

A bout with "the Beast"

Out in the New Mexico desert you can get your hands on a Cold War classic MiG-15. In order to enhance his chances of keeping his job, the author requests to remain anonymous



I'd rather have a fidget than a faggot – read on and you'll find out what that means. And yes, due to the fact that my boss thought that I was undergoing serious upset jet recovery training instead of having huge amounts of fun at his expense, I prefer that my name not be mentioned.

In my ongoing quest to obtain some more jet experience before my boss purchases a new business jet and asks me to fly it, I managed to persuade him that it would be a good experience to learn how to recover from unusual attitudes in a jet. Aerobatics was never our intention, but you never know when that nasty big A380 will flip you upside down and spill the blue fluid onto the Corinthian leather. The art of getting the it back in the porta-potty before the wings fall off or you hit the ground is learned by attending an upset recovery training course.

Through adverts in the aviation press and a delve into the internet, the Jetwarbird training centre in New Mexico was selected. This organisation will provide anything from type ratings to joy rides, all individually tailored to suit.

We initially decided that 10 hours would be a reasonable number of hours to learn how to keep the blue bit uppermost (and the blue fluid 'downermost') but my boss's parting shot was that if it was really good value or I needed more time, "feel free to use more hours". Oh well, I suppose so, if I have to!

So after the now usual procedure of obtaining a clearance from the Transport Security Administration to carry out flight training in the States I found myself in Santa Fe New Mexico at the end of February.

Santa Fe is famous for... er, well I've heard about a railway line, and the centre of the old town is most historic, but I was there to fly not to learn touristy stuff. I did learn that not too

far away is where they invented the atomic bomb, and not too far to the south on the map but an awfully long way to drive there and back in a day is Roswell and its aliens. They even have the landing sites marked on the aviation map.

The Jetwarbird training centre or Fantasy Fighters operates from the Santa Fe Jet Centre, one of the FBOs (fixed base operator, a sort of executive handling for everybody) at the field. The Jet Centre has been built to a sympathetic New Mexico design, which is a pleasant change from the clinical air-conditioned hotel foyer type. At least the jet-lagged hung over transcontinental executive staggering out of his Citation for a "comfort break" (personally I prefer to go for a pee) while the two white shirts with epaulettes and Ray-Bans organise a refuel for the next three hour leg and attack the vending



Top: pilot's-eye view from a MiG-15 banking over the New Mexico desert

Above: upset training was in an L39

Below: the author also took a turn in Fantasy Fighters' Fouga Magister



machine for their breakfast will have a fighting chance of knowing roughly what part of the country he is in by the architecture and decor.

The courses are run by Larry Salganek who 'is' Fantasy Fighters, basically. I can not recommend him highly enough. He is an excellent instructor who knows how to pitch the level of instruction to an individual's ability and most importantly makes it fun. Don't tell my boss!

The upset recovery training is carried out in an L39 Albatross which is a wonderful aircraft to fly, but that's another story. Instead of droning around for ten hours in the L39 it seemed like a good idea to do a rating on it. Foolish not to! I would probably never sit in one again, but the rating test concentrates the mind and proves that I did achieve something for my boss's money. Flying military jets brings with it a new vocabulary of steely jet pilot jargon that you would only normally hear at fighter school. Armed with my new-learned lingo I was desperate to impress someone, so at the first opportunity I slipped some into a conversation. "Yeah, after the high mach run we derry-turned into a high alpha pass then unloaded for a simulated flame out pattern to a run and break." "Would you like straight or curly fries with your meal, sir?" was the response. Oh well, one day I might sound steely to someone.

Meet the Beast

Ten hours later I was waving my Temporary Airman's Certificate with Authorized Experimental Aircraft: AV-L39 on it. Buoyed with success and the "semi" offer of some more hours I eyed up the other jets that Fantasy Fighters have available. These include an L29, a Fouga Magister, a T33 Silver Star and a MiG-15. Well, my boss did say I could use more hours if it was really good value and I can't see why any self respecting pilot would



get in the cockpit of a business jet without having flown a MiG-15 first. It should be mandatory!

