



US Department
of Transportation
Federal Aviation
Administration

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

OMB No. 2120-0020
Exp: 8/31/2014

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 USA N20844	Serial No. 182261251		
	Make Cessna	Model 182P	Series Skylane	
2. Owner	Name (As shown on registration certificate) P&T Aerial Services LLC		Address (As shown on registration certificate) Address [REDACTED]	
			City Chandler	State AZ
			Zip 85286	Country USA

3. For FAA Use Only

The alteration/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

[REDACTED] 11/5/2014
FAA INSPECTOR SDL-FSDO WP-07 DATE

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

6. Conformity Statement

A. Agency's Name and Address		B. Kind of Agency	
Name Stephen Hartwell		☒ U. S. Certificated Mechanic	Manufacturer
Address [REDACTED]		☐ Foreign Certificated Mechanic	C. Certificate No.
City Casa Grande	State AZ	☐ Certificated Repair Station	
Zip 85122	Country USA	☐ Certificated Maintenance Organization	[REDACTED]

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 [REDACTED] 01/11/2014
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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	Inspection Authorization	
Certificate or Designation No. IA		Signature/Date of Authorized Individual [REDACTED] 01/11/2014		

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.)

Page 1

USA N20844

15 October 2014

Nationality and Registration Mark

Date

This document is an amendment to FAA Form 337, Dated 19 Sept. 2012.

The following alterations were made to the right cabin door, right pilot step, right control yoke, exterior and interior of this aircraft for the purpose of in flight jump operations. Engineering substantiation documents are referenced.

CABIN DOOR

Modification in accordance with form 8110-3 performed by Rex Lou, DER, [REDACTED] NM structure. Dated 11 September 2012. Report number 182P-18261251. This modification changes the right door hinge location to allow up and down operation in lieu of the fore and aft door opening and closing sequence in accordance with report #.182P-18261251-1, dated 7/31/12, Para 2 and Para 2.A, thru 2.H. Substantiation for the door is contained in Compliance Report for Cessna 182P N20844 Jump Door and Step Date 10-25-14

RIGHT STRUT STEP

Modification in accordance with form 8110-3 performed by Rex Lou, DER, [REDACTED] NM structure. Dated 11 September 2012. Report number 182P-18261251, Para 2, 2.I A 14 inch by 6 inch, 1/4 in thick aluminum diamond plate has been added to the right landing gear production step. This step is to aid the safe exiting of skydivers from the airplane. This step is bolted directly in place to the production step using NAS517 bolts and MS21045-035 lock nuts. Substantiation for the step is contained in Compliance Report for Cessna 182P N20844 Jump Door and Step Date 10-25-14

RIGHT CONTROL YOKE

Per Instructions for yoke removal Cessna 182P N20844, dated 10-25-14, the control arm disconnected in accordance with the maintenance manual and a protective cover installed.

INTERIOR

Modification in accordance with form 8110-3 performed by Rex Lou, DER, [REDACTED] NM structure. Dated 11 September 2012. Report number 182P-18261251, Para 1.

- Right pilot and rear passenger seats removed.
- Two additional seat belts installed on the same station points that mounted the rear seat.
- Added a third seat belt to the pilots seat rail rear station point.

EXTERIOR

Modification in accordance with form 8110-3 performed by Rex Lou, DER, [REDACTED] NM structure. Dated 11 September 2012. Report number 182P-18261251 Para J.

- A latch for holding the jump door upright and open during ground operations was fabricated from standard aircraft aluminum and attached to the second inspection plate on the right wing.
- Wheel fairings were removed.

This aircraft N20844, S/N: 18261251, 182P may be configured from passenger to parachute operations and reconfigured back to passenger operations by a certified airframe mechanic. The pilot may remove and install seat belts and seats in accordance with Part 43, and with the aircraft maintenance manual.

"LIMITATIONS FOR THE OPERATION OF AN AIRCRAFT WITH A DOOR REMOVED ARE ABOARD THE AIRCRAFT"
Additional aircraft operating limitations required for this modification are contained in the FAA Approved Supplemental Airplane Flight Manual, Cessna 182P, Flight Operations for Skydiving/Photography Door, Serial No.18261251 Reg No. N20844, Dated 10/31/2014.

When the aircraft is configured for parachute operations, insure a copy of the limitations of operations are on board the aircraft

☐ Additional Sheets Are Attached

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.)

page 2

USA N20844

15 October 2014

Nationality and Registration Mark

Date

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS IN ACCORDANCE WITH AC43-210, Par 509, Pages 19 & 20
A/C Make: Cessna Model: 182P S/N: 182261251 N20844

Items covered under this continued airworthiness section include a modified cabin door, Addition of a right hand step, Reconfiguring and addition of seat belts, Removal of the right control yoke and shaft.

1. INTRODUCTION: This aircraft modified to facilitate parachute operations.
2. DESCRIPTION: Right hand cabin door modified to open vertically and a step mounted to the right main gear to facilitate parachutists to exit the aircraft while in flight. All seats removed except pilot seat, to accommodate four parachutists. Seat belts have been added and reconfigured to accommodate these parachutists. The right hand control yoke removed, the yoke control shaft is secured, and a padded ball is installed to prevent injuries to parachutists.
3. CONTROL OPERATION INFORMATION: Door is to be operated in accordance with Supplemental Airplane Flight Manual, Cessna 182P, "Flight Operations For Skydiving / Photography Door" Serial No. 18261251 Regist. # N20844 FAA Approved date Oct. 31, 2014. This supplement should be installed in the Aircraft Flight Manual
4. SERVICING INFORMATION: For servicing refer to the aircraft maintenance manual
5. MAINTENANCE INSTRUCTIONS: Follow the maintenance and inspections procedures outlined in the aircraft maintenance manual or approved maintenance/inspection check list. For the modified cabin door and step refer to the DER report, Number 182P-18261251, Dated 11 September 2012. Inspect door operation placards at 100/annual inspections for legibility, obstructions and contrast lettering. For the right hand yoke refer to Instructions for Yoke Removal dated 10/25/2014, inspect for security and ease of movement in the flight controls.
6. TROUBLESHOOTING INFORMATION: Refer to the Maintenance Manual for this aircraft; the DER report number 182P-18261251, Dated 11 September 2012; and the Instructions for Yoke Removal dated 10/25/2014
7. REMOVAL AND REPLACEMENT INFORMATION: For seats and seat belts, follow removal and installation procedures listed in the aircraft maintenance manual. For removal and installation of the modified cabin door and the right mounted strut step, refer to DER, 605325, NM structure, Dated 11 September 2012, Report number 182P-18261251. Refer to the DER report mentioned to address the hold open latch, located on an inspection panel, on the right wing. Reference hardware and material call outs for fabrication. For yoke removal and installation follow procedures listed in Instructions for Yoke Removal dated 10/25/2014.
8. DIAGRAMS: See DER Report number 182P-18261251, Dated 11 September 2012 and Instructions for Yoke Removal dated 10/25/2014.
9. SPECIAL INSPECTION REQUIREMENTS: N/A
10. APPLICATION OF PROTECTIVE TREATMENTS: After maintenance or inspection, if a protective treatment needs to be applied follow the recommended procedures in the aircraft maintenance and service manuals
11. DATA: Refer to DER Report number 182P-18261251, Dated 11 September 2012 for information regarding torque specifications, hardware and fasteners. Refer to Instructions for Yoke Removal dated 10/25/2014.
12. LIST OF SPECIAL TOOLS: Not applicable
13. FOR COMMUTER CATEGORY AIRCRAFT: Not Applicable
14. RECOMMENDED OVERHAUL PERIODS: No additional overhaul time limitations
15. AIRWORTHINESS LIMITATION SECTION: Not Applicable
16. REVISION: To revise the ICA, send letter of request, FAA Form 337 and revised ICA to the local FSDO. After the revision has been accepted, a maintenance entry will be made, identifying the revision, its location, and date on the FAA Form 337.

