6
US Department
of Transportation
Federal Aviation

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

Form Approved OMB No. 2120-0020 2/28/2011	Electronic Tracking Number							
For FAA Use Only								

	eral Aviation		(All II all	16, 1	owerplant, t	юр	GIIC	с.,	or Whh	nance,	ř							
ins	tructions		ition of this	form.	ies. See Title 14 . This report is re													
		Nationality	y and Regis	tratio	n Mark					Serial	No.		•					
. A 1.		N95467								1161								_ [
1. All	rcraft	Make								Mode	l				Series			
		Grumma	an							G-21	IA							
		Name (As	shown on	regist	ration certificate)	}								gistration	certificat	e)	*	
2. Ov	wner									Address 5302 N Vista Ct City Spokane State WA								
2. 01	******									City	Spoka					State	WA	
		Pember	ton Addis	son .	<u> </u>					Zip	99212	<u>2-163</u>	9	Cou	ntry <u>USA</u>			
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RE	epair	Alteration	Unit		<u> </u>	Mak	e 					Mod	eı 			Seria	al No.	
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			POWERP	LANT														
[PROPELL	ER						<u> </u>								
[APPLIANG	CE	Type Manufacturer								,		e e			
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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.

(If more space is required, attach additional sheets. Identify with air	ircraft nationality and registration mark and date work completed.)
	N95467 4/13/2017
	Nationality and Registration Mark Date
INSTALLED: Garmin GNS530W	
Installed Garmin GNS530W into aircraft per STC No. S C0221-01 REV K, installation manual P/N 190-00357-0	SA01933LA-D, manufactures master drawing list, DOC # 005- 02 REV L, and AC 43.13 1B/2B
This is a follow on field approval for the installation as t	
Summary of the modifications done to the aircraft is as	COVERNA STORA STUBMENUE SACESSAS TROVARA SUBACEET A FOILOWSA SUS TRANCARE CRASSENTAGE SUCEVE BHT FOR YORG TRANSASER BESIROLEUS ROBBER A YOURS VORTER YEARS WAS
Installed GNS530W. System utilizing (2) 5 amp circuit GDL88, Transponder, Mode C, VHF and NAV antenna	breakers and is interfaced to Audio Panel, NAV Indicator,
Installed GA35 GPS antenna at station 5.0".	drám odbu. Bří zmal odráda usem se svi 444 š
System approved for VFR only awaiting flight test and h	has been placarded as such.
Installed GNS530W AFMS P/N 190-00357-03 REV E in	nto aircraft.
Instructions for continued airworthiness: Included Garmin document P/N 190-00357-65 REV D. aircraft maintenance records.	GNS530W Instructions for Continued Airworthiness in the
Electrical load analysis computed and does not exceed	1 80% of charging system capacity.
Ground checked system for EMI, found none.	· .
Aircraft equipment list, weight and balance amended. C Guide, placed into aircraft.	Compass compensation checked. Garmin GNS 530W Pilot's
More details on file under Western Aviation Work Order	r #17882-06-2014.
Ground and operational flight check has been performe NOT APPROVED FOR IFR" removed from the aircraft.	ed IAW Garmin installation Section 5.6. Placard stating "GPS
Date: TT: Signed	I
LIN	(U
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Addition Addition	ional Sheets Are Attached

FAA Form 337 (10-06)

1200 East 151st Street Olathe, KS 66062 P: 913-397-8200 F: 913-397-8282

November 30, 2011

Subject:

STC Permission to use STC SA01933LA-D for

Garmin Model 400W / 500W Series GPS-WAAS Navigation System

(See AML)

Consistent with Order 8110.4B and AC 21-40, Garmin International grants permission to Garmin dealers, installers, and owners of the Garmin Model 400W / 500W Series GPS-WAAS Navigation System units to use STC SA01933LA-D and the data associated with it, for the sole and express purpose of installation and approval of the installation of the Garmin Model 400W / 500W Series GPS-WAAS Navigation System, and associated interfaces to other previously approved equipment.

Emmett Griffith

Engineering Manager

GARMIN AT, INC.

6,200

US Department
of Transportation
Federal Aviation
Administration

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

Form Approved OMB No. 2120-0020 2/28/2011	Electronic Tracking Number								
For FAA Use Only									

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		Grumm							G-21A							
		Name (As	shown on	regist	ration certificate)				Address (As			-	ration c	certificate)		
2. Owi	ner								Address 5302 City Spok		sta Ct			State WA		
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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 national sheets.)	onality and registration mark and dat	e work completed.)
	N95467	4/13/2017
	Nationality and Registration Mark	Date
INSTALLED: Garmin GDL88 ADS-B UAT Transceiver System		
Installed Garmin GDL88 into aircraft per STC/AML No. SA021 005-00645-02 REV 11, installation manual P/N 190-01310-00		rawing list, P/N
GDL88 installed behind instrument panel. Unit interfaced to Athe Audio panel, Mode C, GTX327, and GNS530W. Installed 0	+ through a 3 amp circuit brea CI-105 L-Band antenna under	ker. System interfaced to wing at station 70.0".
Instructions for continued airworthiness: Ref Garmin Documenthas been included in the aircraft maintenance records.	t P/N 190-01310-01 REV 3. A	A copy of this document
FAA approved Flight Manual Supplement for the GDL88 P/N 1 GDL88 Pilots guide supplement must be accessible to the flight	90-01310-02 REV 4, inserted t crew during flight.	into aircraft flight manual.
Electrical load analysis computed and does not exceed 80% of	charging system capacity.	
Ground checked system for EMI, found none.		
Aircraft equipment list, weight and balance amended. Compass		
 E	ND	
Additional Shee	ets Are Attached	



1200 East 151st Street Olathe, KS 66062 P: 913-397-8200 F: 913-397-8282

January 2, 2013

Subject:

STC Permission to use STC SA02119SE for

Garmin GDL 88 ADS-B UAT Transceiver System (See AML)

Consistent with Order 8110.4B and AC21-40, Garmin International grants permission to Garmin dealers, installers, and owners of the Garmin GDL 88 ADS-B UAT Transceiver System to use STC SA02119SE and deliverable data associated with it, for the sole and express purpose of installation and approval of the installation of the Garmin GDL 88 ADS-B UAT Transceiver System and associated interfaces to other previously approved equipment.

Emmett Griffith

Engineering Manager GARMIN AT, INC.

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US Department
of Transportation
Federal Aviation

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

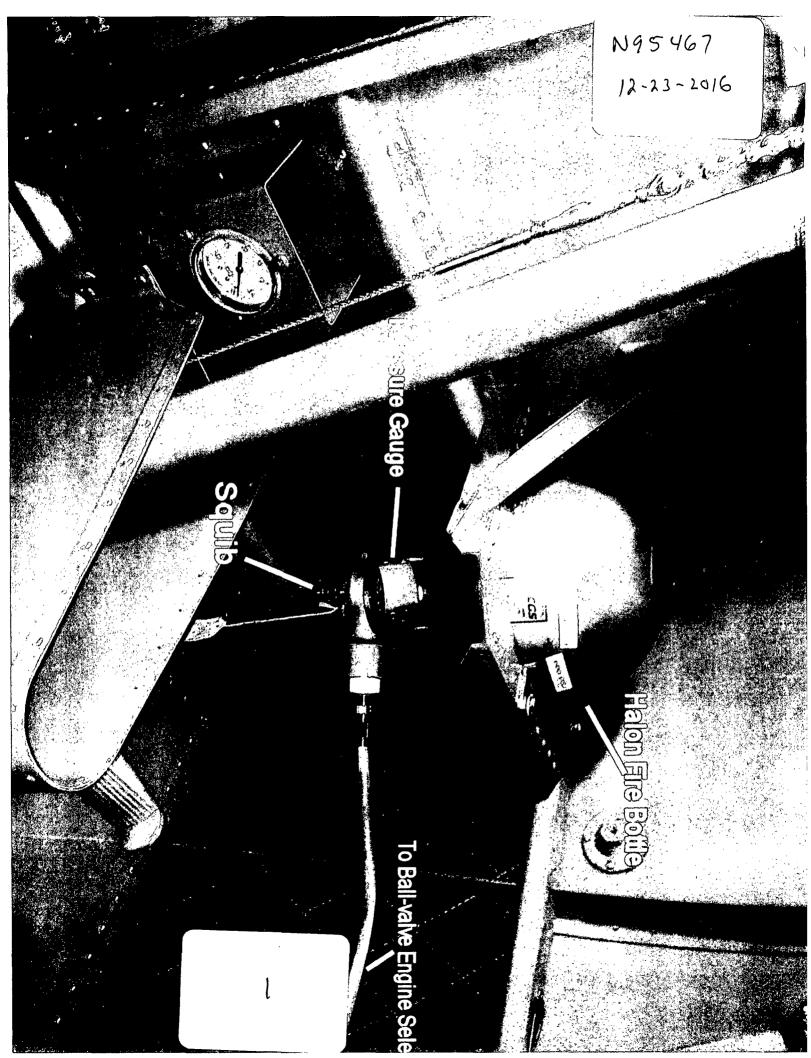
OMB No. 2120-0020 Exp: 5/31/2018	Electronic Tracking Number
	For FAA Use Only

Administration												
INSTRUCT instructions such violation	and dispos	sition of this	form.	es. See Title 14 This report is re	4 CF equir	FR (§43.9, Part 4: by law (49 U.	3 Append S.C. §447	lix B, 1 701). I	and AC 43.9 Failure to rep	-1 (or sub ort can re	osequent revision thereof) for each
		ly and Regi	stratio	n Mark				Serial	No. 1	161		
1. Aircraft	N95467 Make	<i>'</i>		····				Model		101		Series
		rumn	nan	1				Model	G2	1	'	A
	Name (As	s shown on	registi	ration certificate)				Addres	ss (As	shown on reg	gistration	certificate)
2. Owner	Pemb	erton,A	ddisc	on J				- 1		N Vista Ct		Otata MAIA
		,						City Zip	Spoke 99212		Count	State WA
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have be furnishe	en made in ed herein is	accordanc	e with	the requirements the best of my l	of F knov	Part vled	t 43 of the U.S Ige.					e or attachments hereto t the information
Extended ranger 14 CFR P App. B			Signa	ature/Date of Auth		_			0	3-13-	-2017	2165140
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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 nation	nnality and	d registration mark and da	ate work completed)
(ii more space to required, actual, accumental arcets, record,	Grumman	=	
	N95467		12-23-2016
	National	ity and Registration Mark	Date
Grumman G21A Goose Halon 1301 Fire bottle ins	tall	12-19-2016	
Removed original C02 fire bottle from cockpit side of sight of the copilot's right rudder peddle. Original C02 Installed at original CO2 bottle location replacement in part number 30600006-1 with PMA 24VDC Cartridge approved for use on the Beechcraft King Air TC 3A20 and guarded switch with placard mounted above and bulkhead # 13. Volume of original 6" dia X 12" height replacement Halon 10" sphere is 523 cubic inches. Fabricated mounting 12" X 12" shelf from .093 2024-X 1" angle stiffeners using 8ea AN470-4-5 rivets on 3 aircraft stringer on aircraft side wall with 1ea AN4-6 be and AN365-1032 nuts. Additional 1" .125 6061-T6 and 1EA AN4-7 bolt and AN365-428 nut at front corner ex with additional AN4-7 and AN365-428 nut to back side angle foot. Angle foot installed on cockpit side of station placed under mounting hardware (2ea AN3-7 bolts and station #7. Front face of bracket bolted thought station and AN365-1032 nuts on front side of station #7. Rea mounting bracket with 3ea additional AN4-7 bolts and All original Grumman plumbing routing retained and fi discharge retained using 3/8 tubing. Work accomplish weighed after installation of fire control system and not a for continued airwork. Check gauge on fire bottle before each flight of the dareplacement of Cartridge squib at 10 year intervals an intervals per manufactures specifications. Inspect for each required inspection.	bottle lalon 1 (squib (squib Ball v behind CO2 b T3 alui sides: olt and gle bra tendin e of sta on bull nd AN3 on #7 w r, side ire con orthine ay for 6 nd Hyd mount	from 1937 no lor 1301 Pacific Scient 301 Pacific Scient 1301 Pacific Scient 1501 Pacific Scient 1501 Pacific Scient 1501 Pacific Scient 1501 Pacific P	ntific HTL fire bottle ation. This fire bottle is electricity breaker ockpit side of station ches. Volume of riveted 6061-T6.125 bolted to original and 2ea AN3-6 bolts ard side angle with e angle. Brace bolted wall with 6061-T6.1" It is aluminum doubler in front side of bulkhead olts with area washers bottle bolted through trings and carburetor apter 1 and 2. Aircraft erform required recharge at 5 year olumbing damage at
END			
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5 ✓ Additional Sheets	Are Atta	ched	and white the same of the same



N95469 12-23-2016

HALON 1301

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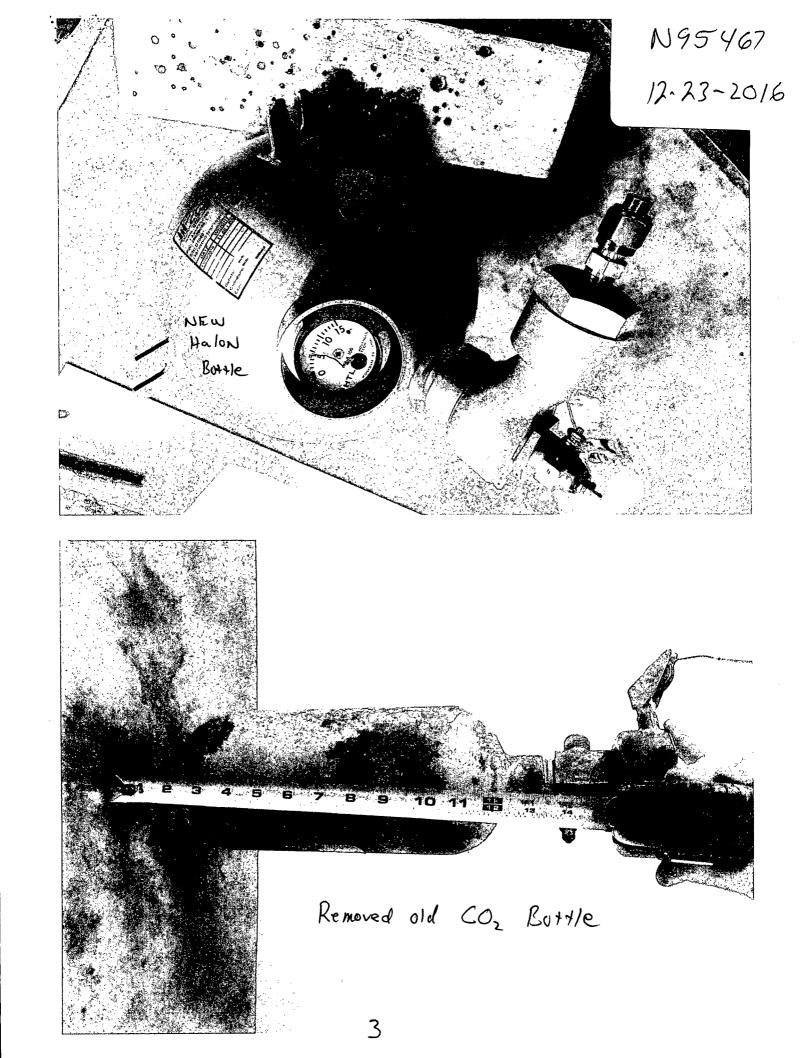
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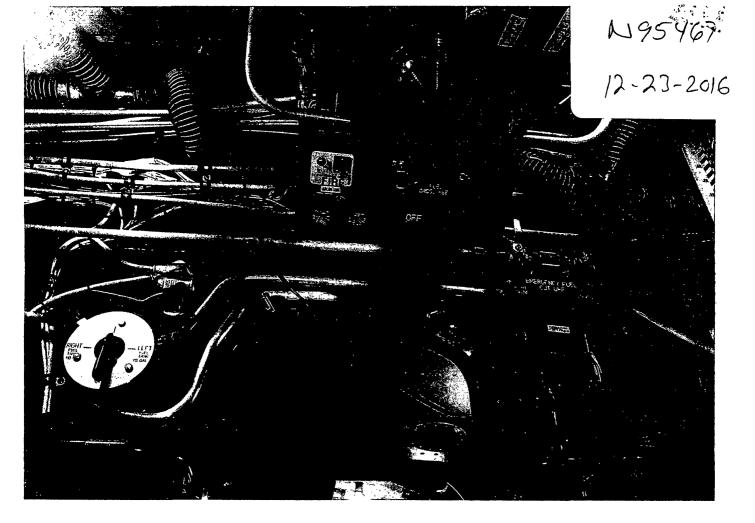


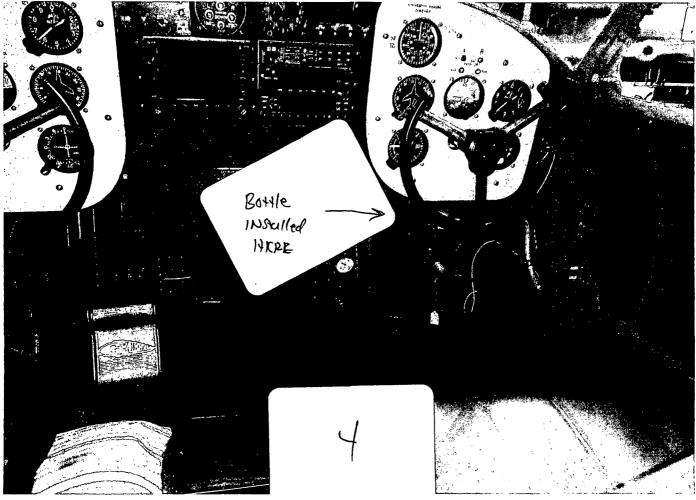
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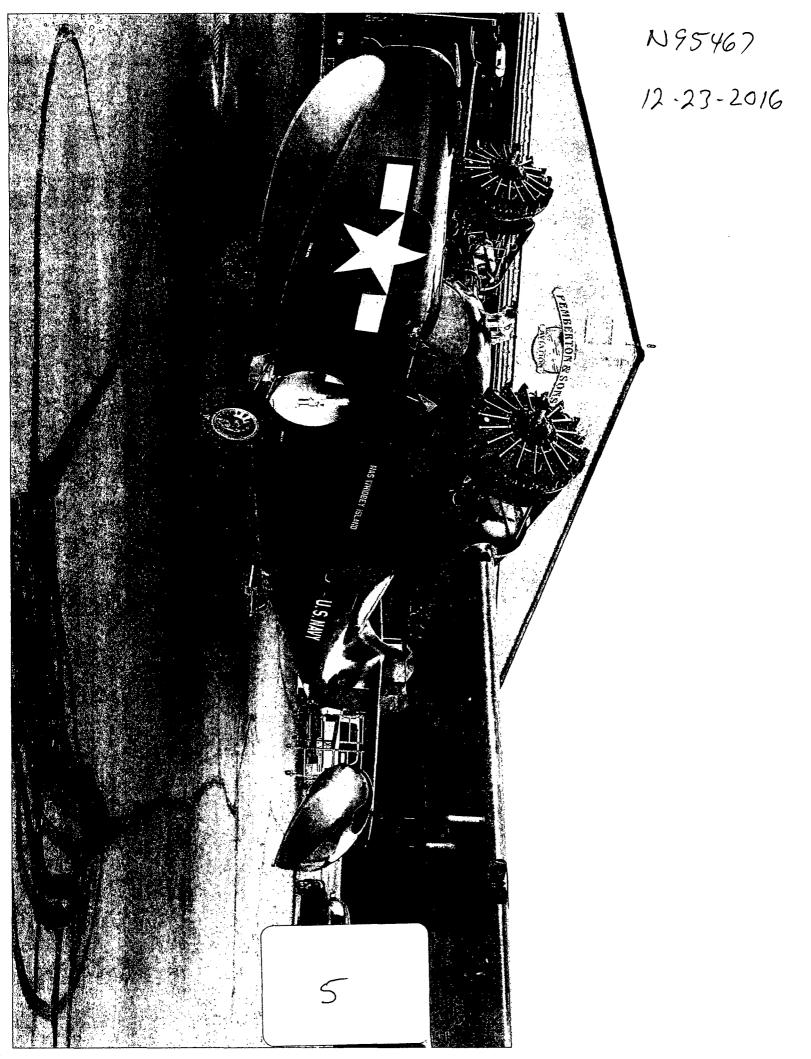
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US Department
of Transportation
Federal Aviation
Administration

MAJOR REPAIR AND ALTERATION

OMB No. 2120-0020 Exp: 5/31/2018	Electronic Tracking Number					
For FAA Use Only						

of Transportat Federal Aviat Administration	ion ion	(Airfram	ie, Powerplant, F	Prop	elle	r, or Appl	iance)				
instruction		ition of this	form. This report is							bsequent revision thereof) for esult in a civil penalty for each	
	Nationalit N95467		tration Mark				Serial No.	161			
1. Aircraft	Make G	rumman					Model G2	1		Series	
	Name (As	s shown on	registration certificate)	<u></u>		Address (As s		gistration	certificate)	
2. Owner	Pembe	erton,Ac	ldison J				Address 5302 N			State Wa	
	1				Zip 99212				Country USA		
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Repair	Alteration	Unit		Mal	ke			Model		Serial No.	
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Zip 99212		untry USA					laintenance Organ				
have b	een made in	accordance true and cor	with the requirement rect to the best of my	s of F know	Part 4 vledg	l3 of the U.S e.	5 above and de Federal Aviation	scribed on t n Regulation	he reverse ns and tha	e or attachments hereto It the information	
Extended rai per 14 CFR App. B			Signature/Date of Au	thoriz	ed In	dividual RM	2/6	69140	AFF	0 01-03-17	
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			persons specified be in Administration and		the	_	ed in item 5 v	vas inspect Rejecte		e manner prescribed by the	
3 1.	AA Flt. Stand spector	lards	Manufacturer		Mai	ntenance Or	ganization	Depar	tment of Tr	ed by Canadian ansport	
. F.	AA Designee		Repair Station	X		pection Auth	orization	Other (Spe	спу)		
Certificate or Designation f			Signature/Date of Aut	thoriz	ed In	dividual 2			2.4	·	
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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.

(If more space is required, attach additional sneets. । identify with ह	Grumman G2†A	віе жогк сатрівіва.)
	N95467	1-3-2017
	Nationality and Registration Mark	Date
Wing repair, Spar cap repair and installation of	new leading edges	
Removed original leading edge sections for instand painted spars. Replaced leading edge sections made up with Aluminum 2024-T3 per Grumma panel #6 on bottom left wing out board front be Repaired wings in accordance "Grumman Han JRF-6B/ G21A or in accordance with attached 122116 dated 12-21-2016 pages 1-38 for Sparight wing and 16 spar cap repairs on left wing left and right wing and attached detailed drawings case 1-18. Wings acid etched, alodined, epscheme with polyurethane base and clearcoat hardware in accordance with Grumman assem	tions on both wings with new to drawings including 12820 are tween station 211 and 271. It dbook of instructions/Structura 8110-3 approved data and de Cap Splices. Accomplished 2 See below summary of sparings for accomplished work. All pay primed and painted with truly wings installed on aircraft with	fabricated formed parts and 12371. Replaced al repair" for the sign review report ea spar cap repairs on cap repair stations on spar cap repairs listed icolor navy paint
Case 3) station 198 upper rear spar cap Case 5) station 158 upper rear spar cap Case 7) station 184 lower rear spar cap Case 9) Station 251 lower front spar cap Case 11) Station 188 lower front spar cap Case 13) Station 149 lower front spar cap Case 13	ase 2) Station 215 upper rear ase 4) station 170 upper rear ase 6) station 199 lower rear sise 8) station 159 lower rear sise 10) station 198 lower front se 12) Station 190 upper front se 14) Station 100 upper front se 16) Station 93 lower rear sise 16)	spar cap par cap par cap spar cap spar cap spar cap
Right wing Case 17) Station 192 lower rear spar cap Cas	se 18) Station 209 lower rear s	spar cap
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[/ Additio	nal Sheets Are Attached 40 Pa g e	S

8. Description of Work Accomplished

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			14 DATE
	J.S. DEPARTMENT OF TRANS FEDERAL AVIATION ADMIN of Compliance with Aire	NISTRATION	1. DATE December 21, 2016
Justenien	of Compliance with Airw	AFT COMPONENT IDENTIFICATION	
	,		· · · · · · · · · · · · · · · · · · ·
2. MAKE Grumman	3. MODEL NO. G-21A	4. TYPE (Aircraft, Engine, Propeller, etc.) Aircraft	5. NAME OF APPLICANT Addison J Pemberton
		LIST OF DATA	
6. IDENTIFICATION		7. TITLE	
Pemberton and Sons Aviation Report 122116 Revision N/C	Design Review for Spar Car	ap Splices - Grumman G-21A, N95467, S/N	1161, Dated December 21, 2016.
2 CURROS OF DATA	listed above demonstrates of as "APPLICABLE REGULA" This form does not constitute	ering design data only, and is not an installa compliance only with the regulations by para ATIONS." Compliance with additional regulate FAA approval of all engineering data necequirements for the entire alteration / repair.	ragraph and subparagraph listed below ations not listed here may be required. cessary for substantiation of
8. PURPOSE OF DATA Structural Design Review for Spar	Cap Splices on N95467		
9. APPLICABLE REQUIREMENT	TC // let enocific sections)		
Aeronautics Bulletin Amendment 7		24 F	
of appointment under 14 CFR I None have been exa requirements of the Airworthine I (We) Therefore Recomm	Part 183, data listed above a amined in accordance with es ess Standards listed. nend approval of these data these data	of the Administrator and in accordance and on attached sheets numbered established procedures and found to co	omply with applicable
11. SIGNATURE(S) OF DESIGNATED	ENGINEERING REPRESENTAT	TIVE(\$12. DESIGNATION NUMBER(S)	13. CLASSIFICATION(S)
Hugh G Evans Vugli	I Evans	DERT 635166-NM	Structures
/			
			:

FAA Form 8110-3 (03-10) SUPERSEDES PREVIOUS EDITION

GPO 901-613

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PEMBERTON & SONS AVIATION

REPORT 122116

DESIGN REVIEW

FOR

SPAR CAP SPLICES

GRUMMAN G-21A, N95467, S/N 1161

Revision N/C

December 21, 2016

Y			
		•	

N95467 1.3.2017

PEMBERTON AND SONS AVIATION REPORT 122116

Summary:

The basis of approval for all of the following spar cap splices is by comparison to the compressive/tensile strength of the original spar cap. The doublers added for each splice are shown to have adequate cross sectional area to carry the load across the joint. Each half of the splice is then examined to ensure that the rivets (and Hysol if applicable) have adequate shear strength, and the doublers and spar cap have adequate bearing strength, to transfer the load from the spar cap to the splice doubler(s). The Case #9, #11, #17, and #18 splices did not have the same strength as the original spar cap, but a wing loading analysis was used to show that they are acceptable. The attached drawings show each splice in detail including the doubler dimensions, doubler materials, rivets, and whether or not Hysol was used. The drawings show height dimensions of 7/8" or 1" for spar flange dimension for locations outboard of W.S. 166, but all calculations were done using a spar cap dimensions of 15/16" by 15/16" for the forward spars and 15/16" x 1.25" for the aft spars as shown on the Grumman Engineering drawings.

Calculations: Pages 2-20

Drawings: Pages 21-38

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Material Properties used for Calculations:

Shear Strength of AD Rivet = 28,000 psi

Bearing Strength of AD Rivet = 100,000 psi

Tensile Strength of 2024-T4 = 42,000 psi

Shear Strength of 2024-T4 = 28,000 psi

Bearing Yield Strength of 2024-T4 = 64,000 psi

Shear Strength of Hysol EA 9430 = 3500 psi Use 2,000 psi to be conservative

Tensile Strength of AN525 Screw is 125ksi min.

Shear Strength of bolt = .75 times the tensile strength.

Shear strength of AN screw = 94ksi.

Shear Strength of CR3523 Rivet (Monel Sleeve and 15-7 PH Cres Stem) = 75,000 psi

Shear Strength of CR3213 Rivet (5056 Aluminum Sleeve and 8740 Alloy Steel Stem) = 50,000 psi

$$\begin{array}{c} D_{3R} := .094 & D_{4R} := .125 & D_{5R} := .156 & D_{6R} := .188 & D_{3RH} := .098 & D_{4RH} := .1285 \\ D_{5RH} := .159 & D_{6RH} := .191 & A_{3R} := \frac{\pi}{4} \cdot D_{3R}^2 & A_{4R} := \frac{\pi}{4} \cdot D_{4R}^2 & A_{5R} := \frac{\pi}{4} \cdot D_{5R}^2 & A_{6R} := \frac{\pi}{4} \cdot D_{6R}^2 \\ A_{3RH} := \frac{\pi}{4} \cdot (D_{3RH})^2 & A_{4RH} := \frac{\pi}{4} \cdot (D_{4RH})^2 & A_{5RH} := \frac{\pi}{4} \cdot (D_{5RH})^2 & A_{6RH} := \frac{\pi}{4} \cdot (D_{6RH})^2 \\ 28000 \cdot A_{3R} = 194.314 & \frac{194.3}{64000 \cdot D_{3R}} = 0.032 & \text{Material will fail from bearing load before #3 AD rivet shears if material is thinner than .032''} \\ 50000 \cdot A_{3R} = 346.989 & \frac{347}{64000 \cdot D_{3R}} = 0.058 & \text{Material will fail from bearing load before #3 AD rivet shears if material is thinner than .058''} \\ 75000 \cdot A_{3R} = 520.483 & \frac{520.5}{64000 \cdot D_{3R}} = 0.087 & \text{Material will fail from bearing load before #3 Monel CherryMax rivet shears if material is thinner than .058''} \\ 28000 \cdot A_{4R} = 343.612 & \frac{343.6}{64000 \cdot D_{4R}} = 0.043 & \text{Material will fail from bearing load before #4 AD rivet shears if material is thinner than .043''} \\ 75000 \cdot A_{4R} = 920.388 & \frac{920.4}{64000 \cdot D_{4R}} = 0.015 & \text{Material will fail from bearing load before #4 Monel CherryMax rivet shears if material is thinner than .057''} \\ 28000 \cdot A_{5R} = 535.177 & \frac{535.2}{64000 \cdot D_{5R}} = 0.054 & \text{Material will fail from bearing load before #5 AD rivet shears if material is thinner than .054''} \\ 50000 \cdot A_{5R} = 1.434 \cdot 10^3 & \frac{95.7}{64000 \cdot D_{5R}} = 0.096 & \text{Material will fail from bearing load before #5 AD rivet shears if material is thinner than .054''} \\ 75000 \cdot A_{6R} = 777.255 & \frac{77.3}{64000 \cdot D_{6R}} = 0.014 & \text{Material will fail from bearing load before #6 AD rivet shears if material is thinner than .065''} \\ 75000 \cdot A_{6R} = 1.388 \cdot 10^3 & \frac{1388}{64000 \cdot D_{6R}} = 0.115 & \text{Material will fail from bearing load before #6 AD rivet shears if material is thinner than .065''} \\ 75000 \cdot A_{6R} = 2.082 \cdot 10^3 & \frac{2082}{64000 \cdot D_{6R}} = 0.115 & \text{Material will fail from bearing load before #6 AD$$

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Case #1

Tension

$$A_{spar} := .216$$
 $t_{spar} := .125$ $A_{doubler} := .263$ $t_{doubler} := .125$

$$A_{B3RH} := D_{3RH} \cdot t_{spar}$$
 $A_{B4RH} := D_{4RH} \cdot t_{spar}$ $A_{B5RH} := D_{5RH} \cdot t_{spar}$ $A_{B6RH} := D_{6RH} \cdot t_{spar}$

$$A_{ELPs} := A_{spar} - A_{B6RH}$$
 $A_{ELPs} = 0.192$ $T_{allowS} := 42000 \cdot A_{ELPs}$ $T_{allowS} = 8.069 \cdot 10^3$

$$A_{ELPd} := A_{doubler} - A_{B4RH} \quad A_{ELPd} = 0.247 \quad T_{allowD} := 42000 \cdot A_{ELPd} \quad T_{allowD} = 1.037 \cdot 10^4$$

The doubler strength is greater than the Spar strength, so the doubler is adequate.

Shear

The material is thick enough that when all AD rivets are used, the rivet shear strength is the limiting factor.

ShearA Routboard :=
$$12 \cdot A_{4R} + A_{6R} + 5 \cdot A_{5R}$$
 ShearA Routboard = 0.271

Shear A Rinboard
$$= 20 \cdot A_{4R} + A_{6R} + 8 \cdot A_{5R}$$
 Shear A Rinboard $= 0.426$

Shear :=
$$28000 \cdot \text{ShearA}_{\text{Routboard}} + 2000 \cdot \text{SurfaceA}_{\text{outboard}}$$
 Shear = $1.646 \cdot 10^4$

The outboard half of the splice has less surface area and less rivet shear area, so it is the critical half. When bonded with Hysol, the outboard half of the joint can transfer more load than the doubler can carry, so the joint is adequate.

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Case #2

Tensile Loads

$$A_{spar} := .216 t_{spar} := .125 A_{d1} := .2 t_{d1} := .1 A_{d2} := .09 t_{d2} := .125 A_{d3} := .09 t_{d3} := .050$$

$$A_{B5RHs} := D_{5RH} \cdot t_{spar} A_{B5RH1} := .159 \cdot t_{d1} A_{B5RH2} := .159 \cdot t_{d2} A_{B5RH3} := .159 \cdot t_{d3}$$

$$A_{ELPs} := A_{spar} - A_{B5RHs} A_{ELPd1} := A_{d1} - 2 \cdot A_{B5RH1} A_{ELPd2} := A_{d2} - 2 \cdot A_{B5RH2}$$

$$A_{ELPd3} := A_{d3} - 2 \cdot A_{B5RH3} A_{ELPd} := A_{ELPd1} + A_{ELPd2} + A_{ELPd3}$$

$$T_{allowS} := 42000 \cdot A_{ELPs} T_{allowS} = 8.237 \cdot 10^{3} T_{allowD} := 42000 \cdot A_{ELPd} T_{allowD} = 1.229 \cdot 10^{4}$$

The total doubler strength is greater than the Spar strength, so the doublers are adequate.

Shear Loads

Doublers #1 and #2 are thick enough that the rivet shear is critical, but for doubler #3, the bearing stress in the doubler hole is critical.

Shear A Routboard 1:=
$$11 \cdot A_{5R}$$
 Shear A Rinboard 1:= $20 \cdot A_{5R}$ Shear $_1$:= $28000 \cdot Shear A_{Routboard 1}$

Shear $_1$ = $5.887 \cdot 10^3$ Shear $_1$ = $3.5 \cdot 10^4$

So rivets can transfer 5,887 lbs into the angle doubler, which translates to 35,000 psi stress in the doubler which is below the 42,000 yield strength.

Shear A Routboard 2:= 8 · A 5 R Shear A Rinboard 2:= 15 · A 5 R Shear 2:= 28000 · Shear A Routboard 2

Shear
$$_2 = 4.281 \cdot 10^3$$
 $\frac{\text{Shear }_2}{\text{A }_{\text{ELPd2}}} = 8.52 \cdot 10^4$ $\text{T }_{\text{d2}} := 42000 \cdot \text{A }_{\text{ELPd2}}$ $\text{T }_{\text{d2}} = 2.111 \cdot 10^3$

Rivets can transfer 4,281 lbs into the internal flat doubler, which translates to 85,200 psi stress in the doubler which is above the 42,000 yield strength. This doubler is limited to the tensile load the doubler can carry which is 2,111 lbs.

A B5R3 := D 5R·t d3 Bearing A outboard3 := 3·A B5R3 Bearing A inboard3 := 6·A B5R3

Bearing 3 := 64000·Bearing A outboard3 Bearing 3 = 1.498·10³
$$\frac{\text{Bearing A inboard3}}{\text{A ELPd3}} = 2.021 \cdot 10^{4}$$

So rivets can transfer 1,498 lbs into the external flat doubler, which translates to 20,210 psi stress in the doubler which is below the 42,000 yield strength.

$$T_{allowd} := Shear_1 + T_{d2} + Bearing_3$$
 $T_{allowd} = 9.495 \cdot 10^3$

The combination of the 3 doublers can take 9,495 lbs which is better than the spar's 8,237 lbs.

Case #3

Tension
$$A_s := .216$$
 $t_s := .125$ $A_{d1} := .18$ $t_{d1} := .093$ $A_{d2} := .0625$ $t_{d2} := .125$ $A_{d3} := .0224$ $t_{d3} := .032$ $A_{B6RHs} := D_{6RH} \cdot t_s$ $A_{B6RH1} := D_{6RH} \cdot t_{d1}$ $A_{B4RH2} := D_{4RH} \cdot t_{d2}$ $A_{B5RH3} := D_{5RH} \cdot t_{d3}$ $A_{ELPs} := A_s - A_{B6RHs}$ $T_{allowS} := 42000 \cdot A_{ELPs}$ $T_{allowS} = 8.069 \cdot 10^3$ $A_{ELPd1} := A_{d1} - A_{B6RH1}$ $A_{ELPd2} := A_{d2} - A_{B4RH2}$ $A_{ELPd3} := A_{d3} - A_{B5RH3}$ $A_{ELPd3} := A_{d3} - A_{B5RH3}$ $A_{ELPd3} := A_{d3} - A_{ELPd3}$ $A_{eLPd3} := A_{eLPd3} := A_{eLPd3$

The total doubler strength is greater than the Spar strength, so the doublers are adequate.

Shear

All material is thick enough that the rivet shear is critical for AD rivets. All material is thin enough that bearing strength is critical for Cherry rivets.

SurfaceA RHinboard2 :=
$$2 \cdot A_{4RH}$$
 SurfaceA inboard2 := $(.5) \cdot 1.625 - SurfaceA_{RHinboard2}$

Shear dlout := $28000 \cdot (5 \cdot A_{4R}) + 64000 \cdot (4 \cdot D_{5R} \cdot t_{d1})$ Shear dlout = $5.432 \cdot 10^3$

Shear dlin := $28000 \cdot (2 \cdot A_{6R}) + 64000 \cdot (3 \cdot D_{5R} \cdot t_{d1} + 3 \cdot D_{4R} \cdot .063)$ Shear dlin = $5.852 \cdot 10^3$

Shear d2out := $64000 \cdot 4 \cdot D_{4R} \cdot .063$ Shear d2out = $2.016 \cdot 10^3$

Shear d2in := $28000 \cdot 2 \cdot A_{4R} + 2000 \cdot SurfaceA_{inboard2}$ Shear d2in = $2.26 \cdot 10^3$

Shear d3out := $64000 \cdot (4 \cdot D_{5R} \cdot t_{d3})$ Shear d3out = $1.278 \cdot 10^3$

Shear d3in := $64000 \cdot (3 \cdot D_{5R} \cdot t_{d3})$ Shear d3in = 958.464

Tallowd1 = $6.814 \cdot 10^3$ Tallowd2 = $1.95 \cdot 10^3$ Tallowd3 = 727.104

Shear into the outboard part of doubler #1 is is the critical load for doubler #1. All other shear loads are greater than the tensile strength of the doubler, so the doubler load is critical. The sum of the critical shear and doubler loads is greater than the original spar load, so the joint is adequate.

Case #4

Tension

$$A_{spar} := .216 t_{spar} := .125 A_{doubler} := .27 t_{doubler} := .156$$

$$A_{ELPs} := A_{spar} - D_{6RH} t_{spar} T_{allowS} := 42000 \cdot A_{ELPs} T_{allowS} = 8.069 \cdot 10^{3}$$

$$A_{ELPd} := A_{doubler} - D_{6RH} t_{doubler} T_{allowD} := 42000 \cdot A_{ELPd} T_{allowD} = 1.009 \cdot 10^{4}$$

The doubler strength is greater than the Spar strength, so the doubler is adequate.

Shear

All material is thick enough that the rivet shear is critical.

Shear in := 28000 ·
$$(3 \cdot A_{6R} + 4 \cdot A_{5R} + 3 \cdot A_{4R}) + 75000 \cdot 3 \cdot A_{4R}$$
 Shear in = 8.264 · 10³
Shear out := 28000 · $(4 \cdot A_{6R} + 5 \cdot A_{5R} + 4 \cdot A_{4R}) + 50000 \cdot (4 \cdot A_{4R})$ Shear out = 9.614 · 10³

The shear strength of the rivets in both the inboard and outboard half of the joint is greater than the original spar strength, so the joint is adequate,

Case #5

Tension

$$A_{spar} := .23 \qquad t_{spar} := .125 \qquad A_{doubler} := .23 \qquad t_{doubler} := .125$$

$$A_{ELPs} := A_{spar} - D_{6RH} \cdot t_{spar} \qquad T_{allowS} := 42000 \cdot A_{ELPs} \qquad T_{allowS} = 8.657 \cdot 10^{3}$$

$$A_{ELPd} := A_{doubler} - D_{6RH} \cdot t_{doubler} \qquad T_{allowD} := 42000 \cdot A_{ELPd} \qquad T_{allowD} = 8.657 \cdot 10^{3}$$

The doubler strength is equal to the Spar strength, so the doubler is adequate.

Shear

$$75000 \cdot \left(\frac{\pi}{4} \cdot .141^{2}\right) = 1.171 \cdot 10^{3} \quad \frac{1171}{64000 \cdot D_{4R}} = 0.146$$

Material will fail from bearing load before oversize #4 Monel CherryMax rivet shears if material is thinner than .146", so material bearing strength is critical for these rivets only.

Shear
$$_{in} := 28000 \cdot \left(5 \cdot A_{6R} + 5 \cdot A_{5R} + 3 \cdot A_{4R}\right) + 50000 \cdot 5 \cdot A_{4R}$$
 Shear $_{in} = 1.066 \cdot 10^4$
Shear $_{out} := 28000 \cdot \left(3.5 \cdot A_{6R} + 3 \cdot A_{4R} + 5 \cdot A_{5R}\right) + 64000 \cdot 2 \cdot t$ doubler · .141 Shear $_{out} = 8.683 \cdot 10^3$

The shear strength of the rivets in both the inboard and outboard half of the joint is greater than the original spar strength, so the joint is adequate,

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Case #6

Tension

$$A_{spar} := .216$$
 $t_{spar} := .125$ $A_{doubler} := .20$ $t_{doubler} := .125$
 $A_{B3RH} := D_{3RH} \cdot t_{spar}$ $A_{B4RH} := D_{4RH} \cdot t_{spar}$ $A_{B5RH} := D_{5RH} \cdot t_{spar}$ $A_{B6RH} := D_{6RH} \cdot t_{spar}$ $A_{B6RH} := D_{$

The doubler strength is greater than the Spar strength, so the doubler is adequate.

Shear

The material is thick enough that when all AD rivets are used, the rivet shear strength is the limiting factor.

ShearA Routboard :=
$$^{13\cdot A}_{6R}$$
 SurfaceA RHoutboard := $^{14\cdot A}_{6RH}$ SurfaceA RHinboard SurfaceA RHinboard := $^{14\cdot A}_{6RH}$ SurfaceA RHinboard SurfaceA RHinboard Shear = $^{14\cdot A}_{6RH}$ Shear := $^{14\cdot A}_{6RH}$ SurfaceA RHinboard Shear = $^{14\cdot A}_{6RH}$ Shear She

The inboard half of the splice has less surface area and less rivet shear area, so it is the critical half. When bonded with Hysol, the inboard half of the joint can transfer more load than the doubler can carry, so the joint is adequate.

Case #7

Tension

$$A_{spar} := .216 \quad t_{spar} := .125 \quad A_{doubler} := .222 \quad t_{doubler} := .125$$

$$A_{B3RH} := D_{3RH} \cdot t_{spar} \quad A_{B4RH} := D_{4RH} \cdot t_{spar} \quad A_{B5RH} := D_{5RH} \cdot t_{spar} \quad A_{B6RH} := D_{6RH} \cdot t_{spar}$$

$$A_{ELPs} := A_{spar} - A_{B6RH} \quad T_{allowS} := 42000 \cdot A_{ELPs} \quad T_{allowS} = 8.069 \cdot 10^{3}$$

$$A_{ELPd} := A_{doubler} - A_{B6RH} \quad T_{allowD} := 42000 \cdot A_{ELPd} \quad T_{allowD} = 8.321 \cdot 10^{3}$$

The doubler strength is greater than the Spar strength, so the doubler is adequate.

Shear

The material is thick enough that when all AD rivets are used, the rivet shear strength is the limiting factor.

ShearA Routboard
$$= 5 \cdot A \cdot A \cdot A \cdot A \cdot A \cdot B$$

ShearA Rinboard :=
$$3.5 \cdot A_{6R} + 4 \cdot A_{5R}$$

Shear =
$$1.027 \cdot 10^4$$

The inboard half of the splice has less surface area and less rivet shear area, so it is the critical half. When bonded with Hysol, the inboard half of the joint can transfer more load than the doubler can carry, so the joint is adequate.

Case #8

Tension

$$A_{spar} := .23 \qquad t_{spar} := .125 \qquad A_{doubler} := .23 \qquad t_{doubler} := .125$$

$$A_{ELPs} := A_{spar} - D_{5RH} \cdot t_{spar} \qquad T_{allowS} := 42000 \cdot A_{ELPs} \qquad T_{allowS} = 8.825 \cdot 10^{3}$$

$$A_{ELPd} := A_{doubler} - D_{5RH} \cdot t_{doubler} \qquad T_{allowD} := 42000 \cdot A_{ELPd} \qquad T_{allowD} = 8.825 \cdot 10^{3}$$

The doubler strength is equal to the Spar strength, so the doubler is adequate.

Shear

All material is thick enough that the rivet shear is critical except the CR2313-4 Rivets through the thin spar cap section where the bearing strength of the spar cap is critical.

Shear in := 28000 ·
$$(3 \cdot A_{4R} + 6.5 \cdot A_{5R}) + 75000 \cdot (3 \cdot A_{4R}) + 64000 \cdot (5 \cdot .06 \cdot D_{4R})$$
 Shear in = 9.671 · 10³

Shear out := 28000 ·
$$(3 \cdot A_{4R} + 7 \cdot A_{5R}) + 75000 \cdot (4 \cdot A_{4R}) + 64000 \cdot (2 \cdot .06 \cdot D_{4R})$$
 Shear out = 9.419 · 10³

The shear strength of the rivets in both the inboard and outboard half of the joint is greater than the original spar strength, so the joint is adequate,

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Case #9

Tension

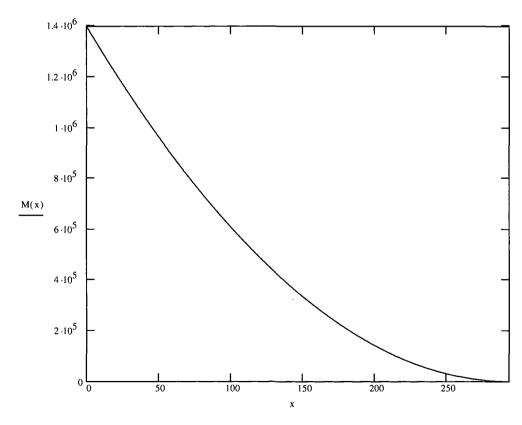
$$A_{spar} := .207$$
 $t_{spar} := .125$ $A_{doubler} := .179$ $t_{doubler} := .125$ $A_{ELPs} := A_{spar} - D_{5RH} \cdot t_{spar}$ $T_{allowS} := 42000 \cdot A_{ELPs}$ $T_{allowS} = 7.859 \cdot 10^{3}$ $A_{ELPd} := A_{doubler}$ $T_{allowD} := 42000 \cdot A_{ELPd}$ $T_{allowD} = 7.518 \cdot 10^{3}$

Shear

All material is thick enough that the rivet shear is critical.

