

TLAR

Aircraft Performance



PILOT GUIDE 8.1

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1. Intro

Welcome

TLAR is a performance and situational-awareness application for general aviation operations. It brings together the selected aircraft model, the pilot's entered configuration, weather and sensor inputs, and landing-zone information to provide calculated takeoff, climb, cruise, landing, navigation, and—where enabled—emergency-mode guidance.

This guide explains how to configure the new tile-based interface and how to use it as a disciplined cross-check during planning and flight. It does not replace the aircraft flight manual, placards, certified instruments, published procedures, current weather information, or pilot judgment.

SAFETY Treat every TLAR value as advisory. Before acting on a result, verify the selected aircraft, weight/fuel state, active landing zone, weather source, units, and performance reference. Recheck them whenever the operational picture changes.

What is TLAR

- Departure: estimated runway use and obstacle-clearance performance for the selected configuration and conditions.
- Arrival: estimated landing performance for the active landing zone, including the selected runway and surface condition.
- In-flight awareness: current performance, weather, navigation, time, and selected approach cues in an operator-configured dashboard.
- Emergency preparation: Expert-mode calculated engine-failure-after-takeoff guidance, used only with the pilot's emergency procedures and judgment.

TLAR Background

“TLAR” is shorthand for “That Looks About Right.” The name is deliberate: the application produces useful estimates from a detailed model and current inputs, but no displayed result should be interpreted as an absolute guarantee of aircraft performance or safety.

Aircraft and data model

TLAR uses aircraft-specific performance models rather than a single generic airplane. The selected model, operating condition, atmosphere, runway, and pilot settings drive the calculated displays. The detailed aircraft list and model-accuracy material will appear in the completed appendices; the current App Store release remains the source for the currently available models.

Subscription levels

The new interface exposes three public levels. Each higher level retains the capabilities of the level below it. The exact availability of a tile or control is governed by the shipping application, so this guide names the role of each level rather than promising a feature that may change in a future release.

Level	Dashboard capability
Basic	Core performance functions: Takeoff, Land, Climb, Cruise, HSI, Position, Clock, and the associated core information and control chicklets.
Pro	Adds Aircraft, Runway, Weather, Smart TOLD, Smart Climb/Cruise, Map, V-Speeds, Debrief, expanded weather and landing-zone functions, and LZ/preset sharing.
Expert	Adds HUD, Emergency Sim, custom-aircraft workflows, Expert emergency controls and values, and Expert-level external-interface functions.

Hardware/Software Requirements

Use a supported iPhone or iPad with the services required for your intended workflow enabled. Depending on the selected functions, TLAR can rely on location services, device motion, a network connection, audio routing, the device barometer, and a connected external source. Confirm the current App Store device and operating-system requirements before publication.

Mount the device where it can be read without interfering with aircraft operation and where it can be cross-checked promptly against the aircraft's approved instruments. Before a flight that uses spoken briefings or callouts, confirm headset or panel-audio routing on the ground.

CAPTURE 01 — iPhone and iPad mounting examples from the shipping build. Show a readable, non-obstructive installation; do not imply that the application is a primary flight instrument.

Contact, License, and Release Information

The completed guide will reproduce the current Owyhee Aviation support contact, privacy-policy link, end-user license link, version number, and copyright notice from the shipping release. Those release-specific facts are intentionally maintained outside this working chapter so they can be updated without rewriting the operating guidance.

2. Overview

The new interface is organized around a configurable tile grid. A compact top row supplies status and briefing access; a persistent bottom row opens the principal configuration sheets. The grid is intentionally modular: set up the dashboard for the phase of flight, then save it as a preset so the same arrangement can be recalled without rebuilding it.



Figure 1. Overview. 1: top row. 2: configurable tile grid. 3: bottom row of primary controls.

Reading the screen at a glance

Region	What it is for
Top row	Briefing access, the active aircraft or current advisory, and a compact navigation/source-health indication.
Tile grid	The pilot-selected collection of performance, navigation, weather, runway, time, and other display modules.
Chicklets	Small values and controls arranged around a tile. Some show data; others change a mode or source.
Bottom row	Direct access to Presets, LZ, Wx, Aircraft, Info, and Settings.

Top Row

Briefing control

Tap the Briefing control once to start the spoken briefing shown on the button. Tap it again to stop the briefing. On the ground, the button can show a takeoff briefing; in flight, it can show a landing briefing; and in the Expert emergency context, it can show the PLATO briefing. Check each briefing on the ground as part of your normal planning.

Aircraft and advisory field

The center field normally identifies the current aircraft. When an advisory is active, it instead presents the highest-priority current advisory. A message is an attention cue, not an automatic action command; assess the aircraft, flight condition, and inputs before responding.

Navigation Status

The NAV indicator at the right of the top row has two status balls. The outer ball reports navigation quality or simulator mode. The inner ball reports the active attitude/motion source or the state of the simulator data stream. Check both balls before relying on navigation-dependent tiles.

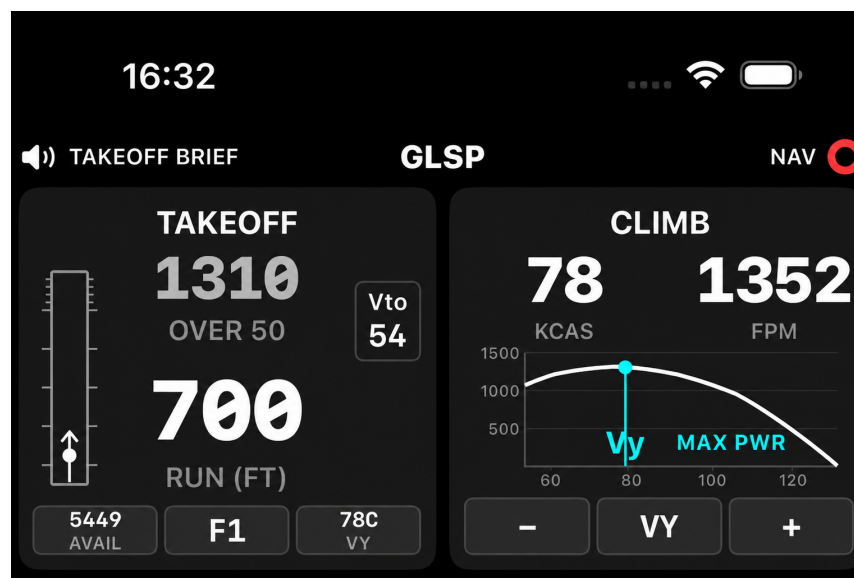


Figure 2. Navigation Status indicator. The outer red ring is the navigation-status ball; the black center is the inner motion-status ball.

What the outer ball means

The legacy guide defines the green/yellow/red NAV logic by the three iOS accuracy values below. The current implementation uses the same thresholds: horizontal position, vertical position, and speed must all meet the green criterion for the outer ball to be green.

Indicator	Accuracy criteria	Meaning
	All three are green: horizontal accuracy ≤ 50 ft, vertical accuracy ≤ 20 ft, and speed accuracy ≤ 2 kt.	Normal device navigation.
	All values are valid, but one or more exceed the green threshold.	Navigation is available, but accuracy is degraded.
	At least one required accuracy value is invalid, or location services are unavailable.	Navigation data are invalid or unavailable.
	Not an accuracy rating: simulator GPS mode is selected.	The inner ball reports simulator-stream health.

What the inner ball means

Indicator	Meaning
	Clear / black center: normal device navigation is in use, but device motion is not active.
	Green center: device motion sensors are active.
	Blue center with normal navigation: a valid OnSpeed attitude source is in use.
	Blue center with blue outer ring: simulator GPS updates are being received.
	Yellow center with blue outer ring: simulator mode is selected and the GPS stream is stale; no update has arrived for more than three seconds.
	Red center with blue outer ring: simulator mode is selected but simulated GPS data are not being received.
	White center with blue outer ring: simulator mode is selected but TLAR has not yet received a simulated GPS update.

Representative advisories

When an advisory is active, it replaces the aircraft name in the center of the top row. TLAR shows the highest-priority active advisory; if multiple advisories share that priority, it rotates them. Treat every advisory as a prompt to inspect the related setting or condition—not as a command to continue or discontinue a flight.

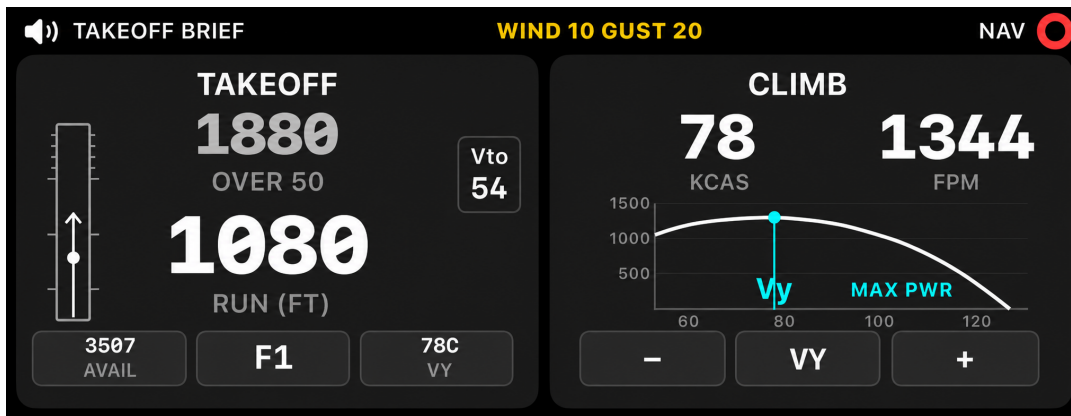


Figure 3. Advisory example. The yellow WIND 10 GUST 20 message replaces the aircraft name and directs attention to the active wind condition.

Example message	TLAR displays it when	Pilot response
WIND 10 GUST 20	A named weather station reports positive sustained wind and gust values, and the gust exceeds the sustained wind.	Review the source and include the gust component in the takeoff or landing decision.
STALE METAR ... MIN	A named-station observation is at least 60 minutes old and no AGE chicklet is visible. The message is suppressed when AGE is already on-screen.	Obtain and compare current weather before using it for performance planning.
CHECK TAKEOFF CLIMB MODE	A Takeoff tile is visible, the over-fence result is caution or danger, and the selected climb mode is neither Vx nor Vy.	Review the Takeoff tile's climb mode and the over-fence assumptions.
SET GLIDE DATA IN SETTINGS	Emergency mode is armed and either the best-glide speed or glide-ratio entry has not been validated.	Do not use emergency guidance until both values are entered and verified.
NEED ACTIVE LZ FOR EMRG	You attempt to arm Emergency mode without an active LZ. TLAR turns Emergency mode back off and shows the message briefly.	Load and verify the intended LZ, then arm Emergency mode again.
NEED PRECISE LZ COORDS FOR EMRG	You attempt to arm Emergency mode with an active LZ whose coordinates are not precise. TLAR turns Emergency mode back off and shows the message briefly.	Load a precise LZ before using Emergency mode.
COORDS IMPRECISE	An LZ is active and its coordinates, runway axis, or TDZE fail TLAR's precision validation. The message remains until LZ mode is off or a precise LZ loads.	Do not use runway-geometry, stabilized-approach, sVAPI, or Emergency-mode functions for that LZ.

When coordinates are imprecise

“COORDS IMPRECISE” is more than a caution about the displayed location. TLAR uses the approach-end point and runway axis to calculate runway-relative geometry. When those inputs are not precise, TLAR deliberately removes or blocks functions that depend on that geometry.

- Emergency mode cannot be armed. If you tap the Emergency control, TLAR returns it to Off and shows NEED PRECISE LZ COORDS FOR EMRG.
- sVAPI and the associated approach presentation are unavailable. The HSI approach display, CDI, GSI, and PAPI guidance are suppressed.
- Stabilized-approach monitoring is unavailable because TLAR cannot establish the runway-relative stabilization point and approach geometry.
- Runway alignment, lineup, and pattern/turnback calculations tied to the selected LZ are unavailable or suppressed.
- The cross-phase takeoff-versus-landing advisories are suppressed because they depend on a precise runway reference.

REQUIRED CORRECTION Open LZ, select a runway with precise coordinates and a valid axis and TDZE, then verify the runway before relying on any of the restored functions.

APPENDIX The completed manual will include the full advisory catalog in an appendix, with the exact message text, trigger, severity, and recommended pilot cross-check. This chapter uses representative examples so the top-row workflow stays readable.

Bottom Row

Bottom Row Menu Selectors

Presets

Tap Presets to open the preset picker. Tap a saved preset to load its dashboard layout, tiles, and chicklets. To save the dashboard you are currently using, press and hold a preset slot, then follow the save prompt. A preset saves the screen arrangement; always verify the aircraft, LZ, weather sources, and units after loading one.

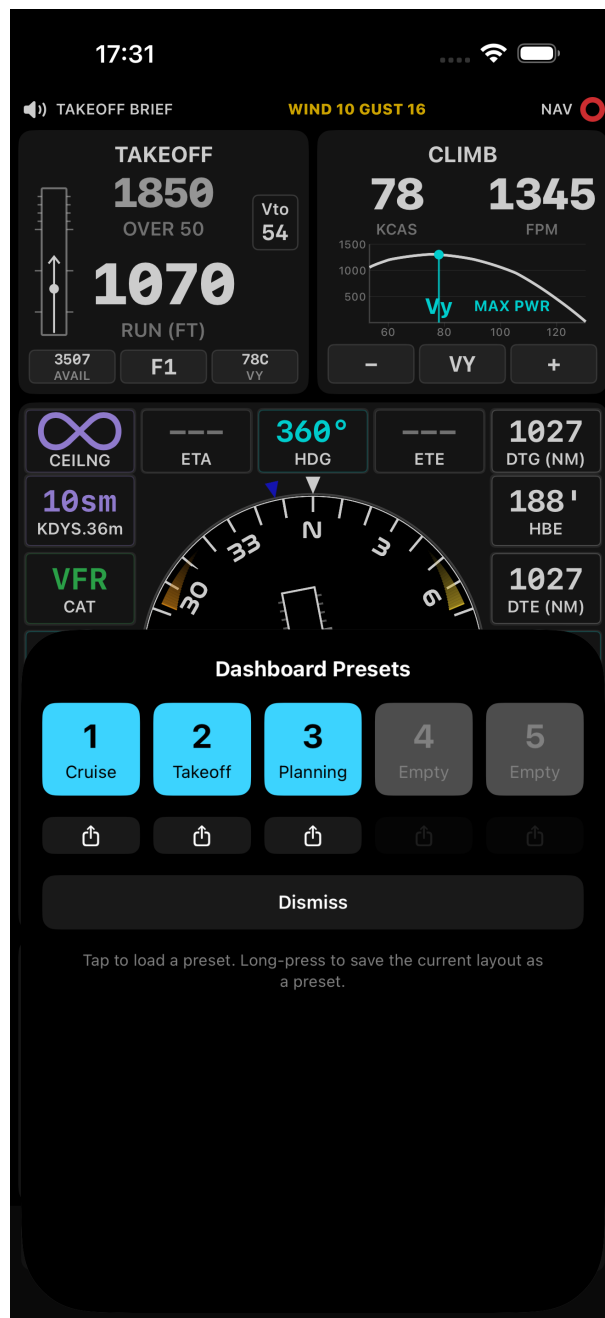


Figure 4. Dashboard Presets. Tap a numbered saved preset to load it. Press and hold a preset slot to save the current dashboard arrangement.

LZ

Tap LZ to open Landing Zone settings. Choose an airport, a saved strip, a new LZ, GPS Survey, or Map Survey; then select the runway you want to use. Before relying on takeoff or landing results, verify the active runway direction, dimensions, elevation, surface, and obstacle assumptions shown in the LZ settings.

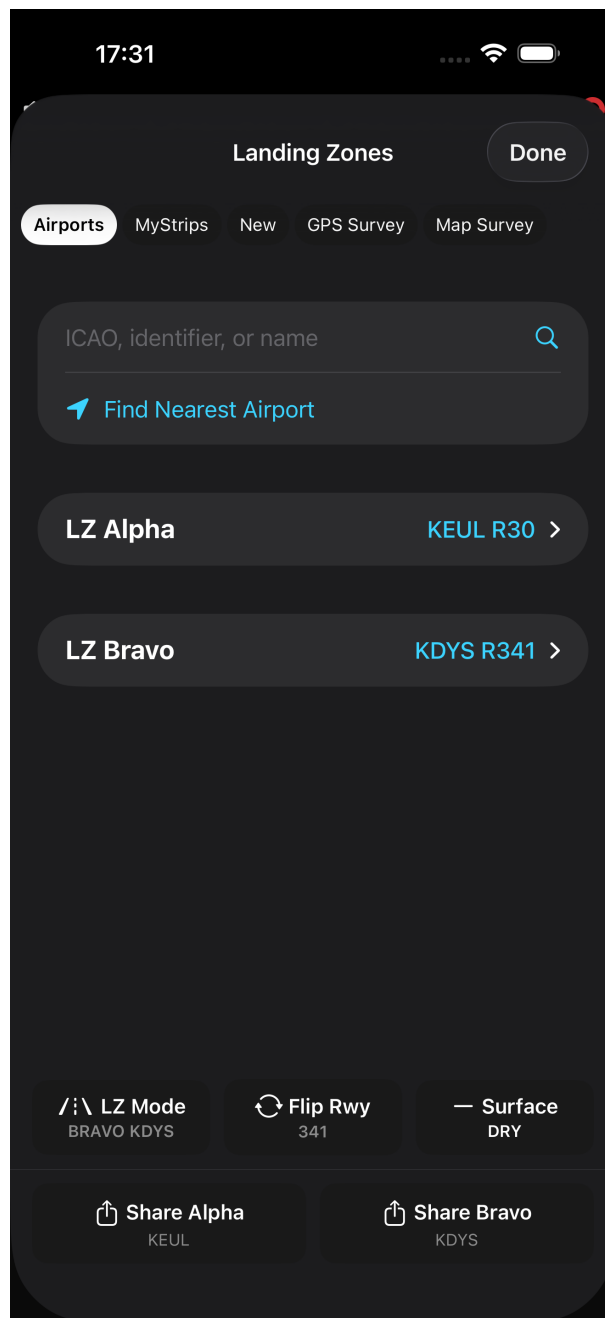


Figure 5. Landing Zones. Select the source at the top, then review the active Alpha or Bravo LZ and runway controls at the bottom.

Wx

Tap Wx to open Weather settings. First choose the performance reference—LZ, Aircraft, or Manual. Then select or enter the temperature, pressure, and wind sources needed for the flight. The source shown beside each value tells you whether TLAR is using a manual entry, a weather station, a device sensor, a simulator, or another selected source.

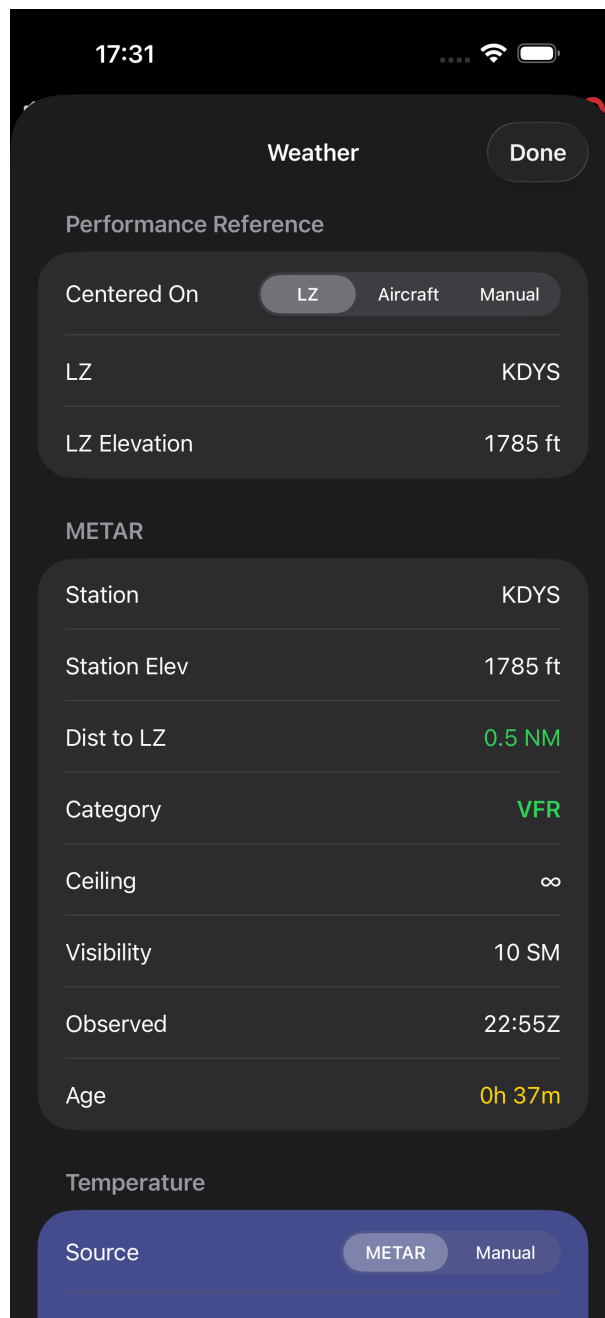


Figure 6. Weather. Select the performance reference, then review the weather station, observation age, and each selected source.

Aircraft

Tap Aircraft to open Aircraft settings. Select the aircraft model, then set or verify its weight, fuel, power, burn, and any available calibration values. The model name at the top of the screen is only the first check; review the values below it before using performance results.

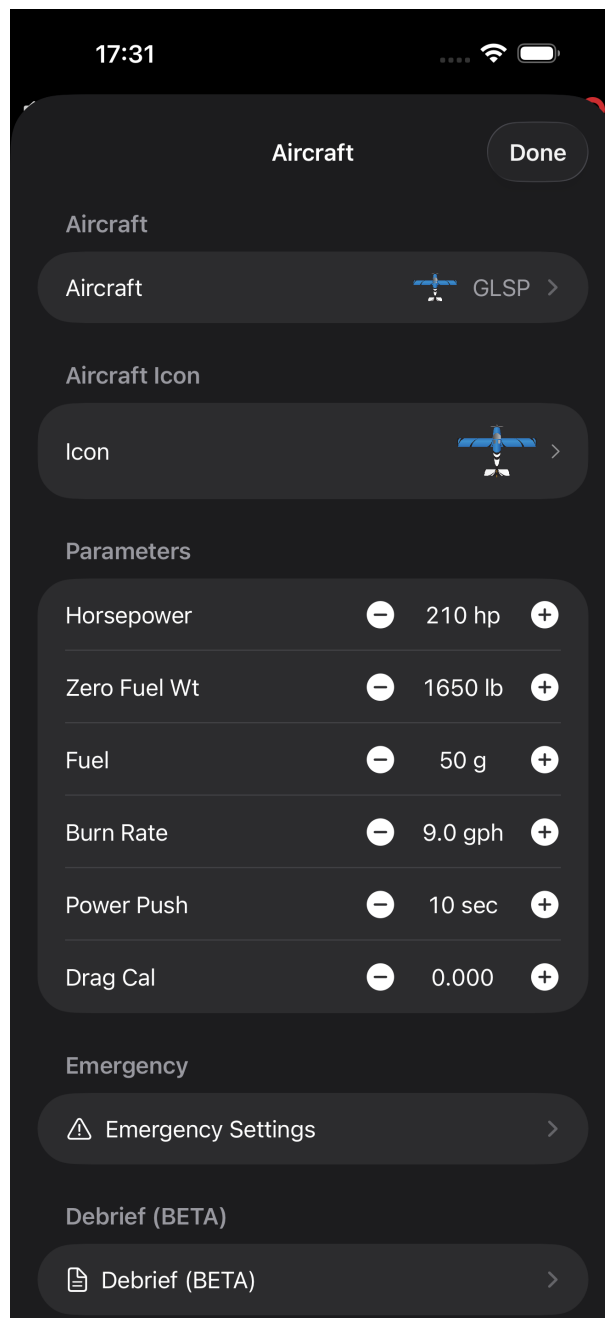


Figure 7. Aircraft. Verify the selected aircraft, then review the displayed weight, fuel, power, burn, and Emergency Settings values.

Info

Tap Info to place a yellow grid overlay on the screen. Then tap the tile you want to learn about. TLAR opens a pop-over with instructions for using that tile and changing its configuration. Tap Info again, or close the pop-over, to leave Info mode.



Figure 8. Info mode. The yellow grid identifies tiles; tap a tile to open its instructional pop-over.

Settings

Tap Settings to open the app-wide settings sheet. Use its sections to change the layout, color palette, units, pilot preferences, voice selection where available, and related options. Make these changes on the ground, then save the finished display as a preset for use in flight.

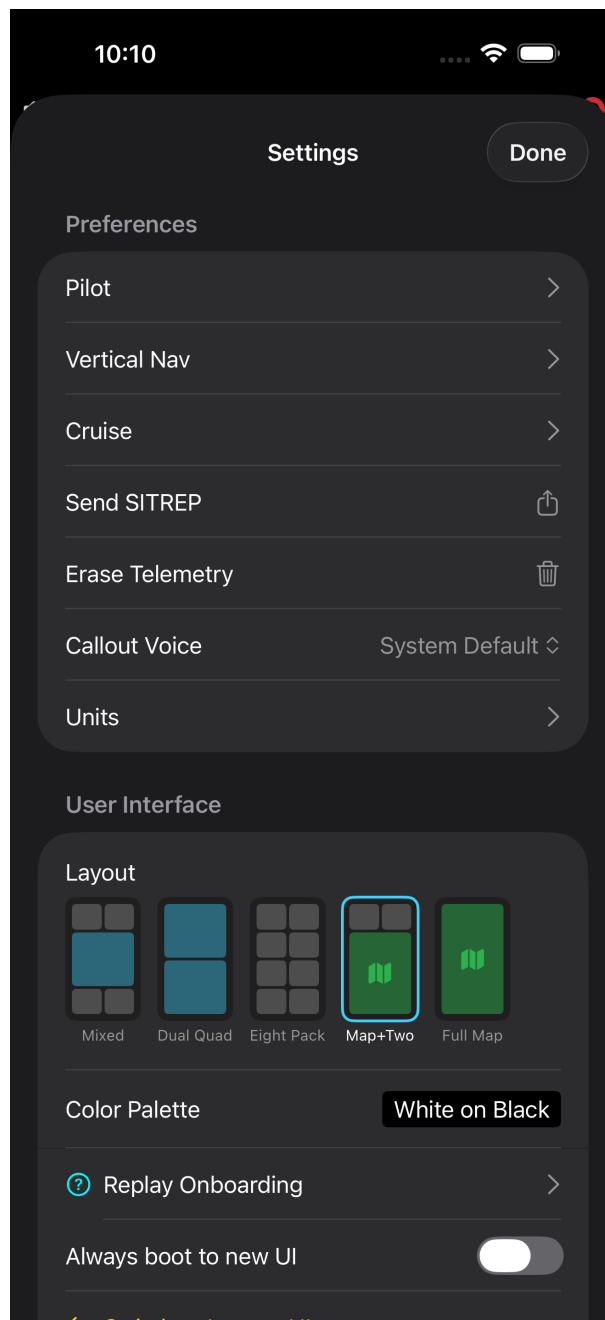


Figure 9. Settings. Change preferences, layout, color palette, and related app-wide options here; save the reviewed dashboard as a preset before flight.

Tile-based Interface

What is a Tile?

TLAR uses tiles: self-contained display modules arranged in the active dashboard layout. Tiles are available in one-by-one and two-by-two sizes; Map and Emergency Sim can also fill the screen. A tile's available sizes depend on its design, the selected layout, and the subscription level. Map and Emergency Sim are single-instance tiles.

Tile group	Examples in the current interface
Core	Aircraft, Takeoff, Land, Climb, Cruise, HSI, Position, Clock.
Pro	Runway, Weather, Smart TOLD, Smart Climb/Cruise, Map, V-Speeds, Debrief.
Expert	HUD and Emergency Sim.
Special availability	AOA is designated for the Insider tier in the current source.

Example: HSI tile front and back

The 2×2 HSI is a representative tile. Its front face places the HSI instrument in the center, information chicklets across the top and down both sides, and action chicklets along the bottom. The displayed values are live navigation and flight-information readouts; the bottom chicklets are the controls that act on the selected modes and sources.



Figure 10. 2x2 HSI tile front. The center is the HSI instrument; the top and side rows are information chicklets, and the bottom row contains action chicklets.

Tap a populated tile once to flip it to its back face. Tap Done on the bottom bar to return to the live tile. The HSI back identifies each configurable edge—Top, Left, Right, and Bottom—and shows the five chicklets currently assigned to that edge.

Each edge row lists its five current chicklets. Tap an edge row to open its list of positions. Tap a position to open the picker, then tap the chicklet you want to assign. Top, Left, and Right select information chicklets; Bottom selects action buttons. Press and hold the Reset to Default control to restore this tile's default chicklets. The SOLAR control switches the HSI solar display on or off. The bottom bar on every tile back has three controls: the grid icon opens the tile picker for that slot, the red X removes the tile, and Done returns to the front.

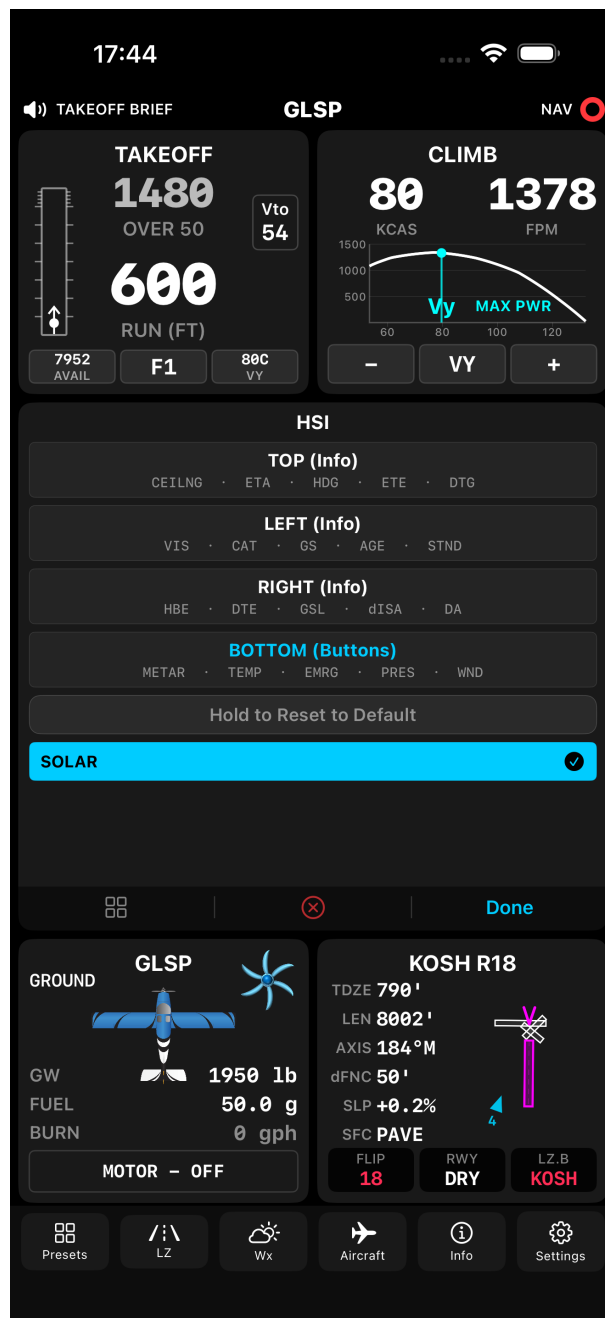


Figure 11. 2x2 HSI tile back. Tap an edge row to configure its chicklets; hold the reset control to restore defaults, use SOLAR to toggle the solar display, and use the bottom bar to replace, remove, or finish editing the tile.

Choosing a tile

Tap an empty dashboard position—or tap the grid icon on a tile back—to open the tile picker. Its title identifies the available position: Select 1x1 Tile or Select 2x2 Tile. Tap a tile to assign it to that position. The white outline marks the current selection. Tap Clear to remove the tile from that position, or Cancel to leave the existing assignment unchanged.

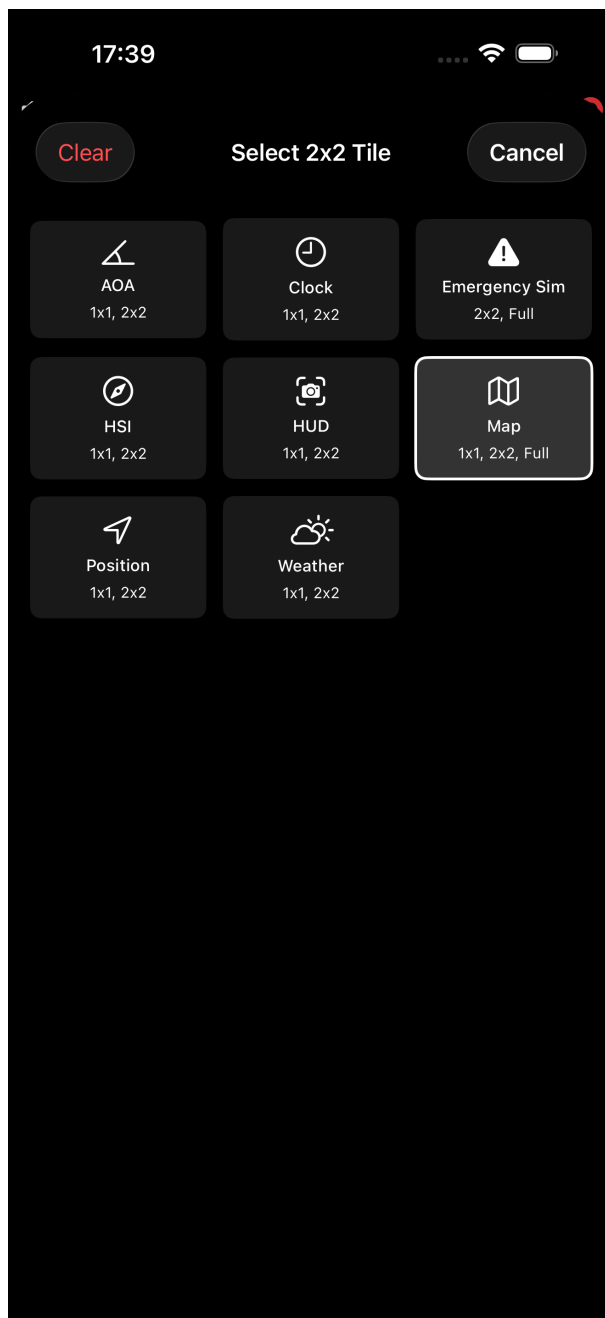


Figure 12. 2x2 tile picker. The title identifies the available position; the white outline marks the assigned tile.

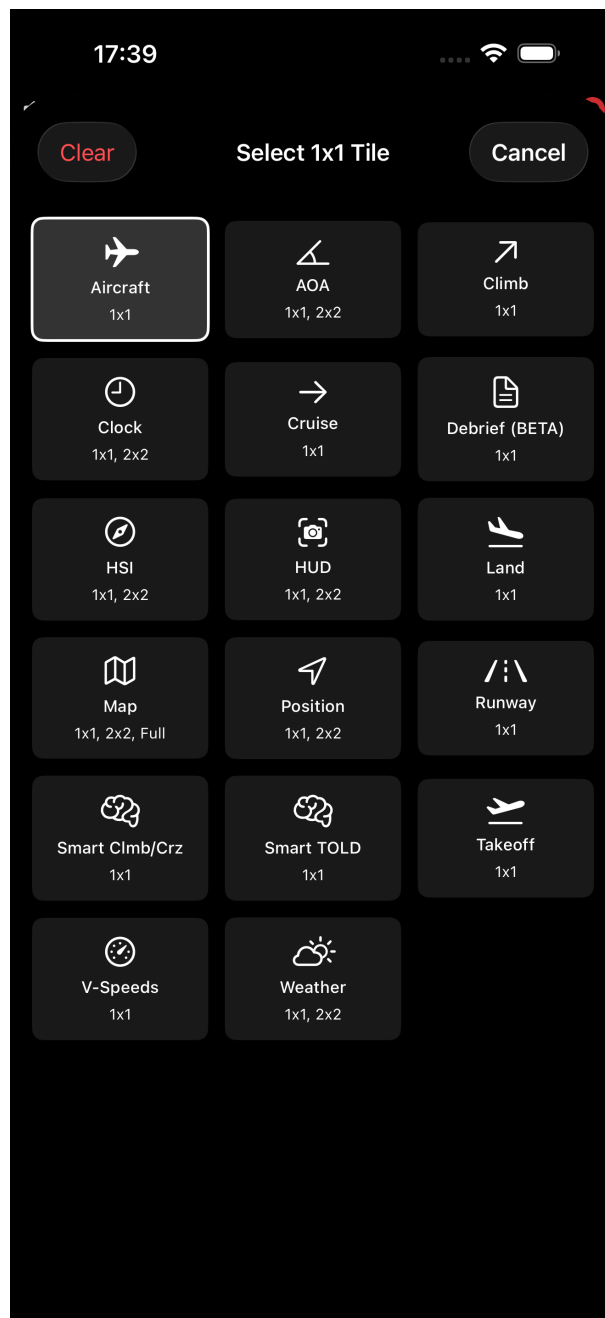


Figure 13. 1x1 tile picker. Tap a tile to assign it; tap Clear to remove the current tile, or Cancel to leave it unchanged.

Layouts

Standard dashboard layouts include Mixed, Dual Quad, Eight Pack, Map+Two, and Full Map arrangements. Map+Two is available with a Pro subscription or higher. Compact devices receive compact variants and do not offer Map+Two. The layout is the grid framework; it is not a flight mode and does not independently change aircraft, weather, or landing-zone data. Choose it for readability and task fit.

MAP-TILE LIMIT TLAR allows only one active Map tile at a time. Limiting the dashboard to one Map tile preserves display responsiveness.

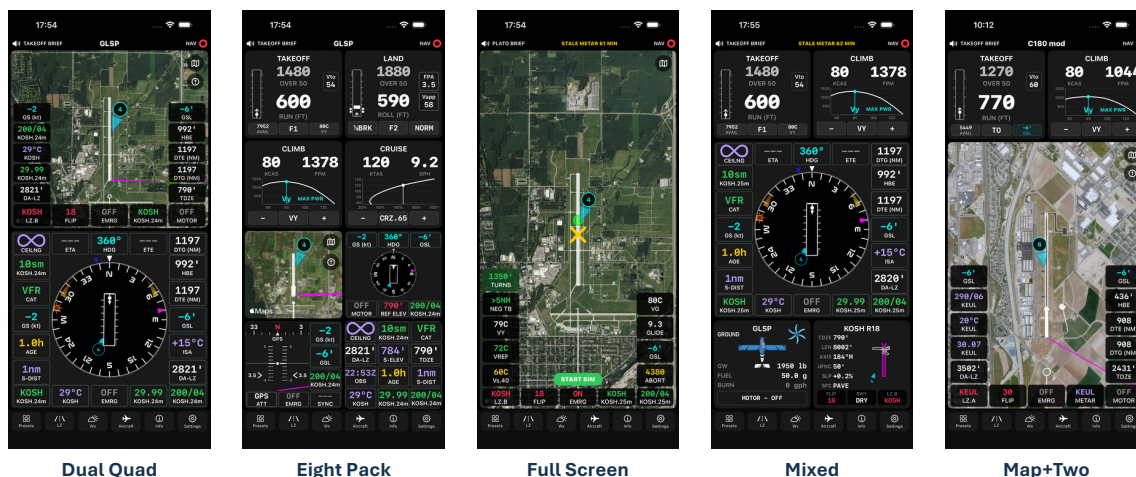


Figure 14. Dashboard layout choices. Select the arrangement that makes the required information readable for the current phase of flight.

Tile type	Supported presentation
Map	One-by-one, two-by-two, full-screen, or the dedicated Map+Two lower position; Pro or higher; one instance at a time.
HSI and HUD	One-by-one or two-by-two.
Emergency Sim	Two-by-two, full-screen, or the dedicated Map+Two lower position; Expert or higher; one instance at a time.
Clock, Position, Weather, AOA	One-by-one or two-by-two.
Debrief	One-by-one.
Other dashboard tiles	One-by-one.

What is a Chicklet?

Chicklets are the small values and buttons around a tile. To change a configurable chicklet, tap its labeled position on the tile configuration view. TLAR opens a list of available chicklets. Tap an item to assign it; the blue checkmark marks the current choice. Information chicklets display values such as temperature, barometric setting, track, fuel, density altitude, ground speed, weather, runway data, distance, time, and selected performance values. Button chicklets select or change modes—for example, LZ mode, runway direction, weather source, performance reference, flaps, brakes, or surface condition.

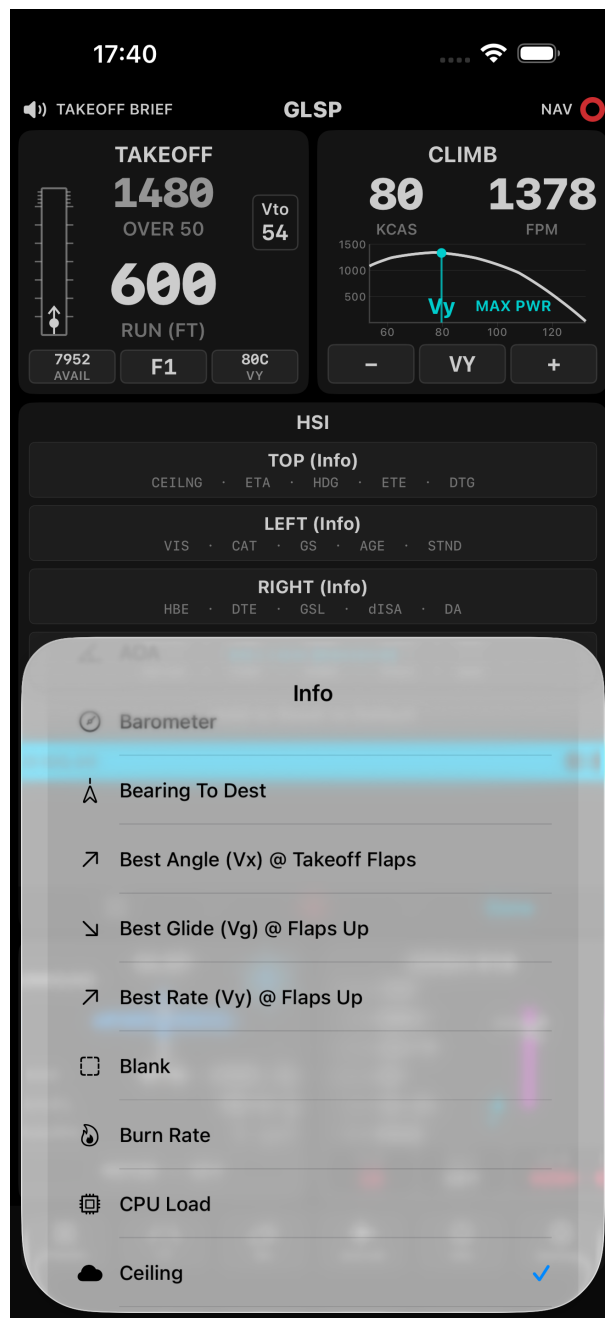
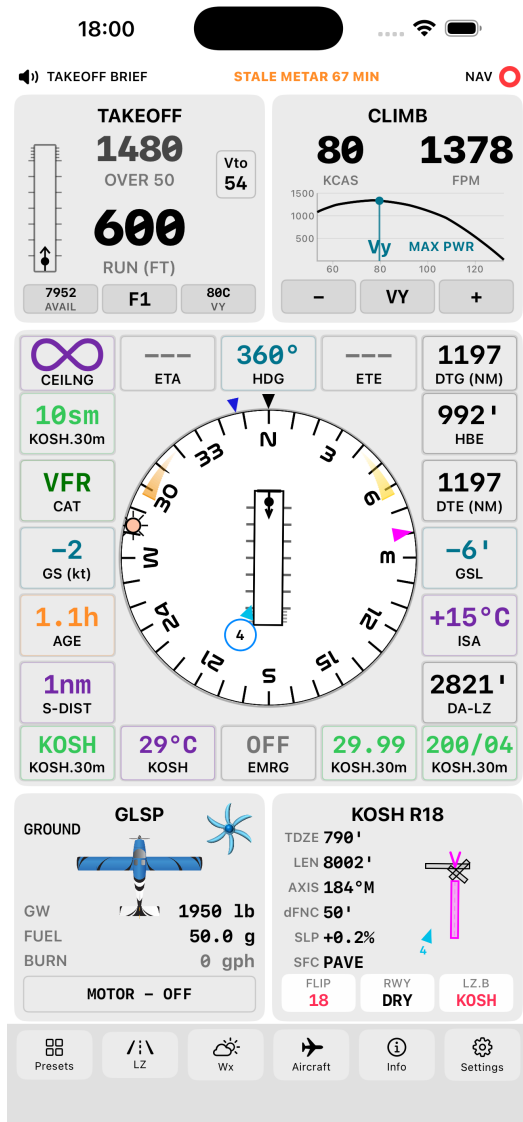


Figure 15. Chicklet picker. Tap an available item to assign it to the selected tile position; the blue checkmark identifies the active choice.

INFO AND BUTTON CHICKLETS Information chicklets display values and appear along the Top, Left, and Right edges of a tile. Button chicklets perform an action—such as changing a mode, selecting a source, or changing a setting—and appear only along the Bottom edge of a tile.

Palette Selections

A palette changes the visual treatment of the dashboard. It does not alter the underlying calculation. TLAR provides White on Black, Green on Black, and Black on White palettes. Select the palette that gives you a readable display for the cockpit lighting conditions; retain the same palette throughout the phase of flight whenever practical.



Black on White



Green on Black

Figure 16. Palette choices. These examples show Black on White and Green on Black; White on Black is shown throughout the other live interface figures in this guide.

Advisories

Color conventions

TLAR uses color both to show an operational condition and to identify the source of a value. Read color in context: a green operational indication generally means normal or acceptable, while a green weather chicklet has the more specific five-minute-ASOS meaning described below. Color reinforces the label and value; it never replaces the pilot's review of the underlying condition or source.

Color	Meaning in the current interface
Red	Warning, a potentially hazardous condition, or an invalid, unavailable, or unmade input.
Yellow	Caution. Review the condition before relying on the related result.
Green	A normal or acceptable operational indication. For WIND, BARO, and VIS weather chicklets, green specifically means TLAR is using a five-minute ASOS observation that is newer than the latest METAR at that station.
Purple	Weather data from the hourly METAR stream. Temperature, dewpoint, and ceiling remain purple because they use the METAR observation. WIND, BARO, and VIS also remain purple whenever the five-minute ASOS observation is not newer than the METAR.
Blue	A value entered or manually overridden by the pilot.
White	A TLAR-computed performance value, where shown.
Cyan	A live iPhone, iPad, or connected-sensor value, such as GPS, OnSpeed, or iBaro.
Magenta / pink	The active landing zone is the reference for the related value, pointer, or route.
Indigo	Internet or database-derived information, where shown.

FIVE-MINUTE ASOS The green ASOS indication applies only when TLAR has a fresh five-minute observation that is strictly newer than the station's latest METAR. It is an additional source/freshness cue—not a green-light operational recommendation.

3. Phases of Flight, Tactics, Techniques, and Procedures

Set up

Set up a flight by working left to right across the bottom row: LZ, Wx, Aircraft, then Settings. Complete this sequence on the ground. Every later performance, navigation, and approach display depends on the active runway, weather/performance reference, aircraft state, and pilot settings established here.

BEFORE YOU CONTINUE TLAR is an advisory cross-check. Confirm the active runway, aircraft, weather source, and entered values against the aircraft, published information, and current conditions before using a calculated result.

LZ

LZ is the military abbreviation for Landing Zone. In TLAR, an LZ is the runway reference used to orient runway-relative displays, calculations, and guidance. Tap LZ to open the Landing Zones sheet.

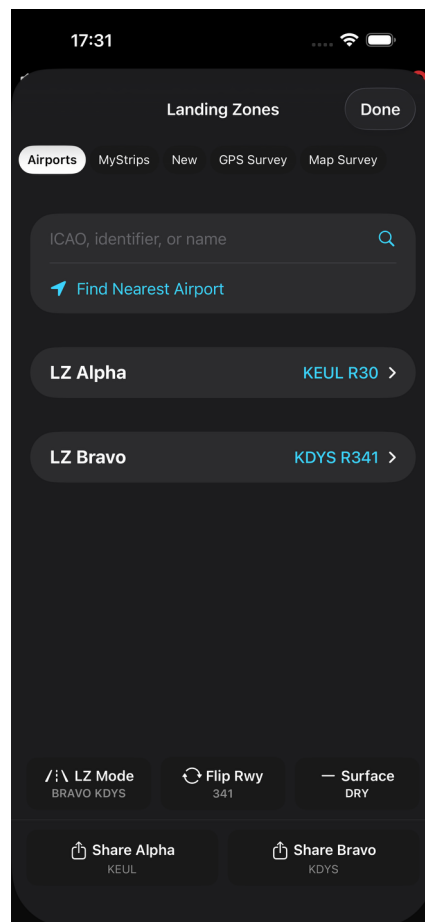


Figure 17. The Landing Zones sheet. The top tabs choose a database or runway-creation method; Alpha and Bravo hold the two loaded LZs.

Two databases and two loaded slots

TLAR has two runway databases. Airports is the global runway database. MyStrips is your personal database of runways you create and save. Regardless of the source, a selected runway is loaded into one of two LZ

slots: Alpha or Bravo. This lets you keep two runways ready—for example, the departure runway and an alternate arrival runway.

Mode	What it does
Alpha	Makes the runway stored in the Alpha slot the active LZ.
Bravo	Makes the runway stored in the Bravo slot the active LZ.
AUTO (Expert)	Finds and loads the closest runway from the airport and MyAirstrips databases, and can flip the runway end when needed. Verify the selected runway and direction before using it.
Off	No LZ is active. LZ-relative functions are unavailable.

Make Alpha or Bravo active

Use the LZ Mode control to cycle through Alpha, Bravo, Off, and AUTO. The selected mode determines the active LZ. The active LZ supplies the runway reference for LZ-based weather performance, runway-relative tiles, and approach guidance. The Flip Rwy control changes the active approach end; confirm the resulting runway direction before use.

Load a runway from Airports

1. Tap Airports. 2. Enter an ICAO, FAA identifier, or airport name, or tap Find Nearest Airport. 3. Choose the airport and the desired runway end. 4. Review the displayed runway data. 5. Load it into Alpha or Bravo. Loading an LZ also directs TLAR to refresh weather for the selected field.

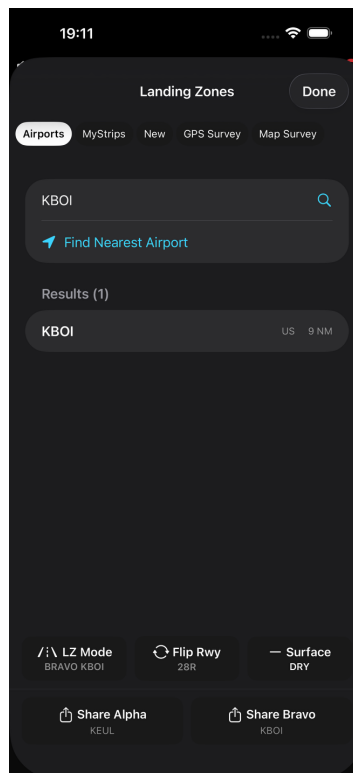


Figure 18. Airport search. Enter an identifier or name; the matching airport appears below the search field.

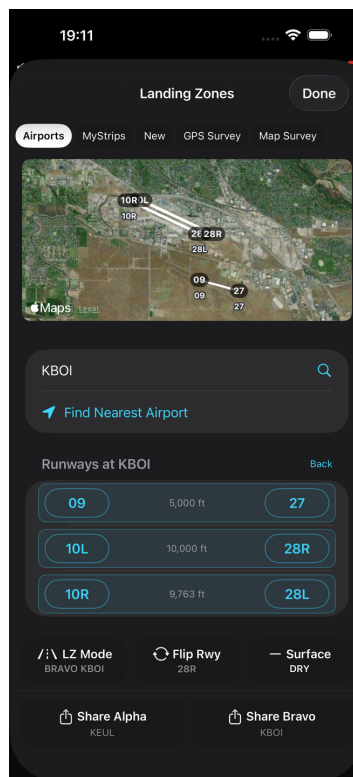


Figure 19. Runway selection. Tap the desired approach end in the runway list.

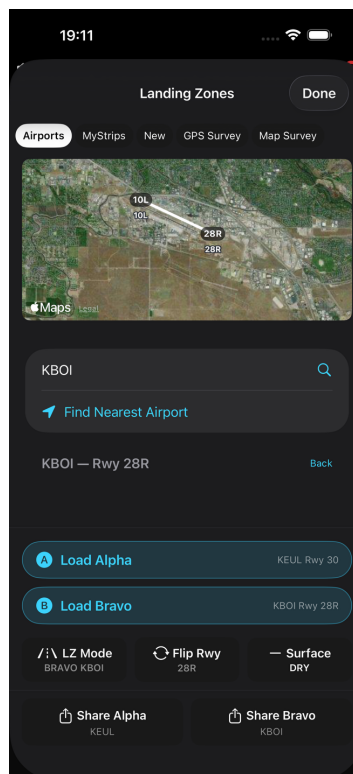


Figure 20. Load the selected runway into Alpha or Bravo. The active slot shown in the LZ Mode control is the runway TLAR uses.

Load a saved runway from MyStrips

Tap MyStrips, select the saved landing zone, choose its runway end, review the runway data, then load it into Alpha or Bravo. MyStrips holds only pilot-created LZs that were saved using New, GPS Survey, or Map Survey.

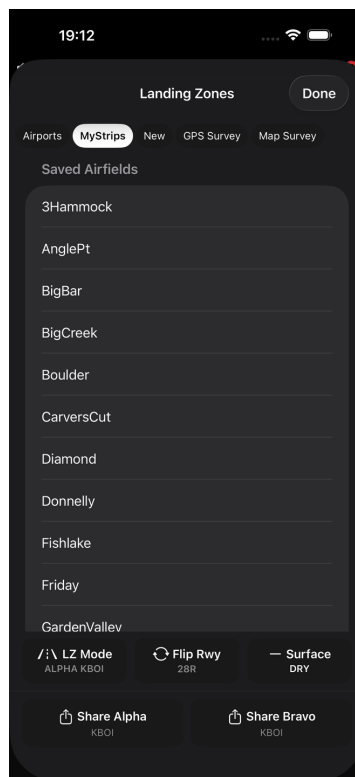


Figure 21. MyStrips. Tap a saved airfield to select and load its runway.

Create and save a MyStrips runway

There are three ways to create a user-defined runway. New is manual entry: enter the LZ name, approach-threshold latitude, longitude, and elevation, then enter the runway's true axis, length, width, and slope. Tap Create to save the completed LZ to MyStrips.

