

Central Intelligence Agency



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DIRECTORATE OF INTELLIGENCE

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Jordan: Implication of Tornado Aircraft Purchase

[Redacted]

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Summary

Recent indications that Jordan appears close to purchasing the British-built Tornado fighter aircraft--despite an excellent Soviet offer of a squadron of MIG-29s--demonstrate King Hussein's politically-motivated preference for Western planes to modernize his increasingly obsolescent Air Force. Hussein also seems to anticipate external financing for the buy is forthcoming--a key obstacle in earlier negotiations for the considerably more expensive West European planes. The King realizes that he cannot begin to compete with the vastly superior air inventories of Israel and Syria, but he wants to retain a credible force to deter attackers and defend Jordanian airspace.

[Redacted]

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The King is committed to acquiring an aircraft that can perform ground attack missions as well as the more important role of gaining air superiority--a mix of tasks better suited to the Tornado's interdiction strike model rather than its air defense version. The King's determination to acquire new aircraft is reinforced by his sensitivity to the political need to preserve high morale and regime loyalty among Jordanian military leaders, who are keenly aware of Israel's purchase of 75 advanced US F-16s and Syria's recent acquisition of a squadron of Soviet MIG-29s.

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Tel Aviv will oppose a Tornado sale on grounds that its superior low-altitude strike capability makes it more difficult than the MIG-29 for Israel's existing air defense network to counter and will press the US to block the sale--although British-built, the Tornado contains US subsystems

This memorandum was prepared by [Redacted] Arab-Israeli Division, Office of Near Eastern and South Asian Analysis. Comments and queries may be directed to Chief, Arab-Israeli Division [Redacted]

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which require Washington's approval to sell the aircraft to Jordan. If the sale goes through Israel probably will request additional US security assistance. [redacted]

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[redacted] Hussein is close to accepting a British deal for the Tornado suggests that he believes the Saudis may be willing to underwrite the purchase. Assuming the Saudis have consented to fund such a deal, the Tornado would be a logical and mutually acceptable choice--Riyadh recently purchased 72 Tornados for its own Air Force. [redacted]

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The US F-16 is the King's first choice for a modern fighter plane, but US Congressional restrictions make it unavailable. Until recently, [redacted] he was unable to secure financing--from Saudi Arabia or the Gulf States--to buy either the British Tornado or its nearest West European competitor, the French Mirage 2000. Additionally, neither the British nor French can afford to make the sizeable cost concessions Jordan would require to purchase either plane unilaterally, thereby leaving King Hussein no alternative but to accept the generous Soviet offer for the MIG-29. [redacted]

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Manpower and Inventory Constraints

While the Tornado, especially the strike version, will upgrade Amman's combat aircraft capability, it will not significantly alter the military balance in the region. King Hussein fully recognizes that acquiring an advanced fighter will not enable Jordan to defeat Syria or Israel, but in our judgment he believes it would substantially strengthen Jordan's ability to inflict heavier losses on an aggressor and possibly even deter an attack. [redacted]

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Even with the acquisition of eight Tornados or a squadron of MIG-29s, the heart of Jordan's Air Force will remain its aging inventory of two squadrons of French F-1s and three squadrons of US F-5E interceptors, which are no match for the advanced fighters of Israel and Syria. Jordan's Mirage F-1 fleet gives the Air Force an all-weather intercept capability, but only modestly reduces Jordan's vulnerability to attack. Although Mirage F-1s are better fighters than Jordan's F-5Es in avionics and range, they are inferior in air combat maneuverability. Jordan relies heavily on its F-5Es to accomplish its primary air defense mission. Although reasonably effective for daytime, clear weather intercepts, they lack satisfactory electronic countermeasures and rear attack warning systems. Furthermore, the F-5Es are incapable of carrying advanced air defense missiles and possess only a limited low altitude capability. [redacted]

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Moreover, chronic deficiencies in Jordan's air force to include insufficient numbers of qualified pilots, critical spare parts and ammunition shortages, an inadequate logistic system, and glaring limitations in the range and payload of its aircraft are unlikely to be offset by receipt of the Tornado. Jordan undoubtedly is aware of the Tornado's maintenance problems experienced by the Saudis and that the favored Tornado strike variant would require two pilot-trained crewmen to operate it--further stretching the limited pool of trained pilots available to maintain current operational readiness. Furthermore, the King's commitment to his military--the linchpin of his regime--would compel him to allocate the lion's share of his dwindling defense budget to amortize the purchase of a big ticket weapon system like the Tornado--at the cost of improving and even maintaining much of the current equipment inventory. [redacted]

