

**OPTIONAL SERVICE BULLETIN NO. DAC1-61-01 REV. 5**

SUPERSEDES DAC1-61-01 REV. 4

**I TECHNICAL DETAILS**

**I.1 Category**

Recommended.

**I.2 Airplanes Affected**

Type: DA 20-C1

Serial Numbers: C0001 up to and including C0192

**I.3 Time of Compliance**

At owner's discretion.

**I.4 Subject**

ATA code: 61-00.

**I.5 Reason**

This service bulletin addresses the Sensenich propeller installation.

This revision adds the use of special extended thread 7/16" attachment bolts (P/N 22-6103-00-03) as an alternative to the AN7-47A bolts. These extended thread bolts do not require AN960-716 or AN960-716L shim washers to ensure proper thread engagement. The extended thread bolts are identified by the "D, A and X" letters on the head. A Part III has been added to this bulletin to provide the procedure for replacing the AN7-47A bolts with the extended thread bolts.

PART I – Describes the procedure for the replacement of propellers with 3/8" attachment bolts with a propeller that uses 7/16" diameter attachment bolts (AN7-47A or 22-6103-00-03). This installation increases the clamping force of the propeller and allows torque inspection without the removal of the forward spinner dome.

PART II – Describes the replacement of castellated nuts and cotter pins, as fitted to some aircraft, with self-locking nuts. The installation of self-locking nuts makes torque inspection easier.

PART III – Describes the procedure for the replacement of AN7-47A attachment bolts with the 22-6103-00-03 extended thread bolts.

