ALERT SERVICE BULLETIN

REVISION NOTICE

Bell Helicopter
A Textron Company

DATE Nov 13, 2009

TO: **All Owners/Operators of Bell 206L Series Helicopters**

SUBJECT: **REVISION "A" TO ALERT SERVICE BULLETIN 206L-09-159: MAIN ROTOR BLADE 206-015-001-107, /-109, /-111, /-115, /-117, /-119 AND -121 CHECK OF**

Revision "A" to this bulletin introduces the following changes:

- Addition of a statement to advise owners/operators that they can contact their local Bell Helicopter Customer Service Facility (CSF) for NDI/NDT capability.
- The reference to the MIL spec for the blue food dye has been removed and the terminology has been changed for "blue food coloring".
- The requirement for NDI/NDT personnel qualification is changed from level III to level II.
- To ensure that the complete area to be checked is captured on the radiographs, the area to be x-rayed is now localized between stations 90 and 145 inches. (Previously 100 to 145 inches).
- To Introduce a note determining who can accomplish the main rotor blade wipe check.

ALERT SERVICE BULLETIN

Bell Helicopter
A Textron Company

DATE Nov 13, 2009
REV A

NO. 206L-09-159
DATE JUL 27, 2009

MODEL AFFECTED: **206L SERIES**

SUBJECT: **MAIN ROTOR BLADE 206-015-001-107, /-109, /-111, /-115, /-117, /-119 and -121 CHECK OF.**

HELICOPTERS AFFECTED:

206L Helicopters serial number 45004 through 45153 and 46601 through 46617.

206L-1 Helicopters serial number 45154 through 45790.

206L-1 Helicopters converted to 206L-1+ per BHT-206-SI-2052. | **A**

206L-3 Helicopters serial number 51001 through 51612.

206L-3 Helicopters converted to 206L-3+ per BHT-206-SI-2052. | **A**

206L-4 Helicopters serial number 52001 through 52380

206L-4 Helicopters 52381 and subsequent will have main rotor blades installed at time of delivery that are not affected by this bulletin.

BLADES AFFECTED:

Main rotor blades 206-015-001-107, /-109, /-111, /-115, /-117, /-119 and -121 with serial number A-xxxx as listed in Table 1 that have accumulated more than 800 flight hours are affected by this bulletin.

Main rotor blades 206-015-001-115, /-117, /-119 and -121 serial number A-6715 and subsequent are not affected by this bulletin.

Table 1. List of affected blades (Note 1)

901 to 928	2285 to 2286	2787 to 2788	4293 to 4298	4684
930 to 935	2290	2808 to 2817	4301	4686 to 4708
937 to 938	2292 to 2294	2819 to 2822	4305	4710
941	2297	2824	4308	4713 to 4716
943 to 994	2301 to 2302	2826 to 2828	4314 to 4315	4719 to 4722
996 to 1000	2304 to 2305	2832	4318	4725
1002 to 1020	2308	2835	4330	4728 to 4729
1022 to 1032	2311	2840 to 2842	4334 to 4336	4731
1034 to 1047	2313 to 2314	2844	4381 to 4382	4734 to 4737
1049 to 1134	2316	2848 to 2850	4392	4739 to 4742
1136 to 1140	2318 to 2319	2852 to 2853	4394 to 4395	4744 to 4751
1142 to 1157	2322 to 2324	2855	4405 to 4409	4753 to 4757
1159 to 1166	2328 to 2331	2858	4416	4759
1168 to 1182	2357	2862 to 2864	4418	4762
1184 to 1351	2374	2900	4423 to 4426	4764
1353 to 1363	2379	2996	4433	4774
1365 to 1382	2515	3212	4445	4778 to 4780
1384 to 1401	2553 to 2554	3219	4448	4784
1403 to 1519	2561 to 2562	3339	4462 to 4463	4786 to 4825
1521 to 1590	2564 to 2570	3369	4484	4827 to 4840
1593 to 1646	2573	3381	4500	4842 to 4863
1648 to 1718	2576	3447	4508	4865 to 4905
1720 to 1798	2580	3571 to 3572	4512	4907 to 4948
1800 to 1821	2583	3622	4517	4950 to 4957
1824 to 1829	2585 to 2586	3705	4522	4959 to 4963
1832 to 2060	2588 to 2589	3831	4528 to 4529	4965
2062 to 2072	2593 to 2594	3971 to 3972	4532	4969 to 4973
2074	2596 to 2597	4025 to 4030	4534	4975
2077 to 2081	2599	4117	4547	4979 to 4980
2092 to 2095	2602	4143	4550	4983 to 4984
2098 to 2099	2604 to 2605	4201 to 4205	4567	4987
2101 to 2104	2607 to 2610	4209	4573	4989
2107 to 2108	2621	4214 to 4217	4590	4992
2110 to 2124	2623 to 2624	4248	4604 to 4605	4994 to 5006
2126 to 2145	2638	4250 to 4251	4608 to 4609	5010
2147 to 2158	2640 to 2672	4253 to 4254	4612 to 4621	5015
2161 to 2163	2674 to 2701	4256 to 4260	4624 to 4629	5018
2165 to 2166	2706 to 2708	4262 to 4267	4631 to 4632	5023
2169 to 2175	2727 to 2728	4269	4638 to 4639	5036
2177 to 2183	2730 to 2742	4271 to 4272	4652	5047
2185 to 2192	2744 to 2764	4274 to 4276	4654	5054
2220 to 2221	2766 to 2767	4278	4657	5066 to 5067
2248	2769	4280 to 4284	4659	5071 to 5072

