EAGLE TECHNICAL BULLETIN

REF. TCCA STC: SH07-28 REF. FAA STC: SR02831NY

Eagle Technical Bulletin Number: TB-E212-725-1

<u>Purpose</u>: To provide instructions for the structural repair of the center engine service deck panel assy (P/N 205-031-197-099 or 2H5-031-197-099) near STA 200 at BL 0.00.

Eligible Serial Numbers: All

Compliance: Immediately upon detection of damage to the Center Engine Service Deck Panel (P/N 205-031-197-099 or 2H5-031-197-099) lower skin, near STA 200 at BL 0.00. Maximum allowable damage is defined by the lower skin cutline shown in Detail B, Figure 4.

<u>Description</u>: This technical bulletin (TB) describes the structural repair of damage to the center engine service deck panel assy (P/N 205-031-197-099 or 2H5-031-197-099) near STA 200 at BL 0.00. Typical damage shown in Figure 1.

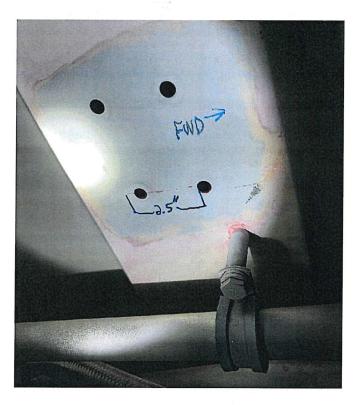


FIGURE 1 - TYPICAL CENTER ENGINE SERVICE DECK PANEL ASSY (P/N 205-031-197-099 OR 2H5-031-197-099) DAMAGE

CANADA
DEPARTMENT OF TRANSPORT
AIRCRAFT CERTIFICATION
BRANCH
DAO # 01-0-01

APPROVED

BY:

DATE: 2020-02-24
CERT. NO.: SH07-28
ISSUE NO.: 2

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Parts List

Refer to BHT-ALL-SRM, Sections 3 & 4 and to Appendix "A" respectively for process sheets and for standard repair materials.

Refer to BHT-ALL-SPM, Section 13 for Item C-xxx definitions.

QTY	PART NUMBER	ITEM	DESCRIPTION
1	-1		DOUBLER USING BELL STD 150-021-39B OR EQUIVALENT
	-2	C-404	DOUBLER USING FIBERGLASS CLOTH PER AMS-C-9084, TYPE VIIIA OR VIIIB, WEAVE 181-150 OR 181-75DE, 2 PLIES
1	-3		DOUBLER USING BELL STD 150-021-39B OR EQUIVALENT
11	-4		FILLER USING BELL STANDARD 150-021-33B
1	-5		CORE PLUG USING BELL SPECIFICATION 299-947-059 TYPE IV, 3.1 CORE DENSITY, 1/8 INCH CELLS AND 1.00 INCH THICK
1	-6		CORE PLUG USING BELL SPECIFICATION 299-947-059 TYPE IV, 3.1 CORE DENSITY, 1/8 INCH CELLS AND 0.50 INCH THICK
1	-7	C-317 OR C-562	ADHESIVE: GENERAL PURPOSE
1	-8	C-363 OR C-512	ADHESIVE: WET LAY-UP
1	-9	C-204	PRIMER: EPOXY POLYAMIDE
1	-10	C-353	SEALANT: FIREWALL APPLICATION
- 1	-11	C-309	CLEANER: METHYL-ETHYL-KETONE (MEK)
1 .	-12	C-316	CLEANER: ACETONE
1	-13	C-385	CLEANER: ISOPROPYL ALCOHOL
1	-14	C-305	CLEANER: ALIPHATIC NAPHTHA
1	-15	C-306	CLEANER: TOLUENE
1	-16	C-008	RELEASE AGENT: TECHNICAL GRADE PETROLATUM
AR	NAS9307M-4	b.	RIVET, GRIP LENGTH TO SUIT
AR	80-004-2E12		INSERT

Weight and Balance: The incorporation of this TB has a negligible effect on the aircraft weight and balance

