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Israel's Attack on Iran: Easier Said Than Done

By **David Isenberg**

Despite renewed media speculation regarding possible Israeli attacks against [Iran](#)'s nuclear facilities as early as this spring, scepticism that such a campaign could actually be successfully carried out remains relatively high, raising the question of whether there is more bark than bite to Israeli threats.

It cannot expect a repeat of 1981 when the Israeli air force destroyed the Osirak reactor at Al-Tuwaythah, just south of Baghdad.

The Iranians are aware of both Israeli capabilities and the U.S.-made precision-guided penetrating munitions in the Israeli inventory. The Iranian programme has been dispersed all over the country - estimates range between 12 and more than 20 locations - and the facilities have been built with U.S. and Israeli capabilities in mind and are protected by modern Russian air defence systems.

The single most critical element of the Iranian programme is thought to be the Natanz facility. The heart of the facility is the centrifuge area, located in an underground, hardened structure.

But even if [Israel](#) tries to limit the target set, it would still have to attack other facilities besides Natanz. For example, the newer Fordow fuel-enrichment plant near Qom, where Iran has already moved 3.5-percent enriched uranium from Natanz, is built into the side of a mountain and is heavily fortified. There is a uranium conversion plant at Isfahan, a heavy-water facility being constructed at Arak and centrifuge factories outside Tehran.

The straight-line distance between Israel and Natanz is almost 1,609 kilometers. Since the countries do not share a common border, Israeli aircraft or missiles must fly through foreign - and hostile - airspace to get to the target.

The least risky method of striking Natanz is with Israel's medium- range ballistic missiles, the Jericho II or III. It is believed that the Israeli missiles can reach Natanz. However, to travel that far the missiles will have a limited warhead weight, and it is doubtful that these

warheads will be able to penetrate far enough underground to achieve the desired level of destruction.

Thus, an attack by the Israeli air force's U.S.-made fighter-bomber aircraft is the most likely option. The Israelis have 25 F-15I and about 100 F-16I jets.

The F-15I is capable of carrying four metric tons of fuel in its internal tanks, conformal fuel tanks (CFT), and detachable tanks. This enables it to fly about 4,450 kilometers. With midair refueling, the range can be extended further.

The F-15I can carry a very wide range of weapons such as various guided missiles and bombs, as well as iron bombs. All in all, the plane can carry about 10 metric tonnes of munitions.

The F-16I has an extended flight range that reportedly allows Israeli forces to attack targets well within Iran without having to refuel. Use of could CFT extends its effective mission range up to 50 percent. The baseline model has a combat radius of 1,370 kilometers with two 907-kilogramme bombs and two air-to-air missiles, with 3,936-litre external tanks.

Assuming an air attack, the question is how will the aircraft fly from their bases in Israel to a target located 322 kilometres miles inside Iran?

They could go either through [Saudi Arabia](#) or [Iraq](#), possibly even using Jordanian airspace as well. Either route is a one-way trip of about 1,931 kilometers.

To overfly Saudi Arabia the strike aircraft depart southern Israel, enter Saudi airspace from the Gulf of Aqaba or Jordan, fly 1,287 kilometers miles of Saudi airspace to the Gulf and then 483 kilometers into Iran.

Since the Israeli air force does not operate stealth aircraft, there is a reasonable expectation that at some point the aircraft will be detected over Saudi Arabia. Whether Saudi defences could - or would - be able to stop the Israelis is uncertain. Given Saudi fears over Iran's nuclear programme, perhaps they would turn a blind eye and claim ignorance.

If they chose to traverse Iranian airspace, the strike aircraft depart southern Israel, cross 483 to 644 kilometers of Saudi airspace or a combination of Jordanian and Saudi airspace, and enter Iraqi airspace as soon as possible, continue across 805 kilometers of Iraq to the Persian Gulf and then on to the target.

Entering [Iran](#) from Iraqi airspace would be politically delicate. Although U.S. troops are no longer there, traversing Iraqi airspace would not be possible without the knowledge, and most likely the permission, of the [United States](#).

The key question is whether [Israel](#)'s fighter-bombers can conduct this mission without refuelling. Combat radius - the distance an aircraft can fly and return without refueling - is

difficult to calculate, and depends on weapons payload, external fuel tanks, mission profile, etc.

The best "guesstimate" of the combat radius of the F-15I and F-16I, outfitted with conformal fuel tanks, two external wing tanks and a decent weapons load, is almost 1,609 kilometers. Either of the two possible flight routes above is about 322 kilometers further than that. To make up for the shortfall, the aircraft could be fitted with an additional external fuel tank, but this will require a reduction in the weapons load. Given the accuracy of the weapons in the Israeli inventory, that might not be problematic.

However, if the aircraft are detected and intercepted, the pilots will have to jettison the tanks in order to engage their attackers. Dropping the tanks will prevent the aircraft from reaching their target.

Air refuelling is a limitation for the Israelis. In recent years Israel has acquired five C-130 and four to seven Boeing 707 tanker aircraft. However, the tankers would have to refuel the fighters in hostile airspace. The 707 is a large unarmed aircraft and would be very vulnerable to air defences.

Theoretically, the Israelis could do this, but at great risk of failure. If they decide to attack Natanz, they will have to inflict sufficient damage the first time - they probably will not be able to mount follow-on strikes at other facilities.

The ultimate question, of course, is once Israeli planes have flown back, won't Iran be able to repair the damage and accelerate the nuclear programme? Or does Israel assume that the U.S. will pick up where they left and start a long-term war with Iran?

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