Serial number - -54- Year 20 .

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1 Introduction

The Savannah S tail dragger version has the same weight of the standard version. The increase in weight due to the additional structural parts is balanced by the nose landing gear removal.

The aerodynamic configuration and the weight distribution of the tail dragger version has not been modified except for the small increase of the rudder surface.
Operational speeds and operational limits remain unchanged, for this reason limits section of the Pilot Operating Handbook remain unchanged.
In order to describe differencies of the tail dragger version and to describe weight and balance measure and calculation an Addendum to the Pilot Operating Handbook has been emitted.
The Addendum at the P.O.H. contains only the paragraph that varies form the standard configuration.

2.5 Landing Gear

The main landing gear is composed of a single-piece aluminium 7075 alloy spring; the spring is fixed to welded steel plates bolted to the fuselage. The tail wheel is a pivot small wheel connected to the rudder command. When the tail wheel exceed 41° steering angle the wheel is automatically disconnected from the command, allowing very close turn (using differential braking). In order to reconnect the tail wheel to the control line it is necessary to proceed in straight line, when the tail wheel steering angle decrease it automatically reconnect to the controls.

Disc brakes are installed on main landing gear wheels and have hydraulic calliper. Two hydraulic fluid cylinders are installed on the rudder pedals allowing pilot to perform differential breaking. Brake system for both pilot and Co-pilot side as well as a park break are options.
The parking brake (option) MUST be used only with engine-off and for short period of time. Parking brake is composed of a shut off valve that isolates the brake cylinders from the wheel callipers.
In order to set parking brake, pilot has to apply pressure on brake pedals, then with pressure applied shut the parking brake valve (move PB lever).

CAUTION

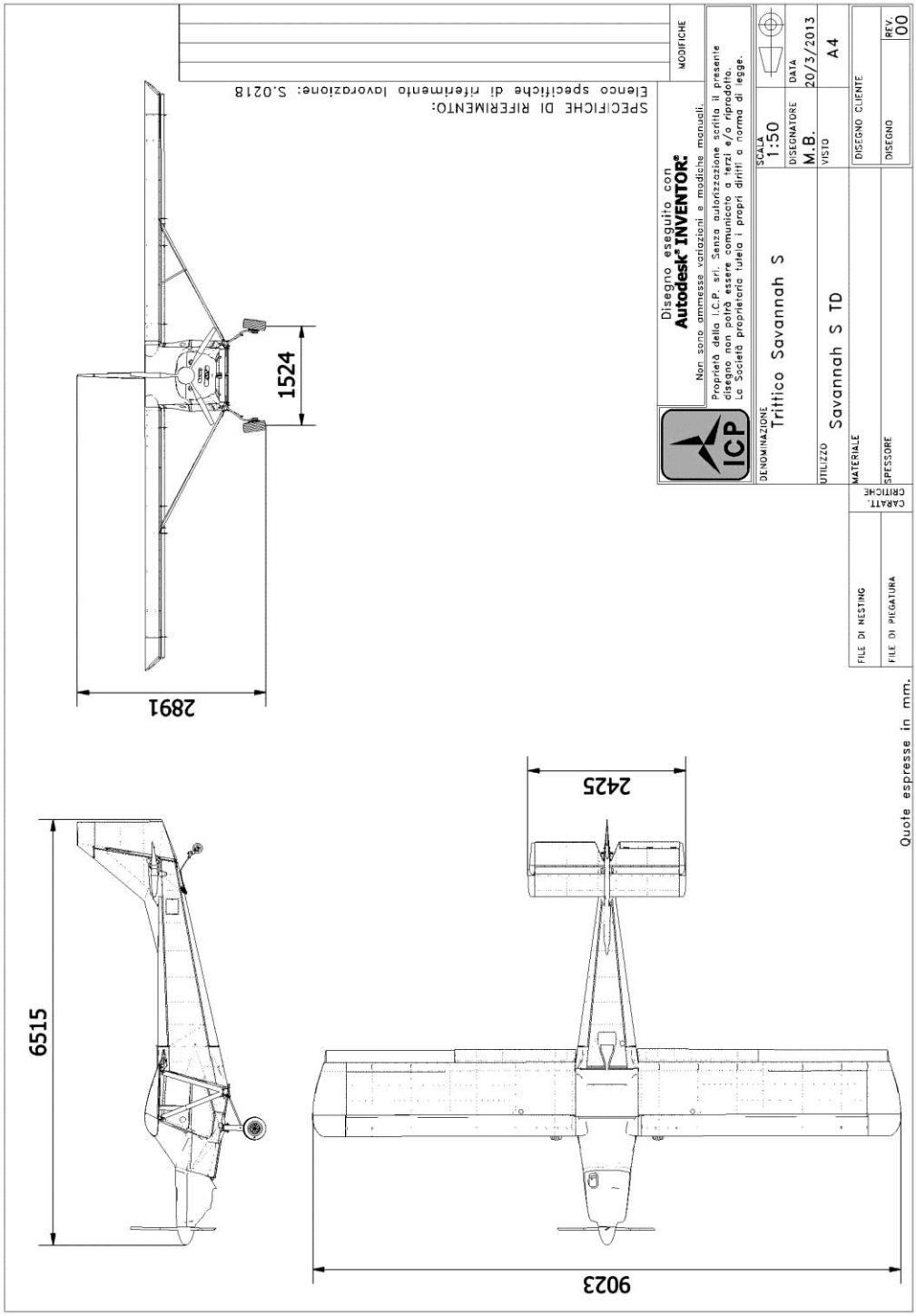
If parking brake valve is moved on “BRAKE ON” position without having applied pressure to the system, foot braking will no longer be available until parking brake is released and no braking action will be provided.

