

Instructions for Continued Airworthiness

Wichita Flight Standards District Office
ACE-FSDO-07

Presented to: Inspection Authorization refresher course

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Federal Aviation Administration



65.95(c) If the holder of an inspection authorization changes his fixed base of operation, (*that is the address on the application*) he may **not** exercise the privileges of the authorization until he has notified the FAA **Flight Standards District Office** or International Field Office for the area in which the new base is located, in writing, of the change.

FAA ID	REGISTRATION	ISSUANCE	EXPIRES	REMARKS
0242006				This aircraft has been inspected in accordance with FAR 91.203(b) and ok for safe flight.  9131504

Design is a trade-off between performance and reliability

It is neither economically or technologically feasible to produce complex equipment that can sustain trouble free operation for an unlimited time.

A complex item (many possible failures) show little or no decrease in overall reliability with an increase in age unless there is a dominant failure mode.

What is an ICA or Instructions for Continued Airworthiness

- ICAs provide instructions to maintain and inspect design changes performed on the aircraft, they provide
- Recommended frequencies for maintenance.
 - specific criteria and intervals or inspection.
 - information on equipment interfaces and methods for testing and troubleshooting.
 - provide necessary maintenance support to ensure that the alteration remains safe.

The FAA's concern is not the number of failures but the consequences of those failures. Therefore in 1981 the FAA concluded that inspection programs were needed to require technicians to know what and how to inspect alterations in accordance with the manufacturer's recommendations. Therefore CFR § 21.50 was developed to require the holder of a design approval to provide ICAs on their products.

FORMS OF DESIGN CHANGES

1. Supplemental Type Certificate, (STC) or a supplement to the type certificate data sheet.
2. One time STC that is a supplement to type certificate data sheet for one "N" number aircraft.
3. Field Approval of a change to type design which will be on a 337.
4. FAA approved data for a change to type design which will be on a 337.

ICAs for STCs

- Applicants will submit ICAs for acceptance to the Aircraft Certification Office (ACO) along with associated maintenance procedures. The Aircraft Evaluation Group (AEG) will review the ICAs and make recommendations on the maintenance and operational aspects of the ICAs then the ACO and AEG will determine acceptability of the ICAs.

WHAT DOES THAT MEAN TO YOU THE MECHANIC?

Without "ICAs" the mechanic who has to maintain the major alteration (change to the type design) with no maintenance instructions is forced to stretch the truth in the log book entry.

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WHAT DOES THAT MEAN TO YOU THE MECHANIC?

Someone installed tundra tires on a pa-18-150 under a field approval 7 years ago but they are now worn out. What do you do?

WHAT DOES THAT MEAN TO YOU THE MECHANIC?

You sign off an annual/100 hour inspection on a PA 28-235 using the mfg. inspection program, but the aircraft has 4 major alterations on it...

Are you still legal?



WHAT DOES THAT MEAN TO YOU THE MECHANIC?

When you do maintenance on an aircraft that has had a major alteration done to it you need to make sure that you accomplish all the ICAs attached to it.



Instructions for Continued Airworthiness (ICA) is part of this STC:

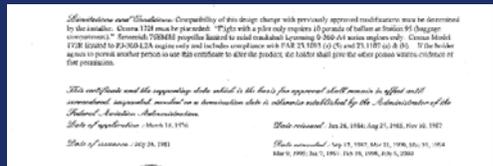
For C90 airplane models with PT6A-35 engines, ICA Document 2005-4, Rev. Nov. 2005 or later FAA approved revision.

For the C90A model, ICA Document 2003-3, dated 9/19/2003 or FAA approved revision.

For the EP90 model with PT6A-35 engines ICA Document 2004-3, dated 5/05/04 or FAA approved revision.

"This approval should not be extended to other aircraft of this model on which other previously approved modifications are incorporated, unless it is determined by the installer that the interrelationship between this change and any other previously approved modifications will produce no adverse effect upon the airworthiness of that airplane. If the holder agrees to permit another person to use this certificate to alter the product, the holder shall give the other person written evidence of that permission."





ALTERATION DONE ON A 337

WHEN YOU DO MAINTENANCE OR INSPECTION ON AN ITEM THAT WAS INSTALLED BY A FIELD APPROVAL OR DER APPROVED DATA, YOU NEED TO LOOK FOR ICAs ATTACHED TO THESE APPROVALS AND IF THERE ARE ANY – ACCOMPLISH THEM.



