



Shell Aircraft Shell Group Requirements for Aircraft Operations (SGRAO)

Version 3.2

June 2020

Restricted

Table of Contents

Aircraft Operator Requirements

Safety Requirements

Page 6

SAF 00.00	Safety Management Systems
SAF 01.00	Safety Policy and Objectives
SAF 01.01	Leadership and Commitment
SAF 01.02	Organisation, Accountabilities and Resources
SAF 01.03	Competence
SAF 01.04	Emergency Response Management
SAF 01.05	Documented Procedures
SAF 01.06	Management Review
SAF 02.00	Safety Risk Management
SAF 02.01	Incident Reporting, Investigation and Learning
SAF 03.00	Assurance
SAF 03.01	Performance Monitoring
SAF 03.02	Management of Change
SAF 04.00	Safety Promotion

Flight Operations Requirements

Page 40

FOR 1: Flight Operations - Organisation

FOR 01.01	Air Operator Certificate
FOR 01.02	Organisation and Personnel

- FOR 01.03 Flight Crew Responsibilities
- FOR 01.04 Flight Crew Scheduling
- FOR 01.05 Contracted Pilots
- FOR 01.06 Single-Engine Aircraft

FOR 2: Flight Preparation

- FOR 02.01 Flight Preparation - General
- FOR 02.02 Operating Minima
- FOR 02.03 Offshore Alternates - Helicopters
- FOR 02.04 Weather Minima
- FOR 02.05 Flight Planning
- FOR 02.06 Fuel Requirements – Fixed Wing
- FOR 02.07 Fuel Requirements - Helicopters
- FOR 02.08 Aircraft Acceptance
- FOR 02.09 Aircraft Documentation

FOR 3: Flight Procedures

- FOR 03.01 In-Flight Operations
- FOR 03.02 Adverse Weather
- FOR 03.03 Ice Protection
- FOR 03.04 Guarding of Flight Controls
- FOR 03.05 Passengers - General
- FOR 03.06 Flight Following
- FOR 03.07 Passenger Briefing
- FOR 03.08 Offshore Helidecks
- FOR 03.09 Stabilised Approach
- FOR 03.10 Performance – Fixed Wing
- FOR 03.11 Performance - Helicopters
- FOR 03.12 Use of Oxygen
- FOR 03.13 Bird Strike Avoidance
- FOR 03.14 Float Arming - Helicopters

FOR 4: Qualifications and Experience

- FOR 04.01 Flight Crew Qualifications
- FOR 04.02 Flight Crew Qualifications and Experience – Fixed Wing
- FOR 04.03 Flight Crew Qualification and Experience - Helicopters
- FOR 04.04 Pilots Flying More Than One Aircraft Type
- FOR 04.05 Flight Crew Composition – Fixed Wing
- FOR 04.06 Flight Crew Composition - Helicopters

FOR 5: Flight Crew Training

- FOR 05.01 Flight Crew – General Training
- FOR 05.02 Flight Crew – Proficiency Training
- FOR 05.03 Flight Crew – Emergency and Safety Equipment Training

- FOR 05.04 Technical/Cabin Crew Members – General Training
- FOR 05.05 Technical and Cabin Crew – Proficiency and Emergency Training
- FOR 05.06 Line Operations Safety Audit

FOR 6: Medical and Fatigue

- FOR 06.01 Medical and Pilots Maximum Age
- FOR 06.02 Flying Hour Limits – Fixed Wing
- FOR 06.03 Flying Duty Periods – Fixed Wing
- FOR 06.04 Flying Hours Limits - Helicopters
- FOR 06.05 Flying Duty Periods - Helicopters

FOR 7: Aircraft and Equipment

- FOR 07.01 Equipment Specifications - Aeroplanes
- FOR 07.02 Equipment Specifications - Helicopters
- FOR 07.03 Equipment Specification – Survival Equipment

FOR 8: Flight Data Monitoring

- FOR 08.01 FDM – Hardware, Programme and System Serviceability Shell
- FOR 08.02 FDM – Programme Management and Audit

Engineering Requirements

Page 171

ENG 1: Management

- ENG 01.01 Airworthiness Management

ENG 2: Continuing Airworthiness

- ENG 02.01 Continuing Airworthiness Organisation
- ENG 02.02 Aircraft Maintenance Programme
- ENG 02.03 Airworthiness Directives and (Alert) Service Bulletins
- ENG 02.04 Aircraft Technical Records
- ENG 02.05 Contracted Maintenance and Services
- ENG 02.06 Competence and Training (Continuing Airworthiness)

ENG 3: Maintenance

- ENG 03.01 Maintenance Organisation Management
- ENG 03.02 Maintenance Control and Release to Service
- ENG 03.03 Duplicate Inspections
- ENG 03.04 Tools and Equipment
- ENG 03.05 Aircraft Facilities, PPE and Stores
- ENG 03.06 Maintenance Observation Program
- ENG 03.07 Staged Worksheets
- ENG 03.08 Fitness for Work and Fatigue Management

- ENG 03.09 Authorisations, Competence and Training (AMO)
- ENG 03.10 Foreign Object Damage
- ENG 03.11 Aircraft Fuel Quality
- ENG 03.12 Aircraft Refuelling

ENG 4: Health and Usage Monitoring System

- ENG 04.01 HUMS – Equipment Fit and Procedures
- ENG 04.02 HUMS – Required Serviceability
- ENG 04.03 HUMS – Download, Analysis and Certification
- ENG 04.04 HUMS – Supporting Processes

Specialist Operations

Page 226

- SPO 01.01 Aviation Security
- SPO 02.01 Search and Rescue Operations – Helicopters SPO
- SPO 03.01 Reserved
- SPO 04.01 Land Seismic and Heli-rig Operations
- SPO 05.01 Aerial Pipeline Inspection
- SPO 06.01 Marine Pilot Transfer – Helicopters
- SPO 07.01 Airborne Geophysical Survey

Passenger Handling

Page 256

- FAC 03.01 Flight Scheduling
- FAC 03.02 Passenger Handling Areas
- FAC 03.03 Passenger Weight and Size
- FAC 03.04 Manifests
- FAC 03.05 Passenger Screening and Security
- FAC 03.06 Passenger, Baggage and Cargo Handling

MCL Matrix

Aircraft Glossary Definitions

SAF 00.00 Safety Management Systems¹

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Aircraft Operator Requirements

Restricted

Version 3.2 – June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirements 1-2:

1. Implement an effective Safety Management System (SMS), appropriate to the size and complexity of the organisation to manage significant safety risks to levels As Low As Reasonably Practicable (ALARP).
2. Demonstrate how SMS elements and relationships have been effectively implemented within the organisation.

Means of Compliance for Requirements 1-2:

1. Safety Management System (SMS) components and elements meet National Aviation Authority (NAA) regulatory requirements, and SAF 00.00 through SAF 04.00, are demonstrated, and;
 - 1.1 The intent of ICAO Annex 19, 2nd Edition July 2016 - Appendix 2 - Framework for a SMS, and ICAO Doc 9859, Safety Management Manual (SMM), 4th Edition, 2018 is demonstrated, including in those countries where national regulations for SMS are not in place for the class of operation or activity.
2. The SMS demonstrates interlinked processes that allow safety information to circulate freely and system improvements to be made (see Figure 1, overall MS and Figure 2, Hazard Management).

¹ SAF sections follow *ICAO Annex 19, 2nd Edition July 2016 - Appendix 2 – Framework for a SMS* with additional expectations described within each section where necessary. The term Safety Management System (SMS) has been used for consistency, recognising that some organisations may have elements of these requirements contained within a wider integrated Management System (MS).

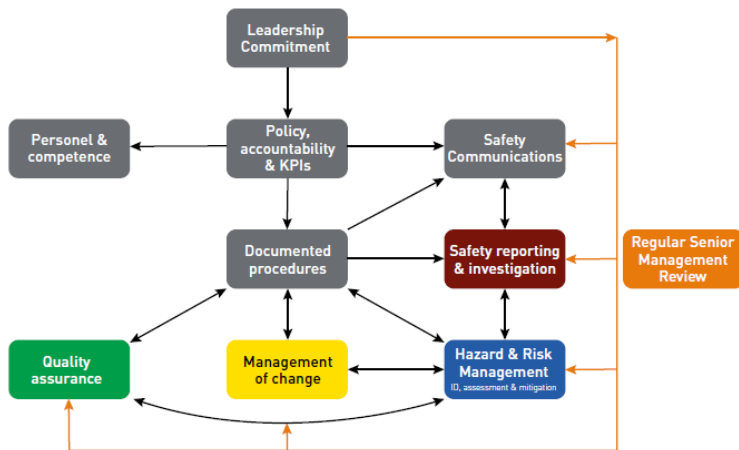


Figure 1 (IOGP Report 590)

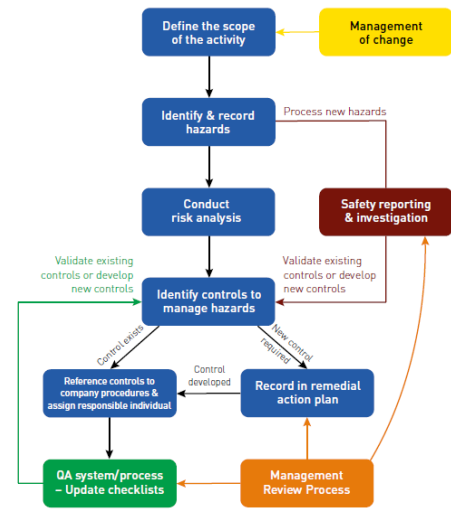


Figure 2 (IOGP Report 590)

ADDITIONAL GUIDANCE

The purpose of each of the subsequent SAF sections is described below. Detailed requirements and the associated means of compliance are expanded in the individually numbered SAF sections:

SAF 01.00 Safety Policy and Objectives:

- To define the organisation's safety policy based on a Just Culture that incorporates objective targets and plans.

SAF 01.01 Leadership and Commitment:

- To create and sustain a culture that drives commitment of no harm to people.

SAF 01.02 Organisation, Accountabilities and Resources:

- To establish and maintain an organisation that enables compliance with the Safety Policy and objectives.

SAF 01.03 Competence:

- To manage and assure the competence of people working with safety risks.

SAF 01.04 Emergency Response Management:

- To plan and prepare for emergency responses to incidents that mitigate the consequences and enable resumption of normal operations.

SAF 01.05 Documented Procedures:

- Documented, detailed procedures covering all activities and processes and more broadly documented procedures for safety critical tasks related to aircraft operations, including flight operations, aircraft maintenance and ground operations.

SAF 01.06 Management Review:

- To review the effectiveness, adequacy and fitness for purpose of the MS and take action to improve.

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

SAF 02.00 Safety Risk Management:

- To establish a Hazard and Effects Management Process (HEMP) to identify safety hazards and to reduce the Risks to As Low As Reasonably Practicable (ALARP).

SAF 02.01 Incident Reporting, Investigation and Learning:

- To log, investigate and learn from incidents.

SAF 03.00 Assurance:

- To provide assurance that the SMS requirements are implemented and effective.

SAF 03.01 Performance Monitoring:

- To collect safety performance data including Safety Performance Indicators (SPIs) that are relevant, consistent, transparent, accurate and complete, for consolidation by leadership for internal review.

SAF 03.02 Management of Change:

- To manage safety risks resulting from unforeseen consequences of changes.

SAF 04.00 Safety Promotion:

- To establish a hierarchy of safety communication processes that enables an effective, two-way flow of information throughout the company.

LINKS (FOR DOWNLOAD)

:

1. ICAO Annex 19, 2nd Edition July 2016 - Appendix 2 – Framework for a SMS.
2. ICAO Doc 9859, SMM, 4th Edition, 2018.
3. UK CAA CAP 795 SMS Guidance for organisations – February 2015.

RELATED INCIDENT

CORRESPONDING SELF-ASSESSMENT QUESTIONS

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

IOGP REPORT 590 AMG DIFFERENCES

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

SAF 01.00 Safety Policy and Objectives

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Aircraft Operator Requirements

Restricted

Version 3.2 – June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirements 1-4:

1. Provide a Safety Commitment and Policy Document, based on a **Just Culture**, with clear responsibilities for safety management.
2. Establish safety objectives and performance standards for the organisation.
3. Develop policies on the use/abuse of alcohol, medical drugs and narcotics and “with cause” testing, that align with the Shell Life Saving rules.
4. Set the maximum Blood Alcohol Concentration (BAC) of 0.02% (by volume) for any positions documented as safety critical aviation roles on a Shell contract.

Means of Compliance for Requirements 1-4:

1. In addition to, or in lieu of National Aviation Authority (NAA) requirements, the Safety Commitment and Policy:
 - 1.1 Reflects the organisational commitment to safety;
 - 1.2 Is signed by the **accountable executive** of the organisation;
 - 1.3 Is communicated, with visible endorsement, throughout the organisation;
 - 1.4 Actively encourages effective safety reporting by defining a Just Culture, which describes the boundary between acceptable and unacceptable performance;
 - 1.5 Includes a clear statement on the commitment to provide the necessary resources for the implementation of the safety policy;
 - 1.6 States that safety is a primary responsibility for all personnel and ensure that the policy is implemented and understood at all levels in the organisation;
 - 1.7 Is reviewed on a yearly basis to ensure it remains relevant and appropriate to the company.
2. **Safety Performance Indicators (SPIs)** are established to monitor and measure the safety performance of the organisation and the effectiveness of the Safety Management System (Refer to SAF 03.01).
3. In lieu of, or in addition to, any National Legislation the policy includes:
 - 3.1 Documented guidance on acceptable alcohol consumption level, commonly available medical drugs, prescribed or otherwise, that may impair an individual's ability to perform in the cockpit or workplace;

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

3.2 A "with cause" testing Policy for the presence of alcohol and drugs means there are good reasons to suspect impaired performance as a result of alcohol or drug abuse.

4. No further requirements.

ADDITIONAL GUIDANCE

Examples of when to implement the "with cause" testing policy due to suspected impaired performance include physical appearance, behaviour, other job-related circumstances (e.g., absence, problems, erratic job performance), reliable information of drug use or alcohol abuse or possession even where knowledge cannot be proven, give good faith reasons to question whether the employee may be in violation of the Policy.

LINKS (FOR DOWNLOAD)

Shell:

External:

<https://www.easa.europa.eu/system/files/dfu/Annex%20to%20ED%20Decision%202012-007-R.pdf>

RELATED INCIDENT

America West Airlines Flight 556 was a regularly scheduled flight from Miami, Florida, to Phoenix, Arizona, operated by America West Airlines. On July 1, 2002, the plane was ordered back to the terminal after the pilots were suspected of being drunk beyond the legal limit. The pilots were ultimately convicted of operating an **aircraft** while intoxicated.

Aviation functions can be defined as acting as a pilot during a flight, acting as navigator of an aircraft or as a flight radio-telephony **operator** during a flight, as well as acting as a member of the cabin crew.

Anyone convicted of committing an offence under the act can face up to two years in prison or a fine or both.

CORRESPONDING SELF-ASSESSMENT QUESTIONS

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

IOPG REPORT 590 AMG DIFFERENCES

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

SAF 01.01 Leadership and Commitment

Shell Aircraft

Shell Group Requirements for Aircraft Operations
Aircraft Operator Requirements

Restricted

Version 3.2 – June 2020

MANDATORY REQUIREMENTS

Leaders¹ within the Aircraft Operator are Accountable for Requirements 1-5:

1. Be mindful of the safety risks in their business;
2. Demonstrate visible and felt leadership through measurable actions;
3. Motivate, coach and develop personnel to manage safety risks effectively;
4. Hold individuals accountable for their safety performance and behaviours;
5. Engage where appropriate with Joint Venture partners, sub-contractor management, local communities and authorities and industry associations on safety.

Means of Compliance for Requirements 1-5:

1. Leaders are mindful of the safety risks in their business when they:
 - 1.1 Know the safety risks associated with their position, responsibilities in the company and how they are managed;
 - 1.2 Take corrective action if they are not satisfied that the controls for a risk are effective;
 - 1.3 Communicate the **operator's** Safety Policies to their personnel and relevant sub-contractors.
2. Leaders demonstrate visible and felt leadership through measurable actions when they:
 - 2.1 Plan and make base visits to engage with their personnel and relevant sub-contractors about safety;
 - 2.2 Lead, or actively participate in safety activities: team meetings and safety programmes and campaigns;
 - 2.3 Lead by example, intervene during day-to-day activities whenever they feel that safety requirements are not being met, including challenging business decisions.
3. Leaders motivate, coach and develop personnel to manage safety risks effectively when they:

¹ The term "leaders" includes all management and supervisory positions in the organisation, including the chief executive and senior management team, middle management regional and base managers.

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

- 3.1 Develop their own competence and that of their team in line with company requirements;
 - 3.2 Act as a role model for safety compliance and report safety issues and Near Misses and encourage their personnel to do the same;
 - 3.3 Provide constructive feedback to their personnel on their safety behaviours and performance and celebrate success;
 - 3.4 Include safety behaviours and performance in decisions about performance rewards, recruitment, personnel development and promotions.
4. Leaders hold individuals accountable for their safety performance and behaviours by:
- 4.1 Monitoring and reinforcing compliance with the company's procedures, applicable laws and regulations and take appropriate action to correct deficiencies;
 - 4.2 Applying **Just Culture** consequence management for those who break rules and those who create the conditions for rule breaking.
5. No further requirements.

ADDITIONAL GUIDANCE

A key element of leadership commitment is visible leadership, commonly demonstrated by workplace and site visits. These allow leaders to:

- Get to know people working at the workplace and demonstrate care;
- Talk about work activities that matter to people;
- Have a focus and purpose when engaging people;
- Focus on the behaviour of people during work site visits and recognise the right behaviours.

Engaging in conversations with personnel and asking authentic questions lets the workforce see the genuine interest and commitment of their leaders and allows the leaders to gain a better insight into their HSSE exposure. Examples are:

- Can you describe to me what you do day today?
- What are the greatest HSSE hazards you face?
- How could you or someone else be hurt?
- Do you feel you can stop an activity because of a safety concern? / When was an activity last stopped, or paused over a safety concern?
- Do you feel cared for? Do you feel you are treated fairly?
- Do you know what security risks you face and do you understand what you should do in the event of a security incident, including where you should report an incident or suspicious behaviour?
- Are there any HSSE issues here that we are not dealing with adequately?
- When are you able to perform at your best? What sometimes stops you performing at your best?

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

- What would have to be different for you to feel more confident that an incident at this site is unlikely?
- Do people feel they need to take short cuts?

Leaders should strive to ensure that they receive regular feedback, and this means fostering an environment where feedback is actively sought on HSSE performance through open and honest conversations. It is easier for people to provide feedback on a leader's HSSE behaviour if their leader has already established a feedback culture.

LINKS (FOR DOWNLOAD)

Shell:

External:

RELATED INCIDENT

CORRESPONDING SELF-ASSESSMENT QUESTIONS

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

IOGP REPORT 590 AMG DIFFERENCES

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

SAF 01.02 Organisation, Accountabilities and Resources

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Aircraft Operator Requirements

Restricted

Version 3.2 – June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirements 1-3:

1. Identify the **Accountable Executive** who, irrespective of other functions, has ultimate responsibility on behalf of the organisation, for the implementation of the Safety Management System (SMS).
2. Appoint a Safety Manager (See Additional Guidance).
3. Establish and maintain governance over the implementation of the Safety Management System (SMS).

Means of Compliance for Requirements 1-3:

1. The Accountable Executive has:
 - 1.1 Corporate authority to ensure all activities can be financed and carried out to the required standard;
 - 1.2 Full authority to ensure adequate staffing levels to provide the organisation with the capacity and capability to deliver all activities in line with the Safety Policy and Objectives (SAF 2.00);
 - 1.3 Final accountability for all safety issues.
2. The Safety Manager:
 - 2.1 Has defined competence requirements, sufficient resources and safety structures to manage the implementation and **maintenance** of the SMS;
 - 2.2 Acts as the focal point and is responsible for the development, administration, maintenance and promotion of the SMS; and,
 - 2.3 Has direct access to the Accountable Executive.
3. Establishes and maintains governance over the implementation of the SMS by:
 - 3.1 Establishing and maintaining sufficient resources (people, equipment, materials, information and time) needed to implement the SMS;
 - 3.2 Defining clear lines of safety accountability throughout the organisation, including a direct accountability for safety on the part of all leaders;
 - 3.3 Identifying the accountabilities of all members of management, regardless of other functions, as well as of staff, with respect to the safety performance of the SMS;

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

- 3.4 Documenting and communicating roles, safety responsibilities and accountabilities in job descriptions, individual tasks and targets and authorities throughout the organisation;
- 3.5 Defining the levels of management with authority to make decisions regarding safety risk tolerability and ensuring that the relevant department senior leader is involved with line leadership in decisions affecting safety management and performance.

ADDITIONAL GUIDANCE

The Safety Manager should be a full-time employee although in a small complex or non-complex organisation it may be a part time role shared with other duties. They may also be the Compliance Monitoring / Quality Manager, but in such cases, there will need to be independent compliance monitoring of the SMS.

The Safety Manager should be given appropriate status in the organisation to provide the necessary degree of authority when dealing with safety matters.

LINKS (FOR DOWNLOAD)

Shell:

External: <https://www.casa.gov.au/education/standard-page/sms-resource-kit>

RELATED INCIDENT

CORRESPONDING SELF-ASSESSMENT QUESTIONS

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

I OGP REPORT 590 AMG DIFFERENCES

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

SAF 01.03 Competence

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Aircraft Operator Requirements

Restricted

Version 3.2 – June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirements 1-2:

1. Inform, instruct and train people such that they are competent to carry out their work safely.
2. Identify and record **Safety Critical Tasks** in each reporting line across the organisation

Means of Compliance for Requirements 1-2:

1. The **operator** shall develop and maintain a safety training programme such that:
 - 1.1 All operational staff, managers, supervisors, senior managers and the **Accountable Executive** (as appropriate) perform their duties within the Safety Management System (SMS);
 - 1.2 Everyone's level of involvement in the SMS is taken into consideration including:
 - Initial induction training;
 - Training to ensure continued **maintenance** of competence, including human and organisational factors.
 - 1.3 All Managers and supervisors understand the safety process, hazard identification, risk management and the management of change;
 - 1.4 Senior managers understand organisational safety standards and safety assurance processes for their level in the organisation;
 - 1.5 The Accountable Executive is aware of SMS roles and responsibilities, safety policy, safety culture, SMS standards and safety assurance.
2. Safety Critical Tasks, and the persons responsible for the tasks, are identified and recorded by the operator according to the size of organisation and include (if appropriate):
 - 2.1 Frontline positions responsible for managing the effectiveness of critical safety tasks, such as pilots, maintenance staff, ramp and refuelling personnel and essential operational leadership positions;
 - 2.2 Assessment of staff Competence against the requirements for each Safety Critical Task, see also FOR 05 (complete section) - Flight Crew Training , ENG 02.06 Authorisations, Competence and Training, and ENG 3.09 Authorisations, Competence and Training (AMO);

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

- 2.3 Retention of records of the assessment and relevant training, including the result ("competent" or "not yet competent");
- 2.4 The competence requirements for any staff responsible for Safety Critical Tasks affected by Process Changes, Procedural Changes or Organisational Changes are updated by the operator;
- 2.5 When there are changes to incumbents in positions responsible for Safety Critical Tasks, their Competence requirements are updated;
- 2.6 Competence gaps are managed through an agreed and documented plan.

ADDITIONAL GUIDANCE

LINKS (FOR DOWNLOAD)

Shell:

External:

RELATED INCIDENT

CORRESPONDING SELF-ASSESSMENT QUESTIONS

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

IOPG REPORT 590 AMG DIFFERENCES

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

SAF 01.04 Emergency Response Management

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Aircraft Operator Requirements

Restricted

Version 3.2 – June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirements 1-4:

1. Establish and maintain country, regional or global **Emergency Response Plans (ERP)** to meet the company needs and response objectives covering all **Credible Emergency Scenarios**¹.
2. Establish an Emergency Response Organisation able to manage all Credible Emergency Scenarios staffed with Emergency responders equipped and trained to a Competence level to match their roles and responsibilities as outlined in the ERP.
3. Conduct Emergency Response process reviews and exercises on a scheduled basis.
4. Integrate this element so that it supports the effectiveness of the Hazard and Effect Management Process (HEMP) as described in SAF 02.00.

Means of Compliance for Requirements 1-4:

1. Emergency Response Plans (ERP) contains:
 - 1.1 Activation triggers to initiate an emergency response;
 - 1.2 Details of roles and responsibilities, including Co-Coordiators, Duty Managers etc.;
 - 1.3 A list of Emergency Contacts;
 - 1.4 Contacts and contact requirements for local Shell Business Unit responsible managers;
 - 1.5 Any integration requirements with local Shell BU.
2. The Emergency Response Organisation:
 - 2.1 Demonstrates the required personnel levels;
 - 2.2 Demonstrates that personnel are trained and competent to hold the roles and responsibilities outlined in the ERP.
3. The process for Emergency Response reviews/exercises:
 - 3.1 Lists all the exercises carried out;

¹ **Credible Emergency Scenarios** are generalised detailed descriptions of a hypothetical but credible incident. This is the result of an imagined sequence of events that could plausibly lead to an Incident requiring mitigation by emergency response.

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

3.2 Schedules exercises, once yearly, on one of the following scenarios (if applicable), in each operational base:

- Accident on arrival or departure;
- Overdue Aircraft;
- Aeroplane - accident away from base;
- Helicopter accident on a remote helideck;
- Helicopter ditching in rescue range of a facility or vessel; and
- Any exercises or exercises required by regulation.

3.3 Includes additional scenarios developed to fill out the remainder of the year's exercise schedule based on other Credible Emergency Scenarios, determined by the Risk Assessment in the HEMP;

3.4 Details the post Emergency Response reviews/exercises process and how all post exercise review learnings are recorded and tracked to closure.

3.5 Confirms the operator's ERP is properly coordinated with the ERPs of those organisations it must interface with during the provision of its services.

4. No further requirements.

ADDITIONAL GUIDANCE

As part of the annual exercise set out in 3.2, Shell personnel should be included as observers, and include, where possible, an element of coordination with the Shell Business Unit emergency response organisation.

LINKS (FOR DOWNLOAD)

Shell:

External:

1. UK CAA CAP 795 SMS Guidance for organisations – February 2015
2. EASA AMC1 ORO.GEN.200

RELATED INCIDENT

CORRESPONDING SELF-ASSESSMENT QUESTIONS

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

IOGP REPORT 590 AMG DIFFERENCES

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

SAF 01.05 Documented Procedures

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Aircraft Operator Requirements

Restricted

Version 3.2 – June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirements 1-2:

1. Provide documented, detailed procedures appropriate to the size, nature, and complexity of the organisation covering all Safety Management System (SMS) activities and processes;
2. Provide documented procedures for **Safety Critical Activities** related to **aircraft** operations, including flight operations, aircraft **maintenance** and ground operations.

Means of Compliance for Requirements 1-2:

1. The SMS documentation consists of:
 - 1.1 SMS manual(s) which includes all elements of the SMS (See Guidance) and can be incorporated into existing documents;
 - 1.2 SMS records (for example hazard logs, risk assessments, safety cases, meeting minutes);
 - 1.3 Records and document management process.
2. Safety Critical Activities related to aircraft operations are listed in the SMS Manual or listed in other manuals or expositions.

ADDITIONAL GUIDANCE

Typical contents for an SMS Manual include the following:

- Scope of the SMS;
- Safety policy and objectives;
- Safety accountabilities;
- Key safety personnel;
- Documentation control procedures;
- Hazard identification reporting and risk management schemes;
- Safety performance monitoring;
- Incident investigation and reporting;
- Emergency response planning;
- Management of change processes;

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

- Safety promotion;
- Contracted activities; and
- Just culture policy and supporting processes.

LINKS (FOR DOWNLOAD)

Shell:

External:

EASA AMC1 ORO.GEN.200(a)(3) Management system

<https://www.icao.int/safety/SafetyManagement/Documents/Doc.9859.3rd%20Edition.alltext.en.pdf>

RELATED INCIDENT

CORRESPONDING SELF-ASSESSMENT QUESTIONS

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

IOGP REPORT 590 AMG DIFFERENCES

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

SAF 01.06 Management Review

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Aircraft Operator Requirements

Restricted

Version 3.2 – June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirements 1-3:

1. Maintain a management review process, based on a defined hierarchy of meetings that provides all leaders visibility of the Safety Management System (SMS) activity.
2. Include safety reporting, hazard management, QA issues and assurance of the effectiveness of the SMS within the management review process.
3. Integrate the Management Review process such that it clearly links to: Emergency Response Management; Safety Risk Management process; Incident Reporting, Investigation and Learning; Performance Monitoring; Management of Change; and Safety Promotion as described in SAF 00.00.

Means of Compliance for Requirements 1-3:

1. The **Aircraft Operator** maintains a management review process which is based on a defined hierarchy of meetings, appropriate to the size of the organisation, typically:
 - 1.1 Meetings that review the operational effectiveness of safety risk management processes at department level, covering, as appropriate:
 - Resolution and mitigation of identified risks;
 - Assessment of the safety impact of operational changes - Management of Change Process (SAF 04.02);
 - Review of Hazard Risk Management (SAF 02.00) processes and associated Remedial Action Plan;
 - Results and follow-up actions from audits, previous lower level safety meetings, and preventive actions and corrective action plans;
 - Corrective actions, including Assurance processes, being achieved within agreed timescales;
 - The effectiveness of safety recommendations and safety promotion;
 - Results of safety reporting and data analysis - Performance Monitoring (SAF 03.01);
 - Allocation of resources.
 - 1.2 A meeting attended by the Accountable Executive, to review:
 - Output from the department level - or similar meetings;

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

- Safety performance against the safety policy and objective - Performance Monitoring (SAF 03.01);
- Effectiveness of the Quality and Safety oversight of company activities and sub-contracted organisations;
- Corrective or mitigating actions, including Quality Assurance processes, are being taken in a timely manner;
- Effectiveness of the organisation's SMS processes, including the Hazard and Effects Management process.

2. No further requirements.

3. No further requirements.

ADDITIONAL GUIDANCE

The Departmental meeting may be established as a Safety Action Group (SAG), and the Accountable Executive Meeting may be established as the Safety Review Board (SRB). Both are ICAO definitions of these meetings.

The SAG, can be a standing group or an **ad-hoc** group to assist or act on behalf of the SRB.

The SAG reports to, and takes strategic direction, from the SRB. It is comprised of managers, supervisors and personnel from operational areas.

Membership of the SAG and frequency of meetings should be defined. The Safety Manager may also participate in the SAG. In very large organisations more than one SAG may be established to focus on specific areas.

In small organisations, the SAG and SRB may be combined.

LINKS (FOR DOWNLOAD)

Shell:

https://eu001-sp.shell.com/sites/AAAAA8432/CF/Web/Management_Review.aspx

https://eu001-sp.shell.com/sites/AAAAA7146/CIResources/CI%20Site%20Pages/SG_RDS_CI_Maturity_Model_and_Roadmap.aspx

External:

RELATED INCIDENT

CORRESPONDING SELF-ASSESSMENT QUESTIONS

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

IOGP REPORT 590 AMG DIFFERENCES

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

SAF 02.00 Safety Risk Management

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Aircraft Operator Requirements

Restricted

Version 3.2 – June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirements 1-8:

1. Establish and Maintain an effective Hazard and Effects Management Process, (HEMP) appropriate to the size and complexity of the organisation;
2. Document hazards and their effects on people, assets, reputation and the environment (where applicable) in a Hazards and Effects Register, and;
3. Assess all the Risks of identified Hazards for Worst-Case Credible Scenarios using the company's Risk Assessment process, and document the assessment of all these Risks in the Hazards and Effects Register;
4. Manage the Hazards assessed as Low Risk for continuous improvement through effective implementation of the Safety Management System (SMS);
5. Manage the Hazards assessed as Medium Risk in accordance with the hierarchy of controls;
6. Manage the Hazards assessed as High Risk by applying a Bow-Tie or equivalent analysis method;
7. Provide a documented demonstration that all elements of the HEMP are managed to As Low As Reasonably Practicable (ALARP);
8. Establish and Maintain an effective HEMP review process.

Means of Compliance for Requirements 1-8:

1. The operator establishes and maintains a HEMP which:
 - 1.1 Identifies and addresses generic, mission specific and location specific hazards;
 - 1.2 Identifies preventative and recovery controls, the safety critical activities that ensure barrier effectiveness, and the safety critical role holders and safety critical equipment that delivers the safety critical activities;
 - 1.3 Is based on a combination of reactive, proactive and predictive methods of safety data collection.
2. No further requirements.
3. A Risk Assessment process is used to compare the severity and likelihood of a hazard being released, such as a Risk Assessment Matrix (RAM) or similar.
4. No further requirements.

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

5. Risks that are assessed as medium are managed in accordance with the hierarchy of controls, listed below:
 - 5.1 Where Reasonably Practicable Eliminate Hazards; or
 - 5.2 Substitute Hazards with ones having lower Risk; and
 - 5.3 Identify and implement controls and recovery measures to reduce the Risks to ALARP;
 - 5.4 Maintain a Hazards and Effects Register that includes a reference to the operator's documentation, legislation, regulation, or industry standards used to determine ALARP, or a reference to the process by which ALARP is determined.
6. Risks that are assessed as high are managed as per Requirement 5, and in addition, a Bow-Tie or equivalent analysis method is applied that includes the following:
 - 6.1 Identification of controls and escalation factors to prevent the release of a Hazard and to reduce the Consequences if the Hazard is released;
 - 6.2 Linking these controls and recovery measures to the Hazards;
 - 6.3 Providing a document reference for the controls and recovery measures;
 - 6.4 Assigning a responsible individual/party to each control, and in all cases, the barriers identified for location specific hazards are to be assigned local responsibility.
7. A documented demonstration, within a format or software system appropriate to the size and complexity of the organisation, that all elements of the HEMP are managed to ALARP is provided and includes details of:
 - 7.1 Hazards, Threats, Events, Consequences, Controls and Recovery Measures;
 - 7.2 Monitoring and verification process that is tied to the Company Assurance Process (SAF 03.00) which validates the effectiveness of each barrier;
 - 7.3 A Remedial Action Plan to close identified gaps.
8. An effective HEMP review process is established and maintained, which is demonstrably linked to the operator's:
 - 8.1 Management of Change Process (SAF 03.02);
 - 8.2 Incident Reporting, Investigation and Learning processes (SAF 02.01);
 - 8.3 Safety Promotion (SAF 04.00);
 - 8.4 Management Review (SAF 01.06); and
 - 8.5 Includes a process where external accidents or incidents that are relevant to the operation are included.

ADDITIONAL GUIDANCE

LINKS (FOR DOWNLOAD)

Shell:

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

https://eu001-sp.shell.com/sites/AAAAA8432/CF/Web/Managing_Risk.aspx

External:

RELATED INCIDENT

CORRESPONDING SELF-ASSESSMENT QUESTIONS

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

IOGP REPORT 590 AMG DIFFERENCES

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

SAF 02.01 Incident Reporting, Investigation and Learning

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Aircraft Operator Requirements

Restricted

Version 3.2 – June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirements 1-5:

1. Establish safety reporting procedures covering all regulatory and non-regulatory reports, including the reporting of lower level incidents or occurrences, including near-miss events.
2. Direct, encourage, and provide tools, to personnel to report any incident, occurrence, hazard, error, or near-miss event they become aware of, as soon as possible.
3. Provide and apply an investigation process which generates recommendations and systematically tracks them to closure.
4. Learn from Significant Incidents and High Potential Incidents through communication and implementation of required actions.
5. Integrate this element such that it supports the effectiveness of the Safety Risk Management and Management Review processes as described in SAF 01.06.

Means of Compliance for Requirements 1-5:

1. The reporting system is established to:
 - 1.1 Proactively report errors, near-miss events and hazards;
 - 1.2 Encourage proactive safety reporting for personnel at all levels, supported by a Just Culture, and provide protection to the reporter, such as the option to make anonymous reports;
 - 1.3 Include an effective feedback process to the individual and to the wider organisation where appropriate;
 - 1.4 Assign a severity rating in line with the **operator's** risk assessment process to any report.
2. Incidents are reported to the designated Shell Contract Holder to allow access for investigation, in line with contract requirements.
3. The scope of internal safety investigations:
 - 3.1 Includes occurrences that are not required to be reported to the National Aviation Authority (NAA), including high-potential, near-miss events;
 - 3.2 Is undertaken by trained investigators, whenever possible;
 - 3.3 Is of a scale suitable to determine why an event occurred and validate or identify the underlying hazards;

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

- 3.4 Has a scope proportional to the identified hazard and risk;
 - 3.5 Takes place as soon as possible after the event;
 - 3.6 Has an objective to understand why an event happened and the contributing causes, aligned with the organisation's Just Culture policy;
 - 3.7 Include, where appropriate:
 - Review of documentation and processes;
 - Operational data monitoring;
 - Interviews;
 - Root cause analysis;
 - Data analysis.
 - 3.8 Corrective Actions are recorded in an appropriate system and tracked to closure.
4. To Learn from Significant Incidents and High Potential Incidents an organisation has procedures:
 - 4.1 To communicate the results of any safety investigations;
 - 4.2 To address any identified hazards;
 - 4.3 To include both the Aircraft Operator's events and similar events from the wider industry.
 5. No further requirements.

ADDITIONAL GUIDANCE

Though often of a minor nature, reports can be indicative of a potential hazard or trend that will only be recognised through systematic investigation and data analysis.

Personnel need to have confidence in the just culture and the reporting system. They must know that confidentiality will be maintained and that the information they submit will be acted upon, otherwise they will decide that there is no benefit in their reporting.

LINKS (FOR DOWNLOAD)

Shell:

https://eu001-sp.shell.com/sites/AAAAA8432/CF/Web/Incident_Investigation_Learning.aspx

External:

EASA GM1 ORO.GEN.200(a)(3) Management system

INTERNAL OCCURRENCE REPORTING SCHEME

EASA AMC1 ORO.GEN.200(a)(3) Management system

COMPLEX OPERATORS - SAFETY RISK MANAGEMENT

RELATED INCIDENT

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

CORRESPONDING SELF-ASSESSMENT QUESTIONS

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

IOGP REPORT 590 AMG DIFFERENCES

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

SAF 03.00 Assurance

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Aircraft Operator Requirements

Restricted

Version 3.2 – June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirements 1-2:

1. Develop, document and implement an Assurance system covering the Safety Management System (SMS) and Safety Risk Management (SAF 02.00) processes, all flight operations, **maintenance** activities and ground operations.
2. The Assurance system shall detail a programme of internal and external audits, using trained personnel, that monitors compliance with all the aircraft **operator's** published manuals and activities.

Means of Compliance for Requirements 1-2:

1. The Aircraft Operator has, in addition to, or in the absence of National Aviation Authority (NAA) requirements, a process, such as Quality Assurance, Quality Control or a Compliance Monitoring system modelled after ISO9001, which:
 - 1.1 Is under the sole control of a Quality Manager (or equivalent) to whom the management function has been assigned;
 - 1.2 Is described in an applicable manual describing departmental procedures, duties, responsibilities and reporting relationships;
 - 1.3 Monitors and assesses the effectiveness of the SMS processes to enable continuous improvement of the overall performance of the SMS;
 - 1.4 Demonstrates that:
 - The document control process is effective; and
 - The personnel acknowledgment process is effective; and
 - 1.5 Continually seeks to improve its safety performance, using tools such as:
 - Proactive evaluation of day-to-day operations, facilities, equipment, documentation and procedures; and
 - Through safety audits and surveys.
2. The programme of audits monitors compliance with all the Aircraft Operator's published manuals including, but not limited, to:
 - 2.1 The suite of **Operations Manuals**;
 - 2.2 The Continuing Airworthiness Manual, or equivalent;
 - 2.3 The Maintenance Organisation Manual, or equivalent;

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

- 2.4 Flight Data Monitoring (FDM), Health and Usage Monitoring Systems (HUMS) and other specialised activities;
- 2.5 Any externally contracted operations or activities;
- 2.6 The use of trained and competency assessed auditors to carry out the activities; and
- 2.7 Utilising a functioning records/data management system which also tracks all audits and non-compliances to closure.

ADDITIONAL GUIDANCE

LINKS (FOR DOWNLOAD)

Shell:

External:

RELATED INCIDENT

CORRESPONDING SELF-ASSESSMENT QUESTIONS

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

IOGP REPORT 590 AMG DIFFERENCES

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

SAF 03.01 Performance Monitoring

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Aircraft Operator Requirements

Restricted

Version 3.2 – June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirements 1-5:

1. Establish Safety Performance Indicators (SPIs) that monitor and measure the safety policy, objectives and the performance of the organisation including the effectiveness of the SMS.
2. Gather and record safety performance data including SPIs that are relevant, consistent, transparent, accurate and complete, for consolidation and use these for internal review.
3. Confirm actual safety performance by reference to SPIs and safety performance targets.
4. Verify that data quality controls are in place to ensure that the data is accurate and complete.
5. Integrate this SMS element so that it supports the effectiveness of the Management Review as described in SAF 01.06.

Means of Compliance for Requirements 1-5:

1. SPIs are developed and maintained appropriate to the size, nature, and complexity of the organisation. (See Guidance).
2. No further requirements.
3. No further requirements.
4. No further requirements.
5. No further requirements.

ADDITIONAL GUIDANCE

Typically, safety objectives need to have been considered established before setting SPIs. This should allow the safety performance of the organisation to be measured against its safety policies and objectives.

The following should be considered in setting safety objectives:

- Define what the organisation hopes to achieve;
- It should be a statement of a desired outcome;
- Safety objectives should be short, high-level statements of the safety priorities and should reflect the organisation's safety policy;
- Safety objectives should address the organisation's most significant risks.

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

Typically, SPIs will require the monitoring of data from various sources such as:

- Occurrences and events;
- Safety reports;
- Meeting attendance;
- Safety reviews including trend analysis;
- Audit closure rates;
- Internal safety investigations.

LINKS (FOR DOWNLOAD)

Shell:

External:

<https://www.casa.gov.au/education/standard-page/sms-resource-kit>

https://publicapps.caa.co.uk/docs/33/CAP795_SMS_guidance_to_organisations.pdf

RELATED INCIDENT

CORRESPONDING SELF-ASSESSMENT QUESTIONS

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

IOPG REPORT 590 AMG DIFFERENCES

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

SAF 03.02 Management of Change

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Aircraft Operator Requirements

Restricted

Version 3.2 – June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirements 1-3:

1. Manage the risk associated with significant changes related to **aircraft** operations including key personnel changes, through a documented Management of Change (MOC) process that identifies external and internal changes affecting established operations, systems and processes.
2. Identify changes that introduce new hazards, or impact the effectiveness of the existing risk mitigations detailed in the organisations Hazard Register and Hazard and Effects Management Process and apply the MOC process to these changes.
3. Select an individual to manage each MOC process and designate who is approved to sign off the change as completed.

Means of Compliance for Requirements 1-3:

1. A documented MOC process is initiated, when appropriate, for the following:
 - 1.1 Significant personnel and organisational changes;
 - 1.2 Introduction of a new base;
 - 1.3 Introduction of a new aircraft type;
 - 1.4 Any other change that is deemed appropriate by the company through Risk Assessment.
2. No further requirements.
3. No further requirements.

ADDITIONAL GUIDANCE

LINKS (FOR DOWNLOAD)

Shell:

https://eu001-sp.shell.com/sites/AAAAA8432/CF/Web/Management_of_Change.aspx

External:

<https://www.casa.gov.au/education/standard-page/sms-resource-kit>

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

https://publicapps.caa.co.uk/docs/33/CAP795_SMS_guidance_to_organisations.pdf

RELATED INCIDENT

CORRESPONDING SELF-ASSESSMENT QUESTIONS

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

IOGP REPORT 590 AMG DIFFERENCES

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

SAF 04.00 Safety Promotion

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Aircraft Operator Requirements

Restricted

Version 3.2 – June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirements 1-2:

1. Maintain a range and hierarchy of safety promotion and communication processes to enable an effective, two-way flow of information throughout the company.
2. Integrate this element so that it supports the effectiveness of the Management Review, and Incident Reporting, Investigation and Learning processes as described in SAF 00.00.

Means of Compliance for Requirements 1-2:

1. The Aircraft **Operator** develops and maintains a formal means for safety promotion and communication that:
 - 1.1 Establishes formal Safety Meetings for all relevant Staff (SAF 01.06 Management Review describes these processes);
 - 1.2 Disseminates and conveys safety critical information using the following, as appropriate:
 - Safety policies and procedures;
 - Newsletters, safety bulletins and notices;
 - Presentations;
 - Websites and e-mails; and
 - Informal workplace meetings between staff and the accountable executive or senior managers.
 - 1.3 Explains why particular safety actions are taken;
 - 1.4 Explains why safety procedures are introduced or changed;
 - 1.5 Seeks feedback on safety issues or actions;
 - 1.6 Contains a process for assessing the suitability of safety communication and its effect on the organisation.
2. No further requirements.