Shear
$$_{in} := 28000 \cdot (7 \cdot A_{4R} + 8 \cdot A_{5R})$$
 Shear $_{in} = 6.687 \cdot 10^3$
Shear $_{out} := 28000 \cdot (17 \cdot A_{5R})$ Shear $_{out} = 9.098 \cdot 10^3$

The doubler strength is greater than the shear strength of the rivets, so the rivet shear is the limiting factor of the joint and is less than the strength of the spar cap.



 $t_{fs}(x) := 15.4981 - .0336 \cdot x$ $t_{rs}(x) := 19.537 - .0523 \cdot x$

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Equation for W.S. 196 to 271

Load
$$f_S(x) := \frac{.19995 \cdot M(x)}{.5 \cdot t_{f_S}(x) - .5}$$
 Load $f_S(196) = 7.859 \cdot 10^3$ Load $f_S(251) = 1.974 \cdot 10^3$

The structure in the wing is the same from W.S. 196 outboard, but the loading decreases substatially, so a wing loading analysis was done to show the the rivet shear is adequate for this location. The 6.687 pound capacity of the rivets exceeds the load of approximately 2,000 and the joint is adequate.

Case #10

Spar Loads
$$A_{spar} := .207 \quad t_{spar} := .125 \quad A_{d1} := .261 \quad t_{d1} := .125$$

$$A_{d2} := .016 \quad t_{d2} := .032 \quad A_{d3} := .126 \quad t_{d3} := .063 \quad A_{d4} := .063 \quad t_{d4} := .063$$

$$A_{ELPs} := A_{spar} - D_{5RH} \cdot t_{spar} \quad A_{ELPd1} := A_{d1} - 2 \cdot D_{5RH} \cdot t_{d1} \quad A_{ELPd2} := A_{d2} - D_{5RH} \cdot t_{d2}$$

$$A_{ELPd3} := A_{d3} - 2 \cdot D_{5RH} \cdot t_{d3} \quad A_{ELPd4} := A_{d4} - D_{5RH} \cdot t_{d4}$$

$$T_{allowS} := 42000 \cdot A_{ELPs} \quad T_{allowS} = 7.859 \cdot 10^{3}$$

Doubler Loads

Material is thinner than .144", so bearing stress in material is critical, not rivet shear for CR3523-5 rivets. .032" internal doubler is bearing stress limited. All other rivets are limited by rivet shear stress.

Shear A Rout 1 :=
$$3 \cdot A_{4R} + 2.5 \cdot A_{5R}$$
 Load $_{out 1}$:= $28000 \cdot Shear A_{Rout 1}$ Load $_{out 1}$ = $2.369 \cdot 10^3$ Shear $_{d1}$:= $28000 \cdot Shear A_{Rin 1}$ Load $_{out 1}$ = $2.369 \cdot 10^3$ Shear $_{d1}$:= $28000 \cdot Shear A_{Rin 1}$ Shear $_{d1}$ = $2.293 \cdot 10^3$ Shear $_{d2}$ = $2.293 \cdot 10^3$ Shear $_{d1}$ = $2.293 \cdot 10^3$ Shear $_{d2}$ = $2.293 \cdot 10^3$ Shear $_{d1}$ = $2.293 \cdot 10^3$ Shear $_{d2}$ = $2.293 \cdot 10^3$ Shear $_{d1}$ = $2.293 \cdot 10^3$ Shear $_{d2}$ = $2.293 \cdot 10^3$ Shear $_{d1}$ = $2.293 \cdot 10^3$ Shear $_{d2}$ = $2.293 \cdot 10^3$ Shear $_{d1}$ = $2.293 \cdot 10^3$ Shear $_{d2}$ Shear $_{d2}$ = $2.293 \cdot 10^3$ Shear $_{d2}$ Shear $_{d$

So rivets can transfer 2,293 lbs into the angle doubler, which translates to 10,360 psi stress in the doubler which is below the 42,000 yield strength.

$$\begin{aligned} \text{BearingA}_{\text{out2}} &:= 2.5 \cdot \text{D}_{5\text{R}} \cdot \text{t}_{\text{d2}} + 3 \cdot \text{D}_{4\text{R}} \cdot \text{t}_{\text{d2}} \\ \text{BearingA}_{\text{in2}} &:= 64000 \cdot \text{BearingA}_{\text{out2}} \end{aligned} \qquad \begin{aligned} &\text{Load}_{\text{out2}} &:= 64000 \cdot \text{BearingA}_{\text{out2}} \\ \text{Load}_{\text{in2}} &:= 64000 \cdot \text{BearingA}_{\text{in2}} \end{aligned} \qquad \begin{aligned} &\text{Load}_{\text{out2}} &= 1.567 \cdot 10^3 \\ \text{Load}_{\text{in2}} &:= 64000 \cdot \text{BearingA}_{\text{in2}} \end{aligned} \qquad \begin{aligned} &\text{Load}_{\text{in2}} &= 1.47 \cdot 10^3 \\ \text{Load}_{\text{in2}} &:= 42000 \cdot \text{A}_{\text{ELPd2}} \end{aligned} \qquad \begin{aligned} &\text{T}_{\text{d2}} &:= 42000 \cdot \text{A}_{\text{ELPd2}} \end{aligned} \qquad \end{aligned}$$

So rivets can transfer 1,470 lbs into the internal flat doubler, which translates to 137,800 psi stress in the doubler which is above the 42,000 yield strength. This doubler is limited to the tensile load the doubler can handle which is 458 lbs.

Treat both external doublers as a single doubler .125" thick with an effective width of 1":

Bearing
$$_{in3} := 64000 \cdot 5 \cdot (t_{d3} + t_{d4}) \cdot D_{5R}$$
 Bearing $_{in3} = 6.29 \cdot 10^3 \frac{\text{Bearing in3}}{(t_{d3} + t_{d4}) \cdot 1} = 4.992 \cdot 10^4$

$$T_{d3} := 42000 \cdot (t_{d3} + t_{d4}) \cdot 1$$

$$T_{d3} = 5.292 \cdot 10^3$$

The rivets can transfer 6,290 lbs total into the doublers which translates to 49,920 psi stress which is higher than the 42,000 psi yield strength. Using a 1" effective width, both doublers can carry 5,292 lbs total.

$$T_{allowd} := Shear_{d1} + T_{d2} + T_{d3}$$
 $T_{allowd} = 8.043 \cdot 10^3$

The combination of the 4 doublers can carry 8,043 lbs which is greater than the spar.

Case #11

Spar Loads
$$A_{spar} := .207 \quad t_{spar} := .125 \quad A_{d1} := .261 \quad t_{d1} := .125$$

$$A_{d2} := .016 \quad t_{d2} := .032 \quad A_{d3} := .1 \quad t_{d3} := .050 \quad A_{d4} := .063 \quad t_{d4} := .063$$

$$A_{ELPs} := A_{spar} - D_{5RH} \cdot t_{spar} \quad A_{ELPd1} := A_{d1} - 2 \cdot D_{5RH} \cdot t_{d1} \quad A_{ELPd2} := A_{d2} - D_{5RH} \cdot t_{d2}$$

$$A_{ELPd3} := A_{d3} - 2 \cdot D_{5RH} \cdot t_{d3} \quad A_{ELPd4} := A_{d4} - D_{5RH} \cdot t_{d4}$$

$$T_{allowS} := 42000 \cdot A_{ELPs} \quad T_{allowS} = 7.859 \cdot 10^{3}$$

Doubler Loads

Material is thinner than .144", so bearing stress in material is critical, not rivet shear for CR3523-5 rivets. .032" internal doubler is bearing stress limited. All other rivets are limited by rivet shear stress.

Shear A Rout 1 :=
$$6 \cdot A_{5R}$$
 Load $_{out 1}$:= $28000 \cdot Shear A_{Rout 1}$ Load $_{out 1}$ = $3.211 \cdot 10^{3}$ Shear $_{d1}$:= $28000 \cdot Shear A_{Rin 1}$ Shear $_{d1}$ = $3.211 \cdot 10^{3}$ Shear $_{d1}$ Shear

So rivets can transfer 3,211 lbs into the angle doubler, which translates to 14,510 psi stress in the doubler which is below the 42,000 yield strength.

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Bearing A out 2 :=
$$6 \cdot D \cdot 5R \cdot t \cdot d2$$
 Load out 2 := $64000 \cdot Bearing A \cdot out 2$ Load out 2 = $1.917 \cdot 10^3$ Bearing A in 2 := $6 \cdot D \cdot 5R \cdot t \cdot d2$ Load in 2 := $64000 \cdot Bearing A \cdot out 2$ Load in 2 = $1.917 \cdot 10^3$ Load in 2 = $1.757 \cdot 10^5$ T d2 := $42000 \cdot A \cdot BLPd2$ T d2 = 458.304

So rivets can transfer 1,917 lbs into the internal flat doubler, which translates to 175,700 psi stress in the doubler which is above the 42,000 yield strength. This doubler is limited to the tensile load the doubler can handle which is 458 lbs.

Treat both external doublers as a single doubler .113" thick with an effective width of 1":

Bearing in 3 := 64000·3·(t_{d3} + t_{d4})·D_{5RH} Bearing in 3 = 3.45·10³
$$\frac{\text{Bearing in 3}}{(t_{d3} + t_{d4})·1} = 3.053·10^4$$

The rivets can transfer 3,450 lbs total into the doublers which translates to 30,530 psi stress which is below the 42,000 psi yield strength.

$$T_{allowd} := Shear_{d1} + T_{d2} + Bearing_{in3}$$
 $T_{allowd} = 7.119 \cdot 10^3$

The combination of the 4 doublers can carry 7,119 lbs which is less than the spar, so the wing loading from Case 9 is again used.

Equations for W.S. 181 to 196

Load
$$f_S(x) := \frac{.15997 \cdot M(x)}{.5 \cdot t_{f_S}(x) - .5}$$
 Load $f_S(181) = 7.859 \cdot 10^3$ Load $f_S(188) = 7.114 \cdot 10^3$

The structure in the wing is the same from W.S. 181 to W.S. 196, but the loading decreases, so a wing loading analysis was done to show that the doubler load capacity is adequate for this location. The 7,119 pound capacity of the doublers exceeds the load of 7,114 pounds and the joint is adequate.

Case #12

Area
$$_{removed} := .5 \cdot .055$$
 Area $_{removed} = 0.028$ Area $_{doubler} := .75 \cdot .125$ Area $_{doubler} = 0.094$

Doubler Area is greater than Spar Cap area removed, so it is adequate.

42000·Area _{removed} =
$$1.155 \cdot 10^3$$
 Shear := $28000 \cdot 2 \cdot A_{5R} + 2000 \cdot \left(2 \cdot .5 - 2 \cdot A_{5RH}\right)$
42000·A _{doubler} = $7.518 \cdot 10^3$ Shear = $2.991 \cdot 10^3$

The doubler strength and shear strength between the spar and doubler are both much greater than the strength of the removed spar material, so the joint is adequate.

Case #13 Inboard

Tension

$$A_{s} := .293 \qquad t_{s} := .125 \qquad A_{d1} := .234 \qquad t_{d1} := .125 \qquad A_{d2} := .095 \qquad t_{d2} := .063$$

$$A_{ELPs} := A_{s} - D_{6RH} \cdot t_{s} \qquad T_{allowS} := 42000 \cdot A_{ELPs} \qquad T_{allowd1} := 42000 \cdot \left(A_{d1} - 2 \cdot D_{5RH} \cdot t_{d1}\right)$$

$$T_{allowd2} := 42000 \cdot \left(A_{d2} - D_{5RH} \cdot t_{d2}\right) \qquad T_{allowD} := T_{allowd1} + T_{allowd2} \qquad T_{allowS} = 1.13 \cdot 10^{4}$$

$$T_{allowd1} = 8.159 \cdot 10^{3} \qquad T_{allowd2} = 3.569 \cdot 10^{3} \qquad T_{allowD} = 1.173 \cdot 10^{4}$$

The total doubler strength is greater than the Spar strength, so the doublers are adequate.

Shear

All material is thick enough that the rivet shear is critical.

ShearA
$$_{Rout1} := 9 \cdot A_{5R}$$
 ShearA $_{Rin1} := 11 \cdot A_{5R}$
ShearA $_{Rout2} := 4 \cdot A_{5R}$ ShearA $_{Rin2} := 5 \cdot A_{5R}$

SurfaceA
$$_{RHout1} := 9 \cdot A_{5RH}$$
 SurfaceA $_{RHin1} := 11 \cdot A_{5RH}$
SurfaceA $_{RHout2} := 4 \cdot A_{4RH}$ SurfaceA $_{RHin2} := 5 \cdot A_{4RH}$

SurfaceA
$$_{in1}$$
 := (.687 + .687)·3.25 - SurfaceA $_{RHin1}$

SurfaceA
$$_{out2}$$
 := 1.5·2.88 – SurfaceA $_{RHout2}$

SurfaceA
$$_{in2}$$
 := (1.5)·3.25 - SurfaceA $_{RHin2}$

Shear
$$_{out1}$$
 := 28000·ShearA $_{Rout1}$ + 2000·SurfaceA $_{out1}$ Shear $_{out1}$ = 1.237·10⁴
Shear $_{in1}$:= 28000·ShearA $_{Rin1}$ + 2000·SurfaceA $_{in1}$ Shear $_{out1}$ = 1.438·10⁴

Shear
$$_{\text{in}1} := 28000 \cdot \text{ShearA} \cdot \text{Rin}_1 + 2000 \cdot \text{SurfaceA} \cdot \text{in}_1$$
 Shear $_{\text{in}1} = 1.438 \cdot 10^4$ Shear $_{\text{out}2} := 28000 \cdot \text{ShearA} \cdot \text{Rout}_2 + 2000 \cdot \text{SurfaceA} \cdot \text{out}_2$ Shear $_{\text{out}} = 1.068 \cdot 10^4$

Shear
$$_{\text{in2}} := 28000 \cdot \text{ShearA}_{\text{Rin2}} + 2000 \cdot \text{SurfaceA}_{\text{in2}}$$
 Shear $_{\text{in2}} = 1.23 \cdot 10^4$

The shear strength of the rivets plus Hysol is greater than the strength of each of the doublers, so the joint is adequate.

Shear $out2 = 1.068 \cdot 10^4$

Case #13 Outboard

Tension

$$A_s := .293 \qquad t_s := .125 \qquad A_{d1} := .234 \qquad t_{d1} := .125 \qquad A_{d2} := .095 \qquad t_{d2} := .063$$

$$A_{ELPs} := A_s - D_{6RH} \cdot t_s \qquad T_{allowS} := 42000 \cdot A_{ELPs} \qquad T_{allowd1} := 42000 \cdot \left(A_{d1} - 2 \cdot D_{5RH} \cdot t_{d1}\right)$$

$$T_{allowd2} := 42000 \cdot \left(A_{d2} - D_{5RH} \cdot t_{d2}\right) \qquad T_{allowD} := T_{allowd1} + T_{allowd2} \qquad T_{allowS} = 1.13 \cdot 10^4$$

$$T_{allowd1} = 8.159 \cdot 10^3 \qquad T_{allowd2} = 3.569 \cdot 10^3 \qquad T_{allowD} = 1.173 \cdot 10^4$$

The total doubler strength is greater than the Spar strength, so the doublers are adequate.

Shear

All material is thick enough that the rivet shear is critical.

ShearA
$$_{Rout1}$$
 := $8 \cdot A_{5R}$ ShearA $_{Rin1}$:= $8 \cdot A_{5R}$

ShearA $_{Rout2}$:= $4 \cdot A_{5R}$ ShearA $_{Rin2}$:= $4 \cdot A_{5R}$

SurfaceA $_{RHout1}$:= $8 \cdot A_{5RH}$ SurfaceA $_{RHin1}$:= $8 \cdot A_{5RH}$

SurfaceA
$$_{out1}$$
 := (.687 + .687) \cdot 2.8 - SurfaceA $_{RHout1}$

SurfaceA
$$_{in1}$$
 := (.687 + .687) \cdot 2.8 - SurfaceA $_{RHin1}$

SurfaceA
$$_{out2}$$
 := 1.5·2.8 - SurfaceA $_{RHout2}$

SurfaceA
$$_{in2} := (1.5) \cdot 2.8 - SurfaceA _{RHin2}$$

Shear
$$_{out1} := 28000 \cdot ShearA$$
 $_{Rout1} + 2000 \cdot SurfaceA$ $_{out1}$ Shear $_{out1} = 1.166 \cdot 10^4$

Shear
$$_{\text{in}1} := 28000 \cdot \text{ShearA}_{\text{Rin}1} + 2000 \cdot \text{SurfaceA}_{\text{in}1}$$
 Shear $_{\text{in}1} = 1.166 \cdot 10^4$

Shear
$$out2$$
 := 28000·ShearA $Rout2$ + 2000·SurfaceA $out2$ Shear $out2$ = 1.044·10⁴

Shear
$$_{\text{in2}} := 28000 \cdot \text{ShearA}_{\text{Rin2}} + 2000 \cdot \text{SurfaceA}_{\text{in2}}$$
 Shear $_{\text{in2}} = 1.044 \cdot 10^4$

The shear strength of the rivets plus Hysol is greater than the strength of each of the doublers, so the joint is adequate.

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Case #14

Tensile Loads

$$A_{spar} := .358 t_{spar} := .125 A_{d1} := .262 t_{d1} := .125 A_{d2} := .071 t_{d2} := .063 A_{d3} := .197 t_{d3} := .063$$

$$A_{B5RHs} := D_{5RH} \cdot t_{spar} A_{B5RH1} := .159 \cdot t_{d1} A_{B5RH2} := .159 \cdot t_{d2} A_{B5RH3} := .159 \cdot t_{d3}$$

$$A_{ELPs} := A_{spar} - 2 \cdot A_{B5RHs} A_{ELPd1} := A_{d1} - A_{B5RH1} - 2 \cdot D_{5RH} \cdot 1 A_{ELPd2} := A_{d2} - 2 \cdot A_{B5RH2}$$

$$A_{ELPd3} := A_{d3} - 4 \cdot A_{B5RH3} A_{ELPd} := A_{ELPd1} + A_{ELPd2} + A_{ELPd3}$$

$$T_{allowS} := 42000 \cdot A_{ELPs}$$
 $T_{allowS} = 1.337 \cdot 10^4$ $T_{allowD} := 42000 \cdot A_{ELPd}$ $T_{allowD} = 1.757 \cdot 10^4$

The total doubler strength is greater than the Spar strength, so the doublers are adequate.

Shear Loads

All material is thick enough that the rivet shear is critical.

Shear A Routboard 1 :=
$$16 \cdot A_{5R}$$
 Shear A Rinboard 1 := $14 \cdot A_{5R}$ Shear A_{1} := $28000 \cdot Shear A_{1}$ Rinboard 1 Shear A_{1} = $7.492 \cdot 10^{3}$ Shear A_{1} = $3.562 \cdot 10^{4}$

So rivets can transfer 7,492 lbs into the angle doubler, which translates to 35,620 psi stress in the doubler which is below the 42,000 yield strength.

ShearA Routboard2 := 12·A 5R ShearA Rinboard2 := 12·A 5R Shear 2 := 28000 · Shear A Routboard2

Shear
$$_2 = 6.422 \cdot 10^3$$
 $\frac{\text{Shear }_2}{\text{A}_{\text{ELPd2}}} = 1.26 \cdot 10^5$ $\text{T}_{\text{d2}} := 42000 \cdot \text{A}_{\text{ELPd2}}$ $\text{T}_{\text{d2}} = 2.141 \cdot 10^3$

Rivets can transfer 6,422 lbs into the internal flat doubler, which translates to 126,000 psi stress in the doubler which is above the 42,000 yield strength. This doubler is limited to the tensile load the doubler can carry which is 2,141 lbs.

Shear A
$$_{Rout3}$$
 := 12·A $_{5R}$ Shear A $_{Rin3}$:= 30·A $_{5R}$ Shear $_{3}$:= 28000·Shear A $_{Rout3}$

Shear
$$_3 = 6.422 \cdot 10^3$$
 $\frac{\text{Shear }_3}{\text{A}_{\text{FL,Pd}3}} = 4.092 \cdot 10^4$

So rivets can transfer 6,422 lbs into the external flat doubler, which translates to 40,920 psi stress in the doubler which is below the 42,000 yield strength.

$$T_{allowd} := Shear_1 + T_{d2} + Shear_3$$
 $T_{allowd} = 1.606 \cdot 10^4$

The combination of the 3 doublers can take 16,060 lbs which is better than the spar's 13,370 lbs.

Case #15

Tension

$$A_s := .358 \qquad t_s := .125 \qquad A_{d1} := .322 \qquad t_{d1} := .125 \qquad A_{d2} := .095 \qquad t_{d2} := .063$$

$$A_{ELPs} := A_s - 2 \cdot D_{5RH} \cdot t_s \qquad T_{allowS} := 42000 \cdot A_{ELPs} \qquad T_{allowd1} := 42000 \cdot \left(A_{d1} - 4 \cdot D_{5RH} \cdot t_{d1}\right)$$

$$T_{allowd2} := 42000 \cdot A_{d2} \qquad T_{allowD} := T_{allowd1} + T_{allowd2} \qquad T_{allowS} = 1.337 \cdot 10^4$$

$$T_{allowd1} = 1.018 \cdot 10^4 \qquad T_{allowd2} = 3.99 \cdot 10^3 \qquad T_{allowD} = 1.417 \cdot 10^4$$

The total doubler strength is greater than the Spar strength, so the doublers are adequate.

Shear

All material is thick enough that the rivet shear is critical.

ShearA
$$_{Rout1} := 11 \cdot A_{5R}$$
 ShearA $_{Rin1} := 11 \cdot A_{5R}$
ShearA $_{Rout2} := 6 \cdot A_{5R}$ ShearA $_{Rin2} := 6 \cdot A_{5R}$

SurfaceA
$$_{RHout1}$$
 := 11·A $_{5RH}$ SurfaceA $_{RHin1}$:= 11·A $_{5RH}$ SurfaceA $_{RHin2}$:= 6·A $_{4RH}$ SurfaceA $_{RHin2}$:= 6·A $_{4RH}$

SurfaceA
$$_{out2}$$
 := 1.5·2.35 - SurfaceA $_{RHout2}$

SurfaceA
$$_{in2} := (1.5) \cdot 2.35 - SurfaceA _{RHin2}$$

The shear strength of the rivets plus Hysol is greater than the strength of each of the doublers, so the joint is adequate.

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Case # 10

Tension

$$A_{spar} := .396 \qquad t_{spar} := .125 \qquad A_{d} := .395 \qquad t_{d} := .135 \qquad D_{4BH} := .266$$

$$A_{ELPs} := A_{spar} - D_{4BH} \cdot t_{spar} \qquad T_{allowS} := 42000 \cdot A_{ELPs} \qquad T_{allowS} = 1.524 \cdot 10^{4}$$

$$A_{ELPd} := A_{d} - 1.5 \cdot D_{5RH} \cdot t_{d} \qquad T_{allowD} := 42000 \cdot A_{ELPd} \qquad T_{allowD} = 1.524 \cdot 10^{4}$$

The doubler strength is equal to the Spar strength, so the doubler is adequate.

Shear

$$A_{4B} := \frac{\pi}{4} \cdot \left(\frac{1}{4}\right)^{2} \qquad A_{4BH} := \frac{\pi}{4} \cdot \left(D_{4BH}\right)^{2} \qquad \qquad Surface A_{RHout} := 15 \cdot A_{5RH}$$

$$Surface A_{in} := (1.052 + 1.302) \cdot 3.9 - Surface A_{RHin}$$

$$Surface A_{out} := (1.052 + 1.302) \cdot 3.5 - Surface A_{RHout}$$

$$Shear_{in} := 28000 \cdot \left(10 \cdot A_{5R}\right) + 90000 \cdot 4 \cdot A_{4B} + 2000 \cdot Surface A_{in} \qquad Shear_{in} = 4.035 \cdot 10^{4}$$

$$Shear_{out} := 28000 \cdot \left(15 \cdot A_{5R}\right) + 2000 \cdot Surface A_{out}$$

$$Shear_{out} := 2391 \cdot 10^{4}$$

The shear strength of the rivets/bolts plus Hysol is greater than the strength of the doubler and spar, so the joint is adequate.

Case #17

$$\begin{aligned} & \text{Spar Loads} & \text{A}_s \coloneqq .216 & \text{t}_s \coloneqq .125 & \text{A}_{d1} \coloneqq .23 & \text{t}_{d1} \coloneqq .125 & \text{A}_{d2} \coloneqq .047 & \text{t}_{d2} \coloneqq .063 \\ & \text{A}_{d3} \coloneqq .085 & \text{t}_{d3} \coloneqq .050 & \text{A}_{d4} \coloneqq .086 & \text{t}_{d4} \coloneqq .100 & \text{A}_{B5RHs} \coloneqq D_{5RH} \cdot \text{t}_{s} & \text{A}_{B6RHs} \coloneqq D_{6RH} \cdot \text{t}_{s} \\ & \text{A}_{B5RHd1} \coloneqq D_{5RH} \cdot \text{t}_{d1} & \text{A}_{B6RHd1} \coloneqq D_{6RH} \cdot \text{t}_{d1} & \text{A}_{B5RHd2} \coloneqq D_{5RH} \cdot \text{t}_{d2} & \text{A}_{B6RHd2} \coloneqq D_{6RH} \cdot \text{t}_{d2} \\ & \text{A}_{B5RHd3} \coloneqq D_{5RH} \cdot \text{t}_{d3} & \text{A}_{B4RHd4} \coloneqq D_{4RH} \cdot \text{t}_{d4} & \text{A}_{B5RHd4} \coloneqq D_{5RH} \cdot .04 \\ & \text{A}_{ELPs} \coloneqq \text{A}_s - \text{A}_{B6RHs} & \text{A}_{ELPd1} \coloneqq \text{A}_{d1} - \text{A}_{B6RHd1} - \text{A}_{B5RHd1} & \text{A}_{ELPd2} \coloneqq \text{A}_{d2} - \text{A}_{B6RHd2} \\ & \text{A}_{ELPd3} \coloneqq \text{A}_{d3} - 2 \cdot \text{A}_{B5RHd3} & \text{A}_{ELPd4} \coloneqq \text{A}_{d4} - \text{A}_{B5RHd4} - \text{A}_{B4RHd4} & \text{T}_{allowd1} \coloneqq 42000 \cdot \text{A}_{ELPd1} \\ & \text{T}_{allowd2} \coloneqq 42000 \cdot \text{A}_{ELPd2} & \text{T}_{allowd3} \coloneqq 42000 \cdot \text{A}_{ELPd3} & \text{T}_{allowd4} \coloneqq 42000 \cdot \text{A}_{ELPd4} \\ & \text{T}_{allowd1} = 7.822 \cdot 10^3 & \text{T}_{allowd2} = 1.469 \cdot 10^3 & \text{T}_{allowd3} = 2.902 \cdot 10^3 & \text{T}_{allowd4} = 2.805 \cdot 10^3 \\ & \text{T}_{allowD} \coloneqq \text{T}_{allowd1} + \text{T}_{allowd2} + \text{T}_{allowd3} + \text{T}_{allowd3} + \text{T}_{allowd5} = 42000 \cdot \text{A}_{ELPs} \end{aligned}$$

Doubler Loads

The internal doublers are thick enough that the rivet shear stress is critical. The thin external doubler is limited by material bearing stress for all rivets. The total material thickness is thinner than .096" where the external doublers overlap, so bearing stress is critical, not rivet shear for CR3213-5 rivets.

Load
$$_{\text{in}1} := 28000 \cdot (6 \cdot A_{6R})$$
 Load $_{\text{in}1} = 4.664 \cdot 10^3$ Load $_{\text{out}1} := 28000 \cdot (5 \cdot A_{5R})$ Load $_{\text{out}1} = 2.676 \cdot 10^3$

So rivets can transfer 2,676 lbs into the outboard angle doubler, which is less than the allowable load for the doubler, so the rivet shear is the critical load.

Load
$$_{in2} := 28000 \cdot (6 \cdot A_{6R})$$
 Load $_{in2} = 4.664 \cdot 10^3$ Load $_{out2} := 28000 \cdot (5 \cdot A_{5R})$ Load $_{out2} = 2.676 \cdot 10^3$

So rivets can transfer 2,676 lbs into the outboard internal doubler, which is more than the allowable load for the doubler, so the doubler strength is the critical load.

Load
$$_{in3} := 64000 \cdot 3 \cdot D_{5R} \cdot t_{d3}$$
 Load $_{in3} = 1.498 \cdot 10^3$ Load $_{out3} := 64000 \cdot 4 \cdot D_{5R} \cdot t_{d3}$ Load $_{out3} = 1.997 \cdot 10^3$

So rivets can transfer 1,498 lbs into the inboard external doubler, which is less than the allowable load for the doubler, so the rivet shear is the critical load.

Load in4 :=
$$28000 \cdot 4 \cdot A_{4R} + 42000 \cdot [.04 \cdot (1.31 - .563) - A_{B5RHd4}]$$
 Load in4 = $2.362 \cdot 10^3$

Load out4 :=
$$28000 \cdot 5 \cdot A_{4R} + 64000 \cdot 4 \cdot D_{5R} \cdot .04$$
 Load out4 = $3.315 \cdot 10^3$

So rivets can transfer 2,362 lbs into the inboard secondary external doubler, which is less than the allowable load for the doubler, so the rivet shear is the critical load.

$$T_{allowd} := Load_{out1} + T_{allowd2} + Load_{in3} + Load_{in4}$$
 $T_{allowd} = 8.004 \cdot 10^3$

The combination of the 4 doublers can carry 8,004 lbs which is less than the spar, so the wing loading from Case 9 is again used.

Equations for W.S. 181 to 196

Load
$$_{rs}(x) := \frac{.17702 \cdot M(x)}{.5 \cdot t_{rs}(x) - .5}$$
 Load $_{rs}(181) = 8.069 \cdot 10^3$ Load $_{rs}(192) = 7.02 \cdot 10^3$

The structure in the wing is the same from W.S. 181 to W.S. 196, but the loading decreases, so a wing loading analysis was done to show that the doubler load capacity is adequate for this location. The 8,004 pound capacity of the doublers exceeds the load of 7,020 pounds and the joint is adequate.

Case #18

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Spar Loads $A_s := .216$ $t_s := .125$ $A_{d1} := .23$ $t_{d1} := .125$ $A_{d2} := .047$ $t_{d2} := .063$

 $A_{d3} := .085$ $t_{d3} := .050$ $A_{d4} := .100$ $t_{d4} := .125$ $A_{B5RHs} := D_{5RH} \cdot t_s$ $A_{B6RHs} := D_{6RH} \cdot t_s$

 $A_{B5RHd1} := D_{5RH} \cdot t_{d1} \quad A_{B6RHd1} := D_{6RH} \cdot t_{d1} \quad A_{B5RHd2} := D_{5RH} \cdot t_{d2} \quad A_{B6RHd2} := D_{6RH} \cdot t_{d2}$

 $A_{B5RHd3} := D_{5RH} \cdot t_{d3}$ $A_{B4RHd4} := D_{4RH} \cdot t_{d4}$ $A_{B5RHd4} := D_{5RH} \cdot .04$

 $A_{ELPs} := A_s - A_{B6RHs}$ $A_{ELPd1} := A_{d1} - A_{B6RHd1} - A_{B5RHd1}$ $A_{ELPd2} := A_{d2} - A_{B6RHd2}$

 $A_{ELPd3} := A_{d3} - 2 \cdot A_{B5RHd3}$ $A_{ELPd4} := A_{d4} - A_{B5RHd4} - A_{B4RHd4}$ $T_{allowd1} := 42000 \cdot A_{ELPd1}$

 $T_{allowd2} := 42000 \cdot A_{ELPd2}$ $T_{allowd3} := 42000 \cdot A_{ELPd3}$ $T_{allowd4} := 42000 \cdot A_{ELPd4}$

 $T_{allowd1} = 7.822 \cdot 10^3$ $T_{allowd2} = 1.469 \cdot 10^3$ $T_{allowd3} = 2.902 \cdot 10^3$ $T_{allowd4} = 3.258 \cdot 10^3$

 $T_{allowD} := T_{allowd1} + T_{allowd2} + T_{allowd3} + T_{allowd4}$ $T_{allowS} := 42000 \cdot A_{ELPs}$

Doubler Loads

$$T_{allowS} = 8.069 \cdot 10^3$$
 $T_{allowD} = 1.545 \cdot 10^4$

The internal doublers are thick enough that the rivet shear stress is critical. The thin external doubler is limited by material bearing stress for all rivets. The total material thickness is thinner than .144" where the external doublers overlap, so bearing stress is critical, not rivet shear for CR3523-5 rivets. Also, bearing stress is critical in thin spar cap section for CR3523-4 rivets.

Load $out1 := 28000 \cdot (3 \cdot A_{4R} + A_{5R})$ Load $out1 = 1.566 \cdot 10^3$ Inboard is much greater.

So rivets can transfer 1,566 lbs into the outboard angle doubler, which is less than the allowable load for the doubler, so the rivet shear is the critical load.

Load $out2 := 28000 \cdot (3 \cdot A_{4R} + A_{5R})$ Load $out2 = 1.566 \cdot 10^3$ Inboard is much greater.

So rivets can transfer 1,566 lbs into the outboard internal doubler, which is more than the allowable load for the doubler, so the doubler strength is the critical load.

Load $_{in3} := 64000 \cdot 3 \cdot D_{5R} \cdot t_{d3}$ Load $_{in3} = 1.498 \cdot 10^3$ Load $_{out3} := 64000 \cdot 3 \cdot D_{5R} \cdot t_{d3}$ Load $_{out3} = 1.498 \cdot 10^3$

So rivets can transfer 1,498 lbs into the outboard external doubler, which is less than the allowable load for the doubler, so the rivet shear is the critical load.

Load in4 := $42000 \cdot [.04 \cdot (.748) - A_{B5RHd4}] + 64000 \cdot 4 \cdot D_{4R} \cdot .063$ Load in4 = $3.006 \cdot 10^3$

Load out4 := $42000 \cdot [.04 \cdot (.748) - A_{B5RHd4}] + 64000 \cdot 4 \cdot D_{4R} \cdot .063$ Load out4 = $3.006 \cdot 10^3$

So rivets can transfer 3,006 lbs into the outboard secondary external doubler, which is less than the allowable load for the doubler, so the rivet shear is the critical load.

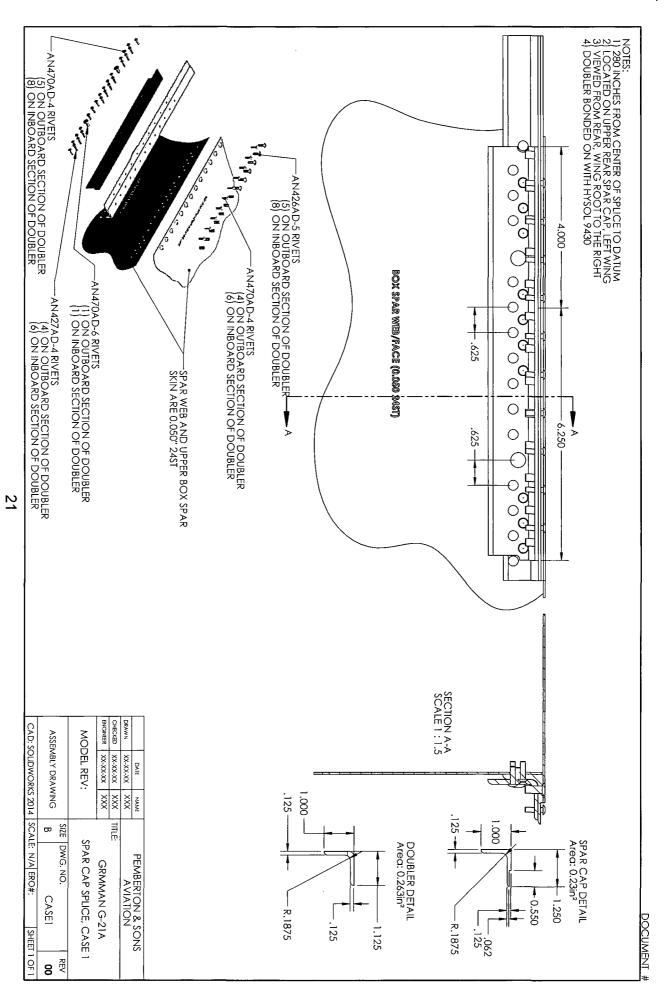
$$T_{allowd} := Load_{out1} + T_{allowd2} + Load_{out3} + Load_{out4}$$
 $T_{allowd} = 7.538 \cdot 10^3$

The combination of the 4 doublers can carry 7,538 lbs which is less than the spar, so the wing loading from Case 9 is again used.

Equation for W.S. 196 to 271

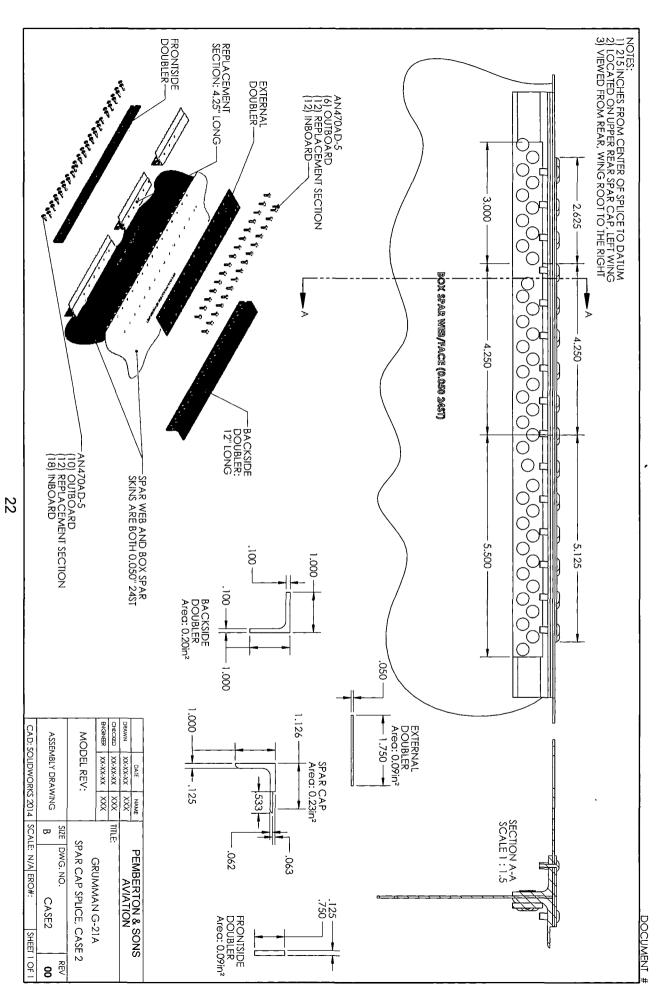
Load
$$_{rs}(x) := \frac{.215 \cdot M(x)}{.5 \cdot t_{rs}(x) - .5}$$
 Load $_{rs}(196) = 8.069 \cdot 10^3$ Load $_{rs}(209) = 6.613 \cdot 10^3$

The structure in the wing is the same from W.S. 196 to W.S. 271, but the loading decreases, so a wing loading analysis was done to show that the doubler load capacity is adequate for this location. The 7,538 pound capacity of the doublers exceeds the load of 6,613 pounds and the joint is adequate.



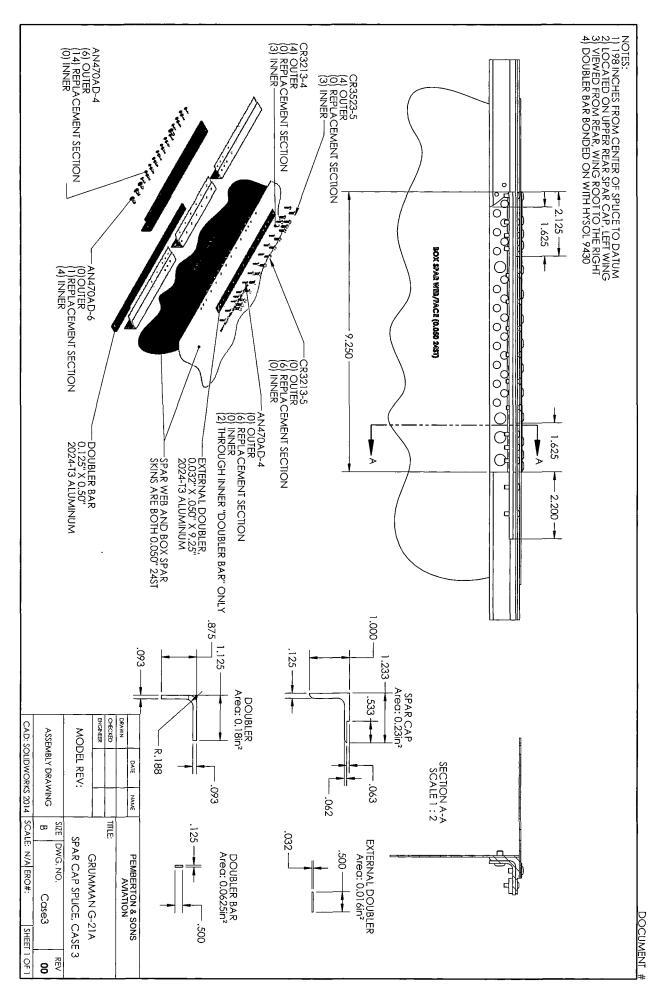
23 OF 40

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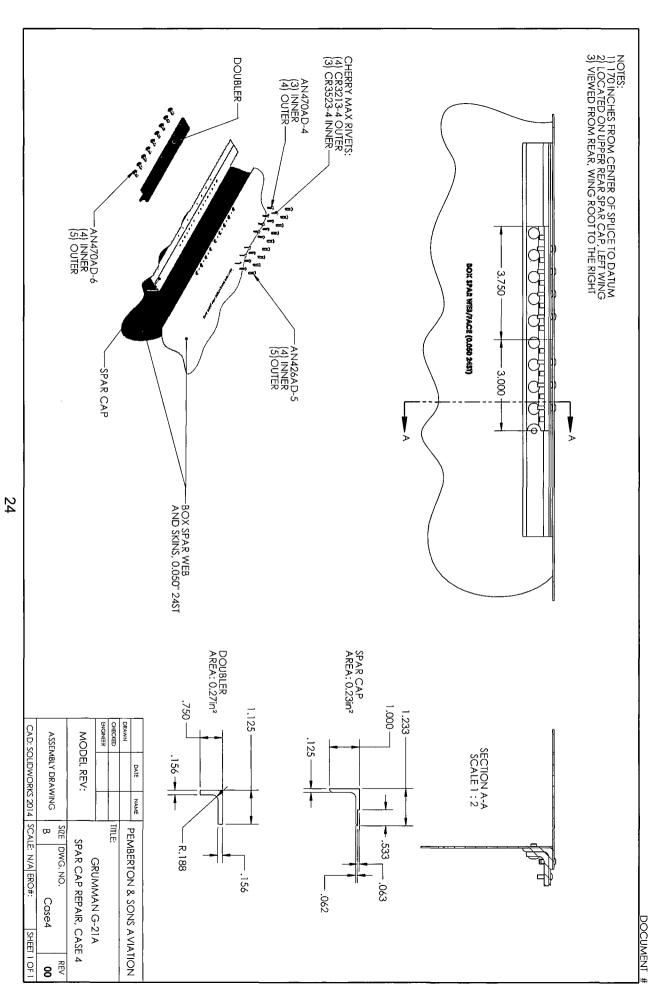


24 OF 40

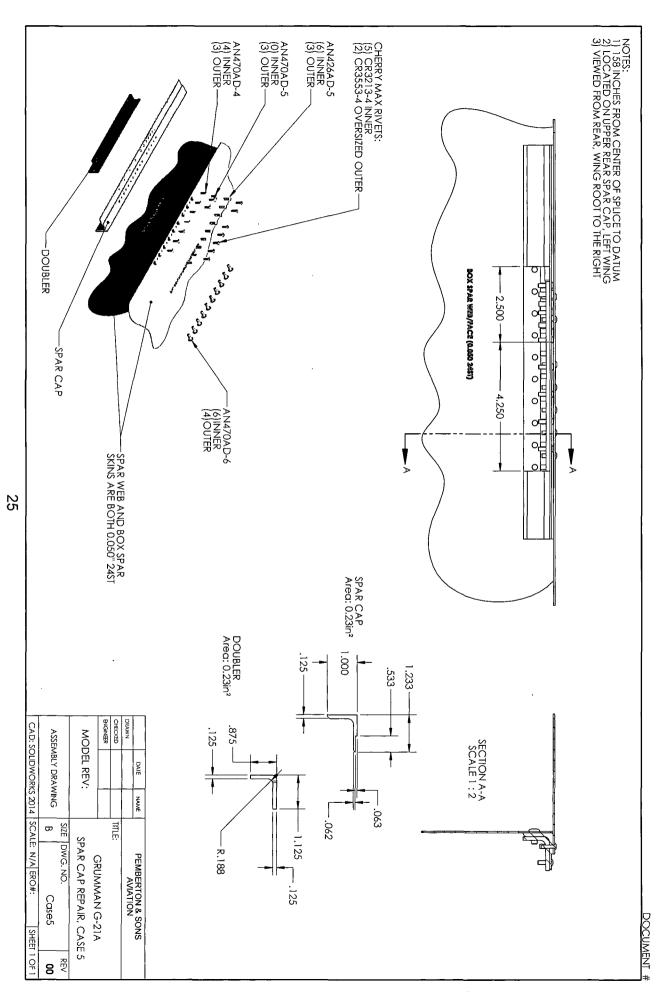
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25 OF 40

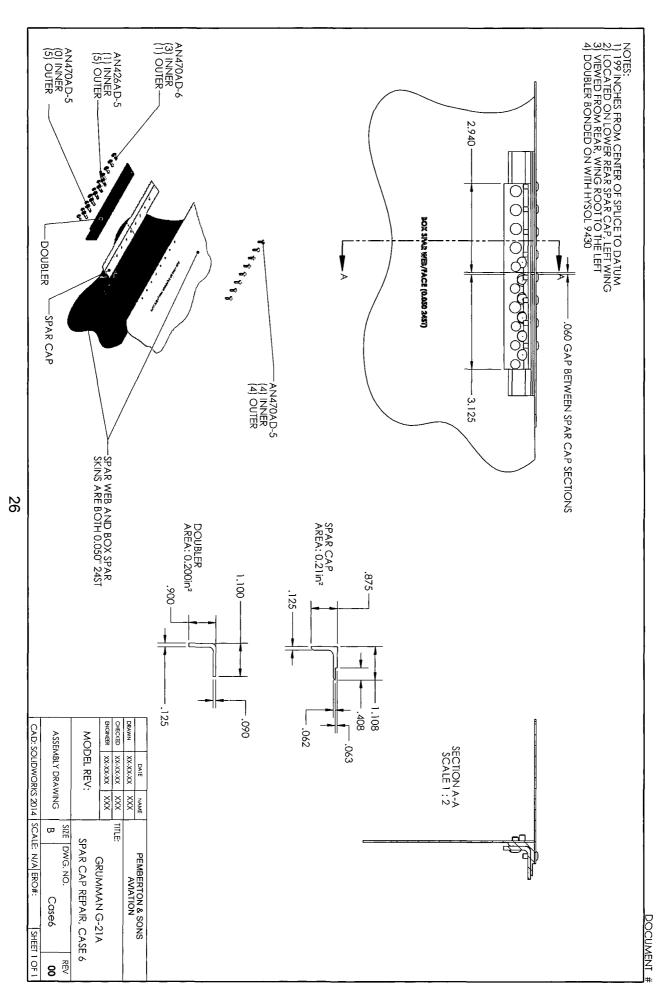


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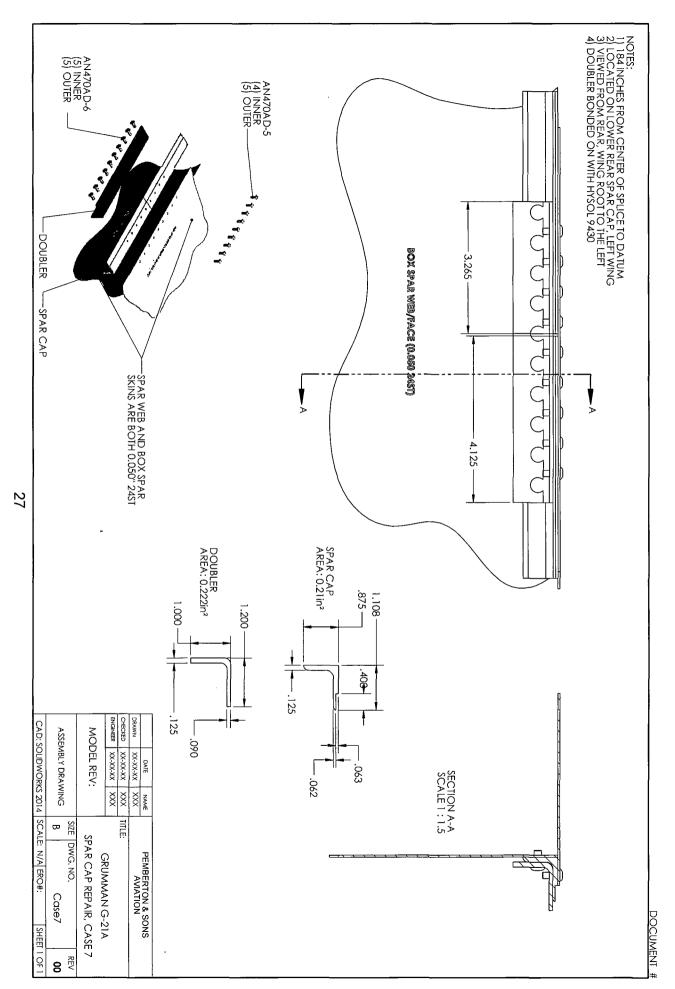
27 OF 40

