10-Cap	2	Pliers, Lineman's, w/ Side Cutter, 8-Inch	
1	Chest, Demo, Engr Plt, M1931	1	Pliers, Diagonal-Cutting, 6-Inch	
4	Crimper, Blasting Cap, M2	4	Reel, Cable	
2	Knife, Pocket, w/ Can Opener and Punch	1	Machine, Cable-Reeling, Manual	
2	Knife, Pocket, w/ Screwdriver and Wire Scraper	1	Set, Blasting-Cap Test, M51 NOTE: The individual items listed in this set are available separately.	
1	Shears, Metal-Cutting, Manual, 8-Inch	1		
2	Tape, Measuring, Steel, Millimeters and Inches	NOTE:		
1	Tape, Measuring, Plastic-Coated, 100-Foot			

Chapter 2

Initiating Sets, Priming, and Firing Systems

Section I. Initiating Sets

WARNING

Refer to the safety procedures in Chapter 6 before undertaking any demolitions mission.

Non-electric Initiation Sets.

a. Components Assembly. A non-electric system uses a non-electric blasting cap as the initiator. The initiation set consists of a fuse igniter (produces flame that lights the time fuse), the time blasting fuse (transmits the flame that fires the blasting cap), and a non-electric blasting cap (provides shock adequate to detonate the explosive) (Figure 2-1). When combined with detonating cord, a single initiation set can fire multiple charges.

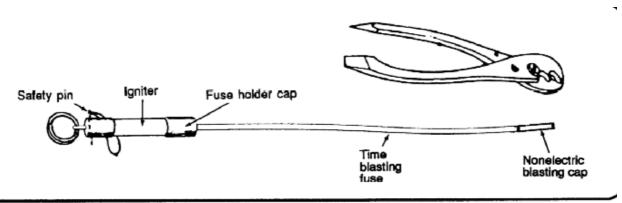


Figure 2-1. Nonelectric initiation set

- b. Preparation Sequence. Preparing demolitions for non-electric initiation follows a specified process. This process includes—
 - Step 1. Checking the time fuse.
 - Step 2. Preparing the time fuse.
 - Step 3. Attaching the fuse igniter.
 - Step 4. Installing the primer adapter.
 - Step 5. Placing the blasting cap
- (1) Checking Time Fuse. Test every coil of fuse, or remnant of a coil, using the burning-rate test prior to use.

One test per day per coil is sufficient.

Never use the first and last 6 inches of a coil because moisture may have penetrated the coil to this length. Using an M2 crimper, cut and discard a 6-inch length from the free end of the fuse

(Figure 2-2). Cut off and use a 3-foot length of the fuse to check the burning rate. Ignite the fuse and note the time it takes for the fuse to burn. Compute the burning rate per foot by dividing the burn time in seconds by the length in feet. If the test burn does not fall within \pm 5 seconds of a 40-second-per-foot burn rate, perform another test to verify your results.

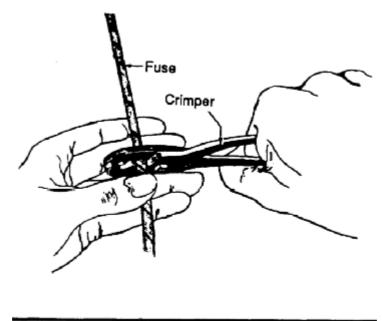


Figure 2-2. Cutting time fuse

WARNING

Test burn a 3-foot length of time blasting fuse to determine the exact rate prior to use.

(2) Preparing Time Fuse. Cut the fuse long enough to allow the person detonating the charge to reach safety (walking at a normal pace) before the explosion. Walk and time this distance prior to cutting the fuse to length. The formula for determining the length of time fuse required is—

<u>Time Required(min) X 60 (sec/min)</u> = Fuse Length (ft)

Burn Rate (sec/ft)

Make your cut squarely across the fuse. Do not cut the fuse too far in advance, since the fuse may absorb moisture into the open ends. Do not allow the time fuse to bend sharply, as you may crack the black powder core, resulting in a misfire.

(3) Attaching Fuse Igniter. To attach an M60 weatherproof fuze igniter, unscrew the fuse holder cap two or three turns, but do not remove the cap. Press the shipping plug into the igniter to release the split collet (Figure 1-24, page 1-22). Rotate and remove the plug from the igniter. Insert the free end of the time fuse as far as possible into the space left by the removed shipping plug.

Sufficiently tighten the holder cap to hold the fuse and weatherproof the joint.

(4) Installing Priming Adapter. If you use a priming adapter to hold a non-electric blasting cap, place the time fuse through the adapter before installing (crimping) the blasting cap onto the fuse.

Ensure the adapter threads are pointing to the end of the time fuse that will receive the blasting cap.

- (5) Preparing Blasting Caps.
- (a) Inspection. Hold the cap between the thumb and ring finger of one hand, with the forefinger of the same hand on the closed end of the blasting cap. Inspect the blasting cap by looking into the open end. You should see a yellow-colored ignition charge. If dirt or any foreign matter is present, do the following:

Aim the open end of the cap at the palm of the second hand.

Gently bump the wrist of the cap-holding hand against the wrist of the other hand.

If the foreign matter does not dislodge, do not use the cap.

(b) Placing and crimping. Use this procedure for installing blasting caps onto fuse. Using this procedure will allow accurate crimping, even in darkness, because finger placement guides the crimpers to the open end of the blasting cap. Use the following procedures to attach a non-electric blasting cap onto time fuse:

Hold the time blasting fuse vertically with the square-cut end up, and slip the blasting cap gently down over the fuse so the flash charge in the cap touches the fuse.

WARNING

If the charge in the cap is not in contact with the fuse, the fuse may not ignite the cap (misfire). Never force a time fuse into a blasting cap, for example, by twisting or any other method. If the fuse end is flat or too large to enter the blasting cap freely, roll the fuse between the thumb and fingers until it will freely enter the cap. A rough, jagged-cut fuse inserted in a blasting cap can cause a misfire. If the cutting jaws of the M2 crimper are unserviceable, use a sharp knife to cut the fuse. When using a knife to cut fuse squarely, cut the fuse against a solid, non-sparking surface such as wood.

While applying slight pressure with the forefinger on the closed end of the cap, grasp the fuse with the thumb and ring finger. Using the opposite hand, grasp the crimpers. Place the crimping jaws around the cap at a point 1/8 to ½ inch from the open end. The thumb and ring finger that hold the fuse will be below the crimpers. Rest the second finger of the hand holding the fuse on top of the crimpers to prevent the crimpers from sliding up the cap.

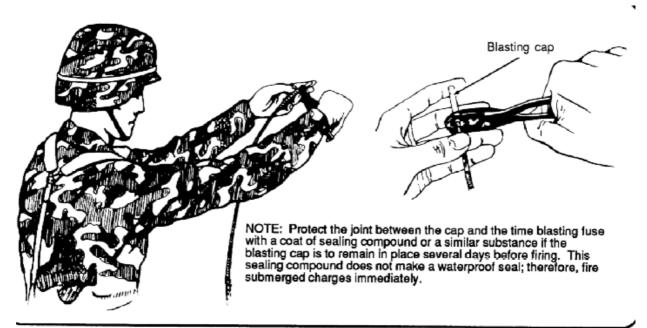


Figure 2-3. Crimping a blasting cap onto fuse

Extend both arms straight out while rotating the hands so that the closed end of the blasting cap is pointing away from the body and from other personnel.

Crimp the blasting cap by firmly squeezing the M2 crimper handles together, maintaining eye contact with the blasting cap. Inspect the crimp after you have finished. Ensure that the fuse and cap are properly joined by gently trying to pull them apart

NOTE: Attach the M60 fuze igniter to the time fuse before crimping a blasting cap to the opposite end. Do not remove the safety pin until you are ready to detonate the charge.

WARNING

Do not crimp too close to the explosive end of the blasting cap; doing this may cause the cap to detonate.

Point the cap out and away from the body during crimping.

NOTE: If the cap is to remain in place several days before firing, protect the joint between the cap and the timed blasting fuse with a coat of sealing compound or similar substance. This sealing compound will not make a waterproof seal; therefore, fire submerged charges immediately.

NOTE: See paragraph 6-8 (page 6-8) for procedures on handling non-electric misfires.

c. Fuse Initiation. To fire the assembly, hold the M60 igniter in one hand and remove the safety pin with the other. Grasp the pull ring and give it a quick, hard pull. In the event of a misfire, reset the M60 by pushing the plunger all the way in, rotate it left and right, and attempt to fire as before.

WARNING

Water can enter through the vent hole in the pull rod when attempting to reset the igniter under water.

This will prevent the fuse igniter from working after resetting.

NOTE: If a fuze igniter is not available, light the time blasting fuse with a match.

Split the fuse at the end (Figure 2-4) and place the head of an unlit match in the powder train. Light the inserted match head with a flaming match, or rub the abrasive on the match box against it. It may be necessary to use two match heads during windy conditions.

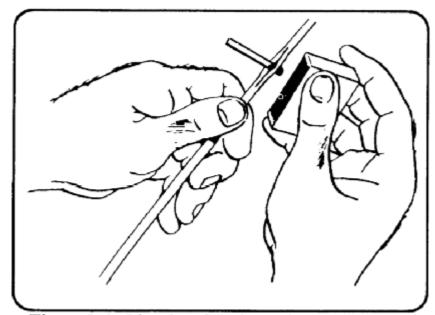


Figure 2-4. Lighting time fuse with a match

Electric Initiation Sets.

a. Preparation Sequence. Use the process below to make an electric initiation set. This process includes—

Testing and maintaining control of the blasting machine.

Testing the M51 blasting-cap test set.

Testing the firing wire on the reel, shunted and unshunted.

Laying out the firing wire completely off the reel.

Retesting the firing wire, shunted and unshunted.

Testing the blasting caps.

Connecting the series circuit.

Connecting the firing wire.

Testing the entire circuit.

Priming the charges.

- b. Components Assembly. An electric system uses an electric blasting cap as the explosion initiator. The initiation set consists of an electric blasting cap, the firing wire, and a blasting machine
- (Figure 2-5) An electric impulse (usually provided by a blasting machine) travels through the firing wires and blasting cap leads, detonating the blasting cap which initiates the explosion. Radio waves can also detonate electric blasting caps. Therefore, observe the minimum safe distances listed in Chapter 6 (page 6-5) at all times. When combined with detonating cord, a single initiation set can fire multiple charges. TM 9-1375-213-34 provides detailed information about electric blasting equipment.

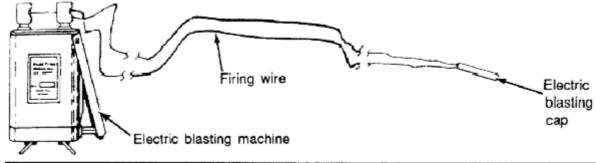


Figure 2-5. Electric initiation set

Always follow the procedure below when preparing an electric initiation set:

- (1) Testing and Maintaining Control of Blasting Machine.
- (a) Test the blasting machine to ensure it is operating properly (paragraph 1-28, page 1-20).
- (b) Control access to all blasting machines. The supervisor is responsible for controlling all blasting machines.
 - (2) Testing M51 Blasting-Cap Test Set
- (a) Check the M51 test set to ensure it is operating properly (paragraph 1-27, page 1-19).
 - (b) Perform both the open- and short-circuit tests.
 - (3) Testing Firing Wire on the Reel.
- (a) Separate the firing wire leads at both ends and connect the leads at one end to the posts of the MS 1 test set. Squeeze-tie test-set handle. The indicator lamp should NOT flash. If it does, the lamp's flash indicates a short circuit in the firing wire (Figure 2-6).

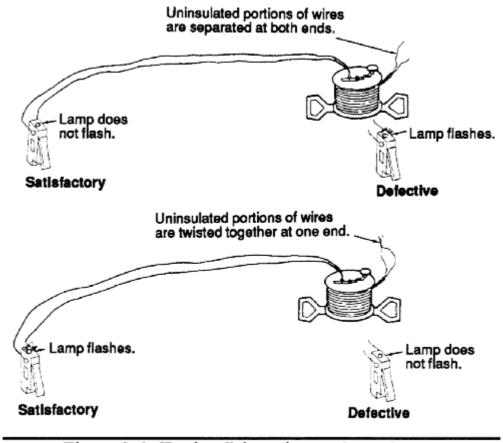


Figure 2-6. Testing firing wire on the reel

(b) Shunt the wires atone end and connect the leads from the other end to the posts of the M51 test set. Squeeze the test-set handle. The indicator lamp should flash. If it does not, the lamp's failure to light indicates a break in the firing wire (Figure 2-6).

NOTE: Use at least three 180-degree turns to shunt wires.

- (c) Shunt both ends of the firing wire after testing.
- (4) Laying Out Firing Wire.
- (a) After locating a firing position a safe distance away from the charges (paragraph 6-7, page 6-6), lay out the firing wire between the charges and the firing position. More than one reel of wire may be necessary.
- (b) Do not allow vehicles to drive over or personnel to walk on firing wire. Always bury firing wire or lay it flat on the ground.
- (c) Keep the firing wire as short as possible. Avoid creating any loops in the wire (lay it in as straight a line as possible). Cut the wire to length. Do not connect it to a blasting machine through the unused portion of wire on the reel.
 - (5) Retesting Firing Wire.
- (a) Perform the open- and short-circuit tests again. The process of unreeling the wire may have separated broken wires not found when the wire was tested on the reel.

- (b) Continually guard the firing position from this point on. Do this to ensure that no one tampers with the wires or fires the charges prematurely.
- (c) Use hand signals to indicate the test results. Hand signals are necessary because of the distance involved between the charges and the firing position. The man testing the wire also can give these signals directly to the soldier at the opposite end of the wire or, if they cannot see each other, through intermediate positions or over the radio. The tester indicates to his assistant that he wants the far end of the firing wire unshunted by extending both arms straight out at shoulder height.

After unshunting the firing wire, the assistant at the far end of the wire repeats the signal, indicating to the tester that his end is unshunted. When the tester wants the far end of the firing wire shunted, he signals to his assistant by clasping his hands together and extending his arms over his head, elbows bent, forming a diamond shape. After shunting the firing wire, the assistant repeats the signal, indicating to the tester that his wire is shunted.

- (d) Shunt both ends of the firing wire after the tests are complete.
- (6) Testing Electric Blasting Cap.
- (a) Remove the cap from its spool. Place the cap in the palm of your hand, lead wires passing between your thumb and index finger.
- (b) Wrap the wire around the palm of your hand twice. Doing this prevents tension on the wires in the cap and prevents the cap from being dropped.
- (c) Grasp the wire spool with your free hand and unreel the wire, letting the wire pass between your fingers as you turn the spool. Completely unreel the cap wires from the cardboard spool. Avoid allowing the wires to slip offends of the cardboard spool, since this will cause excessive twists and kinks in the wires and prevent the wires from separating properly.
- (d) Place the blasting cap under a sandbag or helmet while extending the wires to their full length.
- (e) Test blasting caps away from all other personnel. Keep your back to the blasting cap when testing it.
 - (f) Remove the short-circuit shunt from the lead wires.
- (g) Hold or attach one lead wire to one of the M51's binding posts. Hold or attach the second lead wire to the other binding post and squeeze the test-set handle. The blasting cap is good if the indicator lamp flashes. If the lamp does not flash, the cap is defective; do not use it.
 - (h) Always keep the cap wires shunted when not testing them.
- (7) Connecting a Series Circuit. When two or more blasting caps are required for a demolition operation. you may use one of the series circuits illustrated in Figure 2-7.

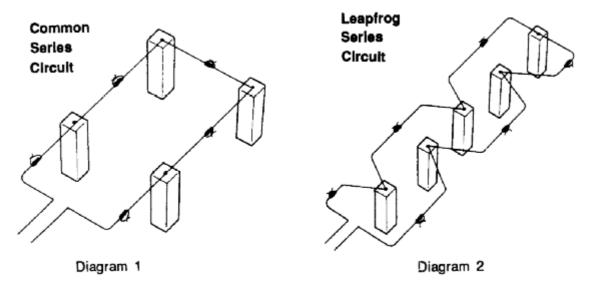


Figure 2-7. Series circuit

Use the following procedure:

- (a) Test all blasting caps separately before connecting them in a circuit.
- (b) Join blasting cap wires together using the Western Union pigtail splice (Figure 2-8). Protect all joints in the circuit with electrical insulation tape. Do not use the cardboard spool that comes with the blasting cap to insulate these connections.
- (c) Test the entire circuit. After the series is completed, connect the two free blasting cap wires to the M51 test set. The indicator lamp should flash to indicate a good circuit. If the lamp does not flash, check your connections and blasting caps again.
- (d) After testing the cap circuit, shunt the two free blasting cap wires until you are ready to connect them to the firing wire.
 - (8) Connecting the Firing Wire.
- (a) Connect the free leads of blasting caps to the firing wire before priming the charges or taping a blasting cap to a detonating-cord ring main.
- (b) Use a Western Union pigtail splice to connect the firing wire to the blasting cap wires.
- (c) Insulate the connections with tape. Never use the cardboard spool that comes with the blasting cap to insulate this connection. The firing wire is likely to break when bent to fit into the spool.
- (9) Testing the Entire Firing Circuit. Before priming the charges or connecting blasting caps to ring mains, test the circuit from the firing point. Use the following procedure:
 - (a) Ensure the blasting caps are under protective sandbags while performing this test.
- (b) Connect the ends of the firing wire to the M51 test set. Squeeze the firing handle. The indicator lamp should flash, indicating a proper circuit.

(c) Shunt the ends of the firing wire.

WARNING

Do not prime charges or connect electric blasting caps to detonating cord until all other steps of the preparation sequence have been completed.

(10) Priming the Charges. Prime the charges and return to the firing point. This is the last step prior to actually returning to the firing point and firing the circuit.

WARNING

Prime charges when there is a minimum of personnel on site.

- c. Circuit Initiation. At this point the initiation set is complete. Do not connect the blasting machine until all personnel are accounted for and the charge is ready to fire. When all personnel are clear, install the blasting machine and initiate the demolition. Chapter 6 (page 6-9) covers procedures for electric misfires.
 - d. Splicing Electric Wires.
- (1) Preparation. Strip the insulating material from the end of insulated wires before splicing.

Remove approximately $1\frac{1}{2}$ inches of insulation from the end of each wire (Figure 2-8, diagram 1).

Also remove any coating on the wire, such as enamel, by carefully scraping the wire with the back of a knife blade or other suitable tool. Do not nick, cut, or weaken the bare wire. Twist multiple-strand wires lightly after scraping.

(2) Method. Use the Western Union pigtail splice (Figure 2-8, page 2-8) to splice two wires.

Splice two pairs of wires in the same way as the two-wire splice (Figure 2-9). Use the following procedure:

- (a) Protect the splices from tension damage by tying the ends in an overhand or square knot (tension knot), allowing sufficient length for each splice (Figure 2-8, diagram 2, page 2-8).
 - (b) Make three wraps with each wire (Figure 2-8, diagram 3, page 2-8).
 - (c) Twist the ends together with three turns (Figure 2-8, diagram 4, page 2-8).
- (d) Flatten the splice, but not so far that the wire crimps itself and breaks (Figure 2-8, diagram 5, page 2-8).
- (3) Precautions. A short circuit may occur at a splice if you do not practice some caution. For example, when you splice pairs of wires, stagger the splices and place a tie between them (Figure 2-9, diagram 1). Another method of preventing a short circuit in a splice is using the alternate method (Figure 2-9, diagram 2). In the alternate method, separate the splices rather than stagger them. Insulate the splices from the ground or other

conductors by wrapping them with friction tape or other electric insulating tape. Always insulate splices.

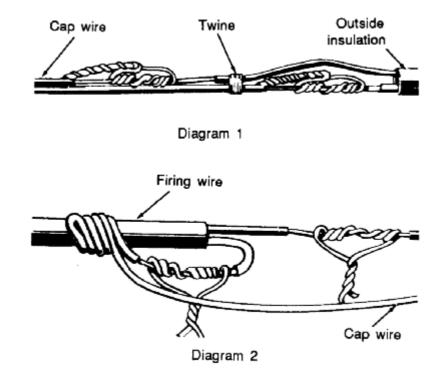


Figure 2-9. Two-wire splice

e. Series Circuits.

- (1) Common. Use this circuit to connect two or more electric blasting caps to a single blasting machine (Figure 2-7, diagram 1, page 2-8). Prepare a common series circuit by connecting one blasting cap to another until only two end wires are free. Shunt the two end wires until you are ready to proceed with the next step. Connect the free ends of the cap lead wires to the ends of the firing wire. Use connecting wires (usually annunciator wire) when the distance between blasting caps is greater than the length of the usual cap lead wires.
- (2) Leapfrog. The leapfrog method of connecting caps in a series is useful for firing any long line of charges (Figure 2-7, diagram 2, page 2-8). This method is performed by starting at one end of a row of charges and priming alternate charges to the opposite end and then priming the remaining charges on the return leg of the series. This method eliminates the necessity for a long return lead from the far end of the line of charges. Appendix E has additional information on series circuits.

There is seldom a need for this type of circuit, since detonating cord, when combined with a single blasting cap, will fire multiple charges.

Section II. Priming Systems

2-3. Methods. The three methods of priming charges are non-electric, electric, and detonating-cord.

Non-electric and electric priming involves directly inserting blasting caps into the charges. Use the direct-insertion method only when employing shaped charges. Detonating-cord priming is the preferred method for priming all other charges since it involves fewer blasting caps, makes priming and misfire investigation safer, and allows charges to be primed at State of Readiness 1 (safe) when in place on a reserved demolition.

NOTE: You can crimp non-electric blasting caps to detonating cord as well as time fuse. This capability permits simultaneous firing of multiple charges primed with a blasting cap.

2-4. Priming TNT Demolition Blocks.

a. Non-electric. TNT blocks have threaded cap wells. Use priming adapters, if available, to secure non-electric blasting caps and timed blasting fuses to TNT blocks with threaded cap wells (Figure 2-10). When priming adapters are not available, prime TNT blocks with threaded cap wells as follows:

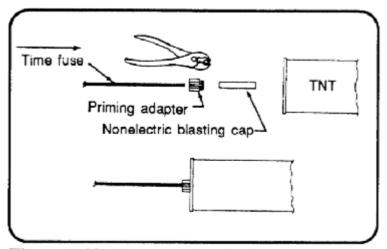
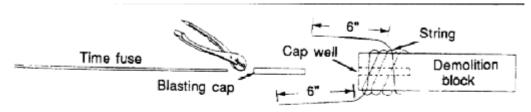


Figure 2-10. Nonelectric priming with adapter

- (1) Wrap a string tightly around the block of TNT and tie it securely, leaving approximately 6 inches of loose string on each end (Figure 2-11).
 - (2) Insert a blasting cap with the fuse attached into the cap well.
- (3) Tie the loose ends of the string around the fuse to prevent the blasting cap from being separated from the block. Adhesive tape can also effectively secure blasting caps in charges.



NOTE: Do not tie string so tightly that the powder train is broken in the fuse. Electrical or friction tape may be substituted for string if necessary.

Figure 2-11. Nonelectric priming without adapter

b. Electric.

- (1) With Priming Adapter. Use the following procedure for priming TNT block, using the priming adapter:
 - (a) Prepare the electric initiation set before priming.
- (b) Pass the lead wires through the slot of the adapter, and pull the cap into place in the adapter (Figure 2-12). Ensure the blasting cap protrudes from the threaded end of the adapter.

