HUMAN RIGHTS WATCH ARMS PROJECT

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U.S. CLUSTER BOMBS FOR TURKEY?

CONTENTS

Human Rights Watch
485 Fifth Avenue
New York, NY 10017
Tel: (212) 972-8400
Fax: (212) 972-0905

Human Rights Watch
1522 K Street, NW, Suite 910
Washington, DC 20005
Tel: (202) 371-6592
Fax: (202) 371-0124

I. INTRODUCTION

The Human Rights Watch Arms Project has learned of a tense debate within the State Department and Defense Department over whether or not to allow the export to Turkey of the most advanced and deadly cluster bomb in the U.S. arsenal, the CBU-87.

On June 21, 1994 the U.S. company Alliant Techsystems signed a contract to provide 493 CBU-87 Combined Effects Munition (CEM) units to the Turkish Ministry of Defense. Few outside of those who read the small-type "contract awards" sections in the military trade press were aware of this.[1] However, to the surprise and consternation of Alliant and the Turkish government, the U.S. State Department has yet to issue the necessary export license to permit deliveries to go forward. Those who oppose the sale based on Turkey's appalling human rights record are squared off against those who fear damage to the "strategic relationship" if the sale is denied.

The CBU-87s "combined effect" is its ability to be used both as an antitank and antipersonnel weapon. The CBU-87 could be used in Turkey's counterinsurgency war with Kurdish rebels, with dire consequences for the civilian population. Turkey's war with the Kurdistan Worker's Party (PKK) has been characterized by pervasive human rights abuses and violations of the laws of war by both sides. The Turkish government has a well-documented record of contempt for civilian life during military operations. In fact, civilians have been a chief target of Turkish armed forces. The military has used terror and torture in an effort to displace the civilian population and deprive the PKK of a base of support. The Turkish Air Force has carried out numerous air strikes in PKK areas in southeastern Turkey and northern Iraq, including cluster bomb attacks, according to the Turkish media. The government has many combat aircraft at its disposal that are designed and certified to deliver the CBU-87 cluster bomb. The acquisition of the more advanced, more flexible CBU-87 could increase the regularity with which Turkish forces use cluster bombs.

The CBU-87 was used extensively by U.S. air forces in the Gulf war, and caused a great deal of civilian suffering. Regardless of the intended target, the weapon's high "dud" rate (failure to explode immediately upon impact) and inaccuracy when delivered from high altitudes pose grave dangers to civilian populations.

The Human Rights Watch Arms Project calls on the U.S. State Department to deny an export license to Alliant Techsystems for the sale of CBU-87 cluster bombs to Turkey. The U.S. should reject the sale of this weapon, which has such a high potential for misuse and for causing civilian suffering, to a government which has such a poor human rights record and which is not known for its willingness to discriminate between civilian and military targets.

II. TURKEY'S WAR WITH THE PKK

[1] The deal was reported in *Jane's Defense Contracts*, July 1994, p. 8; *Defense and Foreign Affairs Strategic Policy*, July 1994, p. 10; *Armed Forces Journal International*, September 1994, p. 90.

In 1984, the PKK began a violent campaign for an independent state in Turkey's largely Kurdish southeast. The conflict has progressed from isolated PKK attacks in rural southeastern Turkey into a war that has claimed an estimated 13,000 lives, with over half of the deaths coming in the past year or so as the conflict has reached new levels of violence. In 1993, the Turkish government spent an estimated $7 billion in its fight against the PKK; a Turkish official has estimated the 1994 cost of the war at $8.2 billion, or roughly 20 percent of Turkey's national budget.[2]

The government's military campaign has been aimed largely at the civilian population. The Turkish military has engaged in a massive effort of forced relocation and village destruction in an attempt to deprive the PKK of its logistic base of support. Estimates of displaced people run as high as two million during the past decade, and hundreds of thousands in the past two years. Turkish forces have attempted to create a buffer zone separating PKK bases in Turkey from those in Iraq. Several regions in Turkey, especially those on Tendurek and Agri mountains, have been declared "restricted military areas," which in essence are free-fire zones.[3] Those who lived on the mountains were removed, and those returning were fired upon.

Human Rights Watch has extensively documented a pattern of abuses by both Turkish security forces and PKK guerrillas. Most recently, in October 1994, Human Rights Watch/Helsinki reported that Turkish security forces have depopulated up to 1,400 villages and hamlets. Security forces forcibly evict villagers from their villages and destroy their homes and fields. Torture and arbitrary detention often accompany such evictions. Displacement reached a high point in a three-week operation in Tunceli province that began in late September 1994. As 40,000 Turkish troops combed the province in pursuit of the PKK, these forces reportedly burned thirty villages and hamlets.[4] Turkish forces in Tunceli province are now engaged in the first winter offensive of the conflict.

Air Attacks

Air attacks are a common feature of the war, as Turkish combat aircraft conduct raids against PKK camps in both Turkey and Northern Iraq.[5] Some attacks appear to have been indiscriminate in nature, and to have deliberately targeted civilian areas. Such practices are in violation of international humanitarian law. In placing restrictions on U.S. military aid to Turkey for fiscal year 1995 (see below), the House Appropriations Committee expressed concern about reports of bombings of villages in the southeast.[6]

U.S.-supplied aircraft have been used in many air attacks, particularly F-16 fighters, as well as F-104, F-4 and F-5 fighter aircraft, and AH-1 Cobra attack helicopters. It is not known if U.S. aircraft have

[2] Reuters, January 19, 1994, citing State Minister Ali Sevki Erek. According to an April 1994 report, Prime Minister Çiller said that $27 billion has been spent "in the past few years." *Jane's Intelligence Review POINTER*, April 1994, p. 2.

[3] Evren Deger and Hakki Erkem, "Agri and Tendurek Mountains will be declared Restricted Areas," *Cumhuriyet* (Istanbul), June 3, 1994, in FBIS-WEU-94-113, June 13, 1994, p. 55.

[4] Human Rights Watch/Helsinki, *Forced Displacement of Ethnic Kurds from Southeastern Turkey* (New York: Human Rights Watch, 1994), Vol. 6, No. 12. The report also criticizes the PKK for a pattern of serious abuses.

[5] Air strikes have reached deep into Iraqi territory, hitting PKK camps near Badawan, 230 kilometers from the border.

[6] House Report 103-524, to accompany H.R. 4426, Foreign Operations, Export Financing, and Related Programs Appropriations Bill, 1995, May 23, 1994, p. 29.

been used in indiscriminate attacks or direct attacks on civilians, but sufficient concern has been raised that the Senate Appropriations Committee has asked the Administration to report on this matter.[7]

[7] Senate Report 103-287, to accompany H.R. 4426, Foreign Operations, Export Financing, and Related Programs Appropriation Bill, 1995, June 16, 1994, p. 88. According to villagers from Ciftlibahce, Turkish forces that burned about one-fourth of the village's houses in November 1993 were travelling in U.S. M-113 armored personnel carriers and Soviet-model BTR-80 and BTR-60 APCs. They also said security forces often came to the village by helicopter.

In April 1994, Amnesty International sent a letter to the State Department citing three cases in which aircraft were used in southeastern Turkey to kill civilians.[8] In November 1993 in Eralan, four men were abducted by helicopter and their bodies were later found showing signs of torture, each with a single gunshot wound in the head. In September 1993 in the Ovacik area, helicopters dropped explosives on tents in a pasture, killing two unarmed civilians and wounding seven others. In March 1994, Turkish aircraft bombed Kumcati village, killing eight civilians, including three children. Amnesty requested verification that U.S.-made aircraft were not used in these incidents. The State Department did not reply.

Turkish use of U.S. aircraft in operations against the PKK has been widely noted. It was reported in Turkey on January 8, 1994 that two squadrons of F-16 aircraft were soon to be newly based in Diyarbakir because "officials are convinced that the F-16s...will be effective against the PKK."[9] Within a week, Turkish television reported that "war planes" were bombing in the northern section of Agri Mountain, and that U.S.-supplied "Sikorsky and Cobra helicopters [were] participating in the operations."[10]

At the end of January 1994, the Turkish air force carried out an attack on the Zaleh (also spelled Zhalah and Zalakh) camp of the PKK in northern Iraq near the Iranian border. Prime Minister Tansu Çiller called it "the biggest and most comprehensive operation of the past 10 years."[11] Turkish television reported that U.S. cluster bombs and U.S.-supplied aircraft were used:

> Fifty F-16 and F-4 warplanes, one reconnaissance plane, and five helicopters took part in the operation. The warplanes made 52 sorties during close to 30 minutes. They dropped a total of 132 bombs, including cluster bombs and 500- and 2000-pound bombs.[12]

A Turkish Embassy official in Washington confirmed in an interview with the *Arms Trade News* that F-16s had been used in the attack.[13]

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[8] Letter from William F. Schulz, Executive Director, Amnesty International USA to Stephen A. Oxman, Assistant Secretary of State for European and Canadian Affairs, dated April 22, 1994.

[9] FBIS-WEU-94-006, January 10, 1994, p. 38, from Istanbul Milliyet in Turkish, January 8, 1994 p 19.

[10] FBIS-WEU-94-011, January 18, 1994, p. 54, from Ankara TRT Television Network in Turkish 1700 GMT, January 14, 1994 and 1800 GMT January 16, 1994.

[11] FBIS-WEU-94-020, January 31, 1994, p. 51, from Ankara TRT Television Network in Turkish 1100 GMT January 29, 1994.

