



Yak-18T

GIVE THIS AEROPLANE a three-blade propeller and eleven per cent more power, and it becomes Mr. Versatility. What other aircraft provides the ruggedness and load-carrying capacity of a de Havilland Beaver, the land-anywhere ability of a Maule, the tame handling of a Cessna 172 and the stately, aerobatic performance of a Stearman? There's even a bit of Piper Cub in there, because the door and side window of a Yak-18T can be removed for dropping parachutists or taking aerial photographs.

A fully-westernised, 400 hp 18T, with streamlined cockpit glazing and its large interior refurbished with Connolly hide seats and Wilton carpets, has the forties opulence of a Beech Staggywing.

The standard Yak-18T needs about 220 of its 360 hp to maintain level flight, leaving 140 available for climbing. The addition of 40 hp—eleven per cent on overall power—actually boosts fpm at take-off by 28 per cent. This transforms the aeroplane's short-field and aerobatic capability.

And the big, four-seat Yak looks so unusual. This aircraft belongs in one of Hergé's Tintin cartoons. Hergé never short-changed his readers when he drew cars and aeroplanes. He favoured de Havilland classics such as the Tiger Moth and Chipmunk, and his portraits were always accurate.

The Yak-18T is very much a Hergé aeroplane. He would have loved the rounded profile of the fin and rudder, tailplane and elevators, and its stolid, shoulders-forward, upright stance on the ground. Details like the



*Aerobatics? Touring? This 400 hp four-seater
is full of Russian character. By **Nick Bloom**.
Photos by Peter March.*

steps permanently set under the wing's inboard trailing edge and the strut and bracing wires supporting the tail surfaces would have appealed to him. He would have relished drawing the multi-faceted cockpit glazing (the standard Russian windscreen is in seven pieces), picking out its many details. Hergé liked to portray the character of aeroplanes, and the more distinctive they were, the better he drew them.

The invitation to fly the souped-up Yak-18T came from Richard Goode Aerobatics, one of

the two main importers of Yak aircraft outside the USA—the other is Mark Jefferies with Yak UK Ltd.

After flying the Yak, I sat in a PA-28 in order to make comparisons with a more commonplace four-seater. The American machine seemed flimsy after the Yak, the swept look of the PA-28's fin a little vulgar, like the go-faster stripes on a boy racer's car. It was like a Ford Cortina compared to one of those finned-and-chromed American classic cars from the fifties, a Cadillac, or a Studebaker. The legroom and

head clearance in the rear seats of the Piper were miserly after the Yak. Even the front seats seemed cramped in comparison. The PA-28 was sensible, plain and straightforward, the girl next door, whereas the Yak was an exotic au pair with a sexy Russian accent. I knew which one I'd ask out on a date.

Richard Goode Aerobatics has its operating base at White Waltham. There I met Steve Jones, who knows the 400 hp Yak-18T better than most—he has flown aerobatic displays in it—and Nigel Warren, the company's ►

then operations manager. (Nigel has since gone to live in the USA.)

Appropriately for a flight test of a Russian aircraft, there was a north wind of Siberian proportions blowing, squally showers alternating with glimpses of blue, and a roaring fire in the clubhouse. No one was actually wearing beaver hats and military greatcoats, but they might have been.

Production of the standard 360 hp Yak-18T started in 1973, was stopped in the early eighties, and restarted on a smaller scale for export a decade later in the more commercially-orientated environment that followed the collapse of the Soviet Union. Construction is conventional, using duralumin sheet, sections, webs and flanges riveted together. However, the tail and control surfaces and outer-wing sections are fabric covered. Hergé would have welcomed this touch of eccentricity, no doubt, but one wonders why the designer used fabric. Was it perhaps to save money, or for some obscure reason of Soviet politics—providing employment for skilled gluers and stitchers who would otherwise be out of work?

Under the cowlings is, of course, that amazing Russian workhorse, the Vedeneyev (pronounced *veed-en-eyv*) radial. Throaty, impressively big, and more than a little different.

