



CAAC

ADVISORY CIRCULARS

Number: AC-145-06R1

Issue Date: 22, OCT, 2010

Aircraft Line Maintenance

Flight Standard Department

Civil Aviation Administration of China

ADVISORY

CIRCULAR

No.: AC-145-06R1

Issue Date: 2010-10-22

Approved by: DG of FSD of CAAC

Title: Aircraft Line Maintenance

1. Basis and Purpose:

This AC is formulated in accordance with CCAR145 *Civil Aircraft Maintenance Organization Certification Regulations*. The purpose of this AC is to provide guidance on how to meet CCAR-145 requirements in cases that domestic air carrier's maintenance organizations perform line maintenance at stations other than its base (hereafter referred as outstation) for its own aircraft, and domestic independent maintenance organizations or foreign/regional maintenance organizations apply for line maintenance certificates under CCAR145.

2. Applicability:

This AC is applicable to those maintenance organizations applying for aircraft line maintenance certificate.

3. Cancellation:

Standby.

4. Description:

Line maintenance work of domestic air carriers at any stations must be performed by a CCAR-145 certificated maintenance organization. Domestic air carriers may apply for outstation line maintenance certificates based on their main bases having achieved CCAR-145 line maintenance approval, and they are allowed to adopt equivalent safety actions as CCAR-145.17 described in case of implementing responsibility in written form.

Maintenance organizations of domestic air carriers shall be regarded as independent line maintenance organizations when performing line maintenance for aircraft other than its property.

Besides submitting application to CAAC per AC-145-01 *Application Guidance for Domestic Maintenance Organization Certificate*, the domestic independent line maintenance organizations shall meet relevant requirements of this AC as well.

Maintenance organizations of foreign/regional air carriers mean those maintenance organizations established by the foreign/regional air carriers and providing maintenance service to aircraft or aircraft components of these carriers mainly. The application for line maintenance items may be submitted to CAAC in case of meeting certain preconditions. Besides meeting requirements of AC-145-02 *Application Guidance for Foreign & Regional Maintenance Organization Certificate*, the applicant shall meet relevant requirements of this AC as well

5. Applying for line maintenance by domestic air carrier's maintenance organizations

5.1 Application

The application shall be submitted to the Regional Administration of CAAC that has jurisdiction over the air carrier, if the air carrier's maintenance organization intends to apply for line maintenance at outstations to the aircrafts under jurisdiction. The following documentations shall be submitted:

- (1) CAAC MOC Application Form (F145-1);
- (2) Maintenance agreement and other renting/borrowing agreement (if applicable);
- (3) Maintenance Management Manual including line maintenance management requirements (line maintenance management requirements could be incorporated into an independent manual);
- (4) Line maintenance Capability List;
- (5) Compliance statement of the regulations, including relevant supporting document.

5.2 Responsibility of air carrier's maintenance organization

Air carrier's maintenance organization shall assume overall responsibility that the line maintenance work is in compliance with CCAR-145 requirements and the approved standards.

5.3 Privilege of air carrier's maintenance organization

In case of meeting requirements of the regulations, air carrier's maintenance organization could assign specific personnel or select any local organization or individuals at outstations to perform line maintenance or release to service for the air carrier's aircraft, the local housing & facility, tools & equipment and material at outstations may be rented or used under the agreement.

5.4 Airworthiness data

As for airworthiness data provided by aircraft manufacturers, besides supply on site at outstations, the air carrier's maintenance organizations may keep the frequently-used airworthiness data on board or by other means acceptable to the

authority. Those seldom-used airworthiness data could be provided by fax or e-mail as demand, but the relevant procedure shall be described in the Maintenance Management Manual with responsibility for the validity of the airworthiness data. These data includes, but not limited to, the following according to applicability.

- (1) AMM
- (2) MEL and CDL
- (3) FIM
- (4) WDM
- (5) IPC

Effective copies of line maintenance manuals or other maintenance guidance compiled by air carrier's maintenance organizations shall be available on site at outstations.

