MECHANICAL SPECIALTIES, INC.
1000 85th Ave. SE
Olympia, WA 98501

Title: Instructions for Continued Airworthiness
of
MECHANICAL SPECIALTIES MODEL UH606
CARGO SUSPENSION ASSEMBLY

Document Number: UH606-100-ICAW

Rev	Date	Description of Revision	By	Approval
A	11/09/08	Initial Release	D. Hastings	

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Document Change Log

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i	A
ii	A
iii	A
0.1	A
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5.1	A
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Chapter 0 Introduction

0.1 Purpose

The purpose of this document is to provide maintenance instructions for the Mechanical Specialties, Inc Cargo Suspension Assembly.

0.2 Scope

The scope of this document is limited to the components associated with the installation of Mechanical Specialties, Inc Cargo Suspension Assembly and Engine Monitoring System when installed.

This data is limited to installation in the following helicopters as listed on the STC AML:
UH1-H (See STC AML)
Bell 204, 205A, 212, 412

0.3 Units of Measure

Units are in inches, pounds and inch-pounds unless otherwise specified.

0.4 Definitions

Arm -	Distance from the aircraft datum to unit C.G.
Caution -	Highlights instructions that if ignored could damage equipment.
Circuit Breaker -	A device used to remove power from a circuit when a rated current is exceeded. These devices cannot be reset until the fault is removed.
Warning -	Highlights instruction that if ignored could cause injury, loss of life or loss of aircraft.

0.5 Abbreviations

C.B.	Circuit Breaker
C.G.	Center of Gravity

0.6 Revision Distribution

It is the responsibility of the operator of the modified aircraft to advise Mechanical Specialties, Inc. of any address change. Mechanical Specialties, Inc. will provide, by mail, all operators of this system with revisions to this document as they occur.

0.7 System Description

Mechanical Specialties system consists of these major components:

- The Mechanical Specialties Model 606 Cargo Hook.
- Cargo Hook Suspension Assembly
- Optional load cell link.

The new cargo suspension assembly is designed to be a direct replacement of the Bell rigid pole and yoke assembly and will include the previously FAA approved cargo hook for the Bell 204, 205, 212, and 412 manufactured by Mechanical Specialties (FAA STC SR00632SE) Model #606.

0.8 Reference Documents / Publications

No additional manuals will be supplied:

Chapter 4 Airworthiness Limitation Section

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

There are no airworthiness limitations with the installation of Mechanical Specialties, Inc. Cargo Suspension Assembly installation.

Chapter 5 Inspection Requirements and Overhaul Schedule

5.0 Inspections

For continued airworthiness of the Mechanical Specialties' Cargo Suspension Assembly the following inspections are required.

First 100 Hr	100 hr / Annual	500 Hr	Special (See notes)	Inspection
X		X	[1]	**5.0.1 Inspection (General Condition)** Detailed structural inspection involves inspection for cracks, corrosion or any deformation in system associated structure. Dents of up to Ø 0.5" are acceptable if there is no cracking and they are not within 1" radius of any fastener. If cracks or corrosion are detected, contact Mechanical Specialties, Inc. for a recommended repair. No cable (release nor main) may have more than three broken or nicked strands. Main lift cables must be replaced as matched pairs only. Visually inspect all exposed fasteners for proper installation. Inspect all external components for rigidity of attachment.
X		X	[1]	**5.0.2 Electrical System (General Condition)** Visually inspect the entire system for disconnected wiring, loose connections, abraded wires, clamps or secondary supports that are loose or missing, and the general condition of all control devices (switches, circuit breakers). Inspect cannon plugs for bent or missing pins, cracked insulating materials, metal shavings, or corroded contacts.
X		X		**5.0.3 Release cable (General Condition)** Visually inspect release cable system for normal operations, and ensure proper function.

[1] Perform inspection on condition, after hard landing, lighting strike, emergency release or when the item has been in storage for more than 120 days.

