AMC 145.10 Applicability

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 powerplant 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 CARC.
(c) Maintenance tasks falling outside these criteria are considered to be Base Maintenance.
(d) Aircraft maintained in accordance with "progressive" type programs 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 to be approved in accordance with 145.10 as an organization located within the CARC means that the management as specified in 145.30 (a) and (b) should be located in the CARC. When the management are located in several CARC, then the approval should be granted by the CARC in whose State the accountable manager is located.

3. Where the organization uses facilities both inside and outside the CARC such as satellite facilities, subcontractors, line stations etc., such facilities may be included in the approval without being identified on the approval certificate subject to the maintenance organization exposition identifying the facilities and containing procedures to control such facilities and the CARC being satisfied that they form an integral part of the approved maintenance organization.

AMC 145.15 Application
In a form and in a manner acceptable to the CARC means that the application should be made on a CARC/AIRAW Form 148 (See Appendix III to this AMC).

AMC 145.20 Terms of approval
The following table identifies the ATA specification 100 chapter for the category C component rating.
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AMC 145.25(a)  Facility requirements.

1. Where the hangar is not owned by the organization, 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 program. 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 minimize 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 145.25(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.

AMC 145.25(d)  Facility requirements

1. Storage facilities for serviceable aircraft components should be clean, well-ventilated and maintained at a constant dry temperature to minimize 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 minimize damage and corrosion during storage.

AMC 145.30(a)  Personnel requirements

With regard to the accountable manager, it is normally intended to mean the chief executive officer of the approved maintenance organization, who by virtue of position has overall (including in particular financial) responsibility for running the organization. The accountable manager may be the accountable manager for more than one organization and is not required to be necessarily knowledgeable on technical matters as the maintenance organization exposition defines the maintenance standards. When the accountable manager is not the chief executive officer the CARC 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 145.30(b)  Personnel requirements

1. Dependent upon the size of the organization, the Part-145 functions may be subdivided under individual managers or combined in any number of ways.

2. The organization 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 organization where any one manager may also be the accountable manager, as determined by the CARC, 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 145.65(b). The base maintenance manager is also responsible for any corrective action resulting from the quality compliance monitoring of 145.65(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 145.65(b) and also responsible for any corrective action resulting from the quality compliance monitoring of 145.65(c).

5. The workshop manager is responsible for ensuring that all work on aircraft components is carried out to the standards specified in 145.65(b) and also responsible for any corrective action resulting from the quality compliance monitoring of 145.65(c).
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6. The quality manager’s responsibility is specified in 145.30(c).

7. Notwithstanding the example sub-paragraphs (2) to (6) titles, the organization may adopt any title for the foregoing managerial positions but should identify to the CARC the titles and persons chosen to carry out these functions.

8. Where an organization 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 1: Certifying staff may report to any of the managers specified depending upon which type of control the approved maintenance organization uses (for example licensed engineers/independent inspection/dual function supervisors, etc.) so long as the quality compliance monitoring staff specified in 145.65(c)(1) remain independent.

NOTE 2: the organization shall submit CARC/AIRAW Form 4 for acceptance of its key personnel (See Appendix I to this AMC).

AMC 145.30(c) Personnel requirements

Monitoring the quality system includes requesting remedial action as necessary by the accountable manager and the nominated persons referred to in 145.30(b).

AMC 145.30(d) Personnel requirements

1. Has sufficient staff means that the organization 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 organization they are subject to compliance with the organization’s procedures specified in the maintenance organization 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 organization approved under Part-145 whereas contracted means the person is employed by another organization and contracted by that organization to the maintenance organization approved under Part-145.

2. The maintenance man-hour plan should take into account any maintenance carried out on aircraft/aircraft components from outside Jordan 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 organization 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 145.25(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 145.25(a) (2).

6. The quality monitoring compliance function man-hours should be sufficient to meet the requirement of 145.65(c) which means taking into account AMC145.65(c). Where quality monitoring staff perform other functions, the time allocated to such functions needs to be taken into account in determining quality monitoring staff numbers.

7. The maintenance man-hour plan should be reviewed at least every 3 months and updated when necessary.

8. Significant deviation from the maintenance man-hour plan should be reported through the departmental manager to the quality manager and the accountable manager for review. Significant deviation means more than a 25% shortfall in available man-hours during a calendar month for any one of the functions specified in 145.30(d).

AMC 145.30(e) Personnel requirements

1. The referenced procedure requires amongst others that planners, mechanics, specialized 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 organization 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 organization. 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) Specialized services staff are able to carry out specialized 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 specialized 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 145.30(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 components ready to release to service and when it should not be released to service.

4. In the case of planners, specialized services staff, supervisors and certifying staff, a knowledge of organization procedures relevant to their particular role in the organization is important. The aforementioned list is not exclusive and may include other categories of personnel.
5. Quality audit staff are able to monitor compliance with Part-145 identifying non-compliance in an effective and timely manner in order that the organization may remain in compliance 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;
   - Specialized 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 Appendix IV to this AMC either as a dedicated course or else integrated within other training. The syllabus may be adjusted to reflect the particular nature of the organization. The syllabus may also be adjusted to meet the particular nature of work for each function within the organization. For example:
   - small organizations 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 5, initial training should be provided to personnel within 6 months of joining the maintenance organization, but temporary staff may need be trained shortly after joining the organization to cope with the duration of employment.

