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**Contract Maintenance:
The Repair Station's Role in Maintaining the Safety and
Strength of the U.S. Airline Industry**

**Testimony of Christian A. Klein,
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before the United States Senate Commerce Committee's
Aviation Subcommittee**

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Chairman Burns, Ranking Member Rockefeller, and members of the Subcommittee, thank you for inviting me to testify this morning about the work America's contract aviation maintenance companies are doing to ensure the safety of the traveling public while helping air carriers improve their bottom lines.

My name is Christian A. Klein and I am legislative counsel for the Aeronautical Repair Station Association (ARSA). ARSA is an international trade association with a distinguished 21-year record of educating and representing certificated aviation maintenance facilities before the U.S. Congress, the Federal Aviation Administration (FAA), the European Aviation Safety Agency (EASA), and other National Aviation Authorities (NAA).

ARSA's primary goal is to educate its members, other aviation industry participants, and government employees on regulatory compliance matters. We accomplish this through our monthly newsletter, *the hotline*, our annual Repair Symposium, and a wide range of training courses. ARSA also serves as a resource for lawmakers and policymakers to

ensure that aviation laws and regulations are promulgated, interpreted, and enforced in a sensible, objective, consistent, and fair manner.

ARSA's primary members are companies that hold repair station certificates issued by the FAA under Part 145 of the Federal Aviation Regulations (FARs). These certificates are our industry's "license to do business." They authorize repair stations to perform maintenance and alterations on civil aviation products, including aircraft, engines, and propellers, and on the component parts installed on these products. The repair stations that ARSA represents perform maintenance for airlines and general aviation owners and operators. According to the FAA, repair stations currently employ 212,188 people at 4,345 facilities in all 50 states (see Appendix A). Contract maintenance providers are an important part of the \$9 billion a year domestic air transportation support sector of the U.S. economy. The aviation maintenance industry's economic impact is felt nationwide.

ARSA commends the Subcommittee for holding this hearing. In recent years, the profile of the contract maintenance industry has increased dramatically. We welcome the opportunity to discuss the important role our members play in the aviation industry and the national economy.

The History of Contract Maintenance

Contract aviation maintenance is nothing new. Since the early twentieth century, our industry has consistently provided dependable, expert maintenance to the commercial and general aviation sectors.

Since enactment of the Civil Aeronautics Act of 1938, the federal government has authorized the use of repair stations to perform maintenance for airlines and general aviation owners and operators. Part 145 of the FARs, and its predecessor, Part 52 of the Civil Air Regulations (CARs), specifically addresses the standards under which repair stations must operate. The FARs ensure that certificated repair stations meet the same safety standards as airlines' in-house maintenance organizations. Although most of the recent media attention has focused on maintenance performed for air carriers, it is important to note that repair stations or other authorized persons perform all maintenance on general aviation aircraft. This is because general aviation operators, unlike air carriers, are not authorized to perform maintenance in their own right.

In recent years airlines have realized that they can increase their use of outside maintenance contractors to reduce costs while maintaining a high level of safety. Over the past decade, network air carriers have increased contract maintenance from 37 percent of their total maintenance expenses to 53 percent.¹ Contract maintenance also plays a critical role in supporting the approximately 200,000 general aviation aircraft

¹ Department of Transportation Office of Inspector General, Rep. No. AV-2005-062, *Safety Oversight of an Air Carrier Industry in Transition*, at 1 (June 3, 2005).

registered in the United States. Indeed, for decades repair stations have served as the primary source of maintenance for the general aviation sector.

The Role of Contract Maintenance in the U.S. Economy

The growing contract maintenance industry is a source of stable, good paying jobs for skilled workers and has absorbed employees laid off by struggling air carriers. In 1994, the Indianapolis Airport Authority (IAA) leased the Indianapolis Maintenance Center (IMC) to United Airlines, Inc. In 2003, after filing for Chapter 11 bankruptcy protection, United vacated the state-of-the-art maintenance facility. Less than a year later, AAR Aircraft Services, Inc. entered into a 10-year lease agreement with the IAA and later received a repair station certificate for that location from the FAA. AAR's investment allowed the IMC to reopen and gave hundreds of aviation maintenance workers the opportunity to work for a financially stable company.

