Experimental - Amateur Built Aircraft Test Protocol

Builder: Lastname, Firstname M

Model: Cozy MK-IV

Serial Number:

1. PREPARATION AND REVIEW

1.1. PROTOCOL PREPARATION

Printed Name	Role	Signature	Date
Firstname Lastname	Builder, Test Pilot		

1.2. PROTOCOL REVIEW

Printed Name	Role	Signature	Date
Firstname Lastname	EAA Technical Counselor		
Firstname Lastname	EAA Flight Advisor		
Firstname Lastname	Designated Airworthiness Representative		
Firstname Lastname	Test Pilot		

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2. AUTHORSHIP & LICENSING

This document was written by Kevin Russert Walsh.

3. DISCLAIMER

As with any and all things related to experimental aviation, no warranties, express or implied are given with respect to using this document in an effort to flight test an experimental – amateur built aircraft. Flight testing experimental aircraft is an inherently dangerous activity, and has resulted in the injury or death of numerous people. You, as the manufacturer, owner, builder and/or pilot are 100% responsible for the safety of your aircraft. This document is merely advisory and if you are not willing to be responsible for your own actions please do not use this document.

4. PURPOSE

The purposes of this flight test protocol are to:

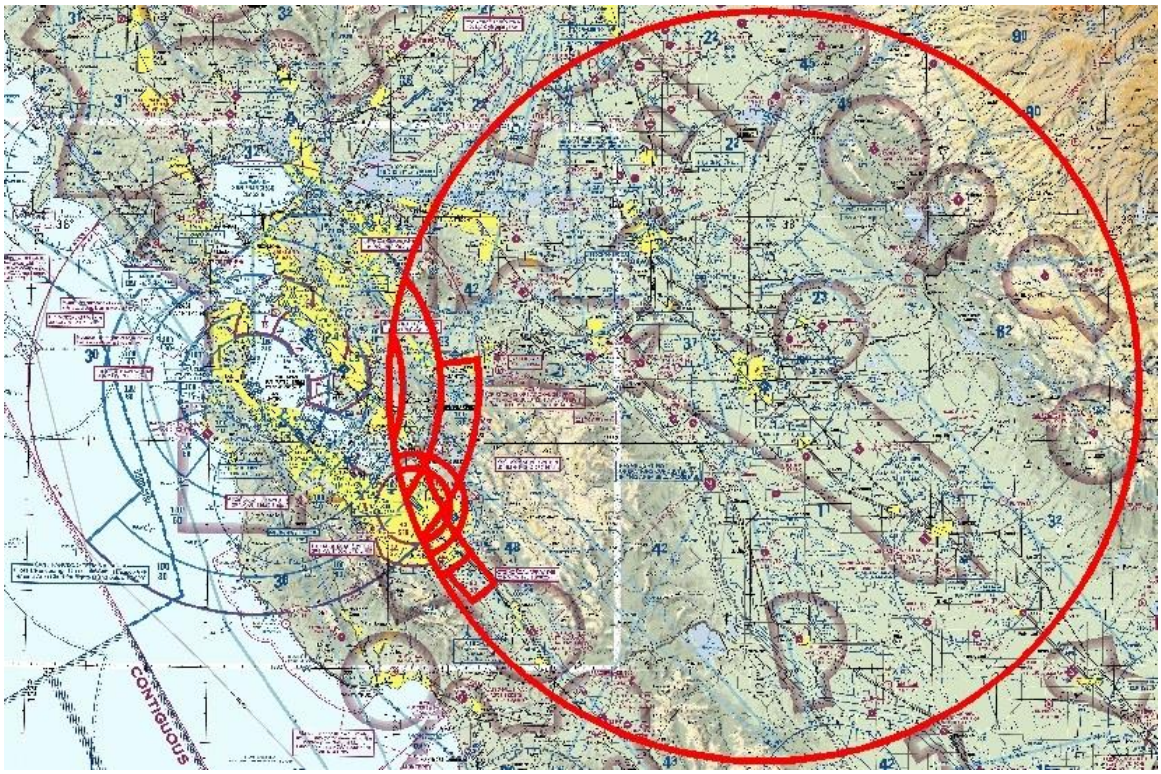
- Provide documented evidence to a high degree of assurance that the aircraft is controllable throughout its normal range of speeds, throughout all maneuvers to be executed, and throughout its designed range of weights and center-of-gravity (CG) limits. Ensure that the aircraft has no hazardous operating characteristics or design features and is safe to fly within the aircraft's flight envelope.

- Gather performance data on the flight characteristics of this aircraft. Using this data, develop an accurate and complete aircraft flight manual and establish emergency procedures.

Author: Kevin Russert Walsh

5. SCOPE

The scope of this test protocol is limited to the pre-flight preparation and flight testing of Cozy Mk-IV N#, Serial Number #, built by Firstname Lastname. The pre-flight testing will be executed at the # Airport (K###), located in City, State. The flight test protocol will be executed from the # Airport (K###) located in City, State. The flight test geographical area is a circular area of 50 NM radius centered on the (NAVAID or Airport) exclusive of the Class Bravo airspace, Class Charlie airspace, and in accordance with 14 CFR 91.305.



6. NOMENCLATURE

Term		Definition
AC		Advisory Circular
CFR		Code of Federal Regulations
CG		Center of Gravity
CHT		Cylinder head temperature
DAR		Designated Airworthiness Representative
E-AB		Experimental – Amateur Built
EAA		Experimental Aircraft Association
EGT		Exhaust gas temperature
FPM		Feet Per Minute
KIAS		Knots Indicated Airspeed
KCAS		Knots Calibrated Airspeed
LOP		Lean of Peak
POH		Pilot Operator's Handbook
ROC		Rate of Climb
ROD		Rate of Descent
ROP		Rich of Peak
VSI		Vertical Speed Indicator
V_{BE}		Best endurance speed
V_{BG}		Best power-off glide speed
V_D		Design diving speed
V_H		Maximum speed in level flight at maximum continuous power.
V_R		Rotation speed
V_S		Stall speed or minimum steady flight speed
V_X		Speed that will allow for best angle of climb
V_Y		Speed that will allow for the best rate of climb
V_{NE}		Never exceed speed
W&B		Weight and Balance
WOT		Wide open throttle

7. ROLES

7.1. BUILDER/OWNER

- Constructs aircraft in accordance with published plans, newsletters, and Advisory Circular AC43-13-1B Acceptable Methods, Techniques and Practices – Aircraft Inspection and Repair.
- Authors test protocol in accordance with the Cozy Mk-IV Pilot Owners Handbook and Advisory Circular AC 90-89B Amateur-Built Aircraft and Ultralight Flight Testing Handbook.
- Is responsible for all construction, modifications, and maintenance of the aircraft.

7.2. EAA TECHNICAL COUNSELOR

- Assists Builder/Owner in examining, inspecting and preparing aircraft and associated paperwork for DAR inspection.
- Reviews test protocol to verify plan is in accordance with AC 90-89B, as well as best practice in the completion and testing of experimental amateur-built aircraft.
- Does not have any legal responsibility or authority over the construction or flight testing of the aircraft.

7.3. DESIGNATED AIRWORTHINESS REPRESENTATIVE

- In accordance with 14 CFR 183.33 and FAA Order 8130.2H perform examination, inspection and testing services necessary to issue, and to determine the continuing effectiveness of, certificates, including issuing certificates, as authorized by the Director of Flight Standards Service in the area of maintenance or as authorized by the Director of Aircraft Certification Service in the areas of manufacturing and engineering.

7.4. EAA FLIGHT ADVISOR

- Helps the Test Pilot conduct a self-evaluation as well as evaluate the flying characteristics of the aircraft.
- Explains where and how Test Pilot can get the proper instruction, or alternatively find someone to make the initial flights.
- Suggests best practices to follow when flight testing an experimental amateur-built aircraft (e.g. runway selection, weather minimums, etc.)
- Does not have any legal responsibility or authority over the construction or flight testing of the aircraft.

7.5. TEST PILOT

- Makes final evaluation to decide whether he or she is capable of safely flying the aircraft and test protocol. Has veto authority to stand-down flight testing.
- Rated, current, and competent in the same category and class as the aircraft being tested.
- Current medical and biennial or flight review as appropriate.

- Executes ground and flight tests in accordance with the Flight Test Protocol and Advisory Circular AC 90-89B Amateur-Built Aircraft and Ultralight Flight Testing Handbook.

- Familiar with the airport and the surrounding terrain that could be used for emergency landing fields in the area.

- Talks with and, if possible, flies with a pilot in the same kind of aircraft to be tested.

- If applicable, takes additional instruction in similar Type Certificated aircraft, as addressed in AC 90-109, Airmen Transition Experimental or Unfamiliar Airplanes.

- Demonstrated a high level of skill in all planned flight-test maneuvers in aircraft with performance characteristics similar to the test aircraft.

- Study the ground and in-flight emergency procedures developed for the aircraft and practice them in aircraft with similar flight characteristics.

- Has logged a minimum of 1 hour of training in recovery from unusual attitudes within 45 days of the first test flight.

- Studies the performance characteristics of the aircraft to be tested. Refer to the designer's or kit manufacturer's instructions, articles written by builders of the same make and model aircraft, and study actual or video tape demonstrations of the aircraft.

- Review the performance characteristics of canard aircraft. Specifically review AC90-89B, Chapter 7: THOUGHTS ON TESTING CANARD TYPE AMATEUR-BUILT AIRCRAFT. Be aware of the possibility of pilot-induced oscillation (PIO) that may occur on takeoff. Also pay particular attention to engine cooling, and the deleterious effects that the belly brake and nose gear extension may have on engine cooling.

- Review the FAA/National Transportation Safety Board (NTSB)/EAA accident reports for the same make and model aircraft to be aware of problems the aircraft has experienced during previous operations.

- Memorizes the cockpit flight controls, switches, valves, and instruments. A thorough knowledge of the cockpit will result in controlled and coordinated mental and physical reactions during emergencies.

- Uses checklists for both normal and emergency actions and procedures. The Emergency procedures should be also memorized. Add additional notes on the instrument panel to aid in their use if necessary

8. REFERENCES

- Cozy MK-IV Construction Plans Serial Number #
- Cozy MK-IV N# Pilot Owner's Handbook
- Advisory Circular AC 43-13-1B Acceptable Methods, Techniques, and Practices – Aircraft Inspection and Repair
- Advisory Circular AC 20-27G Certification and Operation of Amateur-Built Aircraft
- Advisory Circular AC 90-89B Amateur-Built Aircraft and Ultralight Flight Testing Handbook
- Advisory Circular AC 90-109A Transition to Unfamiliar Airplanes
- FAA Order 8130.2H Airworthiness Certification of Products and Articles
- Lycoming Service Instruction SI 1132B Magneto Drop-Off
- Lycoming Service Instruction SI 1241C Pre-Oiling Engine Prior to Start
- Lycoming Service Instruction SI 1427C Lycoming Reciprocating Engine Break-In and Oil Consumption
- Matco Manufacturing General Information for Wheels and Brakes Technical Services Guide, Revision C
- TruTrak GX Pilot Series Autopilots Installation/User Manual Rev B

9. AIRCRAFT DESCRIPTION

The Cozy Mark IV is a plans-built, high-performance, 4-place aircraft. It can accommodate a larger than average couple in the front, and an average size couple in the rear. It features full dual controls. The Cozy Mark IV uses the very latest aerodynamic technology, combining winglets, a high-aspect ratio wing with a modified Eppler airfoil optimized for efficient cruise, the new 1145MS Roncz canard airfoil and a configuration with far less wetted area than conventional aircraft. Because its low power-off glide angle, a belly mounted landing brake is used to steepen descent to a landing.

The cockpit layout is designed to complement pilot and/or copilot work load, with throttle, mixture, nose wheel retract, fire suppression system, and fuel tank selector valve located in the center console for equal access to both pilot and copilot. Individual side stick controllers on both outboard armrests provide pitch trim, roll trim, landing brake, starter, autopilot disconnect, fuel pump and push-to-talk buttons. Rudder pedals are provided on both sides, and the brakes are actuated by the rudder pedals. Seating provides armrest, lumbar, thigh and head support for "recliner-chair" comfort not found in conventional aircraft seats. This allows long, fatigue-free flights.

The Lastname, Firstname Cozy Mk-IV, Serial Number #, is registered as N#. Construction of this aircraft was completed by Firstname Lastname using Co-Z Development Plans #.

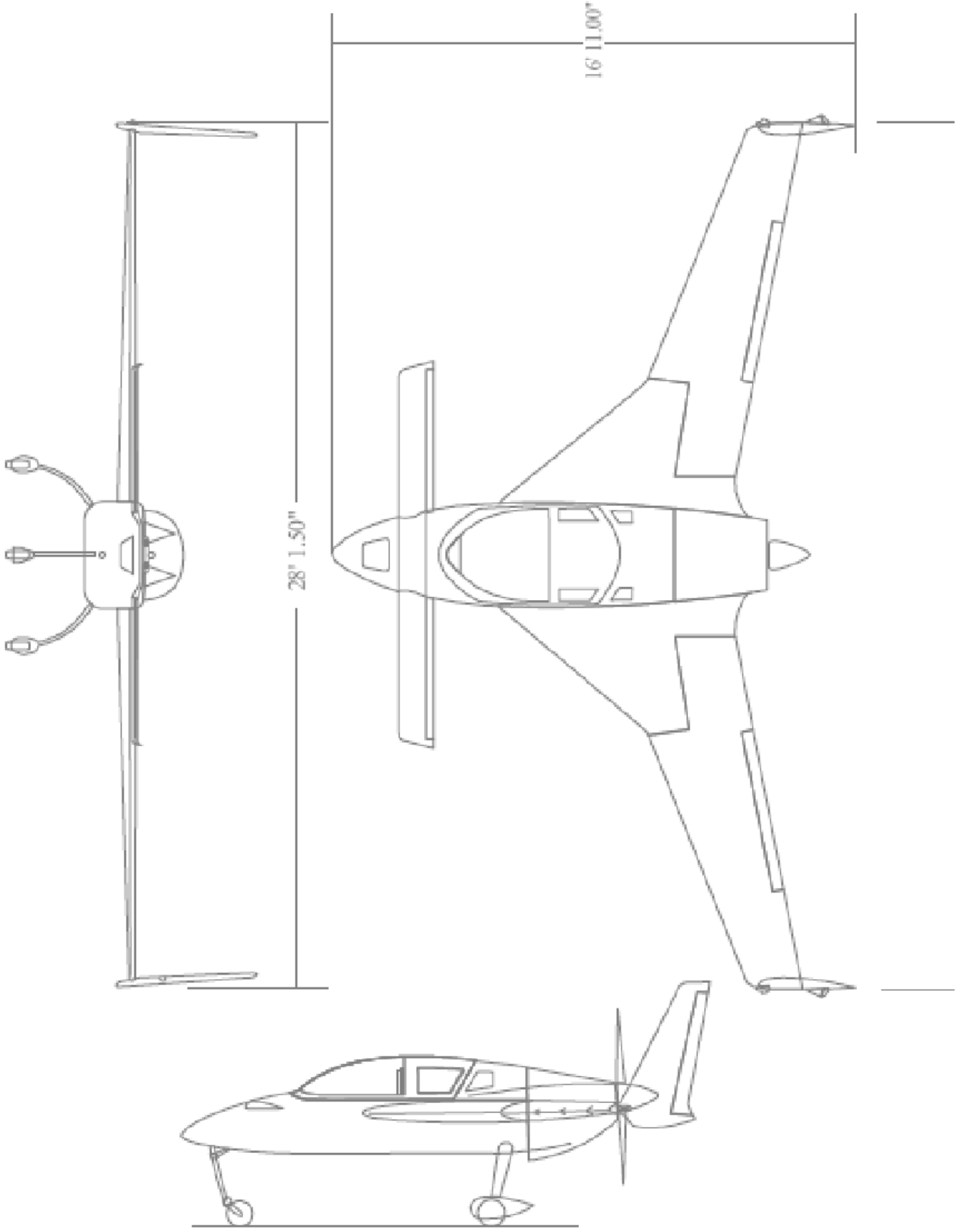
9.1. ENGINE & PROPELLER

The installed engine in N# is a Lycoming parallel-valve IO-360-A1X, serial number #. An Airflow Performance electric fuel pump as well as an engine-driven mechanical fuel pump is installed. A Bendix RSA-5 fuel injection system, modified by Airflow Performance, is installed. The engine was assembled by Firstname Lastname. The propeller is a maple and carbon fiber two-blade propeller manufactured by Manufacturer, with a X” diameter and X” pitch.

9.2. AVIONICS & ELECTRICAL SYSTEM

N# is equipped with an alternator-powered electrical system, redundant Odyssey PC680 batteries, a Vertical Power VP-X Pro electronic circuit breaker and electrical distribution system, and a light weight B&C electric starter. The avionics system is an electrically-dependent instrument panel consisting of the following:

- Garmin G3X GDU370 Primary Flight Display (PFD)
- Garmin G3X GDU375 Multi-Function Display (MFD)
- TruTrak GX Pilot autopilot
- PS Engineering PMA9000EX audio panel
- Garmin GTN650 GPS/NAV/COMM
- Garmin SL-30 NAV/COM
- Garmin GTX330 Mode S Transponder.
- Falcon Electric Attitude Indicator (AI)
- Taskem Digital Altimeter / Vertical Speed Indicator (VSI)


16' 11.00"
28' 1.50"

10. PREREQUISITES

10.1. CONDITION INSPECTION

A Condition Inspection must be completed, and all discrepancies corrected. The Condition Inspection Report is to be kept with the Aircraft Log, and stored in a safe location. An entry must be made in the aircraft log, signed and dated, which states that the Condition Inspection has been completed and that the aircraft was found to be in a condition for safe operation.

10.2. AIRCRAFT REGISTRATION

The Aircraft Registration must be issued by the FAA, and the original must be inside the aircraft in the document envelope.

10.3. AIRWORTHINESS CERTIFICATE

The Airworthiness Certificate issued by the FSDO or DAR must be complete and displayed in the cabin in accordance with 14 CFR 91.203(b). The Operating Limitations constitute a portion of the Airworthiness Certificate for an Experimental – Amateur Built (E-AB) aircraft, and must be inside the aircraft in the document envelope.

10.4. AIRCRAFT INSURANCE

The aircraft must be insured for in-motion coverage. All proposed Test Pilots must be listed on the insurance policy.

11. PROTOCOL DESIGN

This flight test protocol is based upon Advisory Circular AC 90-89B Amateur-Built Aircraft and Ultralight Flight Testing Handbook and the unpublished draft XP^3 Experimental Plane & Pilot Performance by the Experimental Aircraft Association and the Homebuilt Aircraft Council. It is intended to be a thorough, methodical approach to flight testing an experimental amateur-built aircraft. Each step of the flight test protocol is described in detail, with associated risks identified and mitigated to the extent possible. Each flight test is designed to progressively build on the previous tests, and gather as much performance data as possible, while minimizing the test pilot workload.

All flight testing will be conducted within design weight and balance specifications, as set by the Co-Z Development Company in the Pilot Operating Handbook. Flight testing will be conducted with a solo pilot, and an appropriate ground crew. Communications between the test pilot and ground crew shall use approved frequencies for civil aviation testing. Each flight will be conducted in accordance with the flight protocols documented below, and utilizing procedures developed for each protocol. The Garmin G3X EFIS will collect flight test data automatically during the flight. A GoPro video camera mounted on the seat back will record each flight.

Following execution of each flight test protocol a debrief session will occur to document any findings from the test. The engine cowls will be removed and the engine examined. A complete post-flight checklist can be found in Appendix A. Any leaks found must be identified and corrected. Any squawks must also be remedied. The data from the Garmin G3X system and GoPro video camera will be downloaded to a laptop.

11.1. WEIGHT, BALANCE & FUEL CAPACITY

The weight and balance (W&B) will be conducted in accordance with the Cozy Mk-IV Pilot Operator's Handbook. Additionally, the fuselage station of each occupant seat will be verified by having an occupant sit in each location while the plane is on the scales. Finally, the fuselage station of the fuel will be verified by incrementally adding fuel to each tank while the plane is on the scales. During this addition the capacitive fuel probes will be calibrated and the sight gauges will be appropriately marked. At the completion of this portion of the protocol, the W&B must be printed and added to the aircraft document envelope.

11.2. FUEL FLOW TEST

A fuel flow test will be conducted in accordance with AC 90-89B Section 1-19(e). The aircraft will remain in a nose-level attitude during this test, as this is the most challenging attitude for flow from the fuel tanks. Fuel flow rate must be at least 125% of the takeoff fuel consumption rate in all attitudes and fuel levels.

11.3. ENGINE RUNS & TAXI TESTING

The Lycon-built IO-360-A1X has been overhauled and has new cylinder assemblies, bearings, and other components. As such it must be properly filled with 100W mineral oil and run according to the Lycoming Service Instruction No. 1241C. It is recommended to pressure oil the engine by filling the sump using a pressurized container connected to the oil galley. In this way the galleys will be filled before the engine is rotated. The sump and oil cooler are filled with oil, followed by running the starter with spark plugs removed and ignition systems off. This will pressurize the oil galleys and minimize the amount of time the bearings are starved for oil upon initial start-up.

First engine runs will be made in accordance with Lycoming Service Instruction No. 1427C. This involves running the engine at incrementally higher RPMs, for incrementally longer times. At no time during the first engine run sequence should the cylinder heads exceed 350°F or the oil temperature exceed 180°F. Additionally the Lightspeed Plasma III ignition and the Slick 4270 magneto will be tested for functionality and timing per Lycoming Service Instruction 1132B. This consists of turning each system off in turn and noting the drop in engine RPM.

Taxi testing is intended to verify that the brakes function as intended, verify that the aircraft tracks and turns as expected, and to condition the brake pads. At no time during taxi testing shall the engine be operated with the oil temperature above 180°F or any cylinder head temperature above 350°F. The brake pads will be conditioned per the Matco Manufacturing General Information for Wheels and Brakes Technical Services Guide, Revision C.

High-speed taxi testing gives the Test Pilot the ability to assess the performance characteristics of the aircraft near, and perhaps above, the speed required for take-off. High-speed taxi testing also carries significant risk, as the aircraft remains on or near the ground. Special consideration should be given to executing high-speed taxi testing. Three specific hazards are overrunning the end of the runway, becoming airborne unintentionally, and overheating the engine. An absolute end point must be identified (taxiway, touchdown zone paint, etc) where the throttle must be closed to idle and the brakes applied to ensure that sufficient braking distance is available. To protect against the hazard of unintentional flight, the aircraft should be prepared (fuel available, CG and weight known, etc.) so that if the aircraft does become airborne that the test will transition to the first flight protocol. Finally, engine temperatures should be monitored carefully, and the engine shutdown if temperatures warrant.

When executing high-speed taxi tests each successive run should increase the airspeed by no more than 5 KIAS. Smoothly apply progressively more throttle until full-throttle runs are achieved. After the target airspeed is obtained, smoothly close the throttle before gently applying pitch, roll, and/or yaw inputs to investigate the response of the aircraft. This sequence should progress until the aircraft reaches rotation speed, V_R. At that point the canard should lift the nose wheel off the ground, and a close approximation to stall speed, V_S, can be made.

At a minimum the following data will be collected:

- Weather Information (temperature, pressure, dew point, wind speed and direction)
- Distance to achieve rotation speed, V_R.
- Distance to complete stop from rotation speed, V_R.
- Estimate of Stall Speed, V_s (Gear Down)
- Oil and Cylinder head temperatures (CHTs) in takeoff configuration.

11.4. 1ST FLIGHT

Successful completion of inspection checklists, engine runs, and taxi tests verifies that the aircraft is ready for the first flight. The Test Pilot for the first flight will be a qualified professional test pilot selected by the Builder/Owner. Attendance to the first flight will be limited.

The Airport Operations staff, air traffic control tower personnel, and emergency services will be notified ahead of time of the nature of the flight. The Builder/Owner will serve as the ground observer, and have a copy of the Flight Test Protocol as well as a two-way radio on an agreed frequency.

The aircraft will be at a minimum weight, with the pilot as the sole occupant, and the center of gravity (CG) will be adjusted to the middle of the acceptable range (99-100.5 in). Fuel onboard will be limited to approximately 10 gallons per side.

The first flight test protocol will be limited to a climb to 1,000 ft. AGL at 85 KIAS, followed by shallower climb at 125 KIAS to 5,000 ft MSL. Airspeed should be monitored and limited to level flight at or below 125 KIAS. The nose gear is to remain down unless engine cooling is insufficient. After levelling off at 5,000 ft. control inputs will be made sequentially to yaw the nose left and right 5 degrees, roll 5 degrees left and right, and pitch 5 degrees nose up and nose down. At no time should the aircraft depart controlled flight, and trim and control pressure should be noted.

If the flight control test is completed successfully, the aircraft will be slowed to canard stall speed, slowing to no less than 60 KIAS. If the nose bob of the canard stalling does not occur by 60 KIAS, the test will be aborted. A practice descent and approach will then be conducted to 4,000 ft. followed by a second practice descent and approach to 3,000 ft. After this approach the aircraft will enter the pattern and execute a landing.

At a minimum the following data will be collected:

- Weather information (temperature, pressure, dew point, wind speed and direction)
- Takeoff and landing distances
- Rate of Climb at 85 KIAS (Gear Down)
- Stall Speed, V_s (Gear Down)
- Oil and CHTs in climb and level flight

11.5. 2ND FLIGHT

The second flight is intended to be a replicate of the first flight to verify the initial test. Attendance to the second flight will also be limited.

The Airport Operations staff, air traffic control tower personnel, and emergency services will be notified ahead of time of the nature of the flight.

The second flight test protocol will be limited to a climb to 1,000 ft. AGL at 85 KIAS, followed by shallower climb at 125 KIAS to 5,000 ft MSL. Airspeed should be monitored and limited to level flight at or below 125 KIAS. The nose gear is to remain down unless engine cooling is insufficient. The yaw, roll, and pitch control tests will be repeated. If the flight control test is completed successfully, the aircraft will be slowed to approach speed, slowing to no less than 60 KIAS. If the nose bob of the canard stalling does not occur by 60 KIAS, the test will be aborted. A practice descent and approach will then be conducted to 4,000 ft. followed by a second practice descent and approach to 3,000 ft. After this approach the aircraft will enter the pattern and execute a landing.

At a minimum the following data will be collected:

- Weather information (temperature, pressure, dew point, wind speed and direction)
- Takeoff and landing distances
- Rate of Climb at 85 KIAS (Gear Down)
- Stall Speed, V_s (Gear Down)
- Oil and CHTs in climb and level flight

11.6. 3RD FLIGHT: LANDING GEAR AND LANDING BRAKE TEST

The landing gear and landing brake test flight is to verify the operation of the nose gear and landing brake, as well as to take the first data point in the pitot-static calibration.

The Airport Operations staff and air traffic control tower personnel will be notified ahead of time of the nature of the flight.

The third flight test protocol will be limited to a climb to 5,000 ft. at 95 KIAS, followed by level flight at or below 125 KIAS. The nose gear will be cycled three times, verifying operation and full extension and retraction. The nose gear is to remain down when the test is completed. Mark or otherwise indicate the top of the white arc airspeed at the demonstrated landing brake deployment speed.

Subsequently the airspeed will be lowered to 85 KIAS and the landing brake will be cycled three times, again verifying operation and full extension and retraction. The landing brake is to remain retracted when the test is completed. At no time should the aircraft depart controlled flight, and trim and control pressure should be noted. Mark or otherwise indicate the top of the white arc airspeed at the demonstrated landing brake deployment speed.

Following the verification of the landing gear and landing brake, the aircraft will be set-up in a 125 KIAS cruise condition and flown on each of the four cardinal headings. In each case the goal is to maintain the airspeed as tightly as possible, and maintain 5,000 ft. altitude. The ground speed from the GPS will be recorded. A descent at 95 KIAS will be made. After this approach the aircraft will enter the pattern and execute a landing.

At a minimum the following data will be collected:

- Weather Information (temperature, pressure, dew point, wind speed and direction)
- Takeoff and landing distances
- Rate of Climb at 95 KIAS (Gear Down)
- Rate of Descent at 95 KIAS (Gear Down)
- Oil and CHTs in climb and level flight
- Airspeed Indicator Calibration at 125 KIAS

11.7. 4TH FLIGHT: PITOT/STATIC CALIBRATION

This flight test protocol is focused on calibration of the pitot-static system so that all subsequent flights may use calibrated airspeed. The flight test begins with a climb to 8,000 ft. at 100 KIAS with the nose gear retracted. The pitot-static system calibration method is to fly four cardinal headings at a fixed airspeed and altitude, and comparing the true airspeed to the ground speed. In doing so the effect of wind can be calculated, and each of the four runs can be used in sets of three to calculate error in the flight test. This method requires careful control of the altitude and airspeed. This flight will also take a significant period of time, as there are ten airspeeds from 70 to 130 KIAS in the test, ordered randomly. Each airspeed test point has four cardinal direction runs, and for stability of the data, each leg will be flown for at least two minutes. A descent at 100 KIAS with the nose gear retracted will be made. After this approach the aircraft will enter the pattern and execute a landing.

At a minimum the following data will be collected:

- Weather Information (temperature, pressure, dew point, wind speed and direction)
- Takeoff and landing distances
- Rate of Climb at 100 KIAS (Gear Up)
- Rate of Descent at 100 KIAS (Gear Up)
- Oil and CHTs in climb and level flight
- Airspeed Indicator Calibration at from 80 to 130 KIAS
- Fuel flow at airspeeds from 80 to 130 KCAS

11.8. 5TH FLIGHT: WINGS LEVEL STALLS – CLEAN

This flight test protocol is focused on wings-level stall performance in the clean configuration. At no time during this test should the airspeed be allowed below 60 KIAS. If the airspeed decays below 60 KIAS, immediate full power application and nose down elevator inputs must be made. The flight begins with a climb to 8,000 ft. at 95 KIAS with the nose gear retracted. A series of slow flight maneuvers is then executed beginning at 80 KIAS. The controls and trim forces are noted and the aircraft maneuvered through 3-5 degree pitch, roll, and yaw maneuvers. After completing each sequence a full-throttle climb is conducted to return the aircraft to 8,000 ft. This sequence is repeated in 5 knot increments down to 60 KIAS. After this series is completed, a similar series is conducted with the starting power set to maintain 125 KIAS in level flight at 8,000 ft. Finally, a full-throttle climb at each airspeed is conducted. A descent at 95 KIAS with the nose gear retracted will be made. After this approach the aircraft will enter the pattern and execute a landing.

