RAISBECK PERFORMANCE SYSTEMS
FOR 31/35/36 MODEL LEARJETS

2009 POCKET REFERENCE

Performance Engineering
The entire Raisbeck team is grateful to say that we have joined the century club in Learjet Performance System sales. In the fall of 2007, Raisbeck announced the 52nd ZR LITE installation on the Learjet 30 series. As of the first quarter in 2009, that number has doubled to over 100 installations, and counting.

James Raisbeck is no stranger to the most popular business jet on the planet; and our company’s relationship dates back to a time when the Lear 35 was a current production aircraft. Raisbeck’s innovations for the Learjet include the Mark II and Mark IV wings, which became standard technology on all Learjet Century III and Softflight aircraft. It was on these wings that the ZR LITE Performance System was born.

In 1994, Raisbeck developed the Aft Fuselage Locker for models 31/35/36. The drag reducing and load carrying locker was so popular that it also became Bombardier/Learjet Standard Factory Equipment on the 31 series, and is available for all 30 series Learjets today.

With the progression of composite technology in full-swing, Raisbeck was able to revisit the aerodynamics of the Softflight Wing in 2002. During the 2004 NBAA show, Raisbeck introduced the ZR LITE Performance System for the Learjet 35/36 series. Our ZR LITE, which incorporates three main components — re-contoured trailing edge flaps, signature horizontal winglets, and leading edge vortilons — received STC approval from the FAA in October of 2004. Following the STC, all flight manuals and related materials were approved in March of 2005, with the first installation completed three months later in June.

Owners of the 30 series Learjet express excitement over the transformation of the aircraft upon installation of Raisbeck’s ZR LITE. The aircraft becomes vibrant. Reborn. Twenty-five percent less time-to-climb. Three to four thousand feet higher initial cruise altitude. Coupled with five to ten percent increase in range and consistent flight reports of eight to fourteen percent reduction in fuel burn, Raisbeck’s ZR LITE offers unparalleled performance.

In 2008, WalMart Aviation completed the final installation of ZR LITE on their fleet of 14 Learjet 31 aircraft to bank consistent fuel savings.

Chris Hellinger, Chairman of Cape Chamonix Wine and owner of a ZR LITE-equipped Lear 35, recently commented, “After taking delivery of the aircraft, I had to fly to Sao Tome and Principe where the airplane is registered and where I have a base. We flight-planned the aircraft to fly to Abidjan, Ivory Coast, and took off from Recife, Brazil, in the early hours of the morning. After some five and a half hours of flying, I conversed with my pilot, Riaan Pheiffer, and asked where he decided to go. He said that we were going straight on to Sao Tome. He did a fuel calculation and we headed nonstop on to Sao Tome where we landed six and a half hours after departing from Recife. I must admit the fuel gauge did give me a little of a twinge, but I believe according to our calculations, we landed with 700 pounds of fuel.”

“I am also delighted with the beautiful baggage compartment. In general, this is probably, without question, the best airplane with Raisbeck’s enhancement money can buy for long range travel.”

Raisbeck’s ZR LITE allows you to fly your Learjet 30 series higher, faster and farther while saving fuel along the way. These are just a few of the benefits. And, we are in the process of extending our product range to the rest of the Learjet family. As they say, history repeats itself.

www.raisbeck.com
Drag Reduction Performance Systems for the Learjet 30 Series

Raisbeck’s ZR LITE Performance Systems provide significantly enhanced performance benefits for Learjet 31, 35, and 36 models, while providing a high return on investment for the owner and operator.

ZR LITE Performance Systems were developed through extensive FAA certification flight test programs. The overall program was in development for more than four years, and almost 600 flight test hours were flown to optimize and prove each element. The Raisbeck Engineering ZR LITE System is FAA-approved and has been in trouble-free service for more than three years.

As of the first quarter in 2009, 100 Learjet 30 series have been equipped with Raisbeck’s ZR LITE.