**I.6 Approval**

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

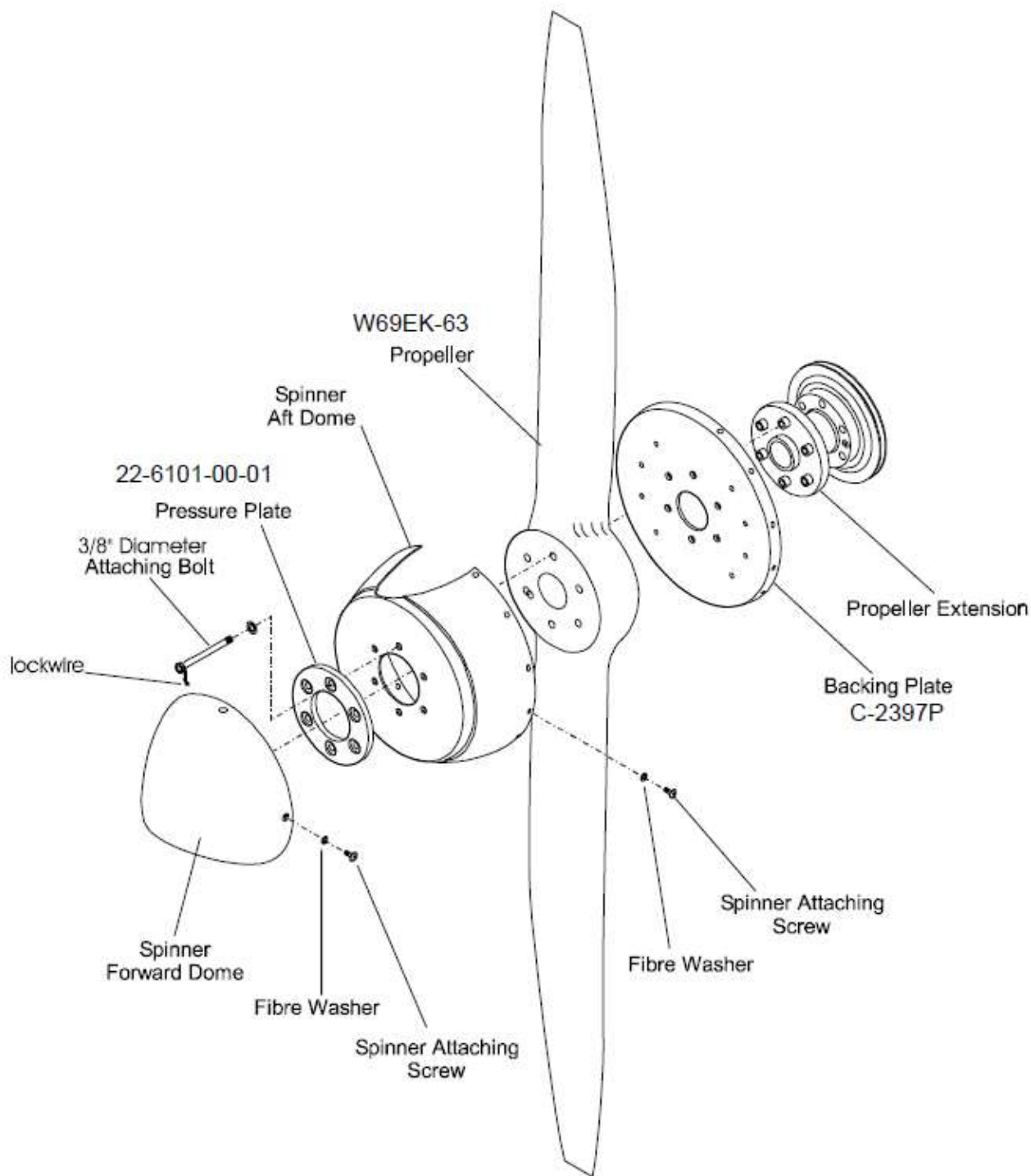


Figure 1. Original configuration, Sensenich W69EK-63, 3/8" diameter attachment bolts.

