ICAO Universal Safety Oversight Audit Programme

SUMMARY REPORT ON THE SAFETY OVERSIGHT AUDIT FOLLOW-UP OF THE SWEDISH CIVIL AVIATION ADMINISTRATION

(Norrkoping, 10 to 12 March 2003)

International Civil Aviation Organization
1. INTRODUCTION

1.1 Background

1.1.1 The Luftfartsverket (LFV), the Swedish Civil Aviation Administration, was audited from 14 to 25 August 2000 by an ICAO safety oversight audit team in accordance with the Memorandum of Understanding (MOU) agreed to on 5 May 2000 between Sweden and ICAO. The audit was carried out pursuant to Assembly Resolution A32-11, with the objective of ascertaining the safety oversight capability of the LFV of Sweden and to ensure that it was in conformity with ICAO Standards and Recommended Practices (SARPs), as contained in Annexes 1, 6 and 8 to the Convention on International Civil Aviation (Chicago Convention) and related provisions in other Annexes, guidance material and relevant safety-related practices in general use in the aviation industry.

1.1.2 The audit also included the Skandinaviske Tilsynskontor (STK), the Scandinavian Flight Safety Survey and Analysis Office, established by Denmark, Norway and Sweden for the common safety oversight tasks pertaining to the Scandinavian Airline System (SAS).

1.1.3 On 31 October 2000, Sweden submitted a corrective action plan addressing all the findings and recommendations contained in the audit interim report and, on 22 December 2000, submitted an amended action plan relating to personnel licensing and training recommendations. The action plan and comments provided were reviewed by the Safety Oversight Audit (SOA) Section and found to be satisfactory, and they were taken into consideration in the preparation of the final and summary reports. The summary report was distributed to all Contracting States by State letter AN 19/1-01/63 in June 2001.

1.2 Objectives and activities of the audit follow-up mission

The audit follow-up mission was conducted in accordance with Article 18 of the MOU and the ICAO Safety Oversight Audit Manual (Doc 9735). The objective of this mission was to validate the implementation of the corrective action plan and to ascertain the status of the progress made, which enables ICAO to update the information contained in the audit findings and differences database (AFDD) and also to inform other Contracting States on the status of the safety oversight system of Sweden through a non-confidential summary report. It is important to appreciate in this respect that audit follow-up missions are not audits and are not designed to evaluate all aspects of a State’s aviation framework or safety oversight system.
2. CIVIL AVIATION ACTIVITIES IN SWEDEN

At the time of the audit follow-up mission, civil aviation activities in Sweden included:

a) number of technical staff employed by the organization at Headquarters 47
b) number of regional offices 1
c) number of technical staff employed at regional offices 28
d) number of active pilot licences 12 068
e) number of active flight crew licences other than pilot licences (flight engineer and flight navigator) 19
f) number of aviation training establishments 66
g) number of active licences other than flight crew licences 2 838
h) number of commercial air transport operators 83
i) number of air operator certificates (AOCs) issued 50
j) number of aircraft operations inspectors 13
k) number of aircraft registered in Sweden 2 053
l) number of currently valid certificates of airworthiness issued 1 455
m) number of approved maintenance organizations (AMOs) 59
n) number of non-approved aircraft maintenance organizations 0
o) number of design organizations 5
p) number of aircraft manufacturing organizations 1
q) number of aircraft parts or equipment manufacturing organizations 11
r) number of aircraft type certificates issued 6
s) number of type certificates other than aircraft issued 0
t) number of aircraft airworthiness inspectors 26

3. EXECUTIVE SUMMARY

3.1 With the continuous introduction of the Joint Aviation Requirements (JAR) technical provisions, Sweden has already amended relevant regulations, procedures and guidelines related to personnel
licensing, aircraft operations and continued airworthiness, and the Aviation Safety Authority (ASA) has established a procedure for the assessment and implementation of ICAO provisions and the notification of the existing differences to ICAO. The ASA Director has strengthened the existing enforcement system and provisions by empowering aviation safety inspectors, providing them with additional support to carry out their inspections and with appropriate credentials, which allow them to have unlimited access to airports, aircraft and maintenance organizations. However, the existing provisions of the Swedish Aviation Act still do not specify the unlimited access to all facilities to be inspected, and a draft amendment to the Aviation Act extending the access to all operators’ facilities and airports has been proposed to the government to be submitted for adoption by Parliament. Furthermore, a draft amendment to the Aviation Act allowing the appropriate implementation of Article 83 bis of the Chicago Convention, as well as the related transfer and acceptance of State of Registry’s tasks and functions, has also been submitted into the adoption process, but it has not been enacted yet.

3.2 The ASA has complied with all the recommendations made during the audit relating to the civil aviation organization system. The ASA has developed comprehensive process documentation which forms part of the ASA Operations Manual (VHB). This document compliments the Joint Aviation Authorities (JAA) guidance material and includes several checklists to be followed by inspectors when performing their various tasks. Coordination of activities between the areas of personnel licensing, operations of aircraft and airworthiness is ensured throughout the process-oriented procedures. Furthermore, the ASA has adopted a training policy which describes competency work and profiles for all inspectors. A standardized inspector training programme has been established by the Nordic Inspector Training Committee, which selects training courses for inspectors within the five Nordic States, and this common procedure is being followed by the ASA.

3.3 The ASA has established a system for the certification and inspection of aviation training centres, the supervision and control of flight and practical test delivery, as well as procedures for the supervision and control of designated flight test examiners, in addition to those already implemented since the introduction of the Joint Aviation Requirements-Flight Crew Licensing (JAR-FCL) 1. The ASA has appointed a total of thirty-nine senior examiners who are, in addition to ASA inspectors, evaluating the quality and the standardization of training courses, practical tests and examinations, and also monitoring the delivery of flight and practical tests performed by the designated examiners, which ensure consistent and uniform implementation of the Swedish standards by the designated examiners. Comprehensive procedures have been developed, and routines for assignment, authorization, execution and records of supervision are incorporated in the VHB. Furthermore, routine standardization meetings involving ASA inspectors, senior examiners and designated examiners are held by the ASA to ensure the uniform application of guidance material. The licensing functions, including the designation of examiners and their monitoring, are part of the non-delegated tasks to the STK and are carried out by each State separately with a coordination system concerning the SAS and SAS Commuter activities.

