MODEL AFFECTED: **206L Series**

SUBJECT: **MAIN ROTOR BLADES P/N 206-015-001-115, /-117, /-119 & /-121 SPAR SPACER, ONE TIME INSPECTION 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.

206L-3 Helicopters serial number 51001 through 51612.

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

206L-4 Helicopters serial number 52001 through 52399.

206L-4 Helicopters serial number 52400 and subsequent will have main rotor blades installed at time of delivery that are not affected by this bulletin.

BLADES AFFECTED: Main rotor blades P/N 206-015-001-115, /-117, /-119 and /-121 with serial number A-XXXX as listed in Table 1 or Table 2 of this Alert Service Bulletin
Main rotor blades listed in Table 1 had PART IV of this Alert Service Bulletin accomplished prior to delivery of the main rotor blade.

Main rotor blades listed in Table 2 **"DID NOT"** have PART IV of this Alert Service Bulletin accomplished prior to delivery of the main rotor blade.

Table 1. List of main rotor blades Serial Number (S/N) that had PART IV of this Alert Service Bulletin accomplished prior delivery.

A-6710	A-6781 to A-6795	A-6877
A-6713	A-6797 to A-6802	A-6883 to A-6885
A-6717 & A-6718	A-6804	A-6887
A-6722 to A-6725	A-6806	A-6889 to A-6895
A-6736 & A-6737	A-6808 to A-6818	A-6897 to A-6902
A-6740 to A-6744	A-6821 to A-6826	A-6906 to A-6910
A-6747 & A-6748	A-6828 to A-6833	A-6912 & A-6913
A-6750 to A-6758	A-6836	A-6916
A-6760 to A-6769	A-6840 to A-6843	A-6919 to A-6921
A-6771 to A-6775	A-6845 & A-6846	A-6923 & A-6924
A-6777	A-6848 to A-6856	A-6927 & A-6928
A-6779	A-6860 to A-6874	A-6958

Table 2. List of main rotor blades S/N that "DID NOT" have PART IV of this Alert Service Bulletin accomplished prior to delivery.

A-6027	A-6598 to A-6609	A-6693 to A-6698
A-6208	A-6613 & A-6614	A-6704 to A-6706
A-6547	A-6616 to A-6626	A-6708 & A-6709
A-6549 & A-6550	A-6628 to A-6660	A-6711 & A-6712
A-6555	A-6663 to A-6665	A-6715
A-6560 to A-6563	A-6667 to A-6682	A-6726 to A-6728
A-6565	A-6684 to A-6687	A-6734 & A-6735
A-6567 to A-6596	A-6689 & A-6690	A-6738

COMPLIANCE:

PART I. Within the next 25 flight hours or 7 days which ever comes first, determine if your main rotor blade is listed in Table 1 or 2 of the **BLADES AFFECTED** Section of this bulletin. For main rotor blades in Spares stock, accomplish this verification immediately upon receipt of this Alert Service Bulletin.

PART II A) and B). For main rotor blades listed in Table 1 or 2, at the next scheduled 100 flight hours inspection following the accomplishment of PART I of this Alert Service Bulletin. For main rotor blades in Spares stock, accomplish this inspection immediately upon completion of PART I of this Alert Service bulletin.

PART III. Within the next 60 engine starts and every 60 engine starts thereafter, for the main rotor blades listed in Table 2 of the **BLADE AFFECTED** Section that have oversize spar spacer installed as determined per the accomplishment of PART II B) of this Alert service Bulletin. This check shall be accomplished on blades that have accumulated more than 1200 flight hours and until the main rotor blade is remove from service or as instructed in PART IV of this Alert Service Bulletin.

PART IV. As an option to the Owners/Operators that have to accomplish PART III of this Alert Service Bulletin.

After review of the spar radiographs by Bell Helicopter, a letter will be provided to the Owners/Operators indicating that the main rotor 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 the PART III of this Alert Service Bulletin is accomplished until the main rotor blade reached retirement life.

DESCRIPTION:

Bell Helicopter recently discovered that some 206-015-001-115, /-117, /-119 and /-121 main rotor blades have been manufactured with a spar spacer (aft spar closure) that was approximately 0.030 inch oversized. Upon analysis of this condition, Bell Helicopter is reducing the retirement life from 3600 to 2300 flight hours for the affected main rotor blades.

The investigation have also established that a fatigue crack could occur if there was a combination of both oversize spar spacer 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 listed in the Table 2 may have the described combination of both oversize spar spacer and a larger than acceptable 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. Once the presence of an oversize spacer has been determined, 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 IV 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 III will be required.

PART I of this Alert Service Bulletin has you determine if your main rotor blade is listed in Table 1 or 2 of the **AFFECTED BLADES** Section of Alert Service Bulletin.

