Flight Safety Authority

annual report 2002

FLIGHT SAFETY AUTHORITY
CAA FINLAND

Abbreviations

AME	Authorised Medical Examiner
FTO	Flying Training Organisation
EASA	European Aviation Safety Agency
ESARR	Eurocontrol Safety Regulatory Requirements
GASR	Group of Airport Safety Regulators
ICAO	International Civil Aviation Organization
JAA	Joint Aviation Authorities
JAR	Joint Aviation Requirements
JAR-FCL	Joint Aviation Requirements - Flight Crew Licensing
JAR-OPS	Joint Aviation Requirements - Operations
PEL	Personnel Licensing
POA	Production Organisation Approval
RVSM	Reduced Vertical Separation Minima
SAFAR 92	Special Federal Aviation Regulation
STD	Synthetic Training Device
SRC	Safety Regulation Commission
TRG	Training
TRTO	Type Rating Training Organisation

Flight Safety Authority annual report 2002

Editor:	Kirsi Seppälä, Flight Safety Authority
Photographs:	Nanni Akkola-Ante
Layout and graphics:	Satu Lusa, Kaskelotti
English translation:	Leila Iikkanen, Flight Safety Authority
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CIVIL AVIATION ADMINISTRATION
FLIGHT SAFETY AUTHORITY

Visiting address: Ilmailutie 9, Vantaa
Postal address: P.O.Box 50,
FIN-01531 Vantaa, Finland
Telephone exchange (CAA): +358 9 82771
Fax: +358 9 8277 2499
E-mail: lentoturvallisuushallinto@fcaa.fi
Licensing office, telephone:
+358 9 8277 2450
Licensing office, fax: +358 9 8277 2498
Training and licensing:
jarfcltuki@fltsafety.fcaa.fi
Aircraft maintenance licences:
jar66tuki@fltsafety.fcaa.fi
Flight operations:
ops-tuki@fltsafety.fcaa.fi
Aircraft registration and mortgaging:
ilma-alusrekisterijakiinnitykset@fcaa.fi
Flight safety in general:
lentoturvallisuushallinto@fltsafety.fcaa.fi
www.lentoturvallisuushallinto.fi

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Flight Safety Authority improves its services for the safety of aviation

Flight Safety Authority promotes Finnish aviation

The Flight Safety Authority, FSA, seeks to continuously improve the quality and efficiency of its customer service, to be better able to meet the wishes of our customers. For this purpose, a two-year development project called "Heavy" was started in April last year. The project aims to raise the level of customer service and clarify FSA's advisory role by increasing staff co-ordination as well as improving interaction and customer service skills. The first step was to arrange training on good administrative practices for the whole FSA personnel. Moreover, the project will help to clarify management procedures and working processes, improve staff training, and develop systems for measuring performance and customer satisfaction.

Besides improving customer service, we will naturally focus on our main duty of ensuring flight safety in all our operations. Last year again, flight safety remained at a high level, and there were no fatal accidents in commercial or general aviation. However, one fatality occurred both in parachuting and hang gliding.

The European Union is now about to assume a more prominent role in aviation regulatory functions. The changes in progress will profoundly affect both FSA and Finnish aviation in general. The Finnish Flight Safety Authority has been actively involved in the preparations for the establishment of the European Aviation Safety Agency, EASA. This work, which has been going on for several years, was accomplished during the past year. The regulation establishing EASA became effective on 28 September 2002, and the Agency will commence its operations a year later. EASA will be initially located in Brussels, but no political consensus has yet been reached as to the permanent location of its headquarters. This will probably impede the initiation of its operations. The Agency, with a staff of about 300 - 400, will assume responsibility for preparing flight safety regulations and issuing type certificates to all aircraft. The common requirements are intended to ensure a high level of safety and uniform competitive positions throughout the union. Although this is basically beneficial to Finnish aviators and air operators as well, a danger exists that the specific operating conditions in Finland may not be sufficiently considered when drafting requirements suitable for larger markets. For this reason, it is particularly important that aviation companies, staff organisations and other interest groups bring any anticipated problems to the knowledge of drafters and decision-makers while regulations are in preparation.

Furthermore, the European Union has proceeded with the Single Sky project by drafting regulations on the framework for the creation of a Single European Sky, provision of air navigation services, organisation and use of airspace, and interoperability of the European ATM network. The Council of Ministers reached political consensus on these regulations in December. The Single Sky project aims at preventing and eliminating problems associated with airspace congestion and resulting delays in many EU member states, as well as drawing up common requirements for safe and efficient provision of air navigation services. The regulation will require air navigation service providers to be licensed. The drafting and application of common standards and detailed licensing practices will considerably add to FSA's workload.

A positive trend in numbers of aviation licences and training operations still continued, although the increased expenses somewhat restrain the growth. There is a clear shortage of experienced pilots and flight instructors in commercial aviation, and the establishment of new airlines will still increase the need for staff resources. Aviators have therefore expressed growing concern for the future of Helsinki-Malmi airport. Half of all Finnish pilots and almost two thirds of professional pilots are trained at this airport. Helsinki-Malmi plays an important role in aviation training and raising future pilot generations. It seems that all proposed alternatives for moving aviation operations away from Malmi would considerably impair the facilities for flight training and general aviation in Finland.

Kim Salonen
Director, Flight Safety Authority

Responsibility, professionalism and co-operation are keys to safety

The Flight Safety Authority (FSA) is the Finnish national aviation authority, charged with maintaining and improving flight safety in Finland. It operates under the Finnish Civil Aviation Administration, but has independent powers of decision. Flight safety is achieved by responsibility, professionalism and co-operation with interest groups.

Values guiding our work

Flight safety

By issuing regulations and overseeing aviation operations, we maintain the flight safety in Finland at the high level achieved in technologically developed countries. This high level of safety results from our sense of responsibility, professionalism, and co-operation with interest groups.

Efficiency

We work systematically to achieve our objectives. We make the best use of our resources and continuously seek to improve our working procedures.

Good customer service

Providing good service to our customers is important to us. We act consistently, equally, reliably and flexibly. We react promptly and effectively to any feedback.

Co-operation

We act together to reach our common goals and value each other's work. Our co-operation is based on dialogue, openness and mutual trust.

Objectives defined by the Ministry of Transport and Communications

The Flight Safety Authority's main duty is to ensure, by regulatory actions, that the flight safety in Finland remains at a high international level. Along the common guidelines defined by the Joint Aviation Authorities (JAA), FSA's safety objective is to continuously reduce the annual number of aircraft accidents and resulting fatalities despite the growth in air traffic.

To achieve this objective, FSA aims to make sure that:

- the Joint Aviation Requirements (JAR), drafted at the European level to ensure flight safety, are implemented in Finland according to jointly agreed schedules and procedures,
- the specific operating conditions in Finland are observed to the extent possible, by participating in the co-operation between European aviation authorities,
- the joint requirements are applied in Finland as consistently as possible with the other countries,
- the specific operating conditions in Finland are considered within the limits allowed by the joint requirements,
- any knowledge obtained from accident and incident investigation at national or international level is used to enhance flight safety.

To reach its general objectives, the Flight Safety Authority had defined the following primary operational goals:

- participate in the preparations for the establishment of EASA, the European Aviation Safety Agency, as well as other rule-making projects in the European Union within FSA's field of activity, in co-operation with the Ministry of Transport and Communications,
- participate in the work and development of JAA and Eurocontrol SRC (Safety Regulation Commission) and implement the jointly drafted regulations,
- carry out the regulatory duties needed for the opening of the third runway at Helsinki-Vantaa airport and associated operational procedures,
- publish an aviation regulation on flight and duty time limitations for pilots,
- accomplish the recommendations resulting from the ICAO audit in Finland by publishing an aviation regulation on private flight operations and aerial work,
- introduce the joint European ECCAIRS database system for handling incident reports,
- update the publication system of aviation regulations;
- develop the skills of personnel by drawing up a strategy and preparing personnel development and training plans based on it,
- emphasize the efficiency and quality of customer service, ensure the equal treatment of customers, and clarify FSA's role and public image.

Flight safety remained at a high level

An essential goal in the Flight Safety Authority's work, as determined by the Ministry of Transport and Communications, is to maintain flight safety in Finland at a high international level.