2257 to 2267	2771 to 2772	4286 to 4287	4662	5075 to 5076
2272 to 2283	2775 to 2777	4290 to 4291	4666 to 4682	5081
5087	5397	5535 to 5537	5679 to 5686	5851
5094	5399 to 5400	5539 to 5540	5688	5856
5152	5402 to 5411	5542	5690 to 5705	5861 to 5865
5155	5413 to 5414	5546 to 5549	5707 to 5709	5870
5158 to 5159	5416 to 5439	5552 to 5553	5711 to 5712	5882
5163 to 5164	5441	5556 to 5561	5716 to 5721	5884 to 5886
5166 to 5171	5443 to 5445	5566 to 5568	5723 to 5726	5889 to 5891
5176 to 5178	5447	5570 to 5574	5729 to 5734	5899 to 5901
5180 to 5182	5450	5576 to 5583	5736 to 5745	5903 to 5905
5186 to 5191	5459	5588 to 5591	5747 to 5752	5912
5193 to 5199	5465 to 5468	5594	5757	5915
5201 to 5205	5472	5598 to 5600	5762	5921
5207	5475	5602 to 5605	5766 to 5769	5925 to 5926
5209 to 5212	5481	5608 to 5609	5771	5929 to 5951
5218 to 5253	5483	5612	5781 to 5782	5992
5255 to 5273	5488	5616 to 5623	5791	6216
5275 to 5288	5491 to 5492	5625 to 5626	5793 to 5800	6247
5291 to 5292	5495	5628	5808	6270
5297 to 5298	5497 to 5507	5637 to 5641	5815 to 5817	6597
5301 to 5321	5509 to 5512	5643	5822 to 5826	6611 to 6612
5323 to 5331	5516	5645 to 5653	5828 to 5829	6661
5333 to 5340	5518 to 5521	5655 to 5666	5833	6714
5343	5526 to 5530	5668 to 5669	5837	
5345 to 5395	5533	5671 to 5677	5844 to 5845	

Note:

1. All blades listed above have the prefix A.

COMPLIANCE:

PART I. For blades in Spares stock, immediately upon receipt of this bulletin. For blades installed on a helicopter that have accumulated more than 800 flight hours within the next 30 days or 50 flight hours which ever comes first.

PART II. Within the next 60 engine starts following accomplishment of Part I and every 60 engine starts thereafter. This check is to be performed on blades that have accumulated more than 800 flight hours and repeated until the blade is removed from service or as instructed in Part III of this bulletin.

PART III. At the operator's option.

After review of the spar radiographs by Bell Helicopter, a letter will be provided indicating that the blade can remain in service with no further action required (terminating action to this bulletin) or, that the blade can remain in service provided that Part II of this bulletin is accomplished until retirement from service.

DESCRIPTION:

Bell's investigation of a Model 206L-1 accident last year (Information Letter 206L-08-85) revealed that a main rotor blade fractured as a result of fatigue. The investigation established that a fatigue crack could occur if there was a combination of both residual stress in the spar and a larger than acceptable void in the adhesive applied between the blade's internal lead inertia weight and the spar, between blade stations 100 and 145. If such a condition exists, a fatigue crack may be induced by the centrifugal force variation that occurs during the helicopter start/stop cycles.

Main rotor blades affected by this bulletin may have the described combination of both residual stress in the spar and an adhesive void between the internal lead inertia weight and the blade spar. To be considered at risk of developing a crack, **both** conditions have to be met. All blades listed in Table 1 may have residual stress in the spar. However, they may not have voids between the inertia weight and the spar. The presence of residual stress in the spar can not be verified by any means of inspection. However, an X-Ray inspection of the spar can identify if an unacceptable void exists between the inertia weight and the spar. If, after accomplishment of Part III of this bulletin, it is confirmed that no void exceeding the limitation is found, the blade is no longer considered at risk and no further accomplishment of Part II will be required.

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PART I of this Alert Service Bulletin provides instructions to identify main rotor blades that are affected.

PART II of this Alert Service Bulletin introduces a recurring blade spar wipe check for a crack in all affected blades installed on a helicopter.

PART III of this Alert Service Bulletin provides instructions to perform a one-time X-Ray inspection of all affected blades. This inspection consists of taking X-rays of the blade spar that will be sent to Bell Helicopter for review. After review, depending on the result, Bell Helicopter will issue a letter that contains one of the following statements:

- The blade can remain in service with no further action required (terminating action to this bulletin). Or,

- The blade can remain in service but Part II of this bulletin requires accomplishment until retirement from service.

The Radiography must be taken by a Non-Destructive Inspection (NDI) Facility that has experience with accomplishing X-Ray for the aerospace industry. The NDI facility shall also be capable of performing the work described in Part III of the **ACCOMPLISHMENT INSTRUCTION** of this Alert Service Bulletin. Owners/operators can contact their local Bell Helicopter Customer Service Facility (CSF) or refer to the Bell Helicopter Customer Support and Service Directory to locate in the CSF network the closest facility with X-Ray capability, or Bell Helicopter approved main rotor blade repair facility.
In addition, a list of Facilities with X-Ray capability can be found in Table 2 of this Alert Service Bulletin. This list is not all inclusive and is provided as a reference. The X-rays can be taken with either the blade installed or removed from the helicopter. **A**

APPROVAL:

The engineering design aspects of this bulletin are Transport Canada Civil Aviation (TCCA) approved.

MANPOWER:

Approximately 1.0 man-hour is required to complete PART I and PART II of this bulletin.