3.4 The ASA has reorganized the system for the certification and surveillance of air operators and flight crew training activities and has considerably improved its system for the continued surveillance of AOC holders since the ICAO audit in August 2000. The ASA has recruited additional inspectors and established comprehensive and well-documented processes, as well as detailed procedures including all tasks and operations inspectors activities. The Surveillance Section, which is located 15 km south of Stockholm Arlanda Airport, is responsible for the surveillance of the Swedish AOC holders with respect to all aspects of training, aircraft operations, maintenance and airworthiness. It has been adequately staffed with qualified
flight operations inspectors whose technical competency presently covers the scope of aircraft type rating and
type of operations of Swedish AOC holders. The ASA, in addition to its previously used system mainly based
on an extensive use of the quality system of the operator, is now carrying out additional scheduled and
random inspections planned on an annual established schedule. The ASA has also established adequate
system and procedures for the approval and surveillance of leasing arrangements concerning Swedish aircraft
owners and AOC holders.

3.5 Progress in the field of airworthiness has been significant since the ICAO audit. The ASA
has expanded its current surveillance programme to include all aspects of airworthiness, such as the quality
control system of design and production organizations, flight test activities, subcontracted work and various
elements of operators maintenance systems and AMOs. Although the STK has established an adequate
periodic audit programme, there continues to be a vacancy of a maintenance inspector position which limits
the complete execution of the scheduled inspections. Minimum qualification requirements for all personnel
have been formalized as part of a new training policy. The ASA has sent a letter to all States of Registry for
aircraft designed in Sweden to highlight the importance of the reporting requirements of ICAO Annex 8.
Furthermore, the airworthiness technical library has been enhanced throughout various sources to provide
the documents necessary for the airworthiness inspectors, and airworthiness directives (ADs) are readily
available to the staff. Due to the future transfer of responsibilities to the European Aviation Safety Agency
(EASA), JAR-21 has not been fully adopted. Criteria for flight test personnel and procedures for the approval
of modifications and repairs do not provide guidance in accordance with ICAO Doc 9760.

3.6 Denmark, Norway and Sweden have significantly improved the capability of their joint or
combined system STK, established since 1951, as well as the safety oversight functions and tasks concerning
their joint operator SAS, SAS Commuter and SAS Flight Academy. The authority and related responsibility
to issue licences, certificate approvals and variations within the Scandinavian system remains an exclusive
domain of each State, and only specific tasks are delegated to the STK. The three Scandinavian States have
reviewed the assignment of the STK to give more flexibility to its Director. The organizational structure of
the STK has been reviewed by the ICAO audit follow-up team, and a significant improvement of the
surveillance system has been achieved including the recruitment of additional flight operations inspectors and
the establishment of well-documented processes. The delegated activities have also been reviewed as well
as the reporting to the OPS-Utvalget meetings, the special committee where the three Directors of the Civil
Aviation Authorities are either participating or represented. Furthermore, a well-established system allows
for adequate and strict coordination between the three States for the implementation of ICAO SARPs related
to the area of cooperation, particularly in areas delegated to the STK. Personnel licensing matters, including
the designation of examiners and their monitoring, are carried out by each State separately, and the
coordination system concerning SAS, SAS Commuter and SAS Flight Academy activities has been improved.
Standardization meetings between P-Utvalget (Scandinavian Licensing Committee), STK and SAS Flight
Academy are carried out frequently. First issuance of certificates of airworthiness are carried out by the
respective aircraft’s State of Registry, after which the STK issues all renewals, and surveillance tasks have
been delegated and are adequately being carried out by the STK. The certification and surveillance tasks
related to SAS and SAS Commuter are delegated to the STK. However, the AOC is issued under the signature
of the three Directors of the Civil Aviation Authorities, which allows for an additional oversight of the
delegated tasks.

4. RESULTS OF THE AUDIT FOLLOW-UP MISSION
4.1 Primary aviation legislation and civil aviation regulations

4.1.1 a) Action proposed by State. With respect to the recommendation that the ASD review the civil aviation regulations, in parallel with the introduction of JAR provisions, to ensure compliance with the Chicago Convention and its Annexes, the LFV indicated that a comprehensive review of the *Bestämmelser för Civil Luftfart* (BCL), its national civil aviation regulations, would be made in four steps which would also include the notification of differences to ICAO, if any (expected to be forwarded to ICAO by the end of 2000). The new *Aviation Act* is expected to be enforced in January 2003. The comprehensive review process is expected to be completed two and a half years later.

b) Validation of action proposed. With the continuous introduction of JAR technical provisions, Sweden has already amended relevant regulations, procedures and guidelines related to personnel licensing, aircraft operations and continued airworthiness. The ASA has reviewed its rule-making processes and procedures, which now allow for a formal processing of ICAO State letters according to an established procedure. The ASA has also carried out a comprehensive assessment and revision of its regulatory framework to verify its compliance with ICAO provisions, and existing differences have been notified to ICAO and published in the Swedish Aeronautical Information Publication (AIP). Furthermore, the ASA has undertaken an initiative with other JAA Member States to appropriately assess JAR provisions and coordinate actions to be taken for a timely implementation of ICAO SARPs or the notification to ICAO of the existing differences. Several differences are expected to be removed through a few amendments to the JARs, and the ASA has already implemented some ICAO Standards which are not yet implemented by the JAA. However, the revision of the *Aviation Act* is still pending. The ICAO recommendation remains open.