PART II A) of this Alert Service Bulletin provides you with instruction on how to measure the main rotor blades spar spacer. Blades with oversize spar spacer have to be re-identified and their retirement life reduced to 2300 flight hours. It is applicable to the main rotor blades listed in the Table 1 of the **AFFECTED BLADE** Section of this Alert service Bulletin. These main rotor blades have had PART IV of this Alert Service Bulletin accomplished prior to delivery.

PART II B) of this Alert Service Bulletin provides you with instruction on how to measure the main rotor blades spar spacer. Blades with oversize spar spacer have to be re-identified and their retirement life reduced to 2300 flight hours, in addition for main rotor blade with more than 1200 flight hours, a main rotor blade spar wipe check is required every 60 engine starts. It is applicable to the main rotor blades listed in the Table 2 of the **AFFECTED BLADE** Section of this Alert Service Bulletin. These main rotor blades **"DID NOT"** have PART IV of this Alert Service Bulletin accomplished prior to delivery.

-NOTE-

PART III affects only the blades listed in Table 2 with the oversize spar spacer as determined by PART II B) of this Alert Service Bulletin.

PART III of this Alert Service Bulletin introduces a recurring main rotor blade spar wipe check at every 60 engine starts for the main rotor blades that have oversize spar spacer installed as determined per the accomplishment of PART II B) of this Alert Service Bulletin. This check is to be performed on main rotor blades that have accumulated more than 1200 flight hours.

-NOTE-

PART IV is offered as an alternate option to the Owners/Operators with main rotor blades that are affected by the accomplishment of PART III of this Alert Service Bulletin.

PART IV of this Alert Service Bulletin provides instructions on how to perform a one time X-Ray inspection. A Radiography picture of the main rotor blade spar is taken and then sent to Bell Helicopter for review. After review, depending on the results, Bell Helicopter will issue a letter that contains one of the following statements;

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 III of this Alert Service Bulletin requires accomplishment until retired 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 IV 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 5 of this Alert Service Bulletin. This list is not inclusive and is provided as a reference. The X-Ray can be taken with either the blade installed or removed from the helicopter.

APPROVAL:

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

MANPOWER:

Approximately 0.5 man-hour is required to complete PART I of this Alert Service Bulletin.

Approximately 2.5 man-hours are required to complete PART II A) or B) of this Alert Service Bulletin.

Approximately 1.0 man-hour is required to complete PARTY III of this Alert Service Bulletin.

Approximately 10.0 man-hours are required to complete PART IV of this Alert Service 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 per PART III 5. & 6. b. will be eligible to receive a pro-rated credit for the replacement main rotor blade part number 206-015-001-115/-117/-119/-121 outlined under the required material section.

In addition Bell Helicopter will allow a credit reimbursement for x-ray described in PART IV of this bulletin together with freight costs up to a maximum of $1,000.00 per blade. 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.

For blades that are identified to have a spar spacer that is larger than the dimensions described in PART II A & B of this bulletin you will be able to receive a 37% credit for the unused 1,300 hours as a result of the reduction in life of the blade. Once the re-identified blade 206-015-001-125/-127/-129/-131 reaches its 2300 hour life purchase a replacement blade and submit a MMIR to Bell 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 2 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.
- Submit an MMIR to the Bell Warranty Department referencing this ASB for the replacement parts/x-ray & freight cost/ or for the unused portion of 1,300hours.

NOTE: Customers who fail to comply with the instructions in this Bulletin after the 15 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 (Standard white)	A/R	1
206-015-001-117	Main Rotor Blade (High visibility, black & white)	A/R	1
206-015-001-119	Main Rotor Blade (High visibility, orange & white)	A/R	1
206-015-001-121	Main Rotor Blade (All black)	A/R	1

Note:

1. Required only if a main rotor blade spar is found cracked.

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.

For PART II A) and B) of this Alert Service Bulletin

Part Number	Nomenclature	Notes	Quantity	Reference
320 GRIT CLOTH 9X11	Abrasive Cloth, 320 grit	1	As required	C-406
240 GRIT CLOTH 9X11	Abrasive Cloth, 240 grit	1	As required	C-406
TT-N-95,TYII	Aliphatic Naphtha	2	As required	C-305
MIL-P-85582, TY1, CL2	Primer		As required	C-246
MIL-PRF85285	Paint	3	As required	C-245
299-947-072	Fairing Compound	4	As required	C-323

Note:

1. Or equivalent Aluminum Oxide cloth
2. As an alternate use Methyl Ethyl Ketone (C-309) or Acetone (C-316)

3. Color code per FED-STD-595 as follows:
   - Semi gloss white #27925
   - Lusterless black #37038
   - Gloss orange #12197
   - Tip, orange yellow #33538
4. Hysol EA 960

