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COMPOSITE INSPECTION AND REPAIR FORM (CIRF)

1. Introduction

The purpose of this form is to provide a single location to report inspection and repair data as required by ICA010822. Inspector and Technician shall fill the following fields and figures with data, initials, and signatures as required.

2. Revision Status

	Description	Author	Date Created MM/DD/YYYY
A	Initial Release.	J. Pheatt	03/06/2017
B	• Updated section references for ICA010822-D. • Change authority wording to reference per-process sections in ICA010822-D.	C. Patton	08/13/2020
C	• Updated the title of Section 4. • Clarified when an MRA is required to align with ICA010822-F.	D. Niemczyk	02/02/2022
D	• Section 4, 6, 10, 12: Added/clarified notes. • Section 7, 8, 9, 11: Added numbered tables for more detailed documentation.	K. Eckman	08/21/2024

3. References

1. ICA010822, ICON A5 Structural Repair Manual
2. ICA008931, Process Specification - Prepreg Composite Processing

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4. Identification

The following information shall be provided to identify the owner, airplane, and, if applicable, any associated Major Repair and/or Alteration (MRA).

Note: If applicable, an MRA may be provided after the initial inspection is completed. This form shall be updated accordingly.

Owner	**Name:**	
	Address:	
Airplane	**Make:**	ICON
	Model:	A5
	Serial Number:	
Reference MRA	**ID Number:**	
	Revision:	
	Date:	
	Title:	

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5. Personnel

All acting personnel shall be identified in the following field.

Role Inspector(s), Technician(s), etc.	Printed Name	Signature	Initials	Date(s)

6. Initial Inspection

In accordance with ICA010822, Section 10, a qualified inspector shall proceed with progressive inspection methods as required to fully characterize damage.

> **Note:** It is permissible to minimally blend the discrepant area in accordance with Section 10.3 to remove paint and bodywork, as well as superficial laminate damage (voids, dis-bonds, delaminations, fraying, etc.) to reveal underlying damage.

> **Note:** Detailed damage report will be recorded in the following section(s)

Item	Initials	Notes
Initial Inspection: Mark complete.		

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7. Damage Assessment and Report

Report the damage as clearly and concisely as possible in the table below, using the location numbers to identify each instance in the figures that follow. Include any additional relevant information, including photos, as an appendix to this form.

1. **Location** - Include FS, BL, and WL if possible. Mark/describe on figures below as appropriate.
2. **Type of Damage** – Include description. Examples of types of damage include abrasion, gouge, scratch, dent, crack or fracture, splinter, penetration, void, delamination, bridge, disbonds, foreign matter inclusion, etc.
3. **Dimensions of Laminate Damage –** Include length, width, and depth in inches.
4. **Number of Plies Damaged –** Note: each ply is approximately 0.0089 inch thick.
5. **Dimensions of Core Damage –** Include length, width, and depth in inches.
6. **Inspectors Initials –** Include with each instance of damage identified on figures below.

Location Number	Location	Type of Damage	Dimensions of Laminate Damage	Number of Plies	Dimensions of Core Damage	Initials
1						
2						
3						
4						
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6						
7						