The weight and balance and equipment list has been revised to reflect changes to this aircraft

There are _____ additional sheets attached to support this document

PAGE 2 OF 2 OF SECTION 8

END

☒ Additional Sheets Are Attached

P&T Aerial Services LLC

Chandler, AZ 85286

Supplement #1

FAA Approved

SUPPLEMENTAL AIRPLANE FLIGHT MANUAL

Cessna 182 P

FLIGHT OPERATIONS FOR

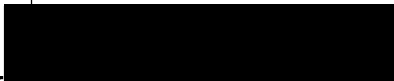
Skydiving/Photography Door

SERIAL NO. 18261251 REG. NO. N20844

This supplement is required when the airplane is modified by the installation of a right hand (RH) in-flight door and RH landing gear step in lieu of the original RH cabin door in accordance with FAA form 337, Dated 11-3-14.

The information contained herein supplements or supersedes the basic placards, markings, and manuals only in those areas specified. For limitations, procedures and performance information not contained in this supplement, consult the basic airplane placards, markings, and manuals (pilot operations handbook or owner's manual).

FAA APPROVED

FOR 
Manager, Flight Test Branch, ANM-160L
Federal Aviation Administration
Los Angeles Aircraft Certification Office
Transport Airplane Directorate

FAA Approved Date

OCT. 31, 2014

P&T Aerial Services LLC

Chandler, AZ 85286

Supplement #1

SAFM for Cessna

182P S/N 18261251

Parachute Door & Step

FAA Form 337

1. Limitations

- a. Maximum airspeed for opening the in-flight door is 100 MPH, and 80 MPH for closing the in-flight door.
- b. The pilot in command will open and close the in-flight door. Pilot will ensure that the "T-handle" door latch will be stowed in a flat configuration for parachute operations.
- c. Seatbelts must be worn by all occupants and flight crew.
- d. Smoking is prohibited. Pilot must wear a parachute.
- e. Parachutist static lines and equipment must at all times be kept clear of the pilot's controls and control surfaces.
- f. All loose articles must be tied down or stowed.
- g. Maximum passenger weight limit for rear seatbelt positions should not exceed 250lbs.
- h. Each passenger must seat facing rearward for take-off and landings and use the designated seatbelt locations.

Placards: The door is placarded with the following placards, "open" "Closed", "Pilot only opens and closes the door During Flight"

The panel is placarded with the following placards,

1. "Maximum door opening speed 100 MPH"
2. "Maximum door closing speed 80 MPH"

2. Emergency Procedures

No Change.

3. Normal Procedures

To open the door, lift up on the T-handler from its mount and turn to the right, apply slight outward pressure while applying slight right rudder with wings level. To close the door, apply right rudder while holding the wings level. When the door closed, rotate the T-handle to the left and push down the T-handle into its mount. It is now in the locked position. Maximum yaw angle is 10 degrees and maximum bank angle is 15 degrees.

4. Performance

No change.

INSTRUCTIONS

For

YOKE REMOVAL

Cessna 182 P N20844

Date 10-25-14

The following instructions are for the removal of the yoke assembly for Cessna 182 P N20844, for the purpose of jump operations. Removal of the yoke assembly is to be conducted by an appropriately rated mechanic.

STEPS:

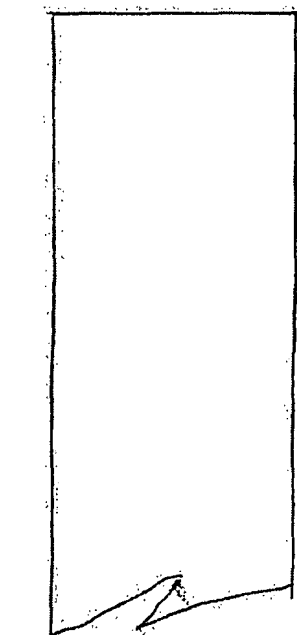
1. Remove the 3 screws in the right yoke control wheel neck and pull the yoke wheel towards you to remove it from the yoke control shaft/column.
2. Disconnect the Push to talk button wire at the quick connect and remove yoke from aircraft.
3. Using a 7/8 in wrench and Philips screw driver, remove the two screw/nuts from the control link rod and remove the rod from the aircraft.
4. Place a 2 in line clamp around the yoke control shaft/column and just behind the dash panel and tighten to finger tight.
5. Place the rubber ball and padding over the end of the column shaft and secure it with the Velcro strap. See Figure #6

At this point, the control column is completely disconnected from the left yoke control assembly and the placed in a "safe" mode as to not have any movement in any direction forward or aft. Check for ease of movement in the flight controls.

