

Make or Break : : Aircraft Interiors Article 1999

*Peter v. Agur, Jr., President
Ken Murray, Senior Technical Consultant
The VanAllen Group, Inc.*

Your reputation, maybe your career, is at stake when you are responsible for the completion of an aircraft.

It is a time of high expectations for your company, your passengers and yourself. Not only is there a lot of money on the line but your future operational integrity, as well. If the completion goes as you intend, the applause will be bountiful but brief. If it does not, the results will haunt you for months as the costs in wasted money and damaged esteem mount while you toil to straighten out the mess. Either way, you will have earned your reward. After all, you are the project manager.

Over the next few pages will offer you a completion project management map. With it you can work your way through many of the minefields in an aircraft completion or refurbishment. Or, you can plug your ears and proceed gingerly. The following ten steps can help you be assured of the results you want. They are practical, proven, and universal to any major project.

But first a few weasel words: no two projects are alike. No two completion centers are, either. Use commonsense and a lot of teamwork as you venture into any completion or refurbishment. But keep in mind whether your completion goes beautifully or becomes a burden, it is still your responsibility.

1. Define the Project

Define the project in terms of what outcomes you intend to accomplish. Saying you want it "as specified, on time, and on or under budget" is not enough. Express it in the terms of customer and operational outcomes. As a specific example, you might want the completion to:

- Allow your company's key people to travel in a safe and effective work environment for many hours,
- Employ technologies that must comply with all known regulatory and operational requirements as defined by your most extreme trip profiles,
- Ensure the aircraft and its subsystems are durable and easily maintained,
- Etc.

The most effective sources for these phrases are your customers, your pilots, and your technicians. After all, they will live with it. They should help define it.

Use of these descriptive terms allows everyone involved in the project to have a clear context within which to work. It gives them the foundation upon which to contribute suggestions and ideas that will be of the greatest value.

2. Clarify Roles and Responsibilities

There are two important roles in your project's leadership:

- The Project Sponsor: This is usually the executive to whom the flight department reports. He or she is the person who can authorize the resources to accomplish the project effectively.
- The Project Task Team: You (the customer's Project Manager), your Technical Expert, and the vendor's Project Liaison.

If you are the Project Manager you are probably the Chief Pilot, Senior Captain, or the Chief of Maintenance (Chief Engineer). Be certain you have the resources you need to perform this pivotal role. That means you will need to have time enough to lead the project. Do not continue to fly the line or run a maintenance shift on a full-time basis while you are also trying to manage the project. You won't be able to do either job well. Have someone else take up these important tasks or you'll end up fighting unnecessary and distracting operational brush fires. If you need to, hire temporary help back home to cover the routine tasks while you concentrate on the completion project.

As Evel Knievel has often said, "Kids, this a dangerous undertaking and should only be done by professionals. Don't try this at home." If you or someone on your staff has recently overseen several completions of the type you are embarking on, you are well prepared. Otherwise, there is too much riding on this project for it to be done without the help of an expert. You should include in your budget the services of a consultant who specializes in completions as your Technical Expert. It is our experience that the benefits and savings he creates will probably more than offset his fees. Now is the time to bring this person into the process.

Make certain you have a single point of contact (their customer liaison or project manager) at the completion center. This will avoid untold confusion and frustration in the future.

3. Critical Criteria for Success

Once you've described, in general terms, what you want as outcomes you must clearly define the specifications that are required to make those things happen. In our example, if your key people are going to travel in an effective work environment for a number of hours there will be a number of issues to address:

- Seats, seating, and sleeping arrangements,
- Works station capabilities such as communications, electricity sources, et al,
- Food and refreshment requirements,
- Lavatory configuration and capacity,
- Etc.

When you have listed these critical criteria you will have completed many of the elements necessary for an effective specification.



4. Completion or Refurbishment Project Options

Before you write your Request for Proposal (RFP) for the project you must determine what your project tactics will be. Define your options (some of the airframe manufactures may not offer the choice to taking a "green" aircraft away from their facility) and which of them are necessary or most likely to meet your needs and expectations. Completion or refurbishment options include:

- A single source like the Original Equipment Manufacturer (OEM) or a highly competent completion center, or
- Multiple specialty centers (including your own shop) for interior, paint, avionics, thrust reversers, etc.

The drivers for selection of the option best suited for you are:

- Time and timing - How much time will your project take and are they able to take it on when you want them to?
- Technical Competence - Can any one center do all the things you need to accomplish?
- Economics - Not only are the direct costs of the project important but the timing and amounts of payments play a big role in total cost, too.

