Propeller Owner/Operator Information Manual

Click on a link below to select a section of the information manual.

WELCOME

1. Thank you for purchasing a McCauley propeller.

A. This manual will provide you with information that is important for the continued airworthiness of your propeller.

(1) This manual is designed to provide you with quick access to the information you desire. It provides you links that can be selected to carry you through the information pertaining to your model series of propeller. Please take a few minutes to familiarize yourself with this manual.

2. Model Designations

A. The following can be used to determine your propeller model series:

- Two blade fixed pitch: -- 1L100 Series.

3. Additional Resources

A. In addition to the information we included in this manual, the FAA has issued the following Advisory Circulars (AC) that may aid you in continued airworthiness of your propeller:

- AC35.4-1 Propeller Instructions for Continued Airworthiness
- AC43-9(X) Maintenance Records

NOTE: (X) signifies latest revision level.

B. If you have any question about your propeller, please contact your closest McCauley Service Center or McCauley Product Support.

(1) Current contact information can be found at www.mccauley.textron.com 24 hours a day, or by calling 316-831-4021 between 8:00 AM and 4:30 PM Central Time.

Thank you for letting McCauley fulfill your airplane propeller needs.

McCauley Propeller Systems

© McCauley Propeller Systems

LIST OF REVISIONS

1. General

A. This manual, MPC-28, includes the original issue and the revisions listed in Table 1. To ensure information in this manual is current and the latest maintenance and inspections procedures are available, the revisions must be incorporated in the manual as they are issued.

Table 1. Original Issue -- June 30, 2010

Revision Number	Date	Revision Number	Date
1	March 7, 2011		

© McCauley Propeller Systems

INTRODUCTION

1. General

A. This Owner/Operator Manual provides familiarization and line maintenance instructions for McCauley fixed pitch composite propellers.

B. All maintenance and service procedures described and authorized in this manual must be done only by qualified personnel.

C. Overhaul or any repair procedure that involves the scarf repair, stripping, or resurfacing of the propeller must be done only by a McCauley authorized and qualified propeller overhaul facility in accordance with the appropriate McCauley propeller overhaul manual.

2. Additional Reference Manuals

A. The following publications contain additional information about this and other McCauley propellers. These may be used as reference. Each of the referenced publications has a specific application to the owners and operators of aircraft with McCauley propellers installed.

(1) McCauley Model 1L100 Series Maintenance and Overhaul manual. This manual includes maintenance and overhaul information and an illustrated parts list.

NOTE: The Model 1L100 Series Maintenance and Overhaul manual may be used only by McCauley approved propeller repair stations.

(2) McCauley Service Bulletins. These are issued to advise of propeller design changes that must be incorporated, to provide procedures for correcting problems that have been found in the field, and to provide other important information.

(3) McCauley Service Letters. These are issued to provide information such as warranty replacement policies, parts availability information, minor modifications and other supplemental information.

(4) FAA Advisory Circular 43.13-1[X]. This publication provides general acceptable inspection procedures for propellers.

(5) FAA Advisory Circular 20-37[X]. This publication provides general acceptable maintenance and inspection procedures for propellers.

NOTE: FAA Advisory Circular 43.13-1[X] and FAA Advisory Circular 20-37[X] are written with propellers certified to Part 35 of Title 14 of the Code of Federal Regulations. However, the information contained within these Advisory Circulars contain information that can be useful for propellers certified to ASTM F 2506-07 standards.

© McCauley Propeller Systems

PROPELLER SYSTEM DESCRIPTION AND OPERATING PRINCIPLES

1. Reciprocating (Piston) Engine Composite Propeller

A. McCauley fixed pitch composite propellers for reciprocating engines have a fixed pitch two-blade configuration. Refer to Figure 1.

B. Description of the Propeller Assembly Installation:
(1) Propeller - The propeller is a single piece, composite assembly.
(2) Propeller Blades - The propeller blades are made of advanced composite materials.

C. Overhaul or any repair procedure that involves the scarf repair, stripping, or resurfacing of the propeller must be done only by an authorized and qualified propeller overhaul facility in accordance with the appropriate McCauley propeller overhaul manual.

CAUTION: McCauley composite propellers cannot be straightened or repitched. Structural damage to the propeller will result if an attempt is made to straighten or repitch a composite McCauley propeller.

2. Overhaul Period

A. All propellers are to be overhauled at specific intervals. The time between overhaul (TBO) is specified in hours of operation as well as calendar limit.

NOTE: TBO specification is subject to change. Any changes to the propeller TBO will be announced in revisions to this Owner's Manual.

Table 1. Propeller Models

Model Number	Overhaul Frequency
1L100LSA	Every 2000 hours of operation or 72 calendar months.

3. Propeller Operation

A. Operating the propeller over loose gravel or cinders should be done at low engine speed/propeller RPM to avoid abrasion and stone damage to the propeller tips. Do not operate the propeller in excess of the maximum RPM.

4. Approved Installations

A. The following propeller and engine combinations have been approved by McCauley:

Table 2. Table 2: Approved Engine Propeller Combinations:

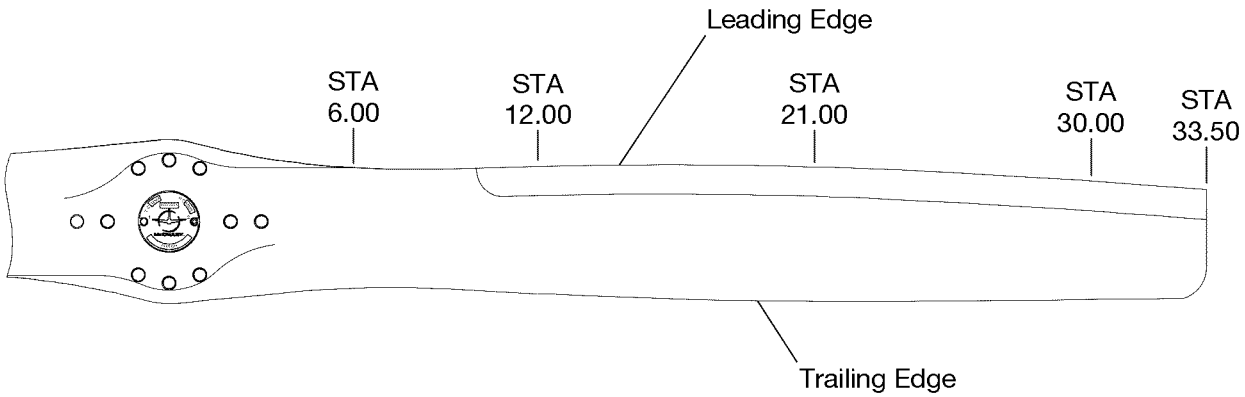
Propeller Model Designation	Engine	Engine Horsepower (BHP)	Maximum RPM	Airplane
1L100LSA6754	Teledyne Continental O-200-D	100	2750	Cessna, Model 162

5. Mass Moment of Inertia

A. The mass moment of inertia for this propeller about its axis is 0.300 Slug-ft^2.

© McCauley Propeller Systems

C1750



1L100
View Looking at Front of Propeller

0101T1165

1L100 Model Composite Propeller
Figure 1 (Sheet 1)

© McCauley Propeller Systems

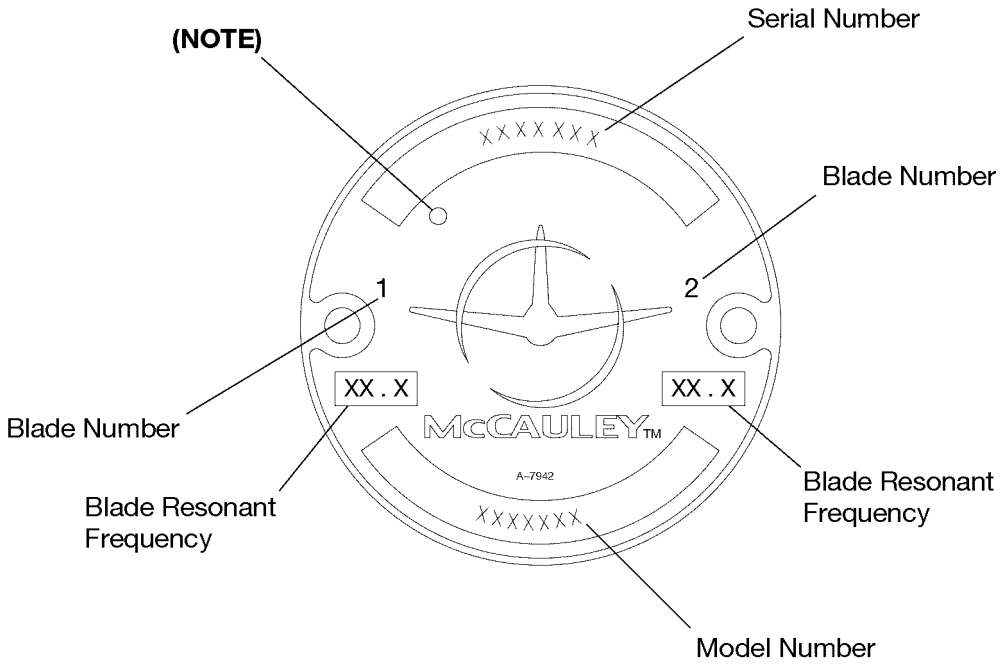
6. Propeller Identification

A. For identification, a nameplate is attached to the hub of each propeller. The nameplate is stamped with the propeller model number, serial number, and the number of times the propeller has been overhauled or reconditioned. The complete model number is a combination of the basic model number and suffix numbers to indicate the propeller diameter and pitch. McCauley uses a model designation system to identify specific propellers. (Refer to Figure 2).

B. Propeller Model Designation.
(1) The Propeller model designation is stamped on the propeller nameplate. Examples of hub model designation:

© McCauley Propeller Systems

C1675



NOTE: Put a center punch mark or a 0.063 inch drill point 0.020 inch deep in this area under the propeller serial number each time the propeller is overhauled or reconditioned.

