

**PLEASE CHECK WEB SITE AT [WWW.ONBOARDSYSTEMS.COM](http://WWW.ONBOARDSYSTEMS.COM) FOR  
THE LATEST REVISION OF THIS MANUAL**

**BUMPER RING KIT**

*For The  
204, 205, 212 & 412 Series Helicopters*

**Owner's Manual**

**STC SH5737NM**

*Owner's Manual Number 120-033-01  
Revision 7  
March 3, 2016*

*Kit Part Number 210-092-00*



*13915 NW 3<sup>rd</sup> Court Vancouver Washington 98685 USA  
Phone: 360-546-3072 Fax: 360-546-3073 Toll Free: 800-275-0883  
[www.OnboardSystems.com](http://www.OnboardSystems.com)*

This page intentionally left blank.

## RECORD OF REVISIONS

<i>Revision</i>	<i>Date</i>	<i>Page(s)</i>	<i>Reason for Revision</i>
4	9/17/02	Title, 4-1	Factory address change.
5	10/24/07	Section 1& 3-1	Added explanation of warnings, cautions and notes to Section 1. Updated warnings, cautions and notes throughout. Changed “daily inspection” to “daily check.”
6	11/19/07	1-2, 4-1	Added 220-025-02 as an optional bumper in Bill of Materials.  Changed “daily inspection” to “daily check.”
7	03/03/16	1-2, 1-3, 2-1, 4-1	Updated bolt P/N 510-162-00 to P/N 510-314-00, clarified maintenance intervals, updated format of safety labels.

### **Register Your Products for Automatic Notifications**

Onboard Systems offers a free notification service via fax or email for product alerts and documentation updates. By registering your Onboard Systems products at our website, we will be able to contact you if a service bulletin is issued, or if the documentation is updated.

You can choose to receive notices on an immediate, weekly, or monthly schedule via fax, email or both methods. There is no charge for this service. Please visit our website at [www.onboardsystems.com/notify.php](http://www.onboardsystems.com/notify.php) to get started.

This page intentionally left blank.

# CONTENTS

## ***Section 1* General Information**

Introduction, 1-1  
Safety Labels, 1-2  
Bill of Materials, 1-3  
Inspection, 1-3

## ***Section 2* Installation Instructions**

Installation Overview, 2-1  
Bumper Ring Installation, 2-2  
Weight and Balance, 2-2  
Paper Work, 2-2

## ***Section 3* Operation Instructions**

Operation Instructions, 3-1

## ***Section 4* Maintenance**

Bumper Ring Maintenance, 4-1  
Instructions For Returning a System to the Factory, 4-2

## ***Section 5* STC SH5737NM**

STC, 5-1  
Eligibility List, 5-3  
Flight Manual Supplement, 5-4

## ***Section 6* STA SH94-4**

STA, 6-1

## ***Figures***

2-1 Installation Overview, 2-1

This page intentionally left blank.

# *Section 1*

## **General Information**

### **Introduction**

The Onboard Systems P/N 210-092-00 Bumper Ring Kit replaces the Bell Helicopter magnesium bumper 204-072-901-1 & 3 and the ring 204-072-905-3 that is supplied as original equipment on the cargo suspension system of Bell 204, 205, 212, & 412 series helicopters. Molded from a specially formulated, engineered polymer, the Onboard Systems bumper ring is designed to correct the two most troublesome problems experienced using the original bumper: (1) damage to the helicopter airframe and (2) the limited life of the original bumper.

The rigid polymer that makes up the bumper ring is significantly more resilient than the original magnesium bumper, eliminating the fracturing problems now common.

## Safety Labels

The following definitions apply to safety labels used in this manual.



Indicates a hazardous situation which, if not avoided, will result in death or serious injury.



Indicates a hazardous situation which, if not avoided, could result in death or serious injury.



Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.



Draws the reader's attention to important or unusual information not directly related to safety.



Used to address practices not related to personal injury.



## Bill of Materials

The following items are included with each P/N 210-092-00 kit, if shortages are found contact the distributor from whom the system was purchased.