FSA analyses and investigates air safety incidents and occurrences on the basis of reports submitted to it. Where necessary, these reports lead to suggestions for improvement of flight safety. In 2002 FSA received 511 occurrence reports, while the figure for the previous year was 509. The Finnish Accident Investigation Board began an investigation of 15 accidents and incidents. FSA uses various inspections, reporting systems and audits to monitor civil aviation safety trends as well as relations and interaction between causal factors.

Safety trends remained favourable in year 2002. No fatal accidents occurred in commercial flight operations or general aviation. There were no accidents in airline operations either, but two serious incidents occurred.

General aviation accounted for three accidents, one of which involved a Finnish aeroplane in Norway. One person was seriously injured. Moreover, there were 11 incidents in which an aircraft was damaged, and three serious incidents. Hot air balloons were damaged in three incidents.

Sport aviation had two fatal accidents and two accidents resulting in serious injury. The fatalities occurred in parachute jumping and powered hang gliding, whereas the serious injuries were sustained by an ultralight pilot and a parachutist. There were 23 incidents with aircraft damage in sport aviation, of which 11 involved sailplanes, 11 ultralight aeroplanes and one a powered paraglider.

Europe-wide co-operation

Aviation is a very international business, and regulatory functions within the field are also largely based on international co-operation. The Flight Safety Authority is an active participant in many Nordic and European working groups.

European aviation safety agency EASA was established

One of the primary goals for FSA's international operations was to participate in the preparatory work for the establishment of EASA, the European Aviation Safety Agency, as well as other rulemaking projects within FSA's field of activity, together with the Ministry of Transport and Communications. FSA was involved in the establishment of EASA and will, after EASA begins its operations, appoint one of its employees to represent Finland in its Management Board. The regulation establishing EASA entered into force in September 2002.

Aviation regulatory functions reviewed in accordance with JAR-OPS

FSA implemented the Joint Aviation Requirements (JAR) according to the timetable set by the Joint Aviation Authorities (JAA). However, the implementation of JAR-OPS requirements for companies operating small aeroplanes under visual flight rules (VFR) was further postponed in Finland, since these companies still had inadequate facilities to meet the stricter JAA standards.

FSA also contributed to the uniform application of JARs at European level by taking part in inspections carried out by JAA standardisation teams.

ESARRs are implemented through national aviation regulations

FSA also participated in Eurocontrol Safety Regulation Commission (SRC) meetings. SRC's primary duty is to prepare common European regulatory standards in the field of air navigation services.

FSA continued the implementation of Eurocontrol Safety Regulatory Requirements, ESARRs, by drawing up corresponding national aviation regulations. Another task associated with ESARRs was to participate in a working group established to harmonise aviation regulations in the Nordic countries.

Joint European requirements for airports

As yet there is no pan-European organisation for airport safety authorities. Last year, FSA took part in one GASR working group meeting.

GASR aims to harmonise airport safety requirements along the same principles as the JAA. Last year, GASR started to elaborate common airport safety requirements for all member states on the basis of international standards and recommended practices contained in ICAO Annex 14. Moreover, GASR designed an international training programme for aviation officials working as airport inspectors.

Database system for occurrence reports

The evaluation phase of the ECCAIRS database system, developed for the handling of civil aviation occurrences within the European Union, revealed some deficiencies in the software. The rectification of these deficiencies caused some delay in the delivery of the system, and the Joint Research Centre of the European Commission will probably make the production version available to national flight safety authorities during 2003. The Flight Safety Authority played an active role in the development of ECCAIRS, associated with the proposal for an occurrence reporting directive under preparation in the European Union, and co-ordinated Nordic co-operation in the analysis of incidents and occurrences.

Regulation on private flight operations and aerial work in preparation

One of FSA's objectives was to accomplish the actions recommended in the ICAO audit to Finland in 2001 by publishing an aviation regulation on private flight operations and aerial work. For this purpose, aviation regulation OPS M2-1 was drafted, and it is intended to be circulated for comments among aviation organisations early in 2003. The preparation progressed rather slowly because of the scope of the work and, on the other hand, amendments made to ICAO Annex 6 Part II while the regulation was being drafted. The regulation on helicopter operations is still under preparation, since the extensive amendments made to ICAO Annex 6 Part III need to be incorporated in the regulation.

The Flight Safety Authority inspects flight operations

FSA made flight operations inspections to 16 commercial operators. In addition, 25 en-route inspections were made on individual flights of different operators, and 24 foreign aeroplanes were subjected to ramp checks at Finnish airports. FSA also reviewed several changes to Operations Manuals and approved new procedures introduced by operators.

Seven STD inspections were performed on flight simulators and nine on flight training devices. Most of them were revalidation inspections, but some initial inspections for equipment approval were also made. The requirements on Synthetic Training Devices (STD), which include flight simulators, flight and navigation procedures trainers and flight training devices, are contained in JAR-STD.

At the end of 2002, there were 13 commercial operators in Finland with a JAR-OPS Air Operator Certificate. Moreover, 29 operators held a national AOC.

New aviation regulation on pilots' flight and duty time limitations

FSA published aviation regulation OPS M3-15, Flight and duty time limitations in airline operations, on 31 October 2002 after two rounds of comments and consultation with various interest groups. The regulation entered into force on 1 January 2003. However, it allows a transitional period until 1 April 2004 for the operators to modify their Operations Manuals and computer-based planning and monitoring systems accordingly. The EU project aiming to define the flight and duty time requirements at European level in EU-OPS 1 has not proceeded as expected.

Flight operations and licensing division was re-organised as teams

The establishment of new airline companies in Finland increased the need for resources at the Flight Safety Authority, since its duties include handling applications for air operator certificates and reviewing Operations Manuals. There were previously only three airlines in Finland, and their applications for JAR-OPS operator certificates for commercial air transport had been processed in years 1998 and 2000 already.

To intensify the use of resources, FSA Flight Operations and Licensing Division was re-organised as teams. Seven teams were set up under the two sections of the Division. The team leaders assist the Head of Section in co-ordinating the inspectors' work and ensuring that the individual inspectors charged with different duties act consistently. Moreover, the team leaders have more responsibility than before in the preparation of various inspections and decisions. Shortage of personnel in the Flight Operations and Licensing Division could be relieved by hiring five new inspectors, but on the other hand, four inspectors were lost.

The number of licences grows

The total number of pilot licences has consistently increased since 1999, when the Joint Aviation Requirements on flight crew licensing, JAR-FCL, became effective. At the end of year 1999, there were 6345 licences. By the end of 2002 the number had grown by 19 per cent, to 7537.

Last year, the number of pilot licences increased by 7.7 per cent, which means 537 licences. There were 2401 private pilot licences, 1770 professional pilot licences and 3366 sport aviation licences valid at the end of the year.

Besides the training of new pilots, the increase may have been caused by holders of expired national licences renewing their licence, to be later able to convert it into a JAR-FCL licence. Another contributing factor may be that a JAR-FCL licence must be re-issued every five years, while a national licence was valid for not more than two years. For this reason, the statistics probably contain several licences for which the associated medical certificate or class / type rating is no longer valid, which means that the licence has actually expired as well. Based on the number of valid medical certificates, there are 5600 active pilot licence holders in Finland. On the other hand, some of them may hold two different levels of medical certificate, i.e. both a JAR-FCL certificate and a national sport aviator's certificate. A licence holder may also have several licences at the same time. The number of pilot medical certificates, both JAR and national, increased by 659 from the previous year.

At the end of year 2002, there were 1223 aircraft maintenance mechanic licences and 373 air traffic controller or AFIS officer licences. The total number of different licences was 9133. From 2001, the number increased by 6.7 per cent, which means 570 licences.

Transitional period for JAR-FCL training requirements ended

The transitional period associated with JAR-FCL training requirements ended for aeroplane flight training on 30.6.2002 and for helicopter flight training on 31.12.2002. All student pilots trained in accordance with the former national system were required to have completed their training by these dates. In the future, all student pilots must meet the JAR-FCL requirements when applying for a pilot licence.

The end of the transitional period also affected national aviation regulations, so that a large number of licensing (PEL series) and training (TRG series) regulations were revoked. The issues contained in these regulations are now covered by corresponding JAR-FCL requirements.