Approximately 10.0 man-hours are required to complete PART III of this bulletin.

Man-hours are based on hands-on time, and may vary with personnel and facilities available.

WARRANTY:

Owners / Operators of Bell Helicopters who comply with the instructions in this Bulletin and find a cracked blade will be eligible to receive a pro-rated credit for the replacement main rotor blade part number 206-015-001-115/-119 outlined under the required material section.

In addition Bell Helicopter will allow a credit reimbursement for x-ray and freight costs up to a maximum of $1,000.00 per blade. This is retroactive back to July 27 2009. To receive this credit you will be required to provide copies of the invoices for both the x-ray and freight costs' to the warranty department.

To receive either of the credits listed above:

- Purchase a replacement blade from a BHT supply source.
- Only those serial numbered blades that are listed in Table 1 of this bulletin are eligible for the x-ray and freight credit.
- Comply with the instructions contained in this Bulletin no later than the applicable hours in the "compliance section" of this ASB, or before July 27 2014.
- Submit an MMIR to the Bell Warranty Department referencing this ASB for the replacement parts/x-ray & freight cost.

NOTE: Customers who fail to comply with the instructions in this Bulletin after the 5 years from date of issuance are not eligible for the special warranty exceptions listed above. No other labor cost will be covered under this Bulletin.

MATERIAL:

Required Material:

The following material is required for the accomplishment of this bulletin and may be obtained through your Bell Helicopter Textron Supply Center.

Part Number	Nomenclature	Quantity	Note
206-015-001-115	Main Rotor Blade	1	1
206-015-001-119	Main Rotor Blade	1	1

Note: 1. Required only if a crack is found

Consumable Material:

The following material is required to accomplish this bulletin, but may not require ordering, depending on the operator's consumable material stock levels. This material may be obtained through your Bell Helicopter Textron Supply Center.

Part Number	Nomenclature	Notes	Quantity	Reference
MILC87936TYI 5GAL	Detergent	1	As required	C-318
31-080AD002026	Decal	2	2 per blade	N/A
3950 SCOTCHCAL	Decal Sealer	3	As required	C-349
TT-I735 ISOPROPYL	Isopropyl Alcohol		As required	C-385
N/A	Blue Food Coloring	4	As required	N/A

Notes:

1. Or equivalent aviation approved detergent.
2. As an alternate, 0.25 inch X 2.50 inches red stripes can be painted. Color code #11136, FED-STD-595.
3. Or equivalent sealer.
4. Locally procured.

SPECIAL TOOLS:

None required.

WEIGHT AND BALANCE:

Not affected.

ELECTRICAL LOAD DATA:

Not affected.

REFERENCES:

Customer Support and Services Directory

PUBLICATIONS AFFECTED:

BHT-206L-MM-1 Maintenance Manual, Chapter 5 and 62.
BHT-206L1-MM-1 Maintenance Manual, Chapter 5 and 62.
BHT-206L3-MM-1 Maintenance Manual, Chapter 5 and 62.
BHT-206L4-MM-1 Maintenance Manual, Chapter 5 and 62.

ACCOMPLISHMENT INSTRUCTIONS:

-NOTE-

PART I, Part II and PART III of this Alert Service Bulletin can be accomplished with the blade installed on the helicopter.

PART I. Identification of affected main rotor blades.

1. Verify the part number and the serial number of the main rotor blades in Spares stock or installed on helicopter to determine if the blade is affected by this bulletin.

-NOTE-

Decal P/N 31-080AD002026 can be ordered from Bell Helicopter.

2. In order to provide a quick visual reference and identify the **"blades affected"** by this ASB, apply the "red stripe" decal (or paint if preferred) on both sides of the blade at the location indicated on the Figure 3. To prolong the life of the decal apply Edge sealer (C-349) on the decal. Replace missing or damaged decal or re-apply paint as required.

-NOTE-

A The marking of the spar at station 100 and 145 is required for accomplishment of Part II of this bulletin. For accomplishment of Part III b, the X-ray must be taken between stations 90 and 145 to ensure the complete section between stations 100 and 145 is captured.

3. Mark the top surface of affected blades to identify blade station 100 and 145 as follows:

A a. The center of the blade bolt is blade station 18.5 (blade station zero being at the center of the mast). Use a permanent ink marker and make marks at blade stations 100 and 145. Refer to Figure 3.

4. Make an entry in the helicopter technical records to show that the PART I of this Alert Service Bulletin has been accomplished.

Part II. Recurring wipe check.

-NOTE-

A "Your National Airworthiness Authority (NAA) should be contacted to determine who can accomplish this main rotor blade wipe check, as it may be acceptable to be accomplished by a trained pilot or by trained maintenance personal depending on the regulatory requirements of your NAA."

1. Gain access to main rotor blades upper surface.

2. Using detergent (C-318 or equivalent), thoroughly clean the blade upper surface between blade stations 100 to 145. Allow enough time for the blade upper surface to dry.

3. Check affected area (refer to Figure 3) for evidence of cracks as follows:

   a. Prepare blue food coloring solution that will be used to perform the check by thoroughly mixing the following in a clean container:

      - 100 ml Isopropyl alcohol 99% (C-385)
      - 100 ml clean tap water or distilled water
      - 20 drops of blue food coloring

   b. Apply the blue food coloring solution in the area to be checked using cheesecloth (C-486) saturated with the solution or apply with a spray bottle.

   c. After 10 to 20 seconds, wipe off the solution with cheesecloth (C-486) in a spanwise direction.

   d. Carefully check affected area for evidence of a crack. If a crack is present, the blue food coloring solution will remain in the crack as the excess of solution is wiped off and/or the cheesecloth will catch on the rough edges of the crack.

