Aero Vodochody
L-39 Albatros

Fact Sheet for Future Owners

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L-39 Dimensions/Specs:
Empty Weight: 7,617 lbs
Max Gross Weight: 10,362 lbs
Length: 39 feet, 9.5 inches
Wingspan: 31 feet 0.5 inches
Height: 15 feet, 7.75 inches
Wing Area: 202 sq. ft.
Wing Loading: 51.3 lbs./sq. ft.
Fuel Quantity, Stock, with 2x26-gallon tips: 340 gal
Fuel Quantity, with 2x42-gallon Extended Tips (Mod 1): 372 gal
Fuel Quantity, with 2x42-gallon Extended Tips and 58-gallon Internal Aux (Mod 2): 430 gal
(Other fuel modifications are available, including 56-gallon tip tanks, no tips tanks, external underwing tanks, 100-gallon internal aux wing tank, and others.)

Engines: The stock engine is an Ivchenko AI-25TL hi-bypass turbofan, rated at 3,792 lbs of thrust. We are also pleased to offer a new engine option for the L-39: the Honeywell/ Garrett TFE731, putting out either 3,700 or 4,700 lbs of thrust, but in a lighter, more efficient package. The Garrett is also 10-20% more fuel efficient.

Performance (with stock AI-25 engine):
Takeoff Distance: 1,940 feet
Takeoff Distance (50-foot obstacle): 2,600 feet
Takeoff Speed: 115-120 KIAS
Maximum Cruise @ FL280: 360 KTAS
Economy Cruise @ 17,500' to FL230: 320-340 KTAS
Service Ceiling: FL360 (however, the aircraft is not RVSM equipped, so FL280 is the max).
Stall Speed, Clean: 102 KIAS
Stall Speed, Flaps Down: 91 KIAS

Max Speed (Vne/Vmo): 490 KIAS / .80 Mach
Maximum Range with Stock Fuel @ FL220, 96% RPM, no-wind: 550 NM
Maximum Range with Mod 1 Fuel @ FL220, 96% RPM, no-wind: 620 NM
Maximum Range with Mod 2 Fuel @FL220, 96% RPM, no-wind: 780 NM

Fuel Burn, Ground Operation, Idle: 65 GPH
Fuel Burn, Takeoff, Max Power, Sea Level: 320-340 GPH
Fuel Burn, Cruise Power (96% RPM), 17,500' MSL: 165 GPH
Fuel Burn, Descent Power (80% RPM), 10,000' MSL: 65 GPH
Normal Sortie Duration, Stock Fuel Tanks: 1.3-1.6 hours
Final Approach Speed: 120 KIAS
Landing Distance: 2,500 feet (optimum)
Recommended Minimum Runway Length: 5,000 feet until pilot is very experienced, then 4,000 feet minimum.
G Limits: +8 / -4

20 Common Questions About the L-39:

1. What does a good L-39 cost?
L-39 prices somewhat reflect the national economy and aviation mood, but the largest part of an L-39's asking price reflects how well it is outfitted, and the hours on its engine. A decent, medium-time, no-frills L-39 with a basic, stock panel, 10-year old avionics, and original paint currently might go for $180k-$220k. A nice, low-time L-39 with a restored panel and a good paint job is currently bringing between $200k-$300k. A low-time, fully-restored, drop-dead-gorgeous show plane with a custom panel and award-winning potential will easily command $300-600k or more.

2. What should I look for when buying an L-39? Are there any particular things to look for?
As with any airplane, the maintenance logbooks should be carefully examined by an experienced L-39 mechanic. AI-25TL engines should be inspected and borescoped to verify the condition of internal components.

The L-39, like any airplane, should be hangared. Airplanes that are routinely kept outside, or rarely flown, should be inspected very carefully. Canopy seals, hydraulic hoses, tires and other rubber components are especially susceptible to rot when kept outside, or not operated regularly.

