

Council for Trade in Services

SECOND REVIEW OF THE AIR TRANSPORT ANNEX

**EXAMPLES OF THE USE OF ELECTRONIC MEANS TO PROVIDE
AIRCRAFT REPAIR AND MAINTENANCE SERVICES**

Note by the Secretariat¹

1. At the 12 September 2006 meeting of the Council for Trade in Services devoted to the review mandated under paragraph 5 of the Air Transport Annex, the Secretariat was requested to prepare a note containing examples of the use of electronic means to provide aircraft repair and maintenance services.
2. This note lists a number of such examples drawn from the public websites of a sample of maintenance providers. Providers have been selected in order to offer the maximum number of facets of their activities. They are: two aircrafts manufacturers, Boeing and Airbus; two Original Equipment Manufacturers (OEM), one specialized in engines, General Electric Engines (GEE) and one specialized in avionics, Honeywell; one airline subsidiary, Lufthansa Technik; and one independent provider, SR Technics.
3. The examples given do not prejudice the classification of the activities described, nor their mode of delivery, nor their legal status as services or as a part of the "supply of a service" as defined by article XXVIII (b) of the GATS.²
4. The examples are presented in a chart with three columns. The first column gives the name of the provider and the activity, as defined by the provider itself; the second column contains a brief description of the activity in question; and the last column gives the precise reference of the example on the websites of the providers concerned. The descriptions are direct quotes from the providers' websites, as the Secretariat did not feel it had the technical capacity to re-phrase or summarise this highly specialised literature.

¹ This document has been prepared under the Secretariat's own responsibility and without prejudice to the positions of Members and to their rights and obligations under the WTO.

² Article XXVIII (b) of the GATS: "'Supply of a service" includes the production, distribution, marketing, sale and delivery of a service".

PROVIDERS AND ACTIVITIES	DESCRIPTION	REFERENCE
Boeing - "Airplane Health Management" service and "MyBoeingFleet" portal	<p>"Airplane Health Management (AHM) is a maintenance decision support capability provided via the MyBoeingFleet.com portal. Airplane Health Management uses real-time airplane data to provide enhanced fault forwarding, troubleshooting and historical fix information to reduce schedule interruptions and increase maintenance efficiency. It delivers valuable information when and where it's needed. Advances in data processing, transmission, and analysis makes this possible. AHM integrates the remote collection, monitoring, and analysis of airplane data to determine the status of an airplane's current and future serviceability. It converts the data into information that you can use to make the operational or fix-or-fly decisions."</p>	http://www.boeing.com/commercial/ams/mss/brochures/airplane_health.html
Airbus - "Airn@v", "Airman2000" and "AOLS" services	<p>"Airn@v covers the following: an airline documentation retrieval system (aircraft maintenance manual, illustrated parts catalogue, trouble shooting manual etc), an interactive trouble shooting tool in autonomous mode or in connection with Airman2000, a generator of requests for information (RFI)and requests for revision (RFR) a system providing extended dynamic update for Airbus Temporary Revisions, Technical FollowUp (TFU) and customer data, a generator of job cards and shopping list. It is integrated with the customer's portal Airbus Online Services (AOLS)".</p> <p>"Airman 2000 is an e-trouble shooting tool that provides real time aircraft technical follow up, preventive maintenance actions (trend monitoring concept) and analysed maintenance data available for engineering to optimise aircraft technical follow up processes."</p>	<p>http://www.content.airbusworld.com/SITES/Customer_services/html/acrobat/fast_31_p17_25_air_nav.pdf</p> <p>http://www.content.airbusworld.com/SITES/Customer_services/html/acrobat/fast_36_sbnc_p21_27_150.pdf</p>
Honeywell - "Aerospace E Source"	<ul style="list-style-type: none"> - Allows "to check on the order status of specific parts that have been sent for repair [...]" - Provides a "secure online point of entry for customers on unit status as well as access to Honeywell's interactive database for findings specific parts, repair centre location and product pricing" - Comprises a "return management function in order to "request permission to return a product for repair", and an e-catalog containing technical publications including manuals, bulletins, temporary revisions and letters." 	https://www-a.honeywell.com/esource/uws/Repairs.jsp
General Electric Engines - "Customer Services Standards"	<p>"GE provides critical overhaul documentation through digital communications. Customers will receive a Communications Package (Engine Receipt Confirmation within one day of receipt; Missing at Incoming Report within five days of engine induction), Shop Visit Findings Report (within one day of engine shipment), Final Records Package (Life Limited Parts Report, Service Bulletin Compliance, Off/On Log, Test Data and Fan Blade Mapping within one day of engine shipment), Initial Invoice (within three days of engine shipment) and Final Invoice (within 30 days of Initial Invoice)."</p>	http://www.geae.com/services/maintenance/overhaul/nosurprises.html
- "Used Serviceable Product"	<p>Contains a "point and click part tracking system."</p>	http://www.geae.com/services/material/usedserviceable/index.html

PROVIDERS AND ACTIVITIES	DESCRIPTION	REFERENCE
<p>General Electric Engines (cont)</p> <p>- "Diagnostics Service"</p>	<p>"Through a variety of tools including GE's FleetVue, Fleet Manager and Root Cause Analyzer, customers can view real time aircraft / engine status including faults. In addition, customers can view all engine alarms and performance plots and combine that with historical information to make decisions on alarm disposition. Disposition options include closing the alarm, updating the alarm with comments or putting engines on a watch list for follow-up or corrective actions. An enhanced plotting tool and root cause analyzer are available for further analysis. Finally, GE is also reviewing the data and providing customer notification reports of impending issues."</p> <p>"An optional service called "comprehensive diagnostics" provides in addition for "a range of customized engine health monitoring services such as trend monitoring & diagnostics, Regulatory reporting, engine exceedance & fault troubleshooting. The basic level of comprehensive service combines automated trending & analysis of your engine's health with daily monitoring by GE's Diagnostics team and periodic technical reviews of your monitored engine fleet. The customer may optionally add weekly or monthly reports to satisfy regulatory reporting requirements. For aircraft equipped with air-to-ground communication and engine exceedance reporting, GE offers the option of providing analysis and troubleshooting of real-time exceedance data. Another level of comprehensive service provides customers with automated fault reporting of engine & aircraft systems, real-time engine fault monitoring, 24 x 7 dedicated coverage, line troubleshooting support, daily "weekly trend" fault reports and links to dispatch of On Wing Support and parts distribution centers."</p>	<p>http://www.geae.com/services/information/diagnostics/index.html</p>
<p>Lufthansa Technik</p> <p>- "Aircraft Condition Monitoring Service"</p>	<p>"Data indicating the current status of expensive aircraft components such as engines is continuously recorded during operation and sent by data link to the ground. This real-time data stream is then evaluated in Lufthansa Technik's diagnostic centre at Frankfurt airport. Pre-defined limits on the measured parameters are set based on the experience of Lufthansa Technik engineering. An alerting system ensures that Lufthansa's maintenance personnel notices any change in any of the measured parameters which exceeds the predefined limits. In addition, the parameters are analyzed even below the pre-defined limits for negative trends, which indicate an upcoming engine failure."</p>	<p>http://www.lufthansa-technik.com/applications/portal/lhtportal/lhtportal.portal?requestednode=93&_pageLabel=Template5_6&_nfpb=true&webcacheURL=WF/Services---Offers/Maintenance-Services/Maintenance-Management-Service--MMS-/Additional-Engineering-Services/Additional-Engineering-Services.xml</p>
<p>- "Flight Data Recorder (FDR) Readout Services"</p>	<p>"Lufthansa Technik offers regular parameter checks as well as incident analyses. Regular parameter checks are a part of scheduled maintenance, where the authority demands a regular check of specific recorded parameters. As a customer of the Lufthansa Technik FDR services you do not get large data tables, but a quality report which certifies the mandatory or customized parameter check for plausibility. In addition, Lufthansa Technik offers FDR recordings analysis to support the customer in the identification of reasons for technical or operational problems. The FDR Analysis service is available every day around-the-clock, and covers a wide range of aircraft types."</p>	<p>http://www.lufthansa-technik.com/applications/portal/lhtportal/lhtportal.portal?requestednode=93&_pageLabel=Template5_6&_nfpb=true&webcacheURL=WF/Services---Offers/Maintenance-Services/Maintenance-Management-Service--MMS-/Additional-Engineering-Services/Additional-Engineering-Services.xml</p>

PROVIDERS AND ACTIVITIES	DESCRIPTION	REFERENCE
<p>Lufthansa Technik (cont)</p> <ul style="list-style-type: none"> - "Reliability online Information System (LORIS)" 	<p>"Lufthansa Technik Online Reliability Information System (LORIS) is the new instrument for in-depth data analysis. LORIS is web based and is accessible via our password protected Customer Lounge. It enables customers to view their reliability data online and to co-operate with our customer engineers from any location in the world. Numerous reporting and evaluation functions allow the users to effortlessly carry out reliability analyses over the internet. All documents are provided over secure web space, fully protected, for each individual customer."</p>	<p>http://www.lufthansa-technik.com/applications/portal/lhtportal/lhtportal.portal?requestednode=96&_pageLabel=Template5_6&_nfpb=true&webcacheURL=WF/Services---Offers/Maintenance-Services/Maintenance-Management-Service--MMS-/Reliability-Management/Online-Reliability-Information-System/MMS-Reliability-LORIS.xml</p>
<ul style="list-style-type: none"> - "Maintenance Control Center" 	<p>"The Maintenance Control Center provides technical support and trouble shooting assistance to main base and line station ground engineers, available 24 hours a day, 7 days a week. A team of technical specialists at Frankfurt Airport provides trouble shooting support for all systems and engines on all Airbus fleets and the Boeing B737/B747/ B777-Family. This includes support of maintenance staff in interpretation of technical manuals and prioritization of measure steps. Many years of experience and knowledge of best practices will help the operator to minimize the impact on aircraft operation and effective use of manpower and material. This support can also be extended to assist flight crews during flight and at non-maintenance stations. Flight crews will be provided with technical and operational recommendations, for example failure determination, required corrective actions and flight diversions."</p>	<p>http://www.lufthansa-technik.com/applications/portal/lhtportal/lhtportal.portal?_nfpb=true&_pageLabel=Template5_6&requestednode=167&webcacheURL=WF/Services---Offers/Maintenance-Services/Support-Services/Maintenance-Control-Center/WF_suse_maintenance_control_center.xml</p>
<ul style="list-style-type: none"> (e) "Planning and Control Service" 	<p>"Lufthansa Technik has developed and implemented generalized/ custom-made software, which is suitable to plan aircraft utilization, the completion of maintenance requirements, deadline control as well as the rapid dissemination of information, providing an overview of the processes."</p>	<p>http://www.lufthansa-technik.com/applications/portal/lhtportal/lhtportal.portal?requestednode=168&_pageLabel=Template5_6&_nfpb=true&webcacheURL=WF/Services---Offers/Maintenance-Services/Support-Services/Production-Planning-and--control/WF_suse_PPC_planning_and_control_services.xml</p>
<ul style="list-style-type: none"> - "Weight and Balance Service" 	<p>"Lufthansa Technik's Weight and Balance Loadsheet Software was developed especially for it allows independence from airports and ground infrastructure³ and avoids the use of manual loadsheets."</p>	<p>http://www.lufthansa-technik.com/applications/portal/lhtportal/lhtportal.portal?_nfpb=true&_pageLabel=ma_weightandbalance&requestednode=1601&node=1601&action=initial</p>

³ Airport charges are assessed on weight .

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Lufthansa Technik/ AirLiance - "Material Trading Service"	"Formed by United Airlines, Air Canada and Lufthansa Technik, AirLiance provides a wide range of aircraft parts procurement and inventory management services Customers can utilize advanced web-based tools to view part certifications and documentation or place and track orders from an extensive inventory."	http://www.lufthansa-technik.com/applications/portal/lhtportal/lhtportal.portal?_nfpb=true&_pageLabel=Template5_6&requestednode=375&webcacheURL=TS_M/Services---Offers/Supplementary-Services/Material-Trading/Material_Trading.xml
SR Technics - "Data Management Services"	"Data management [services consist in the] archiving of engine documentation, storage on micro-film and digital media, provision of conformance statements (phase-out activities) or history of Life Limited Parts (including back to birth history)."	http://www.srtechnics.com/cms/index.asp?TopicID=348
- "Integrated Airline Solution (IAS)/Fleet Technical Management (FTM) Services "	"IAS interconnects with customer operation through our Fleet Technical Management (FTM) activities. Our FTM team will measure and compare your technical operation performance with jointly-agreed target deliverables on a daily basis. Any trend deviation triggers proactive measures from the joint engineering team to implement corrective actions. The resulting improvement in performance is monitored and controlled, while this circle is continuously repeated."	http://www.srtechnics.com/cms/index.asp?TopicID=353
- "e>Customer Portal"	"Our unique SR Technics e>Customer portal is internet accessible and is based on our state-of-the-art SAP system, allowing easy access to customised real-time data and reports. This data includes the following as standard: reliability reports (aircraft and components), aircraft modification status, engine condition monitoring, flight hour and cycle reports and check interval and due dates. An internet-based user interface (read-write) is an integral part of the portal, feeding back data into the SR Technics SAP R3 system. SR Technics provides you as an operator with controlled online access to all required SAP R3 transactions through a web browser and Citrix applications, thus allowing you to fulfil your Post Holder Maintenance function and duties."	http://www.srtechnics.com/cms/index.asp?TopicID=513
- "Planning Disposition Service"	"SR Technics provides the overall planning (time frame and maintenance content), check scheduling and definition of work packages to be performed on a daily basis. Depending on the maintenance set-up, we delegate all required maintenance work to be done on the aircraft via our e>Customer portal to the customer line maintenance."	http://www.srtechnics.com/cms/index.asp?TopicID=377
- "Configuration Control Service"	"SR Technics processes the individual flight time and flight cycle data of the customer's aircraft and controls and reports on the aircraft configuration status. We also provide the necessary documents (Airworthiness Directives, Services Bulletins and component status), frequently on CD ROM. The same data is available and accessible to you through our dedicated e>Customer internet portal".	http://www.srtechnics.com/cms/index.asp?TopicID=382
- "Defect Investigation and Analysis Service"	"Failure analysis and investigation is always necessary following an aircraft incident or the repetitive occurrence of a failure.SR Technics' trouble shooting department has the know-how and capability to make remote recommendations to the customer's line maintenance engineers."	http://www.srtechnics.com/cms/index.asp?TopicID=391

PROVIDERS AND ACTIVITIES	DESCRIPTION	REFERENCE
SR Technics - "Engine Trend Monitoring Service"	"Engine trend monitoring includes automatic data processing & visualisation (24-hour data access for customers), review and recommendation of corrective actions watch lists and trends reports."	http://www.srtechnics.com/cms/index.asp?TopicID=344