5.5 Personnel

As for line maintenance or releasing personnel at outstations, air carrier's maintenance organization could employ personnel from local or other companies besides those long-stationed from its main base or those following flights. However the organization shall explain this in outstation Maintenance Management Manual and takes responsibility for personnel qualification.

5.6 Quality system

Air carrier's maintenance organization shall clarify the responsible units and management duties of outstation maintenance management. These duties may be assigned to different units, but the overlapped ones shall be avoided.

No matter what kinds of personnel employed by air carrier's maintenance organization, the requirements of personnel involved in the line maintenance at outstations shall be clarified and the personnel position qualification evaluation system shall be set up. Authorizations to those qualified personnel shall be given in written as well. Authorization of maintenance personnel could be signed by quality manager or the personnel authorized by him/her; authorization of releasing personnel could be signed by accountable manager or the authorized quality manager. The authorization records of outstation personnel shall be archived by the quality department; corresponding authorization copies shall be kept at outstation work site. The authorization record of station releasing personnel shall be kept by the quality manager; corresponding authorization copies shall be kept at outstation work site.

Air carrier's maintenance organization shall set up outstation work procedures, which shall include how the outstation is managed by main base of air carrier's maintenance organization and the concrete line maintenance work procedures. In cases that different outstations have different maintenance and management modes, the separate work procedures with clear applicability shall be established.

Establishment and revision of the work procedures shall be approved by the Accountable Manager or the Quality Manager being authorized.

5.7 Quality self-audit

Line maintenance and management at outstations shall be covered by quality self-audit system of air carrier's maintenance organization. The maximum audit interval to stations is 12 months. The audit frequency to those outstations with many findings or critical findings shall be increased properly.

5.8 Training system

The training of personnel performing work at outstations shall be covered by the training management system of air carrier's maintenance organization, no matter whether the personnel are employed. The training and re-training requirements for outstation personnel on different working positions shall be established and all concerned personnel shall be covered by air carrier's training program.

Air carrier's maintenance organization shall also set up the technical records and training records for the maintenance and releasing personnel of outstations, which shall be controlled by the organization's corresponding management system.

5.9 Maintenance Management Manual

If air carrier's maintenance organization applies for line maintenance approval, its Maintenance Management Manual shall include all concerned contents of line maintenance at outstations. The management requirements of outstation line maintenance manual could be compiled either in the Maintenance Management Manual of air carrier's maintenance organization or in separate manual (the separate manual shall be approved by the CAAC inspector).

Maintenance Management Manual of air carrier's maintenance organization (or separate Outstation Maintenance Management Manual) shall be distributed to concerned stations.

5.10 Maintenance agreement

The clear maintenance agreement shall be presented by the air carrier's maintenance organization if the line maintenance or releasing work at outstations being performed by the personnel other than the employee of air carrier's maintenance organization. The agreement shall at least include the following contents:

- (1) Technical document, data and management procedures provided by the air carrier, and instructions of validity control;
- (2) Tooling/equipment, material provided by air carrier and the management requirement, including instructions of borrowing tooling, equipment and material;
- (3) Training instructions provided by the air carrier;

- (4) Working scope entrusted by the air carrier and authorization instruction;
- (5) Maintenance records and reporting methods;
- (6) Other concerned instructions.

A copy of maintenance agreement shall be kept at work site of outstations.

5.11 Approval of line maintenance performed by air carrier's maintenance organization

When approving the line maintenance of the aircrafts under jurisdiction applied by air carrier's maintenance organization, the Regional Administration shall adopt the following methods:

(1) To describe as follows only in the page of *Limitation of Maintenance Items of Maintenance Organization Certificate*:

Limited airframe---line maintenance of certain aircraft type

(2) To sign and approve the line maintenance capability list. Air carrier's maintenance organization shall submit the line maintenance capability list to the authority as attachment 1, which shall be regarded as the detailed limitation of maintenance certificate items after being approved by the CAAC inspectors .

