19ASB303 AIRCRAFT MAINTENANCE ENGINEERING

UNIT-1 AIRCRAFT GROUND HANDLING AND SUPPORT EQUIPMENT

Engine Starting Procedures

Introduction

Engine starting procedures are critical for the safe and efficient operation of aircraft. This document outlines the essential steps and precautions involved in starting aircraft engines, focusing on the various types of engines and their specific requirements.

1. Overview of Engine Starting Procedures

Engine starting procedures differ based on engine types, including piston engines and turbine engines. Understanding these differences is crucial for maintenance personnel and pilots alike.

1.1 Types of Aircraft Engines

- Piston Engines: Commonly found in smaller aircraft, these engines require specific priming and starting techniques.
- Turbine Engines: Typically used in larger aircraft, turbine engines have more complex starting systems involving electrical and pneumatic components.

2. General Precautions Before Starting

Before initiating the engine start, several safety measures must be observed:

2.1 Pre-Start Checks

- Inspect the Area: Ensure that the area around the aircraft is clear of personnel and equipment.
- Check for Leaks: Inspect for fuel or oil leaks that could pose fire hazards.
- Verify Control Locks: Remove any control locks and ensure flight controls are free to move.

2.2 Safety Equipment

- Fire Extinguisher: A fire extinguisher should be readily available during the starting process.
- Personal Protective Equipment (PPE): All personnel involved must wear appropriate PPE, including gloves and safety goggles.

3. Starting Procedures for Piston Engines

The following steps outline a typical procedure for starting piston engines:

3.1 Cold Start Procedure

1. Prime the Engine: Follow the manufacturer's guidelines for priming; avoid excessive priming to prevent flooding.
2. Throttle Position: Set the throttle to a low position (usually 1/4 open).
3. Engage Starter: Turn the ignition key or press the start button while monitoring engine instruments.

3.2 Hot Start Procedure

1. Throttle Adjustment: Set throttle to full power before cranking.
2. Mixture Control: Adjust mixture to idle cutoff while cranking.
3. Monitor Engine Performance: Be prepared to adjust throttle and mixture as the engine starts.

3.3 Flooded Engine Procedure

1. Throttle Position: Set throttle to full open.
2. Mixture Control: Set mixture to idle cutoff.
3. Crank Engine: Continue cranking until the engine starts; adjust throttle and mixture as needed.

4. Starting Procedures for Turbine Engines

Turbine engine starting involves more complex systems:

4.1 Pre-Start Checklist

- Ensure all safety protocols are followed as outlined in the Aircraft Maintenance Manual (AMM).
- Confirm that wheel chocks are in place.

4.2 Starting Sequence

1. Fuel System Check: Ensure fuel valves are open and check fuel quantity.
2. Electrical Systems Check: Verify battery voltage and electrical systems are operational.
3. Engage Starter: Follow the specific sequence for engaging the starter as per AMM guidelines.
4. Monitor Parameters: Continuously monitor engine parameters such as temperature, pressure, and RPM during start-up.

5. Post-Start Procedures

After starting the engine, several checks should be performed:

- Confirm that all gauges indicate normal operating conditions.
- Allow the engine to warm up at idle before taxiing.
- Check for any unusual noises or vibrations.

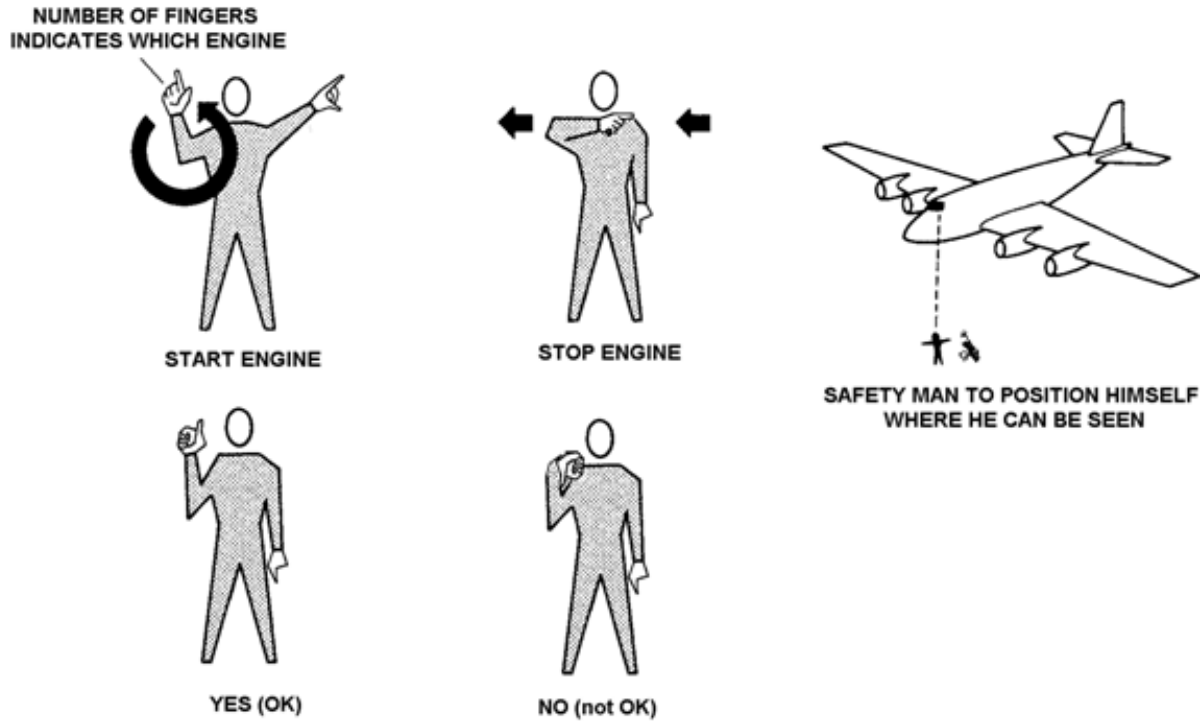
6. Emergency Procedures During Start-Up

In case of an emergency during engine start:

- Immediately shut down the engine if a fire occurs; use appropriate extinguishing methods.
- Follow emergency procedures outlined in the aircraft's POH (Pilot Operating Handbook).

Conclusion

Understanding proper engine starting procedures is essential for ensuring safety during aircraft operations. By adhering to these guidelines, maintenance personnel can minimize risks associated with engine starts.



Commonly Used Hand Signals for Ground Running.