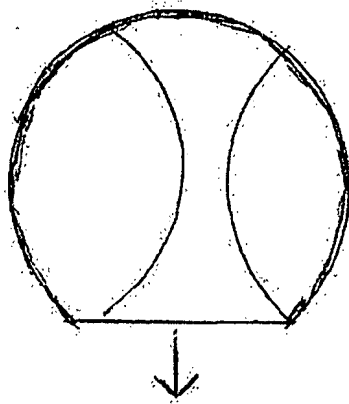
To return the controls back to normal operating flight condition, reverse the above mentioned steps. After reassembly, check the flight controls for ease of motion and total control range.

N 20844 C-182

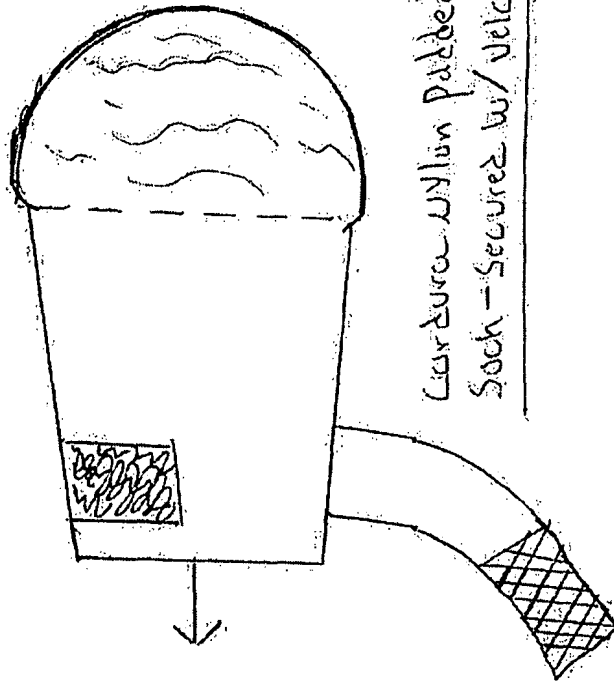
RIGHT HAND YOKE



Yoke Column/Shift END



Tennis Ball



Cardura Nylon Padded
Sock - Secured w/ Velcro

P&T Aerial Services LLC

Chandler, AZ 85286

COMPLIANCE REPORT

For

CESSNA 182 P. N20844

FAA Approved Door and Step

JUMP DOOR

DATE 10-25-14

Prepared by Tom Talbott

1. Substantiation of Step:

The following is the results of 100 test flights for N20844 in which the right hand jump door was tested for parachute operations:

Test conditions,

- a. Test was conducted during all four weather seasons to include 32 degrees to 115 degrees.
- b. Test were conducted during both daylight and nighttime hours
- c. Test airspeeds ranged from 0 mph to 160 mph
- d. Test jump altitudes varied from 3,000 agl to 11,000 agl.

Conclusion- step been verified to remain solidly in place under all operational conditions. Inspection of structure shows no unusual wear, cracks or deformation.

2. Door Mod Structure Analysis

Aerodynamic Loading

The Maximum open door velocity.

$$V_{\text{open}} = 100 \text{ mph}$$

Dynamic Pressure at 100 mph

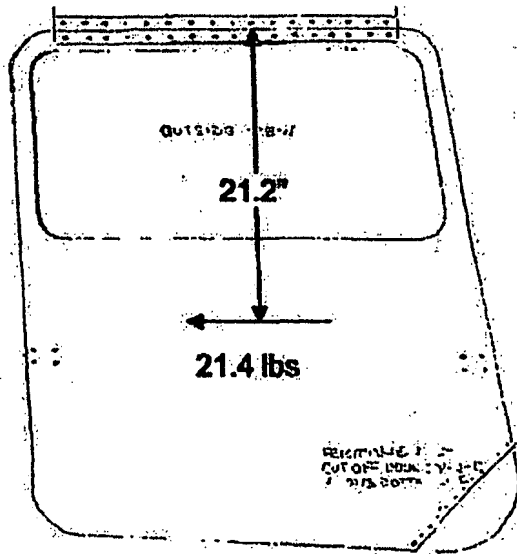
$$Q = 25.7 \text{ psf}$$

The area of the door exposed to the airfoil as measured.

$$A_{\text{door}} = 80 \text{ in}^2 = 0.56 \text{ ft}^2$$

Aerodynamic load on the door

$$P_{\text{door}} = A_{\text{door}} * q * F.S. = 25.7 \text{ psf} * 0.56 \text{ ft}^2 * 1.5 = 21.4 \text{ lbs}$$



Moment applied to the door hinge.

$$M = 21.4 \text{ lbs} * 21.2 \text{ in} = 453.7 \text{ in-lb}$$

The aerodynamic load is reacted in shear by the 17 MS20470AD4 rivets and tension and shear by 17 AN525-832R10 bolts. OR ALL AN525-832R10 BOLTS (CONSERVATIVE)

Assuming that only the outer two most rivets react the entire shear and moment.

Shear:

$$P_S = 21.4 \text{ lbs} / 2 = 10.7 \text{ lbs}$$

Shear from moment

$$P_{S-bm} = (453.7 \text{ in-lb} / 24) / 2 = 9.5 \text{ lbs}$$

Total Shear Load

$$F_s = \sqrt{F_H^2 + F_V^2} = \sqrt{(10.7 \text{ lbs})^2 + (9.5 \text{ lbs})^2} = 14.3 \text{ lbs}$$

This is small compared to the capability of the MS20470AD rivet. The installation is substantiated by observation.

Assuming that only the outer two most AN525 react the entire shear and moment.

Shear

$$P_s = 21.4 \text{ lbs} / 2 = 10.7 \text{ lbs}$$

Tension from Moment

$$P_{t-bm} = 453.7 \text{ inlb} / 24 \text{ in} / 2 = 9.5 \text{ lbs}$$

This is small compared to the capability of the AN525 bolt. The installation is substantiated by observation.

Performance during test flight:

Flights with door closed: there was no difference in flight performance in regards to a standard stock door.

Flights with the door open: There was no buffering, control issues, or noticeable stress on the aircraft.

Door Latch and Handle: Performed as designed with no issues.

The installation requires a placard limiting the maximum door open speed to 100 mph IAS and placard limiting the maximum door closing speed to 80 mph IAS.

From the previous static analysis it is determined that the jump door modification comply with all applicable FAA requirements of FAR Part 23 pursuant to the type certificate.

