Democratic Socialist Republic of Sri Lanka

Civil Aviation Authority of Sri Lanka

Implementing Standards

(Issued under Sec. 120, Civil Aviation Act No. 14 of 2010)

Title: Requirements to be satisfied by Aircraft Maintenance Organizations for Approval

Reference No. : IS-145 **SLCAIS : 056** **Date**: 13.09.2017

Pursuant to Sec.120 of the Civil Aviation Act No.14 of 2010 which is hereinafter referred to as the CAA Act, Director General of Civil Aviation shall have the power to issue, whenever he considers it necessary or appropriate to do so, such Implementing Standards for the purpose of giving effect to any provision in the CAA Act, Requirements or Rules made thereunder including the Articles of the Convention on International Civil Aviation specified in the Schedule to the CAA Act.

Accordingly, I, being the Director General of Civil Aviation do hereby issue the Implementing Standards on **Requirements to be satisfied by Aircraft Maintenance Organisations for Approval** as mentioned in the Attachment hereto (Ref: Attachment No. IS-145-Att.), elaborating the requirements to be satisfied for the effective implementation of the International Standards and Recommended Practices on 'Approved Maintenance Organisation', contained in Annex 06 chapter 8 and Annex 08.

This Implementing Standard shall be applicable to every organizations involved in the maintenance of aircraft used for commercial air transport and components intended for fitment thereto related to Sri Lankan registered aircraft or located in Sri Lanka and shall be approved in accordance with the provisions of this part.

The IS 145 shall be effective on 01st Oct 2017 and will be applicable on 01st Oct 2018 and it will supersede the requirement in Aviation Safety Notice (ASN) 94.

Attention is also drawn to Sec. 49 and Sec. 103 of the Act, and section A of guidance material of the IS 145 which states inter alia that failure to comply with Implementing Standard is an offence.

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Director General of Civil Aviation and
Chief Executive Officer

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Enclosure : Attachment No IS-145-Att

Implementing Standards

SLCAI – 056: GENERAL REQUIREMENTS TO BE SATISFIED BY AIRCRAFT MAINTENANCE ORGANIZATIONS FOR APPROVAL

01. APPLICABILITY

This Implementing Standard shall be applicable to every organizations involved in the maintenance of aircraft used for commercial air transport and components intended for fitment thereto related to Sri Lankan registered aircraft or located in Sri Lanka and shall be approved in accordance with the provisions of this part

02. ORGANIZATION OF THE IMPLEMENTING STANDARDS

This Implementing Standard is organized in the following manner

a) Section A – The requirements that needs to be complied with

b) AMC – Acceptable means of Compliance; method of meeting the intent of the regulation

c) Guidance Material – Information for industry guidance

03. DOCUMENTS REPEALED

The following ASNs will be repealed with effect from 01-10-2017 on the effective date of applicability of this Implementing Standard.

ASN 94 : Requirements for the establishments of an Approved Maintenance Organisation (145 Approval)

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SECTION A
TECHNICAL REQUIREMENTS

145.A.1 GENERAL

This is a regulation common to Sri Lanka for approved maintenance organisations.

For organisations having their principle place of business in Sri Lanka, Competent Authority shall be DGCA Sri Lanka.

Within the scope of this regulation, the following definitions shall apply:

(a) 'Aircraft' means any machine that can derive support in the atmosphere from the reactions of the air other than reactions of the air against the earth's surface;

(b) 'Certifying staff' means personnel responsible for the release of an aircraft or a component after maintenance;

(c) 'Component' means any engine, propeller, part or appliance;

(d) 'Commercial Air Transport' means any aircraft operation involving the transport of passengers, cargo or mail for remuneration or hire.(Reference : ICAO Annex 6, Part 1, Chapter 1)

(e) 'large aircraft' means an aircraft, classified as an aeroplane with a maximum take-off mass of more than 5 700 kg (12 500 pounds), or a multi-engine helicopter;

(f) 'large aeroplane' means an aeroplane of more than 5 700 kg (12 500 pounds) maximum certificated take-off weight. The category 'Large Aeroplane' does not include the commuter aeroplane category

(g) "Commuter category aeroplane" means a propeller-driven twin-engined aeroplane that has a seating configuration, excluding the pilot seat(s) of nineteen of fewer and a maximum certified take off weight of 8618 kg (19000 lb).

(h) 'Maintenance' means any one or combination of overhaul, repair, inspection, replacement, modification or defect rectification of an aircraft or component, with the exception of pre-flight inspection;

(i) 'Organisation' means a natural person, a legal person or part of a legal person. Such an organisation may hold more than one Part 145 approval;

(j) 'Pre-flight inspection' means the inspection carried out before flight to ensure that the aircraft is fit for the intended flight;

(k) "Principle place of business" means the head office or the registered office of the undertaking within which the principle financial functions and operational control of the activities referred to in this Regulation are exercised.

145.A.5 APPLICABILITY

Organisations involved in the maintenance of large aircraft or of aircraft used for commercial air

transport and components intended for fitment thereto, shall be approved in accordance with the provisions of this Part.

145.A.10 SCOPE

This Section establishes the requirements to be met by an organisation to qualify for the issue or continuation of an approval for the maintenance of aircraft and components.

AMC 145.A.10 SCOPE

1. Line Maintenance should be understood as any maintenance that is carried out before flight to ensure that the aircraft is fit for the intended flight.
   (a) Line Maintenance may include:
   - Trouble shooting.
   - Defect rectification.
   - Component replacement with use of external test equipment if required. Component replacement may include components such as engines and propellers.
   - Scheduled maintenance and/or checks including visual inspections that will detect obvious unsatisfactory conditions/discrepancies but do not require extensive in depth inspection. It may also include internal structure, systems and power plant items which are visible through quick opening access panels/doors.
   - Minor repairs and modifications which do not require extensive disassembly and can be accomplished by simple means.

   (b) For temporary or occasional cases (ADs, SBs) the Quality Manager may accept base maintenance tasks to be performed by a line maintenance organisation provided all requirements are fulfilled as defined by the competent authority.

   (c) Maintenance tasks falling outside these criteria are considered to be Base Maintenance.

   (d) Aircraft maintained in accordance with 'progressive' type programmes should be individually assessed in relation to this paragraph. In principle, the decision to allow some 'progressive' checks to be carried out should be determined by the assessment that all tasks within the particular check can be carried out safely to the required standards at the designated line maintenance station.

2. Where the organisation uses facilities both inside and outside the Sri Lanka such as satellite facilities, sub-contractors, line stations etc., such facilities may be included in the approval without being identified on the approval certificate subject to the maintenance organisation exposition identifying the facilities and containing procedures to control such facilities and the competent authority being satisfied that they form an integral part of the approved maintenance organisation.

GM 145.A.10 SCOPE

This Guidance Material (GM) provides guidance on how the smallest organisations satisfy the intent of IS-145:

1. By inference, the smallest maintenance organisation would only be involved in a limited number of light aircraft, or aircraft components, used for commercial air transport. It is therefore a matter of scale; light aircraft do not demand the same level of resources, facilities or complex maintenance procedures as the large organisation.
2. It is recognised that a IS-145 approval may be required by two quite different types of small organisations, the first being the light aircraft maintenance hangar, the second being the component maintenance workshop, e.g. small piston engines, radio equipment, etc.

3. Where only one person is employed (in fact having the certifying function and others), these organisations approved under IS-145 may use the alternatives provided in point 3.1 limited to the following:

Class A2 Base and Line maintenance of aeroplanes of 5700 kg and below (piston engines only).

Class A3 Base and Line maintenance of single-engined helicopters of less than 3175 kg.

Class A4 Aircraft other than A1, A2 and A3

Class B2 Piston engines with maximum output of less than 450 HP.

Class C Components.

Class D1 Non-destructive Testing.

3.1 145.A.30 (b): The minimum requirement is for one full-time person who meets the IS-66 requirements for certifying staff and holds the position of 'accountable manager, maintenance engineer and is also certifying staff'. No other person may issue a certificate of release to service and therefore if absent, no maintenance may be released during such absence.

3.1.1 The quality monitoring function of 145.A.65(c) may be contracted to an appropriate organisation approved under IS-145 or to a person with appropriate technical knowledge and extensive experience of quality audits employed on a part-time basis, with the agreement of the competent authority.

Note: Full-time for the purpose of IS-145 means not less than 35 hrs per week except during vacation periods.

3.1.2 145.A.35. In the case of an approval based on one person using a subcontracted quality monitoring arrangement, the requirement for a record of certifying staff is satisfied by the submission to and acceptance by the Competent Authority of the Competent Authority Form 4. With only one person the requirement for a separate record of authorisation is unnecessary because the Competent Authority Form 3 approval schedule defines the authorisation. An appropriate statement, to reflect this situation, should be included in the exposition.

3.1.3 145.A.65(c). It is the responsibility of the contracted quality monitoring organisation or person to make a minimum of 2 visits per 12 months and it is the responsibility of this organisation or person to carry out such monitoring on the basis of 1 pre-announced visit and 1 not announced visit to the organisation.

It is the responsibility of the organisation to comply with the findings of the contracted quality monitoring organisation or the person.

CAUTION: it should be understood that if the contracted organisation or the above mentioned person loses or gives up its approval, then the organisation's approval will be suspended.

4. Recommended operating procedure for an IS-145 approved maintenance organisation based upon up to 10 persons involved in maintenance.

4.1 145.A.30 (b): The normal minimum requirement is for the employment on a full-time basis of two persons who meet the competent authorities' requirements for certifying staff, whereby one holds the position of 'maintenance engineer' and the other holds the position of 'quality audit engineer'.

Either person can assume the responsibilities of the accountable manager providing that they can comply in full with the applicable elements of 145.A.30(a), but the 'maintenance engineer' should be the certifying person to retain the independence of the 'quality audit engineer' to carry out audits. Nothing prevents either engineer from undertaking maintenance tasks providing that the 'maintenance engineer' issues the certificate of release to service.

The 'quality audit engineer' should have similar qualifications and status to the 'maintenance engineer' for reasons of credibility, unless he/she has a proven track-record in aircraft quality assurance, in which case some reduction in the extent of maintenance

qualifications may be permitted.

In cases where the Competent Authority agrees that it is not practical for the organisation to nominate a post holder for the quality monitoring function, this function may be contracted in accordance to paragraph 3.1.1.

145.A.15 APPLICATION

An application for the issue or change of an approval shall be made to the competent authority in a form and manner established by such authority.

AMC 145.A.15 APPLICATION

In a form and in a manner established by the Competent Authority means that the application should be made on a *Competent Authority* Form 2 (refer to Appendix III to AMC to IS-145).

145.A.20 TERMS OF APPROVAL

The organisation shall specify the scope of work deemed to constitute approval in its exposition (*Appendix II to this Part* contains a table of all classes and ratings).

AMC 145.A.20 TERMS OF APPROVAL

The following table identifies the ATA Specification 2200 chapter for the category C component rating. If the maintenance manual (or equivalent document) does not follow the ATA Chapters, the corresponding subjects still apply to the applicable C rating.

CLASS	RATING	ATA CHAPTERS
COMPONENTS OTHER THAN COMPLETE ENGINES OR APUs	C1 Air Cond & Press	21
	C2 Auto Flight	22
	C3 Comms and Nav	23 - 34
	C4 Doors - Hatches	52
	C5 Electrical Power & Lights	24 – 33 - 85
	C6 Equipment	25 - 38 - 44 – 45 - 50
	C7 Engine – APU	49 - 71 - 72 - 73 - 74 - 75 - 76 - 77 - 78 - 79 - 80 - 81 - 82 - 83
	C8 Flight Controls	27 - 55 - 57.40 - 57.50 - 57.60 - 57.70
	C9 Fuel	28 - 47
	C10 Helicopters - Rotors	62 - 64 - 66 - 67
	C11 Helicopter - Trans	63 - 65

	C12 Hydraulic Power	29
	C13 Indicating/Recording Systems	31 – 42 - 46
	C14 Landing Gear	32
	C15 Oxygen	35
	C16 Propellers	61
	C17 Pneumatic & Vacuum	36 - 37
	C18 Protection ice/rain/fire	26 - 30
	C19 Windows	56
	C20 Structural	53 - 54 - 57.10 - 57.20 - 57.30
	C21 Water Ballast	41
	C22 Propulsion Augmentation	84

145.A.25 FACILITY REQUIREMENTS

The organisation shall ensure that:

(a) Facilities are provided appropriate for all planned work, ensuring in particular, protection from the weather elements. Specialised workshops and bays are segregated as appropriate, to ensure that environmental and work area contamination is unlikely to occur.

1. For base maintenance of aircraft, aircraft hangars are both available and large enough to accommodate aircraft on planned base maintenance;
2. For component maintenance, component workshops are large enough to accommodate the components on planned maintenance.

(b) Office accommodation is provided for the management of the planned work referred to in paragraph (a), and certifying staff so that they can carry out their designated tasks in a manner that contributes to good aircraft maintenance standards.

(c) The working environment including aircraft hangars, component workshops and office accommodation is appropriate for the task carried out and in particular special requirements observed. Unless otherwise dictated by the particular task environment, the working environment must be such that the effectiveness of personnel is not impaired:

1. temperatures must be maintained such that personnel can carry out required tasks without undue discomfort.
2. dust and any other airborne contamination are kept to a minimum and not be permitted to reach a level in the work task area where visible aircraft/component surface contamination is evident. Where dust/other airborne contamination results in visible surface contamination, all susceptible systems are sealed until acceptable conditions are re-established.
3. lighting is such as to ensure each inspection and maintenance task can be carried out in an effective manner.
4. noise shall not distract personnel from carrying out inspection tasks. Where it is impractical to control the noise source, such personnel are provided with the necessary personal

equipment to stop excessive noise causing distraction during inspection tasks.

5. where a particular maintenance task requires the application of specific environmental conditions different to the foregoing, then such conditions are observed. Specific conditions are identified in the maintenance data.
6. the working environment for line maintenance is such that the particular maintenance or inspection task can be carried out without undue distraction. Therefore where the working environment deteriorates to an unacceptable level in respect of temperature, moisture, hail, ice, snow, wind, light, dust/other airborne contamination, the particular maintenance or inspection tasks must be suspended until satisfactory conditions are re-established.

(d) Secure storage facilities are provided for components, equipment, tools and material. Storage conditions ensure segregation of serviceable components and material from unserviceable aircraft components, material, equipment and tools. The conditions of storage are in accordance with the manufacturer's instructions to prevent deterioration and damage of stored items. Access to storage facilities is restricted to authorised personnel.

AMC 145.A.25(a) FACILITY REQUIREMENTS

1. Where the hangar is not owned by the organisation, it may be necessary to establish proof of tenancy. In addition, sufficiency of hangar space to carry out planned base maintenance should be demonstrated by the preparation of a projected aircraft hangar visit plan relative to the maintenance programme. The aircraft hangar visit plan should be updated on a regular basis.
2. Protection from the weather elements relates to the normal prevailing local weather elements that are expected throughout any twelve-month period. Aircraft hangar and component workshop structures should prevent the ingress of rain, hail, ice, snow, wind and dust etc. Aircraft hangar and component workshop floors should be sealed to minimise dust generation.
3. For line maintenance of aircraft, hangars are not essential but it is recommended that access to hangar accommodation be demonstrated for usage during inclement weather for minor scheduled work and lengthy defect rectification.
4. Aircraft maintenance staff should be provided with an area where they may study maintenance instructions and complete maintenance records in a proper manner.

AMC 145.A.25(b) FACILITY REQUIREMENTS

It is acceptable to combine any or all of the office accommodation requirements into one office subject to the staff having sufficient room to carry out the assigned tasks.

In addition, as part of the office accommodation, aircraft maintenance staff should be provided with an area where they may study maintenance instructions and complete maintenance records in a proper manner.

AMC 145.A.25(d) FACILITY REQUIREMENTS

1. Storage facilities for serviceable aircraft components should be clean, well-ventilated and maintained at a constant dry temperature to minimise the effects of condensation. Manufacturer’s storage recommendations should be followed for those aircraft components identified in such published recommendations.
2. Storage racks should be strong enough to hold aircraft components and provide sufficient support for large aircraft components such that the component is not distorted during storage.
3. All aircraft components, wherever practicable, should remain packaged in protective material to minimise damage and corrosion during storage.

145.A.30 PERSONNEL REQUIREMENTS

(a) The organisation shall appoint an accountable manager who has corporate authority for ensuring that all maintenance required by the customer can be financed and carried out to the standard required by this Part. The accountable manager shall:

1. ensure that all necessary resources are available to accomplish maintenance in accordance with 145.A.65(b) to support the organisation approval.
2. establish and promote the safety and quality policy specified in 145.A.65(a).
3. demonstrate a basic understanding of this Part.

(b) The organisation shall nominate a person or group of persons, whose responsibilities include ensuring that the organisation complies with this Part. Such person(s) shall ultimately be responsible to the accountable manager.

1. The person or persons nominated shall represent the maintenance management structure of the organisation and be responsible for all functions specified in this Part.
2. The person or persons nominated shall be identified and their credentials submitted in a form and manner established by the competent authority.
3. The person or persons nominated shall be able to demonstrate relevant knowledge, background and satisfactory experience related to aircraft or component maintenance and demonstrate a working knowledge of this Part.
4. Procedures shall make clear who deputises for any particular person in the case of lengthy absence of the said person.

(c) The accountable manager under paragraph (a) shall appoint a person with responsibility for monitoring the quality system, including the associated feedback system as required by 145.A.65(c). The appointed person shall have direct access to the accountable manager to ensure that the accountable manager is kept properly informed on quality and compliance matters.

(d) The organisation shall have a maintenance man-hour plan showing that the organisation has sufficient staff to plan, perform, supervise, inspect and quality monitor the organisation in accordance with the approval. In addition the organisation shall have a procedure to reassess work intended to be carried out when actual staff availability is less than the planned staffing level for any particular work shift or period.

(e) The organisation shall establish and control the competence of personnel involved in any maintenance, management and/or quality audits in accordance with a procedure and to a standard agreed by the competent authority. In addition to the necessary expertise related to the job function, competence must include an understanding of the application of human factors and human performance issues appropriate to that person's function in the organisation.

"Human factors" means 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 of human performance.

"Human performance" means human capabilities and limitations which have an impact on the safety and efficiency of aeronautical operations.

(f) The organisation shall ensure that personnel who carry out and/or control a continued airworthiness non-destructive test of aircraft structures and/or components are appropriately qualified for the particular non-destructive test in accordance with the European or equivalent Standard recognised by the *Competent Authority*. Personnel who carry out any other specialised task shall be appropriately qualified in accordance with officially recognised Standards. By derogation to this paragraph those personnel specified in paragraphs (g) and (h)(1) and (h)(2), qualified in category B1 or B3 in accordance with IS-66 may carry out and/or control colour contrast dye penetrant tests.

(g) Any organisation maintaining aircraft, except where stated otherwise in point (j), shall in the case

of aircraft line maintenance, have appropriate aircraft rated certifying staff qualified as category B1, B2, B3, as appropriate, in accordance with IS-66 and IS 145.A.35.

In addition such organisations may also use appropriately task trained certifying staff holding the privileges described in IS 66.A.20(a)(1) and 66.A.20(a)(3)(ii) and qualified in accordance with IS-66 and IS 145.A.35 to carry out minor scheduled line maintenance and simple defect rectification. The availability of such certifying staff shall not replace the need for category B1, B2, B3 certifying staff, as appropriate.

(h) Any organisation maintaining aircraft, except where stated otherwise in paragraph (j) shall:

1. in the case of base maintenance of large aircraft, have appropriate aircraft type rated certifying staff qualified as category C in accordance with IS-66 and 145.A.35. In addition the organisation shall have sufficient aircraft type rated staff qualified as category B1, B2 as appropriate in accordance with IS-66 and 145.A.35 to support the category C certifying staff.

   (i) B1 and B2 support staff shall ensure that all relevant tasks or inspections have been carried out to the required standard before the category C certifying staff issues the certificate of release to service.

   (ii) The organisation shall maintain a register of any such B1 and B2 support staff.

   (iii) The category C certifying staff shall ensure that compliance with paragraph (i) has been met and that all work required by the customer has been accomplished during the particular base maintenance check or work package, and shall also assess the impact of any work not carried out with a view to either requiring its accomplishment or agreeing with the operator to defer such work to another specified check or time limit.

2. in the case of base maintenance of aircraft other than large aircraft have either:

   (i) appropriate aircraft rated certifying staff qualified as category B1, B2, B3, as appropriate, in accordance with IS-66 and point 145.A.35 or,

   (ii) appropriate aircraft rated certifying staff qualified in category C assisted by support staff as specified in point 145.A.35(a)(i).

(i) Component certifying staff shall comply with IS-66.

(j) By derogation to paragraphs (g) and (h), in relation to the obligation to comply with IS-66, the organisation may use certifying staff qualified in accordance with the following provisions:

1. For organisation facilities located outside the *Sri Lanka territory* certifying staff may be qualified in accordance with the national aviation regulations of the State in which the organisation facility is registered subject to the conditions specified in Appendix IV to this Part.

2. For line maintenance carried out at a line station of an organisation which is located outside the *Sri Lanka territory*, the certifying staff may be qualified in accordance with the national aviation regulations of the State in which the line station is based, subject to the conditions specified in Appendix IV to this IS.

3. For a repetitive pre-flight airworthiness directive which specifically states that the flight crew may carry out such airworthiness directive, the organisation may issue a limited certification authorisation to the aircraft commander and/or the flight engineer on the basis of the flight crew licence held. However, the organisation shall ensure that sufficient practical training has been carried out to ensure that such aircraft commander or flight engineer can accomplish the airworthiness directive to the required standard.

4. In the case of aircraft operating away from a supported location the organisation may issue a limited certification authorisation to the commander and/or the flight engineer on the basis of the flight crew licence held subject to being satisfied that sufficient practical training has been carried out to ensure that the commander or flight engineer can accomplish the specified task to the required standard. The provisions of this paragraph shall be detailed in an exposition procedure.

5. In the following unforeseen cases, where an aircraft is grounded at a location other than the main base where no appropriate certifying staff *is* available, the organisation contracted to provide maintenance support may issue a one-off certification authorisation:

   (i) to one of its employees holding equivalent type authorisations on aircraft of similar technology, construction and systems; or

   (ii) to any person with not less than five years maintenance experience and holding a valid ICAO aircraft maintenance licence rated for the aircraft type requiring certification provided there is no organisation appropriately approved under this Part at that location and the contracted organisation obtains and holds on file evidence of the experience and the licence of that person.

   All such cases as specified in this subparagraph shall be reported to the Competent Authority within seven days of the issuance of such certification authorisation. The organisation issuing the one-off authorisation shall ensure that any such maintenance that could affect flight safety is re-checked by an appropriately approved organisation.

AMC 145.A.30(a) PERSONNEL REQUIREMENTS

With regard to the accountable manager, it is normally intended to mean the chief executive officer of the approved maintenance organisation, who by virtue of position has overall (including in particular financial) responsibility for running the organisation. The accountable manager may be the accountable manager for more than one organisation and is not required to be necessarily knowledgeable on technical matters as the maintenance organisation exposition defines the maintenance standards. When the accountable manager is not the chief executive officer the Competent Authority will need to be assured that such an accountable manager has direct access to chief executive officer and has a sufficiency of 'maintenance funding' allocation.

AMC 145.A.30(b) PERSONNEL REQUIREMENTS

1. Dependent upon the size of the organisation, the IS-145 functions may be subdivided under individual managers or combined in any number of ways.
2. The organisation should have, dependent upon the extent of approval, a base maintenance manager, a line maintenance manager, a workshop manager and a quality manager, all of whom should report to the accountable manager except in small IS-145 organisation where any one manager may also be the accountable manager, as determined by the Competent Authority, he/she may also be the line maintenance manager or the workshop manager.
3. The base maintenance manager is responsible for ensuring that all maintenance required to be carried out in the hangar, plus any defect rectification carried out during base maintenance, is carried out to the design and quality standards specified in 145.A.65 (b). The base maintenance manager is also responsible for any corrective action resulting from the quality compliance monitoring of 145.A.65(c).
4. The line maintenance manager is responsible for ensuring that all maintenance required to be carried out on the line including line defect rectification is carried out to the standards specified in 145.A.65(b) and also responsible for any corrective action resulting from the quality compliance monitoring of 145.A.65(c).
5. The workshop manager is responsible for ensuring that all work on aircraft components is carried out to the standards specified in 145.A.65(b) and also responsible for any corrective action resulting from the quality compliance monitoring of 145.A.65(c).
6. The quality manager's responsibility is specified in 145.A.30(c).
7. Notwithstanding the example sub-paragraphs 2 - 6 titles, the organisation may adopt any title for the foregoing managerial positions but should identify to the Competent Authority the titles and persons chosen to carry out these functions.

8. Where an organisation chooses to appoint managers for all or any combination of the identified IS-145 functions because of the size of the undertaking, it is necessary that these managers report ultimately through either the base maintenance manager or line maintenance manager or workshop manager or quality manager, as appropriate, to the accountable manager.

   NOTE: Certifying staff may report to any of the managers specified depending upon which type of control the approved maintenance organisation uses (for example licensed engineers/independent inspection/dual function supervisors etc.) so long as the quality compliance monitoring staff specified in 145.A.65(c)(1) remain independent.

AMC 145.A.30(c) PERSONNEL REQUIREMENTS

Monitoring the quality system includes requesting remedial action as necessary by the accountable manager and the nominated persons referred to in 145.A.30 (b).