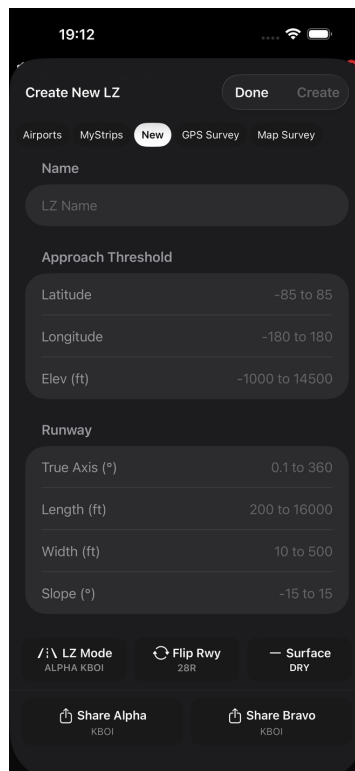


Figure 22. New. Enter the approach-threshold and runway data, then tap Create.

GPS Survey records both runway ends using the device GPS. On the ground, stand at the approach threshold and tap Mark, then move to the departure end and tap Mark. TLAR computes the runway heading, length, elevation, and slope. Enter a name, select the surface, and tap Save & Activate.

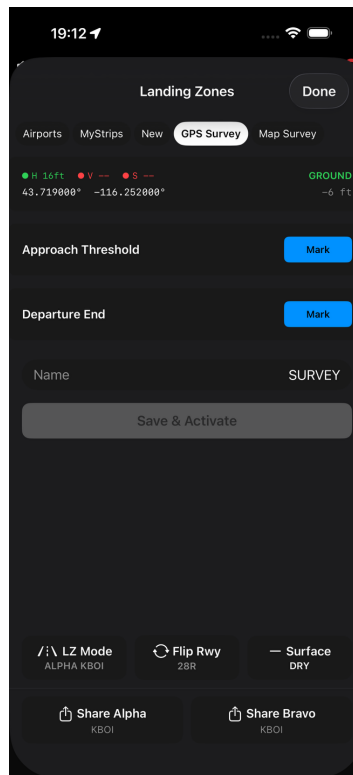


Figure 23. GPS Survey on the ground. Mark the approach threshold and departure end, then name and save the surveyed LZ.

In flight, GPS Survey exposes Survey Height AGL: 50, 100, 150, 200, or Custom feet. Select the height you intend to fly above the runway, then fly that altitude over the approach threshold and tap Mark. Fly along the runway at the selected survey height and tap Mark over the departure end. TLAR subtracts the selected AGL survey height from the GPS altitude at each mark to determine each threshold's elevation before computing the runway axis and slope.

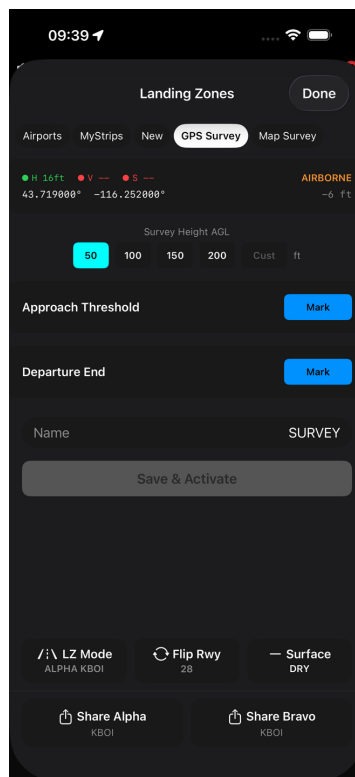


Figure 24. GPS Survey in flight. AIRBORNE exposes the Survey Height AGL choices; select the planned height before marking the two runway ends.

Map Survey lets you mark both runway ends on the map. Position the crosshair on the approach end and tap Set Approach End. Then set the departure end, review the computed runway geometry, name the LZ, and save it to MyStrips. When connected, TLAR obtains elevation data from the USGS Elevation Point Query Service for U.S. locations; if that service does not return an elevation, TLAR falls back to the Open-Meteo elevation service.

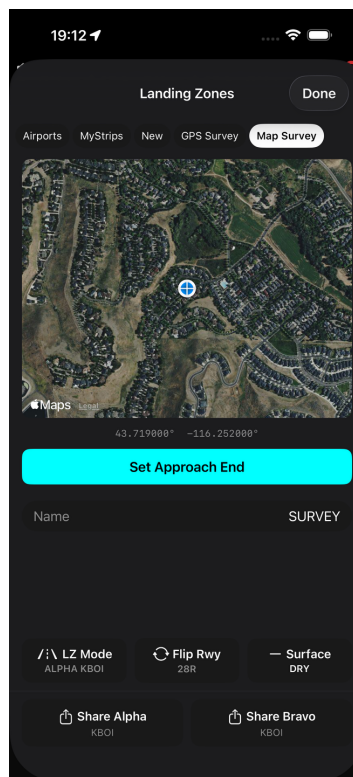


Figure 25. Map Survey. Position the crosshair on the approach threshold and tap Set Approach End; repeat for the departure end.

Coordinate precision

When loading a runway from the global Airports database, TLAR performs an internal data-quality check. A runway is precise only when its endpoint-coordinate source is high quality, its axis is derived from coordinates or survey data, and its touchdown-zone elevation is valid. A public-database runway can therefore load successfully but still be marked imprecise. The most common reason is that the database supplies only the aerodrome center coordinates rather than the coordinates of each runway end.

MYSTRIPS PRECISION ASSUMPTION TLAR treats every runway loaded from MyStrips as precise. That is an application assumption, not an independent verification of pilot-entered, GPS-surveyed, or map-surveyed data. Before relying on runway geometry, stabilized-approach monitoring, or Emergency functions, verify the saved runway's endpoints, approach end, direction, touchdown-zone elevation, length, surface, and obstacles.

WX – and performance reference

Tap Wx. First select the performance reference: LZ uses the active runway approach-end elevation and its weather; Aircraft uses the aircraft altitude and aircraft-location weather conditions; Manual uses pilot-entered elevation and weather conditions. Then choose the source for temperature, pressure, and wind. The label beside a value identifies the selected source; review it before relying on a performance calculation.

17:31

Weather Done

Performance Reference

Centered On LZ Aircraft Manual

LZ KDYS

LZ Elevation 1785 ft

METAR

Station KDYS

Station Elev 1785 ft

Dist to LZ 0.5 NM

Category VFR

Ceiling ∞

Visibility 10 SM

Observed 22:55Z

Age 0h 37m

Temperature

Source METAR Manual

Figure 26. Weather. Select the performance reference first, then review the station, observation age, and each temperature, pressure, and wind source.



Figure 27. Weather source controls. Temperature and wind can use METAR or manual values; pressure can use METAR, iBaro, or a manual value.

Weather source	Use and limitation
Manual	Enter the value yourself. TLAR marks manually entered or overridden values blue.
METAR	Uses the selected station observation. METAR-sourced values are purple.
Five-minute ASOS (when available)	For WIND, BARO, and VIS, TLAR shows green only when the five-minute ASOS observation is newer than the station METAR. Temperature, dewpoint, and ceiling remain METAR-sourced and purple.
iBaro	Uses the device barometer with GPS-derived elevation to estimate a local setting for performance use. Do not use iBaro to set an aircraft altimeter, especially in a pressurized aircraft.
OnSpeed AHARS temperature	Planned integration. Do not expect this temperature source in the current shipping release until it is specifically released.

Aircraft

Tap Aircraft. Select the aircraft model first. Then review or enter the values that establish the current aircraft state, including weight, fuel, power, fuel burn, and any model-specific calibration or Emergency settings.

Horsepower. TLAR applies a 95% installed-horsepower factor to most aircraft types to account for installation power losses, as opposed to the full motor rating generated on a test stand under ideal conditions. If you have reason to think that the motor as installed in your aircraft can generate its fully rated engine horsepower, you can enter a new, higher horsepower for your engine. We recommend comparing TLAR's predicted performance with your aircraft's actual performance before making such an adjustment.

Zero-Fuel Weight and Fuel. When loaded for the first time, TLAR sets fuel and zero-fuel weight to load the plane to maximum gross weight.

Burn Rate. This is the fuel burn rate TLAR uses when the motor is set to ON. TLAR uses the full value when aircraft groundspeed exceeds 30 knots, and 20% of this value below that threshold. TLAR decreases aircraft gross weight as fuel is burned off. TLAR stops decrementing fuel, and thus weight, if the fuel reaches zero.

L-39C TLAR ignores the cruise burn rate parameter for the L-39C aircraft. Its cruise fuel burn rate is computed from the set percent RPM.

Power Push. You can set the power-push time to replicate the time it takes to push the throttle from idle to maximum power on takeoff. Use zero seconds for a static maximum-power takeoff.

Drag Cal. TLAR is tuned to match manufacturer-stated and/or POH performance. However, a multitude of modifications can change an aircraft's drag, including larger tires, cargo pods, floats, skis, fairings, wheel pants, and other changes. Use the drag adjustment parameter to add or subtract drag in 0.001 increments to match your aircraft's situation. TLAR adds this adjustment to the baseline coefficient of drag. The easiest way to get it right is to adjust drag until TLAR's predicted cruise speed matches your plane's actual cruise speed. Be careful to set the same environmental conditions—elevation, temperature, pressure, and power setting—when matching speeds.

The maximum you can add to the baseline is +0.05, which is a great deal. For reference, most aircraft in TLAR have a drag coefficient of about 0.02 to 0.03. The maximum you can subtract varies by aircraft type, ensuring no aircraft can end up with a negative overall drag coefficient: baseline drag minus the adjustment cannot be less than zero. If you select a new aircraft type, the drag increment is zeroized, and the other parameters return to TLAR defaults for the new aircraft until you adjust them again.

TLAR saves these settings, so they will be the same the next time you start the app.

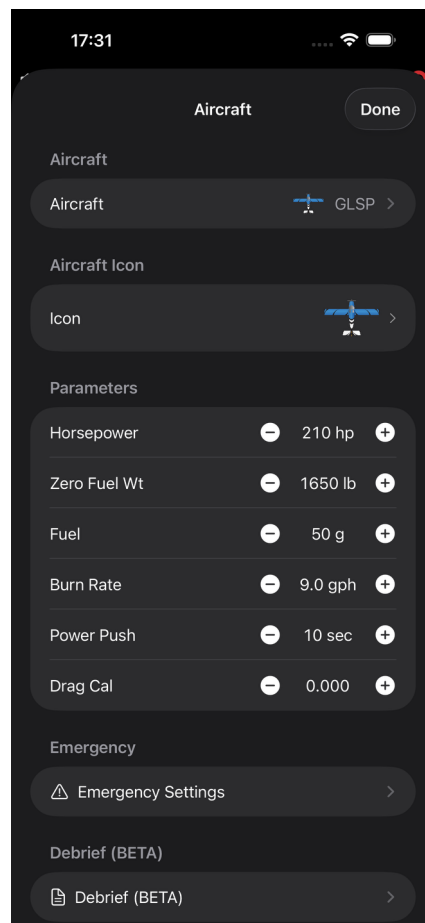
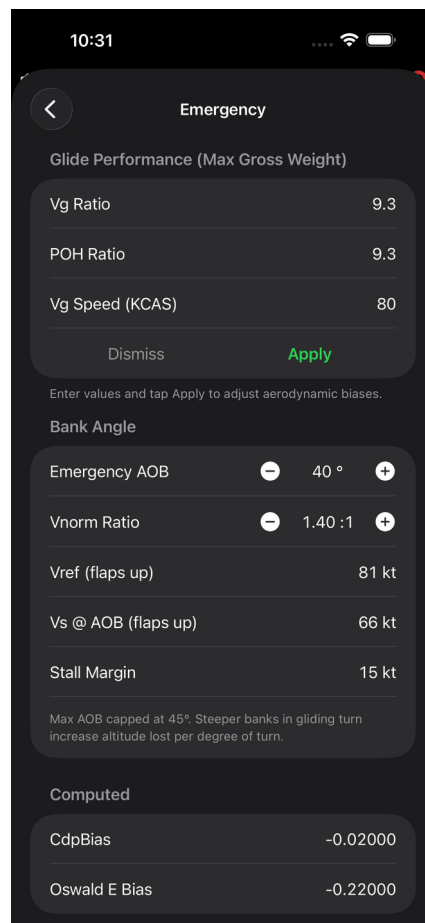


Figure 28. Aircraft. Select the model, then verify its displayed weight, fuel, power, burn, and applicable Emergency settings before using performance results.

LOADING CHECK Before takeoff, compare TLAR's weight and fuel entries against the aircraft's actual loading and the applicable aircraft documentation. Recheck after refueling, loading changes, or a model change.

Emergency settings (Expert)

Tap Emergency Settings to configure the data TLAR uses for engine-out glide and turnback calculations. These settings directly affect Emergency-mode results. Set them deliberately from reliable aircraft data, then compare predictions with aircraft performance before relying on them.



10:31

Emergency

Glide Performance (Max Gross Weight)

Vg Ratio 9.3

POH Ratio 9.3

Vg Speed (KCAS) 80

Dismiss Apply

Enter values and tap Apply to adjust aerodynamic biases.

Bank Angle

Emergency AOB 40 °

Vnorm Ratio 1.40 : 1

Vref (flaps up) 81 kt

Vs @ AOB (flaps up) 66 kt

Stall Margin 15 kt

Max AOB capped at 45°. Steeper banks in gliding turn increase altitude lost per degree of turn.

Computed

CdpBias -0.02000

Oswald E Bias -0.22000

Figure 29. Emergency settings. Enter maximum-gross-weight glide data, tap Apply, then set the intended emergency bank angle and review the computed reference speeds and stall margin.

Vg Ratio. Enter the aircraft's engine-out maximum lift-to-drag glide ratio at maximum gross weight. POH Ratio, when shown, is the reference glide ratio from the selected aircraft's POH.

Vg Speed (KCAS). Enter the best-range glide speed at maximum gross weight. After you enter Vg Ratio and Vg Speed, tap Apply. TLAR uses those values to adjust its aerodynamic model for the selected aircraft; the resulting aerodynamic biases are used only in Emergency mode. Dismiss leaves typed changes unapplied.

Emergency AOB. Set the average bank angle you intend to use for an engine-out gliding return. The mathematical optimum is 45°, but few pilots average that bank in practice; the default is 40°. A lower bank reduces stall risk in the turn but also shrinks the turnback envelope. TLAR limits the selectable bank angle when necessary to retain the configured stall margin, and never permits more than 45°.

Vnorm Ratio. This is the flaps-up normal-approach speed multiplier used to calculate Vref. Vref is the target speed in the turn; a lower ratio increases stall risk but can enlarge the turnback envelope. Set the Vnorm Ratio and Emergency AOB together so the displayed stall margin is appropriate.

Vref (flaps up), Vs @ AOB (flaps up), and Stall Margin are computed values. Vref is the selected target reference speed; Vs @ AOB is the flaps-up stall speed at the selected bank angle; Stall Margin is the difference between them. Treat a small or zero margin as a warning to review the planned bank angle and Vnorm Ratio before using Emergency calculations.

CdpBias and Oswald E Bias are the aerodynamic corrections TLAR derives from the entered Vg Ratio and Vg Speed. They show the model adjustments used to match the selected aircraft's entered glide data.

Settings – Pilot

Tap Settings, then open Pilot, Vertical Nav, and Cruise. These sheets establish the preferences and targets used by the tiles and later phases of flight. Set them deliberately before using their results; they are not a substitute for aircraft limitations or published procedure.

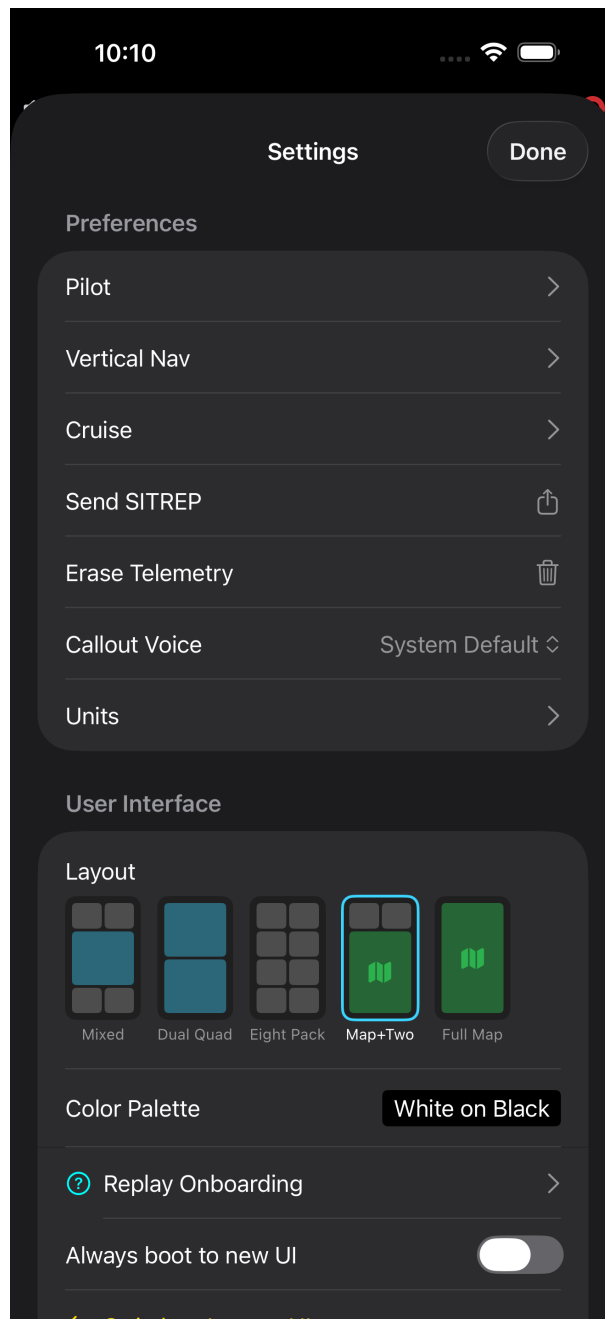


Figure 30. Settings entry sheet. Open Pilot, Vertical Nav, and Cruise to review the settings that shape TLAR’s displayed guidance and calculations.

Tap Pilot to set the approach and speed-ratio values TLAR uses in its landing, stabilization, and vertical-navigation calculations. Change a value with its – and + controls, then check that it matches the way you intend to operate the aircraft. TLAR saves your settings so you do not need to re-enter them on subsequent re-boots.

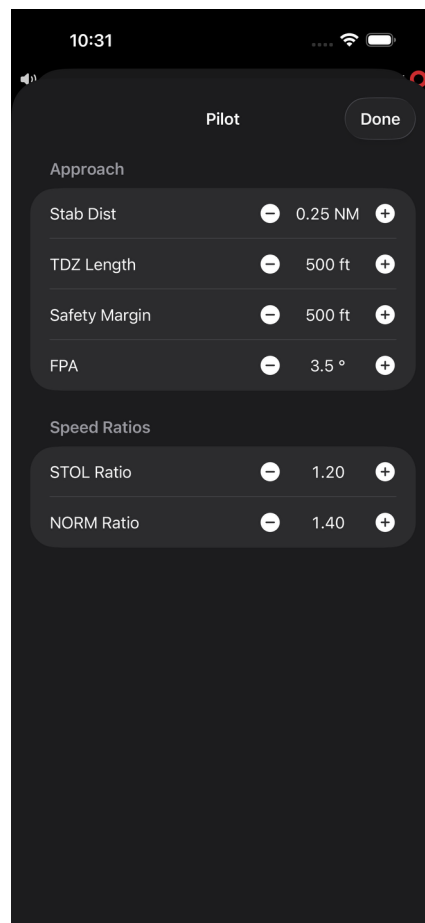


Figure 31. Pilot settings. Set the approach-stabilization and touchdown-zone values first, then review the STOL and normal approach speed ratios.

Stab Dist. Stabilization Distance is the distance on final at which TLAR assesses whether the approach is stable, using the expected groundspeed and flight-path angle. TLAR uses double the stabilization distance as the rollout point in the base-to-final turn.

TDZ Length. Touchdown Zone Length is the distance TLAR reserves for round-out, flare, touchdown, and getting on the brakes during a landing.

Safety Margin. This is the distance from the runway end that TLAR uses to caution you when a predicted takeoff or landing enters the safety zone.

FPA. Flight Path Angle is the angle TLAR uses to calculate how far down the runway the touchdown zone begins after the airplane clears the approach-end fence. It is also the reference angle for vertical-navigation displays, including sVAPIs and the FPA marker. In Emergency mode, TLAR temporarily replaces it with the engine-out glide angle.

STOL Ratio and NORM Ratio. These ratios multiply stall speed to produce the STOL and normal approach-speed targets. Lower ratios provide less stall-speed margin, slower touchdown speeds, and shorter braking distances; higher ratios increase stall margin, increase approach and touchdown speeds, and result in longer braking distances and the potential to float down the runway. The STOL Ratio cannot exceed the NORM Ratio. Set both for the selected aircraft and the operating technique you will use.

Settings – Vnav

Tap Vertical Nav to set the runway-crossing height and the targets used by TLAR's constant-target climb modes. These values affect displayed guidance and calculated climb performance; confirm that they match the intended procedure before flight. TLAR saves your settings so you do not need to re-enter them on subsequent re-boots.

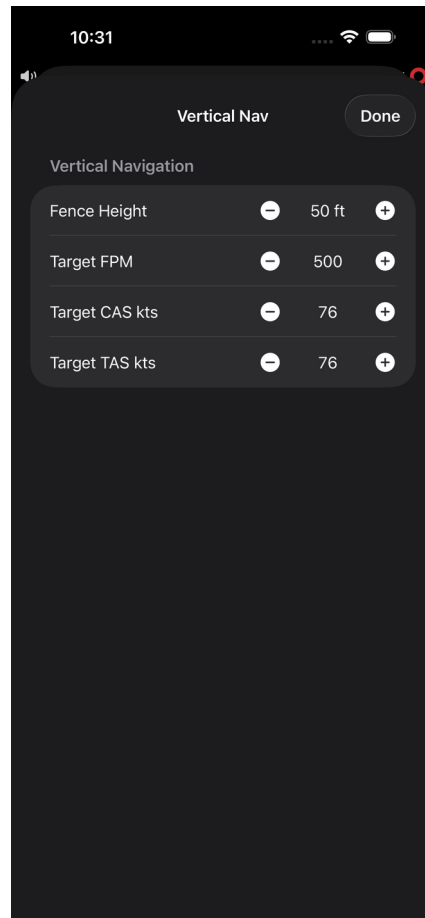


Figure 32. Vertical Nav settings. Set the desired fence height, then set the targets for the FPM, CAS, and TAS climb modes.

Fence Height. This is the height TLAR uses as the desired crossing height at both the approach and departure ends of the runway. It does not include an additional safety margin; enter the height you intend to use.

Target FPM. This is the target climb rate, in feet per minute, used when the FPM climb mode is selected. The minimum target is 100 FPM.

Target CAS kts. This is the constant calibrated-airspeed target used when the CAS climb mode is selected.

Target TAS kts. This is the constant true-airspeed target used when the TAS climb mode is selected.

Settings – Cruise

Tap Cruise to choose the desired cruise objective, set a selected cruise-power value when applicable, and set the destination altitude for Eco Climb. TLAR computes the displayed cruise power from the selected performance-reference density altitude: aircraft-location weather and altitude when Aircraft is the reference, or LZ elevation and weather when LZ is the reference. TLAR saves your settings so you do not need to re-enter them on subsequent re-boots.

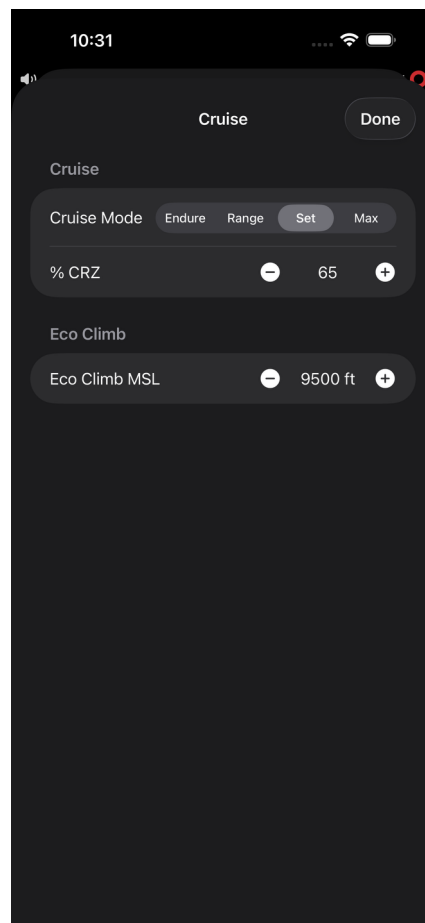


Figure 33. Cruise settings. Select a cruise objective, set percent cruise power when using Set mode, and enter the intended Eco Climb altitude.

Cruise Mode. Select Endure for best endurance—lowest fuel flow—or Range for best range—the greatest still-air nautical miles per gallon. Select Max for maximum speed at full throttle. Select Set to enter a desired cruise power, up to the maximum available for the current pressure altitude and temperature at cruise RPM. TLAR uses cruise RPM for all cruise modes except Max, which uses maximum rated RPM.

% CRZ. This row appears when Set mode is selected. Use the – and + controls to set the desired cruise power. In the other modes, TLAR displays the computed power for that objective; the row label changes to identify the selected mode. For turbojet aircraft, the control is percent RPM rather than percent cruise power.

Eco Climb MSL. Enter the desired cruise altitude above mean sea level. When Eco Climb mode is used, TLAR uses this altitude to calculate the most fuel-efficient climb speed, considering the total fuel used to climb and cruise from LZ Alpha to LZ Bravo.

Primary Flight Display Tiles

HSI, Map, and HUD are TLAR’s primary flight-display tiles. They use the same active LZ, aircraft position, weather, and performance calculations, but present them in different ways: the Horizontal Situation Indicator (HSI) is a heading-and-runway view, Map is a geographic view, and HUD is an attitude-referenced view. Use them as complementary situational-awareness displays, not as replacements for approved aircraft instruments or procedures.

HSI

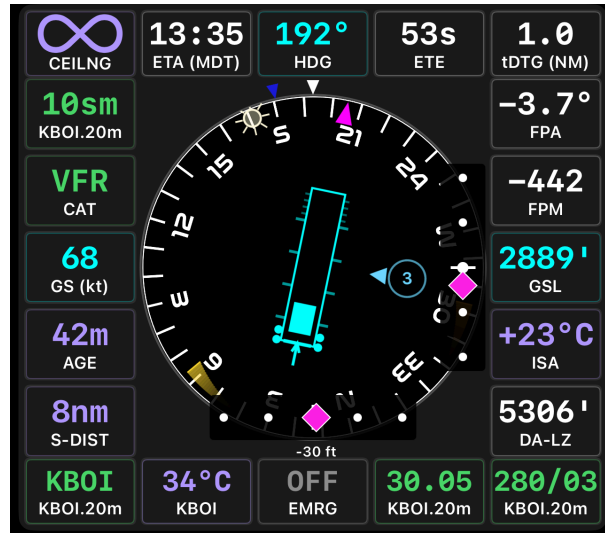


Figure 34. HSI landing display. The cyan dynamic-mode runway geometry, GSI/CDI markers, wind, LZ cues, solar markers, and surrounding chicklets are shown together.

The HSI compass rose is referenced to true north. Above 5 knots, it centers on GPS-derived true track. At lower speeds, TLAR uses iOS true heading when available, with magnetic heading as the fallback. The white lubber triangle at the top is the true reference; the blue triangle is the magnetic-reference marker. The magenta LZ bearing pointer, when enabled, points from the aircraft toward the active LZ approach end.

The white runway is drawn at the active runway's true axis and to its scale within the compass. On the ground, the takeoff arrow runs from brake release to the computed fence-clearance point and the white dot marks liftoff. In flight, the runway changes to landing geometry: touchdown-zone dots, braking-distance rectangle, and the fence-shadow approach arrow. The runway markings use the same conditions and distance logic as the Takeoff and Land tiles.

The cyan wind arrow points toward the true direction the wind is coming from; its circular speed ball gives wind magnitude. With SOLAR enabled on the back of the 2×2 HSI, the sun icon marks current solar azimuth and its elevation; the yellow SR and amber SS rim wedges mark sunrise and sunset azimuths. With an active LZ, these solar cues are calculated for the LZ location; in flight they use the estimated arrival time at the LZ.

When stabilized-approach guidance is available for a precise active LZ and the aircraft is within 10 NM of the approach end, the HSI adds course-deviation and glideslope tracks. The CDI is the horizontal track below the rose and shows cross-track displacement; the GSI is the vertical track at the right and shows displacement from the selected flight-path angle. The diamonds move toward the correction required. The CDI scale is $\pm 1,000$ feet and the GSI scale is ± 1.0 degree; a yellow outline means the indicated deviation is beyond full scale.

Map

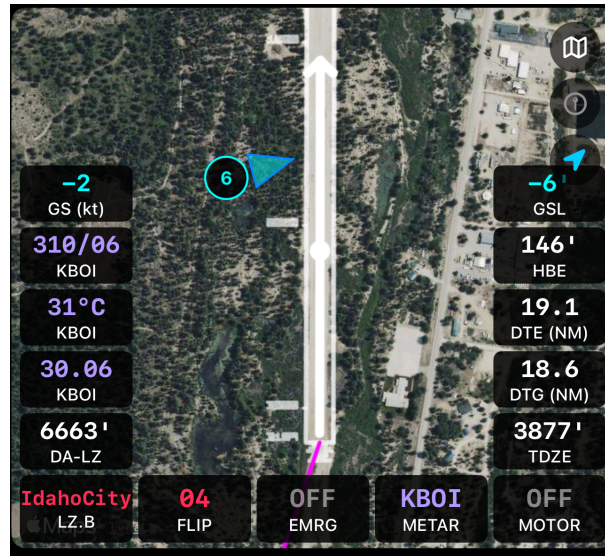


Figure 35. Map reference display. The active runway, takeoff geometry, magenta course line, aircraft position, wind, and map controls remain geographically aligned.

The Map tile draws the active runway on the imagery with runway-end and distance markings. The magenta line is the selected course to the active LZ or the route produced by the selected traffic-pattern mode. The cyan wind arrow at the LZ points toward the true direction the wind is coming from. Nearby METAR stations are marked on the map; at close zoom their observation text is drawn downwind from the station like a flag, so the text remains associated with its source.

At sufficient zoom, TLAR draws detailed runway information at the runway ends: LZ name, latitude and longitude, elevation, true axis, slope, and runway length. The white 10-NM ring is centered on the approach end. The run-in line carries one-NM distance marks, and STAB marks the selected stabilization point. Takeoff and landing performance geometry is projected onto the runway image using the same liftoff, fence, touchdown-zone, and braking calculations shown on the performance tiles.

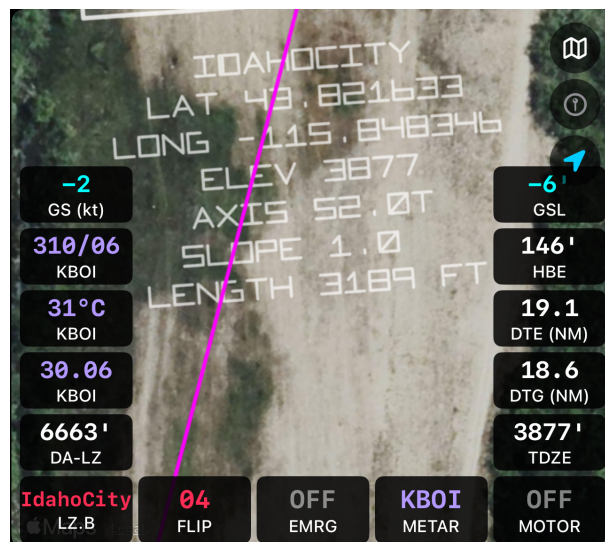


Figure 36. Detailed runway-end information. At close zoom, TLAR writes the active LZ name, coordinates, elevation, true axis, slope, and length along the runway.

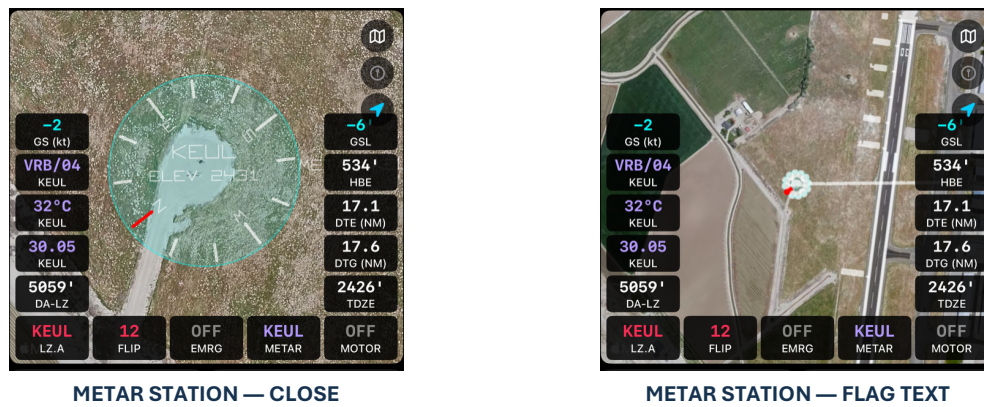


Figure 37. METAR-station examples. At close zoom the station is shown as a wind marker; farther out, its METAR text flows downwind from the station like a flag.

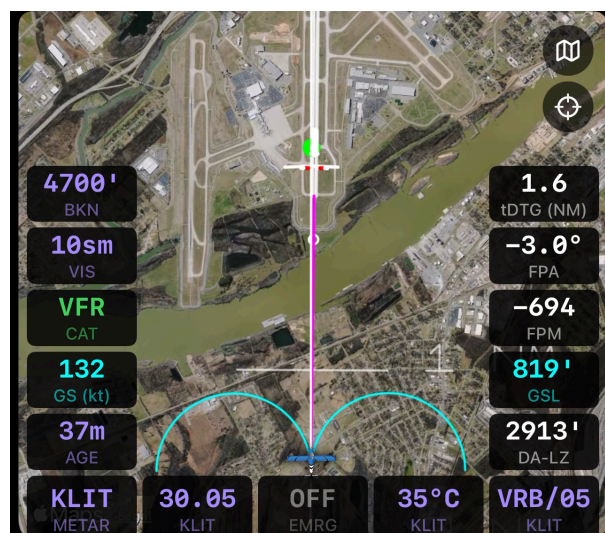


Figure 38. Map flight-path cues. The white FPA hash, green GPS-derived FPA marker, white track vector, and cyan turn-radius whiskers are shown together.

The standard iOS location chevron shows current position and heading. The green GPS-derived FPA marker shows where the current GPS-derived flight path projects ahead of the aircraft. The white track vector projects current ground track. The short white FPA hash shows where a continued descent at the selected flight-path angle meets the LZ touchdown-zone elevation. Cyan turn-radius whiskers show the left and right turns available at a 30-degree bank; they appear only while flying when the computed radius is within the display range.

Use the upper-right map button to switch between satellite imagery and the standard map. Its symbol identifies the other available style. The center-mode control switches between Auto-Zoom, where TLAR chooses the scale while following the aircraft, and LZ-Centered, which keeps the active LZ centered. The recenter button appears after a manual pan, zoom, or rotation; tap it to resume the selected center mode.

On the back of the Map tile, choose the traffic-pattern mode. Std L and Std R draw a standard left- or right-pattern route, including a downwind-entry sequence when outside the decision radius. Left and Right route to the closest normal point in that pattern. AUTO chooses the most efficient route to the approach end without imposing normal traffic-pattern geometry. The setting returns to AUTO when TLAR is restarted.

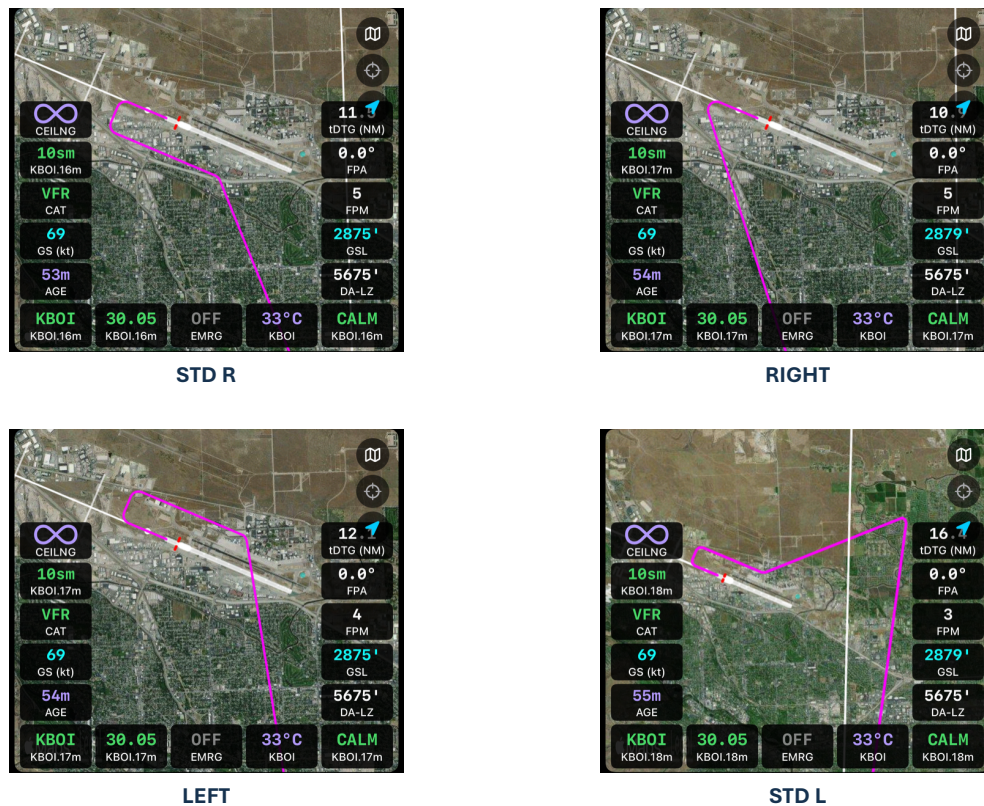


Figure 39. Traffic-pattern route examples. The magenta route changes with the selected pattern mode and the aircraft's position relative to the active LZ.

HUD

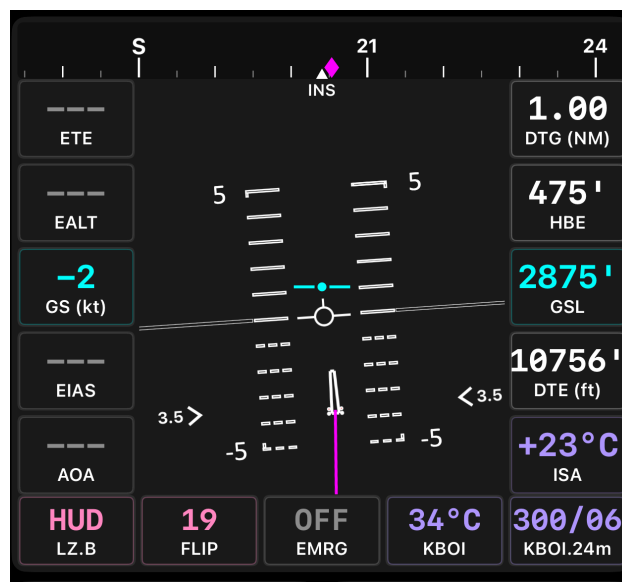


Figure 40. HUD reference display from an iPhone. The heading tape, pitch ladder, waterline, flight-path marker, magenta LZ projection, FPA chevrons, and attitude controls are visible.

The HUD places a scrolling true heading/track tape across the top and an attitude-referenced pitch ladder behind the fixed waterline. The magenta diamond on the tape is the LZ bearing pointer. The waterline's two wings and center dot show where the aircraft nose is pointing. In INS mode, TLAR places a flight-path marker on the HUD which shows the plane's current path. The vertical difference between the path marker and

waterline marker is approximately the aircraft's current angle of attack. When an active LZ is loaded, the magenta LZ projection runs from present position toward the active LZ approach-end fence-height crossing point. The chevrons beside the ladder mark the selected flight-path angle; in Expert emergency mode they move to the engine-out glide angle.

The circular symbol with short wings is the flight-path marker: it shows where the aircraft is actually going vertically. In GPS attitude mode, pitch is derived from GPS elevation change, so the waterline and flight-path marker coincide. In INS, MIX, or an active EFIS source, the flight-path marker is drawn separately from the waterline.

TLAR offers GPS, INS, MIX, and, when available, an EFIS/OnSpeed attitude source. GPS derives pitch and roll from satellite motion; it is mount-orientation independent but can lag or react to poor GPS data. INS uses the iPhone or iPad inertial sensors. Mount the device aligned with the aircraft yaw axis, select INS with the ATT button, and press SYNC only in level, unaccelerated flight to level the display and store its bias. iOS filtering corrects acceleration-induced error over time, which can take about a minute. MIX averages GPS and INS for a smoother, less-laggy display. Treat all TLAR attitude presentations as situational awareness only, not a primary attitude reference.

Takeoff

Use the Takeoff or Smart TOLD tiles to review the active runway, the computed takeoff distances, the selected takeoff flap setting, and the selected climb profile before brake release. The Smart TOLD tile auto-switches: it is a Takeoff tile on the ground and a Land tile when flying. The calculation uses the active LZ, current aircraft loading, weather/performance reference, runway slope and surface, selected flaps, power-push setting, and selected climb mode. It is an advisory performance estimate; compare it with the aircraft documentation, runway condition, and your operational judgment.



Figure 41. Takeoff tile with normal results. The upper value is distance over the selected fence height; the large lower value is the ground run to liftoff.

Read the Takeoff tile

OVER 50 is the takeoff distance from brake release to clear the fence height selected in Vertical Nav; the number after OVER changes with that selected height. RUN is the predicted ground distance from brake release to liftoff. Vto is the computed liftoff speed in KCAS for the currently selected takeoff flap setting.

The vertical runway bar is a scaled runway diagram. The arrow runs from the brake-release point to the over-fence point. The dot marks the predicted liftoff point. The runway graphic has distance remaining tick marks. The longer marks show 1,000-foot remaining intervals; shorter marks show 200-foot intervals in the last 1,000 feet. When length units are meters, those intervals become 1,000 and 200 meters.

The bottom-center F1 control is the takeoff-flap button. Tap it to cycle through the aircraft's available takeoff flap settings; a non-default setting is shown in the caution color. The left and right positions are configurable information chicklets. In these examples, AVAIL is runway available and the right chicklet shows the selected climb mode and its target speed. Tap the tile to flip it: the back lets you choose the left and right chicklets. Pro and Expert users can also enable ASTOP there; the large lower readout then changes from RUN to calculated accelerate-stop distance.

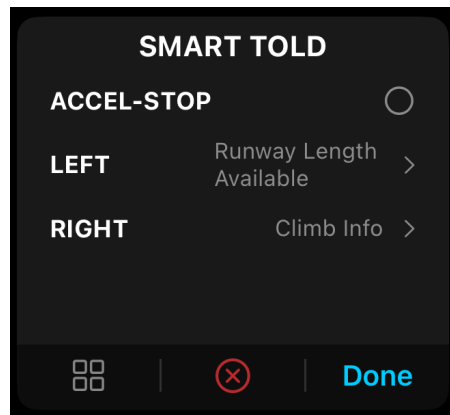


Figure 42. Smart TOLD back side. Tap ACCEL-STOP to enable calculated accelerate-stop distance. Tap LEFT or RIGHT to choose the information chicklet shown in that position, then tap Done to return to the front of the tile.

How TLAR calculates takeoff run

TLAR calculates the ground roll in 0.1-second steps. At each step it uses the current ground speed plus headwind to determine airspeed, computes thrust at maximum-power RPM, computes lift and drag at the selected takeoff flap setting, and resolves thrust along the runway. If Power Push is nonzero, throttle begins at 16 percent and rises linearly to full power over the selected Power Push time; with Power Push set to zero, full power is used immediately.

The reported RUN is the integrated distance to liftoff plus a rotation segment: $RUN = \text{distance to lift-off} + V_g \text{ at lift-off} \times 0.9 \text{ second}$. TLAR rounds the resulting distance to the nearest 10 feet. The 0.9-second rotation allowance is included in the displayed ground run and in the liftoff point used by the runway graphics.

How TLAR calculates distance over the fence

The over-fence calculation starts with the displayed RUN, then models the airplane's transition from V_{to} to the selected climb speed while sharing excess power between acceleration and climb. It calculates the distance required to accelerate, the altitude gained during that acceleration, runway elevation change between liftoff and the departure end, and the remaining climb distance required to reach the selected fence height.

The selected climb mode therefore matters. A different speed or climb-rate target changes the acceleration segment, climb gradient, and distance required to clear the fence. Review the climb mode shown in the right chicklet before using the result.

TLAR accounts for the elevation difference between the liftoff point and the departure end of the runway. On an upslope departure, the airplane must climb farther to clear the selected fence height; on a downslope departure, liftoff can occur above that height. TLAR posts a slope advisory when liftoff is above the fence height, and the Takeoff Brief calls out meaningful slope-related clearance or a climb gradient that is less than, or only barely exceeds, the uphill runway slope.

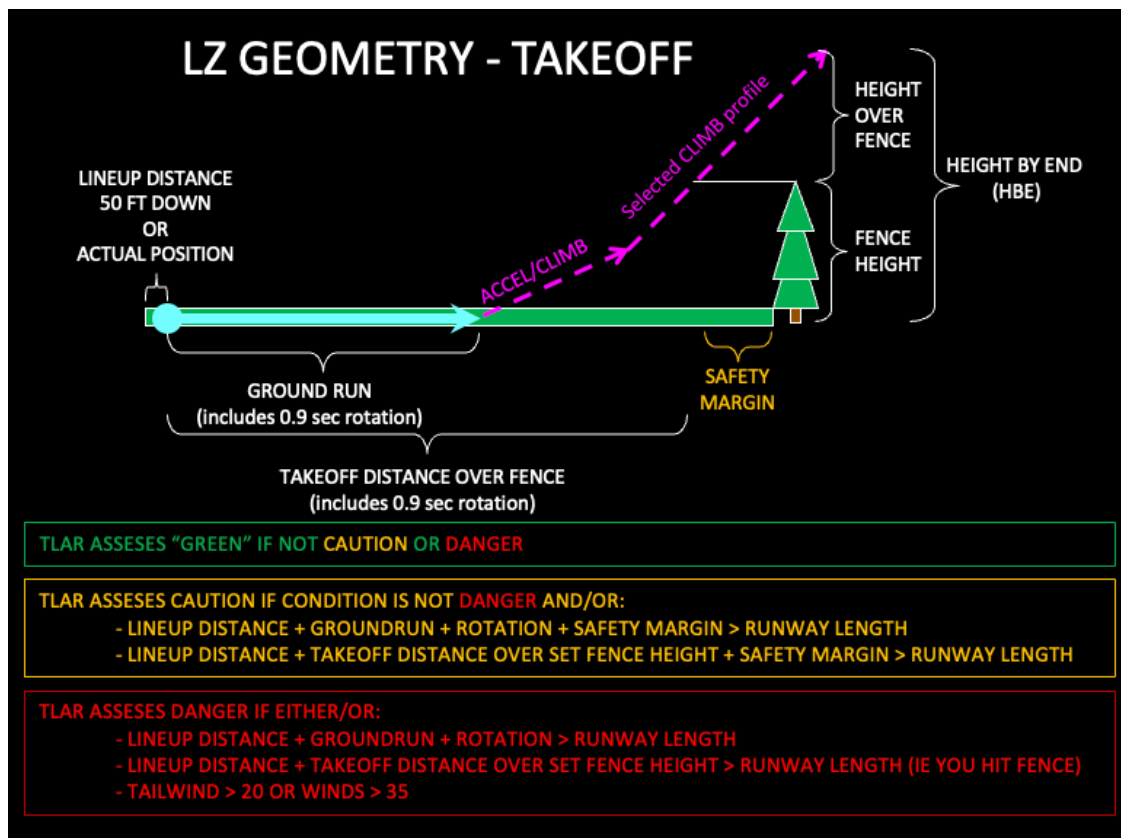


Figure 43. Normal takeoff geometry. Ground run begins at the selected line-up point and ends at liftoff; the climb profile then determines distance over the selected fence height.

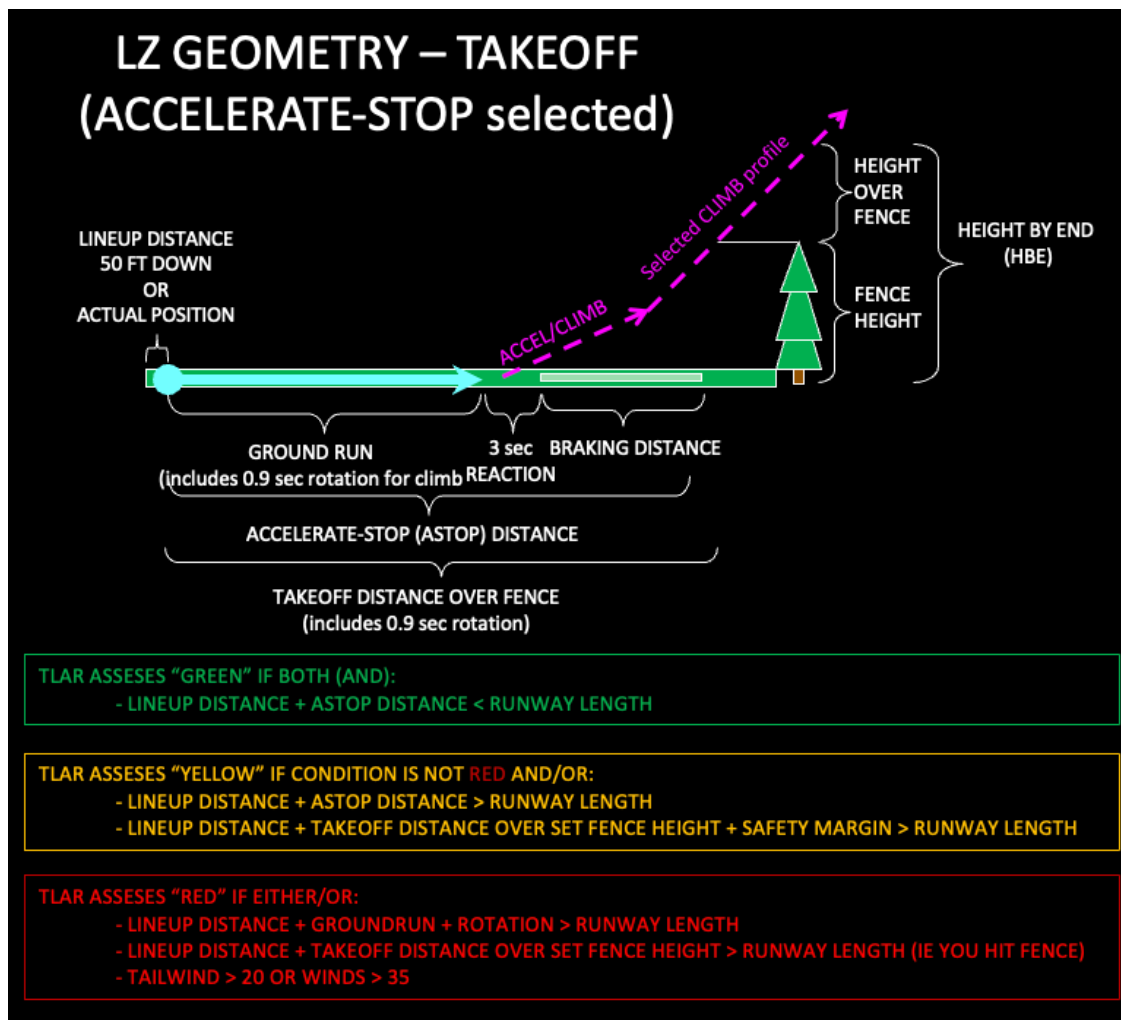


Figure 44. Accelerate-stop geometry. With ASTOP selected, TLAR includes the selected reaction time and calculated braking distance in the accelerate-stop distance.

Yellow and red Takeoff results

The tile uses its most serious condition to set the border, tint, values, and message pill. Yellow displays MARGIN TIGHT. With RUN selected, yellow means the ground run plus the Pilot Safety Margin exceeds the available runway. With ASTOP selected, yellow means calculated accelerate-stop distance exceeds the available runway; ASTOP already includes its braking distance, so TLAR does not add the Safety Margin again. Yellow also occurs when the over-fence distance plus the Pilot Safety Margin exceeds available runway.

Red displays OVERRUN when the ground run exceeds runway available, and BELOW FENCE when the over-fence distance exceeds runway available. A wind-danger condition also makes the tile red and replaces both distance values with WIND. When lined up, TLAR uses GPS-measured distance remaining to the departure end as the available runway length; otherwise it assumes line-up occurs 50 feet down the runway and subtracts that from the length to obtain runway available.



Figure 45. Takeoff cautions. Yellow means the applicable distance plus its required margin no longer fits; red means the predicted takeoff distance exceeds runway available.

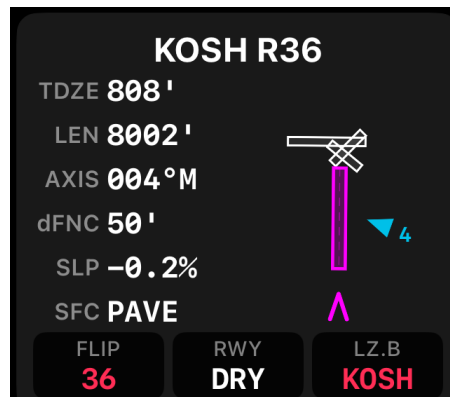
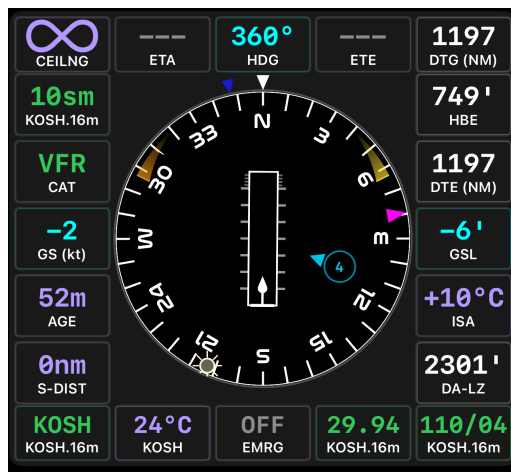


Figure 46. Runway tile. FLIP switches the active runway to its opposite direction, swapping the approach and departure ends. RWY cycles the runway condition through DRY, WET, and ICY. The LZ button selects LZ Alpha, LZ Bravo, Off, or—on Expert—AUTO.

Runway geometry on the HSI and Map

On the ground, the HSI and Map draw the active runway to scale and orient it to the runway axis. The takeoff line begins at the brake-release point, extends to the computed over-fence point, and ends in an arrowhead. The liftoff point is the filled circle positioned at the displayed RUN distance. Distance labels and tick marks identify remaining runway distance. These graphics use the same takeoff distances and condition colors as the Takeoff tile.



