OBJECTIVE

1.0. DISCUSSION.

The Continued Airworthiness Program (CAP) consists of inspection recommendations that, when combined with existing maintenance requirements, will help maintain the continued airworthiness of the aircraft.

1-1. INTRODUCTION.

The aircraft contained in this CAP were delivered with recommended inspection programs. Service Manuals continually kept up to date supplemented by service bulletin and owner information were provided and intended to keep the aircraft airworthy. Due to the varied missions the aircraft were assigned, type of care given, as well as the general age and utilization rate, Cessna feels it necessary to bring additional requirements to inspection programs as a means of further assuring the aircraft can continue to be airworthy. From experience we have gained from continued support of the aircraft and inputs from the field, Cessna continues to maintain service information for the aircraft through the Continued Airworthiness Program.

This CAP has been developed in accordance with guidelines given in CAP GAMA Format Spec #7. The CAP is not intended to change or replace, but could provide additional information to the Maintenance Manual, Service Bulletins or Service Letters which are applicable.

1-2. OBJECTIVE.

This CAP has been developed to expand present inspection requirements. Some are more stringent to further assure the ability of the airplane to perform within the limits of the original certification.

The CAP will address primary and secondary airframe components, powerplant, electrical items and primary and secondary systems to accomplish this stated objective of continued airworthiness.

To establish the basis for these items to be included, the following assumptions have been made:

A. The aircraft has been maintained in accordance with Cessna recommendations or equivalent.

B. Where the CAP is directed to a specific part or component, it is implied that the inspection will include observation and evaluation of the surrounding area of parts and equipment. Any discrepancies found during this inspection outside of the scope of the CAP should be reported to Cessna through the existing condition reporting system so that changes can be made to the CAP where necessary.

C. Aircraft modified by Supplemental Type Certificate (STC) are not the responsibility of Cessna. Any inspections called for in Cessna manuals or Cessna's CAP's that have areas that have been modified by STC's shall automatically be referred to the STC holder by the owner and/or maintenance organization for obtaining FAA approval guidelines.

2-0. (STRUCTURAL/SYSTEM SIGNIFICANT DETAILS) SSD'S.

The items designated for inspection in this document are those structures or systems which include powerplant and electrical whose failure could cause loss or substantial damage to the aircraft. The terms Structurally Significant Details or System Significant Details (SSD's) will be applied to these critical items. The selection and monitoring of these SSD's is the nucleus of the Continued Airworthiness Program.

2-1. RATIONALE USED TO SELECT SSD'S.

The Cessna 300 Series fleet was designed for business and pleasure flights. However, since some aircraft are at 10,000 flight hours and others are aged (20 + years) with low flight hours common, the methods and rationale for selecting the critical SSD's are provided in paragraph 2-2, A. thru E.

2-2. THE SSD'S WERE SELECTED BASED ON THE FOLLOWING:

A. SERVICE EXPERIENCE.

Customer correspondence and Condition Reports were also reviewed during the selection process for the critical SSD's. Reports were also used to select items that were similar in application to other aircraft based on their design and loading.

B. SERVICE BULLETINS, NEWSLETTERS, AND SERVICE KITS.

The Service Bulletins were reviewed and readdressed for safety-of-flight criteria to help select critical SSD's. Some of these documents are considered vital to the safe operation of the aircraft and, as a result, the affected structure or system component will be listed as an SSD.

NOTE

Some of these bulletins may already be incorporated into an operator's maintenance program.

C. ANALYSIS.

Existing analyses were reviewed to identify components in areas that may have exhibited the potential for additional inspection requirements.

D. TESTS.

A review of test results applicable to the design was made. The loading conditions together with the static and fatigue test results were evaluated. The resulting data were used to determine if the component should be considered as an SSD for incorporation into the CAP.

E. INSPECTION OF AIRCRAFT.

High-time aircraft were disassembled for inspection to assist in selecting SSD's. Other high-time aircraft special inspection results supplement these inspections.
The effects of corrosion have not been considered in the rationale in selecting SSD's or in the effects on the fatigue stresses. It is difficult to determine the effects of corrosion, but as the reports from the CAP inspections are received, the inspection times will be adjusted as necessary dependent upon the severity of the discrepancy.

NOTE

If aircraft has any history of low level overland survey the initial and repeat inspection interval is halved.

3-0. REPORTING-COMMUNICATIONS.

For the CAP to be successful on a continuing basis, it is essential that a free flow of information exist between the operator, FAA and Cessna. The significant details of inspection results, repairs and modifications accomplished must be communicated to Cessna in order to assess the effectiveness of their recommended inspection procedures and time intervals. In some cases, extensions of inspection frequencies may be possible if the data suggests that the onset of fatigue problems occurs at a greater number of flight hours than initially predicted.

