

AERO – CONTACT News Letter February, 2005

1. Ground school in Sydney and Brisbane (Australia)

Let's put it that way: We had a good time there, great hospitality and a crew which was really keen to absorb all the information they could get. Even after 4 years operating an L-39, there was still a need to get more information and to learn the little tricks. I feel good for the operation of the L-39's down under, it's still a relatively small community but more planes are moving in there. We will monitor that.

2. Maintenance Issues

It would be surprising for us if there were none....

There was an airplane in AU, assembled by an US company, which always showed some little restriction in the elevator control. Taking the tail cover off, I found a misrouted cable of the R/H trim motor. At full deflection, the elevator was heavy pulling on the cannon plug mounted to the stabilizer.



On the opposite way, the cable coming from the cannon plug interfered with the roller bearing on the cam of the spring loaded booster of the elevator control system.



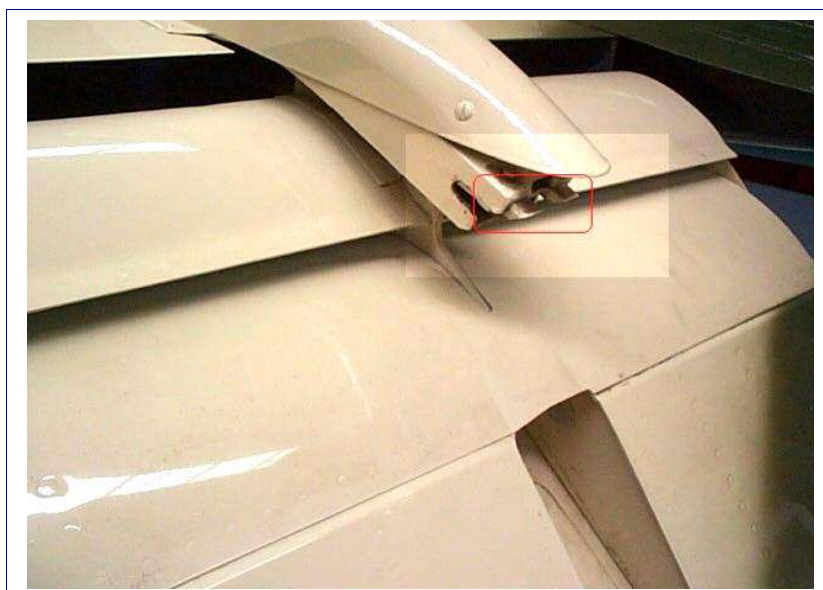
The cable shield was already damaged.....On the left side the ground wire was wrong installed and caught the attachment screws of the left cannon plug at elevator fully UP !



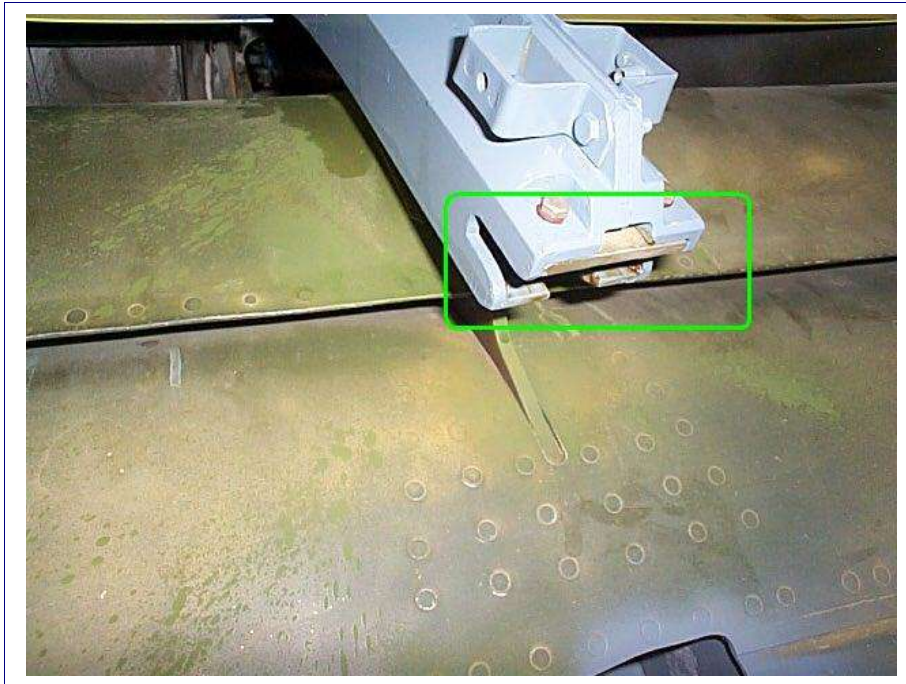
Do me a favour and check that by pulling/pushing the Elevator up and down and imitate some "g-load" on the ground wire. Under all circumstances the ground wire should not be able to reach the screws of the cannon plug! We also found on the tail of one of the airplanes the still mounted IFF antenna. Take it out! You don't need that. Please go to the "Master Caution" light on my web site and see what can happen if this remains installed.