ADDITIONAL GUIDANCE

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

LINKS (FOR DOWNLOAD)

Shell:

External:

RELATED INCIDENT

CORRESPONDING SELF-ASSESSMENT QUESTIONS

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

IOGP REPORT 590 AMG DIFFERENCES

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

FOR 01.01 Air Operator Certificate

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Aircraft Operator Requirements

Restricted

Version 3.2 June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirements 1-3:

1. Maintain a valid [Air Operator Certificate \(AOC\)](#).
2. Maintain all manuals required under the AOC as controlled documents.
3. Maintain up-to-date AOC Operations Specifications.

Means of Compliance for Requirements 1-3:

1. No further requirements.
2. Assurance audits, as per SAF 03.00, verify the control of these documents.
3. All operations under contract are:
 - 3.1 Included in the AOC Operations Specifications; and
 - 3.1 Conducted in accordance with the AOC Operations Specifications.

ADDITIONAL GUIDANCE

A copy of the AOC and the AOC Operations Specifications should be made available on request.

All controlled documents should be read and understood by new employees and by all employees when amended. Employees should sign as having read and understood the documents both on joining and when amended.

The hierarchy of manuals may be issued in separate parts corresponding to specific aspects of an operation. It should include the instructions and information necessary to enable the personnel concerned to perform their duties.

In those countries where an AOC and/or AOC Operations Specifications are not normally issued under national regulations for certain activities (e.g. utility and [aerial work](#) operations), alternative arrangements may be agreed in consultation with Shell Aircraft.

LINKS (FOR DOWNLOAD)

Shell:

External: [ICAO](#)

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

RELATED INCIDENT

CORRESPONDING SELF-ASSESSMENT QUESTIONS

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

None

IOGP REPORT 590 AMG DIFFERENCES

R590 makes no reference to the need for an **operator** to have a valid AOC. This is left to the "Member Company". R590 Section 1 refers to how Member Companies should select and review air charter operators according to their requirements.

FOR 01.02 Organisation and Personnel

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Aircraft Operator Requirements

Restricted

Version 3.2 June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirements 1-3:

1. Define and show the organisational structure with clearly identified reporting lines through to the accountable manager.
2. Define and document the duties and responsibilities of personnel in Management and Operational positions.
3. Assure and document the competence of personnel in Management and Operational positions.

Means of Compliance for Requirements 1-3:

1. The **Aircraft Operator** has the following management and operational positions:
 - 1.1 The Accountable Manager for the Air Operators Certificate;
 - 1.2 A person with overall responsibility for managing the flight department;
 - 1.3 A person responsible for managing flight training;
 - 1.4 A person responsible for flight safety;
 - 1.5 A person or third party responsible for managing **aircraft maintenance**, including continuing airworthiness requirements;
 - 1.6 A person responsible for managing ground operations (appropriate to the size of the operator); and
 - 1.7 Where the organisation has more than one operating base, the management structure addresses the required responsibilities at all locations.
2. No further requirements.
3. No further requirements.

ADDITIONAL GUIDANCE

One person may perform more than one role in small organisations.

In those countries where an AOC and/or AOC Operations Specifications are not normally issued under national regulations for certain activities (e.g. utility and **aerial work** operations), alternative arrangements may be agreed in consultation with Shell Aircraft.

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

LINKS (FOR DOWNLOAD)

Shell:

External:

- [EASA AMC1-ORO.GEN.200\(b\)](#)
- [CAP 795](#)
- [CAP 1059](#)

RELATED INCIDENT

CORRESPONDING SELF-ASSESSMENT QUESTIONS

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

8.

IOGP REPORT 590 AMG DIFFERENCES

OGP AMG does not require an AOC but section 1.4 Setting an Aviation Policy states:

“Specific operational restrictions may be applied, taking account of the contractor and local environment; amongst these will be the requirement to operate to public transport standards and to meet published aircraft performance criteria.”

FOR 01.03 Flight Crew Responsibilities

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Aircraft Operator Requirements

Restricted

Version 3.2 June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirements 1-4:

1. Provide the number of qualified flight crew as specified in the aircraft **flight manual** or as required by the Shell Technical Authority - Air Transport (TA1).
2. Designate a **Pilot-in-Command** (PIC) for each flight; and where the flight crew includes two pilots, designate a **co-pilot**.
3. Document and assign specific responsibilities to all flight crew members, including cabin crew.
4. Establish, document and maintain Standard Operating Procedures (SOPs) that enable crew members, whether as part of a multi-crew or single pilot, to operate the **aircraft** effectively and within the limitations specified in the aircraft flight manual.

Means of Compliance for Requirements 1-4:

1. No further requirements.
2. No further requirements.
3. Specific Pilot-in-Command and flight crew responsibilities include:
 - 3.1 The safe conduct of assigned flights;
 - 3.2 Assessment of weather and all applicable NOTAMs where available;
 - 3.3 Determining fuel, oil and oxygen requirements;
 - 3.4 Determining aircraft weight and balance;
 - 3.5 Confirming all flight-planning requirements have been met;
 - 3.6 Confirming the aircraft is certified as airworthy with a release to service, correctly registered and that the required documentation is on-board the aircraft;
 - 3.7 Conducting an aircraft pre-flight inspection as per company, manufacturer and regulatory requirements, before each departure;
 - 3.8 Confirming that the crew and passengers have had an appropriate safety briefing;
 - 3.9 Operating the aircraft in accordance with **operator** Standard Operating Procedures (SOP) and aircraft limitations;
 - 3.10 Completing all post flight duties as specified in the Company manuals;
 - 3.11 Recording **flight times** and aircraft defects in the aircraft technical log; and

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

3.12 For cabin crew and other crew members on board the aircraft, specific, assigned safety duties in the event of an on-board emergency.

4. The SOPs include clear instructions for the [Pilot Flying \(PF\)](#) and the [Pilot Monitoring \(PM\)](#).

ADDITIONAL GUIDANCE

Standard operating procedures (SOP's) are universally recognised as basic to safe aviation operations. Effective crew coordination and crew performance, two central concepts of crew resource management (CRM), depend upon the crew's having a shared mental model of each task. That mental model, in turn, is founded on SOP's. SOP's should be clear, comprehensive, and readily available in the manuals used by flight deck crew members.

LINKS (FOR DOWNLOAD)

Shell:

External:

RELATED INCIDENT

CORRESPONDING SELF-ASSESSMENT QUESTIONS

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

1, 2, 3, 4, 6, 13, 14, 16.

IOGP REPORT 590 AMG DIFFERENCES

R590 does not specify a designated PIC be assigned or that cabin and other crew receive CRM (590-C 3.7h). R590 implies compliance, but the exact language of the Shell requirement is not stated as such.

FOR 01.04 Flight Crew Scheduling

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Aircraft Operator Requirements

Restricted

Version 3.2 – June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirement 1:

1. Establish and document a flight crew scheduling process.

Means of Compliance for Requirement 1:

1. The scheduling process demonstrates that flight crew comply with the following:
 - 1.1 Flight crew qualification and experience requirements;
 - 1.2 Crew composition requirements;
 - 1.3 Flight and Duty time limitations; and
 - 1.4 Fitness for duty.

ADDITIONAL GUIDANCE

The prime objective of a **flight time** limitations scheme is to ensure that crew members are properly rested at the beginning of each **flying duty period**, and whilst flying, sufficiently free from fatigue so that they can operate to a satisfactory level of efficiency and safety in all normal and abnormal situations. **Aircraft Operators** are expected to appreciate the relationship between the frequency and pattern of scheduled flying duty periods, **rest periods** and time off, and give due consideration to the cumulative effects of working long hours interspersed with minimum rest.

It is the responsibility of the operator to prepare duty rosters sufficiently in advance to provide the opportunity for crew to plan adequate pre-duty rest.

LINKS (FOR DOWNLOAD)

Shell:

External:

RELATED INCIDENT

CORRESPONDING SELF-ASSESSMENT QUESTIONS

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

8.

LOGP REPORT 590 AMG DIFFERENCES

590 does not require any fitness for duty requirements.

FOR 01.05 Contracted Pilots

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Aircraft Operator Requirements

Restricted

Version 3.2 – June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirement 1 and 2:

1. Prohibit the employment of freelance pilots;
2. Contracted pilots (self-employed or similar) are to be included in the operators training programme.

Means of Compliance for Requirement 1 and 2:

1. No further requirements;
2. Contracted pilots are only used when:
 - 1.1 Shell flight crew qualifications, FOR 04.01, experience level and recent experience requirements, FOR 04.02 (FW) or FOR 04.03 (RW) and medical requirements, FOR 06.01, have been met;
 - 1.2 The pilot has received the Aircraft **Operator's** formal induction and line training;
 - 1.3 The Pilot has received the Shell flight training programme described in FOR 05.01, FOR 05.02 and FOR 05.03;
 - 1.4 The pilot is included as part of the Aircraft **Operator's** recurrent training programme, including simulator training where that is a normal contract requirement;
 - 1.5 The pilot and aircraft operator can demonstrate that detail of the Flight Duty Periods (FDP) in FOR 06.02 and FOR 06.03 (FW), or FOR 06.04 and FOR 06.05 (RW) and FOR 04.04, Pilots Flying More Than One Aircraft Type, for all contracted and non-contracted flying are tracked; and
 - 1.6 Training records for contracted pilots demonstrate that qualifications, experience and training requirements have been met.

ADDITIONAL GUIDANCE

- **Freelance Pilots** are self-employed and hired to work for different operators on particular assignments, and their training is controlled out with the operators training programme and there is no cross checking of Flight & Duty times between the operators or the individual.

LINKS (FOR DOWNLOAD)

Shell:

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

External:

RELATED INCIDENT

CORRESPONDING SELF-ASSESSMENT QUESTIONS

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

8, 9, 12.

IOGP REPORT 590 AMG DIFFERENCES

R590 does not preclude the use of freelance pilots unless deemed operationally necessary, but rather how they should be checked and the Member's qualifications.

FOR 01.06 Single-Engine Aircraft

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Aircraft Operator Requirements

Restricted

Version 3.2 – June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirements 1-2:

1. Prohibit the operation of single-engine **aircraft** over water beyond a distance that would exceed the gliding distance or autorotation distance to a **safe forced landing** area on land.
2. Prohibit the operation of single-engine aircraft at **night** or in **Instrument Meteorological Conditions** (IMC).

Means of Compliance for Requirements 1-2:

1. When single-engine, gas turbine aeroplanes are used in preference to piston multi-engine aeroplanes, a documented risk assessment is conducted. The following mitigating factors will be in place as a minimum:
 - 1.1 Day operation in **Visual Meteorological Conditions** (VMC);
 - 1.2 Enhanced pilot training to include actions in the event of loss of engine power;
 - 1.3 Additional mandatory equipment including:
 - engine health monitoring;
 - weather radar;
 - radio altimeter;
 - Terrain Avoidance Warning System (TAWS); and
 - Declaration and inspection of suitable landing sites.
2. No further requirements.

ADDITIONAL GUIDANCE

1. Shell does not contract:
 - Single piston-engine aeroplanes; or
 - Single-engine helicopters.

LINKS (FOR DOWNLOAD)

Shell:

External:

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

RELATED INCIDENT

CORRESPONDING SELF-ASSESSMENT QUESTIONS

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

1, 15.

IOGP REPORT 590 AMG DIFFERENCES

R590 does not permit the use of single engine aircraft as indicated, but does require life jackets to be worn, life rafts, and survival equipment to be carried onboard the aircraft when overwater.

FOR 02.01 Flight Preparation - General

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Aircraft Operator Requirements

Restricted

Version 3.2 – June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirements 1-4:

1. Complete flight preparation and pre-flight planning prior to the commencement of each flight.
2. Conduct flight operations under Instrument Flight Rules (IFR) when IFR flight is possible.
3. Conduct all Night Commercial Air Transport (CAT) passenger operations as IFR flights.
4. Permit flight operations under Visual Flight Rules (VFR) only when IFR flight is not possible.

Means of Compliance for Requirements 1-4:

1. As a minimum, the following are reviewed by the flight crew before flight:
 - 1.1 The **Operational Flight Plan**; [FOR 02.05]
 - 1.2 Current maps and charts;
 - 1.3 Weather at departure, destination and alternate airports; [FOR 02.04]
 - 1.4 NOTAMS;
 - 1.5 **Aircraft** performance, weight and balance; [FOR 02.05, 02.06, 02.07]
 - 1.6 The **Minimum Equipment List (MEL)** or **Configuration Deviation List (CDL)** if there is a deferred defect in the aircraft technical log; and [FOR 02.08]
 - 1.7 Fuel planning if the flight does not have an Operational Flight Plan. [FOR 02.05, 02.06, 02.07]
2. For IFR Flights;
 - 2.1 The available information indicates that conditions at the aerodrome of intended landing, or at least one destination alternate will, at the estimated time of arrival, be at or above the **aerodrome operating minima**; and,
 - 2.2 For helicopter flights from offshore locations to an onshore destination, no alternate¹ is required provided the following criteria are met:
 - The destination aerodrome has a published instrument approach;
 - The **flight time** is less than three hours; and

¹ The use of coastal aerodrome criteria may be permitted subject to NAA approval and approval of the Shell Technical Authority (TA1).

- The published weather forecast valid from 1-hour prior, and 1-hour after the expected landing time specifies that the cloud base is at least 700 feet above the minima associated with the instrument approach, or 1000 feet above the destination aerodrome, whichever is the higher; and visibility is at least 2500 metres.
3. No further requirements.
 4. For VFR flights planning, weather indicates that meteorological conditions along the route, departure point, and arrival destination are above VFR weather minima as defined in FOR 02.04 Weather Minima.

ADDITIONAL GUIDANCE

LINKS (FOR DOWNLOAD)

Shell:

External:

<https://www.easa.europa.eu/document-library/general-publications/easy-access-rules-air-operations>

RELATED INCIDENT

CORRESPONDING SELF-ASSESSMENT QUESTIONS

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

1, 2, 6, 8, 10, 13, 15, 16.

IOGP REPORT 590 AMG DIFFERENCES

R590 does not specify flight preparation (although implied); Unless stated in NAA regulations, R590 does not prohibit IFR flight when no alternate is required or the condition at destination or at least one alternate is at or above the minima.

FOR 02.02 Operating Minima

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Aircraft Operator Requirements

Restricted

Version 3.2 – June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirements 1-7:

1. Provide the means to enable flight crew to determine whether airports and **heliports** of intended use are acceptable.
2. Provide the means to enable flight crew to determine operating minima for airports or heliports of intended use.
3. Provide information on when **Runway Visual Range (RVR)** is required, including when operating minima is below 800 meters visibility, unless RVR is provided for **aircraft** landing operations.
4. Specify the minimum RVR values for take-off and all authorised approaches taking into consideration inoperative approach/runway lighting, inoperative transmissometers, and/or inadequate visual reference.
5. Prohibit flights to, or from, an airport where based on aircraft performance computation, a multi-engine aircraft will be unable to meet required departure or missed approach climb gradient criteria with one engine is inoperative (OEI), based on the expected departure or approach procedure and planned fuel and payload.
6. Document and implement a process to ensure that OEI departure and missed approach compliance is checked during pre-flight planning.
7. Require the **Pilot-in-Command (PIC)** to determine if any significant obstacles exist in the take-off and climb path prior to conducting a take-off; and if obstacles do exist, determine by use of the approved aircraft performance charts and related information, that the aircraft will safely clear such obstacles.

Means of Compliance for Requirements 1-7:

1. Information provided to flight crew to determine whether airports and heliports of intended use are acceptable includes:
 - 1.1 Applicable performance requirements;
 - 1.2 Runway or heliport characteristics;
 - 1.3 Air Traffic Service and communications;
 - 1.4 Navigation aids and lighting;
 - 1.5 Weather reporting; and

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

1.6 Emergency services, including temporary periods of reduced Rescue and Fire Fighting (RFF).

2. No further requirements.
3. No further requirements.
4. No further requirements.
5. No further requirements.
6. No further requirements.
7. No further requirements.

ADDITIONAL GUIDANCE

LINKS (FOR DOWNLOAD)

Shell:

External:

RELATED INCIDENT

CORRESPONDING SELF-ASSESSMENT QUESTIONS

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

1, 2, 6, 8, 9, 15, 16.

IOGP REPORT 590 AMG DIFFERENCES

R590 requires checking weather minima for destination and alternate airports as well as minimum departure obstacle clearance for multi-engine aircraft; R590 does not specifically reference any of the 1-6. requirements of FOR 02.02.

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

FOR 02.03 Offshore Alternates - Helicopters

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Aircraft Operator Requirements

Restricted

Version 3.2 – June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirements 1-2:

1. Prohibit the use of offshore installations as alternates unless specifically agreed by Shell.
2. Document procedures to mitigate the risk of offshore alternates if any are used.

Means of Compliance for Requirements 1-2:

1. Prior to the commencement of flights requiring the use of offshore alternates, the **Aircraft Operator** obtains the agreement of the relevant Shell Technical Authority - Air Transport (TA/1) and Shell Aircraft.
2. The procedures include:
 - 2.1 Prior to passing the calculated **Point of No Return (PNR)**, the crew completes the following actions:
 - Confirms that navigation to the destination and offshore alternate can be assured;
 - Guarantees deck availability prior to reaching the PNR for each proposed helicopter type;
 - Establishes radio contact with the destination and offshore alternate (or master station);
 - Obtains and confirms the landing forecast at the destination and offshore alternate to be above the required minima; and
 - Checks that one engine inoperative (OEI) landing requirements are attainable at both the destination and alternate;
 - 2.2 Co-ordinating the use of offshore alternate **helidecks** by multiple aircraft with the offshore installation(s) to ensure they are available when needed.
 - 2.3 Requiring the area forecast to indicate that, during a period commencing one hour before and ending one hour after the expected time of arrival at the destination and offshore alternate, weather conditions will be at or above the specified VFR weather minima.

ADDITIONAL GUIDANCE

To address the event of an engine failure beyond the PNR the Aircraft Operator should establish and document procedures for offshore OEI landings and include these procedures in initial and

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

recurrent pilot training. Procedures should include calculation and application of minimum approach speeds based on arrival weight and conditions.

To the extent possible, the availability of the offshore alternate should be guaranteed by the duty holder (the operator in the case of fixed installations and the owner in the case of mobiles) until landing at the destination, or the offshore alternate, has been achieved (or until offshore shuttling has been completed). If the offshore alternate is mobile, the operator should determine additional barriers to ensure position accuracy and appropriate deck movement limits to manage the risk that deck movement will not be out of limits.

LINKS (FOR DOWNLOAD)

Shell:

External:

EASA Part-CAT CAT.OP.MPA.181(d), AMC1 CAT.OP.MPA.181(d), Part-SPO AMC1 SPO.OP.151.

RELATED INCIDENT

CORRESPONDING SELF-ASSESSMENT QUESTIONS

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

6, 7.

IOGP REPORT 590 AMG DIFFERENCES

R590 only requires advice from the Member Company whereas FOR 02.03 requires approval. R590 does not address dispatch coordination for possible use of the same alternate platform(s) by multiple aircraft.

FOR 02.04 Weather Minima

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Aircraft Operator Requirements

Restricted

Version 3.2 – June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirements 1-6:

1. Use weather minima for **Instrument Flight Rules** (IFR) departures and approaches specified in the approved standard instrument approach procedures.
2. Document **Visual Flight Rules** (VFR) weather minima.
3. Document a procedure to determine take-off minima from runways where none is specified.
4. Prohibit an **aircraft** from continuing its approach-to-land beyond a point at which the limits of the **aerodrome operating minima** would be infringed.
5. Maintain minimum safe altitudes during departure, **en-route** and arrival procedures.
6. Prohibit flights into known or expected icing conditions unless the aircraft is equipped and certified for flight in icing conditions.

Means of Compliance for Requirements 1-6:

1. No further requirements.
2. VFR flights in helicopters do not depart, or continue, if the weather conditions at departure, en-route, or the destination are below the following VFR weather minima:

Flight Regime	Minimum Operating Height (AGL/AM SL)	Cloud Base (feet)	Visibility ¹	Requirements for these VFR weather minima
Offshore - Day	500 feet	600 feet	5000m	ICAO minima
Offshore - Day	300 feet	400 feet	2000m ²	For flights between offshore helidecks when the over-water sector is less than

¹ The **operations manual** requires that helicopters operating in VMC below MSA in visibilities of less than 5000m are to be flown at a groundspeed that will give adequate opportunity to observe other traffic or any obstacles in time to avoid collision.

² Subject to NAA approval, helicopters may be operated in flight visibility down to 800m provided the destination or an intermediate structure is continuously visible.

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

Flight Regime	Minimum Operating Height (AGL/AMSL)	Cloud Base (feet)	Visibility ¹	Requirements for these VFR weather minima
				10nm.
Offshore - Night	500 feet	600 feet	5000m ³	For flights between offshore helidecks when the over-water sector is less than 10nm
Onshore - Day	500 feet	600 feet	5000m ⁴	ICAO minima
Onshore – Night	1000 feet	1100 feet	5000m ⁵	Twin-engine IFR-certified helicopter with IFR night-current multi-crew. All night flights shall utilise IFR cockpit procedures for take-offs and landings.

3. No further Requirements.
4. No further Requirements.
5. No further Requirements.
6. No further Requirements.

ADDITIONAL GUIDANCE

LINKS (FOR DOWNLOAD)

Shell:

External:

RELATED INCIDENT

³ Subject to NAA approval, helicopters may be operated in flight visibility down to 1500m provided the destination or an intermediate structure is continuously visible.

⁴ Subject to NAA approval, helicopters may be permitted to operate in less than 1500m, but not less than 800m flight visibility in circumstances where the probability of encounters with other traffic would normally be low.

⁵ Subject to NAA approval, helicopters may be permitted to operate in less than 1500m flight visibility in circumstances where the probability of encounters with other traffic would normally be low.

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

CORRESPONDING SELF-ASSESSMENT QUESTIONS

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

1, 2, 6, 7, 13, 15, 16.

IOGP REPORT 590 AMG DIFFERENCES

R590 only partially meets requirement 1 of FOR 02.04 as it references ICAO fuel requirements. R590 does not specifically cover requirements 2-6.

FOR 02.05 Flight Planning

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Aircraft Operator Requirements

Restricted

Version 3.2 – June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirements 1-5:

1. Document and implement a fuel policy and provide instructions to Flight Crew for calculation of minimum departure fuel.
2. Document requirements for the calculation of **aircraft** mass, centre of gravity limits, and acceptance by the **pilot-in-command (PIC)**.
3. Verify that fuel, oil and oxygen requirements are fulfilled prior to take-off.
4. Describe the **Air Traffic Service (ATS) Flight Plan** and its use in the relevant company manuals that are accessible to the flight crew during flight preparation.
5. Describe the **Operational Flight Plan (OFP)** or equivalent document and its use in the relevant company manuals that are accessible to the flight crew during flight preparation

Means of Compliance for Requirements 1-5:

1. The fuel policy includes (as applicable), taxi, trip, approach, missed approach, alternate, contingency and reserve fuel.
2. A procedure is defined for Last Minute Changes (LMC) to the load sheet including tolerance for the maximum difference between planned and actual mass. The load sheet is approved by the National Aviation Authority (NAA).
3. No further requirements.
4. No further requirements.
5. The OFP includes the following:
 - 5.1 Aircraft registration, type and variant;
 - 5.2 Date of flight and flight identification;
 - 5.3 Point of departure, STD, STA, destination;
 - 5.4 Types of operation (Extended-range Twin-engine Operational Performance Standards (ETOPS), IFR, ferry flight, other)
 - 5.5 Applicable Notices to Airmen (NOTAMs) pertinent to the flight;
 - 5.6 Route and route segments with check points/waypoints, distances, time and tracks;
 - 5.7 Planned cruise speed and flying times between waypoints/check points;
 - 5.8 Planned altitude and flight levels;

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

- 5.9 Fuel plan including calculations and fuel on board when starting engines;
- 5.10 Alternate(s) for destination and, when applicable, take-off and [en-route](#);
- 5.11 Take-off alternate airport when weather conditions at the airport of departure are at or below the applicable aerodrome landing minima, or it will not be possible to return to the airport of departure for other reasons; and
- 5.12 Relevant meteorological information.

ADDITIONAL GUIDANCE

- Aircraft [Operators](#) may prepare and use standard load plans where applicable and approved by the National Aviation Authority (NAA).
- Aircraft Operators should provide guidance in the OM to enable flight crews to establish suitable en-route alternates.

LINKS (FOR DOWNLOAD)

Shell:

External:

RELATED INCIDENT

CORRESPONDING SELF-ASSESSMENT QUESTIONS

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

1, 2, 4, 5, 6, 7, 10, 13, 14, 15, 16.

ILOGP REPORT 590 AMG DIFFERENCES

R590 does not specify checking oxygen requirements except in medical aircraft. R590 does not specifically cover requirements 4-5. of FOR 02.05.

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

FOR 02.06 Fuel Requirements – Fixed Wing

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Aircraft Operator Requirements

Restricted

Version 3.2 – June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirement 1:

1. Document and implement a fuel policy for the purpose of **flight planning** to ensure every **aircraft** carries sufficient fuel¹ for all flights.

Means of Compliance for Requirement 1:

1. In addition to, or in lieu of National Aviation Authority (NAA) requirements, every flight has been refuelled with sufficient fuel for the planned operations and additional reserves to cover deviations from the planned operations as follows:

1.1 For all flights:

- Taxi fuel - The total amount of fuel expected to be used prior to take-off, including allowances for operation of ice protection systems and Auxiliary Power Unit (APU), and any foreseeable delays prior to take-off;
- Trip Fuel - Include take-off, climb, cruise descent, approach and landing, taking into account departure and arrival routings, meteorological conditions, foreseeable air traffic routings and traffic delays, landing at a suitable aerodrome in the event of loss of cabin pressurisation or, in the case of multi-engine aircraft, failure of any engine, at the most critical point during the flight; and,
- Any other foreseeable conditions that could delay the landing of the aircraft.

1.2 For IFR Flights:

- Sufficient fuel for the proposed route;
- Contingency Fuel - 5% of the planned trip fuel, but not less than 10 minutes at normal cruising speed, or, in the event of in-flight re-planning, 5% of the trip fuel for the remainder of the flight but not less than 10 minutes at normal cruising speed;
- Alternate Fuel - Includes the missed approach procedure, climb, cruise², descent, approach and landing at the alternate considering departure and arrival routings;

¹ Sufficient fuel is in addition to unusable fuel as listed in the aircraft **Flight Manual**.

² The fuel computation for the leg to the alternate is calculated at the low-altitude cruise fuel consumption rate if this is likely to be the case.

- Final Reserve Fuel - Sufficient to hold for 30 minutes, jet or turbo-jet propeller aircraft, or 45 minutes propeller aircraft powered by a piston engine, at 1500 ft. above airport elevation in ISA calculated with the estimated landing weights on arrival at the alternate; and
- Extra Fuel at the discretion of the [Pilot-in-Command \(PIC\)](#).

1.3 For VFR Flights:

- Sufficient fuel for the proposed route;
- Additional fuel required by the NAA, or 10% of the route fuel, whichever is higher; and
- 30 minutes at the cruising speed consumption.

ADDITIONAL GUIDANCE

LINKS (FOR DOWNLOAD)

Shell:

External:

RELATED INCIDENT

CORRESPONDING SELF-ASSESSMENT QUESTIONS

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

1, 15.

IOPG REPORT 590 AMG DIFFERENCES

R590 D 1.8 has generic guidance on fuel planning and is not specific to fixed or rotary wing.

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

FOR 02.07 Fuel Requirements - Helicopters

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Aircraft Operator Requirements

Restricted

Version 3.2 – June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirement 1:

1. Document and implement a fuel policy for the purpose of **flight planning** to ensure every **aircraft** has been refuelled with sufficient fuel¹ for all flights.

Means of Compliance for Requirement 1:

1. In addition to, or in lieu of National Aviation Authority (NAA) requirements, every flight carries sufficient fuel for the planned operations and additional reserves to cover deviations from the planned operations as follows:

1.1 For IFR flights:

- Taxi Fuel - The total amount of fuel expected to be used for start-up and taxi including allowances for operation of ancillary equipment, local conditions at departure site, ice protection systems and APU if applicable, and any foreseeable delays prior to take-off;
- Trip Fuel - The flight to the destination including take-off, climb, cruise, descent, approach and landing, considering departure and arrival routings, meteorological conditions and foreseeable delays due to air traffic routing or other situations;
- Contingency Fuel - Fuel sufficient for contingency allowance representing 10% of the trip fuel;
- Alternate Fuel - Fuel for missed approach from the applicable MDA/DA at destination aerodrome to the missed approach altitude and transit to alternate, including climb, cruise, descent and approach and landing at the alternate, considering departure and arrival routings;
- Final Reserve Fuel- Fuel to hold for of 30 minutes at holding speed at 1500ft above the destination in ISA calculated with the estimated landing mass on arrival above the destination or the alternate;
- Extra fuel at the discretion of the **Pilot-in-Command (PIC)**;
- Sufficient fuel is carried at all times to route to a suitable airfield, hold for 15 minutes at 1500 ft. above airfield elevation in ISA and make an approach and landing, in the event of failure occurring at the most critical point in the flight;

¹ Sufficient fuel is in addition to unusable fuel as listed in the aircraft **Flight Manual**.

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

- Additional fuel if the aircraft **operator's** fuel policy includes planning to an isolated aerodrome.

1.2 For VFR flights:

- Taxi Fuel - The total amount of fuel expected to be used for start-up and taxi including allowances for operation of ancillary equipment, local conditions at departure site, ice protection systems and APU if applicable, and any foreseeable delays prior to take-off; and,

VFR flights in a non-hostile environment (excludes all offshore operations)	VFR flights in a hostile environment and all offshore operations
Additional fuel based on the rules of the State of the operator but normally 5% of the planned trip fuel ² , plus:	Additional fuel based on the rules of the State of the operator but normally 10% of the planned trip fuel, plus:
Fuel for a missed approach at destination, plus transit and approach and landing at alternate, plus;	Fuel for a missed approach at destination, plus transit and approach and landing at alternate. (NB. Plus 10% for helicopters operating to or from offshore helidecks), plus;
If operating by day with reference to visual landmarks, 20 minutes fuel at best range speed. If not, fuel for 30 minutes at holding speed above the destination, plus;	Fuel to fly for 30 minutes at holding speed at 1500 feet above the destination, plus;
Extra fuel, at the discretion of the Commander.	Extra fuel, at the discretion of the Commander.

ADDITIONAL GUIDANCE

LINKS (FOR DOWNLOAD)

Shell:

External:

RELATED INCIDENT

² The lower of these requirements are only used following a risk assessment based on an analysis of low fuel incidents in the operating area.

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

CORRESPONDING SELF-ASSESSMENT QUESTIONS

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

6, 15.

IOPG REPORT 590 AMG DIFFERENCES

No differences.

FOR 02.08 Aircraft Acceptance

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Aircraft Operator Requirements

Restricted

Version 3.2 – June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirements 1-5:

1. Define Flight Crew responsibilities for using a **Minimum Equipment List (MEL)**, **Configuration Defect List (CDL)** and **Aircraft Technical Log (ATL)**.
2. Prohibit the **aircraft** to depart with a defect that has not been processed in accordance with the MEL/CDL.
3. Report and record in the ATL all known or suspected defects affecting the aircraft after every flight.
4. Perform an exterior aircraft Pre-Flight Inspection prior to each flight.
5. Perform an interior aircraft emergency equipment inspection prior to each flight.

Means of Compliance for Requirements 1-5:

1. Contract requirements for a Minimum Departure Standard may also be included in Flight Crew responsibilities.
2. No further requirements.
3. The **Pilot-in-Command (PIC)** is responsible for this action and where there are no known defects, the PIC certifies in the ATL that no new defects exist and simply entering the words "Nil Defects" is acceptable.
4. The exterior aircraft Pre-Flight Inspection is conducted by a member of the Flight Crew and includes the following safety critical items:
 - 4.1 Pitot/static ports;
 - 4.2 Locked or disabled flight controls (as applicable, depending on aircraft type);
 - 4.3 Presence of frost, snow or ice on critical surfaces; and
 - 4.4 Aircraft structural integrity (damage).
5. The aircraft interior inspection is conducted by a member of the Flight Crew (or a designated, qualified Cabin Crew member) and includes the following safety critical items:
 - 5.1 Oxygen (where applicable); and
 - 5.2 Medical and emergency equipment (where applicable).

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

ADDITIONAL GUIDANCE

The pre-flight inspection is intended to mean all the actions necessary to ensure that the aircraft is fit to make the intended flight. These should typically include but are not necessarily limited to:

- A walk-around type inspection of the aircraft and its emergency equipment for condition including, any obvious signs of wear, damage or leakage. In addition, the presence of all required equipment including emergency equipment should be established;
- An inspection of the aircraft continuing airworthiness record system or the **operator's** technical log as applicable to ensure that the intended flight is not adversely affected by any outstanding deferred defects and that no required **maintenance** action shown in the maintenance statement is overdue or will become due during the flight;
- A control that consumable fluids, gases etc. uplifted prior to flight are of the correct specification, free from contamination, and correctly recorded;
- A control that all doors are securely fastened;
- A control that control surface and landing gear locks, pitot/static covers, restraint devices and engine/aperture blanks have been removed;
- A control that all the aircraft's external surfaces and engines are free from ice, snow, sand, dust etc.

Tasks such as oil and hydraulic fluid uplift and tyre inflation may be considered as part of the pre-flight inspection. The related pre-flight inspection instructions should address the procedures to determine where the necessary uplift or inflation results from an abnormal consumption and possibly requires additional maintenance action by the approved maintenance organisation or certifying personal as appropriate.

In the case of commercial air transport, an operator should publish guidance to maintenance and flight personnel and any other personnel performing pre-flight inspection tasks, as appropriate, defining responsibilities for these actions and, where tasks are contracted to other organisations, how their accomplishment is subject to the quality system. It should be demonstrated to the competent authority that pre-flight inspection personnel have received appropriate training for the relevant pre-flight inspection tasks. The training standard for personnel performing the pre-flight inspection should be described in the operator's continuing airworthiness management exposition.

Aircraft Operators should document instructions for Pilots-in-Command (PIC) with respect to defects that occur in flight when landing offshore.

When a helicopter is conducting a **rotors-running turn-round** (RRTR) an exterior Pre-Flight Inspection is not required, however a visual examination of the helicopter should be performed by a Crew Member or by trained and competent ramp personnel or **Helicopter Landing Officer** (HLO) and then clearly communicated to the PIC.

LINKS (FOR DOWNLOAD)

Shell:

External:

RELATED INCIDENT

CORRESPONDING SELF-ASSESSMENT QUESTIONS

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

None.

IOGP REPORT 590 AMG DIFFERENCES

R590 implies, but does not specifically address requirements 1-5 of FOR 02.08.

FOR 02.09 Aircraft Documentation

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Aircraft Operator Requirements

Restricted

Version 3.2 – June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirements 1-2:

1. Carry operational documentation on board the **aircraft**, with the documents accessible on the flight deck.
2. Maintain all controlled documents up-to-date to the latest amendment.

Means of Compliance for Requirements 1-2:

1. The required documents include the following in addition to, or in lieu of, National Aviation Authority (NAA) requirements:
 - 1.1 Pertinent aeronautical charts;
 - 1.2 Pertinent **en-route**, terminal area, and instrument approach procedure charts;
 - 1.3 Aircraft performance data;
 - 1.4 Aircraft checklists;
 - 1.5 The approved **Operations Manuals**;
 - 1.6 Standard Operating Procedures (SOP), where SOPs are established for the aircraft;
 - 1.7 The aircraft **flight manual**;
 - 1.8 The aircraft **Minimum Equipment List (MEL)** for aircraft being operated in accordance with a MEL;
 - 1.9 Aircraft certificate of airworthiness or other flight authorisation documents and certificate of registration;
 - 1.10 Aircraft radio licence;
 - 1.11 Insurance certificate;
 - 1.12 If **Dangerous Goods** are carried, the appropriate documentation, forms and guidance material for the Safe Transport of Dangerous Goods by Air;
 - 1.13 Procedures for Pilots-in-Command of intercepted aircraft and visual signals for use by intercepting and intercepted aircraft, as contained in ICAO Annex 2; and
 - 1.14 For international **commercial air transport operations**, a certified true copy of the **Aircraft Operator Certificate (AOC)** including the authorisations, conditions and limitations relevant to the aircraft type.
2. No further requirements.

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

ADDITIONAL GUIDANCE

Aircraft documentation can be carried either in paper form or in an Electronic Flight Bag conforming to EASA-OPS / AMC 20-25 or FAA Advisory Circular 120-76B, or other NAA regulation.

Guidance material on electronic flight bags is available from several sources including:

- EASA-OPS - AMC 20-25: Airworthiness and Operational Consideration for Electronic Flight Bags (EFBs), and
- FAA Advisory Circular AC 120-76C - Guidelines for the Certification, Airworthiness, and Operational Use of Electronic Flight Bag dated 05/09/2014.

LINKS (FOR DOWNLOAD)

Shell:

External:

RELATED INCIDENT

CORRESPONDING SELF-ASSESSMENT QUESTIONS

1. Does the aircraft **operator** have documented requirements for aircraft documentation to be carried on board the aircraft?
2. Does the aircraft operator have a documented list of aircraft documents to be carried on board the aircraft?

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

4, 12, 15, 16.

IOGP REPORT 590 AMG DIFFERENCES

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

FOR 03.01 In-Flight Operations

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Aircraft Operator Requirements

Restricted

Version 3.2 – June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirements 1-11:

1. Operate the [aircraft](#) at all times in accordance with the approved [Aircraft Flight Manual \(AFM\)](#).
2. Provide instructions on monitoring weather and navigation performance inflight.
3. Document and implement a collision avoidance policy.
4. Require Flight Crew to regularly check and record fuel status and the time over waypoints on the [Operational Flight Plan \(OFP\)](#) or equivalent.
5. Document and implement a sterile cockpit policy and procedures.
6. Document designated roles and responsibilities for the Flight Crew.
7. Document and implement a procedure that requires a cross-check of critical Flight Crew actions.
8. Document and implement a policy for standard cockpit procedural phraseology including “Standard Call-Outs” for each phase of flight.
9. Maintain a current database for [Terrain Avoidance and Warning System \(TAWS\)](#) with predictive terrain hazard warning.
10. Document and implement an automation policy.
11. Require Flight Crew to conduct departure and approach briefings.

Means of Compliance for Requirements 1-11:

1. No further requirements.
2. Flight Crews monitor weather and position information whilst [en-route](#), to guide navigational decision-making; the information includes:
 - 2.1 Destination;
 - 2.2 Destination alternate (if applicable);
 - 2.3 En-route alternate(s) (if applicable).
 - 2.4 Verifying present position.
3. The collision and avoid policy includes the following:
 - 3.1 Use of [ACAS](#); and

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

- 3.2 Maintaining an effective lookout whilst one Crew member engaged on tasks inside the cockpit.
4. No further requirements.
5. A sterile cockpit includes:
 - 5.1 Intra-cockpit and cabin/cockpit communication protocol during critical phases of flight;
 - 5.2 Mandatory use of headsets and boom microphones during critical phases of flight for the purposes of ATC communication;
 - 5.3 Policy on the use of authorised devices, such as electronic flight bags; and
 - 5.4 Restriction of activities to essential operational matters during critical phases of flight. This includes:
 - All ground operations;
 - Take-off until the departure phase is considered complete;
 - Approach and landing from when the approach and landing phase commences.
 - 5.5 The Aircraft **Operator** documents the commencement and conclusion of the phases described in 5.4.
6. Designated responsibilities of Flight Crew members include policies on:
 - 6.1 The use of checklists;
 - 6.2 **Pilot Flying (PF)/Pilot Monitoring (PM)** duties;
 - 6.3 Manual and automatic flight.
7. Cross check of critical Flight Crew actions includes:
 - 7.1 Configuration changes;
 - 7.2 Heading, altitude, altimeter and airspeed (bug) settings;
 - 7.3 Transfer of controls;
 - 7.4 Changes to Auto-Flight System (AFS)/Flight Management System (FMS) and radio navigation aids during the departure or approach phase;
 - 7.5 Performance calculations, including AFS/FMS entries.
8. No further requirements.
9. No further requirements.
10. An automation policy includes:
 - 10.1 Monitoring of the AFS/FMS by:
 - Cross-checking the mode selection and the status;
 - Observing the result of any change;
 - Supervising the resulting guidance and aircraft performance.
 - 10.2 The use of an appropriate level of automation for the task, including manual flying.
11. Departure and approach briefings includes:

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

- 11.1 Aircraft technical status;
- 11.2 Normal and non-normal departure and approach considerations;
- 11.3 Jump seat/observer briefing.

ADDITIONAL GUIDANCE

LINKS (FOR DOWNLOAD)

Shell:

External:

RELATED INCIDENT

CORRESPONDING SELF-ASSESSMENT QUESTIONS

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

1, 2, 6, 8, 15, 16.

IOGP REPORT 590 AMG DIFFERENCES

590-D 3.1.1 addresses many of the requirements of FOR 03.01 but not to the level of specificity of the FOR 03.01.

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

FOR 03.02 Adverse Weather

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Aircraft Operator Requirements

Restricted

Version 3.2 – June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirements 1-3:

1. Document and implement a policy for the safe operation of **aircraft** in adverse weather.
2. Document and implement a policy for flight crews to monitor weather information whilst **en-route** including destination, destination alternate (when applicable), and en-route alternate (when applicable).
3. Document and implement a policy for wind shear avoidance and recovery.

Means of Compliance for Requirements 1-3:

1. No further requirements.
2. Policies for the monitoring of weather information whilst en-route include instructions to avoid, and actions to recover from:
 - 2.1 Thunderstorms and other adverse atmospheric conditions;
 - 2.2 Lightning avoidance, including helicopter-triggered lightning;
 - 2.3 Low visibility;
 - 2.4 Icing;
 - 2.5 Turbulence;
 - 2.6 Wake turbulence - where applicable;
 - 2.7 Micro-burst, jet stream, mountain waves, waterspout;
 - 2.8 Contaminated landing surfaces - including the effect of type and depth of contaminants on performance;
 - 2.9 Volcanic ash - where applicable;
 - 2.10 Sea state - where applicable; and
 - 2.11 Cold and hot weather operations.
3. No further requirements.

ADDITIONAL GUIDANCE

Adverse weather operating limits may be defined in the relevant company manuals.

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

Instructions and procedures for wind shear avoidance should include use of predictive equipment if fitted.

LINKS (FOR DOWNLOAD)

Shell:

External:

RELATED INCIDENT

CORRESPONDING SELF-ASSESSMENT QUESTIONS

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

1, 2, 6, 7, 13, 15, 16.

IOGP REPORT 590 AMG DIFFERENCES

R590 implies a requirement to monitoring en-route weather; R590 does not cover wind shear avoidance and recovery.

FOR 03.03 Ice Protection

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Aircraft Operator Requirements

Restricted

Version 3.2 – June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirement 1:

1. Document and implement policies and procedures for de/anti-icing and make these accessible to the Flight Crew.

Means of Compliance for Requirement 1:

1. The de/anti-icing policies include:
 - 1.1 Holdover timetables, readily accessible to the Flight Crew;
 - 1.2 Requirements for a member of the Flight Crew to perform a visual check of the rotor blades or wings and all critical surfaces just before take-off (as applicable), if contamination is suspected;
 - 1.3 Requirement for the **aircraft** not to commence take-off unless the critical surfaces are clear of any deposits which might adversely affect the performance and/or controllability of the aircraft; and
 - 1.4 A statement that authorises the **Pilot-in-Command** (PIC) to obtain de-icing services whenever the PIC determines that it is necessary.

ADDITIONAL GUIDANCE

LINKS (FOR DOWNLOAD)

Shell:

External:

RELATED INCIDENT

CORRESPONDING SELF-ASSESSMENT QUESTIONS

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

1, 2, 13, 15.

IOP REPORT 590 AMG DIFFERENCES

No differences.

FOR 03.04 Guarding of Flight Controls

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Aircraft Operator Requirements

Restricted

Version 3.2 – June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirements 1-4:

1. Require and document that the controls of a helicopter never be left unattended while either the engines are running or the rotors are turning.
2. Require and document that a pilot seat is occupied by a qualified person whenever an Auxiliary Power Unit (APU) is running, unless the [Aircraft Flight Manual \(AFM\)](#) allows for the APU to be run unattended.
3. Require and document that the [Pilot Flying \(PF\)](#) is to guard the flight controls at all times when not carrying out other essential tasks when the [aircraft](#) is in a coupled autopilot mode.
4. Require and document that the PF is to physically restrict the flight controls when the other pilot leaves or returns to his seat when the rotors are turning.

Means of Compliance for Requirements 1-4:

1. In the context of this requirement "engines" do not include an Auxiliary Power Unit (APU).
2. A policy is in place to determine who is authorised to operate an APU on the ground.
3. Guarding the controls is defined as having the hands and feet resting near the cyclic, collective and pedals as applicable.
4. No further requirements.

ADDITIONAL GUIDANCE

The guarding of flight controls when the autopilot is coupled is considered necessary as many helicopter emergencies, or abnormal conditions require a rapid response.

LINKS (FOR DOWNLOAD)

Shell:

External:

RELATED INCIDENT

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

CORRESPONDING SELF-ASSESSMENT QUESTIONS

1. Do the [Operations Manual](#) and/or SOPs include a clear policy and procedures on guarding, or remaining at flight controls during in-flight and ground operations?

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

6, 13.

