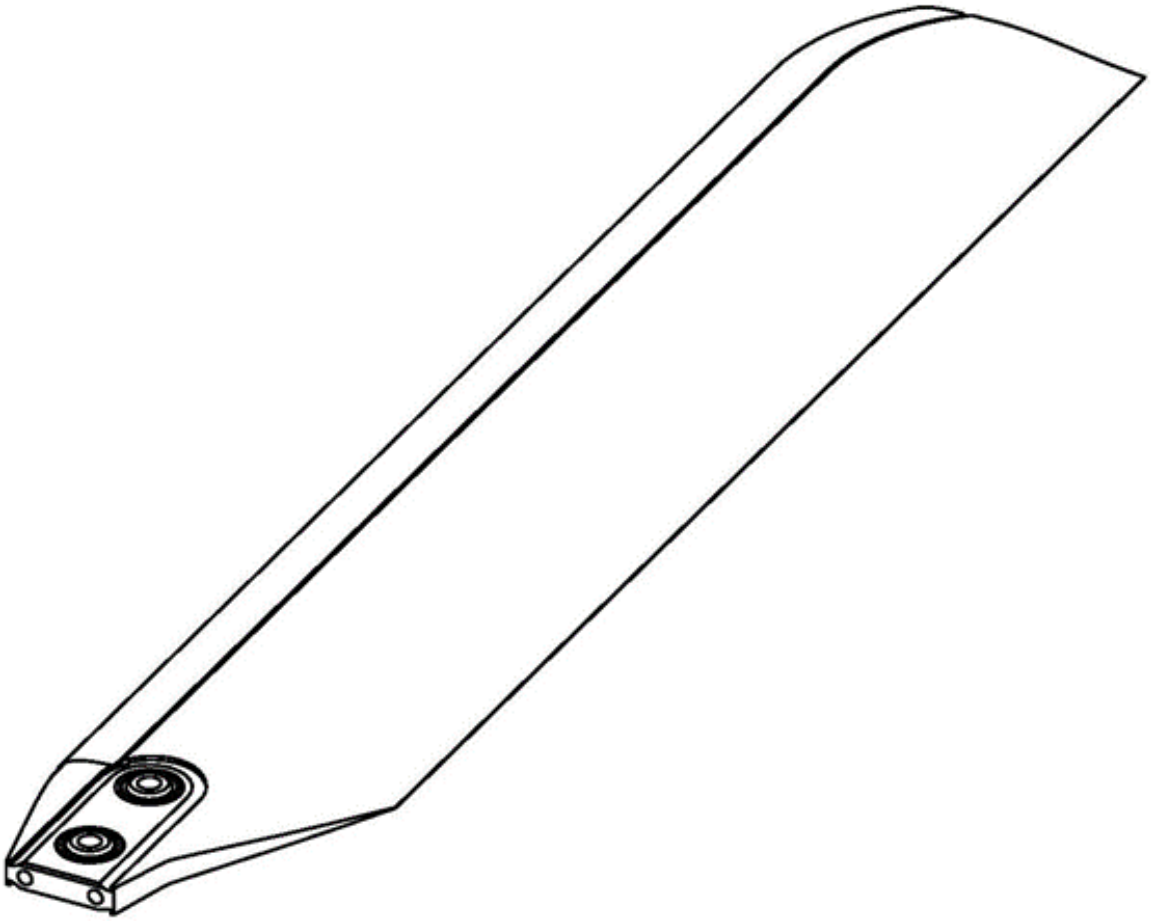
**Van Horn Aviation, L.L.C.**
*1510 W. Drake Drive*
*Tempe, Arizona 85283*

# INSTRUCTIONS FOR CONTINUED AIRWORTHINESS



# ICA MANUAL No. VMM-206-301

Tail Rotor Blade Assembly 2062200-101/-301
See Approved Model List (AML) SR02249LA for eligible aircraft installation

# REVISIONS

| REV | DATE | DESCRIPTION | APPROVED |
|---|---|---|---|
| N/C | 04/19/2021 | Initial release.<br>- Merged all 2062200-101/-301 ICA manuals into one unified document.<br>- This manual replaces the following manuals:<br>VMM-206B-301, Rev. J, VMM-206L-303, Rev. H<br>VMM-206L1-305, Rev. I, VMM-206L3-307, Rev. I<br>VMM-206L4-309, Rev. I, VMM-OH58-311, Rev. E<br>VMM-OH58-313, Rev. E, VMM-OH58-315, Rev. E<br>- Added allowance for interchangeability with 2062200-501 tail rotor blade assembly.<br>- All previous inspections and dispositions are carried over from merged documents.<br>- Added new inspection requirements 5.7 Lightning Strike and 5.8 Blade Strike.<br>- Added reference to new bearing part number in Note on page 6.<br>- Added new sections 5.10.4 Tip Closure, 5.10.5. Balance Weights, 5.10.6 Data Plate, and 5.10.7 Root Fitting containing inspection and disposition criteria.<br>- Added detailed touch up procedure and inspection criteria to 5.10.8 Spot Refinishing.<br>- Merged sections 64.2, 64.3, and 64.4 for all applicable aircraft. No changes to installation, control rigging, or track and balance procedures from previous manuals<br>- Improved Figure 64-2.<br>- Added new section 64.6 Cleaning. | DR |
| | | | |

# TABLE OF CONTENTS

# 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. 2062200-101/-301 Tail Rotor Blade Assembly. This manual supersedes all previous ICA manuals for the Van Horn Aviation 2062200-101/-301 Tail Rotor Blades.

## 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.

Operating time in "hours" refers to time in service (flight time) which must be recorded in the Historical Service Records of the helicopter logs. This is the measured time that starts the moment the helicopter leaves the ground and continues until it touches the ground at the next point of landing. The time when the helicopter is on the ground, with the engine and the rotor turning, is not included.

