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AMC 145.1 General

1. For the purpose of this Part, the authority shall be the Directorate General of Civil Aviation of the State of Kuwait.

2. Organizations involved in the maintenance of all aircraft used for private and commercial air transport, and components intended for fitment thereto, shall be approved in accordance with this Part.

3. Part 21 referred to herein means EASA Part 21, all other parts refer to herein means Kuwait Civil Aviation Safety Regulations (KCASR).

4. The forms used in this part are for samples purposes only. The required Forms can be obtained from the DGCA website (www.dgca.gov.kw - under ASD icon – Forms & Applications).
Acceptable Means of Compliance to Part-145

SECTION – A – TECHNICAL REQUIREMENTS

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 (AD's, SB's) the Quality Manager may accept base maintenance tasks to be performed by a line maintenance organization provided all requirements are fulfilled as defined by the DGCA.
   (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 para. 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. For an organization based in State of Kuwait and to be approved in accordance with 145.A.10 means that the management as specified in 145.A.30 (a) and (b) should be located in the State of Kuwait.

3. Where the organisation uses facilities both inside and outside the State of Kuwait 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 DGCA being satisfied that they form an integral part of the approved maintenance organisation.

AMC 145.A.15  Application

In a form and in a manner established by the DGCA means that the application should be made on a DGCA Form 2.
AMC 145.A.20   Terms of Approval
The following table identifies the ATA specification 100 chapter for the category C component rating.

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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 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. Manufacturers 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.

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 DGCA 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 Part-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 Part-145 organisation where any one manager may also be the accountable manager, as determined by the DGCA, 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 DGCA 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 Part-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 such staff 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 organizational stability. Contract staff, being part time or full time should be made aware that when working for the organisation they are subjected to compliance with the organisation’s procedures specified in the maintenance organisation exposition relevant to their duties. For the purpose of this sub-paragraph, employed means the person is directly employed as an individual by the maintenance organisation approved under Part-145 whereas contracted means the person is employed by another organisation and contracted by that organisation to the maintenance organisation approved under Part-145.

2. The maintenance man-hour plan should take into account any maintenance carried out on aircraft / aircraft components from all contracted operators and/or organizations and should also take into account all work carried out outside the scope of the Part-145 approval.
3. The maintenance man-hour plan should relate to the anticipated maintenance work load 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 work load 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 performs 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 145.A.30(e) Personnel Requirements

1. The referenced procedure requires amongst others that planners, mechanics, specialised services staff, supervisors and certifying staff are assessed for competence by ‘on the job’ evaluation and/or by examination relevant to their particular job role within the organisation before unsupervised work is permitted. A record of the qualification and competence assessment should be kept.

2. Adequate initial and recurrent training should be provided and recorded to ensure continued competence.

3. To assist in the assessment of competence, job descriptions are recommended for each job role in the organisation. Basically, the assessment should establish that:
   a. Planners are able to interpret maintenance requirements into maintenance tasks, and have an appreciation that they have no authority to deviate from the maintenance data.
   b. Mechanics are able to carry out maintenance tasks to any standard specified in the maintenance data and will notify supervisors of mistakes requiring rectification to re-establish required maintenance standards.
   c. Specialised services staffs are able to carry out specialised maintenance tasks to the standard specified in the maintenance data and will both inform and await instructions from their supervisor in any case where it is not possible to complete the specialised maintenance in accordance with the maintenance data.
d. 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.

e. 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.

4. In the case of planners, specialised services staff, supervisors and certifying staff, knowledge of organisation procedures relevant to their particular role in the organisation is important. The aforementioned list is not exclusive and may include other categories of personnel.

5. Quality audit staffs are able to monitor compliance with Part-145 identifying noncompliance in an effective and timely manner so that the organisation may remain in compliance with Part-145.

6. In respect to the understanding of the application of human factors and human performance issues, maintenance, management, and quality audit personnel should be assessed for the need to receive Initial human factors training, but in any case all maintenance, management, and quality audit personnel should receive human factors continuation training. This should concern to a minimum:

- Post-holders, managers, supervisors;
- Certifying staff, technicians, 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;
- Contract staff in the above categories.

7. 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.
Depending on the result of the evaluation as specified in paragraph 6, initial training should be provided to personnel within 6 months of joining the maintenance organisation, but temporary staff may need to be trained shortly after joining the organisation to cope with the duration of employment.

Personnel being recruited from another maintenance organisation approved under Part-145 and temporary staff should be assessed for the need to receive any additional Human factors training to meet the new maintenance organisation’s approved under Part-145 human factors training standard.

8. The purpose of human factors continuation training is primarily to ensure that staff remains 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 available to the organisation on human errors in maintenance.

9. Human factors training may be conducted by the maintenance organization itself, or independent trainers or any training organisations acceptable to the DGCA.

10. The Human factors training procedures should be specified in the maintenance organisation exposition.

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

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

12. Competence assessment should include the verification for the need of additional EWIS training when relevant.

The Maintenance Organisation may use EASA guidance in AMC 20-21, 20-22 and 20-23.

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 of EN 4179, MIL-STD-410E, ATA specification 105 or any other equivalent standard acceptable to the DGCA dependent upon the non-destructive testing functions to be carried out.
3. Notwithstanding the fact that Level 3 personnel may be qualified via EN 4179 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 nondestructive test manuals or service bulletins, unless the manual or service bulletin expressly permits such deviation.

4. Notwithstanding the general references in EN 4179, MIL-STD-410E, ATA specification 105 or any other equivalent standard acceptable to the DGCA to a national aerospace nondestructive testing (NDT) board, all examinations should be conducted by personnel or organisations under the general control of such a board. In the absence of a national aerospace NDT board, the aerospace NDT board of another State should be used, as defined by the DGCA.

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 by EN 4179. Until such time as an agreed standard is established such methods should be carried out in accordance with the particular equipment manufacturers recommendations including any training and examination process to ensure competence of the personnel with the process.