For PART III of this Alert Service Bulletin

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:

BHT-206L-MM-1 Chapter 65-00-00
BHT-206L1-MM-1 Chapter 65-00-00
BHT-206L3-MM-6 Chapter 62-00-00
BHT-206L4-MM-6 Chapter 62-00-00
Customer Support and Service Directory

PUBLICATIONS AFFECTED:

BHT-206L-MM-1	Chapter 05-00-00 and Chapter 65-00-00
BHT-206L1-MM-1	Chapter 05-00-00 and Chapter 65-00-00
BHT -206L3-MM-1	Chapter 05-00-00
BHT-206L3-MM-6	Chapter 62-00-00
BHT-206L4-MM-1	Chapter 05-00-00
BHT-206L4-MM-6	Chapter 62-00-00

ACCOMPLISHMENT INSTRUCTIONS:

PART I. Determine if your main rotor blade is affected

1. Determine if your main rotor blade had or not PART IV of this Alert Service Bulletin accomplished prior to delivery as follows:

    a. Check if your main rotor blade S/N is listed in Table 1 and 2 of the **AFFECTED BLADE** Section this Alert Service Bulletin

    b. If your main rotor blade S/N is listed in Table 1, proceed with PART II A) of this Alert Service Bulletin within the next scheduled 100 flight hour inspection.

    c. If your main rotor blade S/N is listed in the Table 2, accomplish PART II B) of this Alert Service Bulletin within the next scheduled 100 flight hour inspection.

2. If your main rotor blade S/N is not listed in either Table 1 or Table 2, no further action is required. Make required record entry indicating the finding to show that PART I of this bulletin is accomplished.

PART II A). Main rotor blade spar spacer measurement:

For main rotor blades that had PART IV of this bulletin accomplished prior to main rotor blade delivery as listed in Table 1.

-NOTE-

At the next scheduled 100 flight hours inspection following the accomplishment of PART I of this Alert Service Bulletin.

1. Remove the tip weight support assembly (2) from the main rotor blade as follows: (Refer to Figure 1).
    a. Remove the four screws (1) holding the tip weight support assembly (2).
    b. Use a soft scraper and remove the filler around the tip weight support assembly (2).

CAUTION

WHEN REMOVING THE TIP WEIGHT SUPPORT ASSEMBLY (2) FROM THE MAIN ROTOR BLADE (5), BE CAREFUL, WASHER (3) MAY HAVE BEEN INSTALLED BETWEEN THE MAIN ROTOR BLADE SPAR (4) AND THE TIP WEIGHT SUPPORT ASSEMBLY (2). MAKE SURE YOU RECORD THE LOCATION OF THESE WASHERS (3) IF INSTALLED. THEY ARE USED TO MAINTAIN THE TIP WEIGHT SUPPORT ASSEMBLY (2) CONTOUR ALIGNMENT WITH THE MAIN ROTOR BLADE SPAR (4).

    c. Remove the tip weight support assembly (2) and record the location of the washer (3) if installed.

2. Proceed with the measuring of the spar spacer (6) as follows:
    a. Use abrasive cloth grit 320 grit (C-406) or finer and sand just enough paint or primer to permit identification of the bond line between the main rotor blade spar (4) and spar spacer (6).
    b. Use a caliper and measure the main rotor blade spar spacer (6) tang width as shown on Figure 1.
    c. Record your dimension.

3. Proceed with the installation of the tip weight support assembly on the main rotor blade as follows:
    a. Use a soft scraper and abrasive cloth 240 grit (C-406) and remove the remaining filler.

b. Clean the sanded area around the main rotor blade spar (4) and spar spacer (6) with Aliphatic Naphtha (C-305) and touch-up the primer (C-246) and paint (C-245) to make sure there is no bare metal exposed.

c. Clean the mating faces on the main rotor blade (5) and the tip weight support assembly (2) with Aliphatic Naphtha (C-305). To maintain the tip weight support assembly (2) to main rotor blade contour, position the washers (3) if installed, in the location previously recorded and slip the tip weight support assembly (2) in the main rotor blade (5) recess.

d. Install and torque the four screws (1) to 40 inch-pounds. (4.5 Nm)

CAUTION

MAKE SURE YOU DO NOT BLOCK THE MAIN ROTOR BLADE DRAIN HOLE DURING THE FILL AND FAIR PROCESS.

e. Clean the main rotor blade (5) and tip weight support assembly (2) surrounding area mating line with Aliphatic Naphtha (C-305) and fill and fair the area using fairing compound (C-323). Use just enough fairing compound (C-323) to maintain the main rotor blade (5) contour.

f. Touch-up the area with Primer (C-246) and paint (C-245) as required making sure there is no bare metal exposed.

