

**1: Must a repair station comply with 14 CFR sections 145.59(a) and 145.61 when working on an air carrier's aircraft even if the air carrier's CAMP does not require inspections for certain items?"**

No, it does not.

**Analysis:** Through a plain language reading of the regulations and other related information, it is clear that 14 CFR section 145.2 (section 145.205 in the revised part 145) compels a part 145 repair station to comply with selected sections of subpart L of part 121 as well as the air carrier maintenance program and manual when accomplishing any maintenance, preventive maintenance, or alterations on air carrier airplanes. Further, through sections 145.2 and 121.379(a) or 135.437(a), 14 CFR sections 121.379(a) and 135.437(a) an air carrier may authorize a certificated repair station, a non-certificated entity, or a certificated mechanic to accomplish maintenance, preventive maintenance, or alterations on its airplane as long as it is accomplished in accordance with the air carrier's manual and air carrier maintenance program.

Through these regulations, a certificated repair station is compelled to use the procedural, recordkeeping, performance, and approval for return-to-service standards of part 121 or 135 and an air carrier's maintenance manual instead of the provisions of section 145.59(a), 145.61, and 145.45(f) (sections 145.213 and 145.221 in the revised part 145) as well as the rest of part 145 and the repair station's inspection procedures manual.

14 CFR sections 145.59(a) and 145.59(b) (sections 145.157 and 145.213 in the revised part 145) are consistent with sections 43.3(e) and 43.7(c) respectively. Along with section 145.57 (sections 145.109 and 145.201 in the revised part 145), these regulations document the certificated repair station's requirement to accomplish all work on non-air carrier airplanes in accordance with the procedural, recordkeeping, performance, and approval for return-to-service standards of part 43 and part 145.

Moreover, there are two types of maintenance records described in 14 CFR part 43. 14 CFR section 145.61 (section 145.219 in the revised part 145) is consistent with the maintenance record requirements of section 43.9(a), while section 43.9(b) is consistent with the air carrier maintenance record requirements of sections 121.369(c) and 121.380(a)(1) and (c)(1). A certificated repair station is required to make and retain section 43.9(a) maintenance records, not the section 43.9(b) records. The responsibility for retaining section 43.9(a) maintenance records is the certificated repair station's under section 145.61. A certificated air carrier, a certificated repair station working under section 145.2, or any air carrier maintenance provider, is required to generate the section 43.9(b) maintenance records in accordance with the requirements of part 121 or 135 and the air carrier's manual and program. The responsibility for retaining these section 43.9(b) air carrier maintenance records in accordance with the maintenance record retention requirements of sections 121.380(c) or 135.439(b) is the air carrier's, not the repair station's. However, if a part 145 repair station desires to retain air carrier maintenance records generated by its work on an air carrier airplane, there are no regulations that would preclude them from doing so.

14 CFR section 121.379(b) and 135.437(b) enable the air carrier to approve for return to service any airplane, airframe, airplane engine, propeller, or appliance after maintenance, preventive maintenance, and alterations that are performed under the provisions of section 121.379(a) or 135.437(a). These sections, as well as sections 121.709 and 135.443, do not enable any person, other than an air carrier, to approve an air carrier airplane for return to

service.

14 CFR sections 121.709(b)(3) and 135.443(b)(3) outline personnel requirements for making a log entry or issuing an air carrier airworthiness release under parts 121 or 135. These regulations require a repairman, or certificated airframe and powerplant mechanic that is authorized by the air carrier to make a log entry or issue an airworthiness release for the air carrier. These regulations do not contain provisions for a certificated repair station to make an air carrier log entry or airworthiness release under sections 121.709 or 135.443.

14 CFR section 43.7 outlines requirements for making an approval for return to service under part 145. Section 145.51(b) [section 145.201(a)(3) in the revised part 145] contains the specific provision. This section does not contain a provision enabling a certificated repair station to make an air carrier log entry or airworthiness release under either section 121.709 or section 135.443.

