

Terminal: A Point-in-Time Record of the Aerial Economy

Marble Institute of Technology. Data as of October 20, 2026.

ABSTRACT

You cannot improve what you do not measure. We want to improve how people and goods move. So first, we must measure. Transportation is moving into the air, and the record of it shows up in public data before it shows up in revenue. An aircraft must be registered before it may fly, so a fleet enters the U.S. civil aircraft registry before it can earn anything in the air. From August 16, 2023 to October 20, 2026, large drones were 47.3% of the registry's net growth, and Zipline, a private company that files no public earnings reports, went from no registered aircraft to 3,034. But each new registry file replaces the last, so a past count can be rebuilt only from a copy of that day's file. We keep the record point in time. We hold 820 registry publications since August 16, 2023. They come from public archive copies and earlier captures. Files with a capture record and SHA-256 start on 28 Jul 2026. A separate auditor checks every figure from the raw files before it is published. The record states facts about fleets. It is not a forecast of revenue or prices.

The problem. The public record of the move into the air is scattered and overwritten, so no one can chart it.

The solution. Keep every version of the record with its date, and check every number against the raw files.

1. Introduction

For a century, moving people and goods meant roads, rails and runways. A new layer is being added above them. Delivery drones, farm drones, inspection drones and defense drones are already registered in the thousands. Passenger aircraft are further behind.

Most of the money behind this shift is judged on what companies say about themselves: renders, press releases and investor decks. Many of the companies are private and publish no counts at all.

Yet much of the shift has to pass through public records. Aircraft are registered. Registration numbers are reserved. Contracts are awarded. Permits are granted. Fund holdings are reported. Each of these is a dated fact. But the records sit in different offices and different formats, and many are replaced as they update.

This paper describes a record of the aerial economy kept point in time, shows what it holds, and states what it cannot tell you.

2. The record comes first

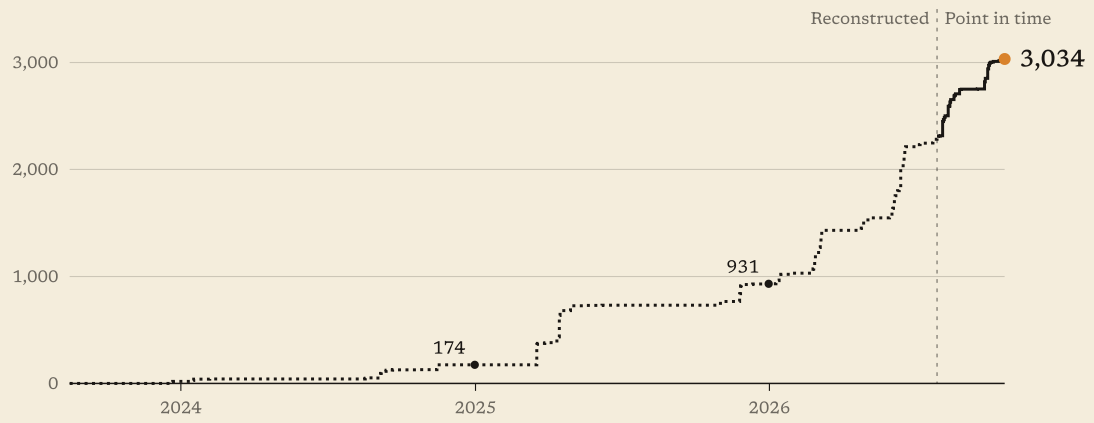
With few exceptions, federal law lets an aircraft fly only once it is registered [1]. So the order is fixed. A registration number may be reserved. Then an aircraft is registered. Then it flies. Then it may carry paid work. Every step before the revenue leaves a dated public entry.

Zipline shows the order. On August 16, 2023, the registry listed no Zipline aircraft. The first appeared on December 21, 2023. There were 174 at the end of 2024, 931 at the end of 2025 and 3,034 on October 20, 2026. Zipline is private and files no public earnings reports. The count is in the registry.

Intent shows up even earlier. A registration number can be reserved before the aircraft exists. Joby held 211 reserved numbers at the end of 2025 and 1,684 on October 20, 2026. A reservation is not an aircraft. It is a plan, filed in public.

FIGURE 1

Zipline's registered aircraft, August 16, 2023 to October 20, 2026.



Valid registrations on Zipline's name and address lines in the U.S. civil aircraft registry. Dotted: a public archive copy. Solid: from 28 Jul 2026, mostly our capture record with file hashes; seven days in August and September are public archive copies. Each point takes its file's own date.

This is a claim about order, not prediction. A registration says that a fleet exists. It does not say that the fleet will earn money, or what any company is worth.