7. Any maintenance organisation approved under Part-145 that carries out NDT should establish NDT specialist qualification procedures detailed in the exposition and accepted by the DGCA.

8. Boroscoping and other techniques such as delaminating coin tapping are nondestructive inspections rather than non-destructive testing. Notwithstanding such differentiation, the maintenance organisation should establish an exposition procedure accepted by the DGCA 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 Part-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 Part-145 should qualify for such non-destructive test in accordance with EN 4179, MIL-STD-410E, ATA specification 105 or any other equivalent standard acceptable to the DGCA.

11. In this context officially recognized standard means those standards established or published by an official body whether having legal personality or not, which are widely recognized by the air transport sector as constituting good practice.
AMC 145.A.30(g) Personnel Requirements

1. For the purposes of category A minor scheduled line maintenance means any minor scheduled inspection/check up to and including a weekly check specified in the operators approved aircraft maintenance programme. For aircraft maintenance programmes that do not specify a weekly check, the DGCA 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 category A for the purpose of the category A 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 but excluding 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 DGCA 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. Replacement of any other component as agreed by the DGCA for a particular aircraft type only where it is agreed that the task is simple.

Note: This list will be periodically updated in the light of ongoing experience and technological changes.

AMC 145.A.30(h) (1) Personnel Requirements

The category B1 and B2 support staff need not hold a certifying authorization in accordance with 145.A.35 (b) but the organisation may use such appropriately authorised certifying staff to satisfy the requirement.
AMC 145.A.30(j) (4) Personnel Requirements

1. For the issue of a limited certification authorization 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 KCASRs, on the aircraft type. In addition the limited certification authorization 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 Part-145.

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

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, cowlings 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 DGCA.

(ii) Holders of valid DGCA Flight Engineers licence on the aircraft type may only exercise this limited certification authorization 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 but excluding 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 DGCA as a simple task.
k. Re-setting of tripped circuit breakers under the guidance of maintenance control.
l. Any other simple task as agreed by the DGCA for a particular aircraft type only where it is agreed that the task is simple.

3. The authorization 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 authorization should only be considered for issue by the quality department of the contracted organization after it has made a reasoned judgment that such a requirement is appropriate under the circumstances and at the same time maintaining the required airworthiness standards. The organization’s quality department will need to assess each situation individually prior to the issuance of a one-off authorization.

3. A one-off authorization 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 authorization to issue a CRS for a task on an aircraft type for which certifying staff does not hold a type-rated authorization has been identified, the following procedure is recommended:

1. Flight crew should communicate details of the defect to the operator’s supporting maintenance organization with full details of the defect. If necessary the supporting maintenance organization will then request the use of a one off authorization from the quality department.

2. When issuing a one off authorization, the quality department of the organization should verify that:

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

   b. The organization 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 authorization.
c. The person to whom a one-off authorization is issued has been provided 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 organization, communicated to the one off authorization holder.

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

3. The one off authorization 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 Part-145 maintenance facility.  

AMC 145.A.30(j) (5)(ii) Personnel Requirements

This paragraph addresses staff not employed by the maintenance organization 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 organization may issue such one off authorization providing full qualification details relating to the proposed certifying personnel are verified by the quality department and made available at the location.

AMC 145.A.35(a) Certifying Staff and Category B1 and B2 Support Staff

1. Adequate understanding of the relevant aircraft and/or aircraft component(s) to be maintained together with the associated organization procedures means that the person has received training and has relevant maintenance experience on the product type and associated organization procedures such that the person understands how the product functions, what are the more common defects with associated consequences.

2. The organization should hold copies of all documents that attest to qualification, and to recent experience.

AMC 145.A.35(b) Certifying Staff and Category B1 and B2 Support Staff

The organization issues the certification authorization when satisfied that compliance has been established with the appropriate paragraphs of Part-145 and Part-66. In granting the certification authorization the maintenance organization approved under Part-145 needs to be satisfied that the person holds a valid aircraft maintenance license and may need to confirm such fact with the DGCA.

AMC 145.A.35(d) Certifying Staff and Category B1 and B2 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 organization 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 Part-145, changes in organization 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 organization on human errors in maintenance. This means that in the case of an organization that maintains aircraft with few relevant quality audit findings, continuation training could be limited to days rather than weeks, whereas a similar organization with a number of relevant quality audit findings, such training may take several weeks. For an organization 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 a Part-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 organization exposition unless such training is undertaken by an organization approved under Part 147 when such details may be specified under the approval and cross referenced in the maintenance organization exposition.

**AMC 145.A.35(e) Certifying Staff and Category B1 and B2 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 Category B1 and B2 Support Staff**

1. As stated in 145.A.35 (f), with one exception, all prospective certifying staff are required to be assessed for competence, qualification and capability related to intended certifying duties. There are a number of ways in which such assessment may be carried out but the following points need to be considered to establish an assessment procedure that fits the particular organization.
2. Competence and capability can be assessed by working the person under the supervision of either another certifying person or a quality auditor for sufficient time to arrive at a conclusion. Sufficient time could be as little as a few weeks if the person is fully exposed to relevant work. It is not required to assess against the complete spectrum of intended duties. When the person has been recruited from another approved maintenance organization and was a certifying person in that organization then the organization should accept a written confirmation from the person responsible for running the quality system about the person.

3. Qualification assessment means collecting copies of all documents that attest to qualification, such as the license and/or any authorization held. This should be followed by a confirmation check with the organization(s) that issued such document(s) and finally a comparison check for differences between the product type ratings on the qualification documents and the relevant product types maintained by the organization. This latter point may reveal a need for product type differences training.

AMC 145.A.35(j) Certifying Staff and Category B1 and B2 Support Staff

1. The following minimum information as applicable should be kept on record in respect of each certifying person or category B1 or B2 support person:
   a. Name
   b. Date of Birth
   c. Basic Training
   d. Type Training
   e. Continuation Training
   f. Experience
   g. Qualifications relevant to the authorization.
   h. Scope of the authorization
   i. Date of first issue of the authorization
   j. If appropriate - expiry date of the authorization
   k. Identification Number of the authorization

2. The record may be kept in any format but should be controlled by the organization’s quality department. This does not mean that the quality department should run the record system.