The MiG-15 that Fantasy Fighters have was, I believe, manufactured in Poland under licence as a two seat trainer with a NATO code name Fidget. The single seat version as used in the Korean War, was, I hope, code named Faggot before the connotations of the word changed.

The Fantasy Fighters Fidget could well be described as typical of what a front line fighter would look like during the Korean War – well worn and lived in! This thing gets used a lot, and servicing it prior to flight requires hatches to be unscrewed and wings to be walked on. It's not possible to maintain a pristine finish when refuellers in size 12 boots are clumping about over the wings and ladders are leaned against the fuselage in order to gain access to the cockpit.

On approaching the aircraft it appears to be of a medium size – the wings are at waist level but as previously mentioned you have to climb a ladder to gain access to the cockpit. This particular example was painted in a light brown and green camouflage scheme that had suffered somewhat in the New Mexico sun. This a very early military jet design, and I guess personnel were aplenty when it came to operating it. It must also have been operated from military bases with all the appropriate servicing equipment. There is none of this getting the refueller to squirt some Jet A1 into it while you go off to do battle with the vending machine, then hopping back in and firing it back up for the next air conditioned FMS autopiloted leg. This aircraft must have its pneumatic reservoirs replenished with nitrogen every time you fly. They operate on a total loss system and are not pressurised by the engine,



Top: Fantasy Fighters' L39 outside the Adobe Jet Center at Santa Fe

Above: the Jet Center interior carries on the vernacular adobe theme

Right: the MiG-15's drop tanks - don't even think about dropping them in the US

Bottom right: the MiG's pneumatic tanks must be replenished after everyflight

Below: well-worn and pitted intake

Bottom: the MiG-15 looks well-used, with faded paintwork, dents and scratches

Bottom left: faded paintwork on the tail

so when they run out, say bye-bye to the brakes and canopy seal.

The refueller has to clamber onto the wing to refuel the two fuselage tanks, the caps for which hide under a hatch which opens with a screwdriver. The fuel level is very difficult to see, and if overfilled will spill into the fuselage. The drop tanks – and for goodness sake don't even think about dropping them in the USA – are accessed by opening the caps with a manufactured thingywotsit attached to a screwdriver shaft. The nitrogen is recharged from some large brown heavy bottles and a hose which is spannered onto a fitting in the aircraft. There is nothing quick about turning this aircraft round and it does require its own service van.

It's a fairly tough and rugged aircraft as was demonstrated by the refueller walking along the wing and stepping down via the drop tank. It will use 330 US gallons per hour and on landing will only have 20 mins fuel remaining. Gulp! Just pray you don't need to divert on the last approach.

Entry is from the left hand side via the aforementioned ladder which leans against the side of the fuselage and consequently needs someone to take it away and bring it back when you need to extract yourself. The front canopy hinges to the right and the rear canopy slides aft. You initially step onto the seat while avoiding the canopy then step down onto the floor. You wriggle into the parachute straps first then strap into the seat with a buckle which is released via a parachute type D ring. You feel quite constrained and restricted at first due to



the strap and 'bucklery' but that soon wears off after you realise that you can reach most of the controls without too much hindrance.

The ejector seat is live, or 'hot', and a pin at the top rear of the seat is removed before engine start to make it so. Now this is a first generation ejector seat which will give a 12G punch, if it works, and historically this will cause a spinal injury. The minimum requirements are 1,500 feet and 120 kts but under spin or dive conditions a minimum of 10,000 feet above ground level is required. I did notice that the lower part of my legs from just above the knee were under the instrument panel, so if I did feel the need to leave the scene of the crash before it happened, then it might sting a bit on the way out. In order to avoid this you have to put your heels in some stirrups which are impossibly close to the seat bottom, such that your calves are touching your thighs. If you have ever used a "squatters bog" in the Far East you will know what I mean – a nigh on impossible thing to do while sitting down in a cramped cockpit without using your hands to help position your legs. I would imagine that you would have to really feel the need to use this departure method, and it would be quite an interesting exercise as I'm sure the aircraft would be fairly dynamic by this stage. Having decided to log one less landing than takeoff, the procedure is to adopt the squatters position – very apt in the circumstances – remove a pin from a red lever on the right hand side of the seat then slide it forward, which will jettison the canopy. A trigger is then squeezed and off you go at 12G. A clockwork timer should release the seat lap belt but if not you manually pull a D ring, push yourself away from the seat – and in any case



you have to manually pull the parachute D ring. Oh, really? As Larry said to me, "There's no way were banging out of this thing!"