3. The record disappears

The registry is published as a download five days a week, and each new file replaces the last. Today's file shows today's fleet. It does not show last month's.

A count on a past date can be rebuilt only from a copy of that day's file. If no one kept the copy, the count is gone. Without dated copies there is no trend, no test of an idea against the past, and no way to check a claim made last year against what the record said at the time.

4. Keeping the record

The registry. From August 16, 2023 to October 20, 2026 the registry was published 830 times. We hold 820 of those publications.

- **Our own capture record with file hashes** starts on 28 Jul 2026. Each file is point in time.
- **Before that,** counts come from a public archive copy, and we label them that way. The files for 44 days from March 19 to September 5 are public archive copies.
- **In all,** we hold 820 of the 830 publications. Each is dated by its own file.

We also hold the registry's year-end files back to 2010.

Two checks on the copies.

- In all 91 publications held by both the archive and us through October 11, 2026, the main aircraft file is identical byte for byte.
- Seven Internet Archive copies of the full download match ours exactly.

Dates. Each row keeps the first and the last publication that showed it. A question asked as of any date we hold is answered only from what the file said on that date.

Other records. Terminal keeps other public records too, each from its own start date. Only the registry carries the history described above.

TABLE 1

Public records in Terminal, each with its own start date.

Record	What it shows	Held from
U.S. civil aircraft registry	Every registered aircraft, its model, registrant and status	Files held from August 16, 2023; capture records from 28 Jul 2026; year-end files from 2010
Federal drone contracts	Federal awards for unmanned aircraft	Fiscal 2008
California autonomous testing permits	Holders of permits to test with a safety driver	The list of September 5, 2015
Texas automated vehicle authorizations	Vehicles on the state's list, by holder	The state file of September 2026; capture record from October 9, 2026

5. How we count

A valid registration is one the file marks as valid (status codes V, T and M).

A large drone is an aircraft in the registry on a model we class in one of five drone sectors: agricultural, delivery, inspection, defense and entertainment. Small drones registered under 14 CFR part 48 are a separate system and are not in this file [2]. Every drone count here is therefore a floor.

A company's fleet is counted on that company's name and address lines in the file, reviewed by hand.

Registrant names leave out individuals and co-owners. No individual is named in anything we publish.

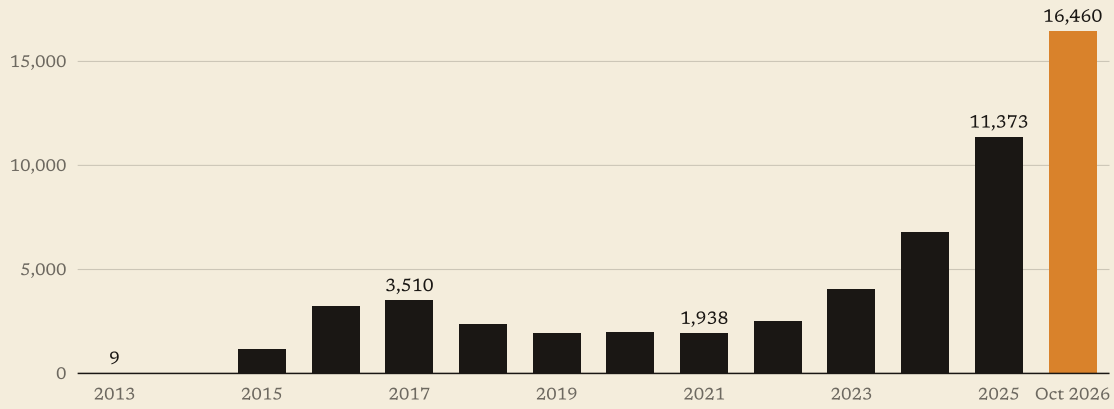
Every figure is stated as of a date.

6. What the record shows

The shift. At the end of 2013 the registry held 9 large drones with a valid registration. At the end of 2025 it held 11,373, and on October 20, 2026, 16,460. The line is not smooth. It rose to 3,510 at the end of 2017, fell to 1,938 by the end of 2021, then climbed: 4,060 in 2023, 6,794 in 2024, 11,373 in 2025. Large drones rose 56% in the year to October 20, 2026 (16,460 against 10,553).[1]

FIGURE 2

Large drones with a valid registration at each year-end, and on October 20, 2026.



Year-end registry files, 2013 to 2025, and the publication of October 20, 2026. Large drones: the five drone sectors defined in Section 5. Small drones registered under 14 CFR part 48 are not in the file.