[12] FBIS-WEU-94-0919, January 28, 1994, p. 26, from Ankara TRT Television Network in Turkish 1100 GMT January 18, 1994. The U.S.-manufactured Mk20 Rockeye is the only cluster bomb currently believed to be in the Turkish air force inventory.

[13] Council for a Livable World Education Fund, *Arms Trade News*, June 1994, pp. 1, 3.

At a news conference, Prime Minister Çiller said that "terrorists were being trained and sheltered in this camp, and they were providing logistics support to the PKK organization in Turkey. Approximately 1,600 terrorists were nestled there. We also received intelligence information to the effect that the leaders of the PKK were among these terrorists. We also know that of the 1,600 persons, approximately 300 were armed, female militants."[14]

Iran claimed that nine civilians were killed and nineteen wounded in the air attack. The Turkish Foreign Ministry said it would investigate the claims, but also noted that Iranian authorities had sufficient advance information about the intentions, reasons and targets of the operation, and that "every measure was taken...to ensure that no civilians were hurt. The technical capability of our planes and the training level of our pilots are very well known."[15] However, the ability of any air force to deliver cluster bombs accurately under certain conditions is questionable (see below).

The Turkish air force attacked the Zaleh camp again in May 1994, reportedly using nineteen aircraft, including F-4 and F-104 aircraft from bases in Malatya and Diyarbakir. The PKK claimed there were no casualties, while the anti-PKK Democratic Party of Kurdistan's *Birayati* reported nine PKK guerrillas were killed and 1,000 injured.[16]

Other air strikes reported by the Turkish armed forces include:

- July 26, 1994 on Mezi district, killing seventy-nine.
- July 31, 1994 on Sinat Haftahnin region, killing thirty.
- August 2, 1994 on the Hakurk region, killing 145.
- August 5, 1994 on Sinat region, killing twenty-six.
- August 8, 1994 on Sinat region, killing 115.
- August 23, 1994 on Khidran region by thirty-two planes.[17]

The Arms Project does not have sufficient evidence to judge whether the above attacks were indiscriminate or legitimate under international humanitarian law. In making a decision on the CBU-87 cluster bomb sale, however, policymakers should recognize that Turkey has regularly violated international law in its ground campaign, that Turkey carries out air attacks on a regular basis, usually using U.S.-supplied aircraft, sometimes using cluster bombs, and that some of the air attacks appear to have been indiscriminate.

[14] FBIS-WEU-94-0919, January 28, 1994, p. 26, from Ankara TRT Television Network in Turkish 1100 GMT January 28, 1994.

[15] FBIS-WEU-94-020, January 31, 1994, p. 52, from Ankara TRT Television Network in Turkish 1800 GMT January 29, 1994.

[16] FBIS-WEU-94-096, May 18, 1994, p. 37, from Ankara TRT Television Network in Turkish 1000 GMT May 18, 1994; FBIS-WEU-94-099, May 23, 1994, p. 38, from Istanbul Hurriyet in Turkish May 20, 1994 p 14.

[17] FBIS-WEU-94-149, August 3, 1994, p. 41, from Ankara TRT Television Network in Turkish 1000 GMT August 3, 1994; FBIS-WEU-94-153, August 9, 1994, from Ankara Anatolia in English 1603 GMT August 8, 1994; FBIS-WEU-94-155, August 11, 1994, p. 41, from Ankara TRT Television Network in Turkish 1700 GMT August 10, 1994, and Paris AFP in English 1029 GMT August 11, 1994; FBIS-WEU-94-164, August 24, 1994, p. 55, from Ankara TRT Television Network in Turkish 1000 GMT August 23, 1994.

III. THE CBU-87 SALE

Alliant Techsystems, headquartered in Hopkins, Minnesota, signed a contract on June 21, 1994 with the Turkish Ministry of Defense, Foreign Procurement Department, to supply 493 CBU-87 Combined Effects Munitions (CEMs).[18] The value of the contract has not been made public, but is roughly $7-8 million, based upon unit costs from U.S. procurement. According to Alliant, the deal culminated four years of negotiations, and was the first international direct commercial sale of the CBU-87. The purchase is to be made with the use of "special Turkish national funds."[19]

Alliant had been granted a marketing license to pursue the sale of CBU-87s to Turkey, and apparently both Alliant and the government of Turkey believed that the granting of an export license would be automatic and non-controversial after the signing of the contract. The CBU-87 has been approved for export to all NATO nations, a fact which has contributed greatly to Turkey's displeasure with the delay in granting an export license.

The Review Process

All commercial military sales require approval and a license from the Department of State's Office of Defense Trade Controls. Basic U.S. human rights law (section 502B of the Foreign Assistance Act) applies to commercial sales, as well as sales under the government-to-government Foreign Military Sales (FMS) program and U.S. military assistance appropriated by Congress. Section 502B prohibits military sales or assistance "to any country the government of which engages in a consistent pattern of gross violations of internationally recognized human rights."

Commercial sales often receive less scrutiny than sales under the FMS program, where Pentagon involvement is required. The State Department receives tens of thousands of license applications each year and most cases are considered routine and are approved or denied within a matter of weeks. However, potentially sensitive or controversial cases are coordinated with other offices in the State Department, Defense Department, Arms Control and Disarmament Agency, and elsewhere.

The CBU-87 has been treated as a highly sensitive case within the Administration, although it has received no public attention whatsoever. Apparently, a large number of Executive Branch offices have been engaged in the debate over the CBU-87 sale, including the State Department's offices of Politico-Military Affairs, European and Canadian Affairs, Human Rights and Humanitarian Affairs, Intelligence and Research, and the Legal Adviser, the Arms Control and Disarmament Agency, and the Defense Department's International Security Affairs, Office of the Joint Chiefs of Staff, and Defense Security Assistance Agency.

Administration sources have told the Arms Project that the Defense Department originally opposed the sale, but now supports it, that the Arms Control and Disarmament Agency approved the sale with the caveat that the cluster bombs not be resold, and that opinion is divided in various offices in the State Department.

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[18] See, Alliant Techsystems News Release, "Alliant Techsystems Announces Sale of CBU-87 Combined Effects Munition to Republic of Turkey," June 21, 1994.

[19] It was not, however, the first sale of the CBU-87 to a foreign government. Several other nations, including Saudi Arabia and Egypt, have received the cluster bomb through the U.S. Foreign Military Sales (FMS) program, under which the Pentagon purchases the weapon from the U.S. company and then resells it to the foreign government.

According to these sources, opposition has centered on Turkey's abysmal human rights record, its documented record of attacks on Kurdish civilians, and the extreme lethality of the CBU-87. Those in favor of the sale appear to be primarily concerned about insulting Turkey by denial. All NATO members are eligible for CBU-87 exports and the weapon has already been provided to non-NATO allies (Saudi Arabia and Egypt). Supporters of the sale ask why Turkey should be treated differently; opponents reply that only Turkey is attacking civilians.

The Defense Department is advancing the argument that Turkey is unlikely to use the CBU-87 against the PKK because of the cost and nature of the weapon. The CBU-87 is very expensive – about $15,000 per bomb – and designed primarily for use against tanks, military vehicles, and other heavy formations. Proponents of the sale argue that Turkey has other munitions to use against "soft" targets that are much cheaper. However, the only known cluster bomb currently in Turkey's arsenal, the U.S.-made Vietnam-era Rockeye, is solely an anti-tank weapon. No one doubts that the CBU-87 could be used with devastating effectiveness against the PKK, and as one opponent noted drily, "I don't think the guys who drop them know what they cost."[20]

The government of Turkey apparently has attached considerable importance to this sale. One U.S. official went so far as to say that the sale was necessary "to preserve the strategic relationship," and that it would be a "serious blow" to relations if denied.[21] Surely, however, the U.S. does not want to put itself in a position where Turkey can dictate the terms of relations by making any individual arms sale a test of commitment.

It is notable that the Administration has not brought this sale to the attention of Congress. Congressional staff members who are typically notified or consulted on arms sales have told the Arms Project that there has been no communication from the Administration on the CBU-87 sale. While the sale apparently falls below the $14 million threshold for which notification to Congress is required by law, it is surprising that the Administration has not informally consulted with the appropriate committees about the sale. In light of the controversy the sale has aroused within the Administration and the great concern expressed by Congress regarding military assistance to Turkey this year, this failure to consult is striking.

Some believe that the Administration's decision on the sale will be made within a matter of weeks; others think it may be months. Apparently, the final decision will be made by Secretary of State Warren Christopher, and not at a lower point in the bureaucracy.

While the decision-making process continues on the sale to Turkey, other sales of the CBU-87 continue. In October, it was announced that Alliant Techsystems had won a $71.3 million contract to supply 5,796 CBU-87B/B CEMs to the U.S. Air Force. It was also announced that Olin Ordnance has won a $94.4 million contract to deliver 7,682 CBU-87B/Bs, 300 CBU-87C/Bs and 284 CBU-

[20] Telephone interview with Administration official, Washington, D.C., November 1994.

[21] Telephone interview with Administration official, Washington, D.C., November 1994.

