Aircraft Operating Instructions (AOI)
ASTM Compliant Flight Manual
Apollo Delta Jet AS-III912S
Revision 0

Part Type	Model	Serial Number
Carriage	Delta Jet AS-III912S	
Wing		
Engine		
Propeller	Aero Prop K1750-100	
Registeration Number		

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Ammendments:

Date Of Ammendment	Sections Affected	Pages Affected	Date Inserted	Signature
Initial issue May 12, 2006	All. Initial Issue	ALL	May 12, 2006	

NOTE

Manuals can be revised in the future and pages and/or sections re-issued. Amendments will also be available on the website www.apollonorthamerica.com . The amended pages and/or sections should be printed and replaced in the manual at the earliest possible time for safety of flight. The amendment should be logged and recorded in the table above by the owner.

Operator's Responsibility:

WARNING

THERE ARE INHERENT RISKS IN THE PARTICIPATION IN RECREATIONAL AVIATION AIRCRAFT. OPERATORS AND PASSENGERS OF RECREATIONAL AIRCRAFT, BY PARTICIPATION, ACCEPT THE RISK INHERENT IN SUCH PARTICIPATION ON WHICH THE ORDINARY PRUDENT PERSON IS OR SHOULD BE AWARE. PILOTS AND PASSENGERS HAVE A DUTY TO EXERCISE GOOD JUDGEMENT AND ACT IN A RESPONSIBLE MANNER WHILE USING THE AIRCRAFT AND TO OBEY ALL ORAL OR WRITTEN WARNINGS, OR BOTH, PRIOR TO OR DURING USE OF THE AIRCRAFT, OR BOTH.

WARNING

THE OWNER AND OPERATOR MUST UNDERSTAND THAT DUE TO INHERENT RISK INVOLVED IN FLYING AN AIRCRAFT, NO WARRANTY IS MADE OR IMPLIED, OF ANY KIND, AGAINST ACCIDENTS, BODILY INJURY OR DEATH OTHER THAN THOSE, WHICH CANNOT BY LAW BE EXCLUDED.

THE SAFE OPERATION OF THIS AIRCRAFT RESTS WITH YOU, THE PILOT. WE BELIEVE THAT IN ORDER TO FLY SAFELY YOU MUST MATURELY PRACTICE AIRMANSHIP. OPERATIONS OUTSIDE THE RECOMMENDED FLIGHT ENVELOPE SUCH AS AEROBATIC MANOEUVRES OR ERRATIC PILOT TECHNIQUE MAY ULTIMATELY PRODUCE EQUIPMENT FAILURE. YOU ARE REFERRED TO THE OPERATING LIMITATIONS IN THIS MANUAL.

LIKE ANY AIRCRAFT, SAFETY DEPENDS ON A COMBINATION OF CAREFUL MAINTENANCE AND YOUR ABILITY TO FLY INTELLIGENTLY AND CONSERVATIVELY. WE HOPE THAT YOUR AIRCRAFT WILL PROVIDE YOU WITH MANY HOURS OF SAFE AND ENJOYABLE FLYING.

THIS AIRCRAFT WAS MANUFACTURED IN ACCORDANCE WITH LIGHT SPORT AIRCRAFT AIRWORTHINESS STANDARDS AND DOES NOT CONFORM TO STANDARD CATEGPRY AIRWORTHINESS REQUIRMENTS

This aircraft is to be operated in compliance with the information and limitations contained herein.

TABLE OF CONTENTS

1 GENERAL

This Pilot Operating Handbook (POH) is designed for maximum utilization as an operating guide for the pilot. It includes the material required by the regulations to be furnished to the pilot. It also contains supplemental data supplied by the aircraft manufacturer.
This Pilot Operating Handbook is not designed as a substitute for adequate and competent flight instruction, knowledge of current airworthiness directives, applicable air regulations or advisory circulars. It is not intended to be a guide for basic flight instruction or a training manual and should not be used for operational purposes unless kept in a current status.
Assurance that the aircraft is in an air worthy condition is the responsibility of the owner. The pilot in command is responsible for determining that the aircraft is safe for flight. The pilot is also responsible for remaining within the operating limitations as outlined by instrument markings, placards, and this Pilot Operating Handbook.
Although the arrangement of this Pilot Operating Handbook is intended to maximize its in-flight capabilities, it should not be used solely as an occasional operating reference. The pilot should study the entire Pilot Operating Handbook to become familiar with the limitations, performance, normal and emergency procedures and operational handling characteristics of the aircraft before flight.
The Pilot Operating Handbook has been divided into numbered (Arabic) sections. The limitations and emergency procedures have been placed ahead of the normal procedures, performance and other sections to provide easier access to information that may be required in flight. The "Emergency Procedures" Section is quickly available, to present an instant reference. Provisions for expansion and/or updates to this Pilot Operating Handbook (POH) have been made.
Before flying the aircraft, read and familiarize yourself with this POH, the Engine Operators Manual and Maintenance Manual.

WARNING

Apollo North America aircraft manuals may be revised in the future and safety directives may be issued for the aircraft. Hence, it is imperative that owners register their aircraft with Apollo North America and promptly notify Apollo North America of any changes to their contact details. Owners registered on Apollo North America's database will be notified of safety directives and directed to Apollo North America's web site (http://www.apollonorthamerica.com/) for the applicable information. It is owner's responsibility to keep abreast of all safety of flight issues for the aircraft. It is required that the owner checks this website for updates and notices and acts accordingly.

1.1 Introduction

The Apollo AS-III Delta Jet has been designed and manufactured in accordance with the design standard specified by the ASTM consensus standards body for weight shift control aircraft. The design requirements that this aircraft complies with or exceeds are detailed in ASTM document **F 2317/F 2317M.** This manual follows the product information required and format listed under ASTM standard **F 2457**

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WARNING

The operator must be thoroughly familiar with the aircraft and the contents of this manual before initial operation.

Regular maintenance is required to keep your aircraft flying in a safe condition. Detailed maintenance requirements are outlined in the Maintenance manuals. Please reference these manuals to ensure your aircraft is maintained properly.
The operating procedures contained in this handbook are derived from experience and testing of this model of aircraft.

1.2 Definitions, Terminology and Abbreviations

This is not a complete set of definitions. It is assumed that the audience of this manual is already trike pilots or pilots in training. Only those items and terminology that may not be covered sufficiently in a SP WSC pilot training regimen are expanded upon here. This is not a replacement for proper training or ground school with your instructor.

Weight-Shift-Control — Powered aircraft with a framed pivoting wing and a fuselage, controllable only in pitch and roll by the pilot's ability to change the aircraft's center of gravity with respect to the wing. Flight control of the aircraft depends on the wing's ability to flexibly deform rather than the use of control surfaces.

Trim Speed — Indicated airspeed at which the aircraft remains in a stabilized condition without pilot input.

Luff lines — The cable lines above the traditional flexwing that attach to the king post above the wing and trailing edge of the upper sail surface and help in dive recovery and pitch stability of the wing. Often this system is also referred to as reflex-bridle. This pitch or dive recovery system is replaced by a **sprog** in a topless or strutted wing which is a metal or composite material tube placed on the under surface of the sail at about 70% out on the wing span on either wing.

Definitions used in this handbook such as WARNING, CAUTION and NOTE are employed in the following context.

WARNING
Procedures or instructions that if not followed correctly may result in injury or death

CAUTION
Procedures or instructions that if not followed correctly may result in damage to the aircraft or its parts

NOTE
Procedures or instructions which are essential to highlight

Abbreviations:
AOI — Aircraft Operating Instructions
FTS — Flight Training Supplement
MIP — Maintenance and Inspection Procedures
PIC — Pilot In Command
C — Celsius
CAS — Calibrated air speed
F — Fahrenheit
Hg — Mercury
IAS — Indicated Air Speed
ISA — International Standard Atmosphere
Kg — Kilogram
km/hr — Kilometers per hour
MPH — Miles per hour
kt(s) — Nautical Mile per Hour (knot) (1 nautical mph = (1852/3600) m/s)
lb(s) — Pound(s) (1 lb = 0.4539 kg)
mm — Millimeter
cm — Centimeter
m — Metre
in — Inch
ft — Feet
sq. m — Square Metre
sq. ft — Square Feet
cu. in — Cubic Inches
cm3 — Centimeter Cube
mb — Millibars
N — Newton
Nm — Newton Meter
kW — KiloWatt
HP — Horse Power
RPM — Revolutions Per Minute
ft. lbs — Foot Pounds
in. lbs — Inch Pounds
psi — Pounds per Square Inch gage pressure
s — Seconds

min — Minute(s)
hr(s) — Hour(s)
SI — International System of units
V_A — Maneuvering Speed
V_C — Operating Cruising Speed
V_{DF} — Demonstrated Flight Diving Speed
V_H — Maximum Sustainable Speed in straight and level flight
V_{NE} — Never Exceed Speed
V_{S0} — Stalling Speed, or the minimum steady flight speed in the landing configuration
V_{S1} — Stalling Speed, or the minimum steady flight speed in a specific configuration
V_x — Speed at which Best Angle of Climb is achieved
V_y — Speed at which Best Rate of Climb is achieved
V_T — Maximum Glider Towing Speed
TOSS — Take Off Safety Speed
Wsusp — Highest Trike Carriage Weight suspended under the wing
Wwing — Wing Weight
Wtkmt — Trike Carriage Empty Weight (including required minimum equipment, unusable fuel, maximum oil, and where appropriate, engine coolant, hangbolt and hydraulic fluid)
W_{MAX} — Maximum Design Weight (Wwing + Wsusp)
WSC — Weight Shift Control (aircraft)
Max — Maximum
Min — Minimum

Units:

Speed: Kts (Knots) = 1.15 mph (miles per hour) = 1.84 km/hr
1 km/hr = 1.6 MPH
Pressure: PSI = Pounds per Square Inch
in Hg = inches of Mercury
mb = millibar
Distances: in. = inches = 25.4 millimeters
ft = foot (feet) = .305 meters
Weights: Kg = kilograms = 2.2 lbs = 2.2 pounds
Misc.
1 Pound (Ib) = 0.4536 Kilogram (kg)
1 Pound per sq in (psi) = 6.895 Kilopascal (kPa)
1 Inch (in) = 25.4 Millimeters (mm)
1 Foot (ft) = 0.3048 Meter (m)
1 Statute mile = 1.609 Kilometres (km)
1 Nautical mile (NM) = 1.852 Kilometres (km)
1 Millibar (mb) = 1 Hectopascal (hPa)
1 Millibar (mb) = 0.1 Kilopascal (kPa)
1 Imperial gallon = 4.546 Liters (I)
1 US gallon = 3.785 Liters (I)
1 US quart = 0.946 Liter (I)
1 Cubic foot (ft_3) = 28.317 Liters (I)

1 Degree Fahrenheit (F) = (1.8 X C)+32
1 Inch Pound (in Ib) = 0.113 Newton Meters (Nm)
1 Foot Pound (ft Ib) = 1.356 Newton Meters (Nm)

1.3 General Description

1.3.1 Carriage

Please refer to section 7 of this manual for a general description of the Delta jet trike carriage.

1.3.2 Wings

Apollo Delta Jet is available with the following wings:

1) Profi
2) H12 Classic
3) H12S Topless

Please refer to section 7 of this manual for a general description of each wing

NOTE

Manufacturer may approve the use of other certified wings for use with the Delta Jet. This written approval must be attached to the POH with a list of changes to relevant sections of the manual.

1.3.3 Engines

Delta Jet is available with the following ASTM complaint engines:

1.3.3.1 Rotax 912 UL2

Version	Performance			Torque			Max RPM
	kW	HP	RPM	Nm	ft. lb.	RPM	RPM
912 UL2	58.0	79	5500	103	75.9	4800	5800
Max 5 min (take-off)	59.6	81	5800				

Bore		Stroke		Displacement		Compression Ratio	
79.5 mm	3.13 in.	61 mm	2.4 in.	1211.2 cm^3	73.91 cu. in.	9.0:1	

1.3.3.2 Rotax 912 ULS2

Version	Performance			Torque			Max RPM
	kW	HP	RPM	Nm	ft. lb.	RPM	RPM
912 ULS2	69.0	95	5500	128	94	5100	5800
Max 5 min (take-off)	73.5*	100*	5800*	* with Rotax airbox & exhaust system			

Bore		Stroke		Displacement		Compression Ratio	
84 mm	3.31 in.	61 mm	2.4 in.	1352 cm^3	82.6 cu. in.	10.5:1	

1.3.3 Propellers

The Delta Jet uses the following props:

1.3.3.1 Aero Prop K1750-100

Aero prop K1750-100 is a 3-blade composite propeller with an Aluminum hub and metric class 8.8 hardware. It comes with a simple tool to set the pitch on the ground. The acceptable pitch range is specified by markings of the pitch tool. For more information please refer to the propeller manual. The prop is rated to handle up to 100 HP in normal service. The recommended pitch setting for Delta Jet with 912UL (80 hp) is –2 to 0 and for Delta Jet with 912ULS (100 hp) –1 to 2 on the prop pitch tool.

