

**Flight Training Supplement (FTS)  
Apollo Delta Jet AS-III912S  
Revision 0**

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**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.**

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**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 CATEGRY AIRWORTHINESS REQUIRMENTS**

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

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## 1 GENERAL

This Flight Training Supplement (FTS) is designed for listing out items that need attention when transition training to the Delta Jet.

This FTS 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, decals, and the Aircraft Operating Instructions/Pilot Operating Handbook.

The pilot should study the entire AOI to become familiar with the limitations, performance, normal and emergency procedures and operational handling characteristics of the aircraft before flight.

Before flying the aircraft, read and familiarize yourself with this AOI, the Engine Operators Manual and Maintenance Manual. This is a MUST!

### **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**

### **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

cm<sup>3</sup> — 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

$V_{SO}$  — Stalling Speed, or the minimum steady flight speed in the landing configuration

$V_{SI}$  — 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 ( $W_{wing} + W_{susp}$ )

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 (lb) = 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 (l)

1 US gallon = 3.785 Liters (l)

1 US quart = 0.946 Liter (l)

1 Cubic foot (ft<sup>3</sup>) = 28.317 Liters (l)

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1 Degree Fahrenheit (F) = (1.8 X C)+32

1 Inch Pound (in lb) = 0.113 Newton Meters (Nm)

1 Foot Pound (ft lb) = 1.356 Newton Meters (Nm)

## 1.3 Flight Training

### WARNING

**Please read the Aircraft Operating Instructions thoroughly FIRST and be familiar with Delta Jet's normal and emergency procedures**

### 1.3.1 Differences in Takeoff Technique

From the AOI, it is clear that the recommended takeoff is to push the bar all the way to the compression strut as the carriage starts to build speed. If this isn't done, the aircraft will simply keep gaining speed on the ground when using H12 series wings. Refer to the POH normal operations section for further information.

### WARNING

**Its is STRONGLY SUGGESTED that instructor back the student up with hand cruise throttle set at adequate power setting on takeoff in case student's foot slips during familiarization with Delta Jet's foot pedals**

### 1.3.2 Differences in Landing Technique

Landing approach can be made at neutral bar as the speed is generally higher than normally needed. In some cases it may even be wise to push the bar out to slow down below trim position especially if using H12 series wings.

An instructor giving training in Delta Jet should note that best approach speed depends on the wing being used and as such the AOI should be consulted thoroughly before flight is attempted in the Delta Jet.

Landing will require a longer ground effect speed bleed off period that should be taken into account as the aircraft slows down. Every effort should be made to land as slow as possible and keep the nose wheel off the ground after the mains touch down especially in crosswinds or the aircraft can flip over.

Notice there isn't any back foot throttle in Delta Jet as standard but that isn't uncommon in its genre of aircraft. Back passenger/instructor has hand cruise throttle available, hence the instructor must adjust his/her style to suit if training is to be done in the Delta Jet.

### WARNING

**Its is STRONGLY SUGGESTED that go-arounds be used before things get to the point where instructor has to use throttle on student's weak or untidy approach.**

### 1.3.3 Training Stages

Instructors should follow a structured curriculum that has different stages of training and objectives listed from the FAA Practical Test Standards (PTS). Each stage should be adequately completed and logs and records with signatures kept for satisfaction of each stage before a new stage or lesson unit is attempted. This is especially important before student starts attempting landings.

Any syllabus that allows for WSC PTS training in proper fashion will work.

#### **WARNING**

**It is recommended to always side towards the side of safety and conservative approach. Its better to over-train the student than to train a student just enough. Familiarization with the aircraft even for an accomplished pilot may take up to 5 hours**