

ICAO Universal Safety Oversight Audit Programme

AUDIT SUMMARY REPORT
OF THE
FEDERAL OFFICE FOR CIVIL AVIATION
OF
SWITZERLAND

(Bern, 1 to 8 November 2000)



INTERNATIONAL CIVIL AVIATION ORGANIZATION



ICAO UNIVERSAL SAFETY OVERSIGHT AUDIT PROGRAMME

Audit Summary Report on the Safety Oversight Audit Mission to Switzerland

(Bern, 1 to 8 November 2000)

1. BACKGROUND

1.1 The Federal Office for Civil Aviation (FOCA) of Switzerland was audited from 1 to 8 November 2000 by an ICAO safety oversight audit team in accordance with the Memorandum of Understanding (MOU) agreed on 10 August 2000 between Switzerland and ICAO. The audit was carried out pursuant to Assembly Resolution A32-11, with the objective of ascertaining the safety oversight capability of the FOCA of Switzerland and to ensure that it is in conformity with ICAO Standards and Recommended Practices (SARPs), as contained in Annexes 1, 6 and 8 to the *Convention on International Civil Aviation* and related provisions in other Annexes, guidance material and relevant safety-related practices in general use in the aviation industry.

1.2 On 12 January 2001, Switzerland submitted an action plan addressing all the findings and recommendations contained in the audit interim report and also containing comments and clarifications of some of the items contained in the audit interim report. The action plan submitted was reviewed by the Safety Oversight Audit (SOA) Section and was generally found to be satisfactory although clarification was sought with respect to the action proposed for one of the findings related to operations of aircraft. Such clarification was provided by FOCA on 12 April 2001. The action plan and comments provided were, as appropriate, taken into consideration in the preparation of this audit summary report.

2. CIVIL AVIATION ACTIVITIES IN SWITZERLAND

At the time of the audit the civil aviation activities in Switzerland included:

a) number of technical staff employed by the organization at Headquarters	155
b) number of active pilot licences	19 552
c) number of active flight crew licences other than pilot licences	44
d) number of active licences other than flight crew licences	3 229
e) number of commercial air transport operators	119
f) number of air operator certificates (AOCs) issued	24
g) number of aircraft operations inspectors	13
h) number of aircraft registered in Switzerland	2 257
i) number of Certificates of Airworthiness (C of A) issued	2 257
j) number of approved maintenance organizations (AMOs)	94

k) number of aircraft maintenance workshops	109
l) number of design organizations	1
m) number of aircraft manufacturing organizations	1
n) number of aircraft parts or equipment manufacturing organizations	21
o) number of aircraft type certificates issued	170
p) number of aircraft airworthiness inspectors	21

3. SUMMARY OF FINDINGS

3.1 General statement

3.1.1 The primary aviation legislation in Switzerland is the Federal Aviation Act (748.0), (the “Act”), promulgated by the National Assembly in 1948. The Act has been updated several times and contains general rules which are the basic laws applicable to civil aviation. Detailed regulations are implemented by ordinances of the Federal Council or by the Department of Environment, Transport, Energy and Communications, or, in very few cases, by FOCA. The implemented regulations cover the major provisions of the *Convention on International Civil Aviation* and its Annexes in the audited areas. Switzerland is progressively implementing Joint Aviation Requirements (JARs) in the areas of personnel licensing, operations and airworthiness of aircraft to replace its national regulations. Meanwhile, the present Swiss regulations applicable to these areas are a mix of JARs and national regulations but they have not been fully assessed to determine their conformance with the ICAO SARPs contained in Annexes 1, 6 and 8.

3.1.2 FOCA is the agency within the Swiss Government responsible for civil aviation matters. The Director of FOCA is empowered to establish, regulate and administer a flight safety system and has developed an adequate organizational structure. Nevertheless, due to the extensive development of the Swiss aviation industry and the new regulatory/procedural system imposed by the progressive integration of JARs, FOCA’s licensing, operations and airworthiness sections suffer from a shortage of qualified technical personnel. Operations and airworthiness inspectors are hampered in their efforts to provide quality aviation safety oversight due to the high workload and wide range of tasks required by their core functions.

3.1.3 Flight personnel licensing activities in Switzerland are governed by both the national requirements and JAR-FCL. Those requirements are generally in compliance with the SARPs contained in Annex 1. The transition to JAR-FCL, which affects the regulatory environment, still requires additional adjustments in the organizational structure, staff, methods and procedures. The existing number of staff is not sufficient to ensure the implementation of the numerous tasks required to be carried out during the transitional period of implementation towards JAR-FCL, while both the previous and new system coexist. The tasks consist of elaborating new procedures, providing information to the industry and carrying out specific tasks to ensure consistency of the adopted regulations.