Flap Installation

On another airplane we found all 4 end stops at the Flap tracks 180° inverted installed. It looks like that:



Correct would be:



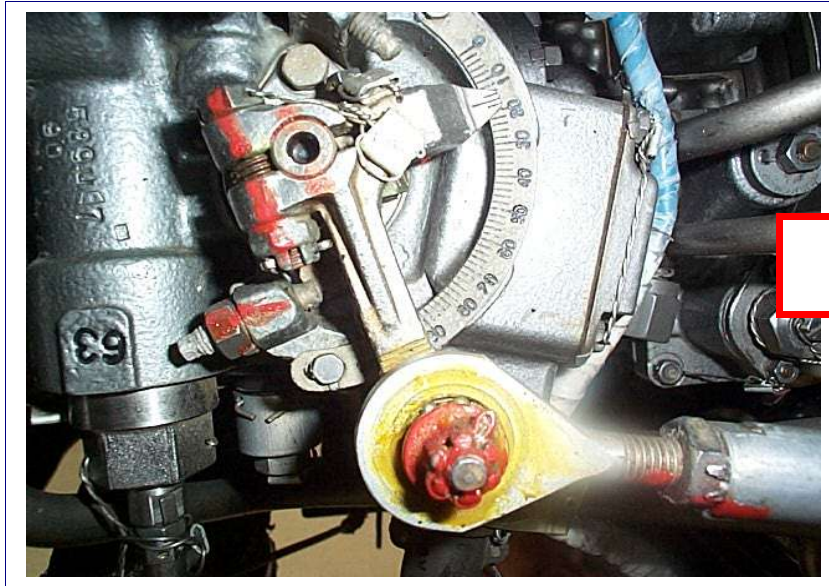
Fuel controller setting

We talked already a couple times about the mechanical FCU setting (connection between control rod and lever of FCU). The Engine Manual gives you a tolerance for "Idle" between 18...24 grd on FCU gradient scale. This setting is part of the fuel management for your "Minimal Fuel consumption at Idle" to avoid an engine flame out at high altitude, if you pull the throttle lever back to idle.

Let's say, the mechanical system gives you 50 % of the necessary fuel, the other 50 % are provided by the FCU depending on the flight condition via the Engine Start sequence Valve and the membrane keeping the pressure difference on the throttle needle constant in flight at a definite power setting from Idle to MAX. (I am sure you are aware of that...)

In the early 80's an engine flamed out in Russia. The setting was found below 18 grd on the FCU. At this time the East German AF changed the tolerance to 20...24 grd to be on the more safe side. If you don't believe it, ask Uli at International Jets ;-).

On an airplane assembled by a Baltic company I found the fuel controller at Idle as shown here:



Only 16 grd!!!