3. How reliable is the L-39?
Honestly, the L-39 is the most reliable warbird you can own. It was professionally designed by a military design bureau, and built by a skilled aircraft production facility in the Czech Republic that is known for building high quality aircraft. The aircraft has backups for most critical systems. It was made to be reliable and to have a high "mission available" rate. It is the kind of airplane that never leaks fluids. (We tell people that if you see drips of fluid on the floor under an L-39, there is definitely something wrong with it!). It is entirely possible to go 12 months between condition inspections without any significant maintenance issues.

4. What are common maintenance items on an L-39?
The L-39 really has no stand-out "gotchas" that cause recurring problems for its owners. However, if we had to pick out a few topics to discuss, these are the ones we would pass along:

Brakes and tires: Most braking and stopping issues with the L-39 directly stem from pilot error, particularly improper use of the brakes. Proper training can resolve this issue. Because the brakes are used not only for stopping, but for steering the aircraft on the ground, they tend to wear at a higher rate than on other aircraft types. Brake adjustments and replacement are straightforward.

Microswitch adjustments: There are several systems that use microswitches, including the landing gear and gear doors, the weight-on-wheels switch on the nose gear, the flaps, and the canopy-locked indicator. Occasionally, these switches require slight adjustment.

Start boxes: The L-39 has relay boxes that control the start sequence of both the Saphir (APU) starter and the engine itself. These relay boxes are generally very reliable. If they fail, it's obvious and easy to diagnose. They can be easily replaced and/or overhauled by us.

5. How is the availability of L-39 parts and spares?

The L-39 community is blessed with very good availability of most spare parts. To make it even easier, we have developed various standard Western replacement components that make availability of most parts a non-issue. For example, we can install modern U.S. inverters, oxygen bottles and regulators, tires, hoses and, of course, instruments and avionics. We have a large (and growing) supply of all normal replacement items.

6. How available are L-39 engines?

AI-25TL engines are still available, but the supply has been shrinking over the past few years. Normally, we can find exchange engines through our network of sources. Bottom line: If you need one, we can get you one.

7. What is the "TBO" on an L-39 engine?

There is no limiting "Time Between Overhaul" on an Experimental jet – there are only factory recommendations. You might hear about "500-hour engines," "750-hour engines," and "1,000-hour engines." In Warsaw Pact military service, AI-25TL engines were subject to a very different cycle of maintenance than we are accustomed to in the West. In military service, a "500-hour" engine was pulled out of the aircraft at 500 hours of service, undergoing an inspection and partial overhaul before being reinstalled. Then, after another 500 hours of operation, another inspection and partial overhaul would be done. This cycle continued for the life of the engine. In US civilian ownership, L-39 engines are simply inspected and serviced as necessary to ensure safe condition and operation of the engine. This gives us the flexibility to operate the aircraft without the strict constraints that were required in military service. We perform inspections and limited parts replacement on the engine.

Note: There are no engine shops in the USA that can perform a complete overhaul on an AI-25TL engine. However, Code 1 Aviation has exclusive relationships with several Eastern European overhaul facilities, and we can provide start-to-finish overhaul services for your engine, if and when needed.

8. Will I be able to fly this airplane? What qualifications must I have before beginning flight training?

While we cannot guarantee success, most self-motivated people who meet the pilot requirements for an L-39 rating are able to complete our training and get their rating. The basic minimum requirements are:

- FAA Private Pilot, Single-Engine Land rating.
- FAA Instrument rating, and IFR current.
- FAA Third Class Medical.
- 1,000 hours Total Time.
- 500 hours PIC (Pilot in Command) Time.
- Pilot has basic pilot proficiency and competency, and meets FAR currency requirements.
- High-performance and complex aircraft sign-offs.
- Warbird and/or turbine experience recommended, but not required.

Our instructors will ensure that you are safe and fully prepared for your checkride. Please see our website for more information about our ground school and flight training. They are, without a doubt, the best L-39 training courses available.

9. How often should a pilot fly to remain safe and comfortable in the L-39?
We suggest that pilots try to fly the L-39 at least twice per month, minimum. This would equate to approximately 30-40 hours per year, which is the bare minimum that we feel would keep you comfortable and competent. At this minimum level, a pilot should plan to spend most of their flight time practicing basic maneuvers (steep turns, stalls, slow flight, aerobatics, etc.) and various types of normal and irregular traffic patterns, including no-flap landings and simulated-flameout landings. Repeatedly going out for simple, straight-and-level sightseeing flights is fun, but does not generally maintain a significant level of proficiency with the airplane.

