INSPECTION DOCUMENT 22

Date: _____

Registration Number: _____

Serial Number: _____

Total Time: _____

1. Description

A. Inspection Document 20 gives a list of required 14 CFR 91.413 interval item(s), which are completed every 24 calendar months (No grace period).

B. Inspection items are given in the sequence of the zone in which the inspection is completed. A description of the inspection, as well as the Item Code Number are supplied for cross-reference to section 5-10-01. Frequently, tasks give more information about each inspection. These tasks are found in the individual chapters of this manual.

C. The right portion of each page gives space for the mechanic's and inspector's initials and remarks. You can use copies of these pages as a checklist while you complete the tasks in this Inspection Document.

2. General Inspection Criteria

A. As you complete each of the inspection tasks in this Inspection Document, examine the adjacent area while access is available to find conditions that need more maintenance.

B. If it is necessary to replace a component or to make a change to a system while you complete a task, do the task again before the system or component is returned to service.

C. Inspection Kits are available for some Inspection Documents. They supply consumable materials used to complete the inspection item(s) given for the interval. Refer to the Model 208 Illustrated Parts Catalog, Introduction, Service Kit List to find applicable part numbers.

ITEM CODE NUMBER	TASK	ZONE	MECH	IN-SP	REMARKS
B345001	Transponder Functional Check Task 34-50-00-720	AUX			
	*** End of Inspection Document 22 Inspection Items ***				

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Retain printed data for historical reference only. For future maintenance, use only current data.

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Task 34-50-00-720

2.   Transponder Functional Check

CAUTION: When you set a transponder code, make sure that you do not radiate any of the following codes unintentionally: Code 7777 - Military Intercept Code, Code 7500 - Hijack Code, Code 7600 - VHF Com Receiver Failure Code, or Code 7700 - Emergency Code.

NOTE: It is necessary to calibrate the transponders at intervals in accordance with 14 CFR Part 91.413. You must calibrate the transponders in an approved altimeter repair facility by approved personnel with approved equipment and documentation established in 14 CFR Part 91.413. It is necessary to do an altitude reporting check after the transponder is certified and installed in the airplane.

A.   General
  (1)   This task gives the procedures to do a functional check of the transponder.

B.   Special Tools

   NOTE: Equivalent tools and equipment can be used.

  (1)   ATC-601 Ramp Test Set
  (2)   Air Data Test set - LAVERSAB Model 65000 or Barfield 101-00184
  (3)   Pitot Static Test Adaptor - (Nav-Aids Ltd. PS4769)
  (4)   External Electrical Power Unit

C.   Access
  (1)   None

D.   ATC-601 Ramp Test Set Setup.
  (1)   Connect the coaxial cable supplied with the ATC-601 Ramp Test Set (antenna connector) to the flat plate antenna, which is also supplied with the test set.
  (2)   Put the antenna in a position so that no large metal objects are between the tester antenna and the aircraft transponder antenna.
  (3)   Apply power to the ATC-601 Ramp Test Set.
    (a)   Push the Setup button.
  (4)   Measure the horizontal distance in feet along the shop floor or ramp between the antennas.
  (5)   Use the Select and Slew buttons to put that value in the Range field.
  (6)   Measure the vertical distance between the aircraft transponder antenna and the ATC-601 Ramp Test Set antenna.
  (7)   Use the Select and Slew buttons to put that value in the Height field.
  (8)   Use the gains from the ATC-601 Ramp Test Set flat plate antenna label and put the values in the Gain 1030= and Gain 1090= fields.
  (9)   Use the value from the sleeve on the coax cable and put in the value in the Loss= field.
  (10) Make the bottom antenna the selection for the test.
    (a)   If an upper transponder antenna is installed, it is necessary to do the test again for that antenna. This test will apply only to the Mode S configured airplane.

E.   Do the Transponder Functional Check.

   NOTE: This functional check is applicable to all Model 208 Mode A , C, & S transponders to include Honeywell KT-70 series transponder systems, Garmin GTX 327, 330, & 33 series transponder systems, and the Sperry RT 459 transponder system.

   NOTE: If airplane is Mode A & C only, it will have a failure for all Mode S functions. The display will show Modes that are satisfactory. Disregard Mode S failures.

  (1)   Apply external electrical power to the airplane.
  (2)   Set the external power switch to BUS.
  (3)   Set the battery switch to ON.
  (4)   Set the avionics switches 1 and 2 to ON.

(5) Make sure that the transponder circuit breakers XPDR 1 and XPDR 2 on the lower left circuit breaker panel are engaged.

(6) If applicable, make sure that the XPDR 1 or XPDR 2 switch is set to the correct position for the test.

(7) Tune and make sure that the transponder code is 0600 on the transponder to be tested.

(8) Select the transponder being tested to the ON position and let it warm-up for fifteen minutes.

(9) Select the ALT position on the transponder being tested.

(10) Push the Auto Test button on the ATC-601 Ramp Test Set.

    (a) Push the Run/Stop button to start the test.

        1   Make sure that the transponder passes all of the tests.

        2   During the test, make sure that the reply annunciator on the front panel shows R.

(11) Use the Select button on the ATC-601 to display the Squitter test selection.

    (a) Make sure that the United States tail number or foreign registration code is shown correctly.

(12) Push the Select button on the ATC-601 Ramp Test Set.

CAUTION: Make sure that the ATC-601 Ramp Test Set altitude is shown in 100's to agree with the transponder.

    (a) Make sure that the ALT= field agrees with the pilot's encoding altimeter.

    (b) Make sure that the CODE= field agrees with the squawk code on the face of the transponder.

    (c) The transmitting power specification (Spec) is from 125 watts minimum to 500 watts maximum.

    (d) The receiver MTL Spec for Mode S transponders is -74 dbm +3 or -3 dbm.

        1   The receiver MTL Spec for all other transponders is -73 dbm +4 or -4 dbm.

    (e) The frequency Spec for Mode S transponders is 1090 MHz +1 or -1 MHz.

        1   The frequency MTL Spec for all other transponders is 1090 MHz +3 or -3 MHz.

(13) Connect the air data tester to the airplane pitot/static system.

(14) Adjust the Baro on the encoding altimeter to show a barometric setting of 29.92 inches of Mercury.

(15) Use the air data test set and increase the altitude to 25,000 feet.

    (a) Continuously make sure that the altitude displays on the encoding altimeter, transponder, and the ATC-601 Ramp Test Set show the same altitude, +125 or -125 feet, as the altitude increases to 25,000 feet.

(16) Use the air data test set and slowly decrease the altitude to the field elevation.

(17) Push the XPDR IDENT switch on the pilot's control wheel.

    (a) Make sure that the R (Reply) annunciator shows to the right of the digits of the transponder code in the window.

    NOTE: The IDT annunciator comes on for 18 seconds, +1 or - 1 second, after the start of an IDENT.

(18) If applicable, do this test again for the upper antenna.

(19) If applicable, do this test again for the second transponder system.

(20) After the tests are complete, select the OFF position on the transponder.

(21) Set the avionics switches 1 and 2 to OFF.

(22) Set the battery switch to OFF.

(23) Set the external power switch to OFF.

(24) Remove the air data tester from the airplane.

(25) Remove the external electrical power from the airplane.

(26) Remove the power from the ATC-601 Ramp Test Set.

End Task