

INSTALLATION MANUAL

Aero Pacific Document Number 407BLK01-08

AERO PACIFIC MODEL AP407BLK01 TWO INCH SPACER BLOCK KIT

Manual Part Number AP407BLK01-MM

12/10/99 Rev. B

APPLICABLE TO BELL HELICOPTER / TEXTRON
MODEL 407

MANUFACTURED UNDER TYPE CERTIFICATE H2SW

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LIST OF EFFECTIVE PAGES

LIST OF REVISIONS

Revision "New" (Initial Release)	6/17/98
Revision A	10/25/99
Revision B	12/10/99

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A. INTRODUCTION

1. GENERAL

This Installation Manual contains information describing the initial installation of the Model AP407BLK01 Two Inch Spacer Block Kit and modification to the aircraft. Included in the Kit is all hardware necessary to install the Two Inch Spacer Block Kit, Installation instructions, Weight and Balance Data, and Torque Requirements. Also included is Instructions for Continued Airworthiness which contains further information including but not limited to Maintenance Procedures, Inspection Procedures, Removal and Reinstallation Procedures, and Replacement of an Individual Part.

2. DESCRIPTION OF USE

The purpose of this installation is to increase the clearance between the helicopter fuselage bottom and the ground. Generally, this is to maintain adequate ground clearance for ancillary equipment such as antennas, searchlights, and cameras mounted on the belly or near the bottom of the helicopter. This is accomplished by placing appropriately shaped two inch thick aluminum spacer blocks between the aircraft fuselage bottom and the upper forward and aft skid crosstube mount fittings on both the left and right sides at the four appropriate points of attachment. These spacer blocks are through-bolted in place and become a solid fixed part of the helicopter landing gear.

3. APPLICABILITY

This installation is applicable to the Bell Helicopter/Textron Rotor Wing aircraft Model 407 only.

4. EXPLANATION OF ABBREVIATIONS

p/n=part number #=number (as in number 12 drill...#12) BHT=Bell Helicopter/Textron
(in. or ")=inch (lbs.)=pounds U.S. (in.-lb.)=inch-pounds (deg.)=degrees
(p.s.i.)=pounds per square inch STC=Supplemental Type Certificate MEK=Methyl Ethyl Keytone

5. MEASUREMENTS

All measurements are in inches, pounds U.S., inch-pounds, or degrees.

6. INSTALLATION TIME

Estimated install time is 14 man-hours including painting.

7. SPECIAL TOOLS

In addition to general usage mechanics tools, the following tools will be required:

- a. Torque wrench capable of values from 15 to 150 inch-pounds torque.
- b. Small spray gun and minimum 50 p.s.i. compressed air source.

8. ADDITIONAL INFORMATION

This manual contains instructions for installation of the Spacer Block Kit only. **Additional information may be found in the Aircraft Manufacturers Handbook of Maintenance Instructions.**

9. CONSUMABLE PRODUCTS

The following product must be purchased or made available to complete installation: **Note: the Consumable Products Manufacturers Instructions for Use and Container Label contain information concerning correct application and safe use of their Product.**

PROSEAL 890B-2 Sealant One Pint Kit, Available from: Courtaulds Aerospace Inc.
5454 San Fernando Road
Glendale, CA. 91203

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10. WARNINGS, CAUTIONS, OR NOTES

Certain procedures carried out during the course of completing instructions contained in this manual could cause unnecessary damage to parts of the helicopter, work resulting in unacceptable results, or harm to the installer. **Warnings** are used to help prevent major damage to the aircraft or harm to the installer. **Cautions** are used to help prevent minor damage to the aircraft or unacceptable work. **Notes** are informative in nature and generally contain recommendations or suggestions that will result in a successful installation. Underlining and CAPITAL LETTERS are used to bring specific words to your attention.

11. WEIGHT AND BALANCE DATA, EQUIPMENT LOCATION

Weight and balance data is detailed on Drawing W of this manual. You will be required to prepare and have available in the aircraft a weight and balance calculation expressing the results of this installation.

12. CROSS REFERENCE OF PARTS

All parts and fastener hardware cross reference by item number to part number on all drawings and the Parts List and include quantities. Refer to Drawings for correct part location and usage.

B. INSTALLATION INSTRUCTIONS (Refer as necessary to Drawings A and B for Assembly, Drawing T for Torque Requirements, and Drawing W for Weight and Balance Information.)

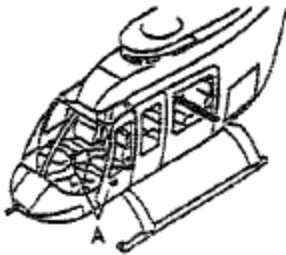
1. Take weight of helicopter off skids utilizing (3) jack points or hoist. **Warning: The Aircraft Manufacturers Handbook of Maintenance Instructions contains information concerning jacking and/or lifting.**
2. Remove bolts(item 11) on left and right aft support assembly(item 12). It is not necessary to remove forward support assembly (item 4).
3. Loosen and remove all bolts attaching forward left and right fittings(item 8) to cabin belly. Remove left and right forward fittings(item 8) from cabin belly.
4. Loosen and remove all bolts attaching aft left and right aft fittings(item 21) to cabin belly. Remove left and right aft fittings(item 21) from cabin belly.
5. Raise helicopter on jacks and move skids as necessary to allow thorough cleaning of all residual sealant from belly and fittings at attachment points. **Warning: The Aircraft Manufacturers Handbook of Maintenance Instructions contains information concerning jacking and/or lifting.**
6. Save and clean all flat washers(item 24), as they are special Bell parts, and will be reused for installation. Extra aluminum flat washers are provided for bolt length spacing should this become necessary.
7. Do to uneven height of Bell rear casting fittings(item 21) in the area of the six round contact pads on the top side, it is necessary to sand these pads flat to a uniform height. Refer to and complete instructions in accompanying Aero Pacific Flat Surface Sanding Process AP008.
8. Clean sanded surfaces on aft fittings(item 21) and apply conversion coating as per instructions in accompanying Aero Pacific Surface Preparation and Conversion Coating for Aluminum Process AP006.
9. Prime all four spacer blocks in their entirety and the top surface of the aft fittings(item 21) as per instructions in accompanying Aero Pacific Priming and Painting Process AP007.
10. Mask off any areas where you do not want sealant. Mix sealant as per manufacturers instructions. Liberally apply sealant to all upper and lower surfaces of contact between spacer blocks, fore and aft fittings, and belly at all points of attachment. Refer to Aero Pacific Sealant Application Process AP010.