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION		DATE 11 September 2012	
STATEMENT OF COMPLIANCE WITH THE FEDERAL AVIATION REGULATIONS			
AIRCRAFT OR AIRCRAFT COMPONENT IDENTIFICATION			
MAKE Cessna	MODEL NO. 182P	TYPE (Airplane, Radio, Helicopter, etc.) Airplane	NAME OF APPLICANT Tom Talbott
LIST OF DATA			
IDENTIFICATION	TITLE		
Report No. 182P-18261251 -----End-----	Modifications for Skydiving on Cessna N20844. Pages 1-7. Notes: 1. The structural aspects only of the above listed data are approved herein. This approval is only for the engineering design data. 2. This approval is issued in support of alteration performed on Cessna Model 182P, S/N 18261251 only. 3. This DER were on-site (7/27/12) with the Applicant and went over the aircraft item-by-item on this modification. -----END-----		
PURPOSE OF DATA Engineering data to support field activity.			
APPLICABLE REQUIREMENTS (List specific sections) FAR 23.601, 603 amdt 23-23, 605 amdt 23-23, 609, 613 amdt 23-45.			
CERTIFICATION - Under authority vested by direction of the Administrator and in accordance with conditions and limitations of appointment under Part 183 of the Federal Aviation Regulations, data listed above and on attached sheets numbered <u>N/A</u> have been examined in accordance with established procedures and found to comply with applicable requirements of the Federal Aviation Regulations.			
☐ Recommend approval of these data ☒ Approve these data			
I (We) Therefore			
SIGNATURE(S) OF DESIGNATED ENGINEERING REPRESENTATIVE(S) Rex Ruoh-yu Liu	DESIGNATION NUMBERS(S) DERT	CLASSIFICATION(S) Structures	

FAA Report to Structural DER

Report # 182P-18261251-1

Pg1//7

7/31/12

Subject: Modifications to Cessna N20844

Aircraft owner: P&T Aerial Solutions, LLC

[REDACTED] Chandler, AZ 85286.

Application Name: Tom Talbott

The following are modifications to Cessna N20844, 1972 Cessna 182P Serial Number 18261251.

Modifications were made to the air frame for the purpose of converting aircraft to a jump plane. Modifications were done in two phases:

1. Removal of the right pilot seat, rear passenger seat, right pilot yoke. Installed the two rear seatbelts on the same station points that mounted the rear seat. Additionally added a third rear seatbelt to the pilot's seat rail rear station point. See attached STC (SA874CE) used as a standard in the skydiving industry used by all Cessna 182's. The purpose of the floor mounted seatbelts is to stay within the FAR regulations 91-107 that all passengers must have a seatbelt. The ratio is one seatbelt per jumper for a total of four potential jumpers and one pilot. See fig 5.
2. Removal of stock right hand door and replaced with modified standard cabin door. Cabin door modification was in accordance with FAA 337's for numerous like and type aircraft. Like aircrafts with similar cabin door examples: N6306B, N42851, N2641, N2681R, N2617X, N1903X, N6324B. Changes to accomplish the above
 - A. Production configured hinge removed.
 - B. Production door latch mechanism removed.
 - C. R&R of production window
 - D. Front corner of the door is removed see attached fig 3 to allow the door to clear the wing strut during extension and closing. The structural integrity is retained by

- E. Fabrication of a "U" Channel which is sandwiched between the inner and outer skin and secured by cherry max rivets.
- F. A stainless steel latch is provided at the mid point of the door Manufacturer B&G PN 3904. The latch is secured with four AN3-6A bolts and MS 21045-03S lock nuts.
- G. The door is secured by two steel 3/8 inch rods that interlock 1.5 inches into the door frame. Two strike plates are provided and secured to the doors with #8 types A metal screws. See Fig 1
- H. A 27 inch steel piano hinge is attached to the upper door structure and after alignment of the door opening is attached to the fuselage at station 38.5 through 65.5 by a total of 54 AN3-4A bolts and NAS 1149F036 washers and MS 21045-03S lock nut.
- I. A 14 inch by 6 inch half inch thick aluminum plate has been bolted to the manufactured step on the right wheel landing gear. Step is secured by four NAS517 bolts and MS 21045-035 lock nuts. The purpose of the additional plate is to insure jumper safety during climb out and exit form the aircraft. See Fig 4.
- J. A latch for holding the jump door upright during ground operations was attached to the second inspection plate on the right wing. See figure 2. Latch was made from standard aircraft aluminum.

See attached materials certificates.

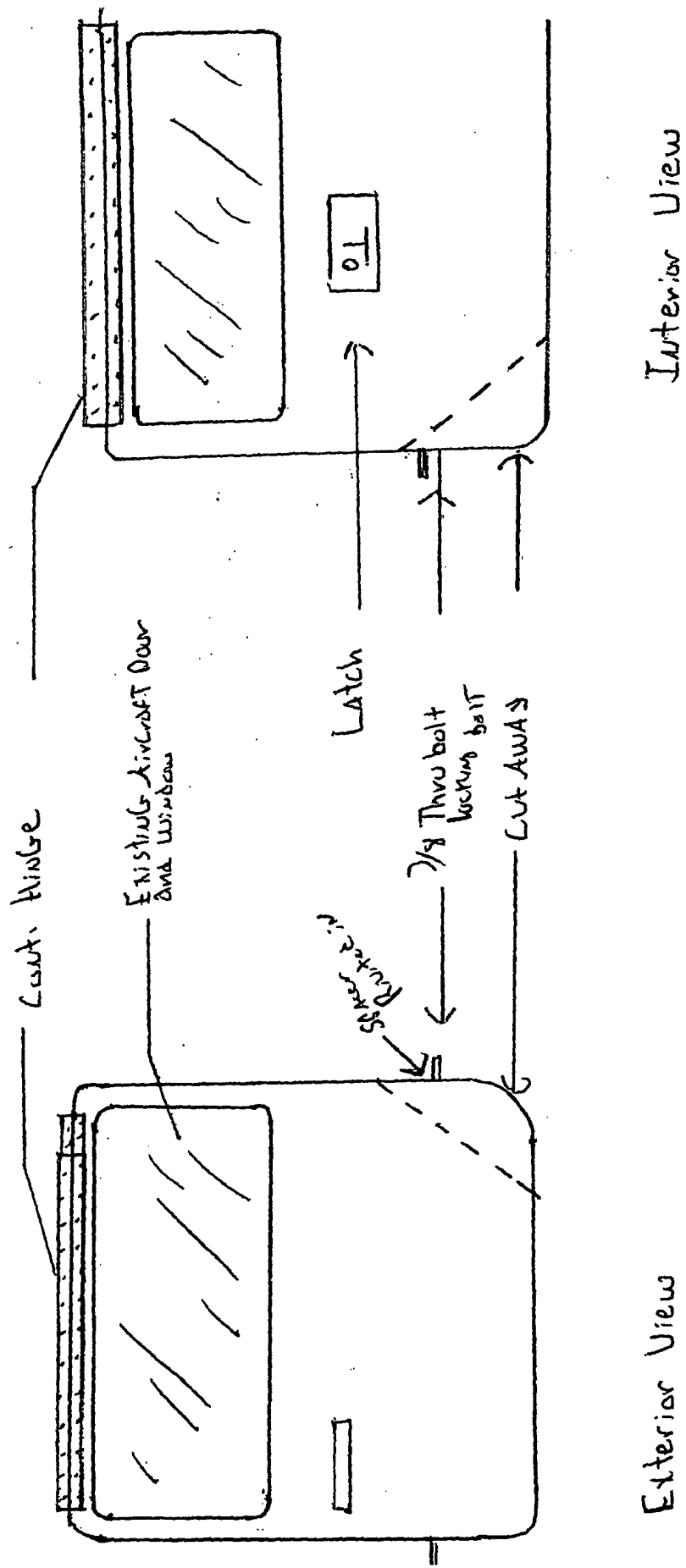
Examples of 337's attached.

