

ALERT SERVICE BULLETIN

REVISION NOTICE

Bell Helicopter **TEXTRON**

A Subsidiary of Textron Inc.

DATE

January 17, 2003

TO: All Owners/Operators of Bell 407 Helicopters

SUBJECT: REVISION "A" TO ALERT SERVICE BULLETIN 407-02-50:

**AFT CROSSTUBE ASSEMBLY, 407-050-202-101
HIGH SKID GEAR AND EMERGENCY
FLOATION LANDING GEAR, INSPECTION OF;
AND NEW CROSSTUBE ASSEMBLY -103,
INTRODUCTION OF.**

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

- Part I compliance date is extended until 31 May, 2003.
- The description section specifies that crosstubes -101 modified per the basic issue of this bulletin are not affected by this revision.
- The warranty statement is modified to reflect the new compliance date.
- A new paragraph (12) and revised figure 2 have been incorporated to give instructions to determine the thickness of and install shims (if required) under the upper support.
- Approved alternate crosstube assembly P/N 407-725-104 from Aeronautical Accessories Inc. is mentioned as such whenever pertinent in the text of the bulletin.
- Notes are added to clarify the correct orientation when installing the rocker beam on the crosstube assembly.
- Minor editorial clarifications and the use of work aids.

7851 60046 REV 1198

AN APPROPRIATE ENTRY SHOULD BE MADE IN THE AIRCRAFT LOG BOOK UPON ACCOMPLISHMENT
IF OWNERSHIP OF AIRCRAFT HAS CHANGED PLEASE FORWARD TO NEW OWNER

ALERT SERVICE BULLETIN

Bell Helicopter **TEXTRON**

A Subsidiary of Textron Inc.

NO. 407-02-50

DATE 18-03-02

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DATE 17-01-03

REV "A"

MODEL AFFECTED: 407

SUBJECT: AFT CROSTUBE ASSEMBLY, 407-050-202-101 HIGH SKID GEAR AND EMERGENCY FLOATATION LANDING GEAR, INSPECTION OF; AND NEW CROSTUBE ASSEMBLY -103, INTRODUCTION OF.

HELICOPTERS AFFECTED: 53000 through 53498.

Helicopters S/N 53499 and subsequent will have the intent of this bulletin completed before delivery.

COMPLIANCE: PART I: Within the next 100 hours, but not later than 31 May 2003. Every 300 hours or 90 days thereafter, whichever comes first. **A**

PART II: As directed by instruction in Part I of Accomplishment Instructions.

DESCRIPTION:

Bell Helicopter has received reports of corrosion to the aft landing gear crosstube assembly under the rocker beam upper support 400-052-006-101, lower support 205-050-133-101 and T-bolt clamps NH1008897-10. It is believed that moisture enters through cracks in the paint and sealant. If this moisture is left unchecked it can lead to corrosion of the crosstube.

Part I of this bulletin gives instruction for a recurring visual inspection to determine the condition of the paint finish and edge sealant around the rocker beam supports and T-bolt clamps.

Part II gives more thorough inspection, repair and modification instructions if you find cracks in the paint and sealant. Crosstube assembly 407-050-202-103 and approved alternate crosstube P/N 407-725-104 from Aeronautical Accessories Inc. are the direct spare replacements for crosstube assembly 407-050-202-101 and are not affected by this bulletin. Crosstube assemblies -101 modified per the basic issue of this bulletin are not affected by this revision. Crosstubes assemblies -101 that have no corrosion damage and are modified per Part II of this bulletin are no longer affected by this bulletin. **A**

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APPROVAL:

The engineering aspects of this Alert Service Bulletin are Transport Canada approved.

MANPOWER:

Approximately one (1) man-hour is necessary to complete Part I of this bulletin. Approximately eight (8) man-hours are necessary to complete Part II of this bulletin. Man-hours are based on hands-on time and can change because of the personnel and facilities available.

WARRANTY:

Owners/operators who comply with the instructions given in this bulletin will receive a special 100% warranty credit for the items contained in the "Required Material / Conditional Replacement Parts" sections of this bulletin.

To receive this credit:

- Order the required parts from an approved BHT Supply Source.
- A | • Comply with the instructions given in this bulletin no later than 31 May 2003.
- Submit a completed Malfunction Report (MR) to BHT Warranty Administration within 30 days after the completion of this bulletin. A copy of the BHT invoice referencing parts used to accomplish this bulletin must be attached to the MR.

- NOTE -

A | Customers who comply with the instructions in this bulletin after 31 May 2003, are **not** eligible for the special warranty credit provisions listed above.

MATERIAL:

Required Material:

The material that follows is necessary to complete Part II of this bulletin and can be obtained through your Bell Helicopter Textron Supply Center. Order hardware kit CA-407-02-50 that consists of the parts that follow:

PART NUMBER	NOMENCLATURE	QTY.
MS21141-0812P	Fastener, blind	4 (Note 1, 2)
MS21141-0813P	Fastener, blind	4 (Note 1, 2)
ABRACOR 5-PT	Kit, ACR Coating	1 (Note 3)
471, BLK, .75 WIDE	Tape, vinyl	1
471, YEL, .75 WIDE	Tape, vinyl	1

NOTES:

1. A Huck Rivet Pneumatic Installation tool P/N 115, 353 or 2700 with nose assembly P/N 99-591 or equivalent is necessary to install these rivets. Cherry Textron installation tool P/N G87D may be used as well with nose assembly P/N 99-591.
2. Two different rivet lengths are provided with this kit to allow for stack-up tolerances.
3. The Abrasion and Corrosion Resistant (ACR) coating kit includes pre-measured quantities of adhesive EC2216B/A, primer SUPER KOROPON and ACETONE solvent. Mixing these pre-measured components gives exact composition of the ACR coating for the protection of the crosstube. Refer to Table 2 for preparation and application.

Conditional Replacement Part

The following parts may be required in case existing parts are found corroded beyond repair and require replacement. Parts are available from your BHT Supply Center.