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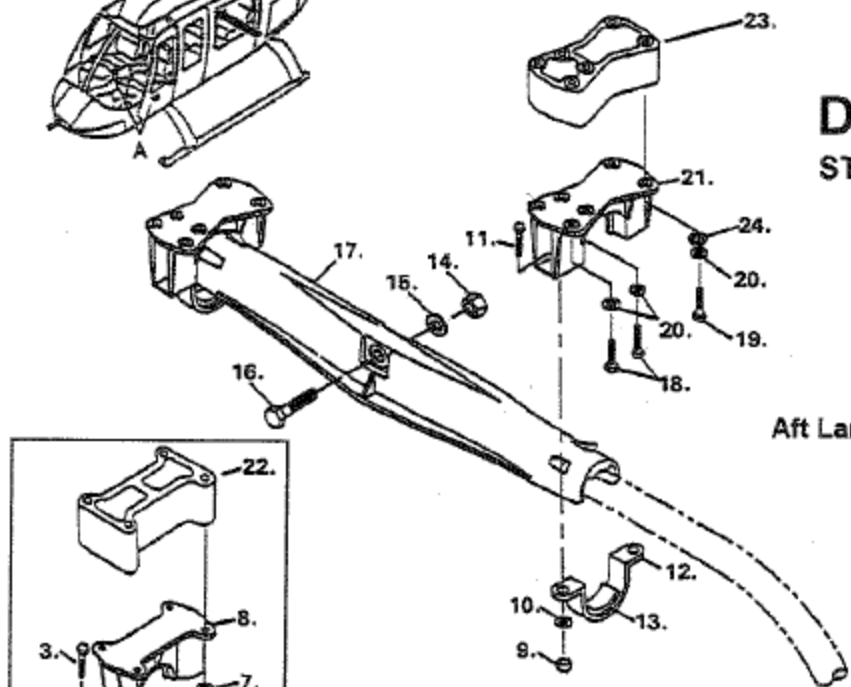
11. Insert supplied NAS6604-(xx) bolts in correct locations and re-use Bell special aluminum washers. Place chamfer in washer center hole toward bolt head. **Caution: Be sure spacer blocks are installed as indicated in Assembly Drawing A. Aft spacer blocks part number AP407BLK-02 must be installed with contact pads up.** Forward lift blocks part number AP407BLK-01 are symmetrical. They may be installed in any orientation, top-to-bottom, for-to-aft.
12. Torque NAS6604-(xx) bolts to specifications found on Drawing T in this Installation Manual.
13. Position aft fittings on aft skid cross-tube and install support assembly(item12) using bolts(item 11). **Note: The Aircraft Manufacturers Handbook of Maintenance Instructions contains information concerning specific bolt torque procedures and values.** Torque bolts to specification.
14. Clean all excess Sealant from around fittings. Leave a bead of Sealant around all fitting mating surfaces and helicopter belly to protect from moisture.
15. The squat switch contact plate and attachment Adel clamp must be repositioned. Refer to Assembly Drawing B. Remove Adel clamp around forward skid cross-tube.
 16. Re-install such that tabs of Adel clamp are facing forward at top of cross- tube (instead of bottom as original). Re-assemble contact plate such that it is on top side of Adel clamp tabs. Re-attach with original hardware, and position contact plate in a level horizontal position and in alignment with shaft on squat switch. ProSeal Sealant should be used under and around Adel clamp.
17. Adjust squat switch. **Note: The Aircraft Manufacturers Handbook Of Maintenance Instructions contains information concerning rigging the Squat Switch.** Clean excess sealant from around Adel clamp. Raise/lower helicopter using jacks to set squat switch adjustment. **Warning: The Aircraft Manufacturers Handbook of Maintenance Instructions contains information concerning jacking and/or lifting.** Allow helicopter to sit for at least 24 hours for sealant to cure before use. Paint all spacer blocks as per instructions in accompanying Aero Pacific Priming and Painting Process AP007, color as desired.
18. Complete weight and balance data, and amend weight and balance records and equipment list as necessary to reflect this installation. Refer to Drawing W as necessary.

END

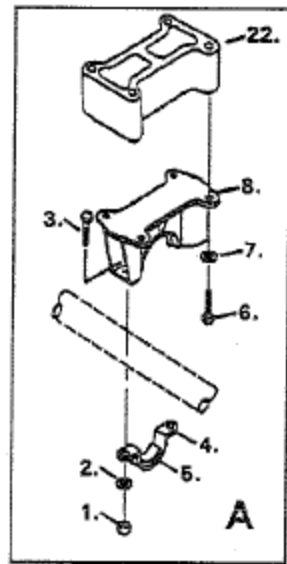


DRAWING A

STRUCTURAL ASSEMBLY



Aft Landing Gear



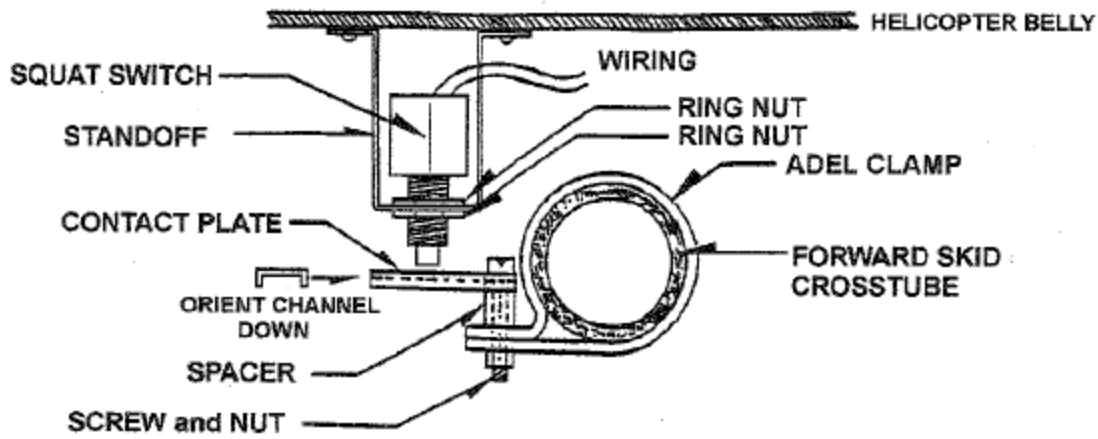
Forward Landing gear

ITEM	DESCRIPTION / PART NUMBER	QTY. per ASSY.
	Airframe assembly 407-030-00	(reference only)
1.	Nut MS21042L5	4
2.	Washer NAS1149F0563P	4
3.	Bolt NAS6205-11	4
4.	Strap Assy. 206-052-105-035	2
5.	Cushion, Crosstube 206-052-105-035	1
* 6.	Bolt NAS6604-38	8
7.	Washer 140-007-16A17B4	8
8.	Fitting, Fwd. 407-030-111-101	2
9.	Nut MS21042L6	4
10.	Washer NAS1149F0663P	4
11.	Bolt NAS6206-10	4
12.	Support Assy. 400-052-015-101	2
13.	Cushion, Aft 400-052-015-105	1
14.	Nut MS14345L6	1
15.	Washer 140-009D25T48	1
16.	Bolt 400-052-009-101	1
17.	Beam Assy	(reference only)
* 18.	Bolt NAS6604-48	8
* 19.	Bolt NAS6604-48	4
20.	Washer NAS1149F0463J	12
21.	Fitting, Aft 407-030-112-101	2
* 22.	Spacer Block, Forward AP407BLK01-01	2
* 23.	Spacer Block, Aft AP407BLK01-02	2
* 24.	Washer NAS1149D0463K	(extra, as necessary)

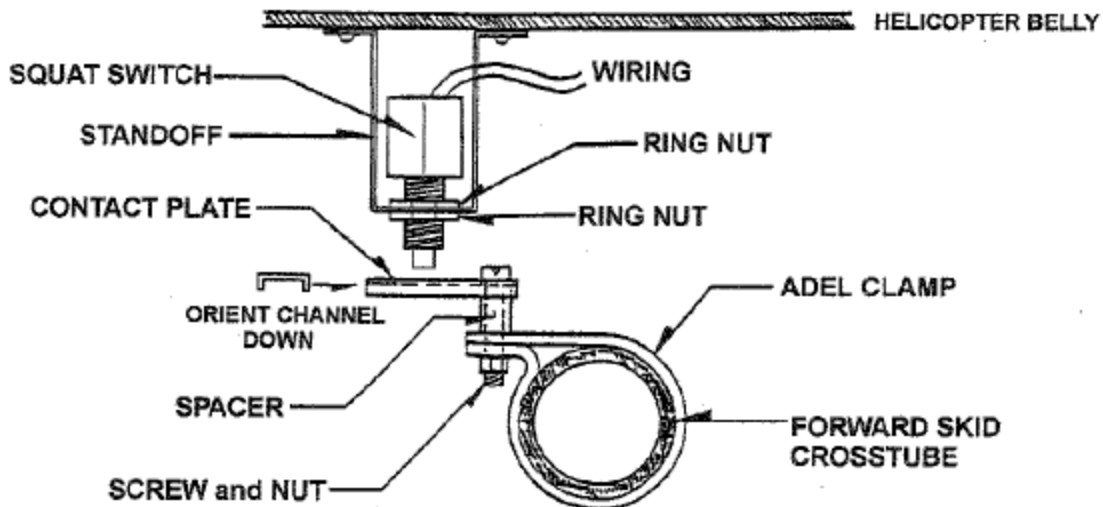
Parts marked with asterisk (*) included in kit.

