ZODIAC CH 601
Owner's Manual / Pilot Operating Handbook

NOTE: As a one-of-a-kind "experimental" (kit) aircraft, each Zodiac CH 601 kit aircraft is unique. The purpose of the flight test program is in part to allow the pilot to develop an Owner's Manual for the aircraft.

Following is a sample Owners Manual. Note that all values given in the following manual may not apply to your particular aircraft and that they must be verified.

HD airspeed markings

Calibrated airspeeds (not necessarily the indicated)

V_A	Maneuvering Speed	115 mph
V_{NE}	Never Exceed Speed	150 mph
V_X	Best Angle-of-Climb Speed	60 mph
V_Y	Best Rate-of-Climb Speed	65 mph
V_S	Stall Speed	44 mph

RANGE OF AIRSPEED INDICATOR: 0-160 MPH

Calibrated airspeeds (not necessarily the indicated airspeed)

AIRSPEED MARKING:	GREEN ARC	44 - 115
	YELLOW ARC	114 - 149
	RED LINE	150

HDS airspeed markings

Calibrated airspeeds (not necessarily the indicated)

V_A	Maneuvering Speed	119 mph
V_{NE}	Never Exceed Speed	160 mph
V_X	Best Angle-of-Climb Speed	79 to 80 mph
V_Y	Best Rate-of-Climb Speed	85 mph
V_S	Stall Speed	58 mph

RANGE OF AIRSPEED INDICATOR: 0-160 MPH

Calibrated airspeeds (not necessarily the indicated)

AIRSPEED MARKING:	GREEN ARC	58 - 119
	YELLOW ARC	120 - 159
	RED LINE	160

ZODIAC CH 601 - AIRCRAFT DATA

Aircraft Manufacturer:
Aircraft Registration Number:
Aircraft Serial Number: 6-
Powerplant:
Powerplant Serial No:
Propeller:
Date of First Flight:
Current Owner: Address:
Date of Weight & Balance Report:

NOTE: Keep the above information current, and notify Zenair Ltd. of any changes in ownership, address, or aircraft equipment and/or modifications.

Canada: Statement of Conformity (to TP 10141) must be issued for the aircraft to operate as an Advanced Ultralight Aeroplane.

No responsibility or liability is assumed, either expressed or implied, as to suitability, accuracy, safety or approval of this manual. Any or all information is subject to change without notice.

Any party using this manual does so at there own risk and discretion, without recourse against any other party.

ZODIAC CH 601 aircraft constructed from a kit, or from the Drawings and Manuals, by amateurs must be treated as unique “one-of-a-kind” aircraft and require a proper flight test program to determine that particular aircraft’s performance and characteristics.

Please send any comments or suggestions on how this manual may be improved to: ZODIAC CH 601 Operator's Manual, Zenair Ltd., P.O. Box 235, Midland, ON, L4R 4K8, Canada.

VERSION 2.0 Doc Ref: 601-OM.PDF (12/97)

For additional information about the ZODIAC CH 601 aircraft:
Zenith Aircraft Company
Mexico, Missouri 65265-060 USA
http://www.zenithair.com

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SECTION

GENERAL

INTRODUCTION:

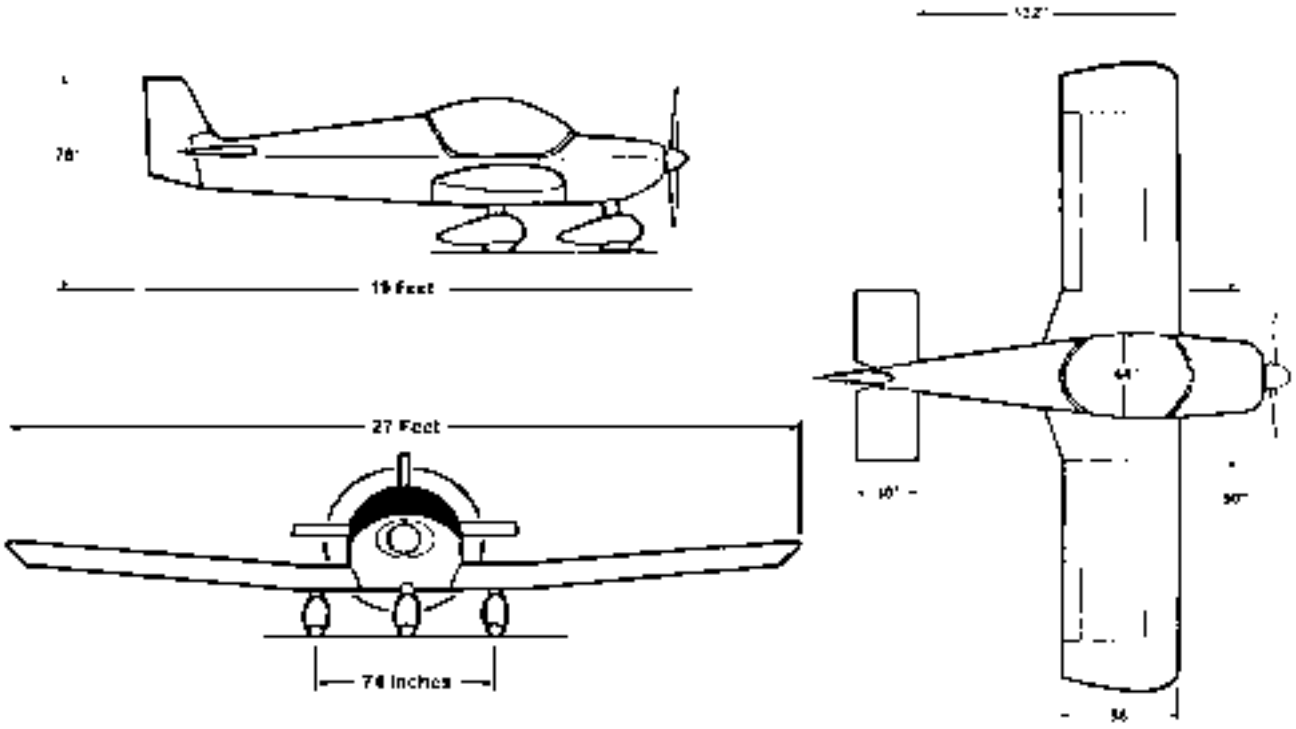
NOTE: If an ambiguity exists between this manual and the Air Regulations, or any general aircraft operating principles, the latter will supersede.

