



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

**FAA APPROVED**

**ROTORCRAFT FLIGHT MANUAL SUPPLEMENT**

**For**

**VHA 2062200-101/-301/-501 TAIL ROTOR BLADES**

**Installed On**

**MODEL 206L4 HELICOPTERS**

Flight manual supplement also applicable to 206L1 and 206L3 helicopters modified per Bell Service Instruction BHT-206-SI-2052. Model 206L-1 and Model 206L-3 helicopters modified per Bell service Instruction BHT-206-SI-2052 (BHT Kit 206-706+530) have a commercial designation of 206L1+ and 206L3+.

**REGISTRATION No.** \_\_\_\_\_

**SERIAL No.** \_\_\_\_\_

This supplement must be attached to the applicable FAA Approved 206L series Flight Manual when Van Horn Aviation **2062200-101/-301/-501 Tail Rotor Blades** have been installed in accordance with STC No. SR02249LA.

The information contained herein supplements or supersedes information of basic Flight Manual only in those areas listed herein. For limitations, procedures, and performance data not contained in this supplement, consult basic Flight Manual and applicable Flight Manual Supplements.

FAA Approved \_\_\_\_\_  
Manager, West Flight Test Section, AIR-716  
Federal Aviation Administration  
Los Angeles, CA

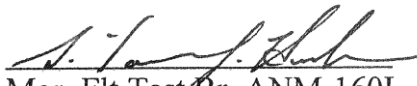
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RFM Supplement to the  
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## LOG OF PAGES

Rev. No.	Page No.	Page Rev.	Description	FAA Approval
0	1 2 3 4 5 6 7 8	0 0 0 0 0 0 0 0	Original issue of complete supplement.	<u>/s/ Seyed-Youssef Hashemi</u> Mgr, Flt Test Br, ANM-160L FAA, Los Angeles ACO Transport Airplane Directorate  Date: <u>12/01/2011</u>
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3	1* 2* 3 4* 5* 6 7 8 9	3 3 2 3 3 2 2 2 2	Added reference to -501 configuration.	          Manager, West Flight Test Section, AIR-716 Federal Aviation Administration Los Angeles, CA  Date: _____

Revised pages marked with "\*" symbol.

### NOTE

Revised text is indicated by a black vertical line.  
 Insert latest revision pages; dispose of superceded pages.



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## **INTRODUCTION**

The VHA 2062200-101/-301/-501 tail rotor blade is a composite and metallic structure incorporating the NASA-developed RC (4)-10 (10% thick) rotor blade airfoil. The VHA blade radius is approximately .10 inches shorter than the existing production tail rotor blade. 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. An electroformed nickel abrasion strip is added for erosion protection.

### **SECTION 1** ***LIMITATIONS***

No Change

### **SECTION 2** ***NORMAL PROCEDURES***

No change

### **SECTION 3** ***EMERGENCY/MALFUNCTION PROCEDURES***

No change



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## **SECTION 4**

### ***PERFORMANCE***

#### **IGE AND OGE HOVER CEILING CHARTS**

The advanced airfoil used on the VHA 2062200-101/-301/-501 tail rotor blade results in increased stall margin, thereby improving high altitude performance. Satisfactory stability and control has been demonstrated in relative winds of 30 MPH (26 knots) sideward and rearward at all loading conditions within an expanded Area A of Hover Ceiling Charts. The expanded Area A includes the following increases in allowable weight through Area B only and up to the allowable maximum gross weight:

IGE – 170 lbs  
OGE – 75 lbs

These weight increases are applicable for Basic Flight Manual and all Bell Helicopter Textron FAA approved Flight Manual Supplements.

#### **IGE EXAMPLES**

Three examples are shown below for a sample IGE Hover Ceiling Chart (Figure 4-1). A chart on the next page illustrates these examples.

##### **Example 1:**

Pressure Altitude = 12,000 ft

Outside Air Temperature = 0°C

Initial Result = Area A maximum of 3650 lbs

Additional Allowable: Adding 170 lbs results in a maximum weight of 3820 lbs. This is less than the maximum gross weight of 4150 lbs, so the full 170-lb increase is permitted.

##### **Example 2:**

Pressure Altitude = 8,000 ft

Outside Air Temperature = 15°C

Initial Result: Area A maximum of 4050 lbs

Additional Allowable: Adding 170 lbs results in a maximum weight of 4220 lbs. This is more than the allowable maximum gross weight of 4150 lbs. Subtract the Area A maximum from the maximum gross weight to find the additional allowable weight (4150 – 4050 = 100 lbs).

##### **Example 3:**

Pressure Altitude = 2,000 ft

Outside Air Temperature = 30°C

Initial Result: Area A maximum of 4450 lbs. This is outside of area B, so no additional weight is permitted. Use the existing maximum gross weight of 4450 lbs.