10. I might like to use an L-39 as a business jet. Is this an airplane that I can use for hard IFR or regular cross-country travel?
While many L-39s have been outfitted with the latest in glass-cockpit IFR avionics, satellite weather, Stormscopes, autopilots, and other modern pilot aids, the simple fact is that the aircraft is slightly limited in its IFR operations, for a few significant reasons:

First, the L-39 is not approved for flight into known or forecast icing, It is not fitted with significant anti-icing gear, and exhibits poor handling characteristics if it accumulates ice on the tail surfaces. Second, the limited fuel quantity, coupled with the increased fuel require-ments for IFR flight, means that you will only be flying 350-400 NM legs if you file IFR. Third, the aircraft is not RVSM certified, so your maximum operational altitude is FL280. This means you will encounter more weather in the cross-country realm than in other IFR jet airplanes.

As long as icing is not an issue, there is no reason an L-39 could not be flown in long periods of IMC conditions. Being a "single-pilot concept" aircraft with a smaller, confined cockpit – and because you are wearing a helmet and parachute – the workload of flying a fighter-type aircraft in these conditions can be higher than in a typical light twin or business jet. An autopilot helps lower the pilot's workload immensely. The L-39 has a standard military cockpit which, while roomy as military jets go, does lack a certain amount of "creature comfort" for long cross-country flights. Most people need to get out and stretch their legs after about an hour and a half.

It also should be pointed out that the nature of the "Experimental Exhibition" license granted to these aircraft limits their use to non-commercial operations, and they may not be flown in certain locations, or to/from certain airports (the primary airport in Class B airspace, for example).

11. What kind of baggage space is there in the L-39?
If your L-39 has been modified and/or restored in the USA, it is likely that most of the bulky Russian radios and electronics boxes formerly located in the nosebox have been removed, leaving you with a generous amount of room for an overnight bag or two, a small toolkit, and a set of aircraft inlet/exhaust plugs. In the cockpit, there may be room on the aft left desk console for a helmet bag containing some other soft items. A few owners have opted to hang an external travel pod hung under each wing, each of which can hold a golf club bag and several other pieces of luggage.

12. How many places around the country service L-39s? What do I do if I'm flying my plane and I get stuck out in some remote place with a maintenance issue?
There are only a few dedicated L-39 maintenance facilities in the USA. Code 1 Aviation is the industry leader by far, with several convenient locations around the country, as well as a mobile maintenance team that can arrange to service or repair your aircraft at any location. Many of the updated (U.S.) components of a restored L-39 can usually be serviced by any qualified maintenance professional.

13. Are there any Center of Gravity or Maximum Gross Weight issues with the airplane? Is there anything special about how it can be loaded?
A standard L-39, like many military aircraft, is almost impossible to overload or be flown out-of-balance with any combination of pilot/passengers or fuel. The popular 60-gallon internal auxiliary fuel modification will put the aircraft near the aft end of its C.G. at takeoff. As the fuel is burned, the C.G. moves forward – toward the center of the envelope.

14. Other than the minor maintenance items already mentioned, what are the aircraft's overall weaknesses? What needs special attention, in the Big Picture?
Perhaps the biggest weakness with the L-39 is the increasingly-limited availability of engines, although this situation is still far better than in many jet warbird fleets. Also, as mentioned in Question 10, the aircraft's limited ability to tolerate inflight icing tends to limit how owners operate it in adverse weather. Most owners simply don't operate it in IMC in the winter, other than making quick cloud-breaks.