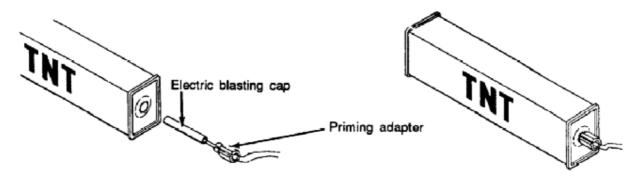


Figure 2-12. Electric priming with adapter

- (c) Insert the blasting cap into the threaded cap well of the TNT block and screw the adapter into place.
- (2) Without Priming Adapter. If a priming adapter is not available, use the following procedure:
 - (a) Prepare the electric initiation set before priming.
- (b) Insert the electric blasting cap into the cap well. Tie the lead wires around the block, using two half hitches or a girth hitch (Figure 2- 13). Allow some slack in the wires between the blasting cap and the tie to prevent any tension on the blasting-cap lead wires.

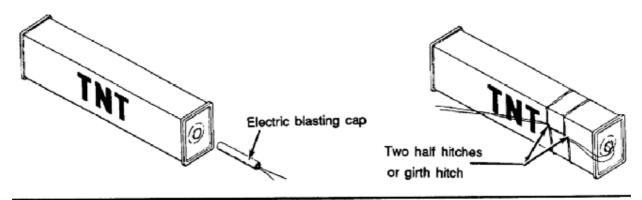


Figure 2-13. Electric priming without adapter

c. Detonating Cord. Use the following methods to prime TNT blocks with detonating cord:

NOTE: A 6-inch length of detonating cord equals the power output of a blasting cap. However, detonating cord will not detonate explosives as reliably as a blasting cap because its power is not as concentrated. Therefore, always use several turns or a knot of detonating cord for priming charges.

(1) Method 1 (Figure 2-14). Lay one end (1-foot length) of detonating cord at an angle across the explosive. Then, wrap the running end around the block three turns, laying the wraps over the standing end. On the fourth wrap, slip the running end under all wraps, parallel to the standing end and draw the wraps tight. Doing this forms a clove hitch with two extra turns.

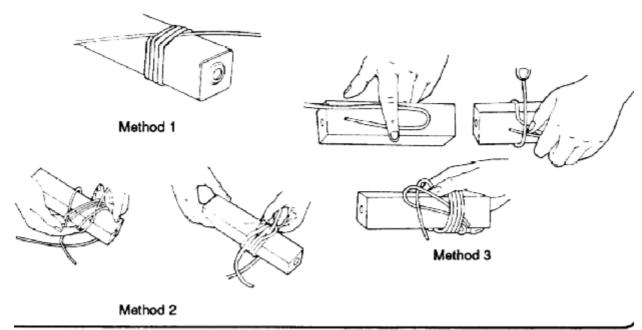


Figure 2-14. Priming TNT with detonating cord

(2) Method 2 (Figure 2-14). Tie the detonating cord around the explosive block with a clove hitch and two extra turns. Fit the cord snugly against the block, and push the loops close together.

- (3) Method 3 (Figure 2-14). Place a loop of detonating cordon the explosive, leaving sufficient length on the end to make four turns around the block and loop with the remaining end of the detonating cord. When starting the first wrap, ensure that you immediately cross over the standing end of the loop, working your way to the closed end of the loop. Pass the free end of the detonating cord through the loop and pull it tight. This forms a knot around the outside of the block.
 - 2-5. Priming M112 (C4) Demolition Blocks.
- a. Non-electric and Electric. C4 blocks do not have a cap well; therefore, you will have to make one. Use the following procedure:
- (1) With the M2 crimpers or other non-sparking tool, make a hole in the end or on the side (at the midpoint) large enough to hold the blasting cap.
- (2) Insert the blasting cap into the hole or cut. If the blasting cap does not fit the hole or cut, do not force the cap, make the hole larger.
- (3) Anchor the blasting cap in the block by gently squeezing the plastic explosive around the blasting cap.
- b. Detonating Cord. To prime plastic explosive with detonating cord, use the following procedure:
- (1) Form either a Uli knot, double overhand knot, or triple roll hot as shown in Figure 2-15.

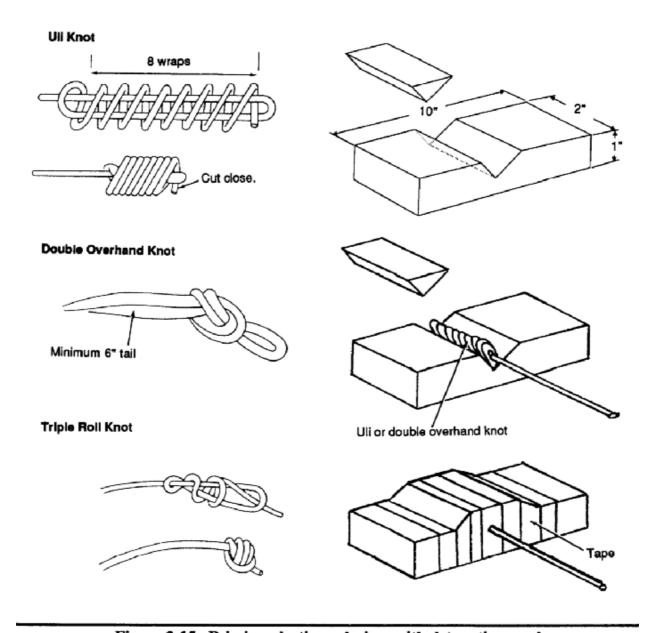


Figure 2-15. Priming plastic explosives with detonating cord

(2) Cut a notch out of the explosive, large enough to insert the knot you formed.

WARNING

Use a sharp knife on a non-sparking surface to cut explosives.

- (3) Place the knot in the cut.
- (4) Use the explosive you removed from the notch to cover the knot. Ensure there is at least ½ inch of explosive on all sides of the knot.
 - (5) Strengthen the primed area by wrapping it with tape.

NOTE: It is not recommended that plastic explosives be primed by wrapping them with detonating cord, since insufficient wraps will not properly detonate the explosive charge.

- 2-6. Priming M118 and M186 Demolition Charges.
- a. Non-electric and Electric. Use one of the following methods to prime M118 and M186 demolition charges:
- (1) Method 1 (Figure 2-16, page 2-16). Attach an M8 blasting cap holder to the end or side of the sheet explosive. Insert an electric or a non-electric blasting cap into the holder until the end of the cap presses against the sheet explosive. The M8 blasting cap holder has three slanted, protruding teeth which prevent the clip from withdrawing from the explosive. Two dimpled spring arms firmly hold the blasting cap in the M8 holder.

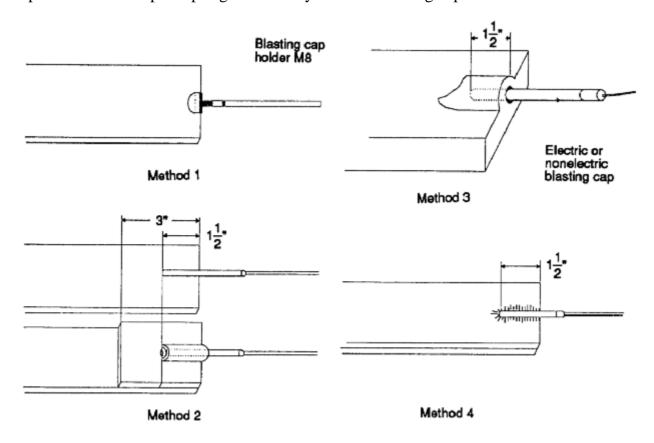


Figure 2-16. Priming sheet explosives

- (2) Method 2 (Figure 2-16, page 2-16). Cut a notch in the sheet explosive (approximately 1½ inches long and ¼ inch wide). Insert the blasting cap to the limit of the notch. Secure the blasting cap with a strip of sheet explosive.
- (3) Method 3 (Figure 2-16, page 2-16). Place 1½ inches of the blasting capon top of the sheet explosive and secure it with a strip of sheet explosive (at least 3 by 3 inches).
- (4) Method 4 (Figure 2-16, page 2-16). Insert the end of the blasting cap 1½ inches between two sheets of explosive.
- b. Detonating Cord. Sheet explosives also can be primed with detonating cord using a Uli knot, double overhand knot, or triple roll knot. Insert the knot between two sheets of explosive or place the knot on top of the sheet explosive and secure it with a small strip of sheet explosive. The knot must be covered on all sides with at least ½ inch of

explosive. 2-7. Priming Dynamite. Prime dynamite at either end or side. Choose the method that will prevent damage to the primer during placement.

- a. Non-electric. There are three methods for priming dynamite non-electrically:
- (1) End-Priming Method (Figure 2-17).
- (a) Using the M2 crimpers, make a cap well in the end of the dynamite cartridge.
- (b) Insert a fused blasting cap into the cap well.
- (c) Tie the cap and fuse securely in the cartridge with a string.
- (2) Weatherproof, End-Priming Method (Figure 2-17).
- (a) Unfold the wrapping at the folded end of the dynamite cartridge.
- (b) Using the M2 crimpers, make a cap well in the exposed dynamite.
- (c) Insert a fused blasting cap into the cap well.
- (d) Close the wrapping around the fuse and fasten the wrapping securely with a string or tape.
 - (e) Apply a weatherproof sealing compound to the tie.

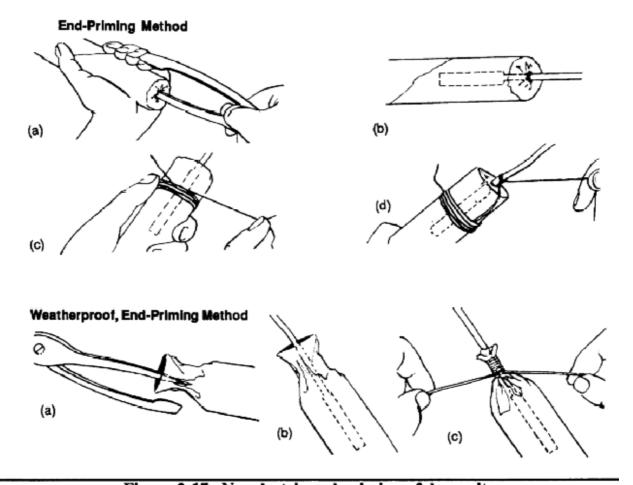


Figure 2-17. Nonelectric end priming of dynamite

- (3) Side-Priming Method (Figure 2-18, page 2-18).
- (a) Using the M2 crimpers, make a cap well (approximately 1½ inches long) into the side of the cartridge at one end. Slightly slant the cap well so the blasting cap, when inserted, will be nearly parallel to the side of the cartridge and the explosive end of the cap will be at a point nearest the middle of the cartridge.
 - (b) Insert a fused blasting cap into the cap well.
- (c) Tie a string securely around the fuse. Then, wrap the string tightly around the cartridge, making two or three turns before tying it.
- (d) Weatherproof the primed cartridge by wrapping a string closely around the cartridge, extending it an inch or so on each side of the hole to cover it completely. Cover the string with a weatherproof sealing compound.

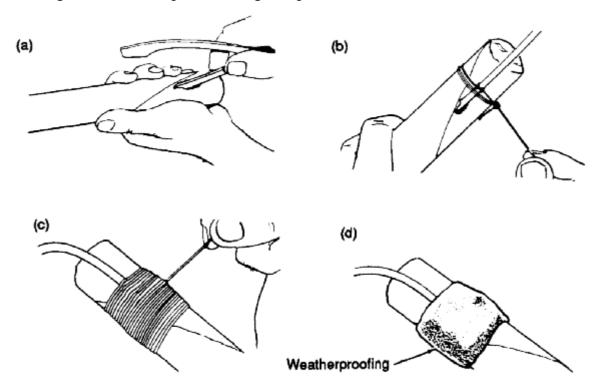


Figure 2-18. Nonelectric side priming of dynamite

- b. Electric. Use the following method for priming with electric blasting caps:
- (1) End-Priming Method (Figure 2-19).
- (a) Using the M2 crimpers, make a cap well in the end of the cartridge.
- (b) Using the M2 crimpers, insert an electric blasting cap into the cap well.
- (c) Tie the lead wires around the cartridge with two half hitches, a string, or tape.
- (2) Side-Riming Method (Figure 2-19).
- (a) Using the M2 crimpers, make a cap well (approximately 1½ inches long) into the side of the cartridge at one end. Slightly slant the cap well so the blasting cap, when

inserted, will be nearly parallel to the side of the cartridge and the explosive end of the cap will be at a point nearest the middle of the cartridge.

- (b) Using the M2 crimpers, insert an electric blasting cap into the cap well.
- (c) Tie the lead wire around the cartridge with two half hitches, a string, or tape.
- c. Detonating Cord. You also can use detonating cord to prime dynamite. Using the M2 crimpers, start approximately 1 inch from either end of the dynamite charge and punch four equally spaced holes through the dynamite cartridge (Figure 2-20). Make sure to rotate the cartridge 180 degrees after punching each hole to keep the holes parallel. Lace detonating cord through the holes in the same direction the holes were punched. Take care not to pull the loops of the detonating cord too tightly or the dynamite will break. Secure the detonating cord tail by passing it between the detonating cord lace and the dynamite charge.

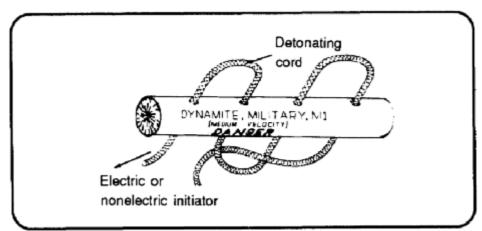


Figure 2-20. Priming dynamite with detonating cord

End-Priming Method

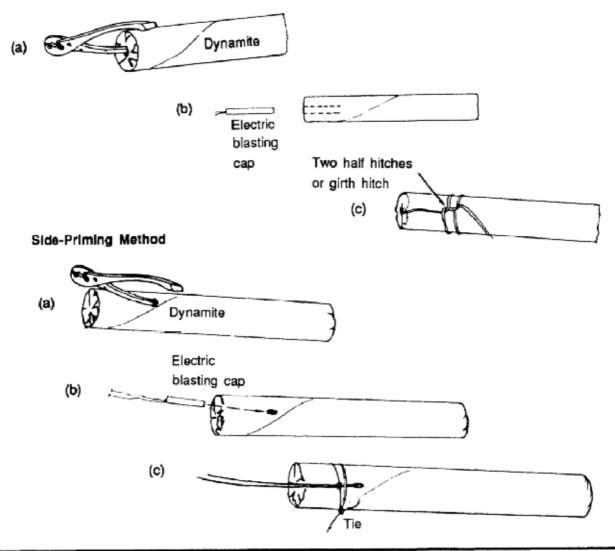


Figure 2-19. Electric priming of dynamite

- 2-8. Priming 40-Pound, Ammonium-Nitrate Cratering Charges. Because the cratering charge is primarily an underground charge, prime it only with detonating cord. Use dual priming to protect against misfires (Figure 2-21, diagram 2, page 2-20). Use the following procedure:
- a. Tie an overhand knot, with a 6-inch overhang, at one end of the length of detonating cord.
- b. Pass the opposite end of the detonating cord up through the detonating cord tunnel (Figure 2-21, diagram 1) of the cratering charge.

Ammonium nitrate is hydroscopic. When wet, ammonium nitrate is ineffective. WARNING

Therefore, inspect the metal container for damage or rust. Do not use damaged or rusty charges.

c. When dual priming a single 40-pound cratering charge, use a minimum of one pound of explosive.

Prime a block of TNT or package of C4 with detonating cord (paragraphs 2-4c, page 2-13, and 2-5b, page 2-14, respectively) and tape this charge to the center of the cratering charge (Figure 2-21, diagram 2). The detonating cord branch lines must be long enough to reach the detonating-cord ring mains after the cratering charge is in the ground. Twelve-foot branch lines should be adequate.

When placing two cratering charges in the same borehole, prime only the detonating cord tunnels of each charge. In this manner, the borehole is dual-primed and extra explosives are not required, as shown in Figure 2-21, diagram 3.

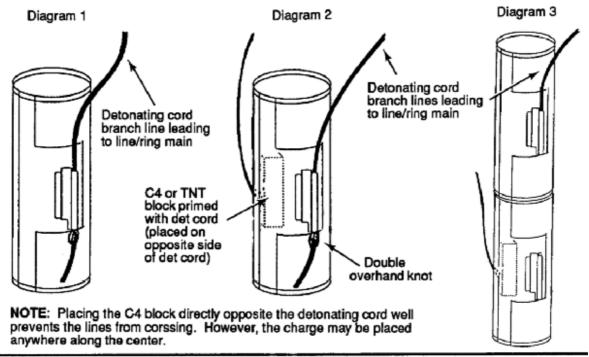


Figure 2-21. Priming ammonium-nitrate cratering charge

2-9. Priming M2A4 and M3A1 Shaped Charges. The M2A4 and M3A1 are primed only with electric or non-electric blasting caps. These charges have a threaded cap well at the top of the cone.

Prime them with a blasting cap as shown in Figure 2-22. Use a piece of string, cloth, or tape to hold the cap if a priming adapter is not available. Simultaneously detonate multiple shaped charges to create a line of boreholes for cratering charges by connecting each charge into a detonating-cord ring or line main. Use the following procedure for priming shaped charges:

- a. Crimp a non-electric blasting cap to a branch line.
- b. Connect the branch line to the ring main.
- c. Insert the blasting cap into the blasting cap well of the shaped charge.

d. When detonating multiple shaped charges, make all branch-line connections before priming any shaped charges.

WARNING

Do not dual prime shaped charges. Prime them only with a blasting cap in the blasting cap well.

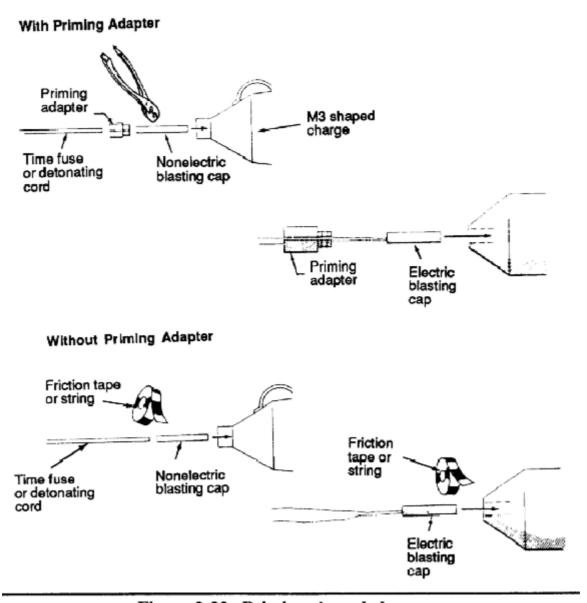


Figure 2-22. Priming shaped charges

2-10. Priming the Bangalore Torpedo.

a. Non-electric. Insert the blasting cap of a non-electric initiation set directly into the cap well of a torpedo section. If a priming adapter is not available, use tape or string to hold the blasting cap in place (Figure 2-23, diagram 1, page 2-22).

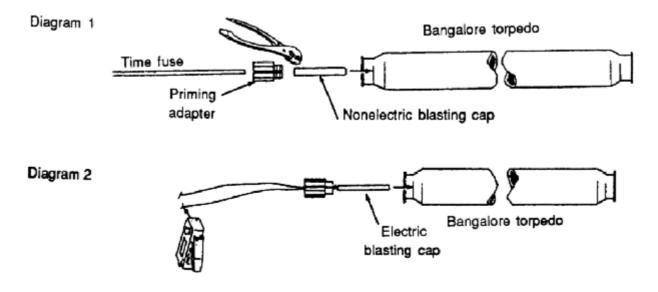


Figure 2-23. Priming a Bangalore torpedo with a blasting cap

- b. Electric. Insert the blasting cap of an electric initiation set into the cap well of a torpedo section. If a priming adapter is not available, hold the cap in place by taping or tying (with two half hitches) the lead wires to the end of the torpedo. Allow some slack in the wires between the blasting cap and the tie to prevent tension on the blasting cap leads.
- c. Detonating Cord. Prime the torpedo by wrapping detonating cord eight times around the end of the section, just below the bevel (Figure 2-24). After pulling the knot tight, insert the short end of the detonating cord into the cap well and secure it with tape. Never use the short end (tail) of the detonating cord to initiate the torpedo. Initiation must come from the running end of the detonating cord.

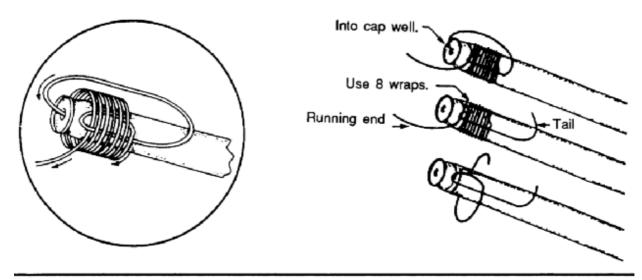


Figure 2-24. Priming a Bangalore torpedo with detonating cord

WARNING

Do not use more than or less than eight wraps to prime the Bangalore torpedo.

Too many wraps will extend the detonating cord past the booster charge housing, possibly causing the torpedo to be cut without detonating. Too few wraps may cause the torpedo to only be crimped, without detonating.

Section III. Firing Systems

2-11. Types of Firing Systems. There are two types of firing systems: single and dual. Chapter 5 covers the tactical applications for these systems.

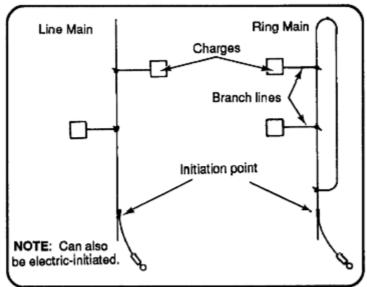


Figure 2-25. Single-firing system (single-initiated, single-fired, single-primed)

a. Single. Figure 2-25 shows a single-firing system Each charge is singly primed with a branch line. The branch line is tied to the line main or ring main. (Tying to the ring main is preferred but construction of a ring main may not be possible because of the amount of detonating cord. The ring main decreases the chances of a misfire should a break or cut occur anywhere within the ring main.) The electric, non-electric, or combination initiation systems are then taped onto the firing system. When using a combination initiation system, the electric initiation system is always the primary means of initiation. When using dual, non-electric initiation systems, the shorter time fuse is the primary initiation system

(Figure 2-26).

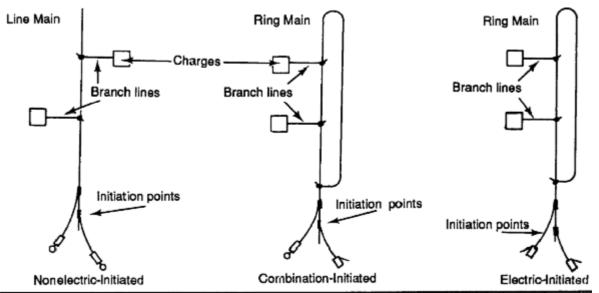


Figure 2-26. Single-firing system (dual-initiated, singled-fired, single-primed)

b. Dual. Figure 2-27 (page 2-24) shows a dual-firing system. Each charge is dual-primed with two branch lines (Figure 2-28, page 2-24). One branch line is tied to one firing system, and the other branch line is tied to an independent firing system. Line mains or ring mains may be used; however, they should not be mixed. To help prevent misfires, use detonating-cord crossovers.