By the end of last year, seven flight schools in Finland had been granted a Flying Training Organisation (FTO) approval for professional pilot training in accordance with JAR-FCL. One training company held a Type Rating Training Organisation (TRTO) approval, and 12 separate approvals

for the arrangement of type rating courses were granted. Moreover, there were 55 valid approvals for private pilot training, 59 for glider or ultralight pilot training, two for the training of air traffic services personnel and six for aircraft maintenance mechanic training.

Training organisation inspections

The Flight Safety Authority made training inspections in three Flying Training Organisations approved for professional pilot training and six Type Rating Training Organisations. The inspections revealed some non-compliances, for which corrective actions were required.

Moreover, the review of Operations and Training Manuals required from JAR-FCL-approved FTOs and TRTOs increased FSA's workload. In many cases, some clarifications need to be requested from the organisations before the manuals fulfil all requirements for the intended operations. The total number of FTO and TRTO approvals granted, including significant changes to such approvals, was 22.

The inspection and approval of Training Organisation Expositions presented by vocational schools training aircraft maintenance mechanics did not proceed as expected, since the manuals could not yet be brought to full compliance with JAR-147. The applicants have not yet been able to get their applications so ready that a JAR-147 training organisation approval could be granted. For this reason, the training organisations for aircraft maintenance mechanics still operate under national approvals. When the students have completed the required theoretical and practical training, they receive a national aircraft mechanic licence, which can later be converted into a JAR-66 licence.

First JAR-FCL basic course for aviation medical examiners in Finland

The Flight Safety Authority, together with CAA Finland's special vocational institute Avia College, organised the first basic course for aviation medical examiners in Finland as required by JAR-FCL. In all, the course was attended by 27 doctors. The purpose of the course, besides increasing and deepening the attendants' knowledge in aviation medicine, was to ensure that Finland preserves an extensive network of aviation medical examiners.

After completing the course, the attendant may be granted an Aviation Medical Examiner authorisation for Class 2 (AME 2). Many of the students applied for AME authorisations in different parts of Finland. When deciding on the authorisations to be granted early in 2003, the number of pilots and air traffic controllers in each area will also be considered. A Class 2 AME is authorised to carry out medical examinations for sport aviators, air traffic controllers and AFIS officers. At the end of 2002, about 40 Finnish doctors held an AME authorisation.

Statistics on JAR theoretical knowledge examinations organised by FSA in 2002

	Number of applicants	Number of attempts per subject	Number of passes	Number of applicants passed at first attempt	Percentage of applicants passed at first attempt	Average number of attempts
PPL(A) Private pilot (aeroplane)						
Whole examination	83			27	32,53	
Air law	105	151	104	76	72,38	1,42
Aeroplane general knowledge	97	139	91	67	69,07	1,36
Flight performance and planning	97	144	99	72	74,23	1,44
Human performance and limitations	104	123	111	98	94,23	1,21
Meteorology	97	133	98	75	77,32	1,33
Navigation	97	163	93	65	67,01	1,59
Operational procedures	97	136	98	69	71,13	1,45
Principles of flight	97	176	94	64	65,98	1,69
Communications	98	101	99	96	97,96	1,03
PPL(H) Private pilot (helicopter)						
Whole examination	2			1	50,00	
Air law	2	2	2	2	100,00	1,00
Helicopter general knowledge	2	2	2	2	100,00	1,00
Flight performance and planning	2	2	2	2	100,00	1,00
Human performance and limitations	2	2	2	2	100,00	1,00
Meteorology	2	2	2	2	100,00	1,00
Navigation	2	3	2	1	50,00	1,50
Operational procedures	2	2	2	2	100,00	1,00
Principles of flight	2	2	2	2	100,00	1,00
Communications	2	2	2	2	100,00	1,00
CPL(A) Commercial pilot (aeroplane)						
Whole examination	2			1	50,00	
Air law	5	11	8	2	40,00	1,75
Airframe / systems / power plant	5	15	9	3	60,00	2,11
Instrumentation	5	17	11	3	60,00	2,18
Mass and balance	5	12	10	4	80,00	1,80
Performance	5	7	6	5	100,00	1,33
Flight planning and monitoring	5	9	6	3	60,00	1,67
Human performance and limitations	5	5	5	5	100,00	1,00
Meteorology	5	10	8	4	80,00	1,63
General navigation	5	10	8	4	80,00	1,63
Radio navigation	4	11	8	2	50,00	1,88
Operational procedures	5	5	4	4	80,00	1,00
Principles of flight	5	12	8	3	60,00	1,88
Communications	4	4	4	4	100,00	1,00
CPL(H) Commercial pilot (helicopter)						
Whole examination	12			0	0,00	
Air law	12	26	12	2	16,67	2,08
Airframe / systems / power plant	12	23	12	4	33,33	1,92
Instrumentation	12	30	12	1	8,33	2,42
Mass and balance	12	16	12	8	66,67	1,33
Performance	13	13	13	13	100,00	1,00
Flight planning and monitoring	13	27	14	5	38,46	1,93
Human performance and limitations	12	13	12	11	91,67	1,08
Meteorology	12	18	12	8	66,67	1,50
General navigation	12	14	12	10	83,33	1,17
Radio navigation	12	18	12	8	66,67	1,50
Operational procedures	12	21	12	4	33,33	1,83
Principles of flight	12	12	12	12	100,00	1,00
Communications	12	12	12	12	100,00	1,00
IR(A) Instrument rating (aeroplane)						
Whole examination	24			17	70,83	
Air law	43	44	43	42	97,67	1,02
Airframe / systems / power plant	43	52	52	43	100,00	1,17
Instruments / electronics	43	66	56	36	83,72	1,39
Flight planning and monitoring	43	48	46	42	97,67	1,11
Human performance and limitations	43	44	43	42	97,67	1,02
Meteorology	43	47	45	41	95,35	1,09
General navigation	43	52	49	41	95,35	1,16
Radio navigation	43	55	50	39	90,70	1,26
IFR communications	43	43	43	43	100,00	1,00
ATPL(A) Airline transport pilot						
Whole examination	23			6	26,09	
Air law	46	73	44	25	54,35	1,68
Airframe / systems / power plant	45	65	45	28	62,22	1,44
Instruments / electronics	32	55	35	18	56,25	1,66
Mass and balance	34	36	35	33	97,06	1,06
Performance	68	69	66	65	95,59	1,02
Flight planning and monitoring	69	83	65	57	82,61	1,20
Human performance and limitations	42	42	42	42	100,00	1,00
Meteorology	43	54	43	33	76,74	1,26
General navigation	40	46	41	35	87,50	1,17
Radio navigation	48	54	48	44	91,67	1,10
Operational procedures	41	57	39	26	63,41	1,36
Principles of flight	50	55	46	42	84,00	1,09
VFR communications	50	50	50	50	100,00	1,00
IFR communications	51	51	51	51	100,00	1,00

Statistics on national theoretical knowledge examinations organised by FSA in 2002