PART NUMBER	NOMENCLATURE	QTY.
400-052-006-103	SUPPORT, UPPER	1 (Note 1)
407-650-001-101	CLAMP, T-BOLT	2 (Notes 2 and 5)
407-050-202-103	CROSSTUBE ASSY	1 (Notes 3 and 4)

NOTES:

1. Support 400-052-006-103 replaces installed support -101.
2. Clamp 407-650-001-101 replaces installed clamp NH1008897-10.
3. Crosstube assembly 407-050-202-103 replaces installed crosstube assembly 407-050-202-101. Crosstube assembly -103 comes complete with ACR coating, riveted upper support and new T-bolt clamps.
4. Aeronautical Accessories Inc. (AAI) crosstube assembly P/N 407-725-104 is an approved alternate.
5. Aeronautical Accessories Inc. (AAI) T-bolt clamp P/N 407-731-101 is an approved alternate.

Consumable Material:

The material that follows is necessary to complete this bulletin; however, this material is consumable (bench stock) material and does not require ordering depending on the operators consumable material stock levels. This material can be obtained through your Bell Helicopter Textron Supply Center:

PART NUMBER	NOMENCLATURE	REF.NO. (NOTE 1)
METHYL ETHYL KETONE	SOLVENT	C-309 (NOTE 2)
MIL-S-8802	SEALANT	C-308
3950 SCOTCHCAL	EDGE SEALER	C-349 (NOTE 4)
MIL-P-85582, TYI, CL2	EPOXY PRIMER	C-204 (NOTE 3)
TURCO 5469	PAINT REMOVER	C-436 (NOTE 6)
TT-N-95, TYII 1 GAL	NAPHTHA	C-305
MIL-C-81706 1 QT	CHEMFILM	C-100
IMRON®	POLYURETHANE ENAMEL	COMMERCIAL (DUPONT) (NOTE 5)

NOTES:

1. The C REF.NO., above is a cross-reference found in the Standard Practices Manual.
2. Where the use of MEK is not permitted, use ACETONE (C-316) or RHO SOLV756.
3. As an alternative, use Epoxy Polyamide primer per MIL-P-23377 (C-204).
4. Clear polyurethane enamel paint may be used as an alternate.
5. Color to match your aircraft. Standard color is white #555U.
6. Paint removers conforming to MIL-R-81294 or MIL-R-8633A are acceptable alternates.

SPECIAL TOOLS:

- A Fastener installation tool (see Material section)
- Hoist and aircraft jacks
- Drill guide (may be made locally, see Figure 5)
- Digital angle protractor or equivalent
- Grit blasting equipment
- Paint spraying Equipment

WEIGHT AND BALANCE:

Not affected.

ELECTRICAL LOAD DATA:

Not Affected.

REFERENCES:

BHT-407-MM-5, Chap. 32, Landing Gear

BHT-407-MMS-1

BHT-407-IPB, Chap. 32, Landing Gear

BHT-407-II-1, Installation Instruction, Emergency Lightweight Float Kit

BHT-407-II-2, Installation Instruction, High Skid Gear Kit

BHT-ALL-SPM, Standard Practice Manual, Chapter 4

PUBLICATIONS AFFECTED:

BHT-407-MM-5, Chap. 32, Landing Gear

BHT-407-MMS-1

BHT-407-IPB, Chap. 32, Landing Gear

BHT-407-II-1, Installation Instruction, Emergency Lightweight Float Kit

BHT-407-II-2, Installation Instruction, High Skid Gear Kit

ACCOMPLISHMENT INSTRUCTIONS:

PART I: Visual inspection of crosstube for condition. To be completed in the next 100 hours, and every 300 hours of operation or 90 days thereafter, or until Part II is done.

-NOTE-

If you must replace crosstube assembly 407-050-202-101 with new crosstube assembly -103 or approved alternate 407-725-104, then this bulletin no longer applies to your aircraft.

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1. If installed, disconnect the electrical power to the inflation valves of the Emergency Floatation Landing Gear Kit. Disconnect all float inflation system wires and tubing from fuselage of helicopter (refer to BHT-407-MMS-1).
2. Remove the landing gear from the helicopter (refer to BHT-407-MM-5, Chapter 32).
3. Remove the rocker beam to get access to the upper and lower supports (refer to BHT-407-MM, Chapter 32).

4. Examine the paint around periphery of rocker beam supports (2 and 4, Figure 1) and T-bolt clamps (1) for condition as follows:

CAUTION

DO NOT SAND INTO THE CROSSTUBE MATERIAL.
IF YOU HAVE TO, ENSURE THAT YOU SAND
ALONG THE LONGITUDINAL AXIS OF THE
CROSSTUBE.

- a) If the paint is cracked or lifting remove only the affected area of paint and primer, by hand sanding, to expose the sealant underneath. Examine the sealant for condition per step 5.
 - b) If the paint is not cracked or lifting, go to step 6.
5. Examine the sealant along the edge of the supports (2, 4) and T-bolt clamps (1) for condition.
 - a) If there are voids or cracks in the sealant or if you see corrosion on the crosstube, you must complete Part II of this bulletin immediately.

-NOTE-

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To facilitate subsequent inspections, you may use two coats of clear finish over the area to be inspected.

- b) If the sealant is not broken and you do not see corrosion, touch-up the primer and paint removed in step 4. Go to step 6.
6. Refer to Table 1 and Figure 2. Identify the crosstube with vinyl tape as follows:
 - a) Use naphtha (C-305) to clean the surface of the crosstube where the band(s) will go.
 - b) Apply band(s) of vinyl tape (contrasting color) to the left side of the crosstube. The tape is applied over the painted surface of the tube.
 - c) Apply edge sealer (C-349) to the edges of the tape. Allow the edge sealer to dry.

-NOTE-

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The rocker beam has two stop bosses located at each end to maintain the beam between the fuselage fittings. The rocker beam should be installed so that the stop boss that is closest to the edge is located aft.

7. Refer to BHT-407-MM-5, Chapter 32 to install rocker beam.
8. Install landing gear on helicopter (refer to BHT-407-MM-5, Chapter 32).
9. Install and reconnect Emergency Floatation Landing Gear (If removed in step 1).
(Refer to BHT-407-II-1)
10. Make an entry in the helicopter Historical Records (HR) to show that Part I of this Alert Service Bulletin is accomplished.
11. Make an entry in the Record of Alert Service Bulletins in the Maintenance Manual.
12. Do steps 1 through 11, except step 6, of Part I of this bulletin again after 300 hours of operation of the crosstube or 90 days, whichever comes first.

