

Cessna Caravan:
A Legend

New Approach
at Teterboro

Owner's Corner:
Ronen Elefant

TWIN & TURBINE

FOR THE PILOTS OF OWNER-FLOWN, CABIN-CLASS AIRCRAFT

JUNE 2026 \$3.95 US

VOLUME 30 NUMBER 6



STILL CRUSADING:
CESSNA'S FINAL PISTON TWIN



ICE SHIELD® DE-ICING SYSTEMS

SPECIALIZES IN HIGH-QUALITY DE-ICING FOR GENERAL AND COMMUTER AVIATION IN FENWICK, WEST VIRGINIA.

Ice Shield® De-icing Products Include:

- Pneumatic Wing Boot De-icers
 - Available in Standard & Pressure Sensitive Adhesive (PSA) Application
- Propeller Electro-Thermal Boot De-icers
- Wire Harnesses
- Engine Inlet de-icers
- Leading Edge Assemblies for TBM
- De-ice Hardware
- De-ice accessories

WE OFFER:

- FAA/PMA Approved
- Best In Market Quality and Longevity
- Worldwide Authorized Installation Centers
- First Class Customer Service

Contact Ice Shield® for availability and lead time today!



EDITOR

Lance Phillips
lance@twinandturbine.com

EDITORIAL OFFICE

2779 Aero Park Drive
Traverse City, MI 49686
Phone: (231) 946-7770

PUBLISHER

Dave Moore

PRESIDENT

Matt Kenny

DIRECTOR OF OPERATIONS

Kurt Bainbridge

PUBLICATIONS DIRECTOR

Jake Smith

GRAPHIC DESIGNER

Marci Moon

TWIN & TURBINE WEBSITE

www.twinandturbine.com

ADVERTISING

Jenna Reid
816-699-8634
Jenna.Reid@VPDCS.com

**ADVERTISING OPERATIONS
AND ACCOUNT MANAGER**

Betsy Beaudoin
1-800-773-7798
betsybeaudoin@villagepress.com

GENERAL AVIATION

ADVERTISING INFORMATION
Aviation.Publications@VPDCS.com

SUBSCRIBER SERVICES

Rhonda Kelly
Jessica Meek
Leah Backus
P.O. Box 968
Traverse City, MI 49685
1-800-447-7367

To change mailing address,
email rhonda.kelly@vpdcs.com

Twin & Turbine (ISSN 1092-6402), USPS 24432 is published monthly by Village Press, Inc. with advertising offices located at 2779 Aero Park Drive, Traverse City, Michigan 49686. Telephone (231) 946-3712. Printed in the United States of America. All rights reserved. Copyright 2016, Village Press, Inc. Periodical Postage Paid at Traverse City, MI.

SUBSCRIPTIONS: *Twin & Turbine* is distributed at no charge to all registered owners of cabin-class aircraft. The mailing list is updated monthly. All others may subscribe by writing to: *Twin & Turbine*, P.O. Box 968, Traverse City, MI 49685, or by calling 1-800-447-7367. Rates for the United States and its possessions follow: one year \$15.00; two years \$29.00. Canadian subscriptions are one year \$24.00; two years \$46.00, including GST tax. Overseas subscriptions are one year \$52.00; two years \$99.00, U.S. funds. Single copies \$6.50.

ADVERTISING: Advertising in *Twin & Turbine* does not necessarily imply endorsement. Queries, questions, and requests for media kits should be directed to the Advertising Director, *Twin & Turbine*, P.O. Box 968, Traverse City, Michigan 49685, Telephone 1-800-773-7798. Website: www.twinandturbine.com.

MANUSCRIPTS: *Twin & Turbine* assumes no responsibility for unsolicited manuscripts, photographs, or artwork. While unsolicited submissions are welcome, it is best to query first and ask for our Writer's Guidelines. All unassigned submissions must be accompanied by return postage. Address queries and requests for Writer's guidelines to the editor.

POSTMASTER: Send address changes and inquiries to Twin & Turbine, Village Press, Inc., P.O. Box 968, Traverse City, MI 49685.

Contents

JUNE 2026 • VOL. 30, NO. 6

Editor's Briefing

- 2 The Pinnacle of Meetings**
by Lance Phillips
- 4 Cessna Caravan:
A Legend**
by Rich Pickett



4



10

- 10 New Approach at Teterboro**
KTEB RNAV (GPS) Rwy 1
by Ed Verville



14

Cover Story

- 14 Still Crusading**
Cessna's Final Piston Twin
by Matt McDaniel



26

Owner's Corner

- 26 Ronen Elefant**
by Grant Boyd

On Final

- 32 We're From the Government, and We're Here to Help You**
by David Miller

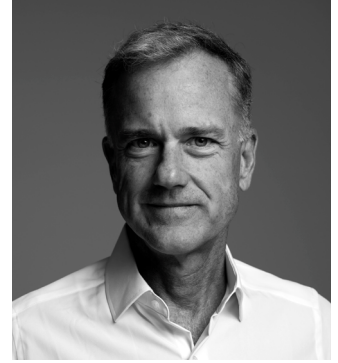
COVER PHOTO:

Photo courtesy of Jay Selman.

Issues of *Twin & Turbine* are available for free www.twinandturbine.com

Editor's Briefing

by Lance Phillips




The Pinnacle of Meetings

June is always a special time for me. It's the month when the leaders of the Pinnacle Air Network gather for their annual meeting. My role as executive director of the organization is to determine the event's location, plan it, and execute it. This year, we'll have leaders from Cutter Aviation, Stevens Aerospace & Defense, Elliott Aviation, West Coast Aviation, Kansas City Aviation (KCAC), Fargo Jet Center, Flightcraft, Woodland Aviation, Eagle Aviation, Muncie Aviation, Signature TECHNICAir, Western Aircraft, and MAC Air (Maine Aviation) in attendance. These are some of the most renowned FBOs, MROs, aircraft sales, and charter organizations in the U.S., all in one place – Dallas, Texas. We don't always hold it in Dallas; usually, it's elsewhere. Last year, we held the meeting in Fargo, ND. But this year, our partner StandardAero will be announcing some great things going on at its DFW overhaul facility, so we, of course, need to see what the StandardAero folks are up to.

In addition to visiting StandardAero's DFW facility, the group will be receiving industry updates from leaders at Blackhawk, NBAA, Ironfleet AI, IOA USA, and Pratt & Whitney Canada. It'll be a truly enlightening meeting. With Maria Della Posta retiring later this year from her role as president, the updates from Pratt & Whitney Canada

will be especially interesting. Mathieu Patino, Pratt's director of North American turboprop customer programs, will come to Dallas to brief us on everything happening at the world's top turboprop manufacturer. We thank Maria for her leadership; she built that leadership through years of hard work and great communication. Since 1985, she has been especially instrumental in growing Pratt's aftermarket network.

One of the unique aspects of this year's meeting is that Dallas (actually Arlington, TX) hosts several FIFA World Cup soccer games at the Dallas Cowboys' AT & T Stadium. My town is planning to be overrun by soccer fans from all over the world. Hotels are booked to capacity, which is great. It also made the hotel search for my group's meeting difficult. But it wasn't impossible, and we found a great one. Right in Dallas' Uptown neighborhood. My neighborhood.

With Oshkosh right around the corner, summer is shaping up properly. 

lance@twinandturbine.com



NEW!

PJ2 GPS RADIO COMMUNICATION— WITH NO ADAPTERS


The new PJ2 GPS sets the bar even higher for what a handheld aviation radio can do. The latest Sporty's radio incorporates all the features pilots love about the PJ2+, and adds GPS capabilities, Bluetooth, color screen, Intercom, and much more. The PJ2 Radios are the only radios to feature standard aviation jacks on the top of the radio, removing the need to have cumbersome adapters for headset operations. **9268A \$399.00**

 INTEGRATED GPS CAPABILITY

 STANDARD GA HEADSET JACKS

 BLUETOOTH AUDIO OUTPUT

 RECHARGEABLE BATTERY

 COLOR SCREEN

 8.33/25 KHZ SPACING



TT2606A



LEARN MORE: [SPORTYS.COM/PJ2GPS](https://www.sportys.com/pj2gps)

AN EMERGENCY IS NO TIME TO BE
SEARCHING FOR A HEADSET ADAPTER.



Cessna Caravan: A Legend

by Rich Pickett



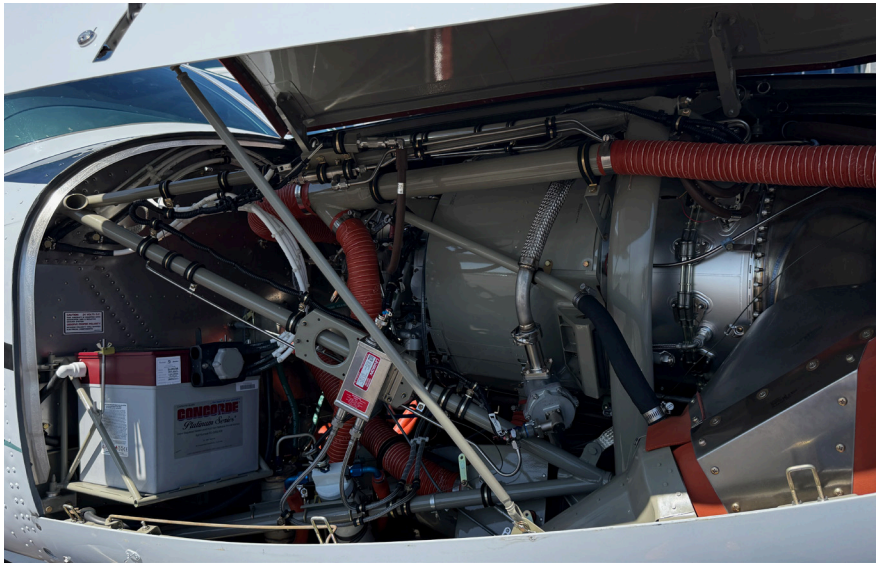
Cessna Grand Caravan EX

From its initial flight in 1982 and first delivery in 1985, the Cessna Caravan has been known as a robust utility aircraft. The first model featured the Pratt & Whitney Canada (PWC) PT6A-114 with 600 shaft horsepower (SHP) and caught the interest of FedEx, which then ordered 177 of an extended cargo version – the Cessna 208A. Designed from the start to be an easy-to-maintain workhorse, with fixed gear, large doors, and a simple unpressurized airframe, the product line has grown substantially.

Fast forward now to 2026. Producing 3,100 Caravans in 41 years, flying over 25 million hours, and certified in 100 countries, it has proven itself to provide amazing service. What started



Rich and Tom Buell at Big Bear Lake Airport (L35)



Easy Engine Access



G1000 PFD with 3D Safe Taxi

as a very utilitarian passenger and cargo aircraft, the Caravan not only still provides extensive cargo hauling service, but also an increasing number of commuter and executive configurations – including amphibious capabilities. In our Twin & Turbine April 2026 issue, Grant Boyd wrote about Mark Baker's experience with his Cessna Caravan, and the utility it has provided him over the years.

Since the original aircraft rolled out from the factory, the engine has been upgraded from the original PT6A-114, first to the PT6A-114A with 675 SHP in the Cessna Caravan and the 867 SHP PT6A-140 in the extended Grand Caravan.

