CHECK PILOTS MONTHLY

Volume 1, Issue 6
October 2021

Publisher: Kalitta Continuing Education Series (KCES)
Editor: Steve Vaught
Contributing Authors:
CRM: Dan London
Check Rides: Kevin Murphy
Lear 35 Aerodynamics: Erik Lund
Passenger Operations: Nate Pedersen
Aviation Safety: A. Marie Zeeb
Complacency: Chuck Courtney

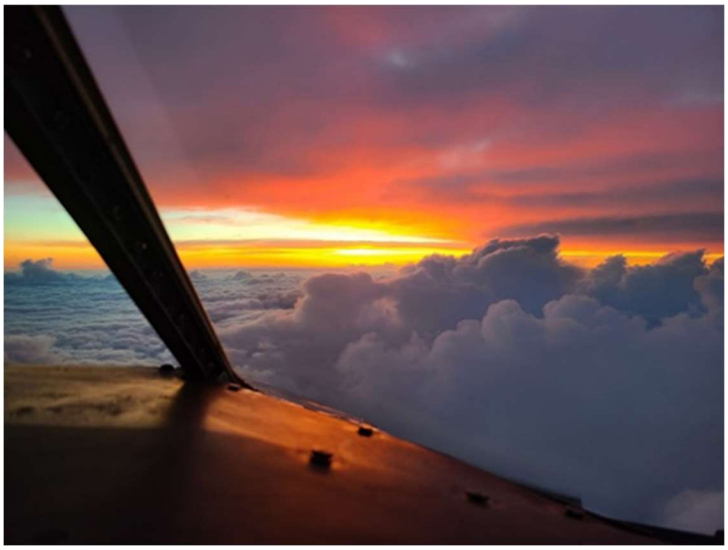


Photo by Milo Smith

This month's topics:

From the Publisher's Desk

1) What does it take to be a Kalitta Captain? The formula is simple……

Capability and Initiative

Yes folks…that's it. Step up and grab the brass ring!

2) A note on formatting and communication as of this edition:
Bold type or underline= emphasis
Bold type and underline (maroon) = systemic problem in the community, **we** have to fix this issue

3) Seat position/Cockpit Cleanliness: Hey, let's try this! At the completion of all trips, clean up the cockpit, buckle your seatbelt behind you and put the pilot seats all the way down and back. This is a team sport, friends and colleagues. Let's work together to make those 0200 callouts more palatable.

4) Turn Around Checklists: Several Captains and I have noticed a trend that items on the "Before Engine Start, Power Off and Power On" checklists are incomplete between legs. Things can get busy out on the job. Let's try and tighten up on these items.

5) Willful Non-compliance (WNC): An action or non-action of an applicant or licensee who has knowledge of the violations of licensing rules and/or terms of the license, has been advised of the consequences of not achieving compliance and has not achieved compliance after being given an adequate opportunity to do so.

   Follow-up Article: "Intentionally Noncompliant", Linda Werfelman, 11 Dec 2013, https://flightsafety.org/asw-article/intentionally-noncompliant/

6) Procedure versus Technique.
   A) Procedure: An established and required method of conducting a critical task published in a Standardization Manual, Training Manual, Aircraft Flight/Operations Manual or Operations Bulletin. The expectation is that all operations will be conducted in accordance with (IAW) company prescribed procedures.

   B) Technique: A method of completing an undetailed or recommended maneuver based on experience, efficiency or effectiveness.

7) Any thoughts or articles for next month's edition are due by 15 Nov 2021. Send to mhandren@kalittacharters.com .

Climb, Climb Away……

Our specific aircraft manuals prescribe climb profiles for each airframe in the Kalitta Charters fleet. These climb profiles are accepted procedures for operating our aircraft. What happens when the flight crew is asked to operate outside of the procedures? For instance, New York Center requests the crew to climb at 290 KIAS or better when departing from KTEB of KJFK. How many times are we required to fly 170 or 180 KIAS to the Outer Marker (OM)/Final Approach Fix (FAF) or five mile final?