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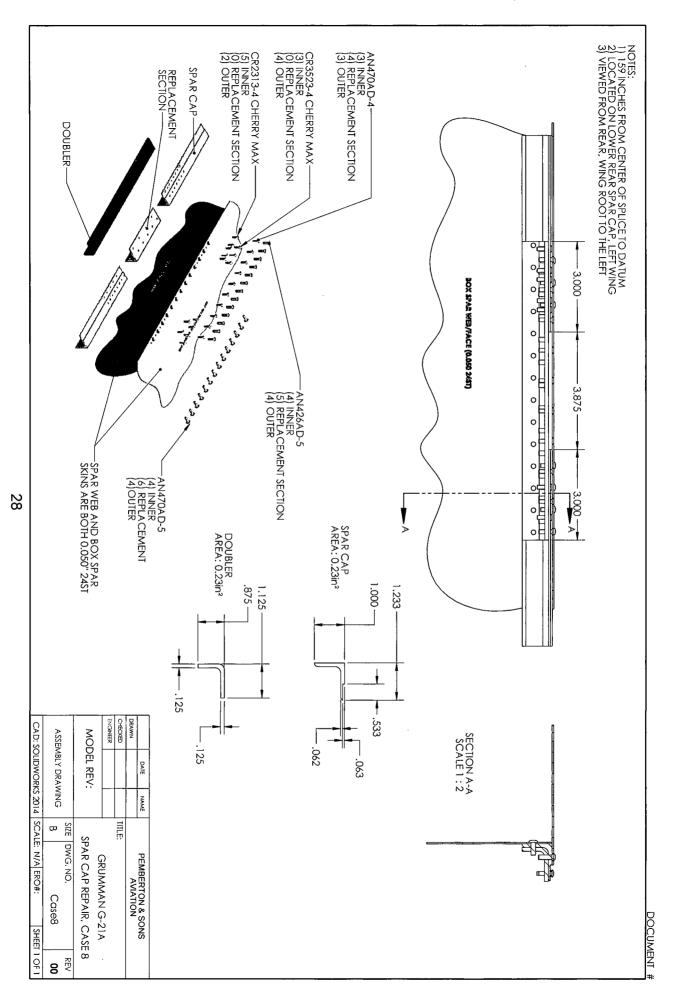
28 OF 40

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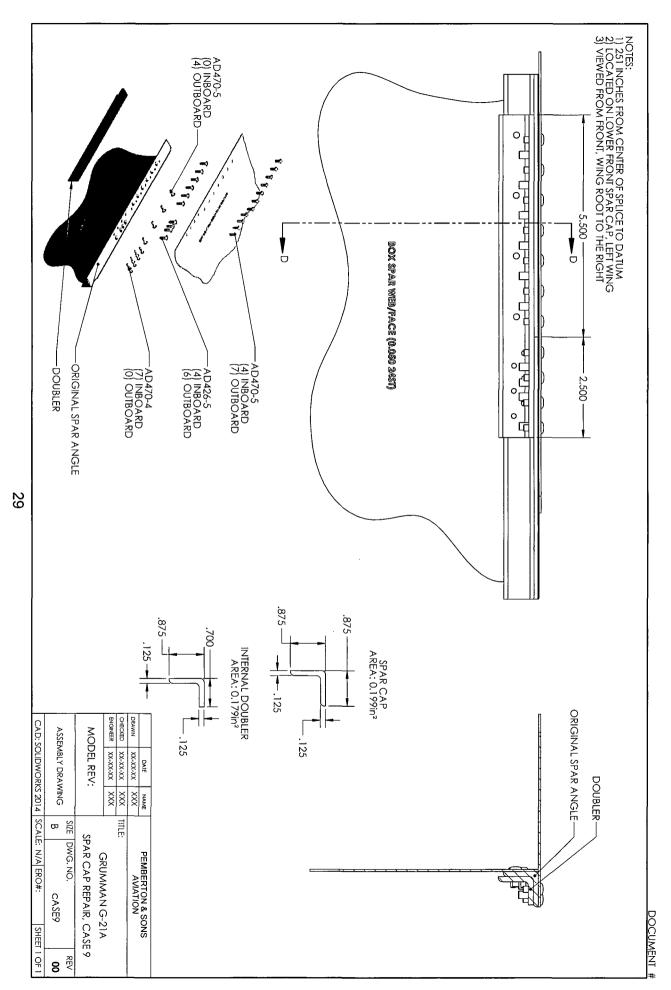
29 OF 40

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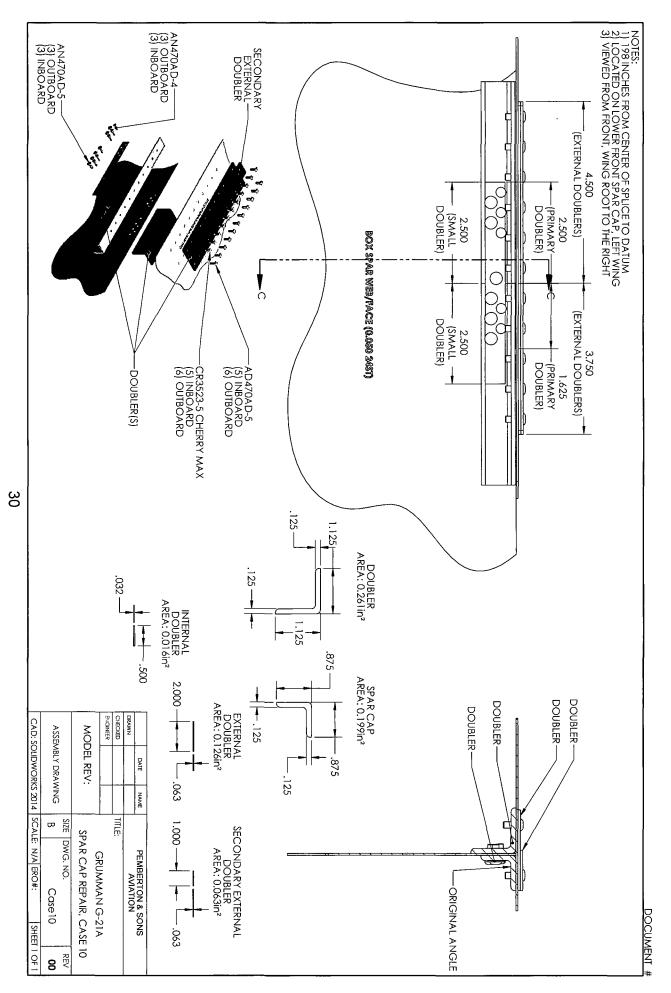
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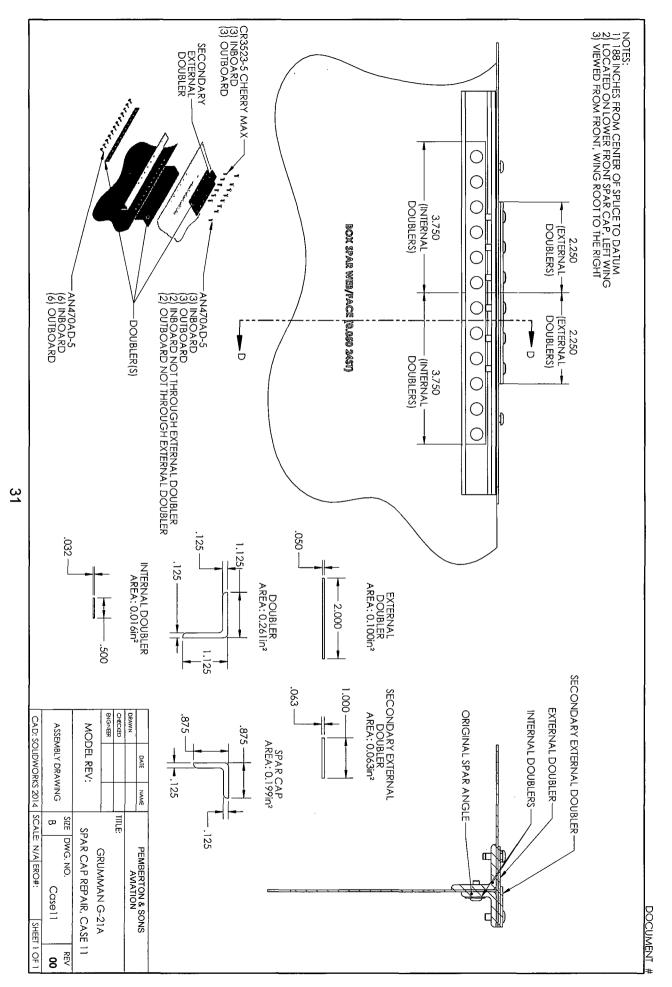


31 OF 40

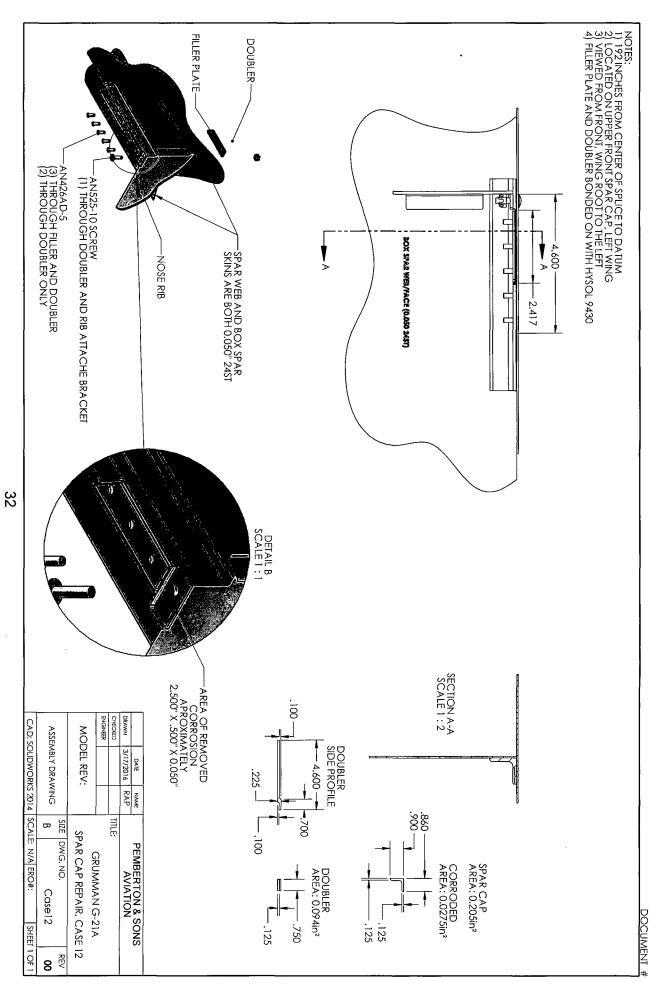
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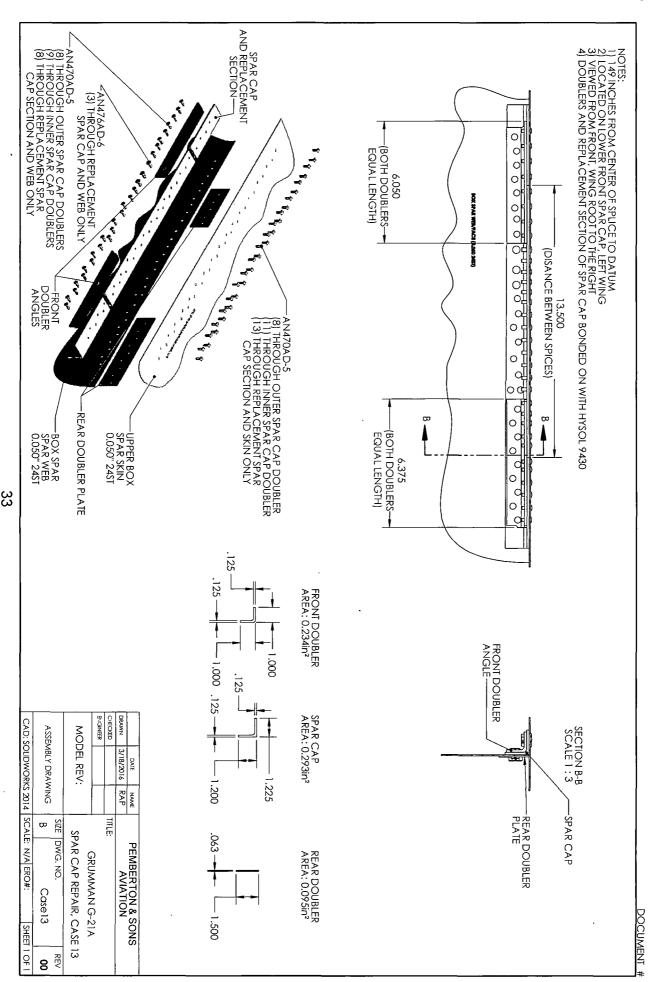
32 OF 40



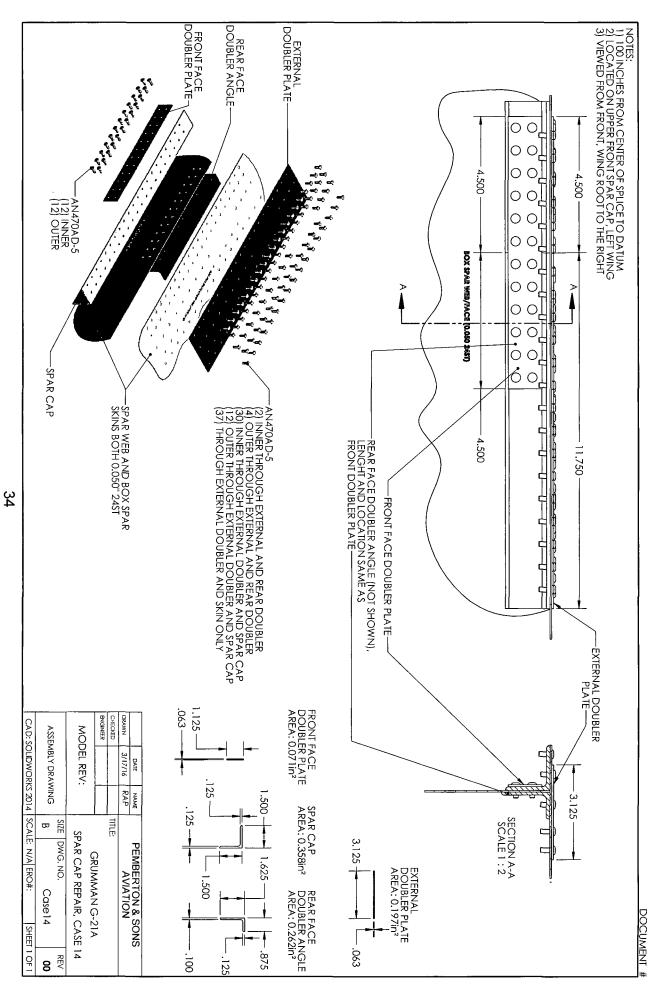
33 OF 40



34 OF 40

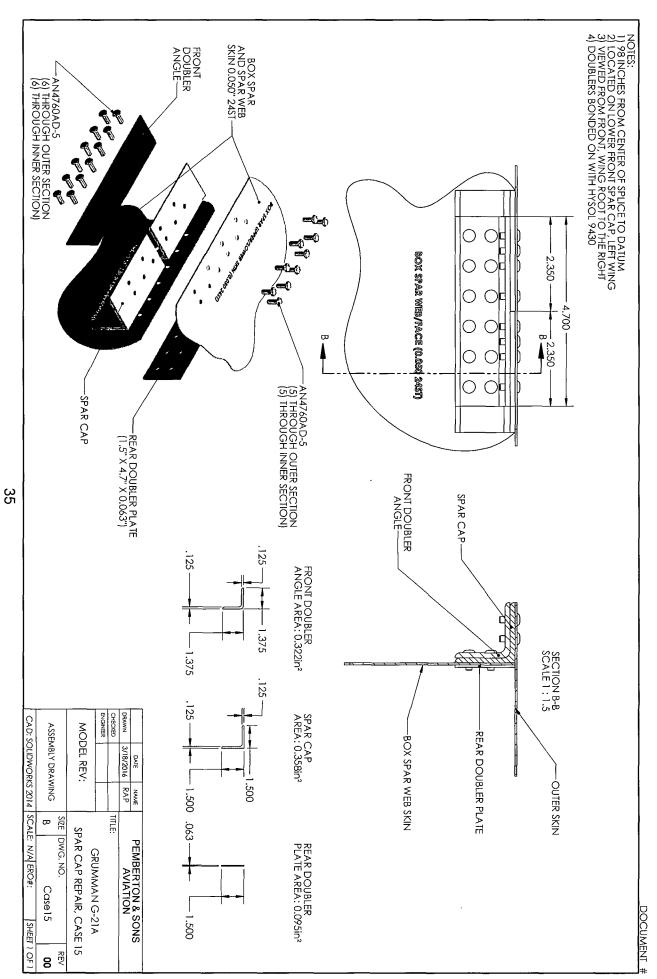


35 OF 40

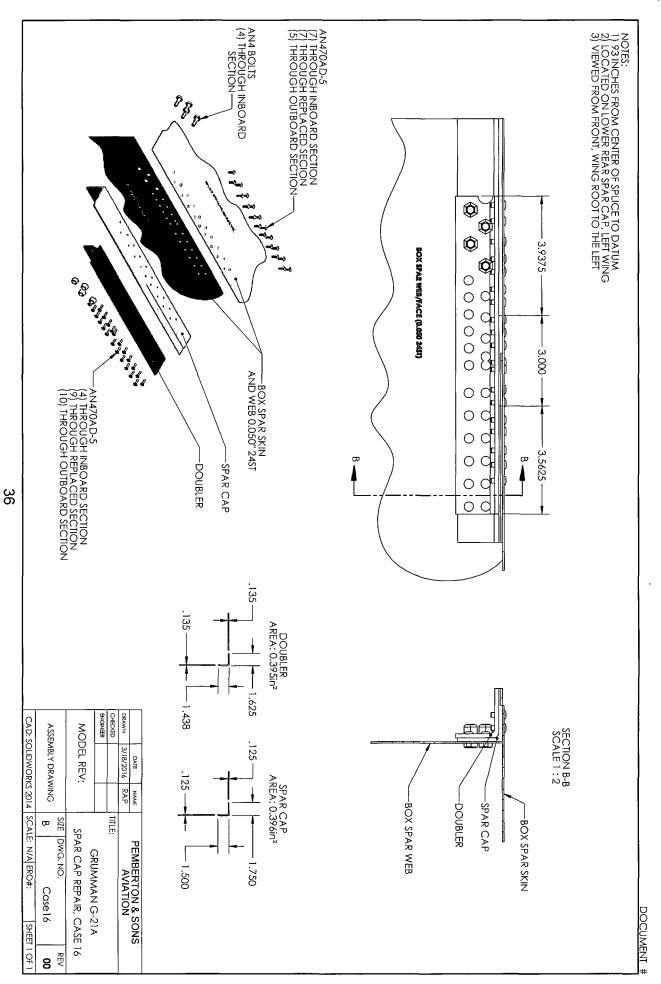


36 OF 40

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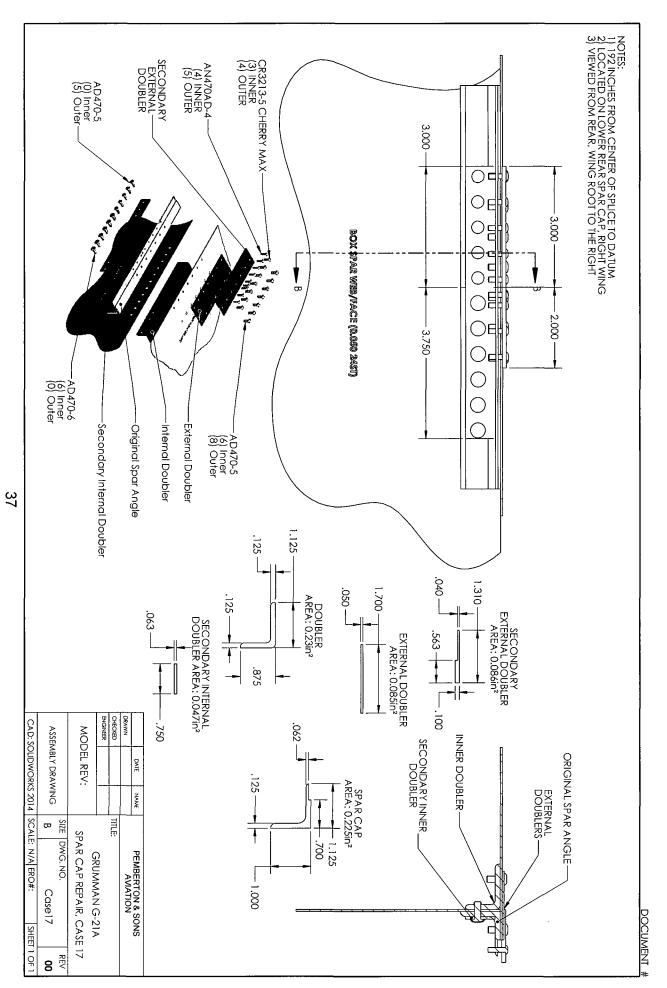


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39 OF 40

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US Department
of Transportation
Federal Aviation
Administration

OMB No. 2120-0020 Exp: 5/31/2018	Electronic Tracking Number						
For FAA Use Only							

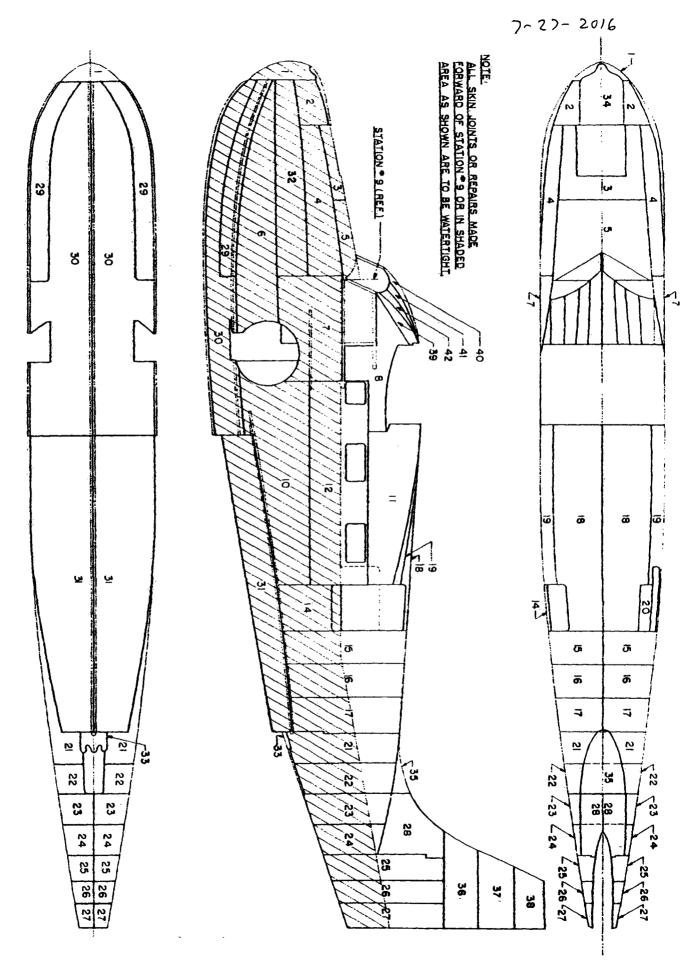
US Department of Transportation (Airframe, Powerplant, Propeller, or Appliance) Federal Aviation Administration							For FAA	Use Only							
instruction		ition of th	is form.	es. See Title 1 This report is r											
	Nationalit		gistratio	n Mark				Serial	No. 1	161					
1. Aircraft	Make							Mode	1	_		1	Series	Α	
		rumi						G21 A							
	-		•	ration certificate)				ess <i>(As s</i> s 5302 N			gistration	certificat	te)	
2. Owner	Pemb	erton ,	Addis	son J				City Spokane					State Wa		
						F FA & II 4	Zip	99212		Country USA					
						3. 1	For FAA Use (Only							
4. Ty	pe					5. l	Unit Identifica	tion				_	,	•	
Repair	Alteration	Uı	nit		Ma	ke				Mod	el			Serial No	
x		AIRFRA	ME	Grumman				(As	describe	d in It	em 1 a	bove)	116	61	
		POWER	PLANT												
		PROPE	LER				1								
		APPLIAI	NCE	Type Manufacturer											
		·					nformity Stat						· · · · · · · · · · · · · · · · · · ·		
A. Agency's	name and A	ddress		·		В. "Х	Kind of Agenc		nanic			Ma	nufacturer	<u> </u>	
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City Spoka	_	untry USA		State Wa	_	П	Certificated R					2	160	140 A8	P
have b	that the repeen made in	air and/or accordar	ce with	on made to the u the requirement o the best of my	s of I knov	Part Med	43 of the U.S. ge.	5 above	and de	scribe	d on th	ne revers	se or atta	chments here	
Extended rar per 14 CFR I App. B			Signa	ature/Date of Aut	li		Rembe			690	140	A EJ	9	9)-29-2	2016
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Administra	tor of the Fed	deral Avia		ons specified be ministration and		ın€		Appro			ejected	t		·	by the
1 1	AA Flt. Stand spector	lards	Man	ufacturer		Ma	aintenance Org	ganizatio	on	Other	Depart	ment of T	red by Can ransport	nadian	
F	AA Designee			air Station	X	<u> </u>	spection Autho	rization		otner	(Spec	y)			
Certificate or Designation !	No. 21691	40 IA	1 -	leture/Date of Aut		\sim			216.	919	10 A	#P1	A C	97-27-20	1/6

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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.

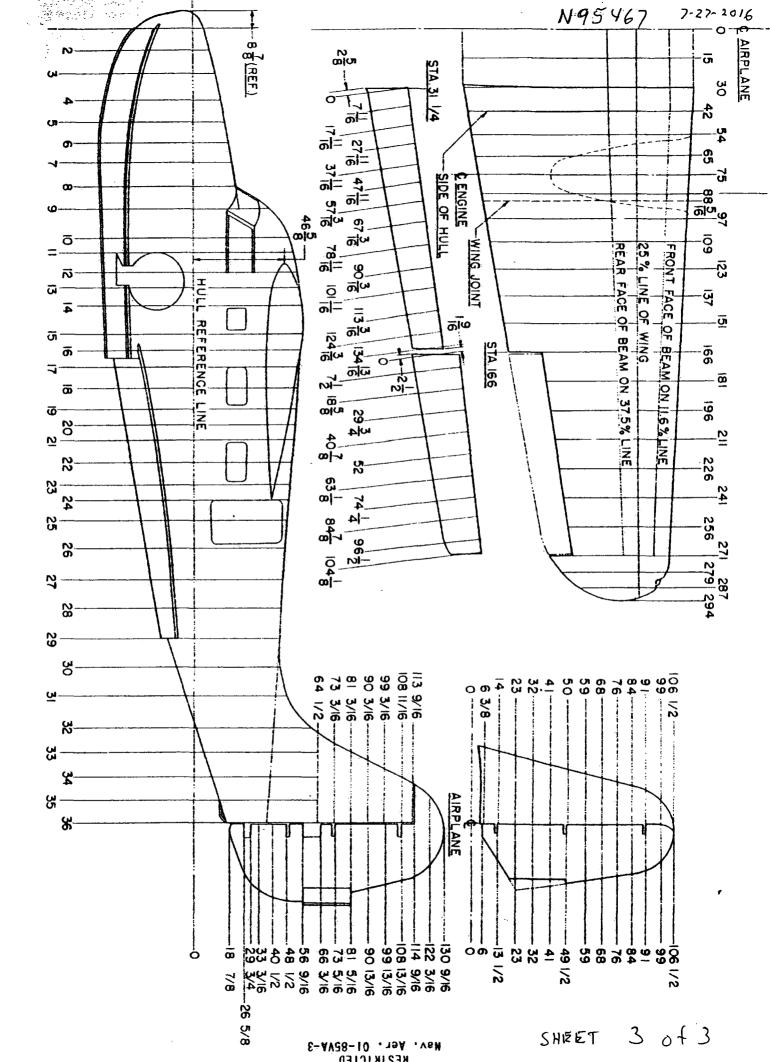
 Description of Work Accomplished (If more space is required, attach additional sheets. Identify with aircraft nat 	ionality and registration mark and da Grumman G21A	te work completed.)
	N95467	7-27-2016
	Nationality and Registration Mark	Date
Removed Fuselage chine from station 1-17 on both selame master CS3204-B2 sealant using AN470AD ribetween fuselage hull and chines on both sides installed and AD470AD rivets. Removed keel strip from station CS3204-B2 sealant and new AN470AD rivets. Keel setructural repair manual between station 27 and 28. Festation 11 and 13 both sides. Installed new windshields using 3/8 tempered glass, Plexiglas and rubber seal track. Reinstalled lifting eye and required structure to center inspection. Reinstalled with all new hardware and AN center section top and 50% of center section bottom CS3204-B2 sealant in wet fuel cell bays. Resealed we sealant. Preformed pressure leak down test and no lead installed center section to fuselage per Grumman ere Fabricated new fuselage skins between front and bacexisting structure per original Grumman drawings. All work accomplished in accordance with AC 43:13	side of fuselage. Resealed vets. Fabricated new fusualled with Flame master on 1-29 and reinstalled with police accomplished per existence and sealed landing installed all new side with resection. Removed all existence with AN470AD rivets as required with AN470AD rivets and with Flame master CS320 eaks found.	ed and installed with selage skins panel #29 CS3204-B2 sealant th Flame master Grumman approvaling gear well between adows with new ½" angine mounts for d. Re Riveted 70% of d Flame master 24-B1 and CS3600 w hardware. selage to mate to
"Handbook of instructions for structural repair for the		
Additional Sheets	S Are Attached	r 1 of 3

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Sheet 2 of 3

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US Department
of Transportation
Federal Aviation
Administration

F	or FAA Use Only
OMB No. 2120-0020 Exp: 5/31/2018	Electronic Tracking Number

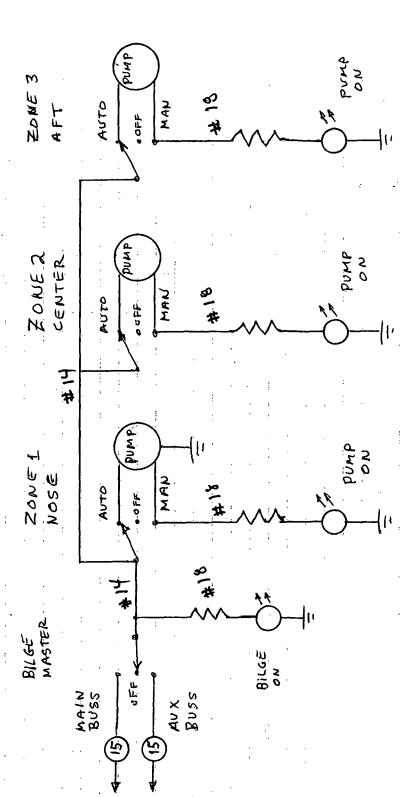
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Federal Aviat	tion	(Airriai	ne, Fowerplan	ι, Ρτομ	pelier, or Appli	ance)				
instruction		ition of this	form. This report						sequent revision thereof) for sult in a civil penalty for each	
Such Viola			stration Mark			Serial No.	404			
1. Aircraft	N9546	7			1161			·		
i. Anotait		Make Grumman				Model G2	1	S	Series A	
	Name (A	s shown on	registration certific	cate)	···· ····· ·····················	Address (As		registration c	ertificate)	
2. Owner	Pemb	erton, A	ddison J			Address 5302 i			State Wa	
						Zip 99212		Countr		
					3. For FAA Use C	only				
	9/30/	TE	THON BY A PERSON	N AUTH	AFT SUBJECT TO CORIZED INFARAS. POKANE FSDO			VM 13-	-2087	
4. T					5. Unit Identifica	tion	·			
Repair	Alteration	Uni			ske		Model	odel Serial No.		
	x	AIRFRAM	1E Grum	man	(As described in Ite			1 above)	1161	
		POWERF	PLANT							
		PROPELI	ER .							
			Туре							
П		APPLIAN	CE Manufacturer	 -						
لبيط										
		<u> </u>			. Conformity State					
	Name and A	daress			B. Kind of Agency			Manu	ıfacturer	
Address 5302 n						cated Mechanic		C. Certific		
City Spok	ane		State Wa		Certificated R	epair Station		2160140 480		
Zip 9921	 -	untry USA				aintenance Orga			169140 A&P	
have b	oeen made in	accordance		nents of	Part 43 of the U.S.				or attachments hereto the information	
Extended ra	nge fuel		Signature/Date of	Authori	zed Individual					
per 14 CFR App. B	Part 43		Cler	Eli	Penter	m 21	6914	0 4 8	P 9-10-15	
			·		proval for Return					
			persons specifier on Administration a			d in item 5 Approved	was inspe		manner prescribed by th	
l li	AA Flt. Stand	dards	Manufacturer		Maintenance Org	anization		sons Approved partment of Tra	d by Canadian ansport	
BY	AA Designee	,	Repair Station	X	Inspection Autho	rization	Other (Sp	ecify)		
Certificate or	No. 21691	40	Signature/Date of	Authori	zed Individual					
Designation	No. 2 109 1 A&P I		/	pli.	eli Lu	Ah	216	5140	AZP 1A	

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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.



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Chuck 9-10-2015

Find 2ea 337 field approval proposals for the Goose project. One is for the bilge pump installation that you reviewed for me last week. The second is for an updated 24 volt electrical system with 2ea 70 amp Jasco Alternators.

Let me know how it goes and if I need to make more changes. I will be out of the country on Scanivalve business working on a Wind Tunnel project in Holland and England form Sept 25 through Oct 13th.

Note: the aircraft was configured for 24 volts prior to restoration and has an STC 337 on file for the landing gear retraction motor already.

I will have e-mail access during my travel.

apemberton@scanivalve.com

Addison Pemberton 509 8919970 days or 509 9956240 cell

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Standard Data Package Instructions – Spokane, WA FSDO NM-13

	FIELD APPROVAL CH	HECKLIST
nstructions: Print or type		e as possible prior to your initial discussion with the
FAA.		
1. Aircraft	Make	Model
	Grumman	GZIA
•	Registration Number	Serial Number
	[№] 95467	1161
2. Owner	Name	Address/Telephone Number
2. 0 11101	Pemberton, Addison	5302 N VISTA CT
	,	SPOKANE WA 99212
	·	509-8919970 days
3. Type of Product and	Certification Basis	,
Type Certificate Number	TC 654	
	I	1
🗖 Airframe 🗆 Engine 🗆 A	Appliance Other	
□ Part 23 □ Part 25 □ Pa	art 27 □ Part 29 □ Part 31 □ Part 33 □ CAR 3 □	CAR (4)(a) □ CAR 4(b) □ CAR 6 □ CAR 7
□ CAR 8 □ CAR 13	AERO Bulletin 7A	
4. Brief Description of Pr	oject	
A HISTON	ITIUN OF MARINE BILG	E DUMPS AT STATION
(1) 12814C	TITUD OF MARINE DICE	SE IN CLIMAN
7.18	and 26	
7		
		_
(2) IN STAC	.1700N OF JACO 24 VOC	-T ACTERNATORS AND
	TE TO AIRCRAFT ELECT.	Digital Consideration
VIVA	TE 10 NIFCKAFI ECECI	mac oyirem
(attach additional pages i		
5. Schedule for Completic		_
Date when field approval	is needed. DEC OF 2013	5
Projected completion date		
Date aircraft will be avail		
Date allerant will be avail	OCT 2015	
6. Who Will Perform the		
Mechanic's name: Ada	lison Pemberton or Repair stat	tion:
	169140 Contact	Person:
Telephone number:	509- 8919970 days Fax num	ber: 509-891948)
Location where alteration	/repair will be accomplished:	
	HANGER GG FECTS	FIELD SPOKANE
7. Designees (DARs and	DERs) XNone	
•	/	
	nbers of the Designated Engineering Representativ	ves, (DER) and/or Designated Airworthiness
Representatives (DAR) who		Talankana wuntau
Name:		Telephone number:
Name:		Telephone number:

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Standard Data Package Instructions – Spokane, WA FSDO NM-13

FIELD APPROVAL CHECKLIST (Continued)										
8. Compliance statement and compliance checklist. Attac compliance checklist that you completed.	ch the (See Compliance Checklist on page 5)									
9. Previous alterations or repairs that may be affected by this alteration (attach copies of Form 337 or maintenance record entries for package evaluation)										
10. Instructions for Continued Airworthiness (ICA) (See ICAs attached Include relevant ICAs in block 8 of the FAA Form 337	ICA checklist on pages 6 & 7)									
	No If yes, attach a copy.									
12. Data Attached										
Proposed FAA Form 337 Description of alteration, including ICA Drawings, schematics, and diagrams Material list	□ Other									
Processes ☐ Specifications										
Previous field approvals FAA Form(s) 8110-3 Serviceable tags										
Placards Test data and/or flight test data Load analysis (electrical and/or structural) Weight & Balance Report										
13. FAA Use Only Date:										
Assigned inspector: FAA office										
Additional information required:										

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US Department
of Transportation
Federal Aviation
Administration

OMB No. 2120-0020 Exp: 5/31/2018	Electronic Tracking Number
	For FAA Use Only

US Department	•	1	MAJOR REPA	AIR AND) AL	TERATION	1		 		For FAA Us	e Only	
of Transportation Federal Aviation Administration	on on	(Airfra	me, Powerpl	ant, Pro	pell	ier, or Appl	iance)						
INSTRUCT instructions such violation	and dispos	sition of th	is form. This rep	Title 14 C ort is requ	FR ired	§43.9, Part 43 by law (49 U.	3 Append S.C. §44	dix B, a 701). F	and AC 4 ailure to	3.9-1 (or s report can	subsequent result in a c	revision thereof) for civil penalty for each	
		Nationality and Registration Mark N95467				Serial No. 1161			161	1			
1. Aircraft Make Grumn			man	n			Model G21				Series		
	Name (A	s shown d	n registration cen	tificate)						registratio	n certificate)		
2. Owner	Pemb	erton, .	Addison J				City	Spoka				State Wa	
							Zip	99212		Country USA			
APP ONL	LUCABLE ALL LY FOR TH	RWORTH	NESS REQUIREM E DESCRIBED / DN BY A BERSON FAA INSPECTO	ENTS AND	SUI	APPROVED BLECT TO IN FAR 43	E C			·	2000	~	
4. Tyr	ne	<u> </u>			5.	Unit Identifica	ation		W	W 13	-2088	<u> </u>	
Repair	Alteration	Uı	nit	Ma	ake			-	Model			Serial No.	
	x	AIRFRA	ME Gr	umman		(As described in Ite			ed in Item	1 above)	1161		
		POWER	PLANT										
		PROPE	LLER										
			Туре									****	
		APPLIA	NCE Manufactu	rer									
		I		(6. Co	onformity Sta	tement						
A. Agency's N	Name and A	ddress			B.	Kind of Agend	<u> </u>	anic		I M	anufacturer		
Address 5302 n Vist					Ĥ	Foreign Certi				-	tificate No.		
City Spokan	10	1104	State Wa			Certificated Repair Station					2169140 A&P		
have be	that the rep	accordar	alteration made to	ements of	Parl	t 43 of the U.S	5 above	and de	scribed o	n the reve	rse or attach	ments hereto	
Extended rang per 14 CFR P App. B			Signature/Date	ddi	ì	Remb			2169	140 ,	17P	9-10-15	
Pursuant to	the suths	ority give	nersons openi			val for Return			was inco	acted in 4	he manna-	prescribed by the	
Administrato	or of the Fed	deral Avia	tion Administratio	n and is	, un		Approv		Reje	cted			
	A FIt. Stand spector	iaros	Manufacturer		M	aintenance Or	ganizatio	on	De	Persons Approved by Canadian Department of Transport Other (Specify)			
	A Designee		Repair Station			spection Author	orization		Other (S				
Certificate or Designation N	o. 21691 A&P I/		Signature/Date	of Authori	zed	Individual	ل م	2.	16910	IA A	\$P 1.	4	

THE DATAGERATION INSINTEGD HERBIN CONFILES WITH AFFILICABLE ARK DATHBLESS REQUIREMENTS AND IS APPROVED OBLY FOR THE ASOVE DESCRIPED AIRCRAFT SUBJECT TO CONFURNITY INSPECTION BY A PERSON AUTHORIZED IN FAR 40.7

FAA INSPECTOR, SPOKANE FSDO

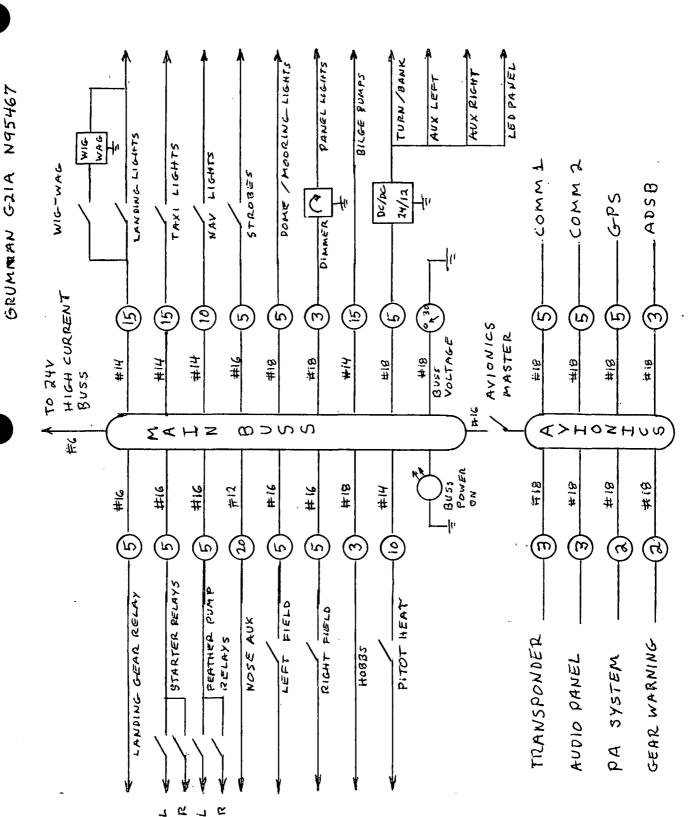
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NOTICE

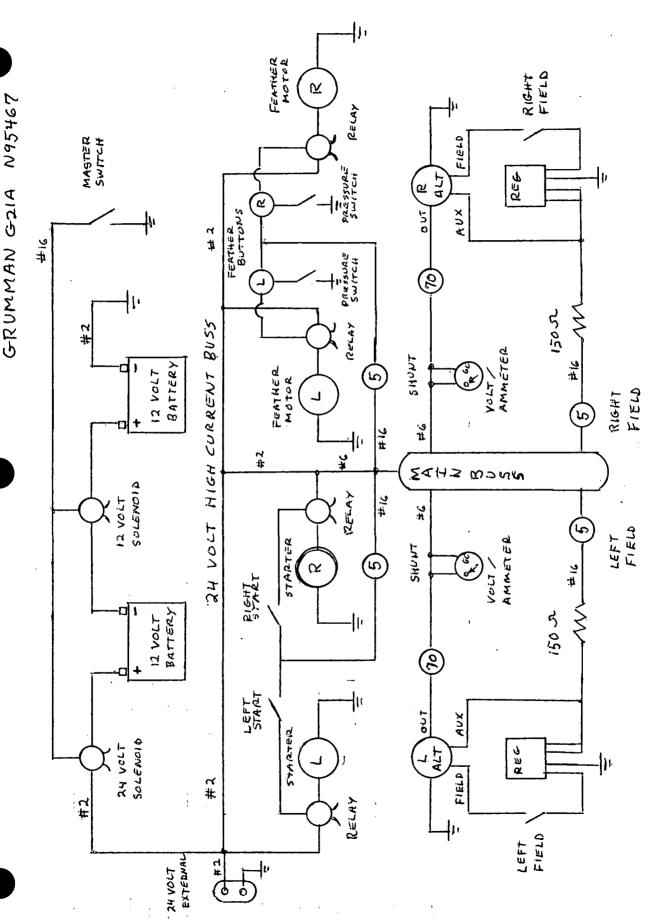
Weight and balance or operating limitation changes shall be entered in the appropriate aircraft record. An alteration must be compatible with all previous alterations to assure continued conformity with the applicable airworthiness requirements.