Numerous industries throughout the national and global economy utilize the contract service model to decrease costs, increase quality and efficiency, and realize a greater return on investment. Companies that utilize contract services can avoid unnecessary capital and personnel expenditures, allowing them to more easily adapt to emerging market trends and economic conditions.

Maintenance is not the only routinely contracted service in the aerospace industry. Flight training, fueling services, and manufacturing of civil aviation products and parts are all performed by contractors. Aircraft manufacturers such as Boeing and Airbus

S.A.S. have thousands of first-tier suppliers, who, in turn, have thousands of lower-tier suppliers involved in the production of each model of aircraft. These highly specialized suppliers are uniquely qualified in various aspects of the design and manufacture of Boeing and Airbus products. Like airlines that oversee contract maintenance, aircraft manufacturers maintain strict oversight of their suppliers' production operations, since they retain regulatory responsibility for the final product. In addition, as with repair stations that have their own FAA certification, some suppliers to aircraft manufacturers obtain independent production approvals from the FAA, making them independently responsible under the regulations for the replacement parts they produce and sell. Not only are contractors used to manufacture thousands of aircraft, engines and propellers, but they play a major role in the production of smaller articles, such as hydraulics, avionics and pneumatic systems. Nor is contracting unique to the aviation industry; indeed, it is a hallmark of a free market economy that virtually all industries utilize.

Trends in Safety and Contract Maintenance

The increased use of contract maintenance by airlines has coincided with the safest period in the history of America's commercial aviation industry.

Between 1994 and 2004, the use of repair stations to perform maintenance for "legacy" airlines increased from one-third to over half of all airline maintenance.² During that same period, the worldwide fatal accident rate declined.³ Most notably, in the past five

² Department of Transportation Office of Inspector General, Rep. No. AV-2005-062, *Safety Oversight of an Air Carrier Industry in Transition*, at 1 (June 3, 2005).

³ Harro Ranter, The Aviation Safety Network, *Airliner Accident Statistics 2004: Statistical summary of fatal multi-engine airliner accidents in 2004*, at 7 (January 1, 2005).

years, the number of fatal airline passenger accidents has markedly decreased, from 45 in 1999 to 26 in 2004.⁴ The fatal accident rate in 2004, 26, was far below the annual average of 48.8 for the three previous decades.⁵ In addition, 2003 and 2004 had the lowest accident rates of any year since 1945.⁶

While we recognize that “after” does not always mean “because of”, the foregoing trends suggest that the highly-qualified repair stations servicing commercial aviation aircraft are not detracting from aviation safety.

The Who and What of Contract Maintenance

To operate in the civil aviation maintenance industry, certificated repair stations must demonstrate to the FAA, or other NAAs if applicable, that they possess the housing, facilities, equipment, personnel, technical data, and quality control systems necessary to perform maintenance in an airworthy manner. Based upon satisfactory showings in these areas, a repair station is rated to perform certain types of maintenance. Not all repair stations look alike and their capabilities vary significantly. Some repair stations provide line maintenance – the routine, day-to-day work necessary to keep an airline’s fleet operating safely. Some perform substantial maintenance, which includes more comprehensive inspection and repairs on airframes and overhauls of aircraft engines. Some repair stations offer specialized services for their customers such as welding, heat treating, and coating on a variety of aircraft parts. However, the vast majority of repair stations perform maintenance on components. Component maintenance usually

⁴ *Id.* at 13.

⁵ *Id.* at 7.

⁶ *Id.*

occurs off the aircraft, and even away from an airport, in industrial parks and other facilities that one might not consider when thinking about aviation maintenance.

Certificated repair stations include both manufacturers of civil aviation articles who service their own equipment and independent organizations with the technical, engineering and management capabilities necessary to thrive in an increasingly complex aviation industry. The skills and technology required to maintain civil aviation products often call for an increased level of sophistication. To meet this demand, contract maintenance companies have developed highly-specialized facilities. Repair stations, like medical specialists, often seek to strengthen their core competencies by specializing in a particular line or type of product. This allows them to develop a high level of proficiency in performing certain repairs.

