TIMELINE: LIMBACH DRONE ENGINE PROLIFERATION

2005 - 2008
Iran illicitly procures L550E engines from Germany-based **Limbach Flugmotoren GmbH** through front companies, allegedly for military drone projects.

2010
Iranian **Yousef Aboutalebi** claims to reverse-engineer German drone engines. His company, **Mado**, advertises copies of the L550E.

2011
Limbach Flugmotoren sold to **Shuide Chen**, a Germany-based businessman with ties to Xiamen, China.

2012
Congming Chen establishes **Fujian Delong Aviation Technology Company** and **Xiamen Limbach Aircraft Engine Co** in Xiamen.

2013
Aboutalebi formally establishes **Oje Parvaz Mado Nafar Company** in Iran, with IRGC Aerospace Force drone commander **Abdollah Mehrabi** as chairman.

2013
China-based **Beijing Micropilot UAV Systems** begins advertising Mado copies of Limbach engines.

2013 - 2014
Aboutalebi and **Ma Jie** establish **Mado Import and Export Company** in Hong Kong. Beijing Micropilot establishes a Hong Kong branch.

c. 2013 - 2025
Ma Jie's Hong Kong company **Qian Xi Long Trading Co.** sends and receives payments for engine parts from front companies in Hong Kong and Turkey.

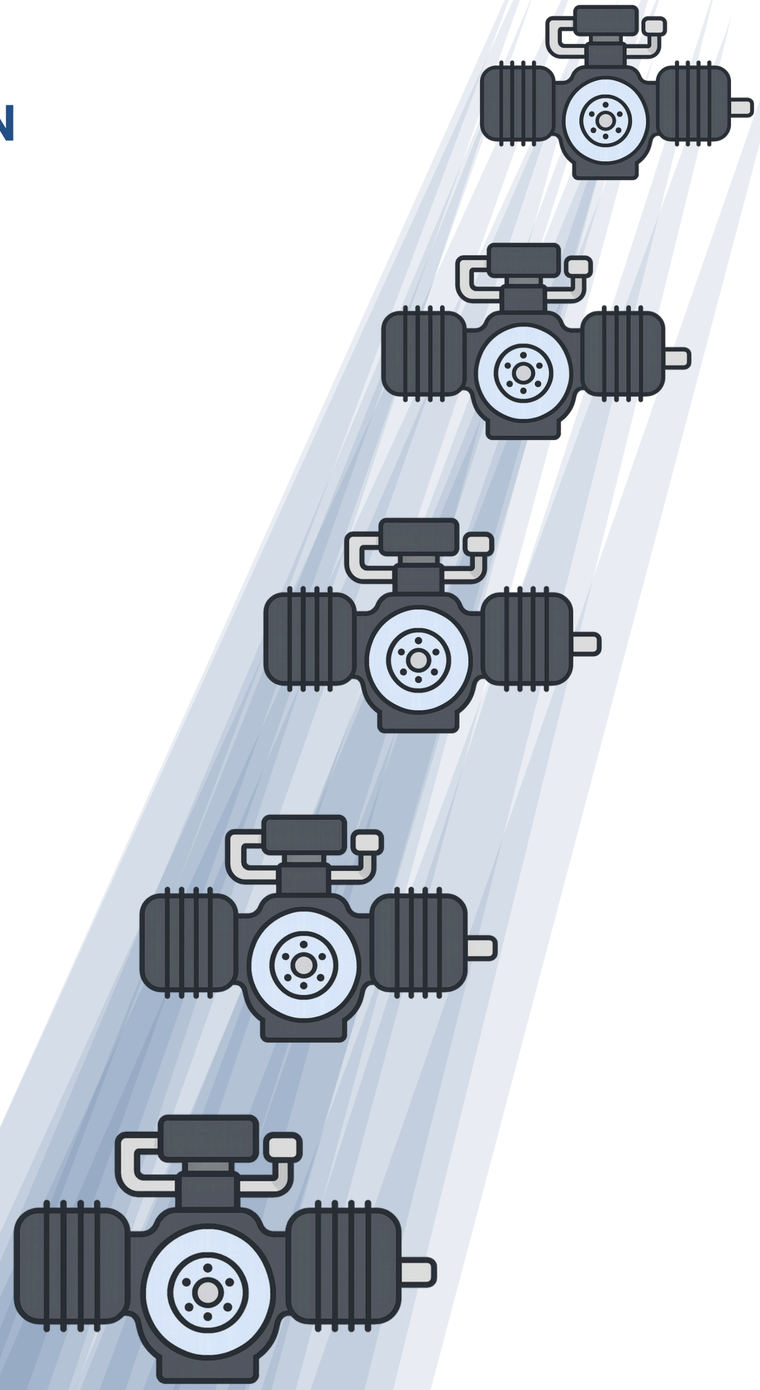
2014
A delta-wing UAV resembling the later Shahed-131/136 suicide drones is displayed in Iran.

2017
Fujian Delong Aviation acquires Limbach Flugmotoren. Congming Chen keeps Shuide Chen on as managing director.

2019 - 2021
Drones designed by Iran's **Shahed Aviation Industries** with Mado engines are used in attacks by Iran and the Houthis.

2022
Iran transfers Shahed-136 UAVs and production technology to Russia. Russia begins using the drones to attack Ukrainian cities and infrastructure.

2023
Russia begins producing Garpiya-3 UAVs using L550E engines supplied by Xiamen Limbach through intermediaries.

2023
The Houthis begin using Shahed-136 drones to attack commercial ships in the Red Sea.

2024 - 2025
The U.S. and EU sanction Xiamen Limbach for supplying Russia with drone engines. The U.S. sanctions Ma Jie and Qian Xi Long Trading.