In case of long term parking use chocks to prevent aircraft movements.

Brake fluid: mineral based oil (Renofluid 3.000 IT, Fiat TUTELA GI/A);
(DO NOT USE synthetic oil type DOT4)

Wheels size:6.00”x6.00” (4.00”x6.00” and Tundra tyres as options, as well as fairings)

2.9 Aircraft Technical Specifications



4 WEIGHT AND BALANCE

The following paragraphs explain the procedure to calculate and verify the weight and balance of the aircraft.

WARNING

It is pilots responsibility to verify that take off and flight weight and balance conditions are within limits. Failure to respect appropriate limits could lead to dangerous situations

4.1STANDARD INSTALLED EQUIPMENT LIST

SAVANNAH^{TM}-S

- Engine Rotax 912 ULS 100HP
- Airbox with airfilter and airbox temperature sensor
- propeller “DUC Helice Swirl fixed pitch adjustable on ground.
- 70lt wing tanks + 6lt collector in the fuselage
- Visual fuel level indicators
- Anti vapour lock fuel return line
- Central control stick with mechanical flaps
- 4” tyres with disc brake system
- fabric seats
- 12V/DC plug
- cabin light
- landing light
- cabin heating
- electric elevator
- auxiliary electric fuel pump
- doors snap vents
- tie down kit
- flight and maintenance manual
- Basic flight instruments

NOTE

Installed options may vary total weight and weight distribution. If a configuration change occurs, weighing should be performed to update weight and balance data.

4.2 BASIC EMPTY WEIGHT AND BALANCE DETERMINATION

Forward	C of G limit:	25% +/- 0.9 % (330 mm from L. E.)	MAC
Rear	C of G limit:	38.5%+/- 0.9 % (508 mm from L.E.)	MAC

The aircraft is allowed to fly within a quite large weight and balance range thus easing the aircraft's load and balance.
Pilot should file the weight and balance table with crew's weight, on board fuel weight and luggage weight then check if condition remanis within limits, if not aircraft loading should be revised.

