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ALERT SERVICE BULLETIN

ASB No. AA-07109

Revision A

SUBJECT:

High Landing Gear Aft Crosstubes

P/N 412-321-104 / 412-321-304

MODELS AFFECTED:

Bell Helicopter Textron model 412, 412EP and 412CF and Agusta S.p.A. model AB412, AB412EP helicopters with Aeronautical Accessories P/N 412-321-104 / 412-321-304 High Aft Crosstubes installed in accordance with STC SR01052AT.

REVISION A PURPOSE

Expand the inspection area.

COMPLIANCE:

Part A: Within the next 50 flight hours, but not later than June 30, 2008, establish a high aft crosstube takeoff/landing life limit of 20,000 on P/N 412-321-304.

High aft crosstubes for which flight hours are unknown, or the number of takeoff/landings cannot be determined, must be replaced within the next 450 takeoff/landings.

High aft crosstubes with historical information establishing a number of takeoffs/landings greater than 20,000 must be replaced within the next 450 takeoff/landings.

Part B: Prior to 2500 takeoff/landings.

High aft crosstubes with historical information establishing a number of takeoffs/landings greater than 2500 must accomplish Part B within 50 flight hours or 250 takeoff/landings, whichever comes first, of the receipt of this bulletin.

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Revision A – Crosstubes with takeoff/landings greater than 12,500 that do not have the expanded inspection area shown in Figure 1 must accomplish Part B within 50 hours or 250 takeoff/landings from receipt of Revision A of this bulletin.

Part C: Within 450 takeoff/landings after accomplishment of Part B, and every 450 takeoff/landings thereafter.

Part D: Prior to 2500 takeoff/landings and every 12 months or 2500 takeoff/landings, whichever comes first, thereafter.

High aft crosstubes with historical information establishing a number of takeoffs/landings greater than 2500 must accomplish Part D within 1 month of the receipt of this bulletin.

Part E: Prior to 7500 takeoff/landings and every 5000 takeoff/landings thereafter.

Incorporate the expanded inspection area per Revision A during overhaul.

High aft crosstubes with historical information establishing a number of takeoffs/landings greater than 7500 must accomplish Part E within 3 months of the receipt of this bulletin.

Part F: Within the next 25 flight hours, but not later than May 15, 2008.

DESCRIPTION:

Aeronautical Accessories has conducted a review of the high aft crosstube in response to three reported field failures. Our analysis indicates a takeoff/landing life must be assigned to P/N 412-321-304 high aft crosstube and additional scheduled inspections must be conducted on both P/N 412-321-104 and 412-321-304 high aft crosstubes.

Part A of this bulletin establishes a 20000 takeoff/landing life on P/N 412-321-304 high aft crosstube. P/N 412-321-104 high aft crosstube is already subject to the retirement life. This bulletin provides the information necessary to calculate the number of takeoffs/landings. If the total number of takeoff/landings is less than the recommended life, record all takeoff/landings until component life is achieved or component is otherwise removed from service.

Part B of this bulletin provides instructions to clean and inspect the area on the bottom of the high aft crosstube. Means to protect this area with primer and a clear coat are also included. P/N 412-321-104, serial number AA-1274 and subsequent, crosstubes are manufactured with the inspection area primed and clear-coated.

Serial number AA-1603 and subsequent are manufactured with the expanded inspection area of Revision A primed and clear-coated.

Part C of this bulletin provides instructions to conduct a recurring visual inspection of the primed and clear coated area of the high aft crosstube after the accomplishment of Part B.

Part D of this bulletin provides instructions to conduct a recurring dimensional inspection of the skid gear to identify permanent deformation of the crosstube.

Part E of this bulletin provides instructions to conduct a recurring fluorescent penetrant inspection of the high aft crosstube.

Part F of this bulletin provides clarification on helicopter towing instructions to prevent crosstube damage or failure as a result of ground handling or towing.

APPROVAL:

The engineering aspects of this bulletin are FAA/DER approved.

MANPOWER:

PART A: Approximately 0.5 hours.

PART B: Approximately 3.0 hours.

PART C: Approximately 0.5 hours

PART D: Approximately 1.0 hours.


PART E: Approximately 24.0 hours.

Manhours are based on hands-on time and may vary with personnel or facilities available.