DRAWING B SQUAT SWITCH MODIFICATION

ORIGINAL CONFIGURATION



MODIFIED CONFIGURATION



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DRAWING T

FASTENER TORQUE REQUIREMENT PROCEDURE

The following torque limits are stipulated for initial installation, repairs, and subsequent removal and/or reinstallation of the AP407UM01 mount or any parts thereof. All torque values are stated in inch-pounds. The importance of correct application of torque cannot be overemphasized. Under-torque can result in unnecessary wear of nuts and bolts as well as to the parts they are holding. Over-torque can be equally damaging because of failure of a bolt or nut from over stressing the threaded areas, resulting in structural failure.

1. Always use a calibrated torque wrench.
2. If possible, always use torque wrench on nut end of fastener assembly.
3. Do not lubricate threads prior to torque application. Threads must be clean and dry on both the bolt and the nut. Apply a smooth even pull when applying torque pressure. If chattering or jerking motion occurs during final torque, back off and re-torque.
4. On self locking nuts, run nut down near contact with the washer or bearing surface and check "friction drag torque" required to turn the nut (or bolt if going into hidden self-locking nut plate). If "friction drag torque" is less than the minimum listed below, the nut (or hidden self locking nut plate) is not to be used. Minimum allowable "friction drag torque" values are listed by size below. Bolts and Nuts should be torqued to the values listed below. These values include "friction drag torque". Apply recommended torque.
5. Re-use of self locking nuts is not recommended. Minimum "friction drag torque" values are listed below. Under no circumstance should any nut or bolt combination testing a friction drag torque less than the limits expressed below be used for flight. Nuts or bolts exhibiting corrosion which has penetrated the outer plated coating should be replaced.

BOLTS

ITEM	PART NUMBER	DESCRIPTION	(inch-pounds) TORQUE VALUE
6.	NAS6604-38	BOLT	95 +/-2
18.	NAS6604-48	BOLT	95 +/-2
19.	NAS6604-46	BOLT	95 +/-2

MINIMUM FRICTION

ITEM	PART NUMBER	DESCRIPTION	MINIMUM DRAG TORQUE
6.	NAS6604-38	BOLT (INTO HIDDEN NUT-PLATE)	10
18.	NAS6604-48	BOLT (INTO HIDDEN NUT-PLATE)	10
19.	NAS6604-46	BOLT (INTO HIDDEN NUT-PLATE)	10

BOLT HEAD MARKINGS

Specifications require that most bolts which are made to conform with standard drawings be identified by a specific marking on the bolt head. Shown here are the markings of sample bolts. The initials "RM" and "RBM" identify the manufacturer of the bolt.

AN3-(length), AN4-(length), AN5-(length)

NAS6604-(length)



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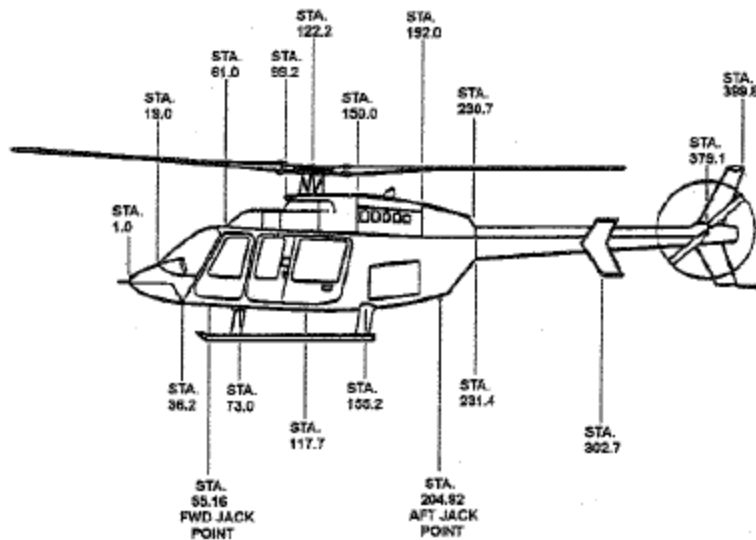
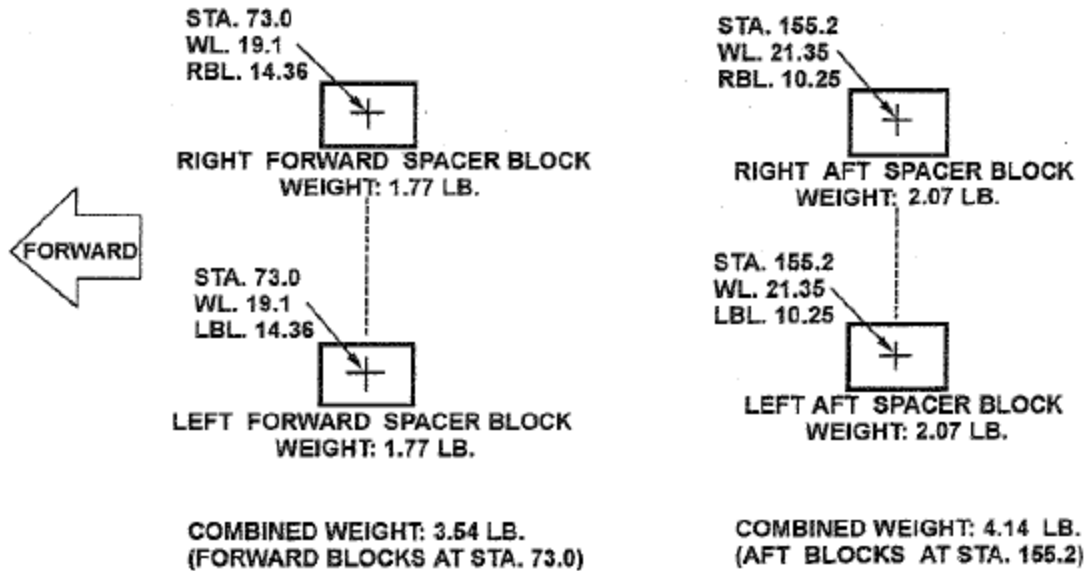
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DRAWING W WEIGHT AND BALANCE DATA

Utilize Data Below To Amend Weight And Balance Records



NOTE

Reference datum line, (fuselage station 0), is located 55.16 inches forward of the forward jack point centerline.

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

Aero Pacific Document Number 407BLK01-02

AERO PACIFIC AP407BLK01 TWO INCH SPACER BLOCK KIT

Manual Part Number 407BLK01-ICA

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**APPLICABLE TO BELL HELICOPTER / TEXTRON
MODEL 407**

Manufactured under Type Certificate H2SW

Aero Pacific
2016 Palomar Airport Road
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Carlsbad, CA. 92008
(760) 931-0022

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS
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LIST OF REVISIONS

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These Instructions for Continued Airworthiness (ICA) except for the Airworthiness Limitations Section have been reviewed and found to comply with the applicable requirements of Appendix A to Federal Aviation Regulation Part 25.

FAA Acceptance *Manuel Lopez* Date *01/2/00*
Fort Worth Aircraft Evaluation Group

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SECTION A

INTRODUCTION

1. SECTION DIVIDER
2. GENERAL
3. DESCRIPTION OF USE
4. APPLICABILITY
5. SPECIAL REQUIREMENTS
6. OPERATIONAL LIMITATIONS
7. EXPLANATION OF ABBREVIATIONS
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A. INTRODUCTION

2. GENERAL This ICA Manual Is For Post Initial Installation Use Only

This Manual contains maintenance and inspection information as well as other information describing requirements and actions necessary to continue the airworthy condition of the AP407BLK01 TWO INCH SPACER BLOCK KIT. Changes in this information will be provided to owners by Aero Pacific Form QC015, Supplemental Type Certificate Notification of Revision. Original owner address is obtained from our database derived from our Supplemental Type Certificate records document "Letter of Conditional Approval for Use" which requires name, address, model, serial number, and registration information. Subsequent owners are requested to provide Aero Pacific with their address to keep our data base current and allow information to reach the correct party.

3. DESCRIPTION OF USE

The purpose of this installation is to increase the clearance between the helicopter fuselage bottom and the ground. Generally, this is to maintain adequate ground clearance for ancillary equipment such as antennas, searchlights, and cameras mounted on the belly or near the bottom of the helicopter. This is accomplished by placing appropriately shaped two inch thick aluminum spacer blocks between the aircraft fuselage bottom and the upper forward and aft skid cross-tube mount fittings on both the left and right sides at the four appropriate points of attachment. These spacer blocks are through-bolted in place and become a solid fixed part of the helicopter landing gear.