IF THERE ARE NO ICAs

A similarly worded statement should be made in the log book:
No ICAs have been developed for STC # _____, I have inspected the _____ using techniques and practices of AC 43.13-1B Chapter 5 Section 2



YOU ARE ASKED TO DO AN ALTERATION

An owner comes to you and wants you to develop a major alteration to his aircraft. At this point you have two choices:
1. Call your local FAA and discuss a field approval.
2. Call a DER and contract him to design the alteration.



The Field Approval Process

- Develop the data package to send to the FAA which will include ICAs.
- Part 23, appendix G
- Part 25, appendix H
- Part 27, appendix A
- Part 29, appendix A
- AC 43-210 Figure 1



FIELD APPROVED ICAs

- ICAs ARE USUALLY ACCEPTED BUT WITH A FIELD APPROVAL, THE ICAs ARE APPROVED ALONG WITH THE FIELD APPROVAL OF THE DATA.
- IF THERE IS A FLIGHT MANUAL SUPPLEMENT, THE ICAs AGAIN ARE APPROVED ALONG WITH FIELD APPROVAL OF THE SUPPLEMENT.



THE REQUIREMENTS ARE:

- "ICA" MUST BE ATTACHED TO THE FORM 337.
- "ICA" BECOMES PART OF THE AIRCRAFT'S INSPECTION PROGRAM.
- LOG BOOK ENTRY FOR THE MAJOR ALTERATION MENTIONS "ICA"



ICA FACTS

- "ICA IS CONSIDERED "ACCEPTABLE" DATA – JUST LIKE THE MAINTENANCE MANUAL.
- "ICAs" ARE ATTACHED TO FORM 337 TO ENSURE THE "ICA" ARE NOT LOST OR MISPLACED.
- MECHANICS CAN DEVELOP AN ICA AND HAVE THE FAA "ACCEPT" THEM.
- AC 43.210 FOR ICA INSTRUCTIONS



"ICA" CHECKLIST AC 43-210

- THE CHECK LIST MUST ADDRESS THE ALL 16 ITEMS.
- "ICA" MUST BE NOTED ON BLOCK 8 OF THE FORM 337 AND ATTACHED TO THE 337.
- IF A CHECKLIST ITEM DOES NOT APPLY, WRITE "N/A" AFTER THE ITEM.



NON FIELD APPROVED 337s

- A 337 THAT HAS APPROVED DATA WITH A FORM 8110.3 SIGNED BY A DER.
- THE DER CANNOT APPROVE ICAs.
- THE 337 STILL HAS TO HAVE ICAs. REFERENCED IN BLOCK 8 OF THE 337.



ALL ICAs HAVE TO BE ACCEPTABLE TO THE ADMINISTRATOR

- WHAT DOES ACCEPTABLE MEAN?
- HOW DO YOU KNOW IF THE ICAs YOU DEVELOPED ARE GOING TO BE ACCEPTABLE?
- ASK THE FAA



THE CHECKLIST MEETS THE REGULATIONS.

- THE CHECKLIST HAS 16 ITEMS BUT FOR MOST ALTERATIONS YOU WILL ONLY FILL OUT BETWEEN 5 TO 8 CHECKLIST ITEMS.
- ICA CAN REFERENCE MFG'S INSTRUCTIONS.



LETS LOOK AT THE CHECK LIST IN AC 43-210 figure 1



ITEM #1: INTRODUCTION

- BRIEF DESCRIPTION OF THE COMPONENT BEING ALTERED.
- PURPOSE OF THE ALTERATION.
- DISTRIBUTION OF THE "ICA" IF APPLICABLE.
- UNITS OF MEASUREMENTS.
- LIST OF PARTS.



ITEM #2: DESCRIPTION

DESCRIPTION OF THE MAJOR ALTERATION, ITS FUNCTIONS AND INTERFACE WITH OTHER SYSTEMS IF ANY.



ITEM #3: CONTROL

DESCRIBE HOW THIS ALTERATION OR COMPONENT IS CONTROLLED, OR OPERATED.



ITEM #4: SERVICE INFORMATION

LIST TYPES OF FLUIDS USED, SERVICING POINTS, AND LOCATION OF ACCESS PANELS AS APPROPRIATE



ITEM #5: MAINTENANCE INSTRUCTIONS

- LIST RECOMMENDED INSPECTION/MAINTENANCE PERIODS.
- REFER TO MFG.... INSTRUCTIONS.
- SPECIAL NOTES OR CAUTIONS
- FUNCTIONAL CHECKS ETC..



ITEM #6 TROUBLESHOOTING

INFORMATION DESCRIBING PROBABLE MALFUNCTIONS, HOW TO RECOGNIZE THOSE PROBLEMS AND HOW TO FIX THEM.



ITEM #7: REMOVAL AND REPLACEMENT INFORMATION

- THIS SECTION DESCRIBES THE ORDER AND METHOD OF REMOVAL AND REPLACEMENT OF PRODUCTS AND PARTS.
- MAY REFERENCE MFG..... PROCEDURES FOR TESTS, ALIGNMENT, CALIBRATE, ETC..



ITEM #8: DIAGRAMS

SHOW WHERE ACCESS PLATES ARE LOCATED, INCLUDING INSTRUCTIONS ON HOW TO GAIN ACCESS TO THE COMPONENT(S)



ITEM #9: SPECIAL INSPECTIONS

LIST ANY SPECIAL INSPECTIONS SUCH AS X-RAY, ULTRASONIC TESTING, EDDY CURRENT, MAGNETIC PARTICLE OR ANY OTHER SPECIAL INSPECTION REQUIREMENTS.



ITEM #10: SPECIAL PROTECTIVE TREATMENTS

LIST SPECIAL COATINGS, PAINT, LUBRICANTS, OR CORROSION PROOFING THE ALTERATION OR SURROUNDING STRUCTURE MAY REQUIRE.



ITEM #11: DATA

RELATIVE TO FASTENERS, SUCH AS TYPE OF FASTENERS, TORQUE REQUIREMENTS, SPECIAL INSTALLATION REQUIREMENTS IF ANY.



ITEM #12: SPECIAL TOOLS

SPECIAL TOOLS USED TO MAINTAIN THE ALTERATION SUCH AS A NUCLEAR POWERED TORQUE WRENCH OR A WIND DRIVEN SAFETY WIRE TWISTER.



ITEM #13: COMMUTER AIRCRAFT REQUIREMENTS

- ELECTRICAL LOADS.
- METHODS OF BALANCING FLIGHT CONTROLS.
- IDENTIFICATION OF PRIMARY AND SECONDARY STRUCTURE AFFECTED.
- SPECIAL REPAIRS METHODS.



ITEM #14 RECOMMENDED OVERHAUL PERIODS

REQUIRED IF THE OVERHAUL PERIOD IS LISTED BY THE COMPONENT OR EQUIPMENT MFG..



ITEM #15: AIRWORTHINESS LIMITATION SECTION

INCLUDES ANY "APPROVED" AIRWORTHINESS LIMITATIONS SUCH AS ONE WOULD FIND IN AN STC THAT IS BEING INCORPORATED WITH OTHER WORK APPROVED UNDER A FAA FIELD APPROVAL.



ITEM #16: REVISION

- INCLUDES INFORMATION ON HOW TO REVISE THE ICA. FOR EXAMPLE SEND A LETTER AND A COPY OF THE REVISED FORM 337 TO THE FSDO REQUESTING A REVISION.
- FAA INSPECTOR "ACCEPTS" THE CHANGE BY SIGNING BLOCK 3 OF THE FORM 337.



RECORD KEEPING

- PART 91 OPERATIONS REQUIRE A LOG BOOK ENTRY (SECTION 43.9)
- ENTRY RECORDS THE MAJOR ALTERATION AND IDENTIFIES THE ORIGINAL ICA LOCATION (FAA FORM 337 DATED 3/15/04)
- STATEMENT THAT "ICA" IS PART OF THE INSPECTION PROGRAM



WHAT IF THERE IS AN AD ATTACHED TO A PART THAT WAS MODIFIED BY STC

- You still have to do the AD.
- Unless an Alternate Means of Compliance (AMOC) was accomplished on the replaced part.



When you build a list of airworthiness directives in the log book do you have to list all the A/Ds that are applicable to that model?



PROBLEM ADs

- 87-20-03 Seat track for 100, 200,300 series Cessna aircraft
- 2000-01-16 Exhaust System for 300 and 400 series Cessna Aircraft.



