

# Airlines maintenance program

[Environment](#), [Air](#)



The new age aircraft is a massive sized transport vehicle getting strength from powerful jet engines which can keep the plane afloat for more than 24 hours at a stretch. These aircrafts are wonderful mix of technology, performance and worthiness which not only requires advanced production facilities but also best possible maintenance technology.

This aircraft maintenance technology is a set of procedures which has to be executed so that an aircraft can be maintained to the level of airworthiness. The maintenance program has been designed to include every possible aspect of an airplane beginning from design reliability of an aircraft.

Each of the systems and subsystems has to undergo maintenance schedules throughout the life-cycle of the aircraft. In short the aircraft maintenance program can be considered as the single term for a whole lot of processes which includes preservation, inspection, overhaul, repair and replacement (Anderson, 2002).

The number of designs and types of production technology that has been developed in the last hundred years has enabled the world of aviation to make available innumerable types of planes with each of them having its own design specialty and applicability. The large variation in design and usage has been greatly instrumental in developing different types of maintenance technology and strategy.

The factors like chassis design, engine capacity and the number of flying hours decide the type of maintenance the plane requires with some common features like preventive maintenance every 25 hours or minor maintenance every 100 hours.

The airlines generally own a fleet of aircraft and hence the maintenance tasks of their planes are actually pre-scheduled. The scheduling of this maintenance work requires significant expertise of manual workforce as well as advance tools for automatic maintenance.

These processes hover around plans with possible impact being both short term as well as long term with provisions for constant reassessment, re-prioritization and re-allocation of tasks. The tasks have to be prelisted according to the infrastructural and technical issues like the fleet status and the resource available and also extra-technical issues like changed work force and modifications in flight plans.

Considering the technicalities of scheduled maintenance tasks, the processes involving it requires further subdivision according to usage-based scheduled maintenance as well as calendar-based maintenance. The usage based maintenance work is performed after the plane is under operation for a fixed number of hours.

The calendar-based inspections are performed on aircrafts at regular time intervals irrespective of the time of usage. But the maintenance of the aircraft can not be bounded by factors like time and duration of usage. It requires unscheduled maintenance in case of any breakdown or some emergent condition (Anderson, 2002).

The maintenance of an aircraft is perhaps the most important technical work for the commercial airlines all around the world. The very need of maintenance of the fleet compelled the commercial airlines to develop a

structured decision logic process for the development of initial scheduled maintenance work.

This scheduled maintenance program was later penned down by F. Stanley Nowlan in the form of the book “ Reliability Centered Maintenance” and later this book became the very important reason for the development of the airline maintenance process. The process which is currently being followed by the industry is quite different to the one developed in the earlier stage when Boeing became the first to form a Maintenance Steering Group or the MSG. The latest version of that good old process is MSG-3R2002.

The upgraded version has its own additions to already existing features of MSG. The MSG-3R2002 boasts of some of the most advance process for interval determination and enhanced procedure for zonal analysis in comparatively older planes with aging wiring concerns.

The general visual inspection (GVI) and detailed inspection (DET) have been now expanded to much broadened scope. The new entry to MSG through this version has been the L/HIRF impact analysis. This is actually concerned with lightning /high intensity radiation field (Anderson, 2002).