At a minimum the following data will be collected:

- Weather Information (temperature, pressure, dew point, wind speed and direction)
- Takeoff and landing distances
- Stall speed (V_s) at idle, low cruise, and full power settings
- Oil and CHTs in climb and level flight

11.9. 6TH FLIGHT: WINGS LEVEL STALLS – DIRTY

This flight test protocol is focused on wings-level stall performance in the dirty configuration (nose gear and landing brake down). At no time during this test should the airspeed be allowed below 60 KIAS. If the airspeed decays below 60 KIAS, immediate full power application and nose down elevator inputs must be made. The flight test is identical to the clean configuration stall series, with the exception of testing with the nose gear and landing brake deployed.

At a minimum the following data will be collected:

- Weather Information (temperature, pressure, dew point, wind speed and direction)
- Takeoff and landing distances
- Stall speed (V_s) at idle, low cruise, and full power settings
- Oil and CHTs in climb and level flight

11.10. 7TH FLIGHT: ACCELERATED STALLS

This flight test protocol is focused on accelerated stall performance. At no time during this test should the airspeed be allowed below 60 KIAS. If the airspeed decays below 60 KIAS, immediate full power application and nose down elevator inputs must be made. The flight begins with a climb to 8,000 ft. at 95 KIAS with the nose gear retracted. A series of stalls are then performed in bank angles from 15 degrees to 60 degrees, in 15 degree increments, to the right and the left. After completing each sequence, return the aircraft to 8,000 ft., 95 KIAS. A descent at 95 KIAS with the nose gear retracted will be made. After this approach the aircraft will enter the pattern and execute a landing.

At a minimum the following data will be collected:

- Weather Information (temperature, pressure, dew point, wind speed and direction)
- Takeoff and landing distances
- Stall speed (V_s) at 15, 30, 45, and 60 degree bank angles
- Oil and CHTs in climb and level flight

11.11. 8TH FLIGHT: FLUTTER TESTING

This flight test protocol is intended to verify the absence of airframe flutter at all expected airspeeds. Flutter is a potentially disastrous condition that can lead to damage or destruction of the airframe. This test entails considerable risk, and consideration should be made with regard to wearing a parachute. The flight begins with a climb to 10,000 ft. with the nose gear retracted. Each test sequence will involve slowly attaining the target airspeed, either by increasing throttle, or diving. At no time should the engine be over-speeded, and maintaining a red line limit of 2800 RPM is advisable. At each increment, access the damping of the controls as follows: Kick a rudder pedal, and jab the stick left, right, forward, and aft. After each input, the controls should immediately return to trim, and any structural motion should damp within one cycle. At no point should the test continue below 8,000ft. The airspeed should be incremented no more than 5 KIAS for each subsequent test. If at any time flutter is encountered the engine should be brought to idle, pitch back to induce a ~2G pitch up to bleed speed until the flutter

ceases. If this occurs notify the tower of an emergency situation and land immediately. Recheck balance and weights of control surfaces. Solve any suspected cause of low damping before expanding airspeed. V_{NE} is defined as $0.9*V_D$, the maximum demonstrated dive speed absent of flutter. To achieve the published airframe red line of 190 KIAS, the aircraft must be tested to 210 KIAS. Mark or otherwise indicate the red line airspeed as demonstrated during flight testing. This speed is also the top of the yellow band on the airspeed indicator. The bottom of the yellow band is 120 KIAS, the maneuvering speed reported by the Co-Z Development Corporation.

At a minimum the following data will be collected:

- Weather Information (temperature, pressure, dew point, wind speed and direction)
- Takeoff and landing distances
- Verify absence of airframe flutter up to 210 KIAS. Calculate V_{NE} and placard appropriately.

11.12. 9TH FLIGHT: SAW TOOTH CLIMBS & DESCENTS

This flight test protocol is focused on climb and descent performance. The flight test begins with a climb to 8,000 ft. at 125 KIAS with the nose gear retracted. Rates of climb (ROC) and rates of descent (ROD) will be measured from 75 to 135 KIAS. The intent of this test is to determine V_X (best angle climb) and V_Y (best rate of climb), V_{BG} (best glide speed), V_{MD} (minimum drag speed) as well as to establish descent performance at a variety of airspeeds. Due to the consumption of fuel during each test, the flight test protocol will be separated into two flights. The gross weight of the aircraft in each test climb should be known as accurately as possible. A descent with the nose gear retracted will be made. After this approach the aircraft will enter the pattern and execute a landing.

At a minimum the following data will be collected:

- Weather Information (temperature, pressure, dew point, wind speed and direction)
- Takeoff and landing distances
- Rate of Climb between 75 and 135 KIAS (Gear Up)
- Rate of Descent between 75 and 135 KIAS (Gear Up)
- Oil and CHTs in climb and level flight

11.13. 10TH FLIGHT: LONGITUDINAL STABILITY

This flight test protocol is intended to test the longitudinal stability of the aircraft. Static longitudinal stability, as well as short-period and long-period dynamic stability will be tested. Each of these tests aims to depart trimmed airspeed by a fixed amount and verify that stick pressure gradients are correct, and that the aircraft returns to stable, trimmed flight in all circumstances. The flight begins with a climb to 8,000 ft. with the nose gear retracted. The static stability stick force gradient test is conducted first by trimming the aircraft first at 125 KIAS. The aircraft then departs the trimmed airspeed with a push or pull on the stick, with verification that the stick forces do not reverse. This is followed by an additional push or pull to further deviate from trimmed airspeed, again verifying that there are no stick force reversals.

When the static longitudinal stability test is complete the dynamic longitudinal stability tests are performed. The short-period dynamic stability test is again initiated at 125 KIAS at 8,000ft., in a trimmed condition. The stick is pushed or pulled to induce a small pitch change, and then immediately returned to the trimmed pitch attitude. The aircraft response in pitch oscillation and airspeed oscillation is noted, as well as the final trim condition. The long-period dynamic stability is also initiated from 125 KIAS at 5000 ft., in a trimmed condition. The stick is pushed or pulled to initiate an airspeed change of 5 KIAS, and then released. Again the aircraft response in pitch oscillation, airspeed oscillation, final trim condition and altitude are noted.

A descent at 95 KIAS with the nose gear retracted will be made. After this approach the aircraft will enter the pattern and execute a landing.

At a minimum the following data will be collected:

- Weather Information (temperature, pressure, dew point, wind speed and direction)
- Takeoff and landing distances
- Static Longitudinal Stability and Stick Force Gradient Behavior
- Short-Period Longitudinal Stability Behavior
- Long-Period Longitudinal Stability Behavior
- Oil and CHTs in climb and level flight

11.14. 11TH FLIGHT: LATERAL STABILITY

This flight test protocol is intended to test the lateral, directional and spiral stability of the aircraft. The flight begins with a climb to 8,000 ft. with the nose gear retracted. The static stability stick force gradient test is conducted first by trimming the aircraft first at 110 KIAS. The aircraft then enters a forward slip, with verification that the stick forces and rudder forces monotonically increase, and do not reverse. This is progressed until either full aileron or rudder throw is achieved. When this is complete, the aileron is released, and tendency for the aircraft to return to level flight is observed. This is repeated in the other direction.

Next the static directional stability is tested. This consists of yawing the aircraft using the rudder, using the aileron to keep wings level. When the rudder is released, the aircraft should return to level flight.

Finally the spiral stability tests are performed. The spiral stability test is again initiated at 110 KIAS at 8,000ft., in a trimmed condition. The aircraft is rolled to a 15 to 20 degree roll, and the controls are released. The aircraft response in roll is observed. If the aircraft continues to roll into the turn, it has negative spiral stability. If the bank angle is maintained, it has neutral spiral stability. If the bank angle decreased, the aircraft has positive spiral stability.

A descent at 95 KIAS with the nose gear retracted will be made. After this approach the aircraft will enter the pattern and execute a landing.

At a minimum the following data will be collected:

- Weather Information (temperature, pressure, dew point, wind speed and direction)

- Takeoff and landing distances
- Static Lateral and Directional Stability and Stick Force Gradient Behavior
- Spiral Stability
- Oil and CHTs in climb and level flight

11.15. 12TH FLIGHT: RANGE AND ENDURANCE

This flight test protocol is intended to test the range and endurance performance of the aircraft. The flight begins with a climb to 8,000 ft. with the nose gear retracted. The aircraft is then flown at a series of airspeeds, beginning at V_x and progressing in 5 KIAS increments. The intent is to measure airspeed and fuel flow at each point in an effort to verify the best L/D speed, maximum endurance speed V_{BE}, Carson's speed, and maximum cruise speed at maximum continuous power, V_H.

Engine break-in must be completed before the execution of this flight test protocol. All points should be run Lean of Peak (LOP) with the exception of the maximum cruise at maximum continuous power, V_H, which should be run Rich of Peak (ROP). Running ROP and LOP require use of the exhaust gas temperature (EGT) probes. If it has not been completed already, the fuel-flow spread of the fuel injector for each cylinder should be assessed and the differential minimized. Similar to the pitot-static calibration runs, the test method is to fly four cardinal headings at a fixed airspeed and altitude. In doing so the effect of wind can be calculated, and each of the four runs can be used in sets of three to calculate error in the flight test. This method requires careful control of the altitude and airspeed. This flight will also take a significant period of time, as there are ten airspeeds from 70 to 160 KIAS in the test, ordered randomly. Each airspeed test point has four cardinal direction runs, and for stability of the data, each leg will be flown for at least two minutes. A descent at 100 KIAS with the nose gear retracted will be made. After this approach the aircraft will enter the pattern and execute a landing.

At a minimum the following data will be collected:

- Weather Information (temperature, pressure, dew point, wind speed and direction)
- Takeoff and landing distances
- Verify Airspeed Indicator Calibration at from 70 to 160 KIAS
- Fuel flow at airspeeds from 70 to 160 KCAS
- Oil and Cylinder Head Temperatures in climb and level flight

11.16. 13TH FLIGHT: ELECTRIC TRIM & AUTOPILOT TESTING

This flight test protocol is intended to test the effectiveness of the electric pitch and roll trim, investigate the impact of a runaway trim, and test the TruTrak GX Pilot Autopilot system. The flight begins with a climb to 8,000 ft. with the nose gear retracted. Each test sequence will involve running the pitch trim to full nose down, followed by full nose up, then roll full left, followed by roll full right. In each case the stick pressure to maintain airspeed and altitude should be noted. This sequence begins with slowing the aircraft to V_s while maintaining altitude by adding power as required. Subsequent test points will be conducted at V_x, V_y, Carson's Speed, and V_H.

Subsequent to the trim test completion, the TruTrakGX Pilot operation will be verified. The system should be initially set up per the TruTrak GX Pilot Autopilot Intallation/User Manual. It should be tested in the basic mode first, separate from the G3X system. Once the operation is verified in pitch and roll, then coupling to the G3X system can be attempted.

At a minimum the following data will be collected:

- Weather Information (temperature, pressure, dew point, wind speed and direction)
- Takeoff and landing distances
- Verify runaway pitch and roll trim operation from V_S through V_H
- Verify operation of TruTrak GX Autopilot, alone and coupled to the G3X System

11.17. 14TH THROUGH 29TH FLIGHTS: CG & WEIGHT MATRIX

Having completed the flight test protocols to this point at a central center of gravity location and generally low gross take-off weight, it is time to expand the CG / Weight envelope to include the published limits of the CG location and MGTW. This is done systematically, with each CG and weight loading consisting of a series of test cards that replicate the previously executed protocols.

11.17.1. SAWTOOTH CLIMBS & DESCENTS

Sawtooth climbs and descents are replicated to verify changes in the climb and gliding performance due to changes in CG and weight of the aircraft. These tests are identical to those executed previously, and deviations from previous tests should be noted.

11.17.2. WINGS-LEVEL AND ACCELERATED STALLS

The stall series for the aircraft across the CG / Weight envelope represents some of the most challenging aspects of the flight test program. The intent is to demonstrate positive control of the aircraft in the published envelope. Note that in all cases the canard must stall before the main wing.

This portion of the flight test program is inherently risky, and all precautions should be taken to ensure that previous aircraft performance is fully understood. The rear CG testing is most dangerous, and done incorrectly has resulted in loss of aircraft and life. This testing should be done methodically, with special provision made to enable ballast weights that are placed in the rear to be moved forward in the event that the aircraft enters a deep-stall condition. Note that there are documented cases of aircraft entering a deep-stall condition and impacting the ground, resulting in injury to the pilot, but in all cases this has been a survivable event. Bailing out of an aircraft in a deep stall has inherent risks, and has resulted in loss of life. Carefully consider your options if this condition is encountered, and have a stated plan in that eventuality. Note that one canard aircraft has been demonstrated to exit the deep stall condition by alternating full deflection of the rudders. This is reported to oscillate the nose in a divergent yaw, eventually rolling the aircraft inverted, with the nose pointing down. This maneuver requires significant altitude to accomplish.

The stall speed of the aircraft will depend upon the weight and CG position. Higher weight will increase the stall speed. More forward CG will also increase the stall speed. After the entire weight and center of gravity matrix has been completed, calculate the highest stall speed achieved. Use this airspeed to indicate the on the airspeed indicator the lower end of the white and green bands. The upper end of the green band is 120 KIAS, the maneuvering speed reported by the Co-Z Development Corporation.

11.17.3. LONGITUDINAL STABILITY

The longitudinal stability tests are replicated to verify changes in the stability of the aircraft due to changes in the CG and weight of the aircraft. These tests are identical to those executed previously, and deviations from previous tests should be noted.

11.18. 30TH FLIGHT: HIGH ALTITUDE PERFORMANCE

This flight test protocol is focused on high altitude performance. Note that an oxygen system must be installed for this flight. Be aware of the potential for hypoxia, and strongly consider the use of a pulse-oximeter. The flight test begins with a climb to 1,000 ft. AGL at V_Y, followed by a climb to 8,000 ft. at 125 KIAS. Continue climbing, selecting a cruise-climb airspeed that balances maximum rate of climb, good visibility over the nose, and acceptable oil and cylinder head temperatures. This climb should continue to 17,500 ft. Cruise performance will be evaluated at WOT both ROP and LOP. A series of descents will be executed to include cruise performance evaluations at WOT both ROP and LOP at 15,500 ft., 13,500ft., 11,500ft, and 9,500ft. A descent with the nose gear retracted will be made. After this approach the aircraft will enter the pattern and execute a landing.

At a minimum the following data will be collected:

- Weather Information (temperature, pressure, dew point, wind speed and direction)
- Takeoff and landing distances
- Cruise performance ROP and LOP at 17,500, 15,500, 13,500, 11,500, and 9,500ft.
- Rate of Climb between 8,000 and 17,500 ft.
- Oil and Cylinder Head Temperatures in climb and level flight

11.19. 31ST FLIGHT: AEROBATICS

This flight test protocol is intended to execute the aerobatics that are listed in the Co-Z Development Company Pilot Operator's Handbook. The Cozy Mk-IV is not intended to be an aerobatic aircraft, and no aerobatics of any kind should be attempted unless the pilot has practiced unusual attitude recovery with a qualified instructor in an appropriate aircraft beforehand. Note that the low drag of the aircraft can build a significant amount of speed if the nose is pointed down for any period of time. Botched execution of aileron rolls and loops can lead to a situation where the airframe V_{NE} is exceeded. No aerobatic maneuvers are approved except the following: Chandelles, Lazy Eights, Steep Turns, Stalls, and Accelerated Stalls. Following the execution of the listed maneuvers, a descent with the nose gear retracted will be made. After this approach the aircraft will enter the pattern and execute a landing.

At a minimum the following data will be collected:

- Weather Information (temperature, pressure, dew point, wind speed and direction)
- Takeoff and landing distances
- Successful execution of the approved aerobatic maneuvers
- Oil and Cylinder Head Temperatures in climb and level flight

12. ACCEPTANCE CRITERIA

12.1. ABSENCE OF POORLY CONTROLLED FLIGHT REGIMES

The aircraft is controllable throughout its normal range of speeds, throughout all maneuvers to be executed, and throughout its designed range of weights and center-of-gravity (CG) limits. The aircraft has no hazardous operating characteristics or design features.

12.2. FLIGHT PERFORMANCE DATA

The aircraft flight performance data will be compared to the Pilot Owner's Handbook and CAFÉ Foundation flight test report. All significant differences between published performance data and flight performance data are to be documented, investigated, and explained. To the extent required, modifications, mitigations and further testing will be conducted to close all identified performance gaps. Using this data, develop an accurate and complete aircraft flight manual and establish emergency procedures.

13. VERSION HISTORY

First publically distributed Version 1.0 issued on 26 Feb 2017. Generic N#, Serial Numbers, Locations, etc. Known omission of elevator position versus airspeed and center-of-gravity position.

APPENDIX A: CHECKLISTS

1. PREFLIGHT

Cockpit

Aircraft Cover	-	**REMOVE / STOW**
Canopy	-	**OPEN**
Fuel Tank Drains	-	**CHECK FUEL**
Nose Gear	-	**EXTEND**
Ignition	-	**OFF**
Master Switch	-	**ON** (check battery and warning system)
Master Switch	-	**OFF**
Cockpit Access Latch	-	**CLOSED, KEY OUT**
Stick	-	**FREE & CLEAR**
Rudder Pedals	-	**CLEAR**
Ballast Compartment	-	**AS REQ.**
Pitch Trim	-	**CHECK**
Aileron Trim	-	**CHECK**

Canard Nose Section

Elevator	-	**HINGES, WEIGHTS**
Elevator	-	**FREE**
Static Ports	-	**CLEAR**
Pitot Tube	-	**CLEAR**
Nose Bumper	-	**INTACT**
L.L. Windows	-	**CHECK CLARITY**

Right Fuselage and Wing

Canopy Hinges	-	**CHECK**
Fuel Quantity	-	**CHECK**
Fuel Cap	-	**SECURE**
Wing and Winglet	-	**CHECK CONDITION**
Tie Down	-	**REMOVE**
Rudder Gust Lock	-	**REMOVE**
Rudder	-	**FREE, CHECK HINGES, DRAIN HOLE**
Rudder Return Spring	-	**SECURE, WORKING**
Aileron Gust Lock	-	**REMOVE**
Aileron	-	**FREE, CHECK HINGES**
Fuel Tank Vents	-	**CLEAR**

Aft Fuselage and Engine

Exhaust Pipe Covers	-	**REMOVE / STOW**
Main Gear Strut	-	**SECURE**
Tires	-	**CHECK**
Brakes	-	**CHECK**
NACA Scoop	-	**CLEAR**
Cowling	-	**FASTENERS SECURE**
Propeller	-	**CHECK**
Spinner	-	**CHECK**
Exhaust Pipes	-	**CHECK**
Engine Area	-	**CHECK**
Alternator Belt	-	**CHECK**
Oil Level	-	**CHECK, DOOR SECURE**

Left Fuselage and Wing

Fuel Tank Vents	-	**CLEAR**
Aileron Gust Lock	-	**REMOVE**
Aileron	-	**FREE, CHECK HINGES**
Rudder Gust Lock	-	**REMOVE**
Rudder Spring	-	**SECURE, WORKING**
Rudder	-	**FREE, CHECK HINGES, DRAIN HOLE**
Tie Down	-	**REMOVE**
Wing and Winglet	-	**CHECK CONDITION**
Fuel Cap	-	**SECURE**
Fuel Quantity	-	**CHECK**

Nose Gear and Landing Brake

Landing Brake	-	**EXTEND**
Nose Strut / Pivot	-	**CHECK**
Shimmy Damper	-	**4 LB. TO ROTATE**
Wheel Well Area	-	**CHECK**
Nose Tire	-	**CHECK**
Nose Wheel	-	**CHECK**
Landing Brake	-	**CHECK**
Landing Brake	-	**RETRACT**

2. FLIGHT

Engine Start

Preflight	-	**COMPLETE**
Fuel Caps	-	**SECURED**
Mixture	-	**FULL RICH**
Fuel Selector	-	**FULLEST TANK**
Avionics / Radio(s)	-	**OFF**
Master Switch	-	**ON**
Fuel Pump	-	**ON**
Prime	-	**AS REQUIRED**
Throttle	-	**¼" OPEN**
Brakes	-	**ON**
Propeller	-	**CLEAR**
Ignition Switch	-	**START**
Idle	-	**600 - 1200 RPM**
Oil Pressure	-	**OK** (60 – 80 psi)
Fuel Pump	-	**OFF**
Alternator	-	**CHECK**
Mixture	-	**LEAN AS REQ.**

Before Taxi

Seat / Shoulder Belt	-	**ON/LOCK**
Radio	-	**ON / SET**
Transponder	-	**ON**
Strobe	-	**ON**
ANR Headsets	-	**ON**
Nav. / Taxi Lights	-	**ON** (night ops.)

Instruments (IFR Check)

VSI	-	**CHECK**
Turn Coordinator	-	**CHECK**
Attitude Indicator	-	**CHECK**
Directional Gyro	-	**CHECK**
Airspeed Indicator	-	**CHECK**
Altimeter	-	**CHECK**
Autopilot	-	**CHECK**
VOR/LOC/GS	-	**CHECK**

Before Takeoff

Canopy Access Door	-	**CLOSED**
Fuel Selector	-	**FULLEST TANK**
Controls	-	**FREE / CORRECT**
Trim	-	**TAKEOFF**
Landing Brake	-	**UP**
Flight Instruments	-	**SET**
Fuel Pump	-	**ON**

Engine Runup

Mixture	-	**FULL RICH** (max power)
Throttle	-	**1700 RPM**
Magnetos	-	**50 - 100 RPM DROP**
Engine Instruments	-	**OK**
Mixture	-	**FULL RICH** (max power)

Takeoff

Canopy	-	**LOCKED**
Throttle	-	**FULL OPEN**
Elevator	-	**LIFT NOSE 70 KIAS**
Rotate	-	**75 KIAS**

Climb / Cruise

Climb	-	**V_y=96 KIAS** (V_x=78 KIAS)
Nose Gear	-	**UP** (climb stabilized)
Fuel Pump	-	**OFF** (above 1K ft.)
Mixture	-	**LEAN** (above 3K ft. D.A.)
Flight Plan	-	**OPEN** (122.2, 122.0 as req.)
Pitch / Roll Trim	-	**AS REQUIRED**
Taxi Lights	-	**OFF** (night ops.)
Autopilot / Coupler	-	**ON** (as required)
Fuel Selector	-	**CHANGE TANKS** (on hour)

Descent / Landing

Autopilot	-	**OFF**
Fuel	-	**FULLEST TANK**
Mixture	-	**FULL RICH** (best power)
Aux. Fuel Pump	-	**ON** (in pattern)
Landing Lights	-	**ON** (night operations)
Nose Gear	-	**DOWN** (below 120 KIAS)
Landing Brake	-	**DOWN** (below 90 KIAS, on final)

After Landing / Engine Shut Down

Auxiliary Fuel Pump	-	**OFF**
Carburetor Heat	-	**OFF**
Landing Brake	-	**UP**
All Lights	-	**OFF**
Avionics	-	**OFF**
Electric Equipment	-	**OFF**
Mixture	-	**IDLE CUTOFF**
Magnetos	-	**OFF**
Master Switch	-	**OFF**
Fuel Selector	-	**OFF**
ANR Headsets	-	**OFF**
Flight Plan	-	**CLOSE** (122.2, 122.0)

3. EMERGENCIES

ENGINE FAILURE

Trim	-	**BEST GLIDE – 87 KIAS**
GPS	-	**NEAREST AIRPORT**
Mixture	-	**FULL RICH**
All Lights	-	**OFF**
Avionics	-	**OFF**
Electric Equipment	-	**OFF**
Aux. Fuel Pump	-	**ON**
Fuel Selector	-	**FULLEST TANK**
Master Switch	-	**ON**
Magnetos	-	**ON**
Attempt Re-Start	-	**STARTER ON**

IF NO RESTART:

Fuel Selector	-	**OFF**
Transponder	-	**7700**
Radio	-	**ON – Set to 121.5 or ATC**

ENGINE FIRE IN FLIGHT

Mixture	-	**IDLE CUTOFF**
Fuel Selector	-	**OFF**
Master Switch	-	**OFF**
Aux. Fuel Pump	-	**OFF**
Airspeed	-	**100 KIAS (or as necessary to extinguish fire)**
Fire Suppression	-	**PULL**
Forced Landing	-	**EXECUTE**
Transponder	-	**7700 (Emergency)**
Radio	-	**ON – Set to 121.5 or ATC**

CABIN FIRE IN FLIGHT

Master Switch	-	**OFF**
Cabin Air Vents	-	**CLOSED**
Fire Extinguisher	-	**ACTIVATE**
Cabin Air Vents	-	**OPEN (if fire is out)**
Land	-	**ASAP**
Transponder	-	**7700 (Emergency)**
Radio	-	**ON – Set to 121.5 or ATC**

ELECTRICAL FIRE IN FLIGHT

Master Switch	-	**OFF**
All Electrical Items	-	**OFF**
Cabin Air Vents	-	**CLOSED**
Fire Extinguisher	-	**ACTIVATE (if required)**
Cabin Air Vents	-	**OPEN (if fire is out)**

IF FIRE IS OUT AND ELECTRICAL POWER IS REQUIRED FOR CONTINUED FLIGHT

Master Switch	-	**ON**
All Electrical Items	-	**ON (as required, one at a time, with delay until issue localized)**
Land	-	**ASAP**

EMERGENCY SQUAWKS / FREQ.

Transponder	-	**7500 (Hijack)**
Transponder	-	**7600 (Lost Communications)**
Transponder	-	**7700 (Emergency)**
Transponder	-	**7700 (Emergency)**
Radio	-	**ON – Set to 121.5 or ATC**

4. POST-FLIGHT INSPECTION

ITEM	PROCEDURE / ACTION	OUTCOME	
Canard Area		**L**	**R**
Static Ports	Check clear each side		
Elevator Torque Tube Attach Bolts	Check for rust/corrosion/torque – lubricate if necessary		
Elevator Inner Hinge	Check condition – lubricate if necessary		
Elevator Middle Hinge	Check condition – lubricate if necessary		
Elevator Outer Hinge	Check condition – lubricate if necessary		
Elevator Hinge Pin Set Screw	Check for condition / torque – lubricate if necessary		
Elevator(s) Top Surface	Check for delamination / paint condition		
Elevator(s) Bottom Surface	Check for delamination / paint condition		
Elevator Clearance to Wing Tips	Check for 0.060" - 0.10" clearance		
Canard Top Surface	Check for delamination / paint condition		
Canard Bottom Surface	Check for delamination / paint condition		
Canard Cover Condition	Check for delamination / paint condition		
Canard Torque Tube Weather Seal	Check condition		
NACA air inlet	Check condition		
Elevator Torque Tube	Check condition		
Elevator Torque Tube Offset	Check condition / welds		
Elevator Trim Bellcrank	Check condition / welds		
Elevator Inner Counterweight	Check condition		
Elevator Outer Counterweight	Check condition		
Elevator Outer Weight clearance	Check for 0.060" - 0.10" clearance		
Lift Tab Bolt	Check condition		

ITEM	PROCEDURE / ACTION	OUTCOME
Nose Area	***Remove Front / Rear Nose Doors – ¼ Turn Fasteners***	
Front Nose Door	Check condition / ¼ turn fasteners	
Front Ballast Weights and mounting	Check condition	
Pitot Tube	Check condition	
Rear Nose Door	Check condition / latch hardware	
Brake Reservoir	Check condition / fluid level	
Brake Master Cylinders	Check condition / fittings	
Brake Lines	Check condition / fittings / routing	
Nose Gear Cover	Check attachment / weather seal	
Nose Gear Mechanism	Check condition / operation – lubricate / grease if necessary	
APRS/Byonics GPS Antenna	Check attachment / cable	
Nose Area Wiring	Check condition / lacing cord	
Rudder Pedals	Check condition – lubricate if necessary	
Rudder Pedal Brake Actuators	Check condition	
Rudder Cables	Check condition	
Nose Gear Strut	Check condition	
Nose Gear Upper Bearings - NG6A	Check condition	
Nose Gear Mechanism Spring	Check condition	
Upper Nose Gear Bolts/Bearings	Check condition	
Nose Gear Lower Casting	Check condition / bolt torque – grease wheel bearings if necessary	
Nose Gear Wheel/Tire	Check condition – inflate to 65 to 70 psi	

ITEM	PROCEDURE / ACTION	OUTCOME
Nose Gear Rotation	Check condition / rotation force level – set to 4 lb.	
External Temperature Probe	Check condition	
Nose Gear Doors	Check condition and hinge/spring operation	
Nose Gear Wheel Well / Windows	Check condition	

ITEM	PROCEDURE / ACTION	OUTCOME	
Top Fuselage / Front of Instrument Panel	***Remove Fuselage Top and Instrument Panel Cover***	**L**	**R**
Elevator Pushrods	Check condition / Play		
All Side Wiring	Check condition / lacing cord		
Dimmer Circuitry	Check condition		
Pitch Trim Motor / Extension Screw / Clevis Pins	Check condition / clean and lubricate per manual		
APRS box / wires	Check condition		
Switch Wiring	Check condition		
Instrument Wiring	Check condition		
Instrument Screws	Check condition / torque		
Compass	Check condition - swing if necessary		
Pitot / Static lines	Check condition		
Fuselage Top Hinges	Check condition / lubricate if necessary		
Fuselage Top Screws	Check condition		

ITEM	PROCEDURE / ACTION	OUTCOME	
Fuselage Bottom	***Remove Landing Gear Cover, Extend Landing***	**L**	**R**

ITEM	PROCEDURE / ACTION	OUTCOME	
	Brake, Remove Wheel Pants		
Landing Gear Strut Attach Points	Check condition		
Gear Leg / Fuselage Fairing	Check condition		
Gear Leg Fairing	Check condition		
Wheel / Brake /Brake Pads	Check condition		
Tire	Check condition - inflate to 55 - 60 psi		
Axle Bolt / Nut	Check condition		
Brake Line	Check condition		
Brake Line Bulkhead Fitting	Check condition		
Heat Shield / Insulation	Check condition		
Wheel Pant	Check condition		
Landing Brake Surfaces	Check condition		
Landing Brake Mechanism	Check condition – lubricate inside and out if necessary		
NACA Scoop	Check condition		
Landing Gear Cover	Check condition		

ITEM	PROCEDURE / ACTION	OUTCOME	
Front Cockpit	***Remove Front Seats, Front Armrests, Front Center Console Cover, Fuel Valve Cover***	**L**	**R**
Left / Right Front Seatbelts	Check condition		
Left / Right Control Sticks	Check condition – lubricate if necessary		
Left / Right PTT / Control Stick wiring	Check condition		
Front Left/Right Torque Tubes/ Bearings	Check condition		