In an aeroplane so full of character it is perhaps a little disappointing to find a panel-mounted yoke, rather than a control column, but a yoke does mean more knee-room, an advantage in a touring aeroplane.

The controls are conventional, although straps to keep your feet on the rudder pedals strike an unexpected note—they are there to stop your legs flopping upwards under negative g. The flap is really more of a speed-brake. Used for landing only, it is a binary affair—either on or off—and is effectively a large door that drops down behind the main undercarriage legs. Hergé would have loved to draw the rows of holes this exposes on its inner side.

The aeroplane is stressed and designed for aerobatics, and cleared to +6.4/-3.2g. It has full night- and blind-flying equipment.

Parallel evolution

The electrical system is conventional in aeroplanes adapted for customers in the West by Richard Goode, but standard Yak-18Ts come with something rather unusual. In a fully-Russian 18T, the engine runs a dynamo that generates DC, which then has to be converted to AC to operate stall-warning and other electronics. American aeroplanes use alternators to make AC, and semiconductors to convert it to DC to recharge the battery. The Russian system, conversion from DC to AC, is cumbersome, using a heavy, bulky, electro-mechanical device called an inverter, but no doubt the Russians had their reasons. Conversion to Western electronics and avionics saves about 270 lb.

Yak-18Ts, including those supplied by Richard Goode, also have an out of the ordinary brake arrangement; instead of an hydraulic fluid system, it's pneumatic, and uses compressed air. This is unusual today, but was once quite common; Spitfires have pneumatic brakes. Isolation and parallel evolution led to Australian marsupials, and the same factors produced pneumatic brakes and dynamo-generated electrics in the Yak-18T.

Steve and Nigel filled me in on a few things while we waited for the current squall to pass over. What, I ask, makes the Yak-18T different?

"You can fly non-stop to Madrid," answers Nigel.

Steve says, "It's an industrial strength machine, a four-wheel-drive go-anywhere car."

Nigel says, "It's good at short fields, especially the model you're going to fly today."

They explain that the engine is a 400 hp Vedeneyev M14PF, eleven per cent more powerful than the standard M14P—and it's fitted with a three-bladed MTV9-250 propeller

in place of the usual two-blader. Such a large vp propeller assists short-field landings because of its braking potential.

Steve is enthusiastic. "There's nothing in the West to match it. Two British aerobatic pilots borrowed it and took their wives to a Sportsman-level contest in Ireland. Four people, full luggage, going to a 500-metre grass strip."

"How did the pilots do?" I ask, thinking, yes, but I bet aerobatically speaking, it's a dog.

"First and second."

Steve adds that having 400 hp to play with allows him to open his displays with an Avalanche at a scant attention-grabbing 200 feet—and use the excess power to work his way up. The big, three-blade propeller has the dual advantage of drag when throttled back to preserve height on downlines, and thrust going up to regain it.

Steve is very enthusiastic about this machine. He recently flew from White Waltham to Blackpool, did an aerobatics display and flew back without having to refuel. This kind of fuel endurance counts for a lot with busy display pilots, who just hate wasting time on the ground refuelling.

Most Yak-18T owners probably fly little, if any, aerobatics; they appreciate the aeroplane's ruggedness, but operate it as a tourer with short-field capability. There are exceptions. A Texan friend tells me that a middle-aged pilot at his local field regularly flies vertical rolls in his Yak-18T four up. Imagine two guys in ten-gallon hats with two stout Texan matrons in the back, corkscrewing upwards in seated formation.

The sky outside is clearing, so we go quickly through the performance statistics. Endurance? The standard machine has ninety litres in each wing, but Richard Goode Aerobatics has arranged for this to be doubled. With an optional 130-litre tank in the fuselage rear, this gives a staggering ten hours flying time at economy cruise speed.

Fuel consumption is high in relation to





Top: the original Russian control panel is low-tech and very different.



Above: standard Russian seats (as flown by author) have rugged, military virtues.



Above: door can be removed for dropping parachutists or taking photos.