Additionally, items not previously considered for inclusion in the CAP may be uncovered through operator inspections and reporting. These items will be evaluated by Cessna and, if applicable generally to the aircraft configurations concerned, will be added to the document for the benefit of all.

A reporting system, consistent with the systems employed by CESSNA PROPELLER PRODUCT SUPPORT ORGANIZATION has been established and incorporated into this document. Copies of the appropriate forms are available to you from a Cessna Service Station or Factory Field Service Engineer.

3-1. DISCREPANCY REPORTING.

Discrepancy reporting is essential to provide for adjusting the inspection thresholds and the repeat times up or down, as well as adding or deleting SSD's. Based on the data reported, it may be possible to improve the inspection methods, repairs and modifications involving the SSD's.

All cracks and significant corrosion found involving the inspection of an SSD shall be reported to Cessna within 10 days. The SSD inspection results are to be reported on a form as shown on the following pages.

3-2. DISCREPANCY FORM DISPOSITION.

Send all available data including repairs, photos, etc., to:

Cessna Aircraft Company
Attn: CAP Program
Technical Support Services
Dept. 751
P.O. Box 7706
Wichita, Kansas 67277
Fax 1-316-942-9006

NOTE

This system does not supersede the condition reporting system of communication for items not covered by the CAP.

3-3. CESSNA FOLLOW-UP ACTION.

All SSD reports will be reviewed to see if any of the following action should be taken:

1. Check effect on structural or operational integrity.
2. Check other high-time aircraft to see if Service Bulletin should be considered.
3. See if reinforcement is required.
4. Revise CAP inspection document if required.

4-0. BASIC INFORMATION.

This CAP applies to the 300 Series Aircraft. Refer to individual 300 Series Service Manuals for specific inspection programs on your aircraft.

4-1. INSPECTION.

1. GENERAL

A. A recommended method of inspection is given; however, if the operator can show that an alternate method is equal to or better than the suggested method for detecting damage, then it will be considered as a possible alternate inspection method.

B. The following general eddy current inspection shall be used where called out as "INSPECTION PROCEDURE" within Section III.

C. Eddy current inspect using an eddy current test instrument capable of detecting the simulated cracks in a bolt hole and surface reference standard equivalent to the HRS-10A AND SRS-123A, standard available from NDT Engineering, 7056 S. 220th, Kent, WA 98032.

D. The following general liquid penetrant inspection shall be used where called out as "INSPECTION PROCEDURE" within Section III.

E. Penetrant inspection is used to detect small cracks or discontinuities open to the surface which may not be evident by normal visual inspection. Penetrant inspection can be used on most airframe parts and assemblies accessible for its application. The inspection is performed by applying a liquid which penetrantes into surface defects so that visual indications are obtained by color contrast or fluorescence of the penetrant under the display of black light. The penetrant method of inspection requires that the surface in the inspection area be thoroughly clean and free of paint.

2. MATERIALS AND EQUIPMENT

A. Due to the high sensitivity and the ability to detect fatigue cracks open to the surface, portable fluorescent penetrant system is required as the inspection method when specified for penetrant inspection of specific areas of the airframe structure.

B. The following penetrant materials are used to make a complete self-contained fluorescent penetrant kit. There are several manufacturers of fluorescent penetrant materials which are satisfactory, provide the materials are used as a family group. A family is a series of items required to perform a specific method or process of penetrant inspection which is furnished by one manufacturer.

Equipment		Manufacturer
ZA 43	Fluorescent Penetrant Kit contains the following:	Magnaflux Corporation 7300 W. Lawrence Avenue Chicago, IL 60656
	ZL-22A Penetrant	
	ZP-9B Nonaqueous Developer	
	ZP4 Dry Power Developer	
	SKC-7 Cleaner	
	ZB-32A Portable Black Light	

3. PROCEDURES

A. Surface Cleaning

(1) The area to be inspected must be free from any dirt, grease, oil, paint or any contaminants which would mask or close a defect open to the surface. The surface should be dry before applying the penetrant.

CAUTION: DO NOT USE TRICHLORETHYLENE AS A CLEANING AGENT ON TITANIUM OR HIGH NICKEL ALLOY MATERIALS.

(2) The penetrant materials and the area to be tested shall have a temperature of 60°F to 130°F

B. Application Of Penetrant.

(1) Completely cover the area of inspection with penetrant by brushing. Allow penetrant to remain on the area for a minimum of 30 minutes. After 35 minutes, reapply using a scrubbing action. This will help in the removal of the penetrant from the surface by loosening the previously applied partially dried penetrant.

C. Removal Of Excess Penetrant.

(1) Remove excess penetrant from surface by wiping with a clean dry lint-free cloth. Remove remaining penetrant with a clean lint-free cloth, dampened with penetrant cleaner. Do not flush surface with penetrant cleaner as this will flush penetrant from defects. Examine inspection area under the black light to ensure removal of all surface penetrant.