	Number of applicants	Number of attempts per subject	Number of passes	Number of applicants passed at first attempt	Percentage of applicants passed at first attempt	Average number of attempts
PPL(A) Private pilot (aeroplane)						
Whole examination	17			5	29,41	
Human performance and limitations	19	24	18	16	84,21	1,11
Air law	32	36	33	29	90,63	1,12
Navigation	19	33	16	11	57,89	1,56
Operational procedures, aerodromes, ATS	19	30	21	15	78,95	1,43
Principles of flight, basic IFR, performance	19	35	19	13	68,42	1,68
Meteorology	19	32	16	10	52,63	1,63
Aeroplane general knowledge	19	25	21	17	89,47	1,33
Communications	19	22	20	19	100,00	1,15
CPL(A) Commercial pilot (aeroplane)						
Whole examination	31			22	70,97	
Human performance and limitations	31	32	32	31	100,00	1,06
Air law	35	37	32	31	88,57	1,03
Navigation	31	32	30	29	93,55	1,03
Operational procedures	31	32	31	30	96,77	1,03
Principles of flight	31	34	32	29	93,55	1,09
Meteorology	31	34	31	28	90,32	1,10
Aeroplane general knowledge	31	33	29	27	87,10	1,07
Flight performance and planning	31	33	31	29	93,55	1,06
CPL(H) Commercial pilot (helicopter)						
Whole examination	2			0	0,00	
Human performance and limitations	4	4	4	4	100,00	1,00
Air law	5	5	5	5	100,00	1,00
Navigation	4	4	4	4	100,00	1,00
Operational procedures	4	4	4	4	100,00	1,00
Principles of flight	4	4	4	4	100,00	1,00
Meteorology	4	5	4	3	75,00	1,25
Helicopter general knowledge	4	4	4	4	100,00	1,00
Flight performance and planning	4	4	4	4	100,00	1,00
IR(A) Instrument rating (aeroplane)						
Whole examination	19			11	57,89	
Section I	19	20	18	17	89,47	1,06
Section II	19	22	17	15	78,95	1,12
Section III	19	23	19	15	78,95	1,21
ME(A) Multi-engine rating (aeroplane)						
Multi-engine theory and performance	7	10	8	5	71,43	1,38
ATPL(A) Airline transport pilot						
Whole examination	5			1	20,00	
Air law	5	10	6	2	40,00	2,00
Airframe / systems / power plant	5	10	7	3	60,00	1,71
Instruments / electronics	5	10	6	2	40,00	1,83
Mass and balance	5	5	5	5	100,00	1,00
Performance	5	5	5	5	100,00	1,00
Flight planning and monitoring	5	7	5	4	80,00	1,40
Human performance and limitations	5	7	5	4	80,00	1,40
Meteorology	5	6	5	4	80,00	1,20
General navigation	5	10	6	2	40,00	1,83
Radio navigation	5	9	6	2	40,00	1,83
Operational procedures	5	6	5	4	80,00	1,20
Principles of flight	5	6	5	4	80,00	1,20

Aircraft annual inspections were rated positively

The Flight Safety Authority is responsible for monitoring continued airworthiness, which includes e.g. regular aircraft inspections. Last year, FSA made 409 aircraft annual inspections, which is 31 less than during the previous year. FSA also ordered an enquiry on its aircraft inspection services, which showed that aircraft owners or their representatives were usually satisfied with the service received. Aircraft inspections will, however, be further developed on the basis of these results. Annual inspections of gliders, ultralight aeroplanes, hot air balloons and amateur-built aircraft are carried out by inspectors from the Finnish Aeronautical Association under FSA's authorisation, whereas FSA itself inspects all other aircraft. Last year again, a training session was organised for persons authorised to inspect amateur-built aircraft.

Type certification, import examinations and modification approvals

The Flight Safety Authority's duties include type and import examination of aircraft and other aeronautical products, as well as granting the associated certificates. Last year, FSA participated in 190 certification projects of new aircraft types, engines or propellers in co-operation with other JAA member authorities. Type certificates were granted to six new aircraft types or variants. JAA type certification or validation was given in Finland to Airbus A330-201 and -203, Airbus A340-541 and -642, Gulfstream GV and Bell 427. Moreover, one aircraft type earlier issued with a JAA type certificate, Falcon 2000, was imported to Finland for the first time.

Three new aircraft types or variants were validated in accordance with national regulations, namely Cessna T206H and gliders Discus 2a and Ventus 2-cM. Any new ultralight aeroplane types were not validated last year, but there are three type certification projects for ultralight aeroplanes currently in progress.

In addition, FSA issued 67 modification approvals for aircraft and aeronautical products during 2002.

Design and production organisations

FSA grants approvals for aircraft and aviation equipment manufacturing, production and design organisations and

In year 2002, the FSA	2002	2001
made aircraft annual inspections	409	440
approved aircraft design organisations	1	1
issued production approvals	0	1
issued construction permits for amateur-built aircraft and modification approvals	46	18
granted aircraft noise certificates	34	20
issued airworthiness directives and amendments	109	114

oversees their operations. In 2002, one design organisation approval was renewed. There was only one valid production organisation approval.

New airworthiness certificates

Last year, FSA issued 47 certificates of airworthiness to new aircraft introduced in Finland. Seven of them were given to large commercial aeroplanes with more than 19 seats and another seven to aeroplanes with 19 seats or less. Helicopters and hot air balloons were both issued four new certificates of airworthiness. Most of all, 15 certificates, were granted to ultralight aeroplanes, and the second largest group was gliders with 10 new certificates of airworthiness. In addition, 12 export certificates of airworthiness were issued.

More construction permits for amateur-built aircraft

The number of construction permits for amateur-built aircraft and modification approvals increased by 28 from the previous year, to a total of 46.

Aircraft noise and emissions

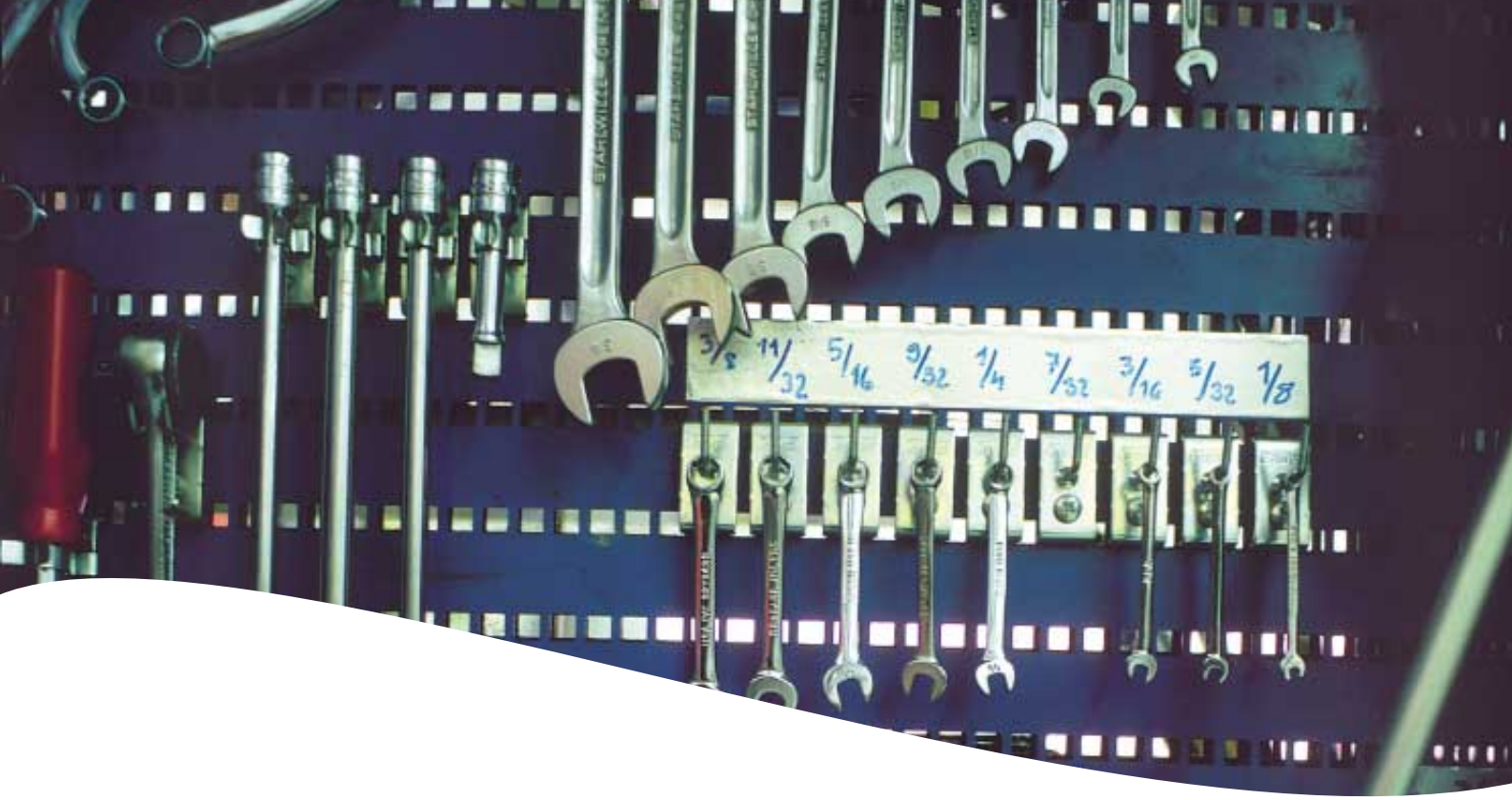
Various standards and recommendations have been issued to restrict aircraft noise and emissions. FSA oversees that they are complied with as regards aircraft type certification, manufacturing and import. Last year, 34 noise certificates were granted.