Above: rear luggage compartment 'is big enough to hold two stowaways'.

Below: leather seats, and carpet soften the Yak's uncompromising utility...

Left: ... as does a modern panel, but, rudder straps, odd yokes, mag switches and other details give the game away—it's still a Yak.



speed, although acceptable at around 40 to 45 litres an hour at economy settings. Oil is used at a rate of half a litre an hour. Limit speed for undercarriage and flaps is 200 kph. Approach speed is 170 kph, not less than 150. Crosswind limit is 22 mph.

Nigel shows me round the aeroplane I am to fly. This is the first Yak-18T to be fitted with the 400 hp engine and has yet to be painted or have its interior refurbished, but various mods have already been carried out. The windscreens and control panel have been considerably decluttered, and the back-to-front electrical system dropped, in favour of a much lighter and less bulky Western equivalent. He points out the eleven-litre air bottle and emergency back-up bottle. Compressed air is what starts the engine, lowers flaps and undercarriage, and works the brakes, so it's reassuring to know about the back-up. Everything I look at—the control cables, the tubular metal seats, fittings, brackets—seem to be twice the diameter of their Western counterpart. Nigel tells me that the Russians spared no expense, and I believe him. "Where American aircraft would have a casting and a plain bolt, the Russians put in a full, replaceable bearing," he says.

The fuselage has a square-with-rounded-corners cross-section that becomes circular forward of the cabin. The tail surfaces have curved profiles, like most Yak aeroplanes, which give the machine a slightly warbird appearance. The wings are tapered in chord and depth, the centre-section flat, the outer panels tilted upwards for dihedral. The undercarriage is relatively long, so the aeroplane sits high and at a neutral incidence. You realise the need for this stilted look when you come to the front of the aeroplane—there is only nine inches clearance for the propeller (the same is used in Sukhois).

The wing has a Clark UN profile, similar to a Piper Cub's USA 35-B. The Clark UN has a gentle stall and is an excellent lifting section, and provides a wide C of G range and thus greater loading versatility.

To enter this aeroplane you begin by putting one foot on a steel tube step mounted below the wing-root trailing-edge, then pull yourself up—there's a handle on the fuselage—to stand on the wing.

Like everything on the aircraft, those steps are rugged. Apparently, when a Yak-18T landed gear-up at Brize Norton, the steps successfully supported its weight.

There is a door each side of the cabin that is designed to be jettisonable, and the aeroplane is cleared for flight without one or both

doors. The doors are generous, about 2½ feet wide and three high.

Behind the rear pair of seats is a luggage shelf. The seats hinge at their waists to reveal a handle that opens an extremely large, rear luggage compartment—big enough to hold two adult stowaways. Entry is via a door in the left side of the fuselage. There is a Yak-18T modification to enable carriage of a patient on a stretcher, feet in the luggage compartment, head on the rear seats. Behind the luggage shelf is a sealed hatch giving access to a large platform. On this the inverter and other heavy, bulky Russian equipment was originally mounted—the ADF, radio and so on. I saw these in another Yak-18T in the process of conversion, and they looked large enough to be operating with vacuum tubes rather than transistors, let alone solid-state circuitry. There is plenty of room for such equipment. (Nigel praised the ADF. He has successfully identified Lydd from inside the hangar.)

A firm hand

Steve Jones takes the right-hand seat and I the left. The seat is comfortable and adjustable for height and distance from the rudder pedals. The view forwards and over the wings is excellent.

Steve helps me with the four-point Russian harness (no negative G strap) while Nigel—good salesman that he is—assures me that Richard Goode Aerobatics will be replacing it with a Western equivalent. Nigel leaves us and I close the door. Like the harness buckle, the toggle for adjusting the seat and, as I will later discover, the carb heat control and the flap and undercarriage levers... operating the door requires a firm hand and some determination. Everything is solid and rather stiff.