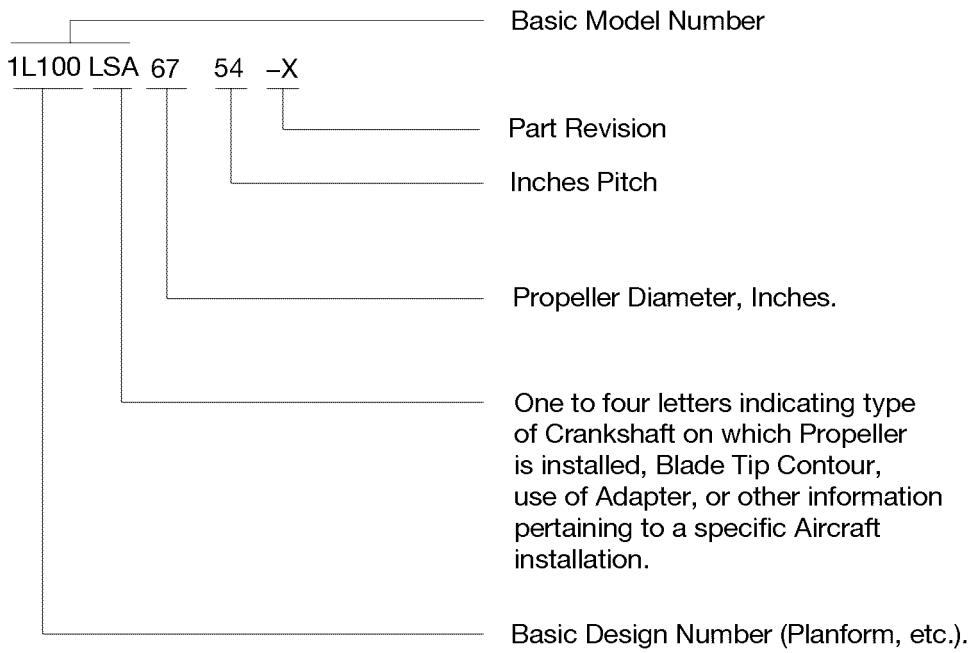
0102T1201

Composite Propeller Nameplate
Figure 2 (Sheet 1)

© McCauley Propeller Systems

C1751

1L100LSA6754–X Sample Piston Engine Composite Fixed Pitch Propeller Model Designation



0102T1202

© McCauley Propeller Systems

PROPELLER TROUBLESHOOTING

1. General Information

A. Types of Problems Normally Encountered

(1) This section outlines and explains a number of operating characteristics which have been observed in service. There is some discussion of propeller design as it relates to these characteristics. Procedures for locating and correcting causes of undesirable operation are given.

2. Unusual Aircraft Vibration

A. Apparently excessive vibration felt during normal aircraft operation.

Although vibration can be caused by the propeller, there are numerous other possible sources of vibration which can make troubleshooting difficult. If the propeller is the cause of the vibration, it is typically due to improper balance.

When a propeller is the cause of vibration, the aircraft typically vibrates throughout the entire RPM range although the intensity of the vibration may vary with the RPM. If a vibration occurs at only one RPM or within a limited RPM range, the propeller is not normally the cause of the vibration problem.

(1) If the propeller is suspected to be the cause of the vibration, the following procedures should be performed:

(a) The ideal troubleshooting method is to temporarily replace the propeller with one which is known to be good and test fly the aircraft. If the vibration is eliminated, the propeller is highly suspect and should be sent to an authorized propeller repair station for evaluation.

(b) If a replacement propeller is unavailable, check the following:

1 Propeller imbalance can be the cause of vibration. Perform a dynamic balance on the suspect propeller to determine balance of the propeller. If the propeller cannot be successfully dynamically balanced, it should be removed and sent to an authorized propeller repair station for evaluation.

2 Check the spinner for cracks at the bulkhead attach points for a cracked bulkhead or for a cracked front support.

a The propeller spinner can be a contributing factor to an out of balance condition. An indication of this would be a noticeable spinner "wobble" while the engine is running. This condition can be caused by a cracked or deformed spinner and/or spinner bulkheads. If a spinner is found to be "wobbling", it should be removed and inspected to determine the cause of the wobbling. Any spinner found cracked or deformed must be replaced.

3 Check the leading edge guard for delamination.

a If the leading edge guard is suspected of being delaminated, do a coin tap test. If the coin tap test indicates leading edge guard delamination, the propeller will need to be evaluated at an approved McCauley facility.

4 Check the propeller for cracks, delamination.

a If propeller delamination or cracks are suspected, the propeller will need to be evaluated at an approved McCauley facility.

5 Check the propeller mounting bolts for the correct torque.

a If the propeller mounting bolts have an incorrect torque, retorque the mounting bolts to the correct torque.

(2) Worn engine mounts.

(a) Corrective Action:

1 Consult the OEM or engine mount manufacturer service or maintenance manual for engine mount replacement criteria.

3. Propeller Damage Assessment and Disposition

A. Refer to Table 101 for the assessment of damage to the propeller:

© McCauley Propeller Systems

Table 101. Damage Assessment and Disposition

Item No.	Damage	Disposition	Initial/Minimum Service Level
(1)	Visual Inspection	Owner Assessment	Owner Level
(2)	Paint Wear	Owner Assessment.	Owner Level
(3)	Surface Nicks	Owner Assessment.	Owner Level
(4)	Scrapes	Initial owner assessment, may need to be evaluated at an approved McCauley facility.	Owner Level
(5)	Cracks	Initial owner assessment, will need to be evaluated at an approved McCauley facility.	Owner Level
(6)	Guard and Laminate Coin Tap Tests	Owner Assessment	Owner Level
(7)	Delamination	Initial owner assessment, will need to be evaluated at an approved McCauley facility.	Owner Level
(8)	Propeller tip and trailing edge damage.	Initial owner assessment, will need to be evaluated at an approved McCauley facility.	Owner Level
(9)	Exposed Blade Core Foam	Scrap/Remove From Service	Owner Level
(10)	Notable Vibrations	Take to shop for inspection and assessment.	Owner Level
(11)	Dimensional Measurements vs Limits	Shop Assessment	Shop Level
(12)	Frequency NDI Life Assessment (Natural Frequency Out of Range)	Shop Assessment	Shop Level
(13)	Leading Edge Guard Crack(s)	Replace Guard or Scrap Prop	Shop Level
(14)	Erosion Damage	Repair To New Condition	Shop Level

© McCauley Propeller Systems

Table 101. Damage Assessment and Disposition (continued)

Item No.	Damage	Disposition	Initial/Minimum Service Level
(15)	Delamination in hub area crankshaft mounting surface and propeller mounting bolt holes.	Scrap/Remove From Service	Shop Level
(16)	One or more carbon fiber plies of the propeller spar is damaged.	Scrap/Remove From Service	Shop Level
(17)	Burn Damage or Discoloration due to excessive heat. (Do not confuse the natural discoloration of composite materials exposed to UV radiation with heat damage.)	Scrap/Remove From Service	Shop Level

NOTE: The term Owner Level identifies a damage disposition the owner or operator can do. The term Shop Level identifies a damage disposition that shall be dispositioned by an approved McCauley composite propeller overhaul facility. All McCauley approved composite propeller overhaul facilities can do both Owner and Shop level dispositions.

B. Expanded Propeller Damage Assessment and Disposition Definitions

(1) Visual Inspection. Owner assessment and initial inspection for cracks, scratches, nicks, missing material, exposed fibers or mesh, unusual loft deviations/dips/waves, paint damage, raised or bubbled areas, or other visually evident damage. If a defect or damage is suspected, the propeller must be taken to an approved McCauley composite propeller overhaul facility for additional tests to confirm the condition of the propeller.

(2) Paint Wear.

(a) Paint wear less than 2 square inches, repair at owner's discretion, must be repaired at propeller overhaul. Refer to Propeller Field Maintenance Practices, Blade Maintenance for paint instructions.

(b) Paint wear greater than 2 square inches but less than 10 square inches, repaint affected area, cannot be deferred to propeller overhaul. Refer to Propeller Field Maintenance Practices, Blade Maintenance for paint instructions.

(c) Paint wear greater than 10 square inches, take propeller to an approved McCauley composite propeller overhaul facility for inspection and paint repair.

(3) Nicks in Propeller Surface.

NOTE: Nicks are generally considered damage that is the result of a single point of impact damage. Refer to Table 102, Propeller Nick and Scrape Limits for additional limit information.

(a) Nicks in the propeller surface that do not damage the carbon fiber fabric (damage less than 0.020 inch (0.5 mm) deep) and greater than 5 inches (127 mm) from center of the propeller hub and are less than 0.250 inch (6.35 mm) in diameter. This type of damage may be deferred to propeller overhaul at which time it can be repaired using a scarf type repair.

(b) Nicks in the propeller surface that contacts the underlying fiberglass fabric (damage greater than 0.005 inch (0.13 mm) deep), greater than 5 inches from center of the propeller hub and are greater than 0.250 inch (6.35 mm) in diameter. Propeller shall be inspected by an approved McCauley composite propeller overhaul facility to confirm the condition of the propeller and repair requirements. This type of damage will result in a scarf type repair of the damaged area.

© McCauley Propeller Systems

(c) Any nick in the propeller surface that contacts the underlying fiberglass fabric (damage greater than 0.005 inch (0.13 mm) deep) and less than 5 inches (127 mm) from center of the propeller hub. Propeller shall be inspected by an approved McCauley composite propeller overhaul facility to confirm the condition of the propeller and consult with McCauley for repair requirements.

Table 102. Propeller Nick and Scrape Limits

	Area of Nick or Scrape		
Depth of Nick or Scrape	**Less than 2.0 Inches²**	**2.0 to 6.0 Inches²**	**Greater than 6.0 Inches²**
Less than 0.005 inch	No Action Required	Paint Damaged Area	Propeller needs to be evaluated by an approved McCauley composite propeller overhaul facility.
Between 0.005 and 0.020 inch	Paint Damaged Area	Paint Damaged Area	Propeller needs to be evaluated by an approved McCauley composite propeller overhaul facility.
More than 0.020 inch	Propeller needs to be evaluated by an approved McCauley composite propeller overhaul facility.	Propeller needs to be evaluated by an approved McCauley composite propeller overhaul facility.	Propeller needs to be evaluated by an approved McCauley composite propeller overhaul facility.

(4) Scrapes, initial owner assessment, may need to be evaluated at an approved McCauley composite propeller overhaul facility.

NOTE: Scrapes are generally considered damage that is the result of multiple impacts in an area that results in material being abraded and removed from the area of impact damage. Refer to Table 102, Propeller Nick and Scrape Limits for additional limit information.