WARNING
Failure to respect appropriate limits could lead to dangerous situations

In order to calculate weight and balance the basic empty weight and centre of gravity position should be determined. Every time a configuration change occurs as addition or removal of options, it is the pilot/owner's responsibility to update the basic empty weight.

- The aircraft MUST be weighed fitted with all equipment, accessories, engine oil, coolant and WITHOUT FUEL. (NOTE: all the fuel MUST be drained accurately)
- Place the aircraft in level flight attitude, rear fuselage upper skin should be horizontal (Lift the tail).
- Place the aircraft on three weight measuring equipment (one under each wheel of the landing gear).
- Record the three weight measuring equipment readings: the rear wheel weight will be called P1, the left wheel weight P2, the right wheel weight P3.
- By using a plumbing wire fixed to the leading edge, measure the distance DT between the projection on the floor of the leading edge and the rear wheel axle, and the distance DM between the same projected point and the main landing gear axle.
- Fill in the basic empty weight table reported below and calculate the momentum

4.3 BASIC EMPTY WEIGHT TABLE

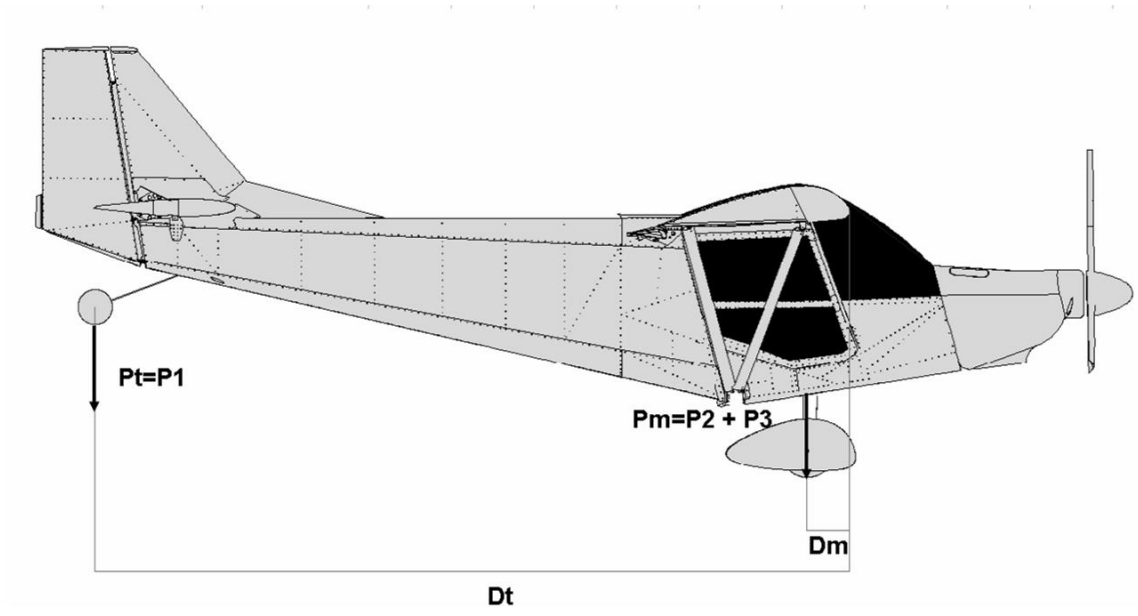
Aircraft serial number	
Weight measuring equipment	
Location and date	
Certifying staff	

	Weight [lbs] / [Kg]		Arm [ft] / [m]		Mom.[lbs x ft] / [kg x m]	
Rear landing gear	$P_T = P_1$		D_T			
Main gear	$P_M = P_2 + P_3$		D_M			
TOTAL						

The centre of gravity position of the aircraft measured from the wing leading edge can be found with the following formula:

$$X_{CG} = \left(\frac{P_T \cdot D_T + P_M \cdot D_M}{P_T + P_M} \right)$$

Signature	



4.4 WEIGHT AND BALANCE COMPUTING TABLE AND GRAPH

Before any flight, the pilot must check the weight and balance compiling the following table:

- Compile the weight column with data from the empty weight table, crew weight, fuel weight, and baggage weight (if present).
- Compile the arm of the empty aircraft with the X_{CG} position previously obtained.
- Multiply weight and arm and compile the “Momentum” column.
- Sum the columns and compile the “Totals” line.

