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Intelligence Community Assessment

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**(U) Current and Future Air Threats
to the US Homeland**

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**National
Intelligence
Council**

ICA 2002-05HC

**(U) Current and Future Air Threats to the
US Homeland**

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[REDACTED]*

July 2002

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Scope Note

(S/[]) This Intelligence Community Assessment responds to requests from the Joint Theater Air and Missile Defense Organization of the Department of Defense and the Transportation Security Administration of the Department of Transportation. This Assessment examines both terrorist and state threats to facilities and people in the US homeland using most types of air vehicle and associated weapons, including land attack cruise missiles. This assessment does not cover ballistic missile threats.¹ We define the US homeland as all 50 states, the District of Columbia, Puerto Rico, the US Virgin Islands, Guam, American Samoa, and the various trust territories in the Pacific. The intelligence reporting we cite illustrates our concerns but is not an exhaustive listing.

(S/[]) This Assessment focuses on the next five years, although in some instances longer projections are offered when intelligence information and analysis warrant.

(S/[]) This Assessment does not endeavor to evaluate US counterterrorism measures; it particularly does not judge the effectiveness of improved airport security measures.

(S/[]) Some of the intelligence reporting on terrorist planning, training, and intent focuses on attacks against targets overseas. We include these reports in this ICA because we regard these as harbingers of operations that terrorists could apply against the United States.

¹ See NIE 2001-19HJ/I, December 2001, (U) *Foreign Missile Developments and the Ballistic Missile Threat Through 2015*. The NIE is classified Top Secret [REDACTED]

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Key Judgments

(U) Current and Future Air Threats to the US Homeland

(S/[REDACTED]) **The Terrorist Threat.** During the next several years al-Qa'ida—if it survives—and similarly motivated terrorist groups, almost certainly will continue to plan for the use of civil aviation—commercial aviation, charter and cargo aircraft, and general aviation—to conduct attacks on US targets. The likelihood these terrorist groups will attempt such attacks will depend on the perceptions of the group as to the strength of US aviation security procedures and their certainty that these attacks would inflict significant casualties and damage.

- Al-Qa'ida's success on 11 September 2001 demonstrated the significant physical and psychological impact of such attacks, and members of this group continue to show interest in follow-on attacks.
- Terrorist threats—mostly vague and unconfirmed—to hijack US and foreign aircraft continue. Some reports have identified such sensitive targets as nuclear facilities.

(S/[REDACTED]) Terrorist groups will adapt to new security measures, including those at airports and aboard commercial airliners.

- Over the next 2-3 years, the disruptive impact of the coalition war effort and security measures taken at airports will reduce but not eliminate the likelihood that al-Qa'ida and other terrorists will conduct air attacks against the United States in the same manner as employed on 11 September. These groups, nevertheless, probably will view commercial airlines as viable targets and will work to improve their tactics to defeat increased security. They probably anticipate that security measures will be relaxed gradually over time, particularly at smaller airports where security resources are relatively limited.
- Al-Qa'ida and other terrorists increasingly are likely to attempt to buy, rent, or steal charter, cargo, and general aviation aircraft—probably loading them with explosives to increase lethality—to conduct attacks. Operation of these aircraft thus far has not been subject to the same rigorous security standards as are applied to commercial airlines.
- Al-Qa'ida operatives have examined using crop dusters or small aircraft configured with commercial spray tanks to disseminate Biological/Chemical Warfare (BCW) agents.
- Al-Qa'ida and like-minded terrorist groups probably will attempt to infiltrate “insider” agents into aviation-related activities—including commercial airline or cargo aircraft cockpits—to defeat security measures.

(S/[REDACTED]) Terrorists might choose to use ultralight aircraft, unmanned aerial vehicles, and balloons. Terrorists continue to explore such attack options although these

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means tend to have significant range and payload limitations when compared to other delivery vehicles. These types of aircraft could be effective in "high impact" attacks involving dissemination of BW or targeting spectators or VIPs during major events.

~~(TS/[REDACTED])~~ **State Unconventional and Conventional Air Threats.** We assess that under most circumstances hostile foreign states are unlikely to employ any of the unconventional methods discussed above to attack the US homeland because of the risk of US discovery of the originator of an attack and an almost certain, devastating retaliatory response. Nevertheless, should a foreign state conclude the United States was intent on overturning the ruling regime, we assess the risk could increase substantially that the targeted regime would use unconventional means to attack the United States.

- Iraq is seeking route planning software and an associated topographic database likely intended for use with its UAVs. The database "Garmin 50 State Topo Mapping Software" almost certainly pertains to the United States. We judge that Iraq could use the software and database to program routes to attack targets in this country with UAVs already in its inventory or ones it is developing. Iraq would have the challenge of smuggling the UAVs to the United States or launching them beyond US borders from locations that meet operational parameters. We assess that Iraq currently does not have operational BW-equipped UAVs. For the past decade, however, Baghdad has been developing such a capability. Saddam may be pursuing such capabilities to strike at the United States in the event of a US military attack to remove him from power.
- Libya, after the turn of the decade, could possess the technical capability to strike US territory by launching land-attack cruise missile (LACMs) from covertly armed commercial ships. We have reporting that Libya is interested in obtaining a 1500 km range LACM configured for launch from a modified international-standard shipping container. Technical analysis of the missile's design indicates that it could be modified to deliver a nuclear, biological, or chemical payload. Libya's plan involved acquisition of missiles from Serbia; a report from [REDACTED] however, indicated the contract was frozen.

E.O. 13526, section 1.4(c)

~~(S/[REDACTED])~~ The risk of a "traditional" military air attack against the US homeland by a foreign state is low and will remain so.

- Russia will retain the capability to conduct air attacks with heavy bombers armed with LACMs but is unlikely to do so, especially in light of President Putin's efforts to integrate Russia into the West.
- In the event of a US-China conflict in East Asia, China could employ its extremely limited capability to strike Guam or the westernmost Aleutian Islands with several refuelable fighter aircraft. We judge the PLA by 2010 will have fielded an air-delivered LACM—the DH-10—that could range into central Alaska if the Chinese developed a refuelable version of the B6-H launch aircraft or acquire an alternative refuelable launch platform and compatible tanker.

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- Cuba has fighter aircraft that can range into the US homeland. The operational capabilities of the air force, however, have declined substantially since the end of Soviet aid in the early 1990s. In the late 1980s [redacted] Cuba had a contingency plan to attack the US homeland if the United States invaded Cuba. We have no subsequent information as to whether the plan was modified following the demise of the Soviet Union.

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Discussion

(U) Current and Future Air Threats to the US Homeland

(U) The Continuing Threat from Al- Qa'ida

(S/[REDACTED]) Al-Qa'ida is the most dangerous terrorist threat to US territory today and is likely to remain so for the foreseeable future. Beyond its use of hijacked US commercial aircraft to attack the World Trade Center and the Pentagon, al-Qa'ida reportedly had planned for other attacks on US targets using commandeered, leased, or stolen aircraft. Al-Qa'ida also has shown interest in penetrating airport security to place "insider" agents into aviation related activities and even into aircraft cockpits.

E.O. 13526, section 1.4(c)

- [REDACTED] as of May 2001 al-Qa'ida was interested in recruiting airport customs personnel and civil airline pilots in a number of countries to conceal the transportation of key individuals, weapons, and explosives. Although the apparent purpose of these activities was to obtain secure reliable transportation capabilities, such personnel also would provide the terrorists an opportunity for further lethal attack.
- Additionally, al-Qa'ida operatives have examined using crop dusters or small aircraft configured with commercial spray tanks to disseminate biological or chemical warfare (BCW) agents. The group also may have been researching or in the early stages of planning attacks on targets in the US homeland with

unmanned aerial vehicles or balloons to disseminate BCW.

(PS/[REDACTED]) Almost all threat reporting on al-Qa'ida's efforts in the aviation arena reveals its intention to inflict mass casualties and cause damage rather than hold passengers as hostages for political objectives. [REDACTED] reporting provided in late September 2001, in 1996 Mohammad 'Atif, a senior deputy to Bin Ladin, concluded that hijackings to negotiate the release of imprisoned comrades would not work for the *mujahidin* and that the only purpose for hijacking a plane was to inflict "the maximum number of casualties."

E.O. 13526, section 1.4(c)

(S/[REDACTED]) Over the short-term—the next two-to-three years—the disruptive impact of the coalition war effort and security measures taken at airports will reduce but not eliminate the likelihood that al-Qa'ida will attempt air attacks against the United States in the same manner as employed on 11 September. Al-Qa'ida's leaders probably believe that attacks by large aircraft remain an attractive terrorist tool both because of their demonstrated lethality and psychological impact on the public. Intelligence reports, however, provide no clear indication on how other terrorist groups assess the net "benefit" of the 11 September attacks and whether they regard it as a model to emulate.

(S/[REDACTED]) Over the mid-to longer-term—beyond 3 years—al-Qa'ida, if it survives, and similarly motivated terrorist groups, including those that may reconstitute in splinter groups should al-Qa'ida collapse, probably will view commercial airlines as viable targets and will work to improve their tactics to defeat increased security measures

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(U) Learning From Terrorist Patterns

(S/[REDACTED]) **Persistence, patience, and cunning.** Al-Qa'ida in particular demonstrates these traits in finding ways to attack preferred targets even when they are well protected. Radical Islamists—forerunners of al-Qa'ida—first targeted the World Trade Center in 1993 with the aim of toppling one of the towers into the other. That failure was followed eight years later by a second, successful attack employing a new method. Al-Qa'ida:

- Apparently believes that great psychological effect can be obtained by successfully attacking a well-protected target, even when alternative approaches may be needed.
- Adapts by carefully studying its target and the reactions of an adversary to a variety of external events. In particular, al-Qa'ida focuses on the expressed public fears of targeted states.
- Demonstrates a preference for high-casualty producing attacks, preferably with prolonged economic or psychological after-effects.
- Appears to be focusing on changing the physical profile of its agents by disguising their appearances and behaviors; it also seeks to recruit agents with diverse ethnic backgrounds.
- Probably will focus on recruiting or inserting “insiders” into critical activities—either instruments of attack or the targets themselves.

(S/[REDACTED]) **Al-Qa'ida's preferred US targets include:**

- Prominent US political landmarks, including: the White House—a particularly valuable psychological target in al-Qa'ida's assessment; the Pentagon and other military-related facilities; the Capitol building; CIA—a longtime target; the Empire State Building; and the Statue of Liberty.
- Targets likely to produce high-casualty secondary effects including: nuclear facilities, toxic industrial chemical plants, and dams.

(S/[REDACTED]) For those terrorist organizations most threatening to the United States, counterterrorist measures will reduce terrorist attacks mainly insofar as they affect the capabilities of the terrorists rather than their intentions. Groups already bent on inflicting harm on US interests are unlikely to be intimidated into abandoning their objectives or their reliance on violent means to achieve them.

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and public vigilance. Al-Qa'ida also may plan attacks years in advance, possibly anticipating that security measures will be relaxed gradually over time.

(U) Our Concerns and Intelligence Reporting on Terrorist Planning, Training, and Intent

(U) Commercial Passenger Aircraft (S/[REDACTED]) Concerns.

Commercial airliners are likely to remain a target and a platform for terrorist attacks. The impact of the 11 September attacks no doubt has reinforced terrorist attraction to them. We are concerned that the economic impact of the attacks may highlight US infrastructure for targeting, such as bridges, dams, oil refineries, and power plants. Over the short-term, enhanced security will reduce but not eliminate the likelihood that air attacks will be attempted in the same manner as on 11 September. Terrorists, however, will study and test new security procedures in the commercial aviation industry to uncover weaknesses. They may be able to exploit lax security in foreign-originated flights or use inside personnel to smuggle weapons, tools, or explosives to gain cockpit access. A strategic plan could include placement of sleeper agents as airline pilots.

(S/[REDACTED]) Intelligence Reporting.

Terrorist threats—mostly vague and unconfirmed—to hijack US and foreign aircraft continue. Well-known buildings in Washington, DC, New York City, or other major metropolitan areas, including the White House, the US Capitol, the Pentagon, CIA Headquarters, the Statue of Liberty, the Empire State Building, and the United Nations Headquarters, almost certainly are priority targets. Also, some reports have identified other sensitive targets such as nuclear facilities.

- Both Ibn al-Shaykh al-Libi, a senior al-Qa'ida trainer, and Abu Zubaydah a senior al-Qaida lieutenant, stated in separate debriefings that they each had post-11 September discussions in Afghanistan with different senior al-Qa'ida leaders concerning the possibility of crashing a hijacked aircraft into US nuclear facilities. Neither al-Libi nor Zubaydah indicated that there were follow-on discussions.

- [REDACTED] a flight manual for a Boeing 747-400 simulator was among the materials seized during a May 2002 raid on an al-Qa'ida safehouse in Karachi. Other materials included a videotape of a Belgian airline Boeing 767-400. The tape was an advertisement for the airline and showed the flight crew and the inside of the aircraft.

- [REDACTED]—claimed that as of early November 2001 Amer el-Maati, an Egyptian-born Canadian pilot associated with Bin Ladin, was planning to hijack an airliner from Ottawa, Canada, and crash it into CIA Headquarters. Al Maati admitted he was studying aircraft systems, material composition, and locations on aircraft best suited for carrying bombs.

- According to a write-in source, on 6 October 2001 three named men were to attack the Empire State Building and the White House using hijacked aircraft. The letter claimed that one of the individuals was to attack the Empire State Building using a United Airlines passenger plane.

(U) Charter and Cargo Aircraft
(S/[REDACTED]) Concerns. From a terrorist perspective, a chartered or cargo aircraft

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probably appears easier to hijack than scheduled commercial airliners. Such aircraft could be leased covertly or acquired through establishment of a front company. The smaller passenger capacity eliminates a potential source of interference, and the lethality even of relatively small, chartered aircraft can be increased by loading explosives. In addition, as widely reported in press accounts, the Federal Government pays less attention to security procedures for charters than it does to scheduled commercial airlines. Al-Qa'ida has been adept in assessing and exploiting publicly advertised vulnerabilities.

- Abu Zubaydah noted that al-Qa'ida operatives considered newspapers a lucrative source for concepts. He commented, with regard to press reporting on radiological dispersal devices, that "Americans gave us the idea of how to kill them."

(S/[REDACTED]) For these reasons we believe there will be an increased likelihood that terrorists will attempt to use charter and cargo aircraft for attacks.

(S/[REDACTED]) **Intelligence Reporting.** In March 2002, a source alleged that a Saudi Arabian businessman currently living in the United States was attempting to purchase a small aircraft for his company in order to carry out terrorist attacks in US cities. The planes were to be packed with high explosives and crashed into major targets. No further information is known on the Saudi individual or the names of the targeted cities.

(C) In early October 2001, the US Embassy in Brasilia received word from several contacts that a threat was left on the answering machine at an Argentine Consulate in Brazil. The message stated that four small jets were to be chartered in Brazil to fly into

the US Embassy in Brasilia, the Bank of Boston in Sao Paulo, and other American buildings in the country. The threat passed without incident. Although no targets in the United States were identified, the report illustrates our concerns over the potential use of charter aircraft.

(U) **General Aviation**

(S/[REDACTED]) **Concerns.**

General aviation aircraft could be used against small, soft targets. Such aircraft would be effective particularly if loaded with high explosives. They also could be used against VIP motorcades or spectators at outdoor venues. Small aircraft could be rented or stolen for these operations, scenarios that have been reported in the press. With the flight training received by al-Qa'ida operatives, this type of attack would not be difficult to execute. Terrorist use of general aviation aircraft could circumvent ground-based countermeasures and, if flown at low altitude, would make the aircraft difficult to detect and engage. Light aircraft flying on visual-flight rules, particularly without flight plans, are difficult to monitor. We judge there will be an increased likelihood that terrorists will attempt to use general aviation aircraft for attacks.

- In September 1994, a lone individual stole a 2-seat Cessna aircraft and crashed it on the White House lawn. Although this incident was not terrorist-related, it highlights how simple it can be to steal small general aviation aircraft and create a threat platform.

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(S/[REDACTED]) **Intelligence Reporting.** [REDACTED]

[REDACTED] senior al-Qa'ida lieutenant Abu Zubaydah noted that Khalid Shaykh Muhammad, also an al-Qa'ida leader, is committed to hitting the White House. Abu Zubaydah claimed not to know how al-Qa'ida

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(U) Potential Terrorist Use of General Aviation

(U//FOUO) According to the FBI, a total of 41 light aircraft have been reported stolen in the US since October 1997. The majority of these aircraft have been stolen in the western United States. To date, none have been recovered. Although the FBI possesses no information indicating that these thefts were related to terrorist operational planning, in view of al-Qa'ida interest in using hijacked or stolen small aircraft to carry out terrorist attacks, we do not rule out the possibility.

(U//FOUO) A Transportation Security Agency (TSA) report on an incident on 11 July 2002 illustrates certain security vulnerabilities the United States faces from general aviation. Five aircraft of a flying club flying in formation at a low altitude towards New York City were picked up on air traffic control radar, but two of the pilots had their transponders turned off. NORAD scrambled US fighters, but the aircraft landed at Long Island Farmingdale Airport before they could be intercepted.

- According to the TSA, our ability to identify aircraft is degraded when they do not use transponders. In addition, air traffic control radar does not have 100 percent coverage of US airspace. The ability of US authorities to identify hostile aircraft and respond quickly and effectively is consequently hindered.
- Terrorists conceivably could fly small aircraft in a similar manner to test our defense and security measures or to attack US targets.

plans to destroy the White House but said he believes Khalid Shaykh Muhammad would "go back" to the original idea behind the 11 September attacks, which involved the use of small aircraft, possibly rented for flying lessons. He said that perhaps as many as three or four operatives at a time might rent planes under the guise of taking flying lessons, kill the instructors while in the air, and take over the planes.

(U) Also, the Royal Canadian Mounted Police provided information on a Turkish national, a commercial pilot, who made inquiries around 1996 into the feasibility of destroying Hoover Dam by an explosive laden aircraft.

(S/[REDACTED]) After the crash of the Cessna at the White House, Iranian security assets in Tehran reportedly directed Hizballah elements in Beirut to contact its members in

the United States to collect all information relating to the plane crash.

(S/[REDACTED]) According to other reports, in mid-September 2001 an Iranian-sponsored training camp in Bosnia allegedly had incorporated discussions on suicide bombing methods using explosive laden aircraft. Though this training reportedly was geared towards operations in the Balkans, we consider it a harbinger of the kind of training or thought process that could be applied to planning of attacks against the United States.

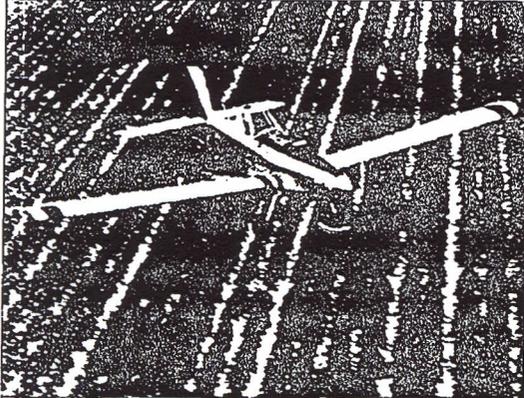
(U) Crop Dusters

(S/[REDACTED]) *Concerns.* Terrorists might attempt to use a "crop duster"—already configured for spraying—or configure a small aircraft with commercially available spray systems to disseminate biological or chemical agents over populated areas.

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(U) Air Tractor 402



(S/[REDACTED]) Terrorists have expressed interest in such aircraft as the Air Tractor 402 that can be configured for spray systems with the intent of spreading chemical or biological agents.

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- Technical analysis reveals that agricultural aircraft systems do not require modification or unique technical expertise for attacks using chemicals or dry biological agents.
- A terrorist could disseminate chemical agents or toxic industrial chemicals from an aerial platform by continuous spraying or by releasing the entire payload at a single point.

(S/[REDACTED]) Commercially available spray systems can be backfitted onto aircraft to generate a casualty-producing biological agent aerosol. Considerable expertise in aerosol production or extensive prior testing of the system would be required to maximize the lethality of an attack of this type, however.

(S/[REDACTED]) *Intelligence Reporting.* Credible reports have surfaced of plans to use crop dusters or other aircraft to spray chemical or biological agents over such US targets as population centers, agricultural areas, and large gatherings of people or US

interests overseas. Some reports concern persons with suspected links to the 11 September attacks.

- Habid Zacharias Moussaoui, awaiting trial for suspected links to the 11 September hijackers, possessed a laptop computer that contained information on “aerial application of pesticides,” had expressed an interest in crop duster flight training, and possessed brochures for the Air Tractor 402 and 502 series of crop sprayer aircraft.
- Documents confiscated from the al-Qa’ida Tarnak Farms terrorist training camp in Afghanistan and translated for the Intelligence Community in December 2001, noted the effectiveness of “spreading” “biological elements” in the “form of fog” and specifically through the use of “fog producers carried by planes.”

(U) Ultralights

(S/[REDACTED]) *Concerns.* An ultralight aircraft, powered hang-glider, or powered parachute could be used in a variety of ways: covert insertion of terrorists; grenade or weapons attack; chemical or biological agent dissemination; or suicide bomb attack. A two-man ultralight aircraft built in the United States now available on the commercial market also could be used as an attack platform. At least one US commercial firm offers a powered parachute configured as a crop duster.

(S/[REDACTED]) The advantages ultralights offer terrorists, compared to larger manned aircraft, include:

- The largely fabric or fiberglass construction of these aircraft—in contrast with commercial and general aviation aircraft which are largely metal—reduce the radar cross section, making detection

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and tracking by surveillance and air traffic control radar difficult and potentially shorten the available warning time for defenders.

- Further, the slow speed enables these aircraft to fly at treetop level, adding to the difficulty of detecting and tracking both by air surveillance radar and observers on the ground.

(C/[REDACTED]) As terror weapons ultralights have several disadvantages:

- Because of the limited speed and range of these vehicles, to be effective an ultralight would have to be launched relatively near the target area.
- Limited payload, often little more than the pilot and fuel, is another drawback of most but not all of these aircraft.
- Most ultralight aircraft, particularly the powered parachutes and hang-gliders, have little-to-no instrumentation; commercial GPS receivers, however, can compensate for this limitation.
- Despite the relative simplicity of ultralights, hang-gliders, and powered parachutes, use of these aircraft to carry out an attack would require some proficiency. The amount of training would depend on the type of craft used as well as the target and method of operations. Many recreational flight schools catering to these small, powered aircraft are located throughout North America.

(U) Powered Parachutes



(U//FOUO) Powered parachutes are easy to assemble, require relatively minimal training, and come in various designs including amphibious versions.

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(TS/[REDACTED]) *Intelligence Reporting.* We have no evidence that terrorists are targeting the United States with ultralight aircraft. Several terrorist groups, some with state sponsors in the Middle East, however, have trained with and/or used powered hang-gliders for terrorist attacks.

- [REDACTED] information the Population Front for the Liberation of Palestine-General Command (PFLP-GC) in April 2002 brought hang-gliders into Lebanon from Syria to launch attacks against Israel. The last successful attack of this type was in 1987 when six Israelis were killed. Several military-related facilities in Syria reportedly are utilized by the PFLP-GC for ultralight/hang-glider training.
- Attempts to attack Israel have continued, and in 1996 an ultralight operated by Hizballah crashed near the Lebanon-Israel border when it struck a high voltage cable, [REDACTED]
[REDACTED] The ultralight was apparently en route to a joint terrorist attack in northern Israel in coordination with the PFLP-GC.

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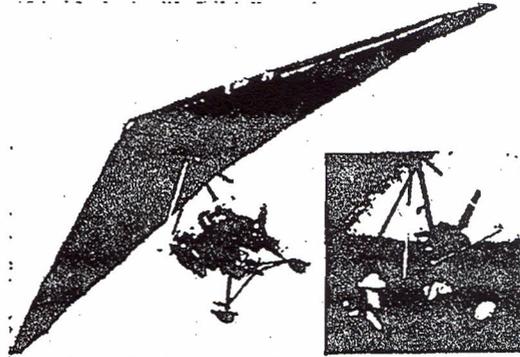
[redacted]
[redacted] the ultralight was carrying 40 kilograms of RDX, a white crystalline solid usually used in explosive mixtures.

- [redacted]
[redacted] Iran has trained Hizballah and possibly Palestine Islamic Jihad (PIJ) terrorists in the use of motorized hang-gliders.
- Iran retains a hang-glider capability. In March 2002 [redacted] Iran was attempting to procure an unspecified number of motorized hang-gliders from Italian and Spanish firms. [redacted]
[redacted] Iran's Islamic Revolutionary Guards Corps (IRGC) had trained with motorized hang-gliders on at least two separate occasions, early May and late September 2001.

(U) Unmanned Aerial Vehicles (UAVs)
(S/ [redacted] Concerns.
Unmanned aerial vehicles (UAVs) would enable terrorists to evade security countermeasures targeted against on-the-ground threats and provide them with a limited standoff and precision delivery option. UAVs range from radio-controlled model airplanes to simple sophisticated unmanned aircraft produced by defense industries. Targets for UAV attack could include spectators at outdoor events, selected buildings or facilities, and specific individuals. UAVs also can dispense CBW agents.

(S/ [redacted] The advantages UAVs offer terrorists, compared to larger manned aircraft, include:

(U) Ultralight



(C) Several countries and terrorist groups have incorporated hang gliders into their forces or operational units.

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- A UAV does not require a suicide pilot.
- The operator would require less training than that needed by a pilot of a manned aircraft; the training could be conducted in the guise of recreational and hobby club activities.
- Small UAVs could be hidden in garages and small buildings, transported in vans and trucks, and launched from roads, fields, and transportable launchers as well as vessels along waterways or in territorial waters.
- Small UAVs—which are difficult to capture under existing arms and export control regimes—can be obtained from numerous vendors worldwide. More than 60 countries either manufacture or possess UAVs, and more than 160 programs exist worldwide. Pakistan, Iran, Iraq, and the UAE all have indigenous programs. Very small UAVs and associated control equipment can be obtained through hobby catalogs. A commercial firm, for example, offers a small UAV for under \$15,000 that comes with an autopilot, GPS receiver, and wireless video-link and has a 0.5-kg payload.

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(S/) As terror weapons, however, UAVs have several disadvantages when compared with manned aircraft:

- Small UAVs can carry only small payloads—in the range of 0.5 to 60 kg—thus limiting their effectiveness against large, hardened targets.
- UAV's with no autonomous navigation capability require the operator to maintain line-of-sight with both the UAV and the target to prevent loss of contact with the platform. UAVs could be handed off to other operators along the flight path, providing a degree of operational flexibility. Although the UAV could be controlled visually—similarly to a radio-controlled airplane—a video targeting system aboard the vehicle would enhance accuracy. Without a video link to the aircraft, however, such a UAV probably would be less accurate than a manned aircraft flown by a suicide pilot.
- The control or video link to the aircraft might be subject to interference from nearby transmitters or jammers employed as countermeasures.

(S/) The most likely mode of attack for a UAV is direct impact augmented by an explosive warhead. *Nevertheless, a terrorist also could fit a UAV with a chemical or biological agent-dispensing capability using commercial-off-the-shelf hardware.* Remotely piloted helicopters configured for crop dusting are commercially available from several countries, including Japan, China, France, Russia, and South Korea.

(U) Yamaha R-50



(S/) The Yamaha R-50 can be configured with dispensing capabilities. The Aum Shinrikyo sect had planned to use a similar remotely controlled helicopter to deliver chemical agents.

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(TS/) **Intelligence Reporting.**

Reporting from the past three years suggests that al-Qa'ida and other terrorist groups have considered using UAVs as weapons.

- During a debriefing late in April 2002, senior al-Qa'ida lieutenant Abu Zubaydah revealed discussion by an associate to target aircraft using radio-controlled model airplanes as improvised small missiles.

(S/) E.O. 13526, section 1.4(c)

(S/) by February 2002 the Revolutionary Armed Forces of Colombia (FARC) had successfully flight-tested a radio-controlled model airplane. The system was to carry 2.5 kg of explosives for up to five minutes with a range of 800 meters. According to the information, the FARC planned to use the model airplane in an unspecified urban attack, possibly against one of the government's training schools.

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U.S.C., section 403g)

(U) **Driving Factors that May Increase the Terrorist Air Threat**

(C) Although we lack specific information on terrorist intent and preparation to conduct air attacks over the coming years, we are concerned by several broad trends that suggest this threat could increase on short notice.

(U) **Terrorism has become more lethal.** The total number of casualties and the average number of people killed in terrorist incidents have been rising. Some terrorist groups are more likely to try to kill large numbers of people indiscriminately and less likely to use force in more restrained and calibrated ways.

(S/[REDACTED]) **Organizational Practices of Terrorist Groups.** The ability of US authorities to deter, detect, and defend against air threats will be more difficult because the structure of some terrorist groups gives them increased flexibility to plan and conduct operations. Some terrorist groups are evolving into loose, flexible networks, with much of the planning and initiative for terrorist operations coming from small and informal groups. In addition, the information revolution and the easier movement of people and resources associated with globalization are enabling terrorists to become increasingly transnational in their operations and support.

- Terrorists trained by al-Qa'ida to conduct attacks like the ones on 11 September could be preparing other terrorists to execute similar types of operations.

(S/[REDACTED]) **The United States as an enduring target.** The United States will remain a prime target of international terrorists, chiefly because of its status as the sole superpower but also because of resentments against, or misinterpretations of, specific US policies and postures abroad.

- Terrorists seeking to strike US interests will place highest value on the US homeland and on official targets both inside and outside the United States, but attacks on nonofficial targets—tourists, businesses, religious institutions, and other organizations—and US interests abroad may be more frequent because such targets present fewer operational challenges to terrorists, especially with the heavy US attention to homeland security following 11 September.

E.O. 13526, section 1.4(c)

- In November 2001, [REDACTED] unspecified terrorists were developing small, radio-controlled helicopters that could be filled with explosives and directed against targets in Europe. The helicopters would be guided by video link and GPS.
- In 2000, [REDACTED] E.O. 13526, section 1.4(c) indicated that Iran may have provided Hizballah with attack UAVs.
- Around April-May 1999, an associate of Usama Bin Laden reportedly proposed to Iraq a joint attack on USCENCOM Headquarters. One proposal involved the use of remotely controlled aircraft filled with explosives. [REDACTED] E.O. 13526, section 1.4(c) Saddam turned down this and other proposals for the cooperative attack.

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- In 1995, suspected al-Qa'ida member Khalil Deek discussed with a UK/Pakistani citizen experiments involving remote controlled small aircraft as a means of attack.

(TS//) Terrorists also have considered using remotely controlled aircraft, including to disseminate chemical and biological agents.

E.O. 13526, section 1.4(c)

- The Japanese Aum Shinrikyo sect planned to use remotely piloted helicopter crop dusters in 1995 to deliver chemical agents over a populated area,

E.O. 13526, section 1.4(c)

(U) Lighter-Than-Air Means

(S//) **Concerns.** Terrorists could use hot air or helium balloons to infiltrate an area or to disseminate chemical or biological agents. Such an approach, however, is unlikely to be successful because of the number of things that could go wrong: the prevailing winds determine control; the balloons lack speed; and they easily can be detected. We judge terrorists are more likely to attempt to employ balloons as unmanned platforms in an effort to deliver chemical or biological agents rather than as means to insert personnel. Although such platforms lack technical suitability for chemical and biological agent dispersal, terrorists might consider the potential psychological effects of such an attack worth the effort.

- The use of balloons to deliver weapons is not new—the Japanese used them against North America during World War II.

(U) Japanese WWII Balloon



(S//) In WWII, Japan used Fugo Balloons on attacks of North America. Al Qa'ida and Aum Shinrikyo have considered using balloons for the dissemination of biological agents.

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Japan lofted around 9,000 balloons armed with anti-personnel and incendiary bombs for the five-month journey; 285 incidents involving them were reported. Most balloon sightings were in the northwest US, but some were as far East as Michigan. The only US fatalities associated with this weapon occurred when six picnickers in Oregon dragged a balloon bomb from the woods and it exploded.

(S//) Terrorists also could commandeer a commercial blimp, either through hijacking or use of insiders, to deliver ordnance, attempt to disseminate CBW, or to fill with explosives and employ as a suicide bomb. We regard these scenarios as plausible. For example, the plot of the film "Black Sunday" involved terrorist use of a commercial blimp in an attack at the Super Bowl. As such, this concept has no doubt come to the attention of

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(S//) Ways and Means of Delivering Iraqi UAVs to the United States

(S//) Small-to-medium sized UAVs could be disassembled in Iraq and packaged in shipping crates sized to accommodate the wingspan of the UAV. The shipping crates could be transferred by land to Jordan or the UAE and then shipped to the United States by air or sea.

- Although US Customs is not able to inspect all incoming shipments to the United States, the attempt to export UAVs to the United States could draw special attention of inspectors because of the point of origin. Inspection of the contents of the shipment stemming from heightened security awareness could foil the delivery.
- Despite potential avenues for interdiction, significant challenges exist, including the sheer volume of commercial cargo that US Customs is faced with inspecting. UAV subcomponents could be broken down into multiple shipments and transported with other innocuous cargo using false manifests or end-user documentation. Covert agents could be used to facilitate the shipments.

(S//) Once inside the United States the UAVs could be reassembled and the autopilots programmed in a garage, warehouse or other similar covered space. The UAV could be reassembled, programmed and launched in a matter of hours.

(S//) Also, Iraqi agents in the United States could order large radio-controlled (RC) airplanes from US hobby companies and then assemble the aircraft and install and program the autopilots in this country. CIA analysts used this technique in an experiment in 2000.

(U) The Route-Planning Software and "50 State" Database

(U) According to Internet research, the route-planning software "MapSource" is produced by the US firm Garmin and enables the user to view—using zoom and pan functions—color maps on a personal computer (PC). The "trip and waypoint manager" functions are used to create waypoints, routes, and tracks, and to transfer those routes from the PC either directly or via CD ROM to a global positioning system (GPS) unit. MapSource also is used to track and display in real time the position of a moving vehicle.

(U) The MapSource US topographic CD-ROM maps are similar to US Geological Survey 1:100,000-scale topographic paper maps. The software enables the user to view highways, roads, trails, elevation contours, point elevations, some bathymetric contours, geographic names, churches, and schools. Shoreline detail is included for lakes, reservoirs, small bodies of water, waterways, rivers, and streams. Icons represent dams, campgrounds, public facilities, recreational areas, fuel, and dangerous and restricted areas and other landmarks. In addition, nautical navigational aids including radio beacons for the 50 states are provided.

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terrorist groups, including members of
al-Qa'ida.

(TS//) **Intelligence Reporting.** Some
reporting reveals that various terrorist
organizations and states have considered
using balloons for attacks, although such
approaches generally have proven ineffective.

E.O. 13526, section 1.4(c)

- In April 2002, () the PFLP-GC had
brought hot air balloons into Lebanon
from Syria to use in attacks against Israel.
- Documents recovered from Afghanistan
in November 2001 suggest that al-Qa'ida
was considering using balloons to deliver
anthrax.
- In July 1999, more than 30 balloons
suspected of originating in North Korea
were found in Japan. Balloons originating
from North Korea have landed in Japan
since 1975, usually containing
propaganda. The balloons in 1999,
however, carried a timer with settings of
up to ten hours and a plastic bottle or
canister. ()
assessed that the timer device was
designed to drop or mix liquids at a
predesignated time. No chemical or
biological agents were detected.
- In 1990, Aum Shinrikyo, according to the
sect's notes, began experimental
cultivation of botulinum toxin with the
intention to load the botulinus on a
balloon for eventual dissemination.
- In 1981 the Palestine Liberation Front
(PLF) attempted to infiltrate Israel using a
hot-air balloon. Israel shot down the
balloon and the two PLF operatives were
killed. Documents found on the terrorists
indicated that their mission was to take
hostages in exchange for imprisoned PLF

E.O. 13526, section 1.4(c)

members. In 1980, the group also
attempted to infiltrate Israel using a hot air
balloon. The balloon exploded shortly
after take-off, killing the terrorist.

(U) State Air Threats to the US Homeland

(S//) We have examined
situations in which foreign states would use
traditional and unconventional airborne
means to attack the US homeland. We
believe the circumstances would be rare but
that the Intelligence Community must
nevertheless remain on guard. Some
countries—notably Iraq and Libya—
apparently are improving capabilities to
conduct such attacks. Should these and other
countries conclude that the United States
intended to destroy their regimes, the chances
would increase that they would attack the
United States. We note the states of principal
concern below.

(U) Iraq

(S//) Iraq is attempting to
manufacture dozens of small-to-medium sized
UAVs. () E.O. 13526, section 1.4(c)
Baghdad also is seeking route-planning
software and an associated topographic
database likely intended for use with its
UAVs. The database "Garmin 50 State Topo
Mapping Software" mentioned in the
intelligence reporting almost certainly relates
to the United States. We judge that Iraq could
use the software and database to program
routes for UAVs to attack targets in the
United States with either UAVs already in its
inventory or ones it is developing. Iraq would
have the challenge of smuggling the UAVs
into the United States or launching them
beyond US borders from locations that meet
operational parameters. We assess that Iraq
currently does not have operational BW-
equipped UAVs; Iraq has been working on
such a capability for the past decade.

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(TS/[redacted]) Iraq in the past may have configured small UAVs to deliver BW agents according to sensitive reporting, and in 1991 UNSCOM discovered eleven small UAVs at the Iraqi BW R&D, Production and Storage Facility at Salman Pak.

- Between November and December 2001, Iraq on three occasions flight tested a medium-sized UAV with a four-meter wingspan that we judge eventually could be used in conjunction with the route-planning software and the "50 state" database described earlier.
- Although we do not know the mission of this UAV, analysis of flight data reveals that the system has an autonomous flight capability and was pre-programmed with a route prior to launch. The UAV is launched from the back of a truck and probably has a payload capability of approximately 20 to 30 kg.

(S/[redacted]) Iraq may plan to retrofit either the medium-sized UAV or another unidentified UAV with the autopilots it is seeking. We judge Iraq would need two to six months after the autopilots are received to retrofit and flight test the improved UAVs.

- In 2000, CIA analysts purchased a large radio-controlled aircraft and a separate but similar UAV autopilot. Assembly of the aircraft, installation and programming of the autopilot, and first test flight took three months.

(U) Libya

(TS/[redacted]) Libya is interested in obtaining a 1500 km range LACM—the CM-1500—configured for launch from a modified international-standard shipping container. The container could be placed on any number of vessels, including a covertly armed merchant ship, which could

launch the LACM from international waters, using GPS-aided navigation, and possibly evade launch detection. Technical analysis of the CM-1500 missile design indicates that it could be modified to deliver a nuclear, biological, or chemical payload. Libya's plan involved acquisition of missiles from Serbia, but a report [redacted] indicates the contract was frozen.

E.O. 13526, section 1.4(c)

(U) Iran and North Korea

(S/[redacted]) We have no specific reporting indicating that either has planned to employ unconventional air attacks against the US homeland, although they almost certainly have prepared some type of unconventional operation for situations in which they perceive they will be attacked by the United States. The relative importance and role of unconventional options in each country's security strategy are likely to change as they develop nuclear and long-range missile options.

(U) Cuba

(S/[redacted]) Havana may have some type of contingency plan for an air attack on the United States, to be executed in the event of a US military invasion that threatened the regime. We have no evidence that Cuba has plans for an unconventional attack.

(S/[redacted]) Cuba has fighter aircraft that can range to the US homeland.

E.O. 13526, section 1.4(c)

- In 1987, [redacted] Cuba had a contingency plan to attack the US homeland if the United States invaded Cuba. Targets included nuclear reactors. The reported rationale for attacking the United States was to "internationalize" the conflict and draw in Soviet intervention. We have no subsequent information as to whether the plan was modified since the demise of the Soviet Union.

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(S/[REDACTED]) The operational capabilities of the air force have declined substantially since the end of Soviet aid in the early 1990s, and its focus now appears limited to deterring aerial incursions by exiles and drug traffickers.

- Cuba's air force routinely has about 20 aircraft that are operational, including four MiG-29, nine MiG-23, and seven MiG-21; Cuba has additional aircraft stored in hardened bunkers or tunnels, but we do not know their condition. We have not detected specific activity indicating that the air force is training for missions to attack targets in the United States.

(U) Russia

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(S/[REDACTED]) Russia is highly unlikely to conduct an air attack on the United States. President Putin recognizes that integration with the West, which he sees as critical to Russian prosperity, could best be accomplished in a climate of cooperation with the United States. This new policy toward the United States has been demonstrated by muted reaction to US withdrawal from the ABM Treaty and toward NATO enlargement, cooperation in the global war on terrorism, acceptance of a short-term US military presence in Central Asia, and the impending closure of the [REDACTED]

(S/[REDACTED]) Although scenarios in which Russia becomes belligerent and a Russo-American conflict ensued are plausible, any such situation almost certainly would be preceded by months if not years of warning and worsening political relations.

(S) Russia retains the greatest capability to conduct air attacks against the United States with heavy bombers armed with LACMs.

E.O. 13526, section 1.4(c)

E.O. 13526, section 1.4(c)

Strategic aviation will remain a component of Russia's strategic triad over the next 10 years.

(U) China

(S/[REDACTED]) China has a limited capability to conduct air strikes against the United States.

- China currently has about 100 refuelable F-8-II and F-8-III fighters that could range as far as Guam and the westernmost Aleutian Islands if they were accompanied by tanker aircraft.
- We have not detected China training for such an operationally difficult, long-range, overwater attack option.

(S/[REDACTED]) We expect China to deploy by 2010 an air-delivered LACM—the DH-10—that could strike Guam and the westernmost Aleutian Islands using a B-6H delivery platform or acquire an alternative refuelable launch platform with a compatible tanker. We assess the missile will have a 2000-2500km range if armed with a nuclear warhead or 1500km range if armed with a 500kg conventional warhead.

- Using this missile, China could strike Guam and the westernmost Aleutian Islands in unrefueled attacks. If China were to field a refuelable version of the B-6H LACM carrier, it could extend the strike radius as far as central Alaska.

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The National Intelligence Council

The National Intelligence Council (NIC) manages the Intelligence Community's estimative process, incorporating the best available expertise inside and outside the government. It reports to the Director of Central Intelligence in his capacity as head of the US Intelligence Community and speaks authoritatively on substantive issues for the Community as a whole.

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National Security
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Information available as of July 2002 was used in
the preparation of this Intelligence Community Assessment

The following intelligence and security organizations
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The Central Intelligence Agency

The Defense Intelligence Agency

The National Security Agency

National Imagery and Mapping Agency

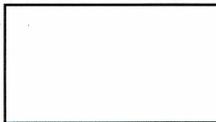
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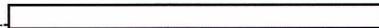
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Dissemination Control
Abbreviations

NOFORN (NF)	Not releasable to foreign nationals
ORCON (OC)	Dissemination and extraction of information controlled by originator
REL...	This information has been authorized for release to...
RD	Restricted Data
FRD	Formerly Restricted Data



Abbreviations for compartmented codewords are:



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Copies of this document are available from DCI/NIC/NIO/[redacted]
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