4. APPLICABILITY

This installation is applicable to the following Rotor Wing Aircraft Model only: **BHT Model 407**

5. SPECIAL REQUIREMENTS

None.

6. OPERATIONAL LIMITATIONS

None.

7. EXPLANATION OF ABBREVIATIONS

p/n = Part Number # = number (as in number 12 drill....#12)
BHT = Bell Helicopter / Textron representing the particular Type Certificate holder at the time
(in. or ") = inch (lbs.) = pounds U.S. (in.-lb.) = inch-pounds (deg.) = degrees
(p.s.i.) = pounds per square inch
(STC) = Supplemental Type Certificate M.E.K. = Methyl Ethyl Keytone, a solvent

8. MEASUREMENTS

All measurements are in inches, pounds U.S., inch-pounds, or degrees.

9. SPECIAL TOOLS

Maintenance and Inspection may require several special tools in addition to standard mechanics tools. They are:

1. Torque wrench capable of values from 15 to 200 inch-pounds torque.
2. Small spray gun and minimum 50 p.s.i. compressed air source.
3. Small plastic bristle brush.

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10. ADDITIONAL INFORMATION

This manual contains instructions specific to the re-installation or removal of parts supplied in this Kit. **Additional Information is contained in the Aircraft Manufacturers Handbook of Maintenance Instructions.**

11. WARNINGS, CAUTIONS, OR NOTES

Certain procedures carried out during the course of completing instructions contained in this manual could cause unnecessary damage to parts of the helicopter, work resulting in unacceptable results, or harm to the installer. **Warnings** are used to help prevent major damage to the aircraft or harm to the installer. **Cautions** are used to help prevent minor damage to the aircraft or unacceptable work. **Notes** are informative in nature and generally contain recommendations or suggestions that will result in a successful installation. Underlining and CAPITAL LETTERS are used to bring specific words to your attention.

12. WEIGHT AND BALANCE DATA

Weight and balance data is detailed on Drawing W of this manual. You will be required to change the weight and balance records of the aircraft to reflect any changes made during installation or removal of this Kit.

13. CROSS REFERENCE OF PARTS

All parts and fastener hardware cross reference by item number to part number on all drawings and the Parts List and include quantities. Refer to Drawings for correct part location and usage.

14. CONSUMABLE PRODUCTS

The following product must be purchased or made available to complete reinstallation or repair:

PROSEAL 890B-2 pint system available from: Courtaulds Aerospace
5454 San Fernando Road
Glendale, CA. 91203

Note: The Consumable Products Manufacturers Instructions for Use and Container Label contain information concerning correct application and safe use of their product.

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SECTION B

AIRWORTHINESS LIMITATIONS

2. **DECLARATION OF AIRWORTHINESS LIMITATIONS** "No Airworthiness Limitations are associated with this type design. This installation contains no life limited parts. No component overhaul required for this type design."

1. SECTION DIVIDER
2. DECLARATION OF AIRWORTHINESS LIMITATIONS
3. SCHEDULED INSPECTION PROCEDURE AND DAMAGE LIMITATIONS
4. INSPECTION CHECKLIST
5. MAINTENANCE PROCEDURES
6. GENERAL INSTRUCTIONS: REMOVAL AND REINSTALLATION
7. REMOVAL OF SPACER BLOCKS
8. REINSTALLATION OF SPACER BLOCKS
9. SQUAT SWITCH MODIFICATION
10. REPLACEMENT OF AN INDIVIDUAL PART
11. PARTS LIST

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3. SCHEDULED INSPECTION PROCEDURE and DAMAGE LIMITATIONS

A. GENERAL This Scheduled Inspection Procedure contains Damage Limitations and Wear Limits used to determine serviceability of parts, and a check sheet designed to be used when performing scheduled inspections. This checklist when completed should become a permanent part of the Aircraft and/or Spacer Block Installation records. Adherence to Maintenance Procedures in this ICA is required, and that material should be consulted when using this checklist.

B. PRE-INSPECTION REQUIREMENTS

1. Only latest revision of Inspection Checklist must be used.
2. Thoroughly clean all parts, assemblies, and fasteners to be inspected.

C. DEFINITIONS OF NOMENCLATURE

1. Certain special words and letter abbreviations are used in the checklist. Definitions of special words may be found in the Introduction Section A of this ICA.
2. Refer to Drawings A and B and Parts List on Drawing A of this ICA for part names, numbers and location. **All drawing item numbers cross reference directly to item number and part number on Parts List.** Refer to Drawing T for torque values, and Drawing W for weight and balance data.

D. INCLUDED REQUIREMENTS OF INSPECTION PERIOD

The Annual Inspection is to be performed to the same requirements as a 100 Hour Inspection. Perform all 100 Hour Inspection items when performing a 5000 Hour Inspection.

E. DAMAGE LIMITATIONS

Any parts or fasteners showing damage in excess of limits set forth in this section are non-airworthy and must be replaced with a serviceable part or fastener. Fasteners with corrosion penetrating the plated coating shall be replaced.

DAMAGE LIMITATIONS			
FORWARD SPACER P/N AP407UM01-01 and AFT SPACER P/N AP407UM01-02			
Part or Item	Damage Limits (All Limits Are Maximum Allowable)		
	Cracks	Scratches	Dents, Gouges, Corrosion
Forward Spacer AP407UM01-01	None Allowed	Maximum Depth: .050 inch Maximum Length: 1.00 inch	Maximum Depth: .050 Maximum Length: .500 inch
Aft Spacer AP407UM01-02	None Allowed	Maximum Depth: .050 inch Maximum Length: 1.00 inch	Maximum Depth: .050 Maximum Length: .500 inch
FASTENERS	None Allowed	Maximum Depth: .005 inch Maximum Length: .100 inch	Maximum Depth: .005 inch Maximum Length: .100 inch
BOLT HOLE WEAR LIMITS			
Initial Hole Size Diameter	Maximum Measured Diameter In Any Direction		
1/4 inch (.250)	.270 inch		

F. BOLT INSPECTION OR REPLACEMENT AT 5000 HOURS

The following bolts must be removed for Magnetic Particle Inspection in accordance with the latest revision of ASTM-E1444-94(a) or replaced with new parts at 5000 hours Time In Service. Refer to Drawing A of this ICA.

Item	Part Number	Description	Quantity
6.	NAS6604-38	Bolt	8
18.	NAS6604-48	Bolt	8
19.	NAS6604-46	Bolt	4

**INSTRUCTIONS FOR CONTINUED AIRWORTHINESS
AERO PACIFIC AP407BLK01 TWO INCH SPACER BLOCK KIT**

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INSPECTION CHECKLIST

Registration #	Make:	Model:	TT:	Date:	
FORWARD SPACER BLOCKS AP407BLK01-01 and AFT SPACER BLOCKS AP407BLK01-02					
Period (Hours)	What To Inspect			Mech.	Insp.
100 (or Annual)	Visually inspect all sides of Spacer Blocks for cracks or movement at sealant bonding line. Integrity of the seal between the hull surface and the Spacer Blocks, and the Spacer Blocks and the landing gear fittings must be maintained to keep out moisture. Inspect for corrosion, dents, scratches, or gouges. Inspect for areas where surface protective coat is damaged or removed. Refer to DAMAGE LIMITATIONS section of this ICA. Inspect cabin hull in areas around perimeter of Spacer Blocks				
5000	In addition to requirements of 100 hour inspection, all Spacer Blocks bolted to the cabin structure must be removed to a degree such that inspection of cabin hull structure under Spacer Blocks and areas of Spacer Blocks not accessible while blocks are in place can be completed. This includes separating Spacer Blocks from landing gear. Refer to REMOVAL and REINSTALLATION instructions in this ICA.				