ITEM	PROCEDURE / ACTION	OUTCOME
Fuse / Ground Buses	Check condition	
Front Cockpit Wiring / Conduits	Check condition / lacing cord	
ELT	Check condition	
Transponder Antenna	Check attachment / cable	
Roll Trim	Check condition – lubricate if necessary	
Throttle / Mixture Quadrant	Check condition – adjust/lubricate if necessary	
Canopy Latch/Safety Catch Mechanism	Check condition - adjust if necessary	
Canopy Seal	Check condition	
Canopy Hinges / Screws	Check condition	
Fuel Valve	Check condition - lubricate if necessary	

ITEM	PROCEDURE / ACTION	OUTCOME	
Rear Cockpit	***Remove Rear Seats, Landing Brake Cover, Rear Firewall Cover, Rear Armrests, Rear Center Console Covers***	**L**	**R**
Rear Left / Right Torque Tubes / Bearings	Check condition		
Left / Right Fuel Senders	Check condition		
Landing Brake Mechanism	Check condition - lubricate if necessary		
Fuel Lines	Check condition		
Rear Cockpit Wiring / Conduits	Check condition		
Center Actuator Cables	Check condition		
Parking Brake Valve/Actuator	Check condition / fittings		
Left / Right Landing Gear Attach Bolts	Check condition		
Firewall Through Holes	Check condition		

ITEM	PROCEDURE / ACTION	OUTCOME
Rear Ground Bus	Check condition	
Rear Essential Bus	Check condition	
Wiring / Antennae	Check condition	
Lightspeed EI Control Box	Check condition - timing if required	
Electric Fuel Pump tubing / wiring	Check condition	
Electric Fuel Pump	Check condition -	
Electric Fuel Pump Filter	Check condition - Clean	
Voltage Regulator	Check condition	
Battery	Check condition / clean contacts if required	
Master Solenoid	Check condition	
Brake Lines / Bulkhead Fittings	Check condition	

ITEM	PROCEDURE / ACTION	OUTCOME
Left Strake / Wing / Winglet	***Remove Bolt Covers, Wing Heat Shield, Aileron Hinge screws, Top Cowling***	
Tie Down Anchor	Check condition	
Wing Top Surface	Check condition – delamination tap	
Strake Top Surface	Check condition – delamination tap	
Gas Cap / Grounding Strap	Check condition	
Wing Bottom Surface	Check condition – delamination tap	
Strake Bottom Surface	Check condition – delamination tap	
LE Gas Drain	Check condition – Fuel Flow	
Aileron Top Surface	Check condition – delamination tap	
Aileron Bottom Surface	Check condition – delamination tap	

ITEM	PROCEDURE / ACTION	OUTCOME
Aileron Cove Clearance	Check for 0.060" - 0.10" clearance	
Aileron Tip Clearance	Check for 0.060" - 0.10" clearance	
Aileron Root Clearance	Check for 0.060" - 0.10" clearance	
Aileron Hinges	Check condition	
Three Vortilons	Check condition	
Wing Bolts	Check condition	
Winglet Outer Surface	Check condition – delamination tap	
Winglet Inner Surface	Check condition – delamination tap	
Rudder Outer Surface	Check condition – delamination tap	
Rudder Inner Surface	Check condition – delamination tap	
Rudder Spring	Check condition – lubricate if necessary	
Rudder Hinges	Check condition	
Aileron Pushrods	Check condition	
Aileron Bellcrank	Check condition – lubricate if necessary	
Aileron Torque Tube / U-joint	Check condition – lubricate if necessary	
Aileron Bushing	Check condition	
Nav./Strobe Light	Check condition	
Rudder Cable Entrance	Check condition	

ITEM	PROCEDURE / ACTION	OUTCOME
Right Strake / Wing / Winglet	***Remove Bolt Covers, Wing Heat Shield, Aileron Hinge screws, Top Cowling***	
Tie Down Anchor	Check condition	
Wing Top Surface	Check condition – delamination tap	

ITEM	PROCEDURE / ACTION	OUTCOME
Strake Top Surface	Check condition – delamination tap	
Gas Cap / Grounding Strap	Check condition	
Wing Bottom Surface	Check condition – delamination tap	
Strake Bottom Surface	Check condition – delamination tap	
LE Gas Drain	Check condition – Fuel Flow	
Aileron Top Surface	Check condition – delamination tap	
Aileron Bottom Surface	Check condition – delamination tap	
Aileron Cove Clearance	Check for 0.060" - 0.10" clearance	
Aileron Tip Clearance	Check for 0.060" - 0.10" clearance	
Aileron Root Clearance	Check for 0.060" - 0.10" clearance	
Aileron Hinges	Check condition	
Three Vortilons	Check condition	
Wing Bolts	Check condition – lubricate if necessary	
Winglet Outer Surface	Check condition – delamination tap	
Winglet Inner Surface	Check condition – delamination tap	
Rudder Outer Surface	Check condition – delamination tap	
Rudder Inner Surface	Check condition – delamination tap	
Rudder Spring	Check condition – lubricate if necessary	
Rudder Hinges	Check condition	
Aileron Pushrods	Check condition	
Aileron Belcrank	Check condition – lubricate if necessary	
Aileron Torque Tube / U-joint	Check condition – lubricate if necessary	
Aileron Bushing	Check condition	
Nav./Strobe Light	Check condition	

ITEM	PROCEDURE / ACTION	OUTCOME
Rudder Cable Entrance	Check condition	

ITEM	PROCEDURE / ACTION	OUTCOME
Engine Compartment	***Remove Upper and Lower Cowling, Spinner***	
Engine Mount	Check condition	
Engine Mount Bolts	Check torque seal paint	
Dynafocal Mounts / Bolts	Check condition - tighten if necessary	
Firewall Through Holes	Check condition	
Engine Case Bolts	Check torque seal paint	
AP Roll Servo	Check condition / wiring	
Alternator Mounting	Check condition	
Alternator / Starter Wires	Check condition	
Magneto / Wiring	Check condition - timing - inspect per installation manual - Check radial play	
Lightspeed EI Coils	Check condition	
Ignition Wires	Check condition	
CHT / EGT Probes / Wires	Check condition	
Starter Solenoid	Check condition	
Fuel Lines	Check condition	
Fuel Flow Sender	Check condition / wires / lines	
Fuel Pressure Sender	Check condition / wires / lines	
Oil Pressure Sender	Check condition / wires / lines	
Manifold Pressure Sender	Check condition / wires / lines	
Fuel Pump - Engine	Check condition	

ITEM	PROCEDURE / ACTION	OUTCOME
Fuel Injector Servo Inlet Screen	Check condition – clean if required	
Fuel Flow Test	Check flow rate at Servo Inlet > 40 gph w/ electric pump	
Spider Fuel Lines / Fittings / Manifold	Check condition – check fittings	
Fuel Injectors	Check condition – braze joints, clamps	
Airflow Performance Servo	Check condition – check fittings	
Oil Cooler	Check condition	
Oil Filter	Check condition	
Oil Pump Intake Screen	Check condition - clean if necessary	
Oil Temperature Sender / Wires	Check condition	
Oil Quick Drain	Check for leaks	
Oil Level	Check level	
Valve Cover Gaskets	Check condition	
Valve Cover Gasket Screws	Check torque	
Crankcase Vent Line	Check condition	
Oil Separator / Collector	Check condition / drain oil if necessary	
Exhaust System	Check condition	
Heat Muff / SCAT Tubing	Check condition	
Throttle Actuator Cable	Check condition – lubricate if necessary	
Mixture Actuator Cable	Check condition – lubricate if necessary	
Air Filter	Check condition	
Aluminum Baffling	Check condition - Patch as necessary	
Silicone Baffling	Check condition - Patch as necessary	
Alternator / Belt	Check condition / tension	

ITEM	PROCEDURE / ACTION	OUTCOME	
Prop Extension Bolts	Check condition		
Prop Bolts	Check condition - torque - re-safety wire if necessary		
Prop Bolt Belleville Washers	Check condition / measure spacing if required	**Bolt Turns** **Start Final**	
		1	
		2	
		3	
		4	
		5	
		6	
Propeller	Check condition – fill nicks w/JB Weld		
Spinner (if installed)	Check condition – alignment marks		
Top Cowl	Check condition		
Bottom Cowl	Check condition		
		L	**R**
Aileron Torque Tubes / Bushings	Check condition – lubricate if necessary		
Aileron Pushrods / Quick Disconnects	Check condition		
Rudder Cables	Check condition		
Rudder Pulleys	Check condition – lubricate if necessary		

APPENDIX B: WEIGHT, BALANCE, FUEL FLOW and FUEL CAPACITY

1. FUSELAGE STATION MEASUREMENT

Step	Action		Performed by: Date:
1.1.	Lower nose gear completely. Verify longerons and seat back are level.		
1.2.	Using plumb bob, laser lines, chalk lines, and tape measure, locate fuselage stations per Cozy Mk-IV POH Weight & Balance Section.		
1.3.	Nose		
1.4.	Ballast Box (~-3.0”)		
1.5.	Canard Leading Edge (18.6±0.54”)		
1.6.	Nose Wheel Axle		
1.7.	Forward Face of Instrument Panel (~41.25”)		
1.8.	Main Gear Axle (109.5 ±0.5”)		
1.9.	Wing Root Leading Edge	113.9”	
1.10.	Firewall		
1.11.	Forward Face of Propeller Flange		

2. EMPTY WEIGHT AND BALANCE

Step	Action		Performed by: Date:
2.1.	Record Manufacturer, Model Number, Serial Number, and Calibration Test Date of scales.	Manufacturer:	

		Model #: Serial #: Calibration Date:	
2.2.	Roll (do not lift) aircraft onto scales using appropriate ramps, blocks and wheel chocks. Lower nose gear completely. Verify longerons and seat back are level. Verify Fuselage Station of Nose Wheel Axle	Nose Wheel FS:	
2.3.	Record any ballast weight required to prevent aircraft from tipping backwards.	Ballast FS: Ballast Weight:	
2.4.	Record weight from each scale	Left Main: Right Main: Nose:	
2.5.	Using an appropriate Weight & Balance Spreadsheet, calculate the empty weight and moment.	Empty Weight: Empty Moment:	

3. PILOT, CO-PILOT, AND PASSENGER FUSELAGE STATION MEASUREMENT

Step	**Action**		**Performed by:** **Date:**
3.1.	Sit in the pilot seat. Have an assistant verify longerons and seat back are level. Verify Fuselage station of Nose Wheel Axle.	Nose Wheel FS:	
3.2.	Record weight from each scale	Left Main:	

		Right Main:	
		Nose:	
3.3.	Sit in the copilot seat. Have an assistant verify longerons and seat back are level. Verify Fuselage station of Nose Wheel Axle.	Nose Wheel FS:	
3.4.	Record weight from each scale	Left Main:	
		Right Main:	
		Nose:	
3.5.	Sit in the left rear passenger seat. Have an assistant verify longerons and seat back are level. Verify Fuselage station of Nose Wheel Axle.	Nose Wheel FS:	
3.6.	Record weight from each scale	Left Main:	
		Right Main:	
		Nose:	
3.7.	Sit in the right rear passenger seat. Have an assistant verify longerons and seat back are level. Verify Fuselage station of Nose Wheel Axle.	Nose Wheel FS:	
3.8.	Record weight from each scale	Left Main:	
		Right Main:	
		Nose:	
3.9.	Calculate the average of the weights from the previous four steps, and subtract the empty weight. This is the weight of the occupant. Calculate the range of weights from the previous four steps. This is an estimate of the weighing error.	Assistant Weight: Weight Range:	

3.10.	Using an appropriate Weight & Balance Spreadsheet, calculate the Fuselage Station of each of the seats.	Pilot FS: Copilot FS: Left Rear FS: Right Rear FS:	
3.11.	Record weight from each scale.	Left Main: Right Main: Nose:	
3.12.	Using an appropriate Weight & Balance Spreadsheet, calculate the empty weight and moment. Compare this to the previous values to estimate error.	Empty Weight: Empty Moment:	

4. RIGHT SIDE FUEL FUSELAGE STATION MEASUREMENT, SIGHT GAUGE, & CAPACITIVE PROBE CALIBRATION

Step	Action		Performed by: Date:
4.1.	Following Princeton capacitive fuel probe calibration procedure, set the empty set point for the right tank.		
4.2.	Dispense 5 gallons of 100LL fuel into the right fuel tank. Verify longerons and seat back are level. Verify Fuselage station of Nose Wheel Axle.	Nose Wheel FS:	
4.3.	Record weight from each scale.	Left Main: Right Main: Nose:	
4.4.	Raise nose wheel so that longerons are 2° nose up. Note size of block required to achieve this position.		

Step	Action		Performed by: Date:
4.5.	Mark right side fuel sight gauge with indelible marker or vinyl tape to indicate 5 gallon level.		
4.6.	Dispense 2.5 gallons (7.5 gallons total) of 100LL fuel into the right fuel tank.		
4.7.	Following Princeton capacitive fuel probe calibration procedure set the 1/4 set point for the right tank.		
4.8.	Dispense 2.5 gallons (10 gallons total) of 100LL fuel into the right fuel tank. Verify longerons are 2° nose up and seat back is level.		
4.9.	Mark right side fuel sight gauge with indelible marker or vinyl tape to indicate 10 gallon level.		
4.10.	Remove block from under nose wheel. Verify longerons and seat back are level. Verify Fuselage station of Nose Wheel Axle.	Nose Wheel FS:	
4.11.	Record weight from each scale.	Left Main: Right Main: Nose:	
4.12.	Dispense 5 gallons (15 gallons total) of 100LL fuel into the right fuel tank. Verify longerons and seat back are level. Verify Fuselage station of Nose Wheel Axle.	Nose Wheel FS:	
4.13.	Record weight from each scale.	Left Main: Right Main: Nose:	
4.14.	Raise Nose wheel and verify longerons are 2° nose up and seat back is level.		
4.15.	Following Princeton capacitive fuel probe calibration procedure set the 1/2 set point for the right tank.		
4.16.	Mark right side fuel sight gauge with indelible marker or vinyl tape to indicate 15 gallon level.		

Step	Action		Performed by: Date:
4.17.	Dispense 5 gallons (20 gallons total) of 100LL fuel into the right fuel tank. Verify longerons are 2° nose up and seat back is level.		
4.18.	Mark right side fuel sight gauge with indelible marker or vinyl tape to indicate 20 gallon level.		
4.19.	Remove block from under nose wheel. Verify longerons and seat back are level. Verify Fuselage station of Nose Wheel Axle.	Nose Wheel FS:	
4.20.	Record weight from each scale.	Left Main:	
		Right Main:	
		Nose:	
4.21.	Dispense 2.5 gallons (22.5 gallons total) of 100LL fuel into the right fuel tank. Raise nose wheel and verify longerons are 2° nose up and seat back is level.		
4.22.	Following Princeton capacitive fuel probe calibration procedure set the ¾ set point for the right tank.		
4.23.	Dispense 2.5 gallons (25 gallons total) of 100LL fuel into the right fuel tank. Verify longerons are 2° nose up and seat back is level.		
4.24.	Mark right side fuel sight gauge with indelible marker or vinyl tape to indicate 25 gallon level.		
4.25.	Remove block from under nose wheel. Verify longerons and seat back are level. Verify Fuselage station of Nose Wheel Axle.	Nose Wheel FS:	
4.26.	Record weight from each scale.	Left Main:	
		Right Main:	
		Nose:	
4.27.	Dispense 5 gallons (30 gallons total) of 100LL fuel into the right fuel tank. Verify longerons and seat back are level. Verify Fuselage station of Nose Wheel Axle.	Nose Wheel FS:	

Step	Action		Performed by: Date:
4.28.	Record weight from each scale.	Left Main: Right Main: Nose:	
4.29.	Raise Nose wheel and verify longerons are 2° nose up and seat back is level.		
4.30.	Following Princeton capacitive fuel probe calibration procedure set the full set point for the right tank.		
4.31.	Mark right side fuel sight gauge with indelible marker or vinyl tape to indicate 30 gallon level.		
4.32.	Dispense 100LL fuel into the right fuel tank. Note amount of fuel dispensed to fill tank and record this value.	Added Fuel: Total Fuel:	
4.33.	Remove block from under nose wheel. Verify longerons and seat back are level. Verify Fuselage station of Nose Wheel Axle.	Nose Wheel FS:	
4.34.	Record weight from each scale.	Left Main: Right Main: Nose:	
4.35.	Using an appropriate Weight & Balance Spreadsheet, calculate the fuselage station for fuel at each level.	5 Gal FS: 10 Gal FS: 15 Gal FS: 20 Gal FS: 25 Gal FS:	

Step	Action		Performed by: Date:
		30 Gal FS:	

5. RIGHT SIDE FUEL EFIS CALIBRATION & FUEL FLOW TEST

Step	Action		Performed by: Date:
5.1.	Raise Nose wheel and verify longerons are 2° nose up and seat back is level.		
5.2.	Following Garmin G3X/G3X Touch Installation Manual, set the fuel input calibration.	Actual Fuel Qnty: Sensor Value:	
5.3.	Disconnect the fuel line from the engine driven fuel pump. Route a line to a 5 gallon fuel can. Be certain to ground the fuel can to the fuel line. Place the 5 gallon fuel can on a scale and record the empty weight.	Fuel Can Empty Weight:	
5.4.	Move the fuel selector valve to the right tank, and turn on the electric fuel pump. As soon as fuel begins flowing to the 5 gallon fuel tank, start a stop watch. Stop the stop watch and turn the fuel selector and electric fuel pump to off when the fuel can reaches the 5 gallon fill line. Record the time and the Fuel can full weight.	Fuel Can Full Weight: Time:	
5.5.	Calculate the fuel flow rate in Gallons per Hour	GPH:	
5.6.	Following Garmin G3X/G3X Touch Installation Manual, set the fuel input calibration.	Previous Fuel Qnty: Fuel Removed: Actual Fuel Qnty: Sensor Value:	
5.7.	Empty the 5 gallon fuel can into an appropriate container and re-attach the fuel line and ground connection.		

Step	Action		Performed by: Date:
5.8.	Move the fuel selector valve to the right tank, and turn on the electric fuel pump. As soon as fuel begins flowing to the 5 gallon fuel tank, start a stop watch. Stop the stop watch and turn the fuel selector and electric fuel pump to off when the fuel can reaches the 5 gallon fill line. Record the time and the Fuel can full weight.	Fuel Can Full Weight: Time:	
5.9.	Calculate the fuel flow rate in Gallons per Hour	GPH:	
5.10.	Following Garmin G3X/G3X Touch Installation Manual, set the fuel input calibration.	Previous Fuel Qnty: Fuel Removed: Actual Fuel Qnty: Sensor Value:	
5.11.	Empty the 5 gallon fuel can into an appropriate container and re-attach the fuel line and ground connection.		
5.12.	Move the fuel selector valve to the right tank, and turn on the electric fuel pump. As soon as fuel begins flowing to the 5 gallon fuel tank, start a stop watch. Stop the stop watch and turn the fuel selector and electric fuel pump to off when the fuel can reaches the 5 gallon fill line. Record the time and the Fuel can full weight.	Fuel Can Full Weight: Time:	
5.13.	Calculate the fuel flow rate in Gallons per Hour	GPH:	
5.14.	Following Garmin G3X/G3X Touch Installation Manual, set the fuel input calibration.	Previous Fuel Qnty: Fuel Removed: Actual Fuel Qnty: Sensor Value:	
5.15.	Empty the 5 gallon fuel can into an appropriate container and re-attach the fuel line and ground connection.		
5.16.	Move the fuel selector valve to the right tank, and turn on the electric fuel pump. As soon as fuel	Fuel Can Full Weight:	

Step	Action		Performed by: Date:
	begins flowing to the 5 gallon fuel tank, start a stop watch. Stop the stop watch and turn the fuel selector and electric fuel pump to off when the fuel can reaches the 5 gallon fill line. Record the time and the Fuel can full weight.	Time:	
5.17.	Calculate the fuel flow rate in Gallons per Hour	GPH:	
5.18.	Following Garmin G3X/G3X Touch Installation Manual, set the fuel input calibration.	Previous Fuel Qnty: Fuel Removed: Actual Fuel Qnty: Sensor Value:	
5.19.	Empty the 5 gallon fuel can into an appropriate container and re-attach the fuel line and ground connection.		
5.20.	Move the fuel selector valve to the right tank, and turn on the electric fuel pump. As soon as fuel begins flowing to the 5 gallon fuel tank, start a stop watch. Stop the stop watch and turn the fuel selector and electric fuel pump to off when the fuel can reaches the 5 gallon fill line. Record the time and the Fuel can full weight.	Fuel Can Full Weight: Time:	
5.21.	Calculate the fuel flow rate in Gallons per Hour	GPH:	
5.22.	Following Garmin G3X/G3X Touch Installation Manual, set the fuel input calibration.	Previous Fuel Qnty: Fuel Removed: Actual Fuel Qnty: Sensor Value:	
5.23.	Empty the 5 gallon fuel can into an appropriate container and re-attach the fuel line and ground connection.		
5.24.	Move the fuel selector valve to the right tank, and turn on the electric fuel pump. As soon as fuel begins flowing to the 5 gallon fuel tank, start a stop watch. Stop the stop watch and turn the fuel selector and electric fuel pump to off when the fuel can reaches the 5 gallon fill line. Record the time	Fuel Can Full Weight:	

Step	Action		Performed by: Date:
	and the Fuel can full weight.	Time:	
5.25.	Calculate the fuel flow rate in Gallons per Hour	GPH:	
5.26.	Following Garmin G3X/G3X Touch Installation Manual, set the fuel input calibration.	Previous Fuel Qnty: Fuel Removed: Actual Fuel Qnty: Sensor Value:	
5.27.	Empty the 5 gallon fuel can into an appropriate container and re-attach the fuel line and ground connection.		
5.28.	Move the fuel selector valve to the right tank, and turn on the electric fuel pump. As soon as fuel begins flowing to the 5 gallon fuel tank, start a stop watch. Stop the stop watch and turn the fuel selector and electric fuel pump to off when the fuel can reaches the 5 gallon fill line. Record the time and the Fuel can full weight.	Fuel Can Full Weight: Time:	
5.29.	Calculate the fuel flow rate in Gallons per Hour	GPH:	
5.30.	Following Garmin G3X/G3X Touch Installation Manual, set the fuel input calibration.	Previous Fuel Qnty: Fuel Removed: Actual Fuel Qnty: Sensor Value:	
5.31.	Empty the 5 gallon fuel can into an appropriate container and re-attach the fuel line and ground connection.		
5.32.	Sum the total fuel removed in the previous steps. Subtract this value from the full fuel quantity. This is the unusable fuel quantity.	Full Fuel Qnty: Total Fuel Removed:	

Step	Action		Performed by: Date:
		Unusable Fuel:	

6. LEFT SIDE FUEL FUSELAGE STATION MEASUREMENT, SIGHT GAUGE, & CAPACITIVE PROBE CALIBRATION

Step	Action		Performed by: Date:
6.1.	Following Princeton capacitive fuel probe calibration procedure, set the empty set point for the left tank.		
6.2.	Dispense 5 gallons of 100LL fuel into the left fuel tank. Verify longerons and seat back are level. Verify Fuselage station of Nose Wheel Axle.	Nose Wheel FS:	
6.3.	Record weight from each scale.	Left Main:	
		Right Main:	
		Nose:	
6.4.	Raise nose wheel so that longerons are 2° nose up. Note size of block required to achieve this position.		
6.5.	Mark left side fuel sight gauge with indelible marker or vinyl tape to indicate 5 gallon level.		
6.6.	Dispense 2.5 gallons (7.5 gallons total) of 100LL fuel into the left fuel tank.		
6.7.	Following Princeton capacitive fuel probe calibration procedure set the 1/4 set point for the left tank.		
6.8.	Dispense 2.5 gallons (10 gallons total) of 100LL fuel into the left fuel tank. Verify longerons are 2° nose up and seat back is level.		
6.9.	Mark left side fuel sight gauge with indelible marker or vinyl tape to indicate 10 gallon level.		
6.10.	Remove block from under nose wheel. Verify longerons and seat back are level. Verify Fuselage station of Nose Wheel Axle.	Nose Wheel FS:	

Step	Action		Performed by: Date:
6.11.	Record weight from each scale.	Left Main: Right Main: Nose:	
6.12.	Dispense 5 gallons (15 gallons total) of 100LL fuel into the left fuel tank. Verify longerons and seat back are level. Verify Fuselage station of Nose Wheel Axle.	Nose Wheel FS:	
6.13.	Record weight from each scale.	Left Main: Right Main: Nose:	
6.14.	Raise Nose wheel and verify longerons are 2° nose up and seat back is level.		
6.15.	Following Princeton capacitive fuel probe calibration procedure set the 1/2 set point for the left tank.		
6.16.	Mark left side fuel sight gauge with indelible marker or vinyl tape to indicate 15 gallon level.		
6.17.	Dispense 5 gallons (20 gallons total) of 100LL fuel into the left fuel tank. Verify longerons are 2° nose up and seat back is level.		
6.18.	Mark left side fuel sight gauge with indelible marker or vinyl tape to indicate 20 gallon level.		
6.19.	Remove block from under nose wheel. Verify longerons and seat back are level. Verify Fuselage station of Nose Wheel Axle.	Nose Wheel FS:	
6.20.	Record weight from each scale.	Left Main: Right Main: Nose:	
6.21.	Dispense 2.5 gallons (22.5 gallons total) of 100LL fuel into the left fuel tank. Raise nose wheel and verify longerons are 2° nose		

Step	Action		Performed by: Date:
	up and seat back is level.		
6.22.	Following Princeton capacitive fuel probe calibration procedure set the ¾ set point for the left tank.		
6.23.	Dispense 2.5 gallons (25 gallons total) of 100LL fuel into the left fuel tank. Verify longerons are 2° nose up and seat back is level.		
6.24.	Mark left side fuel sight gauge with indelible marker or vinyl tape to indicate 25 gallon level.		
6.25.	Remove block from under nose wheel. Verify longerons and seat back are level. Verify Fuselage station of Nose Wheel Axle.	Nose Wheel FS:	
6.26.	Record weight from each scale.	Left Main: Right Main: Nose:	
6.27.	Dispense 5 gallons (30 gallons total) of 100LL fuel into the left fuel tank. Verify longerons and seat back are level. Verify Fuselage station of Nose Wheel Axle.	Nose Wheel FS:	
6.28.	Record weight from each scale.	Left Main: Right Main: Nose:	
6.29.	Raise Nose wheel and verify longerons are 2° nose up and seat back is level.		
6.30.	Following Princeton capacitive fuel probe calibration procedure set the full set point for the left tank.		
6.31.	Mark left side fuel sight gauge with indelible marker or vinyl tape to indicate 30 gallon level.		
6.32.	Dispense 100LL fuel into the left fuel tank. Note amount of fuel dispensed to fill tank and record this value.	Added Fuel:	

Step	Action		Performed by: Date:
		Total Fuel:	
6.33.	Remove block from under nose wheel. Verify longerons and seat back are level. Verify Fuselage station of Nose Wheel Axle.	Nose Wheel FS:	
6.34.	Record weight from each scale.	Left Main: Right Main: Nose:	
6.35.	Using an appropriate Weight & Balance Spreadsheet, calculate the fuselage station for fuel at each level.	5 Gal FS: 10 Gal FS: 15 Gal FS: 20 Gal FS: 25 Gal FS: 30 Gal FS:	

7. LEFT SIDE FUEL EFIS CALIBRATION & FUEL FLOW TEST

Step	Action		Performed by: Date:
7.1.	Raise Nose wheel and verify longerons are 2° nose up and seat back is level.		
7.2.	Following Garmin G3X/G3X Touch Installation Manual, set the fuel input calibration.	Actual Fuel Qnty: Sensor Value:	

Step	Action		Performed by: Date:
7.3.	Disconnect the fuel line from the engine driven fuel pump. Route a line to a 5 gallon fuel can. Be certain to ground the fuel can to the fuel line. Place the 5 gallon fuel can on a scale and record the empty weight.	Fuel Can Empty Weight:	
7.4.	Move the fuel selector valve to the left tank, and turn on the electric fuel pump. As soon as fuel begins flowing to the 5 gallon fuel tank, start a stop watch. Stop the stop watch and turn the fuel selector and electric fuel pump to off when the fuel can reaches the 5 gallon fill line. Record the time and the Fuel can full weight.	Fuel Can Full Weight: Time:	
7.5.	Calculate the fuel flow rate in Gallons per Hour	GPH:	
7.6.	Following Garmin G3X/G3X Touch Installation Manual, set the fuel input calibration.	Previous Fuel Qnty: Fuel Removed: Actual Fuel Qnty: Sensor Value:	
7.7.	Empty the 5 gallon fuel can into an appropriate container and re-attach the fuel line and ground connection.		
7.8.	Move the fuel selector valve to the left tank, and turn on the electric fuel pump. As soon as fuel begins flowing to the 5 gallon fuel tank, start a stop watch. Stop the stop watch and turn the fuel selector and electric fuel pump to off when the fuel can reaches the 5 gallon fill line. Record the time and the Fuel can full weight.	Fuel Can Full Weight: Time:	
7.9.	Calculate the fuel flow rate in Gallons per Hour	GPH:	
7.10.	Following Garmin G3X/G3X Touch Installation Manual, set the fuel input calibration.	Previous Fuel Qnty: Fuel Removed: Actual Fuel Qnty: Sensor Value:	

Step	Action		Performed by: Date:
7.11.	Empty the 5 gallon fuel can into an appropriate container and re-attach the fuel line and ground connection.		
7.12.	Move the fuel selector valve to the left tank, and turn on the electric fuel pump. As soon as fuel begins flowing to the 5 gallon fuel tank, start a stop watch. Stop the stop watch and turn the fuel selector and electric fuel pump to off when the fuel can reaches the 5 gallon fill line. Record the time and the Fuel can full weight.	Fuel Can Full Weight: Time:	
7.13.	Calculate the fuel flow rate in Gallons per Hour	GPH:	
7.14.	Following Garmin G3X/G3X Touch Installation Manual, set the fuel input calibration.	Previous Fuel Qnty: Fuel Removed: Actual Fuel Qnty: Sensor Value:	
7.15.	Empty the 5 gallon fuel can into an appropriate container and re-attach the fuel line and ground connection.		
7.16.	Move the fuel selector valve to the left tank, and turn on the electric fuel pump. As soon as fuel begins flowing to the 5 gallon fuel tank, start a stop watch. Stop the stop watch and turn the fuel selector and electric fuel pump to off when the fuel can reaches the 5 gallon fill line. Record the time and the Fuel can full weight.	Fuel Can Full Weight: Time:	
7.17.	Calculate the fuel flow rate in Gallons per Hour	GPH:	
7.18.	Following Garmin G3X/G3X Touch Installation Manual, set the fuel input calibration.	Previous Fuel Qnty: Fuel Removed: Actual Fuel Qnty: Sensor Value:	
7.19.	Empty the 5 gallon fuel can into an appropriate container and re-attach the fuel line and ground connection.		