3.1.4 Switzerland has implemented aircraft operations regulations to certify and supervise its operators and is progressing toward JAR-OPS provisions. FOCA has established a system for the certification

of commercial air transport operators which is adequately documented and the procedures used by the staff are well established and readily available. However, FOCA has not established an audit schedule for Swiss commercial air transport operators. Subsequent to the issue of an Air Operator Certificate (AOC), only a few operations inspections on some commercial air transport operators are conducted. The frequency of these inspections is limited due to an insufficient number of operations inspectors and does not allow for the completion of a comprehensive surveillance programme. Switzerland has not established regulations applicable to international general aviation operations.

3.1.5 Airworthiness, certification and manufacturing oversight in Switzerland are managed and implemented by the Aeronautical Material Division. The division is a competent and mature organization staffed by well-trained and qualified personnel. However, the Maintenance Organizations and Personnel Section is understaffed and unable to complete its audits and surveillance plan in the time frame required by JAR-OPS and JAR-145. The division is currently implementing further JARs and is undergoing changes within the FOCA reorganization.

3.2 **Primary aviation legislation and civil aviation regulations in Switzerland**

3.2.1 **Abstract of findings**

3.2.1.1 The primary aviation legislation in Switzerland is the Federal Aviation Act (748.0), (the “Act”), promulgated by the National Assembly in 1948. The Act has been updated several times and contains general rules which are the basic laws applicable to civil aviation. Detailed regulations are implemented by ordinances of the Federal Council or of the Department of Environment, Transport, Energy and Communications, or, in very few cases, by FOCA.

3.2.1.2 The Act contains penal, financial and administrative provisions applicable to cases of violations of Swiss regulations. The various provisions indicate that FOCA is the authority in charge of administering the punishable cases relating to civil aviation and the law establishes an extensive system whereby FOCA is the central entity responsible for the follow-up of actions taken against violators. Article 98 designates FOCA as the administrative authority competent to prosecute contraventions according to the procedure established by Swiss Federal Law.

3.2.1.3 Switzerland ratified article 83 *bis* of the *Convention on International Civil Aviation* which entered into force on 20 June 1997; however, the Swiss civil aviation legislative framework does not clearly allow the transfer and acceptance of State’s responsibilities pertaining to Articles 12, 30, 31 and 32(a) of the Convention.

3.2.1.4 Under the Swiss regulatory system, no regulation may apply unless it has been published in the Official Compendium of Swiss Federal Law in the official languages which are French, German and Italian. Nevertheless, Article 6a of the Act refers to the Annexes to the *Convention on International Civil Aviation* and declares them directly applicable in exceptional cases. Article 6a also gives the possibility to refrain from the translation into the official Swiss languages and/or from publishing these Annexes in the Swiss Journal of Law. Paragraph 2 applies the same law to technical regulations elaborated in cooperation with other European aviation authorities. Nevertheless, ICAO SARPs are usually transposed to the Swiss regulations.

3.2.1.5 Switzerland is a member of the JAA and is progressively introducing the JARs into its regulatory framework. FOCA has elected to apply the possibilities set out in Article 6a of the Act, using the English version of the JARs as Swiss regulations. Consequently, ordinances introducing JARs into the Swiss national legal system only refer to the current text of the JARs without reproducing the content of the relevant JAA regulation in the ordinance. The ordinance only mentions that the relevant JAR is applicable.

3.2.1.6 The applicable air law and civil aviation regulations in force are contained in a booklet, updated and published yearly and available to the public in the three official Swiss languages. SARPs are implemented by a total of thirty-seven ordinances in force in the field of aviation. A numbering system by series allows for easy use of these regulations. The implemented set of regulations was previously based on ICAO SARPs but was recently oriented towards the Joint Aviation Requirements (JARs).

3.2.1.7 The rule-making process established within FOCA allows for the tracking and amending of the Swiss civil aviation regulations as required by the State's obligation as an ICAO and Joint Aviation Authorities (JAA) State Member. The International Affairs Division receives amendment proposals and various input from ICAO or from the JAA, circulates them to the other technical divisions and sections for comments and draft proposals, and then coordinates their implementation with the divisions concerned. Input for the updates consists of amendments to ICAO Annexes, JAR or European Community (EC) Regulations and Directives used as guidance. However, at the time of the audit, the Swiss regulations applicable to the audited areas were a mix of JAR provisions and national regulations and had not been assessed to determine their conformance with the SARPs of Annexes 1, 6 and 8. Existing differences have not been identified or notified to ICAO.