We will publish a three-part series on Lear Jet aerodynamics and subsequent effects on fuel consumption and climb performance from take-off to Mach changeover. The expressed intent of these articles is to develop a deeper understanding of aircraft performance in your assigned aircraft should you encounter an operational need to fly outside a published profile.

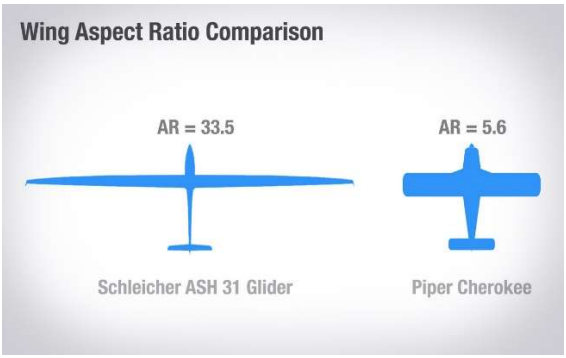
What makes the Lear Jet special?

By Erik Lund, Contributing Author

What makes a Lear Jet special? To answer that question, we'll examine the aerodynamics of the Lear jet wing to include the aspect ratio, wing sweep, lift and drag performance, tip tank alignment and a history of the development starting with the Lear 23.

The Learjet 35 is a turbo fan powered jet with an aspect ratio of about 6.2 and wing loading of 71 lbs/ft^2. An aspect ratio (AR) is the relationship of a wing's length to its average chord (width):

$$\mathrm{AR} \equiv \frac{b^2}{S} = \frac{b}{\mathrm{SMC}}$$, where **b** is the wingspan and **SMC** is the Standard Mean Chord



Characteristics of a low aspect ratio wing versus a high aspect ratio wing:

1) Produces its best lift at a higher angle of attack with greater downwash
2) In either wing an increase in one (1) degree of angle of attack results in four (4) times the increase in drag. The low aspect ratio wing is much more sensitive to drag production.
3) A low aspect ratio wing is very sensitive to control the best angle of attack to produce lift while keeping induced drag at a minimum.
4) During landing: a slightly high angle of descent and a slightly low speed will result in a dramatic reduction in speed due to a rapid increase in drag, with no increase in lift during a flare. This is a common characteristic of low aspect ratio wings.

Swept Design:

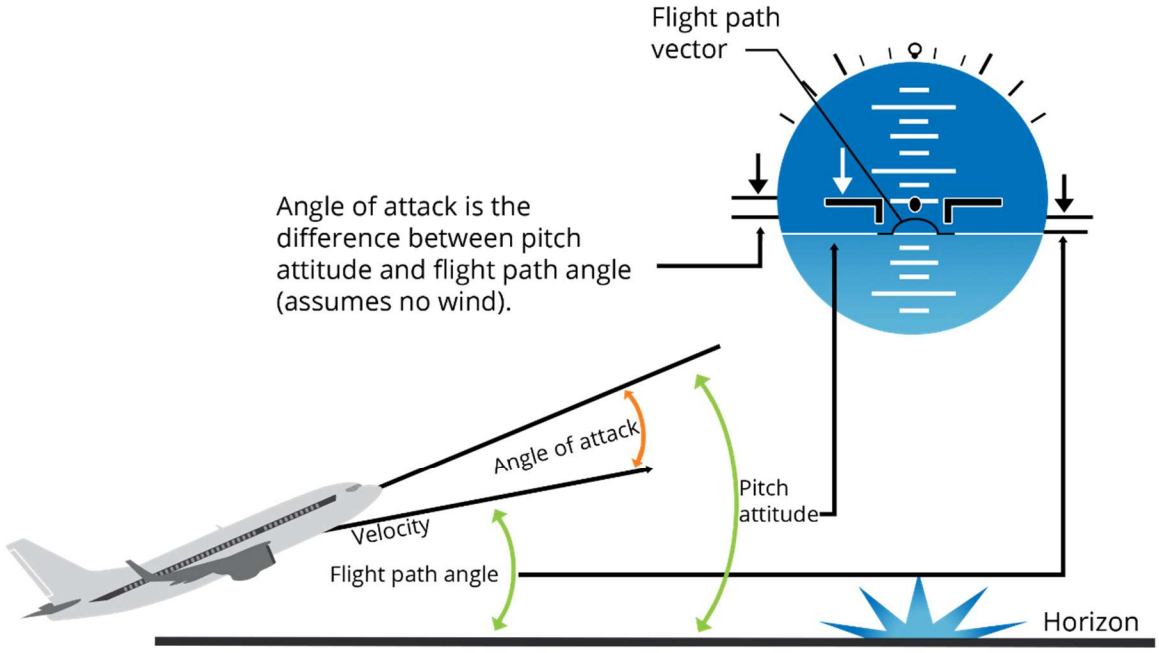
The wing of the Learjet 35 is a modified swept wing design that is a compromise between a swept wing and a straight wing. The leading edge is swept 13 degrees while the trailing edge has a minor sweep. The wing has a moderate effect on delaying compressibility while having the performance of an even stall across the span.