-NOTE-

Oversize spar spacer (6) is approximately 0.030 inch (0.762 mm) larger than the maximum dimension limit of 1.018 inch (25.86 mm)

4. For main rotor blade with spar spacer (6) that are **"WITHIN"** spar spacer width. This maximum dimension shall not exceed 1.018 inch (25.86 mm), proceed as follows:

   a. Make required helicopter record entry indicating the finding and that PART II A) of this Alert Service Bulletin is accomplished. No further action is required.

5. For blades with main rotor blade spar spacer (6) that are **"LARGER"** than the maximum dimension of 1.018 inch (25.86 mm), proceed as follows:

   a. Use a vibrating tool and strike through the last three digits of the main rotor blade Part Number on the data plate. Re-identify main rotor blade data plate in accordance with the information provided in Table 3. The dept of the vibroetch must not exceed 0.005 inch (0.127 mm).

Table 3. Main rotor blade re-identification information.

EXISTING PART NUMBER	NEW PART NUMBER
206-015-001-~~115~~	206-015-001-125
206-015-001-~~117~~	206-015-001-127
206-015-001-~~119~~	206-015-001-129
206-015-001-~~121~~	206-015-001-131

b. Make required record entry indicating that this specific main rotor blade retirement life is reduced from 3600 to 2300 flight hours.

c. Make required helicopter record entry indicating that the PART II A) of this bulletin is accomplished. No further action required.

PART II B) Main rotor blade spar spacer measurement.

For main rotor blades that did not have PART IV of this bulletin accomplished prior to main rotor blade delivery as listed in Table 2.

-NOTE-

At the next scheduled 100 flight hours inspection following the accomplishment of PART I of this Alert Service Bulletin.

1. Remove the tip weight support assembly (2) from the main rotor blade (5) as follows: (Refer to Figure 1).
   a. Remove the four screws (1) holding the tip weight support assembly (2).
   b. Use a soft scraper and remove the filler around the tip weight support assembly (2).

CAUTION

WHEN REMOVING THE TIP WEIGHT SUPPORT ASSEMBLY (2) FROM THE MAIN ROTOR BLADE (5), BE CAREFUL, WASHER (3) MAY HAVE BEEN INSTALLED BETWEEN THE MAIN ROTOR BLADE SPAR (4) AND THE TIP WEIGHT SUPPORT ASEMBLY (2). MAKE SURE YOU RECORD THE LOCATION OF THESE WASHERS (3) IF INSTALLED. THEY ARE USED TO MAINTAIN THE TIP WEIGHT SUPPORT ASSEMBLY (2) CONTOUR ALIGNMENT WITH THE MAIN ROTOR BLADE SPAR (4).

c. Remove the tip weight support assembly (2) and record the location of the washer (3) if installed.

2. Proceed with the measuring of the spar spacer (6) as follows:
   a. Use abrasive cloth grit 320 grit (C-406) or finer and sand just enough paint or primer to permit identification of the bond line between the main rotor blade spar (4) and spar spacer (6).
   b. Use a caliper and measure the main rotor blade spar spacer (6) width as shown on Figure 1.
   c. Record your dimension.
3. Proceed with the installation of the tip weight support assembly (2) on the main rotor blade (5) as follows:
   a. Use a soft scraper and abrasive cloth 240 grit (C-406) to remove the remaining filler.
   b. Clean the sanded area around the main rotor blade spar (4) and spar spacer (6) with Aliphatic Naphtha (C-305) and touch-up the primer (C-246) and paint (C-245) to make sure there is no bare metal exposed.
   c. Clean the mating faces on the main rotor blade (5) and the tip weight support assembly(2) with Aliphatic Naphtha (C-305). To maintain the tip weight support assembly (2) to main rotor blade spar (4) contour, position the washers (3) if installed, in the location previously recorded and slip the tip weight support assembly(2) in the main rotor blade (5) recess.
   d. Install and torque the four screws (1) to 40 inch-pounds. (4.5 Nm)

CAUTION

MAKE SURE YOU DO NOT BLOCK THE MAIN ROTOR BLADE DRAIN HOLE DURING THE FILL AND FAIR PROCESS.

   e. Clean the main rotor blade (5) and tip weight support assembly (2) surrounding area mating line with Aliphatic Naphtha (C-305) and fill and fair the area using fairing compound (C-323). Use just enough fairing compound (C-323) to maintain the main rotor blade (5) contour.

   f. Touch-up the area with Primer (C-246) and paint (C-245) as required making sure there is no bare metal exposed.