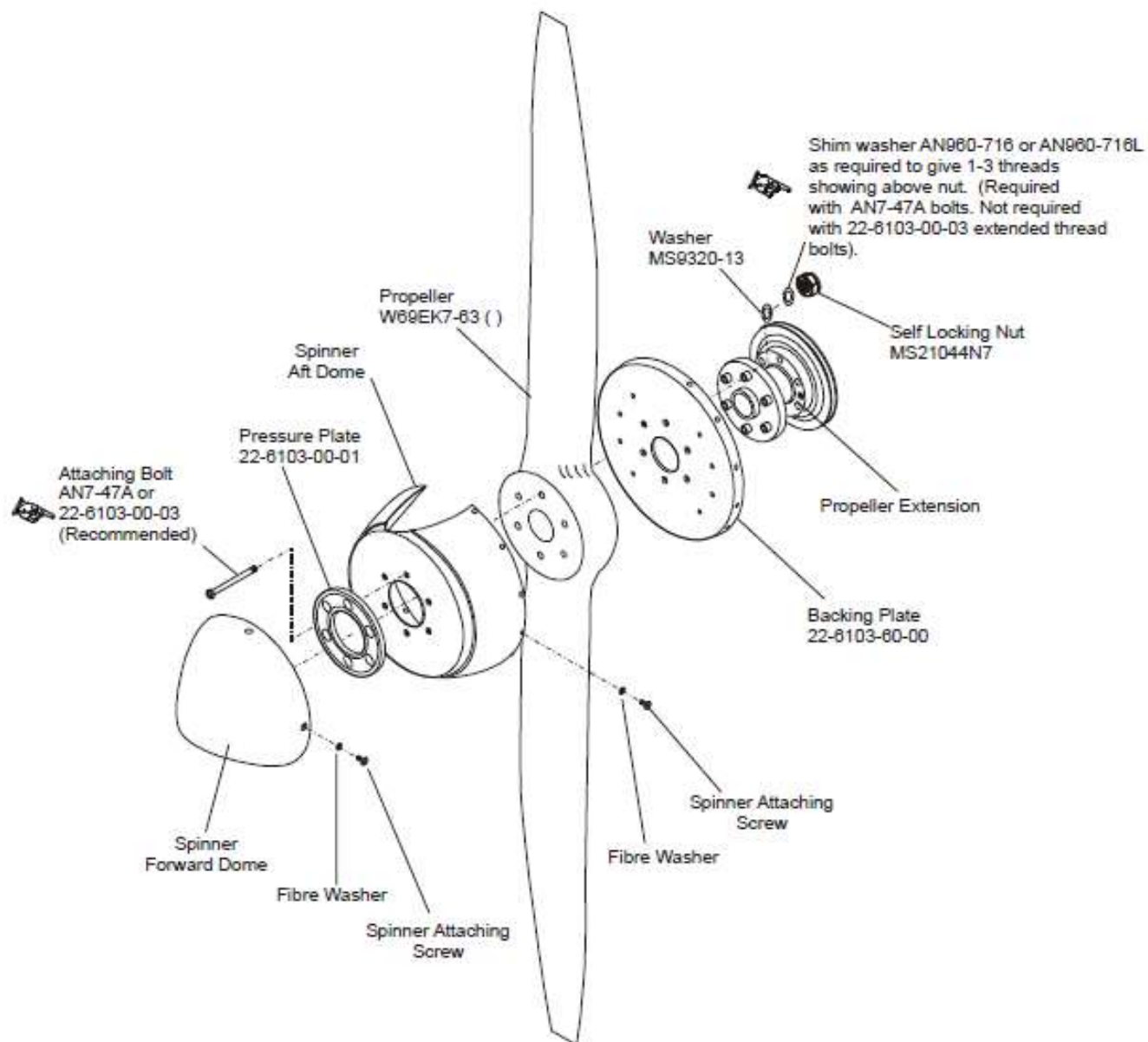


Figure 2. Recommended configuration, Sensenich W69EK-63, W69EK-63G, or W69EK7-63GM, 7/16" diameter attachment bolts.

**NOTE:** the installation and maintenance procedures for the W69EK7-63G and W69EK7-63GM propellers are the same as those for the W69EK7-63 propeller.

**I.7 Accomplishments/Instructions**

**PART I - Installation of W69EK7-63, W69EK7-63G, or W69EK7-63GM Propeller:**

1. Remove the engine cowlings.
2. Remove the W69EK-63 propeller as per AMM Chapter 61.
3. Remove the six bushings in the propeller flange using the removal/installation tool as shown in Figure 3.
4. Inspect the front spinner bulkhead and engine propeller adapter flange for fretting. If the fretting is severe and cannot be dressed out with emery cloth and re-alodined, then the parts must be replaced.
5. Clean the bushings and the bushing bores in the propeller adapter using denatured alcohol.
6. Install the new (7/16" ID) bushings into bores using Loctite 609 and the installation tool. Ensure the bushings are completely pulled through the propeller flange. Reference Figure 3 for these instructions.
7. Clean the propeller adapter flange (mating surface for propeller) with de-natured alcohol.
8. Clean the propeller hub faces with de-natured alcohol.
9. Install the W69EK7-63, W69EK7-63G, or W69EK7-63GM propeller in accordance with the Sensenich Installation Manual (Doc. W69EK7-CF Rev. F, or later). If using AN7-47A bolts, install AN960-716 or AN960-716L shim washers as necessary under the attachment nut to ensure 1-3 threads are showing above the nut. If using 22-6103-00-03 extended thread bolts, then it is allowable if more than 3 threads are showing; AN960-716 or AN960-716L shim washers are not required.
10. Follow the bolt torque check procedure specified in the Sensenich Installation Manual (Doc. W69EK7-CF Rev. F, or later).
11. Record that this Service Bulletin has been accomplished in the aircraft's maintenance logbook.

**WARNING:** The hub of a wooden propeller will shrink or expand to match the ambient conditions. Excessive hub shrinkage, especially possible during very cold and/or dry ambient conditions, can result in the loss of propeller bolt torque (pre-load). This can allow slight movement relative to the drive flange, which may result in damage to the propeller and/or the propeller bolts, and possibly even the loss of the propeller. To prevent this, proper installation and periodic re-torquing in accordance with all applicable maintenance instructions is necessary.

Under all circumstances, the inspection interval must never exceed 50 hours. Extreme changes in ambient conditions (temperature/humidity) may require shorter inspection intervals.