4.1.2 a) Action proposed by State. With respect to the recommendation that the ASD Director empower aviation inspectors with the level of authority required for the execution of essential duties in the oversight of aviation safety and amend the *Aviation Act* and civil aviation regulations to clearly define the authority and functions of the inspectors, the LFV indicated that its legal office would assist the Ministry of Industry, Employment and Communications in an effort to amend the *Aviation Act* and other relevant regulations to include the ICAO recommendations. Furthermore, it would review and include in the relevant handbook material the power mandated to individual inspectors by the end of 2001. The LFV also indicated that it had no practical problem with the current practice and requested access had never been refused.

b) Validation of action proposed. The ASA Director has reinforced the existing provisions empowering aviation safety inspectors and providing them with additional support to carry out their inspections. The ASA inspectors have been issued credentials which allow them to have unrestricted access to airports, aircraft, operators' facilities and maintenance organizations. Furthermore, the power and
authority of the individual inspectors is now clearly included in the VHB, Sections L-1-2.11, “Inspectors identification/empowerment card”, and L-1-2.12 “Inspectors rights and obligations”. However, the existing provisions in the Aviation Act have not been amended and do not specify the unlimited access to operators’ facilities and maintenance organizations. A draft amendment extending the access to the operators’ facilities and maintenance organizations, as well as any facility under ASA jurisdiction, has been submitted to the government for adoption by Parliament, and the new Aviation Act is expected to pass by the end of year 2004. The LFV expects to comply with the ICAO recommendation by the end of 2004. The ICAO recommendation remains open.

4.1.3 a) **Action proposed by State.** With respect to the recommendation that the Government amend its legislation to recognize the transfer of responsibilities pertaining to Articles 12, 30, 31 and 32(a) of the Chicago Convention on the basis of agreements entered in accordance with Article 83 bis, the LFV indicated that a review of the legal basis would be done and the relevant actions would be suggested in connection with the proposal for the new Aviation Act by the end of 2001.

b) **Validation of action proposed.** A draft amendment to the Aviation Act has been proposed to the government to be submitted for adoption by Parliament concerning Article 83 bis of the Chicago Convention, which enactment will implement the legislative provisions whereby the ASA will be allowed to enter into arrangements, under Article 83 bis, with other parties and transfer or accept related State of Registry tasks and functions accordingly. The ASA expects the amendment of the Aviation Act to pass by the end of December 2004. The ICAO recommendation remains open.

4.2 **Organization of civil aviation**

4.2.1 a) **Action proposed by State.** With respect to the recommendation that the ASD Director develop and implement comprehensive, written procedures and checklists to be used by technical staff in the performance of tasks related to certification and supervision of operators, maintenance organizations and licensing (approvals, audits and surveillance), the LFV indicated that existing written procedures and checklists would be expanded by the end of 2001 to provide technical staff expanded and more detailed guidance.

b) **Validation of action proposed.** As part of the process-oriented reorganization of the ASA, comprehensive and detailed process documents have been developed. These documents provide guidance to the inspectors in the form of process flow charts and checklists for the various certification and inspection tasks performed within the ASA. The VHB is accessible to ASA technical staff via an internal data server. The ICAO recommendation has been complied with.

4.2.2 a) **Action proposed by State.** With respect to the recommendation that the ASD Director develop and implement a comprehensive training policy, establish
structured initial and recurrent training programmes for its inspectorate staff, and maintain training records in the personal files of inspectors, the LFV indicated that it had established the function of training coordinator and would develop competency profiles and a training policy by January 2001. It would also develop a general training programme and technical speciality by April 2001 and catch-up activities for present staff by July 2001. The LFV further indicated that the training programmes would be implemented assuming that resources were made available as a result of the complete review of the ASD which was expected to be completed by March 2001.

b) **Validation of action proposed.** A new human resources function, separated from other functions, has been established on 1 July 2002, and a model for an organized competency work has been developed. An individual development of training programme for each employee has been implemented in a computerized tool named “IntraCAT”. Competency profiles for airworthiness, operations and personnel licensing inspectors are established in separate documents as well as in detailed descriptions of tasks in the tool “IntraCAT”. A training policy describing ASA competency work has been adopted by the LFV and included in the ASA VHB. A general training programme has been developed for all staff. Furthermore, specialized training programmes for inspectors are being developed, including initial, technical, enforcement and recurrent training. Training records are filed in a database. The ICAO recommendation has been complied with.

4.2.3 a) **Action proposed by State.** With respect to the recommendation that the ASD Director establish formal coordination procedures to ensure completeness of tasks and standardization of activities for sections involved in the approval, certification and surveillance of licensed personnel, operators and maintenance organizations, the LFV indicated that, by July 2001, it would further develop the existing written routines and procedures to make the coordination among the various sections more comprehensible.

b) **Validation of action proposed.** Process-oriented procedures have been established, which guarantee the coordination between personnel licensing, aircraft operations and airworthiness tasks. Checklists clearly identify the need to coordinate with other disciplines if required by individual tasks or process steps. Furthermore, the new organizational structure has been established to support interdisciplinary teamwork. The ICAO recommendation has been complied with.

4.3 **Personnel licensing and training**

4.3.1 a) **Action proposed by State.** With respect to the recommendation that the ASD Director establish a system, develop and implement procedures to supervise, monitor and control the performance of designated examiners, and monitor the delivery of flight and practical tests performed by such examiners to ensure consistent and uniform implementation of national regulations, the LFV indicated that, by 1 July 2001, the ASD would establish a follow-up programme to include an
annual check of designated examiners. It also indicated that it would initiate a discussion within the JAA about this matter as the JAR-FCL strictly regulates the procedures to be followed when supervising designated examiners. The follow-up programme would be implemented assuming resources are made available as a result of the complete review of the ASD.

b) **Validation of action proposed.** The ASA has established a system for the supervision and control of flight and practical test delivery, as well as procedures for the supervision and control of designated flight test examiners, in addition to those already implemented since the introduction of JAR-FCL 1. The ASA has appointed a total of thirty-nine senior examiners who are, in addition to ASA inspectors, evaluating the quality and the standardization of practical tests and examinations and monitoring the delivery of flight and practical tests performed by the designated examiners, which ensure consistent and uniform implementation of the Swedish standards by the designated examiners. Routines for assignment, authorization, execution and records of supervision are incorporated in the ASA VHB, and the extensive use and systematic assessment of forms, records and procedures also ensure consistency and reliability of testing by the designated examiners. Furthermore, routine standardization meetings involving ASA inspectors, senior examiners and designated examiners are held by the ASA to ensure the uniform application of guidance material. The ICAO recommendation has been complied with.