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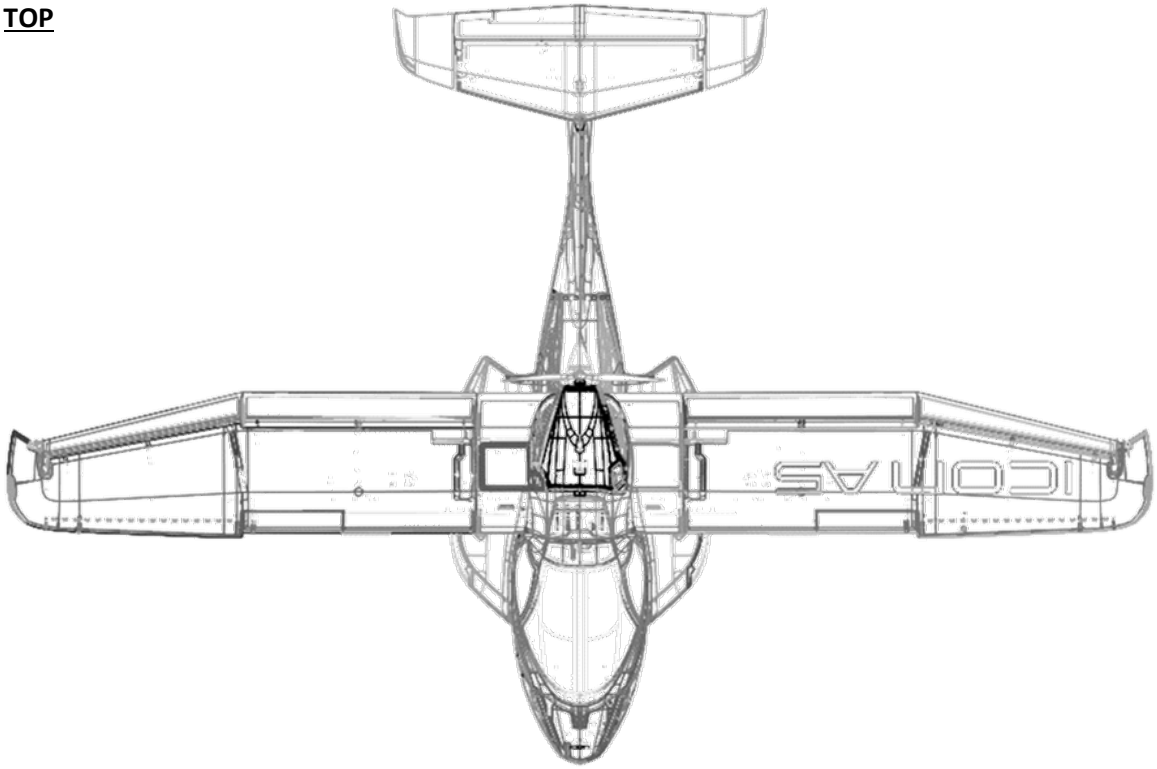
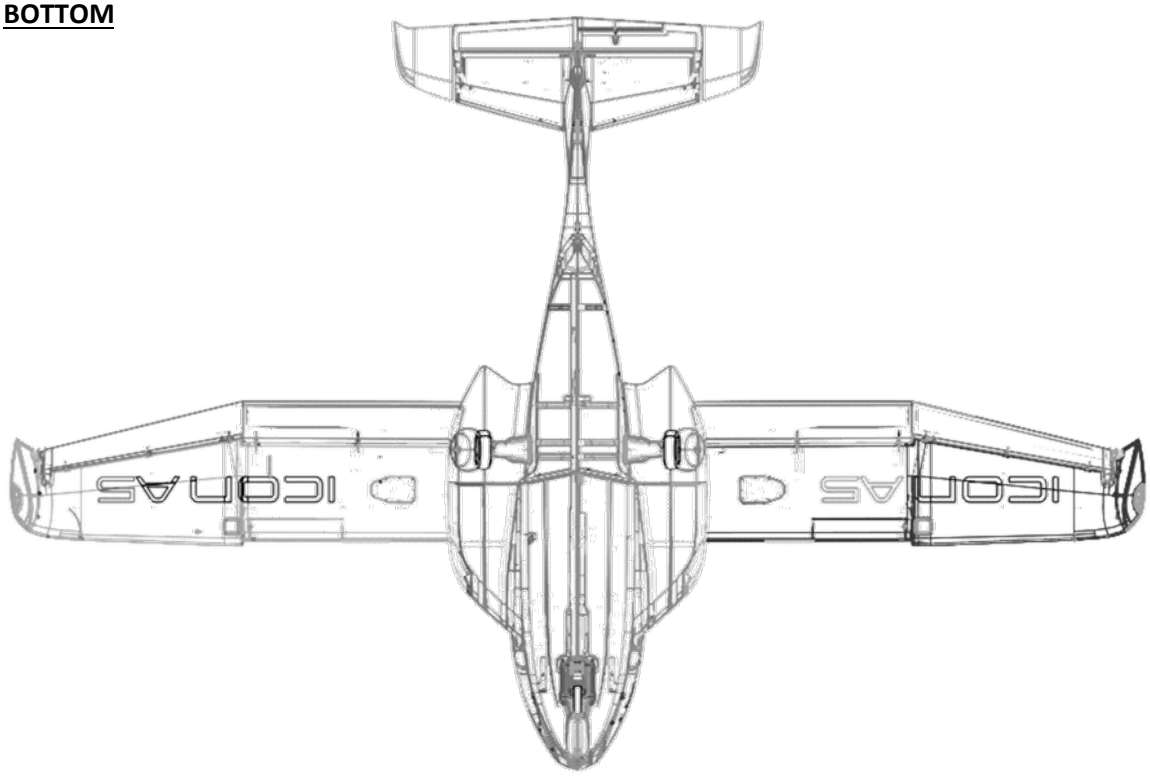
TOP