Tip Tanks:

The Learjet 35 has large tip fuel tanks. These tanks carry 38% to 45% of the total aircraft fuel capacity depending on model and configuration. In the early Lear Jets, the 23 and 24 models, the tip tanks had a positive angle of alignment related to the longitudinal axis of the fuselage (angle of incidence). Early Lear Jets cruised at a higher speed than the later 30 series and this led to a lower angle of attack and lower wing angle of incidence. To keep the tip tanks aligned with the relative wind at cruise, it made the positive angle of alignment necessary. When the designers made changes to produce the 30 series Lear Jets, they were

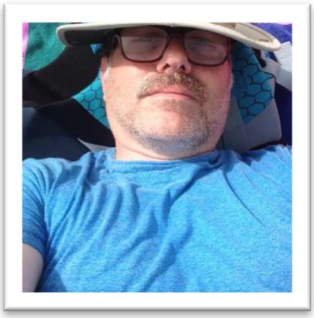
required to accommodate the design for a lower cruise speed. Since this resulted in a higher angle of attack and angle of incidence, this meant that the tip tanks were given a negative angle of alignment in relation to the fuselage axis. When the tip tanks were enlarged for the 36RX airplane the tip tanks were realigned with an even more negative angle. What this all means, is that due to the large nature of the tip tanks, it is necessary to maintain the best speed to keep the tip tanks aligned with the relative wind. Too slow of speed results in exposing the bottom of the tip tanks to the relative wind and plowing them through the air. Since most of the tip tanks are located ahead of the center of the chord line, fins are required on the rear of the tanks to offset the both pitch-up moments of the tip tanks at high angles of attack and the resulting torque applied to the spar.

On the Rx-modified tanks, all of the weight and moment increases are forward of the spar. This is the reason for the 600 pound per tip tank landing fuel limitation. Landing over this limit puts excessive stress on the spar and the wing-to-tank attachment.



Conclusion: During a climb at speeds above 250 KIAS, the crew can expect a slight reduction in drag and subsequent fuel burn as a result of flying at a lower angle of attack.

Considerations for applying this technique: Do I have a headwind or tailwind? Can I sacrifice rate of climb for speed based on the length of this leg? What are the ATC requirements in the departure area?



"Check Ride"

"Hello, I'm Kevin Murphy and I will be administering your check ride today."

By Kevin Murphy, *Contributing Author*

<checkairman@kalittacharters.com>

Read time: 3 minutes

I've been here a long time. There are published standards for the check ride. Don't fear the ride, it isn't rocket surgery. Retrain satisfactory. A mulligan. Dual qualified pay requires a bit more effort. Next month we'll look at aerial maneuvers.