This manual is intended to be read together with the Engine Manual of the installed powerplant. Since a variety of powerplants and accessories may be installed, the reader is therefore asked to consult the Engine Manual directly for all engine operations. Information on the cooling and electrical systems is also covered by the Engine Manual. The information contained in these other manuals is not repeated here as the Engine Manual and engine manufacture recommendations should be followed at all times. For specification of your own powerplant see your own engine manufacturer's operator's manual.

To obtain the best performance and flying enjoyment from your Zodiac, familiarize yourself thoroughly with aircraft, its equipment, systems and controls. Proper and efficient operation of your aircraft requires a competent licensed pilot; a subject not dealt with in this manual. It is important to obtain adequate training on this type of aircraft before attempting to pilot the airplane.

Most of the information contained in this manual is based on a standard, new Zodiac, manufactured to standard specification. Performance figures are based on prototype test results, and are subject to change.

For operation or servicing updates, and design updates and upgrades, subscribe to the Zenair Newsletter: 6428 W. Millbrook Road, Remus, Michigan, USA 4930. Tel: (517) 561-2393.



SPECIFICATIONS	ZODIAC CH 601 UL
	ROTAX 912 (80 HP)
WING SPAN	27 FEET
WING AREA	130 SQ. FT.
LENGTH	19 FEET
EMPTY WEIGHT	550 LBS.
USEFUL LOAD	508 LBS.
GROSS WEIGHT	1058 LBS.
WING LOADING	8.0 P.S.F.
POWER LOADING	13.1 HP / LBS.
CABIN WIDTH	44 INCHES
FUEL CAPACITY (STANDARD)	16 US GAL.
– PLUS WING TANKS (OPTIONAL)	2 x 7.5 US GAL.

ENGINE SPECIFICATIONS: SEE ENGINE MANUAL

SPECIFICATIONS & PERFORMANCE FIGURES ARE BASED ON FACTORY PROTOTYPE TEST RESULTS; SUBJECT TO CHANGE WITHOUT NOTICE.

LIMITATIONS

NOTE: AEROBATIC MANEUVERS ARE PROHIBITED

SPEEDS (CAS) MPH: Standard ZODIAC CH 601 aircraft at gross weight of 1058 lbs.

Stall speed (Vs):	44
Normal operations speed:	44-125
Maneuvering speed (Va):	97
Caution range:	112 - 150
Never exceed speed (Vne):	150

Speeds are expressed in Calibrated Airspeed (CAS), Miles per Hour

LOAD FACTOR: Positive 4, Negative 2
Above are limit load factors. The ultimate load factors are multiplied by the safety factor of 1.5

SIDE SLIPPING: Recommended Speed of about 70 mph

ENGINE LIMITATIONS AND PLACARDS: See Engine Manual.

PLACARDS: Your aircraft should be placarded as follows:

-
- All fuses
- Ignition
- Choke
- Starter button
- Trim: Nose up and down
- Fuel gauge as per engine manual
- Maximum Baggage capacity
- Instruments
- Engine Gauges as per engine manual
- Canopy Release
- Fuel Type & Quantity at filler cap(s)
- Stainless Steel ID Plate, located on left fuselage below stabilizer (with required information)
- Others (if applicable)