HSI RUNWAY GEOMETRY



MAP RUNWAY GEOMETRY

Figure 47. Runway geometry on the HSI and Map. The arrow shows brake release to fence clearance, and the circle marks predicted liftoff. The markings follow the active runway axis.

Climb

Use the Climb tile, or the Smart Climb/Cruise tile when it is displaying Climb, to select and review the intended post-liftoff profile. The tile shows the speed to fly at left and predicted climb performance at right. The curved graph plots climb rate against airspeed; the vertical line and dot identify the selected profile. Check the displayed mode, speed, power label, and predicted result before using the profile for takeoff planning or flight.

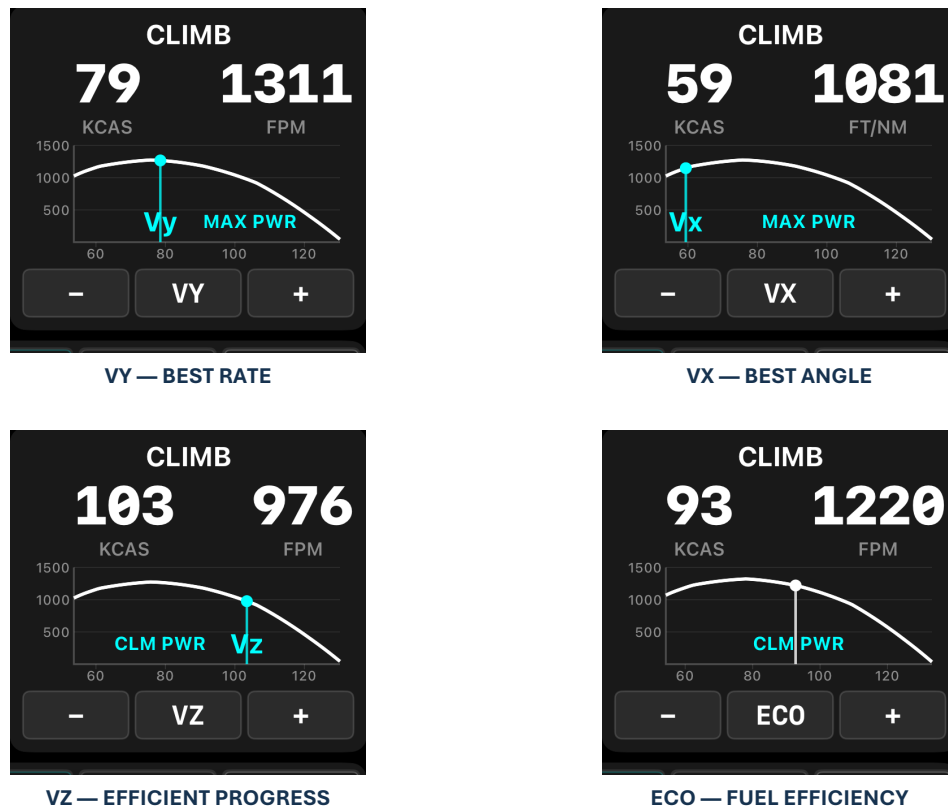


Figure 48. Climb profiles. The curve and marker update for the selected profile and current aircraft, weather, weight, and performance reference.

Read and control the Climb tile

The center bottom control cycles the available climb profiles. Pro and Expert users can use the – and + controls to change the displayed climb speed; either control changes the active profile to CAS. The left value is the displayed airspeed target. The right value is predicted climb rate in feet per minute, except in V_x mode, where it is wind-corrected climb gradient in feet per nautical mile.

V_x and V_y use maximum power available. V_x uses the selected takeoff flap setting; all other profiles use flaps up. V_z , ECO, CAS, TAS, and FPM use the aircraft's configured climb power. The tile turns yellow when the selected predicted climb rate is positive but below 200 FPM, and red when the selected mode cannot produce a positive climb rate.

Climb profiles

V_y . Best rate of climb. Fly the displayed speed when maximum climb rate is the objective.

V_x . Best angle of climb. Fly the displayed speed when maximum climb gradient is the objective. The tile reports wind-corrected feet per nautical mile rather than FPM.

V_z . A higher-speed, practical climb profile intended to balance climb rate with forward progress toward the destination. TLAR uses a V_z speed of 1.32 times V_y .

ECO. The fuel-efficient profile for the route to the active LZ. TLAR selects a climb speed intended to minimize total climb, cruise, and descent fuel for the selected cruise altitude and cruise setting. ECO is available only

when an active LZ and LZ bearing pointer are enabled. If the selected cruise altitude cannot be reached and descended from before the destination, choose a feasible lower cruise altitude.

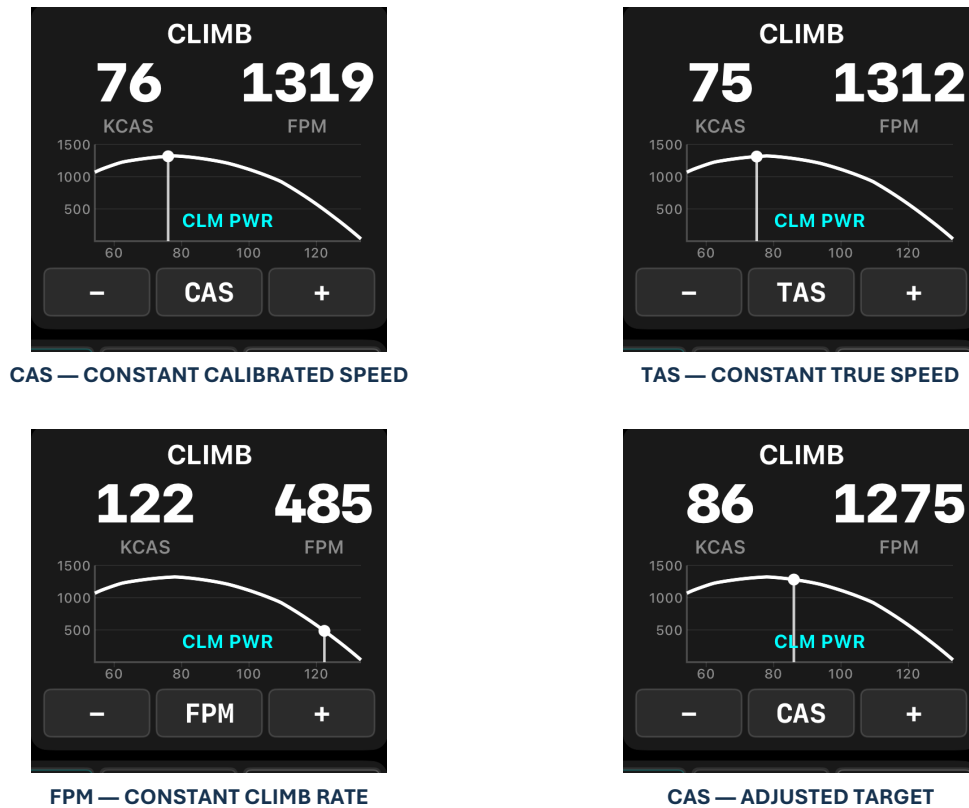


Figure 49. Constant-target modes. Set the CAS, TAS, and FPM targets in Vertical Nav; the $\pm$ controls provide a direct CAS adjustment on the tile.

CAS. Hold the selected calibrated airspeed. Use it when a published or personally selected calibrated climb speed is appropriate.

TAS. Hold the selected true airspeed. Use it when the climb procedure is based on true airspeed.

FPM. Hold the selected climb rate. Set the target in Vertical Nav; the minimum target is 100 FPM.

For CAS, TAS, and FPM, confirm that the selected target remains achievable as aircraft weight, density altitude, and available power change. TLAR updates the predicted result from the current conditions.

Cruise

Use the Cruise tile, or the Smart Climb/Cruise tile when it is displaying Cruise, to select and review cruise performance. The left value is predicted true airspeed (KTAS); the right value is predicted fuel flow (GPH). The chart plots true airspeed against percent power. Its vertical marker and dot identify the selected cruise setting.

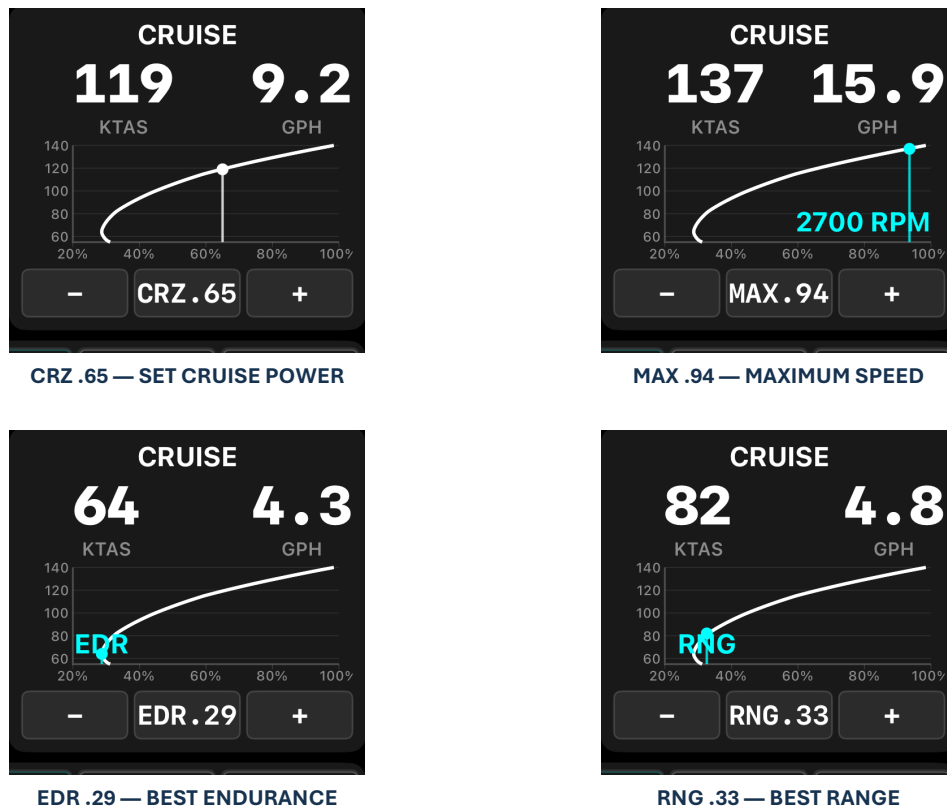


Figure 50. Cruise modes. The selected marker, predicted TAS, and predicted fuel flow update for current aircraft, altitude, weather, and performance reference.

Read and control the Cruise tile

The center bottom control cycles Endurance, Range, Set Cruise, and Max. The left and right controls decrease or increase the selected power. Either control selects Set Cruise, shown as CRZ followed by the selected percent power. Basic users see CRZ .65; its mode control is not interactive. Cruise-mode selection and power adjustment are available in Pro and Expert.

TLAR uses the performance-reference density altitude to calculate the chart, speed, and fuel flow: aircraft altitude and weather when the reference is Aircraft; active-LZ elevation and weather when the reference is LZ; or the pilot-entered elevation and weather when the reference is Manual. TLAR uses the configured cruise RPM for Endurance, Range, and Set Cruise. Max uses maximum rated RPM and full throttle rather than the cruise-RPM assumption.

Cruise modes

Endurance (EDR). Select Endure for best endurance—the lowest fuel flow.

Range (RNG). Select Range for best range—the greatest still-air nautical miles per gallon.

Max. Select Max for maximum speed at full throttle.

Set Cruise (CRZ). Select Set to enter a desired cruise power, up to the maximum available for the current pressure altitude and temperature at cruise RPM.

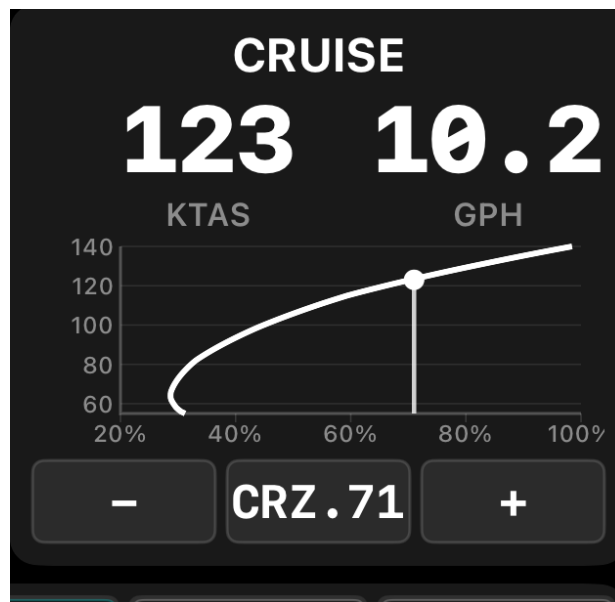


Figure 51. Set Cruise adjusted to 71 percent power. Tap – or + to change power in one-percent increments; the tile updates the associated TAS and fuel flow.

If the requested altitude and conditions do not permit cruise flight, the Cruise tile turns red. Use the red result as a prompt to review the selected performance reference, elevation, weather, aircraft loading, and available power before relying on a cruise prediction.

Descent

Use the HSI, Map, and HUD to manage a descent that reaches the active LZ approach end at the selected fence height. Each display presents vertical-navigation information for the same destination and selected route. The FPA-required and FPM-required chicklets report the descent profile required at the current groundspeed, assuming the airplane follows the magenta route to the LZ.

Direct distance and track distance

Outside 10 NM, the magenta line routes directly to the approach end. The distance chicklet is DTG, and the required FPA and FPM are based on that direct distance. Inside 10 NM, TLAR switches to the selected pattern route: Std L, Std R, Left, Right, or AUTO. The distance chicklet becomes tDTG (track distance to go), and TLAR uses that routed distance to compute the required FPA and FPM. A required value therefore changes as groundspeed, altitude, position, and the remaining route change.

The set fence height defines the arrival target at the approach end. Use the required-profile chicklets to decide when to start down and to monitor whether the planned route will arrive at that target. The set FPA is the pilot-selected descent reference; it is separately displayed on the Map and HUD.

HSI descent information



Figure 52. HSI descent vertical-navigation aids. The FPA and FPM chicklets show the profile required to reach the approach-end fence-height target. The GSI dots show deviation from the selected FPA; each dot represents 0.5 degree.

The HSI provides the route, required-profile chicklets, and Glideslope Indicator (GSI) in one view. Follow the magenta route while comparing the current descent to the required FPA or FPM. The GSI diamonds show the aircraft relationship to the selected FPA: each dot is 0.5 degree from the set FPA. When approach guidance is active, the companion CDI/GSI markings also help show lateral and vertical relationship to the runway approach.

Map descent information

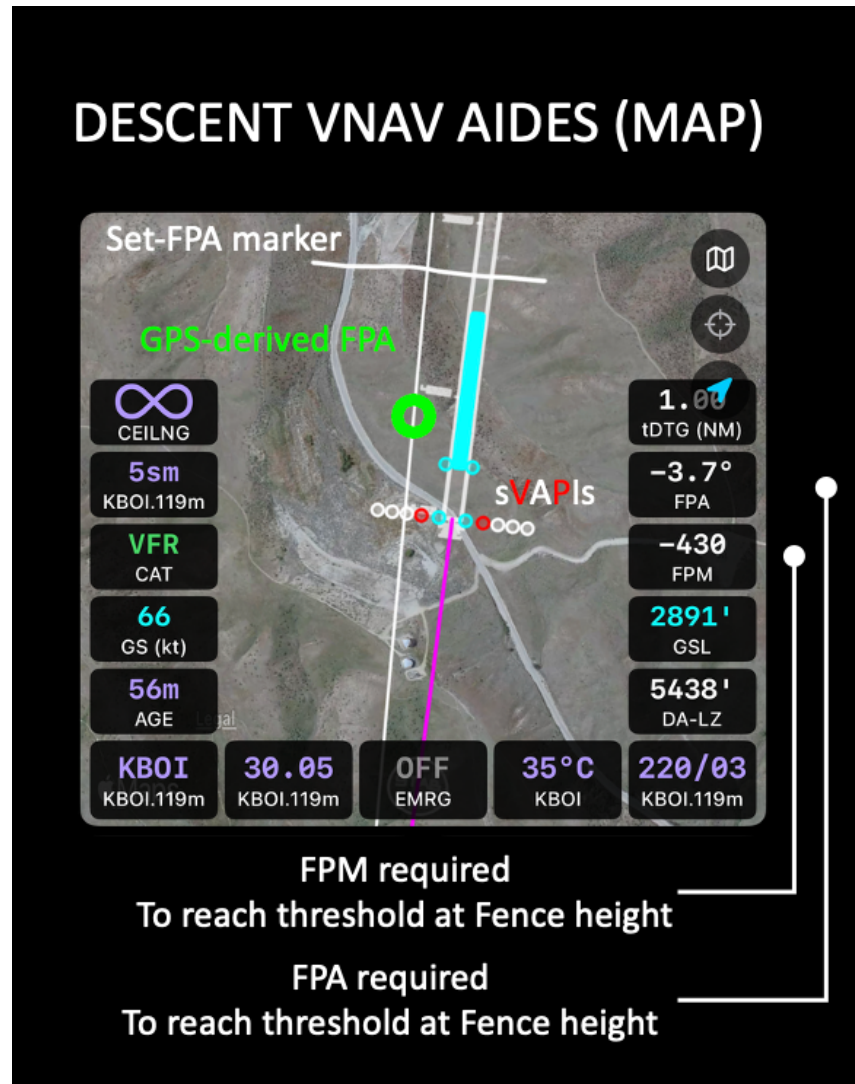


Figure 53. Map descent vertical-navigation aids. The green GPS-derived FPA marker, white set-FPA hash, and sVAPs show the descent path and runway reference.

The Map adds a spatial view of the descent. The green marker is the GPS-derived flight-path angle. The white hash marks the selected FPA. Compare those markers while following the magenta route: their relative position shows whether the present GPS-derived path is steeper or shallower than the selected descent angle. The sVAPs appear beside the runway and provide a visual approach reference at the active LZ.

HUD descent information

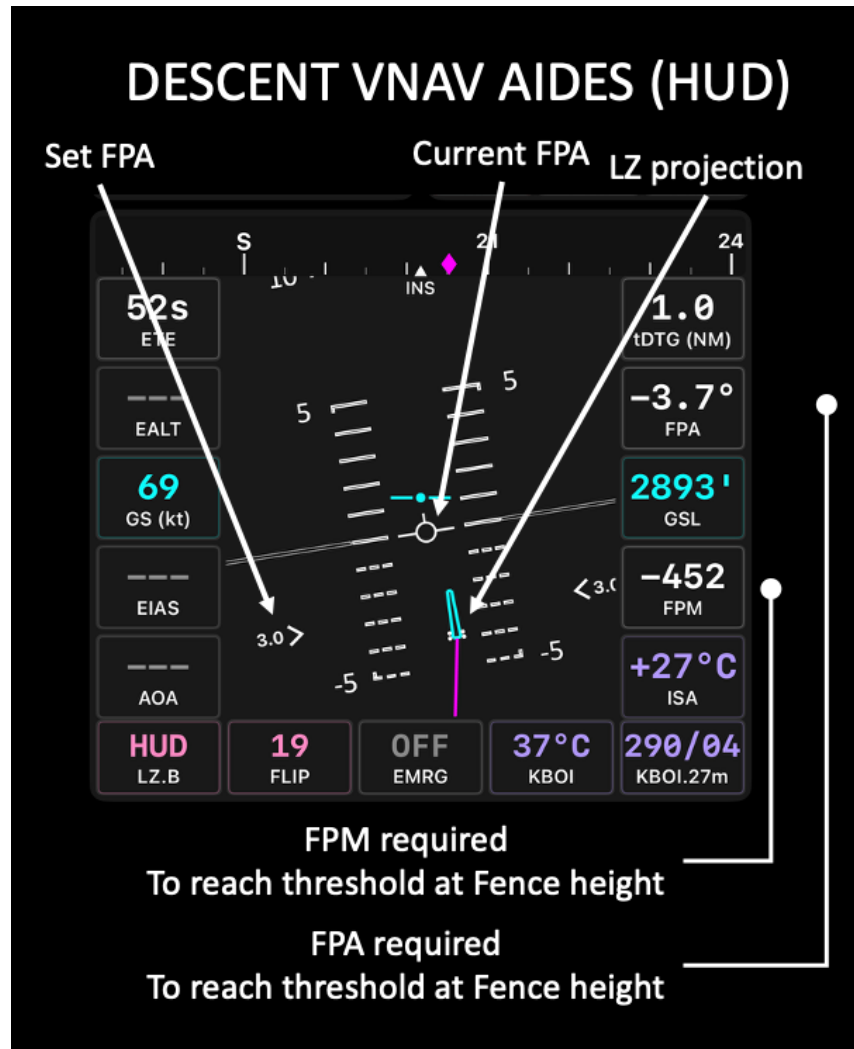


Figure 54. HUD descent vertical-navigation aids. The display combines the LZ projection, current flight-path angle, and selected FPA with the required-profile chicklets.

On the HUD, the LZ projection shows where the active LZ lies ahead of the aircraft. The flight-path marker shows current FPA, while the set-FPA marks provide the selected descent reference on the pitch ladder. Use the FPA- and FPM-required chicklets with those cues to maintain the route and adjust the descent as required to reach the approach-end fence-height target.

Landing

Use the Land tile, or the Smart TOLD tile when it has switched to Land in flight, to plan the runway needed for the selected approach. Set and confirm the active LZ, weather, aircraft weight, landing-flap setting, braking selection, and normal or STOL speed selection before using the result. The Land tile and the runway graphics on the HSI and Map use the same landing geometry and color state.

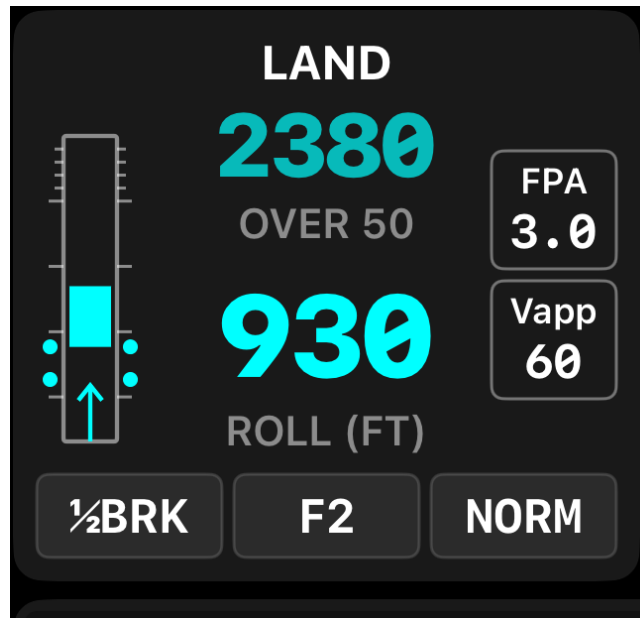


Figure 55. Land tile with a normal result. OVER 50 is the predicted landing distance over the selected fence height; ROLL is the predicted braking distance after touchdown.

Read and control the Land tile

OVER 50 is the predicted distance from the approach-end fence-height crossing to a stop. The number after OVER (for example, 50) is the selected fence height. The fence height and effective flight-path angle (FPA adjusted for runway slope) determine the length of the fence shadow (see Figure 49, Landing geometry). The total distance OVER XX is the sum of the fence shadow, Touchdown Zone Length from Pilot Settings, and braking roll. The touchdown zone (TDZ) is the distance required to round-out, flare, touchdown, and begin braking. If necessary to stop on the runway, TLAR shrinks the touchdown zone and cautions you by coloring the Land tile yellow and posting a notification. ROLL is the predicted braking distance. It is determined by touchdown groundspeed, runway surface type (for example, paved) and condition (for example, wet), and brake setting (for example, MAX).

The FPA badge shows the selected approach flight-path angle. The Vapp badge shows the calculated reference approach speed for the selected landing flap and speed mode. Use the left button to select partial braking (1/2BRK) or maximum braking (MAX). Use the center button to cycle the landing flap setting. Use the right button to select NORM or STOL; STOL uses the STOL approach-speed ratio, while NORM uses the normal approach-speed ratio. Yellow button text identifies a nonstandard or short-field selection that deserves a deliberate review.

Landing geometry

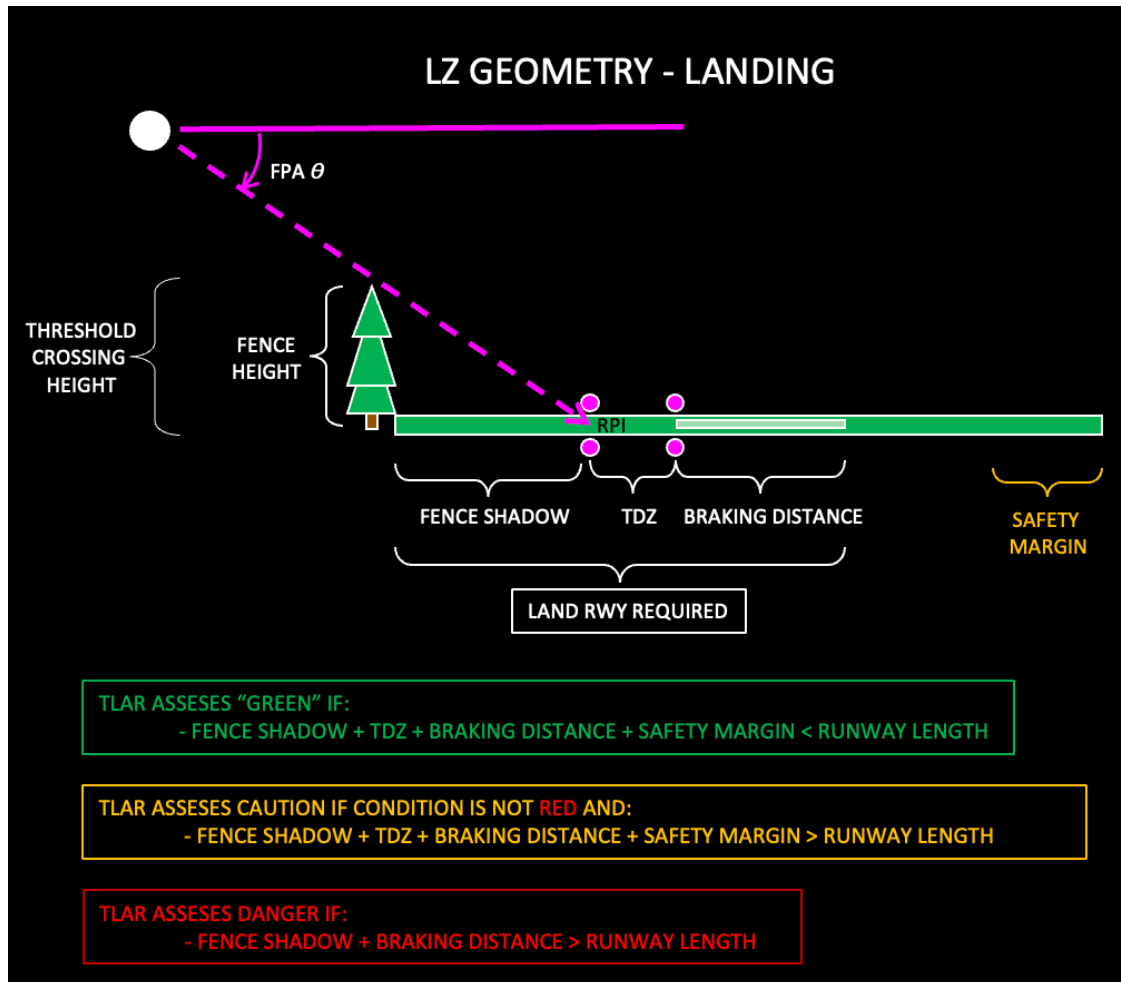


Figure 56. Landing geometry. The selected FPA and approach-end fence height establish the fence shadow; TLAR then adds the touchdown zone and braking distance.

The diagram marks the runway point where TLAR expects the touchdown zone to begin, then shows the braking rectangle through the predicted stop point. Landing performance is sensitive to approach speed, wind, density altitude, weight, runway surface, braking selection, slope, fence height, selected FPA, and the Touchdown Zone and Safety Margin values in Pilot Settings. Treat the prediction as a planning aid and confirm that its assumptions match the intended operation.

Landing cues on the flight displays

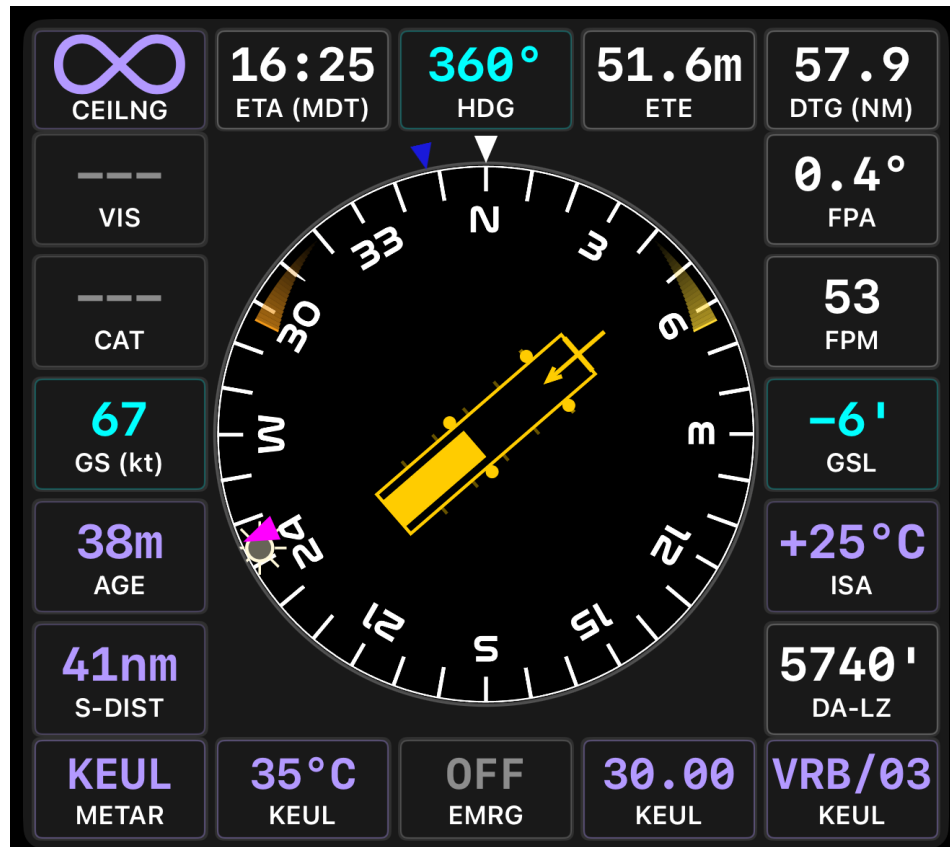


Figure 57. HSI landing presentation. The runway is drawn at its true axis with the same fence-shadow, touchdown-zone, and braking geometry used by the Land tile.

In flight, the HSI and Map draw four touchdown-zone dots, two on each side of the runway. The filled rectangle beyond them is the predicted braking distance, and the arrow leading to the touchdown area is the fence-shadow approach. These marks use the same color as the Land tile: white or the active palette color for a normal result, yellow for caution, and red for danger. The landing runway graphic is available only when the active LZ has the precise coordinates required for runway-relative geometry.

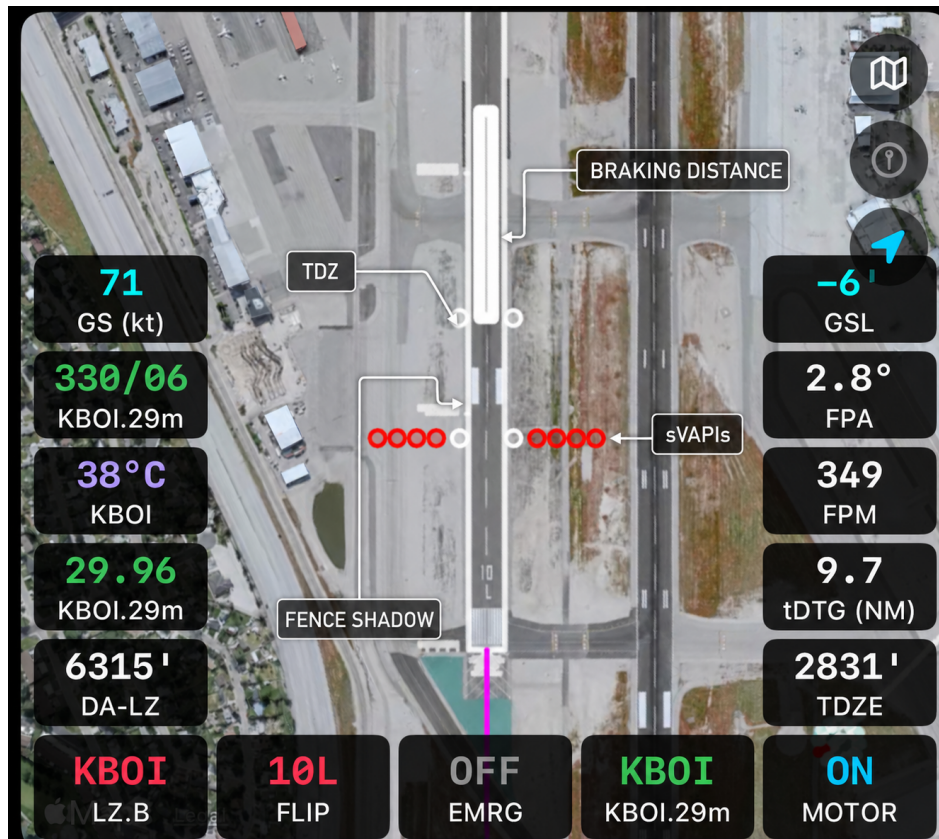


Figure 58. Map landing cues. The callouts identify the fence shadow, touchdown zone (TDZ), braking distance, and the runway-side sVAPIs.

The HUD complements these runway views with the LZ projection, current flight-path marker, selected-FPA cues, and the required-profile chicklets described in Descent. Use the HUD to fly the approach path; use the HSI or Map to see where that path, touchdown zone, braking distance, and remaining runway fit together. The displays support one landing decision—they do not replace the pilot's evaluation of runway condition, obstacles, approach stability, and aircraft performance.

Smart Visual Approach Path Indicators (sVAPIs)

The two rows of lights beside the approach end are Smart Visual Approach Path Indicators (sVAPIs). They give glidepath guidance to the selected approach-end fence height, not only on final but also on a recognizable downwind, base, or turn-to-final route. Once inside 10 NM, TLAR uses the active magenta route to calculate track distance to go (tDTG), required flight-path angle (FPA), and required feet per minute (FPM) along that route. A conventional PAPI is referenced to a straight-line final approach; sVAPIs compute based on track distance to go which includes turns.

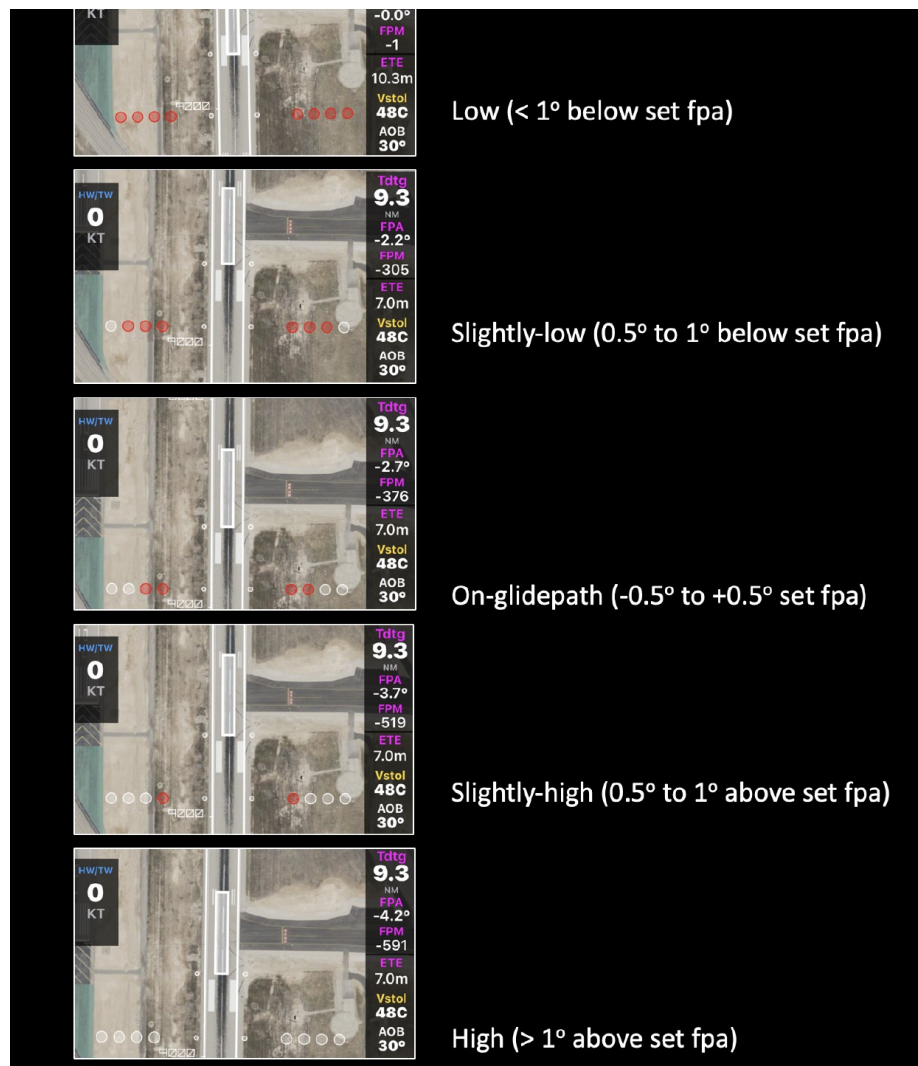


Figure 59. sVAPI states. The rows compare the aircraft's current FPA with the FPA selected in Pilot Settings. (Legacy TLAR sVAPIs shown; current ones are very similar.)

The lights change in 0.5-degree bands relative to the selected FPA: four red means more than 1° low; three red and one white means 0.5° to 1° low; two red and two white means within 0.5° of the selected FPA; one red and three white means 0.5° to 1° high; and four white means more than 1° high. The selected FPA and fence height are pilot settings. sVAPIs do not provide terrain or obstacle-clearance awareness, so select and verify settings appropriate to the operation.

Cautions and warnings

A normal result uses the standard tile color. Yellow means that the landing geometry still fits under TLAR's danger test, but the selected safety margin or touchdown zone has been reduced. The tile shows MARGIN TIGHT when the safety margin is the limiting factor. It shows TDZ REDUCED when the fence shadow and braking distance fit but the full touchdown zone does not. Review the approach configuration and do not treat a yellow result as excess runway.

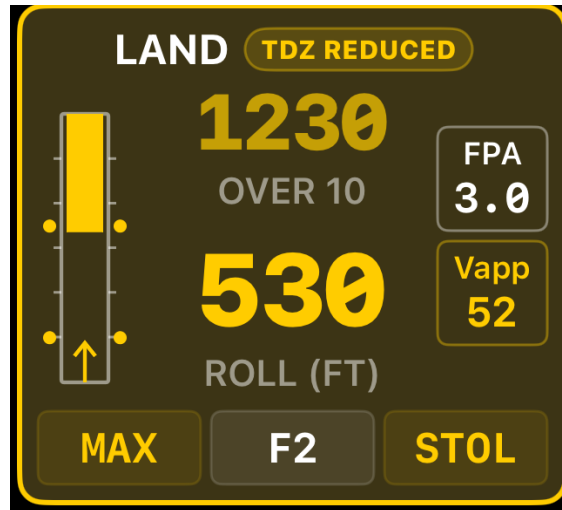


Figure 60. Land tile caution. TDZ REDUCED identifies a case in which the full touchdown zone does not fit, even though the fence shadow and braking distance do.

Red shows OVERRUN when the fence shadow plus braking distance exceeds runway length, or when the active wind condition is outside TLAR's limits. In a red-wind condition, the tile replaces the calculated values with WIND. The Land tile is intentionally conservative about the distinction between a reduced touchdown zone and a true overrun: a calculated touchdown-zone allowance is not a substitute for a stable approach, a safe flare, and timely braking.

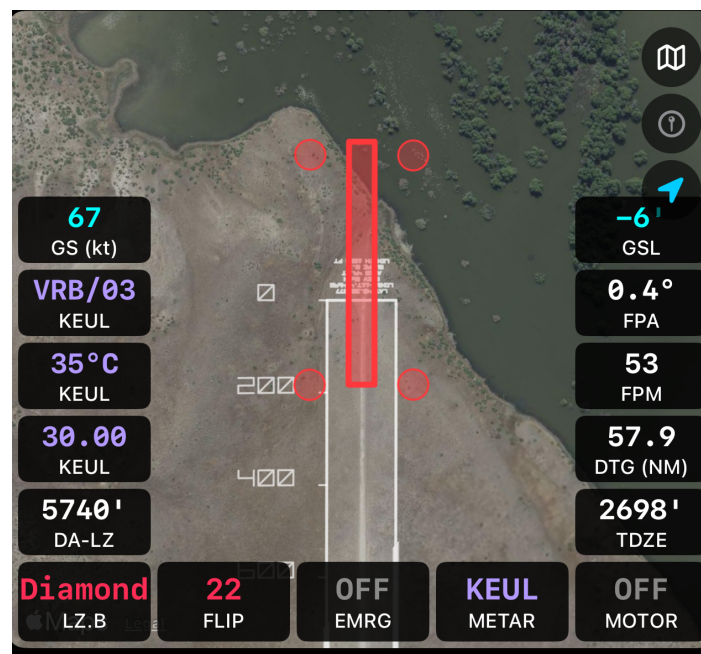


Figure 61. Landing overrun example on the Map. The red runway presentation matches the red Land-tile condition.

Stabilized Approach Monitoring

The Stabilized Approach Monitoring system makes one approach assessment as the aircraft crosses the stabilization point. It is available only with a precise active LZ and a valid runway-relative approach. The assessment compares the airplane's required approach profile and groundspeed with the values TLAR expects for the selected landing configuration, then reports the predicted stopping result independently.

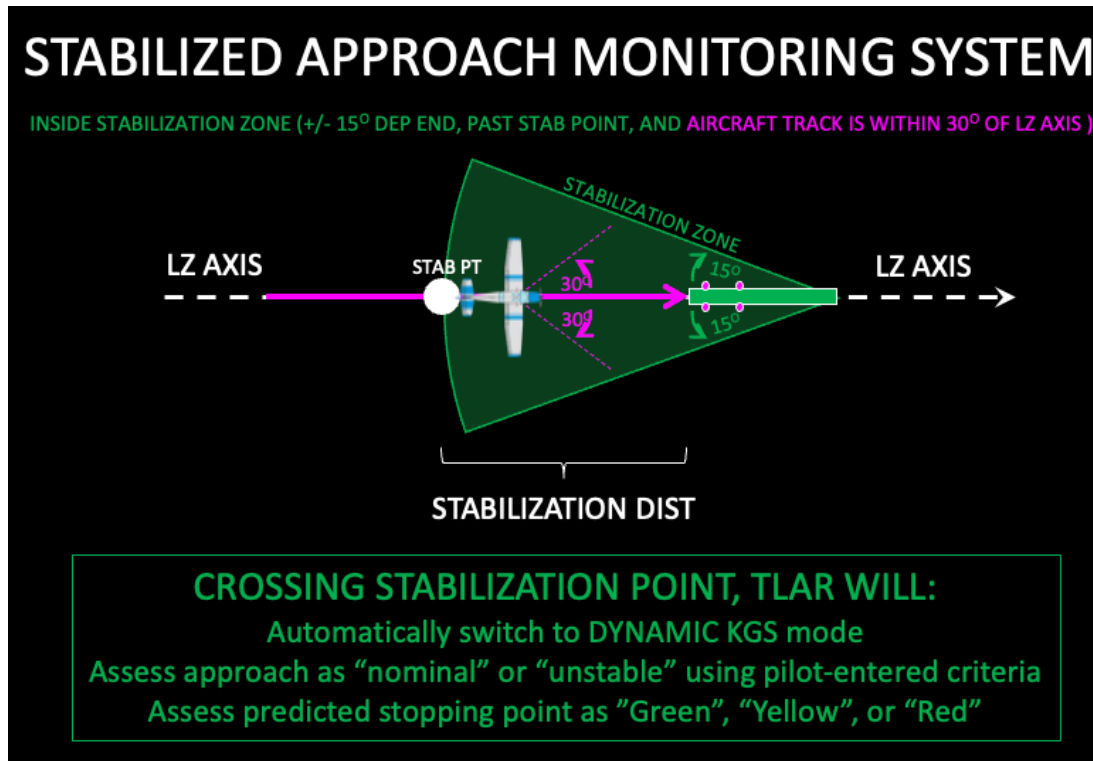


Figure 62. Stabilized Approach Monitoring. On a qualifying final approach, crossing the stabilization point switches TLAR to Dynamic KGS mode and triggers the stability and stopping assessments.

Set the stabilization distance

Set Stab Dist in Pilot Settings. It is adjustable from 0.00 to 2.00 NM in 0.05-NM increments; the default is 0.25 NM. This distance places the stabilization point before the approach end. TLAR uses twice the selected stabilization distance as the base-to-final rollout point, so changing Stab Dist changes both the monitoring point and the traffic-pattern geometry. Choose a distance that gives enough time to establish the intended final approach for the aircraft, runway, and operating technique.

TLAR assesses a qualifying approach when the aircraft reaches the selected distance, is flying toward the active LZ, its GPS track is within 30 degrees of runway axis, and it is within the arrival wedge. It does not make a stabilized-approach assessment merely because the aircraft happens to be near the runway.

What TLAR assesses at the stabilization point

At the stabilization point, TLAR automatically changes to Dynamic KGS mode for the landing calculation, unless Emergency mode is active. It then compares current groundspeed with the predicted approach groundspeed and compares the required glidepath with the selected FPA. A nominal approach is within 10 knots of predicted groundspeed and within 1.0 degree of the selected FPA. If either limit is exceeded, TLAR calls the approach unstable and identifies the condition as Fast, Slow, Steep, and/or Shallow.

The stopping assessment is separate from the stability assessment. Green means the predicted landing fits without reducing the selected safety margin. Yellow means the predicted stop encroaches on the safety margin or requires a reduced touchdown zone. Red means the predicted landing cannot stop on the runway, or the active wind condition is dangerous. A nominal approach can therefore be Yellow or Red on a short runway, and an unstable approach can still be Green on a long runway.

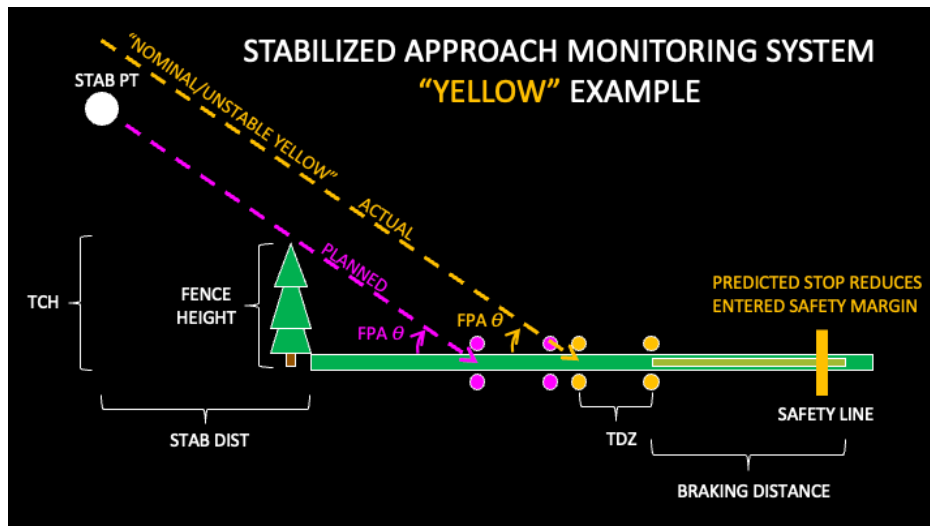


Figure 63. Yellow example. The aircraft is high relative to the planned profile, and the predicted stopping point reduces the selected safety margin.

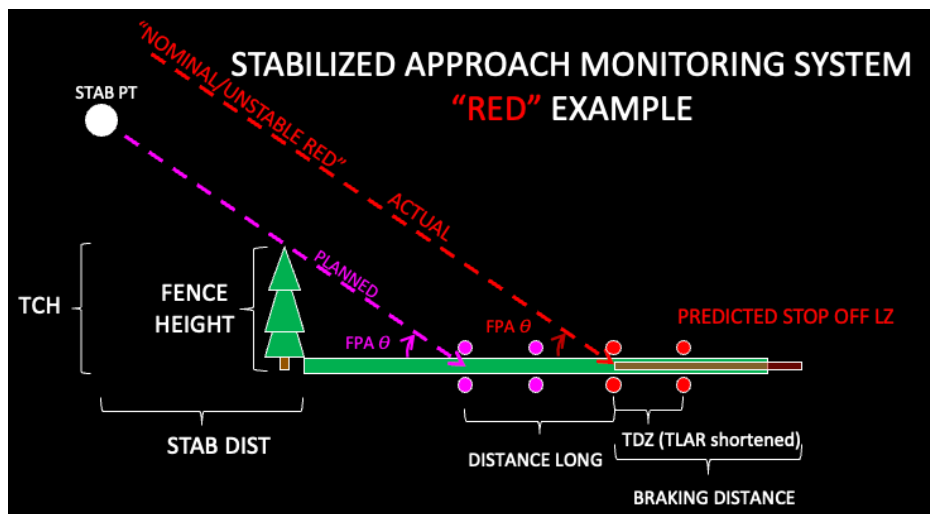


Figure 64. Red example. The approach is long relative to the planned profile and the predicted stop is beyond the available runway.

With audio callouts enabled, TLAR speaks the result once on entry to the stabilization zone. Calls begin with Nominal or Unstable, add any detected speed or glidepath condition, and end with Green, Yellow, or Red—for

example, “Unstable Fast Steep Red.” Use the call as a cross-check, not as a substitute for the pilot’s decision to continue or go around.

Emergency mode

TLAR’s emergency glide system is a useful guide for pilots to assess the complex and changing physics/aerodynamics of an engine-out glide to a runway. Before getting into the specifics of TLAR settings in this mode, it is useful to understand the geometry of a gliding return to a runway.

Turnback geometry

A turnback is an engine-out return to the departure runway after takeoff. Its two essentials are starting above the minimum turnback altitude for the conditions and maintaining aircraft control throughout the turn. There is no single minimum altitude that applies to every aircraft or every takeoff.

The turnback altitude changes with aircraft type and drag configuration, aircraft weight, temperature, pressure, field elevation, wind, climb profile, distance from the airfield, propeller and engine condition, glide ratio and glide speed, V_{ref} , and selected turnback bank angle. A lower bank angle increases stall margin but also reduces the region in which a turnback is predicted to be possible. For best results, make sure TLAR has the most accurate weather, aircraft, and runway inputs as possible, garbage in equals garbage out.

Emergency settings

Setting	What TLAR uses
Vg Ratio	The airplane’s best-glide L/D, or maximum-range glide ratio, at maximum gross weight. TLAR uses it with Vg Speed to tune its Emergency-mode aerodynamic model.
Vg Speed	The best-range glide speed at maximum gross weight. TLAR corrects the best-glide speed for current gross weight.
Computed Vref	The flaps-up stall speed multiplied by the NORM approach ratio in Pilot Settings. It is TLAR’s target speed for the emergency turnback. Change the NORM ratio to change this computed Vref.
Emergency AOB	The average bank angle planned for the turnback. Lower bank angles reduce stall risk, but shrink the turnback-possible envelope. TLAR limits the setting to 45 degrees.

V_g and V_{ref} serve different purposes. V_g is the maximum-range glide speed: it is the speed that produces the greatest still-air distance for each foot of altitude lost. V_{ref} is essentially a minimum-sink target: it favors time aloft and, in TLAR, is the speed used for the engine-out turnback and glide-to-runway calculation.

Angle of attack (AoA) versus V_{ref} in a turnback. Flying a suitable AoA is a constant-AoA, variable-speed maneuver and is safer because it preserves a known margin from stall as bank angle and loading change. Flying V_{ref} —or any other fixed airspeed—is a constant-speed, variable-AoA maneuver. As bank angle or load factor increases, the AoA required to hold that speed rises and the stall margin can become dangerously small. If the aircraft has a properly calibrated AoA indication and the pilot is trained to use it, fly the turnback by AoA rather than attempting to hold a constant V_{ref} .

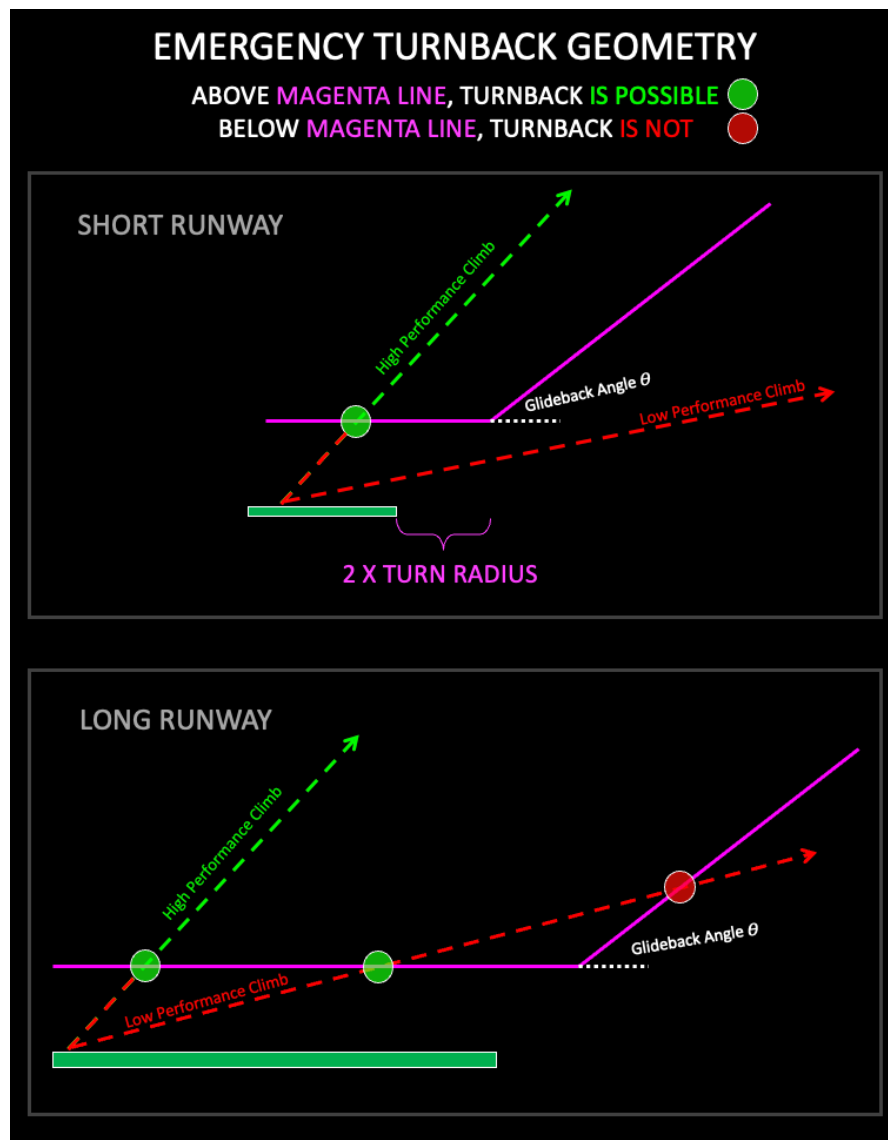


Figure 65. Emergency turnback geometry. The magenta boundary separates modeled turnback capability from the region in which a turnback is not predicted to be possible. The short- and long-runway examples show why runway length and current climb performance both matter.

