

R44 SERVICE BULLETIN SB-89
(supersedes R44 Safety Alert dated 23 February 2015)

DATE: 30 March 2015

TO: R44 & R44 II Owners, Operators, and Maintenance Personnel

SUBJECT: Main Rotor Blade Modification

ROTORCRAFT AFFECTED: R44 & R44 II Helicopters equipped with C016-7 Revision AE or prior revision main rotor blades.

TIME OF COMPLIANCE: Within next 15 flight hours or by 31 May 2015, whichever occurs first.

BACKGROUND: RHC has received a report of a crack in a C016-7 main rotor blade. The crack initiated at the blade's trailing edge at the corner where the blade chord begins to increase. Although the cause of the crack has not yet been determined, this modification will improve safety margins.

Abrupt shape changes such as corners can concentrate stresses. This bulletin provides instructions to smooth the transition at the chord increase to reduce the stress concentration.

COMPLIANCE PROCEDURE:

NOTE: A short tutorial video for these instructions is available online at www.robinsonheli.com.

For each C016-7 Revision AE or prior main rotor blade:

1. Order one R7769 kit (reference page 6, one kit can perform R44 SB-89 or R66 SB-13 for 5 sets of 2 blades) from [RHC Customer Service](#) or acquire supplies locally.

NOTE

R7769-1 tube may be fabricated from smooth, rigid, 4.0 – 5.0 inch diameter tube approximately 3 inches long. R7769-6 slit tubes may be fabricated from A729-32 tubes slit lengthwise.

WARNING

Do not use power tools.

(OVER)

2. Rigidly support both main rotor blades and apply rotor brake, or remove main rotor blades per R44 Maintenance Manual (MM) § 9.111.

CAUTION

When performing modification with blades installed on helicopter, an appropriate work platform is required for the technician.

3. Refer to Figure 1. Clean blade in area shown in figure. Using 10x magnification and a bright light, visually inspect upper and lower blade surfaces and trailing edge in area indicated. Verify no cracks, corrosion, or damage such as nicks which may initiate a crack. If any of the preceding are found, remove blade from service and contact [RHC Technical Support](#).
4. Using a fine-point marker, mark a line at transition to increased chord trailing edge as shown in Figure 1.

NOTE

Perform all filing and sanding in a spanwise direction.

5. Refer to Figure 2. Install R7769-6 slit tubes onto trailing edge to protect areas shown. Use two MS3367-6-0 ty-raps to secure tubes as shown. Remove material in marked, triangular-shaped area by filing. Hand-file spanwise towards blade tip from corner while holding file square to trailing edge. A sharp single-cut, flat file is recommended; clean file frequently to minimize burrs. Remove ty-raps and tubes after filing (tubes may be reused by cutting off area worn by filing).
6. Refer to Figure 3. Wrap R7769-1 tube with 220-grit wet-or-dry aluminum-oxide or silicon-carbide abrasive paper. Holding tube perpendicular to blade trailing edge, sand edge spanwise to create a 2.0 inch minimum inside radius.
7. Finish edge by sanding spanwise using tube wrapped with 320-grit wet-or-dry aluminum-oxide or silicon-carbide abrasive paper. Remove any remaining paint or primer by sanding to expose trailing edge bare metal for minimum 0.5 inch inboard of radius as shown. Also sand a 0.25 inch minimum outside radius at corner shown in Figure 3.
8. Using R7769-1 tube as a gage, verify radius is a minimum of 2.0 inches as shown in Figure 3 (a radius that is too small will leave a gap between tube and trailing edge). Verify minimum chord after rework per MM § 9.141 (9.90 inches minimum inboard of rework).
9. Hold a piece of 320-grit abrasive paper by edges so that tensioned paper wraps over trailing edge. Move tensioned paper spanwise along reworked area four passes to deburr skin edges.