More stringent cockpit security requirements

The events of 11 September 2001 had a world-wide effect on air traffic and gave rise to new technical requirements for aircraft. The regulations of the United States were brought into effect most rapidly, and they required e.g. all foreign airliners flying to the US to be equipped with a secure cockpit door that can be locked from the inside by August 2002. Initially, the Special Federal Aviation Regulation SFAR 92 allowed a simple locking device to be installed in the door. The JAA also published a similar recommendation to its members. The Finnish Flight Safety Authority did not issue a mandatory regulation on the changes required at the initial stage, but approved cockpit door modifications made to 11 aeroplanes based on the US regulation and JAA recommendation for a fixed term. In the second stage, other large commercial aeroplanes affected by the requirement will need to be equipped with secure cockpit doors that meet all relevant airworthiness requirements. After the time limit expires, cockpit doors in compliance with the second stage requirements must also be installed in the previously mentioned 11 aeroplanes.

Approvals of precision RNAV systems increased

The number of approvals granted to new basic area navigation (RNAV) systems was reduced, since the equipment is already in use where it is needed. Instead, approvals of systems acceptable for precision area navigation increased



considerably from the previous years. The approval requirements for Precision RNAV systems are essentially stricter than those for basic RNAV, and the inspections of navigation databases still require special procedures from operators at this stage. So far, Precision RNAV approvals have only been applied for and granted to scheduled operators.

RVSM approvals, transponder Mode S codes and ELT codes were issued to new aircraft in compliance with applicable requirements as they were imported to Finland. The total number of special approvals granted was 90.

Airworthiness directives ensure flight safety

The Flight Safety Authority addresses any defects or problems encountered in aircraft operations by publishing airworthiness directives. Last year, FSA issued 109 airworthiness directives or amendments to them.

Oversight of maintenance operations and organisations

FSA issues approvals related to aircraft and aviation equipment maintenance, oversees maintenance and repair operations and ensures that maintenance instructions, airworthiness directives, component life limitations and maintenance schedules are complied with. In year 2002, the main emphasis was on inspections and audits of maintenance organisations and approved commercial operators' maintenance systems. The total number of maintenance audits was 60. Besides the annual audits to each organisation, an almost similar number of audits were made due to enlargement of operations or as follow-up audits resulting from non-compliances found in a previous audit.

At the end of the year, there were 11 valid JAR-145 maintenance organisation approvals and ten approvals in accordance with national regulations. No new JAR-145 approvals were granted last year.

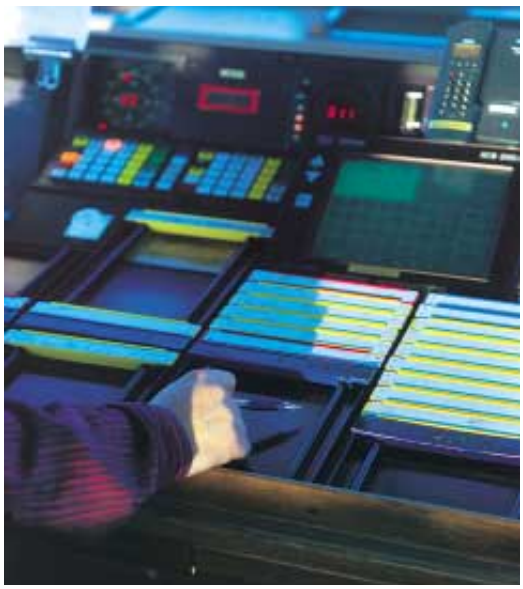
Moreover, 15 commercial operators' maintenance system approvals in accordance with JAR-OPS Subpart M were valid at the end of 2002. Three new JAR-OPS Subpart M approvals were issued during the year.

Development of operations

In a changing environment, it is important to constantly develop the skills and knowledge of personnel. For this purpose, the skills of FSA Technical Division staff were systematically charted, and target levels for skills were defined. The information obtained will be used to draw up detailed training programmes in the future. The same model will also be later applied to the whole FSA organisation.

Furthermore, FSA prepared for issuing Production Organisation Approvals (POA) recognised at the European level, although no applications have been received yet. Despite the establishment of the European Aviation Safety Agency, EASA, POAs will continue to be granted by national authorities. The preparations were started with refresher training and updating FSA's procedures related to POAs.

FSA oversees aerodromes and air navigation services



The Flight Safety Authority supervises the design, construction, maintenance and operation of airports. In the field of air navigation services, it oversees the design and use of procedures and equipment, including related training. It also investigates air traffic incidents.

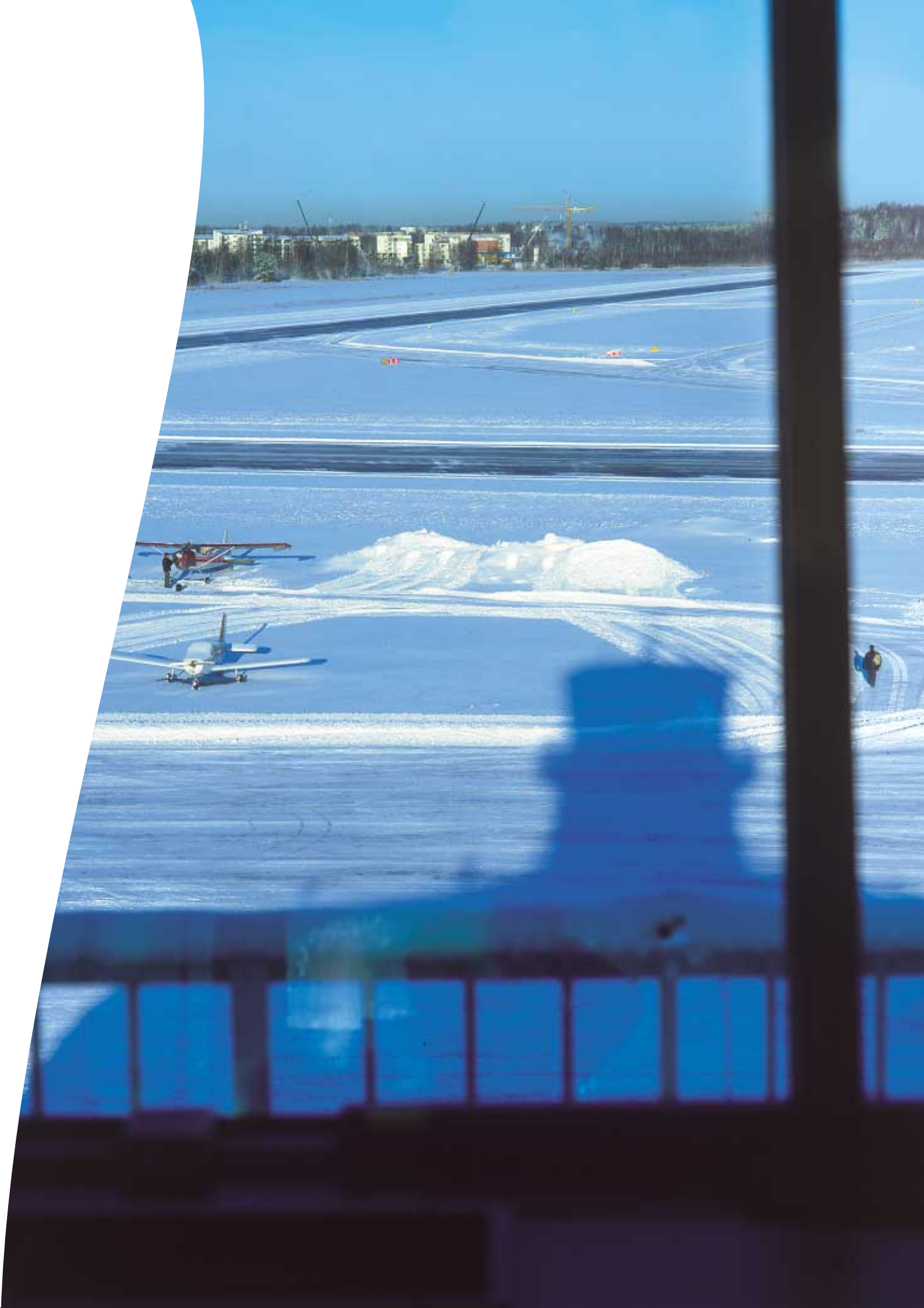
FSA Airports and Air Navigation Services Division concentrated on regulatory duties associated with the opening of the third runway at Helsinki-Vantaa airport. The construction work and other preparations were closely monitored during the whole year. Before the new runway was taken into use in November, FSA inspected and approved numerous operative instructions, systems and equipment. These included e.g. runway and taxiway lights, signs and markings, approach aids, weather observation system and extension of ground radar range.