3.2.2 **Corrective action proposed/implemented by Switzerland**

3.2.2.1 *FOCA indicated in its action plan that it will conduct a comprehensive review of its civil aviation regulations to ensure compliance with ICAO Annexes in parallel with the process of implementing the remaining JAR provisions. Any differences will be notified to ICAO before the end of December 2001.*

3.2.2.2 *With respect to Article 83 bis of the Convention on International Civil Aviation, FOCA indicated that it is already fully implemented in Swiss legislation.*

3.3 **Civil aviation organization system in Switzerland**

3.3.1 **Abstract of findings**

3.3.1.1 FOCA was created in 1920 and has been reorganized several times to adapt to the civil aviation needs of the State. During the audit, a new reorganization was underway and was expected to be completed by 1 January 2001. FOCA is a special office of the Federal Department of Environment, Transport, Energy and Communication and is responsible for the development and enforcement of civil aviation legislation. FOCA oversees the training and competency of pilots and maintenance engineers, including their recurrent training. It also determines the airworthiness of aircraft and operational conditions to comply with safe operations. The organization of FOCA has three divisions supported by three sections and one service, the Federal Air Transport Service.

3.3.1.2 The Aeronautical Material Division monitors the airworthiness conditions of Swiss-registered aircraft, companies and the licensed technicians. The division is composed of three sections:

Certification, Airworthiness, and Maintenance. The specialists in the division also contribute to the development of new requirements while collaborating closely with the various working groups of the JAA.

3.3.1.3 The Flight Operations Division monitors commercial air transport operators, aviation licensing and training, including medical aspects and general aviation operations. The specialists in the division contribute to the development of new international requirements while collaborating closely with the various commissions of the JAA and ICAO. The division represents FOCA in the various national organizations concerning civil aviation and is composed of three sections: Flight Operations, Flight Crew Licences, and Flight Training.

3.3.1.4 The Air Transport and International Affairs Division manages issues relating to commercial aviation and is consequently the focal point for international and regional organization matters. This division has two sections: the Air Transport and Statistics Section, and the International Affairs and Security Section. The division is responsible for the development and monitoring of security measures at Swiss airports within the framework of airline operations. It also adopts measures aimed at facilitating air transport and regulating the transport of dangerous goods.

3.3.1.5 Three support entities are directly subordinated to the Director of FOCA: Legal Service, Information, Central Services and Data Processing. The Legal Service Unit drafts legislative texts concerning aviation and is in charge of the penal or administrative procedures for which FOCA is responsible. This unit also administers the Swiss aircraft record dealing with mortgages.

3.3.1.6 FOCA's licensing, operations and airworthiness sections suffer from an acute shortage of qualified technical personnel. The operations and airworthiness inspectors are hampered in their efforts to provide adequate aviation safety oversight due to a high workload and the wide range of tasks required in the certification, approval and surveillance of licensed personnel, operators and maintenance organizations.

3.3.2 **Corrective action proposed/implemented by Switzerland**

With respect to the recommendation that additional staff be recruited for the licensing, operations and airworthiness sections to ensure that the functions and tasks pertaining to the certification, approval and surveillance of personnel, operators and maintenance organizations are adequately covered, FOCA indicated that it has addressed a letter to the Secretary General of the Department of Environment, Transport, Energy and Communication requesting a budgetary increase. The new organization of FOCA, to be effective 1 January 2001, is expected to improve the staffing situation. It is expected that by 2004, all safety-related processes dealing with the technical aspects of civil aviation will be integrated in a new organization under the Department of Environment, Transport, Energy and Communication. This new organization will fully cover its costs by fees generated and is, therefore, expected to be free to employ as many staff as needed for the fulfilment of its tasks.

3.4 **Personnel licensing and training Switzerland**

3.4.1 **Abstract of findings**

3.4.1.1 Regulations applicable to aviation personnel licensing in Switzerland are contained in the following regulatory instruments:

- a) Ordinance 748.222.1 — Flight crew licensing (FCL) and 748.222.2 (introducing JAR-FCL 1 for aeroplane pilots, JAR-FCL 2 for helicopter pilots and JAR-FCL 3 for medical standards);
- b) Ordinance 748.222.5 — Civil aviation medical service;
- c) Ordinances 748.127.2, 748.127.22, 748.127.23 — Maintenance personnel licences;
- d) Ordinance 748.222.3 — Air traffic controller licences; and
- e) Various directives published by FOCA related to training programmes.

3.4.1.2 JAR-FCL 1 (Aeroplanes) and 3 (Medical) have been applicable in Switzerland since 1 July 1999. The implementation of JAR-FCL 2 (Helicopters), to be applicable from 1 January 2000, has been postponed by an ordinance. Presently, individuals still have the possibility of being issued a licence according to the previous regulations until June 2002 if training was commenced prior to 1 July 1999.