87(T-1)/Bs as a second supplier. Most are for the Air Force, but several hundred are for foreign sales.[22]

Olin acquired CEM manufacturing when it purchased Aerojet Ordnance seven months ago. Alliant and Aerojet were penalized by the government earlier this year in an anti-trust suit for "dramatically" increasing the price of CEMs in a 1992 contract. Their joint offer was $133.6 million for 10,000 CEMs. The government required the companies to pay a $4 million fine and to accept an $8 million reduction in the 1992 contract.[23]

IV. U.S. ARMS AND AID TO TURKEY

Since it joined NATO, Turkey has been a close military partner of the United States. The United States has been Turkey's number one arms supplier,[24] and Turkey has been one of the largest recipients of U.S. military aid (grants and loans appropriated by Congress) and one of the largest purchasers of U.S. arms. In addition, in recent years, Turkey has been a major recipient of weapons provided at no cost under the so-called "cascading" program (surplus weapons as a result of the Conventional Forces in Europe treaty), and weapons provided at no cost or very low cost through the Excess Defense Articles program.

The U.S. has a Defense and Economic Cooperation Agreement (DECA) with Turkey that provides the U.S. access to airfields and intelligence and communications facilities. In return the U.S. has pledged "to exert a major and determined effort to obtain defense support for Turkey."[25] The U.S. also pledged significant grant aid for the Turkish Defense Fund at the time of the Gulf War.

Military Aid

Over the past decade (FY 1986-1995), Congress has appropriated $5.1 billion in military aid for Turkey. Only Israel and Egypt have received more aid. The Clinton Administration proposed $450 million in military aid to Turkey in both FY 1994 and FY 1995. Congress reduced that amount to $405 million last year and $364.5 million this year, largely due to budget constraints.

In addition, Congress this year took the most significant step with regard to military aid to Turkey since the arms embargo following Turkey's invasion of Cyprus in 1974. Congress is withholding a portion of the aid, primarily because of concerns about Turkey's commission of human rights abuses and violations of the laws of war in its conflict with the PKK. The final version of the Fiscal Year 1995 foreign aid appropriations bill, which was signed into law by President Clinton on August 23, 1994 (P.L. 103-306), withholds 10 percent of military aid to Turkey, pending an Administration report on abuses against civilians by the Turkish armed forces and the situation in

[22] See *Jane's Defence Contracts*, October 1994, pp. 8, 16; *Jane's Defence Weekly*, October 22, 1994, p. 14; *Defense News*, October 24-30, 1994, p. 27.

[23] *Jane's Defence Weekly*, October 22, 1994, p. 14.

[24] The U.S. Arms Control and Disarmament Agency reports that from 1987-1991, the U.S. accounted for 77% of arms deliveries to Turkey. Germany was second with 17%. ACDA, *World Military Expenditures and Arms Transfers 1991-1992* (Washington: US Government Printing Office, 1994), p. 132.

[25] U.S. Department of State and Department of Defense, *Congressional Presentation for Promoting Peace, Fiscal*

Cyprus. The report is expected to be delivered to Congress in March 1995. If the Administration then decides to release the funds, Congress has required the Administration to provide notification at least fifteen days prior to the obligation of any of the withheld funds. Traditionally, under the notification system, the Administration will not go forward with aid if the Appropriations, Foreign Relations or Foreign Affairs Committee objects.

It is ironic that the cluster bomb deal was signed at the same time that the U.S. Congress was placing restrictions on aid to Turkey. The House of Representatives voted on May 25, 1994, to withhold 25 percent of Turkey's military aid for fiscal year 1995, pending an Administration report on allegations of abuses against citizens by the Turkish armed forces and the situation in Cyprus. In deciding to withhold the aid, the House Appropriations Committee stated:

> The escalation of the armed conflict between the PKK and the Turkish security forces has had a direct impact in the deterioration of the human rights situation in southeastern Turkey. There are reports of a systematic evacuation and destruction of hundreds of villages accompanied by threats, abductions, "disappearances," torture and killings of civilians, who have been victims of the armed conflict. The Committee is concerned that the Turkish government has failed to investigate and bring to justice members of the gendarmerie, security forces and village guards involved in these grave and systematic abuses of human rights. The Committee is further concerned about reports of bombings of villages in the southeast.[26]

The Senate passed its version of the foreign aid bill on July 15, 1994. While it did not withhold aid, it included a requirement that any agreement for the provision of U.S. military equipment to Turkey must expressly state that it will not be used for internal security purposes. In its report accompanying the bill, the Senate Appropriations Committee expressed its "concerns about persistent reports of serious human rights problems in Turkey, particularly torture by Turkish security forces and attacks against Kurdish civilians." The Committee also noted that it has "received reports that United States military equipment, including helicopters, has been used in attacks against civilians in southeastern Turkey." The Committee requested an Administration report "on allegations that American-supplied equipment and material to Turkey, either grant, sale, or defense drawdown, has been used in counterinsurgency operations against civilians."[27]

As noted above, the final, compromise version of the foreign aid bill withholds 10 percent of the $364.5 million in military aid earmarked for Turkey, pending an Administration report.

"Cascading" and Excess Arms

In addition to the congressionally-appropriated military aid that Turkey uses to buy U.S. arms, Turkey has been one of the main beneficiaries of free-of-charge weapons provided under the

[26] House Report 103-524, to accompany H.R. 4426, Foreign Operations, Export Financing, and Related Programs Appropriations Bill, 1995, May 23, 1994, p. 29.

[27] Senate Report 103-287, to accompany H.R. 4426, Foreign Operations, Export Financing, and Related Programs Appropriations Bill, 1995, June 16, 1994, p. 88.

"cascading" program and the Excess Defense Articles program. "Cascading" refers to surplus weapons from U.S. bases in Europe which the United States has provided to other nations on a grant basis. The 1990 Conventional Forces in Europe treaty requires removal of these weapons from central Europe. Turkey has also received in recent years substantial weaponry through the Excess Defense Articles program, as authorized by the so-called Southern Region Amendment to the foreign assistance act. These arms are provided at no cost or greatly reduced cost.

During 1992 and 1993 weapons delivered to Turkey under these two programs have apparently included 1,509 M60A1 and M60A3 main battle tanks, 147 M110 203mm (8-inch) howitzers, 489 M113A2 armored personnel carriers, 28 AH-1 attack helicopters, and 29 F-4E combat aircraft.[28] According to notifications to Congress, proposed EDA deliveries in 1994 have included: 110 M85 machine guns, 40mm ammunition, 105mm ammunition, parts for F-4 aircraft parts, fourteen SH-2F LAMPS antisubmarine helicopters, an ASROC (antisubmarine rocket) launcher, F-4 aircraft parts, M110 howitzer parts, M2 machine gun parts, M85 machine gun parts, M60/M60A1/M60A3 tank parts, and other weapons and equipment.[29]

Arms Sales

During the past ten years for which figures are available (FY 1984-1993), the United States sold Turkey $9.4 billion in arms, making it the fifth largest U.S. arms customer, after Saudi Arabia, Japan, Taiwan, and Egypt.[30] Arms sales to Turkey for the next two years (FY 1994 and 1995) are estimated at another $3.5 billion. Turkey finances its arms purchases from the U.S. with both U.S.-provided military aid and its own funds.

In fiscal year 1992, Turkey signed arms deals with the U.S. under the government-to-government Foreign Military Sales (FMS) program worth $1.9 billion, making it the third largest U.S. customer. In FY 1993, new deals totalled $742 million (number seven worldwide). These were supplemented by arms deliveries under the private commercial sales channel totalling $122 million for the two years.[31]

The U.S. government estimates that new arms deals with Turkey will total $1.8 billion in FY 1994, second only to Israel, and $1.3 billion in FY 1995, second only to Saudi Arabia. In addition, the U.S. government estimates that arms deliveries under the private commercial sales channel will total over $400 million in FY 1994 and FY 1995.

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[28] These information is derived from the U.S. and Turkey entries in the United Nations Register of Conventional Arms. There is uncertainty about accuracy because of contradictory submissions by the U.S. and Turkey. See, Edward J. Laurance, Siemon T. Wezeman and Herbert Wulf, *Arms Watch: SIPRI Report on the First Year of the UN Register of Conventional Arms* (New York: Oxford University Press, 1993), and Dr. Natalie J. Goldring, "UN Arms Register Released Amid Controversy," *Basic Reports*, October 21, 1994.

[29] Department of Defense Excess Defense Article computer bulletin board. See also, "Deals in the Works" section of issues of the Federation of American Scientists' *Arms Sales Monitor*.

[30] The $9.4 billion includes $8.477 billion in government-to-government arms sales agreements under the Foreign Military Sales (FMS) program and $956 million in exports through the commercial sales channel. Under the FMS program, the Pentagon acts a middle-man, buying arms from a U.S. manufacturer and re-selling them to a foreign government. Commercial exports are direct from U.S. manufacturers to foreign governments, but must be licensed by the State Department.

[31] It should be noted that in FY 1993 the State Department approved licenses for commercial military sales to Turkey totalling $2.064 billion. Some of these approvals may not result in actual sales, or the sales may not be finalized until future years. *Congressional Record*, March 11, 1994, p. E411. In FY 1992, $659 million in licenses for commercial sales to Turkey were approved. *Congressional Record*, April 21, 1994, p. E973.

The U.S. government calls the "centerpiece" of military relations the F-16 co-production project (known as "Peace Onyx") which began in 1986.[32] The aircraft are built in Turkey under a co-production agreement with the U.S.-based Lockheed Corporation. The planes retain a large proportion of U.S.-built components. The total value of the 240-plane program has been pegged at $7.6 billion. Most of the program has been financed by U.S. military aid. Completion of the U.S. funding commitment for the F-16 Peace Onyx program is scheduled for 1996.