Example of STC attached

Figures 1,2,3 4,5,attached

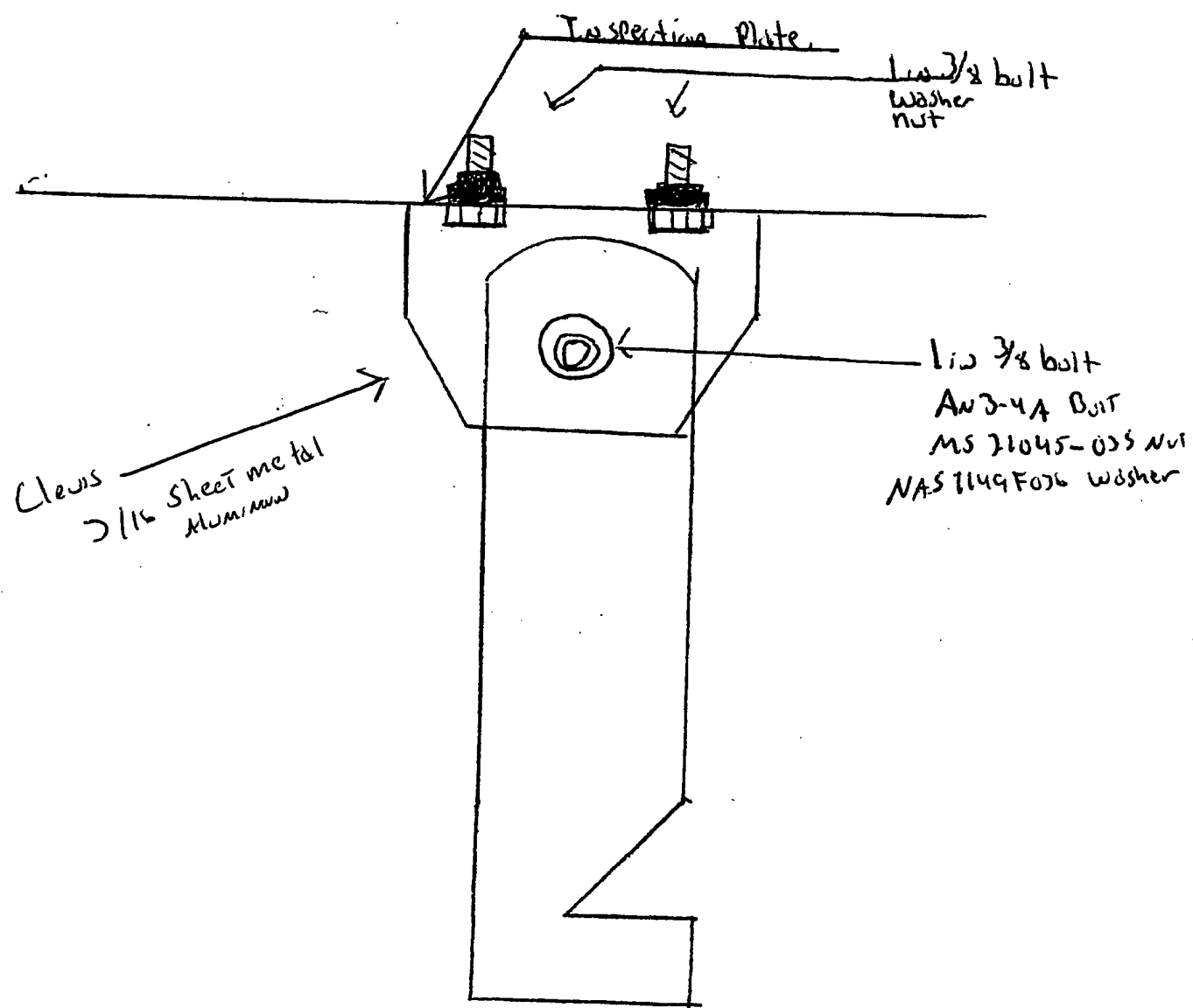
This is the standard configuration of a jump plane used in the skydiving industry.
Designed and structured with examples set forth above.

Figure 1.



