

FAA Airworthiness Records and Advisory Circular Excerpts

NTSB Investigation: ERA22LA215, C414, N46TA



US Department
of Transportation
Federal Aviation
Administration

MAJOR REPAIR AND ALTERATION
(Airframe, Powerplant, Propeller, or Appliance)

OMB No. 2120-0020
Exp: 5/31/2018

Electronic Tracking Number

For FAA Use Only

INSTRUCTIONS: Print or type all entries. See Title 14 CFR §43.9, Part 43 Appendix B, and AC 43.9-1 (or subsequent revision thereof) for instructions and disposition of this form. This report is required by law (49 U.S.C. §44701). Failure to report can result in a civil penalty for each such violation. (49 U.S.C. §46301(a))

1. Aircraft	Nationality and Registration Mark N46TA	Serial No. 414-0466	
	Make Cessna	Model 414	Series
2. Owner	Name (As shown on registration certificate) BJK Aviation LLC	Address (As shown on registration certificate)	
		Address	City

3. For FAA Use Only

4. Type		5. Unit Identification			
Repair	Alteration	Unit	Make	Model	Serial No.
☐	☒	AIRFRAME	Cessna	(As described in Item 1 above)	414-0466
☐	☐	POWERPLANT			
☐	☐	PROPELLER			
☐	☐	APPLIANCE	Type		
			Manufacturer		

6. Conformity Statement

A. Agency's Name and Address		B. Kind of Agency	
Name	Air Travel Management LLC	☐ U. S. Certified Mechanic	☐ Manufacturer
Address		☐ Foreign Certified Mechanic	C. Certificate No.
City		☒ Certified Repair Station	
Zip		☐ Certified Maintenance Organization	

D. I certify that the repair and/or alteration made to the unit(s) identified in item 5 above and described on the reverse or attachments hereto have been made in accordance with the requirements of Part 43 of the U.S. Federal Aviation Regulations and that the information furnished herein is true and correct to the best of my knowledge.

Extended range fuel per 14 CFR Part 43 App. B ☐	Signature/Date of Authorized Individual Mark Shipley Date: 12-17-2019
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7. Approval for Return to Service

Pursuant to the authority given persons specified below, the unit identified in item 5 was inspected in the manner prescribed by the Administrator of the Federal Aviation Administration and is ☒ Approved ☐ Rejected

BY	FAA Flt. Standards Inspector	Manufacturer	Maintenance Organization	Persons Approved by Canadian Department of Transport
	FAA Designee	Repair Station	X Inspection Authorization	Other (Specify)

Certificate or Designation No.	Signature/Date of Authorized Individual Mark Shipley Date: 12-17-2019
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NOTICE

Weight and balance or operating limitation changes shall be entered in the appropriate aircraft record. An alteration must be compatible with all previous alterations to assure continued conformity with the applicable airworthiness requirements.

8. Description of Work Accomplished

(If more space is required, attach additional sheets. Identify with aircraft nationality and registration mark and date work completed.)

N46TA

11/30/2019

Nationality and Registration Mark

Date

Aircraft Total Time 8200.0 hrs

Removed Bendix / King KT76A Transponder

Installed and tested Appareo Stratus ESG ADS-B Compliant Transponder and Trans Cal Blind Encoder SSD 120-35C, in accordance with Stratus ESG Installation Instructions, Document No. 600840-000032, Revision 1.4 dated June 22, 2016 and FAA Policy Notice No. N8900.362.

This installation is a follow on to STC No. SA04112CH. The installed ADS-B out system was shown to meet the equipment performance requirements of 14 CFR part 91.227.

Weight and Balance Data, Equipment List, and Airframe Logs updated to reflect this change this date. Performed an electrical; Load Analysis and found total load does not exceed 80% of rated capacity.

Inserted FAA Approved Airplane Flight Manual Supplement, Appareo Document No. 606586-000075, Revision 1.6 dated July 7, 2016 in the Pilots Operating Handbook.

Reference Instructions for Continued Airworthiness, Appareo Document No. 600845-000025, Revision 1.2 dated June 22, 2016