NOTE

Manufacturer may approve the use of alternative propellers. This approval is only valid when the written authorization from the manufacturer is attached to the POH

1.3.4 Fuel

The following fuels are preferred to be used on the Delta Jet:

1.3.5.1 Lead Free 89 Octane US or higher for 912UL

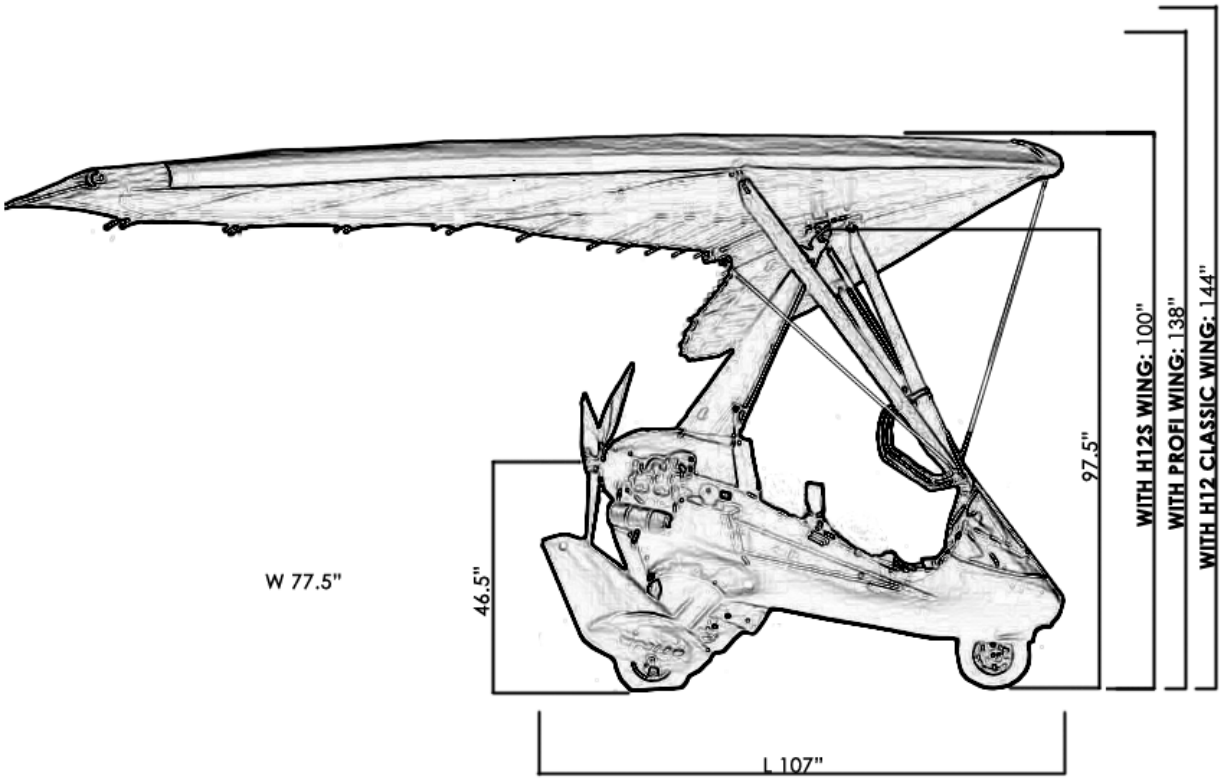
1.3.5.2 Lead Free 91 Octane or higher for 912ULS

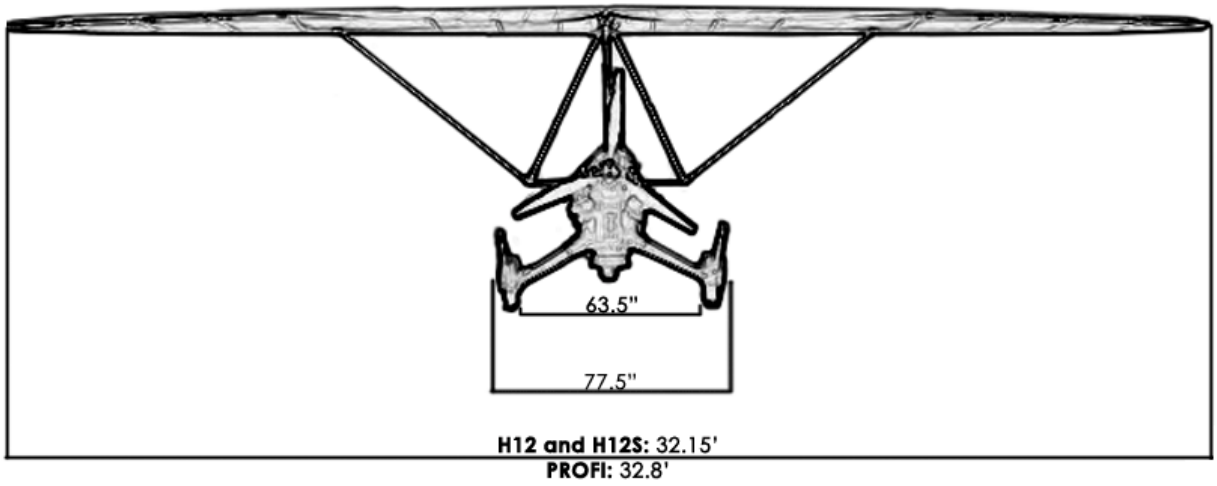
NOTE

Occasional use of Avgas 100LL is permitted. Due to higher lead content in AVGAS, the wear of the valve seats and deposits in the combustion chamber will increase. Therefore, use AVGAS only if you encounter problems with vapor lock or if the other fuel types are not available.

1.4 Dimensions

	Metric		USA	
Wing Span	Profi	10 m	Profi	32.8 ft
	H12 Classic	9.8 m	H12 Classic	32.15 ft
	H12S	9.8 m	H12S	32.15 ft
Wing Area	Profi	14.5 sq. m	Profi	156 sq. ft
	H12 Classic	12.5 sq. m	H12 Classic	134.5 sq. ft
	H12S	12.5 sq. m	H12S	134.5 sq. ft
Aspect Ratio	Profi	6.9	Profi	6.9
	H12 Classic	7.7	H12 Classic	7.7
	H12S	7.7	H12S	7.7
Wing Weight	Profi	48 kg	Profi	106 lbs
	H12 Classic	44 kg	H12 Classic	97 lbs
	H12S	52 Kg	H12S	115 lbs
Lowest Overall Trike Height	With Profi	3.5 m	Profi	11.5 ft
	With H12 Classic	3.66 m	H12 Classic	12 ft
	With H12S	2.55 m	H12S	8.33 ft
Wing Length (Long Pack)	Profi	6 m	Profi	19.69 ft
	H12 Classic	5.75 m	H12 Classic	18.9 ft
	H12S	5.75 m	H12S	18.9 ft
Wing Length (Short Pack)	Profi	4 m	Profi	13.12 ft
	H12 Classic	4.2 m	H12 Classic	13.78 ft
	H12S	4.2 m	H12S	13.78 ft
Trike Width Outside to Outside including Wheelpants	1.97 m		6.46 ft (77.5”)	
Trike Length	2.72 m		8.92 ft (107”)	
Wheel Inside to Inside Width	1.64 m		5.4 ft (64.5”)	
Wheel Outside to Outside Width	1.84 m		6.04 ft (72.5”)	





1.5 Views

1.5.1 Front

1.5.2 Side

1.5.3 Back

2 LIMITATIONS

2.1 General

The limitations section of this manual outlines the various operating limitations, instrument function and placards necessary for the safe operation of this aircraft, engine and standard equipment.

2.2 Airspeed Limitations

2.2.1 With H12 Classic

Speed	KIAS	Comments
V_{NE} ---Never Exceed Speed	99 MPH (86 Kts) (159 Km/hr)	Never exceed this speed in any operation
V_A --- Max. Maneuvering Speed	90 MPH (78 Kts) (144 Km/hr)	Do not make abrupt or full control deflections above this speed
V_{S0} --- Stalling Speed	45 MPH (39 Kts) (72 Km/hr)	

NOTE

VNE ---Never Exceed Speed is and can be programmed as a limit in the digital ASI

2.2.2 With H12S

Speed	KIAS	Comments
V_{NE} ---Never Exceed Speed	99 MPH (86 Kts) (159 Km/hr)	Never exceed this speed in any operation
V_A --- Max. Maneuvering Speed	90 MPH (78 Kts) (144 Km/hr)	Do not make abrupt or full control deflections above this speed
V_{S0} --- Stalling Speed	45 MPH (39 Kts) (72 Km/hr)	

NOTE

VNE ---Never Exceed Speed is and can be programmed as a limit in the digital ASI

2.2.3 With Profi

Speed	KIAS	Comments
V_{NE} ---Never Exceed Speed	81 MPH (70 Kts) (130 Km/hr)	Never exceed this speed in any operation
V_A --- Max. Maneuvering Speed	65 MPH (56.5 Kts) (104 Km/hr)	Do not make abrupt or full control deflections above this speed
V_{S0} --- Stalling Speed	32.5 MPH (28 Kts) (52 Km/hr)	

NOTE
VNE ---Never Exceed Speed is and can be programmed as a limit in the digital ASI

2.3 Engine Operating Limitations

2.3.1 Rotax 912UL

Engine Limitations	Metric	Imperial
ENGINE RPM		
Max RPM	5800 RPM (5 minutes max)	5800 RPM (5 minutes max)
Maximum Continuous RPM	5500 RPM	5500 RPM
Idle RPM	Approximately 1400 RPM	Approximately 1400 RPM
POWER DATA		
Takeoff Performance	59.6 KW	80 HP
Continuous Performance	58 KW	78 HP
OIL PRESSURE		
Maximum Oil Pressure (allowed for short period at cold start)	7 bar	102 psi
Minimum Oil Pressure (below 3500 RPM)	0.8 bar	12 psi
Normal Oil Pressure (above 3500 RPM)	2 – 5 bar	29 – 73 psi
OIL TEMPERATURE		
Maximum Oil Temperature	140° C	285° F
Minimum Oil Temperature (idle at 2000 for 2 minutes and proceed to 2500 RPM till minimum oil temperature is reached)	50° C	120° F
Normal Oil Temperature	90 - 110° C	190 - 230° F
CYLINDER HEAD TEMPERATURE		
Maximum CHT	150° C	300° F
Normal CHT	75 - 110°C	167 - 230° F
EXHAUST GAS TEMPERATURE		
Maximum at max. Takeoff Power	880° C	1620° F
Maximum at max. Continuous Power	850° C	1560° F
Normal EGT	800° C	1472° F
FUEL PRESSURE		
Maximum Fuel Pressure	0.4 bar	5.8 psi
Minimum Fuel Pressure	0.15 bar	2.2 psi
AMBIENT OPERATING TEMPERATURE		

Maximum	50° C	120° F
Minimum	-25° C	-13° F

2.3.2 Rotax 912ULS

Engine Limitations	Metric	Imperial
ENGINE RPM		
Max RPM	5800 RPM (5 minutes max)	5800 RPM (5 minutes max)
Maximum Continuous RPM	5500 RPM	5500 RPM
Idle RPM	Approximately 1400 RPM	Approximately 1400 RPM
POWER DATA		
Takeoff Performance	59.6 KW	80 HP
Continuous Performance	58 KW	78 HP
OIL PRESSURE		
Maximum Oil Pressure (allowed for short period at cold start)	7 bar	102 psi
Minimum Oil Pressure (below 3500 RPM)	0.8 bar	12 psi
Normal Oil Pressure (above 3500 RPM)	2 – 5 bar	29 – 73 psi
OIL TEMPERATURE		
Maximum Oil Temperature	130° C	266° F
Minimum Oil Temperature (idle at 2000 for 2 minutes and proceed to 2500 RPM till minimum oil temperature is reached)	50° C	120° F
Normal Oil Temperature	90 - 110° C	190 - 230° F
CYLINDER HEAD TEMPERATURE		
Maximum CHT	135° C	275° F
Normal CHT	75 - 110°C	167 - 230° F
EXHAUST GAS TEMPERATURE		
Maximum at max. Takeoff Power	880° C	1620° F
Maximum at max. Continuous Power	850° C	1560° F
Normal EGT	800° C	1472° F
FUEL PRESSURE		
Maximum Fuel Pressure	0.4 bar	5.8 psi
Minimum Fuel Pressure	0.15 bar	2.2 psi
AMBIENT OPERATING TEMPERATURE		

Maximum	50° C	120° F
Minimum	-25° C	-13° F

2.4 Engine Operating Media

Please refer to your engine Operator's manual section for Operating media approved for your engine.

2.5 Fuel and Oil Capacity

2.5.1 Fuel Capacity

Fuel Capacity	Unusable Fuel Capacity
53 Liters or 14 US Gallons	1.5 Liters or 0.4 US Gallons

2.5.2 Oil Capacity

Oil Capacity
3 Liters or 3.0 Quarts

2.6 Aircraft Operational and Maneuvering Limits

2.6.1 Centre of Gravity Limits

Centre of gravity limits are not critical in a flex wing weight shift control aircraft. The carriage attaches to the wing through a universal junction known as hang block assembly. Variations in cockpit and fuel loading cannot affect aircraft's balance. The Delta Jet is therefore not critical in terms of centre of gravity. However, distribution of load in a trike carriage affects the attitude of the trike carriage in-flight in a minor way.

Base Suspension Range (Measured from the front of the nose plate attached to the wing keel to the suspension point on the hang block)	Dimension (Metric)	Dimension (Imperial/US)
H12 Classic	1387.5 mm – 1350 mm	54.6" – 53.125"
H12S	1387.5 mm – 1350 mm	54.6" – 53.125"
Profi	1454 mm – 1414 mm	57.25" – 55.67"

2.6.2 Maneuvering Limits and Loads

WARNING

All aerobatic maneuvers including whip stalls, loops, stalled spiral descents, spins and any negative G maneuvers are prohibited

These maneuvers can never be conducted safely. These maneuvers can put the aircraft outside the pilots control and put both the aircraft and its occupants in extreme danger.
Do not pitch nose up or nose down more than 30 degrees from the horizontal. The front support tube also known as the compression strut or nose strut of the trike and the pilot's chest limits the fore and aft movement of the control bar respectively.
Do not bank more than 60 degrees angle of bank. In roll there is no artificial stop for bank angle.

Limit	
Maximum Takeoff Weight	**450 Kg, 992 pounds with H12 and H12S 470 Kg, 1039 pounds with Profi**
Maximum Weight in Each Seat	**114 Kg, 250 pounds**
Minimum Weight in the Front Seat	**54 Kg, 120 pounds**
Pitch	**+30°, -30° from Horizontal**
Roll	**+60°, -60° AOB**
Maximum Positive Maneuvering Load Factor	**+4.0 G**
Negative Maneuvering Load Factors	**Prohibited**
Load Factors below 1.0 G	**To Be Avoided**

2.6.3 Minimum Flight Crew and Crew Weight

At least one pilot in the front seat is required to operate the aircraft. Minimum pilot weight is 120 pounds (54 kgs) in the front seat.
Maximum power at minimum takeoff weight can cause an abrupt climb rate that, if not corrected, may cause climb angles of greater than the placarded maximum..
Approximately 75% of maximum take off power is considered comfortable for a minimum weight takeoff. Take off distance will be extended at reduced power.

WARNING

Always operate the aircraft from the front seat when flying solo

2.6.4 Maximum Passenger Seating Limit

In addition to pilot in the front seat, a maximum of one passenger is allowed to be seated in the back seat. Maximum weight per seat is 250 pounds and a combination of pilot and passenger should not exceed maximum takeoff weight which is 1039 pounds (470 Kg) with the Profi and 992 pounds (450 Kg) with H12 and H12S wings.