Step	Action		Performed by: Date:
7.20.	Move the fuel selector valve to the left tank, and turn on the electric fuel pump. As soon as fuel begins flowing to the 5 gallon fuel tank, start a stop watch. Stop the stop watch and turn the fuel selector and electric fuel pump to off when the fuel can reaches the 5 gallon fill line. Record the time and the Fuel can full weight.	Fuel Can Full Weight: Time:	
7.21.	Calculate the fuel flow rate in Gallons per Hour	GPH:	
7.22.	Following Garmin G3X/G3X Touch Installation Manual, set the fuel input calibration.	Previous Fuel Qnty: Fuel Removed: Actual Fuel Qnty: Sensor Value:	
7.23.	Empty the 5 gallon fuel can into an appropriate container and re-attach the fuel line and ground connection.		
7.24.	Move the fuel selector valve to the left tank, and turn on the electric fuel pump. As soon as fuel begins flowing to the 5 gallon fuel tank, start a stop watch. Stop the stop watch and turn the fuel selector and electric fuel pump to off when the fuel can reaches the 5 gallon fill line. Record the time and the Fuel can full weight.	Fuel Can Full Weight: Time:	
7.25.	Calculate the fuel flow rate in Gallons per Hour	GPH:	
7.26.	Following Garmin G3X/G3X Touch Installation Manual, set the fuel input calibration.	Previous Fuel Qnty: Fuel Removed: Actual Fuel Qnty: Sensor Value:	
7.27.	Empty the 5 gallon fuel can into an appropriate container and re-attach the fuel line and ground connection.		
7.28.	Move the fuel selector valve to the left tank, and turn on the electric fuel pump. As soon as fuel	Fuel Can Full Weight:	

Step	Action		Performed by: Date:
	begins flowing to the 5 gallon fuel tank, start a stop watch. Stop the stop watch and turn the fuel selector and electric fuel pump to off when the fuel can reaches the 5 gallon fill line. Record the time and the Fuel can full weight.	Time:	
7.29.	Calculate the fuel flow rate in Gallons per Hour	GPH:	
7.30.	Following Garmin G3X/G3X Touch Installation Manual, set the fuel input calibration.	Previous Fuel Qnty: Fuel Removed: Actual Fuel Qnty: Sensor Value:	
7.31.	Empty the 5 gallon fuel can into an appropriate container and re-attach the fuel line and ground connection.		
7.32.	Sum the total fuel removed in the previous steps. Subtract this value from the full fuel quantity. This is the unusable fuel quantity.	Full Fuel Qnty: Total Fuel Removed: Unusable Fuel:	

APPENDIX C: FLIGHT TEST CARDS

1. ENGINE RUN & TAXI TESTS

PRIMARY	PILOT	START TIME	WIND	CEILING
	SAFETY CREW	SHUTDOWN TIME	VISIBILITY	TEMP/DEW POINT
	DATE	AIRPORT	CLOUD COVER	ALTIMETER
	FUEL	WEIGHT	CG POSITION	HOBBS
NAV/COM/GPS	COM		NAV	
	COM 1 XMT/RCV	COM 1 FLIP/FLOP	NAV 1 RCV	NAV 1 FLIP/FLOP
	COM 2 XMT/RCV	COM 2 FLIP/FLOP	NAV 2 RCV	NAV 2 FLIP/FLOP
	GPS			
RUN #1	Pre-Oil Engine Per Lycoming SI 1241C, and test-run per Lycoming SI 1427C			
	Do not exceed oil temperature of 180°F or CHT of 350°F			
	Face aircraft into prevailing wind, chock main gear, cowl off			
	Start engine and verify oil pressure within 30 seconds			
	Maintain 800 RPM for three minutes.			
	Perform an idle mixture check and shut down by slowly pulling mixture to Idle Cut-Off. The engine RPM should rise as the mixture is pulled to lean, and eventually the engine should shut down.			
INSPECT	Allow adequate cool-off time, until a hand can be held on the cylinder barrels for over 5 seconds, and cylinders feel cool to the touch. Examine engine for oil and fuel leaks. Identify and correct cause of any leaks. Correct all squawks			
RUN	Start engine and verify oil pressure within 30 seconds			
	Maintain 1000 RPM for three minutes.			
	Shutdown by turning ignition key to off.			
INSPECT	Allow adequate cool-off time, until a hand can be held on the cylinder barrels for over 5 seconds, and cylinders feel cool to the touch. Examine engine for oil and fuel leaks. Identify and correct cause of any leaks. Correct all squawks			
RUN #3	Face aircraft into prevailing wind, chock main gear, cowl on			
	Start engine and verify oil pressure within 30 seconds			
	Maintain 1200 RPM for three minutes.			
	Perform an idle mixture check and shut down by slowly pulling mixture to Idle Cut-Off. The engine RPM should rise as the mixture is pulled to lean, and eventually the engine should shut down.			
INSPECT	Allow adequate cool-off time, until a hand can be held on the cylinder barrels for over 5 seconds, and cylinders feel cool to the touch. Examine engine for oil and fuel leaks. Identify and correct cause of any leaks. Correct all squawks			
RUN #4	Start engine and verify oil pressure within 30 seconds			
	Maintain 1400 RPM for five minutes.			
	Perform an idle mixture check and shut down by slowly pulling mixture to Idle Cut-Off. The engine RPM should rise as the mixture is pulled to lean, and eventually the engine should shut down.			
INSPECT	Allow adequate cool-off time, until a hand can be held on the cylinder barrels for over 5 seconds, and cylinders feel cool to the touch. Examine engine for oil and fuel leaks. Identify and correct cause of any leaks. Correct all squawks			
RUN #5	Start engine and verify oil pressure within 30 seconds			
	Maintain 1400 RPM for ten minutes.			
	Perform an idle mixture check and shut down by slowly pulling mixture to Idle Cut-Off. The engine RPM should rise as the mixture is pulled to lean, and eventually the engine should shut down.			

INSPECT	Allow adequate cool-off time, until a hand can be held on the cylinder barrels for over 5 seconds, and cylinders feel cool to the touch. Examine engine for oil and fuel leaks. Identify and correct cause of any leaks. Correct all squawks	
RUN #6	Start engine and verify oil pressure within 30 seconds	
	Maintain 1400 RPM for five minutes.	
	Increase engine speed to WOT for no more than 10 seconds	
	Measure magneto drop-off per Lycoming SI 1132B	LEFT/RIGHT
	Slowly decrease RPM to 1000 RPM. Maintain 1000 RPM for one minute.	
	Perform an idle mixture check and shut down by slowly pulling mixture to Idle Cut-Off. The engine RPM should rise as the mixture is pulled to lean, and eventually the engine should shut down.	
INSPECT	Allow adequate cool-off time, until a hand can be held on the cylinder barrels for over 5 seconds, and cylinders feel cool to the touch. Examine engine for oil and fuel leaks. Identify and correct cause of any leaks. Correct all squawks	
TAXI TEST	Start engine and verify oil pressure within 30 seconds	
	Maintain 1000 RPM until Oil Temperature is 140°F	
	Taxi: straight, left turn, right turns, note tracking	
	Perform 2-3 taxi stops from 30-35mph to condition brakes.	
	Apply brakes during WOT run-up and note if creep occurs.	
	Shutdown by turning fuel valve to OFF. Note length of time between turning fuel valve handle and engine shutdown.	
INSPECT	Examine engine for oil and fuel leaks. Identify and correct cause of any leaks. Correct all squawks.	
	Remove oil suction screen, pressure screen or oil filter to look for blockage or contamination	
	Download EFIS Data to laptop. Note oil temperature and highest CHT.	

2. HIGH-SPEED TAXI TESTS

PRIMARY	PILOT	START TIME	WIND	CEILING
	SAFETY CREW	SHUTDOWN TIME	VISIBILITY	TEMP/DEW POINT
	DATE	AIRPORT	CLOUD COVER	ALTIMETER
	FUEL	WEIGHT	CG POSITION	HOBBS
NAV/COM/GPS	COM		NAV	
	COM 1 XMT/RCV	COM 1 FLIP/FLOP	NAV 1 RCV	NAV 1 FLIP/FLOP
	COM 2 XMT/RCV	COM 2 FLIP/FLOP	NAV 2 RCV	NAV 2 FLIP/FLOP
	GPS			

40 KIAS TAXI TEST	**Do not exceed oil temperature of 180°F or CHT of 350°F**
	Announce to tower: “Experimental 753C(harlie)Z(ulu) high-speed taxi test runway 25 Right.”
	Smoothly apply throttle to approximately half, and accelerate to no more than 40 KIAS. Smoothly, but quickly close the throttle before performing any of the subsequent control authority tests.
	Elevators: Note trim & control pressure, attempt to pitch up in an effort to raise the nose wheel. If the nose wheel does come up, do not allow the canard to go above the horizon from your field of view. Note the airspeed for V_R.
	Rudders: Note trim & control pressure. Verify that rudder authority is achieved separate from applying brakes.
	Ailerons: Note trim & control pressure. Verify direction of action is correct, and roll authority.
	Note engine temperatures, and if warranted, discontinue test to allow engine to cool down. If temperatures are acceptable, continue test.
	Allow adequate cool-off time, until a hand can be held on the cylinder barrels for over 5 seconds, and cylinders feel cool to the touch. Examine engine for oil and fuel leaks. Identify and correct cause of any leaks. Correct all squawks
45 KIAS TAXI TEST	Smoothly apply throttle to approximately 3/4, and accelerate to no more than 45 KIAS. Smoothly, but quickly close the throttle before performing any of the subsequent control authority tests.
	Input elevator, aileron, and rudder inputs as previous, noting trim & control pressure. Note the airspeed for V_R if the nose wheel comes up.
	Note engine temperatures, and if warranted, discontinue test to allow engine to cool down. If temperatures are acceptable, continue test.
	Allow adequate cool-off time, until a hand can be held on the cylinder barrels for over 5 seconds, and cylinders feel cool to the touch. Examine engine for oil and fuel leaks. Identify and correct cause of any leaks. Correct all squawks
50 KIAS TAXI TEST	Smoothly apply throttle to full, and accelerate to no more than 50 KIAS. Smoothly, but quickly close the throttle before performing any of the subsequent control authority tests.
	Input elevator, aileron, and rudder inputs as previous, noting trim & control pressure. Note the airspeed for V_R if the nose wheel comes up.
	Note engine temperatures, and if warranted, discontinue test to allow engine to cool down. If temperatures are acceptable, continue test.
	Allow adequate cool-off time, until a hand can be held on the cylinder barrels for over 5 seconds, and cylinders feel cool to the touch. Examine engine for oil and fuel leaks. Identify and correct cause of any leaks. Correct all squawks
55 KIAS TAXI TEST	Smoothly apply throttle to full, and accelerate to no more than 55 KIAS. Smoothly, but quickly close the throttle before performing any of the subsequent control authority tests.
	Input elevator, aileron, and rudder inputs as previous, noting trim & control pressure. Note the airspeed for V_R if the nose wheel comes up.
	Note engine temperatures, and if warranted, discontinue test to allow engine to cool down. If temperatures are acceptable, continue test.
	Allow adequate cool-off time, until a hand can be held on the cylinder barrels for over 5 seconds, and cylinders feel cool to the touch. Examine

	engine for oil and fuel leaks. Identify and correct cause of any leaks. Correct all squawks
60 KIAS TAXI TEST	Smoothly apply throttle to full, and accelerate to no more than 60 KIAS. Smoothly, but quickly close the throttle before performing any of the subsequent control authority tests.
	Input elevator, aileron, and rudder inputs as previous, noting trim & control pressure. Note the airspeed for V_R if the nose wheel comes up.
	Note engine temperatures, and if warranted, discontinue test to allow engine to cool down. If temperatures are acceptable, continue test.
	Allow adequate cool-off time, until a hand can be held on the cylinder barrels for over 5 seconds, and cylinders feel cool to the touch. Examine engine for oil and fuel leaks. Identify and correct cause of any leaks. Correct all squawks
65 KIAS TAXI TEST	Smoothly apply throttle to full, and accelerate to no more than 65 KIAS. Smoothly, but quickly close the throttle before performing any of the subsequent control authority tests.
	Input elevator, aileron, and rudder inputs as previous, noting trim & control pressure. Note the airspeed for V_R if the nose wheel comes up.
	Note engine temperatures, and if warranted, discontinue test to allow engine to cool down. If temperatures are acceptable, continue test.
	Allow adequate cool-off time, until a hand can be held on the cylinder barrels for over 5 seconds, and cylinders feel cool to the touch. Examine engine for oil and fuel leaks. Identify and correct cause of any leaks. Correct all squawks
70 KIAS TAXI TEST	Smoothly apply throttle to full, and accelerate to no more than 70 KIAS. Smoothly, but quickly close the throttle before performing any of the subsequent control authority tests.
	Input elevator, aileron, and rudder inputs as previous, noting trim & control pressure. Note the airspeed for V_R if the nose wheel comes up.
	Note engine temperatures, and if warranted, discontinue test to allow engine to cool down. If temperatures are acceptable, continue test.
	Allow adequate cool-off time, until a hand can be held on the cylinder barrels for over 5 seconds, and cylinders feel cool to the touch. Examine engine for oil and fuel leaks. Identify and correct cause of any leaks. Correct all squawks
INSPECT	Debrief taxi test. Examine engine for oil and fuel leaks. Identify and correct cause of any leaks. Correct all squawks
	Refuel to original quantity, noting fuel added — FUEL ADDED
	Remove oil suction screen, pressure screen or oil filter to look for blockage or contamination. Remove fuel filter to look for blockage or contamination.
	Download EFIS data to laptop. Note oil temperature and highest CHT. Calculate V_R, Takeoff distance to achieve V_R, distance to brake from V_R to stop.

3. 1ST FLIGHT

PRIMARY	PILOT	START TIME	WIND	CEILING
	SAFETY CREW	SHUTDOWN TIME	VISIBILITY	TEMP/DEW POINT
	DATE	AIRPORT	CLOUD COVER	ALTIMETER
	FUEL	WEIGHT	CG POSITION	HOBBS
NAV/COM/GPS	COM		NAV	
	COM 1 XMT/RCV	COM 1 FLIP/FLOP	NAV 1 RCV	NAV 1 FLIP/FLOP
	COM 2 XMT/RCV	COM 2 FLIP/FLOP	NAV 2 RCV	NAV 2 FLIP/FLOP
	GPS			

PROCEDURE	**Do not exceed oil temperature of 220°F or CHT of 425°F**
	Start engine and verify oil pressure within 30 seconds
	Announce to tower: “Experimental 753C(harlie)Z(ulu) departing runway 25 Right, first flight, remaining over airport at 5,000 feet.”
	Take off and climb at 85 KIAS to 1,000ft AGL, followed by a circling climb at 125 KIAS above airport to 5,000ft
	Nose gear to remain down, airspeed below 125 KIAS
	Rudders: 5 degrees yaw left & right. Note trim & control pressure
	Elevators: 3 degrees pitch up & down. Note trim & control pressure
	Ailerons: 5 degrees left & right, increasing to 20 degrees. Note trim & control pressure
	Note position of slip-skid ball and amount of rudder input needed to correct to center.
	Reduce power to 900 RPM, hold altitude, noting pitch, rudder, and aileron response & trim. Note nose bob at ~65 KIAS.
	If nose does not bob by 60 KIAS, drop nose and increase speed
	Increase power to hold altitude at nose bob speed.
	Note roll & yaw response during nose bobbing.
	Increase power to 125 KIAS, orbit airport on headings 07/25
DESCENT	Announce to tower: “Experimental 753C(harlie)Z(ulu) descending to 4,000 feet.”
	Reduce power and trim to 85 KIAS, practice approach to 4,000ft at 85 KIAS
	Announce to tower: “Experimental 753C(harlie)Z(ulu) descending to 3,000 feet.”
	Reduce power and trim to 85 KIAS, practice approach to 3,000ft at 85 KIAS
	Announce to tower: “Experimental 753C(harlie)Z(ulu) returning to airport.”
	Use landing checklist, maintain 90 KIAS downwind, 85 KIAS final, touchdown 75 KIAS.
INSPECT	Debrief Flight. Examine engine for oil and fuel leaks. Identify and correct cause of any leaks. Correct all squawks
	Remove oil suction screen, pressure screen or oil filter to look for blockage or contamination. Remove fuel filter to look for blockage or contamination.
	Refuel to original quantity, noting fuel added — FUEL ADDED
	Download EFIS data to laptop. Calculate Takeoff & landing distance, ROC at 85 KIAS, and V_s

4. 2ND FLIGHT

PRIMARY	PILOT	START TIME	WIND	CEILING
	SAFETY CREW	SHUTDOWN TIME	VISIBILITY	TEMP/DEW POINT
	DATE	AIRPORT	CLOUD COVER	ALTIMETER
	FUEL	WEIGHT	CG POSITION	HOBBS
NAV/COM/GPS	COM		NAV	
	COM 1 XMT/RCV	COM 1 FLIP/FLOP	NAV 1 RCV	NAV 1 FLIP/FLOP
	COM 2 XMT/RCV	COM 2 FLIP/FLOP	NAV 2 RCV	NAV 2 FLIP/FLOP
	GPS			

PROCEDURE	**Do not exceed oil temperature of 220°F or CHT of 425°F**
	Start engine and verify oil pressure within 30 seconds
	Announce to tower: “Experimental 753C(harlie)Z(ulu) departing runway 25 Right, Phase 1 test flight, remaining over airport at 5,000 feet.”
	Take off and climb at 85 KIAS to 1,000ft AGL, followed by a circling climb at 125 KIAS above airport to 5,000ft
	Nose gear to remain down, airspeed below 125 KIAS
	Rudders: 5 degrees yaw left & right. Note trim & control pressure
	Elevators: 3 degrees pitch up & down. Note trim & control pressure
	Ailerons: 5 degrees left & right, increasing to 20 degrees. Note trim & control pressure
	Note position of slip-skid ball and amount of rudder input needed to correct to center.
	Reduce power to 900 RPM, hold altitude, noting pitch, rudder, and aileron response & trim. Note nose bob at ~65 KIAS.
	If nose does not bob by 60 KIAS, drop nose and increase speed
	Increase power to hold altitude at nose bob speed.
	Note roll & yaw response during nose bobbing.
	Increase power to 125 KIAS, orbit airport on headings 07/25
DESCENT	Announce to tower: “Experimental 753C(harlie)Z(ulu) descending to 4,000 feet.”
	Reduce power and trim to 85 KIAS, practice approach to 4,000ft at 90 KIAS
	Announce to tower: “Experimental 753C(harlie)Z(ulu) descending to 3,000 feet.”
	Reduce power and trim to 85 KIAS, practice approach to 3,000ft at 90 KIAS
	Announce to tower: “Experimental 753C(harlie)Z(ulu) returning to airport.”
	Use landing checklist, maintain 90 KIAS downwind, 85 KIAS final, touchdown 75 KIAS.
INSPECT	Debrief Flight. Examine engine for oil and fuel leaks. Identify and correct cause of any leaks. Correct all squawks
	Remove oil suction screen, pressure screen or oil filter to look for blockage or contamination. Remove fuel filter to look for blockage or contamination.
	Refuel to original quantity, noting fuel added — FUEL ADDED
	Download EFIS data to laptop. Calculate Takeoff & landing distance, ROC at 90 KIAS (Gear Down), ROD at 95 KIAS (Gear Down) and V_S

5. 3RD FLIGHT: GEAR AND LANDING BRAKE OPERATION

PRIMARY	PILOT	START TIME	WIND	CEILING
	SAFETY CREW	SHUTDOWN TIME	VISIBILITY	TEMP/DEW POINT
	DATE	AIRPORT	CLOUD COVER	ALTIMETER
	FUEL	WEIGHT	CG POSITION	HOBBS
NAV/COM/GPS	COM		NAV	
	COM 1 XMT/RCV	COM 1 FLIP/FLOP	NAV 1 RCV	NAV 1 FLIP/FLOP
	COM 2 XMT/RCV	COM 2 FLIP/FLOP	NAV 2 RCV	NAV 2 FLIP/FLOP
	GPS			

PROCEDURE	**Do not exceed oil temperature of 220°F or CHT of 425°F**	
	Start engine and verify oil pressure within 30 seconds	
	Announce to tower: “Experimental 753C(harlie)Z(ulu) departing runway 25 Right, Phase 1 test flight, remaining over airport at 5,000 feet.”	
	Take off and climb at 95 KIAS, circling climb to the right above airport to 5,000ft	
	Throttle to 125 KIAS, maintain 5,000ft, retract gear, noting pitch & roll trim changes. Cycle gear three times, leave down.	
	Slow to 85 KIAS, full power climb at 85 KIAS. Retract gear, noting pitch trim, roll trim, and VSI changes. Cycle gear three times.	
	Hold 85 KIAS at 5,000ft, deploy landing brake, noting pitch trim, roll trim, VSI, Oil temperature and CHT changes. Cycle landing brake three times.	
	Increase power to 125 KIAS, orbit airport on headings 07/25	
	Set up for 125 KIAS. Use GPS to set constant track 270° at 125 KIAS. Note GPS Ground Speed	GROUND SPEED
	Maintain 125 KIAS. Use GPS to set constant track 000° at 125 KIAS. Note GPS Ground Speed	GROUND SPEED
PROCED	Maintain 125 KIAS. Use GPS to set constant track 90° at 125 KIAS. Note GPS Ground Speed	GROUND SPEED
	Maintain 125 KIAS. Use GPS to set constant track 180° at 125 KIAS. Note GPS Ground Speed	GROUND SPEED
DESCENT	Reduce throttle to idle, descend at 95 KIAS to 3,000ft	
	Announce to tower: “Experimental 753C(harlie)Z(ulu) returning to airport.”	
	Use landing checklist, maintain 90 KIAS downwind, 85 KIAS final, touchdown 75 KIAS.	
INSPECT	Debrief Flight. Examine engine for oil and fuel leaks. Identify and correct cause of any leaks. Correct all squawks	
	Refuel to original quantity, noting fuel added	FUEL ADDED
	Download EFIS data to laptop. Calculate Takeoff & landing distance, ROC at 95 KIAS (Gear Down), ROD at 95 KIAS (Gear Down) and Calibrate Airspeed Indicator at 125 KIAS.	

6. 4TH FLIGHT: PITOT-STATIC CALIBRATION

PRIMARY	PILOT	START TIME	WIND	CEILING
	SAFETY CREW	SHUTDOWN TIME	VISIBILITY	TEMP/DEW POINT
	DATE	AIRPORT	CLOUD COVER	ALTIMETER
	FUEL	WEIGHT	CG POSITION	HOBBS
NAV/COM/GPS	COM		NAV	
	COM 1 XMT/RCV	COM 1 FLIP/FLOP	NAV 1 RCV	NAV 1 FLIP/FLOP
	COM 2 XMT/RCV	COM 2 FLIP/FLOP	NAV 2 RCV	NAV 2 FLIP/FLOP
	GPS			
TAKE-OFF	**Do not exceed oil temperature of 220°F or CHT of 425°F**			
	Start engine and verify oil pressure within 30 seconds			
	Announce to tower: “Experimental 753C(harlie)Z(ulu) departing runway 25 Right, Phase 1 test flight, remaining over airport at 8,000 feet.”			
	Take off and climb at 100 KIAS, circling climb to the right above airport to 8,000ft			
80 KIAS CALIBRATION	Set up for 80 KIAS. Use GPS to set constant track 270° at 80 KIAS. Note GPS Ground Speed	GROUND SPEED		
	Maintain 80 KIAS. Use GPS to set constant track 000° at 80 KIAS. Note GPS Ground Speed	GROUND SPEED		
	Maintain 80 KIAS. Use GPS to set constant track 90° at 80 KIAS. Note GPS Ground Speed	GROUND SPEED		
	Maintain 80 KIAS. Use GPS to set constant track 180° at 80 KIAS. Note GPS Ground Speed	GROUND SPEED		
100	Set up for 100 KIAS. Use GPS to set constant track 270° at 100 KIAS. Note GPS Ground Speed	GROUND SPEED		
	Maintain 100 KIAS. Use GPS to set constant track 000° at 100 KIAS. Note GPS Ground Speed	GROUND SPEED		
	Maintain 100 KIAS. Use GPS to set constant track 90° at 100 KIAS. Note GPS Ground Speed	GROUND SPEED		
	Maintain 100 KIAS. Use GPS to set constant track 180° at 100 KIAS. Note GPS Ground Speed	GROUND SPEED		
110 KIAS CALIBRATION	Set up for 110 KIAS. Use GPS to set constant track 270° at 110 KIAS. Note GPS Ground Speed	GROUND SPEED		
	Maintain 110 KIAS. Use GPS to set constant track 000° at 110 KIAS. Note GPS Ground Speed	GROUND SPEED		
	Maintain 110 KIAS. Use GPS to set constant track 90° at 110 KIAS. Note GPS Ground Speed	GROUND SPEED		
	Maintain 110 KIAS. Use GPS to set constant track 180° at 110 KIAS. Note GPS Ground Speed	GROUND SPEED		
120 KIAS CALIBRATION	Set up for 120 KIAS. Use GPS to set constant track 270° at 120 KIAS. Note GPS Ground Speed	GROUND SPEED		
	Maintain 120 KIAS. Use GPS to set constant track 000° at 120 KIAS. Note GPS Ground Speed	GROUND SPEED		
	Maintain 120 KIAS. Use GPS to set constant track 90° at 120 KIAS. Note GPS Ground Speed	GROUND SPEED		
	Maintain 120 KIAS. Use GPS to set constant track 180° at 120 KIAS. Note GPS Ground Speed	GROUND SPEED		
90 KIAS CALIBRATION	Set up for 90 KIAS. Use GPS to set constant track 270° at 90 KIAS. Note GPS Ground Speed	GROUND SPEED		
	Maintain 90 KIAS. Use GPS to set constant track 000° at 90 KIAS. Note GPS Ground Speed	GROUND SPEED		
	Maintain 90 KIAS. Use GPS to set constant track 90° at 90 KIAS. Note GPS Ground Speed	GROUND SPEED		
	Maintain 90 KIAS. Use GPS to set constant track 180° at 90 KIAS. Note GPS Ground Speed	GROUND SPEED		

130 KIAS CALIBRATION	Maintain 130 KIAS. Use GPS to set constant track 90° at 130 KIAS. Note GPS Ground Speed	GROUND SPEED
	Maintain 130 KIAS. Use GPS to set constant track 180° at 130 KIAS. Note GPS Ground Speed	GROUND SPEED
	Set up for 130 KIAS. Use GPS to set constant track 270° at 130 KIAS. Note GPS Ground Speed	GROUND SPEED
	Maintain 130 KIAS. Use GPS to set constant track 000° at 130 KIAS. Note GPS Ground Speed	GROUND SPEED
70 KIAS CALIBRATION	Maintain 70 KIAS. Use GPS to set constant track 90° at 70 KIAS. Note GPS Ground Speed	GROUND SPEED
	Maintain 70 KIAS. Use GPS to set constant track 180° at 70 KIAS. Note GPS Ground Speed	GROUND SPEED
	Set up for 70 KIAS. Use GPS to set constant track 270° at 70 KIAS. Note GPS Ground Speed	GROUND SPEED
	Maintain 70 KIAS. Use GPS to set constant track 000° at 70 KIAS. Note GPS Ground Speed	GROUND SPEED
DESCENT	Reduce throttle to idle, descend at 100 KIAS to 3,000ft	
	Announce to tower: “Experimental 753C(harlie)Z(ulu) returning to airport.”	
	Use landing checklist, maintain 90 KIAS downwind, 85 KIAS final, touchdown 75 KIAS.	
INSPECT	Debrief Flight. Examine engine for oil and fuel leaks. Identify and correct cause of any leaks. Correct all squawks	
	Refuel to original quantity, noting fuel added	FUEL ADDED
	Download EFIS data to laptop. Calculate Takeoff & landing distance, ROC at 100 KIAS, ROD at 100 KIAS and Calibrate Airspeed Indicator from 70 to 160 KIAS.	