Crossovers are used to tie both firing systems together at the ends. The initiation systems are taped in the primary initiation system goes to one firing system, the secondary goes to the other.

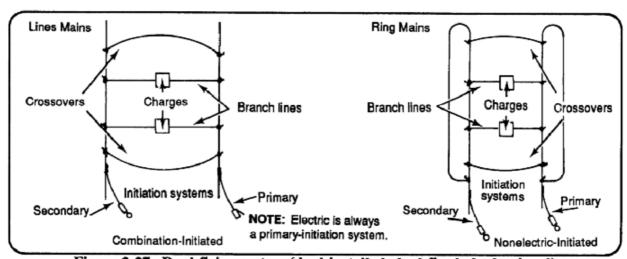


Figure 2-27. Dual-firing system (dual-installed, dual-fired, dual-primed)

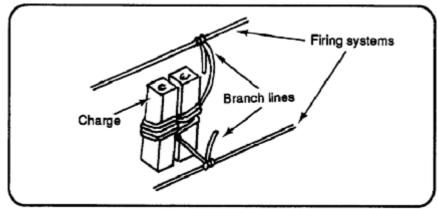


Figure 2-28. Dual-primed charge

Figure 2-29 shows a dual-firing system using horizontal and vertical ring mains. The complexity simultaneous detonation. These will be referred to as horizontal and vertical lines or ring mains.

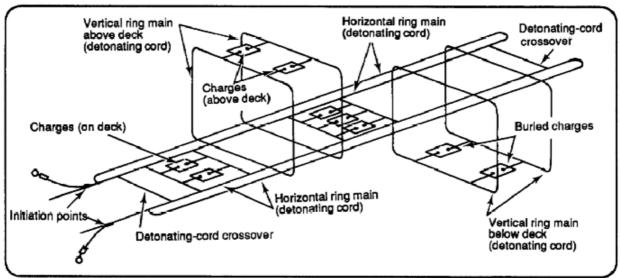


Figure 2-29. Dual-firing system (using a bridge as a possible target)

of a target or obstacle may necessitate using multiple line mains or ring mains for 2-12. Detonating Cord. A firing system uses detonating cord to transmit a shock wave from the initiation set to the explosive charge. Detonating cord is versatile and easy to install. It is useful for underwater, underground, and above-ground blasting because the blasting cap of the initiation set may remain above water or above ground and does not have to be inserted directly into the charge. Detonating-cord firing systems combined with detonating-cord priming are the safest and most efficient ways to conduct military demolition missions. Initiate detonating cord only with non-electric or electric initiation sets.

2-13. Attaching the Blasting Cap. Attach the blasting cap, electric or non-electric, to the detonating cord with tape. You can use string, cloth, or fine wire if tape is not available. Tape the cap securely to a point 6 inches from the end of the detonating cord to overcome moisture contamination. The tape must not conceal either end of the cap. Taping in this way allows you to inspect the cap in case it misfires. No more than 1/8 inch of the cap needs to be left exposed for inspection (Figure 2-30).

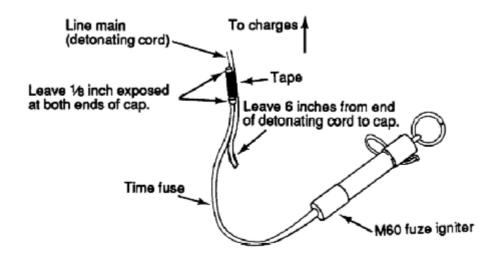


Figure 2-30. Attaching blasting cap to detonating cord

2-14. Detonating-Cord Connections. Use square knots or detonating-cord clips to splice the ends of detonating cord (Figure 2-31). Square knots may be placed in water or in the ground, but the cord must be detonated from a dry end or above ground. Allow 6-inch tails on square knots to prevent misfires from moisture contamination. Paragraph 1-21 (page 1-17) describes the process for connecting detonating cord with detonating-cord clips.

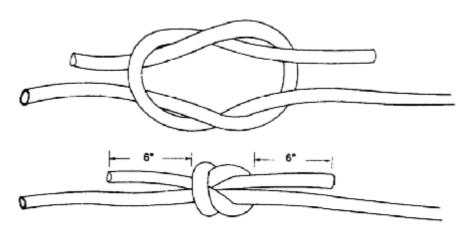


Figure 2-31. Square-knot connections

a. Branch Line. A branch line is nothing more than a length of detonating cord. Attach branch lines to a detonating-cord ring or line main to fire multiple charges. Combining the branch line with an initiation set allows you to fire a single branch line. If possible, branch lines should not be longer than 12 feet from the charge to the ring or line main. A longer branch line is too susceptible to damage that may isolate the charge. Fasten a branch line to a main line with a detonating-cord clip

(Figure 1-18, page 1-17) or a girth hitch with an extra turn (Figure 2-32). The connections of branch lines and ring or line mains should intersect at right (90-degree) angles. If these connections are not at right angles, the branch line may be blown off the line main without complete detonation. To prevent moisture contamination and ensure positive detonation, leave at least 6 inches of the running end of the branch line beyond

the tie. It does not matter which side of the knot your 6-inch overhang is on at the connection of the ring or line main.

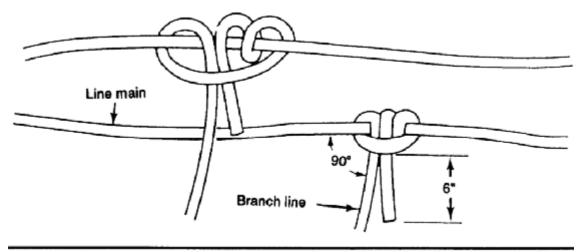


Figure 2-32. Girth hitch with an extra turn

b. Ring Main. Ring mains are preferred over line mains because the detonating wave approaches the branch lines from two directions. The charges will detonate even when them is a break in the ring main. A ring main will detonate an almost unlimited number of charges.

Branch-line connections at the ring main should be at right angles. Kinks in the lines should not be sharp. You can connect any number of branch lines to the ring main; however, never connect a branch line (at the point) where the ring main is spliced. When making branch-line connections, avoid crossing lines. If a line crossing is necessary, provide at least 1 foot of clearance between the detonating cords. Otherwise, the cords will cut each other and destroy the firing system.

- (1) Method 1. Make a ring main by bringing the line main back in the form of a loop and attaching it to itself with a girth hitch with an extra turn (Figure 2-33, diagram 1).
- (2) Method 2. Make a ring main by making a U-shape with the detonating cord, and then attaching a detonating-cord crossover at the open end of the U. Use girth hitches with extra turns when attaching the crossover (Figure 2-33, diagram 2). An advantage of the U-shaped ring main is that it provides two points of attachment for initiation sets.

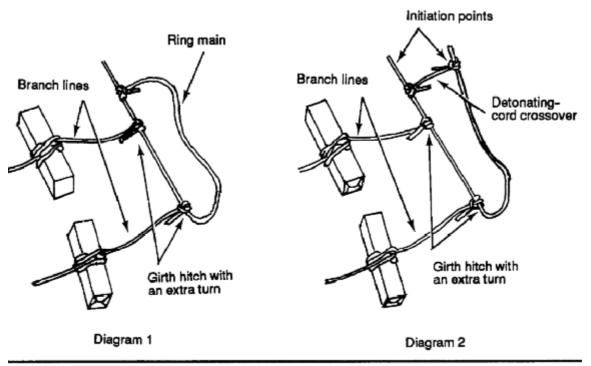


Figure 2-33. Ring mains

c. Line Main. A line main will fire multiple charges (Figure 2-34), but if a break in the line occurs, the detonating wave will stop at the break. When the risk of having a line main cut is unacceptable, use a ring main. Use line mains only when speed is essential and a risk of failure is acceptable. You can connect any number of branch lines to a line main. However, connect only one branch line at any one point unless you use a junction box (Figure 2-35, page 2-28).

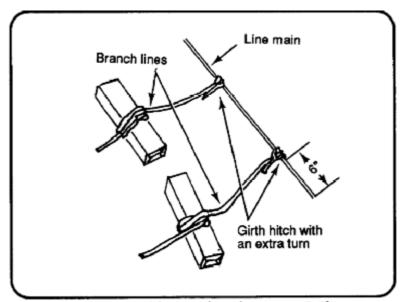


Figure 2-34. Line main with branch lines

2-15. Initiating Lines and Mains.

a. Line Main and Branch Line. Whenever possible, dual initiate a line main or a branch line (Figure 2-36, page 2-28). Place the blasting cap that will detonate first closest to the end of the detonating cord (for example, the electric cap of a combination of initiation

sets). Doing this will ensure the integrity of the backup system when the first cap detonates and fails to initiate the line main. Do not try to get both caps to detonate at the same time. This is virtually impossible to do with time fuse. Stagger the detonations a minimum of 10 seconds.

b. Ring Main. Initiate ring mains as shown in Figures 2-33. The blasting caps are still connected as shown in Figure 2-36 (page 2-28), but by having one on each side of the ring main, the chances of both caps becoming isolated from the ring are greatly reduced.

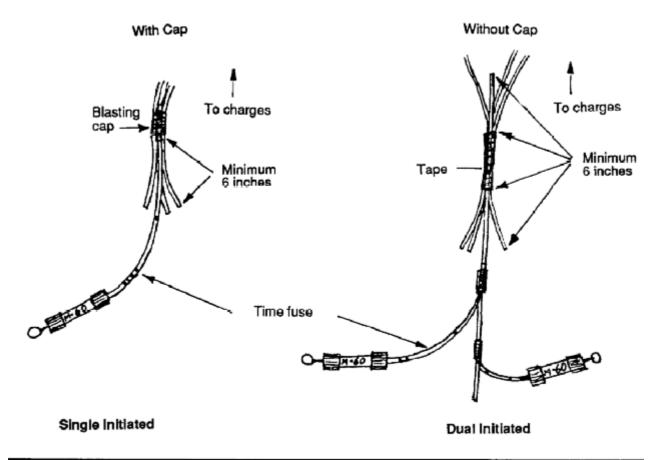


Figure 2-35. Junction box

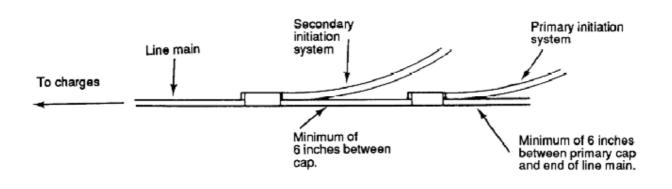


Figure 2-36. Attaching blasting caps to a line main

WARNING

When using time or safety fuse, uncoil it and lay it out in a straight line.

Place the time fuse so that the fuse will not curl up and prematurely detonate the blasting cap crimped to it.

Chapter 3

Calculation and Placement of Charges

Section I. Demolition

3-1. Principles. The amount and placement of explosives are key factors in military demolition projects. Formulas are available to help the engineer calculate the required amount of explosives.

Demolition principles and critical-factor analysis also guide the soldier in working with explosive charges. The available formulas for demolition calculations are based on the following factors:

- a. Effects of Detonation. When an explosive detonates, it violently changes into highly compressed gas. The explosive type, density, confinement, and dimensions determine the rate at which the charge changes to a gaseous state. The resulting pressure then forms a compressive shock wave that shatters and displaces objects in its path. A high-explosive charge detonated in direct contact with a solid object produces three detectable destructive affects:
- (1) Deformation. The charge's shock wave deforms the surface of the object directly under the charge. When the charge is placed on a concrete surface, it causes a compressive shock wave that crumbles the concrete in the immediate vicinity of the charge, forming a crater. When placed on a steel surface, the charge causes an indentation or depression about the size of the contact area of the charge.
- (2) Spall. The charge's shock wave chips away at the surface of the object directly under the charge. This action is known as spalling. If the charge is large enough, it will span the opposite side of the object. Because of the difference in density between the target and the air, the charge's compressive shock wave reflects as a tensile shock wave from the free surface, if the target has a free surface on the side opposite the charge. This action causes spalling of the target-free surface.

The crater and spans may meet to forma hole through the wall in concrete demolitions. On a steel plate, the charge may create one span in the shape of the explosive charge, throwing the spall from the plate.

- (3) Radial Cracks. If the charge is large enough, the expanding gases can create a pressure load on the object that will cause cracking and therefore displace the material. This effect is known as radial cracking. When placed on concrete walls, the charge may crack the surface into a large number of chunks and project them away from the center of the explosion. When placed on steel plates, the charge may bend the steel away from the center of the explosion.
- b. Significance of Charge Dimensions. The force of an explosion depends on the quantity and power of the explosive. The destructive effect depends on the direction in which the explosive force is directed. To transmit the greatest shock, the charge must

have the optimal relationship of contact area and thickness to target volume and density. If you spread a calculated charge too thinly, you will not have provided enough space for the shock wave to reach full velocity before striking the target. In improperly configured explosives (too thin or wrong strength), the shock wave tends to travel in a parallel rather than a perpendicular direction to the surface. As a result, the volume of the target will be too much for the resulting shockwave. Additionally, a thick charge with too small a contact area will transmit a shock wave over too small a target area, with much lateral loss of energy.

c. Significance of Charge Placement. The destructive effect of an explosive charge also depends on the location of the charge in relation to the target size, shape, and configuration. For the most destructive effect, detonate an explosive of the proper size and shape for the size, shape, and configuration of the target. Any significant air or water gap between the target and explosive will lessen the force of the shock wave. Cut explosives (such as sheet or plastic explosives) to fit odd-shaped targets. Whenever possible, place explosive charges to act through the smallest part of the target. Use internal charges to achieve maximum destruction with minimum explosives expense.

Tamping external charges increases their destructive effect.

- 3-2. Types of Charges.
- a. Internal Charges. Place internal charges in boreholes in the target. Confine the charges with tightly packed sand, wet clay, or other material (stemming). Stemming is the process of packing material on top of an internal borehole or crater charge. Fill and tamp stemming material against the explosive to fill the borehole to the surface. In drill holes, tamp the explosive as it is loaded into the hole. Tamp stemming material only with nonsparking equipment.
- b. External Charges. Place external charges on the surface of the target. Cover and tamp the charges with tightly packed sand, clay, or other dense material. Stemming material may be loose or in sandbags. To be most effective, make the thickness of the tamping material at least equal to the breaching radius. Tamp small breaching charges on horizontal surfaces with several inches of wet clay or mud.
- 3-3. Charge Calculations. Determine the amount of explosives required for any demolition project by calculation, based on the following critical factors:
- a. Type and Strength of Materials in Targets. A target may be timber, steel, or other material.

Concrete may be reinforced with steel, thereby increasing the concrete's strength.

- b. Size, Shape, and Configuration of Target. These characteristics all influence the required type and amount of explosives. For example, large or odd-shaped targets, such as concrete piers and steel beams, are more economically demolished with multiple charges than with a single charge.
- c. Desired Demolition Effect. Consider the extent of the demolition project and the other desired effects, such as the direction trees will fall when constructing an abatis.

- d. Type of Explosive. The characteristics of each type of explosive determine its application for demolition purposes. Tables 1-1 and 1-2 (pages 1-2 and 1-5) list these characteristics.
- e. Size and Placement of Charge. When using external charges without considering placement techniques, use a flat, square charge with a thickness-to-width ratio of 1:3. In general, charges of less than 5 pounds should be at least 1 inch thick. Charges from 5 to 40 pounds should be 2 inches thick. Charges of 40 pounds or more should be 4 inches thick. Fasten charges to the target using wire, adhesive compound, tape, or string. Prop charges against targets with wooden or metal frames made of scrap or other available materials or place the charges in boreholes.
- f. Method of Tamping. If you do not completely seal or confine the charge or if you do not ensure the material surrounding the explosive is balanced on all sides, the explosive's force will escape through the weakest spot. To keep as much explosive force as possible on the target, pack material around the charge to fill any empty space. This material is called tamping material and the process is called tamping. Sandbags and earth are examples of common tamping materials.

Always tamp charges with a nonsparking instrument.

- g. Direction of Initiation. The direction in which the shockwave travels through the explosive charge will affect the rate of energy transmitted to the target. If the shock wave travels parallel to the surface of the target (Figure 3-1, diagram 1), the shock wave will transmit less energy over a period of time than if the direction of detonation is perpendicular to the target. For best results, initiate the charge in the center of the face opposite the face in contact with the target.
 - 3-4. Charge Selection and Calculation.
- a. Selection. Explosive selection for successful demolition operations is a balance between the critical factors listed above and the practical aspects: target type; the amount and types of explosives, materials (such as sandbags), equipment, and personnel available; and the amount of time available to accomplish the mission.
- b. Calculation. Use the following procedure to determine the weight (P) of the explosive required for a demolition task, in pounds of TNT. If you use an explosive other than TNT, adjust P accordingly by dividing P for TNT by the relative effectiveness (RE) factor of the explosive you plan to use (Table 1-1, page 1-2). Use the following six-step, problem-solving format for all charge

calculations:

- (1) Determine the critical dimensions of the target.
- (2) Calculate the weight of a single charge of TNT to two decimal places by using the appropriate demolition formula (do not round). If your calculations are for TNT, skip to Step 4.
- (3) Divide the quantity of explosive by the RE factor (carry the calculations to two decimal places, and do not round). If you are using TNT, skip this step.

- (4) Determine the number of packages of explosive for a single charge by dividing the individual charge weight by the standard package weight of the chosen explosive. Round this result to the next-higher, whole package. Use volumes instead of weights for special purpose charges (ribbon, diamond, saddle, and similar charges).
 - (5) Determine the number of charges for the target.
- (6) Determine the total quantity of explosives required to destroy the target by multiplying the number of charges (Step 5) by the number of packages required per charge (Step 4).

Section II. Normal Cutting Charges

3-6. Steel-Cutting Charges.

WARNING

Steel-cutting charges produce metal fragments.

Proper precautions should be taken to protect personnel. Refer to Table 6-3, page 6-7.

- a. Target Factors. The following target factors are critical in steel-structure demolitions, more so than with other materials:
- (1) Target Configuration. The configuration of the steel in the structure determines the type and amount of charge necessary for successful demolition. Examples of structured steel are I-beams, wide-flange beams, channels, angle sections, structural tees, and steel plates used in building or bridge construction. Example A-3 (page A-3) shows how to calculate steel-cutting charges for wide-flange beams and girders.
 - (2) Target Materials. In addition to its configuration, steel also has varied composition:

High-carbon steel. Metal-working dies and rolls are normally composed of high-carbon steel and are very dense.

Alloy steel. Gears, shafts, tools, and plowshares are usually composed of alloy steel. Chains and cables are often made from alloy steel; however, some chains and cables are composed of high-carbon steel. Alloy steel is not as dense as high-carbon steel.

Cast iron. Some steel components (such as railroad rails and pipes) are composed of cast iron. Cast iron is very brittle and easily broken.

Nickel-molybdenum steel. This type of steel cannot be cut easily by conventional steel-cutting charges. The jet from a shaped charge will penetrate it, but cutting requires multiple charges or linear-shaped charges. Nickel-molybdenum steel shafts can be cut with a diamond charge. However, the saddle charge will not cut nickel-molybdenum shafts. Therefore, use some method other than explosives to cut nickel-molybdenum steel, such as thermite or acetylene or electrical cutting tools.

b. Explosives Factors. In steel-cutting charges, the type, placement, and size of the explosive are important. Confining or tamping the charge is rarely practical or possible. The following factors are important when selecting steel-cutting charges:

- (1) Type. Select steel-cutting charges that operate with a cutting effect. Percussive charges are not very effective for steel cutting. Plastic explosive (C4) and sheet explosive (Ml 18) are best. These explosives have very effective cutting power and are easily cut and shaped to fit tightly into the grooves and angles of the target. These explosives are particularly effective when demolishing structural steel, chains, and steel cables.
- (2) Placement (Figure 3-7). To achieve the most effective initiation and results, ensure that—

The charge is continuous over the complete line of the proposed cut.

There is close contact between the charge and the target.

The width of the charge's cross section is between one and three times its thickness. Do not use charges more than 6 inches thick because you can achieve better results by increasing the width rather than the thickness.

Long charges are primed every 4 to 5 feet. If butting C4 packages end to end along the line of the cut, prime every fourth package.

The direction of initiation is perpendicular to the target (Figure 3-1).

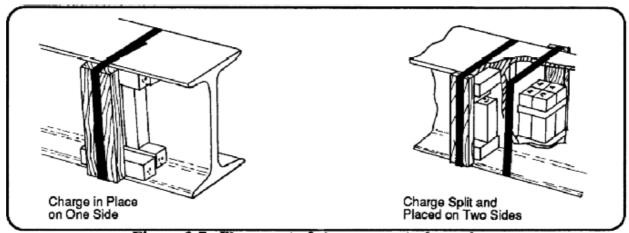


Figure 3-7. Placement of charges on steel members

- (3) Size. The size of the charge is dictated by the target steel's type and size and the type of charge selected. Use either C4 or TNT block explosives for cutting steel. C4 works best. Each steel configuration requires a unique charge size.
- (a) Block charge. Generally, the following formula will give you the size of charge necessary for cutting I-beams, built-up girders, steel plates, columns, and other structural steel sections. (When calculating cutting charges for steel beams, the area for the top flange, web, and bottom flange must be calculated separately.) Built-up beams also have rivet heads and angles or welds joining the flanges to the web. You must add the thickness of one rivet head and the angle iron to the flange thickness when determining the thickness of a built-up beam's flange. Use the thinnest point of the web as the web thickness, ignoring rivet-head and angle-iron thickness. Cut the lattice of lattice-girder webs diagonally by placing a charge on each lattice along the line of the cut. Use tables 3-2 and 3-3 (page 3-10) to determine the correct amount of C4 necessary for cutting steel

sections. Use the following formula to determine the required charge size (Table 3-3, page 3-10, is based on this formula):

$$P = (\frac{3}{8})A \text{ or } P = 0.375A$$

where-

P = TM required, in pounds.

A = cross-sectional area of the steel member, in square inches.

