

SERVICE BULLETIN



Service Bulletin No.: DA20-72-03L, Rev. 2

Date Issued: July 23, 2009

Title: Use of 50/50 Glycol Coolant types to Comply with EASE AD No. 2007-0155

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1. ATA Code: 7200

2. Effectivity: DA20-A1 aircraft equipped with ROTAX 912 series engine.

3. General: Diamond Aircraft Service Bulletin DA20-72-02 Rev 0 introduced the use of the EVANS NPG+ waterless coolant as required by ROTAX Service Bulletin SB-912-043. This Service Bulletin was followed by an EASA Airworthiness Directive (AD 2007-0155) for the 912 F and S series engines. Following complaints received from operators of higher operating temperatures, Diamond Aircraft performed additional testing in accordance with EASA AD 2007-0155 and ROTAX SB-912-043 Rev 2 to determine if a 50/50 Glycol type coolant would meet the limitations in the above listed documents. These tests demonstrated that a new CHT limit of 253°F (122.8 °C) would meet the intent of ROTAX SB-912-043 Rev 2 as an indirect means of monitoring the 50-50 Glycol type coolant temperature and maintain it under its 248 °F (120 °C) limit.

This service bulletin provides an alternate replacement for the EVANS NPG+ waterless coolant with a 50/50 Glycol type coolant as stipulated in EASA AD No. 2007-0155. (See latest revision of ROTAX SI-912-016 for approved Glycol coolants). This SB shall be used concurrently with the latest revision of ROTAX SB-912-043.

- Part 1: Replacing the EVANS NPG+ waterless coolant with a 50/50 Glycol type coolant.
- Part 2a: A CHT gauge marking to reflect the new specific CHT limit when the 50-50 type coolant is used.
- Part 2b: Installation of a Temperature Switch and an Over Temperature Indication light as an alternative to 2a.
- Part 3: Removing the radiator cap label indicating the use of EVANS NPG+ waterless coolant

4. Compliance: Optional.

5. Approval: Engineering data referenced or contained in this service bulletin is approved as part of the type design.

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6. Labour: Approximately 1.5 hours will be required to accomplish Part 1 of this Service Bulletin.
Approximately 0.5 hours will be required to accomplish Part 2a and Part 3 of this Service Bulletin.
Approximately 3.0 hours will be required to accomplish Part 2b and Part 3 of this Service Bulletin

This estimate is for direct labour performed by a technician and it does not include setup, planning, familiarization, cure time, part fabrication or tool acquisition.

7. Material:	Description	Qty	P/N
	50/50 Glycol type coolant as specified in the latest revision of ROTAX Service Bulletin SI-912-016.	AR	
	LH Radiator Pipe	1	20-7200-00-01X01
	2 AMP Circuit Breaker	1	W23X1A1G2
	2 AMP Fuse	1	AGC-2-R
	Inline Fuse Holder (with fuse)	1	HRJ
	Temperature Indicator Light	1	MS25041-2
	Hose Clamp	AR	703-016
	Hose Clamp	AR	MS21919WDG3
	14 AWG Jumper	AR	M22759-34-16-9
	20 AWG Wire	AR	M22759-34-20-9
	Thread Sealer	AR	
	Temperature Switch	1	TT-42A-253R/QC

8. Special Tools: N/A.
NOTE: The above Materials may be ordered as KIT DA20-72-03L.

9. References: DA20-A1 Aircraft Maintenance Manual, Document # DA201 (AMM). DA20-A1 Flight Manual, Document Number DA202. ROTAX Service Bulletin SB-912-043 R2, or latest Revision. Installation Manual ROTAX Engine 912 series, Document # 898642.

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10. Accomplishment Instructions

10.1 Part 1 - Drain engine of current coolant and replenish with new coolant.

- 10.1.1 Remove upper and lower cowlings.
- 10.1.2 Completely drain coolant in accordance with Maintenance Manual. Ensure that a sufficient amount of flushing sequences are carried out with pure Glycol coolant to be assured no EVANS NPG+ coolant is still in the system.
- 10.1.3 Replenish system with 50-50 Glycol type coolant as specified in ROTAX 81-912-016 (i.e. 50 % distilled water - 50 % Glycol mix by volume).
- 10.1.4 Run engine and ensure no leaks.
- 10.1.5 Install upper / lower cowl.

10.2 Part 2a - Marking the CHT gauge with the Aircraft Specific Cylinder Head Temperature Limit.

NOTE: Part 2b "Installation of a Temperature Switch and an Over Temperature Indication light" can be done as an alternative to 2a.