7. 5TH FLIGHT: WINGS LEVEL STALLS - CLEAN

PRIMARY	PILOT	START TIME	WIND	CEILING
	SAFETY CREW	SHUTDOWN TIME	VISIBILITY	TEMP/DEW POINT
	DATE	AIRPORT	CLOUD COVER	ALTIMETER
	FUEL	WEIGHT	CG POSITION	HOBBS
NAV/COM/GPS	COM		NAV	
	COM 1 XMT/RCV	COM 1 FLIP/FLOP	NAV 1 RCV	NAV 1 FLIP/FLOP
	COM 2 XMT/RCV	COM 2 FLIP/FLOP	NAV 2 RCV	NAV 2 FLIP/FLOP
	GPS			
TAKE-OFF	**Do not exceed oil temperature of 220°F or CHT of 425°F**			
	Start engine and verify oil pressure within 30 seconds			
	Announce to tower: “Experimental 753C(harlie)Z(ulu) departing runway 25 Right, Phase 1 test flight, remaining over airport at 8,000 feet.”			
	Take off and climb at V_x, retract gear, climb to 1000 ft, followed by a V_y circling climb to the right above airport to 8,000ft. Execute two 90 degree clearing turns.			
POWER OFF STALLS	**If nose does not bob by 60 KIAS, drop nose and increase speed.**			
	Reduce throttle to idle, set up for 80 KIAS, gear up. Make sequential inputs of 3-5 degrees in rudder, elevator, and ailerons. Note adverse yaw, pitch and roll stability.			
	Full throttle climb at 95 KIAS to 8,000ft.			
	Reduce throttle to idle, set up for 75 KIAS, gear up. Make sequential inputs of 3-5 degrees in rudder, elevator, and ailerons. Note adverse yaw, pitch and roll stability.			
	Full throttle climb at 95 KIAS to 8,000ft.			
	Reduce throttle to idle, set up for 70 KIAS, gear up. Make sequential inputs of 3-5 degrees in rudder, elevator, and ailerons. Note adverse yaw, pitch and roll stability.			
	Full throttle climb at 95 KIAS to 8,000ft.			
POWER OFF STALLS	Reduce throttle to idle, set up for 65 KIAS, gear up. Make sequential inputs of 3-5 degrees in rudder, elevator, and ailerons. Note adverse yaw, pitch and roll stability.			
	Full throttle climb at 95 KIAS to 8,000ft.			
	Reduce throttle to idle, set up for 60 KIAS, gear up. Make sequential inputs of 3-5 degrees in rudder, elevator, and ailerons. Note adverse yaw, pitch and roll stability.			
	Note airspeed that produces nose bob. Note rate of descent in canard stalled condition.			
	Full throttle climb at 95 KIAS to 8,000ft.			
POWER ON STALLS	Throttle to 125 KIAS, maintain 8,000ft.			
	Pitch up to hold 80 KIAS. Make sequential inputs of 3-5 degrees in rudder, elevator, and ailerons. Note adverse yaw, pitch and roll stability.			
	Descend and maintain 8,000ft, throttle to 125 KIAS.			
	Pitch up to hold 75 KIAS. Make sequential inputs of 3-5 degrees in rudder, elevator, and ailerons. Note adverse yaw, pitch and roll stability.			
	Descend and maintain 8,000ft, throttle to 125 KIAS.			
	Pitch up to hold 70 KIAS. Make sequential inputs of 3-5 degrees in rudder, elevator, and ailerons. Note adverse yaw, pitch and roll stability.			
	Descend and maintain 8,000ft, throttle to 125 KIAS.			
	Pitch up to hold 65 KIAS. Make sequential inputs of 3-5 degrees in rudder, elevator, and ailerons. Note adverse yaw, pitch and roll stability.			
	Descend and maintain 8,000ft, throttle to 125 KIAS.			
	Pitch up to hold 60 KIAS. Make sequential inputs of 3-5 degrees in rudder, elevator, and ailerons. Note adverse yaw, pitch and roll stability.			
	Note airspeed that produces nose bob. Note rate of climb or descent in			

	canard stalled condition.	
	Descend and maintain 8,000ft, throttle to 125 KIAS.	
DEPARTURE STALLS	Throttle to full. Pitch up to hold 75 KIAS. Make sequential inputs of 3-5 degrees in rudder, elevator, and ailerons. Note adverse yaw, pitch and roll stability.	
	Descend and maintain 8,000ft, throttle to 125 KIAS.	
	Throttle to full. Pitch up to hold 70 KIAS. Make sequential inputs of 3-5 degrees in rudder, elevator, and ailerons. Note adverse yaw, pitch and roll stability.	
	Descend and maintain 8,000ft, throttle to 125 KIAS.	
	Throttle to full. Pitch up to hold 65 KIAS. Make sequential inputs of 3-5 degrees in rudder, elevator, and ailerons. Note adverse yaw, pitch and roll stability.	
	Descend and maintain 8,000ft, throttle to 125 KIAS.	
	Throttle to full. Pitch up to hold 60 KIAS. Make sequential inputs of 3-5 degrees in rudder, elevator, and ailerons. Note adverse yaw, pitch and roll stability.	
	Note airspeed that produces nose bob. Note rate of climb or descent in canard stalled condition.	
	Descend and maintain 8,000ft, throttle to 125 KIAS.	
DESCENT	Reduce throttle to idle, descend at 95 KIAS to 3,000ft	
	Announce to tower: “Experimental 753C(harlie)Z(ulu) returning to airport.”	
	Use landing checklist, maintain 90 KIAS downwind, 85 KIAS final, touchdown 75 KIAS.	
INSPEC	Debrief Flight. Examine engine for oil and fuel leaks. Identify and correct cause of any leaks. Correct all squawks	
	Refuel to original quantity, noting fuel added	FUEL ADDED

	Download EFIS data to laptop. Calculate Takeoff & landing distance, ROC at 95 KIAS (Gear Up), ROD at 95 KIAS (Gear Up), Idle, Cruise Power, and Departure Stall Speed (V_S).

8. 6TH FLIGHT: WINGS LEVEL STALLS - DIRTY

PRIMARY	PILOT	START TIME	WIND	CEILING
	SAFETY CREW	SHUTDOWN TIME	VISIBILITY	TEMP/DEW POINT
	DATE	AIRPORT	CLOUD COVER	ALTIMETER
	FUEL	WEIGHT	CG POSITION	HOBBS
NAV/COM/GPS	COM		NAV	
	COM 1 XMT/RCV	COM 1 FLIP/FLOP	NAV 1 RCV	NAV 1 FLIP/FLOP
	COM 2 XMT/RCV	COM 2 FLIP/FLOP	NAV 2 RCV	NAV 2 FLIP/FLOP
	GPS			
TAKE-OFF	**Do not exceed oil temperature of 220°F or CHT of 425°F**			
	Start engine and verify oil pressure within 30 seconds			
	Announce to tower: “Experimental 753C(harlie)Z(ulu) departing runway 25 Right, Phase 1 test flight, remaining over airport at 8,000 feet.”			
	Take off and climb at V_x, retract gear, climb to 1000 ft, followed by a V_y circling climb to the right above airport to 8,000ft. Execute two 90 degree clearing turns.			
POWER OFF STALLS	**If nose does not bob by 60 KIAS, drop nose and increase speed.**			
	Reduce throttle to idle, set up for 80 KIAS, gear down. Make sequential inputs of 3-5 degrees in rudder, elevator, and ailerons. Note adverse yaw, pitch and roll stability.			
	Full throttle climb at 95 KIAS to 8,000ft.			
	Reduce throttle to idle, set up for 75 KIAS, gear down. Make sequential inputs of 3-5 degrees in rudder, elevator, and ailerons. Note adverse yaw, pitch and roll stability.			
	Full throttle climb at 95 KIAS to 8,000ft.			
	Reduce throttle to idle, set up for 70 KIAS, down. Make sequential inputs of 3-5 degrees in rudder, elevator, and ailerons. Note adverse yaw, pitch and roll stability.			
	Full throttle climb at 95 KIAS to 8,000ft.			
POWER OFF STALLS	Reduce throttle to idle, set up for 65 KIAS, gear down. Make sequential inputs of 3-5 degrees in rudder, elevator, and ailerons. Note adverse yaw, pitch and roll stability.			
	Full throttle climb at 95 KIAS to 8,000ft.			
	Reduce throttle to idle, set up for 60 KIAS, gear down. Make sequential inputs of 3-5 degrees in rudder, elevator, and ailerons. Note adverse yaw, pitch and roll stability.			
	Note airspeed that produces nose bob. Note rate of descent in canard stalled condition.			
	Full throttle climb at 95 KIAS to 8,000ft.			
	Reduce throttle to idle, set up for 60 KIAS, gear down, landing brake deployed. Make sequential inputs of 3-5 degrees in rudder, elevator, and ailerons. Note adverse yaw, pitch and roll stability.			
	Note airspeed that produces nose bob. Note rate of descent in canard stalled condition.			
	Full throttle climb at 95 KIAS to 8,000ft.			
POWER ON STALLS	Throttle to 125 KIAS, gear down, maintain 8,000ft.			
	Pitch up to hold 80 KIAS. Make sequential inputs of 3-5 degrees in rudder, elevator, and ailerons. Note adverse yaw, pitch and roll stability.			
	Descend and maintain 8,000ft, throttle to 125 KIAS.			
	Pitch up to hold 75 KIAS. Make sequential inputs of 3-5 degrees in rudder, elevator, and ailerons. Note adverse yaw, pitch and roll stability.			
	Descend and maintain 8,000ft, throttle to 125 KIAS.			
	Pitch up to hold 70 KIAS. Make sequential inputs of 3-5 degrees in rudder, elevator, and ailerons. Note adverse yaw, pitch and roll stability.			
	Descend and maintain 8,000ft, throttle to 125 KIAS.			

	Pitch up to hold 65 KIAS. Make sequential inputs of 3-5 degrees in rudder, elevator, and ailerons. Note adverse yaw, pitch and roll stability.
	Descend and maintain 8,000ft, throttle to 125 KIAS.
	Pitch up to hold 60 KIAS. Make sequential inputs of 3-5 degrees in rudder, elevator, and ailerons. Note adverse yaw, pitch and roll stability.
	Note airspeed that produces nose bob. Note rate of climb or descent in canard stalled condition.
	Descend and maintain 8,000ft, throttle to 125 KIAS.
	Pitch up to hold 60 KIAS, gear down, landing brake deployed. Make sequential inputs of 3-5 degrees in rudder, elevator, and ailerons. Note adverse yaw, pitch and roll stability.
	Note airspeed that produces nose bob. Note rate of climb or descent in canard stalled condition.
	Descend and maintain 8,000ft, throttle to 125 KIAS.
DEPARTURE STALLS	Throttle to full, gear down. Pitch up to hold 75 KIAS. Make sequential inputs of 3-5 degrees in rudder, elevator, and ailerons. Note adverse yaw, pitch and roll stability.
	Descend and maintain 8,000ft, throttle to 125 KIAS.
	Throttle to full, gear down. Pitch up to hold 70 KIAS. Make sequential inputs of 3-5 degrees in rudder, elevator, and ailerons. Note adverse yaw, pitch and roll stability.
	Descend and maintain 8,000ft, throttle to 120 KIAS.
	Throttle to full, gear down. Pitch up to hold 65 KIAS. Make sequential inputs of 3-5 degrees in rudder, elevator, and ailerons. Note adverse yaw, pitch and roll stability.
	Descend and maintain 8,000ft, throttle to 120 KIAS.
	Throttle to full, gear down. Pitch up to hold 60 KIAS. Make sequential inputs of 3-5 degrees in rudder, elevator, and ailerons. Note adverse yaw, pitch and roll stability.
	Note airspeed that produces nose bob. Note rate of climb or descent in canard stalled condition.
	Descend and maintain 8,000ft, throttle to 125 KIAS.
	Throttle to full, gear down, landing brake deployed. Pitch up to hold 60 KIAS. Make sequential inputs of 3-5 degrees in rudder, elevator, and ailerons. Note adverse yaw, pitch and roll stability.
	Note airspeed that produces nose bob. Note rate of climb or descent in canard stalled condition.
	Descend and maintain 8,000ft, throttle to 125 KIAS.
DESCENT	Reduce throttle to idle, descend at 95 KIAS to 3,000ft
	Announce to tower: “Experimental 753C(harlie)Z(ulu) returning to airport.”
	Use landing checklist, maintain 90 KIAS downwind, 85 KIAS final, touchdown 75 KIAS.
INSPECT	Debrief Flight. Examine engine for oil and fuel leaks. Identify and correct cause of any leaks. Correct all squawks
	Refuel to original quantity, noting fuel added | FUEL ADDED
	Download EFIS data to laptop. Calculate takeoff & landing distance, ROC at 95 KIAS (Gear Up), ROD at 95 KIAS (Gear Up), Idle, Cruise Power, and WOT Stall Speed Gear Down (V_{S0})

9. 7TH FLIGHT: ACCELERATED STALLS

PRIMARY	PILOT	START TIME	WIND	CEILING
	SAFETY CREW	SHUTDOWN TIME	VISIBILITY	TEMP/DEW POINT
	DATE	AIRPORT	CLOUD COVER	ALTIMETER
	FUEL	WEIGHT	CG POSITION	HOBBS
NAV/COM/GPS	COM		NAV	
	COM 1 XMT/RCV	COM 1 FLIP/FLOP	NAV 1 RCV	NAV 1 FLIP/FLOP
	COM 2 XMT/RCV	COM 2 FLIP/FLOP	NAV 2 RCV	NAV 2 FLIP/FLOP
	GPS			
TAKE-OFF	**Do not exceed oil temperature of 220°F or CHT of 425°F**			
	Start engine and verify oil pressure within 30 seconds			
	Announce to tower: “Experimental 753C(harlie)Z(ulu) departing runway 25 Right, Phase 1 test flight, remaining over airport at 8,000 feet.”			
	Take off and climb at V_x, retract gear, climb to 1000 ft, followed by a V_y circling climb to the right above airport to 8,000ft. Execute two 90 degree clearing turns.			
ACCELERATED STALLS	Power as required to maintain 8,000ft. Pitch up until nose bobs and maintain altitude.			
	Increase power to 95 KIAS, enter a right turn of 15 degrees bank. Power as required to maintain 8,000 ft. Maintaining 15 degree bank, pitch up until nose bobs.			
	Increase power to 95 KIAS, enter a left turn of 15 degrees bank. Power as required to maintain 8,000 ft. Maintaining 15 degree bank, pitch up until nose bobs.			
	Increase power to 95 KIAS, enter a right turn of 30 degrees bank. Power as required to maintain 8,000 ft. Maintaining 30 degree bank, pitch up until nose bobs.			
	Increase power to 95 KIAS, enter a left turn of 30 degrees bank. Power as required to maintain 8,000 ft. Maintaining 30 degree bank, pitch up until nose bobs.			
	Increase power to 95 KIAS, enter a right turn of 45 degrees bank. Power as required to maintain 8,000 ft. Maintaining 45 degree bank, pitch up until nose bobs.			
	Increase power to 95 KIAS, enter a left turn of 45 degrees bank. Power as required to maintain 8,000 ft. Maintaining 45 degree bank, pitch up until nose bobs.			
	Increase power to 95 KIAS, enter a right turn of 60 degrees bank. Power as required to maintain 8,000 ft. Maintaining 60 degree bank, pitch up until nose bobs.			
	Increase power to 95 KIAS, enter a left turn of 60 degrees bank. Power as required to maintain 8,000 ft. Maintaining 60 degree bank, pitch up until nose bobs.			
DESCENT	Reduce throttle to idle, descend at 95 KIAS to 3,000ft			
	Announce to tower: “Experimental 753C(harlie)Z(ulu) returning to airport.”			
	Use landing checklist, maintain 90 KIAS downwind, 85 KIAS final, touchdown 75 KIAS.			
INSPECT	Debrief Flight. Examine engine for oil and fuel leaks. Identify and correct cause of any leaks. Correct all squawks			
	Refuel to original quantity, noting fuel added	FUEL ADDED		
	Download EFIS data to laptop. Calculate takeoff & landing distance, ROC at 95 KIAS (Gear Up), ROD at 95 KIAS (Gear Up), and V_S at bank angles of 0, 15, 30, 45, and 60 degrees.			

10. 8TH FLIGHT: FLUTTER TESTING

PRIMARY	PILOT	START TIME	WIND	CEILING
	SAFETY CREW	SHUTDOWN TIME	VISIBILITY	TEMP/DEW POINT
	DATE	AIRPORT	CLOUD COVER	ALTIMETER
	FUEL	WEIGHT	CG POSITION	HOBBS
NAV/COM/GPS	COM		NAV	
	COM 1 XMT/RCV	COM 1 FLIP/FLOP	NAV 1 RCV	NAV 1 FLIP/FLOP
	COM 2 XMT/RCV	COM 2 FLIP/FLOP	NAV 2 RCV	NAV 2 FLIP/FLOP
	GPS			
TAKE-OFF	**Do not exceed oil temperature of 220°F or CHT of 425°F**			
	Start engine and verify oil pressure within 30 seconds			
	Announce to tower: “Experimental 753C(harlie)Z(ulu) departing runway 25 Right, Phase 1 test flight, remaining over airport at 10,000 feet.”			
	Take off and climb at 100 KIAS, circling climb to the right above airport to 10,000ft			
WARNING	Do not descend below 8,000ft altitude. If at any time airframe vibration, buzzing, or undamped control variations take place, abort the test immediately by bringing the engine to idle, pulling back in a ~2G pull-up and minimizing airspeed until the vibration ceases. If this occurs, notify Tower of an emergency and land immediately.			
130 KIAS	Set up for 130KIAS, throttle as required. Dive if necessary to obtain required airspeed.			
	Sequentially kick the right rudder, left rudder, pull and push the stick, and wrap the stick left and right. Note response, listening and feeling any airframe vibration present.			
135	Climb back to 10,000 ft, set up for 135 KIAS, throttle as required. Dive if necessary to obtain required airspeed..			
	Sequentially kick the right rudder, left rudder, pull and push the stick, and wrap the stick left and right. Note response, listening and feeling any airframe vibration present.			
140 KIAS	Climb back to 10,000 ft, set up for 140 KIAS, throttle as required. Dive if necessary to obtain required airspeed.			
	Sequentially kick the right rudder, left rudder, pull and push the stick, and wrap the stick left and right. Note response, listening and feeling any airframe vibration present.			
145 KIAS	Climb back to 10,000 ft, set up for 145 KIAS, throttle as required. Dive if necessary to obtain required airspeed.			
	Sequentially kick the right rudder, left rudder, pull and push the stick, and wrap the stick left and right. Note response, listening and feeling any airframe vibration present.			
150 KIAS	Climb back to 10,000 ft, set up for 150 KIAS, throttle as required. Dive if necessary to obtain required airspeed.			
	Sequentially kick the right rudder, left rudder, pull and push the stick, and wrap the stick left and right. Note response, listening and feeling any airframe vibration present.			
155 KIAS	Climb back to 10,000 ft, set up for 155 KIAS, throttle as required. Dive if necessary to obtain required airspeed.			
	Sequentially kick the right rudder, left rudder, pull and push the stick, and wrap the stick left and right. Note response, listening and feeling any airframe vibration present.			
160 KIAS	Climb back to 10,000 ft, set up for 160 KIAS, throttle as required. Dive if necessary to obtain required airspeed.			
	Sequentially kick the right rudder, left rudder, pull and push the stick, and wrap the stick left and right. Note response, listening and feeling any airframe vibration present.			
165 KIAS	Climb back to 10,000 ft, set up for 165 KIAS, throttle as required. Dive if necessary to obtain required airspeed.			
	Sequentially kick the right rudder, left rudder, pull and push the stick, and wrap the stick left and right. Note response, listening and feeling any			

	airframe vibration present.
170 KIAS	Climb back to 10,000 ft, set up for 170 KIAS, throttle as required. Dive if necessary to obtain required airspeed.
	Sequentially kick the right rudder, left rudder, pull and push the stick, and wrap the stick left and right. Note response, listening and feeling any airframe vibration present.
175 KIAS	Climb back to 10,000 ft, set up for 175 KIAS, throttle as required. Dive if necessary to obtain required airspeed.
	Sequentially kick the right rudder, left rudder, pull and push the stick, and wrap the stick left and right. Note response, listening and feeling any airframe vibration present.
180 KIAS	Climb back to 10,000 ft, set up for 180 KIAS, throttle as required. Dive if necessary to obtain required airspeed.
	Sequentially kick the right rudder, left rudder, pull and push the stick, and wrap the stick left and right. Note response, listening and feeling any airframe vibration present.
185 KIAS	Climb back to 10,000 ft, set up for 185 KIAS, throttle as required. Dive if necessary to obtain required airspeed.
	Sequentially kick the right rudder, left rudder, pull and push the stick, and wrap the stick left and right. Note response, listening and feeling any airframe vibration present.
190 KIAS	Climb back to 10,000 ft, set up for 190 KIAS, throttle as required. Dive if necessary to obtain required airspeed.
	Sequentially kick the right rudder, left rudder, pull and push the stick, and wrap the stick left and right. Note response, listening and feeling any airframe vibration present.
195 KIAS	Climb back to 10,000 ft, set up for 195 KIAS, throttle as required. Dive if necessary to obtain required airspeed.
	Sequentially kick the right rudder, left rudder, pull and push the stick, and wrap the stick left and right. Note response, listening and feeling any airframe vibration present.

200 KIAS	Climb back to 10,000 ft, set up for 200 KIAS, throttle as required. Dive if necessary to obtain required airspeed.	
	Sequentially kick the right rudder, left rudder, pull and push the stick, and wrap the stick left and right. Note response, listening and feeling any airframe vibration present.	
205 KIAS	Climb back to 10,000 ft, set up for 205 KIAS, throttle as required. Dive if necessary to obtain required airspeed.	
	Sequentially kick the right rudder, left rudder, pull and push the stick, and wrap the stick left and right. Note response, listening and feeling any airframe vibration present.	
210 KIAS	Climb back to 10,000 ft, set up for 210 KIAS, throttle as required. Dive if necessary to obtain required airspeed.	
	Sequentially kick the right rudder, left rudder, pull and push the stick, and wrap the stick left and right. Note response, listening and feeling any airframe vibration present.	
DESCENT	Reduce throttle to idle, descend at 100 KIAS to 3,000ft	
	Announce to tower: “Experimental 753C(harlie)Z(ulu) returning to airport.”	
	Use landing checklist, maintain 90 KIAS downwind, 85 KIAS final, touchdown 75 KIAS.	
INSPECT	Debrief Flight. Examine engine for oil and fuel leaks. Identify and correct cause of any leaks. Correct all squawks	
	Refuel to original quantity, noting fuel added	FUEL ADDED
	Download EFIS data to laptop. Calculate Takeoff & landing distance, ROC at 100 KIAS, ROD at 100 KIAS, Mark airframe redline at 190 KIAS, or other appropriate speed based on Flutter Test Results.	

11. 9TH FLIGHT: SAW TOOTH CLIMBS & DESCENTS

PRIMARY	PILOT	START TIME	WIND	CEILING
	SAFETY CREW	SHUTDOWN TIME	VISIBILITY	TEMP/DEW POINT
	DATE	AIRPORT	CLOUD COVER	ALTIMETER
	FUEL	WEIGHT	CG POSITION	HOBBS
NAV/COM/GPS	COM		NAV	
	COM 1 XMT/RCV	COM 1 FLIP/FLOP	NAV 1 RCV	NAV 1 FLIP/FLOP
	COM 2 XMT/RCV	COM 2 FLIP/FLOP	NAV 2 RCV	NAV 2 FLIP/FLOP
	GPS			
TAKE-OFF	**Do not exceed oil temperature of 220°F or CHT of 425°F**			
	Start engine and verify oil pressure within 30 seconds			
	Announce to tower: “Experimental 753C(harlie)Z(ulu) departing runway 25 Right, Phase 1 test flight, remaining over airport at 8,000 feet.”			
	Take off and climb at 125 KIAS, circling climb to the right above airport. Maintain heading between 3,000 and 8,000ft.			
PROCEDURE	Reduce throttle to idle, descend at 125 KIAS to 3,000ft			
	Full throttle climb at 110 KIAS to 8,000ft.			
	Reduce throttle to idle, descend at 110 KIAS to 3,000ft			
	Full throttle climb at 95 KIAS to 8,000ft.			
	Reduce throttle to idle, descend at 95 KIAS to 3,000ft			
	Full throttle climb at 120 KIAS to 8,000ft.			
	Reduce throttle to idle, descend at 120 KIAS to 3,000ft			
	Full throttle climb at 115 KIAS to 8,000ft.			
	Reduce throttle to idle, descend at 115 KIAS to 3,000ft			

	Full throttle climb at 90 KIAS to 8,000ft.	
	Reduce throttle to idle, descend at 90 KIAS to 3,000ft	
	Announce to tower: “Experimental 753C(harlie)Z(ulu) returning to airport.”	
	Use landing checklist, maintain 90 KIAS downwind, 85 KIAS final, touchdown 75 KIAS.	
	Refuel to original quantity, noting fuel added	FUEL ADDED
	Announce to tower: “Experimental 753C(harlie)Z(ulu) departing runway 25 Right, Phase 1 test flight, remaining over airport at 8,000 feet.”	
	Take off and climb at 80 KIAS, circling climb to the right above airport. Maintain heading between 3,000 and 8,000ft	
	Reduce throttle to idle, descend at 80 KIAS to 3,000ft	
	Full throttle climb at 75 KIAS to 8,000ft.	
	Reduce throttle to idle, descend at 75 KIAS to 3,000ft	
	Full throttle climb at 100 KIAS to 8,000ft.	
	Reduce throttle to idle, descend at 100 KIAS to 3,000ft	
	Full throttle climb at 135 KIAS to 8,000ft.	
	Reduce throttle to idle, descend at 135 KIAS to 3,000ft	
	Full throttle climb at 130 KIAS to 8,000ft.	
	Reduce throttle to idle, descend at 130 KIAS to 3,000ft	
	Full throttle climb at 105 KIAS to 8,000ft.	
	Reduce throttle to idle, descend at 105 KIAS to 3,000ft	
	Full throttle climb at 85 KIAS to 8,000ft.	
	Reduce throttle to idle, descend at 85 KIAS to 3,000ft	
	Announce to tower: “Experimental 753C(harlie)Z(ulu) returning to airport.”	
	Use landing checklist, maintain 90 KIAS downwind, 85 KIAS final,	

	touchdown 75 KIAS.	
INSPECT	Debrief Flight. Examine engine for oil and fuel leaks. Identify and correct cause of any leaks. Correct all squawks	
	Refuel to original quantity, noting fuel added	FUEL ADDED
	Download EFIS data to laptop. Calculate Takeoff & landing distance, ROC from 75 to 135 KIAS, and ROD from 75 to 135 KIAS.	

12. 10TH FLIGHT: LONGITUDINAL STABILITY

PRIMARY	PILOT	START TIME	WIND	CEILING
	SAFETY CREW	SHUTDOWN TIME	VISIBILITY	TEMP/DEW POINT
	DATE	AIRPORT	CLOUD COVER	ALTIMETER
	FUEL	WEIGHT	CG POSITION	HOBBS
NAV/COM/GPS	COM		NAV	
	COM 1 XMT/RCV	COM 1 FLIP/FLOP	NAV 1 RCV	NAV 1 FLIP/FLOP
	COM 2 XMT/RCV	COM 2 FLIP/FLOP	NAV 2 RCV	NAV 2 FLIP/FLOP
	GPS			
TAKE-OFF	**Do not exceed oil temperature of 220°F or CHT of 425°F**			
	Start engine and verify oil pressure within 30 seconds			
	Announce to tower: “Experimental 753C(harlie)Z(ulu) departing runway 25 Right, Phase 1 test flight, remaining over airport at 8,000 feet.”			
	Take off and climb at V_x, retract gear, climb to 1000 ft, followed by a V_y circling climb to the right above airport to 8,000ft. Execute two 90 degree clearing turns.			
STATIC LONGITUDINAL	Power and trim as required to maintain 8,000ft, 125 KIAS.			
	Pull elevator to stabilize at 110 KIAS. Do not re-trim. Verify that a continued pull force is required to maintain 110 KIAS.			
	Pull elevator to stabilize at 100 KIAS. Do not re-trim. Verify that a continued pull force is required to maintain 100 KIAS.			
	Return to 8,000ft, 125 KIAS, trim for level flight. Note trim adjustment required.			
	Push elevator to stabilize at 140 KIAS. Do not re-trim. Verify that a continued push force is required to maintain 140 KIAS.			
	Push elevator to stabilize at 150 KIAS. Do not re-trim. Verify that a continued push force is required to maintain 150 KIAS.			
	Return to 8,000ft, 125 KIAS. Note trim adjustment required.			
SHORT-PERIOD DYNAMIC	With a smooth, but fairly rapid motion, push the nose down several degrees. Quickly reverse the push to a pull and return to the trim attitude. Release the stick, but maintain your hand near the stick.			
	Note the response of the aircraft to the elevator input, noting the amount of pitch divergence and number of oscillations to return to trim condition.			
	Return to 8,000ft, 125 KIAS. Note trim adjustment required.			
	With a smooth, but fairly rapid motion, pull the nose up several degrees. Quickly reverse the pull to a push and return to the trim attitude. Release the stick, but maintain your hand near the stick.			
	Note the response of the aircraft to the elevator input, noting the amount of pitch divergence and number of oscillations to return to trim condition.			
	Return to 8,000ft, 125 KIAS. Note trim adjustment required.			
LONG-PERIOD DYNAMIC	Without re-trimming, push the stick forward to increase airspeed to 130 KIAS and release the stick.			
	Note the response of the aircraft to the elevator input, noting the amount of pitch divergence, number of oscillations to return to trim condition, and final trim airspeed.			
	Return to 8,000ft, 125 KIAS. Note trim adjustment required.			
	Without re-trimming, pull the stick back to decrease airspeed to 125 KIAS and release the stick.			
	Note the response of the aircraft to the elevator input, noting the amount of pitch divergence, number of oscillations to return to trim condition, and final trim airspeed.			
	Return to 8,000ft, 125 KIAS. Note trim adjustment required.			
DESCEN	Reduce throttle to idle, descend at 95 KIAS to 3,000ft			
	Announce to tower: “Experimental 753C(harlie)Z(ulu) returning to airport.”			
	Use landing checklist, maintain 90 KIAS downwind, 85 KIAS final,			

	touchdown 75 KIAS.	
INSPECT	Debrief Flight. Examine engine for oil and fuel leaks. Identify and correct cause of any leaks. Correct all squawks	
	Refuel to original quantity, noting fuel added	FUEL ADDED
	Download EFIS data to laptop. Calculate takeoff & landing distance, short-period stability plot, and long-period stability plot.	

13. 11TH FLIGHT: LATERAL AND SPIRAL STABILITY

PRIMARY	PILOT	START TIME	WIND	CEILING
	SAFETY CREW	SHUTDOWN TIME	VISIBILITY	TEMP/DEW POINT
	DATE	AIRPORT	CLOUD COVER	ALTIMETER
	FUEL	WEIGHT	CG POSITION	HOBBS
NAV/COM/GPS	COM		NAV	
	COM 1 XMT/RCV	COM 1 FLIP/FLOP	NAV 1 RCV	NAV 1 FLIP/FLOP
	COM 2 XMT/RCV	COM 2 FLIP/FLOP	NAV 2 RCV	NAV 2 FLIP/FLOP
	GPS			
TAKE-OFF	**Do not exceed oil temperature of 220°F or CHT of 425°F**			
	Start engine and verify oil pressure within 30 seconds			
	Announce to tower: “Experimental 753C(harlie)Z(ulu) departing runway 25 Right, Phase 1 test flight, remaining over airport at 8,000 feet.”			
	Take off and climb at V_x, retract gear, climb to 1000 ft, followed by a V_y circling climb to the right above airport to 8,000ft. Execute two 90 degree clearing turns.			
LATERAL STABILITY	Power and trim as required to maintain 8,000ft, 110 KIAS.			
	Maintain altitude and heading, and slowly enter a sideslip by adding right rudder and left aileron. At no time should control forces on rudder or aileron reverse.			
	Release aileron input and verify that low wing returns to level.			
	Maintain altitude and heading, and slowly enter a sideslip by adding left rudder and right aileron. At no time should control forces on rudder or aileron reverse.			
	Release aileron input and verify that low wing returns to level.			
	Return to 8,000ft, 110 KIAS, trim for level flight.			