Ergonomic nightmare

The cockpit is obviously 40s – 50s vintage, which at first sight looks like the switches and gauges were strewn around the cockpit in a haphazard manner. I must say that after two flight they still looked like they were strewn around with gay abandon. None of the gauges have markings for limits or green arcs, and all the limitations have to be memorised. They were obviously made of the Right Stuff in those days. The attitude indicator has the blue at the bottom and the brown at the top!! And raising the nose of the aircraft lowers the aircraft symbol down into the blue! Who thought that one up? Probably the same man that decided that the direction indicator would have the aircraft heading indicated by an aircraft symbol pointing at the heading instead of the heading being displayed at the top of the DI. Not as weird as the AI, but nevertheless

not exactly intuitive. The DI is synchronised by pushing in a knob which aligns the aircraft symbol on the magnetic heading and the whole compass rose can be rotated by turning the same knob. I guess if that's what you were brought up with you are used to it, but to me the instruments were not intuitive and it was difficult to recognise the difference between the ASI, RPM or EGT. For me, the layout was an ergonomic nightmare.

The stick is quite tall and does not lend itself to letting you stabilise your wrist on your leg. It has a bicycle-type brake handle which applies brake pressure via the compressed nitrogen for as long as it lasts. The brakes only work directionally by firstly applying full pedal then squeezing the handle, and are of the drum type with no antiskid. The other working button on the stick was a push button to apply the airbrake, and was replicated by an on-off switch beside your left elbow.

The undercarriage can be inadvertently raised on the ground – there is no squat switch – and is protected by an electrical switch and a physical slide lock on the undercarriage selector. An undercarriage selection is made by moving the selector switch either up or down. Pity the hydraulics man didn't speak to the



Left: illogically, the AH is blue on the bottom, brown on the top

Above: the cockpit is an ergonomic nightmare, and everything you need is tucked away where you can't reach it easily

flight instruments man – you have to wait for the three green lights for down or two reds for up (one was u/s and there were no transit lights) then return the selector to neutral, otherwise the hydraulic pump will overheat. Seems relatively simple, but I was informed by Larry that it was quite easy to go through neutral and reselect the gear back down or up again, and that he had one hopeful in the front who constantly kept cycling the gear unable to get the switch back in neutral. That was difficult to believe, until I made the same mistake once.

Similarly, the flaps are operated by a selector unhandily by your left elbow. The selection is held, then the selector repositioned to neutral except for take off as the flaps may blow back.

The ailerons are hydraulically boosted and there is an aileron trim switch in some unhandy place on the left console, but it is only used when the boost is off. The elevator trim is via a brown Bakelite knob right up on the left cockpit rim – again very handy (not). The elevator forces on the ground are medium and the stick stays where you leave it. The ailerons without boost are stiff and the rudders are quite light.

The cockpit is small but not cramped or claustrophobic, as although the sides are quite high the field of view is good, the front frame not being too restrictive and the only reduction in view being downwards.

Apprehension

The general impression is a bit overwhelmingly culture shockish – a completely unfamiliar environment. One fellow aviator whom I was helping strap in said with genuine apprehension in his eyes: "Why am I doing this?" Hmm.

At first it seems a bit beyond comprehension, and too much is different and unfamiliar to cope with. This is a 1950s Russian jet with an engine that has to be treated with care and aerodynamics that will

trap the unwary and the wary! If the guy who's been instructing in it for 12 years is still noticeably wary, you are probably right to be concerned. No wonder he calls it "the Beast!"