The Raisbeck Aft Fuselage Locker, available for Learjet 31/35/36, returns your cabin to your passengers without leaving anything behind. The Aft Fuselage Locker provides expanded storage, and in combination with the ZR LITE System, it creates an aerodynamic synergy that further enhances drag reduction on the Learjet aircraft. The Aft Fuselage Locker moves the aircraft Center of Gravity (CG) aft, reducing trim drag. The majority of Learjet 31 owners and many 35/36 owners have installed the locker. The Raisbeck Aft Fuselage Locker for Learjet 31 models became factory standard equipment during production.
Raisbeck’s ZR LITE is the only way for your Learjet 35/36 to fly higher, faster and farther from more airports. You will consistently save a minimum of 5% on fuel at normal cruise and up to 14% or more if you take advantage of your Learjet’s new climb and cruise capability!
The ZR LITE Performance System was designed by Raisbeck Engineering to enhance the takeoff, climb, cruise and descent performance of Learjet model 35 and 36 aircraft. Our ZR LITE Technology utilizes state-of-the-art components which have been specifically engineered and designed to reduce wave, pressure, interference and induced drag that are aerodynamically imposed upon the aircraft.

ZR LITE is fully compatible and certified with Avcon Industry’s Gross Weight System, including Avcon Fins.

**ZR LITE CRUISE BENEFITS**

- 25% less time-to-climb
- 3000-4000 feet higher initial cruise altitude
- .02+ increase in cruise Mach at equal power settings
- 1% decrease in $N_1$ and 15° ITT reduction at equal Mach
- Consistently save a minimum of 5% in fuel at equal altitudes and Mach and up to 14% or more by taking advantage of new altitude capabilities
- 5-10% increase in range

**ZR LITE TAKEOFF BENEFITS**

- New flaps 14° for takeoff
- Slower V-speeds with flaps 14°
- Climb performance of flaps 8°
- Opens up many smaller airports
- Carry more payload/fuel from “limiting” airports
- Extra fuel load adds even more to extended range

**ZR LITE DESCENT BENEFITS**

- The allowable descent speed has been increased by 25% with a new 250 knot flaps 8° placard
- Better initial descent and approach control
**ZR LITE Performance System for 35/36 Learjets**

**ZR LITE FLAPS 14° TAKEOFF BENEFIT – Example 1**

Learjet 35/36 operations from Aspen, CO (ASE)
Field Elevation 7,815 ft  Runway Length 7,004 ft

**Conclusion for Aspen:**
MTOW at 70°F

<table>
<thead>
<tr>
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<tr>
<td>ZR LITE 14°</td>
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<td>Basic Aircraft 20°</td>
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<td>Flaps 8°</td>
<td>15,140 lbs</td>
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<tr>
<td>ZR LITE Benefit</td>
<td>+588 lbs</td>
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</tbody>
</table>

**ZR LITE PAYERLOAD/RANGE BENEFIT**

Max. Payload with Available Fuel
Max. Payload with Full Fuel
800 lb Payload

**Conclusion:**
ZR LITE enables you to fly farther with any combination of fuel and payload.

* Similar performance data is available for aircraft equipped with Avcon’s GWI to 19,600 lbs. Please contact the Raisbeck Team with inquiries at sales@raisbeck.com.
ZR LITE FLAPS 14° TAKEOFF BENEFIT – Example 2

Learjet 35/36 operations from Sun Valley, ID (SUN)
Field Elevation 5,317 ft    Runway Length 6,602 ft

Conclusion for Sun Valley:
MTOW at 80°F

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<tbody>
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<td>Flaps 8°</td>
<td>15,548 lbs</td>
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<tr>
<td>ZR LITE Benefit</td>
<td>+594 lbs</td>
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</table>

ZR LITE SPECIFIC RANGE BENEFIT

Conclusion:
ZR LITE significantly improves Specific Range at any altitude and airspeed.
**ZR LITE Performance System for 31 Learjets**

Raisbeck’s ZR LITE is the only way for your Learjet 31/31A to fly higher, faster and farther, and consistently save as much as 8-14% or more in fuel!

The main element of the ZR LITE Performance System for Model 31/31A Learjets is a re-contoured trailing edge flap system with an extended chord that dramatically reduces the wave drag that exists in the surrounding area of the aircraft.

The flap itself is uniquely tailored from fuselage-side to the outboard extremity, so as to minimize local Mach numbers at the venturi formed by the wing/fuselage/pylon/engine nacelle juncture. This conditions the over-wing air and delays the onset of performance-robbing, high-Mach drag rise at the juncture.

The ZR LITE Performance System was designed by Raisbeck Engineering to enhance the takeoff, climb, cruise and descent performance of Learjet model 31/31A aircraft.