- 10.2.1 Refer to the template on page 5 (Figure 1) of this service bulletin.
- 10.2.2 Use the template to define a radial line on the face of the CHT gauge at 253 °F (122.8 °C) and, an arc from 253 °F (122.8 °C) to 302 °F (150 °C).
- 10.2.3 Mask and carefully etch the surface.
- 10.2.4 Wipe clean.
- 10.2.5 Apply PIN AM210 Aerosol 1K filler primer red paint or equivalent.
- 10.2.6 Allow to dry.
- 10.2.7 Inspect and ensure area is properly marked from 253°F (122.8°C).
- 10.2.8 Above the CHT gauge apply a Placard stating **"MAX CHT = 253°F (122.8°C)"**.

NOTE: Care must be taken to ensure that the gauge face is not excessively scratched or damaged.

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10. Accomplishment Instructions (Continued)

10.3 Part 2b - Installation of a Temperature Switch and an Over Temperature Indication light.

NOTE: This installation is an alternative to 2a.

10.3.1 Complete steps 10.1.1 and 10.1.2 of Part 1.

10.3.2 Disconnect the battery.

10.3.3 Replace the LH radiator pipe (P/N 20-7200-00-01) with LH radiator pipe (P/N 20-7200-00-01X01).

10.3.4 Install the temperature switch. Use a high temperature thread sealer and torque the temperature switch to 3.5 in/lbs. See Figure 3.

10.3.5 If the circuit breaker panel permits, install a 2 AMP breaker (W23X1A1G2) and connect with a 14 AWG jumper as shown in Figure 4. Label the circuit breaker "Coolant Ind."

10.3.6 If no circuit breaker location is available then use an inline fuse holder (HRJ) and a 2A Fuse (AGC-2-R) off the main bus.

10.3.7 Drill a 15/32" hole in the instrument panel as indicated in Figure 4. Install indicator light (MS25041-2). Label the indicator "COOLANT TEMP."

10.3.8 Route the wiring along the existing bundles as shown in Figures 3-5. Terminate using applicable ring terminals, fastons and soldering techniques. M22759-34-20-9 or equivalent shall be used. Terminate the wire in accordance with Figure 5.

10.3.9 Connect the battery and turn on the system. Press the push to test light and verify correct light function.

10.3.10 Complete steps 10.1.3 to 10.1.5 of Part 1.

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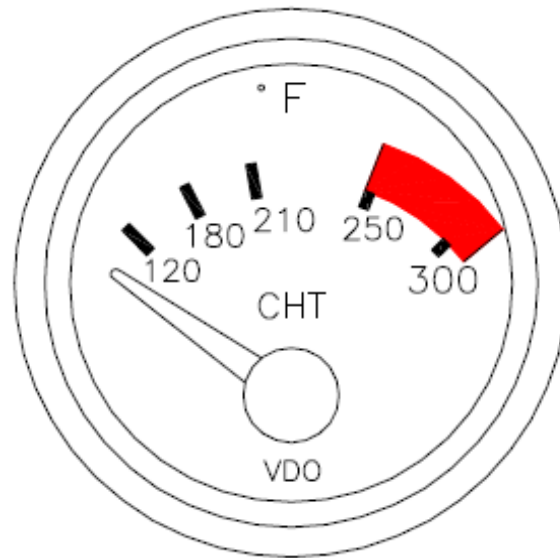


Figure 1 - CHT Cockpit Panel Gauge

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10. Accomplishment Instructions (Continued)

10.4 Part 3 - Removing the label from the radiator cap.

- 10.4.1 Remove the warning label pin 898490 which indicated the use of EVANS NPG+ waterless coolant from the radiator cap.
- 10.4.2 Make the appropriate entry into the aircraft records.