I slip my feet under the straps on the rudder pedals and Steve begins the cockpit briefing. First the brakes. There is a lever like a bicycle brake on the yoke that you squeeze with your left hand. The nosewheel is fully-castering, so ground steering is via rudder and brakes. Push left foot to turn left and if nothing happens, squeeze with your hand until it does. To stop, centre the rudder and squeeze. To park, do this and push a button you'll find under your left thumb on the yoke.

I like this system and get on fine with it. There is a chrome handle for operating elevator trim. I discover later that it is sensitive in flight, five degrees either way will set up a climb or dive. On the other hand you only need about a turn to counteract the pitch up when dropping that enormous flap—no frantic winding.

Goode maintenance

RICHARD GOODE AEROBATICS is a busy concern. While I'm talking to him, Nigel's mobile phone seems to ring every couple of minutes. Inside the company's hangar and on the concrete apron outside, four engineers toil over engines and airframes. These engineers are Russian nationals.

The Yak-18T is not currently available on the British register, and is operated with Russian registration under Russian rules. These are not very different from ours in the UK. They have a C of A every two years instead of our three, with 50- and 100-hour checks, but no Annuals. The engine has an initial TBO of 750 hours, then three 500-hour overhauls giving a total life of 2,250 hours, but with a new engine price of \$17,500 (\$13,500 overhauled—the company quotes these prices in dollars), long-term engine maintenance costs are comparatively modest.

As an indication of complexity there are 37 flexible hoses in the aeroplane, all with a calendar life of ten years. Nigel says, "A 'cheap' Yak-18T won't be such a bargain if those hoses are due for replacement."

Inspections have to be signed for by engineers with Russian qualifications. British engineers with Russian licences do exist, but Richard Goode Aerobatics prefers to employ Russians. The company's chief engineer is on a 2½ year work permit and is permanently based at White Waltham, living on the airfield. In Russia his wife works as a pilot, dropping parachutists from an Antonov An-2. Other engineers come for six months at a time.

To raise the undercarriage you slide a lock out of the way, push a lever, then lift it. Another lever heats the carburettor, also a push-to-move. A third dumps flap.

Two big, toggled affairs that would do service in a wartime bomber wing propeller-pitch and throttle. There are various other gauges and levers, but, having identified the ASI, altimeter, percentage rpm and manifold pressure dials—and located the all-important g-meter—I feel I have learned enough. I ask about a mixture control, but there isn't one: it's controlled automatically.

Frankly, I am getting excited. I know that Steve will look after the intercom, fuel, cabin heat and anything else that I am failing to take in.

We flick up a row of caged toggle switches to bring the electrics to life, and Steve does something or other to awaken the pneumatic system. Time to start the engine. He points to a button and the mag switches—eerily, these are almost exactly identical to the French 1940s switches on my Stampe—and tells me to operate both simultaneously. There is a loud clanking, the huge propeller turns independently one way and then the other, and blurs as the engine makes up its mind.

We adjust pitch and throttle and wait for the temperature to rise. Steve gets me to test the mags and slow running, which discloses some carb ice. Once it's cleared, Steve cycles the prop; we wait a bit more and he signs me to go.

The aeroplane feels good as it taxis across the grass. Generous view forwards, throttle works well, brakes work well. A bit of nodding, but the undercarriage is nicely stiff, so there's no need to worry about prop strikes. Approaching the runway we see a Piper Cub turning crosswind, and Steve asks if I want to wait. Not particularly, I tell him—the big Yak has already gained my confidence. We line up, and I push throttle and pitch levers fully forwards.

Stick back to unload the nosewheel and now we're accelerating nicely. No need to look at the ASI, this aeroplane is telling me it's ready to fly.

No sooner are we definitely off the ground than the speed begins to build. Quite a steep pitch up holds down airspeed, and Steve suggests I raise the undercarriage. Of course, I pull the knob on the end of the lever when I should have pushed it, but it's soon sorted out. Three red lights duly appear and the tell-tales in the top of the wings and fuselage drop out of sight.

We retune to cruise settings and head for the aerobatic practice area. Outside, squalls

sweep across an angry sky like the stage set for *The Ride of the Valkyries*, but the big Yak bores along smoothly.

