THE INDIA-PAKISTAN AIR BATTLE WHERE NEITHER SIDE SAW THE OTHER

[Deuce has outdone himself with this astounding description of one of the largest air battles in modern history that few understand, Thanks to Deuce, TTPers now do – JW]

India and Pakistan made history this month. They engaged in an air battle with some of the latest fighters and missiles that was the largest of its kind since the Second World War.

What made this battle even more unique was the fighting happened entirely in what we call “BVR” or “beyond-visual-range” combat.

This form of combat is rarely talked about because a lot of the tactics, techniques, and procedures are secret.

Whereas traditional air-to-air “dog fighting” is based on maneuver and bringing the guns or short-range guided missiles of an aircraft to bear on the other first, BVR fighting pits aircraft radars and their guided missiles against enemy aircraft and their electronic counter-measures to those missiles at much longer ranges.

One side gets the other on their radar, establishes a constant track (i.e. a “lock”) and launches a missile to follow the target the radar selects. Once that happens, the targeted aircraft has some choices to make—fast.

1. Shoot back at them. This disrupts their attack, and is of course the whole point.

2. Outrun or outmaneuver the missile. Success depends on the range and agility of the missile and the relative flight paths and capabilities of the contestant aircraft. These include sudden turns and direction changes to keep their Doppler radar from spotting you. Missiles are getting more agile and can pull far harder turns than a human pilot can withstand. But fighter jets are fast and a missile only carries so much fuel before it burns out and coasts; losing energy the whole time. Woe to slower and less maneuverable aircraft.

3. Hide from the missile. Disappear into the radar ground clutter generated by terrain and all the “stuff” you see outside your window. But unless the missile’s line of sight is blocked, they are getting harder to fool. They can even “re-acquire” the target if it drops lock, sometimes, and one pays a tactical price for losing altitude and running while your opponent pushes the attack. Speed and altitude are still life.

4. Decoy the missile. These can be towed decoys from the targeted aircraft that messes up its radar signature, or independently launched decoys.

5. Confuse or jam the missile, or the hostile aircraft launching it. Use electronic countermeasures on the aircraft to broadcast interference to the missile’s seeker; with advantage to who’s got the newer or better gear. It also helps to know how the hostile missile transmits and receives signals. Expendable “chaff”, or metal-coated filaments of nylon, generates false echoes when an aircraft spits it out in clouds. This can confuse a missile or radar, depending on the missile and the target’s maneuvering behavior. Keeping the enemy radars or missiles from knowing you are there to start with is another goal of jamming.

6. Get/have support from dedicated electronic warfare aircraft. The U.S. Navy’s EA-18 “Growler” jet dumps a short ton of electronic snow in the processors of hostile radars and missiles and destroys transmitters. There are other such aircraft out there.

7. Do everything covered in 1 through 6, and fast. All of these steps work together.

Also, the “stealth” features on the latest aircraft, such as the Rafale, help you not only avoid detection longer, but use any electronic defenses you have with more effect.

It’s usually hard to keep an aircraft from being detected *at all*. But there is a difference between

them being able to see you and being able to shoot you.

On the other side of it, certain things give warplanes advantages in BVR fighting.

1. Better fighter radars. Ours are good enough to count the fan blades in another jet and classify the type of aircraft. There are ways to make them better at seeing things, and stop someone from trying to spoof or jam them.

2. Support from other platforms. If another radar somewhere else can see a target and send you the details on data links, you may be able to shoot at them without having to turn your own radar on and reveal yourself, or better plan your attack on them.

3. Faster, smarter, and longer-range missiles. The Meteor, which India has, is able to adjust its speed to the target to better the hit chances, which is unique. Much like the latest smartphone beats the ones of ten years ago, the latest missiles are harder to decoy and fool.

What we know of this air battle is gleaned from publicly available sources. If most governments had their way, nothing on the tactical details of this battle or the systems involved would be seen or heard in the public domain in order to preserve their advantages against an adversary. Lots of time is spent trying to steal secrets of how an adversary's radars and sensors work, and in eavesdropping on those systems when they are used.

Investment in the "best stuff" pays off here as well as does intelligence gathering, and this is why the U.S. and the West have been dominant, and why China is furiously stealing our technology and spying on us.

The U.S. and Western governments try to keep the best systems and their details for their own use and make sure any adversary or potential adversary gets the second-best systems.

But with international conglomerates building so much of our military hardware, this is challenging.

And then you have the French.

The French build formidable weapons and pursue their own agenda, and only grudgingly have cooperated with the U.S. when we had a problem child with their weapons we needed to corral. Moammar Kaddafi and Saddam Hussein in 1990 are two examples.

The French virtually built Saddam's air defense system (KARI) and arm-twisting was needed to secure their help in 1990 so that we could monkey-wrench it.

Likewise, the French sold Kaddafi, among a lot more things, a shore based heavy missile designed to attack large ships. Who do you think he was going to shoot at? When you see the French selling a Le Pew Missile to someone who might not like you, watch out.

