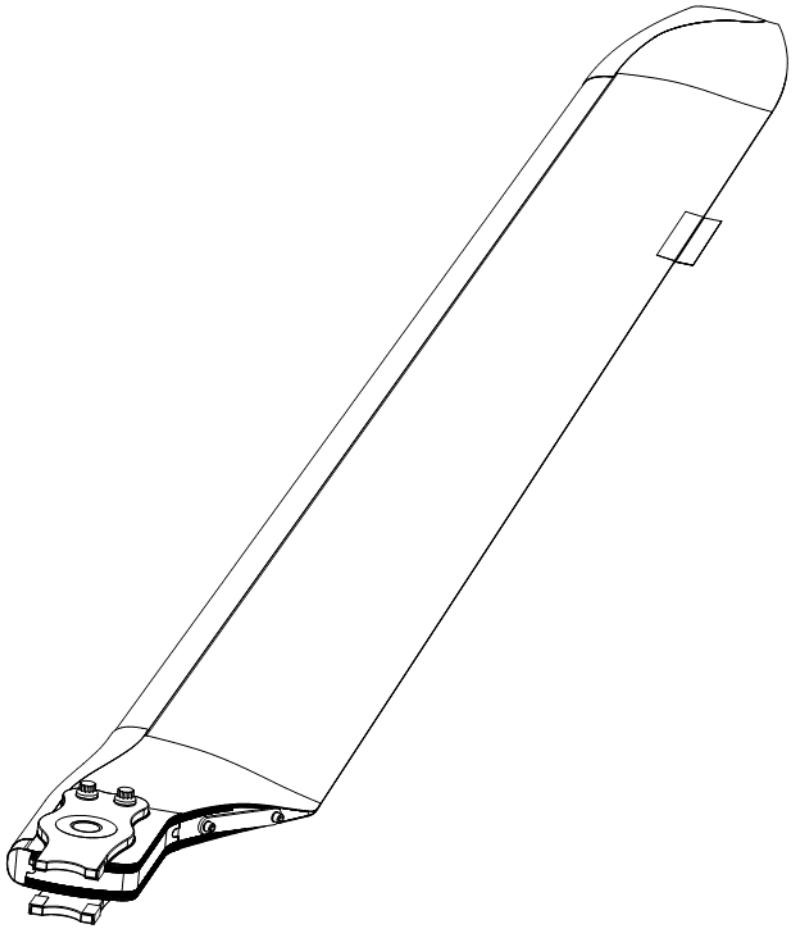
Van Horn Aviation, L.L.C.
1510 W. Drake Drive
Tempe, Arizona 85283

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS



ICA MANUAL No. VMM-MR-206B-501

Main Rotor Blade Assembly 20631000-101
Eligible for Installation on Model 206B

REVISIONS

REV	DATE	DESCRIPTION	APPROVED
N/C	01/27/16	Initial Release	JVH
A	02/02/16	Updated section 4, airworthiness schedule. Added bushing and grip plate inspections. Updated figure 62-1.	JVH
B	02/10/16	Updated section 4, airworthiness schedule.	JVH
C	04/29/16	Updated section 4, airworthiness schedule.	JVH
D	06/08/16	Corrected Grip Assembly part numbers in 62.2.	JVH
E	12/19/16	Expanded 5.10.1 Damage Description. Revised 5.10.4(c.)(d) to add a time requirement in addition to an hour requirement for exposed carbon/epoxy skin aft of abrasion strip trailing edge. Added tap test of blade in 5.4 and 5.5. Renamed figure 5-1 to 5-2. Added new figure 5-1. Revised 62.3.2(c.) to permit use of reflective tape in addition to tracking tabs and permits use of Bell approved trim tab bending and angle measuring tools. Deleted NOTE in 62.3.	JVH
F	11/10/2020	Added inspection criteria for trim tab to 5.2.1. Added inspection requirements 5.10 and 5.11. Expanded damage limits and damage dispositions in section 5.12. Provided detailed instructions in 62.9 for grip plate installation.	DR

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CHAPTER 0 – INTRODUCTION

0.1 SCOPE

This manual contains information, descriptions, and instructions essential for the continued airworthiness of the Van Horn Aviation L.L.C. 20631000-101 Blade Assembly.

0.2 ARRANGEMENT

This manual follows the Airline Transport Association (ATA) specification 100 numbering system where practical.

0.3 UNITS OF MEASUREMENT

All measurements, tolerances, and other numbers referenced in this manual will be in English units.

0.4 CHANGES TO THE ICA

0.4.1 Changes to text and tables, including new material on added pages shall be indicated by a vertical bar in the outer margin extending close to the entire area of the material affected.

0.4.2 Please send any comments or corrections to Van Horn Aviation L.L.C., 1510 West Drake Drive, Tempe, AZ 85283 USA, via email to info@vanhornaviation.com, or call +1 (480) 483-4202.

0.5 DISTRIBUTION

0.5.1 The ICA will be shipped with the original purchase of a 20631000-101 Main Rotor Blade Assembly.

0.5.2 The ICA can be found on Van Horn Aviation's website: https://vanhornaviation.com/documentation/

CHAPTER 4 – AIRWORTHINESS LIMITATIONS

4.1. AIRWORTHINESS LIMITATIONS SCHEDULE

The Airworthiness Limitations section is FAA approved and specifies inspections and other maintenance required under §§43.16 and 91.403 of the Federal Aviation Regulations unless an alternative program has been FAA approved.