LOG OF REVISIONS

Date	Revision	Description	Affected Pages
04/03/08	NR	Original Release	All
07/30/12	A	Updated AA info	All
		Updated description and instruction info regarding expanded inspection area	All
		Adjusted Figure references to accommodate new drawings	All
		Updated AA logo	1
		Added "Revision A Purpose"	1
		Added additional Revision A info to Compliance section, Part B	2
		Added expanded inspection area info to Compliance section, Part E	2
		Added Revision A S/N info to Description section, Part B	3
		Added Log of Revisions	4
		Replaced BHT-412-MM-2 with BHT-412-MM	6, 11, 12
		Redefined expanded inspection area for Initial Inspection Requirement section, Part B, Step 1	7
		Added Revision A S/N info to 3 rd note of Part B	7
		Added "primer and clear-coat" note to Part B, Step 6	8
		Added Figure 1 to show expanded clear coat and inspection area	13
Added Figure 4 to show expanded paint removal area	16		

Reviewed:



 Engineering

8-31-2012

 Date



 Airworthiness

8-30-12

 Date

MATERIAL:

The following Customer supplied materials are required to comply with this bulletin:

**TABLE 1 – PARTS LIST
CUSTOMER SUPPLIED CONSUMABLE MATERIALS**

<u>Qty</u>	<u>Description</u>
AR	MIL-R-81294, Type I or II Chemical Paint Remover
AR	MIL-PRF-85582 Primer (PRC-DeSoto EWDE 072A/B)
AR	MIL-PRF-85285, Type I Gloss Clear Coat Paint (Deft 03X085)
AR	MIL-PRF-87937 Cleaning Compound, Aerospace Equipment

NOTE

The MIL-PRF-85582 primer (PRC-DeSoto EWDE 072A/B) [packaged as a 1-gallon, 1-qt (Parts A&B) kit (P/N EWDE072)] and the MIL-PRF-85285, Type I clear coat paint (Deft 03X085) [packaged as a 3-qt kit (P/N MIL-PRF-85285)] may be procured from a Bell Helicopter Supply Center. The primer and paint may also be procured [packaged in 1-qt, primer and paint, kits (P/N 1272K)] from Aerospace Products, Inc., 6413 Midway Road, Halton City, TX 76117 (817-332-1669).

SPECIAL TOOLS REQUIRED: 10X magnifying glass

WEIGHT AND BALANCE: Not affected

PUBLICATIONS AFFECTED:

Installation Instructions, report number AA-95005

Instructions for Continued Airworthiness, report number AA-01136

ADDITIONAL INFORMATION:

Any questions regarding this bulletin should be addressed to:

AERONAUTICAL ACCESSORIES

P.O. Box 3689

Bristol, 37625-3689 TN

PRODUCT SUPPORT

1-800-251-7094

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ACCOMPLISHMENT INSTRUCTIONS

Upon receipt of this bulletin, determine by part number if affected high aft crosstube is installed. If affected crosstube is installed, perform the actions contained in this bulletin. Any crosstube failing inspection shall be removed from service and replaced with an airworthy crosstube.

PART A INSPECTION REQUIREMENTS AND HISTORICAL RECORDS

1. Verify all high aft crosstubes, P/N 412-321-104 and 412-321-304, comply with the inspection criteria of the Instructions for Continued Airworthiness report number AA-01136 and BHT-412-MM (Bell Helicopter model 412 Maintenance Manual).

A retirement life has been established for the following high skid gear aft crosstubes. A Historical Record is provided (Figure 6) for recording of takeoff/landing operations for the listed life-limited crosstubes.

PART NUMBER (1)	COMPONENT	LIFE LIMIT (EVENTS) (2)
412-321-104	Aft Crosstube, High Skid Gear	20,000 Takeoff/Landings
412-321-304	Aft Crosstube, High Skid Gear	20,000 Takeoff/Landings

NOTES:

- (1) The airworthiness limitation for part number listed applies to all successive dash numbers for that component unless otherwise specified.
- (2) Either landings or takeoff may be counted.

These Airworthiness Limitations are FAA approved and specify maintenance required under §§ 43.16 and 91.403 of the Federal Aviation Regulations unless an alternative program has been FAA approved.

2. Create a Historical Record form to track P/N 412-321-304 high aft crosstube takeoff/landing life per the compliance section of this bulletin. Those operators that have recorded the number of takeoff/landings are subject to the 20,000 takeoff/landing limit.

NOTE

Helicopters with takeoff/landings that are higher than the average of 10 per hour must substitute the higher value in all estimated calculations.

3. If the actual takeoff/landing information is not available it is permissible to estimate the number. To determine the number of takeoff/landings on the crosstube, multiply the airframe hours by a factor of ten.
4. Place the calculated takeoff/landing information on the Historical Record form and track the applicable life as per the compliance section of the bulletin.
5. Replace life limited crosstubes per the Instructions for Continued Airworthiness, report number AA-01136.

NOTE

Aeronautical Accessories has discontinued sale of P/N 412-321-304 high aft crosstube Assembly. P/N 412-321-104 high aft crosstube is completely interchangeable with P/N 412-321-304.

**PART B INITIAL INSPECTION REQUIREMENT FOR P/N 412-321-104 AND
P/N 412-321-304 CROSSTUBES**

NOTE

Crosstube visual inspection is conducted with aircraft at rest on skid landing gear; minimum gross weight at inspection is 9,000 pounds.

CAUTION

Chemical removers shall be used only in areas of adequate ventilation. Suitable goggles or face masks, chemical resistant gloves, boots and clothing shall be worn to avoid contact of chemical removers with eyes, skin and clothing. Chemical removers shall further be handled in accordance with applicable OSHA regulations, state and local safety codes, and company established safety standards and policies.