ATTACHMENT THROUGH BOLTS: Part Numbers NAS6604-38, NAS6604-48, AND NAS6604-46					
100 (or Annual)	Visually inspect exposed portion of all through bolts for corrosion and general overall condition. Check all through bolts for correct torque. Refer to Fastener Torque Requirements Drawing T in this ICA.				
5000	Remove and complete Magnetic Particle Inspection in accordance with latest revision of ASTM-E1444-94(a) on ALL THROUGH BOLTS part numbers NAS6604-38 (Quantity 8), NAS6604-48 (Quantity 8), and NAS6604-46 (Quantity 4) or replace with <u>NEW</u> parts. Refer to Fastener Torque Requirements Drawing T in this ICA.				

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5. MAINTENANCE PROCEDURES

Introduction:

Maintenance to the AP407BLK Spacer Block Kit components is conducted on an "as needed" basis determined by the results obtained during the Scheduled Inspection Procedure contained in this ICA. Maintenance is limited to removal, disassembly, reinstallation, replacement of damaged parts, general cleaning, corrosion removal, and treatment of the part surface after corrosion removal or acceptable damage. Serviceability of a part is based solely on condition. The Spacer Blocks part numbers AP407BLK01-01, and -02 have no determined life limit. **Attachment bolts as listed in SCHEDULED INSPECTION PROCEDURE AND DAMAGE LIMITATIONS require Magnetic Particle Inspection OR replacement with new at 5000 hours time in service, or before dependent upon condition.**

1. **General cleaning** is to be performed as necessary using a clean dry rags. No abrasives.
2. For **heavier cleaning** (bugs, imbedded deposits, etc.) use lukewarm water and a mild dish washing liquid soap mix and clean rags. Rinse with clean water. Blow or wipe dry.
3. Any **corrosion** found must be removed and treated as follows:
 - A. Light surface corrosion: Clean locally with small plastic bristle brush (tooth brush size).
 - B. Medium corrosion: Disassemble as necessary and clean with plastic bristle brush. Clean and coat part surface at damaged area as per Aero Pacific Surface Preparation and Conversion Coating Process AP006. Paint damaged area as per Aero Pacific Priming and Painting Process AP007. These processes are contained in Section D of this ICA.
 - C. Heavy corrosion: Disassemble as necessary. Mask or block off entire part or assembly exposing only area to be cleaned. Abrasive clean with glass bead blasting. Remove masking materials and thoroughly clean all abrasive materials from part. Clean and coat surface of part at damaged area as per Aero Pacific Surface Preparation and Conversion Coating Process AP006. Prime and paint local damaged area as per Aero Pacific Priming and Painting Process AP007. Apply sealant to maintain moisture tight barrier between aircraft hull and Spacer Blocks as per Aero Pacific Sealant Application Process AP010.
 - D. Severe corrosion may require part replacement. Consult INSPECTION PROCEDURE AND DAMAGE LIMITATIONS contained in this ICA to determine serviceability.
4. Treat scratches and gouges in the same manner as corrosion listed above, referring to the same Documents for limitations and processes.
5. Parts which fail to meet the requirements of DAMAGE LIMITATIONS contained in this ICA shall be replaced. Refer to PARTS LIST contained in this ICA for correct replacement part numbers.
6. Remove, disassemble, or reinstall parts as per instructions contained in REMOVAL and REINSTALLATION INSTRUCTIONS contained in this ICA.
7. Any nuts or bolts removed require re-torque during installation. The Through bolts attaching the Spacer Blocks to the aircraft and supplied with the Kit are to be torqued as prescribed in TORQUE REQUIREMENTS contained in this ICA. All other bolts originally on the helicopter but removed in the course of installation or removal are to be torqued as recommended in the aircraft manufacturers' Handbook of Maintenance Instructions (Maintenance Manual).
8. Refer to Section D of this ICA for detailed instructions concerning the following Aero Pacific Special Processes:
 - A. Aero Pacific Process AP006: Local Area Surface Preparation and Conversion Coating For Aluminum.
 - B. Aero Pacific Process AP007: Priming and Painting Local Areas.
 - C. Aero Pacific Process AP010: Sealant Application.

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6. GENERAL INSTRUCTIONS-REMOVAL AND REINSTALLATION

Reference Drawings A, B, T, and W during Removal or Reinstallation. Drawing A details Structural Assembly. Drawing B details Squat Switch Modification. Reference drawing T for bolt torque requirements. Reference Drawing W for weight and balance information.

7. REMOVAL OF SPACER BLOCKS

1. Take weight of helicopter off skids utilizing (3) jack points or hoist. **Note: Aircraft Manufacturers Handbook of Maintenance Instructions contains information concerning jacking or lifting.**
2. Remove bolts(item 11) on left and right aft strap support assembly(item 12). It is not necessary to remove forward strap support assembly (item 4).
3. Loosen and remove all through bolts (item 6)attaching forward left and right spacer blocks (item 22) and forward left and right forward fittings(item 8) to cabin belly.
4. Loosen and remove all through bolts (items 18 and 19) attaching left and right aft spacer blocks (item 23) and left and right aft fittings(item 21) to cabin belly. Separate and remove left and right forward spacer blocks (item 22) from cabin belly and top of forward fitting (item 8). Separate and remove aft spacer blocks (item 23) from cabin belly and aft fittings (item 21).Clean residual sealant from all parts.
5. If not reinstalling the spacer blocks, reinstall landing gear.**Note: Aircraft Manufacturers Handbook of Maintenance Instructions contains information concerning installation of the landing gear. Caution: Be sure to loosen and remove squat switch contact plate and Adel clamp before lowering aircraft onto skids without spacer blocks in place.**
6. Refer to Drawing B and re-configure the squat switch contact plate as shown in "ORIGINAL CONFIGURATION" as follows:
 - a. The squat switch contact plate and attachment Adel clamp must be repositioned. Remove Adel clamp from around forward skid cross-tube.
 - b. Re-install Adel clamp such that tabs of Adel clamp are facing forward at bottom of cross-tube (instead of top as modified). ProSeal 890B-2 Sealant should be used under and around Adel clamp. Apply as per instructions found in Aero Pacific Process AP010. Re-assemble contact plate as shown and re-attach with original hardware. Position contact plate in a level horizontal position (channel down) and in alignment with shaft on squat switch. Clean excess sealant from around Adel clamp.
 - c. Adjust squat switch in its mount vertically using adjustment ring-nuts. **Note: The Aircraft Manufacturers Handbook of Maintenance Instructions contains information on adjustment of the squat switch.** Allow helicopter to sit for at least 24 hours for sealant to cure before use.

8. REINSTALLATION OF SPACER BLOCKS Refer to Drawings A, B, T, and W.

1. Remove any old sealant on the bottom of the aircraft hull at points of attachment of spacer blocks forward and aft and clean these areas using M.E.K. solvent.
2. Mask off any areas where you do not want sealant.
Mix sealant as per Aero Pacific Process AP010, Sealant Application.
3. Liberally apply sealant to all upper and lower surfaces of contact between spacer blocks, fore and aft fittings, and belly at all points of attachment.
4. Move landing gear assembly into position under aircraft, and lower aircraft into position.

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5. Insert NAS6604-(xx) bolts in correct locations. Re-use Bell special washers (item 7) and (item 20), or replace with new parts. Place chamfer in washer center hole toward bolt head. Be sure spacer blocks are installed as indicated in Assembly Drawing A. Aft spacer blocks part number AP407BLK-02 (item 23) are installed first with aft fittings (item 21) and **must be installed with contact pads up**. Forward lift blocks part number AP407BLK-01 (item 22) are symmetrical. They may be installed in any orientation.
6. Torque NAS6604-(xx) bolts to specification found on Drawing T.
7. Position aft fittings on aft skid cross-tube and install support assembly (item 12) using bolts (item 11). **Note: The Aircraft Manufacturers Handbook of Maintenance Instructions contains information on specific landing gear bolt torque and procedure.**
8. Clean all excess sealant from around fittings. Leave a bead of sealant around all fitting mating surfaces and helicopter belly to protect from moisture. Remove any masking tape.
9. Verify correct operation of squat switch and adjust if necessary. **Note: The Aircraft Manufacturers Handbook of Maintenance Instructions contains information concerning adjustment of the squat switch and jacking the aircraft.** Raise/lower helicopter using jacks to set squat switch adjustment if necessary. Allow helicopter to sit for at least 24 hours for sealant to cure before use. Paint all spacer blocks as per instructions in accompanying Aero Pacific Priming and Painting Process AP007, color as desired.
8. Complete weight and balance data, and amend weight and balance records and equipment list as necessary to reflect this installation. Refer to Drawing W.