Cost Savings and Quality

Beyond the value of specialized expertise, repair stations have consistently offered cost-savings to their airline and general aviation customers. The ability to perform high quality, reliable work in a timely manner and at a lower cost has allowed repair stations to thrive, even in an economic climate that threatens other sectors of the aviation industry.

Competitive bidding in contract maintenance requires repair stations to carefully control their costs. To successfully compete for and retain business, repair stations must find efficiencies and savings that are often unavailable to in-house maintenance

organizations. Without contract maintenance, an airline would have to invest capital in equipment and personnel for tasks it may not undertake as frequently or efficiently as a repair station specializing in that particular type of work.

In addition, many large airlines have found it difficult to control their labor costs. Repair stations, particularly small businesses, do not face the same demands on their resources. While employees at repair stations are not always compensated at the same levels as their unionized airline colleagues, contract maintenance workers enjoy other benefits, including the prospect of stable employment in a growing industry and the ability to work for a small, family-owned company. Their decision to accept lower pay in some cases in no way reflects the value of their contributions or the quality of their work. Indeed, the technicians at repair stations possess the training and skills necessary to ensure the highest level of safety and regulatory compliance.

Oversight

Government regulators play a critical role in ensuring the safety of the nation's commercial and general aviation systems. However, ARSA is concerned that the FAA does not have adequate budget resources to fulfill all of its oversight obligations. The FAA expects to lose about 300 safety inspectors by the end of 2005. The House of Representative's fiscal year 2006 budget for the FAA provides \$8 million in funding for hiring and training an additional 97 inspectors, while the Senate's version does not provide any specific funding for additional inspectors.⁷ ARSA is on record as supporting congressional efforts to increase funding for FAA operations to ensure that the agency

⁷ See, H. Rep. 109-153; S. Rep. 109-109 (2005).

has adequate resources to oversee the industry and to respond in a timely manner to requests for new ratings, new certificates, etc.

In reports published in 2003 and 2005, the Office of the Inspector General of the Department of Transportation (DOT IG) expressed concerns about the FAA's oversight of the contract maintenance industry and stated that the agency's oversight is currently insufficient for the amount of work independent repair stations perform for airlines.⁸ The FAA has responded to these findings by introducing a risk-based inspection program that identifies those repair stations doing the most work for airlines and monitoring their operations more closely. ARSA supports efforts to better utilize FAA resources to ensure the continued quality of contract maintenance and to demonstrate to policymakers and the public that our aviation system remains safe.

We also note that despite the IG's observations, repair stations are subject to a tremendous amount of oversight by regulators and others. Between November 7 and 11, 2005, ARSA conducted an on-line member survey to gather data about the number of audits our members receive on an annual basis (see Appendix C). Among the survey's findings:

- The average domestic repair station is audited more than three times per year by government regulators.

⁸ See, Department of Transportation Office of Inspector General, Rep. No. AV-2003-047, *Review of Air Carriers' Use of Aircraft Repair Stations*, at 1 (July 8, 2003); Department of Transportation Office of Inspector General, Rep. No. AV-2005-062, *Safety Oversight of an Air Carrier Industry in Transition*, at 1 (June 3, 2005).

- The average repair station is audited more than seven times per year by customers. These audits include the continuous analysis and surveillance programs air carriers are required to undertake by regulation through the Coordinating Agency for Supplier Evaluation (CASE) and other customer programs.
- Repair stations themselves perform an average of 18 internal audits annually.
- On average, domestic repair stations undergo a total of more than 30 audits each year, while foreign repair stations with FAA certificates undergo an average of more than 74 audits.

According to the DOT IG, the FAA needs to readjust its oversight priorities. In the meantime, however, the ARSA survey and other evidence suggest that repair stations, the aviation industry, and regulators collectively provide a high-level of oversight of contract maintenance to ensure continued quality and safety.