	Weight W [lbs]/[Kg]		*Arm X [ft]/[m]*		*Momentum [W x X]*
Empty aircraft					
Pilot			1.80	0.55	
Passenger			1.80	0.55	
Fuel			1.62	0.495	
Baggage			4.33	1.32	
TOTALS			========== ==========		

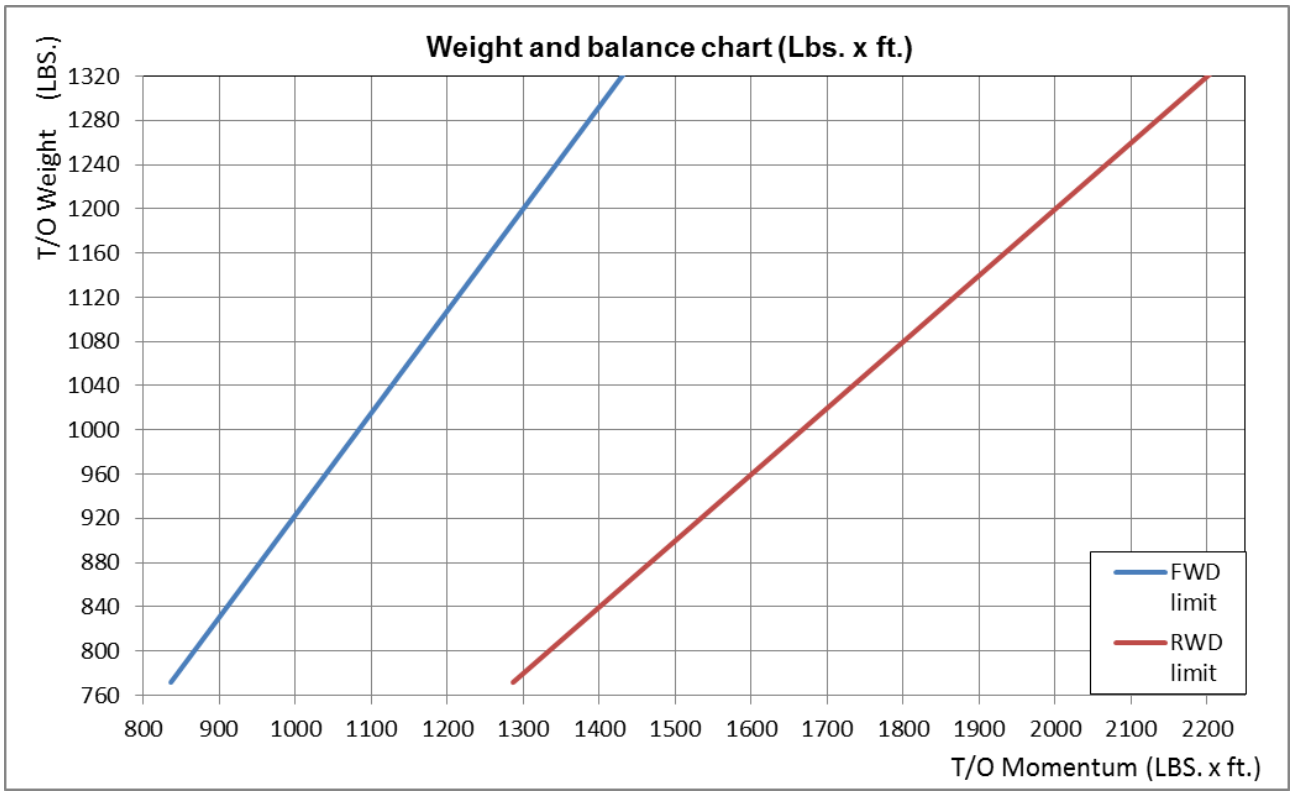
Actual centre of gravity position can be obtained with the following formula or from the following charts.