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Reference Process Sheets (per Appendix A of BHT-ALL-SRM):

Removal of Paints and Primers on Metallic Parts	(Para. 3-2-3)
Cleaning of Honeycomb Core Cavity	(Para. 3-2-4)
Preparation of Bonding Surfaces	(Para. 3-2-5)
Preparation of Core Plug Prior to Bonding	(Para. 3-2-6)
Bonding of Flat Stock	(Para. 3-2-7)
Core Splicing	(Para. 3-2-10)
Potted Inserts - General	(Para. 3-2-11)
Installation of Potted Inserts	(Para. 3-2-12)
Removal of Potted Inserts	(Para. 3-2-13)
Sealing structural repair inside a fuel cell cavity or engine Compartment	(Para. 3-2-19)
Preparing and Mixing Two-part Epoxy Resin by Weight	(Para. 3-2-25)
Sanding Glass or Carbon Fiber Composites	(Para. 4-2-3)
Cutting/Routing Glass or Carbon Fiber Composites	(Para. 4-2-4)
Drilling Glass or Carbon Fiber Composites	(Para. 4-2-5)
Removal of Paint, Primer and Sanding Surfacer on Glass or Carbon Fiber Composites	(Para. 4-2-6)
Removal of Honeycomb Core in Glass or Carbon Fiber Honeycomb Panels	(Para. 4-2-7)
Surface Preparation for Bonding on Glass or Carbon Fiber Composites	(Para. 4-2-9)
Finish Process Following a Composite Repair	(Para. 4-2-11)
Wet Layup Impregnation Process	(Para. 4-3-3)
Wet Layup Bagging Process	(Para. 4-3-5)
Curing Process for Epoxy Resin	(Para. 4-3-6)
Honeycomb Core Plug Installation and Splicing Using Epoxy Resin	(Para. 4-3-7)

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Procedure:

All repair procedures to be carried out in accordance with BHT-ALL-SRM approved processes.

- 1. Gain access to damaged area recording type, size and location of fasteners removed. Remove and discard Qty. 1 insert from repair area. See Figure 2 and View A-A, Figure 3.
- 2. Note: Take care not to damage upper core during cutting operation.

Inspect the lower skin for corrosion, damage, delamination or contamination exceeding the area defined by the lower skin cutline as shown in Detail B, Figure 4. If any such damage exists, contact Eagle Copters with additional information describing the extent of damage.

Cut out and remove required portion of lower skin & lower existing doubler. Cut-out to be dimensioned as shown in Detail B, Figure 4. See Section C-C, Figure 5.

3. Note: Take care not to damage upper inner doubler and upper skin during cutting operation.

Cut out and remove portion of lower and upper cores. Cut-out to be dimensioned as shown in Detail B, Figure 4. Ensure a minimum of 0.25 inch of exposed core remains on (Qty. 2) sides as shown in Detail B, Figure 4. See Section C-C, Figure 5.

- 4. Inspect exposed area of lower & upper skins, lower & upper inner doublers and lower & upper cores for corrosion, damage, delamination or contamination. If any such damage exists, contact Eagle Copters with additional information describing the extent of damage.
- 5. Prepare -1 & -3 doublers dimensioned as shown in Detail B, Figure 4. Ensure doublers overlap lower skin cut-out by a minimum of 1.70 inches.
- 6. Notes: 1st ply to be oriented at 0° and 2nd ply to be oriented at 45° as shown in Detail B. No overlap permitted underneath -3 doubler as shown in Detail B, Figure 4.
 - Prepare -2 doubler (2 plies) dimensioned to overlap a minimum of 1.50 inches in 0.75 inch increments beyond edges of lower skin cutline as shown in Detail B, Figure 4. See Section C-C, Figure 5.
- 7. Prepare -4 filler dimensioned to fit cut-out area in lower skin and titanium doubler as shown in Detail B, Figure 4. See Section C-C, Figure 5.
- 8. Prepare -5 & -6 core plugs dimensioned same as removed cores as shown in Detail B, Figure 4. Ensure that core plugs ribbon direction are aligned with ribbon direction of existing core in panel. Drill (Qty. 4) 1.00 inch diameter holes at engine mount bolt locations. See Section C-C. Figure 5.
- 9. Notes: Do not transfer (Qty. 4) 0.249/0.255 inch diameter engine mount bolt holes at this time. Drill #40 pilot holes for fasteners common to -2 doubler at this time. Ensure 0.75 inch distance from insert and bolt holes for added fasteners.

