Patuxent Aeromodelers Student Handbook

Revision 3

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Revised by Al Burton, Ben Bobbitt, Chad Fromme and Chris Martin

Introduction

Congratulations on your decision to enter the hobby of aero-modeling. The members of the Patuxent Aeromodelers are pleased to welcome you into their midst and are standing ready to assist you in your new adventure. We're confident that you will find the aeromodeling hobby exciting, challenging, and just plane fun (pun intended).

This handbook has been developed to help speed you on your way to becoming a soloed Radio Control (R/C) pilot. It is divided into two sections. The first section entitled "Reference Section" contains a variety of important information about the Patuxent Aeromodelers Club. This section concerns the rules, maps and specific operating guidelines you need to know to safely and legally fly your airplane at a club airfield. The second section entitled "Pilot Qualification Section" is arranged in the format of qualification checklists. These checklists will help organize and document your efforts towards rapidly becoming a successful, soloed pilot.

While the Patuxent Aeromodelers does not specifically endorse any particular manufacturer's product over another's, we do recommend that you start off with a standard four channel radio system. This is because most of our instructors possess a buddy box system which is only compatible with one or the other radio systems. Use of the buddy box system allows the instructor to "plug into" your radio system, enabling him to quickly regain control of your aircraft by simply releasing a "trainer" switch. This gives the instructor the freedom to allow you to fly your trainer well below the three-mistakes-high altitude. Down lower, you can see your aircraft better and see the effect your transmitter stick movements have on its attitude much better. This will greatly speed your learning process. Also, with the buddy box, your instructor can get you into the landing pattern a lot sooner than would otherwise be safely possible. Please refer questions on the buddy box set up to any club members.

The basic philosophy of the Patuxent Aeromodelers towards new student pilots is simple: We are eager to assist student pilots in becoming safe, knowledgeable, responsible, soloed pilots in a timely manner. We have come to realize that most of the folks involved in the aeromodeling hobby are very independent individuals. We're also sure that you will soon find that we are a group, composed of very friendly and independent individuals; folks who are ready, willing and able to assist you in selecting, building and learning to fly your first aircraft.

However, we place the burden of responsibility squarely on your shoulders for seeking out, learning, and doing as much as you can on your own. Your progress in becoming a soloed pilot is tied to your own independent motivation and abilities. Learning to fly R/C is primarily a matter of developing the ability to "see" the aircraft and "respond". To learn quickly requires that the student concentrate. This means an alert, conscious effort, exerted repeatedly, in as short of time span as possible. The secret is to fly often and think.

So seek us out. Just ask, and we'll be there along the way to advise and help. When you're ready for the assistance of a flight instructor, a list of instructors is contained on our web site (http://www.paxaero.com). Be sure and bring this handbook with you to the field so your progress may be documented.

Again, welcome aboard. Come join us in the air!

Field Rules

http://www.paxaero.com/rules.php

The objective is to extend the privilege of enjoying the aeromodeling hobby at the Patuxent Aeromodelers club field to all members and authorized guests, with maximum emphasis on safety of operations. While this guide sets forth club rules for this objective, nothing herein should overrule common sense, personal responsibility and courtesy.

GENERAL ITEMS:

1. All model aircraft operations shall be in accordance with the Official Academy of Model Aeronautics (AMA) Safety Code and these field rules.

2. All pilots shall be current members of the Academy of Model Aeronautics (AMA) and members in good standing of the Patuxent Aero-modelers prior to engaging in flight operations at Patuxent Aeromodelers club fields. Membership and AMA cards must be on hand for verification when flying at club fields. Pilots visiting from outside the local geographical area must be current AMA members but are not required to be a member of the Patuxent Aeromodelers in order to engage in flight operations.

3. All members shall, by actions and attitude, keep safety paramount during ground and flight operations.

4. Aircraft engine operations are permitted only within the hours of 8:30 am to dusk daily.

5. A minimum of two people are encouraged to be present when flying.

6. Alcoholic beverages and/or controlled substances are prohibited at flying sites at all times. Pilots shall not engage in flying activities following alcoholic beverage consumption that day regardless of time/ quantity consumed. Additionally, all pilots and helpers SHALL be free from the effects of alcohol.

7. Sponsoring members are responsible for the conduct of their guests.

8. All members shall ensure that spectators are aware of restricted areas.

9. All members shall leash their pets, supervise their children, and keep off the field

SAFETY ITEMS:

1. Only pilots, helpers, and selected, escorted spectators are permitted in the pit area.

2. Safety hubs or spinners are required on all aircraft.

3. All flights shall be controlled from the designated flight stations only.

4. All newly built or recently repaired aircraft shall be given a radio range check prior to flight.

5. Only persons essential to aircraft retrieval are allowed on the runway area of the flying field only after ensuring other pilots engaged in flight are aware of their movement onto and of the field.

