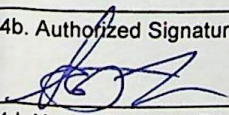
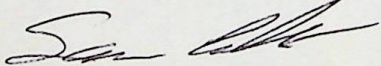


1. Approving Civil Aviation Authority/Country: FAA/UNITED STATES		2. AUTHORIZED RELEASE CERTIFICATE FAA FORM 8130-3, AIRWORTHINESS APPROVAL TAG			3. Form Tracking Number: 1854		
4. Organization Name and Address: International Propeller Service 4630 Hartley Street #3 Lincoln, NE 68504 USA Ph: 402-858-6346, Fax: 402-817-4360 FAA Approval Holder: 9IPR665C					5. Work Order/Contract/Invoice Number: IPS1297		
6. Item	7. Description:	8. Part Number:	9. Quantity:	10. Serial Number:	11. Status/Work:		
1	Propeller	B3D36C433-C	1	990523	OVERHAULED		
12. Remarks: Overhauled per McCauley manuals MPC400 rev 4 dated 10-2015, SPM100 rev 6 dated 10-2015 and BOM100 rev 9 dated 1-2017. Static balanced. Serviced with 2.11 quarts 15W50 oil with red dye. Modified to Change Letter C. Complied with Service Bulletins 119A, 227B, Decal install only and 267. TBO is 2400 hours / 72 months.							
13a. Certifies the items identified above were manufactured in conformity to: ☐ Approved design data and are in a condition for safe operation. ☐ Non-approved design data specified in Block 12			14a. ☒ 14 CFR 43.9 Return to Service ☒ Other regulation specified in Block 12 Certifies that unless otherwise specified in Block 12, the work identified in Block 11 and described in Block 12 was accomplished in accordance with Title 14, Code of Federal Regulations, part 43 and in respect to that work, the items are approved for return to service.				
13b. Authorized Signature:		13c. Approval Authorization No.:		14b. Authorized Signature:		14c. Approval/Certificate No.:	
						9IPR665C	
13d. Name (Typed or Printed):		13e. Date (dd/mmm/yyyy):		14d. Name (Typed or Printed):		14e. Date (dd/mmm/yyyy):	
				Scott Lan		14-May-2018	
User/Installer Responsibilities							
It is important to understand that the existence of this document alone does not automatically constitute authority to install the aircraft engine/propeller/article. Where the user/installer performs work in accordance with the national regulations of an airworthiness authority different than the airworthiness authority of the country specified in Block 1. It is essential that the user/installer ensures that his/her airworthiness authority accepts aircraft engine(s)/propeller(s)/article(s) from the airworthiness authority of the country specified in Block 1. Statement in Blocks 13a and 14a do not constitute installation certification. In all cases aircraft maintenance records must contain an installation certification issued in accordance with the national regulations by the user/installer before the aircraft may be flown.							

1. Approving Civil Aviation Authority/Country: FAA/United States		2. AUTHORIZED RELEASE CERTIFICATE FAA Form 8130-3, AIRWORTHINESS APPROVAL TAG		3. Form Tracking Number: 201802191056	
4. Organization Name and Address: Aero Technologies, LLC. 595 TELSERS RD. LAKE ZURICH, IL 60047 PQ2724CE				5. Work Order/Contract/Invoice Number: 126704 - 126705	
6. Item:	7. Description:	8. Part Number:	9. Quantity:	10. Serial Number:	11. Status/Work:
1	Propeller Governor Constant Speed	ATF4-11B	2	174081, 181100	NEW
12. Remarks: Airworthiness Approval					
13a. Certifies the items identified above were manufactured in conformity to: ☒ Approved design data and are in a condition for safe operation. ☐ Non-approved design data specified in Block 12.			14a. ☐ 14 CFR 43.9 Return to Service ☐ Other regulation specified in Block 12 Certifies that unless otherwise specified in Block 12, the work identified in Block 11 and described in Block 12 was accomplished in accordance with Title 14, Code of Federal Regulations, part 43 and in respect to that work, the items are approved for return to service.		
13b. Authorized Signature: 		13c. Approval/Authorization No.: 262891703		14b. Authorized Signature:	
13d. Name (Typed or Printed): Sammie Collins		13e. Date (dd/mm/yyyy): 19/FEB/2018		14c. Approval/Certificate No.:	
				14d. Name (Typed or Printed):	
				14e. Date (dd/mm/yyyy):	
User/Installer Responsibilities					
It is important to understand that the existence of this document alone does not automatically constitute authority to install the aircraft engine/propeller/article. Where the user/installer performs work in accordance with the national regulations of an airworthiness authority different than the airworthiness authority of the country specified in Block 1, it is essential that the user/installer ensures that his/her airworthiness authority accepts aircraft engine(s)/propeller(s)/article(s) from the airworthiness authority of the country specified in Block 1. Statements in Blocks 13a and 14a do not constitute installation certification. In all cases, aircraft maintenance records must contain an installation certification issued in accordance with the national regulations by the user/installer before the aircraft may be flown.					