Table 3-2. Hasty steel-cutting chart for TNT

Average Pounds of explosive* for rectangular steel sections of given dimensions Thickness of Height of section (in) Section (in) 2 3 4 5 6 7 8 9 20 10 11 12 14 16 18 22 24 0.2 0.3 0.4 2.3 0.5 0.6 0.7 8.0 0.9 1.0 1.1 1.2 1.3 1.5 1.7 1.9 2.1 3/8 0.7 0.3 0.5 0.6 0.9 1.2 1.3 1.6 1.7 1.1 1.4 2.0 2.3 2.6 2.8 3.1 3.4 1/2 5/8 3/4 0.4 0.6 8.0 1.0 1.2 1.7 2.3 2.7 3.0 1.5 1.9 2.1 3.4 3.8 4.2 1.4 4.5 0.5 0.7 1.0 1.2 1.4 1.7 1.9 2.2 2.4 2.7 2.9 3.3 3.8 4.3 4.7 5.2 5.7 0.6 0.9 6.3 1.2 1.4 1.7 2.0 2.3 2.6 2.8 3.1 3.4 4.0 4.5 5.1 5.7 6.8 0.7 1.0 1.4 1.7 2.0 2.4 2.7 3.0 3.3 3.7 4.0 4.6 6.0 7.3 5.3 6.6 7.9 8.0 1.2 1.5 1.9 2.3 3.0 3.4 3.8 4.5 5.3 6.0 6.8 9.0

Table 3-3. Hasty steel-cutting chart for C4

Table 5-51 Training Charlet 101 C4														
Section Thickness (Inches)	Weight of Composition C4 Required for Rectangular Steel Sections (Height or Width, in Inches)													
	2	3	4	5	6	8	10	12	14	16	18	20	22	24
1/4	0.2	0.3	0.3	0.4	0.5	0.6	8.0	0.9	1.0	1.2	1.3	1.5	1.6	1.8
3/8	0.3	0.4	0.5	0.6	0.7	0.9	1.1	1.3	1.5	1.8	2.0	2.1	2.4	2.6
1/2	0.3	0.5	0.6	0.8	0.9	1.2	1.5	1.8	2.1	2.3	2.6	2.9	3.2	3.4
5/8	0.4	0.6	0.8	0.9	1.1	1.5	1.8	2.2	2.5	2.9	3.2	3.5	3.9	4.3
3/4	0.5	0.7	0.9	1.1	1.3	1.8	2.1	2.6	3.0	3.4	3.8	4.3	4.7	5.1
7/8	0.6	0.8	1.1	1.3	1.5	2.1	2.5	3.0	3.5	4	4.5	5.0	5.5	5.9
1	0.6	0.9	1.2	1.5	1.8	2.3	2.9	3.4	4.0	4.5	5.1	5.6	6.2	6.8

NOTE: Round UP to the nearest 1/10 pound when calculating charge sizes.

To use this table:

- 1. Measure each rectangular section of the total member separately.
- Find the approparite charge size for the rectangular section from the table. If the section dimension is not listed in the table, use the next-larger dimension.
- Add the individual charges for each section to obtain the total charge weight.
- (b) High-carbon or alloy steel. Use the following formula to determine the required charge for cutting high-carbon or alloy steel:

$$P = D^2$$

where-

P = TNT required, in pounds.

D = diameter or thickness of section to be cut, in inches.

(c) Steel bars, rods, chains, and cables (up to 2 inches). The size of these materials makes proper charge placement difficult. For example, Figure 3-8 shows charge placement on a chain. If the explosive is long enough to bridge both sides of the link or is large enough to fit snugly between the two links, use one charge. If the explosive is not large enough to bridge both sides, use two charges. Use the following amount of explosive:

For materials up to 1 inch in diameter or thickness, use 1 pound of explosive.

For materials between 1 and 2 inches in diameter or thickness, use 2 pounds of explosive.

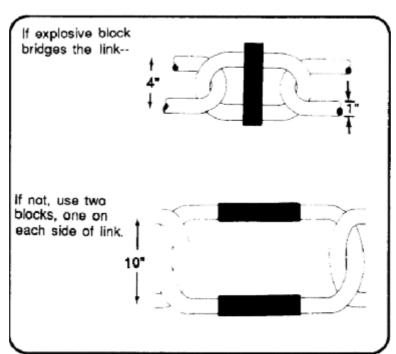


Figure 3-8. Charge placement on chains

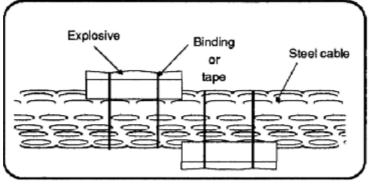


Figure 3-9. Charge placement on steel

(d) Steel bars, rods, chains, and cables (over 2 inches). When the target diameter or thickness is 2 inches or greater, use equation 3-4.

When the thickness or diameter is 3 inches or greater, place half of the charge on each side of, the target and stagger the placement to produce the maximum shearing effect (Figure 3-9).

(e) Railroad rails. The height of the railroad rail is the critical dimension for determining the amount of explosive required.

For rails 5 inches or more in height, crossovers, and switches, use 1 pound of C4 or TNT. For rails less than 5 inches high, use 1/2 pound of C4 or TNT (Figure 3-10, page 3-12). Railroad frogs require 2 pounds of C4 or TNT. Place the charges at vulnerable points, such as frogs, curves, switches, and crossovers, if possible. Place the charges at alternate rail splices for a distance of 500 feet.

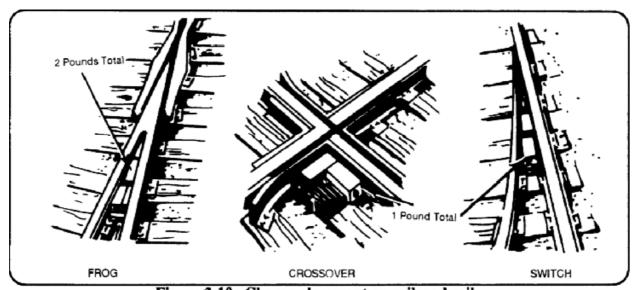


Figure 3-10. Charge placement on railroad rails

Section III. Special Cutting Charges

3-7. Purpose. When time and circumstances permit, you can use the special cutting charges (ribbon, saddle, and diamond charges) instead of conventional cutting charges. These charges may require extra time to prepare, since they require exact and careful target measurement to achieve optimal effect. With practice, an engineer can become proficient at calculating, preparing, and placing these charges in less time than required for traditional charges. Special cutting charges use considerably less explosive than conventional charges. Use plastic-explosive (M112) or sheet-explosive (M118 or M186) charges as special charges. C4 requires considerable cutting, shaping, and molding, which may reduce its density and, therefore, its effectiveness. Sheet explosive is more suitable than C4, since sheet explosive is more flexible and requires less cutting.

Use of these charges requires considerable training and practice. The charges are thin and require blasting caps crimped to a detonating-cord branch line for initiation. (A detonating-cord knot will work but is difficult to place and can ruin the advantage of the special charge shape).

3-8. Ribbon Charges. Use these charges to cut flat, steel targets up to 3 inches thick (Figure 3- 11).

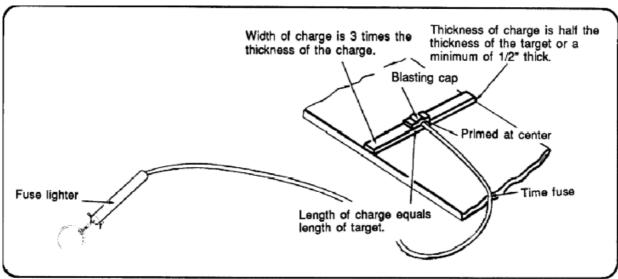


Figure 3-11. Ribbon charge

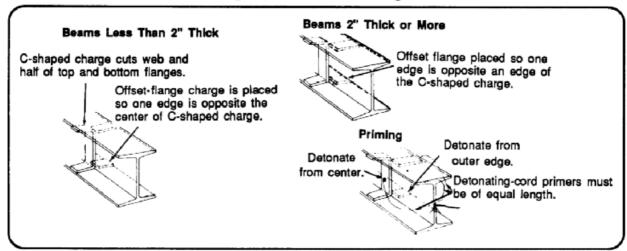


Figure 3-12. Placement of ribbon charge on structural steel

Make the charge thickness one-half the target thickness but never less than 1/2 inch. Make the charge width three times the charge thickness and the length of the charge equal to the length of the desired cut. Detonate the ribbon charge from the center or from either end. When using the ribbon charge to cut structural steel sections, place the charge as shown in Figure 3-12. The detonating-cord branch lines must be the same length and must connect in a junction box (Figure 2-35, page 2-27). Example A-5 (page A-5) shows how to calculate steel-cutting charges for steel plates. The formula for the ribbon charge is as follows:

- a. Charge Thickness. The charge thickness equals one half the target's thickness; however, it will never be less than 1/2 inch.
 - b. Charge Width. The charge width is three times charge thickness.
 - c. Charge Length. The charge length equals the length of the desired cut.

3-9. Saddle Charge. This steel-cutting method uses the destructive effect of the cross fracture formed in the steel by the base of the saddle charge (end opposite the point of initiation). Use this charge on mild steel bars, whether round, square, or rectangularly shaped, up to 8 square inches or 8 inches in diameter (Figure 3-13, page 3-14). Make the charge a uniform 1-inch thick. Example A-7 (page A-7) shows how to calculate steelcutting charges for steel bars, Determine the dimensions of the saddle charge as follows:

a. Dimensions.

- (1) Thickness. Make the charge 1 inch thick (standard thickness of Ml 12 block explosive).
- (2) Base Width. Make the base width equal to one-half the target circumference or perimeter.
- (3) Long-Axis Length. Make the long-axis length equal to the target circumference or perimeter.

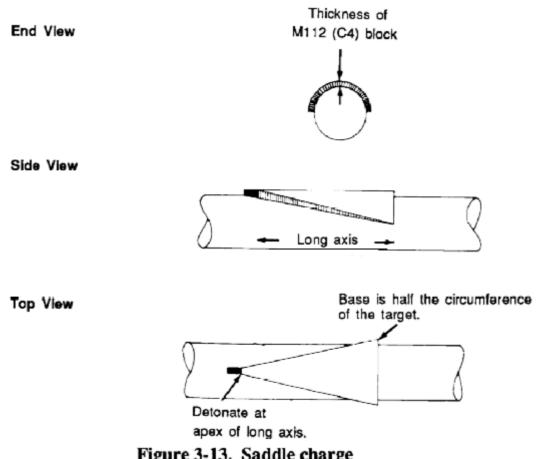


Figure 3-13. Saddle charge

- b. Detonation. Detonate the saddle charge by placing a blasting cap at the apex of the long axis.
- c. Placement. The long axis of the saddle charge should be parallel with the long axis of the target. Cut the charge to the correct shape and dimensions and then place it around

the target. Ensure the charge maintains close contact with the target by taping the charge to the target.

- 3-10. Diamond Charge. This technique, the stress-wave method, employs the destructive effect of two colliding shock waves. The simultaneous detonation of the charge from opposite ends (Figure 3-14) produces the shock waves. Use the diamond charge on high-carbon or alloy steel bars up to 8 inches in diameter or having cross-sectional areas of 8 square inches or less. Example A-8 (page A-7) shows how to calculate steel-cutting charges for high-carbon steel.
 - a. Dimensions.
- (1) Thickness. Make the charge 1 inch thick (standard thickness of M112 block explosive).
- (2) Long-Axis Length. Make the long-axis length equal to the target circumference or perimeter.
- (3) Short-Axis Length. Make the short-axis length equal to one-half the target circumference or perimeter.

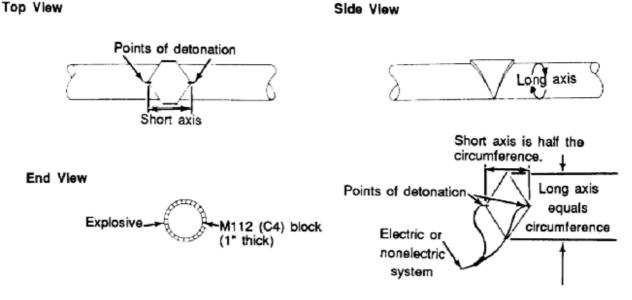


Figure 3-14. Diamond charge

- b. Placement. Place the explosive completely around the target so that the ends of the long axes touch. You may have to slightly increase the charge dimensions to do this. To ensure adequate contact with the target, tape the charge to the target.
- c. Priming. Prime the diamond charge (Figure 3-14) with two detonating cord branch lines using one of the following methods:

Detonating cord knots (Figure 2-15, page 2-14).

Two electric blasting caps in a series circuit (Figure 2-7, page 2-8).

Two nonelectric blasting caps (Figure 2-35, page 2-27).

NOTE: When using detonating cord knots or nonelectric blasting caps, the branch lines must be the same length.

Section IV. Breaching Charges

3-11. Critical Factors. Use breaching charges to destroy bridge piers, bridge abutments, and permanent field fortifications. The size, shape, placement, and tamping or confinement of breaching charges are critical to success. The size and confinement of the explosive are the most critical factors because the targets are usually very strong and bulky. The intent of breaching charges is to produce and transmit sufficient energy to the target to make a crater and create spalling. Breaching charges placed against reinforced concrete will not cut metal reinforcing bars. Remove or cut the reinforcement with a steel-cutting charge after the concrete is breached.

3-12. Computation.

a. Formula. Determine the size of the charge required to breach concrete, masonry, rock, or similar material by using the following formula:

$$P = R^3 KC$$

where—

P = TNT required, in pounds.

R =breaching radius, in feet.

K = material factor, which reflects the strength, hardness, and mass of the material to be demolished, (Table 3-4).

Table 3-4. Material factor (K) for breaching charges

Material	Breaching Radius (R)	К
Earth	All values	0.07
Poor masonry, Shale, Hardpan, Good timber, Earth construction	Less than 1.5 m (5 ft) 1.5 m (5 ft) or more	0.32 0.29
Good masonry, Concrete block, Rock	0.3 m (1 ft) or less Over 0.3 m (1 ft) to less than 0.9 m (3 ft) 0.9 m (3 ft) to less than 1.5 m (5 ft) 1.5 m (5 ft) to less than 2.1 m (7 ft) 2.1 m (7 ft) or more	0.88 0.48 0.40 0.32 0.27
Dense concrete, First-class masonry	0.3 m (1 ft) or less Over 0.3 m (1 ft) to less than 0.9 m (3 ft) 0.9 m (3 ft) to less than 1.5 m (5 ft) 1.5 m (5 ft) to less than 2.1 m (7 ft) 2.1 m (7 ft) or more	1.14 0.62 0.52 0.41 0.35
Reinforced concrete (Factor does not consider cutting concrete)	octor does not Over 0.3 m (1 ft) to less than 0.9 m (3 ft) osider cutting 0.9 m (3 ft) to less than 1.5 m (5 f)t	

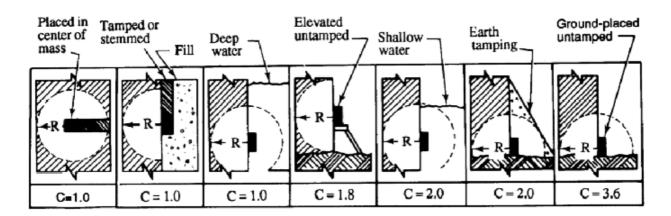


Figure 3-15. Tamping factor (C) for breaching charges

C = tamping factor, which depends on the location and tamping of the charge (Figure 3-15).

b. Breaching Radius (R). The breaching radius for external charges is equal to the thickness of the target being breached. For internal charges placed in the center of the target's mass, the breaching radius is one half the thickness of the target. If the charge is placed at less than half the mass thickness, the breaching radius is the longer of the distances from the center of the charge to the outside surfaces of the target. For example, when breaching a 4-foot wall with an internal charge placed 1 foot into the wall, the

breaching radius is 3 feet (the longest distance from the center of the explosive to an outside target surface). If placed at the center of the wall's mass, the explosive's breaching radius is 2 feet (one-half the thickness of the target). The breaching radius is 4 feet for an external charge on this wall. Round values of R to the next-higher ¼-foot distance for internal charges and to the next-higher ½-foot distance for external charges.

- c. Material Factor (K). K represents the strength and hardness of the target material. Table 3-4 gives values for K for various types and thicknesses of material. When you are unable to positively identify the target material, assume the target consists of the strongest type of material in the general group. Always assume concrete is reinforced and masonry is first-class unless you know the exact condition and construction of the target materials.
- d. Tamping Factor (C). C depends on the charge location and materials used for tamping.
- Figure 3-15 illustrates methods for placing charges and gives the values of C for both tamped and untamped charges. When selecting a value for C from Figure 3-15, do not consider a charge tamped with a solid material (such as sand or earth) as fully tamped unless you cover the charge to a depth equal to or greater than the breaching radius.
- 3-13. Breaching Reinforced Concrete. Table 3-5 (page 3-18) gives the number of C4 packages required for breaching reinforced-concrete targets. Example A-9 (page A-8) shows how to calculate the breaching charge for a reinforced-concrete pier. The amounts of C4 in the table are based on equation 3-6. To use the table, do the following:
 - a. Measure the concrete thickness.
- b. Decide how the charge will be placed against the target. Compare the method of placement with the diagrams at the top of the Table 3-5 (page 3-18). If in doubt about which column to use, always use the column that lists the greatest amount of explosive.
- c. Using the column directly under the chosen placement method, select the amount of explosive required, based on target thickness. For example, 200 packages of C4 are required to breach a 7-foot reinforced-concrete wall with an untamped charge placed 7 feet above ground.

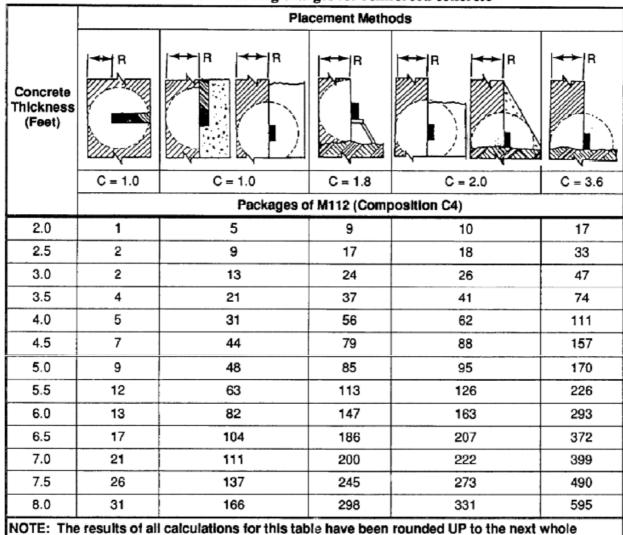


Table 3-5. Breaching charges for reinforced concrete

NOTE: The results of all calculations for this table have been rounded UP to the next whole package.

- 3-14. Breaching Other Materials. You can also use Table 3-5 to determine the amount of C4 required for other materials by multiplying the value from the table by the proper conversion factor from Table 3-6. Use the following procedure:
- a. Determine the type of material in the target. If in doubt, assume the material to be the strongest type from the same category.
- b. Determine from Table 3-5 the amount of explosive required if the object were made of reinforced concrete.
 - c. Find the appropriate conversion factor from Table 3-6.
- d. Multiply the number of packages of explosive required (from Table 3-5) by the conversion factor (from Table 3-6).

Table 3-6. Conversion factors for material other than reinforced concrete

Material	Conversion Factor
Earth	0.1
Ordinary masonry Hardpan Shale Ordinary concrete Rock Good timber Earth construction	0.5
Dense concrete First-class masonry	0.7

3-15. Number and Placement of Charges.

a. Number of Charges. Use the following formula for determining the number of charges required for demolishing piers, slabs, or walls:

$$N = \frac{W}{2R}$$

where-

N = number of charges. (If N is less than 1.25, use one charge; if N is 1.25 but less than 2.5, use two charges; if N is equal to or greater than 2.5, round to the nearest whole number and use that many charges.)

W = pier, slab, or wall width, in feet.

R =breaching radius, in feet.

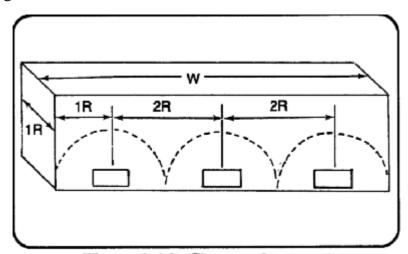


Figure 3-16. Charge placement

The first charge is placed R distance in from one side of the target. The remainder

of the charges are spaced at a distance of 2R apart (Figure 3-16).

- b. Placement.
- (1) Limitations. Piers and walls offer limited locations for placing explosives.

Unless a demolition chamber is available, place the charge (or charges) against one face of the target. Placing a charge above ground level is more effective than placing one directly on the ground. When the demolition requires several charges to destroy a pier, slab, or wall and you plan to use elevated charges, distribute the charges equally, no less than one breaching radius high from the base of the target.

Doing this takes maximum advantage of the shock wave. If possible, place breaching charges so that there is a free reflection surface on the opposite side of the target. This free reflection surface allows spalling to occur. If time permits, tamp all charges thoroughly with soil or filled sandbags.

The tamped area must be equal to or greater than the breaching radius. For piers, slabs, or walls partially submerged in water, place charges equal to or greater than the breaching radius below the water line, if possible (Figure 3-15, page 3-16).

(2) Configuration. For maximum effectiveness, place the explosive charge in the shape of a flat square. The charge width should be approximately three times the charge thickness. The thickness of the charge depends on the amount of explosive required (Table 3-7).

Table 3-7. Breaching charge thickness*

Charge Weight (Pounds)	Charge Thickness (Inches)
Less than 5	1
5 to less than 40	2
40 to less than 300	4
300 or more	8
*Approximate values	

3-16. Counterforce Charge.

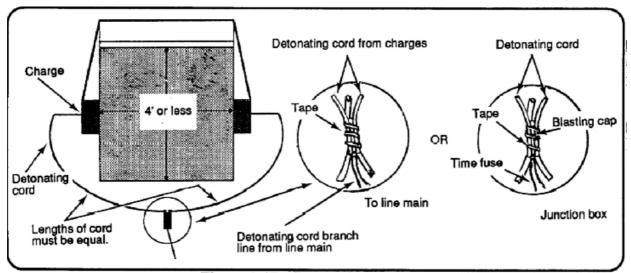


Figure 3-17. Counterforce charge

- a. Use. This special breaching technique is effective against rectangular masonry or concrete columns 4 feet thick or less. It is not effective against walls, piers, or long obstacles. The obstacle also must have at least three free faces or be freestanding. If constructed of plastic explosives (C4) and properly placed and detonated, counterforce charges produce excellent results with a relatively small amount of explosive. Their effectiveness results from the simultaneous detonation of two charges placed directly opposite each other and as near the center of the target as possible (Figure 3-17).
- b. Calculation. The thickness or diameter of the target determines the amount of plastic explosive required. The amount of plastic explosive equals 1½ times the thickness of the target, in feet (1½ pounds of explosive per feet). Round fractional measurements to the next higher half foot before multiplying. For example, a concrete target measuring 3 feet 9 inches thick requires 6 pounds of plastic explosive (1.5 lb/foot x 4 feet).
- c. Placement. Split the charge in half. Place the two halves directly opposite each other on the target. This method requires accessibility to both sides of the target so the charges will fit flush against their respective target sides.
- d. Priming. Prime both charges on the face farthest from the target. Join the ends of the detonating-cord branch lines in a junction box (Figure 3- 17). The length of the branch lines from both charges must be equal to ensure simultaneous detonation.

Section V. Cratering and Ditching Charges

3-17. Factors.

a. Sizes. To be effective obstacles, road craters must be too wide for track vehicles to span and too deep and steep-sided for any vehicle to pass through. Blasted road craters will not stop modern tanks indefinitely. A tank, making repeated attempts to traverse the crater, will pull soil loose from the slopes of the crater, filling the bottom and reducing both the crater's depth and angle of slope.

Road craters are effective antitank obstacles if a tank requires three or more passes to traverse the

crater, thereby providing enough time for antitank weapons to stop the tank. Road craters should

be large enough to tie into natural or constructed obstacles at each end. Improve the effectiveness of blasted road craters by placing log hurdles on either side, digging the face of the hurdle vertically on the friendly side, mining the site with antitank and antipersonnel mines, filling the crater with water, or by using other means to further delay enemy armor. Cut road craters across the desired gap at a 45-degree angle from the direction of approach. This angled cut will increase the tank's tendency to slip sideways and ride off its track. To achieve sufficient obstacle depth, place craters in multiple or single rows, enhancing some other obstacle, such as a bridge demolition. When creating more than one row of craters, space them far enough apart so that a single armored vehicle launch bridge (AVLB) will not span them.