6. Deliberate flying behind the flight line (over the pit, spectator, pilot, or parking areas) is prohibited.

7. Engines shall be started with the nose of the aircraft pointed towards the runway.

8. Pilots will be careful not to direct prop blast at nearby people or equipment in the pit area.

9. All aircraft in the pits shall be under physical control whenever the engine is being started or is running. Use of a helper or a stooge during engine starting is strongly recommended. Taxiing in the pit is prohibited.

10. R/C engine shut down capability by use of the transmitter throttle trim lever or a throttle cut switch is required.

11. Any accident involving personal injury or damage to property other than models shall be immediately reported to a club officer.

RADIO CONTROL ITEMS:

1. Transmitters must be verified off and placed in the transmitter impound immediately upon arrival at the field and when not actually in use.

2. Each pilot must have the correct club frequency control pin attached to the transmitter ***prior to the operation of that transmitter.*** When taking custody of a frequency control pin the pilot shall attach his/her AMA card and club membership card on the appropriate frequency control board position.

3. Frequency control pins may not be removed from another pilot's transmitter without the acknowledgement of that pilot and the placement of that transmitter into the impound area.

Note: If you cause a crash through improper transmitter/frequency use, you are held liable for restitution to the crashed model's owner.

AIR TRAFFIC/NOISE CONTROL ITEMS:

1. No model of any kind may exceed a noise level of 99 DB at 10'.

2. Pilots will limit engine runs in the pits to a minute or less. Break in or extensive tuning shall be accomplished at the far ends of the pits.

3. Servicing engines on the runway is prohibited.

4. Pilots will ensure safe clearance onto the runway by looking both ways, then **loudly** announcing their intent to enter the runway prior to doing so. Aircraft already on the field and aircraft on final landing approach have precedence.

5. Student pilots under instruction have priority for air space.

6. The following priorities in flying shall be honored:
   (1) Dead Stick Landing
   (2) A person on the field
   (3) An aircraft on landing final
   (4) An aircraft ready to take off

7. Aircraft stalled on the runway shall be retrieved as quickly as possible. Intent to walk onto the runway shall be **loudly** announced prior to doing so.

8. Helicopters will only be operated from western most pilot stations and hovered within the helicopter designated area at the far west end of the field. Helicopter hovering should be kept to minimum on the runway and used to transition to pattern flight with others in the pattern. Helicopters shall not be flown within 30 feet of another person.

LIPO AND ELECTRIC SAFETY GUIDELINES:

1. Always treat batteries with respect

2. Always charge batteries at or below the manufacturers recommended capacity or “C-rating”.

3. Always respect the prop and the throttle control. Props are notorious for defending their space aggressively.

4. MAH's or milliamp hours are roughly equivalent to the amount of fuel. More MAH = more time in the air but also increases the weight.

5. Know what your batteries can do and time flights (this can save a model). Track how long a set amount or MAH's will fly your plane. This can save you from overstressing your battery and from possibly losing an airframe from lack of control.

6. If in doubt don't fly the set-up. If you doubt the power output in the model or have a questionable battery/motor do not fly it. It is better to not fly and save the model than to push a bad set up and lose it all.

7. Voltages/S rating or number of cells describes the amount of power the set up can provide at a given time. This is roughly equivalent to engine displacement. Higher voltages/more cells will turn a bigger motor faster which gives more thrust.

8. Do not charge or discharge batteries below or above the manufacturer’s suggested specs. For LIPOs this would be above 4.2 volts per cell or below 3.0 volts per cell. Bottom line is, know your equipment. If unsure ask someone at the field or an instructor.

9. Beware of puffed/damaged batteries. If in doubt ask someone.

LIPO batteries are a great addition to our hobby and can be very effective and fun if used and treated properly. If abused or mistreated they can be dangerous. Almost every person uses LIPO batteries every day in cell phones, laptops, ETC… Modelers use more sophisticated and customizable charging systems and these chargers need to be set up correctly for safe operation. The batteries are no more or less dangerous than the person using them.

Always remember to fly your aircraft in accordance with the AMA Safety Code and the Patuxent Aeromodelers Field Rules.


N
Helwig Field
Home of the
Patuxent Aeromodelers
Steer Horn Neck Road
245
To Waldorf
Sotterly Gate Road
Hollywood
Maryland
To Leonardtown
235
To Lexington Park

Routine Preflight Inspection

Prior to leaving for the field

- ☐ Verify aircraft and transmitter batteries are fully charged.
- ☐ Check starter and glow plug battery for full charge.
- ☐ Verify you have sufficient fuel, a spare prop or two, and spare glow plugs.
- ☐ Make sure you have made arrangements for instruction by a qualified instructor.