D. Application Of Developer.

(1) The essential step in applying developer is to get the minimum thickness possible..The best results are obtained by a very thin coating. The Film of developer should be slightly translucent. When applying dry power developer, thoroughly dust area, then blow off excess power. When applying nonaqueous wet developer from a pressurized can, spray a thin coat on the surface and allow to dry in ambient air. The developer liquid shall be agitated frequently to prevent settling of the solid particles in the liquid vehicle. The full dwell time after developer has been applied should be no less than 5 minutes.

E. Interpretation Of Indications.

(1) An 8X magnifying glass should be used to examine area unless indications are visible to the naked eye. Any surface break will be revealed by fluorescent indication on a blueish background. A fluorescent line will indicate a crack and will be sharply defined at first and the amount of bleeding gives a clue to the depth of the crack. Inspectors should watch indications grow, since the first sharp indications tell much of the nature of the defect, and the amount of bleeding gives information as to the extent. A deep discontinuity indication will reappear a number of times when wiped clean and developer reapplied.

4-2. MANUALS/PARTS.

Cessna has a number of documents that are useful to maintaining continued airworthiness of aircraft:

Cessna 300 Series Service Manuals.
Cessna 300 Series Parts Catalogs
Cessna Multi Engine Service Bulletin Summaries
Cessna Newsletter Summaries

For information regarding these documents, contact:

Cessna Aircraft Company Supply Division
Attn: SPA Department
P.O. Box 949
Wichita, Kansas 67201
Fax 1-316-68-84187

4-3. SERVICE LETTERS/BULLETINS.

As an aid to the operator, a listing of all the Service Letters/Bulletins pertaining to these 300 Series Aircraft CAPS, are listed in Section 1, titled: TECHNICAL DOCUMENT REFERENCE. For information concerning the technical data included in these Service Letters/Bulletins that apply to your aircraft, you may contact Cessna's Propeller Technical Information Services, Department 753. The telephone number for customer assistance is (316) 941-7550/Fax 1-316-942-9006. A Service Bulletin Listing Program, that provides a list of all Cessna Service Bulletins and Service Newsletters, applicable to a particular airplane model and serial number is also available from Cessna. This service is obtained by calling (316) 941-6118/Fax 1-316-342-9006.

5-0. APPLICABILITY/LIMITATIONS.

The Cessna 300 series aircraft have had many modifications that were accomplished under STC's by other organizations without Cessna Engineering involvement. Because Cessna does not have knowledge of the airworthiness of STC's, this report cannot apply to those areas affected by such STC's and the STC holder should prepare a CAP for each particular modification.

6-0. SIGNIFICANT DETAILS.

This section contains the significant details selected by the rationale process described in paragraph 2-2. These items are considered significant to maintain continued airworthiness of all Cessna 300 series models. Service Bulletins considered mandatory for airworthiness will be listed in Section 1, TECHNICAL DOCUMENT REFERENCE.

A summary of the CAPs is shown in the section titled: LISTING OF CONTINUED AIRWORTHINESS INSPECTIONS. This can be used as a checklist by the operators.

6-1. CAP FORMS.

Each CAP will be listed on a form and will contain the following:

1. Continued Airworthiness Inspection Number.
2. Title.
3. Effectivity.
4. Inspection Compliance.
5. Initial.
6. Repeat.
7. Purpose.
8. Inspection Procedure.
9. Access/Location.
10. Detectable Crack Size.
11. Inspection Procedure.
12. Repair/Modification.
13. Comments.

6-2. REPAIR INFORMATION/MODIFICATION

Repairs may be made in accordance with the applicable Cessna Service/Maintenance Manual or FAA AC43-13 acceptable methods of alteration and repair. Any repair not covered by the recommendations in this CAP Program may be coordinated with Cessna Technical Information Services at Telephone (316) 941-7550/Fax 1-316-942-9006.

CESSNA AIRCRAFT COMPANY
MODEL 300 SERIES
CONTINUED AIRWORTHINESS PROGRAM

Discrepancy Report

CAP'S NO:_____ AIRPLANE LOCATION:_____S/N OF AIRPLANE:_____

INSPECTION CONDUCTED: Date_____ Airplane Total Hours_____Cycles_____

Component Total Hours_____Cycles_____

SERVICE HISTORY:

_____

_____

_____

INSPECTION METHOD/LIMITS:

_____

_____

_____

ACCESS REQUIRED:

_____

_____

_____

REPAIR DESCRIPTION:

_____

_____

_____

COMMENTS:

_____

_____

_____

Enclose all available data including photos, sketches, etc to :

Cessna Aircraft Company
Attn: CAP Program
Technical Support Servies
Dept. 751
P.O. Box 7706
Wichita, Kansas 67277
FAX 1-316-942-9006