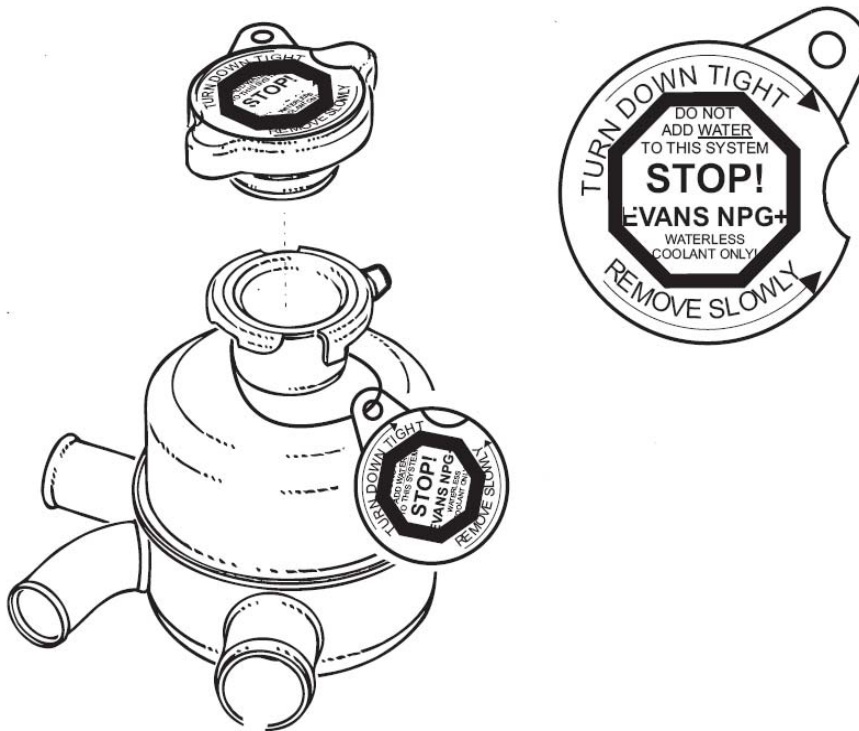


Figure 2 - Radiator Cap

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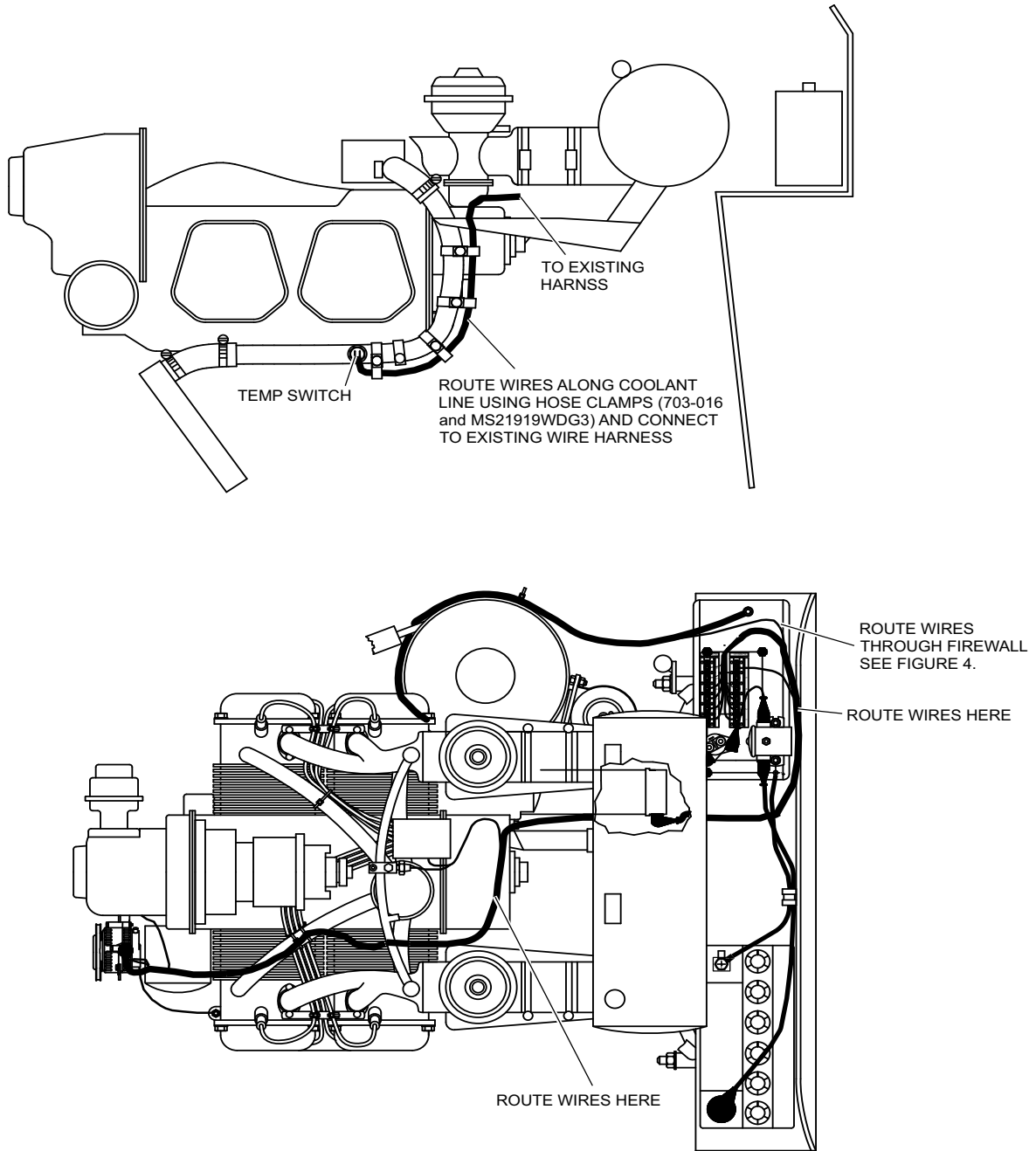