The advanced ZR LITE components combine with the existing forward flap spar, and utilizes factory-installed flap tracks, supports, actuators and switches. The design eliminates any additional maintenance requirements over OEM’s scheduled inspections. Installation requires minimal downtime.
**ZR LITE BENEFITS**

- As much as 14% or more in fuel savings:
  - 7.2% improvement due to ZR LITE drag reduction technology
  - 4.3% more savings for every 2000 ft of additional altitude gained
- 2000–4000 ft increase in initial cruise altitude (reach high altitude without losing Mach)
- .02+ increase in cruise Mach at equal power settings
- 7% or more increase in range
- 1% decrease in N₁ and 15° ITT reduction at equal Mach
- Reduction in time-to-climb
- Improved second-segment climb performance
- Quieter cabin
- Turn some one-stops into nonstops
- Minimal weight increase at 12 lbs

**ZR LITE ROI**

- 30-40% annual return on investment (please see charts on pp 10-11)
- Appreciation in aircraft and resale value
- Broad industry appeal

**ZR LITE RANGE PERFORMANCE vs BASIC 31A AND BASIC 31A WITH EXTENDED RANGE TANKS**

![Graph showing range performance comparison](image)

**Conclusion:** The ZR LITE equipped Lear 31A with standard tanks outperforms the Basic 31A with ER tanks at hotter OATs, by as much as 14% and has nearly 97% of the ER range at all other temperatures.
ZR LITE Performance System for 31 Learjets

SAVE FUEL AND GO FASTER

At the same altitude and .78 cruise Mach, fuel flow is reduced 7%.

INCREASED OPERATIONAL FLEXIBILITY

The airplane is capable of flying at least 2,000 ft higher with the same time-to-climb and cruise Mach.
30-40% RETURN ON INVESTMENT ... EVERY YEAR!

At 500 hours per year and $5 per gallon, fuel savings are at least $40,000 annually!

ADDITIONAL FUEL FLOW REDUCTION FROM HIGHER CRUISE ALTITUDES

Each 1,000-foot increase in cruise altitude at .78 Mach reduces fuel flow by approximately 2%.
Raisbeck ZR LITE and Aft fuselage Locker

The only solution for performance in your Lear
AFT FUSELAGE LOCKER

... AND THE ONLY SOLUTION FOR SPACE IN YOUR LEARJET 31/35/36
The Raisbeck Aft Fuselage Locker returns your cabin space to your passengers by carrying a wide variety of business equipment such as tripods and transits, architectural drawings, and meeting materials. On top of all that, your garment bags lie flat so your clothes never arrive wrinkled.

The spacious locker is almost eight feet long by two feet wide, and its 300 pound capacity enables you to carry seven pairs of skis and poles, golf bags, or hunting and fishing equipment.

You never have to compromise main cabin space again or ship equipment in advance. Now you can carry it all with you—safely, securely and legally in the watertight compartment.

The external locker is an especially valuable asset on multiple-stop trips, making it possible to

There has never been a better combination of space utility, aircraft performance and savings combined in any aeronautical engineering achievement. The ZR LITE Performance System takes you higher, faster and farther while saving fuel. Your passengers will enjoy a clean and
New Capability, Improved Performance

...unobstructed cabin because baggage space is provided in the external Aft Fuselage Locker—a locker that has been so well thought out and designed that it fits neatly into the contours of the aft fuselage.

load and unload luggage without having passengers deplane to load the additional bags.

Loading and unloading are extremely easy, since the locker deploys sideways at waist height. Even fully loaded at the maximum capacity of 300 lbs, the locker glides smoothly with minimal effort.

The addition of the locker moves the Center of Gravity (CG) farther aft along the aircraft longitude axis. This aft movement of CG results in less nose-up trim, reducing drag.