5.1 Component Overhaul

No component overhaul required for this STC

5.2 Pre Flight Check List

None

5.3 Ground Run Check List

None

5.4 In-Flight Check List

None

5.5 Post Flight Check List

None

Chapter 6 Component Installation and Replacement

6.1 Removal of UH606 assembly

a) Disconnect and stow electrical plug to receptacle on model UH606 cargo suspension assembly.

b) Disconnect manual release control cable (Figure 1-1) remove and discard cotter pin MS24665-155.

c) Remove bolt NASI308-28D. Washer AN960-CB16. Nut AN3l0-8 and cotter pin MS24665-302 that support the cargo suspension system in cargo hook well from fitting 204-030-841 (Figure 1-1) on under side of lateral lift link beam.

d) Secure end of rotorcraft manual release control cable.

e) Remove cargo suspension system from cargo hook well.

f) All removed fasteners, and components should be stored in a secure location and be labeled by part number, aircraft number. Fasteners should be bagged and then secured to the location or component that they were removed from.

6.2 Installation of UH606 assembly

a) Install Mechanical Specialties, cargo suspension assembly UH606 as follows, (See figure 1-1):

b) Assemble the cargo suspension system P/N 205-60-100 to the cargo hook Model 606, if not already assembled.

c) Position cargo suspension Model 606 in cargo hook well and into fitting 204-030-841 (Figure 1-1) on under side of lateral lift link beam. Secure assembly to fitting with bolt NASI308-28D. Washer AN960-CB16. Nut AN3l0-8 and cotter pin MS24665-302.

d) Connect control cable supplied to existing manual release control cable (Figure 1-1) using cotter pin MS24665-155.

e) Adjust outer housing of control assembly to remove slack at connector (Figure 1-1) and allow 0.10 inch over travel at control lever as shown in detail A, Figure 1-1.

f) Check to make sure lever arm is parallel to yoke-hook main bolt plane.

g) Check control assembly for slack enough to allow full swing on suspension assembly.

h) Check location of cable end to lever on cargo hook assembly to be 0.12 to 0.18 inch over travel as shown in detail A, Figure 1-1. (If adjustment is made on stop bolt on lever arm recheck housing as stated in step e above.)

i) Connect stowed electrical plug to receptacle on cargo suspension assembly.

6.3 Removal of 205-60-100 cargo suspension assembly

a) Disconnect and stow electrical plug to receptacle on UH606 cargo suspension assembly.

b) Disconnect manual release control cable (Figure 1-1) remove and discard cotter pin MS24665-155.

c) Remove bolt NASI308-28D. Washer AN960-CB16. Nut AN3l0-8 and cotter pin MS24665-302 that support the cargo suspension system in cargo hook well from fitting 204-030-841 (Figure 1-1) on under side of lateral lift link beam.

d) Secure end of rotorcraft manual release control cable.

e) Remove UH606 cargo suspension system from cargo hook well.

f) On a workbench remove the model 606 cargo hook from the cargo suspension assembly P/N 205-60-100

g) All removed fasteners, components or equipment should be stored in a secure location and be labeled by part number, aircraft number and any handling precautions i.e. static sensitive. Fasteners should be bagged and then secured to the location or equipment that they were removed from.

6.2 Installation of 205-60-100 cargo suspension assembly

a) Install Mechanical Specialties, cargo suspension assembly 205-60-100 as follows, (See figure 1-1):

b) Position cargo suspension in cargo hook well and into fitting 204-030-841 (Figure 1-1) on under side of lateral lift link beam. Secure assembly to fitting with bolt NASI308-28D. Washer AN960-CB16. Nut AN3l0-8 and cotter pin MS24665-302.

c) Connect control cable supplied to existing manual release control cable (Figure 1-1) using cotter pin MS24665-155.