3. Persons authorized to access the system should be maintained at a minimum to ensure that records cannot be altered in an unauthorized manner or that such confidential records become accessible to unauthorized persons.

4. The DGCA is an authorized body when investigating the records system for initial and continued approval or when the DGCA has cause to doubt the competence of a particular person.

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 DGCA, 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 organization agrees can be used.
AMC 145.A.40(b)  Equipment, Tools and Material

1. The control of these tools and equipment requires that the organization 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 labeling 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 organization can show by results that a different time period is appropriate in a particular case.

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

AMC 145.A.42(a)  Acceptance of Components

1. An equivalent document to a DGCA Form 1 may be:
   a. a release document issued by an organization under the terms of a bilateral agreement signed by the DGCA;
   b. an EASA form 1 issued by a Part-145 organization approved by an EASA Member State;
   c. a JAA form 1 issued by a JAR 145 organization approved by a JAA full member state;
   d. FAA Form 8130-3
   e. Transport Canada Form 24-0078
   f. Form issued by Type Certificate holder under Authority of the State Of Design
   g. Any other equivalent certification acceptable to the DGCA

2. For acceptance of standard parts, raw material and consumable material, refer to KCASR Part M AMC M.A.501(c) and Part M AMC M.A.501 (d).

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

The DGCA Form 1 identifies the eligibility and status of an aircraft component. Block 13 "Remarks" on the DGCA Form 1 in some cases contains vital airworthiness related information which may need appropriate and necessary actions.

The receiving organization should be satisfied that the component in question is in satisfactory condition and has been appropriately released to service. In addition, the organization 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 exercised in ensuring compliance with applicable airworthiness directives and the status of any life limited parts fitted to the aircraft component as well as critical decision configuration control limitations.
AMC 145.A.42(c) Acceptance of Components

1. The agreement by the DGCA for the fabrication of parts by the approved maintenance organization should be formalized through the approval of a detailed procedure in the Maintenance Organization 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 organization;

3. All necessary data to fabricate the part should be approved either by the DGCA or the type certificate (TC) holder or Part-21 design organization approval holder or supplemental type certificate (STC) holder;

4. Items fabricated by an organization approved under Part-145 may only be used by that organization 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 DGCA 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 organization approved under Part-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 organization approved under Part-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 organization 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 organization the organization cannot fabricate the part unless the TC/STC-holder gives an approved alternative.

7. Examples of fabrication under the scope of an Part-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 DGCA.

**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 DGCA.
8. Where a TC-holder or an approved production organization 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 DGCA 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 organization’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 cannot 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, organizations 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.
AMC 145.A.45(b)  Maintenance Data

1. Except as specified in sub-paragraph 5, each maintenance organization approved under Part-145 should hold and use the following minimum maintenance data relevant to the organization's approval class rating. All maintenance related Implementing Rules and associated AMCs, approval specifications and Guidance Material, all applicable national maintenance requirements and notices which have not been superseded by any new requirement, procedure or directive and all applicable DGCA airworthiness directives plus any non-national airworthiness directive supplied by a contracted non-Kuwaiti operator or customer as well as critical decision configuration control limitations.

2. In addition to sub-paragraph 1, an organization 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 sub-paragraph 1, an organization 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 organization 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 organization only approved in class rating category D – Specialized services, should hold and use all applicable specialized 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 Part-145 approved maintenance organization 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 Part-145 approved organization 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 organization 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 Part-21.

**AMC 145.A.45(e) Maintenance Data**

1. The maintenance organization should transcribe accurately the maintenance data onto such work cards or worksheets or make precise reference to the particular maintenance tasks or task(s) contained in such maintenance data, which already identifies the task as a CDCCL where applicable.

2. Relevant parts of the organization means with regard to aircraft base maintenance, aircraft line maintenance, engine workshops, mechanical workshops and avionic workshops. Therefore, for example engine workshops should have a common system throughout such engine workshops that may be different to that in 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 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

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.

AMC 145.A.47(a)  Production Planning

1. Depending on the amount and complexity of work generally performed by the maintenance organization, the planning system may range from a very simple procedure to a complex organizational set-up including a dedicated planning function in support of the production function.

2. For the purpose of Part-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, organizing 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 formalized process for exchanging information between outgoing and incoming persons and a planned shift overlap and a place for such exchanges to take place.

**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 Part-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 DGCA Part-145 approval number.

2. It is acceptable to use an alternate abbreviated certificate of release of service consisting of the following statement “Part-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 (STC) holder’s or operator’s instruction or the aircraft maintenance program 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 so 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 DGCA 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 organization to users.

It can only be issued by organizations approved by the particular DGCA 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 organization. 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 organizations approved under Part-145 and the item needs a certificate for the previous maintenance process carried out for the next maintenance organization approved under Part-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 issue 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 organization maintains a component for use by the organization, DGCA Form 1 may not be necessary depending upon the organizations' internal release procedures defined in the maintenance organization exposition.

2. In the case of the issue of DGCA Form 1 for components in storage prior to Part-145 and Part-21 and not released on a DGCA Form 1 or equivalent in accordance with 145.A.42 (a) or removed serviceable from a serviceable aircraft or an aircraft which have been withdrawn from service the following applies.

2.1 DGCA Form 1 may be issued for an aircraft component which has been:

- Maintained before Part-145 became effective or manufactured before Part-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 organization.

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

2.3 For the purposes of this AMC No 2 only, appropriately rated means an organization with an approval class rating for the type of component or for the product in which it may be installed.
2.4 DGCA 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 DGCA Form 1.