NOTE

P/N 412-321-104 Crosstubes with serial number AA-1274 and subsequent are manufactured with the inspection area primed and clear-coated. Steps 1 through 3 of Part B may be skipped unless opaque paint has been applied to either inspection area described below and in Figure 1.

Serial number AA-1603 and subsequent are manufactured with the expanded window of Revision A primed and clear-coated.

1. Prepare crosstube inspection area by chemically removing crosstube paint and primer from an area 2.0 ± 0.25 inches wide extending between RBL 48.5 and LBL 48.5 at the center-bottom surface of the crosstube (see Figure 1).
2. Apply MIL-R-81294, Type I or II chemical paint remover with a brush and allow it to set from 15 to 45 minutes to soften paint.
3. Using a stiff fiber brush and clean water, rinse paint from crosstube. If required, use abrasive pad (Scotch-Brite, Type A) and MIL-R-81294, Type I or II chemical paint remover to aid in lifting paint. Brush crosstube with abrasive pad in the longitudinal direction, using care so as not to abrade crosstube metal surface.
4. Rinse part clean with clean water and dry thoroughly. Reapplication of chemical paint remover may be required to ensure that paint and primer is completely removed so that the metal surface of the cross tube is clearly visible.

- Using at least 10X magnification and a strong light source, visually inspect the stripped area for indications of cracking. If cracking is suspected, fluorescent penetrant inspect crosstube per ASTM E1417, Type I, Method B, C, or D, Level 2 in accordance with Bell Helicopter Standard Practices Manual (BHT-ALL-SPM).

WARNING

IF CRACKING IS DISCOVERED, THE CROSSTUBE IS NO LONGER AIRWORTHY AND MUST BE IMMEDIATELY REPLACED. REPLACE CROSSTUBE PER APPLICABLE INSTRUCTIONS IN INSTRUCTIONS FOR CONTINUED AIRWORTHINESS, REPORT NUMBER AA-01136.

- Following crosstube inspection, coat the stripped crosstube area with MIL-PRF-85582 primer (.0006 – .0009 thick) by spraying in accordance with manufacturer's instructions. Allow primer to cure per manufacturer instructions.

NOTE

Only the specific primer and clear-coat combination may be used.

NOTE

The MIL-PRF-85582 primer (PRC-DeSoto EWDE 072A/B) [packaged as a 1-gallon, 1-qt (Parts A&B) kit (P/N EWDE072)] and the MIL-PRF-85285, Type I clear coat paint (Deft 03X085) [packaged as a 3-qt kit (P/N MIL-PRF-85285)] may be procured from a Bell Helicopter Supply Center. The primer and paint may also be procured [packaged in 1-qt, primer and paint, kits (P/N 1272K)] from Aerospace Products, Inc., 6413 Midway Road, Halton City, TX 76117 (817-332-1669).

- Following primer cure, paint the area with polyurethane clear coat paint per MIL-PRF-85285 by spraying in accordance with manufacturer's instructions. Allow paint to cure per manufacturer instructions.
- Annotate aircraft records that **Part B** of this bulletin has been accomplished.
- Return aircraft to service.

**PART C SCHEDULED VISUAL INSPECTION REQUIREMENTS FOR
P/N 412-321-104 AND P/N 412-321-304**

NOTE

The following crosstube inspection is to be incorporated into the inspection intervals/methods identified in Instructions for Continued Airworthiness, report number AA-01136.

NOTE

Crosstube visual inspection is conducted with aircraft at rest on skid landing gear; minimum gross weight at inspection is 9,000 pounds.

1. Use MIL-PRF-87937 cleaning compound prepared in accordance with the manufacturer's recommendations to clean all residue and dirt from the cross tube surfaces shown in Figure 1.
2. Using at least 10X magnification and a strong light source, visually inspect the clear coated area for indications of cracking.
3. If cracking is suspected, remove clear coat and primer per steps 2 thru 4 of **Part B**, and fluorescent penetrant inspect crosstube per ASTM E1417, Type I, Method B, C, or D, Class 2, in accordance with Bell Helicopter Standard Practices Manual (BHT-ALL-SPM). If cracking is not confirmed, reapply clear coat and primer per steps 6 and 7 of **Part B**. If cracking is confirmed, remove crosstube from service.

WARNING

IF CRACKING IS DISCOVERED, THE CROSSTUBE IS NO LONGER AIRWORTHY AND MUST BE IMMEDIATELY REPLACED. REPLACE CROSSTUBE PER APPLICABLE INSTRUCTIONS IN INSTRUCTIONS FOR CONTINUED AIRWORTHINESS, REPORT NUMBER AA-01136

4. Annotate aircraft records to indicate that Part C of this bulletin has been accomplished; and return aircraft to service.