FLIGHT ENVELOPE

SPEED (v) and LOAD FACTOR LIMITATIONS

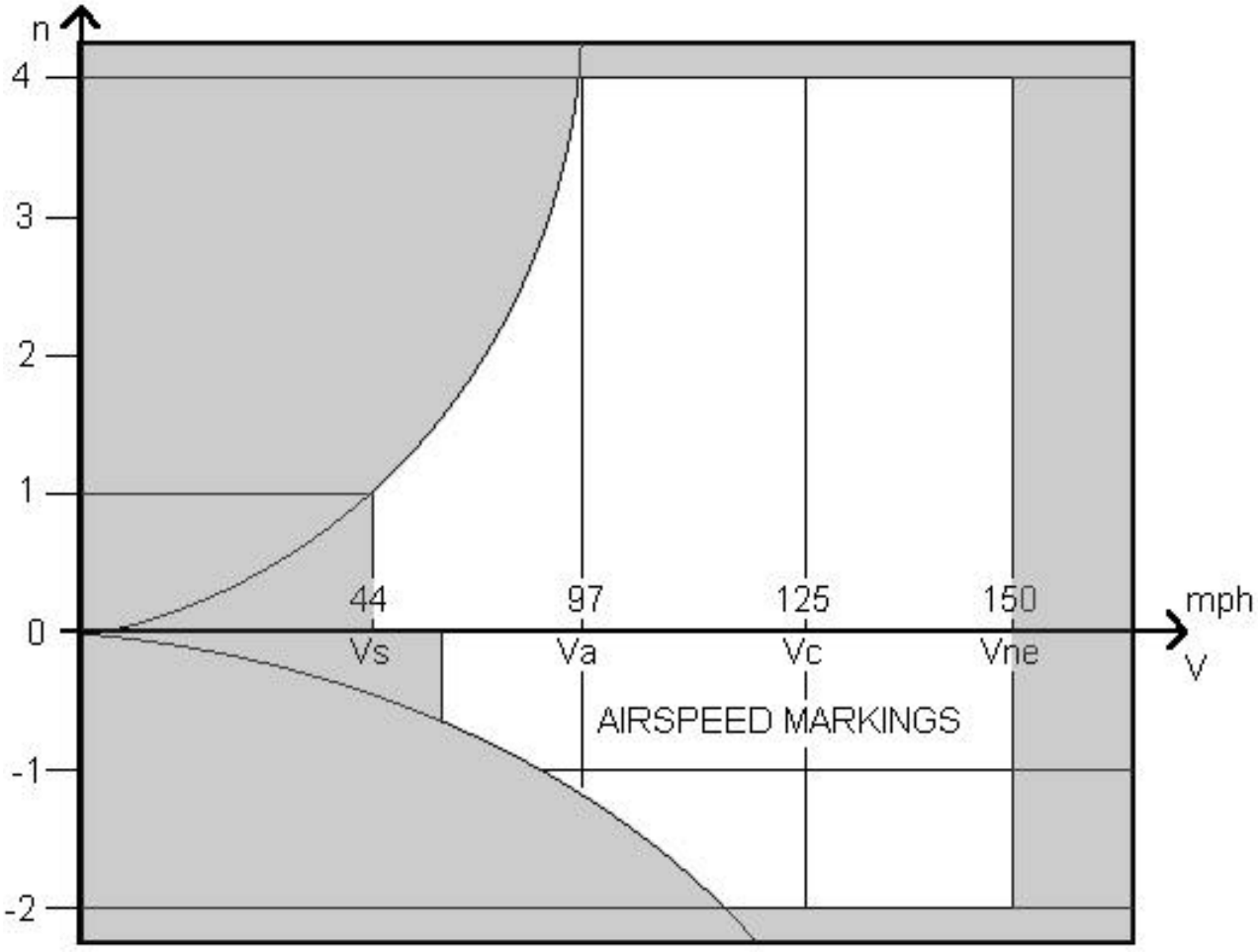


DIAGRAM NOT TO SCALE

WEIGHT and CENTER OF GRAVITY LIMITS

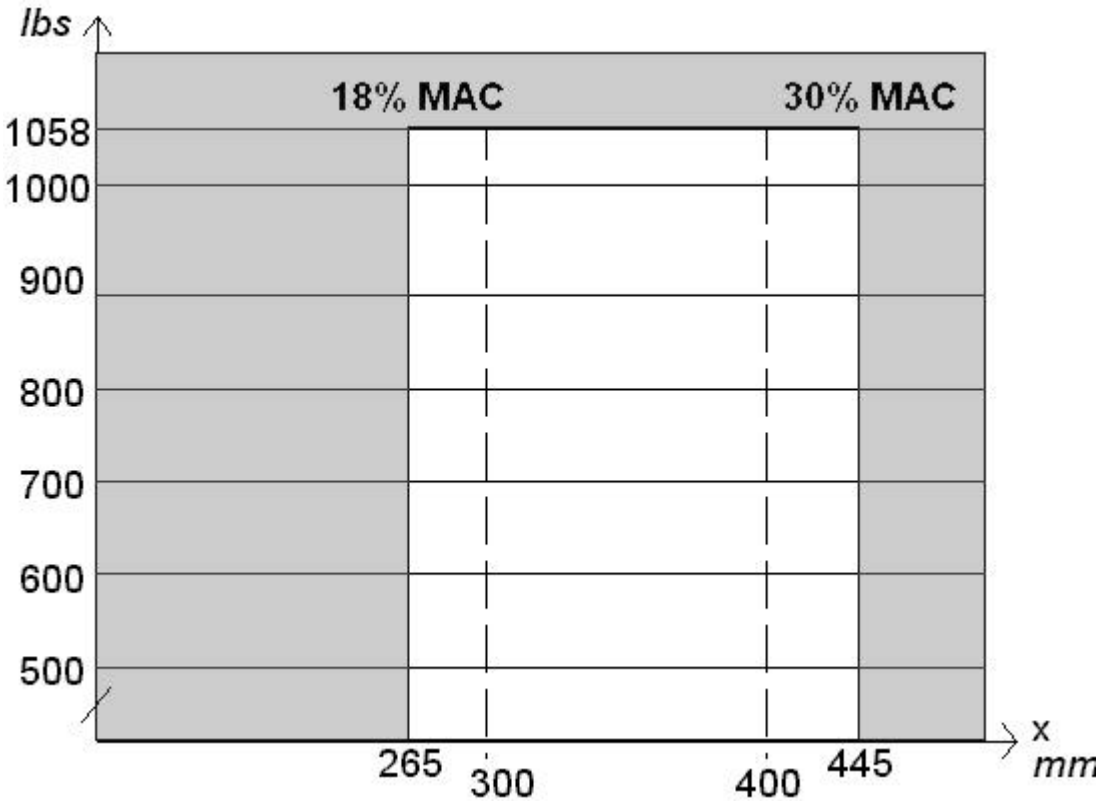


DIAGRAM NOT TO SCALE

EMERGENCY PROCEDURES

EMERGENCY LANDING WITHOUT ENGINE POWER:

1. Set airspeed for Best Rate of Decent
2. Shut off fuel
3. Shut off engine
4. Tighten seat belt and harness

Avoid tight turns. Land as usual, straight ahead power-off approach

ACCIDENTAL SPINS:

To recover from a spin: Pull throttle to idle position, push rudder opposite the spin's rotation and bring the pitch control slightly forward.