Personnel being recruited from another maintenance organization 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 organization’s approved under Part-145 human factors training standard.

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

Human factors continuation training should be of an appropriate duration in each two-year period in relation to relevant quality audit findings and other internal/external sources of information available to the organization on human errors in maintenance.
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9. Human factors training may be conducted by the maintenance organization itself, or independent trainers or any training organizations acceptable to the CARC.

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

AMC 145.30(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 145.45 for in service aircraft/aircraft components for the purpose of determining the continued fitness of the product to operate safely.

2. Appropriately qualified means to Level 1, 2 or 3 as defined by a National or International standard acceptable to the CARC dependant upon the non-destructive testing function to be carried out.

3. Notwithstanding the fact that Level 3 personnel may be qualified via the acceptable standards to establish and authorize methods, techniques, etc., this does not permit such personnel to deviate from methods and techniques published by the type certificate holder/manufacturer in the form of continued airworthiness data, such as in non-destructive test manuals or service bulletins, unless the manual or service bulletin expressly permits such deviation.

4. All examinations should be conducted by personnel or organizations under the general control of a national board. In the absence of a national aerospace NDT board, the aerospace NDT board of a foreign state acceptable to the CARC may be used, as defined by the CARC.

5. Particular non-destructive test means any one or more of the following; Dyepenetrant, magnetic particle, eddy current, ultrasonic and radiographic methods including X ray and gamma ray.

6. It should be noted that new methods which are not specifically addresses by the National or the International standards such as, but not limited to, thermography and shearography, such methods should be carried out in accordance with the particular equipment manufacturer's recommendations including any training and examination process to ensure competence of the personnel with the process.

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

8. Boroscopying and other techniques such as delamination coin tapping are nondestructive inspections rather than non-destructive testing. Notwithstanding such differentiation, the maintenance organization should establish an exposition procedure accepted by the CARC to ensure that personnel who carry out and interpret such inspections are properly trained and assessed for their competence with the process. Non-destructive inspections, not being considered as NDT by Part-145 are not listed in Appendix 2 under class rating D1.

9. The referenced standards, methods, training and procedures should be specified in the maintenance organization 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 the standards acceptable to the CARC.
AMC 145.30 (g) Personnel requirements

1. For the purpose of this paragraph, "minor scheduled line maintenance" means any minor scheduled inspection/check up to and including a weekly check specified in the operator's approved aircraft maintenance program. For aircraft maintenance programs that do not specify a weekly check, the CARC will determine the most significant check that is considered equivalent to a weekly check.

2. 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 re-fitment 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 inflight 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 CARC as a simple task.
   q. Replacement of any other component as agreed by the CARC 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 145.30 (h)(1) Personnel requirements

The maintenance support staff need not hold a certifying authorization in accordance with 145.35 (b) but the organization may use such appropriately authorized certifying staff to satisfy the requirement.

AMC 145.30(j)(4) Personnel requirements

1. For the issue of a limited certification authorization, the pilot-in-command or flight engineer should hold either a valid air transport pilots license (ATPL), commercial pilot license (CPL) or flight engineer (F/EL) license in accordance with JCAR 61 on the aircraft type. In addition, the limited certification authorization is subject to the maintenance organization exposition containing procedures to address the personnel requirements of 145.30 (e) and associated AMC.

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 organization exposition and be accepted by the CARC.

2. Typical tasks that may be certified and/or carried out by the pilot-in-command 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 re-fitment of quick access inspection panels.

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

(d) Any check / replacement involving simple techniques consistent with this AMC and as agreed by the CARC.

3. Holders of a valid Jordanian Flight Engineer license, or a national equivalent acceptable to the CARC, 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)(a) to (d), 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 internal and external lights, filaments and flash tubes.

(e) Replacement of passenger and cabin crew seats, seat belts and harnesses.
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<td>(f)</td>
<td>Simple replacement of overhead storage compartment doors and cabin furnishing items.</td>
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<td>Replacement of static wicks.</td>
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<tr>
<td>(h)</td>
<td>Replacement of aircraft main and APU aircraft batteries.</td>
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<tr>
<td>(i)</td>
<td>Replacement of inflight entertainment system components but excluding public address.</td>
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<tr>
<td>(j)</td>
<td>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 CARC as a simple task.</td>
</tr>
<tr>
<td>(k)</td>
<td>Re-setting of tripped circuit breakers under the guidance of maintenance control.</td>
</tr>
<tr>
<td>(l)</td>
<td>Any other simple task as agreed by the CARC for a particular aircraft type only where it is agreed that the task is simple.</td>
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4. The authorization should have a finite life of twelve months subject to satisfactory re-current training on the applicable aircraft type.

**AMC 145.30(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 145.30(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 co-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 145.30(j)(5)(ii) Personnel requirements

This paragraph addresses staff not employed by the maintenance organization who meet the requirements of 145.30(j)(5). In addition to the items listed in AMC 145.30(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 145.35(a) Certifying staff and 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 145.35(b) Certifying staff and support staff

The organization issues the certification authorization when satisfied that compliance has been established with the appropriate paragraphs of Part-145 and Part-65. In granting the certification authorization, the maintenance organization approved under Part-145 needs to be satisfied that the person holds a valid Part-65 aircraft maintenance license and may need to confirm such fact with the CARC regarding the issuance of the license.

