



Helicopter course catalogue

skills for flight

Welcome to OAA helicopter training

It is a pleasure to present to you the Oxford Aviation Academy (OAA) **Bell/AB 212 and 412 Training** Program. We have included all of the essential information about our capabilities as well as practical details for attending training at OAA. We are certain that you will find it meets your expectations.

The training program includes all basic and general information on most topics relating to our helicopter training and possible cooperation. New for 2011, we are pleased to offer our JAA approved B412 TRI and B412 single pilot VFR Type Rating courses.

Total quality

The quality of our training is not only based on real estate or machinery; it is based on manpower and know-how. We have uniquely combined flight instructors who have extensive helicopter background, with our simulator-engineering department that operates and maintains a large number of simulators, together with our well-established student support facilities.

Equipment

Our Bell/AB 212 & 412 Full Flight Simulator is based in Stockholm, Sweden at Arlanda Airport. It is designed to meet both military and civilian training requirements for flying skills and mission training, such as search and rescue, emergency and medical services, sling load operations and military tactical training. This includes provisions to train the use of special equipment, such as weather radar, forward looking infrared, night vision goggles, etc.

Price

The Training Program does not include a price list. However, the products and training shown in this catalogue are examples of actual training done and a price can be provided based on them. For all other price quotations, please contact us directly.

As always, the final price will depend on the volume, terms, availability and customization to your specific needs for the training requested.

Agreement

Once the decision to make use of our services is reached, a formal, written agreement will be drawn up between your company and OAA.

If you would like any other information or require our assistance in any way, please do not hesitate to contact us directly.

We look forward to hearing from you!

Oxford Aviation Academy

David Moden
Global Sales Manager

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Oxford Aviation Academy training philosophy

“ Oxford Aviation Academy believes that the key to all successful training is efficient two-way communication between the trainee and instructor.

Successful training is characterised by instructors giving support and encouragement through a trainee-centred and solution-focused approach. ”

Our training

Oxford Aviation Academy (OAA) provides training for both civilian and military customers for VFR, IFR, HEMS, SAR, offshore, military operations, NVG, CRM etc. in our simulator. Below you will find examples and recommendations for different standard products and courses available at OAA.

Our instructors have extensive experience in civilian and military operations and training. Thus, OAA is able to provide consultancy services in most fields concerning flight operations.

We offer customized training since your specific requirements and needs may differ from the examples provided below. Please contact us so that we can design a program to fit your specific needs.



Simulator dry lease

The simulator can be leased per hour without OAA instructor as a Full Flight Simulator (FFS). Training of the Customer's instructors in operating the FFS/CSS instructor station is mandatory and included free of charge in a dry lease agreement. OAA personnel conduct the training.

The Bell/AB 212/412 simulator is equipped for preprogrammed lesson plans, which can be installed on Customer request following separate agreement. A minimum notice of three months is required for the installation, which shall be based on data from the Customer. Price quotes are available on request.

Pilot recurrent training, generic standard training program

Recurrent training is the most commonly requested training at OAA and it is available for technical, VFR, IFR, NVG, SAR, HEMS, offshore, military operations, mission training, etc. Recurrent training can be conducted with or without ground course, according to your needs.

Each simulator session involves:

- Briefing 1, 0 hours
- Simulator 2,0 hours (one hour as Pilot Flying, PF, and one as Pilot Non Flying, PNF)
- Debriefing 0, 5 hours

Each simulator sessions in the FFS in our generic training program is different. Below is a short summary of the courses:

B212/412 Recurrent course 1

- 2 sessions FFS x 2 hours VFR training
- 1 session FFS x 2 hours Mission training

VFR: By training in the FFS refresh the pilot skills in the areas of emergency procedures, system malfunctions and CRM during VMC conditions to the OAA standards.

Mission: By training in the FFS refresh the pilot skills in the customer operations according to company SOP.

B212/412 Recurrent course 2

- 2 sessions FFS x 2 hours VFR training
- 1 session FFS x 2 hours IFR training

VFR: By training in the FFS refresh the pilot skills in the areas of emergency procedures, system malfunctions and CRM during VMC conditions to the OAA standards.



Customers need to place a written order for the development and installation of simulator lesson plans from Oxford Aviation Academy Sales & Customer Relations.

IFR: By training in the FFS refresh the pilot skills in the areas of IFR flying procedures, malfunctions and CRM during IMC conditions to the OAA standards.

B212/412 Recurrent course 3

- 1 session FFS x 2 hours VFR training
- 1 session FFS x 2 hours IFR training
- 1 session FFS x 2 hours NVG training
- 1 session FFS x 2 hours Mission training

VFR: By training in the FFS refresh the pilot skills in the areas of emergency procedures, system malfunctions and CRM during VMC conditions to the OAA standards.

IFR: By training in the FFS refresh the pilot skills in the areas of IFR flying procedures, malfunctions and CRM during IMC conditions to the OAA standards.

NVG: By training in the FFS refresh the pilot skills in the areas of NVG flying procedures, malfunctions and CRM during night in VMC conditions to the OAA standards.

Mission: By training in the FFS refresh the pilot skills in the customer operations according to company SOP.

B212/412 Recurrent course 4

- 1 session FFS x 2 hours VFR training
- 2 sessions FFS x 2 hours NVG training

VFR: By training in the FFS refresh the pilot skills in the areas of emergency procedures, system malfunctions and CRM during VMC conditions to the OAA standards.

NVG: By training in the FFS refresh the pilot skills in the areas of NVG flying procedures, malfunctions and CRM during night in VMC conditions to the OAA standards.

The training program can be conducted with any configuration of the FFS (Bell/AB 212/412) and for an example of different training objectives, please let us know and we will provide you with a detailed course plan for the generic training program. Example of emergencies is also available at Appendix A in this catalogue.