**Part II: Thorough Inspection, Repair and Modification of Crosstube Assembly
407-050-202-101, Clamp NH1008897-10 and Support 400-052-006-101.**

- NOTE -

Do not attempt to drill fastener holes in the upper support and crosstube at this time. Holes will be drilled further in the process.

- NOTE -

If you must replace crosstube assembly 407-050-202-101 with new crosstube assembly -103 or approved alternate P/N 407-725-104, then this bulletin no longer applies to your aircraft.

1. If installed, disconnect the electrical power to the inflation valves of the Emergency Floatation Landing Gear Kit. Disconnect all float inflation system wires and tubing from fuselage of helicopter (refer to BHT-407-MMS-1). Cap all open tubes and fittings.
2. Remove the landing gear from the helicopter (refer to BHT-407-MM-5, Chapter 32).
3. Remove the rocker beam to get access to the upper and lower supports (refer to BHT-407-MM-5, Chapter 32).
4. Before you remove the upper and lower supports (2 and 4, Figure 1), do the steps that follow:

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- a) Using a plastic scraper and solvent, remove sealant completely from periphery of upper and lower supports.
 - b) With aluminum tape or equivalent method, index mark the position of left and right edges of upper support on crosstube (5).
5. Remove supports (2 and 4, Figure 1) and T-bolt clamps (1) from crosstube. Be sure to keep index tape markings on crosstube. Upper support may be reused if serviceable. Lower support and U-bolts may be kept for further use as work aids and then discarded.
 6. Inspect upper support (2) and T-bolt clamps (1) for corrosion and other damage as per Figure 3. Replace as required.
 7. Inspect and repair the crosstube (5) as follows:
 - a) Refer to Table 1. Examine the exterior surface of the crosstube (5) for corrosion or mechanical damage under the supports (2, 4) and T-bolt clamps (1). If there is no damage to the crosstube, go to step 8. Repair corrosion damage as follows:

CAUTION

ONLY POLISH OR SAND ALONG THE LONGITUDINAL AXIS OF THE CROSSTUBE.

- Use 180 or 220 grit sandpaper. Blend corrosion damage (maximum of 0.025 inch (0.63 mm) corrosion) by hand sanding to a depth equal to two (2) times the depth of corrosion. The depth of repair cannot be more than 0.050 inch (1.27 mm) deep. Use a slope of 20:1 to fair the reworked area to the surface of the crosstube (5).
 - Blend mechanical damage to a depth sufficient to remove damage. The depth of repair cannot be more than 0.050 inch (1.27 mm) deep. Use a slope of 20:1 to fair the reworked area to the surface of the crosstube (5).
- b) Record the depth of the deepest repair that was done.
 - If the deepest damage is less than 0.050 inch (1.27 mm) deep after repair, the crosstube may remain in service. Refer to Table 1 for the life that applies to your crosstube. Then do step 8.
 - If the deepest damage is more than 0.050 inch (1.27 mm) deep after repair, the crosstube must be removed from service. If the aft crosstube replacement is 407-050-202-103 or 407-725-104, then this bulletin no longer applies to your aircraft.

8. Do preliminary installation of serviceable upper support, 400-052-006-101 or new upper support, 400-052-006-103 on serviceable crosstube as follows:

a) Refer to Figure 2 to determine the rivet hole pattern on the upper support (2).

- NOTE -

The angle measurement for the upper support must be made while the skid tubes are assembled to the crosstubes and while the landing gear assembly is resting on a relatively flat surface.

b) Put upper support (2) on crosstube using the tape index marks from step 4b) for lateral centering. Set top of upper support at an angle of $6 \pm 1/2$ degrees relative to the plane of the skid tubes. Refer to Figure 2, section A-A. Secure upper support temporarily in place using the lower support (4) and U-bolts (3). Torque U-bolt nuts to 20 inch-pounds (2.26 Nm).

- NOTE -

Using a drill guide or workaid will make sure the holes are perpendicular to the surface of the support (2). Refer to Figure 5.

- NOTE -

Pause frequently during drilling operation to prevent overheating of the crosstube material.

- NOTE -

Index mark the orientation of the upper support (2). For instance, if you have drilled the support with the raised part number characters to the left, make sure it is oriented in the same way when the first rivet is installed.

c) Using a #40 drill bit and suitable drill guide or workaid (Figure 5), drill four pilot holes through upper support (2) and crosstube (5). Holes will be drilled full size at a later step.

d) Remove supports (2,4) from crosstube. Keep upper support (2) for later installation. Keep lower support (4) and U-bolts for future use as work aid.

e) Remove the tape index marks from crosstube.

9. Modify T-bolt clamps (1) as follows:

- NOTE -

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If you must replace T-bolt clamp(s) P/N NH1008897-10 with new clamp(s) P/N 407-650-001-101 or approved alternate P/N 407-731-101, you need not accomplish steps 9a) through 9e) on the new part.

- NOTE -

For grit blasting of the T-Bolt clamps, aluminum oxide is preferred; but sand or glass bead blasting are acceptable alternates.

- NOTE -

Removing the paint and primer from the T-bolt clamps with paint stripper (C-436) first will reduce the time necessary to grit blast the clamps.

- a) Use 220 size grit to blast all surfaces of T-bolt clamps (1) except threads. Set the air pressure to 25 – 50 psi (170 – 345 kPa).
- b) Clean all grit blasted surfaces with solvent (C-309).

- NOTE -

To ensure sufficient quantities of ACR coating, plan work so that T-bolt clamps, upper support and crosstube are sprayed all at once. Pot life of mixture is 3-4 hours.

- c) Prepare mix of Abrasion and Corrosion Resistant coating (ACR coating) from adhesive EC2216, Super Koropon primer and solvent. Refer to Table 2 for mixing instructions.
- d) Apply ACR coating to all surfaces prepared in step above in accordance with procedure described in Note 3 of Table 2. Apply ACR coating within 3 hours of sandblasting. Allow curing per options in Table 2.
- e) Identification of the clamps will be done at a later step.

10. Modify upper support (2) as follows:

- NOTE -

If you must replace Upper Support P/N 400-052-006-101 with new Upper Support -103, you do not need to accomplish steps 10a. through 10f.

- NOTE -

For grit blasting of the Upper Support, aluminum oxide is preferred; but sand or glass bead blasting are acceptable alternates.