1120844

FIGURE 2

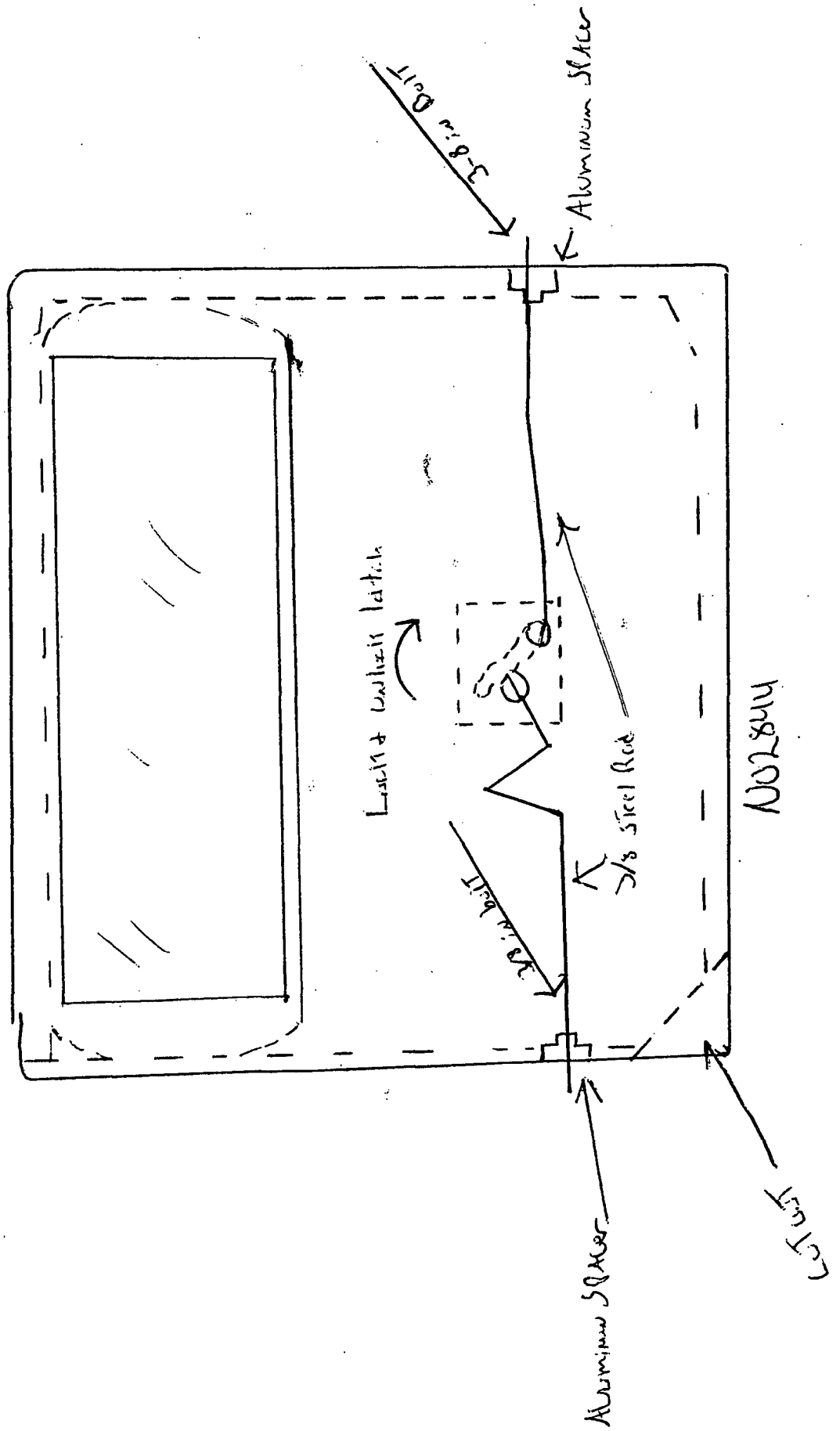


In Flight Door Latch For Ground Use only.

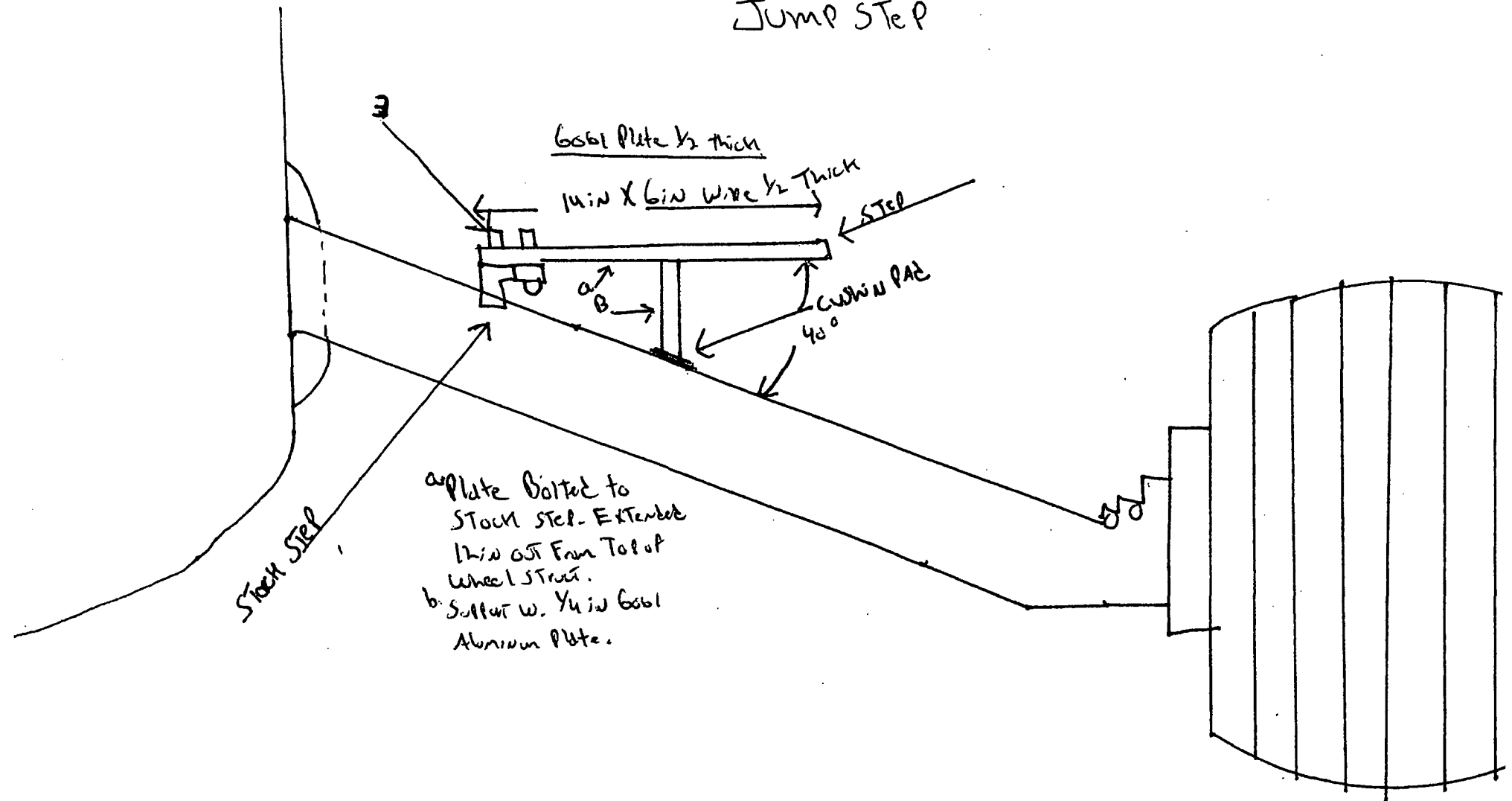
N 20844

Figure 3.