The figure above compares the vertical geometry of the emergency turnback on a shorter runway versus a longer runway. As expected, high-performing aircraft reach a turnback-possible condition sooner than lower-performing aircraft. Also note that if the climb angle is less than the glide-back angle, the result can be reaching a turnback-possible condition for a period and then exiting that condition back to a negative turnback condition. This can occur even for shallow (low-performance) climbs on long runways (see red profile in the figure below). These examples presuppose a straight-ahead climb and departure. One way to improve the likelihood of reaching a turnback-possible condition would be to execute a turn shortly after takeoff while remaining close to the runway (such as a turn to a downwind departure) or even spiral up over the runway.

TURNBACK LIMITATION A calculated turnback is decision support, not a guarantee of a safe maneuver. Before relying on it, verify the aircraft Emergency Settings, current loading, active LZ, weather, climb profile, and the selected Emergency AOB.

Using Emergency mode

TLAR's Emergency mode has two sub-modes. On the ground, TLAR predicts the ability of your plane to conduct a turnback shortly after takeoff. In flight, TLAR continuously evaluates the ability of your plane to conduct an engine-out glide to the active runway. Even though its roots come from computing an engine-out glide-back on takeoff, this capability works just as well in cruise flight. It is an Expert feature. Before arming it, load a precise active LZ, verify the aircraft Emergency Settings, confirm the current weather and aircraft loading, and select the intended climb profile. Emergency mode is not a substitute for a practiced emergency procedure, aircraft control, or the pilot's judgment about terrain, obstacles, airspace, traffic, and landing areas.

Tap the EMRG button at the bottom of the Map to turn Emergency mode on or off. TLAR uses Predictive mode on the ground and automatically changes to Dynamic mode when the aircraft is flying. The full-screen examples in this section show the Map together with the Takeoff and Land tiles, which lets the pilot relate the emergency cues to the current takeoff, climb, and landing assumptions.

NOTE Screenshots in this section were made using TLAR's Emergency Simulation tile. The symbology is identical to what TLAR displays on the Map tile during a live takeoff, except the Map tile does not show "SIMULATING," "PAUSE," or "STOP," as the Emergency Simulation tile does.

Predictive mode: planning before takeoff

On the ground, TLAR computes a 5NM track-distance departure route using the set climb profile and current/entered conditions. The departure can be straight ahead, or you can place a right/left turn at a specified distance from liftoff using the departure controls on the back of the Map and Emergency Sim tiles. The yellow X is the latest point at which TLAR predicts the aircraft can still stop or land straight ahead on the runway. If the X is before liftoff, it is the latest abort point before liftoff. If it is beyond liftoff, it is the latest point from which a straight-ahead engine-out return to the runway is predicted to be possible.

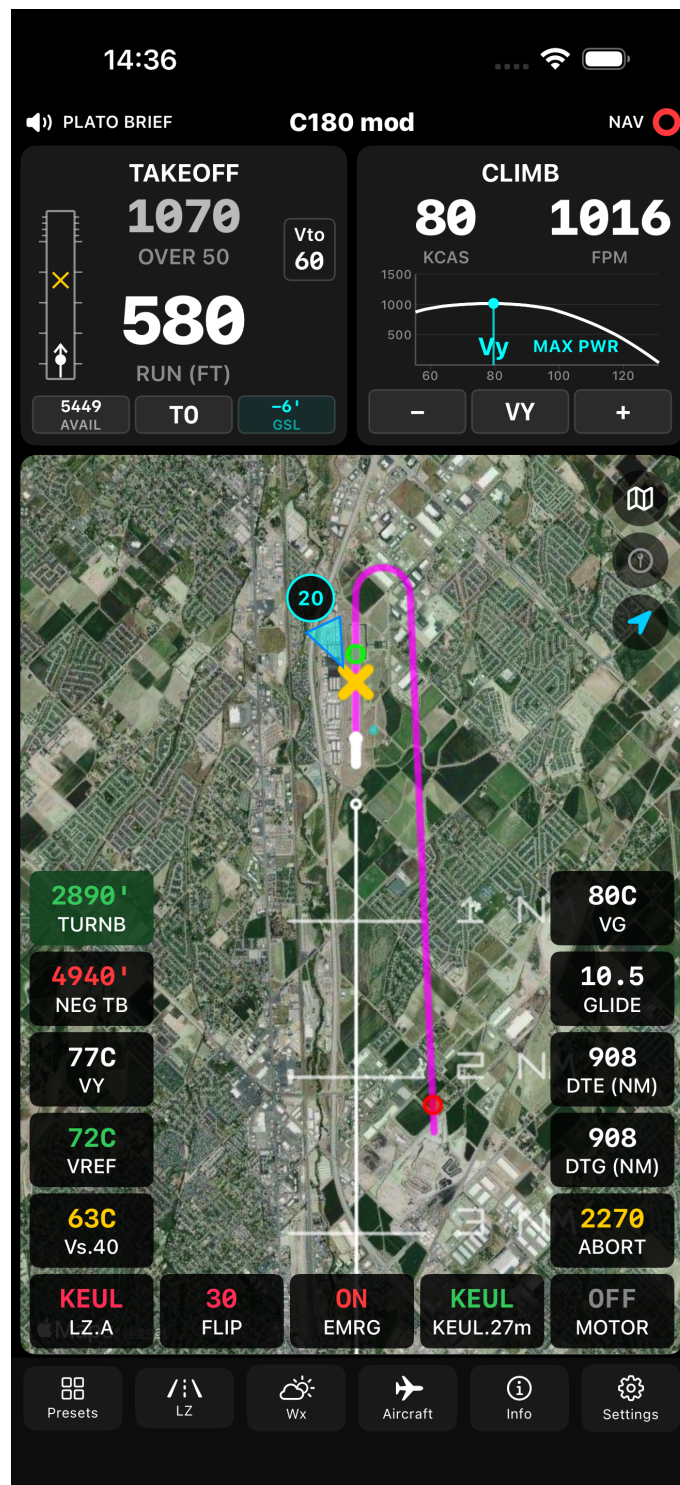


Figure 66. Predictive emergency display with a right-turn departure route. TLAR uses the selected departure route when computing the 5-NM predictive profile.

Tap the Map or Emergency Sim tile to open its back. In Departure Profile, choose L, Straight, or R. For a left or right departure, use the – and + controls to set the turn distance from liftoff and the target magnetic track. Straight disables those two settings. TLAR models the configured turn at 30° bank; the turn distance counts toward the 5-NM track-distance budget.

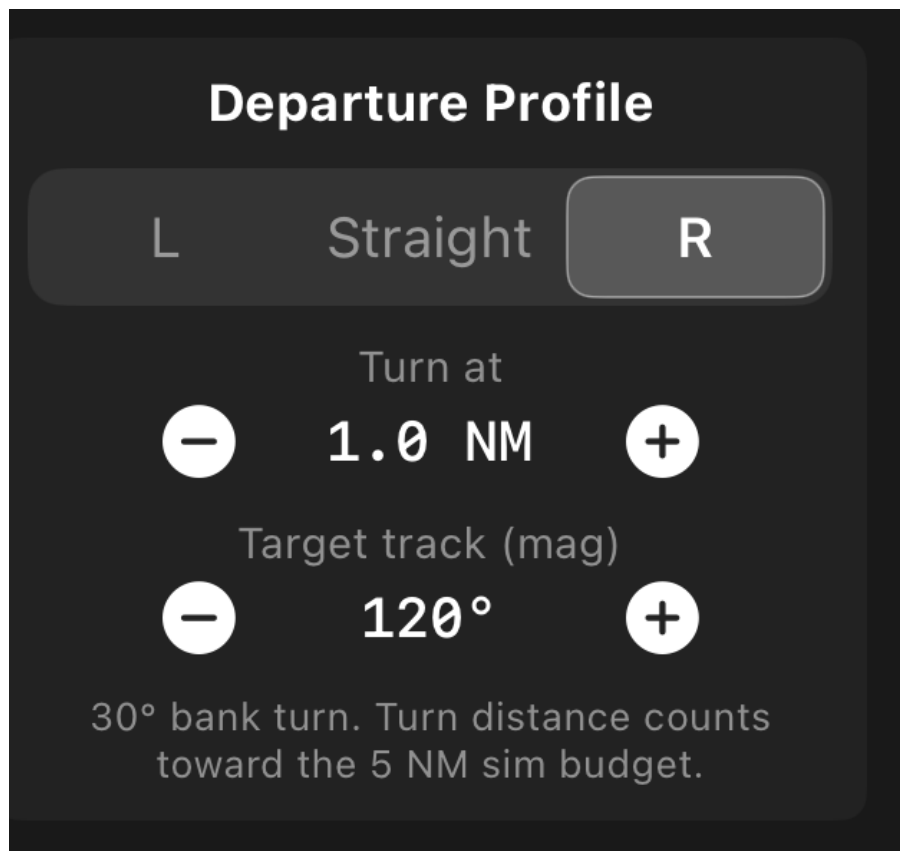


Figure 67. Departure Profile controls on the Map tile back. Select the turn direction, turn distance, and target magnetic track.

Takeoff Tile. With Emergency mode armed, the Takeoff tile adds the yellow X to its runway graphic. It marks the last point at which TLAR predicts that the airplane can stop, or land straight ahead and stop by the departure end, using the brake setting selected on the Land tile. The normal arrow still shows the takeoff-over-fence distance and the dot shows the predicted liftoff point.

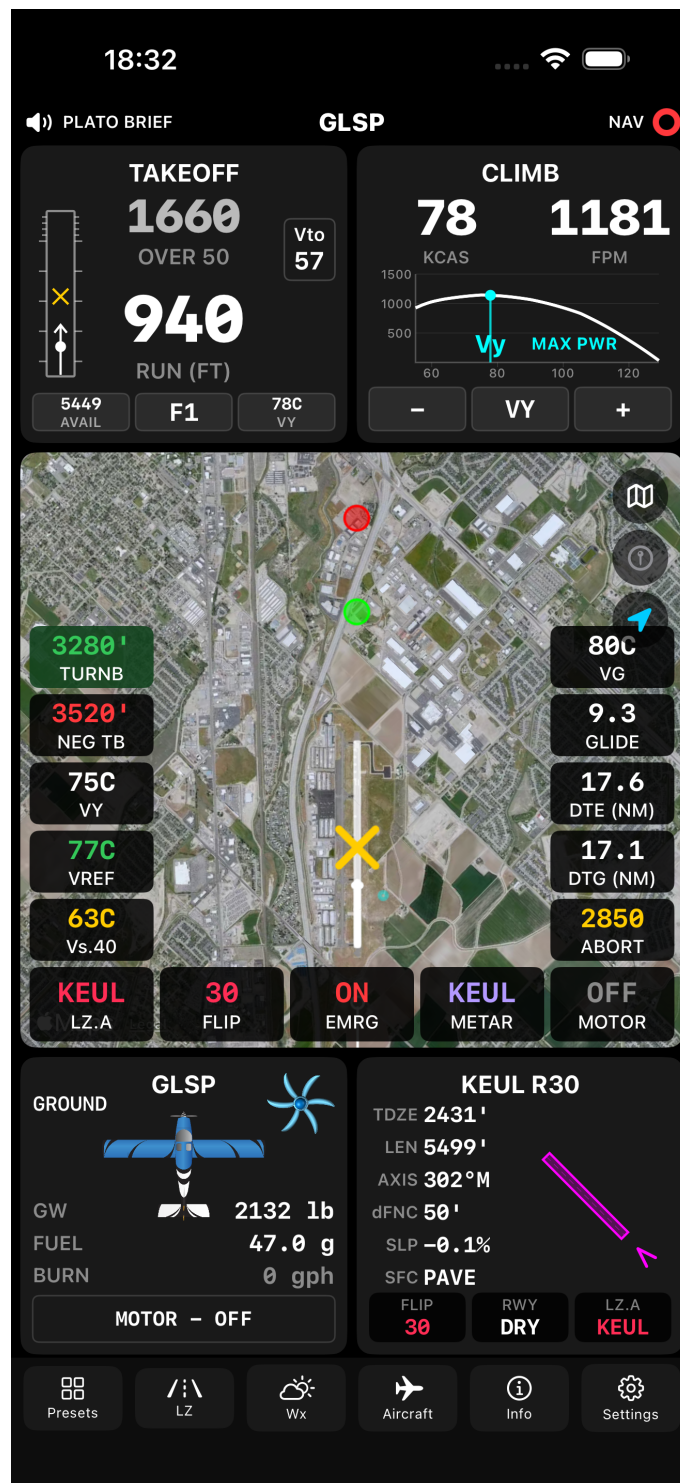


Figure 68. Emergency-mode planning display. The yellow X is the latest abort/straight-ahead point; the green dot is the earliest predicted turnback point, and the red dot marks where a previously possible turnback is predicted to become unavailable.

The green dot is the earliest location where an engine-out turnback is predicted to be possible. TURNB shows the corresponding altitude. When a continued straight-ahead climb later leaves the turnback-capable region, TLAR draws a red dot and shows NEG TB. If no turnback is predicted, TLAR shows no green dot and TURNB reads N/A. These predictions change with aircraft configuration and performance, glide data, weather, weight, selected climb profile, Emergency AOB, and Vref settings; there is no single turnback altitude that applies to every takeoff.

Dynamic mode: live engine-out guidance

Once flying, TLAR re-evaluates the aircraft's actual position, altitude, speed, track, wind, and current emergency configuration at least once per second. It does not continue to assume the selected climb profile. The display first identifies whether a straight-ahead landing is available, then shows either a glide footprint or a computed route to a landable point on the active LZ.

Land Tile. While flying in Emergency mode, the Land tile replaces normal OVER XX with AHEAD / threshold crossing height (TCH), the predicted height above ground at the runway aimpoint. In Emergency mode, TLAR selects flaps up for landing as this is the best gliding configuration. TLAR also changes the set FPA to the engine-out glide angle. TCH is green when it exceeds the altitude loss for a 360-degree turn at the selected emergency bank angle, yellow when it is above the selected fence height but below that 360-degree margin, and red when it is at or below the fence height. The runway graphic shows the aimpoint: a green dot and cyan arrow show a reachable aimpoint and the predicted braking roll; a red dot shows the best aimpoint when the active LZ is not reachable. ROLL uses the predicted braking distance for the direction of the emergency landing.

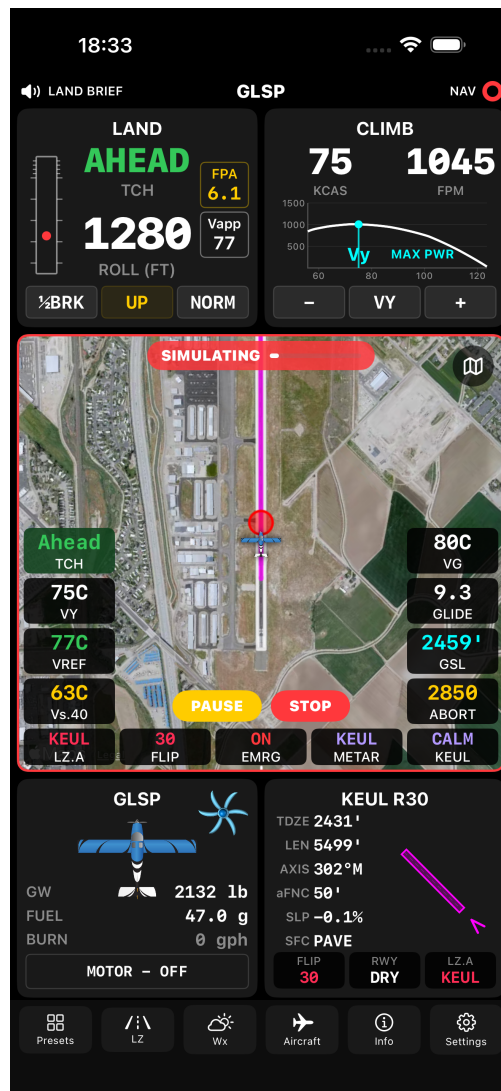


Figure 69. AHEAD indication. A green AHEAD on the Land tile means TLAR predicts that a straight-ahead runway landing is possible from the current state.

TLAR displays AHEAD when it assesses that you can stop straight ahead on the runway.

GPS elevation correction

For a precise active LZ, TLAR automatically calibrates a GPS-elevation correction while the aircraft is stopped on the runway. It compares a running average of the device's GPS-derived altitude with the known runway elevation at the aircraft's location. TLAR obtains that known elevation by interpolating between the approach- and departure-end elevations, so runway slope is included in the correction. This correction is displayed on the GSL chicklet in parentheses (eg "GSL (+9)")

When the aircraft moves, calibration stops and the latest correction remains active during the flight. It is cleared when a new LZ loads, precise location is turned off, or telemetry is in use. TLAR applies the correction to the altitude-above-runway calculations that support Emergency mode; it does not change the flight instruments or the GPS altitude displayed elsewhere in the app.

Off Field and Glide footprint

Once a straight-ahead abort is no longer possible, TLAR will announce "Off Field" and draw a cyan, wind-corrected glide footprint around the aircraft. It is an estimate of the area the aircraft can reach with the current engine-out glide assumptions. The footprint is not terrain-, obstacle-, or airspace-aware, and it does not by itself prove that a runway return can be completed.

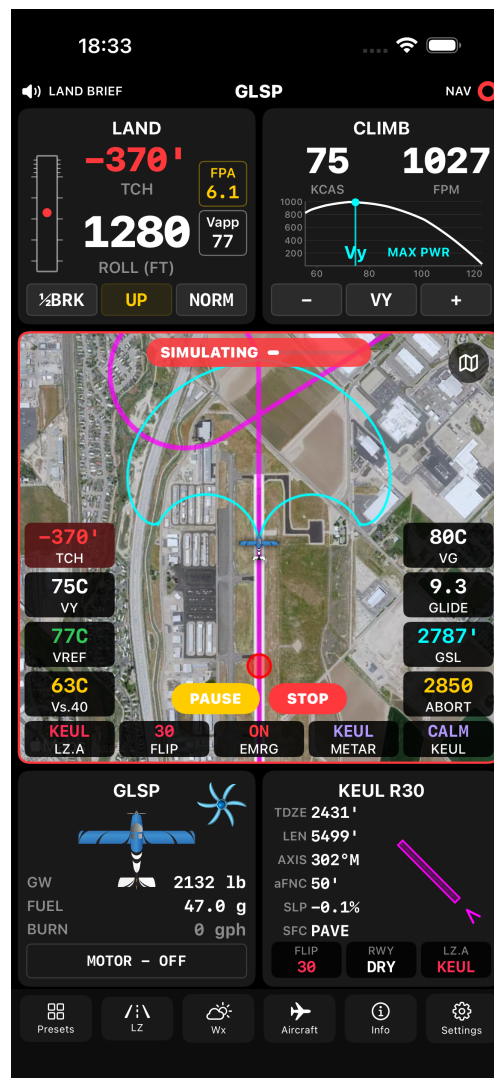


Figure 70. Glide footprint. The cyan outline shows the current wind-corrected engine-out reach estimate while the runway is not yet a viable return.

A runway may fall within the footprint before a turnback is actually viable. TLAR must also allow for the turn needed to align with a landable point on the runway; that turn increases sink rate and reduces glide range. TLAR therefore changes from the footprint to a route only when its engine-out calculation identifies a landable runway point after including the required turns.

Turnback Possible

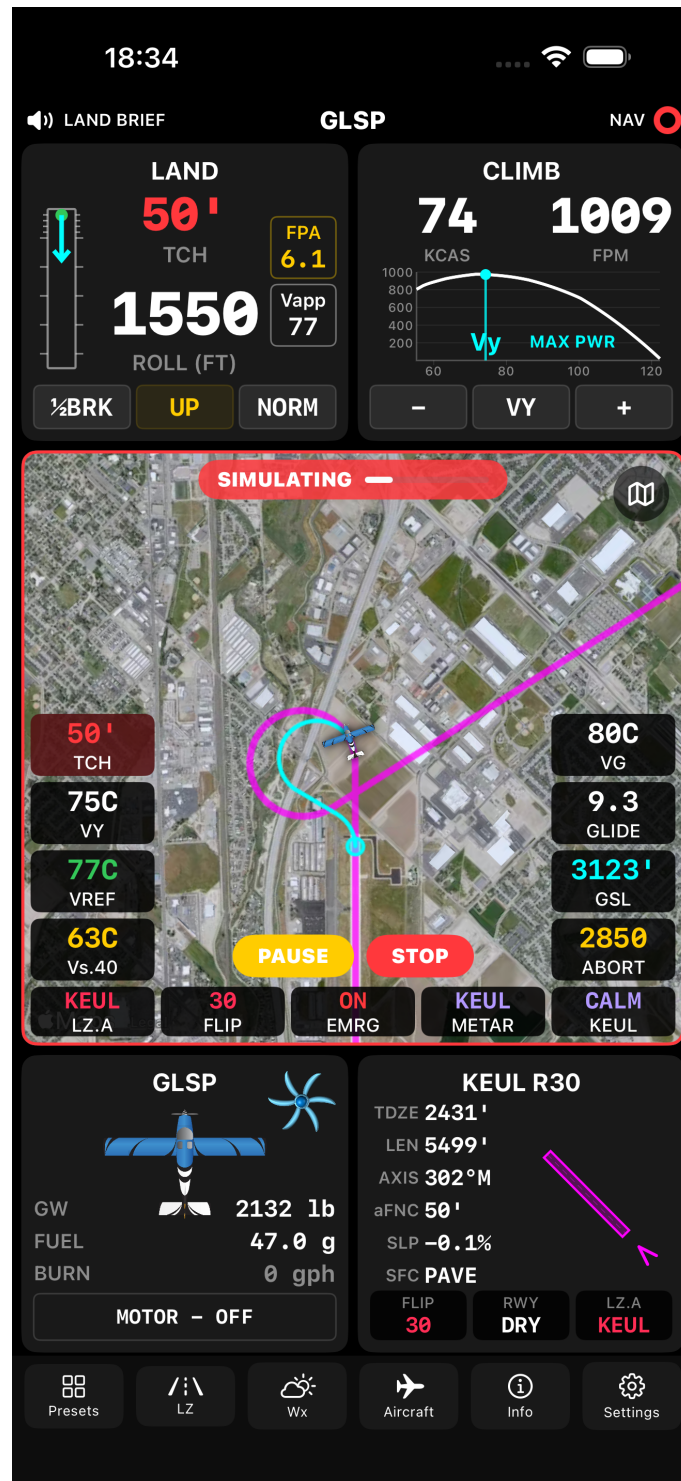


Figure 71. Computed turnback route. When a runway return is predicted to be viable, the footprint is replaced by the cyan route and the Land tile shows predicted threshold-crossing height (TCH).

TLAR announces “Turnback possible” when it computes that a turnback is possible and displays a cyan-colored route back to the runway on the Map.

The cyan route is the computed glide path, including turns, to the selected landable point on the active LZ. Threshold crossing height (TCH) is the predicted altitude above ground that you would arrive at the runway aimpoint after an engine-out turnback/glide to that point. It assumes a V_{ref} speed glide using the selected bank angle and factors in current aircraft and environmental conditions. There is also an adjustment for the current energy state. Caution - TLAR does not consider terrain, airspace, or traffic in the emergency turnback route.

NOTE The glide route is drawn on the screen without wind effects, but the math behind the TCH calculation and declaration of “turnback possible” is wind aware.

CAUTION TLAR will declare Turnback Possible as soon as the predicted TCH is greater than zero, even if a fence height is set. In many cases, a turnback glide will cross the runway somewhere midfield rather than at the departure end. The app defaults to a 50-foot fence height, but most airports do not have a significant obstacle at the departure end.

Negative Turnback

During a turnback, TLAR continuously recomputes TCH. iOS has an approximate three-second lag in track during turns. TLAR includes a correction to remove most of this error, but it is not perfect. In flight testing, TCH tends to decay in the early part of a turn and recover in the latter part. If TCH decays below negative 20 feet during the turnback and more than 60 degrees of turn remain, TLAR will announce “Negative Turnback.” As always, it is up to the pilot to determine the best course of action.

Emergency Mode in Cruise Flight

In Emergency mode and while flying, TLAR constantly evaluates whether the plane can glide to a land-able point on the active LZ, including turns or a turnback. This means that if you turn on Emergency mode during cruise and/or at altitude, TLAR will display the same glide footprint or route to a land-able point on the active LZ, along with computed TCH.

If TCH is high enough to require at least one 360-degree turn to “burn excess altitude,” TLAR will draw a circle corresponding to the turn radius at V_{ref} and selected bank angle that intersects the best land-able point on the LZ.

Special Features

This chapter covers features that extend TLAR beyond the normal planning and flight-display workflow. Feature availability depends on the installed subscription level. When a control is not available at your level, TLAR identifies the level required in the relevant menu.

New UI and Legacy UI Switching

TLAR retains the legacy interface for existing users while the new tile-based interface is introduced. On launch, an existing user can select Legacy or New. New customers on iOS 17 or later open directly into the new interface.

To return to the legacy interface from the new interface, open Settings and use Switch to Legacy UI. Existing users can also turn on Always boot to new UI in Settings to skip the selection prompt at future launches. The setting affects which interface TLAR opens; it does not delete LZs, aircraft settings, or other saved TLAR data.

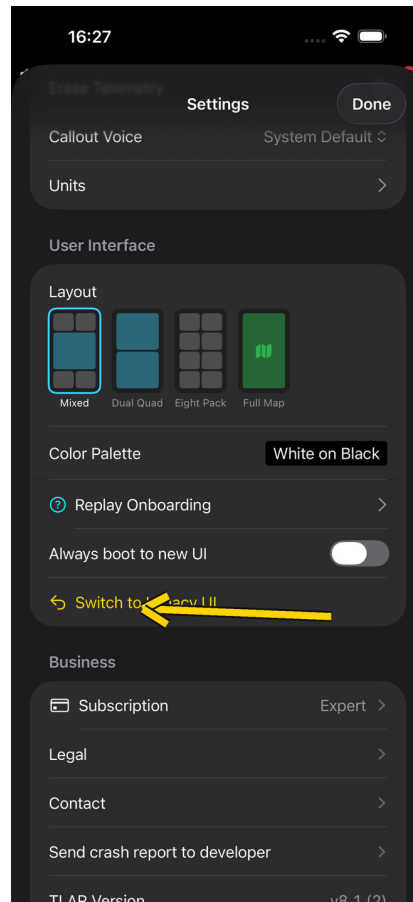


Figure 72. New interface Settings. Tap Switch to Legacy UI to open the legacy interface.

In the legacy interface, tap the cyan NEW UI control along the bottom of the Performance, Big Sky, or HUD display to return to the new tile-based interface. These three legacy screens are shown here in full because this is the only section of the new-interface guide that documents the legacy display.

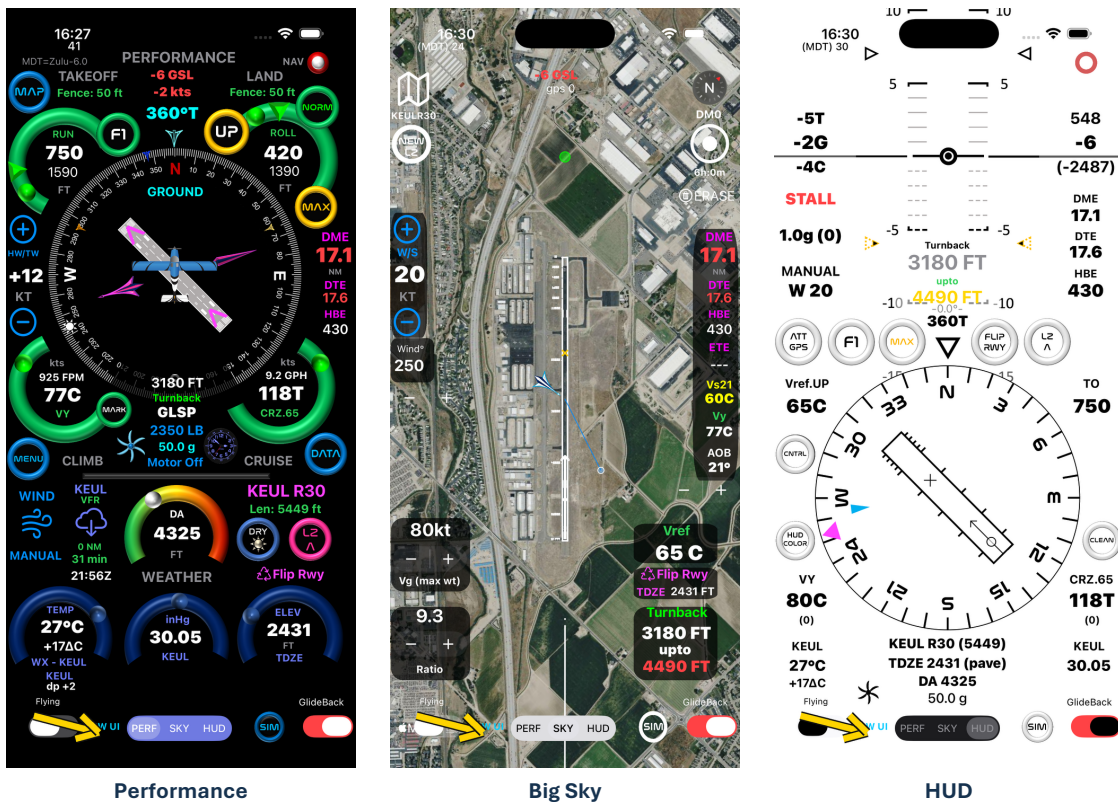


Figure 73. Legacy interface return controls. Tap the cyan NEW UI control (arrowed) on any of these full-screen legacy displays to return to the new interface.

Simulate Flying

The Simulate > Flying switch in Aircraft Settings injects a false groundspeed to trick TLAR into its flying state. It is useful for learning the airborne display, checking how tiles change after liftoff, and evaluating an LZ or flight setup at a desk. Turn the switch off when finished so TLAR returns to normal GPS-derived ground/flying detection. TLAR disables this setting if actual groundspeed exceeds the predicted takeoff groundspeed, preventing an actual flight with a false groundspeed.

SIMULATION NOTE Simulate Flying changes TLAR's flight-state logic; it does not supply a simulated position, attitude, or weather feed. Use the X-Plane interface when you need TLAR to follow an actual flight simulator in real time.

Debrief

Debrief (BETA) records a compact summary of the most recent takeoff and landing. It is available in two forms. Add the 1x1 Debrief tile through the tile picker for a quick read-only dashboard summary. Open Aircraft Settings > Debrief (BETA) for the full report.



Figure 74. Debrief 1×1 tile. Add it to any compatible dashboard position for an at-a-glance summary of the latest takeoff and landing.

The tile shows the recorded takeoff and landing identifiers and times, followed by a compact four-line summary: T/O, HBE (height by end), BRK (braking), and LAND. It is intended to tell the pilot that a debrief record is available; use the full report when you need the captured details.

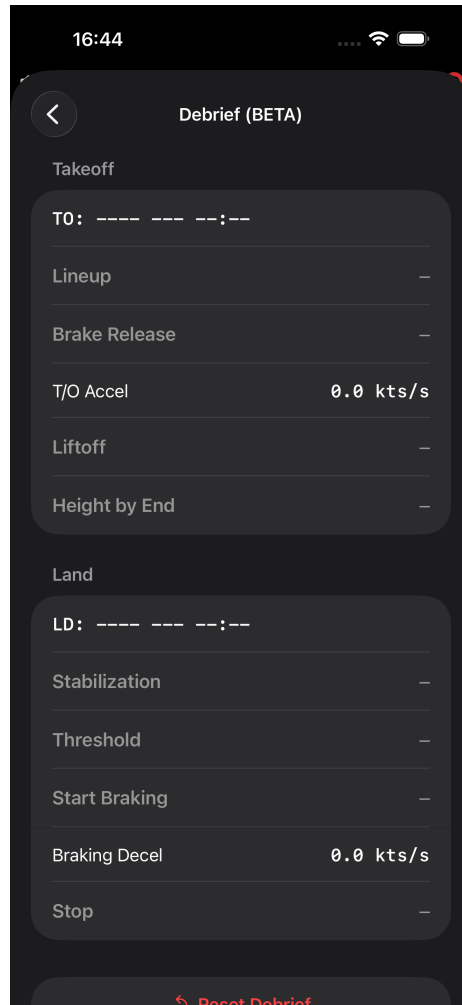


Figure 75. Full Debrief report, opened from Aircraft Settings > Debrief (BETA).

The full report records Lineup, Brake Release, T/O Accel, Liftoff, and Height by End for takeoff. For landing it records Stabilization, Threshold, Start Braking, Braking Decel, and Stop. Each phase shows its captured

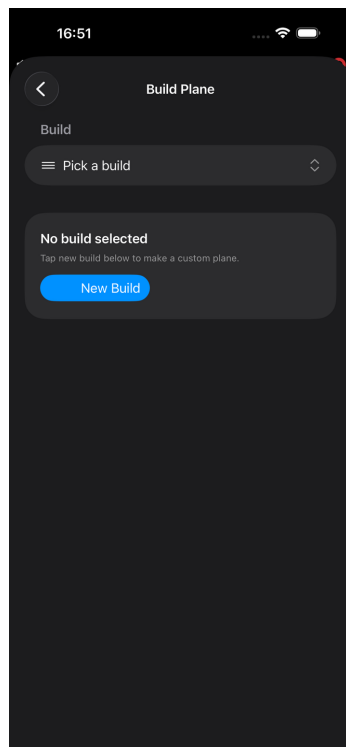
values and status, allowing the pilot to compare the actual event with the setup and predicted performance used by TLAR. Use Reset Debrief at the bottom of the full report to clear the captured takeoff and landing metrics before a new evaluation.

Build Custom Planes

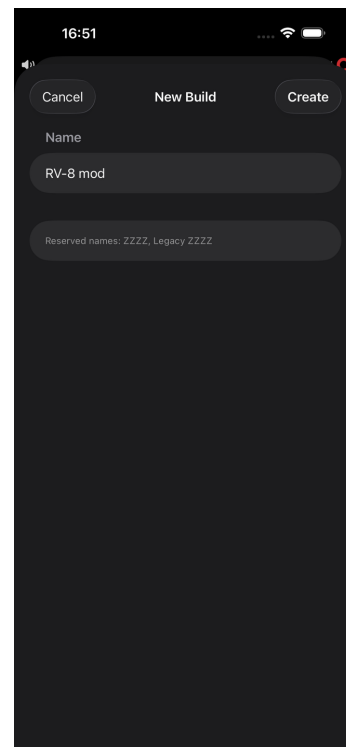
Expert users can create a custom aircraft from Aircraft Settings > Build Plane > Build Custom Aircraft. A custom build is a performance model, not simply a label or a collection of V-speeds. Build it from reliable POH, AFM, manufacturer, and flight-test data, then compare TLAR's results with the actual aircraft under matching conditions before operational use.

Create and select a build

Open Build Custom Aircraft, then tap New Build. Give the build a useful, unique name and tap Create. TLAR reserves the names ZZZZ and Legacy ZZZZ because they are used for the legacy custom-aircraft path. The Build picker at the top of the screen lists every saved custom build; use it to change builds, create another one, or delete the current build.



1. Tap New Build



2. Name it and tap Create

Figure 76. Starting a custom aircraft build. Each build is separately named and saved.

To delete a build, open the Build picker, tap Delete, then confirm the permanent removal. Deleting the custom build currently loaded as the aircraft returns TLAR to the C172S stock aircraft. A Legacy ZZZZ entry is different: Delete stops TLAR from importing its legacy mirror; it does not delete the legacy ZZZZ aircraft. You can restore that import later from Aircraft Settings.

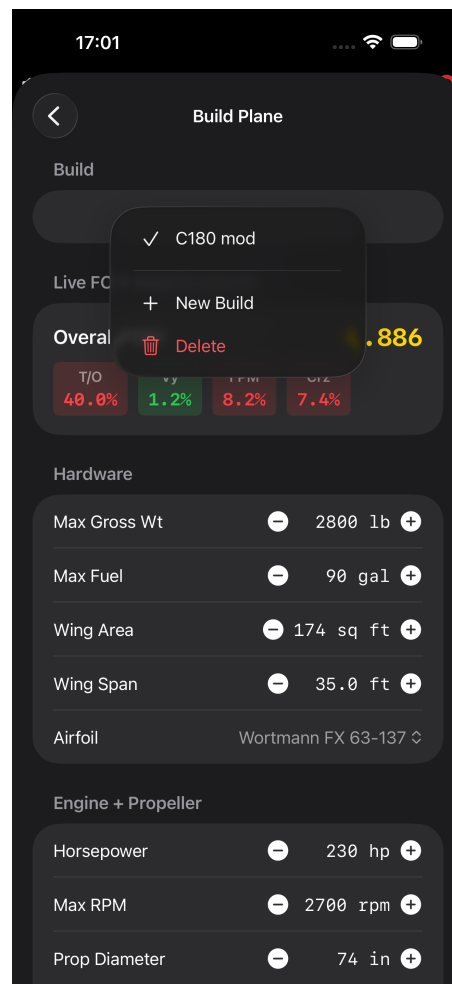


Figure 77. Deleting a custom build. Open the Build picker, tap Delete, and confirm the permanent removal.

Enter the aircraft data

The builder uses plus and minus controls to enter the airframe, engine/propeller, speed, and performance targets below. Enter values for the exact configuration you want TLAR to model. The POH performance section is explicitly sea-level, standard-day data; use values published for that reference condition, not results from a different weight, density altitude, flap setting, or power setting.

Section	Required data
Hardware	Maximum gross weight, maximum fuel, wing area, wing span, and an airfoil selection.
Engine + Propeller	Installed horsepower, maximum RPM, propeller diameter, and whether the propeller is constant speed.
POH Speeds	Clean, takeoff-flap, and full-flap stall speeds; liftoff speed; Vy; 75-percent cruise true airspeed; and the density altitude used for that cruise target.
POH Performance	Takeoff run, Vy rate, and landing roll at sea level on a standard day.

Hardware and engine/propeller

POH speeds and performance

Figure 78. Custom-aircraft inputs. Use source data that describe the same aircraft configuration and reference condition.

Live FOM and aerodynamic guard rails

As you edit a build, TLAR runs a live hybrid search after a short pause and displays an Overall Figure of Merit (FOM), together with separate error chips for takeoff, V_y , climb rate, and cruise. The FOM is one minus the average fractional error between TLAR's computed result and the entered target for those four measures. A value closer to 1.000 means a closer match. Individual chips are green below 2-percent error, yellow from 2 to less than 5 percent, and red at 5 percent or more. Overall FOM is green at 0.950 or higher, yellow from 0.800 to less than 0.950, and red below 0.800.

The live calculation uses a coarse search followed by two bounded refinement searches, allowing you to see the likely fit while entering values. It is a working estimate, not the validation result. A live FOM below 0.80 warns you to review the entered targets and use Save & Validate for the full search.

The screenshot shows the 'Build Plane' interface on a mobile device. At the top, the status bar shows 16:51. The app title is 'Build Plane'. Below it, the 'Build' section shows 'RV-8 mod'. The 'Live FOM (hybrid search)' section displays an 'Overall FOM' of 0.886. Below this, four chips show performance metrics: T/O at 40.0%, Vy at 1.2%, FPM at 8.2%, and Crz at 7.4%. The 'Hardware' section includes sliders for Max Gross Wt (2800 lb), Max Fuel (90 gal), Wing Area (174 sq ft), and Wing Span (35.0 ft), along with an Airfoil selection of Wortmann FX 63-137. The 'Engine + Propeller' section includes sliders for Horsepower (230 hp), Max RPM (2700 rpm), and Prop Diameter (74 in).

Figure 79. Live FOM. The Overall FOM and four chips show how closely the current aerodynamic model matches the entered takeoff, Vy, climb-rate, and cruise targets.

TLAR also posts non-blocking sanity warnings when the input combination falls outside empirical piston-aircraft ranges: wing loading 5–30 lb/sq ft, installed horsepower-to-weight 0.04–0.20 hp/lb, or static propeller-tip Mach 0.60–0.95. These warnings are guard rails, not proof that a combination is correct. The selected airfoil’s aerodynamic data must also be capable of producing the entered stall speeds; a physically impossible wing/stall-speed combination cannot form a valid aerodynamic model.

Validate before activation

Tap Save & Validate when the entered data and live FOM look reasonable. TLAR then runs its full 960-case brute-force search, the same validation approach used by the legacy custom-aircraft workflow. It searches the bounded aerodynamic parameters that shape induced drag and propeller efficiency, then recomputes the model against the entered takeoff run, Vy, Vy rate, cruise, and landing-roll targets. This full search, rather than the live estimate, is the trust anchor for activating a custom aircraft.

A build passes only when its combined model is valid and its average FOM exceeds 0.80. A successful result turns Save & Validate green, saves the build, records the validation time, and enables Activate as Aircraft. If the FOM is below 0.80, TLAR saves the build but leaves it unvalidated; review the POH targets and inputs, correct the mismatch, and validate again. TLAR will not enable activation of an unvalidated build.

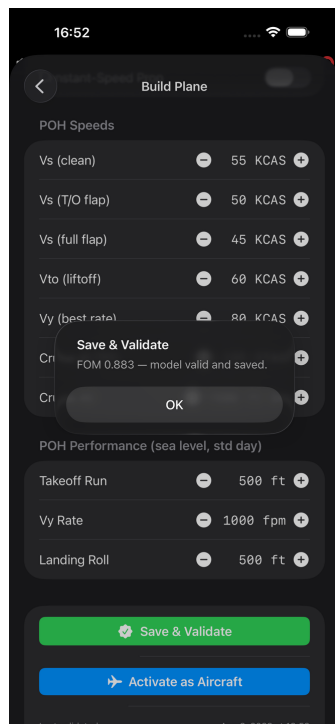
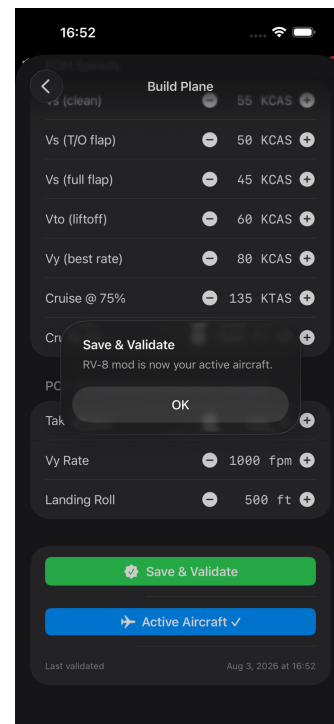
**Validated and saved****Active aircraft confirmed**

Figure 80. Validate first, then activate. The active-aircraft control remains unavailable until the validation pass succeeds.

Saved builds, selection, and sharing

Custom builds persist across app launches. You can create and retain several builds, then select one from Aircraft Settings > Aircraft; TLAR lists them in the Custom Builds section beneath the stock aircraft. Selecting a validated custom build makes it the active aircraft and loads its model into TLAR. Reopen Build Custom Aircraft at any time to select and revise a saved build. A legacy ZZZZ build may appear as a read-through mirror; duplicate that entry before editing it.

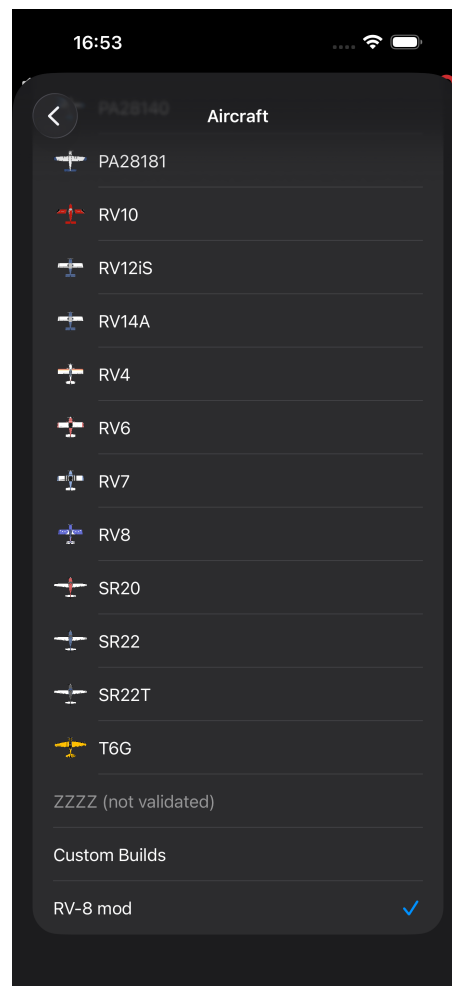


Figure 81. Aircraft picker. Saved custom aircraft appear in the Custom Builds section and can be selected like stock aircraft.

A validated active custom build can be shared from the Share Custom Aircraft section in Aircraft Settings. TLAR can share the build through the iOS share sheet or send it to Flight Lead. See Sharing Data for the receiving pilot’s import and review process.

CUSTOM-AIRCRAFT CAUTION Validation means the model has matched the entered targets within TLAR’s acceptance gate; it does not validate the source data, the aircraft, a modification, or a particular flight. Compare TLAR predictions with actual aircraft performance in comparable conditions before using a custom build operationally.

Telemetry and Data Marks

Telemetry recording is an Expert feature. TLAR automatically records a 1 Hz telemetry row while the aircraft is on the active runway or flying. The recording buffer holds up to six hours. Add the DATA MARK chicklet to a compatible tile to see its state: the chicklet reads REC in red while TLAR is recording and FULL when the buffer is full.

While recording, the DATA MARK chicklet logs a numbered mark at the current point in the flight record and TLAR announces the mark number. Tap the chicklet to stamp the telemetry output rows with a new reference number. Data marks count up. The first is 1, second is 2, so on and so forth. Use this to make it easier to find a particular maneuver, configuration change, test point, or event in the resulting 1 Hz telemetry file. If telemetry is not recording, tapping DATA MARK produces a “Not recording” callout and no mark is stored.

To erase the current telemetry buffer, open Settings and tap Erase Telemetry, then tap Erase in the confirmation dialog. This removes every recorded row and resets the data-mark count to zero. Export, share, or review any data you need before confirming; the erase cannot be undone.

NEXRAD Weather Radar

Weather tile

The 2×2 Weather tile places animated NEXRAD precipitation imagery on a north-up compass display. It is available in the United States for Expert subscribers and remains centered on the aircraft. The cyan wind arrow shows wind direction and speed. The sun symbol is plotted at the current sun azimuth; the number inside it is sun elevation in degrees, negative when the sun is below the horizon.

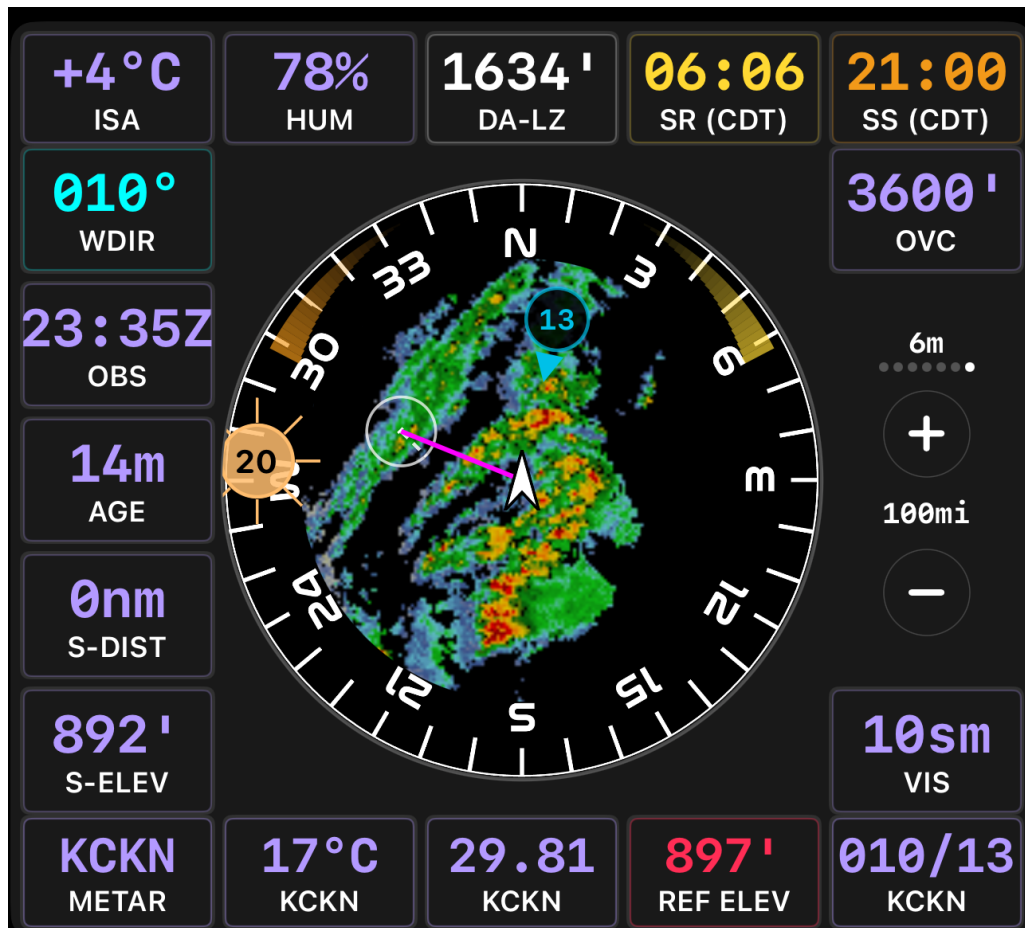


Figure 82. Weather tile front. The compass contains the radar image, wind and solar symbology, the active-LZ overlay, radar-time indicator, and range controls.

Use + and – at the right of the display to step through the radar range. The selectable ranges are AUTO, 200, 100, 50, 25, 10, and 5 statute miles. Tap the range label to return to AUTO. With an active LZ, AUTO sizes the display to include the aircraft-to-LZ distance, the LZ’s 10 NM ring, and a small margin; without an active LZ it uses 200 miles. The age above the range controls is the age of the displayed radar frame. The dots beneath it show the loaded frames and the currently displayed point in the animation cycle.

When an LZ is active, the weather tile draws a magenta line from the aircraft to the approach end. It also draws the runway, a dashed 10 NM run-in extending from the approach end, and a 10 NM ring centered on that approach end. These are geographic overlays on the radar display; they help put precipitation in relation to the active runway and its approach path.

NEXRAD intensity and sensitivity

The NEXRAD image is intentionally filtered for aviation usefulness rather than presented as an unmodified reflectivity product. TLAR masks the light-blue, turquoise, and most green-family returns that commonly correspond to low reflectivity—bird and insect returns, ground clutter, and drizzle—then retains the yellow-green-through-white portion of the N0Q palette. The cutoff is tuned at approximately 20 dBZ. This is a noise-reduction display choice, not a calibrated onboard weather-radar scale.



Figure 83. NEXRAD display legend. Low-intensity returns are filtered; displayed colors indicate increasingly stronger precipitation.

The tile loads up to seven frames spanning roughly the preceding 30 minutes, and refreshes radar data periodically. Internet availability, source timing, image processing, and display refresh all introduce delay. Use it with current weather reports, onboard observations, and all available weather information; do not use it as the sole basis for thunderstorm or convective-weather decisions.

Weather tile back side

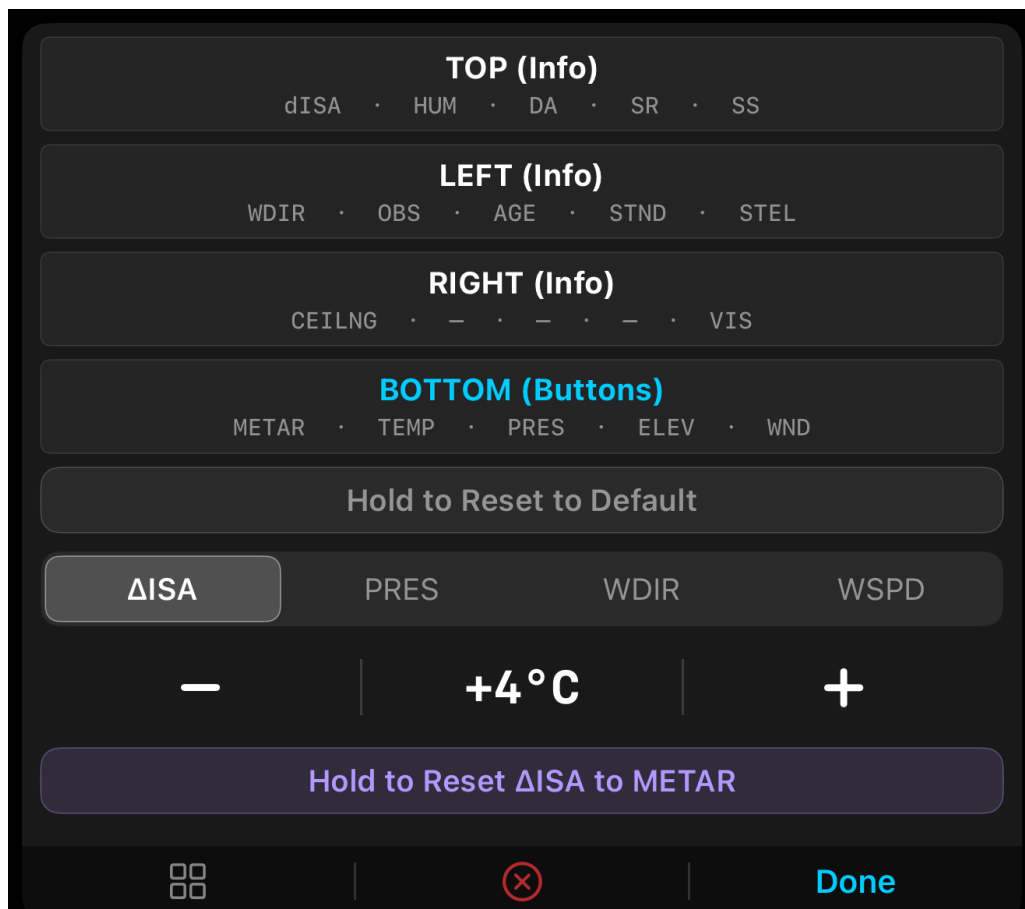


Figure 84. Weather tile back side. Use the upper controls to select chicklets and the lower panel to make a weather override.