	<u> </u>				
 Description of Work Accomplished (If more space is required, attach additional sheets. Identify with aircraft national sheets. 	ion of Work Accomplished space is required, attach additional sheets. Identify with aircraft nationality and registration mark and date work completed.) Grumman G21A				
·	N95467	09-10-2015			
	Nationality and Registration Mark	Date			
Installed 2ea 35 amp hour 12 volt Concord (or equival original factory installation. Batteries wired in series to volt master relay for the left engine battery and 24 volt ground to insure aircraft buss is disconnected from be 2ea 70 amp Jasso 24 volt alternators installed on each instructions from Jasco (Skytronics). Both Pratt and Winstructions with 100 AMP high speed drives. Jasso A Grumman AgCat using the same Pratt and Whitney R Both alternators supply aircraft buss in parallel output instructions. 2 ea. Odyssey PMA batteries wired in series and moutprovide an axillary power source for bilge pumps, modis on the ground or on the water with engines and main	t make up a 24 volt aircret relay function from a sign batteries for emerger hengine and installed published R985 engines multernators carry STC apples are balanced per attacented to the back side storing light and cabin dor	raft buss source. A 12 ingle master switch acy operations. For attached additional per Jacso proval for the umber SA2015WE. Sched Jasco ation 26 bulkhead to the lights when aircraft			
Fabricated from .090 aluminum a switch panel mounted seat. Fabricated from .090 aluminum circuit breaker p above co-pilot seat. Fabricated from aluminum bilge p and roof structure above co-pilot side window .Fabrica aluminum and mounted in original factory location ber bulkhead.	ed to aircraft cabin roof anel mounted to aircraft bump control panel mounted alternator buss out	structure above pilot cockpit roof structure nted to cockpit window out panel from .090			
Installed aircraft LED indictor lights for low fuel and oil Installed LED indicator lights in instrument panel center lock, cabin doors and nose hatch door open, landing position. Landing gear and seat belt warning LED's inspassengers in main cabin.	er to indicate Bilge pum gear motor in up transit	p master, tail wheel and landing gear			
Electrical system installation incorporates PMA approvant series MS35058-21 aircraft switches. Tefzel Mil equal or greater described in AC 43.13-1B chapter 11 accomplished per AC 43.13-1B chapter 11. See attacinstallation.	Spec spec aircraft wire figure 11-12. All wiring	used with wire gage and installation			
Instructions for continuinspect aircraft electrical system for function and airwood 43 Appendix "D". Inspect and maintain Alternator inst	orthiness at each requite				
END					
Additional Sheets	Are Attached	·			

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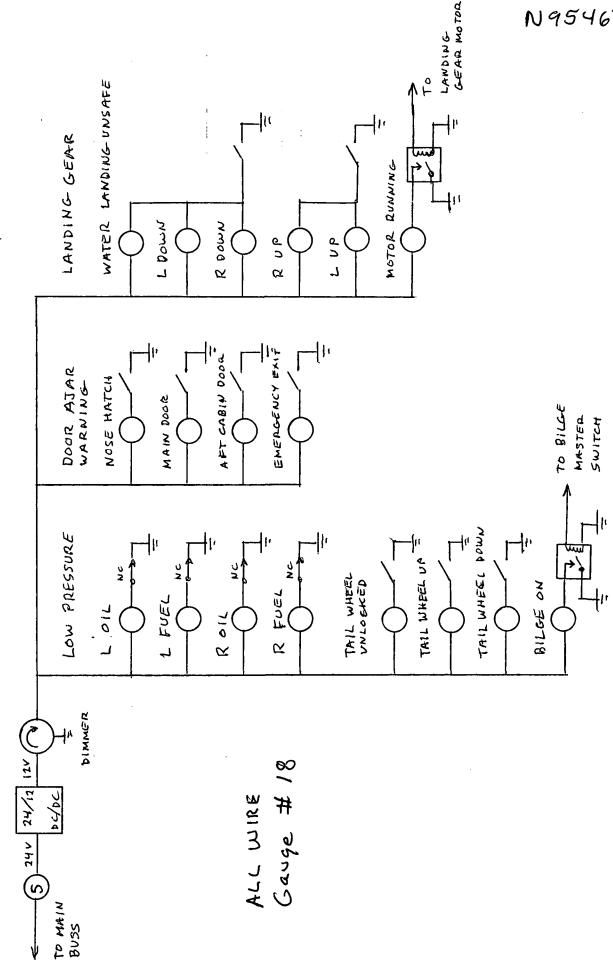
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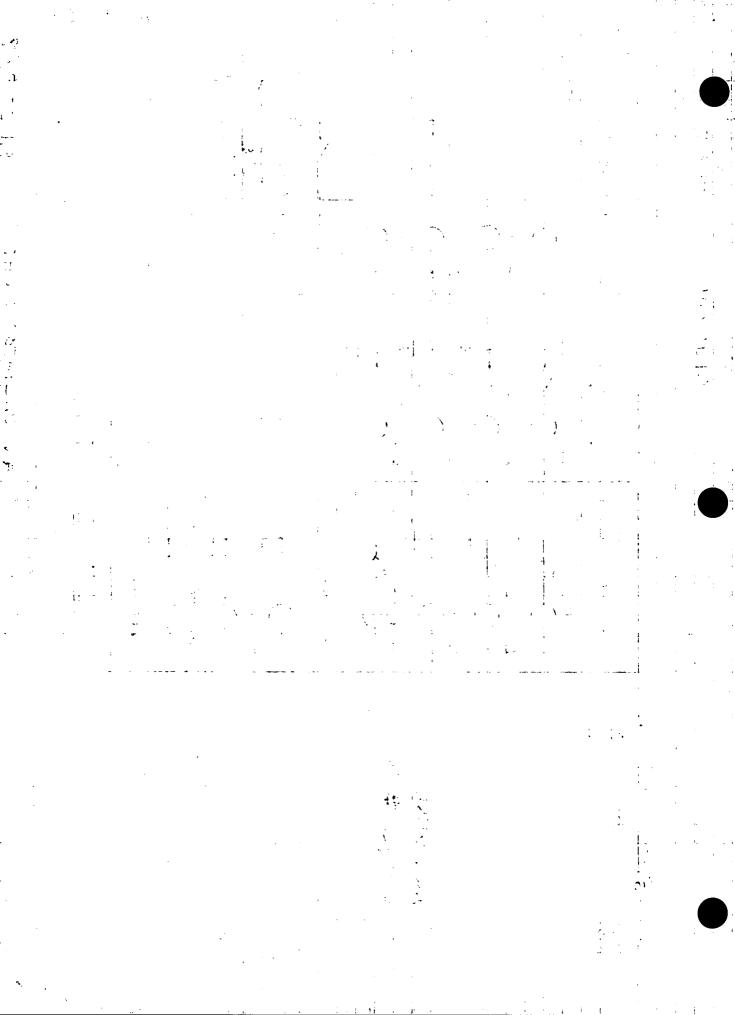


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ANNUNCIATOR LIGHTS

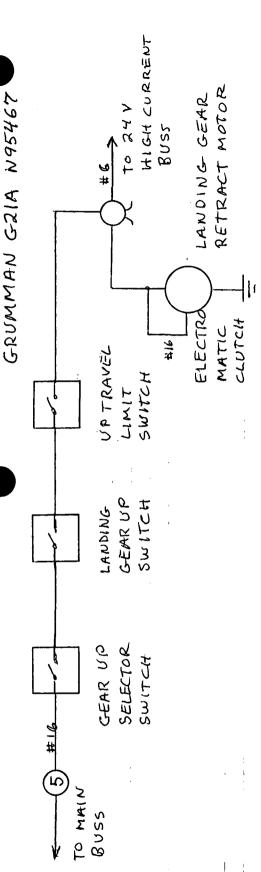
GRUMMAN GRIA N95467





SHEET 4/10

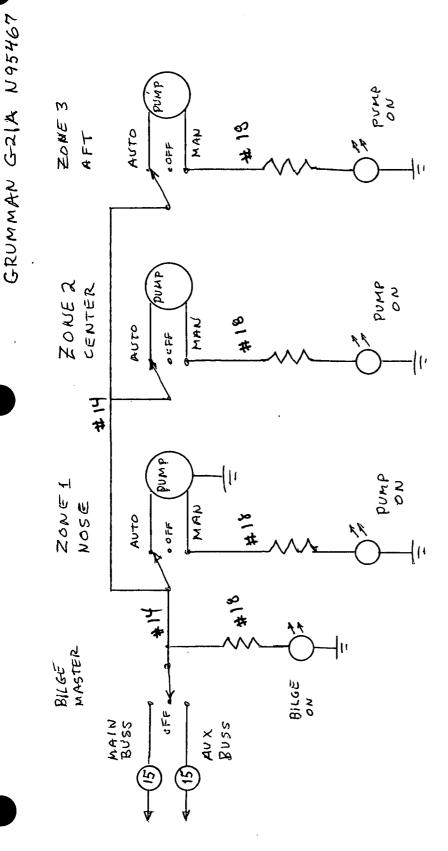
LANDING GEAR CIRCUIT



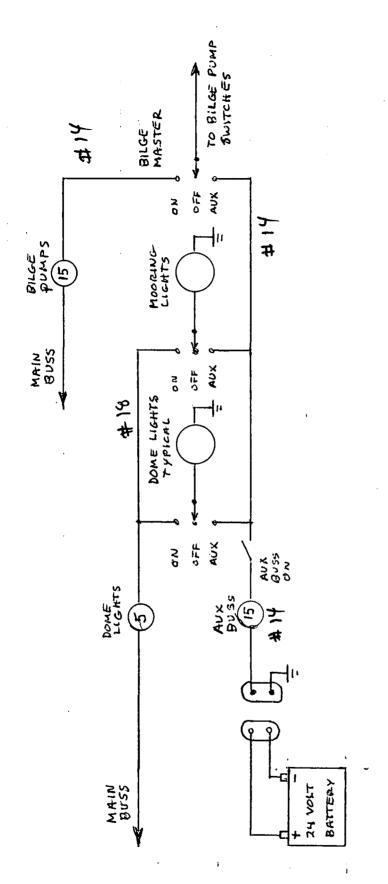
NOTE:

- FOR GEAR DETRACT, O LANDING GEAR MOTOR IS ONLY USED
- O LOWERING THE GEAR IS DONE BY SETTING THE GEAR SELECTOR TO THE DOWN POSITION AND USING THE OFANK,
- O WHEN LANDING GEAR IS DOWN THE LIMIT SWITCH IS CLOSED.
- WILL RUN TO 80% RETRACT. THEN THE LIMIT SWITCH SPENS AND FINAL RETRACTION O WHEN GEAR SELECTOR IS IN THE UP POSITION, AND THE LIMIT SWITCH IS CLOSED, AND THE LANDING GEAR MOTOR SWITCH IS SET TO THE UP POSITION - THE RETRACT MOTOR IS DONE BY CRANKING

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GRUMMAN G21A N95467

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N95467

ELECTRICAL PANNELS



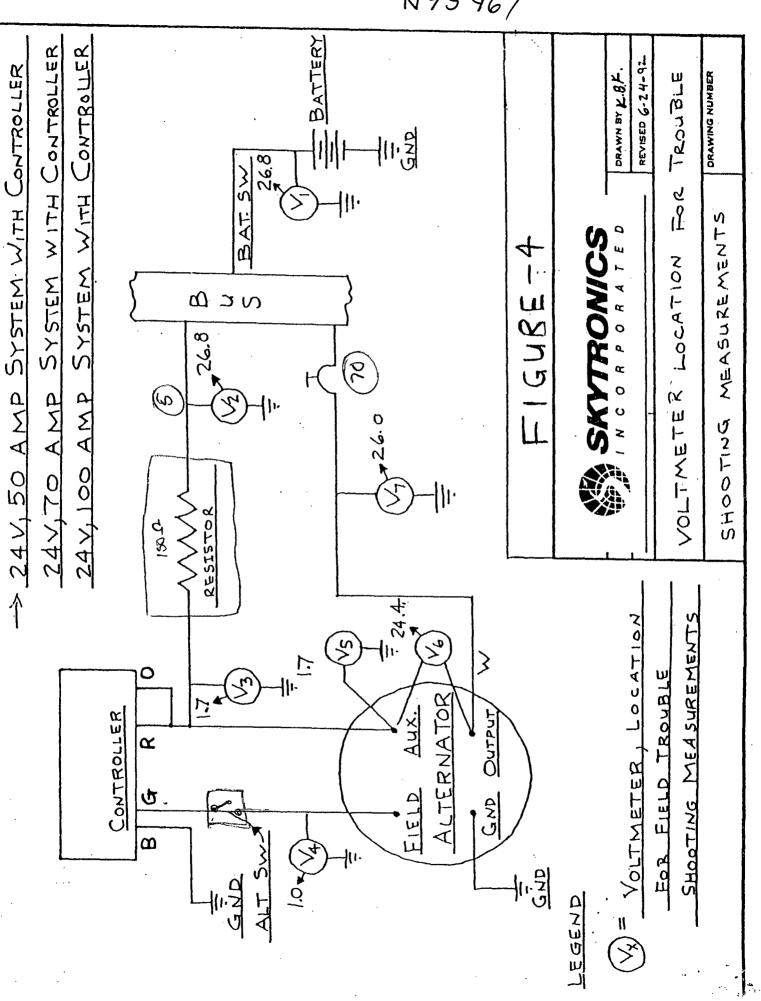
Maintenance Instructions for the Jasco Alternator System

Compared to the best generator, the Jasco Alternator is lighter, more reliable, delivers more power, and requires less maintenance. In addition, you can extend the life of your Jasco charging system by following these basic maintenance instructions.

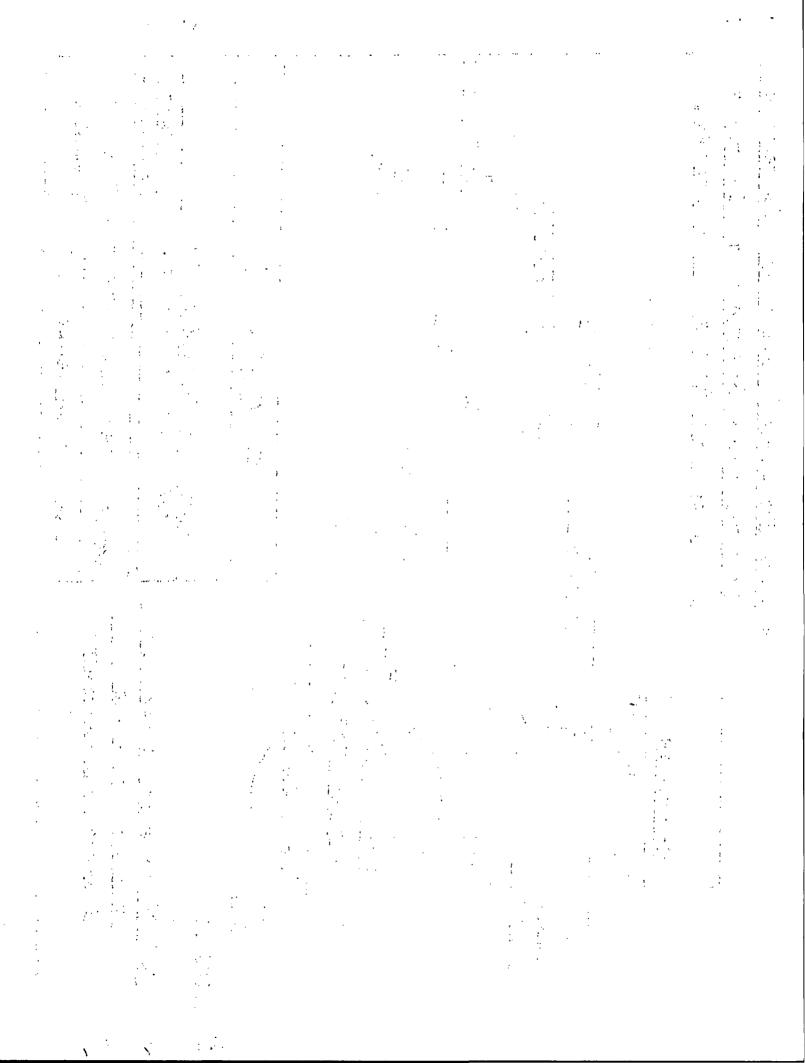
- 1. Inspect ram air inlet for obstructions prior to flight as part of your walk around.
- 2. Remove gear driven alternators every 250 hours and inspect rubber drive gear bushings for alignment, wear, or deformity. If damage is discovered, these inexpensive parts can be purchased from Skytronics to extend the life of your charging system.
- 3. Minor adjustment of system charging and voltage can be accomplished by adjusting the regulator variable resistor, located under the white protective cap on your Jasco Regulator. The variable resistor is very sensitive and requires only slight adjustment to bring system voltage to required levels. Your Jasco charging system is factory set, and should require no adjustment out of the box.
- 4. For abnormal operation including blown circuit breakers, failed fuses, erratic charging, no output or over voltage problems, contact the Skytronics, Inc. service department at 1-800-421-6846. We offer FREE factory evaluation including bench check of both alternator and regulator. In addition, our factory repair of your Jasco charging system carries the same warranty as a new system. Skytronics, Inc. is the only factory authorized repair station for your Jasco charging system, accept no substitute for repair.

Trouble shooting and general information is available Monday through Friday, 7:00 a.m. to 4:30 p.m. Pacific Standard Time by calling 310-322-6284.

EAA Danation



SHEET 90+10



PARALLELING OF ALTERNATORS

On Dual Engine Aircraft, where two alternators provide electrical power to a common bus, it is necessary to balance the output of the alternators so that both contribute approximately the same amount of power to the bus load. This balancing procedure is called "Paralleling" of alternators.

To accomplish the load balancing or paralleling procedure, an accurate ammeter, either of the shunt type or direct reading type should be installed in the output line of each alternator. It does not have to be a permanent installation if so desired, as the ammeters are a must only for the paralleling procedure. The more accurate the ammeter the more perfect the load balancing. However, for practical purposes, $\frac{1}{2}$ 10 to 20% load balancing between alternators is satisfactory.

With both engines off, start one engine and allow it to stabilize. Adjust regulators to 14.5 volts for a 12 volt system, and 29 volts for a 24 volt system. Shut the engine down and repeat this procedure for the other engine. This establishes a common voltage datum.

Place a load on the system bus, roughly one-half (1) the operational load is ideal, lights or any applicable load is satisfactory. Start both engines and allow them to stabilize. Now the paralleling operation will be done with one regulator only. It does not make any difference which one you choose to use. Do not adjust the other regulator, using one regulator makes life simple! Observe the ammeter readings of both alternators and adjust (one) regulator until both alternators outputs are approximately the same. As you slowly adjust the regulator, you will see a rise in current from one of the alternators, and a drop in current from the other. Do not panic, adjust the regulator slowly, as it is a sensitive adjustment. Adjust the one regulator until both alternators are providing approximately the same output to the bus.

Skytronics, Inc. Form AP-1 7-18-80

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US Department
of Transportation
Federal Aviation
Administration

OMB No. 2120-0020 Exp: 8/31/2014	Electronic Tracking Number					
	or FAA Use Only					

MAJOR REPAIR AND ALTERATION										Ехр: в/	31/2014			
of Transportation Federal Aviation Administration (Airframe, Powerplant, Propeller, or Appliance)											_	For FAA Use Only		
instruction	TIONS: Print s and dispos tion. (49 U.S	sition of this	s form.	es. See Title 1 This report is	14 CF requi	R (§43.9, Part 43 by law (49 U.S	Appendix S.C. §4470	k B, and 01). Fai	AC 43.9 lure to rep	9-1 (or sub port can re	sequent revision thereof) for sult in a civil penalty for each		
Nationality and Registration Mark N95467 Serial No. 1161 Make														
r. Aircraft	Make G	rumn	nar)	Model (G21		S	Series A					
	Name (A:	s shown on	regist	ration certificate		Address	Address (As shown on registration certificate)							
2. Owner Pemberton, Addison J									Address 5302 N Vista Ct City Spokane State WA					
									Spokane 99212	 	Countr	State WA		
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City Spoka	ine			State WA			Certificated F							
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per 14 CFR I App. B	Part 43				//	, ,	O .	٨ _	~ .	p p 222	. Aa6			
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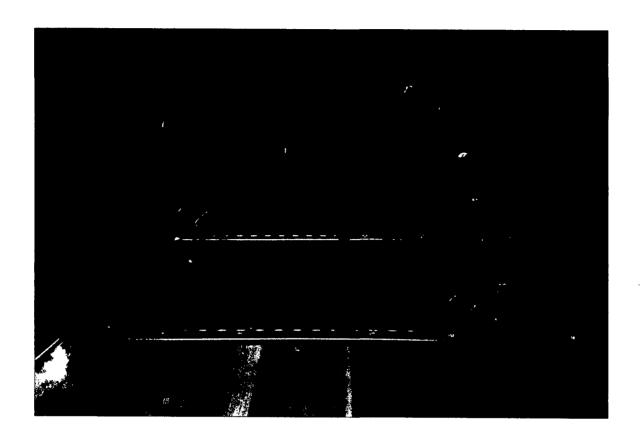
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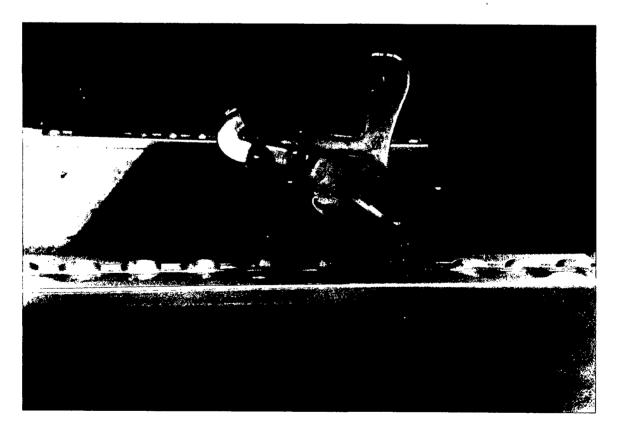
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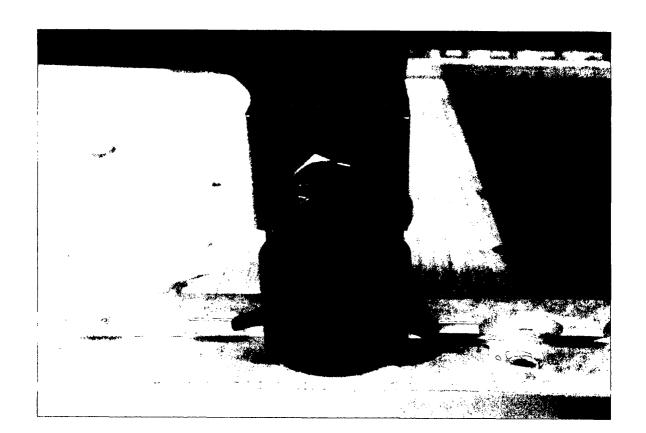
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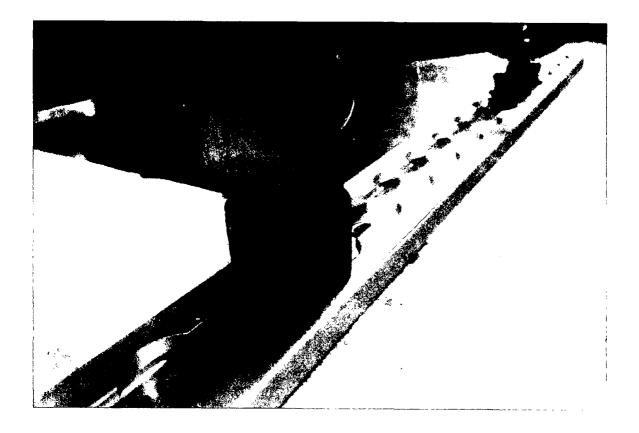
8. Description of Work Accomplished (If more space is required, attach additional sheets. Identify with aircraft nation	nality and registration mark and dat	e work completed.)
	N95467 Grumman G21A Nationality and Registration Mark	1-27-2015 Date
Altered Piper Aircraft PA-28 pilot seats so as to be installed onto PMA previously installed per 337 to aircraft cabin floor per STC SA1969WE seats to be installed on left side of aircraft cabin between stations 15 and cabin between station 15 and 26 (total of 7 seats). Original aircraft apprarial design allows for easy seat reconfiguration, removal and installation seat configurations as desired.	approved Brownline seat track and McKinnon Drawing MPD d 23 and 4 seats to be installed oved for up to 8 cabin seats to b	ss .Brownline seat tracks 5024 .Provision for up to 3 on right side of aircraft be installed.Brownline seat
Piper PA-28 pilot seats altered in the following manor. 1) Removed front Piper seat pin lock assembles 2) Removed wheel roller at each attach point by removing AN4-15 bol 3) Cut bottom of steel seat feet to a length of .750" from bottom of sea 4) Cut original Piper pin lock tube guide from front seat bottoms at eac 5) Fabricated 1" X 1" X .750 adaptor blocks from Aluminum 2024-T3 height dimension. 6) Installed McFarlane PMA MC41528-14 Anchor Quick Release sea adaptor block .920" bore. 7) Aligned assembly and matched drilled .250" though adaptor block a	t structure tubes. ch attach point. and bored a .920" hole through t foot assembly for use with Br	n block about the .750" ownline seat tracks into
holes in 4ea seat bottom feet. 8) Fasted assembly's to 4 each Piper seat foot with AN4-15A bolt.AN9	960 washer and AN 365 fiber lo	ock nut.
Note: TSO approved Seat belts for each seat to be fastened to Brwonlin 2,666 lbs. All seat belt loads carried to aircraft floor and aircraft primar	ne seat track with PMA McFarla y structure.	ane 32401 Fitting rated for
Instructions for continued air wort The above seats, seat belts and seat belt attachments shall be inspected with FAR Part 43 Appendix "D".	hiness at each 100 hour inspection/ann	nual inspection in accordance
END		
Additional Sheets	Are Attached	

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US Department
of Transportation
Federal Aviation
Administration

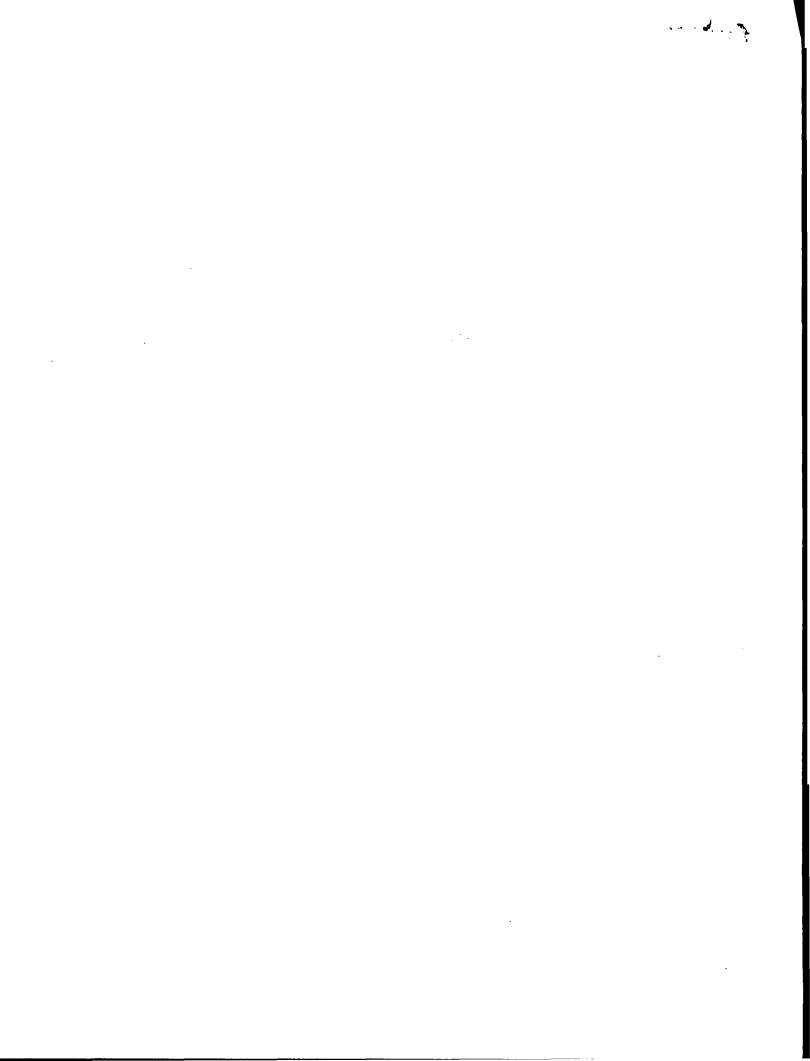
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	For FAA Use Only

US Department of Transportation (Airframe, Powerplant, Propeller, or Appliance) Administration For FAA Use Only For FAA Use Only										For FAA Use Only		
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1. Aircraft	Make G	rumn	nan				Mode	G21			Series A	
	Name (A	s shown on	registrat	tion certificat	e)	•	Address (As shown on registration certificate) Address 5302 N Vista Ct					
2. Owner	Pemb	erton, A	\ddiso	n J			City	Spokane			State WA	
							Zip	99212		Cour	ntry USA	
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FAA INSPECTOR, SPOKANE PSDC

8. Description of Work Accomplished (If more space is required, attach additional sheets. Identify with aircraft nat	ionality and registration mark and da	te work completed.)
	N95467 Grumman G21A	1-27-2015
	Nationality and Registration Mark	Date
Cover		
Recovered Ailerons, Elevators and Rudder with AirTech Coatings Inc fabric. Fabric attached with AirTech UA55 Fabric adhesive and coate 3 coats of ATCHSM polyurethane paint Air Force Blue 000768, Ligh accomplished per:	d with 2 coats of AirTech PFU	1030-F primer. Finished with
MANUAL AT 101 REVISION 8 June 1 1997 ORIGINAL ISSUE DATE: SEPT. 19, 1989 COPYRIGHT: JUNE 1, 1997		
AIRTECH COATINGS		
1 PARADISE PARK RD.		
JACKSONVILLE, AR 72076		
Follow on to Air Tech Coatings Inc. STC SA7965SW for the Beech speeds and performance as the Grumman G21A "Goose"	craft D18A and and Beechcraft	S18A with similar operating
Instructions for continued airworthines Aircraft fabric and cover to be inspected at 100 hr./annual inspections		
END		
Additional Sheet	s Are Attached	
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679-2 GROVE MASTER CYCINDETE

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	US Department of Transportation Federal Aviation Administration	
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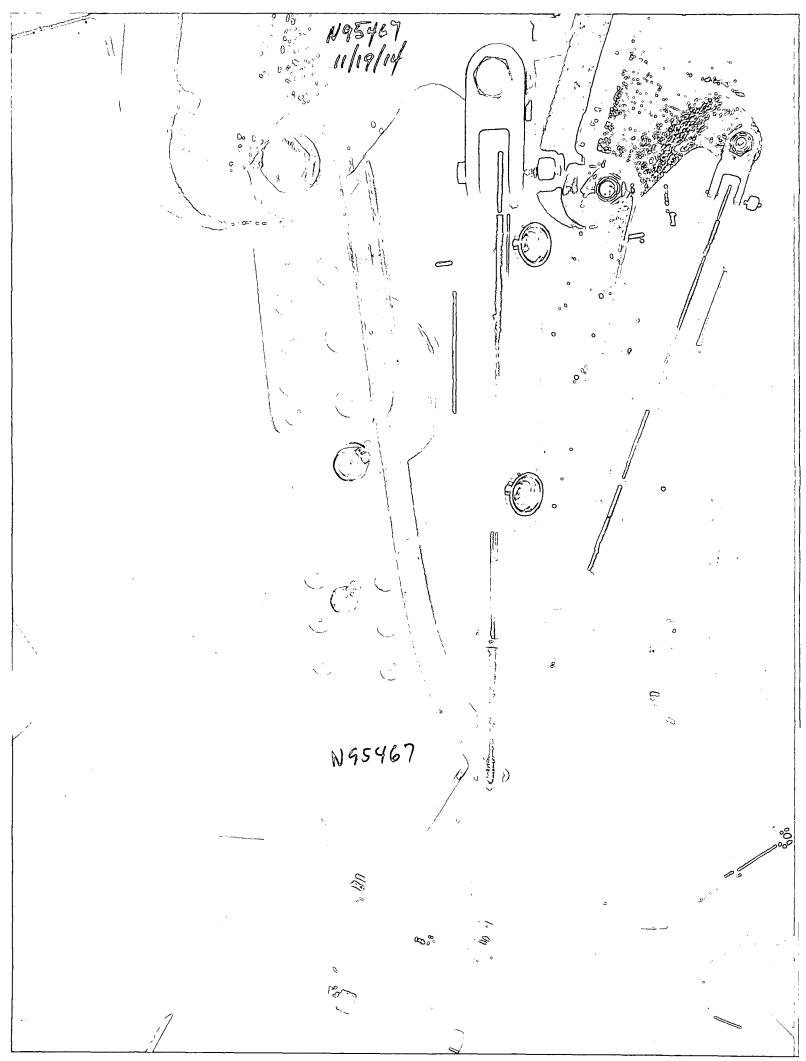
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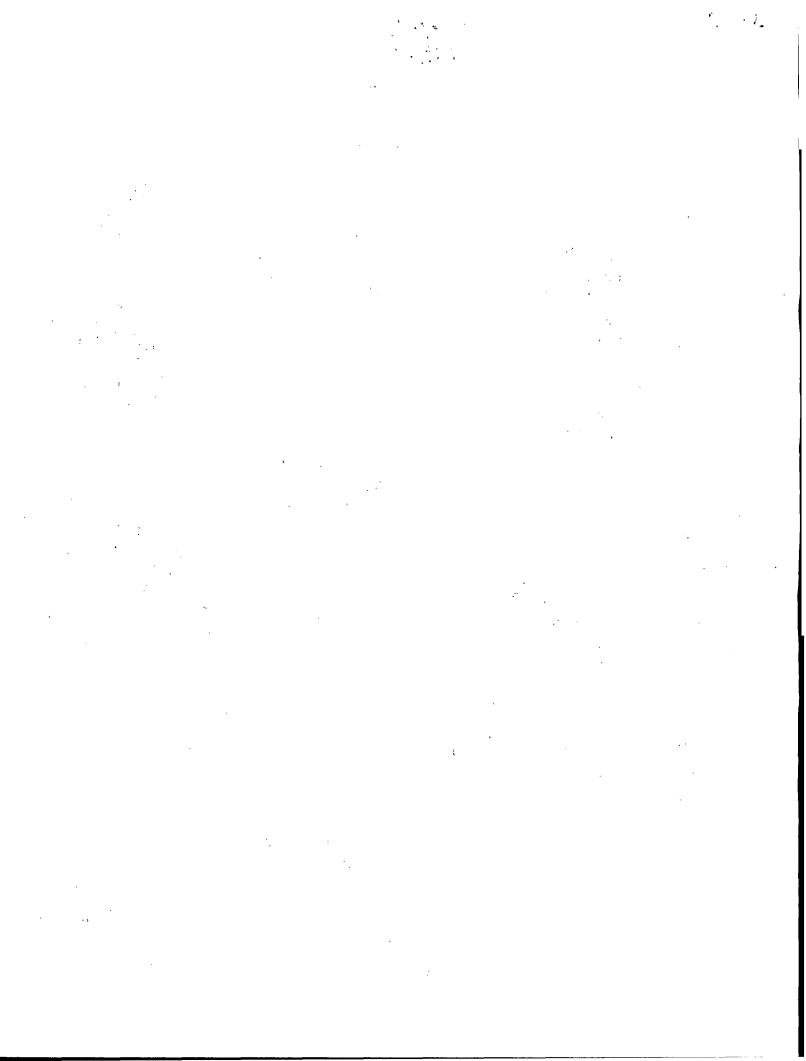
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1. Aircraft	N9546	7					1161							
	Make Grumman						<u></u>	Model G2	1		Series			
	Name (A	s shown (on regis	tration certificate)	Address (As shown on registration certificate)									
2. Owner	Pemb	erton,	Addis	son J				Address 5302 N Vista Ct City Spokane State Wa						
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 Description of Work Accomplished (If more space is required, attach additional sheets. Identify with aircraft nation.) 	ality and registration mark and date	e work completed.)
 N	N95467	11-19-2014
- -	Nationality and Registration Mark	Date
Brake Master cylinder 337 field approval proposal for Grumman G21A		
Original 7/8 bore Grumman brake master cylinders Bendix part number reference Grumman drawing number 12684. Installed Grove Aircraft 7/8 Grumman linkage and hardware configuration. Installed Grove Aircraft head in front of pilot rudder pedals. All original Grumman G21A brake prod 3" with .437 OD aluminum 2014 –T3 shaft per original Grumman prextension end of the original Grumman piston rod to accommodate the 5 Installed using original Grumman linkage and hardware. Reworked top sided .375 so as to mate to original Grumman rudder pedal link. Master Cleveland brake STC SA99GL compatible with 5606 hydraulic fluid. All good aircraft practice.	8 bore master cylinders part nuremote hydraulic reservoir par plumbing retained. Extended art. This was accomplished by 5/16-24 Grove master cylinder mounting .500 boss on Grove Cylinder functions with alread	t number 679-2 using existing t number 067-054 to bulk Grove master cylinder piston drilling and threading the piston rod and jam nut. master cylinder to flat by approved 337 for
Instructions for Continued airworthiness. Inspect brake system in accord STC per each required inspection for airworthiness, operation and safety		spection requirements and
End		
Additional Sheets A	Are Attached	

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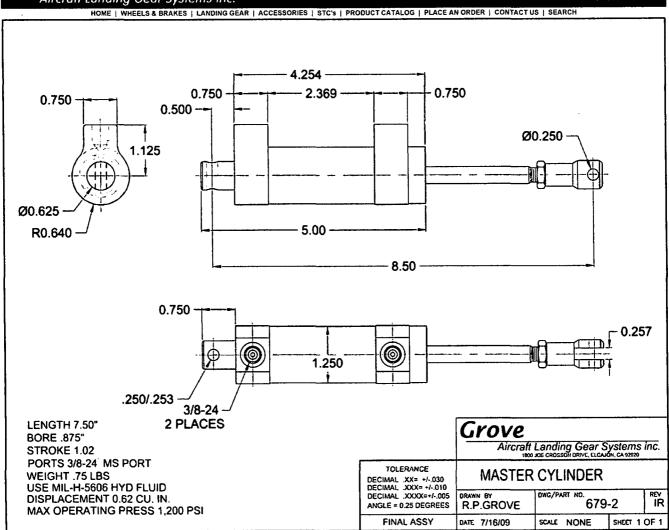
N95467 1/19/14

Grove

Aircraft Landing Gear Systems Inc.

679-2 MASTER CYLINDER

1800 Joe Crosson Drive
El Cajon, CA 92020
619.562.1268



N95467

(2)
US Department
of Transportation
Federal Aviation
Administration

MAJOR REPAIR AND ALTERATION

Ехр: 8/31/2014	
	For FAA Use Only

Federal Aviati	of Transportation (Airframe, Powerplant, Propeller, or Appliance) Federal Aviation Administration											
instructions	TIONS: Print s and dispos tion. (49 U.S	ition of this	form.	es. See Title 1 This report is r	4 CF equire	R § ed b	43.9, Part 43 by law (49 U.S	Appendix B, ar S.C. §44701). Fa	nd AC 43.9 ailure to rep)-1 (or su port can r	bsequent revision thereof) for esult in a civil penalty for each	
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2. Owner	Pembe	erton,A	ddisc	on J				Address 5302 N			Class 18/-	
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3. For FAA Use Only												
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8. Description of Work Accomplished (If more space is required, attach additional sheets. Identify with aircraft n	ationality and registration mark and da	te work completed.)
	N95467 SN 1161	1-20-2015
	Nationality and Registration Mark	Date
Amphibian landing Gear Position Advisory	System Installed Wipaire Inc.	
Amphibian landing gear Position Advisory System inst Per STC SA39CH applicable for the Grumman G21A " Installation accomplished per WipAire Inc. Installation August 29 2012.	Goose"	dated July 23 1992 Revised
Instructions for continued Airw System to be inspected for continued airworthiness and tested at each		e Inc. operations manual.
END		
Additional She	eets Are Attached	

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US Department
of Transportation
Federal Aviation
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	For FAA Use Only
OMB No. 2120-0020 Exp: 8/31/2014	Electronic Tracking Number

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US Department of Transporter Federal Avia Administration	ation I tion	(Airf		owerplant, P						For FAA Use Only						
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	Name (As	show	n on regist	ration certificate,)		Address (As shown on registration certificate)									
2. Owner	Pembe	erton	,Addis	on J		Address 5302 N Vista C						State Wa				
							Zip	99212		Country USA						
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NOTICE

	N95487	1-22-2015
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rown line seat rail installation Grumman N95467 serial number 116	1	
stalled "McFarlane Aviation Products" Brownline (previously "Burn A1969WE. ircraft altered per McKinnon drawing MPD 5024 to retain seat rails t	•	•
stalled between station 15 and 23 on left side of cabin floor and 2ea soor. Seat tracks mounted on 11 inch centers equally spaced on both s	seat tracks between Stations 15	and 26 on right side of cabir
Instructions for continued air worthiness he above seat tracks and attachment shall be inspected at each 100 hoart 43 Appendix "D".	our inspection/annual inspection	in accordance with FAR
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US Department
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Federal Aviation
Administration

OMB No. 2120-0020 Ехр: 8/31/2014	Electronic Tracking Number
<u> </u>	For FAA Use Only

US Department MAJOR REPAIR AND ALTERATION									<u> </u>	For FAA Use Only					
of Transportation Federal Aviation Administration INSTRUCTIONS: Print or type all entries. See Title 14 CFR §43.9, Part 43 Appendix B, a															
instructions	TIONS: Print and disposion. (49 U.S	ition of	this form.	es. See Title 1 This report is r	4 CF equir	R §4 red b	43.9, Part 43 y law (49 U.S	Appen S.C. §44	dix B, an 701). Fa	d AC 4:	3.9-1 (or su report can r	ubsequent revision the result in a civil penalty	reof) for for each		
	Nationalit N95467	•	egistratio	ation Mark Serial No. 1161							, , ,				
1. Aircraft	Make G	rum	mar	nan G21								Series A	···		
	Name (As	s shown	on regist	ration certificate)		······································	Address (As shown on registration certificate) Address 5302 N Vista Ct							
2. Owner	Pembe	erton,	, Addis	son J			City	Spokane		State Wa					
			·	Zip 99212							Country USAX				
						3. F	or FAA Use	Only		·					
4. Ty	pe	ļ				5. U	nit Identifica	ition							
Repair	Alteration		Unit	1	Ma	ke		·· ···· ········		Model	Serial No). 			
	×	AIRFR	RAME	Grumman	G21A			(As	described	1 above)	1161				
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		PROP	ELLER												
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City Spoka		110	· A	State Wa	`		Certificated Repair Station					2169140			
D. I certify	that the rep	untry US	or alterati	ion made to the	unit(s) ide	ntified in item	5 above	e and des	cribed o	n the revers	se or attachments here	eto .		
fumish	ed herein is	true and	d correct t	to the best of my	knov	Medg	ge.	. redera	i Aviation	Regula	uons and th	at the information			
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F/	AA Designee			air Station	X	l	pection Auth	orization	·	Other (S	pecify)				
Certificate or Designation N	No. 21691	40	Sign	ature/Date of Au	thoriz	zed Ir	ndividual	Por	be-	_	10-	3-2014			

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 Description of Work Accomplished (If more space is required, attach additional sheets. Identify with aircraft nation 	nality and registration mark and dat	e work completed.)
	N95467	10-30-2014
•	Nationality and Registration Mark	Date
Windows, lights, station 26, wing metallization, rudder balance and wir	ng tip floats aircraft alteration	
Grumman G21A serial number 95467 serial number 1161		
Cabin windows modified between station 13 and 26 and added between aircraft bulkhead removed and structure added per McKinnon STC SAI drawing MPD-4003. Wings metalized per McKinnon STC SA4-1109. If SA138SW. These alterations accomplished by unknown parties. All word drawings and was accomplished in accordance with good aircraft practic Retractable wing tip floats removed and original serviceable Grumman drawing 12420. Fixed wing tip floats reattached per Grumman Drawing assembly. Floats modified back to stock configuration per Grumman Drawing modifications retained internal to wing and reskinned where necessary. Fabricated and installed new bulkhead at station 26 per Grumman Draw station 26 thought 29 per McKinnon STC SA108WE. Reinstalled origin 26. Installed leading edge landing lights per McKinnon drawing and installed	108WE. Rudder Counter balance Retractable wing tip floats addedork conforms to approved data ice. stock wing tips reinstalled Refigs 12302 wing assembly and Dirawing 13002. In board of wing wing 12066. Retained fuselage shall servable Grumman factory	ce modified per McKinnon ed per Pan Air STC STC's or McKinnon erence Grumman wing tip rawing 13002 Float tip Pan Air structural wing
All work done in accordance with good aircraft practice and AC 43.13-	-	
End		
Additional Sheets	Δro Δttached	

US Department
of Transportation
Federal Aviation
Administration

MAJOR REPAIR AND ALTERATION

OMB No. 2120-0020 Exp: 8/31/2014	Electronic Tracking Number	
For FAA Use Only		

(Airframe, Powerplant, Propeller, or Appliance) 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)) Nationality and Registration Mark Serial No. 1161 N95467 1. Aircraft Make Model Series Grumman Name (As shown on registration certificate) Address (As shown on registration certificate) Address 5302 N Vista Ct Pemberton, Addison J 2. Owner City Spokane 99212 Country 3. For FAA Use Only 4. Type 5. Unit Identification Repair Alteration Unit Make Model Serial No. Grumman G21A 1161 (As described in Item 1 above) **AIRFRAME** X **POWERPLANT PROPELLER** Type APPLIANCE Manufacturer 6. Conformity Statement A. Agency's Name and Address B. Kind of Agency Addison Pemberton U. S. Certificated Mechanic Manufacturer Address 5302 N Vista Ct Foreign Certificated Mechanic C. Certificate No. State Wa City Spokane Certificated Repair Station 2169140 USA 99212 Certificated Maintenance Organization Zip 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. Signature/Date of Authorized Individual Extended range fuel per 14 CFR Part 43 10-30-2014 App. B 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 x Approved Rejected FAA Flt. Standards Persons Approved by Canadian Manufacturer Maintenance Organization Department of Transport Inspector BY Other (Specify) **FAA Designee** Inspection Authorization Repair Station Certificate or Signature/Date of Authorized Individual Designation No. 2169140 Welin Ren 10-30-2014

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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.

(If more space is required, attach additional sheets. Identify with aircraft nat	tionality and registration mark and da	te work completed.)
	N95467	10-30-2014
	Nationality and Registration Mark	Date
Grumman Goose N95467 SN 1161 Propeller 337 aircraft alteration		
Aircraft reconfigured per July 7 1950 configuration using Hamilton S components. Previous configuration recorded in FAA aircraft airwort 22D30 propellers installed with 6531-15 blades. 6181 and 6381 blade approved by TCDS # P-736, note 6, blade interchangeability. Feathering components installed for both engines include Hamilton S mounted Push button feather switches 54267 or equivalent, Pesco 661 equivalent, valve and cut out switches 63921 or equivalent. Oil tanks All above installed per Hamilton Standard "22D30-22D40 Hydroman configured per page 30, Figure 3-4 in referenced manual. All work of aircraft practice.	hiness records (page 101-113 sees approved on Grumman G21 Teandard 4B2 governors or equivalent feather pumps or equivalent modified to incorporate 1 gallonatic Propellers Maintenance Man	e 337 attached). CDS#654; 6531-15 blades alent, Instrument panel ent, AN3371-2 relays or a oil reserve stand pipe. uel #145." System
Continued airworthiness to be accomplished per Hamilton Standard "#145" and FAR part 43 Appendix D at each required aircraft inspection	22D30-22D40 Hydromantic Pro on.	pellers Maintenance Manua
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✓ Additional Sheet	s Are Attached	

8. Description of Work Accomplished

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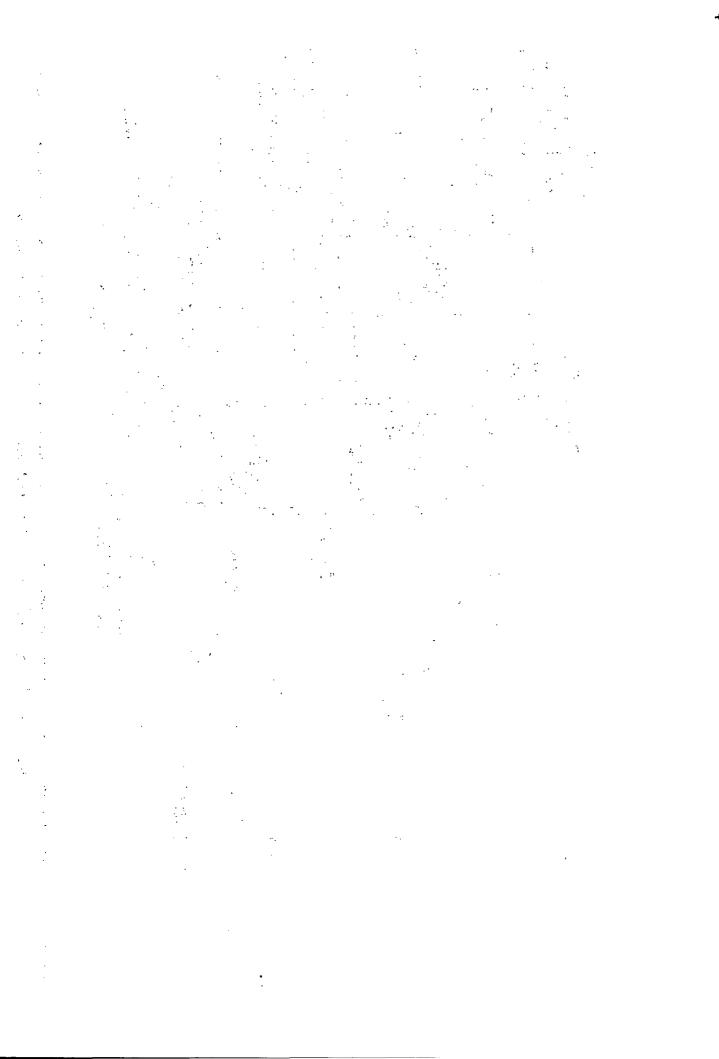
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N95467 10-30-2014

Figure 3-4. Suggested Hydraulic and Electrical Systems Installation



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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. craft nationality and registration mark and date work completed.) Identify with air-

Recovered elevators, rudder and allerons using Ceconite Procedure #101, using Ceconite 101 cloth and Randolph products, per STC SAl351WE and Maval Aero Bulletin 01-85V-3 for Grumman G21A, Section 8, Fabric Repair and Attachment.