What to Bring to the field

- ☐ Your complete aircraft! (You'd be surprised how many people forget the wing.)
- ☐ Your radio!
- ☐ Fuel!
- ☐ Batteries and charging equipment.
- ☐ Field Box! (Aircraft tools for assembly and disassembly and the field.)
- ☐ Consumables that are required, rubber bands, aircraft cleaning compounds, rags, paper towels, and plastic bags for your trash.
- ☐ Bring some water or other drink to prevent dehydration.
- ☐ Bring something to eat if you are planning on being at the field for a while.
- ☐ Your AMA Card and Club member card.
- ☐ Sunscreen, sun glasses and a hat!

Internal (prior to attaching wing):

- ☐ Check Servo Mount, Screws, Servos, Servo Arms, for security and integrity.
- ☐ Check Push rods for security and Integrity.
- ☐ Check Receiver and Battery for connections, security and integrity.
- ☐ Check for loose items that could cause interference and fouling of the servos and control rods.
- ☐ Check fuel tank for leaks, security and integrity.

Wing (prior to attaching)

- ☐ Check wing for breaks, warps, cracks and general integrity.
- ☐ Check aileron pushrods, linkages, hinges, and clevises (if equipped) for security and integrity.

Engine Area

- ☐ Check engine mount, engine, muffler, prop nut and/or spinner for security and integrity.
- ☐ Check prop for nicks, cracks, and excessive ware. Replace if necessary.
- ☐ Check Cowl (if equipped) for security and integrity.
- ☐ Check external fuel lines for cracks, cuts, and abrasions.

Tail Section

- ☐ Check vertical fin, rudder, hinges, control horns, and clevises for security and integrity.
- ☐ Check Tail wheel (if equipped) for alignment, security, and integrity.
- ☐ Check Horizontal Stabilizer, elevator, hinges, control horns, and clevises for security and integrity.

Range Check / Flight Control Check

- □ When frequency pin is available, attach to antenna, radio handle, shirt, or hat, and range check aircraft with the antenna collapsed. A minimum range check of 100 paces from aircraft will be considered acceptable.
- □ Check that the flight control surfaces move in the correct and proper direction as input from the control sticks on the transmitter.
- □ Check transmitter for proper settings of switches and trim settings.
- □ If transmitter is equipped, check for proper model memo ry.
- □ Check proper trim of flight controls when sticks are in the neutral position.

Glossary of Terms

Ailerons: The hinged, moveable parts on the trailing edge of the wing which control the roll axis of the aircraft causing to roll (bank) left or right.

Angle of Attack: A situation where the aircraft pitch (nose up/down attitude) is causing the leading edge of the wing to point upward or downward in relation to the forward velocity direction of the aircraft. In particular, the angular difference between wing zero lift direction (or chord) and the aircraft velocity vector.

Anhedral: A downward angle formed between the wing roots and the wingtips. Example, the downward sloping wings of a Harrier jet exhibit anhedral.

Base Leg: When you turn from downwind to intercept the extension of the runway heading, you are flying the "base leg".

Center of Gravity (CG): Location fore and aft along the fuselage at which point the aircraft will balance. Most aircraft require a slight nose down CG. A tail heavy aircraft is undesirable and is only recommended for extremely experienced pilots.

Climb out: The act of purposefully gaining altitude (the term is generally used to refer to after takeoff). Note: when in a trimmed state, the addition of power will result in the aircraft climbing.

Control Surface: The moveable control surfaces of an aircraft which influence attitude and/or direction. Specifically: the rudder, the aileron, and the elevators known as primary flight controls. Flaps, slats, and spoilers are known as secondary flight control surfaces.

Crosswind: When your aircraft is flying a track perpendicular to the direction of the wind.

Dead Stick: Flight without engine power in an engine powered aircraft. Usually referring to a dead stick landing (a landing without benefit of thrust). Runway access priority is given to aircraft announced to be dead stick.

Descend: The act of purposefully losing altitude. Note: when in a trimmed state, a reduction of power will result in the aircraft descending.

Dihedral: An upward angle formed between the wing roots and the wingtips, thereby adding natural stability in flight. An example would be the upward sloping wings of a Piper Cherokee exhibit dihedral.

Disorientation: The phenomenon of viewing the aircraft but not perceiving its true attitude in the air. Disorientation is common until the student has considerable experience in flying the aircraft. Disorientation may be

caused by back lighting, distance, and lack of illumination or inattentiveness by the pilot. The pilot's control response, when disoriented, is usually the exact opposite of those required, which lead to further confusion.