The $4.2 billion Peace Onyx I program consists of 136 single-seat F-16Cs and twenty-four two-seat F-16Ds (Block 30/40). The final plane is scheduled for completion in December 1994. Peace Onyx II consists of eighty F-16Cs and F-16Ds (Block 50/60). The first forty were ordered in March 1992. The second forty aircraft were ordered by Turkey in March 1994 at a cost of $1.8 billion. This was reportedly the single largest confirmed arms sale for the U.S. in fiscal year 1994.[33] The deal will be financed by a defense fund established during the Gulf War to which Kuwait and Saudi Arabia have each pledged $1 billion. Turkey, the United Arab Emirates and the U.S. have pledged $500 million each. Over $1 billion has already been accumulated at the U.S. Federal Reserve Bank.[34]

In addition to the F-16 sale, Congress was notified in 1994 of the following possible sales to Turkey: $560 million for ten KC-135R tanker aircraft; $137 million for 500 Sidewinder air-to-air missiles, eighty AMRAAM air-to-air missiles, sixteen Harpoon anti-ship missiles; $32 million for 270 Multiple Launch Rocket System rocket pods ; $12 million for twelve Night Targeting Systems for AH-1W attack helicopters: $2 million for 153 TOW-2A antitank missiles; and $110 million for spare parts for RF/F-4E aircraft, T-38, C-130, F-16, F-104, T-33, and T-37 aircraft.

[32] *Congressional Presentation FY 1995*, p. 121. For additional details on Peace Onyx, and Turkey's air force in general, see "Modernising the THK," *Air International*, November 1994, pp. 299-308. Information on Peace Onyx was also provided by Lt. Col. Paul Van Gordon, U.S. Defense Security Assistance Agency, telephone interview, Washington, D.C., December 13, 1994.

[33] *Defense Week*, October 31, 1994, p. 16.

[34] *Human Rights Watch Weekly Report*, June 11, 1994, p. 28.

According to a major defense trade magazine, Turkish arms purchases from the U.S. in 1993 included five AH-1W Super Cobra attack helicopters for $64 million, fifty-one Black Hawk transport helicopters for $586 million, and seventy-four armored vehicles for $25.6 million.[35] A co-production deal for 50 Black Hawks worth over $600 million was expected this year, but was suspended in light of budgetary constraints and the purchase of Russian and Italian helicopters. The magazine noted that the armed campaign against the PKK "has forced Turkey to diversify its helicopter purchases in the short term and now the armed forces will operate U.S., Franco-German, Italian and Russian-built helicopters." [36]

This extensive supply of U.S. weaponry to the government of Turkey, much of which could be used in a counterinsurgency campaign in southeastern Turkey marked by human rights abuses and violations of the laws of war, undermines the Administration's welcome policy of increased sensitivity to Turkish human rights abuses, as demonstrated by the two visits to Turkey in 1994 of Assistant Secretary of State for Human Rights John Shattuck.

V. CLUSTER BOMBS[37]

A cluster bomb consists of an outside shell that breaks open in mid-air and disperses many smaller bomblets, generically known as submunitions. Cluster bombs significantly expand a weapon's lethal area of destruction and are seen as an increasingly important component of conventional war arsenals. Initially developed to attack tanks and armored vehicles, with innovations introduced in the "combined effects" CBU-87, they are also highly effective against "soft targets," particularly people.

The dangers to the civilian population from use of cluster bombs are significantly greater than use of either general purpose bombs or precision guided weapons. The CBU-87 can saturate an area the size of a football field with its 202 small, individual bomblets. Because a large number of bomblets is dispersed and because dud rates[38] are relatively high, the amount of unexploded ordnance generated by cluster bombs far exceeds that of any other type of air-delivered weapon. Moreover, when delivered from medium or high altitudes, cluster bombs are not highly accurate. This was well-demonstrated in the Gulf war.

The "reliability" of cluster weapons as measured in terms of duds is actually worsening. With the use of smaller and smaller submunitions, more and more numbers are expended in battle. In order to keep costs down, the individual bomblets are intentionally designed to be more simple and expendable, resulting in more duds, and a more deadly, lingering problem for the civilian population.

[35] *Jane's Defence Weekly*, June 11, 1994, p. 32.

[36] *Jane's Defence Weekly*, June 11, 1994, p. 27.

[37] The sections on cluster bombs, the CBU-87, and use in the Gulf war are drawn from a paper prepared for the Arms Project by William M. Arkin, "The CBU-87 Combined Effects Munition," September 29, 1994.

[38] A dud is a munition that does not explode upon impact, as is intended.

Most cluster bomblets that do not explode on impact become the equivalent of a landmine. These bomblets are armed, and will explode when disturbed. International humanitarian law contains provisions for "proper" use of landmines, including recording the locations of certain minefields.[39] These provisions have proven inadequate to protect the civilian population, as the current landmine epidemic attests.[40] However, air-delivered submunitions exist without any requirements to record where they are used, or for the responsible party to make any effort to recover unexploded bomblets scattering the countryside after use. With submunitions, moreover, the very nature of the weapons, and the uncertainties over dud levels, make precise mapping unlikely, if not impossible.[41]

The CBU-87

The CBU-87 Combined Effects Munition (CEM) is the newest air-delivered "cluster bomb unit" (CBU) in the U.S. arsenal.[42] It has been in the U.S. air force inventory since 1986 (and in production since 1984), and is intended to replace aging and less effective Vietnam-era cluster bomb units and antitank mines.[43] Combining light antiarmor capabilities with lethal antipersonnel and incendiary effects, it is the only weapon in the U.S. inventory to include all three "kill mechanisms."[44] Unlike older cluster bombs, the CBU-87 has a myriad of delivery settings (high and low altitudes, extremely high speeds and various toss modes). It is primarily manufactured by Alliant Techsystems, a company formed in 1990 from elements of Honeywell, Inc.[45] The company calls the CBU-87 "the most flexible, reliable, and effective area weapon system in the world today."[46] The

[39] Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons Which May be Deemed to be Excessively Injurious or to Have Indiscriminate Effects, Protocol on Prohibitions or Restrictions on the Use of Mines, Booby Traps and Other Devices (Protocol II).

[40] See Human Rights Watch and Physicians for Human Rights, *Landmines: A Deadly Legacy* (New York: Human Rights Watch, 1993).

[41] The U.S. military does have procedures, in the form of so-called SCATMINE reports, when air-delivered mines (such as CBU-89 Gator) are delivered, for the air force to inform ground forces as to the location of cluster bomb attacks. The procedures were not followed during the Gulf War. See, U.S. Army Central Command (USARCENT) Engineer, After Action Report, Part II: Lessons Learned (JULLS [Joint Uniform Lessons Learned System], JULLS number 31311-43900 (00002), 10 March 1991, released under the Freedom of Information Act.

[42] Much of the details of CBU-87 and BLU-97 characteristics and operations is derived from Captain Kelly Leggette, "The Air Force's New Cluster Weapon – The Combined Effects Munition," *USAF Fighter Weapons Review*, Spring 1986, pp. 24-32; fact sheets prepared by Alliant Techsystems and Aerojet, and in the fact sheet appended to Letter, Department of the Air Force, Wright-Patterson AFB, Ohio, 18 May 1994, in response to a Freedom of Information Act request.

[43] The Vietnam era CBUs and air-delivered antitank mines are CBU-52/58/71/78s and Mk20 Rockeyes; all are still in the U.S. arsenal, though a significant portion of the inventories were used in the Gulf War.

[44] Leggette, "The Air Force's New Cluster Weapon...," *USAF Fighter Weapons Review*.

[45] Alliant Techsystems was formed on September 28, 1990 from Honeywell's Defense and Marine Systems Business, Test Instruments Division, and Signal Analysis Center. The production line is actually located in the government-owned Twin City Army Ammunition Plant.

Gencorp Aerojet Ordnance Division/Aerojet Ordnance Company also has manufactured CEMs as well as the fuzes for the BLU-97 bomblets, and is now part of Olin Ordnance.

[46] Alliant Techsystems, "Capabilities, Technologies, and Products," 1991.

CBU-87 costs between $14,000-15,000 each; this is five times more expensive than a Vietnam-era cluster bomb (in FY 1990 dollars), and fifteen times more expensive than a 1,000-lb. general purpose bomb. The CBU-87 is compatible with virtually all tactical fighter aircraft, U.S. and foreign.[47] (See Table III for technical information on the CBU-87 and Appendix I for a description of the operation of the CBU-87.)

[47] The dispenser has been approved for use on the A-7, A-10, AV-8B, F-4, F-5, F-15, F-16, F/A-18, F-111, and B-52. International aircraft currently certified for CEM include British Hawk and Harrier, French Mirage V, German Alpha Jet, Japanese F-1 and FX, and multinational Tornado and Jaguar. RAF Jaguars delivered U.S. CBU-87s during the Gulf War after British-manufactured cluster bombs proved ineffective when dropped from medium altitudes.

The CBU-87 contains 202 free-fall combined effects bomblets. In contrast with earlier cluster bombs, the size and shape of the bomblet dispersal can be determined by the spin rate of the dispenser.[48] A single CBU-87 set at a low spin rate disperses bomblets over an area 120 by 200 feet, with bomblets scattered an average of nine feet apart.[49] A range of impact patterns from seventy by seventy feet to 150 by 450 feet can be achieved. In planning a concentrated air attack, taking into consideration duds and bomblet clustering, a common target area of roughly 150 feet by 300 feet would typically be earmarked to receive thousands rather than hundreds of submunitions – a bomblet every few feet or so.