I've been able to experience multiple Cessna Caravans this year, as a passenger and pilot. On an Air Journey trip in Costa Rica, we chartered two

Caravans, one of the early models, and a later Garmin G1000-equipped aircraft. These Caravans allowed us to leave our aircraft in Liberia and travel to a smaller airport closer to



Air Stair Door

the rainforest and the Arenal volcano. It was a perfect use of the Caravan.

Recently, Morgan Lane of Textron provided me access to a brand-new Cessna Caravan to evaluate in California. Arriving at Montgomery-Gibbs airport (KMYF) in San Diego, complete with an executive interior and cargo pod, it definitely attracted attention.

Exterior

With the familiar Cessna high-wing design, wing struts, and tubular spring steel main landing gear struts, the walk-around is very familiar to a Cessna pilot, except for the scale. The wingspan is 52 ft, the length is nearly 38 ft., and the tail is close to 15 ft. When you add amphibious floats, it soars above the ground or water.

This Caravan had the optional \$112,800 cargo pod, an essential and popular option if you want to carry several passengers and bulky cargo or simply want more room in the cabin. The pod is huge, 87.3 cubic feet, and capable of carrying 870 lbs. in three compartments. If you choose this option, it is mutually exclusive of the FIKI option.

The Caravan is designed for easy access to the fuselage. The original design as a cargo aircraft necessitated separate doors for crew and cargo, and this feature alone makes it one of the easiest airplanes to load. The Caravan features two crew doors, easily accessible through improved integrated steps in this model. The main cabin is equipped with two doors, one a very large 49 in. by 50 in. two-piece door



Grand Caravan EX Right Profile

on the left of the fuselage, and a 24 in. by 50 in. airstair door on the right. This combination is extremely helpful when loading a variety of cargo and passengers into the cabin. With a nearly 16 ft. cabin, from crew seats to aft baggage area, the flexibility for carrying large objects is incredible.

The ease of access design also extends to the engine pre-flight. The Caravan has the best access to the engine compartment of any of the turboprops I fly. When you open the cowlings panels, you or your maintenance technicians have nearly unfettered access to virtually all components, making service more efficient. The aircraft is equipped with a McCauley 106-inch, three-blade, full-feathering, reversible pitch propeller.

With a maximum takeoff weight (MTOW) of 8,000 lbs. and an empty weight of 5,006 lbs. for this plane, you can fill the tanks with 2,224 lbs. of fuel and still have a payload of 770 lbs. for crew, passengers, and cargo.

Cabin Options

The Caravan is certified under FAR Part 23 for two crew and up to nine seats. A typical executive configuration is one club of four seats and two singles. A three-person bench seat is also available. You can add up to 2 additional seats with a waiver offered in some countries. In the US, with a waiver, the aircraft can have up to 14 passengers. If I were operating with that many passengers, the Grand Caravan EX would be a better option.

The seating configuration is very flexible, and operators can also create a combi layout, with cargo and passengers.

The Caravan I flew was equipped with the Oasis executive interior from Yingling, one of Textron's completion partners. It features leather seats with two crew seats, club seating for four, and two additional seats in the cabin, and a bench seat. With a large 64-inch wide cabin and 54 inches tall, passengers can be very comfortable moving about, and you can load just about anything. Coupled with the cargo pod, it is difficult to run out of room.

Flight Deck

The Caravan is equipped with the latest Garmin G1000 NXi, with system 7 software and hardware. Textron aptly names it the "Intelligent Flight Deck". This version includes advanced features also found in the latest G3000 system. The system includes 3-D Safe-Taxi, runway occupancy awareness, and advanced traffic display on the PFD and MFD utilizing the diversity transponders with Garmin's CDTI-assisted visual separation (CAVS). The latter allows you to identify a target on the MFD and have continually updated information where you need it, on the PFD in front of the pilots.

The Garmin GDL 60 supports wireless database updating, and of course, flight plan transfer with your EFB, as well as connectivity to display weather on the device. The Caravan includes the King KN-63 DME as standard, and the airplane I flew was equipped with the optional KN-87 ADF for international operations. Yes, some countries still use NDBs for approaches, without GPS overlays.

The audio panel and associated controls on the MFD provide the crew with granular volume adjustments for virtually every avionic component. The panel has a high glare shield, which can make for some challenges for visibility. The seats are very comfortable; however, for very tall pilots over 6 ft. 3 in., the head clearance may be an issue since they don't have vertical adjustment. It was fine for me at 6 ft. 2 in., with adequate clearance above my headset.



FLY SAFE TRAIN SMART

In-Aircraft & Simulator Training
Initial & Recurrent in Twin & Turbine Aircraft

- www.safepilot.com
- 843-521-9412

Flying the Caravan

For my test flight, I decided to fly from my home airport, Montgomery-Gibbs KMYF in San Diego, to Big Bear City (L35) in the California San Bernardino mountains, accompanied by Textron pilot Tom Buell. If you haven't flown into Big Bear City, it is a scenic area with a beautiful lake, great skiing, biking, and hiking.

The airport is at 6,752 MSL surrounded by mountains. Since the Caravan is frequently flown at 10-12,000 MSL, it was a good flight profile to evaluate the aircraft.

The plane is tall, and Cessna has improved the pilot entry process with improved steps into the flight deck via the crew doors. With the pre-flight completed, passengers seated, and the many doors secured, it was an easy process to start the P&WC PT6A engine. After setting the power lever to idle, propeller to max, fuel

condition lever off, and testing the fire and annunciator systems, it was time to light the fire!

Fuel pump on, starter switch set, as Ng (N2) increased to 12%, I moved the fuel condition lever to low idle and monitored ITT (max 1090 °C for 2 seconds). At 52% Ng, the starter is off, and verified the generator was online and charging. After avionics were fully energized and our clearance was received, it was time to taxi to runway 28R. The Garmin 3D Safe Taxi and routing are nice features of the system. I've used them in various aircraft, and they are especially helpful at busy airports and at night or in low-visibility conditions.

There are 28 steps on the Before Takeoff Checklist, which may sound extensive; however, many are common to most aircraft and can be accomplished quickly. In practice, many could be accomplished even before taxi, which would expedite the



Grand Caravan Flight Deck



Grand Caravan EX Interior

Short-N-Numbers.com

Aircraft Registration Numbers with 3-Digits or Less

1 Number + 1 Letter	2 Numbers + 1 Letter	1 Number + 2 Letters
2R	10D	58R
4J	10P	58Z
4K	11F	59F
4Y	11Q	59G
4Z	11T	59J
5C	11Z	59K
5T	12C	59R
5Y	12E	59S
6C	12H	59U
6E	12L	59W
6H	12U	59X
6N	13F	60D
6S	13G	60G
7G	13Q	60M
7L	13R	60N
7Q	13S	60U
7T	13U	60V
7V	13V	61B
7Y	13Y	61C
7Z	14D	61D
8C	14E	61E
8E	14F	61F
8G	14N	61H
8Q	14S	61J
8R	14Y	61K
8T	15C	61X
9C	15G	61Z
9D	15Q	62L
9M	15W	62N
9T	16D	62P
9W	16H	62Z
9Z	16K	63C
	16T	63H
	16V	63N
	16Y	63Q
	16Z	63U
	17D	63Z
	17K	64A
	17Q	64B
	17V	64R
	17X	64T
	17Z	64U
	18K	64V
	18Q	64X
	18R	64Y
	18S	65C
	18P	65P
	18T	65T
	18Z	65Z
	4AB	7JX
	9AD	9JX
	4AE	3JY
	3AF	7JY
	9AH	9JY
	4AJ	8JZ
	2AN	9JZ
	3AN	5KA
	4AN	6KA
	5AN	5KB
	7AN	7KB
	8AN	9KB
	9AN	6KC
	4AP	9KC
	4AQ	4KD
	5AQ	7KD
	7AQ	3KF
	2AR	4KR
	8AT	6KF
	2AU	7KF
	3AU	9KF
	6AU	7KK
	7AU	6KL
	9AU	5KN
	6AV	6KN
	9AV	7KN
	9AW	8KN
	4AX	9KN
	6AX	2KQ
	7AX	6KQ
	9AX	8KQ
	3AY	9KQ
	4AY	2KR
	5AY	3KR
	7AY	5KS
	8AY	6KS
	6AZ	5KT
	9BA	2KU
	8BD	3KU
	7BE	4KU
	7BF	5KU
	4BG	6KU
	7BG	4KV
	8BG	6KV
	4B1	7KV
	6B1	2KW
	9B1	2KX
	4B1	7KX
	5B1	8KX
	6B1	9KX

Over 1,800 Available!

Southeast Twin Owners: Get your Time Machine back. (And the joy of owning it.)

Most shops take your keys and your freedom, leaving your plane sitting in a dark hangar for months. At Coastal, we believe maintenance should support your mission, not stall it.

We utilize **Active Planning** to source parts and prepare before your tires touch our tarmac. We don't just sign logbooks; we guarantee the **Timely Execution** and **100% Quality** required to keep your aircraft ready and your family safe.



Experience the Coastal Standard at Jack Edwards Field (JKA). We handle the logistics and the planning—you just enjoy the flight.

Claim one of our 6 remaining June/July/August priority intake slots before the Fall rush. Call our Gulf Shores hangar today: (251) 978-0163

Coastal Aircraft Services
Gulf Shores, AL
251-978-0163



takeoff process when holding short of the runway.

With takeoff clearance received, I applied full power, and the Caravan quickly accelerated to our Vr of 70 KIAS, with 20° flaps. After retracting

the flaps at 90 KIAS, we continued our initial climb at 95 KIAS, north along the San Diego coastline. It flies like a somewhat heavy, but very smooth, Cessna piston single, similar to a T210 or T206.

The Caravan has an outstanding view for both the pilots and the passengers. From the flight deck, we had an expansive vista of Southern California, spanning from the very large crew side windows across the windshield. We cruised towards Big Bear initially at 10,500 MSL. We weren't in a hurry, so I reduced the power (TQ 1500 pounds, Prop RPM 1750). This gave us a TAS of 167kts with a fuel burn of 321 pph. We climbed to 12,500 MSL to clear the south mountain ridge, then descended into the Big Bear valley, west of the airport, directly over the ski area and the lake.

The approach and landing would be familiar to any Cessna pilot, just a few knots faster than the piston singles. The first notch of flaps (10°) can be extended at 175 KIAS, 20° at 150 KIAS, and 30° below 125 KIAS. Our approach angle was slightly over 4 degrees, which was easy for the Caravan. I used full flaps and set up for a Vref of around 75 KIAS. Main wheels touched first, as expected, with a pitch of 5 degrees. Lowering the nose to touchdown, power lever to beta, and the Caravan was ready to turn off the runway. I was gentle on the brakes; however, heavier braking would have resulted in a ground roll of 800 feet and a total distance of 1700 feet. Nice performance for a landing weight of 6,700 pounds.

Departing runway 08 at Big Bear, we climbed at 110 KIAS and over 1,000 FPM. The flight back to KMYF was great, with a nice view of the Torrey Pines Golf Course and the Pacific. Entering left downwind for runway 28L at 100 KIAS, extending full flaps, we did a short field, 6° steep approach, slowing to 75 KIAS over the threshold.