- NOTE -

Removing the paint and primer from the upper support first with paint stripper (C-436) will reduce the time necessary to grit blast the support. Cover bolt holes to prevent entry of contaminant.

- a) As required, break and round all sharp edges of support 0.03 inch (0.762 mm) X 45°.
- b) Cover bolt holes to prevent entry of contaminants. Use size 220 grit to blast all surfaces of support (2) except inside bolt hole and as shown on Figure 3. Set the air pressure to 25 – 50 psi (170 – 345 kPa).
- c) Clean support (2) with solvent (C-309) or equivalent.

- NOTE -

To ensure sufficient quantities of ACR coating, plan work so that T-bolt clamps, upper support and crosstube are sprayed all at once. Pot life is 3-4 hours.

- d) Prepare mix of Abrasion and Corrosion Resistant coating (ACR coating) from adhesive EC2216, Super Koropon primer and solvent. Refer to Table 2.
- e) Apply ACR coating to all surfaces prepared in step above within three hours of sandblasting. Apply in accordance with procedure described in Note 3 of Table 2. Allow curing per options in Table 2.
- f) Identification of the support will be done at a later step.

11. Modify aft crosstube (5) as follows:

Refer to Figure 2, sheet 1.

- a) Determine the area, 15 inches (381 mm) either side of the center of the crosstube (5), from which you will remove the paint.

CAUTION

DO NOT GRIT BLAST CROSSTUBE. MAKE SURE THAT THE FOUR PILOT HOLES IN THE CROSSTUBE FOR THE SUPPORT FASTENERS ARE SEALED BEFORE YOU APPLY PAINT STRIPPER.

- b) Protect the painted surface of the crosstube (5) with aluminum tape. Plug the four pilot holes drilled in the center of the crosstube (5) to prevent entry of stripping agent inside crosstube. Remove all residual sealant from crosstube.
- c) Use chemical stripping agent (C-436) to remove the paint and primer from the surface of the crosstube (5). Do not use grit blasting on crosstube.
- d) Clean surface thoroughly with solvent and dry with clean dry shop air.
- e) Apply alodine chemical film (C-100) to bare metal surface of crosstube. Rinse off the chemical film thoroughly with clean water. Dry with clean, dry shop air.

- NOTE -

To ensure sufficient quantities of ACR coating, plan work so that T-bolt clamps, support and crosstube are sprayed all at once. Pot life of mixture is 3-4 hours.

- f) Prepare mix of Abrasion and Corrosion Resistant (ACR) coating from adhesive EC2216, Super Koropon primer and solvent. See Table 2 for mixing instructions.
- g) Apply ACR coating to all surfaces prepared in step above. Apply in accordance with procedure in Note 3 of Table 2. Allow curing per options in Table 2.
- h) Identify modified crosstube detail as 407-704-007-119. Use the vibroetching method on the right hand side cuff immediately above the edge of the saddle. Refer to Figure 4. Prime vibro-etched area and refinish as required.

12. Determine thickness of shims (if required) under support as follows:

Refer to Figure 2, sheet 2.

-NOTE -

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Crosstubes that have been modified per the basic issue of this bulletin are acceptable without shims installed.

- NOTE -

The following steps describe how to shim the gaps between the crosstube and the support once the ACR coating has cured on both parts.

- NOTE -

No shims are required if the total gap is less than .010 inch. You may then proceed to step 13 immediately.

- NOTE -

If total gap exceeds .050 inch (.025 inch per side), contact BHT Product Support Engineering for further instructions.

- a) Locate upper support (2) over crosstube (5). Align pilot holes in both parts. Ensure support is properly oriented per note in step 8c.
- b) Using wing clecos, secure support (2) to crosstube (5).
- c) Record total gap (A+B) per Figure 2.
- d) If gap is more than .050 inch total both sides (.025 inch on each side), contact BHT Product Support Engineering. If gap is less than .010 inch total both sides, shims are not required. Proceed to step 13.
- e) Position support on crosstube so that gap is evenly distributed on both sides.
- f) Fabricate solid shims from aluminum alloy 7075-T6 or 2024-T3 or -T4 to fill free gaps within .005 inch.
- g) Taper shims as and if required. Shim thickness after tapering to be no less than .005 inch.
- h) Remove support from crosstube and transfer pilot holes in support to shims. Deburr holes.
- i) Prime shims using primer C-204 and allow to cure.

13. Install new or modified upper support (2) as follows:

Refer to Figure 2, sheet 1.

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- a) Locate upper support (2) and shims (if required) over crosstube (5). Align pilot holes in all parts. Ensure support is properly oriented per note before step 8c).

- NOTE -

As an alternate method, the discarded lower support (4) and U-bolts (3) may be used as work aids to hold upper support (2) in place while enlarging holes to final size.

- b) Secure support (2) to crosstube (5) using wing Clecos.

CAUTION

PAUSE FOUR OR FIVE TIMES DURING THE DRILLING PROCESS TO PREVENT OVERHEATING OF THE CROSSTUBE MATERIAL.

CAUTION

INCREASE THE SIZE OF THE FASTENER PILOT HOLES IN TWO INTERMEDIATE INCREMENTS BEFORE DRILLING HOLES TO FINAL SIZE.

- c) Using a drill bit size "G" and drill guide or workaid (Figure 5), enlarge all four fastener holes to 0.261 inch (6.62 mm) diameter.

CAUTION

GIVE SPECIAL ATTENTION TO DEBURRING THE INSIDE EDGE OF THE HOLES IN THE CROSSTUBE. BURRS THAT ARE NOT REMOVED MAY CAUSE UNWANTED STRESS CONCENTRATIONS.

- d) Remove upper support (2). Deburr all holes in crosstube (5), support (2) and shims (if required).

- A** e) Determine the required grip length of fasteners (6), -0812P or -0813P. A Cherrymax or Cherrylock grip gauge is suitable. Discard fasteners that are not required.

- f) Apply a uniform coat of sealant (C-308) to faying surfaces of crosstube (5), support (2) and shims (if required)

- g) Place support (2) and shims (if required) in position over crosstube.
- h) Install fasteners (6) wet with sealant. Remove excess sealant squeeze-out and fair around edges of support.
- i) Cover heads of fasteners (6) with sealant (C-308). Allow sealant to cure.