On this last point, the airframe OEM will not require full payment until the aircraft is ready for final delivery. Your warranty coverage should not start until then, either. However, every manufacturer will ask for final payment prior to letting you take your aircraft to an outside completion center. In addition, the clocks on most of your warranties will start ticking then, too.

It is true, the OEM's have a significant advantage but the completion centers have some advantages of their own. For instance, if you want a unique installation, it may be much better (from engineering, time, cost, and regulatory perspectives) to have a completion center do it.

The net effect is you must factor these issues into your plans, calculations and negotiations.

5. Issue the RFP

You are now ready to write and send out the RFP. Rather than reinventing the wheel, include your company's purchasing and contracts people in the RFP process. If you don't already know them, your Project Sponsor can introduce you these important players. Most purchasing and contracts people are invaluable and extremely helpful. Occasionally, you'll run across someone with his or her own agenda. This is when your Sponsor can help to keep the politics to a minimum and the project on track.



Create a pool of candidate completion centers based on:

- A match between your project deliverables and the completion center's capabilities,
- Your past experiences, and
- Their reputations.

Before you write the RFP, talk with the person who will respond to your RFP at each of the centers. Gain insights into their needs for information and establish a common ground for communications. Give them enough time to respond effectively. If one firm brings up a point not covered in the RFP be certain to share that information with the others so the initial playing field is as level as possible.

You want the RFP to be answered in a way that makes apples-to-apples comparisons easy for you. A well-written RFP will require the competing centers to respond in similar terms. Among the items you want addressed:

- Description of Capabilities - What projects have they done recently that are similar to yours?
- Confirmation of Quality - Have them describe their project processes for assuring you will get what you want.
- Time Management - What is their capacity and anticipated workload when your project comes in the door? What has been their recent delivery performance versus the original time estimate and what caused the variances?
- What specific benefits do they bring to the table (warranties, technical support, etc.)?
- What will be the final project cost?
- Why should you select them?

Get a list of the last three or four customers whose projects were similar to yours.

6. Analyze the RFP Responses

At this point, your objective is to identify the two or three completion centers that are most likely to meet your needs and expectations. Evaluate each response based on the criteria you have established plus the professionalism with which they have presented themselves.

The team that analyzes the responses should include your purchasing and contracts people as well as your Technical Expert. You will probably have some responses that do not satisfy your requested format and others that will bring up great points you need to include in the end. In effect, the RFP is part of the learning and evaluation process.

Have the courtesy to send a note to the ones who did not make the first cut. All you should say is that you appreciate their interest, others more closely match your specific needs for this project, and you look forward to the opportunity to talking with them about future projects. How they handle rejection will either affirm your decision or reinforce your desire to include them next time.



7. Final Selection

Make appointments to visit your final candidate centers. Your visiting team should include your Project Manager and Technical Expert. Plan on taking a full day to be with each candidate organization. You may find arriving the evening prior to the meeting can give you the opportunity to establish some rapport with key people. If this includes dinner, you may wish to pick up the check to avoid any misunderstandings. The visit's agenda should include:

- An initial session to introduce everyone (this includes all their key people who will be involved in your project).
- Confirmation of your visit's objectives and the timetable for the day.
- A tour of the facility with particular focus on the areas tasked with your project.
- A comprehensive explanation of the processes they find most effective in working with their customers.
- Evaluation of their on-staff engineering capabilities.
- Identification of any portions of your project they intend to outsource and how you and they will manage those efforts.
- Observance their workload and their capacity in both facilities and personnel.
- Noting the tidiness of the shop and the demeanor of the people. These are vital clues to what you can expect.

Remember this is a courting game. They are on their best behavior. Try to "get past polite" quickly so you can gain the clearest possible sense of how good they really are. After all, you want them to be right for you.

8. The Contract

The final agreement is the definitive document for you and the completion center. It can greatly reduce the potential for misunderstandings. It is the foundation for the performance you require. It must clearly define the deliverables and the criteria by which you will measure success:

- Project specifications,
- Project processes to include:
 - Workflow and process maps,
 - Choke points,
 - Critical events,
 - Communications protocols, and
 - Specification change protocols.
- Quality parameters,
- Time and timing of critical events,
- Final delivery protocol,
- Total cost, form and flow of payments, and
- Performance rewards and penalties.



The last item is of special interest. It is not unusual for a customer to wish to protect himself with penalty clauses. But if you are going to have a successful relationship there should be carrots as well as sticks. Budget into your project intermediate and end rewards for the completion center and its members to help them stay focused on your project. Your project is going to be competing with a number of others in their shop. You want to help them keep their priorities focused in your favor.