Crew Resource Management for helicopter, Initial course

Training objective:

To achieve good crew management practices and teamwork in everyday flight operations, including effective communication and coordination.

Duration:

2 days

Recurrent course

An abbreviated, non-JAR compliant, one-day recurrent CRM course is also available.

Contents:

(Corresponding to JAR-FCL MCC: CRM theory)

- Course introduction
- Cultural awareness
- Team building and the supportive environment
- Communication
- Attitudes
- Managerial and supervisory skills
- Decision-making and short-term strategy
- Leadership
- Error and error management
- Fatigue
- Workload management
- Stress management
- State of the flight deck
- Automation
- Multi-crew operation
- Situation awareness
- Case study/group work

Training method:

Instructor-conducted workshops that are supported by PowerPoint presentations and helicopter case studies. Follow-up training activities are essential to achieve a permanent training effect.

Night Vision Goggle training

Intended for pilots and left seat crewmembers with little or no experience of NVG operations. The course is designed for four crew categories (I-IV):

Two-pilot operations:

- I: Low-time pilots (less than 1000 hrs helicopter, less than 100 hrs night)
- II: Experienced pilots

Single-pilot operations with left seat crewmembers:

- III: Low-time pilots (less than 1000 hrs helicopter, less than 100 hrs night)
- IV: Experienced pilots

Left seat crewmembers (LSCM) are required as support during NVG flight operations and therefore attend the entire course.

Course design:

The course is conducted with mixed theoretical classroom training and practical flight training in a Bell/AB 212/412 helicopter simulator. NVG normal, malfunction and emergency operations are covered. Training scenarios are standard operations under good conditions.

Duration:

- Category I:** 7 days
12.5 hours of theoretical training,
15 hours of simulator training
(6 x 2.5 hrs) per crew, including
NVG adjustments and skill test.
- Category II:** 6 days
12.5 hours of theoretical training,
12.5 hours of simulator training
(5 x 2.5 hrs) per crew, including NVG
adjustments and skill test.
- Category III:** 7 days
12.5 hours of theoretical training
9 hours of simulator training
(6 x 1.5 hrs) per crew (pilot + LSCM),
including NVG adjustments and
skill test.
- Category IV:** 6 days
12.5 hours of theoretical training, 7.5
hours of simulator training (5 x 1.5 hrs)
per crew (pilot + LSCM), including
NVG adjustments and skill test.



Contents:

Theory (12 hrs, including skill test):

- General anatomy and characteristics of the eye
- Night vision, human factors
- NVIS general characteristics
- NVIS care & cleaning
- Pre & post flight procedures
- NVIS terrain interpretation and environmental factors
- NVIS training and equipment requirements
- NVIS emergency procedures
- NVIS flight techniques
- Blind cockpit drills
- Command and control, qualification and currency requirements
- NVIS accidents, lessons learned and flight safety
- Final exam

Flight training:

NVG simulator period 1:

- Introduction
- Ground operations
- Takeoffs and landings
- Traffic pattern
- CRM

NVG simulator period 2:

- Ground operations
- Takeoffs and landings
- Traffic pattern
- Confined area
- NVG failure
- CRM

NVG simulator period 3:

- Ground operations
- Takeoffs and landings
- Traffic pattern
- Confined area
- Navigation

- NVG failure
- Turn back procedure
- CRM

NVG simulator period 4:

Note: (also "Period 4 extra" for categories I and III)

- Ground operations
- Takeoffs and landings
- Traffic pattern
- Confined area
- Navigation
- NVG failure
- Turn back procedure
- Inadvertent IFR recovery
- CRM

NVG simulator period 5 - Skill test:

- Ground operations
- Takeoffs and landings
- Traffic pattern
- Confined area
- Navigation
- NVG failure
- Turn back procedure
- Inadvertent IFR recovery
- CRM