2.6.5 Operating Limits

Limit	Allowed (Yes/No/Comment)
Day VFR operations	Yes
IFR operations	No
Night VFR operations	Only if properly equipped and with a letter of authorization from the manufacturer which shall be attached/kept with the POH. When aircraft is equipped for night flying and the pilot has the relevant certifications for night flying and night flight is authorized for the machine in writing by the manufacturer, Apollo strongly recommends that the aircraft is kept within safe gliding distance of an airport with lighted runways for the entire flight.
Operations without engine monitoring instruments	No
Operation in continued medium to heavy rain	No
Operation without proper training on this particular combination of trike and wing from a qualified instructor	No
Operation without familiarity with this manual in full	No
Takeoff with a wing known to have moisture on it	No
Operation outside the CG limit trim set by the manufacturer	No
Flight without helmet, visor or eye protection	No
Low flying	Low flying is prohibited, even where permitted by local aviation law, unless the pilot has complete and recent knowledge of the area and obstacles in the vicinity
Congested area safe altitude	When the aircraft is certified by local CAA law to fly in congested areas, this may only be done with special attention to the **'cone of flight safety'**. Furthermore, this aircraft may only be operated over congested areas when a safe landing can be made without damage to aircraft or person, vessel, vehicle, structure or property on the ground in the event of an engine failure. Apollo recommends that the aircraft be flown as much as possible within safe gliding distance of an actual

	airport.
Other Limitations	**Value**
Maximum Crosswind Component	14 MPH (12 Kts) (22 Km/hr) – See section 4.8.10 for additional clarification
Maximum Wind Strength	23 MPH (20 Kts) (37 Km/hr)
Maximum Ambient Operating Temperature	50°C or 120° F

WARNING

Moisture on the wing can increase the stall speed of the aircraft and should be removed prior to takeoff

2.6.6 Minimum Equipment List

Equipment Reading Required	Comment
Engine monitoring instruments if any required for safe operation of the engine by the engine manufacturer	Please consult the ASTM engine manual

3 Emergency Procedures

3.1 General

This section of the manual deals with procedures to be adopted during an abnormal event in the operation of the Delta Jet AS-III
Steps listed should be performed in the order listed unless warranted and determined by a qualified pilot in command (PIC).
It is important to maintain correct and suitable pattern altitude and speed for safe operation of the aircraft.
Never fly in adverse weather conditions and always fly within the limits of your skill and ability. Limit departures from your proven ability to instructional settings only under supervision of a qualified instructor acting as PIC of the aircraft.
Safe flight requires that you be aware of possible emergency landing areas along your flight path. Engines can stop regardless of how reliably maintained. Most engine outs don't happen because of the engine quitting but because of auxiliary systems fault or errors on the part of the pilot like turning the choke on by accident. Never put your life in the hands of an engine.
Always scan for other aircraft. Always show your intentions and be courteous to other aircraft.
It should be noted that the manufacturer cannot possibly foresee all conceivable circumstances. Some circumstances such as multiple or unlisted emergencies, flight into adverse weather etc. may require modification to these procedures. A thorough knowledge of the aircraft and its systems is thus required to analyze the situation correctly and to determine the best course of action for the PIC.

3.2 Airspeeds for Emergency Operation

Wing	Speed	Indicated Air Speed (IAS) - USA
H12 Classic	Maximum Maneuvering Speed (Va)	90 MPH (78 Kts) (144 Km/hr)
H12 Classic	Best Glide (L/D max)	60 MPH (52 Kts) (96 Km/hr)
H12S Topless	Maximum Maneuvering Speed (Va)	90 MPH (78 Kts) (144 Km/hr)
H12S Topless	Best Glide (L/D max)	60 MPH (52 Kts) (96 Km/hr)
Profi	Maximum Maneuvering Speed (Va)	65 MPH (56.5 Kts) (104 Km/hr)
Profi	Best Glide (L/D max)	44 MPH (38 Kts) (70 Km/hr)

3.3 Emergency Procedures Checklists

3.3.1 Engine Out on Climb Out

If your engine quits on climb out, maintain airspeed, reduce angle of attack and land straight ahead if possible. Proceed as follows:

C Maintain Control
A Maintain Airspeed – best glide speed or higher
L Forced Landing (straight ahead if possible)

WARNING

If a minimum altitude of 496 feet (150 m) could not be obtained, immediately pull the control bar in; gain and maintain a speed close to best glide speed while seeking a place to land immediately in front to you. IT IS IMPERATIVE THAT CORRECT GLIDE SPEED BE ATTAINED AND MAINTAINED! DO NOT TURN BACK TO THE RUNWAY! SLIGHT TIRNS TO LEFT OR RIGHT DEPENDING ON HEIGHT ABOVE GROUND ACHIEVED CAN BE MADE IF SUITABLE LANDING SPOT IS AVAILABLE THERE. EXERCISE GOOD JUDGEMENT

WARNING

For establishing best glide your attention is drawn to section 5.5.1 of this manual. Keep in mind that 'best glide' is NOT ALWAYS desirable in engine out on climbout situation depending on runway length. Pilot should establish appropriate glide speed as necessary

3.3.2 Engine Failure at Altitude

If the engine stops while operating at cruise or full power when the aircraft is well clear of the ground, proceed as follows:

E Establish Glide Speed
S Select Landing Area
P Proceed to Landing Area

NOTE

For establishing best glide your attention is drawn to section 5.5.1 of this manual

Check the following:
C Fuel Contents
CI Carb Icing (Turn Carb Heat On)
F Fuel Valve Off
I Ignition On
C Choke Off

Carry on with the rest of emergency landing procedure as listed in this section.

If your engine fails in flight, do not attempt to restart the engine unless one of these items is found to be incorrect and is able to be rectified. Relax and maintain control while concentrating on correct emergency landing techniques.

Adopt a suitable glide speed preferably with a tail wind. With a tailwind, minimum sink speed would give you the longest glide. As a careful pilot, you should always fly in "a cone of safety", at sufficient altitude, with an understanding of the orientation of the wind. It is not enough to simply land on the area you have chosen. Do NOT forget to take into account the possible obstacles that you could discover only at the last minute (e.g. power lines, ditches etc…) and ground related and/or mechanical turbulence that may occur. Check that your seat belt and that of the passenger is securely fastened. The final approach should be made preferably into the wind. With the onset of night the approach should be with the sun at the rear if possible. Your aircraft will be quiet, check that there is nobody on the ground. Make a short landing run if possible.
If you have time, you can try to start the engine again whilst in flight. Verify that the problem is not from a memory lapse: choke lever actuated, fuel valve accidentally off, carb icing, ignition switches off... Remember, even if the engine starts again remains in the cone of flight safety and land on the area initially considered, so as to determine the possible origin of the engine failure **BEFORE** continuing the flight.

3.3.3 Stuck Throttle at Full Power (In Flight)

If the throttle should jam full open in flight, proceed as follows:

C Maintain Control
H Get Height. With engine at full power adjust height and ground position to improve the outcome of a forced landing.
A Increase Airspeed to keep the climb angle less than 30 degrees above the horizontal.
I Switch off Ignition.
L Prepare for forced Landing

3.3.4 Emergency Landings

Proceed as follows:

C Maintain Control and airspeed - nominated approach speed
T Throttle Closed
I Ignition off
F Fuel Valve Off
S Seat belts tight
H Helmets tight
B Body parts inside seat frame
P Contact ATC if necessary and if there is time to alert Position and Problem
E Turn **ELT ON** if equipped
A **Advise** passenger on how to communicate position using radio if pilot is incapacitated
B Decide whether or not to use **BRS** parachute (if equipped)
L Final Approach and Landing as closely as possible to normal power off landing procedure

3.3.5 Engine Fire While In-Flight

If fire occurs while in-flight, the initial procedure would be to maintain control of the aircraft and evaluate the extent of the fire. This emergency is unlikely to occur but to avoid any further problems, use common sense and land the aircraft safely. Proceed as follows:

C Maintain Control
F Fuel Valve Off
T Full Throttle (To exhaust engine system fuel as soon as possible and maximize slipstream to clear flames from passengers and airframe.)

When fuel is exhausted then:
I Ignition off
L Forced Landing
B After landing release seat Belt
P Release Passenger seat belt
E Evacuate aircraft and step away from it

3.3.6 Engine Fire On Ground

If fire occurs while aircraft is moving on the ground, proceed as follows:

C Maintain Control
S Use remaining Speed to clear people, other aircraft and property
T Throttle closed
I Ignition Off
B After stopping release seat Belt
P Release Passenger seat belt
F Fuel Valve Off
E Evacuate aircraft and step away from it

3.3.7 Propeller Damage

WARNING

Propeller blades are spinning at very fast speeds while cruising and at full power. Propeller tip speeds may reach 0.7 Mach and even small objects can cause significant damage to the propeller blades if thrown into the prop during normal or full power operation

The indication of propeller damage is usually felt by extreme vibration and lack of thrust. Proceed as follows:

C Maintain Control
T Throttle closed
F Fuel Valve Off
I Ignition off
L Forced Landing

Certain precautions prior to takeoff are extremely helpful in avoiding this problem. Inspect the strip or ground you are going to use as your take off area for anything that may be flicked up by the tires and goes through the propeller.
In pre-engine start checklist always ensure that any loose items on the trike and yourself and passenger are secured so they can't go through the prop and cause an unwanted situation.

3.3.8 Sail Damage

If you discover damage to the sail during flight, the first procedure is to maintain control of the aircraft. If the sail damage is not impairing the flight characteristics of the aircraft, land at the nearest landing field to inspect the damage.

3.3.9 Emergency Parachute (Optional)

WARNING
There is no guarantee of any kind that BRS will always work in all circumstances of an emergency in saving the occupants life. It should be used as a measure of last resort

WARNING
It is important to realize that the parachute once deployed will control the rate of descent but the pilot will not have any control over where the aircraft will land

WARNING
BRS safety pin should be removed before flight and REPLACED right after flight before getting out of the trike in order to avoid accidental deployement

The emergency ballistic parachute can be fitted as an option.
The parachute-operating handle is fitted with a safety pin. This pin should be removed before each flight and the safety pin must be replaced before the pilot alights from the aircraft. A force of approximately 35 pounds (16 Kg) pull on the actuating handle is required to activate the BRS rocket motor
This parachute release sequence should be explained by the pilot to the passenger, before flight.
The parachute is only to be used in emergency situations as a last resort and when you are certain that:
the aircraft has suffered structural damage to the extent that control is not possible; or
if the aircraft is in an irrecoverable situation where structural damage is likely to occur

To operate the parachute pull the handle at least 8 inches (20 centimeters) for the parachute rocket projectile to be activated. The parachute will allow the complete aircraft to be lowered to the ground. The aircraft will descend with a nose down attitude. Further information can be found in section 7.18.
Proceed as follows:

T Throttle closed
I Ignition off
S Seat belts tight
P Check parachute Pin removed
D Deploy parachute
SF Safety Position assumed
F Fuel Valve Off (if possible)

3.3.10 Ignition Circuit Failure

The Rotax engine requires a short circuit on the ignition circuit to stop the engine. If the ignition circuit is broken using full choke to flood the engine should stop the engine.
It is possible to starve the engine by switching the fuel valve off. This method is not as quick as using the choke. Choke is located under the dash between pilot's legs. Become familiar with its location and operation prior to flight.
Do not restart the engine until the fault has been fixed.

3.3.11 Spins and Spiral Descents

WARNING
No deliberate spin attempts are permitted
Spiral Dives should not be attempted
During descending turns aircraft attitude should be kept within operating limitations for pitch, roll and airspeed

Any attempt at deliberate spinning of the aircraft is prohibited.
After a stall a spiral dive may develop if the bar is maintained at the forward limit and fast roll rate is allowed to develop or continue. If this condition is not corrected it will lead to large and increasing bank attitudes (beyond the 60 degree limit). Increasing attitude, increasing speeds and large control bar feed back forces will occur. Spiral dives can be terminated at any time by rolling wings level.
If the spiral dive is allowed to develop to extreme bank attitudes, recovery is helped by relieving control bar forces and then rolling wings level and recovering from high-speed condition.

3.3.12 Unusual Attitudes

Unusual attitudes where the nose is raised or lowered more than 30 degrees from the horizontal are to be avoided. On recognizing a situation where the aircraft is approaching these pitch angles proceed as follows:

3.3.12.1 Nose High Attitude

To recover from the situation where the nose of the aircraft is pitched up more than 30 degrees from the horizontal proceed as follows:

P Reduce Power appropriately
C Pull in the Control bar slightly if necessary to get within limits
N The aircraft will rotate Nose down
P once the attitude lowers level the wings and increase Power to prevent over pitching
R Recover from dive and Resume desired flight path

3.3.12.2 Nose Down Attitude

To recover from the situation where the nose of the aircraft is pitched down more than 30 degrees from the horizontal proceed as follows:

O Raise attitude - push Out
P Apply Power
R Recover from dive and Resume desired flight path

3.3.13 Instrument Failure

Instrument failure may happen through an electrical fault or through exposure to High Intensity Radio Fields (HIRF).
The aircraft is equipped with a digital engine management system. If there is a problem with the digital system the correct procedure is to fly to the nearest safe landing area and investigate the cause of the malfunction. Correct the problem before flying again.

4 Normal Procedures

4.1 General

This section of the manual describes procedures for normal operations of this aircraft.

