

SECOND HAND PROJECTS

These days, due mainly to the advent of the kit aeroplane the average life span of a project in the building stages has been dramatically reduced compared to what it was a few years ago.

In our experience, some of the more simple kit planes can come together from start to finish in under six months. Perhaps this has served to lessen the likelihood that a project will flounder on the way and end up in the classified adverts in Popular Flying or Pilot magazine. Nevertheless, it is common to see a dozen or more part finished projects advertised in those columns and calls from potential buyers seeking a little guidance are often routed to this office.

Prompting this article was a call from a gentleman in Lincolnshire interested in securing the purchase of a part built Turbulent and wishing to know from this office what were the likely pitfalls and, if the transaction goes ahead, what paperwork and extras should he expect to accompany the project. I'm afraid there is no cover-all answer to this question. Each project should be considered on its own merit and circumstances. Ideally a complete package would consist of the following:

1. The original LAA project Inspection Record that was issued when the project was first registered with the LAA.
The Inspection Record must include the build stage inspections signed up to a stage corresponding with the completion level of the project. Signatures should be clear, dated and include the inspector's approval number.
2. Original plans and builders license.
If the project is being built from plans then these must be passed on with the project, along with any license to build that may be required for copyright and other legal reasons, checking that such a license is indeed transferable.
3. Kit manufacturers packing list, guarantee, assembly instructions, pilots / operators manual etc.
If the project is one originally supplied as a kit then as much as possible of the original manufacturers / suppliers paperwork should be available.
4. Proof of origin and specification of all structural materials bought in by the builder.
*If raw material such as sheet aluminium, steel, fabrics, glass cloths and wood for example, have been bought in by the builder and passed on with the project then evidence will be required that the materials are as specified. The same will apply to resins and adhesives and will additionally need to be shown not to be beyond their shelf life.
*If critical parts such as wing fittings or pulley brackets have been made, proof should be available that they have been made from material of the correct gauge and specification as called for on the drawings. Sales invoices from materials suppliers will normally satisfy this requirement.**
5. Record of all treatments and processes bought in by the builder such as heat treatments, power coating, etc.
It is not good enough just to know what specification a material was when supplied if its subsequent heat treatment is also critical to its integrity. It will have to be known what heat treatment, when required, may have been accomplished. For example steel spec. 2S 514 (annealed) as it is usually supplied does not take on the strength properties of 2S 514 until properly heat-treated, failure to do so may well prove catastrophic.

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6. Proof of origin and specification of all critical hardware bought in by the builder.
The same must be said for hardware as in 3 above. Bolts, rivets, cables and other items critical to the safety of the aircraft must be identifiable as the genuine article and must have been acquired from a recognised aeronautical supplier.
7. A record of any specific tests carried out so far, such as proof loading of cables.
If tests, such as proof loading of cables, has already been reliably carried out and recorded this can save you from doing it all again.
8. A record of welding carried out by CAA approved welders.
All welding of parts critical to airworthiness should be carried out by a CAA approved welder and a record of names and approval numbers of the welders used, including the approximate dates when the work was carried out, should be available.
9. Engine log book and history if a used engine is supplied
If the previous builder has acquired a second-hand engine intended for installation then the original engine logbook should be available. By the time the aircraft is cleared for flight the engine (and accessories) must be known to be in a fully serviceable condition and no possibility can exist that the engine has perhaps been removed, shock loaded, from a damaged aircraft without the necessary corrective action having been taken. We would warn buyers against paying good money for engines supplied as a box of bits, as such "engines" will often not pass a discerning examination.
10. Comprehensive record of all deviations from plans or drawings made by previous builder.
Many builders have their own ideas about modifications and like to change little bits here and there. These changes, where they might affect airworthiness, should be properly recorded and approval sought from the LAA. Occasionally builders have to deviate from the standard plans or kit in order to get round a mistake made earlier and, again, such changes should be recorded and approval sought.
11. Copies of relevant correspondence with the LAA, kit supplier, aircraft designer, etc.
It may be that previous owners have already corresponded with the LAA or others over modifications, technical problems or other important matters, and it may prevent correspondence being repeated if copies are available.

Some of the points raised above can be dealt with even if no records or information is available, but the purchaser must be aware that considerably more time and effort and expense will be required of him in order to satisfy the queries and fill in the blanks. Apart from satisfying LAA Engineering at completion the onus is on the builder to maintain the standards required by his LAA inspector.

It may be necessary, for example to destroy all fittings manufactured from an unidentifiable material and to make a fresh start. Engines with an unknown history will have to be stripped and checked by a suitably qualified and authorised engineer.

A check against the drawing may reveal unacceptable mistakes or modifications not suitable for approval, with a large amount of re-work being the only option. A previous over enthusiastic builder may have been unfortunate in building too much weight into a project at quite an early stage and this may not become fully evident until much later.

When builders have properly returned copy inspection stages from the Inspection Record to the LAA, then these are traceable at LAA HQ, but they can not be relied on to tell a complete story.

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We don't wish for a moment to suggest that any LAA member could be dishonest but some projects offered for sale may have been started perhaps ten or fifteen years ago, and the original builder long since perished or un-traceable. It is really a case of "buyer beware" and is no different to the second hand car market. Unless you really know what you are doing you would be wise, when viewing a project, to take along someone who is an expert, not necessarily a LAA inspector, better somebody who is familiar with the type of aircraft, perhaps someone who has built one himself.

Despite the efforts of the most skilled and dedicated builder, long term storage is always a risky business for aircraft, especially those made from wood. Projects which have not seen the light of day for many years will have to have been stored well if they are not to have suffered from the conditions, dry rot and warping of wooden structures and corrosion of metal parts being real enemies.

In practise, when a project comes to fruition, a number of queries may be raised by the LAA and questions asked of the applicant. When the applicant is the builder of the aircraft throughout, from start to finish, then even if things have not been fully recorded at the time, a little head scratching by the builder will usually produce the answers. This avenue is largely closed when the applicant is one who took over a project only in its latter stages.

Having said all of the above, the LAA is keen to see as many projects finished as possible, and we will do what we can to assist in that aim. Many second-hand projects are completed successfully and for some it has proved a very worthwhile route. Our aim in writing this article is not to put you off, but to ensure that you go into it with open eyes!

For further information please contact LAA Engineering.