Moreover, consistent with this discussion, the inspection function of an air carrier is considered to be regulated to a higher standard than that afforded under part 43 or part 145. Under an air carrier manual and maintenance program these higher standards are systemic and are collectively contained in the management personnel requirements of section 119.65, the manual requirements of sections 121.135, 121.369, 135.23, and 135.427, the maintenance authority provisions of sections 121.379 and 135.437, the maintenance organization requirements of sections 121.365(a) and 135.423, the competent personnel requirements of sections 121.105, 121.123, 121.367(b), and 135.425(b), the training requirements of sections 121.375 and 135.433, the certificate requirements of sections 121.378, 121.709, 135.435, and 135.433, the quality assurance function of sections 121.373(a) and 135.431, and the record keeping system requirements of sections 43.9(b), 121.369(c), and 121.380.

When an air carrier uses a contract maintenance provider, including a certificated repair station, to provide all or part of its airplane maintenance, that maintenance provider's organization, whatever its size, becomes, in effect, an extension of the air carrier's maintenance organization. However, the air carrier remains responsible for all of the maintenance performed by that maintenance provider. The air carrier must direct or supervise all work, and since all work must be performed in accordance with the air carrier manual and maintenance program, the air carrier must also provide the maintenance provider with appropriate material from the maintenance manual for that work.

The policy and procedures segment of the air carrier's manual should accommodate maintenance providers through assignment of duties, responsibilities, and authorities, and delineation of procedures to administer, control, and direct contracted work. The FAA expects the air carrier to determine the maintenance provider's personnel competence, the adequacy of equipment and facilities, and the capability to do the work before the work commences.

The FAA also expects the air carrier, through 14 CFR sections 121.373 and 135.431, to monitor all of its maintenance providers, including certificated repair stations, to ensure compliance with its Continuous Airworthiness Maintenance Program as well as the procedural, recordkeeping, performance, and approval for return-to-service standards of part 121 or 135, as appropriate.

Additional information on air carrier maintenance providers may be found in Chapter 8 of Advisory Circular 120-16D, Air Carrier Maintenance Programs, and HBAW 96-05C, Authorization To Make Arrangements With Other Organizations To Perform Substantial Maintenance, found in FAA Order 8300.10, Airworthiness Inspector's Handbook, Appendix 3.



**2: Can an air carrier use two Directors of Maintenance for its 14 CFR part 121 or part 135 operation?**

No, it may not.

**Analysis:** The Federal Aviation Administration (FAA) introduced the current Director of Maintenance (DOM) air carrier management position requirements in a 1995 rulemaking that made broad changes to air carrier certification requirements. The general intent of these management position regulations is to ensure that sufficient, experienced, full-time personnel are provided for the overall direction and management of the safety-related functions inherent with the operation of an air carrier.

These regulations also provide the measure of flexibility necessary to allow deviations from the positions or numbers of required management positions. From a plain language reading of 14 CFR section 119.65(b), we can conclude that fewer positions or different categories of required management personnel may be approved. However, the regulation is silent with regard to permitting deviations for two or more of each required management position.

Nonetheless, in a practical sense, having two or more persons functioning in the required DOM management position would, quite effectively, dilute the air carrier maintenance program responsibility and accountability that the FAA expects this position to have. In addition, with the introduction of more than one DOM, the likelihood of a fragmented organizational system with a high risk of non-standardization and confusion over the specific person responsible for a given task would be quite high. This situation is not advantageous to operations with the highest possible degree of safety.

Consistent with the regulations, the FAA expects that a single person is functioning in the DOM position required by 14 CFR 119.65. The DOM has both overall responsibility and authority for the functions of all of the elements of the maintenance program. In most organizations, except for the smallest, it will be common for the DOM to delegate some, or much, of this responsibility to others within the maintenance organization. In any case, the FAA expects to see clear authority and responsibility, including delegated responsibility, for the overall maintenance program and all of its elements and functions.

Finally, Advisory Circular 120-16D, Air Carrier Maintenance Programs was published on March 20, 2003. Chapter 4 contains information on the Director of Maintenance position. Further, Chapter 4 contains additional information on air carrier maintenance organizations and other required management positions.

### **3: Are air carriers excepted from the altimeter system and altitude reporting equipment test and inspection requirements of Title 14 Code of Federal Regulations (14 CFR) section 91.411?**

The applicability portion of 14 CFR section 91.401 excepts part 121 air carriers and part 135 air carriers having a section 135.411(a)(2) maintenance program from all of the requirements of section 91.411, and sections 91.405, 91.409, 91.417, and 91.419.