On impact, the light metal tube containing the three kill mechanisms (antipersonnel bomb case, antitank shaped charge and zirconium incendiary wafer) collapses and the primary firing mechanism detonates the bomblet.[50] The bomblet's internal case, made of scored steel, is designed to break into approximately 300 preformed 30-grain fragments upon detonation of the explosive. These fragments then travel at extremely high velocities in all directions. The steel case antipersonnel fragments are powerful enough to damage light armor and trucks at fifty feet, and to cause human injury at 500 feet.

The zirconium ring spreads incendiary fragments outward and can start fires in any combustible environment. The shaped charge (a formed molten copper jet slug) has the ability to penetrate five inches of armor on contact.

Use in the Gulf War

[48] The TMD cants its fins after a preset arm time and disperses the bomblet with centripetal acceleration. The manner of dispersion produces some inter-bomblet collisions, and given the sensitivity of the BLU-97, some detonations as well, with shaped-charges in theory able to damage the delivery aircraft if loft or the minimum fuse arm time is incorrect; "Combined Effects Munitions (CEM) Safe Separation," *USAF Fighter Weapons Review*, Summer 1992, p. 33.

[49] Edmond Dantes, "CBU-87 Combined Effects Munition: The Pilot's Weapon of Choice," *Asian Defence Journal*, March 1991, p. 79.

[50] A crushed piezoelectric crystal generates an electrical pulse that is sent through a cable to the Mk 96 detonator, initiating the explosion. [illegible], "The Air Force's New Cluster Weapon...," *USAF Fighter Weapons Review*.

The most extensive and widespread use of submunitions in the history of conflict occurred in the Gulf War.[51] The Gulf War may be best known for the use of so-called "smart" weapons, but it was also characterized by the extensive use of cluster bombs, both air- and ground-delivered (e.g., air-delivered cluster bombs, ground multiple launch rocket systems, and 155mm and 203mm artillery submunitions).[52] One quarter of the total number of weapons dropped by aircraft on Iraq and Kuwait were cluster bombs. Some 61,000 were expended, totaling some twenty million bomblets; approximately 15 percent were CBU-87s .[53] According to the air force, the CBU-87 became the "weapon of choice" due to its "flexibility and lethality."[54]

Use of cluster bombs, however, particularly the newer bombs such as the CBU-87, were not restricted to purely tactical or battlefield settings. CBU-87s were also dropped in many urban areas, particularly in southern Iraq, and were extensively used in attacks on the Iraqi transportation system as part of the effort to find and destroy mobile SCUD missiles. Only limited supply and high expense restricted their greater use.

Because U.S. military commanders most valued keeping coalition casualties at an absolute minimum, early in the air war pilots were directed to stop operating at low altitudes, where weapons were more accurate yet aircraft were more vulnerable to Iraqi air defenses. Bombing from medium or high altitudes had a significant negative impact on weapon accuracy and reliability. Few pilots, in addition, had experience delivering cluster bombs from the longer distances. Not only was there a far greater dispersal pattern for the submunitions than was intended with low altitude delivery, but pilots were now outside the range needed to make sighting corrections or assess damage.[55] The CBU-87, with its radar proximity fuse, proved to be more reliable and accurate than older cluster bombs. But F-16s (the most plentiful bombing aircraft in the air force) had difficulty delivering them from medium altitudes, and accuracy did not approach design specifications.[56]

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[51] Cluster bombs have been used in many conflicts, perhaps most notably by the U.S. in Southeast Asia and by the Soviet Union in Afghanistan. At the end of September 1994, two teams supervised by the U.S.-based Mennonite Central Committee and the U.K.-based Mines Advisory Group began the task of clearing hundreds of thousands of unexploded cluster bomblets from Xieng Khouang Province in northern Laos, more than two decades after the United States secretly bombed the province.

[52] The CBU-87 is part of the growing submunitions "family" of weapons, both air- and ground-delivered (by surface artillery or rockets). Over ten types of submunitions were used by coalition forces in the Gulf War – 155mm and 203mm artillery projectiles, Multiple Launch Rocket System (MRLS) rockets, and six type of U.S. aerial-delivered cluster bombs, as well as two types of British and French air-delivered cluster bombs.

[53] Combined with another 13.6 ground-delivered submunitions, the total number of individual cluster bombs-related explosives delivered on Kuwait and Iraq was some thirty-four million. The overall number is calculated on the basis of some 100,000 artillery projectiles, 10,000 MRLS rockets, and 60,000 air delivered cluster bombs. The number of submunitions carried by each weapon is seventy-two per dual-purpose improved conventional munition (DPICM) 155mm projectile, 644 per MRLS rocket, 247 per Mk20 Rockeye, 220 per CBU-52, 650 per CBU-58, 717 per CBU-59, 650 per CBU-71, sixty per CBU-78 (forty-five antitank and fifteen antipersonnel mines), 202 per CBU-87, and ninety-four per CBU-89 (seventy-two antitank and twenty-two antipersonnel mines).

[54] U.S. Air Force, Gulf War Air Power Survey (GWAPS), 1993, Volume III, Part I, p. 246 (hereafter referred to as GWAPS).

[55] GWAPS, Volume II, Part II, pp. 162-163.

[56] Murray Hamrick, "Aerial Views: USAF air-to-air Combat," *International Defense Review*, July 1991, p. 743. According to the article, "The cluster bomb unit (CBU) 52/58...frequently failed to open properly (producing a bad

distribution pattern on the ground), and its fusing was unreliable. As far as the pilots interviewed by IDR were concerned, first combat use of the more modern CBU-87/89...was not much better since the F-16As were not fitted with the appropriate avionics, and navigational offsets were not accurate enough."

Another unexpected problem involved in medium and high altitude delivery was that the weapons began to experience "excessively high dud rates."[57] Despite the contact fuses and secondary firing systems, an enormous number of submunitions failed to detonate, particularly when landing in soft sand and shallow water or mud. Ground-delivered submunitions also experienced unusually high dud rates. Estimates vary from the conservative 2 to 5 percent claimed by manufacturers, to up to 23 percent observed in acceptance and operational tests, to an average of 10 to 30 percent or more observed on the ground after the war in Iraq and Kuwait.[58] Even a conservative five percent estimate means that some 2.2 million unexploded bomblets were left behind throughout Iraq and Kuwait, almost half from air-delivered bombs.

Dangers to the Civilian Population

The Gulf War introduced a relatively new problem for the civilian population, namely, the random profusion of unexploded submunitions outside the battlefield area.[59] "Toy-size bombs designed to kill tanks and soldiers appear as white lawn darts, green baseballs, orange-striped soda cans," one report from Kuwait stated almost a year after the war ended. The submunitions "have proved deadly to children. Doctors say 60 percent of the victims are children 15 and under."[60]

The lawn darts referred to are Vietnam-era Rockeye submunitions used in huge numbers. The baseball looking remnants are from older CBU-52/58/71 cluster bombs and the ground artillery- and rocket-delivered bomblets. The orange-striped soda cans are the distinct remnants of the BLU-97 bomblets from the CBU-87.

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[57] GWAPS, Volume II, Part I, p. 261. See also GWAPS, Volume IV, Part I, p. 222.

[58] U.S. military officials estimate that 3 to 5 percent of their artillery projectiles and bombs failed to explode, although soft sand may have increased the rate up to one-third in some areas. The GAO found that as many as 23 percent of MRLS rocket submunitions failed to explode during acceptance testing; U.S. Congress, General Accounting Office (GAO), "Operation Desert Storm: Casualties Caused by Improper Handling of Unexploded U.S. Submunitions," GAO/NSIAD-93-212, August 1993, p. 4.

One U.S. army expert estimated 15 percent of submunitions didn't detonate and said, "Sometimes you get 50 percent duds." James Vincent Brady, "Kuwaitis dying from old menace: unexploded bombs," *Fort Worth Star-Telegram*, January 12, 1992, p. 1. According to another report on unexploded ordnance, "Reports from Kuwait have said that around one-third of submunitions failed to explode due to landing in soft sand." Trevor Nash, "RO in Kuwait: The Big Clean-Up," *Military Technology*, July 1991, p. 59. One U.S. expert was quoted as saying that "at least 600 bombs, rockets and artillery shells dropped or fired every day of the war will have failed to explode and thus constitute a continuing hazard somewhere in the war theater." Ken Ringle, "After the Battles, Defusing the Debris," *Washington Post*, March 1, 1991, p. B1. See also Chris Hedges, "With a Bang! Bang! Bang! War Cleanup Goes On," *New York Times*, October 15, 1992, p. A12; Rick Atkinson, "Doing a Bang-Up Job: With Cautious Gusto, Troops Explode Iraq's Munitions," *Washington Post*, March 26, 1991, p. A9.

[59] Frank P. Ragano, "Operation Desert Sweep Ousts Battlefield Waste," *National Defense*, March 1994, p. 30; Pamela Pohling-Brown, "CMS Goes Clean and Green," *International Defense Review*, February 1993, p. 132; John Boatman, "Sweep up after the Storm," *Jane's Defence Weekly*, May 9, 1992, p. 821; Ron Martz, "Mines Pose Hidden Danger in Kuwait," *Atlanta Journal and Constitution*, December 15, 1991, p. 21; John G. Roos, "CMS Encountered Minefield in US Before Winning Kuwait Clean-Up Award," *Armed Forces Journal International*, November 1991, p. 24; Nash, "RO in Kuwait...," *Military Technology*, p. 59; Rick Atkinson, "Doing a Bang-up Job...," *Washington Post*, p. A14; William Branigan, "Gruesome Examples of Horrors of War Abound in Iraqi Desert," *Washington Post*, March 3, 1991, p. A34.