AMC 145.A.30(d) PERSONNEL REQUIREMENTS

1. Has sufficient staff means that the organisation employs or contracts competent staff, as detailed in the man-hour plan, of which at least half the staff that perform maintenance in each workshop, hangar or flight line on any shift should be employed to ensure organisational stability. For the purpose of meeting a specific operational necessity, a temporary increase of the proportion of contracted staff may be permitted to the organisation by the competent authority, in accordance with an approved procedure which should describe the extent, specific duties, and responsibilities for ensuring adequate organisation stability. For the purpose of this subparagraph, employed means the person is directly employed as an individual by the maintenance organisation approved under IS-145, whereas contracted means the person is employed by another organisation and contracted by that organisation to the maintenance organisation approved under IS-145.
2. The maintenance man-hour plan should take into account all maintenance activities carried out outside the scope of the IS-145 approval.

   The planned absence (for training, vacations, etc.) should be considered when developing the man-hour plan.
3. The maintenance man-hour plan should relate to the anticipated maintenance workload except that when the organisation cannot predict such workload, due to the short-term nature of its contracts, then such plan should be based upon the minimum maintenance workload needed for commercial viability. Maintenance workload includes all necessary work such as, but not limited to, planning, maintenance record checks, production of worksheets/cards in paper or electronic form, accomplishment of maintenance, inspection and the completion of maintenance records.
4. In the case of aircraft base maintenance, the maintenance man-hour plan should relate to the aircraft hangar visit plan as specified in AMC 145.A.25 (a).
5. In the case of aircraft component maintenance, the maintenance man-hour plan should relate to the aircraft component planned maintenance as specified in 145.A.25 (a) (2).
6. The quality monitoring compliance function man-hours should be sufficient to meet the requirement of 145.A.65(c) which means taking into account AMC 145.A.65(c). Where quality monitoring staff perform other functions, the time allocated to such functions needs to be taken into account in determining quality monitoring staff numbers.
7. The maintenance man-hour plan should be reviewed at least every 3 months and updated when necessary.
8. Significant deviation from the maintenance man-hour plan should be reported through the departmental manager to the quality manager and the accountable manager for review. Significant deviation means more than a 25% shortfall in available man-hours during a calendar month for any one of the functions specified in 145.A.30 (d).

AMC 1 145.A.30(e)

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

The referenced procedure requires amongst others that planners, mechanics, specialised services staff, supervisors, certifying staff and support staff, whether employed or contracted, are assessed for competence before unsupervised work commences and competence is controlled on a continuous basis.

Competence should be assessed by evaluation of:

- on-the-job performance and/or testing of knowledge by appropriately qualified personnel, and
- records for basic, organisational, and/or product type and differences training, and
- experience records.

Validation of the above could include a confirmation check with the organisation(s) that issued such document(s). For that purpose, experience/training may be recorded in a document such as a log book or based on the suggested template in GM 3 to 145.A.30(e).

As a result of this assessment, an individual's qualification should determine:

- which level of ongoing supervision would be required or whether unsupervised work could be permitted.
- whether there is a need for additional training.

A record of such qualification and competence assessment should be kept.

This should include copies of all documents that attest to qualification, such as the licence and/or any authorisation held, as applicable.

For a proper competence assessment of its personnel, the organisation should consider that:

1. In accordance with the job function, adequate initial and recurrent training should be provided and recorded to ensure continued competence so that it is maintained throughout the duration of employment/contract.
2. All staff should be able to demonstrate knowledge of and compliance with the maintenance organisation procedures, as applicable to their duties.
3. All staff should be able to demonstrate an understanding of human factors and human performance issues in relation with their job function and be trained as per AMC 2 145.A.30 (e).
4. To assist in the assessment of competence and to establish the training needs analysis, job descriptions are recommended for each job function in the organisation. Job descriptions should contain sufficient criteria to enable the required competence assessment.
5. Criteria should allow the assessment to establish that, among others (titles might be different in each organisation):
    - Managers are able to properly manage the work output, processes, resources and priorities described in their assigned duties and responsibilities in a safe compliant manner in accordance with regulations and organisation procedures.
    - Planners are able to interpret maintenance requirements into maintenance tasks, and have an understanding that they have no authority to deviate from the maintenance data.
    - Supervisors are able to ensure that all required maintenance tasks are carried out and, where not completed or where it is evident that a particular maintenance task cannot be carried out to the maintenance data, then such problems will be reported to the

145.A.30(c) person for appropriate action. In addition, for those supervisors, who also carry out maintenance tasks, that they understand such tasks should not be undertaken when incompatible with their management responsibilities.

- Mechanics are able to carry out maintenance tasks to any standard specified in the maintenance data and will notify supervisors of defects or mistakes requiring rectification to re-establish required maintenance standards.
- Specialised services staff are able to carry out specialised maintenance tasks to the standard specified in the maintenance data. They should be able to communicate with supervisors and report accurately when necessary.
- Support staff are able to determine that relevant tasks or inspections have been carried out to the required standard.
- Certifying staff are able to determine when the aircraft or aircraft component is ready to release to service and when it should not be released to service.
- Quality audit staff are able to monitor compliance with IS-145 identifying non-compliance in an effective and timely manner so that the organisation may remain in compliance with IS-145.

Competence assessment should be based upon the procedure specified in GM 2 to 145.A.30(e).

AMC 2 145.A.30(e)

In respect to the understanding of the application of human factors and human performance issues, all maintenance organisation personnel should have received an initial and continuation human factors training. This should concern to a minimum:

- Post-holders, managers, supervisors;
- Certifying staff, support staff and mechanics;
- Technical support personnel such as planners, engineers, technical record staff;
- Quality control/assurance staff;
- Specialised services staff;
- Human factors staff/human factors trainers;
- Store department staff, purchasing department staff;
- Ground equipment operators.

1. Initial human factors training should cover all the topics of the training syllabus specified in GM 145.A.30(e) either as a dedicated course or else integrated within other training. The syllabus may be adjusted to reflect the particular nature of the organisation. The syllabus may also be adjusted to meet the particular nature of work for each function within the organisation. For example:
    - small organisations not working in shifts may cover in less depth subjects related to teamwork and communication;
    - planners may cover in more depth the scheduling and planning objective of the syllabus and in less depth the objective of developing skills for shift working.

    All personnel, including personnel being recruited from any other organisation should receive initial human factors training compliant with the organisation's training standards prior to commencing actual job function, unless their competence assessment justifies that there is no

need for such training. Newly directly employed personnel working under direct supervision may receive training within 6 months after joining the maintenance organisation.

2. The purpose of human factors continuation training is primarily to ensure that staff remain current in terms of human factors and also to collect feedback on human factors issues. Consideration should be given to the possibility that such training has the involvement of the quality department. There should be a procedure to ensure that feedback is formally passed from the trainers to the quality department to initiate action where necessary.

   Human factors continuation training should be of an appropriate duration in each two year period in relation to relevant quality audit findings and other internal/external sources of information on human errors in maintenance available to the organisation.

3. Human factors training may be conducted by the maintenance organisation itself, or independent trainers, or any training organisations acceptable to the competent authority.

4. The human factors training procedures should be specified in the maintenance organisation exposition.

AMC 3 145.A.30(e)

Additional training in fuel tank safety as well as associated inspection standards and maintenance procedures should be required for maintenance organisations' technical personnel, especially technical personnel involved in the compliance of CDCCL tasks.

Guidance is provided for training to maintenance organisation personnel in Appendix IV to AMC to 145.A.30(e) and 145.B.10(3).

AMC 4 145.A.30(e)

Competence assessment should include the verification for the need of additional EWIS training when relevant.
In the absence of specific SARI guidance, guidance of EASA AMC 20-22 may be used for EWIS training programme to maintenance organisation personnel.

AMC 145.A.30(f) PERSONNEL REQUIREMENTS

1. Continued airworthiness non-destructive testing means such testing specified by the type certificate holder /aircraft or engine or propeller manufacturer in accordance with the maintenance data as specified in 145.A.45 for in service aircraft/aircraft components for the purpose of determining the continued fitness of the product to operate safely.
2. Appropriately qualified means to Level 1, 2 or 3 as defined by the European Standard EN 4179 *dependent upon the non-destructive testing function to be carried out or any standard recognised as equivalent by the Competent Authority.*
3. Notwithstanding the fact that Level 3 personnel may be qualified via EN 4179 *or any standard recognised by the Competent Authority* to establish and authorise methods, techniques, etc., this does not permit such personnel to deviate from methods and techniques published by the type certificate holder/manufacturer in the form of continued airworthiness data, such as in non-destructive test manuals or service bulletins, unless the manual or service bulletin expressly permits such deviation.
4. *All examinations should be conducted by personnel or organisations under the control of an organisation 9NDT board for example) recognised by the Competent Authority.*
5. Particular non-destructive test means any one or more of the following; Dye penetrant, magnetic particle, eddy current, ultrasonic and radiographic methods including X ray and gamma ray.
6. It should be noted that new methods are and will be developed, such as, but not limited to

thermography and shearography, which are not specifically addressed *in the standards recognised by the Competent Authority*. Until the time this agreed standard is established, such methods should be carried out in accordance with the particular equipment manufacturer's recommendations including any training and examination process to ensure competence of the personnel in the process.

7. Any maintenance organisation approved under IS-145 that carries out NDT should establish NDT specialist qualification procedures detailed in the exposition and accepted by the Competent Authority.
8. Boroscoping and other techniques such as delamination coin tapping are non-destructive inspections rather than non-destructive testing. Notwithstanding such differentiation, the maintenance organisation should establish an exposition procedure accepted by the competent authority to ensure that personnel who carry out and interpret such inspections are properly trained and assessed for their competence in the process. Non-destructive inspections, not being considered as NDT by IS-145 are not listed in Appendix II under class rating D1.
9. The referenced standards, methods, training and procedures should be specified in the maintenance organisation exposition.
10. Any such personnel who intend to carry out and/or control a non-destructive test for which they were not qualified prior to the effective date of IS-145 should qualify for such non-destructive test in accordance with EN 4179 *or a standard recognised as equivalent or acceptable to the Competent Authority*.
11. In this context officially recognised standard means those standards established or published by an official body whether having legal personality or not, which are widely recognised by the air transport sector as constituting good practice.

AMC 145.A.30(g) PERSONNEL REQUIREMENTS

1. For the purposes of 66.A.20(a)(1) and 66.A.20(a)(3)(ii) personnel, minor scheduled line maintenance means any minor scheduled inspection/check up to and including a weekly check specified in the aircraft maintenance programme. For aircraft maintenance programmes that do not specify a weekly check, the Competent Authority will determine the most significant check that is considered equivalent to a weekly check.

2. Typical tasks permitted after appropriate task training to be carried out by the 66.A.20(a)(1) and the 66.A.20(a)(3)(ii) personnel for the purpose of these personnel issuing an aircraft certificate of release to service as specified in 145.A.50 as part of minor scheduled line maintenance or simple defect rectification are contained in the following list:
   (a) Replacement of wheel assemblies.
   (b) Replacement of wheel brake units.
   (c) Replacement of emergency equipment.
   (d) Replacement of ovens, boilers and beverage makers.
   (e) Replacement of internal and external lights, filaments and flash tubes.
   (f) Replacement of windscreen wiper blades.
   (g) Replacement of passenger and cabin crew seats, seat belts and harnesses.
   (h) Closing of cowlings and refitment of quick access inspection panels.
   (i) Replacement of toilet system components but excluding gate valves.
   (j) Simple repairs and replacement of internal compartment doors and placards but excluding doors forming part of a pressure structure.
   (k) Simple repairs and replacement of overhead storage compartment doors and cabin

furnishing items.

(l) Replacement of static wicks.

(m) Replacement of aircraft main and APU aircraft batteries.

(n) Replacement of in-flight entertainment system components other than public address.

(o) Routine lubrication and replenishment of all system fluids and gases.

(p) The de-activation only of sub-systems and aircraft components as permitted by the operator's minimum equipment list where such de-activation is agreed by the Competent Authority as a simple task.

(q) Inspection for and removal of de-icing/anti-icing fluid residues, including removal/closure of panels, cowls or covers or the use of special tools.

(r) Any other task agreed by the competent authority as a simple task for a particular aircraft type. This may include defect deferment when all the following conditions are met:

- There is no need for troubleshooting; and
- The task is in the MEL; and
- The maintenance action required by the MEL is agreed by the competent authority to be simple.

In the particular case of helicopters, and in addition to the items above, the following:

(s) removal and installation of Helicopter Emergency Medical Service (HEMS) simple internal medical equipment.

(t) removal and installation of external cargo provisions (i.e., external hook, mirrors) other than the hoist.

(u) removal and installation of quick release external cameras and search lights.

(v) removal and installation of emergency float bags, not including the bottles.

(w) removal and installation of external doors fitted with quick release attachments.

(x) removal and installation of snow pads/skid wear shoes/slump protection pads.

No task which requires troubleshooting should be part of the authorised maintenance actions. Release to service after rectification of deferred defects should be permitted as long as the task is listed above.

3. The requirement of having appropriate aircraft rated certifying staff qualified as category B1, B2, B3, as appropriate, in the case of aircraft line maintenance does not imply that the organisation must have B1, B2 and B3 personnel at every line station. The MOE should have a procedure on how to deal with defects requiring B1, B2 or B3 certifying staff.

4. The Competent Authority may accept that in the case of aircraft line maintenance an organisation has only B1, B2 or B3 certifying staff, as appropriate, provided that the competent authority is satisfied that the scope of work, as defined in the Maintenance Organisation Exposition, does not need the availability of all B1, B2 and B3 certifying staff. Special attention should be taken to clearly limit the scope of scheduled and non-scheduled line maintenance (defect rectification) to only those tasks that can be certified by the available certifying staff category.

AMC 145.A.30(h) PERSONNEL REQUIREMENTS

In accordance with 145.A.30(h) and 145.A.35, the qualification requirements (basic licence, aircraft ratings, recent experience and continuation training) are identical for certifying staff and for support staff. The only difference is that support staff cannot hold certification privileges when performing this role since during base maintenance the release to service will be issued by category C certifying staff.

Nevertheless, the organisation may use as support staff (for base maintenance) persons who already hold certification privileges for line maintenance.

AMC 145.A.30(j)(4) PERSONNEL REQUIREMENTS

1. For the issue of a limited certification authorisation the commander or flight engineer should hold either a valid air transport pilots license (ATPL), commercial pilots license (CPL) or flight engineer (F/EL) licence in accordance with *the Competent Authority flight crew licensing system* on the aircraft type. In addition the limited certification authorisation is subject to the maintenance organisation exposition containing procedures to address the personnel requirements of 145.A.30 (e) and associated AMC and guidance material.

   Such procedures should include as a minimum:

   (a) Completion of adequate maintenance airworthiness regulation training.

   (b) Completion of adequate task training for the specific task on the aircraft. The task training should be of sufficient duration to ensure that the individual has a thorough understanding of the task to be completed and will involve training in the use of associated maintenance data.

   (c) Completion of the procedural training as specified in IS-145.

   The above procedures should be specified in the maintenance organisation exposition and be accepted by the Competent Authority.

2.(i) Typical tasks that may be certified and/or carried out by the commander holding an ATPL or CPL are minor maintenance or simple checks included in the following list:

   (a) Replacement of internal lights, filaments and flash tubes.

   (b) Closing of cowlings and refitment of quick access inspection panels.

   (c) Role changes e.g. stretcher fit, dual controls, FLIR, doors, photographic equipment etc.

   (d) Inspection for and removal of de-icing/anti-icing fluid residues, including removal/closure of panels, cowls or covers that are easily accessible but not requiring the use of special tools.

   (e) Any check / replacement involving simple techniques consistent with this AMC and as agreed by the competent authority.

2.(ii) Holders of a valid Flight engineers licence meeting *the Competent Authority Flight Crew Licensing System*, or a national equivalent acceptable to the Competent Authority, on the aircraft type may only exercise this limited certification authorisation privilege when performing the duties of a flight engineer.

   In addition to paragraph 2(i)(a) to (e) other typical minor maintenance or simple defect rectification tasks that may be carried out are included in the following list:

   (a) Replacement of wheel assemblies.

   (b) Replacement of simple emergency equipment that is easily accessible.

   (c) Replacement of ovens, boilers and beverage makers.

   (d) Replacement of external lights.

   (e) Replacement of passenger and cabin crew seats, seat belts and harnesses.

   (f) Simple replacement of overhead storage compartment doors and cabin furnishing items.

(g) Replacement of static wicks.

(h) Replacement of aircraft main and APU aircraft batteries.

(i) Replacement of in-flight entertainment system components other than public address.

(j) The de-activation only of sub-systems and aircraft components as permitted by the operator's minimum equipment list where such de-activation is agreed by the Competent Authority as a simple task.

(k) Re-setting of tripped circuit breakers under the guidance of maintenance control.

(l) Any other task agreed by the Competent Authority as a simple task for a particular aircraft type.

3. The authorisation should have a finite life of twelve months subject to satisfactory re-current training on the applicable aircraft type.

AMC 145.A.30(j)(5) PERSONNEL REQUIREMENTS

1. For the purposes of this sub-paragraph "unforeseen" means that the aircraft grounding could not reasonably have been predicted by the operator because the defect was unexpected due to being part of a hitherto reliable system.
2. A one-off authorisation should only be considered for issue by the quality department of the contracted organisation after it has made a reasoned judgement that such a requirement is appropriate under the circumstances and at the same time maintaining the required airworthiness standards. The organisation's quality department will need to assess each situation individually prior to the issuance of a one-off authorisation
3. A one-off authorisation should not be issued where the level of certification required could exceed the knowledge and experience level of the person it is issued to. In all cases, due consideration should be given to the complexity of the work involved and the availability of required tooling and/or test equipment needed to complete the work.

AMC 145.A.30(j)(5)(i) PERSONNEL REQUIREMENTS

In those situations where the requirement for a one-off authorisation to issue a CRS for a task on an aircraft type for which certifying staff does not hold a type-rated authorisation has been identified, the following procedure is recommended:

1. Flight crew should communicate full details of the defect to the operator's supporting maintenance organisation. If necessary, the supporting maintenance organisation will then request the use of a one-off authorisation from the quality department.
2. When issuing a one-off authorisation, the quality department of the organisation should verify that:

   (a) Full technical details relating to the work required to be carried out have been established and passed on to the certifying staff.

   (b) The organisation has an approved procedure in place for coordinating and controlling the total maintenance activity undertaken at the location under the authority of the one-off authorisation.

   (c) The person to whom a one-off authorisation is issued has been provided with all the necessary information and guidance relating to maintenance data and any special technical instructions associated with the specific task undertaken. A detailed step by step worksheet has been defined by the organisation, communicated to the one-off authorisation holder.

   (d) The person holds authorisations of equivalent level and scope on other aircraft type of similar technology, construction and systems.

3. The one-off authorisation holder should sign off the detailed step by step worksheet when completing the work steps. The completed tasks should be verified by visual examination and/or

normal system operation upon return to an appropriately approved IS-145 maintenance facility.

AMC 145.A.30(j)(5)(ii) PERSONNEL REQUIREMENTS

This paragraph addresses staff not employed by the maintenance organisation who meet the requirements of 145.A.30 (j) (5). In addition to the items listed in AMC 145.A.30(j) (5) (i), paragraph 1, 2(a), (b) and (c) and 3 the quality department of the organisation may issue such one-off authorisation providing full qualification details relating to the proposed certifying personnel are verified by the quality department and made available at the location.

GM 1 145.A.30(e) PERSONNEL REQUIREMENTS

TRAINING SYLLABUS FOR INITIAL HUMAN FACTORS TRAINING

The training syllabus below identifies the topics and subtopics to be addressed during the human factors training.

The maintenance organisation may combine, divide, change the order of any subject of the syllabus to suit its own needs, as long as all subjects are covered to a level of detail appropriate to the organisation and its personnel.

Some of the topics may be covered in separate training (health and safety, management, supervisory skills, etc.) in which case duplication of training is not necessary.

Where possible, practical illustrations and examples should be used, especially accident and incident reports.

Topics should be related to existing legislation, where relevant. Topics should be related to existing guidance/advisory material, where relevant (e.g. ICAO HF Digests and Training Manual).

Topics should be related to maintenance engineering where possible; too much unrelated theory should be avoided.

1 General/Introduction to human factors

- 1.1 Need to address human factors
- 1.2 Statistics
- 1.3 Incidents

2 Safety Culture/Organisational factors

3 Human Error

- 3.1 Error models and theories
- 3.2 Types of errors in maintenance tasks
- 3.3 Violations
- 3.4 Implications of errors
- 3.5 Avoiding and managing errors
- 3.6 Human reliability

4 Human performance & limitations

- 4.1 Vision
- 4.2 Hearing
- 4.3 Information-processing
- 4.4 Attention and perception

- 4.5 Situational awareness
- 4.6 Memory
- 4.7 Claustrophobia and physical access
- 4.8 Motivation
- 4.9 Fitness/Health
- 4.10 Stress
- 4.11 Workload management
- 4.12 Fatigue
- 4.13 Alcohol, medication, drugs
- 4.14 Physical work
- 4.15 Repetitive tasks/complacency

5 Environment

- 5.1 Peer pressure
- 5.2 Stressors
- 5.3 Time pressure and deadlines
- 5.4 Workload
- 5.5 Shift Work
- 5.6 Noise and fumes
- 5.7 Illumination
- 5.8 Climate and temperature
- 5.9 Motion and vibration
- 5.10 Complex systems
- 5.11 Hazards in the workplace
- 5.12 Lack of manpower
- 5.13 Distractions and interruptions

6 Procedures, information, tools and practices

- 6.1 Visual Inspection
- 6.2 Work logging and recording
- 6.3 Procedure - practice/mismatch/norms
- 6.4 Technical documentation - access and quality

7 Communication

- 7.1 Shift/Task handover
- 7.2 Dissemination of information
- 7.3 Cultural differences

8 Teamwork

- 8.1 Responsibility
- 8.2 Management, supervision and leadership

8.3 Decision making

9 Professionalism and integrity

9.1 Keeping up to date; currency

9.2 Error provoking behaviour

9.3 Assertiveness

10 Organisation's HF program

10.1 Reporting errors

10.2 Disciplinary policy

10.3 Error investigation

10.4 Action to address problems

10.5 Feedback

GM 2 145.A.30 (e) COMPETENCE ASSESSMENT PROCEDURE

The organisation should develop a procedure describing the process of competence assessment of personnel. The procedure should specify:

- persons responsible for this process,
- when the assessment should take place,
- credits from previous assessments,
- validation of qualification records,
- means and methods for the initial assessment,
- means and methods for the continuous control of competence including feedback on personnel performance,
- competences to be observed during the assessment in relation with each job function,
- actions to be taken when assessment is not satisfactory,
- recording of assessment results.

For example, according to the job functions and the scope, size and complexity of the organisation, the assessment may consider the following (the table is not exhaustive):

	Managers	Planners	Supervisor	Certifying staff and support staff	Mechanics	Specialised Service staff	Quality audit staff
Knowledge of applicable officially recognised standards						X	X
Knowledge of auditing techniques: planning, conducting and reporting							X
Knowledge of human factors, human performance and limitations	X	X	X	X	X	X	X
Knowledge of logistics processes	X	X	X				
Knowledge of organisation capabilities, privileges and limitations	X	X	X	X		X	X
Knowledge of IS-M, IS-145 and any other relevant regulations	X	X	X	X			X
Knowledge of relevant parts of the maintenance organisation exposition and procedures	X	X	X	X	X	X	X
Knowledge of occurrence reporting system and understanding of the importance of reporting occurrences, incorrect maintenance data and existing or potential defects		X	X	X	X	X	
Knowledge of safety risks linked to the working environment	X	X	X	X	X	X	X
Knowledge on CDCCL when relevant	X	X	X	X	X	X	X
Knowledge on EWIS when relevant	X	X	X	X	X	X	X
Understanding of professional integrity, behaviour and attitude towards safety	X	X	X	X	X	X	X
Understanding of conditions for ensuring continuing airworthiness of aircraft and components				X			X
Understanding of his/her own human performance and limitations	X	X	X	X	X	X	X
Understanding of personnel authorisations and limitations	X	X	X	X	X	X	X
Understanding critical task		X	X	X	X		X
Ability to compile and control completed work cards		X	X	X			

	Managers	Planners	Supervisor	Certifying staff and support staff	Mechanics	Specialised service staff	Quality audit staff
Ability to consider human performance and limitations.	X	X	X	X			X
Ability to determine required qualifications for task performance		X	X	X			
Ability to identify and rectify existing and potential unsafe conditions			X	X	X	X	X
Ability to manage third parties involved in maintenance activity		X	X				
Ability to confirm proper accomplishment of maintenance tasks			X	X	X	X	
Ability to identify and properly plan performance of critical task		X	X	X			
Ability to prioritise tasks and report discrepancies		X	X	X	X		
Ability to process the work requested by the operator		X	X	X			
Ability to promote the safety and quality policy	X		X				
Ability to properly process removed, uninstalled and rejected parts			X	X	X	X	
Ability to properly record and sign for work accomplished			X	X	X	X	
Ability to recognise the acceptability of parts to be installed prior to fitment				X	X		
Ability to split complex maintenance tasks into clear stages		X					
Ability to understand work orders, work cards and refer to and use applicable maintenance data		X	X	X	X	X	X
Ability to use information systems	X	X	X	X	X	X	X
Ability to use, control and be familiar with required tooling and/or equipment			X	X	X	X	
Adequate communication and literacy skills	X	X	X	X	X	X	X
Analytical and proven auditing skills (for example, objectivity, fairness, open-mindedness, determination, …)							X
Maintenance error investigation skills							X
Resources management and production planning skills	X	X	X				
Teamwork, decision-making and leadership skills	X		X				

GM 3 145.A.30 (e) - TEMPLATE FOR RECORDING EXPERIENCE/TRAINING

The following template may be used to record the professional experience gained in an organisation and the training received and be considered during the competence assessment of the individual in another organisation.

