To: **All LAA RV6, 6A, 7 and 7A Owners**

From: **Francis Donaldson**

Dated: Tuesday, 19 February 2008

Re: **AEROBATIC CLEARANCE ON RV-6, 6A, 7 and 7A AIRCRAFT**

The first examples of the RV6 and RV7A have now been granted limited aerobatic clearance by the LAA following completion of the flight tests carried out by Stan Hodgkins earlier in the summer. The aircraft have been cleared according to the limits specified by Vans, which (unlike on the tandem seat RV4 and RV8) includes prohibiting intentional spinning. The weight and cg range for aerobatic flight is restricted compared to the normal category. In the case of the RV6 and RV6A, this results in the aircraft effectively being limited to single seat aerobatics only. Observing the aerobatic weight and cg limits is essential because of changes in the aircraft's handling at high weight, as well as a reduction in structural safety margins.

Granting aerobatic approval on other RV6, 6A, 7 and 7A aircraft on the LAA fleet will be a relatively simple process but will involve an individual aerobatic and spinning flight test. As this involves flight outside the limitations stated on the current Permit to Fly Operating Limitations sheet, the flight test must be authorised from the LAA office by the issue of a Permit Flight Release Certificate raised specially for the purpose, and specifying the pilot authorised to carry out the aerobatic and spin testing.

As it has been found that the spin characteristics of the RV6, 6A, 7 and 7A are significantly influenced by such things as the choice of wing tips, fairings etc it must not be assumed that the spin characteristics of your aircraft will be the same as those of the first aircraft tested. The spin test program must therefore be approached carefully and each aircraft properly evaluated to check the individual spin characteristics. The pilot must be a person accepted by the LAA for flight test work of this nature and in current spin practise on high performance aircraft.

Note that the LAA acceptance of the RV series for aerobatics is limited to aircraft with standard engine/propeller combinations approved by Vans for the airframe model concerned, for example it does not include 200 horsepower models of IO-360 in the RV6 airframe.

If you wish to obtain aerobatic approval on your RV, in order for us to clear your aircraft for aerobatic and spin testing please complete and return the attached form. You will need to fit a g meter, if not already fitted.

Note that when your aircraft is cleared for aerobatics and spinning it will also be necessary to alter the cockpit placards, in accordance with the updated TADS for the type. This will mean fitting replacement placards dealing with aerobatics, weight and cg and speed limitations, and adding new placards specifying recommended manoeuvre entry speeds and warning about the need for particular care in aerobatting high-performance aircraft.

If you decide to seek aerobatic clearance on your RV, please bear in mind that the RV is not a Pitts or an Extra. The side-by-side seating RVs are primarily touring aircraft rather than optimised for aerobatics. Not only do they lack the reserves of strength of an out and out aerobatic type, they accelerate very quickly in a dive which means that they could be very easily overstressed in pulling out roughly from a botched manoeuvre. In other words, an unskilled pilot could very easily pull the wings off an RV. It is therefore absolutely vital not to attempt aerobatic manoeuvres in an RV without proper prior training in aerobatic flight in high performance aircraft, and being current in aerobatics. With the RV it is particularly important that the pilot has an understanding of the critical importance of the manoeuvring speed (Va) and how to avoid pulling excessive g at high speed. The flight testing guidance at the back of the Vans build manual includes guidance on this.

Aerobatics in an RV are very different from aerobatics in a Tiger Moth, Slingsby or Citabria. We strongly suggest that owners should undertake a structured course such as the AOPA aerobatic course as a foundation. Unfortunately there is nothing available in flying schools which is much like an RV. Of the aerobatic training aircraft that are available, the Chipmunk or CAP 10 would be good choices.

The ideal of course would be to have dual aerobatic check-out in an RV7, 7A or RV8, and we strongly recommend you seek help from those within the UK RV flying fraternity who may be able to help you with this, including in particular Stan Hodgkins Tel 01449 672127 and Will Greenwood Tel 07850 811704. Note however that these aircraft are not suitable for initial aerobatic training.

Most important of all, do not attempt to teach yourself aerobatics in an RV.

Francis Donaldson
Chief Engineer

LAA Form 181A/07

APPLICATION FOR AEROBATIC APPROVAL VANS RV6/ 6A, 7/7A

1. Aircraft Details

Aircraft Type: Registration: G-

Engine model: Propeller type:

Engine BHP rating:

Is inverted oil system fitted ?: (non-mandatory) Are flop tubes fitted to fuel tank ? (non-mandatory)

Is a g meter fitted ? (mandatory)

Is the large rudder fitted per SB 02-6-1 ? (RV7 only)

Are either four point or five point harnesses fitted to both seat positions ?

Type of wing tips (ie standard Vans supply or aftermarket alternative ?)

Type of engine cowlings fitted:

Are undercarriage leg fairings fitted, if so what type ?

Type of undercarriage intersection fairings fitted

Type of wing root fairings:

Type of tailplane root fairings fitted:

Are any additional strakes or fairings fitted other than those specified on the Vans drawings ? If so, detail.

Have any items of additional mass been added near the extremities of the aircraft eg rear mounted batteries or wing tip-tanks ?

Are items of significant items of mass such as fire extinguishers and first aid boxes securely attached so that they will not come loose and cause a hazard during aerobatics ?

Control surface travels must be checked and confirmed within the limits specified by Vans.

Aileron system right aileron up……. down ……left aileron up……down …..
Rudder system right rudder……. left rudder…….
Elevator system elevator up……. elevator down …….

2. Pilots Operating Handbook

Is the build manual available to the owner, including the guidance notes on aerobatic flight in the final chapter ?

3. Flight test proposal

Proposed pilot for aerobatic and spin testing:

4. Declaration

I confirm that the above information is correct:

Signed (owner)…… Print name:…… Date…….

Signed: LAA Inspector ……..…….Print name ……..…… Date……

LAA inspector number ……

On completion of this form send it to LAA Engineering at Turweston Airfield, Nr Brackley Northants NN13 5YD