So please check that on your airplane by advancing the Throttle lever forward and pull it firmly back to the IDLE stop, take a shop light and check the pointer on the FCU, you should read something between 20...24 grd, but never below 18 grd!

Engine Maintenance

There is still some confusion about "how to do a power check on the engine". Some of the owners just set the throttle lever to the numbers on the RPM gauge which they would like to see.


That's simply nonsense; you have to do a RPM and EGT calculation at first, to get your RPM/EGT confirmed during a run up, after setting the throttle lever to the markings which you (!) have made on the throttle lever case, after you set the lever on FCU to the definite grades.

3. Check Lists

During my trip through Australia I was confronted with some L-39 check lists coming from the USA. After a brief look, I got the feeling to speed up the deal with our check lists. There were no limitations for engine parameters at Engine Start, no times, no critical RPM's on it, nothing! Just switch XXX on and press button for 2 sec..... Could be an expensive adventure!

We have now finished the check lists for the L-39. There are two sets available:

1. Pre-flight / Post flight inspection (advices for the daily preparation of your airplane)

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Pre-Flight Inspection

L-39 Albatros

Preparation

1.	Check external condition of airplane and ramp	- no indication of unapproved access to the airplane - check for leaks or other unusual things below the plane
2.	Receive plane from safety guard	- check safety pins on external stores / armament and safety belts if installed and applicable
3.	Remove covers from the airplane and put anti sliding mat on wing	- remove canopy cover only for necessary inspections - remove plugs and rudder locks
4.	Unlock, de-pressurize and open canopies	- check safety pins of both ejection seats first - check Landing gear lever in both cockpits (rear: neutral, front: down) - check safety switches (covered and secured)
5.	Check flight and maintenance record	- no open entries, - check validation of last flight preparation (12+3 days)
6.	Check main brakes	It is strictly forbidden to use the main brakes if the pressure is below 60 kp/cm² or 0 kp/cm². This can cause mechanical damages to the brake hydraulic valve! - pressure 33 + 3 kp/cm ² (check from both cockpits), - check differential pressure by moving the pedals

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REMARKS

The check lists for pre-flight inspection and post-flight inspection are based on data of the following documents about the aircraft L-39:

- L-39 Maintenance Instruction of the Air Force of the former GDR,
- Manual DV 187/0/001 Maintenance of the Air Force of the former GDR, introduced on 01 Dec 1982


These check lists have been elaborated and published by

aero-contact
Ingenieurbüro Dipl.-Ing. Bernd Rehn
Am Löschteich 6
02694 Malschwitz
Tel.: +493591/679711
Fax: +493591/679721
www.aero-contact.com

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18 pages total

2. Pilot's check list for standard and emergency procedures

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<h2>Check List</h2> <h3>L-39 Albatros</h3> <p>L-39 C N-xxxx S/N yyyyy</p> <p>Pre-Flight Inspection (Walkaround Inspection)</p>													
Doesn't replace the Pre-Flight Inspection by the Ground Crew													
Approaching the Aircraft													
<table border="1"><tr><td>1. Area surrounding the aircraft</td><td>clear and clean</td></tr><tr><td>2. Below the aircraft</td><td>no leaks</td></tr><tr><td>3. Chocks</td><td>in place</td></tr><tr><td>4. Fire extinguisher</td><td>in place</td></tr><tr><td>5. Covers</td><td>removed</td></tr></table>	1. Area surrounding the aircraft	clear and clean	2. Below the aircraft	no leaks	3. Chocks	in place	4. Fire extinguisher	in place	5. Covers	removed			
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Check List