Part Number	Part Name	Airworthiness Limitation
20631000-101	Main Rotor Blade Bonded Sub-Assembly Only	18,000 Hours
20631020-101 20631020-103	Grip Plate Assembly	2,800 Hours*
20631391-1	Bushing, Inboard Blade Root	2,800 Hours
20631392-1	Bushing, Outboard Blade Root	2,800 Hours

*Includes all installation hardware: bolts, nuts, and washers.

FAA Approved: _____

Date: 1/24/17

CHAPTER 5 – INSPECTION/CHECK REQUIREMENTS

5.1. PRE-FLIGHT CHECK

No.	Requirements	Airworthiness Criteria
1.	Visually check the main rotor blades for any visible damage such as cracks, blisters, delaminations, abrasion strip dents or local contour deformation.	See 5.12 DAMAGE LIMITS.

5.2. 100 (+/- 10 hour tolerance) HOUR INSPECTION AND ANNUALLY

No.	Inspection Requirements	Airworthiness Criteria
1.	Check the general condition of the rotor blade. Check for skin dents, scratches, cracks or blisters. Check the trailing edge for nicks or delaminations. Look for paint cracks around the trim tabs; if paint cracks are found, perform tap test inspection.*	See 5.12 DAMAGE LIMITS.
2.	Examine tip balance weights for security.	Make sure weights do not move/turn easily. See 5.12 DAMAGE LIMITS
3.	Inspect the abrasion strips for wear, cracks, dents, punctures and edge voids. Inspect all polyurethane or elastomeric protective coatings for wear or damage.	See 5.12 DAMAGE LIMITS.

5.3. 300 (+/- 30 hour tolerance) HOUR INSPECTION

No.	Requirements	Airworthiness Criteria
1.	Perform dynamic balance of main rotor.	Balance to .20 IPS or lower.

5.4. 1,400 (+/- 30 hour tolerance) HOUR INSPECTION

No.	Inspection Requirements	Airworthiness Criteria
1.	Inspect grip plate assemblies, root plates, and bushings for cracks. Conduct a tap test of blade upper and lower surface.*	Contact Van Horn Aviation if any discrepancies found exceeding damage limits in 5.12 DAMAGE LIMITS. Refer to 62.9 for grip plate installation instructions.

5.5. 2,800 (+/- 30 hour tolerance) HOUR INSPECTION

No.	Inspection Requirements	Airworthiness Criteria
1.	Remove and replace the 20631020-101 & -103 grip plate assemblies, 20631391-1 and 20631392-1 bushings. Replace all installation hardware. See 62.9 GRIP PLATE ASSEMBLY REPLACEMENT Inspect entire main rotor blade assembly for cracks, voids, blisters, or other damage. Inspect bushing holes through blade. Inspect root plates for cracks. Conduct a tap test of blade upper and lower surface*.	Contact Van Horn Aviation if any discrepancies found exceeding damage limits in 5.12 DAMAGE LIMITS.

5.6. SUDDEN STOPPAGE OR ACCELERATION

No.	Inspection Requirements	Airworthiness Criteria
1.	No inspection required.	Remove the rotor blades and return to Van Horn Aviation for evaluation.

5.7. OVERSPEED – 107 PERCENT OR GREATER

No.	Inspection Requirements	Airworthiness Criteria
1.	For main rotor overspeed 107 to 114 percent: Inspect main rotor blades for any visible damage such as cracks, blisters, delaminations, or local contour deformation.	No defects permitted.
2.	For main rotor overspeed above 114 percent: Inspect main rotor blades for any visible damage such as cracks, blisters, delaminations, or local contour and dimensionally check main rotor blade attachment bushing for elongation in excess of .0015 inch.	No defects permitted.

5.8. OVERTORQUE

No.	Inspection Requirements	Airworthiness Criteria
1.	No inspection is required for overtorques between 100 to 110 percent.	N/A
2.	Overtorques 110 to 120 percent: Inspect the main rotor blades for any visible damage such as cracks, blisters, delaminations, or local contour deformation. If any of these conditions exist, remove the rotor blades and return to Van Horn Aviation for evaluation.	No defects permitted.
3.	Overtorques above 120 percent require the inspections in No. 2 above at the time of the overtorque and again after 25 hours of operation.	No defects permitted.

5.9. LIGHTNING STRIKE

No.	Inspection Requirements	Airworthiness Criteria
1.	Scrap the blades if there is any evidence of a lightning strike. Return the scrapped blades to Van Horn Aviation for testing.	N/A

5.10. BLADE STRIKE

No.	Inspection Requirements	Airworthiness Criteria
1.	Inspect both main rotor blades immediately after a suspected blade strike has occurred. Inspect both blades for any visible damage such as cracks, blisters, delaminations, broken fibers, or local contour deformation. Inspect the abrasion strips for dents, cracks, debonds or deformation. At the strike area, tap inspect the full width of the upper and a lower surface of the blade (leading edge to trailing edge) and for a minimum distance of 12 inches to either side of the impact site. Debonds greater than 1.0 inch diameter are not permitted.*	Contact Van Horn Aviation if any discrepancies are found that exceed damage limits in 5.12 DAMAGE LIMITS.

5.11. HAIL

No.	Inspection Requirements	Airworthiness Criteria
1.	If there is visible hail impact damage to the aircraft fuselage, do a visual inspection of the upper surface of the blade to look for hail damage. Dimples in the blade skin are indicators of hail damage. Shine a bright light parallel to the surface of the blade to assist the visual inspection. Tap inspect around all skin dimples to look for skin voids/debonds caused by hail impact.	See 5.12 DAMAGE LIMITS.