4.1.1 Speeds for Normal Operation

4.1.1.1 H12 Classic Wing

Trim Speed	64 – 85 MPH (55 – 74 Kts) (103 – 136 km/hr)
Stall Speed at Maximum Take Off Weight	45 MPH (39 Kts) (72 Km/hr)
Take Off Safety Speed - TOSS	54 MPH (47 kts) (86 Km/hr)
Maximum Speed in Turbulence (Va)	90 MPH (78 Kts) (144 Km/hr)
Maximum Level Speed (Vh)	99 MPH (86 Kts) (159 Km/hr)
Maximum wind operating conditions (At ground level)	23 MPH (20 Kts) (37 Km/hr)
Maximum Crosswind Component	14 MPH (12 Kts) (22 Km/hr)

4.1.1.2 H12 Topless Wing

Trim Speed	64 – 85 MPH (55 – 74 Kts) (103 – 137 km/hr)
Stall Speed at Maximum Take Off Weight	45 MPH (39 Kts) (72 Km/hr)
Take Off Safety Speed - TOSS	54 MPH (47 kts) (86 Km/hr)
Maximum Speed in Turbulence (Va)	90 MPH (78 Kts) (144 Km/hr)
Maximum Level Speed (Vh)	99 MPH (86 Kts) (159 Km/hr)
Maximum wind operating conditions (At ground level)	23 MPH (20 Kts) (37 Km/hr)
Maximum Crosswind Component	14 MPH (12 Kts) (22 Km/hr)

4.1.1.3 Profi Wing

Trim Speed	53 – 65 MPH (46 – 57 Kts) (85 – 105 km/hr)
Stall Speed at Maximum Take Off Weight	32.5 MPH (28 Kts) (52 Km/hr)
Take Off Safety Speed - TOSS	46 MPH (40 Kts) (74 Km/hr)
Maximum Speed in Turbulence (Va)	65 MPH (56.5 Kts) (104 Km/hr)
Maximum Level Speed (Vh)	87 MPH (75 Kts) (139 Km/hr)
Maximum wind operating conditions (At ground level)	23 MPH (20 Kts) (37 Km/hr)
Maximum Crosswind Component	14 MPH (12 Kts) (22 Km/hr)

4.1.2 Normal procedures Check List

This section provides more comprehensive information regarding normal operations of this aircraft and assumes the pilot has been trained in the assembly and use of a weight shift controlled aircraft by a qualified instructor.
PIC has the ultimate responsibility for determining if the aircraft is in a safe condition for flight. Pre-flight inspections, post-flight inspections and securing the plane all fall on the PIC. Unlike the highway, there is no place to pull over and remedy an unsafe problem once you are flying. Use of common sense, conservative approach and ADM will help you enjoy your flying career for a long time.

4.2 Wing Assembly Procedure

4.2.1 Aeros Profi

Please refer to the Profi wing manual supplement

4.2.2 H12 Classic

Please refer to the H12 Classic wing manual supplement

4.2.3 H12S Topless

Please refer to the H12S wing manual supplement

4.3 Wing Pre-flight inspection

The design of the wing is such that junctions not open to view may be reached from zipped inspection panels or by spreading the sail open in case of trailing edge of the H12 wings. Start at the A-frame or control frame of right wing and move around the wing making the following checks. Familiarize yourself with the wing so your pre-flights are effective and orderly.

Wing Pre-Flight Inspection	
Start with the Right Wing	
A-frame/Control frame Locked	√
A-frame/Control frame cables secure	√
Downtube not kinked or damaged	√
Hangblock secure	√
Hangblock backup cable secure	√
Crosstube haulback tensioning cable secure	√
Nose swan catch secure, nose plates secure, nose cables secure	√
Leading edge tube undamaged and not bent	√
Main cables/struts inspected for any damage	√
Leading edge tube and crosstube junction area inspected and secure	√
Wing tip secure and webbing not worn	√
Washout strut/dive stick secured if applicable (No washout strut in H12 series wings)	√
Leading edge tube inspected from the wing tip, condition good, no bends or abnormalities	√
Battens secure and pockets free from damage	√
Trailing edge sail condition good, no tears	√
Reflex bridle/Luff lines secure. Sprog secure (H12S)	√
Haulback cable secured on back of the wing keel. Bracket in good shape	√
Continue to Left Wing	
Trailing edge sail condition good, no tears	√
Reflex bridle/Luff lines secure. Sprog secure (H12S)	√
Battens secure and pockets free from damage	√
Washout strut/dive stick secured if applicable (No washout strut in H12 wings)	√
Wing tip secure and webbing not worn	√
Leading edge tube undamaged and not bent	√
Leading edge tube and crosstube junction area inspected and secure	√
Main cables/struts inspected for any damage	√
Downtube not kinked or damaged	√
A-frame/Control frame cables secure	√
A-frame/Control frame Locked	√
Nose area (plates), bolts, nuts secure and catch in good shape. No cracks	√
General Extended	

Top rigging secure	√
All Inspection zips secure	√
Sail condition inspection	√
Sail free from water accumulation	√
Full / free movement of the wing when attached to the trike base to be completed before flight	√
Inspect all cables. Inspect for kinks fraying, corrosion, particularly around the NICO press fittings	√
The symmetry of the wing (Batten profile check)	√
All sail seams intact, with no frayed stitching	√
Nose cone centered and secured	√

4.4 Attaching Wing to Trike Carriage

Attaching Wing to Trike Carriage
Make sure that the ignition is off
Remove wind shield using quick release snap fittings securing the windshield
Position the wing on its A-frame, facing into the wind, with the nose on the ground
Release the mast swivel locking bolt located on the mast behind the back seat. Use the holes in the back seat headrest area covering the engine to slide your hands in to release this bolt
Release the compression strut on the bottom bracket on the fairing by releasing the quick locking pin
Gently pull out the compression strut from the bracket and let the folding mast down
Wheel the trike behind the wing, rolling the front wheel over the control bar and get it centered
Allow the mast tube to until high enough to connect the hangblock to the wing. Insert the hang bolt with bolt head retaining unit. Tighten nut firmly by hand and secure with safety pin. Secure the backup safety cable
Let the wing keel area rest on the rubber stop on the mast so it does not crush the mast fairing. This also provides leverage when raising the wing and mast up and eliminates the need for chokes or parking brakes during this procedure
Gently slide the trike carriage backwards so that the control bar is now just in front of the trike front wheel
Squat on the ground and carefully lift the wing by the control bar, making sure the A-frame is centered and not rubbing against the trike fairing
After lifting the wing a bit, you will begin to feel the leverage provided by the rubber stop and it will be easy to lift the wing the rest of the way
With the one hand, place compression strut tube into its bracket and rest it on the bolt heads securing it from sliding back and forth
Move to the Mast folding area and secure the mast with the mast locking bolt assembly
Secure the compression strut tube with the quick release safety pin
Install windshield back with quick snap-ins
At this point if required wing training bars can be optionally installed

4.5 Complete Trike Pre Flight inspection

Ensure that the ignition switches are off prior to inspection. Daily inspections as outlined in the Rotax Engine Operator's Manual should be carried out in conjunction with the following inspections.

Trike Carriage Pre-Flight Inspection	
No hydraulic, oil or coolant leaks visible	√
Check oil level	√
Fuel vent line unobstructed	√
Check remote oil tank secure and not loose	√
Check enough gas present for flight	√
Check coolant present in overflow bottle between max and min marks	√
Check propeller blades and Hub for nicks, cracks and de-laminating and bolts and nuts secure	√
All engine components secure - air filter, muffler, plug leads. Engine cowling secure	√
Check tire tread	√
Check main wheel pants secure	√
No bolts and nuts fractured or cracked. Evidence of corrosion	√
Mast locking bolt and nut secured	√
Electrical system operational and secure	√
Foot throttle and cruise hand throttle operation	√
Seat belt condition good	√
Compression strut locking pins on top and bottom secured. Brackets not cracked or bent	√
Hangblock secured to mast properly. Safety cable installed	√
Mechanical Components. Rotate propeller anti-clockwise for about half a turn (not more) and observe for noise or excessive resistance	√
Front fork area checked for general condition	√
Parachute if attached secure and cable and pull handle securely in place	√
General inspection of trike complete	√

4.6 Fueling

WARNING
Make sure aircraft is GROUNDED while fuelling to avoid static discharge from igniting fuel

Fuel flow is from a single fuel tank fitted with a self-venting tube vented behind and at the bottom side of the trike and labeled. The fuel system is fitted with a shut off valve located on the rear left hand side of the back seat on the fiberglass. Be sure this valve is in the ON position before starting engine.
Never refuel if fuel could be spilled on hot engine components. Use only approved fuel containers. Never transport fuel in an unsafe manner.
Fuel fill cap has a key lock mechanism.

4.6.1 Fuel Filter

The fuel system has an in-line fuel filter, which is mounted between the fuel tank and the fuel shut off valve. This filter can be replaced and should be checked for debris once a week for cleaning and inspection (See maintenance manual)

4.6.2 Fuel Level

NOTE
Note fuel level on instrument panel to determine how much fuel will be required to fill the tank

The Delta Jet series fuel levels are seen from the MGL Avionics Stratomaster fuel level installed on the dash. Before fuelling turn the instrument on, read the fuel level when reading has stabilized to get an idea of how much fuel is required to fill the tank. Fill conservatively. The tank capacity is 14 US Gallons or 53 Liters.

4.6.3 Fuel Vent

A fuel vent line is located in the neck of the filler cap and is guided/vented to the outside of the trike near the back on the bottom. Make sure this isn't obstructed before flight.

4.6.4 Quick Drain

The fuel tank has a Curtis CCA-1250 (Assembled 3Q05) Quick drain valve mounted with a T-fitting at the base and to the front of the tank visible from underneath the trike. Curtis Quick drain hose can be used to drain the fuel completely if desired.

4.7 Helmet, Ear and Eye Protection Requirement

The open cockpit of trikes exposes the occupants to the elements during flight and exposes them to objects outside of the aircraft in an emergency situation.
Helmets, ear and eye protection are required for occupants for protection from wind, light rain and strike by insects and so on. Helmets are also required for risk reduction during an emergency landing of the aircraft.
We recommend Flycom communication helmets for the Delta Jet.
(http://www.flycom.co.uk)

4.8 Normal Procedures Check List

The following checklists should be used as a reference or a guide. Ultimately its PIC's responsibility to develop checklists that work for their flights. Prior to flight a thorough pre-flight inspection of the aircraft should be carried out. Details of the pre-flight inspection are shown earlier in this manual.

4.8.1 Before Engine Start

Before Engine Start	
Pre-Flight inspection complete	√
Controls deflections free and full on the ground	√
Passenger Briefing completed	√
Helmets secure	√
Seatbelts secure	√
Loose objects secure (trike and persons)	√
Intercom ON	√
Brakes ON	√
Parachute handle pin released (if applicable)	√
Area Clear	√

4.8.2 Starting Engine

WARNING **Never leave your aircraft unattended while the engine is running!**
WARNING **Remember to Yell CLEAR PROP!**

Starting Engine	
Brakes ON	√
Fuel shut off valve ON	√
Throttles to idle (hand and foot)	√
Master/Main ON	√
Choke ON	√
Ignition Key to "Both"	√
Clear Prop	√
Ignition key engaged to "Start" –Release when engine fires	√
Oil Pressure (2 bars or 30 PSI within 10 seconds)	√
Choke OFF	√
Idle adjusted to 2000 RPM	√
Radio check – if applicable	√

4.8.3 Taxiing

Taxiing in normal conditions is fairly straight forward.
With the engine idling the brake should be released gently which will disengage the brakes. The A-frame should be positioned so that it is in the approximate position for normal trim speed. The pilot's feet actuate steering on the ground. Left turn occurs when the right foot-peg is pushed forward. Right turn occurs when the left foot-peg is pushed forward.

NOTE

Control sense for turning is opposite to that of a conventional three axis aircraft.

When taxiing in strong wind conditions the following procedures apply:
· Head Wind conditions requires the nose of the wing to be lowered just below the trim position
· Down Wind conditions requires the nose of the wing to be raised just above the trim position
· Cross wind conditions requires the upwind tip to be lowered

4.8.4 Before Take Off

CAUTION

Be careful of loose objects in the engine run-up and take off area. These objects can be sucked up by the propeller and can cause damage to the aircraft

Before Take Off	
Brakes ON	√
Choke OFF	√
Warm up engine – adjust idle to 2400 RPM till reach 50ºC or 120º F	√
Oil – check temperature and pressure	√
Mags check – increase rpm to 3800. Rpm drop with one ignition must not exceed 300 rpm	√
Fuel quantity – sufficient for flight	√
Instruments - set	√
Seatbelts secure	√
Helmets secure – chin strap secure, visor down and locked	√
Throttle Response – 80% On for 3 seconds	√
Controls – pitch and roll, full and free movement	√
Base and final – clear of traffic	

WARNING

Keep an aircraft and engine log and enter any unusual engine behavior. Do not fly unless you have corrected a given problem and recorded the correction in the log

4.8.5 Take Off and Initial Climb

CAUTION

High angle climb outs near the ground should be avoided

WARNING

At low takeoff weights the TOSS can result in nose high angles that can be out of prescribed limits of +30º. The pilot must be aware of this and should keep the aircraft within prescribed limits by lowering the nose or reducing engine power appropriately

4.8.5.1 Normal Take Off and Initial Climb

Normal Take Off and Initial Climb	
Pitch Control – past neutral towards the compression strut. As you speed up there may be noticeable back pressure from the control bar, keep it pushed forward	√
Hand Throttle OFF	√
Foot Throttle – full ON	√
Directional Control – maintain centered	√
Speed – build up TOSS TOSS - H12 Classic = 54 MPH (47 kts) (86 Km/hr) TOSS - H12S Topless = 54 MPH (47 kts) (86 Km/hr) TOSS - Profi = 46 MPH (40 Kts) (74 Km/hr)	√
Rotate - push control bar smoothly forward so it touches the compression strut	√
Control bar pressure released smoothly and speed adjusted for shallow nose angle climb close to ground	√

4.8.5.2 Crosswind Take Off and Initial Climb

Crosswind Take Off and Initial Climb	
Pitch control neutral	√
Hand Throttle OFF	√
Foot Throttle – full ON	√
Directional Control – maintain centered	√
Speed – build up TOSS TOSS - H12 Classic = 54 MPH (47 kts) (86 Km/hr) TOSS - H12S Topless = 54 MPH (47 kts) (86 Km/hr) TOSS - Profi = 46 MPH (40 Kts) (74 Km/hr)	√
Rotate - push control bar forward so it touches the compression strut	√
Control bar pressure released smoothly and speed adjusted for shallow nose angle climb close to ground	√

4.8.6 Climb

Climb	
Throttle - ON	√
RPM – Reduce to 5000 if necessary to maintain climb angle within limits (+30º)	√
Airspeed – Best Climb Speed - H12 Classic = 60 MPH (52 Kts) (96 Km/hr) Best Climb Speed - H12S Topless = 60 MPH (52 Kts) (96 Km/hr) Best Climb Speed - Profi = 44 MPH (38 Kts) (70 Km/hr)	√

4.8.7 Cruise

Cruise	
Cruise Throttle – adjust foot throttle for level flight at desired speed and then adjust cruise hand throttle on right hand side of the trike to release pressure	√
Airspeed – H12 Classic = 64 – 85 MPH (55 – 74 Kts) H12S Topless = 64 – 85 MPH (55 – 74 Kts) Profi = 51 – 68 MPH (44 – 59 Kts)	√

NOTE

When the hand throttle is actuated increase power can still be achieved with the use of the foot throttle. The rpm will always return to the set cruise RPM when foot throttle is disengaged.