-NOTE-

Oversize spar spacer (6) is approximately 0.030 inch (0.762 mm) larger than the maximum dimension limit of 1.018 inch (25.86 mm)

4. For main rotor blade (5) with spar spacer (6) that are **"WITHIN"** spar spacer width. This maximum dimension shall not exceed 1.018 inch (25.86 mm), proceed as follows:
    a. Make required helicopter record entry indicating the finding and that PART II B) of this Alert Service Bulletin is accomplished. No further action is required.
5. For blades with main rotor blade spar spacer (6) that are **"LARGER"** than the maximum dimension of 1.018 inch (25.86 mm), proceed as follows:
    a. Use a vibrating tool and strike through the last three digits of the main rotor blade Part Number on the data plate. Re-identify main rotor blade data plate in accordance with the information provided in Table 4. The dept of the vibroetch must not exceed 0.005 inch (0.127 mm).

Table 4. Main rotor blade re-identification information.

EXISTING PART NUMBER	NEW PART NUMBER
206-015-001-~~115~~	206-015-001-125
206-015-001-~~117~~	206-015-001-127
206-015-001-~~119~~	206-015-001-129
206-015-001-~~121~~	206-015-001-131

    b. Make required record entry indicating that this specific main rotor blade retirement life is reduced from 3600 to 2300 flight hours.
    c. If the main rotor blade has presently accumulated more than 1200 flight hours or when the main rotor blade reaches 1200 flight hours, accomplish PART III of this alert Service Bulletin within the next 60 engine starts and every 60 engine starts thereafter. PART IV of this Alert Service Bulletin offers an alternate option to the Owners/Operators that have to accomplish this check.
    d. Make required helicopter record entry indicating that the PART II B) of this bulletin is accomplished.

-NOTE-

PART III and PART IV of this Alert Service Bulletin can be accomplished with the blade installed on the helicopter.

PART III. Recurring wipe check procedure.

-NOTE-

"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. Accomplish this recurring wipe check procedure every 60 engine starts as required per PART II B) of this Alert service Bulletin. This check shall be accomplished on blades that have accumulated more than 1200 flight hours until the main rotor blade is remove from service. PART IV of this Alert Service Bulletin offers a possible alternate option to the Owners/Operators that have to accomplish this check.

2. In order to provide a quick visual reference, apply a “red stripe” decal (or paint if preferred) on both sides of the main rotor blade at the location indicated on the Figure 2. 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-

The marking of the spar at station 100 and 145 is required for accomplishment of Part III of this Alert Service Bulletin. For accomplishment of Part IV, 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 main rotor blade to identify station 100 and 145 as follows:

   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 2.

4. Proceed with the spar wipe check as follows:

   a. Gain access to main rotor blades upper surface.

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

   c. 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

   d. 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.

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

   f. 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.

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

-NOTE-

The following inspection must be accomplished by a mechanic

6. If the blue food coloring solution wipe check as specified in step 4 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.

7. If no crack is found, make an entry in the helicopter technical records to show that the PART III of this Alert Service Bulletin has been accomplished and indicate the findings. Repeat this check every 60 engine starts or as an option accomplish PART IV of this Alert Service Bulletin.

Part IV. Main rotor blade spar radiography. (optional)

Selection of an NDI facility

-NOTE-

Approximately 75% of the affected main rotor blades that have had the NDI accomplished have passed this inspection and will not have to accomplish the recurring 60 engine starts spar wipe check.

1. 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 the PART IV 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 5 of this Alert Service Bulletin. This is list is not all inclusive and is provides as a reference. The X-Ray 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 III of this bulletin.

2. 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 main rotor blade disposition to both Owner and the NDI Facility.

3. 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 IV with the blade installed on the helicopter, remove the blade using the applicable maintenance manual instructions and ship in a suitable container.

4. Provide a copy of this bulletin to your NDI Facility for accomplishment of Part IV of this Alert Service Bulletin.

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.

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

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

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.

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 (Refer to applicable Maintenance Manual).

   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 III of this bulletin. For accomplishment of Part IV, 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 3 and 4, from station 90 to station 145, (Refer to Figure 2).

   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 III. (Refer to Figure 2).

   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 3 and 4.

   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 3).

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 3).

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.

