HIGHLIGHTS

Revision	CH/SE/SU	Pageblock Title	Description of Change
60.0	Front	SERVICE BULLETIN LIST	Service Bulletin list has been updated to add SB13533R1.
60.0	Front	SERVICE BULLETIN LIST	Service Bulletin list has been updated to add SB13531.
60.0	Front	SERVICE BULLETIN LIST	Service Bulletin list has been updated to revise SB13525R0 to SB13525R1.
60.0	Front	SERVICE BULLETIN LIST	Service Bulletin list has been updated to add SB13527.
60.0	72.00.00 Engine	72-00-00 ENGINE, TURBOPROP - INSPECTION	The inspection procedure for specific operating environments has been added.

5. Inspection for Specific Operating Environments

A. General

Some inspection task intervals in Table 601, Periodic Inspection or other maintenance tasks (like engine wash) may be adjusted to account for a specific operating environment and are developed to improve engine reliability or to reduce operating cost.

For the purpose of adjusting the inspection intervals to the operating environment, three distinctive geographical regions are defined: sand & dust, polluted/sulfur-rich and salt-laden. Engines may be subjected to more than one of these environmental conditions simultaneously. The maintenance inspections contained in this section provide guidance to define the recommended tasks and intervals.

The sand/dust environment may cause heavy erosion to both the compressor and hot section components or obstruct the secondary air system, such as air-cooling passages of hot section components including vanes. Sand or dust can also accumulate within engine controls and accessories, which may lead to engine performance degradation or affect engine operation.

Operating in polluted or sulfur-rich environments can cause corrosion, oxidation, hot corrosion/erosion to the engine. Air pollution in adverse environments combined with chemical reactions of fuel and heat in the engine can result in severe damage to the engine's hot section, commonly referred to as sulfidation. Additionally, like the sand/dust environment, pollution contaminants can also lead to blockage of cooling holes or accumulate within engine controls and accessories, which may lead to engine performance degradation or affect engine operation.

Sea salt is one of the most globally abundant aerosols to which engines may be exposed during operation. The presence of salt haze, created by finely divided particles of sea salt in the air, usually derived from the evaporation of sea spray will find its way within the engine gas path, secondary air system and on external engine surfaces. The salt-laden environment will cause engine deterioration by corrosion and in the absence of preventive maintenance measures can lead to hot corrosion or sulfidation. Engine operation in salt laden environment may also affect engine controls and accessories, which may lead to engine performance degradation or affect engine operation.

Unprepared landing surfaces are typically surfaces comprised of gravel, turf, clay or hard packed soil mixtures. Seasonal temperature variation may influence the surface roughness and cause loss of compaction. Although not considered as a specific environment as described in this section, operators taking off and landing on unprepared surfaces should consider adapting their maintenance practices to those for a seasonal dust environment.

Additionally, operators should review and adjust (if required) their environmental maintenance tasks and intervals when an aircraft or engine changes its flight operations by considering prior and new operations.

P&WC may assist operators if required to review the specific operating environments and to provide maintenance recommendation.

B. Definitions

(1) Frequency of Operation in a Specific Environment

(a) The frequency of flight operation is defined as the total number of flights performed in a specific environment for a given period over the total number of flights of that same period within all environment types. For engines operating in a mix of environments, each environment frequency should be established.

(b) For the purpose of establishing the proper maintenance interval, the frequencies of flight operations in a specific environment are defined as follows:

- 80 to 100% - Continually
- 50 to 79% - Frequently
- 20 to 49% - Occasionally
- 0 to 19% - Rarely

(2) Specific Environments

(a) Sand/Dust Environments: For the purpose of determining targeted maintenance actions, the sand and dust environment is sub-classified into two zones (Ref. Fig. 601). Zone 1 represents a permanent arid environment and Zone 2 is an environment subject to dry seasons.

(b) Polluted/Sulfur-rich Environment: For the purpose of determining targeted maintenance actions in highly industrialized and populated regions, the annual average Air Quality Index (AQI) per the U.S Environmental Protection Agency (EPA) 2016 standard or equivalent is used as a reference. The environments presented over a 10 years average in Figure 602 are sub-classified into three zones: Zone 1: Moderate pollution (AQI>51); Zone 2: Severe pollution (AQI>101); Zone 3: Extreme pollution (AQI>151).

(c) Salt-laden Environment: Regions in the proximity of large bodies of salt water. For the purpose of determining targeted maintenance actions, these environments are sub-classified into three distinctive types of operations:

1 Coastal Operation - Operating within 27 Nautical Miles (50 Kilometers) of a coastline.

2 Island and Sea Surveillance/Maritime Low-level Flights - Operating above the sea at cruise altitudes below 10000 ft (3 km).

3 Sea Operation - Operating above the sea at cruise altitude greater than 10000 ft (3 km).

NOTE: Salt deposits or corrosion on various aircraft parts is further evidence that the engine is being operated in a salt-laden environment.