9. SQUAT SWITCH MODIFICATION Refer to Drawing B.

1. If aircraft is to be operated with spacer blocks installed, squat switch contact plate **must** be configured as shown on Drawing B identified by "MODIFIED CONFIGURATION."
2. The squat switch contact plate and attachment Adel clamp **must** be repositioned. Remove Adel clamp from around forward skid cross-tube.
3. Re-install such that tabs of Adel clamp are facing forward at top of cross-tube (instead of bottom as original). Re-assemble contact plate such that it is on top side of Adel clamp tabs. Re-attach with original hardware, and position contact plate in a level horizontal position (channel down) and in alignment with shaft on squat switch. Sealant should be used under and around Adel clamp.
4. Adjust squat switch in its mount vertically using adjustment ring-nuts. **Note: The Aircraft Manufacturers Handbook of Maintenance Instructions contains information concerning adjustment of the squat switch.** Clean excess sealant from around Adel clamp. Allow helicopter to sit for at least 24 hours for sealant to cure before use.

10. REPLACEMENT OF AN INDIVIDUAL PART

1. Part Removal.
 - A. Removal of an individual part is accomplished by utilizing the "Removal" section of this ICA to the degree necessary to effectively remove the individual part.
1. Part Replacement.
 - A. Once an approved replacement part has been obtained, installation of that part is accomplished utilizing the "Reinstallation" section of this ICA to the degree necessary to effectively reinstall the part and return the aircraft to an airworthy condition.

END

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PARTS LIST

<u>ITEM</u>	<u>PART NUMBER</u>	<u>DESCRIPTION</u>	<u>QUANTITY</u>
6.	NAS6604-38	BOLT	8
18.	NAS6604-48	BOLT	8
19.	NAS6604-46	BOLT	4
22.	AP407BLK01-01	SPACER BLOCK, FORWARD	2
23.	AP407BLK01-02	SPACER BLOCK, AFT	2
24.	NAS1149D0463K	WASHER (as required)	12

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1.