ALLAS Avionics, Inc. DALLAS Avionics, Inc.

AVIONICS DISTRIBUTOR

2525 SANTA ANNA AVE.
DALLAS, TX 75228
(214) 320-9770

AVIONICS DISTRIBUTOR

2525 SANTA ANNA AVE.
DALLAS, TX 75228
(214) 320-9770

SALES ORDER: 279074

SALES ORDER: 279074

SOLD TO 201850
DUNCAN AVIATION,
P.O. BOX 81887
LINCOLN, NE 68501

SHIP TO

DUNCAN AVIATION, INC.
LINCOLN MODS CENTER
3701 AVIATION ROAD
LINCOLN, NE 68524

13A 721736072658

CUSTOMER ORDER NUMBER		INVOICE DATE	SHIP VIA	WAYBILL NO.	TERMS		
559618		09/29/06	FedEx 1Day		2% 10 NET 30		
QUANTITY			PART NUMBER	UOM	PRICE	DISC.	AMOUNT
ORDERED	SHIPPED	BACK ORDER	DESCRIPTION				
1	1	/	ISOCOM Cond: NE DAVID CLARK INTERCOM P/N 18486G-01	EA	334.80	NET	334.80
This is to certify that the materials furnished on this shipment are in conformance with the requirements, specifications, or drawings of the above referenced customer purchase order number. Inspection or test records are on file and available for customer review. Unless otherwise specified, all equipment sold is in new condition. DALLAS AVIONICS, INC. QUALITY ASSURANCE DEPARTMENT US/CANADA 800-527-9581 CN: 201850 SR: CJ SO: 279074							
2525 SANTA ANNA AVE. DALLAS, TX 75228 (214) 320-9770 FAX 214-320-1057					SALE AMT 334.80 MISC CHRGs 0.00 SALES TAX 0.00 FRT & HNDLG 0.00 TOTAL 334.80 AMT RECVD 0.00 DISCOUNT 0.00		
GEORGIA 770-972-5610					PENNSYLVANIA 1-215-368-9966 U.S. 800-523-5949		
						TOTAL AMOUNT	
						334.8	

1. Approving national aviation authority Transport Canada		2. AUTHORISED RELEASE CERTIFICATE TCCA 24-0078			3. Form 18		Dept <u>ALW</u>	
4. Approved organization name and address.		cmc électronique Inc. / cmc electronics Inc. 600 BOUL. DR. FREDERIK-PHILIPS ST-LAURENT, QUÉBEC CANADA, H4M 2S9			5. WO# <u>FMWCA</u>		Service P.O. : <u>SQ# 3/1</u>	
6. Item	7. Description	8. Part No.	9. Eligibility	10. Qty.	11. Serial/batch			
01	Model M3 GPS M3 GPS APPROACH	1200-03-01		1	S/N: AL15			
13. Remarks								
REPAIRED I.A.W. DWG/CMM..... 1200-A1 REV.. N/A AIRWORTHINESS DIRECTIVE COMPL								
MODIFIED I.A.W. SBS/ECO'S: N/A EASA ACCEPTANCE CERTIFICATE N								
TESTED I.A.W. ATP/CMM..... ATP 245-604111-000AP REV.... "A"								
"CERTIFIES THAT THE WORK SPECIFIED ABOVE EXCEPT AS OTHERWISE SPECIFIED IN BLOCK 13 WAS CARRIED OUT IN ACCORDANCE WITH EASA PART 145 AND IN RESPECT TO THAT WORK. THE PART(S) IS (ARE) CONSIDERED READY FOR RELEASE TO SERVICE"								
14. Certifies that the items identified above were manufactured in conformity to:				19. Certifies that unless otherwise specified in block 13, the work identified in 12 and described in block 13 was performed in accordance with CAR 571:				
☐ Approved design data and are in condition for safe operation.				☒ CAR 571 Maintenance release.				
☐ Non approved design data specified in block 13.				☒ Other regulations specified in block 13.				
15. Authorized signature		16. Approval/Authorization No.		20. Authorized signature		21. Approval/Certificate No.		
						SCA# AMO 03-73		
17. Name		18. Date (d/m/y)		22. Name		23. Date (d/m/y)		
				Michel Dagenais		11 avril 2007		

- This document does not constitute authority to install the part.
- Where the installer works in accordance with the national regulations of an airworthiness authority other than the authority specified in block 1, the installer must ensure that his/her airworthiness authority accepts products or maintenance from the airworthiness authority specified in block 1.
- Statements 14 and 19 do not constitute installation certification. In all cases the aircraft technical record must contain an installation certification, issued in accordance with the national regulations of the state of registry, before the aircraft may be flown.

