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Bomb Data Center
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Improvised Explosive Devices Used in Suicide Bombing Incidents

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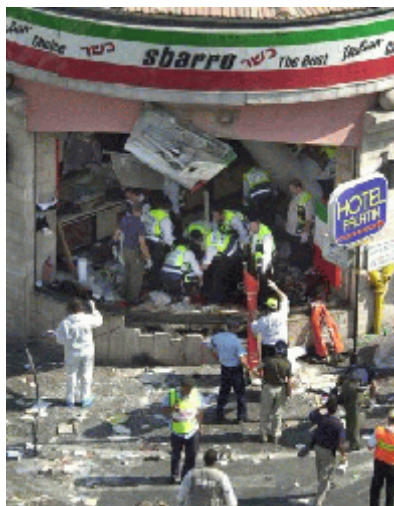
Reference: For a detailed discussion of suicide bombing tactics used by various terrorist organizations, please consult BDC Intelligence Summary 2002-1, titled "Suicide Bombings."

Details: This publication is intended to provide a more detailed description of improvised explosive devices utilized by terrorist organizations in suicide bombing incidents than has been previously provided.

Device Types:

Internationally, suicide bombings can be grouped into three basic categories of devices:

- Type I - Bomber Actuated IEDs Carried in Bag, Box or Other Object
- Type II - Bomber Actuated IED Worn Under or as Part of Clothing of Bomber
- Type III - Bomber Actuated IED Concealed in Vehicle



In incidents involving Type I devices, the bomb is typically concealed in an object with cursory camouflage to hide the device from casual observation. Typical device sizes may range from 5-15 kilograms (kg), including the explosives and any additional fragmentation. Devices may be concealed in ordinary items intended to blend into the target environment. In the bombing pictured at left, a suicide bomber carrying an IED concealed in a guitar within a guitar case walked into a Jerusalem fast-food restaurant on August 9, 2001 and detonated the device. The incident took place in an area adjacent to a music academy and on a street with several music shops, thus making the guitar case look innocent upon initial inspection. Other incidents have involved suicide bombers carrying consumer electronic boxes such as a television box, in areas with numerous electronics

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stores. One of the more common tactics is to use a backpack or small duffel bag to carry the device into the target area. In general, the bombers will usually try to match the external package with the target environment and select items which will not attract attention. Typically, a push-button switch is attached to a wire extending out of the object and into the hand carrying the device.

Type II devices involve the use of "body bombs," which are useful for the infiltration of the target area by terrorist operatives. This choice of methodology remains the most popular for suicide bombers and is one of the most effective means of infiltrating a suicide device to the chosen target. Body bombs typically run in size from 1/2 to 10 kg, with the limiting factor generally being the ability to conceal the device under clothing. Explosives may range from cast military grade explosives such as TNT to improvised high explosives such as TATP. The devices may be worn under the clothing as a belt by the suicide bomber or built into an outer garment. In some cases, the explosives are contained in metal or plastic pipes, typically when powders or crystalline explosives are used or when the bomber is seeking an enhanced fragmentation effect. The figures below represent a typical suicide IED concealed within a vest. From the front, little of the device is visible, however, the rear view shows the



Typical Vest Type Suicide Device Using PVC Pipes



Vest shown from rear.

outline of the PVC pipes that have been sewn into the inside of the vest clearly. In this type of device, the explosives are contained in multiple small diameter (1 1/2" or less) plastic pipes. The explosives in this particular vest are generally highly sensitive improvised explosives, which can be initiated with a 1.5 volt lamp. In many cases, an improvised initiator is not required in every pipe as the explosion of one pipe can sympathetically detonate other pipes. Power is supplied by a 9-volt or larger battery and initiation is controlled through a simple switch, usually concealed in a pocket of the vest, the bombers pants or run through a sleeve to the bombers hand.

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Typical Initiation Switch,
Concealed in Pocket of Vest

In the photograph below, the vest is shown pulled back from the bombers body and the



Vest drawn back, showing concealed pipes and wires



Vest, showing 14 pipes containing
explosives

number of pipes and method of securing them into the clothing is visible. In some cases, the inner liner of the item of clothing is removed, the pipes or explosives are inserted and the liner replaced, making identification based upon a casual visual inspection difficult.