*The internal structure of the blade will cause tone changes during the tap test. Figure 5-1 shows the blade's internal components with their approximate locations and shapes. Other than the components shown, the remainder of the blade's internal structure is high density structural foam. Tone changes can be expected as the tap test traverses the various blade sections. Tone changes that are not associated with internal component boundaries should be treated as suspected voids. Van Horn Aviation recommends the use of an Abaris Tap Hammer for tap inspections (SKU: ABATH).

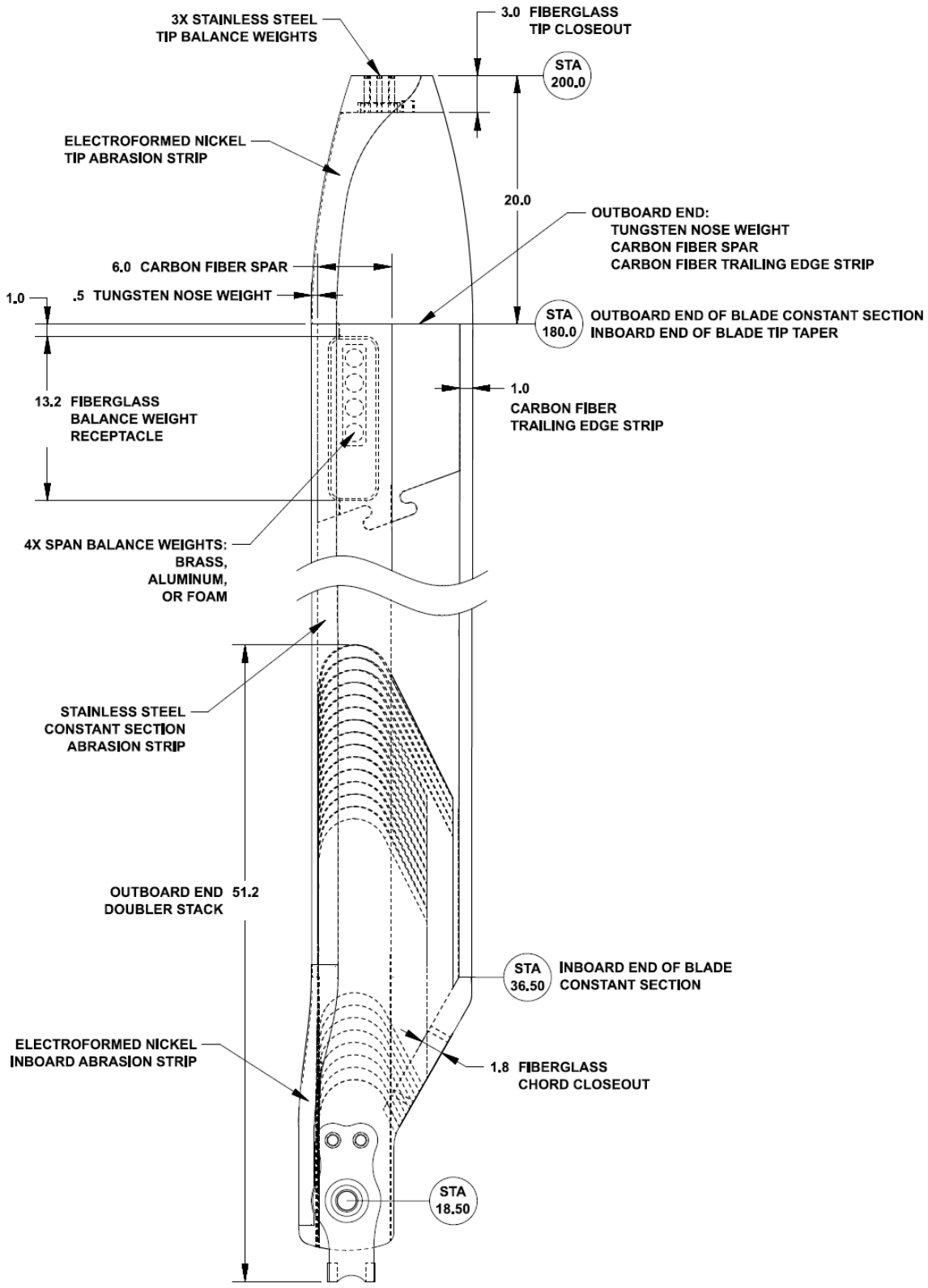

Figure 5-1

Main Rotor Blade Configuration

5.12. DAMAGE LIMITS

5.12.1. Damage Description

Damage may take the form of cracks, scratches, nicks, dents, debonds, voids, abrasion and erosion. Limits are provided for each of these types of damage. Damage exceeding these limits require evaluation, and if possible, repair at an authorized FAA repair station. Minor damage may be corrected using the instructions provide in this chapter. For all other damage, contact VHA for repair station recommendations.

Carbon/epoxy material strength can be degraded by prolonged exposure to moisture and ultraviolet radiation. This rotor blade is protected from both of these conditions using epoxy primer, multiple coats of polyurethane topcoat, and a polyurethane clear coat (Note: an improved-durability nano hybrid polyurethane matte coat is offered as an option during repaints at Van Horn Repair). It is very important to maintain these protective coatings throughout the life of the blade by adhering to the 5.12.7 Spot Refinishing requirements.

CAUTION

Do not perform dye penetrant inspections on the composite portion of the rotor blade assembly. The chemicals used for dye penetrant inspection become contaminants when they seep into potential repair areas. Removing the dye penetrant fluids is very difficult and may prevent the implementation of repair procedures.