Downwind: (1) With, or in the direction of, that the wind is blowing, i.e. having a tail wind. (2) The portion of the landing pattern which offsets and parallels the runway.

Elevator: The hinged, moveable part at the rear of the horizontal stabilizer which controls the pitch axis of the aircraft usually causing it to climb or dive.

ESC: (Electronic Speed Control) this device is a solid state device that on electric aircraft acts as the throttle servo in that it controls the speed of the motor it is spinning. If you move the throttle up it causes the motor to spin faster.

Figure Eight Pattern: A flight pattern involving both left and right hand turns while tracing a horizontal figure eight in the air space. Initial turn is made away from the student as it passes by (to the right if the aircraft is approaching form the right).

Fin: The vertical stabilizer or fixed part of the tail section that helps keep the aircraft going straight ahead.

Final: When you turn from the base leg to the runway heading, you are turning on "final" or "final approach".

Firewall: (1) A part, usually plywood, which separates the engine compartment from the tank compartment. The engine mount or beams are attached to the firewall. (2) To suddenly advance the throttle stick to maximum power.

Flare: To ease back on the elevator control stick in order to raise the nose of the aircraft (increase pitch) and reduce the descent rate just prior to landing touchdown.

Fuselage (fuse): the body of the model including the tail section but not including the wing.

Leading Edge (L.E.): The front or forward edge of a part such as the leading edge of the wing or the leading edge of the rudder.

Left Hand Racetrack Pattern: An oval shaped or rectangular flight pattern with the aircraft flying over the runway center line from the student's left to the student's right as he stands facing the runway. All turns are to the left.

LIPO: (Lithium Polymer) LIPO is part of a family of battery chemistry (LIPO, LION, and LIFE) LIPO batteries are used to power lots of every day items. These batteries are completely safe if used and charged correctly. Their use in this hobby setting presents dangers that are not common in everyday settings. Care and diligence must be exercised when using these high-performance batteries with advanced chargers.

NIMH/NICD: (Sometimes pronounced NIM and NYCAD) is a battery family that has been in the hobby for years. Typically NIMH/NICD's are used as receiver, transmitter, and ignition batteries. NIMH has a high self discharge rate and can lose up to 20% of its charge over night. NICD batteries have a bad tendency to develop a "Memory" if not cycled properly (fully discharged then recharged). All batteries have pluses and minuses.

Nose Heavy: Out of trim condition where there is excessive weight in the nose of the aircraft which moves the center of gravity (CG) too far forward. A slight nose heavy condition is satisfactory. Too nose heavy can cause the aircraft to stall at higher speeds resulting in hot landings.

P-factor (propeller factor): Also known as asymmetric blade effect and asymmetric disc effect, is an aerodynamic phenomenon experienced by a moving propeller with a high angle of attack that produces an asymmetrical center of thrust. This is especially prevalent on conventional type landing gear aircraft (tail draggers). P-factor occurs during ANY angle of attack other than zero, either positive or negative. Example: P-factor occurs on a tail dragger during takeoff because of the natural nose-high orientation of the aircraft. The descending propeller blade has a higher angle of attack on the relative wind than the ascending blade, thereby

causing the aircraft to want to yaw into the ascending blade. P-factor is often exacerbated by the torque of the engine. This is why pilots of tail draggers must be very good friends with their rudder, especially on takeoff!

Right Hand Racetrack Pattern: An oval or rectangular shaped flight pattern with the aircraft flying over the runway center line from the student's right to the student's left as he stands facing the runway. All turns are to the right.

Rudder: The hinged, moveable part at the rear of the vertical fin which controls the yaw axis of the aircraft or movement from side to side.

Snap: A situation where the aircraft suddenly drops a wing and spins or rolls in that direction. Caused by stalling one wing panel by applying excessive aileron control or rudder at too high of angle of attack.

Stabilizer (stab): The fixed horizontal part of the tail section that helps to keep the aircraft from pitching (climbing or diving).

Stall: When the wing ceases to develop sufficient lift to sustain flight and the nose drops sharply. Stalls are generally caused by excessive angle of attack for a particular airspeed. The wing stops providing enough lift to support the aircraft and weight/gravity takes over. In a slow turn this can also result in a spin. **NOTE:** A stall may occur at ANY angle of bank, as it is predicated on angle of attack. If a pilot applies too much back pressure while in a turn, the aircraft may stall. This is known as an accelerated stall.

Tail Heavy: Out of trim condition where there is excessive weight in the tail of the aircraft which moves the center of gravity too far aft. This requires that weight be added to the nose of the aircraft or removed from the tail. This is a dangerous condition in which the aircraft may become unstable to the point of being uncontrollable.