**NOTE**

The use of Van Horn Aviation tail rotor blades does NOT authorize loading over the aircraft's maximum internal gross weight limits of 4150 lbs / 4450 lbs (or maximum external gross weight limits of 4550 lbs) at any time or in any condition.

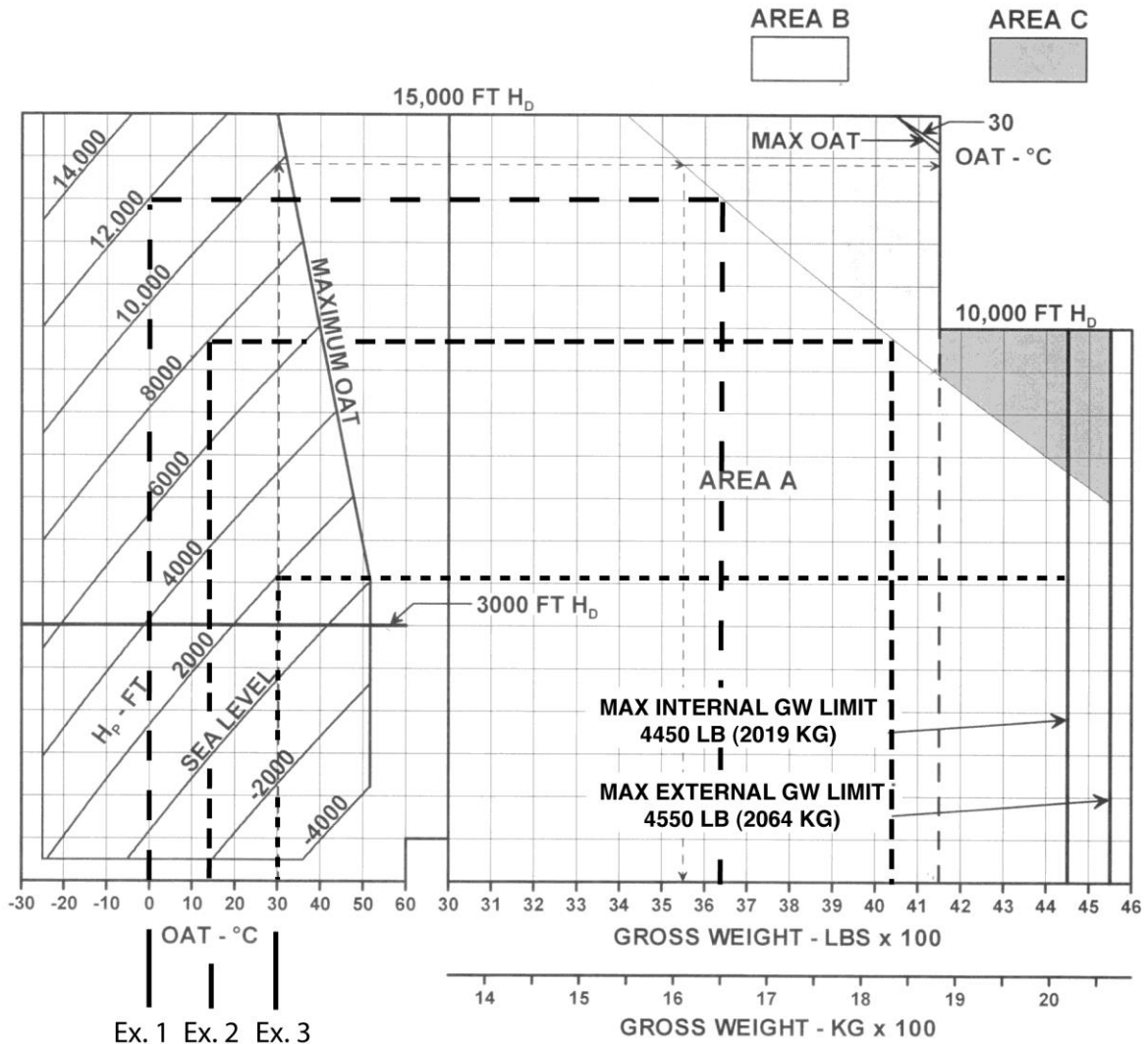


Figure 4-1  
 Sample IGE Hover Chart



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### OGC EXAMPLES

Three examples are shown below for a sample OGC Hover Ceiling Chart (Figure 4-2). A chart on the next page illustrates these examples.

#### Example 1:

Pressure Altitude = 12,000 ft

Outside Air Temperature = 0°C

Initial Result = Area A maximum of 3540 lbs

Additional Allowable: Adding 75 lbs results in a maximum weight of 3615 lbs. This is less than the maximum gross weight of 4150 lbs, so the full 75-lb increase is permitted.