(a) Scrapes that affect areas less than 2.00 square inches and do not contact the underlying fiberglass fabric and are less than 0.005 inch deep. Do the following:
1 This type of damage repair may be deferred to propeller overhaul.
2 Repair the propeller using the cosmetic surface repair technique by an approved McCauley composite propeller overhaul facility.

(b) Scrapes that affect areas greater than 2.00 square inches but less than 6.0 square inches, do not contact the underlying fiberglass fabric, and are greater than 0.005 inch deep. Do the following:
1 This type of damage repair may be deferred to propeller overhaul.
2 Paint the affected area.
3 Repair the propeller using the cosmetic surface repair technique by an approved McCauley composite propeller overhaul facility no later than the next propeller overhaul.

(c) Scrapes that affect areas in excess of 6.0 square inches or has damage that extends into the underlying fiberglass fabric and the damage is greater than 0.005 inch deep. Do the following:
1 A scarf repair shall be accomplished by an approved McCauley composite propeller overhaul facility before next flight.

(5) Cracks (excluding the leading edge guard). Owner assessment during visual inspection. A Propeller that is suspected to have a crack must be taken to an approved McCauley composite propeller overhaul facility to confirm the condition of the propeller.
(a) Epoxy matrix crack(s) that do not extend into the underlying fiberglass may be repaired using a cosmetic surface repair.
(b) Crack(s) that extend past the epoxy matrix and into the fiberglass layers of the propeller may be repaired using a scarf repair.

© McCauley Propeller Systems

(c) Crack(s) that extend past the fiberglass layers of the propeller and into the carbon fiber layers of the propeller, the propeller must be removed from service and scrapped.

(6) Leading Edge Guard and Laminate Coin Tap Tests. Owner assessment for initial test. If a delamination is suspected, the propeller must be taken to an approved McCauley composite propeller overhaul facility to confirm the delamination condition.

(a) Leading Edge Guard Delaminated Less than 0.5 Square Inch. Repair leading edge guard or replace leading edge guard. This repair will require specialized tools and training to accomplish. The propeller leading edge guard repair or replacement must be accomplished by an approved McCauley composite propeller overhaul facility or the propeller must be removed from service and scrapped.

(b) Leading Edge Guard Delaminated 0.5 Square Inch or more. Replace leading edge guard. This repair will require specialized tools and training to accomplish. Propeller leading edge guard replacement must be accomplished by an approved McCauley composite propeller overhaul facility or the propeller must be removed from service and scrapped.

(7) Delamination (excluding the leading edge guard).

(a) Delamination that affects less than 6 square inches in total area, is under 4 inches along the longitudinal axis of the propeller, and under 60% of local chord width and the delamination does not extend into the carbon fiber layers. Repair the propeller by removing delaminated material and replace removed material with a scarf repair.

(b) Delamination that is found to be at least 6 square inches in total area, is over 4 inches along the longitudinal axis of the propeller, or is over 60% of local chord width or extends into a carbon fiber layer, do the following: must be removed from service and scrapped.

1 Remove the propeller from service and scrap it.

(8) Propeller Tip or Trailing Edge Area Damage.

NOTE: Epoxy pieces may still be attached to the composite (fiberglass or carbon fiber) fabric.

(a) A broken or shattered area less than 1.25 square inch and less than 1.75 inch maximum dimension in any direction and does not extend to the carbon fiber fabric. Propeller may be repaired using a scarf repair by an approved McCauley composite propeller overhaul facility.

(b) A broken or shattered area of at least 1.25 square inch or more than 1.75 inch maximum dimension in any direction and extends to the carbon fiber fabric. Propeller shall be removed from service and scrapped.

(9) Exposed Blade Core Foam. If the propeller blade core foam is visible the propeller must be removed from service and scrapped.

(10) Notable Vibrations. Owner assessment for unusual vibration, if unusual vibration is suspected, the propeller must be taken to an approved McCauley composite propeller overhaul facility for additional tests to confirm the condition of the propeller.

(11) Dimensional Measurements vs Limits. This is a test that requires specialized tools and training to accomplish by an approved McCauley composite propeller overhaul facility. Propellers that are found to have dimensional measurements beyond the established limits must be repaired or removed from service and scrapped.

NOTE: For the purposes of a propeller with a repair that is found to be beyond the dimensional limits of the propeller, treat the repair area that is beyond the allowable limits as an area of debond and do a scarf repair. If the area to be repaired is beyond the limits of a scarf repair, the propeller must be removed from service and scraped.

(12) Frequency NDI Life Assessment. This is a test that requires specialized tools and training to accomplish by an approved McCauley composite propeller overhaul facility. If the frequency or resonance (vibration/pitch) has changed from the original base line (natural) frequency to an out

© McCauley Propeller Systems

of range frequency, then this is an indication of propeller internal failure or an improper repair. Propellers that are found to have an out of range frequency must be removed from service and scrapped.

NOTE: Propellers that have a frequency or resonance (vibration/pitch) that has changed from the original base line (natural) frequency but are within the acceptable frequency range, no action required, this can be an indication of the normal propeller aging process.

(13) Leading Edge Guard Crack(s). Leading edge guards that have a total combined crack length of 3 inches or any two cracks that are within 1 inch of each other. This is a condition that will require specialized training to determine the extent of leading edge guard cracking. Propellers with leading edge guards that are cracked beyond these limits must have the leading edge guard replaced by an approved McCauley composite propeller overhaul facility or the propeller must be removed from service and scrapped.

(14) Erosion Damage Reconstruction. This repair will require specialized tools and training to do successfully. This type of repair can only be done by an approved McCauley composite propeller overhaul facility.

(15) Delamination in Hub Area. This is a condition that will require specialized tools and training to determine the extent of delamination. Propellers that are suspected to have delaminated material in the hub area must be taken to an approved McCauley composite propeller overhaul facility. The overhaul facility will determine if the propeller is repairable or must be removed from service and scrapped.

(16) One or more Carbon fiber Plies are Damaged. Propellers found with carbon fiber ply damage, the propeller must be removed from service and scrapped.

(17) Burn Damage or Discoloration. Propellers that exhibit signs of burning or heat damage must be removed from service and scrapped.

© McCauley Propeller Systems

PROPELLER FIELD MAINTENANCE PRACTICES

1. Ground Support Equipment

A. The following tools and material are required for field maintenance of McCauley composite fixed pitch propellers.

NAME	PART NUMBER	MANUFACTURER	USE
Torque Wrench		Commercially available	To torque propeller mounting nuts.
Safety Wire pliers		Commercially available	To remove and install safety wire.
#2 Phillips screwdriver		Commercially available	To remove and install propeller spinner
Standard 3/8 inch socket set		Commercially available	To remove and install propeller
Standard Open end/box end wrench set		Commercially available	To remove and install propeller
Sand paper		Commercially available	
Paint		Commercially available	

2. Procedures For Maintenance

A. Maintenance begins with the operator and includes inspection together with regular care. Many maintenance tasks that may be accomplished at a minimum cost can extend the life of the propeller and reduce or prevent costly repairs. The following is a listing of what operators of aircraft CAN and CANNOT DO.

B. Operators CAN do the following:
   (1) Perform a visual preflight inspection of the propeller for nicks, scratches, erosion, cracks, delamination, etc. Apparent damage found should be referred to an appropriately rated mechanic. A crack or delamination is cause for removal of the propeller.
   (2) Check the propeller spinner attaching screws for security and check the spinner for damage.
   (3) Clean propeller blades periodically using clean water, a non-alkaline cleaner and a soft cloth or soft brush. Dry with a soft cloth.
   (4) Ensure that the tachometer is appropriately marked for operational limitations of the propeller and that the tachometer accuracy is checked at periodic inspection intervals.
   (5) Each propeller should have its own maintenance record.
   (6) The operator must have the propeller reconditioned or overhauled when it reaches the McCauley recommended service time limits.
   (7) For safety and glare reduction for conventional single-engine tractor type aircraft, keep the blade backs (side of the propeller that faces the pilot) painted flat black and the propeller tips painted with the appropriate colors to ensure good visibility. Repaint blades equally so that the balance of the propeller is not disturbed. The leading edge guard may be polished on the forward/cambered surface of the propeller. Pusher props may have unique paint color requirements for good visibility for ground personnel. Refer to McCauley's maintenance documents.
   (8) McCauley spinners can be polished, use commercially available polishing compounds.

C. Operators CANNOT do the following:
   (1) Do not operate any aircraft after a propeller has been subjected to an impact without a thorough inspection by an appropriately rated person or repair facility.
   (2) Never straighten a damaged propeller.
   (3) Never chrome plate a spinner. Plating will cause cracks and spinner failure.

© McCauley Propeller Systems

(4) Do not attempt to repair or modify a propeller spinner or spinner components. Welding, riveting or bonding are not permitted on the spinner or spinner components.
(5) Do not fill any damaged areas of blades with bulk-filler materials such as epoxy or auto body fillers. This prevents areas of potential cracking from being inspected. Additionally, filling a damaged area will not correct the stress risers caused by the damaged area or those caused by the loading that introduced the damage.
(6) Do not run up engine in areas containing loose rocks, gravel, or debris. Avoid quartering rear winds during ground run-up whenever possible.
(7) Do not push or pull on propeller blades when moving the aircraft by hand. Tow bars are specifically designed for this operation.
(8) Never install a propeller on an aircraft unless it is a model approved by the aircraft manufacturer, or the aircraft type certificate data sheet (TCDS) or an appropriate supplemental type certificate (STC). The service history must be properly documented, and a pre-installation inspection must indicate that the propeller is airworthy.
(9) Do not attempt to file nicks/depressions from the leading edge guard.

NOTE: It is permissible to remove burrs in the leading edge guard that are above the profile of the guard.

3. Propeller Removal and Installation

A. General
(1) Propeller removal and installation should be performed only by qualified maintenance personnel. The following instructions are general in nature. The aircraft maintenance manual or STC installation instructions should always be consulted for any specialized procedures applicable to a specific aircraft. Various spinner arrangements not manufactured by McCauley may be used which require additional procedures.
(2) In the following instructions, installation of the propeller is based on the assumption that a McCauley spinner will be used. If a spinner is not used or if the spinner is not manufactured by McCauley, omit those steps which apply to the spinner.

WARNING: Verify that engine magnetos/ignition system has been grounded prior to approaching the propeller.