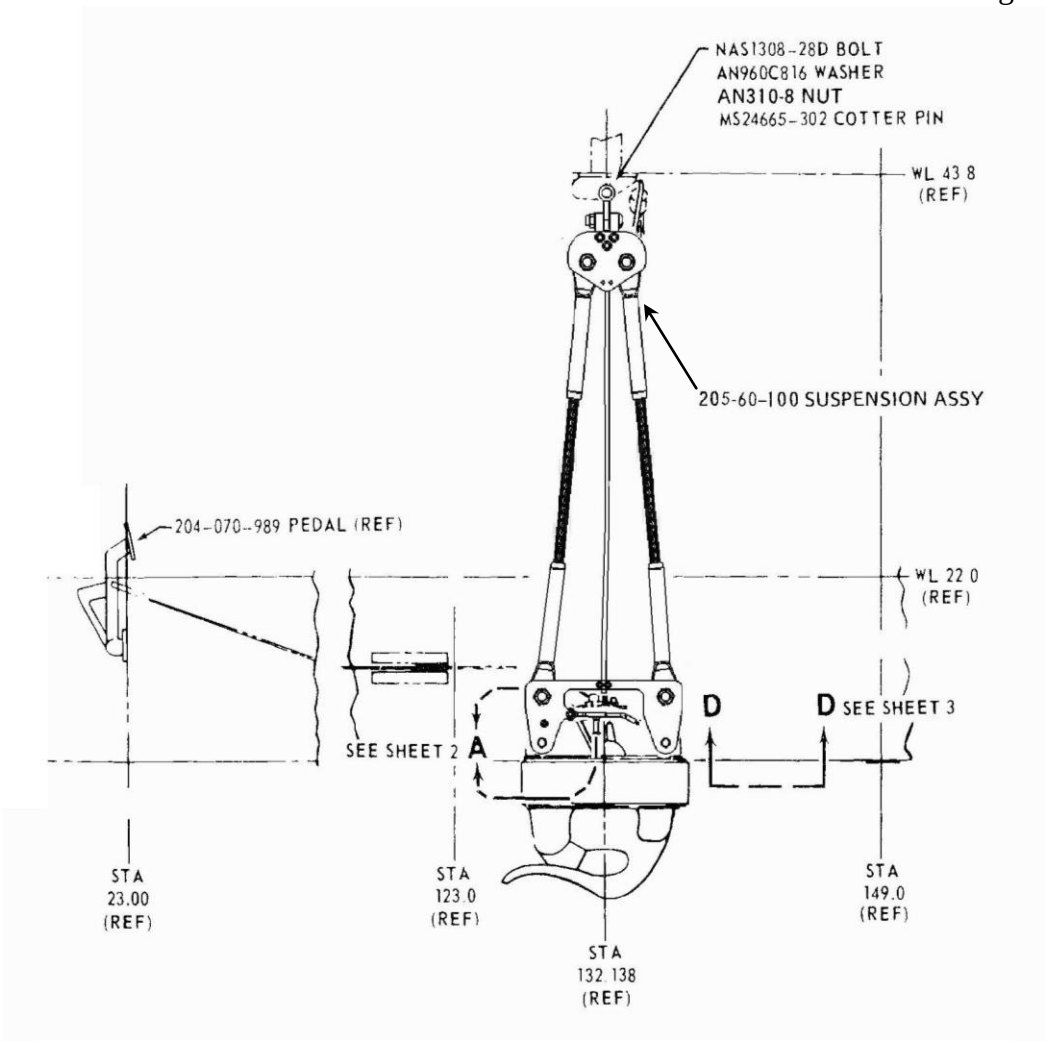
d) Adjust outer housing of control assembly to remove slack at connector (Figure 1-1) and allow 0.10 inch over travel at control lever as shown in detail A, Figure 1-1.

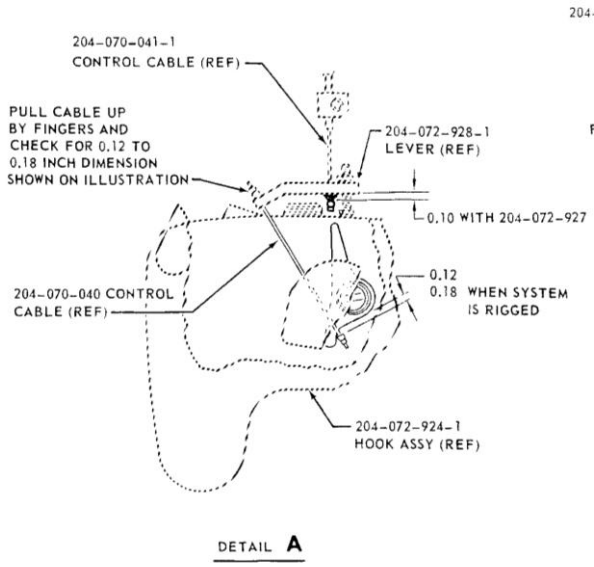
e) Check to make sure lever arm is parallel to yoke-hook main bolt plane.

f) Check control assembly for slack enough to allow full swing on suspension assembly.