[60] Brady, "Kuwaitis dying from old menace...," *Fort Worth Star-Telegram*.

One soldier called the submunitions "perhaps the most dangerous pieces of ordnance in our arsenal, from a dud-fired standpoint...,"[61] reflecting the difficulty in detecting the submunitions, the deterioration of inexpensive electronic components caused by the passage of time and widely vacillating temperatures, and the presence of anti-handling fuses on some submunitions. Even with their distinct shapes and colors, submunitions are far less detectable than large unexploded bombs, particularly as shifting sand or pools of water cover up many of the duds.

[61] "Ordnance advice ignored," (Letter to the Editor), *Army Times*, May 18, 1992, p. 30.

There have been widespread and consistent reports of Iraqi and Kuwaiti civilians being killed or injured by unexploded bomblets from coalition cluster bombs.[62] It is estimated that more than 1,600 civilians (400 Iraqi and 1,200 Kuwaiti) have been killed and over 2,500 injured since the end of the Gulf War from submunitions accidents.[63]

Almost immediately with the end of the fighting, the civilian impact from the large scale use of submunitions was evident. Soldiers found large amounts of unexploded submunitions and air-delivered mines in areas outside the immediate battlefield. In the Iraqi town of Safwan, for example, as the refugee population grew after the ceasefire, "the number of injuries caused by unexploded ordnance rose alarmingly."[64] The presence of submunitions in areas not directly occupied by Iraqi military forces, or further afield in Iraq far outside of the battlefield, is due to their widespread use in attacks on fixed targets and in their use in the effort to find mobile Iraqi SCUD missiles operating in western Iraq, as well as in the areas directly north and south of Basra.

Aircraft patrolling from medium and high altitudes randomly delivered cluster bombs on roads and highways, and around culverts and bridges suspected of being missile travelling routes or hiding places.[65] From February 19 onwards, in addition, B-52 heavy bombers flying at extremely high altitudes dropped cluster bombs in potential SCUD launch areas, flying over roads and releasing bombs at timed intervals.[66] Towards the end of the war, B-52 bombers, together with many types of tactical fighter aircraft, also delivered cluster bombs on tank and vehicle columns retreating from Kuwait, including along the so-called "highway of death."[67]

Such indiscriminate attacks, extending along main transportation routes from far southeastern to far western Iraq, many in civilian areas, left submunitions throughout the country. In northern Iraq, in addition, aircraft flying from Turkey dropped cluster bombs on military and dual-purpose civilian installations, leaving behind unexploded submunitions that would later become a hazard to Kurdish refugees and to foreign relief operations.[68]

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[62] Brady, "Kuwaitis dying from old menace...," *Fort Worth Star-Telegram*; NBC Nightly News, April 29, 1991; Matthew L. Wald, "Mines and Old Bombs Are Still a Threat in Kuwait," *New York Times*, May 12, 1991, p. A12; Nora Boustany, "Border Town Becomes Wasteland of Refugees," *Washington Post*, March 20, 1991, p. A1; Susan Okie, "30,000 Fleeing War Get Shelter in Iran, U.N. Officials Say," *Washington Post*, March 20, 1991, p. A14.

[63] The Iraqi figures are derived from interviews conducted with Iraqi civil defense officials in August-September 1991 and February 1993. See also Hedges, "With a Bang! Bang! Bang!...," *New York Times;* "90 Explosive Experts Killed So Far -- Heat May Add to Pollution Problem," *Arab Times*, July 8, 1992; Brady, "Kuwaitis dying from old menace...," *Fort Worth Star-Telegram*,

[64] U.S. Army, Office of the Chief of Staff, *Certain Victory: The U.S. Army in the Gulf War* (1993), pp. 321, 328.

[65] F-16 aircraft primarily delivered CBU-87 CEMs in eastern Iraq as part of these operations, and the F-111F aircraft delivered CBU-89 Gator anti-tank and anti-personnel mines in western Iraq; GWAPS, Volume IV, Part I, pp. 43, 48.

[66] GWAPS, Volume IV, Part I, p. 290.

[67] GWAPS, Volume IV, Part I, p. 231.

[68] U.S. Congress, Senate Armed Services Committee, Operation Desert Shield/Desert Storm, Hearings, 1991, p. 35. See also Clyde Haberman, "In Kurdish Havens, the Big Danger is Underfoot," *Washington Post*, May 27, 1991, p. A32. According to 39th Tactical Group, Incirlik Air Base, Turkey, "Challenges Overcome During Operations Desert Storm and Provide Comfort," n.d. (1993), released under the Freedom of Information Act, explosive ordnance disposal experts cleared 2.7 tons of unexploded ordnance from the runways and operating areas of the northernmost Iraqi airfield bombed in Sirsank. Of course, the major danger to the Kurdish population was landmines emplaced by Iraq both during the Iran-Iraq war and the Gulf War; see Middle East Watch, *Hidden Deaths: Landmines and Civilian Casualties in Iraqi Kurdistan* (New York: Human Rights Watch, 1992).

The widespread and indiscriminate use of cluster bombs in civilian areas also impeded post-war recovery for the civilian population. Iraqi authorities claimed to have cleared over one-half million items of unexploded ordnance in the country, and had to remove tens of thousands of unexploded submunitions from electrical power plants and telephone, television and radio communications installations, from approaches to bridges, and from civilian neighborhoods.[69] Coalition submunitions also caused problems in Kuwait. One of the first tasks in extinguishing the oil fires in Kuwait was clearing unexploded ordnance, particularly coalition submunitions; the Kuwaiti minister for electricity and water stated that delays in restoring services were caused by the discovery of "unexploded cluster bombs and minefields at crucial spots in the electric grid."[70] The submunitions were not limited to purely military targets. At one elementary school in Fahaheel in Kuwait City, technicians recovered 1,220 Rockeye submunitions.[71]

"Friendly" Casualties

[69] This is based upon testimony and observations of the first Harvard Study Team in Iraq in May 1991, and by the International Study Team in Iraq in August-September 1991. See also "Teams Defuse 11 U.S.-Made Bombs in Ninawa," Baghdad INA, FBIS-NES-93-099, 25 May 1993, p. 35; "Cluster Bombs Kill Boy 16 April," Baghdad INA, FBIS-NES-93-073, 19 April 1993, p. 22; "Engineers Clear Saddam Dam Area of Cluster Bombs," Baghdad INA, FBIS-NES-93-071, 15 April 1993, p. 19; "Civil Defense Says 464,599 Bombs Defused Through February," Baghdad INA, FBIS-NES-93-040, 3 March 1993, p. 18; "Bombs, Other Ammunition Defused in Dhi Qar," Baghdad INA, FBIS-NES-92-245, 21 December 1992, p. 32; "16 Cluster Bombs Defused in al-Muthanna Province," Baghdad INA, FBIS-NES-92-218, 10 November 1992, p. 34; "Recent Destruction of Munitions in al-Basrah," Baghdad INA, FBIS-NES-92-128, 2 July 1992, p. 21; "Exploding War Bombs Causing Civilian Casualties," Baghdad INA, FBIS-NES-91-243, 18 December 1991, p. 22; "Ordnance Defused in al-Anbar," Baghdad INA, FBIS-NES-91-243, 18 December 1991, p. 22; "`Text' of Ministry Statement on Defused Bombs," Baghdad INA, FBIS-NES-91-228, 26 November 1991, p. 21; "U.S.-Kuwaiti Force Reportedly `Infiltrated' Farms," Baghdad INA, FBIS-NES-91-204, 22 October 1991, p. 12.

[70] Tom Diaz, "Basic needs still unmet in Kuwait," *Washington Times*, March 18, 1991, p. 12. See also Eliot Marshall, "To Stop Kuwait's Fires, First Clear the Mines," *Science*, June 21, 1991, p. 1609.

[71] Brady, "Kuwait is dying from old menace...," *Fort Worth Star-Telegram*.

During the Cold War, the military was less concerned about submunition dud rates because weapons were to be developed to defend against a Soviet offensive in Western Europe, which would not have required U.S. soldiers to occupy "submunition-contaminated" areas.[72] With the large scale use of submunitions in a rapidly moving offensive battlefield, however, and the massive Iraqi retreat during the ground war, friendly hazards were immediately felt, even during the fighting. Unexploded friendly ordnance, rather than Iraqi defenses or minefields, were the greatest threat to U.S. and coalition forces. Troops with the U.S. 1st Armored Division, for example, said that the principle threat they faced was "unexploded ordnance believed to have been left over from an earlier American bombardment."[73] The situation was so critical, that large-scale use of cluster bombs was restricted during the ground war for fear of friendly casualties[74] and, in some instances, "ground movement came to a halt because units were afraid of encountering unexploded ordnance."[75]

Even after the ceasefire, unexploded ordnance, particularly that associated with submunitions, proved a hazard to the coalition.[76] As the *Washington Post* observed three days after the ceasefire, "units of the army's 1st Cavalry Division that had suffered no combat casualties in their unopposed drive through southern Iraq have seen several of their soldiers killed or wounded by bombs or mines in the area they are holding."[77] In the immediate aftermath of Desert Storm, unexploded submunitions killed or injured more than one hundred soldiers and military explosive disposal specialists.[78] More than one hundred bomb disposal workers have also been reported killed during the clean-up since the end of the war, including one Egyptian Brigadier General killed while inspecting his troops' work.[79] Post-war injuries to U.S. soldiers from unexploded ordnance on the battlefield, particularly because of the excessive "dud rate" of ground-launched submunitions, became so serious that Congress requested that the General Accounting Office (GAO) investigate manufacturing, purchasing and handling.[80] The GAO concluded that during the war itself at least

[72] GAO, "Operation Desert Storm: Casualties Caused...," p. 4.