THE END

DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION

Form Approved Budget Bureau No. 04-R060 :

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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.)

Installed an Access Panel on Right Side of Hull between Station # 7 and # 8, between Stringers located 11" and 22" above Chine P/N 17327-40. Opening is backed by a .060", 2024T3 Doubler which is Secured by AN 470-4 Rivets. Doubler opening is Secured by a Cover Panel held in place by 10-32 Machine Screws. All parts painted and finished. All work accomplished In Accordance With AC 43:13-1A Chapter 2, Section 3, and Standard Practice. Work previously done by person or persons unknown.

END

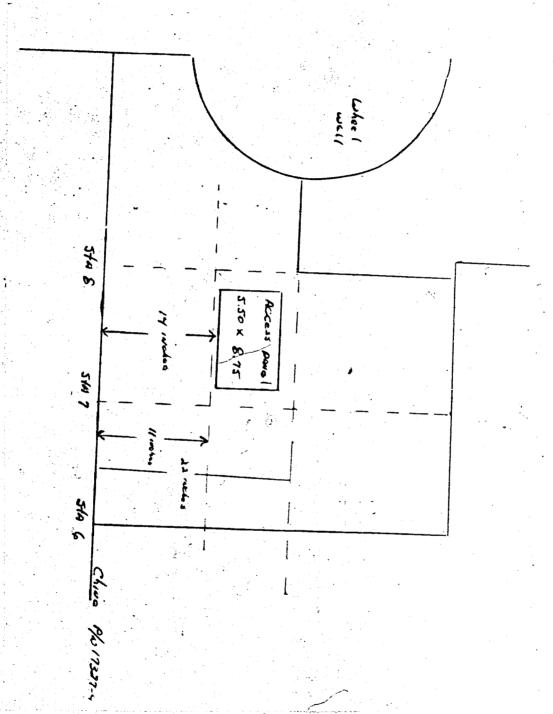
M ADDITIONAL-SHEETS ARE ATTACHED

C FAA AC 72-4906

± U.S. GPO: 1961 - 775-332:17

2-12-86

Make - Grumman Model - G-21A
Serial No. - 1161 Nationality and Registration Mark - N95467
Owner Name - AirPac, Inc. Address - 4215 21st. Ave.
Seattle, WA 98199



- PAA AIRCRAFT REGISTRY
CAMERA NO. 2% DATE: 2-14-90

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OUTH W. MECON	Houst	n 2, Texas	12401
5. AIRCRAFT OWNER'S CERTIFICATION (Chest and and	abjer abbedante gen		Term O abana —bish is
I hereby certify that I am the registered owner registered with the Civil Aeronautics Administration or 502 and when operated displays the following evic	dence of registrati	on:	Administrator, Part 501
CONTROL ATE OF DECISTRATION FORM ACA-500 (PART A)	DATE OF ISSUE	Jen Halyse	
b. APPLICATION FOR REGISTRATION, FORM ACA-500 (PART)	B). FORM ACA-SOL F	ART A, FORWARDED TO CAA	AIRCRAFT, RECORDS BRANCA
			•
TELLION CON		and the second s	
W-100 ON (DATE) DEALER'S REGISTRATION CENTIFICATE, FORM ACA-1707,			
e. DEALER'S REGISTRATION CERTIFICATE, FORM ACA-1707,			
c. DEALER'S REGISTRATION CERTIFICATE, FORM ACA-1707,		1129	
e. DEALER'S REGISTRATION CERTIFICATE, FORM ACA-1707. "In order to be eligible for registration an aircraft must be owned by a citizen of the United States, as defined by Section 1(01) of the Ciril Aeronaution Act of 1933, as amended. ATTACHMENTS (Check which)	DATED	Der or spalet pron owers on	AUSTORILLO AGENT)
*In order to be sligible for registration on abreralt must be owned by a cluser of the United States, as defined by Section 1;(1) of the Util Accounting Act of 1933, as amended. ATTACHMENTS (Check which) TACA-119 WEIGHT AND BALANCE ROOM!	DATED	Dat of BECISTORY OFFICE OF	ADDIORIED AGENT)

FOFTS ACA-305 (11-61)

4. =

The sircraft described in Item 3 on the reverse of Check and complete applicable forms)	this farm has been inspected and found to conform to the follow
. AIRCRASSAND ENGINE CERTIFICATION BE	ASIS
AIRCRAFT SPECIFICATION NO.	THROUGH SHEET REVISION NO. NONR
b. & AIRCRAFT LISTING PAGE NO. 98-	
a. A AIRWORTHINESS DIRECTIVE SUMMARY 1950	THROUGH CARD NO
d. CIVIL AIR REGULATION PART & (MODIFIED TYPE C	
AIRCRAFT AND ENGINE OPERATING RECOF	ROS
. AIRCRAFT HEW-NO PREVIOUS OPERATION OR MAIN	NTENANCE HISTORY
L. COMPLIANCE WITH APPLICABLE AIRWORTHINESS DI	
c. AIRCRAFT RECORDS INDICATE THE AIRFRANCE HAS	
A. B ENGINE RECORDS INDICATE THE FOLLOWING OPER	
SERIAL RO. 12726	TOTAL HOURS 233:35
SERIAL NO. P226933	TOTAL HOURS 319:35
SERIAL NO.	TOTAL HOURS 319235
SERIAL NO.	
SCHOOL NO.	TOTAL HOURS
PREVIOUS INSPECTION RECORD (INSPECTION	ON RECORDED ON FORM ACA-319)
LAST AIRWORTHINESS INSPECTION CONDUCTED MATE	ech 25_1956
BY AIRCRAFT MANUFACTURER	(DUTE)
BY APPROVED REPAIR STATION, CENTIFICATE	F No.
BY MECHANIC, CERTIFICATE NOO.G.	The state of the s
b. PERIODIC AIRCRAFT INSPECTION REPORT, FORM AC	
AIRWORTHINESS DOCUMENTS ISSUED OR F	STATE OF THE PROPERTY OF THE P
	z <i>[iii]</i>
a. OPERATION LIMITATIONS, FORM ACA-309, WAS ISSUE	
b. & CURRENT OPERATION LIMITATIONS, FORM ACA-309.	IS AVAILABLE IN AIRCRAFT
b. & CURRENT OPERATION LIMITATIONS, FORM ACA-309, c. CURRENT APPROVED AIRPLANE FLIGHT MANUAL IS	IS AVAILABLE IN AIRCRAFT AVAILABLE IN AIRCRAFT
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b. Current operation limitations, form aca-383. c. Current approved airplane flight manual is a current weight and balance information is a c. This inspection has been recorded in the airc f. Coertificate of airworthiness, form aca-1322 by Certificate of aircraft operation aca-1322 by Certificate of aircraft described on the reverse bas been	is available in aircraft available in aircraft available in aircraft craft records ssried to expire March 25,1957 Merch 30,1956 (Date) (DATO A.M. J. 1632 (DATO A.M. J. 1632
b. Current operation limitations, form aca-393, c. Current approved airplane flight manual is d. Current weight and balance information is a c. This inspection has been recorded in the airc t. Certificate of airworthiness, form aca-1322 be by All De Lenge (name of issued to expert (name of issued representative) CAA approved repair station certificate the aircraft described on the reverse has been No	IS AVAILABLE IN AIRCRAFT AVAILABLE IN AIRCRAFT AVAILABLE IN AIRCRAFT CRAFT RECORDS ISSUED TO EXPIRE MAICH 30, 1956 (DATE) CRAFT
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DEFAITS OF TRANSPORTATION FEDERAL APIGTION ADMINISTRATION

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

Form Approved
Budget Bureau No. 04-R060.1
FOR FAA USE ONLY

OFFICE IDENTIFICATION

INSTRUCTIONS: Print or type all energies. See FAR 43.9, FAR 43 Appendix B, and AC 43.9-1 (or subsequent revision thereof) for instructions and disposition of this is m.

1. AIRCRAFT

MAKE

Grumman

SERIAL NO.

1161

NATIONALITY AND REGISTRATION MARK

E 95467

NAME (As shown on registration certificate)

ADDRESS (As shown on registration certificate)

2. OWNER

K. C. Aircraft Sheetmetal INC.

Longbeach Ca. 90806

3. FOR FAA USE ONLY

-	4. UI	IT IDENTIFICATION	·	5. 1	TYPE
TIMU	MAKE	MODEL	SERIAL NO.	REPAIR	ALTER- ATION
AIRFRAME		(As described in item 1 above)		X .	-
POWERPLANT			1 40,00 hgg		
PROPELLER			\$0.6500		
APPLIANCE	MANUFACTURER	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	COTTES SE		

6. (ONFORMITY STATEMENT

A. AGENCY'S NAME AND ADDRESS
B. KIND OF AGENCY
C. CERTIFICATE NO.

X U.S. CERTIFICATED MECHANIC
POREIGN CERTIFICATED MECHANIC
2925 Airport Drive
CERTIFICATED REPAIR STATION
TOrrance, Ca.

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 11-6-78 SIGNATURE OF AUTHORIZED INDIVIDUAL ROLLANDER

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

FAA FLT. STANDARDS | MANUFACTURER | INSPECTION AUTHORIZATION | OTHER (Specify)

FAA DESIGNEE | REPAIR STATION | CANADIAN DEPARTMENT OF TRANSPORT INSPECTOR OF ARCEAST

DATE OF APPROVAL OR REJECTION | CERTIFICATE OR DESIGNATION NO. | //28/40
FAA: Form 337 (7-67)

(8320)

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.)
 - 1. The Following REPAIRS MADE TO THIS AIRCRAFT AND THESE NEW PARTS INSTALLED
 - 1. STA 29 FUSELAGE FLOOR ANGLE P/N-12072-4 AND 12072-25 STIFFNER ANGLE L.H.
 - 2. STA. 13 FUSELAGE. FLOOR MEANBER P/N 12053-2 AND 12053-3. BULKHEAD SKIN INNER P/N 12053-1 2 ANGLES P/N 12053-10 - 1 CHANNEL P/N 12053-32
 - 3. PILOTS CABIN AREA 1 SKIN SHEET L.H. P/N 12073-3

 1. FRAME STA.10 P/N 12001 -5 1. HORIZONTAL RIB

 HULL NOSE FRAME P/N 12004-32. 1. CHANNEL FLOOR

 FRAME P/N 12032-5. + 1 SKIN HORIZONTAL STAB.
 - 4. HULL Bottom 2 Skins P/N 12003-29 L.H. 12003-30 RM
 - 2. AIRCRAFT ASSEMBLIED USING NEW AN HARD WARE
 - 3. AIRCRAFT PAINTED + RE UPHOLDISTED AND WEIGHED FOR NEW WT+BAL FORM. END

ADDITIONAL SHEETS ARE ATTACHED

★1975-G.P.O.-1703-M/673-200'175

DEFE AT OF TRANSPORTATION FEDERAL , IATION ADMINISTRATION

Form Approved Budget Burson No. 04-R060.1 . FOR FAA USE ONLY

	(Airframe, Pa	REPAIR AND werplant, Proj	peller, or	Applian			DENTIFIC	100	<u> </u>
INSTRUCT	IONS: Print or type ons and disposition	all entries. See F. of this form.	AR 43.9, FAI	R 43 Appe	ndix B, and A	C 43.9-1 (or si	ibsequent r	evision th	creof)
Î. AIRCRAFT	MAKE GEURRAD SERIAL NO.					21-A / AND REGISTR	ATION MA	RK	
2. OWNER		registration certifica			2750 War		_	c ate)	
	KC Aircraft	Sheetmetal :		LA USE ON		ch. Ca 929	<u> </u>		 _
			•	1.4			*	٠,	
		4. UNI	T IDENTIFICA	TION				5, ,	TYPE
TIMU		KE		MODEL		SERIAL N	ю. 	BEPAIR	ALTER-
AIRFRAME ·		•••••••••••••••••(\	is described in	nitern 1 at	oovu) *******		• 		x
POWERPLANT							90,90		
PROPELLER						(F	60 37 2000	9 E	
APPLIANCE	MANUFACTURER		*				65 00		
			6. (DNFOR				C C55	RTIFICATE	NO
Ralph Cu 2925 Air		AND ADDRESS	P C	S. CERTIFICA	ND OF AGEN ATED MECHANIC IFICATED MECHA REPAIR STATION	WK		128149	
	that the repair an ents hereto have be t the information for		de to the ur	nic(s) iden	ntified in item		described of ederal Avia	n the re- tion Reg	erse or ulations
DATE	28-78			ATURE OF	AUTHORIZED				
Pursuant to	the authority give	n persons specified	APPROVAL FO	nit identif	ied in item 4	was inspected i REJECTED	n the mann	er prescr	ibed by
BY FA	A FLT, STANDARDS SPECTOR	MANUFACTURER -	X INSPEC	TION AUTHO	MENT	OTHER (Specify)		.*	
	PPROVAL OR	CERTIFICATE OR DESIGNATION N	SIGN.	ANSPORT INS		D INDIVIDUAL			
8-	-28-78 337 (7-67)	11281401	A	calp	h lu	llen			(8320)

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.

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

- 1. Removed old wheels & brakes * installed Cleveland wheel & Brake Conversion Kit F/N 139-65 per fleveland drawing 50-25 Rev. A dated 12/12/75 consisting of wheel assy T/N -40-127 & Brake Assy T/N 30-97
- 2. Installed Schinner Enterprises Retractable Floats per STC SA4-1467 & drawing \$4003. "B" change also two 50 amp generators per STC SA 4-652
- 3. Installed Fellinnon Enterprises Inc Electric Gear Retract Ector per drawing MPD 9110 Rev. C. sheets one thru five & STC SA 4-1551
- 4. Installed Hartsell 3 Blade Propellers on L. & R. Eng. per STC-Sal-52
- 5. Installed the following radios in R. side of instrument panel:

 2 es. NX 170B | 1 es. KMA-20-SW. Panel

 1 es. KM 86 ADE | 1 es. KM 62-DWB

 Dual WOR Heads in Filot Side of Instrument Panel

 Radios installed per AC43:13-2 Fage 4 Fig. 2.1 &2.2

 All work done per AC43:13-1

ADDITIONAL SHEETS ARE ATTACHED

★1975-G.P.O.-1703-M/673-900/175

1284-0606 370cm 5.67 m Approved dget Bureau No. 04-R069.1 FEDTO AVIATION AGENCY FOR FAA USE ONLY MAJOR REPAIR AND ALTERATION OFFICE IDENTIFICATION (Airframe, Powerplant, Propeller, or Appliance) INSTRUCTIONS: Print or type all entries. See FAR 43.9, FAR 43 Appendix B, and AC 43.9-1 (or subsection thereof) for instructions and disposition of this form. G-21A NATIONALITY AND REGISTRATION MARK GRUMMAN 1. AIRCRAFT SERIAL NO. N95467 116 ADDRESS (As shown on registration certificate) NAME (As shown on registration partificate) 39 Strand St., Christiansted St. Croix. US Virgin Islands Christiansted, 2. OWNER ANTILLES AIR BOATS, INC. SI 5. TYPE 4. UNIT IDENTIFICATION ALTES-SERIAL HO. ATION MAKE ee (As described in item 1 above) AIRFRAME POWERPI ANT 14642 R985-AN14B PRATT & WHITNEY PROPELLER Verified by Operator #74 APPLIANCE MANUFACTURER 6. CONFORMITY STATEMENT C. CERTIFICATE NO. B. KIND OF AGENCY A. AGENCY'S NAME AND ADDRESS U.S. CERTIFICATED MECHANIC EIGHTH AIR DEPOT, INC. SEBRING AIR TERMINAL 3610 FOREIGH CERTIFICATED MECHANIC POWÉR PLANT CERTIFICATED REPAIR STATION P.O. Box 631 CLASS 1 & 2 MANUFACTURER SEBRING, PLORIDA 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. SIGNATURE OF AUTHORIZED INDIVIDUAL DATE Chief Inspector 7. APPROVAL FOR RETURN TO SERVICE March 2, 1967 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 Agency and is APPROVED REJECTED OTHER (Specify) FAA FLT, STANDARDS INSPECTOR MANUFACTURER

CANADIAN DEPARTMENT

OF AIRCRAFT

George

OF TRANSPORT INSPECTOR

SIGNATURE OF AUTHORIZED INSTYLDUAL

Sumont,

Chief

March 2,1967 3610 FAA Form 337 (1-65) OBSOLETE PREVIOUS EDITION

FAA DESIGNEE

DATE OF APPROVAL OR

REPAIR STATION

CERTIFICATE OR

DESIGNATION NO.

BY

REJECTION

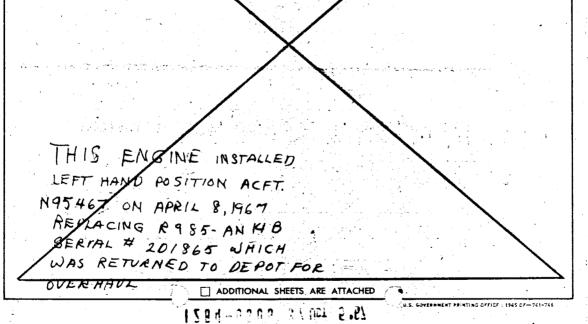
Inspector 0052-025-8000 (8320) HYEYANGE NOTICE

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

8. DESCRIPTION OF WORK ACCOMPLISHED (If more space is required, attach additional sheets. Identify with aircraft nationality and registration material and date work completed.)

Engine received this station for overhaul. Engine given receiving inspection, completely disassembled and all parts cleaned. All steel parts magnafluxed. All parts inspected in accordance with manufacturer's specifications and replaced where necessary. Engine, magnetos and harness completely overhauled. Test house run of engine satisfactory. Time since overhaul 00:00 hours.

FAA A.D. Note 57-5-4 has been complied with (Crankshaft).
P&W Service Bulletin 1693 (Drain Pipes, Cyl. Inter-Ear) complied with.
FAA A.D. Note 65-7-2 complied with (Fly Weights and Fly Weight Liners).
FAA A.D. Note 66-14-4 (One Piece Cam Reduction Gear) complied with.



FAA Form 337 (1-65) OBSOLETE PREVIOUS EDITION

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	AGENCY'S NAME AND ADDRESS					<u> </u>		<u>-</u>
	Pan American Truman Airport	``` `				LAFIAYC	*474	.* ≎*
	Thomas, U.S. Virgin Islan	rds.			4	-		•
attachme	nts hereto have been made in accord	dance w	the unit(s) ident	tified in item	43 of the U.S.	described or Federal Aviat	n the revi	erse or lations
DATE Augus	st 5th, 1967		(11)1	Húi	NOIVIDUA	erth	/.	
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Pursuant to the Adminis	the authority given persons specified trator of the Federal Aviation Agenc	y and i	the spit identifi	ed in item 4	EJECTED			ped by
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FAA Form	337 (1-65) OBSOLETE PREVIOUS I	EDITION	1	<u> </u>		0052-025-	-B000 (8320)

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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.)
 - 1. Removed elevators S/N AAB # 7 and S/N AAB # 8.
 - 2. Old covering removed from left and right elevators. Left S/N 6277 and right S/N 6287structures inspected for condition.

O.K. to Cover

3. Frames covered with Grade A Fabric. Four coats of clear nitrate dope brushed on, two coats of clear nitrate dope sprayed on, and eight coats of silver nitrate dope sprayed on. Balance not affected. All workmanship and materials used conforms to recommendations of C.A.M. 18,30-3 and FAR 43.

0.K. to Install

 Installed and rigged on aircraft in accordance with manufacturers specifications in maintenance handbook NAVAER 01-85VF-2 Sections (4-174) Page # 57.

BOTHING FOLLOWS

1263-7512 Hills 21-57 FEDERAL AVIATION AGENCY SJU Fauc FOR FAA USE ONLY 156 MAJOR REPAIR AND ALTERATION OFFICE IDENTIFICATION (Airframe, Powerplant, Propeller, or Appliance) 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. MODEL MAKE GŽIA CRIMOME 1. AIRCRAFT NATIONALITY AND REGISTRATION MARK SERIAL NO E95467 1161 DDRESS (As shown on registration certificate)
39 Strand Street, Christianstead NAME (As shown on registration certificate)
ASTILES ATR BOATS, INC. ADDRESS (As short 2. OWNER St. Croix, U.S. Virgin lelands. 3. FOR FAA USE ONLY 4. UNIT IDENTIFICATION 5. TYPE SERVAL MO UNIT MAKE REPAIR ATION Pusalega Skin Replace . X AIRFRAME POWERPLANT PROPELLER APPLIANCE MANUFACTURER 6. CONFORMITY STATEMENT C. CERTIFICATE NO. B. KIND OF AGENCY A. AGENCY'S NAME AND ADDRESS CERTIFICATED MECHANIC Villiam Everett POREIGN CERTIFICATED MECHANIC c/o Pan American H.S. Truman Airport, St. Thou IA#1496292 CESTIFICATED 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. SIGNATURE OF AUTHORIZED INDIVIDUAL DATE Man August 5th, 1967 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 Agency and is APPROVED REJECTED Wentled by Operator #81 OTHER (Specify) FAA FLT. STANDARDS INSPECTOR INSPECTION AUTHORIZATION MANUFACTURER BY CANADIAN DEPARTMENT OF TRANSPORT INSPECTOR OF ARCRAFT FAA DESIGNEE SIGNATURE OF AUTHORIZED HIDIVIDUAL CERTIFICATE OR DATE OF APPROVAL OR REJECTION August 5th, 1967 DESIGNATION NO.

FAA Form 337 (1-65) OBSOLETE PREVIOUS EDITION

0052-025-8000 (8320)

Weight and balance or operating limits an unit 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 required.)

FUSELAGE SKIB REPLACEMENT

- 1. Replaced section of skin on fuselage from STA # 24 to STA # 26 directly below the escape hatch. See attached copies of pages of repair menual for location identification and type of ustal.
- 2. All of the above work done in accordance with Grussen Structural Repair Manual and CAM 18.30-4 and FAR 43.

EQUALITY SOLVEY SOLVEY STATES TO SERVICE SOLVEY STATES SOLVEY SOL

ADDITIONAL SHEETS ARE ATTACHED

TEELS ARE ATTACHED

Form Approved
Budget Bureau No. 04-R060.1 FEDERAL AVIATION AGENCY FOR FAA USE ONLY MAJOR REPAIR AND ALTERATION OFFICE BENTIFICATION (Airframe, Powerplant, Propriler, or Appliance) 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. MODEL MAKE G-21A CRUPSIAN NATIONALITY AND REGISTRATION MARK 195467 1. AIRCRAFT SERIAL NO. ADDRESS (As shown on registration certificate)
39 Strand Street, Christianstead NAME (As shown on registration certificate) St. Croix, U.S. V.I. 2. OWNER ANTILLES AIR BOATS, INC. 3. FOR FAA USE ONLY 5. TYPE 4. UNIT IDENTIFICATION SERIAL NO. REPAIR ÜNIT ATION Allerons Left and Hight X AIRFRAME POWERPLANT PROPELLER APPLIANCE MANUFACTURER 6. CONFORMITY STATEMENT C. CERTIFICATE NO. B. KIND OF AGENCY A. AGENCY'S NAME AND ADDRESS W.J. Everett A#1496292 FOREIGN CERTIFICATED MECHANIC c/o PAN AMERICAN CERTIFICATED REPAIR STATION H.S. Trumen Airport St. THUMAS, U.S. V.I. 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. SIGNATURE GE AUTHORIZED INOTADUAL August 5th, 1967

7. APPROVAL FOR RETURN TO SERVICE

Pursuant to the authority given persons apecified below, the unit identified in item 4 was inspected in the manner prescribed by the Administrator of the Federal Aviation Agency and is APPROVED REJECTED

FAA RI. STANDARDS

MANUFACTURER

RESPECTION AUTHORIZATION

OTHER (Specify)

DATE OF APPROVAL OR
REJECTION CERTIFICATE OR
REJECTION SET 1967

OF TRANSPORT INSPECTOR
OF ARCDAFT
SIGNATURE OF AUTHORIZED INDIVIDUAL

FAA Form 337 (1-65) OBSOLETE PREVIOUS EDITION

0052-025-8000 (8320)

CHYSTAN LEGISTRE

Weight and balance or operating finitiation 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.)
 - 1. Removed left and right ailerons S/N SRA # 11 and S/H SRA # 12
 - 2. Old covering removed from left eileron S/N 7967 and right aileron/S/N 7867

O.K. to Cover

3. Frames covered with Grade A Fabric. Four coats of clear nitrate brushed on, two coats of clear nitrate dope sprayed on, eight coats of silver nitrate dope sprayed on. Balance not affected. All workmanship and materials used conforms to recommendations as per C.A.M. 18.30-3 FAR 43.

O.K. to Install

 Installed and rigged on aircraft in accordance with manufacturers recommendations in maintenance handbook NAVAER 01-85VF-2 Section (4-174) Page # 57.

NOTHING POLLOWS

ADDITIONAL SHEETS ARE ATTACHED

WICKS

1.S. GOVERNMENT PRINTING OFFICE 1965 OF-761-741

1263 Pag 21-167 FEDERAL AVIATION AGENCY MAJOR REPAIR AND ALTERATION FOR FAA USE ONLY (Airframe, Powerplant, Propeller, or Appliance) OFFICE STEVENTED STOP 7-5-61 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. MAKE HODE CRUMMAN G23A 1. AIRCRAFT SERIAL NO. NATIONALITY AND REGISTRATION MARK 1161 H95467 NAME (As shown on registration certificate) ADDRESS (As shown on registration certificate)
39 STRAND STREET. CHRISTIANSTRAD 2. OWNER ANTILLES AIR BOATS ST. CROIX, U.S. VIRGIN ISLANDS 3. FOR FAA USE ONLY 4. UNIT IDENTIFICATION UNIT MAKE SERIAL NO. ALTER REPAIR ATION AIRFRAME (As described in item 1 above) eeeeee **POWERPLANT** HARTZELL PROPELLERS HC-B3Z30-ZE/ 1015Z-51 XX PROPELLER APPLIANCE MANUFACTURER 6. CONFORMLTY STATEMENT A. AGENCY'S NAME AND ADDRESS B. KIND OF AGENCY C. CERTIFICATE NO. M U.S. CERTIFICATED MECHANIC WILLIAM BYERETT FOREIGN CERTIFICATED MECHANIC I PAN AMERICAN CERTIFICATED REPAIR STATION IA#1496292 H.S. TRUMAN AIRPORT, ST. THEMAS 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 August 5th, 1967 Muis 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 Agency and is APPROVED REJECTED

FAA RT. STANDARDS

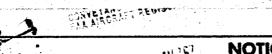
MANUFACTURER

RESPECTION AUTHORIZATION

OTHER (Specify) (CCL DY Open Close 1) MANUFACTURER SPECTION AUTHORIZATION BY REPAIR STATION OF TRANSPORT INSPECTOR OF ARCRAFT DATE OF APPROVAL OR CERTIFICATE OF SIGNATURE OF AUTHORIZED INDIVIDUAL REJECTION AUGUST SED, 1967 DESIGNATIONS

FAA Form 337 (1-65) OBSOLETE PREVIOUS EDITION

0052-025-8000 (8320)



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. craft nationality and registration mark and date work completed.) Identify with air-2 ea. Hartzell Peopoliers Endel BC-83230-2R/ 10152-5! installed on this aircraft in accordance with Hartzell Propelier Inc. STC SAL -52 Drawing FD-1860. Flight Hanual modified for this installation will be included in the new actual wt. Whal. Complete functional check is satisfactory.

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		, Powerplant, Pi				ice)		OFFICE IDENTIF	CATION	
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INSTRUCT for instructi	TONS: Print of ons and dispos	type all entries. See ition of this form.	FAR	43.9	FAR 43 Appe	ndix B, and	AC 43.9-	I (or subsequent	revision t	hereof) :
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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.)
 - 1) Repaired section of hull from hull station #19 to hull -25. Hethod of repair done in accordance with Grussian structure and repair manual Hav. Aer. 01-85V-3, page 2125 figure 300. titled hull bottom repair outside plate.
 - 2) Repaired cross floors members in area of station 22 thru station 24 in accordance with Graman structure and repair namual Mavaor 01-5V-3 page 129, titled cros floor typical repairs.
 - 3) Spliced new section of keel, as per pg 189 of Grumman Structure & repair manual titled extruded sections. Method of revair done in accordance with Gramman Structure and repair manual page 126 titled Weel repair

All above tork conforms with AC 43-13-1 and Ac 43-13-2.

Mothing Pollows.

FILE COLY CIRC. DYST.

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for instructio	ens and disposition of	this form.		 > 	MODEL	<u> </u>		1	
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, AIRCRAFT	SERIAL NO. 1161					AND REGIS			
	NAME (As shown on n	egistration certificat	●)		ADDRESS (Ar	shown on regi	istration certif Pe E	icate)	
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39 8tr	and Street		 	MANUFACTUR		****			+ 6
Christi D. I certify	that the repair and ents hereto have been the information furi	or alteration made	le to the				i described i Federal Avi	on the rev	erse o ulation
and that	toe information fur	insien terem is (t			AUTHORIZED	INDIVIDUAL		-::	
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	the authority given	persons specified i	below, th	FOR RETURN e unit identif	ied in item 4	was inspected	in the man	ner prescr	ibed b
Pursuant to	strator of the Federal	Aviation Agency	and is	APPROV	ED [R	OTHER (Specify)	1 42		
Pursuant to			l ince	PECTION AUTHO	RIZATION				
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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.) Brake shoe assembly Serial Bo. 19. modified in accordance with Supplemental Type Certificate Ho. Sall350, installed on the left brake assembly in accordance with manufacturer's instructions. Above installation involves no weight change. NO OTHER WORK ACCOMPLISHED

Form Approved Budget Bureau No. 04-R060.1 MAJOR REPAIR AND ALTERATION OFFICE IDENTIFICATION SO GADO 5 (Airframe, Powerplant, Propeller, or Appliance) 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. MODEL MAKE NATIONALITY AND REGISTRATION MARK 1. AIRCRAFT SERIAL NO. 1161 390555 (Autosia Sie Craistiansted St. Craix, U.S. Virgin Islands NAME (As shown on registration certificate Antilles Ala Boats 2. OWNER 3. FOR FAA USE ONLY 5. TYPE 4. UNIT IDENTIFICATION SERIAL NO REPAIR ATION UNI X need (As described in item 1 above) ed AIRFRAME POWERPLANT PROPELLER APPLIANCE MANUFACTURER 6. CONFORMITY STATEMENT C. CERTIFICATE NO. B. KIND OF AGENCY A. AGENCY'S NAME AND ADDRESS William Joseph wesett, je. c/o Antilles Air Poats JY Strand St. Gristiansted, St. Croix, U.S. Virgin Islands U.S. CERTIFICATED MECHANIC 1496292 AEP FOREIGH CERTIFICATED MECHANIC CERTIFICATED REPAIR STATION 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. SIGNATURE OF AUTHORIZED INDIVIDUAL DATE 28 June 1966 1/11/2 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 Agency and is APPROVED REJECTED OTHER (Specify) FAA FLT, STANDARDS MANUFACTURER Verified by Operator \$45 CANADIAN DEPARTMENT OF TRANSPORT INSPECTOR OF AIRCRAFT REPAIR STATION

SIGNATURE OF ANTHORIZED

INDIVIDUAL

76615 28 June 1965 FAA Form 337 (1-65) OBSOLETE PREVIOUS EDITION

CERTIFICATE OR

DESIGNATION NO.

FAA DESIGNEE

DATE OF APPROVAL OR

REJECTION

0052-025-8000 (8320)

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.)

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U.S. COMPANIENT SOLUTION OFFICE . 1845 OF TALLTA

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FAA FLT. STANDARDS MANUFACTURER INSPECTION AUTHORIZATION OTHER (Specify)	
FAA DESIGNEE REPAIR STATION CF TRANSPORT INSPECTOR OF ARCRET	
DATE OF APPROVAL OR CERTIFICATE OR DESIGNATION NO. SIGNATURE OF AUTHORIZED INDIVIDUAL DESIGNATION NO. Wan. M. Hullen	•
10/26/65 1402309 W.m. 9052-025-	-8000 (8320

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.)

Hose skin (ref. A) was removed, straightened, and replaced as original.

The left side bulkhead at station 1 was manufactured and replaced the same as original

Skin on left side between bulkheads 1 and 3 was replaced as shown, (ref. B). Skin was same thickness and type as original. Two vertical skin splices were made at bulkheads 2 and 3 (ref. C). The skin splices were made in accordance with CAM 18, fig ψ -1 ψ (A).

Section of left forward chine from bulkhead 1 to just aft of bulkhead 3 was replaced as shown (ref. D). Standard Grumman chine strip was used in the repair. The chine strip splice just aft of bulkhead 3 was made in accordance with CAM 18, fig. 4-21.

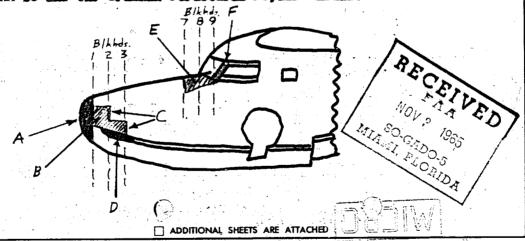
Complete skin just forward of the windshield between bulkheads 7 and 9 was replaced as shown (ref. E). Skin was same thickness and type as original and was replaced the same as original.

Both side windshield posts were replaced (ref. F). Standard Grumman keel stock was used, and the attachment was the same as original.

All aluminum replaced above was alodine treated and sinc chromate primed after fabrication and before installation as called for by Grumman specs.

All seems were made watertight as called for by Grusses specs.

All work was done in accordance with the applicable parts of CAM 18 and the Grussman Structural Repair Manual.



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	Airframe, Po		peller	, or Applian		OFFICE	DENTIFIC	ATION	
INSTRUCT	IONS: Print or type ons and disposition t	all entries. See I of this form.	FAR 43.	9, FAR 43 Appe		C 43.9-1 (or si	bsequent r	evision the	ereot)
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	June 1965		40000	Ollies	TO SERVICE	MAPT.	1962	292	
Pursuant to	the authority given	r persons specified al Aviation Agend	below	AL FOR RETURN the unit identi APPROV	fied in item 4		in the man	ner prescr	ibed by
	A FLT, STANDARDS SPECTOR	MANUFACTURER	X	INSPECTION AUTHO	TMENT	OTHER (Specify)	•		
- FA	A DESIGNEE	REPAIR STATION	1	OF TRANSPORT IN OF AIRCRAFT SIGNATURE OF	SPECTOR	D INDIVIDUAL	0/1	<u>· </u>	
REJECTION	PPROVAL OR June 1965	DESIGNATION I	_ :	SIGNATURE OF	Fur,	hack	Han	5-8000 .	

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.

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

The following member were ends to the hall of this aircraft !

- 1. I section of the chine from app. station 16 to app. station 24 using factory new parts. This week was done in accordance with specific instanctions of the Gamman secule mount pages 111 and 114 and figure 68. These instanctions must the standards of (AAR 18.
- 2. The nose skin was explaced with a factory new past in accordance with the German stanctural repair manual.
- 3. Timels of the upper front half pear replaced using .032 202473 and get This work also was accomplished in accommon with the faceum repair monust pages 111, 113, and 118 and fugure 63.

This secule work all meets the standards set forth in (A.R. 18, eaction 18,30.4 and was appropriated in accordance with F.A.R. 4).

Attached are two photocopies; I of station diagrams and I of hull skin plating diagram. Above areas are marked.



ADDITIONAL SHEETS ARE ATTACHED

A CONTRACTOR OF THE CONTRACTOR

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	5 June 1965		LPPROV	AL FOR RETURN	TO SERVICE	1001	<u>, , , , , , , , , , , , , , , , , , , </u>	<i>,</i> ,, .		
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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.)

Gumman G21A 199467 15 June 1965

Reference is made to previously approved 337 form on this circult deted Jan. 31, 1964.

Rack and following equipment served at station 7:

2 en. ARC 13B neceiver 2 en. 711 transmit

1 en. B13 (proventen

transmitter

Following equipment removed at station 9, the instrument panel:

1 ea. cross pointer indicator (888) 1 ea. Alf indicator (2330A)
1 ea. OBJ tipe 1659-010130 2 ea. AR control heads
1 ea. Alf control head

The following new equipment was installed on the instrument and, sta. 9:

1 ea. Narco VIII-3 transceiver 1 ea. Narco VOA-6 VCR indicator 1 ea. Narco Mark 12 temiscelves 1 ea. Narco VIII-3 temiscelves 1 ea. Narco NOA-6 VIR indicator These installations accomplished using afgrs. attachments, exceptles,

and containers.

The Harco T12MP-12 power supply for the Mark 12 was mounted on a hull bulkhead at station 8, rear side; using mages, rack and container.

The existing VHF antennos mere used—The previously installed Collins 37) VOR antenna was replaced with a new Narco VRP-19A at station 12.7 and existing mounts were used for the AVF sense and loop antennas.

There necessary connecting cables were fabricated using 20 ga. MIL \$50% wire properly assembled and secured. (incults properly fused and switches plainly identified.

All this equipment checked for proper operation. Magnetic commass soung with radios on and correction cand installed flectrical loading analysis neverls app. 25% improvement over previous radio installation. eich appealance effect noted in log and equipment list corrected. RECEIVED

FAA

JUN 231965

SO-GADO-5 MIAMI, FLORIDA

ADDITIONAL SHEETS ARE ATTACHED

	GPUINGAN AME (First, midde, last)		G=21A	1161		N-9546	o registration ha
. OWNER 1	Antilles Ai				Street	. Chris	Islands
CORDANCI	ONLY FOR UNIT REPEWITH CIVIL AERONAL	TICS MANUAL	R ALTERED, DE	SCRIBE WORK		 	HORK (Clini)
. AIRFRAME	************	PPPP (da describ	rd in item / above) (100000000000000000000000000000000000000	****	MAJOR REPAIR	MAJOR ALTERATIO
. POWERPLANT							
. PROPELLER .						1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
	TYPE AND MANUFACTURER Brake shoe and lining assy (6 WEIGHT AND BALANCE Libe repairs and or alterations	PATA This i	G=29	Aero Pa #6 & #7	or alteratio	n agency. H	X loweyer, in the
des	t ind repairs and or alterations ecribed below were made.	case of	i a spare compon	ent, it will not be At this time, it w	e completed.	until such co	mushent is in-
CATEGORY	EMPTY WEIGHT	(Pounds)*	EMPTY CE	FIER OF GRAVITY (Jack	s from édum)*	istn	UL LOAD (Preside)*
CONFORMI	TY STATEMENT (Complete	and check)			· · · · · · · · · · · · · · · · · · ·		· .
AGENCY'S NAME	AND ADDRESS		B. KIND OF AGE	RCY .		e. CERTIFICATI	E NO.
			TU.S.C	ertificated Machan	uic		
Anti 39 S Chri	Allen Lles Air Bosts trend Street stiansted, St. Virgin Islan	Groix ds	☐ Foreign ☐ Certifice ☐ Manufa	(Check if repair was made under di tion procedures.)	nanic, on alteration elegation op-	AAP 151	12000
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Anti 39 3 Chri U. S Chri U	Lies Air Boats trend Street stiansted, St. Virgin Islan at the repair and/or alter hereto have been made in ion furnished herein is tre (65) and/or alteration completed) FOR RETURN TO SERV the authority specified be Federal Aviation Agency ROVED BY FAA De Standare Inspecto 5 Approval or rejection)	ation made to the accordance will be and correct to low the unit ide and is signee Maght Replay	Poreign Certifice Manufa Manufa the unit(s) identition the requirement of the best of my splete appropriate firms sufficient in item 3 nufacturer sair Station (Sum	Certificated Meclated Repair Static cturer. (Check if repair was made under dition procedures.) fied under item 3 ints of Part 18 of knowledge. (Rignature of was inspected in Other (Specify) Trispectic asture of suthorised indum	anic. or alteration opelegation op- above and the U. S. Ci- muthorised independent of the manner of Tr	described on vil Air Regula vividual) prescribed by ansport Inspector 12 at 10 destitation number 19 at 10	the reverse of tions and that 2 00 0 or the Administrator of Aircraft (above)

PAA AII	RCRAFT	REGISTR	Υ /
CAMERA	NO. 9	DATE:	12/16/82



This form must be completed in duplicate each time a major repair and/or alteration is made of an aircraft, airframe, power-plant, propeller or appliance. After the repair and or alteration has been inspected and item 6 completed, the original copy of this form will be made available to the aircraft owner for retention as part of the aircraft records. The duplicate copy is retained by the FAA for administrative purposes.

See CAM 18 for detailed instructions concerning the information to be furnished with this form and instructions concerning its preparation.

8. DESCRIPTION OF WORK ACCOMPLISHED.

- 1. Brake shoe assembly Serial No. 6, modified assordance with Supplemental Type Certificate No. SALIBSO, installed on the left brake assembly in accordance with manufacturer's instructions.
- 2. Brake show assembly Serial No. 7, modified in accordance with Supplemental Type Certificate No. SAll380, installed on the right brake assembly in accordance with manufacturer's instructions.

Above installations involve no weight change. RO OTHER WORK ACCOMPLISHED.

"If additional space is needed attach additional sheets bearing sircraft nationality and registration mark and date work com-	II Decreu.	
II Buddingsi space is necret assets assets		
Check block if additional sheets are attached	Form FAA-337	(4

IRCRAFT	HYRE CERTIFICATION	" E	21A	Tio	398	4546/
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terr	MARE	==	0063.	SERIAL NO.	MAJOR F	TEPAIR MAIOR ALTERATIO
IRFRAME	(Feselage BE	D FOR LAC	Cincil City / (Lum I above) 69054	*********	- 3	
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ROPELLER						
PPLIANCE	TYPE AND MARUFACTURER					
AIRCRA	FT WEIGHT AND BALANCE DI TER the repairs and/or alterations described below were made.	This item case of a stalled in if applica	spare component, an aircraft. At i ble.	ted by repair or alter it will not be complibing time, it will be co	mpleted by	cy. However, in the such component is in the installing agency users to an (Preside)
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Mani	35, Fis.		☐ Certificates	l Repair Station.		
			Was	rer. neck if repair or alte made under delegation procedures.)	ration on op-	
the info	r, that the repair and/or alteratents hereto have been made in a mation furnished herein is true ary 28, 1964 repair and/or alteration completed)	ion made to the accordance with and correct to	e unit(s) identifie	d under item 3 above of Part 18 of the U.	PHP#10	196242
		CE (Check and comp	lete appropriate Brass)	to the r	nenner STE	eribed by the Admir
	VAL FOR RETURN TO SERVIC nt to the authority specified bek of the Federal Aviation Agency s	and is	itined in them o a			Tumber of Aires
trator o	APPROVED FAA Des	ht 🗀 Repa	air Station 😘	Other (Specify) US PECTION	AUTHOR	PITTALEORDI
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FAA AIRCRAFT REGISTRY CAMERA NO. 4 DATE: 2/16/82

INSTRUCTIONS

This form must be completed in duplicate each time a major repair and/or alteration is made of an aircraft, sinframe, power-plant, propeller or applicance. After the repair mellor all arvion has been inspected and item 6 completed, the original copy of this form will be made available to the aircraft owner for retailion as part of the aircraft records. The duplicate copy is retained by the FAA for administrative purposes.

See CAM 18 for detailed instructions concerning the information to be furnished with this form and instructions concerning its preparation.

8. DESCRIPTION OF WORK ACCOMPLISHED.*

- A) Replaced the following sections of skin on the top of the Austaga:
 - 1. Section 18 color coded black from station #16 to #26. Replaced with .032-2024-T3 anodized.
 - 2. Section 15 color coded brown from station #26-27. Replaced with .032-2024-T3 anodized.
 - Replaced with .040-2024-T3 anodized.
- B) Spliced in section of new .032-2024-T3 in skin #12 celor coded green and extending from station #20 to station #24 same rivet pursuit as Grumman skin splices made. Skin splice rade water tight to conform with mater tight area shown on hull skin plating diagram and sheet with this form. Also included are hull station diagram and sheet #22 of full plating diagram.
- C) his of the above work done in accordance with Grassan structural repair manual for 3-21% and CAN 18.30-4.

NOTHING FOLLOWS

"If additional space is needed attach additional shoots bearing sireralt nationality and registration mark and date work complete.

Check block if additional shoots are attached.

Study Covernment Printing Office: 1961 0 - 587369

Form FAA-887 (4-82)

•	Operator #33 REPAIR AND ALTERATION		AVIATION AGI		•	LIANCE)
	GENERAL AND ALTERATION REPAIR AND ALTERATION	MOO		1161	195467	D REGISTRATION MAR
. OWNER	name (First, middle, last) Southeast Airlin			P.O. Box 48-30 Mismi 48, Fis	•	
COMPLETE	E ONLY FOR UNIT REPAIRE E WITH CIVIL AERONAUTIC	ED AND/OR A	LTERED. DESCR	IBE WORK ACCOMPL	, _	
UNIT .	MAKE	1	mooti.	SERIAL PO.	MAJOR REPAIR	MAJOR ALTERATION
AIRFRAME	***************************************	 (As described to 	u item I above) POPP	*********		X
, POWERPLANT				The alteration identifie airworthiness requirements	and is reproved	
. PROPELLER	•		PECORDE	authorized in CAR 18.11		2 Pers
L APPLIANCE	TYPE AND MANUFACTURER			, rate	Inspector	2000
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attachment the inform	that the repair and/or alteratints hereto have been made in a nation furnished herein is true					n the reverse clations and the
	pair and/or alteration completed)	-		(Signature of authorise	i individual)	
6. APPROVA	AL FOR RETURN TO SERVIC to the authority specified belo the Federal Aviation Agency a	w the unit iden nd is	ntified in item 3 w			by the Admini
ØAF □RI	EJECTED BY GFAA Designment By GFAA Flig Standards Inspector	ht 🗌 Rep	nufacturer D air Station	Canadian Department of Other (Specify)	tion aut	M-576
	e of approval or rejection)		(Signat	ure of authorised individual; ti	tle or identification	(ler)
	OMPLETED ONLY BY FAA Proded for engineering comment ted 2 (17)		stached memorand	🔲 Spot Cl	38).FEB	28 19 64
so	GADO 5 (FAA designation number)	5	Cha	(Signature Flight Stand	ands Inspector SC	GADO

This form must be completed in duplicate each time a major repair and/or alteration is made of an aircraft, airframe, power-plant, propeller or appliance. After the repair and/or alteration has been inspected and itsm 6 completed, the original copy of this form will be made available to the aircraft owner for retention as part of the aircraft records. The duplicate copy is retained by the FAA for administrative purposes.