Combined with ZR LITE, the drag-reducing Aft Fuselage Locker contributes to synergistic performance improvements and fuel savings.
Aft Fuselage Locker for 31/35/36 Learjets

EXPANDED STORAGE FOR OVERSIZE CARGO

AFT FUSELAGE LOCKER BENEFITS

- Improved stability — less Dutch roll
- Greater CG Control — reduces trim drag (= fuel savings)
- Limits wear and tear on interior
- Holds up to 300 lbs of luggage
- Locker deploys at waist height for easy access
- Load and unload luggage without having passengers deplane to load the additional bags
- Watertight compartment
## Pricing

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<th>31/31A</th>
<th>Price</th>
<th>Combo Savings</th>
<th>Install</th>
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<tr>
<td>Aft Fuselage Locker (LAFL)</td>
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<td>150 hrs</td>
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<tr>
<td>ZR LITE Performance System</td>
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<td>115 hrs</td>
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<td>LAFL/ZR LITE Combination</td>
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<table>
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<tr>
<th>35/35A/36/36A</th>
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<th>Install</th>
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<td>$103,904</td>
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<td>150 hrs</td>
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<td>ZR LITE Performance System</td>
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<td>$196,275</td>
<td>$26,765</td>
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### Pricing Notes

1. Cost of shipping, installation and paint are not included in basic pricing.
2. Installation times are estimates based on dealer information.
Customer Testimonials

**ZR LITE PERFORMANCE SYSTEM**

“It seems I was born to go fast—fast cars and fast airplanes.

“Raisbeck’s latest performance package, the drag-reducing ZR LITE System, has added climb, cruise and high-altitude performance simply not available on my airplane by any other means. I now have the fastest Lear 31A of all the NASCAR circuit!”

Rusty Wallace, RWI Racing, 31A-038

“You hit the mark. In fact, your numbers were a bit conservative. This thing is money in the bank! The ability to get to altitude sooner helps on short hops as well.

“The system is really shining for us, especially at higher altitudes. We are consistently saving 800 lbs of fuel on our long legs. ZR LITE is worth buying just to eliminate the ‘pucker factor’ often associated with long missions.

“Our Learjet worked well for us before ZR LITE, and [with ZR LITE] is now a perfect fit for how we operate.”

Rod Worthington, 35-116

“The aircraft climb performance is significantly improved; we consistently beat the book numbers for time to climb. Fuel burns are reduced at all altitudes. I am most impressed with the fuel savings, north of 12 percent reduction at higher cruise altitudes. It didn’t take me long to realize that I made a good decision to invest in ZR LITE. ZR LITE makes a different aircraft out of my 31A. Thanks, Raisbeck!”

Perry Di Loreto, 31A-186

“We recently flew the aircraft from Oakland to Hawaii with a 50 mph headwind and landed with 1500 pounds of fuel. We are definitely impressed! There is no way to land with that amount of fuel on a basic Lear. Raisbeck’s ZR LITE has definitely produced increased efficiency in fuel savings, and that’s big. We equipped several of our Lear 36 aircraft.”

Bob Tracey, 36-004
“Thanks for the successful project on our last installation. The crew reported that they are cruising at approximately 30 to 60 degrees cooler ITT on their way back home. That is great news! Lower ITT, less fuel burn, greater performance and cost savings. We look forward to installing ZR LITE on the remaining fleet of 31s and experience the same results.”

Steve Vennerbeck, WalMart Aviation, 31A-061

“For the first time, I found an upgrade that actually does what it says. ZR LITE is a godsend—especially when flying out of the mountains. It has done everything that was advertised plus more. I love it!

“Taking off from an airport at 6500 feet like Eagle, Colorado, can present some difficulties, especially in the summer months. We used to offload cargo in order to make the range. With ZR LITE installed, we can take off at 16,000 pounds—4,500 pounds in fuel and four passengers—and extend our endurance to three hours. This new capability opens up numerous nonstop legs to airports we simply could not make without a prior fuel stop.

“I climb straight to FL 430 in 30 minutes with a step climb. Our fuel flows are almost 200 pounds per hour less than before. We save an average of 600 pounds of fuel per leg—which makes the $5.45 per gallon we spent on fuel last month an easier pill to swallow.”

Larry Henderson, 35A-358

“The extra performance from ZR LITE is in the name of safety. It’s been more than a year since the installation on our Lear 35, and we know the added safety is well worth the investment. Progressive flight departments can take note: this performance is not a cost. ZR LITE pays for itself with fuel savings. The real kicker on top of that is the added resale value to the aircraft.”

Jerry Frey, 35A-402

“This airplane with the Raisbeck ZR LITE System installed is the best Lear 35 wing I’ve ever tested, PERIOD! The airplane stalled so nice, it made my eyes water.”