Aviation Maintenance personnel experience credential

Name Given name
Address

Telephone E-mail

Independent worker ☐
Trade Group: airframe ☐ engine ☐ electric ☐ avionics ☐ other (specify) ☐……

Employer's details (when applicable)
Name
Address

Telephone

Maintenance organisation details
Name
Address

Telephone
Approval Number
Period of employment From: To:

Domain of employment

☐ Planning	☐ Engineering	☐ Technical records
☐ Store department	☐ Purchasing	

Mechanics/Technician

☐ Line Maintenance	☐ Base Maintenance	☐ Component Maintenance
☐ Servicing	☐ Removal/installation	☐ Testing/inspection
☐ Scheduled Maintenance	☐ Inspection	☐ Repair
☐ Trouble-shooting	☐ Trouble-shooting	☐ Overhaul
	☐ Repair	☐ Re-treatment
		☐ Reassembly
A/C type	A/C type	Component type

Certifying Staff and support staff

☐ Cat. A	☐ Cat. B1	☐ Cat. B2	☐ Cat. C	☐ Component	☐ Other (e.g NDT)
A/C Type	A/C Type	A/C Type	A/C Type	Component Type	Specify

Certification privileges: Yes ☐ / No ☐

☐ Specialised services Speciality (*NDT, composites, welding, etc.*):

☐ Skilled personnel Speciality *(sheet metal, structures, wireman, upholstery, etc.)*:

☐ Ground equipment operation
☐ Quality control ☐ Quality assurance ☐ Training

Total number of check boxes ticked: ☐

Details of employment

Training received from the contracting organisation

Date Nature of training

Certified by:

Name: Date:

Position: Signature:

Contact details:

Advisory note: A copy of the present credential will be kept for at least 3 years from its issuance by the maintenance organisation.

GM 145.A.30(j)(4) PERSONNEL REQUIREMENTS (FLIGHT CREW)

Refer to applicable flight crew National licensing requirements

145.A.35 CERTIFYING STAFF AND SUPPORT STAFF

(a) In addition to the appropriate requirements of 145.A.30(g) and (h), the organisation shall ensure that certifying staff and support staff have an adequate understanding of the relevant aircraft and/or components to be maintained together with the associated organisation procedures. In the case of certifying staff, this shall be accomplished before the issue or re-issue of the certification authorisation.

(i) 'Support staff' means those staff holding a IS-66 aircraft maintenance licence in category B1, B2 and/or B3 with the appropriate aircraft ratings, working in a base maintenance environment while not necessarily holding certification privileges.

(ii) 'Relevant aircraft and/or components', means those aircraft or components specified in the particular certification authorisation.

(iii) 'Certification authorisation' means the authorisation issued to certifying staff by the organisation and which specifies the fact that they may sign certificates of release to service within the limitations stated in such authorisation on behalf of the approved organisation.

(b) Excepting those cases listed in 145.A.30(j) and 66.A.20(a)3(ii) the organisation may only issue a certification authorisation to certifying staff in relation to the basic categories or subcategories and any type rating listed on the aircraft maintenance licence as required by IS-66, subject to the licence remaining valid throughout the validity period of the authorisation and the certifying staff remaining in compliance with IS-66.

(c) The organisation shall ensure that all certifying staff and support staff are involved in at least six months of actual relevant aircraft or component maintenance experience in any consecutive two year period.

For the purpose of this paragraph "involved in actual relevant aircraft or component maintenance" means that the person has worked in an aircraft or component maintenance environment and has either exercised the privileges of the certification authorisation and/or has actually carried out maintenance on at least some of the aircraft type or aircraft group systems specified in the particular certification authorisation.

(d) The organisation shall ensure that all certifying staff and support staff receive sufficient continuation training in each two year period to ensure that such staff have up-to-date knowledge of relevant technology, organisation procedures and human factor issues.

(e) The organisation shall establish a programme for continuation training for certifying staff and support staff, including a procedure to ensure compliance with the relevant paragraphs of 145.A.35 as the basis for issuing certification authorisations under this Part to certifying staff, and a procedure to ensure compliance with IS 66.

(f) Except where any of the unforeseen cases of 145.A.30(j)(5) apply, the organisation shall assess all prospective certifying staff for their competence, qualification and capability to carry out their intended certifying duties in accordance with a procedure as specified in the exposition prior to the issue or re-issue of a certification authorisation under this IS.

(g) When the conditions of paragraphs (a), (b), (d), (f) and, where applicable, paragraph (c) have been fulfilled by the certifying staff, the organisation shall issue a certification authorisation that clearly specifies the scope and limits of such authorisation. Continued validity of the certification authorisation is dependent upon continued compliance with paragraphs (a), (b), (d), and where applicable, paragraph (c).

(h) The certification authorisation must be in a style that makes its scope clear to the certifying staff and any *official of the Competent Authority who has the responsibility for oversight of maintained aircraft or component, who may require to examine the authorisation.*

(i) The person responsible for the quality system shall also remain responsible on behalf of the organisation for issuing certification authorisations to certifying staff. Such person may nominate other persons to actually issue or revoke the certification authorisations in accordance with a procedure as specified in the exposition.

(j) The organisation shall maintain a record of all certifying staff and support staff, which shall contain:

1. the details of any aircraft maintenance licence held under IS-66; and
2. all relevant training completed; and
3. the scope of the certification authorisations issued, where relevant; and
4. particulars of staff with limited or one-off certification authorisations.

The organisation shall retain the record for at least three years after the staff referred to in this paragraph have ceased employment with the organisation or as soon as the authorisation has been withdrawn. In addition, upon request, the maintenance organisation shall furnish the staff referred to in this paragraph with a copy of their personal record on leaving the organisation.

The staff referred to in this paragraph shall be given access on request to their personal records as detailed above.

(k) The organisation shall provide certifying staff with a copy of their certification authorisation in either a documented or electronic format.

(l) Certifying staff shall produce their certification authorisation to any authorised person within 24 hours.

(m) The minimum age for certifying staff and support staff is 21 years.

(n) The holder of a category A aircraft maintenance licence may only exercise certification privileges on a specific aircraft type following the satisfactory completion of the relevant category A aircraft task training carried out by an organisation appropriately approved in accordance with *IS-145* or *IS-147*. This training shall include practical hands on training and theoretical training as appropriate for each task authorised. Satisfactory completion of training shall be demonstrated by an examination or by workplace assessment carried out by the organisation.

(o) The holder of a category B2 aircraft maintenance licence may only exercise the certification privileges described in IS 66.A.20(a)(3)(ii) of *IS-66* following the satisfactory completion of (i) the relevant category A aircraft task training and (ii) six months of documented practical experience covering the scope of the authorisation that will be issued. The task training shall include practical hands on training and theoretical training as appropriate for each task authorised. Satisfactory completion of training shall be demonstrated by an examination or by workplace assessment. Task training and examination/assessment shall be carried out by the maintenance organisation issuing the certifying staff authorisation. The practical experience shall be also obtained within such maintenance organisation.

AMC 145.A.35(a) CERTIFYING STAFF AND SUPPORT STAFF

1. Holding a IS-66 licence with the relevant type/group rating, or a national qualification in the case of components, does not mean by itself that the holder is qualified to be authorised as certifying staff and/or support staff. The organisation is responsible to assess the competence of the holder for the scope of maintenance to be authorised.

2. The sentence "the organisation shall ensure that certifying staff and support staff have an adequate understanding of the relevant aircraft and/or components to be maintained together with the

associated organisation procedures" means that the person has received training and has been successfully assessed on:

- the type of aircraft or component;
- the differences on:
  - the particular model/variant;
  - the particular configuration.

The organisation should specifically ensure that the individual competencies have been established with regard to:

- relevant knowledge, skills and experience in the product type and configuration to be maintained, taking into account the differences between the generic aircraft type rating training that the person received and the specific configuration of the aircraft to be maintained.
- appropriate attitude towards safety and observance of procedures.
- knowledge of the associated organisation and operator procedures (i.e. handling and identification of components, MEL use, Technical Log use, independent checks, etc.).

3. Some special maintenance tasks may require additional specific training and experience, including but not limited to:
   - in-depth troubleshooting;
   - very specific adjustment or test procedures;
   - rigging;
   - engine run-up, starting and operating the engines, checking engine performance characteristics, normal and emergency engine operation, associated safety precautions and procedures;
   - extensive structural/system inspection and repair;
   - other specialised maintenance required by the maintenance programme.

   For engine run-up training, simulators and/or real aircraft should be used.
4. The satisfactory assessment of the competence should be conducted in accordance with a procedure approved by the competent authority (item 3.4 of the MOE, as described in AMC 145.A.70(a)).
5. The organisation should hold copies of all documents that attest the competence and recent experience for the period described in 145.A.35(j).

   Additional information is provided in AMC 66.A.20(b)3.

AMC 145.A.35(b) CERTIFYING STAFF AND SUPPORT STAFF

The organisation issues the certification authorisation when satisfied that compliance has been established with the appropriate paragraphs of IS-145 and IS-66. *In granting the certification authorisation the maintenance organisation approved under IS-145 needs to be satisfied that the person holds a valid IS-66 aircraft maintenance licence.*

AMC 145.A.35(c) CERTIFYING STAFF AND SUPPORT STAFF

For the interpretation of *"6 months of actual relevant aircraft maintenance experience in any consecutive 2-year period"*, the provisions of AMC 66.A.20(b)2 are applicable.

AMC 145.A.35(d) CERTIFYING STAFF AND SUPPORT STAFF

1. Continuation training is a two way process to ensure that certifying staff 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. Due to the interactive nature of this training, consideration should be given to the possibility that such training has the involvement of the quality department to ensure that feedback is actioned. Alternatively, there should be a procedure to ensure that feedback is formally passed from the training department to the quality department to initiate action.
2. Continuation training should cover changes in relevant requirements such as IS-145, changes in organisation procedures and the modification standard of the products being maintained plus human factor issues identified from any internal or external analysis of incidents. It should also address instances where staff failed to follow procedures and the reasons why particular procedures are not always followed. In many cases the continuation training will reinforce the need to follow procedures and ensure that incomplete or incorrect procedures are identified to the company in order that they can be corrected. This does not preclude the possible need to carry out a quality audit of such procedures.
3. Continuation training should be of sufficient duration in each 2 year period to meet the intent of 145.A.35(d) and may be split into a number of separate elements. 145.A.35(d) requires such training to keep certifying staff updated in terms of relevant technology, procedures and human factors issues which means it is one part of ensuring quality. Therefore sufficient duration should be related to relevant quality audit findings and other internal / external sources of information available to the organisation on human errors in maintenance. This means that in the case of an organisation that maintains aircraft with few relevant quality audit findings, continuation training could be limited to days rather than weeks, whereas a similar organisation with a number of relevant quality audit findings, such training may take several weeks. For an organisation that maintains aircraft components, the duration of continuation training would follow the same philosophy but should be scaled down to reflect the more limited nature of the activity. For example certifying staff who release hydraulic pumps may only require a few hours of continuation training whereas those who release turbine engine may only require a few days of such training. The content of continuation training should be related to relevant quality audit findings and it is recommended that such training is reviewed at least once in every 24 month period.
4. The method of training is intended to be a flexible process and could, for example, include an IS-147 continuation training course, aeronautical college courses, internal short duration courses, seminars, etc. The elements, general content and length of such training should be specified in the maintenance organisation exposition unless such training is undertaken by an organisation approved under IS-47 when such details may be specified under the approval and cross referenced in the maintenance organisation exposition.

AMC 145.A.35(e) CERTIFYING STAFF AND SUPPORT STAFF

The programme for continuation training should list all certifying staff and support staff and when training will take place, the elements of such training and an indication that it was carried out reasonably on time as planned. Such information should subsequently be transferred to the certifying staff and support staff record as required by 145.A.35 (j).

AMC 145.A.35(f) CERTIFYING STAFF AND SUPPORT STAFF

As stated in 145.A.35 (f), except where any of the unforeseen cases of 145.A.30(j)(5) applies, all prospective certifying staff and support staff should be assessed for competence related to their intended duties in accordance with AMCs 1, 2, 3 and 4 to 145.A.30 (e), as applicable.

AMC 145.A.35 (j) CERTIFYING STAFF AND SUPPORT STAFF

1. The following minimum information as applicable should be kept on record in respect of each certifying staff and support staff:
   (a) Name
   (b) Date of Birth
   (c) Basic Training
   (d) Type Training
   (e) Continuation Training
   (f) Experience
   (g) Qualifications relevant to the authorisation.
   (h) Scope of the authorisation
   (i) Date of first issue of the authorisation
   (j) If appropriate - expiry date of the authorisation
   (k) Identification Number of the authorisation
2. The record may be kept in any format but should be controlled by the organisation's quality department. This does not mean that the quality department should run the record system.
3. Persons authorised to access the system should be maintained at a minimum to ensure that records cannot be altered in an unauthorised manner or that such confidential records become accessible to unauthorised persons.
4. The Competent Authority is an authorised person when investigating the records system for initial and continued approval or when the Competent Authority has cause to doubt the competence of a particular person.

AMC 145.A.35(n) CERTIFYING STAFF AND SUPPORT STAFF

1. It is the responsibility of the IS-145 organisation issuing the category A certifying staff authorisation to ensure that the task training received by this person covers all the tasks to be authorised. This is particularly important in those cases where the task training has been provided by a IS-147 organisation or by a IS-145 organisation different from the one issuing the authorisation.
2. "Appropriately approved in accordance with *IS-147*" means an organisation holding an approval to provide category A task training for the corresponding aircraft type.
3. "Appropriately approved in accordance with *IS-145*" means an organisation holding a maintenance organisation approval for the corresponding aircraft type.

AMC 145.A.35(o) CERTIFYING STAFF AND SUPPORT STAFF

1. The privilege for a B2 licence holder to release minor scheduled line maintenance and simple defect rectification in accordance with 66.A.20(a)(3)(ii) can only be granted by the IS-145 approved organisation where the licence holder is employed/contracted after meeting all the requirements specified in 145.A.35(o). This privilege cannot be transferred to another IS-145 approved organisation.

2. When a B2 licence holder already holds a certifying staff authorisation containing minor scheduled line maintenance and simple defect rectification for a particular aircraft type, new tasks relevant to category A can be added to that type without requiring another 6 months of experience. However, task training (theoretical plus practical hands-on) and examination/assessment for these additional tasks is still required.

3. When the certifying staff authorisation intends to cover several aircraft types, the experience may be combined within a single 6-month period.

   For the addition of new types to the certifying staff authorisation, another 6 months should be required unless the aircraft is considered similar per AMC 66.A.20(b)2 to the one already held.

4. The term "6 months of experience" may include full-time employment or IS-time employment. The important aspect is that the person has been involved during a period of 6 months (not necessarily every day) in those tasks which are going to be part of the authorisation.

145.A.40 EQUIPMENT, TOOLS AND MATERIAL

(a) The organisation shall have available and use the necessary equipment, tools and material to perform the approved scope of work.

   1. Where the manufacturer specifies a particular tool or equipment, the organisation shall use that tool or equipment, unless the use of alternative tooling or equipment is agreed by the Competent Authority via procedures specified in the exposition.

   2. Equipment and tools must be permanently available, except in the case of any tool or equipment that is so infrequently used that its permanent availability is not necessary. Such cases shall be detailed in an exposition procedure.

   3. An organisation approved for base maintenance shall have sufficient aircraft access equipment and inspection platforms/docking such that the aircraft can be properly inspected.

(b) The organisation shall ensure that all tools, equipment and particularly test equipment, as appropriate, are controlled and calibrated according to an officially recognised standard at a frequency to ensure serviceability and accuracy. Records of such calibrations and traceability to the standard used shall be kept by the organisation.

AMC 145.A.40(a) EQUIPMENT, TOOLS AND MATERIAL

Once the applicant for approval has determined the intended scope of approval for consideration by the Competent Authority, it will be necessary to show that all tools and equipment as specified in the maintenance data can be made available when needed. All such tools and equipment that require to be controlled in terms of servicing or calibration by virtue of being necessary to measure specified dimensions and torque figures etc., should be clearly identified and listed in a control register including any personal tools and equipment that the organisation agrees can be used.

AMC 145.A.40(b) EQUIPMENT, TOOLS AND MATERIAL

1. The control of these tools and equipment requires that the organisation has a procedure to inspect/service and, where appropriate, calibrate such items on a regular basis and indicate to users that the item is within any inspection or service or calibration time-limit. A clear system of labelling all tooling, equipment and test equipment is therefore necessary giving information on when the next inspection or service or calibration is due and if the item is unserviceable for any other reason where it may not be obvious. A register should be maintained for all precision tooling and equipment together with a record of calibrations and standards used.
2. Inspection, service or calibration on a regular basis should be in accordance with the equipment manufacturers' instructions except where the organisation can show by results that a different time period is appropriate in a particular case.

3. In this context officially recognised standard means those standards established or published by an official body whether having legal personality or not, which are widely recognised by the air transport sector as constituting good practice *and by the Competent Authority*.

145.A.42 ACCEPTANCE OF COMPONENTS

(a) All components shall be classified and appropriately segregated into the following categories:

1. Components which are in a satisfactory condition, released on *a CAASL Form* 1 or equivalent and marked in accordance with a *standard acceptable to the Competent Authority*.
2. Unserviceable components which shall be maintained in accordance with this section.
3. Unsalvageable components which are classified in accordance with *Part* 145.A.42(d).
4. Standard parts used on an aircraft, engine, propeller or other aircraft component when specified in the manufacturer's illustrated parts catalogue and/or the maintenance data.
5. Material both raw and consumable used in the course of maintenance when the organisation is satisfied that the material meets the required specification and has appropriate traceability. All material must be accompanied by documentation clearly relating to the particular material and containing a conformity to specification statement plus both the manufacturing and supplier source.

(b) Prior to installation of a component, the organisation shall ensure that the particular component is eligible to be fitted when different modification and/or airworthiness directive standards may be applicable.

(c) The organisation may fabricate a restricted range of parts to be used in the course of undergoing work within its own facilities provided procedures are identified in the exposition.

(d) Components which have reached their certified life limit or contain a non-repairable defect shall be classified as unsalvageable and shall not be permitted to re-enter the component supply system unless certified life limits have been extended or a repair solution has been approved according to a standard acceptable to *the Competent Authority.*

AMC 145.A.42(a) ACCEPTANCE OF COMPONENTS

1. A document equivalent to an CAASL Form 1 may be:
   (a) a release document issued by an organisation *acceptable to the Competent Authority*
   (b) a release document issued by an organisation approved under the terms bilateral agreement signed *by the Competent authority;*
   (c) *Not applicable;*
   (d) *Not applicable;*
   (e) *Not applicable*;
2. For acceptance of standard parts, raw material and consumable material, refer to AMC M.A.501(c) and AMC M.A.501 (d).

AMC 145.A.42(b) Acceptance of components

The *CAASL Form* 1 or equivalent identifies the *eligibility and* status of an aircraft component. Block 12 'Remarks' on the *CAASL Form 1* in some cases contains vital airworthiness related information which may need appropriate and necessary actions.

The receiving organisation should be satisfied that the component in question is in satisfactory condition and has been appropriately released to service. In addition, the organisation should ensure that the component meets the approved data/standard, such as the required design and modification

standard. This may be accomplished by reference to the manufacturer's parts catalogue or other approved data (i.e. Service Bulletin). Care should also be taken in ensuring compliance with applicable airworthiness directives, the status of any life-limited parts fitted to the aircraft component as well as Critical Design Configuration Control Limitations.

AMC 145.A.42(c) ACCEPTANCE OF COMPONENTS

1. The agreement by the Competent Authority for the fabrication of parts by the approved maintenance organisation should be formalised through the approval of a detailed procedure in the Maintenance Organisation Exposition. This AMC contains principles and conditions to be taken into account for the preparation of an acceptable procedure.
2. Fabrication, inspection assembly and test should be clearly within the technical and procedural capability of the organisation.
3. All necessary data to fabricate the part should be approved either by the *Competent Authority* or the type certificate (TC) holder or *design organisation acceptable to the Competent Authority* or supplemental type certificate (STC) holder.
4. Items fabricated by an organisation approved under IS-145 may only be used by that organisation in the course of overhaul, maintenance, modifications, or repair of aircraft or components undergoing work within its own facility. The permission to fabricate does not constitute approval for manufacture, or to supply externally and the parts do not qualify for certification on *CAASL Form 1*. This prohibition also applies to the bulk transfer of surplus inventory, in that locally fabricated parts are physically segregated and excluded from any delivery certification.
5. Fabrication of parts, modification kits etc. for onward supply and/or sale may not be conducted by an organisation approved under IS-145.
6. The data specified in paragraph 3 may include repair procedures involving the fabrication of parts. Where the data on such parts is sufficient to facilitate fabrication, the parts may be fabricated by an organisation approved under IS-145. Care should be taken to ensure that the data include details of part numbering, dimensions, materials, processes, and any special manufacturing techniques, special raw material specification or/and incoming inspection requirement and that the approved organisation has the necessary capability. That capability should be defined by way of exposition content. Where special processes or inspection procedures are defined in the approved data which are not available at the organisation the organisation cannot fabricate the part unless the TC/STC-holder gives an approved alternative.
7. Examples of fabrication under the scope of an IS-145 approval can include but are not limited to the following:
   (a) Fabrication of bushes, sleeves and shims.
   (b) Fabrication of secondary structural elements and skin panels.
   (c) Fabrication of control cables.
   (d) Fabrication of flexible and rigid pipes.
   (e) Fabrication of electrical cable looms and assemblies.
   (f) Formed or machined sheet metal panels for repairs.

   All the above fabricated parts should be in accordance with data provided in overhaul or repair manuals, modification schemes and service bulletins, drawings or otherwise approved by the competent authority.

   Note: It is not acceptable to fabricate any item to pattern unless an engineering drawing of the item is produced which includes any necessary fabrication processes and which is acceptable to the Competent Authority.
8. Where a TC-holder or an approved production organisation is prepared to make available

complete data which is not referred to in aircraft manuals or service bulletins but provides manufacturing drawings for items specified in parts lists, the fabrication of these items is not considered to be within the scope of an approval unless agreed otherwise by the Competent Authority in accordance with a procedure specified in the exposition.

9. Inspection and Identification.

Any locally fabricated part should be subjected to an inspection stage before, separately, and preferably independently from, any inspection of its installation. The inspection should establish full compliance with the relevant manufacturing data, and the part should be unambiguously identified as fit for use by stating conformity to the approved data. Adequate records should be maintained of all such fabrication processes including, heat treatment and the final inspections. All parts, except those having not enough space, should carry a part number which clearly relates it to the manufacturing/inspection data. Additional to the part-number the organisation's identity should be marked on the part for traceability purposes.

AMC 145.A.42(d) ACCEPTANCE OF COMPONENTS

1. The following types of components should typically be classified as unsalvageable:
   (a) Components with non-repairable defects, whether visible or not to the naked eye;
   (b) Components that do not meet design specifications, and cannot be brought into conformity with such specifications;
   (c) Components subjected to unacceptable modification or rework that is irreversible;
   (d) Certified life-limited parts that have reached or exceeded their certified life limits, or have missing or incomplete records;
   (e) Components that cannot be returned to airworthy condition due to exposure to extreme forces, heat or adverse environment;
   (f) Components for which conformity with an applicable airworthiness directive cannot be accomplished;
   (g) Components for which maintenance records and/or traceability to the manufacturer can not be retrieved.
2. It is common practice for possessors of aircraft components to dispose of unsalvageable components by selling, discarding, or transferring such items. In some instances, these items have reappeared for sale and in the active parts inventories of the aviation community. Misrepresentation of the status of components and the practice of making such items appear serviceable have resulted in the use of unsalvageable nonconforming components. Therefore organisations disposing of unsalvageable aircraft components should consider the possibility of such components later being misrepresented and sold as serviceable components. Caution should be exercised to ensure that unsalvageable components are disposed of in a manner that does not allow them to be returned to service.
3. *The acceptable standards for the Competent Authority are standards approved either by the type certificate (TC) holder or design organisations acceptable to the Competent Authority, or supplemental type certificate (STC) holders as applicable.*

145.A.45 MAINTENANCE DATA

(a) The organisation shall hold and use applicable current maintenance data in the performance of maintenance, including modifications and repairs. "Applicable" means relevant to any aircraft, component or process specified in the organisation's approval class rating schedule and in any associated capability list.

In the case of maintenance data provided by an operator or customer, the organisation shall hold

such data when the work is in progress, with the exception of the need to comply with 145.A.55(c).

(b) For the purposes of this Part, applicable maintenance data shall be any of the following:

1. Any applicable requirement, procedure, operational directive or information issued by the authority responsible for the oversight of the aircraft or component;
2. Any applicable airworthiness directive issued by the authority responsible for the oversight of the aircraft or component;
3. Instructions for continuing airworthiness, issued by type certificate holders, supplementary type certificate holders, any other organisation required to publish such data by IS-21 and in the case of aircraft or components from third countries the airworthiness data mandated by the authority responsible for the oversight of the aircraft or component;
4. Any applicable standard, such as but not limited to, maintenance standard practices recognised by the Agency as a good standard for maintenance;
5. Any applicable data issued in accordance with paragraph (d).

(c) The organisation shall establish procedures to ensure that if found, any inaccurate, incomplete or ambiguous procedure, practice, information or maintenance instruction contained in the maintenance data used by maintenance personnel is recorded and notified to the author of the maintenance data.

(d) The organisation may only modify maintenance instructions in accordance with a procedure specified in the maintenance organisation's exposition. With respect to those changes, the organisation shall demonstrate that they result in equivalent or improved maintenance standards and shall inform the type-certificate holder of such changes. Maintenance instructions for the purposes of this paragraph means instructions on how to carry out the particular maintenance task: they exclude the engineering design of repairs and modifications.