EQUIP	F/O:	P/N:	SER:	CUSTOMER:

SERVICE REPAIR REPORT

CMC Électronique Inc. CMC Electronics Inc. 600, boul. Dr-Frederik-Philips Ville Saint-Laurent (Québec) Canada H4M 2S9 Tél.: 514-748-3000 Fax: 514-748-3100	CMC Reference number	Date / Statement Date	Page
	187820	09-04-2007	1
	Serial Number		
	AL12810 DUNCAN AVIATION		
	CMC Item number		
Customer	ItemDescription		
020031 NORTHSTAR CASH SA	M3 APPROACH		
Comment	Installation		
	1200-03-AL12810		

Reported Fault

1200-03-01
 UNITS BLANKS OUT AND IS SLOW TO ACQUIRE SATELLITES
 C/W FLITE CARD .

INSPECTION SEALS BROKEN

Work Done

Tested unit and did estimate.
 Replaced NV battery.
 Replaced back-up battery.
 Replaced power supply C06 P/N: CE660.
 Troubleshoot GPS board.
 Replaced GPS U2.
 Reprogram GPS board.
 Troubleshoot processor board.
 Replaced processor U52, U59.
 Fix stencil.
 Cleaned connectors.
 Tested and recertified.

Michel Dagenais
 Michel Dagenais



04/11/07
 Date Stamp

Parts Replaced

Name	Part Number	Change reason	Qty
BATTERY,LITHIUM,W/TERMINALS,WA	205-990140-245	Failed	1.00
INTEGRATED CKT,CMOS,OCTAL"D"LA	264-990130-538	Failed	4.00
IC,CMOS,64K(8KX8) EEPROM	264-990142-731	Failed	1.00
BATTERY PACK,12V 50MAH Nicad p	BL125	Failed	1.00

WFO#

HORIZED RELEASE CERTIFICATE AA Form 8130-3, AIRWORTHINESS APPROVAL TAG				3. Form Tracking Number: FMWCA0004002001	
/Lincoln, NE 68524				5. Work Order/Contract/Invoice Number: FMWCA	
Part Number: G-35		9. Eligibility: * N/A	10. Quantity: 1	11. Serial/Batch Number: G02291059	12. Status/Work: INSPECTED

13. Remarks:
Customer:UNIVERSITY OF NEBRASKA N186CA*

Inspected - open circuit voltage is 8.4vdc. Charged battery, checked specific gravities, and adjusted electrolyte levels. Final Inspected per Gill Dry Charged Lead-Acid Aircraft Battery Service Manual Q01-1120 Rev B dated 6/1/05.

Inspected.

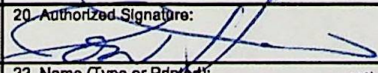
Duncan Aviation certifies that the work specified in Blocks 12 and 13 was performed I.A.W. EASA Implementation Rule part 145 approval, and with respect to that work, the aircraft component is considered ready for release to service under EASA approval number 145.4392.

All EASA/FAA Airworthiness Directives are the responsibility of the installer.

No current U.S. Airworthiness Directives apply.

Technician: BRIAN R. TEETERS

Approval for return to service

14. Certifies the items identified above were manufactured in conformity to: ☐ Approved design data and are in a condition for safe operation. ☐ Non-approved design data specified in Block 13.		19. ☒ 14 CFR 43.9 Return to Service ☒ Other regulations specified in Block 13 Certifies that unless otherwise specified in Block 13, the work identified in Block 12 and described in Block 13 was accomplished in accordance with Title 14, Code of Federal Regulations, part 43 and in respect to that work, the items are approved for return to service.	
15. Authorized Signature:	16. Approval Authorization No.:	20. Authorized Signature: 	21. Approval/Certificate No.: JGVR194F
17. Name (Type or Printed):	18. Date (m/d/y):	22. Name (Type or Printed): JONATHAN P. HEIN DUNCAN Q1535	23. Date (m/d/y): May 22, 2007

User/Installer Responsibilities

It is important to understand that the existence of this document alone does not automatically constitute authority to install the part/component/assembly.

Where the user/installer performs work in accordance with the national regulations of an airworthiness authority different than the airworthiness authority of the country specified in Block 1, it is essential that the user/installer ensures that his/her airworthiness authority accepts parts/components/assemblies from the airworthiness authority of the country specified in Block 1.

Statements in blocks 14 and 19 do not constitute installations certification. In all cases, aircraft maintenance records must contain an installation certification issued in accordance with the national regulations by the user/installer before the aircraft may be flown.

Dept ALN

SIZED RELEASE CERTIFICATE

8130-3, AIRWORTHINESS APPROVAL TAG

3. Form Tracking Number:

FLZ1A0003002

WO# FLZ1A

Airport/Lincoln, NE 68524

5. Work Order/Contract/Invoice
Number: FLZ1ASQ# 3-1

Form MF115-00

6. Item Number:	9. Eligibility: *	10. Quantity:	11. Serial/Batch Number:	12. Status/Work:
021-00	N/A	001	71830	REPAIRED

13. Remarks:

CUSTOMER: UNIVERSITY OF NEBRASKA N186CA

Discrepancy: Unit is weak.