AD 87-20-03

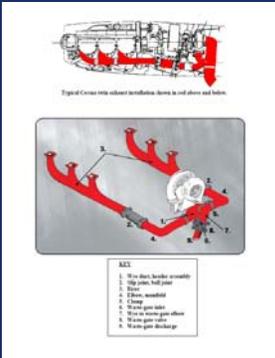
- Since the issuance of the AD, NTSB database indicates 20 accidents with 6 fatalities have been caused by the seat latch pin not properly engaged.



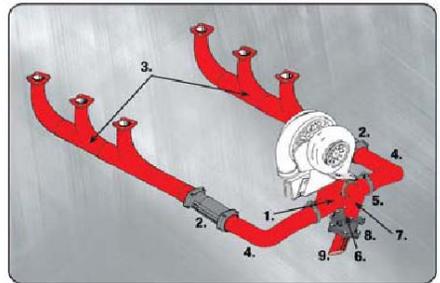
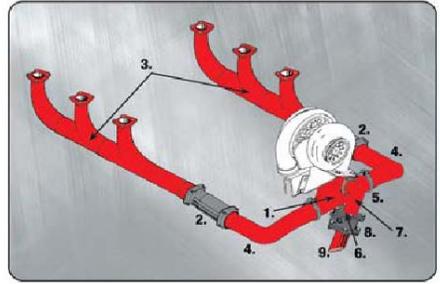
2000-01-16

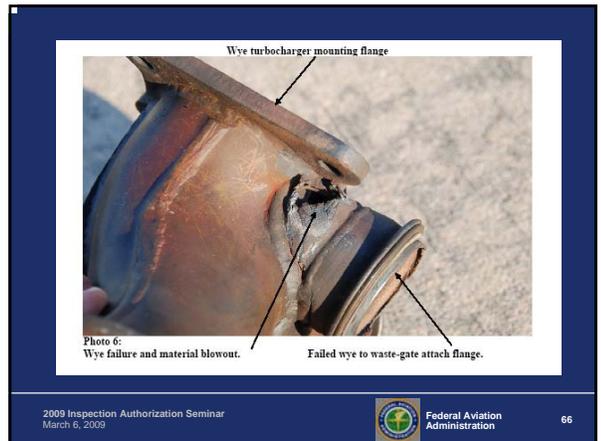
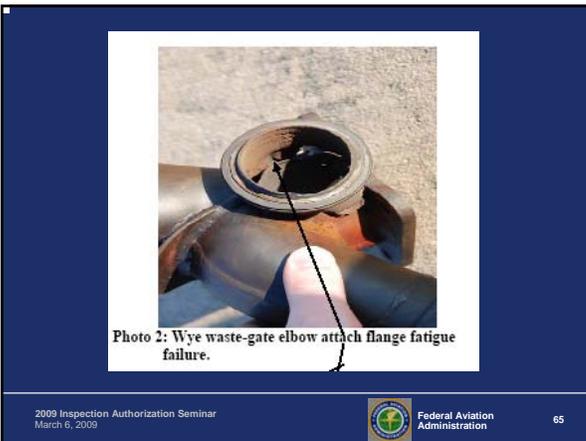
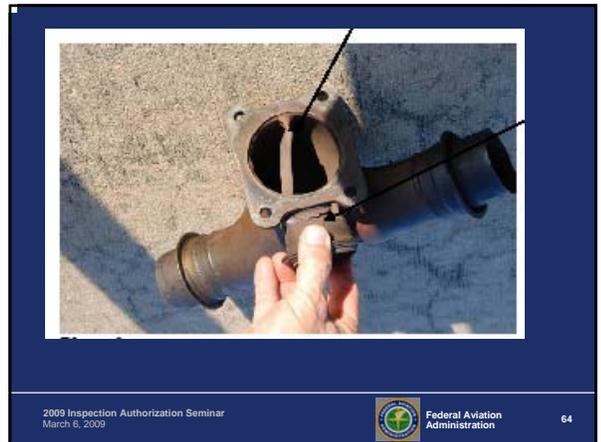
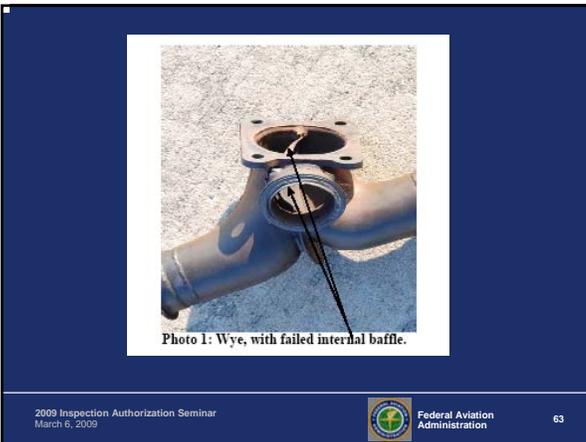
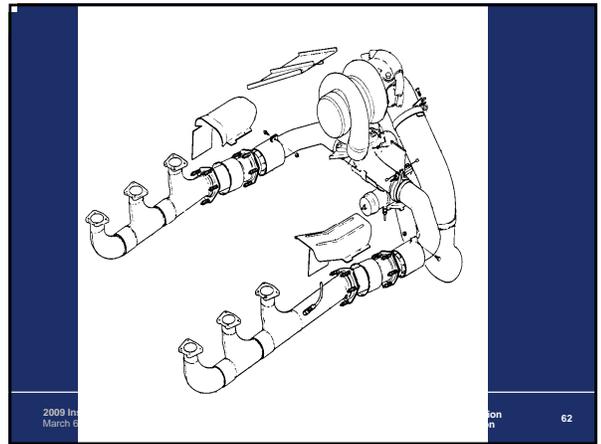
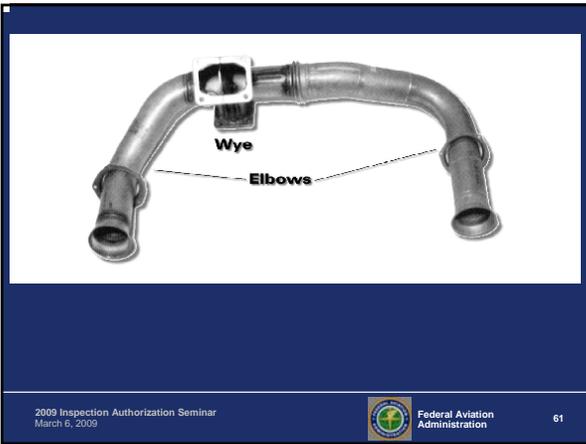
- The concern about the consequences of exhaust system deterioration caused an exhaustive AD.