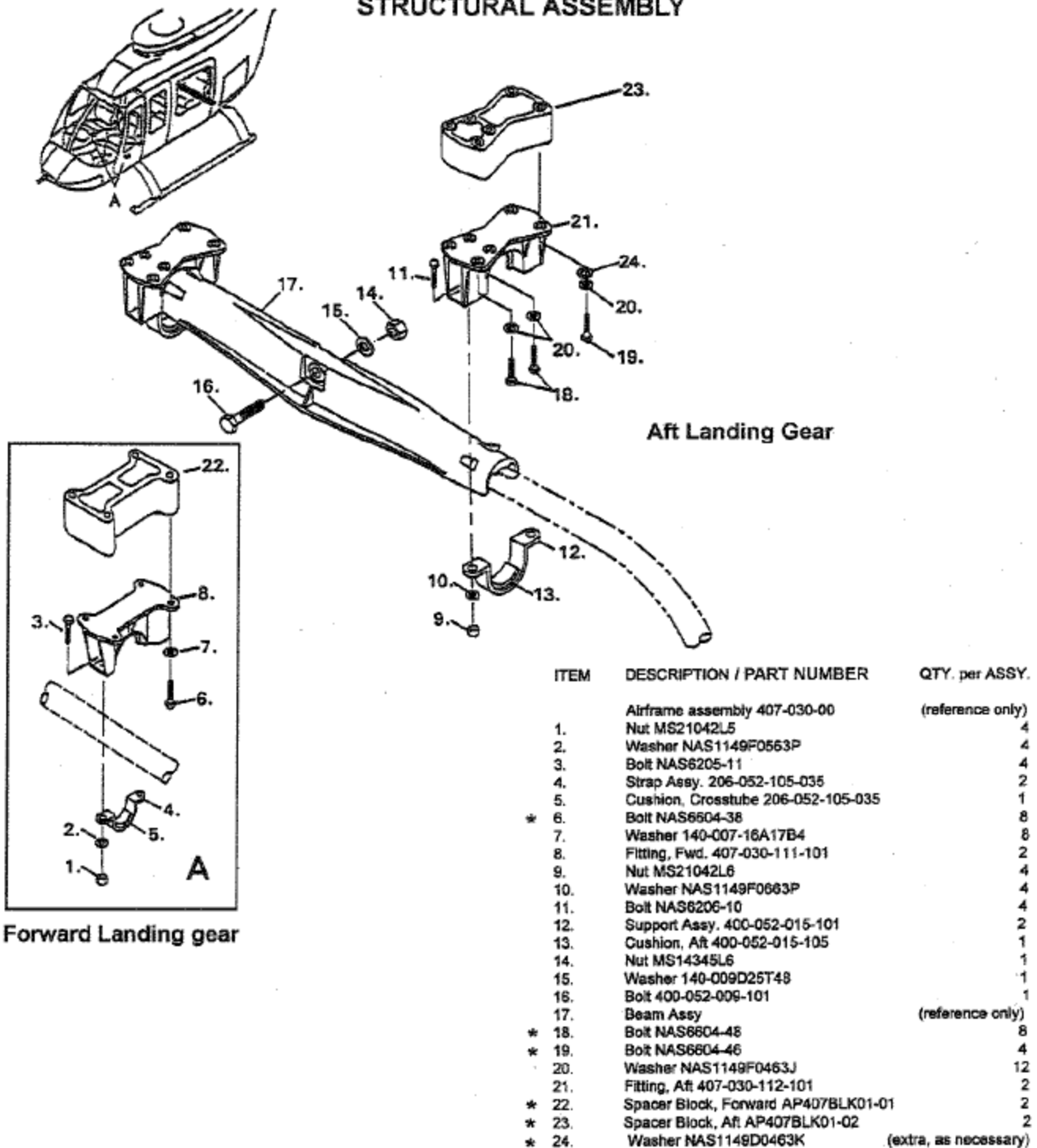
SECTION C

DRAWINGS

1. SECTION DIVIDER
2. DRAWING A
3. DRAWING B
4. DRAWING T
5. DRAWING W

DRAWING A

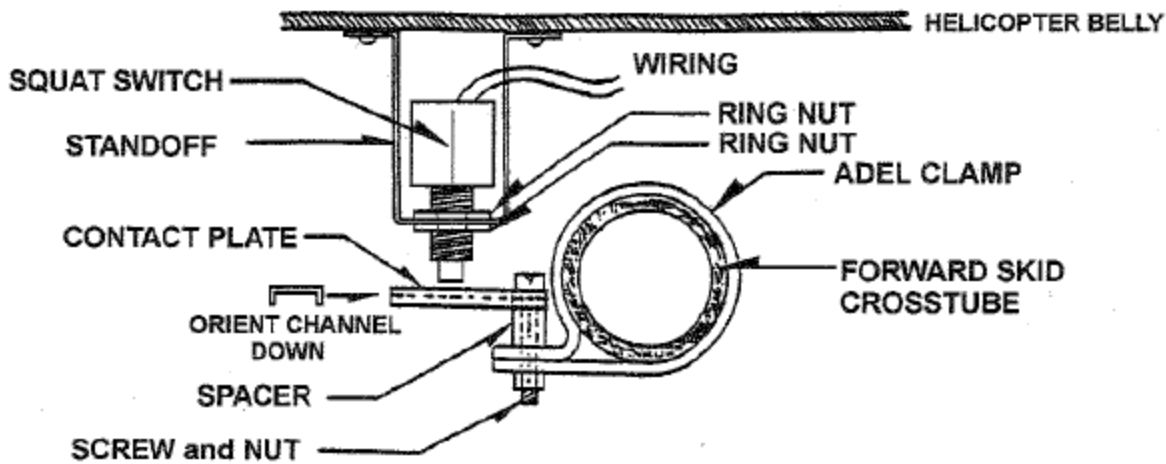
STRUCTURAL ASSEMBLY



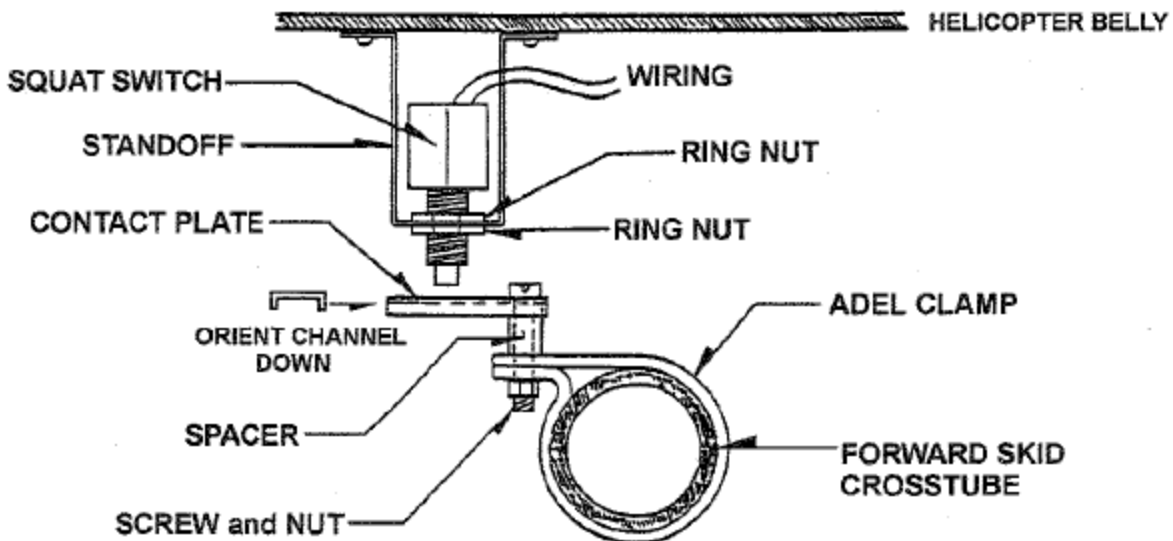
Parts marked with asterisk (*) included in kit

DRAWING B SQUAT SWITCH MODIFICATION

ORIGINAL CONFIGURATION



MODIFIED CONFIGURATION



DRAWING T

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

AERO PACIFIC MODEL AP407BLK01 TWO INCH SPACER KIT

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FASTENER TORQUE REQUIREMENT PROCEDURE

The following torque limits are stipulated for initial installation, repairs, and subsequent removal and/or reinstallation of the AP407BLK01 KIT or any parts thereof. All torque values are stated in inch-pounds. The importance of correct application of torque cannot be overemphasized. Under-torque can result in unnecessary wear of nuts and bolts as well as to the parts they are holding. Over-torque can be equally damaging because of failure of a bolt or nut from over stressing the threaded areas, resulting in structural failure.

1. Always use a calibrated torque wrench.
2. If possible, always use torque wrench on nut end of fastener assembly.
3. Do not lubricate threads prior to torque application. Threads must be clean and dry on both the bolt and the nut. Apply a smooth even pull when applying torque pressure. If chattering or jerking motion occurs during final torque, back off and re-torque.
4. On self locking nuts (or bolts attaching to hidden self locking nutplates) run nut (or bolt) down near contact with the washer or bearing surface and check "friction drag torque" required to turn the nut (or bolt if going into hidden self-locking nut plate). If "friction drag torque" is less than the minimum listed below, the nut (or hidden self locking nut plate) is not to be used. Minimum allowable "friction drag torque" values are listed below. **CAUTION:** Bolts and Nuts should be torqued to the values listed below PLUS the measured friction drag torque.
5. Re-use of self locking nuts is not recommended. Minimum "friction drag torque" values are listed below. Under no circumstance should any nut or bolt combination testing a friction drag torque less than the limits expressed below be used for flight. Nuts or bolts exhibiting corrosion which has penetrated the outer plated coating should be replaced.

BOLTS

<u>ITEM</u>	<u>PART NUMBER</u>	<u>DESCRIPTION</u>	<u>RECOMMENDED</u> (inch-pounds) <u>TORQUE VALUE</u> (less friction drag torque)
6.	NAS6604-38	BOLT	70-90
18.	NAS6604-48	BOLT	70-90
19.	NAS6604-46	BOLT	70-90

CAUTION: MEASURED FRICTION DRAG TORQUE MUST BE ADDED TO RECOMMENDED TORQUE VALUES TO OBTAIN FINAL TORQUE VALUE.

MINIMUM FRICTION DRAG TORQUE: NAS6604-(length) bolts into hidden nut plates is 5 inch-pounds. Values less than this amount indicate weak or defective locking quality of the hidden self locking nut device and should be replaced.

NOTE: CONSULT THE AIRCRAFT MANUFACTURERS' HANDBOOK OF MAINTENANCE INSTRUCTIONS (MAINTENANCE MANUAL) TO VERIFY THE ABOVE LISTED RECOMMENDED TORQUE VALUES ARE CURRENT.

BOLT HEAD MARKINGS Specifications require that most bolts which are made to conform with standard drawings be identified by a specific marking on the bolt head. Shown here are the markings of sample bolts. The initials "RM" and "RBM" identify the manufacturer of the bolt.

AN4-(length)



NAS6604-(length)

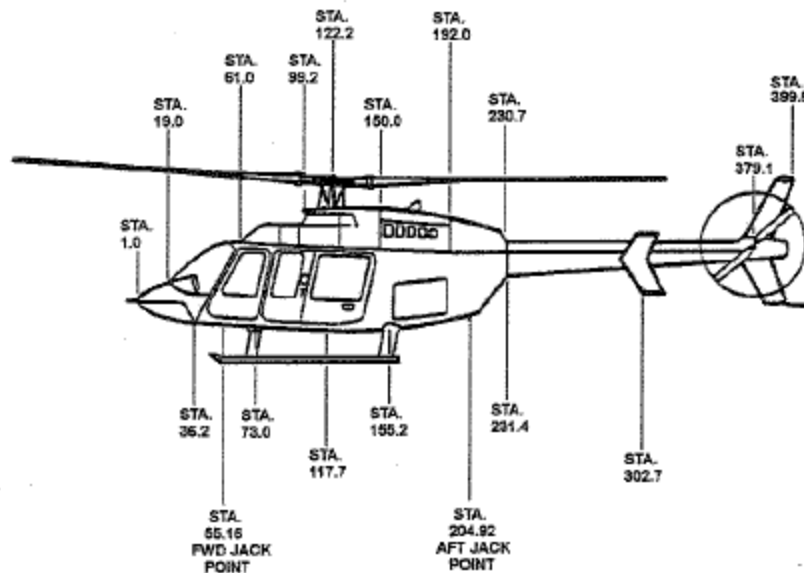
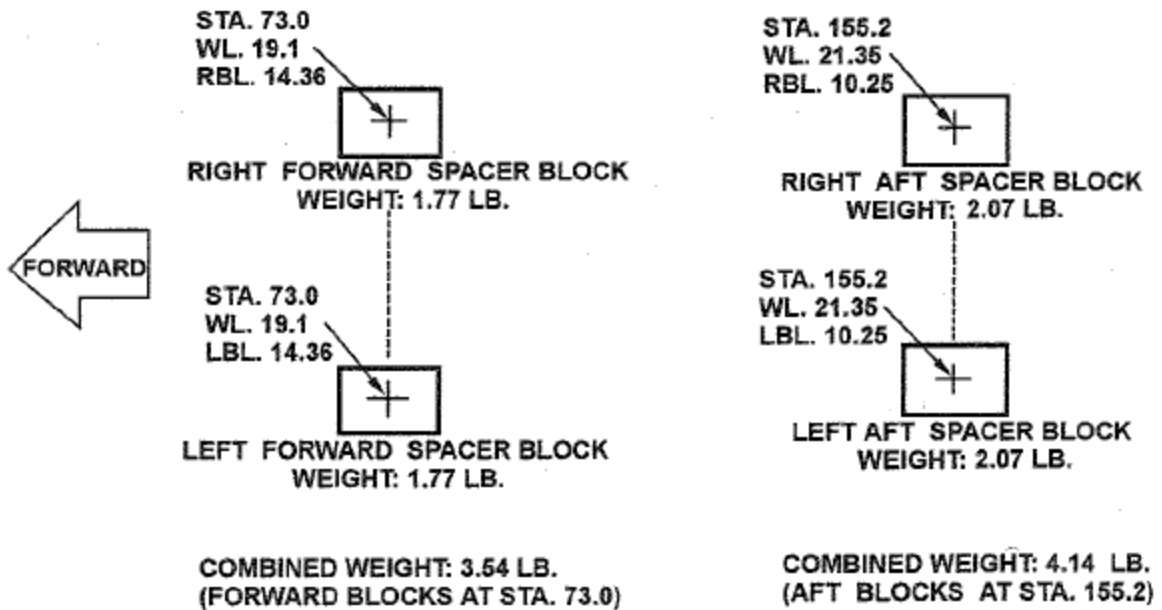


CAUTION: Never use AN type bolts to replace NAS type bolts.