IOPG REPORT 590 AMG DIFFERENCES

FOR 03.05 Passengers - General

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Aircraft Operator Requirements

Restricted

Version 3.2 – June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirement 1:

1. Prohibit passengers from occupying either the Co-Pilot's or jump-seat positions, except in emergency situations, or where the **aircraft** is certified for single-pilot operations and prior approval has been granted by the Shell Technical Authority – Air Transport (TA/1).

Means of Compliance for Requirement 1:

1. The following conditions are met for every flight where a passenger occupies the Co-Pilot's seat or a jump seat:
 - 1.1 The **Pilot-in-Command (PIC)** is satisfied that no safety or security risk is involved;
 - 1.2 The flight controls are either removed or safeguarded in such a way that the rudder/tail rotor pedals or the control column/cyclic stick/collective lever cannot inadvertently be knocked by the passenger occupying the co-pilot's seat; and
 - 1.3 A separate briefing covering any items that may differ from the standard passenger briefing is given. In particular:
 - How to use any Flight Crew emergency exits;
 - Ensuring the controls are not interfered with;
 - Highlighting switches or controls that may be vulnerable to interference.

ADDITIONAL GUIDANCE

LINKS (FOR DOWNLOAD)

Shell:

External:

RELATED INCIDENT

CORRESPONDING SELF-ASSESSMENT QUESTIONS

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

IOGP REPORT 590 AMG DIFFERENCES

R590 does not address Requirement 1. of FOP 03.05 and does not address the necessity for Shell approval.

FOR 03.06 Flight Following

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Aircraft Operator Requirements

Restricted

Version 3.2 – June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirements 1-2:

1. Develop and implement a flight following policy and system that records aircraft position when the aircraft is outside an effective Air Traffic Control (ATC) surveillance service (Radar, Voice or Automatic Dependent Surveillance – Broadcast (ADS-B)).
2. Maintain a record of flight following position reports.

Means of Compliance for Requirements 1-2:

1. Flight following policy and system:
 - 1.1 Includes a system description, all normal, abnormal and emergency response procedures, which is readily available to personnel involved in flight following and any other relevant personnel;
 - 1.2 Incorporates monitoring whenever aircraft are airborne;
 - 1.3 If an Aircraft Operator provides a centralised flight following function from a remote location (e.g. as part of a regional operations centre), at least one additional ground station, or access to a web-based system, is readily available at the base of operations for continuous, local monitoring;
 - 1.4 The personnel involved in flight following, whether full or part-time:
 - Receive annual and recurrent training on the relevant sections of the Aircraft Operator's manuals, including indoctrination training, specific flight following content, and the procedures to follow in the event of overdue or lost aircraft;
 - Participate in annual emergency response drills; and
 - Complete an annual competence evaluation.
2. Position reports and monitoring:
 - 2.1 For Satellite Flight Following Systems (SFFS):
 - Position reports are automatically polled and recorded by the system at intervals not exceeding 5 minutes;
 - The system is monitored by dedicated personnel who intervene when SFFS polling is interrupted (loss of reports) or if SFFS distress modes are activated; and
 - The SFFS is prominently displayed and shows the status of individual aircraft.
 - 2.2 Where a Radio Flight Watch service is provided:

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

- Position reports are recorded in a radio watch log at least every 15 minutes whenever the aircraft is airborne; and
- Radio operators have any applicable licences and can communicate in English, or the approved language of the operation.

ADDITIONAL GUIDANCE

LINKS (FOR DOWNLOAD)

Shell:

External:

RELATED INCIDENT

CORRESPONDING SELF-ASSESSMENT QUESTIONS

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

12, 14, 16.

IOGP REPORT 590 AMG DIFFERENCES

590-D 3.2 references flight following but is not mandated for flights based on whether they are under an Air Traffic radar service.

FOR 03.07 Passenger Briefing

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Aircraft Operator Requirements

Restricted

Version 3.2 – June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirements 1-2:

1. Brief passengers on emergency procedures and other safety matters prior to flight, in the language(s) appropriate to the passengers and crew.
2. Use multi-language safety briefing cards with graphics and international symbols to convey key information about safety equipment and emergency procedures to all passengers.

Means of Compliance for Requirements 1-2:

1. Content of passenger briefings:
 - 1.1 All passenger briefings include a description of, or instructions on:
 - The danger areas of jet engines, turning propellers and helicopter main and tail rotors as applicable;
 - Procedures for boarding and exiting the **aircraft**, including location and operation of doors, emergency exits and push out-windows;
 - A prohibition on smoking in or around the aircraft and apron area; location of non-smoking signs;
 - The location and use of seat belts, including shoulder harnesses when fitted, and an instruction that they are worn during landing and take-off in aeroplanes whenever the "fasten seat belt" sign is on and always in helicopters, other than when embarking/disembarking;
 - Location of "fasten seat belt" signs;
 - Proper stowage of any hand-carried item;
 - Leaving personal belongings behind in the event of an evacuation;
 - Use of personal electronic devices (laptops, mobile phones etc.);
 - The requirement for passengers to remain seated, with their seat belts fastened, until the crew tells them to disembark;
 - The location and use of oxygen masks, if applicable;
 - Location of emergency and lifesaving equipment such as fire extinguishers, first aid kit, life vests, life rafts, survival gear and Emergency Locator Transmitters (ELTs) and Emergency Position Indicating Radio Beacons (EPIRBs) if fitted;

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

- Means of communication between crew and passengers in the event of an emergency;
- Passengers to inform the flight crew if they notice anything untoward, but not during take-off or landing;
- Actions in the event of an emergency;
- Brace position for emergency landing;
- Not inflating life jackets until outside the aircraft; and
- The location of, and requirement to read, the safety briefing card.

1.2 Additional briefing items for helicopter flight include a description of, or instructions on:

- Not disembarking until instructed by the Pilot, [Helideck](#) Landing Officer (HLO), Helideck Attendant (HDA), or other designated personnel;
- Not approaching a helicopter from the rear and not proceeding any further aft of the baggage compartment door than is necessary for the retrieval of baggage or cargo;
- Always approaching and leaving the helicopter from the side, within view of the Pilot or Crew member;
- Hand-carrying hats, glasses, and caps to prevent them from being blown away by the main rotor wash;
- Long objects over 1 metre to be carried flat to avoid contacting the main rotor blade;
- A prohibition on passengers disembarking from, or approaching a helicopter on the up-slope (high) side when the aircraft is on sloping ground;
- A prohibition on personnel approaching a helicopter during start-up or shutdown;
- Only small, soft items such as a paperback book to be carried inside the passenger cabin of helicopters;
- The method of egress in the event of a roll-over accident in wide-body helicopters (1.8 metre cabin width or greater) is by use of the under-seat frame of the transverse cabin seats as a ladder.

1.3 Additional briefing items for offshore helicopter flights include:

- Instructions on the use of survival suits, hoods, gloves and emergency breathing systems (where applicable);
- If survival suits are worn they need to be fully zipped and with hood on when advised by the [Pilot-In-Command](#);
- In the event of an emergency landing on the water, instructions not to evacuate the helicopter until the rotor has stopped, unless instructed otherwise by the Pilot in Command;

- Instructions on the location of emergency equipment such as life rafts, jettison procedures for the emergency exits and pop out windows, and the deployment of life rafts outside the helicopter;
- Instructions that the seat belt must only be released after the cabin window has been pushed out (or confirmed that it has been pushed out if not sitting next to the window);
- The proper use of reference points for orientation during the event of a rollover ditching;
- Instructions on the carriage of loose articles in the aircraft that could present Foreign Object Damage (FOD) risk or impede egress in the event of ditching.

1.4 Passengers are provided with hearing protection and instructed on its use;

1.5 The aircraft safety briefing is valid for 24 hours provided the type of aircraft utilised remains the same type as originally briefed;

1.6 Where a video briefing has been provided by someone other than the crew of the aircraft, the passenger manifest is signed to certify that passengers received the appropriate briefing;

1.7 Where the briefing is conducted in the language not understood by the passengers, translation services (translator, multi-language instructions/video, subtitle, etc.) are made available, and;

1.8 When passenger transfer involves public transport helicopter hoist operations (HHO), i.e. non-emergency hoist transfer, the passenger is briefed prior to each flight, on the ground, without time pressure. The briefing covers emergencies including the wearing and use of survival equipment, HHO procedures and crew signals, including practising donning and using the lifting strop.

2. No further requirements.

ADDITIONAL GUIDANCE

LINKS (FOR DOWNLOAD)

Shell:

External:

RELATED INCIDENT

CORRESPONDING SELF-ASSESSMENT QUESTIONS

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

1, 3, 4, 5, 6, 8, 12, 14, 15.

ILOGP REPORT 590 AMG DIFFERENCES

No differences.

FOR 03.08 Offshore Helidecks

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Aircraft Operator Requirements

Restricted

Version 3.2 – June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirements 1-3:

1. Conduct helideck approaches such that the helicopter lands with the pilot's seat over the Touch Down/Position Marking (TD/PM) Circle and that during the approach the helicopter is manoeuvred entirely within the Obstacle Free Sector (OFS).
2. Prohibit ground manoeuvring on offshore **helidecks** except for those locations equipped with a purpose-designed helicopter parking area or hangar deck.
3. Document procedures for ground manoeuvring on offshore helidecks with helicopter parking areas and hangar decks.

Means of Compliance for Requirements 1-3:

1. No further requirements.
2. When there is an urgent need to allow another aircraft to land, or to deal with an unserviceable helicopter offshore, ground manoeuvring on helidecks follows a documented procedure and a Risk Assessment (RA) is carried out.

The following conditions are considered in the RA:

- A normal departure to clear the deck is not possible;
 - There is no helideck landing net fitted;
 - The Helicopter Landing Officer (HLO) has been notified;
 - A full stop (full-down collective) has been completed; and
 - The Crew conducts a specific briefing that includes:
 - Actual wind speed and direction;
 - Cross wind limitations;
 - Risk of dynamic roll over;
 - Obstacle clearance.
3. No further requirements.

ADDITIONAL GUIDANCE

Repositioning to clear the tail rotor of the helicopter from access points or to align the aircraft for passenger/cargo loading or refuelling should normally be conducted in the hover, using the TD/PM circle as a manoeuvre reference and observing any crosswind limitations.

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

A TD/PM marking is located so that when the pilot's seat is over the marking, the whole of the undercarriage will be within the circle and all parts of the helicopter will be clear of any obstacle by a safe margin (ICAO Annex 14, 5.2.10.2)

LINKS (FOR DOWNLOAD)

Shell:

External:

RELATED INCIDENT

CORRESPONDING SELF-ASSESSMENT QUESTIONS

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

None.

IOGP REPORT 590 AMG DIFFERENCES

FOR 03.09 Stabilised Approach

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Aircraft Operator Requirements

Restricted

Version 3.2 – June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirements 1-4:

1. Document stabilised approach procedures and define when to conduct a missed approach or to abort a landing if the deviation criteria for a stabilised approach are not met.
2. Document flight path monitoring procedures, using deviation criteria, to brief or announce deviations from a stabilised approach.
3. The [Flight Data Monitoring \(FDM\)](#) programme validates the stabilised approach procedures.
4. Document stabilised approach procedures for helicopters in specialised roles.

Means of Compliance for Requirements 1-4:

1. For both helicopters and aeroplanes, the Aircraft Operator has stabilised approach procedures;
 - 1.1 The procedures confirm that for both helicopters and aeroplanes:
 - The aircraft is on the correct flight path and only requires small changes in heading, attitude and power to remain on the correct flight path;
 - The flight path is monitored and there is a requirement to announce deviations and subsequent actions using specified criteria;
 - Unique approach procedures or abnormal conditions that require a deviation from stabilised approach criteria require a special briefing;
 - [The aircraft is in the correct landing configuration and all briefings and checklists have been conducted](#);
 - Landings are only be made from a stabilised approach; and,
 - Procedures are in place for no-fault, mandatory go-arounds should any approach not be stabilised, and pilots practice all-engine operating (AEO) go-arounds as part of their proficiency training.
 - 1.2 For offshore helicopters the procedures:
 - Are specific to the helicopter type or use a Type Certificate (TC) Holder issued Flight Crew Operating Manual (FCOM);
 - Are written with reference to the HeliOffshore Flightpath Management Recommended Practices (HO-FPM-RP-v2.0);

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

- Are characterised by defined speeds, climb/descent rate, vertical flight-path and configuration, through a series of defined 'gates' as necessary;
- Confirm the power setting is appropriate for the helicopter configuration, not below the manufacturer's minimum if specified in the Rotorcraft Flight Manual (RFM) or FCOM;
- For any onshore segment, to airfields and prepared helipads:
 - Approaches are stabilised by 1000 feet above approach minima, but no later than 500 feet above approach minima on an IFR approach; and on a VFR approach by 500 feet above the airport elevation;
 - All instrument approaches are flown in accordance with published instrument procedures;
 - Instrument approaches such as ILS, LPV, LNAV/VNAV and LOC/VOR are flown within one dot of the glideslope and/or localiser (or course deviation indicator); and,
 - During circling approaches the bank angle does not exceed 20°, the helicopter is wings level on final by no later than 200 feet above airport elevation.

1.3 For aeroplanes the procedures confirm that:

- The approach is stabilised by 1,000 ft. above airport elevation when conducting an IFR approach and 500 ft. above the airport elevation when conducting a VFR approach;
- All instrument approaches are flown in accordance with published instrument procedures;
- Precision approaches such as ILS¹, LPV and LNAV/VNAV are flown within one dot of the glideslope and localiser (or course deviation indicator);
- The airspeed is not more than $V_{ref} + 20$ knots indicated airspeed and not less than V_{ref} , unless otherwise recommended by the manufacturer;
- The sink rate is no greater than 1,000 ft. per minute unless otherwise recommended by the manufacturer, or required for a specific, published approach; and
- During circling approaches the bank angle does not exceed 30°, the aeroplane is wings level on final by no later than 300 ft. above the airport elevation.

2. No further requirements.

3. No further requirements.

4. For helicopters conducting specialised roles such as:

- Low-level, Search and Rescue (SAR);

¹Category II or III ILS approaches are flown within the expanded localizer band.

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

- Onshore utility helicopter operations, survey activities, long line and seismic etc, to unprepared or temporary landing locations;

4.1 Procedures confirm that the approach is stabilised from the point of starting the final descent for landing and in any case before Landing Decision Point (LDP) +50 ft.

5. ~~No further requirements.~~

ADDITIONAL GUIDANCE

- HeliOffshore Flight Approach Path Management Recommended Practice – this document should be used as guidance by Offshore Helicopter Operators when developing its Stabilised Approach Procedures.
- Flight Safety Foundation – Approach and Landing Accident Reduction Task Force (V1.1, Nov 2009) – this document was used as the basis of the FW Stabilised Approach procedures and should be referenced by operators when developing its procedures.
- IOGP 690 OHRP V1 – the wording above for Offshore Approaches reflects this document.

LINKS (FOR DOWNLOAD)

<https://flightsafety.org/wp-content/uploads/2016/09/EPMG.pdf>

https://www.skybrary.aero/index.php/Flight_Safety_Foundation_ALAR_Toolkit

RELATED INCIDENT

CORRESPONDING SELF-ASSESSMENT QUESTIONS

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

IOGP REPORT 590 AMG DIFFERENCES

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

FOR 03.10 Performance – Fixed Wing

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Aircraft Operator Requirements

Restricted

Version 3.2 – June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirement 1:

1. Conduct fixed-wing operations using Performance Class A (PC A) aeroplanes, except in defined situations.

Means of Compliance for Requirement 1:

1. PC B and PC C aeroplanes are only used subject to:
 - 1.1 A documented risk assessment for the specific operation; and
 - 1.2 Approved by the Shell Technical Authority - Air Transport (TA/1).

ADDITIONAL GUIDANCE

See also **FOR 01.06 Single-Engine Aircraft**.

Fixed-Wing Performance Classes:

- Performance class A aeroplanes are multi-engined aeroplanes powered by turbo-propeller engines with a maximum operational passenger seating configuration (MOPSC) of more than nine or a maximum take-off mass exceeding 5700 kg, and all multi-engined turbo-jet powered aeroplanes;
- Performance class B aeroplanes are powered by propeller engines with a MOPSC of nine or less and a maximum take-off mass of 5700 kg or less; and
- Performance class C aeroplanes are powered by reciprocating engines with a MOPSC of more than nine or a maximum take-off mass exceeding 5700 kg.

LINKS (FOR DOWNLOAD)

Shell:

External: EASA CAT.POL.A.200

RELATED INCIDENT

<https://www.gov.uk/aaib-reports/2-2001-cessna-404-titan-g-ilgw-3-september-1999>

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

CORRESPONDING SELF-ASSESSMENT QUESTIONS

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

1.

IOGP REPORT 590 AMG DIFFERENCES

FOR 03.11 Performance - Helicopters

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Aircraft Operator Requirements

Restricted

Version 3.2 – June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirements 1-6:

1. Operate helicopters in accordance with Original Equipment Manufacturer (OEM) performance criteria using [Rotorcraft Flight Manual \(RFM\)](#) profiles, data and graphs.
2. Conduct onshore departures and landings for the purpose of carrying passengers in accordance with [Performance Class 1 \(PC1\)](#) criteria, unless specific circumstances dictate the use of [Performance Class 2](#) criteria and then only when a [safe forced landing](#) can be assured in the event of a critical power unit loss.
3. Conduct onshore departures and landings for the purpose of carrying passengers in a [hostile](#) or [congested area](#) in accordance with PC1 criteria.
4. Conduct offshore departures and landings in accordance with Performance Class 2 enhanced (PC2e) or Performance Class 2 (PC2) without exposure to either deck edge strike or forced landing (ditching).
5. Prohibit [Performance Class 3 \(PC3\)](#) operations for carrying passengers, or for any operations conducted in a [hostile environment](#).
6. Use PC1 criteria based on the relevant RFM training Restricted Take-off Mass (RTOM) data when conducting simulated One-Engine Inoperative (OEI) training in an actual [aircraft](#).

Means of Compliance for Requirements 1-6:

1. Performance Class (see glossary):
 - 1.1 Helicopters operating in PC1 or PC2 are certificated as [Category A](#).
 - 1.2 Helicopters certified according to any of the following standards are considered to satisfy Category A criteria, provided they have the necessary performance information published in the RFM and eligible for PC1 or PC2 operations:
 - Certification as Category A under CS-27 or CS-29;
 - Certification as Category A under JAR-27 or JAR-29;
 - Certification as Category A under FAR Part 29;
 - Certification as group A under BCAR Section G; and
 - Certification as group A under BCAR-29.
 - 1.3 In addition to the above, certain helicopters are certified under FAR Part 27 and in compliance with FAR Part 29 engine isolation requirements specified in FAA Advisory

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

Circular AC 27-1. Helicopters meeting these additional requirements are considered equivalent to Category A.

2. No further requirements.
3. No further requirements.
4. Where an RFM contains procedures and data to support **elevated heliport** operations with Category A performance, or without exposure to deck edge strike and a forced landing, these may be considered to meet PC2e criteria¹. Where an OEM defines specific PC1 procedures for offshore **helidecks** they can also be considered as PC2e.
5. No further requirements.
6. No further requirements.

ADDITIONAL GUIDANCE

Typically, offshore helicopter operations depart and return to **heliports** and airports that are relatively close to the coast, and in benign topographical environments. Consequently, it is important for **Aircraft Operators** to take into consideration the following elements of performance planning:

- OEI climb gradient compatibility with SIDs, and alternative emergency procedures to be followed in the event of a critical power unit failure in IMC on an IFR departure;
- Similarly, OEI climb gradient capability in the event of a missed approach from an **instrument approach** to DH/MAP either with an existing engine shutdown or with a failure at a critical phase of the missed approach;
- **En-route** OEI performance considering MSA/MEA and required drift-down.

LINKS (FOR DOWNLOAD)

Shell:

External:

[ICAO Annex 6 Vol III](#)

[EASA AMC/GMC to Part CAT \(CAT.OP.MPA.305\)](#)

RELATED INCIDENT

Training:

<https://aviation-safety.net/wikibase/wiki.php?id=137064>

<http://www.griffin-helicopters.co.uk/accidentdetails.aspx?accidentkey=3378>

<http://www.griffin-helicopters.co.uk/accidentdetails.aspx?accidentkey=3432>

Offshore:

¹ PC2e and PC2 without exposure derive from European terminology and rulemaking and not all OEMs use these expressions.

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

<https://aviation-safety.net/wikibase/wiki.php?id=145393>

CORRESPONDING SELF-ASSESSMENT QUESTIONS

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

IOGP REPORT 590 AMG DIFFERENCES

R590 does not discuss or mention Performance Class 2 (enhanced).

FOR 03.12 Use of Oxygen

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Aircraft Operator Requirements

Restricted

Version 3.2 – June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirements 1-4:

1. Require each Crew Member to wear an oxygen mask and use supplemental oxygen for any part of the flight at cabin pressure-altitudes above 10,000 ft. (700 hPa) but not exceeding 13,000 ft. (620 hPa) that is more than 30 minutes in duration.
2. Require all persons on board the **aircraft** to wear an oxygen mask and use supplemental oxygen at cabin-pressure-altitudes above 13,000 ft. (620 hPa).
3. Require the Pilot at the flight controls to wear an oxygen mask and use supplemental oxygen if an aircraft is not equipped with quick-donning oxygen masks and flying above FL250.
4. Require the Pilot at the flight controls to wear use an oxygen mask and use supplemental oxygen if the other Pilot leaves the flight deck for any reason above FL 350, except in defined situations.

Means of Compliance for Requirements 1-4:

1. No further requirements.
2. No further requirements.
3. No further requirements.
4. Defined situations:
 - 4.1 When an aircraft system initiates an automatic emergency descent following depressurisation and without pilot input, the level may be increased to FL450.

ADDITIONAL GUIDANCE

Automatic Descent Mode (ADM) is one example of an aircraft systems for automatic emergency descent following depressurisation.

LINKS (FOR DOWNLOAD)

Shell:

External: [General Operating and Flight Rules](#)

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

RELATED INCIDENT

CORRESPONDING SELF-ASSESSMENT QUESTIONS

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

1, 8.

IOGP REPORT 590 AMG DIFFERENCES

FOR 03.13 Bird Strike Avoidance

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Aircraft Operator Requirements

Restricted

Version 3.2 – June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirements 1-3:

1. Conduct and document a risk assessment detailing local bird concentrations and migratory routes and implement measures to mitigate the likelihood of a bird strike in areas where a risk is identified.
2. Document and implement a policy that transit levels shall be at the highest practicable altitudes above those identified in the risk assessment, except during take-off and landing.
3. Conduct annual bird strike awareness training for pilots.

Means of Compliance for Requirements 1-3:

1. Where a risk is identified the following mitigations include:
 - 1.1 Use of FAR Part 29 Helicopters fully compliant with Amendment 45, Para 29.631; (Refer to EASA and FAA reports highlighted in guidance);
 - 1.2 Pulsed landing lights, where available, are switched on when transiting risk areas;
 - 1.3 Pilots wearing helmets with visors down for all single-pilot operations; and
 - 1.4 If not in compliance with 1.1 ; pilots wear safety glasses for all flights in multi-crew operations, unless wearing helmets with visors down.
2. Airspeed is reduced to below 100kts, when below 1000' AGL/AMSL, for all helicopters, and for those aeroplanes able to safely operate at lower airspeeds.
3. Bird strike awareness training forms part of the annual recurrent training program or is conducted within annual simulator training exercises.

ADDITIONAL GUIDANCE

- Replacement windscreens should be supplied by the OEM. Windscreens that have not demonstrated compliance with the original certification requirements should not be used, regardless of whether an approved STC is in place.
- As part of the Risk Assessment, any bird migration in the operating area as published in the National Aeronautical Publication (AIP) section ENR 5.6 BIRD MIGRATION AND AREAS WITH SENSITIVE FAUNA OR ANY OTHER NATIONAL PUBLICATION should be addressed.
- Flight Data Monitoring systems should be used by the [Aircraft Operator](#) to verify compliance with the flight profiles used for bird strike prevention.

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

Document links for Guidance on MOC 1.1 are:

- https://www.faa.gov/regulations_policies/rulemaking/committees/documents/media/ARAC%20RBSWG%20Final%20Report.pdf
- <https://www.easa.europa.eu/sites/default/files/dfu/Final%20report%20Bird%20Strike%20Study.pdf>

LINKS

External:

- [Height Distribution of Birds Recorded by Collisions with Civil Aircraft](#)
- [UK CAA CAP772 Wildlife Hazard Management at Aerodromes](#)

RELATED INCIDENT

Jan 2009 S76C++ fatal accident following bird strike, Louisiana

CORRESPONDING SELF-ASSESSMENT QUESTIONS

TBC

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

TBC

IOGP REPORT 690 AMG DIFFERENCES

TBC

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

FOR 03.14 Float Arming - Helicopters

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Aircraft Operator Requirements

Restricted

Version 3.2 – June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirement 1:

1. Document a requirement for pilots to arm the Emergency Flotation System for all over-water departures and arrivals.

Means of Compliance for Requirement 1:

1. Guidance on the avoidance of inadvertent deployment of the flotation system is covered as part of the training syllabus.

ADDITIONAL GUIDANCE

LINKS (FOR DOWNLOAD)

Shell:

External:

RELATED INCIDENT

CORRESPONDING SELF-ASSESSMENT QUESTIONS

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

1, 6, 10, 13.

IOPG REPORT 590 AMG DIFFERENCES

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

FOR 04.01 Flight Crew Qualifications

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Aircraft Operator Requirements

Restricted

Version 3.2 June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirements 1-3:

1. Require Flight Crew to hold a current and valid licence as specified by the applicable National Aviation Authority (NAA), including medical certification, **aircraft** ratings and radiotelephony licence.
2. Require the Cabin Crew to complete the NAA-approved **Aircraft Operator's** ground and flight training programme.
3. Require each Crew member, other than a flight or a Cabin Crew member, who is assigned duties on board an aircraft during **flight time**, to complete the operator's ground and flight training programme.

Means of Compliance for Requirements 1-3:

1. Flight Crew:
 - 1.1 Meet the licence, medical and rating requirements specified in Annex 1 to the Convention on International Civil Aviation (ICAO) when operations are conducted outside of the national airspace of the State of issue of the Flight Crew licence; and
 - 1.2 Demonstrate the ability to meet the language proficiency requirement in accordance with para 1.2.9.4 of ICAO Annex 1, in the language used for radiotelephony communications to at least ICAO level 4.
2. No further requirements.
3. No further requirements.

ADDITIONAL GUIDANCE

In some countries Pilots conducting non-scheduled, charter and helicopter operations may not be entitled to hold an Air Transport Pilot's Licence (ATPL). If this is the case, a Commercial Pilot's Licence (CPL) is considered acceptable.

LINKS (FOR DOWNLOAD)

Shell:

External:

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

RELATED INCIDENT

CORRESPONDING SELF-ASSESSMENT QUESTIONS

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

None.

IOGP REPORT 590 AMG DIFFERENCES

No differences.

FOR 04.02 Flight Crew Qualifications and Experience – Fixed Wing

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Aircraft Operator Requirements

Restricted

Version 3.2 June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirement 1:

1. Schedule fixed-wing Flight Crew with flying experience and qualifications as specified according to the Maximum Certified Take-Off Mass (MCTOM) of the [aircraft](#).

Means of Compliance for Requirement 1:

1. Qualifications and experience are as follows:
 - 1.1 Specifications for qualifications and experience for fixed-wing Flight Crew:

		Above 5,700kg MCTOM & All Jets	Turboprop below 5,700kg MCTOM ⁽¹⁾	Piston Engine below 5,700kg MCTOM
PILOT-IN-COMMAND (PIC)				
QUALIFICATIONS	Licences	ATPL(A)	CPL(A)	CPL(A)
	Type rating on contract aircraft	Current	Current	Current
	Instrument rating on contract aircraft ⁽¹⁾	Current	Current	Current ⁽¹⁾
EXPERIENCE Not less than	Total hours	4,000	3,000	1,500
	Total hours PIC ⁽²⁾	2,500	1,500	1,000
	Total hours PIC - multi-engine ⁽²⁾	2,000	1,200	750
	Total hours PIC of gas turbine or jet aircraft ⁽³⁾	500	500	
	Total hours PIC on contract type	100	100	100
CO-PILOT				
QUALIFICATIONS	Licences	CPL(A)	CPL(A)	CPL(A)
	Instrument rating on contract aircraft ⁽¹⁾	Current	Current	Current ⁽¹⁾
	Type rating on contract aircraft	Current	Current	Current

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

		Above 5,700kg MCTOM & All Jets	Turboprop below 5,700kg MCTOM ⁽¹⁾	Piston Engine below 5,700kg MCTOM
	Total Hours	1,000	500	500
	Total hours on multi-engine aircraft(2)	500	250	250
	Total hours on gas turbine aircraft(2)	250	100	
	Total hours PIC of multi-engine aircraft(2)	150		
	Total hours PIC(2)		100	100
	Total hours on contract type(2)	50	50	50

BOTH PIC AND CO-PILOT		
QUALIFICATIONS	Medical certificate appropriate for licence	Current for all
	Crew Resource Management (CRM) or Aeronautical Decision Making (ADM)	Annual
	Dangerous Goods (DG) awareness	Every 3 years
RECENT EXPERIENCE Not less than	Total hours previous 90 days	50 Hours in 90 days, 10 Hours in aircraft type including 3 take-offs and landings
	Night recent experience previous 90 days	3 night take-offs and landings at a typical operational location (see FOR 05.02)

FLIGHT ENGINEERS				
	Licence	2nd Class		
	Total flight hours	2,000		
NAVIGATORS				
	Licence	1st Class		
	Total flight hours	2,000		
	Minimum navigator hours	1,000		

Notes:

1. All Beechcraft KingAir series aircraft are classed as below 5700kgs;
2. Requirement for Instrument Rating (IR) in all cases;

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

3. *These hours to be fully on aeroplanes. Up to 10% may be achieved in a full [flight simulator](#) (FFS).*

1.2 Relevant Role Experience:

- Specific specialist experience requirements are provided for activities such as pipeline aerial patrols, airborne pollution control, top dressing, and aeromagnetic surveys. Refer to the applicable section in AOR Specialised Operations (SPO).

1.3 Co-Pilot alternative experience requirements:

- In those cases where a Co-Pilot has no opportunity to accumulate 50 hours on the contract type, then variations may be allowed. The Aircraft [Operator](#) is to contact the Shell Technical Authority – Air Transport (TA/1) for information and approval.

1.4 Ab-initio and low-experience pilots:

- Specific programmes for low-experience pilots meet the requirements of IOGP Report 590-C (Section 1.4) Alternatives to IOGP recommended experience levels, which allows for the programme to “apply to either helicopter or fixed wing”;
- The Aircraft Operator’s pilot progression programme is approved by the Shell Technical Authority – Air Transport (TA/1); and
- Before flying for Shell, low-experience pilots have completed Stage 7 within the programme described in Report 590-C (Section 1.4) Table 5 - Ab-initio and low-experience pilot training and progression for multi-crew offshore helicopter pilots.

ADDITIONAL GUIDANCE

LINKS (FOR DOWNLOAD)

Shell:

External:

RELATED INCIDENT

CORRESPONDING SELF-ASSESSMENT QUESTIONS

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

IOGP REPORT 590 AMG DIFFERENCES

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

FOR 04.03 Flight Crew Qualification and Experience - Helicopters

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Aircraft Operator Requirements

Restricted

Version 3.2 June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirements 1-3:

1. Schedule helicopter Flight Crew with flying experience and qualifications as specified according to the Certification Standard (See Table 1.1) of the [aircraft](#).
2. Require Pilots flying offshore to have experience operating to fixed and moving platforms of at least 500 hours to operate Federal Aviation Part (FAR) 29/ EASA Certification Standard (CS) 29 certified helicopters, or 300 hours to operate FAR-27 / CS-27 certified helicopters.
3. Require Pilots operating offshore to complete the additional [helideck](#) proficiency requirements in FOR 05.02.

Means of Compliance for Requirements 1-3:

1. Qualifications and experience are as follows:

- 1.1 Specifications for qualifications and experience for helicopter Flight Crew:

		FAR-29 / CS-29 certified	FAR-27 / CS-27 certified multi-engine	FAR-27 / CS-27 certified single-engine
PILOT-IN-COMMAND (PIC)				
QUALIFICATIONS	Licences	ATPL(H)	CPL(H)	CPL(H)
	Type rating on contract aircraft	Current	Current	Current
	Instrument rating on contract aircraft ⁽¹⁾	Current	Current	Current ⁽²⁾
EXPERIENCE Not less than	Total hours	3,000	2,000	1,500
	Total hours PIC ⁽³⁾	1,500	1,000	1,000
	Total hours PIC - multi-engine ⁽³⁾	1,200	500	
	Total hours PIC on contract type	100	100	100

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

		FAR-29 / CS-29 certified	FAR-27 / CS-27 certified multi-engine	FAR-27 / CS-27 certified single-engine
CO-PILOT				
QUALIFICATIONS	Licences	CPL(H)	CPL(H)	CPL(H)
	Instrument rating on contract aircraft ⁽¹⁾	Current	Current	Current ⁽²⁾
	Type rating on contract aircraft	Current	Current	Current
EXPERIENCE Not less than	Total hours	1,000	500	500
	Total hours on multi-engine aircraft ⁽³⁾	500	250	
	Total hours PIC ⁽³⁾	100	100	100
	Total hours on contract type ⁽³⁾	50	50	50

BOTH PIC AND CO-PILOT		
QUALIFICATIONS	Medical certificate appropriate for licence	Current for all
	Crew Resource Management (CRM) or Aeronautical Decision Making (ADM)	Annual
	Dangerous Goods (DG) awareness	Every 3 years
	Helicopter wet dinghy (life raft) drills	Every 4 years
	Helicopter Underwater Escape Training (HUET)	Every 4 years (all Crew Members operating offshore)
RECENT EXPERIENCE Not less than	Total hours previous 90 days	50 Hours in 90 days, 10 Hours in aircraft type including 3 take-offs and landings
	Night recent experience previous 90 days	3-night take-offs and landings at a typical operational location (see FOR 05.02)

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

FLIGHT ENGINEER				
	Licence	2nd Class		
	Total flight hours	2,000		
NAVIGATOR				
	Licence	1st Class		
	Total flight hours	2,000		
	Minimum navigator hours	1,000		

Notes:

1. Instrument ratings are required to be tested at the annual Licence Proficiency Check (LPC) and/or 6-month base check;
2. Requirement for Instrument Rating (IR) in all cases;
3. These hours to be fully on helicopters. Up to 10% may be achieved in a full *flight simulator (FFS)*.

1.2 Ab-into and low-experience pilots;

- Specific programmes for low-experience pilots meet the requirements of IOGP Report 590-C (Section 1.4) Alternatives to IOGP recommended experience levels;
- The Aircraft Operator's pilot progression programme is approved by the Shell Technical Authority – Air Transport (TA/1); and
- Before flying for Shell, low-experience pilots have completed stage 7 within the programme described in Report 590-C (Section 1.4) Table 5 - Ab-initio and low-experience pilot training and progression for multi-crew offshore helicopter pilots

1.3 Pilot aircraft conversion syllabus and minimum hours;

- When introducing new types in to service the conversion programme is approved by the Shell Technical Authority – Air Transport (TA/1); and
- Pilots will have completed a training programme based on the details described in Report 590-C (Section 1.5.6)

2. No further requirements. (Note that FOR 05.02 MC 06 describes the initial check and training programme for offshore helicopter pilots).

3. No further requirements.

ADDITIONAL GUIDANCE

LINKS (FOR DOWNLOAD)

Shell:

External: EASA SPA.HOFO.170

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

RELATED INCIDENT

CORRESPONDING SELF-ASSESSMENT QUESTIONS

Does the Aircraft Operator have a documented requirement for minimum qualification and experience level for pilots?

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

8, 10, 12, 16.

LOGP REPORT 590 AMG DIFFERENCES

FOR 04.04 Pilots Flying More Than One Aircraft Type

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Aircraft Operator Requirements

Restricted

Version 3.2 June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirements 1-2:

1. Document a requirement for pilots to operate only one type of **aircraft** in the same duty period except for training captains when conducting training flights.
2. Document a requirement for pilots operating two aircraft types to have flown each type within the current 28-day period.

Means of Compliance for Requirements 1-2:

1. Type is defined as either:
 - 1.1 An entry on the pilot's licence that allows them to act as pilot on the type of aircraft specified in the rating; or
 - 1.2 A specific manufacturer's type or variant, in those countries where some aircraft types are not required to be specified on the pilot's licence.
2. No further requirements.

ADDITIONAL GUIDANCE

LINKS (FOR DOWNLOAD)

Shell:

External:

RELATED INCIDENT

CORRESPONDING SELF-ASSESSMENT QUESTIONS

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

IOP REPORT 590 AMG DIFFERENCES

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

FOR 04.05 Flight Crew Composition – Fixed Wing

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Aircraft Operator Requirements

Restricted

Version 3.2 June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirements 1-2:

1. Conduct flights for Shell with a minimum of two pilots, except in defined situations.
2. Obtain approval from the Shell Technical Authority - Air Transport (TA1) for all single-pilot flights.

Means of Compliance for Requirements 1-2:

1. The defined situations where single-pilot flights may be considered for approval are:
 - 1.1 The flight is conducted under Visual Flight Rules (VFR) in an aeroplane that is propeller driven, below 5,700 kg MCTOM and certified for single-pilot operations;
 - 1.2 Risks are formally assessed to ALARP, documented and accepted by the Shell Technical Authority - Air Transport (TA1);
 - 1.3 The risks that have been considered include:
 - The potential for weather conditions to deteriorate below VFR minima;
 - Excessive pilot workload, including multiple-sector, high-frequency or long-duration operations; and
 - The suitability of the air traffic environment for single pilot operations.
2. No further requirements.

ADDITIONAL GUIDANCE

LINKS (FOR DOWNLOAD)

Shell:

External:

RELATED INCIDENT

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

CORRESPONDING SELF-ASSESSMENT QUESTIONS

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

8, 15.

IOGP REPORT 590 AMG DIFFERENCES

R590 does not specify propeller-driven **aircraft** less than 5700kg as a requirement for two-pilot operations.

FOR 04.06 Flight Crew Composition - Helicopters

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Aircraft Operator Requirements

Restricted

Version 3.2 June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirements 1-3:

1. Conduct all flights for Shell with a minimum of two Pilots, except in defined situations.
2. Obtain approval from the Shell Technical Authority – Air Transport (TA1) for all single-Pilot flights.
3. Document Flight Crew procedures and Standard Operating Procedures (SOP).

Means of Compliance for Requirements 1-3:

1. The requirement for two pilots includes the following conditions:
 - 1.1 All Instrument Flight Rules (IFR) and **night** operations;
 - 1.2 Whenever operating a helicopter of more than 5700kg (12500lbs) Maximum Certified Take-off Mass (MCTOM);
 - 1.3 The defined situations when single-Pilot operations may be approved are when operating a helicopter of less than 5700kg (12500lbs) **Maximum Certified Take-off Mass (MCTOM)** with a maximum approved passenger seating configuration of less than nine seats in a **non-hostile environment**.
2. Risks are formally assessed to ALARP, documented and accepted by the TA1:
 - 2.1 The risks that have been considered include:
 - The potential for weather conditions to deteriorate below VFR minima;
 - Excessive pilot workload, including multiple-sector, high-frequency or long-duration operations; and
 - The suitability of the air traffic environment for single pilot operations.
3. Documented procedures and SOPs include
 - 3.1 Single and two-Pilot operations;
 - 3.2 Pilot incapacitation;
 - 3.3 Pilot qualification to operate from either seat;
 - 3.4 Two "captain" crew; and
 - 3.5 Pilot roster/scheduling procedures.

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

ADDITIONAL GUIDANCE

LINKS (FOR DOWNLOAD)

Shell:

External:

RELATED INCIDENT

CORRESPONDING SELF-ASSESSMENT QUESTIONS

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

8, 15.

IOGP REPORT 590 AMG DIFFERENCES

No differences.

FOR 05.01 Flight Crew – General Training

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Aircraft Operator Requirements

Restricted

Version 3.2 June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirements 1-8:

1. Document and provide National Aviation Authority (NAA) approved ground and flight training so that all flight crew (whether employed or subcontracted) are trained to act as flight crew on a specific **aircraft** or aircraft type.
2. Document and provide ground and flight training so that all flight crew (whether employed or subcontracted) are trained to act as flight crew for each specific role and operation.
3. Document and provide NAA approved checks to assure the competence of all flight crew (whether employed or subcontracted) to act as flight crew on a specific aircraft type and/or in specific roles and operations.
4. Require and verify that all Training personnel¹ (whether employed or subcontracted) are qualified to NAA requirements and use standard company procedures for their assigned tasks.
5. Maintain records of all training and retain records for three years, including training carried out by third parties.
6. Maintain a documented training process approved by the NAA, to include training syllabi and checking programmes that use a range of sources of evidence.
7. Conduct recurrent flight crew training in a **Flight Synthetic Training Device (FSTD)** at least once every 12 months.
8. Require and verify that training facilities, devices and course materials reflect the configuration of the **aircraft** for which the training is being provided.

Means of Compliance for Requirements 1-8:

1. Ground and flight training programmes include as a minimum:
 - 1.1 Initial;
 - 1.2 Recurrent;
 - 1.3 Transition (conversion);
 - 1.4 Re-qualification;
 - 1.5 Upgrade to **Pilot-in-Command (PIC)**;

¹ Training Captain, Instructor, Ground Instructor, Examiner, Line Check Airmen, etc.

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

- 1.6 Recent experience;
 - 1.7 Familiarisation;
 - 1.8 Dedicated training is performed for each crew seat as required; and
 - 1.9 Differences or other specialised training.
2. Respective roles and operations:
- 2.1 Exercises developed between the Aircraft **Operator** and **FSTD** training centre to provide adequately representative exercises that simulate role related mission, local operational, weather and environmental conditions;
 - 2.2 Navigation, terrain and visual database that adequately represents the area of operation.
3. Checks to assure the competence of flight crew include as a minimum:
- 3.1 Annual Aircraft Technical and **Operations Manual**;
 - 3.2 Annual License Proficiency Check (or NAA equivalent);
 - 3.3 Annual **Operator** Proficiency Check (or NAA equivalent);
 - 3.4 Annual Instrument Rating Check (or NAA equivalent);
 - 3.5 Procedures flown under simulated or actual instrument conditions where the pilot under check has no visual reference outside the cockpit;
 - 3.6 Annual Line Check (or NAA equivalent), which are exercises carried out during a normal revenue flight to ensure continued operating standards are maintained;
 - 3.7 Annual Medical Check; and
 - 3.8 Annual Safety & Equipment Procedures (SEP) check.
4. Training personnel - Aircraft and FSTD:
- 4.1 Where practicable checks are conducted by a person who has provided no more than 25% of required training, and is qualified to perform the check;
 - 4.2 Trained for the FSTD, familiar with the role and able to communicate in a common language with the students; and
 - 4.3 A documented standardisation process.
5. Training records include the following:
- 5.1 Name and licence number of crewmember, date and type of check;
 - 5.2 The type of **FSTD** or aircraft used for the check;
 - 5.3 The result of each check;
 - 5.4 The results of the most recent written examination for each type the individual is qualified to fly; and
 - 5.5 A master list of the certificates to be retained and copies of all certificates listed in the master list.
6. Training Manual and Syllabus:

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

6.1 The Training manual is updated to reflect current procedures and is available to all operational personnel, manual includes:

- A process to support the introduction of new policies, rules, instructions and procedures;
- A process to introduce new aircraft types, systems fleet modifications and upgrades;
- Student and instructor briefing packs; and
- A process to trend analyse training results to improve the programme.

6.2 Training syllabus includes:

- Ground Training;
- Simulator Training;
- Aircraft Training;
- Examination and certification;
- Line Flying under supervision; and
- Integrated training for all persons assigned duties on-board an aircraft.

6.3 Sources of evidence can include:

- Flight Data Monitoring (FDM);
- Competency and proficiency Checks;
- Aircraft Flight Manual (AFM);
- Standard Operating Procedures (SOP);
- Industry Recommendations;
- Line Operations Safety Audit (LOSA); and
- Incidents and Near Misses.

6.4 Training Needs Analysis (TNA) report is in place to define training tasks against changes in flight operations roles, typically:

- Moving from one aircraft type to another;
- Moving from Commercial Air Transport to SAR;
- Moving onshore to offshore;
- Moving from Emergency Medical Services (EMS) to offshore.

7. Use of FSTD:

7.1 Annual recurrent training in an FSTD is conducted for each aircraft type flown;

- 7.2 Where significant² differences exist between aircraft type variants, the training is undertaken on an FSTD of the specific variant flown for the Shell contract;
 - 7.3 Recurrent FSTD training includes emergency and abnormal procedures that cannot be practised in the air; and
 - 7.4 Where no FSTD is available for the specific aircraft type, additional training is undertaken on the actual aircraft variant following consultation with the Shell Technical Authority - Air Transport (TA/1) on appropriate content for the training syllabus.
8. All training devices, including FSTD:
- 8.1 Identify training devices which have sufficient fidelity and assess suitability for each training task;
 - 8.2 Where differences exist between the aircraft and training devices (e.g. equipment fit, software version), a gap analysis and mitigation processes are maintained; and
 - 8.3 A list of recorded defects is maintained by the FSTD operator.