5.12.2. Abrasion Strips

Three abrasion strips are used on the leading edge. The electroformed nickel inboard abrasion strip extends from near the inboard end of the blade to approximately STA 37.0. It overlaps the stainless steel constant section abrasion strip which starts at STA 36.0 and extends to STA 180.0. The electroformed nickel tip abrasion strip starts at approximately STA 179.0 and extends to the blade tip. The inboard and tip abrasion strips both overlap onto the constant section abrasion strip by approximately 1.0 inch.

To ensure longevity of the paint finish and abrasion strips, operators who fly in environments that result in salt, chemical or corrosives accumulation on the blade are required to wash the blades as frequently as necessary to prevent the buildup of any harmful contaminants.

Wash the blades with clean, unpressurized water and mild soap to remove any accumulated salt, chemicals or other contaminants. Grease may be removed by wiping with MEK, MPK, acetone or denatured alcohol and a microfiber cloth. Apply a uniform coat of ACF-50 Anti-Corrosion Formula directly to the bare metal of the abrasion strips as added protection against corrosive products. Re-application of ACF-50 may be necessary after cleaning the blades.

The inspection, maintenance and damage criteria listed below applies to all three abrasion strips.

a. Dents
   i. Non-sharp dents not exceeding 0.050 inch depth are acceptable at any location.

ii. Sharp dents are not permitted.

iii. Punctures not permitted.

b. Cracks

i. Cracks in any abrasion strip require a tap inspection upon discovery. Tap inspect a 1.0 inch wide band either side of the crack. No debonds allowed in the 1.0 inch wide tap band. Tap inspect the blade assembly directly aft of the abrasion strip trailing edge for voids or debonds. If any voids or debonds are found, contact Van Horn Aviation for further assistance. If no debond or voids are found in the blade sub-assembly or under the abrasion strip, the cracks in the abrasion strips may remain as is. Any crack that will remain as is must be covered with polyurethane tape before returning blades to service; reference paragraph g.

c. Voids/debonds

i. Tap test an area of 1.0 inch radius from any dent to inspect for voids.

ii. If debonds or voids exist, there is a possibility of underlying carbon fiber damage; therefore, evaluation at an approved FAA repair station is required. Contact VHA for repair station recommendations.

iii. If there are no debonds or voids after tap inspection around a dent, leave the dent exposed so that it may be monitored for evidence of cracking in the future.

iv. Visually inspect the trailing edge of all abrasion strips for debonds. A paint crack along any edge of the three abrasion strips may indicate a possible abrasion strip debond or underlying fiber damage. Report all suspected abrasion strip debonds to VHA for evaluation. If the combined length of all paint cracks along the edge of any abrasion strips is less than 8.0 inches and no single crack is longer than 1.0 inch; and if there are no debonds following a tap inspection of the adjacent blade subassembly, then the blade may remain in service until the blade can be scheduled for evaluation at an approved repair station. Temporarily touch up any paint cracks with epoxy primer or polyurethane paint in accordance with 5.12.7 Spot Refinishing.

d. Erosion

i. If an abrasion strip is worn though because of erosion, send blade to an approved FAA repair station for repair. Contact VHA for repair station recommendations.

e. Blisters

i. If the electroformed nickel tip abrasion strip exhibits minor surface defects or blisters that are less than 0.5 inch square, and less than 0.050 inch deep, then the defect may stay as is. Dress any rough edges of the defect with 400 - 1000 grit sandpaper and leave the area exposed for periodic monitoring.

f. Scratches
   i. Scratches in any of the three abrasion strips that are less than 0.005 inch deep may be blended. Use 400 – 1000 grit sandpaper to smooth the edges of the scratch. Apply ACF-50 Anti-Corrosion Formula to all blended scratches.

g. Polyurethane Tape
   i. Some blades utilize a polyurethane tape or elastomeric coating to protect the overlap joints between abrasion strips. This protective covering is optional. If an existing application of this protective covering is damaged, the operator may remove the covering and operate the blades without protection at the abrasion strip joints.

NOTE

Operation in heavy rain environments may speed up the degradation of the elastomer or polyurethane tape However, the protective coverings do perform well against abrasive elements, and at the operator's discretion, may be repaired, replaced, or installed at the abrasion strip joints.

   ii. All non-voided cracks in abrasion strips that are dispositioned to remain as-is shall be protected by applying a strip of 3M 8542HS tape that overlaps the crack by minimum 1.0 inch to either side, sealed with edge sealant adhesive. Cover or replace all damaged abrasion strip protective coverings with 3M Polyurethane Protective Tape 8542HS. Install new 8542HS tape in accordance with the 3M Polyurethane Protective Tape Application Instructions (3M Technical Bulletin) or Van Horn Aviation Customer Support Specification CSS-501. Use 3M 86A Adhesion Promoter on all painted surfaces to ensure a good bond. Edge seal the tape with 3M DP 190 or 3M 2110 Repair Paste. 3M DP 190 is recommended for wet environments. Touch up missing or damaged sealant with 3M 2110 Repair Paste, 3M DP 190 epoxy adhesive, PR-1440 sealant or equivalent (per AMS-S-8802, Type 2, Class B). Damaged polyurethane tape may be repaired in accordance with 3M Scotch-Weld Repair Paste 2110 B/A Repair Bulletin.