Locate -1 doubler, -4 filler and -5 & -6 core plugs in position and drill for new NAS9307M-4 fasteners using fastener pattern shown in Detail B, Figure 4, maintaining proper edge distance and spacing. Transfer (Qty. 1) 0.60 inch diameter hole into -1 doubler & -4 filler common to insert. See Section C-C, Figure 5.

10. Fabricate a template of rivet pattern common to -2 doubler. This template will be used in step 23.

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Procedure Continued:

11. Note: Deburr not to exceed 0.005 inch depth.

Remove all repair parts; deburr all holes and edges; remove debris and loose material.

12. Notes: Do not soak parts to be bonded with -11 thru -15 cleaner. Use of a moistened rag is recommended. Carefully air blow honeycomb cavities to remove dirt particles.

Remove grease, dirt and primer from repair area and clean for bonding.

13. Notes: Do not soak parts to be bonded with -11 thru -15 cleaner. Use of a moistened rag is recommended. Remove "peel ply" and lightly sand composite bond material prior to bonding.

Locate and bond -1 doubler, -4 filler and -5 & -6 core plugs in position using -7 general purpose bonding adhesive.

14. Notes: Install all rivets wet with general purpose bonding adhesive while -1 doubler adhesive is still wet. Do not install fasteners common to -2 doubler. Use clecos coated with -16 release agent instead.

Secure -1 doubler using NAS9307M-4 fasteners as shown in Detail B, Figure 4, grip length to suit.

- 15. Remove excess adhesive squeeze-out.
- 16. Fill (Qty. 4) core cavities with adhesive at (Qty. 4) engine mount bolt hole locations from upper skin using -7 general purpose bonding adhesive as shown in Detail B, Figure 4. See Section C-C, Figure 5.
- 17. Allow to cure at room temperature for 24 hours while applying a uniform bondline pressure of 0.5 to 1.0 PSI to surface of repair if dead weight is used or a minimum of 20.4 inches Hg if vacuum bagging is used.
- 18. Note: Do not soak parts with -11 thru -15 cleaner. Use of a moistened rag is recommended.

Remove clecos and clean surface to remove release agent.

- 19. Inspect for voids or unbonded areas by performing a tap test inspection, or any suitable inspection approved by Eagle Copters. Voids shall not exceed 10% of total bonded area. No one void shall exceed 0.25 square inch in area. A maximum of two voids within a 6.0 inch diameter circle is allowed. No edge void is allowed.
- 20. Notes: Remove wrinkles from repair ply using a spatula. Remove entrapped air bubbles after each ply using a spatula or rubber squeegee. Fill all gaps with -8 wet lay-up adhesive. No overlap permitted underneath -3 doubler as shown in Detail B, Figure 4.

Locate and bond 1st ply of -2 doubler (2 plies) in position using -8 wet lay-up adhesive. Repeat for 2nd ply, allowing for a minimum of 0.75 inch overlap as shown in Detail B, Figure 4. See Section C-C, Figure 5.

21. Allow to cure at room temperature for 24 hours while applying a uniform bondline pressure of 0.5 to 1.0 PSI to surface of repair if dead weight is used or a minimum of 20.4 inches Hg if vacuum bagging is used.

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Procedure Continued:

- 22. Inspect for voids or unbonded areas by performing a tap test inspection, or any suitable inspection approved by Eagle Copters. Voids shall not exceed 10% of total bonded area. No one void shall exceed 0.25 square inch in area. A maximum of two voids within a 6.0 inch diameter circle is allowed. No edge void is allowed.
- 23. Note: Do not transfer (Qty. 4) 0.249/0.255 inch diameter engine mount bolt holes at this time.
 - Locate -3 doubler in position and using template fabricated in step 10, transfer rivet holes full size as shown in Detail B, Figure 4, maintaining proper edge distance and spacing. Refer to Table 3-28 of BHT-ALL-SRM for appropriate fastener hole sizes.
- 24. Remove -3 doubler, deburr all holes and edges, remove debris and loose material.
- 25. Notes: Do not soak parts to be bonded with -11 thru -15 cleaner. Use of a moistened rag is recommended.

