PILOT'S OPERATING HANDBOOK

ICON A5

650 EDITION

Publication ICA015523, Issue A
Model: A5-650
Airplane Registration Number:_____
Airplane Serial Number:_____
Date: 17 June 2022

ICON Aircraft / 2141 ICON Way, Vacaville, CA 95688

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RECORD OF MANUAL/HANDBOOK REVISIONS

This section gives a record of the Pilot's Operating Handbook revisions in the current issue series (Issue A, Issue B, etc.). Further description of the revisions by issue and chapter can be found below.

Issue	Date	Chapter(s)	Added By
A	17 June 2022	All	ICON Aircraft

1.1 ISSUE A

All Chapters
- Initial creation of the manual

1.2 LIST OF EFFECTIVE CHAPTERS

The table below shows the current, effective chapters and dates in this revision of the handbook (see previous section). The applicable handbook issue is listed at the bottom corner of this page for reference.

Chapter	Change	Date
0. Introduction	A0	17 June 2022
1. General Information	A0	17 June 2022
2. Limitations	A0	17 June 2022
3. Emergency Procedures	A0	17 June 2022
4. Normal Procedures	A0	17 June 2022
5. Performance	A0	17 June 2022
6. Weight, Balance, and Equipment List	A0	17 June 2022
7. Description of Airplane and Systems	A0	17 June 2022
8. Handling and Servicing	A0	17 June 2022
9. Supplements	A0	17 June 2022

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CHAPTER

Chapter 00

INTRODUCTION

0.1 ASTM STANDARDS

FAA-accepted consensus standards are utilized for the design, construction, and continued airworthiness of the A5. This aircraft complies with the following ASTM standards:

F2245

Standard Specification for Design and Performance of a Light Sport Aircraft

F3198

Standard Specification for Light Sport Aircraft Manufacturer's Continued Operational Safety (COS) Program

F2746

Standard Specification for Pilot's Operating Handbook (POH) for Light Sport Airplane

F2972

Standard Specification for Light Sport Aircraft Manufacturer's Quality Assurance System

This Pilot's Operating Handbook is in compliance with ASTM Standard F2746.

0.2 CONTACT INFORMATION

The following is the name and contact information of the manufacturer of the A5.

ICON Aircraft, Inc.
2141 ICON Way
Vacaville, CA 95688
+001 707 564 4000

https://www.iconaircraft.com

0.3 DATA LOCATION INFORMATION

Below is the data location and contact information for recovery of certification documentation.

ICON Aircraft, Inc.
2141 ICON Way
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+001 707 564 4000

0.4 HANDBOOK REVISIONS

This handbook utilizes section-level revision control. Each page of the handbook contains a revision indication in the lower, inside corner. Revision indicators are consistent within an entire section, but can vary from section to section.

A major release of the handbook is called an “Issue”. The issue letter and its effective date are listed on the title page of the handbook using a letter code; for example, “Issue A”.

Updates and changes to the handbook are called “Revisions” and are designated using an issue prefix followed by a number; for example, “Revision A2” is the second revision of “Issue A”. These revisions are listed on the Record of Manual/Handbook Revisions page near the front of the handbook. Owners are responsible for keeping this page updated when handbook revisions are issued by ICON.

Updates and changes to sections of the handbook are called “Changes” and are designated using the issue prefix followed by a number; for example, “Change A0” is the original release of a section in Issue A and “Change B3” is the third revision of a section

in Issue B of the entire handbook. The “List of Effective Sections” near the front of the handbook documents the applicable section “Changes” associated with a given handbook revision.

Revisions to this Pilot’s Operating Handbook will be distributed to all owners of relevant aircraft registered with ICON. Distribution will include new pages for the sections that have changed, a new List of Effective Sections, and any necessary instructions. Revisions should be examined immediately upon receipt and incorporated into this handbook per the instruction provided.

It is the responsibility of the owner to maintain this POH in a current state when it is being used for operational purposes. Owners should contact ICON whenever the revision status of their POH is in question.

0.5 SYMBOLS

For a full list of Symbols, Abbreviations, and Terminology, see Chapter 9, Supplements.

This handbook uses the following symbols and definitions to emphasize important information.

WARNING: *Indicates a potentially hazardous situation which, if not avoided, could result in serious injury or death.*

CAUTION: *Indicates a potentially hazardous situation or instruction which, if not avoided or followed, may result in minor or moderate injury or severely damage the aircraft.*

NOTE: *Indicates supplementary information that may be needed to fully complete or understand an instruction.*

Chapter 01

GENERAL INFORMATION

1.1 AIRPLANE INTRODUCTION

The ICON A5 650 Edition (or “A5”) is a two-seat, single-engine, amphibious Light Sport Aircraft. The A5 has a conventional high wing, tail-aft configuration with ailerons, flaps, elevator, rudder and water rudder control surfaces. The wings are manually foldable with the flight controls (ailerons and flaps) connecting automatically. The tricycle landing gear is retractable. The A5 is equipped with a Rotax 912iS Sport, 4-cylinder, horizontally-opposed, reciprocating engine of 100 horsepower. Installed equipment provides for flight in day and night VFR conditions. Fuel is contained in a single fuselage-mounted tank (bladder for Model Year 17 aircraft). Flight controls employ conventional push-pull tubes, torque tubes and cables. The primary flight controls are conventional sticks and rudders (with toe brakes) for each seat. An electrically operated pitch trim tab is controlled from the pilot’s (left seat) stick only.

A5 aircraft span several configurations that are each represented in the Pilot’s Operating Handbook. Differences between the configurations are referenced throughout the document.

The configurations and corresponding Aircraft Serial Number (ASN) are as follows:

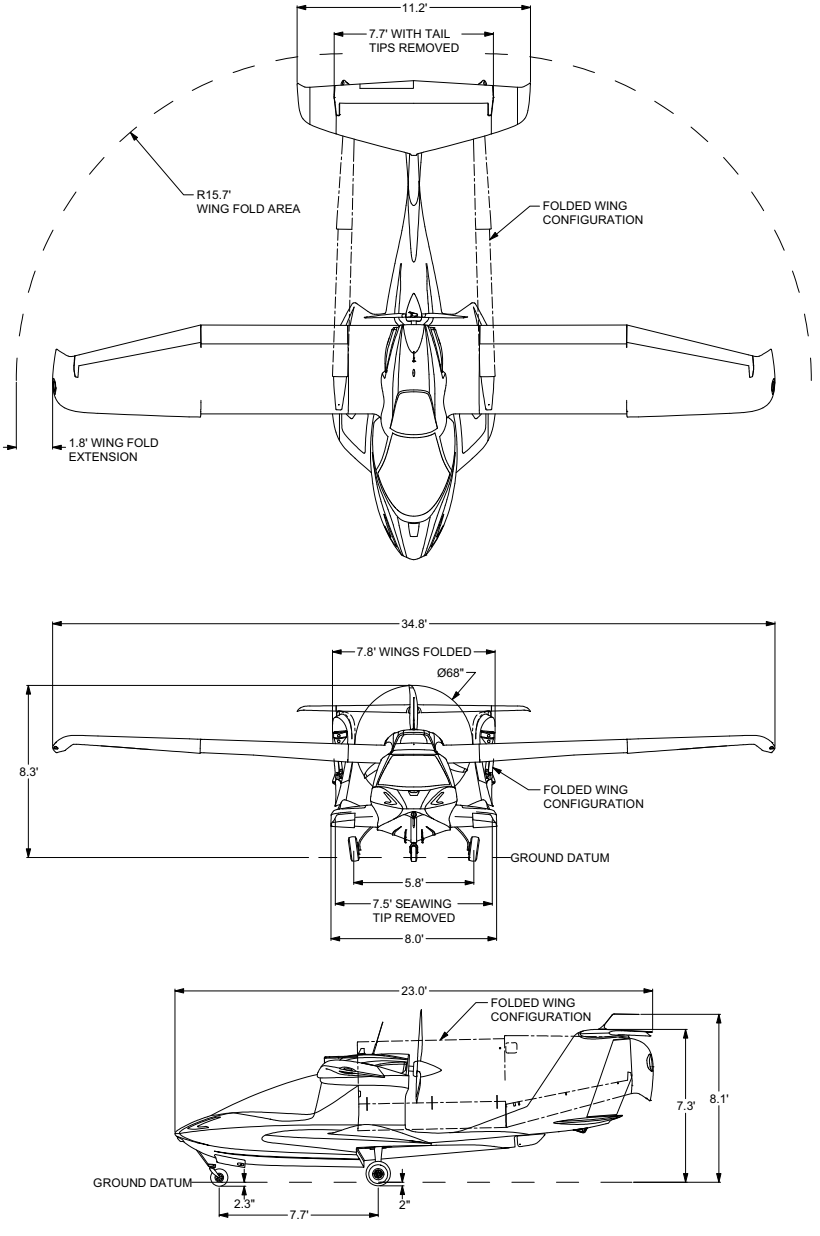
- ASN 00001-00020: Model Year 17 (MY17)
- ASN 00021-00122: Founders Edition
- ASN 00123+: Limited Edition
  - Garmin 796
  - Garmin G3X Touch™
  - Garmin G3X Touch™ with Autopilot

1.1.1 DESCRIPTIVE DATA

Parameter	Value
Wing Span	34.8 ft
Wing Area	135 ft^2
Aspect Ratio	9.0
Overall Length	23.0 ft
Overall Height at Ground Attitude	7.5 ft
Wheel Base	7.7 ft
Main Landing Gear Track Width	5.8 ft
Draft at Gross Weight, Landing Gear Up	14 in
Draft at Gross Weight, Landing Gear Down	26 in

1.2 ILLUSTRATIONS

FIGURE 1-1
AIRCRAFT 3-VIEW DRAWING



1.3 SUMMARY OF PERFORMANCE SPECIFICATIONS

Parameter	Value
Gross Weight	1433 lb_f
Top Speed at SL, V_H (MCP, 5500 RPM)	95 KTAS
Cruise Speed, 5000 RPM, 8000 ft	84 KTAS
Range (5000 RPM, 8000 ft, including takeoff and climb from SL)	427 nm (with 45 min reserve)
Best Angle of Climb Speed, V_X (Flaps 0°)	54 KIAS
Best Angle of Climb Speed, V_X (Flaps 15°/30°)	50 KIAS
Best Rate of Climb Speed, V_Y	58 KIAS
Rate of Climb at V_X (SL)	616 ft/min
Rate of Climb at V_Y (SL)	629 ft/min
Stall Speed, V_S (Flaps and landing gear up)	43 KIAS
Stall Speed, V_{S0} (Flaps and landing gear down)	39 KIAS
Total Fuel Capacity	20.1 US gallons
Total Usable Fuel	20 US gallons
Approved Types of Fuel	Unleaded automotive fuel with up to 10% maximum ethanol content meeting ASTM D4814 with minimum RON 95 (minimum Anti-Knock Index 91) Grade 100LL aviation gasoline (AVGAS) meeting ASTM D910
Max Engine Power at SL	100 hp at 5800 RPM (5 min max)
Max Demonstrated Direct Crosswind Component – Land and Water (not a limitation)	12 knots
Service Ceiling at Gross Weight (100 ft/min Climb Rate)	15,000 ft

Chapter 02

LIMITATIONS

2.1 INTRODUCTION

This section includes the operating limitations necessary for the safe operation of the airplane.

2.2 AIRSPEED LIMITATIONS

2.2.1 MY17 AIRCRAFT

	Speed	KIAS	Remarks
V_{S0}	Stall Speed, MTOW, Flaps 30°	39	Idle power
V_S	Flaps Speed, MTOW, Flaps 0°	43	Idle power
V_{FE} and V_{LE}	Maximum Flap and Landing Gear Extended Speed	75	Operation and extended speeds are the same.
$V_{O\text{-}min}$	Operating Maneuvering Speed, 1145 lb_f, Min Flight Weight	76	Do not make full or abrupt control movements above this speed.
$V_{O\text{-}max}$	Operating Maneuvering Speed, MTOW	86	Do not make full or abrupt control movements above this speed.
V_{N0}	Max Structural Cruising Speed	93	Do not exceed this speed except in smooth air.
V_{NE}	Never Exceed Speed	120	Do not exceed this speed in any operations.
Windows Removed Speed	Maximum Window Removed Speed	90	Do not exceed this speed with windows removed.

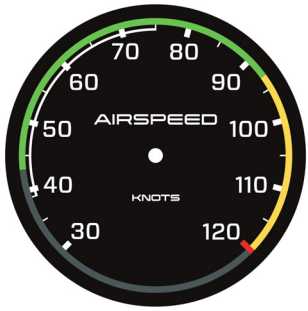
2.2.2 FOUNDER'S EDITION AND LIMITED EDITION

	Speed	KIAS	Remarks
V_{S0}	Stall Speed, MTOW, Flaps 30°	39	Idle power
V_S	Flaps Speed, MTOW, Flaps 0°	43	Idle power
V_{FE} and V_{LE}	Maximum Flap and Landing Gear Extended Speed	75	Operation and extended speeds are the same.
$V_{O\text{-}min}$	Operating Maneuvering Speed, 1145 lb_f, Min Flight Weight	76	Do not make full or abrupt control movements above this speed.

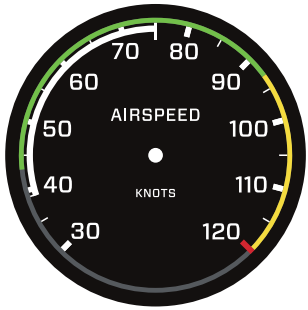
	Speed	KIAS	Remarks
$V_{O\text{-}max}$	Operating Maneuvering Speed, MTOW	86	Do not make full or abrupt control movements above this speed.
V_{NO}	Max Structural Cruising Speed	93	Do not exceed this speed except in smooth air.
V_{NE}	Never Exceed Speed	120	Do not exceed this speed in any operations.

2.3 AIRSPEED INDICATOR MARKINGS

Airspeed Indicator for the MY17 Aircraft



Airspeed Indicator for the Founder's Edition and Limited Edition Aircraft



Marking	KIAS Range	Significance
White Arc	39-75	Full flap operating range. Lower limit is maximum weight stall speed in landing configuration. Upper limit is maximum speed permissible with flaps and landing gear extended.
Green Arc	43-93	Normal operating range. Lower limit is maximum weight stall speed with flaps retracted. Upper limit is the maximum structural cruising speed.
Yellow Arc	93-120	Operations must be conducted with caution, and only in smooth air.
Red Line	120	Maximum speed for all operations.

2.4 SERVICE CEILING

The service ceiling (the maximum altitude at which a climb rate of 100 ft/min can be maintained) is 15,000 ft at MTOW, standard conditions.

2.5 HUMAN LOAD LIMITATIONS

Maximum Human Weight

250 lb_f per person

The carbon structure of the A5 though strong, can be damaged if loaded in an unintended manner. The A5 is designed to support a person of up to 250 lb_f though strong, can be damaged if loaded in an unintended manner. The A5 is designed to support a person of up to 250 lb

Surfaces approved for standing, sitting, or kneeling:

- Cockpit floors
- Top surface of each Seawings™ forward of the aft limit of the step pad

- Seats
- Canopy jambs

Surfaces approved for sitting only:

- Top surface of the left and right wings in the area bounded by the wing leading edge, side of engine cowling, station of the forward edge of the IPS cut out, and wing fold joint

All surfaces of the fuselage, Seawings™, wings, and horizontal tail other than those specified above are not approved for standing, kneeling, or sitting regardless of the weight of the individual.

CAUTION: The seats, interior, Seawings™ step areas and safety restraints are designed to support a person of 250 lb_f maximum weight. Do not exceed this limit. Exceeding the maximum human weight limit or loading the aircraft in an unapproved manner could result in an unsafe condition and damage to the aircraft.

NOTE: The above limit makes no statement about weight and balance. Always perform a weight and balance procedure for any new loading condition.

2.6 BAGGAGE/CARGO LIMITATIONS

Maximum Baggage/Cargo Weight

60 lb_f

WARNING: Loading a concentrated weight fully aft in the baggage area may cause an unsafe aft CG condition.

Minimum Number of Anchor Loops

At least three (3) out of the six (6) provided anchor loops must be used in order to safely restrain the full baggage/cargo load.

Minimum Load Rating of Cargo Restraints (Pilot Supplied)

1000 lb_f

WARNING: The pilot is responsible for properly restraining the baggage/cargo. At least three (3) out of the six (6) provided anchor loops must be used in order to safely restrain the load. The pilot is responsible for supplying a properly rated cargo restraint to interface with the anchor loops built into the A5.

2.7 LOAD FACTORS

Design Maneuvering Limit with flaps at 0° and 1433 lb_f aircraft weight

+4, -2 g

Design Maneuvering Limit with flaps at 15°/30° and 1433 lb_f aircraft weight

+2 g

Landing Gear Extension/Retraction

+1.5 g

NOTE: Do not extend or retract the landing gear with more than this load on the aircraft.

Engine

Limit of engine operation at zero gravity and in negative gravity conditions.

Maximum of 5 seconds at maximum -0.5 g.

NOTE: These are not operational limits (-2 g is for structural load purposes).

2.8 WATER SPEED LIMITATIONS

Maximum water speed for landing gear extension/retraction

4 knots (idle power setting)

Maximum water speed with water rudder extended

10 knots

2.9 APPROVED MANEUVERS

2.9.1 IN FLIGHT:

All aerobatic maneuvers are prohibited. The aircraft is not certified for aerobatics, inverted flight, or sustained zero ‘g’ or negative ‘g’ flight.

Intentional or attempted spins are prohibited.

Prolonged periods in stalled flight are to be avoided.

2.9.2 ON THE WATER:

Low speed taxiing turns on the water while off the step in displacement or plowing modes are approved. Gentle turns while on the step and up to takeoff speeds are also approved.

Aggressive turns while on the step and up to takeoff speeds should be avoided and may induce a water loop. Water loops are not approved and could cause damage to the nose gear doors or Seawings™.

WARNING: Contacting the wing tip with the water while in motion can create a dangerous situation and must be avoided. The planing wing tip design is intended as a safety precaution for inadvertent wing tip water contact and should never be used intentionally or relied upon for safety.

2.10 FUEL LIMITATIONS

Total Fuel Capacity

20.1 US gallons

Total Usable Fuel

20 US gallons

Approved Types of Fuel

a) Unleaded automotive fuel with up to 10% maximum ethanol content meeting ASTM D4814 with minimum RON 95 (minimum Anti-Knock Index 91)

b) Grade 100LL aviation gasoline (AVGAS) meeting ASTM D910

CAUTION: Due to various environmental, economic, and political reasons, fuels with different blends of ethanol, oxygenators, and other additives may be encountered when using automotive gasoline. Be careful to use only fuel suitable for your operational climate zone since there is a risk of fuel vapor formation if using winter-blend, or other high vapor pressure fuel, in summer-type weather or at high altitude. Vapor formation can result in fuel pump cavitation, low fuel pressure, and engine power loss. This phenomenon is most likely to be encountered in a full throttle climb at high altitude and in hot weather. An occasional flash of the fuel pressure annunciator light is acceptable, but if the fuel pressure light flashes frequently, continuously, or if any sort of power loss, stumbling or surging is observed, land as soon as practical and contact ICON Owner Support. The problem may be poor fuel quality or an inappropriate blend of automotive fuel. If these are the case then 100LL Aviation fuel should be used until a suitable type of automotive fuel can be sourced.

NOTE: Use of leaded gasoline decreases the maintenance interval for changing the oil filter, cleaning the oil tank, and replacing spark plugs. See the A5 Maintenance Manual for further information.

NOTE: Anti-Knock Index is (RON+MON)/2. RON is Research Octane Number and MON is Motor Octane Number.

Mixing of Fuel Types

The A5 fuel system is designed to allow mixing of automotive fuel and AVGAS.

2.11 ENGINE OIL LIMITATIONS

Approved Oil Specifications

Viscosity – SAE 10W-40 multi-grade

API classification SG or higher

Registered brand heavy-duty four-stroke motorcycle oil with gear additives

CAUTION: Do not use oils containing friction modifier additives as this could result in clutch slippage.

CAUTION: Do not use conventional a.d. (ashless dispersant) aircraft oils.

CAUTION: Do not use oils intended primarily for diesel engines.

CAUTION: Do not use any oil additives.