Preliminary Findings: Bench checked and found receiver sensitivity good, but squelch is misaligned. Transmitter is good also.

Corrective Actions: Realigned noise and carrier squelch. Unit function tested per King KY-196/197 maintenance manual, Revision 3, Sept 1983.

No current U.S. Airworthiness Directives apply.

TECHNICIAN: RANDALL K. JURGENS

This document constitutes a signed copy of the work order.

14. Certifies the items identified above were manufactured in conformity to:

- ☐ Approved design data and are in a condition for safe operation.
☐ Non-approved design data specified in Block 13.

19. ☒ 14 CFR 43.9 Return to Service ☐ Other regulation specified in Block 13

Certifies that unless otherwise specified in Block 13, the work identified in Block 12 and described in Block 13 was accomplished in accordance with Title 14, Code of Federal Regulations, part 43 and in respect to that work, the items are approved for return to service.

15. Authorized Signature:

16. Approval/Authorization No.:

20. Authorized Signature:

Duncan
Q1313

21. Approval/Certificate No.:

JGVR194F

17. Name (Typed or Printed):

18. Date (m/d/y):

22. Name (Typed or Printed):

DARRICK BLACKMAN

23. Date (m/d/y):

Oct 23 2006

User/Installer Responsibilities

It is important to understand that the existence of this document alone does not automatically constitute authority to install the part/component/assembly.

Where the user/installer performs work in accordance with the national regulations of an airworthiness authority different than the airworthiness authority of the country specified in Block 1, it is essential that the user/installer ensures that his/her airworthiness authority accepts parts/components/assemblies from the airworthiness authority of the country specified in Block 1.

Statements in blocks 14 and 19 do not constitute installation certification. In all cases, aircraft maintenance records must contain an installation certification issued in accordance with the national regulations by the user/installer before the aircraft may be flown.

Dept ALWWO# FML5ASQ# 1-1

Form MF115-00

2. AUTHORIZED RELEASE CERTIFICATE

FAA Form 8130-3
AIRWORTHINESS APPROVAL TAG

3. Form Tracking Number

C-266436

L-3 communications
COMPONENT OVERHAUL AND REPAIR5250 NW 33RD AVENUE
FT LAUDERDALE, FL 33309
Phone: 954-497-0100 Fax: 954-497-0190FAA Approved
Repair Station No. UL2R217L

5. Work Order/Contract/Invoice Number:

331717

6. Item	7. Description	8. Part Number	9. Eligibility *	10. Quantity	11. Serial/Batch Number	12. Status/ Work
1	WX-11 PROCESSOR	(78-8047-0958-8)	TSO ARTICLE, N/A	1	R1P02600563	REPAIRED

13. Remarks

Documents describing the actual work performed on work order # 331717 are provided. The described work was performed in accordance with FAA accepted / approved data.
NO AD'S OR MANDATORY SB'S APPLY.

Customer PO: 564294

Manufactured By: 3M

L-3 Communications certifies that the work specified in Blocks 12 and 13 was performed in accordance with EASA Implementation Rule part 145 approval, and with respect to that work, the aircraft component is considered ready for release to service under EASA approval number 145.4261

14. Certifies the items identified above were manufactured in conformity to:

- ☐ Approved design data and are in a condition for safe operation.
☐ Non-approved design data specified in Block 13.

19. ☒ 14 CFR 43.9 Return to Service ☒ Other regulation specified in Block 13.

Certifies that unless otherwise specified in Block 13, the work identified in Block 12 and described in Block 13 was accomplished in accordance with Title 14, Code of Federal Regulations, Part 43 and in respect to that work, the items are approved for return to service.

15. Authorized Signature
-N/A-16. Approval/Authorization No.:
-N/A-

20. Authorized Signature:

21. Approval/Certificate No.
UL2R217L17. Name (Typed or printed):
-N/A-18. Date (m/d/y):
-N/A-22. Name (Typed or Printed):
PAUL MARTIN23. Date (m/d/y):
NOV/20/2006

User/Installer Responsibilities

It is important to understand that the existence of this Document alone does not automatically constitute authority to install the part/component/assembly.

Where the user/installer work in accordance with the national regulations of an Airworthiness Authority different than the Airworthiness Authority of the country specified in block 1 it is essential that the user/installer ensures that his/her Airworthiness Authority accepts parts/components/assemblies from the Airworthiness Authority of the country specified in block 1.

Statements in block 14 and 19 do not constitute installation certification. In all cases aircraft maintenance records must contain an installation certification issued in accordance with the national regulations by the user/installer before the aircraft may be flown.