The May 7th contestants and the relevant tools are listed below. All were relatively advanced and if not top-tier, probably close, and a preview of what the U.S. may face in an upcoming war.

India:

Rafale multirole aircraft. A fifth- generation fighter favorably compared to the U.S. F-35 and often featured in those nightmare scenarios where the French sell it to someone shady. Armed with the modern MBDA Meteor, the French MICA missile, and the Indian Astra Mark One and Two, this airplane is well armed. The French may have given India the better versions of the plane and its French missiles.

MiG-29 Fulcrum. A Russian Cold War contemporary of the F-16. The latest versions are comparable in capability. But the MiG hasn't had the success of the F-16 in the time it has flown and is considered to be what you buy when you can't get the Western fighters. It's ties to the Russian military industry don't help.

SU-30 "Flanker Plus": The Russian Cold War high-end warplane; it is comparable to the F-15 Eagle; but unlike the Eagle, it has suffered from the same maladies as the Fulcrum and arrived in its best versions just in time to compete with the commensurately improved Western models with better operational records. It also shares the stage with the more advanced F-22 and F-35 now.

Both Russian platforms, however, are powerful and maneuverable, and do have modern radars as well as modern missiles such as the infra-red guided R-73 Archer (short range) and radar guided R-77 Adder (longer range, and a BVR weapon). In BVR fighting, they may do adequately.

Pakistan:

U.S. F-16 multirole aircraft- the original electric jet and even in the export versions, still a world beater. Armaments include the American AIM-9 Sidewinder short range infrared guided missile and the longer-ranged BVR AIM-120 AMRAAM. Not the top versions, but still formidable.

Joint Pakistan/Chinese JF-17s. This was one of the big deals in this encounter. This jointly developed new jet is, along with the JF-10 below, considered a benchmark of what the Chinese and Pakistani "grey" block military aviation can offer in the modern arena. The radar-guided missiles they carried, (PL-10, 12,15) saw their first use in combat this time and heretofore were of an unknown level of capability.

Chinese JF-10s. U.S. officials believe these planes, and perhaps their Chinese PL-15 BVR radar guided missiles, accounted for two Indian aircraft.

The Battle:

Early in the morning of May 7th, 2025, India launched "Operation Sindoor" in response to a terrorist attack that originated from Pakistani territory and, according to India, was aided and abetted by them.

The attack consisted of missile and drone attacks on Pakistani ground targets.

As a result of this, up to one hundred and twenty-five aircraft from both sides fought each other in the air for approximately one hour.

The exact tactical details of how this went are not disclosed, but we know that both sides exchanged fire from the airspace above or near their borders without any venturing over into the other's airspace significantly and at ranges exceeding 100 miles apart at times.

So, what happened in almost an hour of these two air forces firing away at each other?

Not much, it seems.

In summary of the airborne damage reports: The Indian losses may have been as many as five aircraft or as few as none.

Pakistan claims they shot down five—three Rafales, two MiG-29s, and an SU-30. One of these may have been lost to a ground launched missile. Debris of one Indian airplane have been seen. Two losses appear plausible, including perhaps one Rafale.

Indian officials, if commenting, say all of this is wrong and they lost nothing. This reporter believes this is unlikely.

Conspicuous are the absence *of almost any reports* saying Indian aircraft shot down any Pakistani planes at all, much less any giving specific numbers.

There is a credible report of one Pakistani command aircraft being destroyed on the ground. India's attack missions against Pakistan ground targets appear to have been successful.

More details may come out still, but the following takeaways seem to apply.

1. Assuming both sides deployed and used their systems competently and aggressively, they shot a lot of misses or couldn't get too many good target locks. It would help to know how many weapons were launched, but presumably more than five or ten among over a hundred airplanes in one hour.
2. Neither side's systems were dominant. Both sides were willing to stay in the air and try for almost an hour, but few actual hits appeared to result. India claimed "several" Pakistani planes shot down, with no details solidified.
3. The Chinese-built systems apparently did OK, at least well enough to prevent a Pakistani airborne battle loss. Considering one of the opponents was the modern and capable French Rafale jet with the new Meteor AAM, that's significant.
4. If slinging expensive modern missiles in BVR combat results in such low hit rates, closing into short range fighting and using the shorter-range missiles, maneuvering tactics, and guns familiar from 1958 to the present still matter a lot. This means investments in those weapons and also in training pilots in traditional air combat skills.

And for India and Pakistan? India can be expected to escalate their defense spending, training, and strategic efforts.

Pakistan, by contrast, doesn't appear to have been able to either prevent India from hitting ground targets in their country nor use their modern weapons with decisive effect, and India has the much bigger military and economy.

Behind it all, China— Pakistan's benefactor and a strategic and economic opponent of India—presumably waits to press its advantages, and the U.S. and Western companies will continue to court India.

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