[73] Douglas Jehl, *Los Angeles Times*, Pool Report with the 1st Armored Division, February 25, 1991, released by the Defense Department.

[74] "Large quantities of cluster bombs were never used after the start of the ground war because of the rapid advance of allied forces and the fear that they would encounter undetonated bomblets;" U.S. Congress, General Accounting Office (GAO), Limitations on the Role and Performance of B-52 Bombers in Conventional Conflicts, B-252126, June 22, 1993, p. 61.

[75] GAO, "Operation Desert Storm: Casualties Caused...," p. 9.

[76] Douglas Jehl, "Deep in Iraq, Perils Temper GIs' Jubilation," *Los Angeles Times*, March 5, 1991, p. 1; Nora Boustany, "Border Town Becomes Wasteland of Refugees," *Washington Post*, March 20, 1991, p. A1; Susan Okie, "30,000 Fleeing War Get Shelter in Iran, U.N. Officials Say," *Washington Post*, March 20, 1991, p. A14.

[77] William Branigan, "Gruesome Examples of Horrors of War Abound in Iraqi Desert," *Washington Post*, March 3, 1991, p. A34.

[78] Patrick J. Sloyan, "U.S. Bomblets Killed 14 Americans in Gulf War," *Newsday*, September 19, 1991, p. 4.

[79] "Growing Death Toll in EOD Operations," *Jane's Defence Weekly*, June 20, 1992, p. 1061; Brady, "Kuwaitis Dying From Old Menace...," *Fort Worth Star-Telegram*.

[80] The request was made by Senator Chris Dodd (D-Conn.) after reservists from a Connecticut army unit were injured by submunitions. See also "Little Bombs, Big Questions," (Editorial), Hartford Courant, January 5, 1992, p. C2; Karen Wagner, "Army Completes Probe of Desert Storm Deaths," *Hartford Courant*, December 3, 1991, p. C9.

twenty-five U.S. military personnel were killed and others were injured by submunitions fired by their own forces.[81]

[81] GAO, "Operation Desert Storm: Casualties Caused by Improper Handling of Unexploded U.S. Submunitions." The GAO investigation solely related to the Army's experience with its own M42, M46 and M77 artillery and rocket-delivered submunitions. According to "EOD Alert," *Marine Corps Gazette*, January 1994, p. 9, thirty U.S. soldier deaths and [illegible] were caused by unexploded ordnance.

Military medical specialists also experienced a new set of wounds caused by submunitions. Since the weapons are designed to produce large numbers of tiny shrapnel fragments, in contact with the human body they caused multiple penetrating wounds and compound fractures. "An average of nine injuries per surgical case was reported" in the Gulf War. "Surgery on such cases required multiple surgical teams working together. Hours were spent removing fragments, more hours were spent closing cleaned wounds." Medical specialists concluded that in any future conflict entailing such weapons, there would need to be a higher ratio of surgeons given the increased lethality of newer weapons.[82]

In the final analysis, the effectiveness of submunitions to carry out their military missions varied. It is far from clear that air-delivered cluster bombs produced the military advantages anticipated, particularly when used in attacks outside the battlefield. Use of cluster bombs in urban attacks proved largely ineffective militarily. Restrictions in international humanitarian law and U.S. practices to attempt to minimize urban collateral damage resulted on some restraint on their use in urban areas. Medium altitude delivery was just not that accurate, and planners hesitated to assign too many cluster bombs in attacks on urban targets for fear of civilian harm. The CBU-87, which in theory allows bomblets to be clustered for greater effectiveness against dense targets, did not prove effective in destroying specific objects. Smaller targets bombed with cluster bombs (including CBU-87s) were invariably also attacked with "smart" weapons capable of achieving destruction at specific aimpoints. Except under specific conditions, where the area dispersal of cluster bombs proved effective against the target (e.g., against moving troops or non-armored traffic), during most of the war, cluster bombs proved useful mostly to harass and demoralize stationary Iraqi forces.

VI. CONCLUSION

The U.S. State Department should not approve a license for Alliant Techsystems to export 493 CBU-87 cluster bombs to Turkey. In the view of Human Rights Watch, the U.S. should suspend all military assistance and all arms sales (government-to-government and commercial) to Turkey, as required by Section 502B of the Foreign Assistance Act, because the government of Turkey clearly "engages in a consistent pattern of gross abuses of internationally recognized human rights." However, the U.S. government has for many years refused to apply Section 502B to Turkey because of other considerations, and is unlikely to do so in the foreseeable future. The U.S. government's policy of supplying Turkey with extensive military equipment, training and assistance, some of which is used in Ankara's brutal counterinsurgency campaign, makes the U.S. complicit in the abuses.

In light of the U.S.'s failure to invoke human rights law with comprehensive sanctions against Turkey, the U.S. should at the very least refuse to sanction sales that involve a high possibility for misuse. The sale of CBU-87 cluster bombs is one such case. Instead of helping to resolve the conflict in Turkey's southeast, the U.S. is risking adding fuel to the fire with the provision of deadly cluster bombs.

[82] "Taking the Gulf medicine," *Jane's Defence Weekly*, May 16, 1992, pp. 849-850. Officials also cautioned against a tally of the bodies that were buried, "because many Iraqi soldiers were dismembered or charred beyond recognition in explosions of deadly U.S. munitions;" R. Jeffrey Smith, "U.S. Has, but Won't Release, Tally of Buried Iraqi Soldiers," *Washington Post*, March 30, 1991, p. A11.

It would not be the first time the U.S. refused to supply a close ally with cluster bombs. In 1982, the U.S. suspended shipment of cluster bombs to Israel after Israel used cluster bombs against civilian areas during its invasion of Lebanon. In 1986, Reagan Administration officials reaffirmed the standing policy against allowing the export of any equipment, plans or techniques to Israel that could be used for cluster weapons.[83] The restriction is no longer in place today.

The State Department should not under any circumstance grant a license to Alliant Techsystems for the export of CBU-87 cluster bombs to Turkey. As a matter of practice, when considering commercial sales that could pose grave dangers to civilian populations, the U.S. should insist that as a condition for approval the government of Turkey sign a separate side agreement with the United States government guaranteeing that the weapons would only be used in NATO contingencies or with the prior approval of the U.S. government.

The U.S. has sought such assurances on arms sales to Turkey before. For example, when Congress was notified on June 14, 1994 of a proposed transfer of ten KC-135A tanker (refuelling) aircraft, Rep. Lee Hamilton, Chairman of the House Foreign Affairs Committee, presumably concerned about the potential impact on the Turkish-Greek military balance, requested that the Secretary of State describe why the transfer was in the U.S. national interest, the mission requirements, the reaction of the Greek government, and any conditions or restrictions attached to use and deployment of the aircraft. In its reply, the State Department noted that there would be several specific conditions included in the written transfer agreement, including no use of the tankers except in a NATO contingency, self-defense, collective U.N. measures, or other contingencies agreed to by the U.S.[84]

Moreover, if the U.S. persists in selling arms to the abusive government of Turkey, the U.S. should seek written assurances in all future arms transfer agreements with Turkey that the arms and equipment will not be used in human rights abuses or violations of the laws of war. This would serve as an additional safeguard to ensure that Turkey lives up to its existing obligations to abide by international human rights and humanitarian law.

Given Turkey's record, the U.S. must carefully monitor the end use of the lethal equipment that it has provided to Turkey. It does not appear that the U.S. made any serious effort in this regard before being instructed to do so by Congress earlier this year. End use monitoring must be a consistent and highly visible element of U.S. military assistance to Turkey in the future, and not limited to a one-time exercise to placate Congress.

[83] *New York Times*, July 10, 1986, p. 18. The officials were reacting to statements by Israeli officials that Israel had obtained American machinery used to produce cluster bombs.

[84] *Congressional Record*, September 12, 1994, p. E1822.

Table I

U.S. Military Aid to Turkey

Fiscal Year	Loans	Grants	Training	Total
1989	$90	$410	$3.4	$503.4
1990	$86	$412	$3.4	$501.4
1991	$100	$607	$3.6	$710.6
1992	$25	$475	$3.3	$503.3
1993	$450	-----	$3.1	$453.1
1994	$405	-----	$1.0 (E)	$406.0
1995	$364.5 (*)	-----	$1.0 (E)	$365.5

All numbers are millions of dollars.
Loans under the Foreign Military Financing program.
Grants under Foreign Military Financing, MAP Merger, and MAP Section 506.
Training under the International Military Education and Training Program.
(E) U.S. government estimate.
(*) Congress is withholding ten percent of these funds pending an Administration report on Turkey's human rights practices.