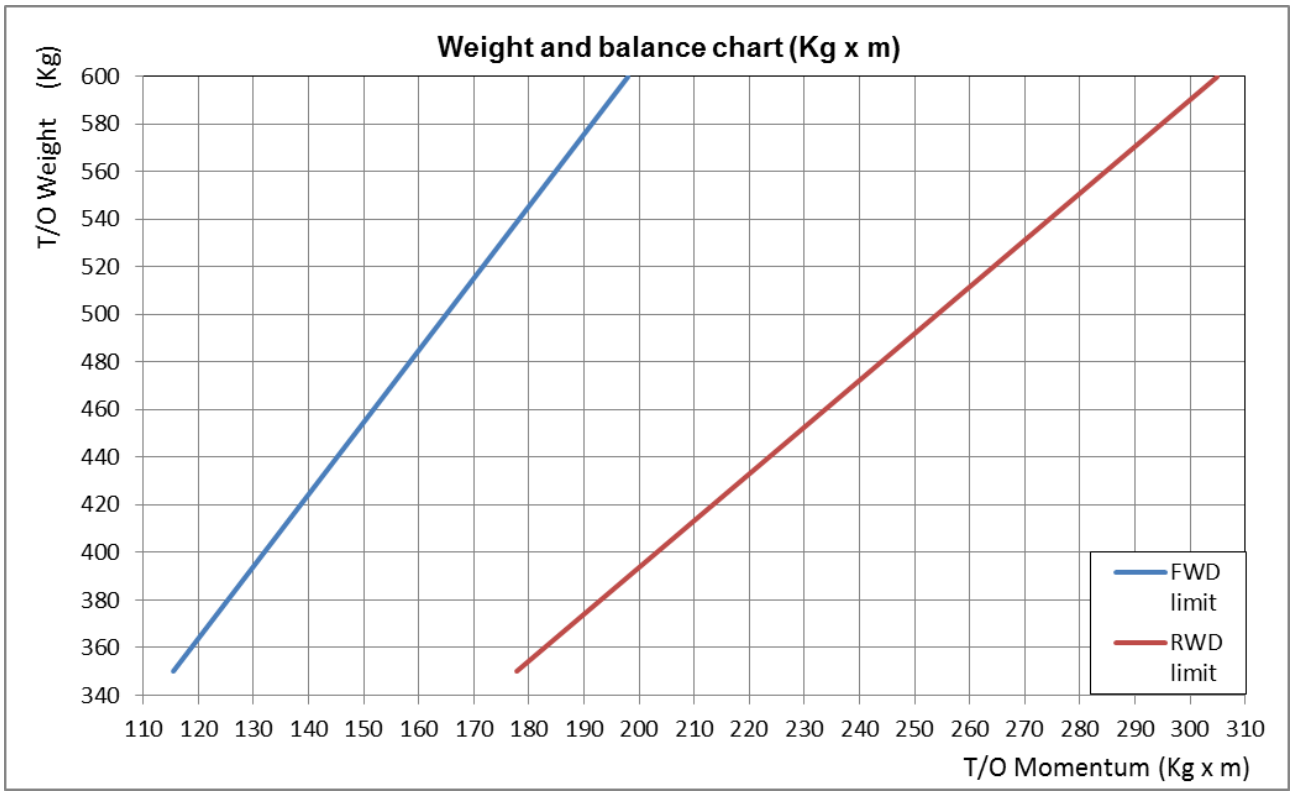
$$X_{CG}\% = \frac{(X_{CG})}{M.A.C.} \times 100 = \frac{\left(\frac{TotalMomentum}{Totalweight}\right)}{M.A.C.} \times 100$$

Where:

- Total weight is the total of the weight before considered in the table
- Total moment is the total of the moment before obtained in the table
- MAC is the Mean Aerodynamic Chord that is equal to 1320mm/4.33ft.