<b>Part Number</b>	<b>Description</b>	<b>Quantity</b>
120-033-01	Owner's Manual	1
220-025-03	Bumper Ring	1
220-025-01	Bumper Ring	Optional
220-025-02	Bumper Ring	Optional
290-209-01	Large Bumper Spacer	2
290-210-01	Small Bumper Spacer	2
510-104-00	Nut	1
510-129-00	Nut	1
510-161-00	Bolt	1
510-314-00	Bolt	1

## Inspection

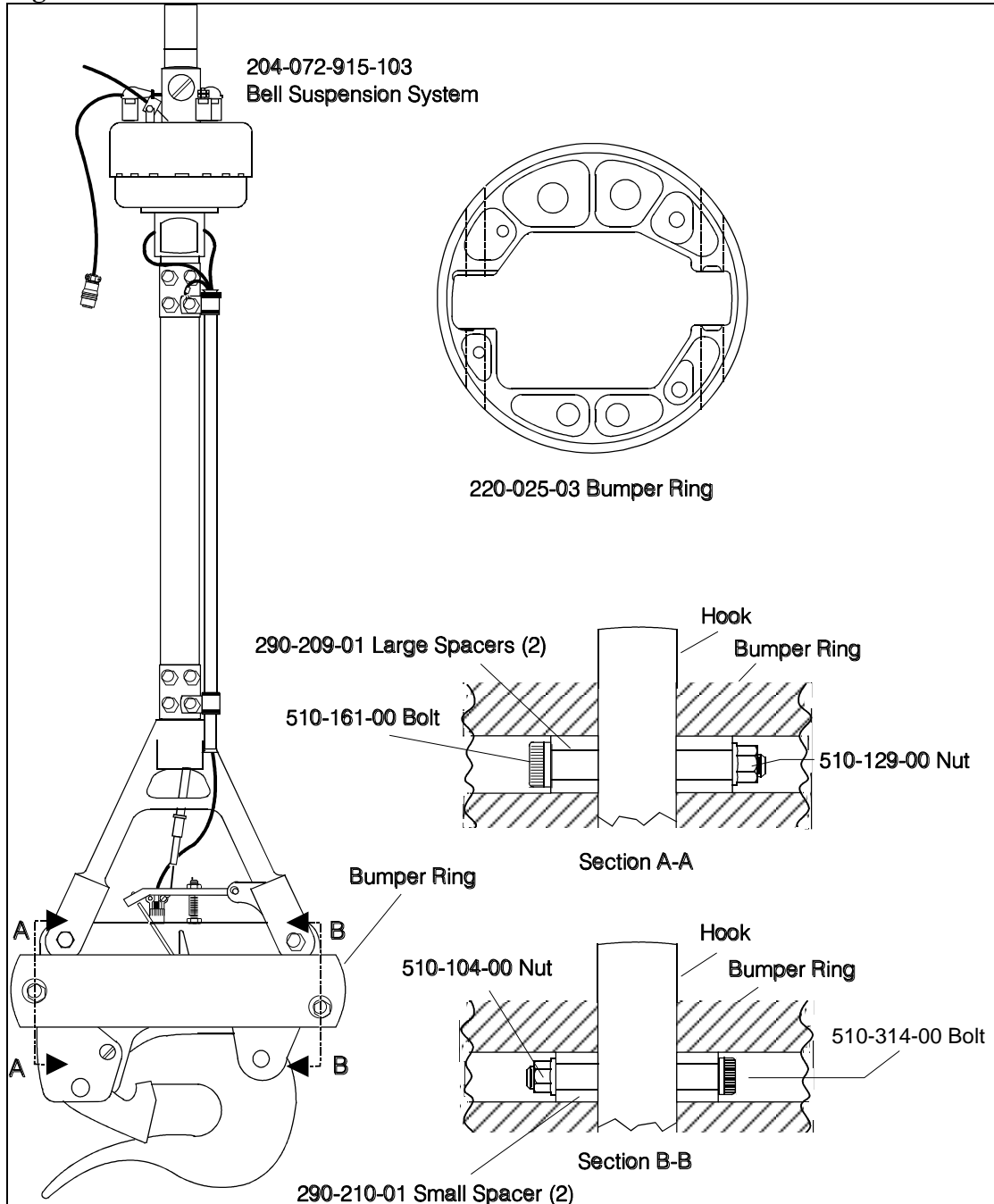
After receiving the system inspect each component for evidence of mishandling and damage. If damage is evident, do not use it. File a claim with the carrier and notify the distributor from whom the system was purchased.