The Big Sibling

If the Cessna Caravan isn't large enough to carry everything you want, simply purchase the Cessna Grand Caravan EX-208 B. This model isn't simply a stretch version; it has some significant differences beyond the four feet longer fuselage and cabin, at 41 feet 7 inches. The aircraft is 8 inches taller, with a slightly

CESSNA CARAVAN FAMILY BY THE NUMBERS			
	Cessna Caravan	Grand Caravan EX	Difference / Notes
PRICING			
Base Price	\$2,808,000	\$3,132,000	+\$324,000
Cargo Pod Option	\$112,800	\$112,800	—
Price as flown	\$3,735,000		
DIMENSIONS			
Overall Length	37 ft 7 in	41 ft 7 in	+4 ft longer
Overall Height	14 ft 10 in	15 ft 6 in	+8 in taller
Wingspan	52 ft 1 in	52 ft 1 in	Identical
Cabin Length	12 ft 9 in	16 ft 9 in	+4 ft longer
Cabin Height	54 in	54 in	Identical
Cabin Width	64 in	64 in	Identical
WEIGHTS			
Max Ramp Weight	8,035 lb	8,842 lb	+807 lb
Max Takeoff Weight	8,000 lb	8,807 lb	+807 lb
Max Landing Weight	7,800 lb	8,500 lb	+700 lb
Max Fuel Capacity	2,224 lb	2,246 lb	+22 lb
Basic Operating Weight	5,070 lb	5,510 lb	+440 lb
Useful Load	2,965 lb	3,332 lb	+367 lb
Max Payload	2,509 lb	2,699 lb	+190 lb
Full-Fuel Payload	761 lb	1,066 lb	+305 lb
PERFORMANCE			
Max Cruise Speed	178 KTAS	185 KTAS	+7 kts faster
Certified Ceiling	25,000 ft	25,000 ft	Identical
NBAA IFR Range (4 pax)	889 nm	816 nm	Caravan +73 nm
Takeoff Field Length	2,090 ft	2,160 ft	+70 ft
Hot & High Takeoff	3,035 ft	3,661 ft	+626 ft
Landing Distance	1,600 ft	1,836 ft	+236 ft
Typical Landing Dist.	1,523 ft	1,668 ft	+145 ft
VREF (typical ldg wt)	73 kts	73 kts	—
Flight Time – 200 nm	1:11	1:07	Grand Caravan 4 min faster
Flight Time – 500 nm	2:52	2:46	Grand Caravan 6 min faster
CARGO / BAGGAGE			
Internal Baggage Wt	325 lb	320 lb	—
Internal Baggage Vol	32 cu ft	32 cu ft	Identical
External Pod Wt Cap	820 lb	1,090 lb	+270 lb
External Pod Volume	84 cu ft	112 cu ft	+28 cu ft
Passenger Seats	10 – 14	10 – 14	Same range
POWERPLANT			
Engine	P&WC PT6A-114A	P&WC PT6A-140	—
Shaft Horsepower	675 SHP	867 SHP	+192 SHP (+28%)
Engine TBO	3,600 hrs	4,000 hrs	+400 hrs
Propeller	McCaughey 106-in 3-blade	McCaughey 106-in 3-blade	Identical
Avionics	Garmin G1000 NXi	Garmin G1000 NXi	Identical
OPERATING COSTS ESTIMATES (per flight hour, 500 nm mission)			
Average Speed	174 kts	181 kts	+7 kts
Average Fuel Flow	58 gal/hr	66 gal/hr	+8 gal/hr
Fuel Cost @ \$6.00/gal	\$348.00/hr	\$396.00/hr	+\$48.00/hr
Labor	\$66.72/hr	\$66.72/hr	Same
Parts	\$49.20/hr	\$49.20/hr	Same
Engine Reserves	\$127.97/hr	\$132.29/hr	+\$4.32/hr
Propeller Reserves	\$6.00/hr	\$6.00/hr	Same
Total Cost per Hour	\$597.89/hr	\$650.21/hr	+\$52.32/hr
Total Cost per NM	\$3.44/nm	\$3.59/nm	+\$0.15/nm
<small>Hot & High performance: max takeoff weight from 5,000 ft elevation at 25°C (ISA+10°C).</small>			

different wing design to accommodate a takeoff weight increase of 800 pounds to 8,807 pounds, slightly more fuel, and a useful load increase of 367 pounds. This all equates to a full fuel payload increase of approximately 300 pounds

This larger model is powered by P&WC PT6A-140 with 867 SHP, and a TBO of 4,000 hours. With this increased power, the cruise speed also increases 8-10 knots to 185 KTAS. The takeoff and landing distances increase a small amount, with higher altitudes and temperatures having a more significant increase with the Grand Caravan. All these comparisons are with the cargo pod option, since most operators select that as well.

We mentioned earlier that operators can choose either the Cargo Pod or FIKI with the Caravan, the Grand Caravan EX, which allows operators to select both. An important consideration is if you want both additional cargo storage and FIKI.

I was able to explore the Grand Caravan EX at Aero Friedrichshafen, a few weeks after flying the Caravan. The extended fuselage is indeed helpful for those larger loads, and exploring the exterior and interior, it would be a good choice. This plane featured both the cargo pod and the FIKI options, which were useful since it had been flown from Wichita to Germany for this event. This leather interior was Cessna's executive Saddle Sport, double club, and a bench seat. Couple this with the eye-catching paint, and it was an impressive aircraft.

Summary

Whether you're hauling cargo into a remote strip or ferrying executives in leather-appointed comfort, or both, the Cessna Caravans offer operators tremendous flexibility and utility. Pilots transitioning to these aircraft, especially if they have experience in other Cessna aircraft, will find an easy path to turboprop operation. The systems are straightforward,

the Garmin G1000 NXi avionics are powerful for any mission, and the load-carrying capabilities are among the most flexible.

After 40-plus years, operating in over 100 countries, and 25 million flight hours, the Caravan has earned its legend status — and after flying the plane, I understand exactly why pilots and operators keep coming back to this capable aircraft. **T&T**



With 14,000+ hours of piloting more than 100 aircraft models, Rich Pickett is still passionate about flying. Rich holds an ATP, CFII SME,

SES, glider license, and type ratings in the following aircraft: L29, L39, Citation 500/510/525, Eclipse 500S, Beechcraft Premier and Dassault Falcon 10. He runs his company, Personal Wings, with his son Tigre. Personal Wings provides training, mentoring and aircraft services. You may contact Rich at rich@personalwings.com.

NEW
for 441
Conquest II

Plug & Play All the Way!

LED Caution Warning Panel Suite with Integrated Fire Suppression Switches & Gear Status Display

Cessna 441 Conquest II



- LED Reliability & Lighting Performance
- Drop-in Plug & Play Replacement
- Includes New Solid-state Logic/Dimming Control Unit
- Available For Immediate Shipment

- Five Year Warranty



LED Gear Status Display
(Single modular unit)