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Concerns Over Soviet Influence

King Hussein has become increasingly frustrated and embittered by US Congressional opposition in recent years to Jordan's arms package requests. Despite a genuine desire to preserve the US-Jordanian military relationship, he has increasingly turned to Moscow to meet his military equipment needs and has purchased mobile air defense systems such as SA-8s and SA-13s, ZSU-23/4 self-propelled antiaircraft guns, BMP-2 armored personnel carriers, as well as armored reconnaissance and command vehicles. [redacted]

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King Hussein, however, is deeply distrustful of the Soviets and would prefer to conclude a major deal for equipment--particularly advanced aircraft--with the far more politically compatible West, [redacted] and US Embassy reporting. Hussein fully recognizes Moscow's motives for offering the MIG-29 on such easy terms as self-serving and an attempt to gain increased access to Jordan's military and greater influence in the region. The King also is acutely aware that a major aircraft purchase from Moscow would probably double the 50 to 60 Soviet advisers in the country. [redacted]

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Comparing the Leading Contenders

We thus believe that the King's decision to purchase any one of the alternatives to the F-16--the British Tornado, French Mirage 2000 or MIG-29--will hinge more on political and, especially, economic considerations than on performance criteria. Although the King now appears close to choosing the Tornado, we assess all three contenders as excellent, modern fighter aircraft. [redacted]

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Political Rating

The Tornado is the King's favorite for political reasons, edging out the Mirage 2000, although the Jordanians would prefer either over the MIG-29. The King probably favors the Tornado because his air force continues to be dissatisfied with French support following the earlier purchase of F-1 aircraft. Despite problems with the Tornado's maintenance record, Amman has a long history of satisfactory military dealings with the British. Jordan has stepped up its equipment buys and training with Britain since the US began restricting arms sales to Amman following the 1973 Arab-Israeli war and particularly after Congress enacted a moratorium in 1984. For example, when Jordan's bid to procure US M-60A3 tanks stalled, Amman decided in 1979 to buy British Chieftain variants. During a visit to Amman in September 1986--which followed another Congressional denial of military aid the previous January--British Prime Minister Thatcher agreed to supply Jordan with ground and airborne electronic warfare equipment, radars, naval patrol craft, tank ammunition and spares, and engineering and communications gear. [REDACTED]

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Money Problems

Jordan could negotiate a far more generous deal with the Soviets for a purchase of a squadron of 18 MIG-29s than Amman will receive from either West European contender--and the Tornado is substantially more expensive than the Mirage 2000. Without Saudi financing and/or an offer of easy credit terms Jordan could afford only the MIG-29. Counteroffers by the British and French fall far short of matching the Soviet terms. For example, the price of 18 MIG-29s would buy fewer than 10 Tornados. [REDACTED]

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Performance Criteria

Both the Mirage 2000 and MIG-29 are basically designed as quick, agile fighters. The Tornado strike variant is much larger and less maneuverable than the other two, but it is able to carry at least twice the bomb load. Although these characteristics make it difficult to compare the aircraft, we can gauge basic performance levels assuming similar weapons loads at constant weather conditions and altitude. [REDACTED]

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Maneuverability

--The Tornado trails considerably behind the Mirage 2000, and the MIG-29 outperforms both. The Soviet plane has superior thrust per weight and a much higher specific excess power--key measures of an aircraft's ability to accelerate or decelerate quickly and an important indicator of its overall maneuverability.

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Endurance

--The Tornado strike version is superior in this category--the MIG-29's extremely limited combat radius is a particularly serious deficiency. Also, the MIG-29 is fitted with a centerline tank rather than one tank under each wing, causing the plane to be "bottom heavy" and also considerably limiting the bomb payload it can deliver over longer distances. The Tornado's greater endurance is ideally suited for Hussein if, as we believe, his defensive strategy provides for basing his new fighters as far as practical from Israel and Syria to shield them from preemptive attack.