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-09-163** 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:

   - 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 III of this bulletin requires accomplishment until retirement from service. Or,

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

Table 5. 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
Qantas Airways, Nondestructive Tests Section M96/1 Mascot Maintenance Base Sydney, New South Wales Australia 2020 Phone: 612-9691-7402	Australia
Sabena Technics Nondestructive Inspection Dept. Brussels National Airport, Hanger #8, Door #5 Zaventem, Brussels, Belgium B1930 Phone: 3212-53-55	Belgium
CAL – Compoende Aeronautica Ltda Av. Dos Ipes, 391 Flor do Vale, Tremembe-Sao Paulo 12120-000 Brazil Phone: 55-12-3672-1911	Brazil
Cantech Aviation Inspections Ltd 120-13451 Vulcan Way Richmond, British Columbia V6V 1K4 Canada Phone: 1-604-244-9699	Canada
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
Execaire, a Division of I.M.P. Group Limited, 10225 Ryan Avenue, Dorval, Quebec H9P 1A2 Canada Phone : 1-514-636-7070	Canada
Perimeter Aviation 626 Ferry Road Winnipeg, Manitoba Canada R3H 0T7	Canada

Central Flying Service Inc. 12th and Calhoun Little Rock, AR 72202 USA Phone: 1-800-844-6257	USA
CTC (Certified Testing & Consulting Services), LLC 3144 Venture Drive, Suite #100 Lincoln, CA 95648 USA Phone: 1-916-434-0195	USA
Certified Inspection Services, LLC 3755 Industrial Court, NW, Suite #16 Suwanee, GA 30024 USA Phone: 1-678-730-2000	USA
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
EPPS Aviation Inc. 1 Aviation Way Atlanta, GA 30341 USA Phone: 1-770-458-9851	USA
ETI Ewer Testing & Inspection Inc. 1131 South 22nd Street Bismarck, ND 58504 USA Phone: 1-701-223-6434	USA
Flight Craft 7505 N.E. Airport Way Portland Oregon 97218 USA Phone: 1-503-331-4219	USA
Flight Options LLC 26180 Curtis Wright Parkway Richmond Heights, OH 44143 USA Phone: 1-216-797-8473	USA

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

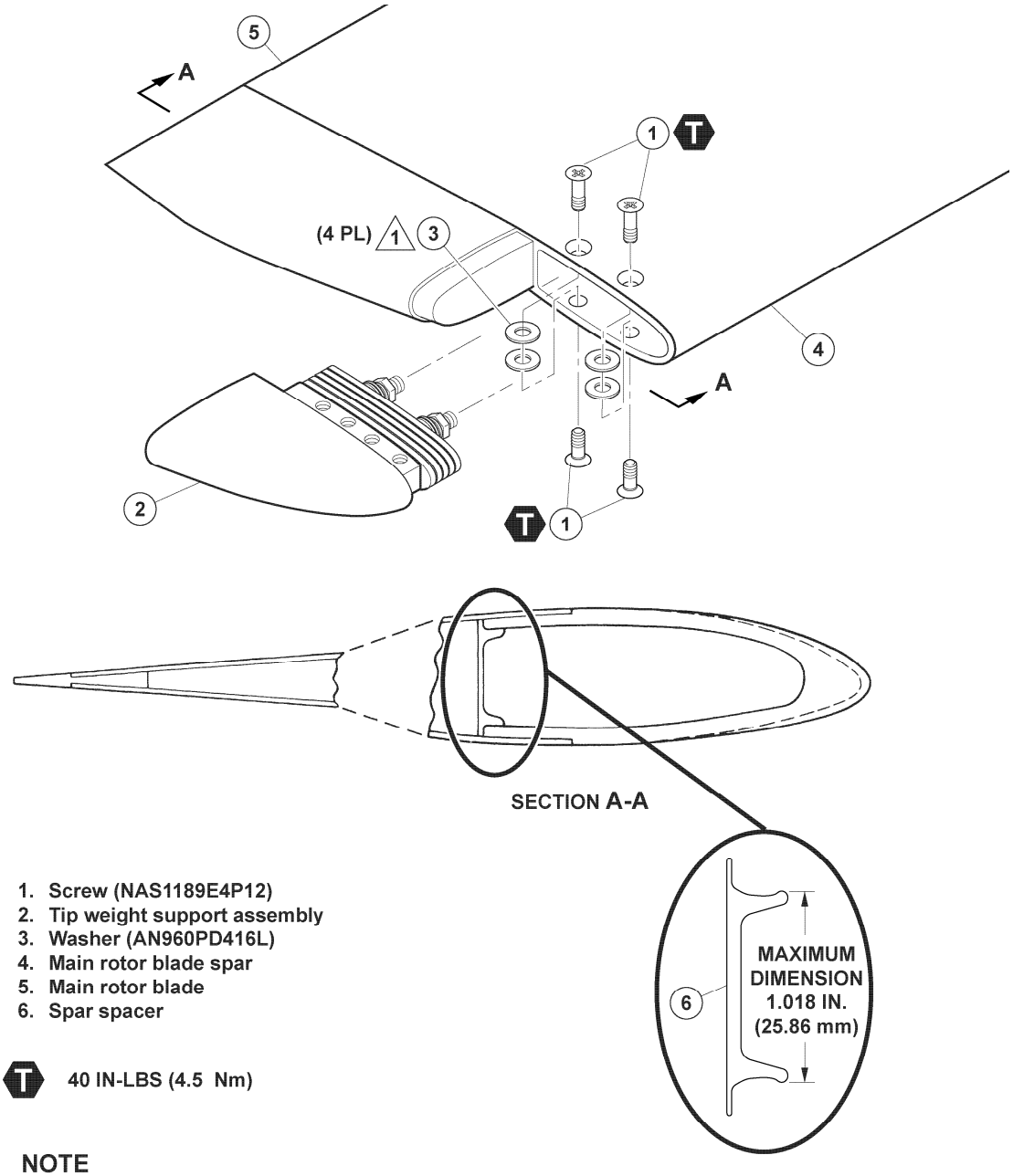
General Dynamics Aviation Services W6365 Discovery Drive Appleton, WI 54915 USA Phone: 1-920-735-7028	USA
General Dynamics Aviation Services 5616 Haven Street Las Vegas, NV 89119 USA Phone: 1-702-947-3030	USA
General Dynamics Aviation Services 6925 34th Ave. south Minneapolis, MN 55450 USA Phone: 1-612-638-2053	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



