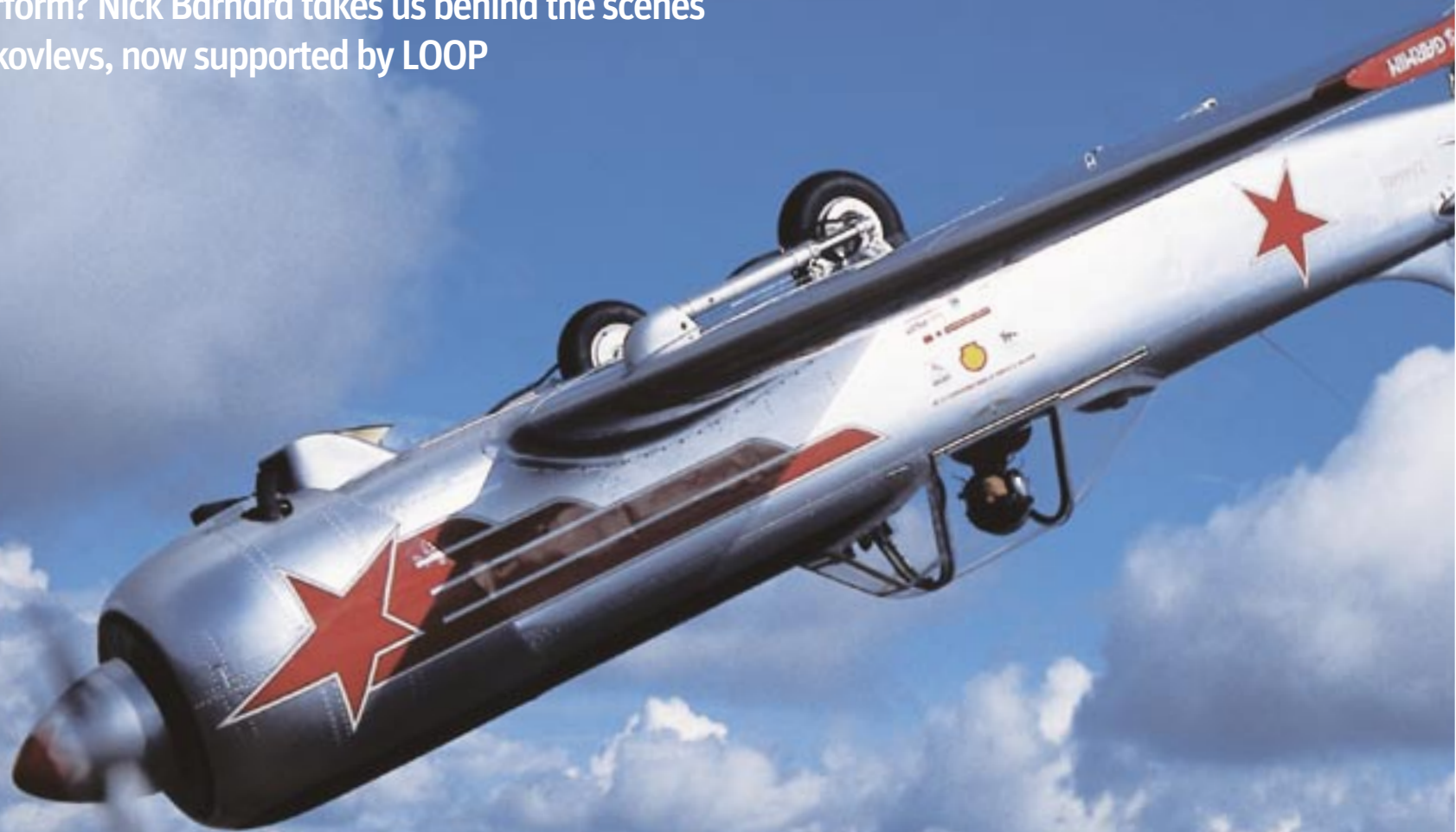


Team spirit

Just what does it take to bring a major display team to the flightline, ready and able to perform? Nick Barnard takes us behind the scenes with the four-ship Yakovlevs, now supported by LOOP



PHOTOS Jamie Hunter

THE LEADER looks across and gives a questioning thumbs-up with his white gloved hand. All you need to do is nod. Easing open the throttle to keep position, the team moves in tight with less than 8 feet between the aircraft.

The four aircraft begin a curving dive towards the crowd, four 365hp radial engines bellowing in harmony. A quick glance at the engine instruments – oil temperature and pressure steady, cylinder head temperature within limits. There's no need to look at the airspeed – the roar of the slipstream and engine tells you the dive is more than 370kph. "Smoke on, looping. Pull up, GO!"

In perfect symmetry, the four aircraft climb vertically, trailing white smoke, hang upside-down for a moment and dive again to begin another 14-minute display of precision flying.

The Yakovlevs fly more than 60 shows a year throughout the UK. Chances are you've either seen our display at an airshow or sighted four silver aircraft flying together from one event to

the next. 2006 will be our sixth season.

Running a civilian formation aerobatic team is a uniquely demanding responsibility. It involves marrying resources and conditions that are truly temperamental. These include the pilots (always sharp), aircraft (always serviceable), weather (always CAVOK) and event organisers (always right)... but never all at the same time!