I have been with Kalitta Charters in its various guises, under its various names since the late 1990's. I have been a check airman in the Lear Jet since the early 2000's. I have given (and received) a lot of check rides in the Lear Jet and have seen what pilots struggle with and what they perform up to standards with ease. I intend this column to be an aid for the line pilot, be they captain or first officer, in preparing for and successfully completing their check ride.

In all of our check rides we are measured against the standards given by the FAA, be they in the ATP or Commercial ACS or noted elsewhere in other publications, i.e. FSIM 8900.1. It is the responsibility of the check airman to determine whether the candidate has met, or has not met, the standards. Recently (about 6 years ago?) the FAA revamped the old Practical Test Standards, or PTS as they were known. In so doing, they removed a lot of the subjective nature of the standards. The standards became more cut and dried, black and white, well defined.

There really is no reason to sweat the check ride. The items and maneuvers that will be covered are well documented in the following publications:

- Standardization Manual (Lear and Falcon jet)
- Aircraft Manuals as required (pilot training, operational, maintenance, flight, etc.)
- FSIMS 8900.1 (Flight Standards Information Management System)
  - Volume 3, Chapter 19, section 7
  - Volume 5, Chapter 3, Section 2
  - Volume 5, Chapter 3, section 4
- ATP Airman Certification Standards (ACS) FAA-S-ACS-11

- Commercial ACS FAA-S-ACS-7A
- Aeromedical reference data
- Weather research data
- Travis Mason's excellent training publications
- FARs/AIM FAR 135.293 (a) and FAR 135.293.(b)
- FAA website

While most of the candidates I fly with have no trepidation when it comes time for the ride, there have been some that dread it and fear they may not meet standards that day. If during your check ride you flub a maneuver or don't quite make the circling approach, the check airman can, at their discretion, stop the check ride and put on their instructor hat. They are then able to demonstrate the maneuver or debrief what went wrong on the approach and restart the check ride, giving you another attempt at the event and precluding another flight for some small error. These aren't unlimited, however. This will show up on the 8410 Airman Competency/Proficiency Check form as **RS** or 'retrain satisfactory'.

I am often told, "I haven't flown a Lear Jet in months," by the candidate. I completely understand. You have, however, likely been flying another aircraft giving you ample experience with flight by reference to instruments. This will just be a different airframe. When the time is fast approaching for your ride and you haven't flown in that particular type, break out the book. It has been conveniently converted to a pdf to allow easy reading on most devices.

There has just been a large pay increase for pilots, both PIC and SIC, who are qualified in two aircraft. Having to keep up two types is more difficult and the pay scale now reflects that. Though now, *qualified* in two aircraft means able to perform to standards in either aircraft at any time. This becomes very important when a late-night callout has you heading to Mexico with a green co-pilot, in the aircraft you "haven't flown in months."

What is expected of a captain is more than will be expected of a co-pilot. Different jobs. Different responsibilities. While both the captain and the copilot fly the aircraft and shoot approaches, the captain also manages the crew and the trip. He or she is responsible for the big picture.

What it comes down to on the check ride is this:

Would I feel good about having this Captain fly my family around? Or for an SIC ride, *If the Captain becomes incapacitated, will this pilot be able to safely get the aircraft on the ground? In marginal conditions?* Once again, this is not a subjective judgment as you have demonstrated an ability to meet or exceed the standards.

Thank you for taking the time to read this article and it is my sincere hope that you have gotten some value from it. In the next edition of "Check Pilot's Monthly" newsletter I will tackle the maneuvers, including the dreaded 'Steep Turn.' See you next time and fly safe.

Crew Resource Management: Part 6

By Dan London, Contributing Author

CRM-The Finale

The Publisher announced that the conclusion to the CRM series would be exciting. Unfortunately, it will not. As an old pilot once said when asked about how flying must be so exciting, he responded, “Not if I do it right.”

