



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

**FAA APPROVED**

**ROTORCRAFT FLIGHT MANUAL SUPPLEMENT**

For

**VHA 2042200-101 TAIL ROTOR BLADES**

Installed On

**RICHARD'S HEAVYLIFT HELO, INC.  
(S. M. & T.) AIRCRAFT UH-1B HELICOPTERS**

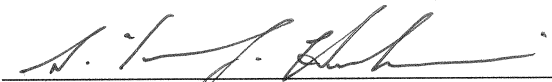
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This supplement must be attached to the TM 55-1520-219-10 UH-1B Operator's Manual when the Van Horn Aviation **VHA 2042200-101 Tail Rotor Blades** are installed in accordance with STC No. SR02051LA

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

FAA Approved:

  
\_\_\_\_\_  
Manager, Flight Test Branch, ANM-160L  
Federal Aviation Administration  
Los Angeles Aircraft Certification Office  
Transport Airplane Directorate

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### LOG OF PAGES

Rev. No.	Page No.	Page Rev.	Description	FAA Approval
0	1 2 3 4 5 6	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>4/17/2008</u>
1	1* 2* 3* 4* 5* 6*	1 1 1 1 1 1	Revised supplement to incorporate Van Horn Aviation's new address and new Type Certificate Holder.	 Mgr, Flt Test Br, ANM-160L FAA, Los Angeles ACO Transport Airplane Directorate  Date: <u>7-2-2012</u>

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Insert latest revision pages; dispose of superceded pages.



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## **CHAPTER 1 INTRODUCTION**

No change.

## **CHAPTER 2 DESCRIPTION**

2-92. The tail rotor is a two-bladed, semi-rigid, delta hinged type employing preconing and underslinging. Each blade is connected to a common yoke by means of grip and pitch change bearings. The blade and yoke assembly is mounted on the tail rotor shaft by a delta-hinge trunnion to minimize rotor flapping. Blade pitch is altered by movement of the tail rotor control pedals to control or maintain heading. This blade pitch change provides control of torque and change of direction heading. Power to drive the tail rotor is supplied from a take-off on the lower end of the main rotor transmission.

*a. Tail Rotor Blades.* The VHA 2042200-101 tail rotor blade is an all composite blade employing an advanced high efficient airfoil. The blade length is the same as the existing production blade, but the chord has been increased by .80 inches. Erosion protection is provided by a full span stainless steel abrasion strip adhesively bonded to the leading edge. Stainless steel bushings are pressed into the inboard end, which react to the attachment bolt loads. The blade is constructed primarily of carbon/epoxy unidirectional tape. The grip plates, tip closure and root closure are fabricated from fiberglass/epoxy fabric. The blades are statically balanced at the factory using a brass balance weight threaded into the tip closure. The interior of the blade is filled with closed cell rigid foam.

## **CHAPTER 3 NORMAL PROCEDURES**

### **3-29. ENGINE RUN-UP**

2. Hydraulic System – Place switch in OFF position. Check controls for freedom of movement; ensure the collective pitch control is FULL DOWN; then place the switch in the ON position and position the FORCE TRIM switch ON.

#### **NOTE**

Without hydraulic boost and with the VHA 2042200-101 tail rotor blades installed, a significantly higher force will be required to move the left pedal forward than to move the right pedal forward. However, little or no pedal force is required to maintain pedal position.



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## **CHAPTER 4**

### **EMERGENCY PROCEDURES**

4-61. HYDRAULIC POWER FAILURE.

#### **NOTE**

Without hydraulic boost and with the VHA 2042200-101 tail rotor blades installed, a significantly higher force will be required to move the left pedal forward than to move the right pedal forward. However, little or no pedal force is required to maintain pedal position.

## **CHAPTER 5**

### **AVIONICS**

No change.

## **CHAPTER 6**

### **AUXILIARY EQUIPMENT**

No change.

## **CHAPTER 7**

### **OPERATING LIMITATIONS**

7-23. BASIC OPERATING WEIGHT.

There are no changes to the maximum weight or center-of gravity limitations shown in the TM 55-1520-219-10 UH-1B Operator's Manual. The VHA 2042200-101 tail rotor blades are lighter than the existing production tail rotor blades. The empty weight change is recorded in helicopter's basic weight and balance chart.

Weight and Balance Data as specified in the TM 55-1520-219-10 UH-1B Operator's Manual and Flight Manual Supplements remain applicable.

## **CHAPTER 8**

### **FLIGHT CHARACTERISTICS**

No Change.



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## **CHAPTER 9**

### **SYSTEMS OPERATION (Not Applicable)**

No Change.

## **CHAPTER 10**

### **WEATHER OPERATIONS**

10-34. BOOST OUT OPERATION.

#### **NOTE**

Without hydraulic boost and with the VHA 2042200-101 tail rotor blades installed, a significantly higher force will be required to move the left pedal forward than to move the right pedal forward. However, little or no pedal force is required to maintain pedal position.

## **CHAPTER 11**

### **CREW DUTIES**

No Change.

## **CHAPTER 12**

### **WEIGHT AND BALANCE COMPUTATION**

12-9. BASIC WEIGHT

There are no changes to the maximum weight or center-of gravity limitations shown in the TM 55-1520-219-10 UH-1B Operator's Manual. The VHA 2042200-101 tail rotor blades are lighter than the existing production tail rotor blades. The empty weight change is recorded in helicopter's basic weight and balance chart.

Weight and Balance Data as specified in the TM 55-1520-219-10 UH-1B Operator's Manual and Flight Manual Supplements remain applicable.

## **CHAPTER 13**

### **AIRCRAFT LOADING**

No Change.

## **CHAPTER 14**

### **PERFORMANCE DATA**

No Change.