14. Install new or modified T-bolt clamps (1) as follows: (Refer to Figure 2)

-NOTE-

The crosstube is tapered in the area of the T-bolt clamps due to chemical milling. To prevent outward slippage of the T-bolt clamps during installation and while the sealant cures, you may use automotive hose clamps and tape as work aids. AT THE OUTBOARD EDGE OF THE T-BOLT CLAMPS, LAY TWO WRAPS OF $\frac{3}{4}$ INCH WIDE VINYL TAPE AROUND CROSSTUBE TO PROTECT THE SURFACE. The tape must not extend under the T-bolt clamp. Position and tighten the hose clamp work aid over the vinyl tape so that the inboard edge of the hose clamp will butt against the T-bolt clamp, thus preventing slippage.

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- a) Apply a uniform coat of sealant C-308 to all faying surfaces of T-bolt clamps and crosstube. Install T-bolt clamps (1) while sealant is wet. Tighten T-bolt nuts 5–10 in-lbs (0.56–1.12 Nm) or until you get a uniform squeeze-out.
 - b) Remove excess sealant squeeze-out and make a uniform bead to seal all accessible edges of clamps. Allow sealant to cure at room temperature for 24 hours.
 - c) Remove clamp work aids (if used) and make a bead of sealant along outboard edge of T-bolt clamp. Allow sealant to cure at room temperature for 24 hours.
 - d) Final tighten T-bolt nuts 50 – 70 in-lbs (5.6 – 7.9 Nm).
15. Apply primer C-204 to all reworked surfaces and sealant surfaces of crosstube assembly. Allow primer to dry.
16. Refinish crosstube assembly (5) with two coats of IMRON® polyurethane enamel paint, color to match. Standard color is white, #555U. Allow to dry.
17. Use an indelible ink pen, to identify T-bolt clamps (1) as 407-704-007-117 and upper support (2) as 407-704-007-115.

18. Refer to Table 1 and Figure 2. Identify the crosstube with one to three bands of vinyl tape as follows:

- a) Clean the surface of the crosstube as required with aliphatic naphtha.
- b) Apply a band of contrasting color vinyl tape to the left side of the crosstube. The tape is applied over the painted surface of the tube.
- c) Apply edge sealer (C-349) to the edges of the tape. Allow sealer to dry.

- NOTE -

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The rocker beam has two stop bosses protruding at each end to maintain the beam between the fuselage fittings. The rocker beam should be installed so that the stop boss that is closest to the edge is located aft.

19. Refer to BHT-407-MM-5, Chapter 32 to install rocker beam.

20. Install and reconnect Emergency Floatation Landing Gear (If removed in step 1).
(Refer to BHT-407-MMS-1)

21. Install landing gear on helicopter (refer to BHT-407-MM-5, Chapter 32).

22. Fill out a Historical Service Record for the modified crosstube. Refer to Table 1 for new crosstube lives. A blank form is attached to this bulletin.

23. Make an entry in the helicopter Historical Records (HR) to show that this Alert Service Bulletin is completed.

24. Make an entry in the Record of Alert Service Bulletins in the Maintenance Manual.

TABLE 1: Aft Crosstube Assembly 407-050-202-101 – Inspection Requirements.

The table that follows gives the mandatory actions to be taken depending on the amount of corrosion found when you complete Part II of this bulletin.

<u>Depth Of Clean-up After Repair</u> (1)	<u>Action</u>	<u>New Assigned Life</u>	<u>Identify Crosstube With:</u>
No corrosion (no clean-up)	Do Part II (6) Or	On condition	Vibro-etch crosstube per Figure 4
No corrosion (no clean-up)	Repeat Part I (2)	On condition	Apply one .75 inch wide band (5)
0.005 inch or less (.127 mm or less)	Do Part II (2)	On condition	Vibro-etch crosstube per Figure 4 and apply one .75 inch wide band (5)
0.006 inch to 0.023 inch (.152 to .584 mm)	Do Part II (2)	2500 Landings (3)	Vibro-etch crosstube per Figure 4 and apply two .75 inch wide bands (5)
0.024 inch to 0.050 inch (.609 to 1.27 mm)	Do Part II (2)	300 Landings (4) or 90 days	Vibro-etch crosstube per Figure 4 and apply three .75 inch wide bands (5)
0.051 inch or more (1.295 mm or more)	Replace crosstube assembly.	Remove from service immediately.	Destroy. Permanently mark the crosstube with the word SCRAP.

NOTES:

A

1. Depth of clean-up after repair is twice the depth of the visible corrosion. Record the depth of the corrosion and repair on the Historical Service Record for the crosstube.
2. Do Part I of this bulletin again after every 300 hours of operation or every 90 days, whichever comes first.
3. Maximum number of landings not to exceed 2500 total since new. If you do not know the number of landings for your crosstube it is acceptable to assign four landings per flight hours. If 2500 landings are exceeded already, the limit is 300 landings or 90 days from date Part II is accomplished, whichever comes first.
4. Retire the crosstube when it reaches 300 landings or 90 days from date Part II is completed, whichever comes first.

5. Refer to Figure 2. Apply band(s) of contrasting color tape on left-hand side of crosstube. Seal edges of tape with edge sealer (C-349) or clear polyurethane paint. Space bands one inch apart if more than one band is used. For official tracking purposes, fill out Historical Service Record sheet provided with this bulletin.
6. Crosstubes that have no corrosion damage and are modified per Part II of this ASB are no longer affected by this bulletin.

TABLE 2. Abrasion and Corrosion Resistant (ACR) Coating – Preparation and Application Instructions.

