



FAA Night Time Logbook Calculations: Twilight and Landings

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In this article

1. Executive Summary
 2. Introduction and Background
 3. Key Distinctions in the FAA Texts
 4. Calculation Audit: Evidence Behind a Night Suggestion
 5. Existing Tools and Published Examples
 6. Implementation Considerations and Process Changes
 7. Data Analysis and Evidence
 8. Implications and Future Directions
 9. Frequently Asked Questions (FAQs)
 10. Conclusion
-

Executive Summary

This report examines how a United States (FAA) pilot can reproduce, question or correct a night-time figure suggested by a roster or logbook application. The short answer is that a suggestion is only as good as the evidence behind it: the flight interval, the twilight source, the date, the location and the time conversion. Each of those can be written down and re-checked.

Three FAA records must not be conflated. For logging night flight time, 14 CFR 1.1 defines night as the period between the end of evening civil twilight and the beginning of morning civil twilight, as published in the Air Almanac and converted to local time (www.ecfr.gov). For recent experience to carry persons, 14 CFR 61.57(b) (1) uses a different window, from 1 hour after sunset to 1 hour before sunrise, with three takeoffs and landings to a full stop (www.ecfr.gov). Position-light rules use a third period (www.aopa.org).

Part 121 and Part 135 pilots need extra care: 14 CFR 61.57(e) excepts pilots in those operations when they comply with the cited sections of their own operating rules (www.ecfr.gov). This report therefore makes no general currency claim for professional operations.

The audit method proposed here is plain interval arithmetic. In a deliberately artificial example (every value hypothetical, location held constant), a UTC flight from 22:00 to 23:30 with civil twilight ending at 22:20 yields 70 minutes of night-duration overlap, while a full-stop landing at 22:40 is night under the logging definition but outside a 22:50 recent-experience threshold. The FAA does not mandate this algorithm; the example only shows that a duration and a landing classification are separate results.

The FAA has noted that the US Naval Observatory (USNO) online civil-twilight computation is available at no cost (www.faa.gov). USNO's one-day service needs a date, coordinates and a time-zone offset, and USNO warns that its output is computed rather than observed (aa.usno.navy.mil). For moving aircraft, airport-only estimates can disagree: in the hypothetical data cases below, departure and arrival twilight give 70 and 40 minutes, so the route-wide duration is recorded as unknown, never as zero. No public benchmark of any logbook application's accuracy is cited here, and none is claimed. The FAA requires logbook entries in a manner acceptable to the Administrator and does not prescribe a format (www.ecfr.gov).

Introduction and Background

Pilots who log night time routinely meet two competing ideas of night, and the existing explainers already contrast civil twilight with the one-hour sunset window. Examples are published by a flight-training outlet and by a logbook vendor (www.boldmethod.com) (pilotefb.com). What those pages rarely show is the audit trail: which inputs produced the figure, and how a pilot could reproduce it from scratch.

That gap matters to the intended reader. Airline and charter pilots review personal records before an interview, a type rating or an upgrade, and they present night experience to an examiner or hiring panel. An application that suggests a night figure from a roster has done arithmetic, but the pilot signs the logbook. The question this report answers is narrow: what evidence would let a pilot reproduce, question or correct a night-time suggestion?

Scope and jurisdiction. Every rule below is a United States rule from Title 14 of the Code of Federal Regulations (14 CFR), the FAA's regulations. Nothing here extends to Transport Canada, EASA (European Union Aviation Safety Agency) or the UK CAA, which define and record night differently. The report covers record-keeping only. It offers no dispatch, flight-planning, lighting-equipment or go/no-go advice, and it does not replace an operator's approved procedures or an FAA or examiner decision.

Source status. The eCFR (Electronic Code of Federal Regulations) pages used here displayed a banner reading "up to date as of 10/29/2026" for Title 14 (www.ecfr.gov). The eCFR is an editorial compilation, so a reader relying on a rule for a decision should confirm the wording in the current official publication. Law (the regulations), guidance (FAA handbooks and advisory circulars), administrative acceptance (what an examiner or inspector accepts) and recommended audit practices (the checklists in this report) are kept separate throughout.

A note on the publisher. LANDING.AERO, a Montreal software studio, publishes Pilot Logbook, an invitation-only electronic logbook made by a line pilot. It is mentioned only in this note and in one short section near the end, and it is never used as evidence for a claim.

