

CLAIMS

1. A vertical take-off and landing aircraft comprising:
a fuselage;
at least one wing connected to the fuselage;
a plurality of rotors connected to the at least one wing for providing lift for vertical take-off and landing of the aircraft; and
a plurality of proprotors connected to the at least one wing and tiltable between lift configurations for providing lift for vertical take-off and landing of the aircraft and propulsion configurations for providing forward thrust to the aircraft.
2. The aircraft of claim 1, wherein the plurality of rotors are rearward of the at least one wing and the plurality of proprotors are forward of the at least one wing.
3. The aircraft of claim 2, comprising a plurality of booms mounted to the at least one wing, each boom mounting one rotor and one proprotor to the at least one wing.
4. The aircraft of any one of claims 1-3, wherein a first proprotor is forward of a second proprotor that is adjacent to the first proprotor.
5. The aircraft of any one of claims 1-4, wherein a first proprotor is mounted at a higher position on the aircraft than a second proprotor that is adjacent to the first proprotor.
6. The aircraft of any one of claims 1-5, wherein each rotor has only two blades.
7. The aircraft of claim 6, wherein each rotor is configured to fix the two blades in position during forward flight.
8. The aircraft of claim 6 or claim 7, wherein each proprotor has greater than two blades.
9. The aircraft of any one of claims 1-8, wherein a first rotor of the plurality of rotors is canted relative to a second rotor of the plurality of rotors such that a rotational axis of the first rotor is non-parallel with a rotational axis of the second rotor.
10. The aircraft of claim 9, wherein a cant angle of any rotor or proprotor is such that a respective burst disc cannot intersect with passengers or a pilot.
11. The aircraft of claim 9 or claim 10, wherein a cant angle of any rotor or proprotor is such that a respective burst disc cannot intersect with any flight-critical component.
12. The aircraft of any one of claims 1-11, wherein a first proprotor of the plurality of proprotors is canted relative to a second proprotor of the plurality of proprotors such that a rotational axis of the first proprotor is non-parallel with a rotational axis of the second proprotor.
13. The aircraft of any one of claims 1-12, further comprising a control system configured to actively alter a tilt of at least one proprotor to generate yawing moments during hover.

14. The aircraft of any one of claims 1-13, wherein attack angles of blades of the proprotors are collectively adjustable during flight.
15. The aircraft of any one of claims 1-14, wherein propulsion is provided entirely by the proprotors.
16. The aircraft of any one of claims 1-15, wherein a range of tilt of the proprotors is greater than ninety degrees.
17. The aircraft of any one of claims 1-16, wherein the at least one wing provides the lift required during cruising.
18. The aircraft of any one of claims 1-17, wherein the at least one wing is a high wing mounted to an upper side of the fuselage.
19. The aircraft of any one of claims 1-18, wherein the at least one wing has control surfaces.
20. The aircraft of any one of claims 1-19, wherein all of the rotors and proprotors are mounted to the at least one wing.
21. The aircraft of any one of claims 1-20, wherein the aircraft is electrically powered.
22. The aircraft of any one of claims 1-21, wherein the aircraft is manned.