3.4.1.3 FOCA has recently issued airline transport pilot licence (ATPL) (helicopters) but there is no legal basis for issuing such a licence in Switzerland's regulations as the corresponding regulation JAR-FCL helicopters has not yet been issued. In addition, these licences were issued without an appropriate skills test, as required in Annex 1, paragraph 2.9.1.5.

3.4.1.4 The Flight Crew Licences Section of the Flight Operations Division is in charge of personnel licensing activities. The section issues licences, ratings and specific authorizations; and validates, renews and establishes procedures for the conversion and validation of foreign licences. It also maintains the physical personnel files (on microfilms) for flight crew members, and administers and updates the UNICO database which constitutes the electronic system supporting FCL activities.

3.4.1.5 The Aeronautical Training Unit, within the Flight Crew Licences Section, is in charge of training organizations and approval of training programmes. It administers theoretical examinations and practical tests, designates flight examiners and supervises their activities. The section is manned by thirteen technical staff. The approval of multi-pilot type rating training programmes is performed by the Flight Operations Section which is principally in charge of the oversight of airline operations.

3.4.1.6 The staff of the Flight Operations Division is adequately provided with computers and equipment and has relevant documentation and regulations available. Specific training on JAR-FCL regulations has been provided to the staff. Those in charge of the approval of training organizations have also received training as auditors. A yearly individual training plan is scheduled with direct coordination with the Manager of the Division and the training received is registered in a specific file. Pilots maintain their competency through normal recency checks.

3.4.1.7 The existing number of staff is not sufficient to ensure the implementation of the numerous tasks required to be carried out during the transitional period of implementation towards JAR-FCL, while both the previous and new system coexist. The tasks consist of elaborating new procedures, providing information to the industry and carrying out specific tasks to ensure consistency with the adopted regulations.

3.4.1.8 FOCA issues all ICAO flight crew licences with the exception of the flight navigator licence. In the past, FOCA has issued a restricted commercial pilot licence which allowed the holder to conduct local and domestic flights for remuneration. Seven hundred of these licences are still current in Switzerland. FOCA intends to create a “leisure” licence, which is not covered by Annex 1 provisions, to allow holders to conduct flights around an airfield where radio communications are not required. FOCA does not require a medical assessment for the renewal of glider and free balloon licences.

3.4.1.9 Concerning the licences for which JAR-FCL regulations are not yet applicable, Switzerland converts foreign licences at the request of an air operator once the applicant has passed the applicable theoretical examination, practical skills test and Swiss aviation medical exam. Validation of non-JAR-FCL foreign licences can be obtained for a short-term period, on the request of an air operator, if the applicant has a Swiss medical certificate. In cases of conversion or validation, FOCA has not established a system to verify the authenticity of the licence or to solicit related information. FOCA considers that the operator’s request constitutes a sufficient proof of authenticity of the original licence. In addition, the requirements are not published in the national AIP.

3.4.1.10 There are two ordinances applicable to the medical assessment system: Ordinance 748.222.5 and Ordinance 748.222.2 which implements JAR-FCL 3. These ordinances refer to the same subject matter but provide two different requirements which make them sometimes inconsistent. For example, the medical examiners are designated for four years in the first ordinance and for three years in JAR-FCL 3.

3.4.1.11 The Chief Medical Officer, under the responsibility of the Head of the Flight Operations Division, designates aviation medical examiners (AMEs) to conduct Class 1 or Class 2 medical examinations. At the present time, there are ninety AMEs. AMEs receive appropriate training in an aeromedical centre prior to their designation and thereafter attend a three-day meeting organized by the Chief Medical Officer every two years. Except for the initial Class 1 medical examination of an applicant, an AME can endorse the medical certificate which is given to the applicant and a copy is sent to the licensing section. However, the AME does not submit a signed report to FOCA detailing the results of the examination. The AME keeps the medical reports except when the applicant is not fit according to the established standards.

3.4.1.12 The appropriate control and supervision of Swiss licence holders is managed through the renewal system which includes medical checks, flight tests and recency of experience requirements for licence holders employed in public transport.

3.4.1.13 The implementation of JAR-FCL introduces new methods to supervise flight crew training through the introduction of specific conditions for organization, staffing, equipment and procedures for the approval of training organizations and training programmes. These conditions are also required for type rating training organizations which previously had only to submit the type rating training programme to the authority. FOCA has started the approval of Swiss training organizations and aviation training schools.