Finally, although the FAA's role is critical, lawmakers should recognize that safety does not begin and end with federal regulators. The agency and its employees are not omniscient. Aviation safety inspectors will never be able to oversee each mechanic at every facility all the time. Thus, safety is not just the responsibility of the FAA, but of every maintenance employee at every certificated repair station. It is the FAA's role to ensure that repair stations have the procedures in place to ensure the quality of the

work performed and to ensure that procedures are followed. Indeed, FAA regulations treat repair stations as extensions of an air carrier's maintenance organization. This means that the maintenance provider must perform the work in accordance with the carrier's maintenance program and the applicable portions of its manual. It also requires the airlines to provide a level of oversight to make certain that these standards are met.

Contract Maintenance and the International Scene

Unlike the United States, in which the FAA permits and expects airlines to perform maintenance on their fleets to complement their operations, European regulators view operations and maintenance as two distinct functions. EASA requires that an airline obtain a separate repair station certificate before it can perform maintenance on its fleet or the aircraft of other carriers.

In 1994, the air carrier Lufthansa converted its maintenance division into an independent stock corporation, Lufthansa Technik AG. Lufthansa Technik performs the maintenance for Lufthansa, and also manages the airline's maintenance program. As European regulators see it, an airline's core competency is operating aircraft. This demonstrates that in-house maintenance is not necessarily a logical or necessary outgrowth of airline operations.

When considering the international aspects of contract maintenance, critics often cite "outsourcing" to foreign repair stations as a trend that damages both the safety and economic health of our national aviation system. However, an objective examination of

the practice reveals that the use of FAA-certificated foreign repair stations is a necessary component of the international aviation system and that the U.S. is a world leader when it comes to providing maintenance services to airlines.

The Chicago Convention of 1944 and International Civil Aviation Organization (ICAO) standards require that the State of Registry (i.e. the country in which an aircraft is registered) oversee the maintenance performed on an aircraft and related components, regardless of where the maintenance is performed.⁹ Consequently, a U.S. registered aircraft requiring maintenance while outside of the U.S. must have that work performed by an FAA-certificated maintenance provider. For this reason, FAA-certificated foreign repair stations exist. Similarly, when an aircraft of foreign registry requires maintenance while in the U.S., only a repair station certificated by the relevant NAA may perform the work. For example, only an EASA-certificated repair station may perform maintenance on an aircraft of French registry within the U.S.

This legal regime has proven beneficial to American repair stations. Currently, there are 677 FAA-certificated repair stations outside the U.S. (see Appendix B). At the same time, there are approximately 1,275 EASA-certificated repair stations, and numerous other NAA-certificated repair stations inside our borders. Our aviation maintenance industry is highly-regarded worldwide. As a result, the U.S. enjoys a favorable balance of trade in the market for these services, a fact that has benefited repair station employees, and the towns and states in which these maintenance facilities are located.

⁹ See, ICAO Annex 8, ch. 4 § 4.2.1(b).

Foreign repair stations are not an economic threat for U.S. companies, nor does their use threaten aviation safety. These entities generally must meet the same or equivalent safety standards as domestic facilities. Unlike their domestic counterparts, however, foreign repair stations must renew their certificate with the FAA annually or, at the discretion of the FAA, biannually, following a safety inspection. This ensures that the FAA evaluates the housing, facilities, equipment, personnel, and data of each repair station located outside the U.S. at least once every two years. We remind the subcommittee of the findings of the recent ARSA survey referenced above, viz., that the average FAA-certificated foreign repair station is audited more than 74 times each year by government regulators, customers, other third-parties, and the repair station's own personnel, suggesting a high-level of combined oversight.

It is for the foregoing reasons that ARSA has consistently opposed legislative efforts to restrict the use of foreign repair stations by U.S. airlines. For example, we understand that the Commerce, Science, and Transportation Committee is considering legislation that would reduce the amount of time the FAA and Transportation Security Administration (TSA) have to develop and verify compliance with the new repair security rules mandated by Vision 100.¹⁰ Language in the law prohibits the FAA from issuing new foreign repair station certificates if all current foreign certificate holders have not received security audits within a set period of time. ARSA is concerned that this provision will disrupt the availability of maintenance for U.S. airlines operating internationally.