4. If a crack is found, remove the blade from service before further flight and contact Bell Helicopter Product Support Engineering.

-NOTE-

The following inspection must be accomplished by a mechanic

5. If the blue food coloring solution wipe check as specified in step 3 above reveals a surface defect and the presence of a crack can not be confirmed, perform the following inspection:

a. With a 10X power magnifying glass examine the affected area for a crack.

b. If a crack is found, remove the blade from service before further flight and contact Bell Helicopter Product Support Engineering.

c. If no crack is found, repair the defect in accordance with the Component Repair & Overhaul manual.

6. Make an entry in the helicopter technical records to show that the PART II of this Alert Service Bulletin has been accomplished and indicate the findings.

Part III. BLADE SPAR RADIOGRAPHY.

-NOTE-

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It should be noted that approximately 75% of the affected blades that have had the NDI accomplished, have passed the inspection and will not have to accomplish the recurring 60 engine starts wipe check.

Part III a. Selection of an NDI Facility.

-NOTE-

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The Radiography must be taken by a Non-Destructive Inspection (NDI) Facility that has experience with accomplishing X-Ray for the aerospace industry. The NDI facility shall also be capable of performing the work described in Part III b. of the **ACCOMPLISHMENT INSTRUCTION** of this Alert Service Bulletin. Owners/operators can contact their local Bell Helicopter Customer Service Facility (CSF) or refer to the Bell Helicopter Customer Support and Service Directory to locate in the CSF network the closest facility with X-Ray capability, or Bell Helicopter approved main rotor blade In addition, a list of Facilities with X-Ray capability can be found in Table 2 of this Alert Service Bulletin. This list is not all inclusive and is provided as a reference. The X-rays can be taken with either the blade installed or removed from the helicopter.

-NOTE-

Until the radiographs are reviewed by Bell Helicopter and the disposition letter is received, affected blades can remain in service by complying with Part II of this bulletin.

1. Advise the selected NDI Facility to contact Bell Helicopter Product Support Engineering (PSE) via e-mail at pselight@bellhelicopter.textron.com for shipping details of the Radiographs. Bell Helicopter will perform the analysis and provide the blade disposition to both Owner and the NDI Facility.

2. It is acceptable to have the Radiographs taken with either the blade removed or installed on the helicopter. If the chosen NDI facility does not have the capability of performing Part III b with the blade installed on the helicopter, remove the blade using the applicable maintenance manual instructions and ship in a suitable container.

3. Provide a copy of this bulletin to your NDI Facility for accomplishment of Part III b.

Part III b. Radiography procedure.

-NOTE-

The following inspection procedure should only be used as a general guideline. The actual technique/procedure used shall be generated by the NDI Facility using technique parameters compatible with the equipment and processing chemistry utilized. Radiographs must be performed by individuals certified to a minimum of Level II in radiography per NAS410, CGSB-48.9712 (aerospace structures), or equivalent. **A**

1. Thoroughly clean blade with detergent (C-318 or equivalent).

-NOTE-

Affected blades previously inspected and answered by Bell, per original version of this bulletin, will not require additional radiographs due to station change to 90. **A**

2. The Radiograph of the spar is required between stations 90 and 145. Make sure the location is marked in accordance with Part I.

3. Perform the blade spar Radiograph as follows:

GENERAL GUIDELINES

Equipment

- Fixed or portable X-Ray generating system capable of producing X-Rays of at least 75 kV and 5 mA energy and shall have a beryllium window. A focal spot no larger than 2.5 mm diameter is preferred for better results. **Isotopes shall not be used.**
- Either an automatic processor or hand development tanks are an acceptable means of processing radiographs. Hand development shall be accomplished per the manufacturers instructions for type of film and chemicals used.

- Film must be class I or II.

Personnel

- Radiograph must be performed by individuals certified to a minimum of Level II in radiography per NAS410, CGBS-48.9712 (aerospace structures), or equivalent. **A**

Pre-Inspection

- Ensure cassettes and/ or rollpac films are in good condition and clear of any contaminants which may cause film artifacts.
- Prior to film processing, solution concentration and radiographic exposure repeatability should be checked at least once each week using a step wedge or equivalent.
- The part shall be clean and free of loose debris.

Inspection

1. Blade removed from helicopter.

   a. Secure the blade to a stable platform such as sawhorses or blade dollies.

   -NOTE-
   The marking of the spar at station 100 and 145 is required for accomplishment of Part II of this bulletin. For accomplishment of Part III b, the Radiography must be taken between stations 90 and 145 to ensure the complete section between stations 100 and 145 is captured.

   b. The blade shall be X-Rayed at the bondline in the radius of the mid-span weight, refer to Figures 1 and 2, from station 90 to station 145, refer to Figure 3. **A**

   c. Blade stations can be located by placing a measuring tape at the center of the blade bolt hole. The center of the blade bolt is blade station 18.5 (blade station zero being at the center of the mast). The blade should have marks at stations 100 and 145 previously made in Part I. Refer to Figure 3.

   d. Lead markers shall be placed on the blade to provide evidence of complete coverage and sufficient overlap. The film shall also contain lead numbers indicating blade P/N, S/N and station locations 90 and 145 as a minimum.

   e. Align the X-Ray beam perpendicular to the blade lower surface and center the beam 0.8 inch from the leading edge, refer to Figures 1 and 2.

   f. Process the films and return them to Bell Helicopter for review.