4.8.8 Descent

NOTE

You can increase these speeds for gusty conditions

Descent	
Foot Throttle - reduce	√
Hand Throttle - OFF	√
Airspeed – H12 Classic = 64 – 73 MPH (55 – 63 Kts) (102 – 117 Km/hr) H12S Topless = 64 – 73 MPH (55 – 63 Kts) (102 – 117 Km/hr) Profi = 58 – 68 MPH (50 – 59 Kts) (93 – 109 Km/hr)	√

4.8.9 Landing

Landing	
Hand Throttle - OFF	√
Airspeed – H12 Classic = 64 – 73 MPH (55 – 63 Kts) (102 – 117 Km/hr) H12S Topless = 64 – 73 MPH (55 – 63 Kts) (102 -117 Km/hr)	√

Profi = 58 – 68 MPH (50 – 59 Kts) (93 – 109 Km/hr)	
Nose Wheel - straight	√
Final - clear	√
Landing – execute properly per training	√
Braking – OFF and then as required	√

Landing should always be into the wind with a long straight approach.
The landing distance specified in performance section is the measured ground distance covered from an approach at 50 feet (15 meters) above the average elevation of the runway used until the aircraft makes a complete stop.
An approach to the runway can be with or without power. However, the airspeed should be maintained above the nominated approach speed in either case.
The aircraft should be flown on final approach at or above the nominated safety speed. The additional airspeed allows for wind gradient, and to provide greater controllability in the rough air that may lie close to the ground. Maintaining airspeed on final is very important for engine-off landings, allowing a margin for round out before touchdown.
The trike is designed to land with the rear wheels touching down slightly before the nose wheel. Once all three wheels are solidly on the ground, aerodynamic braking may be achieved by pulling in the control bar, then applying the front nose wheel brake.

NOTE

In the case of a hard landing the maintenance manuals for both the wing and the carriage should be referenced. It must be noted that after a hard landing, your aircraft must be completely checked.

4.8.10 Crosswind Operation

Pilots with low hours should avoid landing or taking off with high crosswind components. Pilot skills and aircraft capabilities are two separate things and lack of either one can set events in motion to cause problems or accidents. Crosswind landings or take off with low wind components up to 7 knots are quite safe and controllable, even in the hands of qualified but relatively inexperienced weight shift control pilot.
The nominated approach speed should be on the higher side of the range listed when landing in cross wind conditions of 8 knots or more.

WARNING

In crosswind landings, after planting the mains on the ground, it is very important especially on paved runways as opposed to grass fields, in higher crosswind component that the nose wheel be kept flying and kept above the ground till the trike carriage has time to lines up straight with the direction of travel before nose wheel comes in contact with the ground. Not doing so can flip your trike on its side and cause injuries possibly serious

On grass runways, the wheel can possibly slide sideways on the grass but that will not be the case on paved runways. Proper technique and instruction is a must for crosswind landings in the higher range crosswind component.

After a full touchdown in crosswind conditions the relative airflow over the wing will become increasingly from tip to tip as the aircraft slows down. The upwind wing tip should be lowered slightly. This amount depends on the wind strength, and the carriage wheels should retain firm contact with the ground.
Take off procedure is unchanged for the nominated crosswind component. The upward wing may need to be lowered at the start of the take off procedure in higher crosswinds but make sure the wings are level at the point of liftoff or a turn immediately following the liftoff will result.

WARNING

The upward wing may need to be lowered at the start of the take off procedure in higher crosswinds but make sure the wings are level at the point of liftoff or a turn immediately following the liftoff will result

4.8.11 After Landing

After Landing	
Controls – secure (wing tied properly to the compression strut, upwind wing tip down)	√
Ignition - OFF	√
Electrical Switches – OFF (landing light, strobe, master)	√
Carb Heat Switch - OFF	√
Radio – OFF (if applicable)	√
Seatbelts - unlatched	√
Parachute Pin - inserted	√
Exit – exit the aircraft and help passenger exit if necessary	√

4.8.12 Parking the Aircraft

The aircraft should be parked in a crosswind position with the wings base tube secured to the mast brace with the bungie supplied. The wingtip facing the wind should lowered

4.8.13 Go Around

During a situation where a go around is required, normal take off power and procedures should be used and enough airspeed should be built up before raising the nose of the trike for climb out.

4.8.14 Ideal Minimum Safe Runway Length

It is common for pilots to try to calculate the shortest possible runway to use. Apollo strongly recommends using a runway that is long enough so that a straight ahead landing can be made on the runway in the event of an engine failure on takeoff, up until safe altitude is reached whereby a 180 degree turn can be made to land downwind on the same runway. Pilots often have a false sense of security when overhead a runway, when in reality they are in the danger zone and outside the cone of flight safety. Often the runway is too short to land straight ahead on and too short to allow sufficient altitude for

a 180 degree turn back to the runway, thus an engine failure over the runway could lead to an off-field accident. The approxmate lowest altitude, dependant on pilot skill and environmental factors, etc., for a 180 degree turn to landing is 300-500' AGL.

NOTE
Ideal minimum safe runway length can be calculated like this:

Takeoff distance to 15 m (50 feet) + distance to climb to 300+ feet at best climb + distance to descend from 300 feet to 50 feet + landing distance from 15 m (50 feet).

This assumes perfect pilot skill, and thus should be multiplied by a safety factor.

CAUTION
Pilots may be surprised to discover that this ideal safe runway can be over 3,000 ft. long, and also to discover that the runway they operate from has an unsafe zone right overhead the runway

Runways surrounded by safe landing areas or with good overshoots, however, do not need this ideal length.

4.9 Separating Wing from Trike Carriage

Separating Wing from Trike Carriage
Make sure the conditions are not extremely windy in the area that this is being done
Make sure that the ignition is off
Optionally if fitted with wing training bars, it will be advantageous to remove the training bars from the wing at this point
Remove wind shield using quick release snap fittings securing the windshield
Secure the trike carriage so it can't move into the wind (chocks)
Release the mast swivel locking bolt located on the mast behind the back seat. Use the holes in the back seat headrest area covering the engine to slide your hands in to release this bolt
Release the compression strut on the bottom bracket on the fairing by releasing the quick locking pin. Rest it on top of the bolt heads temporarily with care
Gently pull out the compression strut from the bracket and let the folding mast down, carrying the weight of the wing using the control bar held in your hand. Slowly bring the wing down over and in front of the trike fairing. The wing keel will rest against the rubber stop on the back of the mast tube and provide leverage
Position the wing on its A-frame, facing into the wind
Disconnect the hangblock from the mast tube by removing the hang bolt with bolt head retaining unit and undoing the safety pin/ring and the nut. Undo the safety backup cable. Good idea to re-do the hang bolt assembly and put it back through the mast hole so its in place and secure for when wing needs to be re-attached to the trike
Gently slide the trike carriage backwards away from the wing by pushing it backwards making sure that the trike pod/fairing clears the A-frame down tubes

Take the nose cone/fairing off and let the wing down on its nose on soft ground or protected surface. Surface should be protected by some kind of padding or thick cardboard where the nose rests on the ground because the weight of the wing is on it

4.10 Wing Break Down Procedure

4.10.1 Aeros Profi

Please refer to the Profi wing manual supplement

4.10.2 H12 Classic

Please refer to the H12 Classic wing manual supplement

4.10.3 H12S Topless

Please refer to the H12S wing manual supplement

4.11 Transportation and Storage

4.11.1 Transporting by Trailer

The wing must always be transported packed in its bag, and the bag zip should face downwards to prevent the entry of rain water. During transportation, or when stored on slings, the wing must be supported at three places;
a) Its centre and
b) Two points less than 3 feet (1 meter) from each end.
The padding supplied with the wing must be used to prevent chaffing during transport. Supports should be softly padded, and any support systems used for transport, such as roof racks, must use attachment straps that are sufficiently secure to eliminate the possibility of damage from vibration and movement.
Avoid damage to your wing by using well-padded racks. As the wing is quite heavy a strong set of racks are required.
During transport the trike carriage should be firmly held at both the front and the rear to prevent movement. Tie down straps should be used with a ratchet system so preload can be applied, this allows the tires to be compressed slightly so as to firmly hold the base in place during transport
When transporting the trike carriage the use of trike and prop covers to protect your aircraft from road grime (and idle fingers) is recommended. Tie the propeller to the trike to stop it from rotating at speed.
Check that the back of the wing is well clear of the front mast with the trike on the trailer. Remember that you have an overhanging load when maneuvering in tight places.
Store the wing in a dry room off the ground; air the wing out regularly to avoid mildew, and never store wet.

4.11.2 Packed in a Crate

The fuel tank, as well as the carburetor bowls, must be emptied! The propeller must be removed and packed properly with its blade covers and bubble wrap or soft packing material and put in a box. The battery ground must be disconnected. The rear landing gear should be removed and engine supported up in the crate using welded engine stand for crate (generally provided with the trike originally). The airframe should be secured by the propeller shaft. The radiator and bottom of the fiberglass pod should not be touching the crate floor.

4.11.3 Parachute

Aircraft equipped with a parachutes deployed by pyrotechnic rockets are covered by particular Regulations according to the Country of Registration of the Aircraft, you must know and adhere to these Regulations.

4.11.4 Storage

The trike carriage should be thoroughly checked and cleaned prior to storage. After cleaning, wipe all metal components with a clean lightly oiled cloth, while avoiding joints and rubberized parts.
If the trike carriage is to be stored for a long period (e.g.:1.5 or more months):
• Place a well oiled cloth in the open end of the exhaust
• Cover the air filter with several layers of protection to prevent condensation.
• Drain the fuel tank.
• Disconnect the negative terminal of the battery

See your engine manual for precautions to be observed if you intend to store the aircraft without use for extended periods.

5 Performance

5.1 General

The performance data in this section has been gathered from flight testing the aircraft with power plant and wing in good condition and using average piloting techniques. It should be noted that climatic conditions, piloting techniques and aircraft condition will cause significant variation to this data.

5.2 Take Off and Landing

5.2.1 Take Off

5.2.1.1 ISA conditions, clean dry runway, calm winds, sea level

Performance at MTOW with 912 UL (80 HP)	Metric	Imperial
H12 Classic - Take off distance to 50 ft (15 m)	255 m	836 ft
H12S Topless – Take off distance to 50 ft (15 m)	255 m	836 ft
Profi – Take off distance to 50 ft (15 m)	230 m	755 ft

Performance at MTOW with 912 ULS (100 HP)	Metric	Imperial
H12 Classic - Take off distance to 50 ft (15 m)	234 m	767 ft
H12S Topless – Take off distance to 50 ft (15 m)	234 m	767 ft
Profi – Take off distance to 50 ft (15 m)	204 m	700 ft

Performance at typical weight of 748 lbs (340 kg) with 912 UL (80 HP)	Metric	Imperial
H12 Classic - Take off distance to 50 ft (15 m)	178 m	586 ft
H12S Topless – Take off distance to 50 ft (15 m)	178 m	586 ft
Profi – Take off distance to 50 ft (15 m)	161 m	530 ft

Performance at typical weight of 748 lbs (340 kg) with 912 ULS (100 HP)	Metric	Imperial
H12 Classic - Take off distance to 50 ft (15 m)	163 m	535 ft
H12S Topless – Take off distance to 50 ft (15 m)	163 m	535 ft
Profi – Take off distance to 50 ft (15 m)	150 m	490 ft

5.2.1.2 3000 feet (914 m) density altitude, clean dry runway, calm winds

Performance at MTOW with 912 UL (80 HP)	Metric	Imperial
H12 Classic - Take off distance to 50 ft (15 m)	410 m	1345 ft
H12S Topless – Take off distance to 50 ft (15 m)	410 m	1345 ft
Profi – Take off distance to 50 ft (15 m)	366 m	1200 ft

Performance at MTOW with 912 ULS (100 HP)	Metric	Imperial
H12 Classic - Take off distance to 50 ft (15 m)	366 m	1200 ft
H12S Topless – Take off distance to 50 ft (15 m)	366 m	1200 ft
Profi – Take off distance to 50 ft (15 m)	320 m	1050 ft

Performance at typical weight of 748 lbs (340 kg) with 912 UL (80 HP)	Metric	Imperial
H12 Classic - Take off distance to 50 ft (15 m)	288 m	945 ft
H12S Topless – Take off distance to 50 ft (15 m)	288 m	945 ft
Profi – Take off distance to 50 ft (15 m)	256 m	840 ft

Performance at typical weight of 748 lbs (340 kg) with 912 ULS (100 HP)	Metric	Imperial
H12 Classic - Take off distance to 50 ft (15 m)	256 m	840 ft
H12S Topless – Take off distance to 50 ft (15 m)	256 m	840 ft
Profi – Take off distance to 50 ft (15 m)	224 m	735 ft

The following factors will increase takeoff distance:
Tail wind
Tall grass on the runway
Higher density altitude
Pilot skill

PIC is required to take into account the effects of these adverse factors while planning a takeoff.

5.2.2 Landing

5.2.2.1 ISA conditions, clean dry runway, calm winds

Performance at MTOW with 912 UL (80 HP) and 912 ULS (100 HP)	Metric	Imperial
H12 Classic – Landing distance from 50 ft (15 m)	355 m	1165 ft
H12S Topless – Landing distance from 50 ft (15 m)	355 m	1165 ft
Profi – Landing distance from 50 ft (15 m)	305 m	1000 ft

Performance at typical weight of 748 lbs (340 kg) with 912 UL (80 HP) and 912 ULS (100 HP)	Metric	Imperial
H12 Classic – Landing distance from 50 ft (15 m)	338 m	1110 ft
H12S Topless – Landing distance from 50 ft (15 m)	338 m	1110 ft
Profi – Landing distance from 50 ft (15 m)	290 m	950 ft

NOTE
Braking is more effective and positive because momentum is less

5.2.2.2 3000 feet (914 m) density altitude, clean dry runway, calm winds

Performance at MTOW with 912 UL (80 HP) and 912 ULS (100 HP)	Metric	Imperial
H12 Classic – Landing distance from 50 ft (15 m)	568 m	1865 ft
H12S Topless – Landing distance from 50 ft (15 m)	568 m	1856 ft
Profi – Landing distance from 50 ft (15 m)	488 m	1600 ft

Performance at typical weight of 748 lbs (340 kg) with 912 UL (80 HP) and 912 ULS (100 HP)	Metric	Imperial
H12 Classic – Landing distance from 50 ft (15 m)	552 m	1810 ft
H12S Topless – Landing distance from 50 ft (15 m)	552 m	1810 ft
Profi – Landing distance from 50 ft (15 m)	473 m	1550 ft

NOTE
Braking is more effective and positive because momentum is less

The following factors will increase landing distance:
Brakes not working optimally
Tail wind
Downhill landing
Higher density altitude
Pilot skill

PIC is required to take into account the effects of these adverse factors while landing. Direct crosswind components of up to 12 knots at gross weight are within Delta Jet's operating limitations.

Always plan conservatively when selecting locations for take-off and landing. Leave some margin for appropriate procedure to be performed in the event of sudden engine failure or turbulence.

5.3 Climb

5.3.1 ISA conditions, calm winds, sea level, MTOW

Performance at MTOW with 912UL, 80 HP	**Metric**	**Imperial**
H12 Classic		
Climb Rate	4.0 m/sec	800 FPM
Best Climb Speed	97 km/hr	60 MPH (52 Kts)
H12S Topless		
Climb Rate	4.0 m/sec	800 FPM
Best Climb Speed	97 km/hr	60 MPH (52 Kts)
Profi (MTOW = 1039 lbs, 470 Kg)		
Climb Rate	5.5 m/sec	1100 FPM
Best Climb Speed	70 km/hr	44 MPH (38 Kts)
Performance at MTOW with 912ULS, 100 HP		
H12 Classic		
Climb Rate	6.35 m/sec	1250 FPM
Best Climb Speed	97 km/hr	60 MPH (52 Kts)
H12S Topless		
Climb Rate	6.35 m/sec	1250 FPM
Best Climb Speed	97 km/hr	60 MPH (52 Kts)
Profi (MTOW = 1039 lbs, 470 Kg)		
Climb Rate	8.12 m/sec	1600 FPM
Best Climb Speed	70 km/hr	44 MPH (38 Kts)

5.3.2 ISA conditions, calm winds, sea level, typical weight

Performance at typical weight of 748 lbs (340 kg) with 912UL, 80 HP	**Metric**	**Imperial**

H12 Classic		
Climb Rate	5.5 m/sec	1100 FPM
Best Climb Speed	97 km/hr	60 MPH (52 Kts)
H12S Topless		
Climb Rate	5.5 m/sec	1100 FPM
Best Climb Speed	97 km/hr	60 MPH (52 Kts)
Profi		
Climb Rate	6.7 m/sec	1325 FPM
Best Climb Speed	70 km/hr	44 MPH (38 Kts)
Performance at typical weight of 748 lbs (340 kg) with 912ULS, 100 HP		
H12 Classic		
Climb Rate	8.38 m/sec	1650 FPM
Best Climb Speed	97 km/hr	60 MPH (52 Kts)
H12S Topless		
Climb Rate	8.38 m/sec	1650 FPM
Best Climb Speed	97 km/hr	60 MPH (52 Kts)
Profi		
Climb Rate	9.4 m/sec	1850 FPM
Best Climb Speed	70 km/hr	44 MPH (38 Kts)

5.3.3 3000 feet density altitude, calm winds, MTOW

Performance at MTOW with 912UL, 80 HP	**Metric**	**Imperial**
H12 Classic		
Climb Rate	3.0 m/sec	600 FPM
Best Climb Speed	97 km/hr	60 MPH (52 Kts)
H12S Topless		
Climb Rate	3.0 m/sec	600 FPM
Best Climb Speed	97 km/hr	60 MPH (52 Kts)
Profi (MTOW = 1039 lbs, 470 Kg)		
Climb Rate	4.4 m/sec	875 FPM
Best Climb Speed	70 km/hr	44 MPH (38 Kts)
Performance at MTOW with 912ULS, 100 HP		
H12 Classic		
Climb Rate	4.8 m/sec	950 FPM
Best Climb Speed	97 km/hr	60 MPH (52 Kts)
H12S Topless		
Climb Rate	4.8 m/sec	950 FPM
Best Climb Speed	97 km/hr	60 MPH (52 Kts)
Profi (MTOW = 1039 lbs, 470 Kg)		
Climb Rate	6.0 m/sec	1200 FPM
Best Climb Speed	70 km/hr	44 MPH (38 Kts)

5.3.4 3000 feet density altitude, calm winds, typical weight

Performance at typical weight of 748 lbs (340 Kg) with 912UL, 80 HP	**Metric**	**Imperial**
H12 Classic		
Climb Rate	4.3 m/sec	850 FPM
Best Climb Speed	97 km/hr	60 MPH (52 Kts)
H12S Topless		
Climb Rate	4.3 m/sec	850 FPM
Best Climb Speed	97 km/hr	60 MPH (52 Kts)
Profi		
Climb Rate	5.0 m/sec	1000 FPM
Best Climb Speed	70 km/hr	44 MPH (38 Kts)
Performance at typical weight of 748 lbs(340 kg) with 912ULS, 100 HP		
H12 Classic		
Climb Rate	5.5 m/sec	1100 FPM
Best Climb Speed	97 km/hr	60 MPH (52 Kts)
H12S Topless		
Climb Rate	5.5 m/sec	1100 FPM
Best Climb Speed	97 km/hr	60 MPH (52 Kts)
Profi		
Climb Rate	7.1 m/sec	1400 FPM
Best Climb Speed	70 km/hr	44 MPH (38 Kts)

5.4 Stall Speeds

Performance at MTOW	**Metric**	**Imperial**
H12 Classic	72 km/hr	45 MPH (39 Kts)
H12S Topless	72 km/hr	45 MPH (39 Kts)
Profi	52 km/hr	32.5 MPH (28 Kts)
Performance at typical weight of 748 lbs (340 kg)		
H12 Classic	65 km/hr	40 MPH (35 Kts)
H12S Topless	65 km/hr	40 MPH (35 Kts)
Profi	47 km/hr	29 MPH (25 Kts)

5.5 Glide

Glide data has been gathered with the engine off at MTOW at best glide speed for each wing at ISA conditions, calm winds. The best speed to use in an emergency to achieve most travel will vary with conditions. Generally if you wanted to cover more distance in a headwind by gliding, you will have to compensate the best glide speed for calm conditions by increasing the speed a bit. If you had a tailwind and wanted to cover more

distance by gliding then the speed to establish would be slower than best glide speed and possibly minimum sink speed.

WARNING

Pilot training, experience, familiarity with your aircraft is your responsibility. We suggest experimenting with these scenarios when your engine is running by going to idle so you have a better idea of how your aircraft will behave in glide in different wind conditions.

Performance for Best Glide (L/D max) Speed	Metric	Imperial
H12 Classic	96 km/hr	60 MPH (52 Kts)
H12S Topless	96 km/hr	60 MPH (52 Kts)
Profi	70 km/hr	44 MPH (38 Kts)
Performance for Minimum Sink Speed		
H12 Classic	80 km/hr	50 MPH (44 Kts)
H12S Topless	80 km/hr	50 MPH (44 Kts)
Profi	60 km/hr	38 MPH (33 Kts)

5.5.1 Max Glide Speeds to Fly (Rules Of Thumb)

- Speed to fly for max glide in a tailwind = min sink speed
- Speed to fly for max glide in a headwind = best L/D speed + 1/2 wind speed

5.6 Cruise

Cruise performance on Delta Jet is listed for mid trim setting with bar pull in pressure that can be easily held for long periods for time without much effort on the part of the pilot. Trim speed settings are also listed. We suggest keeping the trim setting in the holes that came from the factory for best overall experience. The data is listed in IAS.

Performance at Slowest Trim Setting (hands off cruise)	Metric	Imperial	Fuel Burn Metric	Fuel Burn US
H12 Classic	109 km/hr	68 MPH (59 Kts)	11.35 liters/hr	2.5 GPH
H12S Topless	109 km/hr	68 MPH (59 Kts)	11.35 liters/hr	2.5 GPH
Profi	73 km/hr	46 MPH (40 Kts)	7.6 liters/hr	2.0 GPH
Performance at Fastest Trim Setting (hands off cruise)				
H12 Classic	136 km/hr	85 MPH (74 Kts)	15.12 liters/hr	4.25 GPH
H12S Topless	136 km/hr	85 MPH (74 Kts)	15.12 liters/hr	4.25 GPH

Profi	109 km/hr	68 MPH (59 Kts)	13.23 liters/hr	3.75 GPH

NOTE

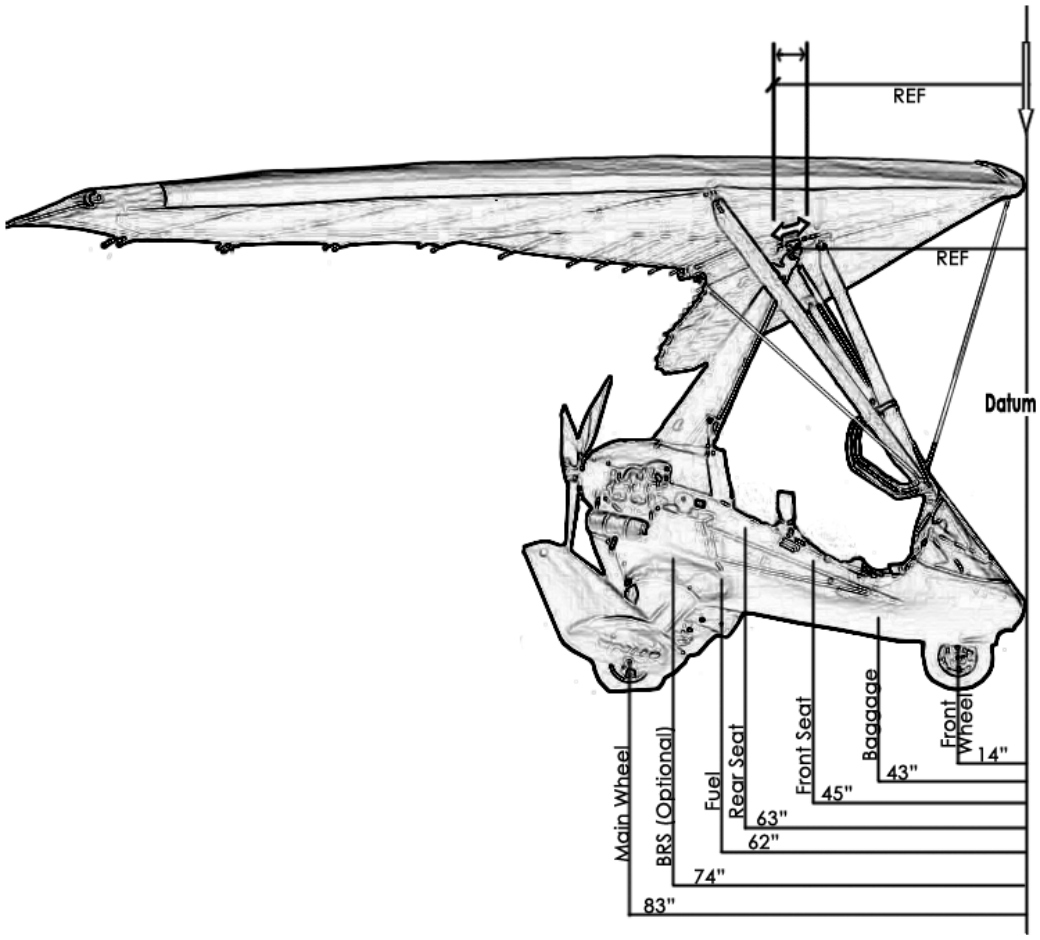
Fuel consumption data was collected in US units and are included as a guide only. They should not be used for flight planning purposes. Changes in aircraft configuration, load, altitude, wind strength and direction as well as climatic conditions can cause significant variation in fuel consumption.

6 Weight and Balance

Centre of gravity limits are not critical in a flex wing weight shift control aircraft. The carriage attaches to the wing through a universal junction known as hang block assembly. Variations in cockpit and fuel loading cannot affect aircraft's balance. The Delta Jet is therefore not critical in terms of centre of gravity. However, distribution of load in a trike carriage affects the attitude of the trike carriage in-flight in a minor way.
Please refer to weight and balance calculation for airworthiness as well.

NOTE

The holes marked X from the manufacturer for trim setting of the wing should not be utilized



6.1 Centre of Gravity Limits

Base Suspension Range (Measured from the front of the nose plate attached to the wing keel to the suspension point on the hang block)	**Dimension (Metric)**	**Dimension (Imperial/US)**
H12 Classic	1387.5 mm – 1350 mm	54.6” – 53.125”
H12S	1387.5 mm – 1350 mm	54.6” – 53.125”
Profi	1454 mm – 1414 mm	57.25” – 55.67”

7 Description of the Aircraft and its Systems

7.1 General

This section gives general description of the aircraft, controls, instruments, and optional equipment.
Information on the aircraft flight controls is detailed in this section, but it is mandatory that you receive professional training prior to any solo flight. Local laws govern the use of this aircraft where applicable. In the US Sport Pilot license in WSC category is required at a minimum to pilot Delta Jet.

7.2 Airframe

7.2.1 Wing

Apollo Delta Jet is available with the following wings:

1) Profi
2) H12 Classic
3) H12S Topless

NOTE

Manufacturer may approve the use of other certified wings for use with the Delta Jet. This written approval must be attached to the POH with a list of changes to relevant sections of the manual.

7.2.1.1 Profi

	Metric	USA
Wing Area	14.5 sq. m	156 sq. ft
Wing Span	10 m	32.8 ft
Aspect Ratio	6.9	6.9
Nose Angle	128°	128°
VNe	130 km/hr	81 MPH (70 Kts)
Stall Speed at gross weight	52 km/hr	32.5 MPH (28 Kts)
Cruising Speed	85 – 105 km/hr	53 – 65 MPH (46 – 57 Kts)
Speed of max glide angle L/Dmax, (with max load)	70 Km/hr	44 MPH (38 Kts)
Operational G Loads	+4, -0	+4, -0
Ultimate tested Strength, G's	+6, -3	+6, -3
Wmax	470 kg	1039 lbs
Wwing	48 kg	106 lbs

Aeros Profi is a traditional cable braced flexwing that represents a great general purpose wing designed for 2-place trikes. It has been tested and certified to 1039 lbs of gross weight in Germany (DULV certification, the highest max weight certification on a wing in its class) and it surpasses the wing stability and strength requirements set by the ASTM standards. The wing has wide speed range, from 45 to 130 km/h, and maximum speed is achieved without great physical efforts required from the pilot. The wing has also nice roll handling. With hands off Profi is stable in flight, turbulence can be balanced without extra effort. In addition wing can be optionally fitted with an electric trim system to set cruise speed while flying.
For more information on Profi wing, please refer to the Profi wing manual.