4.3.2 a) **Action proposed by State.** With respect to the recommendation that the ASD Director require the STK to establish a system, develop and implement procedures to supervise, monitor and control the performance of designated examiners, and monitor the delivery of flight and practical tests performed by such examiners to ensure consistent and uniform implementation of national regulations, the LFV indicated that, by 1 July 2001, the ASD would establish a follow-up programme to include an annual check of designated examiners. It also indicated that it would initiate a discussion within the JAA about this matter as the JAR-FCL strictly regulates the procedures to be followed when supervising designated examiners. The follow-up programme would be implemented assuming resources are made available as a result of the complete review of the ASD.

b) **Validation of action proposed.** The licensing functions, including the designation of examiners and their monitoring, are part of the non-delegated tasks to the STK and are carried out by each State separately with a coordination system concerning SAS and SAS Commuter activities. As part of the system established between the three States and the STK, applications for the designation of examiners are processed by the State of Registry of the aircraft type as well as the training, evaluation and designation of examiners. Standardization meetings between P-Utvalget, STK and SAS Flight Academy are carried out frequently, but the STK is not directly involved in the surveillance of the examinations. The ICAO recommendation has been complied with.
4.3.3  

a) **Action proposed by State.** With respect to the recommendation that the ASD Director establish a system and develop and implement procedures to supervise and monitor the delivery of training programmes, the LFV indicated that, by 1 July 2001, it would develop a more detailed monitoring policy and implement an inspection programme for all training activities. The full implementation of this enhanced programme would be over a period of three years, assuming that resources are made available as a result of the complete review of the ASD. The LFV also indicated that similar recommendation directed at the STK would be addressed in a similar manner, at the same time.

b) **Validation of action proposed.** The ASA has established a system for the certification and inspection of aviation training centres in line with the implementation of the JAR-FCL 1 and has developed a more detailed monitoring policy and implemented an inspection programme for all training activities carried out by the training organizations. The supervision of the delivery of training programmes is carried out through audits and spot visits by ASA inspectors and senior examiners, and a detailed supervision form with action items has also been developed. The ICAO recommendation has been complied with.

4.3.4  

a) **Action proposed by State.** With respect to the recommendation that the ASD Director require the STK to establish a system and develop and implement procedures to supervise and monitor the delivery of training programmes, the LFV indicated that, by 1 July 2001, it would develop a more detailed monitoring policy and implement an inspection programme for all training activities. The full implementation of this enhanced programme would be over a period of three years, assuming that resources are made available as a result of the complete review of the ASD.

b) **Validation of action proposed.** The licensing functions, including the approval and surveillance of aviation training centres, are carried out by each State separately, and a coordination concerning SAS and SAS Commuter activities is established between the three States and the STK, consisting of at least two annual standardization meetings between P-Utvalget and SAS Flight Academy. The STK is also participating in the surveillance of training courses, which is an opportunity for additional audits. Furthermore, the STK conducts the audits of the SAS Flight Academy in other respects, and meetings between the STK and the SAS Flight Academy are held several times a year. The ICAO recommendation has been complied with.

4.4  

**Aircraft operations certification and supervision**

4.4.1  

a) **Action proposed by State.** With respect to the recommendation that the ASD Director establish an adequate system for the surveillance of air operators and implement a comprehensive surveillance programme for all certified air operators, the LFV indicated that the amount of surveillance would be increased appropriately. It also indicated average values, which would be varied up and down as considered
necessary and based on risk assessment evaluations. The full implementation of the enhanced programme would be successive over a period of three years, assuming that resources are made available, and is expected to be fully implemented by the end of 2003.

b) **Validation of action proposed.** The ASA has considerably improved its system for the continued surveillance of air operators. The Surveillance Section is responsible for the surveillance of the Swedish AOC holders with respect to all aspects of training, aircraft operations, maintenance and airworthiness. The ASA, in addition to its previously used system mainly based on an extensive use of the quality system of the operator, is now carrying out additional scheduled and random inspections planned on an annually established schedule. The ASA is conducting the following annual inspections for each operator: one base inspection; one line inspection per aircraft type for transport category; one full ramp inspection; one control of flight crew proficiency check (check of designated examiners); one check of operator’s line check; and one check of the operator’s crew training. The monitoring of the financial conditions of commercial air transport operators is part of the surveillance of all AOC holders within the European Union (EU) area of competency, and the ASA has also established a system to receive information relating to the Swedish operators. The VHB contains procedures to be followed if, on inspection, deficiencies are found and the operator is required by regulations to remedy them in a given time. Otherwise, the ASA may take actions such as limiting or revoking the AOC. The ICAO recommendation has been complied with.

4.4.2 a) **Action proposed by State.** With respect to the recommendation that the ASD Director ensure that at least one operations inspector is qualified and current in each aircraft type used by Swedish operators and that, as much as possible, all inspectors be trained to perform all of the functions required in their respective speciality, and should this not be possible to establish and implement a system of control and supervision over the designated inspectors, the LFV indicated that the recommendation was not based on any firm requirement, although it shared the view that there was room for improvement. It also indicated that, by the end of 2002, it would enhance its training programme to ensure coverage of types operated to the extent possible within reasonable resource limits. The aim of the enhanced training would be to provide inspectors with a familiarization course, at intervals to be decided, on all types with which they are involved as principal inspectors. The training programmes would be implemented assuming that resources are made available as a result of the complete review of the ASD.