2. Blade installed on helicopter.

   a. Rotate the blades perpendicular to the tailboom, refer to Figure 1.

   b. Stabilize the main rotor blades to prevent movement and film distortion.

   c. Due to the static droop and pitch angle of the blades, care must be taken to ensure the center of the X-Ray beam stays perpendicular to the bond line, refer to Figure 1.

   d. Inspect affected blade per above step 1. b. to 1. f..

Recommended Technique

KV**	75
Ma	4.5
Time	2.0 Min
SFD	Min 36”
Density Range*	1.5 to 3.5
Film	Agfa D4

* Density should be measured on the leading edge adjacent to the bondline.
* Energy settings, film, and time are to be used as a reference only.
. Actual exposure technique should be based on energy levels capable of exposing 0.8 inch – 0.9 inch of aluminum to a density of 2.0. **A

3. Prepare the Radiographs for shipping and include blade part and serial numbers with the total time in service.

4. Contact Bell Helicopter Product Support Engineering (PSE) via e-mail at pselight@bellhelicopter.textron.com for Radiographs shipping instructions. When contacting PSE, clearly specify that the Radiographs are sent for accomplishment of ASB 206L-09-159 and make sure to provide the following detailed information for both the NDI Facility and blade Owner in order for Bell Helicopter to provide inspection results in a timely manner: **A**

   - Company name
   - Contact name
   - Phone number
   - E-mail address

5. Bell Helicopter will analyze the content of the Radiographs and provide a letter indicating one of the following:

a. The blade can remain in service with no further action required (terminating action to this bulletin). Or,

b. The blade can remain in service but Part II of this bulletin requires accomplishment until retirement from service. Or,

6. Make an entry in the helicopter technical records to show that the PART III of this Alert Service Bulletin has been accomplished indicating the blade disposition based on the letter received by Bell Helicopter.

Table 2. List of NDI Facilities

Aviation NDT Services, PTY Ltd. Store 7, Gate 24 Operations Road Melbourne Airport Victoria, Australia 3045 Phone: 61-3-9395-0632	Australia	Central Flying Service Inc. 12th and Calhoun Little Rock, AR 72202 USA Phone: 1-800-844-6257	USA
Qantas Airways, Nondestructive Tests Section M96/1 Mascot Maintenance Base Sydney, New South Wales Australia 2020 Phone: 612-9691-7402	Australia	CTC (Certified Testing & Consulting Services), LLC 3144 Venture Drive, Suite #100 Lincoln, CA 95648 USA Phone: 1-916-434-0195	USA
Sabena Technics Nondestructive Inspection Dept. Brussels National Airport, Hanger #8, Door #5 Zaventem, Brussels, Belgium B1930 Phone: 3212-53-55	Belgium	Certified Inspection Services, LLC 3755 Industrial Court, NW, Suite #16 Suwanee, GA 30024 USA Phone: 1-678-730-2000	USA
CAL – Compoende Aeronautica Ltda Av. Dos Ipes, 391 Flor do Vale, Tremembe-Sao Paulo 12120-000 Brazil Phone: 55-12-3672-1911	Brazil	E & I Aircraft 5525 N. W. 23rd Avenue Ft Lauderdale Executive Airport Hangar #17 Fort Lauderdale, FL 33309 USA Phone: 1-954-771-9194	USA
Cantech Aviation Inspections Ltd 120-13451 Vulcan Way Richmond, British Columbia V6V 1K4 Canada Phone: 1-604-244-9699	Canada	EPPS Aviation Inc. 1 Aviation Way Atlanta, GA 30341 USA Phone: 1-770-458-9851	USA
Execaire, a Division of I.M.P. Group Limited, 2450 Derry Road East, HGR7 Mississauga, Ontario Canada L5S 1B2 Phone: 1-905-677-2484	Canada	ETI Ewer Testing & Inspection Inc. 1131 South 22nd Street Bismarck, ND 58504 USA Phone: 1-701-223-6434	USA
Execaire, a Division of I.M.P. Group Limited, 10225 Ryan Avenue, Dorval, Quebec H9P 1A2 Canada Phone : 1-514-636-7070	Canada	Flight Craft 7505 N.E. Airport Way Portland Oregon 97218 USA Phone: 1-503-331-4219	USA

Perimeter Aviation 626 Ferry Road Winnipeg, Manitoba Canada R3H 0T7	Canada
RTD Quality Services Inc. 2280 Pegasus Way N.E. #8 Calgary, Alberta T2E 8M5 Canada Phone: 1-403-274-8214	Canada
Hainan Airlines Co. Ltd./FIC-CAAC NDT Office 16# No. 1Street Fugian, Beijing, China 100621 Phone: 8-610-645-85945	China
Aerospace NDT Ltd. Suite A, Bldg #6, Fourth Ave. Doncaster, South Yorkshire England DN9 3GE Phone: 44-1302-770771	England
Morgan-Ward (NDT) ltd. Dale Road New Mills, High Peak, Derbyshire England Sk22 4NW Phone: 44 (0) 1663-74-7061	England
GIE – NDT Expert Sciences Parc du Perget 31770 Colomiers, France Phone : 33-53436-1200	France
Aircraft Services Lemwerder (ASL) Flughafenstrabe 5 Lemwerder, 27809 Germany Phone: 49-421-672-2279	Germany
RUAG Aerospace Services GmbH Flugplatz Oberpfaffenhofen Geb. 379 P.O. Box 1253 Wessling, Bayern D-82234 Germany Phone: 49-815-330-2897	Germany
Airworks India Engineering Pvt. Ltd Gate 8, Mumbai Old Airport Kalina, Santa Cruz (E) Mumbai, Maharashrta, India 400029 Phone : 91-22-2615-7213	India
Air Four S.p.A. Viale Dell Aviazione 65 Milano, Italy 20138 Phone: 00-39-02-50673-404	Italy
CND Services (Controlli Non Distruttivi) SRL Via A. Flores, 17 Localita Monna Felicita (Zona Industriale Civitavecchia (RM) Italy 00053 Phone : 0039-766-580521	Italy