Recommended Oil

Shell brand AeroShell Sport Plus 4

2.12 ENGINE COOLANT LIMITATIONS

The engine coolant must be a mixture of 50% ethylene glycol based antifreeze and 50% distilled water. The antifreeze portion of the coolant mixture should be a low silicate and nitrite-free formula.

A list of approved antifreeze is included in the table below:

Brand	Description
BASF	Glysantin Protect Plus/G48
CASTROL	Antifreeze All-Climate
CASTROL	Antifreeze Anti-Boil
OMB	OMB Coolant Plus
PETROL	Antifreeze Concentrate/ Antifreeze G11

Brand	Description
PRESTONE	DEX-COOL extended life
PRESTONE	50/50 prediluted DEX COOL extended life
SHELL	DEX-COOL
SHELL	Antifreeze Concentrate
TEXACO	Havoline Extended Life Antifreeze
VELVANA FRIDXE	G49
YACCO	LR-35

2.13 ENGINE

One Rotax 912iS Sport, 4-stroke, 4-cylinder horizontally opposed, spark ignition

Maximum Rated Power at Sea Level, Standard Day

100 hp at 5800 RPM

NOTE: Per the Rotax Manual, the engine should only be run at this setting for a maximum of 5 minutes.

Ignition Switch

Operate Starter for a no more than 10 seconds, continuous cranking, followed by a cooling period of 2 minutes before next attempt

Maximum Continuous Power

97 hp at 5500 RPM

Idle Speed

1700 ± 75 RPM (A5 requirement)

2.14 ENVIRONMENTAL LIMITATIONS

Aircraft Temperature Limitations

The design temperature ranges for the aircraft are as follows:
Storage: -40°F and 150°F
Operations in dry conditions: -20°F to ICAO+50°F (109°F at sea level)

Operations in wet conditions: 40°F to ICAO+50°F (109°F at sea level)

NOTE: The paint scheme was chosen to minimize solar absorptivity to prevent critical structures from exceeding 150°F.

NOTE: The low temperature limit in wet conditions is to help avoid water freezing in critical systems.

Visible Moisture

Avoid flying in visible moisture at air temperatures below 40°F/5°C. The air filter may ice up and ice may collect on the aircraft and create an unsafe condition.

CAUTION: Do not operate the aircraft in freezing temperatures if water is present on the airframe. Freezing water can impair the function of critical systems such as instrumentation, flight controls, and landing gear.

Water Operations Limitations

Maximum suggested wave height (from crest to trough): 12 inches.

Salt water operations are approved. Rinse with fresh water afterward per the procedure in Chapter 8.

The A5 uses aerospace paint, not marine paint. The paint can withstand 96 hours of continuous direct contact with water. Exceeding 96 hours or securing aircraft where it may come in contact with rocks or other abrasive objects may result in visible degradation or permanent damage to paint and/or hull structure.

During non-operational continuous direct contact with water the aircraft should be checked at least every 24 hours for a purge bilge light. If purge bilge light is illuminated, run the bilge to remove acquired water. This is necessary as the A5 does not have an automatic bilge pump and is not designed for prolonged storage in water.

Open Canopy Wind Limitations

The maximum design wind speed for opening the canopy is 25 knots.

NOTE: Be cautious when opening the cockpit canopy in windy conditions to avoid losing control of it. Do not leave the aircraft unattended with the canopy open.

2.15 VFR AND IFR USE LIMITATIONS

VFR Flight

This airplane is equipped for day and night VFR operations only. Operate in VMC only.

IMC Flight

IMC flight is prohibited.

2.16 ICON PARACHUTE SYSTEM (IPS) LIMITATIONS

There are no restrictions on the use of the IPS. Optimal IPS actuation is from level flight above 500 ft AGL.

2.17 SPIN-RESISTANT AIRFRAME (SRA) LIMITATIONS

The aircraft must be operated with the following items in place to maintain SRA compliance:

Wing stall strips – quantity 2 (1 per side)

Wing vortex generators – 34 pair (17 pair per side)

NOTE: Up to 3 wing vortex generators are allowed to be missing on each wing so long as there are at least 3 good vortex generators between any two missing ones.

Fuselage vortex generators – quantity 10 (5 per side)

Flap fences – quantity 2 (1 per side)

When flying with side windows removed, a wind deflector must be installed on each A-pillar, just above the lower window jamb. Install

one deflector on the left A-pillar and one on the right A-pillar. Flight with only one side window installed is not approved.

2.18 PLACARDS

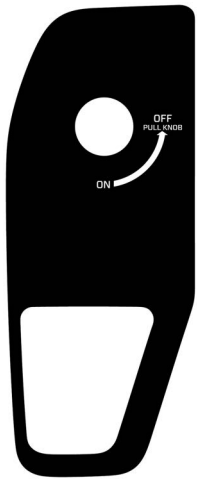
2.18.1 GENERAL INFORMATION

The placards shown in this section are safety, operational, or standards-required placards and must be installed on the aircraft at all times. Labels and markings on other instruments and controls are not given.

2.18.2 INTERIOR

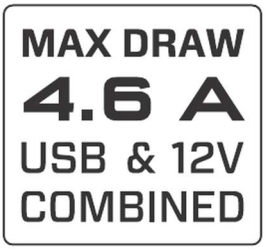
Fuel Shutoff

Located on the overhead console.



Max Amperage for USB and 12V Accessory Port

Located inside of arm rest in center console.



Maneuvering Speed

Located on the left side above the ignition and master switch.

Baggage Area

Located in the baggage compartment aft of the occupant seats.

Secure Loose Objects

Located on the window jamb beneath the removable windows (only visible when window is removed). There are two per aircraft – one on the right side and one on the left side.

Parking Brake

Located next to the parking brake.

Window Removal Procedure

Located on the removable window. There are two per aircraft – one on the right side and one on the left side.

Window Installation Procedure

Located on the window jamb beneath the removable windows (only visible when window is removed). There are two per aircraft – one on the right side and one on the left side.

Wind Deflector Alignment and Instructions

Located on the wind deflector. There are two per aircraft – one on the right side and one on the left side (when installed).

Window Out Warning

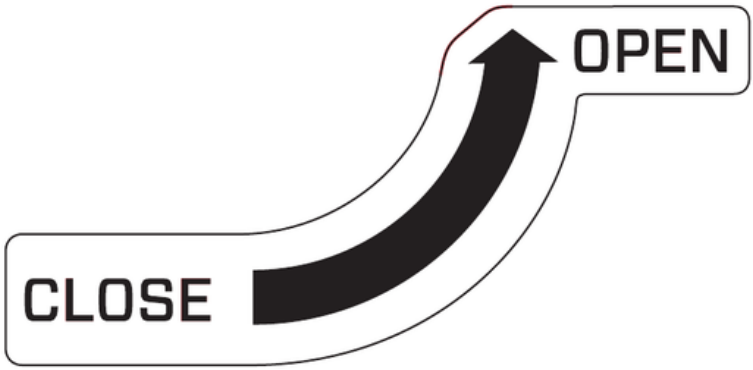
Located on inboard face of left hand wind deflector. MY7 Aircraft only.

Keep Hands Clear

Located on the canopy jamb. There are two per aircraft – one on the right side and one on the left side.

Open Canopy

Located above the occupant seats under the canopy latch handle.



Passenger Warnings and Kinds of Operation

Located near the front of the overhead canopy.

Registration Numbers

Located on center console of cockpit.

NOTE: Registration numbers are for illustration only. Your aircraft registration number will be different.

Fuselage Station

Located in cockpit above the baggage compartment on the forward face of the wing spar and beneath the headliner panel.

FORWARD FACE OF
SPAR = **FS 154.75**

Do Not Jump Start

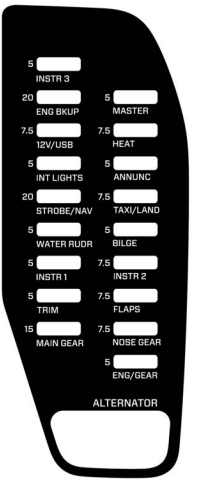
Located under battery charging terminals on right, inside surface of fuselage near passenger rudder pedals.

BATTERY CHARGING TERMINALS
DO NOT JUMP START

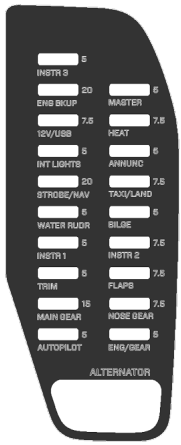
Fuses

Located on overhead console.

Garmin aera 796 and Garmin G3X Touch™

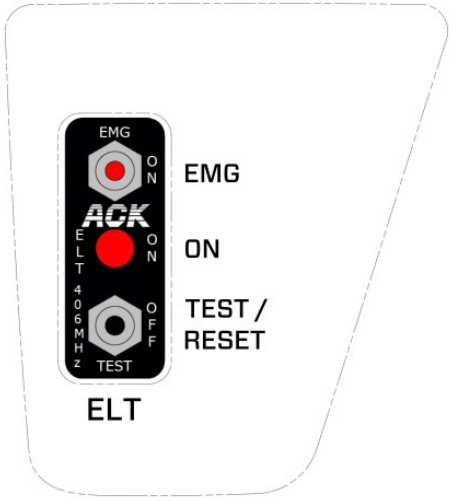


Garmin G3X Touch™ with Autopilot



ELT Remote Switch

Located on overhead console on ELT remote control.



Parachute Handle

Located on the parachute handle.

Parachute Activation Instructions

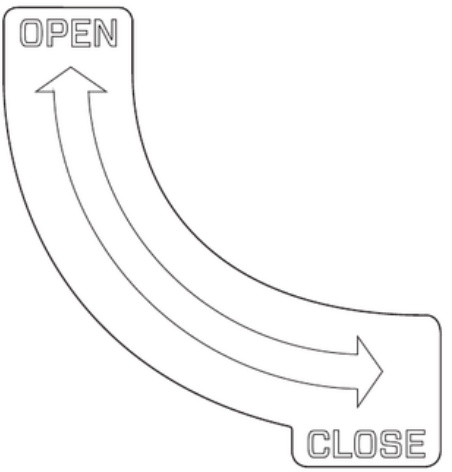
Located on the overhead console just in front of the parachute activation handle.

PARACHUTE DEPLOYMENT
1. SAFETY PIN – REMOVE BEFORE FLIGHT
2. PARACHUTE **HANDLE** – FIRM **PULL**
3. IGNITION KEY – OFF

2.18.3 EXTERIOR

Canopy Handle

Located on the center of the canopy; top side, next to the canopy release lever.



Danger Explosive

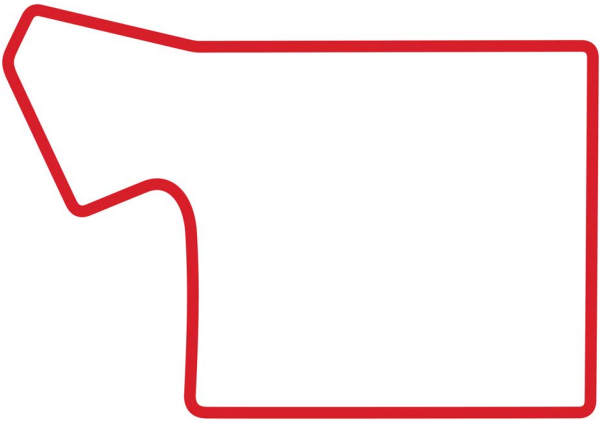
Located on the parachute egress panel adjacent to the engine on the root of the right wing.

Ballistic Parachute Passenger Warning

Located near each entrance to the cockpit.

Parachute Egress

Located around the perimeter of the parachute installation adjacent to the engine on the root of the right wing.



Wing Release

Located on both wing tips near the trailing edge on top and bottom surfaces (total of four locations).

Wing Lock

Located on bottom, center wing near wing fold joint forward of the locking handle. There are two per aircraft – one on the right side and one on the left side.

Tire Pressure

Located on main and nose landing gear legs.

Keep Static Port Clear

Located on both sides of the vertical tail.

MY17 Aircraft

Founder's Edition and Limited Edition Aircraft

Aircraft Data Plate

Located on the left rear of the empennage below the vertical tail.

NOTE: Serial number is for illustration only. Your aircraft serial number will be different.

Registration Numbers

Located on the left and right sides of the empennage.

N715BA

NOTE: Registration numbers are for illustration only. Your aircraft registration number will be different.

Light Sport

Located on right and left sides of aircraft nose.

LIGHT SPORT

NOTE: Color shown for reference only.

Oil Type

Located on the inside of the oil door of the engine cowling.

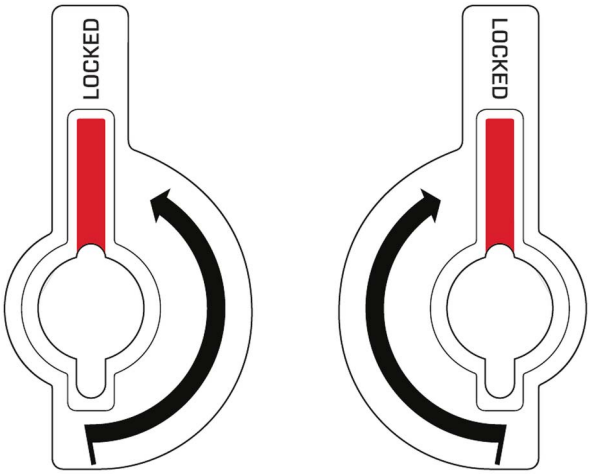
RECOMMENDED ENGINE OIL
AeroShell Plus 4 | SAE 10 W-40
SEE OWNER'S MANUAL FOR DETAILS

No Step Wing

Located on the upper center wing, left and right side toward the leading edge.

Horizontal Stabilizer Tip Locks

Located on the underside of the horizontal tail tips, left and right sides.

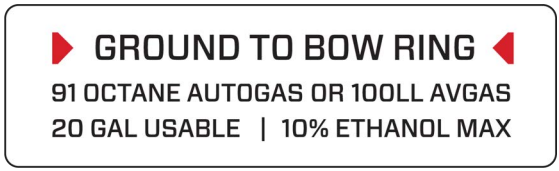


Keep AOA Port Clear

Located next to the AOA ports on the left wing, top and bottom leading edge.

Fueling Information

Located behind the canopy on the pilot side near the fuel filler cap.



Propeller Warnings

Located on either side of the propeller on the flap fence and on the trailing edges of the Seawings™ below the propeller.

Left Hand Side

DANGER
PROPELLER

Right Hand Side

DANGER
PROPELLER

On Right Hand, Top, Trailing Edge of Seawings™ Below Propeller

On Left Hand, Top, Trailing Edge of Seawings™ Below Propeller

Chapter 03

EMERGENCY PROCEDURES

3.1 GENERAL INFORMATION

This section provides checklists and procedures for coping with emergencies that may occur. Emergencies caused by airplane malfunctions are rare if proper preflight inspections and maintenance are practiced. En-route weather emergencies may be minimized by careful flight planning and good judgment when unexpected weather is encountered. Should an emergency arise, the basic guidelines in this section should be considered and applied as necessary to correct the problem.

The A5 has a series of annunciator lights that assist the pilot in assessing the criticality of various situations.

The following terminology is used to categorize the level of urgency to land the aircraft during an abnormal or emergency situation:

Land as soon as practical

Extended flight is not recommended. The landing site and duration of flight is at the discretion of the pilot. Flying to a nearby airport with support services is recommended.

Land as soon as possible

Fly toward the nearest suitable landing area (runway or water) while being prepared to execute the “Engine Failure In-Flight” on page 3-9 to an emergency landing site (e.g. road).

Precautionary Landing

A premeditated landing, on or off an airport, when further flight is possible but inadvisable. Examples of conditions that may call for a precautionary landing include deteriorating weather, being lost, fuel shortage, and gradually developing engine trouble.

Forced Landing

An immediate landing, on or off an airport, necessitated by the inability to continue further flight. A typical example of which is an airplane forced down by engine failure.

3.2 AIRSPEEDS FOR EMERGENCY OPERATIONS

Condition	Airspeed
Engine Failure After Takeoff	AOA-Pitch for white line (~60 KIAS)
Engine Failure In-Flight	AOA-Pitch for white line (~60 KIAS)
Precautionary Landing with Engine Power	AOA-Pitch for white line (~60 KIAS)
Operating Maneuvering Speed –1433 lb_f	86 KIAS
Operating Maneuvering Speed –1145 lb_f	76 KIAS
Best Glide Speed	AOA-Pitch for white line (~60 KIAS)
Emergency Descent Speed for Rapid Descent	Max 120 KIAS

3.3 ANNUNCIATOR PANEL CAUTION LIGHTS

The annunciator panel caution lights are amber in color.

Caution	Cause/Remarks	Corrective Action
BATTERY	1. Low battery voltage. 2. Battery not charging with engine running. 3. Aircraft systems are discharging battery.	1. Confirm Master Switch ON. 2. Turn off non-critical equipment. 3. If accompanied by ALTERNATOR light, consider lowering landing gear while battery is still strong.
ALTERNATOR	1. Low voltage on main bus. 2. If flying, ALT B failure. 3. Battery not charging with engine running.	1. Reset 30 Amp circuit breaker if tripped. If trips again then: 2. Turn off non-critical equipment. 3. Consider lowering landing gear while battery is still strong.

Caution	Cause/Remarks	Corrective Action
ENGINE	1. Engine component/sensor failure/exceedance detected. 2. Engine limits may have been exceeded; check gauges. 3. 10 hours max flight time recommended.	1. Land as soon as practical for trouble-shooting.
FUEL PRESS	1. Excessively low or high fuel pressure.	1. Land as soon as practical for trouble-shooting. 2. Power reduction may help.

3.4 ANNUNCIATOR PANEL WARNING LIGHTS

The annunciator panel warning lights are red in color.

Warning	Cause/Remarks	Corrective Action
PURGE BILGE	1. At least 1 gallon of water in bilge. 2. Could create weight or CG out of limits.	1. Bilge pump – ON. If light remains on: 1. Do not takeoff.
SECURE WING/TAIL	1. One or more sensors indicate unlocked. 2. Does not identify affected sensor.	On ground: 1. Do not takeoff. 2. Confirm wings/tails locked. In flight: 1. Minimize maneuvering. 2. Land as soon as practical.
LAND AIRCRAFT + FUEL PRESS	1. Critically low or high fuel pressure.	1. Land as soon as possible.
LAND AIRCRAFT + ENGINE	1. Critical engine component or sensor failure. 2. Engine limits may have been exceed.	1. Land as soon as possible. 2. Check Gauges.

Warning	Cause/Remarks	Corrective Action
LAND AIRCRAFT **+ ENGINE** **+ ALTERNATOR**	1. Low voltage on main bus. 2. If flying, ALT A failure.	1. Turn off non-critical equipment. 2. Land as soon as possible. 3. Consider lowering landing gear while battery still strong.
LAND AIRCRAFT **+ ALTERNATOR** **+ BATTERY**	1. Excessively low battery. 2. If flying, Alt B failure. 3. Battery not charging with engine running. 4. ALT A may also have failed.	1. Confirm Master Switch ON. 2. Turn off non-critical equipment. 3. Land as soon as possible. 4. Lower landing gear now if land landing. *NOTE: Battery life may limit engine run time.*
LAND AIRCRAFT **+ ENGINE** **+ ALTERNATOR** **+ BATTERY**	1. Excessively low battery. 2. If flying, Alt A failure. 3. Battery not charging with engine running. 4. ALT B may also have failed.	1. Confirm Master Switch ON. 2. Turn off non-critical equipment. 3. Land as soon as possible. 4. Lower landing gear now if land landing. *NOTE: Battery life may limit engine run time.*

3.5 ICON PARACHUTE SYSTEM (IPS) ACTUATION

IPS actuation is recommended for any of the following:

- Loss of Aircraft Control
- Engine Failure with NO SUITABLE landing area
- Pilot Incapacitation or inability to cope with situation or flight conditions

3.5.1 PARACHUTE DEPLOYMENT

1. Safety Pin – CONFIRM REMOVED, Remove if necessary
2. Parachute Handle – PULL HARD

3. Ignition Key – OFF
4. Master Switch – OFF (right before touchdown)

Notes:

Approximately 48 lb_f of force is required to actuate the IPS.

Optimal IPS actuation is from level flight above 500 ft AGL.