FIRES:

On the ground, before engine is started

1. Go on pushing starter
2. Shut off fuel
3. Open throttle full as soon as engine starts to blow the fire out.

On the ground, engine running

1. Cabin heat off
2. Shut off fuel
3. Throttle open to blow fire out

In the Air

1. Cabin heat off
2. Fuel off
3. Ignition off
4. Electrics off
5. Do not attempt to restart engine
6. Perform an emergency landing

Fire in cockpit

1. Electrics off
2. Cabin heat off
3. Use fire extinguisher

To Restart Engine in Flight (after fuel starvation): Pull choke before starting, and push choke in as soon as engine starts.

NOTE: Make sure that the aircraft is equipped with a functioning Fire Extinguisher, which is easily accessible to the pilot, and with an Emergency Locator Transmitter (ELT) and First Aid Kit.

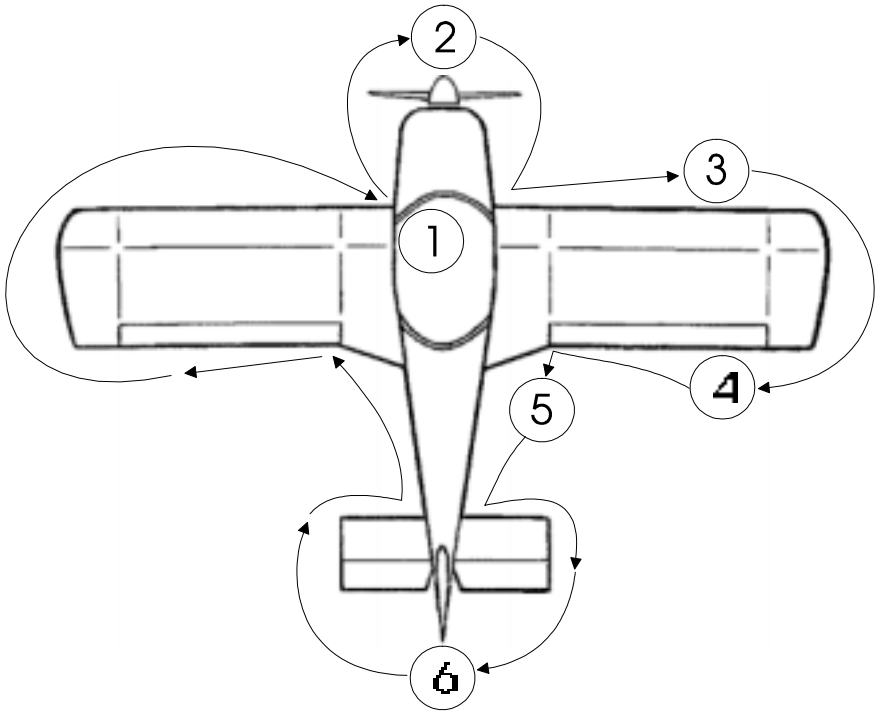
NORMAL PROCEDURES

Obtain adequate professional flight training on the Zodiac and the required pilot license before attempting operation of the aircraft.

PRE-FLIGHT INSPECTION: "walk around" before each flight

1. Ignition switch off, fuel open, elevator free.
2. Drain gascolator and all drain valves to ensure that no water is in the fuel lines, check cowl fasteners for looseness, check spinner and prop. You may want to remove the cowl to check the exhaust and general engine condition for safety. Check fuel quantity as well as coolant level and oil
3. Check pitot tube. Clean bugs and check full length of wing leading edge. Inspect wing tip, wing cover strip and make sure baggage locker doors are secure (remove tie-down).
4. Check general condition of ailerons; inspect hinge area over its entire length, aileron control attachment.
5. Landing gear condition, wheel and tires, brake s, bottom of wings and fuselage
6. Stabilator attachments, elevator and rudder hinges, cables and attachments, control stops (remove rear tie down).

Continue walk around in reverse order.



PHYSICALLY CHECK THE FUEL LEVEL BEFORE EACH TAKE OFF TO MAKE SURE YOU HAVE SUFFICIENT FUEL FOR THE PLANNED FLIGHT

BEFORE STARTING THE ENGINE: Operate controls and make a visual check for proper operation. Make sure windshield is clean for maximum visibility. Activate brakes; fasten and check safety belt.

STARTING THE ENGINE: Follow Starting Procedures from the engine manual.

If the aircraft is equipped with a electric fuel pump which created more than 5psi (as indicated on the fuel pressure gauge), then the pump should not be turned on while the engine is running. Such an electric fuel pump may be turned on prior to starting the engine for a few seconds to create fuel press in the system; verify that the electric fuel pump is off before starting the engine.

COLD ENGINE: Pull choke before starting, and release choke gradually when engine starts.

WARM-UP AND GROUND TEST: Refer to Engine Manual.

Always wait for the temperature gauge(s) to register before taxiing, allowing the engine to warm up.

Note: For winter operation, the radiator size may have to be reduced to keep engine within operating range. Restrict the exposed surfaces of the radiator as required.

TAXIING: Use moderate power and brakes. With the tricycle configuration, taxiing is facilitated by the use of the steerable nose wheel. Avoid steering the aircraft with the brakes. When winds exceed 20 mph, taxi very slowly, maintaining neutral or down elevator; and keep the pointed stick toward the wind to prevent inadvertent lift-off.

BEFORE TAKE-OFF:

1. Set altimeter
2. Set trim
3. Check freedom and deflection of controls
4. Check that the canopy is locked, front and rear on both sides
5. Fasten seat belts, not uncomfortably tight (Can you reach fuel shut off valves?)
6. Check that choke is full in

TAKE OFF:

1. Release brakes
2. Follow Engine Manual instructions for take-off power setting
3. Check RPM, and gauges
4. Ready for take-off

CLIMB:

BEST RATE OF CLIMB (Vy): Approx. mph. This will provide the greatest altitude gain in the shortest time.

BEST ANGLE OF CLIMB (Vx): Approx. mph. This will provide the greatest altitude gain in the shortest distance.