ADDITIONAL GUIDANCE

Training for each flight seating location (e.g.): Helicopter co-pilots should have completed satisfactory right-hand seat training before acting as pilot in-command under supervision (PICUS) in the right-hand seat.

Blended learning consists of a systematic process of selecting and applying the most appropriate mix of training devices (e.g. the Full Flight Simulator (FFS) may not always be the most efficient and/or effective training device).

LINKS (FOR DOWNLOAD)

Shell:

External:

RELATED INCIDENT

CORRESPONDING SELF-ASSESSMENT QUESTIONS

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

² Significant differences cover cockpit design and autopilots, minor equipment differences can be briefed during training.

IOGP REPORT 590 AMG DIFFERENCES

R590 addresses training but not to the specificity of Requirements 4, 5, and 8. R590 does not refer to the verification of training materials, FSTD configuration, or retaining records for 3 years. R590 recommends the maximum interval for FSTD training to be every 12 months, but not to exceed 24 months.

FOR 05.02 Flight Crew – Proficiency Training

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Aircraft Operator Requirements

Restricted

Version 3.2 June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirements 1-7:

1. Provide additional Pilot training and assure competence on specific items required in lieu of, or in addition to, training required by the National Aviation Authority (NAA).
2. Provide Pilot training in abnormal procedures, to include coordination among flight Crew Members, and drills in emergency evacuation from the [aircraft](#).
3. Provide a minimum of five hours annual recurrent training per Pilot, per year.
4. Reserved.
5. Conduct recent experience Pilot checks appropriate to the period of absence for any Flight Crew absence greater than 28 days.
6. Provide initial offshore training for helicopter Pilots, both day and [night](#) that includes operations to/from offshore helidecks.
7. Ensure Pilots conduct at least three-night take-offs and landings at a typical operational location every 90-days where there is a requirement to carry out flights at night.

Means of Compliance for Requirements 1-7:

1. Additional training to meet Shell requirements includes:
 - 1.1 Ground Training through a written questionnaire covering all aspects of both operational and technical knowledge and/or an oral discussion based on the flight and [operations manuals](#):
 - Aircraft Technical; and
 - Contents of the Flight Operations Manual.
 - 1.2 Procedures to correctly respond to Airborne Collision Avoidance System (ACAS I, and/or ACAS II) alerts, as applicable;
 - 1.3 Terrain awareness procedures and the correct actions following a Terrain Avoidance and Warning System (TAWS) Warning;
 - 1.4 The avoidance of Controlled Flight into Terrain (CFIT);
 - 1.5 Adverse weather operations;
 - 1.6 Use of the Touch Down Position Marker (TDPM) and all other relevant markings for offshore helicopter operations;

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

- 1.7 Training beyond stall for fixed-wing operations (where feasible);
- 1.8 Human Factors/Crew Resource Management (CRM)/ Aeronautical Decision Making (ADM) using specially trained facilitators during initial and recurrent training;
- 1.9 **Line Oriented Flight Training (LOFT)** exercises developed between the Aircraft Operator and **Flight Synthetic Training Device (FSTD)**/simulator training centre;
- 1.10 **Dangerous Goods (DG)**;
- 1.11 Maintenance Check Flights – see ENG 02.01;
- 1.12 High Altitude Indoctrination (HAI) training for crew of aircraft operating at cabin pressure altitudes above 10,000 feet Above Mean Sea Level (AMSL), including at least the following:
 - Physiological phenomena in a low-pressure environment, including respiration, hypoxia, duration of consciousness at altitude without supplemental oxygen, gas expansion and gas bubble formation;
 - For pressurised aircraft, phenomena associated with rapid or explosive loss of pressurisation including: most likely causes, noise, cabin temperature change; cabin fogging, effects on objects located near the point of fuselage failure, actions of flight crew members immediately following the event and the likely resultant mental attitude;
 - For non-pressurised aircraft, high altitude training in a chamber to identify hypoxia symptoms.
- 1.13 Include the content of the 6-monthly base check in the annual proficiency check where the proficiency training term “base check” is not recognised by the NAA;
- 1.14 Each pilot is VFR and, if appropriate, Instrument Flight Rules (IFR) base checked every 6 months on all types of aircraft being flown by the pilot for the company with the following additional items:
 - Where two types are operated, the two qualifying check flights may alternate every 6 months;
 - Where there is a requirement for night flying, whether on a routine or emergency only basis, then alternate base checks examine the pilot's proficiency in the handling of aircraft emergencies at night or IFR (checked in the **FSTD**);
 - VFR base checks include normal operating drills with simulated emergencies followed by a written questionnaire as detailed in 1.1 above; and,
 - IFR base checks include single engine approaches and overshoots and other suitable emergencies, including upset and abnormal/unusual attitude recovery training , followed by a written questionnaire as detailed in 1.1 above.
- 1.15 Each flight crew member is checked annually to include:
 - Instrument Rating Renewal procedures flown under simulated or actual instrument conditions where the Pilot under check has no visual reference outside the cockpit;

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

- Line/Route Check carried out during a normal revenue flight to ensure continued operating standards are maintained;
- Emergency and safety equipment checks to cover evacuation drills and knowledge of safety equipment, (FOR 05.03 refers);
- For Visual Flight Rules (VFR)-only operations, an instrument check is conducted to ensure a minimum ability to maintain height, heading and airspeed, including during turning, tracking to and from a navigational aid, or maintaining a Global Positioning System (GPS) track, and upset and abnormal/unusual attitude recovery training and/or inadvertent flight into **Instrument Meteorological Conditions (IMC)**;
- Questionnaire as detailed in 1.1 above; and,
- For single-engine helicopters only¹ – During annual training pilots of single-engine helicopters carry out one or more autorotations to the satisfaction of the training captain.

1.16 Additional Training to meet Shell requirements includes specific command training on upgrade to **Pilot-in-Command (PIC)**.

1.17 The Aircraft Operator has a procedure in place within its training planning process to ensure that each Pilot covers the full range of in-flight emergency procedures, for the type or types flown, over a set period not to exceed three years. The more critical emergencies for the type are covered at a greater frequency. The full range of emergency procedures can be checked during annual proficiency checks, instrument rating renewal and FSTD training.

2. No further requirements.

3. No further requirements.

4. Reseerved.

5. Recent experience checks are carried out by a Line Check Captain or preferably, a Training Captain. For Pilot-in-Command (PIC) duties, the following table details limitations that apply. For Co-Pilot duties, the **Aircraft Operator** defines appropriate checks for the time of absence:

Time of absence	PIC Requirement
28 – 42 days	One flight as Co-Pilot (or with a Line Check Captain for single Pilot a/c)
42 – 90 days	One flight with a Training Captain plus One flight as Co-Pilot (or two flights with a Line Check Captain for single Pilot a/c)
90 days or more	One flight with a Training Captain

¹ Aircraft Operators may need to make special arrangements to conduct autorotation training and additional hull insurance cover may be necessary.

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

	plus One flight as Co-Pilot plus One flight with Training Captain (plus 2 flights with a Line Check Captain for single Pilot a/c) or 2 flights with Training Captain and base check if due
--	---

6. The initial offshore training for helicopter pilots includes each Pilot being trained and assessed as competent in the following:
 - 6.1 Normal, abnormal and emergency procedures, Crew resource management, water entry and sea survival training;
 - 6.2 Go-around by sole reference to instruments, prior to **Landing Decision Point (LDP)**;
 - 6.3 Transition, by sole reference to instruments, from **Take-off Decision Point (TDP)** into forward flight;
 - 6.4 Recovery from attitudes resulting from unintentional loss of airspeed.
7. Night landing recent experience:
 - 7.1 For aircraft, recurrent night recent experience can also be achieved in an FSTD - **Full Flight Simulator (FFS)** that has been approved by the NAA;
 - 7.2 For helicopters operating at night to an offshore location:
 - Pilots have carried out in the preceding 90 days, at least three take-offs, departures, approaches and landings at night at an offshore location in a helicopter of the same type, or a FSTD - Full Flight Simulator (FFS) representing that type;
 - The 90-day period above may be extended to 120 days if the Pilot undertakes line flying under the supervision of a type rating instructor or examiner; and
 - The Full Flight Simulator (FFS) mentioned above has sufficient fidelity and a visual package that allows for effective training on helideck landings.

ADDITIONAL GUIDANCE

LINKS (FOR DOWNLOAD)

Shell:

External:

- [UK CAA, CAP 720 - Flight Crew Training: Cockpit Resource Management \(CRM\) and Line-Oriented Flight Training \(LOFT\)](#)
- [EASA SPA.HOFO.170 Crew requirements](#)

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

RELATED INCIDENT

CORRESPONDING SELF-ASSESSMENT QUESTIONS

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

IOGP REPORT 590 AMG DIFFERENCES

R590 does not address specific Shell expectations in Requirement 1. Also, R590 does not address Requirements 2-6.

FOR 05.03 Flight Crew – Emergency and Safety Equipment Training

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Aircraft Operator Requirements

Restricted

Version 3.2 – June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirements 1-4:

1. Conduct initial Emergency and Safety Equipment (ESE) training during type conversion for all **aircraft** crew members that includes instruction on the location and operation of all emergency equipment, and at least every 2 years thereafter.
2. Reserved. .
3. Conduct wet dinghy (life raft) drills at least every 4 years.
4. Provide **Helicopter Underwater Escape Training (HUET)** for helicopter crew members, using a HUET trainer at intervals not exceeding 4 years by attending an OPITO (or industry-recognised equivalent) HUET course.

Means of Compliance for Requirements 1-4:

1. ESE training is aircraft type-specific that includes the following:
 - 1.1 Fire in the air and on the ground;
 - 1.2 Use of fire extinguishers;
 - 1.3 Operation and use of emergency exits;
 - 1.4 Passenger preparation for an emergency landing/ditching;
 - 1.5 Emergency evacuation procedures;
 - 1.6 Donning and inflation of life preservers (when equipped);
 - 1.7 Removal from stowage, deployment, inflation and boarding of life rafts (when equipped);
 - 1.8 Pilot incapacitation;
 - 1.9 Unlawful interference, bomb threat and other security procedures;
 - 1.10 Any special emergency procedures when the aircraft is used on Medical Evacuation (MEDEVAC) operations including patient evacuation in emergency situations and passenger health emergencies; and
 - 1.11 First Aid.
2. Reserved.

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

3. No further requirements.

4. No further requirements.

ADDITIONAL GUIDANCE

Where used, breathing apparatus (or smoke hood) training should be conducted on at least a 3-yearly basis. Some National Aviation Authorities (NAA) require this training to be completed annually.

First Aid Training can be satisfied by completion of a typical first aid in the work-place training programme as offered by the red-cross (or equivalent) or an approved OPITO training centre. As applicable, training should include Automated External Defibrillator (AED) training.

In addition to the standard training requirement, and where required by the local procedures, HUET may also include training in the use of a "re-breather" self-breathing device, or a Compressed-Air Emergency Breathing System (EBS).

The HUET trainer should meet the following minimum requirements:

- In regions where only one type of helicopter is flown, the dimensions of the interior of the simulator should be representative of the interior of the cabin. Ideally the simulator should replicate the cabins of the commonly used offshore helicopter types;
- The cabin and cockpit sections should be fitted with representative seats, harnesses and emergency exits. Operating mechanisms for jettisonable doors and windows are to replicate those fitted to the helicopter type and the force required to remove a push-out window is also to be representative of the type of push-out window used;
- The roll rate of the simulator should be representative of the roll rate of the actual helicopter such that the trainee is introduced to the feeling of disorientation associated with being turned upside down during the in-rush of water; and
- Where possible the emergency egress lighting fitted to the helicopter emergency exits should also be fitted to the HUET simulator.

LINKS (FOR DOWNLOAD)

Shell:

External:

[UK CAA CAP 1145](#)

RELATED INCIDENT

AS332L2, Sumburgh, UK, 2013

CORRESPONDING SELF-ASSESSMENT QUESTIONS

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

1, 3, 4, 6, 7, 8, 12, 13, 15, 16.

IOGP REPORT 590 AMG DIFFERENCES

R590 implies but does not specifically address Requirement 1.

FOR 05.04 Technical/Cabin Crew Members – General Training

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Aircraft Operator Requirements

Restricted

Version 3.2 – June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirements 1-7:

1. Document and provide National Aviation Authority (NAA) approved ground and flight training so that all Technical/Cabin Crew (whether employed or subcontracted) are trained to act as Technical/Cabin Crew on a specific **aircraft** type and/or in specific roles and operations.
2. Document and provide NAA approved checks to assure the competence of all cabin crew (whether employed or subcontracted) to operate on a specific aircraft type and/or in specific roles and operations.
3. Complete an approved Human Factors/Crew Resource Management (CRM) training programme at least every two years.
4. Require and verify that all Training personnel (whether employed or subcontracted) are qualified to NAA requirements and use standard company procedures for their assigned tasks.
5. Maintain records of all training and retain records for 3 years, including training carried out by third parties.
6. Maintain a documented training process approved by the NAA (if applicable), to include training syllabi and checking programmes.
7. Require and verify that training facilities, devices and course materials reflect the configuration of the aircraft for which the respective training is being provided.

Means of Compliance for Requirements 1-7:

1. Ground and Flight Training programmes include as a minimum:
 - 1.1 Initial;
 - 1.2 Recurrent;
 - 1.3 Transition (conversion);
 - 1.4 Re-qualification;
 - 1.5 Recent experience; and
 - 1.6 Differences or other specialised training.
2. Checks to assure the competence of Technical/Cabin Crew include as a minimum:
 - 2.1 Annual Line Check (or NAA equivalent);

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

- 2.2 Annual Medical Check; and
- 2.3 Annual Safety & Equipment Procedures (SEP) check.
3. No further requirements.
4. Training personnel:
 - 4.1 Trained for the device, familiar with the role and able to communicate in a common language with the students; and
 - 4.2 A documented standardisation process.
5. Training records include the following:
 - 5.1 Name and licence number (if applicable) of crewmember, date and type of check;
 - 5.2 The **Training Device**, or aircraft used for the check;
 - 5.3 The result of each check; and
 - 5.4 A master list of the certificates to be retained and copies of all certificates listed in the master list.
6. Training Manual and Syllabus:
 - 6.1 The Training manual is updated to reflect current procedures and is available to all operational personnel, manual includes:
 - A process to support the introduction of new policies, rules, instructions and procedures;
 - A process to introduce new aircraft types, systems fleet modifications and upgrades; and
 - A process to trend analyse training results to improve the programme.
 - 6.2 Training syllabus includes:
 - Ground Training;
 - Aircraft Training;
 - Examination and certification; and
7. When using Training devices for Technical/Cabin Crew:
 - 7.1 Where differences exist between the aircraft and training devices (e.g. equipment fit, software version), a gap analysis and mitigation processes are maintained. .

ADDITIONAL GUIDANCE

A list of recorded defects for the training device should be maintained.

LINKS (FOR DOWNLOAD)

Shell:

External:

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

RELATED INCIDENT

CORRESPONDING SELF-ASSESSMENT QUESTIONS

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

IOGP REPORT 590 AMG DIFFERENCES

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

FOR 05.05 Technical and Cabin Crew – Proficiency and Emergency Training

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Aircraft Operator Requirements

Restricted

Version 3.2 – June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirements 1-5:

1. Provide additional training and assure competence on items required by Shell in addition to any training required by the National Aviation Authority (NAA).
2. Provide training in abnormal procedures, to include coordination among crew members, and drills in the emergency evacuation from the [aircraft](#).
3. Conduct initial Emergency and Safety Equipment (ESE) training during type conversion for all aircraft crew members that includes instruction on the location and operation of all emergency equipment, and at least every 2 years thereafter.
4. Conduct initial dry dinghy (life raft) drills during type conversion for over-water operations and annually thereafter.
5. Conduct wet dinghy (life raft) drills at least every 4 years.

Means of Compliance for Requirements 1-5:

1. Additional Training includes:
 - 1.1 Crew Resource Management (CRM) / Aeronautical Decision Making (ADM) using specially trained facilitators during initial and recurrent training (FOR 05.04 refers);
 - 1.2 The recognition of [Dangerous Goods \(DG\)](#) if approved to carry DG;
 - 1.3 Emergency and safety equipment checks to cover evacuation drills and knowledge of safety equipment.
2. ESE training is aircraft type-specific (where practicable) and includes:
 - 2.1 Fire in the air and on the ground;
 - 2.2 Use of fire extinguishers;
 - 2.3 Operation and use of emergency exits;
 - 2.4 Passenger preparation for an emergency landing/ditching;
 - 2.5 Emergency evacuation procedures;
 - 2.6 Donning and inflation of life preservers (when equipped);
 - 2.7 Removal from stowage, deployment, inflation and boarding of life rafts (when equipped);

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

- 2.8 Pilot incapacitation;
 - 2.9 Unlawful interference, bomb threat and other security procedures;
 - 2.10 Any special emergency procedures when the aircraft is used on Medical Evacuation (MEDEVAC) operations including patient evacuation in emergency situations and passenger health emergencies; and
 - 2.11 First Aid.
- 3. No further requirements.
 - 4. No further requirements.
 - 5. No further requirements.

ADDITIONAL GUIDANCE

LINKS (FOR DOWNLOAD)

Shell:

External:

RELATED INCIDENT

CORRESPONDING SELF-ASSESSMENT QUESTIONS

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

IOPG REPORT 590 AMG DIFFERENCES

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

FOR 05.06 Line Operations Safety Audit

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Aircraft Operator Requirements

Restricted

Version 3.2 – June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirements 1-3:

1. Establish and document a structured Line Operations Safety Audit (LOSA) programme;
2. The data from the LOSA programme is analysed.
3. Implementation of a LOSA programme is agreed with the Shell Technical Authority - Air Transport (TA1).

Means of Compliance for Requirements 1-3:

1. The LOSA programme is conducted periodically and a full observation cycle is conducted at a minimum every three years.
 - 1.1 Observation flights use specially trained observers;
 - 1.2 Observation flights are conducted on normal, routine, flights;
 - 1.3 A representative sample of company flights is carried out.
2. Once the LOSA data is analysed, appropriate action plans are implemented;
 - 2.1 FDM and LOSA observations are analysed collectively for added insight;
 - 2.2 An appropriate feedback process to pilots is in place.
- 3 Typically, LOSA will not be expected for short term, ad-hoc contracts.

ADDITIONAL GUIDANCE

- The TA1 should secure seating capacity for a specific period for the observer to successfully complete the required LOSA flights.
- Preference is that the LOSA program is shared at a base over multiple customers if possible.
- Operators should liaise on conducting LOSA flights in aircraft not equipped with jump seats and observers should be considered part of the flight crew.
- All LOSA programmes should be based upon an anonymous, confidential and non-punitive approach, as highlighted in the ICAO and FAA Guidance.

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

LINKS (FOR DOWNLOAD)

- The LOSA collaborative provides many operators with LOSA services:
 - <https://www.losacollaborative.com/>
- The ICAO LOSA Manual, provides details on setting up a programme:
 - <https://www.tc.gc.ca/media/documents/ca-standards/losa.pdf>
- FAA has also issued guidance on LOSA:
 - https://www.faa.gov/regulations_policies/advisory_circulars/index.cfm/go/document.information/documentID/22478

RELATED INCIDENT

CORRESPONDING SELF-ASSESSMENT QUESTIONS

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

IOGP REPORT 590 AMG DIFFERENCES

FOR 06.01 Medical and Pilots Maximum Age

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Aircraft Operator Requirements

Restricted

Version 3.2 – June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirements 1-4:

1. Prohibit pilots from acting as **Pilot-in-Command (PIC)** of **commercial air transport operations** for the Company after attaining the age of 60 years, unless specific conditions have been met.
2. Prohibit the use of pilots on commercial air transport operations who have reached 65 years of age.
3. Require that all pilots flying for the Company hold a valid pilots medical certificate, in addition to, or in lieu of, National Aviation Authority (NAA) requirements.
4. Require that other flight crew actively engaged in flying duties are subject to periodic medical examinations appropriate to their duties.

Means of Compliance for Requirements 1-4:

1. Specific conditions include:
 - 1.1 Pilots that have attained the age of 60 years, or have an operational multi-pilot limitation on their medical certificate only operate an **aircraft** with another pilot provided:
 - The other pilot is fully-qualified and not also subject to an operational multi-pilot limitation; and
 - The other pilot has not attained the age of 60 years.
2. No further requirements.
3. Over the age of 60, medicals include an electrocardiography at intervals not exceeding six months.
4. No further requirements.

ADDITIONAL GUIDANCE

Further information on operational multi-pilot limitations are contained in EASA AMC1 ORO.FC.100(c).

International Civil Aviation Organisation (ICAO) Annex 1, section 1.2.5.2.1 states that once an Airline Transport Pilot License (ATPL) (A or H) holder passes the age of 60, they must sit six-monthly medical examinations.

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

LINKS (FOR DOWNLOAD)

Shell:

External:

RELATED INCIDENT

CORRESPONDING SELF-ASSESSMENT QUESTIONS

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

8.

IOGP REPORT 590 AMG DIFFERENCES

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

FOR 06.02 Flying Hour Limits – Fixed Wing

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Aircraft Operator Requirements

Restricted

Version 3.2 – June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirement 1

1. Document the maximum flying hours limit and the process to record, track and prevent exceedance.

Means of Compliance for Requirements 1:

1. The following limits and controls are documented and available to all flight Crew Members and personnel concerned with the preparation and day-to-day management of flight crew schedules and rosters:
 - 1.1 Limits:
 - 900 hours maximum per year;
 - 100 hours maximum per 28 days;
 - 42 hours maximum per 7 days;
 - 8 hours maximum for single pilot operations per 24-hour period; and
 - 10 hours maximum for two pilot operations per 24-hour period.
 - 1.2 Flying hours are calculated on a rolling cumulative basis, based on consecutive days so that a rolling cumulative total may be established at any time;
 - 1.3 A daily record is maintained of each Pilot's flying hours showing the cumulative totals for the past periods of 24 hours, 7 days, 28 days and per year;
 - 1.4 Alternative flying hour limits may only be used with the agreement of the Technical Authority - Air Transport (TA/1).

ADDITIONAL GUIDANCE

LINKS (FOR DOWNLOAD)

Shell:

External:

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

RELATED INCIDENT

CORRESPONDING SELF-ASSESSMENT QUESTIONS

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

8.

IOGP REPORT 590 AMG DIFFERENCES

R590 is less strict than those listed in this AOR.

FOR 06.03 Flying Duty Periods – Fixed Wing

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Aircraft Operator Requirements

Restricted

Version 3.2 – June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirement 1:

1. Document the maximum Flying Duty Period (FDP) and the process to record, track and prevent exceedance to ensure that Flight Crew are not exposed to cumulative fatigue.

Means of Compliance for Requirement 1:

1. The following limits and controls are documented and available to all Flight Crew members and personnel concerned with the preparation and day-to-day management of Flight Crew schedules and duty rosters:

- 1.1 The maximum FDP is 14 hours and is reduced for early morning or evening starts and to 11 hours for single-Pilot operations;
- 1.2 Notwithstanding the above, the cumulative FDP limits are as follows:

Crew	7 Days	14 Days	28 Days
Pilots	84 hrs	132 hrs	190 hrs
Cabin Attendant (A)	84 hrs	132 hrs	210 hrs

- 1.3 A daily record is maintained for each Flight Crew member's FDP showing the cumulative totals for the past periods of 7 days, 14 days and 28 days;
- 1.4 The FDP includes all flying done by a Flight Crew member regardless of where and for whom the flying was conducted;
- 1.5 The FDP includes time spent on administrative duties and on travel to a work site (i.e. repositioning or 'deadheading');
- 1.6 **Rest periods** are a minimum of 12 hours and provide at least 10 hours of effective rest by limiting commuting travel to two hours;
- 1.7 Flight Crew do not work more than seven consecutive days between days off and shall normally have not less than two consecutive days off in 14;
- 1.8 Flight Crew have on average at least eight days off in each consecutive five-week period averaged over three such periods;
- 1.9 When Pilots nominated for **night** standby duty are not used for such and achieve the minimum daily rest period overnight, they may be considered available for duty on the following day period. Otherwise, they are given 12 hours rest before recommencing duty. Pilots are not rostered for a night duty following a day duty.

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

1.10 For split duties with a rest period within an FDP the following table indicates the maximum permitted FDP extension.

Rest period	Permitted extension
Less than 2 hours	No extension is permitted
2 – 3 hours	1 hour
3 - 10 hours	50% of the consecutive hours rest not including the time for post and pre-flight duties
> 6 hours	Suitable accommodation is provided

ADDITIONAL GUIDANCE

LINKS (FOR DOWNLOAD)

Shell:

External:

RELATED INCIDENT

CORRESPONDING SELF-ASSESSMENT QUESTIONS

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

8.

IOGP REPORT 590 AMG DIFFERENCES

R590 implies recording FDP but does not state this as a requirement. R590 does not reduce duty hours from 14 to 12 for early morning or evening starts. R590 does not specify maximum duty hours for 7, 14, or 28 days.

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

FOR 06.04 Flying Hours Limits - Helicopters

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Aircraft Operator Requirements

Restricted

Version 3.2 – June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirement 1:

1. Document the maximum flying hours limit and the process to record, track and prevent exceedance.

Means of Compliance for Requirement 1:

1. The following limits and controls are documented and available to all flight crew members and personnel concerned with the preparation and day-to-day management of flight crew schedules and rosters:
 - 1.1 Limits:
 - 900 hours maximum per year;
 - 240 hours maximum in any 3 consecutive 28-day period;
 - 90 hours maximum per 28 days;
 - 42 hours maximum per 7 days;
 - 7 hours maximum for single pilot operations per 24-hour period;
 - 8 hours maximum for two pilot operations per 24-hour period.
 - 1.2 Flying hours are calculated on a rolling cumulative basis, based on consecutive days.
 - 1.3 A daily record is maintained of each helicopter Pilot's flying hours showing the cumulative totals for the past periods of 24 hours, 7 days, 28 days, and per year.
 - 1.4 For Pilots flying highly-demanding operations, the maximum permitted flying hours are to be reduced with the agreement of the Technical Authority – Air Transport (TA/1). Examples of highly-demanding operations are:
 - High frequency of landings;
 - High ambient temperatures without effective **aircraft** air conditioning;
 - Shuttling operations at **night** or in Instrument Meteorological Conditions (IMC).
 - 1.5 Pilots wearing immersion suits for continuous flying more than 4½ hours have a 30-minute break.
 - 1.6 Alternative flying hour limits may only be used with the agreement of the Technical Authority – Air Transport (TA/1).

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

ADDITIONAL GUIDANCE

Rotors running refuelling (RRRF) operations are not considered to be a break. The 30 minutes allowed for immediate post and pre-flight duties is not considered to be a break.

LINKS (FOR DOWNLOAD)

Shell:

External:

RELATED INCIDENT

CORRESPONDING SELF-ASSESSMENT QUESTIONS

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

8, 16.

LOGP REPORT 590 AMG DIFFERENCES

R590 limits are less strict than those listed and do not address any limit on hours accumulated in any three 28 consecutive day periods for helicopter time.

FOR 06.05 Flying Duty Periods - Helicopters

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Aircraft Operator Requirements

Restricted

Version 3.2 – June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirement 1

1. Document the maximum Flying Duty Period (FDP) and the process to record, track and prevent exceedance to ensure that Flight Crew are not exposed to cumulative fatigue.

Means of Compliance for Requirement 1:

1. The following limits and controls are documented and are made available to all Flight Crew members and personnel concerned with the preparation and day-to-day management of Flight Crew schedules and duty rosters:

- 1.1 The maximum daily FDP is 12 hours with the maximum cumulative limits shown below:

Crew	7 Days	14 Days	28 Days
Helicopter Pilot	84	-	200
Cabin Attendant (H)	84	105	210

- 1.2 A daily record is maintained for each Flight Crew member's FDP showing the cumulative totals for the past periods of 7, 14, and 28 days;
- 1.3 The FDP includes all flying done by a Flight Crew member regardless of where and for whom the flying was conducted;
- 1.4 The FDP includes time spent on administrative duties and on travel to a work site (i.e. repositioning or 'deadheading');
- 1.5 **Rest periods** are a minimum of 12 hours and, where permitted by National Aviation Authority (NAA), provide at least 10 hours of effective rest by limiting commuting travel to two hours;
- 1.6 Flight Crew do not work more than seven consecutive days between days off and have no less than two consecutive days off in 14;
- 1.7 Flight Crew have on average at least eight days off in each consecutive five-week period averaged over three such periods;
- 1.8 Flight Crew working a customised work schedule (14 days on/14 days off etc.) have a fatigue risk management plan approved by the NAA and with the agreement of the Technical Authority – Air Transport (TA/1);

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

- 1.9 When Pilots nominated for **night** standby duty are not used for such and achieve the minimum daily rest period overnight, they may be considered available for duty on the following day period. Otherwise, they are given 12 hours rest before recommencing duty. Pilots are not rostered for a night duty following a day duty.
- 1.10 For split duties with a rest period within an FDP the following table indicates the maximum permitted FDP extension.

Rest period	Permitted extension
Less than 2 hours	no extension is permitted
2 – 3 hours	1 hour
3 - 10 hours	50% of the consecutive hours rest not including the time for post and pre-flight duties
> 6 hours	suitable accommodation is provided

ADDITIONAL GUIDANCE

LINKS (FOR DOWNLOAD)

Shell:

External:

RELATED INCIDENT

CORRESPONDING SELF-ASSESSMENT QUESTIONS

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

8.

ILOGP REPORT 590 AMG DIFFERENCES

R590 implies recording FDP but does not state this as a requirement. R590 limits are not as strict as those listed in this FOR.

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

FOR 07.01 Equipment Specifications - Aeroplanes

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Aircraft Operator Requirements

Restricted

Version 3.2 – June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirements 1-3:

1. Use only aeroplane types that have been assessed as acceptable by Shell Aircraft and are agreed with the relevant Shell Technical Authority - Air Transport (TA1).
2. Install the additional equipment specified for aeroplanes; exceptions are made in contracts for less than 200 flight hours per annum and ad-hoc contracts.
3. Seek approval from the Shell Technical Authority - Air Transport (TA1) for the use of aeroplanes in Specialist Operations.

Means of Compliance for Requirements 1-3:

1. No further requirements.
2. The following additional equipment is fitted for aeroplane contracts, any exceptions are agreed with the relevant Shell Technical Authority - Air Transport (TA1):
 - 2.1 Transponder and Mode S - Mode C is acceptable for non-Airborne Collision Avoidance System (ACAS) equipped **aircraft**;
 - 2.2 Automatic Dependent Surveillance (ADS)-B compatible equipment is fitted when ADS-B available in the operating area;
 - 2.3 Satellite Flight Following System (SFFS);
 - If ADS-B or ATC radar coverage is not available in the full operating area, Satellite Flight Following System is installed, see FOR 03.06 Flight Following.
 - 2.4 Terrain Awareness Warning System (TAWS);
 - **Operators** have a process to ensure that the database for terrain awareness warning systems with predictive terrain hazard warning is kept current;
 - The TAWS provide, as a minimum, warnings of at least the following circumstances:
 - Excessive descent rate;
 - Excessive altitude loss after take-off or go-around; and
 - Unsafe terrain clearance.
 - 2.5 ACAS;
 - Minimum ACAS 1;

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

- ACAS II when available for aircraft type, and agreed by Shell Technical Authority - Air Transport (TA1) and Operator; and,
 - ACAS II fitment may be exempt by risk assessment for low traffic areas.
- 2.6 CVR (Cockpit Voice Recorder) and FDR (Flight Data Recorder) or a Combined Cockpit Voice and Flight Data Recorder (CVFDR) - Note - Operations are permitted without CVR/FDR on aircraft certificated with a seating capacity of 10 seats or less;
- 2.7 **Emergency Locator Transmitter (ELT)**, meeting as a minimum Technical Standard Order (TSO) C126C;
- 2.8 Flight Data Monitoring (FDM) – equipment to facilitate download is fitted;
- 2.9 Pitot heater failure indication warning;
- 2.10 For operations above 10,000 ft. Crew oxygen is carried;
- Passenger therapeutic oxygen is also carried.
- 2.11 Automated External Defibrillator (AED);
- 2.12 A passenger safety belt for each, having a metal-to-metal latching device;
- With a release lever with 90° of movement to unfasten;
 - A shoulder harness on the forward side for each flight deck seat and cabin crew member seat;
 - Any side-facing seats are fitted with shoulder harness;
- 2.13 Passenger briefing cards, which include:
- The location of first aid equipment, survival equipment, etc.;
 - Fire extinguishers;
 - Emergency Exits;
 - Brace position.
- 2.14 Aircraft documentation;
- As required by operator and National Aviation Authority (NAA); and,
 - FOR 02.09 Aircraft Documentation.
- 2.15 Passenger Life jackets for over water flight;
- Aeroplane crew shall wear constant-wear type life jackets when conducting specialist operations low level, over water;
- 2.16 Liferafts for overwater flight more than 30 minutes flying time or 100 NM from the nearest shore;
- That accommodate all occupants of the aircraft;
 - Are equipped with:
 - A pyrotechnic signalling device;
 - A survival kit.

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

- 2.17 Anti-icing modifications applicable to aircraft type and operating temperatures.
- 2.18 Fireproof/Suppressant bag for laptop and Personal Electronic Devices (PED).
- 2.19 All materials used in upholstery and internal trim embody only approved fire-blocking materials their construction.
- 2.20 Cockpit cameras are fitted where available for the aircraft type and the installation is agreed with the relevant Shell Technical Authority - Air Transport (TA1); and
- Where cameras are fitted:
 - Procedures are in place to only use the data from cockpit cameras for accident and incident investigation, in line with Just Culture and relevant privacy agreements;
 - Procedures are in place to safeguard the recordings and prevent unauthorised use;
 - Cameras are positioned such to record the full instrument panel and pilot actions;
 - Maintenance requirements in place that periodically check the cleanliness and serviceability of the camera system.
- 2.21 Autopilot - Operations are permitted without autopilots in the Viking De-Havilland Canada Twin Otter DHC-6 series and Beechcraft 1900 series aircraft, providing the aircraft is operated by two Pilots;
1. Specialist Operations include seismic, wildlife surveys etc., and pipeline inspection.
- 3.1 Any shortfalls or differences in the additional equipment specified in MOC2, are agreed with the relevant Shell Technical Authority - Air Transport (TA1); and
- 3.2 Additional equipment for aeroplanes in specialist roles (e.g. seismic and pipeline inspection, etc.) are detailed in the relevant AOR (Section SPO).

ADDITIONAL GUIDANCE

- Cockpit Cameras:
 - Could be OEM or STC fitted and approved items;
 - Typically have two hours internal recording time and a card that will provide eight hours plus, and need not record to the CVFDR or similar;
 - Typical camera fit is:
 - <https://www.appareo.com/aviation/flight-data-monitoring/vision-1000/>
 - This camera is fitted in all new Airbus Helicopters and is available as a simple STC for many other types.
 - Consideration should be given to adding a serviceability requirement as a Minimum Departure Standard for the camera system.
- When several aeroplanes of the same type are contracted, the cockpit layouts should be standardised wherever practically possible.

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

LINKS (FOR DOWNLOAD)

Shell:

External:

RELATED INCIDENT

CORRESPONDING SELF-ASSESSMENT QUESTIONS

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

IOGP REPORT 590 AMG DIFFERENCES

590 is not as detailed or as strict as FOP 08.00.

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

FOR 07.02 Equipment Specifications - Helicopters

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Aircraft Operator Requirements

Restricted

Version 3.2 – June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirements 1-4:

1. Use only helicopter types that have been assessed as acceptable by Shell Aircraft and are agreed with the relevant Shell Technical Authority - Air Transport (TA1).
2. Install the additional equipment specified for offshore helicopters, exceptions are made in contracts for less than 100 flight hours per annum and ad-hoc contracts.
3. Install additional equipment specified for each helicopter type.
4. Seek approval from the Shell Technical Authority - Air Transport (TA1) for the use of helicopters in Specialist Operations and other defined situations.

Means of Compliance for Requirements 1-4:

1. No Further requirements.
2. The following additional equipment is fitted for helicopter contracts, any exceptions are agreed with the relevant Shell Technical Authority - Air Transport (TA1):
 - 2.1 Transponder and Mode S - Mode C is acceptable for non-Airborne Collision Avoidance System (ACAS) equipped **aircraft**.
 - 2.2 Automatic Dependent Surveillance (ADS)-B compatible equipment is fitted when ADS-B available in the operating area.
 - 2.3 Satellite Flight Following System (SFFS);
 - 2.3.1 If ADS-B or ATC radar coverage is not available in the full operating area, Satellite Flight Following System is installed, see FOR 03.06 Flight Following;
 - 2.4 Terrain Awareness Warning System (TAWS):
 - **Operators** have a process to ensure that the database for terrain awareness warning systems with predictive terrain hazard warning is kept current;
 - Helicopter TAWS (HTAWS) software is installed where available for aircraft type and region.
 - 2.5 ACAS:
 - Minimum ACAS I
 - ACAS II when available for aircraft type, and agreed by Shell Technical Authority - Air Transport (TA1);

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

- ACAS II fitment may be exempt by risk assessment for low traffic areas.
- 2.6 CVR (Cockpit Voice Recorder) and FDR (Flight Data Recorder) or a Combined Cockpit Voice and Flight Data Recorder (CVFDR).
- 2.7 Satellite Flight Following System (SFFS);
- 2.7.1 If ADS-B or ATC radar coverage is not available in the full operating area, Satellite Flight Following System is installed, see FOR 03.06 Flight Following;
- 2.8 Health and Usage Monitoring System (HUMS), see ENG 04.01 HUMS - Equipment Fit.
- 2.9 **Emergency Locator Transmitter (ELT), Crash Position Indicator (CPI)** which is jettisonable post-crash and meets the following requirements;
- 2.9.1 Cosmicheskaya Sistyema Poiska Aariynyich Sudov (COPAS)/Search & Rescue Satellite Aided Tracking System (SARSAT) 406 MHz capable, with an Identification Code registered to the aircraft and operator, GPS capability and can transmit on 121.5/243 MHz; and is,
- 2.9.2 Registered with the appropriate national agency and the responsible parties registered as ELT contacts are detailed in the aircraft operator's Emergency Response Plan.
- 2.10 Flight Data Monitoring (FDM) – equipment to facilitate download is fitted.
- 2.11 Push-Out Windows/Emergency Exits:
- Are aligned with seat rows;
 - Passengers are seated no more than one person from a Push-Out Window/Emergency Exit;
- 2.12 High-back Passenger Seats fitted with four-point Upper Torso Restraint (UTR) Harnesses:
- Seat belts consist of four straps;
 - Loop type straps present a snagging hazard and are prohibited.
- 2.13 Seats are clearly marked to identify which exits are suitable for Extra Broad Passengers (XBR).
- 2.14 Emergency Cabin and Helicopter Emergency Egress Lighting (HEEL).
- 2.15 High Intensity Strobe Lights (HISL):
- May be exempt by risk assessment for low traffic areas;
 - Restrictions are placed on use of HISL on the ground.
- 2.16 Beacon – Underwater Locator transmitter (e.g. Dukane or integral with CVR).
- 2.17 Liferafts:
- Reversible;
 - Minimum of two;
 - Minimum of one is externally mounted;

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

- Primary deployment of the external liferaft is by a single action from the normal Crew positions;
 - Deployment of the liferafts is possible from the passenger compartment with the cabin in an upright attitude and from outside the helicopter when in either an upright or inverted attitude;
 - Helicopters operating over water are fitted with at least two liferafts with a total normal capacity that will carry all the people carried; and,
 - Each raft overload capacity based on loss of the largest raft, sufficient for all people carried; and,
 - ELT which has COSPAS-SARSAT with an Identification Code registered to the aircraft and operator, 406 MHz, GPS, and transmits on 121.5/243 with voice capability.
- 2.18 Automatically deployable floats:
- Flotation equipment is appropriate to Sea State conditions in location.
- 2.19 First Aid Kits:
- Suitable and comprehensive first aid kits for the area of operation are be carried on all aircraft;
 - Kits are serviced as part of the aircraft role equipment;
 - Use of the kit is reported through the normal defect reporting systems so that used items may be replenished prior to the next flight.
- 2.20 Materials used in upholstery and internal trim embody only approved fire-blocking materials for in their construction.
- 2.21 Passenger briefing cards, which include the location of first aid equipment, fire extinguishers and brace position.
- 2.22 Aircraft documentation
- As required by operator and National Aviation Authority (NAA); and,
 - FOR 02.09 Aircraft Documentation
- 2.23 Cockpit cameras are fitted where available for the aircraft type and the installation is agreed with the relevant Shell Technical Authority - Air Transport (TA1);
- Where cameras are fitted;
 - Procedures are only in place to use the data from cockpit cameras for accident and incident investigation, in line with Just Culture and relevant privacy agreements;
 - Procedures are in place to safeguard the recordings and prevent unauthorised use;
 - Cameras are positioned such to record the full instrument panel and pilot actions;
 - Maintenance requirements in place that periodically check the cleanliness and serviceability of the camera system.

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

- 2.24 A forward-facing tail camera with presentation of the picture in the cockpit is fitted if available for the aircraft type and the installation is agreed with the relevant Shell Technical Authority - Air Transport (TA1).
3. The following is required for specific helicopter types:
- 3.1 Leonardo Helicopters AW139:
- Four-point harnesses that have four separate belts (Not looped).
- 3.2 Leonardo Helicopters AW189:
- Four-point harnesses that have four separate belts (Not looped).
- 3.3 Sikorsky S92A:
- Jettisonable windows within the four-cabin emergency exits – Sikorsky option No. 77005;
 - Passenger seat headrests;
 - 3 or 5 bag flotation system, appropriate to operating area. (3 bag tropical only).
- 3.4 Airbus H175B:
- Refer to relevant Shell Technical Authority - Air Transport (TA1).
- 3.5 Airbus H135/145 series aircraft:
- Refer to relevant Shell Technical Authority - Air Transport (TA1).
4. Specialist Operations include seismic and survey, long-line, onshore utility use and search and rescue (SAR).
- 4.1 Any shortfalls or differences in the additional equipment specified in Means Of Compliance (MOC) 2 and 3, are agreed with the relevant Shell Technical Authority - Air Transport (TA1);
- 4.2 Additional equipment for helicopters in specialist roles (e.g. long line external load, SAR, etc.) are detailed in the relevant AOR (Section SPO).

ADDITIONAL GUIDANCE

- Cockpit Cameras:
 - Could be OEM or STC fitted and approved items;
 - Typically have two hours internal recording time and a card that will provide eight hours plus, and need not record to the CVFDR or similar;
 - Typical camera fit is:
 - <https://www.appareo.com/aviation/flight-data-monitoring/vision-1000/>
 - This camera is fitted in all new Airbus Helicopters and is available as a simple STC for many other types.
 - Consideration should be given to adding a serviceability requirement as a Minimum Departure Standard for the camera system.

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

- When several aircraft of the same type are contracted, the cockpit layouts should be standardised wherever practically possible.
- In some areas, such as offshore UK, an automatic deployment capability (ADELT) is mandatory. ELTs should be located in an area where they can easily be deployed or alternatively best protected in the case of an accident, e.g. dinghy packs and crew lifejackets. If automatically deployed, features should include crash switches, immersion switches, and the unit should be buoyant. If portable, they should have integral and self-deployable aerials.
- Underwater Location Beacons - The aircraft operator should have reasonable access to receiving equipment and that this equipment may be quickly dispatched to the accident site.
- An enhanced survival kit, suitable for the area of operation, should be carried on flights, which are planned operate in remote, cold or jungle terrain.

LINKS (FOR DOWNLOAD)

Shell:

External:

RELATED INCIDENT

CORRESPONDING SELF-ASSESSMENT QUESTIONS

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

IOGP REPORT 590 AMG DIFFERENCES

590 is not as detailed or as strict as FOP 08.00.

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

FOR 07.03 Equipment Specification – Survival Equipment

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Aircraft Operator Requirements

Restricted

Version 3.2 – June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirements 1-3:

1. Document a policy to determine when flight crew and passengers wear approved immersion suits, thermal liners and lifejackets for overwater flights in both helicopters and low-level survey aeroplanes.
2. Provide Flight Crew and passengers with approved lifejackets for all over-water aeroplane flights stowed in a position that is easily accessible from each passenger or crew seat.
3. Use Compressed Air Emergency Breathing System (CA-EBS) for passengers and Crew.

Means of Compliance for Requirements 1-3:

1. The survival equipment policy:
 - 1.1 Constant-wear lifejackets are always worn for overwater flights in all helicopters and low-level survey aeroplanes.
 - 1.2 Lifejackets meet the requirements of European Technical Standard Orders (ETSO) ETSO-2C504- Helicopter constant-wear lifejackets for operations to or from helidecks located in a hostile sea area, or demonstrated equivalent.
 - 1.3 The use of pouch-type lifejackets is prohibited on overwater flights in helicopters.
 - 1.4 Immersion suits meet the requirements of ETSO-2C502 – Helicopter Crew and passenger integrated immersion suits or ETSO-2C503 – Helicopter Crew and passenger immersion suits for operations to or from helidecks located in a hostile sea area;
 - 1.5 Flight crew and passengers' immersion suits are always worn for overwater flights in both helicopters and survey aeroplanes when:
 - The expected rescue time (for all survivors), even in tropical conditions, in sea temperatures of +15°C and above for the predicted routes, exceeds the expected survival time;
 - Or the sea temperature is consistently at or below +15°C for the predicted routes.
 - Additional extra insulation or a suitable Thermal Insulating Garment (TIG) or thermal liners are worn in addition to the immersion worn by flight crew and passengers when the sea temperature is consistently at or below +10° for the predicted routes.