AMC 145.35(d) Certifying staff and support staff

1. Continuation training is a two way process to ensure that certifying staff remain current in terms of procedures, human factors and technical knowledge and that the 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 quality audit of such procedures.

3. Continuation training should be of sufficient duration in each 2 year period to meet the intent of 145.35(d) and may be split into a number of separate elements.145.35(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 engines 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 continuation training course in approved training organization, 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 training organization when such details may be specified under the approval and cross referenced in the maintenance organization exposition.

AMC 145.35(e) Certifying staff and support staff

The program 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 145.35 (j).

AMC 145.35(f) Certifying staff and support staff

1. As stated in 145.35 (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 maybe 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 difference training.

AMC 145.35 (j) Certifying staff and support staff

1. The following minimum information as applicable should be kept on record in respect of each certifying person or support person:

   (a) Name
   (b) Date of Birth
   (c) Basic Training
   (d) Type Training
   (e) Continuation Training
   (f) Experience
   (g) Qualifications relevant to the approval
   (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 CARC is an authorized person when investigating the records system for initial and continued approval or when the CARC has a cause to doubt the competence of a particular person.
AMC 145.40(a) Equipment, tools and material

Once the applicant for approval has determined the intended scope of approval for consideration by the CARC, 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 145.40(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.

AMC 145.42(a) Acceptance of components

An equivalent document to a CARC/AIRAW Form 227 may be:

1. a JAA Form One issued prior to 28 September 2004 by a JAR 145 organization approved by a JAA full European competent authority;

2. in the case of new aircraft components that were released from manufacturing prior to the EASA Part-21 compliance date, the component should be accompanied by a JAA Form One issued by a JAR 21 organization approved by a JAA Full Member Authority and within the JAA mutual recognition system;

3. a JAA Form One issued prior to 28 September 2005 by a production organization approved by a European competent authority in accordance with its national regulations;

4. EASA Form 1.

5. FAA Form 8130-3.

6. Canada TCA Form 24-0078.

7. Airworthiness Tags recognized by the Brazilian CAA Form for components installed on aircraft type certificated by the Brazilian authority.

AMC 145.42(b) Acceptance of components

The CARC/AIRAW Form 227 identifies the eligibility and status of an aircraft component. Block 13 "Remarks" on the form 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.

AMC 145.42(c) Acceptance of components

1. The agreement by the CARC 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 CARC 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 CARC/AIRAW Form 227. 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 can not 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.
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(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 CARC.

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 CARC.

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 CARC 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 145.42(d) Acceptance of components

1. The following types of components should typically be classified as unsalvageable:

(a) Components with non-repairable defects, whether visible or not to the naked eye;

(b) Components that do not meet design specifications, and cannot be brought into conformity with such specifications;

(c) Components subjected to unacceptable modification or rework that is irreversible;

(d) Certified life-limited parts that have reached or exceeded their certified life limits, or have missing or incomplete records;

(e) Components that cannot be returned to airworthy condition due to exposure to extreme forces, heat or adverse environment;

(f) Components for which conformity with an applicable airworthiness directive cannot be accomplished;

(g) Components for which maintenance records and/or traceability to the manufacturer can not be retrieved.
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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 145.45(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 regulations and associated AMC, approval specifications and any guidance material issued by the CARC, all applicable national maintenance requirements and notices which have not been superseded by a CARC requirement, procedure or directive and all applicable CARC’s airworthiness directives plus any non-national airworthiness directive supplied by a contracted non-Jordanian operator or customer.

2. In addition to subparagraph (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 program, 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 datasheet and any other specific document issued by the type certificate or supplementary type certificate holder as maintenance data.

3. In addition to subparagraph (1), an 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 inspection (NDI) 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 subparagraph (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 subparagraphs (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 145.45(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 145.45(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.

AMC 145.45 (f)  Maintenance data

1. '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.

2. 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 145.45 (g)  Maintenance data

1. To keep data up to date a procedure should be set up to monitor the amendment status of all data and maintain a check that all amendments are being received by being a subscriber to any document amendment scheme.
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2. 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.

3. Where computer systems are used, the number of computer terminals should be sufficient in relation to the size of the work program 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 145.47(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 functioning 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),
   - coordination with internal and external suppliers, etc.
   - scheduling of safety-critical tasks during periods when staff are likely to be most alert.

AMC 145.47(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 145.47(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 145.50(a) Certification of maintenance

1. A component which has been maintained off the aircraft needs the issue of 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. In the case of base maintenance this takes the form of a separate task sign off for the maintenance and installation tasks.

1.1 When an organization maintains a component for use by the organization, a CARC/AIRAW Form 227 may not be necessary depending upon the organization's internal release procedures defined in the maintenance organization exposition.

1.2 “Hazard seriously 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.