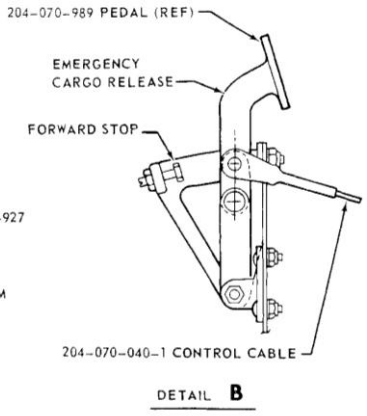
g) Check location of cable end to lever on cargo hook assembly to be 0.12 to 0.18 inch over travel as shown in detail A, Figure 1-1. (If adjustment is made on stop bolt on lever arm recheck housing as stated in step d above.)

h) Connect stowed electrical plug to receptacle on cargo suspension assembly.





DETAIL **A**



DETAIL **B**

Figure 1-1

Chapter 8 Completion of Aircraft Weight and Balance Paperwork

8.1 Weight and Balance Calculations

The new empty weight and corresponding C.G. location must be determined for the modified rotorcraft and entered in the rotorcraft permanent records.

The entire aircraft must be weighed; the new weight and arm must be recorded in the helicopter records.

When the aircraft is to be weighed, see the applicable manufacturer's service information for procedures. If the calculations are to be performed, use the following procedure.

The weight and arm of the installations are given above.

Using the empty weight from a current weight and balance form, the new C.G. is given by the following calculation:

New Empty Weight = Previous Aircraft Empty Weight - Items Removed + Items Added

Moment (For each item) = Weight of item * Distance from aircraft datum

Total Moment = Sum of all moments. (Moments for items removed will be negative)

$$\text{New C.G.} = \frac{\text{Total Moment}}{\text{Total Weight}}$$

Similar calculations are done for the lateral C.G.

Chapter 12 Servicing

12.1 Servicing

No servicing is required other than that described as part of the required inspection in chapter 5.

12.2 Lubricating Information

No lubrication is required.

12.3 Equipment required for servicing

No special equipment is need for servicing the Cargo suspension assembly system.

12.4 Consumable Materials

There are no consumable materials

12.5 Cleaning

The cargo suspension assembly should be wiped clean with a soft rag damped with light oil if needed.

Chapter 25 Equipment and Furnishing

25.1 Interface Information

The Cargo suspension assembly structurally interfaces with the lateral lift link beam of the rotorcraft.

25.2 Troubleshooting

NOTE: Contact Mechanical Specialties, Inc. for failures not listed in the following sections. See chapter 6 for component removal.

25.2.1 Cargo suspension assembly

Trouble	Probable Cause	Remedy
Broken wires within a lay of cable	abuse or manufacturing error	Replace cable(s) if than three or more wires are broken is any one lay of cable.
Corrosion	environment or reaction	Remove by cleaning, if unable replace as needed.

Chapter 51 Structure/Electrical Standard Practices

51.1 Torque Limits

Table 51.1 gives torque limits for steel fasteners referred to in this report.

Table 51.1 Screw and Bolt Torque (in-lb)

Thread	Tension Nut		Shear Nut	
Size	Min	Max	Min	Max
8-32	12	15	7	9
10-32	20	25	12	15
1/4-28	50	70	30	40
5/16-24	100	140	60	85
3/8-24	160	190	95	110
5/8-18	1100	1300	600	780

51.2 Component Storage

All removed fasteners, components or equipment should be stored in a secure location and be labeled by part number, aircraft number and any handling precautions i.e. static sensitive. Fasteners should be bagged and then secured to the location or equipment that they were removed from.

51.2 Repair

No repair to any components is permissible without Mechanical Specialties' written approval. Substitution of components is permissible by replacing with a serviceable Mechanical Specialties component.