The engine, I believe, is a Russian version of the Rolls Royce Nene which, in their infinite wisdom, the British government gave to the Russians after World War Two. It's pretty much a first generation turbo jet, i.e. all the air that goes in at the front and around the pilots gets burned with the fuel and goes out the exhaust. Not exactly economical on fuel – 330 US gallons per hour – or noise, and its throttling characteristics leave a lot to be desired. If you move the throttle forward too quickly the bits at the back will melt or it will cough and splutter, either of which in flight will cause you to instinctively adopt the squat mode.

Starting is done with an APU producing 1300 amps. Do not inadvertently stick your finger in that socket! It requires a well-rehearsed technique and attention to the timely progress of the procedural steps. The first start is done with Larry outside on the

ladder leaning in over the cockpit side. I guess this allows him to monitor and correct your actions and also to make a quick getaway if you really balls it up! The engine is sensitive to over temperature and compressor rumble during acceleration to idle speed. The rumble can be heard and felt as a vibration in your body, especially when standing outside, and can even be felt inside the FBO building. The beast is awakening!

Santa Fe is 6,811 feet above sea level – I wondered why my ketchup sachets kept exploding when I tried to open them – so it was not possible to start the engine without getting the rumbling sound due to the thin air. Apparently it starts normally at sea level. Precise control of the fuel cock during start is required to achieve sufficient engine RPM prior to starter cut out. No pressure then!

The throttle is pulled aft against a spring and a starter button is pushed for two seconds. This is a two-handed operation – pull the throttle aft with the right hand to engage the start enable switch while pushing the start button with the left hand. This will energise the start control circuitry, and as soon as that has been engaged release both the throttle and the start button, move your left hand to the

by your right elbow and uses total loss compressed nitrogen. This is done just after engine start so you can check for a seal leak as you taxi out. A seal leak would bleed all the nitrogen away and you would lose the brakes. Nice!

Miserable failure

Taxiing is initiated by selecting 6000 RPM and steering by applying full pedal and squeezing the brake lever enough to start the nose wheel castoring. Stopping the turn is by applying full opposite pedal and quickly applying and releasing the brake lever to hopefully straighten up. Of course, your first attempts fail miserably and you either forget to apply full pedal or you squeeze too hard on the brake lever and the aircraft just stops. Every application of the brake is accompanied by a hissing sound as the nitrogen escapes...

On the runway, presuming you manage to get that far, the RPM is increased to 7000 RPM and the manual throttle isolation valve is selected to check for an RPM rise then fall as it is reselected. Wait a minute – if you have to be this careful in “non manual” throttle, god knows how hard it must be to operate the engine in manual mode! Then the RPM is

balance the aircraft on its main wheels and it is quite easy to over-rotate and get airborne at too low a speed. This is not a good idea in a swept wing jet as the drag may prevent further acceleration and you may sail off into the New Mexico scrub waiting for the curvature of the earth to let you gain height, or for the fuel to run out. If done properly the aircraft will fly itself off at 130kts and enter a shallow climb. The gear lever is pushed in and raised, followed by gear clunking and change in airflow noises and a noticeable acceleration. There is a slight tendency for the aircraft to start laterally rocking but it is easily prevented. The gear switch (remember) is returned to the neutral position and is easily moved too much into the down position – not the thing you want to do as the speed is building up and things are really moving along now. At 160kts the flap handle is pushed in and raised completely to the retract position. After 10 seconds or so the handle is also repositioned to neutral.

A glance back at the ASI shows it approaching 200kts and a furtive glance outside shows a noticeable apparent ground speed. 240kts is quickly reached and the nose must be raised in order not to bust the 250kts limit below 10,000 feet. No, I never thought I would need to remember that piece of PPL air law either.

A 30° climbing turn towards the west and as you look down the ground is moving by quite quickly. The ailerons are boosted and feel good, the elevator has a good feel and the rudder is quite light, although not really used much. I noticed that the two slip balls did not agree anyway.