Flight Options LLC 26180 Curtis Wright Parkway Richmond Heights, OH 44143 USA Phone: 1-216-797-8473	USA
General Dynamics Aviation Services W6365 Discovery Drive Appleton, WI 54915 USA Phone: 1-920-735-7028	USA
General Dynamics Aviation Services 5616 Haven Street Las Vegas, NV 89119 USA Phone: 1-702-947-3030	USA
General Dynamics Aviation Services 6925 34th Ave. south Minneapolis, MN 55450 USA Phone: 1-612-638-2053	USA
General Electric Inspection Services 1211 Kona Drive Rancho Dominguez, CA 90220 USA Phone: 1-310-635-2700	USA
General Electric Inspection Services 5425 Business Parkway Theodore, AL 36582 USA Phone: 1-251-653-6060	USA
JETS Inc. 1325 Whitlock Lane Carrollton, TX 75006 USA Phone: 1-972-323-6808	USA
Metal Finishing Company 1329 South McLean Blvd Wichita, KS 67213 USA Phone: 1-316-267-7289	USA
MidCoast Aviation, Inc. 6400 Curtis-Steinberg Drive Cahokia, IL 62206 USA Phone: 1-618-337-2100/Ext. 6351	USA
NDE Services Inc. 15552 E. Fremont Drive, Unit A106 Centennial, CO USA 80112 Phone: 1-303-741-0518	USA
NDT Inspect-Air Inc. 4557 96th Street Franksville, WI USA 53126 Phone: 1-262-878-8700	USA

Nippi Corporation/Japan Aerospace Aircraft NDT Department 2-28 Soyagi, Yamamoto, Kanagawa, 242-0026 Japan Phone: 046-265-2082	Japan
Korean Air 1370 Gonghang-Dong Gangseo-Gu, Seoul, 157-712, Korea Phone: 82-2-660-7486 or 82-2-656-7480	Korea
Unit Inspection Aviation S.A. Hanger Z3 Lanseria International Airport Lanseria South Africa 1748 South Africa Phone: 11-27-701-3058	South Africa
FORCE Technology Sweden AB August Barks Gata 23B Vastra Frolunda, Goetborg, Sweden 42132 Phone: 046-031-490210	Sweden
SR Technics, TEQN Zurich Airport Zurich, ZH-8058 Switzerland Phone: 41-1-812752	Switzerland
CSE Citation Centre – UK Bournemouth IAP, Hanger #100 Christchurch, Dorset, UK BH23 6NW Phone: 44-0120-285-7759	United Kingdom
FR Aviation (formerly Flight Refueling Ltd.) Bournemouth International Airport Christchurch, Dorset BH23 6NE UK Phone: 1-44-01202-409000	United Kingdom
Marshall of Cambridge Aerospace Ltd Cambridge Airport, Cambridge UK CB5 8RX Phone: 44 (0) 1223-373216	United Kingdom
Material Measurements Ltd 61 Albert Road North Reigate, Surrey UK RH2 9RS Phone: +44 (0) 1737-222211	United Kingdom
Acuren Inspection Inc. 3101, 111th St. SW, Unit “C” Everett, WA 98204 USA Phone: 1-425-355-5019	USA

Paragon Services, Inc. 1015 South West Street Whichita, KS 67213-1627 USA Phone: 1-316-945-5285	USA
Power Aviation Inc. 1255 Laquinta Drive Suite 112 Orlando, FL 32809 USA Phone : 1-407-438-1395	USA
Q.C. Laboratories Inc. 2870 Stirling Road Hollywood, FL 33020 USA Phone: 1-954-925-0499	USA
Quality Testing Services, Inc. 2305 Millpark Drive Maryland Heights, MO 63043 USA Phone: 1-314-770-0607	USA
St. Louis Testing Laboratories Inc. 2810 Clark Avenue St. Louis, MO 63103 USA Phone: 1-314-531-8080 or 1-800-264-1120	USA
Standard Aero (formerly Landmark Garrett Aviation Services) 1550 Hanger Road Augusta, GA 30906 USA Phone: 1-800-891-8889	USA
Standard Aero (formerly Landmark Garrett Aviation Services) Springfield, Illinois 62707 USA Phone: 1-217-535-3596	USA
Standard Aero (formerly Landmark Garrett Aviation Services) George Bush Int. Airport (IAH) 17250 Chanute Road Houston, TX USA Phone: 1-281-233-4150	USA
Standard Aero (formerly Landmark Garrett Aviation Services) 6201 West Imperial Highway Los Angeles, CA USA Phone: 1-310-568-3825	USA
StarPort Cambata Aviation, Int. LLC 100 Starport Way Sanford, FL 32773 USA Phone: 1-407-321-8880	USA