6. Applying for line maintenance by independent domestic line maintenance organization

6.1 Application

Independent domestic maintenance organization shall submit application to the local civil aviation authority if it intends to apply for line maintenance of air carrier's aircraft. The following documentations shall be submitted: :

- (1) CAAC MOC Application Form (F145-1);
- (2) Line maintenance Capability List;
- (3) Maintenance intent letter or agreement
- (4) Maintenance Management Manual
- (5) Business license of the corporation and authorization issued to applicant by the corporation
- (6) Compliance statement of the regulations, including relevant supporting document.

6.2 Responsibility of independent domestic maintenance organization

Line maintenance organization shall take overall responsibility that the line maintenance work performed at the approved location is in compliance with CCAR-145 requirements and the line maintenance work entrusted in maintenance agreement meets the approved standards.

Line maintenance organization shall inform the actual information to the air carrier and the maintenance releasing documentation shall not be issued in case that the maintenance works required by the air carrier could not ensure the aircraft

airworthiness obviously.

6.3 Privilege of independent domestic line maintenance organization

Independent domestic line maintenance organization shall perform line maintenance work at the locations listed in Maintenance Organization Certificate (MOC) based on the approved standards and air carrier's requirements, but shall not perform work at locations other than those listed in the MOC, unless with the authority's special approval.

6.4 Tools & equipment

Independent domestic line maintenance organization shall have tools & equipment necessary to perform line maintenance work at locations listed in MOC. However it could obtain the special equipment from air carrier by means of agreement.

6.5 Material

Independent domestic line maintenance organization shall have consumable material necessary for line maintenance work available at locations listed in MOC. However it could obtain the special material from air carrier by means of agreement.

6.6 Airworthiness data

Independent domestic line maintenance organization shall obtain the airworthiness data relating to line maintenance provided by the air carrier at approved locations listed in MOC. The methods to obtain such data shall be acceptable to the authority.

The data include, but not limited to:

- (1) AMM
- (2) MEL and CDL
- (3) FIM
- (4) WDM
- (5) IPC
- (6) Line maintenance manuals and other maintenance guidance document (if applicable)

Independent domestic line maintenance organization shall obtain validity confirmation of technical data in written from air carrier quarterly. with which the compliance of the data kept at line maintenance working site shall be ensured .

6.7 Quality self-audit

Independent domestic line maintenance organization shall set up quality self-audit system. The small size organizations may conduct the quality self-audit according to CCAR145.17(a).

6.8 Maintenance Management Manual

Maintenance Management Manual of independent domestic line maintenance organization shall be approved by the authority.

The working procedures of independent domestic line maintenance organization shall be worked out according to the Maintenance Management Manual and the air carrier's procedures and requirements. In case that the independent domestic line maintenance organization provides the line maintenance service to more than one air carrier, any specific requirements of different air carriers shall be reflected in the procedures also.

Independent domestic line maintenance organization shall keep at least one set of current Maintenance Management Manual and pertinent procedures & requirements of air carrier. The Maintenance Management Manual and working procedures of the maintenance organization shall be distributed to the locations where the line maintenance is performed and provided to concerned personnel.

6.9 Maintenance agreement

Line maintenance organization shall sign clear maintenance agreement with air carrier. The agreement shall at least include the following contents:

- (1) Instructions of validity control for the technical document, data provided by the air carrier;
- (2) Tooling/equipment, material provided by air carrier and the management requirement;
- (3) Training instructions provided by the air carrier;
- (4) Work scope entrusted by the air carrier and authorization instruction;
- (5) Maintenance records and reporting methods;
- (6) Other concerned instructions.

A copy of maintenance agreement shall be kept at working site.