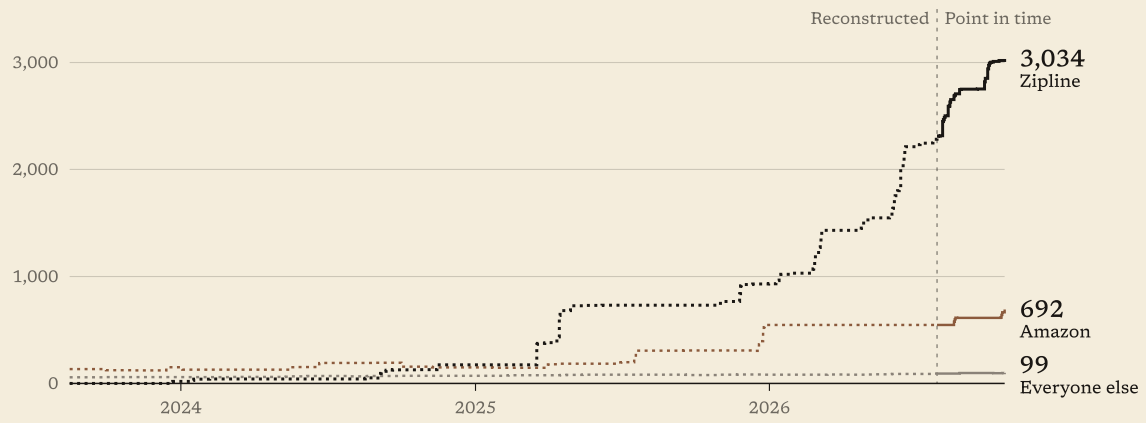
On August 16, 2023, large drones were 1.32% of valid registrations: 3,776 of 285,481. On October 20, 2026 they were 5.27%: 16,460 of 312,292. Of the 26,811 registrations added, net, between those dates, 12,684 were large drones. That is 47.3% of the registry's net growth. Since March 19, 2026 the share is 67.7%.

The sectors. Agricultural drones went from 1,019 on August 16, 2023 to 8,887 on October 20, 2026. On the federal aircraft registry, delivery drones went from 192 on August 16, 2023 to 3,825 on October 20, 2026, by our classification. On October 20, 2026 the file also held 1,445 inspection drones, 1,323 defense drones and 980 entertainment drones.

The delivery race. Zipline-made and Amazon-made aircraft are almost the whole delivery fleet. On October 20, 2026, Zipline-made aircraft numbered 3,034 and Amazon-made 692: 3,726 of the 3,825, or 97%. Every other make together: 99.

FIGURE 3

Delivery drones by operator, August 16, 2023 to October 20, 2026.



Valid registrations on delivery drone models in the U.S. civil aircraft registry, by operator name and address lines. Dotted: reconstructed. Solid: point in time.

New names. Between August 16, 2023 and October 20, 2026, 3,538 registrant names appeared in the file with a first large drone. Of those, 3,384 still held one on October 20, 2026.

7. Proof

A separate auditor checks every figure in this paper against the raw registry files. It is given our definitions and the figures to check, and re-derives each one from the raw files without our working. A figure it cannot reproduce is corrected or cut. When a published figure turns out wrong, we correct it in public, with the date and the old and new values.

8. What the record cannot tell you

- **Counts are floors.** Small drones are not in the file. On October 20, 2026 the file also held 1,146 valid aircraft on models listed with zero seats (gliders, balloons and airships aside) that we do not count as large drones. Not all of them are drones.
- **A registration is not a flight.** The file records aircraft, not flights, deliveries or sales. We hold no flight or delivery counts.
- **A name is not a customer.** A fleet may be registered to an operator, to a maker or to a lessor. A maker's own registrations are not its sales.
- **Some owners withhold.** On October 20, 2026, 1,214 valid records not marked as an individual's or co-owned were listed with the owner's name and address withheld.
- **The file is U.S. only.** Aircraft registered in other countries are not in it.

- **No prediction.** We have not shown that the record predicts revenue or prices, and we do not claim it.

9. Conclusion

Transportation is moving into the air, goods first. Because an aircraft must be registered before it may fly, the move leaves a dated public trail before it leaves a revenue line. Each new registry file erases that trail unless someone keeps a copy. We keep it, point in time, and every number we publish from it is audited first. You cannot improve what you do not measure. We want to improve how people and goods move. So first, we must measure.

Notes

1. Compared with the registry file of Tuesday, October 21, 2025, the closest file to October 20, 2025: 10,553 large drones.

References

[1] 49 U.S.C. 44101, Operation of aircraft.

[2] 14 CFR part 48, Registration and marking requirements for small unmanned aircraft.

Terminal provided by the Marble Institute of Technology. Riley@marbletech.us