END

☐ Additional Sheets Are Attached

MAJOR REPAIR AND ALTERATION (Airframe, Powerplant, Propeller, or Appliance)				Form Approved OMB No. 2120-0020	
				For FAA Use Only	
				Office Identification	
INSTRUCTIONS: Print or type all entries. See FAR 43.9, FAR 43 Appendix B, and AC 43.9-1 (or subsequent revision thereof) for instructions and disposition of this form. This report is required by law (49 U.S.C. 1421). Failure to report can result in a civil penalty not to exceed \$1,000 for each such violation (Section 901 Federal Aviation Act 1958)					
1. Aircraft	Make	Cessna	Model	414	
	Serial No.	414-0466	Nationality and Registration Mark	N46TA	
2. Owner	Name (As shown on registration certificate)		Address (As shown on registration certificate)		
	Buildit Company LC				
(The information/data identified herein complies with the applicable airworthiness requirements and is approved only for the above described aircraft subject to conformity inspection by a person authorized in FAR 43, section 43.7)					
DATE 8-15-2006 FAA INSPECTOR-SW-FSDO, OKC					
4. Unit Identification				5. Type	
Unit	Make	Model	Serial No.	Repair	Alteration
AIRFRAME	(As described in item 1 above)				X
POWERPLANT					
PROPELLER					
APPLIANCE	Type				
	Manufacturer				
6. Conformity Statement					
A. Agency's Name and Address		B. Kind of Agency		C. Certificate No.	
Calvin Taff Electronics, Inc.		U.S. Certified Mechanic		Radio Class 1 & 2	
		Foreign Certified Mechanic		Limited Radio,	
		X Certified Repair Station			
		Manufacturer			
I, _____, certify that the repair and/or alteration made to the unit(s) identified in item 4 above and described on the reverse or attachments hereto have been made in accordance with the requirements of Part 43 of the U.S. Federal Aviation Regulations and that the information furnished herein is true and correct to the best of my knowledge.					
Date		Signature of Authorized Individual			
August 3, 2006		Calvin Christopher Taff			
7. Approval for Return to Service					
Pursuant to the authority given persons specified below, the unit identified in item 4 was inspected in the manner prescribed by the Administrator of the Federal Aviation Administration and is ☒ APPROVED ☐ REJECTED					
BY	FAA Fit Standards Inspector	Manufacturer	Inspection Authorization	Other (Specify)	
	FAA Designee	X Repair Station	Person Approved by Transport Canada Airworthiness Group		
Date of Approval or Rejection		Certificate or Designation No.	Signature of Authorized Individual		
August 15, 2006		IX2R914K	Calvin Christopher Taff		

NOTICE

Weight and balance or operating limitation changes shall be entered in the appropriate aircraft record. An alteration must be compatible with all previous alterations to assure continued conformity with the applicable airworthiness requirements.

8. Description of Work Accomplished

(If more space is required, attach additional sheets. Identify with aircraft nationality and registration mark and date work completed.)

Cessna 414; SN 414-0466; N46TA

Installed GNS 530 PN 011-00550-10 SN 78416288 in the #2 position of the left side Radio Stack at F.S. 110.00. Associated Aero Services installed a hard point for GPS Antenna GA-56 on top of the Aircraft at F.S. 150.00. The existing doubler was deficient see their work order for details.

The GNS 530 was interfaced with the existing blind encoder, KMA 24 Audio Panel, the KI-525A HSI and newly installed STEC 55X Autopilot. A placard was installed stating "GPS NOT APPROVED FOR IFR" until appropriate flight tests and paperwork have been completed and approved.

The equipment was installed as per instructions GNS 530 Installation Manual Number 190-00181-02 rev Q dated November 2005; Continued Airworthiness is per Appendix A paragraph A.1 page A-1 of the Install Manual.

Mounting and Wiring as per FAA AC 43.13-1B Chapters Ten, Eleven and Twelve. AC 43.13-2A Chapter Two. Aircraft Weight and Balance was computed and placed in Aircraft Flight Manual with Operator's Manuals.

End

FAA AC 43.13-2A (Cancelled) - [Large AC] Acceptable Methods, Techniques, and Practices - Aircraft Alterations

Date Cancelled

March 03, 2008

Date Issued

January 01, 1977

Rev. 1977

AC 43.13-2A

Chapter 2. RADIO INSTALLATIONS

21. INSTALLATION. When installing radio equipment, first consider areas or locations designated by the airframe manufacturer and use factory supplied brackets or racks. Follow the aircraft manufacturer's installation instructions. When this information is not available, use locations in the aircraft of known load carrying capabilities. Baggage compartments and cabins or cockpit floors are good mounting platforms providing the floor attachments meet the strength requirements. Another method is to fabricate support racks, brackets, or shelves, and attach them to the aircraft structure to provide a mounting that will withstand the inertia forces stipulated in chapter 1 of this handbook.

a. Determine that the location and installation of radio equipment provides:

(1) Sufficient air circulation to avoid overheating.

(2) Sufficient clearance between high temperature areas of equipment and readily flammable materials.

(3) Protection from potentially hazardous fluids and/or fumes; e.g., water (condensation), fuel, hydraulic fluid, or oxygen units.

(4) Protection against damage from baggage or by seat deflection.