 Clean for bonding.
- 26. Note: Remove "peel ply" and lightly sand composite bond material prior to bonding. Do not soak parts to be bonded with -11 thru -15 cleaner. Use of a moistened rag is recommended.
 - Locate and bond -3 doubler in position using -7 general purpose bonding adhesive.
- 27. Note: Install all rivets wet with -7 general purpose bonding adhesive while -3 doubler adhesive is still wet.

 Secure -3 doubler using NAS9307M-4 fasteners as shown in Detail B, Figure 4, grip length to suit.
- 28. Remove excess adhesive squeeze-out.
- 29. Allow to cure at room temperature for 24 hours while applying a uniform bondline pressure of 0.5 to 1.0 PSI to surface of repair if dead weight is used or a minimum of 20.4 inches Hg if vacuum bagging is used.
- 30. Inspect for voids or unbonded areas by performing a tap test inspection, or any suitable inspection approved by Eagle Copters. Voids shall not exceed 10% of total bonded area. No one void shall exceed 0.25 square inch in area. A maximum of two voids within a 6.0 inch diameter circle is allowed. No edge void is allowed.
- 31. Re-install 80-004-2E12 insert in original location using -7 general purpose bonding adhesive. Insert hole installation size is given below. Deburr all holes.

INSERT	HOLE INSTALLATION SIZE (inch)
80-004-2E12	0.469/0.474 Dia in -2 & -3 doublers. 0.60 Dia in -1 doubler and -4 filler. 1.00 Dia in -5 core plug.

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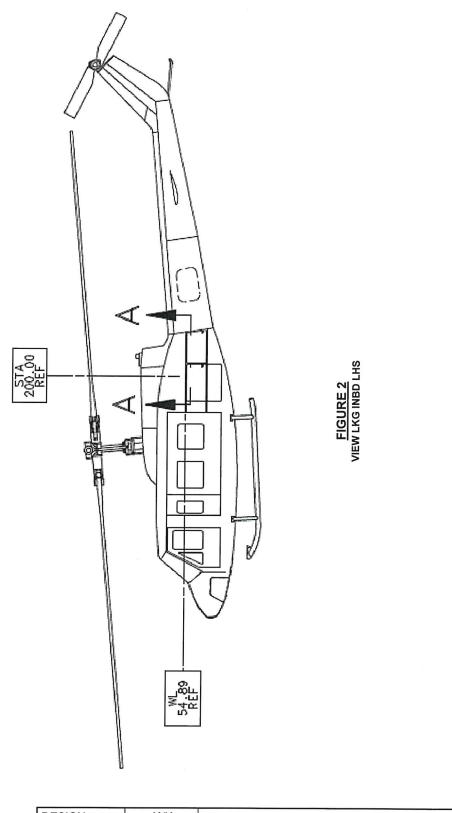
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- Transfer (Qty. 4) 0.249/0.255 inch diameter engine mount bolt holes thru all repair parts as shown in Section 32. C-C, Figure 5.
- 33. Deburr all holes, remove debris and loose material.
- 34. Prime all exposed surfaces using -9 primer. Allow to dry.
- 35. Seal all edges of repair area using -10 firewall sealant. Allow to dry. Re-prime sealant.
- 36. Re-install all removed parts.
- Ensure that (Qty. 4) engine mount bolts, at STA 200.0, BL 0.0 and WL 54.89, are torqued to 50 to 60 inch-37. pounds.
- 38. Re-finish as required.