Remember, human beings are the weakest link in the airplane. They’re prone to failure. CRM is a tool to minimize the errors and mistakes that lead to catastrophic failure and certainly help to minimize the off-duty time of writing event logs and phone calls to Brad.

Communicate with everyone. Delegate tasks for operational efficiency. Lead, follow and respect each other. Debate, analyze, monitor and support each other. Be flexible, ask questions, resist inflexibility by reevaluating your decisions as conditions change. Stay focused on the task at hand. Point out each other's errors respectfully and timely to avoid mistakes. Leave your ego at home. And lastly, but most importantly, know your aircraft and procedures along with the FARs and AIM.

As Sergeant Phil Esterhaus from Hill Street Blues used to say, “Let’s be careful out there!”

Passenger Operations: Tips and Techniques

By Nate Pedersen, Contributing Author

Hello all. As most of you are aware, we are doing more and more passenger operations. This is great for some and some not so great for others, but this is the way. Below is a quick checklist of some Do’s and Don’ts that I have come up with to make sure your passengers are satisfied and leave happy. Who knows? Maybe you’ll end up with dinner paid for by your happy passengers.

A quick checklist for passenger operations:

- Dress appropriately. We have a uniform. Please wear it. Make sure your shirts and pants are clean and pressed.
- Be clean and presentable. Hats can stay in the cockpit if you would like one to use while flying.
- Be prepared for you passenger to show up really early or really late. This is why they fly private (for the flexibility). Just roll with the punches and smile.
- Make sure your plane is clean and presentable. Seatbelts crossed. Catering placed neatly somewhere in the cabin and trash picked up. If you need to vacuum the plane on the road most FBOs have cordless vacuums you can use.
- Check with the pickup FBO if there is catering. Sometimes this information never makes it to our dispatch. You don’t want to be putting the gear up after takeoff and having to explain to your passenger why it was missed.
- Be personable. Introduce yourselves and have a little small talk. Remember not everyone shares your same political and religious beliefs. These are topics that you should avoid.
- Double check your drop-off FBO with the customer. We’ve had a lot of brokers mixing this up.
- Ask about their ground transportation at the drop-off.

- It is on you to load and unload luggage to and from the FBO or their car. They are paying for service so let's give them exceptional service.
- When loading luggage, some planes don't have access to every luggage compartment. Even if it does, ask the passengers if they would like anything available to them in flight.
- When you're 15-20 minutes out, contact the FBO via UNICOM or ASRI and have the car pulled on the ramp (if able).
- Remember that our passengers can hear your conversations in the cockpit while flying. Watch what you say and mind your P's and Q's.
- When you see them off, give them your phone number and let them know to contact you if any plans change with their departure. This has saved me either the embarrassment of them waiting on me or me having to wait hours on them.
- Ask if they will need anything on the flight back.
- Does your plane need to be restocked? If so, please restock it. Remember we need authorization to buy alcohol. You can get that from dispatch and put the name on the receipt.

Hopefully this helps out. I know I enjoy these trips. You fly during the day and get some overnights at some great places. Let's keep it up!

Last tip…. which is a tip. On a busy ramp, $10-$20 to the line crew can get you to the top of the line for fuel and any other services needed. Its works wonders getting a little Lear 35 pulled right up front at some busy passenger hotspots.

As always ask if you have any questions. Dispatch, management or I will be more than willing to help.

Have fun out there.

Opinions from the Field

From the Publisher: "Aviation Safety" (A.M. Zeeb, Oct 2021) will be published in two segments (Oct/Nov 2021)

Aviation Safety: Part 1

By A. Marie Zeeb, Contributing Author

Safety in aviation is very important, though at times it can be difficult to keep. Our career field is dynamic and fast paced. One mistake can cost not only your life, but the life of the other pilot, any passengers and anyone on the ground. We, as pilots, need to be the best that we can be to prevent something like that from happening. A big part of this is the training that we do independently. Stay up to date with company SOPs. Reread the Pilots Training Manual, the Indoctrination Manual and the International Operations Manual. Study the emergency checklist memory items. An hour or two each rotation does wonders for retention. Ask Travis, Maintenance and the training captains questions. Study the diagrams. Knowing how things work on our aircraft could be the difference between landing safely or making a smoking crater in the ground. I know it is difficult to study. If you are like me, you are flying daily while on rotation, and may have another job on your weeks off. But taking that time each month is important. Don't wait until your checkride to start asking questions.