**PART D SCHEDULED LANDING GEAR DEFLECTION INSPECTION
REQUIREMENTS FOR P/N 412-321-104 AND P/N 412-321-304**

NOTE

The following crosstube inspection is to be incorporated into the inspection intervals/methods identified in Instructions for Continued Airworthiness, report number AA-01136.

1. Hoist or jack the helicopter until no weight is on the skid gear.
2. Measure the lateral distance between the two forward Crosstube cap assemblies. Measure the lateral distance between the two aft Crosstube cap assemblies. Divide these dimensions by two to determine the helicopter centerline, BL 0.00.
3. Measure the Crosstube horizontal deflection from the centerline of the helicopter, BL 0.00, to the outside of the skid tubes.
4. The Crosstube horizontal deflection as measured in step 3 above must be within the limits as shown in Figure 3. Crosstubes that measure outside of the limits must be replaced.
5. Inspect landing gear assembly in accordance with Instructions for Continued Airworthiness report number AA-01136 and BHT-412-MM damage limits.

6. Repair or replace components that are damaged in excess of repairable limits.
7. Annotate aircraft records to indicate that Part D of this bulletin has been accomplished; and return aircraft to service.

**PART E COMPONENT OVERHAUL REQUIREMENTS FOR P/N 412-321-104
AND P/N 412-321-304**

The Component Overhaul Schedule, Table 2, summarizes the overhaul interval for high aft crosstube components.

NOTE

Neither the assignment of a time period overhaul of a component nor failure to assign a time period for overhaul of a component constitutes a warranty of any kind. The only warranty applicable to the component is that warranty included in the Purchase Agreement for the component.

Time between overhauls and inspection periods is based upon experience, testing, and engineering judgment and is subject to change at the sole discretion of Aeronautical Accessories or an appropriate government agency.

WARNING

ALL PARTS REMOVED, DUE TO REACHING THEIR LIMITS OR AS A RESULT OF AN ACCIDENT/INCIDENT AND DEEMED UNAIRWORTHY, SHALL BE PERMANENTLY MARKED AS SCRAP OR PHYSICALLY DESTROYED TO THE EXTENT THAT THERE IS NO CHANCE OF REPAIR OR INSTALLATION ON ANY HELICOPTER OR COMPONENT.

TABLE 2 – COMPONENT OVERHAUL SCHEDULE

PART NUMBER	NOMENCLATURE	OVERHAUL INTERVAL
412-321-104	Aft Crosstube, High Skid Gear	Prior to 7500 Takeoff/Landings and every 5000 Takeoff/Landings thereafter
412-321-304	Aft Crosstube, High Skid Gear	Prior to 7500 Takeoff/Landings and every 5000 Takeoff/Landings thereafter

E.1 Disassembly Instructions

1. Remove Aft Crosstube Assembly in accordance with Instructions for Continued Airworthiness report number AA-01136.
2. Remove Aft Crosstube Beam Assembly in accordance with Instructions for Continued Airworthiness report number AA-01136.

NOTE

The Upper Center Support on the Aft Crosstube is bonded with structural adhesive and is not designed for removal.

3. Remove both Aft Crosstube Clamp Assemblies in accordance with Instructions for Continued Airworthiness report number AA-01136.

E.2 Cleaning and Preparation

1. Remove aged sealant by scraping with a sharp piece of plastic. Finish by lightly sanding with 400 grit abrasive cloth or paper in the longitudinal direction of the crosstube.

WARNING

DO NOT SAND CROSSTUBE IN A CIRCUMFERENTIAL DIRECTION.

2. Prepare crosstube by chemically removing crosstube paint and primer outboard of the Upper Center Support to top of saddles. See Figure 4.

CAUTION

Protect Upper Center Support area to prevent contamination by paint strippers and penetrant inspection chemicals.

- a. Apply MIL-R-81294, Type I or II chemical paint remover with a brush and allow it to set from 15 to 45 minutes to soften paint.
 - b. Using a stiff fiber brush and clean water, rinse paint from crosstube. If required, use abrasive pad (Scotch-Brite, Type A) and MIL-R-81294, Type I or II chemical paint remover to aid in lifting paint. Brush crosstube with abrasive pad in the longitudinal direction, using care so as not to abrade crosstube metal surface.
 - c. Rinse part clean with clean water and dry thoroughly. Reapplication of chemical paint remover may be required to ensure that paint and primer is completely removed so that the (bare) metal surface of the cross tube is clearly visible.
3. When parts are not to be processed immediately after cleaning, apply corrosion preventive oil, to all parts to protect against corrosion. Wrap parts in barrier material and secure with tape.

E.3 Inspection

1. Inspect crosstube outboard of Upper Center Support area using fluorescent penetrant method per ASTM E1417, Type I, Method B, C, or D, Level 2, in accordance with Bell Helicopter Standard Practices Manual (BHT-ALL-SPM). Refer to BHT-ALL-SPM for fluorescent penetrant inspection procedures.
2. Damage limits are specified in Instructions for Continued Airworthiness, report number AA-01136 and BHT-412-MM (Bell Helicopter model 412 Maintenance Manual).