- b. Explosives. All military explosives can create antitank craters. When available, use the 40-pound, ammonium-nitrate cratering charge (Figure 1-5, page 1-8) for blasting craters.
 - c. Charge Confinement. Place cratering charges in boreholes and tamp them.
- 3-18. Breaching Hard-Surfaced Pavements. Breach hard-surfaced pavements so that holes can be dug for the cratering charges. This can be done by exploding tamped charges on the pavement surface. Use a 1-pound charge of explosive for each 2 inches of pavement thickness. Tamp the charges twice as deep as the pavement thickness. Shaped charges also are effective for breaching hard-surfaced pavements. A shaped charge will readily blast a small-diameter borehole through the pavement and into the subgrade. Blasting the boreholes with shaped charges will speed up the cratering task by first, eliminating the need to breach the pavement with explosive charges and then digging the hole for the cratering charge. Do not breach concrete at an expansion joint because the concrete will shatter irregularly. Table 1-3 (page 1-10) lists hole depths and optimum standoff distances when using the 15- or 40-pound shaped charges against various types of material, Shaped charges do not always produce open boreholes capable of accepting a 7-inch diameter cratering charge. You may need to remove some earth or widen narrow areas to accommodate the cratering charge. Widen deep, narrow boreholes by knocking material from the constricted areas with a pole or rod or by breaking off the shattered concrete on the surface with a pick or crowbar.
- 3-19. Hasty Crater. This method takes the least amount of time to construct, based upon the number and depth of the boreholes. However, it produces the least effective barrier because of its depth and shape (Figure 3-18).

The hasty method forms a V-shaped crater about 6 to 7 feet deep and 20 to 25 feet wide, extending approximately 8 feet beyond each end borehole. The sides of the crater slope 25 to 35 degrees. Modern US tanks require an average of four attempts to breach a hasty crater. To form a crater that is effective against tanks, boreholes must be at least 5 feet deep with at least 50 pounds of explosive in each hole. Use the following procedure to create a road crater:

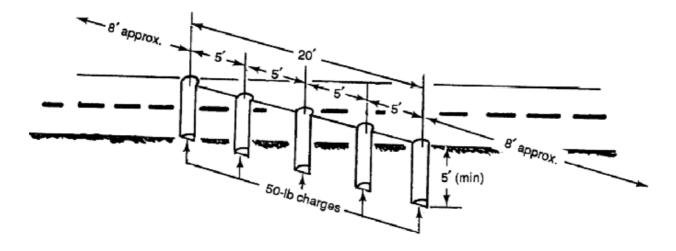


Figure 3-18. Placing charges for a hasty crater

a. Boreholes. Dig all boreholes to the same depth (5 feet or deeper recommended). Space the boreholes at 5-foot intervals, center to center, across the road. Use the following formula to compute the number of boreholes:

$$N = \frac{L - 16}{5} + 1$$

where-

N = number of boreholes; round fractional numbers to next higher whole number.

L = length of the crater, in feet. (Measure across the area to be cut. Round fractional measurements to the next higher foot).

16 = combined blowout of 8 feet each side.

5 = 5-foot spacing.

1 = factor to convert from spaces to holes.

b. Charge Size. Load the boreholes with 10 pounds of explosive per foot of borehole depth.

When using standard cratering charges, supplement each charge with additional explosives to obtain the required amount. For example, a 6-foot hole would require one 40-pound cratering charge and

20 pounds of TNT or C4.

- c. Firing System. Use dual firing systems when time and explosives permit (Figures 2-27, page 2-24). Initiate with either electric or nonelectric caps. Dual prime the 40-pound cratering charge as shown in Figure 2-21 (page 2-20).
 - d. Tamping. Tamp all boreholes with suitable materials.

3-20. Deliberate Crater. Figure 3-19 illustrates a method that produces a more effective crater than the hasty method.

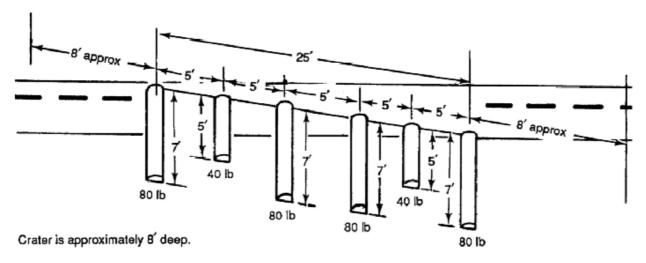


Figure 3-19. Placing charges for a deliberate crater

Modem US tanks require an average of eight attempts to breach a deliberate crater. Placing charges deliberately produces a V-shaped crater, approximately 7 to 8 feet deep and 25 to 30 feet wide, with side slopes of 30 to 37 degrees. The crater extends approximately 8 feet beyond the end boreholes. Example A-11 (page A-9) shows how to calculate a cratering charge.

a. Determine the number of boreholes required, using the same formula as for a hasty crater.

When there is an even number of holes (Figure 3-20, page 3-24), place two adjacent 7-foot boreholes in the middle.

b. Dig or blast the boreholes 5 feet apart, center to center, in a line across the area to be cut.

Make the end boreholes 7 feet deep and the other boreholes alternately 5 and 7 feet deep. Never place two 5-foot holes next to each other.

- c. Place 80 pounds of explosive in the 7-foot holes and 40 pounds of explosive in the 5-foot holes.
- d. Use dual firing systems (Figure 2-27, page 2-24). Initiate with either electric or nonelectric caps. Dual prime the 40-pound cratering charge as shown in Figure 2-21 (page 2-20).
 - e. Tamp all charges with suitable materials.
- 3-21. Relieved-Face Crater. The method shown in Figure 3-20 (page 3-24) produces a crater that is a more effective obstacle to modern tanks than the standard V-shaped crater. This technique produces a trapezoidal-shaped crater about 7 to 8 feet deep and 25 to 30 feet wide with unequal side slopes. In compact soil, such as clay, the relieved-face cratering method will create an obstacle such as the one illustrated in Figure 3-20 (page 3-24). The side nearest the enemy slopes approximately 25 degrees from road surface to

crater bottom. The opposite (friendly) side slopes approximately 30 to 40 degrees from road surface to crater bottom. However, the exact shape of the crater depends on the type of soil. Use the following procedure to create a relieved-face crater:

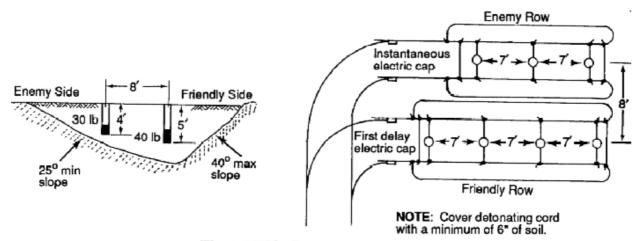


Figure 3-20. Relieved-face crater

a. On dirt or gravel-surfaced roads, drill two lines of boreholes 8 feet apart, spacing them at 7-foot centers. On hard-surfaced roads, drill the two lines of boreholes 12 feet apart. Use the following formula to compute the number of boreholes for the friendly-side row:

$$N = \frac{L-10}{7} + 1$$

where—

N = number of boreholes; round fractional numbers to the next higher whole number.

L = crater length, in feet. (Measure across the area to be cut. Round fractional measurements to the next higher foot.)

10 = combined blowout of 5 feet each side.

7 =spacing of holes.

1 = factor to convert spaces to holes.

- b. Stagger the boreholes in the row on the enemy side in relation to the holes in the row on the friendly side (Figure 3-20). The line closest to the enemy will always contain one less borehole than the friendly line.
- c. Make the boreholes on the friendly side 5 feet deep, and load them with 40 pounds of explosive. Make the boreholes on the enemy side 4 feet deep, and load them with 30 pounds of explosive.
- d. Use a dual firing system for each line of boreholes. Prime any 40-pound cratering charge as shown in Figure 2-21 (page 2-20).
 - e. Tamp all holes with suitable material.

There must be a 0.5- to 1.5-second delay in detonation between the two rows of boreholes.

Detonate the row on the enemy side frost. Then fire the friendly-side row while the earth from the enemy-side detonation is still in the air. Use standard delay caps. If the firings cannot be staggered, fire both rows simultaneously. However, the crater produced by a simultaneous detonation will not have the same depth and trapezoidal shape as a relieved-face crater.

- 3-22. Misfire Prevention. The shock and blast of the first row of charges may affect the delayed detonation of the friendly-side charges. To prevent misfires of the friendly-side charges, protect its detonating-cord lines by covering them with approximately 6 inches of earth.
 - 3-23. Creating Craters in Permafrost and Ice.
- a. Blasting in Permafrost. Permafrost can be as hard as solid rock. Therefore, you must adapt the procedures for blasting or cratering to accommodate permafrost conditions. In permafrost, blasting requires approximately twice as many boreholes and larger charges than for cratering operations in moderate climates. Blasted, frozen soil breaks into clods 12 to 18 inches thick and 6 to 8 inches in diameter. Because normal charges have insufficient force to blow these clods clear of the boreholes, the span falls back into the crater when the blast subsides.
- (1) Boreholes. Before conducting extensive blasting, perform a test on the soil in the area to determine the number of boreholes needed. Dig the boreholes with standard drilling equipment, steam-point drilling equipment, or shaped charges. Standard drilling equipment has one serious defect—the air holes in the drill bits freeze. There is no known method to prevent this freezing.

Steam-point drilling is effective for drilling boreholes in sand, silt, or clay, but not in gravel. Place the charges immediately after withdrawing the steam point; otherwise, the area around the borehole thaws and collapses. Shaped charges also are effective for producing boreholes, especially when forming craters. Table 1-3 (page 1-10) lists borehole sizes made by shaped charges in permafrost and ice.

- (2) Explosives. If available, use low-velocity explosives, such as ammonium nitrate, for blasting holes in arctic climates. The displacing quality of low-velocity explosives will more effectively clear large boulders from the crater. If only high-velocity explosives are available, tamp the charges with water and let them freeze before detonating. Unless thoroughly tamped, high-velocity explosives tend to blow out of the boreholes.
- b. Blasting in Ice. Access holes in ice are required for obtaining water and determining the capacity of the ice for bearing aircraft and vehicles. To accommodate rapid forward movements, you must be capable of quickly determining ice capacities. Blasting operations provide this ability.
- (1) Boreholes. Make small-diameter access holes using shaped charges. The M2A4 charge will penetrate ice as thick as 7 feet; the M3A1 charge will penetrate over 12 feet of ice (Table 1-3, page 1-10). The M3A1 can penetrate deeper, but it has only been tested

on ice approximately 12 feet thick. If placed at the normal standoff distance, the charge forms a large crater at the surface, requiring you to do considerable probing to find the actual borehole. Use a standoff distance of 42 inches or more with the M2A4 shaped charge to avoid excessive crater formation. The M2A4 creates an average borehole diameter of 3 ½ inches. An M3A1 borehole has an average diameter of 6 inches. In late winter, ice grows weaker and changes color from blue to white. Although the structure and strength of ice vary, the crater effect is similar, regardless of the standoff distance.

(2)

Craters. Make surface craters with ammonium-nitrate cratering charges or demolition blocks.

For the best results, place the charges on the surface of cleared ice and tamp them with snow. When determining charge size, keep in mind that ice has a tendency to shatter more readily than soil, and this tendency will decrease the charge's size.

- c. Making Vehicle Obstacles. Create a vehicle obstacle in ice by first making two or more rows of boreholes. Space the boreholes 9 feet apart and stagger them in relation to the holes in the other rows. Suspend Ml12 charges about 2 feet below the bottom surface of the ice with cords tied to sticks, bridging the sticks over the top of the holes. The size of the charge depends on the thickness and condition of the ice. Use test shots to find the optimum amount. This type of obstacle can retard or halt enemy vehicles for approximately 24 hours at temperatures near -24 degrees Fahrenheit.
- 3-24. Craters as Culverts. Destroying a culvert not more than 15 feet deep may also produce an effective crater. Prime the charges for simultaneous detonation, and thoroughly tamp all charges with sandbags. Destroy culverts that are no deeper than 5 feet by placing explosive charges in the same way as for hasty road craters. Space the boreholes at 5-foot intervals in the fill above and alongside the culvert. In each hole place 10 pounds of explosives per foot of depth 3-25. Craters as Antitank Ditches. Excavate antitank ditches by either the hasty or deliberate cratering method (paragraphs 3-19 and 3-20, pages 3-22 and 3-23).
- 3-26. Ditching Methods. Explosives can create ditches rapidly. Slope ditches at a rate of 2 to 4 feet of depth per 100 feet of run. Place ditches in areas where natural erosion will aid in producing the correct grade. If you cannot place a ditch in an area aided by erosion, make the ditch deeper, increasing the depth as the length increases. Use the following methods for creating ditches:
- a. Single Line. The single-line method (Figure 3-21) is the most common ditching method.

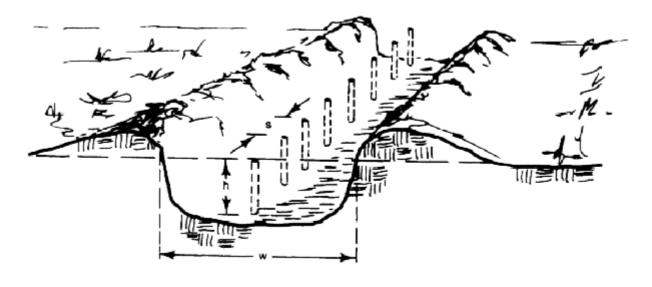


Figure 3-21. Single-line method of ditching

Table 3-8. Single-line ditching explosives data

Serial	Required Ditch Depth (d)	Required Width Top of Ditch (w) (Feet)	Charges per Hole (Pounds)	Borehole Depth (h) (Feet)	Borehole Spacing (s) (Feet)	
a	b	c (Feet)	d	ө	1	
1	2.5	5.0	0.5	1.5	1.5	
2	3.0	7.0	1.0	2.0	2.0	
3	4.0	9.0	2.0	3.0	3.0	
4	6.0	12.0	5.0	5.0	4.0	
5	10.0	16.0	10.0	8.0	5.0	

Detonate a single row of charges along the centerline of the proposed ditch, leaving any further widening for subsequent lines of charges. Table 3-8 gives charge configurations for the single-line method.

b. Cross Section. When it is necessary to blast the full width of the ditch in one operation, use the cross-section method (Figure 3-22). Table 3-9 gives charge configurations for the cross-section method. Place an extra charge midway between lines of charges.

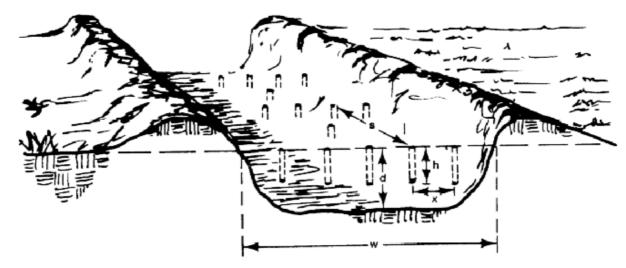


Figure 3-22. Cross-section method of ditching

Table 3-9. Cross-section ditching explosives data

Serial	Required Depth (d)		Required Width (w) in Feet Number of Boreholes in Each Cross Section				Charge per Hole (Pounds)	Borehole Depth (h)	Borehole Spacing (s) (Feet)	Row Spacing (x) (Feet)
		3	5	7	9	11		(Feet)	(1961)	(1961)
а	b	C	d	е	f	g	h	ı	j	k
1	2.5	7.5	11.0	13.0	16.0	18.0	0.5	1.5	1.3	2.5
2	3.0	10.0	13.0	16.0	19.0	22.0	1.0	2.0	1.5	3.0
3	4.0	14.0	19.0	24.0	29.0	34.0	2.0	3.0	2.5	4.5
4	6.0	20.0	28.0	36.0	44.0	52.0	5.0	5.0	4.0	6.0
5	10.0	26.0	33.0	46.0	56.0	65.0	10.0	7.0	5.0	8.0

Section VII. Special Applications

- 3-31. Survivability Positions. In many circumstances, the use of explosives can reduce digging time and effort. Use explosives only in soil that would normally be excavated by pick and shovel. Explosives are not recommended for excavations less than 2 feet deep. Use small charges buried and spaced just enough to loosen the soil, limiting the dispersion of soil to as small an area as possible. Do not attempt to form a crater doing this spreads soil over a large area, affecting concealment and weakening the sides of the finished position. Explosives can create individual fighting positions and larger crewserved, gun, or vehicle positions. Using explosives in this manner requires some advance preparation. In the case of an individual fighting position, the preparation time may exceed time required to prepare the position by traditional methods.
- a. Depth. Place charges 1 foot shallower than the required depth, to a maximum of 4 feet. If the required depth is greater than 5 feet, dig the position in two stages, dividing the required depth in half for each stage. Make the boreholes with an earth auger, wrecking bar, picket driver, or other expedient device.

b. Spacing. For rectangular excavations, dig the boreholes in staggered lines. For circular excavations, dig the boreholes in staggered, concentric rings. The spacing between boreholes in each line or ring and between lines or rings should be between 1 and 1.5 times the borehole depth.

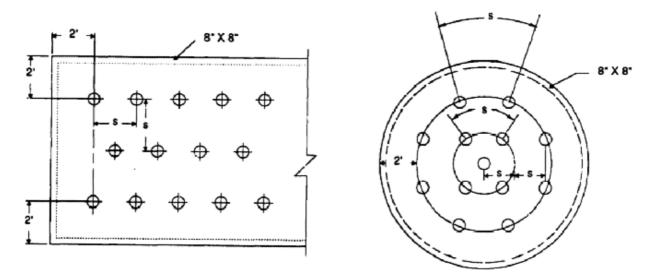


Figure 3-25. Borehole layouts

Ensure all charges are at least 2 feet inside the proposed perimeter of the excavation. Also, dig an 8-by 8-inch channel around the outer perimeter of the proposed excavation, with the outer edge of the channel forming the outer edge of the finished excavation. Figure 3-25 shows layouts for rectangular and circular excavations.

c. Charge Size. Use ¼-pound charges of plastic explosive to dig foxholes. For large excavations, use charges between ½ and 1 ½ pounds, depending on spacing and soil characteristics.

A test shot is usually necessary to determine the correct charge size.

- d. Concealment. Reduce explosion noise and spoil scatter by leaving any sod in place and covering the site with a blasting mat. Improvise blasting mats by tying tires together with natural or synthetic rope (steel-wire rope is unacceptable) or by using a heavy tarpaulin.
 - 3-32. Equipment Destruction.

WARNING

Steel-cutting charges produce metal fragments.

Proper precautions should be taken to protect personnel.

Refer to Table 6-3, page 6-7.

a. Guns. Destroy gun barrels with explosives or their own ammunition. Also be sure to remove or destroy the small components, such as sights and other mechanisms.

- (1) Explosive Method.
- (a) To prepare a gun for demolition, first block the barrel just above the breach. For small-caliber guns that use combined projectile-propellant munitions, solidly tamp the first meter of the bore with earth. For heavier guns that use projectiles separate from propellants, simply load a projectile and aim the tube to minimize damage should the round be ejected.
- (b) Charge Size. Table 3-11 (page 3-32) details the charge size required for standard barrel sizes. If necessary, determine the required charge size using the following formula:

$$P = \frac{D^2}{636}$$

where-

P = quantity of explosive (any high explosive), in pounds.

D = bore size of the barrel, in millimeters.

(c) Placement. Pack the explosive, preferably C4, into the breach, immediately behind the tamping. Place the plastic explosive in close contact with the chamber. Close the breach block as far as possible, leaving only enough space for the detonating cord to pass without being bent or broken. If time permits, place 15-pound charges on the drive wheels of tracked guns and on the wheels and axles of towed guns. Connect the branch lines in a junction box or use a ring main.

Simultaneously detonate all charges.

Table 3-11. Gun-destruction charge sizes

Serial	Barrel Size (Millimeters)	Charge Size (Pounds)		
а	b	С		
1	76	10		
2	105	18		
3	120	23		
4	155	38		
5	203	66		

Note: Determine appropriate charge sizes for barrel sizes not listed by comparing them to known barrel sizes. For example, you would use the explosive weight in Serial 3 for a 112-mm barrel (23 pounds); Serial 4 for a 152-mm barrel (38 pounds).

(2) Improvised Method. When block explosives are not available, destroy a gun with its own ammunition. Insert and seat one round in the muzzle end and a second charge,

complete with ropellant charge (if required), in the breach end of the tube. Fire the gun from a safe distance, using the gun's own mechanism. Use a long lanyard and ensure the firing party is under cover before firing the gun.

b. Vehicles. To destroy friendly vehicles, refer to the applicable TM. Use the following priorities when destroying vehicle components:

Priority 1. Carburetor, distributor, fuel pump or injectors, and fuel tanks and lines.

Priority 2. Engine block and cooling system.

Priority 3. Tires, tracks, and suspension system.

Priority 4. Mechanical or hydraulic systems (where applicable).

Priority 5. Differentials and transfer case.

Priority 6. Frame.

(1) Armored Fighting Vehicles (AFVs). Destroy AFVs beyond repair by detonating a 25-pound charge inside the hull. The charge may be a bulk 25-pound charge or a number of smaller charges, placed on the driving, turret, and gun controls. To increase the amount of damage to the AFV, ensure the ammunition within the AFV detonates simultaneously with the other charges, and ensure all hatches, weapons slits, and other openings are sealed. If it is not possible to enter the AFV, place the charges under the gun mantle, against the turret ring, and on the final drive (Figure 3-26).

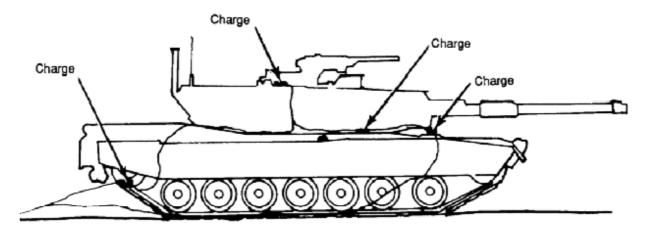


Figure 3-26. Placing charges on the AFV

If explosives are not available, destroy the AFV by using antitank weapons or fire, or destroy the main gun with its own ammunition.

(2) Wheeled Vehicles.

- (a) Explosives method. Destroy wheeled vehicles beyond repair by wrecking the vital parts with a sledgehammer or explosives. If high explosives are available, use 2-pound charges to destroy the cylinder head, axles, and frame.
- (b) Improvised method. Drain the engine oil and coolant and run the engine at full throttle until it seizes. Finish the destruction by burning the vehicle (ignite the fuel in the tank).