Torque: Force applied to the aircraft by the engine/motor which tends to cause the aircraft to roll in the opposite direction of the propeller rotation.

Throttle/Thrust: Change to engine throttle varies the thrust developed by the engine/motor and propeller. Thrust is the pulling/pushing power of the engine/propeller combination which results in aircraft acceleration or velocity.

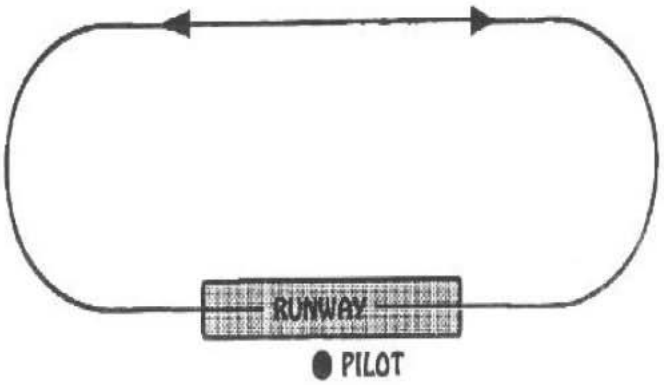
Trailing Edge (T.E.): The rear or back edge of a part such as the trailing edge of the wing or the trailing edge of the rudder.

Trim: Any adjustment to cause the aircraft to fly in a predetermined path (usually straight and level). Transmitter trim should always be considered as a temporary measure. Following flight, the control surfaces should be mechanically adjusted to allow straight and level flight with centered transmitter trim levers.

Upwind: (1) Into the wind or against the wind, as in a takeoff which is always accomplished into the wind. (2) The portion of the landing pattern immediately following takeoff past the departure end of the runway.

Wave off: An aborted landing approach accomplished by the addition of power (increased throttle).

Wing: The part of the aircraft that provides lift. The wing can be on top of the fuselage, on the bottom of the fuselage or somewhere in between.



Left or Right Hand Racetrack Pattern

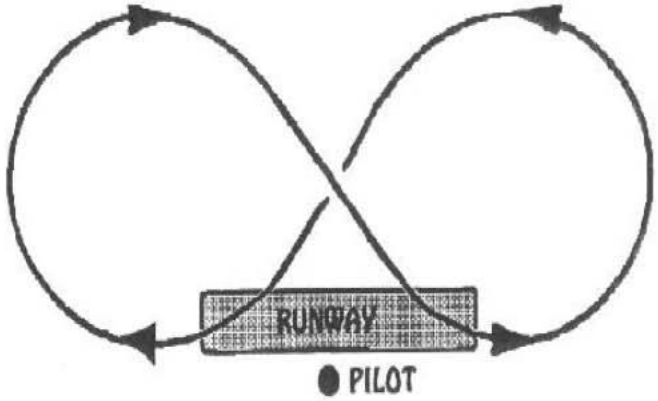
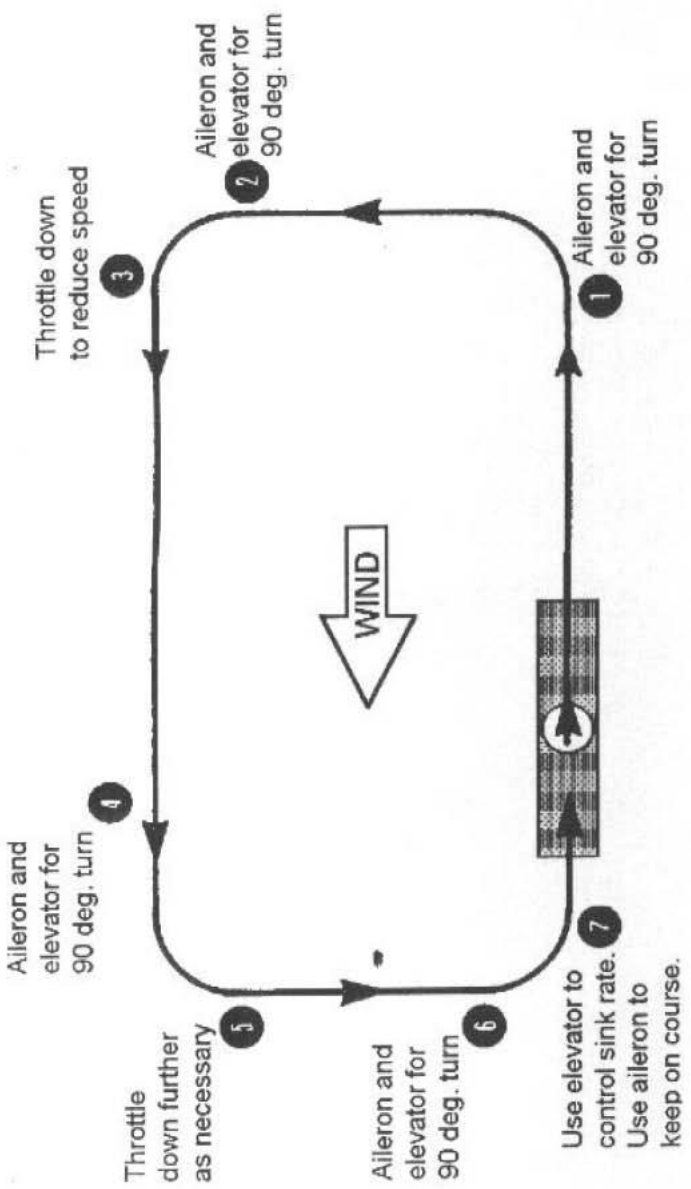