DRAWING W

WEIGHT AND BALANCE DATA

Utilize Data Below To Amend Weight And Balance Records



NOTE
 Reference datum line, (fuselage station 0), is located
 55.15 inches forward of the forward jack point centerline.

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1.

SECTION D

SPECIAL PROCESSES

1. SECTION DIVIDER
2. AERO PACIFIC PROCESS AP006
Local Area Surface Preparation and Conversion Coating
3. AERO PACIFIC PROCESS AP007
Priming and Painting Local Areas
4. AERO PACIFIC PROCESS AP010
Sealant Application

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2. **AERO PACIFIC PROCESS AP006**
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**LOCAL AREA SURFACE PREPARATION AND
CONVERSION COATING FOR ALUMINUM**

SURFACE PREPARATION

1. Remove any excessive amounts of oil, dirt, chemicals, or other coatings from the part(s) if necessary by wiping thoroughly with Stoddard Number 5 Solvent or Dupont First Kleen 3900S fast-dry initial surface cleaner.
Use protective clothing, eye protection, and gloves as necessary on this and all following operations.
2. Remove any final surface film from part(s) by wiping thoroughly with Dupont Kwik-Kleen 3949S or Dupont Prep-Sol 3919S cleaning solutions. Use clean rags.
3. Blow dry or thoroughly wipe off part(s) with clean dry rag. Keep part(s) clean and dry until step 4.
4. Carefully wipe part(s) with rag moderately soaked with Dupont Aluminum Metal Cleaner 225S or a 2% solution of Muriatic Acid and water. Contain solution to immediate area of repair by wiping with dry rag or masking unwanted areas. Reaction will be indicated by a small amount of white bubbling at exposed area of unprotected aluminum. Reaction may be accelerated by light scrubbing of part(s) with 3M brand Scotchbrite pad 07448 lightly soaked with solution. Dilute 225S Cleaner as per manufacturers instructions if used.
5. Immediately rinse part thoroughly with clean water, temperature between 40 and 120 degrees Fahrenheit. Conversion coating must be applied within five minutes, or before part is allowed to completely dry. Do not blow dry.

CONVERSION COATING

1. Within five minutes, or before part is allowed to dry, wipe immediate area with a clean rag moderately soaked with DuPont 226S Conversion Coating or Chemical Commodities Alodine 1200 Conversion Coating. Both these products are used full strength with no dilution. Follow respective manufacturers instructions. Wipe and soak for five minutes. Temperature at time of application should be between 40 and 90 degrees Fahrenheit. Examine part occasionally and continue to soak area until desired gold finish density is obtained.
2. Immediately rinse with clean water. Blow or wipe dry with clean rag. Inspect for complete coverage of coating. Re-coat with conversion coating if necessary and repeat this step

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**INSTRUCTIONS FOR CONTINUED AIRWC
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3. A

2.

**LOCAL AREA SURFACE PREPARA
CONVERSION COATING FOR ALU**

PF

1. Wipe area to be paint
2. Tape and mask areas non-damaged area of
3. Using recommended spray gun.
4. Allow recommended
5. Using recommended gun.
6. Allow recommended

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REQUIRED MATERIALS

PRODUCTS:

First Kleen 3900S
Kwick Kleen 3949S
Prep Sol 3919S
Cleaner 225S
Aluminum 226S
Conversion
Coating

PROI
Scote

MANL
3-M C
Auton
St. Pe

MANUFACTURED BY:
E.I. Dupont De Nemours
Wilmington Delaware
19898 (800) 441-7515

PRIMER

Manufacturer: Dupont Ch
Type: Corlar 824
Color: Gray or Re
Activator: 826S

PRODUCT:
Alodine 1200
Aluminum Conversion Coating

MANUFACTURED BY:
Chemical Commodities
27447 Pacific St
Highland, CA. 92346
(909) 864-2310

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AERO PACIFIC PROCESS AP010

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SEALANT APPLICATION

USING CORTAULD AEROSPACE BRAND PROSEAL 890B-2 TWO PART SEALANT (1 PINT KIT)

A. INITIAL REQUIREMENTS

1. Mixing and application of sealant agent shall be conducted within a temperature range of 70 to 90 degrees Fahrenheit. Recommended storage temperature of unmixed adhesive agents in sealed can is 77 degrees Fahrenheit +/- 5 degrees. At this temperature shelf life is six months.
2. Normal working time is (2) hours at temperature of 75 degrees Fahrenheit. Working time is decreased at temperatures above 75 degrees Fahrenheit, and extended at temperatures below 75 degrees Fahrenheit.

B. MIXING

1. Mix and combine agents Part A (Accelerator) and Part B (Base Compound) in accordance with and in the ratios stated by the Product Manufacturer on the container label.
2. Stir and combine Part A and Part B until a uniform combined color is attained, and then stir continuously for an additional two minute to assure complete mixing. Seal parent agent containers immediately. Prevent agent residue contamination by using separate mixing sticks.
3. If mixed container is to sit for longer than 15 minutes before use, cover container to keep out contaminants.
4. It is extremely important to mix Part A and Part B exactly to the ratios by weight or volume stated by the manufacturer on the container, as a mixture that will not cure or will not be pliable upon cure may result.

C. CLEANING OF PARTS TO BE BONDED

1. Thoroughly clean all parts surfaces to be sealed using Methyl Ethyl Keytone (M.E.K.) and allow to evaporate dry.
2. Application of sealant agent shall be within 30 minutes of cleaning time.
3. Keep parts to be sealed clean and dry until application of sealant agent.

D. APPLICATION OF MIXED SEALANT AGENT

1. Mask any areas necessary to help prevent excess sealant agent from reaching undesired areas of part(s).
2. When masking perimeter of part(s) leave approximately 1/16 inch free space around part perimeter to create a "bead" of sealant.
2. Apply sealant agent completely to both surfaces to be sealed. A slight excess of agent is desirable, as all voids between surfaces must be filled and the excess will provide for the "bead" around the perimeter.

E. ASSEMBLY OF PARTS

1. Flat surfaces being sealed should be pressed together evenly and riveted, bolted, or clamped.
2. Round tubular telescopic assembly parts shall be pressed into one-another in a slow rotational manner to help keep sealant agent from being pushed from between surfaces.

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AERO PACIFIC PROCESS AP010

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SEALANT APPLICATION

USING CORTAULD AEROSPACE BRAND PROSEAL 890B-2 TWO PART SEALANT (1 PINT KIT)

F. CLEANUP

1. Remove excess agent with clean dry rags (no solvent).
2. Final clean with rags lightly soaked with M.E.K. Avoid excess amounts of M.E.K., as agent must not be removed from between bonded surfaces and an edge "bead" of sealant agent must be maintained around perimeter.

G. CURING

1. Upon completion of cleanup, assembly must be kept in a clean dry area and allowed to sit undisturbed for a 24 hour period for a curing temperature of 70 degrees Fahrenheit. Full cure time is 24 hours at this temperature. Higher temperatures produce a faster cure time, and lower temperatures produce a longer cure time.

H. PRODUCT INFORMATION

Product Description: Sealant

ProSeal 890B-2 One Pint Kit
Part Number 0890B002BM012PT

Manufacturer: Courtauld Aerospace Inc.
5454 San Fernando Road
Glendale, CA. 91203

Available From: Packaging Systems Inc.
(among others) (818) 248-5568

END