E.4 Repair

1. Repair damage within repairable limits in accordance with Instructions for Continued Airworthiness report number AA-01136.
2. Refinish crosstube by applying MIL-PRF-85582 primer and MIL-PRF-85285 paint (or equivalent) per manufacturer instructions to the stripped area. The area to be inspected per **Part B** should be masked to omit MIL-PRF-85285 paint as shown in Figure 1. Paint inspection area with MIL-PRF-85285 Type I Gloss Clear coat as described in **Part B** of this bulletin.

E.5 Assembly Instructions

1. Assemble both Aft Crosstube Clamp Assemblies in accordance with Instructions for Continued Airworthiness report number AA-01136.
2. Assemble Aft Crosstube Beam Assembly in accordance with Instructions for Continued Airworthiness report number AA-01136.
3. Install Aft Crosstube Assembly to aircraft in accordance with Instructions for Continued Airworthiness report number AA-01136.
4. Annotate aircraft records to indicate that **Part E** of this bulletin has been accomplished; and return aircraft to service.

PART F TOWING AIRCRAFT

Helicopter towing operations must be conducted in accordance with BHT-412-MM (Bell Helicopter model 412 Maintenance Manual) and 412-OSN-07-32 (Landing Gear Maintenance and Handling). Manufacturer towing requirements are applicable to any aircraft being towed with weight on gear. This includes towing aircraft with ground handling wheels installed and aircraft resting on moveable platforms.

CAUTION

Failure to follow manufacturer towing instructions may result in crosstube damage and/or failure.