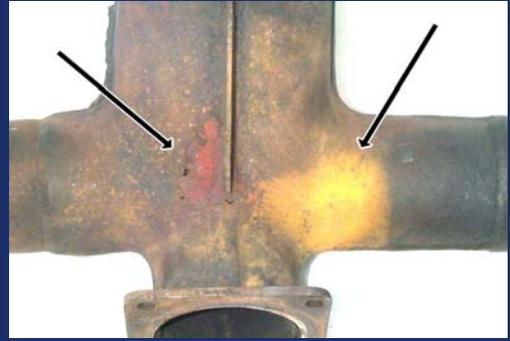
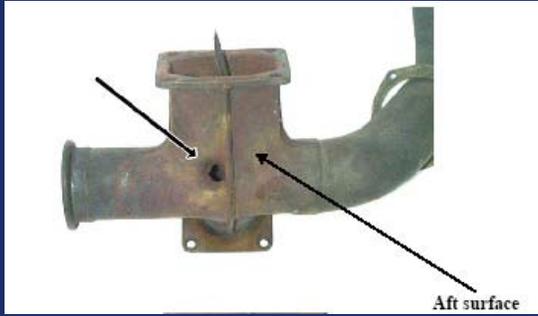




- KEY
1. Vanes, hub or nozzle
 2. Disc, hub or case
 3. Case, nozzle
 4. Case, nozzle
 5. Case, nozzle
 6. Case, nozzle
 7. Case, nozzle
 8. Case, nozzle
 9. Case, nozzle







SHORT RECAP OF WHAT WE HAVE LEARNED TODAY

- ALL MAJOR ALTERATIONS MUST HAVE ICAs
- DON'T IGNORE A/D NOTES (if you want to keep your IA)
- IF YOU CHANGE YOUR FIXED BASE OF OPERATION NOTIFY THE FSDO



QUESTIONS?