Descent rate under parachute will be approximately 1200 ft/min.

Landing gear will automatically extend following IPS actuation. Once extended, it cannot be raised.

Seat belts should remain secure during descent until contact with the surface and all motion stops.

At pilot's discretion, consider unlocking canopy and removing windows during descent.

Exit the aircraft after all motion stops.

The ELT may not activate during IPS deployment or touchdown. It is therefore recommended to manually activate the ELT during the descent.

3.6 INADVERTENT SPIN/LOSS OF CONTROL

1. IPS Handle – PULL HARD
2. Ignition Key – OFF
3. Proceed to "Parachute Deployment" on page 3-5

WARNING: The aircraft has not been certified for traditional spin recovery and the only approved method of spin recovery is activation of the IPS.

3.7 AUTOPILOT LOSS OF CONTROL

If autopilot begins to behave unexpectedly, run away from a steady condition, or approach an unusual attitude:

1. Red Autopilot Disengage Button – PRESS
2. Recover manually to straight and level flight
3. If autopilot fails to disengage, proceed to "Failed Autopilot Disengagement" on page 3-7

3.8 FAILED AUTOPILOT DISENGAGEMENT

1. Overpower the autopilot servos to reach straight and level flight. The forces on the stick will be higher than normal but can be overpowered and flown by hand.
2. Once control of the aircraft is established, if forces persist, PULL the autopilot fuse from the overhead panel.

3.9 INADVERTENT IMC *(AUTOPILOT INSTALLED)*

Perform the following steps on the Autopilot Control Panel.

1. Blue LVL Button – PRESS
2. TRK Button – PRESS. The selected track bug should align with your current track on the PFD.
3. HDG/TRK Knob – TURN so that the selected track bug is 180° from current track
4. Wait for the aircraft to exit IMC conditions back in the direction you came from.

3.10 INADVERTENT ICING ENCOUNTER *(NO AUTOPILOT INSTALLED)*

1. Exit Icing Conditions.

   CAUTION: The presence of even small amounts of ice on the airframe may increase stall speed, decrease stall angle of attack and reduce performance including climb rate.

3.11 ENGINE FIRE ON GROUND/START

1. Ignition – OFF
2. Master Switch – OFF
3. Egress Airplane

3.12 ENGINE FIRE IN FLIGHT

1. Ignition – OFF
2. Master Switch – OFF
3. Fuel Valve – OFF
4. Proceed to “Emergency Rapid Descent” on page 3-8 or “Forced Landing” on page 3-11 as required.

3.13 ELECTRICAL FIRE IN FLIGHT

1. Master Switch – OFF
2. Alternator Circuit Breaker – PULL (in overhead console)

   NOTE: The above actions will not affect engine operation.

3. Land As Soon As Possible

3.14 EMERGENCY RAPID DESCENT

1. Throttle – IDLE
2. Flaps – UP
3. Airspeed –

Option	Actions
Smooth Air	120 KIAS
Rough Air	90 KIAS
MY17 Aircraft, Windows Removed	90 KIAS

3.15 ABNORMAL ENGINE VIBRATION

1. Throttle – Reduce to minimum practical
2. Assess Vibration – Take action

Option	Actions
If vibration stops.	1. Land as soon as practical

Option	Actions
If vibration continues.	1. Land as soon as possible (suitable landing area)

3.16 ENGINE FAILURE DURING TAKEOFF PRIOR TO LIFTOFF

1. Throttle – IDLE
2. Brakes – AS REQUIRED

3.17 ENGINE FAILURE AFTER TAKEOFF

1. AOA – White line
2. Landing Site – SELECT
3. Landing Gear – As Required

If time permits

4. Flaps – As Required
5. Ignition Key – OFF
6. Master Switch – OFF
7. Fuel Valve – OFF

NOTE: In most situations, when the engine fails below 300ft AGL, the landing should be made straight ahead, turning only to avoid obstructions.

3.18 ENGINE FAILURE IN-FLIGHT

1. AOA – white line
2. Landing Site – SELECT
3. Confirm:
   a. Throttle – above idle
   b. Master Switch – ON
   c. Ignition – BOTH
   d. Fuel Valve – ON

4. If engine does not restart, proceed to "Forced Landing" on page 3-11 or "Parachute Deployment" on page 3-5 as required.

   NOTE: Recommended landing configuration for off airport landing other than hard surface is GEAR UP.

3.19 COOLANT TEMPERATURE HIGH

3.19.1 GROUND

1. Throttle – ADVANCE to 3000-4000 RPM (if feasible)

If high coolant temperature persists:

2. Shutdown as soon as practical

   NOTE: Use of cabin heater may help reduce coolant temperature.

3.19.2 IN FLIGHT

1. Throttle – REDUCE power to minimum required
2. Airspeed – INCREASE

If high coolant temperature persists:

3. Land as soon as possible

3.20 OIL PRESSURE-LOW/HIGH (IN THE RED)

3.20.1 GROUND

1. Throttle – IDLE
2. Ignition – OFF as soon as practical

3.20.2 IN FLIGHT

1. Throttle – Reduce
2. Land as soon as possible

3.21 OIL TEMPERATURE HIGH

3.21.1 GROUND

1. Throttle – ADVANCE to 3000-4000 RPM (if feasible)

If high oil temperature persists:

2. Shutdown as soon as possible

3.21.2 IN FLIGHT

1. Throttle – REDUCE
2. Airspeed – INCREASE

If high oil temperature persists:

3. Land as soon as possible

3.22 FORCED LANDING

1. AOA – White Line (~60 KIAS)
2. Landing Site – SELECT
3. Landing Gear and Flaps – As Required for type of landing

   NOTE: Flaps will Reduce Glide distance. Flaps should not be selected until landing is assured.

4. Ignition Key – OFF
5. Canopy – Unlatch

If time permits

6. Transponder – Squawk 7700
7. Communicate intentions (121.5)
8. Fuel Valve – OFF
9. Master Switch – OFF

NOTE: AOA requires power. Once Master Switch is turned off, AOA indicator will not work.

NOTE: Recommended landing configuration for off airport landing other than hard surface is GEAR UP.

3.23 PRECAUTIONARY LANDING WITH ENGINE POWER

1. AOA – White Line (~60 KIAS) Best Glide
2. Landing Area – SELECT
3. Landing Gear and Flaps – As required for type of landing
4. Communicate intentions (time permitting, as required)
5. If the engine fails, proceed to "Forced Landing" on page 3-11 as required

NOTE: Recommended Landing configuration for off airport landing on other than hard surface is GEAR UP.

3.24 BOX-CANYON REVERSAL

1. Power – Full
2. Pitch – slightly up (~5-10° above horizon)
3. Immediately roll and pull (in most open direction)
4. AOA – pull mid yellow (or stall horn)
5. Keep nose above horizon (out of buffet)

3.25 LANDING GEAR FAILS TO RETRACT – ON WATER

1. Speed – Idle taxi
2. Landing Gear Handle – DOWN
3. Fuses – CHECK Landing Gear Fuses and REPLACE as required
4. Landing Gear – CHECK nose wheel centered; debris/seaweed clear of all landing gear
5. Landing Gear handle – UP

6. If Landing Gear Does Not Retract:
   a. Landing Gear Handle – DOWN
   b. Aircraft – SECURE on ramp, beach or dock for further troubleshooting

3.26 LANDING GEAR FAILS TO RETRACT – IN FLIGHT

1. Landing Gear Handle – DOWN
2. Evaluate Landing Gear Position and Landing Site Options – Take action

Option	Actions
If the landing gear position indicates down.	1. Land on suitable hard surface for troubleshooting
If the landing gear fails to extend.	1. Proceed to Landing Gear Fails to Extend
If water landing is the only option and the landing gear must be raised.	1. Leave landing gear handle in DOWN position 2. CHECK/REPLACE overhead landing gear fuses as needed 3. Landing Gear Handle – UP

3.27 LANDING GEAR FAILS TO EXTEND

1. Landing Gear handle – UP
2. Evaluate Landing Gear Position and Landing Site Options – Take action

Option	Actions
If the landing gear position indicates up and suitable water is available.	1. Land on water for further trouble-shooting
If no suitable water is available for landing.	1. Landing Gear Handle – DOWN 2. CHECK/REPLACE overhead landing gear fuses as needed
If the landing gear fails to extend.	1. Landing Gear Handle – UP 2. CHECK/REPLACE overhead landing gear fuses as needed 3. Landing Gear Handle – DOWN

Option	Actions
If the landing gear still fails to extend and suitable water is unavailable.	1. Perform gentle, minimum speed, full flap, runway landing *NOTE: Use of a grass runway may reduce hull damage if forced to land with landing gear not fully down.*

3.28 WHEEL BRAKE FAILURE

NOTE: Wheel brakes are needed for steering at low speeds. Failure in-flight would be indicated by low or no brake pedal resistance.

1. If possible, land with cross wind from side of failed brake
2. Rudder Pedal – MAINTAIN directional control
3. Wheel Brake (Operable) – LIGHT APPLICATION as needed
4. Shut down engine and tow back

3.29 LOSS OF PRIMARY INSTRUMENTS

1. Land as soon as practical
2. Use GPS for speed and altitude (if needed)

3.30 OVERVOLTAGE

1. Land as soon as possible

NOTE: The A5 has no overvoltage indicator, but smoke or an acid smell in the cockpit is an indication of overvoltage. (See "Electrical Fire in Flight" on page 3-8.)

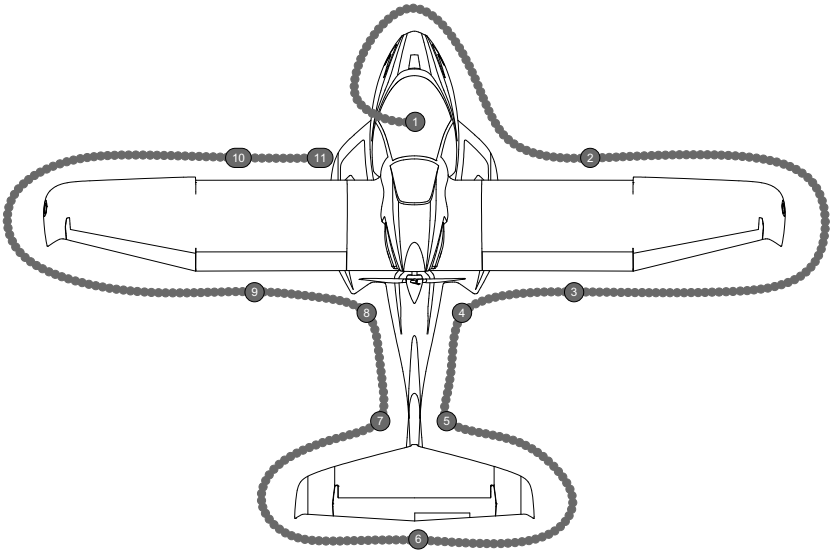
Chapter 04

NORMAL PROCEDURES

4.1 PREFLIGHT INSPECTION

Prior to flight, the aircraft should be inspected in accordance with the following checklists and in the sequence shown in the diagram. Carefully verify that the airplane is in a condition for safe operation.

FIGURE 4-1
PREFLIGHT INSPECTION PROCESS



4.1.1 (1) CABIN

1. Baggage Area – SECURE stored items
2. Throttle Lever – CHECK freedom of motion
3. Controls – CHECK freedom of motion to all stops
4. Landing Gear Switch – VISUALLY CHECK DOWN (land)/UP (water)
5. Rudder Pedal Area and Parking Brake – CHECK clear and no fluid leaks
6. Master Switch – ON
7. Strobe Lights – VERIFY all lights illuminate
8. Fuel Quantity – CHECK/CONFIRM
9. Landing Gear Position Indicator – VISUALLY VERIFY DOWN (land)/UP (water)
10. Bilge Pump – ON (verify operation & bilge empty)/OFF
11. Water Rudder – VISUALLY inspect and VERIFY operation
12. Circuit Breakers and Fuses – CHECK IN and NONE LIT
13. Master Switch – OFF

14. Canopy Frame, Seal, and Latch – CHECK CONDITION
15. Canopy/Windows – CHECK general condition
16. Fuselage Left Nose – CHECK CONDITION
17. Fresh Air Vent Scoop – CLEAR
18. Nose Gear Strut and Mechanism – CHECK CONDITION
19. Aft Nose Gear Doors – CHECK CONDITION and CONFIRM locked in down position
20. Fuselage Right Nose – CHECK CONDITION

4.1.2 (2) RIGHT WING LE AND TIP

1. Seawings™ LE – CHECK CONDITION and SECURE
2. Wing Lock Handle – CHECK LOCKED and SECURE
3. Wing Inspection Panels (2) – CHECK SECURE
4. Wing Stall Strip – CHECK SECURE
5. Wing Tie Down Fitting – REMOVE
6. Wing LE and HT Hanger Fitting – CHECK CONDITION
7. Wing Vortex Generators (17 Pair) – CHECK SECURE
8. Wing Tip and Lights – CHECK CONDITION

4.1.3 (3) RIGHT WING TE

1. Aileron and Hinges – CHECK FREE and SECURE
2. Top of Wing – CHECK for DAMAGE
3. Flap, Hinges, and Root Fence – CHECK CONDITION

4.1.4 (4) RIGHT INBOARD WING AND ENGINE

1. Parachute Cover – CHECK SECURE
2. Main Landing Gear – CHECK CONDITION
3. Tires – CHECK CONDITION, wear
4. Brakes – CHECK CONDITION, wear, fluid leaks
5. Seawings™ and Hull Step – NO DAMAGE
6. Fuselage Vortex Generators (5) – CHECK SECURE

7. Aft Cowl and Exhaust – SECURE, NO CRACKS
8. Coolant Overflow Bottle – VERIFY LEVEL between min and max
9. Propeller and Spinner – SECURE, NO NICKS
10. Cooling Outlet and Fan – CLEAR, GOOD CONDITION

4.1.5 (5) RIGHT TAIL BOOM

1. Firewall Drain – CHECK CLEAR
2. Top of Tail Boom Under Propeller – CLEAR OF WATER/DEBRIS
3. Tail Boom and Hull – CHECK CONDITION and CLEAR OF DEBRIS
4. Water Rudder and Access Panel – SECURE, NO DAMAGE
5. Tail Cone Access Panel – SECURE
6. Tail Tie Down – CHECK CONDITION and UNTIE

4.1.6 (6) TAIL SURFACES

1. Vertical Tail and HT/VT Joint – CHECK CONDITION and SECURITY
2. Right HT and Tip – VERIFY CONDITON and LOCKED
3. Rudder – CHECK FREE and in GOOD CONDITION

   NOTE: The rudder is spring-centered with a minor offset to the right. This is normal and should not be adjusted.

4. Static Ports (2) – CHECK CLEAN with CRESCENTS IN PLACE
5. Elevator, Hinges, and Pushrod – CHECK FREE and SECURE
6. Trim Tab and Pushrod – CHECK CONDITION and WITHOUT EXCESSIVE PLAY
7. Left HT and Tip – VERIFY CONDITON and LOCKED

4.1.7 (7) LEFT TAIL BOOM

1. Tail Boom and Hull – CHECK CONDITION

4.1.8 (8) LEFT INBOARD WING

1. Aft Cowl and Exhaust – SECURE, NO CRACKS
2. Seawings™ and Hull Step – NO DAMAGE
3. Fuselage Vortex Generators (5) – CHECK SECURE
4. Main Landing Gear – CHECK CONDITION
5. Tires – CHECK CONDITION, wear
6. Brakes – CHECK CONDITION, wear, fluid leaks

4.1.9 (9) LEFT WING TE

1. Flap, Hinges, and Root Fence – CHECK CONDITION
2. Top of Wing – CHECK for DAMAGE
3. Aileron and Hinges – CHECK FREE and SECURE

4.1.10 (10) LEFT WING TIP AND LE

1. Wing Tip and Lights – CHECK CONDITION
2. Wing Vortex Generators (17 pair) – CHECK SECURE
3. Wing LE and HT Hanger Fitting – CHECK CONDITION
4. AOA Ports (2) – CHECK CLEAR
5. Wing Tie Down Fitting – REMOVE
6. Wing Stall Strip – CHECK SECURE
7. Wing Inspection Panels (2) – CHECK SECURE
8. Fuel Vent – CHECK CLEAR
9. Wing Lock Handle – CHECK LOCKED and SECURE
10. Pitot Tube – CHECK CLEAR
11. Seawings™ LE – CHECK CONDITION
12. Bilge Outlet – CHECK CLEAR

4.1.11 (11) FUEL AND ENGINE OIL

1. Fuel Cap – REMOVE
2. Fuel – SUMP via access port and INSPECT fuel
3. Fuel Cap – SECURE (tab swings down)
4. Ignition Switch – OFF and key REMOVED
5. Oil Filler Cap – REMOVE via access door
6. Propeller – TURN SLOWLY CCW (behind prop facing forward) several times by hand, holding pressure for several seconds against each compression stroke, until oil 'burps'
7. Oil Level – CHECK, SERVICE as necessary, then secure cap and door
8. Cowling – CHECK condition/VERIFY secure
9. Engine Inlet – CLEAR

4.2 BEFORE COCKPIT ENTRY

1. Chocks and Tie Downs – VERIFY REMOVED
2. Aircraft Documents – VERIFY/REVIEW
3. Preflight Planning – COMPLETE
4. Takeoff Data – CALCULATE as required
5. Life Vest(s) – GOOD CONDITION/DON (as required)
6. Windows – BOTH IN or BOTH REMOVED
7. Wind Deflectors – BOTH INSTALLED (if windows removed)

4.3 AFTER COCKPIT ENTRY

1. Canopy – LOWERED to detent or CLOSED
2. Belts/Harnesses – FASTEN
3. Headsets – CONNECTED
4. Landing Gear Switch – DOWN (land)/UP (water)
5. Electrical Switches – ALL OFF (or as required)
6. Master Switch – ON
7. Annunciator Panel – PRESS to test; VERIFY all lights illuminate

8. Landing Gear Position Indicator – DOWN (land)/UP (water)
9. Bilge Pump – On (verify operation & bilge empty)/OFF
10. Fuel Valve – ON
11. IPS Safety Pin – REMOVE and stow

4.4 ENGINE START

1. Strobes – ON
2. Brakes – TEST and SET
3. Throttle – OPEN 1/2”
4. Area Around Aircraft – CLEAR
5. Ignition Switch
   a. A – pause 6 sec confirm FUEL PRESS light OUT
   b. B – pause 6 sec confirm FUEL PRESS light OUT
   c. BOTH – confirm ENGINE + LAND AIRCRAFT lights OUT
   d. START – RELEASE as engine fires

   NOTE: Max crank time is 10 seconds, followed by 2 minutes off.

6. Throttle – ADJUST to 2000 RPM
7. Oil Pressure – MONITOR; shutdown if not up in 10 seconds
8. Throttle – ADVANCE above 2500 RPM until ALTERNATOR light out

4.5 BEFORE TAXI

1. Radio – SET as required
2. Transponder – VERIFY VFR (1200)
3. AWOS – RECORD as required
4. Altimeter – SET/VERIFY
5. GPS – SET as required
6. Exterior Lights – ON as required
7. Engine Instruments – CHECK

4.6 TAXIING

CAUTION: Extended periods of idle taxiing can cause engine coolant temperature to exceed limits. Best cooling on the ground is achieved with engine set 3000-4000 rpm.

4.6.1 LAND

1. Parking Brake – RELEASE
2. Brakes – CHECK
3. Steering – CHECK

4.6.2 WATER

1. Landing Gear – UP, or as required
2. Flaps – UP (0°)
3. Water Rudder – DOWN, or as required for improved authority

4.7 ENGINE RUN-UP

1. Throttle – ADVANCE TO 4000 RPM
2. Ignition Switch – B (pause until LAND AIRCRAFT AND ENGINE lights illuminate)
3. Ignition Switch – A (pause 6 seconds)
   a. RPM: 180 max drop from original
   b. FUEL PRESSURE Annunciator – OUT
4. Ignition Switch – B (pause 6 seconds)
   a. RPM – 180 max drop from original
   b. FUEL PRESSURE Annunciator – OUT
5. Ignition Switch – BOTH
6. Annunciator Panel – ALL LIGHTS OUT
7. Engine Instruments – CHECK
8. Throttle – RETARD to idle

NOTE: During the ignition check, the RPM may increase when operating on a single lane. This is normal; the original RPM will be

restored after a short time operating on both lanes.

4.8 AUTOPILOT PRE-FLIGHT *(IF APPLICABLE)*

1. Autopilot – ENGAGE using AP/CWS button, or AP button on mode controller
2. Flight Controls – VERIFY autopilot can be overpowered in both pitch and roll
3. AP DISC Button – PRESS and VERIFY autopilot disengages and audio alert is heard
4. Flight Director – SET FOR TAKEOFF (VS mode or push FD Button to turn off the Flight Director)
5. Flight Controls – VERIFY autopilot servos are disengaged from pitch and roll and all controls move freely

4.9 BEFORE TAKEOFF

1. Flight Controls – FREE and CORRECT
2. Flaps – CHECK operation
3. Trim – SET for takeoff
4. Instruments – CHECK
5. Canopy – LATCHED

4.10 RUNWAY TAKEOFF

4.10.1 NORMAL TAKEOFF

1. Flaps – UP (0°)
2. Throttle – MAX
3. Engine Instruments – CHECK
4. Stick – Rotate at 50 KIAS
5. Landing Gear – RETRACT at positive rate of climb (<75 KIAS)

4.10.2 SHORT FIELD TAKEOFF

1. Flaps – HALF (15°)
2. Brakes – HOLD
3. Throttle – smoothly advance to MAX
4. Engine Instruments – CHECK
5. Brakes – RELEASE
6. Stick – ROTATE at 44 KIAS
7. Landing Gear – RETRACT at positive rate of climb (<75 KIAS)
8. Climb at V_X (50 KIAS) until obstacles cleared (if required)
9. Flaps – RETRACT once cleared of obstacles or climbing through 100ft AGL

4.10.3 SOFT FIELD TAKEOFF

1. Flaps – HALF (15°)
2. Stick – FULL AFT
3. Throttle – smoothly advance to MAX
4. Engine Instruments – CHECK
5. At Nosewheel Liftoff – Relax stick pressure to stay inside ground effect until sufficient energy is gained
6. Landing Gear – RETRACT at positive rate of climb (<75 KIAS)
7. Climb at V_X (50 KIAS) until obstacles cleared (if required)
8. Flaps – RETRACT once cleared of obstacles or climbing through 100ft AGL

4.11 WATER TAKEOFF

4.11.1 STEP TAXI/TAKEOFF

1. Bilge Pump – ON (verify bilge empty) / OFF
2. Landing Gear – UP, indicating up
3. Flaps – FULL (30°)
4. Water Rudder – UP
5. Throttle – MAX

6. Stick – POSITION for minimum water drag
7. Flaps – RETRACT when safely airborne above 50 KIAS (<75 KIAS)

WARNING: Contacting the wing tip with the water while in motion can create a dangerous situation and must be avoided.

CAUTION: Prolonged step taxi should only be conducted in glassy or normal water conditions.

CAUTION: Rough water takeoffs are considered an advanced technique and should not be performed by beginning or relatively inexperienced seaplane pilots.

CAUTION: Takeoff distance will be extended with less than full flaps set.

NOTE: Ideal step taxi speed is 20-25kts GS.

4.12 CLIMB

1. AOA – WHITE LINE
2. Instruments – MONITOR
3. Landing Gear – VERIFY UP

4.13 CRUISE

1. Cruise Power – SET
2. Fuel Quantity – MONITOR
3. Instruments – MONITOR

4.14 DESCENT

1. Throttle – AS REQUIRED
2. Landing Gear – AS REQUIRED

4.15 RUNWAY LANDING

4.15.1 APPROACH

1. Landing Gear – EXTEND for the runway (<75 KIAS), indicating down
2. Flaps – UP (0°), or as desired for type of landing
3. Water Rudder – UP
4. Brakes – CHECK for firmness and parking brake OFF
5. AOA – WHITE LINE

NOTE: Recommended power setting for approach and touchdown is 3000 rpm

4.15.2 NORMAL LANDING

1. AOA – YELLOW LINE, at touchdown
2. Throttle – IDLE, after touchdown
3. Braking – MINIMUM REQUIRED

4.15.3 SHORT FIELD LANDING

1. Flaps – FULL (30°, <75 KIAS) before short final
2. AOA – YELLOW LINE, Short final
3. AOA – MID YELLOW, at touchdown
4. Throttle – IDLE, after touchdown
5. Braking – AS NEEDED

4.15.4 SOFT FIELD LANDING

1. Flaps – FULL (30°, <75 KIAS) before short final
2. AOA – YELLOW LINE, Short final
3. AOA – MID YELLOW, at touchdown
4. Throttle – AS REQUIRED
5. Stick – Apply back stick to hold nose off ground
6. Braking – MINIMIZE and maintain AFT stick during roll out

4.16 WATER LANDING

4.16.1 APPROACH

1. Landing Gear – UP for water, indicating up
2. Flaps – FULL (30°, <75 KIAS)
3. Water Rudder – UP
4. AOA – WHITE LINE

WARNING: Confirm landing gear up for water landing. Aircraft may flip inverted if landed on water with landing gear extended.

4.16.2 NORMAL WATER LANDING

1. AOA – YELLOW LINE, at touchdown
2. Throttle – IDLE, smoothly reduce power once touched down
3. Stick – AFT, increase back pressure as you settle into the water

NOTE: Recommended power setting for approach and touchdown is 3000 rpm.

4.16.3 ROUGH WATER LANDING

1. AOA – MID YELLOW, at touchdown
2. Throttle – Increase RPM slightly (~100-200rpm) before touchdown
3. Stick – AFT, increase back pressure as you settle into the water

CAUTION: Touching down on the front or back side of a swell can induce porpoising. Control any porpoise by resetting the stick slightly AFT and maintain or increase power as needed to dampen oscillations and settle into the water.

Do not abruptly reduce power while in a porpoise.

4.16.4 GLASSY WATER LANDING

1. Locate suitable shoreline visual reference
2. GPS – Select HSI/panel display for VSI reference (if on-board and desired)
3. Final Approach Path – as close to visual reference as practical

No later than last visual reference:

4. AOA – YELLOW LINE
5. Throttle – Set RPM to establish 100-150 ft/min decent (approx 3700-4000 RPM)
6. After Touchdown – Smoothly reduce power to idle
7. Stick – AFT, increase back pressure as you settle into the water

4.17 BALKED LANDING

1. Throttle – MAX
2. AOA – white line
3. Flaps – RETRACT after positive rate of climb

4.18 BEFORE RAMPING

4.18.1 WATER TO RAMP

1. Throttle – IDLE
2. Flaps – UP
3. Landing Gear – EXTEND (<4kts GS)

   CAUTION: Ramping with landing gear not fully down will damage the landing gear.

4. Water Rudder – UP, before entering the ramp

4.18.2 RAMP TO WATER

1. Throttle – IDLE
2. Flaps – UP
3. Landing Gear – DOWN, make certain nose wheel is centered before entering water
4. Water Rudder – UP
5. Brakes – RELEASE, use brakes to control entry into water

After Entry

6. Landing Gear – RETRACT once fully buoyant (<4kts GS)

4.19 BEFORE BEACHING

1. Throttle – IDLE
2. Canopy – UNLATCH
3. Seatbelt – OFF
4. Headsets – OFF
5. Water Rudder – UP, before hitting shallow waters
6. Ignition – OFF, prior to touching the shoreline
7. Proceed to “Shutdown” on page 4-15

NOTE: It is recommended to beach the A5 bow-on to any suitable beach area. The beach should be smooth sand and free of debris to avoid damage to the hull.

4.20 SHUTDOWN

1. Brakes – HOLD (on land)
2. Flaps – UP
3. Trim – SET takeoff
4. Engine – STABILIZE at idle (2 minutes in hot conditions)
5. Ignition Switch – OFF
6. Radio and Transponder – OFF (if applicable)
7. Lights – ALL OFF

8. Master Switch – OFF
9. Parking Brake – SET (if desired)
10. IPS Safety Pin – INSTALL

4.21 POST-FLIGHT INSPECTION

1. Propeller – CHECK for nicks, water damage
2. Bilge Pump – RUN until no water; then confirm bilge pump and master switch OFF
3. Tie Downs and Chocks – AS REQUIRED
4. General Aircraft Condition – INSPECT

Chapter 05

PERFORMANCE

5.1 SUMMARY OF PERFORMANCE SPECIFICATIONS

Parameter	Value
Gross Weight	1433 lb_f
Top Speed at SL, V_H (MCP, 5500 RPM)	95 KTAS
Cruise Speed, 5000 RPM, 8000 ft	84 KTAS
Range (5000 RPM, 8000 ft, including takeoff and climb from SL)	427 nm (with 45 min reserve)
Best Angle of Climb Speed, V_X (Flaps 0°)	54 KIAS
Best Angle of Climb Speed, V_X (Flaps 15°/30°)	50 KIAS
Best Rate of Climb Speed, V_Y	58 KIAS
Rate of Climb at V_X (SL)	616 ft/min
Rate of Climb at V_Y (SL)	629 ft/min
Stall Speed, V_S (Flaps and landing gear up)	43 KIAS

Parameter	Value
Stall Speed, V_{S0} (Flaps and landing gear down)	39 KIAS
Total Fuel Capacity	20.1 US gallons
Total Usable Fuel	20 US gallons
Approved Types of Fuel	Unleaded automotive fuel with up to 10% maximum ethanol content meeting ASTM D4814 with minimum RON 95 (minimum Anti-Knock Index 91) Grade 100LL aviation gasoline (AVGAS) meeting ASTM D910
Max Engine Power at SL	100 hp at 5800 RPM (5 min max)
Max Demonstrated Direct Crosswind Component – Land and Water (not a limitation)	12 knots
Service Ceiling at Gross Weight (100 ft/min Climb Rate)	15,000 ft

5.2 AIRSPEED CALIBRATION

Conditions

Level flight

Assumed zero instrument error

Flap Setting	Airspeeds								
Flaps 0°	KIAS	50	60	70	80	90	100	110	120
	KCAS	50	61	71	80	90	100	109	119
Flaps 15°	KIAS	44	50	55	60	65	70	75	–
	KCAS	45	51	55	60	65	70	74	–
Flaps 30°	KIAS	44	50	55	60	65	70	75	–
	KCAS	44	50	54	59	64	68	73	–

5.3 TEMPERATURE CONVERSION CHART

FIGURE 5-1
TEMPERATURE CONVERSION BETWEEN FAHRENHEIT AND CELSIUS

5.4 STALL SPEEDS

Conditions

1433 lb_f

Power idle

Most forward center of gravity

Assumed zero instrument error

Flap Setting		Angle of Bank			
		0°	30°	45°	60°
0°	KIAS	43	46	52	62
15°	KIAS	40	42	47	56
30	KIAS	39	41	44	53

5.5 NORMAL RUNWAY TAKEOFF PERFORMANCE

Conditions

1433 lb_f

Landing gear – DOWN

Level and dry asphalt runway

Zero wind

POH normal takeoff and climb technique except for full throttle prior to brake release

Corrections

Decrease distances by 10% for each 8 knots of headwind.

Increase distances by 10% for each 4 knots of tailwind.

Increase ground roll distance by 15% for operation on grass runway.

Press Alt (ft)	Temp (°F)	Ground Roll (ft)	Total to Clear 50 ft Obstacle (ft)
Sea Level	0	500	1160
	20	540	1260
	40	570	1340
	60	610	1450
	80	660	1540
	100	710	1650
2000	0	610	1430
	20	660	1550
	40	720	1670
	60	760	1800
	80	820	1930
	100	880	2070
4000	0	770	1800
	20	840	2000
	40	910	2120
	60	980	2300
	80	1060	2490
	100	1140	2680

Press Alt (ft)	Temp (°F)	Ground Roll (ft)	Total to Clear 50 ft Obstacle (ft)
6000	-20	910	2130
	0	1000	2340
	20	1100	2570
	40	1190	2800
	60	1300	3060
	80	1420	3350
8000	-20	1220	2860
	0	1350	3170
	20	1500	3530
	40	1660	3900
	60	1840	4320
	80	2040	4790

5.6 WATER TAKEOFF PERFORMANCE

Conditions

1433 lb_f

Full throttle from 4 knots water speed

Glassy water

Zero wind

POH step taxi/takeoff technique except for full throttle from 4 knots water speed and climb at 50 KIAS

NOTE: Normal Water Takeoff performance data is the same as Short Field Water Takeoff performance data.

Corrections

Decrease distance by 10% for each 8 knots of headwind.

Increase distances by 10% for each 4 knots of tailwind.

Water run distance may reduce slightly with wave conditions more favorable than glassy.

Press Alt (ft)	Temp (°F)	Water Run (ft)	Total to Clear 50 ft Obstacle (ft)
Sea Level	20	690	1200
	40	740	1300
	60	800	1400
	80	860	1500
	100	930	1610
2000	20	870	1510
	40	940	1650
	60	1020	1790
	80	1110	1930
	100	1190	2080
4000	20	1130	1980
	40	1240	2170
	60	1360	2370
	80	1480	2590
	100	1620	2820
6000	20	1550	2720
	40	1720	3010
	60	1910	3340
	80	2110	3410
	100	2340	4090
8000	20	2300	4030
	40	2610	4570
	60	2970	5200
	80	3380	5920
	100	3870	6760

5.7 SHORT FIELD RUNWAY TAKEOFF PERFORMANCE

Conditions

1433 lb_f

Level and dry asphalt runway

Zero wind

POH short field takeoff technique

Corrections

Decrease distances by 10% for each 8 knots of headwind.

Increase distances by 10% for each 4 knots of tailwind.

Increase ground roll distance by 15% for operation on grass runway.

Press Alt (ft)	Temp (°F)	Ground Roll (ft)	Total to Clear 50 ft Obstacle (ft)
Sea Level	0	400	880
	20	430	940
	40	460	1010
	60	500	1080
	80	530	1150
	100	560	1230
2000	0	490	1070
	20	530	1150
	40	570	1250
	60	610	1340
	80	660	1440
	100	710	1540
4000	0	610	1340
	20	670	1470
	40	730	1580
	60	780	1710
	80	840	1860
	100	910	2000
6000	-20	730	1590
	0	790	1740
	20	870	1910
	40	950	2080
	60	1040	2270
	80	1120	2480
8000	-20	960	2120
	0	1070	2360
	20	1190	2610
	40	1310	2890
	60	1450	3190
	80	1600	3530

5.8 RATE OF CLIMB

Conditions

1433 lb_f

Flaps – 0°

Full throttle

V_Y – 58 KIAS

Press Alt (ft)	Rate of Climb (ft/min)					
	0°F	20°F	40°F	60°F	80°F	100°F
Sea Level	682	663	646	629	614	598
1000	644	626	609	592	577	562
2000	607	589	571	555	540	525
3000	569	551	534	518	503	488
4000	532	514	497	481	466	451
5000	494	477	460	444	429	415
6000	457	439	423	407	392	377
8000	381	363	346	330	314	300
10000	303	285	268	252	237	223
12000	224	207	191	175	160	146

5.9 CRUISE PERFORMANCE

Conditions

1433 lb_f

Windows installed

		STD Temp - 20°F			STD Temp			STD Temp + 20°F		
Press Alt (ft)	RPM	KTAS	FF[1]	Econ[2]	KTAS	FF[1]	Econ[2]	KTAS	FF[1]	Econ[2]
Sea Level	4500	76	3.54	21.5	75	3.41	22.1	75	3.29	22.8
	5000	86	4.67	18.5	86	4.46	19.3	86	4.27	20.1
	5500	95	8.10	11.8	95	6.92	13.7	95	5.80	16.4
2000	4500	75	3.35	22.4	75	3.22	23.1	74	3.07	24.0
	5000	86	4.37	19.7	86	4.16	20.6	85	3.97	21.4
	5500	95	6.36	14.9	95	5.18	18.3	95	4.92	19.2
4000	4500	74	3.15	23.6	73	2.99	24.6	73	2.84	25.6
	5000	85	4.07	21.0	85	3.87	22.0	85	3.68	23.0
	5500	95	5.05	18.8	94	4.77	19.8	94	4.51	20.9
6000	4500	73	2.91	25.1	72	2.76	26.2	71	2.65	26.9
	5000	85	3.77	22.5	84	3.57	23.6	84	3.41	24.6
	5500	94	4.64	20.3	94	4.36	21.6	94	4.14	22.6

		STD Temp - 20°F			STD Temp			STD Temp + 20°F		
Press Alt (ft)	RPM	KTAS	FF[1]	Econ[2]	KTAS	FF[1]	Econ[2]	KTAS	FF[1]	Econ[2]
8000	4500	72	2.70	26.5	70	2.58	27.3	69	2.53	27.2
	5000	84	3.49	24.1	84	3.32	25.2	83	3.20	26.0
	5500	94	4.26	22.1	94	4.02	23.3	93	3.85	24.3
10000	4500	70	2.56	27.2	68	2.49	27.2	66	2.44	27.0
	5000	83	3.26	25.6	83	3.13	26.5	82	3.00	27.4
	5500	94	3.94	23.8	93	3.76	24.8	93	3.59	25.9
12000	4500	67	2.47	27.1	65	2.41	26.9	63	2.35	26.8
	5000	83	3.07	26.9	82	2.93	27.9	81	2.81	29.0
	5500	93	3.67	25.4	93	3.49	26.6	93	3.32	27.9

1. Fuel Flow (gal/hr)
2. Economy (nm/gal)

5.10 TIME, FUEL, AND DISTANCE TO CLIMB

Conditions

1433 lb_f

Flaps – 0°

Full throttle

V_Y – 58 KIAS

Zero wind

Standard temperature

Corrections

Add 0.2 gallons of fuel for engine start, taxi and takeoff allowance.

Increase time, fuel and distance by 5% for each 20°F above standard temperature.

Press Alt (ft)	STD Temp (°F)	From Sea Level		
		Time (min)	Fuel Used (gal)	Distance (nm)
Sea Level	59	0.0	0.0	0.0
1000	55	1.6	0.2	1.6
2000	52	3.4	0.3	3.3
3000	48	5.2	0.5	5.2

Press Alt (ft)	STD Temp (°F)	From Sea Level		
		Time (min)	Fuel Used (gal)	Distance (nm)
4000	45	7.1	0.6	7.2
5000	41	9.2	0.8	9.4
6000	37	11.5	0.9	11.8
8000	30	16.6	1.3	17.3
10000	23	22.9	1.6	24.3
12000	16	31.1	2.1	33.7

5.11 RANGE AND ENDURANCE

Conditions

1433 lb_f and Forward CG

Flaps – 0°

Landing gear – UP

Windows installed

Zero wind

Includes 0.2 gal for engine start, taxi, and takeoff.

Includes fuel and distance to climb to the given altitude.

Includes 45 minutes fuel reserve at 4500 RPM at the given altitude.

		STD Temp - 20°F			STD Temp			STD Temp + 20°F		
Press Alt (ft)	RPM	KTAS	Endurance (hrs)	Range (nm)	KTAS	Endurance (hrs)	Range (nm)	KTAS	Endurance (hrs)	Range (nm)
Sea Level	4500	76	4.8	369	75	5.1	381	75	5.3	394
	5000	86	3.7	317	86	3.9	332	86	4.1	348
	5500	95	2.1	202	95	2.5	237	95	3.0	284
2000	4500	75	5.1	384	75	5.3	398	74	5.6	417
	5000	86	3.9	337	86	4.1	354	85	4.3	372
	5500	95	2.7	257	95	3.3	316	95	3.5	334
4000	4500	74	5.3	403	73	5.7	424	73	6.0	444
	5000	85	4.1	360	85	4.4	379	85	4.6	400
	5500	95	3.3	322	94	3.6	343	94	3.8	364
6000	4500	73	5.7	429	72	6.1	453	71	6.4	466
	5000	85	4.4	386	84	4.7	408	84	4.9	427
	5500	94	3.6	350	94	3.8	374	94	4.1	395

		STD Temp - 20°F			STD Temp			STD Temp + 20°F		
Press Alt (ft)	RPM	KTAS	Endurance (hrs)	Range (nm)	KTAS	Endurance (hrs)	Range (nm)	KTAS	Endurance (hrs)	Range (nm)
8000	4500	72	6.1	454	70	6.4	470	69	6.6	471
	5000	84	4.7	414	84	5.0	435	83	5.2	451
	5500	94	3.9	381	94	4.1	404	93	4.3	422
10000	4500	70	6.4	465	68	6.5	466	66	6.7	467
	5000	83	5.0	438	83	5.2	456	82	5.4	473
	5500	94	4.1	409	93	4.3	429	93	4.5	449
12000	4500	67	6.4	462	65	6.6	463	63	6.8	463
	5000	83	5.2	460	82	5.4	478	81	5.7	498
	5500	93	4.3	435	93	4.6	457	93	4.8	480

5.12 NORMAL RUNWAY LANDING PERFORMANCE

Conditions

1433 lb_f

Flaps – 0°

Level and dry asphalt runway

Reasonable braking

Zero wind

POH approach and normal landing technique except speed at 50 ft is 58 KIAS

Corrections

Decrease distance by 10% for each 8 knots of headwind.

