SAFETY BULLETIN

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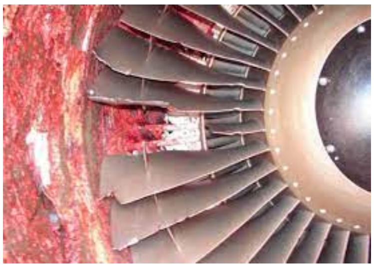
Aircraft Engine Ground Run Potential Hazard

INTRODUCTION

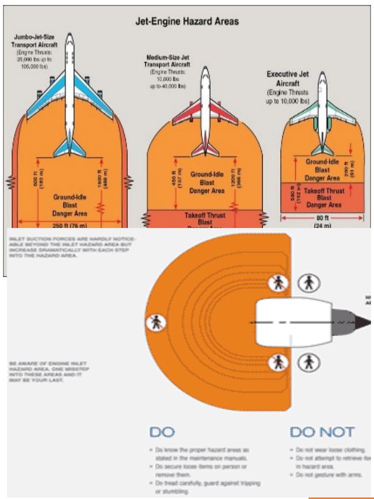
The term Aircraft Engine Ground Running is usually used to describe the operation of some or all of the engines of an aircraft, whilst on the ground, for the purpose of functionally checking the operation of either engines or aircraft systems. This normally happens before an aircraft is released from maintenance and returned to service. When a defect or scheduled repair on an engine or an aircraft system requires engines to be operational in order to assess its function, ground running may be performed prior to, during, or after the rectification of the problem or scheduled maintenance work completed.

Hazard present during Engine Ground Run Operation:



1. By their very nature, engines create noisy environments for maintenance personnel and slowly affecting their hearings over time.
2. Maintenance equipment's and high projectile hazards posed a different kind of hazards whereby high projectiles resulting from FOD can be blast off to the surroundings or personnel. Equipment that not cleared of the aircraft area will also result in collision if unwanted movements of aircraft occur during static running.
3. Hazard zones in front of engines and to the rear of engines must be established. These hazard areas will differ depending on the aircraft engine size. If maintenance personnel have to attend an aircraft with engines that are running, the engineer in charge should ensure that personnel are not put at risk by engine intakes, engine exhausts or propellers that are turning or that have the potential to turn. Intakes are more dangerous than exhausts, as it may be possible for crew members to be ingested through the aircraft engine intake. Safe distances around larger and smaller engines must be considered.
4. Other than that, there is also risks arising from the static running of one or more aircraft engines. Unwanted implications of such static running are mostly those resulting from the aircraft's unwanted movement during engine operation - effectively a loss of control - particularly during high-power engine operation. Damage to the aircraft, other aircraft nearby, and airside structures can all occur. Furthermore, ground support personnel who may be in close proximity to the aircraft are at risk of injury.
5. If the engine cowlings are open and you are going to do leak check. There is a possibility of a fire occur due to an oil/fuel leak in the fan section, and the engine fire extinguishers may not be able to combat the fire.

Mitigation Action for Hazards during Aircraft Ground Run Operation:



1. Maintenance staffs who participate in Ground Run Operations should wear PPE such as earmuff to protect themselves from the aircraft engines noise.
2. To minimize the risk to personnel of being drawn into engines or being injured as a result of a propeller strike, projectiles and jet blast. Personnel must not approach the front of any engine that is running or could possibly be running. The recommended safety distance is 10m away from the front and sides of any engine.
3. Performed F.O.D walk prior to conduct EGR operation.
4. The best overall mitigation is to ensure that all persons authorized to supervise or directly participate in engine ground running to receive appropriate initial training and that a proper system for both initial and recurrent qualification for engine ground running duties exists. In this regard, engine ground running

should be considered part of a larger collection of aircraft ground movement duties that can be performed by maintenance personnel other than type rated flight crew.

5. Only certifying staff, whose competency has been assessed by the Quality Department of the Approved Maintenance Organization, can / should be issued as “approval holder” to conduct ground engine runs. All certifying personnel must adhere to the most recent engine ground run procedures, as stated in the appropriate Aircraft Maintenance Manual (AMM) and the Maintenance Organization Exposition, which may include additional particular requirements specific to the organization.
6. AMM’s also require that a fire extinguisher to be within the vicinity of the engine, particularly if the engine cowlings are open and you are going to do leak check. This is because, in the case of a fire due to an oil/fuel leak in the fan section, the engine fire extinguishers may not be not be effective and you have to fight the fire with an external fire extinguisher.

Therefore, hazards identification play a huge role with regards to aircraft safety. With an early knowledge of the hazards posed during a certain situation will help us to avoid or lower the risk of an accident/incident to occur. Not to forget to take into account the human factors affecting our work performances in order to make our self and others safe. As a result, the purpose of this article is to provide information regarding the hazards and risk mitigation for all maintenance personnel attentions.

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