	Input rudder to yaw to the right. Use ailerons to maintain wings level. When the rudder input is released, the aircraft should return to level flight.	
	Input rudder to yaw to the left. Use ailerons to maintain wings level. When the rudder input is released, the aircraft should return to level flight.	
SPIRAL STABILITY	Power and trim as required to maintain 8,000ft, 110 KIAS.	
	Enter a 20 degree bank to the right, then release the aileron input. Note if bank angle increases (spiral instability), maintains (neutral spiral stability) or decreases (spiral stability).	BANK INCREASES BANK MAINTAINS BANK DECREAEES
	Enter a 20 degree bank to the left, then release the aileron input. Note if bank angle increases (spiral instability), maintains (neutral spiral stability) or decreases (spiral stability).	BANK INCREASES BANK MAINTAINS BANK DECREAEES
DESCENT	Reduce throttle to idle, descend at 95 KIAS to 3,000ft	
	Announce to tower: “Experimental 753C(harlie)Z(ulu) returning to airport.”	
	Use landing checklist, maintain 90 KIAS downwind, 85 KIAS final, touchdown 75 KIAS.	
INSPECT	Debrief Flight. Examine engine for oil and fuel leaks. Identify and correct cause of any leaks. Correct all squawks	
	Refuel to original quantity, noting fuel added	FUEL ADDED
	Download EFIS data to laptop. Calculate Takeoff & landing distance, ROC at 95 KIAS (Gear Up), ROD at 95 KIAS (Gear Up)	

14. 12TH FLIGHT: RANGE AND ENDURANCE

PRIMARY	PILOT	START TIME	WIND	CEILING
	SAFETY CREW	SHUTDOWN TIME	VISIBILITY	TEMP/DEW POINT
	DATE	AIRPORT	CLOUD COVER	ALTIMETER
	FUEL	WEIGHT	CG POSITION	HOBBS
NAV/COM/GPS	COM		NAV	
	COM 1 XMT/RCV	COM 1 FLIP/FLOP	NAV 1 RCV	NAV 1 FLIP/FLOP
	COM 2 XMT/RCV	COM 2 FLIP/FLOP	NAV 2 RCV	NAV 2 FLIP/FLOP
	GPS			
TAKE-OFF	**Do not exceed oil temperature of 220°F or CHT of 425°F**			
	Start engine and verify oil pressure within 30 seconds			
	Announce to tower: “Experimental 753C(harlie)Z(ulu) departing runway 25 Right, Phase 1 test flight, remaining over airport at 8,000 feet.”			
	Take off and climb at 100 KIAS, circling climb to the right above airport to 8,000ft			
130 KIAS CALIBRATION	Set up for 80 KIAS. Use GPS to set constant track 270° at 80 KIAS. Note GPS Ground Speed	GROUND SPEED		
	Maintain 80 KIAS. Use GPS to set constant track 000° at 80 KIAS. Note GPS Ground Speed	GROUND SPEED		
	Maintain 80 KIAS. Use GPS to set constant track 90° at 80 KIAS. Note GPS Ground Speed	GROUND SPEED		
	Maintain 80 KIAS. Use GPS to set constant track 180° at 130 KIAS. Note GPS Ground Speed	GROUND SPEED		
80	Set up for 80 KIAS. Use GPS to set constant track 270° at 80 KIAS. Note GPS Ground Speed	GROUND SPEED		
	Maintain 80 KIAS. Use GPS to set constant track 000° at 80 KIAS. Note GPS Ground Speed	GROUND SPEED		
	Maintain 80 KIAS. Use GPS to set constant track 90° at 80 KIAS. Note GPS Ground Speed	GROUND SPEED		
	Maintain 80 KIAS. Use GPS to set constant track 180° at 80 KIAS. Note GPS Ground Speed	GROUND SPEED		
170 KIAS CALIBRATION	Set up for 170 KIAS. Use GPS to set constant track 270° at 170 KIAS. Note GPS Ground Speed	GROUND SPEED		
	Maintain 170 KIAS. Use GPS to set constant track 000° at 170 KIAS. Note GPS Ground Speed	GROUND SPEED		
	Maintain 170 KIAS. Use GPS to set constant track 90° at 170 KIAS. Note GPS Ground Speed	GROUND SPEED		
	Maintain 170 KIAS. Use GPS to set constant track 180° at 170 KIAS. Note GPS Ground Speed	GROUND SPEED		
140 KIAS CALIBRATION	Set up for 140 KIAS. Use GPS to set constant track 270° at 140 KIAS. Note GPS Ground Speed	GROUND SPEED		
	Maintain 140 KIAS. Use GPS to set constant track 000° at 140 KIAS. Note GPS Ground Speed	GROUND SPEED		
	Maintain 140 KIAS. Use GPS to set constant track 90° at 140 KIAS. Note GPS Ground Speed	GROUND SPEED		
	Maintain 140 KIAS. Use GPS to set constant track 180° at 140 KIAS. Note GPS Ground Speed	GROUND SPEED		
160 KIAS CALIBRATION	Set up for 160 KIAS. Use GPS to set constant track 270° at 160 KIAS. Note GPS Ground Speed	GROUND SPEED		
	Maintain 160 KIAS. Use GPS to set constant track 000° at 160 KIAS. Note GPS Ground Speed	GROUND SPEED		
	Maintain 160 KIAS. Use GPS to set constant track 90° at 160 KIAS. Note GPS Ground Speed	GROUND SPEED		
	Maintain 160 KIAS. Use GPS to set constant track 180° at 160 KIAS. Note GPS Ground Speed	GROUND SPEED		

100 KIAS CALIBRATION	Maintain 100 KIAS. Use GPS to set constant track 90° at 100 KIAS. Note GPS Ground Speed	GROUND SPEED
	Maintain 100 KIAS. Use GPS to set constant track 180° at 100 KIAS. Note GPS Ground Speed	GROUND SPEED
	Set up for 100 KIAS. Use GPS to set constant track 270° at 100 KIAS. Note GPS Ground Speed	GROUND SPEED
	Maintain 100 KIAS. Use GPS to set constant track 90° at 100 KIAS. Note GPS Ground Speed	GROUND SPEED
150 KIAS CALIBRATION	Maintain 150 KIAS. Use GPS to set constant track 90° at 150 KIAS. Note GPS Ground Speed	GROUND SPEED
	Maintain 150 KIAS. Use GPS to set constant track 180° at 150 KIAS. Note GPS Ground Speed	GROUND SPEED
	Set up for 150 KIAS. Use GPS to set constant track 270° at 150 KIAS. Note GPS Ground Speed	GROUND SPEED
	Maintain 150 KIAS. Use GPS to set constant track 90° at 150 KIAS. Note GPS Ground Speed	GROUND SPEED
120 KIAS CALIBRATION	Maintain 120 KIAS. Use GPS to set constant track 90° at 120 KIAS. Note GPS Ground Speed	GROUND SPEED
	Maintain 120 KIAS. Use GPS to set constant track 180° at 120 KIAS. Note GPS Ground Speed	GROUND SPEED
	Set up for 120 KIAS. Use GPS to set constant track 270° at 120 KIAS. Note GPS Ground Speed	GROUND SPEED
	Maintain 120 KIAS. Use GPS to set constant track 90° at 120 KIAS. Note GPS Ground Speed	GROUND SPEED
70KIAS	Set up for 70 KIAS. Use GPS to set constant track 270° at 70 KIAS. Note GPS Ground Speed	GROUND SPEED
	Maintain 70 KIAS. Use GPS to set constant track 000° at 70 KIAS. Note GPS Ground Speed	GROUND SPEED
	Maintain 70 KIAS. Use GPS to set constant track 90° at 70 KIAS. Note GPS Ground Speed	GROUND SPEED
	Maintain 70 KIAS. Use GPS to set constant track 180° at 70 KIAS. Note GPS Ground Speed	GROUND SPEED
110 KIAS CALIBRATION	Set up for 110 KIAS. Use GPS to set constant track 270° at 110 KIAS. Note GPS Ground Speed	GROUND SPEED
	Maintain 110 KIAS. Use GPS to set constant track 000° at 110 KIAS. Note GPS Ground Speed	GROUND SPEED
	Maintain 110 KIAS. Use GPS to set constant track 90° at 110 KIAS. Note GPS Ground Speed	GROUND SPEED
	Maintain 110 KIAS. Use GPS to set constant track 180° at 110 KIAS. Note GPS Ground Speed	GROUND SPEED
90 KIAS CALIBRATION	Set up for 90 KIAS. Use GPS to set constant track 270° at 90 KIAS. Note GPS Ground Speed	GROUND SPEED
	Maintain 90 KIAS. Use GPS to set constant track 000° at 90 KIAS. Note GPS Ground Speed	GROUND SPEED
	Maintain 90 KIAS. Use GPS to set constant track 90° at 90 KIAS. Note GPS Ground Speed	GROUND SPEED
	Maintain 90 KIAS. Use GPS to set constant track 180° at 90 KIAS. Note GPS Ground Speed	GROUND SPEED
DESCENT	Reduce throttle to idle, descend at 100 KIAS to 3,000ft	
	Announce to tower: “Experimental 753C(harlie)Z(ulu) returning to airport.”	
	Use landing checklist, maintain 90 KIAS downwind, 85 KIAS final, touchdown 75 KIAS.	
INSPECT	Debrief Flight. Examine engine for oil and fuel leaks. Identify and correct cause of any leaks. Correct all squawks	
	Refuel to original quantity, noting fuel added	FUEL ADDED
	Download EFIS data to laptop. Calculate Takeoff & landing distance, ROC at 100 KIAS, ROD at 100 KIAS, Verify Airspeed Indicator from 70 to 170 KIAS, Determine V_{MD}, V_{BE}, V_H, and Carson’s Speed	

15. 13TH FLIGHT: TRIM EFFECTIVENESS & RUNAWAY ELECTRIC TRIM

PRIMARY	PILOT	START TIME	WIND	CEILING
	SAFETY CREW	SHUTDOWN TIME	VISIBILITY	TEMP/DEW POINT
	DATE	AIRPORT	CLOUD COVER	ALTIMETER
	FUEL	WEIGHT	CG POSITION	HOBBS
NAV/COM/GPS	COM		NAV	
	COM 1 XMT/RCV	COM 1 FLIP/FLOP	NAV 1 RCV	NAV 1 FLIP/FLOP
	COM 2 XMT/RCV	COM 2 FLIP/FLOP	NAV 2 RCV	NAV 2 FLIP/FLOP
	GPS			
TAKE-OFF	**Do not exceed oil temperature of 220°F or CHT of 425°F**			
	Start engine and verify oil pressure within 30 seconds			
	Announce to tower: “Experimental 753C(harlie)Z(ulu) departing runway 25 Right, Phase 1 test flight, remaining over airport at 8,000 feet.”			
	Take off and climb at 95 KIAS, retract gear, circling climb to the right above airport to 8,000ft			
RUNAWAY TRIM TEST V_s	Set up for 60 KIAS, and maintain 8,000ft. Note trim position required to maintain level flight hands-off.			
	Run the pitch trim full nose down, noting the stick force required to maintain level flight.			
	Run the pitch trim full nose up, noting the stick force required to maintain level flight.			
	Return pitch trim to hands-off. Run the roll trim full left, noting stick force required to maintain wings-level.			
	Run the roll trim full right, noting stick force required to maintain wings-level.			
RUNAWAY TRIM TEST	Set up for V_x, and maintain 8,000ft. Note trim position required to maintain level flight hands-off.			
	Run the pitch trim full nose down, noting the stick force required to maintain level flight.			
	Run the pitch trim full nose up, noting the stick force required to maintain level flight.			
	Return pitch trim to hands-off. Run the roll trim full left, noting stick force required to maintain wings-level.			
	Run the roll trim full right, noting stick force required to maintain wings-level.			
RUNAWAY TRIM TEST V_X	Set up for V_x, and maintain 8,000ft. Note trim position required to maintain level flight hands-off.			
	Run the pitch trim full nose down, noting the stick force required to maintain level flight.			
	Run the pitch trim full nose up, noting the stick force required to maintain level flight.			
	Return pitch trim to hands-off. Run the roll trim full left, noting stick force required to maintain wings-level.			
	Run the roll trim full right, noting stick force required to maintain wings-level.			
RUNAWAY TRIM TEST	Set up for Carson’s Speed, and maintain 8,000ft. Note trim position required to maintain level flight hands-off.			
	Run the pitch trim full nose down, noting the stick force required to maintain level flight.			
	Run the pitch trim full nose up, noting the stick force required to maintain level flight.			
	Return pitch trim to hands-off. Run the roll trim full left, noting stick force required to maintain wings-level.			
	Run the roll trim full right, noting stick force required to maintain wings-level.			

RUNAWAY TRIM TEST	Set up for Carson's Speed, and maintain 8,000ft. Note trim position required to maintain level flight hands-off.
	Run the pitch trim full nose down, noting the stick force required to maintain level flight.
	Run the pitch trim full nose up, noting the stick force required to maintain level flight.
	Return pitch trim to hands-off. Run the roll trim full left, noting stick force required to maintain wings-level.
	Run the roll trim full right, noting stick force required to maintain wings-level.
RUNAWAY TRIM TEST V_H	Set up for V_H, and maintain 8,000ft. Note trim position required to maintain level flight hands-off.
	Run the pitch trim full nose down, noting the stick force required to maintain level flight.
	Run the pitch trim full nose up, noting the stick force required to maintain level flight.
	Return pitch trim to hands-off. Run the roll trim full left, noting stick force required to maintain wings-level.
	Run the roll trim full right, noting stick force required to maintain wings-level.
AUTOPILOT TEST	Set up for 125 KIAS, and maintain 8,000ft. Note trim position required to maintain level flight hands-off.
	Engage Autopilot, in altitude-hold mode, de-coupled from G3X. Note pitch response and altitude hold performance.
	Using the autopilot interface, command a climb of 500 FPM. Note pitch response and VSI performance.
	Using the autopilot interface, command a descent of 500 FPM. Note pitch response and VSI performance.
	If the altitude, climb, and descend modes are successful, engage heading mode. Note roll response performance.
	If heading mode is successful, engage NAV mode, and couple GX Pilot to G3X. Note altitude and heading performance.
DESCENT	Reduce throttle to idle, descend at 95 KIAS to 3,000ft
	Announce to tower: "Experimental 753C(harlie)Z(ulu) returning to airport."
	Use landing checklist, maintain 90 KIAS downwind, 85 KIAS final, touchdown 75 KIAS.
INSPECT	Debrief Flight. Examine engine for oil and fuel leaks. Identify and correct cause of any leaks. Correct all squawks
	Refuel to original quantity, noting fuel added | FUEL ADDED
	Download EFIS data to laptop. Calculate Takeoff & landing distance, ROC at 95 KIAS (Gear Up), ROD at 95 KIAS (Gear Up)

16. 14TH FLIGHT: FORWARD CG – LIGHT WEIGHT: CLIMBS & DESCENTS

PRIMARY	PILOT	START TIME	WIND	CEILING
	SAFETY CREW	SHUTDOWN TIME	VISIBILITY	TEMP/DEW POINT
	DATE	AIRPORT	CLOUD COVER	ALTIMETER
	FUEL	WEIGHT	CG POSITION	HOBBS
NAV/COM/GPS	COM		NAV	
	COM 1 XMT/RCV	COM 1 FLIP/FLOP	NAV 1 RCV	NAV 1 FLIP/FLOP
	COM 2 XMT/RCV	COM 2 FLIP/FLOP	NAV 2 RCV	NAV 2 FLIP/FLOP
	GPS			
TAKE-OFF	**Do not exceed oil temperature of 220°F or CHT of 425°F**			
	Start engine and verify oil pressure within 30 seconds			
	Announce to tower: “Experimental 753C(harlie)Z(ulu) departing runway 25 Right, Phase 1 test flight, remaining over airport at 8,000 feet.”			
	Take off and climb at 75 KIAS, circling climb to the right above airport. Maintain heading between 3,000 and 8,000ft.			
SAWTOOTH CLIMBS & DESCENTS	Reduce throttle to idle, descend at 75 KIAS to 3,000ft			
	Full throttle climb at 135 KIAS to 8,000ft.			
	Reduce throttle to idle, descend at 135 KIAS to 3,000ft			
	Full throttle climb at 125 KIAS to 8,000ft.			
	Reduce throttle to idle, descend at 125 KIAS to 3,000ft			
	Full throttle climb at 120 KIAS to 8,000ft.			
	Reduce throttle to idle, descend at 120 KIAS to 3,000ft			
	Full throttle climb at 90 KIAS to 8,000ft.			
	Reduce throttle to idle, descend at 90 KIAS to 3,000ft			

SAWTOOTH CLIMBS & DESCENTS	Full throttle climb at 100 KIAS to 8,000ft.	
	Reduce throttle to idle, descend at 100 KIAS to 3,000ft	
	Full throttle climb at 95 KIAS to 8,000ft.	
	Reduce throttle to idle, descend at 95 KIAS to 3,000ft	
	Full throttle climb at 80 KIAS to 8,000ft.	
	Reduce throttle to idle, descend at 80 KIAS to 3,000ft	
	Full throttle climb at115 KIAS to 8,000ft.	
	Reduce throttle to idle, descend at 115 KIAS to 3,000ft	
	Full throttle climb at 130 KIAS to 8,000ft.	
	Reduce throttle to idle, descend at 130 KIAS to 3,000ft	
	Full throttle climb at 105 KIAS to 8,000ft.	
	Reduce throttle to idle, descend at 105 KIAS to 3,000ft	
	Full throttle climb at 85 KIAS to 8,000ft.	
	Reduce throttle to idle, descend at 85 KIAS to 3,000ft	
	Full throttle climb at 110 KIAS to 8,000ft.	
	Reduce throttle to idle, descend at 110 KIAS to 3,000ft	
LAND	Announce to tower: “Experimental 753C(harlie)Z(ulu) returning to airport.”	
	Use landing checklist, maintain 90 KIAS downwind, 85 KIAS final, touchdown 75 KIAS.	
INSPECT	Debrief Flight. Examine engine for oil and fuel leaks. Identify and correct cause of any leaks. Correct all squawks	
	Refuel to original quantity, noting fuel added	FUEL ADDED
	Download EFIS data to laptop. Calculate Takeoff & landing distance, ROC from 75 to 135 KIAS and ROD from 75 to 135 KIAS	

17. 15TH FLIGHT: FORWARD CG – LIGHT WEIGHT: STALLS & LONGITUDINAL STABILITY

PRIMARY	PILOT	START TIME	WIND	CEILING
	SAFETY CREW	SHUTDOWN TIME	VISIBILITY	TEMP/DEW POINT
	DATE	AIRPORT	CLOUD COVER	ALTIMETER
	FUEL	WEIGHT	CG POSITION	HOBBS
NAV/COM/GPS	COM		NAV	
	COM 1 XMT/RCV	COM 1 FLIP/FLOP	NAV 1 RCV	NAV 1 FLIP/FLOP
	COM 2 XMT/RCV	COM 2 FLIP/FLOP	NAV 2 RCV	NAV 2 FLIP/FLOP
	GPS			
TAKE-OFF	**Do not exceed oil temperature of 220°F or CHT of 425°F**			
	Start engine and verify oil pressure within 30 seconds			
	Announce to tower: “Experimental 753C(harlie)Z(ulu) departing runway 25 Right, Phase 1 test flight, remaining over airport at 8,000 feet.”			
	Take off and climb at 125 KIAS, circling climb to the right above airport. Maintain heading between 3,000 and 8,000ft.			
STALL SERIES	Power as required to maintain 8,000ft. Pitch up until nose bobs and maintain altitude.			
	Increase power to 95 KIAS, enter a right turn of 15 degrees bank. Power as required to maintain 8,000 ft. Maintaining 15 degree bank, pitch up until nose bobs.			
	Increase power to 95 KIAS, enter a left turn of 15 degrees bank. Power as required to maintain 8,000 ft. Maintaining 15 degree bank, pitch up until nose bobs.			
	Increase power to 95 KIAS, enter a right turn of 30 degrees bank. Power as required to maintain 8,000 ft. Maintaining 30 degree bank, pitch up until nose bobs.			
	Increase power to 95 KIAS, enter a left turn of 30 degrees bank. Power as required to maintain 8,000 ft. Maintaining 30 degree bank, pitch up until nose bobs.			
	Increase power to 95 KIAS, enter a right turn of 45 degrees bank. Power as required to maintain 8,000 ft. Maintaining 45 degree bank, pitch up until nose bobs.			
	Increase power to 95 KIAS, enter a left turn of 45 degrees bank. Power as required to maintain 8,000 ft. Maintaining 45 degree bank, pitch up until nose bobs.			
	Increase power to 95 KIAS, enter a right turn of 60 degrees bank. Power as required to maintain 8,000 ft. Maintaining 60 degree bank, pitch up until nose bobs.			
	Increase power to 95 KIAS, enter a left turn of 60 degrees bank. Power as required to maintain 8,000 ft. Maintaining 60 degree bank, pitch up until nose bobs.			
STATIC LONGITUDINAL STABILITY	Power and trim as required to maintain 8,000ft, 125 KIAS.			
	Pull elevator to stabilize at 110 KIAS. Do not re-trim. Verify that a continued pull force is required to maintain 110 KIAS.			
	Pull elevator to stabilize at 100 KIAS. Do not re-trim. Verify that a continued pull force is required to maintain 100 KIAS.			
	Return to 8,000ft, 125 KIAS, trim for level flight. Note trim adjustment required.			
	Push elevator to stabilize at 140 KIAS. Do not re-trim. Verify that a continued push force is required to maintain 140 KIAS.			
	Push elevator to stabilize at 150 KIAS. Do not re-trim. Verify that a continued push force is required to maintain 150 KIAS.			
	Return to 8,000ft, 125 KIAS. Note trim adjustment required.			
SHOR	With a smooth, but fairly rapid motion, push the nose down several degrees. Quickly reverse the push to a pull and return to the trim attitude. Release the stick, but maintain your hand near the stick.			

	Note the response of the aircraft to the elevator input, noting the amount of pitch divergence and number of oscillations to return to trim condition.	
	Return to 8,000ft, 125 KIAS. Note trim adjustment required.	
	With a smooth, but fairly rapid motion, pull the nose up several degrees. Quickly reverse the pull to a push and return to the trim attitude. Release the stick, but maintain your hand near the stick.	
	Note the response of the aircraft to the elevator input, noting the amount of pitch divergence and number of oscillations to return to trim condition.	
	Return to 8,000ft, 125 KIAS. Note trim adjustment required.	
LONG-PERIOD DYNAMIC	Without re-trimming, push the stick forward to increase airspeed to 130 KIAS and release the stick.	
	Note the response of the aircraft to the elevator input, noting the amount of pitch divergence, number of oscillations to return to trim condition, and final trim airspeed.	
	Return to 8,000ft, 125 KIAS. Note trim adjustment required.	
	Without re-trimming, pull the stick back to decrease airspeed to 120 KIAS and release the stick.	
	Note the response of the aircraft to the elevator input, noting the amount of pitch divergence, number of oscillations to return to trim condition, and final trim airspeed.	
	Return to 8,000ft, 125 KIAS. Note trim adjustment required.	
DESCENT	Reduce throttle to idle, descend at 95 KIAS to 3,000ft	
	Announce to tower: “Experimental 753C(harlie)Z(ulu) returning to airport.”	
	Use landing checklist, maintain 90 KIAS downwind, 85 KIAS final, touchdown 75 KIAS.	
INSPEC	Debrief Flight. Examine engine for oil and fuel leaks. Identify and correct cause of any leaks. Correct all squawks	
	Refuel to original quantity, noting fuel added	FUEL ADDED

	Download EFIS data to laptop. Calculate Takeoff & landing distance, V_S at bank angles of 0, 15, 30, 45, and 60 degrees, short-period stability plot, and long-period stability plot

18. 16TH FLIGHT: AFT CG – LIGHT WEIGHT: CLIMBS & DESCENTS

PRIMARY	PILOT	START TIME	WIND	CEILING
	SAFETY CREW	SHUTDOWN TIME	VISIBILITY	TEMP/DEW POINT
	DATE	AIRPORT	CLOUD COVER	ALTIMETER
	FUEL	WEIGHT	CG POSITION	HOBBS
NAV/COM/GPS	COM		NAV	
	COM 1 XMT/RCV	COM 1 FLIP/FLOP	NAV 1 RCV	NAV 1 FLIP/FLOP
	COM 2 XMT/RCV	COM 2 FLIP/FLOP	NAV 2 RCV	NAV 2 FLIP/FLOP
	GPS			
TAKE-OFF	**Do not exceed oil temperature of 220°F or CHT of 425°F**			
	Start engine and verify oil pressure within 30 seconds			
	Announce to tower: “Experimental 753C(harlie)Z(ulu) departing runway 25 Right, Phase 1 test flight, remaining over airport at 8,000 feet.”			
	Take off and climb at 125 KIAS, circling climb to the right above airport. Maintain heading between 3,000 and 8,000ft.			
SAWTOOTH CLIMBS & DESCENTS	Reduce throttle to idle, descend at 125 KIAS to 3,000ft			
	Full throttle climb at 110 KIAS to 8,000ft.			
	Reduce throttle to idle, descend at 110 KIAS to 3,000ft			
	Full throttle climb at 125 KIAS to 8,000ft.			
	Reduce throttle to idle, descend at 125 KIAS to 3,000ft			
	Full throttle climb at 100 KIAS to 8,000ft.			
	Reduce throttle to idle, descend at 100 KIAS to 3,000ft			
	Full throttle climb at 90 KIAS to 8,000ft.			
	Reduce throttle to idle, descend at 90 KIAS to 3,000ft			

SAWTOOTH CLIMBS & DESCENTS	Full throttle climb at 85 KIAS to 8,000ft.	
	Reduce throttle to idle, descend at 85 KIAS to 3,000ft	
	Full throttle climb at 115 KIAS to 8,000ft.	
	Reduce throttle to idle, descend at 115 KIAS to 3,000ft	
	Full throttle climb at 75 KIAS to 8,000ft.	
	Reduce throttle to idle, descend at 75 KIAS to 3,000ft	
	Full throttle climb at130 KIAS to 8,000ft.	
	Reduce throttle to idle, descend at 130 KIAS to 3,000ft	
	Full throttle climb at 80 KIAS to 8,000ft.	
	Reduce throttle to idle, descend at 80 KIAS to 3,000ft	
	Full throttle climb at 95 KIAS to 8,000ft.	
	Reduce throttle to idle, descend at 95 KIAS to 3,000ft	
	Full throttle climb at 105 KIAS to 8,000ft.	
	Reduce throttle to idle, descend at 105 KIAS to 3,000ft	
	Full throttle climb at 135 KIAS to 8,000ft.	
	Reduce throttle to idle, descend at 135 KIAS to 3,000ft	
LAND	Announce to tower: “Experimental 753C(harlie)Z(ulu) returning to airport.”	
	Use landing checklist, maintain 90 KIAS downwind, 85 KIAS final, touchdown 75 KIAS.	
INSPECT	Debrief Flight. Examine engine for oil and fuel leaks. Identify and correct cause of any leaks. Correct all squawks	
	Refuel to original quantity, noting fuel added	FUEL ADDED
	Download EFIS data to laptop. Calculate Takeoff & landing distance, ROC from 75 to 135 KIAS and ROD from 75 to 135 KIAS	

19. 17TH FLIGHT: AFT CG – LIGHT WEIGHT: STALLS & LONGITUDINAL STABILITY

PRIMARY	PILOT	START TIME	WIND	CEILING
	SAFETY CREW	SHUTDOWN TIME	VISIBILITY	TEMP/DEW POINT
	DATE	AIRPORT	CLOUD COVER	ALTIMETER
	FUEL	WEIGHT	CG POSITION	HOBBS
NAV/COM/GPS	COM		NAV	
	COM 1 XMT/RCV	COM 1 FLIP/FLOP	NAV 1 RCV	NAV 1 FLIP/FLOP
	COM 2 XMT/RCV	COM 2 FLIP/FLOP	NAV 2 RCV	NAV 2 FLIP/FLOP
	GPS			
TAKE-OFF	**Do not exceed oil temperature of 220°F or CHT of 425°F**			
	Start engine and verify oil pressure within 30 seconds			
	Announce to tower: “Experimental 753C(harlie)Z(ulu) departing runway 25 Right, Phase 1 test flight, remaining over airport at 8,000 feet.”			
	Take off and climb at 125 KIAS, circling climb to the right above airport. Maintain heading between 3,000 and 8,000ft.			
STALL SERIES	Power as required to maintain 8,000ft. Pitch up until nose bobs and maintain altitude.			
	Increase power to 95 KIAS, enter a right turn of 15 degrees bank. Power as required to maintain 8,000 ft. Maintaining 15 degree bank, pitch up until nose bobs.			
	Increase power to 95 KIAS, enter a left turn of 15 degrees bank. Power as required to maintain 8,000 ft. Maintaining 15 degree bank, pitch up until nose bobs.			
	Increase power to 95 KIAS, enter a right turn of 30 degrees bank. Power as required to maintain 8,000 ft. Maintaining 30 degree bank, pitch up until nose bobs.			
	Increase power to 95 KIAS, enter a left turn of 30 degrees bank. Power as required to maintain 8,000 ft. Maintaining 30 degree bank, pitch up until nose bobs.			
	Increase power to 95 KIAS, enter a right turn of 45 degrees bank. Power as required to maintain 8,000 ft. Maintaining 45 degree bank, pitch up until nose bobs.			
	Increase power to 95 KIAS, enter a left turn of 45 degrees bank. Power as required to maintain 8,000 ft. Maintaining 45 degree bank, pitch up until nose bobs.			
	Increase power to 95 KIAS, enter a right turn of 60 degrees bank. Power as required to maintain 8,000 ft. Maintaining 60 degree bank, pitch up until nose bobs.			
	Increase power to 95 KIAS, enter a left turn of 60 degrees bank. Power as required to maintain 8,000 ft. Maintaining 60 degree bank, pitch up until nose bobs.			
STATIC LONGITUDINAL STABILITY	Power and trim as required to maintain 8,000ft, 125 KIAS.			
	Pull elevator to stabilize at 110 KIAS. Do not re-trim. Verify that a continued pull force is required to maintain 110 KIAS.			
	Pull elevator to stabilize at 100 KIAS. Do not re-trim. Verify that a continued pull force is required to maintain 100 KIAS.			
	Return to 8,000ft, 125 KIAS, trim for level flight. Note trim adjustment required.			
	Push elevator to stabilize at 140 KIAS. Do not re-trim. Verify that a continued push force is required to maintain 140 KIAS.			
	Push elevator to stabilize at 150 KIAS. Do not re-trim. Verify that a continued push force is required to maintain 150 KIAS.			
	Return to 8,000ft, 125 KIAS. Note trim adjustment required.			
SHOR	With a smooth, but fairly rapid motion, push the nose down several degrees. Quickly reverse the push to a pull and return to the trim attitude. Release the stick, but maintain your hand near the stick.			