(e) The organisation shall provide a common work card or worksheet system to be used throughout relevant parts of the organisation. In addition, the organisation shall either transcribe accurately the maintenance data contained in paragraphs (b) and (d) onto such work cards or worksheets or make precise reference to the particular maintenance task or tasks contained in such maintenance data. Work cards and worksheets may be computer generated and held on an electronic database subject to both adequate safeguards against unauthorised alteration and a back-up electronic database which shall be updated within 24 hours of any entry made to the main electronic database. Complex maintenance tasks shall be transcribed onto the work cards or worksheets and subdivided into clear stages to ensure a record of the accomplishment of the complete maintenance task.

Where the organisation provides a maintenance service to an aircraft operator who requires their work card or worksheet system to be used then such work card or worksheet system may be used. In this case, the organisation shall establish a procedure to ensure correct completion of the aircraft operators' work cards or worksheets.

(f) The organisation shall ensure that all applicable maintenance data is readily available for use when required by maintenance personnel.

(g) The organisation shall establish a procedure to ensure that maintenance data it controls is kept up to date. In the case of operator/customer controlled and provided maintenance data, the organisation shall be able to show that either it has written confirmation from the operator/customer that all such maintenance data is up to date or it has work orders specifying the amendment status of the maintenance data to be used or it can show that it is on the operator/customer maintenance data amendment list.

AMC 145.A.45(b) MAINTENANCE DATA

1. Except as specified in sub-paragraph 5, each maintenance organisation approved under IS-145

should hold and use the following minimum maintenance data relevant to the organisation's approval class rating. All maintenance related Implementing Rules and associated AMCs , approval specifications and Guidance Material, all applicable national maintenance requirements and notices *and all applicable State of Design and Competent Authority airworthiness directives.*

2. In addition to sub-paragraph 1, an organisation with an approval class rating in category A - Aircraft, should hold and use the following maintenance data where published. The appropriate sections of the operator's aircraft maintenance programme, aircraft maintenance manual, repair manual, supplementary structural inspection document, corrosion control document, service bulletins, service letters, service instructions, modification leaflets, NDT manual, parts catalogue, type certificate data sheet and any other specific document issued by the type certificate or supplementary type certificate holder as maintenance data.
3. In addition to subparagraph 1, an organisation with an approval class rating in category B — Engines/APUs, should hold and use the following maintenance data where published. The appropriate sections of the engine/APU maintenance and repair manual, service bulletins, service letters, modification leaflets, non-destructive testing (NDT) manual, parts catalogue, type certificate data sheet and any other specific document issued by the type certificate holder as maintenance data.
4. In addition to sub-paragraph 1, an organisation with an approval class rating in category C - Components other than complete engines/APUs, should hold and use the following maintenance data where published. The appropriate sections of the vendor maintenance and repair manual, service bulletins and service letters plus any document issued by the type certificate holder as maintenance data on whose product the component may be fitted when applicable.
5. Appropriate sections of the sub-paragraphs 2 to 4 additional maintenance data means in relation to the maintenance work scope at each particular maintenance facility. For example, a base maintenance facility should have almost complete set(s) of the maintenance data whereas a line maintenance facility may need only the maintenance manual and the parts catalogue.
6. An organisation only approved in class rating category D – Specialised services, should hold and use all applicable specialised service(s) process specifications.

AMC 145.A.45(c) MAINTENANCE DATA

1 The referenced procedure should ensure that when maintenance personnel discover inaccurate, incomplete or ambiguous information in the maintenance data they should record the details. The procedure should then ensure that the IS-145 approved maintenance organisation notifies the problem to the author of the maintenance data in a timely manner. A record of such communications to the author of the maintenance data should be retained by the IS-145 approved organisation until such time as the type certificate holder has clarified the issue by e.g. amending the maintenance data.

2 The referenced procedure should be specified in the maintenance organisation exposition.

AMC 145.A.45(d) MAINTENANCE DATA

The referenced procedure should address the need for a practical demonstration by the mechanic to the quality personnel of the proposed modified maintenance instruction. When satisfied the quality personnel should approve the modified maintenance instruction and ensure that the type certificate or supplementary type certificate holder is informed of the modified maintenance instruction. The procedure should include a paper/electronic traceability of the complete process from start to finish and ensure that the relevant maintenance instruction clearly identifies the modification. Modified maintenance instructions should only be used in the following circumstances;

(a) Where the type certificate / supplementary type certificate holders original intent can be carried out in a more practical or more efficient manner.

(b) Where the type certificate / supplementary type certificate holders original intent cannot be achieved by following the maintenance instructions. For example, where a component cannot be replaced following the original maintenance instructions.

(c) For the use of alternative tools / equipment

Important Note: Critical Design Configuration Control Limitations (CDCCL) are airworthiness limitations. Any modification of the maintenance instructions linked to CDCCL constitutes an aircraft modification that should be approved in accordance with *a standard acceptable to the Competent Authority*.

AMC 145.A.45(e) MAINTENANCE DATA

1. The maintenance organisation should:
   - transcribe accurately the maintenance data onto such work cards or worksheets, or
   - make precise reference to the particular maintenance task(s) contained in such maintenance data, which already identifies the task as a CDCCL where applicable.
2. Relevant parts of the organisation means with regard to aircraft base maintenance, aircraft line maintenance, engine workshops, mechanical workshops and avionic workshops. Therefore, engine workshops for example should have a common system throughout such engine workshops that may be different to that in the aircraft base maintenance.
3. The work cards should differentiate and specify, when relevant, disassembly, accomplishment of task, reassembly and testing. In the case of a lengthy maintenance task involving a succession of personnel to complete such a task, it may be necessary to use supplementary work cards or worksheets to indicate what was actually accomplished by each individual person.

AMC 145.A.45(f) MAINTENANCE DATA

1. Data being made available to personnel maintaining aircraft means that the data should be available in close proximity to the aircraft being maintained for supervisors, mechanics and certifying staff to study.
2. Where computer systems are used, the number of computer terminals should be sufficient in relation to the size of the work programme to enable easy access, unless the computer system can produce paper copies. Where microfilm or microfiche readers/printers are used, a similar requirement is applicable.

AMC 145.A.45(g) MAINTENANCE DATA

1. To keep data up-to-date, a procedure should be set up to monitor the amendment status of all data and maintain a check that all amendments are being received by being a subscriber to any document amendment scheme. Special attention should be given to TC related data such as certification life-limited parts, airworthiness limitations and Airworthiness Limitation Items (ALI), etc.

145.A.47 PRODUCTION PLANNING

(a) The organisation shall have a system appropriate to the amount and complexity of work to plan the availability of all necessary personnel, tools, equipment, material, maintenance data and facilities in order to ensure the safe completion of the maintenance work.

(b) The planning of maintenance tasks, and the organising of shifts, shall take into account human performance limitations.

(c) When it is required to hand over the continuation or completion of maintenance tasks for reasons of a shift or personnel changeover, relevant information shall be adequately communicated

between outgoing and incoming personnel.

AMC 145.A.47(a) PRODUCTION PLANNING

1. Depending on the amount and complexity of work generally performed by the maintenance organisation, the planning system may range from a very simple procedure to a complex organisational set-up including a dedicated planning function in support of the production function.
2. For the purpose of IS-145, the production planning function includes two complementary elements:
   - scheduling the maintenance work ahead, to ensure that it will not adversely interfere with other work as regards the availability of all necessary personnel, tools, equipment, material, maintenance data and facilities.
   - during maintenance work, organising maintenance teams and shifts and provide all necessary support to ensure the completion of maintenance without undue time pressure.
3. When establishing the production planning procedure, consideration should be given to the following:
   - logistics,
   - inventory control,
   - square meters of accommodation,
   - man-hours estimation,
   - man-hours availability,
   - preparation of work,
   - hangar availability,
   - environmental conditions (access, lighting standards and cleanliness),
   - co-ordination with internal and external suppliers, etc.
   - scheduling of safety-critical tasks during periods when staff are likely to be most alert.

AMC 145.A.47(b) PRODUCTION PLANNING

Limitations of human performance, in the context of planning safety related tasks, refers to the upper and lower limits, and variations, of certain aspects of human performance (Circadian rhythm / 24 hours body cycle) which personnel should be aware of when planning work and shifts.

AMC 145.A.47(c) PRODUCTION PLANNING

The primary objective of the changeover / handover information is to ensure effective communication at the point of handing over the continuation or completion of maintenance actions. Effective task and shift handover depends on three basic elements:

- The outgoing person's ability to understand and communicate the important elements of the job or task being passed over to the incoming person.
- The incoming person's ability to understand and assimilate the information being provided by the outgoing person.
- A formalised process for exchanging information between outgoing and incoming persons and a planned shift overlap and a place for such exchanges to take place.

145.A.50 CERTIFICATION OF MAINTENANCE

(a) A certificate of release to service shall be issued by appropriately authorised certifying staff on behalf of the organisation when it has been verified that all maintenance ordered has been properly carried out by the organisation in accordance with the procedures specified in point 145.A.70, taking into account the availability and use of the maintenance data specified in point 145.A.45 and that there are no non-compliances which are known to endanger flight safety.

(b) A certificate of release to service shall be issued before flight at the completion of any maintenance.

(c) New defects or incomplete maintenance work orders identified during the above maintenance shall be brought to the attention of the aircraft operator for the specific purpose of obtaining agreement to rectify such defects or completing the missing elements of the maintenance work order. In the case where the aircraft operator declines to have such maintenance carried out under this paragraph, paragraph (e) is applicable.

(d) A certificate of release to service shall be issued at the completion of any maintenance on a component whilst off the aircraft. The authorised release certificate CAASL Form 1 referred to in Appendix I of this *Part constitutes the component certificate of release to service.* When an organisation maintains a component for its own use, a *CAASL Form 1* may not be necessary depending upon the organisation's internal release procedures defined in the exposition.

(e) By derogation to paragraph (a), when the organisation is unable to complete all maintenance ordered, it may issue a certificate of release to service within the approved aircraft limitations. The organisation shall enter such fact in the aircraft certificate of release to service before the issue of such certificate.

(f) By derogation to paragraph (a) and 145.A.42, when an aircraft is grounded at a location other than the main line station or main maintenance base due to the non-availability of a component with the appropriate release certificate, it is permissible to temporarily fit a component without the appropriate release certificate for a maximum of 30 flight hours or until the aircraft first returns to the main line station or main maintenance base, whichever is the sooner, subject to the aircraft operator agreement and said component having a suitable release certificate but otherwise in compliance with all applicable maintenance and operational requirements. Such components shall be removed by the above prescribed time limit unless an appropriate release certificate has been obtained in the meantime under paragraph (a) and 145.A.42.

AMC 145.A.50(a) CERTIFICATION OF MAINTENANCE

'Endangers the flight safety' means any instances where safe operation could not be assured or which could lead to an unsafe condition. It typically includes, but is not limited to, significant cracking, deformation, corrosion or failure of primary structure, any evidence of burning, electrical arcing, significant hydraulic fluid or fuel leakage and any emergency system or total system failure. An airworthiness directive overdue for compliance is also considered a hazard to flight safety.

AMC 145.A.50(b) CERTIFICATION OF MAINTENANCE

1. The certificate of release to service should contain the following statement:

   'Certifies that the work specified, except as otherwise specified, was carried out in accordance with IS-145 and in respect to that work the aircraft/aircraft component is considered ready for release to service'.

   Reference should also be made to the Competent Authority IS-145 approval number.

2. It is acceptable to use an alternate abbreviated certificate of release to service consisting of the following statement 'IS-145 release to service' instead of the full certification statement specified in paragraph 1. When the alternate abbreviated certificate of release to service is used, the introductory section of the technical log should include an example of the full certification

statement from paragraph 1.

3. The certificate of release to service should relate to the task specified in the (S)TC holder's or operator's instructions or the aircraft maintenance programme which itself may cross-refer to maintenance data.
4. The date such maintenance was carried out should include when the maintenance took place relative to any life or overhaul limitation in terms of date/flying hours/cycles/landings etc., as appropriate.
5. When extensive maintenance has been carried out, it is acceptable for the certificate of release to service to summarise the maintenance as long as there is a unique cross-reference to the work package containing full details of maintenance carried out. Dimensional information should be retained in the work-pack record.

AMC No 1 to 145.A.50(d) CERTIFICATION OF MAINTENANCE

The purpose of the certificate is to release assemblies/items/components/parts (hereafter referred to as 'item(s)') after maintenance and to release maintenance work carried out on such items under the approval of a Competent Authority and to allow items removed from one aircraft/aircraft component to be fitted to another aircraft/aircraft component.

The certificate is to be used for export/import purposes, as well as for domestic purposes, and serves as an official certificate for items from the manufacturer/maintenance organisation to users.

It can only be issued by organisations approved by the particular Competent Authority within the scope of the approval.

The certificate may be used as a rotable tag by utilising the available space on the reverse side of the certificate for any additional information and dispatching the item with two copies of the certificate so that one copy may be eventually returned with the item to the maintenance organisation. The alternative solution is to use existing rotable tags and also supply a copy of the certificate.

A certificate should not be issued for any item when it is known that the item is unserviceable except in the case of an item undergoing a series of maintenance processes at several maintenance organisations approved under IS-145 and the item needs a certificate for the previous maintenance process carried out for the next maintenance organisation approved under IS-145 to accept the item for subsequent maintenance processes. In such a case, a clear statement of limitation should be endorsed in Block 12.

AMC No 2 to 145.A.50(d) CERTIFICATION OF MAINTENANCE

1. A component which has been maintained off the aircraft needs the issuance of a certificate of release to service for such maintenance and another certificate of release to service in regard to being installed properly on the aircraft when such action occurs.

   When an organisation maintains a component for use by the same organisation, a CAASL Form 1 may not be necessary depending upon the organisation's internal release procedures defined in the maintenance organisation exposition.
2. In the case of the issue of a CAASL Form 1 for components in storage before IS-145 and IS-21 became effective and not released on an EASA Form 1 or equivalent in accordance with 145.A.42(a) or removed serviceable from a serviceable aircraft or an aircraft which has been withdrawn from service the following applies:

   2.1. A CAASL Form 1 may be issued for an aircraft component which has been:

   - Maintained before IS-145 became effective or manufactured before IS-21 became effective.
   - Used on an aircraft and removed in a serviceable condition. Examples include leased and loaned aircraft components.

- Removed from aircraft which have been withdrawn from service, or from aircraft which have been involved in abnormal occurrences such as accidents, incidents, heavy landings or lightning strikes.
- Maintained by an unapproved organisation.

2.2. An appropriately rated maintenance organisation approved under IS-145 may issue a *CAASL Form 1* as detailed in this AMC subparagraph 2.5 to 2.9, as appropriate, in accordance with procedures detailed in the exposition as approved by the Competent Authority. The appropriately rated organisation is responsible for ensuring that all reasonable measures have been taken to ensure that only approved and serviceable aircraft components are issued a CAASL Form 1 under this paragraph.

2.3. For the purposes of this AMC No 2 only, appropriately rated means an organisation with an approval class rating for the type of component or for the product in which it may be installed.

2.4. A *CAASL Form 1* issued in accordance with this paragraph 2 should be issued by signing in block 14b and stating 'Inspected' in block 11. In addition, block 12 should specify:

2.4.1. When the last maintenance was carried out and by whom.

2.4.2. If the component is unused, when the component was manufactured and by whom with a cross-reference to any original documentation which should be included with the Form.

2.4.3. A list of all airworthiness directives, repairs and modifications known to have been incorporated. If no airworthiness directives or repairs or modifications are known to be incorporated, then this should be so stated.

2.4.4. Detail of life used for service life-limited parts being any combination of fatigue, overhaul or storage life.

2.4.5. For any aircraft component having its own maintenance history record, reference to the particular maintenance history record as long as the record contains the details that would otherwise be required in block 12. The maintenance history record and acceptance test report or statement, if applicable, should be attached to the *CAASL Form 1*.

2.5. New/unused aircraft components

2.5.1 Any unused aircraft component in storage without a *CAASL Form 1* up to the effective date(s) for IS-21 that was manufactured by an organisation acceptable to the Competent Authority at that time may be issued with an CAASL Form 1 by an appropriately rated maintenance organisation approved under IS-145. The CAASL Form 1 should be issued in accordance with the following subparagraphs which should be included in a procedure within the maintenance organisation manual.

Note 1: It should be understood that the release of a stored but unused aircraft component in accordance with this paragraph represents a maintenance release under IS-145 and not a production release under IS-21. It is not intended to bypass the production release procedure agreed by the EASA Member State for parts and subassemblies intended for fitment on the manufacturers' own production line.

(a) An acceptance test report or statement should be available for all used and unused aircraft components that are subjected to acceptance testing after manufacturing or maintenance as appropriate.

(b) The aircraft component should be inspected for compliance with the manufacturer's instructions and limitations for storage and condition including

any requirement for limited storage life, inhibitors, controlled climate and special storage containers. In addition or in the absence of specific storage instructions the aircraft component should be inspected for damage, corrosion and leakage to ensure good condition.

(c) The storage life used of any storage life-limited parts should be established.

2.5.2. If it is not possible to establish satisfactory compliance with all applicable conditions specified in subparagraph 2.5.1 (a) to (c) inclusive, the aircraft component should be disassembled by an appropriately rated organisation and subjected to a check for incorporated airworthiness directives, repairs and modifications and inspected/tested in accordance with the maintenance data to establish satisfactory condition and, if relevant, all seals, lubricants and life-limited parts should be replaced. Upon satisfactory completion after reassembly, a *CAASL Form 1* may be issued stating what was carried out and the reference of the maintenance data included.

2.6. Used aircraft components removed from a serviceable aircraft

2.6.1. Serviceable aircraft components removed from a *Competent Authority* registered aircraft may be issued with a *CAASL Form 1* by an appropriately rated organisation subject to compliance with this subparagraph.

(a) The organisation should ensure that the component was removed from the aircraft by an appropriately qualified person.

(b) The aircraft component may only be deemed serviceable if the last flight operation with the component fitted revealed no faults on that component/related system.

(c) The aircraft component should be inspected for satisfactory condition including in particular damage, corrosion or leakage and compliance with any additional maintenance data.

(d) The aircraft record should be researched for any unusual events that could affect the serviceability of the aircraft component such as involvement in accidents, incidents, heavy landings or lightning strikes. Under no circumstances may a *CAASL Form 1* be issued in accordance with this paragraph 2.6 if it is suspected that the aircraft component has been subjected to extremes of stress, temperatures or immersion which could effect its operation.

(e) A maintenance history record should be available for all used serialised aircraft components.

(f) Compliance with known modifications and repairs should be established.

(g) The flight hours/cycles/landings as applicable of any service life-limited parts including time since overhaul should be established.

(h) Compliance with known applicable airworthiness directives should be established.

(i) Subject to satisfactory compliance with this subparagraph 2.6.1, a CAASL Form 1 may be issued and should contain the information as specified in paragraph 2.4 including the aircraft from which the aircraft component was removed.

2.6.2. Serviceable aircraft components removed from a non *Competent Authority* registered aircraft may only be issued with a *CAASL Form 1* if the components are leased or loaned from the maintenance organisation approved under IS-145 who retains control of the airworthiness status of the components. A *CAASL Form 1* may be issued and should contain the information as specified in paragraph 2.4 including the aircraft from

which the aircraft component was removed.

2.7. Used aircraft components removed from an aircraft withdrawn from service. Serviceable aircraft components removed from a EASA Member State registered aircraft withdrawn from service may be issued with a *CAASL Form 1* by a maintenance organisation approved under IS-145 subject to compliance with this subparagraph.

(a) Aircraft withdrawn from service are sometimes dismantled for spares. This is considered to be a maintenance activity and should be accomplished under the control of an organisation approved under IS-145, employing procedures approved by the Competent Authority.

(b) To be eligible for installation, components removed from such aircraft may be issued with a *CAASL Form 1* by an appropriately rated organisation following a satisfactory assessment.

(c) As a minimum, the assessment will need to satisfy the standards set out in paragraphs 2.5 and 2.6 as appropriate. This should, where known, include the possible need for the alignment of scheduled maintenance that may be necessary to comply with the maintenance programme applicable to the aircraft on which the component is to be installed.

(d) Irrespective of whether the aircraft holds a certificate of airworthiness or not, the organisation responsible for certifying any removed component should ensure that the manner in which the components were removed and stored are compatible with the standards required by IS-145.

(e) A structured plan should be formulated to control the aircraft disassembly process. The disassembly is to be carried out by an appropriately rated organisation under the supervision of certifying staff who will ensure that the aircraft components are removed and documented in a structured manner in accordance with the appropriate maintenance data and disassembly plan.

(f) All recorded aircraft defects should be reviewed and the possible effects these may have on both normal and standby functions of removed components are to be considered.

(g) Dedicated control documentation is to be used as detailed by the disassembly plan, to facilitate the recording of all maintenance actions and component removals performed during the disassembly process. Components found to be unserviceable are to be identified as such and quarantined pending a decision on the actions to be taken. Records of the maintenance accomplished to establish serviceability are to form part of the component maintenance history.

(h) Suitable IS-145 facilities for the removal and storage of removed components are to be used which include suitable environmental conditions, lighting, access equipment, aircraft tooling and storage facilities for the work to be undertaken. While it may be acceptable for components to be removed, given local environmental conditions, without the benefit of an enclosed facility, subsequent disassembly (if required) and storage of the components should be in accordance with the manufacturer's recommendations.

2.8. Used aircraft components maintained by organisations not approved in accordance with IS-145. For used components maintained by a maintenance organisation not approved under IS-145, due care should be taken before acceptance of such components. In such cases an appropriately rated maintenance organisation approved under IS-145 should establish satisfactory conditions by:

(a) dismantling the component for sufficient inspection in accordance with the appropriate maintenance data;

(b) replacing all service life-limit components when no satisfactory evidence of life used is available and/or the components are in an unsatisfactory condition;

(c) reassembling and testing as necessary the component;

(d) completing all certification requirements as specified in 145.A.50.

2.9. Used aircraft components removed from an aircraft involved in an accident or incident. Such components should only be issued with a *CAASL Form 1* when processed in accordance with paragraph 2.7 and a specific work order including all additional necessary tests and inspections deemed necessary by the accident or incident. Such a work order may require input from the TC holder or original manufacturer as appropriate. This work order should be referenced in block 12.

AMC 145.A.50(e) CERTIFICATION OF MAINTENANCE

1. Being unable to establish full compliance with sub-paragraph IS-145.A.50(a) means that the maintenance required by the aircraft operator could not be completed due either to running out of available aircraft maintenance downtime for the scheduled check or by virtue of the condition of the aircraft requiring additional maintenance downtime.
2. The aircraft operator is responsible for ensuring that all required maintenance has been carried out before flight and therefore 145.A.50(e) requires such operator to be informed in the case where full compliance with 145.A.50(a) cannot be achieved within the operator's limitations. If the operator agrees to the deferment of full compliance, then the certificate of release to service may be issued subject to details of the deferment, including the operator's authority, being endorsed on the certificate.

   Note: Whether or not the aircraft operator does have the authority to defer maintenance is an issue between the aircraft operator and the competent authority of the State of Registry or State of operator, as appropriate. In case of doubt concerning such a decision of the operator, the approved maintenance organisation should inform its Competent Authority on such doubt, before issuing the certificate of release to service. This will allow the *Competent Authority* to investigate the matter as appropriate.
3. The procedure should draw attention to the fact that 145.A.50 (a) does not normally permit the issue of a certificate of release to service in the case of non-compliance and should state what action the mechanic, supervisor and certifying staff should take to bring the matter to the attention of the relevant department or person responsible for technical co-ordination with the aircraft operator so that the issue may be discussed and resolved with the aircraft operator. In addition, the appropriate person(s) as specified in 145.A.30(b) should be kept informed in writing of such possible non-compliance situations and this should be included in the procedure.

AMC 145.A.50(f) Certification of maintenance

1. Suitable release certificate means a certificate which clearly states that the aircraft component is serviceable; that clearly specifies the organisation releasing said component together with details of the authority under whose approval the organisation works including the approval or authorisation reference.
2. Compliance with all other IS-145 and operator requirements means making an appropriate entry in the aircraft technical log, checking for compliance with type design standards, modifications, repairs, airworthiness directives, life limitations and condition of the aircraft component plus information on where, when and why the aircraft was grounded

GM 145.A.50(d) CAASL Form 1 Block 12 'Remarks'

Examples of data to be entered in this block as appropriate:

- Maintenance documentation used, including the revision status, for all work performed and not limited to the entry made in block 11.
- A statement such as 'in accordance with the CMM' is not acceptable.
- NDT methods with appropriate documentation used when relevant.
- Compliance with airworthiness directives or service bulletins.
- Repairs carried out.
- Modifications carried out.
- Replacement parts installed.
- Life-limited parts status.
- Shelf life limitations.
- Deviations from the customer work order.
- Release statements to satisfy a foreign Civil Aviation Authority maintenance requirement.
- Information needed to support shipment with shortages or re-assembly after delivery.
- References to aid traceability, such as batch numbers.

145.A.55 MAINTENANCE RECORDS

(a) The organisation shall record all details of maintenance work carried out. As a minimum, the organisation shall retain records necessary to prove that all requirements have been met for issuance of the certificate of release to service, including subcontractor's release documents.

(b) The organisation shall provide a copy of each certificate of release to service to the aircraft operator, together with a copy of any specific repair/modification data used for repairs/modifications carried out.

(c) The organisation shall retain a copy of all detailed maintenance records and any associated maintenance data for three years from the date the aircraft or component to which the work relates was released from the organisation.

1. The records under this paragraph shall be stored in a manner that ensures protection from damage, alteration and theft.
2. Computer backup discs, tapes etc. shall be stored in a different location from that containing the working discs, tapes etc., in an environment that ensures they remain in good condition.
3. Where an organisation approved under this Part terminates its operation, all retained maintenance records covering the last two years shall be distributed to the last owner or customer of the respective aircraft or component or shall be stored as specified by the competent authority.

AMC 145.A.55(c) MAINTENANCE RECORDS

Associated maintenance data is specific information such as repair and modification data. This does not necessarily require the retention of all Aircraft Maintenance Manual, Component Maintenance Manual, IPC etc. issued by the TC holder or STC holder. Maintenance records should refer to the revision status of the data used.