Key Distinctions in the FAA Texts

Three periods called "night"

The FAA's own materials describe more than one night. An FAA-published magazine article from November and December 2008 summarized the point as three periods: "one for equipment, one for currency, and one" for logging (www.faa.gov). AOPA (the Aircraft Owners and Pilots Association) makes the same observation about lighting, carrying passengers and logging (www.aopa.org). This report concerns two of the three: the logging definition and the recent-experience window. It does not address the lighting period beyond naming it.

Logging night flight time: 14 CFR 1.1 and 61.51

Under 14 CFR 1.1, night means "the time between the end of evening civil twilight and the beginning of morning civil twilight, as published in the Air Almanac, converted to local time" (www.ecfr.gov). The Federal Register notice of 12 October 2012, effective (www.federalregister.gov), corrected the almanac's title and

found that the correction (www.federalregister.gov), so the substance of the definition predates that amendment (www.federalregister.gov).

The logbook rule is 14 CFR 61.51. It requires each person to document and record time "in a manner acceptable to the Administrator", and for each flight it lists entries including the departure and arrival location and a "Day or night" condition-of-flight entry (www.ecfr.gov). Two points follow for an audit. First, the only night-specific entry named in the paragraphs reviewed is day or night; the regulation text read for this report does not set a separate required field for a night-landing count. Second, 61.51(a)(2) separately requires the aeronautical experience used to meet recent flight experience requirements to be documented, so the evidence for a landing must exist even where the format is open.

The FAA magazine article states the logging consequence directly: the time that can be logged as night flight is flying within the Part 1 night period (www.faa.gov). The article is an explanation by an author published by the FAA, not a regulation or a Chief Counsel interpretation, and this report cites no interpretation specific to logging the portion of a flight between twilight events.

Recent experience: 14 CFR 61.57(b)

The recent-experience rule is different in both purpose and window. The general rule requires three takeoffs and three landings within the preceding 90 days to carry persons. The night rule applies to carrying persons "during the period beginning 1 hour after sunset and ending 1 hour before sunrise" and requires at least three takeoffs and three landings to a full stop in that period (www.ecfr.gov). The pilot must also have acted as sole manipulator of the flight controls (www.ecfr.gov). The FAA's Airplane Flying Handbook repeats the one-hour window for the currency purpose and separately defines evening civil twilight as beginning at sunset (www.faa.gov). AOPA's flight-training coverage notes that three full-stop landings are needed for night currency (www.aopa.org).

For the audit, three record elements follow: the landing time, whether the landing was to a full stop, and who was manipulating the controls. A duration subtotal says nothing about any of them.

Professional operations: do not import the general rule

Readers flying under Part 121 or Part 135 should not assume that 61.57(b) is the operative recency test for their flying. Section 61.57(e) provides exceptions. Paragraph (e)(2) excepts a pilot in command employed by a Part 119 certificate holder authorized to conduct operations under Part 121 when engaged in a flight operation under Part 91 or 121 for that certificate holder, on condition of compliance with the cited sections of that paragraph. Paragraph (e)(3) does the same for Part 135 operations under Parts 91 or 135. Paragraph (e)(4) provides a separate alternative for pilots in command of turbine-powered airplanes certificated for more than one pilot crewmember, with a 1,500-hour logged-experience condition and its own six-month night takeoff and landing condition.

The operating rules those exceptions point to have their own wording. Section 121.439(a) requires that, within the preceding 90 days, the person has "made at least three takeoffs and landings in the type airplane in which that person is to serve", and paragraph (a) contains no night-specific condition (www.ecfr.gov). The Part 135 provision refers to night "as published in the Air Almanac" and describes takeoffs and landings as sole

manipulator (www.ecfr.gov). Which rule governs a given flight depends on the operation and on the operator's approved program, so this report makes no currency claim for those operations. What carries over is the record: the night subtotal and any landing events are logged evidence whichever rule is later applied.

What counts as an acceptable record

Neither paper nor a particular electronic layout is prescribed. AC 120-78B, issued in December 2024, lists pilot logbooks among the signature categories it covers and states that its scope under Part 61 does not require formal FAA approval or acceptance (www.faa.gov). The FAA's page for the AC describes the AC as "an acceptable means, but not the only means" (www.faa.gov). A print layout that resembles a paper logbook is therefore a presentation choice. It is not evidence of FAA approval of the underlying night calculation, and no public source reviewed shows any such approval for any application.