In addition, FSA participated in the work of Eurocontrol Safety Regulation Commission (SRC). The joint European standards for air navigation services, ESARRs, are currently being implemented in Finland as well, and FSA continued this work by drafting corresponding national aviation regulations. FSA was also involved in a Nordic working group formed by Norwegian, Swedish, Finnish and Danish aviation authorities, which aims at harmonising Nordic aviation regulations associated with ESARRs.

FSA inspected air traffic services units at Jyväskylä, Mikkeli, Savonlinna, Seinäjoki, Pori and Tampere-Pirkkala airports. Depending on the airport concerned, an ATS unit inspection covers the operation of air traffic control or aerodrome flight information service (AFIS). Moreover, airport safety management systems were inspected at Savonlinna, Mikkeli, Kuusamo, Pori, Joensuu, Lappeenranta and Helsinki-Malmi airports.

The Flight Calibration Section was transferred from FSA to the Air Navigation Services Department of CAA Finland at the end of year 2001. In practice, this means that the Flight Safety Authority oversees flight inspections performed by the CAA or other service providers.

Moreover, a development project in progress at FSA aims to improve its internal working processes. The handling of occurrence reports and incident analyses were selected as pilot processes for the project. It was concluded that the handling and analysis of occurrence reports is well organised in the Airports and Air Navigation Services Division, and the same principles will be applied to improve and harmonise incident analysis procedures in other FSA divisions as well.



Number of aviation violations was reduced

Violation against aviation regulations occurs when a licence holder fails to comply with the Aviation Act or regulations issued by virtue of it. The number of suspected violations reported to the Flight Safety Authority has remained below one hundred for a few years already. Most typical aviation violations include flying into controlled airspace without clearance, unauthorised flights within restricted or prohibited areas, failures to comply with ATC clearances, unauthorised commercial operations and weather minima infringements.

In 2002 FSA handled 65 cases involving a suspected violation against aviation regulations. Investigations were completed in 50 reported cases. However, only some of them led to sanctions and some are still under consideration.

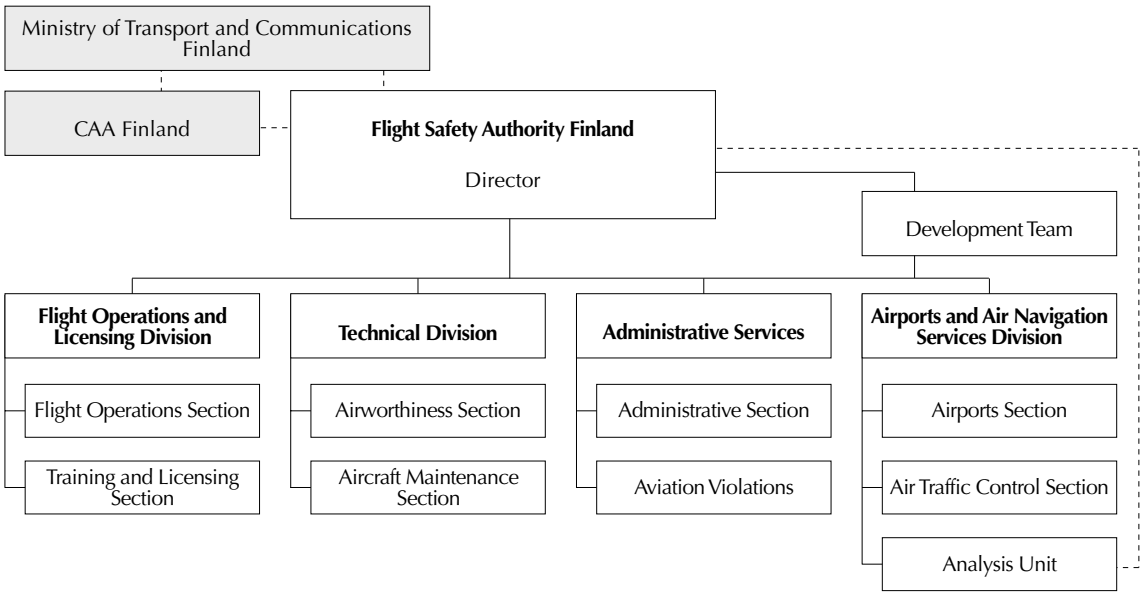
As a result of violations, FSA requires a few aviators each year to retake a theoretical knowledge examination or check flight to detect any gaps in his/her knowledge or skill. If the violation was caused by ignorance or lack of skill, supplementary training is required. The most usual consequence of a violation is a letter of correction, in which the aviator is advised to rectify the faults or deficiencies found. Last year, FSA sent 30 letters of correction. The purpose of these letters is to improve flight safety and ensure that the violations do not recur.

For more serious offences, a warning notice in accordance with Section 28 of the Aviation Act may be issued or the licence may be suspended or revoked in accordance with Section 27 of the Act. No warning notices were issued during the past year. Instead, one case was brought before the Licensing Board, set up by the Ministry of Transport and Communications to handle revocations of licences and operator's certificates. This case involved e.g. infringement of weather minima. The co-pilot was finally given a warning notice, and for the pilot-in-command, the case is still pending in the Supreme Administrative Court.

Several cases suggesting unauthorised commercial operations were revealed during the year, and one private pilot was sentenced to a fine by a lower court for having conducted illegal commercial flights. FSA forwards any criminal cases to the police for preliminary investigation and consideration of charges by the prosecutor.

Moreover, one suspected case of flying while intoxicated was detected at Helsinki-Vantaa airport in December. The airport police made a breath analyser test to the captain and co-pilot of a German scheduled flight because they acted strangely and smelled of alcohol. The test showed that the pilots were under the influence of alcohol. The Finnish legislation does not allow any detectable amount of alcohol in a pilot's blood. FSA therefore gave a report in accordance with Section 90 of the Aviation Act on a suspected case of flying while intoxicated, and the case was forwarded to judicial authorities. As to the flight crew licences, the matter belongs to the state of licence issue, and employment issues are to be decided by the airline.

Organisation of the Flight Safety Authority 31.12.2002



PERSONNEL AND FINANCES

Versatile expert organisation

The number of FSA personnel at the end of last year was 83, of which 15 worked part-time. The number of employees increased by six from the previous year. The average age was 45.9 years, the largest age group being 55-59.

FSA employees work in various demanding expert tasks and supportive duties related to aviation oversight. Most of them act as inspectors of flight operations, flight training, licensing, air navigation services, airworthiness or aircraft maintenance. Continuous training is needed to maintain and develop the personnel's expert knowledge. Last year, the average training cost per employee was 1090 euros.

Financing the operations

FSA's income mainly consists of fees collected for its public services, as determined in a decree by the Ministry of Transport and Communications. These include fees for airworthiness monitoring, licence issue and renewal, training organisation approval, certification of commercial air operators and maintenance organisations, as well as aircraft registration.

To promote flight safety and aviation, charges collected for the services are not intended to cover the actual expenses of producing them. FSA's fees are actually rather low compared with those collected in other countries.

FSA's total income was EUR 864 000 and the operating expenditure EUR 5 134 000. The deficit for the regulatory functions is covered by profit from CAA Finland's commercial operations. However, the new act on state enterprises issued at the end of 2002 may affect FSA's financing in the future, so that part of the finance would come as an allocation from the state budget.