¹⁰ S. 2052, 109th Cong. § 205 (2005).

Conclusion

Over the past decade, airline use of contract maintenance has steadily increased. During that same period, the world aviation system has experienced unprecedented safety. Repair stations play a large role in this trend through the use of highly-qualified and trained employees, state of the art facilities, and a commitment to providing high quality maintenance services to airline customers.

Congress can help maintain these positive trends by providing the FAA with adequate resources to oversee the repair station industry, encouraging continued close oversight by airline customers, and ensuring that legislation and regulations are based on objective safety factors rather than some other agenda.

Appendix A

FAA Repair Stations by State

State	Count	Employees
AK	54	475
AL	61	5,265
AR	42	3,362
AZ	164	7,690
CA	712	31,932
CO	73	1,127
CT	107	7,817
DC	1	7
DE	6	661
FL	516	15,935
GA	110	14,873
GU	1	5
HI	13	212
IA	38	2,601
ID	30	325
IL	97	2,977
IN	73	3,019
KS	104	6,671
KY	36	491
LA	44	1,929
MA	59	2,109
MD	29	769
ME	13	729
MI	126	4,344
MN	63	17,623
MO	54	3,690
MS	23	933
MT	22	244
NC	66	3,551
ND	11	78
NE	13	1,221
NH	25	595
NJ	71	2,463
NM	22	668
NV	34	745
NY	136	4,763
OH	148	4,678
OK	150	9,471
OR	45	1,274
PA	105	2,265
PR	17	140
RI	10	392
SC	30	2,554
SD	15	73
TN	52	1,745
TX	448	24,696
UT	31	457
VA	44	1,705
VI	1	1
VT	11	167
WA	124	7,676
WI	43	1,445
WV	13	1,472
WY	9	78
Total	4,345	212,188

Based on FAA Air Agency Data Dated: November 13, 2005

Appendix B FAA Repair Stations by Country

Country	Count	Employees
AC	1	58
AE	3	2,673
AR	6	1,615
AS	15	6,624
AU	1	1,150
BA	1	4
BE	11	4,521
BL	1	207
BR	15	5,823
CH	20	13,585
CI	3	503
CO	4	1,278
CS	2	477
DA	3	1,123
EG	1	3,500
EI	12	3,579
ES	1	1,050
ET	1	2,230
EZ	2	1,295
FI	1	1,880
FJ	1	26
FR	104	33,194
GM	52	31,640
GR	1	898
GT	2	80
HK	8	5,047
HU	2	394
ID	2	2,813
IN	2	818
IS	12	5,526
IT	17	7,189
JA	23	19,776
JO	2	685
KE	1	5
KS	6	5,574
LU	1	322
MO	2	1,231
MT	1	42
MX	19	4,515
MY	9	4,087
NL	21	7,257
NO	5	1,503
NZ	5	2,841
PE	3	437
PM	1	392
PO	2	2,182
QA	1	30
RO	2	1,062
RP	8	1,680
RS	1	245
SA	5	6,353
SF	5	3,982
SN	45	12,950
SP	5	4,314
SW	7	2,128
SZ	9	4,216
TD	1	30
TH	6	5,554
TU	1	2,555
TW	6	4,537
UK	163	22,574
UP	1	91
VE	3	247
Total	677	264,197

Appendix C
ARSA Repair Station Audit Surveillance Survey Results

Domestic Repair Station Annual Audits

	Responses	Internal	Regulatory	Customer	3rd Party	Total
Total	183	3,301	663	1,361	235	5,560
Average		18.0	3.6	7.4	1.3	30.4

Foreign Repair Station Annual Audits

	Responses	Internal	Regulatory	Customer	3rd Party	Total
Total	27	1,439	219	311	48	2,017
Average		53.3	8.1	11.5	1.8	74.7

Total Repair Station Annual Audits

	Responses	Internal	Authority	Customer	3rd Party	Total
Grand Total	210	4,740	882	1,672	283	7,577
Average		22.6	4.2	8.0	1.3	36.1