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

1.6 In regions where a detailed SAR study, which includes an **Overall Survival Equation** and determination for the worst **Credible Emergency Scenario**, has been carried out, an ALARP demonstration of exposure and sea temperatures will be in place and agreed with the relevant Shell Technical Authority - Air Transport (TA1).

2. No further requirements.

3. Wearing of a CA-EBS will be implemented by the Aircraft **Operator**, when agreed with the relevant Shell Technical Authority - Air Transport (TA1).

ADDITIONAL GUIDANCE

- For SAR studies see also BUR MAN 05.01 Managing Risk.

LINKS (FOR DOWNLOAD)

Shell:

External:

[AAIB Reports 2-1993 as 332I Super Puma G-TIGH](#)

[AIBB Reports 2-1993 Super Puma Appendices](#)

RELATED INCIDENT

CORRESPONDING SELF-ASSESSMENT QUESTIONS

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

IOPG REPORT 590 AMG DIFFERENCES

590 does not reference the additional insulation stated in Requirement 2 of FOP 01.20.

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

FOR 08.01 FDM – Hardware, Programme and System Serviceability

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Aircraft Operator Requirements

Restricted

Version 3.2 – June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirements 1-6:

1. Install a **Flight Data Monitoring (FDM)** system, including ground station for fixed and rotary-wing **aircraft** types contracted by the Company, see FOR 07.02.
2. Establish and document an FDM programme.
3. Establish FDM event thresholds based on **flight manual** limitations, flight profiles and Standard Operating Procedures (SOP) reflecting the specific flight activities being undertaken.
4. Download FDM data from all aircraft daily as a minimum and between flights when practicable.
5. Establish a process for the review of FDM data and validate events.
6. Document a serviceability policy for both airborne and ground station equipment.

Means of Compliance for Requirements 1-6:

1. The FDM system includes the hardware requirements of IOGP Report 590-G - Version 2, May 2017, Section 2.10.2.
 - 1.1 The hardware, scope of coverage, event sets, thresholds documented and agreed with the relevant Shell Technical Authority - Air Transport (TA1).
2. FDM programme documentation includes:
 - 2.1 Objectives of the system;
 - 2.2 A confidentiality agreement and/or statement;
 - 2.3 A description of the system processes and procedures as below:
 - Data download procedures (including intended maximum time between downloads and analysis of data);
 - Analysis procedures;
 - Event communication, pilot liaison and review;
 - FDM review and report requirements;
 - A feedback loop to allow timely corrective actions to be taken where safety may be compromised by a significant deviation from SOP;

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

- Storage of FDM data for a minimum period of 12 months and perform routine back-ups;
 - Key Performance Indicators (KPI's) to identify systemic issues;
 - Competence of the FDM personnel; and
 - The FDM programme being based upon a "just culture", meaning a non-punitive approach being taken unless criminal intent or wilful wrongdoing is evident, and containing adequate safeguards to protect the source data from interference or deletion.
3. Thresholds are established in accordance with IOGP Report 590-G Version 2, May 2017, Section 2.10.16:
 - 3.1 At least three levels of severity of alert detection for each validated event (low, medium and high) are set and assessed.
 4. Data download requirements are subject to the following exceptions:
 - 4.1 For aircraft operating from remote bases, a means of downloading and transmitting the data daily is established;
 - 4.2 For aircraft away from base for a short number of days, the data can be downloaded on the return to base.
 5. Review of the FDM data enables an Aircraft **Operator** to compare compliance with its SOP's against that achieved in everyday flights.
 - 5.1 FDM data is to be downloaded and subjected to initial analysis to identify events within 24 hours;
 - 5.2 Event data is validated on a daily basis (working days only) to ensure that any events recorded have been generated correctly – see guidance.
 6. The serviceability policy is documented either in the aircraft **Minimum Equipment List (MEL)** or a Minimum Departure Standard (MDS) and includes:
 - 6.1 System unserviceability not to exceed 25 flight hours between data downloads;
 - 6.2 For long haul fixed wing operations, operating away from the main base for a short period, this may be extended to a Cat C (10-day item);
 - 6.3 This does not preclude the Aircraft Operator from having a procedure to grant an extension for the minimum departure standards; and
 - 6.4 The availability and functionality of the FDM analysis system is assured by means such as service agreements with the equipment, software OEMs and service provider or the provision of back up equipment if necessary.

ADDITIONAL GUIDANCE

The Shell SGRAO requirements for an FDM programme and its management are aligned with IOGP Report 590-G, Version 2, May 2017, Section 2.10 which should be used as a useful reference for Aircraft Operators.

The FDM programme should be constructed to:

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

- Identify areas of operational risk and quantify safety margins;
- Identify and quantify changing operational risks by highlighting when non-standard, unusual or unsafe circumstances occur;
- Manage FDM information on the frequency of occurrence combined with an estimation of the level of severity, to assess the risks and to determine which may be unacceptable if the discovered trend continues. Determine the frequency of occurrence of similar events within the severity bands to determine trends. Risk assess identified trends to determine any unacceptable trends;
- Put in place appropriate risk mitigation techniques to provide remedial action once an unacceptable risk, either present or predicted by trending, has been identified; and
- Confirm the effectiveness of any remedial action by continued monitoring.

The confidentiality agreement and/or statement should:

- Define how the FDM data will be managed, how confidentiality will be maintained, under what exceptional circumstances disciplinary action may be taken based on FDM data in the event of repetitive, deliberate violations of SOP's and limitations and/or unprofessional, reckless behaviour (cynical abuse); and
- Define how FDM data is protected in the case of an accident investigation and/or criminal investigation by a third party and what types and format of data that may be shared, subject to restrictions from other legal agreements, with the clients, authorities' other 3rd parties.

For small operators, who have just one pilot liaison/analyst, the analysis frequency may have to reflect that individual's work schedule. However, where practicable, redundancy should be provided by a second pilot liaison/analyst.

The Aircraft Operator may propose a programme covering specific aircraft tail numbers and pilots where Company use is limited to a small sole use operation out of a larger aircraft fleet and pilot pool. However, the program coverage shall include all pilots flying for the Company including replacements and temporary assignments.

LINKS (FOR DOWNLOAD)

Shell:

External:

1. [Global HFDM Steering Group – FDM Industry Best Practices.](#)
2. [CAP 739](#)
3. [EASA FDM Practice and Oversight](#)
4. [ICAO Doc 9859 3rd Edition](#)

RELATED INCIDENT

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

CORRESPONDING SELF-ASSESSMENT QUESTIONS

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

IOGP REPORT 590 AMG DIFFERENCES

No differences.

FOR 08.02 FDM – Programme Management and Audit

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Aircraft Operator Requirements

Restricted

Version 3.2 - June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirements 1-6:

1. Appoint personnel to fill specific functional positions within the company **Flight Data Monitoring (FDM)** programme.
2. Provide training for all FDM personnel who have defined roles within the FDM Programme, appropriate to their level of use.
3. Analyse FDM data for threshold exceedance events daily (operational flight days) through either operator in-house data analysis or third-party analysis services.
4. Conduct flight crew contact for every validated and relevant Medium and High FDM event.
5. Establish a process for communication and reporting the FDM data.
6. Include the FDM system within the internal audit Quality Assurance (QA) process, using methods that do not risk the independence and security of the FDM program, especially in smaller operations where roles and positions are combined.

Means of Compliance for Requirements 1-6:

1. Functional positions required for an Aircraft **Operator** FDM system are appropriate to the size of the operator and in accordance with IOGP Report 590-G, Version 2, May 2017, Section 2.10.3.
2. FDM personnel training includes:
 - 2.1 The ability for the person with overall responsibility for managing the FDM programme and the person responsible for FDM data analysis to demonstrate competence as defined in the competence requirements documented for the position. Typically, competence requirements are (where required):
 - The use of the FDM system's data analysis software to set event thresholds;
 - Analysis of downloaded data;
 - Determining event credibility; and
 - Providing data in a format usable and easily understood for pilot debrief and for de-identified FDM reports.
 - 2.2 The ability for the person responsible for informing flight crew of threshold exceedance events to demonstrate their knowledge of the review/playback systems and their ability to interpret data provided by the analyst; and


Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

- 2.3 The ability for **maintenance** personnel to test and assess the system's serviceability status and carry out associated maintenance.
3. As part of the analysis process, operators:
 - 3.1 Identify which Medium and High events require flight crew contacts;
 - 3.2 Conduct trend monitoring of events, including Low events, as a routine part of the FDM process to give warning of developing issues in a flight operation;
 - 3.3 Track the data download rate as a measured Key Performance Indicator (KPI) and target 95% or better once the system is considered mature (after one year of operation) and develop other appropriate KPIs.
4. Flight crew contact includes:
 - 4.1 A process for crews to request the analysis of specific flights or events;
 - 4.2 The most appropriate means practicable to communicate the event and its consequences to the crew for an event which requires a contact;
 - 4.3 For events assessed as High, a more comprehensive process that involves dialogue between the pilot liaison function using the software flight playback capability and the crew involved in the event; and
 - 4.4 A contact process for crew conducting operations from bases where face-to-face briefing with pilot liaison personnel and the full use of the analysis playback and review capability may not be possible;
 - 4.5 A KPI is developed to track flight crew contacts.
5. Compliance for communicating and reporting FDM data includes:
 - 5.1 Communication and review of FDM data complies with the operator's confidentiality agreement;
 - 5.2 The person with overall responsibility for managing the FDM programme produces regular FDM reports, summarising event activity within the organisation and highlighting learnings from the analysis. These reports are made available and communicated to all crews and relevant departments;
 - 5.3 An FDM review group, usually consisting of those members of the operation who have responsibility for operational standards and flight safety, meets at regular intervals (quarterly recommended) to:
 - Validate the reports, including a periodical review of de-identified FDM data findings;
 - Investigation into significant events discovered by the FDM Programme;
 - Make recommendations for suggested changes to operational procedures or training syllabus;
 - Track the implementation of those recommendations and monitor to determine their effectiveness; and,
 - Periodically determining and reviewing the effectiveness of event thresholds.

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

- 
- 5.4 An overview of all actions, together with the KPI's, as an agenda item in the periodic Senior Management Reviews.
 6. Shell expects the right to audit sufficient aspects of the FDM system to assure that the process is working. This does not imply a right of access to all data, especially that which is identifiable to an individual, unless the aircraft operator wants to use FDM data to demonstrate a specific issue.

ADDITIONAL GUIDANCE

1. A diagram for the generic FDM process is contained in IOGP Report 590-G, Section 2.10.5 which is shown below:

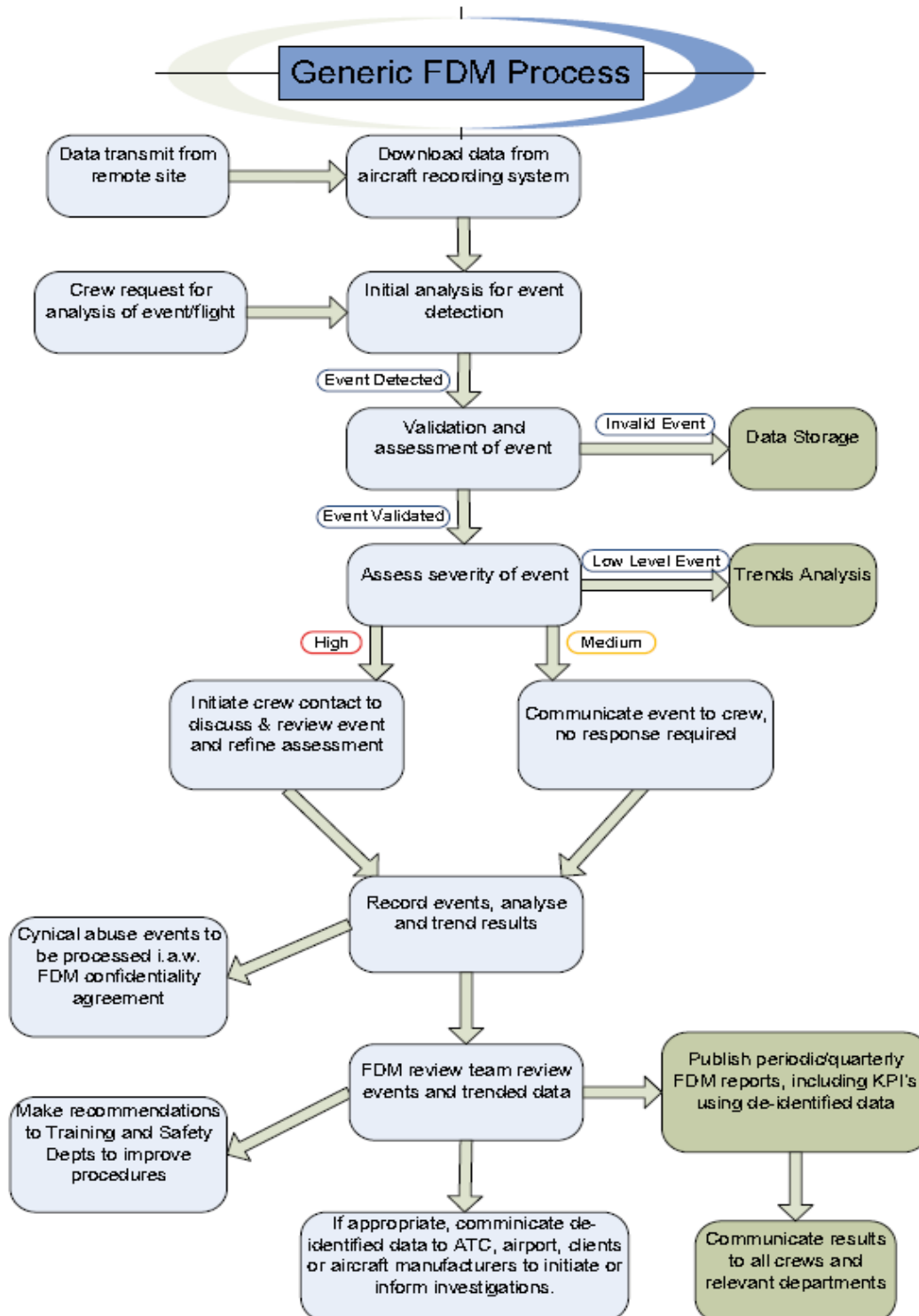


Figure 1: Generic FDM process.

Used by kind permission of the Global HRDM Steering Group <http://www.hfdm.org/>

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

2. Training:

- a. Line Pilots, or in some circumstances line maintenance personnel, are likely to need only sufficient knowledge to download data;
- b. The FDM program should be designed to have the support of all pilots and careful consideration should be given to maintaining the integrity and value of the program.

LINKS (FOR DOWNLOAD)

Shell:

External:

1. [Global HFDM Steering Group – FDM Industry Best Practices](#).
2. [CAA CAP 739](#)

RELATED INCIDENT

CORRESPONDING SELF-ASSESSMENT QUESTIONS

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

IOGP REPORT 590 AMG DIFFERENCES

No differences.

ENG 01.01 Airworthiness Management

Shell Aircraft	Mandatory
Shell Group Requirements for Aircraft Operations	Restricted
Aircraft Operator Requirements	Version 3.2 June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirements 1-2:

1. Provide airworthy **aircraft** for all Company operations.
2. Employ a competent manager with overall responsibility for continuing airworthiness and aircraft **maintenance**, including both in-house and contracted activities.

Means of Compliance for Requirements 1-2:

1. The Aircraft **Operator** demonstrates that continuing airworthiness activities and aircraft maintenance are performed in accordance with its approved **Aircraft Maintenance Programme (AMP)** and that the appropriate organisational approvals and certificates are in place.
2. The competent manager (Post-holder, Department Manager or equivalent):
 - 2.1 Is accountable for the Operator's continuing airworthiness and maintenance organisations, or any contracted continuing airworthiness or maintenance organisations; and,
 - 2.2 Is approved by the National Aviation Authority (NAA), if applicable.

ADDITIONAL GUIDANCE

LINKS (FOR DOWNLOAD)

Shell:

External: <https://www.easa.europa.eu/regulations>

RELATED INCIDENT

CORRESPONDING SELF-ASSESSMENT QUESTIONS

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

1, 3, 6, 9, 11, 13.

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

IOGP REPORT 590 AMG DIFFERENCES

R590 refers only to the AOC holder as being responsible for airworthiness as per NAA requirements but does not specify that any individual should be appointed to oversee aircraft airworthiness.

ENG 02.01 Continuing Airworthiness Organisation

Shell Aircraft	Mandatory
Shell Group Requirements for Aircraft Operations	Restricted
Aircraft Operator Requirements	Version 3.2 June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirements 1-6:

1. Provide a **Continuing Airworthiness (CA)** process commensurate with the size and scope of the company's activities.
2. Employ, or contract, personnel to manage the **Aircraft Operator's** Continuing Airworthiness (CA) function with the relevant competences to perform these tasks.
3. Document the CA processes and procedures for the **aircraft** types being operated.
4. Demonstrate that the aircraft are maintained in accordance with type-specific National Aviation Authority (NAA) **Aircraft Maintenance Programme (AMP)** that includes **Original Equipment Manufacturer (OEM)** minimum requirements.
5. Maintain subscriptions with OEMs to receive revisions to all technical data and information related to the **maintenance** of the aircraft or its components.
6. Detail procedures for **Maintenance Check Flights (MCF)**.

Means of Compliance for Requirements 1-6:

1. The **Aircraft Operator's** CA function uses competent staff in the management of its activities.
2. For training requirement see ENG 02.06.
3. Whether CA is managed in-house, or sub-contracted, there are documented process that include:
 - 3.1 The review and management of all airworthiness data and instructions including Airworthiness Directives (AD) from applicable NAA and Service Bulletins (SB) from the OEM;
 - 3.2 Managing an AMP for each aircraft type operated;
 - 3.3 The AMO permitted to perform maintenance on the aircraft and its equipment is documented;
 - 3.4 Provision of technical data and maintenance programmes to the Approved Maintenance Organisation (AMO);
 - 3.5 The management of an aircraft technical records and maintenance forecasting system;
 - 3.6 A system of control which allows only parts, meeting the aircraft maintenance programme, to be fitted to company operated aircraft by the AMO; and

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

- 3.7 A system by which maintenance instructions are provided to the AMO; and confirmation received from the AMO that the work has been performed and appropriately certified.
4. No further requirements.
5. The current revision status, including temporary revision, of all applicable technical data and documentation within the organisation (e.g. Maintenance Manuals, Parts Catalogues and Bulletins) is easily identifiable against the source documents of the OEM. This includes all master copies and copies distributed to the AMO, out-stations or contractors.
6. Procedures for MCF are documented.
- 6.1 MCF are carried out:
- As required by the Aircraft Maintenance Manual (AMM);
 - As required by the Aircraft Operator or proposed by the [Continuing Airworthiness Maintenance Organisation](#) (CAMO) after maintenance; and,
 - As requested by the CAMO for verification of a successful defect rectification or to assist with fault isolation or troubleshooting.
- 6.2 MCF are performed by competent and trained Flight Crew, considering the aircraft complexity and the level of the maintenance check flight required; and,
- 6.3 A risk assessment and safety briefing is carried out prior to the MCF.

ADDITIONAL GUIDANCE

The head of the CA organisation is normally approved as the CA Nominated Post Holder (NPH) when required by the NAA.

The top-level manual such as the Maintenance Management Manual (MMM), is normally approved by the National Aviation Authority (NAA).

The NPH may be supported by suitably qualified and experienced specialist staff such as Type Engineer(s) or Fleet Specialists for the operated aircraft type(s); plus, further staff manning other CA functions including the technical library and technical records.

The primary role of the specialist staff should be the management of the Aircraft Maintenance Programme (AMP) and the technical review of all incoming data relevant to the aircraft type they are responsible for.

If applicable - the Air Operator may issue Airworthiness Review Certificates (ARC) for its aircraft, following a documented process using staff who:

- Have documented responsibilities; and
- Have been assessed for competency and hold authorisation to issue ARCs.

The continuing airworthiness of an aircraft should be the responsibility of the operator and is part of the AOC.

It should be the operator's responsibility to take the airworthiness data from the OEM into the organisation and process it in an approved documented and controlled manner.

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

The Top Level MMM within an operator may be known as the Continuing Airworthiness Manual (CAM) or the Maintenance Control Manual (MCM).

Contained within the MMM/CAM/MCM may be the processes which produce the Aircraft Maintenance Programme (AMP).

The operator should be responsible for providing the AMP to the AMO. The AMO does not own or control the AMP.

The Top Level MMM within an AMO can be known as the Maintenance Organisation Exposition (MOE) or the Maintenance Procedure Manual (MPM)

The AMO should provide the relevant or detailed maintenance records of all performed maintenance to the operator. The maintenance records belong to the aircraft and the operator; not the AMO.

Continuing airworthiness functions may be contracted out if this is an approved practice per NAA AMP and formally stated within the approved MMM. (Refer ENG.02.03)

The MMM should state which AMO is permitted to perform maintenance on the aircraft and its equipment.

Operators should identify the need for additional Crew and/or task specialists before each intended maintenance check flight, taking into consideration the expected workload and any risk assessment.

LINKS (FOR DOWNLOAD)

EASA Annex 1to Decision 2016-011-R

<https://www.faa.gov>

<https://www.tc.gc.ca/eng/menu.htm>

<http://www.ncaa.gov.ng/>

<https://www.casa.gov.au/>

https://flightsafety.org/wp-content/uploads/2016/09/FCF_Compodium.pdf

RELATED INCIDENT

CORRESPONDING SELF-ASSESSMENT QUESTIONS

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

9, 11, 15.

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

IOGP REPORT 590 AMG DIFFERENCES

There is no specific requirement in R590 to maintain subscriptions for technical data as per Requirement 4. of ENG 02.01., but 590-E 2.1, b), 1-2 and 2.3 imply adherence to ADs and SBs and a requirement to keep all applicable maintenance data up to date.

ENG 02.02 Aircraft Maintenance Programme

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Aircraft Operator Requirements

Restricted

Version 3.2 – June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirements 1-3:

1. Develop, document and implement a National Aviation Authority (NAA) approved Aircraft Maintenance Programme (AMP) for each of the **aircraft** types on the **Air Operator's Certificate** (AOC).
2. Update the AMP on receipt of revised maintenance requirements from the Original Equipment Manufacturer (OEM).
3. Review the AMP for effectiveness routinely and ensure it is updated to incorporate relevant data from reliability programmes or their equivalent and the latest available OEM requirements.

Means of Compliance for Requirements 1-3:

1. The **Operator** owns the AMP, which includes at least the following:
 - 1.1 The mandatory **maintenance** requirements from the OEM and are NAA approved;
 - 1.2 A list of the aircraft registrations to which it applies;
 - 1.3 A direct link to the most recent OEM mandatory maintenance information such as Airworthiness Limitations & Inspection Requirements (ALIR) or equivalent;
 - 1.4 Specific maintenance requirements/life limitations for the aircraft, its engines and components based on appropriate intervals including time in service, expected flying hours, landings, cycles and calendar life;
 - 1.5 Detailed procedures for maintenance pre-flight, between flight, after-flight and/or any other regular inspections (or in an equivalent document).
2. No further requirements.
3. There are documented procedures for the review interval and data criteria for the AMP effectiveness review.

ADDITIONAL GUIDANCE

The Aircraft Maintenance Programme or AMP is also known as approved maintenance programme, or approved aircraft maintenance programme.

An operator can have multiple AMP; however, an aircraft can only be maintained to one AMP.

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

Management of the AMP could be in-house or contracted to a Continuing Airworthiness Management Organisation (CAMO) or equivalent approved by the NAA.

There should be documented procedures for the review interval and data criteria for the effectiveness review.

LINKS (FOR DOWNLOAD)

Shell:

External:

RELATED INCIDENT

CORRESPONDING SELF-ASSESSMENT QUESTIONS

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

Bowtie 11 – Air Transport / Loss of control of aircraft maintenance activity.

IOGP REPORT 590 AMG DIFFERENCES

No differences.

ENG 02.03 Airworthiness Directives and (Alert) Service Bulletins

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Aircraft Operator Requirements

Restricted

Version 3.2 – June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirements 1-3:

1. Comply with all Airworthiness Directives (ADs), Alert Service Bulletins, (ASBs), and appropriate Service Bulletins (SBs) or equivalent, that are mandated by the relevant National Aviation Authorities (NAA), including the State holding the [Aircraft](#) Type Certificate, or recommended by the Original Equipment Manufacturer (OEM).
2. Maintain a documented technical review process for all incoming directives and bulletins.
3. Incorporate any additional SBs that are requested by Shell Technical Authority - Air Transport (TA1).

Means of Compliance for Requirements 1-3:

1. Compliance with ADs, ASBs and SBs includes the implementation of any actions that are considered necessary, within the specified timescale, and in accordance with a procedure acceptable to the [State of Registry/NAA](#).
2. Documented records are kept for technical reviews and these:
 - 2.1 Include decisions on SBs that the company chooses not to embody; and
 - 2.2 Indicate the most current revision of the relevant ADs, ASBs and SBs, regardless of whether any physical action is required.
3. No further requirements.

ADDITIONAL GUIDANCE

LINKS (FOR DOWNLOAD)

Shell:

External:

RELATED INCIDENT

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

CORRESPONDING SELF-ASSESSMENT QUESTIONS

1. Is the AD, ASB and SB revision status current in accordance with the relevant OEM and/or NAA release?

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

1, 6, 11.

IOPG REPORT 590 AMG DIFFERENCES

R590 does not address Shell specific requirements.

ENG 02.04 Aircraft Technical Records

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Aircraft Operator Requirements

Restricted

Version 3.2 – June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirements 1-3:

1. Provide a management system (Technical Records) to control the forecasting and recording of **aircraft** and component **maintenance** as detailed within the approved Aircraft Maintenance Programme (AMP).
2. Maintain a records system for the aircraft, engines and all other components subject to life limits or other maintenance requirements.
3. Employ sufficient staff to maintain the record-keeping process.

Means of Compliance for Requirements 1-3:

1. The management system (Technical Records):
 - 1.1 Reflects the requirements of the current AMP for each aircraft type;
 - 1.2 Has its data updated in a timely manner to maintain an accurate record of the airframe, engines and all other components which are subject to life limits or maintenance requirements normally tracked on individual Original Equipment Manufacturer (OEM) or company log cards, or by other means as specified in the AMP;
 - 1.3 Records compliance with all applicable Airworthiness Directives (ADs) and (Alert) Service Bulletins (SB) for the aircraft and its components;
 - 1.4 Details required maintenance "due lists" in terms of flying hours, cycles, landings or calendar intervals;
 - 1.5 Shows the receipt and management of all completed maintenance paperwork including work orders, work packages, aircraft technical log entries and component serviceability data to ensure an auditable record;
 - 1.6 Includes internal quality control (QC) procedures to ensure that all records of performed maintenance from the AMO are complete and the aircraft is appropriately released to service.
2. No further requirements.
3. The staff engaged in maintaining the record-keeping process have:
 - 3.1 Documented procedures;
 - 3.2 Processes to regularly update any required systems and documents; and

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

3.3 Are trained and assessed as competent in following the documented procedures.

ADDITIONAL GUIDANCE

Retention/Transfer of the records is required so that the status of the aircraft and its components can be readily established at any time.

In the case of contracted continuing airworthiness management tasks, records may be maintained and kept by the subcontracted organisation on behalf of the Continuing Airworthiness Management Organisation (CAMO), which remains the owner of these documents. However, the CAMO should be provided with the current status of AD compliance and service life-limited components in accordance with the agreed procedures. The CAMO should also be granted unrestricted and timely access to the original records as and when needed. Online access to the appropriate information systems is acceptable.

LINKS (FOR DOWNLOAD)

Shell:

External:

<https://www.easa.europa.eu/system/files/dfu/Annex%20I%20to%20Decision%202016-011-R.pdf>

RELATED INCIDENT

CORRESPONDING SELF-ASSESSMENT QUESTIONS

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

None

LOGP REPORT 590 AMG DIFFERENCES

R590 does not refer to having "sufficient staff" to update system.

ENG 02.05 Contracted Maintenance and Services

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Aircraft Operator Requirements

Restricted

Version 3.2 – June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirements 1-4:

1. Document the general requirements and any person(s) or organisations that are contracted to perform **Aircraft Maintenance** or other related services supporting the operation of the aircraft.
2. Detail the scope of contracted activity and the interfaces between the **operator** and the contracted party.
3. Demonstrate that an assurance programme is in place and functioning for all contracted service.
4. Document a supplier approval process.

Means of Compliance for Requirements 1-4:

1. No further requirements.
2. Contractual requirements are specified in a separate document that details the activities and obligations of the contractor in the performance of the activity. It includes:
 - 2.1 The way surveillance of the operation will be conducted; and
 - 2.2 The safety and general HSSE expectations of the contractor by the operator.
3. Surveillance of the contracted maintenance is appropriate for the scale and scope of work:
 - 3.1 When the activity is part of a long-term contract, it includes the surveillance oversight within the Operator's QA audit processes/annual audit plan etc.
 - 3.2 When the contracted activity is a short-term task (e.g. an aircraft repair, a Non-Destructive Test (NDT) inspection or an aircraft weighing), an appropriate level of oversight is performed.
 - 3.3 The Aircraft Operator's QA processes determine that the contractor is suitably approved and has the required certification for the task, prior to the contracted task being awarded.
4. No further requirements.

ADDITIONAL GUIDANCE

Relationships between aircraft operators and maintenance organisations can be complicated and can include both contracted and sub-contracted arrangements. It is crucial that relationships,

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

including individual company responsibilities are well documented and that robust systems are in place by the aircraft operator to monitor performance both against contractual obligations as well as regulatory requirements.

LINKS (FOR DOWNLOAD)

Shell:

External:

RELATED INCIDENT

CORRESPONDING SELF-ASSESSMENT QUESTIONS

1. Does the aircraft operator have a program for monitoring performance of contracted maintenance?
2. Is the relationship between the aircraft operator and the maintenance organisation documented within the MMM or similar?
3. Are contractors included in the annual QA audit plan?
4. Consider which type of maintenance activity is often contracted out: Lifejackets; NDT; Aircraft weighing; Aircraft Painting; Large maintenance checks; HUMS
5. How is a contractor working on an aircraft captured within the operator's [HEMP](#)? Are additional risk present which would require additional controls?
6. Make sure that the activity is contracted and documented correctly and that is not just performed by a "sister company" with no formal assurance in place.
7. Check how the aircraft is released to service if a contractor has performed work on it.
8. Where is the contractor's paperwork for the task held and is a copy within the aircraft's record?

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

11.

IOGP REPORT 590 AMG DIFFERENCES

R590 does not specifically address operator interface with contracted maintenance organisations, but R590-A 4 refers to Member Companies should review the interface between the contractor and third parties.

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

ENG 02.06 Competence and Training (Continuing Airworthiness)

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Aircraft Operator Requirements

Restricted

Version 3.2 – June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirements 1-3:

1. Provide a training programme that addresses initial, on-going training and competency for personnel performing the CA function.
2. Provide **Aircraft** Type Engineers with training accredited by the Original Equipment Manufacturer (OEM) for the aircraft type for which they are responsible.

Means of Compliance for Requirements 1-2:

1. The documented competency and training programme includes:
 - 1.1. An induction training programme for all new employees, either experienced or inexperienced hires, that is relevant to their intended role in the company and addresses the minimum requirements documented;
 - 1.2. Ongoing training to ensure personnel with technical responsibilities have the knowledge and skills appropriate to the complexity of the organisation's **maintenance** activities;
 - 1.3. Instruction to provide sufficient knowledge of applicable regulations, standards, procedures and the operated aircraft types; and,
 - 1.4. Suitable management training for all managers and supervisors.
2. No Further Requirements.

ADDITIONAL GUIDANCE

Operators should provide a clear identification of any differences between operating procedures used when conducting commercial air transport and non-commercial operations, and a means of making all personnel involved in the operation are fully familiar with the associated procedures.

Competence should be defined as a measurable skill or standard of performance, knowledge and understanding, taking into consideration attitude and behaviour.

Outsourced maintenance requires an understanding of the liaison, and delegated work, including understanding of the responsibilities and maintaining control.

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

It is preferable that the Type Engineer has sufficient experience of the aircraft and would be able to hold or have held maintenance "Release to Service" authorisation.

The operator should consider type training for other CA staff if deemed relevant.

LINKS (FOR DOWNLOAD)

Shell:

External:

[ICAO DOC 7192 D-1](#)

Guidance for Maintenance Check Flights:

CAP 1038; Check Flight Handbook:

<https://publicapps.caa.co.uk/docs/33/CAP%201038%20JAN17.pdf>

EASA Requirement:

[https://www.easa.europa.eu/sites/default/files/dfu/Draft%20ANNEX%20I%20&%20II%20to%20ODRAFT%20COMMISSION%20REGULATION%20\(EU\)%20...-....pdf](https://www.easa.europa.eu/sites/default/files/dfu/Draft%20ANNEX%20I%20&%20II%20to%20ODRAFT%20COMMISSION%20REGULATION%20(EU)%20...-....pdf)

RELATED INCIDENT

CORRESPONDING SELF-ASSESSMENT QUESTIONS

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

IOGP REPORT 590 AMG DIFFERENCES

No differences.

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

ENG 03.01 Maintenance Organisation Management

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Aircraft Operator Requirements

Restricted

Version 3.2 – June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirements 1-3:

1. Appoint an accountable person to manage all **maintenance** activities performed by the Approved Maintenance Organisation (AMO) whether these are performed in-house or by a contracted organisation.
2. Confirm all **aircraft** maintenance is performed by an approved AMO that has the facilities, capability and scope to maintain the aircraft types operated.
3. Provide documented processes to manage maintenance.

Means of Compliance for Requirements 1-3:

1. The accountable person is competent and has been accepted as the Nominated Post Holder (NPH) by the NAA.
2. There is a documented process detailing the interface between the Aircraft **Operator's** Continuing Airworthiness Organisation and the AMO, for all maintenance activities that are outsourced or contracted by the Aircraft Operator.
3. The processes describe how the aircraft maintenance is managed, performed and assured and these are approved, or deemed acceptable, by the National Aviation Authority (NAA).
 - 3.1 Organisational charts detail the structure and responsibilities of the maintenance organisation and its staff. The charts indicate the necessary personnel required to manage, plan, perform, supervise, inspect and certify aircraft as "Released to service".
 - 3.2 Manuals document the maintenance procedures and practices needed to comply with the requirements of the OEM.
 - 3.3 The procedures describe how only authorised, trained and competent individuals are permitted to perform maintenance on an aircraft, engine or component.
 - 3.4 Manuals include detailed descriptions that demonstrate the adequacy of maintenance facilities, data, equipment, supplies and spares for aircraft maintenance.
 - 3.5 Quality assurance or control procedures are described that allow the organisation to verify that all maintenance and administration is properly performed and to monitor compliance with procedures and regulatory requirements.

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

- 3.6 Manuals include a list of current contracted (and sub-contracted) organisations and suppliers describing the type and scope of work, the types of aircraft, engines or components that are maintained and the approved locations for each organisation.

ADDITIONAL GUIDANCE

LINKS (FOR DOWNLOAD)

Shell:

External:

<https://www.easa.europa.eu/system/files/dfu/Annex%20II%20to%20Decision%202016-011-R.pdf>

RELATED INCIDENT

CORRESPONDING SELF-ASSESSMENT QUESTIONS

1. Is the MMM/CAM/MCM approved by the NAA?
2. When was the MMM last amended?
3. Does the MMM accurately reflect the organisations, its scope of work and its processes?

In-house continuing airworthiness functions

1. Does the organisation have sufficient, experienced and competent staff to perform the function?
2. Is there a corporate computer system used to manage data and records associated with airworthiness?
3. Is continuing airworthiness included within the internal audit plan?

Contracted continuing airworthiness functions

1. Is any part of the continuing airworthiness function contracted out? If so, is it formally stated and approved within the MMM? Are all contracted out functions visible, auditable and traceable to the AOC?
2. Does the AOC employ provide regular QC and QA activities to determine that the contracted functions are being correctly performed?

Maintenance

1. Is the MMM/MOE/MPM approved by the NAA?
2. When was the MMM last amended?
3. Does the MMM accurately reflect the organisations, its scope of work and its processes?

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

Bowtie 11 – Air Transport / Loss of control of aircraft maintenance activity.

IOGP REPORT 590 AMG DIFFERENCES

No differences.

ENG 03.02 Maintenance Control and Release to Service

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Aircraft Operator Requirements

Restricted

Version 3.2 – June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirements 1-6:

1. Implement documented procedures for **maintenance** control and technical release of all **aircraft**, whether the Approved Maintenance Organisation (AMO), is in-house or a contracted organisation.
2. Implement documented procedures to complete and certify aircraft maintenance releases; and confirm that the work performed has been satisfactorily conducted in accordance with those procedures.
3. Issue a **Minimum Equipment List (MEL)** or a Minimum Departure Standard (MDS) that indicates the items that may be inoperative prior to departure and the conditions under which those flights will be operated.
4. Notify the **Pilot-in-Command (PIC)** of all deferred defects that affect, or may affect, the safe operation of the aircraft and ensure that the Pilot-in-Command (PIC) retains the final decision on acceptance of an aircraft with deferred defects.
5. Record all recurring defects and highlight them to flight crew and the maintenance organisation at all bases where the aircraft is operated.
6. Develop and document remote location procedures to manage any aircraft unserviceability at a location where maintenance support is not routinely provided.

Means of Compliance for Requirements 1-6:

1. The procedures require that no aircraft are "Released to Service" unless they are:
 - 1.1 Airworthy;
 - 1.2 Appropriately equipped, configured and maintained for their intended use;
 - 1.3 Have a valid Certificate of Airworthiness (C of A), Airworthiness Review Certificate (ARC, if applicable); and
 - 1.4 An appropriate Certificate of Release to Service (CRS), or equivalent, has been certified.
2. See ENG 03.01 – Means of Compliance 2.
3. The MEL is aircraft type-specific.
 - 3.1 When an MEL, or similar document is unavailable, the aircraft is only released to service with full equipment serviceability.

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

4. Documented processes are in place to record all MEL items or similar defects, in line with the following requirements:
 - 4.1 Reference to the original defect;
 - 4.2 The original date of the occurrence;
 - 4.3. Brief details of the defect;
 - 4.4. Reference to the applicable MEL/MDS & Configuration Deviation List (CDL, if applicable) requirements section paragraph;
 - 4.5. A reference to any operational restrictions;
 - 4.6. A due date for rectification/review; and
 - 4.7. Details of the final rectification.
5. No further requirements.
6. Remote locations include offshore installations.

ADDITIONAL GUIDANCE

LINKS (FOR DOWNLOAD)

Shell:

External:

RELATED INCIDENT

CORRESPONDING SELF-ASSESSMENT QUESTIONS

1. Can the aircraft operator produce the required documentation?
2. Is the aircraft operator complying with MEL requirements? Own and regulatory?

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

Bowtie 11 – Air Transport / Loss of control of aircraft maintenance activity.

IOGP REPORT 590 AMG DIFFERENCES

590 refers to the requirement for complete maintenance of the aircraft, but does not specify the language used in Requirement 1.b. of ENG 03.02.

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

ENG 03.03 Duplicate Inspections

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Aircraft Operator Requirements

Restricted

Version 3.2 – June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirements 1-6:

1. Document procedures on the requirement for, and performance and certification of **duplicate inspections**¹.
2. Define and document a list of **maintenance** critical tasks requiring duplicate inspections for each **aircraft** type.
3. Define and document the content and scope of a duplicate inspection check.
4. Develop procedures detailing the recording and certification of duplicate inspections within the aircraft's technical paperwork.
5. Require defined procedures, such as **Staged Work Sheets (SWS)**, for duplicate inspections during complex or lengthy tasks (e.g. an engine or gearbox replacement, where duplicate inspections are performed at key stages of the overall task to ensure the current work is properly inspected and certified, prior to it being covered by further assembly).
6. Document the training, competence and authorisation for those staff approved to perform duplicate inspections on the aircraft or components.

Means of Compliance for Requirements 1-6:

1. No further requirements.
2. Original Equipment Manufacturers' (OEM) instructions for continued airworthiness are followed when determining the need for maintenance critical tasks requiring duplicate inspections and include (but are not limited to):
 - 2.1 The installation, rigging and adjustment of flight controls;
 - 2.2 Installation of aircraft engines, propellers, transmissions, drive shafts and rotors;
 - 2.3 Overhaul, calibration or rigging of components such as engines, propellers, transmissions and gearboxes;

¹ The principle of additional inspections on critical aircraft systems is well understood and accepted. National Aviation Authorities (NAA), have given these additional inspections different titles: Duplicate Inspections by the UK CAA; Independent Inspections by CASA, EASA and the UK military; Required Item Inspections (RII) by the FAA, Dual Inspection, or Independent Check by Transport Canada. Shell uses the term Duplicate Inspections.

- 2.4 Fly-by-Wire systems, where relevant;
 - 2.5 Relevant areas previously identified from maintenance errors; and;
 - 2.6 In the absence of maintenance and inspection standards published by the OEM or National Aviation Authority (NAA); duplicate inspections shall be carried out on all flight safety sensitive maintenance tasks (see Additional Guidance).
3. The content and scope of a duplicate inspection check includes (as applicable):
 - 3.1 Correct assembly and locking of all parts that were disconnected or disturbed;
 - 3.2 Full and free movement of the system over the complete range;
 - 3.3 Correctly-tensioned cables with correct clearances at secondary stops;
 - 3.4 Operation of the control system to ensure operation in the correct sense;
 - 3.5 Separate system checks if the control system is duplicated to provide redundancy;
 - 3.6 That where different control systems are interconnected such that they affect each other, all interactions are checked through the full range of movement.
 4. Duplicate inspections are carried out by at least two authorised persons, approved by the Aircraft Maintenance Organisation (AMO) to complete the task.
 - 4.1 An inspection is first made by an engineer holding "Certificate of Release to Service (CRS)" authorisation who assumes full responsibility for the satisfactory completion of the work;
 - 4.2 The work is subsequently inspected by a second authorised person, who has not been involved in the performance of the task, who confirms that no deficiencies have been found and that the work has been satisfactory completed;
 - 4.3 Certification of duplicate inspections contain the signatures of both persons before the relevant CRS is issued.
 5. See ENG 03.07 SWS.
 6. The training, competence and authorisation procedures demonstrate that:
 - 6.1 The authorised signatories for duplicate inspections are trained and have gained experience on the specific control systems being inspected;
 - 6.2 That any staff authorised as a "second signatory" are suitably qualified by the company to carry out the inspection;
 - 6.3 That the training and authorisation process can be applied to flight crew when an operational requirement exists and there is no alternative;
 - 6.4 Records are retained to demonstrate the training, competency assessment and authorisation for all staff certifying duplicate inspections.

ADDITIONAL GUIDANCE

Flight sensitive maintenance tasks involve the assembly or any disturbance of a control system (see definition below) that, if errors occurred, could result in a failure, malfunction, or defect endangering the safe operation of the aircraft.

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

A control system is an aircraft system by which the flight path, attitude, or propulsive force of the aircraft is changed, including the flight, engine and propeller controls, the related system controls and the associated operating mechanisms.

As a second person carrying out a Duplicate Inspection is not issuing a maintenance CRS they are not required to hold CRS certification privileges.

The documented process could be detailed in the Maintenance Organisation Exposition (MOE), Maintenance Management Manual (MMM) or Maintenance Procedures Manual (MPM), or equivalent manual.

LINKS (FOR DOWNLOAD)

CASA – DIVISION 42.D.5:

https://www.casa.gov.au/sites/g/files/net351/f/_assets/main/lib100056/casrp42userguide.pdf

Transport Canada – AWN C010:

<https://www.tc.gc.ca/eng/civilaviation/standards/maintenance-aarpc-ans-c010-557.htm>

EASA – Guidance:

<https://www.easa.europa.eu/sites/default/files/dfu/Annex%20I%20to%20Decision%202016-011-R.pdf>

FAA – RII – CHAPTER 7. REQUIRED INSPECTION ITEMS:

https://www.faa.gov/documentLibrary/media/Advisory_Circular/AC%20120-16F.pdf

RELATED INCIDENT

CORRESPONDING SELF-ASSESSMENT QUESTIONS

1. Has the aircraft **operator** documented their duplicate inspections requirements?
2. Does the list of critical inspections meet the minimum requirements?

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

Bowtie 11 – Air Transport / Loss of control of aircraft maintenance activity.

IOGP REPORT 590 AMG DIFFERENCES

No differences.

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

ENG 03.04 Tools and Equipment

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Aircraft Operator Requirements

Restricted

Version 3.2 – June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirements 1-3:

1. Ensure that the Approved Maintenance Organisation (AMO) maintains a system of control for all tools and equipment that are used to perform **aircraft maintenance**.
2. Ensure that only the special tooling or test equipment specified by the aircraft or engine manufacturer, or its equivalent, is used to perform maintenance on an aircraft, unless the use of alternative tooling has been agreed by the NAA and documented.
3. Ensure those tools and test equipment requiring in-service maintenance and checking are controlled, including registration, servicing and calibration according to an officially recognised standard, and at a frequency to ensure serviceability and accuracy.