5.12.3. Skin

The skin is composed of six (6) layers of plain weave carbon fiber fabric. Impact damage may progress from little evidence of external damage to puncture with surrounding voids, depending on impact force. In all cases of suspected skin damage, a tap test is required to determine the extent of damage.

a. Voids
   i. None allowed within 1.0 inch of the trailing edge.

   ii. Voids not exceeding 1.0 inch diameter are acceptable at any spanwise location and may remain as is. Voids larger than 1.0 inch diameter must be evaluated for repair by an FAA authorized repair station.

iii. If voids are detected, remove paint in the damaged area to check for broken fibers. Remove paint and primer only. Do not sand into skin plies.

b. Broken fibers
   i. Broken fibers in the skin surfaces are not permitted (except in allowable blend area of trailing edge, see below). If broken fibers are found in the skin surfaces, send blade to an authorized FAA repair station for evaluation, and if possible, repair. Contact VHA for repair station recommendations.

c. Trailing Edge Damage
   i. Scratches, nicks, or fiber damage in the extreme trailing edge 0.10 deep or less may be blended out over a distance of at least 2.0 inches each side of the damage. See Figure 5-2.

   ii. Damage at the tip trailing edge may be removed by blending up to a 1.0 inch radius at the tip. See Figure 5-2.

d. Erosion damage to the skin plies occur when the paint layer has been compromised, exposing the skin plies to particle and water abrasion. All erosion damage to the carbon/epoxy skin plies must be repaired at the next maintenance interval. In the interim, protect all exposed fibers by applying epoxy primer to the damage area.

e. Hail Impact Damage. Tap inspect the upper surface of the blade assembly to locate any voids as a result of hail impact. Five (5) or fewer total voids due to hail impact not exceeding 1.0 inch diameter are acceptable on the upper surface only. No other voids may exist on the blade assembly. Contact Van Horn Aviation for further evaluation if more than five (5) voids are found.

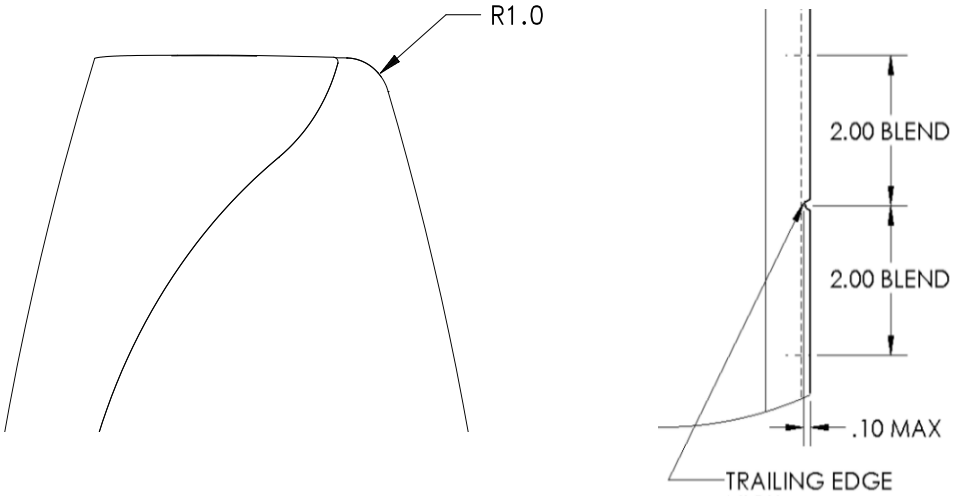

Figure 5-2

Tip and Trailing Edge Damage Limits

5.12.4. Trim Tab Assembly

The outboard trim tab assemblies are composed of identical sheet metal parts and are bonded to the blade assembly with epoxy film adhesive.

a. No edge debonds greater than 1.0 inch in length are permitted anywhere along the edges of the trim tab assembly. If edge debonds of greater than 1.0 inch in length are found, contact VHA or a VHA-approved repair station for further evaluation.

b. No paint cracks are permitted around the periphery of the trim tab assembly. If paint cracks exist, tap test over trim tab assembly to look for debonds. Report any debonds to VHA or a VHA-approved repair station for further evaluation.

c. No splitting permitted between the trim tab halves. Temporarily seal any areas that are split with PR-1440 or equivalent, and contact VHA for further evaluation.

d. Minor paint damage caused by adjusting the trim tab assemblies or handling may be spot refinished in accordance with 5.12.7 Spot Refinishing.

5.12.5. Tip Closeout

The 20631000-101 main rotor assembly is closed out at the outboard tip with a 3.0-inch-wide fiberglass block that has three (3) threaded holes for installation of the tip balance weights.

a. Tip weights that can turn under light hand pressure must be secured with adhesive. Use a hex wrench to unscrew the tip weights until 4 or more threads are showing. Apply 3M DP190, DP420, DP460 or Loctite 248 Threadlocker to the exposed threads. Screw the tip weights back in, flush to the face of the tip closeout. Clean adhesives off all surfaces with MEK, MPK, acetone or denatured alcohol and a microfiber cloth.

b. No cracks permitted in the tip closeout. A crack in the tip closeout may first appear as a crack in the paint. If a crack is suspected, sand to remove the paint finish and epoxy primer with 180-320 grit sandpaper to expose the face of the tip closeout. Visually inspect the exposed area with a 10x-40x inspection glass. If no crack is found, touch up the paint per 5.12.7 Spot Refinishing. If a crack is found, contact VHA for or VHA-approved repair station for evaluation.

c. Paint scratches, pinholes and paint erosion on the tip closeout may be touched up with epoxy primer or polyurethane paint in accordance with 5.12.7 Spot Refinishing.