This page intentionally left blank.

# Section 2

## Installation Instructions

Figure 2-1 Installation Overview



## Bumper Ring Installation

The Bumper Ring Kit is installed by removing the magnesium ring and replacing it as indicated in Figure 2-1.

## Weight and Balance

Onboard Systems Bumper Ring Kit	3.0 LB
Bell Magnesium bumper & ring	-3.0 LB
<hr/>	
Weight added to aircraft	0.0 LB

## Paper Work

Insert the Flight Manual Supplement into the aircraft flight manual. In the US fill in the FAA form 337 for the initial installation. This procedure may vary in different countries. Make the appropriate aircraft log book entry.

# *Section 3*

## **Operation Instructions**

### **Operation Instructions**

The operation procedures with the Bumper Ring Kit installed are the same as normal procedures.



*Some combinations of load, weight and airspeed may cause the bumper to bind against the airframe hell-hole and the sling load to rotate independently of the suspension system. This situation can lead to inadvertent loss of load. The outside surface of the bumper ring should be lubricated frequently to prevent seizure from occurring.*

This page intentionally left blank.

# *Section 4*

## **Maintenance**

### **Bumper Ring Maintenance**

*Daily Check:* Check the Bumper Ring in the area of the bolt holes for evidence of cracks and deterioration. Inspect the attaching hardware for security. If cracks are found replace the Bumper Ring.

*At overhaul of the cargo hook:* Same as daily check.

## Instructions for Returning Equipment to the Factory

If an Onboard Systems product must be returned to the factory for any reason (including returns, service, repairs, overhaul, etc) obtain an RMA number before shipping your return.



*An RMA number is required for all equipment returns.*

- To obtain an RMA, please use one of the listed methods.
  - Contact Technical Support by phone or e-mail ([Techhelp@OnboardSystems.com](mailto:Techhelp@OnboardSystems.com)).
  - Generate an RMA number at our website: <http://www.onboardsystems.com/rma.php>
- After you have obtained the RMA number, please be sure to:
  - Package the component carefully to ensure safe transit.
  - Write the RMA number on the outside of the box or on the mailing label.
  - Include the RMA number and reason for the return on your purchase or work order.
  - Include your name, address, phone and fax number and email (as applicable).
  - Return the components freight, cartage, insurance and customs prepaid to:

Onboard Systems  
13915 NW 3rd Court  
Vancouver, Washington 98685  
USA  
Phone: 360-546-3072



# Section 5

## STC SH5737NM

STC

United States of America  
Department of Transportation—Federal Aviation Administration  
**Supplemental Type Certificate**

*Number* SH5737NM

*This certificate, issued to* **Onboard Systems  
13915 NW 3rd Court  
Vancouver, WA 98685**

*certifies that the change in the type design for the following product with the limitations and conditions therefor as specified hereon meets the airworthiness requirements of Part \* of the \* Regulations.*

*Original Product—Type Certificate Number:* \*See attached Approved Model List (AML)  
*Make:* No. SH5737NM for list of approved rotorcraft  
*Model:* models and applicable airworthiness regulations

*Description of the Type Design Change:* Replacement of Bell magnesium cargo hook bumper and ring Part Nos. 204-072-901-1 or -3, and 204-072-905-3, respectively, with Onboard bumper ring kit No. 210-092-00. Fabrication of Onboard Systems Model 210-092-00 bumper ring kit in accordance with FAA approved Onboard Systems Master Drawing List No. 155-021-00, Revision 2, dated March 10, 1999, or later FAA approved revision; and installation of this system in accordance with FAA approved Onboard Systems Owner's Manual No. 120-033-01, Revision 3, dated July 10, 1996, or later FAA approved revision. Inspect cargo hook bumper rings in accordance with Section 4 of Onboard Systems Owner's Manual No. 120-033-01, Revision 3, dated July 10, 1996, or later approved revision.