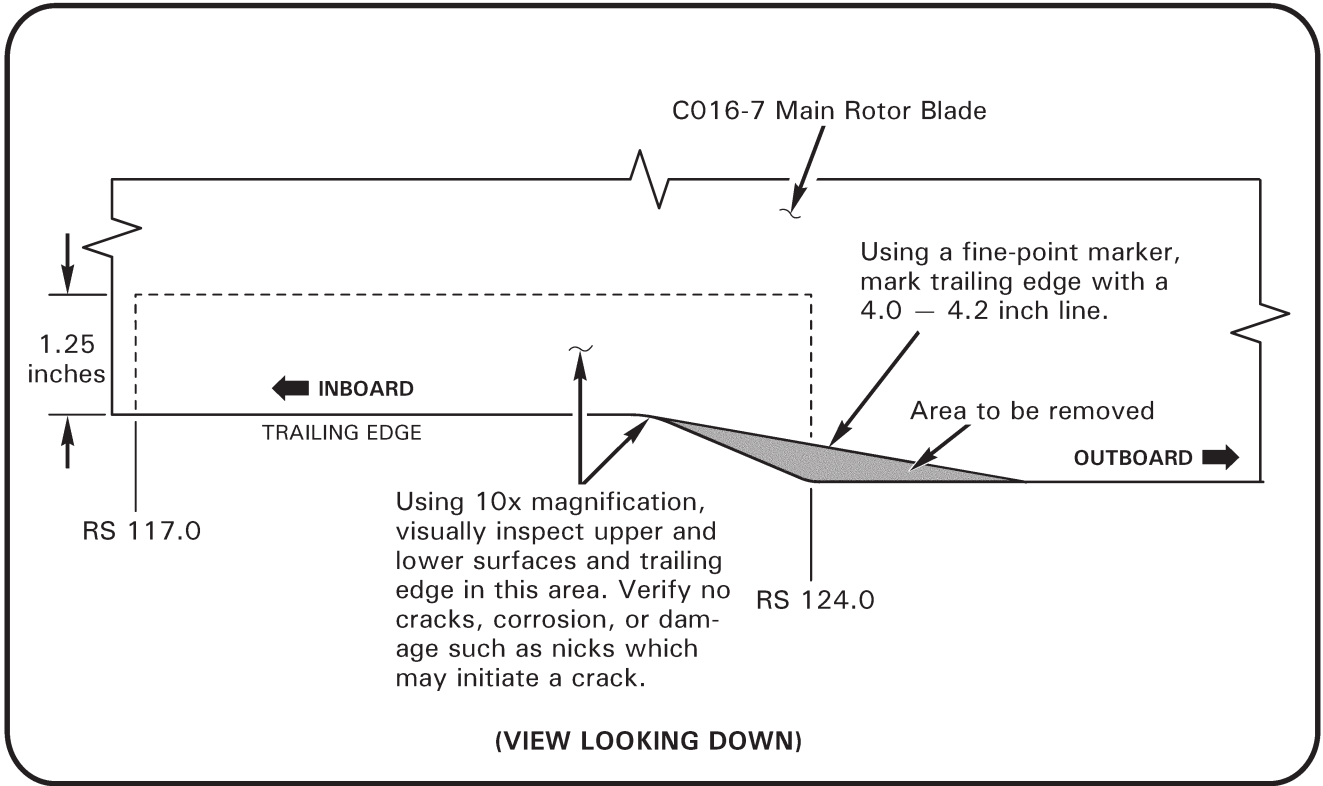


FIGURE 1

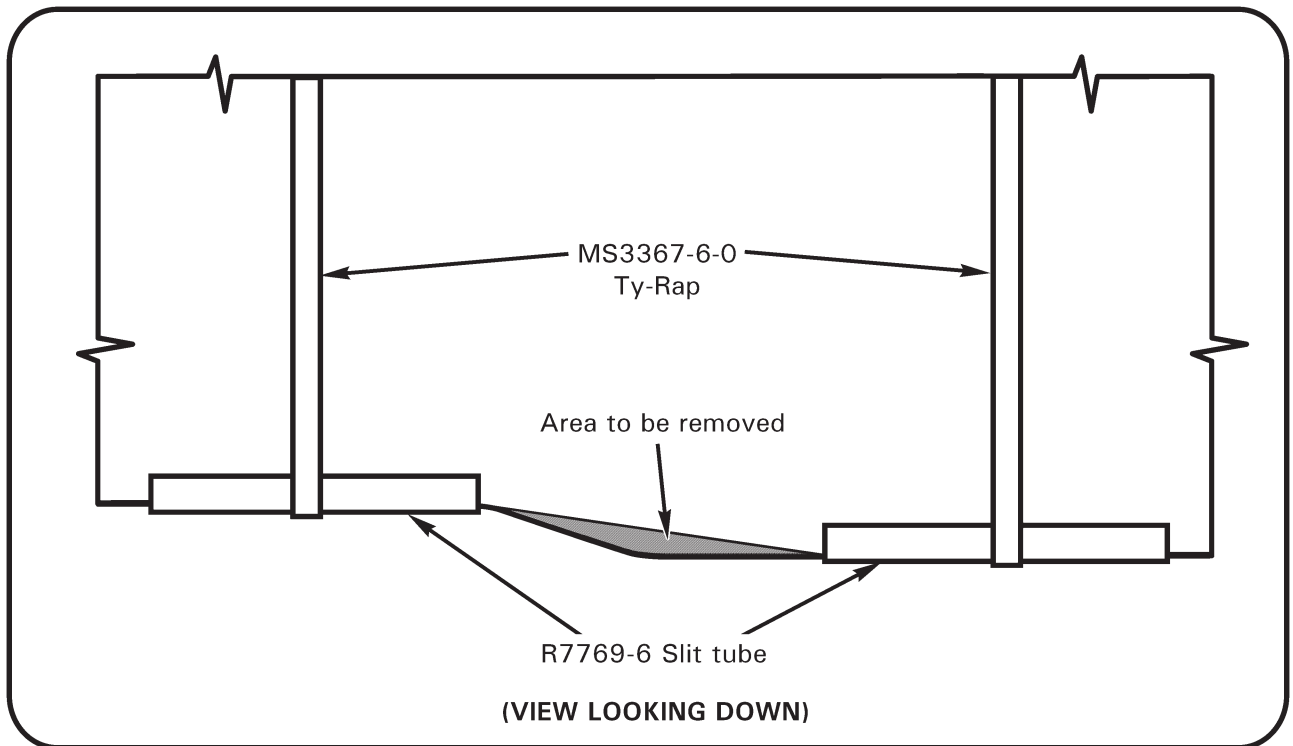