2. In the case of the issue of CARC/AIRAW Form 227 for components in storage prior to Part-145 and Part-21 and not released on an EASA Form 1 or equivalent in accordance with 145.42(a) or removed serviceable from a serviceable aircraft or an aircraft which have been withdrawn from service the following applies.

2.1 An appropriately rated maintenance organization approved under Part-145 may issue a CARC/AIRAW Form 227 as detailed in this AMC subparagraph (2.4) to (2.8), as appropriate, in accordance with procedures detailed in the exposition as approved by the CARC. 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 CARC/AIRAW Form 227 under this paragraph.

2.2 For the purposes of this paragraph (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.
2.3 A CARC/AIRAW Form 227 issued in accordance with this paragraph (2) should be issued by signing in block 20 and stating "Inspected" in block 12. In addition, block 13 should specify:

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

2.3.2 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.

2.3.3 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.

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

2.3.5 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 13. The maintenance history record and acceptance test report or statement, if applicable, should be attached to the CARC/AIRAW Form 227.

2.4 New / unused aircraft components

2.4.1 Any unused aircraft component in storage without a CARC/AIRAW Form 227 up to the effective date(s) for Part-21 that was manufactured by an organization acceptable to the CARC at the time may be issued a CARC/AIRAW Form 227 by an appropriately rated maintenance organization approved under Part-145. The CARC/AIRAW Form 227 should be issued in accordance with the following subparagraphs which should be included in a procedure within the maintenance organization manual.

Note 1: It should be understood that the release of a stored but unused aircraft component in accordance with this paragraph represents a maintenance release under Part-145 and not a production release under Part-21. It is not intended to bypass the production release procedure agreed by the CARC 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.

2.4.2 If it is not possible to establish satisfactory compliance with all applicable conditions specified in subparagraph 2.4.1 (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 CARC/AIRAW Form 227 may be issued stating what was carried out and the reference of the manufacturers maintenance instructions included.

2.5 Used aircraft components removed from a serviceable aircraft.

2.5.1 Serviceable aircraft components removed from a CARC registered aircraft may be issued a CARC/AIRAW Form 227 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 instructions.

(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 CARC/AIRAW Form 227 may be issued in accordance with this paragraph 2.5 if it is suspected that the aircraft component has been subjected to extremes of stress, temperatures or immersion which could effect its operation.

(e) A maintenance history record should be available for all used 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 2.5.1, a CARC/AIRAW Form 227 may be issued and should contain the information as specified in paragraph 2.3 including the aircraft from which the aircraft component was removed.

2.5.2 Serviceable aircraft components removed from a non-Jordanian registered aircraft may only be issued a CARC/AIRAW Form 227 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 CARC/AIRAW Form 227 may be issued and should contain the information as specified in paragraph 2.3 including the aircraft from which the aircraft component was removed.
2.6 Used aircraft components removed from an aircraft withdrawn from service. Serviceable aircraft components removed from a Jordanian registered aircraft withdrawn from service may be issued a CARC/AIRAW Form 227 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 CARC.

(b) To be eligible for installation components removed from such aircraft may be issued with a CARC/AIRAW Form 227 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 2.4 and 2.5 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 program 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.

2.7 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:
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(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 145.50.

2.8 Used aircraft components removed from an aircraft involved in an accident or incident.

Such components should only be issued with a CARC/AIRAW Form 227 when processed in accordance with paragraph 2.6 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 13.

AMC145.50(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'.

2. The certificate of release to service should relate to the task specified in the manufacturer's or operator's instruction or the aircraft maintenance program which itself may cross-refer to a manufacturer's/operator's instruction in a maintenance manual, service bulletin, etc.

3. 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.

4. When extensive maintenance has been carried out, it is acceptable for the certificate of release to service to summarize the maintenance so long as there is a unique cross-reference to the work-pack containing full details of maintenance carried out. Dimensional information should be retained in the work-pack record.

5. The person issuing the certificate of release to service should use his normal signature except in the case where a computer release to service system is used. In this latter case, the CARC will need to be satisfied that only the particular person can electronically issue the release to service. One such method of compliance is the use of a magnetic or optical personal card in conjunction with a personal identity number (PIN) known only to the individual which is keyed into the computer. A certification stamp is optional.

AMC145.50(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 CARC and to allow items removed from one aircraft/aircraft component to be fitted to another aircraft/aircraft component.
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The certificate referenced CARC/AIRAW Form 227 is called the authorized release certificate. 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. The certificate is not a delivery or shipping note.

It can only be issued by organizations approved by the CARC within the scope of the approval. The certificate may be used as a rotatable tag by utilizing 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 rotatable tags and also supply a copy of the certificate.

Under no circumstances may a certificate be issued for any item when it is known that the item has a defect considered a serious hazard to flight safety.

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. As mentioned for Block 13, a clear statement of limitation should be endorsed in Block 13.

NOTE: Aircraft may not be released using the certificate.

AMC 145.50(e)  Certification of maintenance

1. Being unable to establish full compliance with 145.50(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 145.50(e) requires such operator to be informed in the case where full compliance with 145.50(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 CARC. In case of doubt concerning such a decision of the operator, the approved maintenance organization should inform the CARC of such doubt, before issue of the certificate of release to service. This will allow the CARC to investigate the matter with the State of Registry or the State of the Operator as appropriate.