(5) Sufficient clearance to avoid equipment striking adjacent parts of the aircraft or other equipment.

(6) Minimum interference to other installed navigational equipment from the emission of radar/pulse frequencies or from electromagnetic induction.

22. EQUIPMENT MANUFACTURER'S INSTRUCTIONS. Installation instructions provided by the aircraft radio manufacturer are acceptable guidelines when adapted to the aircraft in accordance with data contained in this chapter.

23. INSTRUMENT PANEL MOUNTING. Data in this paragraph is supplemented by chapter 2 of AC 43.13-1A, "Acceptable Methods, Techniques, and Practices—Aircraft Inspection and Repair"

and is applicable to the installation of radio units in instrument panels.

a. Stationary Instrument Panels—Nonstructural and Structural. The stationary instrument panel in some aircraft is primary structure. Prior to making any additional "cutouts" or enlargement of an existing "cutout" determine if the panel is primary structure. If the panel is structural, make additional "cutouts" or the enlargement of existing "cutouts" in accordance with the aircraft manufacturer's instructions, or substantiate the structural integrity of the altered panel in a manner acceptable to the Administrator. Radius all corners and remove all burrs from "cutout" and drilled holes.

b. Added Equipment — Stationary Instrument Panel. When radio equipment is to be installed in a stationary panel already supporting instruments, glove compartments, etc., determine the capability of the panel to support the total load.

c. Case Support. To minimize the load on a stationary instrument panel, whenever practicable, install a support between the rear (or side) surface of the radio case and a nearby structural member of the aircraft.

d. Added Equipment—Shockmounted Panels. When installing radio equipment designed for use in shockmounted panels, total accumulated weight of equipment installed must not exceed the weight carrying capabilities of the shockmounts. Determine that the structure to which the shockmounts are connected is satisfactory for the added weight.

e. Existing Factory Fasteners. When possible, utilize existing plate nuts and machine screws provided by the aircraft manufacturer for attachment of the radio case or rack. If additional fastening is required, use machine screws and elastic stop nuts (preferably plate nuts).

f. Magnetic Direction Indicator. As a function of the radio installation, determine if it is necessary to compensate the compass. Install a suitable placard which indicates the compass error

AC 43.13-2A

Rev. 1977

with the radio(s) on and off. The receiver(s) should be tuned through the low, middle and higher frequencies to cover all contingencies involving the operation of relays which would cause electromagnetic induction to the magnetic compass. When inverters are installed, deter-

Typical Compass Calibration Card

FOR	N	30	60	E	120	150
Radio On.						
Steer	4°	35°	63°	93°	123°	154°
Radio Off.						
Steer	358°	27°	58°	88°	118°	148°
FOR	S	210	240	W	300	330
Radio On.						
Steer	183°	214°	224°	274°	304°	337°
Radio Off.						
Steer	178°	208°	238°	268°	293°	327°

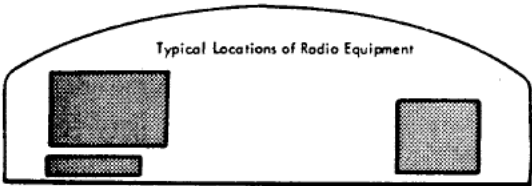


FIGURE 2.1.—Typical radio installations in stationary instrument panels.

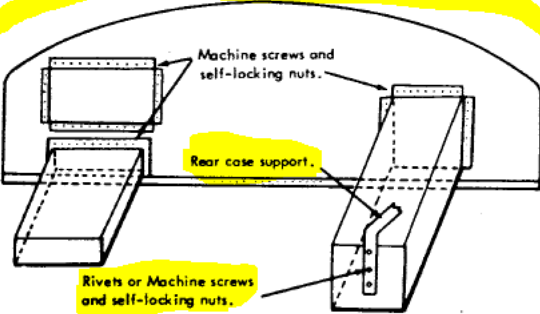
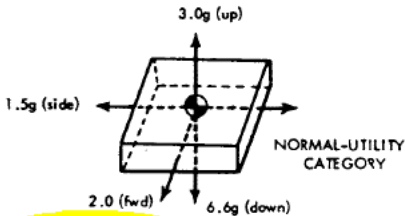


FIGURE 2.2.—Typical panel mount.

mine what effect their operation has on the magnetic compass. Maximum acceptable deviation in level flight is 10° on any heading. The following is an example of a typical compass calibration card.

24. OTHER MOUNTING AREAS. The following are acceptable methods for installing radio equipment at other than instrument panel locations.

a. Shockmounted Units.