Figure Eight Pattern



Left Landing Approach Pattern shown above with 90 degree turns to the left. This approach pattern can also be flown with 90 degree turns to the right depending on the relative wind direction.

Pilot

Qualification

Section

Required Reading

(The below items must be signed off and dated by the student prior to the start of training)

1. I have read, understand and agree to comply with the Safety Code of the Academy of Model Aeronautics (AMA). http://www.modelaircraft.org/files/105.PDF

._____:_____ Date Signature

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2. I have read, understand, and agree to abide by the Patuxent Aeromodelers Constitution and Bylaws as set forth by the membership. http://www.paxaero.com/constitution.php

._____:_____ Date Signature

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3. I have read, understand, and agree to comply with the Field Rules of the Patuxent Aeromodelers. http://www.paxaero.com/rules.php

._____:_____ Date Signature

4. I will not hold the Patuxent Aeromodelers Instructors, officers, or members liable for any damage that may occur during instruction as the instruction is voluntary and up to me to decide whom I wish to use this instruction. I further understand that it may be necessary to sign a liability waiver prior to receiving instruction.

_____:_____Date Signature

Field Walkthrough

With an instructor take a few minutes to become familiar with how the field is laid out and procedures for basic model operation.

- ☐ Opening the gate (combo and proper opening and closing)
- ☐ Field equipment and areas: portable toilet, fire extinguisher, pit area (no fly area), pilot boxes, helicopter hover area, engine run-up areas, frequency board, sign in stand (with emergency contact data and GPS coordinates)

_____:_____Date Signature

Workbench Preflight Checklist

(The student will complete the following checklist with his/her trainer aircraft, correct deficiencies to the best of the ability and sign off prior to bringing the aircraft to the field.)

- ☐ Ensure servos are securely mounted utilizing the rubber shock mounts furnished with servo.
- ☐ Ensure control surface hinges are fastened securely.
- ☐ Ensure all control rod and cable terminations are properly in place on servo arms and control horns, and locking mechanisms are in place.
- ☐ Ensure all mounting screws (engine, muffler, carburetor, servo arms, control horns, landing gear, wheel collects, etc.) are tight and secure.
- ☐ Set aileron, elevator, and rudder at neutral position with the receiver and transmitter on and transmitter trim controls at center of adjustment range.
- ☐ Ensure control surface throws are set to plan/kit recommendations.
- ☐ Ensure servos are not being overloaded at the extremes of their travel by binding of the control system. (Servo buzzing is an indication of servo overload and may cause premature battery drainage.)
- ☐ Ensure all controls operate smoothly **in the proper direction** over the full range of the control sticks without unwanted coupling between channels.
- ☐ Verify that the engine throttle barrel is in the correct position with the throttle stick set at full throttle, idle and off respectively. (Wide open at full throttle, slightly open at idle, and fully closed at low throttle low trim setting for shut down.)
- ☐ Ensure there is very little slack in the control systems when the servo arms are held and the control surfaces are moved by hand. Slack can exist due to oversize holes in servo arms or control horns, cable housings that are not secured at several points along their length, or too much flex in control rods. While a small amount of slack is normal, especially in trainer aircraft, excessive slack can result in loss of control and result in destruction of the aircraft.
- ☐ Ensure electrical connections are secure so that they cannot interfere with servo and control operation or come loose during flight.
- ☐ Ensure receiver and battery are wrapped in foam rubber to minimize shock and vibrations and secured to prevent shifting.
- ☐ Ensure the receiver lead to the wing servo is short enough so that slack will not interfere with the servo control when the wing is seated.
- ☐ If your plane has tricycle landing gear, adjust it so the plane sits level or one or two degrees nose up—never nose down. Verify that the nose gear spring coils face the rear of the aircraft.
- ☐ Ensure there is adequate ground clearance for the propeller.
- ☐ Ensure the nose wheel or tail wheel is set to run straight with no rudder trim. For tricycle gear, the nose wheel throw range should be set for minimum travel.