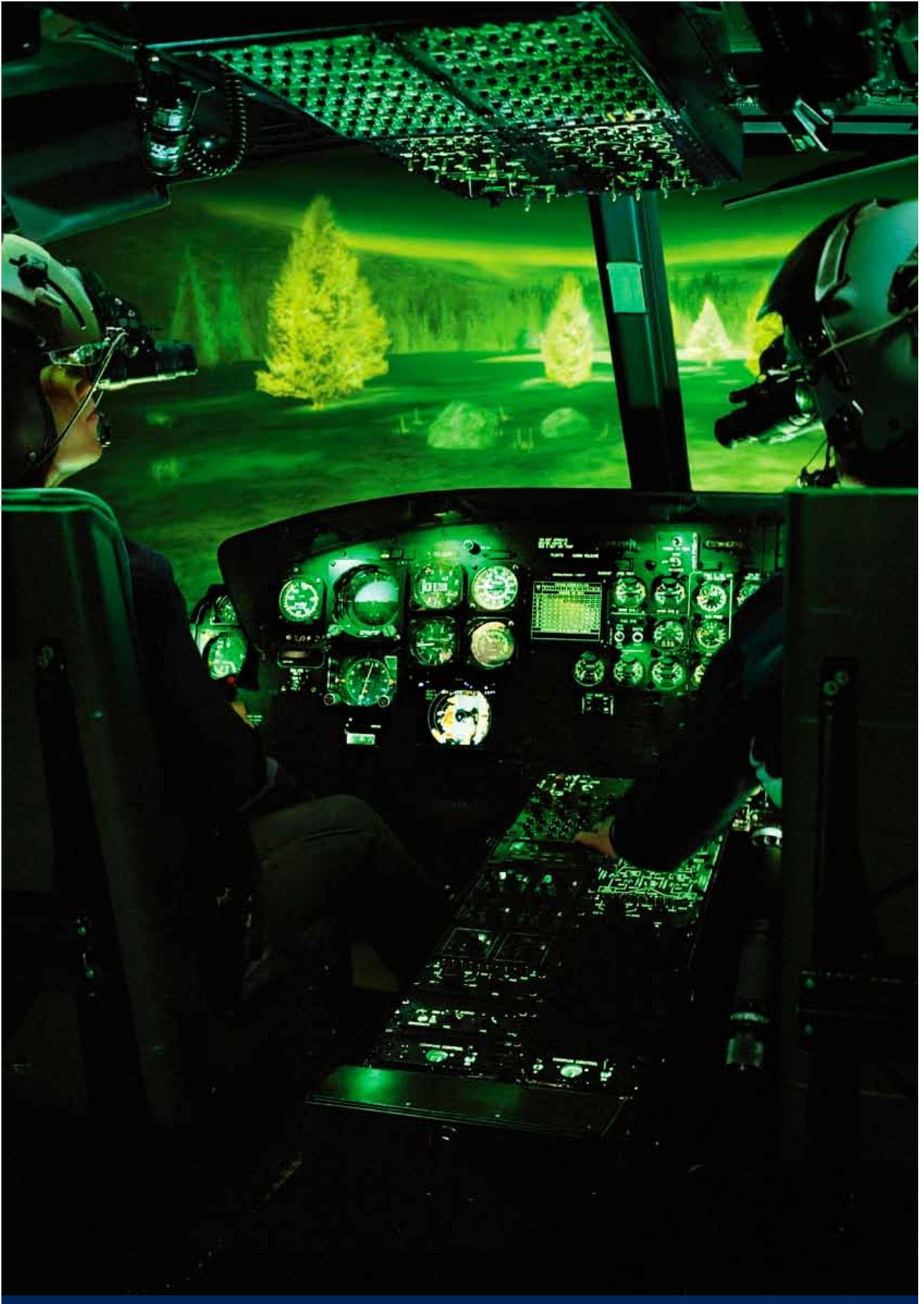
Follow-up training in A/C:

For helicopter operators with no previous NVG experience and in a start-up phase of NVG operations, follow-up training in the A/C is strongly recommended. This training can be conducted at the operator's home base or at another agreed upon location. The Customer is required to provide the helicopter for this training.

Follow-up training in A/C to be agreed upon separately.

Equipment:

It is preferable that the student bring their own NVG's and helmets. If this is not possible, OAA will provide NVGs and standard helmets at cost for temporary use by the students.





Bell/AB 412 single pilot VFR Type Rating course

Course prerequisites:

The candidate must have a turbine helicopter rating with a minimum of 400 hrs of helicopter flight time.

Course content summary:

Technical ground course:

- Aircraft systems
- Review
- Mass & Balance and Performance

Duration: 5 days

Flight training:

- 4 hrs (2 sessions) Fixed Based Simulator, FBS
- 8 hrs (4 sessions) Full Flight Simulator, FFS

Type training skill test:

- Full Flight Simulator, FFS

Min. 2 hrs.

Duration in total:

Approximately 2 weeks.

Approval

This course is JAA approved and can be trained under Oxford Aviation Academy's TRTO.

Location

Stockholm, Sweden

Customized courses

If required, OAA will use the customers' checklists and flight procedures during all courses.

The standard training courses can be tailored to the customers' specifications, or completely new courses can be designed.

On request, OAA can assist you and your company to analyze your training needs.

Bell/AB 412 pilot type training course

Training objective:

Providing pilots with academic and practical "hands-on" training to obtain Pilot in Command qualification in the Bell/AB 412.

Candidate prerequisites:

The candidate must have a turbine helicopter rating with a minimum of 400 hrs of helicopter flight time.

Duration:

- Ground course: 5 working days (31 hrs)
- Cockpit procedure training: 2 working days (4 hrs PF)
- Simulator training: 6 working days (12 hrs PF)
- A/C flight training: Not included.
Recommended: 5 hrs PF



Ground school

Training method:

Instructor guided classroom discussions using PowerPoint presentations and helicopter components to present subjects as below:

Contents

- Aircraft general
- Fuel system
- Lighting
- Powertrain
- Tail rotor system
- Hydraulic power system
- Environmental systems
- Flight manual / weight and balance /performance
- Pre-flight
- Powerplant
- Fire protection
- Electrical power systems
- Master caution warning system
- Main rotor system
- Flight controls/AFCS
- Ice and rain protection
- Avionics
- Kits and accessories
- Review - exam - critique

Note: Flight manual with performance and mass & balance calculations will be used in connection with simulator sessions.

Cockpit procedure training

Training method:

The 412 Pilot Initial Training course provides 4.0 hours PF training in the Bell/AB 412 CPT (full flight simulator without motion.) Whenever possible, pilots are paired as a crew and each will receive 4.0 hours as PF and PNF respectively. Training is divided into two periods during which a wide variety of both normal and malfunction/emergency procedures will be demonstrated and practiced prior to simulator flight training.



Contents

Session 1 (2 hrs PF, Fixed Base Simulator)

- 0 Briefing
- 1 Familiarization with cockpit layout
- 2 Engine start
- 3 Flight controls
- 4 AFCS failures
- 5 Engine shut down procedure
- 6 Engine start failures
- 7 Debriefing

Session 2 (2 hrs PF, Fixed Base Simulator)

- 0 Briefing
- 1 Normal engine start
- 2 Electrical system
- 3 Hydraulic system
- 4 Power plant
- 5 Fuel system
- 6 Fire protection
- 7 Engine shut down.
All checklists to be completed
- 8 Debriefing



Simulator training program

Training objective:

Completion standard: During Flight 6, the pilot must demonstrate a performance level according to JAR FCL 2. Written examinations require a minimum score of 75%.