	Note the response of the aircraft to the elevator input, noting the amount of pitch divergence and number of oscillations to return to trim condition.	
	Return to 8,000ft, 125 KIAS. Note trim adjustment required.	
	With a smooth, but fairly rapid motion, pull the nose up several degrees. Quickly reverse the pull to a push and return to the trim attitude. Release the stick, but maintain your hand near the stick.	
	Note the response of the aircraft to the elevator input, noting the amount of pitch divergence and number of oscillations to return to trim condition.	
	Return to 8,000ft, 125 KIAS. Note trim adjustment required.	
LONG-PERIOD DYNAMIC	Without re-trimming, push the stick forward to increase airspeed to 130 KIAS and release the stick.	
	Note the response of the aircraft to the elevator input, noting the amount of pitch divergence, number of oscillations to return to trim condition, and final trim airspeed.	
	Return to 8,000ft, 125 KIAS. Note trim adjustment required.	
	Without re-trimming, pull the stick back to decrease airspeed to 125 KIAS and release the stick.	
	Note the response of the aircraft to the elevator input, noting the amount of pitch divergence, number of oscillations to return to trim condition, and final trim airspeed.	
	Return to 8,000ft, 125 KIAS. Note trim adjustment required.	
DESCENT	Reduce throttle to idle, descend at 95 KIAS to 3,000ft	
	Announce to tower: “Experimental 753C(harlie)Z(ulu) returning to airport.”	
	Use landing checklist, maintain 90 KIAS downwind, 85 KIAS final, touchdown 75 KIAS.	
INSPECT	Debrief Flight. Examine engine for oil and fuel leaks. Identify and correct cause of any leaks. Correct all squawks	
	Refuel to original quantity, noting fuel added	FUEL ADDED
	Download EFIS data to laptop. Calculate Takeoff & landing distance, V_S at bank angles of 0, 15, 30, 45, and 60 degrees, short-period stability plot, and long-period stability plot	

20. 18TH FLIGHT: MID CG – MID WEIGHT: CLIMBS & DESCENTS

PRIMARY	PILOT	START TIME	WIND	CEILING
	SAFETY CREW	SHUTDOWN TIME	VISIBILITY	TEMP/DEW POINT
	DATE	AIRPORT	CLOUD COVER	ALTIMETER
	FUEL	WEIGHT	CG POSITION	HOBBS
NAV/COM/GPS	COM		NAV	
	COM 1 XMT/RCV	COM 1 FLIP/FLOP	NAV 1 RCV	NAV 1 FLIP/FLOP
	COM 2 XMT/RCV	COM 2 FLIP/FLOP	NAV 2 RCV	NAV 2 FLIP/FLOP
	GPS			
TAKE-OFF	**Do not exceed oil temperature of 220°F or CHT of 425°F**			
	Start engine and verify oil pressure within 30 seconds			
	Announce to tower: “Experimental 753C(harlie)Z(ulu) departing runway 25 Right, Phase 1 test flight, remaining over airport at 8,000 feet.”			
	Take off and climb at 135 KIAS, circling climb to the right above airport. Maintain heading between 3,000 and 8,000ft.			
SAWTOOTH CLIMBS & DESCENTS	Reduce throttle to idle, descend at 135 KIAS to 3,000ft			
	Full throttle climb at 130 KIAS to 8,000ft.			
	Reduce throttle to idle, descend at 130 KIAS to 3,000ft			
	Full throttle climb at 100 KIAS to 8,000ft.			
	Reduce throttle to idle, descend at 100 KIAS to 3,000ft			
	Full throttle climb at 95 KIAS to 8,000ft.			
	Reduce throttle to idle, descend at 95 KIAS to 3,000ft			
	Full throttle climb at 85 KIAS to 8,000ft.			
	Reduce throttle to idle, descend at 85 KIAS to 3,000ft			

SAWTOOTH CLIMBS & DESCENTS	Full throttle climb at 80 KIAS to 8,000ft.	
	Reduce throttle to idle, descend at 80 KIAS to 3,000ft	
	Full throttle climb at 115 KIAS to 8,000ft.	
	Reduce throttle to idle, descend at 115 KIAS to 3,000ft	
	Full throttle climb at 105 KIAS to 8,000ft.	
	Reduce throttle to idle, descend at 105 KIAS to 3,000ft	
	Full throttle climb at125 KIAS to 8,000ft.	
	Reduce throttle to idle, descend at 125 KIAS to 3,000ft	
	Full throttle climb at 120 KIAS to 8,000ft.	
	Reduce throttle to idle, descend at 120 KIAS to 3,000ft	
	Full throttle climb at 75 KIAS to 8,000ft.	
	Reduce throttle to idle, descend at 75 KIAS to 3,000ft	
	Full throttle climb at 110 KIAS to 8,000ft.	
	Reduce throttle to idle, descend at 110 KIAS to 3,000ft	
	Full throttle climb at 90 KIAS to 8,000ft.	
	Reduce throttle to idle, descend at 90 KIAS to 3,000ft	
LAND	Announce to tower: “Experimental 753C(harlie)Z(ulu) returning to airport.”	
	Use landing checklist, maintain 90 KIAS downwind, 85 KIAS final, touchdown 75 KIAS.	
INSPECT	Debrief Flight. Examine engine for oil and fuel leaks. Identify and correct cause of any leaks. Correct all squawks	
	Refuel to original quantity, noting fuel added	FUEL ADDED
	Download EFIS data to laptop. Calculate Takeoff & landing distance, ROC from 75 to 135 KIAS and ROD from 75 to 135 KIAS	

21. 19TH FLIGHT: MID CG – MID WEIGHT: STALLS & LONGITUDINAL STABILITY

PRIMARY	PILOT	START TIME	WIND	CEILING
	SAFETY CREW	SHUTDOWN TIME	VISIBILITY	TEMP/DEW POINT
	DATE	AIRPORT	CLOUD COVER	ALTIMETER
	FUEL	WEIGHT	CG POSITION	HOBBS
NAV/COM/GPS	COM		NAV	
	COM 1 XMT/RCV	COM 1 FLIP/FLOP	NAV 1 RCV	NAV 1 FLIP/FLOP
	COM 2 XMT/RCV	COM 2 FLIP/FLOP	NAV 2 RCV	NAV 2 FLIP/FLOP
	GPS			
TAKE-OFF	**Do not exceed oil temperature of 220°F or CHT of 425°F**			
	Start engine and verify oil pressure within 30 seconds			
	Announce to tower: “Experimental 753C(harlie)Z(ulu) departing runway 25 Right, Phase 1 test flight, remaining over airport at 8,000 feet.”			
	Take off and climb at 125 KIAS, circling climb to the right above airport. Maintain heading between 3,000 and 8,000ft.			
STALL SERIES	Power as required to maintain 8,000ft. Pitch up until nose bobs and maintain altitude.			
	Increase power to 95 KIAS, enter a right turn of 15 degrees bank. Power as required to maintain 8,000 ft. Maintaining 15 degree bank, pitch up until nose bobs.			
	Increase power to 95 KIAS, enter a left turn of 15 degrees bank. Power as required to maintain 8,000 ft. Maintaining 15 degree bank, pitch up until nose bobs.			
	Increase power to 95 KIAS, enter a right turn of 30 degrees bank. Power as required to maintain 8,000 ft. Maintaining 30 degree bank, pitch up until nose bobs.			
	Increase power to 95 KIAS, enter a left turn of 30 degrees bank. Power as required to maintain 8,000 ft. Maintaining 30 degree bank, pitch up until nose bobs.			
	Increase power to 95 KIAS, enter a right turn of 45 degrees bank. Power as required to maintain 8,000 ft. Maintaining 45 degree bank, pitch up until nose bobs.			
	Increase power to 95 KIAS, enter a left turn of 45 degrees bank. Power as required to maintain 8,000 ft. Maintaining 45 degree bank, pitch up until nose bobs.			
	Increase power to 95 KIAS, enter a right turn of 60 degrees bank. Power as required to maintain 8,000 ft. Maintaining 60 degree bank, pitch up until nose bobs.			
	Increase power to 95 KIAS, enter a left turn of 60 degrees bank. Power as required to maintain 8,000 ft. Maintaining 60 degree bank, pitch up until nose bobs.			
STATIC LONGITUDINAL STABILITY	Power and trim as required to maintain 8,000ft, 125 KIAS.			
	Pull elevator to stabilize at 110 KIAS. Do not re-trim. Verify that a continued pull force is required to maintain 110 KIAS.			
	Pull elevator to stabilize at 100 KIAS. Do not re-trim. Verify that a continued pull force is required to maintain 100 KIAS.			
	Return to 8,000ft, 125 KIAS, trim for level flight. Note trim adjustment required.			
	Push elevator to stabilize at 140 KIAS. Do not re-trim. Verify that a continued push force is required to maintain 140 KIAS.			
	Push elevator to stabilize at 150 KIAS. Do not re-trim. Verify that a continued push force is required to maintain 150 KIAS.			
	Return to 8,000ft, 125 KIAS. Note trim adjustment required.			
SHOR	With a smooth, but fairly rapid motion, push the nose down several degrees. Quickly reverse the push to a pull and return to the trim attitude. Release the stick, but maintain your hand near the stick.			

	Note the response of the aircraft to the elevator input, noting the amount of pitch divergence and number of oscillations to return to trim condition.	
	Return to 8,000ft, 125 KIAS. Note trim adjustment required.	
	With a smooth, but fairly rapid motion, pull the nose up several degrees. Quickly reverse the pull to a push and return to the trim attitude. Release the stick, but maintain your hand near the stick.	
	Note the response of the aircraft to the elevator input, noting the amount of pitch divergence and number of oscillations to return to trim condition.	
	Return to 8,000ft, 125 KIAS. Note trim adjustment required.	
LONG-PERIOD DYNAMIC	Without re-trimming, push the stick forward to increase airspeed to 130 KIAS and release the stick.	
	Note the response of the aircraft to the elevator input, noting the amount of pitch divergence, number of oscillations to return to trim condition, and final trim airspeed.	
	Return to 8,000ft, 125 KIAS. Note trim adjustment required.	
	Without re-trimming, pull the stick back to decrease airspeed to 120 KIAS and release the stick.	
	Note the response of the aircraft to the elevator input, noting the amount of pitch divergence, number of oscillations to return to trim condition, and final trim airspeed.	
	Return to 8,000ft, 125 KIAS. Note trim adjustment required.	
DESCENT	Reduce throttle to idle, descend at 95 KIAS to 3,000ft	
	Announce to tower: “Experimental 753C(harlie)Z(ulu) returning to airport.”	
	Use landing checklist, maintain 90 KIAS downwind, 85 KIAS final, touchdown 75 KIAS.	
INSPEC	Debrief Flight. Examine engine for oil and fuel leaks. Identify and correct cause of any leaks. Correct all squawks	
	Refuel to original quantity, noting fuel added	FUEL ADDED

	Download EFIS data to laptop. Calculate Takeoff & landing distance, V_S at bank angles of 0, 15, 30, 45, and 60 degrees, short-period stability plot, and long-period stability plot

22. 20TH FLIGHT: FORWARD CG – MID WEIGHT: CLIMBS & DESCENTS

PRIMARY	PILOT	START TIME	WIND	CEILING
	SAFETY CREW	SHUTDOWN TIME	VISIBILITY	TEMP/DEW POINT
	DATE	AIRPORT	CLOUD COVER	ALTIMETER
	FUEL	WEIGHT	CG POSITION	HOBBS
NAV/COM/GPS	COM		NAV	
	COM 1 XMT/RCV	COM 1 FLIP/FLOP	NAV 1 RCV	NAV 1 FLIP/FLOP
	COM 2 XMT/RCV	COM 2 FLIP/FLOP	NAV 2 RCV	NAV 2 FLIP/FLOP
	GPS			
TAKE-OFF	**Do not exceed oil temperature of 220°F or CHT of 425°F**			
	Start engine and verify oil pressure within 30 seconds			
	Announce to tower: “Experimental 753C(harlie)Z(ulu) departing runway 25 Right, Phase 1 test flight, remaining over airport at 8,000 feet.”			
	Take off and climb at 115 KIAS, circling climb to the right above airport. Maintain heading between 3,000 and 8,000ft.			
SAWTOOTH CLIMBS & DESCENTS	Reduce throttle to idle, descend at 115 KIAS to 3,000ft			
	Full throttle climb at 135 KIAS to 8,000ft.			
	Reduce throttle to idle, descend at 135 KIAS to 3,000ft			
	Full throttle climb at 75 KIAS to 8,000ft.			
	Reduce throttle to idle, descend at 75 KIAS to 3,000ft			
	Full throttle climb at 130 KIAS to 8,000ft.			
	Reduce throttle to idle, descend at 130 KIAS to 3,000ft			
	Full throttle climb at 125 KIAS to 8,000ft.			
	Reduce throttle to idle, descend at 125 KIAS to 3,000ft			

SAWTOOTH CLIMBS & DESCENTS	Full throttle climb at 80 KIAS to 8,000ft.	
	Reduce throttle to idle, descend at 80 KIAS to 3,000ft	
	Full throttle climb at 100 KIAS to 8,000ft.	
	Reduce throttle to idle, descend at 100 KIAS to 3,000ft	
	Full throttle climb at 120 KIAS to 8,000ft.	
	Reduce throttle to idle, descend at 120 KIAS to 3,000ft	
	Full throttle climb at 95 KIAS to 8,000ft.	
	Reduce throttle to idle, descend at 95 KIAS to 3,000ft	
	Full throttle climb at 90 KIAS to 8,000ft.	
	Reduce throttle to idle, descend at 90 KIAS to 3,000ft	
	Full throttle climb at 110 KIAS to 8,000ft.	
	Reduce throttle to idle, descend at 110 KIAS to 3,000ft	
	Full throttle climb at 85 KIAS to 8,000ft.	
	Reduce throttle to idle, descend at 85 KIAS to 3,000ft	
	Full throttle climb at 105 KIAS to 8,000ft.	
	Reduce throttle to idle, descend at 105 KIAS to 3,000ft	
LAND	Announce to tower: “Experimental 753C(harlie)Z(ulu) returning to airport.”	
	Use landing checklist, maintain 90 KIAS downwind, 85 KIAS final, touchdown 75 KIAS.	
INSPECT	Debrief Flight. Examine engine for oil and fuel leaks. Identify and correct cause of any leaks. Correct all squawks	
	Refuel to original quantity, noting fuel added	FUEL ADDED
	Download EFIS data to laptop. Calculate Takeoff & landing distance, ROC from 75 to 135 KIAS and ROD from 75 to 135 KIAS	

23. 21ST FLIGHT: FORWARD CG – MID WEIGHT: STALLS & LONGITUDINAL STABILITY

PRIMARY	PILOT	START TIME	WIND	CEILING
	SAFETY CREW	SHUTDOWN TIME	VISIBILITY	TEMP/DEW POINT
	DATE	AIRPORT	CLOUD COVER	ALTIMETER
	FUEL	WEIGHT	CG POSITION	HOBBS
NAV/COM/GPS	COM		NAV	
	COM 1 XMT/RCV	COM 1 FLIP/FLOP	NAV 1 RCV	NAV 1 FLIP/FLOP
	COM 2 XMT/RCV	COM 2 FLIP/FLOP	NAV 2 RCV	NAV 2 FLIP/FLOP
	GPS			
TAKE-OFF	**Do not exceed oil temperature of 220°F or CHT of 425°F**			
	Start engine and verify oil pressure within 30 seconds			
	Announce to tower: “Experimental 753C(harlie)Z(ulu) departing runway 25 Right, Phase 1 test flight, remaining over airport at 8,000 feet.”			
	Take off and climb at 125 KIAS, circling climb to the right above airport. Maintain heading between 3,000 and 8,000ft.			
STALL SERIES	Power as required to maintain 8,000ft. Pitch up until nose bobs and maintain altitude.			
	Increase power to 95 KIAS, enter a right turn of 15 degrees bank. Power as required to maintain 8,000 ft. Maintaining 15 degree bank, pitch up until nose bobs.			
	Increase power to 95 KIAS, enter a left turn of 15 degrees bank. Power as required to maintain 8,000 ft. Maintaining 15 degree bank, pitch up until nose bobs.			
	Increase power to 95 KIAS, enter a right turn of 30 degrees bank. Power as required to maintain 8,000 ft. Maintaining 30 degree bank, pitch up until nose bobs.			
	Increase power to 95 KIAS, enter a left turn of 30 degrees bank. Power as required to maintain 8,000 ft. Maintaining 30 degree bank, pitch up until nose bobs.			
	Increase power to 95 KIAS, enter a right turn of 45 degrees bank. Power as required to maintain 8,000 ft. Maintaining 45 degree bank, pitch up until nose bobs.			
	Increase power to 95 KIAS, enter a left turn of 45 degrees bank. Power as required to maintain 8,000 ft. Maintaining 45 degree bank, pitch up until nose bobs.			
	Increase power to 95 KIAS, enter a right turn of 60 degrees bank. Power as required to maintain 8,000 ft. Maintaining 60 degree bank, pitch up until nose bobs.			
	Increase power to 95 KIAS, enter a left turn of 60 degrees bank. Power as required to maintain 8,000 ft. Maintaining 60 degree bank, pitch up until nose bobs.			
STATIC LONGITUDINAL STABILITY	Power and trim as required to maintain 8,000ft, 125 KIAS.			
	Pull elevator to stabilize at 110 KIAS. Do not re-trim. Verify that a continued pull force is required to maintain 110 KIAS.			
	Pull elevator to stabilize at 100 KIAS. Do not re-trim. Verify that a continued pull force is required to maintain 100 KIAS.			
	Return to 8,000ft, 125 KIAS, trim for level flight. Note trim adjustment required.			
	Push elevator to stabilize at 140 KIAS. Do not re-trim. Verify that a continued push force is required to maintain 140 KIAS.			
	Push elevator to stabilize at 150 KIAS. Do not re-trim. Verify that a continued push force is required to maintain 150 KIAS.			
	Return to 8,000ft, 125 KIAS. Note trim adjustment required.			
SHOR	With a smooth, but fairly rapid motion, push the nose down several degrees. Quickly reverse the push to a pull and return to the trim attitude. Release the stick, but maintain your hand near the stick.			

	Note the response of the aircraft to the elevator input, noting the amount of pitch divergence and number of oscillations to return to trim condition.	
	Return to 8,000ft, 125 KIAS. Note trim adjustment required.	
	With a smooth, but fairly rapid motion, pull the nose up several degrees. Quickly reverse the pull to a push and return to the trim attitude. Release the stick, but maintain your hand near the stick.	
	Note the response of the aircraft to the elevator input, noting the amount of pitch divergence and number of oscillations to return to trim condition.	
	Return to 8,000ft, 125 KIAS. Note trim adjustment required.	
LONG-PERIOD DYNAMIC	Without re-trimming, push the stick forward to increase airspeed to 130 KIAS and release the stick.	
	Note the response of the aircraft to the elevator input, noting the amount of pitch divergence, number of oscillations to return to trim condition, and final trim airspeed.	
	Return to 8,000ft, 125 KIAS. Note trim adjustment required.	
	Without re-trimming, pull the stick back to decrease airspeed to 120 KIAS and release the stick.	
	Note the response of the aircraft to the elevator input, noting the amount of pitch divergence, number of oscillations to return to trim condition, and final trim airspeed.	
	Return to 8,000ft, 125 KIAS. Note trim adjustment required.	
DESCENT	Reduce throttle to idle, descend at 95 KIAS to 3,000ft	
	Announce to tower: “Experimental 753C(harlie)Z(ulu) returning to airport.”	
	Use landing checklist, maintain 90 KIAS downwind, 85 KIAS final, touchdown 75 KIAS.	
INSPECT	Debrief Flight. Examine engine for oil and fuel leaks. Identify and correct cause of any leaks. Correct all squawks	
	Refuel to original quantity, noting fuel added	FUEL ADDED
	Download EFIS data to laptop. Calculate Takeoff & landing distance, V_S at bank angles of 0, 15, 30, 45, and 60 degrees, short-period stability plot, and long-period stability plot	

24. 22ND FLIGHT: AFT CG – MID WEIGHT: CLIMBS & DESCENTS

PRIMARY	PILOT	START TIME	WIND	CEILING
	SAFETY CREW	SHUTDOWN TIME	VISIBILITY	TEMP/DEW POINT
	DATE	AIRPORT	CLOUD COVER	ALTIMETER
	FUEL	WEIGHT	CG POSITION	HOBBS
NAV/COM/GPS	COM		NAV	
	COM 1 XMT/RCV	COM 1 FLIP/FLOP	NAV 1 RCV	NAV 1 FLIP/FLOP
	COM 2 XMT/RCV	COM 2 FLIP/FLOP	NAV 2 RCV	NAV 2 FLIP/FLOP
	GPS			
TAKE-OFF	**Do not exceed oil temperature of 220°F or CHT of 425°F**			
	Start engine and verify oil pressure within 30 seconds			
	Announce to tower: “Experimental 753C(harlie)Z(ulu) departing runway 25 Right, Phase 1 test flight, remaining over airport at 8,000 feet.”			
	Take off and climb at 135 KIAS, circling climb to the right above airport. Maintain heading between 3,000 and 8,000ft.			
SAWTOOTH CLIMBS & DESCENTS	Reduce throttle to idle, descend at 135 KIAS to 3,000ft			
	Full throttle climb at 80 KIAS to 8,000ft.			
	Reduce throttle to idle, descend at 80 KIAS to 3,000ft			
	Full throttle climb at 100 KIAS to 8,000ft.			
	Reduce throttle to idle, descend at 100 KIAS to 3,000ft			
	Full throttle climb at 110 KIAS to 8,000ft.			
	Reduce throttle to idle, descend at 110 KIAS to 3,000ft			
	Full throttle climb at 130 KIAS to 8,000ft.			
	Reduce throttle to idle, descend at 130 KIAS to 3,000ft			

SAWTOOTH CLIMBS & DESCENTS	Full throttle climb at 85 KIAS to 8,000ft.	
	Reduce throttle to idle, descend at 85 KIAS to 3,000ft	
	Full throttle climb at 95 KIAS to 8,000ft.	
	Reduce throttle to idle, descend at 95 KIAS to 3,000ft	
	Full throttle climb at 90 KIAS to 8,000ft.	
	Reduce throttle to idle, descend at 90 KIAS to 3,000ft	
	Full throttle climb at 75 KIAS to 8,000ft.	
	Reduce throttle to idle, descend at 75 KIAS to 3,000ft	
	Full throttle climb at 125 KIAS to 8,000ft.	
	Reduce throttle to idle, descend at 125 KIAS to 3,000ft	
	Full throttle climb at 120 KIAS to 8,000ft.	
	Reduce throttle to idle, descend at 120 KIAS to 3,000ft	
	Full throttle climb at 115 KIAS to 8,000ft.	
	Reduce throttle to idle, descend at 115 KIAS to 3,000ft	
	Full throttle climb at 105 KIAS to 8,000ft.	
	Reduce throttle to idle, descend at 105 KIAS to 3,000ft	
LAND	Announce to tower: “Experimental 753C(harlie)Z(ulu) returning to airport.”	
	Use landing checklist, maintain 90 KIAS downwind, 85 KIAS final, touchdown 75 KIAS.	
INSPECT	Debrief Flight. Examine engine for oil and fuel leaks. Identify and correct cause of any leaks. Correct all squawks	
	Refuel to original quantity, noting fuel added	FUEL ADDED
	Download EFIS data to laptop. Calculate Takeoff & landing distance, ROC from 75 to 135 KIAS and ROD from 75 to 135 KIAS	

25. 23RD FLIGHT: AFT CG – MID WEIGHT: STALLS & LONGITUDINAL STABILITY

PRIMARY	PILOT	START TIME	WIND	CEILING
	SAFETY CREW	SHUTDOWN TIME	VISIBILITY	TEMP/DEW POINT
	DATE	AIRPORT	CLOUD COVER	ALTIMETER
	FUEL	WEIGHT	CG POSITION	HOBBS
NAV/COM/GPS	COM		NAV	
	COM 1 XMT/RCV	COM 1 FLIP/FLOP	NAV 1 RCV	NAV 1 FLIP/FLOP
	COM 2 XMT/RCV	COM 2 FLIP/FLOP	NAV 2 RCV	NAV 2 FLIP/FLOP
	GPS			
TAKE-OFF	**Do not exceed oil temperature of 220°F or CHT of 425°F**			
	Start engine and verify oil pressure within 30 seconds			
	Announce to tower: “Experimental 753C(harlie)Z(ulu) departing runway 25 Right, Phase 1 test flight, remaining over airport at 8,000 feet.”			
	Take off and climb at 125 KIAS, circling climb to the right above airport. Maintain heading between 3,000 and 8,000ft.			
STALL SERIES	Power as required to maintain 8,000ft. Pitch up until nose bobs and maintain altitude.			
	Increase power to 95 KIAS, enter a right turn of 15 degrees bank. Power as required to maintain 8,000 ft. Maintaining 15 degree bank, pitch up until nose bobs.			
	Increase power to 95 KIAS, enter a left turn of 15 degrees bank. Power as required to maintain 8,000 ft. Maintaining 15 degree bank, pitch up until nose bobs.			
	Increase power to 95 KIAS, enter a right turn of 30 degrees bank. Power as required to maintain 8,000 ft. Maintaining 30 degree bank, pitch up until nose bobs.			
	Increase power to 95 KIAS, enter a left turn of 30 degrees bank. Power as required to maintain 8,000 ft. Maintaining 30 degree bank, pitch up until nose bobs.			
	Increase power to 95 KIAS, enter a right turn of 45 degrees bank. Power as required to maintain 8,000 ft. Maintaining 45 degree bank, pitch up until nose bobs.			
	Increase power to 95 KIAS, enter a left turn of 45 degrees bank. Power as required to maintain 8,000 ft. Maintaining 45 degree bank, pitch up until nose bobs.			
	Increase power to 95 KIAS, enter a right turn of 60 degrees bank. Power as required to maintain 8,000 ft. Maintaining 60 degree bank, pitch up until nose bobs.			
	Increase power to 95 KIAS, enter a left turn of 60 degrees bank. Power as required to maintain 8,000 ft. Maintaining 60 degree bank, pitch up until nose bobs.			
STATIC LONGITUDINAL STABILITY	Power and trim as required to maintain 8,000ft, 125 KIAS.			
	Pull elevator to stabilize at 110 KIAS. Do not re-trim. Verify that a continued pull force is required to maintain 110 KIAS.			
	Pull elevator to stabilize at 100 KIAS. Do not re-trim. Verify that a continued pull force is required to maintain 100 KIAS.			
	Return to 8,000ft, 125 KIAS, trim for level flight. Note trim adjustment required.			
	Push elevator to stabilize at 140 KIAS. Do not re-trim. Verify that a continued push force is required to maintain 140 KIAS.			
	Push elevator to stabilize at 150 KIAS. Do not re-trim. Verify that a continued push force is required to maintain 150 KIAS.			
	Return to 8,000ft, 125 KIAS. Note trim adjustment required.			
SHOR	With a smooth, but fairly rapid motion, push the nose down several degrees. Quickly reverse the push to a pull and return to the trim attitude. Release the stick, but maintain your hand near the stick.			