## 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, call +1 (480) 483-4202, or via email to info@vanhornaviation.com,

## 0.5 DISTRIBUTION

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

0.5.2 The ICA will be shipped with new production 2062200-301 Tail Rotor Blade Assemblies.

# 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 |
|---|---|---|
| 2062200-101/-301 | Tail Rotor Blade Assembly | 5,000 Hours |

FAA Approved: ROGER T DURBIN Digitally signed by ROGER T DURBIN Date: 2021.06.25 13:43:25 -07'00'

Date: _____

# CHAPTER 5 – INSPECTION/CHECK REQUIREMENTS

## 5.1. PRE-FLIGHT CHECK

| No. | Requirements | Airworthiness Criteria |
|---|---|---|
| 1. | Visually check the tail rotor blade for any visible damage such as cracks, blisters, delaminations, abrasion strip dents and nicks, missing paint, or local contour deformation. | See 5.10 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, abnormal contours, or blisters. Check the trailing edge for nicks, splits, or delaminations. Check the slanted root fitting edge for voids. Check data plate for damage. Check tip closure for erosions wear. | See 5.10 DAMAGE LIMITS. |
| 2. | Inspect feathering bearings for excessive axial wear. A maximum of .015 inches of axial play at the bearing is permitted.* | See NOTE at Bottom of Page.* |
| 3. | Inspect the abrasion strip for wear, edge voids, dents, cracks, punctures, edge delamination or other damage. | See 5.10 DAMAGE LIMITS. |

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

| No. | Inspection Requirements | Airworthiness Criteria |
|---|---|---|
| 1. | Perform dynamic balance of tail rotor. | Balance to .20 IPS or lower. |

*** NOTE:**
The 2062290-3 or WC-6TG-10 bearings are replaceable by the operator using Customer Support Specification CSS-500, Bearing Installation. This specification can be downloaded from VHA's website at https://vanhornaviation.com/documentation/**.** Bearings may be obtained directly from VHA.

### 5.4. SUDDEN STOPPAGE OR ACCELERATOIN

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

### 5.5. OVERSPEED – 107 PERCENT OR GREATER

| No. | Inspection Requirements | Airworthiness Criteria |
|---|---|---|
| 1. | Inspect the tail rotor blades for any evidence of high centrifugal force (CF) unique damage in addition to 5.10 DAMAGE LIMITS. CF unique damage would be bearings that exceed axial play limits that were acceptable prior to the overspeed, loose tip balance weights, or delamination at the root. | If any damage exists on only one blade, scrap both blades and the tail rotor hub assembly |

### 5.6. 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 tail rotor blade root area for voids and surface cracks. Inspect bearings for axial play. If cracks exist, remove the rotor blades and return to Van Horn Aviation for evaluation. | See 5.10 DAMAGE LIMITS. |
| 3. | Overtorques above 120 percent require the inspections in 2. (above) at the time of the overtorque and again after 25 hours of operation. | See 5.10 DAMAGE LIMITS. |

### 5.7. 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. | See 5.10 DAMAGE LIMITS. |

### 5.8. BLADE STRIKE

| No. | Inspection Requirements | Airworthiness Criteria |
|---|---|---|
| 1. | Visually inspect both tail rotor blades for cracks, blisters, delaminations, broken fibers, or local contour deformation. Inspect the abrasion strips for dents, cracks, debonds or deformation. Do a full tap inspection of both blades to look for any debonds/voids greater in size than 1.0 inch diameter.* | Contact Van Horn Aviation if any discrepancies are found that exceed damage limits in 5.10 DAMAGE LIMITS. |

### 5.9. HARD LANDING

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

*** NOTE:**
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. 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).