For the team pilots, flying the aircraft at a display is the ultimate reward. Advertising, promotion, winter maintenance, pre-season training, fettling aircraft, fuelling, oiling, smoke oil loading, transit planning and waiting for the weather to clear – these are the real challenges.

Winter maintenance for four Yaks is a logistical exercise in its own right, and is the responsibility of Peter Shaw from Russian Engineering at West London Aero Club, White Waltham. Each year, pre-season, the aircraft are ferried in turn to Waltham and the scrupulous maintenance work begins.

Over the years these costs have risen

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enormously as the authorities have introduced new checks and maintenance directives. These are ex-Soviet military training and aerobatic competition aircraft. They came to the West with no precedent for operations in a civilian guise and just keeping up with the CAA changes is a full time job in itself. One by one the aircraft return to our Compton Abbas home base.

Behind the scenes, Jez Hopkinson who runs the team, is also busy. All of the equipment

has to be serviced including parachutes. There are five including one for a passenger in the '52. These have to be repacked every six months and this involves driving the equipment to South Wales where GQ/Irvin are based.

All the seat cushions have to be checked too. Imagine sitting bolt upright – the classic Yak position – on a hard parachute for any length of time and you understand the preoccupation with comfort. Yaks cruise at 130kt so Scotland or the Isle of Man are hours away. AFE/RD Aviation supply a custom seat pad made of dynafoam that conforms and supports – and bliss it is by comparison with the original Russian equipment!

All the helmets are returned to Headset Services in Shoreham for inspection and any new upgrades to the ANR fit. Yaks are noisy and the new Alpha Eagle helmets are ideal – the long transit flights are demanding in their own right. Old charts and flight guides from the year before are replaced, and each pilot is issued with the latest flight planning



■ The 14-minute display is the highlight for the team after weeks of preparation and paperwork. Yee-ha!



■ The Yakovlevs four-ship Yak team of three 50s and a two-seat 52.



■ Lots of flight time accrued in here.



■ Team uses Alpha helmets.



■ Environmentally-friendly Ondina smoke oil is used, provided by Shell.

resources by AFE. Each year all the aircraft covers are sent back to Cambrai covers for cleaning and reproofing. Yaks are notoriously leaky so tight-fitting covers for stopovers outside are essential.

Garmin supplies the GPS and communications fit to each aircraft. The team can only fly VFR so the equipment is used to reduce cockpit workload. Look inside a Yak – do you see a useful or safe and secure surface to rest anything? The majority of the year's flight time is spent navigating around the UK at 130kt, and all for a 14-minute show!

The overriding preoccupation when transiting is maintaining a good lookout for conflicting aircraft, especially as most team flying is at weekends in the summer months, the busiest time of the year for GA. The team transits in loose formation. The leader navigates and communicates – wingmen are assigned these roles too when necessary – whereas wingmen scan the sky for traffic, changing height and spacing from time to time to make the lookout more effective.

Another crucial logistical chore is the supply and use of the team's fuel, engine oil, and more recently new smoke oil. Yaks consume about a litre of oil an hour, so the availability of the right grade of oil wherever the team are based is vital. The Yakovlevs use Shell oil, the W100 Plus formula which works well as a year-round lubricant.

Shell has also worked with the team to understand what oil works best for making smoke. The aircraft can carry some 30 litres of smoke oil (about 6-7 minutes of smoke), and traditionally this has been made by vaporising red diesel into the exhaust manifolds. This is not good for the pilots (the cockpits are not air-tight) or the crowd, and so the Yakovlevs and Shell worked together to find an environmentally safe and pilot-friendly smoke oil, called Ondina EL. We're campaigning for the obligatory use of Ondina as smoke oil for all flying displays – it is odourless and edible, and thus very different to red diesel!

Training is a continuous process. All the

team pilots are professional pilots, so currency in principle is not an issue. Formation currency is another matter, and a perishable skill. Team training takes place in the spring each year at the Yakovlevs' home airfield, Compton Abbas. Putting four aircraft in the sky at once is a considerable expense so all sorties are carefully planned to maximise effectiveness. There are nine display ready pilots, many of whom can fly different positions in the formation.

Yet again, behind the scenes, the rustle of paperwork continues. Each pilot produces a copy of their up-to-date certification ready for presentation to display organisers – not only licences and medicals, but every year all team members are flight-tested for renewal of their CAA Display Authorisations.

Management and organisation is a year-round preoccupation – the flying sometimes seems like a short-lived treat. All shows organised by the team for a client attract a fat file of paperwork, from CAA permissions to local emergency services coordination,

accommodation and transport provision at every stopover, let alone positioning oil, smoke oil, spares and equipment, flight planning and team briefings.

As ever, behind all this is the constant preoccupation with funding. Over the past six years income from airshows has declined, yet operating costs have soared. The support of sponsors is crucial not only for the survival of the team, but also for the continuous evolution of the display. Without the continuous support from our leading sponsors, Shell Aviation and Garmin, we would never even get off the ground.

Look out for the team this summer, and enjoy the exquisite sound of four radial engines, the shimmer and sparkle of silver paint, as the formation loops and rolls with harmony, elegance and precision... yes, it really is worth it. Despite the stress, thankless preparation and relentless paperwork, the flying is a unique reward. These classic aerobatic machines not only look good, but are exquisite to fly!