INTERNAL VIEW OF LATCH & LOCK ASSEMBLY



N 1077
Jump Step



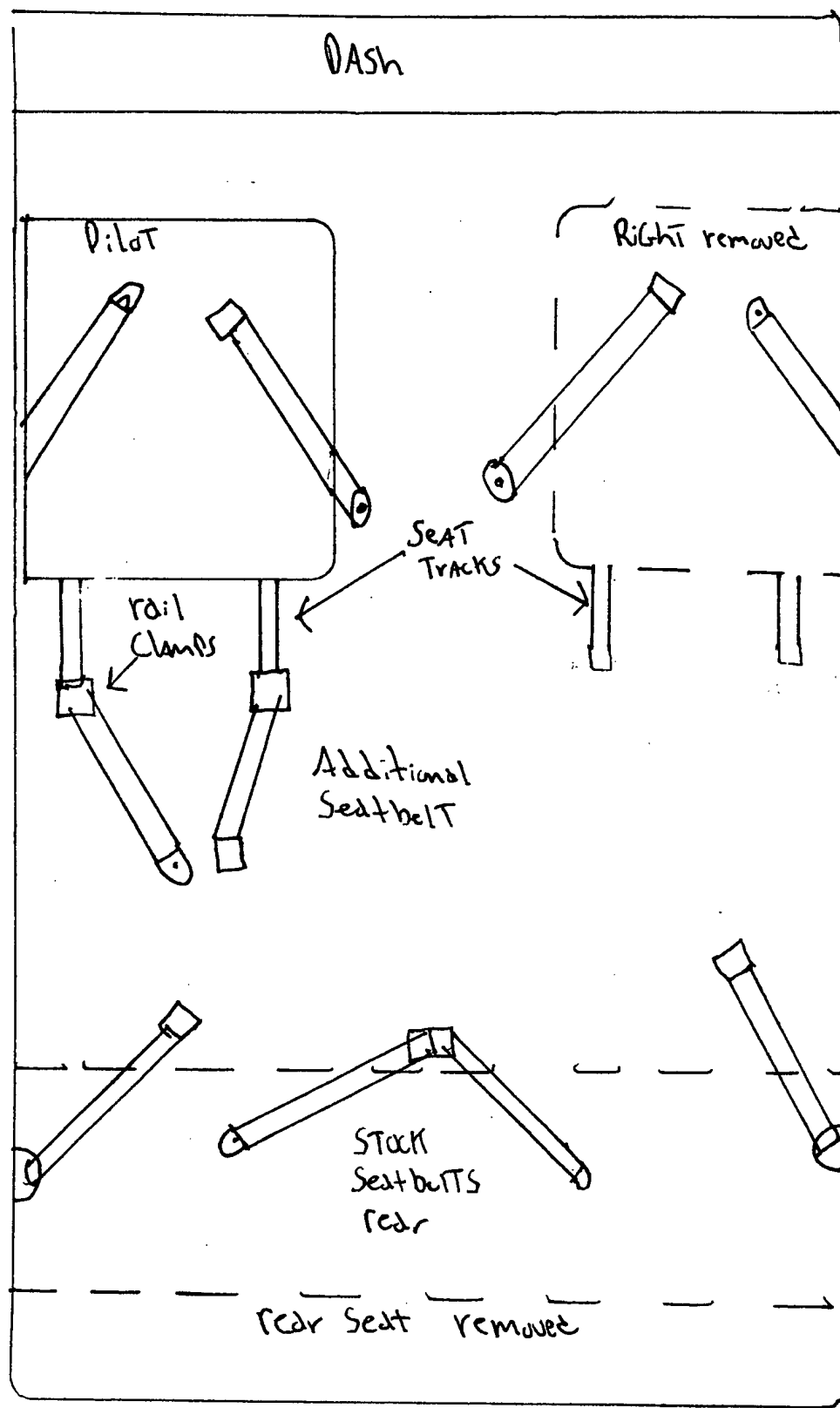
a. Plate Bolted to
Stock Step. Extended
1 1/2 in out from Top of
Wheel Struct.
b. Support w. 1/4 in Gobi
Aluminum Plate.

RIGHT wheel rear View.

#4

6/9

N20844 C-182



Interior Floor View

#5

MAJOR REPAIR AND ALTERATION U S Department of Transportation Federal Aviation Administration (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 civil penalty not to exceed \$1,000 for each such violation (Section 901 Federal Aviation Act of 1958).					
1. Aircraft	Make Cessna			Model 182P	
	Serial No. 18261251			Nationality and Registration Mark USA N20844	
2. Owner	Name (As shown on registration certificate) P&T aerial services LLC.			Address (As shown on registration certificate) [REDACTED] Kenosha, WI 53142, USA	
4. For FAA Use Only					
5. Unit Identification					6. Type
Unit	Make	Model	Serial No.	Repair	Alteration
AIRFRAME	(As described in item 1 above)				X
POWERPLANT					
PROPELLER					
APPLIANCE	Type				
	Manufacturer				
7. Conformity Statement					
A. Agency's Name and Address		B. Kind of Agency		C. Certificate No.	
Stephen Hartwell Dog Bone LLC [REDACTED] Casa Grande, AZ 85222		X		[REDACTED]	
		U.S. Certificated Mechanic			
		Foreign Certificated Mechanic			
		Certificated Repair Station			
		Manufacturer			
D. 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			
19 SEPTEMBER 2012		[REDACTED]			
8. 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	X	Inspection Authorization	Other (Specify)
	FAA Designee	Repair Station		Person Approved by Transport Canada Airworthiness Group	
Date of Approval or Rejection		Certificate or Designation No.		Signature of Authorized Individual	
19 SEPTEMBER 2012		A&P [REDACTED] IA [REDACTED]		Stephen Hartwell [REDACTED]	

NOTICE

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8. Description of Work Accomplished

USA N20844 Date work completed 2-3-2012.