5.12.6. Miscellaneous

a. Sweep Alignment Screw. If the sweep alignment screw becomes loose, or is lost, use 3M DP420 or 3M DP460 epoxy adhesive to rebond the loose screw or to install a new MS21318-9 drive screw. Paint erosion or chipping around the sweep

alignment screw may be touched up with single stage paint in accordance with 5.12.7 Spot Refinishing.

b. Span Balance Weight Cover. The span balance weight cover is permanently bonded and sealed with 3M DP190. Fill any voids in the span balance cover seam with 3M DP190 or with PR-1440 sealant (or equivalent per AMS-S-8802, Type 2, Class B).

5.12.7. Spot Refinishing

VHA finishes the main rotor blade surfaces with an epoxy surfacing film that is co-cured with the skin. An epoxy primer paint is applied to the cured assembly, followed by a two-stage polyurethane topcoat system. The first stage of paint is a basecoat color layer; the second stage of paint is a clear coat layer, with an optional matting agent.

a. When preparing the blade surface for paint touch-up, do not sand into the skin plies. The color of the primer layer and surfacing film is gray. Underneath the surfacing film is a layer of copper mesh for lightning strike protection, which is bonded to the skin. Carbon fiber skin plies are black.

b. A polyurethane film co-cured with the skin protects the tapered tip from STA 180.0 to the tip at STA 200.0. Paint erosion is permitted in this area so long as the polyurethane film has not eroded exposing the carbon/epoxy skin.

c. Exposed carbon/epoxy skin not exceeding 0.50 inch aft of the abrasion strip trailing edge must be protected by at least one coat of epoxy primer within 25 flight hours of exposure or 60 days, whichever occurs first.

d. Exposed carbon/epoxy skin exceeding 0.50 inch aft of the abrasion strip trailing edge must be protected by at least one coat of epoxy primer within 10 flight hours of exposure or 30 days, whichever occurs first.

e. Paint peeling may occur. Feather paint edges using 320 grit or finer abrasive paper to stop peeling. Touchup paint is required for appearance only if black carbon/epoxy skin is not exposed. Touch up exposed skin with one coat of epoxy primer.

f. Paint nicks and scratches require touchup paint for appearance only if black carbon/epoxy skin is not exposed. Touch up exposed skin with one coat of epoxy primer.

g. Paint defects such as pinholes, bare edges and small chips do not need surface preparation. Apply primer or paint directly to the defect.

h. Paint touch-up on the blade assembly or on the grip plates may be performed using either two-stage or single-stage paint systems. Use single stage paint for small areas of touch up (areas smaller than 25 in^2). Two-stage paint should be used when repainting larger areas such as the tip of the blade and the high

visibility color panels. Exact color matching is not required. Single-stage paint is Axalta Imron Elite SS Single Stage Color 7800. Any aerospace-quality single stage polyurethane paint may be substituted. Use a compatible epoxy primer. Two-stage paint is Axalta Imron Elite Basecoat Color 8400 used together with Axalta Imron Elite 8430S Clearcoat. Suggested accelerator is Axalta 8989.

i. White paint (upper blade surface) is Axalta color 786255.

j. Black paint (lower blade surface) is Axalta color 99.

k. Blue paint (tip upper surface) is Axalta color 7165.

l. High visibility paint scheme can use Orange (Axalta color N6179) or Coca Cola Red (Axalta color M1049).

m. Gloss clearcoat is Imron Elite 8430S Clearcoat.

n. Matte clear coat is Toughguard TG-NHP-701 base with 26% TG-NHP-702 Matte Additive and 2% TG-NHP-704 Accelerator Additive.

CHAPTER 11 – PLACARDS AND DECALS

There are no placards or decals associated with this STC.

CHAPTER 62 – MAIN ROTOR BLADE

62.1 DESCRIPTION

The 20631000-101 main rotor blade is a composite and metallic structure incorporating the NASA-developed RC(4)-12(12% thick) rotor blade airfoil. This is a highly efficient laminar flow airfoil developed to have near zero pitching moments across a broad range of airspeeds. The blade radius and chord is the same as the existing production blade except that the tip of the blade is tapered to reduce noise and tip drag. The root fitting is machined titanium alloy plate fastened to the blade root using two .750-inch bolts. Stainless steel bushings are bonded into the root of the blade. The basic blade section is fabricated using unidirectional carbon/epoxy tape and plain weave carbon/epoxy fabric with a rigid cell structural foam core. Span balance is accomplished using cylindrical weights bonded into a fiberglass/epoxy high pressure laminate sheet receptacle and threaded stainless steel screws in a fiberglass/epoxy high pressure laminate tip cap. Electroformed nickel and stainless steel abrasion strips are added for erosion protection. The blade is painted with a polyurethane coating, giving the blade assembly either a gloss or a matte luster.