3. The procedure should draw attention to the fact that 145.50 (a) does not normally permit the issue of a certificate of release to service in the case of non-compliance and should state what action the mechanic, supervisor and certifying staff should take to bring the matter to the attention of the relevant department or person responsible for technical coordination with the aircraft operator so that the issue maybe discussed and resolved with the aircraft operator. In addition, the appropriate person(s) as specified in 145.30(b) should be kept informed in writing of such possible non-compliance situations and this should be included in the procedure.
AMC 145.50(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 145.55(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 145.60(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 cooperating 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 145.65(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:

− Recognize safety as a prime consideration at all times
− Apply Human factors principles
− Encourage personnel to report maintenance related errors/incidents
− Recognize that compliance with procedures, quality standards, safety standards and regulations is the duty of all personnel
− Recognize the need for all personnel to cooperate with the quality auditors.
AMC 145.65(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 145.65(b)(2)  Safety and quality policy, maintenance procedures and quality system

Specialized services includes any specialized activity, such as, but not limited to non-destructive testing requiring particular skills and/or qualification. 145.30(f) covers the qualification of personnel but, in addition, there is a need to establish maintenance procedures that cover the control of any specialized process.

AMC 145.65(b)(3)  Safety and quality policy, maintenance procedures and quality system

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

Another example is the case of removal and re-fitment 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 145.60,
− CARC 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, etc.) 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 personnel formally authorized the maintenance organization approved under Part-145 to sign-off tasks. “Authorized personnel” are not necessarily “certifying staff”.

AMC 145.65 (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 145.50(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 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 145.65 (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 145.75 (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 CARC may agree to increase any of the audit time periods specified in this AMC 145.65 (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 CARC.

AMC 145.65(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.

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3. The independent quality audit reports referenced in AMC 145.65(c)(1) sub-paragraph (10) should be sent to the relevant department(s) for rectification action giving target rectification dates. Rectification dates should be discussed with such department(s) before the quality department or nominated quality auditor confirms such dates in the report. The relevant department(s) are required by 145.65(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 145.65(c)(1) sub-paragraph (9) audit time periods, whichever is the longer.

AMC 145.70(a) Maintenance organization exposition

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

The information specified in 145.70 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 in the exposition the subject matter can be found.

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 CARC in a form acceptable to the CARC. 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 ORGANIZATION (Jordanian Operators)

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

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 CARC 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 program 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 CARC/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 taxiing procedures.
2.25 Procedures to detect and rectify maintenance errors.
2.26 Shift/task handover procedures
2.27 Procedures for notification of maintenance data inaccuracies and ambiguities to the type certificate holder.
2.28 Production planning procedures

PART 2 ADDITIONAL LINE MAINTENANCE PROCEDURES
L2.1 Line maintenance control of aircraft components, tools, equipment etc.
L2.2 Line maintenance procedures related to servicing/fuelling/de-icing etc.
L2.3 Line maintenance control of defects and repetitive defects.
L2.4 Line procedure for completion of technical log.
L2.5 Line procedure for pooled parts and loan parts.
L2.6 Line procedure for return of defective parts removed from aircraft.
L2.7 Line procedure 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 support staff qualification and training procedures.
3.5 Certifying staff and support staff records.
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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 specialized activities such as NDT welding, etc.
3.12 Control of manufacturers' and other maintenance working teams.
3.13 Human factors training procedure
3.14 Competence assessment of personnel.

PART 4
4.1 Contracted operators.
4.2 Operator procedures and paperwork.
4.3 Operator record completion.

PART 5
Sample of documents.
5.2 List of Subcontractors as per 145.75 (b).
5.3 List of Line maintenance locations as per 145.75 (d).
5.4 List of contracted organizations as per 145.70(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 FAA SUPPLEMENTARY PROCEDURES FOR A FAR PART-145 REPAIR STATION
This section is reserved for those maintenance organizations approved under Part-145 who are also certificated as a FAA FAR Part-145 repair station.
The content of this Part reflects the differences between Part-145 and FAR Parts 43/145 which will change over time as harmonization and experience with the FAA progresses.
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FAA Advisory Circular 145-7A Appendix 2 contains details of the Part 7 contents.

PART 8 TRANSPORT CANADA CIVIL AVIATION (TCCA) SUPPLEMENTARY PROCEDURES FOR A TCCA AM573 MAINTENANCE ORGANIZATION

This section reserved for those Part-145 approved maintenance organizations who are also approved as a TCCA AM 573 maintenance organization.

The content of this Part reflects the difference between Part-145 and AM 573 and will change over time as harmonization and experience with Transport Canada Civil Aviation progresses.

TCCA Aircraft Maintenance and Manufacturing Staff Instruction MSI 10 Appendix A contains details of the Part 8 contents.

AMC 145.75(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.

NOTE: For those organizations approved under Part-145, that are also certificated by the FAA under FAR Part-145, it should be noted that FAR Part-145 is more restrictive in respect of maintenance activities that can be contracted or sub-contracted to another maintenance organization. It is therefore recommended that any listing of contracted or sub-contracted maintenance organizations should identify which meet the Part-145 criteria and which meet the FAR Part-145 criteria.