(1) Wood or Composition Flooring. Secure the shockmounted base assembly (suitable to radio unit) directly to the floor using machine screws. Add a doubler to the bottom of the floor thereby sandwiching the composition floor between each shockmount foot and the doubler. Subsequent removal and reinstallation of the shockmount foot will be facilitated if plate nuts are secured to the doubler. Where practicable, use small retaining screws to keep the doubler in position. Install a ground strap between the radio rack and metal structure of the aircraft.

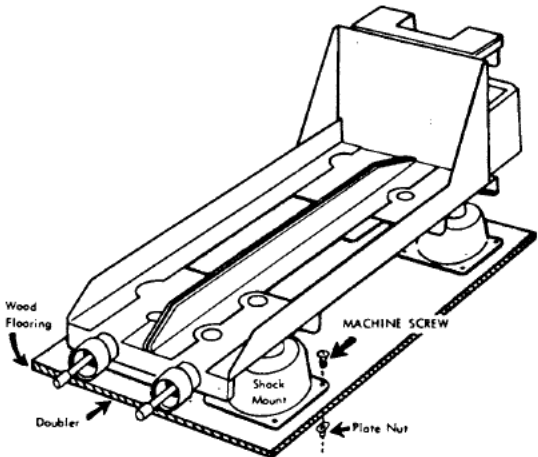


FIGURE 2.3.—Typical shockmounted base.

(2) Metal Flooring. Secure the shockmounted base assembly directly to the floor using machine screws, washers, and self-locking nuts. Floor area under and around the radio mounting bases may require installation of doublers or other reinforcement to prevent flexing and cracking. Installation of plate nuts on the floor or doubler will facilitate removal and installation of the shockmounts. Install a ground strap between the shockmount foot and the radio rack.

FAA AC 43.13-2B - Acceptable Methods, Techniques, and Practices - Aircraft Alterations

Date Issued
March 03, 2008
(Remains current)

3/3/08

AC 43.13-2B

FIGURE 2-2. TYPICAL FABRICATED PANEL MOUNTING

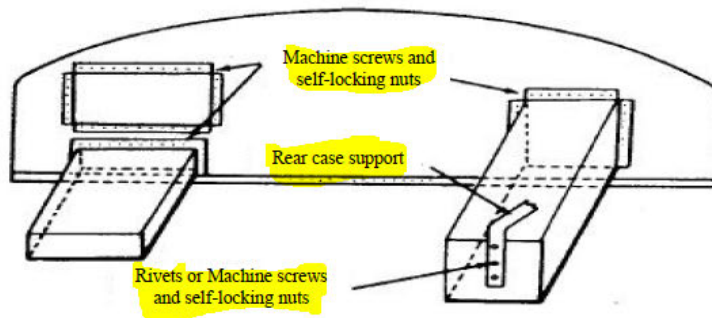
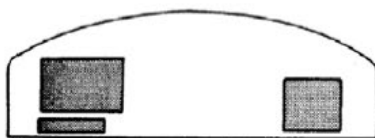
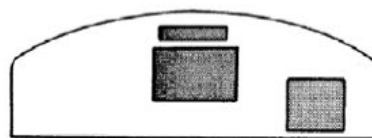


FIGURE 2-3. TYPICAL LAYOUTS



Typical layout older aircraft



Typical layout newer aircraft

(6) Existing structures may be reinforced or strengthened using methods described in AC 43.13-1 (as amended).

203. INSTRUMENT PANEL MOUNTING. This paragraph is supplemented by AC 43.13-1 (as amended), chapter 2, and is applicable to the installation of radio units in instrument panels.

a. Stationary Instrument Panels—Nonstructural and Structural. The stationary instrument panel in some aircraft is part of the primary structure. Prior to making any additional “cutouts” or enlargements of an existing “cutout,” determine if the panel is part of the primary structure. If the panel is structural, make additional “cutouts” or the enlargement of existing “cutouts” in accordance with the aircraft manufacturers’ instructions, or substantiate the structural integrity of the altered panel in a manner acceptable to the Administrator. Radius all corners and remove all burrs from “cutout” and drilled holes.

b. Added Equipment Stationary Instrument Panel. When radio equipment is to be installed in a stationary panel already supporting instruments, glove compartments, etc., determine the capability of the panel to support the total load.

c. Case Support. To minimize the load on a stationary instrument panel, whenever practicable, install a support between the rear (or side) surface of the radio case and a nearby structural member of the aircraft (Figure 2-2).

d. Added Equipment—Shock-Mounted Panels. When installing radio equipment designed for use in shock-mounted panels, total accumulated weight of equipment installed must not exceed the weight carrying capabilities of the shock mounts. Determine that the structure to which the shock mounts are connected is satisfactory for supporting the added weight.

e. Existing Factory Fasteners. When possible, use existing plate nuts and machine screws provided by the aircraft manufacturer for attachment