**Analysis:** Firstly, it is clear that 14 CFR section 91.401 excludes air carrier aircraft maintained under a continuous airworthiness maintenance program as provided in 14 CFR part 121 or section 135.411(a)(2) from the particular and detailed altimeter system and altitude reporting equipment test and inspection requirements of section 91.411. For these air carrier aircraft, altimeter system and altitude reporting equipment tests and inspections must be accomplished in accordance with the requirements of the air carrier's maintenance program and maintenance manual. It should also be noted that a review of the regulatory basis for section 91.411 does not reveal additional air carrier regulatory requirements, implied or otherwise, for altimeter system and altitude reporting equipment tests and inspections equivalent to part 43, appendix E.

As with most of these types of issues, background information is most helpful in understanding the reasoning for regulatory differences, exclusions, deviations, and the like.

Title 49 United States Code (49 USC) section 44701 is the basis for most 14 CFR regulations pertinent to the operations of aircraft in air commerce and air transportation. Section 44701, in part, obliges the Administrator to promote safe flight of civil aircraft in air commerce by prescribing regulations and minimum standards in the interest of safety for inspecting, servicing, and overhauling aircraft, aircraft engines, propellers, and appliances. In addition, the Administrator, when prescribing a regulation or standard under section 44701 or any of 49 USC sections 44702-44716, is required to consider (1) the duty of an air carrier to provide service with the highest possible degree of safety in the public interest; and (2) differences between air transportation and other air commerce; and to (3) classify a regulation or standard appropriate to the differences between air transportation and other air commerce.

The regulatory difference between the altimeter system and altitude reporting equipment test and inspection requirements for air transportation (air carrier operations) and for other air commerce (general aviation/part 91 operations) is a prime example of the implementation of these statutory requirements. An additional, similar example is the general aviation requirement to use an inspection program and the manufacturer's maintenance manual to have their aircraft maintained in an airworthy condition, while air carriers are required to maintain their aircraft in accordance with a comprehensive maintenance program of its own design and its own air carrier maintenance manual.

Air carrier scheduled maintenance/inspection requirements, including altimeter system and altitude reporting equipment tests and inspections, are established, initially, through evaluations of the aircraft manufacturer's recommendations, which may be modified in consideration of the air carrier's particular operating context and maintenance policy.

These air carrier initial scheduled maintenance/inspection requirements are normally derived from a failure mode and effects analysis (FMEA) of the item or system, and are, necessarily,

based on information derived only from a knowledge of the equipment design characteristics and the proposed operating environment.

However, once an aircraft begins its service life, optimum scheduled maintenance/inspection requirements are obtained from service experience, i.e., the air carrier's system of continuous surveillance, investigations, data collection and analysis, corrective action, and monitoring/feedback. In some cases, the results of the FMEA will indicate that no scheduled maintenance is required. This is normally the result of failures being readily evident to the flightcrew as well as several levels of design redundancy. In a general, non aircraft specific sense, this appears to be the case with altimeter system and altitude reporting equipment installed in aircraft used in air transportation. Transport category aircraft normally have considerable design redundancy as they are usually equipped with at least two, and, as many as four altimeters. Conversely, general aviation aircraft may have no altimeter system redundancy as they are usually equipped with only one altimeter. Notwithstanding the 14 CFR section 91.411 regulatory requirement, a FMEA, in the general aviation instance, would require some sort of maintenance action designed to prevent an in-service failure of the altimeter. In addition, the air carrier's continuous cycle of surveillance, investigations, data collection and analysis, corrective action, and monitoring/feedback ensures the maintenance requirements remain at the most optimum level for operations with the highest possible degree of safety.

In summary, the language and architecture of the regulations ensure a higher level of safety for operations in air transportation. Consistent with the preceding discussion, air carriers may provide the higher level of safety through the introduction of design features, such as redundancy and monitoring systems, that ensure the in-service loss of function of any aircraft system is evident to the flightcrew and is extremely improbable. Some of these design features, because of particular non-safety related failure modes and failure effects, may result in minimal or no scheduled maintenance being required.

**4: Must an air carrier comply with the 30 day VOR check requirements of Title 14 of the Code of Federal Regulations (14CFR) section 91.171, VOR equipment check for IFR operations?**

Under 14 CFR section 91.171 an air carrier may use either an approved procedure or the 30 day VOR check procedure outlined in section 91.171(b) or (c).

**Analysis:** Title 49 of the United States Code (49 USC) section 44701 is the basis for most Title 14 of the Code of Federal Regulations (14CFR) regulations pertinent to the operations of aircraft in air commerce and air transportation. Section 44701, in part, obliges the Federal Aviation Administration (FAA) Administrator to promote safe flight of civil aircraft in air commerce by prescribing regulations and minimum standards in the interest of safety for inspecting, servicing, and overhauling aircraft, aircraft engines, propellers, and appliances. In addition, the Administrator, when prescribing a regulation or standard under section 44701 or any of 49 USC sections 44702-44716, is required to consider (1) the duty of an air carrier to provide service with the highest possible degree of safety in the public interest; and (2) differences between air transportation and other air commerce; and to (3) classify a regulation or standard appropriate to the differences between air transportation and other air commerce.

From a plain language reading of section 91.171, it is apparent that there are two different and separate VOR equipment test and inspection requirements contained in section 91.171. The differences in these test and recording requirements are a prime example of the implementation of these statutory “difference” requirements. An additional, similar example is the general aviation requirement to use an inspection program and the manufacturer’s maintenance manual to have the aircraft maintained in an airworthy condition, while air carriers are required to maintain their aircraft in accordance with a comprehensive maintenance program of its own design and its own air carrier maintenance manual. In any case, the air carrier provisions are always considered the higher standard.

Section 91.171 gives the operator the option of accomplishing the VOR equipment check in either of two ways. One method is to operationally check the VOR equipment at an interval of not more than 30 days. The results of the check must be within the permissible indicated bearing error limits set forth in paragraph (b) or (c) of section 91.171.

The other method allows the operator to maintain, check, and inspect the VOR equipment under an approved procedure. An approved procedure means an approved continuous airworthiness maintenance and inspection program specified in operations specifications issued by, or approved by the Administrator, or any other equivalent maintenance and inspection system specifically approved by the Administrator. For air carriers, this is usually accomplished through Operations Specifications.

We believe the requirements of section 91.171 are clear, however it should be noted that we derive the meaning of “approved procedure” from the historical perspective. The VOR equipment check was first introduced by the FAA’s predecessor, the Civil Aeronautics Board (CAB) in 1954 through Civil Aviation Regulation (CAR) Amendment 43-11, effective March 12, 1954. Amendment 43-11 introduced section 43.31, aircraft electronics navigation equipment accuracy. The text of this rule has remained essentially unchanged through the years, although the title was changed and footnotes removed during the recodification of part 43 of the CAR into part 91 of the Federal Aviation Regulations in 1964.

You should note that one of the three footnotes in CAR section 43.31 removed to comply with

updated formatting standards during the 1964 recodification explains that the approved procedure means “an approved continuous maintenance and inspection program specified in Operations Specifications issued by or approved by the Administrator or any equivalent maintenance and inspection system specifically approved by the Administrator”. The rule recognizes the higher standard that is attained under an air carrier program specified and approved in Operations Specifications.

Generally, and in line with the Administrator’s statutory obligations mentioned above, the maintenance and inspection function, including VOR equipment checks, of an air carrier is regulated to a higher standard than that afforded under 14 CFR parts 43 and 91 alone. Under an air carrier program these higher standards are systemic and are collectively contained in the management personnel requirements of section 119.65, the manual requirements of sections 121.135 and 121.369, the maintenance authority provisions of section 121.379, the maintenance organization requirements of section 121.365(a), the competent personnel requirements of sections 121.105, 121.123, and 121.367(b), the training requirements of section 121.375, the certificate requirements of section 121.378 and 121.709, and the quality assurance function of section 121.373(a).

It must also be noted that the 1954 technological level of airborne VOR equipment when the rule was originally promulgated was vacuum tubes and the reliability of these systems was significantly less than it is today. In the subsequent 48 years, technology has evolved from vacuum tubes to solid-state digital systems with built in test as well as self test functions. Design standards have also evolved, using primarily the fail-safe design concept, which incorporates the concept of redundancy, i.e. alternative load paths in structures, and the incorporation of system functions operating in parallel rather than in series. Using the fail-safe design concept that incorporates the additional design concept of “evident failure” provides an extremely high level of safety.

Additionally, some older airplane types utilize a Central Fault Collecting System called a navigation comparator, which displays output deviations via an annunciation panel. The navigation comparator monitors VOR bearing between the two VOR systems. Typically, if the bearing is greater than 6 degrees, the navigation comparator will annunciate, making the failure of one of the systems evident to the flight crew. The flight crew enters the discrepancy in the log, and maintenance will take the appropriate action. Operational safety is not compromised because the other system remains operational. The probability and risk that both systems would fail at the same time is extremely remote.

Other airplane types monitor VOR commands as well as output deviations via a Digital Flight Computer System. The VOR system self checks and cross channel interface monitoring occurs with the Central Display, which detects signal differences received by the Display Electronic Unit . When differences occur, the evident failure is displayed on the display panels, rather than an annunciator panel. Flight crew and maintenance actions remain the same as that described for the older airplanes.

**5: How does Title 14 of the Code of Federal Regulations (14 CFR) sections 65.81, 121.105, and 121.375 apply to a contract mechanic performing maintenance for an air carrier.**

They don't.

**Analysis:** When an air carrier uses a contract maintenance provider to provide all or part of its aircraft maintenance, that maintenance provider's organization, whatever its size, becomes, in effect, an extension of the air carrier's maintenance organization. However, the air carrier remains responsible for the maintenance performed by that maintenance provider. The air carrier must direct or supervise the work, and since all work must be performed in accordance with the air carrier manual and maintenance program, the air carrier must also provide the maintenance provider with appropriate material from the maintenance manual for that work.

The policy and procedures segment of the manual should accommodate maintenance providers through assignment of duties, responsibilities, and authorities, and delineation of procedures to administer, control, and direct contracted work. The FAA expects the air carrier to determine the maintenance provider's competence, adequate equipment and facilities, and capability to do the work before the work commences

Generally, the maintenance supervision function of an air carrier is regulated to a higher standard than that afforded under part 65. Under an air carrier program these higher standards are systemic and are collectively contained in the management personnel requirements of section 119.65, the manual requirements of sections 121.135 and 121.369, the maintenance authority provisions of section 121.379, the maintenance organization requirements of section 121.365(a), the competent personnel requirements of sections 121.105, 121.123, and 121.367(b), the training requirements of section 121.375, the certificate requirements of section 121.378 and 121.709, and the quality assurance function of section 121.373(a).

For maintenance work accomplished under part 121, the meaning of the section 65.81 term "direct supervision" is superseded by the detailed meaning of "directly in charge" listed under the certificate requirements of section 121.378(b). As stated in this rule, persons "directly in charge" need not physically observe and direct each worker constantly, but must be available for consultation and decision making. This provision gives the measure of flexibility to permit the an air carrier to meet the requirement of availability in a number of various ways, including telephone, fax, electronic mail, text pager, two-way radio, or other means that would allow the requisite level of communication to occur. Typically, in actual practice, a maintenance controller, or other person directly in charge located at the air carrier's main base will provide the necessary direction, supervision, information, and coordination for a contract maintenance person performing maintenance at a place away from the main base.

The part 121 training requirements for maintenance personnel, are found in sections of part 121, subpart L. These regulations state, in part, that air carriers must "have a training program to ensure that each person (including inspection personnel) who determines the adequacy of work done is fully informed about procedures and techniques and new equipment in use and is competent to perform his duties." Additionally, and as a result of the implied training requirement in subpart L for the provision of competent personnel for the proper performance of the maintenance program, a training program has evolved as an uncomplicated means of

ensuring that maintenance personnel are competent. FAA's regulations contain the measure of flexibility necessary to allow each air carrier to develop a training program fitting its particular needs. It is significant to note that the training and competency requirements apply to air carrier personnel as well as contract maintenance personnel.

With specific regard to maintenance provider training, the air carrier training program must provide appropriate information to each employee of a maintenance provider regarding the air carrier's maintenance program. The training should include function-specific training appropriate to each person's job assignment or area of responsibility. Training does not need to be provided to maintenance provider personnel in areas that do not concern them. For example, training on aircraft log procedures and minimum equipment list procedures would not be required for contract aircraft interior cleaners, but would be required for contract maintenance personnel assigned to on-call maintenance. Moreover, if a maintenance provider has training for its personnel, the air carrier does not have to duplicate that training for those individuals, but must ensure the maintenance provider has indeed provided the training and that the training meets the air carrier's needs and training standards.

Consistent with the preceding discussion, an air carrier is in compliance with the regulations when contract maintenance personnel performing on-call maintenance for it at a location remote from the air carrier's main base are:

1. determined to have competent personnel, an organization, facilities and equipment adequate to do the work contracted for;
2. able to perform all work in accordance with the air carrier's program and manual;
3. provided a copy of those portions of the air carrier manual regarding the work they are contracted for, including such function specific items as on-call maintenance, maintenance recording forms and procedures, MEL procedures, and air carrier maintenance "directly-in-charge" personnel contact procedures;
4. trained on the air carrier's contract maintenance procedures and;
5. able to send and receive technical and other information to the air carrier's designated person "directly-in-charge" who may be at a place remote from the place where contract maintenance is occurring.

The following eleven points are the basis for this discussion:

1. 14 CFR section 65.81 doesn't apply to air carriers.
2. 14 CFR section 65.81 relates to sections 43.3(b) and (d) and 43.7(b).
3. 14 CFR sections 43.3(f), 43.7(e), and 43.13(c) apply to air carrier maintenance.
4. All air carrier maintenance is accomplished under part 121 or part 135.
5. The regulations in 14 CFR Part 121 subpart L are the primary regulations for air carrier maintenance and air carrier maintenance programs.
6. 14 CFR section 121.379 contains the air carrier's authority to perform and approve

maintenance, including the authority to make arrangements with other persons for maintenance. This rule and section 121.378 supersede section 65.81 through the language in sections 43.3 and 43.7.

7. The authority to accomplish maintenance and issue an approval for return to service under part 121 is derived from the air carrier certificate and operations specifications and not from an individual airframe and powerplant mechanic certificate. However, under part 121, an individual mechanic certificate is a qualification standard required to accomplish the air carrier maintenance release or log entry (121.709), the required inspection function (121.371), or serve as a person “directly-in-charge” of maintenance, preventive maintenance, alterations, or other functions affecting airworthiness (121.378).
8. 14 CFR section 121.378 contains the air carrier maintenance program requirements for mechanic certificates and outlines specific requirements for persons “directly in charge”. This rule applies equally to contract persons performing maintenance for the airline.
9. The air carrier maintenance program ensures that maintenance performed by the air carrier, or by contract maintenance persons, is performed in accordance with the air carrier’s manual. Ref: section 121.367(a).
10. The air carrier maintenance program also ensures that competent personnel are provided for maintenance on air carrier aircraft. Ref: section 121.367(b)
11. Finally, the air carrier’s Continuing Analysis and Surveillance System makes sure that all of this happens. Ref: section 121.373

## 6: What are Required Inspection Items (RII)?

They are aircraft maintenance tasks that are subjected to a duplicate inspection carried out by a person that is specifically trained, authorized and certificated to carry out the RII.

**Analysis:** This is in response to inquiries about the requirement to designate Required Inspection Items (RII), i.e., those items of air carrier maintenance and alteration that must be inspected, including at least those that could result in a failure, malfunction, or defect endangering the safe operation of the aircraft, if not performed properly or if improper parts or materials are used.

As with most of these types of issues, background information is most helpful in understanding the reasoning for regulatory procedures, differences, exclusions, deviations, and the like.

RII was originally introduced to the CFR in a 1962 rulemaking as an integral part of an “Air Carrier Continuous Airworthiness Program”. The FAA’s purpose and intent of all of the elements of the “Air Carrier Continuous Airworthiness Program” was to require each air carrier to establish and use a quality control program for the proper performance of maintenance of its aircraft. Major elements of this program were the maintenance organization, the manual, the continuing analysis and surveillance system (CASS), RII, and responsibility for airworthiness. The RII process operates as one element of the air carrier systemic safety procedures.