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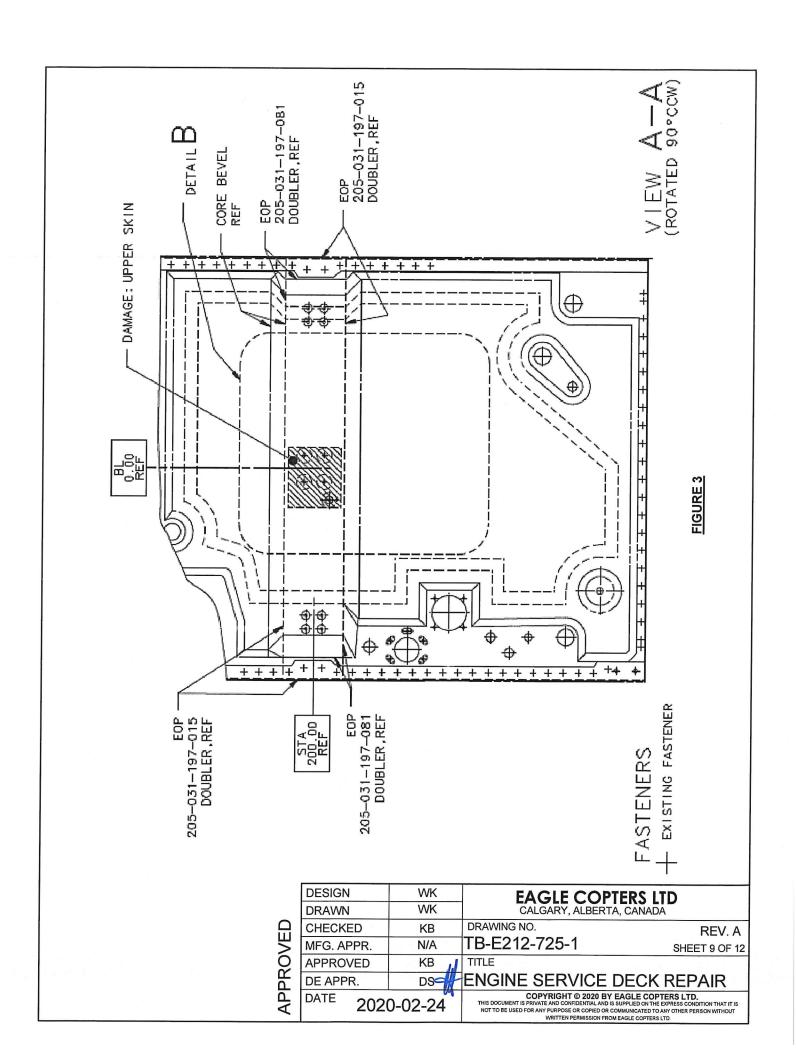
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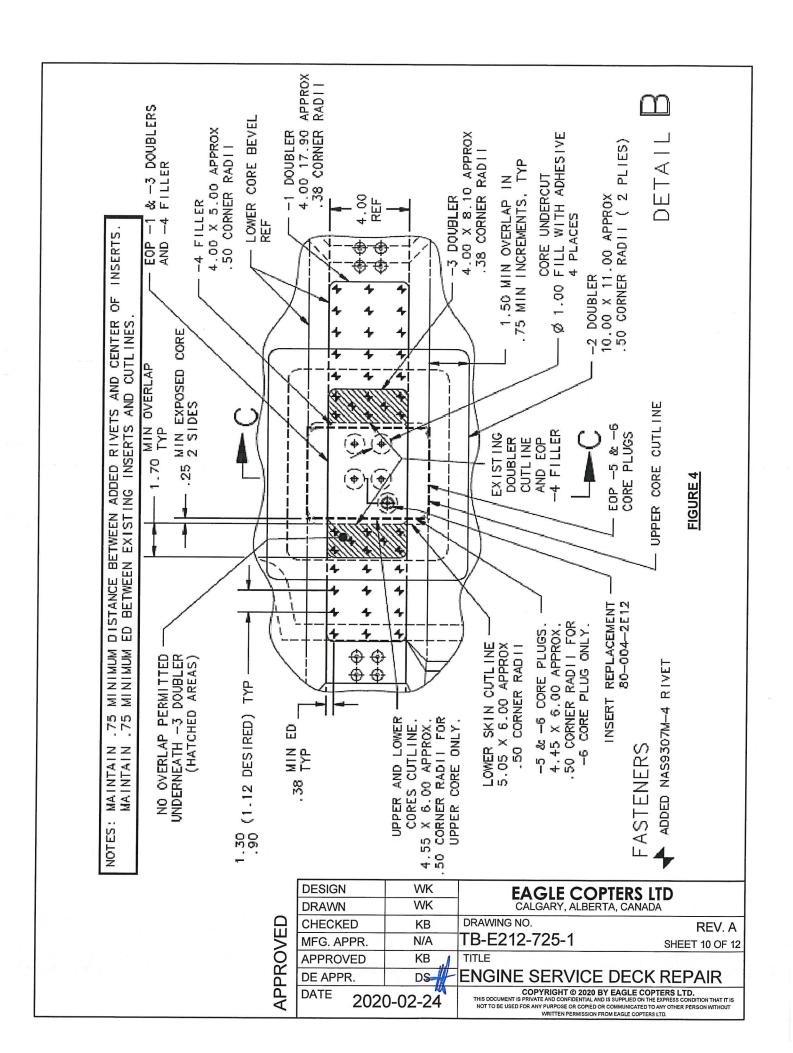