CRUISE RPM: 75% power cruise is achieved at:

	Rotax 912
Sea Level	5300 RPM
5,000 Feet	5300 RPM
8,000 Feet	5800 RPM
Cruise	120 MPH (CAS)

Lower RPM means slower cruise speeds, quieter flying, better fuel economy, and increased endurance. Above figures are with a clean aircraft in standard atmosphere with standard adjusted propellers.

DESCENT: Use some power to prevent engine from cooling too much (approx. 3,000 RPM when descending at mph).

BEST RATE OF DESCENT: mph

APPROACH: Throttle full back, mph. Use power to stretch the approach.

"Slid slipping" will result in a steep approach for landing in tight spots. Speed should be maintain above mph to maintain full control during the descent.

LANDINGS: When over the runway, move the stick slowly back to prevent touch down until the main wheels make smooth contact. The nose will drop as soon as the stick pressure is released (standard tricycle gear configuration).

CROSS WIND LANDINGS AND WIND LIMITATIONS: Approach with one wing low, or use crabbing technique, or a combination of both. Straighten the aircraft out just before touchdown.

MISSED LANDINGS: Apply full power. Continue with circuit pattern.

SHUT DOWN (ENGINE): Refer to Engine Manual for specific instructions. Remove ignition key when aircraft is unattended. Tie-Down aircraft when unattended.

NOTE: The hourmeter counts "engine time" from the moment the master switch is turned on. Do not forget to turn the master switch off.

TIE DOWN: When the aircraft is not in use, tie it down at each wing and at the rear fuselage tie down ring. Tie the stick forward (use a bungee around "Y" stick, secured at the pedals). Make sure the canopy is properly latched on both sides. The cabin cover will minimize dust, or damage to the canopy (and keep curious onlookers out).

NOTE: As the aircraft is not equipped with a "Parking Brake" it is important to tie down the plane when it is not attended.

PERFORMANCE

The flight and operational characteristics of the ZODIAC CH 601 are normal in all respects. There are no "unconventional" characteristics or operations that need to be mastered. All the controls respond in a usual way within the entire range of operations of the airplane.

Speeds provided are Indicated Airspeeds (IAS), unless specified otherwise.

- Pitot must be in correct position
- Static = cabin static pressure
- True airspeed = IAS + 5 mph in normal operations

Performances given in standard atmosphere. Aircraft and powerplant in new condition, with standard equipment.

STALL SPEED @	**1058 lbs.**	**800 lbs**
	44 mph	39 mph

For above, Calibrated Airspeeds: CAS

- The above speeds are with engine at idle, the aircraft simply "mushes in" at stall.

- With power, the indicated stall speed is below any accurate indicated reading, with a high nose attitude. When stall occurs, the nose drops quickly.

TAKE-OFF DISTANCE: In feet, off hard surface, gross weight of 1058 lbs.

	Rotax 912
Sea Level (Std. Atmos.)	550 ft.
3,000 Ft. Density Alt.	730 ft.
6,000 Ft. Density Alt.	960 ft.

- Take off distances from grass fields are longer and depend on the actual surface.

- To clear a standard 50 ft obstacle the distances from standing start are approximately twice the above take-off distances.

CLIMB PERFORMANCE CHART: Rate of Climb (FPM, full throttle)

ROTAX 912 (5200 RPM)	**1058 lbs.**	
Sea Level (Std. Atmos.)	1200	FPM
@ approx. IAS:	60	MPH
3000 ft. Density Alt.	850	FPM
@ approx. IAS:	60	MPH
6000 ft. Density Alt.	550	FPM
@ approx. IAS:	60	MPH
9000 ft. Density Alt.	320	FPM
@ approx. IAS:	57	MPH

SERVICE CEILING with standard original carburetor jet setting: 12,000 feet density altitude at gross weight.

BEST RATE OF CLIMB and **BEST ANGLE OF CLIMB** see Section 4.

FUEL CONSUMPTION: See Engine Manual.

RANGE AND ENDURANCE will vary with the number and types of fuel tanks installed, and the type of powerplant installed. Before attempting cross-country flights, proper knowledge of the fuel consumption and capacity is required.

BEST ANGLE OF GLIDE (gross weight): Approximately 60 mph

LANDING DISTANCE (with brakes) from 50 ft. height to full stop: Similar to take-off distance.

Section 6 – Weight & Balance

See actual aircraft drawing / manuals for Weight & Balance worksheet.

AIRPLANE & SYSTEMS DESCRIPTIONS

CONSTRUCTION: All-metal construction, stressed skin, single curvature metal skins riveted to stiffeners.

AIRFRAME: Construction is of 6061-T6 aluminium sheet metal riveted to aluminium angles with Avex rivets. This high strength aluminum alloy construction provides long life and low maintenance costs thanks to is durability and corrosion resistance characteristics.

WINGS: The wing has a high lift airfoil with Hoerner wing tips to maximize the aircraft's effective wingspan. The wings are fitted with near full-length ailerons.

CONTROLS: The ZODIAC is equipped with a dual flight control stick between the pilot and passenger which branches in the form of a convenient "Y" handle. The classic rudder pedals, connected to a large-diameter steerable nose wheel for ease of ground handling, are equipped with toe-brake pedals on the pilot side for effective ground steering. The full vertical tail is all-moving to provide maximum crosswind capabilities. The trim control on the elevator is electrically operated from the rocker switch (on left side of instrument panel).

ENGINE CONTROLS:

- **DUAL THROTTLES** of the push/pull type with adjustable friction clamp. Springs are added to the throttle push rods to ensure that the engine will go to full power if the linkages fail. If the friction clamp is loose, this tends to result in self-application of power unless the pilot keeps constant aft pressure on the throttle. The friction clamp, located forward of the firewall, may be tightened or loosened.

- **CHOKE**: The choke is located near the pilot's throttle (push/pull) control.