Training method:

This course provides 12.0 hours PF training in the Bell/AB 412 flight simulator. When training as a crew, each pilot receives an additional 12.0 hours in the co-pilot position.

Simulator flights are 2.0 hours, during which each maneuver or procedure is demonstrated and practiced to proficiency. The pilot has the opportunity to practice a wide variety of both normal and malfunction/emergency procedures. The degree of complexity and the challenge of each flight mission are progressive, culminating in a final check ride.

As pilot background and job requirements vary, each pilot will be trained in the environment most closely approximating his or her job requirements.

Contents:**Session 3 (2 hrs PF, Full Flight Simulator)**

| | |
|-------|---|
| 0 | Briefing |
| 1 & 2 | Start |
| 3 | Flight control failures |
| 4 & 5 | Normal maneuvers in different modes of AFCS |
| 6 | AFCS failures, Others (dusk conditions) |
| 7 | Tkof, traffic patterns and landings |
| 8 | Engine shut down procedure, |
| 9 | Debriefing |

Session 4 (2 hrs PF, Full Flight Simulator)

| | |
|-------|--|
| 0 | Briefing |
| 1 & 2 | Start |
| 3 | Autopilot use |
| 4 | Engine failures |
| 5 | CAT A tkof, demonstration |
| 6 | Additional training in dusk conditions (not mandatory) |
| 7 | Engine shut down procedure |
| 8 | Debriefing |

Session 5 (2 hrs PF, Full Flight Simulator)

| | |
|-------|----------------------------------|
| 0 | Briefing |
| 1 & 2 | Start |
| 3 | Maneuvering at wind limitations |
| 4 & 5 | Engine & engine control failures |
| 6 | T/R fixed pitch failures |
| 7 | Training in dusk conditions |
| 8 | Engine shut down procedure |
| 9 | Debriefing |

Session 6 (2 hrs PF, Full Flight Simulator)

| | |
|-------|----------------------------|
| 0 | Briefing |
| 1 & 2 | Engine start |
| 3 | Settling with power |
| 4 | Hydraulic system failure |
| 5 | Autorotaion |
| 6 | Engine fire in flight |
| 7 | Engine shut down procedure |
| 8 | Debriefing |

Session 7 (2 hrs PF, Full Flight Simulator)

| | |
|-------|---------------------------------------|
| 0 | Briefing |
| 1 & 2 | Start |
| 3 | Basic instrument flight training |
| 4 | Electrical failures |
| 5 | Loss of tail rotor thrust / component |
| 6 | Additional training |
| 7 | Engine shut down procedure |
| 8 | Debriefing |

Session 8 Final training / skill test

| | |
|-------|----------------------------|
| 0 | Briefing |
| 1 & 2 | Start |
| 3 | Hydraulic system failure |
| 4 | Engine failures / fire |
| 5 | T/R fixed pitch failure |
| 6 | Loss of tail rotor thrust |
| 7 | Autorotation |
| 8 | Engine control failures |
| 9 | Engine shut down procedure |
| 10 | Extra |
| 11 | Debriefing |

Type Rating:

On request, OAA can also supply Type Rating on both Bell/AB 212 and 412.

Recurrent technical course standard

OAA offers recurrent technical ground courses for pilots on both Bell/AB 212 and 412 based on instructor guided classroom discussions using Powerpoint presentations and helicopter components. A written test can be administered at the end of the course if requested by customer. Recurrent training can be conducted with or without simulator training, according to your needs.

Operator specific equipment can also be included based on information provided by the customer. OAA offers five different options of the recurrent ground course, see specifications below:

B212/412 Recurrent ground course 1

- 4 hours classroom tuition covering aircraft technical details, normal and malfunction checklist procedures, recent event experiences.

To refresh the technical knowledge on the Bell 212/412.

B212/412 Recurrent ground course 2

- 1 day classroom tuition covering aircraft technical details, normal and malfunction checklist procedures, recent event experiences.

To refresh the technical knowledge on the Bell 212/412.

B212/412 Recurrent ground course 3

- 2 days classroom tuition covering aircraft technical details, normal and malfunction checklist procedures, recent event experiences.

To refresh the technical knowledge on the Bell 212/412.

Contents:

- Automatic flight
- Electrical power systems
- Fire protection
- Fuel system
- Hydraulic power
- Flight controls
- Instruments, navigation, ice and rain protection
- Rotors and drives
- Power plant

B212/412 Recurrent ground course 4

- 3 days classroom tuition covering aircraft technical details, normal and malfunction checklist procedures, recent event experiences.

To refresh the technical knowledge on the Bell 212/412.

B212/412 Recurrent ground course 5

- 1 session FBS x 2 hours Malfunctions training

To refresh the technical knowledge on the Bell 212/412.

For selected topics helicopter system simulators developed in Tool Book are also used. The simulators allow the instructor to demonstrate system functions, malfunctions and operations on screen in a free play environment. Applicable Malfunction Procedures will be discussed during classes.



Simulator operator's course

General:

The instructor course is an intensive 1-day (based on 3 students) course on how to operate the Bell/AB 212/412 simulator. There are a number of topics that are covered. However, emphasis will be placed on each instructor student getting as much time as possible in running the simulator and «pushing buttons».



Training objective:

Upon conclusion of the course, the instructor students will be able to:

- Operate the simulator independently and run lessons on the simulator,
- Know all emergency procedures with respect to the simulator itself,
- Build a lesson plan on a computer.

Contents:

- Technical description
- Lesson plans
- Instructor operator station (IOS)
- Demonstration of all emergencies
- ITEMS

Duration:

1 day.