Chapter 4

Bridge Demolition

Section I. Requirement

- 4-1. Purpose of Bridge Demolition. The purpose of bridge demolitions is to create gaps in bridges by attacking key components of the bridge. This makes gaps large enough to make repair uneconomical and to force the enemy to construct other bridges on other sites. The minimum gap required must exceed the enemy's assault bridging capability by 5 meters. For planning purposes, use 25 meters as the minimum gap size, but 35 meters is better. The gap may be less than 25 meters if enemy forces must depend on the demolished bridge components to bear their assault bridging and there is insufficient bearing capacity in the remains to carry the loads.
- 4-2. Degree of Destruction. The complete demolition of a bridge usually involves the destruction of all the components (spans, piers, and abutments). Complete demolition may be justified when the terrain forces the enemy to reconstruct a bridge on the same site. However, complete destruction is not normally required to meet the tactical objective. Select the method of attack that achieves the tactical goal, with a minimum expenditure of resources.
- 4-3. Debris. Debris may cause enemy forces serious delays if it obstructs the gap (Figure 4-1). Debris also provides excellent concealment for mines and booby traps. Whenever possible, demolish bridges in such a way that the resulting debris hinders reconstruction.

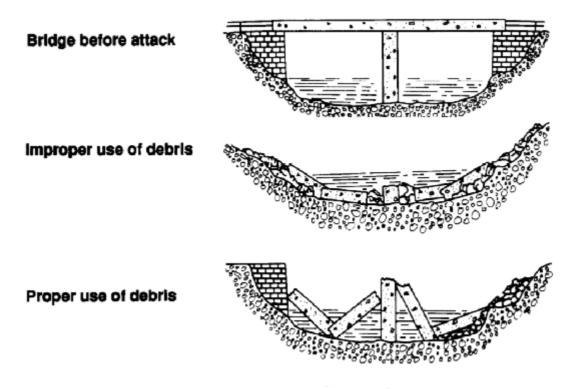


Figure 4-1. Use of debris

Section II. Considerations

- 4-4. Bridge Categories. The first step in any efficient bridge demolition is to categorize the bridge correctly. The term categorization has been adopted to avoid confusion with classification, which is concerned with the load-carrying capacity of bridges. The correct categorization of bridges, coupled with an elementary knowledge of bridge design, allows you to select a suitable attack method. All bridges fit into one of three categories:
- a. Simply Supported. In simply supported bridges, the ends of each span rest on the supports; there are no intermediate supports. The free-bearing conditions shown in Figure 4-2 represent any bearing that allows some horizontal movement (for example, roller bearings, sliding bearings, and rubber bearing pads).

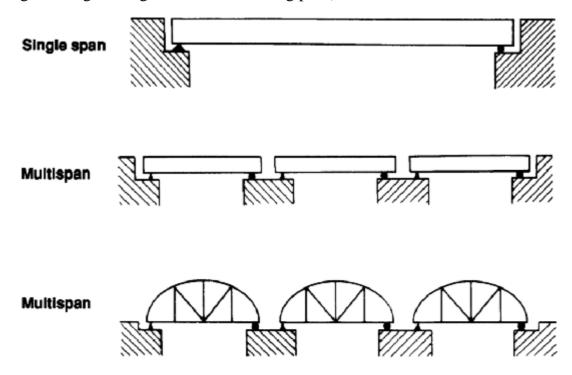


Figure 4-2. Simply supported bridges

- b. Miscellaneous Miscellaneous bridges form a small proportion of bridge structures. The theoretical principles governing these bridges determine the appropriate methods of attack. Examples of bridges in this category are suspension, lift, and cable-stayed bridges.
- c. Continuous. If a bridge does not fit the miscellaneous category and is not simply supported, categorize it as a continuous bridge. Hence, continuous has a wider meaning than multispan, continuous-beam bridges, as is normally implied.
- 4-5. Stages of Destruction. When designing a bridge demolition, the first priority is to create a gap. Accomplishing this may require one or two attacks. Further actions that improve the obstacle may follow, if the situation permits.
- a. Minimum Conditions. There are two minimum conditions for successful bridge demolition:

You must design a proper collapse mechanism.

You must ensure the attacked span will be free to move far enough, under its own weight, to create the desired obstacle.

(1) Condition 1. Under normal conditions, a bridge is a stable structure. In bridge demolitions, the goal is to destroy the appropriate parts of a bridge so that it becomes unstable and collapses under its own weight. In other words, you form a collapse mechanism. This may involve either cutting completely through all structural members or creating points of weakness in certain parts of the bridge. Figure 4-3 shows an improper collapse mechanism and the hinges that have not been formed. At times, making bridges unstable by attacking their piers rather than their superstructures is easier, but it is still possible for bridges not to collapse, even though they lost the support provided by one or more of their piers. To avoid this type of demolition failure, place the charges on the structural members of the superstructure, immediately above the piers being attacked.

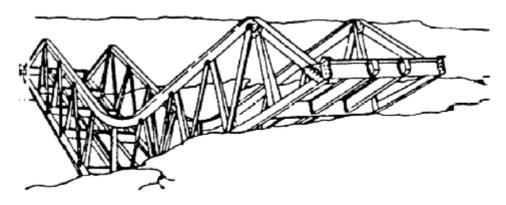


Figure 4-3. Improper collapse mechanism and hinges

(2) Condition 2. Figure 4-4 shows a bridge demolition where the collapse mechanism has formed, but where, because the bridge span has jammed before moving far enough, it has failed to form the desired obstacle. To complete the demolition in this example, you need to remove only a small portion of the abutment to allow the span to swing down freely.

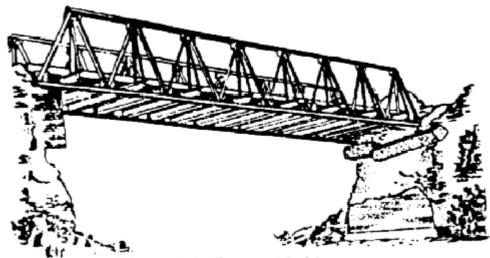


Figure 4-4. Jammed bridge span

b. Types of Collapse Mechanism. Figures 4-5 through 4-7 illustrate the three basic collapse mechanisms.

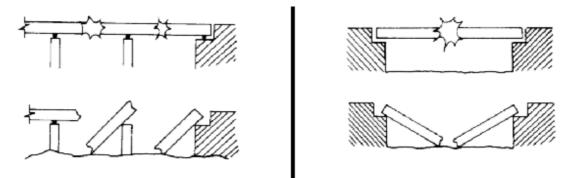


Figure 4-5. See-saw collapse mechanism Figure 4-6. Beam collapse mechanism

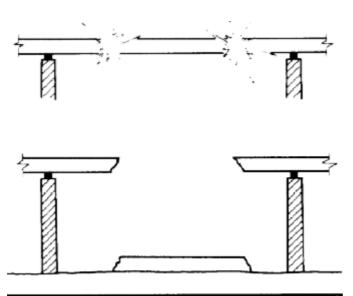


Figure 4-7. Member without support collapse mechanism

c. Unsuccessful Bridge Demolitions.

Two possible reasons for unsuccessful bridge demolitions are—

(1) No-Collapse Mechanism. The formation of cantilevers (Figure 4-8) is a typical example of a no-collapse mechanism being formed. The likelihood of this occurring is high when attacking continuous bridges.

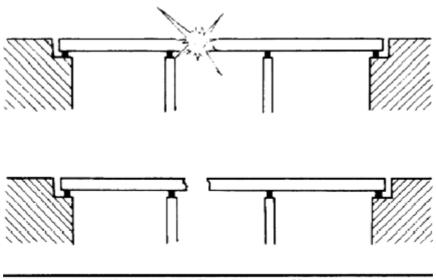


Figure 4-8. Cantilever effect

(2) Jamming. The span, once moved by the collapse mechanism, jams before moving far enough to create the desired obstacle. The most likely causes of jamming are the formation of a three-pin arch or a cranked beam (Figure 4-9). When attacking bridge spans, always consider the possibility of jamming during bottom and top attacks.

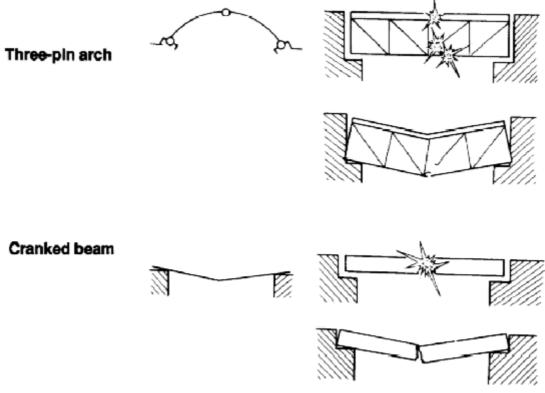


Figure 4-9. Causes of jamming

4-6. Bottom Attack. In the bottom attack, the hinge forms at the top. As the span falls, the cut ends at the bottom move outward. The span may form a three-pin arch and fail to fall completely if the distance the cut ends must move is greater than the total end clearance between the span ends and the pier or abutment faces (Figure 4-10). If a three-pin arch situation is likely, do not attempt a bottom attack.

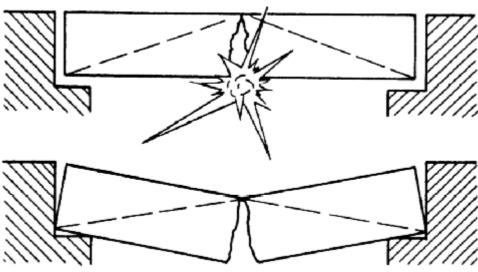


Figure 4-10. Three-pin arch effect

4-7. Top Attack. In a top attack, the hinge forms at the bottom. As the span falls, the cut ends at the top move inward. Some bridges may jam along the faces of the cut before the ends of the span have fallen off the abutments, forming a cranked beam (Figure 4-11).

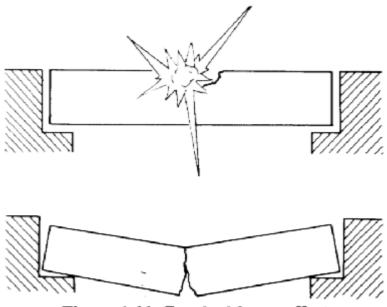


Figure 4-11. Cranked-beam effect

Ensure the length of span removed (LC) at the top is sufficient to prevent the formation of a cranked beam.

4-8. Efficient Demolition Methods.

To ensure that a demolition achieves collapse with reasonable economy, consider the factors required to achieve an efficient demolition. The best balance between these factors will depend on the particular demolition under consideration. An efficient demolition should—

- a. Achieve the desired effect.
- b. Use the minimum amount of resources (time, manpower, and explosives).

- c. Observe the proper priorities. The demolition reconnaissance report must clearly state the priorities and separately list the requirements for Priority 1 actions and Priority 2 improvements (priorities are explained below). If a sufficient gap will result by attacking bridge spans, do not perform the Priority 2 improvements unless the report specifies complete destruction or an excessively long gap. If the total gap spanned by a bridge is too small to defeat enemy assault bridging, consider the site an unsuitable obstacle unless the gap can be increased. Your engineer effort may be better applied elsewhere. Alternatively, to improve an obstacle, it may be necessary to increase the gap by demolishing the abutments and building craters on the immediate approaches. In this case, you should also attack nearby bypass sites (place mines and craters).
- (1) Priority One. Create the desired obstacle. The minimum gap required is 5 meters greater than the enemy's assault bridging capability. Ideally, accomplish the demolition with the first attempt. However, many reinforced- or prestressed-concrete bridges may require two-stage attacks. Attacking the friendly side of spans will permit economical reconstruction of the bridge at a later date, if necessary.
- (2) Priority Two. Make improvements to the gap. Perform this activity only when it is specified on the demolition reconnaissance report. When no reconnaissance report has been issued and time permits, perform improvements in the sequence specified below. Deviate from this sequence only under exceptional circumstances or when directed to do so by the responsible commander. The standard sequence of demolition is to-
 - (a) Destroy and mine the blown abutment
 - (b) Lay mines in likely bypasses.
 - (c) Blast craters and lay mines in likely approaches.
 - (d) Destroy the piers.
 - 4-9. Concrete-Stripping Charges.
- a. Description. Concrete-stripping charges are bulk, surface-placed charges designed for removing concrete from reinforced-concrete beams and slabs and exposing the steel reinforcement.

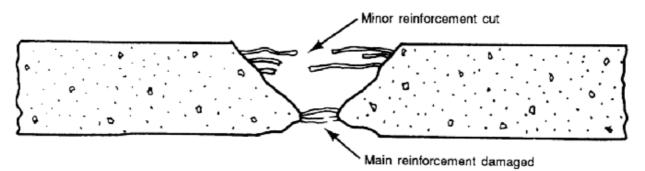


Figure 4-12. Effect of concrete charge

Although these charges cause some damage to the reinforcing steel, you will not be able to predict the extent of this damage. These charges are effective against reinforced-concrete beams and slabs up to 2 meters thick. Figure 4-12 shows the effect of the

concrete-stripping charge. Using the proper charge size for the thickness of the target will——

Remove all concrete from above the main reinforcing steel.

Remove all concrete from below the main reinforcing steel (spalling).

Damage the main reinforcing steel to some extent.

Destroy the minor reinforcing steel near the surface under the charge.

b. Charge Calculations (Simply Supported Bridges). For all simply supported concrete bridges, removing all concrete over a specified LC will cause collapse. For beam-and-slab bridge spans (T-beam and I-beam bridges), determine the charge sizes for the beams and slab separately.

Example A-12 (page A-10) shows how to calculate beam-and-slab bridge charges. Use the following procedure for determining charge sizes for simply supported spans:

(1) Calculate the mass of the charge required:

$$P = 3.3(3.3 h + 0.5)^3$$
 where—

P = required charge size, in pounds per meter of bridge width.

h = beam or slab plus roadway depth, in meters (minimum is 0.3 meters and maximum is 2 meters).

(2) Calculate the width of the required ditch. The charge will produce a ditch across the width of the bridge. To determine the width of this ditch, use the following formula:

$$Wd = 2 h + 0.3 (4-2)$$

where-Wd = ditch width, in meters.

h = overall roadway and beam or slab depth, in meters.

- (3) Compare the required Wd with the required LC, and take the appropriate action:
- If LC is equal to or less than Wd, use one row of charges as specified by P.

If LC is greater than Wd, but less than twice Wd, increase the size of charge by 10 percent.

If LC is twice Wd, double the charge and place them in two lines, side by side.

(4) Place charges in a continuous line across the full width of the bridge at the point of attack.

The shape of the end cross section of the charge should be such that the width is between one and three times the height.

(5) Tamp the charges, if required. No tamping is required for the concrete stripping charge as calculated, but if tamping with two filled sandbags per pound of explosive is used, reduce the calculated mass of charge by one third. The width of ditch formed will remain the same as for the original mass of charge.

Section III. Bridge Attacks

4-10. Guidelines (Continuous and Simply Supported Bridges). There are a number of factors that will assist you inadequately differentiating simply supported bridges from continuous bridges.

Figure 4-13 and the subparagraphs below describe these factors.

- a. Continuity. In simply supported bridges, the entire superstructure is composed of a span or multiple spans supported at each end. The main structural members (individual spans) meet end to end, and each intermediate pair of ends is supported by a pier. The single ends are supported by the abutments. In continuous bridges, the main structural members are formed into one piece and do not have breaks over the piers, if any are present.
- b. Construction Depth. In multispan, simply supported bridges, the construction depth of the span may decrease at the piers. In continuous bridges, construction depth frequently increases at the piers.
- c. Flange Thickness (Steel-Girder Bridges). In simply supported, steel-girder bridges, the thickness of the flange frequently increases at midspan. In continuous bridges, the size of the flange frequently increases over the piers.
- d. Bearing. Multispan, simply supported bridges require two lines of bearing at the piers; continuous bridges require only one.
 - e. Category Selection.

The external appearance of a bridge can sometimes be deceptive. Whenever possible, consultconstruction drawings to ascertain the correct bridge category. If drawings are not available and there is any uncertainty about the category to which the bridge belongs, assume the bridge is of continuous construction. Since more explosive is necessary to demolish a continuous bridge, assuming a continuous construction will provide more than enough explosive to demolish a bridge of unknown construction.

f. Reconnaissance Procedures. To correctly use the tables in Appendix H, decide whether the bridge is in the simply supported, continuous, or miscellaneous category, and follow the procedures outlined in the appropriate paragraph.

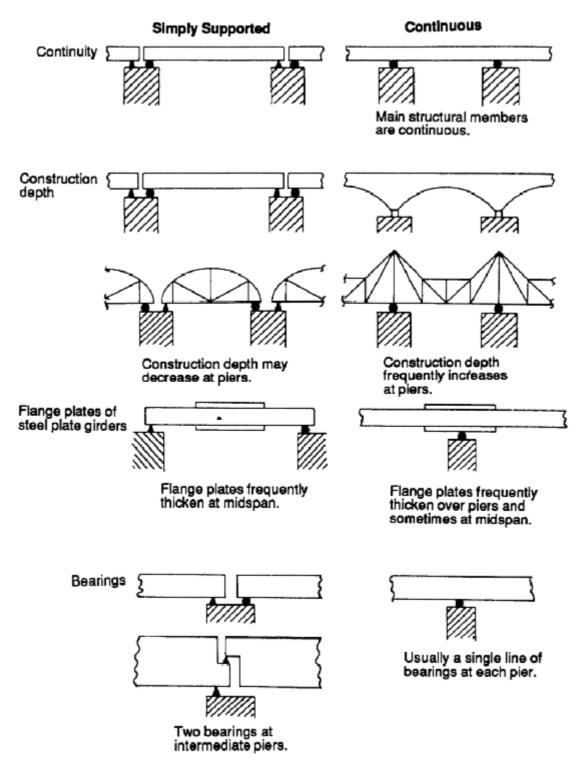


Figure 4-13. Span differences

4-11. Simply Supported Bridges.

a. Categorization. There are four main subcategories: steel beam, steel truss, concrete beam and slab, and bowstring.

The first three are further subdivided into deck bridges, which carry their loads on top of the main structural members. When dealing with deck bridges, note the locations of bearing (supporting the top or bottom chord or flange), as this will influence the possibility of jamming.

(1) Steel-Beam Bridges. Stell-beam bridges may be constructed of normal steel-beam, plate-girder, or box-girder spans. Figure 4-15 shows typical cross sections of these spans.

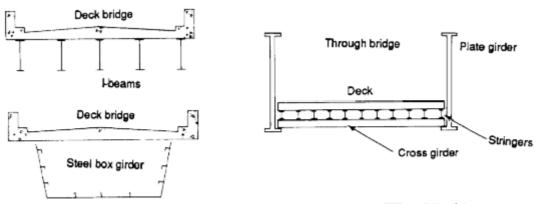
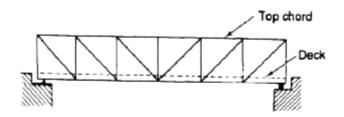


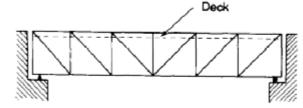
Figure 4-15. Typical cross sections of steel-beam bridges

(2) Steel-Truss Bridges. Figure 4-16 shows the side elevations for three normal steel-truss spans. Note that all truss bridges have diagonal members in the trusses.

Simply supported, steel-truss through bridge



Simply supported, steel-truss deck bridge (bottom support)



Simply supported, steel-truss deck bridge (top support)

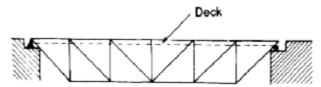


Figure 4-16. Side elevation of steel-truss bridges

(3) Concrete-Beam-and-Slab

Bridges. For categorization purposes, you will not need to distinguish between reinforced- and

prestressed-concrete bridges, as the methods of attack are the same for both. Figure 4-17 shows midspan cross-sectional views of these types of bridges. At midspan, the majority of steel reinforcing rods or tendons are located in the bottom portion of the superstructure. The attack methods detailed in Appendix H take this reinforcing condition into account.

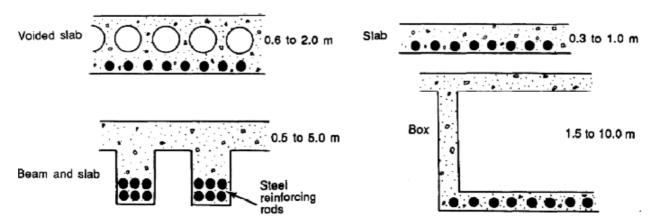


Figure 4-17. Midspan, cross-sectional views of typical concrete bridges

- (4) Bowstring Bridges. Note the following about bowstring bridges:
- (a) Features. Figure 4-18 (page 4-12) shows the features of a normal bowstring bridge. Recognize that—

The bow is in compression.

The bow may be a steel beam, box girder, concrete beam, or steel truss.

The bow's depth (thickness) is larger than or equal to the depth of the deck support members.

The deck acts as a tie and resists the outward force applied by the bow.

The deck is designed as a weak beam supported by the hangers.

There is no diagonal bracing between the hangers.

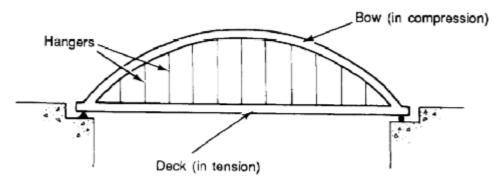


Figure 4-18. Normal bowstring bridge

(b) Uses. Occasionally the bow and hangers are used to reinforce a steel-beam or-truss bridge.

Categorize this type of bridge as a bowstring reinforced-beam or -truss bridge. In this type of bridge, the depth (thickness) of the bow will always be less than the depth of the deck support members.

- (c) Pseudo-bowstring bridges. The bridge illustrated in Figure 4-20 is not a bowstring, but an arch bridge. Categorize this type of bridge as an arch bridge because the outward forces of-the arch (pseudo bow) are restrained primarily by the abutments, not the deck.
- b. Reconnaissance. For simply supported bridges, use the following reconnaissance procedure:
 - (1) Categorize the bridge.
 - (2) Measure the bridge

(Figure 4-21):

(a) Length (L). Measure the length of the span to be attacked, in meters.

NOTE: This distance is not the clear gap, but the length of the longitudinal members that support the deck from end to end.

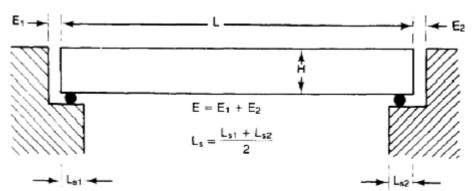


Figure 4-21. Measurements of simply supported spans

- (b) Depth (H). Measure the depth of the beam, truss, or bow, in meters (include the deck with the beam or truss measurement).
- (c) Total end clearance (E). Total the amount of end clearance at both ends of the span, in meters.
- (d) Average length of the bearing supports (LS). Measure the average length of the bearing supports from the ends of the spans to the faces of the abutments or piers, in meters.
 - (3) Determine the attack method.
 - (4) Determine the critical dimensions of the span required for charge calculations.

- c. Attack. Two considerations apply when attacking a simply supported span:
- (1) Point of Attack. Attack simply supported bridges at or near midspan, because—Bending moments are maximum at midspan.

The likelihood of jamming during collapse is reduced if the bridge is attacked at midspan.

(2) Line of Attack. Make the line of attack parallel to the lines of the abutments (Figure 4-22). Doing this reduces the risk that the two parts of the span will slew in opposite directions and jam. Do not employ any technique that induces twist in the bridge. If the line of attack involves cutting across transverse beams, reposition the line of attack to cut between the transverse beams.