Date: 21-OCT-06



Teardown Report



Work Order No: 331717

Capability Status: Capability Active

Nomenclature: WX-11 PROCESSOR

Part Number In: 78-8047-0958-8

Serial No: R1P02600563

Tail No: 186CA

ATA No:

Model No: WX-11

P/N Out: 78-8047-0958-8

Cust P/N:

L-3 communications
COMPONENT OVERHAUL AND REPAIR
5250 NW 33RD AVENUE
FT LAUDERDALE, FL 33309
Phone: 954-497-0100 Fax: 954-497-0190
FAA Repair Station No: UL2R2 I7L

Warranty
Request ☐ Yes ☐ No ☒
Denied ☐
Granted ☐

Previous Hist: Yes ☐ No ☒

S/N Out: R1P02600563

Cust S/N:

Manual Reference: F0840-0400.00A

MFG: 3M

PAGE: 1 OF 2

Due Date: 21-NOV-06
Order No: RO131458-1
Service Requested: REPAIR AND BENCH CHECK
Quantity: 1
Customer No: 1185
Customer Name: DUNCAN AVIATION, INC
Customer PO No: 564294
Reason for removal:
UNIT INTERMITTENTLY SHOW "FLAG" ON
STORMSCOPE.

Customer Inst:

REPAIR.

Item	Type	Work Ctr	Description of Work Performed	Oper Seq
1	R	FT4 FT4	SPECIAL INSTRUCTIONS- ALL AD'S MUST BE COMPLIED WITH NOTE: UNIT CALIBRATED TO TEST DISPLAY.	 10
COMPLIED ☐ PREV COMPL ☐ N/A ☒ AD'S ☒ INITIALS <u>ARM</u>				
2	R	FT4 FT4	PRELIMINARY INSPECTION AND TEST CONFIRMED REASON FOR REMOVAL.	 20
VERIFIED ☒ NOT VER ☐ NTF ☐ N/A ☐				
3	R	FT4 FT4	REASON FOR FAILURE CR212 ON ANALOG PCB SHORTED - REPLACEMENT REQUIRED. CONNECTORS & PCB CONTACTS CONTAMINATED. CALIBRATION REQUIRED.	 30
4	R	FT4 FT4	PAINT	 40

31-OCT-06



PAGE: 2 OF 2

Teardown Report

Work Order No: 331717

L-3 communications
 COMPONENT OVERHAUL AND REPAIR
 5250 NW 33RD AVENUE
 FT LAUDERDALE, FL 33309
 Phone: 954-497-0100 Fax: 954-497-0190
 FAA Repair Station No. UL2R217L

Customer Name: DUNCAN AVIATION, INC

Item	Type	Work Ctr	Description of Work Performed	Oper Seq
5	R	FT4 FT4	WORK ACCOMPLISHED DISASSEMBLED AS NECESSARY, CLEANED, INSPECTED, REPAIRED AND REASSEMBLED. PASSED BENCH TEST I.A.W. 3M SM 78-8047-0902-6, DTD OCTOBER 1985. NO A.D.'S OR MANDATORY S.B.'S APPLICABLE.	 50
6	R	FT4 FT4	FINAL INSPECTION	 60

Parts Usage List:

Primary P/N	Description	P/N Used	PO/Lot No	S/N	Qty.	UOM	Action Code	Fig. Item/Ref Number	Discrepancy
-------------	-------------	----------	-----------	-----	------	-----	-------------	----------------------	-------------

This unit has been: REPAIRED

The aircraft and/or component identified was serviced and inspected in accordance with current Federal Aviation Administration regulations and was found airworthy for return to service, with respect to the work performed.

Technician Name: ALFREDO MALDONADO

Employee Number: 8776

Date: 16-NOV-06

Final Inspector Name: PAUL MARTIN

Employee Number: 48485

Date: 20-NOV-06

Final Inspector Signature:

TT-42815 SMOH-1472.3

Ann - Oct. 2005

Part/Static → Jve → Transponder →

N₂ 27233

QUAN.	PART NO.	ARTICLE	PRICE
1 EA		ELT ANTENNA	92.50
1 EA	B-3-51	FOAM FILTER	3.36
1 EA	BA-3	FILTER	11.88
8 EA	66-62	DRAKE LININGS	178.40
1 EA	534750	MAGNETO GASKET	.82
1 EA	68488-002	TRIM INDICATOR	39.91
1 EA	86255	PROBE	84.00

HUSKER AIRCRAFT REPAIR, INC.

FULL SERVICE PIPER

12916 MILLARD AIRPORT PLAZA
OMAHA, NEBRASKA 68137 895-4974NAME NE SPACE GRANTDATE 6 OCT 2005

ADDRESS _____

PHONE NO. _____

IDENTIFICATION NO.	MAKE & MODEL	TACH TIME	AIRCRAFT SERIAL NO.
<u>N186CA</u>	<u>PA32R-300</u>	<u>1469.8</u>	

OPER. NO.	KIND OF WORK	AMOUNT
1	100 HOUR INSPECTION	550.00
2	REMOVED AND REPLACED ELT ANTENNA.	
3	TIGHTENED CLAMPS ON FUEL HOSE LT. WING.	
4	REMOVED AND REPLACED TRIM INDICATOR.	
5	TIGHTENED ALT. BELT.	
6	RE-INSTALLED ALT. AIR BOX CLAMP.	
7	REMOVED AND REPLACED INGR FILTER.	
8	REMOVED MAGNETO CHECK COMPLIANCE W/A.D. ON IMPULSE COUPLING. RE-INSTALLED MAGNETO.	
9	CHECK COMPLIANCE W/A.D.'S ON IGN. SWITCH AND FUEL INT. LINES & CLAMPS.	