L-39 Albatros

Normal Procedures

Pre-Start Checks

1. Area	clear
2. Seat and canopy pins	removed
3. Rear cockpit	closed, locked
4. Air condition / De-icing	off
5. Inverters / Radio	off
6. Battery switch	on
7. Engine switch	on, lights INVERTER 3 x 36 V and DON'T START out GENERATOR
8. Warning lights	INVERTER 115 V EMERG. GENERATOR
9. Advisory lights	HYD. SYSTEM-FAIL CANOPY UNLOCKED ENG. MIN. OIL PRESS AIRCONDITION OFF
10. Battery / APU voltage	check, min. 24 V
11. Throttle	STOP

Engine Start

1. Turbo Start button	push for 2 s. (clock!)
2. Light TURBO-STARTER	on, after max. 25 s
3. Throttle	IDLE
4. Engine Start button	push for 2 s
5. RPM	22 ... 26% after max. 15s
6. Ignition	after 18 ... 25 s
7. EGT	max. 550°C
8. Light TURBO-STARTER	off at 41.5 ... 44.5%
9. Oil pressure	min. 2 kp/cm ²
10. Idle RPM	56 +/- 1.5%



Check List

L-39 Albatros

Ground Emergencies

Ground Egress

1. Pressurization lever	rear position
2. Canopy	unlock and open
3. Parachute harnesses	unlock
4. Oxygen / Anti-G-suit	disconnect
5. Radio	disconnect
6. Battery switch	off
7. Aircraft	abandon

Engine Fire on the Ground

1. Throttle	STOP
2. Engine switch	off
3. Fuel shut-off lever	close (rear position)
4. FIRE EXTINGUISHER Button	push
5. Ground egress	perform

Normal Brake System Failure

1. Emergency brake lever	pull
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REMARKS


The procedures in the check lists for pre-flight inspection, for normal procedures and emergency procedures are based on data of the following documents about the aircraft L-39:

- Flight Manual L-39CT, approved by The State Aviation Inspection Czechoslovak Federation Republic in Prague on 07 Feb 1992.
- Instruction A 101/1/101 for the Operation and the Procedures of the Aircraft L-39ZO of the Air Force of the former GDR, introduced on 01 May 1979
- Instruction A 101/1/114 for the Operation and Navigation of the Aircraft L-39ZO of the Air Force of the former GDR, introduced on 01 Oct 1982
- Manual „Handling in Emergency“ of the Aircraft L-39ZO of the Air Force of the former GDR, introduced on 01 Dec 1982

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aero-contact
Ingenieurbüro Dipl.-Ing. Bernd Rehn
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Tel.: +493591/679711
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... and laminated it looks like this:

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Check List

L-39 Albatros
Reg.-No. (ZA) G - CCWB

Pre-Flight Inspection (Walkaround Inspection)

**Doesn't replace the Pre-Flight Inspection
by the Ground Crew**

Approaching the Aircraft

1. Area surrounding the aircraft	clear and clean
2. Below the aircraft	no leaks
3. Chocks	in place
4. Fire extinguisher	in place
5. Covers	removed

Inside the Cockpits before exterior Inspection

1. Ejection seats and canopy jettison	safety pins inserted
2. All switches	off /safety wired
3. Landing gear lever	down
4. Battery switch	on
5. Fuel quantity	check
6. Battery switch	off

Nose Section

1. Side panels	closed
2. Air pressure gauge	120 ... 150 kp/cm ²
3. Switches inside the nose section	on
4. Nose wheel	tyre pressure (max. 18 mm pushed in), condition tyre, shock absorber, doors, mechanical and optical signalisation

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Pre-flight walk around 4 pages, Normal Procedures 6 pages, Emergency Procedures 12 Pages

To order your check list from us, you have to provide the airplane registration, S/N, series and the information what kind of **Thermo Couples** is installed on your engine (T-99 or LUN 1374)

Ordering check lists from us includes a free upgrade for 3 years (if there are any...). The checklists will be personalized for each owner and airplane version and series. Copying this check list may lead to problems.

4. Final Remarks

Thank you for your nice comments about our work after the CJAA meeting. Hopefully I can make it next year to meet some of the owners personally.

Fly safe!

Bernd