

# Flying Accident Trends and Preventive Measures

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AS is widely known, flying is a type of activity with certain amount of risk attached to it. For obvious reasons, military flying has this particular aspect a little more in evidence. This is on account of the nature of flying that has to be undertaken (like low flying, weapon delivery etc), and the type of aircraft which have to be used (like high performance single engine aircraft). Even in military flying degree of risks differ depending upon the types of aircraft and the roles they perform. For instance fighter flying has a much higher risk potential than, say, transport flying. Even in transport flying, risk potential differs, for instance, between supply drop missions in the Himalayas and routine passenger carrying flights.

The matter of flying accidents has exercised the minds of Air Force Commanders from the beginning; and as of now aircraft costs have multiplied to such unbelievably high figures that the requirement to bring down the accident rate to the irreducible minimum has become an inescapable mandatory requirement. One would not be surprised if today's Commanders placed Flight Safety as the most important aspect in the list of priorities. I have mentioned reduction of accidents to the irreducible minimum, since unfortunately total eradication of accidents in military flying can probably be achieved only by not flying, which for obvious reasons is not an acceptable solution.

Over the years a number of measures have been undertaken to reduce accidents. However, the tempo of activity in this sphere has taken a very big spurt only in the last few years. The accident rates per year over the last 15 years highlights this fact. In the decade comprising the 60s the yearly average rate did not show any significant decline. From the year 1973 there has been steep reduction in the rates. This dramatic result has been achieved because of

the very effective and positive measures that have been taken. These measures include better supervision of flying as well as maintenance activities, improved training methods, changes in the training syllabi, greater attention to the fatigue factor in aircrew, certain restrictions in flying in order to avoid exposure to birds, better navigational and other aids, etc. This list is, by no means, exhaustive but gives an idea of the sphere of activities which were examined and improved upon in order to increase Flight Safety.

The main cause factors contributing to accidents are material failure/component malfunction, bird strikes, pilot error and ground crew error. There are also various other miscellaneous factors like damage by foreign objects, failure of ground aids and bad weather etc. which cause accidents. However, they are very few and occur at infrequent occasions. The other factors which also cause accidents are not considered here. Material failure/component malfunction has been the major cause for accidents. This is followed by bird strikes. The next factor has been pilot error followed by ground crew error. The remaining segment covers the miscellaneous factors of the type mentioned earlier as well as those accidents, cause of which could not be established.

Although we have been able to succeed in bringing down the rate of total accidents in the Air Force we have not been as successful in bringing down Cat 'E' and fatal accident rate to any significant extent. A Cat 'E' accident is an occurrence in which the aircraft is totally written off. These accidents also cause fatalities on occasions. This situation causes a lot of concern. It means that we have not been able to effectively counter all the factors which cause accidents. The complexity of present day aircraft especially the fighter class, is one of the reasons for this.

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Cause factors which lead to minor accidents can be pin pointed with greater ease and remedial actions taken. Serious problems that face aircraft operators not only take a little longer to identify; they also do not lend themselves to easy solutions. Air Force is very much alive to this requirement and is exploring a lot of avenues to find the answers.

For reasons stated earlier, the accident rates on fighters has been the highest. The complexity of the aircraft, the types of exercises that are flown and availability of relatively less safety margin are the main reasons for this. We are now operating some of the most modern fighters which require tremendous skill in flying as well as in maintenance. The ground environment needed to support such flying is also complex. As a result of the many studies carried out into accidents, various measures have been undertaken to improve the skill of the flying as well as maintenance personnel in various areas found to be weak. In some cases, the training syllabi have been increased in order to ensure that pilots progress to more and more complicated and difficult exercises only after sufficient training has been given in the elementary ones and after completing adequate checks on the performance levels reached.

Three years ago the Indian Air Force instituted an Aircraft Accident Investigation Board whose role is investigation of Cat 'E' and fatal accidents and in-depth studies on subjects related to aircraft operations.

There is a big drive towards formulation and implementation of prevention programmes. Each unit, station, command and finally Air Headquarters are constantly up-dating prevention programmes. These programmes deal with every conceivable aspect of flying activity; be it training, ground environment like taxi tracks, runways, navigational aids, crash and rescue facilities, maintenance activity, aircrew rest rooms, medical facilities, and all other factors which are directly or indirectly connected with flying and inadequacies of which may contribute to accidents.

Flight safety thus is not an objective that can be achieved without a pragmatic and imaginative approach. Implementation of corrective programmes somewhere in the chain of events that tend to betray the objective, is a very challenging job for all those responsible as the determination of the causes is only a step and not a goal in the flight safety programme. We must learn to learn the lessons, be able to correct them into experience and apply the knowledge gained to anticipate and correct the factors well in time before another accident.