Means of Compliance for Requirements 1-3:

1. The control system includes the following:
 - 1.1 Tools, owned by the AMO or belonging to maintenance staff are secured when not in use. They are contained in locked tool kits, or a controlled tool store (which may be part of the AMO's stores system);
 - 1.2 Tools and specialised kits located in workshops, (such as sheet metal repair kits) are controlled in a manner that all can be accounted for;
 - 1.3 Tools are marked with a unique identifier and can be traced to their owner and/or tool kit;
 - 1.4 The AMO has a system for tracking items that are issued from the tool store, including the contents of each item that is issued from the store as a kit, e.g. rigging kits, or similar kits that contain individual tools, assemblies and parts of tools;
 - 1.5 Tools kits have a contents list and any unserviceable tools are identified on this list;
 - 1.6 Tools kits are part of a regular QA inspection for contents and serviceability;
 - 1.7 Any personal tool kits are arranged so it is immediately obvious if a tool is missing at the end of a duty period;
 - 1.8 All equipment used in the performance of maintenance is inspected prior to use on aircraft to ensure it is serviceable and free from foreign objects;
 - 1.9 The AMO has a system in place to ensure all tools are accounted for following maintenance, at the end of a shift, or day and prior to an aircraft being released for service; and

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

1.10 Any sub-contractors working on the AMO's premises comply with these tool control requirements.

2. No further requirements.

3. Calibration records are retained by the AMO.

ADDITIONAL GUIDANCE

LINKS (FOR DOWNLOAD)

Shell:

External:

RELATED INCIDENT

CORRESPONDING SELF-ASSESSMENT QUESTIONS

1. Does the AMO have a documented tool control system?
2. Is the tool control system effective and is it followed by maintenance staff?
3. How are tools accounted for prior to an aircraft being released to service?

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

11.

IOGP REPORT 590 AMG DIFFERENCES

No differences.

ENG 03.05 Aircraft Facilities, PPE and Stores

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Aircraft Operator Requirements

Restricted

Version 3.2 – June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirements 1-4:

1. Maintain adequate facilities and an appropriate working environment for the **maintenance** tasks to be performed.
2. Document Working At Height (WAH) requirements.
3. Document Personal Protective Equipment (PPE)
4. Maintain a controlled storage facility for **aircraft** parts, equipment, tools and material.

Means of Compliance for Requirements 1-4:

1. No further requirements – see guidance.
2. WAH policy, including any associated Risk Assessments, is in place for heights above 1.8 Meters which meets local regulation and covers, as a minimum:
 - Suitable PPE, see MOC 3;
 - WAH, without a work stand on line operations/ramp maintenance using the aircraft, designed and installed, maintenance access steps and platforms for documented, short duration, simple tasks;
 - WAH in the hangar or similar maintenance facility;
 - WAH on an suitable Aircraft Docking Stations;
 - Offsite locations, such as emergency landing sites, remote helipads and helidecks; and
 - Whilst operating for Shell, if aircraft lands at an offsite location (helideck, remote location) and requires maintenance, a Shell HSSE CF, Recommended Practice (RP), WAH 11, "Access for Helicopter Maintenance and Inspection", provides detailed guidance for this situation. This RP is available via the local Shell Technical Authority (TA1).

2.1. A documented record of all WAH access equipment, stands, lifts, harnesses etc, is maintained

3. PPE requirements meet local regulatory, company and aircraft OEM requirements, which will typically address the use of:
 - Eye Protection;

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

- Hand Protection – Gloves etc;
- Foot Protection;
- Head Protection, in conjunction with WAH requirements;
- Clothing policy.

4. The controlled storage facility includes:

- 4.1. Documented procedures covering all aspects of the aircraft stores section;
- 4.2. A specific “Goods Inwards” process that determines that all new, used or maintained parts meet the applicable standards of airworthiness prior to fitment to an aircraft or aircraft equipment. This is supported by a records system providing full traceability of each item back to its source provider;
- 4.3. Suitably trained and authorised staff to inspect and accept the relevant parts per the “Goods Inward” or “Receiving Inspection” process and perform other roles within the aircraft storage facility;
- 4.4. Suitable facilities for the storage of parts, equipment, tools and material that are secure and prevent the deterioration and damage of stored items. Where stated, the storage conditions meet the manufacturer’s instructions;
- 4.5. A dedicated suitable storage area for flammable and/or explosive material;
- 4.6. A control programme for items that require a shelf-life limit;
- 4.7. A separate and secure quarantine area for parts not meeting requirements and awaiting further action;
- 4.8. A register for all items in the quarantine area; and
- 4.9. Demonstrated control of any components, which due to their size, are held in a location outside of the secure aircraft storage facility.

ADDITIONAL GUIDANCE

Appropriate facilities and office space should be provided for all planned maintenance. This may require aircraft hangars that are both available and large enough for the planned maintenance.

Furthermore, the facilities should meet the applicable regulatory HSSE and building requirements.

Aircraft component workshops should be large enough to accommodate the components that are planned to be maintained.

Protection from inclement weather means the hangar or component workshop structures should be to a standard that prevents the ingress of rain, hail, ice, snow, wind and dust.

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

The working environment should be appropriate for the maintenance task being performed such that the effectiveness of personnel is not impaired. The working environment should be maintained such that:

- Temperature should be maintained such that personnel can perform the required tasks without undue discomfort;
- Airborne contamination (e.g. dust, precipitation, paint particles, filings, insects, etc.) should be kept to a minimum to ensure aircraft/components surfaces are not contaminated, if this is not possible all susceptible systems should be sealed until acceptable conditions are re-established;
- Lighting should be adequate to ensure each inspection and maintenance task can be performed effectively; and
Noise levels should not be allowed to rise to the level of distraction for staff or if this is not possible inspection staff should be provided with Personal Protective Equipment (PPE) to reduce excessive noise.

WAH is defined in the Shell Life Saving Rules as being above 1.8 Meters.

EXAMPLE POLICY GUIDANCE FOR WORKING AT HEIGHT ON AIRCRAFT

1. Operators should eliminate working at height outside the hangar by:
 - a. Plan work to conduct maintenance and pre-flight inspections inside a hangar using wall or ceiling mounted rails and fall arrest gear or manufacturers approved maintenance stands for fixed wing aircraft and manufacturers approved maintenance stands for helicopters.
 - b. Revising aircraft inspection programmes such that work on aircraft at height in an unprotected environment is eliminated where it does not degrade the aircraft's airworthiness.
2. If it is not reasonably practicable to eliminate the work at height and the task must be done outside the hangar, for example, on a ramp, flight line or offshore helideck:
 - a. Use collective fall protection such as an approved Mobile Elevated Work Platform (MEWP) or maintenance stand designed to fit the shape of the aircraft fuselage whenever reasonably practicable. In the case of simultaneous aircraft start-up and departures from the staging area this may mean conducting the pre-flight inspection or the maintenance task away from the staging area or planning the departure of the aircraft in such a way as to ensure that a MEWP can be safely used and not impacted by another aircraft in motion.
 - b. If the risk of injury due to a fall from height is not eliminated by (a.) above then the contractor should ensure that the distance a person can fall and therefore the effects of such a fall are minimised. This could include the use of nets or foam matting or other systems where practical to prevent contact with the ground.
 - c. Use personal protection equipment as appropriate.
 - d. For short duration, simple tasks, climbing on the aircraft should be authorised through a formal risk assessment process and demonstrating that the risk is tolerable considering

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

the environmental conditions and any other extraordinary factors¹. Equivalent to climbing up or down ladders less than 20 feet (cf. requirement 6.3 in the Working at Height manual) maintain three points of contact always with the airframe, using the integral steps, hand-holds and built in platforms. Provide supervision for the duration of the task as well as emergency rescue capability.

3. Other means of fall protection should be researched with the aircraft manufacturer such as the use of nets, the provision of anchor points or vacuum pads for tying off as appropriate to the aircraft type and its mode of use.

LINKS (FOR DOWNLOAD)

Shell:

External:

RELATED INCIDENT

CORRESPONDING SELF-ASSESSMENT QUESTIONS

1. Are the aircraft operator's maintenance facilities adequate for the level of maintenance being conducted?
2. Is the aircraft operator assessing, on a regular basis, the appropriateness and condition of third party maintenance organisation's facilities?

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

9.

IOGP REPORT 590 AMG DIFFERENCES

No differences.

¹ Risk assessment documented in the pre-flight checklist

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

ENG 03.06 Maintenance Observation Program

Shell Aircraft

Shell Group Requirements for Aircraft Operations
Aircraft Operator Requirements

Restricted

Version 3.2 – June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirement 1:

1. Implement within the **Approved Maintenance Organisation (AMO)** a programme which seeks to identify and rectify weaknesses within the organisation, through the use of formal, regular and documented observations of aircraft maintenance and its supporting processes.

Means of Compliance for Requirement 1:

1. At each operational location, the Maintenance Observation Program (MOP) programme examines and provides an assessment of a different work process each month, totalling a minimum of 12 MOP assessments per year (there is no upper limit).
 - 1.1 The programme identifies weaknesses or errors and records these within an appropriate tracking system.
 - 1.2 The AMO explores and seeks to understand and rectify each identified weakness or error, as far as practicable.
 - 1.3 The MOP programme involves maintenance personnel at all levels and engagement, communication and individual buy-in is considered when the MOP programme is launched.
 - 1.4 The overall performance of the MOP programme is included within the AMO's Quality Assurance (QA) programme.

ADDITIONAL GUIDANCE

- With small operators and limited bases, it may be a challenge to achieve 12 inspections.

Description

- The MOP programme involves an additional oversight of any work process within a maintenance organization and is considered complementary to the normal supervision activity. It is expected that this activity should be, or is, performed by supervisors or peers who understand the task at hand and/or have the experience with it. The MOP programme is expected to contain the following elements:
 - **Aim:** Identify and mitigate the causal factors that encourage staff to ignore or work round existing procedures and systems.
 - **Process:** Describe the MOP processes, procedures and forms in use.

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

- **System Review:** Determine the effectiveness with the opportunity to improve where considered necessary.

LINKS (FOR DOWNLOAD)

https://www.faa.gov/about/initiatives/maintenance_hf/losa/publications/media/losa_implementation_guideline.pdf

RELATED INCIDENT

American Airlines Flight 191 was a regularly scheduled passenger flight operated by American Airlines from O'Hare International Airport in Chicago to Los Angeles International Airport. A McDonnell Douglas DC-10-10 used for this flight on May 25, 1979, crashed moments after take-off from Chicago. All 258 passengers and 13 crew on board were killed, along with 2 people on the ground. It is the deadliest aviation accident to have occurred in the United States.

Investigators found that as the jet was beginning its take-off rotation, engine number one, on the left wing, separated and flipped over the top of the wing. The engine separation was attributed to damage to the pylon rigging structure holding the engine to the wing, caused by faulty maintenance procedures at American Airlines.

Maintenance issues, and not the actual design of the aircraft, were ultimately found to be responsible for the crash. The investigation also revealed other DC-10s with damage caused by the same faulty maintenance procedure. The faulty procedure was banned.

Comment – the faulty procedure involved maintainers not following a SB which required the engines to be removed.

Observations from Shell Aircraft audits:

Observation: Staff were seen manually carrying main rotor blades on/off aircraft rather than using the sling which is described in the AMM. On completion of the task, staff certified that the task was completed iaw the AMM (crane used etc).

Root cause: There is no crane in the hangar and no alternate procedure for manual handling. Cultural norm – “that’s the way we do it here”.

Potential remedial actions: Install a crane; go to alternate location which has a crane; develop a manual handling procedure. Remind maintainers to only sign for tasks that have been completed iaw Aircraft Maintenance Manual (AMM).

Observation: Staff were shortcutting a 120 lbs/ft torque check procedure of tail blade spindles by performing the task in situ rather than installing the spindles into a bench fixture. This was possible using a locally manufactured alternate tool which was visible to all on the tool board.

Root cause: Cultural norm - procedural non-compliance to save time. Task and duplicate inspections were certified iaw the AMM, despite no disassembly taking place. Management were aware of the practice with no intervention.

Remedial action: Removal of alternate tooling until the procedure could be validated by the continuing airworthiness department. The practice was immediately stopped.

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

Observation: Aircraft were towed with no wing walkers/team leader – which was a non-compliance with internal procedures.

Root cause: there was insufficient staff on the line; a local norm had amended the process so that a tractor driver and man on brakes would suffice; the full towing team was only used near or in the hangar.

Remedial actions: A revised procedure was developed and implemented.

CORRESPONDING SELF-ASSESSMENT QUESTIONS

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

IOGP REPORT 590 AMG DIFFERENCES

ENG 03.07 Staged Worksheets

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Aircraft Operator Requirements

Restricted

Version 3.2 – June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirements 1-4:

1. Use a work card or worksheet system to track and control all **aircraft** maintenance.
2. Use a **Staged Work Sheets (SWS)** in the performance of complex **maintenance** tasks as an integral part of the work card system and document SWS by aircraft type and model.
3. Design the SWS to reduce the likelihood that steps within a complex task are inadvertently missed.
4. Design the SWS to specifically identify the point(s) at which duplicate inspections are required as part of the task.

Means of Compliance for Requirements 1-4:

1. Work cards or worksheets contain and make precise reference to the maintenance data required for the task(s) and are protected against unauthorised alteration.
2. The revision status of the SWS is kept fully aligned with the **Aircraft Maintenance Manual (AMM)**:
 - 2.1 The SWS identifies and cross-references the AMM revision in use; and
 - 2.2 Complex maintenance tasks are sub-divided into clear stages allowing a record of accomplishment at each stage of the complete task.
3. Complex maintenance tasks:
 - 3.1 Include, but are not limited to, those tasks:
 - With multiple stages, such as removal, disassembly, test, inspection, repair and installation;
 - Involving maintenance on multiple systems; or
 - That require more than one shift to complete; or
 - Involve multiple trades and staff.
4. The SWS identifies the duplicate to be performed at key stages during the completion of the overall task and sequences them so that work is suitably inspected and certified prior to it being hidden by further assembly.
 - 4.1 Duplicate Inspections are carried out in accordance with ENG 03.03.

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

ADDITIONAL GUIDANCE

A pre-use check by the maintenance staff should be carried out to determine that the SWS and AMM are aligned. If there is a discrepancy of dates then the AMO Nominated Post Holder should be informed.

The SWS should seek to minimise the risk of maintenance error by including or identifying lessons learned from previous maintenance error investigations.

LINKS (FOR DOWNLOAD)

Shell:

External:

RELATED INCIDENT

CORRESPONDING SELF-ASSESSMENT QUESTIONS

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

11.

IOGP REPORT 590 AMG DIFFERENCES

R590 - E 3.3 refers only to the use of a worksheet system with no specific reference to the use of "staged" worksheets for complex tasks.

ENG 03.08 Fitness for Work and Fatigue Management

Shell Aircraft

Shell Group Requirements for Aircraft Operations
Aircraft Operator Requirements

Restricted

Version 3.2 – June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirements 1-2:

1. Develop and implement policies to minimise the risk of fatigue in **aircraft** maintenance personnel, with direct consideration given to shift workers.
2. Develop and implement a policy whereby **maintenance** personnel that are over the normal local retirement age are deemed to be medically fit for employment if directly engaged in aircraft maintenance or test flight activities, unless such a policy is precluded by legislation in the country of operations.

Means of Compliance for Requirements 1-2:

1. Policies to prevent fatigue.
 - 1.1 The total work periods do not exceed 12 hours in any 24-hour period. If, exceptionally, it is essential that the working period is extended, the relevant Manager approves this on a case by case basis, considering the nature of the work and the airworthiness implications.
 - 1.2 Where shifts are regularly rostered with a heavy maintenance workload to be completed through the **night**, the length of the duty period is reduced from 12 hours to a maximum of 10 hours. The bulk of work is completed by the shifts on duty up to midnight with the residue being completed by a swing shift covering the period from approximately 2300 to 0700 hrs.
 - 1.3 Each full working shift is followed by a minimum 8-hour **rest period**.
 - 1.4 At field locations where only basic accommodation is provided, a regular "time on-site, time off-site" routine is established to ensure maintenance personnel working under these conditions are not in the field for prolonged periods. The minimum acceptable ratio of time on-site to time off-site is 2:1 and the maximum period on-site does not exceed 2 months.
 - 1.5 Maintenance personnel receive a minimum of 7 days off per month of which at least 4 is in a minimum of 2-day periods; when the location or climate is arduous this is increased to minimise fatigue. The 2-day rest periods can be relaxed by written agreement with the relevant Shell Technical Authority - Air Transport (TA1) for those operations where personnel are working a back to back roster, e.g.; a 4 on/4 off working cycle.
 - 1.6 The period spent commuting to and from the operational location is considered work time when part of a regular "time on-site, time off-site" routine.

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

2. No further requirements.

ADDITIONAL GUIDANCE

The [Approved Management Organisation \(AMO\)](#) shall be encouraged to adopt a policy that requires the periodic medical examination, including eyesight and hearing tests, of all personnel engaged in maintenance activities.

It is the responsibility of the individual concerned to ensure that he/she does not report for duty or certify if he is genuinely unfit. Issues associated with mental and physical fitness, fatigue, stress, medication, alcohol and drug use may all have a bearing on "fitness to work".

Other than any specific local labour laws, maintenance personnel are not regulated by duty hour limitations. It is incumbent on the management and supervisors of the AMO to locally manage their personnel with due consideration to fatigue and the potential for human factors provoking errors in maintenance.

LINKS (FOR DOWNLOAD)

Shell:

External: [CAA CAP716 Appendix P](#)

RELATED INCIDENT

CORRESPONDING SELF-ASSESSMENT QUESTIONS

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

9, 11, 15.

IOPG REPORT 590 AMG DIFFERENCES

590 does not specifically reference a requirement for any means to test medical fitness as a condition for hiring.

ENG 03.09 Authorisations, Competence and Training (AMO)

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Aircraft Operator Requirements

Restricted

Version 3.2 – June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirements 1-6:

1. Establish and document training programmes for maintenance and management personnel.
2. Provide continuation training, including human factors training to all **maintenance** and support personnel on a two-yearly basis.
3. Develop and implement a competence assessment programme for all personnel engaged in **aircraft** maintenance and the supporting functions.
4. Develop and implement an authorisation process for all personnel performing and certifying maintenance tasks on aircraft and components.
5. Maintain a record-keeping system to support the training and authorisation processes.
6. Provide organisational training before promoting personnel into supervisory roles.

Means of Compliance for Requirements 1-6:

1. The training programme provides personnel with appropriate initial and continuation training as defined by their roles and responsibilities and includes details of the accepted training providers, training syllabi and persons/organisations responsible for training.
2. No further requirements.
3. The **Approved Management Organisation (AMO)** documents how aircraft maintenance and workshop personnel are assessed as competent prior to being authorised for tasking.
4. No further requirements.
5. A training and authorisation record is maintained for each of the AMO certifying personnel, that includes as a minimum:
 - 5.1 The person's name and, where applicable, personnel National Aviation Authority (NAA) licence number and company authorisations;
 - 5.2 The dates when training has been successfully completed;
 - 5.3 Course certificates for all relevant training; and
 - 5.4 The expiry and renewal dates for the authorisations granted.
6. Prior to promotion to a more senior position, maintenance personnel receive formal instruction in company procedures and responsibilities applicable to the new position and management training appropriate to their level in the company.

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

ADDITIONAL GUIDANCE

The training should be documented in a relevant [Maintenance Organisation Exposition \(MOE\)](#), or an equivalent document, such as a Training Manual.

The training programme can include specific aircraft type training as well as general organisational training on SMS, company procedures and internal systems/programmes linked to aircraft maintenance and any individual roles.

Continuation training is a two-way process to ensure that certifying personnel remain current in terms of procedures, human factors and technical knowledge and that the organisation receives feedback on the adequacy of its procedures and maintenance instructions.

Continuation training should include:

- changes in the organisation's procedures;
- modification standard of the aircraft and components maintained;
- human factors issues identified by accident/incident investigation; and relevant findings from Quality Assurance audits and the [Identifying Organisational Weaknesses \(IOW\)](#) process.

It should also address instances where:

- personnel failed to follow procedures; and
- the reasons why particular procedures are not always followed.

Training is provided every two-year period and can be split into several, separate elements that demonstrates that the scope is fully covered.

The authorisation process may include a system of local approvals whereby the AMO systematically approves the individual to exercise the privileges granted by the licence, endorsements or certification held on the range of equipment operated or maintained by that organisation.

LINKS (FOR DOWNLOAD)

Shell:

External:

RELATED INCIDENT

CORRESPONDING SELF-ASSESSMENT QUESTIONS

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

9, 11, 15.

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

IOGP REPORT 590 AMG DIFFERENCES

R590 requires recurrent training every three years; there is no specific reference for an **operator** to have an "authorisation process" for maintenance personnel; and there is no requirement for any additional organisational training when promoted to a supervisory role.

ENG 03.10 Foreign Object Damage

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Aircraft Operator Requirements

Restricted

Version 3.2 – June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirement 1:

1. Implement procedures for the prevention of Foreign Object Damage (FOD) during **maintenance** activities, engine ground running and flight line activities.

Means of Compliance for Requirement 1:

1. The procedures include, but are not limited to those below:
 - 1.1 The flight line is kept clear of loose and blown articles during engine running and other flight line activities;
 - 1.2 All components not fitted to **aircraft** are fitted with blanks and covers where appropriate;
 - 1.3 Exposed components, pipes and electrical connectors on the aircraft are fitted with covers or blanks during maintenance;
 - 1.4 Work areas, including ground running and flight line areas, are maintained in a clean and tidy condition;
 - 1.5 All equipment, tools and components are inspected prior to use on aircraft to ensure that they are free from foreign objects; and
 - 1.6 All tools, blanks, covers, rags, cleaning materials etc. are accounted for both during, and after maintenance.

ADDITIONAL GUIDANCE

Foreign Object Damage (FOD) is defined as damage caused to aircraft or its components by any substances or assemblies that have been allowed to invade the aircraft or aircraft components.

LINKS (FOR DOWNLOAD)

Shell:

External:

RELATED INCIDENT

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

CORRESPONDING SELF-ASSESSMENT QUESTIONS

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

2, 7, 11, 15.

IOGP REPORT 590 AMG DIFFERENCES

R590 only references checking for FOD only after maintenance activities including tool control. There are no provisions for continuation of FOD checks or management during any other activity.

ENG 03.11 Aircraft Fuel Quality

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Aircraft Operator Requirements

Restricted

Version 3.2 – June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirements 1-5:

1. Document policies, processes and procedures to assure Fuel Quality prior to delivery to the aircraft.
2. Take daily samples from each aircraft sump drain (or, in the case of large aircraft, from each main tank group).
3. Inspect and test fuel samples for contaminants and water visually and using Shell Water Detector capsule kits or equivalent detection aids.
4. Clearly label sample jars such that the aircraft and sump drain or tank group from which the sample was taken can be clearly identified.
5. Retain samples for a minimum of 24 hours, or until the next sample is taken, whichever is later.

Means of Compliance for Requirements 1-5:

1. The fuel quality control procedures are verified as adequate in the logistics chain immediately prior to the point at which fuel is received (and by default the point at which the Aircraft Operator becomes the owner or custodian of that fuel).
2. Samples that are minimum of 0.5 litre are taken, unless specified otherwise by the aircraft manufacturer.
3. Only water detection aids that are subject to shelf-life limitations are used. Shelf-life limitations are observed and detection aids are not be used beyond their published shelf-life limit.
4. No further requirements.
5. Sample jars have sealed lids and are capable of being used for a swirl test to identify foreign body contamination:
 - 5.1 Samples are stored compliance with local Health, Safety & Environment (HSE) requirements for the storage of flammable liquids.

ADDITIONAL GUIDANCE

If the Aircraft Operator owns or manages the fuel and/or installation (onshore, offshore or both), then in addition to mandatory requirements 1-5 above, the Aircraft Operator should

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

maintain quality assurance over, and test all Bulk Storage and Delivery Systems in accordance with documented procedures. Documented procedures should reference the Shell Aviation "Shell Airport [Operations Manual](#)" (SAOM) and "Shell Aviation Quality Assurance Manual" (SAQSM), or an equivalent international standard, such as the Joint Inspection Group (JIG) requirements.

The Shell Technical Authority – Air Transport (TA/1) should be contacted for detailed guidance relating to transportable fuel containers and offshore storage containers.

LINKS (FOR DOWNLOAD)

Shell: [The Aeroshell Book](#)

External:

RELATED INCIDENT

CORRESPONDING SELF-ASSESSMENT QUESTIONS

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

IOGP REPORT 590 AMG DIFFERENCES

R590 does not specifically mandate Shell Requirements 3 and 6. R590 only requires retention of fuel samples until the flight is complete, not for 24 hours.

ENG 03.12 Aircraft Refuelling

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Aircraft Operator Requirements

Restricted

Version 3.2 - June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirements 1-4:

1. Document and implement a procedure which contains provisions to ensure passenger safety and egress after a spillage or fire when refuelling aircraft with passengers embarking, on board or disembarking.
2. Prohibit any HF transmission (including HF transmissions via an HF data link) during refuelling/defueling operations.
3. Conduct and document a risk assessment for gravity refuelling considering procedures for containment of fuel spillage.
4. Document and implement a procedure that defines Helicopter Rotors Running Refuelling (RRRF) for both onshore and offshore operations.

Means of Compliance for Requirements 1-4:

1. The following procedures apply as a minimum when refuelling with passengers:
 - 1.1 Two-way communication is maintained, either by the aircraft intercommunication system or other suitable means, between the ground crew supervising the refuelling and the qualified personnel on board the aircraft.
 - 1.2 There is a minimum of two designated exits from the aircraft;
 - 1.3 The exits to be used are designated by the Pilot-in-Command (PIC) or by procedure, prior to the start of the refuelling operations; and
 - 1.4 At least one qualified person trained in emergency procedures is positioned near each designated exit door.
 - 1.5 If emergency exits are used as one of the minimum of two required exits during refuelling operations, then:
 - The exit area is clear during refuelling operations; and
 - When equipped, an evacuation slide is allowed provided that the escape route on the apron is free from obstacles.
 - 1.6 Prior to commencing refuelling operations and/or during refuelling, passengers are instructed to unfasten their seat belt.
2. No further requirements.
3. No further requirements.

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

4. Specific RRRF procedures are documented, which:

- 4.1 Include a risk assessment;
- 4.2 Include both onshore and offshore refuelling;
- 4.3 Require all staff involved in RRRF to be adequately trained;
- 4.4 Detail the control and containment of any potential fuel spillage;
- 4.5 Require a secondary exit clear when RRRF with passengers embarking, on board or disembarking;
- 4.6 Specifically prevent the use of fuel delivery nozzles which can be fixed open through ratchets or equivalent devices;
- 4.7 Require the use of pressure (closed system) refuelling where such equipment and facilities are available.
- 4.8 Ensures that RRRF using a gravity system:
 - Is only used on aircraft unable to accept pressure refuelling, or where the facility is not available offshore and where local legislation permits.
 - Utilises a 'closed loop' system, in which fuel vapour is not expelled from the refuelling point.

ADDITIONAL GUIDANCE

LINKS (FOR DOWNLOAD)

Shell:

External:

RELATED INCIDENT

CORRESPONDING SELF-ASSESSMENT QUESTIONS

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

IOGP REPORT 590 AMG DIFFERENCES

No differences.

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

ENG 04.01 HUMS – Equipment Fit and Procedures

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Aircraft Operator Requirements

Restricted

Version 3.2 – June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirements 1-4:

1. Provide helicopters that are fitted with a Health and Usage Monitoring System (HUMS) or Vibration Monitoring System (VMS).
2. Implement a secondary HUMS monitoring system using Automated Detection Tools, where one is available for the aircraft type and is supported by the Original Equipment Manufacturer (OEM).
3. Implement In-flight transmission of HUMS Data processes, or similar, where available for the contracted aircraft.
4. Document HUMS procedures.

Means of Compliance for Requirements 1-4:

1. Aircraft are fitted with OEM-supplied and supported HUMS.
 - 1.1. Variances to this requirement are referred to the relevant Shell Technical Authority - Air Transport (TA1).
2. No further requirements.
3. No further requirements.
4. Documented HUMS procedures cover the areas detailed in the HeliOffshore HUMS Recommended Practice (HO-HUMS-RP-v2.0), Sections 2-10.
 - 4.1. Procedures provide an auditable record of the actions and decisions taken and include references to maintenance work cards, where relevant.

ADDITIONAL GUIDANCE

LINKS (FOR DOWNLOAD)

Shell:

External: <http://helioffshore.org/resources/#1470060354922-46a0533e-9491>

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

RELATED INCIDENT

CORRESPONDING SELF-ASSESSMENT QUESTIONS

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

Text.

IOGP REPORT 590 AMG DIFFERENCES

R590-G Table 3 only requires installation of HUMS for aircraft on long term contract.

ENG 4.02 HUMS – Required Serviceability

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Aircraft Operator Requirements

Restricted

Version 3.2 – June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirements 1-2:

1. Document a serviceability policy for the on-board Health and Usage Monitoring System (HUMS), to detail the HUMS equipment that may be temporarily unserviceable, and include associated operating conditions, limitations and procedures.
2. Document a process to confirm that the HUMS equipment is collecting data.

Means of Compliance for Requirements 1-2:

1. The HUMS system serviceability policy and subsequent deferment is detailed in documents, such as the [Minimum Equipment List \(MEL\)](#), [Minimum Departure Standard \(MDS\)](#) or similar. The policy requires that:
 - 1.1 The main system processing unit (i.e. Data Acquisition Unit (DAU), Data Acquisition Processing Unit (DAPU), Bearing Monitor (BMU), or similar components), are confirmed to be serviceable, for all flights;
 - 1.2 The unserviceability or unavailability limitations for any other single component of the system, including individual accelerometers, is:
 - Failure while Close Monitoring - 0 (Zero) Flying Hours;
 - Failure while Normal Monitoring - 15 (Fifteen) Flying Hours.
 - 1.3. Situations where full HUMS data is not downloaded for technical reasons, such as a card failure or similar, and the system is not under close monitoring, an entry is made in the aircraft paperwork (technical log or similar) allowing for one further flight to be completed; and
 - 1.4. The deferment period for individual channels and systems are tracked as separate defects.
2. The process confirms that HUMS is collecting data is in line with HeliOffshore Best Practice Guide (BPG) Version 1.1, Section 5, Para 5.3.

ADDITIONAL GUIDANCE

The limits in this AOR are Shell specific and are not yet aligned with the HeliOffshore BPG Version 1.1. The guidance in the BPG conflicts with OEM documented procedures (A, B C Type Defects).

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

In addition, the allowance to ignore a single point above a limit conflicts with the HeliOffshore Guidance, (HUMS Tool Best Practice SGBA Tail Gearbox Bearing Energy Analysis Tool) and OEM Guidance on managing Sikorsky S92A Tail Rotor Pitch Change Shaft (TRPCS). Finally, to comply with the requirements of the TRPCS Guidance, the main system processing unit must be serviceable.

LINKS (FOR DOWNLOAD)

Shell:

External: [HeliOffshore HUMS Best Practice Guide](#)

RELATED INCIDENT

N/A

CORRESPONDING SELF-ASSESSMENT QUESTIONS

N/A

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

N/A

IOGP REPORT 590 AMG DIFFERENCES

R590 implies but does not specifically state a serviceability policy by including non-working HUMS in a MEL document as well as required download and analysis as per Shell requirements which will show whether the system is collecting data.

ENG 4.03 HUMS – Download, Analysis and Certification

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Aircraft Operator Requirements

Restricted

Version 3.2 – June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirements 1-4:

1. Establish a process for the download and initial line analysis of Health and Usage Monitoring System (HUMS) data, including all supplementary software applications, toolbars or special checks, to review threshold alerts and trends with defined intervals for offshore, onshore and search and rescue (SAR) operations.
2. Record and certify the results of the HUMS download and initial analysis in the [aircraft](#) technical log, or similar document prior releasing the aircraft to service.
3. Establish procedures for daily, second-line analysis of HUMS data for each aircraft, by HUMS Analysts who have received specialist training.
4. Where HUMS – In-Flight data transfer processes are in use on the contracted type, procedures to address warnings are in place.

Means of Compliance for Requirements 1-4:

1. The download and initial line analysis of HUMS data is as follows:
 - 1.1 For Offshore Flights, data is downloaded and analysed on every return to an operating base (bases are defined in Shell contracts) whether for passenger or crew change, or for shut down; except:
 - When the aircraft routinely returns to the original operating base at a high frequency, due to short sector lengths, the download frequency can be extended out to a period not exceeding 10 hours of elapsed flying time; or
 - If aircraft is based offshore or in a remote location, arrangements are made using portable ground stations and remote internet connections (if applicable) to provide an equivalent capability.
 - 1.2 For Onshore Flights, the system is downloaded daily, as a minimum, but when practicable on every return to the operating base; and
 - if flights are over [hostile](#), onshore terrain, data are downloaded and analysed on every return to an operating base.
 - 1.3. For SAR operations, local procedures are documented that allow for authorisation at senior management level (e.g. Operations Director, Technical Director etc.) to extend these periodicities where life may be endangered by delays due to HUMS downloads.

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

2. Procedures for dispatching aircraft for flight after the download and initial analysis of HUMS data, include the following:
 - 2.1. Where there are no HUMS alerts, the aircraft is cleared for dispatch with no further action;
 - 2.2. With a yellow, amber or intermediate HUMS alert, the dispatch of an aircraft with an extant alert is subject to **maintenance** action that is recorded and certified; or to a control process (such as close monitoring) within the **operators** continued airworthiness organisation; a record of which is kept in the approved documentation for the aircraft;
 - 2.3. With a red or high-level HUMS alert, the aircraft is not dispatched until a full analysis and, where necessary, maintenance investigation is completed, and any subsequent action is fully certified before the aircraft departs;
 - 2.4. Serviceability of the overall HUMS is in line with the requirements detailed in ENG 4.02 HUMS – Required Serviceability.
3. The procedures and analysis cover as a minimum, the following:
 - 3.1. Second Line HUMS Analysis – HeliOffshore HUMS Recommended Practice (HO-HUMS-RP-v2.0) Section 5;
 - 3.2. HUMS Specialist Support – HO-HUMS-RP-v2.0, Trending;
 - 3.3. Automated Detection Tools - HO-HUMS-RP-v2.0, Section 7;
 - 3.5. Procedures to record defects, warnings, out of tolerance conditions and rising trends that have been referred for detailed analysis, to either Aircraft Operator's HUMS specialists or the Original Equipment Manufacturer (OEM) support organisation.
4. No further requirements.

ADDITIONAL GUIDANCE

LINKS (FOR DOWNLOAD)

Shell:

External: <http://helioffshore.org/resources/#1470060354922-46a0533e-9491>

RELATED INCIDENT

N/A

CORRESPONDING SELF-ASSESSMENT QUESTIONS

N/A

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

N/A

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

IOGP REPORT 590 AMG DIFFERENCES

No differences.

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

ENG 04.04 HUMS – Supporting Processes

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Aircraft Operator Requirements

Restricted

Version 3.2 – June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for Requirements 1-6:

1. Provide a Health and Usage Monitoring System (HUMS) Ground Station to support the download and analysis of the **aircraft** system.
2. Provide HUMS Performance Reports.
3. Provide initial and recurrent HUMS training for all **maintenance** and HUMS Analysis personnel, relevant to the competency level required for their role.
4. Document and include the HUMS processes, including both line and second line analysis, in the assurance process as per SAF 03.00.
5. Maintain a Service Level Agreement (SLA), contract, or equivalent support agreement with the Original Equipment Manufacturer (OEM) that defines the support level for the HUMS system.
6. Establish, in collaboration with the OEM, an appropriate response time for HUMS-related queries, consistent with operational requirements.

Means of Compliance for Requirements 1-6:

1. HUMS Ground Station software and Data Management is in accordance with HeliOffshore HUMS Recommended Practice (HO-HUMS-RP-v2.0) - Section 4.
2. HUMS Performance Reports are in accordance with HO-HUMS-RP-v2.0 - Section 8, System Performance Reports.
3. The HUMS training programme includes initial, aircraft type specific and recurrent training and is in accordance with HO-HUMS-RP-v2.0 - Section 10.
4. The processes for the assurance of the HUMS procedures is in accordance with the HO-HUMS-RP-v2.0 - Section 12 (Quality Assurance) and Appendix 2 (HUMS Audit Guide).
5. For aftermarket HUMS systems, an agreement is in place with the OEM for the installed system that mirrors the agreements in place for systems installed by the aircraft OEM. Both agreements contain the following minimum elements:
 - 5.1 The requirement to pass aircraft data to the aircraft OEM;
 - 5.2 Contact methods and defined communication protocols, and
 - 5.3 Threshold setting and amendment protocols.
6. No further requirements.

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

ADDITIONAL GUIDANCE

LINKS (FOR DOWNLOAD)

Shell:

External: HeliOffshore HUMS Recommended Practice (HO-HUMS-RP-v2.0)

RELATED INCIDENT

N/A

CORRESPONDING SELF-ASSESSMENT QUESTIONS

N/A

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

N/A

IOGP REPORT 590 AMG DIFFERENCES

No differences.

SPO 01.01 – Aviation Security

Shell Aircraft

Restricted
Version 3.2, June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for requirement 1:

1. Establish a security programme that is proportionate to the threat against the **Aircraft Operator**, its personnel, **aircraft**, facilities and passengers.

Means of Compliance for Requirement 1:

1. The security programme:
 - 1.1. Meets **National Aviation Authority (NAA)** or other national Security requirements;
 - 1.2. Contains documented procedures that:
 - Detail preventive measures designed to reduce vulnerabilities and deter and prevent the commission of unlawful acts;
 - Describe response measures to be taken when an unlawful act has been committed against the operator;
 - Describe appropriate training and testing of personnel involved; and,
 - 1.3. Includes a process to assess security threats and vulnerabilities.

Additional Guidance:

1. Operators should consider aligning their security programme with standards and recommended practices published by ICAO in Annex 17 –Security and ICAO DOC 8973 – Aviation Security Manual.
2. If operating from public airports, operators should establish interfaces with Airport Security Plans and regularly participate in meetings with relevant authorities / stakeholders to coordinate programmes, plans and exercises.

RELATED INCIDENT

CORRESPONDING SELF-ASSESSMENT QUESTIONS

1. Does the operator have a documented Aviation Security Programme to assess, categorize, rank and mitigate potential threats against the Operator, its personnel, aircraft, facilities and passengers?
2. Has the operator established if it is subject to national / international Aviation Security Requirements?
3. Does the operator have interfaces with security programmes from the business unit, airport operators and/or any other applicable stakeholders?
4. Does the Operator’s Security programme include contingency and response procedures, and are these regularly tested, validated and amended?

LINKS (FOR DOWNLOAD)

Shell:

External:

[ICAO ANNEX 17 - Security](#)

[ICAO Doc 8973 – Aviation Security Manual](#)

SHELL AIRCRAFT GENERIC BOWTIE REFERENCE

IOGP REPORT 590 (AMG) DIFFERENCES

SPO 02.01 – Search and Rescue Operations - Helicopters

Shell Aircraft

Restricted
Version 3.2, June 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable to meet the following requirements:

SCOPE

This standard is intended to address the majority of the elements necessary for the safe operation of onshore and/or offshore-based Shell contracted SAR helicopter operations. It is not intended to act as a comprehensive SAR manual. Additionally, this Standard is not intended to address every contingency that may be present within a SAR operation, nor every rule of flight safety and good practice. It is intended to provide global Shell safety practices standardisation for SAR operations; however, any National Regulation with more restrictive guidance shall take precedence. The requirements in this Standard are to be used in addition to and complement the full aviation requirements in the Shell Group Requirements for Aircraft Operations (SGRAO).

Successful operations require the exercise of good judgment and common sense at all levels of an organisation. When the need arises, special instructions, waivers or advice regarding this Standard shall be sought from Shell Aircraft International (SAI). This Standard is not intended to cover contracted public transport for marine pilot transfer operations.

Any helicopter **operator** contracted to provide SAR service shall have previous SAR experience. The requirements contained in this document include guidance from SGRAO, Shell HSSE&SP Control Framework, UK CAP 999 "UK Helicopter Search and Rescue (SAR) – National Approval Guidance", EU No. 965/2012, "Air Operations Regulation" (EASA Ops), 14 CFR FAR Part 135 and IMO/ICAO Doc 9731-AN/958, "International Aeronautical and Maritime Search and Rescue Manual" (IAMSAR).

GLOSSARY OF TERMS

AOC	Air Operator Certificate
AFCS	Automatic Flight Control System
CAT	Commercial Air Transport
Distress Incident	Situation in which life, limb or property is imperilled.
EO-IR	Electro Optic – Infrared Imaging equipment. E.g.: FLIR (Forward Looking Infrared)

Terms in green are included in the SGRAO Glossary.

This Document is not controlled when printed. See the Change log for version control information.

EMS	Emergency Medical Services. Advanced lifesaving medical treatment provided during a SAR or MEDEVAC mission by technical crew in the back of the helicopter.
FMS	Flight Management System
FDP	Flying Duty Period – Those duty hours when a crew member is at work and includes time spent on administrative duties including time spent on travel to a work site while on company payroll (i.e. repositioning or deadheading).
FTL	Flight Time Limitations
HHO	Helicopter Hoist Operations
IAMSAR	International Aeronautical and Maritime Search and Rescue
LIMSAR	Limited SAR - A SAR service performed by a dedicated rescue helicopter and crew, where one or more SAR systems (auto hover, FLIR, search radar, long range radio, double hoist system) are temporarily inoperative or degraded, or when a crewmember is temporarily missing.
LVO Approval	Low Visibility Operations Approval – A regulatory approval allowing to conduct operations using specific procedures in reduced visibility.
MEDEVAC	Medical Evacuation – The “Rescue” of a person from a “Distress Incident”. (See definitions of “Rescue” and “Distress Incident”)
MEL	Minimum Equipment List
MER	Medical Emergency Response
NAA	National Aviation Authority
NVIS	Night Vision Imaging System
NVD	Night Vision Device
PLB	Personal Locator Beacon
Rescue	An operation to retrieve persons in distress, provide for their initial medical or other needs, and deliver them to a place of safety.
Search and Rescue (SAR) Service	The performance of distress monitoring, communication, coordination and search and rescue functions, including the provision of medical advice, initial medical assistance, or medical evacuation, through the use of public and private resources, including cooperating aircraft, vessels and other craft and installations.

SAR Readiness	<p>Duty Period: duty hours when a crew member is at work and includes time spent on administrative duties, immediate readiness or standby readiness.</p> <p>Immediate Readiness: A duty period when crewmembers are to be in close proximity to the operating base and be able to normally take off safely within 30 minutes of receipt of an authorised instruction.</p> <p>Standby Readiness: A duty period throughout which crewmembers are to be continuously contactable and in a state of readiness such that a flight may normally commence within 60 minutes of an authorised instruction.</p>
SAR Tasking	An emergency mission to search for, locate and rescue a person (or persons) in an abnormal environment, and whose life is, or may be, threatened if not removed to a place of safety or provided with immediate protection or assistance.
SAR Training	<p>A dedicated flight to improve crew proficiency and achieve currency in SAR related procedures. Can be further broken down (including emergency procedures where appropriate) to include;</p> <p>Dry training: SAR procedures/Hoisting to overland scenarios</p> <p>Wet training: SAR procedures/Hoisting to overwater scenarios (including life rafts) with no fixed hover reference</p> <p>Deck training: SAR procedures/Hoisting to vessels/platforms either stationary or moving</p> <p>SAR AFCS training: SAR procedures/Hoisting utilising the aircraft AFCS system</p> <p>Visual/Radar/EO-IR/Homer training: on-board search sensors procedure training</p>
Search	An operation, normally coordinated by a rescue coordination centre or rescue sub-centre, using available personnel and facilities to locate persons in distress.
Secondary Tasking	Other tasking performed by the SAR aircraft. May include patient transfer (hospital to hospital), aid to Civil Authority, Disaster Relief, Counter-Pollution operations, under slung loads, airborne surveillance, etc. The aircraft's primary task will, by its very nature, take priority over Secondary Tasking, and the ultimate responsibility for prioritising shall remain with the controlling authority.
Survivor	A person, other than a member of the helicopter flight- or technical crew who is to be transferred by hoist or otherwise recovered into the aircraft.
Technical Crew	Suitably qualified, current and competent dedicated members of a SAR aircraft crew, excluding Flight Crew (pilots), instrumental to the mission or task. This may include all or a combination of hoist operator, winchman, helicopter (para) medic, and survival specialist (rescue swimmer).

SAFETY

SAR operations shall be formally hazard/ risk assessed as part of the aircraft operator's Safety Management System (SMS). Additionally, safety controls for SAR operations, identified through the hazard/ risk assessment processes, shall be included in the operator's internal Quality Assurance (QA) program.