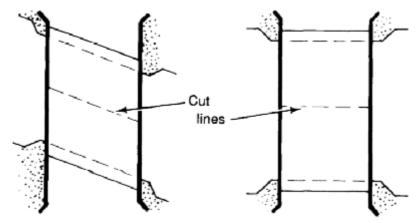


Figure 4-22. Line of attack

- d. Attack Methods. Table H-3 (page H-3) lists in recommended order, attack methods likely to produce the most economical demolition, by bridge category. Within each category are variations to accommodate differences in construction materials, span configurations, load capacities (road, rail, or both), and gap and abutment conditions. The three recommended ways of attacking simply supported spans are bottom, top, and angled attacks. In all cases, ensure jamming cannot occur during collapse.
- (1) Bottom Attack. Use the bottom attack whenever possible, as it leaves the roadway open and enables you to use the bridge, even when the demolitions are at a ready-to-fire state (State 2).

Reinforced and prestressed (tension) beams are very vulnerable to bottom attack, as the steel cables and reinforcing bars run along the bottom portion of the beam and are thus covered by less concrete.

The major disadvantages of the bottom attack are the increased amount of time and effort necessary for placing and inspecting the charges. Because it is generally impracticable to place sufficient explosive below a reinforced or prestressed slab to guarantee a cut deeper than 0.15 meters, used the top or angled attacks listed in Table H-3 (page H-3) for these types of bridges. When Table H-3 (page H-3) lists a bottom attack, determine the required end clearance (ER) from Table H-1 (page H-1) to prevent jamming. If the total end clearance (E) is greater than ER, jamming will not occur.

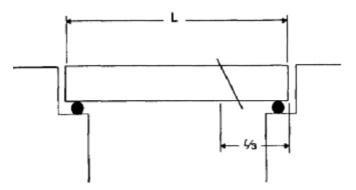
If E is less than ER, use a top or angled attack or destroy one abutment at the places where jamming would occur. Example A-13 (page A-12), explains the method for bottom attack calculations.

(2) Top Attack. When Table H-3 (page H-3) lists a top attack, LC must be removed from the top of the bridge to prevent jamming. Determine LC from Table H-2 (page H-2). Remove LC in a V-shaped section along the full depth of the target. For reinforced-concrete bridges, use a concrete-stripping charge (paragraph 4-9, page 4-7) to remove LC from the top of the bridge. This action, by itself, should cause collapse. There is no requirement to cut steel reinforcing rods.

Example A-14 (page A-13) shows the method for top attack calculations.

(3) Angled Attack. For angled attacks, cut all members (span, hand-rails, service pipes, and so forth) of the bridge. Make the angle of attack approximately 70 degrees to the horizontal to prevent jamming. The location of the charge should be between the midspan point and a point L/3 from the end (Figure 4-23).

Although an angled attack is effective on any type of bridge, it is essential when the bridge must be kept open to traffic, or when there is ample time to prepare demolitions.



Cut between 43 span and midspan

Figure 4-23. Location of angled charge

4-12. Continuous Bridges.

a. Categorization. Figure 4-24 is a categorization chart for continuous bridges. Use this chart like the chart for simply supported bridges. There are six main subcategories: cantilever, cantilever and suspended span, beam or truss, portal, arch, and masonry arch. The first five categories differentiate between steel and concrete construction, as each material has a different attack method.

If a continuous bridge is of composite construction (for example, steel beams supporting a reinforced-concrete deck), the material that comprises the main, longitudinal load-bearing members will determine the attack method.

(1) Cantilever Bridges. A cantilever bridge has a midspan shear joint.

Note that the full lengths of the anchor spans may be built into the abutments, making the cantilever difficult to identify.

(2) Cantilever and Suspended-Span Bridges. If a cantilever bridge incorporates a suspended span (Figure 4-26, page 4-16) that is at least 5 meters longer than the enemy assault bridging capability, attack this section of the bridge; attacking this section requires less preparation. Because suspended spans are simply supported, use the attack method described for simply supported bridges (Table H-3, page H-3).

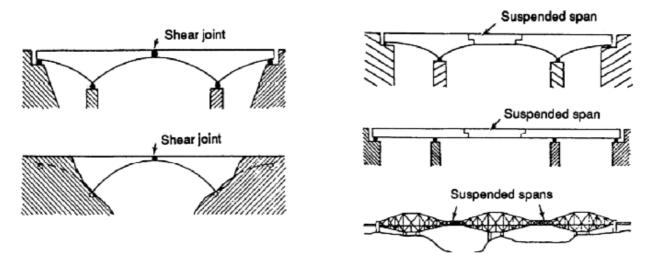
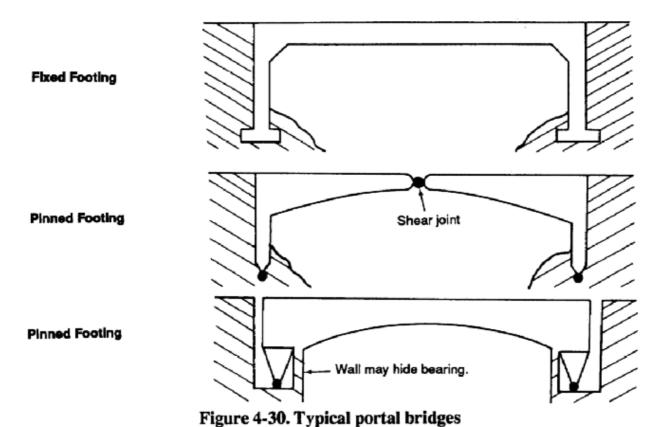


Figure 4-25. Cantilever bridges

Figure 4-26. Cantilever and suspended span bridges

- (3) Beam or Truss Bridges. For beam or truss bridges differentiate between those bridges with spans of similar lengths and those with short side spans because this affects the attack method. A short side span is one that is less than three quarters of the length of the next adjacent span.
- (4) Portal Bridges. For portal bridges (Figure 4-30), differentiate between those with fixed footings and those with pinned footings, as this affects the attack method. If you cannot determine the type of footing, assume fixed footings. Portal bridges, as opposed to arch bridges, lack a smooth curve between the bearing point of the span and the span itself.



- (5) Arch Bridges. In arch bridges determine whether the bridge has an open or solid spandrel and fixed or pinned footings. Again, when in doubt, assume fixed footings.
- (6) Masonry Arch Bridges. Identify masonry arch bridges by their segmental arch ring. However, it is easy to mistake a reinforced-concrete bridge for a masonry-arch bridge because many reinforced-concrete bridges have masonry faces. Always check the underside of the arch. The underside is rarely faced on reinforced-concrete bridges.
- b. Reconnaissance. For continuous bridges, use the following reconnaissance procedure:
 - (1) Categorize the bridge.
 - (2) Measure the bridge

(Figure 4-33):

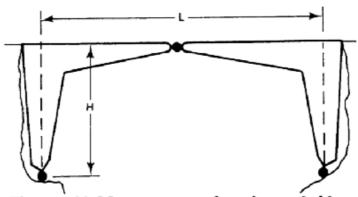


Figure 4-33. Measurements of continuous bridges

(a) Length (L).

Measure the span you plan to attack, in meters (between centerlines of the bearings).

- (b) Rise (H). For arch and portal bridges, measure the rise, in meters (from the springing or bottom of the support leg to the deck or top of the arch, whichever is greater).
 - (c) Determine the attack method from Appendix H.
 - (d) Determine the critical dimensions necessary for charge calculations.
- c. Bridge Attacks. As with simply supported spans, two considerations apply when attacking continuous spans: the point of attack and line of attack. No common point-of-attack rule exists for all categories of continuous bridges, but the line-of-attack rule applies to all continuous bridges.

That is, the line of attack must be parallel to the lines of the abutments, and twisting must not occur during the demolition. If the recommended line of attack involves cutting across transverse beams, reposition the line to cut between adjacent transverse beams. Table H-4 (page H-7) lists attack methods for continuous spans.

- (1) Steel Bridges. When attacking continuous-span steel bridges, use the see-saw or unsupported-member collapse mechanism. Both mechanisms produce complete cuts through the span. Providing you can properly place charges, you may be able to demolish these bridges with a single-stage attack. However, on particularly deep superstructures (concrete decks on steel beams), charges designed to sever the deck may not cut through all of the reinforcing steel. Therefore, during reconnaissance, always plan for the possibility of a two-stage attack on deep, composite superstructures. Make angle cuts at about 70 degrees to the horizontal to prevent jamming during collapse.
- (2) Concrete Bridges. Continuous concrete bridges are the most difficult to demolish and hence are poor choices for reserved demolitions. Even when construction drawings are available and there is ample time for preparation, single-stage attacks are rarely successful. Consider using a bottom attack for this bridge type.
- (3) Arch and Portal Bridges. For arch bridges and portal bridges with pinned footings, collapse can be guaranteed only be removing a specified minimum span length. Determine this minimum length by using Table 4-1 and the L and H values determined by reconnaissance.

H	0.040	0.060	0.080	0.100	0.120	0.140	0.160	0.180	0.200
<u>L_c</u> L	0.003	0.007	0.013	0.020	0.030	0.040	0.053	0.067	0.083
H	0.220	0.240	0.260	0.280	0.300	0.320	0.340	0.360	
<u>L</u>	0.100	0.130	0.150	0.170	0.200	0.230	0.270	0.300	

Table 4-1. Minimum L_c values for arch and pinned-footing bridge attacks

NOTES:

The values in this table are based on the following formula:

$$\frac{L_c}{L} = 1 - \left[1 - 4(\frac{H}{L})^2\right]^{\frac{1}{2}}$$

2. If the result of $\frac{H}{L}$ is not on the chart exactly as calculated, round UP to the next higher value on the chart. For example, if $\frac{H}{L} = 0.089$, use the column headed 0.10 to determine $\frac{Lc}{L}$. In this case, $\frac{Lc}{L} = 0.02$. Multiply the $\frac{Lc}{L}$ value by L to get Lc. For example, 0.02 x L = Lc.

4-13. Miscellaneous Bridges.

- a. Suspension-Span Bridges. Suspension-span bridges usually span very large gaps. These bridges have two distinguishing characteristics: roadways carried by flexible members (usually wire cable) and long spans.
- (1) Components. The components of suspended-span bridges are cables, towers, trusses or girders, and anchors. Suspension-bridge cables are usually multiwire-steel members that pass over the tower tops and terminate at anchors on each bank. The cables are the load-carrying members.

(The Golden Gate bridge has 127,000 miles of wire cable of this type.) The towers support the cables. Towers may be steel, concrete, masonry, or a combination of these materials. The trusses or girders do not support the load directly; they only provide stiffening. Anchors hold the ends of the cables in place and may be as large as 10,000 cubic feet.

(2) Demolishing Methods.

- (a) Major bridges. Anchors for major suspension bridges are usually too massive to be demolished. The cables are usually too thick to be effectively cut with explosives. The most economical demolition method is to drop the approach span or a roadway section by cutting the suspenders of the main or load-bearing cables. The enemy's repair and tactical bridging capabilities determine the length of the target section. When reinforced-concrete towers are present, it may be feasible to breach the concrete and cut the steel of the towers.
- (b) Minor bridges. The two vulnerable points on minor suspension bridges are towers and cables. Use the following methods:

Towers. Destroy towers by placing tower charges slightly above the level of the roadway. Cut a section out of each side of each tower. Place the charges so that they force the ends of the cut sections to move in opposite directions, twisting the tower. Doing this will prevent the end of a single cut from remaining intact. Demolition chambers, provided in some of the newer bridges, make blasting easier, quicker, and more effective.

Cables. Destroy the cables by placing charges as close as possible to anchor points, such as the top of towers. Cables are difficult to cut because of the air space between the individual wires in the cable. Ensure the charge extends no more than one half the cable's circumference. These charges are usually bulky, exposed, and difficult to place. Shaped charges are very effective for cable cutting.

b. Movable Bridges. These bridges have one or more spans that open to provide increased clearance for waterway traffic. The three basic types of movable bridges are swing-span, bascule, and vertical-lift. The characteristics of these bridges are described in the next paragraphs.

(1) Swing-Span Bridges.

(a) Characteristics. A swing span is a continuous span capable of rotating on a central pier. The arms of a swing-span bridge may not be of equal length. If the arms are not of equal length, weights are added to balance them. Rollers that run on a circular track on top of the central pier carry the span's weight. The swing span is independent from any other span in the bridge. Identify a swing-span bridge by its wide, central pier. This central pier is much wider than the one under a continuous-span bridge that accommodates the rollers and turning mechanism (Figure 4-35).

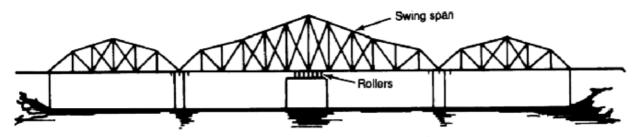


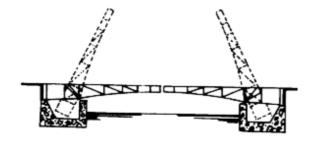
Figure 4-35. Swing-span truss bridge

(b) Demolition methods. Because swing-span bridges are continuous bridges, use an attack method from the continuous bridge section in Appendix H. For partial demolition, open the swing span and damage the turning mechanism.

(2) Bascule Bridges.

(a) Characteristics. Bascule bridges are more commonly known as drawbridges. These bridges usually have two leaves that fold upward (Figure 4-36), but some bascule bridges may have only one leaf (Figure 4-37). The movable leaves in bascule bridges appear in three general forms: counterweights below the road level (most modem), counterweights

above the road level (older type), and no counterweights (lifted by cable or rope; oldest type; usually timber).



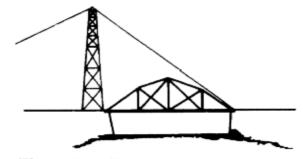


Figure 4-36. Double-leaf bascule bridge

Figure 4-37. Single-leaf bascule bridge

- (b) Demolition methods. Demolish the cantilever arms with an attack method appropriate for simply supported bridges. For partial demolition, open the bridge and jam or destroy the lifting mechanism.
 - (3) Vertical-Lift Bridges.
- (a) Characteristics. These bridges have simply supported, movable spans that can be raised vertically in a horizontal position. The span is supported on cables that pass over rollers and connect to large, movable counterweights.
- (b) Demolition methods. Demolish the movable span with an attack method appropriate for simply supported bridges. Another method is to raise the bridge and cut the lift cables on one end of the movable span. The movable span will either wedge between the supporting towers or fall free and severely damage the other tower.
- (4) Floating Bridges. Floating bridges consist of a continuous metal or wood roadway supported by floats or pontoons
- (a) Pneumatic floats. Pneumatic floats are airtight compartments of rubberized fabric inflated with air. For hasty attack of these bridges, cut the anchor cables and bridle lines with axes and the steel cables with explosives. Also, puncture the floats with small-arms or machine-gun fire. Using weapons to destroy the floats requires a considerable volume of fire because each float has a large number of watertight compartments. Another method is to make a clean cut through the float, using detonating cord stretched snugly across the surface of the pontoon compartments.

One strand of cord is enough to cut most fabrics, but two strands may be necessary for heavier materials. Also, place one turn of a branch-line cord around each inflation valve. This will prevent the raft from being reinflated if it is repaired. Do not use main-line cords to cut valves because the blast wave may fail to continue past any sharp turn in the cord.

b) Rigid pontoons. Rigid pontoons are made of various materials: wood, plastic, or metal. To destroy these bridges, place a ½-pound charge on the upstream end of each pontoon at water level.

Detonate all charges simultaneously. If the current is rapid, cut the anchor cables so that the bridge will be carried downstream. Another method is to cut the bridge into rafts.

Place ½-pound charges at each end of each pontoon and detonate them simultaneously. To destroy metal treadways on floating bridges, use the steel-cutting formula (paragraph 3-6, page 3-8). The placement and size of the charges depend on bridge type. Typically, placing cutting charges at every other joint in the treadway will damage the bridge beyond use.

(5) Bailey Bridges. To destroy these bridges, place 1-pound charges between the channels of the upper and lower chords. Use ½-pound charges for cutting diagonals and 1-pound charges for cutting sway bracing (Figure 4-40).

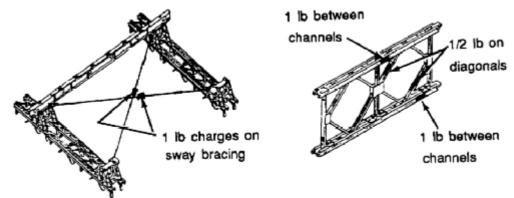


Figure 4-40. Bailey bridge demolition

- (a) In-place demolitions. Cut the bridge in several sections by attacking the panels on each side, including the sway bracing. The angle of attack should be 10 degrees to the horizontal to prevent jamming. In double-story or triple-story bridges, increase the charges on the chords at the story-junction line. For further destruction, place charges on the transoms and stringers.
- (b) In-storage or-stockpile demolition. When abandoning bridges in storage, do not leave any component the enemy can use as a unit or for improvised construction. Do this by destroying the essential components that the enemy cannot easily replace or manufacture. Panel sections fulfill the role of essential components. To render the panel useless, remove or distort the female lug in the lower tension chord. Destroy all panels before destroying other components.

Section III. Abutments and Intermediate Supports

- 4-14. Abutments. To demolish abutments, place charges in the fill behind the abutment. This method uses less explosive than external breaching charges and also conceals the charges from the enemy. The disadvantage is the difficulty in placing the charges. When speed is required, do not place charges behind abutments if you know the fill contains large rocks.
- a. Abutments (5 Feet Thick or Less). Demolish these abutments by placing a line of 40-pound cratering charges, on 5-foot centers, in boreholes 5 feet deep, located 5 feet behind the face of the abutment (triple-nickel-forty method). Place the first hole 5 feet from either end of the abutment and continue this spacing until a distance of 5 feet or less remains between the last borehole and the other end of the abutment (Figure 4-41). If the bridge approach is steep, place the breaching charges against the rear of the abutment. Determine the number of 40-pound cratering charges as follows:

$$N = \frac{W}{5} - 1$$
 where—

N = number of charges; round UP to next higher whole number.

W = abutment width, in feet.

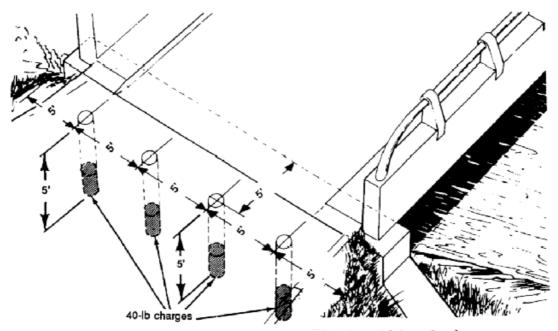


Figure 4-41. Abutment destruction (5 feet thick or less)

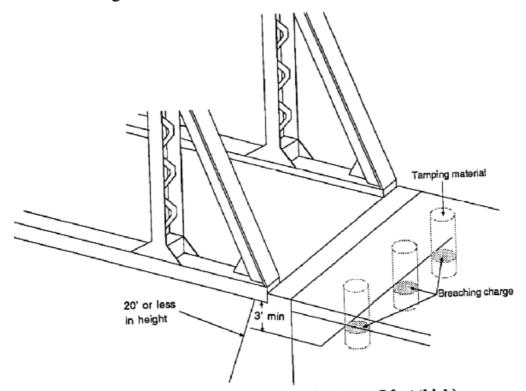


Figure 4-42. Abutment destruction (over 5 feet thick)

b. Abutments (0ver 5 Feet Thick). Destroy these abutments with breaching charges in contact with the back of the abutment. Calculate the amount of each charge using the

breaching formula in equation 3-6 (page 3-16). Use the abutment thickness as the breaching radius. Determine the number of charges and their spacing using equation 3-7 (page 3-19). Place charges at least three feet below the bridge seat (where the bridge superstructure sits on the abutment) (Figure 4-42).

- c. Abutments (Over 20 Feet High). Demolish these abutments by placing a row of breaching charges at the base of the abutment on the gap side, in addition to the charges specified in paragraphs 4-14a or 4-14b above. Fire all charges simultaneously. This method tends to overturn and completely destroy the abutment.
- d. Wing Walls. If the wing walls can support a rebuilt or temporary bridge, destroy the wing walls by placing charges behind them in the same manner as for abutments (Figures 4-41 and 4-42).
- 4-15. Intermediate Supports. Demolish concrete and masonry piers with internal or external charges (Figure 4-43).

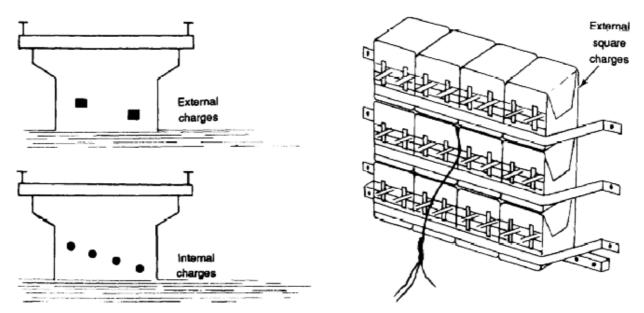


Figure 4-43. Placing charges on intermediate supports

- a. Internal Charges. These charges require less explosive than do external charges. However, unless the support has built-in demolition chambers, this method requires an excessive amount of equipment and preparation time. Use equation 3-6 (page 3-16) to determine the amount of each charge. Ml12 (C4) is ideal for internal charges. Thoroughly tamp all charges of this type with nonsparking tools (blunt, wooden tamping sticks or similar tools). If the support has demolition chambers, place the charges in boreholes created with shaped charges or drilled with pneumatic or hand tools. A 2-inch-diameter borehole holds approximately 2 pounds of explosive per foot of depth. The steel reinforcing bars, however, make drilling in heavily reinforced concrete impractical.
- b. External Charges. Place these charges at the base of the pier or higher, and do not space the charges by more than twice the breaching radius. Stagger the charges to leave a jagged surface to hinder future use. Thoroughly tamp all external charges with earth and sandbags, if time, size, shape, and location of the target permit.

Chapter 6

Demolition Safety

Section I. General Safety

6-1. Considerations.

Do not attempt to conduct a demolitions mission if you are unsure of demolition procedures; review references or obtain assistance.

Prevent inexperienced personnel from handling explosives.

Avoid dividing responsibility for demolition operations.

Use the minimum number of personnel necessary to accomplish the demolitions mission.

Take your time when working with explosives; make your actions deliberate.

Always post guards to prevent access inside the danger radius.

Always maintain control of the blasting machine or initiation source.

Use the minimum amount of explosives necessary to accomplish the mission while keeping sufficient explosives in reserve to handle any possible misfires.

Maintain accurate accountability of all explosives and accessories. Always store blasting caps separately and at a safe distance from other explosives.

Ensure all personnel and equipment are accounted for prior to detonating a charge.

Ensure you give warnings before initiating demolitions; give the warning "Free in the hole!" three times.

Always guard firing points.

Assign a competent safety officer for every demolition mission.

Dual initiate all demolitions, regardless of whether they are single-or dual-primed.

Avoid using deteriorated or damaged explosives.

Do not dismantle or alter the contents of any explosive material.

Avoid mixing live and inert (dummy) explosives.

WARNING

Do not use blasting caps underground.

Use detonating cord to prime underground charges.

6-2. Explosive Materials.

a. Blasting Caps. Both military and commercial blasting caps are extremely sensitive and can explode unless handled carefully. Blasting caps can detonate if exposed to extreme heat (cook off).