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 CARC in such cases.

(b) To permit the acceptance of aircraft maintenance up to but not including abase maintenance check as specified in 145.75(b) by organizations not appropriately approved under Part-145 when it is unrealistic to expect direct approval by the CARC. The CARC will determine when it is unrealistic but in general it is considered unrealistic if only one or two organizations intend to use the sub-contract organization.
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(c) To permit the acceptance of component maintenance.

(d) To permit the acceptance of engine maintenance up to but not including workshop maintenance check or overhaul of an engine or engine module as specified in 145.75(b) by organizations not appropriately approved under Part-145 when it is unrealistic to expect direct approval by the CARC. The determination of unrealistic is as per sub-paragraph (b).

3.2 When maintenance is carried out under the sub-contract control system it means that for the duration of such maintenance, the Part-145 approval has been temporarily extended to include the subcontractor. It therefore follows that those parts of the subcontractor'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 subcontractor 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 particular product. Examples could be specialist welding, electro-plating, painting, etc. To authorize the use of such subcontractors, the CARC 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 subcontract control of another organization approved under Part-145.

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

4. Principal part-145 procedures for the control of subcontractors not approved under part-145.

4.1 A pre audit procedure should be established whereby the maintenance organization's subcontract control section, which may also be the 145.65(b) quality system independent audit section, should audit a prospective subcontractor to determine whether those services of the subcontractor that it wishes to use meets the intent of Part-145.

4.2 The organization approved under Part-145 needs to assess to what extent it will use the subcontractor'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 subcontractor as long as such tools, equipment and personnel meet the requirement of Part-145. In the case of subcontractors 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 subcontracted 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 subcontractor. 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 subcontractor's staff.

4.4 The certificate of release to service may be issued either at the subcontractor or at the organization facility by staff issued a certification authorization in accordance with 145.30 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 subcontractor who meets the approved maintenance organization certifying staff standard which itself is approved by the CARC via the maintenance organization exposition. The certificate of release to service and the CARC/AIRAW Form 227 will always be issued under the maintenance organization approval reference.

4.5 The subcontract 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 subcontractors 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 subcontract control section and sample audit subcontractors 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 subcontractor should contain a provision for the CARC to have right of access to the subcontractor.

**AMC 145.80 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 CARC 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.

**AMC 145.85 Changes to the organization**

The primary purpose of this paragraph is to enable the organization to remain approved if agreed by the CARC during negotiations about any of the specified changes. Without this paragraph, the approval would automatically be suspended in all cases.

**AMC 145.95 (a) (b) Findings**

In practical terms, a level (1) finding is where a CARC 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 145.90(2) after two written requests.
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− If the calibration control of equipment as specified in 145.40(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 CARC 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 a CARC 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 145.95 (e) 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 CARC notifying the accountable manager. In exceptional circumstances and subject to a realistic action plan being in place, the CARC 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 CARC to ensure that further maintenance and re-certification of all affected products is accomplished, dependent upon the nature of the finding.
Appendix I

CIVIL AVIATION REGULATORY COMMISSION

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 CARC.

For CARC use only

Name and signature of the CARC’s inspector accepting this person:

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

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

CARC/AIRAW Form 4
Appendix II

Part-145 APPROVAL RECOMMENDATION REPORT CARC/AIRAW Form 268

<table>
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<th>Part 1: General</th>
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<tr>
<td>Name of Organization:</td>
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<tr>
<td>Approval No.:</td>
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<tr>
<td>CARC's office:</td>
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<tr>
<td>Date of CARC/AIRAW Form 268 part 1 completion:</td>
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Part 2: Part-145 Compliance Audit Review

The five columns may be labeled & used as necessary to record the approval class &/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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CARC's inspector:  
Signature(s):  

CARC's office:  

Date of CARC/AIRAW Form 268 part 2 completion:
### Part-145 APPROVAL RECOMMENDATION REPORT