BOTTOM



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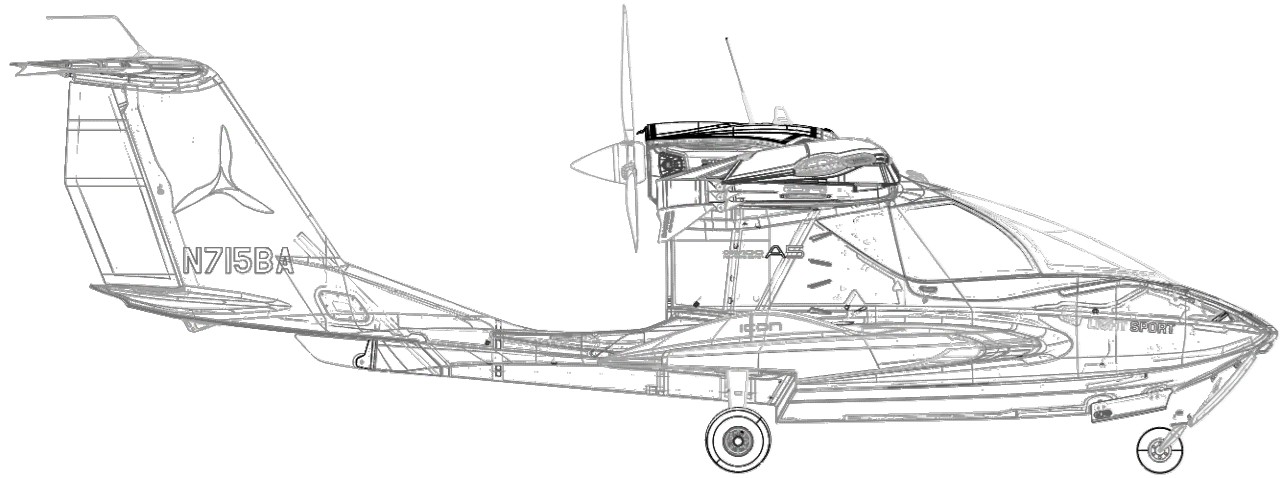
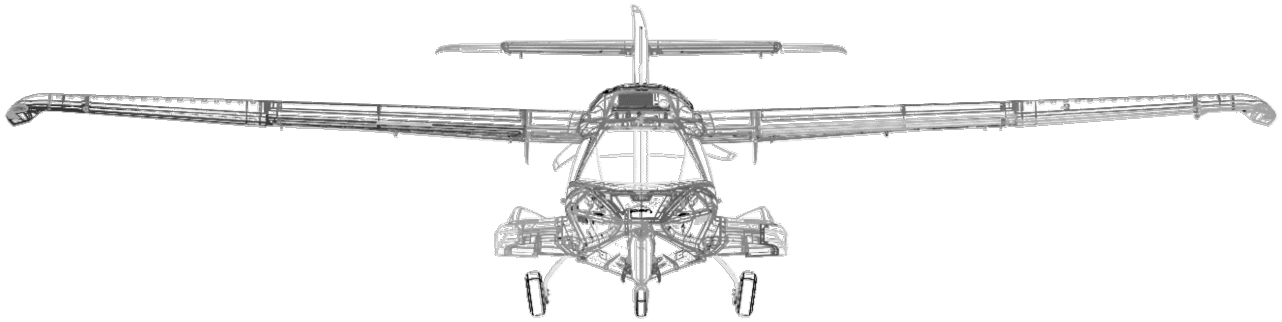
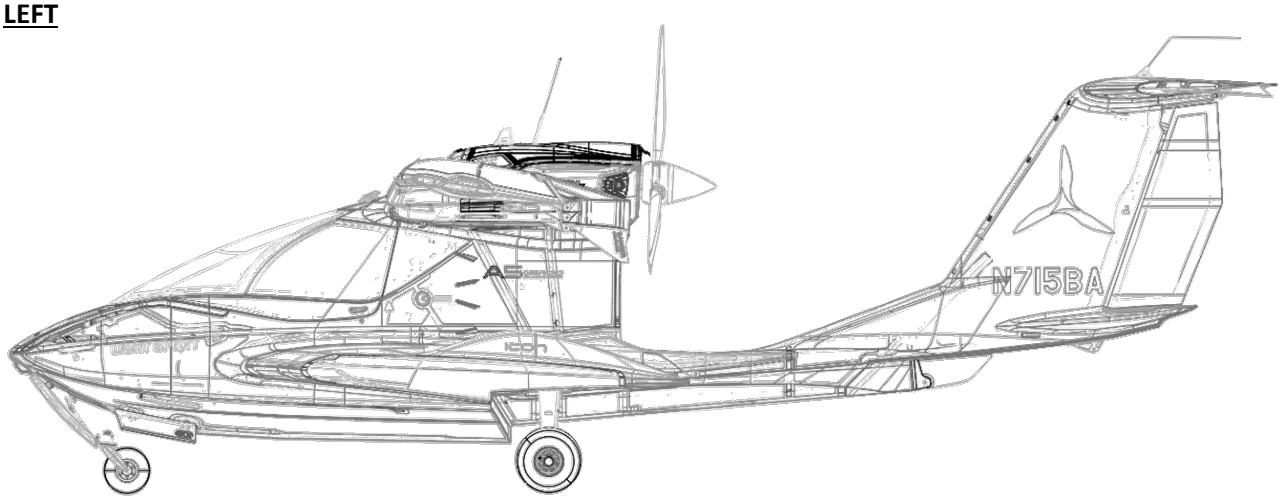
RIGHT



FRONT



LEFT



8. Damage Classification

For each location identified above, damage shall be classified below in accordance with ICA010822, Section 10.4. For reference, damage classifications are provided immediately below:

Allowable Damage - General limits for allowable composite damage are defined in ICA008931 and ICA010822, Section 10.4.1. Additionally, for damage to be classified as allowable it must not adversely affect the fit, form, function, or protective finish of the airplane. It is permissible to return the aircraft to service without explicit authorization from ICON Engineering if the damage meets these criteria.

Minor Damage - Minor Damage meets the requirements established in ICA010822, Section 10.4.2. For damage to be considered minor, it must be located within a repairable area (see ICA010822, Section 12.1), and within damage limits (see ICA010822, Section 12.2). Minor Damage may be repaired by Standard Repair (see ICA010822, Section 12) without explicit authorization from ICON Engineering if authority is granted by ICA010822 for the required repair process. Damage assessment and reporting, damage classification, and repair classification shall be documented within this Composite Inspection and Repair Form, ICA012065. If the required repair process must be explicitly authorized by ICON Engineering, then the explicit repair definition shall be documented in an associated MRA.

Major Damage - Major Damage is any damage that exceeds the classification limits for Allowable and Minor Damage. Major Damage may not be repaired without explicit authorization and direction from ICON Engineering. Damage assessment and reporting, damage classification, and repair classification shall be documented within this Composite Inspection and Repair Form, ICA012065. Explicit repair definition shall be documented in the associated MRA.

9. Repair Classification

For each location identified above, the repair classification and source of definition shall be documented below in accordance with ICA010822, Section 10.4. For reference, repair classifications and definitions are identified immediately below:

No Repair – No Repair classifications are suitable for any damage that is classified as Allowable Damage (see ICA010822, Section 10.4.1).

Standard Repair - Standard Repairs may be conducted for any damage that is classified as Minor Damage (see ICA010822, Section 10.4.2). Standard Repairs are defined by damage type within ICA010822, Section 12. Standard repairs may be conducted for Minor Damage without explicit authorization from ICON Engineering if authority is granted by ICA010822 for the required repair process. Damage assessment and reporting, damage classification, and repair classification shall be documented within this Composite Inspection and Repair Form, ICA012065.

Major Repair - Major Repairs are to be conducted for any damage that is classified as Major Damage (see ICA010822, Section 10.4.3). Major Repairs are specially prescribed and authorized by ICON Engineering. Damage assessment and reporting, damage classification, and repair classification shall be documented

within this Composite Inspection and Repair Form, ICA012065. Explicit repair definition shall be documented in the associated MRA.

Source of Repair Definition – Repair definitions are identified below, more description regarding standard repairs can be found in ICA010822, Section 12.

- Standard Repair - ICA010822, Section 12.4 - Cosmetic Damage
- Standard Repair - ICA010822, Section 12.5 - Laminate Damage
- Standard Repair - ICA010822, Section 12.6 - Sandwich Laminate Damage
- Standard Repair - ICA010822, Section 12.7 - Sandwich Laminate and Minor Core Damage
- Standard Repair - ICA010822, Section 12.8 - Sandwich Laminate and Major Core Damage
- Standard Repair - ICA010822, Section 12.9 - Sandwich Penetration Damage (One Side Inaccessible)
- Standard Repair - ICA010822, Section 12.10 - Click Bond Fastener Removal from Composite Structures and Replacement
- Standard Repair - ICA010822, Section 12.11 - Disbond or Unbond
- Standard Repair - ICA010822, Section 12.12 - Bond Void
- Standard Repair - ICA010822, Section 12.13 - Hole Anomaly (Chopped Carbon Fill and Re-drill)
- Standard Repair - ICA010822, Section 12.14 - Hole Anomaly (Pre-Cured Backing Plate, Fill and Re-drill)
- Standard Repair - ICA010822, Section 12.15 - Poor Landing for Hardware
- Major Repair – MRAXXXXX-X

Location Number	**Damage Classification:** (Allowable, Minor Damage, Major Damage)	**Repair Classification:** (No Repair, Standard Repair, Major Repair)	**Source of Repair Definition:** (e.g. Standard Repair - ICA010822, Section 12.4 - Laminate Damage Or Major Repair – MRAXXXXX)	**Initials**
1				
2				
3				
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10. In-Process Manufacturing Control Inspections

The following in-process inspections shall be completed in accordance with the repair definition of Section 6 and documented below to ensure process consistency and repair integrity.

Duplicate this page as needed to cover duration of repair.

Item	Initials	Notes
Check Raw Materials: Mark complete. (Check specifications and health of adhesive, cloth, core, etc.)		
Check Consumable Materials: Mark complete. (Solvents, abrasives, mixing tools, etc.)		
Check Tooling: Mark complete. (Layup tools, caul plates, fixtures, etc.)		
Check Environment: Report ambient temperature, pressure, and humidity (Check for any sources of chemical contamination)		Ambient Temperature: Ambient Pressure: Ambient Humidity:
Check Adhesive Preparation: Mark complete. (Prepare witness sample)		
Check Surface Preparation: Mark complete. (laminate, core prep, etc.)		
Check Layup: Mark complete. (Resin content, adhesive wet-out, shape, schedule, consolidation, etc.)		
Check Pot Life: Report time in pot.		Time in Pot:
Check Vacuum: Report vacuum pressure. (Minimum 25 InHg)		Vacuum Pressure:
Check Cure Cycle: Report time, temperature, pressure. (interrogate adhesive sample, etc.)		Cure Time: Cure Temperature: Cure Pressure:

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11. Post-Repair Inspection

In accordance with ICA010822, Section 10, a qualified inspector shall proceed with progressive inspection methods as required to ensure the repair meets the intent of the repair design.

Location Number	Initials	Notes
1		
2		
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12. Appendix

Attach text, pictures, charts as required to supplement the above data.

- Photos should include a scale/ruler in decimal inches where possible.
- Provide images from far away (context) and up close (detail).