B. Spinner Assembly Removal
(1) Make an alignment mark on the spinner shell and adjacent blade with a felt tip pen. This index mark ensures accurate restoration of spinner shell position to lessen the distortion of any dynamic balance previously performed on the propeller assembly.
(2) Remove screws and washers from the spinner.
(3) Remove spinner from the propeller installation.

C. Propeller Assembly Removal
(1) Remove cowling as required for access to propeller mounting nuts.
(2) Break the torque on the propeller mounting nuts on Continental engine installations.
(3) Support the propeller, the propeller may be supported and lifted by hand.
(4) Carefully remove the propeller from the engine.
(5) Aft spinner bulkhead and spacer removal.

CAUTION: Do not use heavy strikes with a mallet to separate the spacer from the propeller. Delamination of propeller composite material may result in the area of the spacer if excessive force is used to separate the spacer from the propeller.

(a) Lightly tap propeller spacer with a soft rubber mallet around the circumference of the spacer to work the spacer and aft spinner bulkhead loose from the propeller.

D. Propeller Assembly Installation

© McCauley Propeller Systems

WARNING: BE SURE THAT MAGNETO IS GROUNDED BEFORE TURNING PROPELLER OR CONNECTING EXTERNAL POWER.

NOTE: McCauley recommends that propeller mounting nuts (if applicable) be replaced at each propeller installation, whenever possible. However, nuts may be reused providing threads are in good condition and the locking material prevents turning of the nut on the stud by hand.

(1) Make sure the mating surfaces of the propeller, crankshaft flange, and spinner bulkheads are clean.
(2) Position the aft spinner bulkhead on the dowel pins between the propeller and spacer and press propeller and spacer together.

NOTE: The bulkhead must be positioned so that the propeller blades emerge from the bulkhead and spinner with ample clearance.

(3) Rotate the engine crankshaft so the number 1 cylinder is Top Dead Center (TDC) on its compression stroke.
(4) Position the propeller on the engine crankshaft so the number 1 blade is clocked 60 degrees in the direction of engine rotation from TDC.

NOTE: The number 1 blade will be located at approximately the 10 O'clock position when viewed from in front of the engine looking aft.

(5) Install propeller on crankshaft flange.

WARNING: Make sure there is no lubricant on the threads of the propeller attach nuts and bolts. If the propeller attach bolts and nuts have lubricant on the threads, the bolts will be over torqued and the propeller could fail.

(6) Install forward spinner bulkhead, washers, bolts and nuts.
(7) Tighten bolts and torque evenly in accordance with the following table:

Bolt or Nut Diameter	Torque (DRY) Pound-Feet	Torque (DRY) Pound-Inches	Torque (DRY) Newton Meters (N-m)
3/8	30 to 25	360 to 300	40.675 to 33.895

(8) If an adaptor or extension is attached to torque wrench drive end and this adds to its length, then the actual applied torque will be greater than the dial reading. The following formula should be used to find what the dial should read in order to obtain the correct applied torque:

$$\frac{\text{(actual torque required) x (torque wrench length)}}{\text{(torque wrench length) + (length of the adapter)}} = \text{Torque Wrench Reading to Achieve the Required Actual Torque}$$

(9) Safety wire propeller mounting bolts. Install the safety wire around the bolt heads. Do not install the safety wire over the top of the bolt head.

E. Spinner Installation (if applicable)
(1) Put the spinner shell onto the bulkhead with the alignment marks matched.
(a) Press firmly aft on the spinner.
(2) Push on the spinner shell and use an awl or a small punch in an adjacent hole to move the spinner shell screw hole into alignment with bulkhead hole and install washer and screw. Repeat this procedure on opposing holes until eight evenly spaced screws and washers are installed.

© McCauley Propeller Systems

(3) Secure propeller spinner to the bulkhead with remaining screws and washers.

4. Spacer Removal

A. Remove the propeller and spacer assembly from the airplane. Refer to Propeller Removal and Installation for instructions to remove the propeller.

B. Tool Fabrication
(1) Use a steel bar that is at least 0.250 inch (6.35 mm) thick and 2.00 inches (51.00 mm) wide and 6.0 inches (152.0 mm) long. (2)
(2) Drill two 0.250 inch (6.35 mm) holes in the steel bar that are 2.875 inches apart, +0.020 or -0.020 inches (73.03 mm, +0.5 mm or -0.5 mm) and 1.438 inches, +0.020 or -0.020 inches (36.53 mm, +0.5 mm or -0.5 mm) from the center of the steel bar.

C. Spacer Removal Procedure (Refer to Figure 201).
(1) Attach the steel bar to the propeller spacer using two 0.250 inch diameter bolts with UNC-3A threads.

NOTE: Bolts to be used should be made of steel, 0.250 inch in diameter, have a UNC-3A thread and the grip length sized to match the thickness of the steel bar. For steel bars that are 0.250 inch (6.35 mm) thick, a MS20074-04-06 bolt is an appropriate sized bolt for this application.

(2) Position the propeller and spacer assembly under an arbor press or similar tool as shown in Figure 201.
(3) Place two propeller mounting bolts or equivalent sized steel dowels in the propeller and spacer assembly. The bolts or dowels are used to push the spacer from the propeller must be of equal length.

CAUTION: Do not use bolts that will be returned to service for this procedure. This procedure can damage the threads of propeller mounting bolts.

(4) Make sure there is at least 2.00 inches (50 mm) clearance between the steel bar attached to the propeller spacer and the work surface supporting the sandbags.
(5) Using an arbor press or similar tool, push the bolts or dowels down to remove the spacer from the propeller.
(6) Once the spacer is separated from the propeller, remove the 0.250 inch bolts and steel bar from the spacer.

5. Propeller Cleaning

A. Cleaning Procedures

CAUTION: Do not clean any McCauley composite propeller part with a steel brush, other metal brush, hard bristle brush, or tool of any type not specified in this manual or approved by McCauley.

CAUTION: As applicable during cleaning procedures, observe allowable dimension limits established for certain parts.

(1) Remove dirt, paint (when applicable), grease and oil from all parts of the propeller.
(2) Use McCauley approved cleaning mediums only (refer to Table 201).

© McCauley Propeller Systems

Table 201. Solvents/Cleaners

NAME	NUMBER	MANUFACTURER	USE
ScotchBrite Clean & Finish material	Type A (fine)	3M Co. 3M Center St. Paul, MN 55101	To clean.
Wiping Cloth (White, Oil-free)		Commercially available	To clean.
Rymplecloth®	**NOTE**: Wiping materials that meet the requirements of AMS 3819, Class 1 or 2, Grade A, Form 1 or 2 may be substituted for Rymplecloth®	American Fiber & Finishing, Inc. PO Box 2488, Albemarle, NC 28001	To clean composite and metal surfaces that are to be repaired, painted or bonded.
Mild soap or detergent (hand dishwashing type without abrasives)		Commercially available	To clean painted propeller surface.
Methyl n-Propyl Ketone (MPK)	CAS 107-87-9	Eastman Chemical Products Inc. Wilcox Dr. and Lincoln St. PO Box 431 Kingsport, TN 37662	To clean composite and metal surfaces that are to be repaired, painted or bonded.
Isopropyl Alcohol	TT-I-735	Commercially available	To clean composite, painted, and metal surfaces.
Lacquer Thinner		Commercially available	To loosen grease, loosen/remove general adhesives and sealants, to loosen and remove decals.
Acetone	Reference Specification ASTM D329.	Commercially available	To loosen grease, loosen/remove general adhesives and sealants, to loosen and remove decals.

(a) Be careful not to damage parts, especially on working faces.
(b) Clean nonmetallic parts by wiping with a soft, lint-free cloth dampened with an approved cleaning medium.

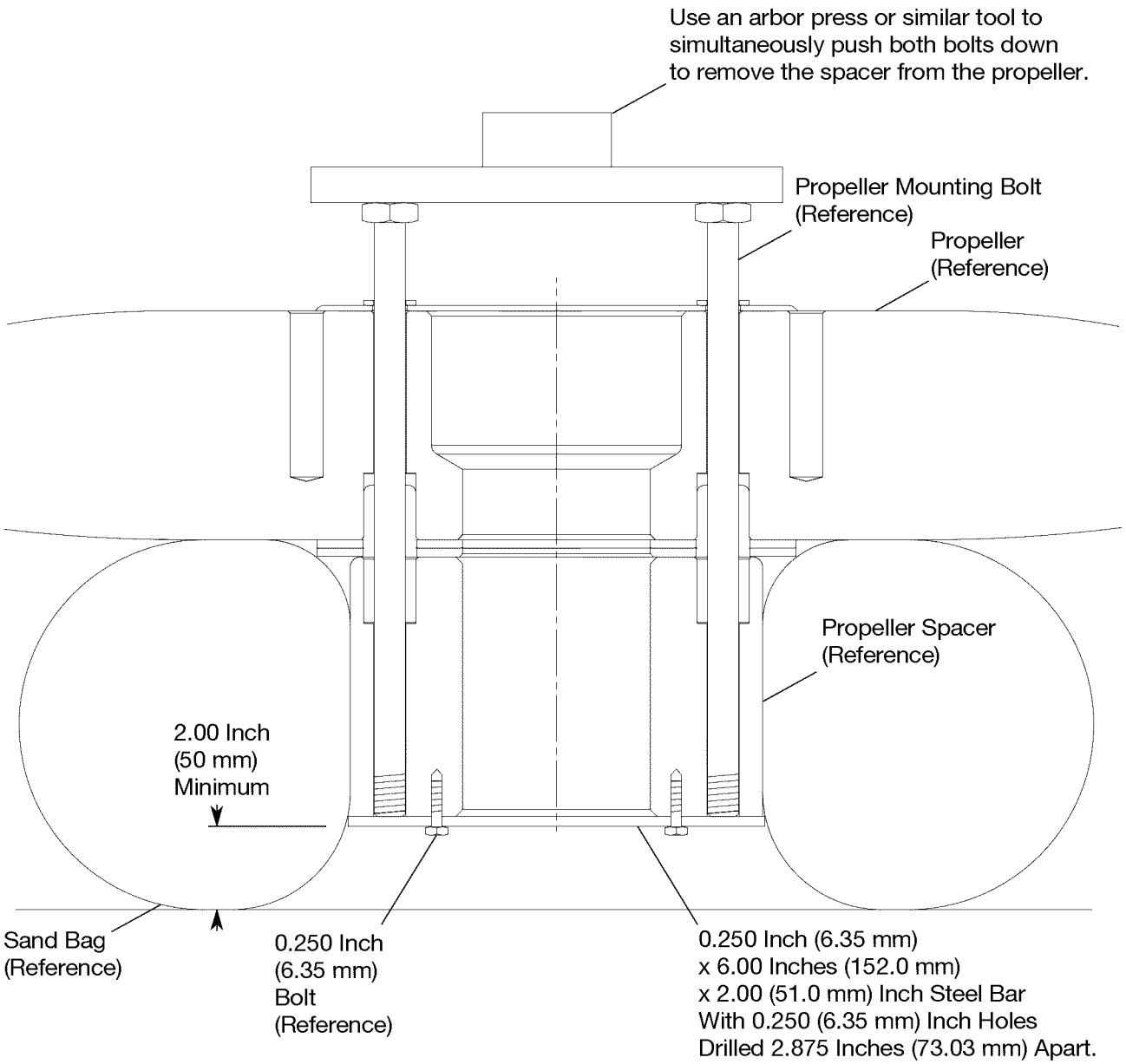
NOTE: The solvent must be applied to the clean wiping material and not to the surface being cleaned. The wiping cloth shall not be wet to the point of dripping.