GM 145.A.55(a) MAINTENANCE RECORDS

1. Properly executed and retained records provide owners, operators and maintenance personnel with information essential in controlling unscheduled and scheduled maintenance, and troubleshooting to eliminate the need for re-inspection and rework to establish airworthiness.

   The prime objective is to have secure and easily retrievable records with comprehensive and legible contents. The aircraft record should contain basic details of all serialised aircraft components and all other significant aircraft components installed, to ensure traceability to such installed aircraft component documentation and associated maintenance data as specified in 145.A.45.

2. Some gas turbine engines are assembled from modules and a true total time in service for a total engine is not kept. When owners and operators wish to take advantage of the modular design, then total time in service and maintenance records for each module is to be maintained. The maintenance records as specified are to be kept with the module and should show compliance with any mandatory requirements pertaining to that module.

3. Reconstruction of lost or destroyed records can be done by reference to other records which reflect the time in service, research of records maintained by repair facilities and reference to records maintained by individual mechanics etc. When these things have been done and the record is still incomplete, the owner/operator may make a statement in the new record describing the loss and establishing the time in service based on the research and the best estimate of time in service. The reconstructed records should be submitted to the competent authority for acceptance.

   Note: Additional maintenance may be required.

4. The maintenance record can be either a paper or computer system or any combination of both.

5. Paper systems should use robust material which can withstand normal handling and filing. The record should remain legible throughout the required retention period.

6 Computer systems may be used to control maintenance and/or record details of maintenance work carried out. Computer systems used for maintenance should have at least one backup system which should be updated at least within 24 hours of any maintenance. Each terminal is required to contain programme safeguards against the ability of unauthorised personnel to alter the database.

145.A.60 OCCURRENCE REPORTING

(a) The organisation shall report to the Competent Authority, the state of registry and the organisation responsible for the design of the aircraft or component any condition of the aircraft or component identified by the organisation that has resulted or may result in an unsafe condition that hazards seriously the flight safety.

(b) The organisation shall establish an internal occurrence reporting system as detailed in the exposition to enable the collection and evaluation of such reports, including the assessment and extraction of those occurrences to be reported under paragraph (a). This procedure shall identify adverse trends, corrective actions taken or to be taken by the organisation to address deficiencies and include evaluation of all known relevant information relating to such occurrences and a method to circulate the information as necessary.

(c) The organisation shall make such reports in a form and manner established by the Competent Authority and ensure that they contain all pertinent information about the condition and evaluation results known to the organisation.

(d) Where the organisation is contracted by a commercial operator to carry out maintenance, the organisation shall also report to the operator any such condition affecting the operator's aircraft or component.

(e) The organisation shall produce and submit such reports as soon as practicable but in any case within 72 hours of the organisation identifying the condition to which the report relates.

AMC 145.A.60(a) OCCURRENCE REPORTING

In the absence of CAASL specific guidance, EASA AMC 20-8 General Acceptable Means of Compliance for Airworthiness of Products, Parts and Appliances provides further guidance on occurrence reporting.

AMC 145.A.60(b) OCCURRENCE REPORTING

1. The aim of occurrence reporting is to identify the factors contributing to incidents, and to make the system resistant to similar errors.
2. An occurrence reporting system should enable and encourage free and frank reporting of any (potentially) safety related occurrence. This will be facilitated by the establishment of a just culture. An organisation should ensure that personnel are not inappropriately punished for reporting or co-operating with occurrence investigations.
3. The internal reporting process should be closed-loop, ensuring that actions are taken internally to address safety hazards.
4. Feedback to reportees, both on an individual and more general basis, is important to ensure their continued support for the scheme.

GM 145.A.60(a) OCCURRENCE REPORTING

The organisation responsible for the design is normally the TC holder of the aircraft, engine or propeller and/or if known the STC holder.

GM 145.A.60(b) OCCURRENCE REPORTING

The following examples can be considered occurrence reporting in an IS 145 environment but should not be considered as the only case of occurrence reporting:

a) A defect detected on the aircraft during a maintenance inspection (scheduled or non-scheduled) which may have its origin in a maintenance or design error.

- During routine inspection: Damage found to number 4 engine inlet cowl acoustic lining
- During routine inspection: Rivets found loose on vertical stabiliser
- Found during after flight inspection: Excessive play in tail rotor blade pitch link bearing at the attachment to the tail rotor blade horn due to bearing migration.

b) A deviation of maintenance procedure (company manual or manufacturer documentation)

- Safety pin being left installed in a component, such as an escape slide
- Alleged inappropriate repair carried out with damage outside of SRM limits.
- Torch left in intake causing damage to inlet cowl during engine start
- Part Number of replaced part not properly recorded

GM 145.A.60(c) OCCURRENCE REPORTING

Each report should contain at least the following information:

(i) Organisation name and approval reference.

(ii) Information necessary to identify the subject aircraft and / or component.

(iii) Date and time relative to any life or overhaul limitation in terms of flying hours/cycles/landings etc. as appropriate.

(iv) Details of the condition as required by 145.A.60(b).

(v) Any other relevant information found during the evaluation or rectification of the condition.

145.A.65 SAFETY AND QUALITY POLICY, MAINTENANCE PROCEDURES AND QUALITY SYSTEM

(a) The organisation shall establish a safety and quality policy for the organisation to be included in the exposition under 145.A.70.

(b) The organisation shall establish procedures agreed by the competent authority taking into account human factors and human performance to ensure good maintenance practices and compliance with this Part which shall include a clear work order or contract such that aircraft and components may be released to service in accordance with point 145.A.50.

1. The maintenance procedures under this paragraph apply to points 145.A.25 to 145.A.95.
2. The maintenance procedures established or to be established by the organisation under this paragraph shall cover all aspects of carrying out the maintenance activity, including the provision and control of specialised services and lay down the standards to which the organisation intends to work.
3. With regard to aircraft line and base maintenance, the organisation shall establish procedures to minimise the risk of multiple errors and capture errors on critical systems, and to ensure that no person is required to carry out and inspect in relation to a maintenance task involving some element of disassembly/ reassembly of several components of the same type fitted to more than one system on the same aircraft during a particular maintenance check. However, when only one person is available to carry out these tasks then the organisation's work card or worksheet shall include an additional stage for re-inspection of the work by this person after completion of all the same tasks.
4. Maintenance procedures shall be established to ensure that damage is assessed and modifications and repairs are carried out using data approved by the Competent Authority *or by a design organisation acceptable to the Competent Authority*, as appropriate.

(c) The organisation shall establish a quality system that includes the following:

1. Independent audits in order to monitor compliance with required aircraft/aircraft component standards and adequacy of the procedures to ensure that such procedures invoke good maintenance practices and airworthy aircraft/aircraft components. In the smallest organisations the independent audit part of the quality system may be contracted to another organisation approved under this Part or a person with appropriate technical knowledge and proven satisfactory audit experience; and
2. A quality feedback reporting system to the person or group of persons specified in 145.A.30(b) and ultimately to the accountable manager that ensures proper and timely corrective action is taken in response to reports resulting from the independent audits established to meet paragraph (1).

(d) The organization shall establish a Safety Management System (SMS) that:

(1) Shall achieve the following objectives as a minimum:

(i) Identifies safety hazards;

(ii) Assesses the impact of these safety hazards and mitigates risks;

(iii) Ensures that remedial action necessary to maintain an acceptable level of safety is implemented;

(iv) Provides for continuous monitoring and regular assessment of the safety level achieved; and

(v) Aims to make continuous improvement to the overall level of safety.

(2) Shall meet the requirements contained in Appendix V to this Part; and

(3) Shall be approved by the Competent Authority.

AMC 145.A.65(a) SAFETY AND QUALITY POLICY, MAINTENANCE PROCEDURES AND QUALITY SYSTEM

The safety and quality policy should as a minimum include a statement committing the organisation to:

- Recognise safety as a prime consideration at all times.
- Apply Human factors principles.
- Encourage personnel to report maintenance related errors/incidents.
- Recognise that compliance with procedures, quality standards, safety standards and regulations is the duty of all personnel.
- Recognise the need for all personnel to cooperate with the quality auditors.

AMC 145.A.65(b) SAFETY AND QUALITY POLICY, MAINTENANCE PROCEDURES AND QUALITY SYSTEM

1. Maintenance procedures should be held current such that they reflect best practice within the organisation. It is the responsibility of all organisation's employees to report any differences via their organisation's internal occurrence reporting mechanisms.
2. All procedures, and changes to those procedures, should be verified and validated before use where practicable.
3. All technical procedures should be designed and presented in accordance with good human factors principles.

AMC 145.A.65(b)(2) SAFETY AND QUALITY POLICY, MAINTENANCE PROCEDURES AND QUALITY SYSTEM

Specialised services include any specialised activity, such as, but not limited to non-destructive testing requiring particular skills and/or qualification. 145.A.30(f) covers the qualification of personnel but, in addition, there is a need to establish maintenance procedures that cover the control of any specialised process.

AMC 145.A.65(b)(3) SAFETY AND QUALITY POLICY, MAINTENANCE PROCEDURES AND QUALITY SYSTEM

1. The purpose of this procedure is to minimise the rare possibility of an error being repeated whereby the identical aircraft components are not reassembled thereby compromising more than one system. One example is the remote possibility of failure to reinstall engine gearbox access covers or oil filler caps on all engines of a multi-engined aircraft resulting in major oil loss from all engines.

   Another example is the case of removal and refitment of oil filler caps, which should require a re-inspection of all oil filler caps after the last oil filler cap has supposedly been refitted.
2. Procedures should be established to detect and rectify maintenance errors that could, as minimum, result in a failure, malfunction, or defect endangering the safe operation of the aircraft

if not performed properly. The procedure should identify the method for capturing errors, and the maintenance tasks or processes concerned.

In order to determine the work items to be considered, the following maintenance tasks should primarily be reviewed to assess their impact on safety:

- Installation, rigging and adjustments of flight controls,
- Installation of aircraft engines, propellers and rotors,
- Overhaul, calibration or rigging of components such as engines, propellers, transmissions and gearboxes

but additional information should also be processed, such as:

- Previous experiences of maintenance errors, depending on the consequence of the failure,
- Information arising from the 'occurrence reporting system' required by 145.A.60,
- *Competent Authority* requirements for error capturing, if applicable.

3. In order to prevent omissions, every maintenance task or group of tasks should be signed-off. To ensure the task or group of tasks is completed it should only be signed-off after completion. Work by unauthorised personnel (i.e. temporary staff, trainee,..) should be checked by authorised personnel before they sign-off. The grouping of tasks for the purpose of signing-off should allow critical steps to be clearly identified

   Note: A "sign-off" is a statement by the competent person performing or supervising the work, that the task or group of tasks has been correctly performed. A sign-off relates to one step in the maintenance process and is therefore different to the release to service of the aircraft. "Authorised personnel" means personnel formally authorised by the maintenance organisation approved under IS-145 to sign-off tasks. "Authorised personnel" are not necessarily "certifying staff".

4. The maintenance organisation should ensure that when carrying out a modification, repair or maintenance, Critical Design Configuration Control Limitations are not compromised; this will require the development of appropriate procedures where necessary by the maintenance organisation. The maintenance organisation should pay particular attention to possible adverse effects of any wiring change to the aircraft, even a change not specifically associated with the fuel tank system. For example, it should be common practice to identify segregation of fuel gauging system wiring as a Critical Design Configuration Control Limitation.

   Maintenance organisations can prevent adverse effects associated with wiring changes by standardising maintenance practices through training, rather than by periodic inspection. Training should be provided to end indiscriminate routing and splicing of wire and to provide comprehensive knowledge of critical design features of fuel tank systems that would be controlled by a Critical Design Configuration Control Limitation. Guidance is provided for training to maintenance organisation personnel in *Appendix IV to AMC to IS-145*.

   The maintenance of ignition prevention features is necessary for the inherent safety and reliability of an aircraft's fuel tank system. The aircraft cannot be operated indefinitely with the failure of an ignition prevention feature. The failure will have a direct adverse effect on operational safety. It could prevent the continued safe flight and landing of the aircraft or cause serious or fatal injury to the occupants. The fuel system review required will identify ignition prevention features of the design. The failure of any of these features may not immediately result in an unsafe condition, but it may warrant certain maintenance to support continued airworthiness.

AMC 145.A.65(c)(1) SAFETY AND QUALITY POLICY, MAINTENANCE PROCEDURES AND QUALITY SYSTEM

1. The primary objectives of the quality system are to enable the organisation to ensure that it can deliver a safe product and that organisation remains in compliance with the requirements.
2. An essential element of the quality system is the independent audit
3. The independent audit is an objective process of routine sample checks of all aspects of the organisation's ability to carry out all maintenance to the required standards and includes some product sampling as this is the end result of the maintenance process. It represents an objective overview of the complete maintenance related activities and is intended to complement the 145.A.50 (a) requirement for certifying staff to be satisfied that all required maintenance has been properly carried out before issue of the certificate of release to service. Independent audits should include a percentage of random audits carried out on a sample basis when maintenance is being carried out. This means some audits during the night for those organisations that work at night.
4. Except as specified in sub-paragraphs 7 and 9, the independent audit should ensure that all aspects of IS-145 compliance are checked every 12 months and may be carried out as a complete single exercise or subdivided over the 12-month period in accordance with a scheduled plan. The independent audit does not require each procedure to be checked against each product line when it can be shown that the particular procedure is common to more than one product line and the procedure has been checked every 12 months without resultant findings. Where findings have been identified, the particular procedure should be rechecked against other product lines until the findings have been rectified after which the independent audit procedure may revert back to 12 monthly for the particular procedure.
5. Except as specified otherwise in subparagraphs 7, the independent audit should sample check one product on each product line every 12 months as a demonstration of the effectiveness of maintenance procedures compliance. It is recommended that procedures and product audits be combined by selecting a specific product example, such as an aircraft or engine or instrument and sample checking all the procedures and requirements associated with the specific product example to ensure that the end result should be an airworthy product.

   For the purpose of the independent audit, a product line includes any product under an Appendix II approval class rating as specified in the approval schedule issued to the particular organisation.

   It therefore follows for example that a maintenance organisation approved under IS-145 with a capability to maintain aircraft, repair engines, brakes and autopilots would need to carry out four complete audit sample checks each year except as specified otherwise in subparagraphs 5, 7 or 9.
6. The sample check of a product means to witness any relevant testing and visually inspect the product and associated documentation. The sample check should not involve repeat disassembly or testing unless the sample check identifies findings requiring such action.
7. Except as specified otherwise in sub-paragraph 9, where the smallest organisation, that is an organisation with a maximum of 10 personnel actively engaged in maintenance, chooses to contract the independent audit element of the quality system in accordance with 145.A.65 (c)(1) it is conditional on the audit being carried out twice in every 12 month period.
8. Except as specified otherwise in sub-paragraph 9, where the organisation has line stations listed as per 145.A.75 (d) the quality system should describe how these are integrated into the system and include a plan to audit each listed line station at a frequency consistent with the extent of flight activity at the particular line station. Except as specified otherwise in sub-paragraph 9 the maximum period between audits of a particular line station should not exceed 24 months.
9. Except as specified otherwise in sub-paragraph 5, the Competent Authority may agree to increase any of the audit time periods specified in this AMC 145.A.65 (c)(1) by up to 100% provided that

there are no safety related findings and subject to being satisfied that the organisation has a good record of rectifying findings in a timely manner.

10. A report should be raised each time an audit is carried out describing what was checked and the resulting findings against applicable requirements, procedures and products.
11. The independence of the audit should be established by always ensuring that audits are carried out by personnel not responsible for the function, procedure or products being checked. It therefore follows that a large maintenance organisation approved under IS-145, being an organisation with more than about 500 maintenance staff should have a dedicated quality audit group whose sole function is to conduct audits, raise finding reports and follow up to check that findings are being rectified. For the medium sized maintenance organisation approved under IS-145, being an organisation with less than about 500 maintenance staff, it is acceptable to use competent personnel from one section/department not responsible for the production function, procedure or product to audit the section/department that is responsible subject to the overall planning and implementation being under the control of the quality manager. Organisations with a maximum of 10 maintenance staff actively engaged in carrying out maintenance may contract the independent audit element of the quality system to another organisation or a qualified and competent person approved by the Competent Authority.

AMC 145.A.65(c)(2) SAFETY AND QUALITY POLICY, MAINTENANCE PROCEDURES AND QUALITY SYSTEM

1. An essential element of the quality system is the quality feedback system.
2. The quality feedback system may not be contracted to outside persons. The principle function of the quality feedback system is to ensure that all findings resulting from the independent quality audits of the organisation are properly investigated and corrected in a timely manner and to enable the accountable manager to be kept informed of any safety issues and the extent of compliance with IS-145.
3. The independent quality audit reports referenced in AMC 145.A.65(c)(1) sub-paragraph 10 should be sent to the relevant department(s) for rectification action giving target rectification dates. Rectification dates should be discussed with such department(s) before the quality department or nominated quality auditor confirms such dates in the report. The relevant department(s) are required by 145.A.65(c)(2) to rectify findings and inform the quality department or nominated quality auditor of such rectification.
4. The accountable manager should hold regular meetings with staff to check progress on rectification except that in the large organisations such meetings may be delegated on a day to day basis to the quality manager subject to the accountable manager meeting at least twice per year with the senior staff involved to review the overall performance and receiving at least a half yearly summary report on findings of non-compliance.
5. All records pertaining to the independent quality audit and the quality feedback system should be retained for at least 2 years after the date of clearance of the finding to which they refer or for such periods as to support changes to the AMC 145.A.65(c)(1) sub-paragraph 9 audit time periods, whichever is the longer.

GM 145.A.65(c)(1) SAFETY AND QUALITY POLICY, MAINTENANCE PROCEDURES AND QUALITY SYSTEM

1. The purpose of this GM is to give guidance on just one acceptable working audit plan to meet part of the needs of 145.A.65 (c)1. There is any number of other acceptable working audit plans.
2. The proposed plan lists the subject matter that should be covered by the audit and attempts to indicate applicability in the various types of workshops and aircraft facilities. The list should therefore be tailored for the particular situation and more than one list may be necessary. Each

list should be shown against a timetable to indicate when the particular item is scheduled for audit and when the audit was completed.

PARA	Comment	HANGAR	ENGINE	MECH	AVIONIC
			Workshop	Workshop	Workshop
145.A.25		Yes	Yes	Yes	Yes
145.A.30		Yes	Yes	Yes	Yes
145.A.35		Yes	Yes	Yes	Yes
145.A.40		Yes	Yes	Yes	Yes
145.A.42		Yes	Yes	Yes	Yes
145.A.45		Yes	Yes	Yes	Yes
145.A.47		Yes	Yes	Yes	Yes
145.A.50		Yes	Yes	Yes	Yes
145.A.55		Yes	Yes	Yes	Yes
145.A.60		Yes	Yes	Yes	Yes
145.A.65		Yes	Yes	Yes	Yes
2.1	MOE	Yes	Yes	Yes	Yes
2.2	MOE	Yes	Yes	Yes	Yes
2.3	MOE	Yes	Yes	Yes	Yes
2.4	MOE	Yes	Yes	Yes	Yes
2.5	MOE	Yes	Yes	Yes	Yes
2.6	MOE	Yes	Yes	Yes	Yes
2.7	MOE	Yes	Yes	Yes	Yes
2.8	MOE	Yes	Yes	Yes	Yes
2.9	MOE	Yes	Yes	Yes	Yes
2.10	MOE	Yes	No	No	No
2.11	MOE	Yes	Yes	Yes	Yes
2.12	MOE	Yes	Yes	Yes	Yes
2.13	MOE	Yes	Yes	Yes	Yes
2.15	MOE	Yes	No	No	No
2.16	MOE	Yes	Yes	Yes	Yes
2.17	MOE	if appl	if appl	if appl	if appl
2.18	MOE	Yes	Yes	Yes	Yes
2.19	MOE	Yes	Yes	Yes	Yes
2.20	MOE	Yes	Yes	Yes	Yes
2.21	MOE	if appl	if appl	if appl	if appl
2.22	MOE	Yes	Yes	No	No
2.23	MOE	Yes	No	No	No
2.24	MOE	Yes	Yes	Yes	Yes
2.25	MOE	Yes	Yes	Yes	Yes
2.26	MOE	Yes	Yes	Yes	Yes
2.27	MOE	Yes	Yes	Yes	Yes
2.28	MOE	Yes	Yes	Yes	Yes
L2.1	MOE	if appl	No	No	No
L2.2	MOE	if appl	No	No	No
L2.3	MOE	if appl	No	No	No
L2.4	MOE	if appl	No	No	No
L2.5	MOE	if appl	No	No	No
L2.6	MOE	if appl	No	No	No

PARA	Comment	HANGAR	ENGINE	MECH	AVIONIC
L2.7	MOE	if appl	No	No	No
3.9	MOE	if appl	if appl	if appl	if appl
3.10	MOE	if appl	if appl	if appl	if appl
3.11	MOE	if appl	if appl	if appl	No
3.12	MOE	Yes	Yes	No	No
3.13	MOE	Yes	Yes	Yes	Yes
3.14	MOE	Yes	Yes	Yes	Yes
145.A.70		Yes	Yes	Yes	Yes
145.A.75		Yes	Yes	Yes	Yes
145.A.80		Yes	Yes	Yes	Yes
145.A.85		Yes	Yes	Yes	Yes
145.A.95		if appl	if appl	if appl	if appl

Note 1: 'if appl' means if applicable or relevant.

Note 2: In the line station case all line stations should be audited at the frequency agreed with the Competent Authority within the limits of AMC 145.A.65(c)(1).

145.A.70 MAINTENANCE ORGANISATION EXPOSITION

(a) "Maintenance organisation exposition" means the document or documents that contain the material specifying the scope of work deemed to constitute approval and showing how the organisation intends to comply with this Part. The organisation shall provide the competent authority with a maintenance organisation exposition, containing the following information:

1. A statement signed by the accountable manager confirming that the maintenance organisation exposition and any referenced associated manuals define the organisation's compliance with this Part and will be complied with at all times. When the accountable manager is not the chief executive officer of the organisation then such chief executive officer shall countersign the statement;
2. the organisation's safety and quality policy as specified by 145.A.65;
3. the title(s) and name(s) of the persons nominated under 145.A.30(b);
4. the duties and responsibilities of the persons nominated under 145.A.30(b), including matters on which they may deal directly with the competent authority on behalf of the organisation;
5. an organisation chart showing associated chains of responsibility between the persons nominated under 145.A.30(b);
6. a list of certifying staff and support staff;
7. a general description of manpower resources;
8. a general description of the facilities located at each address specified in the organisation's approval certificate;
9. a specification of the organisation's scope of work relevant to the extent of approval;
10. the notification procedure of 145.A.85 for organisation changes;
11. the maintenance organisation exposition amendment procedure;
12. the procedures and quality system established by the organisation under 145.A.25 to 145.A.90;
13. a list of commercial operators, where applicable, to which the organisation provides an aircraft maintenance service;
14. a list of subcontracted organisations, where applicable, as specified in 145.A.75(b);
15. a list of line stations, where applicable, as specified in 145.A.75(d);

16. a list of contracted organisations, where applicable.

(b) The exposition shall be amended as necessary to remain an up-to-date description of the organisation. The exposition and any subsequent amendment shall be approved by the Competent Authority.

(c) Notwithstanding paragraph (b) minor amendments to the exposition may be approved through an exposition procedure (hereinafter called indirect approval).

(d) The exposition shall refer to the Safety Management System Manual (SMSM).

AMC 145.A.70(a) MAINTENANCE ORGANISATION EXPOSITION

The following information should be included in the maintenance organisation exposition:

The information specified in 145.A.70(a) subparagraphs (6) and (12) to (16) inclusive, whilst a part of the maintenance organisation exposition, may be kept as separate documents or on separate electronic data files subject to the management part of said exposition containing a clear cross-reference to such documents or electronic data files.

The exposition should contain the information, as applicable, specified in this AMC. The information may be presented in any subject order as long as all applicable subjects are covered. Where an organisation uses a different format, for example, to allow the exposition to serve for more than one approval, then the exposition should contain a cross-reference Annex using this list as an index with an explanation as to where the subject matter can be found in the exposition.

The exposition should contain information, as applicable, on how the maintenance organisation complies with Critical Design Configuration Control Limitations' (CDCCL) instructions.

Small maintenance organisations may combine the various items to form a simple exposition more relevant to their needs.

The operator may use electronic data processing (EDP) for publication of the maintenance organisation exposition. The maintenance organisation exposition should be made available to *the Competent Authority* in a form acceptable to the Competent Authority. Attention should be paid to the compatibility of EDP publication systems with the necessary dissemination of the maintenance organisation exposition, both internally and externally.

PART 0 GENERAL ORGANISATION

This section is reserved for those maintenance organisations approved under IS-145 who are also operators within the *Sri Lanka territory*.