Tap the tile to flip it. On a 2×2 Weather tile, the TOP, LEFT, and RIGHT rows select information chicklets; the BOTTOM row selects button chicklets. Tap a row, choose a position, and select the desired chicklet. Hold Reset to Default to restore the standard layout. The 1×1 Weather tile uses a fixed chicklet arrangement and therefore does not show this selector.

The lower override panel controls ΔISA, pressure, wind direction, and wind speed. Tap the desired parameter, use – or + to change it, then hold the Reset control to return that one parameter to the METAR value. These controls create a manual weather override for the selected value; verify the displayed source and value before relying on a resulting performance calculation.

Sharing Data

TLAR shares Landing Zones, dashboard presets, and custom aircraft as TLAR files. Select a sharing method from the iOS share sheet, then have the receiving pilot open the received file in TLAR. TLAR presents an import sheet that identifies the type of item, shows the available details and validation warnings, and lets the receiver import it or cancel. Import capability follows the receiving pilot's subscription: Basic cannot import shared LZs or presets; Pro can import LZs and presets but cannot import custom aircraft; Expert can import all three types.

Share Landing Zone

Tap LZ in the bottom navigation bar to open Landing Zones. The Share Alpha and Share Bravo controls at the bottom share the runway currently loaded in that slot. Tap the control for the slot you intend to send, then choose a delivery method in the iOS share sheet. Share an LZ only after verifying its runway identity, coordinates, elevations, surface, and current operational suitability.

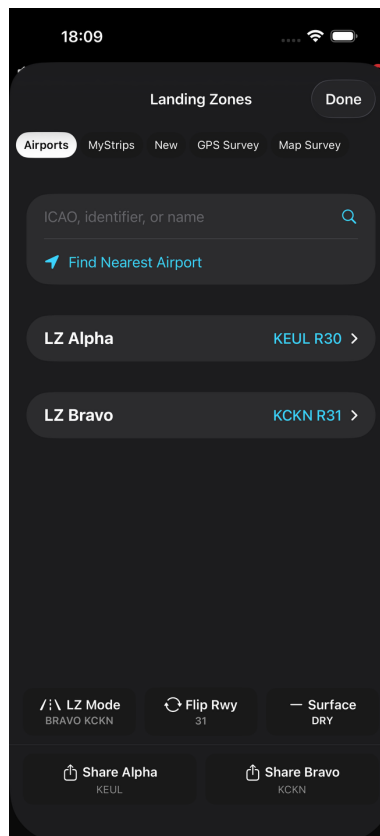


Figure 85. Landing Zones sharing controls. Tap Share Alpha or Share Bravo to send the LZ loaded in that slot.

Share Presets

Tap Presets in the bottom navigation bar to open Dashboard Presets. Each saved preset has a share icon directly beneath it; tap that icon to send that preset through the iOS share sheet. The preset panel also reminds you that tapping a preset loads it and long-pressing a preset saves the current layout to it. A shared preset carries its dashboard arrangement and associated preset configuration, not a complete copy of the sender's aircraft, LZ, or weather state.

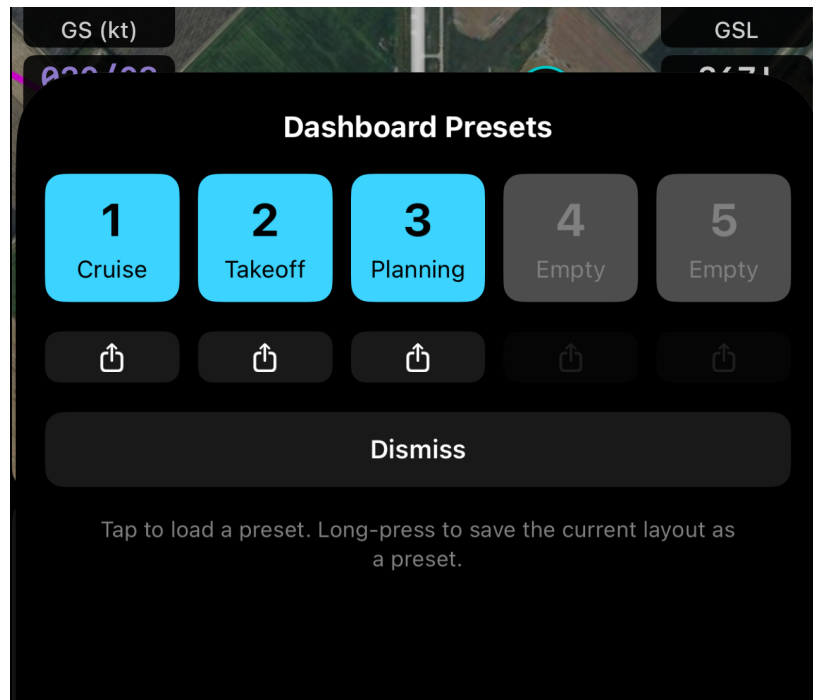


Figure 86. Dashboard Presets. Tap the share icon under a saved preset to send that preset.

Share Custom Planes

Open Aircraft Settings and scroll to Share Custom Aircraft. This Share Aircraft menu is visible only when the custom aircraft you want to share is the active loaded aircraft. If a receiver already has a build with the same name, TLAR offers an overwrite choice or a new unique name, allowing several versions or aircraft-specific builds to be retained.

Tap Share Aircraft to choose a delivery method in the iOS share sheet, or Send to Flight Lead to send the build to us (the app developer: Owyhee Aviation LLC). The custom aircraft remains subject to the validation and operating cautions in Build Custom Planes; importing it does not validate the source data or the recipient's aircraft.

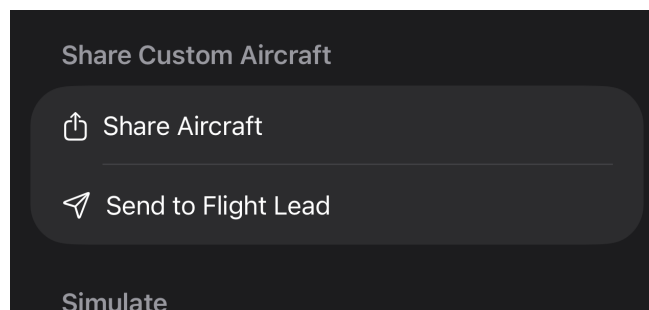


Figure 87. Share Custom Aircraft in Aircraft Settings. Choose Share Aircraft or Send to Flight Lead.

SITREPs

Settings > Send SITREP creates a short Situation Report containing the current TLAR flight-state summary for sharing or logging. Pro users can send the report without telemetry. Expert users are asked whether to include telemetry before the report is created. Review the destination selected in the iOS share sheet and the information being sent, particularly when the report includes operational or location data.

The example below is a SITREP sent without telemetry. Its content reflects the current TLAR state at the time it is created, including flight progress, position, weather source and values, and any available remarks.

```
TLAR SITREP
Time: 11:09:56 Mountain Daylight Time

---Flight Progress---
Status: GROUND
Position (Lat,Long):
47.719610°, -115.251564°
Altitude: 2883 ft
Ground speed: 0 kts
Track: 184.9° True

---Weather---
Station: KEUL
Time: 16:56Z
Station Distance from GLSP: 65 nm
(Caution distance)|
Wind: 0°/3KT (NOAA)
Temp: 15°C / delta +0.0° (Pilot entered)
Pressure: 29.92inHg (Pilot entered)
Flight Category: VFR
Cloud levels:

---Remarks---
```

Figure 88. Example SITREP without telemetry.

Telemetry Export Fields

When an Expert user includes telemetry with a SITREP, TLAR appends a comma-separated, one-Hz data file. The exported field names and their current meanings are listed below. Fields sourced from optional sensors or external data feeds can be zero or unavailable when that source is not in use.

Export field	Description
row	Sequential telemetry row number.
dm	Data Mark reference number set with the DATA MARK chicklet.
elapsedTime	Seconds since the prior TLAR physics update.
HH	Local time hour.
MM	Local time minute.
SS	Local time second.
Lat	Device latitude in degrees.
Long	Device longitude in degrees.
geoAlt	Device satellite-based geometric altitude.
iOSKgs	Device-reported groundspeed, knots.
tlarTrk	TLAR ground-track value.
aircraftDa	Density altitude calculated at the aircraft.
Trk	Device track value recorded by TLAR.

Export field	Description
HdgT	Device true heading.
HdgM	Device magnetic heading.
turnRt	Derived turn rate.
bank	Derived bank angle.
aKgs	Groundspeed acceleration, knots per second squared.
iOSPressure	Pressure measured by the device barometer, inches Hg.
iBaro	Altimeter setting derived from device pressure and geometric altitude.
gpsAltCor	Applied GPS altitude correction, feet.
hError	Device-reported horizontal position error.
vError	Device-reported vertical position error.
sError	Device-reported speed error.
tError	Device-reported track error.
gw	Aircraft gross weight.
cdo	Baseline aircraft drag coefficient.
cdoBias	Pilot-entered drag-coefficient adjustment.
cdp	Windmilling-propeller drag coefficient.
cdpBias	Windmilling-propeller drag-coefficient adjustment.
setAob	Selected bank angle for gliding turns.
hw	Headwind component at the aircraft.
ktas	Computed true airspeed, knots.
kcas	Computed calibrated airspeed, knots.
isFly	TRUE when TLAR identifies the aircraft as flying; otherwise FALSE.
lzLat	Active LZ approach-end latitude.
lzLong	Active LZ approach-end longitude.
trkDtg	Track distance remaining to the approach end, including route turns.
trkFpa	Required flight-path angle to the approach end along the selected track.
fence	Selected fence height.
lzTemp	Temperature at the active LZ.
deltaT	LZ temperature difference from standard day, degrees C.
aircraftTemp	Temperature at the aircraft.
selAlt	Selected altimeter setting.
wdir	Active-LZ wind direction, magnetic.
ws	Active-LZ wind speed.
lzda	Density altitude at the active LZ.
usePlaneDa?	TRUE when TLAR uses aircraft density altitude rather than LZ density altitude.
vRefSelected	Selected Vref.
avrVviFps	Average vertical velocity, feet per second.
AvrVFps	Average ground velocity, feet per second.
eFt	Energy-altitude correction for the current emergency glide geometry, feet.
tch	Predicted threshold-crossing height, feet.
landStAhead?	TRUE when TLAR predicts a straight-ahead landing on the runway is possible.
glideToRwy?	TRUE when TLAR predicts a glide to the active runway is possible.
hudAttSrc	HUD attitude source: GPS, INS, or MIX.
hudPitch	Pitch used by the HUD.
pitAdjust	HUD pitch synchronization adjustment.

Export field	Description
hudRoll	Roll used by the HUD.
rollAdjust	HUD roll synchronization adjustment.
hudFitPath	Flight-path angle used for the HUD flight-path marker.
aoaPitch	Computed angle of attack.
pctLift	Computed percent lift.
pKCAS	Pressure-derived calibrated airspeed, knots.
aKCAS	Angle-derived calibrated airspeed, knots.
aoaKCAS	Angle-of-attack-derived calibrated airspeed, knots.
fKCAS	Fused calibrated airspeed, knots.
cmMotHdg	Core Motion device heading.
sWDir	Sensor-provided wind direction.
sWSpd	Sensor-provided wind speed.
hdgCorr	Applied device-heading correction.
drift	Computed wind-drift angle.
clTrueHdg	Core Location true heading.
sKcas	Sensor-bootstrap calibrated airspeed, knots.
clHdgAcc	Core Location heading accuracy.
clMagHdg	Core Location raw magnetic heading.
cmMagAcc	Core Motion magnetic-field accuracy indicator.

External Interfaces

X-Plane 12

TLAR can follow X-Plane 12 through its WebAPI interface. X-Plane 12.1 or later includes this API and supplies position, attitude, airspeed, ground track, and surface-weather data directly from X-Plane datarefs. TLAR uses that data to update its simulated flight state and supported displays.

X-Plane’s Web API listens only on 127.0.0.1:8086—the simulator computer itself. An iPhone or iPad on the Wi-Fi network cannot reach that address directly. Run a TLAR bridge on the simulator computer: it listens on port 8087 on the local network and forwards traffic to X-Plane’s local port 8086. The bridge must be running whenever TLAR is connected.

Connect TLAR to X-Plane

1. Launch X-Plane 12.1 or later on the simulator computer. The Web API is enabled by default.
2. Start one of the bridge options below on that computer.
3. Put the iPhone or iPad and simulator computer on the same Wi-Fi network.
4. Find the simulator computer’s LAN IP address: on macOS, System Settings > Network > Wi-Fi > Details, or use the bridge menu-bar icon; on Windows, run ipconfig and note the IPv4 Address.
5. In TLAR, open Aircraft Settings > X-Plane WebAPI. Enter that IP address as Host IP, set Port to 8087, and turn on Enable X-Plane WebAPI.
6. Load a flight and select Ready to fly. TLAR should connect within a few seconds; the status row shows Connecting, Connected, Disconnected, or an error.

ORDER MATTERS The bridge listens on port 8087 and forwards to X-Plane’s port 8086. Start X-Plane first and let it fully load. Then start the bridge, then turn on TLAR’s X-Plane WebAPI switch. If the bridge was already running when X-Plane launched, X-Plane can fail to bind port 8086 and display a “port 8086 unavailable” warning.

Option A — TLAR X-Plane Bridge App (macOS)

This is the recommended Mac option. In TLAR's X-Plane WebAPI Setup Instructions, select Send TLAR X-Plane Bridge to My Mac and use AirDrop, Mail, Messages, iCloud Drive, or Files to transfer the included .zip to the Mac that runs X-Plane. AirDrop normally places it in Downloads.

On the Mac, find the .zip and double-click it to create TLAR X-Plane Bridge.app. Drag the app to Applications, or leave it in Downloads. Double-click the app to launch it. It does not open a window or appear in the Dock; a small menu-bar icon appears at the top right. Click that icon to find or copy the Mac's IP address. The app listens on port 8087 and forwards to X-Plane on 8086. When you finish, choose Quit from the menu-bar icon.

MAC BRIDGE The included bridge app is a signed, Apple-notarized Universal macOS app for Apple Silicon and Intel Macs running macOS 12 or later. First launch can take a moment while macOS validates it.

Option B — Python Bridge Script

Use this option on macOS or Windows when you prefer to run the bridge from a command window. Leave Terminal or PowerShell open while TLAR is connected. A successful launch prints: Forwarding 0.0.0.0:8087 -> 127.0.0.1:8086.

macOS Terminal

Open Terminal on the Mac, paste the script below, and press Return. It requires Python 3. On the first python3 run, macOS may offer to install Xcode Command Line Tools; choose Install, wait for it to finish, then run the script again. If no installer appears and python3 is not found, run xcode-select --install in Terminal.

```
python3 -c "
import socket, threading
s = socket.socket(); s.setsockopt(socket.SOL_SOCKET, socket.SO_REUSEADDR, 1)
s.bind(('', 8087)); s.listen(5)
print('Forwarding 0.0.0.0:8087 -> 127.0.0.1:8086')
def pipe(a, b):
    try:
        while True:
            d = a.recv(4096)
            if not d: break
            b.sendall(d)
    finally:
        try: a.close()
        except: pass
        try: b.close()
        except: pass
while True:
    c, _ = s.accept()
    d = socket.create_connection(('127.0.0.1', 8086))
    threading.Thread(target=pipe, args=(c, d), daemon=True).start()
    threading.Thread(target=pipe, args=(d, c), daemon=True).start()
"
```

Windows PowerShell

Install Python 3 from python.org before starting and select Add python.exe to PATH during installation. Open PowerShell, paste the following block, and press Enter. It writes the bridge to %TEMP%\tlar_bridge.py and runs it. Use this PowerShell form rather than a one-line python -c command; the here-string preserves the underscores in the Python identifiers.

```

$script = @"
import socket, threading
s = socket.socket()
s.setsockopt(socket.SOL_SOCKET, socket.SO_REUSEADDR, 1)
s.bind(('', 8087))
s.listen(5)
print('Forwarding 0.0.0.0:8087 -> 127.0.0.1:8086')
def pipe(a, b):
    try:
        while True:
            d = a.recv(4096)
            if not d: break
            b.sendall(d)
    finally:
        try: a.close()
        except: pass
        try: b.close()
        except: pass
while True:
    c, _ = s.accept()
    d = socket.create_connection(('127.0.0.1', 8086))
    threading.Thread(target=pipe, args=(c, d), daemon=True).start()
    threading.Thread(target=pipe, args=(d, c), daemon=True).start()
"@
$path = Join-Path $env:TEMP 'tlar_bridge.py'
$script | Set-Content -Path $path -Encoding UTF8
python $path

```

X-PLANE SETUP If TLAR does not connect, confirm that both devices are on the same Wi-Fi network, the bridge is still running, the Host IP has not changed, and the simulator computer firewall permits incoming connections on port 8087. If the script reports Address already in use, another process is holding port 8087; stop that process or restart the simulator computer.

OnSpeed EFIS

TLAR can ingest AHARS data from the OnSpeed Angle Of Attack system, which transmits this data over Wi-Fi. TLAR automatically reads this data when the iOS device running TLAR is connected to the OnSpeed Wi-Fi network. For more information about the OnSpeed system, see www.flyonspeed.org.

When connected to a compatible OnSpeed EFIS data stream, TLAR can use live EFIS information in supported tiles and chicklets. The available data includes indicated airspeed, pressure altitude, percent lift/AoA, G load, pitch, roll, vertical speed, flight-path information, flap state, and OnSpeed lift-band limits. Live sensor information is shown in cyan; stale OnSpeed data dims after three seconds.

The AOA tile uses the OnSpeed percent-lift bands to show the current lift condition, and the DATA MARK and AoA-tone controls can be used with the connected data stream. The selectable OnSpeed EFIS attitude source is an upcoming capability in the current UI. Verify the EFIS connection and the selected data source before relying on an EFIS-derived value; a missing or stale stream is not a valid substitute for the aircraft instruments.

Appendices

Appendix A — TLAR Aero and Physics Model

TLAR is an equation-based performance model, not a collection of fixed performance tables. TLAR's performance engine runs a physics and aerodynamic model that predicts aircraft performance in real time. It does this once per second by calculating the three-dimensional position, attitude, and speed of your aircraft as a function of the physical forces (e.g. lift vs weight, thrust vs drag) that affect all aircraft as they move through the air. Why should you care? This enables TLAR to make reasonably accurate predictions of performance between and beyond the conditions explicitly covered by the POH.

What the model uses

Input group	Examples used in the calculation
Aircraft model	Wing area and lift characteristics; baseline drag and drag calibration; engine, propeller, and power data; flap effects; fuel state; gross-weight limits; and braking characteristics.
Atmosphere and energy	Temperature, pressure, humidity/dewpoint where applicable, density altitude, wind, aircraft altitude, current speed, and fuel weight.
Runway and landing zone	Runway length, approach and departure elevations, slope, surface and condition, fence height, position on the runway, and available runway remaining.
Pilot selections	Takeoff and landing flaps, braking, touchdown-zone length, safety margin, climb and cruise targets, approach FPA, and emergency glide settings.

TLAR's Heartbeat

TLAR lives in a 1 Hz world. With a GPS lock, iOS processes GPS position data one time per second. The arrival of a new GPS “hit” kicks off TLAR's computational cycle. Everything that TLAR does and computes is re-accomplished between each GPS update, with a few exceptions. Without a GPS lock, TLAR falls back to a one-second timer that kicks off the same computational cycle. When you use TLAR's built-in simulated takeoff mode, or integrate with an external simulator such as X-Plane, TLAR bypasses its GPS-driven heartbeat and injects false GPS data inside the one-second timer-based heartbeat.

Performance Reference

One of the most important settings to get right in TLAR is selecting the Performance Reference in Weather Settings. If you select LZ, TLAR uses the LZ's elevation and weather conditions to compute all performance data. If you select Aircraft, TLAR uses your iDevice's GPS elevation and weather conditions near your position to compute performance. If you select Manual, TLAR computes performance based on your manually entered elevation and selects weather conditions closest to your position.

Aircraft data, calibration, and limits

TLAR's supplied aircraft models are tuned against manufacturer-stated and/or POH performance. We stake the model using a wide range of altitudes/temperatures and their associated performances to get the best all-around model we can. TLAR's build plane feature does not have this luxury. We ask you to enter a single density altitude for takeoff, climb, and landing. And a second density altitude for cruise. That's it. So, TLAR is staking the model to just these two altitudes, which means the custom-build plane function will not produce as accurate of a model as we can produce in our normal process. Our experience shows that predicted climb rate is the most sensitive metric to this issue and landing ground roll the least.

GARBAGE IN, GARBAGE OUT All models are wrong, some are useful. We think TLAR is in the useful category, but make sure you feed TLAR accurate inputs if you expect accurate predictions!

Appendix B — Tiles and Chicklets Reference

Tiles are the working displays on the dashboard. A tile presents one operational view; tap most tiles to flip them and reach its settings or chicklet selector. Chicklets are the small badges around a tile. An Info chicklet displays a value and opens its information when tapped. A Button chicklet performs an action or cycles a mode when tapped. On tiles that use both kinds, Info chicklets belong on the top and side edges; Button chicklets are on the bottom edge.

TILE SIZE MATTERS Not every tile is available in every dashboard position. Map can be 1×1, 2×2, or full-screen; HSI and HUD can be 1×1 or 2×2; Emergency Sim can be 2×2 or full-screen. The available chicklet edges change with tile size. Use the Tile picker and the back of the selected tile to see the choices that apply to that location.

Tile Reference — Basic, Pro, and Expert

The following is the complete set of dashboard tile types available through the Expert tier. A tile can only be selected where its size is supported by the current dashboard layout.

Tier	Tile	Purpose and controls
Pro	Aircraft	Active aircraft status, gross weight, fuel, flap configuration, and motor state. Flip to set fuel on board and cruise burn rate.
Basic	Takeoff	Computed takeoff run, over-fence distance, Vto, flap setting, runway graphic, and cautions/warnings. The back selects two Info chicklets and ASTOP.
Basic	Land	Computed landing roll, over-fence distance, FPA, Vapp, flap/brake/approach selections, runway graphic, and cautions/warnings.
Basic	Climb	Selected climb mode, speed, and predicted climb rate. The tile lets the pilot select a profile or adjust the relevant target.
Basic	Cruise	Cruise chart, mode, power setting, TAS, and fuel-flow information. A red state indicates requested cruise is not possible.
Basic	HSI	Heading-and-runway view with wind, route, runway geometry, and navigation cues. The 1×1 version has top Info and bottom Button chicklets; the 2×2 adds left and right Info positions.
Basic	Position	Raw GNSS latitude/longitude, geometric altitude, speed, track, and sensor-accuracy status.

Tier	Tile	Purpose and controls
Basic	Clock	Aviation clock with local/Zulu time, date, solar/lunar information, and selectable clock face/color/time-zone options.
Pro	Runway	Active-LZ runway geometry, elevations, length, slope, surface, and wind. Front controls flip runway direction and cycle LZ mode.
Pro	Weather	LZ weather, wind, solar information, and available NEXRAD. Flip for chicklet selection and manual weather controls.
Pro	Smart TOLD	Automatically shows Takeoff on the ground and Land in flight, with the applicable view's controls and configurable chicklets.
Pro	Smart Climb / Cruise	Automatically shows Climb while on the ground, climbing, or near the active LZ, and Cruise otherwise.
Pro	Map	Moving map with LZ, route, METAR stations, runway, and flight-path cues. Available as 1×1, 2×2, or full-screen; 1×1 has no chicklet overlays.
Pro	V-Speeds	Computed CAS V-speeds for the current aircraft weight and selected configuration, with a tile-local flap selection.
Pro	Debrief	Post-flight takeoff and landing metrics, capture status, and RESET control.
Expert	HUD	Tile-sized head-up display with attitude, flight path, LZ projection, and configurable side/bottom chicklets. The heading tape reserves the top edge.
Expert	Emergency Sim	Ground-based simulated takeoff and emergency analysis. Available 2×2 or full-screen; front controls start/stop simulation and the back configures the map, chicklets, and departure profile.

Info Chicklet Reference — Basic, Pro, and Expert

Info chicklets display a value. Selectable Info chicklets are assigned on a compatible tile's back; Emergency override chicklets are placed automatically while Emergency mode is active. Blank leaves a slot empty.

Tier	Chicklet	Use	Meaning
Basic	Blank	Selectable	Empty Info slot.
Basic	Temperature	Selectable	Ambient temperature in °C with delta-from-ISA hint.
Basic	Barometer	Selectable	Altimeter setting in inHg or mB.
Basic	Heading/Track	Selectable	Current heading or GPS track in degrees true.
Basic	Fuel	Selectable	Estimated fuel remaining.
Basic	Density Alt	Selectable	Density altitude.
Basic	Ground Speed	Selectable	GPS-derived groundspeed in selected units.
Basic	GPS Altitude	Selectable	GPS geometric altitude, geoid-corrected if available.
Basic	Gross Weight	Selectable	Current gross weight in selected units.
Basic	Burn Rate	Selectable	Current fuel-burn rate.

Tier	Chicklet	Use	Meaning
Basic	Takeoff Run	Selectable	Computed ground roll for takeoff.
Basic	Takeoff Over 50	Selectable	Computed takeoff distance over the selected 50-foot obstacle reference.
Basic	Land Roll	Selectable	Computed landing braking roll.
Basic	Land Over 50	Selectable	Computed landing distance over the selected 50-foot obstacle reference.
Basic	Sunrise	Selectable	Sunrise time at the LZ.
Basic	Sunset	Selectable	Sunset time at the LZ.
Basic	Climb Info	Selectable	Active climb rate / target-speed pair.
Basic	Delta ISA	Selectable	Difference between current temperature and ISA at field elevation.
Basic	G Load	Selectable	Vertical G load from OnSpeed when available, otherwise phone accelerometer or bank-angle estimate.
Basic	Vs	Selectable	Stall speed at the current flap setting and weight.
Basic	Vto	Selectable	Computed liftoff speed at the selected takeoff flap setting.
Basic	Vref	Selectable	Approach reference speed at landing flap setting.
Basic	Vy	Selectable	Best rate-of-climb speed.
Basic	Vx	Selectable	Best angle-of-climb speed at takeoff flap setting.
Basic	Vnorm	Selectable	Normal approach speed from Vs and the Normal Vapp ratio.
Basic	Vg	Selectable	Best-glide speed for engine-out maximum range.
Basic	Set FPA	Selectable	Pilot-selected approach flight-path angle.
Pro	Required FPA	Selectable	FPA required to arrive at the threshold at fence height.
Pro	Required FPM	Selectable	FPM required to arrive at the threshold at fence height.
Pro	Height By End	Selectable	On ground, predicted height at runway end; in flight, required FPA to threshold at fence height.
Pro	Dist To End	Selectable	On ground, distance to runway end; in flight, required FPM to threshold at fence height.
Pro	DTG	Selectable	Distance to the active destination: direct outside 10 NM and track distance including the selected route inside 10 NM.
Pro	Wind	Selectable	Wind direction and speed at the LZ.
Pro	TDZE	Selectable	Touchdown-zone elevation.
Pro	Runway Length Available	Selectable	Active runway length.
Pro	Slope	Selectable	Runway slope percentage; positive is uphill.

Tier	Chicklet	Use	Meaning
Pro	Surface	Selectable	Runway surface type.
Pro	Wind Direction	Selectable	Wind-from direction in degrees magnetic.
Pro	Wind Speed	Selectable	Wind speed in knots.
Pro	Bearing To Dest	Selectable	Bearing to the active destination in degrees true.
Pro	ETE	Selectable	Estimated time en route.
Pro	ETA	Selectable	Estimated time of arrival.
Pro	Humidity	Selectable	Relative humidity derived from temperature and dewpoint.
Pro	Flight Category	Selectable	Reported VFR, MVFR, IFR, or LIFR category.
Pro	METAR Time	Selectable	Latest weather observation time in Zulu.
Pro	METAR Age	Selectable	Age of latest weather observation.
Pro	Station Distance	Selectable	Distance from weather station to LZ.
Pro	Station Elevation	Selectable	Weather-station elevation.
Pro	Ceiling	Selectable	Reported cloud ceiling AGL.
Pro	Visibility	Selectable	Reported visibility.
Pro	Smart Run/Roll	Selectable	Takeoff run on ground; landing roll in flight.
Pro	Smart Over 50	Selectable	Takeoff over-50 distance on ground; landing over-50 distance in flight.
Pro	Va	Selectable	Maneuvering speed at current flap setting and weight.
Pro	Vstol	Selectable	STOL approach speed from Vs and the STOL Vapp ratio.
Pro	Required AOB	Selectable	Bank angle required to roll out on final approach centerline.
Expert	GPS Elev Correction	Selectable	Auto-calibrated GPS-altitude bias while stopped on a precise LZ runway.
Expert	Emergency Vg	Automatic	Emergency-mode best-glide speed.
Expert	Glide Ratio	Automatic	Emergency-mode still-air glide ratio.
Expert	TCH	Automatic	Emergency-mode predicted threshold-crossing height.
Expert	Vstall.Bank	Automatic	Emergency-mode stall speed at selected bank angle.
Expert	Emergency Vref	Automatic	Emergency-mode reference speed.
Expert	Turnback Alt	Automatic	Minimum MSL altitude for modeled turnback.
Expert	Neg Turnback	Automatic	Maximum altitude at which a modeled turnback remains possible.
Expert	Reject Distance	Automatic	Distance from departure end back to the latest reject/abort point.

Button Chicklet Reference — Basic, Pro, and Expert

Button chicklets act when tapped. Blank Button is a selectable empty Button slot. Decrement and Increment remain internal/hidden choices because the Climb and Cruise tiles provide their own dedicated controls.

Tier	Chicklet	Use	Action
Basic	Blank Button	Selectable	Empty Button slot.
Basic	Motor	Selectable	Toggles engine-running state.
Basic	Climb Mode	Selectable	Cycles the active climb profile.
Pro	Cruise Mode	Selectable	Cycles Endurance, Range, Set Power, and Max.
Basic	Land Flaps	Selectable	Cycles landing-flap setting.
Basic	Takeoff Flaps	Selectable	Cycles takeoff-flap setting.
Pro	Performance Source	Selectable	Cycles the performance reference.
Pro	Decrement	Internal / hidden	Decreases linked cruise-power value; not offered in the picker.
Pro	Increment	Internal / hidden	Increases linked cruise-power value; not offered in the picker.
Pro	LZ Mode	Selectable	Cycles LZ use mode: Auto, Alpha, Bravo, or Off.
Pro	Flip Runway	Selectable	Swaps active runway approach and departure ends.
Pro	METAR	Selectable	Requests a METAR refresh.
Pro	Smart Flaps	Selectable	Cycles takeoff flap on ground and landing flap in flight.
Pro	Brakes	Selectable	Selects partial or maximum braking.
Pro	Runway Condition	Selectable	Cycles Dry, Wet, and Icy runway condition.
Pro	STOL	Selectable	Toggles STOL approach.
Pro	Mark Point	Selectable	Drops a position marker at current location.
Pro	Reset Mark	Selectable	Clears active position marker.
Pro	Temp Source	Selectable	Cycles temperature source: METAR, Manual, or ASOS when active.
Pro	Pressure Source	Selectable	Cycles pressure source: METAR, Manual, iBaro, or ASOS when active.
Pro	Wind Source	Selectable	Cycles wind source: METAR, Manual, or ASOS when active.
Expert	Emergency	Selectable	Toggles Emergency mode or arms Emergency simulation.
Expert	Attitude Source	Selectable	Cycles attitude source: GPS, Phone, or future OnSpeed EFIS.
Expert	Pitch Mode	Selectable	Cycles pitch reference: GPS, INS, or MIX.
Expert	Pitch/Roll Sync	Selectable	Zeros pitch and roll relative to current orientation.
Expert	Data Mark	Selectable	Writes the next telemetry reference number to the flight log.

Subscription Availability Matrix

An X means the item is included at that subscription level. Higher tiers retain the items available at lower tiers. This matrix covers the public Basic, Pro, and Expert levels; Insider-only development items are not listed.

Tiles

Item	-basic	-pro	-expert
Aircraft		X	X
Takeoff	X	X	X
Land	X	X	X
Climb	X	X	X
Cruise	X	X	X
HSI	X	X	X
Position	X	X	X
Clock	X	X	X
Runway		X	X
Weather		X	X
Smart TOLD		X	X
Smart Climb / Cruise		X	X
Map		X	X
V-Speeds		X	X
Debrief		X	X
HUD			X
Emergency Sim			X

Chicklets

Item	-basic	-pro	-expert
Info — Blank	X	X	X
Info — Temperature	X	X	X
Info — Barometer	X	X	X

Item	-basic	-pro	-expert
Info — Heading / Track	X	X	X
Info — Fuel	X	X	X
Info — Density Alt	X	X	X
Info — Ground Speed	X	X	X
Info — GPS Altitude	X	X	X
Info — Gross Weight	X	X	X
Info — Burn Rate	X	X	X
Info — Takeoff Run	X	X	X
Info — Takeoff Over 50	X	X	X
Info — Land Roll	X	X	X
Info — Land Over 50	X	X	X
Info — Sunrise	X	X	X
Info — Sunset	X	X	X
Info — Climb Info	X	X	X
Info — Delta ISA	X	X	X
Info — G Load	X	X	X
Info — Vs	X	X	X
Info — Vto	X	X	X
Info — Vref	X	X	X
Info — Vy	X	X	X
Info — Vx	X	X	X
Info — Vnorm	X	X	X
Info — Vg	X	X	X
Info — Set FPA	X	X	X
Info — Required FPA		X	X
Info — Required FPM		X	X
Info — Height By End		X	X
Info — Dist To End		X	X

Item	-basic	-pro	-expert
Info — DTG		X	X
Info — Wind		X	X
Info — TDZE		X	X
Info — Runway Length Available		X	X
Info — Slope		X	X
Info — Surface		X	X
Info — Wind Direction		X	X
Info — Wind Speed		X	X
Info — Bearing To Destination		X	X
Info — ETE		X	X
Info — ETA		X	X
Info — Humidity		X	X
Info — Flight Category		X	X
Info — METAR Time		X	X
Info — METAR Age		X	X
Info — Station Distance		X	X
Info — Station Elevation		X	X
Info — Ceiling		X	X
Info — Visibility		X	X
Info — Smart Run / Roll		X	X
Info — Smart Over 50		X	X
Info — Va		X	X
Info — Vstol		X	X
Info — Required AOB		X	X

Item	-basic	-pro	-expert
Info — GPS Elevation Correction			X
Info — Emergency Vg			X
Info — Glide Ratio			X
Info — TCH			X
Info — Vstall.Bank			X
Info — Emergency Vref			X
Info — Turnback Alt			X
Info — Neg Turnback			X
Info — Reject Distance			X
Button — Blank	X	X	X
Button — Motor	X	X	X
Button — Climb Mode	X	X	X
Button — Cruise Mode		X	X
Button — Land Flaps	X	X	X
Button — Takeoff Flaps	X	X	X
Button — Performance Source		X	X
Button — Decrement		X	X
Button — Increment		X	X
Button — LZ Mode		X	X
Button — Flip Runway		X	X
Button — METAR		X	X
Button — Smart Flaps		X	X
Button — Brakes		X	X
Button — Runway Condition		X	X
Button — STOL		X	X

Item	-basic	-pro	-expert
Button — Mark Point		X	X
Button — Reset Mark		X	X
Button — Temp Source		X	X
Button — Pressure Source		X	X
Button — Wind Source		X	X
Button — Emergency			X
Button — Attitude Source			X
Button — Pitch Mode			X
Button — Pitch / Roll Sync			X
Button — Data Mark			X

Features

Item	-basic	-pro	-expert
Solar Data	X	X	X
Global Airfield Database		X	X
NAV Status		X	X
Preset Layouts		X	X
Stabilized Approach Monitoring		X	X
AUTO-LZ Selector			X
Audio Briefings			X
Custom Build Airplanes			X
Emergency Glide / Turnback			X
NEXRAD Radar			X
OnSpeed Integration			X
Recorded Telemetry			X

Item	-basic	-pro	-expert
Sub-hourly ASOS Updates			X
X-Plane Integration			X

Chicklet colors

The chicklet color identifies the source or reference, not necessarily the urgency of the value. Purple identifies METAR data. Green identifies ASOS wind, barometer, and visibility values that are newer than the METAR. Blue identifies a manually entered or overridden value. Cyan identifies live sensor data such as GPS, OnSpeed, or iBaro. Pink identifies an active-LZ reference. Yellow and red elsewhere in the interface are caution and danger colors; read the tile's label and advisory rather than treating color alone as the message.

Appendix C — Aircraft Model Accuracy

The following tables reproduce the TLAR Performance Validation Report for each currently included aircraft model. Each row compares the published/reference value in the report with the TLAR model result at the stated gross weight and condition. The Accuracy column is reproduced as reported in the source validation workbook.

8KCAB

REPORT NOTE POH land roll based on 1.12 1 approach/stall ratio. TLAR ships with POH recommended 1.41 ratio. Land rolls reflect that.

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
1800	Vg KCAS	65.2	65.0	-0.2	0.998
1800	Vg Ratio	8.0	8.0	0.0	0.994
1800	Stall full flaps KCAS	46.1	48.3	2.2	0.951
1800	Takeoff Ground Run (0 msl / 0 C)	456.0	460.0	4.0	0.991
1800	Takeoff Ground Run (0 msl / 20 C)	508.0	480.0	-28.0	0.945
1800	Takeoff Ground Run (0 msl / 40 C)	559.0	530.0	-29.0	0.948
1800	Takeoff Ground Run (3000 msl / 0 C)	561.0	540.0	-21.0	0.963
1800	Takeoff Ground Run (3000 msl / 20 C)	624.0	610.0	-14.0	0.978
1800	Takeoff Ground Run (3000 msl / 40 C)	688.0	690.0	2.0	0.997
1800	Takeoff Ground Run (6000 msl / 0 C)	708.0	700.0	-8.0	0.989
1800	Takeoff Ground Run (6000 msl / 20 C)	781.0	800.0	19.0	0.976
1800	Takeoff Ground Run (6000 msl / 40 C)	869.0	920.0	51.0	0.941
1800	Takeoff 50 (0 msl / 0 C)	833.0	880.0	47.0	0.944

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
1800	Takeoff 50 (0 msl / 20 C)	928.0	910.0	-18.0	0.981
1800	Takeoff 50 (0 msl / 40 C)	1021.0	990.0	-31.0	0.970
1800	Takeoff 50 (3000 msl / 0 C)	1026.0	1020.0	-6.0	0.994
1800	Takeoff 50 (3000 msl / 20 C)	1141.0	1130.0	-11.0	0.990
1800	Takeoff 50 (3000 msl / 40 C)	1258.0	1250.0	-8.0	0.994
1800	Takeoff 50 (6000 msl / 0 C)	1294.0	1280.0	-14.0	0.989
1800	Takeoff 50 (6000 msl / 20 C)	1438.0	1440.0	2.0	0.999
1800	Takeoff 50 (6000 msl / 40 C)	1588.0	1620.0	32.0	0.980
1800	Vy KCAS (0 msl / 15 C)	69.5	75.0	5.5	0.921
1800	Vy KCAS (5000 msl / 5 C)	67.8	70.2	2.4	0.964
1800	Vy KCAS (10000 msl / -5 C)	65.2	67.8	2.7	0.959
1800	Vy FPM (0 msl / 15 C)	1230.0	1169.4	-60.6	0.951
1800	Vy FPM (5000 msl / 5 C)	880.0	902.9	22.9	0.974
1800	Vy FPM (10000 msl / -5 C)	520.0	649.7	129.7	0.751
1800	55% cruise KTAS (5000 msl / Std Day)	111.2	111.0	-0.2	0.998
1800	55% cruise KTAS (7500 msl / Std Day)	113.8	115.0	1.2	0.990
1800	55% cruise KTAS (10000 msl / Std Day)	115.6	118.0	2.4	0.979
1800	65% cruise KTAS (5000 msl / Std Day)	120.8	121.0	0.2	0.998
1800	65% cruise KTAS (7500 msl / Std Day)	122.5	124.0	1.5	0.988
1800	65% cruise KTAS (10000 msl / Std Day)	126.0	128.0	2.0	0.984
1800	75% cruise KTAS (5000 msl / Std Day)	127.7	129.0	1.3	0.990
1800	75% cruise KTAS (7500 msl / Std Day)	131.2	132.0	0.8	0.994
1800	55% cruise FF (5000 msl / Std Day)	7.6	7.8	0.2	0.969
1800	55% cruise FF (7500 msl / Std Day)	7.6	7.8	0.2	0.969
1800	55% cruise FF (10000 msl / Std Day)	7.6	7.8	0.2	0.969
1800	65% cruise FF (5000 msl / Std Day)	8.5	9.0	0.5	0.940
1800	65% cruise FF (7500 msl / Std Day)	8.5	9.0	0.5	0.940
1800	65% cruise FF (10000 msl / Std Day)	8.5	9.0	0.5	0.940
1800	75% cruise FF (5000 msl / Std Day)	9.5	10.1	0.6	0.936
1800	75% cruise FF (7500 msl / Std Day)	9.5	10.0	0.5	0.950

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
1800	Normal approach CAS (1.410 to 1)	52.1	68.1	16.0	0.694
1800	Land roll (0 msl / 0 C)	413.0	630.0	217.0	0.475
1800	Land roll (0 msl / 20 C)	428.0	670.0	242.0	0.435
1800	Land roll (0 msl / 40 C)	442.0	720.0	278.0	0.371
1800	Land roll (3000 msl / 0 C)	437.0	700.0	263.0	0.398
1800	Land roll (3000 msl / 20 C)	453.0	750.0	297.0	0.344
1800	Land roll (3000 msl / 40 C)	468.0	800.0	332.0	0.291
1800	Land roll (6000 msl / 0 C)	462.0	770.0	308.0	0.333
1800	Land roll (6000 msl / 20 C)	479.0	830.0	351.0	0.267
1800	Land roll (6000 msl / 40 C)	495.0	890.0	395.0	0.202

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Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
3100	Stall clean KCAS	62.5	62.3	-0.2	0.997
3100	Stall partial flaps KCAS	60.0	58.8	-1.2	0.980
3100	Stall full flaps KCAS	58.0	58.0	0.0	1.000
3100	Takeoff Ground Run (0 msl / 15 C)	800.0	840.0	40.0	0.950
3100	Takeoff Ground Run (4000 msl / 7 C)	1150.0	1160.0	10.0	0.991
3100	Takeoff Ground Run (8000 msl / -1 C)	1600.0	1640.0	40.0	0.975
3100	Takeoff 50 (0 msl / 15 C)	1350.0	1490.0	140.0	0.896
3100	Takeoff 50 (4000 msl / 7 C)	2050.0	2000.0	-50.0	0.976
3100	Takeoff 50 (8000 msl / -1 C)	2900.0	2820.0	-80.0	0.972
3100	Takeoff KCAS	68.5	66.5	-2.0	0.970
3100	Vy FPM (0 msl / 15 C)	1330.0	1288.7	-41.3	0.969
3100	Vy FPM (6000 msl / 3 C)	960.0	916.5	-43.5	0.955
3100	Vy FPM (12000 msl / -10 C)	565.0	558.1	-6.9	0.988
3100	Normal approach CAS (1.300 to 1)	75.5	75.4	-0.1	0.999
3100	Land roll (0 msl / 15 C)	910.0	910.0	0.0	1.000
3100	Land roll (4000 msl / 7 C)	1015.0	1020.0	5.0	0.995
3100	Land roll (8000 msl / -3 C)	1150.0	1140.0	-10.0	0.991

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
3600	Vg KCAS	110.0	108.0	-2.0	0.982
3600	Vg Ratio	10.2	10.3	0.1	0.985
3600	Stall clean KCAS	65.0	65.0	0.0	1.000
3600	Stall full flaps KCAS	55.5	55.5	0.0	1.000
3600	Takeoff Ground Run (0 msl / 15 C)	1100.0	1240.0	140.0	0.873
3600	Takeoff Ground Run (4000 msl / 7 C)	1550.0	1730.0	180.0	0.884
3600	Takeoff Ground Run (8000 msl / -1 C)	2180.0	2580.0	400.0	0.817
3600	Takeoff 50 (0 msl / 15 C)	2020.0	2130.0	110.0	0.946
3600	Takeoff 50 (4000 msl / 7 C)	2850.0	2950.0	100.0	0.965
3600	Takeoff 50 (8000 msl / -1 C)	4100.0	4370.0	270.0	0.934
3600	Takeoff KCAS	71.5	71.6	0.1	0.998
3600	Vy KCAS (0 msl / 15 C)	96.0	96.0	0.0	1.000
3600	Vy KCAS (6000 msl / 3 C)	96.0	96.0	0.0	1.000
3600	Vy KCAS (12000 msl / -10 C)	96.0	96.0	0.0	1.000
3600	Vy FPM (0 msl / 15 C)	1030.0	979.5	-50.5	0.951
3600	Vy FPM (6000 msl / 3 C)	685.0	647.9	-37.1	0.946
3600	Vy FPM (12000 msl / -10 C)	350.0	325.2	-24.8	0.929
3600	55% cruise KTAS (0 msl / Std Day)	138.0	130.0	-8.0	0.942
3600	55% cruise KTAS (6000 msl / Std Day)	142.8	137.0	-5.8	0.959
3600	55% cruise KTAS (10000 msl / Std Day)	134.0	142.0	8.0	0.940
3600	65% cruise KTAS (0 msl / Std Day)	149.8	141.0	-8.8	0.941
3600	65% cruise KTAS (6000 msl / Std Day)	156.0	149.0	-7.0	0.955
3600	65% cruise KTAS (10000 msl / Std Day)	149.5	155.0	5.5	0.963
3600	75% cruise KTAS (0 msl / Std Day)	159.2	150.0	-9.2	0.942
3600	75% cruise KTAS (6000 msl / Std Day)	167.5	159.0	-8.5	0.949
3600	55% cruise FF (0 msl / Std Day)	11.5	11.4	-0.1	0.991
3600	55% cruise FF (6000 msl / Std Day)	11.5	11.4	-0.1	0.991
3600	55% cruise FF (10000 msl / Std Day)	10.3	11.4	1.1	0.894
3600	65% cruise FF (0 msl / Std Day)	13.3	13.4	0.1	0.991
3600	65% cruise FF (6000 msl / Std Day)	13.3	13.4	0.1	0.991

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
3600	65% cruise FF (10000 msl / Std Day)	11.5	13.4	1.9	0.833
3600	75% cruise FF (0 msl / Std Day)	15.2	15.0	-0.2	0.988
3600	75% cruise FF (6000 msl / Std Day)	15.2	15.0	-0.2	0.988
3600	Normal approach CAS (1.300 to 1)	72.0	72.2	0.2	0.998
3600	Land roll (0 msl / 15 C)	825.0	840.0	15.0	0.982
3600	Land roll (4000 msl / 7 C)	940.0	940.0	0.0	1.000
3600	Land roll (8000 msl / -3 C)	1060.0	1050.0	-10.0	0.991

C150M

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
1600	Vg KCAS	59.0	59.0	0.0	1.000
1600	Vg Ratio	8.2	8.6	0.4	0.957
1600	Stall clean KCAS	48.5	48.5	0.0	1.000
1600	Stall partial flaps KCAS	45.5	45.5	0.0	1.000
1600	Stall full flaps KCAS	42.0	42.0	-0.0	1.000
1600	Takeoff Ground Run (0 msl / 0 C)	655.0	740.0	85.0	0.870
1600	Takeoff Ground Run (0 msl / 20 C)	765.0	770.0	5.0	0.993
1600	Takeoff Ground Run (0 msl / 30 C)	820.0	820.0	0.0	1.000
1600	Takeoff Ground Run (3000 msl / 0 C)	870.0	880.0	10.0	0.989
1600	Takeoff Ground Run (3000 msl / 20 C)	1010.0	1010.0	0.0	1.000
1600	Takeoff Ground Run (3000 msl / 30 C)	1090.0	1090.0	0.0	1.000
1600	Takeoff Ground Run (6000 msl / 0 C)	1160.0	1190.0	30.0	0.974
1600	Takeoff Ground Run (6000 msl / 20 C)	1360.0	1370.0	10.0	0.993
1600	Takeoff Ground Run (6000 msl / 30 C)	1465.0	1480.0	15.0	0.990
1600	Takeoff 50 (0 msl / 0 C)	1245.0	1410.0	165.0	0.867
1600	Takeoff 50 (0 msl / 20 C)	1435.0	1460.0	25.0	0.983
1600	Takeoff 50 (0 msl / 30 C)	1540.0	1540.0	0.0	1.000
1600	Takeoff 50 (3000 msl / 0 C)	1650.0	1670.0	20.0	0.988
1600	Takeoff 50 (3000 msl / 20 C)	1915.0	1900.0	-15.0	0.992
1600	Takeoff 50 (3000 msl / 30 C)	2065.0	2030.0	-35.0	0.983

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
1600	Takeoff 50 (6000 msl / 0 C)	2245.0	2260.0	15.0	0.993
1600	Takeoff 50 (6000 msl / 20 C)	2640.0	2610.0	-30.0	0.989
1600	Takeoff 50 (6000 msl / 30 C)	2870.0	2810.0	-60.0	0.979
1600	Takeoff KCAS	53.0	52.6	-0.4	0.992
1600	Vx KCAS (0 msl / 0 C)	56.0	57.0	1.0	0.982
1600	Vy KCAS (0 msl / 40 C)	68.0	65.1	-2.9	0.957
1600	Vy KCAS (4000 msl / 20 C)	65.0	63.9	-1.1	0.983
1600	Vy KCAS (8000 msl / -20 C)	63.0	63.2	0.2	0.997
1600	Vy FPM (0 msl / -20 C)	770.0	741.0	-29.0	0.962
1600	Vy FPM (0 msl / 20 C)	655.0	655.5	0.5	0.999
1600	Vy FPM (0 msl / 40 C)	595.0	611.9	16.9	0.972
1600	Vy FPM (4000 msl / -20 C)	580.0	573.9	-6.1	0.989
1600	Vy FPM (4000 msl / 20 C)	465.0	482.3	17.3	0.963
1600	Vy FPM (4000 msl / 40 C)	405.0	440.4	35.4	0.913
1600	Vy FPM (8000 msl / -20 C)	390.0	402.0	12.0	0.969
1600	Vy FPM (8000 msl / 20 C)	280.0	313.9	33.9	0.879
1600	Vy FPM (8000 msl / 40 C)	215.0	272.9	57.9	0.731
1600	55% cruise KTAS (2000 msl / Std Day)	90.0	88.0	-2.0	0.978
1600	55% cruise KTAS (6000 msl / Std Day)	93.0	91.0	-2.0	0.978
1600	55% cruise KTAS (10000 msl / Std Day)	96.0	93.0	-3.0	0.969
1600	65% cruise KTAS (2000 msl / Std Day)	96.0	96.0	0.0	1.000
1600	65% cruise KTAS (6000 msl / Std Day)	99.0	99.0	0.0	1.000
1600	65% cruise KTAS (10000 msl / Std Day)	102.0	101.0	-1.0	0.990
1600	75% cruise KTAS (2000 msl / Std Day)	102.0	103.0	1.0	0.990
1600	75% cruise KTAS (6000 msl / Std Day)	105.5	104.0	-1.5	0.986
1600	55% cruise FF (2000 msl / Std Day)	4.2	4.3	0.1	0.982
1600	55% cruise FF (6000 msl / Std Day)	4.2	4.3	0.1	0.982
1600	55% cruise FF (10000 msl / Std Day)	4.2	4.3	0.1	0.982
1600	65% cruise FF (2000 msl / Std Day)	4.9	4.9	0.0	0.990
1600	65% cruise FF (6000 msl / Std Day)	4.9	4.9	0.0	0.990

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
1600	65% cruise FF (10000 msl / Std Day)	4.8	4.8	-0.1	0.985
1600	75% cruise FF (2000 msl / Std Day)	5.6	5.7	0.1	0.991
1600	75% cruise FF (6000 msl / Std Day)	5.6	5.4	-0.2	0.971
1600	Normal approach CAS (1.310 to 1)	52.0	55.0	3.0	0.942
1600	Land roll (0 msl / 0 C)	425.0	430.0	5.0	0.988
1600	Land roll (0 msl / 20 C)	455.0	460.0	5.0	0.989
1600	Land roll (0 msl / 40 C)	484.0	490.0	6.0	0.988
1600	Land roll (4000 msl / 0 C)	490.0	490.0	0.0	1.000
1600	Land roll (4000 msl / 20 C)	525.0	520.0	-5.0	0.990
1600	Land roll (4000 msl / 40 C)	560.0	560.0	0.0	1.000
1600	Land roll (8000 msl / 0 C)	570.0	560.0	-10.0	0.982
1600	Land roll (8000 msl / 20 C)	610.0	600.0	-10.0	0.984
1600	Land roll (8000 msl / 40 C)	655.0	640.0	-15.0	0.977

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Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
1670	Vg KCAS	60.0	60.0	0.0	1.000
1670	Vg Ratio	9.6	9.6	-0.0	0.996
1670	Stall clean KCAS	47.0	47.0	0.0	1.000
1670	Stall partial flaps KCAS	44.5	44.5	0.0	1.000
1670	Stall full flaps KCAS	42.0	42.0	-0.0	1.000
1670	Takeoff Ground Run (0 msl / 0 C)	640.0	730.0	90.0	0.859
1670	Takeoff Ground Run (0 msl / 20 C)	755.0	750.0	-5.0	0.993
1670	Takeoff Ground Run (0 msl / 30 C)	810.0	800.0	-10.0	0.988
1670	Takeoff Ground Run (3000 msl / 0 C)	855.0	870.0	15.0	0.982
1670	Takeoff Ground Run (3000 msl / 20 C)	1000.0	980.0	-20.0	0.980
1670	Takeoff Ground Run (3000 msl / 30 C)	1080.0	1050.0	-30.0	0.972
1670	Takeoff Ground Run (6000 msl / 0 C)	1145.0	1160.0	15.0	0.987
1670	Takeoff Ground Run (6000 msl / 20 C)	1345.0	1330.0	-15.0	0.989
1670	Takeoff Ground Run (6000 msl / 30 C)	1455.0	1430.0	-25.0	0.983

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
1670	Takeoff 50 (0 msl / 0 C)	1190.0	1410.0	220.0	0.815
1670	Takeoff 50 (0 msl / 20 C)	1390.0	1440.0	50.0	0.964
1670	Takeoff 50 (0 msl / 30 C)	1495.0	1530.0	35.0	0.977
1670	Takeoff 50 (3000 msl / 0 C)	1600.0	1660.0	60.0	0.963
1670	Takeoff 50 (3000 msl / 20 C)	1870.0	1860.0	-10.0	0.995
1670	Takeoff 50 (3000 msl / 30 C)	2020.0	1980.0	-40.0	0.980
1670	Takeoff 50 (6000 msl / 0 C)	2200.0	2210.0	10.0	0.995
1670	Takeoff 50 (6000 msl / 20 C)	2610.0	2520.0	-90.0	0.966
1670	Takeoff 50 (6000 msl / 30 C)	2855.0	2700.0	-155.0	0.946
1670	Takeoff KCAS	52.0	54.3	2.3	0.955
1670	Vx KCAS (0 msl / 0 C)	55.5	55.0	-0.5	0.991
1670	Vy KCAS (0 msl / 40 C)	67.0	65.1	-1.9	0.971
1670	Vy KCAS (4000 msl / 20 C)	65.0	63.0	-2.0	0.969
1670	Vy KCAS (8000 msl / -20 C)	62.0	61.5	-0.5	0.992
1670	Vy FPM (0 msl / -20 C)	835.0	806.4	-28.6	0.966
1670	Vy FPM (0 msl / 20 C)	700.0	707.5	7.5	0.989
1670	Vy FPM (0 msl / 40 C)	630.0	658.7	28.7	0.954
1670	Vy FPM (4000 msl / -20 C)	635.0	614.0	-21.0	0.967
1670	Vy FPM (4000 msl / 20 C)	505.0	526.8	21.8	0.957
1670	Vy FPM (4000 msl / 40 C)	445.0	480.9	35.9	0.919
1670	Vy FPM (8000 msl / -20 C)	440.0	450.1	10.1	0.977
1670	Vy FPM (8000 msl / 20 C)	320.0	359.3	39.3	0.877
1670	Vy FPM (8000 msl / 40 C)	265.0	308.5	43.5	0.836
1670	55% cruise KTAS (2000 msl / Std Day)	88.0	86.0	-2.0	0.977
1670	55% cruise KTAS (6000 msl / Std Day)	90.0	89.0	-1.0	0.989
1670	55% cruise KTAS (10000 msl / Std Day)	92.0	91.0	-1.0	0.989
1670	65% cruise KTAS (2000 msl / Std Day)	95.0	94.0	-1.0	0.989
1670	65% cruise KTAS (6000 msl / Std Day)	98.0	97.0	-1.0	0.990
1670	65% cruise KTAS (10000 msl / Std Day)	101.0	101.0	-0.0	1.000
1670	75% cruise KTAS (2000 msl / Std Day)	101.0	100.0	-1.0	0.990

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
1670	75% cruise KTAS (6000 msl / Std Day)	105.0	103.0	-2.0	0.981
1670	55% cruise FF (2000 msl / Std Day)	4.5	4.5	-0.0	0.994
1670	55% cruise FF (6000 msl / Std Day)	4.5	4.5	-0.0	0.994
1670	55% cruise FF (10000 msl / Std Day)	4.4	4.5	0.1	0.983
1670	65% cruise FF (2000 msl / Std Day)	5.3	5.2	-0.1	0.987
1670	65% cruise FF (6000 msl / Std Day)	5.3	5.2	-0.1	0.987
1670	65% cruise FF (10000 msl / Std Day)	5.3	5.2	-0.1	0.987
1670	75% cruise FF (2000 msl / Std Day)	6.1	6.0	-0.1	0.985
1670	75% cruise FF (6000 msl / Std Day)	6.1	6.0	-0.1	0.985
1670	Normal approach CAS (1.310 to 1)	55.0	55.0	0.0	1.000
1670	Land roll (0 msl / 0 C)	450.0	450.0	0.0	1.000
1670	Land roll (0 msl / 20 C)	485.0	480.0	-5.0	0.990
1670	Land roll (0 msl / 40 C)	515.0	510.0	-5.0	0.990
1670	Land roll (4000 msl / 0 C)	520.0	510.0	-10.0	0.981
1670	Land roll (4000 msl / 20 C)	560.0	540.0	-20.0	0.964
1670	Land roll (4000 msl / 40 C)	580.0	580.0	0.0	1.000
1670	Land roll (8000 msl / 0 C)	605.0	590.0	-15.0	0.975
1670	Land roll (8000 msl / 20 C)	650.0	630.0	-20.0	0.969
1670	Land roll (8000 msl / 40 C)	675.0	670.0	-5.0	0.993

C170B

REPORT NOTE Predicted distance over 50-foot obstacle significantly shorter than POH. See TLAR manual for details.