NOTE: When using mild soap to clean the painted propeller blades, it is permissible to dilute the soap with water and to rinse the propeller with water and dry with a soft cloth.

1 Wipe the propeller surface with the wetted wiping material as required to dissolve or loosen soil or other foreign material. Work on a small enough area so that the surface being cleaned remains wet.

© McCauley Propeller Systems

C1912



B–7925D

Spacer Removal
Figure 201 (Sheet 1)

© McCauley Propeller Systems

2 Immediately wipe the wet surface with a dry, clean, oil and lint free cloth.

NOTE: If the surface dries before being wiped dry, reapply solvent and clean again.

3 Repeat this wiping process until there is no discoloration on the drying cloth.

(c) Remove thick or packed-on grease or dirt with a soft bristle brush.

(d) Allow cleaned parts to air dry.

NOTE: Remove excess moisture with a gentle stream of clean, dry compressed air keeping nozzle of air hose well away from parts.

6. Blade Maintenance

A. Removal of Blade Damage

(1) General

(a) The propeller blade is a highly stressed part. The fact that propeller blades are subject to damage such as nicks, gouges, scratches, pits, etc. demands frequent inspection and maintenance. (Refer to Figure 202)

(b) The disposition of small nicks and scratches may be performed by qualified mechanics in the field in accordance with procedures specified in Propeller Field Maintenance Practices - Troubleshooting.

(c) Large nicks or scratches or other damage involving such things as delaminated leading edge guard, balance, diameter reduction, etc. may be corrected only by an approved propeller repair facility.

(2) Repairable Damage

(a) Minor paint touch-up is allowed.

(b) All other damage repair (except minor paint touch-up) must be accomplished at an approved McCauley composite propeller overhaul facility.

B. Blade Painting

(1) General

(a) Propeller blades are painted with polyurethane enamel paint. This paint provides optimum durability and abrasion resistance. If paint becomes eroded and is not repainted, damage to the blade surface will be accelerated. This is particularly true at blade tips where operation in rain or on sandy and/or wet runways can cause wear. It is, therefore, important to paint blades frequently as part of a regular maintenance schedule. (Refer to Figure 203).

NOTE: At no time should the underlying composite material be visible through the paint. The paint that is applied to the propeller must be opaque in color pigmentation for UV protection of the underlying composite material.

(2) Painting Materials and Procedures

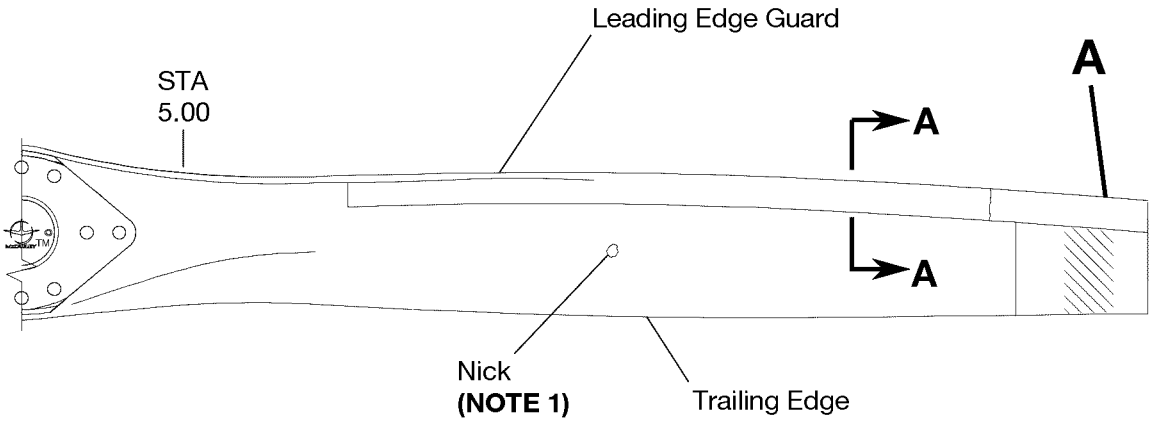
NOTE: Follow painting procedures specified by paint manufacturer when painting the propeller blades.

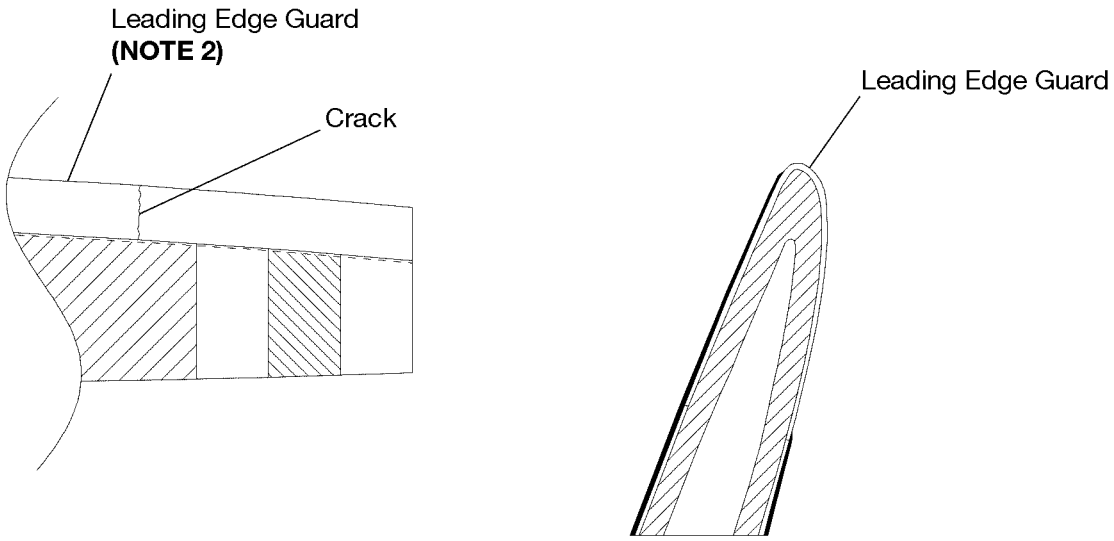
(a) It is recommended that final dry film paint thickness be 6 to 9 mils for best abrasion resistance.

CAUTION: Be careful to apply paint evenly on both propeller blades. Uneven paint application can result in the propeller to become unbalanced and result in abnormal vibration during operation.

© McCauley Propeller Systems

C1690





NOTE 1: Nicks in composite surface less than 0.020 inch deep and greater than 5.00 inches from the center of the propeller and show no signs of delamination should not be repaired until propeller overhaul.

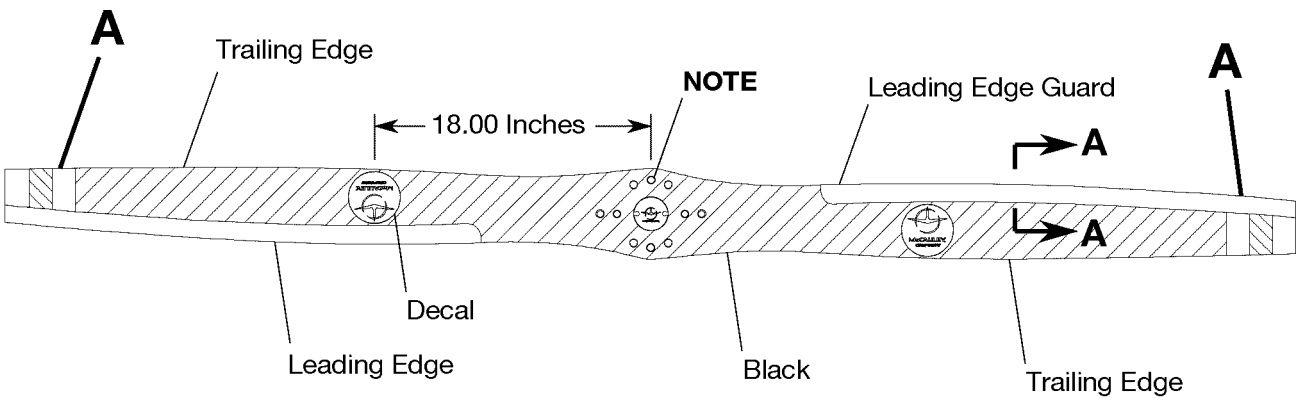
NOTE 2: Do not file nicks in leading edge guard smooth.Remove only sharp edges of nicks and burrs. If leading edge guard is cracked across the full width of the guard or in multiple places, propeller must be taken to a propeller overhaul facility.

0101T1164
A0101T1164
AA0101T1164

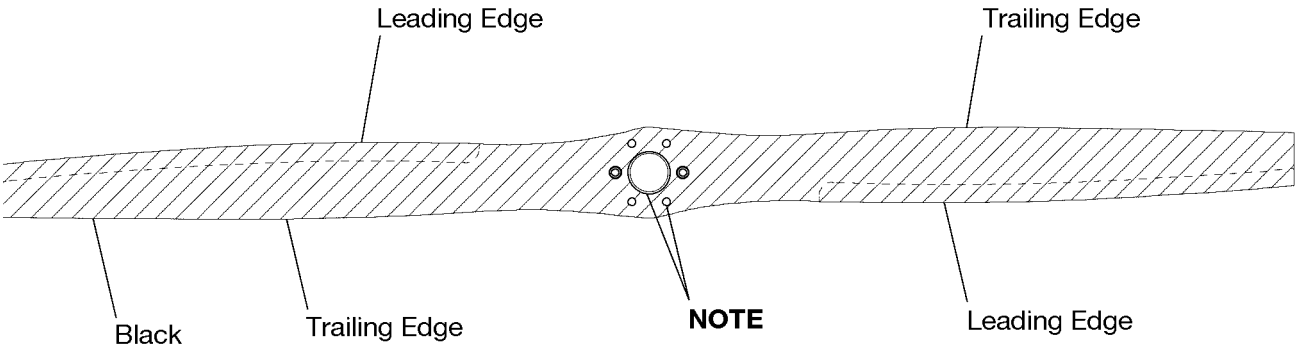
Field Blade Rework Criteria
Figure 202 (Sheet 1)

© McCauley Propeller Systems

C1771

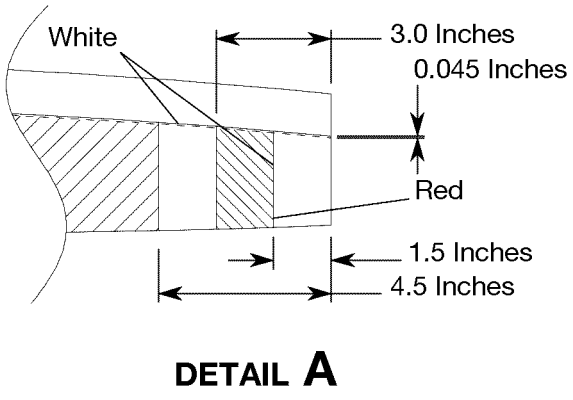


Front View
(Looking Rearward at the Camber Side of Blade)

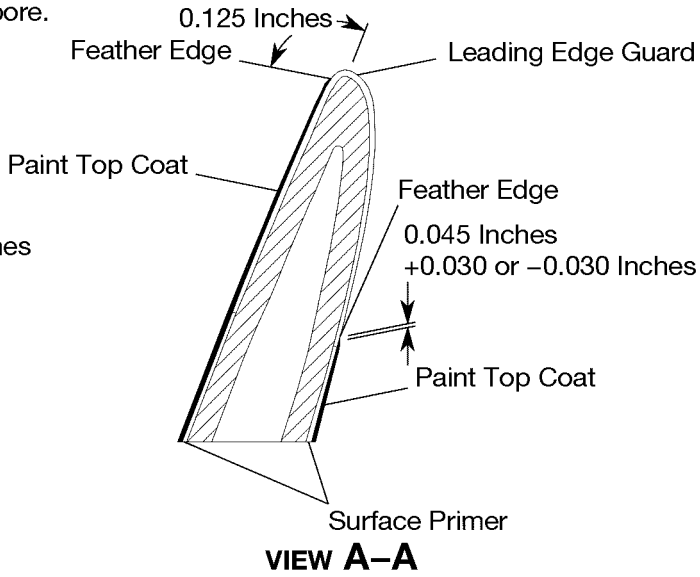


Rear View
(Looking Forward at the Face Side of Blade)

NOTE: Do not prime or paint holes or counterbore.



DETAIL A



VIEW A–A

Blade Painting
Figure 203 (Sheet 1)

© McCauley Propeller Systems

PROPELLER PERIODIC INSPECTION PRACTICES

1. Limitations

A. Operational and service personnel should be familiar with the following limitations during any inspection.

B. Unauthorized Repair of Blades.
   (1) All propellers showing evidence of unapproved repairs require removal of the propeller and proper assessment by an approved McCauley composite propeller overhaul facility.
   (2) Sighting along the leading and trailing edges of a propeller blade for any signs of the blade being out of alignment can also provide evidence of unapproved blade repair.
   (3) Any deformation of the existing blade contour such as bows or kinks may indicate previous unauthorized repair of the blade.
   (4) Careful visual inspection of the leading and trailing edges of the blade may sometimes detect unapproved repairs.
   (5) Repair or filler material that is a different color than approved repair materials.
   (6) Blades should also be examined for any discoloration that would indicate heat damage.
      (a) Composite blades that have been exposed to an elevated temperature that causes a discoloration of the composite material must be removed from service.

C. Blade Shortening.
   (1) Propeller tip damage will sometimes lead field maintenance personnel to consider removing damaged material from the blade tips. However, propellers are certified to the aircraft engine and airframe resonant frequency by being manufactured with a particular diameter to minimize vibration. Shortening of the blades without reference to approved data could create an unairworthy condition. Refer to the airplane manufacturer and the applicable McCauley Propeller Overhaul manual, for the allowable propeller diameter for each propeller installation.
   (2) With certain limitations, specific minor repairs may be accomplished.
      (a) When conditions indicate, inspect the blade tips for evidence of shortening and, if necessary, measure the propeller diameter to determine if an unauthorized repair has altered it.

2. Daily or Preflight Inspection

A. Blade inspection.
   (1) Wash the blades with a mild soap and water solution to remove all foreign residue.

> **CAUTION:** Do not use solvents to clean the painted propeller blades.

      (a) Make sure the blade that you are cleaning is pointing down.
   (2) Surface Damage.
      (a) Look for surface damage on both sides of the blades such as gouges, nicks, scratches, and delamination.
      (b) Surface imperfections can also be felt by running your fingernail along the blade leading edge.
      (c) The mechanic should remove all loose or raised material and make sure that the section thickness has not been reduced below allowable limits.
   (3) Erosion
      (a) Examine the blade for signs of erosion.
         1 If blades appear to show erosion beyond limits, remove the propeller from service and have it examined by an appropriately rated propeller repair facility.
      (b) Examine the condition of the paint on the propeller blades and the spinner, if painted.
         1 Paint helps prevent erosion of the propeller blade surface. Repair the paint before it is worn through and the propeller blade structure is damaged by erosion.

© McCauley Propeller Systems

2 Do not apply excessive paint and do not paint propeller components unless it is in accordance with McCauley instructions. The improper application of paint may affect propeller balance, operation, static electricity discharge, lightning tolerance, or have other unintended consequences.

NOTE: Excessive paint thickness can cause damage to the propeller as a result of a lightning strike.

(4) Straightness
(a) Sight down the edges to find any deformation.
(5) Looseness
(a) Feel the propeller installation for security. Push and pull on the propeller in the hub area to make sure the installation is not loose or has any unusual play.

B. Spinner and Bulkhead.
(1) Externally examine the spinner and bulkhead for security, missing fasteners, damage, and cracks. Cracks typically start from the screws that attach the spinner to the bulkhead.
(a) Repair of cracks in the spinner or spinner bulkhead is not permitted.
(2) Examine the bulkhead for security of installation. This could be an indication that the mounting bolts are loose.
(3) Wear depth on the inside of the spinner must not be more than 0.010 inch (0.25 mm).

C. Maintenance Records.
(1) Note any indications in the logbook for future reference to determine whether a condition is getting worse.

3. 100 Hour and Annual Inspection

A. At each 100 hours, Annual, or other approved inspection interval, examine the propeller in accordance with the aircraft inspection manual. Inspection should include:
(1) Spinner Removal
(2) Inspection of all attaching hardware, including the hardware under the spinner, for security. Tighten if necessary.
(3) Repaint propeller as necessary in accordance with the Propeller Field Maintenance Practices, Blade Painting.
(4) Examine all placards for legibility and security of installation. Replace all placards that are illegible or not secure.
(5) The propeller mounting bolt torque should be checked at least once a year.
(a) Propeller mounting bolts must be magnetic particle inspected in accordance with ASTM E-1444 or liquid penetrant inspected in accordance with ASTM E-1417 or replaced at every propeller overhaul/reconditioning or repair.

4. Necessary Actions Following Object Strike of Stationary Propeller, Blade Strike of Rotating Propeller, Bird Strike, or Sudden Engine Stoppage

A. Object Strike of Stationary Propeller
(1) "Object Strike" is defined as any impact of a non-rotating propeller by a substantial moving object, such as any personnel vehicle, aircraft tug, ground power unit, etc.

NOTE: The definition is intended for use as an example only. Determination as to whether or not an object strike actually occurred is ultimately the responsibility of the aircraft operator.

(2) Inspect the propeller blades for damage such as scrapes, gouges, cracks, crushed areas, etc. caused by impact. Any damage that is beyond normal operation limits is cause for propeller removal and repair.

© McCauley Propeller Systems

B. Blade Strike of Rotating Propeller
(1) "Blade Strike", sometimes referred to as "Ground Strike", is defined as any impact or suspected impact of the rotating propeller upon such items as, but not limited to, the ground, tow bars, landing lights, carts, snow banks, hedges, etc. Please note that the above definition is intended for use as an example only. Determination as to whether or not a blade strike actually occurred is ultimately the responsibility of the aircraft operator.

CAUTION: Internal damage can occur without evidence of gross external damage.

(a) Any McCauley propeller experiencing a blade strike must be removed from the aircraft and overhauled by an approved McCauley composite propeller overhaul facility in accordance with the applicable overhaul manual.
(2) Bird Strike
(a) "Bird Strike" can be defined as the impact of any bird into the rotating propeller causing damage.
(b) Inspect all blades for damage such as scrapes, gouges, etc. caused by the impact. Any damage beyond normal limits is cause for propeller removal and repair. Refer to Blade Maintenance in Propeller Field Maintenance Practices.
(c) For a propeller that is found to be damaged beyond the normal limits, the propeller must be removed from the aircraft and overhauled by an approved McCauley composite propeller overhaul facility.
(3) Sudden Engine Stoppage
(a) "Sudden Stoppage" is defined as any propeller experiencing a sudden decrease in RPM. This is commonly due to engine failure or seizure. Please note, determination as to whether or not sudden engine stoppage has occurred is ultimately the responsibility of the aircraft operator. McCauley recommends consulting engine manufacturer's data to determine criteria for sudden engine stoppage.
(b) Any McCauley propeller experiencing a sudden stoppage must be removed from the aircraft and completely overhauled by a McCauley approved propeller repair facility.

5. Blade Track Check

A. Check
(1) Turn propeller so that Number 1 blade is straight down.
(2) Position a smooth board beneath the blade tip.
(3) Block up the board firmly in place just clear of the blade tip.
(4) Place a pencil mark approximately one inch (25 mm) long on the board at the midpoint of the outer edge of Number 1 blade tip.
(5) Turn the propeller so the other blade is straight down.
(6) Place a thin one-inch (25 mm) line on the board at the midpoint of the outer edge of the second blade tip.