FIGURE 2

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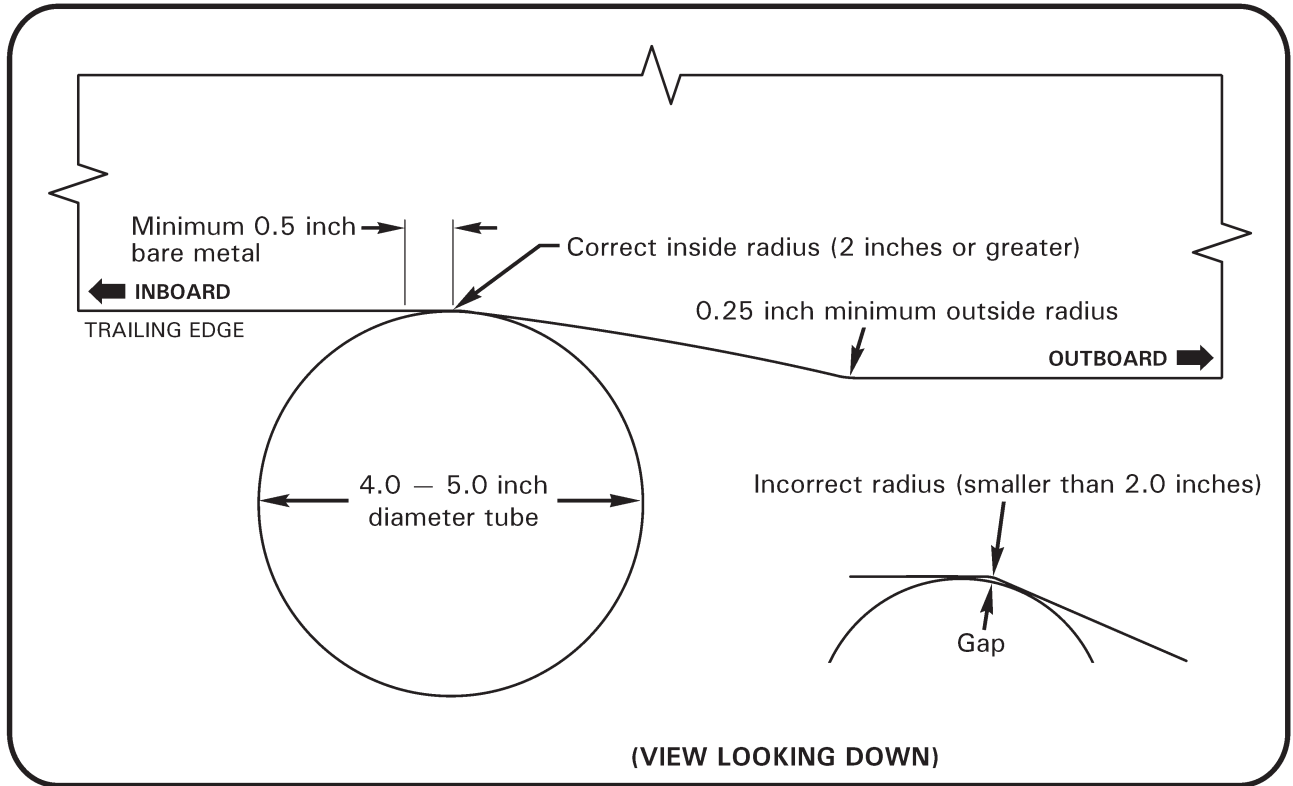


FIGURE 3

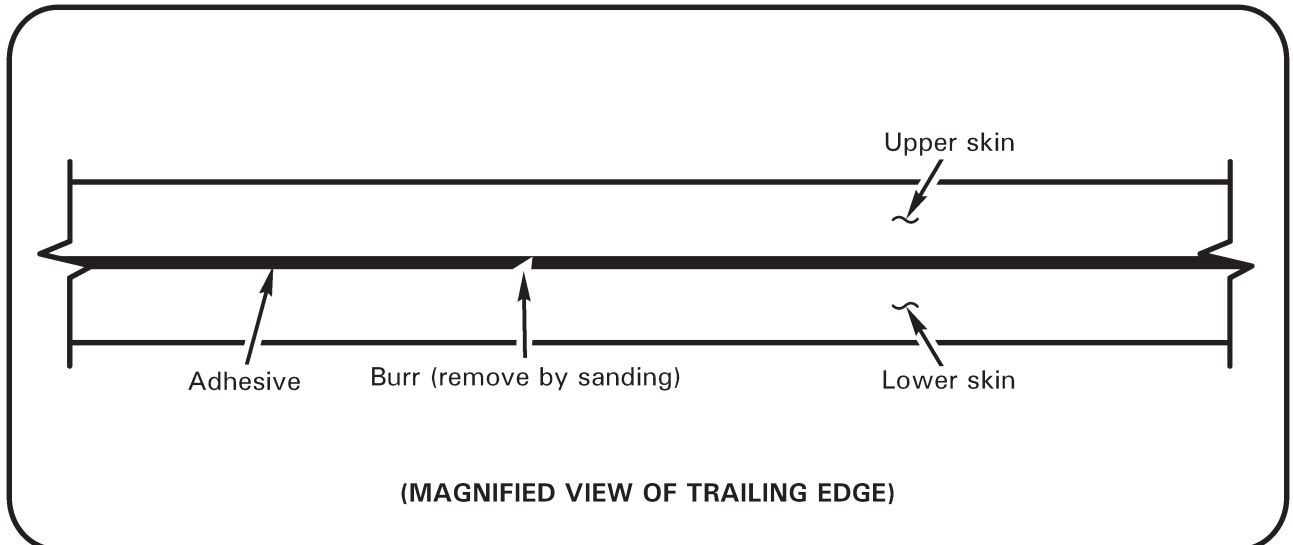


FIGURE 4

10. Refer to Figure 4. Clean bare metal with a lint-free cloth dampened with acetone. Using 10x magnification and a bright light, visually inspect bare metal area and 2.0 inch radius in particular for no sealant, nicks, or residual file marks. Verify no metal burrs protruding into adhesive layer from either upper or lower skin. Verify uniform bare metal finish with only fine, spanwise sanding marks remaining.
11. Tap test trailing edge in reworked area per MM § 9.134.

CAUTION

Review safety data for Alumiprep 33, Alodine 1201, primer, and paint. Wear appropriate protective equipment.

12. Mix Alumiprep 33 liquid and water per manufacturer's instructions and, using swab, apply to trailing edge bare metal for one to three minutes; do not allow Alumiprep mixture to dry. Wipe off Alumiprep mixture with lint-free cloths wet with clean water. Wipe dry.
13. Using swab, apply Alodine 1201 liquid to treated trailing edge bare metal for one to three minutes; do not allow Alodine to dry. Wipe off Alodine liquid with lint-free cloths wet with clean water. Wipe dry. Verify metal exhibits yellow or gold tint; repeat Alodine treatment as required.

CAUTION

Do not apply heat to shorten cure times in following steps. Blade can be damaged.

14. Mix sufficient primer to coat treated trailing edge. Apply thin coat of primer to dry, treated trailing edge and allow to cure for one hour.
15. Mix B270-9 sealant (ref. MM § 1.480) per manufacturer's instructions. Apply thin coat of sealant to dry, primed trailing edge and allow to cure for 12 hours.
