

9. The aircraft may be configured with the sensors internal or external to the aircraft skin. An external configuration may take the form of a pod.

10. It is not necessarily true that using a pod-type platform for the sensors would be easier than installing them into the "belly" of the aircraft. Both methods have specific concerns which must be addressed. The sensor suite is expensive and it is likely that the absolute minimum number will be procured. Therefore a removeable, semi-permanent package is ideal to maintain a degree of flexibility in the limited fleet of aircraft assigned to the Open Skies mission. It is also a fact that the fewer "holes" in the aircraft, the better if the sensor suite is to be removeable, as all aircraft in the fleet could potentially receive the modification kit.

11. The aircraft modification process is very involved and requires many levels of planning and review. The modification must be fully engineered and all logistic aspects analyzed prior to an actual prototype modification. In doing so, all design aspects listed in Figure 4 must be developed. The process begins with the definition of what is required to support this new equipment over its life, how will it be maintained, how will users and maintainers be trained on it, and how will this new capability be incorporated into present operations? These questions must be continually asked throughout the process as problems are encountered, contemplated, and solved.

The complete modification must be designed in terms of:

- Structures (aircraft, mounts, brackets)
- Flight Dynamics (related to structural additions)
- Electrical Power (both within sensor suite & aircraft)
- Electromagnetic Interference and Compatibility (EMI/EMC - within sensor suite and within aircraft avionics)
- Avionics integrity (hardware and software)
- Human Engineering (access to sensors, human interfaces)
- Standardization/Interoperability (ie. NATO standards)
- Photo/Imagery (interaction with existing systems)
- Aircraft Air-Conditioning (additional requirements)
- Weight and Balance

Figure 4. Design Considerations for Modification