Main income and expenditure of the FSA

	2002 (1000 _)	2001 (1000 _)
INCOME	864	898
Licences	291	261
Certification fees	198	208
Airworthiness monitoring fees	208	211
Other regulatory functions	134	186
Sale of publications	33	32
EXPENDITURE	5 134	4 949
Personnel expenses	3 619	3 464
Other expenses	1 132	1 030
General expenses	383	455

Development projects respond to changes in operating environment

The Flight Safety Authority initiated a self-assessment project based on the EFQM European Quality Award model. The two-day assessment, involving FSA management and staff representatives, helped to identify essential strengths and areas for improvement.

FSA is also in the process of developing indicators and parameters for evaluating performance in accordance with the guidelines defined by the Ministry of Transport and Communications. The Balanced Scorecard framework was chosen as the basis for performance measurement. The project aims at evaluating FSA's operations with regard to its basic task, i.e. ensuring flight safety, and from the viewpoint of its working processes, staff and customers. In autumn 2002, FSA ordered an extensive customer satisfaction survey on its aircraft annual inspection services. Development of the performance measurement system, indicators and parameters will continue in 2003.

Communication and information services focused in the Internet

FSA participated in a training course organised by the Ministry of Finance for state authorities to support the preparation of their Internet service strategies. This work was started by making an inventory of all services provided and their present state. The services were also listed and published in the Internet, grouped according to each sector of operations. FSA will start to formulate the actual strategy and list of measures in the beginning of year 2003. The Internet service strategy is linked both to the information management and communications strategy, as well as to FSA's operational strategy as a whole.

FSA disseminated information to aviators by press releases and on its web site. Towards the end of the year, a general brochure on FSA's operations was published in Finnish.

Aviation regulation system was renewed

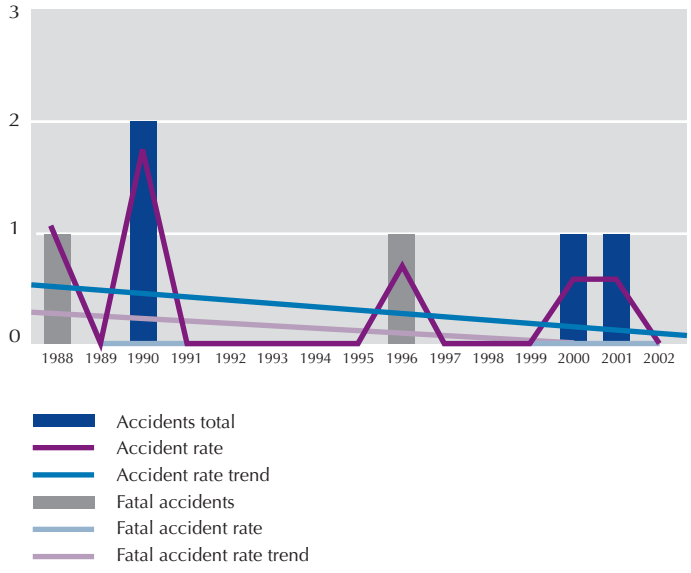
The system for drafting and publishing aviation regulations and advisory circulars was renewed, e.g. as regards updating and instructions. For customers, the improvements are visible both in the external appearance and contents of the collection. Instead of the previous seven binders, the regulations have now been condensed into five binders, which also contain a new series on air navigation services (ANS) and Finnish translations of the Joint Aviation Requirements (JAR).

In addition, any forms were removed from the appendices to the regulations and circulars, and are now available in the Internet. Some of the forms can also be completed on the screen. The next phase will be to increase the number of forms that can be filled in by computer, and to make it possible to send them to a database directly from the Internet. Of course, printed versions of the forms can still be ordered from the customer service.

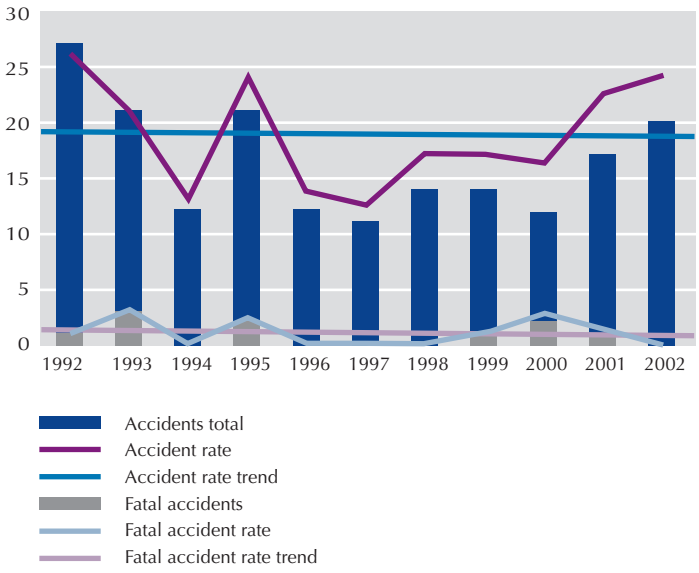
Some advisory circulars not related to aviation regulations or their interpretation were also removed from the collection. Those circulars that are still topical were moved to the Publication Series L established on FSA's web site. This series contains general publications related to flight safety, which can either be read on the web site or ordered as printed versions from the customer service.

FSA also started publishing draft aviation regulations for comments in the Internet. In addition, those JAA requirements on which FSA gives its own statement can be found on its web site.

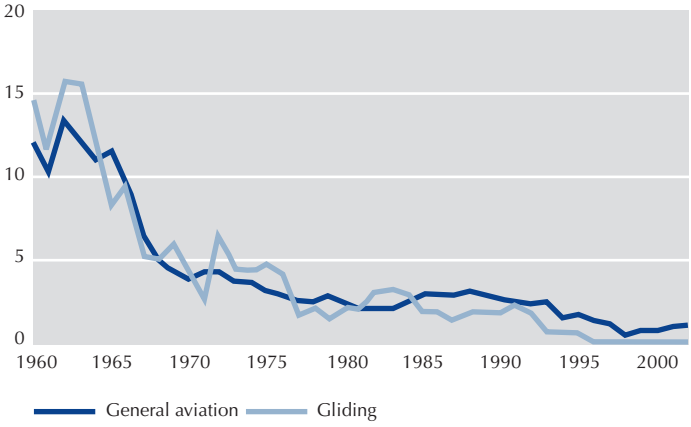
Scheduled air traffic in Finland 1988-2002
Number of accidents per 100 000 flight hours

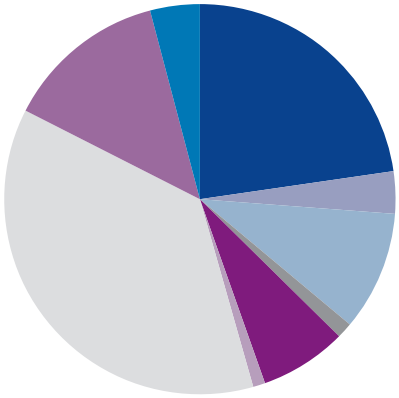


General aviation in Finland 1992-2002
Number of accidents per 100 000 flight hours



General aviation and gliding fatal accidents 1960-2002
5-year averages per 100 000 hours





Distribution of aviation licences 2002

- Private pilot licences 22,7%
- JAR private pilot licences 3,5%
- Commercial pilot licences 9,9%
- JAR commercial pilot licences 1,3%
- Airline transport pilot licences 7,2%
- JAR airline transport pilot licences 1,0%
- Sport aviation licences 36,9%
- Maintenance mechanic licences 13,4%
- Air traffic controllers and AFIS officers 4,1%

Approved training organisations 1999-2002

Training permissions and approvals	1998	1999	2000	2001	2002
JAR-FCL FTO	0	0	3	6	7
JAR-FCL TRTO	0	0	1	1	1
JAR-FCL Type Rating course	0	0	3	15	12
Other training for powered flight	88	81	68	56	55
Glider and motor glider training	46	44	40	44	43
Ultralight flight training	11	13	11	13	12
Autogiro flight training	0	0	1	0	0
Balloon flight training	4	4	4	3	4
Aircraft maintenance mechanic training	8	8	8	9	8
Air traffic services training	2	2	2	2	2
Training approvals total	159	152	141	149	144

FTO= Flying Training Organisation
TRTO= Type Rating Training Organisation

Number of air operator certificates within a five-year period (31.12.)