*Limitations and Conditions:* Approval of this change in type design applies to only those Bell model rotorcraft listed on AML SH5737NM, amended May 5, 1999, or later FAA approved amendments, which were previously equipped with an FAA approved installation of Bell cargo hook suspension assembly, P/N 204-072-915-103, with either Breeze-Eastern Cargo Hook P/N SP7109-12 or SP7109-62. This approval should not be extended to rotorcraft of these models on which other previously approved modifications are incorporated unless it is determined by the installer that the relationship between this change and any of those other previously approved modifications, including changes in type design, will introduce no adverse effect upon the airworthiness of that rotorcraft.

(See Continuation Sheet - Page 3)

*This certificate and the supporting data which is the basis for approval shall remain in effect until surrendered, suspended, revoked, or a termination date is otherwise established by the Administrator of the Federal Aviation Administration.*

*Date of application:* July 1, 1992

*Date reissued:*

*Date of issuance:* July 27, 1992

*Date amended:* May 5, 1999/ January 13, 2003



*By direction of the Administrator*

*[Handwritten Signature]*  
(Signature)

Acting Manager, Seattle Aircraft  
Certification Office

(Title)

Any alteration of this certificate is punishable by a fine of not exceeding \$1,000, or imprisonment not exceeding 3 years, or both.

This certificate may be transferred in accordance with FAR 21.47.

FAA FORM 8110-2(10-88)

United States of America  
Department of Transportation—Federal Aviation Administration  
**Supplemental Type Certificate**  
(Continuation Sheet)

*Number* SH5737NM

**Onboard Systems**

Reissued:

Amended: May 5, 1999; January 13, 2003

*Limitations and Conditions continued:*

Rotorcraft modified in accordance with this STC must be operated in accordance with an FAA approved copy of the Rotorcraft Flight Manual Supplement, revised May 5, 1999, or later FAA approved revision. A copy of this Certificate, Continuation Sheet No. SH5737NM, AML No. SH5737NM, and FAA approved Rotorcraft Flight Manual Supplement must be maintained as part of the permanent records of the modified rotorcraft.

If the holder agrees to permit another person to use this certificate to alter the product, the holder shall give the other person written evidence of the permission.

- END -

---

*Any alteration of this certificate is punishable by a fine of not exceeding \$1,000, or imprisonment not exceeding 3 years, or both.*

*This certificate may be transferred in accordance with FAR 21.47.*

# Eligibility List

FAA APPROVED MODEL LIST (AML) SH5737NM FOR ONBOARD SYSTEMS									
ITEM	AIRPLANE MAKE	AIRPLANE MODEL	TYPE CERTIFICATE NUMBER	CERTIFICATION BASIS FOR ALTERATION	FAA SEALED DRAWING LIST		RFM SUPPLEMENT NO. AND DATE	AML AMENDED DATE	ISSUE DATE: JULY 27, 1992
					NUMBER	REV			
1	BELL	204B, 205A, 205A-1	H1SW	CAR 7, dated 8/1/58 and Amendments 7-1 through 7-4, Category B	155-021-00	2 3/10/99	SH5737NM 5/5/99	5/5/99	
2	BELL	212, 412, 412EP	H4SW	FAR Part 29, dated 2/1/65 and Amendments 29-1 and 29-2. See TCDS H4SW for additional information	155-021-00	2 3/10/99	SH5737NM 5/5/99	5/5/99	
3	GARLICK	UH-1H	H13WE	FAR 21.25 (a)(2)	155-021-00	2 3/10/99	SH5737NM 5/5/99	5/5/99	

FAA APPROVED: \_\_\_\_\_  
Acting Manager, Seattle Aircraft Certification Office

DATE: 5/5/99

Amended: May 5, 1999

# Flight Manual Supplement

Onboard Systems  
11212 NW St. Helens Road  
Portland, OR 97231  
STC No. SH5737NM

FAA APPROVED

ROTORCRAFT FLIGHT MANUAL SUPPLEMENT

FOR

BELL MODEL 204B, 205A, 205A-1, 212, 412 AND 412EP,  
AND GARLICK MODEL UH-1H HELICOPTERS

R/N \_\_\_\_\_ S/N \_\_\_\_\_

This supplement must be attached to the appropriate FAA approved Bell/Garlick Rotorcraft Flight Manual when an Onboard Systems Model 210-092-00 Cargo Hook bumper ring kit is installed in accordance with Supplemental Type Certificate (STC) No. SH5737NM. This information contained herein supplements or supersedes the basic manual only in those areas listed herein. For limitations, procedures, and performance information not contained in this supplement, consult the basic Rotorcraft Flight Manual.