7.2.1.2 H12 Classic

	Metric	USA
Wing Area	12.5 sq. m	134.5 sq. ft
Wing Span	9.8 m	32.15 ft
Aspect Ratio	7.7	7.7
Nose Angle	132°	132°
VNe	159 km/hr	99 MPH (86 Kts)
Stall Speed at gross weight	65 km/hr	45 MPH (39 Kts)
Cruise Speed	103 – 137 km/hr	64 – 85 MPH (55 – 74 Kts)
Speed of max glide angle L/Dmax, (with max load)	96 Km/hr	60 MPH (52 Kts)
Operational G Loads	+4, -0	+4, -0
Ultimate tested Strength, G's	+6, -3	+6, -3
Wmax	450 kg	992 lbs
Wwing	44 kg	97 lbs

H12 Classic is a traditional cable braced wing with 95% double surface, an open trailing edge towards the wing tips instead of upper and lower sail sewn together, full trylam sail and carbon thread reinforced PX 20 Mylar upper sail surface. It combines stability with agility, speed and light handling in such a balanced way that one is left elated, amazed and ecstatic after flying it. This is our no compromises in handling wing. You would be

hard pressed to find an overall better handling trike wing in today's market. This is our best offering as far as handling is concerned.

As like Profi H12 series of wings also carry German (DULV certification) and exceed the ASTM standards for strength and stability. Both H12S and H12 Classic were subjected to 2544Kilos (5517 lbs.) positive and 1272Kilos (2798 lbs.) negative static loads. Both wings were completely disassembled after the tests and all components scrutinized and photographed by the DULV structural engineer for German certification.

7.2.1.3 H12S Topless

	Metric	USA
Wing Area	12.5 sq. m	134.5 sq. ft
Wing Span	9.8 m	32.15 ft
Aspect Ratio	7.7	7.7
Nose Angle	132°	132°
VNe	159 km/hr	99 MPH (86 Kts)
Stall Speed at gross weight	65 km/hr	45 MPH (39 Kts)
Cruise Speed	103 – 137 km/hr	64 – 85 MPH (55 – 74 Kts)
Speed of max glide angle L/Dmax, (with max load)	96 Km/hr	60 MPH (52 Kts)
Operational G Loads	+4, -0	+4, -0
Ultimate tested Strength, G's	+6, -3	+6, -3
Wmax	450 kg	992 lbs
Wwing	44 kg	97 lbs

H12S is a strutted version of the H12 Classic. The advantage of having a topless strutted wing is obviously in hanger door height clearance and being able to fold the wing right on the trike and perhaps a cleaner look. Even on a trike with a sleek fairing like Apollo Delta Jet, we have provided means to be able to rest and fold the wing right on the trike. This reduces time to de-rig and storage space required for the trike. H12S carries the same speed characteristics of the H12 Classic but because of the struts has a still A-frame instead of the shifting A-frame on its Classic counterpart. The luff lines for pitch dive recovery are replaced by triangulated sprog system.

As like Profi H12 series of wings also carry German (DULV certification). Both H12S and H12 Classic were subjected to 2544 Kg (5597 lbs.) positive ultimate load and 1272 Kg (2798 lbs.) negative static ultimate load. Both wings were completely disassembled after the tests and all components scrutinized and photographed by the DULV structural engineer for German certification.

7.2.2 Carriage

The Apollo Delta Jet trike carriage is a two seat tandem WSC aircraft. The layout is typical for two seat trike design, with the pilot, passenger and pod being suspended by a

triangular frame, hanging from the top of the mast about the pitch and roll axes, to provide for weight shift control.
The cockpit has a quick release windscreen for improved wind deflection and the wheel pants include large integrated aerodynamic fins to improve carriage yaw stability. The mast is also covered with an aerodynamic fin to reduce drag and further improve yaw stability of the carriage.
The main gear suspension consists of one piece Aluminum plate leaf like landing gear that is covered on either side with aerodynamic composite fairing.
Composite fairing body or pod is used extensively and the engine is mostly but not fully covered by composite fairing, giving Delta Jet its sleek and sporty look, envied by many.
Seats are composite bucket seats with cushion attached for comfort and there is a 3-point harness system available to both pilot and passenger with the shoulder harness being a re-coil harness system.
All wheels are equipped with effective hydraulic disc brakes with hydraulic disc fluid reservoir near the front fork.
There is space for baggage under the front seat on each side of the base tube (center bottom keel tube) of the trike carriage and this space can be further accessed from the front bucket seat by lifting off the Velcro attached cushion and loosening the screws of the bucket seat top surface.
Under the back seat is a 13.7 gallon (US), 51 liter fiberglass fuel tank, securely mounted to the seat frame and base tube of the trike carriage.
Optionally an ASTM compliant model BRS 1050 can be fitted very cleanly inside the trike pod behind the fuel tank, whose handle is located under the dash well within reach of the pilot.

7.3 Flight Controls

Flight controls are as follows:

- Control bar move right = Left turn
- Control bar push out = Pitch up
- Push right toe = Throttle open
- Hand throttle forward = Throttle open
- Push trim momentary switch down = CG trim moves to a faster position (with electric trim option only)
- Push trim momentary switch up = CG trim moves to a slower position (with electric trim option only)

7.4 Ground / Flight Control

Ground Controls are as follows:

- Push left pedal = Taxi steering right
- Push right pedal = Taxi steering left
- Push Left Toe = Brakes on
- Ignition key switch to BOTH position = Both magnetos on
- Choke (under dash) to ON position = Choke on

- Fuel Shut Off valve to “ON” position = Fuel on

7.5 Instrumentation

The instrument panel consists of a Stratomaster Ultra digital glass cockpit instrument mounted centrally in the dash. The glass cockpit is fed its data from an RDAC engine and sender data collection unit located under the top engine cowl of the Delta Jet. Two 12V DC outlets and Cessna like keyed mags and ignition key switch can be found on the dash. Other marked switches include carburetor heat (912 and 912S electrically actuated carb heat), landing light switch, strobe (flasher) switch and a master avionics switch. A 15 amp GMA style fuse located near the RDAC unit under the engine top cowl protects the circuits.

7.6 Occupant Restraint Harness

Both front and rear seats are fitted with a 3-point restraint harness system. The shoulder inertia reel system is fitted to the mast and requires attachment (slide over) behind the female buckle section of the lap belt during lap belt fastening
When flying the trike solo it is important to fasten the rear seat belt to prevent contact with hot engine components in flight.

7.7 Engine

The power units available with Delta Jet are Rotax 912 UL 80hp 4 stroke engine or Rotax 912 ULS 100 hp 4 stroke engine designed and built in Austria. The Rotax engine is fitted

with a gearbox (2.43:1 reduction ratio), which delivers smooth thrust via a reduction drive. This power unit is complemented with a ground adjustable propeller giving the ultimate in performance and reliability. The engine is fitted with Bing carburetors with an external dry filter.

7.8 Carburetor Heating

The system is designed to minimize the risk of carburetor icing. A heating element is wound around the air filters which then are protected with plastic covers. The heated air flows in helping in preventing icing. The carburetor heat switch will actuate the electric valve that allows the heated coolant to flow through the wound copper element around the air filters to heat the air. The carburetor heating system will work automatically when on. An occasional check that the heater bodies are getting warm is advisable after engine running.
The system has not been tested under all possible conditions that may prevail, therefore its effectiveness cannot be guaranteed in all circumstances. Aircraft equipped with this device should never be flown in circumstances where a successful 'no power' landing cannot be made in the event of engine failure.
Some power degradation will be noticed when carburetor heat is activated and is normal.

7.9 Propeller

The aircraft is equipped with a 3-blade ground adjustable pitch composite propeller. The hub is an anodized alloy, on which blades are ground adjustable. The propeller is 69 inches (1750 mm) in diameter. The performance listed is at the pitch set at 0 on the pitch tool provided with the propeller. This is not equivalent to zero pitch but defines an efficient pitch setting for this particular model of the propeller. The pitch tool defines a pitch range of -5 to +5. Outside of that range the propeller will loose significant efficiency. For the Delta Jet wth 912ULS (100 hp) we recommend keeping the pitch between -1 and +3 with 0, +1 and +2 being preferred values and with 912UL (80 hp) the preferred setting are –2 and –1.

NOTE
Manufacturer may approve the use of alternative propellers. This approval is only valid when the written authorization from the manufacturer is attached to the POH

7.10 Brake System

An all wheel hydraulic disc brake system called Series 6 is used on the aircraft. Depressing the brake lever on the left hand side of the front footrest engages the brakes on all 3 wheels. The brakes are extremely effective. Use them smoothly and with care. The brake fluid reservoir is located under the dash near the front steering fork.

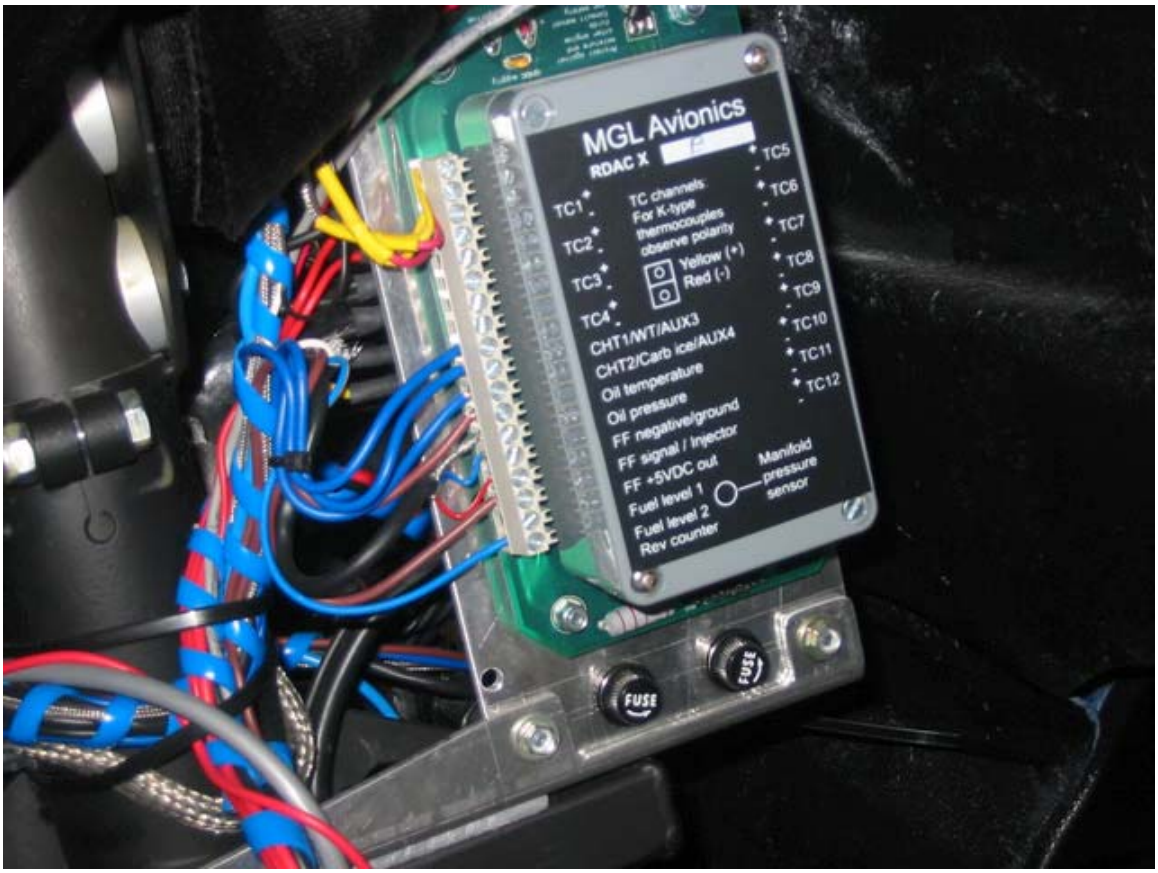
7.11 Electrical System

An electrical diagram for the aircraft is shown in the diagram on the following page. The Electrical circuits comprise:

- An instrumentation circuit. The 12 V DC supply is protected by a 10 amp GMA fuse located on the mounting plate for the RDAC visible under the top engine cowling and a built-in 33 V DC High-Speed Transorb device in the Stratomaster instrument to protect against voltage hikes.
- The master switch on the dash, when in the off position, disables the flight instrument, carburetor heat switch and any other optional avionics hooked to it, like a transponder or a radio/intercom
- The landing light and strobe switches are separate from master
- The 2x 12 V DC power outlets remain hot for portable accessories like Intercom or GPS
- A charging circuit protected by a GMA fuse of 15 amps and
- An ignition circuit

NOTE

I lieu of fuses optionally Delta Jet AS-III912S can be fitted with 15 and 10 amp circuit breakers on the dash



It should be noted that the ignition circuit is a fail-safe system whereby the engine will run in the event of the ignition circuit becoming disconnected. Switching the coil to ground stops the engine.
When stopping the engine the ignition key should be put into the off position. The master switch on the dash should then be turned to the off position and carburetor heat, landing and strobe light switches should be turned “off” if applicable.
If necessary the motor can be stopped using the choke to flood the engine as mentioned in the emergency procedure section of this manual.
Refer to the Rotax manual for more details for the engine electrical system.