51.2 Fasteners

All fasteners are defined on the applicable assembly and installation drawings. Fasteners can be identified by referring to FAA AC43.13-1B Tables 7-10 to 7-15.

Discard any fastener that shows signs of wear and replace with new.

Discard any locking washer other than split lock washers after each use and replace with new.

Discard any self-locking nut that does not have an effective self-locking feature remaining.

United States of America

Department of Transportation - Federal Aviation Administration

Supplemental Type Certificate

Number SR01946SE

This certificate, issued to

Mechanical Specialties, LLC
1000 85th Ave. SE
Olympia, WA 98501

*certifies that the change in the type design for the following product with the limitations and conditions therefore 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. SR01946SE for list of approved rotorcraft
Model: Models and applicable airworthiness regulations

Description of the Type Design Change: Installation of the Mechanical Specialties, LLC Model Number (No.) UH606 cargo hook and suspension assembly in accordance with Mechanical Specialties, LLC Document No. UH606-100-ICAW, paragraph 6, Revision A, dated November 9, 2008, or later Federal Aviation Administration (FAA) approved revision. Manufactured in accordance with Mechanical Specialties, LLC Master Document List No. MDL-205-60-100, Revision C, dated April 12, 2012, or later FAA-approved revisions. Maintained in accordance with Mechanical Specialties, LLC Document No. UH606-100-ICAW, Revision A, dated November 9, 2008, or later FAA-approved revision.

Limitations and Conditions: Approval of this change in type design applies to only those rotorcraft listed on AML SR01946SE, reissued April 19, 2012, or later FAA-approved revision. 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. Model UH-1H rotorcraft modified in accordance with this STC must be operated in accordance with a copy of Mechanical Specialties, LLC Rotorcraft Flight Manual Supplement (RFMS) No. MSI-FMS-UH606-01, dated March 30, 2012, or later FAA-approved revision. A copy of this certificate, AML SR01946SE, the FAA-approved RFMS, and the Instructions for Continued Airworthiness must be maintained as part of the permanent records for 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 that permission.

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: June 28, 2008

Date reissued: April 19, 2012

Date of issuance: January 6, 2009

Date amended: August 26, 2009

By direction of the Administrator

(Signature)

for
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.

FEDERAL AVIATION ADMINISTRATION (FAA) APPROVED MODEL LIST (AML) SR01946SE
FOR
INSTALLATION OF A CARGO HOOK AND SUSPENSION ASSEMBLY

ISSUE DATE: August 16, 2009

ITEM	ROTORCRAFT MAKE	ROTORCRAFT MODEL	ORIGINAL TC NUMBER	CERTIFICATION BASIS FOR ALTERATION	FAA APPROVED ROTORCRAFT FLIGHT MANUAL SUPPLEMENT		FAA APPROVED MASTER DRAWING LIST		AML REV DATE
					Number	Revision*	Drawing	Revision*	
1.	Northwest Rotorcraft, LLC	UH-1H	R00005SE	FAR21.15 (a)(2)	MSI-FMS-UH606-01 dated March 30, 2012	IR	MDL-205-60-100 dated April 12, 2012	C	4/19/12
2.	Rotorcraft Development Corporation	UH-1H	H13WE	FAR21.15 (a)(2)	MSI-FMS-UH606-01 dated March 30, 2012	IR	MDL-205-60-100 dated April 12, 2012	C	4/19/12
3.	Overseas Aircraft Support, Inc.	UH-1H	H7SO	FAR21.15 (a)(2)	MSI-FMS-UH606-01 dated March 30, 2012	IR	MDL-205-60-100 dated April 12, 2012	C	4/19/12
4.	Arrow Falcon Exporters, Inc.	UH-1H	R00007DE	FAR21.15 (a)(2)	MSI-FMS-UH606-01 dated March 30, 2012	IR	MDL-205-60-100 dated April 12, 2012	C	4/19/12

* Or later FAA Approved Revision

FAA Approved: _____
for Acting Manager, Seattle Aircraft Certification Office

AMENDED: April 19, 2012
REISSUED: