COMCO IKARUS GmbH
Leichtflugzeuge

PILOT OPERATING HANDBOOK

IKARUS C42CS

OH-U700
42CS-7689

Finnish Transport and Communications Agency

Importer:

TRADEAID Oy Ltd
www.tradeaid.fi
info@tradeaid.fi
0400 299808

HYVÄKSYTTY 19.10.2022
MAUTSÄLÄ

TRAFICOM
AVIATION SECTOR
Sami Jänis

COMCO IKARUS GmbH
Leichtflugzeuge

PILOT OPERATING HANDBOOK

for the aircrafts **IKARUS C42C / CS** according to building standard **LTF-UL-2019** from 15 January 2019

Modell No.	***C42 CS***
German Ident-No. (Issue)	66141.7 (3) / 66141.7 (3)
Type	**IKARUS C42C / CS with reference to the TM-42-023-2020**
Aircraft Serial-No.	***42CS-7689***
Reg.nbr	***OH-U700***

Issue: 3 Rev. 1 Finland

Date of issue: 25.06.2021

This handbook is to be kept in the aircraft at all times.

The described options are certified for Germany and have been tested in Germany.

Please note:
Different regulations apply in different countries for the use of the C42 series for dropping skydivers. Please check with the authorities responsible for your country.

Importer Finland:
TRADEAID Oy Ltd
www.tradeaid.fi

COMCO IKARUS GmbH
Leichtflugzeuge

RECORD OF MANUAL REVISIONS

No.	Issue No.	Description of changes	Date	Sign
1	1	- C42C / CS according to LTF-UL-2019 MTOW: 540 / 560 kg	31.07.2020	H. Lieb
		- - MTV 34-1-A/175-202 „Constant speed" added - Static-Port pre-flight check (11.4 & 11.6)	29.10.2020	H. Lieb
3	2	- ROTAX 912UL/ULS & 914 added - Approved propellers added - Chapter 16: Equipment with towing device added	15.02.2021	H. Lieb
4	3	- Chapter 11.11 Safety clip draintab quick guide	24.03.2021	H.Lieb
5	3.1	- Chapter 15 Rigging data d) Control surface deflections	25.06.2021	H.Lieb
6		- Text addressing other options than for reg. OH-U700 sn. 42CS-7689 are printed in **GREY**	02.10.2022	V. Levelä
7				

COMCO IKARUS GmbH
Leichtflugzeuge

Manufacturer Contact Information

COMCO IKARUS GmbH
Am Flugplatz 11

88367 Hohentengen
Germany

Tel: +49 7572 600 80
Fax: +49 7572 3309
Email: post@comco-ikarus.de

Owner 1. _____

2. _____

3. _____

4. _____

This Pilot Operating Handbook belongs to the aircraft with

Serial-No. **42CS-7689** and is to be kept in the aircraft at all times.

Introduction

C42 series aircraft are built in compliance with the airworthiness requirements of various countries and are certified as Microlight, Ultralight, Advanced Ultralight and Light Sport Aircraft.

To operate the aircraft the pilot must hold a license or certificate appropriate to this category of aircraft. The aircraft is not to be flown unless it is registered, carries registration markings in accordance with the requirements of the country in which the aircraft is to be flown, and has a Permit to Fly or certificate of Airworthiness valid in the country of operation.

The aircraft is to be flown under daytime VFR conditions. Flights in other conditions than daytime VFR without the correct aircraft equipment and pilot ratings is extremely dangerous and can result in serious injury or death.

Pilots holding licences for other categories, even higher ones, are required to be checked out by an appropriately qualified instructor prior to flying this aircraft as it possesses characteristics that are unique to light sport type aircraft. These characteristics include low inertia, susceptibility to turbulence and wind gradient and special engine considerations.

The safety of all occupants, the aircraft and persons on the ground are the sole responsibility of the Pilot in command. Do not operate this aircraft in a manner that would endanger the occupants, the aircraft or persons on the ground.

UL engines are not certified aircraft engines, the flight path must always be selected so that a landing is safely possible in the event of engine failure.

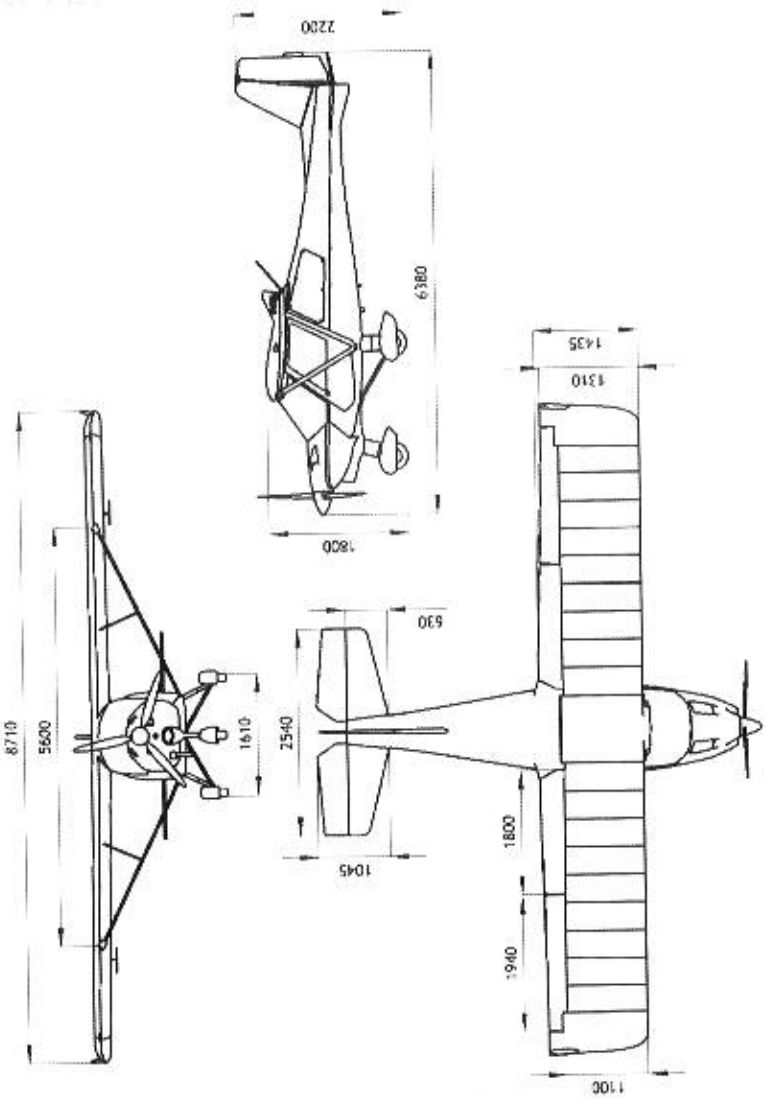
Changes to the control system, structure, wings and engine are prohibited.

These changes would invalidate any certificate of airworthiness or permit to fly and as such would result in an insurance becoming null and void.

All operating difficulties and equipment failures should be reported to your dealer or the manufacturer.

For fire safety reasons, smoking is prohibited on board of the aircraft.

All values given in this manual refer to the MTOW and all speeds given are Indicated Air Speeds (IAS).


2200
6380
1800
1435
1310
630
8710
5600
1610
2540
1045
1800
1940
1100

IKARUS C42CS

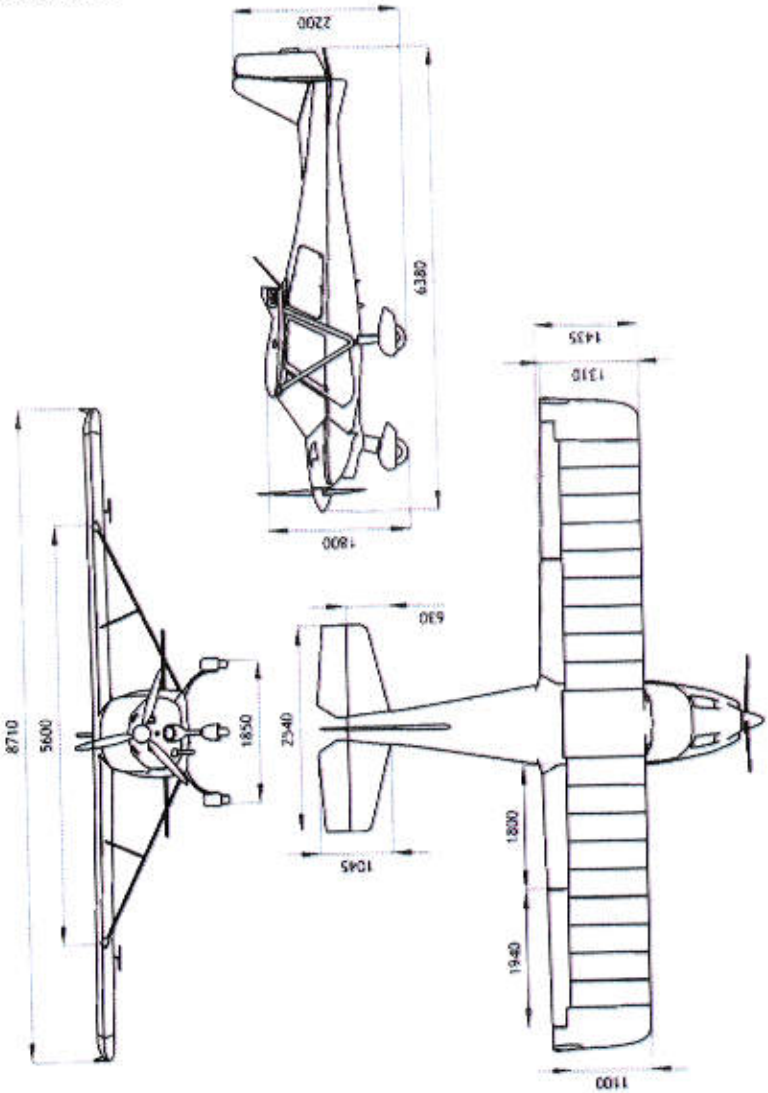


Figure 2: 3-side view C42CS

Table of contents

Table of contents

Table of contents

1 Operating limitations

1.1 Airspeeds

All speeds are Indicated Air Speeds (IAS).

Stall speeds
Flaps 0: ..... V_{S1} = 44 kn / 81 km/h
Flaps 1: ..... V_S = 42 kn / 78 km/h
Flaps 2: ..... V_{S0} = 38 kn / 71 km/h

Speed for best climbing
Flaps 0 ..... V_Y = 65 kn / 120 km/h

Maximum speed with landing flap set
Flaps 1 / 2 ..... V_{FE} = 75 kn / 140 km/h

Maximum manoeuver speed ..... V_A = 92 kn / 170 km/h

Maximum speed in turbulent air ..... V_B = 103 kn / 191 km/h

Never-exceed speed ..... V_{NE} = 125 kn / 232 km/h

! If VA speed is exceeded, only little rudder movement are allowed.

1.2 Weights

Maximum Take-off weight (MTOW):
equiped with
Junkers Magnum Lightspeed Rescue system ..... 1190 lbs / 540 kg
BRS-6-1050 Rescue system ..... 1235 lbs / 560 kg

Empty weight (see. most recent weight & balance plan) ..... lbs / kg
Minimum payload (see. most recent weight & balance plan)
min. ..... 121 lbs / 55 kg

1.3 Structural limitations

Positive limit load factor ..... + 4 g
Negative limit load factor ..... - 2 g

1.4 Center of gravity limits

Reference datum ..... Wing leading edge at a rib station
Forward center of gravity ..... 11.8 inches (300 mm) aft of datum
Rearward center of gravity ..... 22.0 inches (560 mm) aft of datum

1.5 Airspeed markings

White arc ..... 42 - 75 kn / 78 - 140 km/h

Green arc ..... 48 - 103 kn / 89 - 191 km/h

Yellow arc ..... 103 - 125 kn / 191 - 232 km/h

Yellow triangle (V_X) ..... 62 kn / 115 km/h

Yellow line (V_A) ..... 92 kn / 170 km/h

Red line (V_{NE}) ..... 125 kn / 232 km/h

The deviation curve for the airspeed indicator can be interpolated from the following table.

IAS km/h	70	80	90	100	110	120	130	140	150	160	170	180	190	200	210	220	230
EAS km/h	75	83	90	98	106	117	126	135	147	157	167	177	186	195	206	214	223

Table 1: Calibration table oft he airspeed indicator

IAS kn	38	43	49	54	59	65	70	76	81	86	92	97	103	108	113	119	124
EAS kn	41	45	49	53	57	63	68	73	79	85	90	95	100	105	111	116	120

1.6 Engine rpm limitations

Maximum engine rpm ..... n = 5800 1/min, max. for 5 min
Maximum continuous rpm ..... n = 5500 1/min
Idle rpm ..... min. n = 1400 1/min

1.7 Rpm indicator markings

Yellow ..... n = 5500 - 5800 1/min
Red ..... n = 5800 1/min

1.8 Flap settings

Flaps 0: ..... Cruising
Flaps 1: ..... Takeoff / Landing
Flaps 2: ..... Landing

1.9

1.10 Propellers for ROTAX 912 ULS

With propeller Warp Drive 3- Blade,
Diameter: 1.72 m,
Pitch 25.0° at 400 mm from hub,
Rpm at V_Y ..... max. 5150 1/min
with propeller rpm ..... approx. n = 2120 1/min

With propeller Neuform CR3-75 3- Blade,
Diameter: 1.75 m,
Pitch 27.0° at r = 365 mm
Rpm at V_Y ..... max. 4750 1/min
with propeller rpm ..... approx. n = 1955 1/min

With propeller Neuform CR3-V-80-R2-ECS/H 3- Blade
Variable pitch propeller, Diameter: 1.80 m,
Pitch 16° to 30° at r = 750 mm
Rpm at V_Y ..... max. 5395 1/min
with propeller rpm ..... approx. n = 2220 1/min

With propeller Helix H50F-1.75 m-R-S-14-3 3- Blade,
Diameter: 1,75 m,
Pitch 17.0° at r = 656 mm
Rpm at V_Y ..... approx. 4960 1/min
with propeller rpm ..... approx. n = 2040 1/min

With propeller DUC-Flash 3- Blade,
Diameter: 1,75 m,
Pitch 23.5° at r = 660 mm
Rpm at V_Y ..... approx. 5000 1/min
with propeller rpm ..... approx. n = 2060 1/min

1.11

1.12

1.13 Engine limitations ROTAX 912 UL / ULS

According to the ROTAX operating manual

	ROTAX 912 ULS
Takeoff (5 min)	100 hp / 5800 1/min
Continuous	95 hp / 5500 1/min
75 %	69 hp / 5000 1/min
65 %	61 hp / 4800 1/min
55 %	51 hp / 4300 1/min

Type of oil: AERO Shell Sport Plus 4
(or see ROTAX manual)

Oil quantity: min 0.57 imp. gallons (2.60 l)
max 0.67 imp. gallons (3.05 l)

Oil temperature: min 122°F (50°C) min 122°F (50°C)
max 284°F (140°C) max 266°F (130°C)
optimum 194°-230°F (90°-110°C)

Oil pressure: Normal operating pressure 29 - 72 psi (2 - 5 bar)
(cold start 102 psi / 7 bar)

Fuel: Euro-Super ROZ 95 unleaded (DIN EN228 max. 5% Ethanol)
Super Plus ROZ 98 unleaded (DIN EN228 max. 5% Ethanol)
AVGAS 100LL
(or see ROTAX manual)

Fuel pressure: 2.17 - 5.80 psi (0.15 - 0.4 bar)

Cylinder head temp: max 302°F (150°C) max. 275°F (135°C)
optimum 230°F (110°C)

Coolant temperature: max.248°F (120°C) optimal 212°F (100°C)

Magneto-Check: at 4000 1/min
with
max. Rpm drop: max. 300 1//min

1.14

1.15

2 Operating limitations

- Aerobatics and manoeuvres with more than 60° bank are **prohibited**!
- Daylight VFR conditions only.
- No flights in icing conditions.
- Max. crosswind component is 15 kn.
- Always follow the appropriate regulations for this category of aircraft.

3 Dimensions

Dimensions can be found in the overview sheets, which you will find at the beginning of this manual. (page 6 and following).

4 Minimum equipment

- four point seat belt for each seat
- airspeed indicator with correct colour coding
- altimeter with Kollsman window
- compass
- tachometer
- cooling temperature gauge
- oil temperature gauge
- oil pressure gauge
- fuel gauge
- generator charge control
- data plate
- Pilot's Operating Handbook (POH)
- parachute rescue system
- checklist

5 Approved equipment

according to the published data sheets (66141.7)

-
-

Engine: ROTAX 912 ULS
C-gearbox i=2.43

Approved propellers:

- WARP DRIVE 3-Blade-Propeller 68" ground adjustable propeller
- Neuform 3-Blade CR3-75 ground adjustable propeller
- Neuform CR3-V-80-R2-ECS/H 3-Blade variable pitch propeller
- Helix 3-Blade H50F-1,75 m-R-S-14-3 fix pitch propeller
- DUC Flash 3-Blade-Propeller ground adjustable propeller

-
-

-

-
-

For more information on the function and use of the rescue system, see chapter 13.10 "*Using the built-in rescue system*".

Fuel tank capacity:

- 1x 14.3 imp gallons (65 l) tank
- 2x 14.3 imp gallons (65 l) double tank equipment

More approved equipments:

- ceiling suspension
- towing equipment (*see chapter 16*)

6 Data plate & manufacturer`s information plate

Data plate (side cover pilot side in cockpit)

Speeds
Stall speed .....38 kn / 71 km/h

Never exceeded speed .....125 kn / 232 km/h

Max. demonstated crosswind component.....8 kn / 15 kn

Maximum mass (MTOW)..... 1190 lbs / 1235 lbs (540 kg / 560 kg)
Max. payload .....lbs / kg
Payload in cockpit ..... min. 121 lbs / 55 kg
with full fuel tanks ..... max. lbs / kg
Date of weighing .....tt.mm.jj

Manufacturer`s information plate (in the back on fuselage tube)

Manufacturer:	COMCO IKARUS GmbH
Country:	GERMANY
Type:	IKARUS ***C42 CS***
Serial No.:	42CS-7689
Year of manufacture:	***2022***
Callsign:	***OH-U700***
Max. takeoff mass:	1235 lbs / 560 kg

7 Weight and balance

7.1 Weighing

Place the aircraft in a level position on three scales with the stabilizer and elevator leveled (0°).

The centre of gravity is determined in [cm] at the distance to the BE and then converted to % of the wing depth.

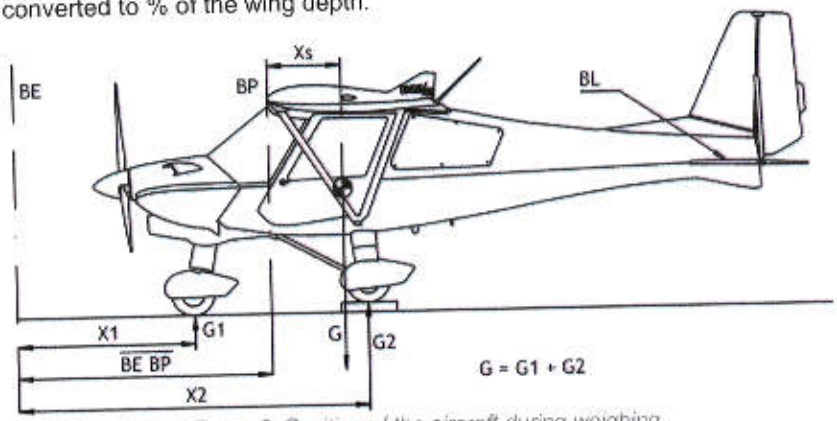


Figure 3: Position of the aircraft during weighing

BP: reference datum (leading edge)

Wing chord MAC = 53.5 inches / 136 cm

$\overline{BE\ BP}$ = 39.37 inches / 100 cm

X1 = 9 inches / 23 cm

X2 =
69.88 inches / 177,5 cm (C42CS)

$$(I)\ X_S\ [cm] = \frac{G1 \times X1 + G2 \times X2}{G1+G2} - \overline{BE\ BP} = \_\_\_\_\_\ cm$$

$$(II)\ X_S\ [\%] = \frac{X_S\ [cm] \times 100}{136\ cm} = \_\_\_\_\_\ \%$$

7.2 Loading plan

Loading plan

position	weight x lever arm = torque		
	kp	cm	cm x kp
empty weight			
1. seats		40	
2. fuel		95	
3. baggage 10		95	
total weight	kp	total torque	cm x kp
center of gravity CG =	$\frac{\text{total torque [cm x kp]}}{\text{total weight [kp]}}$ =		cm
allowed range for CG:	300 - 560 mm behind zero datum (leading edge)		
empty weight CG:	280 - 460 mm behind zero datum (leading edge)		

Date:_____ Pilot:_____

Loading plan

position	weight x lever arm = torque		
	kp	cm	cm x kp
empty weight			
1. seats		40	
2. fuel		95	
3. baggage 10		95	
total weight	kp	total torque	cm x kp
center of gravity CG =	$\frac{\text{total torque [cm x kp]}}{\text{total weight [kp]}}$ =		cm
allowed range for CG:	300 - 560 mm behind zero datum (leading edge)		
empty weight CG:	280 - 460 mm behind zero datum (leading edge)		

Date:_____ Pilot:_____

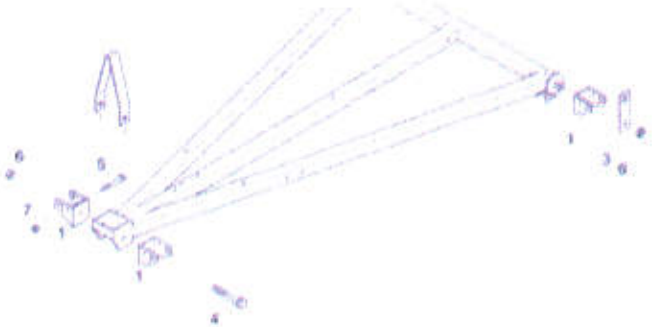
It is the pilot's responsibility to ensure that the maximum take-off mass (MTOW) is observed!

8 Ground handling

8.1 Shunting

Manual moving of the aircraft is accomplished by using the tail struts upper connections as push points. Since there is no tow bar applicable at the nose gear, you have to press down the tail to raise the nose wheel off the ground. With the nose wheel clear of ground, the aircraft can be simply steered by pivoting it on the main wheels.

8.2



8.3 Parking

When parking consider a number of factors:

- as a general precaution, set parking brake
- block the wheels with wheel blocks or brake blocks
- flap to zero position (Position 0)

In severe weather and strong wind conditions, tie down the aircraft if a hangar is not available. (*see chapter 8.4*).

Warning:

! Do not set parking brakes during cold weather (frozen moisture can block brakes) or when brakes are overheated.

8.4 Tie-Down

Parking of ultralight aircraft outdoors:
If possible, let the nose of the aircraft point in the direction of the wind. Apply parking brakes or lock wheels with brake pads. Use ropes or belts (no chains, wire or steel cables) and fasten them to the tie down points (upper end of the front wing struts). Then secure them to the ground anchors.

Additionally, mount a rope or strap between the engine cowling and propeller spinner and secure to another ground anchor.

On IKARUS C42 models equipped with a towing device, the towing hook can be used as a third anchorage point.

The control stick must be secured with the help of the safety belt in a fully retracted position.

Figure 5: Upper attachment point on front lift strut

Figure 6: Attachment point between cowling and propeller spinner

9 Operation of the engine

9.1 General information

The engines ROTAX 912 UL / ULS, ROTAX 914 as well as ROTAX 912 iS are 4-cylinder 4-stroke boxer engines with water cooling.

Turning the propeller by hand may only be done when the magnetic switches are switched off!

Fuel for ROTAX 4-stroke-Flight engines:
For the fuel types to be used, please refer to the ROTAX operating manual for your engine.

Engine start

Main fuel valve (not at 912 iS)	OPEN
Fuel pump	ON
Throttle	IDLE
Choke (not at 912 iS)	ON
Carburettor heat (not at 912 iS)	OFF
Magnetos - both (LANE at 912 iS)	ON
Propeller and area in front of airplane	FREE
Parking brake	SET
After engine starts, choke slowly	OFF

If the engine does not start immediately, operate the starter several times.
(No longer than 10 sec, followed by 2 min cooling of the starter.)

If the engine has been "flooded", close main fuel valve, open the throttle to a half and start the engine. When the engine starts, quickly reduce the throttle to idle.

4-stroke engines require a longer warm-up time. Please refer to the operating manual of your engine for the exact warm-up procedure.

The cylinder heads of ROTAX engines are cooled by liquid, the cylinders by ram air.

On the ROTAX 912 UL / ULS engine types, only the coolant is cooled by a radiator. Here, the coolant and oil circuits are connected to a heat exchanger. As a result, the temperatures of both fluids adapt to each other. The temperatures of the coolant, oil and cylinder head are thus almost identical. In addition, the heat exchange accelerates the heating of the oil during the warm-up phase. Nevertheless, at cold outside temperatures it is necessary (to achieve an optimum engine temperature >194°F / 90°C) to mask off the water cooler (mask off max. ⅓ of the surface with tape or self-adhesive neoprene).

On the ROTAX 912 iS and ROTAX 914 engine types, the coolant and oil are cooled by separate cooling circuits.

Attention:
Observe the maintenance instructions in the ROTAX Operators Manual

9.2 Equipment with radiator flap

The additional equipment of a radiator flap offers the possibility to influence the engine temperatures by manually regulating the radiator supply air. This means that the engine temperatures can be kept in the optimum range (194° - 230°F / 90° - 110°C) at all times, regardless of the outside temperature. This range applies to the ROTAX 912 UL / ULS engines due to the installed oil-water heat exchanger (not on ROTAX 912 iS and ROTAX 914) for both the oil temperature and the cylinder head or coolant temperature.
In addition, after starting the engine, the warm-up phase can be significantly shortened by completely closing the radiator flap, thus protecting the engine and saving fuel.

! **Attention:**
If the radiator flap is completely closed, sufficient cooling air supply to the water cooler is no longer guaranteed over a longer period of time, i.e. the cylinder head or coolant temperature and oil temperature will rise into the impermissible range (red range). To prevent failure to open the flap, an additional warning light (orange) is installed at the factory, which flashes when the cylinder head or coolant temperature reaches approx. 248°F (120°C) and generates a warning tone. In this case, the radiator flap must be opened completely immediately.

Basically, do not wait for this warning light to light up, but observe the temperature and open the flap manually at 194° - 230°F (90 - 110°C) so that the temperatures are in the optimum range.

By reducing the engine power and increasing the airspeed during descent, the cooling down to permissible or optimal temperatures can be supported.

During the pre-flight check, a functional check of the radiator flap must be carried out.

Careful observation of the cylinder head and oil temperature is necessary for sensible and safe use of the radiator flap.

9.3 Notes for using the LiFe-starter battery

The LiFe starter battery used in the Ikarus C42 is an accumulator which, due to its high energy density, enables an effective empty mass saving of over 8,6 lbs / 3.5 kg. This battery is also characterised by the following properties:

- maintenance-free
- small dimensions
- high voltage level
- fast-charging
- high pulce current capability
- extremely low self-discharge

In particular, however, this battery only develops the ability to deliver high starting currents during the starting process at a certain minimum temperature.

In cold outside temperatures, this can lead to the fallacy - "the starter battery is empty".

Therefore, we recommend warming up the battery before the actual starting process by spinning it with the starter motor (2-3 times for 2-3 seconds) without the magnets switched on.

As soon as the engine is spinning at a sufficient speed, the actual starting process can take place as usual (switching on the fuel pump, magnetos and choke).

When an optionally selectable LiFe starter battery is installed at the factory, the C42 has an automatic overvoltage protection (OVP) built in, which prevents too high damaging charging voltage. An automatic interruption of the charging current is indicated by the charging indicator lamp. The charging circuit can be closed again by pressing the reset button next to the charging indicator lamp or automatically after the battery voltage has dropped to approx. 12 V. If the indicator lamp lights up repeatedly, there is a fault in the controller and the next airfield must be approached.

From serial no. 1809-7555 onwards, a charge controller with integrated automatic overvoltage protection (OVP) is installed. This design eliminates the previously mentioned reset button, which had to be pressed by the pilot if the OVP was triggered (at approx. 15.2 V). The charging circuit is automatically closed again when the battery voltage drops to approx. 12.5 V.

10 Flight performances

10.1 Takeoff distance

The values given apply to the respective MTOM, calm wind and dry, level terrain with short greensward.

	ROTAX 912 ULS
Sea level, + 59°F / 15°C, calm wind Takeoff distance	approx. 377 ft (115 m)
Take-off distance over 50 ft approx. (15 m) obstacle	approx. 820 ft (250 m)

10.2 Abhebegeschwindigkeiten

Take-off speed ..... ca. 55 kn (101 km/h)

Higher elevations and higher temperatures lengthen the take-off distances.

Reference values may vary slightly from propeller to propeller.

10.3 Rate of climb

	ROTAX 912 ULS
Sea level, + 59°F / 15°C, calm wind	
Engine rpm	4750 1/min
Rate of climb	710 ft/min 3,6 m/s
Speed for best rate of climb	65 kn (120 km/h)

Reference values may vary slightly from propeller to propeller.

10.4 Cruising speed

At engine speed n = 4800 1/min (65%)

	ROTAX 912 ULS
C42CS	92 kn (170 km/h)

Speed for maximum range:

C42CS.....84 kn (155 km/h)

Maximum range with 14.3 imp. fuel gallons (65 l) tank capacity when windless:

C42CS..... approx. 380 nm (700 km)

Values for cruise speeds with a constellation of ROTAX 914 and DUC Windspoon were not listed, because this does not make sense for a cruise aircraft.

10.5 Engine off performance

MTOW ..... 1235 lbs (560 kg) /
..... (depending on rescue system)

Minimum sink rate ..... 492 ft/min (2,5 m/s)
at 62 kn (115 km/h), flap position I ..... (take-off/landing)

Best glide angle ..... 1 to 11
at 67 kn (125 km/h), flap position 0 ..... (cruise)

11 Pre-flight inspection

Before each flight the pilot must carry out a visual inspection of the aircraft!

11.1 Engine

- Check propeller and spinner for damage and security
- Check cowling near the propeller for abrasion (sign of defective engine suspension or improper cowling attachment)
- Check for leakage under the engine cowling
- Check cooling liquids and lubricants
- Check secure attachment of the engine cowling
- Check that coolers are clean (oil cooler, water cooler)
- Check air vents for blockage
- Check NACA-intake for blockages
- Check function of radiator flap (if installed)

11.2 Landing gear

- Check secure attachment of all components (hub caps, brake cylinders, brake discs)
- Check for a visible deformation
- Check air pressure in the gas-filled shock absorber (aircraft) level, pull aircraft down and release, gas-filled shock absorber must fully rebound)
- Check pressure and condition of tires

11.3 Left wing

- Wing spar connections secured?
- Wing struts properly attached and secured?
- Auxiliary struts secured with quick-release fasteners?
- Pitot tube secured and free from dirt and water?
- Check aileron shift levers and push rods by opening the zippers on the wing bottom
- Check condition of fabric covering (rips, etc.)
- Check profiled struts for secure attachment
- Check wing tips and wing tube for deformation
- Check attachment of ailerons and flaps.
- Check the spring-loaded locks at the sliding sleeves for proper power transmission (they have to be locked properly at the front and rear end of the tubes)
- Check aileron rudder-Spades of the C42C and C42CS model for secure attachment and deformation.

11.4 Left side of fuselage

- Check condition of fibre glass fairing (cracks, holes, etc.)
- Check secure attachment of fibre glass fairing (check for missing bolts at the upper/lower connection)
- Check static ports for contamination and hose connection
- Baggage hatch:
    - Höhenruderumlenkhebel durch Kontrollöffnung
    - Check elevator shift lever through the baggage hatch in the fuselage wall
    - Check that rescue system and rocket are firmly tightened
    - Visual inspection of aileron ropes and torsion tube connections

11.5 Empennage

- Check attachment of the horizontal stabilizer
- Check control surface hinges
- Check elevator inter-connection
- Check connections of the elevator push rod
- Check the elevator struts for a secured attachment and possible deformation
- Check rudder cables for being connected and secured
- Rudder connections
- Trim flap secured
- Check attachment and connection of the Flettner rudder
- Check fabric covering (rips, chafing)

11.6 Right side of fuselage

- Check condition of glass-fiber fairing (cracks, holes, etc.)
- Check secure attachment of glass-fiber fairing (missing bolts, etc.)
- Check static ports for contamination and hose connection
- Tank cap tightly closed

11.7 Right wing

- cf. left wing except Pitot tube

11.8 Cabin, inside and outside

- Check condition of windscreen, doors including locking mechanism (cracks)
- Check free movement of the steering (control stick, pedals, flap lever with a lock)
- Check the brake lever incl. stand lock (parking brake)
- Check aileron lever for being connected and secured
- Visually check aileron cables and pulleys
- Check/Open fuel valve

11.9 Instruments

- Power supply (switch on ignition)
- Altimeter setting
- Kraftstoffvorrat
- Amount of fuel
- Functioning of the radio and intercom system

11.10 Drainage

- Drainage of the fuel tank closed
  (the drainage tap is located under the copilot's seat)
- Drainage tap secured with red safety clip

11.11 Safety clip draintap

Auxiliary instructions for (dis)mounting the safety clip on the drainage tap under the right seat

Removing the safety clip:

To do this, pull the safety clip off the drainage tap using your thumb and index finger, as shown in the graphic below.
(Alternatively, the safety clip can also be removed from the drainage tap with the index finger only)

Attaching the safety clip:

When putting on the safety clip, make sure that the tab is placed over the lever of the drainage tap and that the safety clip snaps into place on the curve of the drainage tap.

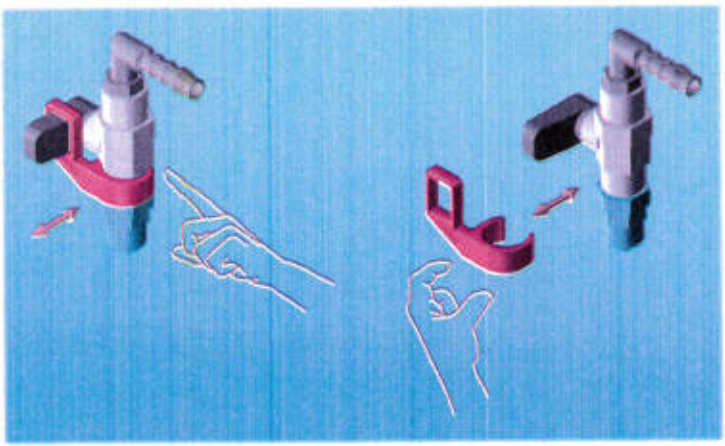


Figure 7: (dis)mounting the safety clip on the drainage tap

12 "Before take-off" checklist

1. Are the seat belts fastened
2. Control system free and correct
3. Parachute system unlocked
4. Electric instruments ..... O N
5. Check fuel level
6. Alimeter set
7. Engine fuel shut off valve (not for 912 iS) ..... O P E N
8. All electric fuel pumps ..... O N
9. Choke (not for 912 iS) ..... O F F
10. Carburettor preheating ..... O F F
    (not for 912 iS)
11. Flaps ..... flap position 1 (take-off/landing)
12. Check magnetos (LANE-Check for 912 iS) 4000 1/min
13. Wind direction
14. Runway & approach ..... C L E A R

13 Flight Operations

All speed values (IAS) below refer to the MTOW.

13.1 Taxiing

The nose wheel steering is conventional. Push the right pedal to turn right. Push the left pedal to turn left.
Taxiing is simple. The turning radius of the C42 is small.
The plane handles cross wind during taxing very well.

When taxiing with a strong tail wind, hold the control stick firmly in the neutral or nose-down position.

When taxiing on bumpy grass strips, exercise caution to avoid striking the propeller.

13.2 Take-off and climb

After completing pre-flight inspection (Chapter 11) and "Before take-off" checklist (Chapter 12) !

Whenever possible, take-off into the wind.

The maximum demonstrated crosswind component for take-off and landing is 15 kn. No special procedures are required.
The starting direction must be ensured by a "drift angle" against the wind.

Make certain the runway and approach are free before you taxi to the take-off position.

Set trim to neutral. (with an electrical trim the third lamp from above*)
* trim more nose-down for rearward center of gravity

Wing flaps in take-off position (flap position 1).
Gently bring the throttle to full forward position, check tachometer.
Check the function of the airspeed indicator.

Pull the stick slightly back during the initial roll.
The nose wheel will lift off at approx. 27 kn (50 km/h).
Further accelerate with the nose wheel up 2-4 inches (5-10 cm) off the ground.

Engines with 100 hp and more have a greater engine torque which must be countered by a slight right rudder input.

The aircraft will take-off at 55 kn (101 km/h). Push the stick slightly forward and increase airspeed to 65 kn (120 km/h) in shallow climb.

During the initial take-off phase, it is essential that the aircraft accelerate sufficiently in order to prevent stalling, should a sudden loss of power be experienced.

Continue to climb at 65 kn (120 km/h).

Retract flaps at a height of approx. 328 ft (100 m). This will cause a slight nose-heavy moment.

After reaching the safe altitude the electrical fuel pump can be switched off.

! For 912 iS only switch off **one** pump.

Trim the aircraft to 65 kn (120 km/h) and continue climbing. Slight right rudder is necessary to compensate both engine and propeller torque during climbing.
By a loss of engine power at altitudes below 328 ft (100 m) do not attempt course corrections of more than 90°.
Quickly trim the aircraft to a gliding speed of 65-68 kn (120-125 km/h) (push stick forward).
Avoid obstructions.
Using the flaps touch down at a low speed. The approach phase can be shortened by slipping. Before undertaking an emergency landing in rough terrain, turn off the fuel valve and the ignition.

13.3 Cruising flight

When transitioning to cruise flight, strive for an economical cruise speed. The required engine performance depends upon aircraft load.

Max continuous engine speed is 5500 1/min.

In order to fly the aircraft comfortably, it should be trimmed to the desired airspeed with the throttle set for the appropriate rpm for horizontal flight.

Typical cruising flight (approximate values):

	ROTAX 912 ULS
Engine speed	4800 1/min
Airspeed	92-97 kn 170-180 km/h
Fuel flow (approx.)	3.30-3.74 gph 15-17 l/h

In a turbulent weather, the maximum speed V_B (see operating limitations) must be observed.

The maximum permissible speed V_{NE} (see operating limitations) must not be exceeded.

At the first indication of carburettor icing (rpm drop, stuttering engine running, increase in fuel consumption) apply carburettor heat (not for 912 iS) and, if possible, fly the aircraft into non-icing conditions.

13.4 Turning flight

Turns are coordinated using the ailerons and rudders.
With the increase of airspeed, significantly less amount of rudder deflection is needed.
Banks of 45 degrees or more are not recommended, a banking angle of more than 60 degrees is prohibited. In steep banks keep the nose and airspeed under control by means of the rudders and elevator.

13.5 Stalls

In cruise flight configuration V_{S1} (see operating limitations) the engine cowling will be well above the horizon. Shortly before reaching V_{S1}, there will be a slight buffeting of the airframe. However, the aircraft is controllable even in the stalled flight condition. Directional corrections are to be made mainly with the rudder.

Example:
right wing low → rudder deflection to the left.

If the aircraft is stalled slowly with the elevator in detent, the aircraft will enter a stable stall at full elevator deflection. The loss of altitude when stalling from straight flight until horizontal flight is restored is up to:

Flap position 0 (cruising flight) ..... ca. 80 ft
Flap position 1 (take-off/landing)..... ca. 80 ft
Flap position 2 (landing)..... ca. 120 ft

During a whip stall, the aircraft clearly pitches down (up to 40°). By slightly releasing the elevator, airspeed will increase and the aircraft will return to horizontal flight. The altitude loss can be up to 250 ft.
The aircraft reacts similarly in all flap positions.

Stall speeds for the various flap position are described in *chapter 1.1 "Airspeeds"*.

The stall speeds above will be affected by variations in take-off weights.

13.6 Descent and landing

If possible, the landing layout should be large-scale to allow time to set the corect landing configuration.

! The additional electric fuel pump (or 2nd pump on the 912 iS) **must be switched on.**

To be able to make a steep approach on short landing strips, use flap position 2 (landing). In addition, the glide path can be effectively shortened by sideslip.

Reduce airspeed to well below
V_{FE} ..... 76 kn (140 km/h)
before applying flap position 2. Approx. 59 – 65 kn (110 - 120 km/h) are favorable.

On final approach with flap stage 2, maintain a speed of approx.
V_X ..... 62 kn (115 km/h)
at engine idle.

The glide angle in flap position 1 (take-off/landing) is significantly more shallow and thus the flare distance is longer. The approach speed should be about 62 kn (115 km/h).

At the height of approximately 10 ft (3 m) begin rounding out to the landing flair. Begin final flair at the height of about 2 ft (0.5 m).

Landing speed is approx. 41-46 kn (75-85 km/h) depending on MTOW and flap position.

13.7 Shutting down the engine

Under normal conditions, the engine will have cooled down sufficiently during descent and taxiing so that it can be shut down by turning off the ignition. Shut off all electrical accessories (radio, transponder etc.) **before** shutting down the engine.

13.8 Sudden loss of engine power

I. Loss of engine power during take off

Depending upon speed and altitude, lower nose and trim to gliding speed (approx. 65 - 68 kn / 120 - 125 km/h) and flair the aircraft normally.

Do not attempt to return to airfield if altitude is below **800 ft** after gliding speed has been reached. At lower altitudes it is best to land straight ahead without attempting any course corrections.

Before attempting an emergency landing in rough terrain, turn off the fuel valve and switch off the ignition. When landing in a high vegetation (grain or similar) reduce speed directly above the vegetation by extending the flaps to position 2 (landing), pull stick fully aft and allow the aircraft to sink into the vegetation.

II. Loss of engine power during crusing flight

Cross-country flights should be planned to ensure that a suitable landing field could be reached in the case of a loss of the engine power.

Once gliding speed has been established (flap position 0 = cruising flight, speed at 65- 68 kn / 120 - 125 km/h), look for a suitable landing field and make your plan taking into consideration the wind conditions. The best glide ratio is approx. 1:11 at 530 ft/min (2.7 m/s).

A lower rate of descent can be achieved with flap position 1 (take-off/landing), at approx. 59 - 62 kn (110 - 115 km/h), however it does not result in a better glide path.

With sufficient altitude you may attempt to restart the engine, check:

1. Fuel valve (not for 912 iS) ..... OPEN
2. Magneto switches (LANE for 912 iS) ..... ON
3. Fuel ..... SUFFICIENT
4. Fuel pump (Additional pump 912 iS) ..... ON

III. Starting the engine in flight

Starting during flight with the engine intact is done as follows:

- Both magneto switches (LANE bei 912 iS) ..... O N
- Elektrical fuel pump (Zusatzpumpe 912 iS) ..... O N
- Throttle ..... 1/4 O P E N
- Carburettor heat (nicht bei 912 iS) ..... O F F
- Fire up using engine starter

Maintaining airspeed to windmill the prop can help.

13.9 Emergency procedures

I. Tipping due to lower speeds

- Reduce back pressur on the stick and lower the nose
- Recover

II. Sideslip

- Set rudder in the opposite direction to a slideslip
- Reduce back pressur on stick

III. Spin

- Throttle to idle
- Rudder neutral until rotation stops
- Reduce back pressure on stick
- Slowly pull aircraft up

IV. Spiral dive

- Neutral rudder, pull slightly until horizontal position is achieved
- Slowly pull aircraft up

V. Loss of elevator control

- With the elevator trim flap, the aircraft can be trimmed to speeds between 49 and 103 kn (90 and 190 km/h).
- In calm weather conditions it can also be used to try to land the aircraft.

VI. Loss of aileron control

- Use the rudder to control the aircraft via yaw-induced rolling moments.

VII. Loss of rudder control

- Controlling gentle turns is possible with the ailerons only.
- If possible, perform a field landing in a straight flight.

VIII. Fire in engine compartment

- Main fuel valve (not for 912 iS) ..... OFF
- All electrical fuel pumps ..... OFF
- Full throttle
- Sideslip (flames away from the aircraft)
- Follow emergency landing procedures

If the emergency procedures do not have any effect, the flight altitude is not sufficient for emergency procedures or there are doubts about the safe landing of the aircraft, activate the rescue system IMMEDIATELY!!! (see chapter 13.10)

13.10 Use of the built-in parachute rescue system

Each C42 is equipped with a life-saving parachute system installed in the tail, permanently attached to the aircraft. The exit opening of the rescue system is marked with a warning sticker.

The following components are part of the parachute rescue system:

- Activation unit (red handle in the cockpit on the roof frame)
- Three main load-bearing lines (A-strut and chassis crossmember)
- Propulsion rocket (for pulling out the rescue parachute)
- Softpack incl. rescue parachute (C-struts in the stern)

Potential situations for triggering the rescue system:

- Collisions with birds or other aircraft
- Engine failure over water or rough terrain
- Structural failure (e.g. wing loss)
- Aircraft not able to land safely due to loss of control
- Health problems of the pilot (e.g. heart attack etc.)
- a.o.

Operating the activation unit

Remove the safety pin from the activation handle before starting!

...to save time during an emergency...

1. switch off motor (magneto switch both OFF)
2. if possible, reduce the speed of the aircraft
3. Pull firmly on the red handle (Fig. 7)
4. After the release, the seat belts should be tightened again and the landing position (Fig. 8) should be assumed
5. send emergency call via radio (121.500 MHz or active frequency)

After landing, set the safety pin to the deployment handle!

...to prevent unintentional triggering...

Figure 8: Release handle with safety pin

Figure 9: Landing position (source: BRS)

Notes on the service life of the rescue system

For information on care, maintenance, servicing or periods of use of components of the rescue system, please refer to the information provided by the rescue system manufacturer.

In particular, it is essential to ensure that the parachute is protected from moisture. If it has become wet, it must be aired and repacked.

In the case of rescue equipment with an extraction rocket, there is a time limit on its use.

14 Attaching the wings

14.1 Attaching the wings to the fuselage

The wings are attached to the fuselage as follows:

Step 1 Bring the wing main strut into a correct position to the wing by means of attaching the auxiliary struts in the receptacles on the front and rear wing spar.

Step 2 Grip the main strut and raise the wing tip. Keeping the wing in a vertical position, carry the wing forward at 90° to the fuselage.

Step 3 Turn the wing into a horizontal position, keeping the wing tip slightly higher than the wing root.

Step 4 Slowly push the wing against fuselage and wing spar brackets.

Step 5 Before pushing against the spar brackets, look for the slideway at the rear spar intake so that to lead the rear wing spar in the locking position. When the retaining bolt is touched, rotate the right wing slightly clockwise (the left wing must be rotated counter-clockwise).

By moving slightly upwards, the rear wing spar will lock into the retaining bolt and the front wing spar will take position under the retaining bolt of the front wing tube holder.

Push the front wing spar against the bracket while slightly lowering the wing tip. The front wing spar will lock into the retaining bolt. At the same time, launch the lower end of the wing support in the square cross-frame.

Carefully check that both wing spars have properly locked into place.

! **Step 6 Attention! - Now immediately**

1. Insert mounting bolts into the front wing spar bracket
2. Insert mounting bolts into the rear wing spar bracket
3. Insert toggle bolt into the square cross-frame spar to secure the wing support
4. All three bolts must be secured with **the ring pins!**
5. **Lift the wing and check that the wing support is fixed by the toggle bolt really reliable!**

Repeat Step 1 to 6 for the other wing.

Remove any aileron locks used.

Step 7 Attach right and left aileron push rods to the see-saw connection. Carefully assure that the slide mechanism of the special ball-joint connectors is in completely closed position and there is no vertical play.

Step 8 Left and right flaps connection must be locked. Ensure both locking bolts are snapped in.

Step 9 Fasten wing center section fairing

Step 10 With Posi / Strobes installed, re-establish electrical connection from fuselage to wing.

15 Rigging data

Wingspan ..... 28.6 ft (8710 mm)
Wing area ..... 128.1 sq ft (11,9 m^2)

Wing chord at root ..... 4.7 ft (1435 mm)

Wing dihedral ..... 1°

a) Incidence angle of the wing relative to the fuselage main tube: ..... 8,5°

Note The incidence angle is measured from the lower edge of the rear wing tube to the lower edge of the front wing tube at the root rib.

b) Incidence angle of the horizontal stabilizer relative to the fuselage main tube: ..... 7°

Note The stabiliser incidence angle is measured from the lower edge of the front tube to the lower edge of the rear tube of the horizontal stabiliser.

c) Incidence angle difference
of the wing to the horizontal stabiliser measured at the root rib: ..... **1,5°**

d) Control surface deflections

Note: The angle of the aileron bottom relative to the wing chord is -5° (tangent front to rear spar).
It is defined by the length of the aileron push rods.

Figure 10: Angle aileron bottom side to wing chord

Aileron		Distance from axis of rotation
Neutral	-7° ± 1°	-1.38" ± 0.39" (-35 mm ± 10 mm)
Up	20° ± 2°	3.34" ± 0.39" (85 mm ± 10 mm)
Down	14° ± 2°	2.36" ± 0.39" (60 mm ± 10 mm)

Measuring point distance from the steering axis:.....9.84" (250 mm)

Spade settings on the aileron

Spade angle in relation to the aileron bottom..... -3.2° ± 1°

Figure 11: Spade angle in relation to aileron measured at spades position

Measurement with water level at base aileron torque tube and trailing edge

Rudder

Left	32° ± 2°	8.46" ± 0.59" (215 mm ± 15 mm)
Right	32° ± 2°	8.46" ± 0.59" (215 mm ± 15 mm)

Measuring point distance from the steering axis:.....16.14" (410 mm)

Elevator

Up	28° ± 2°	7.68" ± 0.59" (195 mm ± 15 mm)
Down	20° ± 2°	5.51" ± 0.59" (140 mm ± 15 mm)

Measuring point distance from the steering axis:.....16.14" (410 mm)

Flettner (Servo) trim-tab

When the elevator set to neutral:
Flettner tab 0° ± 2° ..... 3.07" ± 0.12" (78 mm ± 3 mm)

e) Flaps

Note:
Flap angle is measured from the flap bottom to the bottom of the wing at the root area (tangent front to rear spar)

Position 0	-5° ± 1°	1.06" ± 0.39" (27 mm, ± 5 mm)
Position 1	+11° ± 1°	2.36" ± 0.39" (60 mm, ± 5 mm)
Position 2	+32° ± 1°	6.5" ± 0.39" (165 mm, ± 5 mm)

Measuring point distance from the steering axis:.....12.2" (310 mm)

f) Trim-tab

Lever nose-down:
trim flap in relation to the elevator rudder area ..... -5°

With mechanically actuated trim flaps do not exceed -5° upwards

-5° for mechanical trim

Figure 12: Angle between trim tab and elevator

g) Landing gear

Main landing gear	2.0 - 2.5 bar	29 - 36 PSI
Nose landing gear	1.6 - 2.0 bar	23 - 29 PSI
Shock absorbers	28.0 - 34.0 bar	400 - 490 PSI

Amount of oil ..... 0.43 pts (200 ml)

Hydraulic oil ..... HVP 10

h) Brakes

In the Ikarus C42 series different brake systems are used.
e.g.-Sachs, Magura, Tost and Beringer brakes.
For service information, please see our maintenance manual or ask one of our ISC or ITB.

i) Engine

For service information, please see our maintenance manual, or maintenance manual by ROTAX or ask one of our ISC and ITB.

16 Features of the aircraft equipped for handicapped pilots

1 *All values given refer to the MTOW of the aircraft.*

I. Equipment

If the following additional equipment is installed in the aircraft, it can be operated without using the feet to control the nose wheel and the rudder:

- modified throttle shaft including throttle lever extension
- rudder control lever with push rod
- placard on the rudder control lever

Installation must be undertaken in accordance with the instructions of the manufacturer. The unauthorised alteration of the equipment for handicapped pilots is not permitted.

II. Montage / Demontage

The rudder control lever is installed by attaching to the mounted axle in the main tube and bolting with a hexagonal bolt M8x40.
The push rod which is attached to the rudder control lever is connected to the right pedal of the left seat by a quick-release fastener. The sliding sleeve of the quick-release fastener is then checked for a proper fit in the locked position.
Throttle lever length is then set so that the knob of the throttle lever is approximately 0,39-1,18" (10-30 mm) under the rudder control lever and can pass freely under it.

The additional control equipment is dismantled in reversed order.

III. Operation

The nose wheel and the rudder are controlled with the left hand on the rudder control lever. By pulling out the rudder control lever, the aircraft turns to the left, by pushing it in, the aircraft turns to the right.
The right hand remains constantly on the control stick and operates the elevator, aileron and brakes. The left hand operates the rudder control lever and the throttle lever, which is located directly below the rudder control lever.

Take-off:

1. Align the aircraft on the runway, left hand (LH) on the rudder control lever
2. Apply throttle expeditiously with LH
3. Put LH immediately back to the rudder control lever and steer aircraft during take-off run
4. After take-off in approximately 16 to 33 ft (5 to 10 m) above the runway, use LH to check that the throttle lever is still in the full throttle position.
5. Excepting in case of power changes, LH remains constantly on the rudder control lever.

The various flight conditions, e.g. horizontal flight, turn, slow flight, side-slip, are not affected.

Landing:

The landing approach is by default. In the case of crosswind, the wing-down method should be used.

Attention should be paid to the following when flaring out:

1. Air speed is approx. 62 kn (115 km/h) until flare out is in approx. 13 to 16 ft (4 to 5 m) above the runway, LH - on the rudder control lever
2. Throttle to idle using LH
3. LH should be immediately back to the rudder control lever and steer aircraft during landing roll.

When carrying out touch-and-go, follow the procedures for take-off.

17 Additional instructions for dropping skydivers

Please note that for using the C42 Series for dropping sky divers, different regulations may apply in different countries. Please contact your local authorities for further clarification.

I. Personnel requirements

Under the following conditions, the IKARUS C42 Series may be flown with the dismantled doors:

- The pilot must have a valid licence and flight experience of at least 100 hours as well as the aeronautical radio telecom licence.
- The skydiver must have a valid licence and have carried out at least 100 jumps with manual release and at least 12 jumps in the last 12 months.

II. Technical requirements

The C42 Series micro-light aircraft may be used for dropping skydivers if the following technical requirements are fulfilled:

- The doors, or at least the right door, must be removed before take-off. (It is not permitted to open the door during flight.) The additional instructions for flying the C42 Series with the removed doors must be followed!
- During the flight the skydiver must be secured at least with the seat belt.
- The pilot and the skydiver must be able to communicate with each other at all times.

III. Measures prior to the take-off

The pilot and skydiver must agree on the following points before take-off:

- drop zone
- drop altitude
- drop airspeed
- agreed signals
- function and activation of the aircraft's recovery system

Prior to take-off, the course of action for jumping out of the aircraft must be demonstrated and practised on the ground:

- opening the seat belt
- the skydiver turning outward about 90° and possibly holding on to the upper tube of the door frame
- changing the grip to the lower cockpit frame and the wing strut
- leaving the aircraft to the side and in front of the wing strut
- ensuring that there is sufficient distance between the skydiver and the propeller

IV. Drop procedures

After completing the climb to the agreed drop altitude, level off the aircraft and continue horizontal flight at the airspeed of 54 to 65 kn (100 to 120 km/h). For that set the flaps to position 1 (take-off).
Then, the skydiver opens his seat belt, takes up his jump position and signals to the pilot that he is ready to jump.
During the drop, the pilot must pay attention to any balance changes (slight climb tendency). Once the drop has been completed, the pilot should check that no objects have been caught up in the aircraft (on the wing strut, empennage) which could adversely affect the control surfaces.

The seat belt on the co-pilot seat must be secured.

During descent, airspeed limitations must be observed
(**max. 81kn / 150km/h** due to removed door).
A subsequent analysis of the drop, after it has been completed, is practical and useful for the future.

18 Flying the aircraft with removed doors

Under the following conditions, the C42 may be flown with the dismantled doors:

- All loose items (maps, documents) should be properly secured.
- The dropping of objects during flight is prohibited.
- Maximum speed for flights with one or both doors removed is **81 kn (150 km/h) IAS**.
- Side-slipping is not permitted with dismantled doors.
- Turbulence in the cockpit will increase when the flaps are set to position 2.

19 Care and maintenance

1. Care and cleaning

All metal parts are corrosion-resistant and require no special care.
Dirt on the aircraft and the fabric can be removed by using clear water.
Repair of the wing fabric: repair even the smallest rips for your personal safety. A wing fabric repair kit is available from the manufacturer. It is to be applied to a clean, grease-free area by means of contact adhesive. Larger rips in the fabric or along the seams in any case must be repaired by the covering specialists. When in doubt, contact the manufacturer.
Be especially careful in the maintenance and cleaning of the cabin glazing! It is highly recommended to abundantly use clear water with a little detergent for softening and rinsing of contamination. For drying, a fine microfiber cloth should be used which is solely used for this purpose. By no means solvent - based or acid - based detergents may be used.

2. All maintenance works

Must be carried out by appropriately qualified persons.
The following applies to Austria:
The regulations of the ZLLV 1995 (BGBl.Nr. 191) regarding maintenance, as amended, must be complied with.

3. Especially Repair works and major changes

Must be reported and officially inspected.

4. Airworthiness inspections

In Germany must be carried out by the manufacturer or by DAeC inspectors, in Austria by inspectors of Austro Control. In other countries different regulations may apply.

5. Repair works

Repairs by the owner are limited to the exchange of defective parts.
Only **original spare parts** may be used.
In no case shall any part be reprocessed, straightened or otherwise processed for repair and re-installation.

6. Periodical inspections

Maintenance see maintenance manual IKARUS C42 Series

Periodical inspections (50 / 100 hour inspection) should be carried out in accordance with the provisions of the C42 COMCO IKARUS GmbH Maintenance Manual and 912 ROTAX Maintenance Manual. If not conducted, the safety of the aircraft is not guaranteed and warranty claims may be omitted. The periodical inspections should be conducted in one of our ITB (Ikarus Technical Base) or ISC (Ikarus Service Center).If periodical inspections should be conducted by the owner himself, these technical documents (Maintenance Manual) have to be ordered at ITB, ISC or directly at COMCO IKARUS GmbH.

7. Technical problems

Technical problems or defects should be reported to:

- the manufacturer
- the relevant national authority

20 COMCO IKARUS Manufacturer Warranty

Warranty Information

Comco Ikarus guarantees to you, the original purchaser, that the aircraft, which you have purchased from an authorised Ikarus Flight Center (IFC), Ikarus Service Center (ISC) or Ikarus Technical Base (ITB) to be in conformance with the applicable Comco Ikarus specifications current at the time of manufacture for a term of two (2) years from the date of purchase of the aircraft. (Warranty Term)

This is the complete and exclusive warranty for the aircraft with original parts and accessories of the Comco Ikarus GmbH.

In no event shall Comco-Ikarus be liable for damages or losses in excess of the purchase price nor for any incidental special or consequential damages, including without limitation loss of use, loss of time, inconvenience, commercial loss, lost profits or savings arising out of the use or inability to use the aircraft, to the full extent such may be disclaimed by law.

This warranty does not affect any statutory rights that you are entitled to from your purchase agreement, such as warranty of fitness for an ordinary use and service, which is common for things of the same kind, so the claims against the seller of the aircraft under the purchase agreement.

Warranty Service

Should the aircraft not comply with the warranted specifications, the warranty claim consists of a repair of the defect by Comco Ikarus at no charge.

Thus, you are bound to inform Comco Ikarus of the lack of conformity to the applicable specifications of the aircraft promptly if you detect a defect in material, workmanship or lack of conformity, in any case before the expiry of the warranty period, you must immediately bring your aircraft for service to the authorised ITB or an ISC.

Comco Ikarus shall not be bound by product related statements not directly made by Comco Ikarus nor any warranty obligations applicable to the seller.

In most cases the authorized IFC, ISC or ITB which sold and/or installed your aircraft and original accessories will honour a warranty claim and/or provide warranty service.

Claiming

In order to claim the warranty service you must return the aircraft and/or accessory in question to the authorised ISC or ITB in the original configuration as supplied by Comco Ikarus.

The microlight aircraft should be accompanied with the following information:

- Name of the owner
- Address of the owner
- Telephone number of the owners
- Email address of the owner
- Comco Ikarus serial number
- Total flying hours
- Number of landings
- Description of the problem
- Digital photos if requested

In order to be eligible to receive warranty service, you must present your receipt of purchase or a comparable substitute proof of purchase bearing the date of purchase.