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|----|----|----|----|----|----|----|----|----|----|----|----|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
| 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 |
| 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 |
| 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 |



Our people

Our instructors play the most vital role in maintaining our top quality, reality-based and efficient helicopter training. They also have extensive experience in both civilian and military helicopter operations and training. As a result, OAA is able to provide consultancy services concerning helicopter flight operations.

Our simulator engineers are crucial in maintaining and keeping the Full Flight Simulator in immaculate condition.

Our planners and coordinators are your main contacts after an agreement has been signed. They are responsible for schedule overviews, confirmations of slots or planned training as well as the main link to our instructors.



Instructors

Following is a brief presentation of Oxford Aviation Academy helicopter instructors.

You are welcome to contact them to discuss any specific considerations concerning training. Since they are often in the simulator or classroom or on flight duty, we recommend you Email, call or fax Mr. David Moden, Global Sales Manager Bell/AB 212/412, Email: david.moden@oaa.com, Tel: +46 (0) 709 97 3535, Fax: +46 (0) 8 797 4243. He will gladly forward your query to the instructor concerned.

Daniel Åslund, Training Manager and Captain, Bell/AB 212/412. Basic flight training at SAAB Scania flight school, Linköping 1983. Instructor training at SAS Flight Academy. Flight Operations Manager/Chief Pilot for Ostermans Helicopter AB. Pilot at Ostermans for 16 years flying Bell 204/205/206/212/412, Eurocopter AS350. Currently active as captain in IFR HEMS operation, flying Sikorsky S76. Total flight time about 10,500 hours.



Daniel Åslund, Training Manager and Captain

Björn-Inge Tolleshaug, Flight Instructor Bell/AB 212/412. Basic training at the Royal Norwegian Air Force Flying School, and helicopter training at US Army Aviation Center, Ft. Rucker, Alabama. Qualified on a wide number of operations, transport, sling, hoist, SAR, special operations, ambulance/HEMS, ship/rig operations, multi ship formation lead, day/night/NVG and IFR. Experience from mountain, cold weather, winter, snow operations. Experienced with tactical training, NVG training courses, IFR, type related training and mission training. Instructor/evaluator since 1992 on type, VFR, IFR, NVG, crew training and mission. Total flight time: 4,000 hrs.

Olle Westlund, Flight Instructor Bell/AB 212/412. Aircraft maintenance engineer. Basic training at Ostermans Aero. Service as a pilot at Greenlandair flying Bell 212. Flight experience from Sweden, Canada and

Greenland. Has been working as a flight instructor since 1990. CAA examiner. Total flight time: 5,000 hrs.

Bengt Tegnhed, Flight Instructor Bell 212 and 412. Started his flying career with gliders in 1962. Trained on helicopters in the Swedish Army and employed by Ostermans Aero for 10 years. He implemented the first IFR operation and training in Sweden in 1979. Helicopter instructor VFR and IFR on several types and CAA senior examiner. Line pilot flying Boeing 737 in SAS. Total flight time 16,000 hours, of which 7,000 on helicopters and 4,000 as flying helicopter instructor.

Johann Haslberger, Flight Instructor Bell/AB 212/412. Basic flight training 1980 at US Army Aviation Center, Ft. Rucker, Alabama. Service as Bell UH-1D pilot in the German Army Aviation for 12 years. Experience includes IFR, NVG, EMS and mountain rescue. Currently active as EMS pilot on Bell 412, BK 117 and EC 145, day and night operation. Qualified as type rating instructor and examiner on Bell 412, BK 117 and EC 145. Total flight time about 9,000 hrs, of which 8,000 hrs on helicopters.

Lars Levin, Flight Instructor Bell 212/412 and NVG Instructor. Basic Helicopter flight training 1990. Pilot for 21 years flying Bell 206/212/412, Part 66 engineer fixed wing and helicopter. Currently active as Line Training Captain Offshore operation flying Bell 412.

Olof Wikman, Flight Instructor Bell 212/412. Helicopter pilot since 1966, trained at Army Helicopter School and Ostermans Aero, Sweden. Experience from most helicopter operations, ranging from basic aerial work to offshore flying. Have held positions as Head of Training and Chief Pilot. Retired from CHC Norway 2003 and from Swedish Transport Agency as Flight Inspector in 2010. Flight instructor since 1973, instructor time 3.240 h. Done PPL, CPL, ATPL, IR, instructor and type training on various types. Simulator instructor time 670 h, mainly on S-61N and Bell212/412. Holds Swedish ATPL including IR and TRI. Authorised as senior examiner. Appointed by EASA as Flight Inspector for simulator evaluations.

Ronald Bergmark, Technical Instructor and Bell/AB-212/412 Coordinator. Has held positions as a maintenance technician, maintenance instructor and has also worked as a technical engineer. Currently serving as Technical Instructor on the Bell/AB 212/412. Holds a valid Maintenance License covering all subjects on the Bell/AB 212 and 412. Total experience: More than 25 years in the aviation industry.

Simulator engineers

Our simulator engineers work in teams, assigned to one or more simulators. Please feel free to contact them on purely technical matters, but just as with the instructors, they can be difficult to reach. Therefore, we recommend that you Email, call or fax Mr. David Moden, Global Sales Manager Bell/AB 212/412:

Email: david.moden@oaa.com ,

Tel: +46 (0) 709 97 3535, Fax: +46 (0) 8 797 4243.

He will forward your query to the simulator engineer concerned.

The main engineer, responsible for the Bell/AB 212/412 and his email:

Jan Lingemark,

Team leader.

Email: jan.lingemark@oaa.com

Customer planners and coordinators

Planning/Scheduling

Customer Planners handle all bookings and confirmations and can be reached on the below email address, tel- and fax number:

Anna Thorsell,

Phone: +46 (0) 709 97 3531

Fax: +46 (0) 8 797 4243

Email: b412-212sto@oaa.com

Duty manager:

Outside office hours, a duty manager is available by mobile phone: +46 (0) 70 997 6266.

Customer coordinator:

Our customer coordinator will be on site in Stockholm to provide you with help for any other matters besides planning and scheduling:

Håkan Lindström

Mobile: +46 (0) 709 97 4691

Email: customercoordinator.sto@oaa.com





Our equipment

OAA's Bell/AB-212/412 Full Flight Simulator is designed to meet both military and civilian training requirements for flying skills and mission training, including search and rescue, emergency and medical services, sling load operations and tactical training.

Training is available in the use of special equipment, such as weather radar, forward looking infrared, and Night Vision Goggles.



Bell/AB 212/412 Full Flight Simulator specifics

| | |
|----------------------------------|---|
| Aircraft model: | Bell 412SP convertible to 412HP and 212 |
| Engine type: | PT6T-3B, PT6T-3BE, PT6T-3B |
| Manufacturer: | CAE, Canada |
| Computer: | IBM 6000 model 591 |
| Motion axis, type: | 6 DOF Hydrostatic, separate 3 DOF vibration platform |
| Visual: | MAXVUE™ Enhanced B, 210°/40°, 2 chin window displays |
| Performance: | JAA level C. In all aspects equivalent to level D, except for the visual system, which is level C. |
| Date in service: | March 1998 |
| AP-F/D: | Sperry |
| Misc. equipment/features: | WXR (Bendix 1500B) GPS Trimble 2101 I/O Approach Plus FLIR (FLIR Syst. Inc./Safire) Hover indicator (Racal Avionics) Chaff/flare NVG-compatible flight deck and visual system ITEMS |
| Smoke generator: | Yes |
| Approval test guide: | Yes |
| Video: | Camera and recorder in the simulator, reviewing equipment in the briefing room. |
| Visual databases: | A standard gaming area, covering N 58° 55' to N 59° 40', E 090° 05' to E 100° 50' is available. The data base is intended for low level, day and night operation and contains objects such as islands, fjords, valleys, mountains and a 3D "moving" ocean with various, selectable ship models. Alternative gaming areas can be made available after separate agreement. Customized, generic databases for all airports in the Jeppesen library can be developed after separate agreement. Other databases can be made available after separate agreement. |



Appendices

The appendices section provides data on the following:

- A. Malfunctions examples & training exercises
- B. Simulator training ITEMS
- C. Visual database details



A. Malfunction examples & training exercises

The Bell/AB 212/412 FFS can simulate more than 250 different malfunctions. The following are only a few examples of what malfunctions and associated exercises can be provided.

1. Familiarization with cockpit layout

- Roof panels
- Instrument panel
- Pedestal
- Lower cb panel (chip det)
- Flight controls

2. Engine start according to expanded checklist

Including all prescribed system checks and power assurance check

3. Engine start failures

- 3.1 Engine non engagement (sprag clutch failure)
- 3.2 Engine hot start
- 3.3 Engine fire during start

4. Flight controls

- 4.1 Collective stick binding
- 4.2 Cyclic pitch control rod binding
- 4.3 Cyclic roll control rod binding

5. AFCS failures

- 5.1 Helipilot disengages
- 5.2 AFCS hardover
- 5.3 AFCS stuck
- 5.4 Autotrim runaway
- 5.5 AFCS oscillations

6. Hydraulic system failure

- 6.1 Hyd pump #1 failure
- 6.2 Landing.

7. Engine control failures

- 7.1 Steep tkof, climb to 1000 ft
- 7.2 Low side FCU failure. Flight freeze to read indications. Action according to non normal checklist
- 7.3 Landing
- 7.4 Normal tkof, climb to 1000 ft
- 7.5 High side FCU failure. Flight freeze to read indications. Action according to non normal checklist
- 7.6 Landing
- 7.7 Lift to hover at 400 ft AGL
- 7.8 Low side FCU failure. Fly out of situation. Action according to non normal checklist
- 7.9 Landing
- 7.10 Reposition to 3 nm final and execute a normal approach
- 7.11 High side FCU failure on short final
- 7.12 Landing

8. Engine failures

- 8.1 Normal tkof, climb to 1500 ft. Single engine flame out. Flight freeze to read indications.
Shut down engine
- 8.2 Approach and landing OEI
- 8.3 Normal tkof, climb to 1500 ft. ENG OIL PRESS caution light illuminates
Shut down engine
- 8.4 Approach and landing OEI
- 8.5 Normal tkof. Eng N2 turbine seizure at 70 KIAS in climb. Flight freeze to read indications. Shut down engine
- 8.6 Approach and landing OEI
- 8.7 Normal tkof from rwy, engine flame out at 25 KIAS, landing straight ahead (2)
- 8.8 Normal tkof from confined area, single engine flameout, 70 KIAS in climb
Shut down engine. Return for OEI landing at (approach to) tkof area
- 8.9 Go around OEI
- 8.10 Restart engine in the air
- 8.11 Landing with restarted engine in manual control
- 8.12 Single engine flame out in hover
- 8.13 Dual engine flame out in hover

9. Engine fire in flight

In confined area

- 9.1 Steep tkof. Engine fire – extinguishable – 1 bottle, in climb
- 9.2 Land in confined area
- 9.3 Tkof. Engine fire – extinguishable – 2 bottles, at early stage in climb
- 9.4 Land in confined area

10. Autorotation

Helicopter with low weight and aft c/g position

- 10.1 Normal tkof. Climb to 1500 ft and position on final
- 10.2 Dual engine failure: Autorotation straight in. Reposition to 3 nm final used for further training
- 10.3 Autorotation 1 x 180 °
Increase fuel and psgr for a fwd c/g position
Repeat 10.2 and 10.3
- 10.4 Main driveshaft failure: Autorotation straight in
- 10.5 Landing on rwy

11. T/R fixed pitch failures

- 11.1 T/R fixed pitch failure at cruise power
- 11.2 At high power
- 11.3 At low power/speed
- 11.4 At hover

12. Loss of tail rotor thrust/component

- 12.1 Lift off to hover. Loss of T/R thrust
- 12.2 Normal tkof, climb to 2000 ft to position over flat ground. Loss of T/R thrust
- 12.3 Reposition to 5 nm final rwy 36. Loss of T/R component
- 12.4 Normal tkof and climb. Loss of T/R thrust/component in climb

13. Settling with power

- 13.1 Tkof and climb to 2000 ft. Set helicopter in hover OGE

- 13.2 Enter settling with power and recover. Fly to a new hover OGE at 400 ft AGL
- 13.3 Enter settling with power and recover

14. Maneuvering at wind limitations

Helicopter parked with wind 25 ± 10 kts (+ turbulence) from behind left

- 14.1 Lift off to hover
- 14.2 Hover to tkof position
- 14.3 Tkof with X- wind, fly traffic pattern. Land with X- wind
- 14.4 Hover to parking

Unload helicopter to low weight and aft c/g

Repeat 14.1 to 14.3

15. CAT A procedures demonstration

(Vertical takeoff)

- 15.1 CAT A tkof, traffic pattern, landing
- 15.2 CAT A tkof with engine failure after TDP, traffic pattern, landing
- 15.3 CAT A tkof with engine failure before TDP
- 15.4 CAT A tkof, traffic pattern, engine failure before LDP, go around, traffic pattern, landing
- 15.5 CAT A tkof, traffic pattern, engine failure after LDP, landing

16. Electrical failures

(Dusk conditions)

- 16.1 Single inverter failure
- 16.2 Dual inverter failure
- 16.3 Single generator failure - resettable
- 16.4 Dual generator failure – not resettable

17. Engine shut down procedure

“We can put you in serious trouble.”

Most malfunctions are available in our Bell/AB 212/412 Full Flight Simulator.

B. Simulator training ITEMS

An ITEM is a training scenario generator, by means of which training scenarios can be set up. These scenarios can include objects of different types, such as other helicopters, moving ships to land on, ground based military vehicles (hostile, firing at you, or friendly), fighter aircraft, cars in car accidents, life rafts close to an abandoned ship, etc. The objects can be controlled by the instructor or given a certain "artificial intelligence".



Gaming area

Objects:



C. Visual database details

Gaming area:

I. Torp (Norway)

| Included airports: | ICAO code: |
|--------------------|------------|
| Fritzøe | ENFZ |
| Jarlsberg | ENJB |
| Lunde | N/A (ENG1) |
| Notodden | ENNO |
| Rygge AFB | ENRY |
| Skien | ENSN |
| Torp | ENTO |

ITEMS-generated 3D visual players available for Torp gaming area:

Ships/boats:

Ferry STENA SAGA
 Ferry BASTO I
 Visby Class Corvette (YS2000)
 MARJATA
 British Frigate Type 23
 Life raft

Aircraft:

F-16
 F-18 Hornet
 Mig 29 Fulcrum
 IL-76

Helicopters:

Westland EH-101
 AH-64 Apache
 S-61 Sea King
 Lynx MK8
 Black Hawk
 Mi-24 Hind
 Bell 412

Various:

Oil rig
 Fire and smoke
 Command center
 Crashed cars
 Tents
 Cargo net

Not installed, on request

Ships/boats:

Representative landing ship
 British Frigate Type 22
 Burning ship

Lifeboat

Aircraft:

Tornado
 Sea Harrier
 C-130 Hercules

Helicopters:

Super Puma/Cougar
 CH-47 Chinook

AH-1 Cobra

Mi-26 Halo

Mi-8 Hip

Ground vehicles/missile/artillery systems:

M 113

BV 206

SISU

CV 9030 N

LEOPARD battle tank

ZSU 23-4

SA-6

T-76 battle tank

Scania P93 transporter

Scania P92 truck

Scania P113 container truck

Mercedes Gelendewagen field ambulance

Mercedes Gelendewagen hard top minibus

Fire truck

MLRS missile system

ROBOT 70 Giraffe MK.4 (50)AT

AD SAM ROBOT 70 (manned launcher)

Avenger SAM

NASAMS including

- AMRAAM missile launcher

- NTAS-N

- Radar senso

- Fire distribution center

- Launcher power generator

FH 77 155 mm artillery system

Bofors 40 mm L/70

M 109 (A3GN)

SA-9 Grail

SA-13 Gopher

T-72 battle tank

Fuel Truck 7000 liter

Fuel Truck 7000 liter +

Various:

Containers, 20 feet, 10 feet

Commercial airport databases:

| Europe | ICAO code | Middle East | ICAO code |
|---------------------------|-----------|------------------------------|-----------|
| Amsterdam, Netherlands | EHAM | Dubai, UAE | OMDB |
| Brussels, Belgium | EBBR | Sharjah, UAE | OMSJ |
| Düsseldorf, Germany | EDDL | Far East | |
| Frankfurt, Germany | EDDF | Hong Kong, Chek Lap Kok | VHHH |
| Geneva, Switzerland | LSGG | Beijing, China | ZBAA |
| Innsbruck, Austria | LOWI | Australia | |
| Lisbon, Portugal | LPPT | Canberra | YSCB |
| London-Gatwick, UK | EGKK | Sydney | YSSY |
| London-Heathrow, UK | EGLL | Caribbean | |
| Milan-Linate, Italy | LIML | St Maartens | TNCM |
| Munich, Germany | EDDM | North Atlantic | |
| Nice, France | LFMN | Keflavik, Iceland | BIKF |
| Oslo-Gardermoen, Norway | ENGM | Søndre Strømfjord, Greenland | BGSF |
| Charles De Gaulle, France | LFPG | Canada | |
| Rotterdam, Netherlands | EHRD | Montreal-Dorval | CYUL |
| Salzburg, Austria | LOWS | | |
| Stockholm-Arlanda, Sweden | ESSA | | |
| Vienna, Austria | LOWW | | |
| Zurich, Switzerland | LSZH | | |

Example of weapon systems and radars assignable to ITEMS players:

| Missiles: | Guns: | Radars: |
|-----------------------------|--------------------------------|-----------------------------------|
| CLOS | 20/30 mm cannon | AN/FPS-20 long range search radar |
| STINGER (IR) | USSR 73 mm 2A28 | HIGH LARK aircraft interceptor |
| AMRAAM (active fadar) | M256 120 mm cannon | ASR-80_A(F) |
| HELLFIRE (laser) | S-60 57 mm cannon | N-ASR-80-A(T) |
| SPARROW (semi-active radar) | M240C 7.62 mm machine gun | DUAL-GUN-57-FC(T) |
| AIM 9L (IR) | M85 12.77 mm machine gun | SAM-SR-8(T) |
| SA-8 Gecko (Com) | M68 105 mm tank rifle | SAM-MR-11(T) |
| AA-10 Alamo (SARH) | ZSU-23-4 23 mm cannon | SAM-LR-6(T) |
| SA-11 (semi-active radar) | | EWR-200-A(T) early warning radar |
| Rockets: | | RWR search and track radar |
| CRV7 | AN/APG-66 airborne radar | N-ASR-40-A(T) |
| Bombs: | AN/AP5-125 early warning radar | N-QUAD-GUN-23-FC(T) |
| MK82 HD/LD | B-76 gun dish radar (ZSU-23-4) | APQ-122 ground mapping radar |
| GBU-12 | Active radar seeker | |
| ROCKEYE II | AT-GM-C130(F) | |
| | IFF transponder | |

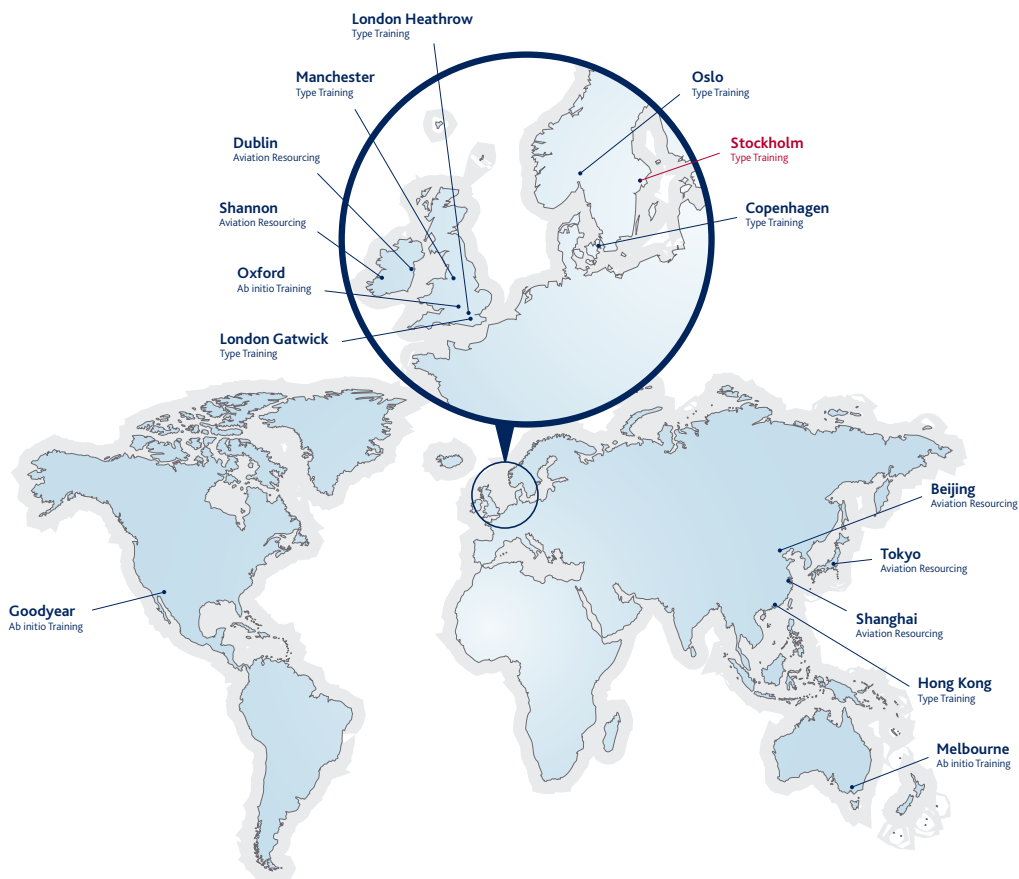
“Improve your night vision in the middle of the day.”

NVG training is available 24/7 in our Bell/AB 212/412 Full Flight Simulator.

About OAA

"A leading independent provider of aviation training, personnel solutions and technical support services."

Oxford Aviation Academy and Parc Aviation specialise in the provision of integrated training and resourcing solutions to the global aviation industry. This partnership provides our customers with a unique opportunity to draw upon tailored solutions from a training provider with over 150 years of combined experience in training excellence and resourcing expertise that is second to none. With facilities located throughout Europe, North America, Australia and Asia-Pacific, we have the resources and the experience to match your operational requirements leaving you free to concentrate on the success of your core business.



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