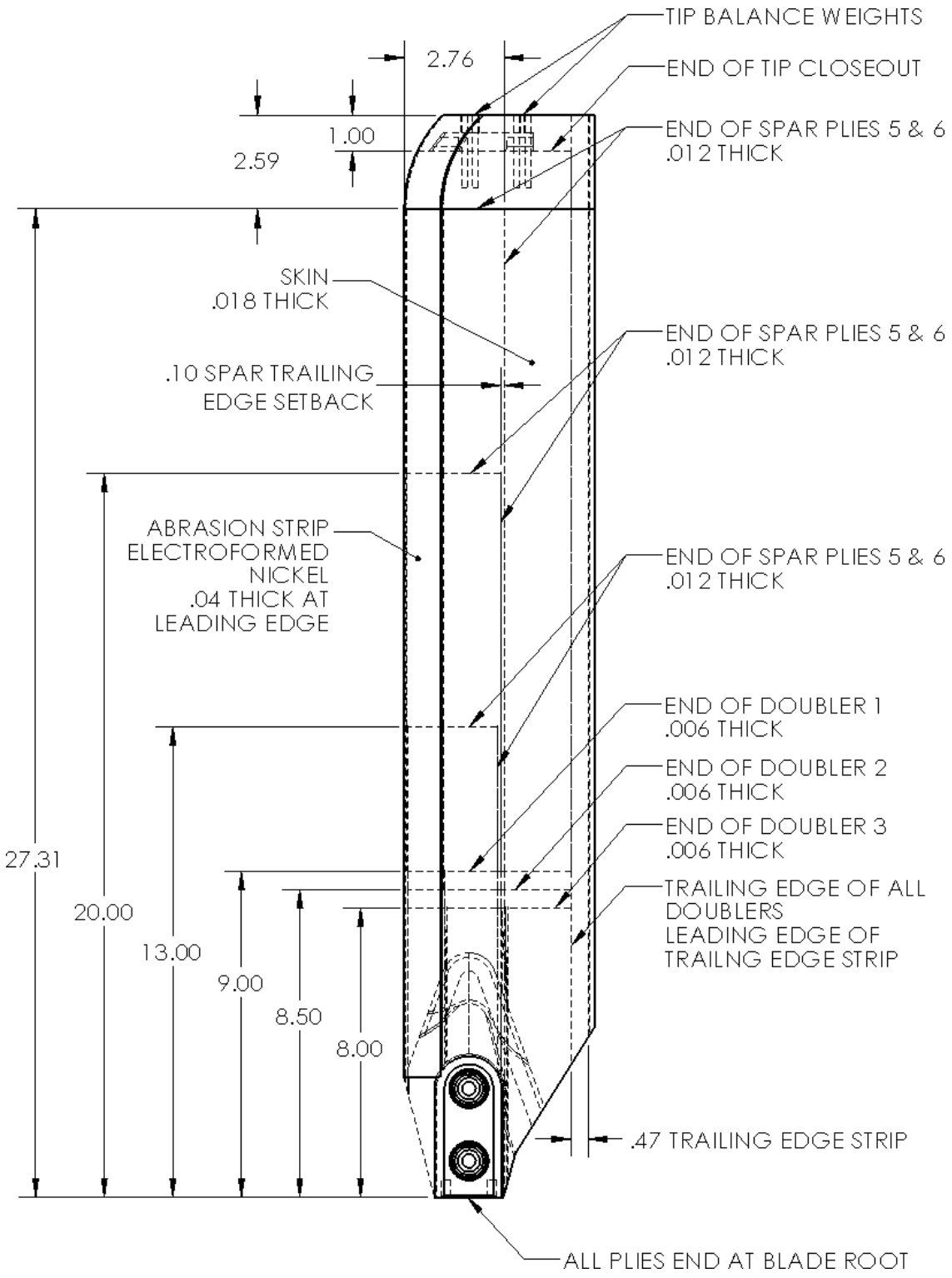



**Figure 5-1**

Tail Rotor Blade Configuration

## 5.10. DAMAGE LIMITS

5.10.1. 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. Minor damage may be corrected using the instructions provide in this chapter. Damage exceeding these limits require evaluation, and if possible, repair at an authorized FAA repair station. 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 conditions using epoxy primer, multiple coats of polyurethane topcoat, and a nano hybrid polyurethane matte coat. It is very important to maintain these protective coatings throughout the life of the blade by adhering to the 5.10.8 Spot Refinishing requirements.

To ensure longevity of the paint finish and abrasion strip, operators who fly in extreme 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. Reference paragraph 5.10.2.j.

**NOTE:** Perform all visual inspections from within touching distance, unless otherwise specified. All visual inspections must be done under normal lighting conditions, or when necessary, supplemented with a direct source of good lighting at an intensity deemed appropriate. Basic cleaning may be required to ensure appropriate visibility of the areas being inspected.

5.10.2. Abrasion Strip

A single electroformed nickel abrasion strip protects the entire leading edge of the blade. The abrasion strip starts adjacent to the inboard bearing and extends to the edge of the tip closure. During production, the abrasion strip is bonded to the cured subassembly with structural epoxy film adhesive. If necessary, the abrasion strip can be removed and replaced by a VHA approved repair station.

a. Non-sharp dents not exceeding 0.020 inch depth are acceptable at any location.

b. Sharp dents are not permitted.

c. Punctures or cracks are not permitted.

d. Tap test an area 1.0 inch radius from the center of any abrasion strip dent to search for voids in the underlying composite material. See Figure 5-1 for locations of ply drop-offs. A tonal change may occur at these drop-offs when tapping across them depending on tapping force. If a void is on or near a ply drop-off, it is recommended to tap an undamaged blade in the same area to help distinguish a tonal change from a void.

e. If debonds or voids exist following a tap inspection, there is a possibility of underlying carbon fiber damage; Send blade to an approved FAA repair station for further evaluation. Contact VHA for repair station recommendations.

f. If there are no debonds or voids after any tap inspection around an abrasion strip dent, the blade may be returned to service. Polish out any sharp edges or protrusions and leave the dent exposed as is so that it may be monitored for evidence of degradation or cracking.

g. Visually inspect the trailing edge of the abrasion strip for debonds. A paint crack along any edge of the abrasion strip indicates a possible abrasion strip debond, or underlying fiber damage. Report all suspected abrasion strip debonds to VHA for evaluation; remove the blade from service. Do not operate a blade if an abrasion strip debond exists or is suspected. Send the blade to an approved FAA repair station for repair. Contact VHA for repair station recommendations.

h. If an abrasion strip is worn though because of erosion (most commonly at the extreme outboard tip end of the abrasion strip), send the blade to an approved FAA repair station for replacement. Contact VHA for repair station recommendations.

i. If the electroformed nickel tip abrasion strip exhibits minor surface defects or blisters that are less than 0.50 inches square, and less than 0.050 inches deep, then the defect may stay as is. Dress the defect with 400 - 1000 grit sandpaper and leave the area exposed for periodic monitoring. Return the blade to service.

j. Wash the blades with clean, unpressurized water, mild soap, and non-abrasion cloth to remove any accumulated salt, chemicals, or other contaminants. Grease may be removed with acetone, MEK, MPK, or denatured alcohol and a microfiber cloth. Apply a thin, uniform coat of ACF-50 Anti-Corrosion Formula directly to the bare metal of the abrasion strip for protection when operating in extreme conditions. Re-application of ACF-50 may be necessary after cleaning the blades.

5.10.3. Skin

The skin is composed of 3 layers of unidirectional carbon fiber oriented at +45°, 0°,-45°. 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.