ACR COATING	POT LIFE Room Temp. (minutes)	FULL CURE Room Temp. (65-85°F)	ALTERNATE HEAT CURE (140°F)	MIXING RATIO
ABRACOR 5-PT	3 to 4 hours	16 to 24 hours	Air dry for 30 minutes followed by heat cure for 3 hours minimum at 130° to 150°F	SEE NOTE 1

NOTES:

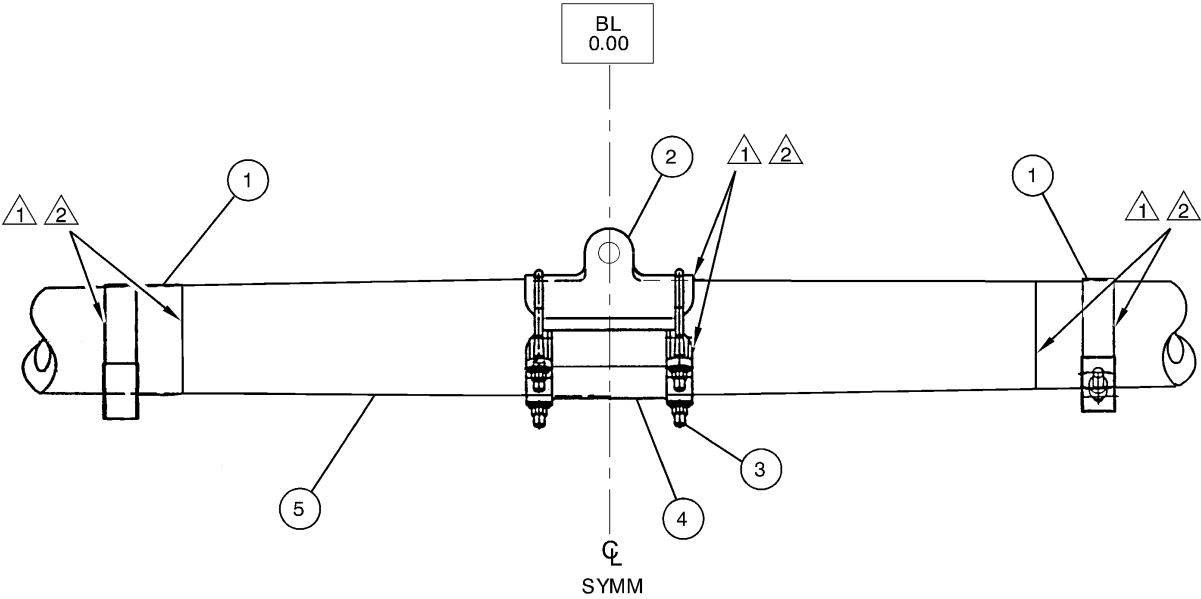
1. The five components of ACR coating kit P/N ABRACOR 5-PT are premeasured. Mix components as follows:
 - a) Thoroughly mix component A into component B of adhesive EC2216 until you get a uniform color. Do not reverse mixing instructions.
 - b) Mix the two (2) components C and D of Super Koropon and add to the adhesive mixture. Blend both mixtures thoroughly while you add all of component E (ACETONE). Obtain a uniform mixture.
 - c) The pot life of the ACR is 3 to 4 hours.
2. To ensure sufficient quantities of ACR coating, plan work so that T-bolt clamps, upper support and crosstube are sprayed all at once. Pot life of mixture is 3-4 hours.
3. Apply the ACR coating as follows:
 - a) Using any suitable spray equipment, apply one uniform coat, 0.0015 to 0.0030 inch thickness of ACR coating. This corresponds to one full wet coat.
 - b) Allow the ACR coating to air dry (cure) for 16 to 24 hours at room temperature.
 - c) Examine the cured coating for condition and appearance. The cured ACR coating will be smooth, continuous and free from blisters and grainy areas.

4. Repair or rework small cured areas of the ACR coating as follows:

CAUTION

ONLY POLISH OR SAND ALONG THE
LONGITUDINAL AXIS OF THE CROSSTUBE.

- a) Remove the coating by hand sanding. Do not damage the metal below.
- b) Fair the edges of the coating that remains.
- c) If metal has been exposed, treat bare metal with chemical film (C-100). Rinse off chemical film thoroughly with clean water. Dry with clean, dry shop air.
- d) Apply the ACR coating. Allow to dry at room temperature for 16 to 24 hours. Small areas, not more than ten (10) square inches, can be brush-coated with unthinned mixture. Allow the unthinned mixture to dry at room temperature for a minimum of eight (8) hours. As an alternative the mixture can be cured with heat - $140^{\circ}\text{F} \pm 10^{\circ}\text{F}$ ($60^{\circ}\text{C} \pm 5^{\circ}\text{C}$), for 3 hours minimum.



LEGEND

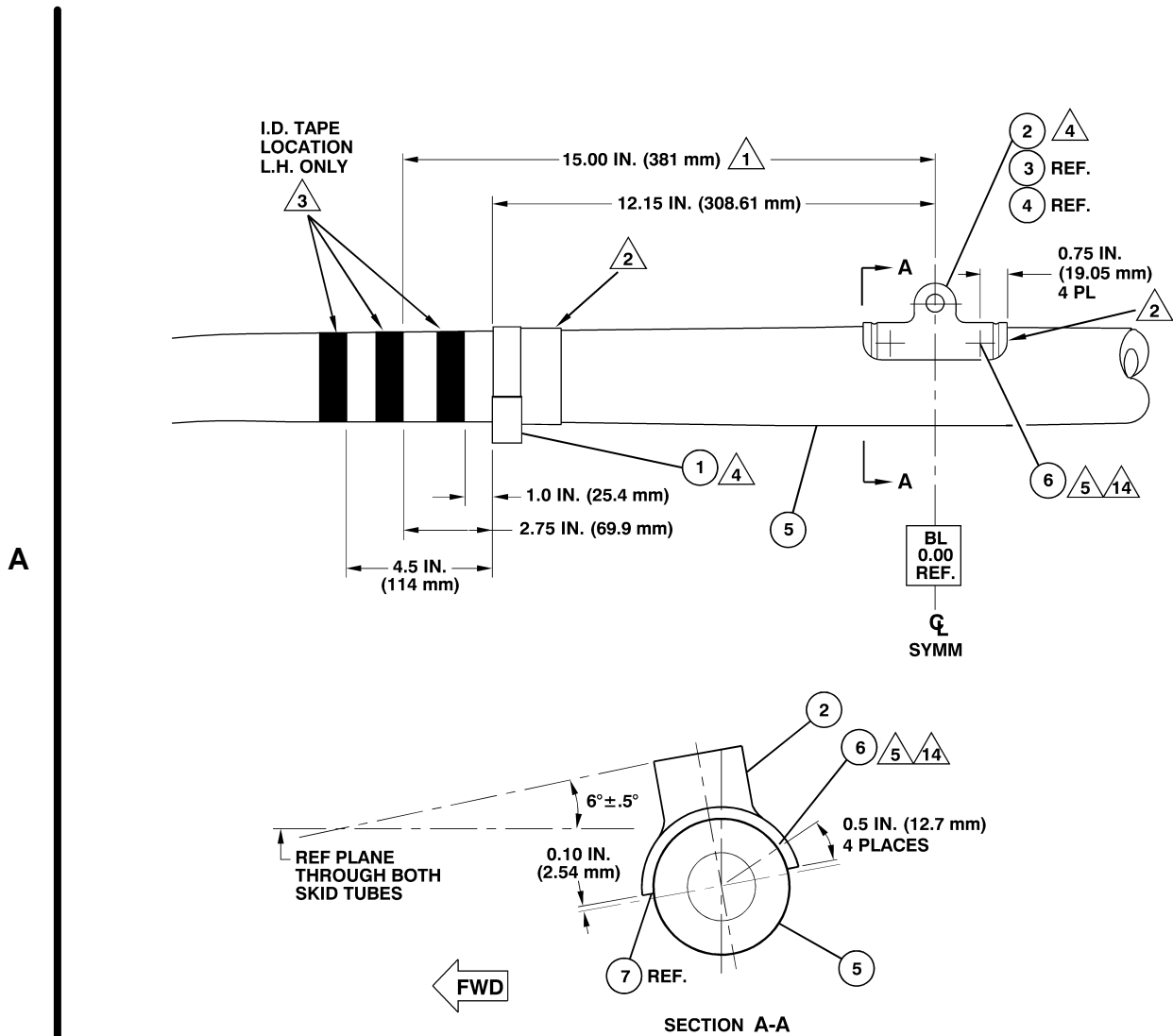
- 1. Clamp, T-Bolt (NH1008897-10)
- 2. Support, upper (400-052-006-101)
- 3. U-Bolt (205-050-134-001)
- 4. Support, lower (205-050-133-101)
- 5. Crosstube, assy (407-050-202-101)