Increase distances by 10% for each 3 knots of tailwind.

Increase ground roll distance by 30% on dry grass.

Press Alt (ft)	Temp (°F)	Ground Roll (ft)	Total Distance from 50 ft Obstacle (ft)
Sea Level	0	520	1540
	20	540	1590
	40	550	1640
	60	560	1680
	80	580	1730
	100	600	1780

Press Alt (ft)	Temp (°F)	Ground Roll (ft)	Total Distance from 50 ft Obstacle (ft)
2000	0	550	1630
	20	560	1670
	40	580	1720
	60	600	1780
	80	610	1830
	100	630	1880
4000	0	570	1710
	20	590	1770
	40	610	1830
	60	630	1880
	80	650	1940
	100	670	1990
6000	-20	590	1750
	0	610	1820
	20	630	1870
	40	650	1930
	60	670	2000
	80	690	2050
8000	-20	620	1860
	0	650	1920
	20	670	1990
	40	690	2050
	60	710	2120
	80	740	2180

5.13 WATER LANDING PERFORMANCE

Conditions

1433 lb_f

Glassy water

Zero wind

POH approach and normal landing technique except speed at 50 ft is 50 KIAS

NOTE: Short field and normal landing data for water are identical.

Corrections

Decrease distances by 10% for each 8 knots of headwind.

Increase distance by 10% for each 3 knots of tailwind.

Pressure Altitude (ft)	Temp (°F)	Water Run (ft)	Total Distance from 50 ft Obstacle (ft)
Sea Level	20	640	1920
	40	660	1980
	60	670	2040
	80	690	2080
	100	710	2140
2000	20	670	2030
	40	690	2080
	60	710	2140
	80	730	2200
	100	740	2250
4000	20	710	2130
	40	730	2190
	60	740	2250
	80	760	2320
	100	790	2380
6000	20	740	2240
	40	760	2310
	60	790	2380
	80	810	2450
	100	830	2520
8000	20	780	2380
	40	810	2240
	60	830	2520
	80	860	2600
	100	880	2660

5.14 SHORT FIELD RUNWAY LANDING PERFORMANCE

Conditions

1433 lb_f

Level and dry asphalt runway

Reasonable braking

Zero wind

POH short field landing technique except speed at 50 ft is 50 KIAS

NOTE: Short and normal landing data for water are identical. See Water Landing Performance for more information.

Corrections

Decrease distances by 10% for each 8 knots of headwind.

Increase distances by 10% for each 3 knots of tailwind.

Increase ground roll distance by 30% on dry grass.

Press Alt (ft)	Temp (°F)	Ground Roll (ft)	Total Distance from 50 ft Obstacle (ft)
Sea Level	0	420	1390
	20	430	1440
	40	440	1480
	60	460	1510
	80	470	1550
	100	480	1600
2000	0	440	1470
	20	450	1500
	40	470	1550
	60	480	1600
	80	500	1640
	100	510	1680
4000	0	470	1540
	20	480	1590
	40	490	1640
	60	510	1680
	80	520	1730
	100	540	1780
6000	-20	480	1570
	0	490	1630
	20	510	1670
	40	520	1720
	60	530	1780
	80	540	1820

Press Alt (ft)	Temp (°F)	Ground Roll (ft)	Total Distance from 50 ft Obstacle (ft)
8000	-20	500	1670
	0	520	1710
	20	530	1770
	40	540	1820
	60	560	1870
	80	580	1930

Chapter 06

WEIGHT, BALANCE, AND EQUIPMENT LIST

6.1 INTRODUCTION

This section describes the procedure and provides relevant reference information to determine the weight and balance of the A5. Additionally, a discussion of the aircraft equipment list is included.

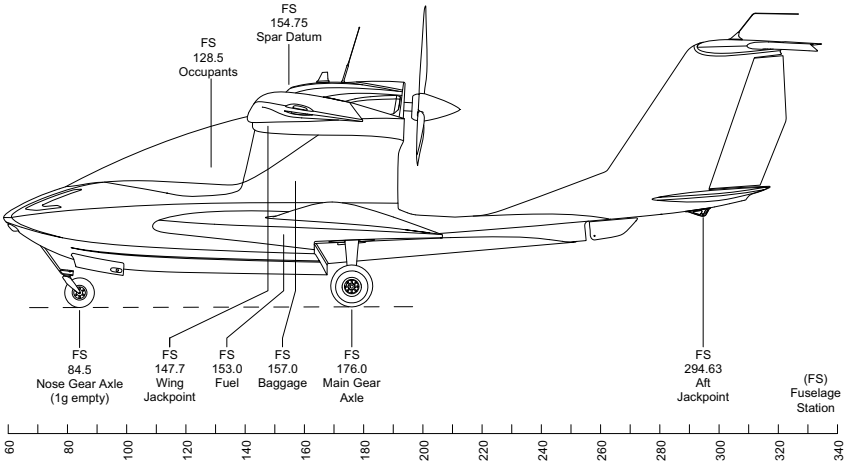
The A5 design places the cockpit forward of the flight center of gravity range. A change of occupant weight will therefore also change the CG location. It is possible to be outside the forward CG limit with a heavy total occupant weight and to be outside the aft CG limit with a light occupant. It is therefore imperative for all pilots to become familiar with the weight and balance of the specific aircraft they will fly, and their own specific loading condition. Specific details about weight, moment, and center of gravity for this airplane can be found accompanying this POH.

WARNING: It is the responsibility of the pilot to make sure the airplane is loaded properly. Operation outside of the approved weight and balance limitations could result in an accident and serious or fatal injury.

6.2 AIRCRAFT DIMENSIONAL DATA

6.2.1 AIRCRAFT REFERENCE DATUMS

FIGURE 6-1
AIRCRAFT REFERENCE DATUMS



CHAPTER 6

6.3 WEIGHT AND BALANCE RECORD

The aircraft empty weight and CG are determined prior to delivery. The first entry is made in this Weight and Balance Record. For any change of equipment, repair, or alteration that affects empty weight, the CG position and moment of the net addition/removal must be entered in the Weight and Balance Record included with this POH. Always ensure that you are using the latest weight and balance information when performing a weight and balance calculation.

ICON A5 Serial No.						
Date	Description of Changes	Weight Change Added (+) or Removed (-)			Running Totals	
		Wt (lb_f)	FS (in)	Moment (lb_f-in)	Wt (lb_f)	Moment (lb_f-in)
	As Delivered					

CHAPTER 6

6.4 OPERATING WEIGHTS AND LOADING

Maximum Human Weight

250 lb_f per person

Maximum Baggage/Cargo Weight

60 lb_f

WARNING: Loading a concentrated weight fully aft in the baggage area may cause an unsafe aft CG condition.

Minimum Number of Anchor Loops

At least three (3) out of the six (6) provided anchor loops must be used in order to safely restrain the full baggage/cargo load.

Minimum Load Rating of Cargo Restraints (Pilot Supplied)

1000 lb_f

Full Usable Fuel Weight

120 lb_f (20 US gal at 6 lb_f per US gal)

Removable Side Window Weight and Fuselage Station

7.18 lb_f (total both windows)

FS 127.6

Removable Wind Deflector Weight and Fuselage Station

0.3 lb_f (total both deflectors)

FS 113.4

6.5 EMPTY WEIGHT AND CG MEASUREMENT WHILE ON GEAR

The airplane empty weight includes engine oil and coolant, unusable fuel, hydraulic brake fluid, and installed equipment for the aircraft.

The airplane must be weighed and leveled in a level area. The weighing area should also be calm or indoors to prevent wind from affecting the readings.

Check the calibration of the scales used to ensure accurate results.

Check the oil dipstick to verify at least 3.17 quarts (three liters) of oil. Service as necessary. The difference between the max and the min marks is approximately 0.5 quarts (0.47 l).

Retract flaps to the 0° position.

Center all controls to the neutral, static position.

Install removable side windows.

Close and latch the canopy.

Ensure all inspection covers and panels are installed.

1. Install three platform scales under the two main gear and nose gear.

   NOTE: Remove the floor boards as described in the Maintenance Manual. Set the floor boards back in place after leveling.

2. Shim or block up the aircraft so that the bubble level beneath the right side floor board indicates a level condition.
3. Record the weight readings on the scales under the nose gear, main gear RH, and main gear LH.
4. Complete the Empty Weight and CG Calculation Form and perform the calculations to obtain the total empty weight and CG position.

Fill out blank cells in table below.

Scale Position	**Weight, Wt (lb_f)**	**Arm, FS (in)**	**Moment, M=Wt x Arm (lb_f-in)**
Nose Gear		84.5	
Right Main Gear		176.0	
Left Main Gear		176.0	
Total			

Total Weight (lb_f)	**CG Position – FS (in)**

Calculate the FS location of the CG by dividing the total moment by the total weight.

Total Wt (from above)=_____ lbs

Aircraft CG Location, FS (Total M/Total Wt)=_____ in

Verify that the above readings and calculations make sense by comparing them with the Weight and Balance Record. Enter the new weight and balance information as a new baseline into the Weight and Balance Record.

6.6 WEIGHT AND BALANCE DETERMINATION FOR FLIGHT

It is the pilot's responsibility to ensure that the aircraft is properly loaded and operated within the prescribed weight and CG limits. The following steps should be used to calculate the airplane weight and CG for flight. The Weight and Balance Loading Form gives one method to complete this procedure.

Moment = Weight x FS

1. Empty Weight – Enter the empty weight and moment from the airplane "Weight and Balance Record" on page 6-3.
2. Pilot – Enter the weight and calculate and enter moment of the pilot.
3. Passenger – Enter the weight and calculate and enter moment of the passenger or enter zero if there will be no passenger.
4. Usable Fuel – Enter the total weight and calculate and enter moment of usable fuel loaded into the airplane.

   NOTE: 1 gallon of fuel = 6 pounds

5. Baggage/Cargo – Enter the total combined weight and calculate and enter moment of baggage loaded into the baggage area.
6. If side windows are removed (and completely out of the airplane) and deflectors installed, include this line item in the totals, which accounts for both items.
   a. If side windows are to be carried as baggage for flight, include their weight and moment arm (see Operating Weights and Loading) as Baggage/Cargo in addition to this line item.
7. Garmin aera 796 Accessory – If carrying the unit onboard, include this line item in the totals.
8. Other – Additional space for other items, if needed. Note that FS must be determined.

9. Other – Additional space for other items, if needed. Note that FS must be determined.
10. Totals – Total the weights and moments and determine CG Position (FS).
    a. Transfer the weight total to the Total Weight box.
    b. Calculate the CG Position (FS) by dividing Total Moment by Total Weight and enter into the box.
11. Verify that the weight and CG are within acceptable limits as depicted in. See Figure 6-2.

6.6.1 WEIGHT AND BALANCE LOADING FORM

	Position		Weight, Wt (lb_f)	Arm, FS (in)	Moment M=Wt x Arm (lb_f-in)
1.	Empty Weight (See Weight & Balance Record)				
2.	Pilot			128.5	
3.	Passenger			128.5	
4.	Usable Fuel			153.0	
5.	Baggage/Cargo			157.0	
6.	If Side Windows Removed & Deflectors Installed (Net)		-6.88		-882.1
7.	If Garmin 796 Will Be Used		1.7	109.7	186.5
8.	Other				
9.	Other				
10.		Totals:			

Total Weight (lb_f)[1]	CG Position – FS (in)[2]

1. Not to exceed 1433 lb_f
2. See Weight and CG Envelope Limits

6.6.2 CG LIMITS AND STATION INFORMATION

Maximum Takeoff Weight (MTOW)

1433 lb_f

Reference Datum

FS 154.75 (located on forward face of wing spar carry-through)

Forward CG Limit

FS 153.0

Aft CG Limit

FS 159.2

NOTE: See the Weight and CG Envelope Limits figure for further details on the acceptable operating envelope.

6.6.3 CENTER OF GRAVITY LIMITS

FIGURE 6-2
WEIGHT AND CG ENVELOPE LIMITS

Chapter 07

DESCRIPTION OF AIRPLANE AND SYSTEMS

7.1 GENERAL INFORMATION

The A5 is a two-seat, single-engine, amphibious . The A5 has a conventional high wing, tail-aft configuration with ailerons, flaps, elevator, rudder and water rudder control surfaces. The wings are manually foldable with the flight controls (ailerons and flaps) connecting automatically. The tricycle landing gear is retractable. The A5 is equipped with a Rotax 912iS Sport, 4-cylinder, horizontally-opposed, reciprocating engine of 100 horsepower. Installed equipment provides for flight in day and night VFR conditions. Fuel is contained in a single fuselage-mounted . Flight

controls employ conventional push-pull tubes, torque tubes and cables. The primary flight controls are conventional sticks and rudders (with toe brakes) for each seat. An electrically operated pitch trim tab is controlled from the pilot's (left seat) stick only.

7.2 AIRFRAME

7.2.1 SPIN RESISTANT AIRFRAME

The A5 incorporates numerous features to help control the dynamics of stall and improve spin resistance, including blended wing shapes, stall strips, and wing cuffs. Stall characteristics depend on a number of factors, the most important being rate of stall onset, which can affect the dynamics of stall progression along the span. The A5 remains controllable throughout these various stall progressions up to 30° bank angles, even when fully stalled. Lateral stick and rudder remain effective, although response is more sluggish than during normal flight.

7.2.2 MANUAL WING FOLD SYSTEM

The manual wing fold system allows the wings to be rotated and folded back along the fuselage, reducing the A5 width from approximately 35 feet to 8 feet for trailering and storage.

7.2.3 SEAWINGS™ PLATFORMS

The A5 includes multipurpose Seawings™ in the fuselage and hull design. For water operations, the Seawings™ provide excellent lateral stability for safe and intuitive water operations. For docking operations, the Seawings™ provide for convenient entry and exit from the aircraft.

The tips of the Seawings™ platforms are easily replaceable by the owner in case they are damaged during docking or other operations. When removed, they decrease the aircraft width for easier ground transport or shipping.

The A5 Maintenance Manual includes instructions for removal and replacement of the Seawings™ tips.

7.2.4 DRAINS

The A5 airframe is not entirely water tight. Water that does enter is directed overboard or into the bilge through a series of drain paths and holes. Examples of these holes can be seen at the root end of control surfaces and wing panels. The side nose gear doors have drain holes. The low point of the firewall beneath the engine has a drain that is directed through a hose to the exterior of the aircraft on the right side of the tail boom just aft of the propeller. The interior fuselage bulkheads have drain passages at their low points to allow water to flow into the bilge. All drain provisions should be kept clear to allow water to flow.

7.3 FLIGHT CONTROLS

The primary flight controls consist of the elevator, ailerons, and air rudder. Secondary flight controls consist of the electrically controlled trailing edge wing flaps, elevator trim tab, and water rudder. The flight control system is fully mechanical, providing direct feedback of control surface loads to the pilot throughout the flight envelope on the water and in the air.

The rudder pedals of the MY17 aircraft are adjustable fore/aft for occupant convenience and comfort. The pedals are spring loaded in the aft direction and are released by raising a lever on the outboard, front face of each seat. Before releasing the pedals, place one heel on the black rudder pedal adjustment bumper located between the rudder pedals at floorboard level. Push forward on the heel bumper to oppose the spring load, pull the release lever and then push or release pressure on the bumper until the pedals are in the desired position. Once at the desired position, release the lever, then push on the bumper to verify the pedals are locked in place.

The rudder pedals of the Founder's Edition and Limited Edition aircraft are adjustable fore/aft for occupant convenience and comfort. The pedals are spring loaded in the aft direction and are released by raising a handle on the outboard, front face of each seat. Before adjusting the pedals, place one heel on the black rudder pedal adjustment bumper located between the rudder pedals at floorboard level. When ready to adjust the pedals, raise and hold the release handle and then push or release pressure on the bumper until the desired location is achieved. Releasing the adjustment lever locks the pedals at the current position. After the adjustment is complete, ensure that the pedals are locked by

applying pressure to the adjustment bumper. The pedals can be locked at any location within the rudder pedal adjustment limits.

7.3.1 PITCH TRIM SYSTEM

Pitch trim is achieved through the actuation of a tab incorporated in the elevator trailing edge. The tab is deflected by an electro-mechanical actuator powered through a slide switch at the top of the pilot's (left) control stick grip. There is no pitch trim control on the passenger control stick.

7.3.2 ROLL TRIM SYSTEM

Should it be needed, roll trim is achieved with a fixed tab on the bottom of the inboard end of one of the aileron trailing edges. Trim is adjusted by changing the length of the tab. If the airplane tends to roll to the right, a tab is added to the left aileron and vice versa. The tab length is selected at the factory and should not require adjusting.

7.3.3 WING FLAP SYSTEM

The A5 incorporates single-slotted flaps in the wing trailing edge. The flaps serve to lower stall speed and also add aerodynamic drag. Extending flaps also decreases pitch attitude, aligning the hull for minimum hydrodynamic drag and maximum pitch stability.

The wing flap system is electrically actuated using a flap-shaped switch on the center console. The system moves the flaps between 0°, 15°, and 30° settings. The flap surfaces are driven down by an electro-mechanical actuator and driven up by individual gas springs, one per surface. It is possible to deflect the flap by hand during pre-flight inspections by grasping the flap trailing edge, moving the surface downward, then allowing the spring to return the surface to neutral.

NOTE: When moving a flap by hand, it is possible that the flap will stick at the extreme limit of its travel. This is normal; raise the flap slightly and the spring will return it to neutral.

NOTE: When taxiing or parking with a strong tail-wind, it is possible that one or both flaps will

deflect and bang against the stops. This situation can be alleviated by fully extending the flaps when in a strong tailwind. Use of gust locks are recommended while parked or tied down.

7.4 LANDING GEAR SYSTEM

The A5 features a retractable tricycle landing gear with self-centering 360° castering nose wheel. Simple fiberglass gear legs provide shock absorption. Hydraulic disk brakes are used on each of the main wheels. Steering is accomplished by differential braking.

The retraction system is controlled by a two-position electrical switch on the center stack of the instrument panel. The switch commands two electro-mechanical actuators, one for the nose gear and one for the main gear, that move the gear to the intended position, either up or down. The switch is of the “lift-lock” type that must be pulled slightly away from the panel before it can be moved. The handle of the switch is shaped like a wheel for easy identification. The gear up position is indicated with the illumination of a blue aircraft with wavy line graphic on the landing gear switch plate. The landing gear down position is indicated by an amber aircraft with straight line graphic. Any time the landing gear is neither all up nor all down, a red in-transit graphic will illuminate.

The landing gear requires about seven seconds to retract or extend. In the event of IPS deployment, the landing gear will automatically extend to absorb additional energy at touchdown. There is no backup or auxiliary landing gear extension system.

CAUTION: The landing gear of the A5 can be repositioned at any time, including while on the ground. Initiating landing gear retraction while the aircraft is on the ground, supported by the

landing gear, may result in damage to the aircraft.

The self-centering, full 360° castering nose wheel, allows for ease of movement when pushing the A5 on the ground and when brake steering. The self-centering feature ensures that the nose wheel is aligned correctly for retraction whenever the nose wheel is clear of the ground, whether after takeoff or after it enters the water.

7.4.1 WHEELS AND BRAKES

Tires

Each landing gear leg assembly is equipped with one wheel and tire.

The main landing gear tires are size 5.00-5, 6-ply aircraft tires with a maximum load rating of 1285 lb_f each.

The nose gear tire is size 10x3.50-4, 4-ply aircraft tire with a maximum load rating of 460 lb_f.

Wheel Brakes and Steering

Each main wheel is equipped with a hydraulically-actuated disk brake controlled by a hydraulic master cylinder mounted to the hinged top portion of each rudder pedal. These “toe brakes” can be used either collectively to slow the aircraft, or individually to steer the aircraft when on the ground. Decelerate first by reducing power; once idle is reached, smoothly apply both brakes to further decelerate as needed. Avoid dragging the brakes while power is above idle. Steer by applying brake pedal force to the side of the desired turn. Power application may be used at the same time as differential brake so as to maintain speed. Very tight turns can be accomplished at low speed by applying one brake in addition to throttle.

Hydraulic Parking Brake

The braking system includes a hydraulic parking brake operated by a lever just above the floorboard on the left sidewall in front of the pilot’s seat.

To set the parking brake, apply pressure to both brakes via the pedals and hold, then move the lever to the “ON” position. The pedal pressure can then be released and the parking brake will hold the set level of braking. Alternately, the brake can be set

by first moving the lever forward, then pressing and releasing the brake pedals. The system will then hold the applied brake pressure.

CAUTION: The parking brake is intended only for short-term use (<10 minutes) while completing tasks such as folding/unfolding the wings. Never leave the aircraft unattended with just the parking brake set.

To release the parking brake, move the lever to the "OFF" position.

CAUTION: Never set the parking brake in flight. Before landing, always check that the parking brake has not been inadvertently set.

7.5 INSTRUMENT PANELS

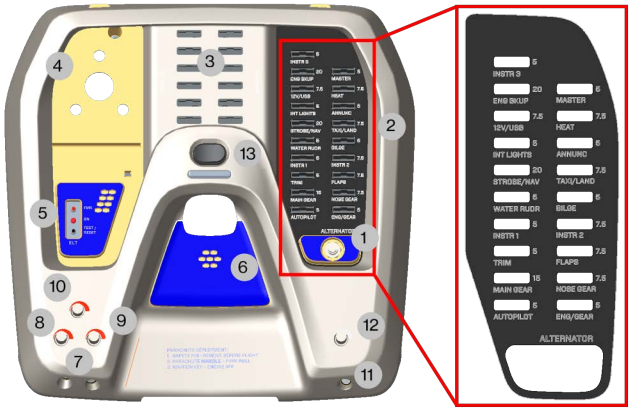
7.5.1 OVERHEAD CONSOLE

FIGURE 7-1
OVERHEAD CONSOLE

Fuse Panel and Spare Fuses

The circuit protection system is comprised of eighteen fuses, one for each system, and a 30 A, manually reset circuit breaker (1). The fuse panel (2) contains the operational fuses for the electrical systems on the aircraft. The spare fuse area (3) contains readily accessible spare fuses for use as needed. There are four fuse ratings: 5 A, 7.5 A, 15 A and 20 A. A minimum of three spare fuses of each rating value are located in the spare fuse panel area (3).

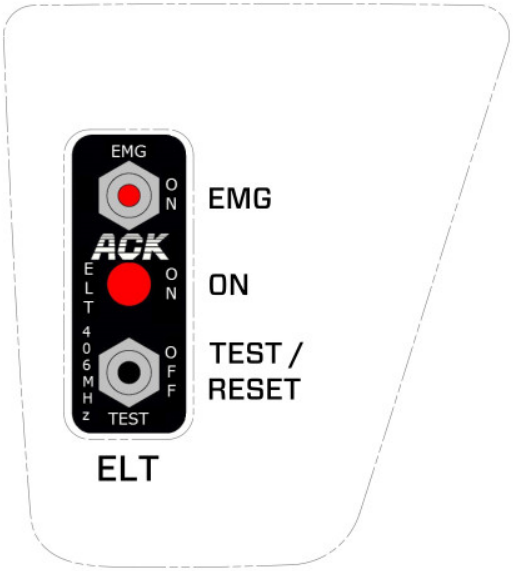
Fuse Panel with Garmin G3X Touch™ with Autopilot



Fuel Shutoff Valve

The fuel shutoff valve (4) is the main shutoff for the fuel system. It has a detent into the 'ON' position and the locking knob must be pulled and handle rotated simultaneously in order to turn off the fuel.

ELT Remote Control and Audio Alert Indicator



The ELT remote control (5) interfaces with the ACK Technologies, Inc. model E-04 406 MHz emergency locating transmitter. There are two buttons and a red LED indicator on this control. The red 'ON' button activates the ELT. The black 'OFF/TEST' button deactivates the ELT if it is activated. If not activated, the black 'OFF/TEST' button initiates an ELT self-test during which the ELT transmits on 121.5 MHz for 1 second, (3 audio sweeps), then transmits a 406 MHz test burst for 550 ms, and then returns to the armed mode. The red LED indicator flashes when the ELT is activated.

Parachute Activation Handle

The parachute activation handle (6) is used for deploying the IPS in an emergency. See the description of the IPS for further details about the operation.

Interior Lighting

The interior of the A5 aircraft is illuminated by an interior lighting system consisting of the following lights.

- Two red LEDs, located on the forward LH side of the overhead console (7), illuminate the instrument panel and

center stack console, and are individually controlled by the two dimmers on the forward LH side of the overhead console labeled “INSTR” (8) and “CONSOLE” (9), respectively.

- Two red LEDs, located in the headset hangers in the baggage compartment, illuminate the overhead console and are controlled by a single dimmer labeled “OVERHEAD” (10) also located on the forward LH side of the overhead console.
- A single white LED, located on the forward RH side of the overhead console (11), illuminates the center stack console and is controlled by a dimmer labeled “CONSOLE” (12) on the forward RH side of the overhead console.
- A dome light, located on the center of the overhead console and consisting of a string of white LEDs (13), illuminates the cabin and baggage compartment and is controlled by a switch labeled “DOME” (13) located just aft of the light itself.

Stall Warning Horn

The stall warning horn is located on the forward side of the overhead console. The horn activates approximately three knots above stall speed (Mid-Yellow AOA) in unaccelerated flight. The horn is disabled below 33 knots to minimize horn activation when on land or water.

7.5.2 CENTER CONSOLE

MY17 Aircraft

FIGURE 7-2
CENTER CONSOLE

(1) Trig TC90 VHF radio control unit

(2) Trig TC20 Mode S transponder control unit

(3) Landing gear control and position indicator

(4) Flap control

(5) Pitch trim position indicator with markings for DOWN, T/O and UP

(6) Strobe light switch

(7) Nav light switch

(8) Taxi light switch

(9) Landing light switch

(10) Bilge pump switch with indicator light for ON

(11) Heater control

(12) Water rudder control with indicator light for EXT (water rudder extended)

(13) Engine throttle control

(not shown) Hour meter located beneath the center arm rest

Founder's Edition and Limited Edition Aircraft

FIGURE 7-3
CENTER CONSOLE

(1) Autopilot Control Panel

(2) Landing gear control position indicator

(3) Pitch trim position indicator with markings for DOWN, T/O and UP

(4) Flap control

(5) Strobe light switch

(6) Nav light switch

(7) Taxi light switch

(8) Landing light switch

(9) Bilge pump switch with indicator light for ON

(10) Heater control

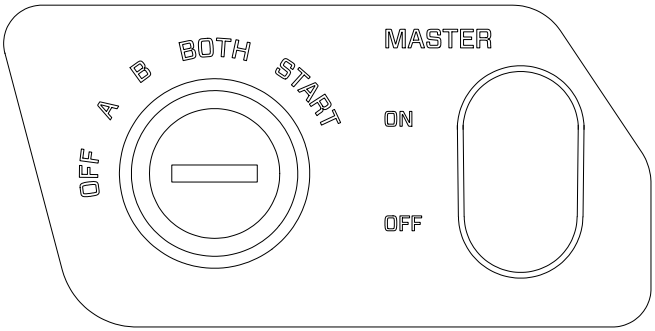
(11) Water rudder control with indicator light for EXT (water rudder extended)

(12) Engine throttle control

(not shown) Hour meter located beneath the center arm rest

7.5.3 MASTER SWITCH AND KEY

FIGURE 7-4
MASTER SWITCH AND KEY PANEL



The master switch and key panel is located to the lower left of the flight instrument cluster. It contains the key switch for selecting between 'A' and 'B' and 'BOTH' on the engine electrical and control systems as well as engaging the starter. The master switch is the main electrical switch for the entire aircraft electrical system.

NOTE: In the event it becomes necessary to turn off the master switch in flight, the engine will continue to run.

7.6 INSTRUMENTS

7.6.1 GENERAL INFORMATION

MY17 Aircraft

FIGURE 7-5
INSTRUMENT STACK FOR THE MY17 AIRCRAFT

The flight, engine, and fuel instruments in the A5 have been located according to their priority for controlling the aircraft. The most prominent instruments used for aircraft control form the Primary Cluster across the top of the instrument stack. These include the angle of attack (AOA) gauge (1), airspeed indicator (2), and altimeter (3). The AOA gauge collects data from ports located on the leading edge of the left wing. The face of the gauge incorporates a unique ICON design employing green, yellow, and red segments to clearly indicate available lift margin above stall at all times. The airspeed indicator and altimeter are standard analog gauges connected to the pitot-static system.

Founder's Edition and Limited Edition Aircraft

FIGURE 7-6
INSTRUMENT STACK FOR THE FOUNDER'S EDITION AND LIMITED EDITION

The flight, engine, and fuel instruments in the A5 have been located according to their priority for controlling the aircraft. The most prominent instruments used for aircraft control form the Primary Cluster across the top of the instrument stack. These include the angle of attack (AOA) gauge (1), airspeed indicator (2), and altimeter (3). The AOA gauge collects data from ports located on the leading edge of the left wing. The face of the gauge incorporates a unique ICON design employing green, yellow, and red segments to clearly indicate available lift margin above stall at all times. The airspeed indicator and altimeter are electric gauges connected to the pitot-static system. In the remote event of a complete electrical failure each gauge has a backup battery that will power the gauge for a minimum of 30 minutes. If the backup battery is allowed to fully charge under normal use, the altimeter digital displays will remain illuminated for approximately 30 minutes once the master switch is turned off. This time may be shorter if the battery is not allowed to fully charge.

All Aircraft

A digital attitude indicator (AI)(9) is centrally located for simple reference in the middle of the instrument panel, providing aircraft pitch information to ±30°, bank to ±60°, and magnetic direction indication. The AI includes two buttons just below that will dim (left button) or brighten (right button) the display screen when pressed individually. Pressing and holding both buttons simultaneously changes screen modes. For more details on operating the AI, see Kelly Manufacturing Company Publication 1404 for the KMC 2000-2 digital attitude indicator.

NOTE: The magnetic direction indicator can be re-calibrated using the procedure detailed in the A5 Maintenance Manual.

Instruments used for engine and fuel monitoring form the Secondary Cluster along the bottom row of the stack. These include the fuel quantity (4), tachometer (5), oil temperature (6), oil pressure (7), and water/coolant temperature (8) gauges. All secondary instruments contain a red LED light that will illuminate whenever a redline limit is reached.

An annunciator panel (10) is located near the center of the instrument console between the Primary Cluster and Secondary Cluster. (See “Annunciator Panel” on page 7-18.)

Not shown in the figure is the panel dimmer knob which is just below the water/coolant temperature gauge (8). The dimmer is used for adjusting the brightness of the instrument lighting.

7.6.2 ANGLE OF ATTACK SYSTEM

FIGURE 7-7
AOA GAUGE WITH A MID-YELLOW INDICATION FOR THE MY17 AIRCRAFT

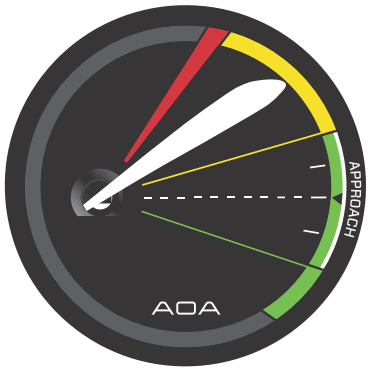
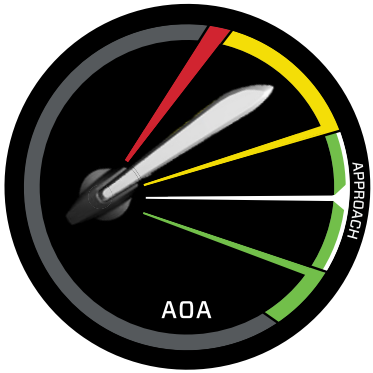


FIGURE 7-8
AOA GAUGE WITH A MID-YELLOW INDICATION FOR THE FOUNDER'S EDITION AND LIMITED EDITION AIRCRAFT



The AOA gauge provides a visual indication of how hard the wing is working to generate lift and how much more lift it can supply at any given time. AOA is related to stick position, and so the AOA gauge can also provide an approximate indication of the current stick position and how much farther aft it can move before the wing will stall.

The AOA system works by using static ports to measure the difference in pressure from the top and bottom of the left wing near the leading edge. These values are compared and computed to drive the AOA indicator electrically.

The horizontal line on the gauge depicts optimum AOA during approach for landing and also maximum lift-to-drag ratio which can be used for best range performance and best glide. The AOA gauge can also be used to help guide control inputs to achieve specific performance objectives during nearly every phase of flight. The ability to reference AOA during each of these phases allows much more precise inputs and also provides direct information about how the wing is performing at any given time. During a turn, the AOA system provides a direct indication of margin above stall in all phases of flight. This permits optimization of turn performance safely and efficiently. For cruise, AOA allows for efficient flight by providing a simple cue for optimum range performance. The AOA gauge is disabled at airspeeds below 30 knots.

7.6.3 ANNUNCIATOR PANEL

An Annunciator Panel (10) displaying Warning and Caution indications is located near the center of the instrument console between the primary and secondary instrument clusters. It is designed to provide simple visual indications of aircraft conditions that require corrective pilot action.

The upper row indications are Warning Lights, which illuminate in red to draw pilot attention to take action on critical safety of flight issues. The bottom row indications are Caution Lights, which illuminate in amber to draw pilot attention to aircraft system status or failures that may warrant action.

At the right side of the panel is a 'TEST' button. To verify that all LEDs are functional while the button is pressed, all annunciators should illuminate until the button is released.

For detailed meaning of, and response to, the annunciator lights, see Emergency Procedures.

7.6.4 FUEL GAUGE

The fuel gauge is accurate to within ± one gallon in coordinated, straight and level, unaccelerated flight. The low fuel indicator,

operated by a separate sensor, illuminates when there are approximately two gallons remaining.

7.7 AVIONICS

7.7.1 GARMIN AERA 796 EQUIPPED AIRCRAFT

The MY17, Founder's Edition, and some Limited Edition A5 aircraft are equipped with a Trig TY91 VHF comm radio, a Trig TT22 Mode S transponder, and an ACK E-04 406 MHz emergency locator transmitter (ELT).

The VHF radio, supplied by Trig Avionics, allows two-way communication and the monitoring of two frequencies at the same time. The TY91 VHF remote transceiver is installed remotely inside the left-hand side of the nose of the aircraft and is controlled through a TC90 controller unit, located in the center stack console, and the push-to-talk buttons on both the pilot and passenger control sticks. The antenna with VHF radio is located on top of the horizontal tail of the aircraft. For more details on operating the TY91 and TC90, see Trig Avionics Limited Publication 00839-00-AF (TY91 and TY92 VHF Radio Installation Manual).

The TT22, also supplied by Trig Avionics, is a remote mounted Mode S transponder, installed inside the left side of the nose of the aircraft next to the VHF radio, and is controlled through a TC20 controller unit, located in the center stack console. The antenna for the transponder is located on top of the engine cowling. For more details on operating the TT22 and TC20, see Trig Avionics Limited Publication 00559-00-AF (TT22 Mode S Transponder Operating Manual).

The ELT, supplied by ACK Technologies, is installed below the center console and sends out a distress signal when manually or automatically activated. The ELT can be manually activated through the remote control located on the left-hand side of the overhead console. The antenna for ELT is located on the engine cowling aft of the transponder antenna.

7.7.2 GARMIN G3X TOUCH™ EQUIPPED AIRCRAFT

Some Limited Edition A5 aircraft are equipped with a Garmin GTR 20 communication radio, a Garmin GTX 45R Mode S ADS-B Out/In transponder, a Garmin G3X Touch™ flight display, and an ACK E-04 406 MHz emergency locator transmitter (ELT).

The VHF radio, supplied by Garmin, allows two-way communication and the monitoring of two frequencies at the same time. The GTR 20 remote transceiver is installed remotely inside the left-hand side of the nose of the aircraft and is controlled through the Garmin G3X Touch™ display and the push-to-talk buttons on both the pilot and passenger control sticks. The antenna with VHF radio is located on top of the horizontal tail of the aircraft. For more details on operating the communication radio via the Garmin G3X Touch™ display, see the following document which is supplied with your aircraft: Garmin Part Number 190-01754-00 Rev. M - Garmin G3X Touch™ Pilot's Guide (Section 4 CNS Interface).

The GTX 45R, also supplied by Garmin, is a remote mounted Mode S transponder with ADS-B in and out capability. It is installed inside the left side of the nose of the aircraft next to the VHF radio, and is controlled through the Garmin G3X Touch™ display. The antenna for the transponder is located on top of the engine cowling. The antenna for the GPS position source is located on the crossbeam. For more details on operating the transponder and utilizing the information provided by ADS-B In, see Garmin Part Number 190-01754-00 Rev. M - Garmin G3X Touch™ Pilot's Guide (Section 4.11 Remote Transponder Interface).

The Garmin G3X Touch™ flight display offers primary flight display (PFD) functionality as a backup system to the A5 standard gauges, dynamic moving map capability for navigation/situational awareness, and an engine indication system (EIS) display intended for both backup system purposes and more in depth monitoring of engine parameters.

7.8 GARMIN G3X TOUCH™ FLIGHT DISPLAY

The Garmin G3X Touch™ flight display offers Primary Flight Display (PFD) functionality as a backup system to the A5 standard gauges, dynamic moving map capability for navigation/situational awareness, and an Engine Indication System (EIS) display intended for both backup system purposes and more in depth monitoring of

engine parameters. The display can be customized in flight to display a combination of the PFD, EIS, and moving map pages.

The PFD page contains the following displays:

- Airspeed Indicator
- Attitude Indicator
- Altimeter
- Flight Director
- Slip/Skid Indicator
- Standard Rate Turn Indicator
- Navigation Aids
- Autopilot Status/Control Information
- Ground Speed/Track
- True Airspeed Indicator
- Wind Information

For more details on the PFD, see Garmin Part Number 190-01754-00 Rev. M-Garmin G3X Touch™ Pilot's Guide (Section 2 Flight Instruments).

The moving map page displays aviation data (airports, VORs, airways, airspaces, sectionals), geographic data (cities, lakes, highways, borders), and topographic data (map shading indicating elevation) for situational awareness purposes. Standard SVX Synthetic vision capability displays terrain, obstacles, airports, and 3-D pathway windows for flight route guidance. The Garmin Connext feature allows for the wireless transfer of flight plans with select Garmin portables and mobile device apps such as Garmin Pilot and ForeFlight. For more details on the map page and all of its features, see Garmin Part Number 190-01754-00 Rev. M-Garmin G3X Touch™ Pilot's Guide (Section 5 GPS Navigation).

The EIS page contains the following data:

- Engine Manifold Pressure
- Throttle Percentage
- Tachometer
- Oil Pressure
- Oil Temperature

- Cylinder Head Temperature
- Exhaust Gas Temperature
- Voltmeter
- Fuel Pressure
- Engine Hours
- Ammeter
- Total Hours

For more details on the EIS page and all its features, see Garmin Part Number 190-01754-00 Rev M.-Garmin G3X Touch Pilot's Guide (Section 3 Engine Indication System).

7.9 GARMIN AUTOMATIC FLIGHT CONTROL SYSTEM (AFCS)

The Garmin AFCS is provided as an optional upgrade for the A5 if equipped with the Garmin G3X Touch™ display. The AFCS system can be divided into three main operating functions:

1) Flight Director (FD) – Flight director operation takes place within the GDU 450 flight display. Flight director commands are displayed on the PFD to provide command bars showing pitch/roll guidance, vertical/lateral mode selection and processing, and autopilot communication.

2) Autopilot (AP) – Autopilot operation occurs within installed pitch and roll servos. It also provides servo monitoring and automatic flight control in response to flight director steering commands, Air Data and Attitude and Heading Reference System (ADAHRS) attitude, rate information, and airspeed.

3) Manual Electric Trim (MET) – Manual electric trim provides trim capability for the pitch axis when the autopilot is not engaged.

For details on operation and use of the Garmin AFCS, see the following document which is supplied with your aircraft.

Garmin Part Number 190-01754-00 Rev. M-Garmin G3X Touch™ Pilot's Guide (Section 9.1 AFCS Operation)

7.10 ENGINE

The A5 is powered by a Rotax 912iS Sport fuel injected 4-cylinder engine, rated at 100 hp (73.5 kW) at 5800 RPM. The 912iS is based on the proven 912 ULS engine with significant upgrades to improve performance and reliability. It is equipped with an electric starter, dual-redundant ignition system, and a fully digital Engine Control Unit (ECU) that automatically adjusts fuel/air mixture throughout flight to maintain optimal performance, efficiency and low emissions, thereby reducing fuel consumption and overall operating costs. The ECU also obviates the need for a carburetor and associated mixture controls in the cockpit, making operation of the engine fully automatic for the pilot and eliminating the threat of carburetor icing. The 912iS Sport is both liquid cooled (cylinders heads) and air-cooled (cylinders) with a dry sump forced lubrication system and separate oil tank. It can run on either Aviation Gasoline (AVGAS), motor gasoline (MOGAS), or a combination of both. Engine cooling on the A5 is augmented by a fan located on the propeller shaft ahead of the spinner. Best cooling on the ground is achieved with engine set from 3000 to 4000 RPM.

Commanded throttle position is sensed and transmitted to the ECU as a pilot request for specific power output. This signal is then combined with environmental inputs to provide the commanded response. The interface is simple and seamless for the pilot, automating the process of adjusting fuel/air mixture and ensuring optimal performance. Move the throttle and the engine does the rest.

Engine power is displayed as RPM on the tachometer gauge on the right lower flight instrument cluster. Fuel flow is directly proportional to this RPM, although actual power output and useful thrust delivered is a function of both RPM and aircraft density altitude. Normal operating range is from 1700 to 5500 RPM with a redline of 5800 RPM.

7.11 PROPELLER

The A5 uses a Sensenich, 3-blade propeller. The blade construction is hollow carbon fiber and fiberglass with UV protection. The blade leading edges are equipped with metal erosion shields. The two-piece hub is made from anodized aluminum.

NOTE: Although the propeller is ground adjustable, ICON does not permit propeller pitch adjustments.

7.12 ELECTRICAL SYSTEM

The electrical system on the A5 is powered by the Rotax 912iS Sport engine's integrated internal alternator, charging a 12VDC, 24Ah battery located in the nose of the aircraft. The alternator has two isolated coils, creating a redundant charging system (a 16 amp alternator A and a 30 amp alternator B). The engine voltage regulation is performed by two three-phase short rectifier regulators located on the Rotax-supplied fuse box. The output voltage of each regulator is 14.2 V ± 0.3.

During engine startup, the engine management system (EMS) is powered by the battery. With sufficient speed, (2500 RPM) alternator B takes over this function. After the EMS system check, alternator A takes over the supply of the EMS system (engine), if the switching threshold is exceeded. Alternator B is then used to charge the battery and to power the aircraft systems, including all avionics and instruments, exterior and interior lights, landing gear, water rudder, flaps, pitch trim, bilge pump, cabin heat, master solenoid, two USB outlets and a 12 VDC outlet. The outlets are located in the center console under the armrest and have a maximum current draw of 4.6A combined. Alternator B also powers the relay panel, which is located aft of the baggage compartment on the RH side and controls the logic for several of the systems listed above. Both the battery and alternator B share the same electric bus.

7.13 EXTERIOR LIGHTING

The A5 has navigation and strobe lights on each wing tip. In the nose of the aircraft, there are narrow-beam, high-intensity landing lights as well as a wide-angle, low-intensity light for taxiing. All of the lights are controlled by switches on the center console. The aft wing tip strobe and white navigation lights have two fences installed on the inboard and outboard edges of the light housing.

7.14 SEAT BELTS AND SHOULDER HARNESSES

Both seat positions are equipped with retractable three-point integrated seat belt/shoulder harnesses with inertia reels.

To use the seat belts/shoulder harness, position the adjustable metal link on the harness at about shoulder level, pull the link and harness downward, and insert the link into the lower seat belt buckle. Adjust belt tension across the lap by pulling upward on the shoulder harness. Release the belt by pressing inward on the red release button, which will allow the inertia reels to pull the harness back into the retracted position.

7.15 FUEL SYSTEM

Fuel is contained in a single 20-gallon tank (bladder for MY17 aircraft) located under the baggage floor behind the seats. The fuel quantity indicating system uses an auto-calibrating float-type fuel level sensor that is accurate to within ± one gallon in coordinated, straight and level, unaccelerated flight. A separate fuel level sensing system will activate a red LED warning light on the fuel quantity gauge when less than two gallons of fuel remain.

A fuel filler cap is located on the left side of the fuselage exterior, just aft of the cockpit. There is small tube within the fuel filler neck that allows fuel to be drawn up from the sump at the bottom of the tank for removal of contaminants and inspection.

A fuel shutoff valve is located in the overhead console. The valve is normally left open, but can be closed during certain emergency situations. Two electric fuel pumps, one powered and controlled by each lane (A & B) of the Engine Management System (EMS) provide redundant positive-pressure fuel flow from the tank to the 912iS engine. A fuel quantity gauge calibrated from 0 to 20 gallons is mounted on the lower left portion of the secondary instrument cluster.

NOTE: Do not run the electric boost pumps (i.e. do not turn the ignition key) with the fuel shutoff valve in the closed position or pump damage could result.

Fuel feeds by gravity to the bottom of the fuel tank (bladder for MY17 aircraft) where the sump and fuel pickup for the engine are

located. The fuel tank (bladder for MY17 aircraft) is shaped to minimize the amount of unusable fuel throughout the range of normal aircraft attitudes and accelerations. Fuel delivery to the engine will be interrupted if the fuel moves away from the sump as could happen in negative-g flight or in extreme attitudes. For this reason, extreme attitudes and lateral accelerations must be avoided. In addition, climbs slower than V_Y (58 KIAS) and intentional side slips are prohibited with less than 2 gallons of fuel (low-level light illuminated).

WARNING: Do not climb slower than V_Y or perform intentional side slips with a fuel level of less than two gallons (low-level light illuminated). Doing so could cause the engine to stop, resulting in a dangerous situation.

7.16 CANOPY

The A5 features a large, forward-tilting canopy. The canopy latches at the top-center from either outside or inside. The canopy is supported by a gas spring, which assists with opening the canopy and holds it fully open. A detent is located in the motion of the canopy that serves to hold it slightly open for improved ventilation when needed while not in flight.

7.17 CABIN HEATING AND VENTILATION

7.17.1 REMOVABLE SIDE WINDOWS

The canopy incorporates detachable side windows which can be removed prior to flight using a simple one-handed latch on the frame. The windows must either be both in or both out – no single window operations are permitted. Verify latching during installation by listening to and feeling the spring-loaded latch click into place. Installed windows must be correctly latched before flight.

Once the side windows are removed, install the two wind deflectors provided in the Flyaway Kit. One wind deflector attaches to each A-pillar, just above the lower window jamb ("A-pillar" refers to the frame at the forward side of the window opening with the window removed). To install, first rest the forward edge of the deflector on the windshield, then rotate the clip portion of the deflector around the back of the A-pillar until it snaps into place. The deflector should

be located as low as possible on the A-pillar, with the deflector's lower edge just clear of the painted surface of the lower window jamb. Flight with windows removed is only permitted with both wind deflectors correctly installed.

Extreme care must be observed so that objects do not pass through the side windows in flight. The air flowing across the window opening creates suction within the cockpit that draws air out. This air flow can entrain loose objects from any location in the cockpit and can snatch things from the grasp of the unwary. Secure all loose articles. Wrist lanyards should be used to secure hand held devices such as phones and cameras.

WARNING: An object dropped from an open window in flight can be struck by the propeller and may result in propeller failure, power loss, or other extremely hazardous situations.

7.17.2 FRESH AIR VENTS

The A5 has two fresh air vents – one on each side of the instrument panel. They are hand operated and can be adjusted or closed completely as needed by turning the knurled rim of each vent.

Vent air entering the aircraft is exhausted through several holes in the structure ahead of the rudder up near the horizontal tail. This exhaust location aids in the ventilation of all the internal bays of the fuselage and vertical tail.

7.17.3 CABIN HEATER

The cabin heater utilizes engine coolant as its heat source. The fan and coil are located between the pilot and passenger rudder pedals. The control is located on the center console. When the control is off, the coolant valve is closed and the fan is off. When the control is turned clockwise, the coolant valve opens fully and the fan turns on. Further rotation of the control clockwise increases the fan speed providing additional heat to the cabin.

7.18 WATER RUDDER

A water rudder is provided to aid steering on the water at taxi speeds. It is connected to the air rudder and moves with it through operation of the pilot's rudder pedals. It can be extended or

retracted by a switch on the center console. Extension and retraction are by an electric actuator and require about three seconds in each direction.

Water rudder steering is effective in the retracted position, but the extended position should be used if more control authority is desired, such as when taxiing in a crosswind. The water rudder should be retracted at speeds above idle taxi, if operating in shallow water, or when beaching or ramping the aircraft so as to minimize the chance of damage. The water rudder is spring loaded in the extended position, so if inadvertent contact with an object occurs, it will self-retract with little damage. The water rudder should never be extended in flight.

7.19 ICON PARACHUTE SYSTEM

The ICON Parachute System (IPS), made by Ballistic Recovery Systems, Inc. (BRS), is a deployable aircraft parachute system that can be used to safely recover the A5 in an emergency situation when other means are not feasible. The parachute is housed in a bay on top of the right wing where it joins the fuselage and is attached to the main wing spar and the aft wing spar by a Kevlar® harness. The parachute is deployed by an actuation T-handle located in the cockpit overhead console. The parachute will deploy within 1.7 seconds of actuation and fully inflate within seven seconds. The IPS is coupled to a landing gear interconnect that automatically extends the landing gear to help cushion the touchdown. Descent rate of the aircraft after parachute deployment is approximately 1200 ft/min (20 ft/sec).

Chapter 08

HANDLING AND SERVICING

8.1 INTRODUCTION

This chapter contains ICON recommended practices for ground handling, tie-down, servicing of fluids, and general care of your A5.

8.2 GROUND HANDLING

8.2.1 TRAILERING

While the A5 with its folding wings and removable horizontal tail tips is designed for trailering, it must be transported only on a type-specific ICON A5 trailer. The suspension of ICON's A5 trailers has been designed, prototyped, tested, revised, and retested to ensure that the shock and vibrations from the trailer stay below the design limits for all components of the airplane. Trailering the airplane on a trailer other than the one ICON designed for the A5 will have unknown and possibly severe consequences for the airworthiness of the A5 and therefore is prohibited.

8.2.2 TOWING

The A5 has no provisions for towing with a tow-bar or tug. The aircraft is very easily maneuvered on the ground by hand. The full

castering nose wheel makes maneuvering simple. The recommended method for pushing or pulling the A5 is through use of the handle on the bow (nose). The nose of the aircraft is very sturdy and can be readily used for pushing, pulling, or turning on the ground.

WARNING: This aircraft should not be used for towing, including but not limited to glider towing, banner towing, target towing or towing electrical receivers or emitters.

CAUTION: The handles built into the wing tips are to be used for wing folding only. They must not be used for ground handling purposes or pushing/pulling the entire aircraft.

FIGURE 8-1
APPROPRIATE GROUND HANDLING TECHNIQUE

8.2.3 PARKING AND MOORING

Tie-Down Provisions

The A5 is equipped with six external tie-down points as follows:

1) Left side of fuselage just behind cockpit opening. This point is mainly used for water operation when approaching a dock. An adapter is required for this tie-down point.

2) Right side of fuselage just behind cockpit opening. This point is mainly used for water operation when approaching a dock. An adapter is required for this tie-down point.

3) Underside of right wing toward leading edge at mid-span. An adapter is required for this tie-down point.

4) Underside of left wing toward leading edge at mid-span. An adapter is required for this tie-down point.

5) The bow handle on the nose of the aircraft.

6) The tail skid.

CAUTION: The nose of the aircraft can be very light, especially if the wings are folded. Careful consideration should be given when choosing the front or rear tie-down points.

Land

The A5 is equipped with a parking brake, which is located just in front of the pilot's seat near the floorboard. This brake is intended for use for short-term operations (<10 minutes) while the aircraft is attended. For any long-term, outdoor parking, the aircraft must be secured using the tie-down points and/or wheel chocks as appropriate.

Water

The A5 uses aerospace paint, not marine paint. The paint can withstand 96 hours of continuous direct contact with water. Exceeding the 96 hours or securing aircraft where it may come in contact with rocks or other abrasive objects may result in visible degradation or permanent damage to paint and/or hull structure.

For instructions on beaching, ramping, docking, mooring, and anchoring please reference the ICON Sport Flying Operations Manual.

8.2.4 JACKING

The A5 has three built-in jacking points – two on the undersides of the wings and one at the tail skid. See the A5 Maintenance Manual for further details regarding jacking of the aircraft.

8.2.5 HOISTING

There are currently no provisions built into the aircraft to accommodate hoisting.

8.3 MANUAL WING FOLD SYSTEM

The manual wing fold system allows the wings to be rotated and folded back along the fuselage, reducing the A5 width from approximately 35 feet to 8 feet for trailering and storage.The wing fold mechanism was designed to be simple, allowing one person to complete the task in a few minutes with no tools using the following simple procedures.

WARNING: The handles built into the wing tips are to be used for wing folding only. They must not be used for ground handling purposes or pushing/pulling the entire aircraft.

8.3.1 FOLDING THE WING FOR STORAGE

1) Set the parking brake or chock the wheels of the aircraft.

2) Flaps should be fully retracted prior to wing fold.

3) At the red wing lock handle, press the spring-loaded handle latch inboard, then pull the lock handle down, 90° from its up and locked position.

4) At wing tip, place one hand on the wing fold handle and the other on the tip trailing edge. Using a smooth, fluid motion, step away from the aircraft pulling the wing out of the fuselage until the stop is reached, approximately 21 inches.

NOTE: Pulling the wing away from the fuselage will require lifting the wing tip and slight vertical motion in order to take the weight off wing.

5) As wing moves outward, be careful not to drop the wing as structural damage will occur.

6) Rotate wing leading edge up 90 degrees to the vertical position.

NOTE: Due to camber of upper wing surface, bottom of wing will appear to be vertical while top of wing will appear to be past vertical.

7) Walk the wing aft to the horizontal tail while being careful to keep the wing lower surface aligned vertically in order to prevent contact with the Seawings™ platform.

8) Approaching the horizontal tail, stop with the wing leading edge directly below the tail pin.

9) Slide wing approximately 21 inches forward to the stop, being careful to keep the wing vertical to maintain clearance from the Seawings™ platform.

10) Lift the wing tip to connect socket with tail pin, being certain to align the two together.

NOTE: There will be a recognizable and positive sound and feel when the tail pin is securely seated in the wing leading edge socket.

8.3.2 EXTENDING THE WING FOR FLIGHT

1) Set the parking brake or chock the wheels of the aircraft.

2) Inspect the condition of wing fold joint mechanism and ensure that the pins and sockets are clean.

3) Ensure red wing lock handle is seated in the down (90 degrees) position.

4) Place forward hand on wing tip handle, rear hand underneath the trailing edge of the wing tip.

5) Using lower hand, press the release button and lower wing to carry position.

NOTE: Be prepared to hold the weight of the wing when the Release Pin is pushed. Failure to hold the wing up may result in the wing tip contacting the ground, causing structural damage.

6) Pull the wing aft to the stop approximately 19 inches.

NOTE: Ensure proper vertical alignment so as to avoid impacting the Seawings™ with flap trailing edge.

7) Walk the wing forward with the leading edge facing upwards until it is in the forward position.

8) Rotate wing leading edge forward and downward 90 degrees to the horizontal position.

9) Line up wing with fuselage, ensuring both fore/aft and up/down position is correct.

10) Push wing in to the stop, noting that slight fore/aft & vertical motion may be required to fully seat wing.

CAUTION: The wing pins must be fully engaged in the corresponding fuselage fittings prior to releasing the weight of the wing at the tip. Damage could result if the wing tip is released with the pins not fully engaged.

11) Immediately rotate the red wing lock handle into the locked position.

NOTE: If wing is not fully seated, wing lock handle will not rotate into the locked position.

8.3.3 ADDITIONAL INFORMATION

- With both wings folded, the aircraft is light on the nose (tail heavy). Therefore, the wings should not be folded on an incline or the aircraft may tip onto its tail. Placing ballast on the floor-boards of the passenger compartment can help offset this characteristic.
- Under certain conditions, the second wing being extended can be hard to slide home with that wing's aileron fully trailing edge

down. If experiencing this difficulty, move aileron to neutral by hand before sliding wing home.

- Finding the correct wing alignment during the final step of wing extension can be tricky. It helps to position the hand holding the wing tip handle on the extended center line of the wing spar tunnel prior to rotating the wing to horizontal. Keep this hand in this position in space during the rotation of wing to horizontal and subsequent slide home.
- The wing fold lock handle has three mechanical latch mechanisms – one latch and two ball detents.
- There are two switches on each wing for the wing lock handle position annunciator logic.
- There are two switches on each tail pin – one tip position indicator and one lock handle position.
- A three-pin locking design ensures the wings remain locked in place during operations and automatic aileron and flap connection eliminate the need to manually adjust aileron and flap positions before wing fold and after wing extension.
- Folding and unfolding of the wings must be done with the weight of the aircraft on the wheels. The wings cannot be folded while the aircraft is floating on water.
- Even though the propeller arc clears the folded wing surfaces, ICON does not recommend running the engine or taxiing with wings folded.
- An annunciator panel light in the cockpit will warn the pilot when the wing lock system is unlocked.
- Folding and unfolding the wings in winds above 10 knots is not recommended.

8.4 HORIZONTAL TAIL

The horizontal tail tips are removable for trailering or shipping purposes. The tips have two switches – one to detect that the tip is fully installed and the second to detect that the latch is secured. The removable tip latches are located on the underside of the horizontal tail and are placarded to show operation.

WARNING: The latch for the removable horizontal tail tip must fully cover the red portion of the placard

in order for the tail to be locked. An annunciator panel light in the cockpit will warn the pilot when either of the tips is unlocked or not installed correctly.

To remove the tip:

1) Pull downward on the tip lock latch to remove it from the detent position and rotate the latch approximately 180°.

2) Grasp the tip and slide it away from main horizontal tail until the cylindrical spar clears the structure.

To install the tip:

1) Grasp the tip and slide the cylindrical spar fully into the main horizontal tail taking care that the locating pin near the leading edge aligns properly. Ensure that the tip is fully engaged by pressing it firmly into position.

2) Rotate the latch back into the locked position ensuring that it snaps upward into the detent position.

3) With the master switch on, verify that the 'SECURE WING/TAIL' light on the annunciator panel has extinguished.

8.5 WATER IN WING TIPS

In the event of inadvertent submersion of the wing tip, there is a possibility that water has passed through the wing light seals or through the aileron pushrod opening and collected in the hollow wing tip where it cannot naturally drain out. Water can be detected by unlatching the wing lock, pulling the wing fully outboard, then rotating it leading edge up and down so as to induce an audible sloshing. If water is found or is suspected to be in the wing tip, perform the steps below.

1) Unlock the wing and pull it outward.

2) Rotate the wing about 180° until the top surface of the wing faces down and is horizontal to the ground. Hold the wing tip high.

   Water can then drain out of the tip and into the main part of the wing.

3) Rotate the wing back in the opposite direction from Step 2 (to avoid twisting the light wiring and/or AOA or fuel drain tubing).

4) Re-lock the wing into flying position.

   Water removed from the tip is now free to drain from the holes at the wing root.

8.6 SERVICING OPERATIONAL FLUIDS

8.6.1 FUEL

A fuel filler cap is located on the left side of the fuselage exterior, just aft of the cockpit. Lift the lever on the cap and rotate counter clockwise to open it and the reverse to lock it. It is best to orient the lever facing downward so that gravity will help hold it closed.

The fuel system also has a sump at the lowest point of the fuel system that can collect water or sediment. Fuel sumping to test for water or sediment is accomplished via a sump line that is inside the fuel filler neck and is accessed through the fuel cap. This sumping line is routed to the lowest portion of the sump in the fuel tank (bladder for MY17 aircraft). ICON supplies a fuel sumping tool with the aircraft for this purpose.

Following are the instructions for sumping the fuel tank (bladder for MY17 aircraft).

1) Remove the fuel filler cap and place on pilot's seat.

2) Connect the flexible rubber tube of Fuel Sumping Tool to adapter located inside fuel cap fitting.

   NOTE: The adapter is inside the fuel cap fitting on the left side.

3) Pull back on the plunger handle to obtain a vacuum for removal of the fuel from the fuel tank (bladder for MY17 aircraft). Examine the contents of the Fuel Sumping Tool (syringe) for water or contaminants. If necessary, disconnect the Fuel Sumping Tool from the aircraft and discharge water or contaminants into a suitable container before re-attaching the tool to the adapter on the aircraft.

4) Repeat Step 3 to sump all water and contaminants until none remain inside the fuel tank (bladder for MY17 aircraft).

5) Remove the tube and syringe.

6) Empty the syringe and clean for the next use.

7) Install the fuel filler cap.

NOTE: The latch on the fuel cap should swing downward or aft when properly aligned.

Use the following procedure to fuel the aircraft:

1) Position the aircraft on a level surface with parking brake set or chocks in place.

2) Attach a suitable grounding cable to the bow ring.

3) Open the canopy and turn on the master switch.

4) Remove the fuel filler cap and place on pilot's seat.

5) Insert the fuel filler nozzle completely into the filler neck, being careful not to damage the sumping tube.

6) Dispense fuel to the desired level while watching the fuel gauge. Do not fuel to more than a 20-gallon indication. Stop fueling if fuel is observed rising up the filler neck.

7) Remove the nozzle and install fuel filler cap.

8) Turn off the master switch and remove the grounding cable.

8.6.2 OIL

The A5 has an access door on the engine cowling for servicing the engine oil system. The oil door is accessed by standing on the left hand Seawings™ platform. Underneath the oil tank cap on the oil tank, there is a dipstick for checking the oil level.

If the engine has not been run previously in the day, the oil must first be pumped from the engine sump into the oil tank before the level can be measured. Do this by rotating the propeller by hand. Grasp one propeller blade at a time and slowly rotate the propeller in its normal direction of rotation several times (counter clockwise as viewed from the rear). The speed of rotation is not important. The pressure generated in the engine will pump oil from sump to tank so that the level in the tank can be measured. This process is finished when air instead of oil flows to the tank as evidenced by a gurgling (burp) sound emanating from the tank. Check the oil level with the

dipstick, then replace the dipstick. Replace the cap and latch the oil door when finished.

NOTE: Never rotate the propeller in the reverse direction of normal rotation.

The oil level should be between the “MIN” and “MAX” level lines. If the oil is below the “MIN” level, replenish the oil by adding the recommended oil until the level is within the limits.

The distance between these two lines represents 0.5 quarts (0.47 l).

8.6.3 ENGINE COOLANT

The A5 engine coolant expands and contracts into and out of a coolant overflow bottle located near the aft, right side of the engine compartment. This overflow bottle can be seen by looking between the blades of the engine cooling fan. At all times, the coolant level in this bottle should be between the ‘MIN’ and ‘MAX’ level lines. If the coolant level is below the ‘MIN’ level when the engine is completely cold, replenish the coolant by adding a 50:50 mix of antifreeze and distilled water until the level is within the limits.

8.6.4 BRAKE FLUID

The differential braking system on the A5 uses dual fluid reservoirs mounted to the back side of the passenger rudder pedals. If the fluid level is below the maximum level marked on the reservoir, then add mineral brake fluid to bring the level to maximum. Refer to A5 Maintenance Manual for brake fluid servicing instructions.

CAUTION: It is critical that only Mineral fluid (or equivalent compatible) is used. Do not use DOT4 brake fluid. The correct fluid type is marked on the fluid reservoir. Use of the incorrect fluid type may lead to brake failure.

8.7 APPROVED FUEL GRADES AND SPECIFICATIONS

See “Fuel Limitations” on page 2-7.

8.8 APPROVED OIL GRADES AND SPECIFICATIONS

See “Engine Oil Limitations” on page 2-9.

8.9 CLEANING AND CARE

All exterior surfaces of the aircraft can be cleaned using a clean, moist cloth with mild detergents.

The interior of the aircraft should be vacuumed periodically with careful inspection beneath floorboards to ensure there is no debris that could interfere with control system functionality.

The instrument panel can be cleaned with a clean, moist cloth.

The canopy and windows can be cleaned using a clean, soft cloth and any aviation-approved windshield cleaner.

The propeller can be cleaned with a moist cloth and should be checked regularly for nicks, dents, or other damage.

8.9.1 RINSE AFTER SALT WATER OPERATIONS

The structure and many other parts of the A5 are constructed of corrosion proof composite materials. There are, however, many small fittings made up of nickel-plated steel, anodized aluminum, and stainless steel. These fittings are corrosion resistant but not corrosion proof. Salt water operations and continuous, or frequent, use and storage in hot, humid environments can lead to oxidation and damage of metal parts.

The Corrosion Prevention Schedule and procedures given below are the minimum preventative maintenance needed to minimize corrosion related problems. The levels represent progressively more aggressive operational environments and the associated minimum rinse procedures. More attention to rinsing operations will further improve the long-term results.

In general, the aircraft should be rinsed as soon as practical after every salt water operation. Landing in fresh water should not be considered a substitute for a thorough rinse as described in this section. Any visible salt should be rinsed off as soon as practical.

Corrosion Prevention Schedule

Level 1

Aircraft used in fresh water only and stored mainly in dry, indoor environment

Level 2

Aircraft used mainly in fresh water with occasional salt water use and stored in a periodically humid environment

Level 3

Aircraft used mainly in salty or brackish water and stored near an ocean or in a hot, humid environment

	Level 1	Level 2	Level 3
"Overall Exterior Rinse" on page 8-13	Normal aircraft wash cycle	End of each day of salt water ops	End of each day of salt water ops
"Interior Rinse" on page 8-14	Not Required	End of each month of salt water ops	End of each week of salt water ops
"Salt-Away Rinse" on page 8-14	Not Required	Not Required	Optional for severe conditions
"Corrosion Inhibitor" on page 8-14	1-2 times per year	Each month	End of each week of salt water ops

Overall Exterior Rinse

Rinse entire exterior of the aircraft with fresh water from a garden hose set to low pressure.

CAUTION: Do not use a high pressure sprayer. This could force water into bearings or pry apart joints.

CAUTION: Do not direct water into the pitot tube or static and AOA ports.

1. Start at the top of aircraft and work down. Include areas above the normal waterline and spray line like the horizontal tail, which can be exposed to salt mist.
2. If salt water may have entered the engine inlet, direct water into the engine inlet and through the oil cooler and radiator.

This water will drain out the cowling outlet and through the drain at the low point of the firewall.

3. Rinse all exposed metal parts (nose, main landing gear, control surface hinges, and water rudder) a second time.
4. (Optional) Dry the aircraft. A terry towel, micro cloth, or chamois can be used in addition to air drying.

Interior Rinse

1. Remove floor boards. Remove nozzle attachments from garden hose. Adjust water flow to a low and gentle rate like that of water being poured from a glass.
2. Turn aircraft bilge pump on. Carefully direct flow of water over heater core, rudder pedal assemblies, rudder lateral torque tubes, and other areas with salt deposits.
3. Turn the bilge pump off once bilge empties. Blot excess water with a towel. Leave floor boards out until exposed surfaces are dry.

Salt-Away Rinse

1. Use Salt-Away product per the manufacturer's instructions to rinse aircraft using "Overall Exterior Rinse" on page 8-13.

Corrosion Inhibitor

After aircraft has been rinsed, an application of a water-displacing, corrosion inhibiting oil such as Corrosion Zero, LPS 3®, or CRC Marine Heavy Duty™ can be used. Apply corrosion inhibiting oil liberally to the metal parts of the aircraft. After application, wipe away any excess oil with a rag or paper towel. Use the list below as an application guide.

- Nose gear fork and steering pivot assembly
- Nose gear aft door retraction linkages
- Nose gear self-centering actuator and cam
- Nose gear retraction bellcrank and drag link
- Nose gear leg pivot, forward door pivot, and spring
- Main gear axle and brake caliper

CAUTION: Do not apply oil to the brake disk or pads.

- Water rudder hinge, sector, and retraction cable
- Air rudder lower hinge and drive lugs
- All HT tip joint metal parts
- All wing fold metal parts
- Canopy latch
- Brake line B-Nuts and Master cylinder rod ends

Chapter 09

SUPPLEMENTS

9.1 SYMBOLS, ABBREVIATIONS, AND TERMINOLOGY

General Airspeed Terminology

CAS

Calibrated Airspeed is the indicated airspeed of the aircraft, corrected for position and instrument error. At sea level and standard atmosphere, calibrated airspeed is equal to true airspeed.

KCAS

Knots Calibrated Airspeed is calibrated airspeed expressed in knots.

IAS

Indicated Airspeed is the uncorrected airspeed of an aircraft.

KIAS

Knots Indicated Airspeed is indicated airspeed expressed in knots.

TAS

True Airspeed is the airspeed of an aircraft relative to undisturbed air which is CAS corrected for altitude, temperature, and compressibility.

KTAS

Knots True Airspeed is true airspeed expressed in knots.

V_H

Maximum Speed in Level Flight with maximum continuous power (corrected for sea level standard conditions).

V_O

Operating Maneuvering Speed is the speed above which full application of any single flight control may generate a load greater than the aircraft's structural limitations.

V_S

Stalling Speed or the minimum steady flight speed at which the airplane is controllable with flaps retracted (clean).

V_{S0}

Stalling Speed or the minimum steady flight speed at which the airplane is controllable in the landing configuration at the forward-most center of gravity.

V_X

Best Angle of Climb Speed is the airspeed at which delivers the greatest gain of altitude in the shortest possible horizontal distance.

V_Y

Best Rate of Climb Speed is the airspeed at which delivers the greatest gain in altitude in the shortest possible time.

Meteorological Terminology

OAT

Outside Air Temperature is the free static air temperature, obtained either from in flight temperature indications or ground meteorological sources, adjusted for instrument error and compressibility effects

Standard Temperature

Standard Temperature is 59 °F (15 °C) at sea level pressure altitude and decreases by 3.6 °F (2 °C) for each 1000 feet of altitude.

VMC

Visual Meteorological Conditions are weather conditions within the minimum for flight under visual flight rules – also referred to as VFR conditions.

IMC

Instrument Meteorological Conditions are weather conditions below the minimum for flight under visual flight rules – also referred to as IFR conditions.

Engine Power Terminology

Horsepower (hp)

Horsepower is the power developed by the engine.

MCP

Maximum Continuous Power

RPM

Revolutions Per Minute is the engine speed at the propeller shaft.

Static RPM

Static RPM is engine speed attained during a full-throttle engine run-up when the airplane is on the ground and stationary.

Airplane Performance and Flight Planning Terminology

AFCS

Automatic Flight Control System refers to the Garmin AFCS and is an optional upgrade for the ICON A5 if equipped with the Garmin G3X Touch™ display.

AGL

Above Ground Level is an altitude measured with respect to the underlying ground surface.

IFR

Instrument Flight Rules are a set of regulations established to govern flight under conditions in which flight by outside visual reference is not safe. IFR flight depends upon flying by reference to cockpit instruments and navigation is accomplished by reference to electronic signals. IFR flight in the ICON A5 is prohibited.

MSL

Mean Sea Level is the sea level halfway between the mean levels of high and low water.

SL

Sea Level refers to an average level surface of one or more of Earth's ocean's from which heights such as elevations may be measured.

Usable Fuel

Usable Fuel is the fuel available for flight planning.

Unusable Fuel

Unusable Fuel is the quantity of fuel that cannot be safely used in flight.

VFR

Visual Flight Rules are a set of regulations under which a pilot operates an aircraft in weather conditions generally clear enough to allow a pilot to see where the aircraft is going and remain clear of other airborne or surface traffic.

Weight and Balance Terminology

Center of Gravity (CG)

Center of Gravity is the point about which an airplane or other equipment, would balance if suspended from that point.

Empty Weight

Empty Weight is the weight of the airplane, including all operational equipment that is installed in the airplane: weight of the airframe, powerplant, required equipment, optional and specific equipment, fixed ballast, full engine coolant and oil, hydraulic fluid, and unusable fuel.

Fuselage Station (FS)

Fuselage Station is a location along the airplane fuselage from front to back given in inches and measured from Reference Datum.

Gross Weight

Maximum Takeoff Weight (MTOW)

Maximum Weight

The maximum weight approved for the start of the takeoff run.

Reference Datum

Reference Datum is an imaginary vertical plane from which all horizontal distances are measured for balance purposes.

Useful Load

Useful Load is the difference between gross weight (MTOW) and empty weight.

Other Terminology

IPS

ICON Parachute System is the ballistic, whole-aircraft parachute recovery system for the A5.

HT

Horizontal Tail

LE

Leading Edge

LVL

Level

TE

Trailing Edge

9.2 OPERATION OF OPTIONAL EQUIPMENT OR ACCESSORIES

The sections below summarize helpful information about optional equipment and accessories for the A5.

9.2.1 GARMIN AERA 796

The Garmin aera 796 is an accessory for the A5. The aera 796 presents GPS-derived analog flight instrumentation, position, navigation, and hazard avoidance information to the pilot using a 7" WVGA high brightness display with a capacitive touch screen.

Since it is an accessory, the aera 796 is not included in the empty weight of the aircraft. For reference with weight and balance calculations, the unit weighs 1.7 lb_f and mount at approximately FS 109.7.

For details on operation and use of the aera 796, see the following documents which are supplied with your aircraft:

Garmin Part Number 190-01194-00 – aera models 795/796 Pilot's Guide

Garmin Part Number 190-01194-01 – aera models 795/796 Quick Reference Guide

9.3 FLIGHT TRAINING SUPPLEMENT (FTS)

Due to the unique capabilities of the A5 ICON requires that all A5 pilots complete a factory-approved training course. ICON has developed a complete ground and flight training program for both beginning and existing pilots that includes the following elements.

9.3.1 FLIGHT TRAINING PROGRAM

ICON has developed a flight training program which includes a Flight Training Manual.

Ground Academics Introduction

Learning to fly and the essence of sport flying. The ICON pilot philosophy and aircraft intro.

Basic Aero

Lift, weight, thrust, drag, maneuvering forces and load factor, V-n diagram, weight and balance

Basic Aircraft Control

3 axes, control surfaces and pilot controls, aircraft control fundamentals, engine/propeller, flight instruments, aircraft location and orientation

Flying Environment

The atmosphere, airspace, airport, water and terrain environments

Aircraft Performance

Surface maneuvering, takeoff, climb, cruise, turn, descent glide, landing performances

Aeromedical Factors

Critical self-analysis, spatial disorientation, visual illusions, motion sickness, hypoxia

Flight Operations Introduction

Flight ops overview, checklists and cockpit flows

Airport Ops

Airport taxi ops, takeoffs, climb, landings, uncontrolled airport communication

Cruise and Maneuvering

Straight and level flight, exchange of controls, VFR scan techniques, level accelerations/decelerations, range and endurance cruise flight, turns, descents, slow flight maneuvering, stalls, ground reference maneuvers, instrument flight techniques

Water Ops

Fundamentals, feet wet checks, seamanship, leaving the dock/ramp/beach, surface maneuvering, takeoffs, landings, sailing, beaching, ramping, docking, anchoring, mooring, advanced techniques and remote area ops

9.3.2 SPIN RESISTANT AIRFRAME

The A5 incorporates numerous features to help control the dynamics of stall and improve spin resistance, including blended wing shapes, stall strips, and wing cuffs. Stall characteristics depend on a number of factors, the most important being rate of stall onset, which can affect the dynamics of stall progression along the span. The A5 remains controllable throughout these various stall progressions up to 30° bank angles, even when fully stalled. Lateral stick and rudder remain effective, although response is more sluggish than during normal flight.

9.3.3 ICON PARACHUTE SYSTEM

The ICON Parachute System (IPS), made by Ballistic Recovery Systems, Inc. (BRS), is a deployable aircraft parachute system that can be used to safely recover the A5 in an emergency situation when other means are not feasible. The parachute is housed in a bay on top of the right wing where it joins the fuselage and is attached to the main wing spar and the aft wing spar by a Kevlar® harness. The parachute is deployed by an actuation T-handle located in the cockpit overhead console. The parachute will deploy within 1.7 seconds of actuation and fully inflate within seven seconds. The IPS is coupled to a landing gear interconnect that automatically extends the landing gear to help cushion the touchdown. Descent rate of the aircraft after parachute deployment is approximately 1200 ft/min (20 ft/sec).

9.4 IMPROVEMENTS OR CORRECTIONS

If you have suggestions for improvement or corrections to this POH, please take the time to fill out a copy of the included 'Manual Improvement or Correction Form' and mail or email to ICON Aircraft. You can also contact ICON using the phone numbers or email address shown at the bottom of the form. This form is also available in the owner area of the ICON website.

2141 ICON Way, Vacaville, CA 95688 - Tel: 707.564.4000 – www.iconaircraft.com

MANUAL IMPROVEMENT OR CORRECTION FORM

CONTACT INFORMATION

NAME:	First	Last
COMPANY:		
ADDRESS:	Street Address	
	Street Address 2	
	City	State
	Postal / Zip Code	Country (USA)
PHONE NO.:	Main	Alternate
EMAIL ADDRESS:		

AIRCRAFT INFORMATION

MODEL:		**SERIAL NUMBER:**	
REGISTRATION NUMBER:			
ENGINE TACH TIME:			
TOTAL TIME:			

DESCRIPTION OF IMPROVEMENT OR CORRECTION:

☐ Maintenance Manual ☐ Pilot's Operating Handbook (POH) ☐ Other

SIGNATURE	**DATE**

Please forward this form and any supporting information to ICON Owner Support at:
ICON Aircraft
2141 ICON Way
Vacaville, CA 95688
(855) FLY-ICON (359-4266)
support@iconaircraft.com

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9.5 CONTINUED OPERATIONAL SAFETY REPORTING

Aircraft owners are responsible for reporting Continued Operational Safety concerns to ICON Aircraft. To notify ICON Aircraft of operational or other safety concerns, please call or email. ICON Owner Experience can also be reached via the following channels:

ICON Aircraft, Inc
Attention: Owner Experience
2141 ICON Way
Vacaville, California 95688

1-855-FLY-ICON (359-4266)

Email: support@iconaircraft.com

9.6 OWNER CHANGE OF ADDRESS/OWNERSHIP NOTICE

Aircraft owners are responsible for keeping their address information up-to-date with ICON Aircraft in order to receive proper support. To notify ICON Aircraft of a change of address or aircraft ownership, please fill out a copy of the included 'Change of Address/Ownership Form' and mail or email to ICON Aircraft. You can also contact ICON using the phone numbers or email address shown at the bottom of the form. This form is also available in the owner area of the ICON website.

2141 ICON Way, Vacaville, CA 95688 - Tel: 707.564.4000 – www.iconaircraft.com

CHANGE OF ADDRESS/OWNERSHIP FORM

AIRCRAFT INFORMATION

MODEL: **SERIAL NUMBER:**

REGISTRATION NUMBER:

OLD INFORMATION

NAME: First Last

COMPANY:

ADDRESS: Street Address

Street Address 2

City State

Postal / Zip Code Country

PHONE NO.: Main Alternate

EMAIL ADDRESS:

NEW INFORMATION

NAME: First Last

COMPANY:

ADDRESS: Street Address

Street Address 2

City State

Postal / Zip Code Country

PHONE NO.: Main Alternate

EMAIL ADDRESS:

Please forward this form to ICON Owner Support at:
ICON Aircraft
2141 ICON Way
Vacaville, CA 95688
(855) FLY-ICON (359-4266)
support@iconaircraft.com

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