9. Start to Finish - Staying on the Right Foot

One of the most important phases of the completion is the beginning. The completion center has a delicate schedule it is trying to keep for you and its other customers. Do everything you can to keep your end on time. When you bring the aircraft to them deliver it early and with a complete list of any concerns or discrepancies you've discovered. Those faults may influence their work.

Your Technical Expert should accompany the aircraft for delivery to the center. He should plan his first visit to last at least a week. During this important period he can:

- Make certain your aircraft gets the attention it needs immediately,
- Answer the inevitable questions by the production team about your project and its specifications,
- Confer with the production team about modifications to the completion that will make it even better,
- Observe the workflow to assure you of the schedule's integrity - a job that is rushed in the end is apt to have poor quality,
- Identify errors early, when they are easiest to fix, and
- Communicate with you about special issues and reassure you and the Project Sponsor.

The Technical Expert needs to be on-site prior to each critical event during the project to act as a resource to the center and provide you with the certainty that preparations and execution match your expectations. Critical events include:

- Initial delivery to the center,
- Removal of all key sub-units and systems,
- Initial installation of any sub-unit system,
- Initial start-up or power-up of any sub-unit or system,
- Preparation for paint,
- Paint stripe layout,
- Final touch-up of paint and interior,
- Pre-delivery flight tests, and
- Final delivery inspection and flight tests.

There are two schools of thought about how to handle surprises during a completion. The first is to be reactive, shout and scream before you gather the facts, find someone else to blame, shoot them, and become such a huge pain in everyone's (pick your spot) they will say anything to get rid of you. However, enthusiasm for your project, its progress and its quality will vary inversely with the volume of your communications.



We know a few completion centers that budget in a "pain factor" for clients they believe will be a problem.

The second school of thought asks, "How do we get to where we need to be from here? And, by the way, what can we learn from knowing how we got here?" On a project of this magnitude there are bound to be surprises. Seeking solutions is more productive than placing blame.

An important part of your role is to be certain the center and its people are working on your behalf. If, at any time, you become convinced someone is at odds with you or your objectives, go to his supervisor and get the situation fixed. If you are not satisfied, keep going up the ladder until you are. The stakes are too high to be cautious or meek.

10. Delivery and Operational Inauguration

From the beginning, build into the schedule ample time for the delivery process and operational start-up. It is your responsibility, as a manager, to set appropriate expectations and standards for this project. If you've been too optimistic or haven't controlled other people's expectations (like The Boss' desire to take a trip the day after scheduled delivery) you will put unnecessary stress on yourself and your career.

Your Technical Expert should be on hand for at least the last week of the completion. He will help identify a variety of squawks during the aircraft's final days in preparation for delivery. Do not come to the site until he tells you he and the aircraft are ready.

It is extremely rare for a delivery to go perfectly. We have had it happen one time over combined experiences of nearly 50 years and deliveries of at least two hundred aircraft. Depending on the complexity of your project, budget in two days to a week or more for the delivery process.

Avoid an end of the week or pre-holiday delivery schedule. There is enough pressure on everyone already. Don't add to it with the implied challenge of it has to go right or we're facing overtime and shortages of technical support.

Do not make final payment or leave their facility until everything is working properly and the cosmetics meet your standards. Even so, you will probably discover some problems after you get home. Be certain you understand and have documented the remedy process. The completion center's focus on your project is apt to dim dramatically as soon as the money is paid and you are out of sight. If you have built a little buffer into the schedule to take care of last minute problems, The Boss will never know. If you have not, you will have a lot of explaining to do.

Before you leave the completion center it would be a nice touch to get a picture of the entire team posed next to aircraft. Have one copy blown up, framed and signed for the completion folks. It will commemorate your adventure and reinforce your relationship. You never know when you might need them again!



Build into the schedule an additional three to five days at home before the first trip. This will allow your flight crews and technicians time to get familiar with the new installations. Take several flights to get everyone comfortable with it and to give the aircraft and its subsystems time to settle in. Infant mortality is a very real concern with new installations. It is better for these faults to occur now rather than on passenger trips.

You may think the best gage for your success of a completion is what The Boss says at the end of his or her first trip. Actually, you should know much sooner. All you have to do is look at the faces of the completion center team and your own team at any time during the project. If they show signs of stress or anxiety, address their concerns immediately. In the end, if your objectives have been met and everyone is happy to have worked together you will have shepherded a successful project. That makes great reputations and careers.

Pete Agur is the founder and President of The VanAllen Group, an Atlanta-based business aviation services firm. Ken Murray is Senior Technical Consultant with The VanAllen Group. They have supported clients, OEMs and completion centers on hundreds of aircraft projects over the years.