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
2200	Vg KCAS	60.0	60.0	0.0	1.000
2200	Vg Ratio	9.6	7.1	-2.5	0.737
2200	Stall clean KCAS	50.4	50.4	-0.0	1.000
2200	Stall partial flaps KCAS	46.9	46.9	0.0	1.000
2200	Stall full flaps KCAS	45.2	45.2	0.0	1.000
2200	Takeoff Ground Run (0 msl / -7 C)	513.0	630.0	117.0	0.772

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
2200	Takeoff Ground Run (0 msl / 16 C)	618.0	630.0	12.0	0.981
2200	Takeoff Ground Run (0 msl / 38 C)	758.0	740.0	-18.0	0.976
2200	Takeoff Ground Run (4000 msl / -7 C)	802.0	810.0	8.0	0.990
2200	Takeoff Ground Run (4000 msl / 16 C)	980.0	950.0	-30.0	0.969
2200	Takeoff Ground Run (4000 msl / 38 C)	1193.0	1250.0	57.0	0.952
2200	Takeoff Ground Run (7000 msl / -7 C)	1178.0	1240.0	62.0	0.947
2200	Takeoff Ground Run (7000 msl / 16 C)	1419.0	1500.0	81.0	0.943
2200	Takeoff Ground Run (7000 msl / 38 C)	1693.0	1820.0	127.0	0.925
2200	Takeoff 50 (0 msl / -7 C)	1350.0	1760.0	410.0	0.696
2200	Takeoff 50 (0 msl / 16 C)	1625.0	1770.0	145.0	0.911
2200	Takeoff 50 (0 msl / 38 C)	1995.0	1990.0	-5.0	0.997
2200	Takeoff 50 (4000 msl / -7 C)	2110.0	2220.0	110.0	0.948
2200	Takeoff 50 (4000 msl / 16 C)	2580.0	2560.0	-20.0	0.992
2200	Takeoff 50 (4000 msl / 38 C)	3140.0	3090.0	-50.0	0.984
2200	Takeoff 50 (7000 msl / -7 C)	3100.0	3180.0	80.0	0.974
2200	Takeoff 50 (7000 msl / 16 C)	3735.0	3740.0	5.0	0.999
2200	Takeoff 50 (7000 msl / 38 C)	4455.0	4450.0	-5.0	0.999
2200	Takeoff KCAS	50.0	48.7	-1.3	0.974
2200	Vx KCAS (0 msl / -7 C)	58.0	56.0	-2.0	0.966
2200	Vy KCAS (0 msl / 38 C)	77.3	72.1	-5.3	0.932
2200	Vy KCAS (4000 msl / 16 C)	73.0	71.3	-1.7	0.977
2200	Vy KCAS (7000 msl / -7 C)	68.6	69.8	1.1	0.984
2200	Vy FPM (0 msl / -7 C)	740.0	713.3	-26.7	0.964
2200	Vy FPM (0 msl / 16 C)	690.0	663.7	-26.3	0.962
2200	Vy FPM (0 msl / 38 C)	645.0	618.0	-27.0	0.958
2200	Vy FPM (4000 msl / -7 C)	555.0	541.5	-13.5	0.976
2200	Vy FPM (4000 msl / 16 C)	510.0	494.3	-15.7	0.969
2200	Vy FPM (4000 msl / 38 C)	465.0	450.2	-14.8	0.968
2200	Vy FPM (7000 msl / -7 C)	420.0	415.7	-4.3	0.990
2200	Vy FPM (7000 msl / 16 C)	370.0	369.8	-0.2	0.999

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
2200	Vy FPM (7000 msl / 38 C)	325.0	326.5	1.5	0.995
2200	55% cruise KTAS (2500 msl / Std Day)	97.3	96.0	-1.3	0.986
2200	55% cruise KTAS (5000 msl / Std Day)	98.2	98.0	-0.2	0.998
2200	55% cruise KTAS (7500 msl / Std Day)	99.9	101.0	1.1	0.989
2200	65% cruise KTAS (2500 msl / Std Day)	104.3	106.0	1.7	0.983
2200	65% cruise KTAS (5000 msl / Std Day)	106.9	107.0	0.1	0.999
2200	65% cruise KTAS (7500 msl / Std Day)	108.6	109.0	0.4	0.997
2200	75% cruise KTAS (2500 msl / Std Day)	109.5	111.0	1.5	0.986
2200	75% cruise KTAS (5000 msl / Std Day)	113.8	112.0	-1.8	0.984
2200	55% cruise FF (2500 msl / Std Day)	7.0	7.0	-0.0	0.999
2200	55% cruise FF (5000 msl / Std Day)	7.0	7.0	-0.0	0.999
2200	55% cruise FF (7500 msl / Std Day)	7.0	7.0	-0.0	0.999
2200	65% cruise FF (2500 msl / Std Day)	8.3	8.3	-0.0	0.999
2200	65% cruise FF (5000 msl / Std Day)	8.2	8.3	0.1	0.988
2200	65% cruise FF (7500 msl / Std Day)	8.2	8.3	0.1	0.988
2200	75% cruise FF (2500 msl / Std Day)	9.6	9.6	0.0	1.000
2200	75% cruise FF (5000 msl / Std Day)	9.6	9.3	-0.3	0.972
2200	Normal approach CAS (1.288 to 1)	58.2	58.2	-0.0	1.000
2200	Land roll (0 msl / -7 C)	428.0	430.0	2.0	0.995
2200	Land roll (0 msl / 16 C)	458.0	460.0	2.0	0.996
2200	Land roll (0 msl / 38 C)	486.0	490.0	4.0	0.992
2200	Land roll (4000 msl / -7 C)	482.0	490.0	8.0	0.983
2200	Land roll (4000 msl / 16 C)	512.0	520.0	8.0	0.984
2200	Land roll (4000 msl / 38 C)	540.0	560.0	20.0	0.963
2200	Land roll (7000 msl / -7 C)	522.0	540.0	18.0	0.966
2200	Land roll (7000 msl / 16 C)	552.0	580.0	28.0	0.949
2200	Land roll (7000 msl / 38 C)	580.0	630.0	50.0	0.914

C172M

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
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Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
1900	Takeoff Ground Run (0 msl / 0 C)	505.0	500.0	-5.0	0.990
1900	Takeoff Ground Run (0 msl / 20 C)	580.0	550.0	-30.0	0.948
1900	Takeoff Ground Run (0 msl / 30 C)	620.0	590.0	-30.0	0.952
1900	Takeoff Ground Run (3000 msl / 0 C)	660.0	630.0	-30.0	0.955
1900	Takeoff Ground Run (3000 msl / 20 C)	760.0	720.0	-40.0	0.947
1900	Takeoff Ground Run (3000 msl / 30 C)	815.0	770.0	-45.0	0.945
1900	Takeoff Ground Run (6000 msl / 0 C)	870.0	840.0	-30.0	0.966
1900	Takeoff Ground Run (6000 msl / 20 C)	1010.0	950.0	-60.0	0.941
1900	Takeoff Ground Run (6000 msl / 30 C)	1080.0	1020.0	-60.0	0.944
1900	Takeoff 50 (0 msl / 0 C)	915.0	950.0	35.0	0.962
1900	Takeoff 50 (0 msl / 20 C)	1035.0	1040.0	5.0	0.995
1900	Takeoff 50 (0 msl / 30 C)	1105.0	1100.0	-5.0	0.995
1900	Takeoff 50 (3000 msl / 0 C)	1180.0	1180.0	0.0	1.000
1900	Takeoff 50 (3000 msl / 20 C)	1345.0	1320.0	-25.0	0.981
1900	Takeoff 50 (3000 msl / 30 C)	1435.0	1390.0	-45.0	0.969
1900	Takeoff 50 (6000 msl / 0 C)	1555.0	1540.0	-15.0	0.990
1900	Takeoff 50 (6000 msl / 20 C)	1785.0	1720.0	-65.0	0.964
1900	Takeoff 50 (6000 msl / 30 C)	1910.0	1830.0	-80.0	0.958
1900	Takeoff KCAS	53.0	51.8	-1.2	0.978
2100	Takeoff Ground Run (0 msl / 0 C)	630.0	620.0	-10.0	0.984
2100	Takeoff Ground Run (0 msl / 20 C)	725.0	700.0	-25.0	0.966
2100	Takeoff Ground Run (0 msl / 30 C)	780.0	750.0	-30.0	0.962
2100	Takeoff Ground Run (3000 msl / 0 C)	830.0	800.0	-30.0	0.964
2100	Takeoff Ground Run (3000 msl / 20 C)	955.0	920.0	-35.0	0.963
2100	Takeoff Ground Run (3000 msl / 30 C)	1025.0	990.0	-35.0	0.966
2100	Takeoff Ground Run (6000 msl / 0 C)	1100.0	1080.0	-20.0	0.982
2100	Takeoff Ground Run (6000 msl / 20 C)	1275.0	1250.0	-25.0	0.980
2100	Takeoff Ground Run (6000 msl / 30 C)	1370.0	1360.0	-10.0	0.993
2100	Takeoff 50 (0 msl / 0 C)	1130.0	1160.0	30.0	0.973
2100	Takeoff 50 (0 msl / 20 C)	1290.0	1290.0	0.0	1.000

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
2100	Takeoff 50 (0 msl / 30 C)	1375.0	1370.0	-5.0	0.996
2100	Takeoff 50 (3000 msl / 0 C)	1475.0	1470.0	-5.0	0.997
2100	Takeoff 50 (3000 msl / 20 C)	1690.0	1670.0	-20.0	0.988
2100	Takeoff 50 (3000 msl / 30 C)	1805.0	1770.0	-35.0	0.981
2100	Takeoff 50 (6000 msl / 0 C)	1965.0	1960.0	-5.0	0.997
2100	Takeoff 50 (6000 msl / 20 C)	2270.0	2230.0	-40.0	0.982
2100	Takeoff 50 (6000 msl / 30 C)	2435.0	2390.0	-45.0	0.982
2100	Takeoff KCAS	55.0	54.5	-0.5	0.991
2300	Vg KCAS	66.0	66.0	0.0	1.000
2300	Vg Ratio	9.0	9.1	0.1	0.991
2300	Stall clean KCAS	51.5	51.5	-0.0	1.000
2300	Stall partial flaps KCAS	49.0	49.0	0.0	1.000
2300	Stall full flaps KCAS	45.5	45.5	-0.0	1.000
2300	Takeoff Ground Run (0 msl / 0 C)	775.0	860.0	85.0	0.890
2300	Takeoff Ground Run (0 msl / 20 C)	895.0	880.0	-15.0	0.983
2300	Takeoff Ground Run (0 msl / 30 C)	960.0	940.0	-20.0	0.979
2300	Takeoff Ground Run (3000 msl / 0 C)	1020.0	1020.0	0.0	1.000
2300	Takeoff Ground Run (3000 msl / 20 C)	1180.0	1180.0	0.0	1.000
2300	Takeoff Ground Run (3000 msl / 30 C)	1270.0	1270.0	0.0	1.000
2300	Takeoff Ground Run (6000 msl / 0 C)	1365.0	1400.0	35.0	0.974
2300	Takeoff Ground Run (6000 msl / 20 C)	1580.0	1630.0	50.0	0.968
2300	Takeoff Ground Run (6000 msl / 30 C)	1700.0	1780.0	80.0	0.953
2300	Takeoff 50 (0 msl / 0 C)	1380.0	1560.0	180.0	0.870
2300	Takeoff 50 (0 msl / 20 C)	1575.0	1590.0	15.0	0.990
2300	Takeoff 50 (0 msl / 30 C)	1685.0	1690.0	5.0	0.997
2300	Takeoff 50 (3000 msl / 0 C)	1815.0	1840.0	25.0	0.986
2300	Takeoff 50 (3000 msl / 20 C)	2085.0	2090.0	5.0	0.998
2300	Takeoff 50 (3000 msl / 30 C)	2235.0	2230.0	-5.0	0.998
2300	Takeoff 50 (6000 msl / 0 C)	2450.0	2480.0	30.0	0.988
2300	Takeoff 50 (6000 msl / 20 C)	2850.0	2870.0	20.0	0.993

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
2300	Takeoff 50 (6000 msl / 30 C)	3070.0	3100.0	30.0	0.990
2300	Takeoff KCAS	57.0	57.0	0.0	0.999
2300	Vx KCAS (0 msl / 0 C)	61.0	61.0	0.0	1.000
2300	Vy KCAS (0 msl / 40 C)	78.0	78.5	0.5	0.994
2300	Vy KCAS (4000 msl / 20 C)	74.0	75.4	1.4	0.981
2300	Vy KCAS (8000 msl / -20 C)	70.0	73.0	3.0	0.957
2300	Vy FPM (0 msl / -20 C)	755.0	702.7	-52.3	0.931
2300	Vy FPM (0 msl / 20 C)	630.0	625.5	-4.5	0.993
2300	Vy FPM (0 msl / 40 C)	565.0	585.7	20.7	0.963
2300	Vy FPM (4000 msl / -20 C)	555.0	543.2	-11.8	0.979
2300	Vy FPM (4000 msl / 20 C)	440.0	459.0	19.0	0.957
2300	Vy FPM (4000 msl / 40 C)	380.0	420.9	40.9	0.892
2300	Vy FPM (8000 msl / -20 C)	365.0	378.8	13.8	0.962
2300	Vy FPM (8000 msl / 20 C)	255.0	298.3	43.3	0.830
2300	Vy FPM (8000 msl / 40 C)	200.0	261.1	61.1	0.695
2300	55% cruise KTAS (2000 msl / Std Day)	98.0	98.0	0.0	1.000
2300	55% cruise KTAS (6000 msl / Std Day)	100.0	102.0	2.0	0.980
2300	55% cruise KTAS (10000 msl / Std Day)	103.5	106.0	2.5	0.976
2300	65% cruise KTAS (2000 msl / Std Day)	108.0	108.0	0.0	1.000
2300	65% cruise KTAS (6000 msl / Std Day)	110.0	111.0	1.0	0.991
2300	65% cruise KTAS (10000 msl / Std Day)	114.0	112.0	-2.0	0.982
2300	75% cruise KTAS (2000 msl / Std Day)	113.0	114.0	1.0	0.991
2300	75% cruise KTAS (6000 msl / Std Day)	118.0	116.0	-2.0	0.983
2300	55% cruise FF (2000 msl / Std Day)	6.5	6.3	-0.2	0.977
2300	55% cruise FF (6000 msl / Std Day)	6.4	6.3	-0.1	0.984
2300	55% cruise FF (10000 msl / Std Day)	6.5	6.3	-0.2	0.969
2300	65% cruise FF (2000 msl / Std Day)	7.3	7.3	0.0	0.999
2300	65% cruise FF (6000 msl / Std Day)	7.2	7.3	0.1	0.985
2300	65% cruise FF (10000 msl / Std Day)	7.3	7.0	-0.3	0.960
2300	75% cruise FF (2000 msl / Std Day)	8.2	8.4	0.2	0.976

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
2300	75% cruise FF (6000 msl / Std Day)	8.2	8.1	-0.1	0.984
2300	Normal approach CAS (1.363 to 1)	62.0	62.0	-0.0	1.000
2300	Land roll (0 msl / 0 C)	495.0	500.0	5.0	0.990
2300	Land roll (0 msl / 20 C)	530.0	530.0	0.0	1.000
2300	Land roll (0 msl / 40 C)	565.0	570.0	5.0	0.991
2300	Land roll (4000 msl / 0 C)	570.0	570.0	0.0	1.000
2300	Land roll (4000 msl / 20 C)	615.0	610.0	-5.0	0.992
2300	Land roll (4000 msl / 40 C)	655.0	650.0	-5.0	0.992
2300	Land roll (8000 msl / 0 C)	665.0	660.0	-5.0	0.992
2300	Land roll (8000 msl / 20 C)	710.0	700.0	-10.0	0.986
2300	Land roll (8000 msl / 40 C)	760.0	750.0	-10.0	0.987

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Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
1900	Takeoff Ground Run (0 msl / 0 C)	470.0	460.0	-10.0	0.979
1900	Takeoff Ground Run (0 msl / 20 C)	540.0	520.0	-20.0	0.963
1900	Takeoff Ground Run (0 msl / 30 C)	580.0	550.0	-30.0	0.948
1900	Takeoff Ground Run (3000 msl / 0 C)	615.0	590.0	-25.0	0.959
1900	Takeoff Ground Run (3000 msl / 20 C)	710.0	670.0	-40.0	0.944
1900	Takeoff Ground Run (3000 msl / 30 C)	760.0	710.0	-50.0	0.934
1900	Takeoff Ground Run (6000 msl / 0 C)	810.0	760.0	-50.0	0.938
1900	Takeoff Ground Run (6000 msl / 20 C)	940.0	880.0	-60.0	0.936
1900	Takeoff Ground Run (6000 msl / 30 C)	1010.0	940.0	-70.0	0.931
1900	Takeoff 50 (0 msl / 0 C)	865.0	920.0	55.0	0.936
1900	Takeoff 50 (0 msl / 20 C)	985.0	1020.0	35.0	0.964
1900	Takeoff 50 (0 msl / 30 C)	1045.0	1070.0	25.0	0.976
1900	Takeoff 50 (3000 msl / 0 C)	1115.0	1140.0	25.0	0.978
1900	Takeoff 50 (3000 msl / 20 C)	1275.0	1270.0	-5.0	0.996
1900	Takeoff 50 (3000 msl / 30 C)	1365.0	1340.0	-25.0	0.982
1900	Takeoff 50 (6000 msl / 0 C)	1470.0	1450.0	-20.0	0.986

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
1900	Takeoff 50 (6000 msl / 20 C)	1690.0	1640.0	-50.0	0.970
1900	Takeoff 50 (6000 msl / 30 C)	1810.0	1730.0	-80.0	0.956
1900	Takeoff KCAS	53.0	51.8	-1.2	0.978
2100	Takeoff Ground Run (0 msl / 0 C)	585.0	570.0	-15.0	0.974
2100	Takeoff Ground Run (0 msl / 20 C)	680.0	650.0	-30.0	0.956
2100	Takeoff Ground Run (0 msl / 30 C)	725.0	690.0	-35.0	0.952
2100	Takeoff Ground Run (3000 msl / 0 C)	770.0	750.0	-20.0	0.974
2100	Takeoff Ground Run (3000 msl / 20 C)	890.0	850.0	-40.0	0.955
2100	Takeoff Ground Run (3000 msl / 30 C)	955.0	910.0	-45.0	0.953
2100	Takeoff Ground Run (6000 msl / 0 C)	1025.0	980.0	-45.0	0.956
2100	Takeoff Ground Run (6000 msl / 20 C)	1185.0	1140.0	-45.0	0.962
2100	Takeoff Ground Run (6000 msl / 30 C)	1275.0	1230.0	-45.0	0.965
2100	Takeoff 50 (0 msl / 0 C)	1070.0	1120.0	50.0	0.953
2100	Takeoff 50 (0 msl / 20 C)	1220.0	1240.0	20.0	0.984
2100	Takeoff 50 (0 msl / 30 C)	1300.0	1310.0	10.0	0.992
2100	Takeoff 50 (3000 msl / 0 C)	1390.0	1420.0	30.0	0.978
2100	Takeoff 50 (3000 msl / 20 C)	1595.0	1590.0	-5.0	0.997
2100	Takeoff 50 (3000 msl / 30 C)	1710.0	1690.0	-20.0	0.988
2100	Takeoff 50 (6000 msl / 0 C)	1850.0	1840.0	-10.0	0.995
2100	Takeoff 50 (6000 msl / 20 C)	2140.0	2100.0	-40.0	0.981
2100	Takeoff 50 (6000 msl / 30 C)	2300.0	2240.0	-60.0	0.974
2100	Takeoff KCAS	55.0	54.5	-0.5	0.991
2300	Vg KCAS	66.0	66.0	0.0	1.000
2300	Vg Ratio	9.0	9.1	0.1	0.991
2300	Stall clean KCAS	51.5	51.5	-0.0	1.000
2300	Stall partial flaps KCAS	49.0	49.0	0.0	1.000
2300	Stall full flaps KCAS	45.5	45.5	-0.0	1.000
2300	Takeoff Ground Run (0 msl / 0 C)	720.0	790.0	70.0	0.903
2300	Takeoff Ground Run (0 msl / 20 C)	835.0	820.0	-15.0	0.982
2300	Takeoff Ground Run (0 msl / 30 C)	895.0	870.0	-25.0	0.972

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
2300	Takeoff Ground Run (3000 msl / 0 C)	950.0	940.0	-10.0	0.989
2300	Takeoff Ground Run (3000 msl / 20 C)	1100.0	1080.0	-20.0	0.982
2300	Takeoff Ground Run (3000 msl / 30 C)	1185.0	1150.0	-35.0	0.970
2300	Takeoff Ground Run (6000 msl / 0 C)	1265.0	1260.0	-5.0	0.996
2300	Takeoff Ground Run (6000 msl / 20 C)	1475.0	1470.0	-5.0	0.997
2300	Takeoff Ground Run (6000 msl / 30 C)	1585.0	1600.0	15.0	0.991
2300	Takeoff 50 (0 msl / 0 C)	1300.0	1480.0	180.0	0.862
2300	Takeoff 50 (0 msl / 20 C)	1490.0	1520.0	30.0	0.980
2300	Takeoff 50 (0 msl / 30 C)	1590.0	1610.0	20.0	0.987
2300	Takeoff 50 (3000 msl / 0 C)	1710.0	1760.0	50.0	0.971
2300	Takeoff 50 (3000 msl / 20 C)	1970.0	1980.0	10.0	0.995
2300	Takeoff 50 (3000 msl / 30 C)	2115.0	2090.0	-25.0	0.988
2300	Takeoff 50 (6000 msl / 0 C)	2305.0	2320.0	15.0	0.993
2300	Takeoff 50 (6000 msl / 20 C)	2680.0	2650.0	-30.0	0.989
2300	Takeoff 50 (6000 msl / 30 C)	2895.0	2870.0	-25.0	0.991
2300	Takeoff KCAS	57.0	57.0	0.0	0.999
2300	Vx KCAS (0 msl / 0 C)	61.0	59.0	-2.0	0.967
2300	Vy KCAS (0 msl / 40 C)	73.0	78.5	5.5	0.925
2300	Vy KCAS (4000 msl / 20 C)	71.0	76.3	5.3	0.925
2300	Vy KCAS (8000 msl / -20 C)	69.0	73.8	4.8	0.930
2300	Vy FPM (0 msl / -20 C)	875.0	786.6	-88.4	0.899
2300	Vy FPM (0 msl / 20 C)	755.0	706.3	-48.7	0.936
2300	Vy FPM (0 msl / 40 C)	695.0	665.0	-30.0	0.957
2300	Vy FPM (4000 msl / -20 C)	655.0	618.3	-36.7	0.944
2300	Vy FPM (4000 msl / 20 C)	545.0	530.4	-14.6	0.973
2300	Vy FPM (4000 msl / 40 C)	485.0	490.6	5.6	0.988
2300	Vy FPM (8000 msl / -20 C)	440.0	444.0	4.0	0.991
2300	Vy FPM (8000 msl / 20 C)	335.0	361.0	26.0	0.922
2300	Vy FPM (8000 msl / 40 C)	280.0	322.5	42.5	0.848
2300	55% cruise KTAS (2000 msl / Std Day)	101.0	102.0	1.0	0.990

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
2300	55% cruise KTAS (6000 msl / Std Day)	105.0	107.0	2.0	0.981
2300	55% cruise KTAS (10000 msl / Std Day)	108.0	110.0	2.0	0.981
2300	65% cruise KTAS (2000 msl / Std Day)	109.0	111.0	2.0	0.982
2300	65% cruise KTAS (6000 msl / Std Day)	113.0	114.0	1.0	0.991
2300	65% cruise KTAS (10000 msl / Std Day)	116.0	115.0	-1.0	0.991
2300	75% cruise KTAS (2000 msl / Std Day)	116.0	117.0	1.0	0.991
2300	75% cruise KTAS (6000 msl / Std Day)	120.0	118.0	-2.0	0.983
2300	55% cruise FF (2000 msl / Std Day)	6.2	6.5	0.3	0.957
2300	55% cruise FF (6000 msl / Std Day)	6.4	6.5	0.1	0.989
2300	55% cruise FF (10000 msl / Std Day)	6.2	6.5	0.3	0.957
2300	65% cruise FF (2000 msl / Std Day)	7.3	7.1	-0.2	0.975
2300	65% cruise FF (6000 msl / Std Day)	7.3	7.1	-0.2	0.975
2300	65% cruise FF (10000 msl / Std Day)	7.2	6.9	-0.3	0.962
2300	75% cruise FF (2000 msl / Std Day)	8.4	8.9	0.5	0.940
2300	75% cruise FF (6000 msl / Std Day)	8.4	8.4	-0.0	0.994
2300	Normal approach CAS (1.363 to 1)	62.0	62.0	-0.0	1.000
2300	Land roll (0 msl / 0 C)	495.0	500.0	5.0	0.990
2300	Land roll (0 msl / 20 C)	530.0	530.0	0.0	1.000
2300	Land roll (0 msl / 40 C)	565.0	570.0	5.0	0.991
2300	Land roll (4000 msl / 0 C)	570.0	570.0	0.0	1.000
2300	Land roll (4000 msl / 20 C)	615.0	610.0	-5.0	0.992
2300	Land roll (4000 msl / 40 C)	655.0	650.0	-5.0	0.992
2300	Land roll (8000 msl / 0 C)	665.0	660.0	-5.0	0.992
2300	Land roll (8000 msl / 20 C)	710.0	700.0	-10.0	0.986
2300	Land roll (8000 msl / 40 C)	760.0	750.0	-10.0	0.987

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REPORT NOTE 8000/12000 ft cruise delta caused by %power available at those altitudes. See TLAR manual for details

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
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Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
2200	Takeoff Ground Run (0 msl / 0 C)	610.0	620.0	10.0	0.984
2200	Takeoff Ground Run (0 msl / 20 C)	705.0	700.0	-5.0	0.993
2200	Takeoff Ground Run (0 msl / 30 C)	760.0	750.0	-10.0	0.987
2200	Takeoff Ground Run (4000 msl / 0 C)	870.0	880.0	10.0	0.989
2200	Takeoff Ground Run (4000 msl / 20 C)	1010.0	1000.0	-10.0	0.990
2200	Takeoff Ground Run (4000 msl / 30 C)	1090.0	1070.0	-20.0	0.982
2200	Takeoff Ground Run (8000 msl / 0 C)	1270.0	1300.0	30.0	0.976
2200	Takeoff Ground Run (8000 msl / 20 C)	1475.0	1520.0	45.0	0.969
2200	Takeoff Ground Run (8000 msl / 30 C)	1580.0	1640.0	60.0	0.962
2200	Takeoff 50 (0 msl / 0 C)	1055.0	1060.0	5.0	0.995
2200	Takeoff 50 (0 msl / 20 C)	1205.0	1190.0	-15.0	0.988
2200	Takeoff 50 (0 msl / 30 C)	1290.0	1260.0	-30.0	0.977
2200	Takeoff 50 (4000 msl / 0 C)	1490.0	1480.0	-10.0	0.993
2200	Takeoff 50 (4000 msl / 20 C)	1725.0	1670.0	-55.0	0.968
2200	Takeoff 50 (4000 msl / 30 C)	1855.0	1770.0	-85.0	0.954
2200	Takeoff 50 (8000 msl / 0 C)	2195.0	2170.0	-25.0	0.989
2200	Takeoff 50 (8000 msl / 20 C)	2555.0	2500.0	-55.0	0.978
2200	Takeoff 50 (8000 msl / 30 C)	2745.0	2700.0	-45.0	0.984
2200	Takeoff KCAS	53.0	57.4	4.4	0.917
2400	Takeoff Ground Run (0 msl / 0 C)	745.0	760.0	15.0	0.980
2400	Takeoff Ground Run (0 msl / 20 C)	860.0	860.0	0.0	1.000
2400	Takeoff Ground Run (0 msl / 30 C)	925.0	930.0	5.0	0.995
2400	Takeoff Ground Run (4000 msl / 0 C)	1065.0	1090.0	25.0	0.977
2400	Takeoff Ground Run (4000 msl / 20 C)	1240.0	1260.0	20.0	0.984
2400	Takeoff Ground Run (4000 msl / 30 C)	1335.0	1350.0	15.0	0.989
2400	Takeoff Ground Run (8000 msl / 0 C)	1560.0	1680.0	120.0	0.923
2400	Takeoff Ground Run (8000 msl / 20 C)	1815.0	1980.0	165.0	0.909
2400	Takeoff Ground Run (8000 msl / 30 C)	1950.0	2160.0	210.0	0.892
2400	Takeoff 50 (0 msl / 0 C)	1275.0	1290.0	15.0	0.988
2400	Takeoff 50 (0 msl / 20 C)	1470.0	1450.0	-20.0	0.986

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
2400	Takeoff 50 (0 msl / 30 C)	1570.0	1540.0	-30.0	0.981
2400	Takeoff 50 (4000 msl / 0 C)	1830.0	1830.0	0.0	1.000
2400	Takeoff 50 (4000 msl / 20 C)	2130.0	2090.0	-40.0	0.981
2400	Takeoff 50 (4000 msl / 30 C)	2295.0	2230.0	-65.0	0.972
2400	Takeoff 50 (8000 msl / 0 C)	2755.0	2790.0	35.0	0.987
2400	Takeoff 50 (8000 msl / 20 C)	3240.0	3270.0	30.0	0.991
2400	Takeoff 50 (8000 msl / 30 C)	3500.0	3540.0	40.0	0.989
2400	Takeoff KCAS	56.0	60.0	4.0	0.929
2550	Vg KCAS	68.4	68.0	-0.4	0.994
2550	Vg Ratio	9.0	9.0	0.0	0.995
2550	Stall clean KCAS	53.0	53.0	0.0	1.000
2550	Stall partial flaps KCAS	50.0	50.0	0.0	1.000
2550	Stall full flaps KCAS	48.0	48.0	0.0	1.000
2550	Takeoff Ground Run (0 msl / 0 C)	860.0	970.0	110.0	0.872
2550	Takeoff Ground Run (0 msl / 20 C)	995.0	1010.0	15.0	0.985
2550	Takeoff Ground Run (0 msl / 30 C)	1070.0	1080.0	10.0	0.991
2550	Takeoff Ground Run (4000 msl / 0 C)	1235.0	1290.0	55.0	0.955
2550	Takeoff Ground Run (4000 msl / 20 C)	1440.0	1500.0	60.0	0.958
2550	Takeoff Ground Run (4000 msl / 30 C)	1550.0	1610.0	60.0	0.961
2550	Takeoff Ground Run (8000 msl / 0 C)	1820.0	2020.0	200.0	0.890
2550	Takeoff Ground Run (8000 msl / 20 C)	2120.0	2430.0	310.0	0.854
2550	Takeoff Ground Run (8000 msl / 30 C)	2280.0	2670.0	390.0	0.829
2550	Takeoff 50 (0 msl / 0 C)	1465.0	1630.0	165.0	0.887
2550	Takeoff 50 (0 msl / 20 C)	1690.0	1690.0	0.0	1.000
2550	Takeoff 50 (0 msl / 30 C)	1810.0	1790.0	-20.0	0.989
2550	Takeoff 50 (4000 msl / 0 C)	2120.0	2160.0	40.0	0.981
2550	Takeoff 50 (4000 msl / 20 C)	2480.0	2470.0	-10.0	0.996
2550	Takeoff 50 (4000 msl / 30 C)	2685.0	2640.0	-45.0	0.983
2550	Takeoff 50 (8000 msl / 0 C)	3265.0	3380.0	115.0	0.965
2550	Takeoff 50 (8000 msl / 20 C)	3880.0	4020.0	140.0	0.964

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
2550	Takeoff 50 (8000 msl / 30 C)	4225.0	4410.0	185.0	0.956
2550	Takeoff KCAS	58.0	61.8	3.8	0.934
2550	Vx KCAS (0 msl / 0 C)	61.0	62.0	1.0	0.983
2550	Vy KCAS (0 msl / 40 C)	74.0	76.6	2.6	0.965
2550	Vy KCAS (4000 msl / 20 C)	73.0	75.4	2.4	0.967
2550	Vy KCAS (8000 msl / 0 C)	72.0	73.0	1.0	0.986
2550	Vy FPM (0 msl / 0 C)	785.0	784.4	-0.6	0.999
2550	Vy FPM (0 msl / 20 C)	710.0	730.6	20.6	0.971
2550	Vy FPM (0 msl / 40 C)	645.0	680.3	35.3	0.945
2550	Vy FPM (4000 msl / 0 C)	620.0	584.7	-35.3	0.943
2550	Vy FPM (4000 msl / 20 C)	555.0	533.7	-21.3	0.962
2550	Vy FPM (4000 msl / 40 C)	495.0	485.4	-9.6	0.981
2550	Vy FPM (8000 msl / 0 C)	405.0	392.3	-12.7	0.969
2550	Vy FPM (8000 msl / 20 C)	345.0	343.4	-1.6	0.995
2550	Vy FPM (8000 msl / 40 C)	285.0	296.5	11.5	0.960
2550	55% cruise KTAS (4000 msl / Std Day)	103.0	104.0	1.0	0.990
2550	55% cruise KTAS (8000 msl / Std Day)	105.0	107.0	2.0	0.981
2550	55% cruise KTAS (12000 msl / Std Day)	109.0	110.0	1.0	0.991
2550	65% cruise KTAS (4000 msl / Std Day)	112.0	114.0	2.0	0.982
2550	65% cruise KTAS (8000 msl / Std Day)	115.0	118.0	3.0	0.974
2550	65% cruise KTAS (12000 msl / Std Day)	119.0	115.0	-4.0	0.966
2550	75% cruise KTAS (4000 msl / Std Day)	118.5	121.0	2.5	0.979
2550	75% cruise KTAS (8000 msl / Std Day)	123.0	120.0	-3.0	0.976
2550	55% cruise FF (4000 msl / Std Day)	7.8	7.9	0.1	0.985
2550	55% cruise FF (8000 msl / Std Day)	7.7	7.9	0.2	0.972
2550	55% cruise FF (12000 msl / Std Day)	7.8	7.9	0.1	0.985
2550	65% cruise FF (4000 msl / Std Day)	9.0	9.1	0.1	0.989
2550	65% cruise FF (8000 msl / Std Day)	9.1	9.1	0.0	1.000
2550	65% cruise FF (12000 msl / Std Day)	8.9	8.4	-0.5	0.943
2550	75% cruise FF (4000 msl / Std Day)	10.2	10.2	0.1	0.994

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
2550	75% cruise FF (8000 msl / Std Day)	10.2	9.4	-0.8	0.925
2550	Normal approach CAS (1.333 to 1)	64.0	64.0	-0.0	1.000
2550	Land roll (0 msl / 0 C)	545.0	550.0	5.0	0.991
2550	Land roll (0 msl / 20 C)	585.0	580.0	-5.0	0.991
2550	Land roll (0 msl / 40 C)	605.0	620.0	15.0	0.975
2550	Land roll (4000 msl / 0 C)	630.0	630.0	0.0	1.000
2550	Land roll (4000 msl / 20 C)	675.0	670.0	-5.0	0.993
2550	Land roll (4000 msl / 40 C)	700.0	720.0	20.0	0.971
2550	Land roll (8000 msl / 0 C)	735.0	720.0	-15.0	0.980
2550	Land roll (8000 msl / 20 C)	790.0	770.0	-20.0	0.975
2550	Land roll (8000 msl / 40 C)	815.0	830.0	15.0	0.982

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Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
2400	Vg KCAS	69.0	69.0	0.0	1.000
2400	Vg Ratio	10.5	10.6	0.1	0.995
2400	Takeoff Ground Run (0 msl / 0 C)	395.0	400.0	5.0	0.987
2400	Takeoff Ground Run (0 msl / 20 C)	450.0	450.0	0.0	1.000
2400	Takeoff Ground Run (0 msl / 30 C)	485.0	470.0	-15.0	0.969
2400	Takeoff Ground Run (3000 msl / 0 C)	510.0	500.0	-10.0	0.980
2400	Takeoff Ground Run (3000 msl / 20 C)	590.0	570.0	-20.0	0.966
2400	Takeoff Ground Run (3000 msl / 30 C)	630.0	600.0	-30.0	0.952
2400	Takeoff Ground Run (6000 msl / 0 C)	670.0	650.0	-20.0	0.970
2400	Takeoff Ground Run (6000 msl / 20 C)	775.0	750.0	-25.0	0.968
2400	Takeoff Ground Run (6000 msl / 30 C)	830.0	800.0	-30.0	0.964
2400	Takeoff 50 (0 msl / 0 C)	770.0	890.0	120.0	0.844
2400	Takeoff 50 (0 msl / 20 C)	875.0	980.0	105.0	0.880
2400	Takeoff 50 (0 msl / 30 C)	930.0	1010.0	80.0	0.914
2400	Takeoff 50 (3000 msl / 0 C)	995.0	1080.0	85.0	0.915
2400	Takeoff 50 (3000 msl / 20 C)	1135.0	1190.0	55.0	0.952

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
2400	Takeoff 50 (3000 msl / 30 C)	1210.0	1230.0	20.0	0.983
2400	Takeoff 50 (6000 msl / 0 C)	1310.0	1340.0	30.0	0.977
2400	Takeoff 50 (6000 msl / 20 C)	1505.0	1490.0	-15.0	0.990
2400	Takeoff 50 (6000 msl / 30 C)	1610.0	1560.0	-50.0	0.969
2400	Takeoff KCAS	49.0	49.0	0.0	1.000
2600	Takeoff Ground Run (0 msl / 0 C)	475.0	470.0	-5.0	0.989
2600	Takeoff Ground Run (0 msl / 20 C)	545.0	530.0	-15.0	0.972
2600	Takeoff Ground Run (0 msl / 30 C)	585.0	570.0	-15.0	0.974
2600	Takeoff Ground Run (3000 msl / 0 C)	620.0	600.0	-20.0	0.968
2600	Takeoff Ground Run (3000 msl / 20 C)	710.0	690.0	-20.0	0.972
2600	Takeoff Ground Run (3000 msl / 30 C)	765.0	740.0	-25.0	0.967
2600	Takeoff Ground Run (6000 msl / 0 C)	815.0	800.0	-15.0	0.982
2600	Takeoff Ground Run (6000 msl / 20 C)	945.0	920.0	-25.0	0.974
2600	Takeoff Ground Run (6000 msl / 30 C)	1015.0	990.0	-25.0	0.975
2600	Takeoff 50 (0 msl / 0 C)	925.0	1030.0	105.0	0.886
2600	Takeoff 50 (0 msl / 20 C)	1050.0	1120.0	70.0	0.933
2600	Takeoff 50 (0 msl / 30 C)	1120.0	1180.0	60.0	0.946
2600	Takeoff 50 (3000 msl / 0 C)	1200.0	1260.0	60.0	0.950
2600	Takeoff 50 (3000 msl / 20 C)	1375.0	1390.0	15.0	0.989
2600	Takeoff 50 (3000 msl / 30 C)	1470.0	1460.0	-10.0	0.993
2600	Takeoff 50 (6000 msl / 0 C)	1600.0	1600.0	0.0	1.000
2600	Takeoff 50 (6000 msl / 20 C)	1850.0	1790.0	-60.0	0.968
2600	Takeoff 50 (6000 msl / 30 C)	1990.0	1900.0	-90.0	0.955
2600	Takeoff KCAS	51.0	51.0	0.0	0.999
2800	Vg KCAS	74.0	75.0	1.0	0.986
2800	Vg Ratio	10.5	10.6	0.1	0.995
2800	Stall clean KCAS	54.0	54.0	0.0	1.000
2800	Stall partial flaps KCAS	50.0	50.0	0.0	1.000
2800	Stall full flaps KCAS	49.0	49.0	0.0	1.000
2800	Takeoff Ground Run (0 msl / 0 C)	560.0	620.0	60.0	0.893

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
2800	Takeoff Ground Run (0 msl / 20 C)	645.0	630.0	-15.0	0.977
2800	Takeoff Ground Run (0 msl / 30 C)	695.0	670.0	-25.0	0.964
2800	Takeoff Ground Run (3000 msl / 0 C)	735.0	730.0	-5.0	0.993
2800	Takeoff Ground Run (3000 msl / 20 C)	850.0	840.0	-10.0	0.988
2800	Takeoff Ground Run (3000 msl / 30 C)	910.0	900.0	-10.0	0.989
2800	Takeoff Ground Run (6000 msl / 0 C)	975.0	990.0	15.0	0.985
2800	Takeoff Ground Run (6000 msl / 20 C)	1130.0	1140.0	10.0	0.991
2800	Takeoff Ground Run (6000 msl / 30 C)	1215.0	1230.0	15.0	0.988
2800	Takeoff 50 (0 msl / 0 C)	1090.0	1270.0	180.0	0.835
2800	Takeoff 50 (0 msl / 20 C)	1245.0	1290.0	45.0	0.964
2800	Takeoff 50 (0 msl / 30 C)	1330.0	1350.0	20.0	0.985
2800	Takeoff 50 (3000 msl / 0 C)	1430.0	1480.0	50.0	0.965
2800	Takeoff 50 (3000 msl / 20 C)	1645.0	1640.0	-5.0	0.997
2800	Takeoff 50 (3000 msl / 30 C)	1765.0	1740.0	-25.0	0.986
2800	Takeoff 50 (6000 msl / 0 C)	1935.0	1920.0	-15.0	0.992
2800	Takeoff 50 (6000 msl / 20 C)	2255.0	2190.0	-65.0	0.971
2800	Takeoff 50 (6000 msl / 30 C)	2435.0	2340.0	-95.0	0.961
2800	Takeoff KCAS	53.0	53.0	-0.0	0.999
2800	Vx KCAS (0 msl / 0 C)	58.0	63.0	5.0	0.914
2800	Vy KCAS (0 msl / 40 C)	80.0	77.5	-2.5	0.969
2800	Vy KCAS (4000 msl / 20 C)	77.0	75.4	-1.6	0.980
2800	Vy KCAS (8000 msl / -20 C)	74.0	73.8	-0.2	0.998
2800	Vy FPM (0 msl / -20 C)	1250.0	1138.3	-111.7	0.911
2800	Vy FPM (0 msl / 20 C)	1080.0	1030.9	-49.1	0.955
2800	Vy FPM (0 msl / 40 C)	995.0	972.5	-22.5	0.977
2800	Vy FPM (4000 msl / -20 C)	980.0	920.9	-59.1	0.940
2800	Vy FPM (4000 msl / 20 C)	825.0	798.7	-26.3	0.968
2800	Vy FPM (4000 msl / 40 C)	750.0	740.8	-9.2	0.988
2800	Vy FPM (8000 msl / -20 C)	715.0	692.2	-22.8	0.968
2800	Vy FPM (8000 msl / 20 C)	575.0	572.4	-2.6	0.996

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
2800	Vy FPM (8000 msl / 40 C)	505.0	517.2	12.2	0.976
2800	55% cruise KTAS (2000 msl / Std Day)	117.0	116.0	-1.0	0.991
2800	55% cruise KTAS (6000 msl / Std Day)	120.5	121.0	0.5	0.996
2800	55% cruise KTAS (10000 msl / Std Day)	124.0	125.0	1.0	0.992
2800	65% cruise KTAS (2000 msl / Std Day)	126.0	126.0	0.0	1.000
2800	65% cruise KTAS (6000 msl / Std Day)	131.0	131.0	0.0	1.000
2800	65% cruise KTAS (10000 msl / Std Day)	135.0	136.0	1.0	0.993
2800	75% cruise KTAS (2000 msl / Std Day)	134.0	134.0	0.0	1.000
2800	75% cruise KTAS (6000 msl / Std Day)	139.0	139.0	0.0	1.000
2800	55% cruise FF (2000 msl / Std Day)	9.4	9.5	0.1	0.990
2800	55% cruise FF (6000 msl / Std Day)	9.5	9.5	-0.0	0.999
2800	55% cruise FF (10000 msl / Std Day)	9.4	9.5	0.1	0.990
2800	65% cruise FF (2000 msl / Std Day)	11.1	11.1	0.0	0.999
2800	65% cruise FF (6000 msl / Std Day)	11.1	11.1	0.0	0.999
2800	65% cruise FF (10000 msl / Std Day)	11.1	11.1	-0.0	0.996
2800	75% cruise FF (2000 msl / Std Day)	12.8	12.7	-0.1	0.994
2800	75% cruise FF (6000 msl / Std Day)	12.8	12.6	-0.3	0.977
2800	Normal approach CAS (1.327 to 1)	65.0	65.0	-0.0	1.000
2800	Land roll (0 msl / 0 C)	455.0	470.0	15.0	0.967
2800	Land roll (0 msl / 20 C)	490.0	500.0	10.0	0.980
2800	Land roll (0 msl / 40 C)	520.0	530.0	10.0	0.981
2800	Land roll (4000 msl / 0 C)	525.0	530.0	5.0	0.990
2800	Land roll (4000 msl / 20 C)	565.0	570.0	5.0	0.991
2800	Land roll (4000 msl / 40 C)	605.0	610.0	5.0	0.992
2800	Land roll (8000 msl / 0 C)	615.0	610.0	-5.0	0.992
2800	Land roll (8000 msl / 20 C)	655.0	650.0	-5.0	0.992
2800	Land roll (8000 msl / 40 C)	700.0	700.0	0.0	1.000

C182P

REPORT NOTE TLAR cruise speed slow vs POH. However, C182P POH vs C180K POH also inconsistent. See TLAR

manual for details

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
2400	Takeoff Ground Run (0 msl / 0 C)	395.0	400.0	5.0	0.987
2400	Takeoff Ground Run (0 msl / 20 C)	455.0	440.0	-15.0	0.967
2400	Takeoff Ground Run (0 msl / 30 C)	485.0	470.0	-15.0	0.969
2400	Takeoff Ground Run (3000 msl / 0 C)	515.0	500.0	-15.0	0.971
2400	Takeoff Ground Run (3000 msl / 20 C)	590.0	570.0	-20.0	0.966
2400	Takeoff Ground Run (3000 msl / 30 C)	630.0	600.0	-30.0	0.952
2400	Takeoff Ground Run (6000 msl / 0 C)	670.0	650.0	-20.0	0.970
2400	Takeoff Ground Run (6000 msl / 20 C)	770.0	750.0	-20.0	0.974
2400	Takeoff Ground Run (6000 msl / 30 C)	825.0	800.0	-25.0	0.970
2400	Takeoff 50 (0 msl / 0 C)	775.0	820.0	45.0	0.942
2400	Takeoff 50 (0 msl / 20 C)	875.0	900.0	25.0	0.971
2400	Takeoff 50 (0 msl / 30 C)	930.0	950.0	20.0	0.978
2400	Takeoff 50 (3000 msl / 0 C)	995.0	1020.0	25.0	0.975
2400	Takeoff 50 (3000 msl / 20 C)	1130.0	1130.0	0.0	1.000
2400	Takeoff 50 (3000 msl / 30 C)	1205.0	1210.0	5.0	0.996
2400	Takeoff 50 (6000 msl / 0 C)	1300.0	1310.0	10.0	0.992
2400	Takeoff 50 (6000 msl / 20 C)	1490.0	1480.0	-10.0	0.993
2400	Takeoff 50 (6000 msl / 30 C)	1595.0	1560.0	-35.0	0.978
2400	Takeoff KCAS	53.0	49.5	-3.5	0.934
2700	Takeoff Ground Run (0 msl / 0 C)	520.0	520.0	0.0	1.000
2700	Takeoff Ground Run (0 msl / 20 C)	595.0	580.0	-15.0	0.975
2700	Takeoff Ground Run (0 msl / 30 C)	635.0	610.0	-25.0	0.961
2700	Takeoff Ground Run (3000 msl / 0 C)	675.0	670.0	-5.0	0.993
2700	Takeoff Ground Run (3000 msl / 20 C)	775.0	760.0	-15.0	0.981
2700	Takeoff Ground Run (3000 msl / 30 C)	830.0	810.0	-20.0	0.976
2700	Takeoff Ground Run (6000 msl / 0 C)	885.0	880.0	-5.0	0.994
2700	Takeoff Ground Run (6000 msl / 20 C)	1020.0	1020.0	0.0	1.000
2700	Takeoff Ground Run (6000 msl / 30 C)	1095.0	1100.0	5.0	0.995

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
2700	Takeoff 50 (0 msl / 0 C)	1000.0	1050.0	50.0	0.950
2700	Takeoff 50 (0 msl / 20 C)	1135.0	1160.0	25.0	0.978
2700	Takeoff 50 (0 msl / 30 C)	1210.0	1230.0	20.0	0.983
2700	Takeoff 50 (3000 msl / 0 C)	1295.0	1340.0	45.0	0.965
2700	Takeoff 50 (3000 msl / 20 C)	1485.0	1490.0	5.0	0.997
2700	Takeoff 50 (3000 msl / 30 C)	1585.0	1570.0	-15.0	0.991
2700	Takeoff 50 (6000 msl / 0 C)	1730.0	1730.0	0.0	1.000
2700	Takeoff 50 (6000 msl / 20 C)	1995.0	1970.0	-25.0	0.987
2700	Takeoff 50 (6000 msl / 30 C)	2150.0	2100.0	-50.0	0.977
2700	Takeoff KCAS	56.0	52.5	-3.5	0.937
2950	Vg KCAS	72.0	73.0	1.0	0.986
2950	Vg Ratio	9.5	9.7	0.2	0.982
2950	Stall clean KCAS	57.5	57.5	0.0	1.000
2950	Stall partial flaps KCAS	53.0	53.0	0.0	1.000
2950	Stall full flaps KCAS	52.0	52.0	0.0	1.000
2950	Takeoff Ground Run (0 msl / 0 C)	635.0	690.0	55.0	0.913
2950	Takeoff Ground Run (0 msl / 20 C)	730.0	720.0	-10.0	0.986
2950	Takeoff Ground Run (0 msl / 30 C)	780.0	770.0	-10.0	0.987
2950	Takeoff Ground Run (3000 msl / 0 C)	825.0	830.0	5.0	0.994
2950	Takeoff Ground Run (3000 msl / 20 C)	950.0	960.0	10.0	0.989
2950	Takeoff Ground Run (3000 msl / 30 C)	1020.0	1030.0	10.0	0.990
2950	Takeoff Ground Run (6000 msl / 0 C)	1090.0	1140.0	50.0	0.954
2950	Takeoff Ground Run (6000 msl / 20 C)	1260.0	1330.0	70.0	0.944
2950	Takeoff Ground Run (6000 msl / 30 C)	1350.0	1440.0	90.0	0.933
2950	Takeoff 50 (0 msl / 0 C)	1220.0	1370.0	150.0	0.877
2950	Takeoff 50 (0 msl / 20 C)	1395.0	1420.0	25.0	0.982
2950	Takeoff 50 (0 msl / 30 C)	1490.0	1500.0	10.0	0.993
2950	Takeoff 50 (3000 msl / 0 C)	1605.0	1640.0	35.0	0.978
2950	Takeoff 50 (3000 msl / 20 C)	1850.0	1850.0	0.0	1.000
2950	Takeoff 50 (3000 msl / 30 C)	1985.0	1980.0	-5.0	0.997