- **CARB HEAT** is automatic (supplied by the exhaust manifold under the cowl) for the 912 when equipped with the Zenair exhaust and fiberglass cowl. See Engine Manual or consult engine manufacturer for details.

- **MASTER SWITCH** connects the electrical system to the 12 Volt battery and charger/coils, controlled by the regulator and a 15 amp reset breaker for safety. See Engine Manual for electrical system details. Note: Engine will run with master off and/or breaker out, (the lighting and ignition coils are two separate circuits) but no electric equipment will operate.

- **IGNITION KEY** (or SWITCH) must be ON to operate the engine: For safety, remove key when engine is not running.

- **STARTER BUTTON** (or KEY) is also located near the pilot throttle control.

NOTE: All switches and or engine controls are "up" or "push forward" for operation, except the choke which is "Pull" for "on".

Optional equipment, switches and/or fuses are subject to change or installed as requested. See Aircraft Equipment List.

POWERPLANT: A variety of powerplants and accessories may be installed. For specifications on the installed powerplant see the engine manufacturer's manual supplied with the aircraft. The standard powerplant is the Rotax 912.

FUEL SYSTEM: The fuel tank(s) are welded aluminum.
- Standard: 16 US Gallon capacity.
- Optional: "D" tank 8 gal. instead of above.
- Optional wing tanks (7.5 gal. Each) in addition to, or instead of fuselage tank

- The fuel tank filler caps have vent holes.
- The drain valve is situated on the gascolator, forward bottom of firewall.
- The tanks have a fingerscreen filters.
- The main fuel shut-off valve is located at the center of aircraft above the rudder pedals.
- The wing tanks are also independantly equipped with a shut-off valve. (Check actual installation).

NOTE: Fuel shut-off valves are open when valve handles are in line with the fuel lines.

The main tank (std or "D") has a visual fuel gauge located near the center on the passenger's side of the instrument panel. Cautious fuel management requires a visual check of the fuel quantity using a graduated dip stick.

ZODIAC FUEL MANAGEMENT (WITH WING TANKS)

It is suggested to use approximately one-half of the fuel in the standard tank, then to fill that tank up again by opening the wing tank shut-off valve(s). Repeat as necessary. When managing the fuel as such, this provides up to one hour (1/2 hour with the "D" tank) of fuel should the wing tanks not have been filled.

CAUTION: Do not over-fill the main tanks as the gas will overflow through the fuselage tank filler cap vent hole.

PROPELLER: Ground adjustable two or three blade wood propeller (diam. X deg. pitch at 24" from center) with standard spinner. See equipment list for actual installed propeller.

GROUND ADJUSTABLE PROPELLER: Because the bottom of the airfoil is slightly convex, use a 1.6mm = 1/16"= 0.063" spacer at the trailing edge so that the line L has a definite position. The angle A is measured at 24" = 610mm from the center of the propeller. The following table provides the angle (use documentation supplied with the propeller for details):

	No of Blades	Prop Diameter	Prop A in Deg.	Static RPM
Rotax 912	2	68"	16	5300
Rotax 912	3	68"	13	5300

The above values seem to be the best compromise for these propellers on the ZODIAC CH 601. The figures are based Quality Canadian Products (GSC) propellers. Due to the fact that it is quite difficult to measure (or set) the angle "A" accurately, the above values are an indication. The static RPM is the value to watch, and the angle to obtain this RPM may differ from the above depending on the method of measurement, and the propeller type.

To prevent vibrations, it is very important that all the blades are set at exactly the same angle, and that the blades are properly secured in the hub: See Engine and Propeller Documentation.

For a take-off and climb propeller setting angle "A" should be reduced by 1/4 to 1/2 degree.

For a cruise propeller setting increase angle "A" by approximately 1/4 degree. Note that when "A" is increased the take-off and climb performance deteriorates.

FUEL PUMP on Rotax engines: The fuel pump is mechanically operated on the Rotax 912. See Engine Manual for details. An electric fuel pump and/or fuel pressure gauge may be installed.

The Rotax 912 is equipped with **DUAL CARBURETORS**. Each carburetor has a sediment bowl with an additional fuel strainer (fine mesh filter). See Engine Manual.

CAUTION: Consult the Engine Manual for the type(s) of fuel and oil to use. Use only types approved by the engine manufacturer.

LANDING GEAR: (Tricycle or taildragger undercarriage). The gear uses heavy-duty "bungee" shock absorbers and large wheels to provide grass-field capability.

CABIN ACCESS: The comfortable cabin can be accessed from both sides, as the "bubble" canopy is hinged from both sides. Make sure that the canopy latching mechanism is securely locked into position on both sides before operating the aircraft. Do not attempt to open the canopy in flight.

SEATS: Side-by-side seating. Seat cushions are removable for cleaning and drying. Seatbelts are secured to the airframe by a 3-point system. Additional cushioning may raise and/or move forward smaller occupants.

NOTE: Prior to each flight, ensure that the seat belts are firmly secured to the airframe, and that the belts are not damaged. Adjust the buckle so that it is centered on the body.

EXHAUST TYPE CABIN HEATER: Fresh air is heated by an exhaust shroud and ducted to the pilot's feet (pull "choke-type" control for heat).

CAUTION: Incidents involving exhaust gases entering the heating or ventilation system may result in fatal accidents due to carbon monoxide poisoning of the aircraft occupants. A carbon monoxide detector is recommended.

BAGGAGE: Make sure that baggage does not exceed maximum allowable weight, and that the aircraft CG is within limits will loaded baggage. All baggage must be properly secured.