15. What are the differences between the three models of the L-39?
L-39C: Trainer model; most numerous by far. Almost always the lightest, best performers. Fitted with two underwing pylon mounts, although these are rarely installed. 2,260 were built.
L-39ZO: Export weapons-trainer model. Very similar externally to the C-model, but equipped with four underwing pylon mounts for limited carriage of travel pods or simulated armament of up to 2,500 lbs. 337 were built.
L-39ZA: Upgraded, light-attack version. This is a heavier aircraft fitted with noticeably-beefier landing gear, four underwing pylons, the capability of carrying a 23-mm gun-pack under the forward fuselage, and a more comprehensive armament system. 208 were built.

16. Can I get "hot" ejection seats in my L-39? What is required to maintain them? What are the benefits and limitations of having them?

Operational ejection seats are a popular option for some L-39 owners, especially those who actively participate in formation or airshow-type flying. An ejection seat should be considered as a last-ditch piece of safety equipment that might save your life in the event of a catastrophic engine failure, fire, severe smoke in the cockpit, power loss over inhospitable terrain, mid-air collision, bird strike, pilot incapacitation, or an otherwise un-landable aircraft. It is not a magic-carpet ride to the ground, however. Ejecting from an aircraft can be a traumatic physical experience, to say the least. However, a "hot" seat does provide a significant amount of peace-of-mind for many owners.

We can readily upgrade, install, and maintain hot seats. The FAA allows aircraft owners to have ejection seats, as long as they are maintained to a set of standards that are similar to the way the military used to maintain them. The seats require a yearly condition inspection, performed at the same time as the aircraft's inspection.

Perhaps more important, from an owner/operator perspective, are the limitations imposed on how you must operate the aircraft. You will be required to attend yearly recurrency ejection seat training (which we offer). You will also be responsible for every passenger you carry. You must ensure they are well-trained and comfortable with the ejection procedures, as well as the irregular procedures, in case the seat does not operate correctly. This means it is not possible to give a friend an impromptu ride in your jet, or strap your untrained spouse in the back seat for a joyride. There are also some additional considerations regarding public safety that you will have to consider.

17. Can we just install a Garrett TFE731 turbofan engine in the L-39 to increase both its performance and fuel efficiency?
Yes! Code 1 Aviation is the industry leader in doing exactly that. We have extensive experience with converting L-39s to Garrett power, and our customers have been raving about their "new," modified airplanes. The Garrett upgrade requires some modifications to the engine mounting system and the cockpit instrumentation, among other things. Contact us for more information.

18. I own a hangar at a nice airport that has 3,300 foot runways with unobstructed approaches. Can I operate my L-39 out of there?
No, you can't. (Actually, you can do anything you want. But we strongly recommend against this kind of operation.) Technically, the L-39 can be taken off and landed in that much space, but there would not be enough room to abort the takeoff if you encountered a problem in the

high-speed portion of the takeoff roll – say, above 80 knots. You most likely would roll off the end of the runway at a high speed. Similarly, while the L-39 can be landed and stopped in that much space, your piloting skills and execution of the maneuver would have to be utterly flawless, *every time*. Your final approach airspeed must be nailed within 3-5 knots, your aimpoint must be perfect, and your final power reduction for landing must take place at exactly the right time. You cannot float the landing. The tires and brakes must work perfectly, and your braking and steering technique must be ideal, every time. The chances of this happening, *reliably*, under varying wind and weather conditions as well as your own variable skills, add up to a risk we do not recommend you take. The minimum runway length we recommend is 5,000 feet (4,000 feet if you are really proficient and have a compelling operational need to do so).

19. Why should I buy an L-39 instead of a cheaper L-29 or other jet warbird?
- The L-39 is the most numerous of the available surplus military jets, with more than 300 registered in the USA alone. That means you'll have access to a much wider group of fellow owners, resources, maintenance, parts, and even formation partners!
- It is a more modern design, with robust, reliable systems and backup systems for nearly everything.
- The market is now under-priced. There are bargains galore.
- The L-39 is by far (in our opinion) the best-looking jet around. It still attracts admirers everywhere it goes.

20. Who do I contact for more information, aircraft sales, pre-purchase inspections, maintenance, restoration, modifications, avionics, painting, flight training, maintenance training, or anything else L-39 related?
We would certainly recommend Code 1 Aviation. (But then, you knew that, didn't you?)

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