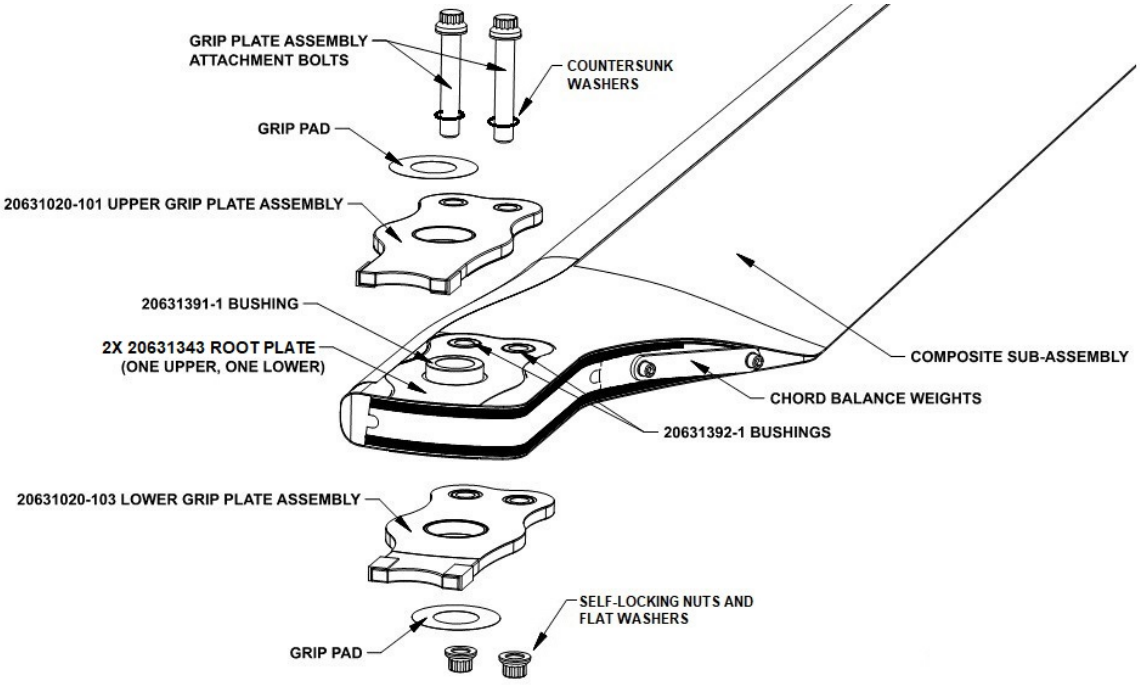

Figure 62-1

Main Rotor Blade Root Assembly

62.2 INSTALLATION

The 20631000-101 main rotor blade assembly is eligible for installation on helicopters modified per T.B. 206-91-133 MAIN ROTOR HUB ASSEMBLY, P/N 206-001-100, CONFIGURATION OF, with the following hub configurations:

206-011-100-011 small hub incorporating grip assembly 206-010-102-121
206-011-100-017 small hub incorporating grip assembly 206-010-102-121
206-011-100-021 small hub incorporating grip assembly 206-010-102-121
206-011-100-all larger hub configurations

Install the 20631000-101 main rotor blade according to the current FAA accepted maintenance manual for existing production main rotor blades 206-010-200-ALL except as follows:

The 20631000-101 main rotor blade incorporates a sweep alignment screw positioned on the upper surface of the blade, 20 inches inboard from the tip. See Figure 62-2. Tape the alignment cord over the alignment screw.

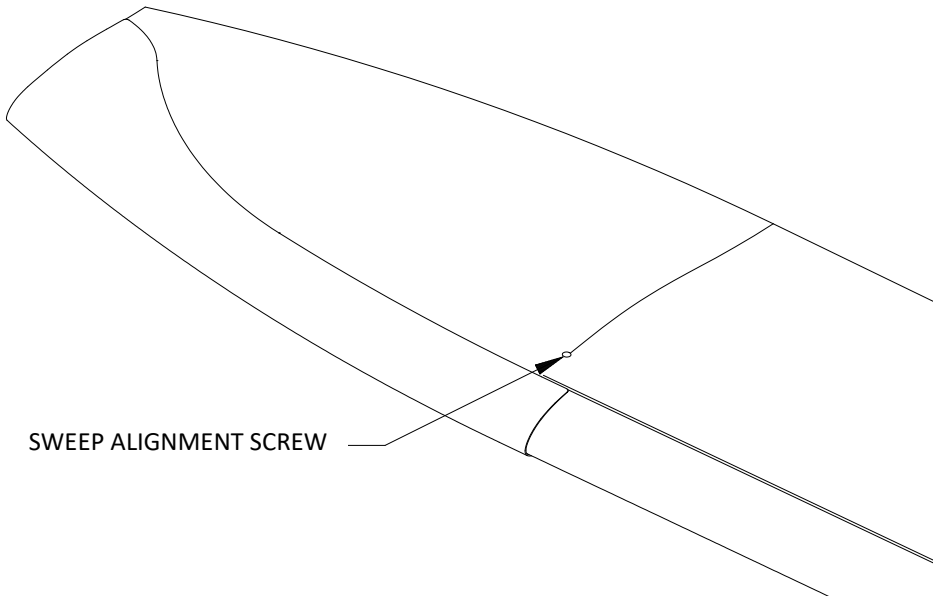

Figure 62-2

Main Rotor Blade Alignment Screw

62.3 STATIC BALANCE OF MAIN ROTOR BLADES

Balance the 20631000-101 main rotor blades according to the current FAA accepted maintenance manual for the existing production main rotor blade 206-010-200-ALL.

62.4 DYNAMIC TRACKING AND BALANCING OF MAIN ROTOR BLADES

The 20631000-101 main rotor blade incorporates a different airfoil, different span and chord weight distribution, and the blade is stiffer. These differences influence how the blades respond to normal adjustments during tracking and balancing. Blade response will be as predicted, but the magnitude of changes to adjustments may be different depending upon the equipment used.

NOTE

It is not recommended using the automated type of track and balance equipment such as RADS-AT or other systems that rely on the specific dynamics of metal production rotor blades. If RADS-AT or similar system is the only system available, contact VHA for assistance.