Calculation Audit: Evidence Behind a Night Suggestion

This section sets out a compact audit that a pilot can run with a calculator and a browser. It is a set of recommended practices, not a statutory form.

Step 1: identify which FAA record is being checked

Table 1 below separates the records, their regulatory source and the evidence each needs.

Record being checked	US source and purpose	Evidence needed to reproduce it
Night flight time logged	14 CFR 1.1 night, applied through the 61.51 day-or-night entry	Flight interval as instants, location(s), local date and offset, source of the civil twilight times
Night recent-experience landing	14 CFR 61.57(b)(1) window, 90 days, full stop, sole manipulator	Landing instant, location, sunset or sunrise for that date, full-stop status, who flew
Operations under Part 121 or 135	14 CFR 61.57(e) exceptions and the operator's approved program	The operator's own rule and program; the logged landing as supporting record
Certificate or airline application night totals	For example, 14 CFR 61.159 night flight time for an airplane-category airline transport pilot certificate (www.ecfr.gov)	Night subtotal per flight, plus night landing events where substitution is used (www.ecfr.gov)
Record format	14 CFR 61.51(a) "manner acceptable to the Administrator"; AC 120-78B non-binding means (www.faa.gov)	A readable, retrievable entry that can be shown on request

Table 1 shows why one number cannot serve every purpose. A pilot who is asked "how much night do you have" is being asked about the logging definition; a pilot asked "are you night current" is being asked about a different window and, in professional operations, possibly a different rule altogether. The 61.159 row also shows that night totals feed certificate eligibility. Section 61.159 requires 100 hours of night flight time within the 1,500-hour total and allows a pilot who has performed at least 20 night takeoffs and landings to a full stop to substitute additional night takeoffs and landings for night hours (read the paragraph for the limits). That is a second reason to keep landing events as separate records.

Step 2: list the minimum inputs behind any suggestion

Whatever the application, a suggested night figure rests on a short list of inputs. A pilot can ask to see each one:

- **Flight interval:** the start and end instants, and whether they are block (out and in) or flight (off and on) times. Vendors document different inputs: one logbook states it uses departure and destination airports, the date and off and on block times (pilotefb.com), another asks for departure and arrival times, either flight or block (www.dauntless-soft.com), and a third says its night value comes from out and in times (support.logten.com).
- **Provenance of the times:** whether they were typed, imported from a roster, or derived from a track log. A ForeFlight release note describes times taken from track log data or entered manually (foreflight.com).
- **Location:** the airport or coordinates used. USNO's one-day service takes coordinates in decimal degrees, with east and north positive.
- **Twilight source and version:** the Air Almanac itself, which USNO publishes with sunrise, sunset and twilight tables and offers as a free download (aa.usno.navy.mil), or a computed service. The FAA has stated that the civil twilight information is readily available at no cost on the USNO website (www.faa.gov).
- **Date and time-zone handling:** the date used for the lookup, the offset, and whether daylight saving time was applied.
- **Definition used:** civil twilight (the Sun's center 6 degrees below the horizon) versus sunset plus a fixed offset (aa.usno.navy.mil).

Not every product exposes all of these. One vendor states that its calculation requires its configuration to provide sufficient data (www.dauntless-soft.com), and another's help page says seat-specific night time cannot be allocated automatically in some cases (support.logten.com). A missing input is a finding. It is not a reason to trust the suggestion more.

Step 3: preserve UTC instants alongside the original local date and offset

The FAA states that it uses UTC (Coordinated Universal Time) for all operations, and defines the aviation day as beginning at 0000 and ending at 2359 (www.faa.gov). In writing, a time-zone designator marks local time (www.faa.gov). USNO adds a warning that matters for logbooks: when converting to or from UTC, dates must be properly taken into account, and its example is that 10 March at 02:00 UTC is 9 March at 21:00 in a zone five hours behind (aa.usno.navy.mil).