You must ensure that all repair or customer service is handled at all times by the authorized ISC or ITB in accordance with Comco Ikarus service requirements.

In some cases, you may be requested to provide additional information concerning the maintenance of the aircraft by the authorized IFC, ISC or ITB only, therefore it is important to keep a record of any previous repairs, and make them available if questions arise concerning maintenance.

Requirements for a warranty

This warranty will not apply if the type or serial number on the aircraft has been altered, deleted, duplicated, removed or made illegible. Comco Ikarus reserves the right to refuse from free-of-charge warranty service if the requested documentation cannot be presented or if the information is incomplete, illegible or incompatible with the factory records.

Repair, at Comco Ikarus option, may include the replacement of parts or accessories with functionally equivalent, reconditioned or new parts. Replaced parts or accessories are warranted for the balance of the original warranty time period. The original warranty period will not be extended. All original parts that have been replaced shall become the property of Comco Ikarus. Comco Ikarus does not warrant the installation, maintenance and service of the products, parts and accessories.

Comco Ikarus will not be responsible in any way for problems or damages caused by not distributed by Comco Ikarus accessories which are connected to the aircraft or used together with it. Neither does Comco Ikarus guarantee trouble-free operation of the Comco Ikarus aircraft in conjunction with these accessories. Such accessories are specifically excluded from this guarantee.

As long as the aircraft is used in conjunction with the accessories not supplied by Comco Ikarus, Comco Ikarus does not warrant the operation of the product combination and Comco Ikarus will not honour any warranty claim where the aircraft is used in such a combination and it is determined by Comco Ikarus that there is no fault with the aircraft. Comco Ikarus specifically disclaims any responsibility for any damage to the aircraft and for other damages of the aircraft with the accessories, when such accessories are not manufactured or distributed by Comco Ikarus.

Warranty exclusion

This warranty is not valid if the defects are due to damage, misuse, tampering, neglect or lack of care and in case of alterations or repair carried out by unauthorized persons.

The following are examples of defects or damage not covered by this product warranty:

1. Defects or damage resulting from use of the aircraft in other than is normal and customary manner.

2. Defects or damage resulting from misuse, use with incompatible devices or accessories, accident or neglect.

3. Defects or damage due to improper operation, testing, maintenance, installation, adjustment, unauthorized modifications.

4. The aircrafts which are disassembled or repaired other than by Comco Ikarus or the IFC / ISC / ITB in such a manner as to adversely affect performance or prevent adequate inspection and testing to verify any warranty claim.

5. All plastic and synthetic surfaces and all other externally exposed parts that are scratched or damaged due to a customer's normal use.

6. Periodic maintenance and repair or replacement of parts due to a normal wear and tear.

21 Appendix

21.1 Placards

Subject	*Location*
Aerobatics warning	Instrument panel / Wing leading edge
Information Rescue system	Wing leading edge
Trim	Roof frame
Flaps, mechanical	Roof frame
Engine oil specifications	Oil inspection cover
Fuel specifications	Filler neck
Baggage loading	Baggage compartment opening
Deviation table	Instrument panel
Controls - Choke - Heating - Carburettor heat - Cowl flap (if available)	Center console
Fuel valve	Center console (left side)
Data placard	Center console (left side)
Type placard, fire-resistant	Fuselage tube, behind the tank
Weight information	Center console
Static Port	Static Ports

21.2 Reporting form
of technical defects or damage to UL aircraft

Aircraft Type: ***C42 CSS*** Serial No.: 42CS-7689

Year of Manufacture: 2022 Engine type: ***912 ULS (100 PS)***

Manufacturer: COMCO IKARUS GmbH

Owner: _____

Airframe: _____

Total Flight Hours until Defect: _____

Engine: _____

Airframe: _____

Total Flight Hours (Pilot) on Aircraft: _____

Description of damage: _____

_____

_____

Damage Report: _____

_____

_____

Name: _____

Date: _____

Signature: _____

21.3 Inspections performed

Type: ***C42 CS*** Serial No.: 42CS-7689

Marking: ***OH-U700***

Date	Type of inspection	Recognised expert

21.4 Location of the parachute rescue system

Figure 13: Securing the rescue container against sliding down

CAUTION:
Lay the cable tie (450x7.8 mm) around the clamp of the ballistic rocket and trough the first, front mounting flap of the rescue system and tighten it. Thereby backward slipping of the parachute package is prevented.

Until September 2013
Exit opening approx. 375 mm long (in flight direction)
Right side view

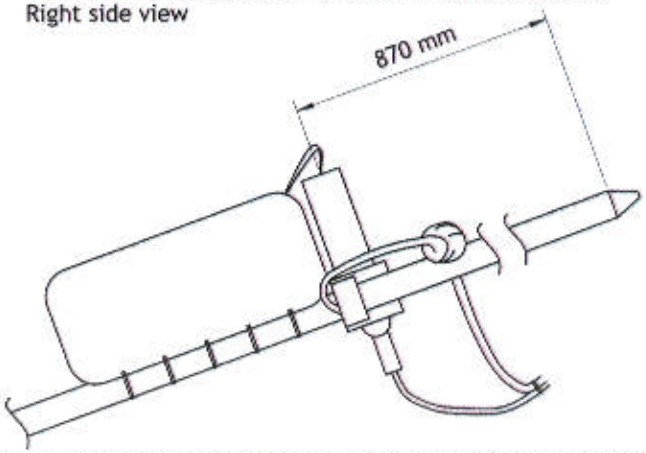


Figure 14: Installation position rescue system until September 2013

Since September 2013
Exit opening approx. 375 mm long (in flight direction)
Right side view

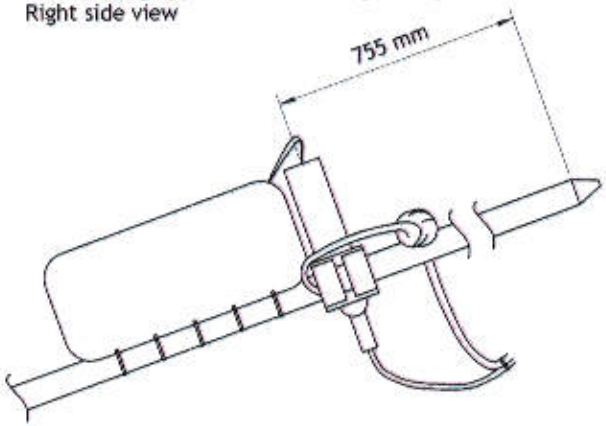


Figure 15: Installation position rescue system from September 2013

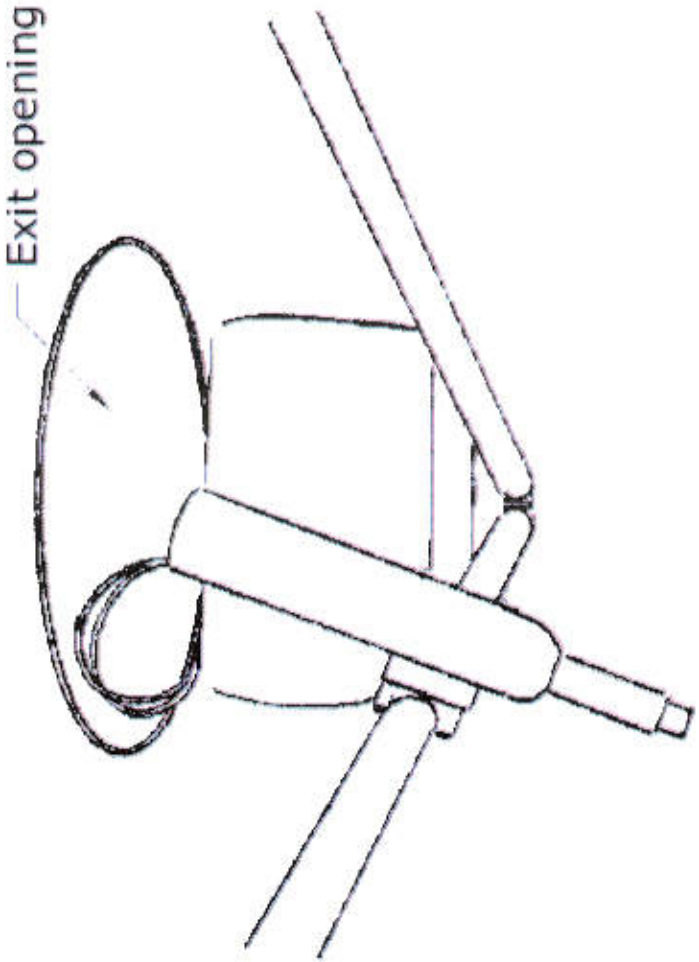


Figure 16: Illustration of exit opening rocket & rescue system

Masterplan

Figure 17: Electric Masterplan

22 List of illustrations

23 List of tables