3.4.1.14 Theoretical examinations are undertaken by FOCA which uses its own questionnaires for national licences and for the FCL private pilot licence (PPL), while a FCL questions bank is provided by the JAA for FCL professional licences. FOCA continues to use national examinations during the transitional period while it is still possible to issue national licences. Practical tests are conducted by either FOCA inspectors or designated examiners. The process of designation of examiners is in progress with the new rules of JAR-FCL. FOCA expects to designate senior examiners from industry to supervise examiners, as required

by JAR-FCL. FOCA also expects to change its skills test or proficiency check report forms in accordance with JAR-FCL requirements.

3.4.2 Corrective action proposed/implemented by Switzerland

3.4.2.1 *With respect to requiring designated medical examiners to submit detailed results of medical examinations as required by paragraph 1.2.4.6 of Annex 1, and establishing a system to receive and assess medical reports, FOCA noted in its action plan that with the implementation of JAR-FCL 3 by 31 December 2005, this requirement will be fulfilled. In the interim, a difference will be filed with ICAO before the end of June 2001, noting that although not systematically checked, a control system is in place to spot check the activities of the medical examiners.*

3.4.2.2 *With respect to the recommendation that information regarding requirements and procedures for conversion or validation of foreign licences be published in the AIP, FOCA noted that this would be dealt with by the introduction of JAR-FCL. Concerning flying activities not covered by the JARs, such as helicopter, glider and balloon, a special directive will be published in an AIC by the first quarter of next year and available on the FOCA web page and in hard copy form. General information about validation is already available on the web page.*

3.4.2.3 *With respect to reviewing the licensing regulations to track errors and inconsistencies with the implementation of the JARs, particularly with respect to JAR-FCL 3 (Medical) and Ordinance 748.222.5, FOCA indicated that the Ordinance will be revised as necessary before the end of December 2002. In addition, with respect to establishing a time frame for the implementation of JAR-FCL 2, FOCA noted that it will provide, six months prior to implementation, adequate notification by publication in the national AIP and by way of NOTAM in an AIC.*

3.4.2.4 *With respect to the issuance of the ATPL (helicopter) licence, FOCA indicated that it considers that Article 6(a) of the Ordinance on Flight Crew Licensing (SR 748.222.1) provides a sufficient legal basis for the issuance of this licence. Once JAR-FCL 2 is implemented, Switzerland will have an explicit detailed regulatory foundation for this licence.*

3.4.2.5 *With respect to increasing the number of staff necessary to provide for the implementation of JAR-FCL, action proposed is as indicated in paragraph 3.3.2 above.*

3.5 Aircraft operations certification and supervision in Switzerland

3.5.1 Abstract of findings

3.5.1.1 Articles 27 and 28 of the Act require prior authorization for commercial air transport operations and also specify the conditions to be fulfilled by the operator. The main regulations applicable to commercial aircraft operations are contained in Ordinance 748.127.1, (which previously regulated all aspects of aircraft operations before the introduction of JAR-OPS 1), and Ordinance 748.127.8 implementing the provisions of JAR-OPS 1.

3.5.1.2 Since JAR-OPS 1 is not yet applicable to all aeroplane operations and JAR-OPS 3 is not yet implemented in Swiss regulations, Ordinance 748.127.1 is still applicable to the areas not yet covered by JAR-OPS 1. Consequently, aircraft operations in Switzerland are presently regulated through the combination of Ordinance 748.127.1 and JAR-OPS provisions which are progressively being introduced into Swiss regulations. Since Ordinance 748.127.1 has not kept pace with Annex 6 provisions, all recent amendments to Annex 6 have not been implemented and are not binding on the operators to whom JAR-OPS 1 is not

applicable. In addition, Switzerland has not established regulations applicable to international general aviation operations.

3.5.1.3 The Flight Operations Section represents the flight inspectorate and is responsible for the certification and supervision of air carriers (operational aspects). The Section is headed by a Manager and is staffed with five full-time flight operations inspectors, a technical assistant and three clerical staff. FOCA has established a general requirement, including terms of reference, for the recruitment of operations inspectors and has established a training policy and structured recurrent training programmes for its operations inspectors. The initial training implemented for inspectors mainly addresses administrative and general audit considerations and does not necessarily include technical qualifications and skill requirements for newly recruited inspectors. However, the operations inspectors are authorized to keep their ratings within the industry by flying twenty per cent of their time. This arrangement allows them to maintain competency and skills in aircraft operations.

3.5.1.4 The Flight Operations Section suffers from an acute shortage of qualified operations inspectors. Due to the high workload and wide range of tasks required in the certification, approval and surveillance of aircraft operators, the operations inspectors are hampered in their efforts to provide adequate aviation safety oversight. Due to the limited number of operations inspectors, the section has been unable to provide formal training.