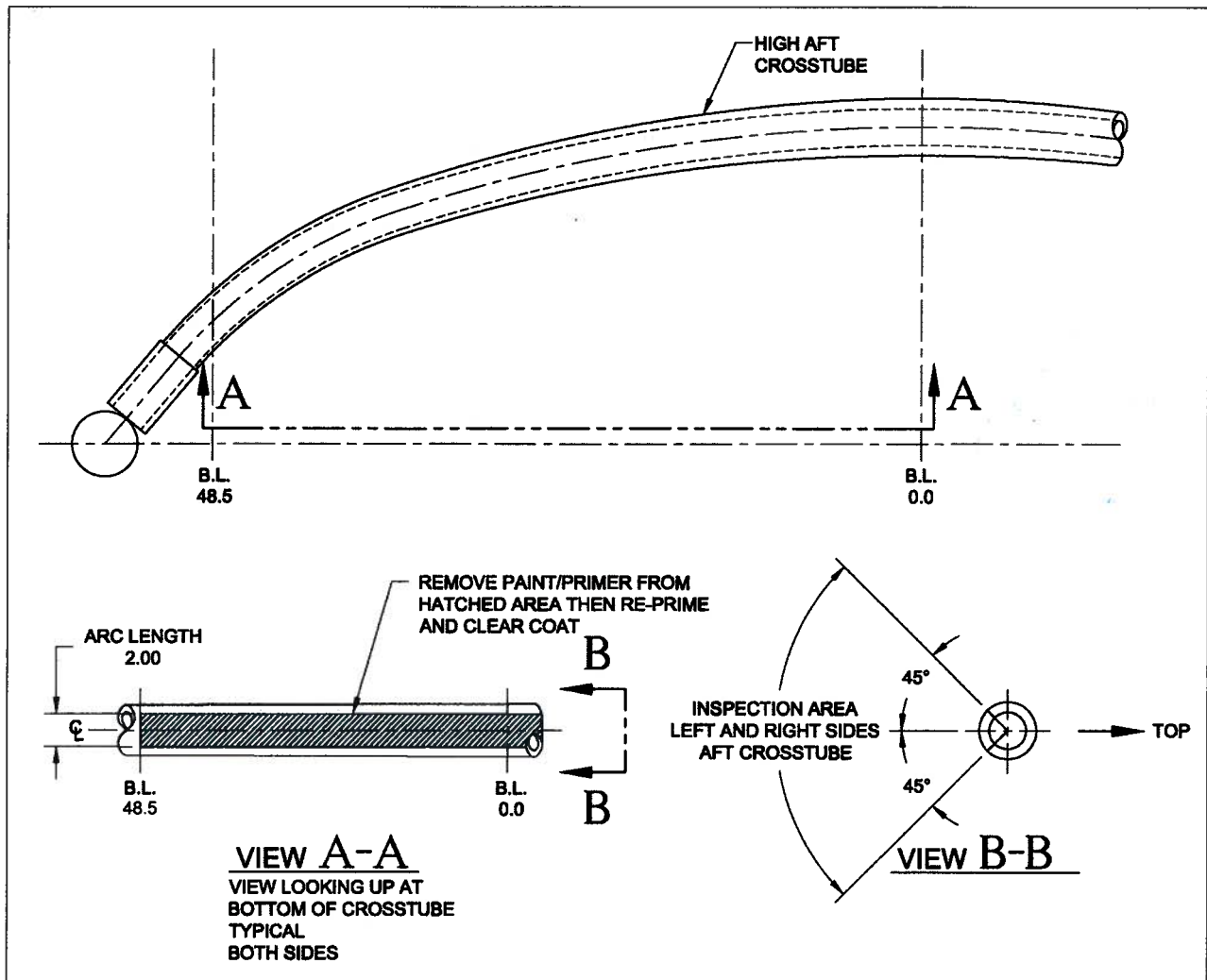


FIGURE 1 – CLEAR COAT AND INSPECTION AREA POST REVISION A