Figure 5-1 shows the blade internal components including locations of ply drop-offs. Take note of the various thicknesses and ply drop-off locations. A tonal change may occur at these drop-offs when tapping across them depending on tapping force. If suspected damage is on or near a ply drop-off, it is recommended to tap an undamaged blade in the same area to help distinguish a tonal change from a void.

a. Voids are not allowed within 0.50 inch of the trailing edge.

b. Voids not exceeding 1.00 inch diameter are acceptable at any location except for edge voids at the tip of the blade. Voids larger than 1.0 inch diameter must be evaluated for repair by an FAA authorized repair station.

c. Edge voids between the skin and tip closure are not permitted.

d. 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.

e. Broken fibers are not permitted. If broken fibers are detected, send blade to an authorized FAA repair station for evaluation, and if possible, repair. Contact VHA for repair station recommendations.

f. Scratches, nicks, or fiber damage in the extreme trailing edge 0.10 inches deep or less may be blended out using a ratio of 20:1 (maximum length of blend is 2.0 inches each side of the damage). See Figure 5-2.

g. Damage at the tip trailing edge corner may be removed by blending up to a 0.50 inch radius at the tip. See Figure 5-2.

h. Erosion damage of the skin plies occur when the paint layer has been worn away, 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. Minimize skin erosion damage by maintaining complete paint coverage of the skins.

i. Hail Impact Damage. Tap inspect the blade assembly to locate any voids as a result of hail impact. Reference (a) and (b) for void allowances.

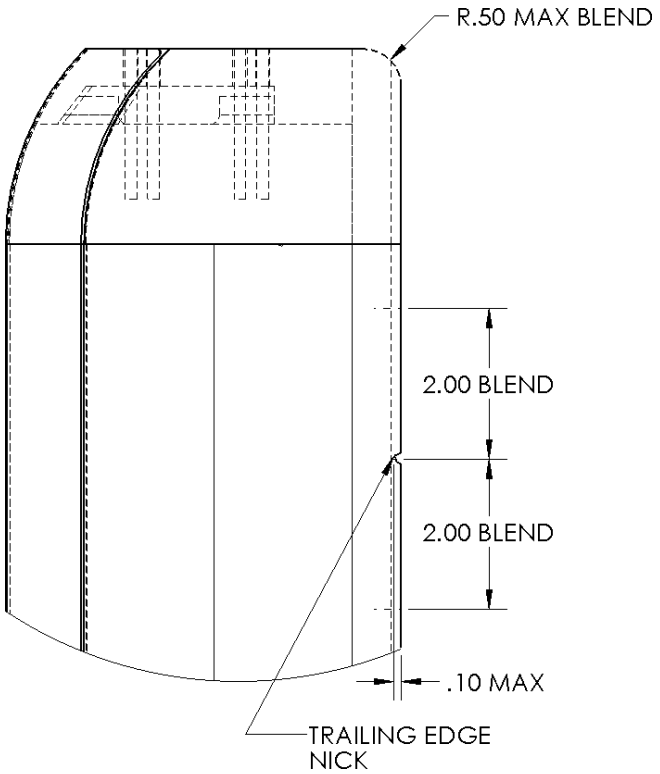



**Figure 5-2**

Trailing Edge Blend Allowances

5.10.4. Tip Closure

The 2062200-101/-301 tail rotor assembly is closed out at the outboard tip with a 1.0-inch-wide fiberglass block. The fiberglass block has four threaded holes for the installation of stainless steel balance weights.

a. No cracks permitted in the tip closure. A crack in the tip closure might first appear as a crack in the paint. If a crack is suspected, sand to remove the paint finish and the epoxy primer with 180 - 320 grit sandpaper to expose the face of the tip closure. Visually inspect the exposed area with a 10x - 40x inspection glass. If no crack is found, touch up the paint per 5.10.8 Spot Refinishing. If a crack is found, contact VHA or a VHA approved repair station for evaluation.

b. Paint scratches, pinholes and paint erosion on the tip closure must be touched up with epoxy primer or polyurethane paint in accordance with 5.10.8 Spot Refinishing.

c. In extreme conditions, erosion may occur around the tip weight holes or directly aft of the abrasion strip; see Figure 5-3. The blade may continue operation until the erosion can be addressed at the next maintenance interval.

   a. Clean the surface of all erosion areas with acetone, MEK, or MPK and a non-lint cloth. Let the solvent flash dry for 15 minutes before applying adhesive. Slightly overfill the erosion areas with SEM 39747 panel adhesive, Magnobond 6398, 3M™ DP190, 3M™ DP460 or 3M™ DP420. Let adhesive cure to full hardness before sanding. Hand sand the filled areas smooth and flush with 320 – 500 grit sandpaper and touch up the paint per 5.10.8 Spot Refinishing before returning blade to service.

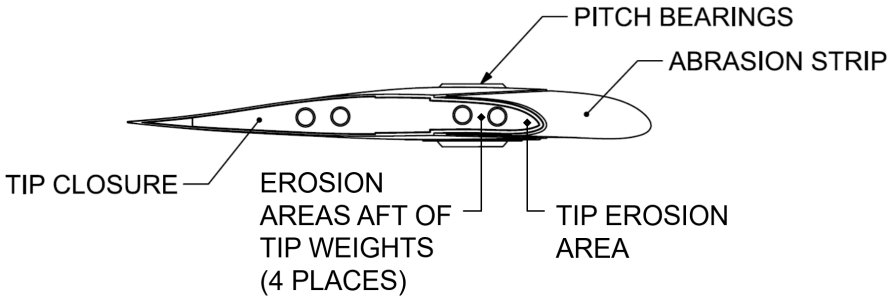



**Figure 5-3**

Common Erosion Areas on Tip Closure

5.10.5. Balance weights

Static balance is achieved by adjusting the tip balance weights. All balance weights are secured at time of production with a retaining compound or an epoxy adhesive. Balance weights are #10-24 cup point socket screws, Grade 18-8 CRES. The minimum length of any tip weight is 3/16 inches, maximum length for any tip weight is 3.0 inches.