3.5.1.5 FOCA has established a system and a well-documented process for the certification of aircraft operators, which also includes comprehensive procedures available to the staff. The Flight Operations Section uses the JAR-OPS implementation guidelines for the certification process. The prospective operator is required to apply for an AOC and for an operating licence. The issuance of an AOC confirms that the operator is technically and operationally competent, while the operating licence entitles the prospective operator to perform commercial air transport.

3.5.1.6 FOCA has established a formal coordination procedure between the Flight Operations Section and the other sections involved in the certification process. At an early stage, a certification team is appointed, led by a focal point and composed of technical staff and inspectors from other disciplines such as airworthiness, licensing and training, transport of dangerous goods and security. The team carries out its tasks pertaining to the certification of the applicant, such as the approval of the operator's manual, programmes and the procedures provided by the applicant, and it also reviews the statement of compliance.

3.5.1.7 An operator is also required to produce an operations manual in conformance with the Swiss regulations implementing JAR-OPS 1 and also Ordinance 748.127.1. A review of an operator's operations manual revealed that it complied with Annex 6, Chapter 4 and Appendix 2, and that relevant manuals were approved by FOCA. A review of a sample AOC issued by the Flight Operations Section also revealed that it fully complied with the requirements of Annex 6. Operations specifications are attached to each AOC indicating authorizations and limitations for each particular air operator.

3.5.1.8 The Flight Operations Section has certified twenty-four operators under JAR-OPS 1 standards and is expecting to certify twenty-eight additional instrument flight rules (IFR) operators and forty-four visual flight rules (VFR) operators when human resources are made available. With the crucial shortage of technical expertise necessary to conduct the core functions of certification of operators, surveillance activities are very limited. FOCA relies mainly on operators and other entities to ensure oversight of aviation activities. However, no system for the control and supervision of these tasks and functions pertaining to the

State's safety oversight responsibilities has been established. The Flight Operations Section has established a programme for supervisory and technical control of persons within an operator's organization performing oversight/check airmen duties, but this oversight is not yet conducted due to the lack of operations inspectors capable of undertaking the task.

3.5.1.9 FOCA has not established an audit schedule of Swiss air operators. Subsequent to the issue of an AOC, only a few operations inspections on some commercial air transport operators are conducted. The frequency of these inspections is low due to the limited human resources available to the Flight Operations Section and does not allow for the completion of a surveillance programme of Swiss air operators.

3.5.2 **Corrective action proposed/implemented by Switzerland**

3.5.2.1 *With respect to the recommendation that a more comprehensive surveillance system be established for commercial air transport operators, FOCA indicated that it will establish an annual schedule for the surveillance of Swiss operators before 31 October 2001. It will request additional Government funds to hire more operations inspectors for this purpose starting 31 December 2001. In addition, a training programme will be introduced for operations inspectors starting 31 October 2001 to ensure their qualifications for auditing activities.*

3.5.2.2 *With respect to ensuring that the national regulations applicable to aircraft operations comply with all the SARPs of Annex 6, FOCA indicated that, although Ordinance 748.127.1 on the operational rules in commercial air transport has not kept pace with Annex 6, it considers that Ordinance VJAR-OPS 748.127.8, which entered into force on 1 November 1997 regarding the implementation of JAR-OPS 1 into Swiss law, sufficiently implements the provisions of Annex 6. FOCA indicated that all major operators are holders of an AOC issued in accordance with VJAR-OPS but that there still exists about forty-four air taxi operators not certified according to this Ordinance. These remaining operators will be re-certified according to VJAR-OPS 1 before the end of December 2002. JAR-OPS 2, 3 and 4 are expected to be implemented in Swiss law by December 2002.*

3.5.2.3 *With respect to establishing regulations to implement the Standards of Annex 6, Part II applicable to international general aviation, FOCA indicated that this will be accomplished with the implementation of JAR-OPS 2 and 4 into Swiss law before the end of December 2002. Differences will be notified to ICAO before the end of July 2001 and significant differences will be published in the AIP and by NOTAM in an AIC if needed.*

3.6 **Airworthiness of aircraft in Switzerland**

3.6.1 **Abstract of findings**

3.6.1.1 The Act provides for ordinances to be issued by the Federal Council and specific ordinances applicable to airworthiness are listed for JAR-OPS (748.127.8), commercial operations (748.127.1), maintenance organizations/JAR-145 (748.127.3), airworthiness/certification of aircraft (748.215.1) and production organizations (748.127.5). The Law entitled "Verordnung über die Lufttüchtigkeit von Luftfahrzeugen (VLL)" of 18 September 1995 has adopted JAR-21 into the Swiss legal system.