CAUTION: Difference in blade track cannot exceed 0.170 inch (4.3 mm).

(7) Measure the horizontal difference between the lines. If blade track difference exceeds 0.170 inch (4.3 mm), determine if the propeller is warped or the engine crankshaft flange is bent.

6. Lightning Strike Inspection Requirements

A. If doubt exists as to the occurrence of a lightning strike, the following criteria can be used to verify any suspicion:
(1) Check for burns or signs of arcing on blades and hub area.

NOTE: The lightning mesh area of the propeller blade will have burn or scorching marks to help identify a propeller blade that has been struck by lightning.

(2) Look for any signs of localized melting or delamination, particularly on the blades.

© McCauley Propeller Systems

(3) If preliminary inspection suggests an actual strike, a complete propeller overhaul is to be accomplished as per the applicable McCauley overhaul manual.

7. Dynamic Balance

NOTE: Some aircraft manufacturers do not approve dynamic balance of the propeller because of potential crack damage to spinner bulkhead from the installed weight.

A. Recommended test equipment.

NAME	NUMBER	MANUFACTURER	USE
Balance Analyzer	Model 2020 Pro Balancer Analyzer	ACES Systems 10737 Lexington Drive Knoxville, TN 37932-3294 Web: www.Acessystems.com	

B. It is highly recommended that this procedure be performed following static balancing. All of the procedures and guidelines listed below should be used in conjunction with the dynamic balance equipment manufacturer's instructions.
(1) Perform dynamic balance according to balance equipment manufacturer's instructions.
(2) If the initial reading is over 0.8 ips, McCauley recommends the following should be checked/ corrected:
(a) Shimming of the spinner shell.
(b) Propeller installation (properly torqued and installed flat against the mounting flange).

NOTE: If the shimming of the spinner shell and propeller installation are found to be acceptable but the initial reading is still over 0.8 ips, we recommend the propeller be taken to a McCauley approved repair facility for inspection.

(3) If the initial reading is under 0.8 ips, continue the dynamic balance in accordance with the balance equipment manufacturer's instructions.

CAUTION: At no time are static balance weights to be moved to adjust dynamic balance.

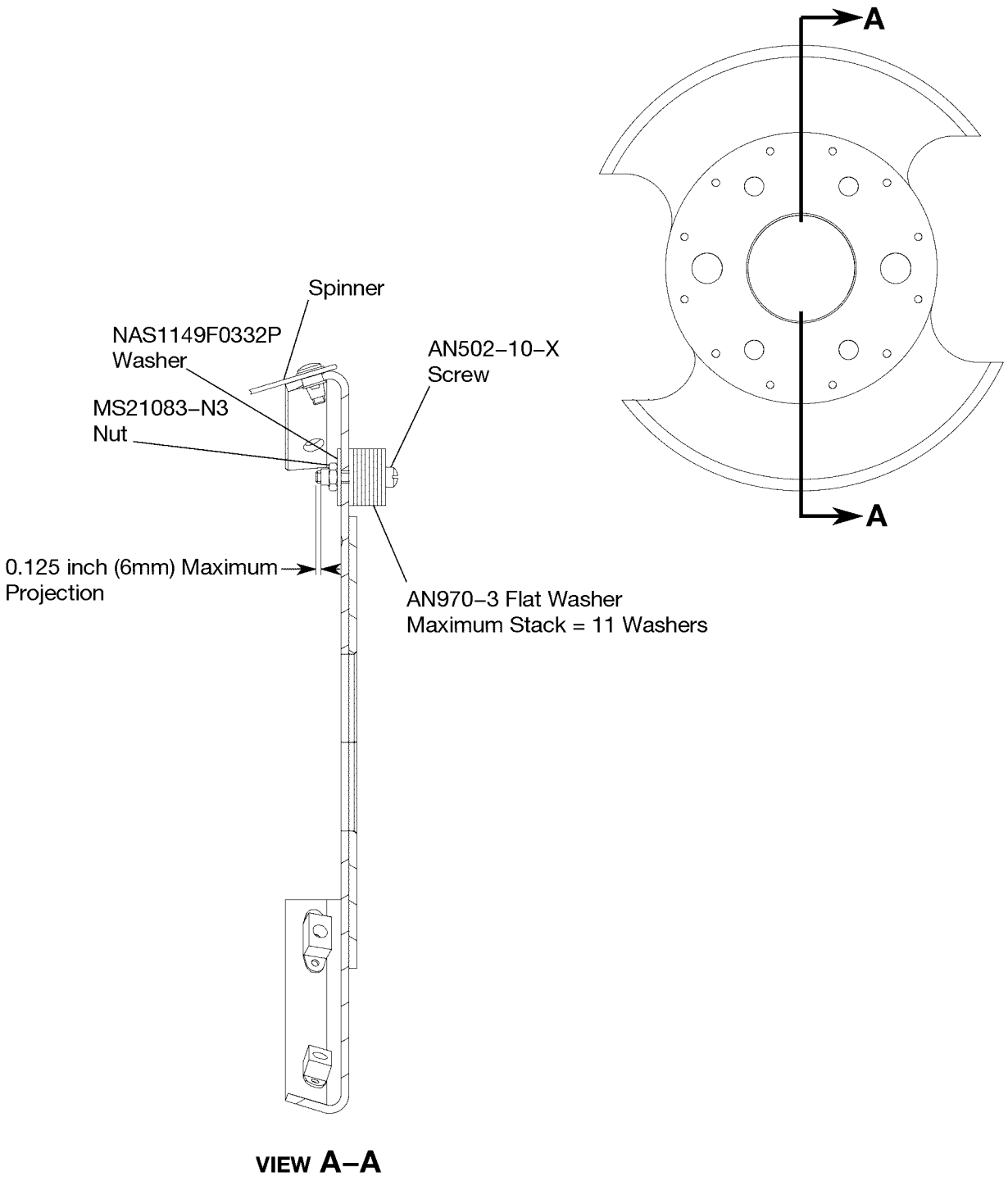
(4) If the test indicates the addition of weights, temporarily place the indicated mass of balance washers in place of the spinner mounting screw at the location indicated by the testing equipment.
(a) An AN970-3 washer weight = 0.144 ounces each (4.1 grams) plus screw (AN502-10-X)
(5) Repeat the dynamic balance until the correct balance level (approximately 0.07 ips or lower) is achieved.

NOTE: Most dynamic balance equipment manufacturers specify 0.15 - 0.2 ips as being an acceptable level. McCauley Propeller Systems agrees that 0.15 - 0.2 is an acceptable level, but our experience has shown that 0.07 ips or lower is noticeably smoother.

(6) When dynamic balance is satisfactory:
(a) Remove balance washers and screw from the spinner attach screw hole.
(b) Permanently mount the balance washers and screws to the spinner bulkhead assembly at a point adjacent to the test location as shown on Figure 501.
(7) Always place at least one balance weight under screw head for stress relief (see Figure 1). Return original spinner screw to hole.

© McCauley Propeller Systems

C1674



0102T1200
AA0102T1200

Balance Weight Installation
Figure 501 (Sheet 1)

© McCauley Propeller Systems

WARNING: Use extreme care when you drill bulkheads near the propeller. Drill damage could potentially require propeller replacement depending on the severity of the damage.

8. Vibration Troubleshooting

A. Troubleshooting vibration problems can be very challenging and time consuming. Most digital dynamic equipment can also be used to track down vibration problems. The digital dynamic balancing equipment can display the amplitude and frequency of the vibration which will help determine the vibration source. While vibration problems are occasionally caused by the propeller, they are usually caused by other things. Below is a list of other possible sources of vibration:
(1) Engine
(2) Worn, old, cracked or loose engine mounts
(3) Cracked or loose engine mount structure
(4) Cracked or broken spinner bulkheads
(5) Loose or improperly mounted engine cowlings
(6) Loose cowl flaps
(7) Loose landing gear doors
(8) Out of balance elevators
(9) Loose control yokes
(10) Exhaust stack touching engine cowling
(11) Component in engine compartment that is touching engine cowling

9. Propeller Overspeeding

A. During operation, if the propeller is subjected to an overspeed condition, do the following:
(1) Follow the inspection requirements in accordance with the following categories for overspeeding of rated take-off RPM. Refer to the table that follows for an assessment of an overspeeding to the propeller:

Model	Percentage Overspeed	Action to be Taken
1L100	Up to but not including 15%	General external visual inspection. No further action is required.
	15% or Higher	Contact McCauley Product Support for disposition.

10. Fire

A. Any propeller assembly, propeller component, or spinner component exposed to fire or excessive heat is considered unairworthy and must be scraped, if it shows any of the following conditions:
(1) Bubbled paint.
(2) Discolored paint.
(3) Discolored metal.
(4) Discolored epoxy.
(5) Melted areas.
(6) Burnt areas.

© McCauley Propeller Systems

PROPELLER REPAIRS

1. General Information

A. McCauley allows specific repairs, modifications to composite propellers. Only the changes to the original propeller configuration as specified by McCauley are allowed.

CAUTION: All disassembly, overhaul, testing, repair, and reassembly procedures on a McCauley composite propeller must be done in an approved propeller repair station (or international equivalent) by qualified personnel.

CAUTION: Authorized propeller repairs are limited to procedures described in this manual and the propeller overhaul manual. Replace the propeller if the propeller is damaged beyond the repair limits permitted.

B. Refer to the aircraft manufacturer's manual as necessary for additional information.

C. Inspect, maintain, repair and overhaul the propeller in accordance with the recommended procedures given in this section.

2. General Repair Instructions:

WARNING: Do not apply any kind of autobody filler "Bondo" compound to fill and cover a surface defect.

NOTE: McCauley Propeller Systems Product Support Department must be contacted if a part has unusual wear or damage to find out if it is airworthy or not.

A. Follow each of the general repair instructions for all propeller repairs.
   (1) Complete only those repairs that will not affect the operation or serviceability of the propeller.
   (2) Complete a Daily or Preflight inspection and the 100 hour and annual inspection as shown in Propeller Periodic Inspection Practices.

3. Exposed Blade Core Foam

A. If the propeller blade core foam is visible the propeller must be removed from service and scraped. No repairs are permitted on propellers with exposed blade core foam.