First impressions are of light and powerful ailerons, quite heavy pitch and a rudder you barely need to use. Release the controls and the machine flies itself. The noise level when I take off my headphones is quite high, but it's not unpleasant, and mostly slipstream rather than engine. Steve says that the fully-upholstered version of the 18T is a lot quieter. I'm in a comfortable, roomy cabin with a fairly panoramic view and there is a pleasant feeling of eating up landscape without actually devouring it.

Stately, clean aerobatics

We reach a relatively clear piece of sky far enough from White Waltham for objectors to complain to some other airfield, and I am able to put the Yak-18T through its paces. Barrel roll, first, then a slow roll. Steve solicitously brushes flakes of dried mud from my shoulders, placed there by negative g. We fly a loop.

Further impressions are that the elevator is very heavy, the ailerons delightful and the rudder adequate. The aeroplane is stately and uses quite a lot of sky.

I try a stall-turn (quarter-loop to vertical up, then for the speed to drop, then yaw to vertical down). It starts fine but waffles at the top, what the judges tend to call 'bridged', meaning that the aeroplane flies sideways for a bit

before dropping its nose.

"Rudder too early, or too late?" I ask Steve.

"Too early," he says. I try another stall-turn and the waffling is the same, only prolonged. I ask the master to demonstrate.

Steve goes up, left wing down. This looks terrible from inside the cockpit—you know the aeroplane is yawed and isn't vertical—but anyone watching from the side won't see you cheating. Sure enough, when he pushes full right rudder, the aeroplane rotates cleanly about its yaw axis, just as it's supposed to.

"You need left rudder on the way up, then there's more rudder movement to initiate the yaw," he explains.

I try again, and get closer to the perfect stall-turn. The bottom line is, a few more tries and I'll have it. Time for something else.

"What about a reverse half-Cuban?" I ask.

Steve says, "I'd rather you started with a half-Cuban." (They're both loops with a half-roll on a 45° line. Steve wants the one where you roll on the way down.)

I oblige Steve by hauling back on the yoke with both hands, waiting until sky is swapped for an upside-down view of the fields below, then twisting the yoke sideways to return heavens and earth to their normal positions. The fields are approaching rapidly, so I haul lustily on the yoke to restore level flight.

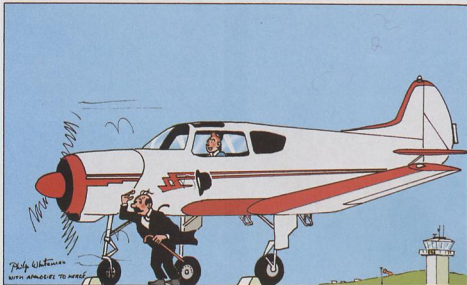
A glance at the altimeter shows a negligible loss of height, and I know that I didn't go over 4.5g, because I was looking at the g-meter while hauling. The fact that a great deal of



Above: complex windscreen adds character, but simplified version (below) gives better flying qualities.

Left: the editor of *Pilot* agrees with author about Yaks and Tintin, and got out his pen!

Below: westernised paint scheme and interior, plus 400 hp and 3-blade prop, and Yak-18T has forties opulence.





two-handed hauling was needed tells me that the designer had in mind Soviet worker biceps. No one is going to break this aeroplane by pulling on the yoke.

Steve gives permission to try the reverse half-Cuban, but issues a warning. "Don't be in a hurry to pull back after the half-roll. Remember, this is a very clean aeroplane."

The reverse half-Cuban is fun. You pull the nose up, twist the yoke so that you are in an inverted climb, wait a bit, then pull, gently at first, then more firmly as the ground comes into view. This went so well that I followed it

with another, then tried a vertical roll. Pull up, looking at the left wing and checking forward with the yoke when the wingtip is at right angles to the horizon. Twist the yoke and watch the wing traverse the landscape. When you want to stop, reverse the twist, yaw or pitch to get the nose down, and pull out of the ensuing dive. The roll rate going vertically up is impressive—the aeroplane can manage a full 360°.

I try a stall, but all the machine does is mush downwards, stick fully back. No vices in this mode. A spin then. Crisp entry, clean,

quick recovery—again, no vices.

"How about a flick roll?" I ask Steve.

"Fine, but go easy on the rudder."

I throttle back and raise the nose until the ASI reads 150 kph, then open up to cruise and pull the stick back, gently easing on full right rudder. It's clearly evident that one wing has stalled, and the aeroplane pitches and rotates smartly. It's so easy to stop that I come out level at my first try. A left flick is equally successful.

I try an avalanche (a loop with a flick roll at the top). The big Yak flies it beautifully.

I am now so confident that I string a few manoeuvres together, ending in an Immelman (half-loop with a half-roll at the top). As I am now entering manoeuvres at a slower than ideal speed, the Yak begins to feel its weight in the latter part of the Immelman, and I feel the half-roll degenerate into an incipient spin. A jab forwards on the yoke restores the offended airflow instantly. Had any judges been watching, I think I'd have got away with it.

The Yak-18T with the 400 hp engine and three-bladed prop should take Sportsman level aerobatics in its stride and, with a lot of rehearsal, might even be entered at Intermediate. It would just about do as a basic aerobatics trainer, but really it's too fast and too heavy for this—of course, no one should attempt aerobatics in any aeroplane without instruction.

The Yak-18T is used as a trainer in Russia, but for teaching pilots to fly on instruments, rather than for aerobatics. It is said to be the standard machine for Aeroflot pilots studying for their instrument rating. One can imagine that its steadiness and roomy cockpit would make it very effective in this role.

We fly back to the circuit. The aeroplane slows down quickly when the throttle is retarded, so there's no difficulty in timing the business of lowering the undercarriage and flaps. The flaps cause a pitch-up, which is easily held on elevator, and a quick turn of the trim handle eases the load immediately. The only surprise is the steep descent once the throttle is retarded, but opening up quickly restores the desired glideslope.

Landing is accomplished easily by diving steadily towards the numbers, flaring, holding off, which with the throttle now fully closed and the aeroplane decelerating quickly doesn't continue for long, and a final back pressure on the yoke dropping us smoothly onto the main wheels. The nosewheel descends of its own accord soon afterwards and on Waltham's rather lumpy grass the aeroplane quickly runs down to taxiing speed without my needing to brake.

This seems an easy aeroplane to take off and land, very controllable in all phases and with no surprises. Steve compares its cruise handling to a Navajo or Aztec: responsive, but rock-steady.

Left: all that power delivers an impressive aerobatic capability, including vertical rolls. One Texan owner does them four-up!

Back in the clubhouse, Nigel and Steve filled me in on a few remaining questions.

The aeroplane is fitted with lights and blind-flying panel. Can it be flown on instruments and at night?

"Only with Russian ratings. The aircraft isn't airways equipped and there are no deicing facilities, but that's a different market in any case."

"Which market is the Yak-18T aimed at?"

"Several, really. The largest category is the PPL with a family who wants a four-seater and might prefer it to, say an Arrow. Fuel con-

sumption will be about one-third higher, but the Yak-18T gives much better range, short-field capability and no worries about overloading—the Yak bulks out before it weighs out.

Then there's the aerobatics display pilot. The aeroplane does an impressive low-level display and has superb cross-country capability, but with those extra seats, it's the versatility for joy-riding that sponsors will love. Aerobatics contest pilots can share costs and either go four to a plane, or two-up and bring their families. Contests anywhere in Europe are within easy reach. Finally, there's the PPL who just wants something different.

"How many Yak-18T aeroplanes are likely to be available?"

"As many as people want. We have six brand new airframes, and the facilities are there to build more. There are lots of used



Right: on this aeroplane, should you drop your change, you can retrieve it by rolling inverted.

aeroplanes awaiting refurbishment."

"And the price?"