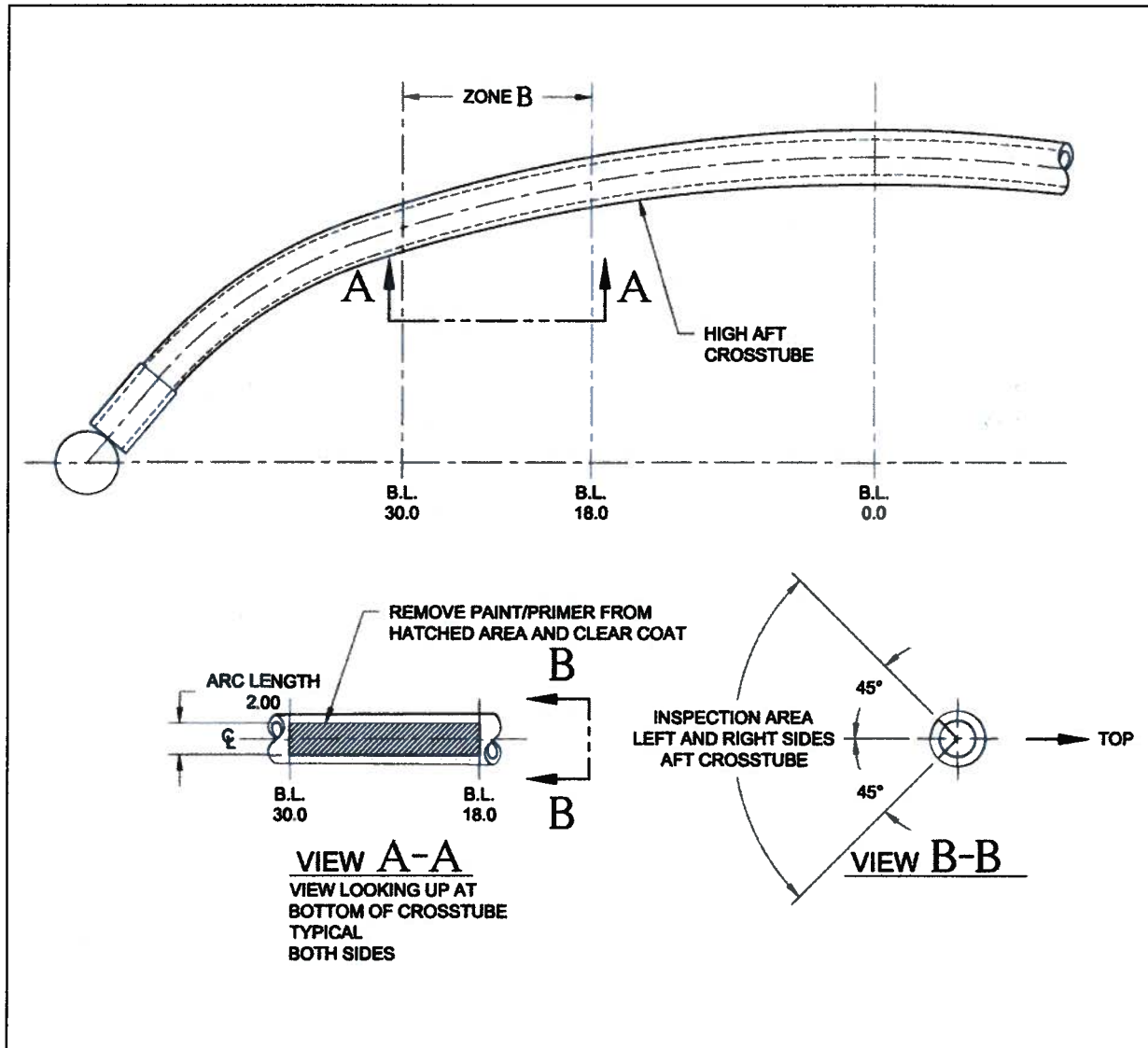
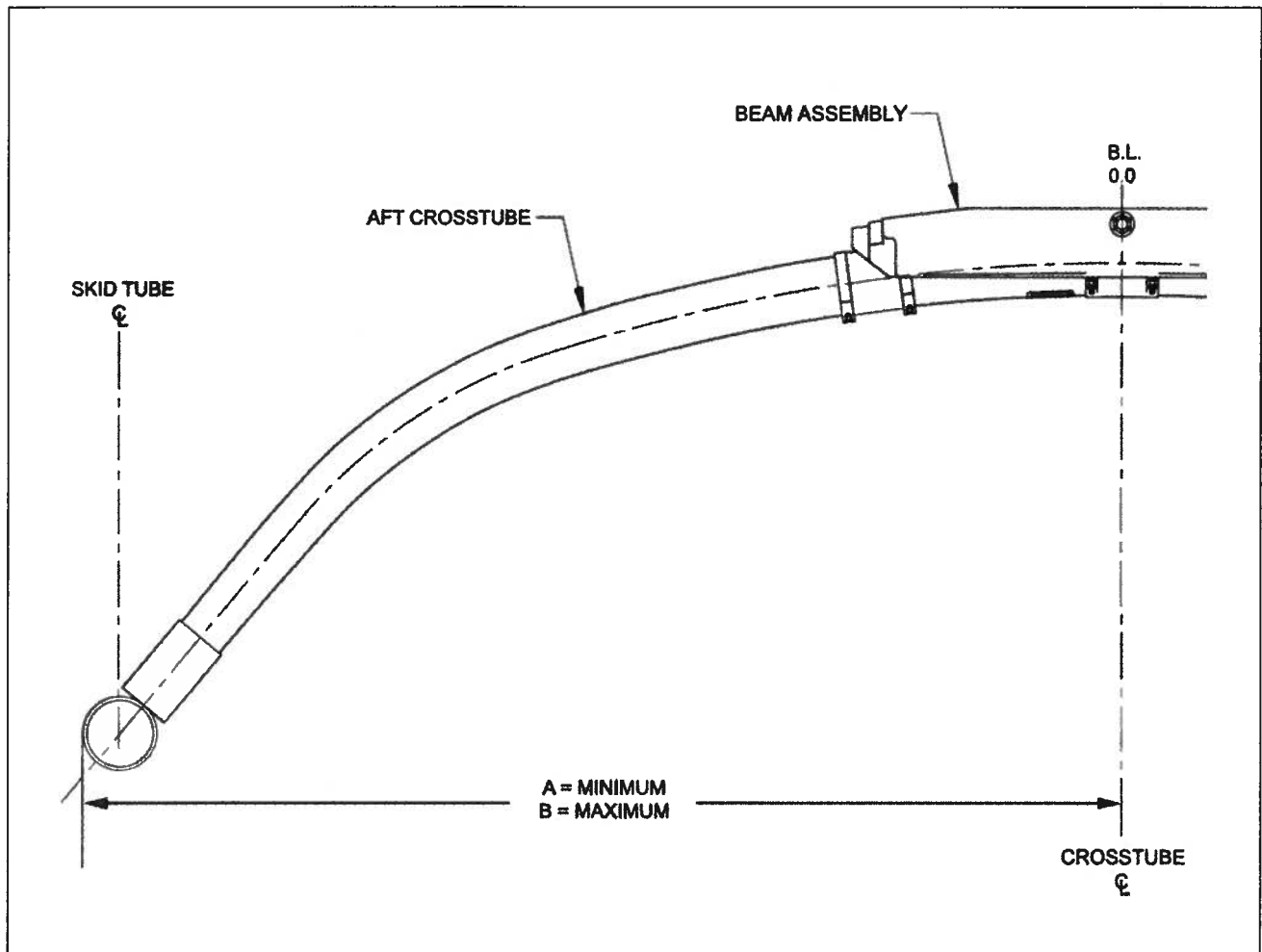