I. LIMITATIONS

No change.

II. PROCEDURES: PRE-FLIGHT

Swing the Bell cargo hook suspension system and hook assembly to the full extremes to verify that it does not self trip. Consult the latest revision of the owner's manual for daily and 100 hour inspection procedures.


Check bumper ring for damage.

Verify proper function of both the mechanical and electrical release systems.

III. PERFORMANCE

No change.

FAA Approved:



Acting Manager, Seattle Aircraft  
Certification Office

Date: July 27, 1999

Rev.: May 5, 1999

# Section 6

## STA SH94-4

STA

DEPARTMENT OF TRANSPORT

# Supplemental Type Approval

Number: SH94-4

This approval is issued to:

Onboard Systems  
11212 N.W. Saint Helens Road  
Portland, Oregon  
97231 U.S.A.

Issue No.: 1

Approval Date: February 2, 1994

Issue Date: February 2, 1994

Responsible Region

Pacific

Aircraft/Engine Type or Model:

See FAA Approved Model List No. SH5737NM

Canadian Type Approval or Equivalent:

DOT H-86 and FAA H1SW

Description of Type Design Change:

Replacement of Bell Magnesium Cargo Hook Bumper & Ring P/N 204-072-901-1 or -3 and 204-072-905-3, respectively, with Onboard Bumper Ring Kit No. 210-092-00 Per FAA STC SH5737NM.

Installation/Operating Data,  
Required Equipment  
and Limitations:

Fabrication is in accordance with FAA Approved Onboard Systems Master Drawing List No. 155-021-00 dated July 10, 1992\*.

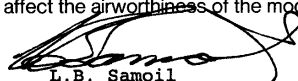
Installation is in accordance with FAA Approved Onboard Systems Owners Manual No. 120-033-00 dated July 10, 1992\*.

Inspect cargo hook bumper rings in accordance with Section 4 of Onboard Systems Owners Manual No. 120-033-00 dated July 10, 1992\*.

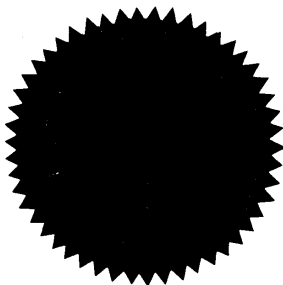
Required Equipment and Limitations: See Continuation Sheet

(\* or later FAA Approved Revision)

**Conditions:** This approval is only applicable to the type / model of aeronautical product specified therein. Prior to incorporating this modification, it shall be established that the interrelationship between this change and any other modification(s) incorporated will not adversely affect the airworthiness of the modified product.



L.B. Samoil  
Regional Airworthiness Engineer  
For Minister of Transport



26-0357 (10-88)

Canada

STA, continued

DEPARTMENT OF TRANSPORT

# Supplemental Type Approval

(Continuation Sheet)

Number: SH94-4

Issue No.: 1

Approval Date: February 2, 1994

Issue Date: February 2, 1994

NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE SUPPLEMENTAL TYPE APPROVAL REFERRED THEREIN.

Required Equipment:

1. Aircraft must have been previously equipped with an FAA Approved installation of Bell cargo hook suspension assembly P/N 204-072-915-103 and either Breeze-Eastern Cargo Hook P/N SP7109-12 or SP7109-62.
2. FAA Approved copy of Onboard Systems Rotorcraft Flight Manual Supplement dated July 27, 1992, or later FAA Approved revision.

Limitation:

Approval of this change in type design applies to only those Bell model rotorcraft listed on FAA Approved Model List No. SH5737NM dated July 27, 1992, or later FAA approved revision.

PAGE 2 OF 2

26-0375 (01-90)