The recommended practice is to store each endpoint twice: as a UTC instant (the unambiguous record) and as the original local date, clock time and offset (the way the pilot experienced it). The twilight lookup is keyed to a local date and place, and the answer is returned as a local clock time, so a local date that differs from the UTC date is a classic source of one-day errors. USNO's service accepts a time zone as an offset in decimal hours and returns results on a 24-hour clock (aa.usno.navy.mil), and it applies daylight saving rules only when the user turns that option on, for dates from 1967 onward. For manually entered coordinates it does not check whether the place observes daylight saving time, and it makes no attempt to track historical time-zone changes.

Daylight saving ambiguity is real in the evening of the changeover. US daylight saving time ends on the first Sunday in November, when clocks are set back at 2:00 a.m. local daylight time (www.govinfo.gov) (aa.usno.navy.mil), which is November 1 in 2026. A local clock time between 1:00 and 2:00 a.m. therefore occurs twice that morning, and not every US place observes daylight saving time. A UTC instant removes the ambiguity; a local time alone does not.

Step 4: a deliberately simplified worked interval (Hypothetical Example)

Every value in this example is hypothetical and artificial. It is not an actual airport, an actual astronomical result, an eligibility decision or a route-wide calculation, and the location is held constant for the whole flight. The FAA does not mandate this algorithm; it is plain interval overlap.

- **Flight interval (UTC):** 22:00 to 23:30, which is 90 minutes.
- **Stipulated end of evening civil twilight:** 22:20 UTC.
- **Stipulated sunset:** 21:50 UTC.
- **Night-duration overlap:** the interval from 22:20 to 23:30 lies after civil twilight ends, so 70 minutes (1 hour 10 minutes, or 1.2 hours rounded to one decimal) is the night-duration overlap under the 14 CFR 1.1 reading. The 22:00 to 22:20 portion is not night under that reading.
- **Stipulated 61.57(b) evening threshold:** sunset plus 1 hour, which is 22:50 UTC.
- **Stipulated full-stop landing:** 22:40 UTC. It occurs after civil twilight ends (22:20), so it falls inside the logging night period. It occurs before 22:50, so it does not fall inside the stipulated recent-experience window.

The result has two parts that disagree on purpose. The same landing is a night landing in the sense of the logging definition and is outside the one-hour-after-sunset window. A logbook that shows "1 night landing" without saying which definition it applied cannot be audited. Rounding convention is a record-keeping choice: the FAA sections read for this report were not found to prescribe one, so the pilot should apply a consistent method and note it.

Step 5: keep landing events separate from durations

A duration is an interval overlap. A landing is a point event with its own tests: time against the 61.57(b) window, whether the landing was to a full stop, who manipulated the controls, and for which purpose the landing is being counted. One vendor illustrates the same split with a single flight whose landings classify differently under the two definitions: "Same flight, two answers, because two definitions" (pilotefb.com). A simulator can also satisfy the 61.57(b) landings when its visual system is adjusted to represent the described period, which is another reason to record the device and not only the count.

Step 6: the limits of airport-only estimates for moving routes

The sun's position changes along a route. The MyFlightbook author, writing in 2017, states that there is no way to take a starting point, an ending point and a time and determine how much of the flight was at night, and describes accumulating elapsed time between successive samples when both are night (myflightbookblog.blogspot.com). Where only endpoints exist, the same tool builds a synthetic path between

them and presents it as an approximation (myflightbookblog.blogspot.com), and it accepts start and end times in UTC for that estimate (myflightbookblog.blogspot.com). That post is dated and describes one product, so the current behavior should be checked in the vendor's current documentation.

The audit consequence is stated in *Table 2* (Scenario 5): with different twilight times at departure and arrival, two defensible airport-only figures can differ, and neither is a proven route-wide result. Without a track log or an explicit method assumption, the honest entry is "route-wide duration unknown". An airport-only figure can be labeled as an assumption.

Step 7: data cases that break a naive calculation

Table 2 below works five hypothetical cases. All dates, times and locations are artificial, and no case is an airport, an almanac result or a legal determination.