7.12 Pitot Static System and Instruments

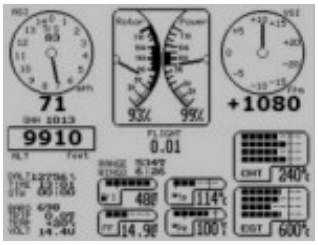
The pitot static system supplies ram air pressure to the air speed indicator from the nose of the pod. The static pick up is at the rear of the instrument under the dash

7.13 Stratomaster Ultra Horizon XL Instrument Functions

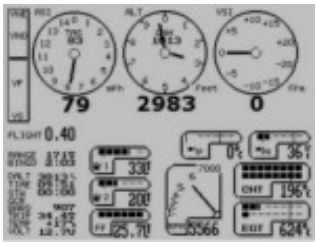
The Ultra instrument has preset alarm limit thresholds. If any of the temperature, pressure or flight speed limitations are reached the “Instrument Alarm” light will start to flash. Standard instrumentation includes the MGL Electronics Stratomaster Ultra Horizon XL Digital Flight instrument with ***"Remote Data Acquisition Computer”*** RDAC X-B. The Ultra Horizon XL let’s you define your display and is extremely powerful. Its general features are listed below:

- All screen items can be enabled or disabled easily
- Most screen items have several display options (eg: Altimeter dial, tape, or digital-only)
- All screen items can be MOVED around the display for custom layout
- Up to 12-channels of CHT/EGT **(This aircraft uses 2x EGT and 2x CHT)**

7.13.1 Basic system functions



- Altitude to 40,000 ft (12,195 m) calibrated, 1ft dynamic resolution
- Airspeed ASI analog and digital, TAS digital
- Stopwatch
- Glide and climb ratio to 1/99
- Altimeter setting 28.30 - 31.30"Hg (QNH 960 to 1060 mb)
- Quick select standard altimeter 29.92"Hg (QNE 1013 mb)
- Time of day, Date for flight log entries
- Air time since take-off (or lesson time)
- Ambient temperature using external sensor
- Up to two Fuel levels using flow sender or optional level senders
- Fuel flow using **optional** flow sender
- Current range estimate (range at current speed and fuel burn)
- Fuel bingo estimate (time until tank empty)
- Range calculator using manually entered ground speed
- Air distance made good
- Voltage. Supply to unit. Usually 12V battery.
- VSI +/- 9 990 ft/minute (50.7 meters per second) range
- Flight log storing up to 200 entries
- Hobbs meter
- Density altimeter
- Barometer for ambient pressure



- Aircraft registration number display
- Maintenance timer
- Warnings for engine temperature, speed high, speed low, maximum altitude, low fuel level, etc
- Alarm output to switch a warning lamp
- Audio alarm output to drive a panel speaker or low level output for alarm tone injection into a suitably equipped headset or intercom system.
- Measuring take-off run to 50 ft (15.24 m) above ground level
- Air talk link for connection to (optional)
    - PC's and Laptops using optional cable
    - Stratomaster 'Black Box' flight recorder
    - Stratomaster Ultra secondary instrument
    - Download keyring flight log device
    - Compass and AHRS sensor packages

NOTE

For more information on using this instrument please refer to the Stratomaster Ultra Horizon XL and RDAC manuals.

WARNING

It is prohibited to fly this aircraft with the Stratomaster Ultra Horizon XL Alarm thresholds set outside the engine manufacturer's limits or to set the VNe and VSo limits different than what's listed in this manual

7.14 Emergency Parachute. Optional Equipment

NOTE

The parachute is optional unless governing body of the country where the aircraft is to be flown requires a parachute.

The BRS emergency parachute system has a double acting firing mechanism. The parachute-operating handle is fitted with a safety pin and is located on the right side of the cockpit dash. This pin should be removed before each flight and the safety pin must be replaced before the pilot gets out of the aircraft. A force of approximately 33 pounds (15 kg) pull on the actuating handle is required to activate the BRS rocket motor. Emergency procedures for use of the BRS can be found in emergency procedures section of this manual. Additional information including service and maintenance requirements can be found in the BRS manual.

WARNING

There is no guarantee of any kind that BRS will always work in all circumstances of an emergency in saving the occupants life. It should be used as a measure of last resort

7.15 Secondary Engine Kill Ignition Switches for the Back Seat

These secondary ignition switches are located on the trike pod on the left hand side easily reachable by the back seat occupant when needed. The switches are protected by switch guards. Operation is switch guards down for on and switch guards and switches up for off. This is done to prevent an accidental engine shutoff by the back seat occupant. When the switches are in the off position the switch shorts the engine coils to ground causing the engine to stop.

8 Handling, Servicing and Maintenance

8.1 Introduction

This section contains factory recommended procedures for proper handling and routine care for your Delta Jet weight shift control aircraft. Included in this section is relevant information required by the operator.

WARNING

It is the PIC's responsibility to ensure that all airworthiness directives have been complied with and all required and recommended servicing and maintenance has been performed as listed in the relevant maintenance manuals of the wing, aircraft and the engine, in accordance with applicable regulations

8.2 Identification plates

The trike's identification plate is located on the mast/pylon of the trike behind the passenger's seat cushion. The wing's identification plate and serial number will be located on the wing's keel. Serial numbers, model name and date of manufacturer for both trike and wing should be used when corresponding to the factory.

8.3 Documents

This POH is one in a series of documents for the aircraft. Other documents include:

- Wing(s) manual
- Propeller manual

- Engine Owner's Manual
- Engine Installation and Maintenance Manual (pdf on cd)
- Stratomaster manual(s) for instrumentation (pdf on cd)
- RDAC or Remote Data Acquisition Computer Manual (pdf on cd)
- Fuel Flow Sensor Manual (optional)
- Flight Training Supplement
- Maintenance and Inspection Manual

These manuals should be consulted for information not included in this section

8.4 Aircraft Inspection, Maintenance and repair

Qualifications for the person doing the maintenance vary from country to country. The operator/mechanic should be familiar with the local requirements. Maintenance requirements are outlined in the maintenance manual for the base unit and in the wing manual for the wing and for engine maintenance refer to the engine manuals.

NOTE

To protect hardware from elements it is highly recommended that a water displacement compound like WD-40 or the like or something similar to Locktite Rust Preventor spray compound be sprayed from time to time to prevent galvanic corrosion. This can be done by the owner. Excess should be wiped off immediately after spray. Alternately compounds like Pennzoil Marine sprays after replacement of hardware can be used as they make a waxy film around the metal and protect it from the elements for up to 6 months or as advertised. Treating engine with WD-40 or another water displacement compound also makes it easier to clean and maintain engine's appearance. Excess should be wiped off with a soft cloth.

8.4.1 Hangbolt Replacement

Hangbolt (10 mm, class 8.8) should be replaced every 50 hours with a bolt supplied by either Apollo or wing manufacturer. Refer to the maintenance manual for further information.

8.4.2 Mast Bolts and Nuts Replacement

Mast bolts and nuts (8 mm, class 8.8) should be replaced every 200 hours with a bolt supplied by Apollo North America, Inc. or specialty metric aviation grade bolts of the same size from an aircraft or ULM factory. Refer to the maintenance manual for further information.

8.4.3 Engine Mount Bolts and Nuts Replacement

Engine mount bolts and nuts (10 mm, class 8.8) should be replaced every 200 hours or on annual (whichever comes first) with hardware supplied by Apollo or specialty metric aviation grade bolts of the same size from an aircraft or ULM factory. Refer to the maintenance manual for further information.

8.4.4 Wing Hardware Replacement

Generally anything in the wing that looks suspicious should be replaced immediately with hardware supplied by the manufacturer before continuing flight. For further information please refer to the maintenance manual.

8.4.5 Wing Sail Condition

If there is any doubt as to the wing sail condition of a tear or stitching coming apart, it is recommended that you refer to the maintenance manual or authorized sources of information about your wing or the manufacturer (Apollo) and not fly the trike till proper evaluation of the condition can be made.

8.4.6 Propeller

Refer to the propeller manual.

8.5 Fuel System

Please refer to section 4.6

8.6 Engine Oil Replenishment

Please refer to the engine manual

8.7 Engine Coolant Replenishment

Please refer to the engine manual

8.8 Tire Pressures

Tires should be inflated to between 20 and 25 psi (1.38 to 1.72 bars) for both front and back tires

8.9 Hydraulic Brake Fluid

DOT 4 or DOT 5.1 Hydraulic brake fluid is recommended. DO NOT MIX DOT 5 fluid. From factory you are supplied with DOT 4 fluid.

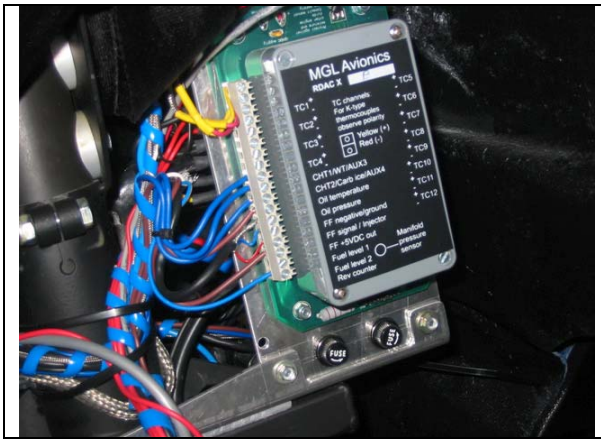
8.10 Front shock springs

Front shocks should not be sagging. If sagging please refer to the maintenance manual for further info

8.11 Electrical Fuses and Battery

GMA 15 amp fuse is used for the charging system and GMA 10 amp fuse is used to protect the instrumentation. The fuses are located on the RDAC installation plate just behind the passenger seat.
I lieu of fuses optionally Delta Jet AS-III912S can be fitted with 15 and 10 amp circuit breakers on the dash.
A sealed battery is located under the pilot seat and properly secured. If replacement is warranted, please use a sealed battery as recommended by the engine manual of similar

size as original battery. The glass cockpit shows voltage of the battery while in flight. It should be in excess of 13.2 Volts if charging system is working properly and about 12 Volts when engine isn't running.



8.12 Parking, Moving on the Ground and Storage

Make sure area is clear, ignition is Off and if applicable BRS safety pin is in before moving the aircraft on the ground manually.
While moving the aircraft take care to not put weight or excessive pressure on the front fiberglass or engine cowlings. Before moving, the aircraft secure the wing's A-frame and move carefully negotiating the wind direction with the wing's position.
Pulling the trike: Moving the base (with or without the wing) is facilitated by lifting the front wheel and walking the base. Do not pull excessively hard on the compression strut or nose strut of the aircraft carriage. If a hard pull is needed, its best to push the aircraft from the prop hub (back). Steer the trike while manually moving by pushing the nose wheel or front steering in the desired direction. Alternately the front wheel can be placed on a castering support and steered freely.
Pushing the trike: The trike can be pushed using pushing on the prop hub on even surface. Steering is slower and harder using this method except when using castering support on the front wheel
Parking: Parking the aircraft requires using chocks and securing the wing with the upwind wing down. In higher or gusty wind conditions, the wing should be tied down or if appropriate taken down or the trike should be moved indoors.
Please refer to section 4 for further information.

NOTE

The trike carriage or base can be moved with or without the wing

Long term Storage: Long term storage will require the supplied air filter(s) be covered to prevent foreign objects getting in the air intake area. Full covers for the carriage and prop blades are advisable, which are available as after market items from Apollo, disconnect the negative terminal of the battery, drain fuel from the tank. The engine manual should be consulted for long term storage practices for the engine. Refer to section 4 for further information for storage

NOTE
Do not store the trike outside for any appreciable length of time where it is exposed to the elements. This may reduce life of the sail and other items

8.13 Transporting the Aircraft

Custom or flatbed trailers can be used to transport the aircraft if they are capable of securing the carriage properly. A carriage cover and propeller cover should be used to minimize damage from flying debris. Propeller blades should be tied in place with soft straps so they are not allowed to move in the air. Propeller blades should never be moved more than a half rotation in the opposite direction to the general direction of rotation of the engine. Wing should ideally be transported fully packed separately.
Please refer to section 4 for further information

8.14 Cleaning

8.14.1 Windshield

The windshield is made from bendable lexan material and therefore a certain amount of care is required to keep it clean and in good condition. The following procedure is recommended.
Flush with clean water to remove excess dirt, bugs and other loose particles.
Wash with mild detergent and warm water. Use a soft cloth or sponge, do not rub excessively.
Rinse thoroughly, then dry with a clean moist chamois. Do not use volatile solvents such as gasoline, alcohol or most commercial window cleaning sprays, as they will adversely affect the plastic.

8.14.2 Painted Surfaces

The painted exterior surfaces of the aircraft can be washed using a mild detergent and water, alternatively an automotive liquid detergent may be used. Soft wax polish applied with proper procedure is recommended every 4 months on painted surfaces to maintain luster and protect the paint.

8.14.3 Engine

An engine and accessories wash down should be performed regularly to remove any oil, grease, and other residue. Periodic cleaning allows proper inspection of the engine components and can be an aid to discovering defects during inspection as well as reducing the potential for an engine fire during aircraft operation.
The engine may be washed down using a suitable solvent, then dried thoroughly.
During cleaning, the Air intakes, BRS parachute, and the electronics should be protected with a thin plastic film like saran wrap.

8.14.4 Propeller

The propeller should be cleaned occasionally with water and a mild detergent with a soft cloth or sponge to remove dirt, grass and bug stains. The opportunity should be taken to visually check the condition of the propeller during cleaning.

8.14.5 Upholstery and Interior

The Pod area should be vacuumed out to remove all loose dirt/gravel etc. All Care should be taken to not spray any substance that will degrade the webbing material, vacuuming is recommended for the upholstery. Alternately, seats can be taken off easily (Velcro) and washed with mild detergent and cool water.

WARNING

Do not use gasoline or any highly flammable liquid for any wash down or cleaning. Do not wash a hot engine. Wait for it to completely cool off. Perform all cleaning in a well ventilated area and take proper precautions for the materials used

CAUTION

Precautions should be taken so that cleaning agent or water does not damage electrical circuits. Electrical components should be protected before using any solvent on the engine. All fuel, air and electrical openings or components on the engine should be covered before cleaning the engine. Caustic cleaning agents should be first tested before being used on a larger area

8.15 Approved Sources of Information and Maintenance

The following are the approved sources for further information regarding maintenance:

- Apollo North America, Inc. (http://www.tampabayaerosport.com/)
- Halley Kft, Inc. (http://www.halley.hu) (Aircraft Carriage Structure)
- MGL Avionics. South Africa (http://www.mglavionics.co.za/) (Stratomaster Instrumentation)
- Sport Flying Shop (http://www.sportflyingshop.com) (Stratomaster Instrumentation)
- Antares US Corporation (http://www.antares-us.com/) (Aero Prop)
- Aeros, Europe (http://www.aeros.com.ua/) (Profi wing)
- Ramphos USA (http://www.ramphosusa.com) (H12 and H12S wings)
- Aero-Tuff USA (http://www.aero-tuff.com) (Seatbelts)
- Rotax Austria and its authorized representatives (Rotax Engines)

For a list of who is allowed to do maintenance on this aircraft please refer to the maintenance manual