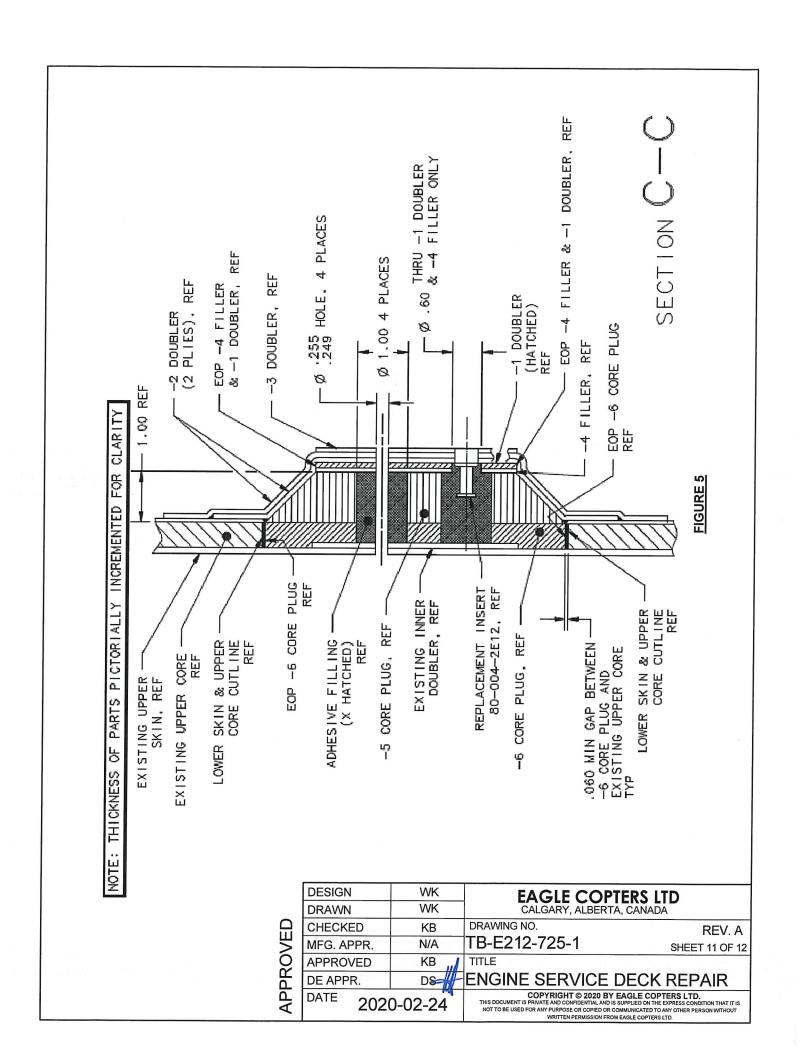
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