Scenario	Supplied values (hypothetical)	Method assumption	Computed loggable duration	Landing event classification (separate)	What remains unknown
1. Fixed location, same UTC day	UTC 22:00 to 23:30; twilight end 22:20; sunset 21:50	Interval overlap with night after twilight end	70 minutes	Full stop 22:40: night under 1.1 (after 22:20); outside 61.57(b) window (threshold 22:50)	Real airport, real date, real almanac values
2. UTC date rollover	Local offset UTC-5 (standard time); local date D; UTC 23:30 on D to 00:40 on D+1 (local 18:30 to 19:40 on D); twilight end 22:20 UTC (17:20 local on D)	Twilight looked up for local date D, compared in UTC	70 minutes	Full stop 00:40 UTC D+1: night under 1.1; inside the stipulated 61.57(b) window (22:50 UTC on D to 10:00 UTC on D+1)	Whether the source used local date D or UTC date D+1 for the lookup
3. Daylight-saving offset ambiguity	Local entries 01:30 off and 02:40 on, 2026-11-01, location observing US daylight time with standard offset UTC-5	Two readings of the repeated 01:30	70 minutes if 01:30 is standard time; 130 minutes if 01:30 is daylight time (whole interval stipulated to lie within night)	Landing at 02:40 local falls after the changeover; its night status is stipulated, not computed	Which 01:30 was meant; resolved only by a UTC instant
4. Unavailable twilight event	UTC 22:00 to 23:30; the source returns no evening twilight end for the date	None applicable until the source note is read	Unknown (not zero)	Unclassified	Whether the Sun stayed continuously above or below the twilight limit
5. Moving route	UTC 22:00 to 23:30; twilight end 22:20 at departure and 22:50 at arrival; no track log	Airport-only at either end	70 minutes (departure) or 40 minutes (arrival); route-wide unknown	Landing time and location at arrival tested against arrival-airport sunset	Track and method for the portion in between

Scenario 1 repeats the Step 4 arithmetic. Scenario 2 shows that the UTC date can change while the local date does not, which is exactly what the USNO date warning describes (aa.usno.navy.mil). Scenario 3 turns on a repeated hour: the interval is 70 minutes if both entries are on standard time and 130 minutes if the first 01:30 was daylight time, a 60-minute swing created only by an ambiguous local entry. Scenario 4 depends on how the astronomical source reports a missing event: the USNO API documentation says that if the body remains above or below the horizon or twilight limit the time is returned as null, with a note (aa.usno.navy.mil). A missing event is therefore a prompt to read the note. It is not a zero: a continuously-below result would mean the whole interval is night, a continuously-above result would mean none of it is, and an absent note would leave the entry unresolved. Scenario 5 shows two defensible airport-only numbers, 70 and 40 minutes, with no way to choose between them from the airports alone.

Existing Tools and Published Examples

The tools described here are neutral observations drawn from each product's own pages as read at the time of writing, and they may change. No accuracy benchmark was run, and no tool is described as correct or incorrect. Nothing here implies FAA approval or endorsement of any tool.

- **LoggingNight.org** asks for an airport and, optionally, a date. It displays separate windows: sunrise and sunset for position lights, civil twilight for logging and night equipment, and one hour either side of sunset and sunrise for currency (loggingnight.org). AOPA's YouCanFly newsletter of 23 March 2025 lists it, describing the site (in AOPA's words, not an FAA endorsement) as calculating official night times based on FAA regulations and letting a pilot plug in a location (youcanfly.aopa.org).
- **Pilot EFB** states that it suggests a night figure for the pilot to review before saving, and that the result is a suggestion rather than an authority-approved figure (pilotefb.com).
- **Safelog** documents configurable rules, including standard, civil, nautical and astronomical options, and integration with the IANA time-zone database (www.dauntless-soft.com).
- **ForeFlight** added civil twilight solar data for airports in August 2024, computed from latitude and longitude with the Sun 6 degrees below the horizon (foreflight.com).
- **LogTen's** help page states that "Night is calculated from the Out & In time fields only" (support.logten.com).

A pattern emerges that is useful for the audit. Some products offer a suggestion to be reviewed, some expose rule choices, and most describe inputs in a sentence. The preserved calculation inputs, rather than the displayed value, are what let a pilot reproduce a figure later. A pilot choosing among products can ask whether the entry stores the source, date, location and time conversion used, or only the final number.

Implementation Considerations and Process Changes

Reproducing a suggestion in five moves

1. **Fix the record.** State whether the question is the logging subtotal, a landing classification, or both.
2. **Write down the instants.** Convert each endpoint to UTC and keep the original local date and offset.

3. **Pull the twilight times independently.** Use USNO's one-day service for the stated local date and place, with the time-zone offset and daylight setting stated explicitly.
4. **Compute the overlap.** Subtract the interval that precedes evening twilight end and follows morning twilight begin; apply the same logic to date rollover.
5. **Classify each landing separately** against the 61.57(b) window if recency is the question, and otherwise against the logging definition.