2.5 New / unused aircraft components

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

Note1: It should be understood that the release of a stored but unused aircraft component in accordance with this paragraph represents a maintenance release under Part-145 and not a production release under Part-21. It is not intended to bypass the production release procedure agreed by the DGCA 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 organization and subjected to a check for incorporated airworthiness directives, repairs and modifications and inspected/tested in accordance with the manufacturers maintenance instructions to establish satisfactory condition and, if relevant, all seals, lubricants and life limited parts replaced. On satisfactory completion after reassembly a DGCA Form 1 may be issued stating what was carried out and the reference of the manufacturers maintenance data included.

2.6 Used aircraft components removed from a serviceable aircraft.

2.6.1 Serviceable aircraft components removed from a Kuwaiti registered aircraft may be issued with a DGCA Form 1 by an appropriately rated organization subject to compliance with this subparagraph.

a. The organization 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 manufacturer's 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 DGCA 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 affect its operation.

e. A maintenance history record should be available for all used serialized 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 DGCA 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-Kuwaiti registered aircraft may only be issued a DGCA Form 1 if the components are leased or loaned from the maintenance organization approved under Part-145 who retains control of the airworthiness status of the components. A DGCA 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 State of Kuwait registered aircraft withdrawn from service may be issued a DGCA Form 1 by a maintenance organization approved under Part-145 subject to compliance with this sub paragraph.

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 organization approved under Part-145, employing procedures approved by the DGCA.

b. To be eligible for installation components removed from such aircraft may be issued with a DGCA Form 1 by an appropriately rated organization 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 organization responsible for certifying any removed component should satisfy itself that the manner in which the components were removed and stored are compatible with the standards required by Part-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 organization 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 Part-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 manufacturer’s recommendations.

2.8 Used aircraft components maintained by organizations not approved in accordance with Part-145. For used components maintained by a maintenance organization unapproved under Part-145, due care should be exercised before acceptance of such components. In such cases an appropriately rated maintenance organization approved under part-145 should establish satisfactory conditions by:

a. dismantling the component for sufficient inspection in accordance with the appropriate maintenance data,

b. replacing of 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 DGCA Form 1 when processed in accordance with paragraph 2.7 and a specific work order including all additional necessary tests and inspections made 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 Part-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 operators 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 organization should inform the competent authority of the State of Registry or State of Operator, as appropriate of such doubt, before issuing the certificate of release to service. This will allow the competent authority of the State of Registry or the State of the operator as appropriate to investigate the matter.
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 noncompliance 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 organization releasing said component together with details of the authority under whose approval the organization works including the approval or authorization reference.

2. Compliance with all other Part-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.

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.

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 organization 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.

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 organization 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 organization. It is the responsibility of all organization’s employees to report any differences via their organization’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 nondestructive 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 multiengined 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,
   — DGCA 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 unauthorized personnel (i.e. temporary staff, trainee,...) should be checked by authorized 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. “Authorized personnel” means a personnel formally authorized by the maintenance organization approved under Part-145 to sign-off tasks. “Authorized personnel” are not necessarily “certifying staff”.

4. The maintenance organization 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 organization. The maintenance organization 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 fuel gauging system wiring as a Critical Design Configuration Control Limitation.

   Maintenance organizations can prevent adverse effects associated with wiring changes by standardizing 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 organization personnel in an Appendix IV of AMC to Part-145.A.30 (e) and 145B.10 (3).

   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 failures 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 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.

   **AMC145.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 organization to ensure that it can deliver a safe product and that organization 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 organization’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 organizations that work at night.

4. Except as specified in sub-paragraphs 7 and 9, the independent audit should ensure that all aspects of Part-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 sub-paragraphs 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 2 approval class rating as specified in the approval schedule issued to the particular organization.

It therefore follows for example that a maintenance organization approved under Part-145 with a capability to maintain aircraft, repair engines, brakes and autopilots would need to carry out 4 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 organization, that is an organization 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 organization 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 DGCA 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 organization 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 organization approved under Part-145, being an organization 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 organization approved under Part-145, being an organization 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. Organizations 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 organization or a qualified and competent person approved by the DGCA.

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 principal function of the quality feedback system is to ensure that all findings resulting from the independent quality audits of the organization 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 Part-145.

3. The independent quality audit reports referenced in AMC 145.A.65 (c) (1) subparagraph 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 organizations 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.

AMC 145.A.70(a) Maintenance Organization Exposition

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

The information specified in 145.A.70 sub-paragraphs (6) and (12) to (16) inclusive, whilst a part of the maintenance organization 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 so long as all applicable subjects are covered. Where an organization 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 organization complies with Critical Design Configuration Control Limitations (CDCCL) instructions.

Small maintenance organizations 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 organization exposition. The maintenance organization exposition should be made available to the DGCA in a form acceptable to the DGCA. Attention should be paid to the compatibility of EDP publication systems with the necessary dissemination of the maintenance organization exposition, both internally and externally.
PART - 0 - GENERAL ORGANISATION

This section is reserved for those maintenance organizations approved under Part-145 who are also operators within the territories of the State of Kuwait.

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 organization chart.
1.6 List of certifying staff.
1.7 Manpower resources.
1.8 General description of the facilities at each address intended to be approved.
1.9 Organizations intended scope of work.
1.10 Notification procedure to the DGCA regarding changes to the organization’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 DGCA/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 man-hour 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 taxying 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 organization procedures.

3.2 Quality audit of aircraft.

3.3 Quality audit remedial action procedure.

3.4 Certifying staff and category B1 and B2 support staff qualification and
   training procedures.

3.5 Certifying staff and category B1 and B2 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 organizations’ 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 – CONTRACTED OPERATORS**

4.1 Contracted operators.

4.2 Operator procedures and paperwork.

4.3 Operator record completion.

**PART – 5 – SAMPLE OF DOCUMENTS**

5.1 Sample of documents.

5.2 List of Sub-contractors as per 145.A.75 (b).
5.3  List of Line maintenance locations as per 145.A.75 (d).
5.4  List of contracted organizations as per 145.A.70 (a) (16).