**PART 3: Compliance with 145.70 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.

<table>
<thead>
<tr>
<th>Part 1</th>
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<td>1.6</td>
<td>List of Certifying staff (Note: a separate document may be referenced).</td>
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<tr>
<td>1.7</td>
<td>List of Certifying staff (Note: a separate document may be referenced).</td>
</tr>
<tr>
<td>1.8</td>
<td>General description of the facilities at each address intended to be approved.</td>
</tr>
<tr>
<td>1.9</td>
<td>Organization's intended scope of work.</td>
</tr>
<tr>
<td>1.10</td>
<td>Notification procedure to the competent authority regarding changes to the organization's activities / approval / location / personnel.</td>
</tr>
<tr>
<td>1.11</td>
<td>Exposition amendment procedures.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Part 2</th>
<th>Maintenance Procedures</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1</td>
<td>Supplier evaluation and subcontract control procedure.</td>
</tr>
<tr>
<td>2.2</td>
<td>Acceptance/inspection of aircraft components and material from outside contractors.</td>
</tr>
<tr>
<td>2.3</td>
<td>Storage, tagging, and release of aircraft components and material to aircraft maintenance.</td>
</tr>
<tr>
<td>2.4</td>
<td>Acceptance of tools and equipment.</td>
</tr>
<tr>
<td>2.5</td>
<td>Calibration of tools and equipment.</td>
</tr>
<tr>
<td>2.6</td>
<td>Use of tooling and equipment by staff (including alternate tools).</td>
</tr>
<tr>
<td>2.7</td>
<td>Cleanliness standards of maintenance facilities.</td>
</tr>
<tr>
<td>2.8</td>
<td>Maintenance instructions and relationship to aircraft/aircraft component manufacturers' instructions including updating and availability to staff.</td>
</tr>
<tr>
<td>2.9</td>
<td>Repair procedure.</td>
</tr>
<tr>
<td>2.10</td>
<td>Aircraft maintenance program compliance.</td>
</tr>
<tr>
<td>2.11</td>
<td>Airworthiness Directives procedure.</td>
</tr>
<tr>
<td>2.12</td>
<td>Optional modification procedure.</td>
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</tr>
<tr>
<td>2.13</td>
<td>Maintenance documentation in use and completion of same.</td>
</tr>
<tr>
<td>2.14</td>
<td>Technical record control.</td>
</tr>
<tr>
<td>2.15</td>
<td>Rectification of defects arising during base maintenance.</td>
</tr>
<tr>
<td>2.16</td>
<td>Release to service procedure.</td>
</tr>
<tr>
<td>2.17</td>
<td>Records for the operator.</td>
</tr>
<tr>
<td>2.18</td>
<td>Reporting of defects to the competent authority /Operator/Manufacturer.</td>
</tr>
<tr>
<td>2.19</td>
<td>Return of defective aircraft components to store.</td>
</tr>
<tr>
<td>2.20</td>
<td>Defective components to outside contractors.</td>
</tr>
<tr>
<td>2.21</td>
<td>Control of computer maintenance record systems.</td>
</tr>
<tr>
<td>2.22</td>
<td>Control of man-hour planning versus scheduled maintenance work.</td>
</tr>
<tr>
<td>2.23</td>
<td>Control of critical tasks.</td>
</tr>
<tr>
<td>2.24</td>
<td>Reference to specific maintenance procedures.</td>
</tr>
<tr>
<td>2.25</td>
<td>Procedures to detect and rectify maintenance errors.</td>
</tr>
<tr>
<td>2.26</td>
<td>Shift / task handover procedures.</td>
</tr>
<tr>
<td>2.27</td>
<td>Procedures for notification of maintenance data inaccuracies and ambiguities to the type certificate holder.</td>
</tr>
<tr>
<td>2.28</td>
<td>Production planning procedures.</td>
</tr>
<tr>
<td>Part L2</td>
<td>Additional Line Maintenance Procedures</td>
</tr>
<tr>
<td>L2.1</td>
<td>Line maintenance control of aircraft components, tools, equipment, etc.</td>
</tr>
<tr>
<td>L2.2</td>
<td>Line maintenance procedures related to servicing/fuelling/de-icing, etc.</td>
</tr>
<tr>
<td>L2.3</td>
<td>Line maintenance control of defects and repetitive defects.</td>
</tr>
<tr>
<td>L2.4</td>
<td>Line procedure for completion of technical log.</td>
</tr>
<tr>
<td>L2.5</td>
<td>Line procedure for pooled parts and loan parts.</td>
</tr>
<tr>
<td>L2.6</td>
<td>Line procedure for return of defective parts removed from aircraft.</td>
</tr>
<tr>
<td>L2.7</td>
<td>Line procedure for control of critical tasks</td>
</tr>
<tr>
<td>Part 3</td>
<td>Quality System Procedures</td>
</tr>
<tr>
<td>3.1</td>
<td>Quality audit of organization's procedures.</td>
</tr>
<tr>
<td>3.2</td>
<td>Quality audit of aircraft.</td>
</tr>
<tr>
<td>3.3</td>
<td>Quality audit remedial action procedure.</td>
</tr>
<tr>
<td>3.4</td>
<td>Certifying staff qualification and training procedure.</td>
</tr>
<tr>
<td>3.5</td>
<td>Certifying staff records.</td>
</tr>
<tr>
<td>3.6</td>
<td>Quality audit personnel.</td>
</tr>
</tbody>
</table>
### Acceptable Means of Compliance (AMC)  
**Part-145**

|   |  
|---|---|
| 3.7 | Qualifying inspectors. |
| 3.8 | Qualifying mechanics. |
| 3.9 | Aircraft / aircraft component maintenance tasks exemption process control. |
| 3.10 | Concession control for deviation from organization's procedures. etc. |
| 3.11 | Qualification procedure for specialized 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 Quality System Procedures

|   |  
|---|---|
| 4.1 | Contracted operators. |
| 4.2 | Operator's 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. |

---

**MOE Reference:**  
**MOE Amendment:**

**CARC's inspector(s):**  
**Signature(s):**

**CARC's office:**

**Date of CARC/AIRAW Form 268 part 3 completion**
## Part-145 APPROVAL RECOMMENDATION REPORT

### CARC/AIRAW Form 268

### 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) Findings</th>
<th>Level</th>
<th>Corrective action</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td>Date due</td>
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</tbody>
</table>

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**Acceptable Means of Compliance(AMC)**

**Part-145**

**AMENDMENT NO. Original**

**EFFECTIVE DATE: Feb., 2009**

**PAGE:AMC-45**
Part-145 APPROVAL RECOMMENDATION REPORT  CARC/AIRAW Form 268

Part 5: Part-145 Approval or continued approval or change recommendation*

Name of organization:

Approval No.:

Audit reference(s):

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 CARC/AIRAW Form 127 referenced …………………………….. be continued.