Figure 3 - Engine Wire Routing

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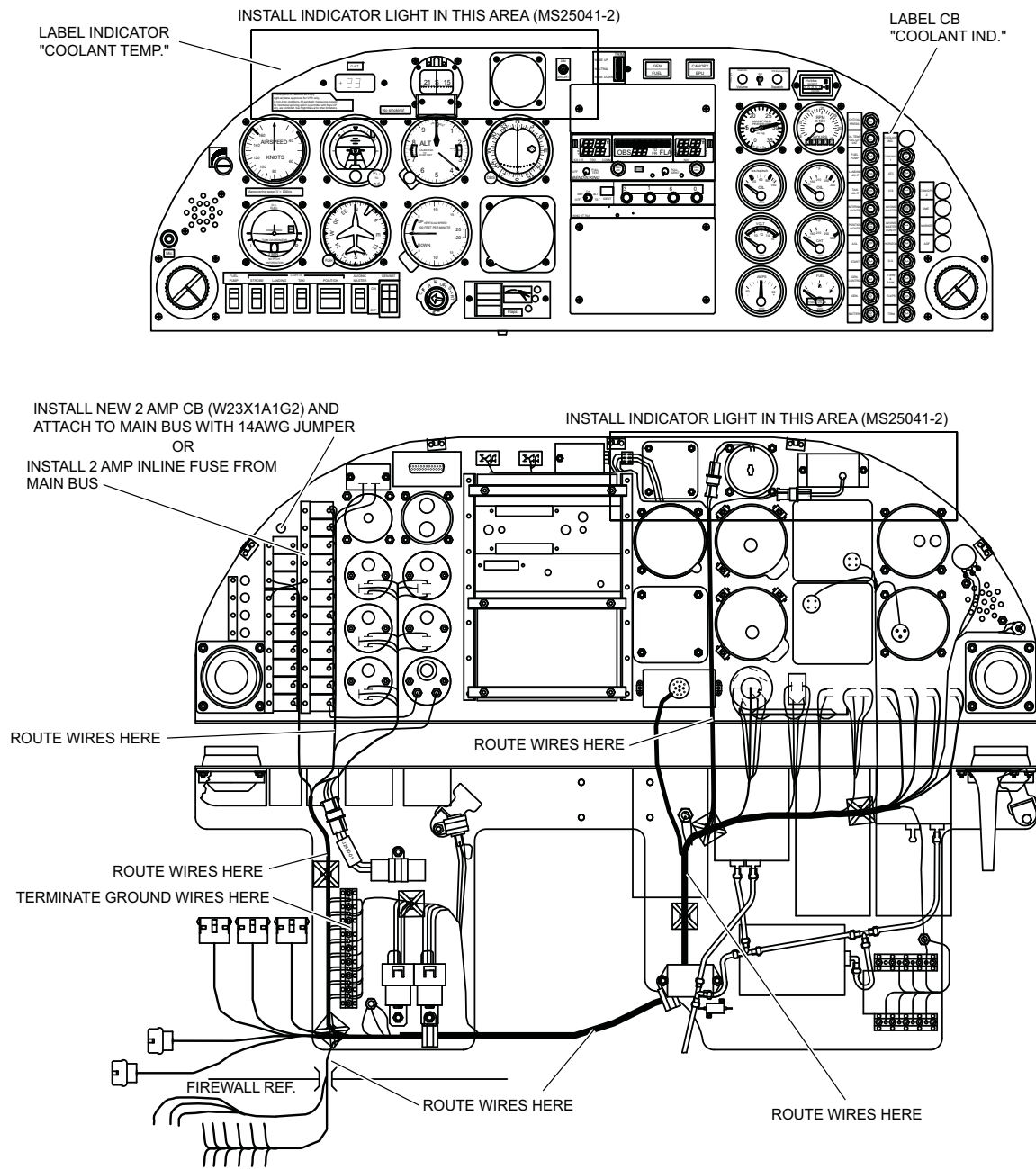