b) **Validation of action proposed.** In line with the implementation of JAR-OPS 1 and 3 as well as JAR-FCL 1, the ASA has recruited additional inspectors and reorganized the system for the certification and surveillance of AOC holders and flight crew training activities. Flight operations competency available at ASA is presently covering the scope of aircraft type rating as well as areas and type of operation. ASA flight operations inspectors are qualified on a number of the aircraft types used by Swedish operators, and the remaining aircraft types are covered by
STK flight operations inspectors or by designated check airmen acting on behalf of the ASA. Furthermore, the ASA has established competency and minimum qualifications requirements for flight inspectors in addition to their recurrent training. In order to ensure better control of designees, the ASA has also established a policy to train its inspectors at least at the level of familiarization course, in addition to experience requirements on similar types or similar level of technology. Presently, the ASA does not delegate any inspection or supervision tasks to operators, and all these functions are carried out under its responsibility. The ASA has also launched recently a surveillance concept among the Nordic States based on “leading competency”, according to which all the Nordic States’ aviation safety inspectors will be evaluated and grouped by current qualifications and level of competency in various technical areas. Each Nordic civil aviation authority will then have the possibility to share the required competency not available within its own organization. The ASA has already established the concept in its organization. The ICAO recommendation has been complied with.

4.4.3 a) Action proposed by State. With respect to the recommendation that the ASD Director amend the regulations applicable to flight and cabin crew members’ duty times in order to include flight time limits, the LFV indicated that the Scandinavian system effectively limits flight time well within the limits (duty time) generally applied. The Scandinavian regulations are based on the view that duty time, not flight time, is the essential element to regulate from a safety point of view. Accordingly, the LFV indicated that a formal deviation would be notified to ICAO by April 2001 following consultation with Denmark and Norway.

b) Validation of action proposed. Sweden has notified ICAO of a difference for the departure from ICAO Standards for flight and cabin crew members duty time limits. The ICAO recommendation remains open.

4.4.4 a) Action proposed by State. With respect to the recommendation that the ASD Director establish comprehensive procedures for the approval of aircraft leasing, which, inter alia, address flight and cabin crew training; flight and cabin crew scheduling and corresponding regulations/arrangements to be used; operational control; continued airworthiness of the aircraft used; and aircraft maintenance programmes to be applied, the LFV indicated that in the case of wet lease, the lessor remains responsible for all listed aspects and no mixing of responsibilities can occur. It also stated that, in the case of dry lease, the main issues are flight crew licences and maintenance arrangements (continued airworthiness) and the list does not reflect the clear division of responsibilities, which is stated in the regulations. Nevertheless, the LFV indicated that, by July 2001, it would review its procedures for the approval of leasing and include more comprehensive guidance in its handbook material.

b) Validation of action proposed. The leasing arrangements in Sweden are regulated through a European regulation, in addition to relevant JARs implemented in the Swedish regulatory framework, and the ASA has also established procedures for the approval and surveillance of aircraft leasing activities. The established process and
related procedures require that the leasing arrangement be approved by the ASA, and as part of its application, the operator has to provide the ASA with relevant information specifying the responsibilities of the Swedish operator/owner and the foreign operator/owner of the aircraft in both cases of leasing, in or out. In all cases, the process and the procedures are very detailed and provide for the assessment by the principal operations inspector, in coordination with airworthiness inspectors, of critical aspects such as flight crew and cabin crew training, the operator who is responsible for operational control, as well as dispatch or flight following and crew scheduling. This formal coordination allows for the determination of the responsibilities of operators in the areas of airworthiness and maintenance of the aircraft involved. In order to limit problems that might arise from crew coordination in case of damp lease, the ASA requires that both flight and cabin crew members must be under the responsibility of the same operator. When approving a leasing, the ASA issues a new AOC to the operator, integrating the leased aircraft in case of a lease in, or excluding it in case of a lease out, and the Surveillance Section has the responsibility to ensure the surveillance of this operation and aircraft involved in case of a lease in. The ICAO recommendation has been complied with.

4.4.5 a) **Action proposed by State.** With respect to the recommendation that the ASD Director require the STK to establish an adequate system for the surveillance of air operators and implement a comprehensive surveillance programme for all certified air operators, the LFV indicated that the amount of surveillance would be increased appropriately. It also indicated average values which would be varied up and down as considered necessary and based on risk assessment evaluations. The full implementation of the enhanced programme would be successive over a period of three years, assuming that resources would be made available, and is expected to be fully implemented by the end of 2003.

b) **Validation of action proposed.** The three Scandinavian States have reviewed the assignment of the STK, which was given more freedom to reorganize its activities concerning the surveillance of the SAS, but is required to improve its surveillance system of both SAS and SAS Commuter and to report to the OPS-Utvalget meetings where the three Directors of the Civil Aviation Authorities of Denmark, Norway and Sweden are either participating or represented. The three Directors of Civil Aviation jointly issue the AOC for both operators, including any variation. The STK Director has reviewed the organizational structure, which allows for a significant improvement of the surveillance system, consisting presently of additional planned and random inspections being carried out according to an annual established schedule, in addition to the existing follow-up through the quality system of both operators. The annual programme has been increased by the following: one base inspection; one line inspection per aircraft type; one full ramp inspection; one control of flight crew proficiency check (check of designated examiners); one check of operator’s line check; and more frequent checks of the crew training carried out at SAS Flight Academy. The monitoring of SAS financial conditions is also carried out as part of the surveillance of the OPS-Utvalget to whom SAS has to report each year. In addition, the surveillance system of all AOC holders is established by the
EU in its geographical area of competency. The *STK Quality Manual* contains procedures to be followed if, on inspection, deficiencies are found and the operator is required to remedy in a given time. The ICAO recommendation has been complied with.