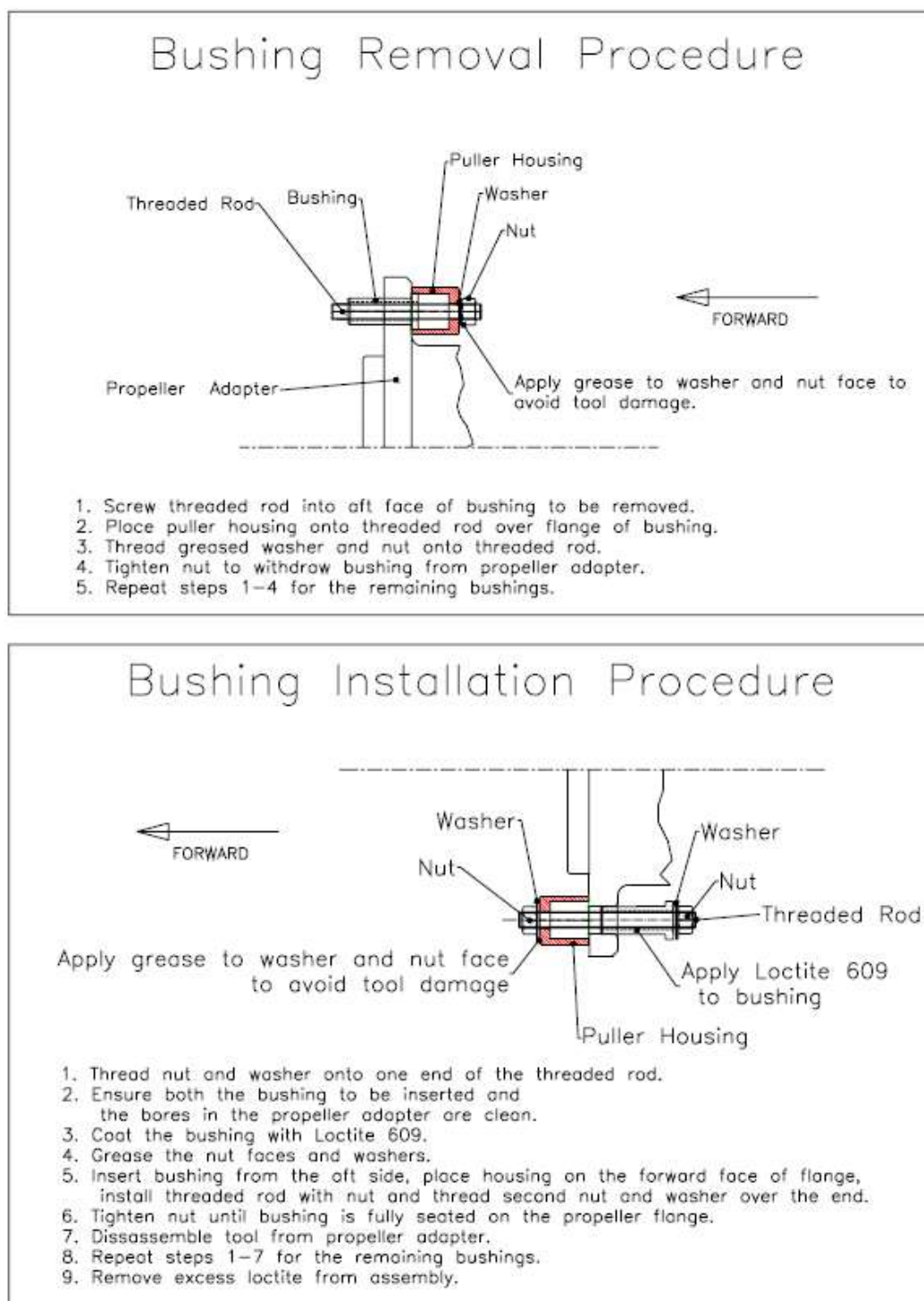


Figure 3. Instructions for step 6.

## **PART II - Replacement of Castellated Nuts**

12. Remove the engine cowlings.
13. Remove cotter pins.
14. Remove AN310-7 nuts and washers.
15. Ensure that bolt threads are clean and free from burrs.
16. Install MS9320-13 washers and MS21044N7 nuts. Install AN960-716 or AN960-716L shim washers as necessary under the attachment nut to ensure 1-3 threads are showing above the nut. If these shim washers are required, add the same to all bolts.

**NOTE:** 22-6103-00-03 extended thread bolts can be installed in place of the AN7-47 bolts. If the extended thread bolts are used, then it is allowable to have more than 3 threads showing above the nut, and AN960-716 or AN960-716L shim washers are not required.

17. Follow the installation and bolt torque check procedure specified in the Sensenich Installation Manual (Doc. W69EK7-CF Rev. F, or later).

## **PART III - Replacement of AN7-47A Bolts with Extended Thread Bolts**

18. Remove engine cowlings.
19. Remove MS21044N7 self-locking nuts.
20. Remove the AN7-47A attachment bolts, and replace them with 22-6103-00-03 extended thread bolts. It is allowable to have more than 3 threads showing above the nut, and AN960-716 or AN960-716L shim washers are not required with the extended thread bolt.
21. Follow the installation and bolt torque check procedure specified in the Sensenich Installation Manual (Doc. W69EK7-CF Rev. F, or later).