STANDARD EQUIPMENT

INSTRUMENTS (standard):

- Airspeed Indicator, in MPH
- Altimeter, in feet
- Magnetic Compass
- Slip Indicator (ball)
- Tachometer (RPM gauge)
- Powerplant temperatures, as required by powerplant. (degrees Fahrenheit or Centigrade)
- Powerplant pressure, as required by powerplant.
- Hourmeter
- Fuel gauge
- Other Instruments may be optionally installed.

Pitot (dynamic) Pressure is provided by the pitot tube under the left wing. Note: blowing into the tube will damage the airspeed indicator. The static pressure is provided by the cabin pressure.

The **Baggage Compartment** is the inner space provided behind the seat. It may accommodate up to 40 lbs. of evenly distributed and properly secured cargo. Check the center of gravity. Extra baggage compartments may be installed in the wings. When loading baggage, make sure that weight and balance is correct.

The 12-volt **Battery** is mounted on the forward firewall side with the Rotax 912 installation.

Engine Cowl: The engine is mounted within the sleek cowlings and provides easy access via Dzus fasteners for pre-flight inspection.

The **Radiator** is mounted below the firewall in the direct airflow to maximize cooling in hot operating environments.

Utility Options such as skis, floats, amphibious floats, etc., may be installed for a variety of uses.

CAUTION: The installation of skis, floats, amphibious floats, or other equipment, will change the performances and characteristics of the ZODIAC CH 601 aircraft. The pilot must obtain proper instruction (or endorsements) prior to flying the aircraft with such equipment, and assure that such equipment is properly installed to the aircraft.

NOTE: According to regulations, the aircraft must have a fireproof identification plate fixed to the airframe, and have the proper registration markings. Make sure that all required documents are carried on board the aircraft, including this manual, the Engine Manual, and the Statement of Conformity (Canada; TP 10141) issued by the manufacturer.

Service and Maintenance

CARE OF YOUR AIRCRAFT:

Always handle the aircraft with care. Do not push on any control surface (this includes the stabilizer). To push the tail down, lift the prop hub or push down on the rear fuselage at a bulkhead location. Remember to follow all safety precautions pertaining to aircraft, especially around the propeller area.

As the ZODIAC is an all metal aircraft built from high strength aviation grade aluminum alloys which have good corrosion resistant characteristics, little care to the airframe is required, even when stored outside. Polyurethane paint will keep its high gloss for many years when sponged with water. A cup of dishwater liquid in a pail of water will help remove unwanted dirt. Always rinse thoroughly with fresh water after washing.

The following maintenance program outlines the minimal maintenance which must be followed to keep the aircraft in good flying condition. The suggested time interval of 25 hour does not in any way eliminate the need for routine maintenance before and after each flight. Maintenance is part of the pilot's responsibilities: the pilot should be assured that the aircraft is airworthy at all times, especially when flying. The recommended 25 and 100 hour maintenance checks are designed to cover areas frequently neglected in the quicker preflight inspection, and serve only as a useful indication of the required maintenance.

Record all maintenance and repairs in the Aircraft Log Book.

Aircraft servicing and maintenance should be performed by a qualified individual. For spare or replacement airframe parts, use genuine manufacturer's replacement parts to guarantee long life and durability. Use only genuine engine manufacturer parts on the engine. Contact your dealer or the manufacturer for all your service, maintenance and parts requirements.

***NOTE**: If an unusual fact is discovered at any time, during pre-flight or at a scheduled in inspection, contact your dealer or the manufacturer for the proper maintenance procedure. Do not attempt to maintain or repair the aircraft without proper qualifications. ALWAYS refer to the ZODIAC CH 601 Plans and Manuals, and Engine Manual(s) before effecting repairs or replacing parts. ALWAYS use approved replacement parts.*

RIVET REPLACEMENT: Drill out loose or corroded blind rivets and replace using Avex rivets. If required, replace with a rivet the next size up, and/or add another rivet at approximately 1/2" (12mm) center distance. ***CAUTION**: do not damage internal structure when drilling*.

CRACKED SHEET METAL: If a small crack appears, stop the crack by drilling a small (max. 1/8"=3.2mm) hole at end of crack. If crack grows again add a patch of the same thickness material and rivet all around with AVEX A4 rivets at a maximum pitch of 1 1/2" (40mm). Do not damage internal structure when drilling.

BUCKLED TRAILING EDGES (due to mishandling): They are usually not detrimental to the strength of the aircraft, as long as the buckle does not exceed 1/2" over 3 ft (15mm over 1 m). They may slightly off-set the correct trimming in flight. Check for cracks which may develop.

- **Ailerons** – From neutral, in line with the wing profile:
  - **UP**: Minimum: 12 degrees
Maximum: 15 degrees
  - **DOWN**: Minimum: 12 degrees
Maximum: 15 degrees

- **Horizontal Tail (Elevator)** – From neutral, in line with the stabilator (the stabilator is parallel to the upper fuselage longeron:
  - **UP**: Minimum: 27 degrees
Maximum: 32 degrees
  - **DOWN**: Minimum: 25 degrees
Maximum: 30 degrees

- **Vertical Tail (Rudder)** – From neutral, in line with the fuselage:
  - **LEFT**: Minimum: 23 degrees
Maximum: 28 degrees
  - **RIGHT**: Minimum: 23 degrees
Maximum: 28 degrees

  - **NOSEWHEEL**: Approx. 18-degrees Right & Left

EVERY 25 HOURS

Check the general condition of the ZODIAC and in particular the following:

GENERAL: Verify that no cables are chafed, check for proper anchorage and attachment of all items (fuel, coolant, & oil lines, electrics, etc). Verify that all fasteners and pins have the required "safety".

CONTROLS: Check for rust on steel parts (clean and repaint as required). Lubricate all moving parts (hinges, control attachments, bearings, etc.). Verify that all controls operate smoothly and that they are firmly attached.

LANDING GEAR: Inspect nose gear stops, bungees, control and inspect the main spring, wheel forks, and axles.