Maintenance/Logistics

--We believe the Tornado, despite its notoriously poor maintenance record, actually leads in this category.

[redacted] the Jordanians point to many past examples proving the British bargain in good faith and believe they can count on British after-sale support to be far superior to that of the French. The MIG-29 lags far behind its Western competition in this area--its engine needs to be replaced twice as often and must be returned to the Soviet Union for a major overhaul after only 600 or fewer hours of flight time.

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The Final Tally

The MIG-29, despite the low rating for maintenance and endurance, is probably the better overall performer--at least in a defensive role--and nearest competitor to the F-16, and would ideally fulfill the primary air defense role required by the King. In view of Jordan's considerable deficiencies in maintenance and aircraft support systems, and its obvious distrust of Moscow, however, we believe the Tornado would provide the King with a sound alternative. [redacted]

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The Syrian Angle

The Syrian Air Force has a decisive edge over Jordan's because of its larger inventory of advanced combat aircraft--further enhanced by the recent delivery to Damascus of the MIG-29. In the event of a Syrian-Jordanian confrontation, the larger size and superior equipment of Syria's air force probably would more than compensate for the greater skill of Jordanian pilots even if flying the MIG-29 or Tornado. Moreover,

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Jordanian air defenses are woefully inadequate--despite recent deliveries of Soviet air defense equipment such as mobile SA-8 and SA-13 surface-to-air missile systems--and would be easily overwhelmed in a Syrian airborne attack. [REDACTED]

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By comparison, the Soviets have dramatically increased their efforts to rebuild and improve Syrian air and air defense capabilities following Syria's poor performance in the 1982 war in Lebanon against the Israelis. Syria has received new radars, new fighter-interceptors, helicopters equipped with electronic countermeasures, and an automated air defense command and control system. This would allow Syria easily to defeat any Jordanian aggression. [REDACTED]

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The Israeli Perspective

Israel will look unfavorably on any sale of advanced aircraft to Jordan--particularly a Western plane. Israeli pilots, like their Jordanian counterparts, are serious students of Western air combat tactics and training, and regard Western aircraft as superior overall to comparable Soviet planes. Eight Tornados would not be a serious match for the IAF's top-of-the line, newly received F-16s, and the Israeli air force outclasses the Jordanians not only in the quantity and quality of its aircraft systems but also in its leadership, command and control, training, and pilot initiative. Nevertheless, Tel Aviv, in our view, would perceive the introduction of the Tornado strike version into the region as a development that would complicate its air defense planning and operations. [REDACTED]

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The Tornado possesses a long combat range and can fly at extremely low altitudes, enabling Jordan to base it far from the Israeli border, but Jordanian Tornados still would be within range of detection by Israel's superior early warning and ground control network soon after takeoff. Moreover, [REDACTED] recently have begun improving the network to increase their ability to detect low-flying enemy aircraft such as the Tornado strike version. They have installed new US early warning and target tracking radars at two of their three air defense control and reporting centers. [REDACTED]

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Furthermore, the Israeli air force is continuing to improve the capabilities of its E-2C airborne early warning and control aircraft, which it uses to fill gaps in the ground-based air defense radar network. The approximately 200 nautical mile range of the three air defense and ground control tracking stations--which are responsible for early detection of enemy aircraft and alerting Israeli interceptors--effectively provides overlapping radar coverage of all Jordan's airbases except two relatively minor ones in the northeast. [REDACTED]

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Implications for the US

We assess that King Hussein would view Washington's rejection of a Tornado purchase as demonstrating serious disregard for Jordanian security and reinforce the military's growing perception of the US as an inconsistent and reluctant ally. Having exhausted every alternative to procure Western equipment--barring an eleventh hour French revision of its Mirage 2000 offer--he would have no choice but to accept the Soviet MIG-29 package. Such a sale would further distance Jordan's military from its traditional US mentor, and probably reduce the frequency of joint US-Jordanian military training. [redacted]

