

**61ST CONFERENCE OF
DIRECTORS GENERAL OF CIVIL AVIATION
ASIA AND PACIFIC REGION**

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AGENDA ITEM 3: AVIATION SAFETY

**HARMONIZED REGIONAL REGULATORY & INDUSTRIAL
FRAMEWORK TO MITIGATE PERSISTENT GLOBAL AVIATION
MAINTENANCE SUPPLY CHAIN DISRUPTIONS**

Presented by the International Air Transport Association (IATA)

SUMMARY

Global aerospace maintenance supply chains face systemic structural bottlenecks causing aircraft groundings, surging airline costs and regional regulatory fragmentation. This DP Paper integrates IATA global industry challenges & four consensus priorities concluded at the June 2026 World Maintenance & Engineering Symposium (WMES 2026, Madrid), aligns with core ICAO SARPs & guidance documents on airworthiness, maintenance oversight and safety management, identifies cross-border regulatory gaps across APAC States, proposes harmonized regional minimum standards, cross-recognition mechanisms and multi-stakeholder cooperation frameworks, and requests the Conference to endorse binding regional action items to lift supply chain visibility, liberalize certified aftermarket parts & repair access, scale digital data sharing and harmonize MRO technician capacity building.

HARMONIZED REGIONAL REGULATORY & INDUSTRIAL FRAMEWORK TO MITIGATE PERSISTENT GLOBAL AVIATION MAINTENANCE SUPPLY CHAIN DISRUPTIONS

1. INTRODUCTION

1.1 Global aviation maintenance supply chains remain trapped in multi-year structural disruption, exacerbated by OEM production capacity constraints, engine durability defects, restricted aftermarket competition, fragmented cross-border traceability rules and a widening shortage of certified maintenance personnel. The inaugural WMES 2026 Madrid Summit consolidated global industry pain points and unified four cross-stakeholder consensus priorities to address systemic vulnerabilities.

1.2 For APAC, the world's fastest-growing air transport market with the largest volume of narrow-body and wide-body leased/ACMI fleets, inconsistent national oversight standards amplify operational disruption, drive unnecessary airline compliance costs and weaken regional airworthiness risk control.

1.3 This paper covers the full maintenance supply chain value chain: OEM design & production, spare parts distribution, third-party independent MRO, aircraft dismantling & recycled component reuse, cross-border parts pooling, digital traceability systems, and maintenance technician competency licensing.

2. DISCUSSION

2.1 Core Industry Challenges Quantified at IATA WMES 2026 Madrid

2.1.1 Aircraft & engine delivery backlog exceeding 18,000 airframes; over 5,300 replacement aircraft shortfall, forcing carriers to operate aged, higher-maintenance fleets with elevated fuel burn and safety risks;

2.1.2 Engine MRO bottlenecks grounding hundreds of narrow-body jets, extended shop visit turnaround times and scarce spare engine inventories;

2.1.3 OEM-imposed commercial limitations blocking access to approved alternative parts, independent repair data, tooling and service manuals, limiting third-party MRO capacity expansion;

2.1.4 Lack of standardized early-warning visibility systems: OEMs provide inconsistent, delayed notification of parts shortages and production delays, disabling airline long-term maintenance planning;

2.1.5 Fragmented cross-border traceability standards for new, surplus and recycled aircraft components, creating dual-audit burdens for cross-regional operators;

2.1.6 Global shortage of certified aircraft maintenance engineers, compounded by divergent national IP/DP training and recertification cycles requiring duplicate training for mobile cross-border MRO labor;

2.1.7 Current challenges faced in parts pooling mechanisms (IATP shared spare parts). resulting from supply chain issues currently limiting airlines to deploy parts pooling.

2.1.8 Development of an ecosystem for Used Serviceable Materials (USMs). IATA and AFRA ([Aircraft Fleet Recycling Association](#)) are progressing in their bilateral cooperation, and with an objective to further deploy IATA MRO SmartHub platform to promote suppliers accreditation and parts traceability, including potentially through Blockchain technology.

2.1.9 IATA's efforts to promote awareness of airlines and independent MROs about the existence of the Product Support frameworks by aircraft manufacturers (example: Airbus' Supplier Support Conditions - SSC / Boeing's Product Support Assurance Agreement - PSAA) which airlines can also delegate to their MROs in order to reduce costs and improve operations to address performance shortfalls and obtain remedies from the many equipment OEMs who are bound under SSC/PSAA obligations. As shown by IATA during the WMES June 2026 symposium in Madrid.

2.1.10 IATA's focus for a broader use by airlines of the new IATA MRO SmartHub open access program for airlines (as shown by IATA during the WMES June 2026 symposium in Madrid). This open program provides advocacy information to airlines supply chain and procurement teams, to reduce materials costs, increase visibility on serviceable inventories, and on regulatory approved alternative parts.

2.1.11 IATA's activities to encourage airlines, MROs and Lessors to increase the use of regulatory approved alternative (non-OEM) repair instructions (example: EASA Part 21 and FAA DER repair instructions) in order to challenge the technical limitations often commercially imposed by equipment OEMs in their aftermarket, and to reduce not only the amount of material scraps, but also reduce repair turnaround times and maintenance costs.

2.1.12 IATA's ongoing efforts to bring OEMs groups (engines and airframe OEMs) to adopt a similar complementing framework to their respective Product Support as per the public agreement currently in place between IATA and CFM, and whereby CFM has adopted best practices to open up the MRO aftermarket, even granting direct beneficiary rights to its competitors without the need for airlines to apply a delegation mechanism (unlike in the Airbus SSC / Boeing PSAA).

2.2 Four Unified Industry Consensus Pillars Agreed at IATA WMES 2026 Madrid are as below,

Pillar 1: End-to-End Supply Chain Visibility & OEM Early Warning Mechanisms

- Invite OEMs to deliver standardized advance notifications for production delays, component shortages and engine shop visit capacity constraints to airline operators;
- Establish regional shared visibility dashboards integrated through a broad participation of all airlines in the new open access IATA MRO SmartHub program to aggregate real-time global spare parts inventory and repair capacity data;
- Standardize cross-border parts ordering, tracking and traceability digital records aligned with IATA ONE Record.

Pillar 2: Liberalize the MRO Aftermarket Under ICAO and national Airworthiness Rules

- Remove non-technical, purely commercial OEM restrictions on access to approved alternative parts, independent repair instructions and drawings, service data and tooling;
- Implement mutual recognition of State-of-Design approved alternative component certifications across all APAC DGCA administrations;
- Harmonize oversight standards for recycled dismantled aircraft parts per Doc 9760, with unified traceability audit checklists for cross-border circulation of serviceable used components;
- Formalize regional acceptance of independent MRO repair approvals without duplicate national recertification for cross-border leased fleets and ACMI operations.

Pillar 3: Scale Digitalization, AI Predictive Maintenance & Cross-Airline Parts Pooling

- Encourage all APAC operators and AMOs to adopt cloud-based digital maintenance record systems with standardized API data exchange protocols;
- Support IATA–IATP cross-airline technical parts pooling as a formal supply chain resilience tool, harmonizing frameworks for shared inventory;
- Deploy AI-driven predictive maintenance analytics to reduce unplanned component removals and buffer stock requirements.

Pillar 4: Harmonized MRO Workforce Capacity Building & IP/DP Cross-Recognition

- Align national maintenance technician training syllabi to unified ICAO CBTA/EBT competency standards (Doc 9995);
- Establish APAC regional mutual recognition of Maintenance IP (Instructor Pilot / Maintenance Instructor) and DP (Designated Examiner) qualifications;
- Standardize annual DP calibration cycles and IP refresher training requirements to eliminate duplicate recertification costs for cross-border MRO personnel;
- Launch regional joint maintenance technician recruitment and training programs coordinated by ICAO APAC and IATA.

2.3 ICAO Regulatory Gaps & APAC Regional Divergence Requiring Harmonization

2.3.1 ICAO Annex 8 and Doc 9760 set minimum airworthiness standards for component acceptance, but lack binding regional implementation rules for cross-border alternative parts and recycled component circulation, leading to inconsistent national enforcement across APAC States.

2.3.2 Annex 1 and Doc 9995 establish IP/DP competency frameworks, yet APAC DGCA administrations apply widely varying flight/maintenance hour prerequisites, training curricula and annual calibration rules, impeding free movement of qualified maintenance instructors and examiners for regional MRO projects.

2.3.3 Annex 19 SMS requirements mandate supply chain risk management across all supplier tiers, but no unified regional audit checklist exists for multi-tier parts suppliers, resulting in uneven supply chain safety oversight.

2.3.4 No formal regional framework recognizes cross-airline IATP parts pooling arrangements, with many States imposing restrictive customs, liability and approval rules that negate pooling resilience benefits confirmed at WMES 2026.

2.4 Proposed Harmonized Regional Minimum Standards for States' Consideration, Aligned with WMES 2026 Consensus & ICAO SARP

2.4.1 Supply Chain Visibility & Digital Traceability Regional Baseline

- OEMs operating within their jurisdiction to implement standardized early-warning disclosure protocols for parts and engine production delays, consistent with IATA WMES 2026 guidance;
- Mandate full digital component traceability covering manufacturing, repair, pooling, dismantling and re-installation for all aircraft Class I and II critical components, aligned with Doc 9760 Chapter 10 acceptance control provisions.

2.4.2 Harmonized Certified Aftermarket Cross-Recognition Rules

- Mutually recognize alternative aircraft part design approvals issued by other Contracting States' State-of-Design authorities, provided such parts comply fully with ICAO Annex 8 airworthiness standards;

- Eliminate non-safety-based OEM commercial barriers limiting third-party MRO access to repair data, tooling and service manuals;
 - Adopt a unified APAC regional audit checklist for recycled aircraft dismantling parts, standardizing traceability records, damage inspection and airworthiness release documentation;
 - Cross-border MRO repair approvals issued by a State's approved AMO be accepted by all other APAC DGCA administrations for leased, ACMI and wet lease fleets without duplicate full recertification audits.
- 2.4.3 Regional Framework for Cross-Airline Parts Pooling (IATP Model)
- Establish harmonized regional liability, customs and airworthiness rules enabling airlines to participate in cross-border shared spare parts pools;
 - Issue simplified standardized approval documentation for airline technical pooling arrangements, removing administrative barriers identified during WMES 2026 Madrid workshops.
- 2.4.4 Harmonized Maintenance IP & DP Qualification Cross-Recognition
- Unify APAC minimum competency prerequisites for maintenance IP instructors and DP examiners based on Doc 9995 EBT/CBTA standards;
 - Implement automatic mutual recognition of valid IP and DP endorsements issued by any APAC DGCA;
 - Create a shared regional database of certified maintenance IPs and DPs accessible to all APAC regulatory authorities and MRO organizations.
- 2.5 Expected Safety, Operational & Economic Benefits of Regional Harmonization
- 2.5.1 Safety Enhancement: Unified traceability, aftermarket and workforce standards reduce unapproved non-certified component circulation and uneven maintenance competency evaluation risks across the region;
- 2.5.2 Operational Resilience: Improved supply chain visibility, cross-border parts pooling and liberalized third-party MRO access cut aircraft grounding events and engine shop visit backlogs;
- 2.5.3 Cost Reduction for Regional Carriers: Elimination of duplicate MRO audits, IP/DP recertification and redundant spare parts inventory;
- 2.5.4 Regulatory Efficiency: Shared regional digital platforms, unified audit checklists and mutual recognition mechanisms lower national DGCA surveillance administrative burdens;
- 2.5.5 Alignment with Global Industry Consensus: Full integration of the four WMES 2026 Madrid strategic priorities into binding regional regulatory policy, closing the gap between ICAO SARPs and real-world industry operational needs.

3. ACTION BY THE CONFERENCE

3.1 The Conference is invited to:

- a. note the severe systemic maintenance supply chain disruptions impacting APAC aviation operations, the unified four-pillar industry consensus reached at IATA WMES 2026 Madrid Summit, and relevant binding ICAO SARPs contained in Annex 1, Annex 6, Annex 8, Annex 19, Doc 9760 and Doc 9995; and

- b. bring the issue to the attention of ICAO and recommend that it creates a group to work on the assessment of such disruptions and seek solutions.

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