6.10 Approval of line maintenance performed by the independent domestic line maintenance organization

The Regional Administration shall adopt the following methods when approving the line maintenance applied by independent domestic maintenance organization:

- (1) To describe as follows only in the page of *Limitation of Maintenance Items* of Maintenance Organization Certificate:

Limited airframe---line maintenance of certain aircraft type

- (2) To sign and approve the line maintenance capability list. The independent domestic line maintenance organization shall submit the line maintenance capability list to the authority as attachment 2, which shall be regarded as the detailed limitation of maintenance certificate items after being approved by the authority inspectors.

7 Applying for line maintenance by maintenance organizations of foreign/regional air carriers

7.1 Application

7.1.1 Qualification of applicants

Line maintenance organizations of foreign/regional air carrier shall submit application to CAAC, when applying to perform the aircraft line maintenance for Chinese air carriers. The applicants shall meet the following requirements:

- 1) The applicant shall be the line maintenance organization of the air carrier equivalent to those approved by CCAR-121, and with the maintenance certificate issued by the local National Aviation Authority (NAA).
- 2) The aircraft type applied for line maintenance shall be approved by the local National Aviation Authority (NAA) in advance.

7.1.2 Accepted scope of application

In case the applicant is a line maintenance organization of foreign/regional air carrier, CAAC only accepts application for line maintenance at the stations located within the territory of the air carrier's country/region.

7.1.3 The following application documentations shall be submitted to CAAC:

- (1) The proof document acceptable to CAAC to show the applicant is a line maintenance organization of air carrier equivalent to those approved by CCAR-121;
- (2) CAAC MOC Application Form (F145-1);
- (3) Line maintenance Capability List;
- (4) Maintenance Management Manual;
- (5) Maintenance Intent Letter or maintenance agreement by Chinese air carrier;
- (6) Evaluation report for the applicant by Chinese air carrier;
- (7) Copies of Maintenance Certificate issued by the local NAA (including the approved aircraft type of line maintenance in details)
- (8) Compliance statement of the regulations, including relevant supporting document.

7.2 Responsibility of line maintenance organization of foreign/regional air carrier

Line maintenance organization shall take overall responsibility that the line maintenance work performed at the approved location is in compliance with CCAR-145 requirements and the line maintenance work entrusted by Chinese air carrier through maintenance agreement meets the approved standards.

Line maintenance organization shall inform the actual information to Chinese air carrier and the maintenance releasing documentation shall not be issued in case that the maintenance works required by Chinese air carrier could not ensure the aircraft airworthiness obviously.

7.3 Privilege of line maintenance organization of foreign/regional air carrier

Line maintenance organization of foreign/regional air carrier shall perform line maintenance work at the locations listed in MOC based on the approved standards and Chinese air carrier's requirements, but shall not perform work at locations other than those listed in the MOC.

7.4 Tools & equipment

Line maintenance organization of foreign/regional air carrier shall have tools & equipment necessary to perform line maintenance work at locations listed in MOC. However it could obtain the special equipment from Chinese air carrier by means of agreement.

7.5 Material

Line maintenance organization of foreign/regional air carrier shall have consumable material necessary for line maintenance work available at locations listed in MOC. However it could obtain the special material from Chinese air carrier by means of agreement.

7.6 Airworthiness data

Line maintenance organization of foreign/regional air carrier shall obtain the airworthiness data relating to line maintenance from Chinese air carrier at approved locations listed in MOC. The methods to obtain such data shall be acceptable to CAAC. The data include, but not limited to:

- (1) AMM
- (2) MEL and CDL
- (3) FIM
- (4) WDM
- (5) IPC
- (6) Line maintenance manuals and other maintenance guidance document (if applicable)

Line maintenance organization of foreign/regional air carrier must obtain validity confirmation of technical data in written from Chinese air carrier quarterly, with which the compliance of the data kept at line maintenance working site shall be ensured.

7.7 Quality self-audit

Line maintenance organization of foreign/regional air carrier shall set up quality self-audit system.