Acuren – US Inspection Inc. 1485 Corporate Woods Parkway Union Town, OH 44685 USA Phone: 1-330-899-0566	USA
Aircraft NDT Service Inc. 6395 Technology Ave. Suite "C" Kalamazoo, MI 49009 USA Phone: 1-616-353-3658	USA
All American Inspections 106 E. Turbo San Antonio, TX 78216 USA Phone: 1-210-525-0421	USA
Apex Inspections 2530 Tarpley Suite #200 Carrollton, TX 75006 USA Phone 1-972-418-5672	USA
Applied Technical Services Inc. 1190 Atlanta Industrial Drive Marietta, GA 30066 USA Phone: 1-770-423-1400	USA
Applied Technical Services Inc. 214 Pelham Davis Circle Greenville, SC 29615 USA Phone: 1-864-675-6060	USA
Applied Technical Services Inc. 1325 "B" Cavalier Blvd Chesapeake, VA 23323 USA Phone: 1-757-558-0016	USA
Canyon State Inspection 3625 East Ajo Way Tucson, AZ 85713 USA Phone: 1-520-745-3672	USA
Canyon State Inspection 103 South Southgate Chandler, AZ 85226 USA Phone: 1-480-783-7183	USA

Stork Twin City Testing Corporation 662 Cromwell Ave. St. Paul, MN 55114 USA Phone: 1-651-659-7440	USA
Structural Testing Systems 97 Hering Drive L. I. MacArthur Airport Ronkonkoma, NY 11779 USA Phone: 1-516-981-0242	USA
Tailwind Inspection, Inc. 3260 N Sheridan Road Tulsa, OK 74115 USA Phone: 1-918-832-0700	USA
Tailwind Inspection, Inc. 70 – C King Spring Road Windsor Locks, CT 06096 USA Phone: 1-860-623-8600	USA
Tailwind Inspection, Inc. 7515 Lemmon Ave. Dallas, TX 75209 USA Phone: 1-214-357-9595	USA
The Aerospace NDT Company Inc. (formerly Rogers NDT) 3418 Cypresswood Dr. Spring, TX 77388 USA Phone: 1-281-482-0228	USA
THI (The Hangar Inc.) 2930 Winchester Road, Suite 500 Memphis, TN 38118 USA Phone: 1-901-345-8885	USA
Aerocentro De Servicios C.A. Aeropuerto Caracas-Edifico Aerocentro. Charallavre, Mirauda VZ Post Code 1210 Phone : 1-561-317-8848	Venezuela
Airtech Servicios Aereos, C.A. Aeropuerto Caracas Oscar Machado Zuloaga Edif. Airtech Charallave, Miranda 4383 Venezuela (VE) Phone: 58-14-939-1949	Venezuela

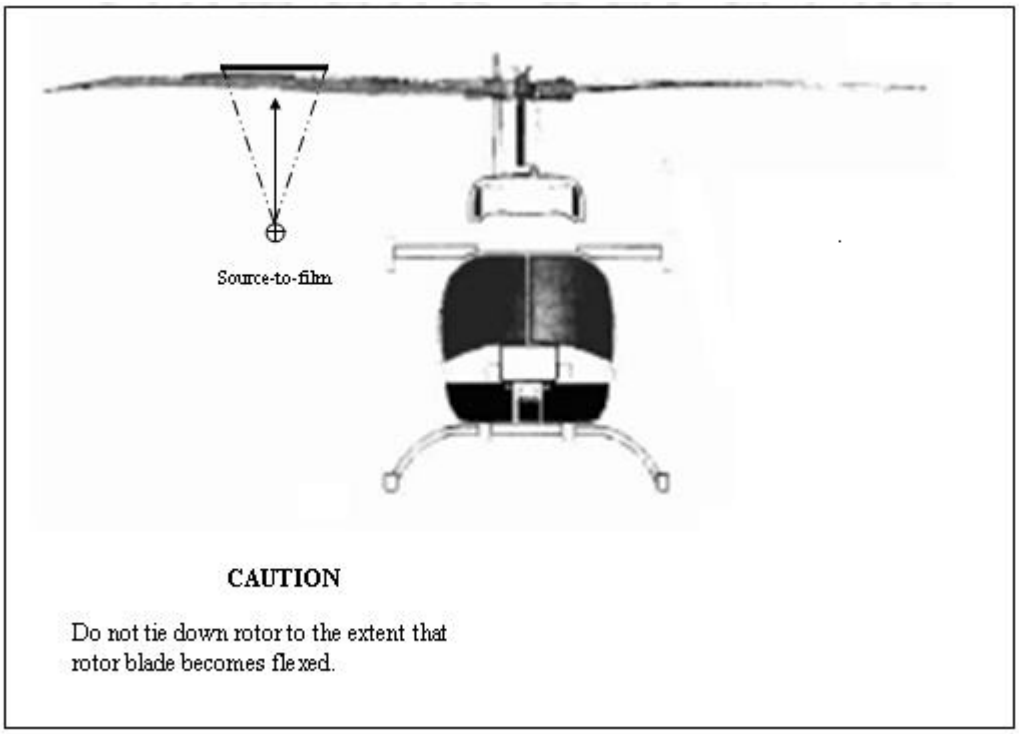

Figure 1. Radiograph with Blades Installed.