**NOTE:** Do not swap or change positions of any tip weight unless a full static balance is being performed. Each tip closure hole must have a tip balance weight installed.

a. Check if balance weights are secure by using a hex wrench and light hand pressure to determine if the weights will rotate. Do not force tip weight to move if it does not move under light hand pressure. If a tip weight does not turn, it is secure and requires no further action. If a tip weight turns under hand pressure, remove the tip weight, clean the tip closure threaded hole (b) and reinstall the tip weight back into its original location (c) – (14d).

b. As required, run a #10-24 UNC H3 thread tap through each tip closure hole to clean out any old adhesive. Use a cotton tipped applicator (Q-tip) wetted with acetone, MEK, MPK, and wipe the threads of the tip closure hole clean to provide a good bonding surface for the adhesive. Let the solvent flash dry for 15 minutes before applying adhesive.

c. Wipe the threads of the tip weight clean with acetone, MEK, or MPK and a non-lint cloth. Let the solvent flash dry for 15 minutes before applying adhesive to the threads of the screw.

d. Install the tip weight into the tip closure, leaving 4 threads of the screw exposed. Apply Loctite Quickstix 248, Loctite 242 or 3M™ DP460 epoxy adhesive (preferred) to the exposed threads. Screw the tip weight into the tip closure, making sure that it is installed flush to the tip closure. Clean up excess adhesive with acetone, MEK, MPK, or denatured alcohol and a lint free cloth. Allow adhesive to cure fully per manufacturer's instructions before using the blades.

e. **NOTE:** The amount of adhesive used to bond the balance weights is minimal and will have no appreciable effect on the static balance of the blade.

5.10.6. Data Plate

The data plate provides the part number and serial number of the blade assembly. To provide a more aerodynamic surface, the paint finish is applied over the edges of the data plate.

a. The serial number of the blade assembly, and all other information on the data plate must be legible. Minor edge and corner damage of the data plate and fading of the data plate paint is acceptable as is, provided that no information is obscured or missing due to the condition of the data plate.

b. Replace the data plate if the serial number or any other data is illegible. A new data plate may be purchased from VHA. Data plate part number is 2062260-1 (-101 assembly) and 2062260-3 (-301 assembly). Remove the old data plate and bond a new data plate into the same location with 3M™ DP420 or 3M™ DP460. Clean up excess adhesive with acetone, MEK, MPK, or denatured alcohol and a lint free cloth.

c. Touch up the paint around the data plate as required per 5.10.8 Spot Refinishing.

5.10.7. Root Fitting

The root fitting is made from titanium, with a slot machined into the slanted, trailing edge to reduce weight. The slot is filled with various fairing and smoothing compounds and filler material. Over time, the material inside the slot may shrink, crack, get pushed in or fall out, creating a visible void. The void should be filled as soon as possible to prevent intrusion of the environment into the interior of the blade assembly.

Tap inspect and visually inspect the area around the void (use a 5x inspection glass) to look for any other damage. If there is no other damage in the area surrounding the root fitting void (i.e. no skin edge delamination, no voids, no debonds, no cracks) then fill the void. The void may be filled while the blade is installed on the aircraft.

a. Using a dental pick or vacuum suction, carefully remove any loose material from the void area. Ensure no loose material remains inside or along the edges of the void. Do not enlarge the size of the existing void.

b. Mix a suitable quantity of SEM 39747 panel adhesive, Magnobond 6398, 3M™ DP190, 3M™ DP460 or 3M™ DP420. or PR-1440 sealant (or equivalent per MIL-S-8802, Type II, Class B-1/2 or Class B-1, or Class B-2) per manufacturer's instructions.

c. Slightly overfill the void with adhesive. Allow the adhesive to cure fully per manufacturer's instructions.

d. Sand the cured adhesive smooth and flush to the surrounding surface using 150 – 220 grit sandpaper. Finish with 350 grit sandpaper. Do no sand through the existing paint layer.

e. Spot refinish the reworked area as required per 5.10.8 Spot Refinishing.

f. **NOTE:** The amount of adhesive used to fill the void is minimal and will have no appreciable effect on the static balance of the blade.

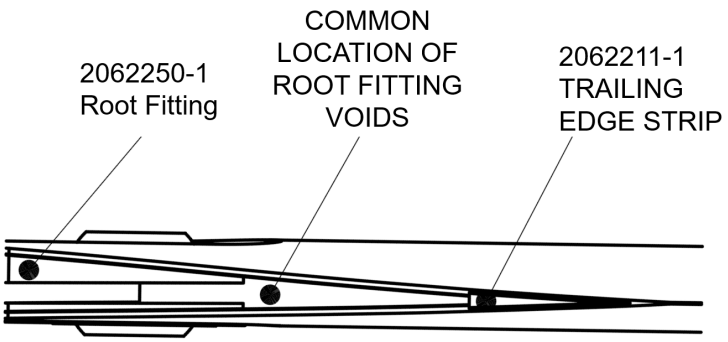



**Figure 5-4**

Side View of Root Fitting Showing Common Location of Void Area

5.10.8. Spot Refinishing

The tail rotor blade surfaces are finished with an epoxy surfacing film that is co-cured with the skin. An epoxy primer coating is applied to the cured assembly, followed by a single stage polyurethane topcoat system. Starting with the E series of 2062200-301 tail rotor blades, a polyurethane matte coating has been applied on top of the color coat for added abrasion resistance and erosion protection.