7 HOURS LABOR 406.00

FREIGHT CHGS. 11.30

OUTSIDE MAINT.

SHOP SUPPLIES 28.00

TOTAL PARTS 450.17

SHIPPING

- ☐ I hereby authorize test flights by qualified personnel in your organization.
☐ I hereby authorize air worthiness inspection flights to inspection station.
ALL AUTHORIZED FLIGHTS MADE AT OWNER'S RISK

I hereby authorize repair work to be done as described above with necessary parts, to be listed at your regular prices. I agree to pay cash on delivery of aircraft or on satisfactory terms to you; and until paid in full it shall constitute a lien on this aircraft. I further agree that you will not be held responsible for aircraft or articles left in aircraft in case of fire, theft, accidents, or other causes beyond your control.

PAYMENT IS DUE UPON RECEIPT OF THIS STATEMENT. A LATE CHARGE OF 1½% PER MONTH (ANNUAL PERCENTAGE RATE OF 18%) WILL BE CHARGED ON ALL PAST DUE BALANCES.

WORK AUTHORIZED BY

TOTAL OUTSIDE MAINT. & SHP.	
TOTAL PARTS	450.17
TOTAL LABOR	406.00
TAX	EXEMPT
TOTAL	1406.17

PLEASE PAY FROM
THIS INVOICE

1-10

HUSKER AIRCRAFT REPAIR, INC.

FULL SERVICE PIPER



12916 MILLARD AIRPORT PLAZA
OMAHA, NEBRASKA 68137 895-4974

ADDRESS _____ PHONE NO. _____

OPER. NO.	KIND OF WORK	AMOUNT
-----------	--------------	--------

2	REMOVED AND REPLACED CYRO.
---	----------------------------

3 HOURS LABOR	174.00
---------------	--------

OUTSIDE MAINT.

SHIPPING

- | | | |
|-----------------------------|--|--|
| TOTAL OUTSIDE MAINT. & SHP. | | |
|-----------------------------|--|--|

TOTAL PARTS	491	20
-------------	-----	----

TOTAL LABOR	174	DO
-------------	-----	----

TAX	EVMD	---	---
-----	------	-----	-----

TOTAL	67085	
-------	-------	--

WORK AUTHORIZED BY

**PLEASE PAY FROM
THIS INVOICE**

Staple to 8130-3/Invoice

Dept ALW

WO# FMWCA

SQ# 1/1 Form MF115-00

INSTALLATION INSTRUCTIONS Comant Industries, Inc.

II

A42017

REV: A

ON INSTRUCTIONS FOR CI 420-220 GPS COMDAT® ANTENNA

PART IDENTIFICATION SUPPLEMENT:

"TSO C144 Incomplete System" per FAA 8150.1B, Section 17(b). This antenna provides a receiver system only and contains a pre-amplifier. It may be used with any approved TSO limited to the RTCA DO-160D environmental category noted on the identification label attached

(RECOMMENDATIONS & LIMITATIONS)

IT'S IMPORTANT TO UNDERSTAND THAT THIS DOCUMENT IS NOT AN INSTALLATION AUTHORIZATION

The CI 420-220 GPS COMDAT® antenna delivers optimum performance only when installed correctly. To ensure adequate structural strength of the aircraft for associated air loading during flight, use of a backing plate or doubler (**not supplied**) refer to **FAA ADVISORY CIRCULAR 43.13-2A** for complete information is highly recommended. It is the responsibility of the installation agency to determine the appropriate and adequate antenna installation.

WARNING: The CI 420-220 GPS COMDAT® antenna is electrostatic discharge (ESD) sensitive. ESD protection procedures must be used as a minimum.

Don't remove from the connectors the **ESD** protective plugs, until you connect the coaxial cables to the antenna. Use a grounded wrist strap when attaching the coaxial cables to the antenna.

Make sure that the receiver is not turned on before the antenna is completely installed.

Ground the center pins of the connecting coaxial cables using two jumper cables before connecting it to the

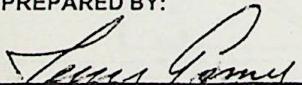
antenna to dissipate any residual ESD charges that may have accumulated on it.