3.6.1.2 Continuing airworthiness inspection and surveillance in Switzerland is one of the functions of FOCA and is divided in two sections both reporting to the Head of the Aeronautical Material Division: the

Continuing Airworthiness Section and the Maintenance Organizations and Personnel Section. At the time of the audit, a transition was taking place within FOCA which necessitated the reorganization of departments and the implementation of JARs and new procedures. Inspectors assigned to the Maintenance Organizations and Personnel Section and the Continuing Airworthiness Section are empowered by law to carry out their mandate; however, the credential carried by inspectors does not include a reference to their legal status.

3.6.1.3 The staff composition of the Continuing Airworthiness Section is twelve inspectors and the Section Manager who carries out some inspection duties. Support staff comes from a Central Secretariat. Inspectors of the Continuing Airworthiness Section are primarily responsible for aircraft surveillance and some operational matters. They are deployed as follows: six inspectors and the head of section at the Bern head office, four at Zurich Airport, one in the western region and one in the eastern region. Each inspector has a written list of specialist responsibilities ranging from avionics, helicopters, restricted category aircraft, documentation, gliders and SAFA inspections, and each is assigned specific aircraft types.

3.6.1.4 Inspectors from the Maintenance Organizations and Personnel Section are primarily responsible for operator and maintenance organization certification and surveillance, production organizations and maintenance personnel licensing and training. The staff composition of the Maintenance Organizations and Personnel Section consists of six inspectors, one project manager, three licencing inspectors and the section manager. Three inspectors are at the Bern head office and three at Zurich Airport. The Maintenance Organizations and Personnel Section is understaffed and unable to complete its audit and surveillance plan in the time frame required by JAR-OPS and JAR-145.

3.6.1.5 Inspectors are well-trained and hold adequate qualifications for their level of responsibilities. There is an ongoing training programme to ensure that introductory training, regulatory training, type training and recurrent training are available. Inspectors are appropriately equipped and have access to relevant procedures and checklists. Training records are held by the Personnel Division and each inspector keeps a booklet of his or her own record of training.

3.6.1.6 The Type Certification Section reports to the Director of FOCA through the Vice Director of the Aeronautical Material Division. The scope of responsibilities of the section includes: primary certification authority (PCA and PCA-STC) for products under JAR-23 basic, JAR-22 and JAR-VLA. In addition, it is able to act as PCA for “level 2” STC activities for the following categories of products: JAR-25, JAR-23, JAR-27 and JAR-E. The section has seven engineers who are based at the FOCA main office in Bern and their specialist activities are: avionics/electrical systems/equipment, structure/design and construction, power plant/hydro-mechanical and environmental systems, flight test and aerodynamics, and continued airworthiness/airworthiness directives. Qualifications and training of the engineers are satisfactory as are continuation training and recurrent training. At the time of the audit, twelve type certificates (TCs) had been issued. A listing of supplemental type certificates (STCs) issued is provided to JAA Headquarters on a quarterly basis. For validation of foreign TCs and STCs of products and aircraft, the airworthiness codes of the JAA and United States Federal Aviation Administration (FAA) are used.

3.6.1.7 The Type Certification Section is equipped with a full range of office equipment and has access to required documentation and records. One secretary is available for administrative support. The number of engineers is inadequate to effectively discharge the workload assigned to the section. The section does not maintain oversight of the twenty-three production organizations approved in Switzerland as the task is assigned to the Maintenance Organizations and Personnel Section.

3.6.1.8 The oversight of aircraft and the technical approval of some operations specifications such as IFR, area navigation (RNAV), minimum navigation performance specifications (MNPS), reduced vertical separation minimum (RVSM), extended range operations by twin-engined aeroplanes (ETOPS), operator permits, special authorizations and modifications are the responsibility of the Continuing Airworthiness Section. Procedures used are reflected in checklists and references which are combined in a procedures handbook which is incomplete. The existing procedures are supplemented by procedures and standards contained in JAR-OPS and JAR-145 requirements and guidance material. Many of FOCA's procedures that are in use are in draft form, due to the transition from existing FOCA standards to JARs.

3.6.1.9 The system used to ensure the continuing oversight of aircraft is through the audit of documents, inspection of aircraft and monitoring of reliability and defect analysis. Certificates of airworthiness are issued for an indefinite time period unless revoked or suspended and each aircraft is scheduled to be inspected by FOCA at intervals of three years except for Swissair aircraft which are monitored on a continuing basis. The management of operators' maintenance arrangements and maintenance organizations' approval and oversight is the responsibility of the Maintenance Organizations and Personnel Section. This section works separately from the Continuing Airworthiness Section and uses a different format of procedures which are readily accessible.