FIGURE 2 – CLEAR COAT AND INSPECTION AREA PRIOR REVISION A



Part Number	Model Effectivity	"A"		"B"	
		in.	mm	in.	mm
412-321-104 / 412-321-304	412 Aft Crosstube (High)	57.00	1448	59.00	1499

FIGURE 3 – HIGH LANDING GEAR DEFLECTION LIMITS

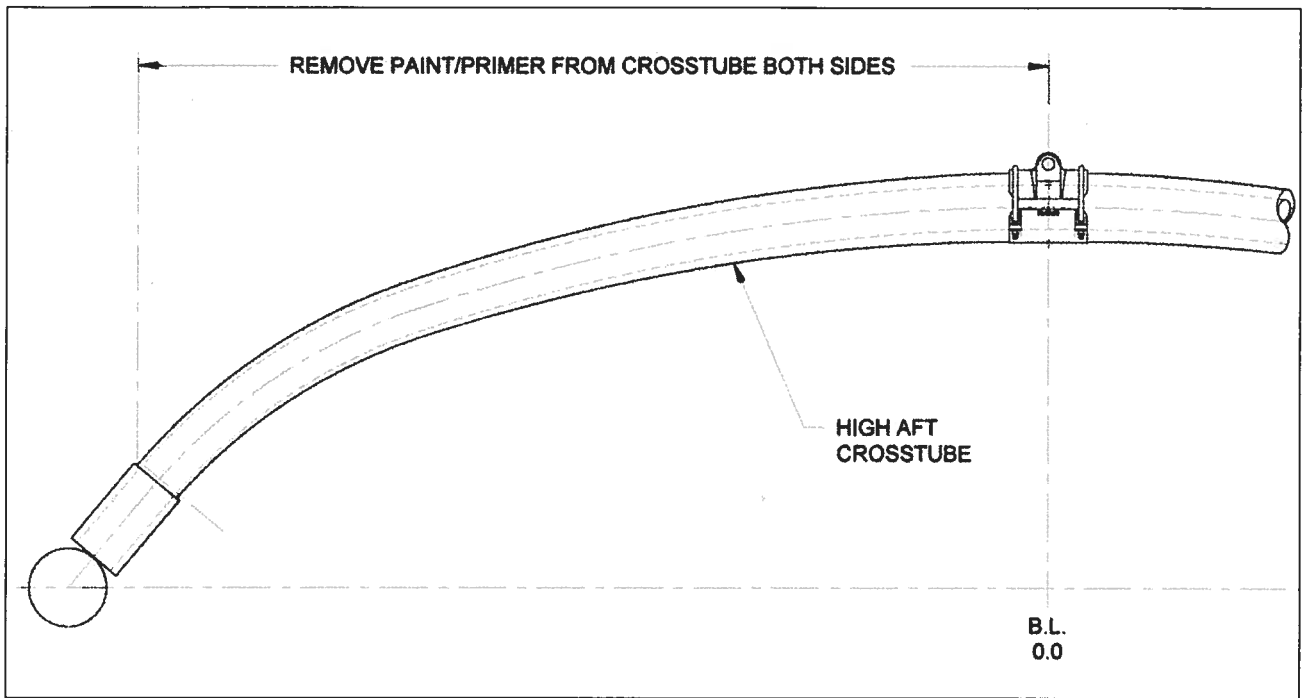


FIGURE 4 – PAINT REMOVAL AREA POST REVISION A

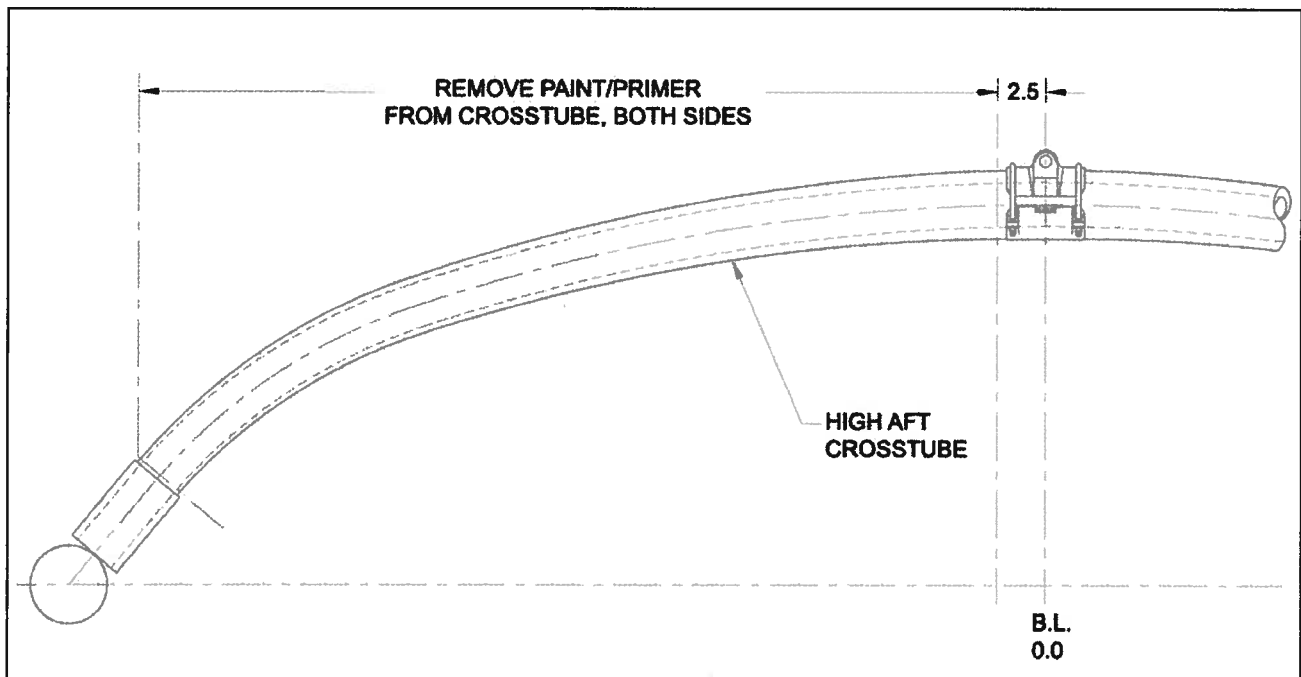


FIGURE 5 – PAINT REMOVAL AREA PRIOR REVISION A