Name of recommending CARC's inspector:

Signature of CARC's Inspector:

CARC's office:

Date of recommendation:

CARC/AIRAW Form 268 review (quality check) : Date:
### Application for Part-145:

- [ ] Initial grant
- [ ] Change

1. Registered name of applicant:
2. Trading name (if different):
3. Addresses requiring approval:
4. Tel. ............................................... Fax ..................................... E-mail ..............................
5. Scope of approval relevant to this application: see page 2 for possibilities in the case of a Subpart F approval:

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

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

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

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

Note (1): A note giving the address(es) to which the Form(s) should be sent.

Note (2): An optional note to give information on any fees payable.
### SCOPE OF PART-145 APPROVAL AVAILABLE

<table>
<thead>
<tr>
<th>CLASS</th>
<th>RATING</th>
<th>LIMITATION</th>
<th>BASE LINE</th>
<th>BASE LINE</th>
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<tbody>
<tr>
<td>AIRCRAFT</td>
<td>A1 Airplanes/airships</td>
<td>A3 Helicopters</td>
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<tr>
<td></td>
<td>above 5700 Kg</td>
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<tr>
<td></td>
<td>A2 Airplanes/airships</td>
<td>Quote airplane/airship manufacturer or group or type</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>5700 Kg and below</td>
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<tr>
<td></td>
<td>A3 Helicopters</td>
<td>Quote helicopter manufacturer or group or type</td>
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<tr>
<td>ENGINES</td>
<td>B1 Turbine</td>
<td>Quote engine type</td>
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<tr>
<td></td>
<td>B2 Piston</td>
<td>Quote engine manufacturer or group or type</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>B3 APU</td>
<td>Quote engine manufacturer or type</td>
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<tr>
<td>COMPONENTS</td>
<td>C1 Air Cond &amp; Press</td>
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<tr>
<td>OTHER THAN</td>
<td>C2 Auto Flight</td>
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<tr>
<td>COMPLETE</td>
<td>C3 Comms and Nav</td>
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<tr>
<td>ENGINES OR</td>
<td>C4 Doors – Hatches</td>
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<tr>
<td>APUs</td>
<td>C5 Electrical Power</td>
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<td></td>
<td>C6 Equipment</td>
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<td></td>
<td>C7 Engine – APU</td>
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<td></td>
<td>C8 Flight Controls</td>
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<td>C9 Fuel – Airframe</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</td>
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<td></td>
<td>C13 Instruments</td>
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<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>
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<td></td>
<td>C17 Pneumatic</td>
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<td></td>
<td>C18 Protection ice/rain/fire</td>
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<tr>
<td></td>
<td>C19 Windows</td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>C20 Structures</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

**SPECIALIZES**

| D1 Non destructive | Quote particular NDT method |

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 C4 Boeing 747
- B1 CFM 56 D1 Eddy Current

There may be any number of types/manufacturers, etc. listed against each rating.
The training syllabus below identifies the topics and subtopics to be addressed during the human factors training.

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

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

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

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

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

1. General / Introduction to human factors
   1.1 Need to address human factors
   1.2 Statistics
   1.3 Incidents

2. Safety Culture / Organizational factors

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

4. Human performance & limitations
   4.1 Vision
   4.2 Hearing
   4.3 Information-processing
   4.4 Attention and perception
   4.5 Situational awareness
   4.6 Memory
   4.7 Claustrophobia and physical access
   4.8 Motivation
   4.9 Fitness/Health
   4.10 Stress
   4.11 Workload management
   4.12 Fatigue
   4.13 Alcohol, medication, drugs
   4.14 Physical work
   4.15 Repetitive tasks / complacency
5. Environment
   5.1 Peer pressure
   5.2 Stressors
   5.3 Time pressure and deadlines
   5.4 Workload
   5.5 Shift Work
   5.6 Noise and fumes
   5.7 Illumination
   5.8 Climate and temperature
   5.9 Motion and vibration
   5.10 Complex systems
   5.11 Hazards in the workplace
   5.12 Lack of manpower
   5.13 Distractions and interruptions

6. Procedures, information, tools and practices
   6.1 Visual Inspection
   6.2 Work logging and recording
   6.3 Procedure – practice / mismatch / norms
   6.5 Technical documentation – access and quality

7. Communication
   7.1 Shift / Task handover
   7.2 Dissemination of information
   7.3 Cultural differences

8. Teamwork
   8.1 Responsibility
   8.2 Management, supervision and leadership
   8.3 Decision making

9. Professionalism and integrity
   9.1 Keeping up to date; currency
   9.2 Error provoking behavior
   9.3 Assertiveness

10. Organization's HF program
    10.1 Reporting errors
    10.2 Disciplinary policy
    10.3 Error investigation
    10.4 Action to address problems
    10.5 Feedback