**NOTE:** Chromate primers must not be used on Van Horn Aviation rotor blades.

a. When preparing the blade surface for paint touch-up, do not sand into the carbon fiber skin plies.

b. If sanding is necessary, do not sand beyond the primer layer and/or surfacing film layer. The primer layer and surfacing film layers are gray in color. Underneath the surfacing film is a layer of copper mesh for lightning strike protection and is bonded to the skin. Carbon fiber skin plies are black.

c. Exposed carbon fiber skin not exceeding 0.20 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. See Figure 5-5.

d. Exposed carbon/epoxy skin exceeding 0.50 inch aft of 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/chipping may occur along the abrasion strip. Feather sand the paint edges using 320 grit or finer sandpaper paper to stop peeling and chipping. Touchup paint required for appearance only if black carbon/epoxy skin is not exposed. Touch up exposed skin with one coat of epoxy primer and then apply topcoat.

f. Small defects such as pinholes, nicks, scratches, bare edges and small chips do not need surface preparation and require touchup paint for appearance only as long as the carbon fiber skin is not exposed. Apply either epoxy primer or polyurethane paint directly to the defect.

g. Paint touch-up procedure:

Paint color should be as close as possible to the original color, but an exact match is not necessary. Single stage paint used in production is Axalta™ Imron® Elite (gloss white and gloss black). Primer used is Axalta™ Corlar® 13580S. Any aerospace quality polyurethane paint may be substituted. Use a compatible non-chromate epoxy primer. Matte topcoat system is Toughguard® TG-NHP-701 base, 28% TG-NHP-702 matte additive and 3% TG-NHP 703 fluoropolymer additive. Paint color scheme is a white blade with three black stripes, see Figure 5-5.

i. Wipe the touchup area clean with acetone MEK, MPK or denatured alcohol and a non-lint cloth to remove all contaminants. Mask around touchup areas with vinyl or general purpose masking tape and masking paper.

ii. Scuff paint finish lightly with 320 or finer grit sandpaper.

iii. Wipe sanded area clean with acetone, MEK, MPK, or denatured alcohol and a lint free cloth. Wipe surface dry with a cloth. Do not allow solvents to flash off.

iv. If applying paint to a bare substrate, first apply epoxy primer to the touchup area. Mix an appropriate amount of primer per manufacturer's instructions and apply primer to touchup area. Allow primer to dry to the touch but not fully cure.

v. Mix an appropriate amount of polyurethane topcoat per manufacturer's instructions. For small touchup areas, add additional accelerator as needed to allow paint to cure to handling hardness faster.

vi. Apply touchup paint so that it flows/blends into the existing paint defect with little or no overlap onto the surrounding paint. Apply touch up clearcoat to the new paint. Allow coatings to cure completely before putting blade into service.

vii. As required, wet sand the touched-up area with 2000 grit sandpaper to knock down hard edges, or to reduce the height of the cured paint.

viii. Buff out any sanding scratches using standard buffing techniques and automotive or aerospace buffing/polishing products. Mask the data plate with tape as required, prior to any buffing. Remove masking tape when done.

ix. If the touch up paint was applied to a paint feather edge, then re-feather the new paint to match the existing paint using 180 – 220 grit sandpaper and a 3-inch square pneumatic sander.

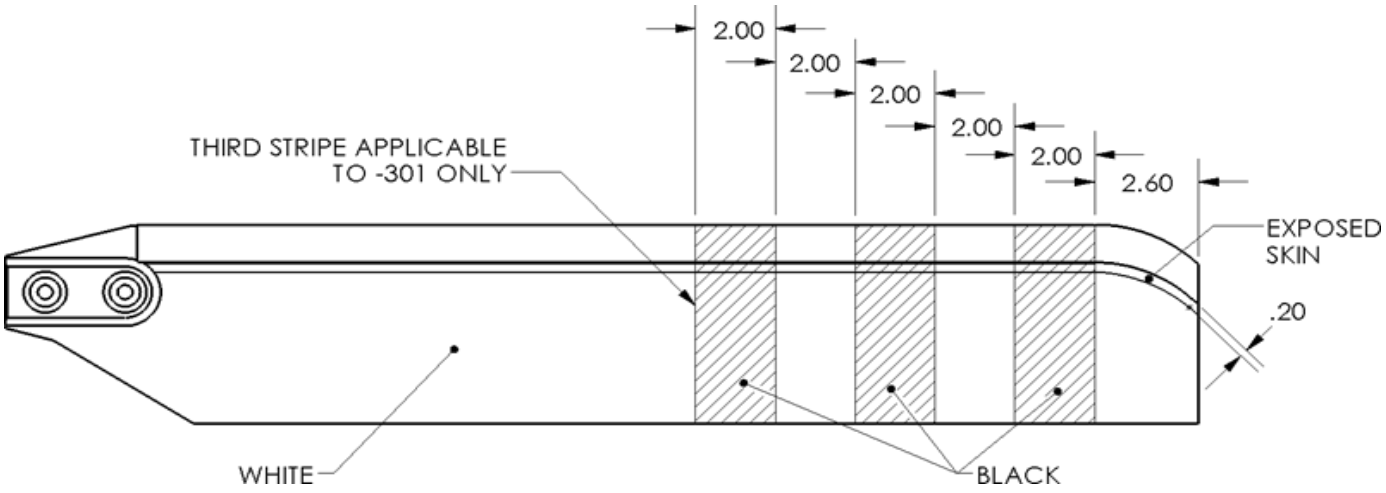



**Figure 5-5**

Paint Color Scheme

# CHAPTER 11 – PLACARDS AND DECALS

There are no placards or decals associated with this STC.

# CHAPTER 64 – TAIL ROTOR BLADE

## 64.1 DESCRIPTION

The 2062200-101/-301 tail rotor blade is a composite and metallic structure incorporating the NASA developed RC(4)-10(10% 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 is approximately .10 inches shorter than the existing production tail rotor blade. The blade chord length is the same as the existing blade at 5.25 inches. The tip of the blade is rounded to reduce noise and tip drag. The root fitting is machined from titanium alloy plate.

The pitch bearings incorporate both a stainless steel race and ball, with the ball being chrome plated. One edge of the bearing race is preformed to allow more accurate installations. The bearing race is lined with either Teflon™ or KAron® material. The bearings may be installed from either side of the blade.