Removed right front seat, co-pilot's yoke, rear seat and wheel pants. Installed three (3) sets of floor mounted seat belts. Two sets at station 65.33 using the existing seat mounts and attached at the same point as the pilot's seat. The pilot's and co-pilot's seat belts were left as is. This alteration is exactly the same as STC SA874CE, a copy of which is attached. This STC covers C-182 thru D models. This alteration is similar to the alteration of Cessna 182, N8304S S/N 18256404, approved 10/08/99 by Bill Newby of the Winston Salem FSDO-05 Weight and Balance and equipment list revised.

CHECKLIST FOR INSTRUCTIONS FOR CONTINUED AIRWORTHINESS FOR MAJOR

ALTERATIONS APPROVED UNDER THE FIELD APPROVAL PROCESS.

1. The inspection of this alteration can be carried out in accordance with normal 100 hour and annual Cessna 182 inspection programs covering seat belt inspections.

MAJOR REPAIR AND ALTERATION U S D e p a r t m e n t of Transportation Federal Aviation						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 civil penalty not to exceed \$1,000 for each such violation (Section 901 Federal Aviation Act of 1958).							
1. Aircraft	Make Cessna				Model 182P		
	Serial No. 18261251				Nationality and Registration Mark USA N20844		
2. Owner	Name (As shown on registration certificate) P&T aerial services LLC.				Address (As shown on registration certificate) [REDACTED] Kenosha, WI 53142, USA		
4. For FAA Use Only							
5. Unit Identification						6. Type	
Unit	Make	Model	Serial No.	Repair	Alteration		
AIRFRAME	(As described in Item 1 above)					X	
POWERPLANT							
PROPELLER							
APPLIANCE	Type						
	Manufacturer						
7. Conformity Statement							
A. Agency's Name and Address				B. Kind of Agency		C. Certificate No.	
Stephen Hartwell Dog Bone LLC [REDACTED] Casa Grande, AZ 85222				X		[REDACTED]	
				U.S. Certificated Mechanic			
				Foreign Certificated Mechanic			
				Certificated Repair Station			
				Manufacturer			
D. 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			
19 SEPTEMBER 2012				[REDACTED]			
8. 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	X	Inspection Authorization		Other (Specify)	
	FAA Designee	Repair Station		Person Approved by Transport Canada Airworthiness Group			
Date of Approval or Rejection		Certificate or Designation No.		Signature of Authorized Individual			
19 SEPTEMBER 2012		[REDACTED] IA		Stephen Hartwell [REDACTED]			

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

USA N20844 Date work completed 2-13-2012

Cabin door modification in accordance with FAA approved 337, dated May 22, 1997 on Cessna 182 S/N 34206, N6306B y Tom Bennett of SO FSDO-05.

This modification changes the right door hinge location to allow up and down operation in lieu of the fore and aft door opening and closing sequence. Changes to accomplish the above are covered in the following:

- 1) Production configured hinge removed.
- 2) Production door latch mechanism removed.
- 3) Window replaced with new plexy-glass.
- 4) A 27" of piano hinge (steel) see certification documentation, is attached to the upper door structure and after alignment of the door in the fuselage door opening, is attached to the fuselage structure station 38.5 thru 65.5 by a total of 54 AN3-4A bolts, NAS1149F036 Washer,, MS21045-03S Lock Nut.
- 5) The front lower corner of the door is removed (see photo) to allow the door to clear the wing strut during extension and closing. The structural integrity is retained by fabrication of a 'U' channel which is sandwiched between the inner and outer skin and secured with cherry max rivets.
- 6) A stainless steel latch is provided at the mid- point of the door. Manufacture B&G P/N 3904. The latch is secured with 4 each AN3-6A bolts and MS21045-03S lock nuts. The door is secured by 2steel (see certification documentation) 3/8 in rods that inter lock 1.5 in into the door frame. Two strike plates are provided and secured to the doorsill with 4 each #8 type "A" metal screws. This door latch assembly is similar to ones used and approved by 337 on Cessna 182 N2186R, N42851, N2617X, N1903X, N6324B, Same type of aircraft series, 172, 182, 185, 206 also use same type of in flight jump door.
- 7) A 14 inch by 6 inch 1/4 in thick diamond aluminum plate as been added to the right landing gear production step. This step is to aid the safe exiting of skydivers from the airplane. The step is bolted directly in place to the production step using 4 AN3-4A bolts and MS21045-03S Lock nuts. This style of step is used on many jump aircraft in the skydiving industry.

CHECKLIST FOR INSTRUCTIONS FOR CONTINUED AIRWORTHINESS FOR MAJOR ALTERATIONS APPROVED UNDER THE FIELD APPROVAL PROCESS:

1. Embodied in 337.
 2. Embodied in 337.
 3. Door is to be operated in accordance with AIRCRAFT OPERATING LIMITATIONS WITH DOOR REMOVED for Cessna 182. Standard 80 MPH Max. As recommended by Cessna Corporation and adapted by the USPA.
 4. For servicing use standard liquid lubricants on the hinge and latch.
 5. A. The door must be visually and operationally checked each preflight by an appropriately rated pilot or mechanic for ease of operations of latching mechanism, cracks in the door hinge and security in screws.
B. Each scheduled inspection an appropriately rated mechanic must inspect the door for ease of operations, security and operations of latching mechanism, cracks in the door hinge and security of screws.
C. Replace or repair, tighten or adjust as needed before further use.
D. A copy of the instructions for continued airworthiness was inserted in the flight manual in the preflight section.
E. A copy of the instructions for continued airworthiness was inserted in the scheduled inspection program
 6. If the door or the latch does not operate easily, lubrication is needed.
 7. To remove door, remove screws and nuts at top of door or pull hinge pin. To replace latching mechanism, remove four bolts holding in on and unscrew locking rods.
 8. N/A.
 9. N/A.
 10. N/A.
 11. # 8 type A machine screws, # 10-32 type "z" metal screws, AN3-4A, AN3-6A bolts and MS21045-03S nuts and cherry rivets were used.
 12. N/A.
 13. N/A.
 14. Replace on as needed basis.
 15. No additional airworthiness limitations.
 16. To revise the instructions for continued airworthiness and letter of request, 337 and revised IA to local FSDO.
- Flight test accomplished. Door operation found satisfactory. Aircraft placard on instrument panel informs pilot not to exceed 80 m.p.h. with door open.
- 5 Photos and 3 drawings attached on separate sheets.
- All applicable F.A.R.,s have been complied with.

*****Nothing Follows*****