1. Screw (NAS1189E4P12)
2. Tip weight support assembly
3. Washer (AN960PD416L)
4. Main rotor blade spar
5. Main rotor blade
6. Spar spacer

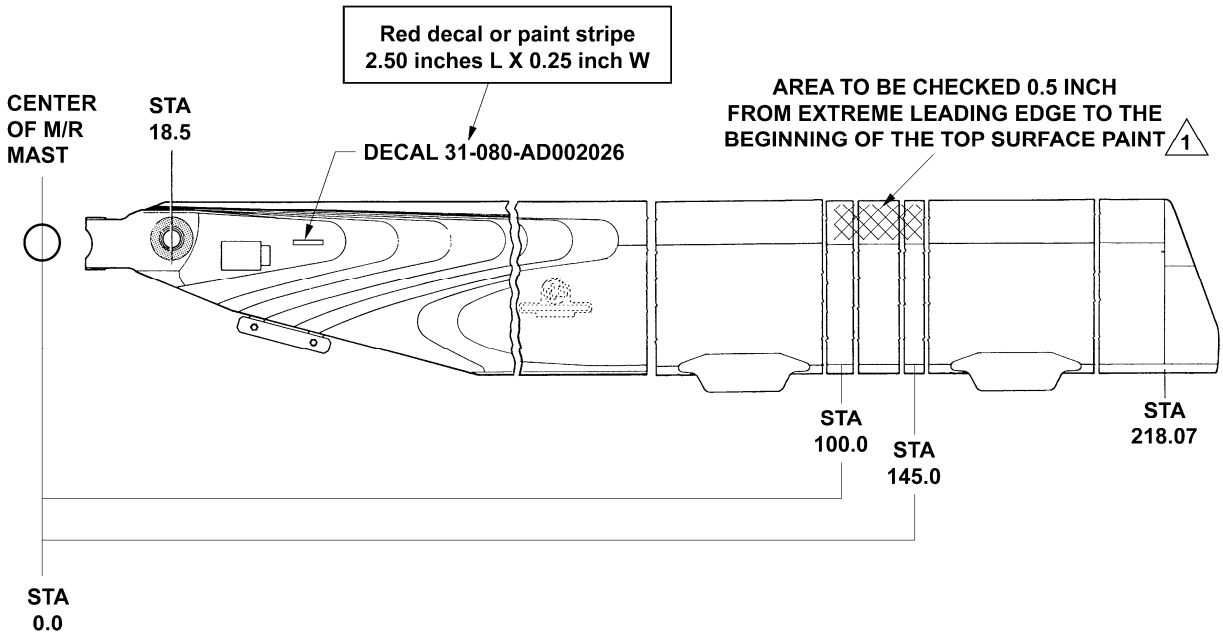
T 40 IN-LBS (4.5 Nm)

NOTE

1 Washers (3) are used to maintain the tip weight support (2) contour alignment with the main rotor blade spar (4). Record location and number of washers (3). If installed, reinstall washers (3) in exact same location.

09585_002

Figure 1. Main rotor blade spar spacer inspection.