WHEELS: Correct tire pressure. Check the tire wear, rims, and braking system and lines. Tires definitely have to be replaced when the first ply becomes visible.

CABIN INTERIOR: Clean with household cleaners according to the materials. Soap or detergent and water is not recommended for cleaning the upholstery since they could remove some of fire retardant with which the seats may have been treated.

CANOPY: The canopy is a single piece Plexiglas bubble. Clean with "Windex" as the Plexiglas will craze with most chemicals. DO NOT USE gasoline, alcohol, oil, lacquer, benzene, acetone, paint thinner, etc... A protective windshield cover will protect it from dust, sand and curious onlookers.

BATTERY: Check fluid level, especially in hot weather. Maintain the level at the top level mark by adding distilled water as required (read instructions located on battery). DO NOT OVERFILL as spillage may corrode the airframe.

WOOD PROPELLER: Wood propellers are inexpensive and dampen vibrations efficiently, but maintenance is required to keep the propeller in proper condition. The prop may need periodic re-varnishing. Check the tips and leading edges for damage. Look for nicks and cracks. Inspect spinner, bolts (tight and secured). Wiping the propeller with an oily cloth will result in cleaning off grass and bug stains. DO NOT OPERATE AIRPLANE IN RAIN since the propeller will get damaged.

ENGINE COMPARTMENT: Thoroughly check and inspect the engine compartment, including the reduction gear unit, exhaust system, fuel system, oil system, and coolant system. Remove and clean the carburetor bowls. Clean (replace if required) the carburetor air filter. The engine and compartment should be kept free of any accumulation of oil, grease, and dirt to prevent a fire hazard. See the Engine Manual for more information on routine maintenance and inspections.

ENGINE: Refer to Engine Manual. Plastic lines or rubber hoses in direct contact with a rough or sharp surface with ware due to the constant vibrations of the emitted by the engine. It is important that all electrical wires and hoses (fuel, water, oil) be in a secured position clear of contact with the engine casting, cowl, or any "sharp" edge. Go over each item separately, replacing what is damaged, and securing each item using adequate insulator to prevent premature wear.

EXHAUST: Check for cracks, cowl clearance, missing springs. Where flexible hose is used, replace hose at the first sign of a crack.

ENGINE COWLING: Check for looseness, "DZUS" fasteners, front pins, and any damage or cracks. Make sure it is properly secured.

FUEL: Remove, clean and re-install gascolator. Inspect for any leaks and loose fittings in the lines and tank(s), and assure the smooth operation of shut-off valves. Clean (or replace) any installed filters.

EVERY 100 HOURS, OR SIX MONTHS (whichever comes first)

Clean the aircraft: exterior and interior. Remove seat back, and central arm rest cover plate. Make a thorough inspection of the whole aircraft, inspecting for any damage, wear, or corrosion.

FRONT OF AIRCRAFT: Check and inspect the following: Engine (see Engine Manual), controls and hoses, engine mount, propeller, battery, exhaust, radiator, firewall, nose gear and wheel. Check that all bolts and nuts are tight and safetied.

FUEL SYSTEM: Check for leaks, check condition and safety of lines and valve operation. Clean, re-install (or replace) and secure all filters, gascolator and tank finger screen.

FUSELAGE: Check skins and internal structure for loose rivets, bolts, corrosion, and buckling due to miss-handling or over-stressing. Check that the drain holes in the bottom of the fuselage are not plugged up.

CONTROLS: Inspect for looseness, wear, fair-leads, and terminals.

INSTRUMENTS: Check screws, fuses, markings, switches, pitot lines. Insure that all the instruments are functioning correctly.

WINGS: Check skins, replace loose rivets, check for corrosion and buckles (from mishandling), inspect leading edges and trailing edges. Remove wing cover strip and check bolts and safety. Check control surface stops and aileron interconnection.

TAIL: Inspect skins and rivets, and look for and correct corrosion, etc. Check attachment of tail sections to fuselage, cable ends, trim tab, etc. Check control surface stops.

LANDING GEAR: Refer to the 25 hour check list.

OIL OR GREASE all moving parts: See following table.

After the thorough inspection of the aircraft, and after having done the required maintenance and/or repairs, re-install all remove items (seat back, wing cover strips), and run the engine for smooth operation.

100 HOUR OIL SCHEDULE

Check **all** control hinges and moving parts for wear. Replace when clearance exceeds maximum wear of .025" (.6mm).

Oil the following (with standard "motor" oil):

	ALL Bearings
	ALL Aileron Controls (bell-crank, rod ends) – inside fuselage
	Roll control torque tube
	Elevator, and trim (hinge + control)
	ALL Rudder hinge points
	ALL Control Stick Bearings – in cabin
	Pedals (3 bearings, cable ends, brake pedals)
	Trim Tab Hinge
	ALL Cable ends – include. Inside fuselage
	ALL Throttle bearings
	Choke control (if applicable)
	ALL Brakes (if mechanical)
	ALL Canopy Latches and Bearings

Grease (with ball bearing grease): The gear struts (top and bottom bearing) and nose wheel axle, and grease all cable fairleads.

After having made a hard landing: Check the wheel forks (especially if landing was in crosswind), they may be bent side- ways. Check the main gear spring, forks, wheels, nose gear strut attachments top and bottom.

ZODIAC CH 601: INSTALLED EQUIPMENT / OPTION LIST

Aircraft Serial No: **6 -**	Registration (Tail No):
Powerplant:	Serial No:
Propeller:	Serial No:
Fuel System:	

The following is a list of installed equipment, options, or other specialized equipment or modifications not normally standard on the ZODIAC CH 601. See Drawings and Manuals for standard equipment / features:

Installed By:	Description / Part No.	Date:

Make sure that installed equipment is approved, and meets requirements for operation of the aircraft.