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US support for the Jordanian Tornado purchase will almost certainly spark active Israeli opposition, including an Israeli attempt to head off the sale by mobilizing a political action campaign. Tel Aviv, already aware of a possible Tornado deal for the Jordanians, is acutely sensitive about sales of modern fighter aircraft to potentially hostile air forces--particularly when such purchases involve Western aircraft. Israeli officials have confided to US diplomats in Tel Aviv that they would prefer that the Jordanians buy the MIG-29, which would require fewer adjustments for Israel's air defenses--currently geared to the Soviet-equipped Syrian air force. [redacted]

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We believe that a Jordanian acquisition of the Tornado will lead the Israelis to seek further US security assistance, particularly for grant aid to improve and expand Israel's air defense system. If the US were to approve the Tornado sale in the nearterm it could aggravate an already contentious issue between Tel Aviv and Washington, as it would coincide with heightened Israeli displeasure with US criticism of Israel's handling of the continuing unrest in the occupied territories. [redacted]

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SUBJECT: Jordan: Implication of Tornado Aircraft Purchase [redacted]

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TABLE 1

The Air Balance in the Levant

	Israel	Syria	Jordan
Total	620	680	96
Modern fighters	420	580	28
Other aircraft	200	100	68

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Article 3

TABLE 2

Characteristics of the Competitors

	F-16	Mirage 2000	Tornado	MIG-29
Wingspan (m)	9.4	9.0	13.9	11.5
Length (m)	14.5	15.3	16.7	15.0
Combat weight kg	10,100	14,000	39,700	14,000
Maximum speed At 10,000m	Mach 2	Mach 2.2	Mach 2.2	Mach 2.35
Ceiling (m)	20,000	18,000	21,335	20,200
Combat radius /with two wing tanks (km)	380 1,070	250 840	420 850	230 230
Armament	1 20mm gun 2 Sidewinder	2 30mm cannons 4 Matra	2 27mm guns 4 Skyflash 2 Sidewinder	1 30mm 6 AA-8, -10
Bomb load (kg)	5,000	4,500	8,000	2,000

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Article 3

TABLE 3

Performance of the Competition

	Specific Excess Power	Thrust to Weight	Sustained Turn Rate	Sustained G's*	Combat Radius
	a	a	a	a	b
Mirage 2000	2	2	2	2	2
Tornado	3	3	3	3	1
MIG-29	1	1	1	1	3

a Calculated under similar air combat circumstances, 6,000 meter altitude

b Calculated using similar weapons and fuel loading and flight profile.



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F-16 AND MIG-29 TECHNICAL COMPARISON

Technical Feature	F-16	MIG-29
Size:		
Wingspan(Meters)	9.4	11.5
Length(Meters)	14.5	15.0
Combat Weight	10,100 kilograms	14,000 kilograms
Maximum speed at 10,000 meters	Mach 2	Mach 2.35
Ceiling(Meters)	20,000	20,200
Combat radius(CR) in kilometers	380	230
CR with two wing tanks(Kilometers)	1,070	230**
Armament	1 20mm gun 2 Sidewinders	1 30mm gun 6 AA-8, -10
Bomb load(Kilograms)	5,000	2,000

**: The MIG-29 cannot be equipped with wing tanks, only a centerline tank that substantially reduces the key strength of the MIG-29---its maneuverability.



JORDANIAN ARMS PURCHASES FROM THE SOVIET UNION

Year	Amount ^a	Equipment
1981	\$292.5	20 SA-8 surface-to-air missile(SAM) systems 20 ZSU-23/4 anti-aircraft artillery systems miscellaneous air defense equipment
1982-1983	\$60.0	small arms, ammunition and spare parts
1984	\$5.2 \$445.0	trucks 22 ZSU-23/4 anti-aircraft artillery(AAA) 24 SA-13 SAM systems 10-16 SA-8 SAM systems 250 SA-14 missiles, launchers 14 BTR-60 armored command vehicles 75,000 AKM rifles
1985	\$2.5	2 SA-8 SAM simulators spare parts
1986	\$800.0	undetermined number of SA-8, SA-13, and SA-14 systems MTLB armored command vehicles
1987	\$22.0	30 BMP-2 armored reconnaissance vehicles 9 BRDM command vehicles

^a In millions of dollars.

SUMMARY: Jordan has purchased just over \$1.6 billion in arms from the Soviets. Just over \$1 billion worth is in Jordan--a large portion of the 1986-1987 purchases have yet to be delivered.