Figure 4 - Instrument Panel Routing

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NOTES:

1. USE 20 AWG

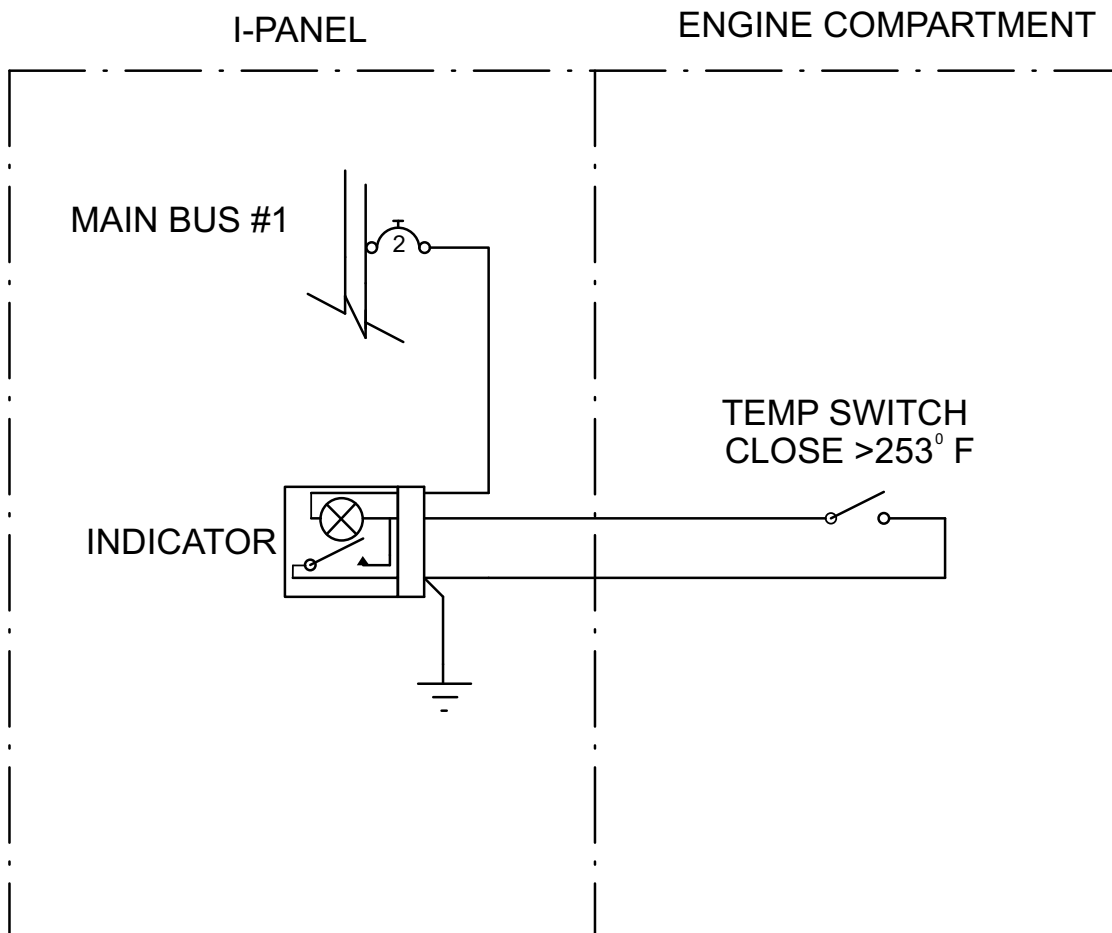


Figure 5 - Schematic

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11. Weight and Balance: The weight and balance is not affected by this service Bulletin.

12. Availability: Contact Diamond Aircraft.

To obtain satisfactory results, procedures specified in this service bulletin must be accomplished in accordance with accepted methods and current government regulations. Diamond Aircraft Industries Inc. cannot be responsible for the quality of work performed in accomplishing the requirements of this service bulletin. Diamond Aircraft reserves the right to void continued warranty coverage in the area affected by this service bulletin if it is not incorporated. If you no longer own the aircraft to which this service bulletin applies, please forward it to the current owner and send the name of the current owner to Diamond Aircraft Industries Inc. at the address below.

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