WARNING
Use homogenous unit of measure!


Weight and balance chart (Lbs. x ft.)
T/O Weight (LBS.)
1320
1280
1240
1200
1160
1120
1080
1040
1000
960
920
880
840
800
760
800 900 1000 1100 1200 1300 1400 1500 1600 1700 1800 1900 2000 2100 2200
T/O Momentum (LBS. x ft.)
FWD limit
RWD limit


Weight and balance chart (Kg x m)
T/O Weight (Kg)
600
580
560
540
520
500
480
460
440
420
400
380
360
340
110 120 130 140 150 160 170 180 190 200 210 220 230 240 250 260 270 280 290 300 310
T/O Momentum (Kg x m)
FWD limit
RWD limit

7.5 Normal takeoff

1. Wing flaps in the takeoff position (Flaps at 15°);
2. Air Box control set for cold air intake (if installed).
3. Engine at 5800 RPM (if installed a variable pitch propeller);
4. Propeller at takeoff pitch (if adjustable in flight);
5. Push the stick to lift the tail;
6. At 60 Km/h (38 mph / 33 KIAS) lift the front wheel by pulling the bar;
7. At 100 Km/h (62 mph / 54 KIAS) set the climb;
8. Throttle open and propeller pitch (if adjustable in flight) so as to achieve 5800 RPM;

8.9 Normal landing

1. Touch down if possible with all wheels;
2. Taxi on the ground up to halting with the control bar pulled (elevator turned upwards);

After landing

1. Wing flaps in;
2. Carry on keeping the control rod pulled;

Engine shutdown

1. Keep the throttle pulled (engine to the minimum level) for two minutes approximately:
2. Radio off;
3. Both ignition switches disengaged;
4. Main switch off.

DANGER

SAFETY WARNING DURING AN ABORTED LANDING: Pay attention not to pull the bar too much. In this phase it is necessary to gain speed first and then to gain height. The aircraft would otherwise slow down up to stalling and falling wing down due to the strong overturning torque generated by the fully powered propeller.

8.10 Short field takeoff and landing procedures

Short takeoff

1. Apply pressure on the brakes;
2. Air Box control for cold air intake.
3. Wing flaps fully out (Flaps at 30°);
4. Throttle fully forward so as to obtain 5800 RPM (if installed a variable pitch propeller);
5. Propeller at takeoff pitch (if adjustable in flight);
6. Release the brakes;
7. At 50 Km/h (31 mph / 27KIAS) lift the front wheel by pulling the bar;
8. At 70 km/h (44 mph / 38 KIAS) set the climb;

7.5 NORMAL TAKE-OFF CHECKLIST

1. Set Flap 1/2;
2. Set Trim neutral;
3. Switch ON Electric Fuel Pump and EXT. LIGHTS;
4. Verify CARB HEAT not used;
5. Throttle advance to max power;
6. Verify T/O RPM;

CAUTION

During take-off run remember to keep the heels on the floor to avoid braking.

7. Push the stick to lift the tail;
8. Rotate at 65 kph / 41 mph / 35 kts @ 500 kg;
9. Accelerate to best climb speed 105kph /65 mph / 57 kts @ 500 kg;
10. Retract Flaps;
11. At safe altitude, reduce throttle;
12. If ice condition exists, apply Carb heat;

CAUTION

Hot air from Airbox (Carb heat) will decrease the probability of carburettor ice, but does not completely prevent it, Carburator ice conditions should be avoided and carburettor heat should be used each time suspect of icing conditions exist.

11 LIST OF REVISIONS

A list of all revisions made to the Pilot Operating Handbook since its original issue are resumed in the table below.

Revision No.	Date	Chapters	Pages
Original Issue	20.03.2013	N/A	N/A
01	10/7/2015	General revision	all
02	16/10/2017	Added CG limits in mm	6/11