4.4.6 a) **Action proposed by State.** With respect to the recommendation that the STK Director ensure that at least one STK operations inspector is qualified and current in each aircraft type used by Swedish operators and that, as much as possible, all inspectors be trained to perform all of the functions required in their respective speciality, and should this not be possible to establish and implement a system of control and supervision over the designated inspectors, the ASD indicated that the recommendation was not based on any firm requirement, although it shared the view that there was room for improvement. It also indicated that, by the end of 2002, it would enhance its training programme to ensure coverage of types operated to the extent possible within reasonable resource limits. The aim of the enhanced training would be to provide inspectors with a familiarization course, at intervals to be decided, on all types with which they are involved as principal inspectors. The training programmes would be implemented assuming that resources are made available as a result of the complete review of the STK.

b) **Validation of action proposed.** The three Scandinavian civil aviation authorities and the STK Director have improved the available technical competency for the STK in the flight operations field. Additional flight operations inspectors have been recruited, and the range of flight operations inspectors qualifications and type rating also have been increased to cover most of the aircraft types and all areas of operations for SAS and SAS Commuter fleet, mostly by STK inspectors or by some designated examiners. Type-related training, including familiarization courses, has been performed on A330, A340, B767, DHC-8-400, F50 and MD80 by STK inspectors. Furthermore, the implementation of JAR-OPS 1 and JAR-FCL 1 in the three States reinforced the coordination between the three civil aviation authorities in cooperation with the STK for the designation of flight examiners, who are also assigned, when required, to perform some flight inspections. The three States have also established a system for the control and supervision of the designated personnel, with a formal coordination through periodical meetings involving all parties. The ICAO recommendation has been complied with.

4.4.7 a) **Action proposed by State.** With respect to the recommendation that the STK Director establish comprehensive procedures for the approval of aircraft leasing, which, inter alia, address flight and cabin crew training; flight and cabin crew scheduling and corresponding regulations/arrangements to be used; operational control; continued airworthiness of the aircraft used; and aircraft maintenance programmes to be applied, the LFV indicated that, in the case of wet lease, the lessor remains responsible for all listed aspects, and no mixing of responsibilities can occur. It also stated that, in the case of dry lease, the main issues are flight crew licences and maintenance arrangements (continued airworthiness) and the list does not reflect the clear division of responsibilities, which is stated in the regulations.
Nevertheless, the LFV indicated that, by July 2001, it would review its procedures for the approval of leasing and include more comprehensive guidance in its handbook material.

b) **Validation of action proposed.** The STK has developed procedures for approval and surveillance of aircraft leasing based on JAR-OPS guidance, but these have not yet been formally approved. The STK is already using these procedures as guidance and expects their full implementation by 1 September 2003. The ICAO recommendation remains open.

4.5 **Airworthiness of aircraft**

4.5.1 a) **Action proposed by State.** With respect to the recommendation that the ASD Director develop and establish the qualifications and minimum requirements for flight test pilots and flight test engineers as outlined in Doc 9389 and that an adequate budget should be allocated for hiring and training of flight test pilots dedicated to type certification, major modifications or STC approval tests, the LFV indicated that the JAA was developing formal requirements for the qualification of flight test pilots and flight test engineers, and that the ASD, as a member of JAA, would adhere to the requirements when established (expected to be completed at the end of 2001). With regard to ASD oversight of flight test activities, the LFV indicated that Sweden would adopt JAR-21, Subpart JA, Design Organization Approval, and associated working procedures that would include the recommended oversight.

b) **Validation of action proposed.** The JAA requirements for flight testing have now reached the status of draft Notice of Proposed Amendment (NPA). However, since no further changes to JAR-21 will be issued due to the future transfer of rule-making responsibility to EASA, the result of the JAA NPA process will be handed over to the EU. The relevant part of JAR-21 has not been fully adopted then. The ICAO recommendation remains open.

*Note. — Subsequent to the audit follow-up mission, the LFV submitted an update on 27 May 2003 indicating that the rule-making part is now subject to EU/EASA activities and Implementing rule 21, which will cover this issue of flight test oversight, is planned to be adopted before 28 September 2003. EASA will be responsible for certification, and the LFV cannot hire a test pilot since the decision on certification team composition will be under EASA control. Furthermore, there is no major flight test activity foreseen in Sweden in the near future.*

4.5.2 a) **Action proposed by State.** With respect to the recommendation that the ASD Director update the procedures for approval of MELs and special operations, such as extended range operations by twin-engined aeroplanes (ETOPS), reduced vertical separation minimum (RVSM), minimum navigation performance specifications (MNPS) and Categories (CAT) I, II and III, take into account the contents of ICAO SARPs and guidance material and define responsibilities and work distribution...
between the operations and airworthiness inspectors, the LFV indicated that the ASD process document(s) for approval of relevant special operations would be updated by July 2001, with suggested details and definition of responsibilities and work distribution between the operations and airworthiness inspectors.

b) Validation of action proposed. A JAR-OPS process document has been compiled to include work distribution between operations and airworthiness inspectors and detailed instructions for the authorization of special operations. The approval of MEL and special operations, such as ETOPS, RVSM, MNPS and CAT I, II and III, is part of the JAR-OPS process document. The ICAO recommendation has been complied with.

4.5.3 a) Action proposed by State. With respect to the recommendation that the ASD Director evaluate the procedures for approval of modifications and repairs against guidance provided in Doc 9642 and make the appropriate revisions to regulations on this subject, the LFV indicated that the ASD was in the process of implementing JAR-21, which would address the detailed requirements and procedures by the end of 2001 and would cancel the national regulation BCL-M1.6, as the transition to JAR-21 with regard to modification and repairs is implemented. In the interim, modifications and repairs would be handled by informal working procedures.

b) Validation of action proposed. With respect to regulations and procedures for the approvals of modifications and repairs, JAR-21 provisions are applied for aircraft types under JAR design requirements. Due to the future transfer of responsibilities to EASA, further adoption has been terminated. Until final transfer, an informal working procedure remains in place. However, this procedure does not provide guidance in accordance with ICAO Doc 9760, Volume II, Part B, Chapter 5. The ICAO recommendation remains open.

Note. — Subsequent to the audit follow-up mission, the LFV submitted an update on 27 May 2003 indicating that actions to cover the recommendation are included in the EU/EASA Implementing rule 21 with guidance material, which is planned to be adopted before 28 September 2003. This will be a binding rule for Sweden and will replace BCL-M1.6.