PART – 6 - OPERATORS MAINTENANCE PROCEDURES

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

PART – 7 - INTENTIONALLY LEFT BLANK

This section is reserved for those KCASR Part 145 approved maintenance organizations who are also approved as a foreign maintenance organization. The content of this Part reflects the difference between KCASR Part 145 and the foreign requirements and will change over time as harmonization and experience with the foreign National Authority progresses.

PART – 8 - INTENTIONALLY LEFT BLANK

This section is reserved for those KCASR Part 145 approved maintenance organizations who are also approved as a foreign maintenance organization. The content of this Part reflects the difference between KCASR Part 145 and the foreign requirements and will change over time as harmonization and experience with the foreign National Authority progresses.

AMC 145.A.75 (b) Privileges of the Organization

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

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

   a.  To permit the acceptance of specialized 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 DGCA 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 organizations not appropriately approved under Part-145 when it is unrealistic (as determined by the DGCA) to expect direct approval by the DGCA.

   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 organizations not appropriately approved under Part-145 when it is unrealistic (as determined by the DGCA) to expect direct approval by the DGCA.

3.2 When maintenance is carried out under the sub-contract control system it means that for the duration of such maintenance, the Part-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 organization's products undergoing maintenance should meet Part-145 requirements for the duration of that maintenance and it remains the organization's responsibility to ensure such requirements are satisfied.

3.3 For the criteria specified in sub-paragraph 3.1 the organization 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 organization 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 organization may find it necessary to include several specialist subcontractors 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 authorize the use of such subcontractors, the DGCA will need to be satisfied that the organization has the necessary expertise and procedures to control such subcontractors.

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

3.6 Authorization to sub-contract is indicated by the DGCA accepting the maintenance organization exposition containing a specific procedure on the control of sub-contractors.

4. Principal Part-145 Procedures for the Control of Sub-Contractors not Approved Under Part-145

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

4.2 The organization approved under Part-145 needs to assess to what extent it will use the sub-contractor's facilities. As a general rule the organization 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 Part-145. In the case of sub-contractors who provide specialized services it may for practical reasons be necessary to use their specialized services personnel, approved data and material subject to acceptance by the organization approved under Part-145.
4.3 Unless the sub-contracted maintenance work can be fully inspected on receipt by the organization approved under Part-145 it will be necessary for such organization to supervise the inspection and release from the sub-contractor. Such activities should be fully described in the organization procedure. The organization will need to consider whether to use its own staff or authorize the sub-contractor’s staff.

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

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

4.6 The Part-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 Part-145 approved maintenance organization and the sub-contractor should contain a provision for the DGCA staff to have right of access to the sub-contractor.

**AMC 145.A.80 Limitations on the Organization**

This paragraph is intended to cover the situation where the larger organization may temporarily not hold all the necessary tools, equipment etc., for an aircraft type or variant specified in the organization’s approval. This paragraph means that the DGCA 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 organization to re-acquire tools, equipment etc. before maintenance on the type may recommence.
SECTION B - PROCEDURE FOR DGCA

AMC 145.B.10(1) General

1. In deciding upon the required organizational structure, the DGCA should review the number of certificates to be issued, the number and size of potential Part-145 approved maintenance organizations, as well as the level of civil aviation activity, number and complexity of aircraft and the size of the aviation industry.

2. The DGCA should retain effective control of important surveillance functions and not delegate them in such a way that Part-145 organizations, in effect, regulate themselves in airworthiness matters.

3. The set-up of the organizational structure should ensure that the various tasks and obligations of the DGCA are not relying on individuals. That means that a continuing and undisturbed fulfillment of these tasks and obligations of the DGCA should also be guaranteed in case of illness, accident or leave of individual employees.

AMC 145.B.10(3) Qualification and Training

1. DGCA Inspectors should have:
   1.1 practical experience and expertise in the application of aviation safety standards and safe operating practices;
   1.2 comprehensive knowledge of:
      a. relevant parts of implementing rules, certification specifications and guidance material;
      b. the DGCA’s procedures;
      c. the rights and obligations of an Inspectors,
      d. quality systems;
      e. continuing airworthiness management.
   1.3 training on auditing techniques.
   1.4 five years relevant work experience to be allowed to work as a surveyor independently. This may include experience gained during training to obtain the 1.5 qualification.
   1.5 a relevant engineering degree or an aircraft maintenance technician qualification with additional education. ‘relevant engineering degree’ means an engineering degree from aeronautical, mechanical, electrical, electronic, avionic or other studies relevant to the maintenance and continuing airworthiness of aircraft/aircraft components.
   1.6 knowledge of maintenance standards, including Fuel Tank Safety (FTS) training as described in Appendix IV to AMC to 145.A.30 (e) and 145.B.10 (3).

2. In addition to technical competency, surveyors should have a high degree of integrity, be impartial in carrying out their tasks, be tactful, and have a good understanding of human nature.

3. A programme for continuation training should be developed that ensures that the surveyors remain competent to perform their allocated tasks.
AMC 145.B.10(4)  Procedures

The documented procedures should contain the following information:

a. The ICAO Member State's designation of the DGCA.

b. The title(s) and name(s) of the manager(s) of the DGCA and their duties and responsibilities.

c. Organization chart(s) showing associated chains of responsibility of the senior persons.

d. A procedure defining the qualifications for staff together with a list of staff authorized to sign certificates.

e. A general description of the facilities.

f. Procedures specifying how the DGCA ensure(s) compliance with Part-145.

AMC 145.B.20(1)  Initial Approval

1. Formally indicated by the DGCA in writing means that the DGCA Form 4 should be used for this activity. With the exception of the accountable manager, a DGCA Form 4 should be completed for each person nominated to hold a position as required by 145.A.30 (b).

2. Formal indication of acceptance should be by use of the DGCA Form 4 or in the case of the Accountable Manager via approval of the Maintenance Organization Exposition containing the Accountable Managers commitment statement.

3. The DGCA may reject an accountable manager where there is clear evidence that they previously held a senior position in any DGCA/Part approved Organization and abused that position by not complying with the particular DGCA/Part requirements.

AMC 145.B.20(2)  Initial Approval

Verification that the organization complies with the exposition procedures should be established by the DGCA approving the maintenance organization exposition.

AMC 145.B.20(3)  Initial Approval

1. The DGCA should determine by whom, and how the audit shall be conducted. For example, for a large organization, it will be necessary to determine whether one large team audit or a short series of small team audits or a long series of single man audits are most appropriate for the particular situation.

2. It is recommended that the audit is carried out on a product line type basis in that, for example, in the case of an organization with Airbus A310 and A320 ratings, the audit be concentrated on one type only for a full compliance check and dependent upon the result, the second type may only require a sample check against those activities seen to be weak on compliance for the first type.

3. The DGCA auditing surveyor should always ensure that he/she is accompanied throughout the audit by a senior technical member of the organization. Normally this is the quality manager. The reason for being accompanied is to ensure the organization is fully aware of any findings during the audit.
4. The auditing Surveyor should inform the senior technical member of the organization at the end of the audit visit on all findings made during the audit.

AMC 145.B.20(5) Initial Approval
1. The audit report form should be the DGCA Form 6.
2. A quality review of the DGCA Form 6 audit report form should be carried out by a competent independent person nominated by the DGCA. The review should take into account the relevant paragraphs of Part-145, the categorization of finding levels and the closure action taken. Satisfactory review of the audit form should be indicated by a signature on the audit form.

AMC 145.B.20(6) Initial Approval
1. The reports should include the date each finding was cleared together with reference to the DGCA report or letter that confirmed the clearance.
2. There may be occasions when the DGCA surveyor may find situations in the applicant’s organization on which he/she is unsure about compliance. In this case, the organization should be informed about possible non-compliance at the time and the fact that the situation will be reviewed within the DGCA before a decision is made. If the decision is a finding of being in compliance then a verbal confirmation to the organization will suffice.
3. Findings should be recorded on the audit report form with a provisional categorization as a level 1 or 2. Subsequent to the audit visit that identified the particular findings, the DGCA should review the provisional finding levels, adjusting them if necessary and change the categorization from provisional to confirmed.
4. All findings should be confirmed in writing to the applicant organization within 2 weeks of the audit visit.

AMC 145.B.25(1) Issue of Approval
1. Reserved
2. The approval should be based only upon the organizational capability (including any associated sub-contractors) relative to Part-145 and not limited by reference type certificated products. For example, if the organization is capable of maintaining within the limitation of Part-145 the Boeing737-200 series aircraft the approval schedule should state A1 Boeing737-200 series and not Boeing737-2H6 which is particular airline designator for one of many -200 series.
3. The authority shall indicate approval of the exposition in wiring.

AMC 145.B.25(2) Issue of Approval
The validity of the Part-145 approval should be of 24 months or as specified in the Approval Certificate.

AMC 145.B.25(3) Issue of Approval
The numeric sequence shall be unique to the particular approved maintenance organization.
AMC 145.B.30(1)  Continuation of an Approval
Credit may be claimed by the DGCA surveyor(s) for specific item audits completed during the preceding 23 month period subject to four conditions:

─ the specific item audit should be the same as that required by Part-145 latest amendment, and

─ there should be satisfactory evidence on record that such specific item audits were carried out and that all corrective actions have been taken, and

─ the DGCA surveyor(s) should be satisfied that there is no reason to believe standards have deteriorated in respect of those specific item audits being granted a back credit, and

─ the specific item audit being granted a back credit should be audited not later than 24 months after the last audit of the item.

AMC 145.B.30(2)  Continuation of an Approval
1. Where the DGCA has decided that a series of audit visits are necessary to arrive at a complete audit of an organization, the program should indicate which aspects of the approval will be covered on each visit.

2. It is recommended that part of an audit concentrates on two ongoing aspects of the Part-145 approval, namely the organizations internal self-monitoring quality reports produced by the quality monitoring personnel to determine if the organization is identifying and correcting its problems and secondly the number of concessions granted by the quality manager.

3. At the successful conclusion of the audit including approval of the exposition, an audit report form should be completed by the auditing surveyor including all recorded findings, closure actions and recommendation. DGCA Form 6 shall be used for this activity.

4. The accountable manager should be seen at least once every 24 months to ensure he/she fully understands the significance of the approval.

5. In the case of line stations the DGCA can adopt a sampling program based upon number of line stations and complexity.

AMC 145.B.35  Changes
The DGCA should have adequate control over any changes to the management personnel specified in 145.A.30 (a) and (b) and such changes in personnel will require an amendment to the exposition.

AMC 145.B.35 (1)  Changes
The applicable part(s) of the DGCA Form 6 should be used for the changes to the Part-145 approval.

AMC 145.B.35 (2)  Changes to the Organization
The primary purpose of this paragraph is to enable the organization to remain approved if agreed by the DGCA during negotiations about any of the specified changes. Without this paragraph the approval would automatically be suspended in all cases.
AMC 145.B.40   MOE Amendments

1. It is recommended that a simple exposition status sheet is maintained which contains information on when an amendment was received by the DGCA and when it was approved.

2. The DGCA may define some class of amendments to the exposition which may be incorporated without prior authority approval. In this case a procedure should be stated in the amendment section of the MOE. The exposition chapter dealing with scope of work/approval should not be subject to this procedure.

3. The organization should submit each exposition amendment to the DGCA whether it is an amendment for approval or a delegated approval amendment. Where the amendment requires approval by the DGCA, the DGCA when satisfied, should indicate its approval in writing. Where the amendment has been submitted under the delegated approval procedure the DGCA should acknowledge receipt in writing.

AMC 145.B.50.(a) Findings

In practical terms a level 1 finding is where the DGCA finds a significant non-compliance with Part-145.

The following are example level 1 findings:

- Failure to gain access to the organization during normal operating hours of the organization in accordance with 145.A.90(2) after two written requests.

- If the calibration control of equipment as specified in 145.A.40(b) had previously broken down on a particular type product line such that most “calibrated” equipment was suspect from that time then that would be a level 1 finding.

  **Note:** A complete product line is defined as all the aircraft, engine or component of a particular type.

For a level 1 finding it may be necessary for the DGCA to ensure that further maintenance and re-certification of all affected products is accomplished, dependent upon the nature of the finding.

In practical terms where the DGCA surveyor finds a non-compliance with Part-145 against one product, it is deemed to be a level 2 finding.

The following are example level 2 findings:

- One time use of a component without any serviceable tag.

- The training documents of the certifying staff are not completed.

AMC 145.B.50.(b) Findings

1. Where the organization has not implemented the necessary corrective action within that period it may be appropriate to grant a further period of up to three months, subject to the DGCA notifying the accountable manager. In exceptional circumstances and subject to a realistic action plan being in place, the DGCA may specifically vary the maximum 6 month corrective action period. However, in granting such a change the past performance of the organization should be considered.
2. It may be necessary for the DGCA to ensure that further maintenance and re-certification of all affected products is accomplished, dependent upon the nature of the finding.

AMC 145.B.55 Record-keeping

1. The record-keeping system should ensure that all records are accessible whenever needed within a reasonable time. These records should be organized in a consistent way throughout the DGCA (chronological, alphabetical order, etc.).

2. All records containing sensitive data regarding applicants or organizations should be stored in a secure manner with controlled access to ensure confidentiality of this kind of data.

3. All computer hardware used to ensure data backup should be stored in a different location from that containing the working data in an environment that ensures they remain in good condition. When hardware or software changes take place special care should be taken to ensure that all necessary data continues to be accessible at least through the full period specified in 145.B.55.
Appendix I

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

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 DGCA

DGCA use only

Name and signature of authorized DGCA staff member accepting this person:

Signature: ............................... Date: ......................................

Name: .................................................... Office: .............................................

DGCA Form 4
Appendix II

Part-145 APPROVAL RECOMMENDATION REPORT

Part 1: General

Name of organization:

Approval reference:

Requested approval rating/Form 3 dated*:

EASA/FAA FAR 145 Cert No. (If app.)

Address of Facility Audited:

Audit period: From to :

Date(s) of Audit:

Audit reference(s):

Persons interviewed:

DGCA surveyor: Signature(s):

DGCA office: Date of Form 6 part 1 completion:

*delete where applicable
**Part-145 APPROVAL RECOMMENDATION REPORT**

**Part 2: Part-145 Compliance Audit Review**

The five columns may be labeled & used as necessary to record the approval class and /or product line reviewed. Against each column used of the following Part-145 sub-paragraphs 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.

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DGCA surveyor (s):                                          Signature (s):

DGCA office:                                               Date of Form 6 Part 2 completion:
### Part 145 APPROVAL RECOMMENDATION REPORT

**PART 3: Compliance with 145.A.70 Maintenance organization exposition**

*Please either tick (✓) the box if satisfied with compliance; or 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.*

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## Part-145 APPROVAL RECOMMENDATION REPORT

### PART 3: Compliance with 145.A.70 Maintenance organization exposition

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Part L2 Additional Line Maintenance Procedures

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<td><strong>3.14</strong></td>
</tr>
</tbody>
</table>

**Part 4**

| 4.1 | Contracted operators |
| 4.2 | Operator procedures / paperwork |
| 4.3 | Operator record completion |

**Part 5: Appendices**

| 5.1 | Sample documents |
| 5.2 | List of sub-contractors |
| 5.3 | List of Line maintenance locations |
| 5.4 | List of Part – 145 organizations |

**Date of Form 6 part 3 completion:**

**M O E Reference:**

**DGCA audit staff:**

**DGCA office:**

**M O E Amendment:**

**Signature(s):**

**Date of Form 6 part 3 completion:**
### Part 4: Findings Part-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 organization for the necessary corrective action.

<table>
<thead>
<tr>
<th>Part 2 or 3 ref:</th>
<th>Audit reference(s)</th>
<th>Findings</th>
<th>Level</th>
<th>Corrective action</th>
<th>Date Due</th>
<th>Date Closed</th>
<th>Reference</th>
</tr>
</thead>
</table>

*DGCA Form 6*
**Part-145 APPROVAL RECOMMENDATION REPORT**

<table>
<thead>
<tr>
<th>Part 5: Part-145 Approval or continued approval or change recommendation*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of organization:</td>
</tr>
<tr>
<td>Approval reference:</td>
</tr>
<tr>
<td>Audit reference(s):</td>
</tr>
</tbody>
</table>

The following Part-145 scope of approval is recommended for this organization:

Or, it is recommended that the Part-145 scope of approval specified in DGCA Form 3 referenced .......................................................... be continued

Name of recommending DGCA surveyor:

Signature of recommending DGCA surveyor:

DGCA office:

Date of recommendation:

Form 6 review (quality check): Date:
**Part-145 Approval Application for initial Grant / Change**

1. Registered name of applicant:

2. Trading name (if different):

3. Address requiring approval:

4. Tel: ........................................ Fax: ........................................ E-mail: ........................................

5. Scope of Part-145 approval relevant to this application: see page 2 for possibilities:

6. Position and name of the (proposed*) Accountable Manager: .................................................................