Al Goodwin, 35-095
Senior Production Flight Test Pilot
Bombardier Aircraft Services
Customer Testimonials

ZR LITE PERFORMANCE SYSTEM

“I fell in love with it [ZR LITE] from day one. We installed it for the fuel savings, but are also benefiting from increased operational flexibility, as well as an almost unbelievable return on our investment! The system will pay for itself in just under two years in fuel savings alone.

“I’m able to take on more fuel, and it’s opened up a few more fields for us. We take trips we would not even consider in the basic aircraft. Now, with ZR LITE on our little rocket ship, I don’t even think twice about them.”

Sanjeev Sharma, 35A-358

“After one year on our company’s Lear 35 we know the added safety is well worth the investment. Progressive flight departments can take note. This performance is not a cost, this system pays for itself with fuel savings and the real kicker on top of that is the added resale value to the aircraft. Speaking to other ZR LITE pilots reinforces the facts we have found. The Lear 35 is 10% to 14% more fuel efficient whether the trip being long or short. Because of Raisbeck, owners now have more faith in performance package payback. Again, it is better than what we saw advertised. Take note, I have been with this Lear 35-402 for 14 years, I know the numbers and now with the ZR LITE the numbers are much better.”

Jerry Frey, 35A-402

“Skyservice flies all over the world. Raisbeck’s ZR LITE and Aft Fuselage Locker enable us to add more missions and utilize only one crew on transoceanic flights. Our fuel savings average at least 7 to 10 percent. Our medical teams love that the locker enables us to carry patient luggage and medical supplies outside the cabin, increasing comfort and safety.”

Pat Renaud, Chief Pilot, Skyservice Air Ambulance, 35A-390

“On our last flight we climbed to 41,000 feet. In the basic Learjet, we would have had to stop at 37,000 feet. And then it was 40 knots faster in cruise. The best way to appreciate the ZR LITE advantage is fly one without it.”

Barry Woods, 35-634
Customer Testimonials

AFT FUSELAGE LOCKER

“Our medical teams really love the locker because we can carry patient luggage and medical supplies outside the cabin. That greatly increases patient comfort and safety, and we have more room to assist them.”

Pat Renaud, Chief Pilot, Skyservice Air Ambulance, 35A-390

“We had the locker installed when we bought the Learjet. It’s the smartest move the boss has made in ten years. It not only gives us a place to store excess baggage, it has helped tremendously controlling the CG. Most important, we’re able to return the interior of the aircraft to the owner.”

Bill Brooks, Rusty Wallace, Inc., 31A-038

“The Raisbeck locker has enhanced our charter program. It has given us ways to carry longer items such as oversize equipment, skis, golf bags legally with passengers to their destinations and not have to ship them. They’re absolutely fantastic.”

Gary Clason, Business Jet Solutions, 31-171
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Grand Junction, Colorado
Emily Mason, (970) 261-1308

South America

BRAZIL
Website: www.raisbeck.com

Our website will answer most of your questions about Raisbeck products. You can order flight manuals and other documents online, and browse, download and print many of them in PDF format free of charge.

Brochures

We offer a variety of brochures that provide in-depth information about Raisbeck’s ZR LITE Performance Systems and their amazing benefits, features and return on investment.

System Summaries

ZR LITE System Summaries are designed to be elegant enough for display in an executive office or home, yet provide valuable information about the ZR LITE Performance System — why it was developed, how it works, the proven benefits it delivers, and where you can have it installed.

Raisbeck Products Owners List

This growing list quickly allows you to see all the Raisbeck-equipped Learjets in the fleet. Numerous operators are now enjoying the many benefits of Raisbeck products.
**ZR LITE Performance System DVD**

Raisbeck Performance Systems for Learjets are shown in action, along with product demonstrations and animations that help explain the technology and resulting benefits to you.

**ZR LITE Performance System CD**

The Fuel Savings Calculator on this CD lets you estimate fuel savings based on your typical missions and find out how soon the ZR LITE System will pay for itself and start putting money in the bank year after year.

**RADIAL Newsletter**

The Raisbeck Learjet Newsletter, RADIAL, is published monthly to expand our dealers’ knowledge of Raisbeck products, identify new business opportunities, and hear pilots talk about their experiences with ZR LITE and the Aft Fuselage Locker.

**The Raisbeck Team**

The Raisbeck Team maintains an unswerving focus on our customers and dealers and their needs. We’re here to help you with any questions you may have, from pre-purchase research to installation and maintenance.
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