- ☐ Adjust your main gear wheels so they are toed in slightly for good ground handling. This is especially important for tail draggers.
- ☐ Ensure wheels are secure and roll freely.
- ☐ Ensure the fuel tank is isolated from vibration sources with foam rubber.
- ☐ Ensure the fuel lines are not pinched, kinked, cut or split and the clunk moves freely in the tank. Fill the fuel tank and eliminate leaks.
- ☐ Ensure the recommended prop has been inspected for nicks and cracks, balanced; and mounted with the retaining nut very **TIGHT**. If a plastic prop is used, sharp edges must be dulled with sandpaper. Verify that the required safety nut or spinner is installed and secure.
- ☐ It's a good idea to bench run your engine for preliminary break in as prescribed in your engine instruction booklet. This gives you experience in operating the engine and may save precious flying time at the field.
- ☐ Make sure the wing is not warped. Significant warp must be corrected. If you have significant wing warp problem seek assistance for correction.
- ☐ Ensure wing hold-down-dowels are long enough and secure. Be prepared to mount the wing with ten or more rubber bands for flight.
- ☐ Balance your plane longitudinally and laterally at the point specified on the plans with fuel tank empty. A slight nose heavy balance is ok.
- ☐ Ensure all transmitter trim controls, function switches, and servo reversing switches are properly set.

_____:_____ Date Signature

NOTE: Ensure both transmitter and receiver batteries are freshly charged before coming to the field. Use of an expanded scale voltmeter to verify battery charge status is encouraged.

Flight Training Syllabus

(Only approved Patuxent Aeromodelers Flight Instructors shall initial or sign off as indicated below. Items need not be taught in strict order as listed by may vary according to instructor/student preference and field conditions such as sun and wind.)

Administrative verification: The instructor will observe the student's current AMA card, current Patuxent Aeromodelers membership card, and verify that Required Reading and the Workbench Preflight Checklist have been signed off by the student.

_____:_____ Date Signature

Aircraft Inspection: Prior to field assembly, the instructor will preflight the student's aircraft identifying deficiencies. The instructor will demonstrate a proper radio range check. The instructor will give the student tips on how to best correct any deficiencies noted.

Satisfactory completion: *No remaining deficiencies.*

_____:_____ Date Signature
_____:_____ Date Signature
_____:_____ Date Signature

Aircraft Test Flight: The instructor will supervise the student in preparing his/her aircraft for flight. The instructor will demonstrate proper engine starting technique including safety considerations. The instructor will adjust the engine mixture for flight. Once ready with engine running, the instructor will test fly the aircraft. Upon landing, the instructor will give the student tips on deficiency correction and aircraft trimming.

Satisfactory completion: *Aircraft trimmed with trim levers near neutral. Engine adjusted to remain running throughout flight. No other deficiencies.*

_____:_____ Date Signature
_____:_____ Date Signature
_____:_____ Date Signature

Note: On subsequent flights, the student will summon an instructor when the aircraft is fueled and ready for flight. With the instructor present, the student will then start his/her own engine, carry/push the aircraft onto the field, and hand the transmitter to the instructor.

Left Hand Racetrack Pattern: Prior to flight, the instructor will review stick movement effect on aircraft flight with the student. The instructor will then show the student the stick movements necessary for making a left turn. The instructor will get the aircraft airborne and verify trim. The instructor will demonstrate flying a left hand racetrack pattern. He/she will then supervise the student in making constant altitude left hand turns while flying a racetrack pattern.

Satisfactory completion: *Student able to perform left hand turns without significant altitude gain/loss while keeping the aircraft within the general boundaries of a left hand racetrack pattern.*

_____:_____ Date Signature
_____:_____ Date Signature
_____:_____ Date Signature

Right Hand Racetrack Pattern: Prior to flight, the instructor will show the student the stick movements necessary for making a right turn. The instructor will demonstrate flying a right hand racetrack pattern. He/she will then supervise the student in making constant altitude right hand turns while flying a racetrack pattern.

Satisfactory completion: *Student able to perform right hand turns wit h-out significant altitude gain/loss while keeping the aircraft within the general boundaries of a right hand racetrack pattern.*

_____:_____ Date Signature
_____:_____ Date Signature
_____:_____ Date Signature

Climbing and Descending. The instructor will first demonstrate. He/she will then supervise the student in making consistent altitude changes while flying a pattern.