	Note the response of the aircraft to the elevator input, noting the amount of pitch divergence and number of oscillations to return to trim condition.	
	Return to 8,000ft, 125 KIAS. Note trim adjustment required.	
	With a smooth, but fairly rapid motion, pull the nose up several degrees. Quickly reverse the pull to a push and return to the trim attitude. Release the stick, but maintain your hand near the stick.	
	Note the response of the aircraft to the elevator input, noting the amount of pitch divergence and number of oscillations to return to trim condition.	
	Return to 8,000ft, 125 KIAS. Note trim adjustment required.	
LONG-PERIOD DYNAMIC	Without re-trimming, push the stick forward to increase airspeed to 130 KIAS and release the stick.	
	Note the response of the aircraft to the elevator input, noting the amount of pitch divergence, number of oscillations to return to trim condition, and final trim airspeed.	
	Return to 8,000ft, 125 KIAS. Note trim adjustment required.	
	Without re-trimming, pull the stick back to decrease airspeed to 120 KIAS and release the stick.	
	Note the response of the aircraft to the elevator input, noting the amount of pitch divergence, number of oscillations to return to trim condition, and final trim airspeed.	
	Return to 8,000ft, 125 KIAS. Note trim adjustment required.	
DESCENT	Reduce throttle to idle, descend at 95 KIAS to 3,000ft	
	Announce to tower: “Experimental 753C(harlie)Z(ulu) returning to airport.”	
	Use landing checklist, maintain 90 KIAS downwind, 85 KIAS final, touchdown 75 KIAS.	
INSPECT	Debrief Flight. Examine engine for oil and fuel leaks. Identify and correct cause of any leaks. Correct all squawks	
	Refuel to original quantity, noting fuel added	FUEL ADDED
	Download EFIS data to laptop. Calculate Takeoff & landing distance, V_S at bank angles of 0, 15, 30, 45, and 60 degrees, short-period stability plot, and long-period stability plot	

26. 24TH FLIGHT: MID CG – MAX GROSS: CLIMBS & DESCENTS

PRIMARY	PILOT	START TIME	WIND	CEILING
	SAFETY CREW	SHUTDOWN TIME	VISIBILITY	TEMP/DEW POINT
	DATE	AIRPORT	CLOUD COVER	ALTIMETER
	FUEL	WEIGHT	CG POSITION	HOBBS
NAV/COM/GPS	COM		NAV	
	COM 1 XMT/RCV	COM 1 FLIP/FLOP	NAV 1 RCV	NAV 1 FLIP/FLOP
	COM 2 XMT/RCV	COM 2 FLIP/FLOP	NAV 2 RCV	NAV 2 FLIP/FLOP
	GPS			
TAKE-OFF	**Do not exceed oil temperature of 220°F or CHT of 425°F**			
	Start engine and verify oil pressure within 30 seconds			
	Announce to tower: “Experimental 753C(harlie)Z(ulu) departing runway 25 Right, Phase 1 test flight, remaining over airport at 8,000 feet.”			
	Take off and climb at 75 KIAS, circling climb to the right above airport. Maintain heading between 3,000 and 8,000ft.			
SAWTOOTH CLIMBS & DESCENTS	Reduce throttle to idle, descend at 75 KIAS to 3,000ft			
	Full throttle climb at 120 KIAS to 8,000ft.			
	Reduce throttle to idle, descend at 120 KIAS to 3,000ft			
	Full throttle climb at 100 KIAS to 8,000ft.			
	Reduce throttle to idle, descend at 100 KIAS to 3,000ft			
	Full throttle climb at 95 KIAS to 8,000ft.			
	Reduce throttle to idle, descend at 95 KIAS to 3,000ft			
	Full throttle climb at 85 KIAS to 8,000ft.			
	Reduce throttle to idle, descend at 85 KIAS to 3,000ft			

SAWTOOTH CLIMBS & DESCENTS	Full throttle climb at 125 KIAS to 8,000ft.	
	Reduce throttle to idle, descend at 125 KIAS to 3,000ft	
	Full throttle climb at 90 KIAS to 8,000ft.	
	Reduce throttle to idle, descend at 90 KIAS to 3,000ft	
	Full throttle climb at 135 KIAS to 8,000ft.	
	Reduce throttle to idle, descend at 135 KIAS to 3,000ft	
	Full throttle climb at130 KIAS to 8,000ft.	
	Reduce throttle to idle, descend at 130 KIAS to 3,000ft	
	Full throttle climb at 105 KIAS to 8,000ft.	
	Reduce throttle to idle, descend at 105 KIAS to 3,000ft	
	Full throttle climb at 115 KIAS to 8,000ft.	
	Reduce throttle to idle, descend at 115 KIAS to 3,000ft	
	Full throttle climb at 110 KIAS to 8,000ft.	
	Reduce throttle to idle, descend at 110 KIAS to 3,000ft	
	Full throttle climb at 80 KIAS to 8,000ft.	
	Reduce throttle to idle, descend at 80 KIAS to 3,000ft	
LAND	Announce to tower: “Experimental 753C(harlie)Z(ulu) returning to airport.”	
	Use landing checklist, maintain 90 KIAS downwind, 85 KIAS final, touchdown 75 KIAS.	
INSPECT	Debrief Flight. Examine engine for oil and fuel leaks. Identify and correct cause of any leaks. Correct all squawks	
	Refuel to original quantity, noting fuel added	FUEL ADDED
	Download EFIS data to laptop. Calculate Takeoff & landing distance, ROC from 75 to 135 KIAS and ROD from 75 to 135 KIAS	

27. 25TH FLIGHT: MID CG – MAX GROSS: STALLS & LONGITUDINAL STABILITY

PRIMARY	PILOT	START TIME	WIND	CEILING
	SAFETY CREW	SHUTDOWN TIME	VISIBILITY	TEMP/DEW POINT
	DATE	AIRPORT	CLOUD COVER	ALTIMETER
	FUEL	WEIGHT	CG POSITION	HOBBS
NAV/COM/GPS	COM		NAV	
	COM 1 XMT/RCV	COM 1 FLIP/FLOP	NAV 1 RCV	NAV 1 FLIP/FLOP
	COM 2 XMT/RCV	COM 2 FLIP/FLOP	NAV 2 RCV	NAV 2 FLIP/FLOP
	GPS			
TAKE-OFF	**Do not exceed oil temperature of 220°F or CHT of 425°F**			
	Start engine and verify oil pressure within 30 seconds			
	Announce to tower: “Experimental 753C(harlie)Z(ulu) departing runway 25 Right, Phase 1 test flight, remaining over airport at 8,000 feet.”			
	Take off and climb at 125 KIAS, circling climb to the right above airport. Maintain heading between 3,000 and 8,000ft.			
STALL SERIES	Power as required to maintain 8,000ft. Pitch up until nose bobs and maintain altitude.			
	Increase power to 95 KIAS, enter a right turn of 15 degrees bank. Power as required to maintain 8,000 ft. Maintaining 15 degree bank, pitch up until nose bobs.			
	Increase power to 95 KIAS, enter a left turn of 15 degrees bank. Power as required to maintain 8,000 ft. Maintaining 15 degree bank, pitch up until nose bobs.			
	Increase power to 95 KIAS, enter a right turn of 30 degrees bank. Power as required to maintain 8,000 ft. Maintaining 30 degree bank, pitch up until nose bobs.			
	Increase power to 95 KIAS, enter a left turn of 30 degrees bank. Power as required to maintain 8,000 ft. Maintaining 30 degree bank, pitch up until nose bobs.			
	Increase power to 95 KIAS, enter a right turn of 45 degrees bank. Power as required to maintain 8,000 ft. Maintaining 45 degree bank, pitch up until nose bobs.			
	Increase power to 95 KIAS, enter a left turn of 45 degrees bank. Power as required to maintain 8,000 ft. Maintaining 45 degree bank, pitch up until nose bobs.			
	Increase power to 95 KIAS, enter a right turn of 60 degrees bank. Power as required to maintain 8,000 ft. Maintaining 60 degree bank, pitch up until nose bobs.			
	Increase power to 95 KIAS, enter a left turn of 60 degrees bank. Power as required to maintain 8,000 ft. Maintaining 60 degree bank, pitch up until nose bobs.			
STATIC LONGITUDINAL STABILITY	Power and trim as required to maintain 8,000ft, 125 KIAS.			
	Pull elevator to stabilize at 110 KIAS. Do not re-trim. Verify that a continued pull force is required to maintain 110 KIAS.			
	Pull elevator to stabilize at 100 KIAS. Do not re-trim. Verify that a continued pull force is required to maintain 100 KIAS.			
	Return to 8,000ft, 125 KIAS, trim for level flight. Note trim adjustment required.			
	Push elevator to stabilize at 140 KIAS. Do not re-trim. Verify that a continued push force is required to maintain 140 KIAS.			
	Push elevator to stabilize at 150 KIAS. Do not re-trim. Verify that a continued push force is required to maintain 150 KIAS.			
	Return to 8,000ft, 125 KIAS. Note trim adjustment required.			
SHOR	With a smooth, but fairly rapid motion, push the nose down several degrees. Quickly reverse the push to a pull and return to the trim attitude. Release the stick, but maintain your hand near the stick.			

	Note the response of the aircraft to the elevator input, noting the amount of pitch divergence and number of oscillations to return to trim condition.	
	Return to 8,000ft, 125 KIAS. Note trim adjustment required.	
	With a smooth, but fairly rapid motion, pull the nose up several degrees. Quickly reverse the pull to a push and return to the trim attitude. Release the stick, but maintain your hand near the stick.	
	Note the response of the aircraft to the elevator input, noting the amount of pitch divergence and number of oscillations to return to trim condition.	
	Return to 8,000ft, 125 KIAS. Note trim adjustment required.	
LONG-PERIOD DYNAMIC	Without re-trimming, push the stick forward to increase airspeed to 130 KIAS and release the stick.	
	Note the response of the aircraft to the elevator input, noting the amount of pitch divergence, number of oscillations to return to trim condition, and final trim airspeed.	
	Return to 8,000ft, 125 KIAS. Note trim adjustment required.	
	Without re-trimming, pull the stick back to decrease airspeed to 120 KIAS and release the stick.	
	Note the response of the aircraft to the elevator input, noting the amount of pitch divergence, number of oscillations to return to trim condition, and final trim airspeed.	
	Return to 8,000ft, 125 KIAS. Note trim adjustment required.	
DESCENT	Reduce throttle to idle, descend at 95 KIAS to 3,000ft	
	Announce to tower: “Experimental 753C(harlie)Z(ulu) returning to airport.”	
	Use landing checklist, maintain 90 KIAS downwind, 85 KIAS final, touchdown 75 KIAS.	
INSPECT	Debrief Flight. Examine engine for oil and fuel leaks. Identify and correct cause of any leaks. Correct all squawks	
	Refuel to original quantity, noting fuel added	FUEL ADDED
	Download EFIS data to laptop. Calculate Takeoff & landing distance, V_S at bank angles of 0, 15, 30, 45, and 60 degrees, short-period stability plot, and long-period stability plot	

28. 26TH FLIGHT: FORWARD CG – MAX GROSS: CLIMBS & DESCENTS

PRIMARY	PILOT	START TIME	WIND	CEILING
	SAFETY CREW	SHUTDOWN TIME	VISIBILITY	TEMP/DEW POINT
	DATE	AIRPORT	CLOUD COVER	ALTIMETER
	FUEL	WEIGHT	CG POSITION	HOBBS
NAV/COM/GPS	COM		NAV	
	COM 1 XMT/RCV	COM 1 FLIP/FLOP	NAV 1 RCV	NAV 1 FLIP/FLOP
	COM 2 XMT/RCV	COM 2 FLIP/FLOP	NAV 2 RCV	NAV 2 FLIP/FLOP
	GPS			
TAKE-OFF	**Do not exceed oil temperature of 220°F or CHT of 425°F**			
	Start engine and verify oil pressure within 30 seconds			
	Announce to tower: “Experimental 753C(harlie)Z(ulu) departing runway 25 Right, Phase 1 test flight, remaining over airport at 8,000 feet.”			
	Take off and climb at 115 KIAS, circling climb to the right above airport. Maintain heading between 3,000 and 8,000ft.			
SAWTOOTH CLIMBS & DESCENTS	Reduce throttle to idle, descend at 115 KIAS to 3,000ft			
	Full throttle climb at 130 KIAS to 8,000ft.			
	Reduce throttle to idle, descend at 130 KIAS to 3,000ft			
	Full throttle climb at 95 KIAS to 8,000ft.			
	Reduce throttle to idle, descend at 95 KIAS to 3,000ft			
	Full throttle climb at 105 KIAS to 8,000ft.			
	Reduce throttle to idle, descend at 105 KIAS to 3,000ft			
	Full throttle climb at 90 KIAS to 8,000ft.			
	Reduce throttle to idle, descend at 90 KIAS to 3,000ft			

SAWTOOTH CLIMBS & DESCENTS	Full throttle climb at 135 KIAS to 8,000ft.	
	Reduce throttle to idle, descend at 135 KIAS to 3,000ft	
	Full throttle climb at 110 KIAS to 8,000ft.	
	Reduce throttle to idle, descend at 110 KIAS to 3,000ft	
	Full throttle climb at 120 KIAS to 8,000ft.	
	Reduce throttle to idle, descend at 120 KIAS to 3,000ft	
	Full throttle climb at 85 KIAS to 8,000ft.	
	Reduce throttle to idle, descend at 85 KIAS to 3,000ft	
	Full throttle climb at 125 KIAS to 8,000ft.	
	Reduce throttle to idle, descend at 125 KIAS to 3,000ft	
	Full throttle climb at 80 KIAS to 8,000ft.	
	Reduce throttle to idle, descend at 80 KIAS to 3,000ft	
	Full throttle climb at 100 KIAS to 8,000ft.	
	Reduce throttle to idle, descend at 100 KIAS to 3,000ft	
	Full throttle climb at 75 KIAS to 8,000ft.	
	Reduce throttle to idle, descend at 75 KIAS to 3,000ft	
LAND	Announce to tower: “Experimental 753C(harlie)Z(ulu) returning to airport.”	
	Use landing checklist, maintain 90 KIAS downwind, 85 KIAS final, touchdown 75 KIAS.	
INSPECT	Debrief Flight. Examine engine for oil and fuel leaks. Identify and correct cause of any leaks. Correct all squawks	
	Refuel to original quantity, noting fuel added	FUEL ADDED
	Download EFIS data to laptop. Calculate Takeoff & landing distance, ROC from 75 to 135 KIAS and ROD from 75 to 135 KIAS	

29. 27TH FLIGHT: FORWARD CG – MAX GROSS: STALLS & LONGITUDINAL STABILITY

PRIMARY	PILOT	START TIME	WIND	CEILING
	SAFETY CREW	SHUTDOWN TIME	VISIBILITY	TEMP/DEW POINT
	DATE	AIRPORT	CLOUD COVER	ALTIMETER
	FUEL	WEIGHT	CG POSITION	HOBBS
NAV/COM/GPS	COM		NAV	
	COM 1 XMT/RCV	COM 1 FLIP/FLOP	NAV 1 RCV	NAV 1 FLIP/FLOP
	COM 2 XMT/RCV	COM 2 FLIP/FLOP	NAV 2 RCV	NAV 2 FLIP/FLOP
	GPS			
TAKE-OFF	**Do not exceed oil temperature of 220°F or CHT of 425°F**			
	Start engine and verify oil pressure within 30 seconds			
	Announce to tower: “Experimental 753C(harlie)Z(ulu) departing runway 25 Right, Phase 1 test flight, remaining over airport at 8,000 feet.”			
	Take off and climb at 125 KIAS, circling climb to the right above airport. Maintain heading between 3,000 and 8,000ft.			
STALL SERIES	Power as required to maintain 8,000ft. Pitch up until nose bobs and maintain altitude.			
	Increase power to 95 KIAS, enter a right turn of 15 degrees bank. Power as required to maintain 8,000 ft. Maintaining 15 degree bank, pitch up until nose bobs.			
	Increase power to 95 KIAS, enter a left turn of 15 degrees bank. Power as required to maintain 8,000 ft. Maintaining 15 degree bank, pitch up until nose bobs.			
	Increase power to 95 KIAS, enter a right turn of 30 degrees bank. Power as required to maintain 8,000 ft. Maintaining 30 degree bank, pitch up until nose bobs.			
	Increase power to 95 KIAS, enter a left turn of 30 degrees bank. Power as required to maintain 8,000 ft. Maintaining 30 degree bank, pitch up until nose bobs.			
	Increase power to 95 KIAS, enter a right turn of 45 degrees bank. Power as required to maintain 8,000 ft. Maintaining 45 degree bank, pitch up until nose bobs.			
	Increase power to 95 KIAS, enter a left turn of 45 degrees bank. Power as required to maintain 8,000 ft. Maintaining 45 degree bank, pitch up until nose bobs.			
	Increase power to 95 KIAS, enter a right turn of 60 degrees bank. Power as required to maintain 8,000 ft. Maintaining 60 degree bank, pitch up until nose bobs.			
	Increase power to 95 KIAS, enter a left turn of 60 degrees bank. Power as required to maintain 8,000 ft. Maintaining 60 degree bank, pitch up until nose bobs.			
STATIC LONGITUDINAL STABILITY	Power and trim as required to maintain 8,000ft, 125 KIAS.			
	Pull elevator to stabilize at 110 KIAS. Do not re-trim. Verify that a continued pull force is required to maintain 110 KIAS.			
	Pull elevator to stabilize at 100 KIAS. Do not re-trim. Verify that a continued pull force is required to maintain 100 KIAS.			
	Return to 8,000ft, 125 KIAS, trim for level flight. Note trim adjustment required.			
	Push elevator to stabilize at 140 KIAS. Do not re-trim. Verify that a continued push force is required to maintain 140 KIAS.			
	Push elevator to stabilize at 150 KIAS. Do not re-trim. Verify that a continued push force is required to maintain 150 KIAS.			
	Return to 8,000ft, 125 KIAS. Note trim adjustment required.			
SHOR	With a smooth, but fairly rapid motion, push the nose down several degrees. Quickly reverse the push to a pull and return to the trim attitude. Release the stick, but maintain your hand near the stick.			

	Note the response of the aircraft to the elevator input, noting the amount of pitch divergence and number of oscillations to return to trim condition.	
	Return to 8,000ft, 125 KIAS. Note trim adjustment required.	
	With a smooth, but fairly rapid motion, pull the nose up several degrees. Quickly reverse the pull to a push and return to the trim attitude. Release the stick, but maintain your hand near the stick.	
	Note the response of the aircraft to the elevator input, noting the amount of pitch divergence and number of oscillations to return to trim condition.	
	Return to 8,000ft, 125 KIAS. Note trim adjustment required.	
LONG-PERIOD DYNAMIC	Without re-trimming, push the stick forward to increase airspeed to 130 KIAS and release the stick.	
	Note the response of the aircraft to the elevator input, noting the amount of pitch divergence, number of oscillations to return to trim condition, and final trim airspeed.	
	Return to 8,000ft, 125 KIAS. Note trim adjustment required.	
	Without re-trimming, pull the stick back to decrease airspeed to 120 KIAS and release the stick.	
	Note the response of the aircraft to the elevator input, noting the amount of pitch divergence, number of oscillations to return to trim condition, and final trim airspeed.	
	Return to 8,000ft, 125 KIAS. Note trim adjustment required.	
DESCENT	Reduce throttle to idle, descend at 95 KIAS to 3,000ft	
	Announce to tower: “Experimental 753C(harlie)Z(ulu) returning to airport.”	
	Use landing checklist, maintain 90 KIAS downwind, 85 KIAS final, touchdown 75 KIAS.	
INSPECT	Debrief Flight. Examine engine for oil and fuel leaks. Identify and correct cause of any leaks. Correct all squawks	
	Refuel to original quantity, noting fuel added	FUEL ADDED
	Download EFIS data to laptop. Calculate Takeoff & landing distance, V_S at bank angles of 0, 15, 30, 45, and 60 degrees, short-period stability plot, and long-period stability plot	

30. 28TH FLIGHT: AFT CG – MAX GROSS: CLIMBS & DESCENTS

PRIMARY	PILOT	START TIME	WIND	CEILING
	SAFETY CREW	SHUTDOWN TIME	VISIBILITY	TEMP/DEW POINT
	DATE	AIRPORT	CLOUD COVER	ALTIMETER
	FUEL	WEIGHT	CG POSITION	HOBBS
NAV/COM/GPS	COM		NAV	
	COM 1 XMT/RCV	COM 1 FLIP/FLOP	NAV 1 RCV	NAV 1 FLIP/FLOP
	COM 2 XMT/RCV	COM 2 FLIP/FLOP	NAV 2 RCV	NAV 2 FLIP/FLOP
	GPS			
TAKE-OFF	**Do not exceed oil temperature of 220°F or CHT of 425°F**			
	Start engine and verify oil pressure within 30 seconds			
	Announce to tower: “Experimental 753C(harlie)Z(ulu) departing runway 25 Right, Phase 1 test flight, remaining over airport at 8,000 feet.”			
	Take off and climb at 80 KIAS, circling climb to the right above airport. Maintain heading between 3,000 and 8,000ft.			
SAWTOOTH CLIMBS & DESCENTS	Reduce throttle to idle, descend at 80 KIAS to 3,000ft			
	Full throttle climb at 130 KIAS to 8,000ft.			
	Reduce throttle to idle, descend at 130 KIAS to 3,000ft			
	Full throttle climb at 85 KIAS to 8,000ft.			
	Reduce throttle to idle, descend at 85 KIAS to 3,000ft			
	Full throttle climb at 105 KIAS to 8,000ft.			
	Reduce throttle to idle, descend at 105 KIAS to 3,000ft			
	Full throttle climb at 75 KIAS to 8,000ft.			
	Reduce throttle to idle, descend at 75 KIAS to 3,000ft			

SAWTOOTH CLIMBS & DESCENTS	Full throttle climb at 120 KIAS to 8,000ft.	
	Reduce throttle to idle, descend at 120 KIAS to 3,000ft	
	Full throttle climb at 100 KIAS to 8,000ft.	
	Reduce throttle to idle, descend at 100 KIAS to 3,000ft	
	Full throttle climb at 110 KIAS to 8,000ft.	
	Reduce throttle to idle, descend at 110 KIAS to 3,000ft	
	Full throttle climb at 115 KIAS to 8,000ft.	
	Reduce throttle to idle, descend at 115 KIAS to 3,000ft	
	Full throttle climb at 90 KIAS to 8,000ft.	
	Reduce throttle to idle, descend at 90 KIAS to 3,000ft	
	Full throttle climb at 135 KIAS to 8,000ft.	
	Reduce throttle to idle, descend at 135 KIAS to 3,000ft	
	Full throttle climb at 125 KIAS to 8,000ft.	
	Reduce throttle to idle, descend at 125 KIAS to 3,000ft	
	Full throttle climb at 95 KIAS to 8,000ft.	
	Reduce throttle to idle, descend at 95 KIAS to 3,000ft	
LAND	Announce to tower: “Experimental 753C(harlie)Z(ulu) returning to airport.”	
	Use landing checklist, maintain 90 KIAS downwind, 85 KIAS final, touchdown 75 KIAS.	
INSPECT	Debrief Flight. Examine engine for oil and fuel leaks. Identify and correct cause of any leaks. Correct all squawks	
	Refuel to original quantity, noting fuel added	FUEL ADDED
	Download EFIS data to laptop. Calculate Takeoff & landing distance, ROC from 75 to 135 KIAS and ROD from 75 to 135 KIAS	

31. 29TH FLIGHT: AFT CG – MAX GROSS: STALLS & LONGITUDINAL STABILITY

PRIMARY	PILOT	START TIME	WIND	CEILING
	SAFETY CREW	SHUTDOWN TIME	VISIBILITY	TEMP/DEW POINT
	DATE	AIRPORT	CLOUD COVER	ALTIMETER
	FUEL	WEIGHT	CG POSITION	HOBBS
NAV/COM/GPS	COM		NAV	
	COM 1 XMT/RCV	COM 1 FLIP/FLOP	NAV 1 RCV	NAV 1 FLIP/FLOP
	COM 2 XMT/RCV	COM 2 FLIP/FLOP	NAV 2 RCV	NAV 2 FLIP/FLOP
	GPS			
TAKE-OFF	**Do not exceed oil temperature of 220°F or CHT of 425°F**			
	Start engine and verify oil pressure within 30 seconds			
	Announce to tower: “Experimental 753C(harlie)Z(ulu) departing runway 25 Right, Phase 1 test flight, remaining over airport at 8,000 feet.”			
	Take off and climb at 125 KIAS, circling climb to the right above airport. Maintain heading between 3,000 and 8,000ft.			
STALL SERIES	Power as required to maintain 8,000ft. Pitch up until nose bobs and maintain altitude.			
	Increase power to 95 KIAS, enter a right turn of 15 degrees bank. Power as required to maintain 8,000 ft. Maintaining 15 degree bank, pitch up until nose bobs.			
	Increase power to 95 KIAS, enter a left turn of 15 degrees bank. Power as required to maintain 8,000 ft. Maintaining 15 degree bank, pitch up until nose bobs.			
	Increase power to 95 KIAS, enter a right turn of 30 degrees bank. Power as required to maintain 8,000 ft. Maintaining 30 degree bank, pitch up until nose bobs.			
	Increase power to 95 KIAS, enter a left turn of 30 degrees bank. Power as required to maintain 8,000 ft. Maintaining 30 degree bank, pitch up until nose bobs.			
	Increase power to 95 KIAS, enter a right turn of 45 degrees bank. Power as required to maintain 8,000 ft. Maintaining 45 degree bank, pitch up until nose bobs.			
	Increase power to 95 KIAS, enter a left turn of 45 degrees bank. Power as required to maintain 8,000 ft. Maintaining 45 degree bank, pitch up until nose bobs.			
	Increase power to 95 KIAS, enter a right turn of 60 degrees bank. Power as required to maintain 8,000 ft. Maintaining 60 degree bank, pitch up until nose bobs.			
	Increase power to 95 KIAS, enter a left turn of 60 degrees bank. Power as required to maintain 8,000 ft. Maintaining 60 degree bank, pitch up until nose bobs.			
STATIC LONGITUDINAL STABILITY	Power and trim as required to maintain 8,000ft, 125 KIAS.			
	Pull elevator to stabilize at 110 KIAS. Do not re-trim. Verify that a continued pull force is required to maintain 110 KIAS.			
	Pull elevator to stabilize at 100 KIAS. Do not re-trim. Verify that a continued pull force is required to maintain 100 KIAS.			
	Return to 8,000ft, 125 KIAS, trim for level flight. Note trim adjustment required.			
	Push elevator to stabilize at 140 KIAS. Do not re-trim. Verify that a continued push force is required to maintain 140 KIAS.			
	Push elevator to stabilize at 150 KIAS. Do not re-trim. Verify that a continued push force is required to maintain 150 KIAS.			
	Return to 8,000ft, 125 KIAS. Note trim adjustment required.			
SHOR	With a smooth, but fairly rapid motion, push the nose down several degrees. Quickly reverse the push to a pull and return to the trim attitude. Release the stick, but maintain your hand near the stick.			

	Note the response of the aircraft to the elevator input, noting the amount of pitch divergence and number of oscillations to return to trim condition.
	Return to 8,000ft, 125 KIAS. Note trim adjustment required.
	With a smooth, but fairly rapid motion, pull the nose up several degrees. Quickly reverse the pull to a push and return to the trim attitude. Release the stick, but maintain your hand near the stick.
	Note the response of the aircraft to the elevator input, noting the amount of pitch divergence and number of oscillations to return to trim condition.
	Return to 8,000ft, 125 KIAS. Note trim adjustment required.
LONG-PERIOD	Without re-trimming, push the stick forward to increase airspeed to 130 KIAS and release the stick.
	Note the response of the aircraft to the elevator input, noting the amount of pitch divergence, number of oscillations to return to trim condition, and final trim airspeed.
	Return to 8,000ft, 125 KIAS. Note trim adjustment required.
	Without re-trimming, pull the stick back to decrease airspeed to 120 KIAS and release the stick.
	Note the response of the aircraft to the elevator input, noting the amount of pitch divergence, number of oscillations to return to trim condition, and final trim airspeed.
	Return to 8,000ft, 125 KIAS. Note trim adjustment required.
DESCENT	Reduce throttle to idle, descend at 95 KIAS to 3,000ft
	Announce to tower: “Experimental 753C(harlie)Z(ulu) returning to airport.”
	Use landing checklist, maintain 90 KIAS downwind, 85 KIAS final, touchdown 75 KIAS.
INSPECT	Debrief Flight. Examine engine for oil and fuel leaks. Identify and correct cause of any leaks. Correct all squawks
	Refuel to original quantity, noting fuel added — FUEL ADDED
	Download EFIS data to laptop. Calculate Takeoff & landing distance, V_S at bank angles of 0, 15, 30, 45, and 60 degrees, short-period stability plot, and long-period stability plot

32. 30TH FLIGHT: HIGH ALTITUDE PERFORMANCE

PRIMARY	PILOT	START TIME	WIND	CEILING
	SAFETY CREW	SHUTDOWN TIME	VISIBILITY	TEMP/DEW POINT
	DATE	AIRPORT	CLOUD COVER	ALTIMETER
	FUEL	WEIGHT	CG POSITION	HOBBS
NAV/COM/GPS	COM		NAV	
	COM 1 XMT/RCV	COM 1 FLIP/FLOP	NAV 1 RCV	NAV 1 FLIP/FLOP
	COM 2 XMT/RCV	COM 2 FLIP/FLOP	NAV 2 RCV	NAV 2 FLIP/FLOP
	GPS			
TAKE-OFF	**Do not exceed oil temperature of 220°F or CHT of 425°F**			
	Start engine and verify oil pressure within 30 seconds			
	Announce to tower: “Experimental 753C(harlie)Z(ulu) departing runway 25 Right, Phase 1 test flight, remaining over airport at 8,000 feet.”			
	Take off and climb at Vy to 1,000 ft AGL			
PROCEDURE	Continue to climb to 9,500 ft., selecting a climb speed that maximizes rate of climb, allows adequate visibility over the nose, and acceptable oil and CHTs.			
	Set up for WOT, 100°F ROP. Note indicated airspeed, RPM, fuel flow, oil temperature, and CHTs			
	Set up for WOT, 50-100°F LOP. Note indicated airspeed, RPM, fuel flow, oil temperature, and CHTs			
	Continue to climb to 11,500 ft. at previously selected airspeed			
	Set up for WOT, 100°F ROP. Note indicated airspeed, RPM, fuel flow, oil temperature, and CHTs			
	Set up for WOT, 50-100°F LOP. Note indicated airspeed, RPM, fuel flow, oil temperature, and CHTs			
	Continue to climb to 13,500 ft. at previously selected airspeed			
	Set up for WOT, 100°F ROP. Note indicated airspeed, RPM, fuel flow, oil temperature, and CHTs			
	Set up for WOT, 50-100°F LOP. Note indicated airspeed, RPM, fuel flow, oil temperature, and CHTs			
	Continue to climb to 15,500 ft. at previously selected airspeed			
	Set up for WOT, 100°F ROP. Note indicated airspeed, RPM, fuel flow, oil temperature, and CHTs			
	Set up for WOT, 50-100°F LOP. Note indicated airspeed, RPM, fuel flow, oil temperature, and CHTs			
	Continue to climb to 17,500 ft. at previously selected airspeed			
	Set up for WOT, 100°F ROP. Note indicated airspeed, RPM, fuel flow, oil temperature, and CHTs			
	Set up for WOT, 50-100°F LOP. Note indicated airspeed, RPM, fuel flow, oil temperature, and CHTs			
DESCENT	Reduce throttle to idle, descend at 95 KIAS to 3,000ft			
	Announce to tower: “Experimental 753C(harlie)Z(ulu) returning to airport.”			
	Use landing checklist, maintain 90 KIAS downwind, 85 KIAS final, touchdown 75 KIAS.			
INSPECT	Debrief Flight. Examine engine for oil and fuel leaks. Identify and correct cause of any leaks. Correct all squawks			
	Refuel to original quantity, noting fuel added	FUEL ADDED		
	Download EFIS data to laptop. Calculate Takeoff & landing distance, cruise and climb performance from 9,500 to 17,500 ft.			

33. 31ST FLIGHT: AEROBATICS

PRIMARY	PILOT	START TIME	WIND	CEILING
	SAFETY CREW	SHUTDOWN TIME	VISIBILITY	TEMP/DEW POINT
	DATE	AIRPORT	CLOUD COVER	ALTIMETER
	FUEL	WEIGHT	CG POSITION	HOBBS
NAV/COM/GPS	COM		NAV	
	COM 1 XMT/RCV	COM 1 FLIP/FLOP	NAV 1 RCV	NAV 1 FLIP/FLOP
	COM 2 XMT/RCV	COM 2 FLIP/FLOP	NAV 2 RCV	NAV 2 FLIP/FLOP
	GPS			
TAKE-OFF	**Do not exceed oil temperature of 220°F or CHT of 425°F**			
	Start engine and verify oil pressure within 30 seconds			
	Announce to tower: “Experimental 753C(harlie)Z(ulu) departing runway 25 Right, Phase 1 test flight, remaining over airport at 8,000 feet.”			
	Take off and climb at Vy to 1,000 ft AGL			
PROCEDURE	Continue to climb to 8,000 ft., selecting a climb speed that maximizes rate of climb, allows adequate visibility over the nose, and acceptable oil and CHTs.			
	Execute a series of chandelles, to the left and to the right.			
	Execute a series of lazy eights, of increasing pitch and bank angle			
	Execute a series of steep turns, to the left and to the right, of increasing bank angle.			
DES	Reduce throttle to idle, descend at 95 KIAS to 3,000ft			
	Announce to tower: “Experimental 753C(harlie)Z(ulu) returning to airport.”			

	Use landing checklist, maintain 90 KIAS downwind, 85 KIAS final, touchdown 75 KIAS.	
INSPECT	Debrief Flight. Examine engine for oil and fuel leaks. Identify and correct cause of any leaks. Correct all squawks	
	Refuel to original quantity, noting fuel added	FUEL ADDED
	Download EFIS data to laptop. Calculate Takeoff & landing distance, cruise and climb performance from 9,500 to 17,500 ft.	