NOTES

- △1 Examine the paint finish around T-bolt clamps (1), 2 places, and around support (2,4) for condition. Refer to step 4, part I.
- △2 Examine sealant joint around T-bolt clamps (1), 2 places, and around supports (2,4) for condition. Refer to step 5, part I.

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Figure 1. Aft Crosstube Visual Inspection

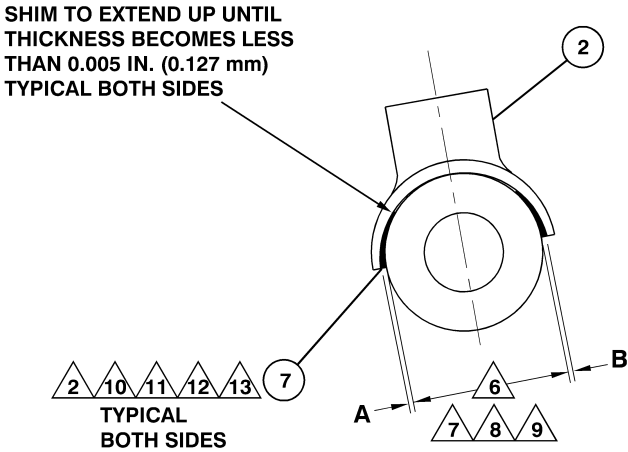


LEGEND

1. Clamp, T-bolt (407-704-007-117), Modified
2. Support, upper (407-704-007-115), Modified
3. U-bolt (205-050-134-001), Removed
4. Support, lower (205-050-133-101), Removed
5. Crosstube assembly (407-704-007-119), Modified
6. Fasteners MS21141-0812P or MS21141-0813P, Added
7. Shim, locally fabricated, if and as required (see Sheet 2)

99099002

Figure 2. Aft Crosstube Modification (Sheet 1 of 2)



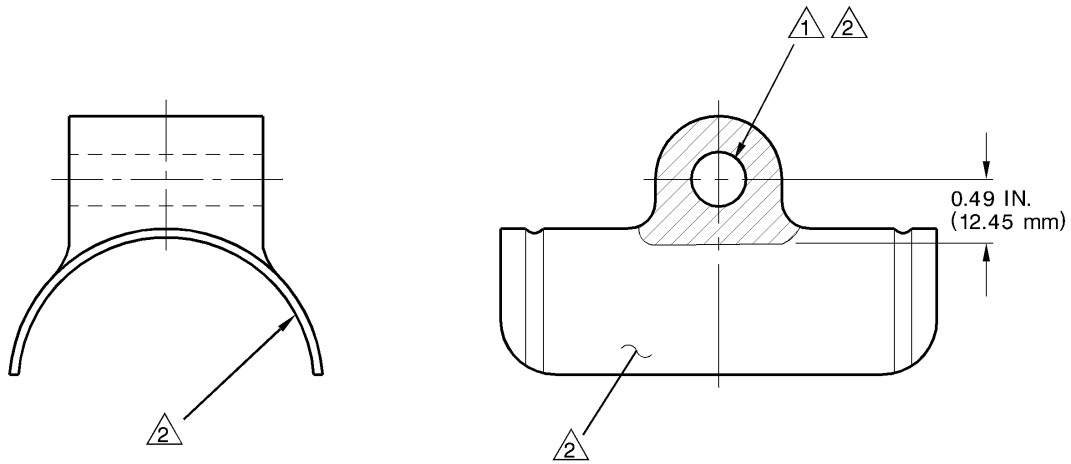
NOTES

- 1 Remove paint in this area both sides and apply ACR coating. Refer to procedure in text.
- 2 Apply sealant MIL-S-8802 (C-308) to all faying surfaces and edges.
- 3 Apply per instructions in Table 1.
- 4 Reidentify with indelible ink as per step 17, Part II.
- 5 Drill holes per Part II, steps 8 and 13.
- 6 Record total gap = A + B.
- 7 Shim thickness required = $\frac{A+B}{2} = T$ (on each side of support).
- 8 If total gap is less than 0.010 inch (0.254 mm), shims are not required.
- 9 If total gap is greater than 0.050 inch (1.27 mm), contact BHT Product Support Engineering for further instructions.
- 10 Fabricate taper shims locally from aluminum alloy sheet 2024-T3 or T-4 or 7075-T6. Refer to step 12 in Part II. Thickness to be within 0.005 inch (0.127 mm) of gap. Thickness to be no less than 0.005 inch (0.127 mm).
- 11 Install shims (if required) and support per Part II, step 13 and Figure 2, Sheet 1.
- 12 Crosstubes modified per basic issue of this bulletin are acceptable without shims.
- 13 Trim shims flush with edges of support.
- 14 Install fasteners wet with sealant C-308. Cover heads of fasteners completely with sealant C-308.