The second major part of safety is communication. It means asking questions if you are confused, or unsure of what is going on or why the other pilot is doing something. Making sure to say out loud what you are

doing can clear up a lot of confusion in the Flight Deck. For instance, as the PF, if I need to slow down below 250 kt before we descend to 10,000 ft, and I want to put the airbrakes or spoilers out, I wouldn't just grab them and put them out. I would say what I was doing and why so that I don't startle the other pilot. And as the PNF, if the other pilot makes a mistake, it is my job to politely point it out. As the PNF, if I make a mistake, it is the PF's job to notice and correct me as well. We work as a team and could prevent an accident or incident if we are both checking on each other. If we bust a speed or an altitude or switch to the wrong frequency, it is both of our licenses on the line. Communication is the key to this. Letting someone know if you disagree with a technique they are using or just politely asking why they do something one way and not another can release a lot of stress and tension in the cockpit.

The third important part is the checklist. Reading the checklist and using the correct callouts at the correct time is important. We all have parts of the checklist that we may or may not like. And eventually those will hopefully get changed. But the checklist is there for a reason. We should try to use it the way it was intended. Using proper callouts and knowing what those callouts are and when you should be using them is important. Again, if the other pilot is not saying the proper callouts, it is your job to politely let them know what the proper callout is.

Safety is not the job of one person, it is each of ours job. It is a constantly changing landscape and we each have to fulfill our roles. Stay safe out there.

Complacency

By Chuck Courtney, Contributing Author

What is one of the greatest threats while we fly professionally or for pleasure? I believe it is Complacency. One dictionary definition: "a feeling of … security, often while unaware of some potential danger or defect… with an existing situation, condition, etc."

Two of the greatest tools to counter complacency are Standardization and CRM. They create an important environment for safety. If done consistently, they create a type of muscle memory. Therefore, if something doesn't look or feel right, it should trigger us to step back and evaluate that something is going unnoticed. This allows us an opportunity to discover the beginning of a chain of events that could lead to an incident or an accident.

From birth, there is a natural human resistance against someone telling us what to do. This can be an enemy to safety. If a crewmember performs their duties in an inconsistent manner, it can create an environment of confusion and frustration, which are hindrances to safety.

As pilots, we all have different backgrounds, likes and dislikes. In the cockpit we have common ground. Following Standardization and CRM helps cut down on surprises and enhances job satisfaction and safety. Flying is a balance of enjoying the process, while remaining aware that this enjoyable experience has potential to deceive and destroy you and others.

I have caught myself being complacent and have observed others in complacency as well. We can get away with it, all the way to the scene of the incident or impact. Safety takes effort. That is a very important part of our profession.

LET'S DO WHAT WE DO BEST.....WE FLY!!!!

References:

1) Aerodynamics for Naval Aviators, U.S. Navy Naval Air systems Command and H.H. Hurt Jr., Feb 2015
2) Check-rides: See article
3) Willful Non-compliance: "Intentionally Noncompliant", Linda Werfelman, 11 Dec 2013, https://flightsafety.org/asw-article/intentionally-noncompliant/

Kalitta Continuing Education Series (KCES) Reading List:

1) FERRY PILOT: Nine Lives Over the North Atlantic, Kerry McCauley, July 2020
2) Everything Explained for the Professional Pilot, 13th Edition, Richie Lengel, December 2018

"Hunter's Moon"
Photo by Adobe