Nigel explains that there are about 300 18Ts from the first production series with typically around 1,000 hours. Zero-timed, one of these will cost about £45,000. A second series, low-hours 18T with new paint and fabric would be rather more, starting at £58,000. A brand new aeroplane would cost £73,000 with the Russian specification, and around £100,000 completely Westernised with a luxury interior, 400 hp engine and three-blade propeller. He adds, "This is still about one-third the price of a Bonanza, which has to be fantastic value."

What does Nigel say to pilots who are concerned that the Yak-18T is only available on the Russian register and has to be maintained by engineers with Russian ratings?

"There are a great many Yaks and Sukhois operating in this country now, and anyone can see how practical they are to maintain. Of course, they are the last word in ruggedness, and you have the advantage that everything is standardised because they all basically use the same engine. I think, as

word spreads, people will lose their wariness of Russian-registered aeroplanes."

To date, there are fifty of these versatile four-seat tourers flying in the West. Richard Goode Aerobatics has sold ten that are flying in the UK. If the sheer fun that I experienced on this bitter wintry day is anything to go by, I think we can expect to see a lot more. For a fraction of the price of other four-seat retractables the only disadvantage seems likely to be higher fuel bills. Ten litres of avgas delivers 29 statute miles in the 18T at economy cruise as against around 32 in a Trinidad or Bonanza or 36 in a Mooney, which at first glance doesn't seem all that bad. However, to achieve these figures, the Yak would be loitering at 125 mph, as against, for instance, the Bonanza's 65 per cent power speed of 186 mph. At 186 mph, the Yak's consumption rises to 75 litres an hour, delivering only 25 miles for ten litres of avgas.

Still, many would consider the Yak a lot more interesting, and even with today's expensive fuel, you would have to do a lot of flying to lose out financially. I'd choose the Russian au pair any day.

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Above: barn-door airbrake-cum-flaps gives STOL landings to match take-offs.

Right: the inherent strength of the Yak was shown when the pilot walked away from this crash, having flown into the ground during an aerobatics display.



Yak-18T

Dimensions	
Wing span	36 ft 7 in
Wing area	203.36 sq ft
Length overall	27 ft 6 in
Height overall	11 ft 2 in

Weights & loadings

Empty weight	2,446 lb
Useful load,	utility
	1,191 lb
	aerobatic
	841 lb
Mauw,	utility
	3,637 lb
	aerobatic
	3,307 lb
Wing loading,	utility
	17.8 lb/sq ft
	aerobatic
	16.3 lb/sq ft
Power loading,	utility
	9.09 lb/hp
	aerobatic
	8.26 lb/hp
Aerobatic limits	+6.4/-3.2g

Performance

V _{ne}	225 mph
Cruise at 65% power	125 mph
Fuel burn at 65%	9.5 gph
Maximum cruise	186 mph
Fuel burn at max cruise	16.5 gph
Fuel burn at full power	20.5 gph
Stall, clean	72 mph
Stall, flaps, gear down	66 mph
Take-off roll, mauw	270 yrd
Landing roll, mauw	310 yrd
Climb, s/l, mauw	1,850 fpm
Range, with reserves, at 65%	
with 360 litres	800 miles
with 490 litres	1,090 miles
Service ceiling	22,000+ ft

Engine: M-14PF, 400 hp radial. Initial TBO: 750 hours. **Propeller:** three-blade, variable pitch MTV9-250.

Manufacturer: Yakovlev Aviatsonnoye Korporatsiya OAO, Leningradsky prospekt 68, 125315 Moskva.

UK distributors: Richard Goode Aerobatics (for aeroplane tested), Newport House, Almeley, Herefordshire, HR3 6LL. Tel: 01544 322200. email: richard.goode@russianaeros.com. web: www.russianaeros.com.

Also, Yak UK Ltd, Little Gransden Airfield, Sandy, Beds SG19 3BP, tel: 01767 651156. e-mail: yakuk@compuserve.com. web: www.yakuk.co.uk

Price: £45,000 to £100,000. Details in article.