Pakistan's Drone Ecosystem

A database of Pakistan's UAVs and UCAVs

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Introduction

- During the India-Pakistan clashes in May, both militaries employed a wide variety of unmanned aerial vehicles (UAVs) and unmanned combat aerial vehicles (UCAVs). UAVs and UCAVs are often colloquially referred to as ‘drones’.

- UCAVs and UAVs have become increasingly central to contemporary warfare. By virtue of being uncrewed, they pose a lower risk to human life than piloted aircraft, and can be used for riskier missions.

- Recent conflicts, including between Russia and Ukraine have seen an uptake in the use of uncrewed aircraft— both more sophisticated models that are akin to fighter jets, as well as smaller, cheaper drones.[1]

Classifying Drones

- Flying craft, including UAVs and UCAVs, are categorised based on their altitude and endurance.[2] These categorisation factors are tailored to the typical mission profiles the aircraft are expected to undertake.

- Altitude refers to the vertical distance of the aircraft, typically above sea level. It influences an aircraft's operational environment, sensor effectiveness, and vulnerability.

- Endurance is the maximum time an aircraft can stay airborne on a single fuel load or charge. Endurance impacts the range for missions and the operational flexibility of the aircraft. A reduced need for frequent refuelling, due to higher endurance, allows for greater operational flexibility.

- These classifications (based on altitude and endurance) are the most widely used and are based on the kinds of aircraft most often used today.

- Other possible combinations of altitude and endurance exist, such as MAME UAVs (medium altitude-medium endurance).

- UAVs are also classified into fixed-wing and rotary-wing aircraft.[3]

Fixed & Rotary Wing Aircraft

Rotary-wing UAVs use spinning blades for vertical takeoff, hovering, and agile maneuvering in any direction. They are ideal for close-proximity tasks but usually with shorter flight times. Pakistan's rotary-wing UAVs include the Asisgard Songar and the domestically produced GIDS Ranger. [4]

Fixed-wing UAVs are like airplanes, using wings and forward motion for efficient, long-distance flight. However they cannot hover and often need a runway or launcher. Some noteable examples include the Chinese Wing Loong II, Turkish Bayraktar TB-2, and the indigenous GIDS Shahpar.[5]

Micro & Mini UAVs

Altitude: Ground to ~2,000 ft

Endurance: Minutes to few hours

Common Roles:

- Tactical Recon
- Close Surveillance
- "Over-the-hill" ISR

Very Low-Altitude (VLA) UAVs

Altitude: Up to ~5,000 ft

Endurance: Several hours

Common Roles:

- Detailed Inspection
- Localised Surveillance
- Ground Troop Support

Low-Altitude, Long-Endurance (LALE)

Altitude: Below ~10,000 ft

Endurance: 10 - 24+ hours

Common Roles:

- Persistent Surveillance
- Border Patrol
- Close-Range Recon

Common Classifications- Low Altitude

Medium-Altitude, Long-Endurance (MALE)

Altitude: ~10k - 30k ft

Endurance: 20 - 48+ hours

Common Roles:

- "Workhorse" ISR
- Armed Recon (UCAV)
- Comms Relay
- Maritime Patrol

High-Altitude, Long-Endurance (HALE)

Altitude: ~50k - 65k+ ft

Endurance: 24 - 30+ hours

Common Roles:

- Strategic ISR
- SIGINT
- Comms Relay

Very High-Altitude, Long-Endurance (VHALE)

Altitude: Above 60k - 70k ft

Endurance: Days to weeks

Common Roles:

- "Pseudo-satellite"
- Persistent Wide-Area Surveillance

Common Classifications- High Altitude

Models Used in May 2025

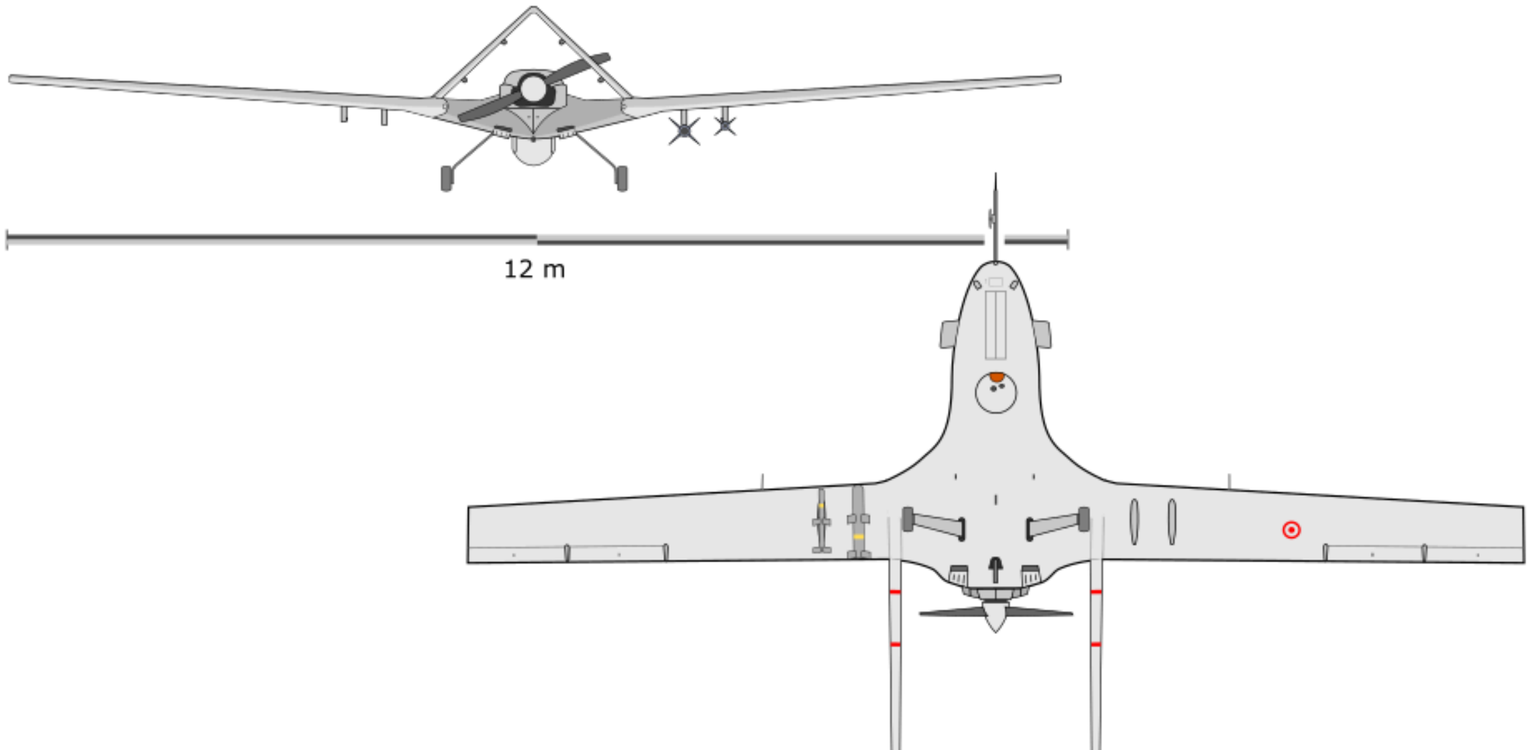
- Recently, India and Pakistan saw the largest use of drone technology between the two countries in May. Hundreds of UAVs and UCAVs were deployed across the international border and the line of control (LoC).[6]
- The Bayraktar TB2 was reportedly used for offensive roles, targeting Indian military infrastructure.[7]
- Similarly, the Turkish Bayraktar Akinci was used as well to try and penetrate Indian air defences and target infrastructure.
- The Chinese Wing Loong II and CH-4 were both reportedly used as well-- and both aircraft are MALE UCAVs that can carry payloads of over 300kg.[8]
- The Asisguard Songar was deployed in large numbers as well, when Pakistan reportedly launched a drone swarm.[9]
- While the details are unclear, Indian air defences are said to have held up and intercepted a majority of Pakistan's drone attacks.

Models Imported[10]

Name of Model	Country of Origin	Type	Number	Year of Order
CASC CH-4	China	MALE UCAV	10	2019
CAIG Wing Loong I	China	MALE UCAV	5	2015
Bayraktar TB2	Turkey	MALE UCAV	9	2021
Bayraktar Akinci	Turkey	HALE UCAV	1	2022
TAI Anka	Turkey	MALE UCAV	24	N/A
ASİSGUARD Songar	Turkey	UCAV	300-400	N/A
EMT Luna X-2000	Germany	MALE UAV	30, 8	2006, 2012
Selex ES Falco	Italy	MAME UAV	25, 25	2006, 2009
AeroVironment RQ-11	USA	MAME UAV	N/A	N/A
Boeing Insitu ScanEagle	USA	MALE UAV	15	2013
CH-3	China	MALE UCAV	50	2011
Wing Loong II	China	MALE UCAV	48	2018

- China and Turkey have emerged as two of the largest suppliers of UAVs/UCAVs to Pakistan.[11] Chinese platforms, such as the Wing Loong series and CH-4, provide Pakistan with ISR and strike mission capabilities. Pakistan's acquisition of Turkish Bayraktar TB2 and models like the Asisgard Songar indicates a trend towards diversification, including in high-performance combat drones.

- The TB2, which was used in the recent Indo-Pak conflict is a MALE UCAV, that is used for ISR and precision strikes.



Conclusion

- Most of Pakistan's UAVs and UCAVs can be classified as MALE (Medium-Altitude, Long-Endurance) or HALE (High-Altitude, Long-Endurance) aircraft.
- This MALE/HALE classification enables Pakistan's UAVs/UCAVs to conduct reconnaissance over long distances and conduct air strikes as well as loiter for significant periods.
- An analysis of the uncrewed aircraft owned and operated by Pakistan reveals a focus on diversifying its sources of foreign procurement and an emphasis on joint ventures and indigenous production.
- A significant number of Pakistan's uncrewed platforms are armed, suggesting a shift towards utilising uncrewed platforms for aerial strikes and combat.

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