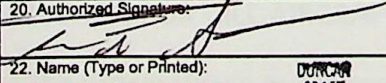
LOCATION:

- 1) The CI 420-220 GPS COMDAT® antenna must be mounted on the top of the aircraft to assure maximum visibility of satellites. The optimum antenna location is at a high point on the cabin when viewed in level flight and away from projections such as a propeller, tail surfaces, or the shadow of larger antennas. **NOTE:** The CI 420-220 GPS COMDAT® antenna must be at least four feet away from any antenna to avoid interference. (EXCEPTION – COMANT/COMDAT VHF ANTENNAS).
- 2) On top wing aircraft, the antenna should be mounted toward the leading edge of the wing to minimize shading the antenna during climb-out when navigation information is usually desired. Avoid mounting the antenna at the rear edge of the windshield since, under certain conditions, static may be generated in this area. **NOTE:** The location chosen should provide the least obstructed visual line of sight path from the signal source to the antenna elements.

INSTALLATION PREPARATION:

- 1) Prepare the surface for antenna installation in such a manner to ensure a ground contact of less than .003 Ohm. If bare metal surfaces are needed for surface preparation they should be treated with Alodine 1200 or Iridite to eliminate aluminum oxidation.
- 2) Drill holes in aircraft skin per footprint provided, the clearances holes for the mounting screws must be .172" dia. and .625" dia. for the GPS TNC connector. **NOTE:** The picture in figure 1 on page 2 is shown for reference only; don't use it as a template for drilling holes.

PREPARED BY: 	DATE: 8/27/04	PRODUCTION MANAGER: W. DeLoe Shull	DATE: 8/27/04
ENGINEER: 	DATE: 8/27/04	QUALITY: S. Adams	DATE: 8/27/04

1. Approving National Aviation Authority/Country FAA/UNITED STATES		2. AUTHORIZED RELEASE CERTIFICATE FAA Form 8130-3, AIRWORTHINESS APPROVAL TAG				3. Form Tracking Number: FPDEA0002002001	
4. Organization Name and Address: Duncan Aviation/Lincoln Airport/Lincoln, NE 68524						5. Work Order/Contract/Invoice Number: FPDEA	
6. Item:	7. Description:	8. Part Number:	9. Eligibility: *	10. Quantity:	11. Serial/Batch Number:	12. Status/Work:	
1	BATTERY	G-35	N/A	1	G02291059	INSPECTED	
13. Remarks: Customer: UNIVERSITY OF NEBRASKA N186CA Inspected, battery is dead (open circuit voltage is 11.98V). Charged battery. Checked specific gravities. Adjusted electrolyte levels. Final inspected in accordance with Gill Service Manual Q01-1120 Revision B dated 6/2005. Inspected. See attached service manual page for shelf life. Duncan Aviation certifies that the work specified in Blocks 12 and 13 was performed I.A.W. EASA Implementation Rule part 145 approval, and with respect to that work, the aircraft component is considered ready for release to service under EASA approval number 145.4392. All EASA/FAA Airworthiness Directives are the responsibility of the installer. No current U.S. Airworthiness Directives apply. Technician: BRIAN R. TEETERS Approval for return to service							
14. Certifies the items identified above were manufactured in conformity to: ☐ Approved design data and are in a condition for safe operation. ☐ Non-approved design data specified in Block 13.				19. ☒ 14 CFR 43.9 Return to Service ☒ Other regulations specified in Block 13 Certifies that unless otherwise specified in Block 13, the work identified in Block 12 and described in Block 13 was accomplished in accordance with Title 14, Code of Federal Regulations, part 43 and in respect to that work, the items are approved for return to service.			
16. Authorized Signature:		18. Approval Authorization No.:		20. Authorized Signature:		21. Approval/Certificate No.:	
				 TIMOTHY F. SMITH		JGVR194F	
17. Name (Type or Printed):		18. Date (m/d/y):		22. Name (Type or Printed):		23. Date (m/d/y):	
				TIMOTHY F. SMITH		Jun 01, 2007	
User/Installer Responsibilities							
It is important to understand that the existence of this document alone does not automatically constitute authority to install the part/component/assembly. Where the user/installer performs work in accordance with the national regulations of an airworthiness authority different than the airworthiness authority of the country specified in Block 1, it is essential that the user/installer ensures that his/her airworthiness authority accepts parts/components/assemblies from the airworthiness authority of the country specified in Block 1. Statements in blocks 14 and 19 do not constitute installations certification. In all cases, aircraft maintenance records must contain an installation certification issued in accordance with the national regulations by the user/installer before the aircraft may be flown.							