PART 1 MANAGEMENT

1.1 Corporate commitment by the accountable manager

1.2 Safety and quality policy

1.3 Management personnel

1.4 Duties and responsibilities of the management personnel

1.5 Management organisation chart

1.6 List of certifying staff and support staff

1.7 Manpower resources

1.8 General description of the facilities at each address intended to be approved

1.9 Organisations intended scope of work

1.10 Notification procedure to the competent authority regarding changes to the organisation's

activities/approval/location/personnel

1.11 Exposition amendment procedures including, if applicable, delegated procedures

PART 2 MAINTENANCE PROCEDURES

2.1 Supplier evaluation and subcontract control procedure

2.2 Acceptance/inspection of aircraft components and material from outside contractors

2.3 Storage, tagging and release of aircraft components and material to aircraft maintenance

2.4 Acceptance of tools and equipment

2.5 Calibration of tools and equipment

2.6 Use of tooling and equipment by staff (including alternate tools)

2.7 Cleanliness standards of maintenance facilities

2.8 Maintenance instructions and relationship to aircraft/aircraft component manufacturers' instructions including updating and availability to staff

2.9 Repair procedure

2.10 Aircraft maintenance programme compliance

2.11 Airworthiness directives procedure

2.12 Optional modification procedure

2.13 Maintenance documentation in use and completion of same

2.14 Technical record control

2.15 Rectification of defects arising during base maintenance

2.16 Release to service procedure

2.17 Records for the operator

2.18 Reporting of defects to the competent authority/operator/manufacturer

2.19 Return of defective aircraft components to store

2.20 Defective components to outside contractors

2.21 Control of computer maintenance record systems

2.22 Control of manhour planning versus scheduled maintenance work

2.23 Control of critical tasks

2.24 Reference to specific maintenance procedures such as -

Engine running procedures

Aircraft pressure run procedures

Aircraft towing procedures

Aircraft taxiing procedures

2.25 Procedures to detect and rectify maintenance errors.

2.26 Shift/task handover procedures

2.27 Procedures for notification of maintenance data inaccuracies and ambiguities, to the type certificate holder

2.28 Production planning procedures

PART L2 ADDITIONAL LINE MAINTENANCE PROCEDURES

L2.1 Line maintenance control of aircraft components, tools, equipment, etc.

L2.2 Line maintenance procedures related to servicing/fuelling/de-icing, including inspection for/removal of de-icing/anti-icing fluid residues, etc.

L2.3 Line maintenance control of defects and repetitive defects
L2.4 Line procedure for completion of technical log
L2.5 Line procedure for pooled parts and loan parts
L2.6 Line procedure for return of defective parts removed from aircraft
L2.7 Line procedure control of critical tasks

PART 3 QUALITY SYSTEM PROCEDURES

3.1 Quality audit of organisation procedures
3.2 Quality audit of aircraft
3.3 Quality audit remedial action procedure
3.4 Certifying staff and support staff qualification and training procedures
3.5 Certifying staff and support staff records
3.6 Quality audit personnel
3.7 Qualifying inspectors
3.8 Qualifying mechanics
3.9 Aircraft or aircraft component maintenance tasks exemption process control
3.10 Concession control for deviation from organisations' procedures
3.11 Qualification procedure for specialised activities such as NDT welding, etc.
3.12 Control of manufacturers' and other maintenance working teams
3.13 Human factors training procedure
3.14 Competence assessment of personnel

PART 4

4.1 Contracting operators
4.2 Operator procedures and paperwork
4.3 Operator record completion

PART 5

5.1 Sample of documents
5.2 List of Subcontractors as per 145.A.75 (b)
5.3 List of Line maintenance locations as per 145.A.75 (d)
5.4 List of contracted organisations as per 145.A.70(a)(16)

PART 6 OPERATORS MAINTENANCE PROCEDURES

This section is reserved for those maintenance organisations approved under IS-145 who are also operators.

PART 7

(Reserved)

PART 8

(Reserved)

GM 145.A.70(a) MAINTENANCE ORGANISATION EXPOSITION

1. The purpose of the maintenance organisation exposition (MOE) is to set forth the procedures, means and methods of the organisation.
2. Compliance with its contents will assure compliance with the requirements of IS-145, which is a prerequisite to obtaining and retaining a maintenance organisation approval certificate.
3. 145.A.70 (a)(1) to (a)(11) constitutes the 'management' part of the MOE and therefore could be produced as one document and made available to the person(s) specified under 145.A.30 (b) who should be reasonably familiar with its contents. 145.A.70(a)(6) list of certifying staff and B1 and B2 support staff may be produced as a separate document.
4. 145.A.70 (a)(12) constitutes the working procedures of the organisation and therefore as stated in the requirement may be produced as any number of separate procedures manuals. It should be remembered that these documents should be cross-referenced from the management MOE.
5. Personnel are expected to be familiar with those parts of the manuals that are relevant to the maintenance work they carry out.
6. The organisation should specify in the MOE who should amend the manual particularly in the case where there are several parts.
7. The quality manager should be responsible for monitoring the amendment of the MOE, unless otherwise agreed by the Competent Authority, including associated procedures manuals and submission of the proposed amendments to the Competent Authority. However the Competent Authority may agree via a procedure stated in the amendment section of the MOE that some defined class of amendments may be incorporated without prior approval by the Competent Authority.
8. The MOE should cover four main parts:
   (a) The management MOE covering the parts specified earlier.
   (b) The maintenance procedures covering all aspects of how aircraft components may be accepted from outside sources and how aircraft will be maintained to the required standard.
   (c) The quality system procedures including the methods of qualifying mechanics, inspection, certifying staff and quality audit personnel.
   (d) Contracting operator procedures and paperwork.
9. The accountable manager's exposition statement as specified under 145.A.70 (a)(1) should embrace the intent of the following paragraph and in fact this statement may be used without amendment. Any modification to the statement should not alter the intent.

   This exposition and any associated referenced manuals define the organisation and procedures upon which the (Competent Authority*) IS-145 approval is based as required by 145.A.70. These procedures are approved by the undersigned and should be complied with, as applicable, when work orders are being progressed under the terms of the IS-145 approval.

   It is accepted that these procedures do not override the necessity of complying with any new or amended regulation published by the (competent authority*) from time to time where these new or amended regulations are in conflict with these procedures.

   It is understood that the (Competent Authority*) will approve this organisation whilst the (Competent Authority*) is satisfied that the procedures are being followed and work standards maintained. It is further understood that the (Competent Authority*) reserves the right to suspend, limit or revoke the approval of the organisation if the (Competent Authority*) has evidence that procedures are not followed or standards not upheld.

Signed .....

Dated .....

Accountable Manager and……..... (quote position).....

For and on behalf of..... (quote organisation's name).....

Whenever the accountable manager changes, it is important to ensure that the new accountable manager signs the paragraph 9 statement at the earliest opportunity.

Failure to carry out this action could invalidate the IS-145 approval.

10. When an organisation is approved against any other Part containing a requirement for an exposition, a supplement covering the differences will suffice to meet the requirements except that the supplement should have an index showing where those parts missing from the supplement are covered.

AMC 145.A.70(d) MAINTENANCE ORGANISATION EXPOSITION

The Maintenance organization exposition should include a reference to the Safety Management Manual. As the Competent Authority issue specific approvals for each Safety Management System, the Safety Management Manual should be issued as a specific manual and not be integrated within the Maintenance organization exposition.

145.A.75 PRIVILEGES OF THE ORGANISATION

In accordance with the exposition, the organisation shall be entitled to carry out the following tasks:

(a) Maintain any aircraft and/or component for which it is approved at the locations identified in the approval certificate and in the exposition;

(b) Arrange for maintenance of any aircraft or component for which it is approved at another organisation that is working under the quality system of the organisation. This refers to work being carried out by an organisation not itself appropriately approved to carry out such maintenance under this Part and is limited to the work scope permitted under 145.A.65(b) procedures. This work scope shall not include a base maintenance check of an aircraft or a complete workshop maintenance check or overhaul of an engine or engine module;

(c) Maintain any aircraft or any component for which it is approved at any location subject to the need for such maintenance arising either from the unserviceability of the aircraft or from the necessity of supporting occasional line maintenance, subject to the conditions specified in the exposition;

(d) Maintain any aircraft and/or component for which it is approved at a location identified as a line maintenance location capable of supporting minor maintenance and only if the organisation exposition both permits such activity and lists such locations;

(e) Issue certificates of release to service in respect of completion of maintenance in accordance with 145.A.50.

AMC 145.A.75(b) PRIVILEGES OF THE ORGANISATION

1. Working under the quality system of an organisation appropriately approved under IS-145 (sub contracting) refers to the case of one organisation, not itself appropriately approved to IS-145 that carries out aircraft line maintenance or minor engine maintenance or maintenance of other aircraft components or a specialised service as a subcontractor for an organisation appropriately approved under IS-145. To be appropriately approved to subcontract the organisation should have a procedure for the control of such subcontractors as described below. Any approved maintenance organisation that carries out maintenance for another approved maintenance

organisation within its own approval scope is not considered to be subcontracting for the purpose of this paragraph.

2. Maintenance of engines or engine modules other than a complete workshop maintenance check or overhaul is intended to mean any maintenance that can be carried out without disassembly of the core engine or, in the case of modular engines, without disassembly of any core module.

3. FUNDAMENTALS OF SUB-CONTRACTING UNDER IS-145

3.1 The fundamental reasons for allowing an organisation approved under IS-145 to sub-contract certain maintenance tasks are:

(a) To permit the acceptance of specialised maintenance services, such as, but not limited to, plating, heat treatment, plasma spray, fabrication of specified parts for minor repairs / modifications, etc., without the need for direct approval by the Competent Authority in such cases.

(b) To permit the acceptance of aircraft maintenance up to but not including a base maintenance check as specified in 145.A.75(b) by organisations not appropriately approved under IS-145 when it is unrealistic to expect direct approval by the Competent Authority. The Competent Authority will determine when it is unrealistic but in general it is considered unrealistic if only one or two organisations intend to use the sub-contract organisation.

(c) To permit the acceptance of component maintenance.

(d) To permit the acceptance of engine maintenance up to but not including a workshop maintenance check or overhaul of an engine or engine module as specified in 145.A.75(b) by organisations not appropriately approved under IS-145 when it is unrealistic to expect direct approval by the Competent Authority. The determination of unrealistic is as per sub-paragraph (b).

3.2 When maintenance is carried out under the sub-contract control system it means that for the duration of such maintenance, the IS-145 approval has been temporarily extended to include the sub-contractor. It therefore follows that those parts of the sub-contractor`s facilities personnel and procedures involved with the maintenance organisation's products undergoing maintenance should meet IS-145 requirements for the duration of that maintenance and it remains the organisation's responsibility to ensure such requirements are satisfied.

3.3 For the criteria specified in sub-paragraph 3.1 the organisation is not required to have complete facilities for maintenance that it needs to sub-contract but it should have its own expertise to determine that the sub-contractor meets the necessary standards. However an organisation cannot be approved unless it has the in-house facilities, procedures and expertise to carry out the majority of maintenance for which it wishes to be approved in terms of the number of class ratings.

3.4 The organisation may find it necessary to include several specialist sub-contractors to enable it to be approved to completely certify the release to service of a particular product. Examples could be specialist welding, electro-plating, painting etc. To authorise the use of such subcontractors, the Competent Authority will need to be satisfied that the organisation has the necessary expertise and procedures to control such sub-contractors.

3.5 An organisation working outside the scope of its approval schedule is deemed to be not approved. Such an organisation may in this circumstance operate only under the sub-contract control of another organisation approved under IS-145.

3.6 Authorisation to sub-contract is indicated by the Competent Authority accepting the maintenance organisation exposition containing a specific procedure on the control of sub-contractors.

4. PRINCIPLE IS-145 PROCEDURES FOR THE CONTROL OF SUB-CONTRACTORS NOT APPROVED UNDER IS-145

4.1 A pre-audit procedure should be established whereby the maintenance organisations' subcontract control section, which may also be the 145.A.65(c) quality system independent audit section, should audit a prospective subcontractor to determine whether those services of the subcontractor that it wishes to use meets the intent of IS-145.

4.2 The organisation approved under IS-145 needs to assess to what extent it will use the sub-contractor`s facilities. As a general rule the organisation should require its own paperwork, approved data and material/spare parts to be used, but it could permit the use of tools, equipment and personnel from the sub-contractor as long as such tools, equipment and personnel meet the requirement of IS-145. In the case of sub-contractors who provide specialised services it may for practical reasons be necessary to use their specialised services personnel, approved data and material subject to acceptance by the organisation approved under IS-145.

4.3 Unless the sub-contracted maintenance work can be fully inspected on receipt by the organisation approved under IS-145 it will be necessary for such organisation to supervise the inspection and release from the sub-contractor. Such activities should be fully described in the organisation procedure. The organisation will need to consider whether to use its own staff or authorise the sub-contractor's staff.

4.4 The certificate of release to service may be issued either at the sub-contractor or at the organisation facility by staff issued a certification authorisation in accordance with Part 145.A.30 as appropriate, by the organisation approved under IS-145. Such staff would normally come from the organisation approved under IS-145 but may otherwise be a person from the sub-contractor who meets the approved maintenance organisation certifying staff standard which itself is approved by the Competent Authority via the maintenance organisation exposition. The certificate of release to service and the CAASL Form 1 will always be issued under the maintenance organisation approval reference.

4.5 The sub-contract control procedure will need to record audits of the sub-contractor, to have a corrective action follow up plan and to know when sub-contractors are being used. The procedure should include a clear revocation process for sub-contractors who do not meet the IS-145 approved maintenance organisation's requirements.

4.6 The IS-145 quality audit staff will need to audit the sub-contract control section and sample audit sub-contractors unless this task is already carried out by the quality audit staff as stated in sub-paragraph 4.1.

4.7 The contract between the IS-145 approved maintenance organisation and the sub-contractor should contain a provision for the Competent Authority to have right of access to the sub-contractor.

145.A.80 LIMITATIONS ON THE ORGANISATION

The organisation shall only maintain an aircraft or component for which it is approved when all the necessary facilities, equipment, tooling, material, maintenance data and certifying staff are available.

AMC 145.A.80 LIMITATIONS ON THE ORGANISATION

This paragraph is intended to cover the situation where the larger organisation may temporarily not hold all the necessary tools, equipment etc., for an aircraft type or variant specified in the organisation's approval. This paragraph means that the Competent Authority need not amend the approval to delete the aircraft type or variants on the basis that it is a temporary situation and there is a commitment from the organisation to re-acquire tools, equipment etc. before maintenance on the type may recommence.

145.A.85 CHANGES TO THE ORGANISATION

The organisation shall notify the competent authority of any proposal to carry out any of the following changes before such changes take place to enable the competent authority to determine continued compliance with this Part and to amend, if necessary, the approval certificate, except that in the case

of proposed changes in personnel not known to the management beforehand, these changes must be notified at the earliest opportunity:

1. the name of the organisation;
2. the main location of the organisation;
3. additional locations of the organisation;
4. the accountable manager;
5. any of the persons nominated under 145.A.30(b);
6. the facilities, equipment, tools, material, procedures, work scope or certifying staff that could affect the approval.

145.A.90 CONTINUED VALIDITY

(a) An approval shall be issued or *renewed for a maximum period of one year*. It shall remain valid subject to:

   1. the organisation remaining in compliance with *IS-145*, in accordance with the provisions related to the handling of findings as specified under point CAASL Airworthiness Procedures and
   2. the competent authority being granted access to the organisation to determine continued compliance with this Part; and
   3. the certificate not being surrendered or revoked.

(b) Upon surrender or revocation, the approval shall be returned to the Competent Authority.

145.A.95 FINDINGS

(a) A level 1 finding is any significant non-compliance with IS-145 requirements which lowers the safety standard and hazards seriously the flight safety.

(b) A level 2 finding is any non-compliance with the IS-145 requirements which could lower the safety standard and possibly hazard the flight safety.

(c) After receipt of notification of findings according to CAASL Airworthiness Procedures, the holder of the maintenance organisation approval shall define a corrective action plan and demonstrate corrective action to the satisfaction of the Competent Authority within a period agreed with this Competent Authority.

APPENDICES TO THE IMPLEMENTING RULES

Appendix 1
Authorised Released Certificate - *CAASL Form 1*

These instructions relate only to the use of the Form 1 for maintenance purposes. Attention is drawn to *IS - 21* which covers the use of the Form 1 for production purposes.

1. PURPOSE AND USE

1.1 The primary purpose of the Certificate is to declare the airworthiness of maintenance work undertaken on products, parts and appliances (hereafter referred to as 'item(s)').

1.2 Correlation must be established between the Certificate and the item(s). The originator must retain a Certificate in a form that allows verification of the original data.

1.3 The Certificate is acceptable to many airworthiness authorities, but may be dependent on the existence of bilateral agreements and/or the policy of the airworthiness authority. The 'approved design data' mentioned in this Certificate then means approved by the airworthiness authority of the importing country.

1.4 The Certificate is not a delivery or shipping note.

1.5 Aircraft are not to be released using the Certificate.

1.6 The Certificate does not constitute approval to install the item on a particular aircraft, engine, or propeller but helps the end user determine its airworthiness approval status.

1.7 A mixture of production released and maintenance released items is not permitted on the same Certificate.

2. GENERAL FORMAT

2.1 The Certificate must comply with the format attached including block numbers and the location of each block. The size of each block may however be varied to suit the individual application, but not to the extent that would make the Certificate unrecognisable.

2.2 The Certificate must be in 'landscape' format but the overall size may be significantly increased or decreased so long as the Certificate remains recognisable and legible. If in doubt consult the competent authority.

2.3 The User/Installer responsibility statement can be placed on either side of the form.

2.4 All printing must be clear and legible to permit easy reading.

2.5 The Certificate may either be pre-printed or computer generated but in either case the printing of lines and characters must be clear and legible and in accordance with the defined format.

2.6 The Certificate should be in English, and if appropriate, in one or more other languages.

2.7 The details to be entered on the Certificate may be either machine/computer printed or hand-written using block letters and must permit easy reading.

2.8 Limit the use of abbreviations to a minimum, to aid clarity.

2.9 The space remaining on the reverse side of the Certificate may be used by the originator for any additional information but must not include any certification statement. Any use of the reverse side of the Certificate must be referenced in the appropriate block on the front side of the Certificate

3. COPIES

3.1 There is no restriction in the number of copies of the Certificate sent to the customer or retained by the originator.

4. ERROR(S) ON A CERTIFICATE

4.1 If an end-user finds an error(s) on a Certificate, he must identify it/them in writing to the originator. The originator may issue a new Certificate only if the error(s) can be verified and corrected.

4.2 The new Certificate must have a new tracking number, signature and date.

4.2 The request for a new Certificate may be honoured without re-verification of the item(s) condition. The new Certificate is not a statement of current condition and should refer to the previous Certificate in block 12 by the following statement; "This Certificate corrects the error(s) in block(s) [enter block(s) corrected] of the Certificate [enter original tracking number] dated [enter original issuance date] and does not cover conformity/condition/release to service". Both Certificates should be retained according to the retention period associated with the first.

5. COMPLETION OF THE CERTIFICATE BY THE ORIGINATOR

Block 1 Approving Competent Authority/Country

State the name of the Competent Authority

Block 2 Form 1 header:

"AUTHORISED RELEASE CERTIFICATE

CAASL Form 1"

Block 3 Form Tracking Number

Enter the unique number established by the numbering system/procedure of the organisation identified in block 4; this may include alpha/numeric characters.

Block 4 Organisation Name and Address

Enter the full name and address of the approved organisation (refer to Form 3) releasing the work covered by this Certificate. Logos, etc., are permitted if the logo can be contained within the block.

Block 5 Work Order/Contract/Invoice

To facilitate customer traceability of the item(s), enter the work order number, contract number, invoice number, or similar reference number.

Block 6 Item

Enter line item numbers when there is more than one line item. This block permits easy cross-referencing to the Remarks block 12.

Block 7 Description

Enter the name or description of the item. Preference should be given to the term used in the instructions for continued airworthiness or maintenance data (e.g. Illustrated Parts Catalogue, Aircraft Maintenance Manual, Service Bulletin, Component Maintenance Manual).

Block 8 Part Number

Enter the part number as it appears on the item or tag/packaging. In case of an engine or propeller the type designation may be used.

Block 9 Quantity

State the quantity of items.

Block 10 Serial Number

If the item is required by regulations to be identified with a serial number, enter it here. Additionally, any other serial number not required by regulation may also be entered. If there is no serial number identified on the item, enter "N/A".

Block 11 Status/Work

The following describes the permissible entries for block 11. Enter only one of these terms – where more than one may be applicable, use the one that most accurately describes the majority of the work performed and/or the status of the article.

(i)*Overhauled:* Means a process that ensures the item is in complete conformity with all the applicable service tolerances specified in the type certificate holder's, or equipment manufacturer's instructions for continued airworthiness, or in the data which is approved or accepted by the Authority. The item will be at least disassembled, cleaned, inspected, repaired as necessary, reassembled and tested in accordance with the above specified data.

(ii)*Repaired*: Rectification of defect(s) using an applicable standard.*

(iii)*Inspected/Tested*: Examination, measurement, etc. in accordance with an applicable standard* (e.g. visual inspection, functional testing, bench testing etc.).

(iv) *Modified*: Alteration of an item to conform to an applicable standard.

*Applicable standard means a manufacturing / design / maintenance / quality standard, method, technique or practice approved by or acceptable to the Competent Authority. The applicable standard shall be described in block 12.

Block 12 Remarks

Describe the work identified in Block 11, either directly or by reference to supporting documentation, necessary for the user or installer to determine the airworthiness of item(s) in relation to the work being certified. If necessary, a separate sheet may be used and referenced from the main Form 1. Each statement must clearly identify which item(s) in Block 6 it relates to.

Examples of information to be entered in block 12 are:

(i) Maintenance data used, including the revision status and reference.

(ii) Compliance with airworthiness directives or service bulletins.

(iii) Repairs carried out.

(iv) Modifications carried out.

(v) Replacement parts installed.

(vi) Life limited parts status.

(vii) Deviations from the customer work order.

(viii) Release statements to satisfy a foreign Civil Aviation Authority maintenance requirement.

(ix) Information needed to support shipment with shortages or re-assembly after delivery.

(x) For maintenance organisations approved in accordance with Subpart F of IS Part-M, the component certificate of release to service statement referred to in point M.A.613:

"Certifies that, unless otherwise specified in this block, the work identified in block 11 and described in this block was accomplished in accordance to the requirements of *Section A, Subpart F of IS Part-M* and in respect to that work the item is considered ready for release to service. THIS IS NOT A RELEASE UNDER *IS-145*."

If printing the data from an electronic Form 1, any appropriate data not fit for other blocks should be entered in this block.

Block 13a-13e

General Requirements for blocks 13a-13e: Not used for maintenance release. Shade, darken, or otherwise mark to preclude inadvertent or unauthorised use.

Block 14a

Mark the appropriate box(es) indicating which regulations apply to the completed work. If the box "other regulations specified in block 12" is marked, then the regulations of the other airworthiness authority(ies) must be identified in block 12. At least one box must be marked, or both boxes may be marked, as appropriate.

For all maintenance carried out by maintenance organisations approved in accordance with Section A, Subpart F Part M, the box "other regulation specified in block 12" shall be ticked and the certificate of release to service statement made in block 12. In that case, the certification statement "unless otherwise specified in this block" is intended to address the following cases;

(a) Where the maintenance could not be completed.

(b) Where the maintenance deviated from the standard required by IS Part-M.

(c) Where the maintenance was carried out in accordance with a requirement other than that specified in IS Part-M. In this case block 12 shall specify the particular national regulation.

For all maintenance carried out by maintenance organisations approved in accordance with Section A of *IS-145*, the certification statement "unless otherwise specified in block 12" is intended to address the following cases;

(a) Where the maintenance could not be completed.

(b) Where the maintenance deviated from the standard required by Annex II (IS-145).

(c) Where the maintenance was carried out in accordance with a requirement other than that specified in IS-145. In this case block 12 shall specify the particular national regulation.

Block 14b Authorised Signature

This space shall be completed with the signature of the authorised person. Only persons specifically authorised under the rules and policies of the competent authority are permitted to sign this block. To aid recognition, a unique number identifying the authorised person may be added.

Block 14c Certificate/Approval Number

Enter the Certificate/Approval number/reference. This number or reference is issued by the competent authority.

Block 14d Name

Enter the name of the person signing block 14b in a legible form.

Block 14e Date

Enter the date on which block 14b is signed, the date must be in the format dd = 2 digit day, mmm = first 3 letters of the month, yyyy = 4 digit year

User/Installer Responsibilities

Place the following statement on the Certificate to notify end users that they are not relieved of their responsibilities concerning installation and use of any item accompanied by the form:

"THIS CERTIFICATE DOES NOT AUTOMATICALLY CONSTITUTE AUTHORITY TO INSTALL.

WHERE THE USER/INSTALLER PERFORMS WORK IN ACCORDANCE WITH REGULATIONS OF AN AIRWORTHINESS AUTHORITY DIFFERENT THAN THE AIRWORTHINESS AUTHORITY SPECIFIED IN BLOCK 1, IT IS ESSENTIAL THAT THE USER/INSTALLER ENSURES THAT HIS/HER AIRWORTHINESS AUTHORITY ACCEPTS ITEMS FROM THE AIRWORTHINESS AUTHORITY SPECIFIED IN BLOCK 1.

STATEMENTS IN BLOCKS 13A AND 14A DO NOT CONSTITUTE INSTALLATION CERTIFICATION. IN ALL CASES AIRCRAFT MAINTENANCE RECORDS MUST CONTAIN AN INSTALLATION CERTIFICATION ISSUED IN ACCORDANCE WITH THE NATIONAL REGULATIONS BY THE USER/INSTALLER BEFORE THE AIRCRAFT MAY BE FLOWN."

1. Civil Aviation Authority of Sri Lanka	CAASL FORM 1 2. Authorised Release Certificate	3.Form Tracking Number :
4. Organization Name and Address :		5. Work Order/Contract/Invoice :

6. Item	7. Description	8. Part No.	9. Qty.	10. Serial No.	11. Status / Work

12. Remarks

13a. certifies that the items identified above were manufactured in conformity to • Approved design data and are in a condition for safe operation • Non-approved design data specified in block 12		14a. Part 145.A.50 Release to Service Other regulation specified in block 12 Certifies that unless otherwise specified in block 12, the wok identified in block 11 and described in block 12, was accomplished in accordance with IS 145 and in respect to that work the item are considered release to service.	
13b. Authorized Signature	13c. Approval/Authorization Number	14b. Authorized Signature	14c. Certificate/Approval Ref. No.
13d. Name	13e. Date (dd/mm/yyyy)	14d. Name	14e. Date (dd/mm/yyyy)

USER/INSTALLER RESPONSIBILITIES

This certificate does not automatically constitute authority to install the item(s).