Satisfactory completion: *Student able to perform consistent altitude changes while flying in a pattern.*

_____:_____ Date Signature
_____:_____ Date Signature
_____:_____ Date Signature

Figure Eight Pattern: The instructor will first demonstrate flying a figure eight pattern. Initially, the pattern shall be flown such that turns are away from the pits. He/she will then supervise the student in making constant altitude left hand and right hand turns while flying a figure eight pattern.

Satisfactory completion: *Student able to perform left and right hand turns while maintaining a constant altitude and keeping the aircraft within the general boundaries of a figure eight pattern.*

_____:_____ Date Signature
_____:_____ Date Signature
_____:_____ Date Signature

S**talls and Slow Flight:** The instructor will demonstrate slow flight, stalls, and stall recovery while discussing the cause of stalls, airspeed/ power management, early stall recognition, stall prevention, and stall recovery. The instructor will then supervise the student in slow fight, stalling, and stall recovery.

Satisfactory completion: *Able to maneuver the aircraft in slow flight without stalling or when an inadvertent stall does occur, recognizes it and takes prompt action to recover. Consistently able to recover from intentionally and inadvertently induced stalls without loss of control, disorientation, or excessive loss of altitude.*

_____:_____ Date Signature
_____:_____ Date Signature
_____:_____ Date Signature

High Landing Approach: The instructor will demonstrate a rectangular landing approach pattern including wave off on final. The instructor will then supervise the student in flying a rectangular approach pattern waved off from an altitude of no less then 25 feet.

Satisfactory completion: *Consistent performance of landing pattern to a satisfactory final approach lineup position utilizing adequate throttle control.*

_____:_____ Date Signature
_____:_____ Date Signature
_____:_____ Date Signature

Left Landing Approach: The instructor will demonstrate a rectangular approach pattern to a left -to-right landing. The instructor will discuss final landing/wave off decision making. The instructor will then supervise the student in making rectangular approach pattern to left-to-right full stop landings.

Satisfactory completion: *Consistently fly's correct left hand landing pattern to good final approach lineup position, good attitude control and throttle control on final, appropriate flare, touchdown, and straight landing rollout with minimal bouncing and engine still running.*

_____:_____ Date Signature
_____:_____ Date Signature
_____:_____ Date Signature

Right Landing Approach: The instructor will demonstrate a rectangular approach pattern to a right-to-left landing. The instructor will then supervise the student in making rectangular approach pattern to right-to-left full stop landings.

Satisfactory Completion: *Consistently flies correct right hand landing pattern to good final approach lineup position, good attitude control and throttle on final, appropriate flare, touchdown, and straight landing rollout with minimal bouncing and engine still running.*

_____:_____ Date Signature
_____:_____ Date Signature
_____:_____ Date Signature

Taxi and Take Off: The instructor will explain to the student how to taxi to position and perform a takeoff. The instructor will then demonstrate taxi to position and perform a takeoff. The instructor will then supervise the student in taxiing to position and in performing takeoffs.

Satisfactory Completion: *Consistent rudder, elevator and throttle control while taxiing. Smooth, straight takeoff acceleration run; smooth, gradual lift off and climb out.*

_____:_____ Date Signature
_____:_____ Date Signature
_____:_____ Date Signature

Touch and Go's: The instructors will demonstrate a touch and go. The instructor will then supervise the student in making touch and go's.

Satisfactory Completion: *Consistently Flies correct landing pattern to good final approach lineup position, good attitude control and throttle control on final, appropriate flair, touchdown, and straight rollout with minimal bouncing. Perform a smooth, straight takeoff acceleration run, smooth, gradual lift off, straight, gradual climb out.*

_____:_____ Date Signature
_____:_____ Date Signature
_____:_____ Date Signature

Emergency Procedures: The instructor will place the aircraft into an unusual attitude and then supervise the student in recovery to straight and level flight. The student will simulate a dead stick situation and land safely.**Satisfactory Completion:** *The student will recover from an unusual attitude to straight and level flight without assistance. The student will simulate dead-stick land the aircraft on the field without assistance. There shall be no damage to the aircraft or hazard to personnel.*

_____:_____ Date Signature
_____:_____ Date Signature
_____:_____ Date Signature

SOLO Test: The student will conduct a flight starting with getting the transmitter from the impound area, starting the engine, taxi, takeoff, racetrack pattern, figure eight pattern, left turn approach landing / touch and go, right turn approach landing/ touch and go, spin recovery and simulated-dead-stick landing.

Satisfactory Completion: *Subjective—two instructors, jointly or separately, are satisfied the student possesses the necessary skill and judgment to safely and independently operate his/her aircraft at the field under a variety of weather conditions and field situations.*

_____:_____ Date Signature
_____:_____ Date Signature

Notes: