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Cuba: Modernization of the Air Force, 1978-83



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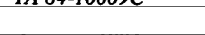
An Intelligence Assessment

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Cuba: Modernization of the Air Force, 1978-83

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An Intelligence Assessment

This paper was prepared by [Redacted] of the
Office of African and Latin American Analysis and

[Redacted]

Comments and queries are welcome and may be
directed to the Chief, Middle America-Caribbean
Division, ALA, [Redacted]

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Cuba: Modernization of the Air Force, 1978-83



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Key Judgments

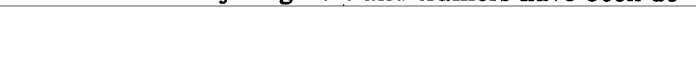
Information available as of 1 November 1983 was used in this report.

The delivery of 12 MIG-23 fighter-bombers in 1978 marked the beginning of a modernization program that has transformed the Cuban Air Force into a major hemispheric power, one commensurate with Cuba's status as the premier Soviet military surrogate in the Third World. The greatest improvements have come in air defense capabilities, although Cuba's regional-intervention and power-projection abilities have been enhanced as well. As a result, the Cuban Air Force is now better equipped, better trained, and better able to survive an air attack than it was five years ago.



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More than 150 of Cuba's 200 active jet fighters and trainers have been delivered since 1978,



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Most of the new aircraft replaced older models, freeing at least 20 early MIG-21s and a few MIG-17s that could be passed on to Nicaragua or Angola. Cuba also has expanded its regional and long-range airlift capabilities and is preparing to acquire its first heavy-cargo-carrying aircraft when Soviet-built IL-76s are delivered



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Cuba apparently undertook this modernization to raise the costs to the United States of any attempted airstrike either as a part of an invasion attempt or in retaliation for Cuban support of revolutionary movements abroad. Although Cuba's military interventions in Africa in the mid-to-late 1970s probably prompted the program, the pace of the modernization increased after the Reagan administration focused on Cuba's support of revolutionaries in Central America.



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We believe Moscow has underwritten and overseen this modernization, and an equally dramatic modernization of the Cuban Navy, as a signal of its willingness to give Cuba the means to deter an attack by the United States, and as a reward for Cuba's combat role in Africa in support of their mutual policy objectives. The Soviets also appear willing to make additional improvements to Cuba's regional intervention capabilities, but we believe they will move more slowly and cautiously in this area in order to gauge US reactions.

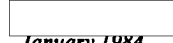


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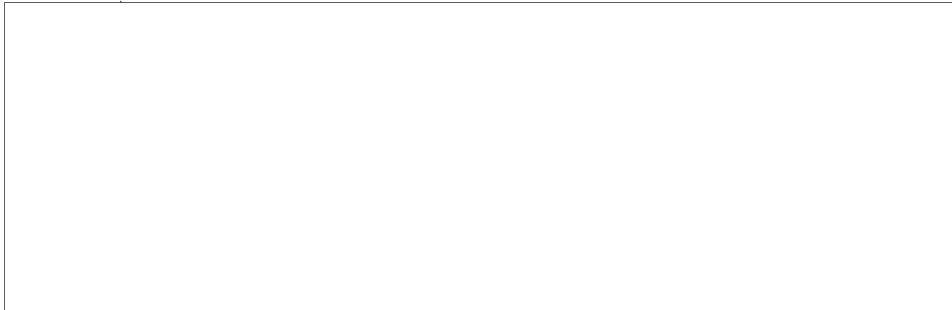
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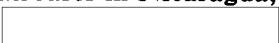
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Concurrent with the acquisition of more aircraft, Cuba has expanded and improved its airfields and facilities to provide greater protection against a large-scale air attack. Nearly 120 new hardened aircraft shelters are under construction or have been completed since 1979 at three Cuban fighter bases. Runways have been lengthened and revetments added at a number of secondary and reserve airfields where aircraft could be dispersed during a war. 

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Because the modernization effort has largely been completed, we expect Cuba's fighter inventory to remain relatively stable for the next five years. Cuban fighters pose only a marginal threat to US territory and naval forces but could still require the diversion of several Airborne Warning and Control System (AWACS) aircraft, fighter squadrons, and a carrier battle group to protect convoys destined to reinforce Europe during a war or a crisis. They will also have a significant capability to project power through much of the Caribbean Basin, and, from airbases in Nicaragua, Cuban MIGs could threaten the Panama Canal. 

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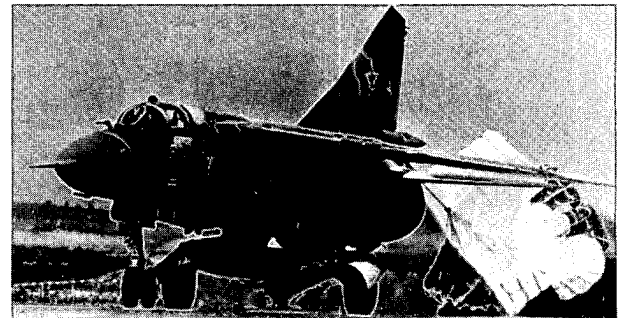
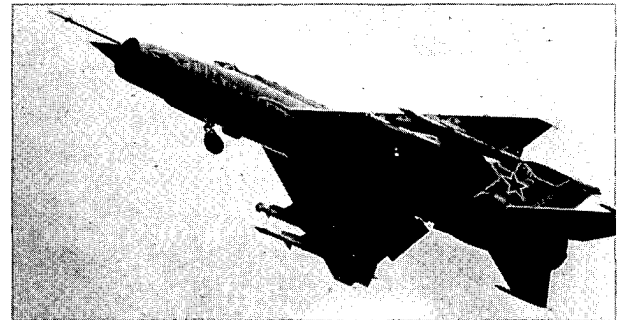
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Cuba: Modernization of the Air Force, 1978-83 [Redacted]

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Introduction

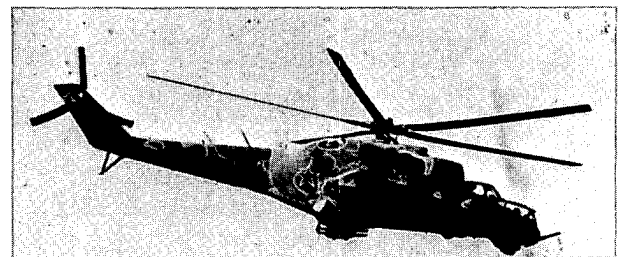
In the last five years, the Cuban Air Force has replaced more than three-fourths of its aircraft with newer models, has made extensive improvements to its airfields and facilities, and has greatly expanded its pilot-training program. These efforts have resulted in large improvements in its air defense, ground support, and short-range airlift capabilities, and have given Cuba a greater ability to survive even a large-scale air attack. The Cuban Air Force now has a larger number of modern jet fighters than such Western Hemisphere powers as Brazil, Argentina, or Canada and has enhanced its capability to intervene through most of the Caribbean region. This paper examines the scope of these improvements, assesses the impact of this modernization on the Air Force's ability to carry out its missions, and addresses the implications for the United States.¹ [Redacted]



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New Aircraft

Fighters. Before mid-1978, Cuba's Air Force comprised primarily subsonic, gun-armed MIG-15 and MIG-17 fighters—first delivered in 1962—and early-model, 1960s vintage MIG-21s. These aircraft had relatively short ranges, small payloads, and low-technology avionics that could be easily jammed. Some 45 late-model MIG-21s based in the Havana area provided the only modern air defense apart from surface-to-air missiles. [Redacted]



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The arrival of 12 MIG-23 fighter-bombers in 1978 marked the beginning of the modernization program. Although these aircraft lacked the most sophisticated Soviet avionics and were of a type that had previously been exported to the Middle East and Ethiopia, they were basic models of the top-of-the-line aircraft then in the Soviet Air Force. Their increased range and payload gave them considerable offensive potential, and their arrival was, in our view, a strong signal of Moscow's willingness to expand the capabilities of the

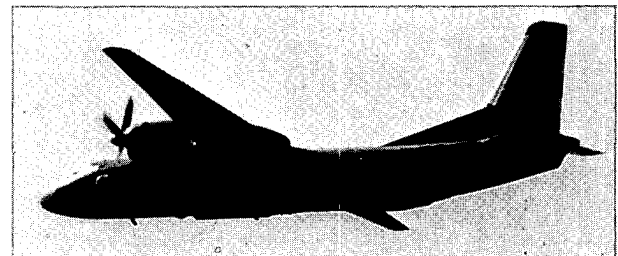


Figure 1. Aircraft in the Cuban Air Force: MIG-21, MIG-23, MI-24, and AN-26. [Redacted]

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Cuban Air Force despite warnings from the United States over Cuba's expanding role as a Soviet military surrogate. [Redacted]

In 1978 Cuba had a number of its MIG-21 pilots flying combat missions in Angola and Ethiopia and was undoubtedly concerned about the inadequacies of its own air defenses should the United States adopt a more bellicose posture. By agreeing to modernize Cuba's Air Force, [Redacted]

[Redacted] the Soviets were able to soothe these fears, as well as to reward the Cubans by giving them an Air Force more commensurate with their status as a major Third World power. A modernization and expansion

program for the Cuban Navy was also begun at approximately the same time. [Redacted]

The pace of the Cuban modernization increased after the Reagan administration began focusing public attention on Cuba's support of revolutionaries in Central America. Since then, at least 20 combat aircraft have been delivered to Cuba every year. [Redacted]

[Redacted] These included 24 MIG-23s—20 of which are advanced

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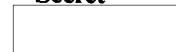
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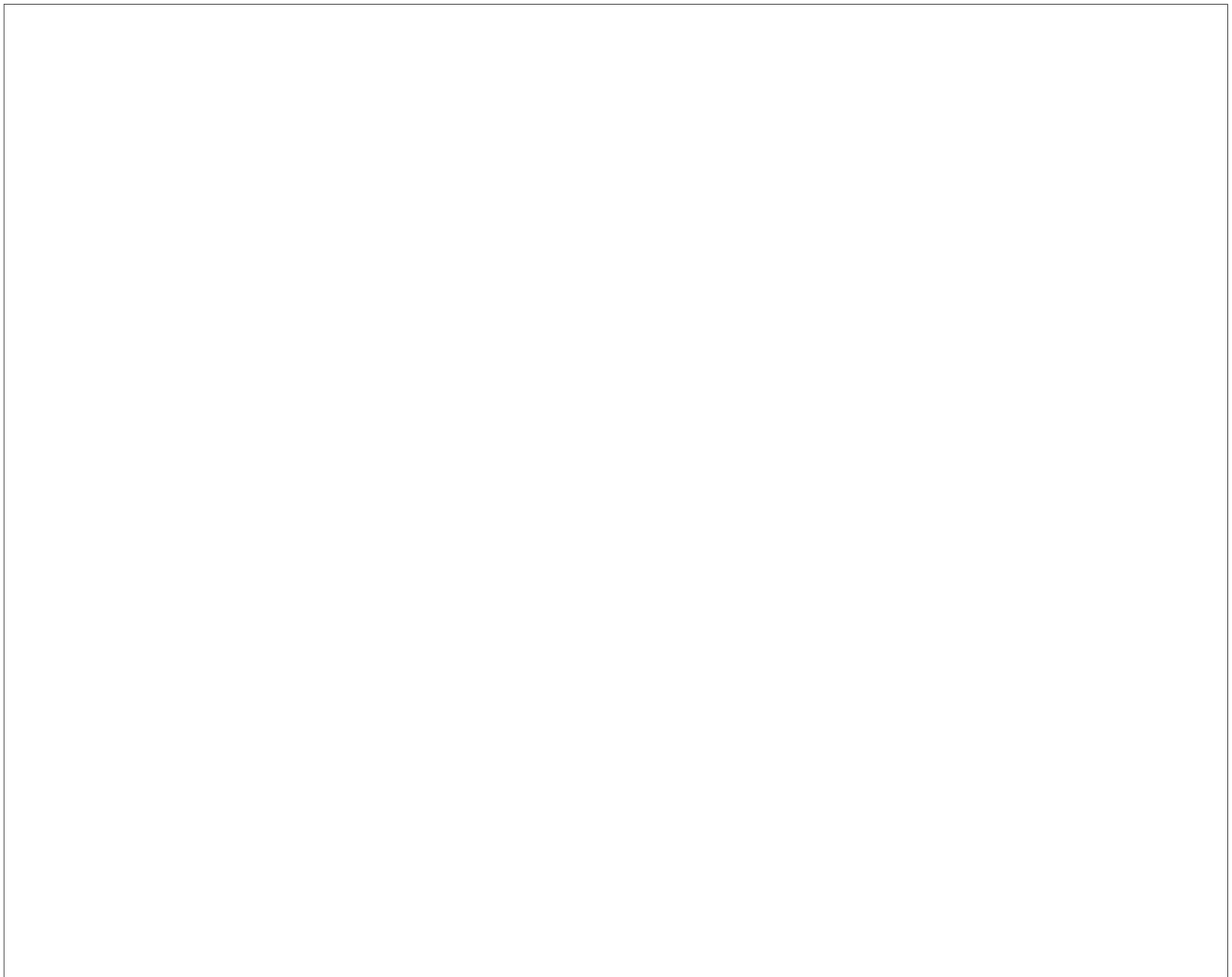
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B-model interceptors—60 MIG-21s, and 30 L-39 trainers. More than 150 of the approximately 200 fighters and trainers now in service with the Cuban Air Force have been delivered since 1978. 

Most of the new aircraft have replaced older fighters, but their deployment across the island has changed. The MIG-23s are all based at San Antonio de los Banos Airfield just southwest of Havana. Their arrival there led to the transfer of one squadron of 12 late-model MIG-21s to Santa Clara in 1982, where it replaced the last squadron of MIG-17s. Many obsolete MIG-15s and MIG-17s were abandoned in a field at Santa Clara in early 1982, but three appear to have been refurbished and others are being used as decoys.

The 20 to 40 remaining early-model MIG-21s are based at Holguin in eastern Cuba, 



Some 24 MIG-21s and 30 L-39s are stationed at a fourth operational base that was opened in September 1982 at San Julian on the western tip of the island. These aircraft serve a new training school there for fighter pilots.



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Table 1
Cuban Air Force Order of Battle

| Aircraft | April 1978 | September 1983 |
|------------------------|---------------|-----------------------|
| Fighters | 177 | 144 |
| MIG-15 | 45 | 0 |
| MIG-17 | 26 | 0 |
| MIG-21 (C/E/F) | 58 | 20 ^a |
| MIG-21 (J/L/N) | 48 | 94 |
| MIG-23 (B) | 0 | 20 |
| MIG-23 (F) | 0 | 10 |
| Jet trainers | 15 | 51 |
| UMIG-15 | 9 | 0 |
| UMIG-21 | 6 | 16 |
| UMIG-23 | 0 | 5 |
| L-39 | 0 | 30 |
| Helicopters | 49 | 44 |
| MI-4 | 45 | 0 |
| MI-8 | 4 | 22 |
| MI-17 | 0 | 10 |
| MI-24 | 0 | 12 |
| Transports | 28 | 74^b |
| AN-24/26 | 3 | 30 ^c |
| Cubana Airlines | | |
| IL-62 | 2 | 10 |
| TU-154 | 0 | 5 |
| BB-318 | 3 | 2 |
| IL-18 | 4 | 2 |
| IL-14 | 13 | 11 |
| YAK-40 | 3 | 14 |

^a An additional 20 early MIG-21s may be available for service but are no longer flown regularly.

^b Cuba also has three DC-3s and several dozen small propeller-driven planes, mostly AN-2s.

^c These fly with either Air Force or Cubana markings.

Helicopters. The modernization of Cuba's small helicopter force has been equally dramatic. The obsolete MI-4 Hounds have been replaced by MI-8 Hips, and Moscow also has provided Cuba a squadron of 12 MI-24 Hind helicopter gunships—the weapon the Soviets have used most effectively in Afghanistan.

This delivery [redacted] allowed the Cubans to convert the MI-8 Hip F attack squadron based at Cienfuegos to troop transports. Photography of these Hip F's [redacted] indicates they rarely carry weapons pylons. [redacted]

A second helicopter unit is now being formed at Ignacio Agramonte Airfield near Camaguey in east-central Cuba. Ten new MI-17 Hip H helicopters were delivered there [redacted]. These helicopters are armed, and, with or without weapons pylons, they are capable of transporting troops. The base has hardstands for 24 helicopters. [redacted]

Transports. Cuba's fixed-wing military transport fleet has also kept pace with the forcewide modernization. At least 26 new AN-26 short-range transports have entered the Air Force inventory since 1978, substantially expanding Cuba's regional airlift capability. These versatile aircraft can be used to transport paratroopers, paradrop supplies, evacuate casualties from frontline airfields, perform reconnaissance missions, tow targets, and carry light military-related equipment to Nicaragua. [redacted]

Cuba's civil airline has also upgraded its inventory since 1976 by acquiring 10 long-range IL-62 and five TU-154 passenger jets. [redacted]

[redacted] Cubana also has a fleet of 14 short-distance YAK-40s and numerous older propeller-driven transports. [redacted]

Improvements to Airfields and Facilities

Concurrent with the modernization of its aircraft, the Cuban Air Force has substantially improved its airfields and ground facilities. Runways have been lengthened at both main and secondary airbases, new

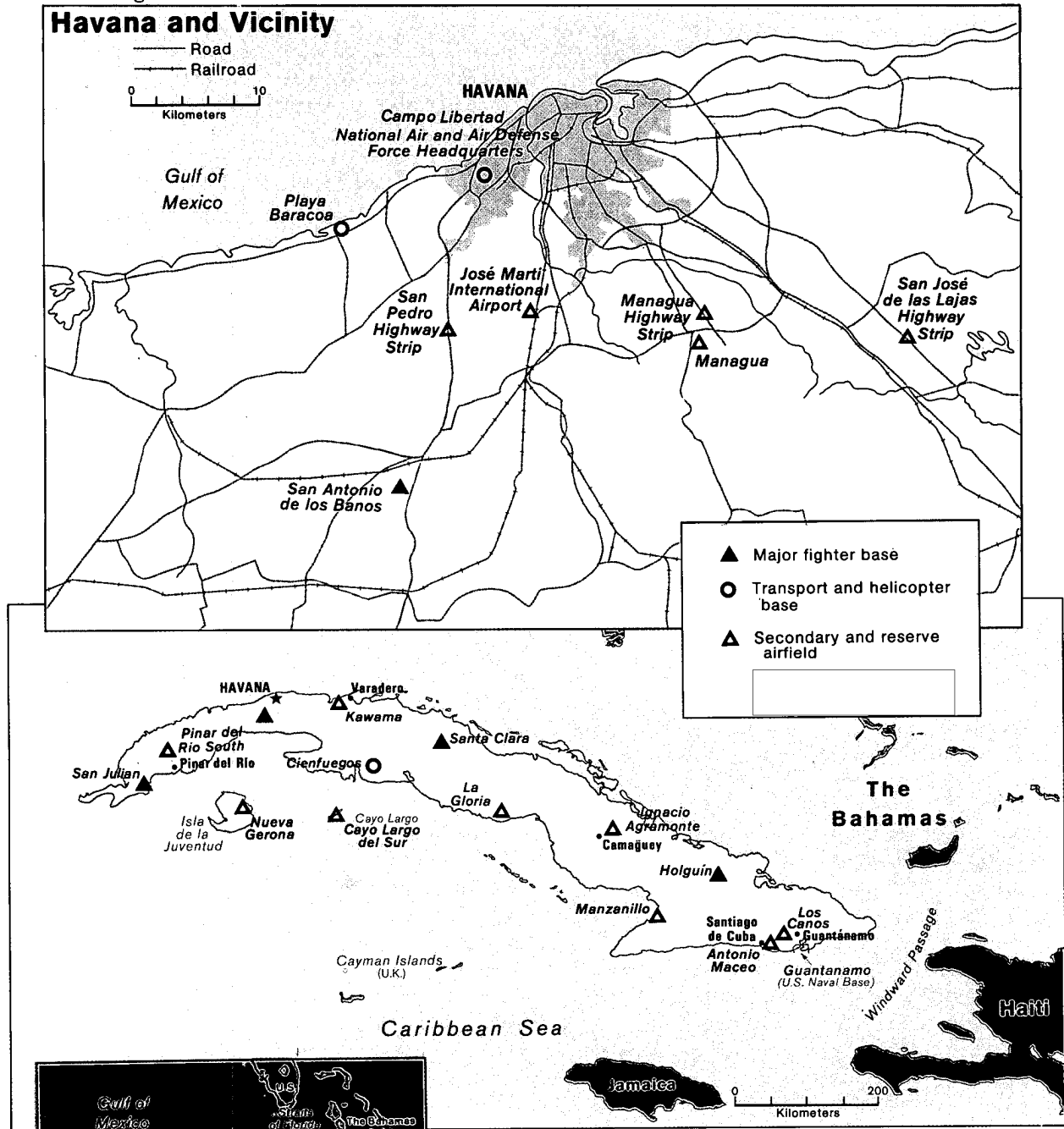
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Figure 4
Cuban Fighter Bases and Other Airfields



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hardened aircraft shelters have been constructed, and additional highway airstrips have been built to provide dispersal bases. These measures all enhance the force's ability to survive a large-scale air attack. [redacted]

and on an access taxiway for the new shelters is nearly complete. Twelve additional hardened aircraft shelters and another access taxiway are also under construction. [redacted]

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Main Bases. The Air Force has four main fighter bases: San Antonio de los Banos in the Havana area, Santa Clara in central Cuba, Holguin in the east, and San Julian Airfield near the island's western tip. The latter was activated in the fall of 1982 and serves as the Air Force's fighter training school. Other primary airfields used by the Air Force include Campo Libertad Airfield in Havana—the National Air and Air Defense Force headquarters and the primary MIG-21 maintenance base—and Playa Baracoa in the Havana area, where most of the AN-26 transports are based. Most of Cuba's helicopters are based at Cienfuegos, but a new helicopter unit is being formed at Ignacio Agramonte Airfield near Camaguey. [redacted]

At Holguin Airfield, the runway is being resurfaced and 28 new hardened aircraft shelters have been completed since 1980. Another 14 are under construction. The airfield's main parking apron has also been enlarged and fitted with new fueling points. [redacted]

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Short-range navigation systems (RSBN-4) were installed at both Santa Clara and Holguin [redacted] San Antonio de los Banos has had one [redacted] This system uses radio beacons that can be received by equipment on board MIG-23s and the latest model MIG-21s as an aid for all-weather navigation and landings. [redacted]

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Construction of new hardened aircraft shelters began at each of the three older fighter bases [redacted] Sixty-four new shelters have been completed and 54 more are under construction. These Soviet-style shelters provide better protection for aircraft than the older earth-covered shelters previously built by the Cubans. They also have adjoining personnel bunkers to protect air and ground crews and their equipment. [redacted]

Secondary and Reserve Airfields. In addition to the facilities at its main fighter bases, the Cubans have improved a number of secondary and reserve airfields to support combat operations. Aircraft revetments, personnel shelters, and high-speed taxiways have been added at several airfields and the runways at some civilian airports have been lengthened. In a war, we expect the Cuban Air Force to disperse several of its fighter squadrons from the main bases to these secondary and reserve airfields, thus reducing their vulnerability to air attack. [redacted]

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San Antonio de los Banos—home base of Cuba's MIG-23s—has benefited most from improvements since 1980. Twenty hardened aircraft shelters were completed, the main runway was extended and resurfaced, and the main parking apron was resurfaced and fitted with new fueling points. A separate secured facility was added to serve Soviet Bear naval reconnaissance and antisubmarine warfare aircraft that periodically deploy to Cuba. Current construction at this base includes an extension of the third runway and at least 28 additional hardened aircraft shelters. [redacted]

Five secondary airfields—Managua Airfield in Havana, Ignacio Agramonte in Camaguey, Kawama Airfield near Varadero, Antonio Maceo Airfield at Santiago de Cuba, and the San Pedro Highway strip south of Havana—have each supported the deployment of a fighter squadron [redacted]

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[redacted] All of these airfields have aircraft revetments and three of them have personnel bunkers nearby. Only Ignacio Agramonte and Managua, however, have permanent ground support equipment on location. Operations at the others require the deployment of fuel and support equipment from the main bases. [redacted]

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At Santa Clara, four new fuel storage tanks have been covered with earth, 16 new hardened aircraft shelters have been built, and 14 revetted hardstands with personnel bunkers have been added at the opposite end of the airfield. Work on extension of the runway

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Some airfields used primarily for civilian air traffic have revetments and runways long enough to support at least some fighter operations. All of these can be used by helicopters and AN-26 transports. Table 2 lists the primary, secondary, and reserve airfields in Cuba and their respective runway lengths and military support facilities. MIG-21s using runways of less than 2,300 meters would have limited landing capabilities and would probably need crash barriers.

[Redacted]

Cuba has also begun construction of two highway airstrips in the last year. These are stretches of good highway with aircraft revetments and taxiways built adjacent to them. An existing highway strip at San Pedro, south of Havana, has been in use for several years. The two new strips are also in the Havana area at San Jose de las Lajas and just east of Managua Airfield. Locating a highway airstrip near an existing airfield allows the dispersed aircraft to share fuel, support, and ground control facilities.

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**Table 2
Cuban Airfields and Facilities, October 1983**

| | Length (meters) | HAS | U/C | ES | REV |
|--|--------------------|-----|-----|----|-----|
| Main fighter bases | | | | | |
| San Antonio de los Banos | 4,000 | 20 | 28 | 30 | Yes |
| Santa Clara | 2,600 ^a | 16 | 12 | 26 | Yes |
| Holguin | 3,200 | 28 | 14 | 31 | Yes |
| San Julian | 2,500 ^a | | | | Yes |
| Transport and helicopter bases | | | | | |
| Campo Libertad | 2,000 | | | | Yes |
| Playa Baracoa | 1,800 | | | | No |
| Cienfuegos | 1,800 ^a | | | | Yes |
| Secondary and reserve airfields | | | | | |
| Ignacio Agramonte (Camaguey) | 3,000 | | | | Yes |
| Managua (Havana) | 2,800 | | | | Yes |
| Kawama (Varadero) | 2,400 | | | | Yes |
| San Pedro Highway | 3,250 | | | | Yes |
| Antonio Maceo (Santiago de Cuba) | 2,300 ^a | | | | Yes |
| Jose Marti (Havana) | 4,000 ^a | | | | No |
| Los Canos (Guantanamo) | 2,450 | | | | Yes |
| La Gloria | 2,250 | | | | Yes |
| Manzanillo | 1,860 | | | | Yes |
| Nueva Gerona | 2,000 | | | | No |
| Cayo Largo | 1,770 | | | | No |
| San Jose de las Lajas Highway | 1,675 | | | | No |
| Pinar del Rio South ^b | 2,000 | | | | No |
| Managua Highway ^b | 2,500 | | | | Yes |

^a Runway being lengthened.

^b New facility, still under construction.

HAS: hardened aircraft shelters; U/C: hardened shelters under construction; ES: old earthen shelters; REV: revetments present.

[Redacted]

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Pilot Training and Ground Support

An air force that brings as many new aircraft into service as rapidly as Cuba has done in the past five years places a great burden on its pilots and ground support personnel.

[Redacted]

[Redacted]

if Cuba's experience is similar to the Soviets', we believe the Cubans will need to have many more technicians and maintenance personnel to service the more advanced avionics systems in the new aircraft.

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Pilot Training.

[Redacted]

[Redacted] An article in the Cuban military magazine *Verde Olivo* in February 1983 confirmed that an Air Academy has been established at San Julian in western Cuba.

[Redacted]

[Redacted]

The school appears to be modeled after Soviet Air Forces academies where cadets spend four years and receive a college education along with their fighter pilot rating. If it continues to follow the Soviet model, [Redacted] students will spend their first two years on the L-39 trainer, and then learn combat skills on the MIG-21 in their last two years. The initial enrollment and

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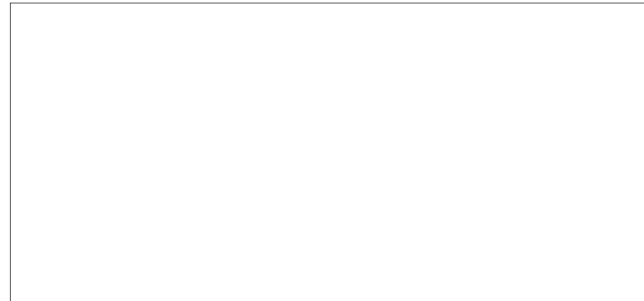
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How Good Are Cuban Pilots?

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Cuban pilots appear to measure up well compared with those of other Third World countries, but suffer many of the failings of their Soviet mentors. A number of Cuban pilots have combat experience in Africa, but, with the exception of a few missions in Ethiopia, this was almost exclusively limited to ground attack missions against lightly armed insurgents. Although the Cubans proved mostly to be brave under fire, their African experience would not be directly applicable to conventional warfare against well-trained and -equipped forces. [Redacted]



In particular, the Cubans lack experience in air-to-air combat, and their training in this regard emphasizes intercepts controlled from the ground. Free maneuvering against dissimilar aircraft is extremely rare. In the very few brief encounters Cuban MIG-21 pilots have had with South African Mirages over southern Angola, the Cubans have performed poorly. [Redacted]

On the basis of this evidence, we believe that the average Cuban pilot would perform better in combat than the average Libyan or Syrian pilot, and about on par with an average Soviet pilot. Matched one on one over neutral territory with a US pilot in a modern fighter, he would probably stand little chance. Over his own territory, however, with ground control putting him in the right position, we believe he would perform very well as long as events unfolded according to the book. Unless ambushed, he would be capable of inflicting casualties on even a superior US force. [Redacted]

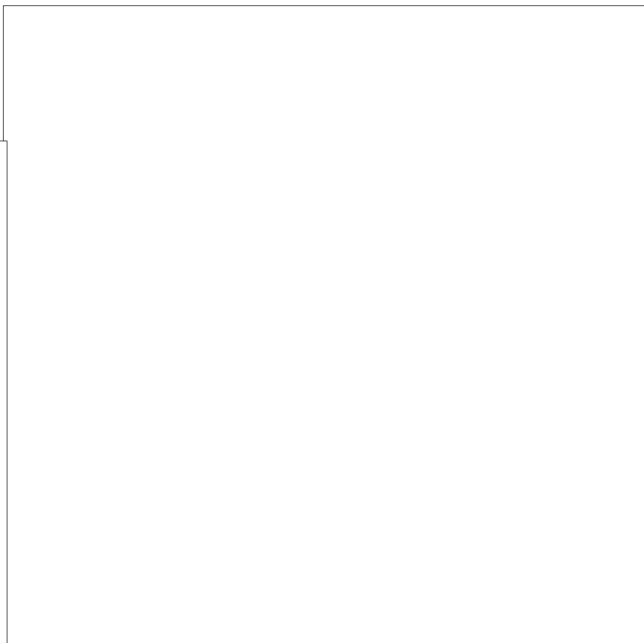
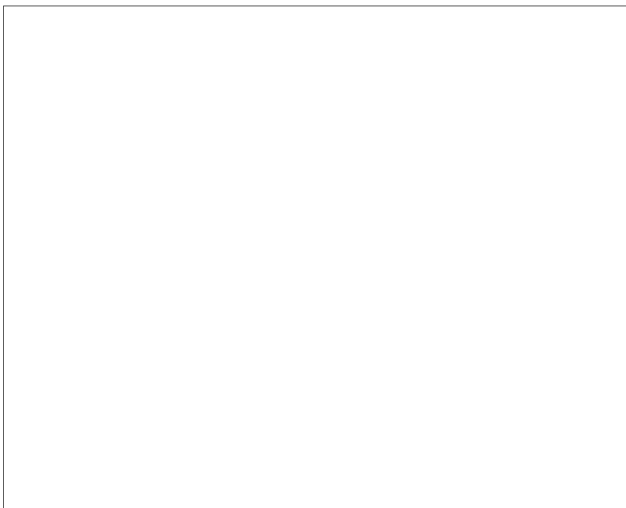


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Soviet experience with "washouts," suggests that the school will produce about 30 new pilots a year starting in 1986 when the first class graduates. [Redacted]



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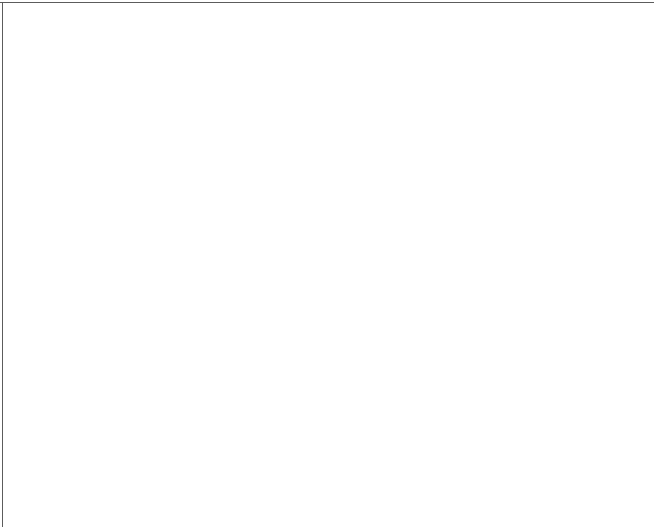
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Ground Support and Maintenance. The modernization of the Cuban Air Force has required a greater Soviet technical advisory presence and a significantly larger Cuban ground support and maintenance network. Both the MIG-21 and MIG-23 aircraft are designed for ease of maintenance. The radars, radio navigation equipment, and other avionics, however, are considerably more advanced than the systems in older Soviet fighters. [redacted]

[redacted] an air unit making a transition from MIG-17s to late-model MIG-21s or MIG-23s must more than double its number of technical and support personnel. [redacted]



Implications of the Modernization

As a result of its modernization, the Cuban Air Force of the mid-1980s is better equipped, better trained,

and much more capable of surviving an air attack than it was five years ago. Although primarily defensive and posing only a marginal threat to US territory, it could threaten unprotected merchant shipping in the Florida Straits and the Gulf of Mexico during a war. The Air Force has also greatly enhanced its ability to aid other revolutionary regimes in the Caribbean region. Operating from airfields in Nicaragua, Cuba would have the potential to project power into any area of Central America within a matter of hours. [redacted]

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Enhanced Air Defense. The greatest impact of the changes since 1978 have come in air defense. The new fighters brought into service are designed and equipped primarily for air defense missions. [redacted]

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[redacted] The improvements to airfields and facilities contribute to this mission by making the force more survivable on the ground. These factors make any attempt by the United States to neutralize Cuban military forces with conventional airstrikes more difficult and more costly. [redacted]

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The MIG-23s and late-model MIG-21s that now make up the bulk of the force are much better equipped for air-to-air combat than their predecessors. The more powerful engines of these aircraft

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negate some of the tactics developed by US pilots fighting against MIGs in the Vietnam war.

[Redacted]

Modern US fighters—the F-14, F-15, F-16, and F-18—are superior to Cuba's MIG-21s and MIG-23s, and US pilots are better trained in air-to-air combat. Moreover, in attacks against US territory or carrier forces, the United States would have the advantage of its Airborne Warning and Control System (AWACS) aircraft while the Cubans would be beyond the effective range of their ground controllers.

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The protection provided by new hardened aircraft shelters and the increased availability of dispersal airfields greatly reduce vulnerability to air attack

[Redacted]

Each shelter would probably require a direct hit to destroy the aircraft inside. Moreover, the existence of secondary and reserve airfields lessens the chance that a large portion of the force could be put out of action by severe damage to a few key runways. Cuban air defenses could still be saturated by a massive air campaign, but we believe that, if the Cubans are alert, the attackers will suffer many more casualties than would have been the case a few years ago.

In the case of a US naval blockade or invasion, Cuban fighters might attempt to strike the US naval forces involved. We believe they would follow Argentina's example in the Falklands war by attacking isolated or lightly defended ships on the fringes of the fleet rather than attempting to tackle a carrier battle group. Their highest priority would probably be landing craft, troop transports, and oil tankers.

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Even without taking off, however, Cuba's Air Force would have a significant indirect impact on the deployment of US forces by threatening to deny passage of the Florida Straits and Yucatan Channel. They could require the diversion of several US fighter squadrons, AWACS, and a carrier battle group to protect convoys destined to reinforce Europe.

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Greater Airstrike Threat. While most of Cuba's new fighters have a primary air defense mission, one squadron of MIG-23s are fighter-bombers, and all of the other MIG-21s and MIG-23s could carry out strikes against US territory or naval and merchant shipping. Southern Florida and the Keys are well within range of airfields in the Havana area, and Cuban MIG-21s and MIG-23s could attack the Panama Canal from airbases in Nicaragua. Given a prudent level of air defense readiness by the United States, however, such attacks would probably not be very successful, and Cuba would lose most of the attacking aircraft. We believe, therefore, that Cuban airstrikes against US territory are unlikely except perhaps as an act of desperate retaliation

Improved Ground Support Capability. The addition of MIG-23 fighter-bombers and MI-24 helicopter gunships to the Cuban inventory has also expanded the force's capability to support ground operations. The L-39s, when armed with cannons and rockets or bombs, would also prove very useful in this role.

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[Redacted]

All of these aircraft would probably be used to defend against an amphibious landing or in a Cuban attempt to seize the US naval base at Guantanamo.

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Of even greater importance is the Air Force's growing capability for counterinsurgency warfare. The MI-24 helicopter gunships and armed L-39 jet trainers are particularly well equipped for operations against

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counterrevolutionary guerrilla forces. The Castro regime would probably use these aircraft to aid Nicaragua should the Sandinistas be seriously threatened.⁵ We have no evidence so far, however, that the Cubans are training pilots for such a role. [Redacted]

Expanded Airlift Capability. Cuban ability to airlift military personnel overseas has grown enormously since the Angolan intervention in 1975, when the Cubans had only three Bristol Britannias and four IL-18 turboprop aircraft for air transport. Cubana Airlines' present fleet of 10 IL-62 and five TU-154 long- and medium-range jet transports would enable them to move up to 2,000 lightly armed personnel over several thousand miles in about 24 hours, provided Cuba had available a good commercial airfield at the destination. Cuba's AN-26 fleet could carry small arms, crew-served weapons and ammunition, and several hundred personnel to short or unimproved airfields throughout the Caribbean region in about the same amount of time. They could also lift up to a battalion of paratroopers to areas where no operational airfields are available. [Redacted]

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The primary limitation on Cuba's air transport force is the lack of a large cargo aircraft capable of carrying heavy or bulky items. This shortcoming will soon be remedied when Cuba receives its first IL-76 transports from the Soviet Union [Redacted]

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Possession of the IL-76 will enable the Cubans to deliver such items as ground-based radars and other support equipment to Nicaragua concurrent with the deployment of combat aircraft. This would allow a fighter unit to become fully operational within hours of its arrival. Until they have such a plane, heavy equipment would have to be transported by sea, either through the Panama Canal or to east coast ports for transshipment by truck to Managua area airfields. IL-76s could also be used to carry high-priority cargo to Angola or other African destinations. [Redacted]

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The Next Five Years

Unlike other Soviet clients, Cuba does not pay for any of the military equipment it receives from the USSR. The continued modernization of the Air Force and the further growth in its capabilities are dependent on how closely Cuban policy meshes with Soviet aims and on Moscow's evaluation of the risk of provoking the United States. Soviet deliveries to Cuba over the past several years suggest that Moscow is firmly committed to strengthening Cuba's defenses against a possible air attack or blockade, but understands that introducing offensive weapons like medium bombers would cause a serious crisis and might provoke retaliation. The Soviets appear willing to make some additional improvements in Cuba's regional intervention capabilities, but will probably move slowly and cautiously to gauge US reactions. [Redacted]

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We expect Cuba's fighter inventory to remain relatively stable over the next five years. Because the Cubans just completed a massive reequipment and retraining program, we doubt that they would undertake another large turnover so soon. Events in Nicaragua are a major uncertainty in this calculation, however. If the Cubans send fighter aircraft there and become involved in combat, we would expect the Soviets to replace their losses. [Redacted]

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A few more MIG-21s will probably be delivered in any event. Some older MIG-21s may be returned to Cuba after repairs and overhaul, and the remaining early models at Holguin will eventually be replaced. Cuba already has 20 or more early MIG-21s that it is no longer flying, and some of these may be destined for the Sandinistas in Nicaragua. [Redacted]

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Other possible acquisitions by the Cuban Air Force over the next five years include the more advanced version of the MIG-23 interceptor and the MIG-25 Foxbat. The latest model MIG-23 in the Soviet Air Forces—the Flogger G—was exported for the first time in 1982 to Syria. [Redacted]

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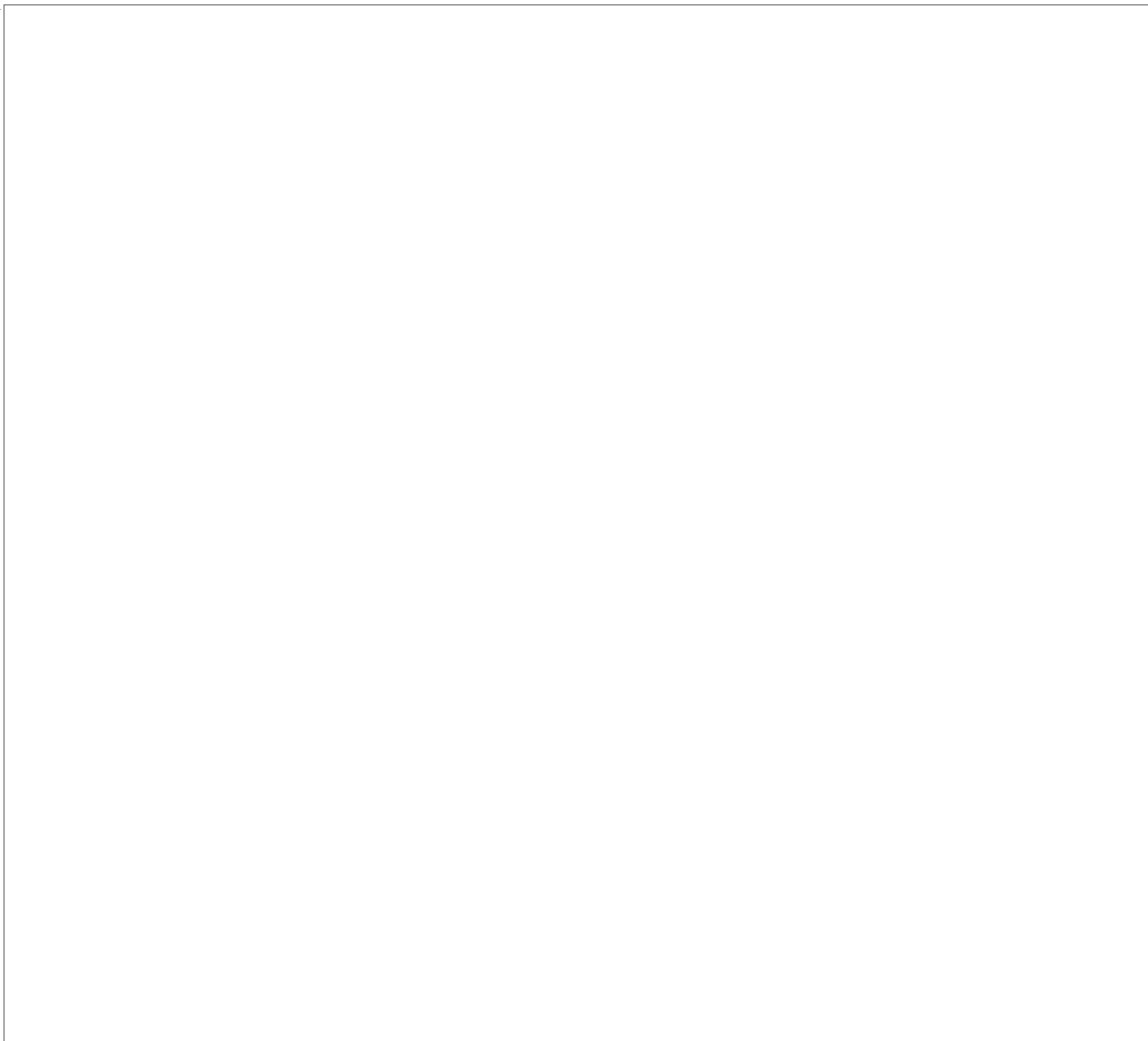
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The MIG-25 is a high-speed, high-altitude interceptor and has been exported to several Middle Eastern countries. Its radar is less advanced than the B-model MIG-23, but its flight characteristics could enable the Cubans to challenge SR-71 overflights. A reconnaissance version of this aircraft is also available, which the Cubans could use for missions along or over US borders in retaliation for US overflights. Moscow might be more willing to provide the reconnaissance version. [Redacted]

Cuba will almost certainly receive some additional helicopters, probably MI-17s like those first delivered [Redacted] The first IL-76 transport probably will arrive [Redacted] In our judgment, five or six IL-76s would largely fill Cuba's needs for a heavy-cargo carrier, but still would not enable it to conduct large-scale airlifts of combat equipment. The Cubans would thus remain dependent on the Soviets for any rapid redeployment of their forces. [Redacted]

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We expect airfield construction and expansion to continue, although not at the same rapid pace as in the past few years. The new airfield south of Pinar del Rio is nearly complete, and some of the L-39 training currently conducted at San Julian may be transferred there. [Redacted] the runway at San Julian is being extended by some 500 meters, making it comparable to the other three main fighter bases [Redacted].

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The expected arrival of IL-76 transports [Redacted] will probably cause some additional expansion as well. Playa Baracoa Airfield near Havana, the current base for Cuba's AN-26 transport fleet, would have difficulty handling the much larger IL-76 because its runway is very short and its parking areas would need to be reinforced. The Cubans may base the IL-76s at Jose Marti, their primary commercial airfield, until the needed improvements can be made at Playa Baracoa or until another base can be readied. [Redacted]

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