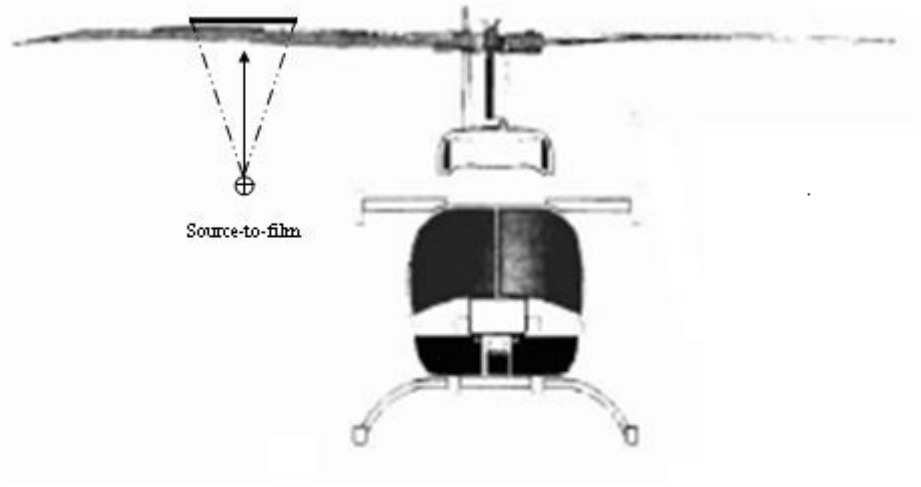


NOTE

1 **Shown area STA 100.0 - 145.0 is applicable to Part II recurring wipe check of this bulletin.**
Blade STA 90.0 - 145.0 (STA 90.0 not shown) is the area to x-ray per Part III b of this bulletin.

09523_001

Figure 2. Main Rotor Blade Area to be checked.



CAUTION

Do not tie down rotor to the extent that rotor blade becomes flexed.

Figure 3. Radiograph with Blades Installed.

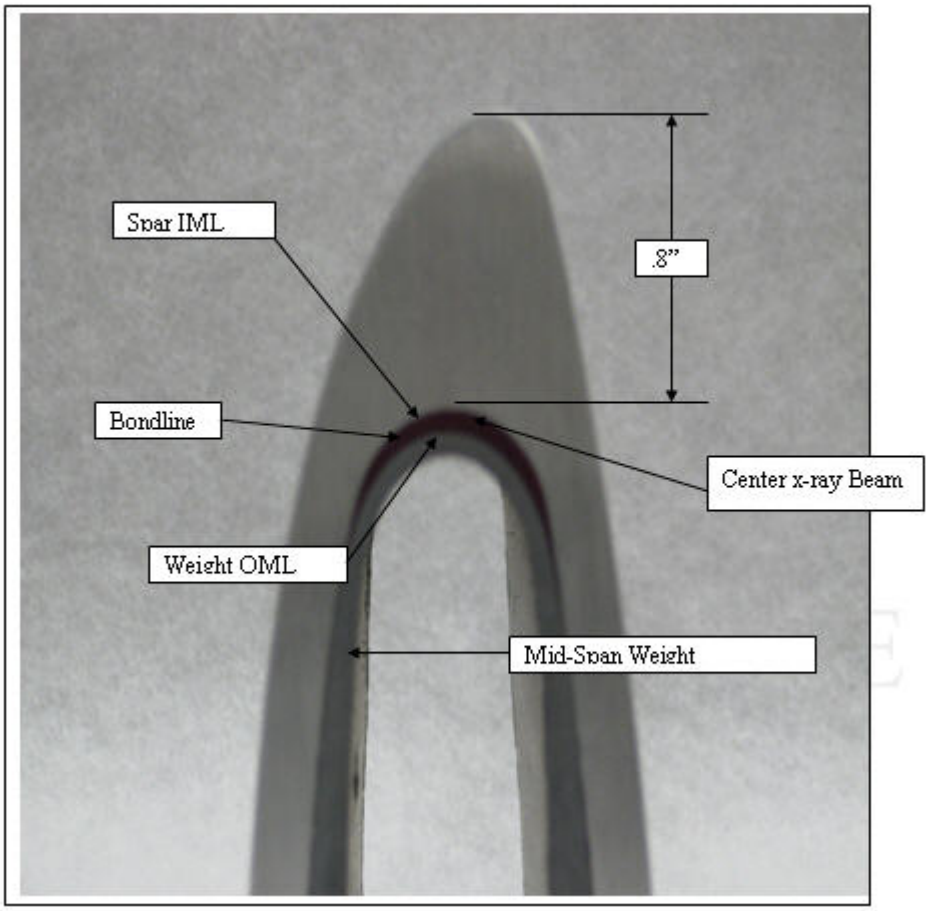


Figure 4. Cross Section of Main Rotor Blade.