From a plain language reading of the rule, it is clear that the air carrier must include, in its manual, those items of maintenance or alteration that it has designated as RII. The designated items should include, at least, those items that could result in a failure, malfunction, or defect endangering the safe operation of the aircraft, if not performed properly, or if improper parts or materials are used. The use of the term “at least” indicates RII designations may be items other than those items that could result in a failure, malfunction, or defect that could endanger the safe operation of the aircraft. This regulatory language permits the air carrier to designate some items as RII as a matter of choice rather than regulatory compliance. However, once designated, all RIIs must be accomplished in accordance with the air carrier’s manual. The air carrier must consider all RIIs with the same emphasis regardless of whether an individual RII is related to a scheduled or an unscheduled task, or on the aircraft, or in the shop. However, as mentioned above, the air carrier, and anyone performing maintenance for the air carrier, must comply with the provisions of the air carrier’s manual. The fact that an RII requirement arises at an awkward time or at an inconvenient location, cannot have a bearing on the requirement to accomplish these types of inspections properly.

It is clear that the air carrier has the responsibility to designate RII. However, it should be noted that modern transport aircraft incorporate design concepts and FAA design standards that permit an aircraft to continue a safe operation in event of a failure of an aircraft system or component. Therefore, there are very few items or systems on a modern aircraft that must be (are required to be) designated as RII. In most cases, because of the aforementioned design standards, such as redundancy and single engine performance requirements, aircraft engines and engine components are not normally required to be identified as RII, unless, of course, the air carrier chooses to do so.

In actual practice, RII designations are usually installation, rigging, and adjustments of flight controls and surfaces (things that may reduce controllability and could endanger the airplane’s continued safe operation if improperly accomplished). Installation, repair, and calibration of certain avionics and navigational equipment are also prime candidates for RII.

For example, work on a landing gear position indicating system might be a normal inspection, whereas an elevator rigging check conducted to check adjustment of elevator travel would be designated RII because improper adjustment might result in an inability to control the aircraft. In the first instance, improper maintenance might produce an undesirable condition, while in the second instance, improper maintenance might produce an unsafe condition.

In addition to RII, another key element of the “Air Carrier Continuous Airworthiness Program” introduced in 1962 is the CASS. In simple terms, the CASS provides a structured methodical system for the air carrier to monitor its “Air Carrier Continuous Airworthiness Program” for deficiencies, and to correct those deficiencies. The responsibility and authority for correcting deficiencies in elements of the maintenance program lies with the air carrier. Specifically, the air carrier is charged with the development, implementation, and monitoring of the corrective actions, not the FAA. In some instances, the air carrier may develop a corrective action that is not the same as what the FAA had in mind. However, as long as the corrective action addresses and corrects the identified deficiency, and is in compliance with the Federal Aviation Regulations, the FAA would have no need for further involvement. (Ref: 14 CFR 121.373(b).

Nonetheless, the FAA may use the provisions of 14 CFR 121.373(b) to notify the air carrier to correct deficiencies that the air carrier has failed to correct. However, use of this provision requires the FAA to justify the action. The FAA may not legally require the air carrier to take action without justification. Additionally, using the provisions of 14 CFR 121.373(c), the air carrier may ask FAA Headquarters’ personnel for a reconsideration of the local FAA’s decision.

When the FAA desires to impose a requirement on an air carrier that may be supported by a performance-based interpretive regulation, the burden of proof is on the FAA. The proof must be reliable and it must be substantial. In essence, the FAA must justify its demands. (Ref: 14 CFR 13.223 and 13.224)

In the case of attempting to mandate or require changes to the air carrier’s RII designations through section 121.373(b), at the very least, we would expect the FAA to produce a failure modes and effects analysis (FMEA) that shows “reliably and substantively” how the failure of the item or system would adversely effect the continued safe operation of the aircraft. Hand in hand with the FMEA, a probability and risk analysis showing the requirement (safety need) for the maintenance intervention should also be produced.