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M. Yoffe has pioneered a point-recovery solution for fixed-wing UAVs on board all ship types and on land, there enabling these best-in-cruise platforms to be used from confined-area bases.

Point-Recovery

'Point-recovery' means that no length of runway is required, as normal for fixed-wing air-vehicles. It is regularly associated with helicopters that have rotating wings (rotor), therefore the new method grants to fixed-wing craft rotary-wing landing capability, even a better one, due to all steps being positive-action, no free hovering, by using a cable-pull-to-touchdown feature. As launching from point-areas is common nowadays, by a rocket booster or rail launcher, this method finally enables helicopter-equivalent launch and recovery for fixed-wing UAVs, while maintaining their Endurance performance together with their simpler and cheaper construction compared to helicopter-based craft or other VTOLs. In fact regularly 'Vertical Take-Off and Landing (VTOL)' is an expression used for meaning 'desire helicopter capability', so now fixed-wing UAVs can be considered to the better wherever 'VTOL' is specified in a requirement. This advantage is especially useful for shipborne Endurance UAVs.

Applications

Land-UAV's point recovery onto a Land-site: No runway needed, minimal equipment mounted on a vehicle or carried by helicopter for maximal tactical flexibility.

Land-UAVs recovery direct to the transporting vehicle: This is for smaller or larger UAVs. Eliminates damages of pure-parachute landing in winds due to falling on trees, water-bodies or hard touchdowns. Needs no retrieval-team operations in forested-jungle areas, snow, darkness, etc. Exceptionally advantageous in strong winds.

Shipborne: The primary advantage of the method is recovery on ship for long-winged Endurance UAVs. This applies to all ship types – with helipads (destroyers, frigates), no helipad (patrol boats), ships that require a complete below-deck installation, very fast craft, and more.

Expeditionary Shipborne Forces' UAV flexibility: The method enables to double the use of shipborne UAVs as ship-based and shore-based, due to same recovery interface.

Land-Recovery characteristics: Large engagement 'window', low sensitivity to wind gusts near ground or sudden wind direction changes, very slow/zero sink rate on touchdown, minimal equipment, simple control, fast setup.

Ship-recovery characteristics: Lends itself to various degrees of man out of the loop; high sea-state and small ship dynamics accommodated, all-weather, day/night operation in conjunction with guidance systems like UCARS; accommodates all ship-speed/wind-speed and direction combinations including zeros and reverse; principles require no operational limitations on the ship.

Status

- Has been tested at sea in preliminary configuration and found successful;
- Checked to meet /exceed the US Navy requirements in the US DOD SBIR Topic N03-058 of 2003 "Ship/Fixed-wing UAV System Interface"

Fixed-wing UAV recovery to small ship direct to a container, no free deck used