The basic blade section is fabricated using unidirectional carbon/epoxy tape with a rigid cell structural foam core. Span balance is accomplished using threaded stainless steel screws in a fiberglass/epoxy high pressure laminate tip cap. An electroformed nickel abrasion strip is added for erosion protection.

The blade is coated with single stage polyurethane paint, overlaid with a matte coating for added durability. The 2062200-101/-301 tail rotor blade may be installed and balanced with VHA 2062200-501 tail rotor blade assemblies. Figure 64-1 provides an exploded view of the 2062200-101/-301 tail rotor blade assembly.

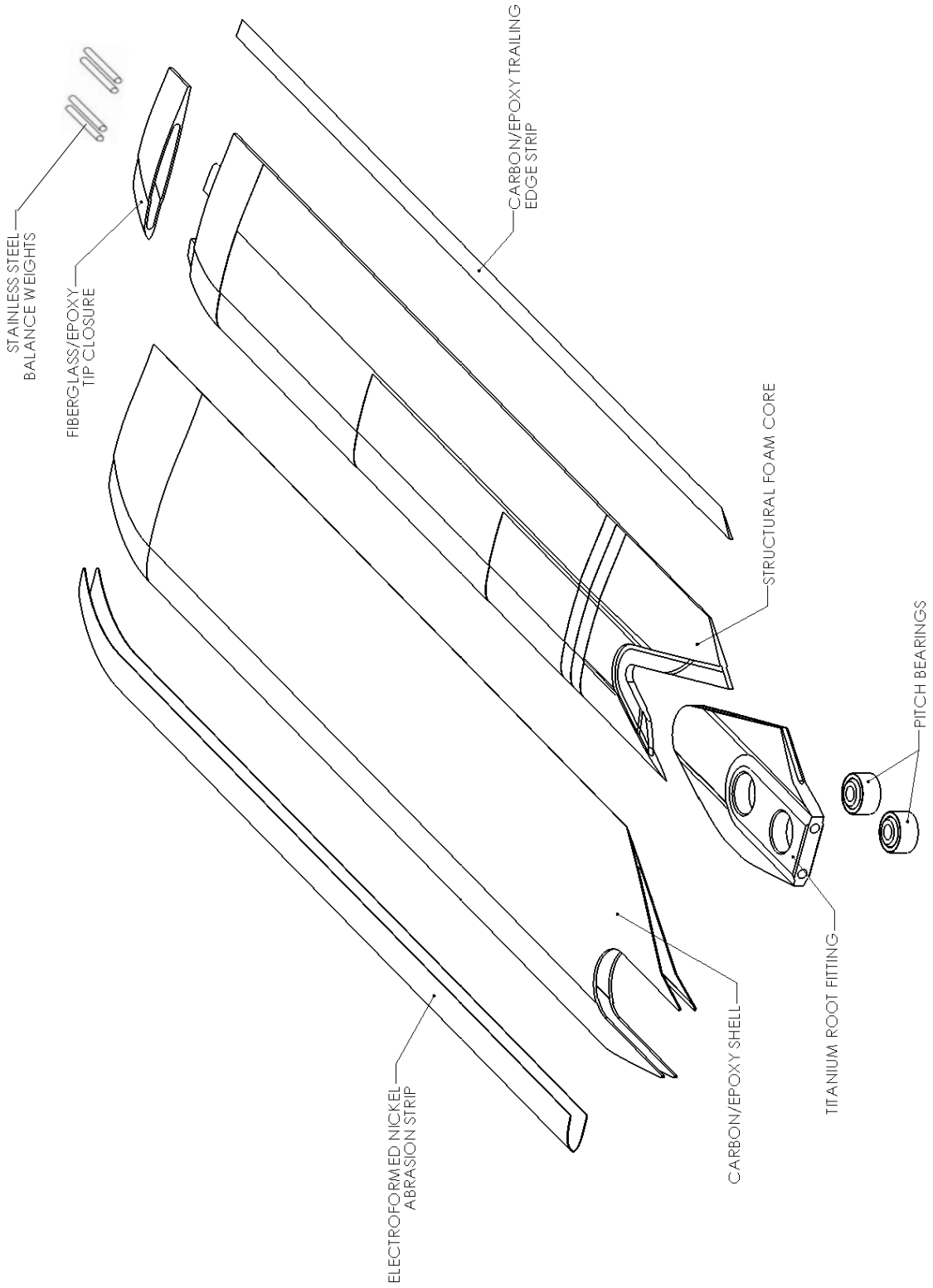



**Figure 64-1**

Tail Rotor Blade Assembly

## 64.2 INSTALLATION

The 2062200-101/-301 tail rotor blades are a direct replacement for tail rotor blade assembly 206-016-201-131.

For 206A/B or 206L model helicopters, install the 2062200-101/-301 tail rotor blade per the current FAA accepted maintenance manual and per the instructions below.

For OH-58A+ and OH-58C model helicopters, install the 2062200-101/-301 tail rotor blade per U.S. Army Technical Manual TM55-1520-228-23-2 Aviation Unit and Intermediate Maintenance Manual, Army Model OH-58A and OH-58C Helicopters, and per the instructions below.

64.2.1 A design feature of the 2062200-101/-301 tail rotor blade is reduced control forces. See section 64.3.1for use of counterweight washers.

64.2.2 There is no pedal force requirement. Pedal friction adjustments are not required to obtain a 3 to 5 pound pedal force after the tail rotor blades are installed Pedal forces greater than 5 pound limit established in the FAA approved maintenance manual or TM55-1520-228-23-2requirement of 3 to 5 pounds are permitted.

64.2.3 There is no overstaking check required after installation of VHA pitch bearings. The VHA bearings are installed differently than the existing pitch bearings. VHA pitch bearings may have higher static friction than the existing bearings, but the blades have lighter pedal forces in flight.