Know what the astronomical source does and does not claim

USNO defines the end of evening civil twilight as the point at which the center of the Sun is geometrically 6 degrees below the horizon, which it computes as a zenith distance of 96 degrees (aa.usno.navy.mil). Sunrise and sunset are computed at 90.8333 degrees, a figure built from the Sun's average apparent radius and average atmospheric refraction (aa.usno.navy.mil). USNO states that computed rise and set times may be in error by a minute or more, and that accuracy decreases at high latitudes (aa.usno.navy.mil). It also says that its data are computed rather than observed, that actual lighting levels would need a forensic study, and that its output is provided without seal or certification (aa.usno.navy.mil). For a logbook entry this means a reproduced twilight time is a reference value with a stated method, not a measurement of the sky on the day.

Document a correction without inventing data

When a reproduced figure disagrees with a suggestion, the pilot's options are to accept the suggestion, accept the reproduced figure, or record the entry as unresolved. The audit never fills in a track the pilot does not have. If departure and arrival twilight times differ and no track exists, the entry can say "route-wide duration unknown; airport-only figures 70 and 40 minutes; pilot-reviewed figure X because Y". A pilot should show the entry exactly as recorded, because the logbook must be presented for inspection on reasonable request by the Administrator and by other authorities named in the regulation.

Recommended audit practices (not statutory fields)

These items are recommended practices. They are not fields required by 14 CFR 61.51 or any other FAA regulation.

- **Source and version:** which twilight source (almanac edition or service and date retrieved), and which application version produced the suggestion.
- **Raw suggestion:** the figure the application displayed, before any edit.
- **Pilot-reviewed figure:** the figure the pilot actually logged.
- **Reason for an override:** one line, for example "UTC date used for lookup instead of local date" or "01:30 repeated hour resolved by UTC".
- **Inputs retained:** UTC instants, original local date and offset, location, definition used (1.1 civil twilight or 61.57(b) window), and whether each landing was a full stop.
- **Unresolved data:** missing events, missing track, or ambiguous local times, written as unknown and never as zero.

Where an electronic logbook fits

Pilot Logbook, made by a line pilot at LANDING.AERO, is an invitation-only electronic logbook. This is a publisher disclosure, not evidence: no claim about its night calculation, method or accuracy is made here, so the checklist above applies to it exactly as it applies to any other product. Printing a layout shaped like a paper logbook is a presentation feature, and, as discussed above, layout is not FAA approval of a calculation. For disclosure, the publisher's own product page is [here](#); access is by invitation only and there is no open sign-up.

Data Analysis and Evidence

Published examples, recomputed

Table 3 below recomputes three examples published by other outlets from their own stated inputs, as a test of whether a published example can be reproduced from the page alone.

Source	Published inputs	Recomputed result	Matches published?
Boldmethod (KBJC example)	Sunset 6:03 PM; civil twilight ends 6:31 PM (www.boldmethod.com)	18:31 minus 18:03 is 28 minutes between sunset and twilight end; sunset plus 1 hour is 7:03 PM (www.boldmethod.com)	Yes, for the arithmetic stated
Pilot EFB (evening)	Flight 1830 to 2030 local; "From 1930 to 2030 is night"	2030 minus 1930 is 60 minutes, or 1.0 hour	Yes
Pilot EFB (morning)	Flight 0600 to 0800; morning civil twilight begins 0645; sunrise 0715 (pilotefb.com)	0645 minus 0600 is 45 minutes, or 0.75 hour, ending at twilight and not at sunrise	Yes, for the arithmetic stated

Table 3 shows that the arithmetic in published examples is reproducible when the page states its twilight inputs. It does not show that the stated twilight times are correct for a real airport, because the underlying almanac values were not independently retrieved for those dates. Boldmethod also offers a rule of thumb that civil twilight usually ends 20 to 35 minutes after sunset (www.boldmethod.com). In the hypothetical Step 4 example the stipulated gap is 30 minutes, which sits inside that rule of thumb but is not derived from it.