Where the user/installer performs work in accordance with regulations of an airworthiness authority different than the airworthiness authority specified in block 1, It is essential that the user/installer ensures that his/her airworthiness authority accept items from the airworthiness authority specified n block 1.

Statement in blocks 13a and 14a do not constitute installation certification. In all cases aircraft maintenance records must contain an installation certification issued in accordance with the national regulations by the user/installer before the aircraft may be flown.

AMC to Appendix I to IS Part-M Use of the CAASL Form 1 for Maintenance

1. The following formats of an issued CAASL Form 1 or equivalent certificate are acceptable:

- A paper certificate bearing a signature (both originals and copies are accepted);
- A paper certificate generated from an electronic system (printed from electronically stored data) when complying with the following subparagraph 2;
- An electronic CAASL Form 1 or equivalent when complying with the following subparagraph 2.

2. Electronic signature and electronic exchange of the CAASL Form 1

a) Submission to the competent authority

Any organisation intending to implement an electronic signature procedure to issue CAASL Form 1 and/or to exchange electronically such data contained on the CAASL Form 1 should document it and submit it to the competent authority as part of the documents attached to its exposition.

b) Characteristics of the electronic system generating the CAASL Form 1

The electronic system should:

- guarantee secure access for each certifying staff;
- ensure integrity and accuracy of the data certified by the signature on the form and be able to show evidence of the authenticity of the CAASL Form 1 (recording and record keeping) with suitable security, safeguards and backups;
- be active only at the location where the part is being released with an CAASL Form 1;
- not permit to sign a blank form;
- provide a high degree of assurance that the data has not been modified after signature (if modification is necessary after issuance, i.e., re-certification of a part, a new form with a new number and reference to the initial issuance should be made).
- provide for a 'personal' electronic signature, identifying the signatory. The signature should be generated only in presence of the signatory.

An electronic signature means data in electronic form which is attached to or logically associated with other electronic data and which serves as a method of authentication and should meet the following criteria:

- it is uniquely linked to the signatory;
- it is capable of identifying the signatory;
- it is created using means that the signatory can maintain under his sole control.

This electronic signature should be an electronically generated value based on a cryptographic algorithm and appended to data in a way to enable the verification of the data's source and integrity.

Organisation(s) are reminded that additional national requirements may need to be satisfied when operating electronic systems. The electronic system should be based on a policy and management structure (confidentiality, integrity and availability), such as:

- Administrators, signatories;

- Scope of authorisation, rights;
- Password and secure access, authentication, protections, confidentiality;
- Track changes;
- Minimum blocks to be completed, completeness of information;
- Archives;
- etc.

The electronic system generating the CAASL Form 1 may contain additional data such as;

- Manufacturer code;
- Customer identification code;
- Workshop report;
- Inspection results;
- etc.

c) Characteristics of the CAASL Form 1 generated from the electronic system

To facilitate understanding and acceptance of the CAASL Form 1 released with an electronic signature, the following statement should be in Block 14b: 'Electronic Signature on File'.

In addition to this statement, it is accepted to print or display a signature in any form, such as a representation of the hand-written signature of the person signing (i.e. scanned signature) or a representation of their name.

When printing the electronic form, the CAASL Form 1 should meet the general format as specified in Appendix II to IS Part-M. A watermark-type 'PRINTED FROM ELECTRONIC FILE' should be printed on the document.

When the electronic file contains a hyperlink to data required to determine the airworthiness of the item(s), the data associated to the hyperlink, when printed, should be in a legible format and be identified as a reference from the CAASL Form 1.

Additional information not required by the CAASL Form 1 completion instructions may be added to the printed copies of CAASL Form 1, as long as the additional data do not prevent a person from filling out, issuing, printing, or reading any portion of the CAASL Form 1. This additional data should be provided only in block 12 unless it is necessary to include it in another block to clarify the content of that block.

d) Electronic exchange of the electronic CAASL Form 1

The electronic exchange of the electronic CAASL Form 1 should be accomplished on a voluntary basis. Both parties (issuer and receiver) should agree on electronic transfer of the CAASL Form 1.

For that purpose, the exchange needs to include:

- all data of the CAASL Form 1, including referenced data required by the CAASL Form 1 completion instructions;

- all data required for authentication of the CAASL Form 1.
- In addition, the exchange may include:
- data necessary for the electronic format;
- additional data not required by the CAASL Form 1 completion instructions, such as manufacturer code, customer identification code.
- The system used for the exchange of the electronic CAASL Form 1 should provide:
- A high level of digital security; the data should be protected, not altered or not corrupted;
- Traceability of data back to its source.

Trading partners wishing to exchange CAASL Form 1 electronically should do so in accordance with the means of compliance stated in this document. It is recommended that they use an established, common, industry method such as Air Transport Association (ATA) Spec 2000 Chapter 16.

The organisation(s) are reminded that additional national and/or European requirements may need to be satisfied when operating the electronic exchange of the electronic CAASL Form 1.

The receiver should be capable of regenerating the CAASL Form 1 from the received data without alteration; if not, the system should revert back to the paper system.

When the receiver needs to print the electronic form, refer to subparagraph c) here above.

GM to Appendix I to IS Part-M Use of the CAASL Form 1 for Maintenance

CAASL Form 1 Block 12 'Remarks'

Examples of data to be entered in this block as appropriate:-

- Maintenance documentation used, including the revision status, for all work performed and not limited to the entry made in block 11.
- A statement such as 'in accordance with the CMM' is not acceptable.
- NDT methods with appropriate documentation used when relevant.
- Compliance with airworthiness directives or service bulletins.
- Repairs carried out.
- Modifications carried out.
- Replacement parts installed.
- Life-limited parts status.
- Shelf life limitations.
- Deviations from the customer work order.
- Release statements to satisfy a foreign Civil Aviation Authority maintenance requirement.
- Information needed to support shipment with shortages or re-assembly after delivery.
- References to aid traceability, such as batch numbers."

Appendix II - Class and Ratings System used for the Approval of Maintenance Organisations referred to IS-145

1. Except as stated otherwise for the smallest organisations in paragraph 12, the table referred to in point 13provides the standard system for the approval of maintenance organisation under Subpart F IS Part-M and IS-145. An organisation must be granted an approval ranging from a single class and rating with limitations to all classes and ratings with limitations.

2. In addition to the table referred to in point 13, the approved maintenance organisation is required to indicate its *scope of work* in its maintenance organisation manual/exposition. See also paragraph 11.

3. Within the approval class(es) and rating(s) granted by the competent authority, the scope of work specified in the maintenance organisation exposition defines the exact limits of approval. It is therefore essential that the approval class(es) and rating(s) and the organisations scope of work are matching.

4. *A category A class rating* means that the approved maintenance organisation may carry out maintenance on the aircraft and any component (including engines and/or Auxiliary Power Units (APUs), in accordance with aircraft maintenance data or, if agreed by the competent authority, in accordance with component maintenance data, only whilst such components are fitted to the aircraft. Nevertheless, such A-rated approved maintenance organisation may temporarily remove a component for maintenance, in order to improve access to that component, except when such removal generates the need for additional maintenance not eligible for the provisions of this paragraph. This will be subject to a control procedure in the maintenance organisation exposition to be approved by the competent authority. The limitation section will specify the scope of such maintenance thereby indicating the extent of approval.

5. *A category B class rating* means that the approved maintenance organisation may carry out maintenance on the uninstalled engine and/or APU and engine and/or APU components, in accordance with engine and/or APU maintenance data or, if agreed by the competent authority, in accordance with component maintenance data, only whilst such components are fitted to the engine and/or APU. Nevertheless, such B-rated approved maintenance organisation may temporarily remove a component for maintenance, in order to improve access to that component, except when such removal generates the need for additional maintenance not eligible for the provisions of this paragraph. The limitation section will specify the scope of such maintenance thereby indicating the extent of approval. A maintenance organisation approved with a category B class rating may also carry out maintenance on an installed engine during ‘base’ and ‘line’ maintenance subject to a control procedure in the maintenance organisation exposition to be approved by the competent authority. The maintenance organisation exposition scope of work shall reflect such activity where permitted by the competent authority.

6. *A category C Class rating* means that the approved maintenance organisation may carry out maintenance on uninstalled components (excluding engines and APUs) intended for fitment to the aircraft or engine/APU. The limitation section will specify the scope of such maintenance thereby indicating the extent of approval. A maintenance organisation approved with a category C class rating may also carry out maintenance on an installed component during base and line maintenance or at an engine/APU maintenance facility subject to a control procedure in the maintenance organisation exposition to be approved by the competent authority. The maintenance organisation exposition scope of work shall reflect such activity where permitted by the competent authority.

7. *A category D class rating* is a self-contained class rating not necessarily related to a specific aircraft, engine or other component. The D1 - Non Destructive Testing (NDT) rating is only necessary for an approved maintenance organisation that carries out NDT as a particular task for

another organisation. A maintenance organisation approved with a class rating in A or B or C category may carry out NDT on products it is maintaining subject to the maintenance organisation exposition containing NDT procedures, without the need for a D1 class rating.

8. In the case of maintenance organisations approved in accordance with IS-145, *category A class ratings* are subdivided into 'Base' or 'Line' maintenance. Such an organisation may be approved for either 'Base' or 'Line' maintenance or both. It should be noted that a 'Line' facility located at a main base facility requires a 'Line' maintenance approval.

9. The *limitation* section is intended to give the competent authorities the flexibility to customise the approval to any particular organisation. Ratings shall be mentioned on the approval only when appropriately limited. The table referred to in point 13specifies the types of limitation possible. Whilst maintenance is listed last in each class rating it is acceptable to stress the maintenance task rather than the aircraft or engine type or manufacturer, if this is more appropriate to the organisation (an example could be avionic systems installations and related maintenance). Such mention in the limitation section indicates that the maintenance organisation is approved to carry out maintenance up to and including this particular type/task.

10. When reference is made to *series, type and group* in the limitation section of class A and B, series means a specific type series such as Airbus 300 or 310 or 319 or Boeing 737-300 series or RB211-524 series or Cessna 150 or Cessna 172 or Beech 55 series or continental O-200 series etc; type means a specific type or model such as Airbus 310-240 type or RB 211-524 B4 type or Cessna 172RG type; any number of series or types may be quoted; group means for example Cessna single piston engine aircraft or Lycoming non-supercharged piston engines etc.

11. When a *lengthy capability list* is used which could be subject to frequent amendment, then such amendment may be in accordance with the indirect approval procedure referred to in points M.A.604(c) and M.B.606(c) or 145.A.70(c) and 145.B.40, as applicable.

12. *A maintenance organisation which employs only one person* to both plan and carry out all maintenance can only hold a limited scope of approval rating. The maximum permissible limits are:

CLASS	RATING	LIMITATION
CLASS AIRCRAFT	RATING A2 AEROPLANES 5700 KG AND BELOW	PISTON ENGINE 5700 KG AND BELOW
CLASS AIRCRAFT	RATING A3 HELICOPTERS	SINGLE PISTON ENGINE 3175 KG AND BELOW
CLASS AIRCRAFT	RATING A4 AIRCRAFT OTHER THAN A1, A2 AND A3	NO LIMITATION
CLASS ENGINES	RATING B2 PISTON	LESS THAN 450 HP
CLASS COMPONENTS RATING OTHER THAN COMPLETE ENGINES OR APU'S.	C1 TO C22	AS PER CAPABILITY LIST
CLASS SPECIALISED	D1 NDT	NDT METHOD(S) TO BE SPECIFIED.

It should be noted that such an organisation may be further limited by the competent authority in the scope of approval dependent upon the capability of the particular organisation.

13. Table

CLASS	RATING	LIMITATION	BASE	LINE
AIRCRAFT	A1 Aeroplanes above 5700 kg	[Rating reserved to Maintenance Organisations approved in accordance with Annex II (IS-145)] [Shall state aeroplane manufacturer or group or series or type and/or the maintenance tasks] Example: Airbus A320 Series	[YES/ NO]*	[YES/ NO]*
	A2 Aeroplanes 5700 kg and below	[Shall state aeroplane manufacturer or group or series or type and/or the maintenance tasks] Example: DHC-6 Twin Otter Series	[YES/ NO]*	[YES/ NO]*
	A3 Helicopters	[Shall state helicopter manufacturer or group or series or type and/or the maintenance task(s)] Example: Robinson R44	[YES/ NO]*	[YES/ NO]*
	A4 Aircraft other than A1, A2 and A3	[Shall state aircraft series or type and/or the maintenance task(s).]	[YES/ NO]*	[YES/ NO]*
ENGINES	B1 Turbine	[Shall state engine series or type and/or the maintenance task(s)] Example: PT6A Series		
	B2 Piston	[Shall state engine manufacturer or group or series or type and/or the maintenance task(s)]		
	B3 APU	[Shall state engine manufacturer or series or type and/or the maintenance task(s)]		
	C1 Air Cond & Press			

COMPONENTS OTHER THAN COMPLETE ENGINES OR APUs	C2 Auto Flight	[Shall state aircraft type or aircraft manufacturer or component manufacturer or the particular component and/or cross refer to a capability list in the exposition and/or the maintenance task(s).] Example: PT6A Fuel Control
	C3 Comms and Nav	
	C4 Doors - Hatches	
	C5 Electrical Power & Lights	
	C6 Equipment	
	C7 Engine - APU	
	C8 Flight Controls	
	C9 Fuel	
	C10 Helicopter - Rotors	
	C11 Helicopter - Trans	
	C12 Hydraulic Power	
	C13 Indicating - recording system	
	C14 Landing Gear	
	C15 Oxygen	
	C16 Propellers	
	C17 Pneumatic & Vacuum	
	C18 Protection ice/rain/fire	
	C19 Windows	
	C20 Structural	
	C21 Water ballast	
	C22 Propulsion Augmentation	
SPECIALISED SERVICES	D1 Non Destructive Testing	[Shall state particular NDT method(s)]

Appendix III - Maintenance Organisation Approval referred to in IS-145

CIVIL AVIATION AUTHORITY OF SRI LANKA

MAINTENANCE ORGANISATION APPROVAL CERTIFICATE

Reference: XX.145.YYY

Pursuant to (Competent Authority) regulations and IS-145 for the time being in force and subject to the conditions specified below, the (Competent Authority) hereby certifies:

[COMPANY NAME]

[COMPANY ADDRESS]

as a maintenance organisation in compliance with Section A of IS-145, approved to maintain products, parts and appliances listed in the attached approval schedule and issue related certificates of release to service using the above references.

CONDITIONS:

1. This approval is limited to that specified in the scope of work section of the IS-145 approved maintenance organisation exposition as referred to in Section A of IS-145, and
2. This approval requires compliance with the procedures specified in the IS-145 approved maintenance organisation exposition, and
3. This approval is valid whilst the approved maintenance organisation remains in compliance with IS-145.
4. Subject to compliance with the foregoing conditions, this approval shall remain valid for a duration of 1 year unless the approval has previously been surrendered, superseded, suspended or revoked.

Date of original issue: .....

Date of this revision:.….....

Revision No: .....

Signed: .....

For the CAASL :

CAASL Form 3

MAINTENANCE ORGANISATION APPROVAL SCHEDULE

Reference: XXX.145.YYY

Organisation: [COMPANY NAME AND ADDRESS]

CLASS	RATING	LIMITATION	BASE	LINE
AIRCRAFT (**)	(***)	(***)	[YES/NO](**)	[YES/NO](**)
	(***)	(***)	[YES/NO](**)	[YES/NO](**)
	(***)	(***)	[YES/NO](**)	[YES/NO](**)
	(***)	(***)	[YES/NO](**)	[YES/NO](**)
ENGINES (**)	(***)	(***)		
	(***)	(***)		
COMPONENTS OTHER THAN COMPLETE ENGINES OR APUs (**)	(***)	(***)		
	(***)	(***)		
	(***)	(***)		
	(***)	(***)		
	(***)	(***)		
	(***)	(***)		
SPECIALISED SERVICES (**)	(***)	(***)		
	(***)	(***)		

This approval schedule is limited to those products, parts and appliances and to the activities specified in the scope of work section of the IS-145 approved maintenance organisation exposition,

Maintenance Organisation Exposition reference: .....

Date of original issue: .....

Date of last revision approved: ..... Revision No: …….....

Signed: .....

For the CAASL :

CAASL Form 3

AMC to Appendix III Maintenance Organisation Approval referred to in IS-145

The following fields on page 2 "Maintenance Organisation Approval Schedule" of the maintenance organisation approval certificate should be completed as follows:

- Date of original issue: It refers to the date of the original issue of the maintenance organisation exposition
- Date of last revision approved: It refers to the date of the last revision of the maintenance organisation exposition affecting the content of the certificate. Changes to the maintenance organisation exposition which do not affect the content of the certificate do not require the reissuance of the certificate.
- Revision No: It refers to the revision No of the last revision of the maintenance organisation exposition affecting the content of the certificate. Changes to the maintenance organisation exposition which do not affect the content of the certificate do not require the reissuance of the certificate.

Appendix IV - Conditions for the use of staff not qualified in accordance with IS-66 referred to in points 145.A.30(j)1 and 2.

1. Certifying staff in compliance with the following conditions are deemed to meet the intent of point 145.A.30(j)(1) and (2):

   (a) The person shall hold a licence or a certifying staff authorisation issued under the national regulations in full compliance with ICAO Annex 1.

   (b) The scope of work of the person shall not exceed the scope of work defined by the national licence or the certifying staff authorisation, whatever is the most restrictive.

   (c) The person shall demonstrate he/she received the training on human factors and aviation legislation referred to in modules 9 and 10 of Appendix I to IS-66.

   (d) The person shall demonstrate five years maintenance experience for line maintenance certifying staff and eight years for base maintenance certifying staff. However, those persons whose authorised tasks do not exceed those of a IS-66 category A certifying staff, need to demonstrate three years maintenance experience only.

   (e) Line maintenance certifying staff and base maintenance support staff demonstrate he/she received type training and passed examination at the category B1, B2 or B3 level, as applicable, referred to in Appendix III to IS-66 for each aircraft type in the scope of work referred to in point (b). Those persons whose scope of work does not exceed those of a category A certifying staff may however receive task training in lieu of complete type training.

   (f) Base maintenance certifying staff shall demonstrate he/she received type training and passed examination at the category C level referred to in Appendix III to IS-66 for each aircraft type in the scope of work referred to in point (b), except that for the first aircraft type, training and examination shall be at the category B1, B2 or B3 level of Appendix III.

2. Protected rights

   (a) Until SARI IS-66 is issued and effective, 145.A.30(j)(1)(and (2) personnel may continue to exercise their privileges without the need to comply with points 1(c) to 1(f).

   (b) However after that date any certifying staff willing to extend the scope of their authorisation to include additional privileges shall comply with point 1.

   (c) Notwithstanding subparagraph 2(b) above, in the case of additional type training, compliance with points 1(c) and 1(d) is not required.

Appendix V – Safety Management System (SMS)

1. Scope

This appendix establishes the minimum requirements Safety Management System of maintenance organization complying with IS-145 should meet. The maintenance organization may wish to follow more stringent requirements.

2. Definitions

Acceptable level of safety means minimum safety performance that a maintenance organisation should achieve while conducting their core business functions, expressed by a number of safety performance indicators and safety performance targets.

Accountability means obligation or willingness to account for one's actions.

Accountable Executive means a single, identifiable person which might be a Chief Executive Officer, a Chairperson Board of Directors, a partner or a proprietor who has full responsibility for the organization's SMS and have full authority for human resources issues, major financial issues, direct responsibility for the conduct of the organization's affairs, final authority over operations under certificate, and final responsibility for all safety issues.

Consequence means potential outcome(s) of the hazard.

Hazard means condition, object or activity with the potential of causing injuries to personnel, damage to equipment or structures, loss of material, or reduction of ability to perform a prescribed function.

Mitigation means measures to address the potential hazard or to reduce the risk probability or severity.

Predictive means a method that captures system performance as it happens in real-time normal operations.

Proactive means the adoption of an approach which emphasizes prevention through the identification of hazards and the introduction of risk mitigation measures before the risk-bearing event occurs and adversely affects safety performance.

Probability means the likelihood that an unsafe event or condition might occur.

Reactive means the adoption of an approach where safety measurement is as a responds to the events that already happened, such as incidents and accidents.

Risk means the assessment, expressed in terms of predicted probability and severity, of the consequence(s) of a hazard taking as reference the worst foreseeable situation.

Risk management means the identification, analysis and elimination, and/or mitigation to an acceptable level of risks that threaten the capabilities of an organization.

Safety means the state in which the risk of harm to persons or property damage is reduced to, and maintained at or below, an acceptable level through a continuing process of hazard identification and risk management.

Safety assessment means a systematic analysis of a proposed change to equipment or procedures to identify and mitigate weaknesses before change is implemented.

Safety assurance means what the maintenance organisation do with regard to safety performance monitoring and measurement.

Safety audit means what the Civil Aviation Authority performs with regard to its safety programme, and the maintenance organisations perform with regard to the SMS.

Safety Management System (SMS) means a systematic approach to managing safety, including the necessary organizational structures, accountabilities, policies and procedures.

Safety manager means a person who is responsible for providing guidance and direction for the operation of the organization's safety management system.

Safety oversight means the activities of Civil Aviation Authority as part of its safety programme, performed with regard to the maintenance organisation SMS, in order to confirm the organization's continuing fulfillment of its corporate safety policy, objectives, goals and standards.

Safety performance indicator means established objectives of a maintenance organisation SMS, linked to major components of a services provider SMS, and expressed in numerical terms.

Safety performance monitoring means the activities of a maintenance organization as part of its SMS, in order to confirm the organization's continuing fulfillment of its corporate safety policy, objectives, goals and standards.

Safety performance target means medium or long-term objectives of a maintenance organisation SMS, determined weighing what is desirable and what is realistic for an individual services provider, and expressed in numerical terms.

Safety policy means a statement reflecting the organization's philosophy of safety management, and become the foundation on which the organization's SMS is built. The safety policy outlines the methods and processes that the organization will use to achieve desired safety outcomes.

Safety programme means an integrated set of regulations and activities aimed at improving safety.

Safety requirement means the operational procedures, technology, systems and programmes to which measures of reliability, availability, performance and/or accuracy can be specified.

Severity means the possible consequences of an unsafe event or condition, taking as reference the worst foreseeable situation.

System means organized set of processes and procedures.

Systematic means that safety management activities will be conducted in accordance with a pre-determined plan, and applied in a consistent manner throughout the organization.

3. General

The maintenance organisation shall establish, maintain and adhere to a Safety Management System (SMS) that is appropriate to the size, nature and complexity of its scope of work and the safety hazards and risks related to it.

4. Safety policy and objectives

4.1 General requirements

(1) A maintenance organisation shall define the organization’s safety policy.

(2) The safety policy shall be signed by the Accountable Executive of the organization.

(3) The safety policy shall be in accordance with all applicable legal requirements and international standards, best industry practices and shall reflect organizational commitments regarding safety.

(4) The safety policy shall be communicated, with visible endorsement, throughout the organization.

(5) The safety policy shall include a clear statement about the provision of the necessary human and financial resources for its implementation.

(6) The safety policy shall, among other things, include the following objectives:

(a) Commitment to implement an SMS;

(b) Commitment to continual improvement in the level of safety;

(c) Commitment to the management of safety risks;

(d) Commitment to encourage employees to report safety issues;

(e) Establishment of clear standards for acceptable behaviour; and

(f) Identification of responsibilities of management and employees with respect to safety performance.

(7) The safety policy shall be reviewed periodically to ensure it remains relevant and appropriate to the organization.

(8) A maintenance organisation shall establish safety objectives for the SMS.

(9) The safety objectives should be linked to the safety performance indicators, safety performance targets and safety requirements of the maintenance organisation SMS.

4.2 Organizational structure and responsibilities

(1) A maintenance organisation shall identify an Accountable Executive to be responsible and accountable on behalf of the maintenance organisation for meeting the requirements of this regulation, and shall notify the competent authority the name of the person.

(2) The Accountable Executive shall be a single, identifiable person who, irrespective of other functions, shall have the ultimate responsibility for the implementation and maintenance of the SMS.

(3) The Accountable Executive shall have:

(a) Full control of the human resources required for the work authorized to be conducted under the maintenance organization approval;

(b) Full control of the financial resources required for the work authorized to be conducted under the maintenance organization approval;

(c) Final authority over the work authorized to be conducted under the maintenance organization approval;

(d) Direct responsibility for the conduct of the organization‘s affairs; and

(e) Final responsibility for all safety issues.

(4) A maintenance organisation shall establish the safety structure necessary for the implementation and maintenance of the organization’s SMS.

(5) A maintenance organisation shall identify the safety responsibilities of all members of senior management, irrespective of other responsibilities.

(6) Safety-related positions, responsibilities and authorities shall be defined, documented and communicated throughout the organization.

(7) A maintenance organisation shall identify a Safety Manager to be the member of management who shall be the responsible individual and focal point for the development and maintenance of an effective SMS.

(8) The Safety Manager shall:

(a) Ensure that processes needed for the SMS are established, implemented and maintained;

(b) Report to the Accountable Executive on the performance of the SMS and on any need for improvement; and

(c) Ensure safety promotion throughout the organization.

4.3 SMS implementation plan

(1) A maintenance organisation shall develop and maintain an SMS implementation plan.

(2) The SMS implementation plan shall be the definition of the approach the organization will adopt for managing safety in a manner that will meet the organization's safety needs.

(3) The SMS implementation plan shall include the following:

(a) Safety policy and objectives;

(b) Safety planning,

(c) System description;

(d) Gap analysis;

(e) SMS components;

(f) Safety roles and responsibilities;

(g) Safety reporting policy;

(h) Means of employee involvement;

(i) Safety training;

(j) Safety communication;

(k) Safety performance measurement; and

(l) Management review of safety performance.