#### Example 2:

Pressure Altitude = 6,000 ft

Outside Air Temperature = 24°C

Initial Result: Area A maximum of 4100 lbs

Additional Allowable: Adding 75 lbs results in a maximum weight of 4175 lbs. This is more than the allowable maximum gross weight of 4150 lbs. Subtract the Area A maximum from the maximum gross weight to find the additional allowable weight ( $4150 - 4100 = 50$  lbs).

#### Example 3:

Pressure Altitude = 2,000 ft

Outside Air Temperature = 30°C

Initial Result: Area A maximum of 4450 lbs. This is outside of area B, so no additional weight is permitted. Use the existing maximum gross weight of 4450 lbs.



**NOTE**

The use of Van Horn Aviation tail rotor blades does NOT authorize loading over the aircraft's maximum internal gross weight limits of 4150 lbs / 4450 lbs (or maximum external gross weight limits of 4550 lbs) at any time or in any condition.

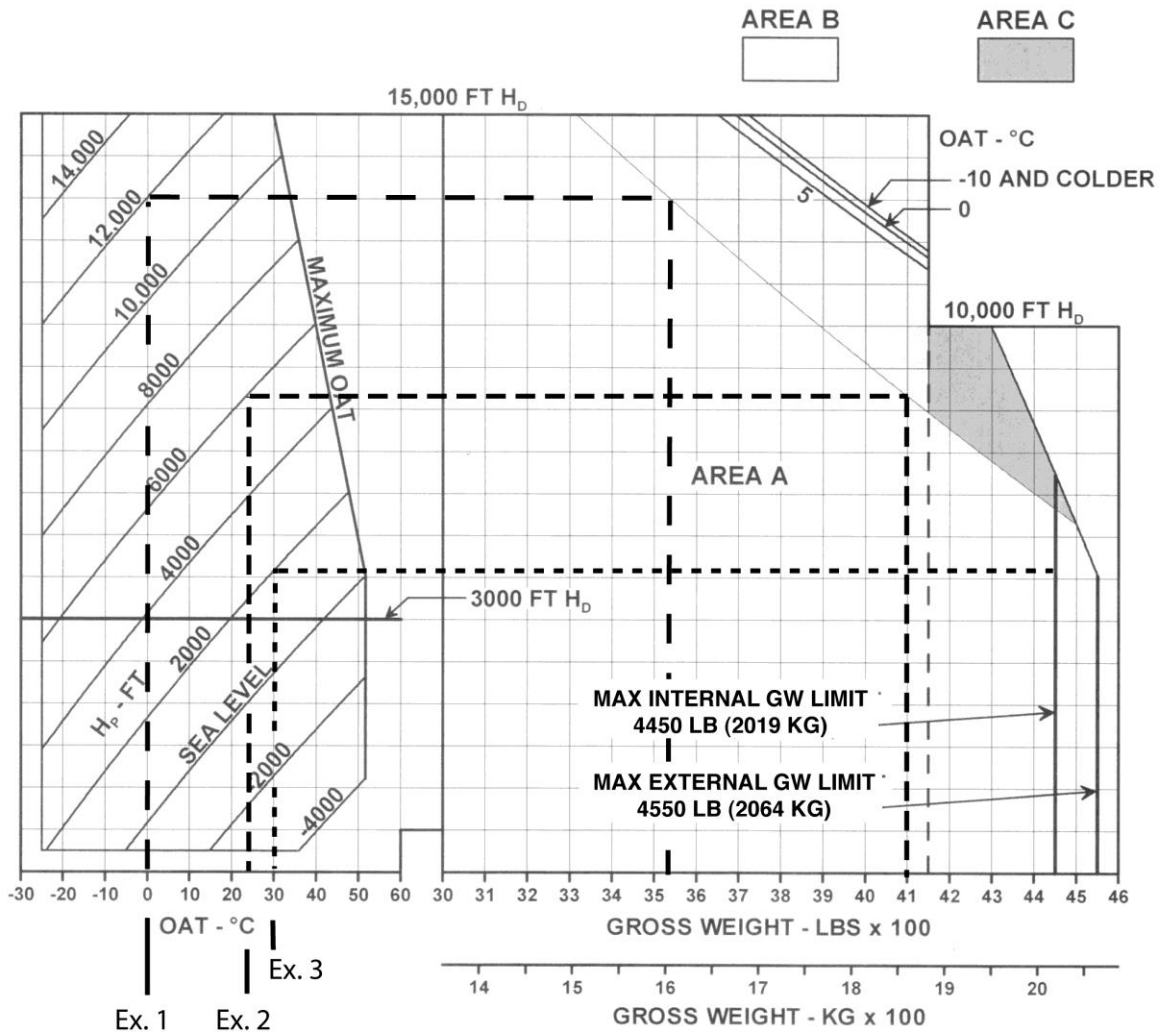


Figure 4-2  
 Sample OGE Hover Chart





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**SECTION 5**  
***WEIGHT AND BALANCE***  
No change