7. Signature of the (proposed*) Accountable Manager: .................................................................

8. Place: ................................................

9. Date: ................................................

* Applicable only in the case of a new Part-145 Applicant.
### SCOPE OF PART-145 APPROVAL

<table>
<thead>
<tr>
<th>CLASS</th>
<th>RATING</th>
<th>LIMITATION</th>
<th>BASE</th>
<th>LINE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aircraft</td>
<td>A1 Aeroplanes/airships</td>
<td>Quote aeroplane/airship type</td>
<td></td>
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<tr>
<td></td>
<td>above 5700 kg</td>
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<tr>
<td></td>
<td>A2 Aeroplanes/airships</td>
<td>Quote aeroplane/airship manufacturer or group</td>
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<td></td>
<td>5700 kg and below</td>
<td>or type</td>
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<tr>
<td></td>
<td>A3 Helicopters</td>
<td>Quote helicopter manufacturer or group or type</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>A4 Aircraft other than A1, A2 or A3</td>
<td>Quote aircraft type or group</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engines</td>
<td>B1 Turbine</td>
<td>Quote engine type</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>B2 Piston</td>
<td>Quote engine manufacturer or group or type</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>B3 APU</td>
<td>Quote engine manufacturer or type</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Components</td>
<td>C1 Air Cond &amp; Press</td>
<td>Quote aircraft type or aircraft manufacturer or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>other than</td>
<td>C2 Auto Flight</td>
<td>component or the particular component and or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>complete</td>
<td>C3 Comms and Nav</td>
<td>cross refer to a capability list in the exposition</td>
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<tr>
<td>engines</td>
<td>C4 Doors – Hatches</td>
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<tr>
<td>or APUs</td>
<td>C5 Electrical Power &amp;</td>
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<td></td>
<td>Lights</td>
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<td>C6 Equipment</td>
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<td>C7 Engine – APU</td>
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<td></td>
<td>C8 Flight Controls</td>
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<td>C9 Fuel</td>
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<td></td>
<td>C10 Helicopter – Rotors</td>
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<td>C11 Helicopter – Trans</td>
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<td></td>
<td>C12 Hydraulic power</td>
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<td></td>
<td>C13 Indicating/Recording</td>
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<tr>
<td></td>
<td>Systems</td>
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<tr>
<td></td>
<td>C14 Landing Gear</td>
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<td></td>
<td>C15 Oxygen</td>
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<td></td>
<td>C16 Propellers</td>
<td></td>
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<td></td>
<td>C17 Pneumatic &amp;Vacuum</td>
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<tr>
<td></td>
<td>C18 Protection</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>ice/rain/fire</td>
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<tr>
<td></td>
<td>C19 Windows</td>
<td></td>
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<tr>
<td></td>
<td>C20 Structures</td>
<td></td>
<td></td>
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<td></td>
<td>C21 water Ballast</td>
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<tr>
<td></td>
<td>C22 Propulsion</td>
<td></td>
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<tr>
<td></td>
<td>Augmentation</td>
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<tr>
<td>Specialized</td>
<td>D1 Non-destructive</td>
<td>Quote particular NDT method</td>
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<td></td>
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<tr>
<td>Services</td>
<td>inspection</td>
<td></td>
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</tr>
</tbody>
</table>

With reference to the above scope of approval and item 5 on page 1, please complete in the following example style, but relevant to your organization.

A1       Base & Line Boeing 737-200
A2       Base Piper PA34
A2       Base & Line Cessna Piston Twins
A3       Bell 206/212
B1       CFM 56

There may be any number of types/manufacturers, etc. listed against each rating.
Appendix IV to AMC 145.A.30 (e) and 145.B.10(3)

Appendix IV

Fuel Tank Safety Training

This appendix includes general instructions for providing training on Fuel Tank Safety issues.

A) Effectivity:

- Large aeroplanes with a maximum type certified passenger capacity of 30 or more or a maximum type certified passenger capacity of 30 or more or a maximum certified payload capacity of 7500 lbs (3402 kg) cargo or more, and
- Large aeroplanes which contains CS25 amendment 1 or later in their certification basis.

B) Effected Organizations:

- Part 145 approved maintenance organizations 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.
- Components authorities responsible as per 145.B.30 for the oversight of the Part-145 approved organizations specified in this paragraph B.

C) Persons from affected organizations who should receive training:

**Phase 1 only:**

- The group of persons representing the maintenance management structure of the organization, the quality manager and the staff required to quality monitor the organization.
- Personnel of the competent authorities responsible as per 145.B.30 for the oversight of Part-145 approved maintenance organizations specified in paragraph B.

**Phase 1 + Phase 2 + Continuation training:**

- Personnel of the Part-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 organization. The persons who have already attended the Level 1 Familiarization course in compliance with ED decision 2007/002/R Appendix IV is already in compliance with Phase 1.

**Type:** Should be an awareness course with the principal elements of the subject. It may take the form of a training bulletin, or other self-study or informative session. Signature of the readers is required to ensure that the person has passed the training.

**Level:** It should be a course at the level of familiarization with the principal 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 document showing CDCCL items,
- typical examples of FTS defects.
- some examples pf TC holders repair data.
- some examples of maintenance instructions for inspection.

Phase 2-Detailed training:
Training requirements should be accomplished by 31 May 2013.
The person who have already attended the Level 2 detailed training course from a Part-145 maintenance organization or from a Part-147 training organization are already in compliance with Phase 2 with the exception of continuation training.
Staff should have received Phase 2 training by 31 March 2013 or within 12 months of joining the organization, whichever comes later.

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 components, systems and parts affected by Fuel Tank Safety (FTS) issues. The use of films, pictures and practical examples of FTS is recommended, or
- by attending a distance course (e-learning or computer based training) including a firm 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 raining 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 organization should ensure that the continuation training is required in each two years period. The syllabus of the training programme referred to in 3.4 maintenance organization exposition (MOE) should include the additional syllabus for the continuation training.

The continuation training may be combined with the phase 2 training in a classroom or at distance.

The continuation 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.

**Guidelines for preparing the content of Phase 2 courses.**

The following guidelines should be taken into consideration when the phase 2 training programmes are being established.

a) understanding of the background and the concept of fuel tank safety,

b) how the mechanics can recognize, 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 behavior 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 the, 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 umber of examples of defects and the associated repairs as required by the TC/STC holders maintenance data.

F) Approval of training.

For Part-145 approved organization, the approval of the initial and continuation training programme and the content of the examination can be achieved by the change to the MOE exposition, the necessary changes to the MOE to meet the content of this decision should be made and implemented at the time requested by the DGCA.