64.2.4 The 2062200-101/-301 tail rotor blades are intermixable with 2062200-501 tail rotor blades and may be installed as -101/-501 or -301/-501 balanced pairs.

## 64.3 CONTROL RIGGING

Control rigging for the 2062200-101/-301 tail rotor blade is accomplished in the same manner as production tail rotor blade 206-016-201-131 except as follows.

64.3.1 Counterweight washers may not be required. Begin rigging by removing all washers and the bolt and nut. If counterweights are required, use only one half of the maximum counterweight washers called out in the FAA accepted maintenance manual.

64.3.2 Requirements for early serial number helicopters:

206A/B helicopters S/N 4 through 2211 may be modified to allow installation of 2062200-101/-301 tail rotor blades by one of the following methods:

1. Requirements 206A model helicopters S/N 4 through 497:
    a. Comply with Bell Technical Bulletin No. 206-94-146 ANTI-TORQUE CONTROL SYSTEM HYDRAULIC BOOST, REMOVAL OF.
2. 206A/B model helicopters S/N 498 through 2211:
    a. Modify tail rotor gearbox to P/N 206-040-400-013 configuration per Bell Technical Bulletin No. 206-99-168 TAIL ROTOR GEARBOX

ASSEMBLIES 206-040-400-ALL AND 206-040-402-ALL, UPGRADE AND CONFIGURATION OF.

b. Comply with provisions of Bell Service Instruction No. 206-112 Retrofit Kit, Engine Assembly 250-C20B that cover installation and rigging of tail rotor hub and blade assembly. 250-C-20B installation is not required to install 2062200-101/-301 tail rotor blades.

64.3.3 Mean blade angles:

1. 206A/B model helicopters:
   a. 17.0° to 17.5° for helicopters with long tail rotor blades. S/N 4 through 2211 modified per , and S/N 2212 through 4004.
   b. 22.75° to 23.25° for helicopters S/N 4005 and subsequent.
2. 206L model helicopters
   a. 18.5° to 19.0° for 206L and standard 206L1 helicopters:
   b. 22.75° to 23.25° for 206L3, 206L4, 206L1 engine upgrade and 206L1+ internal gross weight upgrade helicopters.
3. OH-58A+ and OH-58C model helicopters:
   a. Blade angles are reduced by 0.5°. Subtract 0.5° degrees from the high and low blade angles in Army Technical Manual TM55-1520-228-23-2. For example if Army Technical Manual TM55-1520-228-23-2 calls for 22.0° to 23.0°, rig the 2062200-101/-301 blades to 21.5° to 22.5°. Except for the reduced angle, rig the blades per Army Technical Manual TM55-1520-228-23-2 and Section 64.3.4

64.3.4 Use protractor as shown in Figure 64-2 below.

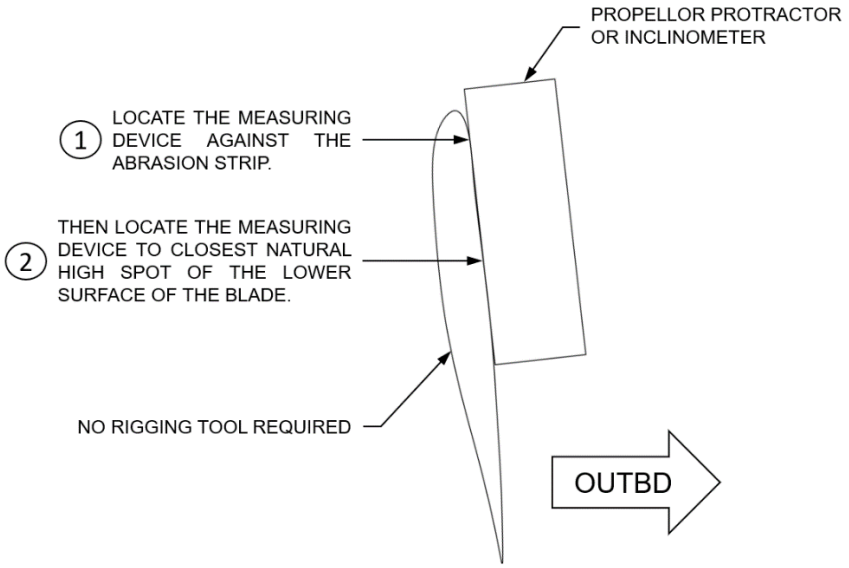



**Figure 64-2** Protractor Placement for Blade Angle Measurement

## 64.4 TRACK AND BALANCE

Balance the 2062200-101/-301 tail rotor blades per the FAA accepted maintenance manual.

1. 206A/B and 206L model helicopters:
   a. Balance the 2062200-101/-301 tail rotor blades per the FAA accepted maintenance manual.
2. OH-58A+ and OH-58C model helicopters:
   a. Balance the 2062200-101/-301 tail rotor blades per Army Technical Manual TM55-1520-228-23-2.

## 64.5 WEIGHT AND BALANCE

The 2062200-101/-301 tail rotor blade is approximately 0.1 lbs. lighter than the metal 206-016-201-131 tail rotor blade.

The 2062200-101/-301 tail rotor blade is slightly lighter in weight than the 2062200-501 tail rotor blade. The -101/-301 blades will be able to be adequately balanced any 2062200-501 blade.

Weigh the blades before installation and enter the data on the aircraft CHART C – BASIC WEIGHT AND BALANCE RECORD.

## 64.6 CLEANING

Reference paragraph 5.10.2.j. Wash the blades with clean, unpressurized water, mild soap and a non-abrasive cloth to remove any accumulated salt, chemicals or other contaminants. Grease may be removed by wiping the blade clean with Extreme Simple Green® Aircraft & Precision Cleaner, acetone, MEK, MPK, or denatured alcohol and a microfiber cloth.