The power is reduced to 10800RPM for the



fuel cock handle, buried way down below the left hand side of the seat, and visually monitor the RPM gauge. At 600 – 800 RPM move the fuel cock fully down to open, then after light-off at 450°C the fuel cock is raised until the rumble stops, then slowly lowered, maintaining 520 – 540°C EGT at the edge of the rumble trying to achieve 1500 RPM prior to starter cut out at approximately 25 seconds. The engine can then be accelerated, slowly, to idle speed by very carefully moving the throttle slightly above the idle detent then back to idle – and you thought Allison's were fun to start! Now you know why Larry is on the outside of the aircraft for the first start.

After start-up engine bleed air automatically pressurises the drop tanks so that they feed into the fuselage tank but as the fuel caps were not a perfect seal some fuel will vent out of the caps and dribble onto the ramp. This did not inspire confidence in the aspiring future MiG pilot, i.e. me!

The canopy is sealed by an inflatable seal which is selected with a very stiff rotating knob

**Above: the airfield at Santa Fe seen from the cockpit of the Fouga Magister
Right: uninviting forced landing territory seen over the wing of the MiG**

increased to 9000 for a brake check, i.e. if they don't hold at 9000 RPM, don't go as they will not stop you after landing.

The throttle is then slowly! moved to fully forward and an RPM/EGT check carried out. Initial acceleration is quite slow and with luck it will track straight. If not you have to apply full pedal and squeeze the brakes, best of luck.

The rudder becomes effective at 30 – 40 kts and then tracking is relatively easy. There is quite a kick in the back as the engine spools up and 120kts appears relatively quickly. You do not notice that you are almost at some light aircraft Vne's while still on the ground as the cockpit sides are quite high, reducing the ground rush, and you are concentrating on the ASI and looking ahead. A very gentle back-pressure is required to rotate the nose wheel to

climb and levelling off had to be anticipated considerably by lowering the nose. The VSI had a huge lag and the altimeter was sticking and needed tapping.

I think I then took my first breath after pushing the throttle forward on the take off roll!

300kts level flight is undemanding but turns require a lot of attention due to pitch sensitivity to avoid climbs or descents, and remembering the Attitude Indicator, VSI and Altimeter problems, doing it on instruments was a non-starter.

Aileron rolls were carried out by simply raising the nose 15° then applying aileron until the wings were level again. It was relatively easy to move the stick although it could not be described as 'light' and the roll rate was medium rather than blisteringly fast. A dive to 400kts was unremarkable although even from 8000 feet the ground went past at a satisfying rate. At that speed the turns really require 60° of bank to achieve a reasonable rate, with the associated 2G pull and pitch sensitivity distractions. Slowing down to the stall

achieves a good airframe buffet, and moving the stick forward to reduce angle of attack – nearly said ‘unload’ – will achieve normality. In the landing configuration the buffet was almost immediately followed by a left wing drop, again corrected by easing the stick forward.

The stalls were not investigated aggressively as the aircraft will spin and will not always recover. Suits me!

High speed flight can cause the stick to freeze, with the possibility of mach tuck or roll. It is recovered by selecting airbrakes, closing the throttle and hoping!

The field of view is generally good and the wings are well behind, although the cockpit sides are quite high and the aircraft has to be rolled over to see anything below or below the nose.

Turning plummet

Noise level is mainly due to the pressurisation, which is manually adjusted by the pilot to achieve a 4000m cabin. It uses direct bleed air which is not air conditioned at all and is

noisy, smells of spilled hydraulic fluid and hot.

A flame out pattern is commenced at high key, which is 6000 feet above the touchdown point, followed by a turning plummet while the flaps and gear are selected at or before the appropriate low key points. It does actually glide quite well if you maintain the best glide speed of 180kts.

The “normal” circuit is entered in a deceleration to 190kts. Abeam the tower the gear is selected down (remembering to reselect neutral), take off flap is selected immediately and left selected, and as the speed decelerates to 190kts full flap is selected, the selector then returned to neutral. The base leg is flown at 160kts, then on final the speed brakes are selected and the speed reduced to 130kts.