Numbers that bound an audit

- **Twilight definition:** 6 degrees below the horizon (zenith distance 96 degrees).
- **Sunrise and sunset convention:** 90.8333 degrees zenith distance, built from 16 arcminutes of apparent radius plus refraction.
- **Computed time uncertainty:** may be in error by a minute or more.
- **USNO date coverage:** years 1700 to 2100; daylight saving rules from 1967 onward.
- **Recent-experience window:** 1 hour after sunset to 1 hour before sunrise; three takeoffs and landings to a full stop in the preceding 90 days.
- **Airplane-category airline transport pilot night totals (14 CFR 61.159(a)):** 100 hours of night flight time within the 1,500-hour total, and 25 hours of night flight time within the 250 hours of airplane pilot-in-command time (or second-in-command time performing pilot-in-command duties). The separate cap on

substituting night takeoffs and landings for night hours is also 25 hours, under 61.159(b).

- **Daylight saving changeover:** second Sunday in March to first Sunday in November (aa.usno.navy.mil).

A one-minute computational uncertainty is small against a 70-minute interval but not against a pilot's expectation that a displayed figure is exact to the minute. That is why the audit records the method rather than only the number.

Implications and Future Directions

For individual pilots, the practical implication is that a night total is a derived quantity. When a roster or logbook application suggests it, the pilot can reasonably ask for the inputs, and a product that retains source, date, location and conversion makes later review easier. The questions are about reproducibility, not about the honesty of any vendor.

For pilots presenting experience, two practices reduce friction. First, label which definition a number uses, so that a night subtotal is not read as a currency statement. Second, treat unknowns as unknowns. An entry that says "route-wide duration unknown; airport-only figure recorded" is more defensible than a precise-looking value whose track was never captured.

Several matters remain open. No public benchmark of automatic night-time calculation across logbook applications was found. The FAA sections reviewed do not prescribe a rounding convention. No FAA statement was found that names an electronic logbook layout as acceptable, beyond the general non-approval position of AC 120-78B. Vendors' pages are dated and may change, so the descriptions here should be re-checked against current documentation. Finally, this report deliberately does not cover Canadian, European or UK records, which require their own analysis from their own authorities.

Frequently Asked Questions (FAQs)

How do I log night time under FAA rules? Log flight time that falls between the end of evening civil twilight and the beginning of morning civil twilight, as published in the Air Almanac, converted to local time. Record the day or night condition under 61.51.

What is the FAA night definition for the end of evening civil twilight? It is the 14 CFR 1.1 definition, and USNO computes the event as the Sun's center being geometrically 6 degrees below the horizon.

What does night currency under 61.57 require? For carrying persons, three takeoffs and three landings to a full stop in the period from 1 hour after sunset to 1 hour before sunrise within 90 days, as sole manipulator, subject to the 61.57(e) exceptions.

Are night landings counted one hour after sunset in the logbook? For currency, yes, the window starts one hour after sunset. For the logging definition, a landing after civil twilight ends is a night landing. The two tests are separate, as the Step 4 example shows.

How do I calculate night flight time from a route? Use the flight interval and the twilight times at the relevant location, and subtract the portion before evening twilight end. For a moving route, airport-only data do not establish the whole interval, so record the method and mark the remainder as unknown (myflightbookblog.blogspot.com).

Is there a night-time calculator for a pilot logbook? Several exist, with different inputs and options (www.dauntless-soft.com). USNO's own service can supply an independent reference for twilight times.

What is the difference between civil twilight and sunset for logging? Civil twilight ends later than sunset. Boldmethod's KBJC example has a 28-minute gap (www.boldmethod.com), while USNO defines sunset by the Sun's upper edge at the horizon.

Can an electronic logbook calculate night time automatically? It can suggest a value. One vendor describes its output as a suggestion for the pilot to check rather than an authority-approved figure, and AC 120-78B states that formal FAA approval is not required for electronic records under Part 61 (www.faa.gov).

How can night logging errors be audited? Reproduce the figure from the preserved inputs, as in Table 2: check the local date, the offset, the daylight saving setting and any missing twilight event.

Conclusion

Under US (FAA) rules, a night-time suggestion from a roster or logbook application is the answer to a specific question, and the first step of any audit is to identify which question. Night flight time for the logbook follows the 14 CFR 1.1 definition tied to civil twilight, while the recent-experience window of 14 CFR 61.57(b) starts one hour after sunset and applies to a different record. Professional operations have their own rules and exceptions, and this report makes no general currency claim for them.