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Installed one 3 place divait and 4 single seats as shown on attached installed one 3 place divait and 4 single seats as shown on attached sketch and substantiated as follows; the 3 place divan is similar to the divan previously installed in Pouglas DO3 B16065 which was load the divan previously installed in Pouglas DO3 B16065 which was load tested and the test witnessed by FAA Inspector C. N. Carrier, except that it was reduced in length from 72" to 60" and in width from 24" to that it was reduced in length from 72" to 60" and in width from 24" to 20". Since this shortens the effective length of the tubing in each bay and thus increases its strength, this is considered satisfactory. The attachment of the divan and seats to the floor and the floor to the fuselage structure is shown to be satisfactory by comparison with the approved Load Test Report #R-230, copy attached.

Weight and Balance Computation to check for compliance with Aeronautics Bulletin 7A section 75.

Airplane empty Oil 15 gals. Fuel 120 gals.(min.) Pilot & Copilot	6427 112 720 340	21.69 8 30 68 -5	139401.63 896 21600 - 1700 23120
2 pass. in Row 2 seats	7030	68	183317.63

0G = 183317.63/7939 = 23.09" aft of datum. CG range is \$20.5 to 33.0 Gross weight is 8000#

Aircraft released to service with only 2 single passenger seats installed. Structure and divan satisfactory for installation of the additional seats pending re-weighing of aircraft and meeting weight requirements of CAR 4s.723 and 4s.621

and the standard attack additional thesis bearing shorest mationality and registration mark and date work completed.

Check block if additional sheets are attached.

U.S. CONSTRUCTOR PROGRAM OFFICE: 1800-O-538224

FORM FAA-837 (4-52)

PAA AII	RCRAI	FT R	EGISTR	7	,	
CAMERA	NO.	4	DATE:	2/	16	182

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	104		AVIATION					resti Na, 04-2000.
1. AIRCRAFT	PREPAREND ALTERATION GENERALIS	I BEOD		POWE	SERUL NO.	ROPELLE		'LIANUE)
2. OWNER	HAME (Prot, middle, lost) Southeast Airline	S - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 -			Box 48			48, Pla.
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	epair and/or alteration completed)		The state of	The second	(Signature of	authorized in	ilvidual)	
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<u> </u>	te of approval or rejection)		(S	ignature o	authorized ind	ividual: title o	r identification	number PD
7. TO BE (COMPLETED ONLY BY FAA PI		tached memo	randum Data)		38 Spot Check	FEB 21	(Date)
sc	GADO 5 (FAA designation number)	5	Cha	rles	(Bignsture FI	Ight Standards	Inspector (GADO 5

FAA AIRCRAFT REGISTRY 2/16/82

INSTRUCTIONS

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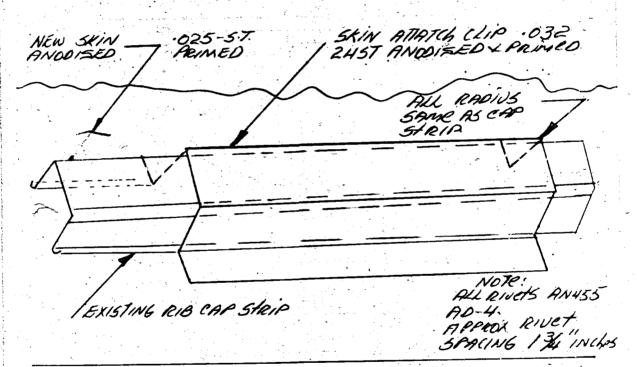
8. DESCRIPTION OF WORK ACCOMPLISHED.

Removed old fabric and installed .025, 24 ST, anodized, aluminum in place of fabric. Attachment to rear spar caps and flap and alleron beams with AN 455-4 rivets spaced approximately one inch apart. Zinc chromate tape applied as a seal between skin laps and spar laps. Attachment to ribs accomplished as per drawing below. Clips are fitted between diagonal rib compression members.

Lings primed and sprayed inside with lamble (il Company Rust can 326 for corrosion protection. Inspection covers are installed on lower wing skins, drain holes in each bay at trailing edge.

Tips covered same as wings. Il work done in accordance with CLIP 13 and AD weighed at Air international REP, sta. # 3692 (see weight and balance report included in aircraft meaning.)

This modification previously approved on airplane N703A and was coordinated with EDMO-43 at that time.



"Madditional space is needed attach additional sheets bearing abrust nationality and registration mark and date work completed.

Check block if additional sheets are attached.

OU.S. GOVERNMENT PROFITSO OFFICE: 1941 O -SETMO

Form FAA-887 (4-52)

PAA AII	RCRAF	T REG	ISTR	Y _	,	
PAA AII	NO.	4 1	ATE:	2/	16	182

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unit.	:	Refito end reck	enctellets	ector		5500E RO.	MAJOR REPAIR	WORK (Check) MADOR ALTERATION
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c. PROPELLER			authorized in	CAR Part 18, sec	non 18.	11(0).	J. J. U	Transfer
L APPLIANCE		TYPE AND MANUFACTURER	2-1-6 Date	y the	gnature	of FAA Inspector		
4. AIRCRAF	T WEIG	GHT AND BALANCE Di epoirs and/or alterations d below were made.		spare compor n'an aircraft.	ant if	d by repair or altera will not be comple s time, it will be con	ted until such o	lowever, in the emponent is in- stalling agency,
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		ADO 5	5	. — —	th	omas 1.	Shary	

Form FAA-337 (4-32)

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This form must be completed in duplicate each time a major repair antifor alteration is made of an aircraft, airframe, powerplant, propeller or appliance. After the repair and/or alteration has been inspected and item 6 completed, the original copy of this form will be made available to the aircraft owner for retention as part of the aircraft records. The duplicate copy is retained by the FAA for administrative purposes.

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A DESCRIPTION OF WORK ACCOMPLISHED.

- I. Manufactured and installed a three shalf radio rack immediately forward of thation 67 in the left hand side of box compartment. Used 5/44 SOM To elimina angle. The shelves are covered with 8034 23-050 sheet cluminum. The rack is coured to builthy d at Station #7 to ediscent etringers and to flooring with proper fasteners. Installed the following equipment on the shore rects
 - A. On the center shelf are located the following items:
 - 1. AR.C. Balsh receiver
 - A.R.C. Ball transitter
 - S. Lear AUF-18 conline
 - B. On the bottom shelf are located the following items:

 - 1. A.R.C.-B-LED receiver 8. L.R.C.-B-LE convertor
 - 18. C. Ver Ball transmitter
- II. The following entennes were installed on top of fuse lage;
 - A. Gollins V.O.R. type SP-J et Station 32.V.
 - B. Lear loop entenen centered at Station 18.
 - C. B V.H.F. transmitting thip extenses sounted at Station 12.7. They are laterally located 19° on each side of Collins 37-7 entenna.
- III. Installed on instrument penal at station #9 the following equipment:
 - L. Cross point indisator motel 60A
 - B. ANY indicator social 25504
 - C. (and bearing selector indicator type 1659-010136
 - V. ... type C49 WE #8 control head (AEC)
 VIII 41 control head type G69 (AEC)

 - Lear ADF-12 costrol bead
- IV. Wiring is of Mil. Spac (Mil. 5086). All radio systems properly fused in accordance with manufacturers specifications. Radio operation switches properly placerded in cockpit. Meetrical load computation performed and maximum continuous electrical load to me to be 19.7 camps. This circust equipped with two each 5 camps.

 Semenators. 19.7 camps. of total generator capacity. Radio Functionally One Ked.
- Expetic commens summy with restice on. See weight and believes report accomplished by Mr International Repair Station \$3692. The atturbed Hall Stations All somemakin above, as well as materials, used conforms with the regulations set furth in CARS. St. Bot ing follows.

"If additional space is needed attach additional sheets bearing aircraft nationality and registration mark and date work complaint. "If additional space is needed an attached. So U.S. GOVERNMENT PRINTING CIFFCE: 1961 0 - Se7MG

Form FAA-337 (4-52)

FAA AII	RCRAFT	REGISTRY	
CAMERA	NO. 4	REGISTRY DATE: 2/16/88	_

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See CAM 18 for detailed instructions concerning the information to be furnished with this form and instructions concerning its preparation.

A. DESCRIPTION OF WORK ACCOMPLISHED.

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2. Frames covered with Oracle A fabric. Pour coats of clear mitrate done brushed on, two coats of clear mitrate done scrayed on, eight coats of silver nitrate do e sprayed on, and remaining finish strayed on with white ensuel. Delence not affected. All work assists and naterials used conforms as to reconsensations as per CV 18.30-3.

or to install: Free

- 3. Installed and rigged on aircraft in accordance with manufacturers recommendations.
- 4. 51d covering recoved from left aileren S/N S95 311 and right aileren S/N S95 312 and structure inspected for condition. to come: Tred we Khea
- 5. Fraces covered with Grade A fabric. Pour coate of clear nitrate dope brushed on, the coats of clear nitrate dope strayed on, night coats of silver nitrate dope strayed on, and remaining finish breayed on with white comel. Falance not affected. All corporation and materials coad conforms is to recommendations as per CANTS.3 -3.

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FAA AII	RCRAFT	REGISTR	¥ _	·
CAMERA	NO. 4	DATE:	2/	16/82

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FAA AIRCRAFT REGISTRY 2/16/82

INSTRUCTIONS

This form must be completed in duplicate each time a major repair and/or alteration is made of an aircraft, airframe, power-plant, propeller or appliance. After the repair and/or alteration has been inspected and item 6 completed, the original copy of this form will be made available to the aircraft owner for retention as part of the aircraft records. The duplicate copy is retained by the FAA for administrative purposes.

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8. DESCRIPTION OF WORK ACCOMPLISHED.

1. Right wing box bean capstrip repaired. (Right lower inboard.)

Removed corroded section of spar cap between wing stations #97 and #109 and spliced in new piece of 24ST aluminum alloy extrusion Alcoa #K-13864 in accordance with handbook of Grussan structural repairs, page 36, titled Wing Box Beam Capstrip Repairs. See included sheets. All work above done in accordance with CAN 18.30-4 and table 4-4 CAN 18.

NOTHING POLLOWS.

*II additional space is needed attach additional shorts bearing aircraft nationality and registration mark and data work completed.

U.A. GOVERNMENT PRINTING OFFICE : 1941 O - SETSES

Form FAA-337 (F12)

	Verified by Operator #3:	FEDERAL	. AVIATION A	GENCY	•	. 1	Bracipal Bur	1652 No. 04-R030.
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This form must be completed in duplicate each time a major repair and/or alteration is made of an aircraft, airframe, power-plant, propeller or appliance. After the repair and/or alteration has been inspected and item 6 completed, the original capy of this form will be made available to the aircraft owner for retention as part of the aircraft records. The duplicate copy is retained by the FAA for administrative purposes.

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A DESCRIPTION OF WORK ACCOMPLISHED.

1. Left wing skin replacement. (Stress skin)

Re laced the following skin sections on the top of the left wing sections on the top of the left wing sections skin plating diagram included with this form.

1. Section 1 color codied yellow .051-24:T-13.

2. Section 2 color codied green .040-24:T-13.

Replaced the following skin sections (non-stressed skin).

1. Section 11 leading edge color coded black .032-34-T-T3.

2. Section 14 leading edge color coded brown .032-34-T-T3.

3. Section 15 leading edge color coded violet .033-34-T-T3.

2. All skip accdized and installed in accordance with Grumma structural repair manual for Grumman GRIA and Will. 30-4. See attached copy of wing skip glating diagram.

BOTHER POLICES.

*If additional space is needed attach additional s Check block if additional sheets are attached. * U.S. GOVERNMENT PROTUNG OFFICE: 1961 O - 1873

Form FAA-337 (4-52)

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8. DESCRIPTION OF WORK ACCOMPLISHED.

RIGHT WING SKIN REPLACEMENTS

- A. Replaced the following sections of skin on the leading edge of the right wing as per Gramman skin plating diagram included with this form.
 - 1. Section 17 leading edge color coded black .032=24 ST-T3. 2. Section 18 leading edge color coded blue .032=24ST-T3.
- B. All skin anodized and installed in accordance with Grusman structural repair manual for Grusman G21A and CAM 18.30-4. See attached copy of wing skin plating diagram.

POTEITE FOLLOWS

*If additional space is needed attach additional sheets bearing aircraft nationality and registration mark and data work completed.

Check block if additional sheets are attached.

Form FAA-337 (+53)

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PAA AIRCRAFT REGISTRY 2/16/82

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This form must be completed in duplicate each time a major repair and/or alteration is made of an aircraft, airframe, power-plant, propeller or appliance. After the repair and/or alteration has been inspected and item 6 completed, the original copy of this princip properties of appropriate of the aircraft owner for retention as part of the aircraft records. The duplicate copy is retained by the CAA for administrative purposes.

See CAM 18 for detailed instructions concerning the information to be furnished with this form and instructions concerning its preparation.

8. DESCRIPTION OF WORK ACCOMPLISHED.

Installed Motorola 9-31 FM radio in following manner;

HV 175 Control head mounted on overhead between Pilot and Co-Pilot's seats in a bracket fabricated from .054 ST adminus and secured with 4 # 6 machine screws, weshers and stop muts. Control head secured to rack with 4 # 6 machine screws, weshers

T-31 transceiver unit mounted in how compartment just foward of pilots and stop muts. compartment on left hand side of fuselage in a 'U' shaped reck secured to fusekage with 6 AN 3 bolts into plate nuts. Transceiver secured to 'U' shaped rack with

4 # 10 machine screen, weshere into plate muts.

Recks static tested according to CAR 3.386(d). By not exceeding Grumman's allowable weight limits for this compartment no further load check is necessary. Units located where it will receive sufficent cooling so as not to be a smoke or fire hezard and secured so that normal susying or vibrations will not cause the installed equipment to touch adjacent equipment or parts of the simplene. Equipment is resdelly seconsable and does not interfere with any controls or exits. All recks and structure protected against deteriostion and loss of strength according

to CAR 3.2)5.

FM spike entenns mounted on top of nose section just foward of windshield

FM spike entenns mounted on top of nose section just foward of windshield and secured in such a manner that it will not dislodge while under air loads. TH redio wired with factory provided wiring and routed in Grummen provided space for redio wiring. Primary wiring of FM unit is protected with 16 gage wire apage for redic wiring. Arismly wiring of we disting radio with Phode Island wiring and a 15 smp PSE circut breaker. Resired existing radio with Phode Island wiring of MIL-19-000 specifications and tied and AN 742 clamped in a commonly accepted

Relocated circut breakers into one (1) penal on rhight hand side of instrument manner to prevent chaffing.

penel. All circut breakers same as previous size.
Current drain of FM whit is 1.5 amps receive and 10 amps trensmitt. Since this unit is used intermittently no electrical lead analysis is necessary. Magnetic compans compensated according to GAR 3.758.

	Functional	tested accor	ding AND	to CALE 3	00K-UTATION ARM	MONENT
Aircraft Control b T-31 Tren Miscellen Spike ant	scoiver scous wiring	end cables	***	6287.5 2.0 22.0 3.0	25.46 • 12.5 • 60.5 • 47.0 • 33.0	160,331.25 - 25.0 - 1,331.0 - 141.0 - 16.5
				6315.0	4 25.15	£ 158,817.75

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Check block if additional sheets are att

USEFUL LOAD 1685 lbs.

Form ACA-337 (4-52)

115COMM-DC 32277

10-4 W.O. 6235-1

RCRAFT	REPAIR AND ALTERATION		21 A	1161	N	9546	
WNER	ine (Ford, middle, last) Sohn M., Mocom		Ga Bo	if Building uston, Tems			
OMPLETE	ONLY FOR UNIT REPAIR	ED AND OR ALT	ERED. DESCRI	BE WORK ACCOMPL	SHED O	TURE OF WORK	SE IN AC-
UNIT . T	махе		- 1	SERIAL NO.	MAJOR 1		OR ALTERATION
IRFRAME	***************************************	No (As described in it	I ghoor) 00000	**********			
OWERPLANT	Prett & Whitney	R-985 AB-1		12721	I		<u> </u>
ROPELLER					<u> </u>	-4	
PPLIANCE	TYPE AND MANUFACTURER			ng ng pagalang bas		. \ .	
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Tandar	,		+ 25.	_		1712	2,5
41	ITY STATEMENT (Complete a						
	E AND ADDRESS		S. KIND OF AGENCY			CERTIFICATE N	86
Precision	on Aeromotive Corpo al Airport 17, Texas	ration /	Foreign Ce Certificate Manufactu	eck if repair or altera made under delegation	tion A	lass l overpla ropelis	nte, re, è
Houston		1	tion	nenoodures)	1		
I certify t attachmen the inform	hat the repair and/or alteratis hereto have been made in action furnished herein is true 1 5, 1955 air and/or alteration completed)	e and correct to the	unit(s) identifies the requirements as beat of any kn	i under item 3 above of Part 18 of the U. Sovietge.	ed individu	Phelps	M. Lane 5997
I certify t attachmen the inform April (Date re) APPROVA Pursuant trator and	at sneet on a very material action furnished herein is true 1 52 1955 at and/or alteration completed) L. FOR RETURN TO SERVI to the authority specified belief	CE (Chek and complete on the unit identical consigners Management	unit(s) identifies the requirements are best of one know the appropriate name) ified in item 3 was nufacturer	i under item 3 above of Part 18 of the U. Sovietge. Canadian Department	nner pre	Phelps DA 46	M. Land 5997 the Admini
I certify t attachmen the inform Approva Approva Approva Pursuant trator and X AF (Date representation of the information	at no form have been made in action furnished herein is true 1 52 1955 at and/or alteration completed) IL FOR RETURN TO SERVITO to the authority specified belief. PROVED BY CAA I	CE (Check and complete ow the unit identity control of the control	unit(s) identifies the requirements are best of one know the appropriate name) ified in item 3 was nufacturer	i under item 3 above of Part 18 of the U. Sovietge. Canadian Department	nner pres	Phelps A6	M. Lene

FAA AIRCRAFT REGISTRY CAMERA NO. 4 DATE: 2/16/82

INSTRUCTIONS

This form must be completed in duplicate each time a major repair and/or alteration is made of an aircraft, airframe, power-plant, propeller or appliance. After the repair and/or alteration has been inspected and item 6 completed, the original copy of this form will be made available to the aircraft owner for retention as part of the aircraft records. The duplicate copy is retained by the CAA for administrative purposes.

See CAM 18 for detailed instructions concerning the information to be furnished with this form and instructions concerning its preparation.

8. DESCRIPTION OF WORK ACCOMPLISHED.

engine have been reworked this date in compliance with AD 54-22-2 and Revision AD-55-6. This rework has been accomplished by means of our C. A. A. approved machine method and in accordance with limits as called out in P & W Service Bulletin 1488, Revision A, Supplement 1. The average thread root diameter of this shaft was 2.6385" after rework.

مستنن

III additional space is needed attach additional shosts bearing sircraft nationality and registration mark and date work completed

,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	REPAIR AND ALTERATIO	N FORM (A	IRFRAME, PO	WERPLANT, PROP	ELLER OR API	PLIANCE)
AIRCRAFT	Grum man	MOE	FRIA	1/61	1195	
- l	AME (First, middle, last)		A	poness (Street and no more, cit.	s, zone and State)	
	form W. Mecca	. .	1	Bouston, Texas		
COMPLETE	ONLY FOR UNIT REPAIRE WITH CIVIL AERONAUTIC	A ROGINA DE	LTERED, DESK	CRIBE WORK ACCOM	PLISHED ON RE	VERSE IN AC-
twit :	MAKE		MCOUL	SERIAL NO.	HATURE O	F WORK (Clieck) MAJOR ALTERATION
AIRFRAME	***************************************	• (As described t	n item I above) ##1			
POWERPLANT	Pratt & Whitney	B-965 A	K-1,-14 B	P-226933	I	
PROPELLER	Majora y Selection de				M	
PPLIANCE	TYPE AND MANUFACTURER					
AIRCRAFT	WEIGHT AND BALANCE DA the repairs and/or alterations scribed below were made.		spare compone n an aircraft. A	pleted by repair or altent, it will not be comp t this time, it will be c	ompleted by the i	nstalling agency,
CATEGORY	EMPTY WEIGHT (P	end)*	EMPTY CENT	ER OF GRAVITY (Inches from de	ofum)* US	Drug LOAD (Pennals;
tandar	1 6287,5	-	+ 25,	46	/	712,5
	ITY STATEMENT (Complete and	check)	A. XBIO OF AGEN	~	e, CERTIFIC	ATE NO.
AGENCY'S NAME	ANT ADDRESS			rtificated Mechanic.		386
	n Aeromotive Corpora	etten.	,	Certificated Mechanic.	Class	1 4 21
Mmigina	l Airport		1 —	ted Repair Station.		plants,
	17, Texas	*	☐ Manufec			llers, à
			₩	Check if repair or alteras made under delegati		eorisa.
				ion procedures.)		
attachment the informs	nat the repair and/or alterations hereto have been made in a ation furnished herein is true in a 1066	CONTAINED WILL	n ine remunensci	Hand Indiana or which or	:	on the reverse of ulations and that Lps M. Lene
(Date repa	. 5, 1955 ir and/or alteration completed)			(Signature of autho	rised individual)	465997
Pursuant to trator and	FOR RETURN TO SERVICE the authority specified below is	E-(Check and comp or the unit iden	olde appropriate forms ntified in item 3	was inspected in the r	nanner prescribed	by the Adminis
☐ RE	PROVED BY \(\begin{array}{c} \text{CAA Dec} \\ \text{Dec} \text{CAA Av} \\ \text{Safety A} \end{array}	istion 🖪 Re		Canadian Department Other (Specify)	it of Transport In	spector of Aircraf
April (Date	5, 1955 of approval or rejection)	•	(810	helpo Haran	2 #386-C	ass 1 & 2
	MPLETED ONLY BY CAA PI	ERSONNEL				
- Torward	ed for engineering comment	☐ Sec s	ttached memora		Charlest	
Accepte	d <u>5-6-55</u>	Reinspected	(Da		Checked	(Date)
				1 217	ر ر	
(CA	Z - 9 A designation number)		Lon	(Signature Aviation	Charles on Safety Agent)	

FAA AIRCRAFT REGISTRY CAMERA NO. 4 DATE: 2/16/82

INSTRUCTIONS

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RECEIVED IN 19 ST SO FILTED AND A SOUTH A SERVICE OF SERVICES OF A SOUTH A SOU

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[&]quot;If additional space is needed attach additional sheets bearing aircraft maximality and registration mark and data work completed.

Check block if additional sheets are attached.

U. S. DEPARTMENT OF COMMERCE	Filles Approved. Budget States (40.41-1041.2.
APPLICATION FOR AIRWORTHING'S CERTIFIC	INSTRUCTIONS Please print or type. Submit this form to the
AND/OR ANNUAL INSPECTION OF AN AIRCRA	
1. TYPE OF APPLICATION (Check which)	
■ ORIGINAL ISSUANCE OF CERTIFICATE	RECERTIFICATION UNDER THE PROVISIONS OF CAR I
b. Er annual inspection for renewal of certificate	MULTIPLE CERTIFICATE UNDER THE PROVISIONS OF CAR I
c. AMENDMENT OR MODIFICATION OF CURRENT CERTIFICATE 1. [
2. AIRWORTHINESS CLASSIFICATION (Check appropriate firm(s))	
It is requested that the Certificate of Airworthiness be issued worthiness classification(s):	to permit operation of the aircraft in the following air-
E STANDARD (NORMAL UTILITY, ACROBATIC, TRANSPORT CATEGORIES	,
L UNITED (SEE CAR 9)	
& TRESTRICTED (SEE CAR 8)	
(Check the restricted special purpose operation (s) to be conducted)	
	PATROLLING
AERIAL ADVERTISING	FOREST AND WILDLIFE CONSERVATION
AERIAL SURVEYING	WEATHER CONTROL
GLIDER TOWING	OTHER
A. C EXPERIMENTAL	
(Check the type of experimental operation(s) to be conducted)	
RESEARCH AND DEVELOPMENT	☐ RACING
AMATEUR-BUILT	Поптания Поптания
☐ DEMONSTRATION [☐ OTNER
3. AIRCRAFT IDENTIFICATION (Complete all time)	
A AIRCRAFT MAKE b. AIRCRAFT MODEL	c. AIRCRAFT SERIAL NO.
Grummon G21 A	1161
	ENGINE MODEL
Prott & Whitney	R-985-AN
4. AIRCRAFT REGISTRATION INFORMATION (Complete all terms)	
. REGISTERED OWNER'S FULL NAME . b. I	PERMANENT MAILING ADDRESS a. AIRCRAFT NATIONALITY. AND REGISTRATION MARK
	906 Gulf By 195467
Usin W. Trecom	sustan & Toras = 1546/
r i grafija i kalandari kalandari 🖊	1037011
5. AIRCRAFT OWNER'S CERTIFICATION (Check and complete approp	
I hereby certify that I am the registered owner (or his as registered* with the Civil Aeronautics Administration as requi or 502 and when operated displays the following evidence of re	ired by the Regulations of the Administrator, Fart 501.
E CERTIFICATE OF REGISTRATION, FORM ACA-500 (PART A). DATE OF	
b. APPLICATION FOR REGISTRATION, FORM ACA-500 (PART B). FORM A	
	The same and a second s
W-XXX ON (DATE) C. DEALER'S REGISTRATION CERTIFICATE, FORM ACA-1707, DATED	
"In order to be eligible for registration an aircraft must be owned by a citizen of the United States, as defined by Bootton 1 (13) of the Civil Aeronautics Act of 1938, as amended.	
ATTACHMENTS (Check which)	100 4. 1. 1
F ACA-319 ☐ WEIGHT AND BALANCE REPORT	Mam Tuscher (fr
	(SIGNATURE OF REGISTERED OWNER OR AUTHORIZED AGAIT)
□ ACA-317 □ DATA, DRAWINGS, ETC. □ ACA-317 □ UNAPPROVED DEVIATION DATA 3 / 6	Bolss Agent
	min. \ (iiin)

16-60627-2

Form ACA-305 (11-51)

U. S.	DEPARTMEN	r of co	MMERCE
CIVIL	AERONAUTICS	ADMINIS	MOSTASTE

AIRCRAFT INSPECTION REPORT

(To be completed by a CAA repr	esentative or appr	oved repair station)	
The sircraft described in Item 3 on the reverse of this form	n has been inspecte	d and found to conform	to the following:
(Cleck and complete applicable terms) 1. AIRCRAFT AND ENGINE CERTIFICATION BASIS			•
a. E AIRCRAFT SPECIFICATION NO. 14. 60 54 THROUGH	H SHEET REVISION NO.		
b. PAIRCRAFT LISTING PAGE NO. 98		· · · · · · · · · · · · · · · · · · ·	
c. WARWORTHINESS DIRECTIVE SUMMARY 1954	THROUGH CARD NO	55-7	
d. CIVIL AIR REGULATION PART & (MODIFIED TYPE CENTIFICAT	- 11.11.00		
2. AIRCRAFT AND ENGINE OPERATING RECORDS			Carlo Director Carlo R
a. AIRCRAFT NEW-NO PREVIOUS OPERATION OR MAINTENANCE			
b. A COMPLIANCE WITH APPLICABLE AIRWORTHINESS DIRECTIVES	RECORDED	2 Conton	
e. PAIRCRAFT RECORDS INDICATE THE AIRFRANE HAS BEEN OPE	RATED A TOTAL OF 🍱	HOURS	
A. TENGINE RECORDS INDICATE THE FOLLOWING OPERATION:		1 pl	
SERIAL NO. 726 TOT	AL HOURS 110		
SERIAL NO. P226933 TOT	AL HOURS 2021	50	
SERIAL NOTOT	AL HOURS		
SERIAL NO. TOT	AL HOURS	 *	
3. PREVIOUS INSPECTION RECORD (INSPECTION REC	OBDED ON FORM	I ACA-319)	
LAST AIRWORTHINESS INSPECTION CONDUCTED	/ 55		
BY AIRCRAFT MANUFACTURER	DATE)	<u>></u>	· ·
BY APPROVED REPAIR STATION, CERTIFICATE NO	· · · · · · · · · · · · · · · · · · ·		₹
THEY MECHANIC, CERTIFICATE NO.	char un	AVE 5\$411	
b. FERIODIC AIRCRAFT INSPECTION REPORT, FORM ACA-119, WA		R 27	Z RE
4. AIRWORTHINESS DOCUMENTS ISSUED OR REVIEW	ED	4.5	~ ∺
		23	9 =
. OPERATION LIMITATIONS, FORM ACA-309, WAS ISSUED (COPY		_ <u>G</u>)	<u> </u>
b. CURRENT OPERATION LIMITATIONS.		,	± €
CURRENT APPROVED AIRPLANE FLIGHT MANUAL IS AVAILABL	1 111	£ .	占
d. E CURRENT WEIGHT AND BALANCE INFORMATION IS AVAILABLE			<u>ن</u>
a. THIS INSPECTION HAS BEEN RECORDED IN THE AIRCRAFT RE	57 La	1 201956	•
. 1. CERTIFICATE OF AIRWORTHINESS, FORM ACA-1962, ISSUED TO	/	101/30	
E. PREVIOUS FORM ACA-1362 WAS ISSUED TO EXPIRE	دورد الم	5	
W Kay K. Beskelman		<u> </u>	
5. CAA APPROVED REPAIR STATION CERTIFICATION	(DESIGNA)	WW 140.)	· · · · · · · · · · · · · · · · · · ·
The aircraft described on the reverse has been inspec		pority accorded certifica	led repair station
No by CAR 52 and was found to be:			
☐ AIRWORTHY			•
UNAIRWORTHY (REPAIR	STATION AUTHORIZED SICE	IATURE)	(DATE)
6. CAA REPRESENTATIVE CERTIFICATION			· · · · · · · · · · · · · · · · · · ·
I HAVE INSPECTED THE AIRCRAFT DESCRIBED ON THE REVERSE AN	D FOUND IT PAIR	FORTHY UNAIRWORTHY (Check appropriate Rem)	·
		(come white after one prime)	•
DESIGNEE'S SIGNATURE DESIGNATURE	NATION NO.	2/~ /	
wrote of Wedante To	26	2/50/33	
AVIATION SAFETY AGENT'S SIGNATURE CAA	DESIGNATION NO.	DATE	& ACCEPTED
	_e	41-10-77	REINSPECTED
Jarle Veckeleran	- 7	7 16 31	SPOT CHECKED
ATTACHMENT		A	

U. S. COVERNMENT PRINTING OFFICE 35 - 03622

Form ACA-805a (11-61

nd. Budget Bureau No. 41-2041 & Form Approv U. S. DEPARTMENT OF COMMERCE CIVIL AERONAUTICS ADMINISTRATION INSTRUCTIONS Please print or type. Submit this form to the Civil Aeronautics Administration Aviation Safety APPLICATION FOR AIRWORTHINESS CERTIFICATE AND/OR ANNUAL INSPECTION OF AN AIRCRAFT Field Representative. . & RECERTIFICATION UNDER THE PROVISIONS OF CAR & . ORIGINAL ISSUANCE OF CERTIFICATE . I MULTIPLE CERTIFICATE UNDER THE PROVISIONS OF CAR & L. DAUGUAL INSPECTION FOR RENEWAL OF CENTERCATE C AMENDMENT OR MODIFICATION OF CURRENT CERTIFICATE E [] 2. AIRWORTHINESS CLASSIFICATION (Check appropriate term(s))
It is requested that the Certificate of Airworthiness be issued to permit operation of the aircraft in the following airworthiness classification(s): . DISTANDARD (NORMAL UTILITY, ACROBATIC, TRANSPORT CATEGORIES) LUMITED (SEE CAR S) & RESTRICTED (SEE CAR 8) (Check the restricted special P une energianis) in ir d ☐ PATROLLING AGRICULTURAL AND PEST CONTROL FOREST AND WILDLIFE CONSERVATION AERIAL ADVERTISING THE WEATHER CONTROL AERIAL SURVEYING OTHER GLIDER TOWING A. T EXPERIMENTAL (Check the type of expert RACING RESEARCH AND DEVELOPMENT ☐ EXCESITION AMATEUR-BUILT OTHER DEMONSTRATION 3. AIRCRAFT IDENTIFICATION (Complete all firms) AIRCRAFT SERIAL NO. L AIRCRAFT MODEL AIRCRAFT MAKE CPU MAN Q EL R-985-ANI-1413 4. AIRCRAFT REGISTRATION INFORMATION (Complete all Est L PERMANENT MAILING ADDRESS AIRCRAFT NATIONALITY
AND REGISTRATION MARK . REGISTERED OWNER'S FULL NAME 2906 Gulf 131dg: Housday 21Texus John W. Meconi 5. AIRCRAFT OWNER'S CERTIFICATION (Cleck and complete appropria I hereby certify that I am the registered owner (or his agent) of the aircraft identified in Item 3 above which is registered with the Civil Aeronautics Administration as required by the Regulations of the Administrator, Part 501 or 502 and when operated displays the following evidence of registration: . EXERTIFICATE OF REGISTRATION, FORM ACA-500 (PART A). DATE OF ISSUE 164 14195-2 b. APPLICATION FOR REGISTRATION, FORM ACA-SEC (PART B). FORM ACA-SEC, PART A, FORWARDED TO CAA AIRCRAFT RECORDS BRANCH, W-300 ON c. DEALER'S REGISTRATION CERTIFICATE, FORM ACA-1207, DATED *In order to be eligible for registration an aircraft must be owned by a citizen of the United States, as defined by Section 1 (13) of the Civil Aeronautics Act of 1938, as amended. ATTACHMENTS (Check which) ACA-319 WEIGHT AND BALANCE REPORT T ACA-337 T SATA DRAWINGS ETC.

OFT ACA-805 (11-51)

UNAPPROVED DEVIATION BATA

☐ ACA-317

18-CIR17-2

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CIVIL AERON	ITMENT OF COMMERCE		
AIRCRAFT I	INSPECTION REPO	RT ped repair station)	
(To be completed by a CAA	shistentanes or appro-		the following:
The sircraft described in Item 3 on the reverse of this	form has been inspected	and found to comorm t	B the loss will.
(Chet sed complete applicable forms) 1. AIRCRAFT AND ENGINE CERTIFICATION BASIS			
1. AIRCRAFT AND ENGINE CERTIFICATION ROTHE	ROUGH SHEET REVISION NO.		
b. PAIRCRAFT LISTING PAGE NO. 98			
/Y 4 3	THROUGH CARD NO	7-5	
c. D-ATRIFORTHINESS DIRECTIVE SUMMARY (YEAR) 4. CIVIL AIR REGULATION PART 8 (MODIFIED TYPE CERTIFIED)	FICATE)		
4 1 CIVIL AIR RESERVATION			
2. AIRCRAFT AND ENGINE OPERATING RECORDS			
STATES OF SERVICES OPERATION OR MAINTEN	MANCE HISTORY		
		Ca312	
LA COMPLIANCE WITH APPLICABLE AIRWORTHENESS DIRECT	N OPERATED A TOTAL OF	C/ AS HOURS	
& PENGINE RECORDS INDICATE THE FOLLOWING OPERATE	J. /		
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SERIAL NO.	TOTAL HOURS		•
	ou coor	ACA-3191	
3. PREVIOUS INSPECTION RECORD (INSPECTION	RECORDED ON FORM	ACA-S(I)	•
LAST AIRWORTHINESS INSPECTION CONDUCTED	-/5-7 2/		- '
DY AIRCRAFT MANUFACTURER	(MATE)		
THE ADDRESS DEBAIR STATION CENTIFICATE N	na		
The second second to the second secon	502733		
BY MECHANIC CERTIFICATE INSPECTION REPORT, FORM ACA-	JID WAS RETURNED TO OWNE	R	B 27
			50 150
4. AIRWORTHINESS DOCUMENTS ISSUED OR RE	EVIEWED	₹	R Cr Fr
B. OPERATION LIMITATIONS, FORM ACA-NO, WAS ISSUED	(COPY ATTACHED)		E 6 8
TOTAL OF THE PROPERTY OF LIGHTATIONS. FORM ACA-308, 15	S AVAILABLE IN RINCHIN	કે ફે	No 199
ANDROY APPROVED AIRPLANE FLIGHT MANUAL IS A	AVICABLE IN VINCENT	Cy to	H ==
THE WEIGHT AND BALANCE INFORMATION IS AV	ALLABLE IN AIRCROPT		33 20 "
THE AIRCLE THE WAS REEN RECORDED IN THE AIRCLE	RAFT RECORDS		, ;
THE THE OF AIRMORTHINESS, FORM ACA-1362, IS	SUED TO EXPIRE	(DATE)	2
PREVIOUS/FORM ACA-1962 WAS ISSUED TO EXPIRE	3-10-14	-1 -6	
BY MU HI BE HE MILLER (MARKE OF ISSUING REPRESENTATIVE)	(DESIGN)	LTEON MO.	
5. CAA APPROVED REPAIR STATION CERTIFICA	ATION		• -
The aircraft described on the reverse has been	immediated under the au	thority accorded certific	cated repair station
The aircraft described on the reverse has been No by CAR 52 and was found	to he:		
1 2.00			- '
AIRWORTHY			(DATE)
UNAIRWORTHY	(HEPAIR STATION AUTHORIZED SI	GRATURE)	\
6. CAA REPRESENTATIVE CERTIFICATION		Tarana San San San San San San San San San	
I HAVE INSPECTED THE AIRCRAFT DESCRIBED ON THE RE	VERSE AND FOUND IT	(Check appropriate stem)	пнү
	DESIGNATION NO.	DATE	
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	CAA DESIGNATION NO.	DATE	ACCEPTED
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* 457	TED .L	T AND BALANCE E	case of	a spare o	omponent, i	t will not be completed time, it will be con	ted until sur	h component is in e installing agency
	described b	low were made.	stalled	in an aire	erait. At th	is time, it will be con	ipicion o ₂ ii	
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CATEGOR	iY						m)*	
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tond	out	<u>6</u> 28 7. 5	Pounds)*				m)*	
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This form must be completed in duplicate each time a major repair and/or alteration is made of an aircraft, airframe, power-plant, propeller or appliance. After the repair and/or alteration has been inspected and item 6 completed, the original copy of this form will be made available to the aircraft owner for retention as part of the aircraft records. The duplicate copy is retained by the CAA for administrative purposes.

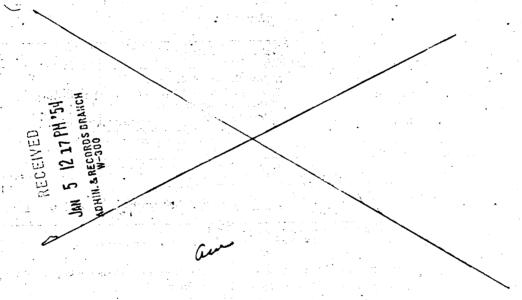
See CAM 18 for detailed instructions concerning the information to be furnished with this form and instructions concerning its preparation.

8, DESCRIPTION OF WORK ACCOMPLISHED.

I. Removed and recovered all fabric on Aircraft except Rudder.
Used Grade "A" fabric and nitrate dope
12 coats of clear.
6 coats of silver.
2 coats of enamel.

II. Replaced bottom rear attach angle of Main Spar on right wing.
Replaced with factory part and done work according to Manufacturer.

Put on new engine from Southwest Airmotive on right side. Checked Nount and all asseccory befor build up. Run in engine on ground.



"If additional space is needed attach additional sheets bearing aircraft nationality and registration mark and date work completed.

Check block if additional sheets are attached.

0. A. SOVERMENT PRINTING OFFICE 10-54010-

	esetter og en en en en en en en en en en en en en	CIVIL AERO	VRTMENT OF CO	TRATION	i	-	M No. 41-R0514
MAJOR	REPAIR AND ALTERATI	ON FORM (AIRFRAME, PO	WERPLANT, PROP	LLER	OR APPL	IANCE)
1. AIRCRAFT	GW A W	100	XXII.	SERIAL NO.	MATI	, n	REGISTRATION MAN
	MANUEL (FORE MANUEL MANUEL)		5 47 - 77	DRESS (Street and surnior, city,	2004 Grid S		76)
2. OWNER	John W. Mecom		H	itchcock, Tex	as		
a. COMPLETT	E ONLY FOR UNIT REPAIRE E WITH CIVIL AERONAUTIO	ED ANDOR	ALTERED. DESC	RIBE WORK ACCOMP	LISHED	ON REVI	ERSE IN AC-
UNIT	MAKE	es Miller	MCOEL	SERIAL NO.	}	RATURE OF W	ORK (Check)
. AIRFRAME	*************	o (As described i	in Item I above) ###	••••••	—	10, 7, 2	ELON ALIERATO
& POWERPLANT	Pratt & Whitney	R-985-	AN7-14B	12726	3	EN ED	
a PROPELLER				1 22,20	DEC	14 19:3	
Ł APPLIANCE	TYPE AND MARLEACTURER				FIRA	REG RAL SAFETY	一一
			18 <u>4 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3</u>	<u> </u>		BRANCH	
4. AIRCRAFT	WEIGHT AND BALANCE DA I the repairs and/or alterations acribed below wave made.	case of a	n an aircraft. At	eted he repair or siters , it will not be complet this time, it will be con	con Care ed notification pleted b	such com	pever, in the ponent is in- illing agency,
CATEGORY	EMPTY WEIGHT (Pos	zado)* -	EMPTY CENTER	OF GRAVITY (Inches from dates	•)*	USEFUL	LOAD (Pressda)*
5 Kandara			+2	5746		171	2,5
S. CONFORM	AND ADDRESS:	check)	6. KIRD OF AGENCY				
Southwes 8901 Ced Dallas 9	st Airmotive Comp lar Springs	any	U. S. Certin	ficated Mechanic, rtificated Mechanic, I Repair Station, rer.		#195	
			was tion	eck if repair or alterat made under delegation procedures.)	op-	\$#.	
	at the repair and/or alteration s hereto have been made in ac- tion furnished herein is true ar				nd descr Civil Air	ibed on the Regulation	he reverse or
11-5-53		•	\subseteq	Luis & B.		Ž.	- 8293
	r and/or alteration completed)		- 9	(Signature of authorised	individual		- <u>v-7</u>
E. APPROVAL Pursuant to trator and is	FOR RETURN TO SERVICE the authority specified below	(Check and comple the unit ident	tr appropriate items) diffed in item 3 was	s inspected in the man	ner p res c	ribed by	the Adminia-
□ APPI	ROVED BY GAA Designment By GAA Avia Safety Age	tion 🗌 Rep	air Station (Canadian Department of Other (Specify)	Transpo	rt Inspect	or of Aircraft
(Date of	approval or rejection)		(Signatur	e of anthorized individual; tith	or identifi	cation numbe	er)
	PLETED ONLY BY CAA PER		* : · · · · · · · · · · · · · · · · · ·				
▲ ☐ Forwarded	d for engineering comment (Date)	See atta Reinspected _	ached memorandu (Data)	m 🖂 Spot Che	cked	(De	ie)
	<u> </u>				**************************************	s + [*]	
	designation number)			(Signature Aviation Saf	sty Agent)		
16-64010-4						Enem	ACA-887 (4-8)

FAA AIRCRAFT REGISTRY
CAMERA NO. 4 DATE: 2/16/82

INSTRUCTIONS

This form must be completed in duplicate each time a major repair and/or alteration is made of an aircraft, airframe, powerplant, propeller or appliance. After the repair and/or alteration has been inspected and item 6 completed, the original copy of this form will be made available to the aircraft owner for retention as part of the aircraft records. The duplicate copy is retained by the CAA for administrative purposes.

See CAM 18 for detailed instructions concerning the information to be furnished with this form and instructions concerning its preparation.

8. DESCRIPTION OF WORK ACCOMPLISHED.

Engine majored. All steel parts magnafluxed. For parts replaced, see inspection forms. Magnetos, harness and carburetor overhauled per factory specifications. Engine test run 5.0 hours; prepared for storage.

Englise mount magnaflored and oll assercery overhaulal Build up Engine and installat, Run in an ground

HYE 502456

и .5 12 17 РН ш.алесопос са. W-290

and

"If additional space is needed attach additional sheets bearing aircraft nationality and registration muck and date work completed.

Check block if additional sheets are attached.

U. S. DEPARTMENT OF COMMERCE CIVIL AERONAUTICS ADMINISTRATION Please print or type. Submit this form to the APPLICATION FOR AIRWORTHINESS CERTIFICATE eronautics Administration Aviation Safety AND/OR ANNUAL INSPECTION OF AN AIRCRAFT Field Representative. 1. TYPE OF APPLICATION (Chet stick) . & RECERTIFICATION UNDER THE PROVISIONS OF CAR & . ORIGINAL ISSUANCE OF CERTIFICATE . MULTIPLE CERTIFICATE UNDER THE PROVISIONS OF CAR I 6. (2) ANNUAL INSPECTION FOR RENEWAL OF CERTIFICATE e. AMENDMENT OR MODIFICATION OF CURRENT CERTIFICATE... C. AIRWORTHINESS CLASSIFICATION (Chest expressed trans): It is requested that the Certificate of Airworthiness be issued to permit operation of the aircraft in the following airworthiness classification(s): & STANDARD (NORMAL UTILITY, ACROBATIC, TRANSPORT CATEGORIES) LUMITED (SEE CAR 9) . RESTRICTED (SEE CAR 8) (Check the restricted species AGRICULTURAL AND FEST CONTROL ☐ PATROLLING POREST AND WILDLIFE CONSERVATION AERIAL ADVERTISING WEATHER CONTROL AERIAL SURVEYING OTHER GLIDER TOWING & EXPERIMENTAL (Check the type of ☐ RACING RESEARCH AND DEVELOPMENT DENIEBITION AMATEUR-BUILT OTHER DEMONSTRATION 3. AIRCRAFT IDENTIFICATION (Complete all firms) & AIRCRAFT SERIAL NO. L AIRCRAFT MODEL A AIRCRAFT MAKE G-21-A Gruninau APR 22 1953 & ENGINE MODEL PW A-985-14B 4. AIRCRAFT REGISTRATION INFORMATION (Compiler all firms) L PERMANENT MAILING ADDRESS M. REGISTERED OWNER'S FULL NAME 2906 Guif KHG. Sohn W. Mecom Housdon 2, Texas 5. AIRCRAFT OWNER'S CERTIFICATION (Check and ormplets appropriate form) I hereby certify that I am the registered owner (or his agent) of the aircraft identified in Item 3 above which is registered with the Civil Aeronautics Administration as required by the Regulations of the Administrator, Part 501 or 502 and when operated displays the following evidence of registration: a. IX CERTIFICATE OF REGISTRATION, FORM ACA-500 (PART A), DATE OF ISSUE L. APPLICATION FOR REGISTRATION, FORM ACA-SEC (PART B). FORM ACA-SEC, PART A, FORWARDED TO CAN AIRCRAFT RECORDS BRANCH, W-300 ON . W-SU ON (DATE) C. DEALER'S REGISTRATION CERTIFICATE, FORM ACA-1707, DATED "In order to be eligible for registration owned by a citizen of the United States, as 1 (13) of the Civil Aeronautics Act of 1938, ATTACHMENTS (Clerk which) WEIGHT AND BALANCE REPORT X ACA-379 DATA DRAWINGS, ETC. ₩ ACA-337 UNAPPROVED DEVIATION DATA ☐ ACA-317 ACA-385 (11-61)

U. S. DEPARTMENT OF COMMERCE CIVIL AERONAUTICS ADMINISTRATION

AIRCRAFT INSPECTION REPORT

(To be completed by a CAA re	presentative or appro-	red repair states,	A) 6.81
The aircraft described in Item 3 on the reverse of this f	erm has been inspected	and found to conform to	a the following:
			•
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PAA AIRCRAFT REGISTRY CAMERA NO. 4 DATE:

INSTRUCTIONS

- This form must be filled out in duplicate each time a major repair and/or alteration is made of an aircraft, propeller, engine,
- When repairs and/or alterations are made which affect the operation limitations set forth in the Airplane Flight Manual or Form ACA-309, the aircraft shall not be returned to service until the operation limitations have been corrected by an authorized representative of the CAA.
- 3. Certificated mechanics must, in all cases, obtain approval of the repair and/or alteration from the CAA representative prior to returning the article to service.
- 4. The manufacturer of an aircraft, engine, propeller, or instrument, and a certificated repair station holding the appropriate rating may return the article to service without prior approval of an authorized CAA representative, provided the alteration and/or repair does not change any of the operation limitations.
 - 5. Repair agencies will be guided as follows when completing this form.
 - a. For an Aircraft Repair and/or Alteration—Complete Items 1, 2, 3a, 4, 5, 6, and 7.