7.8 Maintenance Management Manual

Maintenance Management Manual of line maintenance organization of foreign/regional air carrier shall be approved by CAAC.

The working procedures of line maintenance organization of foreign/regional air carrier shall be worked out according to the Maintenance Management Manual and the Chinese air carrier's procedures and requirements. In case that the line maintenance organization of foreign/regional air carrier provides line maintenance service to more than one Chinese air carrier, any specific requirements of different air carriers shall be reflected in the procedures also.

Maintenance Management Manual and working procedures of the maintenance organization shall be distributed to the locations where the line maintenance is performed and provided to the concerned personnel.

Line maintenance organization of foreign/regional air carrier shall keep at least one set of current Maintenance Management Manual and pertinent procedures & requirements of Chinese air carrier, and ensure it could be understood correctly by the concerned personnel.

7.9 Maintenance agreement

Line maintenance organization of foreign/regional air carrier shall sign clear maintenance agreement with Chinese air carrier. The agreement shall at least include the following contents:

- (1) Instructions of validity control for the technical document, data provided by the Chinese air carrier;
- (2) Tooling/equipment, material provided by Chinese air carrier and the management requirements;
- (3) Training instructions provided by the Chinese air carrier;
- (4) Work scope entrusted by the Chinese air carrier and authorization instruction;
- (5) Maintenance records and reporting methods;
- (6) Other concerned instructions.

A copy of maintenance agreement shall be kept at working sites.

7.10 Approval of line maintenance performed by the line maintenance organization of foreign/regional air carrier

CAAC shall adopt the following methods when approving the line maintenance applied by line maintenance organization of foreign/regional air carrier:

- (1) To describe as follows only in the page of *Limitation of Maintenance Items* of

Maintenance Organization Certificate:

Limited airframe---line maintenance of certain aircraft type

(2) To sign and approve the line maintenance capability list. The Line maintenance organization of foreign/regional air carrier shall submit the line maintenance capability list to CAAC as attachment 3, which shall be regarded as the detailed limitation of maintenance certificate items after being approved by CAAC.

Attachment 1: Line Maintenance Capability List Sample for Line Maintenance Organization of Domestic Air Carrier

Attachment 2: Line Maintenance Capability List Sample for Domestic Independent Line Maintenance Organization

Attachment 3: Line Maintenance Capability List Sample for Line Maintenance Organization of foreign/regional Air Carrier

Attachment 1: Line Maintenance Capability List Sample for Line Maintenance Organization of Domestic Air Carrier

Name of the maintenance organization
Line Maintenance Capability List

CAAC MOC No.:

MRO Location:

Revision No.:

Revision date:

Completion instruction of line maintenance capability list

- 1、 List of Effective pages
 - a) *Item quality*: fill out the total item quality of each page.
 - b) *Approved by*: signed by the accountable manager of maintenance organization or its quality manager authorized by the accountable manager.
- 2、 Pages of detailed items list
 - a) *Maintenance location*: fill out name of the country and airport where the station located, the three-letter code of the airport.
 - b) *Aircraft type*: fill out the aircraft type and the installed engine type (detailed tail No. of engine is not necessary)
 - c) In case several locations are listed in the maintenance certificate, the detailed capability list of each location shall be completed separately.
 - d) If the air carrier hires personnel from other company to perform line maintenance, the “hire” shall be marked in column of note.

Note 1: The approved maintenance scope does not include the periodical check of A check or above, which are performed during the line maintenance. If the work needs to be performed with after-flight maintenance work together, then the authority approval on A check or above on aircraft airframe is required.

Line maintenance capability list of ABC Company

List of Effective pages

Contents	Page	Revision date	Item quantity	Note
Cover page			N/A	
Effective pages			N/A	
Item pages				
Item pages				
...	...			
...	...			
...	...			