4.5.4 a) Action proposed by State. With respect to the recommendation that the ASD Director develop procedures or guidance material for the conduct of interim audits on maintenance and production organization approvals and for ensuring that the quality control systems of the production organizations are capable of performing their mandate in regard to the respective type certificate/approval design provisions as outlined in ICAO guidance material, the LFV indicated that it would present the issue for discussion within the JAA Certification Committee on how to handle continued surveillance with regard to design and production approvals. It would also fully implement an increased inspection frequency by the end of 2001, assuming that resources are made available as a result of the complete review of the ASD.
b) **Validation of action proposed.** As an outcome of discussion within various JAA committees and sectorial teams on the subject of continued surveillance, the JAA procedure material for production organization approvals will be updated, while no need for further improvement was found necessary in the area of AMOs. In the interim, the ASA has decided to improve the planning of audits of all organizations and has implemented increased audit frequencies for certain activities. Audit plans are defined in specific documents (L 2003-08-1041; L 2003-09-1041; and L 2003-10-1041 refer). These documents stipulate the periodicity of audits of maintenance and production organizations. The current audit plans have been reviewed by the audit team and found to be satisfactory. Special emphasis is given in the audit planning to the quality control system of the production organizations. The ICAO recommendation has been complied with.

4.5.5 a) **Action proposed by State.** With respect to the recommendation that the ASD, in its capacity as an aviation authority of a State of Design, require all operators of Swedish-designed aircraft to report malfunctions, defects and other occurrences, and ensure that its aircraft manufacturer informs all affected foreign operators as outlined in Doc 9642, the LFV indicated that, although the ASD had not acted via applicable foreign airworthiness authorities to put pressure on operators of Swedish-designed aircraft, it had, on several occasions, tried to receive reports from those operators and that contacts had been made by the manufacturer with many of the foreign operators. The LFV explained that it was difficult to get reports from a few foreign operators representing a marginal proportion of the produced aeroplanes, regardless of the effort made by the manufacturer and the ASD. The LFV confirmed that, in this respect, it was in full compliance with Annex 8 and relevant ICAO guidance material and noted that Annex 8, Part II, paragraph 4.2.5 places the obligation on the State of Registry to ensure that reports be transmitted to the organization responsible for type design. Notwithstanding the explanations offered, the LFV further indicated that, by April 2001, it would contact certain foreign authorities in order to improve the total database of reports regarding Swedish-manufactured aircraft.

b) **Validation of action proposed.** The ASA has sent a letter to all States of Registry for aircraft manufactured in Sweden to highlight the importance of ICAO Annex 8, paragraph 4.2.5 and to get information about what systems are in use to meet this ICAO Standard. Answers have been received from some States indicating that there are different systems in place to comply with Annex 8, paragraph 4.2.5. Some States are in the process of revising their regulations to emphasize the reporting obligation of the operator. The ASA and aircraft designers are meeting at regular intervals to review occurrences and agree action programmes to rectify potential safety issues. Each new operator is contacted by the manufacturers and presented with recommendations and guidelines for reporting. The ICAO recommendation has been complied with.

4.5.6 a) **Action proposed by State.** With respect to the recommendation that the ASD Director establish a system and procedures to supervise its design and production
organizations to ensure an adequate internal audit system of manufacturers and that supplier audits and vendor analysis are accomplished in a timely manner, the LFV indicated that JAR-21 covering production was planned to be implemented as of 1 July 2001 and JAR-21 covering design during 2001, with a target date set at the end of 2001.

b) Validation of action proposed. JAR-21, Subparts F and G concerning production were implemented in the Swedish regulations on 1 January 2002, with Subpart G for production becoming mandatory for all new applications as of 1 July 2002, and for all production as of 1 January 2006. Production organizations approvals (POA) have been issued, and all organizations are now subject to surveillance in accordance with the JAA regulations, including audits of the applicant's quality systems. Although JAR-21, Subpart JA for design organization approvals (DOA) is not a mandatory requirement, the applicable DOA procedure manual has been revised by introducing annual surveillance reports for each approval holder. Further surveillance activities, including an audit plan, are detailed in document L 2003-12-1041. Supplier audits and vendor analyses are part of this investigation. The audit plan for suppliers has been reviewed by the audit team and has been found to be adequate. The ICAO recommendation has been complied with.

4.5.7 a) Action proposed by State. With respect to the recommendation that the ASD Director, in cooperation with the authorities of Denmark and Norway, require the STK to improve the continuous surveillance on operators and AMOs, the LFV indicated that, by the end of 2001, the ASD, together with its Danish and Norwegian counterparts, would discuss with the JAA Maintenance Sectorial Team how to handle continued surveillance with regard to maintenance approvals. By this time, the operation of the STK would be further reviewed by OPS-Utvalget. It also indicated that an increase in inspection intervals would be subject to decisions by the Directors General of Denmark, Norway and Sweden to increase the resources.

b) Validation of action proposed. The operation of STK has been the subject of an audit from OPS-Utvalget. This resulted in a major change in the distribution of the responsibilities between OPS-Utvalget and its subcommittees and the STK. A quality manual has been developed for the STK, which adequately includes assessments of conformance to required standards. A periodic audit plan has been introduced which has been reviewed by the audit team and has been found to be adequate. However, due to the vacancy of a maintenance inspector position, the fulfillment of the schedule is not yet assured. The ICAO recommendation remains open.

Note. — Subsequent to the audit follow-up mission, the LFV submitted an update on 27 May 2003 indicating that the funding of an additional maintenance inspector was agreed upon by the OPS-Utvalget on 4 April 2003 and that the vacancy has been announced.
4.5.8  
a) **Action proposed by State.** With respect to the recommendation that the ASD Director formally define the minimum qualifications and experience requirements for airworthiness inspectors, the LFV indicated that, by the end of 2000, the existing draft minimum qualification for airworthiness inspectors would be formally adopted.

b) **Validation of action proposed.** Minimum qualifications for airworthiness inspectors were defined in document L88/2001-044 and formally approved by the ASA Director on 8 October 2001. The minimum qualification requirements for the airworthiness inspectors are now included in the ASA VHB, Subpart L. The ICAO recommendation has been complied with.