SAR PROCEDURES DOCUMENTATION

The Air Operator Certificate (AOC) holder shall be approved by the local National Aviation Authority to conduct Search and Rescue (SAR) activities if such an approval is issued in the country of operation. A Supplement in the Operations Manual forms part of the AOC, which is the "license" to perform the activities. Essentially, this supplement covers any modifications or additions to the Operations Manual that may be needed to specifically address licensing, airworthiness, technical, operational and training issues.

The SAR procedures shall be documented and include the following sections;

Administration & control	Radio & Visual communications
Authorisation & call out procedures	SAR response criteria
Crew experience & qualifications	Weather minima & limitations for SAR
Training & Recency requirements	SAR Operations; Normal & Emergency Procedures
Duties & responsibilities	SAR Hoisting; Normal & Emergency Procedures
Pre-flight preparation & briefing	Emergency care protocols (where applicable)
Search procedures	Recording of hoist cycles and SAR Reports
SAR equipment	Minimum Equipment List (MEL) Minimum Mission Essential Equipment List (MMEEL)
Performance criteria	Aircraft specification & role equipment
Fuel planning	Approved exemptions from National Regulations

5. CREW COMPOSITION

The minimum crew composition for SAR shall be no less than two pilots, one hoist operator and one winchman/survival specialist (rescue swimmer). Consideration should be given to providing a second rescue swimmer in case the first swimmer in the water is disabled during actual SAR operations.

National regulations may specify the level of medical licensing required for the technical crew. Where no regulations are in place, Shell Health shall be consulted to determine the level of medical competency required for technical crew

6. TRAINING

6.1 CHECKING AND TRAINING

Checking and training shall be conducted in accordance with a detailed syllabus approved by the National Aviation Authority, if available, or in accordance with the requirements detailed in this document. Flight crews and technical crews shall be assessed during an annual day proficiency check or **night** proficiency check where night SAR/ HHO are approved.

Helicopter SAR is a highly specialised role for helicopter pilots & technical crewmembers. A SAR crew will require a substantial amount of training in order for them to carry out the multitude of tasks effectively. SAR crew training shall include a comprehensive initial and continuation training program. Initial training shall include a comprehensive program that incorporates a ground and flight training syllabus that progresses a pilot, co-pilot, winchman and hoist operator through day onshore, offshore and night onshore and offshore SAR procedures. Continuation training shall be conducted using a comprehensive training syllabus that includes day and night training (when night SAR is possible) for all SAR crews.

Realistic training within the bounds of safe propriety is essential to the successful completion of aviation missions. Pilots and aircrew must maintain sound knowledge of operational hazards, emergency procedures, and aircraft systems, along with a high level of psychomotor skills to operate complex aircraft and systems safely and successfully. Such skills deteriorate rapidly if not exercised regularly. Pilots shall be provided with realistic training opportunities in aircraft simulators to experience demanding situations that would not otherwise be feasible due to the risks. Pilots and aircrews shall be afforded other training opportunities in-flight (e.g., hoisting, air drops, instrument approaches) and on the ground (e.g., egress and survival). Effective and focused use should be made of structured training time to maximise benefit to both individual and crew performance. The operator shall provide a detailed risk based training plan for review and approval by the Shell business unit aviation staff or SAI.

A nominated "safety cover" boat shall be underway or a SAR-capable helicopter with effective two-way communications shall be airborne or in an immediate readiness duty status in a location that enables it to render assistance in a timeframe that is appropriate to the local conditions and survival times for all rotary wing over water training flights that include the following manoeuvres:

- Prolonged over water hovering or hoist training;
- Night approaches to the water that descend below 200 feet, including fully automated and manual approaches;
- Rescue swimmer/live wet training.

Continuous visual contact with the operation shall be established by the cover boat prior to deploying the winchman/rescue swimmer to the water.

If a helicopter provides cover it shall have a hoist fitted to the aircraft and be capable of recovering the persons in the water if necessary. If a cover boat is provided it shall be able to pull an incapacitated person from the water without causing further injury.

Before starting any of the training operations mentioned above, the type of training, location (lat/long), and the number of persons aboard the helicopter will be passed to and acknowledged by the vessel or helicopter providing cover.

SAR hoist operations shall be conducted in a helicopter capable of sustaining an engine failure with the remaining engine at the appropriate power setting to provide the aircrew with the ability to transition from a hover to safe forward flight without hazard to the aircraft, suspended person(s)/cargo, third parties or property.

The ability to transition safely from a hover to forward flight after an engine failure shall be supported by approved OEM performance graphs for the atmospheric conditions in which hoisting is to be conducted.

For SAR hoist operations, once established in the operating area, the aircraft commander shall verify and update the pre-flight performance planning taking into consideration the actual atmospheric and aircraft operating conditions and confirm the ability to transition from a hover to safe forward flight following an engine failure.

Exceptions to the OEI performance requirements listed above may only be considered if authorised by the National Aviation Authority, with approved procedures, through an Ops Spec or by regulation and the operator has established risk mitigation measures for hoisting without OEI performance that have been accepted by SAL

6.2 PILOTS

6.2.1 Experience

The minimum experience levels for SAR shall not be less than the local regulatory requirements for public transport category hoist operations or equivalent. In the absence of any National Regulations with more stringent requirements the following guidelines shall apply:

Minimum Requirements	
Captain	Co-Pilot
Total hours – In accordance with the requirements of the SGRAO FOP 02.07.06.	Total hours – In accordance with the requirements of the SGRAO FOP 02.07.06.
Only aircrew with at least one year & 500 hrs previous maritime SAR experience shall be acceptable.	Previous SAR experience is preferred, but not mandatory.
Hold a valid line check certificate as a SAR Commander.	Hold a valid line check certificate as a SAR Co-Pilot.
Hold any valid specialist competency certificate as a SAR Commander appropriate to the location/contract (i.e. External Load competency, etc.)	Hold any valid specialist competency certificate as a SAR Co-Pilot appropriate to the location/contract (i.e. External Load competency, etc.)
Aircrew shall be dedicated to a SAR unit for a minimum period of 6 months.	
Successful completion of a formal SAR training course or previous SAR experience, that has been reviewed and endorsed by Shell Aircraft International, that includes at least 50 hoist cycles** conducted offshore. 20 hoist cycles** shall be at night if night operations are being conducted offshore.	
**A hoist cycle means one down-and-up cycle of the hoist hook.	

6.2.2 Proficiency Training

All SAR pilots conducting hoist operations shall complete a minimum of 14 hoist cycles within the previous 90 days, including transitions to and from the hover. In order to minimise overall risk exposure and incorporate SAR-specific emergency response procedures into flight/approach proficiency training, the use of a Shell-approved **flight simulator** that is of the same

type, model, and series as the aircraft on-contract is recommended. The table below shows the summary of proficiency training required for maritime SAR operations:

Operational Training	Criteria
Deck Training (Every 90 days)	<p>6 hoist cycles (one of each to be completed at night unless seasonal limitations preclude night training (high latitudes) - to include (minimum);</p> <ul style="list-style-type: none"> - 2 - High/trail line - 2 - Vessel Dead in the Water* - 2 - Vessel Underway <p>* Can be substituted with Vessel Underway if HOGE OEI performance requirements cannot be achieved due to atmospheric conditions.</p>
Wet training (Every 90 days)	<p>8 hoist cycles (one of each to be completed at night unless seasonal limitations preclude night training (high latitudes). - to include (minimum);</p> <ul style="list-style-type: none"> 2 - dummy/drum lifts* 2 - live lifts** 2 - basket lifts (where appropriate***) 2 - free fall rescue swimmer deployments (where appropriate***) <p>* Can be substituted with live or basket lifts</p> <p>** Where survivors face a hypothermia threat, lifting/hoisting hypothermic survivors shall be practiced.</p> <p>*** If these devices/ deployment methods are not used, it is expected that the operator will conduct four additional Wet lifts with other rescue devices for proficiency.</p>
Approaches to the water (Every 90 days)	<p>6* - FMS to Flight Director/ Auto Pilot fully coupled patterns to a hover. 3 to be completed at night (unless seasonal limitations preclude night training (high latitudes)).</p> <p>6* - Manual approaches to hover (where approved/ appropriate). 3 to be completed at night (unless seasonal limitations preclude night training (high latitudes)).</p> <p>* No more than 50% of the required approaches to the water may be completed in a Shell-approved simulator within a 90-day period.</p>

<p>Night/Simulated IMC (Every 90 days)</p>	<p>At least 3 hours' night/simulated IMC SAR training to include all SAR coupled modes and hoisting shall be conducted.</p> <p>Whenever possible (if night ops are not seasonally limited) training shall be conducted at night and not under simulated conditions.</p>
<p>Instrument Flying</p>	<p>Instrument flying proficiency shall be of a higher level than normal.</p> <p>A further one hour of general instrument flying practice during the previous 60 days (actual or simulated). To include 2 precision/non-precision approaches.</p> <p>Low level SAR Instrument Flight handling (below 200 ft.) within the previous 30 days.</p>
<p>General (Every 90 days)</p>	<p>2x - Radar to EO-IR/FLIR homing searches.</p> <p>2x* - Beacon (e.g. PLB) homing searches, as appropriate.</p> <p>2x - NVIS flights (when NVIS are approved) in the aircraft or approved full flight simulator.</p> <p>2x - Search techniques using on-board sensors/FMS and NVD's as appropriate (when NVD's are approved).</p> <p>2x - Dual hoist hook changeover. (when approved in the RFM).</p> <p>2x - Emergencies and equipment malfunctions, as required.</p> <p>2x -Confined Area Landing (CALs) if onshore SAR is contracted.</p> <p>Mountain flying & hoisting operations – amount & frequency to be defined in the SAR procedures documentation where appropriate.</p> <p>*2x - Beacon (e.g. PLB) homing searches. May be completed in a Shell-approved flight simulator.</p>

6.3 TECHNICAL CREW

6.3.1 EXPERIENCE

Only experienced and competent technical crew, preferably with past SAR experience, shall be used. Each crewmember shall successfully complete a formal training course that has been reviewed and endorsed by Shell Aircraft International. Each crewmember shall also pass annual competency (role and line) checks.

<p style="text-align: center;">Minimum Requirements</p>	
<p style="text-align: center;">Hoist Operator</p>	<p style="text-align: center;">Rescue Swimmer/ Winchman</p>

Completed a formal training course or previous experience that included at least 50 hoist cycles* conducted offshore. 20 hoist cycles* shall be at night if night operations are conducted offshore.	Completed a formal training course or previous experience that included at least 50 hoist cycles* conducted offshore. 20 hoist cycles* shall be at night if night operations are conducted offshore.
Hold a valid Line check certificate as a hoist operator.	Hold a valid Line check certificate as a rescue swimmer/winchman.
Technical Crew shall be dedicated to a SAR unit for a minimum period of 6 months.	
At least one of the SAR technical crewmembers shall hold at least a basic Emergency Medical Technician (EMT) or equivalent certification/ approved by the appropriate regulatory agency unless a stand-alone EMT or medical equivalent is serving as an additional member of the crew.	
*A hoist cycle means one down-and-up cycle of the hoist hook.	

6.3.2 PROFICIENCY TRAINING

All technical crew shall complete the minimum operational training outlined in the following table.

Operational Training)	Criteria
Deck Training (Every 90 days)	6 deck hoist circuits (One of each to be completed at night unless seasonal limitations preclude night training (high latitudes) - to include; - 2 high/trail line - 2 stretcher/basket lifts - 2 Crew Hover Trim (where appropriate) * * If not appropriate, it is expected that two additional hoists with other rescue devices will be conducted.

<p>Wet Training (Every 90 days)</p>	<p>8 hoist evolutions (One of each to be completed at night unless seasonal limitations preclude night training (high latitudes) – to include (minimum);</p> <p>2 dummy/drum lifts*</p> <p>2 live lifts**</p> <p>2 basket lifts (where appropriate***)</p> <p>- 2 free fall rescue swimmer deployments (where appropriate***)</p> <p>* Can be substituted with live or basket lifts</p> <p>** Where survivors face a hypothermia threat, lifting/hoisting hypothermic survivors shall be practiced</p> <p>*** If these devices/ deployment methods are not used it is expected that the operator will conduct four additional Wet lifts with other rescue devices for proficiency.</p>
<p>General (Every 90 days)</p>	<p>2x - Search techniques using on-board sensors (e.g. EO-IR/FLIR), and NVG's as appropriate.</p> <p>2x - NVIS flights (when NVIS are approved) either in the aircraft or approved full flight simulator.</p> <p>2x - Dual hoist hook changeover. (when approved in the RFM)</p> <p>2x - Emergencies and equipment malfunctions, as required.</p> <p>2x -Confined Area Landing (CALs) if onshore SAR is contracted. *</p> <p>*Mountain flying & hoisting operations – amount & frequency to be defined in the SAR procedures documentation where appropriate.</p>

7. HELICOPTERS, EQUIPMENT AND OPERATIONS

The Shell Group has established specific requirements to ensure any aircraft contracted for SAR activity shall be a late generation model with the performance, range and experienced crew composition to enable safe SAR operations.

It is recognised that some Operations do not permit helicopter rescue from the water due to various limitations such as: limited helicopter performance, national restrictions or contractual requirements. In this case, the role of any Shell contracted helicopter shall be limited to "search" activities whilst directing marine rescue vessels or other SAR assets to the scene of incident.

7.1 HELICOPTERS

When selecting a suitable SAR helicopter, the following shall apply:

- The SAR helicopter shall be a late generation twin-engine aircraft with the equipment fit identified in Section 7.2 and shall be operated in accordance with the requirements stated in Section 6;

- Range and endurance of the SAR helicopter shall be able to cover the area of operations; and
- The helicopter shall be of a size and weight to be able to land to many helidecks within the area of operations and be able to hoist to all the helidecks within the area of operations.

7.2 EQUIPMENT

High specification communications, navigation and search aids are fundamental to helicopters operating in a search, rescue and recovery role. Therefore, they must carry equipment that enables the flight crew to communicate with all the agencies and resources involved in an incident, comprehensive navigation equipment, and specialist search aids to locate and rescue survivor’s/recover casualties from the sea. The table below provides the minimum equipment approved for use and required for a SAR helicopter.

Equipment	
Equipment Item	Outline Specification
Airframe	<ul style="list-style-type: none"> • Twin Engine with Single-Engine HOGE capability. • Meets the minimum Shell Group requirements for offshore helicopters equipment fit on long-term contracts. • Bubble windows located at each side of the fuselage (where available). • Automatic Flight Control System • 4 Axis Auto pilot (Auto Hover System) • Dual RADALT • Wide Area Augmentation System (WAAS) with Localizer Performance with Vertical guidance (LPV) capability / GPS
Primary Rescue Hoist	<ul style="list-style-type: none"> • Dual, permanently mounted, electrically powered • Variable speed unit • Load capability of at least 600 lbs (272 kg) • Cable length of at least 290 ft. (85 m) • Hoist speeds with a minimum of 150 ft./min • Hoist fitted with guillotine (cable shear function) operable from the hoist operator and pilot’s positions
External lighting	<ul style="list-style-type: none"> • Rotatable landing/search lights • Fixed winch area flood lights • Manually operated search light at winching position • Door/Hoist mounted hoist operator hand lamp

<p>Communication Equipment for SAR Role</p>	<ul style="list-style-type: none"> • Satellite communications, may be a part of the satellite tracking system • Multi-channel VHF (AM) Air Band • Multi-channel VHF (FM) Marine Band • Multi-channel UHF (if appropriate to area of operations) • Winchman's waterproof radio for communicating with flight crew throughout SAR operation
<p>Homing Equipment</p>	<ul style="list-style-type: none"> • Multi-frequency homing, equipment on VHF (AM), VHF (FM) 406 MHz and UHF.
<p>Search Radar</p>	<ul style="list-style-type: none"> • Capable* of detecting a 6-10-person life raft in wave heights of 2-5 ft. • Capability is based on the table for "Sweep Widths for Forward-Looking Airborne Radar" in the US National Search and Rescue Supplant to IAMSAR. In wave heights >6 ft. the Sweep Width is 0 for a 6-10-person life raft. Sweep Width is defined as: A measure of the effectiveness with which a particular sensor can detect a particular object under specific environmental conditions.
<p>Search Sensor</p>	<ul style="list-style-type: none"> • Suitable Electro Optic – Infrared sensors
<p>Night Vision Imaging System</p>	<ul style="list-style-type: none"> • Helmet mounted NVIS for Pilot, Co-pilot and hoist operator. (Optional, if not approved by the local Regulator)
<p>Navigation Equipment</p>	<ul style="list-style-type: none"> • Area Navigation System – with multi sensor inputs including GPS and VOR/DME • Electronic Horizontal Situation Indicator (E-HSI) • Offshore precision approach capability (OSAP, NDB-ARA, etc.)
<p>Miscellaneous Equipment</p>	<ul style="list-style-type: none"> • One pair bolt croppers or similar equipment • 2x Dispatcher harness for crew restraint • 3x Single lift strops and static line • Stretchers as appropriate to the operating environment • FM Marine Band hand held radios • Side facing passenger/survivor seats. When required by type of operation, must be approved by the OEM and meet FAR/JAR 29, CS-29 requirements

Medical Equipment	<ul style="list-style-type: none"> The type of medical equipment to be carried is to be directed by local National Regulation and based on level of medical support/ accreditation of the medical persons on-board the aircraft.
-------------------	---

7.3 OPERATIONS

The standards for SAR crew readiness, flying duties and rest periods shall meet the Shell Group minimum requirements (see 7.3.4) and shall be clearly stated in the SAR procedures documentation. There shall be sufficient numbers and type of personnel to provide 24 hours, 365 days/year coverage and the total number assigned shall be consistent with the SAR operations schedule. This can either be delivered through 12 or 24-hour shift rotations but the corresponding FTL and rest period minimums shall be adhered to and not mixed. These provisions are only to be used by flight and technical crew employed on dedicated SAR operations.

Maintenance and Operations support and services shall be designed to support and cover the operation for 24-hours and attend to all routine and call-out flight coordination and planning, flight inspections, fault diagnosis, scheduled & unscheduled maintenance, etc.

In the event that the primary SAR helicopter is not available to meet the readiness state, a replacement or back-up helicopter should be provided within one hour from the time of the unserviceability being declared. If a replacement or back-up helicopter is not available or is available with reduced capability, the Shell Business Unit shall develop a risk/ exposure reduction plan to continue operations with reduced SAR coverage.

7.3.1. Weather Minima

Weather requirements for SAR operations will be implemented in accordance with National Regulations and the operators' SAR Approval. If no such weather minima are provided, all SAR operations (training and operational flights) shall be conducted in accordance with either the national requirements for CAT operations or Shell weather minima documented in the SGRAO FOP 01.06, the more conservative weather minima (higher ceiling and visibility) will apply. Night flights shall be flown using only IFR procedures and minimums where available and authorised by the National Aviation Authority, otherwise the night weather requirements in SGRAO FOP 01.06 shall apply.

7.3.2. Low Visibility Operations (LVO)

LVO operations shall be approved and conducted in accordance with National Regulations and operator's SAR approvals. Where National Regulations are silent on the subject, EASA Air Operations, Annex V, Part SPA, Subpart E shall be used.

7.3.3. Night Vision Imaging Systems (NVIS)

The use of NVIS shall be approved and conducted in accordance with National Regulations. Where National Regulations are silent on the subject EASA Air Operations, Annex V, Part SPA, Subpart H shall be used. Where NVIS are used, an annual proficiency check is required for both flight and technical crews in the aircraft or in a Shell-approved full flight simulator. Where NVIS are used during SAR, a proficiency check is required in the aircraft to demonstrate proficiency during hoist operations.

7.3.4. Continuous 24-Hour Duty Period

If a crew member is rostered for a continuous 24-hour duty period, the following provisions shall apply:

- SAR crews assigned to 24-hour duty where allowed by National Regulation and where only training and currency flights are conducted shall have no less than 12 hours of on-call rest per 24-hour period which is reducible to 11 hours where accommodation is close to the place of work. When reducing the required 12 hour on-call rest period to 11 hours, the place of accommodation shall be no more than 30 minutes from the place of work under normal conditions. These requirements apply to both pilots and technical crew.
- Where SAR Technical Crew are drawn from Maintenance or Operations staff, they shall only conduct tasks directly associated with their responsibilities as a SAR crewman for the SAR aircraft whilst on duty.
- Consideration should be given to conducting SAR training flights after the on-call rest period and at the beginning of the standby period.
- The duty period shall be followed by a minimum off duty period of 24hrs.
- A crew room with comfortable seating and facilities for meals and refreshments shall be available for the immediate readiness period.
- The SAR procedures shall clearly state if, when, and how these regulations can be adjusted in exceptional circumstances in order to maintain operational SAR readiness. It shall also include an auditable management information, authorisation and reporting process to record any adjustment, including a recorded assessment by the individual and/or crew SAR Commander of fatigue level, weather and/or nature of tasking as appropriate before accepting any change.
- If the crew have been called out from a period of standby readiness, then only distress/SAR operations or flights required to maintain an operational SAR state shall be flown in the remainder of that duty period. The SAR procedures documentation shall cover this topic in detail.

7.3.5 12 Hour Standby

The current Commercial Air Transport **Flight Time** Limits documented in SGRAO FOP 04.03 (Maximum flight Duty Period (FDP) – Helicopters), 5 shall be followed with the following provisions.

A SAR Commander, having taken into consideration the circumstances of the crew, may exercise his discretion to extend an FDP in order to continue urgent SAR operations. If an FDP is extended, then the subsequent rest period shall be a minimum of 12 hrs. Any such extension shall be recorded and audited in accordance with published SAR procedures documentation.

8. SAR/MEDEVAC/CAT OPTIONS

8.1 PRIMARY SAR

This is a specialist helicopter providing SAR support including offshore day and night hoisting capabilities. This aircraft would be dedicated to the SAR task and require a high level of recurrent crew training with sufficient crew numbers to allow 24 hr availability for day and night operations. As a dedicated resource, the aircraft is available at very short notice with mission availability of 100%.

A second standby SAR aircraft may also be available. This should be a SAR modified aircraft but its primary role can be passenger transport. As a secondary task it should be capable of providing the same level of SAR support as a Primary SAR aircraft. Normally when called upon to conduct SAR, the aircraft would have to be fitted with all of the specialist SAR equipment which includes hoist, FLIR, etc. SAR crew operating the second standby aircraft shall meet the same qualification and recency requirements as Primary SAR crew.

8.1.1 Limited SAR (LIMSAR)

Primary SAR can be temporarily downgraded to LIMSAR, as stated in the Glossary, in the event of either;

- a. An aircraft that does not fully meet the equipment fit standards or when one or more SAR systems (auto hover, FLIR, search radar, long range comms, double hoist system) are temporarily inoperative or degraded. The lack of complete SAR equipment/system fit on the aircraft may require weather limits to be increased, sea state limits to be reduced, or entire procedures, e.g. hoisting at night, to be prohibited.
- b. SAR team is temporarily missing one SAR technical crewmember.

Enhanced **Operational Control** (EOC) procedures shall be developed to launch a LIMSAR aircraft into conditions beyond its documented capabilities.

8.2 MEDEVAC

Response to a SAR request and an associated request for a MEDEVAC shall be risk based. By definition, a MEDEVAC is the rescue of a person in a distress incident in which life, limb or sight is imperilled. Therefore, a MEDEVAC for a person in a distress incident shall be conducted as a SAR mission in accordance with the operator's SAR or MEDEVAC approval and the alleviations permitted by the Regulator. However, the transport of persons not in distress (when a medical professional determines that an illness or injury does not warrant an immediate evacuation) shall be conducted under National/EASA CAT requirements even if the mission is conducted by a contracted SAR operator capable of operating to the alleviations in their SAR or MEDEVAC approval. The final determination if a person is in distress and in need of an immediate MEDEVAC shall be made by a suitable medical professional through the process documented in the Company's SAR/ MEDEVAC call-out procedures.

Where aircraft operators are only approved to conduct a "MEDEVAC" using CAT requirements by the National Aviation Authority under a "MEDEVAC approval", they may do so for both persons in distress and non-distress, however, in both cases the flights shall be operated to CAT requirements. Aircraft that conduct MEDEVACs shall be suitably equipped for the task.

8.3 COMMERCIAL AIR TRANSPORT HELICOPTER HOIST OPERATIONS (CAT HHO)

Helicopters shall only be operated for the purpose of CAT HHO if the operator has been approved by the competent authority. All CAT HHO aircraft shall comply with National or EASA CAT regulations or the requirements of this document when they are more conservative (training requirements, crew experience and qualification, etc.). This can be a dedicated SAR aircraft and crew in this case, however, the aircraft does not fully meet the equipment fit standards and the crew may not be fully trained or proficient in all SAR manoeuvres, therefore limiting their SAR response capabilities. The lack of specialised equipment on the aircraft and training by the crew may require weather limits to be increased, sea state limits to be reduced or entire procedures, i.e. hoisting at night, to be prohibited. Except where authorised by a SAR approval during an operational distress mission (MEDEVAC), CAT HHO shall be capable of sustaining a critical engine failure with the remaining engine(s) at the appropriate power setting without hazard to the suspended person(s)/cargo, third parties or property. A thorough assessment of the operators CAT HHO capabilities shall be conducted prior to contracted operations. Response limitations shall be documented in the organisations ERP and call-out procedures. Enhanced Operational Control (EOC) procedures shall be developed for a launch of an HHO aircraft into conditions beyond its documented capabilities.

9. RESPONSE TO OFFSHORE MEDICAL EMERGENCIES

MEDEVACs shall be conducted in accordance with the guidance in Section 8.2 of this document. The Shell Group's Emergency Response Management Manual requires each business unit (BU) to "Establish and maintain a medical Emergency Response Procedure as part of the overall Emergency Response Plan The HSSE&SP Control Framework Emergency Response Management Specification requirement details the required medical response times. In all cases, BU's shall comply with Section 11.6.2 of this manual. Additionally, as stated in the requirement, "When response times above cannot be met, perform a Risk Assessment and provide medical Emergency Response Risk Mitigation measures to verify that the Risks are As Low As Reasonably Practicable (ALARP). Remote health care will be evaluated in the ALARP assessment". This Risk Assessment shall also address the requirements documented in Sec 11.8 of this manual.

10. CENTRAL SAR COORDINATION

Formalised, documented procedures shall exist to provide a SAR authorisation process including 'authorisation to launch'. This process shall be integrated within the wider BU's Emergency Response Plan taking care that all search and rescue facilities such as; Rescue Coordination Center (RCC), local or national assets and contracted marine vessels are included in the interface arrangements. The method by which coordination is achieved may vary depending on the location of the activity.

Additional Guidance:

RELATED INCIDENT

CORRESPONDING SELF-ASSESSMENT QUESTIONS

LINKS (FOR DOWNLOAD)

Shell:

External:

SHELL AIRCRAFT GENERIC BOWTIE REFERENCE

IOGP REPORT 590 (AMG) DIFFERENCES

590 is much less detailed than OTH 2.00.

SPO 04.01 Land Seismic and Heli-rig Operations

Shell Aircraft

Restricted

Version 3.2, January 2020

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for requirements 1-2:

1. Conduct all Land seismic and Heli-rig operations in accordance with the requirements detailed in International Association of Oil & Gas Producers (IOGP) Report 420 "Helicopter Guidelines for Land Seismic and Heli-rig Operations".
2. Provide suitable crash equipment at the base camp or staging areas, in addition to firefighting equipment.

Means of Compliance for Requirements 1-2:

1. When using IOGP Report 420 for Land Seismic and Heli-rig operations the following conditions are met:
 - 1.1. Where IOGP Report 420 uses the term "should", the term "shall" is substituted; and,
 - 1.2. Where reference is made in IOGP Report 420 to the IOGP "Air Management Guide" (AMG), Report 590 V2, May 2017, reference is instead made to the appropriate section of the SGRAO AORs as detailed in the table below and any questions on the application or interpretation of Report 420 is directed to the Shell Technical Authority – Air Transport (TA/1):

IOGP 420 Reference	Subject	AORs Reference
2.1	HSSE MS Requirements	SAF 00.00 - SAF 04.00.
3.1.1	Flight Crew and Engineer Qualification and Experience requirements.	FOR 04.02, ENG 2.06 and ENG 03.09.
3.2.1	Flight Crew Training	FOR 05.01 - FOR 05.07
5.1.4/ 5.1.6	Helicopter performance and type	SGRAO – I-Business Processes
5.4.1/ 5.4.2	Helicopter Equipment fit	FOR 07.01
5.4.4	Minimum Equipment List	FOR 02.08
9.3	Flight and Duty times for Flight Crews	FOR 06.01 – FOR 06.06.

2. Crash equipment is kept in a crash box, suitable for rapid deployment, in the vicinity of the base camp / staging area;
 - 2.1. Where more than one helicopter is in operation, this same crash equipment is available for rapid loading into one of the helicopters, for transport to a remote crash site;
 - 2.2. Crash equipment includes;
 - Fireman type axe;
 - Large axe;
 - Heavy duty hacksaw with 4 spare blades;
 - Grab hook with long handle or 30 meters of 10 mm non-plastic rope;
 - Harness knife with sheath;
 - Heavy duty crowbar of 1-meter length;
 - 24-inch (61 cm) bolt cutters;
 - 2 Pairs flameproof gloves;
 - 2 Torches (flashlights) with spare batteries;
 - 10 Inch adjustable spanner/wrench;
 - 2 Fire blankets;
 - Wire cutting pliers;
 - 1 set assorted screwdrivers;
 - Straight metal ladder (8 ft. minimum).

Additional Guidance:

RELATED INCIDENT

CORRESPONDING SELF-ASSESSMENT QUESTIONS

LINKS (FOR DOWNLOAD)

Shell:

External: [IOGP Report 420 – Helicopter Guidelines for Land Seismic & Helirig Operations, Version 1.1, June 2013](#)

SHELL AIRCRAFT GENERIC BOWTIE REFERENCE

IOGP REPORT 590 (AMG) DIFFERENCES

590 page 6 (very bottom) references Report 420 as the guidance Document.

SPO 05.01 Aerial Pipeline Inspection

Shell Aircraft

Restricted
Version 2, January 2018

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for requirements 1-4:

1. Document the procedures for Aerial Pipeline Inspection to flight crew and other personnel engaged in the [Flight Operations Manual \(OM\)](#).
2. Document that the minimum flight crew required for the operation is never less than a pilot and a trained observer.
3. Assign flight crew that meet requirements for Aerial Pipeline Inspections as well as the general experience and qualification levels as detailed in FOR 04.02 and FOR 04.03.
4. Develop and document a hazard risk analysis appropriate for the mission and area of operation prior to commencing the inspection.

Means of Compliance for Mandatory Requirements 1-4:

1. The procedures for Aerial Pipeline Inspection include as a minimum:
 - Cockpit procedures;
 - Crew responsibilities;
 - Sterile cockpit procedures;
 - Weather minima;
 - Procedures for inadvertent entry into cloud;
 - Procedures to perform "unplanned landings¹";
 - Optimum operating heights;
 - Traffic deconfliction;
 - Use of transponder;
 - Low level operation and Restricted areas; and
 - Flight following.
2. When the observer is not a trained pilot subject to formal aircrew annual safety training and testing, a safety briefing is completed prior each flight that includes the following:
 - 2.1. The primary responsibility of the crew member to act as an observer;
 - 2.2. The necessity to maintain a good lookout for hazards when not occupied with survey duties and to advise the pilot accordingly;
 - 2.3. A map briefing pointing out all known hazards; and
 - 2.4. The minimum altitude for the flight.

3. Additional requirements for Aerial Pipeline Inspections crew are:
 - 3.1. Have completed successfully a pipeline route check for the route to be flown unless for a newly established route;
 - 3.2. Hold a valid instrument rating;
 - 3.3. Have completed 50 hours in Command patrol survey time in the previous six months; and
 - 3.4. Have completed a minimum of 10 hours on the contracted **aircraft** type conducting pipeline operations within the preceding 90 days, or has completed successfully a pipeline line check within the preceding 90 days.
4. The Sterile cockpit policy contains guidance in the following elements;
 - Key altitudes/flight phases;
 - Restriction of unnecessary conversation; and
 - Absence of paperwork completion.
5. Procedures following inadvertent entry into cloud are documented and practised during pilots' base checks.
6. Helicopter Operators have a section in the Operations Manual on unplanned landings² that includes guidance on the justification for such a landing, landing site selection, helicopter performance class, informing base or ATC of the intention to land, and recording the landing event. Pilot training and line-checking includes both normal and emergency procedures for unplanned landings.
7. The aircraft **Operator** defines the optimum operating height to be maintained during the mission. Recommended optimum heights are between 500 and 700 feet AGL for helicopters and 1000 feet for fixed wing aircraft, which is above the majority of military low-level operations but low enough to conduct a thorough inspection.
8. Transponders are always be turned on even if operating outside controlled airspace or in remote areas.
9. For pipeline inspections that are flown below normal minimum operating altitudes and through restricted areas, the aircraft operator obtains an exemption from the regulatory authority to conduct low-level operations.
10. The Aircraft Operator coordinates with other airspace users using a notification system if available in the country of operation.

² The procedures for "unplanned landings" are only applicable to helicopter operations.

Additional Guidance:

RELATED INCIDENT

4th August 2016 – fatal accident in Louisiana, US. Single pilot in a Schweizer 300.

CORRESPONDING SELF-ASSESSMENT QUESTIONS

LINKS (FOR DOWNLOAD)

Shell:

External:

SHELL AIRCRAFT GENERIC BOWTIE REFERENCE

IOGP REPORT 590 (AMG) DIFFERENCES

590-S1 is specific to Pipeline inspections but does not address Requirements 1,2,& 4 of FOP 05.04.

SPO 06.01 Marine Pilot Transfer - Helicopters

Shell Aircraft

Restricted

Version 2, January 2018

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for requirements 1-8:

1. Document procedures for Marine Pilot Transfer and make these available to flight crew.
2. Develop and document procedures to verify compliance with those described in the International Chamber of Shipping (ICS) guide, for the **helideck**, or hoisting area, along with associated facilities such as manning, fire-fighting and emergency equipment, passenger handling facilities and procedures, radio equipment, safety systems and training. Conduct an audit prior to the first transfer and annually thereafter to ensure that the required standards are maintained.
3. Conduct all marine pilot transfers to a landing area with adequate size and obstacle clearance for the helicopter being used; if a landing cannot be performed on the vessel, hoist operations shall be carried out to an approved landing or hoisting area using a minimum crew of two Pilots and one hoist **operator**.
4. Conduct all marine pilot transfer hoist operations in accordance with Commercial Air Transport (CAT) Helicopter Hoist Operations (HHO) requirements with an approval from the competent authority. **Aircraft** conducting CAT-HHO shall be capable of sustaining a critical engine failure with the remaining engine(s) at the appropriate power setting without hazard to the suspended person(s)/cargo, third parties or property.
5. Provide a minimum standard of competence training to pilots and hoist operators.
6. Provide a full emergency briefing to passengers which shall include the wearing of and use of survival equipment, in the 24 hours prior to a flight. If the transfer involves hoisting then the briefing shall also include practice with donning and using the lifting harness, as well as other hoisting procedures and crew signals.
7. Provide a minimum standard of helicopter and passenger safety and survival equipment appropriate to the task and environment.
8. Hoists and all associated equipment shall be maintained under a documented **maintenance** schedule prescribed in the Operators approved maintenance program.

Means of Compliance for Mandatory Requirements 1-8:

1. The procedures for Marine Pilot Transfer contain as a minimum:
 - 1.1. Responsibilities of crew members;
 - 1.2. Equipment standards;
 - 1.3. Pre-flight responsibilities;
 - 1.4. Weather limitations;

- 1.5. Communications;
 - 1.6. Procedures at the hoisting area;
 - 1.7. Approach and departure procedures; and
 - 1.8. Emergency procedures.
2. The minimum standard of competence training to pilots and hoist operators include the following:
 - 2.1. 3 offshore transfers in the preceding 90 days;
 - 2.2. HUET training from an approved training provider at least every 4 years;
 - 2.3. A formal initial training course for Pilots and Hoist operators shall be completed and include at least 50 hoist cycles, of which at least half must be offshore. They shall pass annual competency checks and retain currency by having completed at least three offshore transfers within the preceding 90 days or a line check prior to operations to demonstrate hoisting proficiency; and
 - 2.4. If **night** operations are approved, a minimum of 50 hoist cycles conducted offshore, of which 20 cycles shall be at night if night operations are being conducted offshore, of which 20 cycles shall be at night if night operations are being conducted, where a hoist cycle means one down-and-up cycle of the hoist hook.
 3. The minimum standard of helicopter and passenger safety equipment include:
 - 3.1. Constant-wear lifejackets;
 - 3.2. Emergency clothing and equipment as appropriate;
 - 3.3. Life raft with rated capacity 50% above the normal maximum number of passengers;
 - 3.4. Specialist hoisting equipment including at least a helmet for person being deployed / recovered, dispatcher harness for hoist operator, cable cutters to cut cable in emergency and a leather glove to tend the hoist cable; and
 - 3.5. Search lighting/illumination from helicopter for night operations.
 4. Procedures and shipboard facilities meet the standards laid down in the International Chamber of Shipping (ICS) - Guide to Helicopter/Ship Operations, Fourth Edition, 2008.
 5. The aircraft operator has an approved Aircraft **Flight Manual** Supplement outlining the operation, limitations, and emergency procedures of the helicopter and hoist during hoisting operations.
 6. Hoisting to a bridge wing at night is not be conducted. Hoisting to the bridge wing is only conducted:
 - 6.1. During daylight;
 - 6.2. When no other suitably designated/marked landing or hoisting area is available; and
 - 6.3. After completing a hazard and risk assessment and has been approved by Shell Aircraft, the ship's master and helicopter operator.
 7. Aircraft Emergency equipment briefing is completed by displaying a video with the specifics of the emergency equipment or practice on the ground with the aircraft shut down.
 8. Calculation of hover performance includes the following factors:
 - 8.1. 100% of forecast wind <10 kts is never used to calculate performance;
 - 8.2. 50% of forecast wind speed is used when wind speed is more than 10kts; and
 - 8.3. 80% of reported wind may be used provided an approved and calibrated anemometer is available.

Additional Guidance:

RELATED INCIDENT

CORRESPONDING SELF-ASSESSMENT QUESTIONS

N/A

LINKS (FOR DOWNLOAD)

Shell:

External:

[CAP 437 – Standard for Offshore Helicopter Landing Areas, February 2013.](#)

Guide to Helicopter / Ship Operations, International Chamber of Shipping, Fourth Edition, 2008.

SHELL AIRCRAFT GENERIC BOWTIE REFERENCE

N/A

IOGP REPORT 590 (AMG) DIFFERENCES

SPO 07.01 Airborne Geophysical Survey

Shell Aircraft

Restricted

Version 2, January 2018

MANDATORY REQUIREMENTS

The Aircraft Operator is Accountable for requirements 1-9:

1. Define the procedures for airborne geophysical survey are documented and available to all flight crew members and personnel involved the preparation and execution of survey missions.
2. Develop and document a risk analysis appropriate for the mission and area of operation.
3. Comply with defined minimum survey speeds.
4. Roster crews that comply experience requirements in addition to those described in FOR 04.02 and FOR 04.03.
5. Document pilot flight and duty time limitations in addition to those described in FOR 06.01 – 06.06.
6. Document that a minimum fixed fuel reserve of 30 minutes flying time at cruise consumption rate shall be required for all survey operations. If, during deployment to and from the survey area a fixed wing aircraft is flown under IFR conditions, a variable reserve of 10% shall be added to the fixed fuel reserve.
7. Verify that all portable refuelling units with a bladder or drum stock shall be fitted with Go/No-Go filters. Water detector paste shall be used to test AVGAS from drum stock, and "Shell Water Detector" capsules used for Jet A-1. Storage control, purity control, grounding/earthing systems and security of fuel supply shall be documented in fuel planning procedures;
8. Provide all occupants involved in geophysical flying operations with the appropriate personal protective equipment.
9. Verify that provisions for Search and Rescue (SAR) during survey operations are properly coordinated.

Means of Compliance for Mandatory Requirements 1-9:

1. Minimum survey speeds fixed wing are:
 - 1.1. 130% of clean stall speed (V_s);
 - 1.2. Minimum survey speed shall be observed even after "zoom" climbs and shall be increased as necessary to account for local conditions such as turbulence and gusty winds.
 - 1.3. In addition to requirement 5, crews operating internationally must comply with flight and duty limitations of the country in which they are operating if so required by that country's aviation regulatory authority.
 - 1.4. 110% of best single engine rate of climb speed (V_{yse} , if applicable); and
 - 1.5. Minimum safe single engine speed (V_{sse} , if published).

2. A crew for airborne geophysical surveys:
 - 2.1. Has successfully completed a geophysical training programme;
 - 2.2. Where applicable, has successfully completed a mountain flying course;
 - 2.3. Has flown at least 300 hours in airborne geophysical operations of which at least 100 hours as a **pilot in command** or In Command Under Supervision (ICUS) in airborne geophysical operations;
 - 2.4. Flown 50 hours command or ICUS on geophysical survey in the contracted aircraft type; and
 - 2.5. Completed 10 hours command or ICUS in the contracted aircraft type conducting geophysical operations within the preceding 90 day or successful completion of a geophysical line check of at least two hours (excluding ferry time) within the preceding 90 days.
3. Flight and duty time limitations for airborne geophysical surveys are:
 - 3.1. Single pilot operations:
 - 5 hours per day on actual survey (transit time excluded); and
 - 34 hours total in any consecutive 7 days (inclusive of transit time).
 - 3.2. Two pilot operations:
 - 7 hours per day on actual survey (transit time excluded); and
 - 34 hours total in any consecutive 7 days (inclusive of transit time).
4. The minimum crew for all airborne geophysical surveys is a pilot and a geophysical **operator**.
 - 4.1. Single crew operations being the pilot as the sole occupant should not be permitted unless survey equipment can be operated automatically without significant inputs from the pilot during flight and this has been assessed and authorized by SAI.
 - 4.2. If a Co-Pilot is carried he/she must have successfully completed a geophysical training programme.
 - 4.3. Where applicable a mountain flying course shall be included and must complete the following:
 - 10 hours on low level survey operations;
 - 4.4. Manipulation of the flight controls at survey height by a co-pilot shall be restricted to those flights where the aircraft captain is an approved check and training or supervisory captain.
5. A risk analysis must be provided by the Aircraft Operator prior to the commencement of any geophysical survey.
 - 5.1. The analysis must demonstrate satisfactory performance margins related to the topographical area of operations, discuss minimum speeds and heights to be used and provide an insight to all perceived areas of risk and should contain but is not limited to the following:
 - Terrain relief and vegetation;
 - Aircraft type;
 - Aircrew flight and duty times;
 - Prevailing weather conditions;
 - Anticipated density altitude;
 - Pilot experience and recency;
 - Planned flight speed.

- 5.2. The International Airborne Geophysics Safety Association (IAGSA) provides a comprehensive risk assessment tool specifically for geophysical survey purposes, a satisfactory review using this tool would normally satisfy risk analysis requirements;
6. Aircraft Operators contracted for geophysical survey flying should be members of IAGSA;
7. All non-standard modifications fitted to the aircraft shall be certified by the relevant aviation regulatory authority and be acceptable to SAI;
8. The utilisation of a satellite/VHF automatic flight following system overcomes many of the difficulties and limitations associated with conventional radio communications.
9. Personal protective equipment shall consist of at least:
 - 9.1. A flying helmet meeting industry safety standards;
 - 9.2. Non-synthetic or fire blocked/retardant trousers and shirt;
 - 9.3. Cotton undergarments;
 - 9.4. Appropriate work boots or shoes;
 - 9.5. Life jackets and immersion suits depending on water temperatures if flight is outside safe auto-rotative/gliding distance from land; and
 - 9.6. A personal emergency locator beacon.
10. Provision SAR during survey operations shall be coordinated according to the following:
 - 10.1. Radio contact with an appropriate organisation holding Search and Rescue (SAR) responsibility shall be maintained during the operation;
 - 10.2. A SAR plan shall be established, and daily SAR briefings shall be given prior to any flying activity;
 - 10.3. Where a base camp holding SAR for aircraft on survey is available a radio net shall be established between the base camp and the aircraft on survey for the duration of the exercise. Where terrain or geophysical equipment prevents constant radio contact, provision shall be made for "ops normal" calls every 30 minutes. In the event that flying a line is greater than 30 minutes in duration the call shall be made at the completion of each line;
 - 10.4. Where local flight service holding SAR for aircraft on survey is available, liaison between the operator and flight service responsible for that area shall include an outline of the intended area of operations, SAR times, and methods by which position reports may be given. Details of the ground party supporting the operation, and methods by which they may be contacted, shall be registered with Flight Service prior to the operation.

Additional Guidance:

RELATED INCIDENT

CORRESPONDING SELF-ASSESSMENT QUESTIONS

N/A

LINKS (FOR DOWNLOAD)

Shell:

External:

SHELL AIRCRAFT GENERIC BOWTIE REFERENCE

N/A

OGP / IOGP AMG DIFFERENCES

R590 requires contractors to be members of IAGSA and follow their Safety Manual. There is no specific reference for a separate Operations Manual for Geophysical Operations. R590 implies the contractor follows the IAGSA Safety Manual, but this manual permits the IAGSA Member to deviate from this manual at their discretion by simply filing a "Notification of Differences". R590 does not specify a requirement for the provision of SAR. R590 has specific flight times for Pilot flight times which, except for two pilot operations, may be more strict. (R590 daily limits do not include transit time).