The audit proposed here asks for a small, checkable set of evidence: the flight interval as UTC instants alongside the original local date and offset, the twilight source and date, the location, the overlap arithmetic, and a separate classification for each landing. Table 2 works one baseline case and four failure cases. The four failure cases show where a naive calculation fails: a UTC date rollover, a repeated daylight-saving hour, an unavailable twilight event, and a moving route measured only at airports. In each, the correct response is to record the assumption and the unknown, never to convert a missing event into zero night.

Nothing in this report establishes the accuracy of any application, and nothing in it is FAA approval of any method. The worked example is hypothetical and exists to show the arithmetic. A pilot who keeps the inputs, the raw suggestion, the reviewed figure and the reason for any override can reproduce, question or correct a night figure at any later point, and that is the standard of evidence an examiner or reviewing panel can reasonably be shown.

Source links

Links cited in this article, in order of first appearance. Full addresses are provided for readers using extracted text.

1. <https://www.ecfr.gov/current/title-14/chapter-I/subchapter-A/part-1/section-1.1>
2. <https://www.ecfr.gov/current/title-14/chapter-I/subchapter-D/part-61/subpart-A/section-61.57>

3. <https://www.aopa.org/news-and-media/all-news/2023/november/17/training-and-safety-tip-shedding-light-on-defining-night>
4. https://www.faa.gov/about/office_org/headquarters_offices/agc/practice_areas/regulations/interpretations/Data/interps/2011/Poreda-ANE-7_2011_Legal_Interpretation.pdf
5. https://aa.usno.navy.mil/data/RS_OneDay
6. <https://www.ecfr.gov/current/title-14/chapter-I/subchapter-D/part-61/subpart-A/section-61.51>
7. <https://www.boldmethod.com/learn-to-fly/regulations/logging-night-flight-time-and-night-landings-explained-2023>
8. <https://pilotefb.com/learn/logging-night-flying-time>
9. <https://www.faa.gov/sites/faa.gov/files/2022-01/NovDec2008.pdf>
10. <https://www.federalregister.gov/documents/2012/10/12/2012-25032/night-definition-technical-amendment>
11. https://www.faa.gov/sites/faa.gov/files/regulations_policies/handbooks_manuals/aviation/airplane_handbook/12_afh_ch11.pdf
12. <https://www.aopa.org/news-and-media/all-news/2023/january/flight-training-magazine/night-flights-and-landings>
13. <https://www.ecfr.gov/current/title-14/chapter-I/subchapter-G/part-121/subpart-O/section-121.439>
14. <https://www.ecfr.gov/current/title-14/chapter-I/subchapter-G/part-135/subpart-H/section-135.247>
15. https://www.faa.gov/documentLibrary/media/Advisory_Circular/AC_120-78B_FAA_Web.pdf
16. https://www.faa.gov/regulations_policies/advisory_circulars/index.cfm/go/document.information/documentID/1043396
17. <https://www.ecfr.gov/current/title-14/chapter-I/subchapter-D/part-61/subpart-E/section-61.159>
18. <https://www.dauntless-soft.com/helpdesk/phraseview.asp?PID=462>
19. <https://support.logten.com/en/articles/11604664-save-time-with-auto-fill-times-ios>
20. <https://foreflight.com/enhancements/logbook-auto-calculates-night-times-landing>
21. <https://aa.usno.navy.mil/publications/aira>
22. https://aa.usno.navy.mil/faq/RST_defs
23. <https://support.logten.com/en/articles/11594618-how-do-i-track-day-flight-time>
24. https://www.faa.gov/air_traffic/publications/media/PCG_Chg_2_dtd_1-22-26.pdf
25. https://aa.usno.navy.mil/faq/us_tzones
26. <https://www.govinfo.gov/link/uscode/15/260a>
27. https://aa.usno.navy.mil/faq/daylight_time
28. <https://myflightbookblog.blogspot.com/2017/11/night-flying-and-myflightbook.html>
29. <https://aa.usno.navy.mil/data/api>
30. <https://loggingnight.org>
31. <https://youcanfly.aopa.org/flying-clubs/flying-club-newsletter/2025/march/23/news-from-hq>
32. <https://foreflight.com/enhancements/support-for-civil-twilight>
33. <https://pilots.landing.aero>

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