Note: These figures do not include weaponry delivered at no cost, or very low cost, under the "cascading" program (surplus weapons from the 1990 Conventional Forces in Europe treaty) and the Excess Defense Articles program, as authorized by the Southern Region Amendment to the foreign assistance act. During 1992 and 1993, weapons delivered to Turkey under these two programs have apparently included 1,509 M60A1 and M60A3 main battle tanks, 147 M110 203mm (8-inch) howitzers, 489 M113A2 armored personnel carriers, 28 AH-1 attack helicopters, and 29 F-4E combat aircraft.

Table II

U.S. Military Sales to Turkey

Fiscal Year	FMS Agreements	FMS Deliveries	Commercial Deliveries
1989	$324	$619	$343
1990	$453	$720	$220
1991	$217	$601	$77
1992	$1,864	$703	$36
1993	$742	$751	$86
1994	$1,800 (E)	(NA)	$272 (E)
1995	$1,300 (E)	(NA)	$136 (E)

All numbers are millions of dollars.
FMS is Foreign Military Sales program (government-to-government)
Commercial is direct from private manufacturer, with U.S. government license.
(E) U.S. government estimate.
(NA) Data not available.

Note: These figures do not include weaponry delivered at no cost, or very low cost, under the "cascading" program (surplus weapons from the 1990 Conventional Forces in Europe treaty) and the Excess Defense Articles program, as authorized by the Southern Region Amendment to the foreign assistance act. During 1992 and 1993, weapons delivered to Turkey under these two programs have apparently included 1,509 M60A1 and M60A3 main battle tanks, 147 M110 203mm (8-inch) howitzers, 489 M113A2 armored personnel carriers, 28 AH-1 attack helicopters, and 29 F-4E combat aircraft.

Table III

CBU-87 Technical Information

CBU-87B/B Combined Effects Munition (CEM)

Manufacturers ..... Alliant Techsystems, Olin Ordnance

Primary Delivery aircraft (US) B-52, F-15E, F-16, F-111F
(non-US) ..... Tornado (Germany/Italy/UK), Jaguar (UK)

Number Carried F-15E (6), F-16 (4), F-111F (8)

Cost (FY90$) $13,941

SUU-65/B Tactical Munition Dispenser (TMD)

Dispenser
- Length (in.) 92
- Diameter (in.) 16
- Weight (lb.) .....205 (empty), 95 (loaded)
- Number of BLU-97/B Bomblets 202

Fuse ..... Timer or FZU-39/B doppler radar proximity sensor

BLU-97/B Combined Effects Bomblet (CEB)

Submunition
- Length
  - Stowed (in.) 6.65
  - Extended (in.) 10.20
- Diameter (in.).....2.51
- Weight (lb.) 3.41

Submunition elements include a forward-firing shaped-charge (antiarmor), a scored steel bomb case (antipersonnel), and a zirconium ring (incendiary).

- Main chemical explosive ..... Cyclotol
- Weight (lb.) 0.65
- Shape-charge diameter (in.) 2.08

Sources: Alliant Techsystems; Letter, Department of the Air Force, Wright-Patterson AFB, Ohio, 18 May 1994; Gulf War Air Power Survey (GWAPS). Prepared by William M. Arkin.

APPENDIX

CBU-87 Operation

The CBU-87 is compatible with virtually all tactical fighter aircraft, U.S. and foreign.[85] The weapon is composed of a dispenser with attached fins (called the tactical munitions dispenser or TMD) and a forward radar doppler proximity sensor fuse section. The CBU-87 contains 202 free-fall combined effects "bomblets," generically known as submunitions. The TMD is designated SUU-65B, and the submunitions are designated BLU-97/B.

The CBU-87 TMD (bomb body), in contrast with earlier cluster bombs, provides the ability to set the ground pattern size and shape of the bomblet dispersal, determined by the spin rate of the dispenser (from 0-2500 rpm).[86] A single CBU-87 set at a low spin rate (e.g., 500 rpm) disperses bomblets over an area 120 by 200 feet, with bomblets scattered an average of nine feet apart.[87] A range of impact patterns from seventy by seventy feet to 150 by 450 feet can be achieved. The radar sensor allows selection of TMD heights of burst ranging from 300 to 3,000 feet.[88]

According to Alliant, the CBU-87 "can be delivered from any survivable envelope, which includes altitudes from 200 to 40,000 feet and speeds from 200 to 700 knots [Mach 1.4]."[89] The bomblet is made up of an inflatable parachute-like decelerator, a small firing system and fuse, a downward-firing shaped-charge, a scored steel case, and a fire-starting zirconium sponge ring.[90] In addition to the primary firing system, BLU-97 bomblets have a secondary firing system that is intended to detonate if the bomblet impacts other than straight on, or if the bomblet lands in soft terrain or water and fails to explode.[91]

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[85] The dispenser has been approved for use on the A-7, A-10, AV-8B, F-4, F-5, F-15, F-16, F/A-18, F-111, and B-52. International aircraft currently certified for CEM include British Hawk and Harrier, French Mirage V, German Alpha Jet, Japanese F-1 and FX, and multinational Tornado and Jaguar. RAF Jaguars delivered U.S. CBU-87s during the Gulf War after British-manufactured cluster bombs proved ineffective when dropped from medium altitudes.

[86] The TMD cants its fins after a preset arm time and disperses the bomblet with centripetal acceleration. The manner of dispersion produces some inter-bomblet collisions, and given the sensitivity of the BLU-97, some detonations as well, with shaped-charges in theory able to damage the delivery aircraft if loft or the minimum fuse arm time is incorrect; "Combined Effects Munitions (CEM) Safe Separation," *USAF Fighter Weapons Review*, Summer 1992, p. 33.

[87] Edmond Dantes, "CBU-87 Combined Effects Munition: The Pilot's Weapon of Choice," *Asian Defence Journal*, March 1991, p. 79.

[88] Leggette, "The Air Force's New Cluster Weapon...," *USAF Fighter Weapons Review*.

[89] Alliant Techsystems, "CBU-87B/B Combined Effects Munition (CEM)," Fact Sheet, August 1992.

[90] The plastic decelerator, called an attached inflatable decelerator (AID), provides drag and stability for the submunition. Some two seconds after dispenser release, as the AID inflates, it pulls the main shaft, arming the submunitions.

[91] The working of the secondary firing mechanism is described as follows: "At impact, a loose steel ball at the base of the secondary fuse moves outward, regardless of the impact angle, forcing a sleeve upward...This movement releases the secondary firing pin release balls and allows the firing pin spring to force the firing pin into a Mk 55 stab detonator which in turn crushes a second piezoelectric crystal. The resultant burst of electrical current is routed to the Mk 96 detonator and initiates the explosive train in the same manner as the primary fuse; Leggette, "The Air Force's New Cluster Weapon...," *USAF Fighter Weapons Review*.

Before takeoff, the CBU-87 delivery mode is preset. For proximity mode, the fuse's onboard sensor is used to determine the selected height of burst. Otherwise, the operations of the bomb are set by a timer. As the aircraft drops the TMD, lanyards activate release of the tail fins, which open and stabilize the bomb body. After the preselected time (or if the proximity sensor is used, the preselected altitude), the TMD then directs the fins to cant, spinning the dispenser. The preset spin rate determines the pattern size of bomblet dispersal. Small explosive charges separate the dispenser shell into three main sections (which fall to the earth), and the submunitions disperse as they fall. Within two seconds, as the many submunitions encounter the airstream at a high speed, a "spider" cup is stripped off the bomblet body. This releases a spring which pushes out the nylon "parachute" (called the decelerator), which inflates and then stabilizes and arms the individual bomblets. The high drag provided by the decelerator orients the bomblets perpendicular to the ground for their optimal top attack, stops the spinning of the bomblets, and slows the descent to approximately 125 feet per second. The bomblet requires one second time of fall from dispenser opening to insure proper arming. On impact, the light metal tube containing the bomb case, shaped charge and zirconium incendiary wafer, collapses and the primary firing mechanism detonates the bomblet.[92]

Like most general purpose bombs, the explosive material is only a small portion of the bomblet's mass and weight. The internal "case" is the main part, made of scored steel designed to break into approximately 300 preformed 30-grain fragments upon detonation of the explosive. These fragments then travel at extremely high velocities in all directions. The conical explosively shaped-charge (a formed molten copper jet slug) is the primary anti-armor kill mechanism. If the bomblet has been properly oriented, the downward-firing charge travels at 2,570 feet per second upon detonation. The zirconium ring provides for fuel and other fires by spreading incendiary fragments outward.

The impact diameter of the bomblet varies from 250-500 feet. The shaped charge has the ability to penetrate five inches of armor on contact. The steel case antipersonnel fragments are powerful enough to damage light armor and trucks at fifty feet, and to cause human injury at 500 feet. The incendiary ring can start fires in any combustible environment.

Sources: Captain Kelly Leggette, "The Air Force's New Cluster Weapon – The Combined Effects Munition," *USAF Fighter Weapons Review*, Spring 1986, pp. 24-32; fact sheets prepared by Alliant Techsystems and Aerojet; fact sheet appended to Letter, Department of the Air Force, Wright-Patterson AFB, Ohio, 18 May 1994, in response to a Freedom of Information Act request.
Prepared by William M. Arkin.

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[92] A crushed piezoelectric crystal generates an electrical pulse that is sent through a cable to the Mk 96 detonator, initiating the explosion. Leggette, "The Air Force's New Cluster Weapon...," *USAF Fighter Weapons Review*, No. 19

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