 Mechanic—Submit to CAA representative for inspection and approval prior to returning the article to service. Upon approval, the CAA representative will return the original copy to the mechanic who should submit it to the aircraft owner.
 - Manufacturer or Approved Repair Station Submittentiginal to aircraft owner, forward copy to CAA district office or CAA agent prior to returning article to service.
 - agent prior to returning article to service.

 b. For a Component Installed in an Aircraft Complete Items 1, 2, 8 (b, c, or d, whichever is applicable), 4, 5, 6, and 7,
 - Por a Spare Component—Complete Items & (b. c, or d, whichever is applicable), 5, 6, and 7.
 - Mechanic—Submit to CAA representative for inspection and approval. When approved, retain both copies of the form with the component until installation on an aircraft. At this time Items 1, 2, and 4 must be completed by the installing agency who will distribute the forms as follows: (No further approval of CAA is required, only a log-book entry by the installing agency is necessary.) After installation, original form should be submitted to aircraft owner, and copy forwarded to the nearest CAA district office or CAA agent.

Manufacturer or Approved Repair Station-Handle same as for mechanics except that it is not necessary to submit to CAA representative for-inspection or approval.

This engine Was removed from packing case. Build up with Mount and Accessory . Installed on grange Grumman G21-A N95467 and run in. All pressure set and Carb. adjusted.

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INSTRUCTIONS

- 1. This form must be filled out in duplicate each time a major repair and/or alteration is made of an aircraft, propeller, engine,
- When repairs and/or alterations are made which affect the operation limitations set forth in the Airplane Flight Manual or When repairs and/or alterations are made which affect the operation limitations set forth in the Airplane Flight Manual or Form ACA-309, the aircraft shall not be returned to service until the operation limitations have been corrected by an authorized representative of the CAA.
- 3. Certificated mechanics must, in all cases, obtain approval of the repair and/or alteration from the CAA representative prior to
- The manufacturer of an aircraft, engine, propeller, or instrument, and a certificated repair station holding the appropriate rating may return the article to service without prior approval of an authorized CAA representative, provided the alteration and/or repair does not change any of the operation limitations.
- Repair agencies will be guided as follows when completing this form.
 - a. For an Aircraft Repair and/or Alteration. Complete Items 1, 2, 8a, 4, 5, 6, and 7. Mechanic—Submit to CAA representative for inspection and approval prior to returning the article to service. Upon approval, the CAA representative will return the original copy to the mechanic who should submit it to the aircraft
 - Manufacturer or Approved Repair Station-Submit original to aircraft owner, forward copy to CAA district office or CAA igent prior to returning article to service.
 - 5. For a Component Installed in an Aircraft—Complete Items 1, 2, 8 (b, c, or d, whichever is applicable), 4, 5, 6, and 7. Distribute copies as in a above.
 - For a Spare Component—Complete Items 3 (5, c, or d, whichever is applicable), 5, 6, and 7. Mechanic-Submit to CAA representative for inspection and approval. When approved, retain both copies of the form when approved, retain both copies of the form with the component until installation on an aircraft. At this time Items 1, 2, and 4 must be completed by the installing with the component until installation on an aircraft. At this time Items 1, 2, and 4 must be completed by the installing with the component until installation on an aircraft. At this time Items 1, 2, and 4 must be completed by the installing with the component until installation on an aircraft. At this time Items 1, 2, and 4 must be completed by the installing with the component until installation on an aircraft. At this time Items 1, 2, and 4 must be completed by the installing with the component until installation on an aircraft. At this time Items 1, 2, and 4 must be completed by the installing with the component until installation on an aircraft. At this time Items 1, 2, and 4 must be completed by the installing with the component until installation on an aircraft. At this time Items 1, 2, and 4 must be completed by the installation of the ins installing agency is necessary.) After installation, original form should be submitted to aircraft owner, and copy forwarded to the nearest CAA district office or CAA agent.

Manufacturer or Approved Repair Station—Handle same as for mechanics except that it is not necessary to submit to CAA representative for inspection or approval.

> ADHIN. & RECORDS BRANCH W-3CO MAY 18 3 16 PH *53

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INSTRUCTIONS

- 1. This form must be filled out in duplicate each time a major repair and/or alteration is made of an aircraft, propeller, engine,
- When repairs and/or alterations are made which affect the operation Emitations set forth in the Airplane Flight Manual or Form ACA-309, the aircraft shall not be returned to service until the operation limitations have been corrected by an authorized representative of the CAA.
- 3. Certificated mechanics must, in all cases, obtain approval of the repair and/or alteration from the CAA representative prior to returning the article to service,
- 4. The manufacturer of an aircraft, engine, propeller, or instrument, and a certificated repair station holding the appropriate rating may return the article to service without prior approval of an authorized CAA representative, provided the alteration and/or repair does not change any of the operation limitation
- 5. Repair agencies will be guided as follows when completing this form.
 - -Complete Items 1, 2, 3a, 4, 5, 6, and 7. o. For an Aircraft Repair and/or Alteration-
 - Mechanic Submit to CAA representative for inspection and approval prior to returning the article to service. Upon approval, the CAA representative will return the original copy to the mechanic who should submit it to the aircraft
 - Manufacturer or Approved Repair Station-Submit original to aircraft owner, forward copy to CAA district office or CAA agent prior to returning article to service.
 - For a Component Installed in an Aircraft—Complete Items 1, 2, 8 (b, c, or d, whichever is applicable), 4, 5, 6, and 7. Distribute copies as in a above.
 - For a Spare Component—Complete Items 3 (b, c, or d, whichever is applicable), 5, 6, and 7.
 - Mechanic—Submit to CAA representative for inspection and approval. When approved, retain both copies of the form with the component until installation on an aircraft. At this time Items 1, 2, and 4 must be completed by the installing agency who will distribute the forms as follows: (No further approval of CAA is required, only a log-book entry by the installing agency is necessary.) After installation, original form should be submitted to aircraft owner, and copy forwarded to the nearest CAA district office or CAA agent.

Manufacturer or Approved Repair Station-Handle same as for mechanics except that it is not necessary to submit to CAA representative for inspection or approval.

ADMIN. & RECORDS BRANCH W-300

Form ACA-805	TMENT OF COMMERCE	Bu Bu	Bureau No. 41-R041.4
APPLICATION FOR AIRWORT	THINESS CERTIFICATION OF AN AIRCRAFT	Please submit this ministration Avia	NSTRUCTIONS form to the Civil Aeronautics Ad- tion Safety Field Representative
1. APPLICATION (CHECK WHETHER)	2. AIRWORTHINESS	CLASSIFICATION	
ORIGINAL AIRWORTHINESS CERTIFICATE		RESTRICTED	F3
ET ANNUAL INSPECTION	EXPERIMENTAL.	UNITED OTH	ER
E ANNORE INSTITUTE	AFRCRAFT		5. RATIONALITY AND REGISTRATION MARK
3. MAKE /			1 9-46
Trum mals			6. MANUFACTURER'S SERIAL NO.
4. MODEL GZ/A	<u> </u>		1161
0 01 11	ENGINE		
7. MARE 1/2 Whi	they B. N	R 985	AN
7 7 7	10. (GIVE ADDRESS ONLY IF I	T HAS BEEN CHANGED FROM THAT
3. OWNER'S NAME John W. Me	cans &	906 Gult	B6/9
		Houston 2,	-Jelras
11. ATTACHMENTS (CHECK WHICH)	12. I CERTIFY \$	hat the above statemer	its are true.
ACA-319 WEIGHT AND BALANCE	REPORT	(1.7)	the dange
		(0)	THER OR AUTHORIZED AGENT)
	. 1 2/11/	50 /101	- T
ACA-317 UNAPPROVED DEVIATI	ON DATA		(TITLE)
FORM ACA-2642	AIRCRAFT INSPECT	(representatives)	the following:
13. It has been determined that the s	ircraft described in 305 abov	6 18 10 COBIOLITIES Aven	
(CHECK AND COMPLETE APPLICABLE AND ARCRAFT SPECIFICATION NO.	5-4 THROUGH SHEET RI	EVISION NO. 3	
b. AIRCRAFT LISTING PAGE NO.			
E. AIRWORTHINESS DIRECTIVE SUMMAR	Y 1951 THROUGH	CARD NO. 52-4	
d. OPERATIONS LIMITATIONS FORM ACA	(YEAR)		
e. POPERATIONS LIMITATIONS FORM ACA	- 109 IS AVAILABLE IN AIRCRAFT.		İ
f. CURRENT, APPROVED, AIRPLANE FLIC	CHT MANUAL IS AVAILABLE IN AIRC	RAFT.	
F. ALL APPLICABLE NOTES, INSTRUMEN	T MADEINGS AND PLACARDS HAVE	BEEN COMPLIED WITH.	•
E. ALL APPLICABLE NOTES, INSTRUMEN	OM ACA INCI WAS ISSUED.		6.8
h. CERTIFICATE OF AIRWORTHINESS FO	THE COURT OF THE PERSON NAMED IN		
	FINDING		· · · · · · · · · · · · · · · · · · ·
14. 15. DESIGNEE'S	SIGNATURE	16. DESIGNATION	NO. 17. DATE
AIRWORTHY		19. ACCEPTED	20. DATE
UNAIRWORTHY IBLAVIATION	APPTY AGENT'S SIGNATURE	REINSPECTED	3-11-52_
part.	Gedelleran.	HAVE HEED THE BEVEREE TO CO	INTINUE THIS OR OTHER ITEM) YES NO
21. REASON FOR DISAPPROVAL.	OR REMARKS (ROEATE & YOU	MAN USEN THE BEARING TO SE	
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PAA AIRCRAFT BEGISTRY CAMERA NO. 4 DATE: 2/16/82

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Form ACA-63 (11-68)		DEPARTMENT OF COMME CIVIL AERONAUTICS ADMINIST	RATION	Form Approved. Burden Bureau No. 41-Prol. 2.
	REPAIR AND ALTERATION	FORM (AIRCRAFT, PROPI	LLERS, ENGINES, I	NSTRUMENTS)
	(SEE REVE	RSE SIDE OF THIS FORM F	OR INSTRUCTIONS)	
1. AIRCRAFT	MAKE	MODEL	SERIAL NO.	HATROMALITY AND REGISTRATION MARK
1. AIRCHAFT	GRUMMAN	G-21-A	1161	N-95467
2. OWNER	NAME (Pirat, mitale, last)		CULF BULL	
				,,
3. FILL IN I	NFORMATION IN THIS ITEM	ONLY FOR THE UNIT REPAIR		NATURE OF WORK (Chrt)
UNIT	MAKE	MODEL	SERIAL NO.	MAJOR REPAIR MAJOR ALTERATION
a AIRCRAFT	T	(.is described in item 1 above) 14444	***************************************	XXX
A PROPELLER BLADE OR HUB				
c ENGINE				DECEMBE
	TYPE AND MANUFACTURER		1	1/ MLLL 1052 F-
a INSTRUMENT			-	MAR 14 1952
4. AIRCRAFT	Thi	s itc.; must be completed by repa	ir or alteration agency.	Housever, in the case
MITTER AND	of a Bird D BALANCE DATA	rnft. At this time, it will be con	pleted by the installing	ragoncy, if applicable.
MEIGHT NAT	EMPTY WEIGHT	T (Pounds)* EMPTY CENTER OF G	PAVITY (Inches from datum)	USEFUL LOAD (I vunde)*
	pairs and/or alterations below were made.	7.5 + 25	- 46	1712.5
5, KIND OF		AIRS AND OR ALTERATIONS	heck)	DERTIFIED MECHANIC
☐ MAI	NUFACTURER APPROVE	D REPAIR STATION NO.	(Specify)	DATE WORK ACCOMPLISHED
6. AGENCY	NAME		REDGE DR	
7 DESCRIP		MUST BE ACCOMPLISHED IN ACCO	RDANCE WITH PART 18	OF THE CIVIL AIR REGULATIONS
· .	AND ITS ASS	OUR ACC PIBERRET		
17.50	MBUR OF COATS OF	F DOPS:		الر
(ھ)	10 CHATS OF CLUTH	R		July 1
(6)	6 COATS OF SILVET	71 G 🐱		
IT Punch	MALLA THE PURC. A.	NGLE OF MAIN SPAR	ON BIGHT WI	NG. ANUFACTURER
		IGLE OF MAIN SPAR OF		
		itech separate sheets bearing aircraft r		
FORWARD ENGINEER	ED FOR RING			
I CERTIFY t	that the above statements are tr	rue and correct to the best of my	Ade	3/10/52
محمد ا	(Signature of supervising mechanic)		minister and rating)	(Daté)
	.∕ro	BE COMPLETED BY CAA RE		L DATE:
APPRO	DESIGNEE'S SIGNATURE		NO.	DATE
REJEC	TED CAN MENT SIGNATURE	Pecholina	☐ ACCEPTED	
				1654010-3

FAA AIRCRAFT REGISTRY
CAMERA NO. 4 DATE: 2/16/82

INSTRUCTIONS

- 1. This form must be filled out in duplicate each time a might repair and/or alteration is made of an aircraft, propeller, engine, or instrument.
- When repairs and/or alterations are made which affect the operation limitations set forth in the Airplane Flight Manual or Form ACA-309, the aircraft shall not be returned to service until the operation limitations have been corrected by an authorized representative of the CAA.
- 3. Certificated mechanics must, in all cases, obtain approval of the repair and/or alteration from the CAA representative prior to returning the article to service.
- 4. The manufacturer of an aircraft, engine, propeller, or instrument, and a certificated repair station holding the appropriate rating may return the article to service without prior approval of an authorized CAA representative, provided the alteration and/or repair does not change any of the operation limitations.
- 5. Repair agencies will be guided as follows when completing this form.
 - a. For an Aircraft Repair and/or Alteration—Complete Items 1, 2, 3a, 4, 5, 6, and 7.
 - Mechanic-Submit to CAA representative for inspection and approval prior to returning the article to service. Upon approval, the CAA representative will return the original copy to the mechanic who should submit it to the aircraft
 - Manufacturer or Approved Repair Station-Submit original to aircraft owner, forward copy to CAA district office or CAA agent prior to returning article to service.
 - For a Component Installed in an Aircraft—Complete Items 1, 2, 8 (b, c, or d, whichever is applicable), 4, 5, 6, and 7. Distribute copies as in a above
 - For a Spare Component-Complete Items 8 (b, c, or d, whichever is applicable), 5, 6, and 7.
 - Mechanic-Submit to CAA representative for inspection and approval. When approved, retain both copies of the form with the component until installation on an aircraft. At this time Items 1, 2, and 4 must be completed by the installing agency who will distribute the forms as follows: (No further approval of CAA is required, ct.); a log-book entry by the installing agency is necessary.) After installation, original form should be submitted to aircraft owner, and copy forwarded to the nearest CAA district office or CAA agent.

Manufacturer or Approved Repair Station-Handle same as for mechanics except that it is not necessary to submit to CAA representative for inspection or approval.

N95467

N95467 Angle turned upside down to show splice Ande with Corrosia, - Angle at Center Line of Splice .083" of, 4130 Steel dutrial type botween the Star / & Alem 064 of 24 St Flores Top Skin of Wing No. 6 - All ST Rivits. No.4-AITST Rivits

Attached to 337 of March 10,1952

FAA AIRCRAFT REGISTRY CAMERA NO. 4 DATE: 2/16/82

HOROSE BLOOKERS BOWN

FAA ATRCRAFT REGISTRY 2/16/82 # 95467 Mothor of Attaching - rie to Crumman Goose EDIA. 4' Pinked Tape 12 Pinked tape Chating Strip. -Grade A Fabric - Flange of Wing - Hold down Strip. 4 pinked tope is doped to the Flaing and three costs of dope applied. Fabrio is doped to 4" tape 12" Chating strip is doped to Fabric. Hold down strip is foster down, It Ohating strip is doped over Hold down strip
Fabric is doped down to the chating strip and to its 1/ 4" Pinked tope is doped to tabric that is lapsed over and Fabric on top of wing.

Attached to 3370 f /Narch 10,1952

FAA AIRCRAFT REGISTRY CAMERA NO. 4 DATE: 2/16/82 HOLLOS STEELER STEEL Me 20 I de l'agr

Porm ACA-905	DEPART	MENT OF COM	MERCE ISTRATION	• A Bedg	Form Approved et Bureau No. 41-R041.4	<u> </u>
APPLICATION F AND/OR ANNU	OR AIBWORTHI	NESS CERTI OF AN AIR	PICATE CRAPT	Please submit this	NSTRUCTIONS form to the Civil Aeron ution Safety Field Repr	
1. APPLICATION (CH	ECK WHETHER)	2. AIRWORTH				
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ANNUAL INSPECTIO	awia.	EXPERIMEN		MITED UT	œx	
		Alte	CRAFT		5. RATIONALITY AND REGISTRA	THOM MARK
3. MAKE		-			1793467	
4. MODEL			,		6. MANUFACTURER & F	ERIAL NO.
6-214					7197	
	in a	EN	GINE			
7. MAKE		· · · · · ·	8. MODE		tn.	
PUT		-	10 (000	ADDRESS ON Y IF I	HAS BEEN CHANGED	ROM THAT
9. OWNER'S NAME			GIVEN	I ON YOUR CERTIF	TCATE OF REGISTRATI	ON, PORE
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CORNERS CEL		e ampe		ario, Califor	ents.	
		5				
					· · · · · · · · · · · · · · · · · · ·	
11. ATTACHMENTS (CHECK WHICH)	12. I CE	RTIFY that t	he above statement	is are true.	•
☐ ACA-319 ☐ WE	IGHT AND BALANCE REPOR	स		•		
·	TA. DRAWINGS, ETC.		- .	(Own	KER OR AUTHORIZED AGENT)
		-		7		
- 🔲 ACA-317 💮 UN	IAPPROVED DEVIATION DAT	TA	(DATE)	-	(TITLE)	
a. AIRCRAFT SPECIFIC b. AIRCRAFT LISTING c. AIRWORTHINESS D d. OPERATIONS LIMIT c. OPERATIONS LIMIT	PAGE NO.	THROUGH SI (YEAR) UED. LVAILABLE IN AIRCRA	ROUGH CARO I	٠.	<u>.</u>	
	OTES, INSTRUMENT MARK			OMPLIED WITH.		
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<i>y</i> −					G. 7.	<u>।</u> इ. दुक्र र
			DINGS	6. DESIGNATION NO). 17. DATE	
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UNAIRWORTH!	18. AVECTOR	ACENT S SIGNAT	URE * 1	9. ACCEPTED	20. DATE	
E DINAIRWORTEL				REINSPECTED	12/29/51	
Form AGA 3100 following res	, mation of Gr spons	nimethy (in en i		PRICE THIS OR OTHER ITEM)	•
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FAA AIRCRAFT REGISTRY CAMERA NO. 4 DATE: 2/16/82

SERTITION SECTION

JAN 8 3 05 511.25

Form ACA-805	ARTMENT OF COM			APPROVED :
APPLICATION FOR AIRWO AND/OR ANNUAL INSPEC	TION OF AN AIRCI	RAPT	Please submit this for	ECTIONS in to the Civil Aeronautics Field Representative
PPLICATION (Circl white) ORIGINAL AIRWORTHINESS CERTIFICATE ANNUAL INSPECTION		ESTRICTED	OTHER	
ARRUAL INSPECTION	AIRC	RAFT		
GTURMAN EGISTRATION NO. MANUF	ACTURER'S SERIAL NO.	G-21A	to the Ballian Library	CERTIFICATE NO.
195467(Standard) L	161		-	
	BNC	MODEL		
Pratt & Whitney		R-	-985-AN-1	
W.A.Crocket		4208	DDRESS (Street and as under Wilson Ave. o, California	
TARCHMENTS COLOR MARCA ACA-319 WEIGHT AND BALANCE RI ACA-317 DATA, DRAWINGS, ETC. ACA-317 UNAPPROVED DEVIATION			Ther fore	Cliberth States agent.
Form ACA-305a (To be completed It has been determined that the air	AIRCRAFT INSP	a designated t	napector of represer	
ALL APPLICABLE MANDATORY NO COMPLIED WITH YES NO AIRCRAFT SPECIFICATION-AIRWO	DRTHINESS DIRECTIVE			-8 pc(19)
Check schelhers OPERATION LIMITATIONS FORM ACA-309	WAS ISSUED, OR PTOVIO			
APPROVED AIRPLANE FLIGHT MANUAL IS				
		OINGS		DATE
AIRWORTHY DESIGNEE'S SIGN	ATURE AND NO.	#635	56	3-22-51
UNAIRWORTHY CA VISICTOR'S	SIGNATURE -	+	ACCEPTED	BATE 3 5 /
Mone	11 d X lan	·	REINSPECTED	3-27-51
REASON FOR DISAPPROVAL, OR F	EMARKS (Indicate if you have	and the reserve to cont	taue this or other fem.)	Yu 🏝 X•
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FAA AIRCRAFT REGISTRY CAMERA NO. 4 DATE: 2/16/82

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DEPARTMENT OF CLHNER IN CONTRACTOR

11-8)	PAIR AND A	LTERATION	CIVIL AER	TMENT OF COMME ONAUTICS ADMINIST JRCRAFT, PROPE	RCE RATION LLLERS, ENGINES,	Budget	TS)
,		CET DEEPE	SE SIDE O	F THIS FORM P	OR INSTRUCTIONS)	
	ARE	OS REVER		ODEL	SERIAL NO.	RATIONALITY	AND REGISTRATION MARK
1. AIRCRAFT	ARE OF DEED	n		A13-D	1161	R-9546	7 (Standard
	AME (First, middle,			DDRESS (Street end sta	mber, city, rope, and State)		
N	MINIST (1925, 2004).	·	"	-]
2. OWNER		eket		4208 Wilso	I WAS		
1	n. A. UPO	CEBU	• 1	Fresno, Cal	II.	80 (1) <u>1</u>	· · · · · · · · · · · · · · · · · · ·
	OBMATION IN	THIS ITEM	ONLY FOR	THE UNIT REPAIR	ED AND OR ALTERED	5	
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UNIT	MAK	Œ		MODEL	SERIAL NO.	MAJOR REPAIR	MAJOR ALTERATION
والمستحد يتصروب		1		•			
AINCRAFT	*******	••••••	(As described	in item I share) POPPO			<u> </u>
			22030	-2m	165584 3		
L PROPELLER BLADE OR	Ramilton	Stad.	6533A		Th017h/5	X	
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NSTRUMENT			A 14 14				.
WEIGHT AND B			raft. At this	s time, it will be con	air or alteration agency mpleted until such com- pleted by the installin RAVITY (fackes from datum).	ng agency, if a	
			-				
MANU	GENCY WHICH		ADDR	ESS (Street and number, o	(Specify)		ORK ACCOMPLISHED
6. AGENCY	West Coast	Propelle	r 1901	th Hollywood,	California		12, 1950
7. DESCRIPT	ION OF WORK	(ALL WORK I	MUST BE ACC	COMPLISHED IN ACCOUNT AERONAUTICS MAN	PROANCE WITH PART II	B OF THE CIVIL	AIR REGULATIONS
	Propeller	digagagan dagagan	led, cle	med, inspecto	ed. Blades refu load. Setting	nished, an High 86	odised.
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FORWARDED ENGINEERING APPROVAL	G		State Spit				
I CERTIFY the	t the above sta	tements are tr		ct to the best of my			
0-	On 2 2	Me	\pm	1150017 Limit		Sept	12, 1950
1	renature of supervis	sing mechanic)	7 -	(Certificate i	number and rating)		(Date)
[<i>v</i>	TO	BE COMPL	ETED BY CAA RE	PRESENTATIVES		
F	DESIGNE	S BOOKTURE	-(7	71 19144	NO.	DATE	
APPROVI	- L	1			6344	Sept	14, 1950
□ BE IEATT	CAA AGE	IT SIGNATURE		1111	ACCEPTE		+15-1150
☐ REJECTE	/	kerned	21/1	attelinas	ALC REINSPE	CTED	12/8/10
<u> </u>						/ .	16-54010-2

INSTRUCTIONS

1. This form must be filled out in duplicate each time a major repair and/or alteration is made of an aircraft, propeller, engine, or instrument.

Civil Acc.

When repairs and/or alterations are made which affect the operation limitations are forth in the Airplane Flight Manual or

Form ACA-309, the aircraft shall not be returned to service until the operation limitations have been corrected by an authorized representative of the CAA.

ized representative of the CAA.

3. Certificated mechanics must, in all cases, obtain approval of the repair and/or alteralightfrom the CAA representative prior to returning the article to service.

4. The manufacturer of an aircraft, engine, propeller, or instrument, and a certificated repair station holding the appropriate rating may return the article to service without prior approval of an authorized CAA representative, provided the alteration and/or repair does not change any of the operation limitations.

Repair agencies will be guided as follows when completing this form.

u. For an Aircraft Repair and/or Alteration—Complete Items 1, 2, 8a, 4, 5, 6, and 7. Mechanic-Submit to CAA representative for inspection and approval prior to returning the article to service. Upon approval, the CAA representative will return the original copy to the mechanic who should submit it to the aircraft

Manufacturer or Approved Repair Station-Submit original to aircraft owner, forward copy to CAA district office or FAA agent prior to returning article to service.

For a Component Installed in an Aircraft—Complete Items 1, 2, 3 (b, c, or d, whichever is applicable), 4, 5, 6, and 7. Distribute copies as in a above.

For a Spare Component-Complete Items 8 (b. c, or d, whichever is applicable), 5, 6, and 7. Mechanic—Submit to CAA representative for inspection and approval. When approved, retain both copies of the form with the component until installation on an aircraft. At this time Items 1, 2, and 4 must be completed by the installing agency who will distribute the forms as follows: (No further approval of CAA is required, only a log-book entry by the installing agency is necessary.) After installation, original form should be submitted to aircraft owner, and copy forwarded to the nearest CAA district office or CAA agent.

Manufacturer or Approved Repair Station-Handle same as for mechanics except that it is not necessary to submit to CAA representative for inspection or approval.

> RECEIVED SEP 15 1950

LOS ANGELES DISTRICT INSPECTION OFFICE 6-326 1

Form ACA-(11-68)		DEPARTMENT OF COMM CIVIL AERONAUTICS ADMINIS	TRATION	-I	ma No. 41-R052 2.
		N FORM (AIRCRAFT, PROP)
		RSE SIDE OF THIS FORM I			
1. AIRCRAFT	Grunnan	G-81A	SERIAL NO. 1161	H-95467	(Standard
	NAME (First, widdle, last)	ADDRESS (Street end so		- 1. S	
2. OWNER	W. A. Crocket	4208 Wilson Fresno, Ca			
3. FILL IN	INFORMATION IN THIS ITEM	ONLY FOR THE UNIT REPAIR	ED AND OR ALTERED	- "	
UNIT	MAKE	MODEL.	SERIAL NO.	NATURE OF V	WORK (Chrit)
a AIRCRAF	T	y (As described in item I above) 10000	······································		2
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A. PROPELLER BLADE OR HUB	Hamilton Stnd.	22D30-201 65334-18	165583 7h0152/3		
c ENGINE					
rparkis (fo Sist Jun	TYPE AND MANUFACTURER				
NSTRUMEN					
AFTER the rep	O BALANCE DATA BALANCE DATA EMPTY WEIGHT		empleted until such comp	onent is installed in agency, if applica	in an . able, DAD (Pounds)
		AIRS AND/OR ALTERATIONS (C) REPAIR STATION NO. 400	(Specify)	CERTIFIED MI	ECHANIC CCOMPLISHED
6. AGENCY	West Coast Propeller	6842 Beck Avenue North Hollywood,		Sept. 1	2, 1950
If more space SORWARDE ENGINEERING APPROVAL	Propeller disassembland snodised. Propel tested for actuation is needed, continue on reverse, or att D FOR	AUST BE ACCOMPLISHED IN ACCOMPLISHED CIVIL AERONAUTICS MAN led, cleaned, inspecte iller reassembled, check and leakage. Setting acchesporate sheets bearing aircraft releaned correct to the best of my keep and correct to the be	d. Hisdes refinited, balanced and High 86. Low 11	shed.	
Ra	(Thature of supervising mechanic)	1150017 Limited (Certificate on E COMPLETED BY CAA REP	inber and rating)	Sept 12	
	DESIGNES SMEATURE	· XX	NO.	DATE	4. 1950
REJECTI	CAN ACENT SIGNATION	The Hotel	6344	DATE TO	5 1050
	TI TI	W. WAREN		v signal.	7111

INSTRUCTIONS

1. This form must be filled out in duplicate each time a major repair and/or alternitation in the of an aircraft, propeller, engine.

or instrument.

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Certificated mechanics must, in all cases, obtain approval of the repair and/or alteration from the CAA representative prior to returning the article to accrete

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Manufacturer or Approved Repair Station-Submit original to aircraft owner, forward copy to CAA district office or CAA agent prior to returning article to service,

b. For a Component Installed in an Aircraft—Complete Items 1, 2, 8 (b, c, or d, whichever is applicable), 4, 5, 6, and 7. Distribute copies as in a above

For a Spare Component—Complete Items 3 (b, c, or d, whichever is applicable), 5, 6, and 7.

Mechanic—Submit to CAA representative for inspection and approval. When approved, retain both copies of the form with the component until installation on an aircraft. At this time Items 1, 2, and 4 must be completed by the installing agency who will distribute the forms as follows: (No further approval of CAA is required, only a log-book entry by the installing agency is necessary.) After installation, original form should be submitted to aircraft owner, and copy forwarded to the nearest CAA district office or CAA agent.

Manufacturer or Approved Repair Station-Handle same as for mechanics except that it is not necessary to submit to CAA representative for inspection or approval.

> RECEIVED SEP 15 1950

LOS ANGELES DISTRICT INSPECTION OFFICES-328

	FORM APPROVEDS DORT BYERAY NO. 61-ROSE 2		
APPLICATION FOR AIRWORTHINESS CERTIFICATE AND/OR ANNUAL INSPECTION OF AN AIRCRAFT	INSTRUCTIONS Please submit this form to the Civil Aeronautics Administration Field Representative		
APPLICATION (Check whether) ORIGINAL AIRWORTHINESS CLASSIFICATIO B ANNUAL INSPECTION AIRWORTHINESS CLASSIFICATIO RESTRICTED EXPERIMENTAL LIMITED	OTHER		
AIRCRAFT			
MAKE MOOSL Crumman	G-21A TYPE CERTIFICATE NO.		
REGISTRATION NO. MANUPACTURER'S SERIAL NO. 1161			
ENGINE	/文图/		
MAKE Pratt & duitner	R985A/1		
	CT ADDRESS (Street and number, city, pear, and State)		
	S Wilson Avenue sno, California		
TTACHMENTS (Check which) I CERTIFY that the also	ve statements are true.		
ACA-319 WEIGHT AND BALANCE REPORT			
ACA-337 DATA, DRAWINGS, ETC.	Mumage		
	Course of a thorned agent.		
ACA-317 SUNAPPROVED BEVIATION DATA (DATE)	FUTHERIZED GOUT		
It has been desermined that the aircraft described in 305 above is in con-	formity with the following:		
COMPLIED WITH 4 YES NO	ND PLACARDING REQUIREMENTS HAVE BEE		
COMPLIED WITH & YES NO	ND PLACARDING REQUIREMENTS HAVE BEE - 65h- Alls through Card 50-30		
COMPLIED WITH TYES TO NO	ND PLACARDING REQUIREMENTS HAVE BEE		
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	MD PLACARDING REQUIREMENTS HAVE BEE		
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U. S. GOVERNMENT PRINTING OFFICE 16-54228-

PAA AIRCRAFT REGISTRY CAMERA NO. 4 DATE: 2/16/82

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orm ACA 8 Budget Bureau No. 41-Rest. Form Approved. (To be filled in by inspector) UNITED STATES OF AMERICA Mater alte DEPARTMENT OF COMMERCE APPEDVED CIVIL AEROBAUTICS ADMINISTRATION WASHINGTON Accepted. Reinspected. REPAIR AND ALTERATION FORM AIRCRAFT-ENGINES-PROPELLERS-INSTRUMENTS Alreraft Identification Mark No. 1195 Owner's name The Texas Company
Owner's address 135 East 42nd Street Mineola, N.Y. Aircraft manufactures and model Trumpian G-LIA Serial No. 22562

Engine manufacturer and model Masp R986AN1 Serial No. 22562 Propeller manufacturer and model* Serial No.

Propeller blade model* Serial No. Instrument name, manufacturer, and model*__ Serial No. * To be filled in only for unit repaired or altered. REPAIR OR ALTERATION AGENCY Manufacturer. Approved repair station No. 292 . Certificated mechanic Agency's name The Engine Air Service, Inc. Address 199 East Second St., Mineola, N.Y. Date of repair or alteration or alteration 11/20/46 The following work has been accomplished in accordance with Part 18, Civil Air Regulations. (For recommended practice refer to CAM 18.) The above engine was completely major overhauled and run in on test stand The following parts were replaced.

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PAA AIRCRAFT REGISTRY CAMERA NO. 4 DATE: 2/16/82

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FAA AIRCRAFT REGISTRY
CAMERA NO. 4 DATE: 2/16/82

INSTRUCTIONS

- 1. This form must be filled out in duplicate each time a major rep
- This form must be filled out in duplicate each time a major repaired of a literation is made of an aircraft, propeller, engine, or instrument.
 When repairs and/or alterations are made which affect the operation implications set forth in the Airplane Flight Manual or Form ACA-309, the aircraft shall not be returned to survice fulfil the operation in the fact that the CAA.
 Certificated sechanics must be all cases, obtain approval of the repair and/or alteration from the CAA representative prior to returning the article to service.
 The manufacturer of an aircraft, engine, propeller, or instruments, nine approval of aircraft repair station holding the appropriate rating may return the article to service without prior approval of aircraft does not change any of the operation limitations.

- 5. Repair agencies will be guided as follows when completing this form.
 - a. For an Aircraft Repair and/or Alteration—Complete Items 1, 2, 8a, 4, 5, 6, and 7. Mechanic-Submit to CAA representative for inspection and approval prior to returning the article to service. Upon approval, the CAA representative will return the original copy to the mechanic who should submit it to the aircraft owner.
 - Manufacturer or Approved Repair Station-Submit original to aircraft owner, forward copy to CAA district office or CAA agent prior to returning article to service.
 - b. For a Component Installed in an Aircraft—Complete Items 1, 2, 3 (b, c, or d, whichever is applicable), 4, 5, 6, and 7. Distribute copies as in a above.
 - For a Spare Component—Complete Items 3 (b, c, or d, whichever is applicable), 5, 6, and 7. Mechanic—Submit to CAA representative for inspection and approval. When approved, retain both copies of the form mechanic—submit to CAA representative for inspection and approval. When approved, retain both copies of the form with the component until installation on an aircraft. At this time Items 1, 2, and 4 must be completed by the installing agency who will distribute the forms as follows: (No further approval of CAA is required, only a log-book entry by the installating agency is necessary.) After installation, original form should be submitted to aircraft owner, and copy forwarded to the nearest CAA district office or CAA agent.

Manufacturer or Approved Repair Station-Handle same as for mechanics except that it is not necessary to submit to CAA representative for inspection or approval.

Instruction, Sales and Service
Hangar Storage



Phone: Woyneshore 390 M. L. Hardy, Mar.

Hardy Aviation, Inc.

POST OFFICE BOX 408 WAYNESBORO, PENNSYLVANIA

C. A. A. Approved Flight and Ground School

Greens 0-21A N 9567 Serial #1161

- 1. Removed all paint and all farring from ship, for inspection.
- 2. Replaced five longitudinal stringers in step, as shown on strached sketch.

 tation 13 to 16. Factory replacement parts used. Installation the same as original.
- 3. Esplaced four vertical stringers on lower left side of cabin, at Stations 23, 23, 25, and 26. This installation the same as original.
- h. Esplaced skin panels below left cabin door. Enterial used .OhO x 2h ST.
 Alodine anti-corrosion solution used. Installation sees as original. Station 2h to 26.
- 5. Replaced loser skin panel, left side. Station 13 to 24. Staterial used .032 x 24 ST. Alodine anti-corresion solution used. Exterial and installation same as original.
- 6. Deplaced left chine strip. Station 16 to 29. Pactory parts and scaling materials were used for this installation. Installation the same as original.
- 7. Replaced left chine strip at step section. Station 13 to 16. Factory parts and scaling material were used for this installation. Installation the same as original.
 - Toliced two vertical stringers in left side of rear baggage compartment. Station 27 to 28. Oplices are made in accordance with Figure 3-21: reveting done in accordance with Fig. 3-11 and Table 3-1 of CAM-18. Lower sections of those two stringers were replaced with factory parts.

 Replaced lower longitudinal stringer in this same section. Natorials and installation same as previous. Station 26 to 29.
- 9. Replaced left spray chine strip. Estion 29 to 36. Factory replacement parts were used. Installation same as original.
- 10. Repaired, by splicing, lower section of instrument panel right vertical support.
 Station 9. Raterials used .051 x 75 ST. In accordance with Pig. 3-ll, Table 3-li, CAR-18.
- 11. Deplaced left vertical support and angle of instrument panel. Exterials used .001 x 750t. sheet and 3/4 x 3/4 x 1/16 x 245T angle. Riveting installation same as original. Otation 9.
- 12. Perlaced longitudinal floor board attachment stringer on left side of pilot's compartment. Perlacement materials and installation same as original. Station 7 to 11.

Replaced inboard flap hinge on left wing flap.

FAA AIRCRAFT REGISTRY CAMERA NO. 4 DATE: 2/16/82

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C. A. A. Approved Flight and Ground School

- 13. Installed 11.5° x 17° x .010 x 21, ST. reinforcement of left lower francage skin. Station 7 to 11. This installation make in accordance of the 11. 3-20, or SM-13. Saterials in this installation were treated with Aloline enti-corresion solution.
- Ill. Deinforced belly skin to buildesed attac angle, at Station 12, using 1/16" x 24 01. angle. This repair made in accordance with Fig. 3-21, Culture.
- 15. Neinforced vertical stringer in last side, front baggings compartment. Station 5. Using 1/10 x 24 MT. angle. This repair made in accordance with Mg. 3-1, 000-13.
- 16. Replaced Style vertical stringer on bow bulkhead left side. Station 3.
- 17. Replaced whim on right rear passenger compartment door. Replaced hinges sume.
 Station 23 to 26. Caterials and installation some an original. Replaced skin and hinges on left rear passenger compartment door. Teplaced all cabin and cockait windows. Resdelss material used, same as original. Station 24 to 26.
- 10: Replaced patch on hull at tip of keel. Station 28 to 29. Installation same on provious.
- 19. Ferland keel tip using factory parts. Installation saws as original. Ctation 27 to 30.
- 20. Installed one reinforcement plate on belly skin, aft of left wheel well. Station 13. 6" x 3.75" x .000 x 20 6T. This installation made in accordance with Fig. 3-10 and Table 3-0, FM-13.
- 21. Installed one reinforcement plate on bally skin, aft of last wheel wall. Station like 3" x 10" x .00 x 21 50. This installation in accordance with Fig. 3-11 and Table 3-1, 01
- 22. Seplaced left and right outside members of windshield frame. Castory parts upon in the installation. Installation made the same as previous.
- 23. Peplaced all winishield rubber channels and sealing materials.
- 24. Replaced cabin floor boards.
- 23. Rolls ned all upholstery in cabin.
- 25. Installed complete new stainless steel set of rudder and elevator control cables. These cables were assembled by John A. Rosblings & Sons.
- 27. Installed complete set of new stainless steel rudder and elevator trim tab onbles. These cables were assembled by John A. Roshlings & Sons.

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- 28. Replaced all worn control pulleys.
- 29. Replaced left front elevator tria tab spoul-bessicat. Installation some as previous.
- 30. Removed all fabric from rudder for replacement of rudder control horn, and of wiring and conduit of tail and anchor lights. Factory replacement parts wer used for this installation.
- 1. Indder completely recovered in accordance with material specification of Table 2-1 and Table 2-2. Sewing and lacing same as original. Doping and finishing in accordance with 13.20-20, CAM-13.
- 32. Removed military electrical fitting from upper surface of right wing. Station 196. Installed reinforcement plate 5.5" x 6.5" x .064 x 2457, at this location. This installation in accordance with Pig. 3-14, Table 3-4, CAU-18.
- 33. Removed entire landing gear and tail—sheel assembly and retracting mechanism.

 Henoved all paint and grease from same, for inspection.

 Peplaced seals in all cleo struts.

 Peplaced fluid in all shock struts.

 Peplaced brake shoes, linings, and bearings in both wheels.

 Peplaced brake piston seals.

 Poplaced flexible hydraulic brake lines on landing gear.

 Installed now tail wheel bearings, tire and tube.

 Pefilled all landing gear retraction gear boxes with grease as recommended.

 All landing pear metal parts and wheel well surfaces are painted with sinc chromate primer and bitumastic (acid-proof) paint.
- 34. Installed one Aero Trades electric landing gear retracting mechanism AlV-Li. This installation made in accordance with the samufacturer's prints.
- 35. Installed one Crimes Landing Light, AN-223, in right wing. Station 137 to 151.

 This installation made with the manufacturer's mounting bracket and wired in accordance with the manufacturer's wiring diagram.
- 36. Installed one Fratt & Whitney engine, left side: Model R985AN1 Serial #22562

Installed one Frett & Whitney engine, right side: Model P985ARI Serial # JP202767
These engines were overhauled by Engine Air Service, Approved Repair Station #292.
See attached Forms 337.
Engine mounts were exchanged with this installation.

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- 37. Installed one Leace Neville generator on left engine, Model R-54.

 Installed two new Leace Neville battery relays, in relay box. Attachment made by relay mount attachment provided with eight 10-32 coress. This unit mounted on landing gear bulkhead aft of co-pilot's seat at Station 12.

 Installed two new Carbon Pile Voltage Regulators. This unit is mounted under the forward walk-way in the pilots' compartment, at Station 12, by the mounting screws provided on the unit.

 Installed two new Mastery Floring experience to the towns.
 - Installed two new Western Electric expensions in Entrument panel.

 The wiring for this complete generator circuit was accomplished in accordance with the manufacturer's wiring diagram.
- 33. Installed two new Molipse engine starters, Models E 90.
- 39. Installed two new Hamilton Standard full-feathering hydromatic propellers as per aircraft specification, Fg. 98, Item 228.
- 10. Installed two new Pesco feathering pumps Model 12h3M. Installation made on lower front part of fire-wall with standard pump mounting bracket and study for attachment.
- li. Installed two new, Arrow H & H, hydromatic feathering valves.

 These valves are nounted on the right lower tube of each engine mount by 1130 steel plate welded to two Curties Clamps.
- 12. Two hydromatic feathering buttons are installed on pilott's engine gauge panel.
- ii). Two feathering pump solemoids sounted one to each engine sount by the brackets furnished by the samufacturer. This propeller installation is sade in accordance with the (krussen Aircraft wiring diagram. The plumbing is done with aeroquip hose and fittings. The propellers and governors are adjusted to standard performance specifications.
- installed one new Kollsman direction indicator compass. This compass is sounted in the original compass bracket, above the instrument penel.
- 15. Installed taxi light BE 1509 in left wing leading edge as per picture attached.
- 146. Installed one Minker relay, Airlectron Model \$ 0. This unit mounted to aft right side of bulkhead at Station 6.

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- 17. Installed one 2.75 gal. propeller enti-door fluid tank. This tank is manufacturer's part and is nounted on the from, left side of buildhead at Station 6, by nounting Iugs provided.
- is. Installed one Holipso unti-doing pump Hedel 6. This unit is mounted to the floor on the left side of the front baggage compartment, by the lugs provided on the pump.
- 19. Two propeller enti-doer slinger rings, furnished by the propeller manufacturer are mounted on the propellers.
- 50. Installed one Continental Meetric Dynamotor NFT 310-11. This unit mounted on left forward side of bulkhead, Station 6. Nounting bracket provided by manufacturer.
- 51. Installed one radio wiring junction box. This unit mounted on left front side of bulkhead at Station 6. Standard mountings provided in box.
- 52. Installed two thermos bottle racks, on rear right side of bulkhead at Otation lie.
 These units are mounted by four 1032 screens, each, as provided in unit.
- 53. Installed six cabin lights and brackets, Orises B 3550. These lights are sounted to stringers in top of cabin above the respective seats.
- 54. Installed three Hardson chairs and sushions lodel 100-5. Installed one Descheraft couch, catalogue part # 401-130226-600, and cushions. See attached 337 drawings and pictures.
- 55. Installed one portable card table at Station 20.
- 56. Installed one ARC Pilot's Audio Unit. This unit mounted on left side of pilot's seat and attached my mounting screws provided for same.
- 57. Installed one APO control panel. This unit is mounted in the lower left side of instrument panel and is secured by four mounting screens as provided by the manufact-
- 53. Installed these ANC instruments. These instruments installed pilot's side of the instrument panel and are nounted with screens as provided by the instrument manufacturer.
- 59. Installed one ADF Diel. This instrument installed left side pilot's instrument panel and secured by soress provided by instrument manufacturer.

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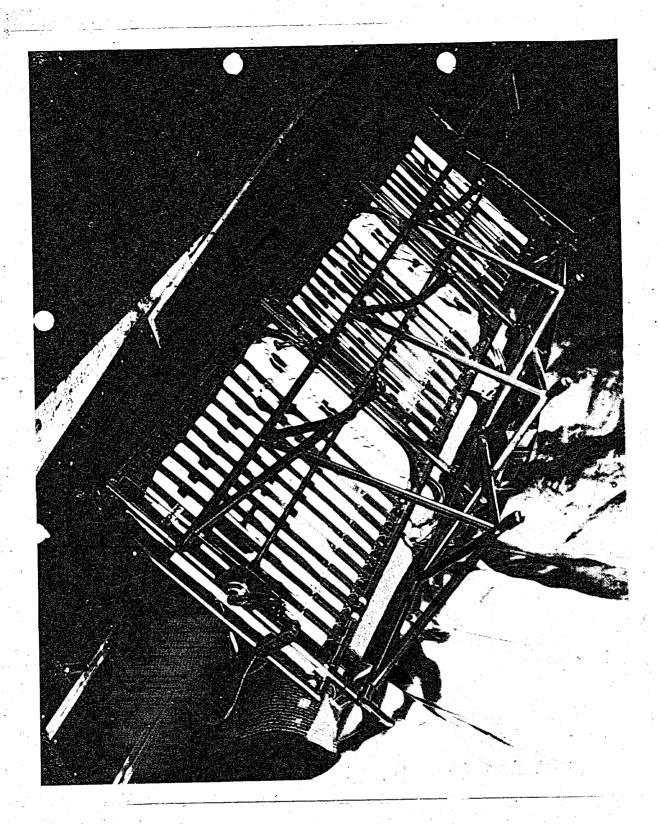
C. A. A. Approved Flight and Ground Sch

- 60. Installed one ANF Control penal and bracket. Attachment made to just side of engine gauge penel and upper cabin stringers, by eight 6-32 rectine scress. Station 10-11.
- 61. Installed one VHF antenna must and bracket, top of fuselage above rear baggage compartment. Station 26.
- 62. Installed one ANC marmal loop and breaket in top of funcione. Station 22.
- . 'Installed one Rem's horn enterns A-13 and brocket, top of fusalage at pilot's compartment. Station 13.
- Installed one ADF loop auteura and brackets, top of fuselage and baggage compartment. 64. Station 29.
- 65. Installed one radio rack as shown on 337 drawing stached. Station 27.
- 66. The following radio equipment is installed on the radio rack, at Mation 27, and is secured to the rack by the semulacturer's sounting brackste.
 - 1 ADF unit BC-433F
 - 1 ATC-VIF transmitter, F-11A
 - 1 Airedio transmitter 1105

 - 1 AMC receiver R 15 1 AMC Receiver 134
 - 1 AM filter explifier
 - 2 Radio junction boxes

- l Leeland inverter
- 1 Mestern Electric Dynamotor, type 337
- 1 ARC receiver R 11A
- 2 ARC transmitters T 11A
- 1 ARC converter
- 1 Marker Rescon receiver HC 10234

Standard Scaplane procedure was used in making all these repairs, using sinc chromate primer, sinc chromate passe, paralleston, and bitumestic point, as a precaution against corresion.