62.4.1 Dynamic Balancing

Dynamically balance the 20631000-101 main rotor blades according to the current FAA accepted maintenance manual for the existing production main rotor blade 206-010-200-ALL.

NOTE

Do not use the three tip weights for balance adjustment.

62.4.2 Dynamic Tracking

Dynamically track 20631000-101 main rotor blades according to the current FAA accepted maintenance manual for the existing production main rotor blade 206-010-200-ALL with the following exceptions and recommended practices.

a) The 20631000-101 main rotor blade has a single trim tab centered at blade station 150.0. Use tracking instructions for blades with outboard trim tab only.
b) It is recommended using only pitch links for hover tracking. Use trim tabs for forward flight tracking only.
c) (Optional) Use VHA tool 206-CS-T001 for trim tab adjustments. This tool incorporates both the tab bending tool and tab position indicator. Tab position is measured in thousands of an inch from neutral (0 deg. tab angle) position. Use 206-CS-T002 tracking tabs.
d) (Optional) Use VHA trim tab bender 206CS33412-1 and zero degree indicator 206CS31412-13 to make tab adjustments, or to reset tab to zero 0°. Other trim tab benders may be used instead of the VHA tools. The Paravion® Technology Tab Tool Kit is a recommended substitute.
e) It is recommended correcting an out of track condition by equally adjusting one blade up and the other down. Testing has shown that this provides the best method for insuring a smooth track over large airspeed ranges.

62.5 WEIGHT AND BALANCE

The weight of each 20631000-101 main rotor blade is recorded on each blade's historical record (log card). Adjust the helicopter's weight and balance record as required.

62.6 CLEANING

Use a soft cloth and non-caustic, non-abrasive cleaner to clean VHA composite main rotor blades.

62.7 GRIP PAD REPLACEMENT

Grip pad 20631341-1 (see Figure 62-3) may be replaced with Bell grip pad 206-010-233-005. Install either the VHA or Bell grip pad according to the current FAA accepted component repair and overhaul (CR&O) manual for the existing production main rotor blade 206-010-200-ALL with the following exceptions and recommended practices.

a) Titanium grip plate 20631321-1 is not shot peened. CR&O caution is N/A.

62.8 WEAR PAD REPLACEMENT

Wear pad 20631342-1 (see Figure 62-3) may be replaced with Bell wear pad 206-010-242-003. Install either the VHA or Bell wear pad according to the current FAA accepted component repair and overhaul (CR&O) manual for the existing production main rotor blade 206-010-200-ALL with the following exceptions and recommended practices.

a) Titanium grip plate 20631321-1 is not shot peened. CR&O caution is N/A.
b) Sweep check is not required.
c) Blade alignment is required after wear pad replacement.

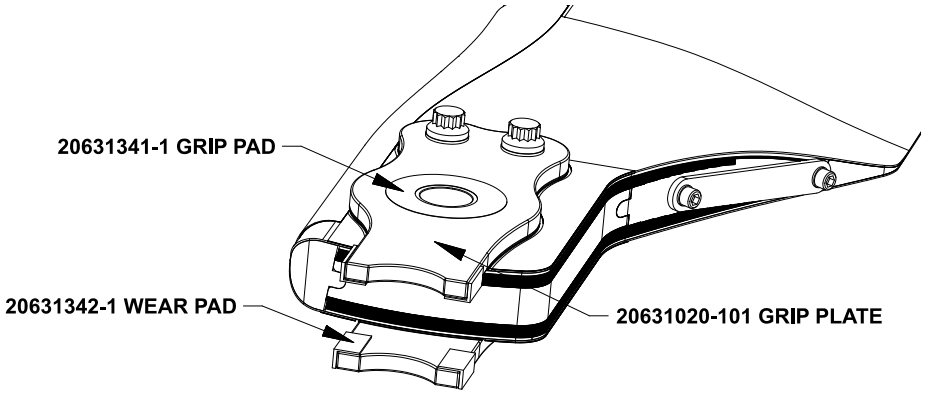

Figure 62-3

Main Rotor Blade Root Assembly

62.9 GRIP PLATE ASSEMBLY REPLACEMENT

Contact VHA for replacement of 20631391-1 and 20631392-1 bushings

Install the 20631020-101/-103 grip plate assemblies with the required hardware as listed in paragraph a). Undamaged washers and bolts may be reused after being visually inspected for damage. Do not reuse bolts that have deep scratches or burrs on the shaft, cracks, or any damaged threads. Always use new NAS1804-12 Self Locking Nuts with every installation.

a) Hardware required:
   - (2x) NAS 632-54 or MS21250-12052 Bolts
   - (2x) MS20002C12 Countersunk Washers (under the bolt heads)
   - (2x) MS2000212 Flat Washers (under the self-locking nuts.)
   - (2x) NAS1804-12, 12-Point Self Locking Nuts (always use new)
b) Apply primer coating TT-P-1757B or equivalent per MIL-PRF-16173, Grade 2, to shaft of bolts before installation.
c) Apply MIL-PRF-24139 grease to the exterior of the blade root center bushing and to the interior of the grip plate center bushings.
d) Install the countersunk washers under the bolt heads.
e) Locate the grip plate assemblies to the blade assembly. The -101 grip plate assembly is installed on the upper surface; the -103 assembly is on the lower surface.
f) Install the bolts from the direction of the upper surface (data plate surface). Put Loctite Blue 242 or Loctite 248 Threadlocker on the threads of the bolts.
g) Install the nuts and torque to 140-160 ft-lb.