16. Inspect sealant. Ensure sealant fully covers primed trailing edge. If required, smooth sealant with 320-grit abrasive paper followed by swabbing area with Alodine 1201 for one to three minutes. Wipe off Alodine liquid with lint-free cloths wet with clean water. Wipe dry.
17. Apply two additional coats of primer to trailing edge and allow to cure for two hours.
18. Paint trailing edge in area affected by work per MM § 9.142.
19. Using contrasting paint or primer, paint a 0.3 – 0.5 inch diameter dot adjacent to and outboard of data plate.
20. If removed, install main rotor blades per MM § 9.111.
21. Make appropriate maintenance entries.

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APPROXIMATE COST:

Parts: Discounted price \$65 for R7769 kit if ordered by 31 May 2015. Reference helicopter serial number. Kit is shipped as hazardous goods; shipping cost is owner's responsibility.

One R7769 kit can perform R44 SB-89 or R66 SB-13 for 5 sets of 2 blades and includes the following parts:

- (1) B270-9 Sealant (2 oz)
- (1) R6391 Artist brushes (pack of 12)
- (1) R6459 Lint-free cloths (pack of 60)
- (10) R6658 Mixing container
- (1) R7769-1 Tube
- (1) R7769-2 Alumiprep 33 (1 oz)
- (1) R7769-3 Alodine 1201 (1 oz)
- (1) R7769-4 File
- (2) R7769-6 Slit tube
- (1) R7769-7 MSDSs & technical data sheets
- (1) R7960-1oz 373-P-29950 Black paint (includes activator)
- (1) R7991-1oz CA7422 Primer (3-part)
- (1) COTTON-TIP Swabs (pack of 100)
- (20) MS3367-6-0 Ty-rap
- (1) SAN30001 Sharpie® marker
- (10) 02004-320 320-grit wet-or-dry abrasive paper (sheet)
- (10) 02007-220 220-grit wet-or-dry abrasive paper (sheet)
- (1) 10XMAG Jeweler's loupe (magnifier)

Procure parts from any R44 Dealer or Service Center, or order directly from [RHC Customer Service](#) via email, fax, or phone.

Labor: 3.0 man-hours (excluding consumable cure time and without blade removal).