FAC 03.01 Flight Scheduling

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Facility Requirements

Restricted

Version 3.0 – January 2019

MANDATORY REQUIREMENTS

The **Service Provider** is Accountable for Requirement 1:

1. Implement a flight scheduling process to meet Shell programme requirements and communicate them to the **Aircraft Operator**.

Means of Compliance for Requirements 1:

1. The flight scheduling process.
 - 1.1 Flights are programmed with adequate lead time to allow the **Aircraft Operator** to effectively plan for scheduled **Aircraft** maintenance.
 - 1.2 A process is in place to accommodate Last Minute Changes to the schedule, passenger or cargo requirements.
 - 1.3 Passenger travel (offshore etc.) is authorised by a **nominated supervisor**.
 - 1.4 Information is provided to scheduled passengers on the limits to baggage weight and size and all restricted/prohibited items.
 - 1.5 A risk assessment is conducted by the **Aircraft Operator** before the carriage of any external loads and is accepted by the relevant Shell Technical Authority - Air Transport (TA1).
 - 1.6 An up-to-date list of approved helidecks, heliports and/or aerodromes is available to, and used by the schedulers or planners, and includes any operational restrictions in place at those locations.

ADDITIONAL GUIDANCE

Where overlapping responsibilities exist at a passenger processing facility, an interface document should be developed, implemented and the interfaces audited to ensure the delivery of the service is in accordance with company and national regulatory requirements.

Where there is a shared agreement in place, the management of delays and which company has priority when flights re-commence needs to be agreed with sharing partners and documented.

LINKS (FOR DOWNLOAD)

Shell:

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

1. HSSE & SP Control Framework - Air Transport Manual.
2. HSSE & SP Control Framework – Managing Risk Manual.
3. HSSE & SP Control Framework – Personal Safety Manual-Business Travel.

External:

RELATED INCIDENT

CORRESPONDING SELF-ASSESSMENT QUESTIONS

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

Bowtie 02 Air Transport (RW) / Loss of control during landing/take-off.

IOGP REPORT 590 AMG DIFFERENCES

Reserved.

Sources of Mandatory Requirements:

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

FAC 03.02 Passenger Handling Areas

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Facility Requirements

Restricted

Version 3.0 – January 2019

MANDATORY REQUIREMENTS

The **Service Provider** is Accountable for Requirements 1-5:

1. Provide passenger and cargo handling facilities appropriate to the scale and duration of the Air Transport operation.
2. Designate clearly-defined secure holding areas for both incoming and outgoing passengers and cargo.
3. Conduct and document facility risk assessments (RA) on the passenger and cargo handling facilities for Health and Security.
4. Develop and implement a passenger and cargo handling facilities **Medical Emergency Response** (MER) plan.
5. Provide information about aircraft safety and local procedures in designated passenger waiting areas.

Means of Compliance for Requirements 1-5:

1. The Service Provider obtains the agreement of the relevant Shell Technical Authority – Air Transport (TA1) on the range of facilities to be provided prior to the commencement of flights.
2. Secure holding areas for both incoming and outgoing passengers and cargo.
 - 2.1 Passengers and cargo enter the secure holding area after completion of the passenger screening and security process (FAC 03.05).
 - 2.2 Passengers leaving a secure holding area undergo security screening again prior to re-entering the holding area.
- 3 Facility health and security risk assessments are conducted in conjunction with relevant Shell Technical Authority – Air Transport (TA1):
 - 3.1 Security screening personnel are trained on the operation of screening equipment as mandated by National Regulation or Service Provider's security plan;
 - 3.2 Emergency exits are available and easily identified with appropriate security provisions for both landside and airside exits:
 - 3.3 Health Risk Assessment (HRA) is carried out to determine level of cover required on site.
- 4 No further requirements
- 5 Information is provided in several ways, either as:

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

- 5.1 Written and graphical material (posters and handouts);
- 5.2 Computer monitor screens;
- 5.3 Announcements using a public-address system.

ADDITIONAL GUIDANCE

The designated passenger waiting area may serve as a viewing room for video safety briefings and provide an area to weigh and manifest all outgoing passengers, baggage and cargo.

LINKS (FOR DOWNLOAD)

Shell:

1. HSSE & SP Control Framework - Air Transport Manual.
2. HSSE & SP Control Framework – Managing Risk Manual.
3. SGRAO AOR FOP 07.06 Passenger Marshalling Areas.

External:

RELATED INCIDENT

CORRESPONDING SELF-ASSESSMENT QUESTIONS

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

- Bowtie 01 Air Transport (FW) / Loss of control during landing/take-off
- Bowtie 02 Air Transport (RW) / Loss of control during landing/take-off

IOGP REPORT 590 AMG DIFFERENCES

No differences

Sources of Mandatory Requirements:

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

FAC 03.03 Passenger Weight and Size

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Facility Requirements

Restricted

Version 3.0 – January 2019

MANDATORY REQUIREMENTS

The **Service Provider** is Accountable for Requirements 1-5:

1. Use actual passenger weight values (including hand-carried baggage, personal survival equipment and personal belongings) for all helicopters and for aeroplanes having a seating capacity of 19 or fewer seats.
2. Document control procedures for the use of standard passenger and baggage weights on aeroplanes having a maximum seating capacity of 20 or above.
3. On offshore helicopters passengers are seated no more than one seat from an emergency exit or push out window.
4. Prohibit the carriage of passengers on offshore helicopters who are unable to pass through the exit window while dressed in the necessary flight equipment (survival suits, lifejacket etc.).
5. Prohibit the use of seat harnesses/seat belt extensions, unless certified by the aircraft manufacturer.

Means of Compliance for Requirements 1-5:

1. Weighing:
 - 1.1. Passenger weight is determined prior to boarding using calibrated scales.
 - A procedure is in place for situations where calibrated scales are temporarily unavailable.
 - 1.2. All checked baggage is manifested using actual weights.
 - 1.3. When standard passenger weights are used on aeroplanes, actual weights are surveyed routinely to check that the use of standard weights provides a safety margin over actual weights. When a survey shows an inadequate safety margin, either actual weights are used, or a realistic factor is applied to the standard weight.
2. No further requirements.
3. No further requirements.
4. Processes are in place to determine if a passenger cannot fit through an exit window, or other seating mitigations are required. Typically these are:
 - 4.1 Window templates are available that are representative of the actual push-out windows on the helicopter type in use and these are applied to any passenger assessed as being

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

close to, or over the size of the available emergency exit. Some types may require a range of templates that will determine specific seat rows for passengers of different size. Passengers that are unable to pass through the template, when dressed in flight equipment (survival suits, lifejacket etc) are refused permission to fly¹.

4.2 XBR passenger measurements and XBR seat identification process.

5. No further requirements.

ADDITIONAL GUIDANCE

The following standard weights are used for offshore helicopter passengers, when calibrated scales are temporarily unavailable, if authorised by the National Aviation Authority (NAA):

- Males 98kg Female 80kg;
- Hand baggage carried in the passenger cabin of aeroplanes at 6kg per passenger, otherwise at actual weight;
- The weight of survival suits as actual weight or as 7kg per passenger; and
- The weight of lifejacket as actual weight or as 3kg per passenger².

LINKS (FOR DOWNLOAD)

Shell:

1. SGRAO Business Unit Requirements OPS 01.02 Passenger Requirements

External:

RELATED INCIDENT

CORRESPONDING SELF-ASSESSMENT QUESTIONS

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

IOGP REPORT 590 AMG DIFFERENCES

R590 differentiates the use of actual or standard weights by aircraft weight (5,700kg) and not by the number of seats.

¹ Providing this does not contravene National law.

² Not required if already included as aircraft equipment in the aircraft dry operating weight.

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

FAC 03.04 Manifests

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Facility Requirements

Restricted

Version 3.0 January 2019

MANDATORY REQUIREMENTS

The **Service Provider** is Accountable for Requirements 1-3:

1. Raise and complete passenger manifests for each flight.
2. Verify actual passenger names against the manifest.
3. Revise the manifest for any changes in passenger and cargo details prior to departure.

Means of Compliance for Requirements 1-3:

1. Passenger manifests.
 - 1.1 A passenger manifest records as a minimum:
 - **Aircraft** registration;
 - Flight number;
 - Date of Flight;
 - Destination;
 - Passenger name;
 - Company affiliation;
 - Passenger actual weight¹;
 - Baggage weight for each passenger²;
 - Weight of any cargo;
 - Authorised Dangerous Goods/Hazardous Materials;
 - Any additional National Aviation Authority (NAA) requirements.
 - 1.2 Manifests are closed for changes and passed to the Flight Crew with adequate time to complete calculations of fuel loads, aircraft performance and centre of gravity.
 - 1.3 Manifests are signed by a crew member to confirm acceptance of the document.

¹ Where standard weights can be used this requirement is met with providing a breakdown of Males / Females and Children.

² Where standard weights can be used this requirement is met with providing the number of bags.

- 1.4 The contents of each piece of cargo is verified by its packing list or by visual inspection of the cargo itself.
- 1.5 A minimum of three copies are made:
 - One to be filed and left at point of departure;
 - One for use by the crew in-flight;
 - One to be left at destination.
2. Pilots and/or designated personnel check actual passenger names against the original booking to verify that only authorised passengers are carried.
3. The **Pilot-in-Command** communicates any last-minute changes to a responsible party with instructions to retain a copy of the altered manifest until the flight has been completed.
 - 3.1 Dangerous Goods/Hazardous Material cargo are properly packaged and accompanied by the Dangerous Goods/Hazardous Material paperwork required by the NAA.

ADDITIONAL GUIDANCE

An accurate manifest retained at the point of departure provides important information for an effective response to an aircraft emergency.

LINKS (FOR DOWNLOAD)

Shell:

External:

RELATED INCIDENT

CORRESPONDING SELF-ASSESSMENT QUESTIONS

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

TBC

IOGP REPORT 590 AMG DIFFERENCES

No differences.

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

FAC 03.05 Passenger Screening and Security

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Facility Requirements

Restricted

Version 3.0 January 2019

MANDATORY REQUIREMENTS

The Service Provider is Accountable for Requirements 1-3:

1. Implement a screening process for passengers, baggage and cargo, both out and inbound.
2. Conduct drug and alcohol screening using trained personnel in accordance with National regulations and Company requirements.
3. Implement site security controls and procedures appropriate to the assessed security risks.

Means of Compliance for Requirements 1-3:

1. The passenger, baggage and cargo screening process covers both outbound and inbound flights (e.g.: both onshore and offshore screening is conducted).
 - 1.1 Passengers present a locally-approved form of photo identification.
 - 1.2 Restricted items:
 - Weapons and other prohibited items are not carried on aircraft.
 - Items that must be carried in checked baggage, are controlled.
 - Undeclared Dangerous Goods are identified and removed or correctly consigned – see FAC 03.06.
 - Additional items restricted by the Shell Business Unit are screened and removed - see Guidance.
 - 1.3 Dangerous Goods training is provided at a level determined by the assigned task.
 - Persons processing and manifesting Dangerous Goods for Air Transport receive training in accordance with national regulation.
 - Persons handling baggage receive Dangerous Goods awareness training at a minimum.
 - 1.4 For offshore helicopters:
 - Passenger emergency and survival training is checked for all flights.
 - Passengers who are not appropriately trained to travel offshore by air are refused carriage unless a waiver is given. A log of all waivers given is kept and the process is subjected to internal or self-assurance checks.

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

- Non-HUET trained passengers travelling with a waiver are identified visually to ensure they are not be seated between an emergency exit and a passenger in date for HUET training.
- Enhanced health and security screening procedures are in use, including checking that passengers have a valid medical certificate (if applicable).
- The use of plastic bags as baggage containers is prohibited.
- Carry-on baggage is not permitted in the helicopter passenger cabin.

2. Drug and alcohol screening.

- 2.1 Personnel under the influence of alcohol or drugs are not allowed to board aircraft.
- 2.2 Procedures for handling passengers who were denied boarding for a failed Drug and/or Alcohol screening are in use.

3. Security

- 3.1 Security personnel used for passenger, baggage and cargo screening, meet training requirements as mandated by Shell, NAA or Service Provider's security plan.
- 3.2 Security screening process can identify and remove prohibited items and undeclared dangerous goods, - See Guidance.
- 3.3 Site controls and physical infrastructure to manage the airside/landside division (ICAO Annex 17) and to prevent unauthorised personnel accessing airside locations and other restricted areas.
- 3.4 Use security screening equipment e.g. walk-through metal detectors, hand wands and X-ray equipment for passenger, baggage and cargo screening appropriate to the security risk assessment.

ADDITIONAL GUIDANCE

Enhanced screening should be based on an elevated risk level for risks identified in the Security Plan and aligned with the National regulations as well as local company specific requirements.

Security screening equipment should be fit for purpose in terms of average expected size of passengers, baggage and cargo.

Where possible, authorised security staff should then carry out a thorough search of personal baggage in the presence of the passenger, before moving it to the loading area. Body searches should be made when the flight is called for boarding and prior to the issue of immersion suits (offshore flights).

Each BU should develop a tailored list of items prohibited for carriage on aircraft or to offshore installations, which should be shown to each passenger, items listed below should be considered:

- Adhesives;
- Aerosols;
- Alcohol of any kind (offshore flights);
- Canned drinks of any kind;
- Cigarette lighters;

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

- Drugs (save on prescription) See Note 1;
- Explosives, fireworks;
- Firearms/Ammunition;
- Flammable gas or liquid, Tear Gas, CS Gas;
- Magnetic materials;
- Matches of any kind (offshore flights);
- Oils and greases;
- Paints and solvents;
- Poisons, weed killers, pesticides and insecticides;
- Radio-active materials;
- Radio, cassette and disc players, unless batteries are removed;
- Weapons - including knives with a blade longer than 3" See Note 2;
- Wet Batteries;
- Wet Fish.

Note 1:

Prescription drugs may have to be surrendered at check-in for safe-hand carriage, record and re-issue on installation; with a similar procedure for passengers returning onshore.

Note 2:

Knives which are tools of trade (e.g. chefs and divers) maybe declared at check-in and should not to be carried in hand carried bags on the aircraft.

LINKS (FOR DOWNLOAD)

Shell:

1. HSSE & SP Control Framework - Air Transport Manual
2. HSSE & SP Control Framework – Managing Risk Manual
3. HSSE & SP Control Framework – Personal Safety Manual-Business Travel
4. SGRAO Business Unit Requirements OPS 01.02 Passenger Requirements
5. SGRAO Business Unit Requirements OPS 02.01 Health
6. SGRAO Business Unit Requirements SUP 04.01 Security

External:

RELATED INCIDENT

CORRESPONDING SELF-ASSESSMENT QUESTIONS

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

IOGP REPORT 590 AMG DIFFERENCES

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

FAC 03.06 Passenger, Baggage and Cargo Handling

Shell Aircraft

Shell Group Requirements for Aircraft Operations

Facility Requirements

Restricted

Version 3.0 January 2019

MANDATORY REQUIREMENTS

The Service provider is Accountable for Requirements 1-5:

1. Develop and implement procedures to prevent injury to passengers and to those personnel managing the handling of passengers, baggage and cargo.
2. Apply controls to limit the hazard presented by certain types of cargo and baggage.
3. Develop and implement procedures to prevent damage to aircraft from baggage and cargo handling on the ground and any inflight hazard associated with the stowage of cargo and baggage.
4. Train and authorise personnel to secure and remove baggage and cargo.
5. Carry **dangerous goods** in accordance with ICAO Annex 18 "Safe Transport of Dangerous Goods by Air" or IATA Dangerous Goods Regulations¹, or other National Aviation Authority (NAA) requirements that regulate the air transportation of Dangerous Goods.

Means of Compliance for Requirements 1-5:

1. All passengers are escorted to and from the aircraft when operating on an aerodrome or heliport apron area by personnel trained on the danger areas for the specific aircraft type.
2. Prevent hazards to aircraft from baggage and cargo handling includes:
 - 2.1. Passengers are seated, and baggage and cargo are loaded in accordance with the aircraft weight and balance limits.
 - 2.2. Baggage and cargo is loaded in accordance with the aircraft floor loading, baggage/cabin compartment weight, and baggage ramp/door limits.
 - 2.3. Approved baggage and cargo restraints are used to secure these items where required.
 - 2.4. Aircraft loading/handling equipment is fit for purpose and approved by the aircraft operator.
3. The policy on items restricted for carriage by air is documented and communicated to check-in staff and passengers. The policy:
 - 3.1 Prohibits carry-on baggage in helicopters.

¹ Specific National Aviation Authority (NAA) regulations may also apply.

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

- 3.2 Directs all carry-on baggage in aeroplanes to be stowed allowing clear access to emergency exits.
- 3.3 Prohibits mixing of passengers and baggage or cargo in the passenger cabin on helicopters.
- 3.4 Ensures that any checked-in baggage and cargo carried in the passenger compartment on aeroplanes is:
 - Adequately secured using approved cargo nets, or tie-down straps;
 - Does not obstruct normal or emergency exits, and all exits remain available for use by passengers;
 - Approved by the Company.
- 4. Only authorised and suitably trained personnel load, secure and/or remove cargo and baggage
- 5. Dangerous goods.
 - 5.1 Are only carried by air when the Aircraft **Operator** has obtained written permission, approval or an exemption from the National Aviation Authority (NAA).
 - 5.2 The Aircraft Operator documents procedures for all aspects of transporting dangerous goods.
 - 5.3 A Notice to Captain (NOTOC) and/or shippers declaration for dangerous good is issued whenever dangerous goods or other special items are loaded onto the aircraft.

ADDITIONAL GUIDANCE

Passengers seated at an emergency exit in aircraft should be physically able and willing to operate the exits when instructed by aircrew in the event of an emergency.

LINKS (FOR DOWNLOAD)

Shell:

1. HSSE & SP Control Framework - Air Transport Manual
2. HSSE & SP Control Framework – Managing Risk Manual
3. HSSE & SP Control Framework – Competence Manual

External:

RELATED INCIDENT

1. Air Cargo 747-400 BCF Crash at Bagram, Afghanistan April 29, 2013

CORRESPONDING SELF-ASSESSMENT QUESTIONS

Terms in green are included in the SGRAO Glossary.

This document is not controlled when printed. See the Change Log for version control information.

SHELL AIRCRAFT MODEL BOWTIE REFERENCE

- Bowtie 01 Air Transport (FW) / Loss of control during landing/take-off
- Bowtie 02 Air Transport (RW) / Loss of control during landing/take-off

IOGP REPORT 590 AMG DIFFERENCES

590 does not prohibit the use of plastic bags.

590 does not prohibit carry-on luggage in helicopters.

	AOR and Description	Rotary Wing Operations					Fixed Wing Operations			RPAS
		HCAT	HEXT	HINSP	HSURV	HSAR	FCAT	FINSP	FSURV	
SAF 00.00	Safety Management Systems	√	√	√	√	√	√	√	√	x
SAF 01.00	Safety Policy and Objectives	√	√	√	√	√	√	√	√	x
SAF 01.01	Leadership and Commitment	√	√	√	√	√	√	√	√	x
SAF 01.02	Organisation, Accountabilities and Resources	√	√	√	√	√	√	√	√	x
SAF 01.03	Competence	√	√	√	√	√	√	√	√	x
SAF 01.04	Emergency Response Management	√	√	√	√	√	√	√	√	x
SAF 01.05	Documented Procedures	√	√	√	√	√	√	√	√	x
SAF 01.06	Management Review	√	√	√	√	√	√	√	√	x
SAF 02.00	Safety Risk Management	√	√	√	√	√	√	√	√	x
SAF 02.01	Incident Reporting, Investigation and Learning	√	√	√	√	√	√	√	√	x
SAF 03.00	Assurance	√	√	√	√	√	√	√	√	x
SAF 03.01	Performance Monitoring	√	√	√	√	√	√	√	√	x
SAF 03.02	Management of Change (MOC)	√	√	√	√	√	√	√	√	x
SAF 04.00	Safety Promotion	√	√	√	√	√	√	√	√	x
FOR 01.01	Aircraft Operator Certificate	√	√	√	√	√	√	√	√	x
FOR 01.02	Organisation and Personnel	√	√	√	√	√	√	√	√	x
FOR 01.03	Flight Crew Responsibilities	√	√	√	√	√	√	√	√	x
FOR 01.04	Flight Crew Scheduling	√	√	√	√	√	√	√	√	x
FOR 01.05	Contracted Pilots	√	√	√	√	√	√	√	√	x
FOR 01.06	Single-Engine Aircraft	√	√	√	√	√	√	√	√	x
FOR 02.01	Flight Preparation - General	√	√	√	√	√	√	√	√	x
FOR 02.02	Operating Minima	√	√	√	√	√	√	√	√	x
FOR 02.03	Offshore Alternates - Helicopters	√	x	√	√	√	x	x	x	x
FOR 02.04	Weather Minima	√	√	√	√	√	√	√	√	x
FOR 02.05	Flight Planning	√	√	√	√	√	√	√	√	x
FOR 02.06	Fuel Requirements - Fixed Wing Operations	x	x	x	x	x	√	√	√	x
FOR 02.07	Fuel Requirements - Helicopters	√	√	√	√	√	x	x	x	x
FOR 02.08	Aircraft Acceptance	√	√	√	√	√	√	√	√	x
FOR 02.09	Aircraft Documentation	√	√	√	√	√	√	√	√	x
FOR 03.01	In-Flight Operations	√	√	√	√	√	√	√	√	x
FOR 03.01	Performance - Fixed Wing	x	x	x	x	x	√	√	√	x
FOR 03.02	Adverse Weather	√	√	√	√	√	√	√	√	x
FOR 03.03	Ice Protection	√	√	√	√	√	√	√	√	x
FOR 03.04	Guarding of Flight Controls	√	√	√	√	√	√	√	√	x
FOR 03.05	Passenger General Requirements	√	√	√	√	√	√	√	√	x
FOR 03.06	Flight Following	√	√	√	√	√	√	√	√	x
FOR 03.07	Passenger Briefings	√	x	x	x	x	√	x	x	x
FOR 03.08	Ground Manoeuvring Offshore	√	√	√	√	√	x	x	x	x
FOR 03.09	Stabilised Approach	√	√	√	√	√	√	√	√	x
FOR 03.10	Performance - Fixed Wing	x	x	x	x	x	√	√	√	x

ENG 03.12	Aircraft Refuelling	√	√	√	√	√	√	√	√	√	x
ENG 04.01	HUMS – Equipment Fit Requirement and Procedures	√	√	√	√	√	x	x	x	x	x
ENG 04.02	HUMS - Required Serviceability	√	√	√	√	√	x	x	x	x	x
ENG 04.03	HUMS - Download, Analysis and Certification	√	√	√	√	√	x	x	x	x	x
ENG 04.04	HUMS - Recording and Release to Service	√	√	√	√	√	x	x	x	x	x
SPO 01.01	Security	√	√	√	√	√	√	√	√	√	x
SPO 02.02	Search and Rescue Operations - Helicopters	x	x	x	x	√	x	x	x	x	x
SPO 03.01	Land Seismic and Heli-rig Operations	x	√	x	√	x	x	x	x	x	x
SPO 03.03	Remotely Piloted Aircraft Systems (RPAS) Operations	x	x	x	x	x	x	x	x	x	√
SPO 05.01	Aerial Pipeline Inspection	x	x	√	x	x	x	√	x	x	x
SPO 06.01	Marine Pilot Transfer - Helicopters	√	x	x	x	x	x	x	x	x	x
SPO 07.01	Airborne Geophysical Survey	x	√	x	√	x	x	x	√	√	x
FAC 03.01	Flight Scheduling	Applicable if the Air Operator is the designated "Service Provider"									x
FAC 03.02	Passenger Handling Areas	Applicable if the Air Operator is the designated "Service Provider"									x
FAC 03.03	Passenger Weight and Size	Applicable if the Air Operator is the designated "Service Provider"									x
FAC 03.04	Manifests	Applicable if the Air Operator is the designated "Service Provider"									x
FAC 03.05	Passenger Screening and Security	Applicable if the Air Operator is the designated "Service Provider"									x
FAC 03.06	Passenger, Baggage and Cargo Handling	Applicable if the Air Operator is the designated "Service Provider"									x

AIRCRAFT GLOSSARY DEFINITIONS

Ad Hoc

For the avoidance of doubt, within this document, the term ad hoc shall be interpreted to mean “for a special, particular purpose only”, and cannot be applied to routine or frequently recurring, scheduled use. Ad hoc use may not extend beyond three months unless the total usage is less than 10 hours per month.

Aerial Work

An aircraft operation in which an aircraft is used for specialised services such as agriculture, construction, photography, surveying, observation and patrol, search and rescue, aerial advertisement, etc.

Aerodrome operating minima

The limits of usability of aerodrome for:

- a. Take-off, expressed in terms of runway visual range and/or visibility and, if necessary, cloud conditions;
- b. Landing in precision approach and landing operations, expressed in terms of visibility and/or runway visual range and decision altitude/height (DA/H) as appropriate to the category of the operation; and
- c. Landing in non-precision approach and landing operations, expressed in terms of visibility and/or runway visual range, minimum descent altitude/height (MDA/H) and, if necessary, cloud conditions.

Aircraft

Any machine that can derive support in the atmosphere from the reactions of the air, other than the reactions of the air against the earth's surface.

Aircraft Operating Manual

A manual, acceptable to the State of the Operator, containing normal, abnormal and emergency procedures, checklists, limitations, performance information, details of the aircraft systems and other material relevant to the operation of the aircraft.

Note - The aircraft operating manual is part of the operations manual.

Aiming Circle

Former CAP-437 term for Touchdown/Positioning Marking Circle (TD/PM).

Air Operator Certificate (AOC)

A certificate authorising an operator to carry out specified commercial air transport operations.

Alternate Aerodrome

An aerodrome to which an aircraft may proceed when it becomes either impossible or inadvisable to

proceed to or to land at the aerodrome of intended landing. Alternate aerodromes include the following:

- Take-off alternate. An alternate aerodrome at which an aircraft can land should this become necessary shortly after take-off and it is not possible to use the aerodrome of departure.
- En-route alternate. An aerodrome at which an aircraft would be able to land after experiencing an abnormal or emergency condition while en-route.
- ETOPS en-route alternate. A suitable and appropriate alternate aerodrome at which an aeroplane would be able to land after experiencing an engine shut-down or other abnormal or emergency condition while en-route in an ETOPS operation.
- Destination alternate. An alternate aerodrome to which an aircraft may proceed should it become either impossible or inadvisable to land at the aerodrome of intended landing.

Note: The aerodrome from which a flight departs may also be an en-route or a destination alternate aerodrome for that flight

Alternate Heliport

A heliport specified in the flight plan to which a flight may proceed when it becomes inadvisable to land at the heliport of intended landing.

Note: An alternate heliport may be the heliport of departure.

Approach and Landing Phase - Helicopters

That part of the flight from 300m (1,000 ft) above the elevation of the FATO, if the flight is planned to exceed this height, or from the commencement of the descent in the other cases, to landing or to the balked landing point.

AVAD

A device that provides automatic voice alerts in respect of Radio Altimeter (RadAlt) “bug” settings.

Bow-Tie

A Hazard analysis tool in which the Threats and Consequences associated with a Hazard are mapped and assessed to determine the necessary Barriers.

Category A

With respect to rotorcraft, means a multi-engined rotorcraft designed with engine and system isolation features specified in FAR/JAR-27 / FAR/JAR-29 and capable of operations using take-off and landing data scheduled under a critical engine failure concept which assures adequate designated surface area and adequate performance capability for continued safe flight or safe rejected take-off in the event of engine failure.

Category B

With respect to rotorcraft, means a single-engine or multi-engine rotorcraft which does not meet Category A standards. Category B rotorcraft have no guaranteed capability to continue safe flight in the event of an engine failure, and unscheduled landing is assumed.

Commercial Air Transport Operation

An aircraft operation involving the transport of passengers, cargo or mail for remuneration or hire.

Controlled Company(ies)

A Company is any company in which Royal Dutch Shell holds a controlling interest, either directly or indirectly, including holding companies, service companies, operating companies and Joint Venture companies. Joint Ventures that are considered Controlled Companies include Joint Ventures Under Operational Control (UOC), and Joint Ventures where Shell holds a Controlling Interest, under Joint Operational Control (JOC), under Other Participant Operational Control (OPOC), or Self-Directed. See the Group HSSE Control Framework - HSSE Management System - Joint Venture HSSE Requirements for more information.

Congested Area

In relation to a city, town or settlement, any area which is substantially used for residential, commercial or recreational purposes.

Contract Types

Aircraft Services; Ad hoc/Call off; One Time Charter.

Covering Back-up Team

In regard to helideck Emergency Response, a facility or vessel response team intended to provide fire-fighting protection for rescuers involved in recovering survivors unable to self-evacuate from aircraft after an accident. The rescue team may not begin rescue operations until the covering back-up team is in place and ready to provide a protected environment during rescue.

Dangerous Goods

Articles or substances which are capable of posing significant risk to health, safety or property, when transported by air.

Decision Altitude (DA) or Decision Height (DH)

A specified altitude or height in the precision approach at which a missed approach must be initiated if the required visual reference to continue the approach has not been established.

Note 1: Decision altitude (DA) is referenced to mean sea level and decision height (DH) is referenced to the threshold elevation.

Note 2: The required visual reference means that section of the visual aids or of the approach area, which should have been in view for sufficient time for the pilot to have made an assessment of the aircraft position and rate of change of position, in relation to the desired flight path. In category III operations with a decision height the required visual reference is that specified for the particular procedure and operation.

Note 3: For convenience where both expressions are used they may be written in the form "decision altitude/height" and abbreviated "DA/H".

Dry Lease

When the aircraft is being operated under the AOC of the lessee.

Duty holder

- in relation to a fixed installation, the operator; and

- in relation to a mobile installation, the owner.

D-Circle

A circle, usually imaginary unless the helideck itself is circular, the diameter of which is the D-Value of the largest helicopter the helideck is intended to serve.

D-Value

The largest overall dimension of the helicopter when rotors are turning. This dimension will normally be measured from the most forward position of the main rotor tip path plane to the most rearward position of the tail rotor tip path plane (or the most rearward extension of the fuselage in the case of Fenestron or Notar tails).

Elevated heliport

A heliport located on a raised structure on land.

Emergency locator transmitter (ELT)

A generic term describing equipment which broadcast distinctive signals on designated frequencies and, depending on application, may be automatically activated by impact or be manually activated. An ELT may be any of the following:

- **Automatic Fixed ELT (ELT/(AF)):** An automatically activated ELT, which is permanently attached to an aircraft.
- **Automatic Portable ELT (ELT(AP)):** An ELT which is rigidly attached to an aircraft and which is automatically deployed and activated by impact, and, in some cases, also by hydrostatic sensors. Manual deployment is also provided.
- **Automatic deployable ELT (ELT (AD)):** An ELT which is rigidly attached to an aircraft and which is automatically deployed and activated by impact, and, in some cases, also by hydrostatic sensors. Manual deployment is also provided. Also known as an **ADEL**T.
- **Survival ELT (ELT(S)):** An ELT which is removable from an aircraft, stowed so as to facilitate its ready use in an emergency, and manually activated by survivors.

En-route phase

That part of the flight from the end of the take-off and initial climb phase of the commencement of the approach and landing phase.

Note: Where adequate obstacle clearance cannot be guaranteed visually, flights must be planned to ensure that obstacles can be cleared by an appropriate margin. In the event of failure of the critical power-unit, operators may need to adopt alternative procedures.

Final Approach and Take-Off Area (FATO)

A defined area over which the final phase of the approach maneuver to hover or landing is completed and from which the take-off maneuvers is commenced. Where the FATO is to be used by Performance Class 1 helicopters, the defined area includes the rejected take-off area available.

Flight duty period

The total time from the moment a flight crew member commences duty, immediately subsequent to a

rest period and prior to making a flight or a series of flights, to the moment the flight crew member is relieved of all duties having completed such flight or series of flights.

Flight Manual

A manual, associated with the certificate of airworthiness, containing limitations within which the aircraft is to be considered airworthy, and instructions and information necessary to the flight crew members for the safe operation of the aircraft.

Flight Plan

Specified information provided to air traffic services units, relative to an intended flight or portion of a flight of an aircraft.

Flight Recorder

Any type of recorder installed in the aircraft for the purpose of complementing accident/incident investigation.

Flight Time

The total time from the moment an aircraft first moves under its own power for the purpose of taking off until the moment it comes to rest at the end of the flight.

Note 1: Flight time as here defined is synonymous with the term “block to block” time or “chock to chock” time in general usage which is measured from the time an aircraft moves from the loading point until it stops at the unloading point.

Note 2: Whenever helicopter rotors are engaged, the time will be included in the flight time.
Frequency of occurrences:

Frequency of occurrences

“Reasonably Probable” means unlikely to occur often during the operation of each aircraft of the type but which may occur several times during the total operational life of each aircraft of the types in which the engine may be installed. Note: Where numerical values are used this may normally be interpreted as a probability in the range 10^{-3} to 10^{-5} per hour of flight.

“Remote” means unlikely to occur to each aircraft during its total operational life but may occur several times when considering the total operational life of a number of aircraft of the type in which the engine is installed. Note: Where numerical values are used this may normally be interpreted as a probability in the range 10^{-5} to 10^{-7} per hour of flight.

“Extremely Remote” means unlikely to occur when considering the total operational life of a number of aircraft of the type in which the engine is installed but nevertheless, has to be regarded as being possible.

Note: Where numerical values are used this may normally be interpreted as a probability in the range 10^{-7} to 10^{-9} per hour of flight.

Helideck

A landing area on an offshore installation or vessel.

Heliport

An aerodrome or a defined area on a structure intended to be used wholly or in part for the arrival, departure and surface movement of helicopters.

Heliport Operating Minima

The limits of usability of a heliport for:

- a. Take-off, expressed in terms of runway visual range and/or visibility and, if necessary, cloud conditions;
- b. Landing in precision approach and landing operations, expressed in terms of visibility and/or runway visual range and decision altitude/height (DA/H) as appropriate to the category of the operation; and
- c. Landing in non-precision approach and landing operations, expressed in terms of visibility and/or runway visual range, minimum descent altitude/height (MDA/H) and, if necessary, cloud conditions.

Hazard and Effects Management Process (HEMP)

A structured Risk analysis methodology that involves Hazard identification, Risk Assessment, selection of Controls and Recovery Measures, and comparison with tolerability and As Low As Reasonably Practicable criteria.

Hazards and Effects Register

A list of the Hazards that are associated with an activity, together with their potential Effects and assessed Risks.

Human Factors Principles

Principles which apply to aeronautical design, certification, training, operations and maintenance and which seek safe interface between the human and other system components by proper consideration to human performance.

Instrument Approach and Landing Operations

Instrument approach and landing operations using instrument approach procedures are classified as:

- **Non-precision approach and landing operations:** An instrument approach and landing which does not utilise electronic glide path guidance.
- **Precision Approach and Landing Operations:** An instrument approach and landing using precision azimuth and glide path guidance with minima as determined by the category of operation.

Categories of precision and landing operations

- **Category I (CAT I) Operation:** A precision instrument approach and landing with a decision height not lower than 60 m (200 ft) and with either a visibility not less than 800 m or a runway visual range not less than 550 m.
- **Category II (CAT II) Operation:** A precision instrument approach and landing with a decision height lower than 60 m (200 ft), but not lower than 30 m (100 ft), and a runway visual range not less than 300 m.
- **Category IIIA (CAT IIIA) Operation:** A precision instrument approach and landing with decision height lower than 30 m (100 ft) or no decision height; and a runway visual range not less than 200 m.
- **Category IIIB (CAT IIIB) Operation:** A precision instrument approach and landing with decision height lower than 15 m (50 ft) or no decision height; and a runway visual range less than 200 m but not less

than 75 m.

- **Category IIIC (CAT IIIC) Operation:** A precision instrument approach and landing with no decision height and no runway visual range limitations.

Note: Where decision height (DH) and runway visual range (RVR) fall into different categories of operation, the RVR will determine in which category the operation is to be conducted.

Hostile Environment

An environment in which:

1. A safe forced landing cannot be accomplished because the surface is inadequate; or
2. The helicopter occupants cannot be protected adequately from the elements; or
3. Search and rescue response/ capability is not provided consistent with anticipated exposure; or
4. There is an unacceptable risk of endangering persons or property on the ground.

In any case, the following areas shall be considered hostile:

1. All over-water flights; and
2. Those parts of a congested area without adequate safe forced landing areas.

Instrument Meteorological Conditions (IMC)

Meteorological conditions expressed in terms of visibility, distance from cloud, and ceiling, less than the minima specified for visual meteorological conditions.

Landing Decision Point (LDP)

The point used in determining landing performance from which, a power-unit failure occurring at this point, the landing may be safely continued, or a balked landing initiated.

Note: LDP applies to Performance Class I helicopters.

Limited Obstacle Sector

The 150° sector within which obstacles may be permitted, provided the height of the obstacles is limited.

Maintenance

Tasks required to ensure the continued airworthiness of an aircraft including any one or combination of overhaul, repair, inspection, replacement, modification or defect rectification.

Master Minimum Equipment List (MMEL)

A list established for a particular aircraft type by the organisation responsible for the type design with the approval of the State of Design containing items, one or more of which is permitted to be unserviceable at the commencement of a flight. The MMEL may be associated with special operating conditions, limitations or procedures.

Minimum Descent Altitude (MDA) or Minimum Descent Height (MDH)

A specified altitude or height in a non-precision approach or circling approach below which descent must not be made without the required visual reference.

Note 1: Minimum descent altitude (MDA) is referenced to mean sea level and minimum descent height (MDH) is referenced to the aerodrome elevation or to the threshold elevation if that is more than 2m (7ft) below the aerodrome elevation. A minimum descent height for a circling approach is referenced to the aerodrome elevation.

Note 2: The required visual reference means that section of the visual aids or of the approach area which should have been in view for sufficient time for the pilot to have made an assessment of the aircraft position and rate of change of position, in relation to the desired flight path. In the case of a circling approach the required visual reference is the runway environment.

Note 3: For convenience when both expressions are used they may be written in the form "minimum descent altitude/height" and abbreviated "MDA/H".

Minimum Equipment List (MEL)

A list which provides for the operation of aircraft, subject to specified conditions, with particular equipment inoperative, prepared by an operator in conformity with, or more restrictive than, the MMEL established for the aircraft type.

Maximum operational passenger seating configuration (MOPSC)

The maximum passenger seating capacity of an individual aircraft, excluding crew seats, established for operational purposes and specified in the operations manual.

Nigh

The hours between the end of evening civil twilight and the beginning of morning civil twilight or such other period between sunset and sunrise, as may be prescribed by the appropriate authority.

Note: During civil twilight, the geometric center of the Sun's disk is at most 6 degrees below the horizon. In the morning, this twilight phase ends at sunrise; in the evening it begins at sunset. Sunrise and sunset are the moments when the Sun's upper edge touches the horizon.

Non-Hostile Environment

An environment in which:

1. A safe forced landing can be accomplished; and
2. The occupants can be protected from the elements; and
3. Search and rescue response/ capability is provided consistent with the anticipated exposure.

In any case, water landings in other than float planes are not considered to provide a safe forced landing due to the risk of capsizing; and

Those parts of a congested area with adequate safe forced landings areas shall be considered non-hostile.

Obstacle Clearance Altitude (OCA) or Obstacle Clearance Height (OCH)

The lowest altitude or the lowest height above the elevation of the relevant runway threshold or the aerodrome elevation as applicable, used in establishing compliance with appropriate obstacle clearance criteria.

Note 1: Obstacle clearance altitude is referenced to mean sea level and obstacle clearance height is referenced to the threshold elevation or in the case of non-precision approaches to the aerodrome elevation or the threshold elevation if that is more than 2m (7ft) below the aerodrome elevation. An obstacle clearance height for a circling approach is referenced to the aerodrome elevation.

Note 2: For convenience when both expressions are used they may be written in the form “obstacle clearance altitude/height” and abbreviated “OCA/H”.

Obstacle Free Sector

The 210° sector, extending outwards to a distance of 1000 metres within which no obstacles above helideck level are permitted, except the following items which shall not exceed the height of the landing area by more than 0.25 m:

- Guttering/Kerb Edging;
- Helideck Lighting;
- Outboard Edge of Safety Nets;
- Foam Monitors;
- Handrails (when folded).

Operational Control

The exercise of authority over the initiation, continuation, diversion or termination of a flight in the interest of the safety of the aircraft and the regularity and efficiency of the flight.

Operational Flight Plan

The operator’s plan for the safe conduct of the flight based on considerations of aircraft performance, other operating limitations and relevant expected conditions on the route to be followed and at the airfields/heliports concerned.

Operations Manual

A manual containing procedures, instructions and guidance for use by operational personnel in the execution of their duties.

Operator

A person, organisation or enterprise engaged in or offering to engage in an aircraft operation.

Performance Class A airplane

Multi-engined airplanes powered by turbo-propeller engines with an MOPSC of more than nine or a maximum take-off mass exceeding 5 700 kg, and all multi-engined turbo-jet powered airplanes.

Performance Class B airplane

Airplanes powered by propeller engines with an MOPSC of nine or less and a maximum take-off mass of 5 700 kg or less. This includes single engine airplanes.

Performance Class C airplane

Airplanes powered by reciprocating engines with an MOPSC of more than nine or a maximum take-off

mass exceeding 5 700 kg.

Performance Class 1 helicopter

A helicopter with performance such that, in case of critical power-unit failure, it is able to land on the rejected take-off area or safely continue the flight to an appropriate landing area, depending on when the failure occurs.

Performance Class 2 helicopter

A helicopter with performance such that, in case of critical power-unit failure, it is able to safely continue the flight, except when the failure occurs prior to a defined point after take-off or after a defined point before landing, in which cases a forced landing may be required.

Performance Class 3 helicopter

A helicopter with performance such that, in case of power-unit failure at any point in the flight profile, a forced landing must be performed.

Perimeter D Marking

In relation to helidecks, the marking in the perimeter line in whole numbers; i.e. the D- Value rounded up or down to the nearest whole number.

Pilot Flying

The pilot who, for the time being is in charge of the controls of the aircraft.

Pilot Not Flying

The pilot who is assisting the “Pilot flying” in accordance with the multi-crew co-operation concept, when the required flight crew is more than one.

Pilot-In-Command

The pilot responsible for the operation and safety of the aircraft during flight time.

Rest period

Any period of time on the ground during which a flight crew member is relieved of all duties by the operator.

RPAS

Remotely Piloted Aircraft System (RPAS) and all of the associated support equipment, ground control station, data links, telemetry, communications and navigation equipment necessary to operate the unmanned aircraft.

Run-Off Area

An extension to the Landing Area designed to accommodate a parked helicopter.

Runway Visual Range (RVR)

The range over which the pilot of an aircraft on the centre line of a runway can see the runway surface markings or the lights delineating the runway or identifying its centre line.

Safe Forced Landing

Unavoidable landing or ditching with a reasonable expectancy of no injuries to persons in the aircraft or on the surface.

Safe Landing Area

The helideck area bounded by the perimeter line and perimeter lighting.

Note: The construction of the OFS and LOS segments should ensure that the main rotor will not risk conflict with obstacles when the nose of the helicopter is butted-up to, but not projecting over, the perimeter line. Thus, the pilot, when landing in unusual circumstances, has confidence that he can touch down provided that all wheels are within the SLA and the nose of the helicopter is not projecting over the nearest perimeter line ahead. It must be noted, however, that only correct positioning over the aiming circle (see "Aiming Circle" above) will ensure proper clearance with respect to physical obstacles and provision of ground effect and provision of adequate passenger access/egress.

Scheduled Airline

Air Operator's offering scheduled services. Airline assessment ratings for use by Shell travellers are listed in the Airline Safety Assessment Mechanism (ASAM).

State of Registry

The State on whose register the aircraft is entered.

Synthetic Training Device (STD)

A training device which is either; a Flight Simulator (FS), a Flight Training Device (FTD) or, a Flight & Navigation Procedures Trainer (FNPT).

- **Flight Simulator (FS):** A full size replica of a specific type or make, model and series helicopter flight deck/cockpit, including the assemblage of all equipment and computer programmes necessary to represent the helicopter in ground and flight operations, a visual system providing an out of the flight deck/cockpit view, and a force cueing motion system. It is in compliance with the minimum standards for Flight Simulator qualification.
- **Flight Training Device (FTD):** A full size replica of a specific helicopter type's instruments, equipment, panels, and controls in an open flight deck/cockpit area or an enclosed helicopter cockpit/flight deck, including the assemblage of equipment and computer programmes necessary to represent the helicopter in ground and flight conditions to the extent of the systems installed in the device. It does not require a force cueing motion or visual system. It is in compliance with the minimum standards for a specific FTD Level of Qualification.
- **Flight and Navigation Procedures Trainer (FNPT):** A training device which represents the flight deck/cockpit environment including the assemblage of equipment and computer programmes necessary to represent a helicopter in flight conditions to the extent that the systems appear to function as in a helicopter. It is in compliance with the minimum standards for a specific FNPT Level of Qualification.
- **A basic instrument flight trainer,** which is equipped with appropriate instruments, and which simulates the flight deck environment of an aircraft in flight in instrument flight conditions.