Revision No.: _____

Revision date: _____

approved by: _____ Date: _____

Page of

(Maintenance organization name) Line maintenance capability list

Items	Maintenance location	Aircraft type	Remarks
1	Japan /Fukuoka/FUK (country /airport/airport three letter code)	B737-800 (CFM56-7B) Aircraft type(engine type.)	
2			
3			

Revision No.: _____

Revision date: _____

Page of

Attachment 2: Line Maintenance Capability List Sample for Domestic Independent Line Maintenance Organization

ABC Company
Line Maintenance Capability List

CAAC MOC No.:

MRO Location:

Revision No.:

Revision date:

Completion instruction of line maintenance capability list

- 1、 List of Effective pages
 - a) *Item quality*: fill out the total item quality of each page.
 - b) *Approved by*: signed by the accountable manager of maintenance organization or its quality manager authorized by the accountable manager.
- 2、 Pages of detailed items list
 - a) *Maintenance location*: fill out name of the country and airport where the station located, the three-letter code of the airport. Country name is not necessary for domestic airports.
 - b) *Aircraft type*: fill out the aircraft type and the installed engine type (the detailed tail No. is not necessary)
 - c) *Air carrier*: full name of the air carrier
 - d) In case several locations are listed in the maintenance certificate, the detailed capability list of each location shall be completed separately.

Note1: if the maintenance organization of domestic air carrier performs line maintenance for other air carriers, this list is required to be completed.

Note 2: The approved maintenance scope does not include the periodical check of A check or above, which are performed during the line maintenance. If the work needs to be performed with after-flight maintenance work together, then the authority approval on A check or above on aircraft airframe is required.

Line maintenance capability list of ABC Company

List of Effective pages

Contents	Page	Revision date	Item quantity	Remarks
Cover page			N/A	
Effective pages			N/A	
Item pages				
Items Pages				
...	...			
...	...			
...	...			

Revision No.: _____

Revision date: _____

approved by: _____ Date: _____

Page of

Line maintenance capability list of ABC Company

Items	Maintenance Location	Aircraft Type	Air Carrier	Remarks
1	Shanghai PuDong/PVG	A320(V2500)	xxxxAirlines	
2				
...				
...				
...				

Revision No.: _____

Revision Date: _____

Page of

Attachment 3: Line Maintenance Capability List Sample for Line Maintenance Organization of Foreign/Regional Air Carrier

(ABC Company)

Line Maintenance Capability List

CAAC MOC No.:

MRO Location:

Revision No.:

Revision date:

Completion instruction of line maintenance capability list

1、 List of Effective pages

- a) *Item quantity*: fill out the total item numbers of each page.
- b) *Approved by*: signed by the accountable manager of maintenance organization or the quality manager being authorized.

2、 Pages of detailed items list

- a) *Maintenance location*: fill out the name of the country and airport where the station located and the airport code.
- b) *Aircraft type*: fill out the aircraft type and the engine type being installed.
- c) *Chinese Air Carrier*: the name of Chinese air carrier.
- d) In case one MOC includes several locations for line maintenance, the detailed items of each location shall be listed in separate pages by different location.

Note 1: The A-check or above is not included in the approved line maintenance working scope. If A-check needs to be performed with after-flight maintenance work together, then application for the approval on A-check or above on aircraft airframe is required.

Line maintenance capability list of ABCCompany

List of Effective pages

Contents	Page	Revision date	Item quantity	Note
Cover page			N/A	
Effective pages			N/A	
Item pages				
Item pages				
...	...			
...	...			
...	...			

Revision No.: _____

Revision date: _____

approved by: _____ Date: _____

Page of

Line maintenance capability list of XXXXXX Company

Items	Line Maint.Locations	Aircraft Type	Chinese Air Carrier	Remarks
1	German/Frankfort/FRA	B747-400 (PW4000)	Air China	
2				
...				
...				
...				

Revision No.: _____

Revision date: _____

Page of