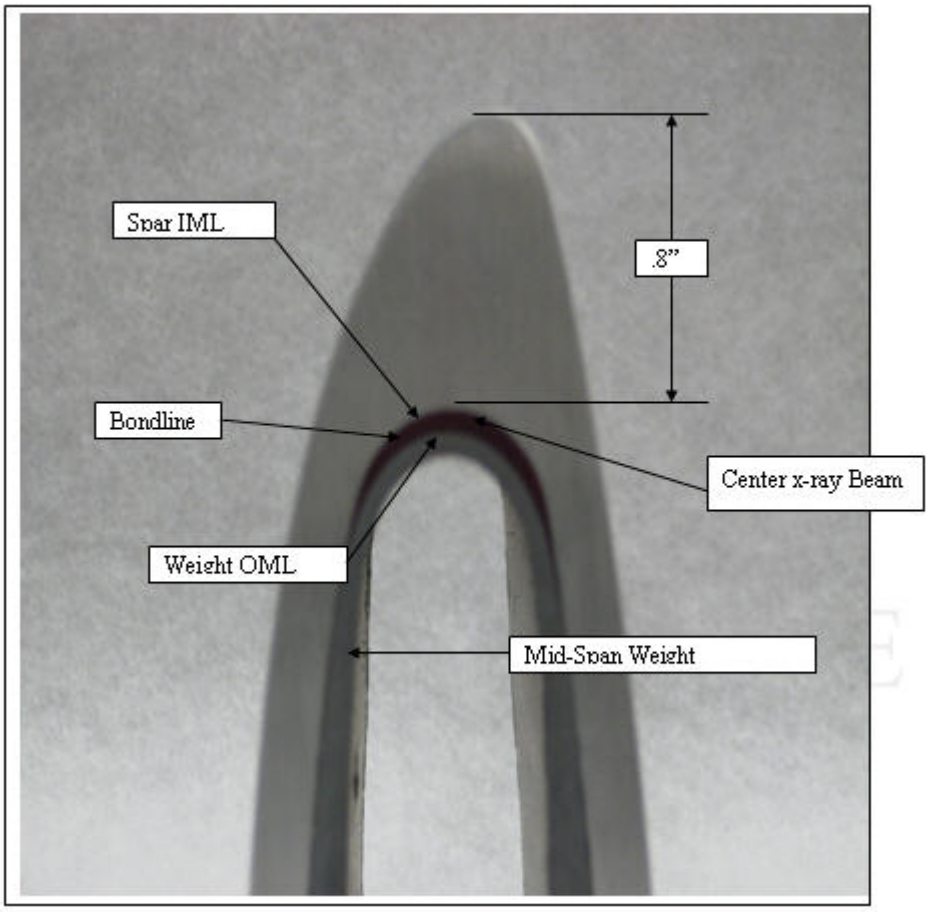

Figure 2. Cross Section of Main Rotor Blade.

A

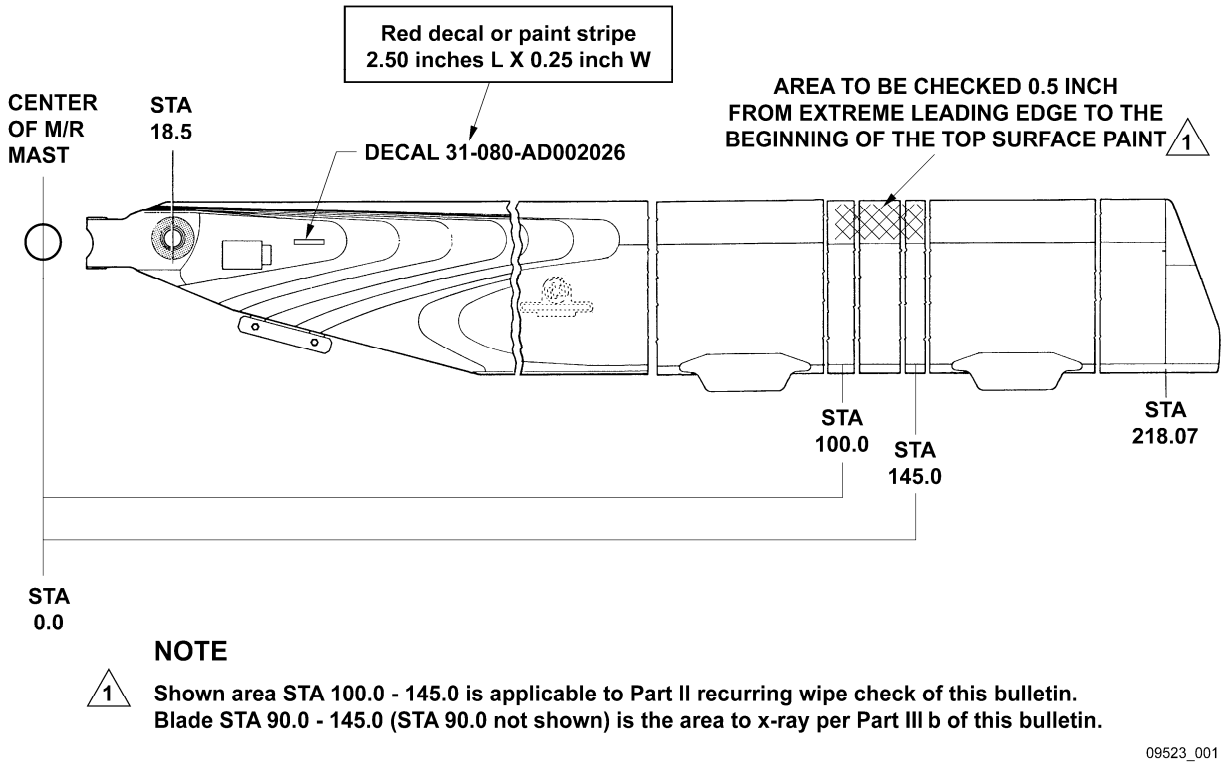

Figure 3. Main Rotor Blade Area to be checked.