4.5.9  
a) **Action proposed by State.** With respect to the recommendation that the ASD Director enable the Surveillance Section to improve its technical library to contain updated copies of all ADs applicable to Swedish-registered aircraft and ensure that the Surveillance Section inspectors have access to ADs issued in Sweden, the LFV indicated that it had considered the use of the Internet as a source of ADs, since it was very difficult for the State of Registry to keep updated records because of the time lag and the possibility of mistakes. By April 2001, the ASD would formally provide the Airworthiness Inspection Department with Internet addresses to the authorities, as applicable. The LFV further explained that the airworthiness surveillance system in Sweden is not a 100 per cent checking system, that ADs are complied with, and that the ASD relies on a system where the prime responsibility for airworthy aircraft remains with the owner/operator. Aircraft certificates of airworthiness are renewed based on declarations from maintenance organizations in conjunction with random inspections, including spot-checking of ADs. For planning of these random checks, it is, in the ASD's opinion, sufficient to retrieve the ADs from the ASD Headquarters or rely on the operator list of ADs in such cases where the AD is not available via the Internet.

b) **Validation of action proposed.** All ASA inspectors have access to the Internet, and links to official sources for ADs are provided on the ASA web site. These sources cover the relevant products of the various States of Design. All ADs issued by ASA are available to all airworthiness inspectors through the ASA Intranet system. The ICAO recommendation has been complied with.

4.5.10  
a) **Action proposed by State.** With respect to the recommendation that the ASD Director allocate sufficient financial and manpower resources to its central library in order to maintain updated copies of the design organization documentation on all aircraft that are type certified in Sweden, the LFV indicated that it was not cost-effective, in relation to flight safety, to build up a complete library of all documentation and that it would continue to rely on operator documentation for the latest correct data. However, in realizing that a certain amount of documentation was needed for training, by January 2001 it would introduce a formal registration of training material used during type training courses. It further indicated that this material would not be subject to revision service, but might serve as preliminary
information on a case-by-case basis. For aircraft of Swedish type design, a complete set of material is maintained.

b) **Validation of action proposed.** Throughout various sources (hard copies, ASA Intranet and Internet) the documents necessary for the airworthiness inspectors (flight manuals, master minimum equipment lists (MMELs), maintenance programmes, etc.) are kept and maintained up to date. Access to the documentation has been demonstrated to the ICAO audit team and has been found to be adequate. The ICAO recommendation has been complied with.

4.5.11 a) **Action proposed by State.** With respect to the recommendation that the ASD Director establish and implement procedures to ensure the continuous surveillance of operators and AMOs during the entire period of validity of the certificates, the LFV indicated that, by July 2001, it would discuss with the JAA Maintenance Sectorial Team how to handle continued surveillance with regard to maintenance approvals. It also indicated that an increase in inspection intervals would be fully implemented, assuming that resources are made available as a result of the complete review of the ASD.

b) **Validation of action proposed.** The ASA has improved the planning of audits of all organizations and implemented increased audit frequencies for certain activities. The valid audit plans are defined in specific documents (L 2003-08-1041 and L 2003-10-1041 refer). These documents establish the audit periodicity of AMOs and operators. The current audit plans have been reviewed by the audit team and found to be adequate. Furthermore, a computer-based planning tool has been developed to control the progress of the scheduled audits. Based on the process-oriented reorganization, further human resources have been made available enabling the Surveillance Section to conduct the required surveillance. The ICAO recommendation has been complied with.

5. **UPDATE ON DEPARTURES FROM ICAO SARPs**

During the audit follow-up mission, an updated list on the status of implementation and differences existing between the national regulations and Annexes 1, 6 and 8 SARPs and/or SARPs not implemented was provided to the audit follow-up team. The differences provided will be included in the relevant Annex supplement in line with Article 17 of the MOU signed between Sweden and ICAO and in accordance with Article 38 of the Chicago Convention.

6. **AUDIT FINDINGS AND DIFFERENCES DATABASE (AFDD)**

6.1 The general objective of the AFDD is to assist States in identifying the elements that need attention in the implementation of the proposed corrective action plan. The information is also intended to assist States in establishing a priority of actions to be taken to resolve safety concerns identified by the audits. The appendix to this report contains a graphic representation of the lack of effective implementation of the
critical elements of safety oversight (ICAO Doc 9734 refers) in Sweden and at a global level. The graphic representation of the State level depicts the situation during the initial audit and the situation at the time of the audit follow-up mission. The graphic representation will enable Sweden to prioritize the necessary corrective actions and to identify assistance requirements based on its personnel, technical and financial capabilities in consideration of its safety oversight obligations.

6.2 As indicated in paragraph 1.2 above, the scope of the audit follow-up mission was limited to validating the progress made in the implementation of the State’s corrective action plan and did not constitute an audit as described in ICAO Doc 9735. The graphic representation of the situation in the State at the time of the audit follow-up mission, as contained in the appendix to this report, is similarly limited to reflecting the progress made in implementing the ICAO recommendations made during the initial audit and does not purport to depict a current comprehensive evaluation of all aspects of a State’s safety oversight system. Considering the mandate for ICAO audit follow-up missions and the time available to conduct such missions, it is possible that some safety concerns may exist in the State which are not covered in this report or reflected in the appendix.
CRITICAL ELEMENTS OF A SAFETY OVERSIGHT SYSTEM (Doc 9734 Refers)
LACK OF EFFECTIVE IMPLEMENTATION (%) — SWEDEN

Limited to reflecting the progress made in implementing the ICAO recommendations made during the initial audit.

Note:- The above graphic representation of the situation in the State at the time of the audit follow-up mission is limited to reflecting the progress made in implementing the ICAO recommendations made during the initial audit.