Air Operator Certificates	1998	1999	2000	2001	2002
Scheduled operators*	3	3	2	3	3
Business jet operators	3	3	4	3	2
Commercial operators (IFR)	16	17	15	12	14
Commercial operators (VFR)	39	35	34	29	16
Helicopter operators	12	9	10	10	9
Balloon operators	6	6	6	7	7
Aeroplane rental agencies	0	0	1	1	2
Operators total	60	53	55	51	43

** using large transport aeroplanes*

One operator may be approved for more than one type of operations, for which reason the total number of operators is smaller than the number of certificates granted for different operations.

Thirteen operators hold an Operating Licence authorizing for transport of passengers and cargo, and an Air Operator Certificate in accordance with JAR-OPS. Operators conducting VFR flights with small aeroplanes have been granted temporary exemption from JAR-OPS requirements.

IFR = Instrument Flight Rules
VFR = Visual Flight Rules

Numbers of licences

	1999	2000	2001	2002
National private pilots (aeroplane)	1878	1809	1902	1998
JAR-FCL private pilots (aeroplane)	0	103	206	306
National private pilots (helicopter)	72	86	81	79
JAR-FCL private pilots (helicopter)	0	5	18	18
Private pilots total	1950	2003	2207	2401
National commercial pilots (aeroplane)	621	649	727	772
JAR-FCL commercial pilots (aeroplane)	0	15	27	92
National commercial pilots (helicopter)	99	116	125	134
JAR-FCL commercial pilots (helicopter)	0	2	8	23
Commercial pilots total	720	782	887	1021
National airline transport pilots (aeroplane)	522	546	594	628
JAR-FCL airline transport pilots (aeroplane)	0	21	47	85
National airline transport pilots (helicopter)	24	27	28	28
JAR-FCL airline transport pilots (helicopter)	0	1	1	8
Airline transport pilots total	546	595	670	749
Glider pilots	1821	1827	1821	1833
Motor glider pilots	902	912	926	937
Ultralight pilots	354	373	429	532
Autogiro pilots	6	6	7	8
Balloon pilots	46	48	53	56
Sport aviation total	3129	3166	3236	3366
Maintenance mechanics *	1095	1098	1181	1223
Air traffic controllers	290	296	331	330
AFIS officers	46	47	53	43
Air traffic controllers and AFIS officers total	336	343	384	373

** The same person may have both a national and JAR-66 licence for helicopters and/or aeroplanes.*

Number of valid medical certificates 2000-2002

	31.12.00	31.12.01	31.12.02
JAR-FCL Class 1	1428	1474	1422
JAR-FCL Class 2 only	2315	2227	2342
JAR-FCL Class 2, for private pilots with instrument rating	46	67	76
JAR-FCL medical certificates total	3789	3768	3840
National medical certificates for sport aviators, classes 2 and 4	690	1257	1844
All pilot medical certificates, total	4479	5025	5684
National medical certificates for air traffic controllers, classes 1 and 3	278	369	386
All medical certificates, total	4757	5394	6070

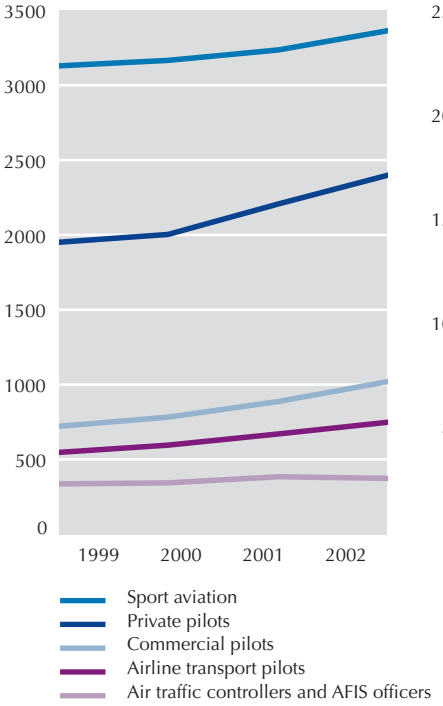
Flight hours 1998-2002

	1998	1999	2000	2001	2002
AIRLINE OPERATIONS					
Helicopter				2100	2100
Aeroplane	188914	187957	209278	188638	191109
Airline operations total	188914	187957	209278	190738	193209
GEN. AVIATION, Commercial flights					
Helicopter	12800*	12200*	11691*	9565	10540*
Aeroplane	34982*	22485*	29807*	27176	25000*
GENERAL AVIATION, Private flights					
Helicopter	6138*	7065*	5804*	6329	3895*
Aeroplane	34100*	39250*	33445*	29010	39240*
General aviation, total	88020	81000	80747	72080	78675*
Glider and motor glider	24000	29600	29577	26078	35440*

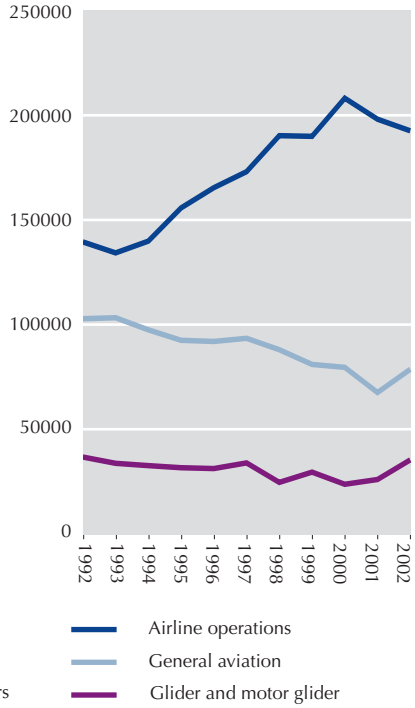
** estimate*

Helicopter flights have not been counted in airline operations during 1998-2000.

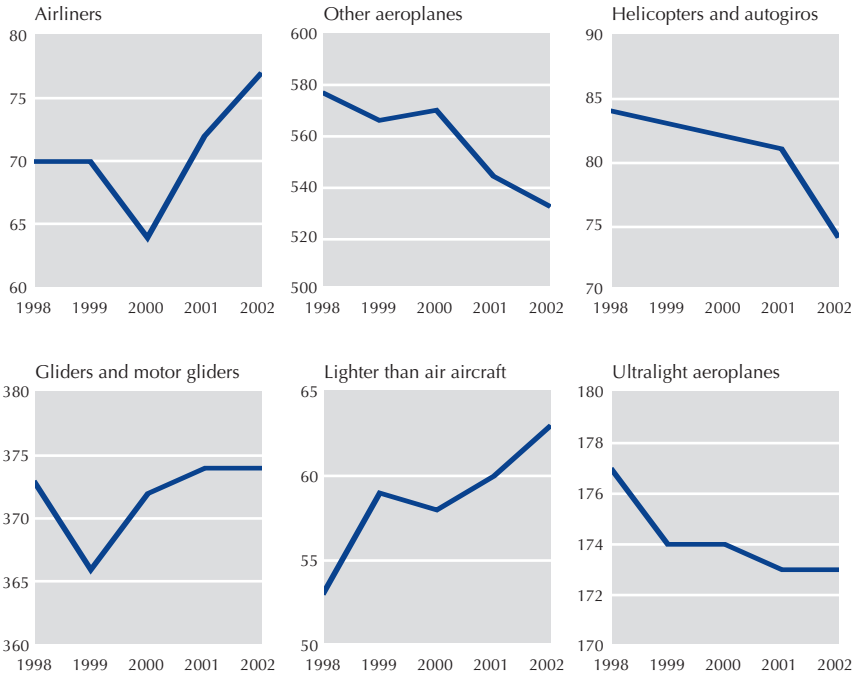
Numbers of licences 1999-2002



Flight hours 1992-2002



Aircraft registered in Finland 31.12.



Aircraft registered in Finland 31.12

	1998	1999	2000	2001	2002
Airliners	70	70	64	72	77
Other aeroplanes	577	566	570	544	532
Helicopters and autogiros	84	83	82	81	74
Gliders and motor gliders	373	366	372	374	374
Lighter than air aircraft	53	59	58	60	63
Ultralight aeroplanes	177	174	174	173	173
Total	1264	1248	1320	1304	1216