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
2950	Takeoff 50 (6000 msl / 0 C)	2185.0	2190.0	5.0	0.998
2950	Takeoff 50 (6000 msl / 20 C)	2555.0	2500.0	-55.0	0.978
2950	Takeoff 50 (6000 msl / 30 C)	2765.0	2690.0	-75.0	0.973
2950	Takeoff KCAS	57.0	54.9	-2.1	0.963
2950	Vx KCAS (0 msl / 0 C)	62.0	64.0	2.0	0.968
2950	Vy KCAS (0 msl / 40 C)	80.0	83.3	3.3	0.959
2950	Vy KCAS (4000 msl / 20 C)	77.0	81.7	4.7	0.940
2950	Vy KCAS (8000 msl / -20 C)	75.0	78.8	3.8	0.950
2950	Vy FPM (0 msl / -20 C)	1040.0	1009.7	-30.3	0.971
2950	Vy FPM (0 msl / 20 C)	870.0	904.0	34.0	0.961
2950	Vy FPM (0 msl / 40 C)	785.0	852.2	67.2	0.914
2950	Vy FPM (4000 msl / -20 C)	820.0	801.2	-18.8	0.977
2950	Vy FPM (4000 msl / 20 C)	660.0	691.9	31.9	0.952
2950	Vy FPM (4000 msl / 40 C)	585.0	642.5	57.5	0.902
2950	Vy FPM (8000 msl / -20 C)	600.0	590.8	-9.2	0.985
2950	Vy FPM (8000 msl / 20 C)	460.0	487.3	27.3	0.941
2950	Vy FPM (8000 msl / 40 C)	390.0	439.7	49.7	0.873
2950	55% cruise KTAS (2000 msl / Std Day)	122.0	116.0	-6.0	0.951
2950	55% cruise KTAS (6000 msl / Std Day)	124.5	120.0	-4.5	0.964
2950	55% cruise KTAS (10000 msl / Std Day)	129.0	124.0	-5.0	0.961
2950	65% cruise KTAS (2000 msl / Std Day)	131.0	126.0	-5.0	0.962
2950	65% cruise KTAS (6000 msl / Std Day)	135.0	131.0	-4.0	0.970
2950	65% cruise KTAS (10000 msl / Std Day)	140.0	133.0	-7.0	0.950
2950	75% cruise KTAS (2000 msl / Std Day)	138.5	134.0	-4.5	0.968
2950	75% cruise KTAS (6000 msl / Std Day)	143.5	137.0	-6.5	0.955
2950	55% cruise FF (2000 msl / Std Day)	10.3	10.6	0.3	0.967
2950	55% cruise FF (6000 msl / Std Day)	10.3	10.6	0.3	0.967
2950	55% cruise FF (10000 msl / Std Day)	10.4	10.6	0.2	0.977
2950	65% cruise FF (2000 msl / Std Day)	12.1	12.5	0.4	0.967
2950	65% cruise FF (6000 msl / Std Day)	12.0	12.5	0.5	0.962

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
2950	65% cruise FF (10000 msl / Std Day)	11.9	11.9	-0.0	0.996
2950	75% cruise FF (2000 msl / Std Day)	13.9	14.3	0.4	0.974
2950	75% cruise FF (6000 msl / Std Day)	13.9	13.7	-0.3	0.980
2950	Normal approach CAS (1.231 to 1)	64.0	64.0	-0.0	1.000
2950	Land roll (0 msl / 0 C)	560.0	570.0	10.0	0.982
2950	Land roll (0 msl / 20 C)	600.0	610.0	10.0	0.983
2950	Land roll (0 msl / 40 C)	640.0	650.0	10.0	0.984
2950	Land roll (4000 msl / 0 C)	650.0	650.0	0.0	1.000
2950	Land roll (4000 msl / 20 C)	670.0	700.0	30.0	0.955
2950	Land roll (4000 msl / 40 C)	740.0	740.0	0.0	1.000
2950	Land roll (8000 msl / 0 C)	755.0	750.0	-5.0	0.993
2950	Land roll (8000 msl / 20 C)	810.0	800.0	-10.0	0.988
2950	Land roll (8000 msl / 40 C)	865.0	860.0	-5.0	0.994

C240T

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
3000	Vg KCAS	102.0	98.0	-4.0	0.961
3000	Vg Ratio	13.0	13.1	0.1	0.994
3000	Takeoff Ground Run (0 msl / 0 C)	780.0	760.0	-20.0	0.974
3000	Takeoff Ground Run (0 msl / 20 C)	903.0	850.0	-53.0	0.941
3000	Takeoff Ground Run (0 msl / 30 C)	968.0	940.0	-28.0	0.971
3000	Takeoff Ground Run (4000 msl / 0 C)	944.0	910.0	-34.0	0.964
3000	Takeoff Ground Run (4000 msl / 20 C)	1088.0	1070.0	-18.0	0.983
3000	Takeoff Ground Run (4000 msl / 30 C)	1164.0	1190.0	26.0	0.978
3000	Takeoff Ground Run (8000 msl / 0 C)	1144.0	1100.0	-44.0	0.962
3000	Takeoff Ground Run (8000 msl / 20 C)	1318.0	1360.0	42.0	0.968
3000	Takeoff 50 (0 msl / 0 C)	1277.0	1210.0	-67.0	0.948
3000	Takeoff 50 (0 msl / 20 C)	1430.0	1320.0	-110.0	0.923
3000	Takeoff 50 (0 msl / 30 C)	1511.0	1450.0	-61.0	0.960
3000	Takeoff 50 (4000 msl / 0 C)	1482.0	1380.0	-102.0	0.931

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
3000	Takeoff 50 (4000 msl / 20 C)	1661.0	1590.0	-71.0	0.957
3000	Takeoff 50 (4000 msl / 30 C)	1756.0	1760.0	4.0	0.998
3000	Takeoff 50 (8000 msl / 0 C)	1731.0	1610.0	-121.0	0.930
3000	Takeoff 50 (8000 msl / 20 C)	1948.0	1950.0	2.0	0.999
3000	Takeoff KCAS	59.0	70.9	11.9	0.799
3000	Vx KCAS (0 msl / 0 delta C)	78.0	71.0	-7.0	0.910
3000	Vy KCAS (0 msl / 30 delta C)	108.0	108.0	0.0	1.000
3000	Vy KCAS (14000 msl / 0 delta C)	108.0	108.0	0.0	1.000
3000	Vy KCAS (24000 msl / -20 delta C)	108.0	108.0	0.0	1.000
3000	Vy FPM (0 msl / -20 delta C)	1920.0	1643.2	-276.8	0.856
3000	Vy FPM (0 msl / 0 delta C)	1635.0	1653.6	18.6	0.989
3000	Vy FPM (0 msl / 30 delta C)	1230.0	1344.5	114.5	0.907
3000	Vy FPM (14000 msl / -20 delta C)	1945.0	1713.8	-231.2	0.881
3000	Vy FPM (14000 msl / 0 delta C)	1635.0	1713.6	78.6	0.952
3000	Vy FPM (14000 msl / 30 delta C)	1210.0	1317.9	107.9	0.911
3000	Vy FPM (24000 msl / -20 delta C)	1420.0	1677.3	257.3	0.819
3000	Vy FPM (24000 msl / 0 delta C)	1140.0	1350.0	210.0	0.816
3000	Vy FPM (24000 msl / 30 delta C)	750.0	951.4	201.4	0.731
3300	Takeoff Ground Run (0 msl / 0 C)	969.0	960.0	-9.0	0.991
3300	Takeoff Ground Run (0 msl / 20 C)	1118.0	1070.0	-48.0	0.957
3300	Takeoff Ground Run (0 msl / 30 C)	1197.0	1190.0	-7.0	0.994
3300	Takeoff Ground Run (4000 msl / 0 C)	1169.0	1150.0	-19.0	0.984
3300	Takeoff Ground Run (4000 msl / 20 C)	1343.0	1350.0	7.0	0.995
3300	Takeoff Ground Run (4000 msl / 30 C)	1434.0	1500.0	66.0	0.954
3300	Takeoff Ground Run (8000 msl / 0 C)	1411.0	1370.0	-41.0	0.971
3300	Takeoff Ground Run (8000 msl / 20 C)	1621.0	1730.0	109.0	0.933
3300	Takeoff 50 (0 msl / 0 C)	1513.0	1480.0	-33.0	0.978
3300	Takeoff 50 (0 msl / 20 C)	1699.0	1610.0	-89.0	0.948
3300	Takeoff 50 (0 msl / 30 C)	1797.0	1780.0	-17.0	0.991
3300	Takeoff 50 (4000 msl / 0 C)	1762.0	1700.0	-62.0	0.965

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
3300	Takeoff 50 (4000 msl / 20 C)	1979.0	1960.0	-19.0	0.990
3300	Takeoff 50 (4000 msl / 30 C)	2093.0	2160.0	67.0	0.968
3300	Takeoff 50 (8000 msl / 0 C)	2063.0	1950.0	-113.0	0.945
3300	Takeoff 50 (8000 msl / 20 C)	2326.0	2420.0	94.0	0.960
3300	Takeoff KCAS	62.0	74.3	12.3	0.801
3300	Vx KCAS (0 msl / 0 delta C)	81.0	75.0	-6.0	0.926
3300	Vy KCAS (0 msl / 30 delta C)	110.0	110.0	0.0	1.000
3300	Vy KCAS (14000 msl / 0 delta C)	110.0	110.0	0.0	1.000
3300	Vy KCAS (24000 msl / -20 delta C)	110.0	110.0	0.0	1.000
3300	Vy FPM (0 msl / -20 delta C)	1780.0	1447.5	-332.5	0.813
3300	Vy FPM (0 msl / 0 delta C)	1515.0	1455.4	-59.6	0.961
3300	Vy FPM (0 msl / 30 delta C)	1145.0	1168.3	23.3	0.980
3300	Vy FPM (14000 msl / -20 delta C)	1780.0	1497.7	-282.3	0.841
3300	Vy FPM (14000 msl / 0 delta C)	1495.0	1491.5	-3.5	0.998
3300	Vy FPM (14000 msl / 30 delta C)	1110.0	1122.5	12.5	0.989
3300	Vy FPM (24000 msl / -20 delta C)	1315.0	1446.9	131.9	0.900
3300	Vy FPM (24000 msl / 0 delta C)	1055.0	1144.9	89.9	0.915
3300	Vy FPM (24000 msl / 30 delta C)	700.0	776.0	76.0	0.891
3300	Normal approach CAS (1.448 to 1)	83.0	83.2	0.2	0.998
3300	Land roll (0 msl / 0 C)	1180.0	1140.0	-40.0	0.966
3300	Land roll (0 msl / 15 C)	1200.0	1200.0	0.0	1.000
3300	Land roll (0 msl / 30 C)	1250.0	1260.0	10.0	0.992
3300	Land roll (4000 msl / 0 C)	1300.0	1310.0	10.0	0.992
3300	Land roll (4000 msl / 15 C)	1390.0	1380.0	-10.0	0.993
3300	Land roll (4000 msl / 30 C)	1450.0	1450.0	0.0	1.000
3300	Land roll (8000 msl / 0 C)	1520.0	1510.0	-10.0	0.993
3300	Land roll (8000 msl / 15 C)	1600.0	1600.0	0.0	1.000
3300	Land roll (8000 msl / 30 C)	1690.0	1690.0	0.0	1.000
3600	Vg KCAS	110.0	108.0	-2.0	0.982
3600	Vg Ratio	13.0	13.1	0.1	0.994

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
3600	Stall clean KCAS	73.0	73.0	0.0	1.000
3600	Stall partial flaps KCAS	66.0	66.0	0.0	1.000
3600	Stall full flaps KCAS	60.0	60.0	0.0	1.000
3600	Takeoff Ground Run (0 msl / 0 C)	1159.0	1260.0	101.0	0.913
3600	Takeoff Ground Run (0 msl / 20 C)	1333.0	1320.0	-13.0	0.990
3600	Takeoff Ground Run (0 msl / 30 C)	1426.0	1470.0	44.0	0.969
3600	Takeoff Ground Run (4000 msl / 0 C)	1393.0	1400.0	7.0	0.995
3600	Takeoff Ground Run (4000 msl / 20 C)	1597.0	1670.0	73.0	0.954
3600	Takeoff Ground Run (4000 msl / 30 C)	1705.0	1880.0	175.0	0.897
3600	Takeoff Ground Run (8000 msl / 0 C)	1677.0	1710.0	33.0	0.980
3600	Takeoff Ground Run (8000 msl / 20 C)	1924.0	2170.0	246.0	0.872
3600	Takeoff 50 (0 msl / 0 C)	1749.0	1860.0	111.0	0.937
3600	Takeoff 50 (0 msl / 20 C)	1967.0	1950.0	-17.0	0.991
3600	Takeoff 50 (0 msl / 30 C)	2083.0	2150.0	67.0	0.968
3600	Takeoff 50 (4000 msl / 0 C)	2041.0	2030.0	-11.0	0.995
3600	Takeoff 50 (4000 msl / 20 C)	2296.0	2380.0	84.0	0.963
3600	Takeoff 50 (4000 msl / 30 C)	2430.0	2650.0	220.0	0.909
3600	Takeoff 50 (8000 msl / 0 C)	2395.0	2380.0	-15.0	0.994
3600	Takeoff 50 (8000 msl / 20 C)	2703.0	2970.0	267.0	0.901
3600	Takeoff KCAS	65.0	77.6	12.6	0.806
3600	Vx KCAS (0 msl / 0 delta C)	84.0	83.0	-1.0	0.988
3600	Vy KCAS (0 msl / 30 delta C)	112.0	112.0	0.0	1.000
3600	Vy KCAS (14000 msl / 0 delta C)	112.0	112.0	0.0	1.000
3600	Vy KCAS (24000 msl / -20 delta C)	112.0	112.0	0.0	1.000
3600	Vy FPM (0 msl / -20 delta C)	1645.0	1281.3	-363.7	0.779
3600	Vy FPM (0 msl / 0 delta C)	1400.0	1287.0	-113.0	0.919
3600	Vy FPM (0 msl / 30 delta C)	1055.0	1019.2	-35.8	0.966
3600	Vy FPM (14000 msl / -20 delta C)	1640.0	1310.3	-329.7	0.799
3600	Vy FPM (14000 msl / 0 delta C)	1380.0	1299.1	-80.9	0.941
3600	Vy FPM (14000 msl / 30 delta C)	1025.0	959.3	-65.7	0.936

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
3600	Vy FPM (24000 msl / -20 delta C)	1215.0	1250.2	35.2	0.971
3600	Vy FPM (24000 msl / 0 delta C)	975.0	969.2	-5.8	0.994
3600	Vy FPM (24000 msl / 30 delta C)	645.0	624.7	-20.3	0.969
3600	55% cruise KTAS (8000 msl / Std Day)	168.0	169.0	1.0	0.994
3600	55% cruise KTAS (16000 msl / Std Day)	184.0	182.0	-2.0	0.989
3600	55% cruise KTAS (25000 msl / Std Day)	208.0	194.0	-14.0	0.933
3600	65% cruise KTAS (8000 msl / Std Day)	179.0	183.0	4.0	0.978
3600	65% cruise KTAS (16000 msl / Std Day)	196.0	196.0	0.0	1.000
3600	65% cruise KTAS (25000 msl / Std Day)	218.0	211.0	-7.0	0.968
3600	75% cruise KTAS (8000 msl / Std Day)	189.0	193.0	4.0	0.979
3600	75% cruise KTAS (16000 msl / Std Day)	207.0	208.0	1.0	0.995
3600	75% cruise KTAS (25000 msl / Std Day)	227.0	225.0	-2.0	0.991
3600	55% cruise FF (8000 msl / Std Day)	14.0	14.6	0.6	0.960
3600	55% cruise FF (16000 msl / Std Day)	14.0	14.6	0.6	0.960
3600	55% cruise FF (25000 msl / Std Day)	15.0	14.6	-0.4	0.970
3600	65% cruise FF (8000 msl / Std Day)	17.0	17.3	0.3	0.980
3600	65% cruise FF (16000 msl / Std Day)	17.0	17.3	0.3	0.980
3600	65% cruise FF (25000 msl / Std Day)	18.0	17.3	-0.7	0.963
3600	75% cruise FF (8000 msl / Std Day)	20.0	20.4	0.4	0.978
3600	75% cruise FF (16000 msl / Std Day)	20.0	20.4	0.4	0.978
3600	75% cruise FF (25000 msl / Std Day)	21.0	20.4	-0.6	0.974

CA185F

REPORT NOTE %Power available at 7500 ft, 2550 rpm, and 23 inches MP different between TLAR and POH.

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
2300	Takeoff Ground Run (0 msl / 15 C)	330.0	340.0	10.0	0.970
2300	Takeoff Ground Run (2500 msl / 10 C)	395.0	390.0	-5.0	0.987
2300	Takeoff Ground Run (7500 msl / 0 C)	565.0	550.0	-15.0	0.973
2300	Takeoff 50 (0 msl / 15 C)	785.0	660.0	-125.0	0.841

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
2300	Takeoff 50 (2500 msl / 10 C)	865.0	750.0	-115.0	0.867
2300	Takeoff 50 (7500 msl / 0 C)	1090.0	1020.0	-70.0	0.936
2300	Vy FPM (0 msl / 15 C)	1815.0	1806.8	-8.2	0.995
2300	Vy FPM (5000 msl / 5 C)	1460.0	1454.1	-5.9	0.996
2300	Vy FPM (10000 msl / -5 C)	1115.0	1123.0	8.0	0.993
2800	Takeoff Ground Run (0 msl / 15 C)	515.0	500.0	-15.0	0.971
2800	Takeoff Ground Run (2500 msl / 10 C)	610.0	600.0	-10.0	0.984
2800	Takeoff Ground Run (7500 msl / 0 C)	885.0	860.0	-25.0	0.972
2800	Takeoff 50 (0 msl / 15 C)	1025.0	930.0	-95.0	0.907
2800	Takeoff 50 (2500 msl / 10 C)	1150.0	1100.0	-50.0	0.957
2800	Takeoff 50 (7500 msl / 0 C)	1530.0	1540.0	10.0	0.993
3350	Vg KCAS	71.3	72.0	0.8	0.989
3350	Vg Ratio	7.9	7.9	-0.1	0.992
3350	Stall clean KCAS	56.5	56.5	0.0	1.000
3350	Stall partial flaps KCAS	50.4	50.4	0.0	1.000
3350	Stall full flaps KCAS	48.7	48.7	0.0	1.000
3350	Takeoff Ground Run (0 msl / 15 C)	770.0	760.0	-10.0	0.987
3350	Takeoff Ground Run (2500 msl / 10 C)	930.0	910.0	-20.0	0.978
3350	Takeoff Ground Run (7500 msl / 0 C)	1350.0	1380.0	30.0	0.978
3350	Takeoff 50 (0 msl / 15 C)	1365.0	1370.0	5.0	0.996
3350	Takeoff 50 (2500 msl / 10 C)	1590.0	1610.0	20.0	0.987
3350	Takeoff 50 (7500 msl / 0 C)	2325.0	2410.0	85.0	0.963
3350	Vx KCAS (0 msl / 0 C)	60.0	65.0	5.0	0.916
3350	Vy KCAS (0 msl / 15 C)	88.0	87.0	-1.0	0.989
3350	Vy KCAS (5000 msl / 5 C)	82.0	83.0	1.0	0.988
3350	Vy KCAS (10000 msl / -5 C)	77.0	79.4	2.4	0.968
3350	Vy FPM (0 msl / 15 C)	1045.0	1054.8	9.8	0.991
3350	Vy FPM (5000 msl / 5 C)	785.0	788.5	3.5	0.995
3350	Vy FPM (10000 msl / -5 C)	515.0	533.8	18.8	0.964
3350	55% cruise KTAS (2500 msl / Std Day)	121.7	121.0	-0.7	0.995

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
3350	55% cruise KTAS (7500 msl / Std Day)	126.4	126.0	-0.4	0.997
3350	55% cruise KTAS (10000 msl / Std Day)	128.6	129.0	0.4	0.997
3350	65% cruise KTAS (2500 msl / Std Day)	131.2	131.0	-0.2	0.998
3350	65% cruise KTAS (7500 msl / Std Day)	136.4	138.0	1.6	0.988
3350	65% cruise KTAS (10000 msl / Std Day)	139.9	140.0	0.1	0.999
3350	75% cruise KTAS (2500 msl / Std Day)	138.2	140.0	1.8	0.987
3350	75% cruise KTAS (7500 msl / Std Day)	146.0	142.0	-4.0	0.973
3350	55% cruise FF (2500 msl / Std Day)	11.7	11.6	-0.1	0.995
3350	55% cruise FF (7500 msl / Std Day)	11.7	11.6	-0.1	0.995
3350	55% cruise FF (10000 msl / Std Day)	11.7	11.6	-0.1	0.995
3350	65% cruise FF (2500 msl / Std Day)	13.7	13.6	-0.1	0.993
3350	65% cruise FF (7500 msl / Std Day)	13.7	13.6	-0.1	0.993
3350	65% cruise FF (10000 msl / Std Day)	13.7	13.4	-0.3	0.977
3350	75% cruise FF (2500 msl / Std Day)	15.8	15.6	-0.2	0.987
3350	75% cruise FF (7500 msl / Std Day)	15.8	14.6	-1.2	0.922
3350	Normal approach CAS (1.446 to 1)	70.4	70.4	-0.0	1.000
3350	Land roll (0 msl / 15 C)	480.0	470.0	-10.0	0.979
3350	Land roll (5000 msl / 5 C)	540.0	540.0	0.0	1.000
3350	Land roll (7500 msl / 0 C)	575.0	580.0	5.0	0.991

DA40

REPORT NOTE TLAR predicts a significantly shorter takeoff run @2640 lbs and 8000 feet MSL than the POH.

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
2205	Vg KCAS	72.0	70.0	-2.0	0.972
2205	Vg Ratio	8.8	8.9	0.1	0.993
2205	Stall clean KCAS	55.0	54.8	-0.2	0.996
2205	Stall partial flaps KCAS	53.0	52.9	-0.1	0.999
2205	Stall full flaps KCAS	51.0	51.1	0.1	0.998
2205	Takeoff Ground Run (0 msl / 0 C)	492.1	690.0	197.9	0.598

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
2205	Takeoff Ground Run (4000 msl / 15 C)	984.3	1000.0	15.7	0.984
2205	Takeoff Ground Run (8000 msl / 25 C)	1706.0	1530.0	-176.0	0.897
2205	Takeoff 50 (0 msl / 0 C)	918.6	1110.0	191.4	0.792
2205	Takeoff 50 (4000 msl / 15 C)	1443.6	1550.0	106.4	0.926
2205	Takeoff 50 (8000 msl / 25 C)	2624.7	2300.0	-324.7	0.876
2205	Takeoff KCAS	60.0	57.2	-2.8	0.953
2205	Vy KCAS (0 msl / 30 C)	73.0	83.8	10.8	0.852
2205	Vy FPM (0 msl / -5 C)	1200.0	1169.2	-30.8	0.974
2205	Vy FPM (4000 msl / 15 C)	720.0	940.5	220.5	0.694
2205	Vy FPM (8000 msl / 30 C)	295.0	690.6	395.6	-0.341
2205	Normal approach CAS (1.300 to 1)	65.0	66.5	1.5	0.978
2205	Land roll (0 msl / 0 C)	721.8	750.0	28.2	0.961
2205	Land roll (4000 msl / 15 C)	853.0	900.0	47.0	0.945
2205	Land roll (8000 msl / 30 C)	1115.5	1100.0	-15.5	0.986
2640	Vg KCAS	77.0	77.0	0.0	1.000
2640	Vg Ratio	8.8	8.9	0.1	0.993
2640	Stall clean KCAS	60.0	59.9	-0.1	0.999
2640	Stall partial flaps KCAS	58.0	57.9	-0.1	0.999
2640	Stall full flaps KCAS	56.0	55.9	-0.1	0.999
2640	Takeoff Ground Run (0 msl / 0 C)	862.9	1080.0	217.1	0.748
2640	Takeoff Ground Run (4000 msl / 15 C)	1574.8	1540.0	-34.8	0.978
2640	Takeoff Ground Run (8000 msl / 25 C)	3116.8	2490.0	-626.8	0.799
2640	Takeoff 50 (0 msl / 0 C)	1312.3	1670.0	357.7	0.727
2640	Takeoff 50 (4000 msl / 15 C)	2313.0	2330.0	17.0	0.993
2640	Takeoff 50 (8000 msl / 25 C)	4429.1	3700.0	-729.1	0.835
2640	Takeoff KCAS	62.0	62.5	0.5	0.991
2640	Vx KCAS (0 msl / 0 C)	68.0	66.0	-2.0	0.971
2640	Vy KCAS (0 msl / 30 C)	80.0	86.7	6.7	0.916
2640	Vy FPM (0 msl / -5 C)	920.0	891.3	-28.7	0.969
2640	Vy FPM (4000 msl / 15 C)	540.0	687.0	147.0	0.728

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
2640	Vy FPM (8000 msl / 30 C)	200.0	463.2	263.2	-0.316
2640	55% cruise KTAS (2000 msl / Std Day)	113.0	113.0	0.0	1.000
2640	55% cruise KTAS (6000 msl / Std Day)	118.0	118.0	0.0	1.000
2640	55% cruise KTAS (10000 msl / Std Day)	122.0	123.0	1.0	0.992
2640	65% cruise KTAS (2000 msl / Std Day)	123.0	121.0	-2.0	0.984
2640	65% cruise KTAS (6000 msl / Std Day)	129.0	126.0	-3.0	0.977
2640	65% cruise KTAS (10000 msl / Std Day)	131.0	130.0	-1.0	0.992
2640	75% cruise KTAS (2000 msl / Std Day)	132.0	128.0	-4.0	0.970
2640	75% cruise KTAS (6000 msl / Std Day)	136.0	132.0	-4.0	0.971
2640	55% cruise FF (2000 msl / Std Day)	7.5	7.5	0.0	1.000
2640	55% cruise FF (6000 msl / Std Day)	7.5	7.5	0.0	1.000
2640	55% cruise FF (10000 msl / Std Day)	7.5	7.5	0.0	1.000
2640	65% cruise FF (2000 msl / Std Day)	8.5	8.5	0.0	1.000
2640	65% cruise FF (6000 msl / Std Day)	8.5	8.5	0.0	1.000
2640	65% cruise FF (10000 msl / Std Day)	8.5	8.3	-0.2	0.976
2640	75% cruise FF (2000 msl / Std Day)	9.5	9.5	0.0	1.000
2640	75% cruise FF (6000 msl / Std Day)	9.5	9.3	-0.2	0.976
2640	Normal approach CAS (1.300 to 1)	73.0	72.7	-0.3	0.996
2640	Land roll (0 msl / 0 C)	853.0	890.0	37.0	0.957
2640	Land roll (4000 msl / 15 C)	1148.3	1070.0	-78.3	0.932
2640	Land roll (8000 msl / 30 C)	1378.0	1310.0	-68.0	0.951

FX2

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
1304	Stall full flaps KCAS	31.3	31.7	0.4	0.988
1304	Takeoff Ground Run (0 msl / 15 C)	110.0	110.0	0.0	1.000
1304	Vx KCAS (0 msl / 15 C)	43.4	50.0	6.6	0.849
1304	Vy KCAS (0 msl / 15 C)	61.7	54.0	-7.7	0.875
1304	Vy FPM (0 msl / 15 C)	2000.0	2007.9	7.9	0.996
1304	75% cruise KTAS (0 msl / Std Day)	95.6	98.0	2.4	0.975

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
1304	Normal approach CAS (1.300 to 1)	40.7	41.2	0.5	0.988
1304	Land roll (0 msl / 15 C)	140.0	140.0	0.0	1.000

FX3

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
1345	Stall full flaps KCAS	32.2	32.2	0.0	1.000
1345	Takeoff Ground Run (0 msl / 15 C)	90.0	90.0	0.0	1.000
1345	Vx KCAS (0 msl / 15 C)	49.5	50.0	0.5	0.990
1345	Vy KCAS (0 msl / 15 C)	61.7	64.0	2.3	0.962
1345	Vy FPM (0 msl / 15 C)	2400.0	2380.7	-19.3	0.992
1345	75% cruise KTAS (0 msl / Std Day)	117.3	117.0	-0.3	0.997
1345	Normal approach CAS (1.300 to 1)	41.8	41.8	0.0	1.000
1345	Land roll (0 msl / 15 C)	155.0	160.0	5.0	0.968

GLSP

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
1750	Takeoff KCAS	51.6	51.6	0.0	0.999
1750	Vy FPM (0 msl / 15 C)	1624.0	1624.2	0.2	1.000
1750	65% cruise KTAS (8000 msl / Std Day)	128.0	128.0	0.0	1.000
1750	75% cruise KTAS (8000 msl / Std Day)	134.0	134.0	0.0	1.000
1750	65% cruise FF (8000 msl / Std Day)	9.2	9.2	0.0	0.996
1750	75% cruise FF (8000 msl / Std Day)	10.5	10.4	-0.1	0.988
1750	Land roll (0 msl / 15 C)	430.0	430.0	0.0	1.000
2350	Vg KCAS	80.0	80.0	0.0	1.000
2350	Vg Ratio	9.5	9.4	-0.1	0.986
2350	Stall clean KCAS	57.8	57.8	-0.0	1.000
2350	Stall partial flaps KCAS	50.8	50.7	-0.1	0.999
2350	Stall full flaps KCAS	46.7	46.7	-0.0	0.999
2350	Takeoff Ground Run (0 msl / 15 C)	800.0	800.0	0.0	1.000
2350	Takeoff 50 (0 msl / 15 C)	1450.0	1560.0	110.0	0.924

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
2350	Takeoff KCAS	59.8	59.8	0.0	1.000
2350	Vx KCAS (0 msl / 0 C)	64.4	64.0	-0.4	0.994
2350	Vy KCAS (0 msl / 15 C)	81.3	82.0	0.7	0.991
2350	Vy FPM (0 msl / 15 C)	1086.0	1086.3	0.3	1.000
2350	65% cruise KTAS (8000 msl / Std Day)	125.0	125.0	0.0	1.000
2350	75% cruise KTAS (8000 msl / Std Day)	131.0	131.0	0.0	1.000
2350	65% cruise FF (8000 msl / Std Day)	9.2	9.2	0.0	0.996
2350	75% cruise FF (8000 msl / Std Day)	10.5	10.4	-0.1	0.988
2350	Normal approach CAS (1.400 to 1)	65.4	65.3	-0.1	0.999
2350	Land roll (0 msl / 15 C)	560.0	560.0	0.0	1.000

GLST

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
1960	Vg KCAS	61.0	70.0	9.0	0.852
1960	Vg Ratio	9.1	9.7	0.6	0.935
1960	Stall clean KCAS	52.0	52.0	0.0	1.000
1960	Stall partial flaps KCAS	45.0	45.0	0.0	1.000
1960	Stall full flaps KCAS	43.0	43.0	0.0	1.000
1960	Takeoff Ground Run (0 msl / 0 C)	617.0	720.0	103.0	0.833
1960	Takeoff Ground Run (0 msl / 20 C)	712.0	740.0	28.0	0.961
1960	Takeoff Ground Run (0 msl / 40 C)	794.0	830.0	36.0	0.955
1960	Takeoff Ground Run (4000 msl / 0 C)	892.0	910.0	18.0	0.980
1960	Takeoff Ground Run (4000 msl / 20 C)	1056.0	1030.0	-26.0	0.975
1960	Takeoff Ground Run (4000 msl / 40 C)	1211.0	1170.0	-41.0	0.966
1960	Takeoff Ground Run (8000 msl / 0 C)	1293.0	1320.0	27.0	0.979
1960	Takeoff Ground Run (8000 msl / 20 C)	1565.0	1510.0	-55.0	0.965
1960	Takeoff Ground Run (8000 msl / 40 C)	1824.0	1730.0	-94.0	0.948
1960	Takeoff 50 (0 msl / 0 C)	1198.0	1540.0	342.0	0.715
1960	Takeoff 50 (0 msl / 20 C)	1342.0	1570.0	228.0	0.830
1960	Takeoff 50 (0 msl / 40 C)	1467.0	1690.0	223.0	0.848

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
1960	Takeoff 50 (4000 msl / 0 C)	1778.0	1890.0	112.0	0.937
1960	Takeoff 50 (4000 msl / 20 C)	2103.0	2060.0	-43.0	0.980
1960	Takeoff 50 (4000 msl / 40 C)	2418.0	2260.0	-158.0	0.935
1960	Takeoff 50 (8000 msl / 0 C)	2631.0	2600.0	-31.0	0.988
1960	Takeoff 50 (8000 msl / 20 C)	3219.0	2900.0	-319.0	0.901
1960	Takeoff 50 (8000 msl / 40 C)	3812.0	3220.0	-592.0	0.845
1960	Vx KCAS (0 msl / 0 C)	65.0	56.0	-9.0	0.862
1960	Vy KCAS (0 msl / 15 C)	78.0	82.0	4.0	0.949
1960	Vy FPM (0 msl / 15 C)	1120.0	1015.5	-104.5	0.907
1960	65% cruise KTAS (6000 msl / Std Day)	122.0	124.0	2.0	0.984
1960	75% cruise KTAS (6000 msl / Std Day)	129.0	129.0	0.0	1.000
1960	65% cruise FF (6000 msl / Std Day)	7.6	8.0	0.4	0.947
1960	75% cruise FF (6000 msl / Std Day)	8.7	9.4	0.7	0.921
1960	Normal approach CAS (1.354 to 1)	55.9	58.2	2.3	0.958
1960	Land roll (0 msl / 15 C)	430.0	460.0	30.0	0.930

HROC2

REPORT NOTE Scant “official” information is publicly available on this experimental aircraft

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
100	Land roll (0 msl / 15 C)	350.0	350.0	0.0	1.000
2000	Stall full flaps KCAS	47.8	56.2	8.4	0.825
2000	Takeoff Ground Run (0 msl / 15 C)	500.0	480.0	-20.0	0.960
2000	Vy FPM (0 msl / 15 C)	3100.0	3252.7	152.7	0.951
2000	55% cruise KTAS (8000 msl / Std Day)	186.8	183.0	-3.8	0.980
2000	75% cruise KTAS (8000 msl / Std Day)	199.9	199.0	-0.9	0.996
2000	Normal approach CAS (1.300 to 1)	65.5	73.0	7.5	0.885
2000	Land roll (0 msl / 15 C)	500.0	590.0	90.0	0.820

J3

REPORT NOTE Significant delta between IAS & CAS at low speeds. POH uses IAS, TLAR CAS.

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
1220	Vg KCAS	52.1	52.0	-0.1	0.998
1220	Stall clean KCAS	33.0	38.4	5.4	0.837
1220	Takeoff Ground Run (0 msl / 15 C)	370.0	370.0	0.0	1.000
1220	Takeoff 50 (0 msl / 15 C)	1000.0	1000.0	0.0	1.000
1220	Takeoff KCAS	33.9	40.3	6.5	0.809
1220	Vx KCAS (0 msl / 15 C)	37.4	43.0	5.6	0.849
1220	Vy KCAS (0 msl / 15 C)	43.4	49.0	5.6	0.872
1220	Vy FPM (0 msl / 15 C)	450.0	445.4	-4.6	0.990
1220	75% cruise KTAS (0 msl / Std Day)	73.0	73.0	0.0	1.000
1220	75% cruise FF (0 msl / Std Day)	4.5	4.3	-0.2	0.967
1220	Normal approach CAS (1.200 to 1)	42.9	46.1	3.1	0.927
1220	Land roll (0 msl / 15 C)	290.0	290.0	0.0	1.000

K7SS

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
1550	Stall clean KCAS	42.1	42.1	0.0	1.000
1550	Stall partial flaps KCAS	33.0	38.0	5.0	0.848
1550	Stall full flaps KCAS	36.5	36.5	0.0	1.000
1550	Takeoff Ground Run (0 msl / 15 C)	290.0	350.0	60.0	0.793
1550	Vy FPM (0 msl / 15 C)	1000.0	1083.1	83.1	0.917
1550	75% cruise KTAS (0 msl / Std Day)	106.9	99.0	-7.9	0.926
1550	Normal approach CAS (1.300 to 1)	47.5	47.5	-0.0	0.999
1550	Land roll (0 msl / 15 C)	290.0	290.0	0.0	1.000

K7STI

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
1550	Stall clean KCAS	34.0	38.5	4.5	0.868

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
1550	Stall partial flaps KCAS	33.0	35.0	2.0	0.939
1550	Stall full flaps KCAS	27.8	33.0	5.2	0.812
1550	Takeoff Ground Run (0 msl / 15 C)	150.0	160.0	10.0	0.933
1550	Takeoff 50 (0 msl / 15 C)	350.0	350.0	0.0	1.000
1550	Vy FPM (0 msl / 15 C)	1800.0	1777.1	-22.9	0.987
1550	75% cruise KTAS (0 msl / Std Day)	106.9	103.0	-3.9	0.964
1550	Normal approach CAS (1.300 to 1)	36.1	42.9	6.8	0.813
1550	Land roll (0 msl / 15 C)	175.0	250.0	75.0	0.571

L39

REPORT NOTE The “POH” value for climb rates is questionable. The Tech order does not have max climb-rate data.

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
8378	Takeoff Ground Run (0 msl / 0 C)	1082.7	1090.0	7.3	0.993
8378	Takeoff Ground Run (0 msl / 35 C)	1312.3	1420.0	107.7	0.918
8378	Takeoff Ground Run (6562 msl / 0 C)	1607.6	1840.0	232.4	0.855
8378	Takeoff Ground Run (6562 msl / 35 C)	2624.7	2510.0	-114.7	0.956
8378	Takeoff 50 (0 msl / 0 C)	2198.2	2460.0	261.8	0.881
8378	Takeoff 50 (0 msl / 35 C)	2624.7	3000.0	375.3	0.857
8378	Takeoff 50 (6562 msl / 0 C)	3280.8	3670.0	389.2	0.881
8378	Takeoff 50 (6562 msl / 35 C)	5249.3	4690.0	-559.3	0.893
8378	Takeoff KCAS	92.9	94.9	2.0	0.979
8378	Normal approach CAS (1.300 to 1)	107.5	107.2	-0.3	0.998
8378	Land roll (0 msl / 0 C)	1624.0	1740.0	116.0	0.929
8378	Land roll (0 msl / 15 C)	1656.8	1830.0	173.2	0.895
8378	Land roll (0 msl / 35 C)	1804.5	1950.0	145.5	0.919
8378	Land roll (6562 msl / 0 C)	2198.2	2190.0	-8.2	0.996
8378	Land roll (6562 msl / 15 C)	2296.6	2310.0	13.4	0.994
8378	Land roll (6562 msl / 35 C)	2624.7	2480.0	-144.7	0.945
8818	Vg KCAS	142.0	149.0	7.0	0.951

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
8818	Vg Ratio	11.0	10.0	-1.0	0.912
8818	Takeoff KCAS	96.7	97.3	0.7	0.993
8818	Vy FPM (0 msl / 15 C)	4330.7	5793.6	1462.9	0.662
8818	Vy FPM (19685 msl / -24 C)	2126.0	2476.1	350.1	0.835
10141	Stall clean KCAS	106.4	106.4	0.0	1.000
10141	Stall partial flaps KCAS	97.2	97.2	0.0	1.000
10141	Stall full flaps KCAS	90.7	90.7	0.0	1.000
10141	Takeoff Ground Run (0 msl / 0 C)	1706.0	1850.0	144.0	0.916
10141	Takeoff Ground Run (0 msl / 35 C)	2198.2	2180.0	-18.2	0.992
10141	Takeoff Ground Run (6562 msl / 0 C)	2624.7	2890.0	265.3	0.899
10141	Takeoff Ground Run (6562 msl / 35 C)	4199.5	4060.0	-139.5	0.967
10141	Takeoff 50 (0 msl / 0 C)	3444.9	3690.0	245.1	0.929
10141	Takeoff 50 (0 msl / 35 C)	4429.1	4200.0	-229.1	0.948
10141	Takeoff 50 (6562 msl / 0 C)	5249.3	5260.0	10.7	0.998
10141	Takeoff 50 (6562 msl / 35 C)	8366.1	6950.0	-1416.1	0.831
10141	Takeoff KCAS	102.6	104.4	1.8	0.983
10141	Vy FPM (0 msl / 15 C)	4330.7	4896.6	565.8	0.869
10141	Vy FPM (19685 msl / -24 C)	2126.0	1912.7	-213.3	0.900
10141	Normal approach CAS (1.300 to 1)	118.3	117.9	-0.3	0.997
10141	Land roll (0 msl / 0 C)	1968.5	2090.0	121.5	0.938
10141	Land roll (0 msl / 15 C)	1984.9	2190.0	205.1	0.897
10141	Land roll (0 msl / 35 C)	2132.5	2350.0	217.5	0.898
10141	Land roll (6562 msl / 0 C)	2624.7	2630.0	5.3	0.998
10141	Land roll (6562 msl / 15 C)	2919.9	2770.0	-149.9	0.949
10141	Land roll (6562 msl / 35 C)	3248.0	2980.0	-268.0	0.917

M20F

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
2300	Takeoff Ground Run (0 msl / 15 C)	595.0	590.0	-5.0	0.992
2300	Takeoff Ground Run (2500 msl / 10 C)	730.0	710.0	-20.0	0.973

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
2300	Takeoff Ground Run (5000 msl / 5 C)	900.0	870.0	-30.0	0.967
2300	Takeoff 50 (0 msl / 15 C)	1020.0	970.0	-50.0	0.951
2300	Takeoff 50 (2500 msl / 10 C)	1235.0	1140.0	-95.0	0.923
2300	Takeoff 50 (5000 msl / 5 C)	1515.0	1360.0	-155.0	0.898
2300	Takeoff KCAS	56.5	60.1	3.6	0.936
2300	Vy FPM (0 msl / 15 C)	1340.0	1302.9	-37.1	0.972
2300	Vy FPM (6000 msl / 3 C)	1000.0	980.6	-19.4	0.981
2300	Vy FPM (14000 msl / -13 C)	580.0	578.1	-1.9	0.997
2300	55% cruise KTAS (2500 msl / Std Day)	132.0	137.0	5.0	0.962
2300	55% cruise KTAS (5000 msl / Std Day)	143.0	140.0	-3.0	0.979
2300	55% cruise KTAS (10000 msl / Std Day)	146.0	147.0	1.0	0.993
2300	65% cruise KTAS (2500 msl / Std Day)	140.0	146.0	6.0	0.957
2300	65% cruise KTAS (5000 msl / Std Day)	153.0	150.0	-3.0	0.980
2300	65% cruise KTAS (10000 msl / Std Day)	157.0	156.0	-1.0	0.994
2300	75% cruise KTAS (2500 msl / Std Day)	151.0	155.0	4.0	0.974
2300	75% cruise KTAS (5000 msl / Std Day)	156.0	158.0	2.0	0.987
2300	55% cruise FF (2500 msl / Std Day)	8.3	8.3	0.0	0.996
2300	55% cruise FF (5000 msl / Std Day)	8.3	8.3	0.0	0.996
2300	55% cruise FF (10000 msl / Std Day)	8.3	8.3	0.0	0.996
2300	65% cruise FF (2500 msl / Std Day)	9.4	10.0	0.6	0.936
2300	65% cruise FF (5000 msl / Std Day)	9.4	10.0	0.6	0.936
2300	65% cruise FF (10000 msl / Std Day)	9.7	9.8	0.1	0.990
2300	75% cruise FF (2500 msl / Std Day)	10.8	12.0	1.2	0.889
2300	75% cruise FF (5000 msl / Std Day)	11.2	12.0	0.8	0.929
2300	Land roll (0 msl / 15 C)	640.0	670.0	30.0	0.953
2300	Land roll (5000 msl / 5 C)	740.0	770.0	30.0	0.959
2300	Land roll (7500 msl / 0 C)	800.0	830.0	30.0	0.963
2740	Vg KCAS	91.2	91.0	-0.2	0.998
2740	Vg Ratio	10.3	10.4	0.1	0.995
2740	Stall clean KCAS	59.1	59.1	0.0	1.000

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
2740	Stall partial flaps KCAS	55.6	55.6	0.0	1.000
2740	Stall full flaps KCAS	53.9	53.9	0.0	1.000
2740	Takeoff Ground Run (0 msl / 15 C)	880.0	910.0	30.0	0.966
2740	Takeoff Ground Run (2500 msl / 10 C)	1085.0	1120.0	35.0	0.968
2740	Takeoff Ground Run (5000 msl / 5 C)	1320.0	1400.0	80.0	0.939
2740	Takeoff 50 (0 msl / 15 C)	1385.0	1410.0	25.0	0.982
2740	Takeoff 50 (2500 msl / 10 C)	1650.0	1690.0	40.0	0.976
2740	Takeoff 50 (5000 msl / 5 C)	2050.0	2060.0	10.0	0.995
2740	Takeoff KCAS	65.2	65.6	0.4	0.994
2740	Vx KCAS (0 msl / 5 C)	81.7	66.0	-15.7	0.808
2740	Vy KCAS (0 msl / 15 C)	97.3	97.0	-0.3	0.997
2740	Vy KCAS (6000 msl / 3 C)	92.1	91.3	-0.8	0.991
2740	Vy KCAS (14000 msl / -13 C)	84.3	90.8	6.5	0.923
2740	Vy FPM (0 msl / 15 C)	1070.0	1014.9	-55.1	0.948
2740	Vy FPM (6000 msl / 3 C)	745.0	730.2	-14.8	0.980
2740	Vy FPM (14000 msl / -13 C)	300.0	361.7	61.7	0.794
2740	55% cruise KTAS (2500 msl / Std Day)	127.0	133.0	6.0	0.953
2740	55% cruise KTAS (5000 msl / Std Day)	138.0	136.0	-2.0	0.986
2740	55% cruise KTAS (10000 msl / Std Day)	141.0	142.0	1.0	0.993
2740	65% cruise KTAS (2500 msl / Std Day)	135.0	144.0	9.0	0.933
2740	65% cruise KTAS (5000 msl / Std Day)	148.0	147.0	-1.0	0.993
2740	65% cruise KTAS (10000 msl / Std Day)	152.0	152.0	0.0	1.000
2740	75% cruise KTAS (2500 msl / Std Day)	146.0	153.0	7.0	0.952
2740	75% cruise KTAS (5000 msl / Std Day)	151.0	156.0	5.0	0.967
2740	75% cruise KTAS (10000 msl / Std Day)	161.0	161.0	0.0	1.000
2740	55% cruise FF (2500 msl / Std Day)	8.3	8.3	0.0	0.996
2740	55% cruise FF (5000 msl / Std Day)	8.3	8.3	0.0	0.996
2740	55% cruise FF (10000 msl / Std Day)	8.3	8.3	0.0	0.996
2740	65% cruise FF (2500 msl / Std Day)	9.4	10.0	0.6	0.936
2740	65% cruise FF (5000 msl / Std Day)	9.4	10.0	0.6	0.936

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
2740	65% cruise FF (10000 msl / Std Day)	9.7	9.8	0.1	0.990
2740	75% cruise FF (2500 msl / Std Day)	10.8	12.0	1.2	0.889
2740	75% cruise FF (5000 msl / Std Day)	11.2	12.0	0.8	0.929
2740	75% cruise FF (10000 msl / Std Day)	11.1	11.1	0.0	1.000
2740	Normal approach CAS (1.300 to 1)	70.0	70.0	0.0	1.000
2740	Land roll (0 msl / 15 C)	785.0	790.0	5.0	0.994
2740	Land roll (5000 msl / 5 C)	910.0	910.0	0.0	1.000
2740	Land roll (7500 msl / 0 C)	990.0	970.0	-20.0	0.980

PA18

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
1750	Vg KCAS	60.8	63.0	2.2	0.964
1750	Vg Ratio	7.0	7.1	0.1	0.992
1750	Stall full flaps KCAS	37.4	37.4	0.0	0.999
1750	Takeoff Ground Run (0 msl / 15 C)	200.0	210.0	10.0	0.950
1750	Takeoff 50 (0 msl / 15 C)	500.0	540.0	40.0	0.920
1750	Vx KCAS (0 msl / 15 C)	39.1	44.0	4.9	0.875
1750	Vy KCAS (0 msl / 15 C)	65.2	60.0	-5.2	0.921
1750	Vy FPM (0 msl / 15 C)	960.0	942.0	-18.0	0.981
1750	55% cruise KTAS (0 msl / Std Day)	86.9	86.0	-0.9	0.990
1750	75% cruise KTAS (0 msl / Std Day)	99.9	101.0	1.1	0.989
1750	55% cruise FF (0 msl / Std Day)	6.5	6.7	0.2	0.973
1750	75% cruise FF (0 msl / Std Day)	9.0	8.9	-0.1	0.989
1750	Normal approach CAS (1.300 to 1)	48.6	48.6	0.0	0.999
1750	Land roll (0 msl / 15 C)	350.0	350.0	0.0	1.000

PA22

REPORT NOTE POH lists same takeoff roll for 135 and 150 hp versions. POH has same SL cruise speed 150/160 hp versions

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
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Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
2000	Vg KCAS	73.0	71.0	-2.0	0.973
2000	Stall clean KCAS	54.2	54.2	0.0	1.000
2000	Stall full flaps KCAS	48.7	48.7	-0.0	1.000
2000	Takeoff Ground Run (0 msl / 15 C)	1220.0	980.0	-240.0	0.803
2000	Takeoff 50 (0 msl / 15 C)	1600.0	1600.0	0.0	1.000
2000	Takeoff KCAS	57.4	60.4	3.1	0.947
2000	Vx KCAS (0 msl / 15 C)	60.8	61.0	0.2	0.997
2000	Vy KCAS (0 msl / 15 C)	73.0	76.0	3.0	0.959
2000	Vy FPM (0 msl / 15 C)	725.0	663.7	-61.3	0.915
2000	75% cruise KTAS (0 msl / Std Day)	106.9	106.0	-0.9	0.992
2000	75% cruise KTAS (7000 msl / Std Day)	114.7	110.0	-4.7	0.959
2000	75% cruise FF (0 msl / Std Day)	9.0	9.0	0.0	1.000
2000	75% cruise FF (7000 msl / Std Day)	9.0	8.8	-0.2	0.983
2000	Normal approach CAS (1.300 to 1)	58.2	63.3	5.0	0.913
2000	Land roll (0 msl / 15 C)	500.0	500.0	0.0	1.000

PA24250

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
2200	Vy FPM (0 msl / 15 C)	1850.0	1891.6	41.6	0.978
2200	Vy FPM (8000 msl / 0 C)	1400.0	1321.6	-78.4	0.944
2200	Vy FPM (16000 msl / -16 C)	850.0	795.2	-54.8	0.936
2500	Stall clean KCAS	57.0	57.3	0.3	0.995
2500	Stall partial flaps KCAS	54.0	54.1	0.1	0.999
2500	Stall full flaps KCAS	51.0	50.8	-0.2	0.997
2500	Takeoff Ground Run (0 msl / 5 C)	760.0	800.0	40.0	0.947
2500	Takeoff Ground Run (2000 msl / 10 C)	950.0	930.0	-20.0	0.979
2500	Takeoff Ground Run (4000 msl / 15 C)	1140.0	1120.0	-20.0	0.982
2500	Takeoff 50 (0 msl / 5 C)	1150.0	1260.0	110.0	0.904
2500	Takeoff 50 (2000 msl / 10 C)	1500.0	1460.0	-40.0	0.973
2500	Takeoff 50 (4000 msl / 15 C)	1750.0	1740.0	-10.0	0.994

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
2500	Takeoff KCAS	66.3	66.4	0.1	0.999
2500	Normal approach CAS (1.300 to 1)	66.3	66.1	-0.2	0.997
2500	Land roll (0 msl / 5 C)	740.0	770.0	30.0	0.959
2500	Land roll (2000 msl / 10 C)	830.0	840.0	10.0	0.988
2500	Land roll (4000 msl / 15 C)	920.0	920.0	0.0	1.000
2900	Vg KCAS	87.0	92.0	5.0	0.942
2900	Vg Ratio	10.0	10.3	0.3	0.973
2900	Stall clean KCAS	61.7	61.7	0.0	1.000
2900	Stall partial flaps KCAS	58.2	58.2	0.0	1.000
2900	Stall full flaps KCAS	54.7	54.7	0.0	1.000
2900	Takeoff Ground Run (0 msl / 5 C)	1100.0	1130.0	30.0	0.973
2900	Takeoff Ground Run (2000 msl / 10 C)	1310.0	1280.0	-30.0	0.977
2900	Takeoff Ground Run (4000 msl / 15 C)	1580.0	1560.0	-20.0	0.987
2900	Takeoff 50 (0 msl / 5 C)	1550.0	1750.0	200.0	0.871
2900	Takeoff 50 (2000 msl / 10 C)	1900.0	1980.0	80.0	0.958
2900	Takeoff 50 (4000 msl / 15 C)	2500.0	2400.0	-100.0	0.960
2900	Takeoff KCAS	71.2	71.5	0.3	0.996
2900	Vx KCAS (0 msl / 5 C)	74.0	72.0	-2.0	0.973
2900	Vy KCAS (0 msl / 15 C)	92.0	93.0	1.0	0.989
2900	Vy KCAS (8000 msl / 0 C)	87.0	93.0	6.0	0.931
2900	Vy KCAS (16000 msl / -16 C)	83.0	92.3	9.3	0.889
2900	Vy FPM (0 msl / 15 C)	1350.0	1306.4	-43.6	0.968
2900	Vy FPM (8000 msl / 0 C)	850.0	825.5	-24.5	0.971
2900	Vy FPM (16000 msl / -16 C)	350.0	373.1	23.1	0.934
2900	55% cruise KTAS (0 msl / Std Day)	133.0	130.0	-3.0	0.978
2900	55% cruise KTAS (7000 msl / Std Day)	137.3	139.0	1.7	0.988
2900	55% cruise KTAS (10000 msl / Std Day)	139.0	142.0	3.0	0.979
2900	65% cruise KTAS (0 msl / Std Day)	142.5	140.0	-2.5	0.982
2900	65% cruise KTAS (7000 msl / Std Day)	149.5	149.0	-0.5	0.997
2900	65% cruise KTAS (10000 msl / Std Day)	152.9	154.0	1.1	0.993

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
2900	75% cruise KTAS (0 msl / Std Day)	148.6	148.0	-0.6	0.996
2900	75% cruise KTAS (7000 msl / Std Day)	157.3	157.0	-0.3	0.998
2900	55% cruise FF (0 msl / Std Day)	10.3	10.3	0.0	1.000
2900	55% cruise FF (7000 msl / Std Day)	10.3	10.3	0.0	1.000
2900	55% cruise FF (10000 msl / Std Day)	10.3	10.3	0.0	1.000
2900	65% cruise FF (0 msl / Std Day)	12.3	12.3	0.0	1.000
2900	65% cruise FF (7000 msl / Std Day)	12.3	12.3	0.0	1.000
2900	65% cruise FF (10000 msl / Std Day)	12.3	12.3	0.0	1.000
2900	75% cruise FF (0 msl / Std Day)	14.0	14.0	0.0	1.000
2900	75% cruise FF (7000 msl / Std Day)	14.0	13.8	-0.2	0.983
2900	Normal approach CAS (1.300 to 1)	71.2	71.2	0.0	1.000
2900	Land roll (0 msl / 5 C)	880.0	890.0	10.0	0.989
2900	Land roll (2000 msl / 10 C)	950.0	970.0	20.0	0.979
2900	Land roll (4000 msl / 15 C)	1050.0	1050.0	0.0	1.000

PA24260

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
2500	Stall clean KCAS	58.2	58.5	0.3	0.995
2500	Stall partial flaps KCAS	54.7	55.4	0.7	0.988
2500	Stall full flaps KCAS	51.3	52.3	1.0	0.980
2500	Takeoff Ground Run (0 msl / -7 C)	680.0	680.0	0.0	1.000
2500	Takeoff Ground Run (4000 msl / 8 C)	1000.0	990.0	-10.0	0.990
2500	Takeoff Ground Run (8000 msl / 27 C)	1500.0	1570.0	70.0	0.953
2500	Takeoff 50 (0 msl / -7 C)	950.0	1100.0	150.0	0.842
2500	Takeoff 50 (4000 msl / 8 C)	1450.0	1550.0	100.0	0.931
2500	Takeoff 50 (8000 msl / 27 C)	3000.0	2330.0	-670.0	0.777
2500	Takeoff KCAS	65.7	66.9	1.2	0.982
2500	Vy FPM (0 msl / 15 C)	1850.0	1637.2	-212.8	0.885
2500	Vy FPM (8000 msl / 0 C)	1200.0	1093.3	-106.7	0.911
2500	Vy FPM (16000 msl / -16 C)	550.0	611.6	61.6	0.888

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
2500	Normal approach CAS (1.300 to 1)	66.7	68.0	1.3	0.980
2500	Land roll (0 msl / -7 C)	720.0	760.0	40.0	0.944
2500	Land roll (4000 msl / 7 C)	900.0	900.0	0.0	1.000
2500	Land roll (8000 msl / 27 C)	1100.0	1120.0	20.0	0.982
2900	Normal approach CAS (1.300 to 1)	72.3	73.2	0.9	0.987
2900	Land roll (0 msl / -7 C)	850.0	870.0	20.0	0.976
2900	Land roll (4000 msl / 7 C)	1050.0	1040.0	-10.0	0.990
2900	Land roll (8000 msl / 27 C)	1280.0	1290.0	10.0	0.992
3100	Vg KCAS	91.2	89.0	-2.2	0.976
3100	Vg Ratio	10.0	10.2	0.2	0.983
3100	Stall clean KCAS	65.2	65.2	0.0	1.000
3100	Stall partial flaps KCAS	61.7	61.7	0.0	1.000
3100	Stall full flaps KCAS	58.2	58.2	0.0	1.000
3100	Takeoff Ground Run (0 msl / -7 C)	1150.0	1200.0	50.0	0.957
3100	Takeoff Ground Run (4000 msl / 8 C)	1650.0	1620.0	-30.0	0.982
3100	Takeoff Ground Run (8000 msl / 27 C)	2500.0	2730.0	230.0	0.908
3100	Takeoff 50 (0 msl / -7 C)	1500.0	1870.0	370.0	0.753
3100	Takeoff 50 (4000 msl / 8 C)	2400.0	2410.0	10.0	0.996
3100	Takeoff 50 (8000 msl / 27 C)	5500.0	4020.0	-1480.0	0.731
3100	Takeoff KCAS	74.0	74.5	0.5	0.994
3100	Vx KCAS (0 msl / -7 C)	75.6	75.0	-0.6	0.992
3100	Vy KCAS (0 msl / 15 C)	96.5	101.0	4.6	0.953
3100	Vy KCAS (8000 msl / 0 C)	92.1	88.7	-3.5	0.963
3100	Vy KCAS (16000 msl / -16 C)	87.8	75.4	-12.4	0.859
3100	Vy FPM (0 msl / 15 C)	1350.0	1190.9	-159.1	0.882
3100	Vy FPM (8000 msl / 0 C)	850.0	733.5	-116.5	0.863
3100	Vy FPM (16000 msl / -16 C)	350.0	300.3	-49.7	0.858
3100	55% cruise KTAS (0 msl / Std Day)	129.5	131.0	1.5	0.988
3100	55% cruise KTAS (7500 msl / Std Day)	134.7	140.0	5.3	0.961
3100	55% cruise KTAS (11500 msl / Std Day)	138.2	145.0	6.8	0.951

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
3100	65% cruise KTAS (0 msl / Std Day)	139.9	141.0	1.1	0.992
3100	65% cruise KTAS (7500 msl / Std Day)	147.7	151.0	3.3	0.978
3100	65% cruise KTAS (11500 msl / Std Day)	152.9	153.0	0.1	1.000
3100	75% cruise KTAS (0 msl / Std Day)	148.6	149.0	0.4	0.997
3100	75% cruise KTAS (7500 msl / Std Day)	158.2	158.0	-0.2	0.999
3100	55% cruise FF (0 msl / Std Day)	11.4	11.8	0.4	0.965
3100	55% cruise FF (7500 msl / Std Day)	11.4	11.8	0.4	0.965
3100	55% cruise FF (11500 msl / Std Day)	11.4	11.8	0.4	0.965
3100	65% cruise FF (0 msl / Std Day)	12.7	13.0	0.3	0.976
3100	65% cruise FF (7500 msl / Std Day)	12.7	13.0	0.3	0.976
3100	65% cruise FF (11500 msl / Std Day)	12.7	12.6	-0.1	0.995
3100	75% cruise FF (0 msl / Std Day)	14.5	16.5	2.0	0.862
3100	75% cruise FF (7500 msl / Std Day)	14.5	15.4	0.9	0.937

PA28140

REPORT NOTE POH specifies Flaps-25 for takeoff, but quotes flaps-up distances over a 50-foot obstacle

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
2150	Vg KCAS	72.1	74.0	1.9	0.974
2150	Vg Ratio	10.3	10.2	-0.1	0.993
2150	Stall clean KCAS	54.7	54.7	0.0	1.000
2150	Stall full flaps KCAS	46.9	46.9	0.0	1.000
2150	Takeoff Ground Run (0 msl / 15 C)	800.0	820.0	20.0	0.975
2150	Takeoff Ground Run (3000 msl / 9 C)	1200.0	1090.0	-110.0	0.908
2150	Takeoff Ground Run (6000 msl / 3 C)	1550.0	1540.0	-10.0	0.994
2150	Takeoff 50 (0 msl / 15 C)	1700.0	1840.0	140.0	0.918
2150	Takeoff 50 (3000 msl / 9 C)	2400.0	2420.0	20.0	0.992
2150	Takeoff 50 (6000 msl / 3 C)	3375.0	3340.0	-35.0	0.990
2150	Vx KCAS (0 msl / 3 C)	64.3	62.0	-2.3	0.964
2150	Vy KCAS (0 msl / 15 C)	73.9	74.0	0.2	0.998

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
2150	Vy KCAS (5000 msl / 5 C)	66.9	73.9	7.0	0.896
2150	Vy KCAS (10000 msl / -5 C)	65.2	67.8	2.7	0.959
2150	Vy FPM (0 msl / 15 C)	825.0	807.4	-17.6	0.979
2150	Vy FPM (5000 msl / 5 C)	585.0	569.4	-15.6	0.973
2150	Vy FPM (10000 msl / -5 C)	340.0	315.2	-24.8	0.927
2150	55% cruise KTAS (2000 msl / Std Day)	92.1	92.0	-0.1	0.999
2150	55% cruise KTAS (6000 msl / Std Day)	95.6	94.0	-1.6	0.983
2150	55% cruise KTAS (10000 msl / Std Day)	99.1	95.0	-4.1	0.959
2150	65% cruise KTAS (2000 msl / Std Day)	99.9	103.0	3.1	0.969
2150	65% cruise KTAS (6000 msl / Std Day)	104.3	106.0	1.7	0.983
2150	65% cruise KTAS (10000 msl / Std Day)	107.8	108.0	0.2	0.998
2150	75% cruise KTAS (2000 msl / Std Day)	107.8	110.0	2.2	0.979
2150	75% cruise KTAS (6000 msl / Std Day)	112.1	113.0	0.9	0.992
2150	55% cruise FF (2000 msl / Std Day)	6.2	6.3	0.1	0.984
2150	55% cruise FF (6000 msl / Std Day)	6.2	6.3	0.1	0.984
2150	55% cruise FF (10000 msl / Std Day)	6.2	6.3	0.1	0.984
2150	65% cruise FF (2000 msl / Std Day)	7.3	7.3	0.0	0.999
2150	65% cruise FF (6000 msl / Std Day)	7.3	7.3	0.0	0.999
2150	65% cruise FF (10000 msl / Std Day)	7.3	7.3	0.0	0.999
2150	75% cruise FF (2000 msl / Std Day)	8.4	8.4	0.0	1.000
2150	75% cruise FF (6000 msl / Std Day)	8.4	8.4	0.0	1.000
2150	Normal approach CAS (1.300 to 1)	66.0	61.0	-5.0	0.924
2150	Land roll (0 msl / 15 C)	535.0	530.0	-5.0	0.991
2150	Land roll (3000 msl / 9 C)	585.0	580.0	-5.0	0.991
2150	Land roll (6000 msl / 3 C)	620.0	630.0	10.0	0.984

PA28181

REPORT NOTE POH specifies Flaps-25 for takeoff, but quotes flaps-up distances over a 50-foot obstacle

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
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Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
2100	Stall clean KCAS	55.0	53.5	-1.5	0.973
2100	Stall partial flaps KCAS	50.0	49.0	-1.0	0.980
2100	Stall full flaps KCAS	46.0	47.6	1.6	0.964
2100	Takeoff Ground Run (0 msl / 15 C)	610.0	630.0	20.0	0.967
2100	Takeoff Ground Run (4000 msl / 7 C)	1000.0	840.0	-160.0	0.840
2100	Takeoff Ground Run (6000 msl / 3 C)	1150.0	980.0	-170.0	0.852
2100	Takeoff 50 (0 msl / 15 C)	1090.0	1320.0	230.0	0.789
2100	Takeoff 50 (4000 msl / 7 C)	1750.0	1740.0	-10.0	0.994
2100	Takeoff 50 (6000 msl / 3 C)	2130.0	2000.0	-130.0	0.939
2100	Takeoff KCAS	47.0	52.1	5.1	0.892
2100	Normal approach CAS (1.300 to 1)	60.0	61.9	1.9	0.968
2100	Land roll (0 msl / 15 C)	750.0	780.0	30.0	0.960
2100	Land roll (4000 msl / 7 C)	850.0	870.0	20.0	0.976
2100	Land roll (7000 msl / -1 C)	925.0	940.0	15.0	0.984
2550	Vg KCAS	76.0	77.0	1.0	0.987
2550	Vg Ratio	10.0	9.5	-0.5	0.955
2550	Stall clean KCAS	59.0	59.0	0.0	1.000
2550	Stall partial flaps KCAS	54.0	54.0	0.0	1.000
2550	Stall full flaps KCAS	52.5	52.5	-0.0	1.000
2550	Takeoff Ground Run (0 msl / 15 C)	870.0	1000.0	130.0	0.851
2550	Takeoff Ground Run (4000 msl / 7 C)	1390.0	1390.0	0.0	1.000
2550	Takeoff Ground Run (6000 msl / 3 C)	1675.0	1680.0	5.0	0.997
2550	Takeoff 50 (0 msl / 15 C)	1650.0	1970.0	320.0	0.806
2550	Takeoff 50 (4000 msl / 7 C)	2650.0	2710.0	60.0	0.977
2550	Takeoff 50 (6000 msl / 3 C)	3250.0	3250.0	0.0	1.000
2550	Takeoff KCAS	54.0	57.4	3.4	0.938
2550	Vx KCAS (0 msl / 3 C)	59.0	67.0	8.0	0.864
2550	Vy KCAS (0 msl / 15 C)	78.0	78.0	0.0	1.000
2550	Vy FPM (0 msl / 15 C)	740.0	750.0	10.0	0.987
2550	Vy FPM (5000 msl / 5 C)	500.0	531.8	31.8	0.936

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
2550	Vy FPM (10000 msl / -5 C)	275.0	318.7	43.7	0.841
2550	55% cruise KTAS (2000 msl / Std Day)	97.5	96.0	-1.5	0.985
2550	55% cruise KTAS (6000 msl / Std Day)	100.5	99.0	-1.5	0.985
2550	55% cruise KTAS (10000 msl / Std Day)	104.5	109.0	4.5	0.957
2550	65% cruise KTAS (2000 msl / Std Day)	111.0	112.0	1.0	0.991
2550	65% cruise KTAS (6000 msl / Std Day)	114.5	116.0	1.5	0.987
2550	65% cruise KTAS (10000 msl / Std Day)	119.5	120.0	0.5	0.996
2550	75% cruise KTAS (2000 msl / Std Day)	119.0	119.0	0.0	1.000
2550	75% cruise KTAS (6000 msl / Std Day)	123.0	123.0	0.0	1.000
2550	55% cruise FF (2000 msl / Std Day)	6.3	6.4	0.1	0.978
2550	55% cruise FF (6000 msl / Std Day)	6.3	6.4	0.1	0.978
2550	55% cruise FF (10000 msl / Std Day)	6.3	6.4	0.1	0.978
2550	65% cruise FF (2000 msl / Std Day)	7.6	7.5	-0.1	0.993
2550	65% cruise FF (6000 msl / Std Day)	7.6	7.5	-0.1	0.993
2550	65% cruise FF (10000 msl / Std Day)	7.6	7.5	-0.1	0.993
2550	75% cruise FF (2000 msl / Std Day)	8.8	8.8	0.0	0.996
2550	75% cruise FF (6000 msl / Std Day)	8.8	8.8	0.0	0.996
2550	Normal approach CAS (1.300 to 1)	68.0	68.2	0.2	0.996
2550	Land roll (0 msl / 15 C)	920.0	930.0	10.0	0.989
2550	Land roll (4000 msl / 7 C)	1040.0	1040.0	0.0	1.000
2550	Land roll (7000 msl / -1 C)	1145.0	1130.0	-15.0	0.987

RV10

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
2200	Stall full flaps KCAS	49.5	49.4	-0.1	0.998
2200	Takeoff Ground Run (0 msl / 15 C)	360.0	340.0	-20.0	0.944
2200	Vy FPM (0 msl / 15 C)	1950.0	1986.6	36.6	0.981
2200	55% cruise KTAS (8000 msl / Std Day)	156.4	154.0	-2.4	0.985
2200	75% cruise KTAS (8000 msl / Std Day)	174.7	174.0	-0.7	0.996
2200	Land roll (0 msl / 15 C)	525.0	540.0	15.0	0.971

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
2700	Vg KCAS	85.0	91.0	6.0	0.929
2700	Vg Ratio	10.0	10.1	0.1	0.989
2700	Stall clean KCAS	58.0	58.1	0.1	0.998
2700	Stall partial flaps KCAS	56.1	56.1	0.0	1.000
2700	Stall full flaps KCAS	54.7	54.8	0.0	1.000
2700	Takeoff Ground Run (0 msl / 15 C)	500.0	520.0	20.0	0.960
2700	Vy KCAS (0 msl / 15 C)	90.0	95.0	5.0	0.944
2700	Vy FPM (0 msl / 15 C)	1450.0	1491.8	41.8	0.971
2700	55% cruise KTAS (8000 msl / Std Day)	152.9	149.0	-3.9	0.974
2700	75% cruise KTAS (8000 msl / Std Day)	171.2	171.0	-0.2	0.999
2700	Normal approach CAS (1.300 to 1)	71.1	71.2	0.1	0.999
2700	Land roll (0 msl / 15 C)	650.0	650.0	0.0	1.000

RV12iS

REPORT NOTE TLAR overestimates lightweight RV-12 performance and underestimates at gross weight compared to Van's published numbers

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
1050	Stall clean KCAS	41.0	40.1	-0.9	0.979
1050	Stall partial flaps KCAS	39.0	39.2	0.2	0.994
1050	Stall full flaps KCAS	37.0	36.6	-0.4	0.988
1050	Takeoff Ground Run (0 msl / -7 C)	513.0	410.0	-103.0	0.799
1050	Takeoff Ground Run (0 msl / 16 C)	600.0	460.0	-140.0	0.767
1050	Takeoff Ground Run (0 msl / 38 C)	699.0	540.0	-159.0	0.773
1050	Takeoff Ground Run (4000 msl / -7 C)	688.0	540.0	-148.0	0.785
1050	Takeoff Ground Run (4000 msl / 16 C)	808.0	650.0	-158.0	0.804
1050	Takeoff Ground Run (4000 msl / 38 C)	937.0	770.0	-167.0	0.822
1050	Takeoff Ground Run (8000 msl / -7 C)	930.0	770.0	-160.0	0.828
1050	Takeoff Ground Run (8000 msl / 16 C)	1092.0	940.0	-152.0	0.861
1050	Takeoff Ground Run (8000 msl / 38 C)	1267.0	1150.0	-117.0	0.908
1050	Takeoff 50 (0 msl / -7 C)	1034.0	920.0	-114.0	0.890

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
1050	Takeoff 50 (0 msl / 16 C)	1212.0	1010.0	-202.0	0.833
1050	Takeoff 50 (0 msl / 38 C)	1421.0	1160.0	-261.0	0.816
1050	Takeoff 50 (4000 msl / -7 C)	1397.0	1160.0	-237.0	0.830
1050	Takeoff 50 (4000 msl / 16 C)	1672.0	1350.0	-322.0	0.807
1050	Takeoff 50 (4000 msl / 38 C)	2008.0	1570.0	-438.0	0.782
1050	Takeoff 50 (8000 msl / -7 C)	1990.0	1580.0	-410.0	0.794
1050	Takeoff 50 (8000 msl / 16 C)	2511.0	1880.0	-631.0	0.749
1050	Takeoff 50 (8000 msl / 38 C)	3387.0	2270.0	-1117.0	0.670
1050	Takeoff KCAS	50.0	49.1	-0.9	0.981
1050	Vy FPM (0 msl / -7 C)	1345.0	1176.9	-168.1	0.875
1050	Vy FPM (0 msl / 16 C)	1141.0	1091.5	-49.5	0.957
1050	Vy FPM (0 msl / 38 C)	956.0	982.4	26.4	0.972
1050	Vy FPM (4000 msl / -7 C)	975.0	975.8	0.8	0.999
1050	Vy FPM (4000 msl / 16 C)	777.0	864.2	87.2	0.888
1050	Vy FPM (4000 msl / 38 C)	598.0	766.6	168.6	0.718
1050	Vy FPM (8000 msl / -7 C)	606.0	750.2	144.2	0.762
1050	Vy FPM (8000 msl / 16 C)	416.0	650.9	234.9	0.435
1050	Vy FPM (8000 msl / 38 C)	243.0	563.5	320.5	-0.319
1320	Vg KCAS	63.0	63.0	0.0	1.000
1320	Vg Ratio	9.0	9.0	0.0	0.995
1320	Stall clean KCAS	45.0	45.0	0.0	1.000
1320	Stall partial flaps KCAS	44.0	44.0	0.0	1.000
1320	Stall full flaps KCAS	41.0	41.0	0.0	1.000
1320	Takeoff Ground Run (0 msl / -7 C)	641.0	770.0	129.0	0.799
1320	Takeoff Ground Run (0 msl / 16 C)	750.0	770.0	20.0	0.973
1320	Takeoff Ground Run (0 msl / 38 C)	873.0	930.0	57.0	0.935
1320	Takeoff Ground Run (4000 msl / -7 C)	860.0	910.0	50.0	0.942
1320	Takeoff Ground Run (4000 msl / 16 C)	1010.0	1120.0	110.0	0.891
1320	Takeoff Ground Run (4000 msl / 38 C)	1171.0	1370.0	199.0	0.830
1320	Takeoff Ground Run (8000 msl / -7 C)	1163.0	1380.0	217.0	0.813

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
1320	Takeoff Ground Run (8000 msl / 16 C)	1365.0	1740.0	375.0	0.725
1320	Takeoff Ground Run (8000 msl / 38 C)	1583.0	2220.0	637.0	0.598
1320	Takeoff 50 (0 msl / -7 C)	1188.0	1560.0	372.0	0.687
1320	Takeoff 50 (0 msl / 16 C)	1397.0	1570.0	173.0	0.876
1320	Takeoff 50 (0 msl / 38 C)	1647.0	1850.0	203.0	0.877
1320	Takeoff 50 (4000 msl / -7 C)	1619.0	1830.0	211.0	0.870
1320	Takeoff 50 (4000 msl / 16 C)	1952.0	2210.0	258.0	0.868
1320	Takeoff 50 (4000 msl / 38 C)	2379.0	2680.0	301.0	0.873
1320	Takeoff 50 (8000 msl / -7 C)	2355.0	2710.0	355.0	0.849
1320	Takeoff 50 (8000 msl / 16 C)	3082.0	3400.0	318.0	0.897
1320	Takeoff 50 (8000 msl / 38 C)	4720.0	4350.0	-370.0	0.922
1320	Takeoff KCAS	55.0	55.0	0.0	1.000
1320	Vx KCAS (0 msl / -7 C)	60.0	56.0	-4.0	0.934
1320	Vy KCAS (0 msl / 38 C)	75.0	73.0	-2.0	0.974
1320	Vy FPM (0 msl / -7 C)	1069.0	844.3	-224.7	0.790
1320	Vy FPM (0 msl / 16 C)	906.0	770.1	-135.9	0.850
1320	Vy FPM (0 msl / 38 C)	758.0	676.5	-81.5	0.893
1320	Vy FPM (4000 msl / -7 C)	774.0	672.0	-102.0	0.868
1320	Vy FPM (4000 msl / 16 C)	617.0	576.2	-40.8	0.934
1320	Vy FPM (4000 msl / 38 C)	474.0	491.5	17.5	0.963
1320	Vy FPM (8000 msl / -7 C)	481.0	479.0	-2.0	0.996
1320	Vy FPM (8000 msl / 16 C)	330.0	392.4	62.4	0.811
1320	Vy FPM (8000 msl / 38 C)	192.0	315.1	123.1	0.359
1320	55% cruise KTAS (0 msl / Std Day)	96.0	96.0	0.0	1.000
1320	55% cruise KTAS (5500 msl / Std Day)	93.0	88.0	-5.0	0.946
1320	55% cruise KTAS (11500 msl / Std Day)	89.0	0.0	-89.0	0.000
1320	65% cruise KTAS (0 msl / Std Day)	107.0	107.0	0.0	1.000
1320	65% cruise KTAS (5500 msl / Std Day)	104.0	102.0	-2.0	0.981
1320	65% cruise KTAS (11500 msl / Std Day)	100.0	0.0	-100.0	0.000
1320	75% cruise KTAS (0 msl / Std Day)	120.0	122.0	2.0	0.983

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
1320	75% cruise KTAS (5500 msl / Std Day)	118.0	119.0	1.0	0.992
1320	75% cruise KTAS (11500 msl / Std Day)	114.0	110.0	-4.0	0.965
1320	55% cruise FF (0 msl / Std Day)	4.4	4.4	0.0	1.000
1320	55% cruise FF (5500 msl / Std Day)	3.6	3.6	-0.0	0.987
1320	55% cruise FF (11500 msl / Std Day)	2.7	2.5	-0.2	0.939
1320	65% cruise FF (0 msl / Std Day)	5.1	5.1	0.0	1.000
1320	65% cruise FF (5500 msl / Std Day)	4.2	4.5	0.3	0.940
1320	65% cruise FF (11500 msl / Std Day)	3.1	3.2	0.1	0.964
1320	75% cruise FF (0 msl / Std Day)	6.2	6.2	0.0	1.000
1320	75% cruise FF (5500 msl / Std Day)	5.2	5.5	0.3	0.946
1320	75% cruise FF (11500 msl / Std Day)	4.0	4.6	0.6	0.860
1320	Normal approach CAS (1.340 to 1)	55.0	54.9	-0.1	0.999
1320	Land roll (0 msl / -7 C)	494.0	490.0	-4.0	0.992
1320	Land roll (0 msl / 16 C)	532.0	530.0	-2.0	0.996
1320	Land roll (0 msl / 38 C)	570.0	570.0	0.0	1.000
1320	Land roll (4000 msl / -7 C)	566.0	560.0	-6.0	0.989
1320	Land roll (4000 msl / 16 C)	610.0	600.0	-10.0	0.984
1320	Land roll (4000 msl / 38 C)	653.0	650.0	-3.0	0.995
1320	Land roll (8000 msl / -7 C)	651.0	640.0	-11.0	0.983
1320	Land roll (8000 msl / 16 C)	701.0	700.0	-1.0	0.999
1320	Land roll (8000 msl / 38 C)	752.0	750.0	-2.0	0.997

RV14A

REPORT NOTE Published takeoff performance aspirational?

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
1715	Stall full flaps KCAS	46.9	47.3	0.3	0.993
1715	Takeoff Ground Run (0 msl / 15 C)	225.0	350.0	125.0	0.444
1715	Vy FPM (0 msl / 15 C)	2050.0	2049.6	-0.4	1.000
1715	55% cruise KTAS (8000 msl / Std Day)	158.2	158.0	-0.2	0.999

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
1715	75% cruise KTAS (8000 msl / Std Day)	178.1	179.0	0.9	0.995
1715	Land roll (0 msl / 15 C)	330.0	430.0	100.0	0.697
2050	Stall clean KCAS	54.8	54.9	0.0	1.000
2050	Stall partial flaps KCAS	53.0	53.0	-0.0	0.999
2050	Stall full flaps KCAS	51.3	51.7	0.4	0.992
2050	Takeoff Ground Run (0 msl / 15 C)	375.0	500.0	125.0	0.667
2050	Vy FPM (0 msl / 15 C)	1680.0	1617.5	-62.5	0.963
2050	55% cruise KTAS (8000 msl / Std Day)	155.5	154.0	-1.5	0.990
2050	75% cruise KTAS (8000 msl / Std Day)	176.4	177.0	0.6	0.997
2050	Normal approach CAS (1.300 to 1)	66.7	67.2	0.5	0.992
2050	Land roll (0 msl / 15 C)	340.0	510.0	170.0	0.500

RV4

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
1160	Stall full flaps KCAS	41.7	41.6	-0.1	0.997
1160	Takeoff Ground Run (0 msl / 15 C)	300.0	290.0	-10.0	0.967
1160	Vy KCAS (0 msl / 15 C)	102.0	100.0	-2.0	0.981
1160	Vy FPM (0 msl / 15 C)	2050.0	2128.7	78.7	0.962
1160	55% cruise KTAS (8000 msl / Std Day)	151.2	153.0	1.8	0.988
1160	75% cruise KTAS (8000 msl / Std Day)	167.7	168.0	0.3	0.998
1160	Land roll (0 msl / 15 C)	300.0	340.0	40.0	0.867
1500	Vg KCAS	80.0	80.0	0.0	1.000
1500	Vg Ratio	10.0	9.6	-0.4	0.963
1500	Stall clean KCAS	50.4	50.8	0.4	0.992
1500	Stall partial flaps KCAS	48.7	48.7	0.0	1.000
1500	Stall full flaps KCAS	46.9	47.3	0.4	0.992
1500	Takeoff Ground Run (0 msl / 15 C)	450.0	510.0	60.0	0.867
1500	Vy KCAS (0 msl / 15 C)	103.0	103.0	0.0	1.000
1500	Vy FPM (0 msl / 15 C)	1650.0	1525.1	-124.9	0.924
1500	55% cruise KTAS (8000 msl / Std Day)	150.3	149.0	-1.3	0.991

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
1500	75% cruise KTAS (8000 msl / Std Day)	166.8	164.0	-2.8	0.983
1500	Normal approach CAS (1.300 to 1)	61.0	61.5	0.5	0.992
1500	Land roll (0 msl / 15 C)	425.0	430.0	5.0	0.988

RV6

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
1200	Stall full flaps KCAS	42.6	42.3	-0.3	0.994
1200	Takeoff Ground Run (0 msl / 15 C)	300.0	300.0	0.0	1.000
1200	Vy KCAS (0 msl / 15 C)	94.0	94.0	0.0	1.000
1200	Vy FPM (0 msl / 15 C)	1900.0	2194.6	294.6	0.845
1200	55% cruise KTAS (8000 msl / Std Day)	149.5	149.0	-0.5	0.997
1200	75% cruise KTAS (8000 msl / Std Day)	166.0	165.0	-1.0	0.994
1200	Land roll (0 msl / 15 C)	300.0	350.0	50.0	0.833
1600	Vg KCAS	80.0	80.0	0.0	1.000
1600	Vg Ratio	10.0	9.6	-0.4	0.961
1600	Stall full flaps KCAS	47.8	48.9	1.1	0.978
1600	Takeoff Ground Run (0 msl / 15 C)	535.0	540.0	5.0	0.991
1600	Vy KCAS (0 msl / 15 C)	98.0	98.0	0.0	1.000
1600	Vy FPM (0 msl / 15 C)	1500.0	1499.0	-1.0	0.999
1600	55% cruise KTAS (8000 msl / Std Day)	148.6	143.0	-5.6	0.962
1600	75% cruise KTAS (8000 msl / Std Day)	165.1	160.0	-5.1	0.969
1600	Normal approach CAS (1.300 to 1)	62.6	63.5	0.9	0.985
1600	Land roll (0 msl / 15 C)	500.0	450.0	-50.0	0.900

RV7

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
1400	Takeoff Ground Run (0 msl / 15 C)	275.0	340.0	65.0	0.764
1400	Vy FPM (0 msl / 15 C)	2200.0	2320.1	120.1	0.945
1400	55% cruise KTAS (8000 msl / Std Day)	158.2	158.0	-0.2	0.999
1400	75% cruise KTAS (8000 msl / Std Day)	177.3	179.0	1.7	0.990

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
1400	Land roll (0 msl / 15 C)	350.0	390.0	40.0	0.886
1800	Stall full flaps KCAS	50.4	50.5	0.1	0.999
1800	Takeoff Ground Run (0 msl / 15 C)	575.0	570.0	-5.0	0.991
1800	Vy FPM (0 msl / 15 C)	1650.0	1649.5	-0.5	1.000
1800	55% cruise KTAS (8000 msl / Std Day)	156.4	153.0	-3.4	0.978
1800	75% cruise KTAS (8000 msl / Std Day)	176.4	175.0	-1.4	0.992
1800	Normal approach CAS (1.300 to 1)	65.5	65.6	0.1	0.999
1800	Land roll (0 msl / 15 C)	500.0	490.0	-10.0	0.980

RV8

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
1400	Takeoff Ground Run (0 msl / 15 C)	275.0	340.0	65.0	0.764
1400	Vy FPM (0 msl / 15 C)	2300.0	2320.1	20.1	0.991
1400	55% cruise KTAS (8000 msl / Std Day)	158.2	158.0	-0.2	0.999
1400	75% cruise KTAS (8000 msl / Std Day)	177.3	179.0	1.7	0.990
1400	Land roll (0 msl / 15 C)	350.0	390.0	40.0	0.886
1800	Stall full flaps KCAS	50.4	50.5	0.1	0.999
1800	Takeoff Ground Run (0 msl / 15 C)	575.0	570.0	-5.0	0.991
1800	Vy FPM (0 msl / 15 C)	1650.0	1649.5	-0.5	1.000
1800	55% cruise KTAS (8000 msl / Std Day)	156.4	153.0	-3.4	0.978
1800	75% cruise KTAS (8000 msl / Std Day)	176.4	175.0	-1.4	0.992
1800	Normal approach CAS (1.300 to 1)	65.5	65.6	0.1	0.999
1800	Land roll (0 msl / 15 C)	500.0	490.0	-10.0	0.980

SR20

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
2600	Vg KCAS	91.0	90.0	-1.0	0.989
2600	Vg Ratio	9.0	9.2	0.2	0.975
2600	Takeoff Ground Run (0 msl / 15 C)	1023.0	1050.0	27.0	0.974
2600	Takeoff Ground Run (4000 msl / 7 C)	1414.0	1420.0	6.0	0.996

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
2600	Takeoff Ground Run (8000 msl / -1 C)	2004.0	2000.0	-4.0	0.998
2600	Takeoff 50 (0 msl / 15 C)	1566.0	1570.0	4.0	0.997
2600	Takeoff 50 (4000 msl / 7 C)	2141.0	2110.0	-31.0	0.986
2600	Takeoff 50 (8000 msl / -1 C)	3001.0	2950.0	-51.0	0.983
2600	Takeoff KCAS	67.0	67.2	0.2	0.997
2600	Vy FPM (0 msl / 15 C)	1160.0	1023.9	-136.1	0.883
2600	Vy FPM (6000 msl / 3 C)	760.0	730.1	-29.9	0.961
2600	Vy FPM (10000 msl / -5 C)	494.0	540.0	46.0	0.907
2600	55% cruise KTAS (2000 msl / Std Day)	127.0	126.0	-1.0	0.992
2600	55% cruise KTAS (6000 msl / Std Day)	132.0	132.0	0.0	1.000
2600	55% cruise KTAS (10000 msl / Std Day)	138.0	137.0	-1.0	0.993
2600	65% cruise KTAS (2000 msl / Std Day)	137.0	137.0	0.0	1.000
2600	65% cruise KTAS (6000 msl / Std Day)	143.0	143.0	0.0	1.000
2600	65% cruise KTAS (10000 msl / Std Day)	148.0	148.0	0.0	1.000
2600	75% cruise KTAS (2000 msl / Std Day)	146.0	146.0	0.0	1.000
2600	75% cruise KTAS (6000 msl / Std Day)	151.0	152.0	1.0	0.993
2600	55% cruise FF (2000 msl / Std Day)	9.6	9.4	-0.2	0.979
2600	55% cruise FF (6000 msl / Std Day)	9.3	9.4	0.1	0.995
2600	55% cruise FF (10000 msl / Std Day)	9.2	9.4	0.2	0.978
2600	65% cruise FF (2000 msl / Std Day)	11.0	10.8	-0.2	0.984
2600	65% cruise FF (6000 msl / Std Day)	10.8	10.8	-0.0	0.998
2600	65% cruise FF (10000 msl / Std Day)	10.7	10.8	0.1	0.988
2600	75% cruise FF (2000 msl / Std Day)	13.0	13.1	0.1	0.992
2600	75% cruise FF (6000 msl / Std Day)	13.3	13.1	-0.2	0.985
3150	Vg KCAS	100.0	99.0	-1.0	0.990
3150	Vg Ratio	9.0	9.2	0.2	0.975
3150	Stall clean KCAS	69.0	69.0	0.0	1.000
3150	Stall partial flaps KCAS	62.5	62.5	0.0	1.000
3150	Stall full flaps KCAS	58.5	58.5	0.0	1.000
3150	Takeoff Ground Run (0 msl / 15 C)	1685.0	1690.0	5.0	0.997

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
3150	Takeoff Ground Run (4000 msl / 7 C)	2329.0	2370.0	41.0	0.982
3150	Takeoff Ground Run (8000 msl / -1 C)	3300.0	3560.0	260.0	0.921
3150	Takeoff 50 (0 msl / 15 C)	2530.0	2490.0	-40.0	0.984
3150	Takeoff 50 (4000 msl / 7 C)	3460.0	3460.0	0.0	1.000
3150	Takeoff 50 (8000 msl / -1 C)	4851.0	5200.0	349.0	0.928
3150	Takeoff KCAS	74.0	74.0	-0.0	1.000
3150	Vx KCAS (0 msl / -1 C)	81.0	79.0	-2.0	0.976
3150	Vy KCAS (0 msl / 15 C)	97.0	99.0	2.0	0.979
3150	Vy KCAS (6000 msl / 3 C)	94.0	94.9	0.9	0.991
3150	Vy KCAS (10000 msl / -5 C)	92.0	94.3	2.3	0.975
3150	Vy FPM (0 msl / 15 C)	864.0	737.3	-126.7	0.853
3150	Vy FPM (6000 msl / 3 C)	522.0	474.3	-47.7	0.909
3150	Vy FPM (10000 msl / -5 C)	294.0	304.4	10.4	0.965
3150	Normal approach CAS (1.333 to 1)	78.0	78.0	-0.0	1.000
3150	Land roll (0 msl / 15 C)	853.0	860.0	7.0	0.992
3150	Land roll (4000 msl / 7 C)	960.0	960.0	0.0	1.000
3150	Land roll (8000 msl / -3 C)	1085.0	1070.0	-15.0	0.986

SR22

REPORT NOTE POH takeoff and climb performance SR22 vs SR22T seemingly contradict each other. See TLAR manual for details

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
2900	Takeoff Ground Run (0 msl / 15 C)	684.0	690.0	6.0	0.991
2900	Takeoff Ground Run (4000 msl / 7 C)	959.0	900.0	-59.0	0.938
2900	Takeoff Ground Run (8000 msl / -1 C)	1367.0	1240.0	-127.0	0.907
2900	Takeoff 50 (0 msl / 15 C)	1080.0	1240.0	160.0	0.852
2900	Takeoff 50 (4000 msl / 7 C)	1498.0	1570.0	72.0	0.952
2900	Takeoff 50 (8000 msl / -1 C)	2113.0	2110.0	-3.0	0.999
2900	Takeoff KCAS	66.0	66.4	0.4	0.994
2900	Vy KCAS (0 msl / 15 C)	101.0	100.0	-1.0	0.990

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
2900	Vy KCAS (6000 msl / 3 C)	98.0	95.7	-2.3	0.977
2900	Vy KCAS (10000 msl / -5 C)	96.0	95.2	-0.8	0.991
2900	Vy FPM (0 msl / 15 C)	1732.0	1732.7	0.7	1.000
2900	Vy FPM (6000 msl / 3 C)	1326.0	1318.2	-7.8	0.994
2900	Vy FPM (10000 msl / -5 C)	1056.0	1055.3	-0.7	0.999
3400	55% cruise KTAS (4000 msl / Std Day)	154.0	152.0	-2.0	0.987
3400	55% cruise KTAS (8000 msl / Std Day)	160.0	158.0	-2.0	0.988
3400	55% cruise KTAS (12000 msl / Std Day)	166.0	164.0	-2.0	0.988
3400	65% cruise KTAS (4000 msl / Std Day)	165.0	164.0	-1.0	0.994
3400	65% cruise KTAS (8000 msl / Std Day)	171.0	170.0	-1.0	0.994
3400	65% cruise KTAS (12000 msl / Std Day)	178.0	177.0	-1.0	0.994
3400	75% cruise KTAS (4000 msl / Std Day)	173.0	174.0	1.0	0.994
3400	75% cruise KTAS (8000 msl / Std Day)	180.0	181.0	1.0	0.994
3400	55% cruise FF (4000 msl / Std Day)	11.3	11.3	0.0	1.000
3400	55% cruise FF (8000 msl / Std Day)	11.3	11.3	0.0	1.000
3400	55% cruise FF (12000 msl / Std Day)	11.3	11.3	0.0	1.000
3400	65% cruise FF (4000 msl / Std Day)	15.4	15.4	0.0	1.000
3400	65% cruise FF (8000 msl / Std Day)	15.4	15.4	0.0	1.000
3400	65% cruise FF (12000 msl / Std Day)	15.4	15.4	0.0	1.000
3400	75% cruise FF (4000 msl / Std Day)	17.8	17.8	0.0	1.000
3400	75% cruise FF (8000 msl / Std Day)	17.8	17.8	0.0	1.000
3600	Vg KCAS	91.0	91.0	0.0	1.000
3600	Vg Ratio	8.8	8.9	0.1	0.993
3600	Stall clean KCAS	71.5	71.5	0.0	1.000
3600	Stall partial flaps KCAS	66.5	66.5	0.0	1.000
3600	Stall full flaps KCAS	60.5	60.5	-0.0	1.000
3600	Takeoff Ground Run (0 msl / 15 C)	1082.0	1130.0	48.0	0.956
3600	Takeoff Ground Run (4000 msl / 7 C)	1512.0	1550.0	38.0	0.975
3600	Takeoff Ground Run (8000 msl / -1 C)	2146.0	2200.0	54.0	0.975
3600	Takeoff 50 (0 msl / 15 C)	1868.0	1920.0	52.0	0.972

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
3600	Takeoff 50 (4000 msl / 7 C)	2578.0	2590.0	12.0	0.995
3600	Takeoff 50 (8000 msl / -1 C)	3616.0	3610.0	-6.0	0.998
3600	Takeoff KCAS	74.0	74.0	0.0	1.000
3600	Vx KCAS (0 msl / -1 C)	84.0	86.0	2.0	0.976
3600	Vy KCAS (0 msl / 15 C)	109.0	106.0	-3.0	0.973
3600	Vy KCAS (6000 msl / 3 C)	102.0	105.6	3.6	0.965
3600	Vy KCAS (10000 msl / -5 C)	99.0	103.4	4.4	0.955
3600	Vy FPM (0 msl / 15 C)	1251.0	1281.7	30.7	0.975
3600	Vy FPM (6000 msl / 3 C)	906.0	923.8	17.8	0.980
3600	Vy FPM (10000 msl / -5 C)	676.0	692.7	16.7	0.975
3600	Normal approach CAS (1.306 to 1)	79.0	79.0	0.0	1.000
3600	Land roll (0 msl / 15 C)	1178.0	1190.0	12.0	0.990
3600	Land roll (4000 msl / 7 C)	1326.0	1330.0	4.0	0.997
3600	Land roll (8000 msl / -3 C)	1499.0	1480.0	-19.0	0.987

SR22T

REPORT NOTE POH takeoff and climb performance SR22 vs SR22T seemingly contradict each other. See TLAR manual for details

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
2900	Takeoff Ground Run (0 msl / 15 C)	544.0	610.0	66.0	0.879
2900	Takeoff Ground Run (4000 msl / 7 C)	665.0	710.0	45.0	0.932
2900	Takeoff Ground Run (8000 msl / -1 C)	819.0	830.0	11.0	0.987
2900	Takeoff 50 (0 msl / 15 C)	852.0	1220.0	368.0	0.568
2900	Takeoff 50 (4000 msl / 7 C)	1021.0	1350.0	329.0	0.678
2900	Takeoff 50 (8000 msl / -1 C)	1231.0	1500.0	269.0	0.781
2900	Takeoff KCAS	61.2	64.3	3.1	0.949
2900	Vy KCAS (0 msl / 15 C)	121.0	121.0	0.0	1.000
2900	Vy KCAS (6000 msl / 3 C)	121.0	121.0	0.0	1.000
2900	Vy KCAS (10000 msl / -5 C)	121.0	121.0	0.0	1.000
2900	Vy FPM (0 msl / 15 C)	1498.0	1610.0	112.0	0.925

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
2900	Vy FPM (6000 msl / 3 C)	1515.0	1595.6	80.6	0.947
2900	Vy FPM (10000 msl / -5 C)	1512.0	1576.5	64.5	0.957
3400	55% cruise KTAS (6000 msl / Std Day)	147.0	148.0	1.0	0.993
3400	55% cruise KTAS (14000 msl / Std Day)	157.0	160.0	3.0	0.981
3400	55% cruise KTAS (25000 msl / Std Day)	171.0	174.0	3.0	0.982
3400	65% cruise KTAS (6000 msl / Std Day)	159.0	160.0	1.0	0.994
3400	65% cruise KTAS (14000 msl / Std Day)	170.0	172.0	2.0	0.988
3400	65% cruise KTAS (25000 msl / Std Day)	188.0	189.0	1.0	0.995
3400	75% cruise KTAS (6000 msl / Std Day)	168.0	170.0	2.0	0.988
3400	75% cruise KTAS (14000 msl / Std Day)	181.0	182.0	1.0	0.994
3400	75% cruise KTAS (25000 msl / Std Day)	201.0	201.0	0.0	1.000
3400	55% cruise FF (6000 msl / Std Day)	12.7	12.7	0.0	1.000
3400	55% cruise FF (14000 msl / Std Day)	12.7	12.7	0.0	1.000
3400	55% cruise FF (25000 msl / Std Day)	12.7	12.7	0.0	1.000
3400	65% cruise FF (6000 msl / Std Day)	14.6	14.6	0.0	1.000
3400	65% cruise FF (14000 msl / Std Day)	14.6	14.6	0.0	1.000
3400	65% cruise FF (25000 msl / Std Day)	14.6	14.6	0.0	1.000
3400	75% cruise FF (6000 msl / Std Day)	16.4	16.4	0.0	1.000
3400	75% cruise FF (14000 msl / Std Day)	16.4	16.4	0.0	1.000
3400	75% cruise FF (25000 msl / Std Day)	16.4	16.4	0.0	1.000
3600	Vg KCAS	91.0	92.0	1.0	0.989
3600	Vg Ratio	8.6	8.6	0.0	0.995
3600	Stall clean KCAS	71.5	71.5	0.0	1.000
3600	Stall partial flaps KCAS	66.5	66.5	0.0	1.000
3600	Stall full flaps KCAS	60.5	60.5	-0.0	1.000
3600	Takeoff Ground Run (0 msl / 15 C)	1517.0	1030.0	-487.0	0.679
3600	Takeoff Ground Run (4000 msl / 7 C)	1856.0	1200.0	-656.0	0.647
3600	Takeoff Ground Run (8000 msl / -1 C)	2284.0	1400.0	-884.0	0.613
3600	Takeoff 50 (0 msl / 15 C)	2080.0	1910.0	-170.0	0.918
3600	Takeoff 50 (4000 msl / 7 C)	2505.0	2130.0	-375.0	0.850

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
3600	Takeoff 50 (8000 msl / -1 C)	3036.0	2380.0	-656.0	0.784
3600	Takeoff KCAS	80.0	71.7	-8.3	0.896
3600	Vx KCAS (0 msl / -1 C)	86.0	75.0	-11.0	0.872
3600	Vy KCAS (0 msl / 15 C)	121.0	121.0	0.0	1.000
3600	Vy KCAS (6000 msl / 3 C)	121.0	121.0	0.0	1.000
3600	Vy KCAS (10000 msl / -5 C)	121.0	121.0	0.0	1.000
3600	Vy FPM (0 msl / 15 C)	1174.0	1194.4	20.4	0.983
3600	Vy FPM (6000 msl / 3 C)	1110.0	1173.6	63.6	0.943
3600	Vy FPM (10000 msl / -5 C)	1067.0	1150.7	83.7	0.922
3600	Normal approach CAS (1.306 to 1)	79.0	79.0	0.0	1.000
3600	Land roll (0 msl / 15 C)	1178.0	1190.0	12.0	0.990
3600	Land roll (4000 msl / 7 C)	1326.0	1330.0	4.0	0.997
3600	Land roll (8000 msl / -3 C)	1499.0	1480.0	-19.0	0.987

T6G

REPORT NOTE T6G Stage 2 — aero constants entered from POH; Stage 3 validation pending

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
5000	Vg KCAS	82.0	78.0	-4.0	0.951
5000	Vg Ratio	9.5	9.5	0.0	0.995
5000	Stall clean KCAS	61.7	61.7	0.0	1.000
5000	Stall partial flaps KCAS	55.6	55.6	-0.0	1.000
5000	Stall full flaps KCAS	51.3	51.3	0.0	1.000
5000	Takeoff Ground Run (0 msl / -5 C)	650.0	670.0	20.0	0.969
5000	Takeoff Ground Run (0 msl / 15 C)	750.0	760.0	10.0	0.987
5000	Takeoff Ground Run (0 msl / 35 C)	800.0	880.0	80.0	0.900
5000	Takeoff Ground Run (3000 msl / -5 C)	750.0	750.0	0.0	1.000
5000	Takeoff Ground Run (3000 msl / 15 C)	850.0	860.0	10.0	0.988
5000	Takeoff Ground Run (3000 msl / 35 C)	950.0	980.0	30.0	0.968
5000	Takeoff Ground Run (5000 msl / -5 C)	900.0	800.0	-100.0	0.889

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
5000	Takeoff Ground Run (5000 msl / 15 C)	1000.0	930.0	-70.0	0.930
5000	Takeoff Ground Run (5000 msl / 35 C)	1150.0	1070.0	-80.0	0.930
5000	Takeoff 50 (0 msl / -5 C)	1200.0	1190.0	-10.0	0.992
5000	Takeoff 50 (0 msl / 15 C)	1300.0	1330.0	30.0	0.977
5000	Takeoff 50 (0 msl / 35 C)	1450.0	1510.0	60.0	0.959
5000	Takeoff 50 (3000 msl / -5 C)	1350.0	1280.0	-70.0	0.948
5000	Takeoff 50 (3000 msl / 15 C)	1500.0	1450.0	-50.0	0.967
5000	Takeoff 50 (3000 msl / 35 C)	1650.0	1630.0	-20.0	0.988
5000	Takeoff 50 (5000 msl / -5 C)	1550.0	1350.0	-200.0	0.871
5000	Takeoff 50 (5000 msl / 15 C)	1700.0	1540.0	-160.0	0.906
5000	Takeoff 50 (5000 msl / 35 C)	1850.0	1740.0	-110.0	0.941
5000	Takeoff KCAS	65.0	65.4	0.4	0.993
5000	Vy FPM (0 msl / 15 C)	1350.0	1341.6	-8.4	0.994
5000	Vy FPM (5000 msl / 5 C)	1350.0	1448.6	98.6	0.927
5000	Vy FPM (15000 msl / -15 C)	650.0	858.3	208.3	0.680
5000	Normal approach CAS (1.102 to 1)	56.5	56.5	-0.0	1.000
5000	Land roll (0 msl / 15 C)	700.0	720.0	20.0	0.971
5000	Land roll (4000 msl / 15 C)	800.0	820.0	20.0	0.975
5000	Land roll (6000 msl / 15 C)	900.0	880.0	-20.0	0.978
5300	Vg KCAS	84.0	80.0	-4.0	0.953
5300	Vg Ratio	9.5	9.5	0.0	0.995
5300	Takeoff KCAS	67.0	67.4	0.4	0.995
5300	Vx KCAS (0 msl / -5 C)	70.0	68.0	-2.0	0.972
5300	Vy KCAS (0 msl / 15 C)	97.0	98.0	1.0	0.989
5300	Vy KCAS (5000 msl / 5 C)	98.0	98.5	0.5	0.995
5300	Vy KCAS (15000 msl / -15 C)	88.0	91.2	3.2	0.964
5800	Vg KCAS	88.0	84.0	-4.0	0.955
5800	Vg Ratio	9.5	9.5	0.0	0.995
5800	Takeoff Ground Run (0 msl / -5 C)	900.0	1090.0	190.0	0.789
5800	Takeoff Ground Run (0 msl / 15 C)	1050.0	1090.0	40.0	0.962

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
5800	Takeoff Ground Run (0 msl / 35 C)	1150.0	1270.0	120.0	0.896
5800	Takeoff Ground Run (3000 msl / -5 C)	1050.0	1050.0	0.0	1.000
5800	Takeoff Ground Run (3000 msl / 15 C)	1200.0	1230.0	30.0	0.975
5800	Takeoff Ground Run (3000 msl / 35 C)	1350.0	1440.0	90.0	0.933
5800	Takeoff Ground Run (5000 msl / -5 C)	1250.0	1140.0	-110.0	0.912
5800	Takeoff Ground Run (5000 msl / 15 C)	1400.0	1340.0	-60.0	0.957
5800	Takeoff Ground Run (5000 msl / 35 C)	1600.0	1560.0	-40.0	0.975
5800	Takeoff 50 (0 msl / -5 C)	1550.0	1850.0	300.0	0.806
5800	Takeoff 50 (0 msl / 15 C)	1700.0	1850.0	150.0	0.912
5800	Takeoff 50 (0 msl / 35 C)	1900.0	2120.0	220.0	0.884
5800	Takeoff 50 (3000 msl / -5 C)	1750.0	1750.0	0.0	1.000
5800	Takeoff 50 (3000 msl / 15 C)	1950.0	2010.0	60.0	0.969
5800	Takeoff 50 (3000 msl / 35 C)	2150.0	2320.0	170.0	0.921
5800	Takeoff 50 (5000 msl / -5 C)	2050.0	1860.0	-190.0	0.907
5800	Takeoff 50 (5000 msl / 15 C)	2250.0	2150.0	-100.0	0.956
5800	Takeoff 50 (5000 msl / 35 C)	2500.0	2460.0	-40.0	0.984
5800	Takeoff KCAS	70.0	70.5	0.5	0.993
5800	Vy FPM (0 msl / 15 C)	1050.0	1047.7	-2.3	0.998
5800	Vy FPM (5000 msl / 5 C)	1050.0	1132.9	82.9	0.921
5800	Vy FPM (15000 msl / -15 C)	400.0	593.5	193.5	0.516
5800	55% cruise KTAS (5000 msl / Std Day)	147.0	144.0	-3.0	0.980
5800	55% cruise KTAS (10000 msl / Std Day)	153.0	151.0	-2.0	0.987
5800	55% cruise KTAS (15000 msl / Std Day)	157.0	158.0	1.0	0.994
5800	65% cruise KTAS (5000 msl / Std Day)	160.0	157.0	-3.0	0.981
5800	65% cruise KTAS (10000 msl / Std Day)	165.0	165.0	0.0	1.000
5800	65% cruise KTAS (15000 msl / Std Day)	164.0	170.0	6.0	0.963
5800	75% cruise KTAS (5000 msl / Std Day)	170.0	167.0	-3.0	0.982
5800	75% cruise KTAS (10000 msl / Std Day)	174.0	175.0	1.0	0.994
5800	75% cruise KTAS (15000 msl / Std Day)	170.0	170.0	0.0	1.000
5800	55% cruise FF (5000 msl / Std Day)	27.3	27.3	0.0	1.000

Wt.	Metric / condition	POH	TLAR	Delta	Accuracy
5800	55% cruise FF (10000 msl / Std Day)	27.3	27.3	0.0	1.000
5800	55% cruise FF (15000 msl / Std Day)	27.4	27.3	-0.1	0.997
5800	65% cruise FF (5000 msl / Std Day)	32.0	32.0	0.0	1.000
5800	65% cruise FF (10000 msl / Std Day)	32.0	32.0	0.0	1.000
5800	65% cruise FF (15000 msl / Std Day)	32.5	31.4	-1.1	0.966
5800	75% cruise FF (5000 msl / Std Day)	43.0	43.0	0.0	1.000
5800	75% cruise FF (10000 msl / Std Day)	43.1	43.0	-0.1	0.998
5800	75% cruise FF (15000 msl / Std Day)	35.0	31.4	-3.6	0.897
5800	Land roll (0 msl / 15 C)	900.0	820.0	-80.0	0.911
5800	Land roll (4000 msl / 15 C)	1000.0	950.0	-50.0	0.950
5800	Land roll (6000 msl / 15 C)	1000.0	1020.0	20.0	0.980

TLAR

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