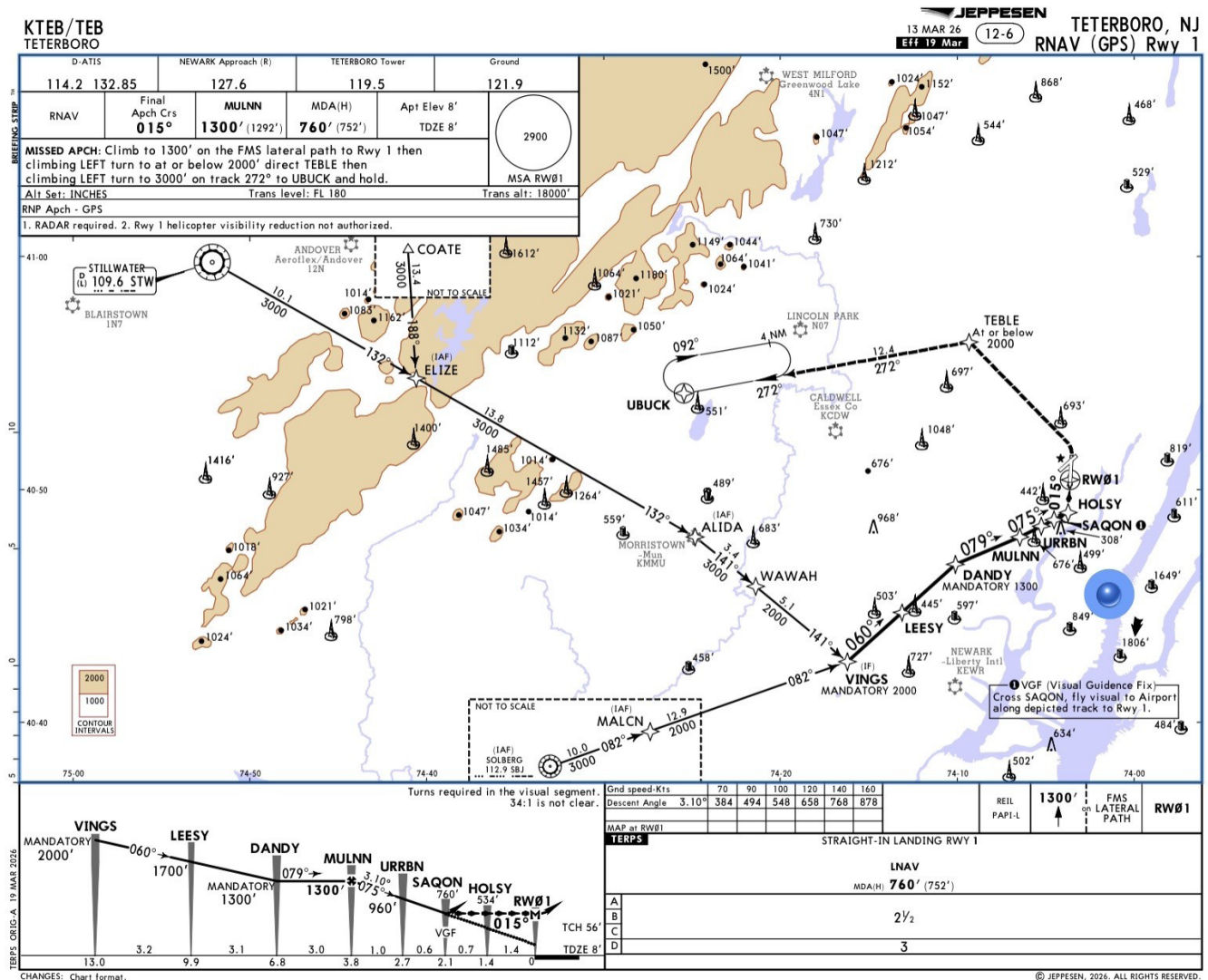
Luma Technologies LLC

13226 SE 30th Street (B3), Bellevue, WA 98005
(425) 643-4000, x305 Sales@lumatech.com

New Approach at Teterboro

KTEB RNAV (GPS) Rwy 1

by Ed Verville



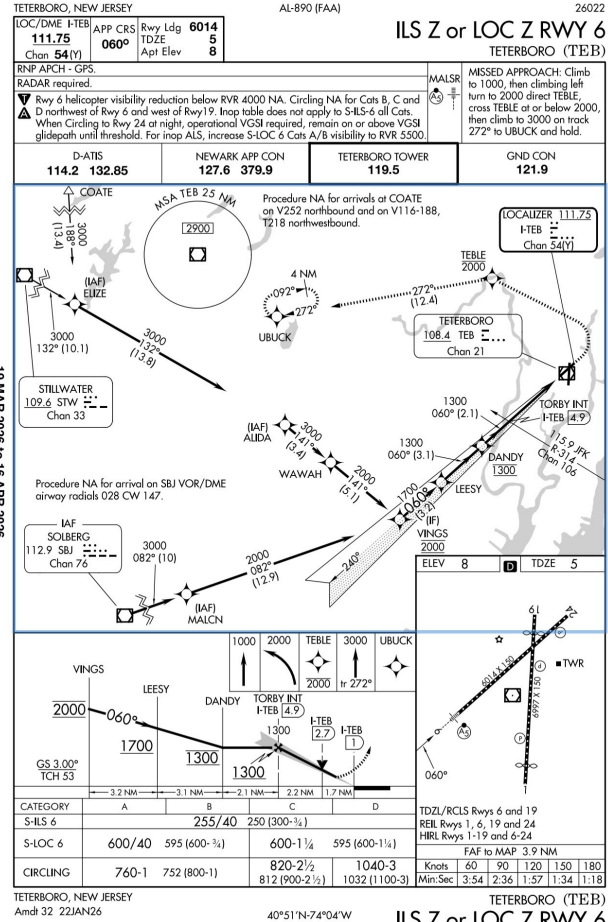
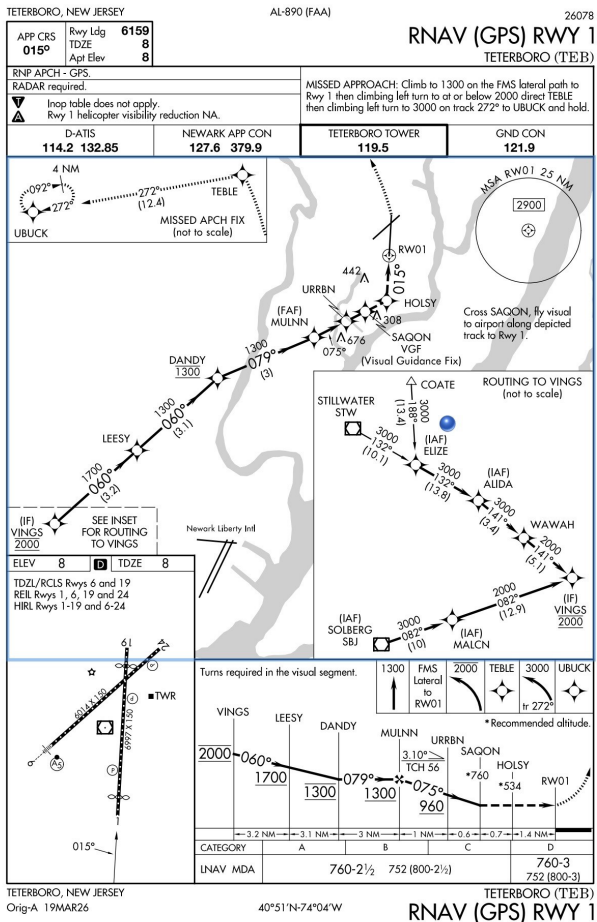
RNAV RWY 1 Jepp

Introducing the first-ever instrument approach to Runway 1 at Teterboro.

The Teterboro Airport Users Group made this announcement in February:

“Teterboro Airport (KTEB) will introduce a new instrument approach procedure, RNAV (GPS) Rwy 1, beginning Feb. 19 at 0701Z. While offering the advantage of lateral and vertical guidance to the runway, the new IAP notably introduces a Visual Guidance Fix (VGF) and visual segment concept at TEB.”

This approach is designed to replace the Localizer Runway 6 with circling to Runway 1. I have conducted this circling approach numerous times during the past decade. A straight-in approach to Runway 1 is prohibited due to traffic flow at Newark Airport. This new approach with lateral and vertical guidance is an attempt to simplify the circling approach. Some sources state that circling approach procedures are 25 times more dangerous than straight-in approaches. U.S. Airlines totally prohibit circling approaches in instrument conditions.



RNAV RWY 1 FAA

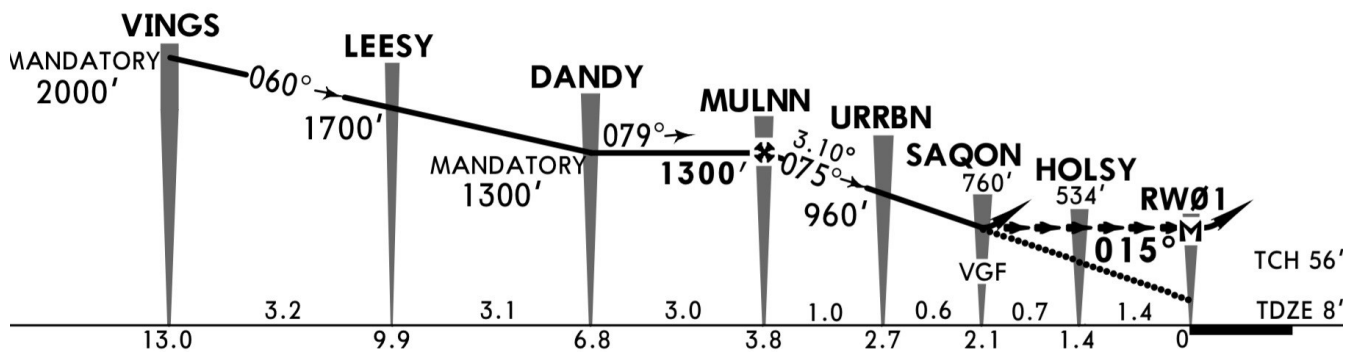
LOC RWY 6 Circle RWY 1

This is not a new concept, as there are similar approaches in place at Ronald Reagan Washington National Airport, RNAV (GPS) Rwy 33, John F. Kennedy International Airport, RNAV (GPS) Z Rwy 13L and 13R, and LaGuardia Airport, RNAV (GPS) X Rwy 31.

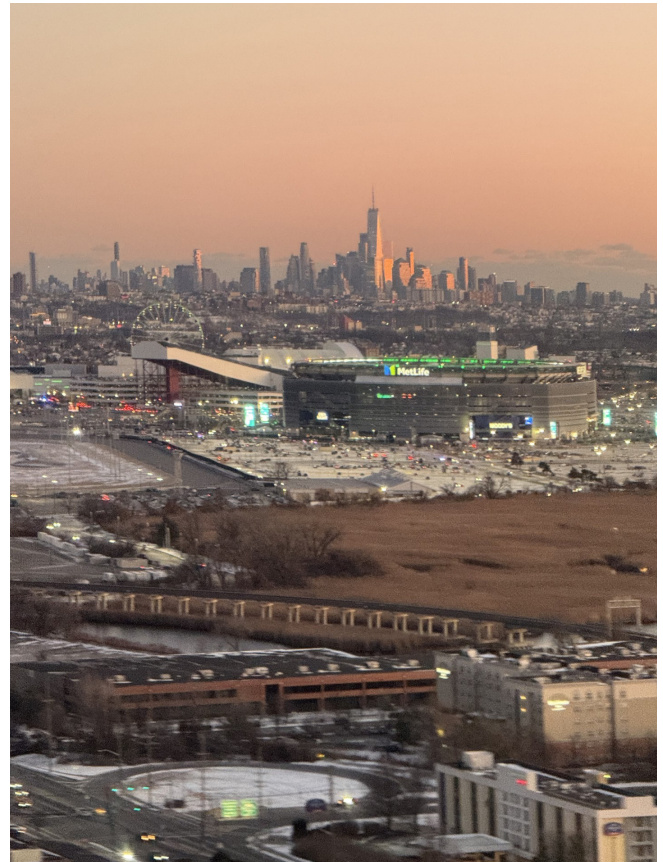
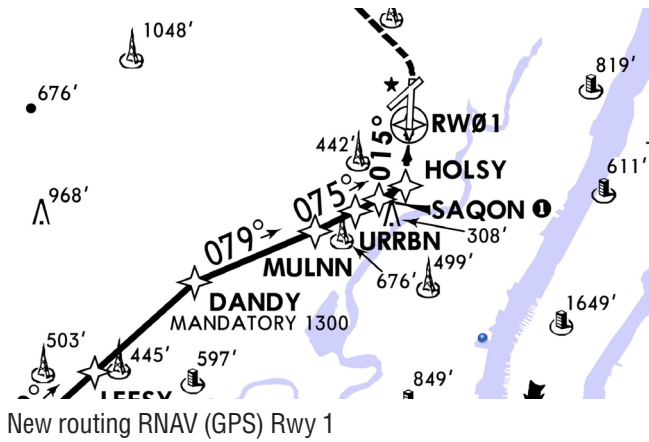
This new approach introduces a new term: a Visual Guidance Fix (VGF), as well as the extended visual segment concept. The TEB Airport Users Group is encouraging pilots to become familiar with VGF and an Extended Visual Segment by reviewing FAA InFO 24005, Instrument Approach Operations with a Visual Guidance Fix (VGF) and an Extended Visual Segment.

The Localizer 6 Approach with circling to Runway 1 previously had you fly over VINGS Intermediate Fix (IF) at the mandatory altitude of 2,000 ft. You would start the circle at the final approach fix, TORBY, which also had a mandatory altitude of 1,300 ft. Most operators successfully conducted this approach; however, in May 2017, a Learjet 35A crashed while conducting this approach. Many things went horribly wrong, including not starting the circle at TORBY, the Final Approach Fix. The NTSB did a YouTube video segment on this accident that you may view. The cause of the accident was ruled a stall/in-flight loss of control.

Turns required in the visual segment.
34:1 is not clear.



New profile RNAV (GPS) Rwy 1



Circling over MetLife Stadium

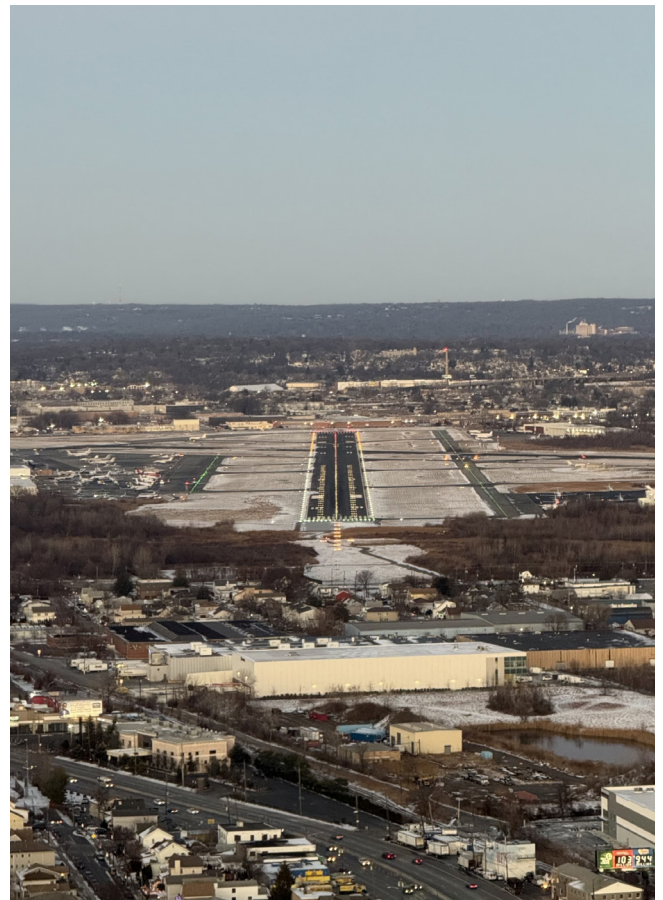


FMS view ILS/LOC Rwy 6

When in use, the approach will be announced on the ATIS frequency. Although it is a great idea to familiarize yourself with this approach and the FAA InFO, there is no specialized training, letters of authorization, or operation specifications required to fly this new approach. This is not an RNP AR Approach that does have specific training and requirements to fly it. (See T&T, July 2023, RNP AR Approaches).