As previously mentioned, the early generation turbo jet engines do not like to be accelerated quickly, which causes a bit of a dilemma on the approach as the throttle is never reduced below a set figure until the runway is definitely made. Some of the early bombers used to stream a small drag



parachute behind them in the circuit so the approach could be flown at high throttle settings, thus making a go-round more likely at a late stage on final after releasing the drag chute, of course.

The turn onto final has to be anticipated quite a lot to avoid going through the centreline, and the final turn is quite far out to achieve a glide



Far left: Roswell Wal-Mart plays on the alien theme
Bottom left: UFO landing site symbol printed on chart legend
Left: landing site symbol at top left of chart
Below: Ufologists' recognition poster



The official aviation charts for New Mexico include a special symbol for alien crash sites, depicted on the chart and explained in the legend. While one can hardly imagine our own dear CAA indulging in such whims, they have a purpose – little green men are one of the major tourist attractions of the state, and American charts often include significant tourist sites for the benefit of visiting aviators from this planet.

Roswell trades fiercely on its reputation as a port of entry for space aliens, earned from the legendary ‘Roswell Incident’ in 1947 when a spaceship was alleged to have crashed there, and an alien recovered by the US Air Force was said to have undergone an autopsy. The 2006 film ‘Alien Autopsy’ purports to show how the hoax was perpetrated, but then it’s probably just part of the massive government conspiracy that’s been going on for 60 years to cover up the truth. Weather balloons indeed!

Thousands of UFO spotters and interested gawkers visit Roswell every year – quite a feat as it’s in the middle of nowhere and had little else going for it. The local branch of Wal-Mart catches the mood. The UFOlogists’ ‘aircraft recognition chart’ illustrates the credence they lend to USAF claims that real, honest-to-goodness inexplicable sightings can be explained by earthbound phenomena. It all fits, you see.



Left: everything on the MiG is durable and suited to farm-boy maintenance techniques
Right: politically incorrect wall poster which I'm sure we all deprecate

path on or below the 3°. It is quite easy to get a lateral waddling during the turn.

The deck angle is slightly positive or nose-up on the approach, and slowing down will cause the swept wing to increase the drag and therefore lead to an increase in the rate of descent, which requires lots of power to correct. It is possible to arrive over the threshold with an excessive rate of descent such that power or raising the nose will not arrest the descent until ground contact is made, which is a polite way of saying "crash".

So when Larry requests 128kts on final you do your very best to achieve that figure even though you can't read the ASI that accurately, and any hint of getting too low is immediately cured by use of power.

The throttle is closed just before the threshold and only a small round out is required to touch down. The ground rush is not excessive due to the long nose and high cockpit sides and feeling for the ground is intuitive.

If a go-round is required, the throttle is stood in the 12 o'clock position to avoid high EGT's during the slow spool up. The speed brakes are retracted and then the throttle pushed fully forward. There is a noticeable kick in the back as the engine spools up and by the time you look inside the speed will be about 120kts, and a small rotation will probably get it airborne rather than balanced on the main wheels.

If you are landing the nose must be lowered



and the brakes squeezed to achieve an appropriate deceleration. Too much and you might skid a tyre, too long an application and the drum brakes may fade, and if you have been a bit over enthusiastic with the brakes when taxiing out the nitrogen may all be gone and you are off into the weeds.

It really isn't the fearsome beast that it first appears, but it definitely demands constant attention. The apprehension before flight is not really justified as the flying characteristics and engine response induce confidence but the realisation of its ability to bite demands

respect. Of course, I only flew it well within its speed and height envelope, but how on earth a 200-hour Korean piston pilot could get in a single-seater and climb up to 50,000 feet and carry out air combat with US Air Force Sabres after receiving a briefing boggles the mind!

My overall impressions were that it seemed to have more air valves than a submarine, the sensation of speed even at high altitude was very noticeable and it was great to look out without the restriction of wings, engines or propellers in the way. Tremendous fun – just don't tell my boss! ■

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