99099006

Figure 2. Aft Crosstube Modification (Sheet 2)

A



NOTES

-  Plug hole both sides during paint removal, sand blasting and recoating operations.
-  See damage limits
-  Do not apply finish paint in this area, apply only ACR coating and primer.

Upper support 400-052-006-101 - Damage and Repair Limits

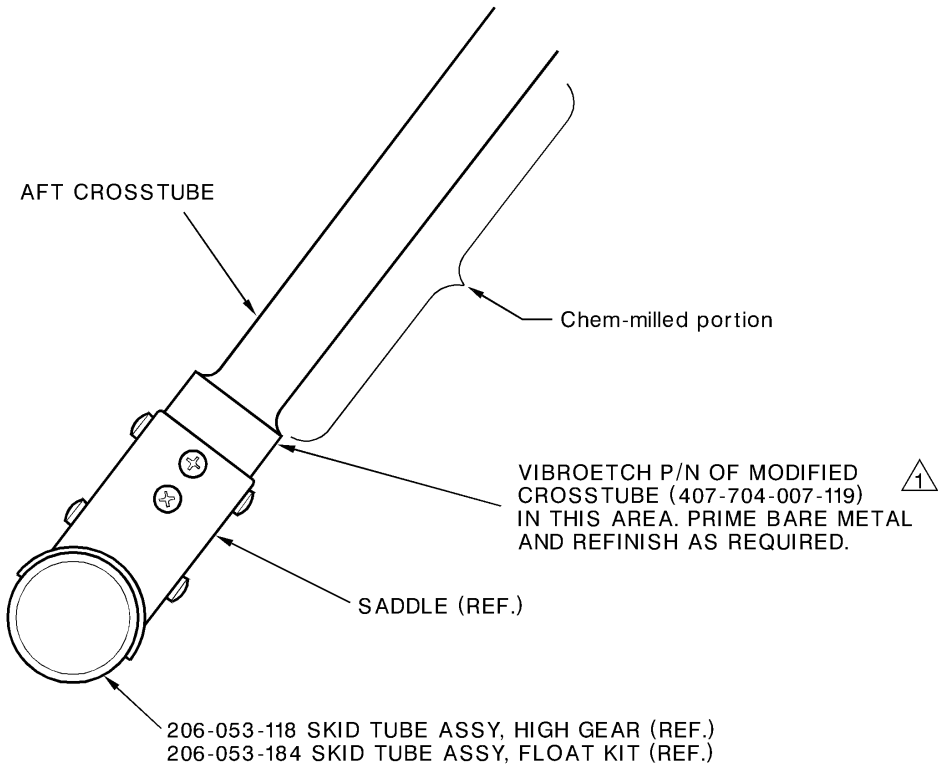
Maximum depth of damage after clean-up	0.020 IN. (0.508 mm) (mechanical or corrosion)
Maximum area per full depth repair	0.500 IN ² . (12.7 mm)
Maximum length of damage	0.750 IN. (19.05 mm)
Number of repair areas	2 per part.
Bore damage	Not to exceed 0.001 IN. (0.0254 mm) for 1/4 circumference. One repair per bore.

T-bolt clamp NH1008897-10 - Damage and Repair Limits

Maximum depth of damage after clean-up	0.008 IN. (0.203 mm) (mechanical or corrosion)
Maximum area per full depth repair	0.500 IN ² . (12.7 mm)
Maximum length of damage	0.750 IN. (19.05 mm)
Number of repair areas	3 per part.

99099003

Figure 3. Damage Limits and Refinish Instructions



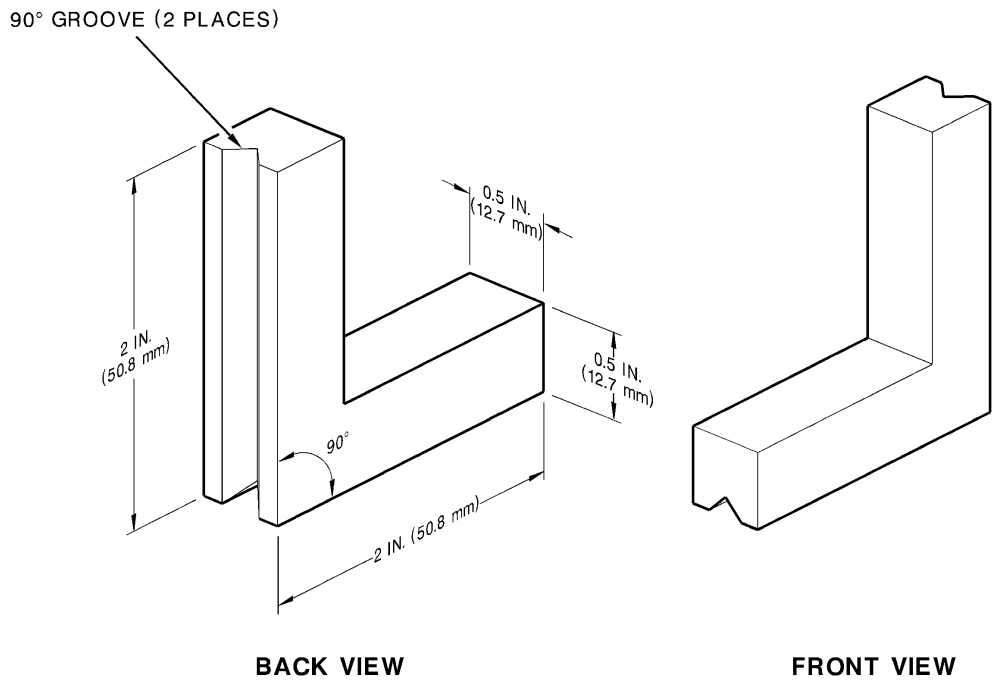
NOTE

1 Care should be taken to avoid damage to chem-milled portion of crosstube.

**VIEW LOOKING AFT
AT RIGHT SIDE OF CROSSTUBE**

99099004

Figure 4. Aft Crosstube Identification



LOCALLY FABRICATE FROM STEEL

99099005

Figure 5. Work Aid Drill Guide