3.6.1.10 The system used for operator and maintenance organization certification and surveillance is in accordance with JAR-OPS and JAR-145 requirements and guidance material, and consists of audits and inspections using pro forma reporting documents. The process is planned and monitored using a software-based management programme which is an integrated programme of inspection and data collection. The division of responsibilities shared between the Maintenance Organizations and Personnel Section and the Continuing Airworthiness Section has evolved during the maturity of FOCA but responsibilities and procedures available are no longer following a logical division due to the introduction of new airworthiness standards and their required procedures. Files reviewed were comprehensive in content and well-organized.

3.6.1.11 The process for certification of engineering/manufacturing of aircraft, components, parts and equipment is defined in the Certification Procedures Handbook which was issued on 23 March 2000 and is under Revision No. 2. The handbook contains a section on the structure and staffing of the Certification Section followed by detailed type certification, type validation, airworthiness certificates, post-type certification activities, modification approval, issuance of airworthiness directives (ADs), etc.

3.6.1.12 Procedures follow JAR-21 and relate to the acceptance of an initial application, creation of a certification team, appointment of specialists to the team, development and approval of a type certificate basis, compliance finding process, certification programme, certification review items, compliance record, final report, compliance statement, conformity statement and inspection, equipment qualifications and conclusion of the process. The handbook contains procedures for the issue of master minimum equipment lists (MMELs), record-keeping, ADs, repairs, etc.

3.6.1.13 ADs issued by States other than Switzerland are normally mandated without changes other than to give the AD a Swiss identity. ADs are issued by FOCA for Swiss products in accordance with a handbook procedure. FOCA appoints designated engineers by contract to provide technical data, engineering reports, stress analyses, etc. There is no legal basis for FOCA to delegate part of its responsibility to an individual. There are no written procedures for the control and surveillance of designees.

3.6.2 **Corrective action proposed/implemented by Switzerland**

3.6.2.1 *FOCA indicated that it will produce a supplementary credential issued to inspectors before the end of June 2002 which contains a reference to the legal status of the inspector.*

3.6.2.2 *With respect to the development of an inspector handbook, FOCA indicated that existing written procedures will be completed and integrated into an inspector's handbook before 31 December 2001. Uniformity will be assured by the future FOCA quality manager, a function which will be created in the framework of the FOCA reorganization.*

3.6.2.3 *FOCA indicated that the planned reorganization will ensure that the interface between type certification and production oversight is clearly defined. Dedicated internal procedures are in the process of being reviewed and will be completed by 1 January 2001.*

3.6.2.4 *With respect to increasing the number of staff necessary to ensure that assigned safety oversight, design and production inspections and audits are completed within required time limits, action proposed is as indicated in paragraph 3.3.2 above.*

3.6.2.5 *With respect to the recommendation that a legal basis be established for the designation of engineers from industry, along with procedures to ensure oversight of the designees, FOCA indicated that, in the future, supervision of aerotechnical matters will be centralized in the Institute of Technical Safety. The delegation of technical assignments to third parties, including specific procedures and oversight of designated engineers, will therefore be regulated by a particular law on technical security, to be established before the end of December 2004. In the meantime, FOCA will issue adequate guidance material before 31 December 2001.*

3.6.2.6 *With respect to ensuring that when a Permit to Fly is issued, the owner or operator is informed that it is only valid in Swiss airspace and that permission to overfly another State must be obtained from that State, FOCA indicated that Internal Procedure F 422 has been adopted in draft form and all concerned inspectors briefed accordingly. This procedure will be formalized by 31 December 2001. External Order TM-R 02.001-40 will also be amended to reflect this requirement before 30 June 2001.*

4. COMMENTS

As indicated above, Switzerland submitted an action plan on 12 January 2001, addressing all the findings and recommendations that were forwarded, including comments and feedback on the interim report sent on 16 November 2000. FOCA is encouraged to keep ICAO regularly informed with regard to the implementation of the proposed action plan and the progress made in accordance with the schedule established.

5. STATUS OF IMPLEMENTATION AND DIFFERENCES FROM THE ICAO SARPs

Switzerland is progressively implementing the JARs in its regulatory framework in the area of personnel licensing, operations and airworthiness of aircraft. At the present time, Swiss regulations applicable to these areas are a mix of JARs and national regulations which have not yet been fully assessed to determine their compliance with the SARPs of Annexes 1, 6 and 8. Switzerland is urged to conduct a

thorough review of its national legislation and regulations and to notify ICAO of any differences as required under Article 38 of the Chicago Convention.

— END —