Military blasting caps are more powerful and often more sensitive than their commercial counterparts. When using commercial blasting caps to detonate military explosives, ensure they are powerful enough to detonate the explosives, thus, avoiding misfires. Because power requirements for caps from different manufacturers vary, never mix caps from different manufacturers; mixing caps could result in rnisfires. When installing caps in explosives, never force them into an explosive or a cap well; use an appropriate tool for making or enlarging the cap well.

Ensure 1/8 to 1/4 inch of the cap is clearly visible at both ends when taping onto detonation cord. Do not connect blasting-cap initiation sets to ring or line mains or charges when nonessential personnel are on site. Never leave blasting caps unattended before or after attaching them to the charges or firing system.

(1) Nonelectric.

Use only authorized equipment and procedures when crimping nonelectric blasting caps to time fuse or detonating cord.

Maintain blasting caps in the appropriate cap box until needed. Never store blasting caps with explosives.

Never carry loose blasting caps in your pocket or place loose blasting caps in a container; secure them.

Do not blow into a nonelectric cap or attempt to remove any obstructions from the blasting cap well. Remove obstructions that will dislodge by using the wrist-to-wrist tap method.

Never insert anything but time fuse or detonation cord into a nonelectric blasting cap.

Do not twist time fuse or detonating cord while attempting to insert into a blasting cap.

Never attempt to crimp a blasting cap installed in an explosive. If the blasting cap has come loose from the time fuse or detonating cord, remove the blasting cap from the charge, recrimp the cap, and then reinstall the cap in the charge.

Avoid striking, pinching, and mashing nonelectric caps during crimping activities. Use only the M2 crimpers for all crimping operations.

When using nonelectric caps to dual prime demolitions, cut the fuse to allow an interval of not less than 10 seconds between firings.

(2) Electric.

Do not remove the short-circuiting shunt unless testing or connecting the cap. The shunt prevents accidental initiation by static electricity. If the blasting cap has no shunt,

twist the bare ends of the lead wires together at least three times (180-degree turns) to provide a proper shunt.

Use proper grounding procedures when static electricity is present, see paragraph 6-5b (page 6-4).

When transporting electric blasting caps near vehicles (including aircraft) equipped with a transmitter, protect the blasting caps by placing them in a metal can with a snugfitting cover (½ inch or more of cover overlap). Do not remove blasting caps from their containers near an operating transmitter unless the hazard has been judged acceptable.

Keep electric blasting caps at least 155 meters from energized power lines. If using electric blasting caps near power lines, temporarily cut the power to the lines during blasting operations.

Always use at least the minimum current required to fire electric blasting caps.

Always check circuit continuity of electric blasting caps before use.

Cover connections between blasting cap leads and firing wires with insulating tape, not the cardboard spool.

Remove firing wire loops and, if practical, bury blasting wires.

- b. Time Fuse and Detonating Cord.
- (1) Time Fuse.

Always conduct a test burn of at least three feet for each roll of time fuse. If you do not use the fuse within 24 hours of the test burn, perform another test burn before using the fuse.

Use M2 crimpers to cut time fuse. If serviceable M2 crimpers are not available, use a sharp knife to cut fuse. Be sure to cut the fuse end squarely. Make the cut on a nonsparking surface, such as wood. A rough or jagged-cut fuse can cause a misfire.

Avoid cutting the fuse until you are ready to insert it into the igniter and blasting cap.

To avoid problems from moisture infiltration, never use the first or last 6 inches of time fuse from a new or partial roll.

Avoid sharp bends, loops, and kinks in time fuse. Avoid stepping on the fuse. Any of these conditions or actions can break the powder train and result in a misfire.

(2) Detonating Cord.

Do not carry or hold detonating cord by placing it around your neck.

To avoid problems from moisture infiltration, never use the first or last 6 inches of detonating cord from a new or partial roll.

Avoid sharp bends, loops, and kinks in detonating cord. Avoid stepping on the cord.

Any of these conditions or actions can change the path of detonation or cause the cord to cut itself.

c. Plastic and Sheet Explosives.

Always cut plastic and sheet explosives with a sharp knife on a nonsparking surface.

Never use shears.

Avoid handling explosives with your bare skin as much as possible.

d. Picric Acid. Picric acid degrades with time. Do not use picric acid if its container is rusted or corroded. A rusty or corroded container indicates the explosive is unstable.

WARNING

Do not handle picric acid. Notify EOD for disposition.

- e. Commercial Explosives. Commercial dynamite is sensitive to shock and friction and is not recommended for use in combat areas. Do not use old, commercial dynamite because it is extremely sensitive and very unstable. Follow the procedures in TM 9-1300-206 or the manufacturer's recommendations to destroy aged commercial dynamite. When commercial dynamite freezes, it becomes covered with crystals and is very unstable. Do not use frozen dynamite. Commercial dynamite containing nitroglycerin requires special handling and storage. Rotate commercial dynamite in storage to prevent the nitroglycerin from settling to the bottom of the explosive.
- 6-3. Boreholes. Do not leave any void spaces in boreholes, especially in quarrying operations. A secondary explosion can result from a borehole with voids between loaded explosives. After the first blast, it may take up to 15 minutes for such an explosion to occur. Tamp all voids with appropriate material. When using springing charges to dig boreholes, allow at least 2 hours for boreholes to cool between placing and firing successive springing charges, or cool the boreholes with water or compressed air to save time.
- 6-4. Toxicity. Most military explosives are poisonous if ingested and will produce lethal gases if detonated in confined areas such as tunnels, caves, bunkers, and buildings. Allow sufficient time for blast fumes, dust, and mists to clear before inspecting or occupying a blasting area. TNT is extremely poisonous; avoid using TNT to blast in enclosed areas. Avoid touching sensitive areas of your body, such as around the face and groin, when working with explosives. Wash your hands after working with explosives, especially before consuming food.
 - 6-5. Natural and Physical Properties.
- a. Lightning is a hazard to both electric and nonelectric blasting charges. A lightning strike or nearby miss is almost certain to initiate either type of system. If lightning strikes occur, even far away from the blasting site, electrical firing circuits could be initiated by high, local earth currents and shock waves resulting from the strikes. These effects are increased when lightning strikes occur near conducting elements, such as fences, railroads, bridges, streams, underground cables or conduits, and in or near

buildings. The only safe procedure is to suspend all blasting activities during electrical storms or when an electrical storm is imminent.

- b. Static Electricity. Though rare, electric blasting caps can possibly be initiated by static electricity. If possible, avoid using electric blasting caps if static electricity is a problem. Exercise extreme caution when working with explosives in cold, dry climates or when wearing clothing and equipment that produce static electricity, such as clothing made of nylon or wool. Before handling an electric blasting cap, always remove the static electricity from your body by touching the earth or a grounded object. It may be necessary to perform this grounding procedure often in an area where static electricity is a constant problem.
- c. Induced Currents. Radio signals can induce a current in electric blasting caps and prematurely detonate them. Table 6-1 lists the minimum safe distances from transmitters for safe electrical blasting. This table applies to operating radio, radar, microwave, and television transmitting equipment. Keep mobile transmitters and portable transmitters at least 50 meters from any electric blasting cap or electrical firing system. Do not use electric blasting caps within 155 meters of energized power transmission lines.
- d. Blast Effects. Personnel in close proximity to explosions may experience permanent hearing loss or other injury from the pressure wave caused by an explosion. Hearing protection should be worn during all blasting operations. Personnel observing minimum safe distances for bare charges (see Table 6-1 and Army Regulation (AR) 385-63) generally will not be affected by blast effects. Refer to AR 385-63, Chapter 18, for additional information on blast effect.

Table 6-1. Safe distances for blasting near radio frequency energy

Average or Peak Transmitter Power (Watts*)	Minimum Safe Distance (Meters)		
0 to 29	30		
30 to 49	50		
50 to 99	110		
100 to 249	160		
250 to 499	230		
500 to 999	305		
1,000 to 2,999	480		
3,000 to 4,999	610		
5,000 to 19,999	915		
20,000 to 49,999	1,530		
50,000 to 100,000	3,050		

*When the transmission is a pulsed- or pulsed, continuous-wave type and its pulse width are less than 10 microseconds, the left-hand column indicates average power. For all other transmitters, including those with pulse widths greater than 10 microseconds, the left-hand column indicates peak power.

e. Missile Hazards. Explosives can propel lethal missiles great distances. The distances these missiles will travel in air depend primarily on the relationship between the missiles' weight, shape, density, initial angle of projection, and initial speed. Under normal conditions, the missile-hazard area of steel-cutting charges is greater than that of cratering, quarrying, and surface charges.

6-6. Underwater Operations.

- a. Explosives. Explosives are subject to erosion by water. Unprotected explosives will deteriorate rapidly, reducing their effectiveness. Ensure all exposed explosives are adequately protected when used in water, especially running water.
- b. Nonelectric Caps. Nonelectric caps depend on combustion to work properly. Any moisture inside a nonelectric cap may cause a misfire. Because nonelectric blasting caps are difficult to waterproof, aviod using them to prime underwater charges or charges placed in wet boreholes.
- c. Time Fuse. Time fuse depends on combustion to burn properly. Time fuse burns significantly faster underwater due to water pressure. Waterproof sealing compounds will not make

a permanent waterproof seal between the fuse and a nonelectric blasting cap. Place the fuse underwater at the last possible moment before firing.

NOTE: If the mission requires using time fuse underwater, then do the test burn underwater.

- d. Detonating Cord. Seal the ends of detonating cord with a waterproof sealing compound when using detonating cord for initiating underwater charges or charges that will remain in place several hours before firing. Leaving a 6-inch overhang in detonating cord normally will protect the remaining line from moisture for 24 hours.
- e. M60 Fuze Igniter. The M60 depends on combustion to work properly. Water can penetrate the fuze igniter through the vent hole located in the pull rod. Therefore, if the igniter fails to fire on the initial attempt, it probably will fail on any subsequent attempt after reset. Always use a backup initiation set for underwater demolitions.
- 6-7. Safe Distances. The following criteria give distances at which personnel in the open are relatively safe from missiles created by bare charges placed on the ground, regardless of the type or condition of the soil (AR 385-63). Table 6-2 lists safe distances for selected charge weights. The following general rules apply:

Charges of Less than 27 Pounds. The minimum missile hazard distance is 300 meters.

Charges of More than 27 Pounds But Less Than 500 Pounds. Use the distances in Table 6-2.

Charges More than 500 Pounds. Use the following formulas:

Safe Distance (meters) =
$$100 \sqrt[3]{Pounds of Explosive}$$

Safe Distance (feet) = $300 \sqrt[3]{Pounds of Explosive}$

Missile-Proof Shelters. A missile-proof shelter can be as close as 100 meters from the detonation site provided it is strong enough to withstand the heaviest possible missile resulting from the demolition.

Charges Fixed to Targets. When charges are fixed to targets and not simply placed on the ground, use the safe distances specified in Tables 6-2 or 6-3, whichever is farthest.

Table 6-2. Safe distances for personnel (near bare charges)

Explosive Weight	Safe D	Istance	Explosive Weight	Safe Distance		
(Pounds)	Feet	Meters	(Pounds)	Feet	Meters	
27 or less	985	300	175	1,838	560	
30	1,021	311	200	1,920	585	
35	1,073	327	225	1,999	609	
40	1,123	342	250	2.067	630	
45	1,168	356	275	2,136	651	
50	1,211	369	300	2,199	670	
60	1,287	392	325	2,258	688	
70	1,355	413	350	2,313	705	
80	1,415	431	375	2,369	722	
90	1,474	449	400	2,418	737	
100	1,526	465	425	2,461	750	
125	1,641	500	500	2,625	800	
150	1,752	534				

Table 6-3. Safe distances for personnel (charges on target)

Serial	Charge Type	Target	Charge Size	Radius of Danger Area (m)	Remarks	
а	ь	С	d	е	t	
1	Blasting caps Primers Detonating cord (in the open)	_	-	20	For service personnel under supervision. Applicable to all serials.	
2	Cutting	a. Trees	Any	300		
		b. Concrete columns and beams	Any	500	man 1/2	
		c. Metal girders and plates, guns, and so forth	Any	1,000	Fragments may fly up to 1,000 meters in all directions.	
3	Concussion	Buildings and AFV	Any	1.000	If personnel are wearing helmets, you may reduce the safe distance to 500 meters. Consider the strong blast effect when considering buildings as potential blast shelters.	
4	Cratering	Roads and airfields	a Up to 2 kg	100		
			b. Up to 30 kg	300		
			c. Over 30 kg	500		
5	Mines	Piers Abutments Retaining walls	Any	500		
6	Borehole	Rock Masonry Concrete Brick	Any	300		
7	Breaching	Reinforced-concrete beams and slabs Mass-concrete walls and obstacles	Any	1,000	If personnel are wearing helmets, you may reduce the safe distance to 500 meters. Consider the strong blast effect when considering buildings as potential blast shelters.	
8	Shaped	Concrete Steel	Any	1,000	When these charges are fired into the ground vertically, you may reduce the safe distance to 300 meters.	
				a. All right angles to axis, 1,000 meters		
9	Bangalore Torpedo	Wire obstacles	-	In the line of the axis, 200 meters for standing personnel and 100 meters for prone personnel		
10	M180	Roads and airfields	1-15 kits	1,200	Fragments may fly up to 1,000 meters in all directions.	

NOTES:

Note that these distances depend on the target configuration, not quantity of explosive.

Section II. Misfire Procedures

6-8. Nonelectric Misfires.

a. Causes.

Moisture in the time fuse, detonating cord, or explosives.

Time fuse not seated completely in blasting cap or in fuse igniter.

Breaks in time fuse or detonating cord.

Jagged or uneven ends on time fuse.

The air clearance required is the ground safety distance plus 500 meters above the explosive area

The ship clearance required is the same distance as for the ground safety distance.

Blasting caps not seated securely in cap well or explosive.

Loose or improper detonating-cord installation.

Debris in the blasting cap.

Commercial blasting caps were not strong enough to detonate military explosives.

b. Prevention. You can minimize nonelectric misfires by taking the following precautions:

Prepare and place all primers properly.

Load all charges carefully.

Detonate charges with the proper techniques.

Use dual-initiation systems and, if possible, dual firing systems.

Use detonating cord for underground demolitions. Do not bury caps!

Perform tamping operations with care to avoid damaging prepared charges.

Avoid crimping blasting caps onto time fuse in the rain; seek a covered area out of the rain.

Ensure you completely seat time fuse when installing it into a blasting cap or fuse igniter.

c. Clearing Procedure.

The soldier who placed the charges should investigate and correct any problems with the demolition.

After attempting to fire the demolition, delay investigating any detonation problem for at least 30 minutes plus the time remaining on the secondary. Tactical conditions may require investigation prior to the 30-minute limit.

For above-ground misfires of charges primed with blasting caps, place a primed, l-pound charge next to the misfired charge and detonate the new charge. Each misfired charge or charge separated from the firing circuit that contains a blasting cap requires a 1-pound charge for detonation. Do not touch scattered charges that contain blasting caps; destroy there in place. For charges primed with detonating cord, use the procedures in paragraph 6-10 (page 6-10).

For a nonelectric cap that has detonated but failed to initiate a detonating-cord branch line, line main, or ring main, attach a new cap to the detonating cord, and then move to a safe place.

For buried charges, remove the tamping to within one foot of the misfired charge.

Constantly check depth while digging to avoid striking the charge. When within 1 foot of the misfired charge, place a primed, 2-pound charge on top of the original charge and detonate the new charge. If digging over the original charge is impractical, dig a new

borehole of the same depth beside the original hole, l-foot away. Place a primed, 2-pound charge in the new hole and detonate the new charge.

- 6-9. Electric Misfires.
- a. Causes.

Inoperable or weak blasting machine or power source.

Improper operation of blasting machine or power source.

Defective or damaged connections. (Short circuits, breaks in the circuit, or too much resistance in the electrical wiring are common conditions resulting in misfires.)

Faulty blasting caps.

Blasting caps made by different manufacturers in the same circuit.

Power source inadequate for the number of blasting caps in the circuit (too many caps, too small a blasting machine).

b. Prevention. Assign one individual the responsibility for all the electrical wiring in a demolition circuit. This individual should do the following:

Perform all splicing.

Install all blasting caps in the firing circuit. Do not bury caps!

Make all of the connections between blasting cap wires, connecting wires, and firing wires.

Inspect system for short circuits.

Avoid grounding out the system.

Ensure the number of blasting caps in any circuit does not exceed the rated capacity of the power source.

c. Clearing Procedure. Use the following procedures to clear electric misfires:

Make another attempt to fire.

Use the secondary firing system, when present.

Check the wire connections, blasting machine, or power-source terminals.

Disconnect the blasting machine or power source and test the blasting circuit. Check the continuity of the firing wire with a circuit tester.

Use another blasting machine or power source and attempt to fire the demolition again, or change operators.

When employing only one electrical initiation system, disconnect the blasting machine, shunt the wires, and investigate immediately. When employing more than one electrical

initiation system, wait 30 minutes before inspecting. Tactical conditions may require investigation prior to the 30-minute limit.

Inspect the entire circuit for wire breaks or short circuits.

If you suspect an electric blasting cap is the problem, do not attempt to remove or handle it. Place a primed, 1-pound charge next to the misfired charge and detonate the new charge.

- 6-10. Detonating-Cord Misfires.
- a. Detonating Cord. If detonating cord fails to function properly, take the following action:

Attach a new blasting cap to the remaining detonating cord, taking care to fasten it properly, and detonate the new blasting cap.

Treat branch lines in the same manner as noted above.

b. Detonating-Cord Priming. If the detonating cord leading to the charge detonates but fails to explode the charge, take the following action:

Do not investigate until the charges have stopped burning. Wait 30 minutes if the charge is underground.

Reprime and attempt to detonate the charge.

Scattered charges that do not contain blasting caps may be collected and detonated together.

For underground charges, dig to within one foot of the charge; place a primed, 2-pound charge on top or to the side of the charge; and detonate the new charge.

Section III. Transportation and Storage Safety

- 6-11. Transportation.
- a. Regulations. Both military and commercial carriers are subject to regulations when transporting military explosives and other dangerous military materials within the United States.
- AR 55-355 covers the transportation of explosives. When transporting explosives outside the United States, follow the regulations from the host countries as well. TM 9-1300-206 contains minimum safety requirements for handling and transporting military explosives and ammunition.

All explosives transport personnel must learn the local procedures and safety requirements.

b. Safety Procedures. The commander should assign a primary and assistant operator to each vehicle transporting explosives on public highways, roads, or streets. Whenever transporting explosives locally, operators must observe the following safety rules:

(1) Vehicles.

Ensure vehicles are in good condition. Inspect all vehicles intended for hauling explosives before loading any explosives. Pay particular attention to protecting against any short circuits in the electrical system.

When using vehicles with steel or partial-steel bodies, install fire-resistant and nonsparking cushioning to separate the explosives from the metal truck components.

Do not load vehicles beyond their rated capacities when transporting explosives.

Cover open-body vehicles hauling explosives with a fire-resistant tarpaulin.

Mark all vehicles transporting explosives with reflective placards indicating the type of explosives carried (TM 9-1300-206, Chapter 6).

Use demolition transports for explosives only. Do not carry metal tools, carbides, oils, matches, firearms, electric storage batteries, flammable substances, acids, or oxidizing or corrosive compounds in the bed or body of any vehicle transporting explosives.

Equip vehicles transporting explosives with not less than two Class 1-BC fire extinguishers for on-post shipments. Place the extinguishers at strategic points, ready for immediate use.

Keep vehicles away from congested areas. Consider congestion when parking.

Operate vehicles transporting explosives with extreme cam. Do not drive at a speed greater than 35 miles per hour. Make full stops at approaches to all railroad crossings and main highways. This does not apply to convoys or crossings protected by guards or highway workers (flaggers).

Keep flames at least 50 feet from vehicles or storage points containing explosives.

(2) Cargo (Explosives).

Never leave explosives unattended.

Never mix live and inert (dummy) explosives.

Secure the load of explosives in the transport to prevent shifting during transport.

Transport blasting caps separately from other explosives. Do not transport blasting caps or other initiators in the same vehicles carrying explosives. If both blasting caps and explosives must be carried in the same vehicle, separate blasting caps from the other explosives by carrying the caps in a closed metal container in the cab of the transport.

No persons other than the primary and the assistant operators will ride on or in a truck transporting explosives. Do not refuel a vehicle while carrying explosives except in an emergency.

(3) Fire. If fire breaks out in a vehicle transporting explosives, take the following actions:

Try to stop the vehicle away from any populated areas.

Stop traffic from both directions. Warn vehicle drivers and passengers and occupants of nearby buildings to keep at least 2,000 feet away from the fire. Inform police, fire fighters, and other emergency-response personnel that the cargo is explosives.

If the fire involves only the engine, cab, chassis, or tires, make an effort to extinguish the fire with fire extinguishers, sand, dirt, or water. If the fire spreads to the body of the transport or the cargo, stop fighting the fire and evacuate to a distance of at least 2,000 feet.

Do not attempt to extinguish burning explosives without expert advice and assistance.

6-12. Storage Safety.

a. Magazines. There are two types of magazines: permanent and temporary. Although permanent magazines are preferred, temporary or emergency magazines are frequently required when permanent construction is not possible. Field Manual (FM) 9-6 and TM 9-1300-206 give details on magazine storage of explosives. Consider the following when constructing magazines:

(1) Permanent.

- (a) Placement. Consider acceptability of magazine locations based on safety requirements, accessibility, dryness, and drainage. Safety and accessibility are the most important. An ideal location is a hilly area where the height of the ground above the magazine provides a natural wall or barrier to buildings, centers of communication, and other magazines in the area. Hillside bunkers are not desirable because adequate ventilation and drainage are often difficult to achieve. Clear brush and tall grass from the site to lessen the danger of fire.
- (b) Lightning protection. All magazines must have a grounded, overhead lightning-rod system.

Connect all metal parts (doors, ventilator, window sashes, reinforcing steel, and so forth) to buried conduits of copperplate or graphite rods in several places.

(c) Barricades. Install barricades around magazines; that is, there must be a substantial obstacle between magazines and inhabited buildings. For certain explosives, effective natural or artificial barricades reduce the required safe distance between magazines and railways and highways by one half. The use of barricades permits the storage of larger quantities of explosives in any given area.

Although barricades help protect magazines against explosives and bomb or shell fragments, they do not safeguard against pressure damage. TM 9-1300-206 gives more specific guidance on barricades.

- (d) Security. Place guards at all magazines to prevent unauthorized personnel from gaining access to magazine facilities.
 - (2) Temporary.

- (a) Placement. When permanent magazine construction is not possible, create temporary magazines by placing explosives on pallets to accommodate ventilation. Store the pallets in a well-drained bunker. Excavate the bunker in a dry area and revet the bunker with timber to prevent collapse. Alternatives are an isolated building or a light, wooden-frame house with a wedge-type roof covered with corrugated iron or tent canvas.
- (b) Identification. Mark field-expedient storage facilities on all four sides with signs (TM 9-1300-206).
- b. Temporary Storage. When necessary, store limited supplies of explosives in covered ammunition shelters. Ensure the temporary facilities are separated adequately to prevent fire or explosion from being transmitted between shelters. Piles of temporarily stored explosives should contain no more than 500 pounds each and be spaced no closer than 140 feet. Pile explosive components separately. Keep explosives, caps, and other demolition materials stored in training areas in covered ammunition shelters and under guard at all times. Local safety standing operating procedures (SOPS) and TM 9-1300-206, Chapter 4, are guides for temporary storage operations.