4. Delamination.

A. Large Area Delamination.
   (1) A Large area Delamination is defined as being at least 6 square inches of area, over 4 inches along the longitudinal axis of the propeller, or over 60% of local chord width. Propellers found with large areas of delamination must be removed from service and scrapped. No repairs are permitted on propellers that are found to have a large area of delamination.

5. Carbon Fiber Ply Repair

A. If a carbon fiber ply of the propeller spar is damaged, the propeller must be removed from service and scrapped. No repairs are permitted on propellers that are found to have a damaged carbon fiber ply.

6. Leading Edge Guard Repair

A. Delamination
   (1) Leading edge guard that is delaminated less than 0.5 square inch is repairable. The repair must be accomplished by an approved McCauley composite propeller overhaul facility or the propeller must be removed from service and scraped.

© McCauley Propeller Systems

(2) Leading edge guard that is delaminated 0.5 square inch or more, the leading edge must be removed and replaced or the propeller must be removed from service and scraped. The repair must be accomplished by an approved McCauley composite propeller overhaul facility.

© McCauley Propeller Systems

INSTALLATION PARTS LIST

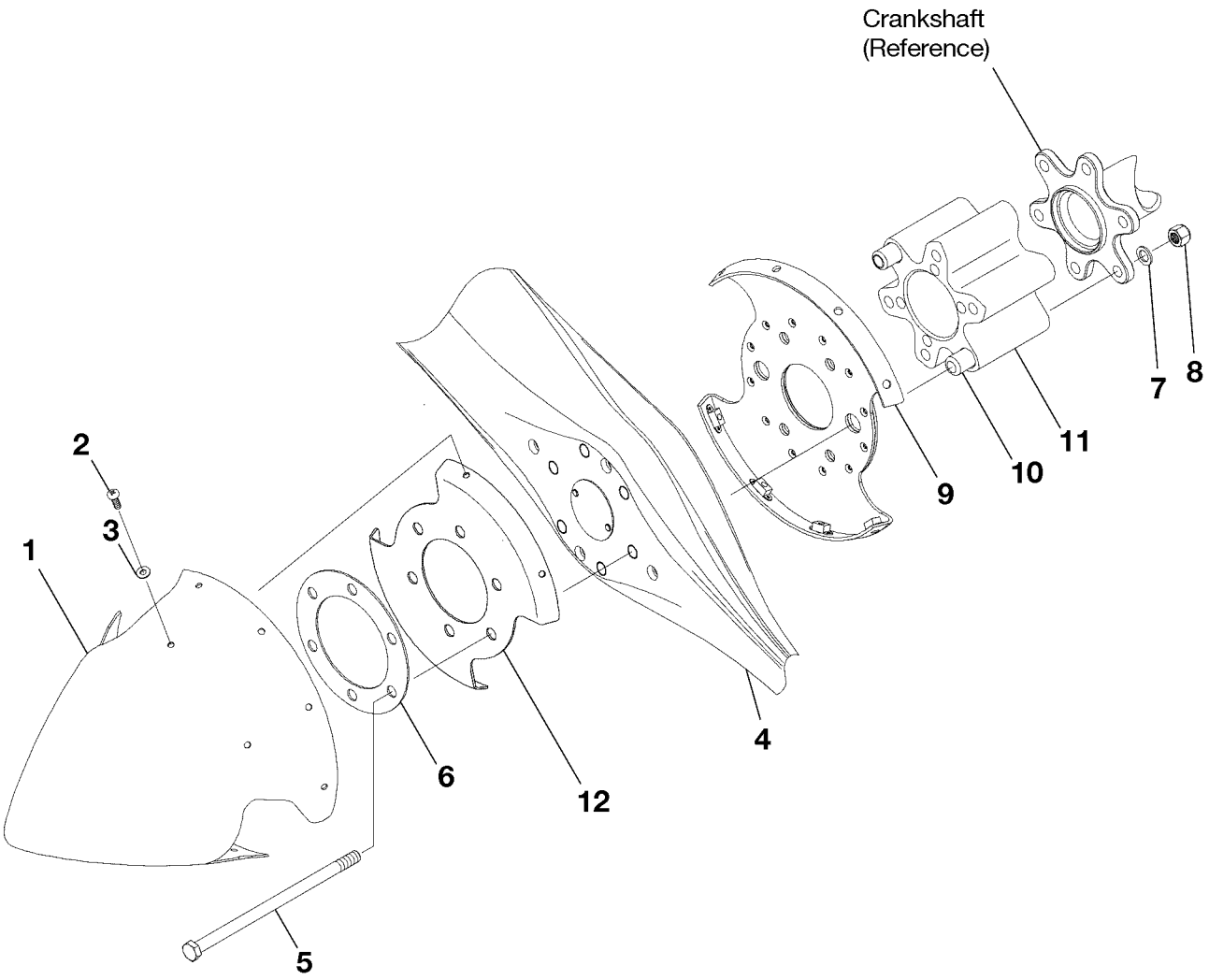
1. General

A. Use the Installation Parts List to identify and order correct replacement parts for propeller field maintenance refer to Figure 1001

B. These parts may be purchased through your local authorized McCauley propeller service center.

© McCauley Propeller Systems

C1672



0955T1003

Installation Parts for Fixed Pitch Composite Propeller.
Figure 1001 (Sheet 1)

© McCauley Propeller Systems

Index Number	Part Number	Description	Quantity
1	D-7945	Spinner Shell	1
2	A-1635-133	Screw	12
3	A-1635-5	Washer	12
4	1L100	Propeller	1
5	A-2513-105*	Bolt	6
6	B-7948	Fixed Pitch Crush Plate	1
7	A1638-14*	Washer	6
8	A-1639-6*	Nut	6
9	D-7962	Spinner Bulkhead	1
10	A-7952	Dowel - Hollow	2
11	B-7925	Spacer	1
12	C-7961	Front Support Assembly	1
13 **	B-7997	Decal	2
	* Bolt Kit part number B-4622-49 consists of 6 each A-2513-105 bolts, 6 each A-1638-13 washers, 6 each A1638-14 washers, and 6 each A-1639-6 nuts. The A-1638-13 washers are not used for this installation.		
	** Item not shown		

© McCauley Propeller Systems

PROPELLER LOGBOOK

Dear Customer,

Congratulations on the purchase of your new McCauley propeller. Engineered with the customer in mind, it is designed to provide years of reliable and trouble-free service.

Scheduled maintenance or servicing of your McCauley propeller should be accomplished at your nearest McCauley Approved Composite Propeller Overhaul Facility.

For the location of the McCauley Approved Service Station nearest you, refer to www.mccauley.textron.com 24 hours a day, or by calling 316-831-4021 between 8:00 AM and 4:30 PM Central Time.

NOTE: Having work performed at a facility other than a McCauley Approved Composite Propeller Overhaul Facility may void your warranty.

© McCauley Propeller Systems

FAA LOGBOOK REGULATIONS

1. Maintenance Records.

A. Refer to 14 CFR 91.417 for a complete copy of this regulation.

NOTE: The following statements contain excerpts from CFR 91.417 concerning propeller maintenance records.

B. Except for work performed in accordance with CFR 91.411 (Altimeter System and Altitude Reporting Equipment Tests and Inspections) and CFR 91.413 (ATC Transponder Tests and Inspections), each owner or operator shall keep the following records as specified in paragraph C.

(1) Records of the maintenance, preventive maintenance, and alteration and records of the 100-hour, annual, progressive, and other required or approved inspections, as appropriate, for each propeller. The records must include:

(a) A description or reference to data acceptable to the Administrator of the work performed;
(b) The date of completion of the work performed;
(c) The signature and the certificate number of the person approving the aircraft for return to service.

(2) Records must contain the following information:

(a) The total time in service of the propeller.
(b) The current status of life-limited parts of each propeller.
(c) The time since last propeller overhaul.
(d) The current inspection status of the propeller, including the time since the last inspection required by the inspection program under which the propeller is maintained.

C. The owner or operator shall retain the following records for the periods prescribed:

(1) The records specified in paragraph B.(1) shall be retained until the work is repeated or superseded by other work or for 1 year after the work is performed.
(2) The records specified in paragraph B.(2) shall be retained and transferred with the propeller at the time the aircraft is sold.
(3) A list of defects furnished to a registered owner or operator under CFR 43.11 shall be retained until the defects are repaired and the propeller is approved for return to service.

D. The owner or operator shall make all maintenance records required to be kept by this section available for inspection by the Administrator or any authorized representative of the National Transportation Safety Board (NTSB).

2. Transfer of Maintenance Records.

A. Refer to 14 CFR 91.419 for a complete copy of the regulation concerning the transfer of propeller maintenance records.

NOTE: The following statements contain excerpts from CFR 91.419 concerning the transfer of propeller maintenance records.

B. Any owner or operator who sells a propeller (as installed equipment on an airplane or by itself), shall transfer to the purchaser, at the time of sale, the following records of that propeller:

(1) The records specified in CFR 91.417(a)(1).
(2) The records specified in CFR 91.417(a)(2).

© McCauley Propeller Systems

USE OF LOGBOOK

1. Use of Logbook

A. Proper maintenance of this logbook is the owner's responsibility. It is an important record designed for the owner's information and protection.

B. If the propeller is sold or installed on another aircraft, the logbook should be transferred with the propeller.

C. It is recommended that maintenance release tags and work orders be attached inside the logbook. If a copy of the work order is not available, the repair station and work order numbers should be referenced in the logbook entry.

D. All Service Bulletins and Service Letters have been complied with at the time of production.

© McCauley Propeller Systems

PROPELLER INSTALLATION	
PAGE NUMBER _____	
Owner Name	
Address	
Propeller Model	
Propeller Serial Number	

© McCauley Propeller Systems

INSTALLATION HISTORY

PAGE NUMBER _____

Date	Aircraft Model, Serial Number, and Registration Number	Engine Serial Number & Position

© McCauley Propeller Systems

PROPELLER LOG

PAGE NUMBER ________

Date	Total Time	Time Since Overhaul	Aircraft Model & Registration Number	Maintenance Service History	Signature & Certificate Number

© McCauley Propeller Systems

SERVICE BULLETIN/SERVICE LETTER COMPLIANCE RECORD

PAGE NUMBER ________

Date	Total Propeller Time	Time Since Overhaul	Service Bulletin/Service Letter Number	Signature & Certificate Number

© McCauley Propeller Systems