Gill DRY-CHARGE MAINTENANCE MANUAL

7.6.3 A simple example to illustrate the magnitude of a parasitic drain over time:

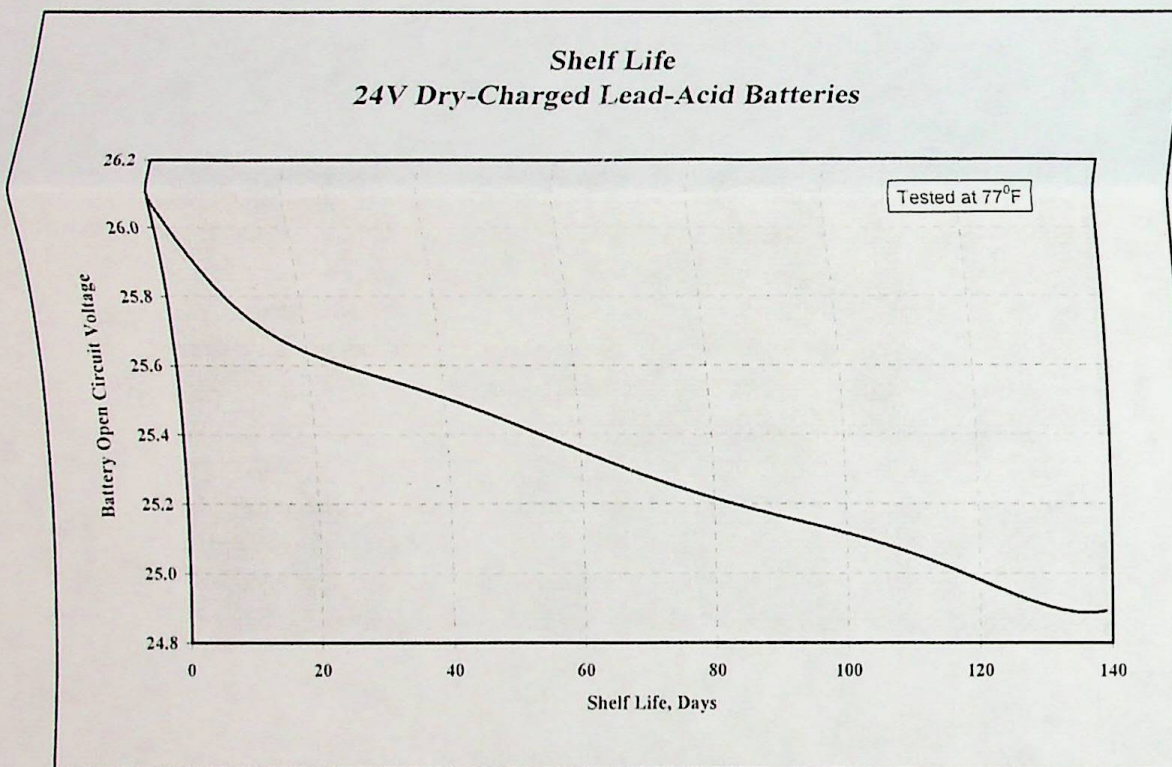
If the external load is: 0.1A

And non-use period is: 3 weeks

Total discharge = $0.1A \times 3 \text{ weeks} \times 24 \text{ hours/day} \times 7 \text{ days/week}$
= 50.4 Ah

Comparing this loss to the capacity of the battery, this small drain can be quite significant over time!

FIGURE 3



7.7 CONTINUED AIRWORTHINESS DETERMINATION FOR GILL AIRCRAFT BATTERIES

7.7.1 To ensure continued airworthiness the battery should be removed and capacity tested. The recommended service period should initially be at 800 ± 50 hours or 11 ± 1 calendar month(s) whichever comes first. After the initial service, the



ENGINEERING ORDER

EO#

070606011

CLASS:

- ☐ 1. Major Alteration/Repair; ☐ 8110-3 ☐ Field Approval.
☒ 2. Minor Alteration/Repair; Engineering approval only; stand alone.

SHT.: 1 OF 1

E.O. TITLE:

BATTERY BOX REPLACEMENT

A/C MAKE PIPER
MODEL PA-32R-301

REV

REVISION

DESCRIPTION

DATE

Ø

INITIAL RELEASE

6/6/07

SCALE: NONE

W.O.#: FPDE

REG#: N186CA

S/N: 32R-8013046

A

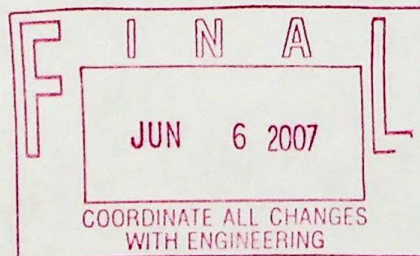
ADDED PHENOLIC SPACERS.

6/6/07

DESCRIPTION

THIS EO ADDRESSES REPLACEMENT OF THE EXISTING BATTERY BOX. FABRICATE NEW BOX FROM .030 304 CRES SHEET. MATCH DIMENSIONS TO EXISTING BATTERY BOX. WELD BOX IAW AC 43.13-1B, CHAPTER 4. REMOVE ALL EXISTING HARDWARE FROM ORIGINAL BOX AND ATTACH TO NEW BOX USING SIMILAR HARDWARE, MATCHING LOCATIONS TO EXISTING STRUCTURE.

FABRICATE PHENOLIC SPACER AS REQUIRED TO ALLOW BATTERY TERMINALS TO CLEAR TOP OF BOX. FABRICATE ADDITIONAL SPACERS AS REQUIRED TO RESTRAIN BATTERY WITHIN BOX. BOND SPACERS TO BOX PER EPS-0050, CLASS 4A.



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ENGINEER

T. HINDMAN

CHECK

ENGINEER

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APPR