A more overt style of Type II bomb utilizes an apron with pouches in front. This type of device can typically carry more explosives concentrated in one portion of the body, however, it requires additional clothing to conceal the presence of the device. The explosives may be loaded into the pouches in pipes or plastic bags. As with vest-type bombs, pipes may be used, however, these tend to add to the bulk of the device. Fragmentation can also be included, typically in the form of nails, bolts, or nuts between layers of sheet metal and bonded with glue. In some cases, there have been open-source reports indicating the use of a pesticide, Lindane, in suicide bombings in Israel. No ill effects

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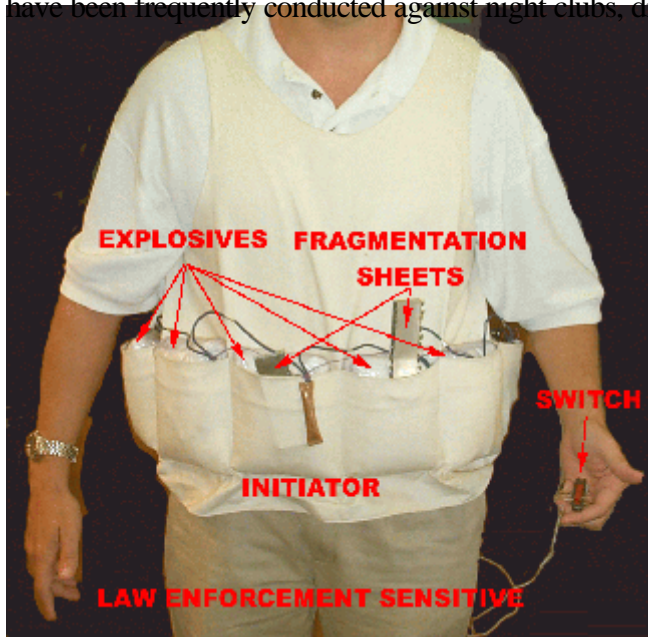
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have been reported that are attributed to the Lindane.

In the photographs below, note the relatively low profile of the vest when viewed from the front or side. This type of vest can carry 5 kg of explosives with relative ease and has been used on several occasions in Israel to devastating effect.

Typically, a bomber deploying this type of device would wear a loose-fitting shirt or coat over the explosives in order to facilitate his approach to the target area. Attacks using these types of devices have been frequently conducted against night clubs, discos,



restaurants, and other locations where large crowds gather.

Type III Devices

Suicide bombers in vehicles may utilize a variety of explosives. The selection of a specific explosive is generally based on the characteristics of the selected target, the materials available in the area where the bomb is prepared, and the technical knowledge of the bomb maker. Generally, these devices are simply initiated explosive charges, often with an electrical switch mounted near the driver who would operate it when the vehicle is in place.

Tactics which might be used in these cases include the use of additional personnel riding with the driver to attack or distract security officials. The use of this tactic has been seen in attacks by the Egyptian Islamic Jihad during the attack on the Egyptian Embassy in Islamabad, Pakistan in 1995 and

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by Al-Qaeda in the attack on the US Embassy in Nairobi, Kenya in 1998. In the Egyptian Embassy attack, a passenger detonated a charge against the gate of the embassy, described as a body bomb, to allow the vehicle containing the bomb to enter the embassy grounds. In the Nairobi embassy bombing, a passenger was equipped with a pistol and grenades and instructed to attack the guards at a vehicle gate at the rear of the embassy compound to allow the bomb vehicle to get closer. As a secondary note, the passenger was instructed to throw a grenade into the back of the cargo area if the primary initiation system (electrical) failed to function.

Render Safe Procedures

To date, suicide bombs have utilized fairly crude initiation systems, generally consisting of a simple electric switch with initiators connected in series and a power source. Terrorists have been observed using a wide variety of explosive materials, including a large number of materials based on Triacetone Triperoxide (TATP) mixed with other components. ***These mixtures may have a different appearance than standard TATP (colorless crystals), however, any unknown chemical in a bombing situation should be assumed to have the highest possible sensitivity to heat, shock, and friction.***

In general, bomb squad involvement in suicide bombing situations generally comes in one of two scenarios - post blast evidence collection or render safe of a device which failed to function.

Tactics which have been used by suicide bombers in the past include: the use of multiple simultaneous suicide bombers in a public area; the use of multiple, staggered suicide bombs in a public area; the use of a suicide bomber and a time delay vehicle bomb in a public area; the use of multiple suicide bombers in conjunction with a time delay vehicle bomb.

Standard procedures when arriving at the scene of a suspected or confirmed suicide bombing should be to:

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1. Secure a perimeter around the incident for police, forensic and emergency workers.
2. Conduct a search for secondary devices (including suicide bombers, placed devices and vehicle bombs).
3. Deploy officers (uniform and plainclothes) outside the perimeter to look for suspicious individuals.
4. In the event of a suspected premature explosion of a suicide bomber, carefully check the body of the bomber for secondary devices or unexploded components..
5. Injured suspected suicide bombers should be required to strip prior to bomb squad personnel approaching to conduct a physical search.
6. Inspection of wounded suicide bombers should be conducted with remote means whenever possible.



Israeli bomb technicians search a suspect using a robot following the premature explosion of his suicide bomb on May 8, 2002 near Megiddo, Israel.

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