The new RNAV (GPS) Rwy 1 Approach will start maneuvering to Runway 1 earlier than the previous circling approach. An initial turn of 19 degrees to the right now starts DANDY Intersection, which is 2.1 NM before the former turn would start at the FAF at TORBY. The approach also provides advisory lateral and vertical guidance to the landing runway.

The approach still has a mandatory crossing altitude of 2000 feet at VINGS, followed by a minimum altitude of 1700 feet at LEESY, and another mandatory altitude of 1300 feet at DANDY. After the 19-degree right turn at DANDY,



Approach view of Rwy 6

the course continues 3 NMs to the FAF of MULNN, with another very slight right turn. A 3.1-degree glide path starts here at the FAF. The descent profile has a minimum altitude of 960 feet at URRBN and an MDA altitude of 760 feet at SAQON, which is right over MetLife Stadium. SAQON is also labeled as the Visual Guidance Fix (VGF). This is where you must have the runway environment in sight to descend below this altitude or follow the advisory glide path. The extended visual segment of the approach also starts here at SAQON and is identified by the dashed line in the profile view of the approach. At HOLSY, with about a mile to go, you will make a 60-degree left turn to line up with Runway 1 for a landing.

This new approach should enhance safety over the previous circling approach to Runway 1. Starting the maneuvering to circle earlier and providing a lateral and vertical glide path all the way to Runway 1 is a great enhancement. Please look at the approach chart and the short FAA InFO before you fly this new procedure. 



Ed Verville is an experienced FAA instructor and examiner for business jet pilots and aircrew programs. He has 15,000 flight hours in more than 100 different makes and models and holds type ratings in the Bombardier CL-65, CL-30, CL-604, and Boeing 747. Ed has been instructing RNP-AR Approaches for the past three years.

**TRUST MAYDAY AVIONICS
FOR YOUR AVIONICS SERVICE
AND INSTALLATIONS.**







SETTING THE STANDARD SINCE 1972
4151 Aviator Way, Suite 2, Grand Rapids, MI 49512
800-678-1237 | MaydayAvionics.com



You know us for King Air. Get to know us for everything else.

For years, operators have trusted Professional Aviation Associates for King Air parts. We also stock Learjet, Hawker, and Beechjet, adding more every month.

And we build custom hoses in our own shop. Hydraulic, fuel, oil, pneumatic. Built to your specs and shipped fast. If we don't stock it, we'll source it.

FIND YOUR PART. BUILD YOUR HOSE.



“

This “cruciform tail” arrangement on what, otherwise, has the distinctive look of a twin Cessna, can only mean one thing: It’s a Crusader.





Still Crusading:

CESSNA'S FINAL PISTON TWIN

by **Matt McDaniel**

As I approached from across the small apron of North Carolina's Elkin Municipal Airport (KZEF), the outline of the striking blue twin was unmistakable. In spite of its relative rarity today, it is a type many still recognize. Not because of some storied history or famous exploits. Rather, it is simply that tail. That tall vertical stabilizer and rudder, bisected by horizontal stabilizers and elevators, form a cross-like empennage. This "cruciform tail" arrangement on what, otherwise, has the distinctive look of a twin Cessna, can only mean one thing: It's a Crusader. Maligned by some, revered by others, it remains a pilot magnet on every ramp.

Clipped Wings

Between 1954 and the mid-1980's, Cessna was in continuous production of piston twins, usually with multiple models rolling off the assembly lines simultaneously. However, in spite of their dominance in the cabin-class piston twin market, Cessna all but gave up the light twin trainer market. The original 310 fit that market in its earliest 4-to-5 seat, normally-aspirated versions. Subsequent 310 models, on the other hand, quickly grew into larger and faster (and more expensive) machines than most flight schools could justify.

Through the heyday of general aviation piston twins, Cessna was the undisputed champion. Simply put, they won the game in terms of the variety of models certified and numbers produced. Although they did so mainly within the cabin class realm, with little influence on the twin trainer market. So, it's not surprising that, in the 4th quarter, they decided to try to capture some of that market, which Piper, Beechcraft, and even Grumman controlled. Thus, on Feb. 14, 1978, Cessna flew what would turn out to be their final clean-sheet piston twin design; the Model 303 Clipper. The Clipper was a 4-seat twin, utilizing 160hp Lycoming engines and a NASA-designed critical airfoil. Initial test flights were anything but trouble-free, with both performance and stability issues.

At the same time, Piper's latest twin trainer, the more modern, counter-rotating PA-44 Seminole, had just achieved certification. Plus, there were hundreds of Piper Apaches, Aztecs, and Twin Comanches already deeply entrenched in training school fleets. Similarly, Beechcraft's latest multi-trainer, the BE-76 Duchess, was also just entering the market, while many older Travel Airs and Barons were flying in trainer roles too. Finally, Grumman had recently introduced their GA-7 Cougar in hopes of putting a dent in the same market. The timing for the 303 Clipper was simply not optimal. With the disappointing initial test flights and the stiff competition, Cessna quickly reconsidered. They shelved the 303.

As an interesting side note, the name "Clipper" was also a misstep. Pan Am World Airways was protective of its marketing and had trademarked "Clipper" for their various uses of the name decades prior. It seems Cessna soon realized they might be stepping on toes and decided to discontinue any use of the Clipper name. Perhaps the powers running Cessna were reminded that Piper had fought (and lost) this same battle with Pan Am in the late 1940's. Piper's PA-16 was also named "Clipper" before Pam Am attorneys intervened. As a result, the Piper Clipper was only produced in 1949. Piper tweaked their Clipper design into the PA-20 and changed

its name to "Pacer," beginning Pacer production in 1950.

Enter The Crusader

A year after shelving the 303 Clipper, Cessna revisited the design with an eye on morphing it into an aircraft with a different, more marketable mission. Cessna wind-tunnel tested the design over and over again as changes were incorporated. The fuselage was stretched into a 6-seater. Club seating, plus a clamshell airstair door at the left rear, created a small cabin-class twin. Almost nothing from the original 303 design went untouched, as tweaks or total redesigns were applied to fairings, control surfaces, wings, airflow control devices, and the entire empennage. Power was greatly enhanced via turbocharged, counter-rotating, 250 hp Continental TSIO-520 engines, requiring redesigned cowling and nacelles. The biggest visual change would be the repositioning of the horizontal tail to a mid-vertical position. This reconfiguration addressed prop wash-induced vibration issues with the original tail position, both reducing vibration and improving stability. The cruciform tail would become the defining feature of what Cessna would name the T303 Crusader ("T" indicating turbocharging, in Cessna-speak).

The first T303 prototype flew in Oct. 1979. During two years of development and certification flight testing, the two





T303 Cockpit Panel



T303 trailing link main gear



prototypes accumulated over 1,000 flight hours. According to Cessna, this made the T303 the most thoroughly tested piston-engine aircraft they'd ever designed (single or twin engine). Deliveries began in Oct. 1981 (of 1982 models). Concurrently, Cessna discontinued 310 production. Whereas the 303 Clipper would have competed with the Seminole, Duchess, and Cougar, the T303 Crusader went head-to-head against Piper's recently upgraded PA-34 Seneca III. While the T303 was heavier and had 30 more horsepower per side, their useful loads were typically very close to one another (in the 1,800 lb. range, with basic equipment). Both certified to FL250, they shared almost identical performance, with the T303 using its extra horsepower (and slightly higher fuel burn) to balance its larger cabin and copious cargo space. That extra space and comfort came at a price well north of the Seneca III's. Nevertheless, in 1982, the new Crusader came within just a handful of airframes of matching sales of the already well-established Seneca.

In subsequent years, the Seneca bested T303 sales by ever-increasing margins. However, all piston twin sales were sharply declining in the early 1980's, and the numbers were relatively small for all manufacturers. By 1984 (the last year the Crusader was built in any large numbers), only 65 were delivered. Piper struggled as well, selling only 87 Senecas. From 1981 to 1984, Piper ceased production of the Aztec and Navajo, while Beech closed out both Baron and Duke production. Cessna didn't officially give up on the Crusader until 1986, but only 3 were sold in 1985 & 1986 combined. Sadly, production ended with only 297 Crusaders delivered.

Legend would have you believe the T303 was a sales failure because it was somehow an inferior product. Facts, on the other hand, reveal a more complex story. The entire piston aircraft industry was battling a struggling economy and a suffocating liability crisis in the early to mid-1980s. So much so that throughout 1984-85, Cessna ended production of their 335 and 340 models, their 402 and 414 lines, and their flagship piston twin,

the 421C Golden Eagle. This left the T303 as their sole piston twin model. In 1986, Cessna not only ended T303 production, but they also ended all piston aircraft production, including all single-engine models. They would not resume piston single production for a decade (in 1996), after the passage of the General Aviation Revitalization Act of 1994. However, piston twin production never resumed at Cessna. Instead, they focused on certifying and producing an ever-expanding array of Citation business jet models. It would appear that was a sound financial decision, with over 8,500 Citations (of all 30+ models) produced as of early 2026.

Operators and Caretakers

Back in 1983, Richard Nadeau of Wellington Aero Club Airport (FD38), in Florida, was ready to upgrade from his Piper Arrow to a twin. His research focused heavily on safety statistics, and he decided the T303 was likely the safest cabin-class piston twin available, with its dirt-simple fuel system, counter-rotating engines, Vmc speed very near stall speed, known icing certification, and rugged trailing link landing gear. A Cessna sales rep offered him an unsold 1982 model (#126). Nadeau agreed to purchase it with one caveat. He'd read about Embry-Riddle Aeronautical University being an early adopter of the T303 for multi-engine flight training and how the thousands of training hours they'd put on their T303s had led to over 100 Service Notes & Letters to improve both durability and maintain-

ability. All those minor changes were incorporated or retrofitted into '83 (and subsequent) models. Richard would only agree to buy the new '82 model if all those improvements were included. With both parties in agreement, N9RN was delivered fully conforming to the 1983 model standards.

Nadeau initially based N9RN on FD38's then-grass runway, yet flew it nationwide. He used it to train for and earn his ATP Certificate and lovingly flew and maintained it for almost four decades. As time passed, he had the current custom two-tone blue paint scheme applied, replaced the interior, and had much of the current Garmin glass panel system installed. In short, he was the epitome of a dedicated caretaker, finally deciding to sell in 2022. The second owner had a new interior installed during his brief ownership. The third had the engines and props overhauled before being forced to sell for medical reasons.

What many would call an orphaned design (after only four years of actual production, with over half produced in the first year) has proven to be no flash in the pan. Forty years after production ended, about a third of all Crusaders built are still registered. Of those, around 55 are thought to be active within the U.S., with more flying internationally. Many found easy lives in personal transport or supporting small business travel. Others earned their keep in charter, flight training, cargo, or in specialized roles such as photo mapping.

It was in that photogrammetry role that recent T303 purchaser, Bryan Berry, was first introduced to the Crusader. Berry was attending Campbell University in Buies Creek, NC, in the mid-1980s, when the regular sight of small planes flying over his dorm caught his attention. Those planes turned out to be operating out of Harnett Co. Airport (now known as Harnett Regional Jetport – KHRJ), a mile away from campus. Intrigued, Bryan drove to the airport, took an orientation flight and was immediately hooked. Before graduation, he was a Private Pilot.

Returning home to the family business after graduation made Berry realize just how much he missed flying. He decided to move to Vero Beach, FL, and pursue advanced flight training in earnest. He returned to North Carolina with Commercial and Flight Instructor Certificates in hand. Soon after, he earned his ATP while also actively teaching single-engine students. Concurrently, the State of North Carolina was operating a Cessna Crusader and a Conquest for both VIP transport and photogrammetry missions. Via an internship with the N.C. Dept of Transportation, Berry was given the opportunity to fly both types. Each made a lasting impression on him.

With his 2-year internship complete, he continued to flight instruct while selling cars to make ends meet. Having accumulated the necessary flight times to realistically apply at regional airlines (at the time, minimums



Interior



Nose baggage

being 1,500 Total, 250 Multi, and 50 Turbine), he secured an offer from American Eagle. Before he could report for training, his father intervened, luring Berry back to the family business with both the typical amount of parental pressure and the promise of an opportunity to incorporate a small aircraft into their automotive business. Given the meager salaries of regional airline pilots at the time, he relented. With the career shift came access to a series of high-performance singles, which he used to fly the length of the East Coast, attending car auctions. After the family business was sold, Bryan reluctantly stopped flying in 2006, as he didn't feel justified to continue without a business need to do so.

For the next two decades, he busied himself building two companies and raising children. Approaching 60, he could no longer suppress his love of aviation. In 2024, he rekindled his passion with the purchase of a Piper Saratoga, renewed his medical, and hired a CFI to get him proficient again. One of his businesses required some travel, which, combined with pleasure flying, allowed him to log 150 hours in the Saratoga in a year. He was back! However, his lengthy business trips were slow going in a single day and often crossed the Appalachian Mountains. Multi-engine speed and redundancy were on his mind. After some sticker shock looking at some popular twins, he kept fondly recalling his time in the Crusader back in the 1980s.

Not believing all the negativity online, he did some deeper research on the current state of T303 ownership. He discovered parts more readily available than many "experts" advised. Continental assured him that they still offered full factory support of the engines. The T303 was on the approved models list for a variety of modern digital flight instruments and avionics. Finally, while small in number, he became familiar with a very active Crusader owner/pilot community that represents a vast amount of T303 knowledge. Through that group, nearly every ownership challenge can be addressed and solved. Thus, he began to search for a Crusader. After a couple of deals fell through due to pre-buy



Twin & Turbine Computer Based Ground Schools

www.safepilotpublishing.com

FIX YOUR WINDOW SHADES!

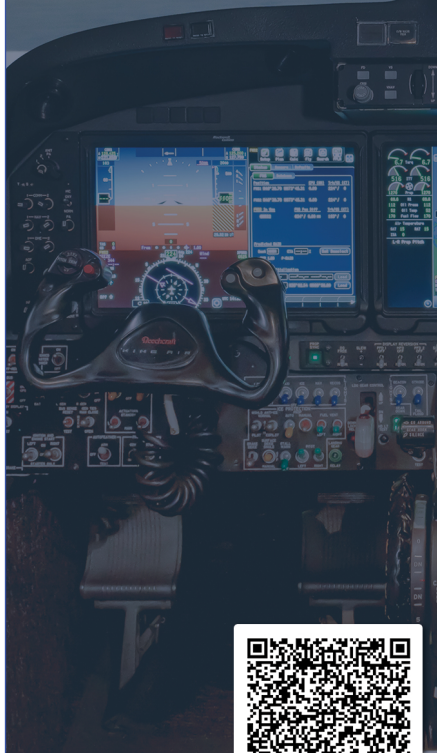


**TRAIN AS YOU FLY.
FLY AS YOU TRAIN.**

CONFIDENCE IN THE COCKPIT

KING AIR SERIES
INITIAL & RECURRENT TRAINING

**LIMITED TRAINING
SLOTS AVAILABLE**



**SCAN NOW
FOR EXCLUSIVE
READER DISCOUNT**

RTC
An ASE Company

**CALL 1-727-300-0749
RESERVE YOUR SPOT NOW!**

rtc-pilot.com

© Recurrent Training Center, Inc. All Rights Reserved.
Tampa, FL

gotchas, he came across N9RN. The same 1983-conforming, 1982 model Richard Nadeau had taken delivery of 43 years prior. Checking all of Berry's wish-list boxes, it featured fairly low airframe time, no corrosion, a modern panel, a fresh interior, and nearly new engines and props. A deal was struck, and he became only the fourth owner of Crusader #T30300126.

Cruise-ader

After connecting with Mr. Berry, we departed Elkin with full tanks (153 gallons usable), two adult males, and 100 lbs. of cargo in the cabin and aft baggage area. It was a beautiful Spring day with temperatures in the low 80s (F). Yet, the nimble T303 accelerated quickly and was airborne

1982 Cessna T303 Crusader N9RN Data [Table 1]

Wing Span/Area	39 feet, ½ inch / 189.2 feet ²
Length	30 feet, 5 inches
Height	13 feet, 4 inches
Cabin Dimensions	Width: 47.75" Length: 138" Height: 47.5"
Engines	Continental TSIO-520 & LTSIO-520, Turbocharged, 250hp each.
Baggage Capacity	Wing Lockers: 120 lbs. each Nose Compartment: 150 lbs. Aft Cabin Compartment: 200 lbs. Total Cubic Area: 53 feet ³
Empty Weight	3,670 lbs. (as equipped)
Max. Gross Weight	5,150 lbs.
Useful Load	1,480 lbs. (as equipped)
Fuel Capacity	155 Gallons (930 lbs.), 153 Usable
Fuel System	77 Gal. Per Wing Tank Right Tank Feeds Right Engine Left Tank Feeds Left Engine Crossfeed Available for Emergencie
Electrical System	28 Volts 1 x Battery 2 x Alternators (95 Amps each)
Avionics System & Equipment	Garmin G600 PFD/MFD Garmin GI-275 Backup Flight/Nav Instrument Garmin GTN-750Xi & 650Xi Nav/Comm/GPS Garmin GTX-330 Mode-S & ADS-B Transponder Avidyne EX-500 MFD S-TEC 3100 Digital Autopilot Sandia Aerospace SAI-340 Co-Pilot PFD Insight GEM 1200 G-4 Dual Full Engine Monitor System CiES Digital Fuel Gauges & Sending Units Factory Deicing Equipment Installed Oxygen System All LED Exterior Lighting

and climbing steadily well before the mid-point of ZEF's 4,000-foot runway. Reversing course, we headed southeast and climbed to 5,500 feet. There, we could overfly both the Greensboro and Raleigh Class Charlies, enroute to Berry's home field of Wilson Industrial Air Center (W03) in Wilson, NC.

This first exposure to the T303 was pleasant, a straight line cross-country of 140 NM. Along the way, we cruised at 170-175 KTAS, at 2400 RPM and 24.0" MAP, while burning a total of 29 GPH. Very respectable numbers for a twin with a roomy cabin and comfortable flight deck. In less than 45 minutes, we were entering the holding pattern/procedure turn, beginning the RNAV Runway 21 approach. Navigating the approach with 9RN's Garmin G600 panel, GTN-750Xi & 650Xi NAV/COM/GPS combo, and Avidyne EX-500 moving map was a breeze. The trailing link landing gear made for an equally positive first impression at touchdown.

In Wilson, the Crusader currently resides in a large mid-century community hangar. A standard T-hangar isn't quite adequate for a T303 due to the tail height (which rises almost 13-1/2 feet). While that easily fits into most modern box hangars and T's designed specifically for twins, use of older T-hangars intended for medium to large singles is generally out of the question.

The next morning's weather at Wilson was blustery and cooler. We loaded up with a final destination of Charlotte's Douglas Int'l Airport (KCLT) in mind. Taking the Crusader into the primary airport of a busy Class Bravo would be a great litmus test of its real-world capabilities. First, however, I wanted to sample the T303's maneuvering manners, one engine inoperative (OEI) capabilities, and its pattern particulars. Initially, we climbed to 6,500' for a repeat of yesterday's cruise test. While we were 1,000 feet higher and slightly lighter (with only about 120 gallons aboard), cruise numbers were almost identical. The increased climb rate, however, reflected the cooler air and lower density altitude than the day prior.



If There's a Better Insurance Option for Your Aircraft, We will Find It

Gallagher is one of the largest independent aviation insurance brokers in the world.

We shop the aviation insurance market to find competitive options for your aircraft.

Then, we will help you decide if the lowest price is really your best option.

Call us at (800) 622-2672
or visit us online at [AJG.com/own](https://www.AJG.com/own)



These are brief product descriptions only. Please refer to the policy documentation paying particular attention to the terms and conditions, exclusions, warranties, subjectivities, excesses and any endorsements. Insurance brokerage and related services to be provided by Arthur J. Gallagher Risk Management Services, LLC. (Lic. No. 100292093 and CA Lic. No. 0D69293) and/or its affiliate AssuredPartners Aerospace, LLC. (Lic. No. 449438 and CA Lic. No. 0K96598).

© 2026 Arthur J. Gallagher & Co. | GGBSPEUK107859



Bryan Berry & Matt McDaniel

Slowing to a bit below the published maneuvering speed (V_a) of 148 KIAS, I sampled medium and steep banked turns. The ailerons are light and responsive and provide a crisp roll rate for a twin this size. Banks of 45 to 50 degrees were easy to stabilize with only an inch or two of additional manifold pressure required to prevent speed decay. Slow flight and stalls (both engines operating) were absolutely benign. The fluid and well-balanced control feel of the aircraft is even more impressive considering it

has no artificial control feel devices whatsoever (something few cabin-class piston twins can claim). Entering the OEI regime, I pulled the left engine to a zero-thrust setting to simulate a secured engine and feathered prop. Since the T303 has counter-rotating props, there is no critical engine.

Initially, I slowed to a speed that would maintain altitude on the operating engine alone. That speed turned out to be about 10 KIAS above the published Vyse of 97. From there, I continued to slow into what was

intended to be a minimum control (V_{mc}) demo. When the clean stall arrived, the Crusader was still firmly in control and holding heading. Even with full power on the operating engine, the aircraft stalled before reaching V_{mc} (at that day's weight, C.G. and density altitude, in clean configuration). By the worst-case book numbers (MGW, aft C.G. limit), the T303's V_{mc} of 65 is slightly higher than its landing configuration stall speed (V_{so}: 53) and two knots above its clean stall (V_s: 63). At the forward C.G. limit, stall speeds increase to 58 and 66, respectively. However, all those numbers are so close that variable loading and flight conditions could easily influence any one of them enough to close the small gaps between them. The point being, the T303 remains controllable during OEI operations down to speeds very close to stall. That is a fantastic trait for any twin to exhibit.

Like most twins in the category, the T303's OEI performance drops off precipitously as drag increases. While

JET SHADES

SOLVING HEAT & SUN IN THE TURBINE COCKPIT

Precision-fit sun shades for performance aircraft

- Reduces cockpit heat by up to 30°F
- Blocks 99.9% of harmful UV radiation
- Designed for use during flight

Protecting 5,000+ pilots worldwide • 2-Year Warranty

jetshades.com

Explore Jet Shades for your aircraft

Preferred Airparts

35% to 85% off!
New Surplus Aircraft Parts

Chosen for value and service

The Worlds Leading Supplier of New Surplus and Used aircraft parts for nearly anything that flies!
From Single and Twin Cessnas, to Pipers and jets like Citations.

Check with us for parts like:

- Airframe
- Piston Engine
- Turbine Engine
- Continental
- Lycoming
- Overhauled Rotables
- Exhaust Systems
- Wheels and Brakes
- Overhauled Propellers
- Hardware: AN, MS, NAS
- Pre-sewn Fabric Envelopes
- And More!

Free Online Inventory Search
www.preferredairparts.com

Preferred Airparts, LLC
Div. of JILCO Industries, Inc.

800-433-0814
Toll free, U.S. & Canada

Tel. 330-698-0280 - Fax. 330-698-3164
sales2@preferredairparts.com

We Buy Worldwide!
Sales Hours: 8:15am to 5:30pm EST

it was easily holding 6,500' at Vyse+10, while clean, the equation changes rapidly when flaps and gear come out. Still clean and slowed to hold Vyse, we were able to achieve a 500 FPM climb. Lowering flaps to 10° negated that climb, allowing level flight at exactly Vyse only (net drag loss, -500 FPM). Lowering the gear put us into a 300 FPM descent, while maintaining blue-line (-800 net). Flaps 20° cost another 200 FPM (-1000 net), while lowering flaps to full set up an 800 FPM descent (net loss, -1300 FPM). Even in the best of scenarios, light twins are not meant to linger with OEI. Instead, flown properly, they get you safely to the nearest suitable diversion airport.

For our simulation, that airport was Moore Co., NC (KSOP). After the first landing, with only Flaps 10, resulted in a smooth arrival with too much float, we stopped and taxied back. Resuming standard operations, we flew the

circuit twice more, landing with Flaps 20, then full flaps. The robust trailing link gear, with its heavy-duty wheel and brake option, is ego-boosting, to say the least. Climbing again, we contacted departure and began making quick work of the 77NM remaining to CLT. Cleared into Class Bravo, ATC provided vectors to the ILS 18L. Sequenced between two business jets, but also held high, we were cleared for the approach well above the glide-slope. The Crusader proved capable of playing catch-up by simply introducing drag. Its very high gear extension speed of 175 being tailor-made for our situation (once down and locked, speed may be increased all the way to Vne).

Quite Enough

By today's standards, nothing about the Crusader is revolutionary. It was a good twin, introduced at a bad time. Built in larger numbers, I'm sure it

would remain a popular option today for anyone in the small cabin class market. Plus, it lends itself very well to modern advancements in avionics, engine monitoring, and cabin materials. Its cabin is remarkably roomy and comfortable for the aircraft's overall size and weight (especially when configured for five, rather than six, as Berry prefers to keep N9RN).

The baggage space is even more impressive with four large areas to choose from. The two nacelle wing lockers can accommodate 120 lbs. each, while the nose compartment can hold 150 lbs. The aft cabin baggage area is rated for 200 lbs. 1983 models and subsequent were offered with a cargo door option, aft of the airstair door, which expanded that opening from 24" to a whopping 56" and moved the aft bulkhead back 6.5", making for an even larger cabin-accessible baggage area.

No, it's not as fast as a C-T310R (the final and ultimate 310 model, which the T303 "replaced"). However, the 310 cannot boast an airstair door, cabin class comfort, or even close to the cubic baggage capacity. It's not a 400-series twin Cessna, nor a pressurized 300-series. Nor should it be compared to those models or judged as such, as it was never meant to compete with them. In the end, it simply is what it is: The Crusader. Unique good looks and solid performance in a safe, simple, and comfortable package. Which, upon arrival at the destination, seems to be quite enough. **T&T**

1982 Cessna T303 Crusader N9RN V-Speeds [Table 2]

All Speeds In Knots Indicated Airspeed, Per Original POH, Unless Noted

Rotation (Vr)	80-90
Best Angle of Climb (Vx)	77
Best Rate of Climb (Vy)	103
Best Rate of Climb, Single-Engine (Vyse)	105
Min. Control, Single-Engine (Vmc)	97
Min. Safe Single Engine (Vsse)	80
Min. Control, Single Engine (Vmc)	65
Maneuvering (Va) @MGW	148
Normal Cruise (Vnc)	170 True
Max. Structural Cruise (Vno)	150
[aka: Max. Normal Operating]	175
Never Exceed (Vne)	210
Max. Landing Gear Operation (Vlo)	175 Extend
150 Retract	69
Max. Landing Gear Extended (Vle)	210
Max. Flap Extension (Vfe)	175 – Up to 10° 150 – 10° – 20° 125 – 20° – Full
Landing Reference (Vref – Final)	90 – Full Flaps
Clean Stall (Vs)	63-66 (based on C.G. position)
Stall in Landing Configuration (Vso)	53-58 (based on C.G. position)

Matthew McDaniel is a Master & Gold Seal CFII, ATP, MEI, AGI, & IGI and Platinum CSIP. In 34 years of flying, he has logged nearly 22,000 hours total and over 5,900 hours of instruction given. As owner of Progressive Aviation Services, LLC (www.progaviation.com), he has specialized in Technically Advanced Aircraft and Glass Cockpit instruction since 2001. McDaniel is also a Boeing 737-series Captain for an international airline, holds eight turbine aircraft type ratings, and has flown over 135 aircraft types. Matt is one of less than 15 instructors worldwide to have earned the Master CFI designation for 11 consecutive two-year terms. He can be reached at matt@progaviation.com or 414-339-4990.

Ronen Elefant

by Grant Boyd



Elefant family in front of the Mirage

Ronen Elefant, MD, MBA, FACS, has a unique way of combining two of his greatest passions, aviation and medicine. The Hartford, Connecticut-based physician regularly flies across the eastern half of the United States to perform ambulatory surgeries for patients, who are billed directly by the providers for their services rather than through insurance.

“I have always been fascinated by aviation. My earliest memory is being three years old and playing with Fisher-Price airplanes and just being in awe of them,” Elefant said, noting that his first airplane ride was six years later, when his family moved from Israel to Florida. Four years after that, he asked his father if flying lessons were something that he could pursue.

“I went out to what is now Fort Lauderdale International (KFL) and took a couple of lessons, but was too short to even reach the pedals. And we actually had an incident on





Elefant had earned his private pilot certificate before completing his undergraduate degree and earned his instrument and commercial ratings before the third year of medical school, knowing he would never have as much time again as he did then.

“Fast forward, I maybe flew not even ten hours during residency and fellowship. I wanted to get back into flying. It worked out that my fellowship ended at the beginning of July, and I didn’t start my full-time job until September. But in the interim, to make money but not work full-time, I was moonlighting at a hospital in Pennsylvania. It was a nine-hour train ride from Connecticut, and it was awful.”

Before making the long trip again, Elefant stopped by the local flight school to see about renting a plane. He brought an instructor with him and began making the commute via air, and quickly became current once again. Flying enabled Elefant to continue seeking other part-time opportunities once employed full-time, and added Florida, New York, and South Carolina as frequent logbook entries.

A Cirrus SR22 was the first plane that he owned, which was replaced several years later by a Piper Mirage. A larger cabin, pressurization, and speed were some of the top reasons for stepping up. And as Elefant explained, “I wanted more complexity and to move my flying [skills] along. I never even thought that I would even own an airplane. So, every single airplane that came along was a dream come true.”

The Mirage was replaced by a JetPROP, which was the first plane that Elefant customized. A formerly red and white exterior was replaced by a fresh, blue paint job, and the tail was adorned with N8RL. ‘November’ was for his daughter Nava, ‘8’ was for his wife Brooke, ‘Romeo’ stands in place of himself, and the tail number is bookended by ‘Lima’ for his son Liav.

“I love the JetPROP, and it was the perfect plane for my mission, which is fairly short – usually between Connecticut and Central Pennsylvania,” he said. “My mission has expanded since then, and you always think about what’s next. I wanted to fly a jet my whole life.”

my second flight, where we had some engine trouble and the instructor called mayday,” he recalled.

“I called my dad to pick me up from a different airport and was surprised by his reaction, because I thought he would never let me fly again after that. But he was very supportive and said I should schedule another lesson because that helped me learn how to handle an emergency and stay calm under pressure.”

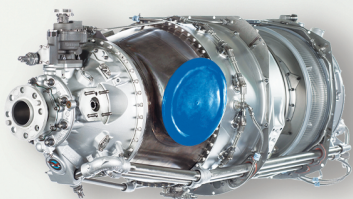
If acting cool under pressure isn’t a learned skill, then perhaps it’s something that Elefant is naturally inclined toward. He ultimately wound up pursuing a career as a trauma surgeon over being a professional aviator, which requires similar attention to detail and intentionality found in the cockpit.



**SOME THINGS WEREN'T MEANT TO FLY.
BUT YOUR PT6A ENGINES ARE.
WE'LL MAKE SURE THEY DO.**

As an independent, OEM-authorized MRO provider, we offer the most comprehensive and flexible MRO solutions for your P&WC PT6A engine, supporting operators from four overhaul locations and 11 service center locations worldwide. As a P&WC authorized PT6A Designated Overhaul Facility (DOF) with distribution rights, and with a rich legacy of over 60 years of experience, StandardAero is the smart choice for your PT6A maintenance needs.

For further details, and to learn how we will keep you flying, please contact us today.



StandardAero

RAISING THE STANDARD OF EXCELLENCE

www.standardaero.com



What I built my company around was that foundation. The economic and philosophical foundation of bringing autonomy back to surgeons and bringing top-notch healthcare to places that otherwise would not get it."

After years of careful consideration, an abundance of spreadsheet analyses, and conversations with trusted advisors, Elefant determined that he was ready to pursue jet ownership.

“It was a hard decision because my mission doesn’t warrant a jet, but I felt like I was at a point in my flying that I just wasn’t satisfied and wanted to fly something bigger and better. I would rather pay more for fuel and have jet time than continue to fly something that I’m ready to move out of. So, I pulled the trigger on a [Cessna Citation]CJ1 and immediately regretted it.”

On paper, the transition to jet ownership didn’t seem that daunting. But reality set in even before the ink on the contract dried. Elefant explained that he learned a lot about himself and refined personal goals in the months following the dream purchase.

“What did I get myself into? I literally called the broker the day I picked it up and said to put it back on the market. It was just so much. This is expensive and is a lot to learn, with a type rating and maintenance tracking. Do I have the time to do all of this? It took me about four months of driving, instead of flying, and thinking, to understand more about myself. It wasn’t even about the airplane.”

With Elefant’s busy work schedule, a concern was how to best approach earning his type certificate while simultaneously feeling confident in the aircraft. Just as he had when re-entering the cockpit after becoming a physician, what wound up being the most efficient approach was flying with an instructor while travelling for work and family commitments. The 40 hours he spent in the plane before getting a type rating provided a level of comfort that was missing at the outset of the transition.

“My first solo in the CJ1 was the first time that I finally was like, ‘Okay, I like this airplane, and I’m going to keep it. This is fun, and I really enjoy this type of flying.’”

Now, about a year and a half into ownership, Elefant only has good things to say about the CJ1. His mission has grown since acquiring the plane, and its main use is in support of his company, ACES National Surgical Team.

This company was born out of Elefant’s passion for healthcare economics. He believes that aviation has the potential to bridge the gap between inadequate patient care and poor doctor satisfaction, especially in underserved communities.

“I think that one of the things [causing] the demise of American healthcare is the insurance model. A lot of doctors are burnt out, not because of the work that they are doing, but because they are working for the insurance company more than the patient. If they did just patient care, they would love what they do,” he said.

“What I built my company around was that foundation. The economic and philosophical foundation of bringing autonomy back to surgeons and bringing top-notch healthcare to places that otherwise would not get it.”

Elefant flies himself to visit medical centers in support of ACES’ work, which currently takes him between Pennsylvania, Wisconsin, and South Carolina. They consult with patients before their surgery and typically spend two days



POWER HOUSE

Okmulgee, Oklahoma may be off the beaten path, but for more than fifty years, this small town has been home to the only family-owned Pratt & Whitney Canada Designated Overhaul Facility in the world. And to the most highly skilled PT6A service technicians in the industry – as well as the parts, accessories, rental engines, and power sections needed to keep your downtime to a minimum. No one knows the PT6A better, and no one takes greater pride in their workmanship. The next time you’re over this way, come see the house we call home.



918-756-7862 | covingtonaircraft.com
Se Habla Español | FAA Repair Station No. CP2R750K



My dream airplane, when talking about where I want to be one day, is a Phenom 300. That's the ultimate single-pilot jet to me.



Your trusted Beechcraft and Hawker parts source



More than 210,000 Part Numbers Available!

New

Overhauled

Used



Email: sales@selectairparts.com
 Phone: 800-318-0010
www.selectairparts.com



at local ambulatory surgery centers performing operations before flying back to Connecticut.

"I am flying to South Carolina tomorrow, to Charleston International Airport (KCHS), and the flight will be about two hours long [from Hartford]. There is a 27-knot headwind, and we will be flying at 38,000 feet, and I can realistically get .62 Mach at altitude. The ceiling is 41,000 feet, and we can maybe go a little faster, a little lower, but then you're talking a lot more fuel burn," he explained, noting that the CJ1 typically burns about 100 gallons per hour when cruising at FL380.


"The CJ1 was designed as an entry-level single-pilot jet, and it shows. The cockpit flow layout, as well as start sequence and emergency procedures, are very thought out and involve very few required inputs, which are intuitive once you learn the systems. The speed envelope is really amazing as well, cruising at 380 knots but landing slower than 100 knots – and it handles like a classic Cessna 172."

As the organization grows, he believes that aviation will continue serving an integral role – whether other surgeons supporting the mission fly themselves to their cases, or they are flown by someone else aboard a company aircraft.

"Wisconsin and South Carolina are both about two-hour flights in the CJ1. Part of me wants to expand to Florida, but I feel like I would only do that when I can bump up to the CJ3 because I want to make it non-stop. But the truth is that it is still fun when flying a jet, even if you have to make a stop. But the places I am choosing initially, I will try to keep it at the radius that I can get to myself. However, there has been interest from surgeons and surgery centers on the West Coast, so we might partner with some people there."

And when looking further into the future, Elefant sometimes thinks about what plane he may have next. He explained that he initially wanted a Phenom 100 over a CJ1, but it was a little pricier and I needed better runway performance. The CJ1's takeoff numbers looked more favorable at his home base, Hartford-Brainard Airport (KHFD), which has a 4,417-foot-long runway.

"I am very analytical and made spreadsheets initially to see if I could even own a jet. I research the heck out of every airplane and know a lot about every one of these platforms I've considered. What are the benefits? What are the flaws? Where could things go wrong? What is the right choice?"

"My dream airplane, when talking about where I want to be one day, is a Phenom 300. That's the ultimate single-pilot jet to me." 



Grant Boyd is a private pilot with eight years of experience in aviation business, including marketing, writing, customer service, and sales. Boyd holds a Bachelor's and a Master's of Business Administration degree, both from Wichita State University, and a Doctor of Education degree from Oklahoma State University. He was chosen as a NBAA Business Aviation "Top 40 Under 40" award recipient in 2020.

KING AIR 200, 250, & 260

FLY FARTHER & SAFER

HALO 250

STC CONVERSION

- ADDS NEW SAFETY SYSTEMS
- INCREASES MTOW
- INCREASES MZFW

**13,420 LBS
MAX TAKEOFF WT**

12,500 LBS
MAX TAKEOFF WT

KING AIR 200 SERIES
STANDARD

**KING AIR 200 SERIES
WITH
HALO 250
CONVERSION**

↑
CARRY
MORE
FUEL
PASSENGERS
CARGO

IN GOD WE TRUST

CEN*Tex*[™]

AEROSPACE INCORPORATED

FOR MORE INFORMATION: (254) 752-4290 WWW.CENTEX.AERO



2x 21 3

**ACCURACY
BEFORE
EMPTY**

Fuel quantity isn't something you guess.

Learn more at: ciescorp.com or scan code.

CIES INC

Ad Index

AvFab	19
Blackhawk Aerospace Technologies	31
CenTex Aerospace Inc.....	29
CIES Corporation	30
Coastal Aircraft Services	7
Covington Aircraft Engines	27
Executive Flight Training	6
Gallagher Aerospace.....	21
Ice Shield/SMR Technologies	Inside Front Cover
Jet Shades	22
Luma Technologies.....	9
Mayday Avionics	13
Preferred Airparts LLC	22
Professional Aviation Associates.....	13
RTC, An ASE Company	20
SafePilot Publishing	19
Select Airparts	28
Short-N-Numbers	7
SkyHope	30
Sporty's.....	3
StandardAero.....	26
Stevens Aerospace & Defense Systems.....	Back Cover
Turbines Inc.....	Inside Back Cover

TO ADVERTISE IN TWIN & TURBINE MAGAZINE, CONTACT:

ADVERTISING DIRECTOR, JENNA REID
816-699-8634 | Email: Jenna.Reid@VPDCS.com



Fly with Purpose: Volunteer Your Pilot Skills with SkyHope

SkyHope connects families in need with volunteer pilots who donate both their time and aircraft for free flights to medical care.



skyhope.org | 1.888.818.1231 | info@skyhope.org



**THE BLACKHAWK GROUP
PERFORMANCE CENTERS**

Unmatched service. Ultimate peace of mind.

Our expanding, global network of The Blackhawk Group Performance Centers makes it easier than ever to own, maintain, and improve your aircraft.

OEM certified and trusted by thousands of pilots, we are proud to provide maintenance, upgrades, and support for a wide range of airframes, including King Air, TBM, Caravan, and Cirrus.

The support you deserve. The excellence you demand. The freedom to Outfly the Ordinary.



**Engine
Upgrades**



**Propeller
Upgrades**



**Avionics
Upgrades**



**Aircraft
Modernization**



**Maintenance
& Support**



**Advanced
Battery Solutions**



Learn more at
blackhawkgroup.aero
+1(877) 401-5444

**OUT
FLY**
THE ORDINARY.

THE
BLACKHAWK
GROUP

On Final by David Miller



We're From the Government, and We're Here to Help You.

It's January 2020 as we taxi up to the FBO at Dallas Love (KDAL) in a beautiful C90B King Air. A quiet Sunday afternoon. On board are wife Patty and a mentor pilot. The King Air is new to me, and the flight from Nashville is a real weather challenge. The lineman signals as the big propellers on the PT6 engines wind down. My co-pilot offers to open the heavy door for Patty as a light mist covers the ramp.

"David, there are some guys back here that need to see you," says Patty.

I glance out the left side cockpit window to see two large men dressed in matching, all-black outfits. Hanging around their thick necks are very large badges. Huge badges. Shiny gold badges.

"What's up, guys?" I muse to keep things calm. "We need to see all your operating documents, everything," one guy says. "And I am with the inspection division, and I need to see all your maintenance logs," says the other.



"Can I get my car and go home?" Patty asks. "No ma'am, you can sit in the FBO, but do not leave the area, says one. And when did you charter the airplane?" he asks.

"I didn't. My husband is the pilot." "Who owns the airplane?" asks the taller of the two men in black.

"Let's see, I think I own the house, and he owns the plane," she says.

About this time, I begin to realize something serious must be happening. "Guys, it's Sunday and raining. Did you track me all the way from Nashville to ask these questions?"

"Yes, sir. We are investigating a suspected illegal charter of the aircraft. Did you fly some teenagers a month ago?"

"Teenagers, I don't even have any teenagers," I ramble.

"Well, we've had some complaints that this aircraft has numerous owners and is flying illegally."

Then it dawns on me. I purchased the airplane only a few weeks prior. The previous owner did indeed have multiple operating agreements.

"Well, I look like a teenager," says Patty. "Sure, honey, of course you do." What ensued was a thirty-minute discussion of my ownership and operations.

I finally convinced the guys in black that I was innocent.

Charter operations are governed by Part 135 regulations. They exist to protect the innocent flying public. Things like "operational control" are important. Folks who operate outside Part 135 boundaries are sometimes referred to as Part 134.5. Almost Part 135. It's these operations that the FAA is rigorously attempting to clean up. I, for one, am glad they are doing this. Cutting corners does save time and money, but at the expense of safety. A few days after my encounter, they shut down several operators at the airport.

Bottom line, it's possible to have multiple owners operate your aircraft. But you need seasoned aviation counsel to draft the proper documents and provide you with the best advice.

Watch out for the men in black.

Fly safe.



David Miller has owned and flown a variety of aircraft from light twins to midsize jets for more than 50 years. With 6,000 plus hours in his logbook, speaks nationally and writes on a variety of aviation safety topics. You can contact David at davidmiller1@sbcglobal.net.

TURBINES INC.

AN EDUCATED DECISION

- ✓ **Privately owned**
- ✓ **Optional use of PMA parts**
- ✓ **Selective incorporation of service bulletins**

PT6A ENGINE OVERHAUL/REPAIR



**SINCE 1981, THE EXPERIENCED INDEPENDENT
PT6A PART 145 OVERHAUL SHOP**

Get started at turbinesinc.com | 812-877-8587
peg@turbinesinc.com | jay@turbinesinc.com

Most of Our Relationships Are Older Than Your Aircraft

BECAUSE YOUR AIRCRAFT DESERVES A NAME, NOT A NUMBER.

For over 75 years, Stevens Aerospace has supported owners, pilots, and operators through the realities of long-term aircraft ownership.

We provide maintenance, avionics, modifications, paint, interiors, and AOG support for turboprop and business jet aircraft—delivered by technicians who know the aircraft, the mission, and the people behind both. When the work is complex and the aircraft matters, relationships are what keep everything flying.

***STEVENS AEROSPACE AND
DEFENSE SYSTEMS***

EST. 1950

Greenville, SC | Nashville, TN | Denver, CO
Sales: 800-513-9164 | 24/7 AOG 833-426-4435