PAA AIRCRAFT REGISTRY CAMERA NO. 4 DATE: 2/16/82 00 رد ارد

WIGHT & BALANCE STATEMENT

GRUSSINI MODEL GELA

STRIAL #1161 (110-95467) •

Prepared by C. F. Comptook

Date: 28 July 1950

PAA AIRCRAFT REGISTRY 2/16/82

are 1

WEIGHT & HALANCE COMPUTATIONS (Covering Modifications)

(R) (1161 1161 1161 1161

WEIGHT EMPTY	Wet.		tental Moment
	Lbs.	Arm	
Weight Empty (D of C Form ACA-33? dated 8-17-49)	5964.5	+22.54	+13时的。
Items Added			+3672
1-Hardman Chair & Cushions, Model 1005	+27.0 +27.0	+136 +56	+1512
1-Hardman Chair & Cushions, Model 1005	+27.0	+109	+2913
1-Hardman Chair & Cushions, Model 1005	+1.5	482.5	+124
6-Cabin Lights & Brkts.	+2.5	+16	+LO.
2-Thermos Bottle Racks, Model 1005	+38.0	-12	<u>-456</u>
2-Eclipse Starters, Model E-30	+21.0	-23	-483
1-Leece-Neville Generator, Nodel E-5A 2-Constant Speed Full Feathering Propellers	+67.0	-38	– 2546
(Net Weight Change)			
1-Propeller De-Icer Tank, 2 3/h Gal. Capacity	+3.0	-53.5	-161
1-Rinker Relay Airlectron, Model G	+1.0	-50	-50
1-Grimes Landing Light, AN-E223	્ + ∂. 0	+60	+480
2-Voltage Regulators, #739-R16	+11.0	-34.5	-138
1-Taxi Light and Brkt., GE-4509	+3.0	+16	+45
1-Kollsman Indicator, Model 3987	+2.3	-30	-7
2-Battery Relays & Box, Leece-Neville 23509	+9.0	+5.5	+50 -
- lawlectric Landing Gear Unit, Alu-14	+30.0	-30	-900 -300
I Complete Set Plumbing - Aug. Fuel System	· +15.0	+21	+399 -
1-Descharaft Couch & Cushions, D-185404-180226-60	0 +80.5	+66	+531.3 +507
1_Portable Card Table		+34.5	-21h
1-Propeller Anti-Icing Rump - Eclipse Model 6	+4.0	-53.5	-214
Padio Fourment	a	-53.5	-214
1-Dynamotor - Continental Elec., Type DMFX310-U	1 +4.0 +4.5	-53.5	-211
1-Radio Junction Box	+1.5	-53	- 20
1-Radio Filter, AN-F727			-69
1-ARC Pilot's Audio	+1.5 a	-29.5	44
1-ARC Control Panel	+4.1	-29.5	-121
3-ARC Instruments 1-LLS Ramshorn Antenna & Brkt., A-13	+9.0	+13.5	+122
1-ins Remander Antonna & Sirvey & As	+3.0	-12	-36
1-ADF Control Panel 1-ADF Dial	+1.5 +2.5	-29.5	-144
1-ARC Manual Loop	+2.5	+106	+270
1-MRO asimual mosp	+2.5	+11:9.5	+374
1-ADF Loop Antenna	+1:0	+178	+712
1-Radio Rack	+7.3	+157	+111:0
1-ADF Unit, BC-433F	+4.3	+158	, +6794 +2528
1-Lecland Inverter	+16	+158	+537
1-ARC-VHF Transmitter, TllA	+3.4	+158 +150•5	+2107
1-ARC-VHF Transmitter, Type 377	+14	+156.5	+736
1-Airadio Transmitter, 3105	+4.7		+1359
1-ARC Receiver, RllA	+9.0	+151 +156.5	+1299
1-ARC Receiver, R15	3.3 +6.8	+164.5	+1119
2-Transmitters, TllA	10.7	+151.5	+1621
1-ARC Receiver, 13A	+5.8	+156.5	°+908
1-ARC Converter	, 45. <u>i</u>	+164.5	+388
1-ARC Filter Amplifier	+3.2	+164.5	+526
1-Marker Beacon Receiver, BC1023A	+3.7	+169	+625
1-Radio Junction Box	46.7	+157	+1052
1-Radic Junction Box	•		•

(Covering Modifications)

ORUZZAN MODEL GELA, Serial 1161

	Wgt.	Horiz	
Items Removed 1-Passenger Bench 1-Passenger Bench 2-Aviation Starters, Mod. #3 and Handcrank 1-Relay Battery Cut-Cut Switch 1-Western Elec. Dynamotor 1-Airadio Transmitter 1-Airadio, SU-52B	-73.5 -79.5 -72.0 -2.0 -11.0 -4.7 -2.5	+64 +64 +12 +10 -39 +10 -31	-1470L -5088 +864 -20 +546 -147 +18
TOTAL REVISED WEIGHT EMPTY	ı6287 . 5	+25. Լ. 6	+160076

WOST FORTHUR & REARTHUR LOADING CONDITIONS

GRUMMAN MODEL G21A, Serial 1161

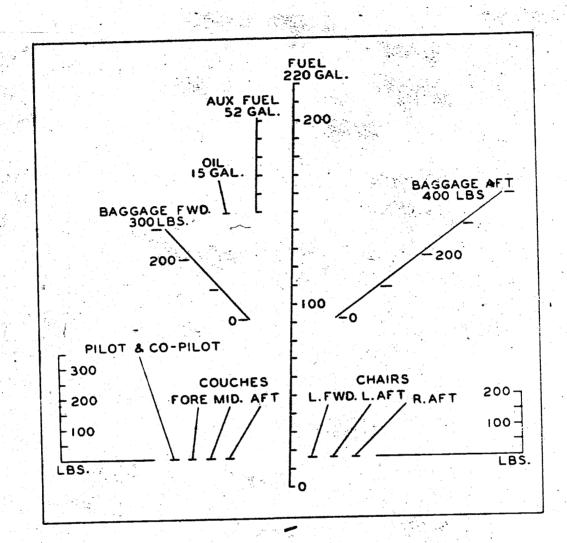
MOST FORWARD LOADING	Ho: Arm	rizontal Lonent
Weight Empty (See Page #2)	+25.45	+150076
Plus Pilot & Co-Rilot	- 5	-1 700
Fuel Oil, 15 gals. Baggage - Forward 216.0	÷8 -65	+904 -15990
TOTAL 6987.0	+20.5	-11,3290

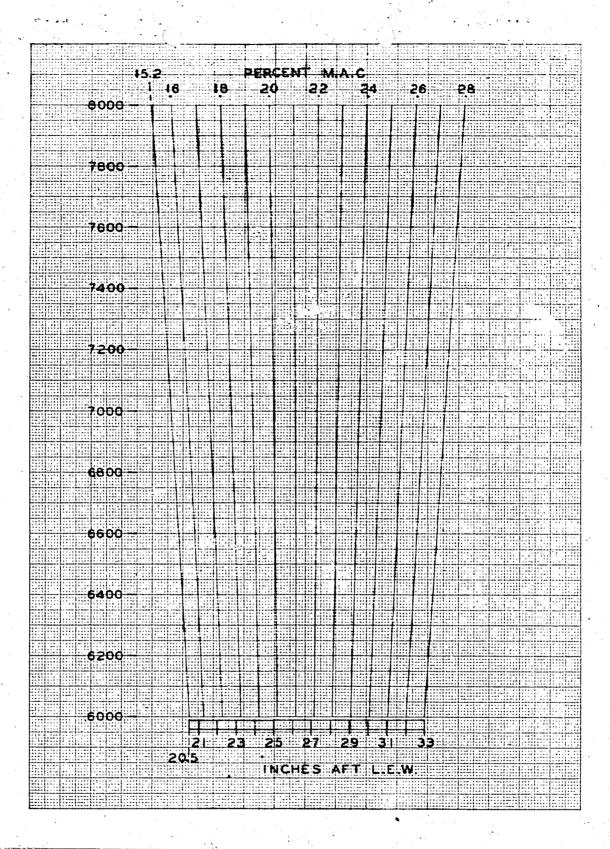
NOTE: Although only 216 lbs. of baggage can be substantiated for forward c.g. condition, additional baggage up to maximum capacity (300 lbs.) a rmissable. Weight a Lalance Computer can determine, for a given flight, allowable amount of baggage for this compartment.

MOST REARWARD LOADING

Weight Empty (See Page #2)		6288.0	+25.46	F160076
Plus Pilot Fuel Oil		170 0 0	+6 +6	-850 > 0 0
Passengers 1-Passenger - Couch (For 1-Passenger - Couch (Cen 1-Passenger - Couch (Aft 1-Passenger - Left Chair 1-Passenger - Left Chair 1-Passenger - Right Chair Baggage	ter)) (Forward) (Rear)	170 170 170 170 170 170 170 28	+40 +66 +91 +61 +104 +130.5 +169	+6800 +11220 +15170 +10370 +17680 +22185 +1732
TOTAL		7506	+33.0	+247683

NOTE: Although only 28 lbs. of baggage can be substantiated for rearward condition, the Weight & Balance Computer can determine, for a given flight, allowable amount of baggage up to maximum capacity of this compartment.





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Beech Circuft Corporation

AIR B MAIL

July 21, 1950

Mr. Hardy Hardy Aviation, Inc. Waynesboro, Pennsylvania

Dear Mr. Hardy:

This is in reply to your telephone conversation of July 20, 1950 with our Mr. R. B. Bosworth regarding CAA approval of the couch assembly as used in the DISS airplane.

The couch is manufactured from Krehbiel Plastic Products Company, Drawing KM-1025 and has been CAA approved by the Krehbiel Company as Part KM-1025.

We do not know that all of these couches manufactured had a placard installed on them; however, present couches have an identification placard installed as follows:

From a position facing the front of the couch a placard is installed on the back side of the diagonal tube running from the left end (hand crank end) of the rear of the frame to the left vertical support tube.

We are enclosing 1 copy of our photographs No. 12581F, No. 12581D and No. 6134A for your identification purposes of this couch assembly.

Very truly yours,

BEECH AIRCRAFT CORPORATION

R. H. Schowalter Service Engineering

RHS: jp





THE WORLD IS SMALL WHEN YOU FLY A BEECHCRAFT

FAA AIRCRAFT REGISTRY CAMERA NO. 4 DATE: 2 CAMERA NO. 4 end pared end of the control of the Rost Me. Hardyri Paic is in tealy to your telluness conversed of the constitution of the constitution when the care of the Concentify as dead in the The The Constitution of the Constitution. The couch is manufactured from Trainfall Plants Traducts Courses, Derning MI-1025 and has been Oil to Microbial Derivation Inchines Inchin ie do nos tuem chas all of chese enucions contactedured had a ciscona incell-ed on the p herever, precess, contact have an identification placerd thetally-ed as follows: Figure a coefficient facing that to the couch a fiscential factor of grant for the first and for the first and for the first and formal factor of the first couch conditions of the first couch couch are referred to the first couch couch and formal left vertical augment bines. [] We are unclosing 1 caps of our photographs No. 125011, No. 125019 and No. 617AA . for your identification purposes of this couch areas light. Sanch Apras, Auto EDITARÓREDO GRASOSEA ESVER R. H. Schoumiter Service Engineering र के अपने के प्रकार है। इस प्रकार

Porm ACA-205 (12-47)	PARTMENT OF CO	MMERCE INISTRATION		ORM APPROVED BURRAU NO. 41-ROILS
AND/OR ANNU	OR AIRWORTHINESS CERTIFICAL INSPECTION OF AN AIRC	FICATE CRAFT	Please submit this	STRUCTIONS form to the Civil Aeronautics on Field Representative
APPLICATION (Check wheel		and the second second)N	
ORIGINAL AIRWORTHINES	- A A A A A A A A A A A A A A A A A A A	RESTRICTED LIMITED	THER.	
	AIRC	CRAPT		
CRIMMAN REGISTRATION NO.	MANUFACTURER'S SERIAL NO.	MODEL G	-27A	PE CERTIFICATE NO.
NC95467	1161			
	EN	GINE	i televita	
PAN WA	SP JR.	MODEL	R985-AN6B	
OWNER'S NAME		PERMANEN	T ADDRESS (Street and sea	aber, city, mus. and State)
HARDY AVI	ATION INC.	R.D.		
TACHMENTS (Clerk w)	ich) 1 CERTIFT	that the abou	re statements are true.	
	AND BALANCE REPORT			Lean H
	AWINGS, ETC.		Maleolm	L. Harry
ACA-317 UNAPPRO	VED DEVIATION DATA 8/17	10		Prus
It has been determine ALL APPLICABLE MAN COMPLIED WITH	e completed by a CAA inspector or distant the sircraft described in 305 about DATORY NOTES, INSTRUMENT MAKES NO NO	ve is in confo RKINGS AN	umity with the following replacement of the placement of	ng: QUIREMENTS HAVE BEEN GH CARD 49-32
FORM ACA-1362, CERTIFICA	TE OF AIRWORTHINESS, ISSUED			Specify)
<i>y</i> .		ORIGINAL	ANNUAL INSPEC	TION
• •		INGS		art
X AIRWORTHY	IN THAT BELLEA DA	RZ.	167	8/17/49
UNAIRWORTHY CA	NSPECTOR'S SIGNATURE		ACCEPTED .	DATE
——————————————————————————————————————	H Myers		REINAPPOTED	8-22-49
REASON FOR DISAPPRO	OVAL, OF STEMARKS (Indicate if you have no	ed the receive to co	ntinue (his or other flem.)	Yes 🔣 No
	AVAILABLE IN THE AIRCRAFT T FLIGHT 8/8/L9 , FERVY P		PACKED_ issued	an 4'
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HAIL ROOM 3

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4. **1. .** . . .

FAA A	IRCRA	FT R	EGISTR	7 Z	
CAMER	A NO.	4	EGISTR' DATE:	2/16	1/82

FORM ACA- (11-7-46)	887	DEPARTMENT OF COMME		GST-BURBAU NO. 41-2052.1 LL EXPIRES DECEMBER 31, 1948
	REPAIR AND ALTER	ITION FORM (AIRCRAFT, PROPE	LLERS, ENGINES, INS	TRUMENTS)
of an ai	rcraft, propeller, esgise, or an Alrereft - Complete	filled out is duplicate each or instrument, as follows: items 1, 2, 3a, 4, 5, 6, and an Aircraft - Complete items	And submit to CAR re	presentative for approval.
(C) Fo	5, and 6, and submit as	described is (A) above. plete items \$(b, c, or d), 5, etain both copies of this for	and 6. and submit t	o Cal representative for
ai	rcraft. At that time, it- breard forms as described	ems 1, 2, and 4 must be comple in (A) above.	eted by the installin	ig agency, which will then
1. AFRCRAFT	GRUMAN	G-21A	SERIAL NO. 1161	13095467
2. OWNER	Hardy Aviation Inc		aynesboro, Penna	
3. FILL: IN		DALY FOR THE UNIT REPAIRED AN		<u> </u>
UNIT	MANE	MODEL	SERIAL NO.	NATURE OF WORK (Check)
UNIT	MAKE	MODEL	SERIAL NO.	MAJOR REPAIR MAJOR ALTERATION
B. AIRCRAFT		described in item 1 above)	
ROPELLER b. BLADE OR HUB				
C. ENGINE				
d. INSTRUMENT	TYPE AND MANUFACTURER			
item 4 wil	wing items are to be compl ll not be completed until by the installing agency,	eted by repair or alteration a such component is isstalle if applicable,	gency. 'However, in the d in an aircraft. At	coase of a spers component, tals time, item 4 will be
4. AIRCRAFT	5961:5 5965	APTY CENTER OF GRAVITY (Inche)	(rom detum) USEFUL	2035.5 - 2035
		described below were made.		
B. KIND OF	11	AND/OR ALTERATIONS (Check) VED REPAIR STATION HO	(\$PECIFY)	GERTIFIED MECHANIC
	NAME			PERSON DATE WORK ACCOMPLISHED
GENCY	J A WILLIAMS	601 WISE ST H	GERSTONI, 1D.	8/17/49
AERONAUT	ION OF WORK ACCOMPLISHED TICS MANUAL 18. (If more feation mark)	IN ACCORDANCE WITH PARTIES OF opening in needed, continue on r	THE CIVIL AIR REGULAT	IONS AND ITS ASSOCIATED CIVIL rate shoots bearing sircraft
REP	TACED TRAILING EDGE	STRIP ON LEFT SIDE OF		
-	4	ROBERT PLATES ON LOWER		IL OF RIGHT
		of repair used is as se T doubler on left love		
			vets 5/32 " X A175	
I CERTIFY T	THAT THE ABOVE STATEMENTS	ARE TRUE AND CORRECT TO THE B		
//J #	July Clea		3 171544	8/17/49
/ Ye			TE SOMBER AND RATING	DATE
APPROVE		TO BE COMPLETED BY CAA REP	RESENTATIVES NUMBER	DATE
REJECT F	JOHNE	Elland A	167	8/17/K9
FORWARD	RING OF MATURE OF THIS		Z ACCEPTED	I WATE

PAA AIRCRAFT REGISTRY 2/16/82

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FORM ACA-905			<u> </u>
CIVIL AERON	MENT OF COMMERCE	BUDGI	FORM APPROVED BT- BUREAU NO. 41-R041.3
APPLICATION FOR AIRWORTHINESS CERTI	CRAFT	Please submi	INSTRUCTIONS this form to the Civil Aero
	USP DOTHER (S)	welfy)	
V /	AIRCRAFT		
Grumman	MODEL	/	
REC STRATION HO HANUFACTURER'S SER	141 40. DATE WARME 12/4	GZIA ACTURED T	THE CERTIFICATE NO.
	ENGINE		
HAKE P&W	MODEL	B5-AN1	
OWNER'S NAME		and the second s	and number, City, Zone and
K.F. Brown	State)	4005 Arm	r Road
CA-319 WEIGHT AND RALANCE REPORT	I CERTIFY THAT THE ABO	VE STATEMENTS	ARE TRUE.
CA-319 WEIGHT AND BALANCE REPORT SPECIAL APPROVALS		0	de la la la la la la la la la la la la la
ACA-805 DATA, DRAWINGS, ETC.		- JOYSE	A DR AUTHORIZED ABERT
ACA-317 UNAPPROVED DEVIATION DATA	May 6, 1948	Ager	14
FORM ACA-305a (FORMERLY ACA-307) AIRC	RAFT INSPECTION REPO	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	TITLE
	CLOS OF a decidents.	d (r representative)
IT HAS BEEN DETERMINED THAT THE AIRCRAFT DESCRI ALL APPLICABLE MANDATORY NOTES, INSTRUMENT MARK WITH X YES NO	BED 13 305 ARMED IC IN	COVERBULTO:	
WITH TES WO	THE ARDING RE	COTHENENTS HAV	E BEEN COMPLIED
LATRORAFT SPECIFICATION - AIRWORTHINESS DIRECT!	VE, HOIS: 4 654-3	ADS t	hru 48-17-
AUTHORITY FOR EXCEPTIONS (If any)			SPECIFYI
FORM ACA-1362, CERT; FICATE OF AIRWORTHINESS, IS			
AIRMORTHINESS, IS	SÚED 🖂 DRIGINAL	- XX ANNUA	LINSPECTION
ck whether)	0		
OPERATION LIMITATIONS FORM ACA-309 WAS ISSUED APPROVED AIRPLANE FLIGHT MANUAL IS IN THE AIR	D, OR	- · · .	
	FINDINGS		
DESIGNEE STENATURE AND NO.	0-11-		DATE
UNA INSPECTOR A SIGNATURE	onrog	106	1 3/6/48
V. 1 & (2, 10)	min	REINSPE	TED 5-91-HX
REASON FOR DISAPPROVAL, OR REMARKS (Indicate if	you have used the reve	ree to continu	this or
			EXP49
Form ACA 309 AV	ailable in Air	craft.	
			•
			الكالرط سمير
			1,2
665	<u> </u>	Secretary of	<u></u>

FORM ACA-		DEPARTMENT OF CO		UDGET BUREAU NO. 41-2052.1 DVAL EXPIRES DECEMBER 31, 1948
		ATION FORM (AIRCRAFT, PI		
of at ai	teraft, propeller, esgist	, or isstrament, as follow items 1. 2. 2s. 4. 5. 6. 4	und 7 and submit to CLL	gad/or alteration is made representative for approval. , whichever is applicable),
4	as seed A. and exhault as	described is (A) above.		
ap ai fo	rward forms as described	18/(g) above.		to CAA representative for out until installation on an ling agency, which will then [CAA IDESTIFICATION MARK
1. AIRCRAFT	Grumman .	GB34	1161	NC95467
2. OWNER	HAME (Firet, middle, lat A.F. Brown	Long	Arbor Road Beach, Calif.	ne, and elete)
3. FILL: IN	INFORMATION IN THIS ITEM	ONLY FOR THE UNIT REPAIRED	D AND/OR ALTERED	2
UNIT	MARE	MODEL	SERIAL NO.	MATURE OF WORK (Chech) MAJOR REPAIR MAJOR ALTERATION
B. AIRCRAFT	(4	e described in item 1 eb	eve)	Z Z
NOPELLER D. BLADE OR HUB	1			
C. ENGINE	11.			
d. INSTRUMENT	TYPE AND MANUFACTURER			
	/1.			the case of a spere component, at this time, item 4 will be
A AIRCRAFT	6954.5 (Postare)	22.05	de.	At this time, item 4 vill be ut 10AD (Pounds)* 2030-0 1045. 3
5. KIND OF	AGENCY WHICH MADE REPAIR FACTURER APPR	S AND/OR ALTERATIONS (Checoved Repair Station No.		CERTIFIED MECHANIC
· · · · · · · · · · · · · · · · · ·	NAME	ADDRESS (Street and	(SPECIFY)	d stote) DATE WORK ACCOMPLISHED
	Long Beach Aeron	notive 2735 E	Spring St.	5/6/4B
AERONAU identii	TICS MANUAL 18. (If more ication mark)	space is needed, continue	on reverse, or streems.	
Ser. No	. 3369 and 42-18	and installed ov		•
		man Service bull luxed, overhauled		
centrol	cables installe	ed; right wing re ecovered; hull re	covered with gr	ade "A" fabric;
	t completely ref			Crew Court
I CERTIFY	THAT THE ABOVE STATEMENTS	S ARE TRUE AND CORRECT TO 1	THE BEST OF MY KNOWLEDGE	
(John B. B	annel _A&	R 106284	5/6/48
<u> </u>	SIGNATURE OF SUPERVISEN	TO BE COMPLETED BY CAA		
APPROVI	V		NUMBER C	4 DATE 5/6/48
FORWARI ENGINE APPROV	DED FOR SIGNATURE OF IAS	PECTOR C OO	ACCEPTE	
APPROV	AL J - OL-K CL.	- Cyconian	ILJ KEIRSPE	

TED STATES	OF AA		OPERA	TION L	MITAT	TOHS	NC 9	547	597.
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H935-A	ENG!	US)		EED LI	HITS N	OT TO	BE EXCEEDE	D 	
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		CHGDE	E LIMITS			FUEL		M. P. H.	24
	MUNITES	ALTITUDE	DI. HG.	R.P. M.	MP.	87			Ł.
KE-OFF	une	ADY	Bc . 5	2390	450	min	CLIMB OR LEVEL FLI	194	108
SEA LEVEL	5/	то	84.5	2200	400	min	GLIDE OR DIVE	225	195
ALTITUDE Palg.t	FO'	5000 VAF1	B3.5	2200 Wi ti	400 Alt.	min	Land & S	es 110	96
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210	TAK	E-OFF. WEIG	энт		LASED		654		
(AND (BO)		SEA		OPERATIO	1	800	1	_8000-	
C.G.	ange	18 (/	11 9	5.6) (to (+	33)		_	
C.G. 3 Cum is Swt.						- 96	NEW OF PERSONS	n	ozy
eding	inio	rmeti	on.				4/17/	47	
		ADDITIONAL	OPERATIO	ONS AUTHO		763 E	VIEW OF THE	ER)	•

ADDITIONAL OPERATIONS AUTHORIZED

IF THIS FORM IS LOST OR DESTROYED, A DUPLICATE MAY BE OBTAINED FROM THE CE (TIFICATION AND RECORDATION SECTION, AIRCRAFT AND COMPONENTS SERVICE, CIVIL AERONAUTICS ADMINISTRATION, WASHINGTON, D. C., FOR \$2.00. (MONEY ORDER OR CHECK SH) D BE MADE PAYABLE TO THE TREASUR OF THE UNITED STATES.)

	FORM ACA-305	DEPARTMENT OF COL			AU NO. 41-2041.2 IS PERRUARY 15, 1947
	APPLICATION FOR AIRWORTH	INESS CERTIFICATE AND/	OR .	į#:	STRUCTIONS
	ANNUAL TESPECTION				form to the Civil Aero- tion Field Representative.
 	PPLICATION (Check)	CAR IDENTIFICATION			
	AIRWORTH INESS CERTIFICATE	12 W 1	## [OTH	ER (Specify)	
L	ARRUAL INSPECTION				
L	AKI O	AIRCR	PI		
1	Grumm	an	\mathcal{G}	21A-	e# **
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Γ	Chock which) alachart now regi	STERED WITH THE ADMINIST		IFORMS ACA-501 AND 5	
	TWEET'S HAME		PERMANENT AL	Ga VIOTA	A UC
1	Kenneth F. B	rown		Long Beach	H. Calif
	ATTACHMENTS (Check which)	I CERTIFY THAT	THE ABOVE S	STATEMENTS ARE TRUE	
	ACA-319 ENGIGHT AND BALAM			- W1	7 7
	ACA-337 SPECIAL APPROVAL		اران معادد المراجعة المراجعة المراجعة ا	Denneth	d. Draun
	MCA-805 MOATA, DRAWINGS, MCA-317 MAPPROVED DEVIA		2 - 4/7	04821 01 4	
1		<u> </u>	7-4/		TITLE
Ţ	ORM ACA-3058 (FORMERLY ACA-307	AIRCRAFT I	SPECTION R	EPORT ·	
L	(To be completed by	a CAA inspector or a	designated	inspector or repre	sontative)
	IT HAS BEEN DETERMINED THAT THE AT	IRCRAFT DESCRIBED IN 300	THUYE 12 IM		•
L	ISTING IN INSPECTOR'S HANDBOOK, CHAP. XVIII	AIRCRAFT SPECIFIC			THINESS DIRECTIVE
Ľ		-6543 1 + 8 C	molidu	14 654-1	Hemplied with
٥	THER (Describe)		(XCEPTIONS,	If ANY (If addition	al apace is required, with
	TODA NO. 3'B		MECH. CERTI	F. AND RATING NO.	DATED
	(Peturn to	BARNARd	AIF	1106284	4-17-47
t	FORM ACE-136 CENTIFICATE VA	LID TO (Specify date)			
I	AIRCRAFT AIRWORTHINESS CERT	IFICATE WITH OPERATION LE	MITATIONS FO	RW (ATTACHED) WAS 15	SUED
H		FINDI	65		
ľ	DESIGNEE'S STG	KRYURE AND HOT		1.64	DATE 4-17-47
	UNAL REPORTED CAL INSPECTAL	T & Cours	ny	TI ACCLETED	DATE
		Ball	1 2 100	- TETHSPECTED	Nume 30-1947
. 	REASON FOR DISAPPROVAL, OR REMARKS	(Indicate if yes here us	ad the sever	ee to continue this	olet iten (10 19 19 190)
	Form 309 Available	in Aircroft			
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PAA AIRCRAFT REGISTRY CAMERA NO. 4 DATE: 2/16/82

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FDRM ACA-3 (11-7-46)	137	DEPARTMENT OF COMME		DET BUREAU NO. 41-2052.1 L EXPIRES DECEMBER 31, 1948				
4	REPAIR AND ALTERA	TION FORM (AIRCRAFT, PROPI	ELLERS, ENGINES, INST	TRUMENTS)				
of an air (A) For (B) For 4,	!HSTRUCTIONS - This form must be filled out is duplicate each time a major repair and/or alteration is made of an aircraft, propeller, engise, or instrument, as follows: (A) For an Aircraft - Complete items 1. 2. 3a. 4. 5. 6. and 7 and submit to CAA representative for approval. (B) For a Component Installed in an Aircraft - Complete items 1. 2. 3(b, c, or d, whichever is applicable), 4, 5, and 6, and submit as described in (A) above. (C) For a Space Component - Complete items 3(b, c, or d), 5, and 6, and submit to CAA representative for approval. When approved, retain both copies of this form with the component until installation on an aircraft. At that time, items 1, 2, and 4 must be completed by the installing agency, which will then							
for	HAKE	HOUEL	SERIAL NO- 1161	CAA IDENTIFICATION MARK				
	Grumman HAME (First, siddle, leen Kenneth F. Brown	G21A Aggs:55 (Street 4 4605 Arbor Long Beac	Rd. L. kewood	14.0				
3. FILL IN	INFORMATION IN THIS ITEM	ONLY FOR THE UNIT REPAIRED AT	m/or ALTERED					
UNIT	MAKE	MODEL	SERIAL NO-	MATURE OF WORK (Check) MAJOR REPAIR MAJOR ALTERATION				
E. AIRCRAFT	(44	described in Item 1 above	,	X				
ROPELLER LADE OR		*						
C. ENGINE			-					
,	TYPE AND MANUFACTURER							
d. INSTRUMENT		eted by repair or alteration						
# AFTER the	5964.5 Copairs and/or elteration	leted by repair or alteration and to component is finished if applicable. WETY CENTER OF GRANTY (Inch. 22.54 WE described below were cade. AND/OR ALTERATIONS (Check) WED REPAIR STATION NO.		LOAD (Founds)* 35/5				
	•	Lineary / March and an	(SPECIFY)	PEREN DATE WORK ACCOMPLISHED				
& ACENCY	Long Beach Aeron	2735 E. Spriotive Long Beach	ing St.	9/11/47				
7. DESCRIPT AERONAUT	TION OF LODE ASSOCIATIONS	IN ACCORDANCE WITH PART 19 C space is needed, continue on	E THE CIVIL ALP PEGILAT	IONS AND ITS ASSOCIATED CIVIL rate shoots bearing sircraft				
Fact	sced left wing of type parts i	ised.		0 4 N 30				
All	workmunship and	material used in a	eccordance with	1 G.A.用·=1O·				
I CERTIFY T	THAT THE ABOVE STATEMENTS	ARE TRUE AND CORRECT TO THE	BEST OF MY KNOWLEDGE.	9/11 /47				
	SEXATURE OF SUPERVISING	HECHAPIC CERTIFIE	CATE BUMBER AND MATIPO	DATE				
	~	TO BE COMPLETED BY CAA RE	PRESENTATIVES					
				Inize				
APPROVE	· \ \\	7. Comos	66 4	DATE 9-11-47				

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FAA AIRCRAFT REGISTRY 2/16/82

		CIVIL	DEPARTMENT OF COMMER AEROMAUTIES ADMINIS		DGBT BURBAU MO. 41-2052.1 VAL EXFIRES DECEMBER 31, 1948
	REPAIR AND ALTER	ATION FOR	H (AIRCRAFT, PROPE		· ·
(A) P (B) P A (C) P	TIONS - This form must be irrest, propeller, engine for an discreft - Complete for a Component Installed in 5, and 6, and submit as for a Spare Component - Compon	filled on b, or instr items 1, 2 n an Aircr described plate item etain both	t in duplicate each unser, as follows: , Sa, 4, 5, 6, and 7 aft - Complete items in (A) above. as S(b, c, or d), 5, a copies of this fo	time a major repair and submit to CAA r 1, 2, 3(b, c, or d, and 6, and submit	and/or alteration is made epresentative for approval. whichever is applicable), to CAA representative for t until installation on an ag agency, which will then
1. AIRCRAFT	MAKE		MODEL	SERIAL NO.	CAA IDENTIFICATION MARK
	NAME (First; siddle, lee	*1	JRP-6B	1161	NC 95467
2. OWNER	Kenneth F. Brow	m	4605 Arbor	Road.Lakewoo	od Village Road.
3. FILL IN	INFORMATION IN THIS ITEM	ONLY FOR T	E UNIT REPAIRED AND	OR ALTERED	
UNIT	MAKE		MODEL	SERIAL NO.	MATURE OF WORK (Check) MAJOR REPAIR MAJOR ALTERATIO
ALRCRAET	177	deecribe.	f in item 1 above)		7
ROPELLER L. SLADE OP HUB					,
- ENGINE			į.		
- INSTRUMENT	TYPE AND MANUFACTURES	7		<u></u>	
		/	•		case of a spere component,
	The state of the s	PTY CENTER	OF GRAVITY (Inches	from datum) useful	this time, item 4 will be
AFTER the	5964.5 repairs and/or alterations AGENCY WHICH MADE REPAIRS	described AND/OR ALT	2.54	ILOW GALGA). USELNT	2035.5
AFTER the	5964.5 repairs and/or alterations AGENCY WHICH MADE REPAIRS	described AND/OR ALT ED REFAIR	below were mede. ERATIONS (Check) STATION NO.	USEFUL	2035.5
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PAA AIRCRAFT REGISTRY CAMERA NO. 4 DATE: 2/16/82

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FORM ACA-3	37		DEPARTMENT OF COMMERC	E RATION APP	JET BURRAL ROYAL EXPLESS	NO. 41-R052.1 DECEMBER 31, 1948
(11-7-46)			H (AIRCRAFT, PROPEL		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1
of an air	ONS - This form smat b craft, propeller, engi an Aircraft - Complet a Component Installed	e filled out se, or instr- e items 1, 2 in an Aircr	t is duplicate each unest, as follows: , 3a, 4, 5, 6, and 7 eft - Complete items	and submit to CA 1, 2, 3(b, c, or	ir and/or alto A representat d, whichever	ive for approval- is applicable),
(C) For api	for Component Installed 5, and 6, and submit a r a Spare Component - C proval. When approved, reraft. At that time, reard forms as describe	complete iter retain both	me 8(b, c, or d), 5, b copies of this fo and 4 must be comple		nit to CAA rement until in alling agency,	neementative for
	MAKE Grumman		TRP-68	1161	N N	C 95467
2. OWNER	Kenneth F. B	rown	- 1 · · · · · · · · · · · · · · · · · ·	ong Beach		
3. FILL IN	INFORMATION IN THIS IT	EM ONLY FOR T	THE UNIT REPAIRED AND	OR ALTERED		E OF WORK (Check)
UNIT	MAKE		MODEL	SERIAL NO.	MAJOR R	EPAIR MAJOR ALTERATION
a. AIRCRAFT		(As-describ	ed in item 1 above			-
BLADE OR						
c. ENGINE	=	,				
d. INSTRUMEN	TYPE AND MANUFACTUR		ø			
*APTER the 5. KIND OF	repairs and/or altera	tione descrit AIRS AND/OR PPROVED REPA	22.54 bed below were mede. ALTERATIONS (Check) IR STATION NO. 401	(SPECIFY)	2035.5	CERTIFIED MECHANIC
	Long Beach Aeromot	Ive	2735 East Spr Long Beach	8 Califor	TOW ATLANT ALD	4/17/47
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GR.R.	THAT THE ABOVE STATEM	runt	E AND CORRECT TO THE	AIRGRAFT Engineer	B & M	
CERTIFY	THAT THE ABOVE STATEM	SING HECHAPI	al H+E	MING AKS	34 3	/30/47 ATE
□ APPRO	TEO	DESTGNEE 7	Course	66 4 NUMBER	DA DA	4-47-47
	SIGNATURE OF					

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A-ROBAST, ENG. BRANCH, REGION 8

1947

VAN AIRCRAFT REGISTRY CAPER No. 4 DATE: 2/16/82

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LEVELING MEINS	Leveling lugs on r	ight side of	pilots compartm
			
DATUS Fing Les	ading edge at fusel	age	
DATUM IS LOCATED:_	10.0 INCHES (FORWARD)	(AFF) OF MAIN WHEEL	CENTER MINE.
DISTANCE BETWEEN CE	ENTERLINE OF MAIN WHEELS A	NO CENTER LINE OF	TAIL WHEEL: 180 II
WEIGHING AS VITH () RESIDUAL CIL:(8)	15 GALS. AT	√8 ARM
	SCALE READING	TARE	NEW WEIGHT
RIGHT MEEL	2795		2790
LEFT WHEEL	2670	5.5	2664.5
TAIL WHEEL		85	622
TOTAL NET MEIGHT.			6076.5
			*
EQUIPMENT INSTALLED	AT THE OF MEIGHINGS		
ITE4	I TEM No. AI	R64 V€IGHT	MOMENT
109-	17EM No. AI 226		8
109 201	17EM No. AI 226 210	Hays Industri	es wheels #13
109-	17EM No. AI 225 210 217	Hays Industri	es wheels #13
201 101 102	17EM No. AI 225 210 217	Hays Industri 2 Special ber Air radio tra	es wheels #13
109 - 201 101 102 103	17EM No. AI 225 210 217 223	Hays Industri	es wheels #13
201 101 102	17EM No. AI 225 210 217 223	Hays Industri 2 Special ber Air radio tra	es wheels #13
109 - 201 - 101 - 102 - 103 - 108 -	17EM No. AI 225 210 217 223	Hays Industri 2 Special ber Air radio tra	es wheels #13
109 - 201 - 101 - 102 - 103 - 108 - 107 -	17EM No. AI 225 210 217 223	Hays Industri 2 Special ber Air radio tra	es wheels #13
109 - 201 - 101 - 102 - 103 - 108 - 107 - 301	17EM No. AI 225 210 217 223	Hays Industri 2 Special ber Air radio tra	es wheels #13
109 - 201 - 101 - 102 - 103 - 108 - 107 - 301 - 104	17EM No. AI 225 210 217 223	Hays Industri 2 Special ber Air radio tra	es wheels #13
109 201 101 102 103 108 107 301 104	17EM No. AI 225 210 217 223	Hays Industri 2 Special ber Air radio tra	es wheels #13

11677/	(1754 10) 622	= 19.25 RELATIVE TO MAIN WHEEL
MAPTY CENTER OF	E GRAVITY RELATIVE TO	DATUM:
17EM 12) 12.	.25 + . (11px t) 10	22.2B
FLOTHER THAN	RESIDUAL OIL WAS TELEME	D, MAKE FOLLOWING COMPUTATION:
AIRCRAFT		, (1тем 10) 6077 , - 185395
	(1 TEX 6B 48	220 8 - 000
		(A)5964.5
134495 5964.5	= (C) = 22.F	EMPTY CENTER OF GRAVITY OF AIRCRA
	OADING:	APPROVED FORWARD LIMIT:
ITEX	ARE	WEIGHT
IRCRAFT	(13 OR 145)	(10 CR 13A)
	<u> </u>	
,		(A) (B)
,		(A) (B) MOST FORWARD "C. G." LOCATION.
		MOST FORWARD "C. G." LOCATION.
Most Rearward	LOADING:	MOST FORWARD "C. G." LOCATION. APPROVED REARWARD LIMIT:
		MOST FORWARD "C. G." LOCATION. APPROVED REARWARD LIMIT:
	LOADING:	MOST FORWARD "C. G." LOCATION. APPROVED REARWARD LIMIT:
	LOADING:	MOST FORWARD "C. G." LOCATION. APPROVED REARWARD LIMIT:
	LOADING:	MOST FORWARD "C. G." LOCATION. APPROVED REARWARD LIMIT:
	LOADING:	MOST FORWARD "C. G." LOCATION. APPROVED REARWARD LIMIT:
	LOADING:	MOST FORWARD "C. G." LOCATION. APPROVED REARWARD LIMIT: (10 OR 18A)
	LOADING:	MOST FORWARD "C. G." LOCATION. APPROVED REARWARD LIMIT: (10 OR 18A) (A) (5)
	LOADING:	MOST FORWARD "C. G." LOCATION. APPROVED REARWARD LIMIT: (10 OR 18A)
	LOADING:	MOST FORWARD "C. G." LOCATION. APPROVED REARWARD LIMIT: (10 OR 18A) (A) (5)
	LOADING:(13 OR 14C)	MOST FORWARD "C. G." LOCATION. APPROVED REARWARD LIMIT: (10 OR 18A) (A) (B) MOST REARWARD "C. G." LOCATION.
IRCRAFT	LOADING:(13 OR 14C)	MOST FORWARD "C. G." LOCATION. APPROVED REARWARD LIMIT: (10 OR 18A) (A) (B) MOST REARWARD "C. G." LOCATION.
NOST REARWARD	LOADING:	MOST FORWARD "C. G." LOCATION. APPROVED REARWARD LIMIT: (10 OR 18A) (A) (B) MOST REARWARD "C. G." LOCATION.

PAA AIRCRAFT REGISTRY CAMERA NO. 5 DATE: 2/16/82



LONG BEACH AEROMOTIVE

C.A.A. APPROVED REPAIR STATION PHONE 499-44 2735 EAST SPRING STREET LONG BEACH 6, CALIFORNIA

AIRCRAFT AND ENGINE OVERHAUL

MAINTENANCE

MODIFICATION

NC 95467

GRUMMAN G-21A SERIAL NO. //6/

LOADING SCHEDULE

REPORT DATE: 4-17-47

PREPARED BY:

APPROVED BY: A. Councy
Civil Aeronautics Administration

FAA AIRCRAFT REGISTRY CAMERA NO. 4 DATE: 2/16/82

Pr. Hg 40 S & By T

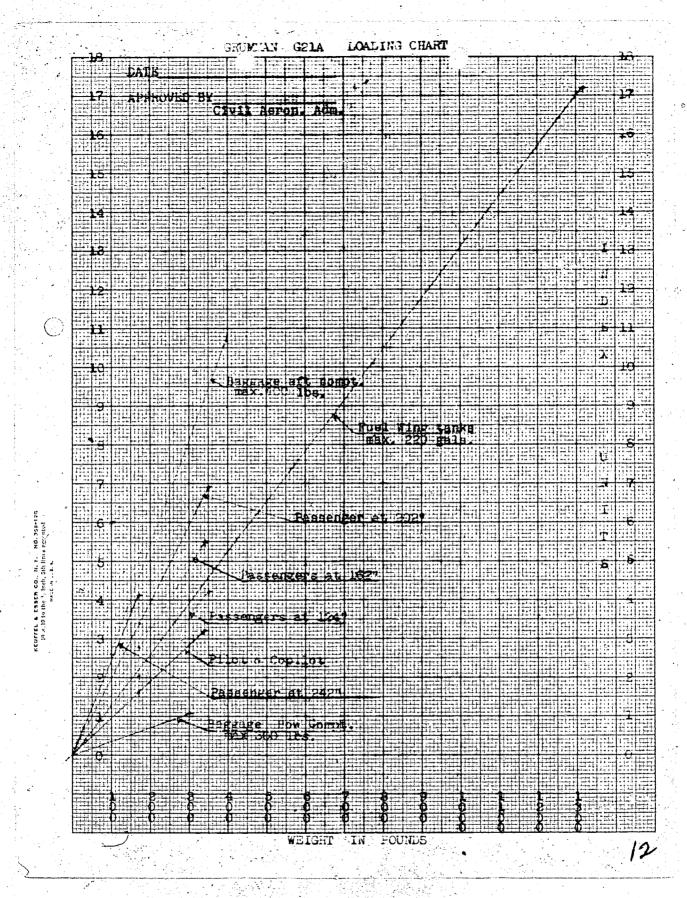
LOADING SCHEDUAL Reference line - 100"-Horizental DeTum E-A= 10" B= 120" Tere Symbol Net Weight
5 R . 2790
5 L . 2665 Scale Resding 2795 2670 Right Wheel Left Wheel Tail Wheel 622 6077 .85 707 Total Weight $\frac{T \times B}{W} \neq 100-A = \frac{(622) \times (120)}{(6077)} \neq (100 \neq 10) = 122.25$

	Corrected	Weight &	Raleuce	
Ttems	Weight	Arm	Koment	
Aircraft as weighed	6077.0	122.25	742913	
	112.5	108	12150	<u> </u>
011 15 G61.	5964.5		730763	
Empty Weight	1 030440	<u> </u>	•	•

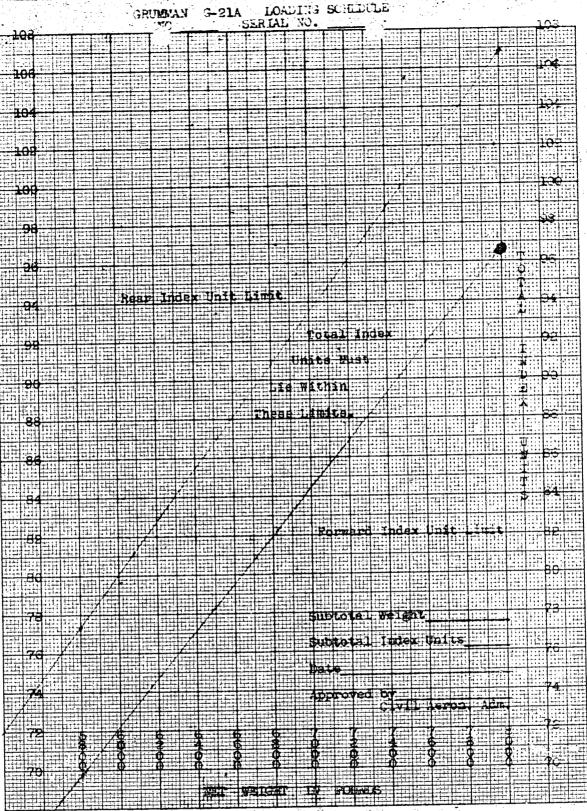
Index Units Sub-Total Weight & Bal. #e1@ht 5964.5 112.5 6077.0 Items Empty Weight Full 011 73.08 1.21 108 74.29 Sub Total

	EXAXPLE				
	Weight		Index Unit		
Sub Total	6077		74.29		
Pilot	170		1.61		
Fuel (120 Gal)	720		9.40		
2 Passengers	340		4:10		
2 Passengers	340		5.50		
1 Passenger	170		3.4		
Baggage	183		4.8		
Layrence	8000		103.10		

FAA AIRCRAFT REGISTRY CAMERA NO. 4 DATE: 2/16/82 01 - 4



FAA AIRCRAFT REGISTRY CAMERA NO. 4 DATE: 2/16/82



pred a gasta co., N.T. (N) O / 10 to the hyloch, 5th lines (N) PAA AIRCRAFT REGISTRY CAMERA NO. 4 DATE: 2/16/82

S-MOOR JIAM MOTONIHZAW

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