### **I.8 Mass (Weight) and CG**

If Part I of this service bulletin has been accomplished, the aircraft weight increases 0.27 kg (0.6 lbs) at a lever arm of -60.8 in (-1.54 m) forward of the datum.

Accomplishment of Part II has a negligible effect on the aircraft weight and balance.

Accomplishment of Part III has a negligible effect on the aircraft weight and balance.

### **I.9 Electrical Load Data**

n.a.

Diamond Aircraft Industries  
**OPTIONAL SERVICE BULLETIN**  
 Model DA 20-C1



## **II PLANNING INFORMATION**

### **II.1 Material and Availability**

Material	Part Number	Description	Qty
<b>Part I</b>			
Sensenich Supplied	W69EK7-63, W69EK7-63G, or W69EK7-63GM	Propeller	1
Diamond Aircraft supplied (kit contents)  Materials may be ordered as Kit DAC1-61-01 AMK0.	22-6103-01-01	Bushing	6
	AN7-47A	Bolts (see NOTE)	6
	MS21044N7	Self-locking nuts	6
	MS9320-13	Washer	6
	22-6103-00-01	Pressure plate (7/16" bolt holes)	1
	22-6103-60-00	Backing plate (non-painted)	1
	W69EK7-CF	Propeller Installation Manual Rev F, or later	1
Diamond Aircraft, OR Sensenich	SPT-01-01	Bushing removal/installation tool (on loan tool program).	1
<b>NOTE:</b> the AN7-47A bolts supplied in the materials kit may be replaced with the 22-6103-00-03 extended thread bolts. The 22-6103-00-03 extended thread bolts are identified by the D, A, and X markings on the head. Contact Diamond Aircraft Parts Department for these bolts.			
Procure locally	Loctite 609	Retaining compound	A/R
	AN960-716	Shim washer	A/R
	AN960-716L	Shim washer	A/R
<b>Part II</b>			
	MS21044N7	Self-locking nuts	6
	MS9320-13	Washer	6

### **II.2 Special Tools**

Bushing removal/installation tool SPT-01-01.

### **II.3 Labour Effort**

Approximately 2 hours will be required to accomplish Part I of this service bulletin.

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



Diamond Aircraft Industries  
**OPTIONAL SERVICE BULLETIN**  
Model DA 20-C1

---



**II.4 Credit**

**Labour Credit:** a labour credit of 2 hours is available until October 31, 2002, for accomplishment of Part I of this service bulletin.

**Replacement Part Credit:** contact Diamond Aircraft Customer Support for replacement part credit information.

**II.5 Reference Documents**

DA 20-C1 Aircraft Maintenance Manual, document # DA201-C1. Sensenich Manual W69EK7-CF Rev. F, or later.

**III REMARKS**

1. All work must be completed by the appropriate authorized personnel.
2. All work, particular that, which is not especially described in this service bulletin, must be done in accordance with the referenced maintenance manual.
3. Completion of all work must be recorded in the logbook.
4. In case of doubt contact Diamond Aircraft Industries.

To obtain satisfactory results, procedures specified in this service bulletin must be accomplished in accordance with accepted methods and current government regulations. Diamond Aircraft 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 at the address below.

Diamond Aircraft Industries Inc. 1560 Crumlin Sideroad, London, Ontario, Canada N5V 1S2

Customer Support: Phone: (519) 457-4041 Fax: (519) 457-4045 E-mail: [custsupp@diamondair.com](mailto:custsupp@diamondair.com)  
Technical Publications: E-mail: [Techpubs@diamondair.com](mailto:Techpubs@diamondair.com)



**EXECUTION REPORT TO  
SERVICE BULLETIN  
DAC1-61-01 REV. 5**

AIRPLANE INFORMATION

Airplane Serial Number	_____
Airplane Registration	_____
Airplane Operator	_____
Hours of Operation of Airplane	_____
No. of Landings	_____
Hours of Operation of Engine	_____
Typical Operation of Airplane	_____
	(private, club, training, other)

\_\_\_\_\_  
Date, Name, Signature

Please e-mail the completed form to [Techpubs@diamondair.com](mailto:Techpubs@diamondair.com).