(4) The SMS implementation plan shall be endorsed by senior management of the organization.

(5) A maintenance organisation shall, as part of the development of the SMS implementation plan, complete a system description.

(6) The system description shall include the following:

(a) The system interactions with other systems in the air transportation system;

(b) The system functions;

(c) Required human performance considerations of the system operation;

(d) Hardware components of the system;

(e) Software components of the system;

(f) Related procedures that define guidance for the operation and use of the system;

(g) Operational environment; and

(h) Contracted and purchased products and services.

(7) A maintenance organisation shall, as part of the development of the SMS implementation plan, complete a gap analysis, in order to:

(a) identify the safety arrangements and structures that may be already exist throughout an organization; and

(b) determine additional safety arrangements required to implement and maintain the organization's SMS.

(8) The SMS implementation plan shall explicitly address the coordination between the SMS of the maintenance organisation and the SMS of other organizations the maintenance organisation must interface with during the provision of services.

4.4 Coordination of emergency response planning

A maintenance organisation shall develop and maintain, or coordinate, as appropriate, an emergency response/contingency plan that shall ensure:

(1) Orderly and efficient transition from normal to emergency situation;

(2) Designation of emergency authority;

(3) Assignment of emergency responsibilities;

(4) Coordination of efforts to cope with the emergency; and

(5) Safe continuation of its activities, or return to normal activities as soon as possible.

4.5 Documentation

(1) A maintenance organisation shall develop and maintain SMS documentation, in paper or electronic form, to describe the following:

(a) Safety policy;

(b) Safety objectives;

(c) SMS requirements, procedures and processes;

(d) Responsibilities and authorities for procedures and processes; and

(e) SMS outputs.

(2) A maintenance organisation shall, as part of the SMS documentation, develop and maintain a Safety Management System Manual (SMSM), to communicate the organization's approach to safety throughout the organization.

(3) The SMSM shall document all aspects of the SMS, and its contents shall include the following:

(a) Scope of the Safety Management System;

(b) Safety policy and objectives;

(c) Safety accountabilities;

(d) Key safety personnel;

(e) Documentation control procedures;

(f) Hazard identification and risk management schemes;

(g) Safety performance monitoring;

(h) Emergency response/contingency planning;

(i) Management of change; and

(j) Safety promotion.

5. Safety risk management

5.1 General

(1) A maintenance organisation shall develop and maintain Safety Data Collection and Processing systems (SDCPS) that provide for the identification of hazards and the analysis, assessment and mitigation of safety risks.

(2) A maintenance organisation's SDCPS shall include reactive, proactive and predictive methods of safety data collection.

5.2 Hazard identification

(1) A maintenance organisation shall develop and maintain formal means for effectively collecting, recording, acting on and generating feedback about hazards in its activities, which combine reactive, proactive and predictive methods of safety data collection. Formal means of safety data collection shall include mandatory, voluntary and confidential reporting systems.

(2) The hazard identification process shall include the following steps:

(a) Reporting of hazards, events or safety concerns;

(b) Collection and storing the safety data;

(c) Analysis of the safety data; and

(d) Distribution of the safety information distilled from the safety data.

5.3 Risk management

(1) A maintenance organisation shall develop and maintain a formal risk management process that ensures the analysis, assessment and mitigation of risks of consequences of hazards to an acceptable level.

(2) The risks of the consequences of each hazard identified through the hazard identification processes described in section 7.2 of this regulation shall be analysed in terms of probability and severity of occurrence, and assessed for their tolerability.

(3) The organization shall define the levels of management with authority to make safety risk tolerability decisions.

6. Safety assurance

6.1 General

(1) A maintenance organisation shall develop and maintain safety assurance processes to ensure that the safety risks controls developed as a consequence of the hazard identification and risk management activities under paragraph 7 achieve their intended objectives.

(2) Safety assurance processes shall apply to an SMS whether the activities are accomplished internally or outsourced.

6.2 Safety performance monitoring and measurement

(1) A maintenance organisation shall, as part of the SMS safety assurance activities, develop and maintain the necessary means to verify safety performance of the organization in comparison with the approved safety policies and objectives, and to validate the effectiveness of implemented safety risk controls.

(2) Safety performance monitoring and measurement means shall include the following:

(a) Safety reporting,

(b) Safety audits,

(c) Safety surveys,

(d) Safety reviews,

(e) Safety studies and

(f) Internal safety investigations.

(3) The safety reporting procedure shall set out the conditions to ensure effective safety reporting, including the conditions under protection from disciplinary/administrative action shall apply.

6.3 Management of change

(1) A maintenance organisation shall, as part of the SMS safety assurance activities, develop and maintain a formal process for the management of change.

(2) The formal process for the management of change shall:

(a) Identify changes within the organization which may affect established processes and services;

(b) Describe the arrangements to ensure safety performance before implementing changes; and

(c) Eliminate or modify safety risk controls that are no longer needed due to changes in the operational environment.

6.4 Continuous improvement of the safety system

(1) A maintenance organisation shall, as part of the SMS safety assurance activities, develop and maintain formal processes to identify the causes of under-performance of the SMS, determine the implications in its operation, and to rectify situations involving below standard performance in order to ensure the continual improvement of the SMS.

(2) Continuous improvement of the maintenance organisation SMS shall include:

(a) Proactive and reactive evaluations of facilities, equipment, documentation and procedures, to verify the effectiveness of strategies for control of safety risks; and

(b) Proactive evaluation of the individuals' performance, to verify the fulfilment of safety responsibilities.

7. Safety promotion

7.1 General

A maintenance organisation shall develop and maintain formal safety training and safety communication activities to create an environment where the safety objectives of the organization can be achieved.

7.2 Safety training

(1) A maintenance organisation shall, as part of its safety promotion activities, develop and maintain a safety training programme that ensures that personnel are trained and competent to perform the SMS duties.

(2) The scope of the safety training shall be appropriate to the individual's involvement in the SMS.

(3) The Accountable Executive shall receive safety awareness training regarding:

(a) Safety policy and objectives;

(b) SMS roles and responsibilities; and

(c) Safety assurance.

7.3 Safety communication

(1) A maintenance organisation shall, as part of its safety promotion activities, develop and maintain formal means for safety communication, to:

(a) Ensure that all staff is fully aware of the SMS;

(b) Convey safety critical information;

(c) Explain why particular safety actions are taken;

(d) Explain why safety procedures are introduced or changed; and

(e) Convey generic safety information.

(2) Formal means of safety communication shall include:

(a) Safety policies and procedures;

(b) News letters; and

(c) Bulletins.

7.4 Quality policy

A maintenance organisation shall ensure that the organization quality policy is consistent with, and supports the fulfilment of the activities of the SMS.

APPENDICES TO AMCs

Appendix I to AMC 145.B.20(1): CAASL Form 4

CIVIL AVIATION AUTHORITY OF SRI LANKA

Details of Management Personnel required to be accepted as specified in IS-……

1. Name:

2. Position:

3. Qualifications relevant to the item (2) position:

4. Work experience relevant to the item (2) position:

Signature: ..... Date: .....

On completion, please send this form under confidential cover to the competent authority

Competent authority use only

Name and signature of authorised competent authority staff member accepting this person:

Signature: ..... Date: .....

Name: ..... Office: .....

CAASL Form 4

Appendix II to AMC 145.B.20(5): CAASL Form 6

IS-145 APPROVAL RECOMMENDATION REPORT CAASL FORM 6

CIVIL AVIATION AUTHORITY OF SRI LANKA

Part 1: General

Name of organisation:

Approval reference:

Requested approval rating/
Form 3 dated:

Address of Facility Audited:

Audit period: From to

Date(s) of Audit:

Audit reference(s):

Persons interviewed:

CAASL Inspector: Signature(s):

Date of Form 6 part 1 completion:

IS-145 APPROVAL RECOMMENDATION REPORT CAASL FORM 6

Part 2: IS-145 Compliance Audit Review

The five columns may be labelled and used as necessary to record the approval class and/or product line reviewed. Against each column used of the following IS-145 subparagraphs please either tick (√) the box if satisfied with compliance or cross (X) the box if not satisfied with compliance and specify the reference of the Part 4 finding next to the box, or enter N/A where an item is not applicable, or N/R when applicable but not reviewed.

Para	Subject					
145.A.25	Facility requirements					
145.A.30	Personnel requirements					
145.A.35	Certifying Staff and support staff					
145.A.40	Equipment, Tools and material					
145.A.42	Acceptance of Components					
145.A.45	Maintenance Data					
145.A.47	Production Planning					
145.A.50	Certification of Maintenance					
145.A.55	Maintenance Records					
145.A.60	Occurrence Reporting					

145.A.65	Safety and Quality Policy, maintenance procedures and Quality System					
145.A.70	Maintenance Organisation Exposition (see Part 3)					
145.A.75	Privileges of the organisation					
145.A.80	Limitations on the organisation					
145.A.85	Changes to the organisation					
145.A.95	Findings					

CAASL Inspector(s): Signature(s):

Date of Form 6 part 2 completion:

IS-145 APPROVAL RECOMMENDATION REPORT CAASL FORM 6

PART 3: Compliance with 145.A.70 Maintenance organisation exposition

Please either tick (√) the box if satisfied with compliance; or cross (X) if not satisfied with compliance and specify the reference of the Part 4 finding; or enter N/A where an item is not applicable; or N/R when applicable but not reviewed.

Part 1	**Management**	
1.1		Corporate commitment by the accountable manager
1.2		Safety and Quality Policy
1.3		Management personnel
1.4		Duties and responsibilities of the management personnel
1.5		Management Organisation Chart
1.6		List of Certifying staff and B1 and B2 support staff (Note: a separate document may be referenced)
1.7		Manpower resources
1.8		General description of the facilities at each address intended to be approved
1.9		Organisations intended scope of work
1.10		Notification procedure to the competent authority regarding changes to the organisation's activities/approval/location/personnel
1.11		Exposition amendment procedures
Part 2	**Maintenance Procedures**	
2.1		Supplier evaluation and subcontract control procedure
2.2		Acceptance/inspection of aircraft components and material from outside contractors
2.3		Storage, tagging, and release of aircraft components and material to aircraft maintenance
2.4		Acceptance of tools and equipment
2.5		Calibration of tools and equipment
2.6		Use of tooling and equipment by staff (including alternate tools)
2.7		Cleanliness standards of maintenance facilities
2.8		Maintenance instructions and relationship to aircraft/aircraft component manufacturers' instructions including updating and availability to staff
2.9		Repair procedure
2.10		Aircraft maintenance programme compliance
2.11		Airworthiness Directives procedure
2.12		Optional modification procedure
2.13		Maintenance documentation in use and completion of same

IS-145 APPROVAL RECOMMENDATION REPORT CAASL FORM 6		
PART 3: Compliance with 145.A.70 Maintenance organisation exposition		
2.14		Technical record control
2.15		Rectification of defects arising during base maintenance
2.16		Release to service procedure
2.17		Records for the operator
2.18		Reporting of defects to the competent authority/Operator/Manufacturer
2.19		Return of defective aircraft components to store
2.20		Defective components to outside contractors
2.21		Control of computer maintenance record systems
2.22		Control of manhour planning versus scheduled maintenance work
2.23		Control of critical tasks
2.24		Reference to specific maintenance procedures
2.25		Procedures to detect and rectify maintenance errors
2.26		Shift/task handover procedures
2.27		Procedures for notification of maintenance data inaccuracies and ambiguities to the type certificate holder
2.28		Production planning procedures
Part L2	**Additional Line Maintenance Procedures**	
L2.1		Line maintenance control of aircraft components, tools, equipment, etc.
L2.2		Line maintenance procedures related to servicing/fuelling/de-icing, etc.
L2.3		Line maintenance control of defects and repetitive defects
L2.4		Line procedure for completion of technical log
L2.5		Line procedure for pooled parts and loan parts
L2.6		Line procedure for return of defective parts removed from aircraft
L2.7		Line procedure for control of critical tasks
Part 3	**Quality System Procedures**	
3.1		Quality audit of organisation procedures
3.2		Quality audit of aircraft
3.3		Quality audit remedial action procedure
3.4		Certifying staff qualification and training procedure

3.5		Certifying staff records
3.6		Quality audit personnel

IS-145 APPROVAL RECOMMENDATION REPORT CAASL FORM 6

PART 3: Compliance with 145.A.70 Maintenance organisation exposition

3.7		Qualifying inspectors
3.8		Qualifying mechanics
3.9		Aircraft/aircraft component maintenance tasks exemption process control.
3.10		Concession control for deviation from organisation's procedures
3.11		Qualification procedure for specialised activities such as NDT, welding etc.
3.12		Control of manufacturers' and other maintenance working teams
3.13		Human Factors training procedure
3.14		Competence assessment of personnel
3.15		Training procedures for on-the-job training as per Section 6 of Appendix III to IS-66 (limited to the case where the Competent Authority for the IS-145 approval and for the IS-66 licence is the same).
3.16		Procedure for the issue of a recommendation to the Competent Authority for the issue of a IS-66 licence in accordance with 66.B.105 (limited to the case where the competent authority for the IS-145 approval and for the IS-66 licence is the same).

Part 4

4.1		Contracting operators
4.2		Operator procedures/paperwork
4.3		Operator record completion

Part 5 Appendices

5.1		Sample Documents
5.2		List of subcontractors
5.3		List of Line maintenance locations
5.4		List of IS-145 organisations

MOE Reference: MOE Amendment:

Competent Authority audit staff: Signature(s):

Competent Authority office: Date of Form 6 part 3 completion:

IS-145 APPROVAL RECOMMENDATION REPORT CAASL FORM 6

Part 4: Findings IS-145 Compliance status

Each level 1 and 2 finding should be recorded whether it has been rectified or not and should be identified by a simple cross-reference to the Part 2 requirement. All non rectified findings should be copied in writing to the organisation for the necessary corrective action.

Part 2 or 3 ref.	Audit reference(s): Findings	LEVEL	Corrective action		
			Date Due	Date Closed	Reference

IS-145 APPROVAL RECOMMENDATION REPORT CAASL FORM 6
Part 5: IS-145 Approval or continued approval or change recommendation*

Name of organisation:

Approval reference:

Audit reference(s):

The following IS-145 scope of approval is recommended for this organisation:

Or, it is recommended that the IS-145 scope of approval specified in Competent Authority Form 3 referenced ..... be continued.

Name of recommending Competent Authority inspector:

Signature of recommending Competent Authority inspector:

Competent Authority office:

Date of recommendation:

Form 6 review (quality check): Date:

Competent Authority Form 6

Appendix III to AMC 145.A.15: CAASL Form 2

CIVIL AVIATION AUTHORITY OF SRI LANKA

CAASL FORM 2

TYPE OF APPLICATION			
☐ IS-145 Approval	☐ Initial Grant	☐ Change	☐ Renewal
☐ IS-M Subpart F Approval	☐ Initial Grant	☐ Change	☐ Renewal
☐ IS-M Subpart G Approval	☐ Initial Grant	☐ Change	

APPLICANT DETAILS

1. Registered name of applicant : ……

1a. Company Registration No : CAASL Approval Ref(if known) :

2. Trading Name(If different) :

3.1. Primary address requiring approval :
Name/ No & Street Name :……
Town/ City : ……..... Telephone: …….
Country : …… Fax : ……
Corporate Email : ……

3.2. Other address requiring approval : (Please use additional paper if required)
Name/ No & Street Name :……....
Town/ City : ……..…. Telephone: ……
Country : ……. Fax : ……

4. Contact Details:
Name: …… Position: …….
Tel: …… Fax: …….
E mail(s) : ……

5. Scope of approval relevant to this application (see page 2 for details):

	Rating(s):	Limitation(s):
1.		
2.		
3.		

6. Does the company hold approvals from other regulatory bodies? ☐ Yes ☐ No. If yes please provide details:

	Approval Ref:	Regulator:	Rating(s):
1.			
2.			
3.			

7. Name and position of the (proposed*) Accountable Manager: ……
8. Signature of the (proposed*) Accountable Manager: ……
9. Place: ……
10. Date: ……..

*'proposed' applicable only in the case of new applicant

SUBMISSION AND CHARGES

Please submit the completed application form to Civil Aviation Authority, 04 Hunupitiya Rd, Colombo 02, Srilanka, together with LKR ……. being the fee payable in accordance with IS-145.

Invoice/ Receipt No:……..….. Date:…….	**CAASL use only**

Scope of Part 145 approval available

CLASS	RATING	LIMITATION	BASE	LINE
AIRCRAFT	A1 Aeroplanes above 5700 kg	[Rating reserved to Maintenance Organisations approved in accordance with Annex II (IS-145)] [State aeroplane manufacturer or group or series or type and/or the maintenance tasks] Example: Airbus A320 Series	[YES/ NO]*	[YES/ NO]*
	A2 Aeroplanes 5700 kg and below	[State aeroplane manufacturer or group or series or type and/or the maintenance tasks] Example: DHC-6 Twin Otter Series	[YES/ NO]*	[YES/ NO]*
	A3 Helicopters	[State helicopter manufacturer or group or series or type and/or the maintenance task(s)] Example: Robinson R44	[YES/ NO]*	[YES/ NO]*
	A4 Aircraft other than A1, A2 and A3	[State aircraft series or type and/or the maintenance task(s).]	[YES/ NO]*	[YES/ NO]*
ENGINES	B1 Turbine	[State engine series or type and/or the maintenance task(s)] Example: PT6A Series		
	B2 Piston	[State engine manufacturer or group or series or type and/or the maintenance task(s)]		
	B3 APU	[State engine manufacturer or series or type and/or the maintenance task(s)]		
	C1 Air Cond & Press			
COMPONENTS OTHER THAN COMPLETE ENGINES OR APUs	C2 Auto Flight			
	C3 Comms and Nav	[State aircraft type or aircraft manufacturer or component manufacturer or the particular component and/or cross refer to a capability list in the exposition and/or the maintenance task(s).]		
	C4 Doors - Hatches			
	C5 Electrical Power & Lights			
	C6 Equipment			
	C7 Engine - APU	Example: PT6A Fuel Control		
	C8 Flight Controls			

	C9 Fuel	
	C10 Helicopter - Rotors	
	C11 Helicopter - Trans	
	C12 Hydraulic Power	
	C13 Indicating - recording system	
	C14 Landing Gear	
	C15 Oxygen	
	C16 Propellers	
	C17 Pneumatic & Vacuum	
	C18 Protection ice/rain/fire	
	C19 Windows	
	C20 Structural	
	C21 Water ballast	
	C22 Propulsion Augmentation	
SPECIALISED SERVICES	D1 Non Destructive Testing	[State particular NDT method(s)]

Appendix IV to AMC 145.A.30(e) and 145.B.10(3)
Fuel Tank Safety Training

This appendix includes general instructions for providing training on Fuel Tank Safety issues.

A) Effectivity:

- Large aeroplanes as defined in IS145.A.1(e)

B) Affected organisations:

- IS-145 approved maintenance organisations involved in the maintenance of aeroplanes specified in paragraph A and fuel system components installed on such aeroplanes when the maintenance data are affected by CDCCL.
- Competent authorities responsible as per 145.B.30 for the oversight of the IS-145 approved organisations specified in this paragraph B.

C) Persons from affected organisations who should receive training:

Phase 1 only:

- The group of persons representing the maintenance management structure of the organisation, the quality manager and the staff required to quality monitor the organisation.
- Personnel of the Competent Authorities responsible as per 145.B.30 for the oversight of IS-145 approved maintenance organizations specified in paragraph B.

Phase 1 + Phase 2 + Continuation training:

- Personnel of the IS-145 approved maintenance organization required to plan, perform, supervise, inspect and certify the maintenance of aircraft and fuel system components specified in paragraph A.

D) General requirements of the training courses

Phase 1 – Awareness:

The training should be carried out before the person starts to work without supervision but not later than 6 months after joining the organisation. The persons who have already attended the Level 1 Familiarisation course in compliance with the initial issue of IS-145 Appendix IV is already in compliance with Phase 1.

Type: Should be an awareness course with the principle elements of the subject. It may take the form of a training bulletin, or other self study or informative session. Signature of the reader is required to ensure that the person has passed the training.

Level: It should be a course at the level of familiarisation with the principle elements of the subject.

Objectives:

The trainee should, after the completion of the training:

1. Be familiar with the basic elements of the fuel tank safety issues.
2. Be able to give a simple description of the historical background and the elements requiring a safety consideration, using common words and showing examples of non conformities.
3. Be able to use typical terms.

Content:

The course should include:

- a short background showing examples of FTS accidents or incidents,

- the description of concept of fuel tank safety and CDCCL,
- some examples of manufacturers documents showing CDCCL items,
- typical examples of FTS defects,
- some examples of TC holders repair data
- some examples of maintenance instructions for inspection.

Phase 2 - Detailed training

A flexible period may be allowed by the Competent Authorities to allow organisations to set the necessary courses and impart the training to the personnel, taking into account the organisation's training schemes/means/practices. This flexible period should not extend beyond a date to be determined by the Competent Authority.

The persons who have already attended the Level 2 Detailed training course in compliance with the initial issue of Part 145 Appendix IV either from a IS-145 maintenance organisation or from a IS-147 training organisation are already in compliance with Phase 2 with the exception of continuation training.

Staff should have received Phase 2 training within 12 months of joining the organisation.

Type: Should be a more in-depth internal or external course. It should not take the form of a training bulletin, or other self study. An examination should be required at the end, which should be in the form of a multi choice question, and the pass mark of the examination should be 75%.

Level: It should be a detailed course on the theoretical and practical elements of the subject.

The training may be made either:

- in appropriate facilities containing examples of components, systems and parts affected by Fuel Tank Safety (FTS) issues. The use of films, pictures and practical examples on FTS is recommended; or
- by attending a distance course (e-learning or computer based training) including a film when such film meets the intent of the objectives and content here below. An e-learning or computer based training should meet the following criteria:
    - A continuous evaluation process should ensure the effectiveness of the training and its relevance;
    - Some questions at intermediate steps of the training should be proposed to ensure that the trainee is authorized to move to the next step;
    - The content and results of examinations should be recorded;
    - Access to an instructor in person or at distance should be possible in case support is needed.

    A duration of 8 hours for phase 2 is an acceptable compliance.

    When the course is provided in a classroom, the instructor should be very familiar with the data in Objectives and Guidelines. To be familiar, an instructor should have attended himself a similar course in a classroom and made additionally some lecture of related subjects.

Objectives:

The attendant should, after the completion of the training:

- have knowledge of the history of events related to fuel tank safety issues and the theoretical and practical elements of the subject, have an overview of the FAA regulations known as SFAR (Special FAR) 88 of the FAA and of JAA Temporary Guidance Leaflet TGL 47, be able to give a detailed description of the concept of fuel tank system ALI (including Critical

Design Configuration Control Limitations CDCCL, and using theoretical fundamentals and specific examples;

- have the capacity to combine and apply the separate elements of knowledge in a logical and comprehensive manner;
- have knowledge on how the above items affect the aircraft;
- be able to identify the components or parts or the aircraft subject to FTS from the manufacturer's documentation,
- be able to plan the action or apply a Service Bulletin and an Airworthiness Directive.

Content:

Following the guidelines described in paragraph E.

Continuation training:

The organisation should ensure that the continuation training is required in each two years period. The syllabus of the training programme referred to in 3.4 of the Maintenance Organisation Exposition (MOE) should include the additional syllabus for this continuation training.

The continuation training may be combined with the phase 2 training in a classroom or at distance.

The continuing training should be updated when new instruction are issued which are related to the material, tools, documentation and manufacturer's or competent authority's directives.

E) Guidelines for preparing the content of Phase 2 courses.

The following guidelines should be taken into consideration when the phase 2 training programme are being established:

(a) understanding of the background and the concept of fuel tank safety,

(b) how the mechanics can recognise, interpret and handle the improvements in the instruction for continuing airworthiness that have been made or are being made regarding the fuel tank system maintenance,

(c) awareness of any hazards especially when working on the fuel system, and when the Flammability Reduction System using nitrogen is installed.

Paragraphs a) b) and c) above should be introduced in the training programme addressing the following issues:

(i) The theoretical background behind the risk of fuel tank safety: the explosions of mixtures of fuel and air, the behaviour of those mixtures in an aviation environment, the effects of temperature and pressure, energy needed for ignition etc, the 'fire triangle', - Explain 2 concepts to prevent explosions:

(1) ignition source prevention and

(2) flammability reduction,

(ii) The major accidents related to fuel tank systems, the accident investigations and their conclusions,

(iii) SFAR 88 of the FAA and JAA Interim Policy INT POL 25/12: ignition prevention program initiatives and goals, to identify unsafe conditions and to correct them, to systematically improve fuel tank maintenance),

(iv) Explain the briefly concepts that are being used: the results of SFAR 88 of the FAA and JAA INT/POL 25/12: modifications, airworthiness limitations items and CDCCL,

(v) Where relevant information can be found and how to use and interpret this information in the instructions for continuing airworthiness (aircraft maintenance manuals, component maintenance manuals, Service Bulletins…),

(vi) Fuel Tank Safety during maintenance: fuel tank entry and exit procedures, clean working environment, what is meant by configuration control, wire separation, bonding of components etc,

(vii) Flammability reduction systems when installed: reason for their presence, their effects, the hazards of an FRS using nitrogen for maintenance, safety precautions in maintenance/working with an FRS,

(viii) Recording maintenance actions, recording measures and results of inspections.

The training should include a representative number of examples of defects and the associated repairs as required by the TC / STC holders' maintenance data.

F) Approval of training

For IS-145 approved organisations, the approval of the initial and continuation training programme and the content of the examination can be achieved by the change to the MOE. The necessary changes to the MOE to meet the content of this decision should be made and implemented at the time requested by the Competent Authority.