The following training program was developed by Jim Holloman for use by the SRQ flight instructors. Its use ensures that all students receive training in the fundamentals of flight and ground support and that their progress is documented.

STEP ONE: PREFLIGHT

Objective: Acquaint the new pilot with the procedures of the training program, review AMA and Club Safety Rules and the safe operation of their radio control equipment.

1. **Knowledge of AMA and Club Rules**
    a. Hand out copies of AMA and Club Safety Rules and review them.
    b. Explain Frequency Pin Rules.
    c. Maximum number of flyers in air at one time.
    d. Students have priority. Disabled aircraft priority
    e. Pit area procedures. Runway/ Flight Area Procedures
    f. Transmitter and channel ID procedures
2. **Aircraft Safety Check**
    a. Hinges
    b. Screws/bolts/nuts
    c. Engine mount
    d. Landing gear
    e. Nose wheel steering
    f. Moving parts
    g. Radio range
    h. Engine
    i. Hatches/Canopy
    j. Covering
        i. Start
        ii. Mixture adjustment
        iii. Mixture test

STEP TWO: TEACHING HOW TO MASTER TURNS & LEVEL FLIGHT

1. Objective is to get the student to a point where they can keep the airplane in the air with no help from instructor. Though the plane may still be flying the student to some extent at the end of this step, at least they should be to the point that they do not constantly fear for the airplane as they fly.
    a. There are 3 basics of turning
        i. bank with ailerons

ii. maintain the turn with up elevator
iii. level out with the opposite ailerons.

NOTE: turn away from the pits – turning right on your left side turning left on your right side.

2. Practice making full 360 degree gradual turns. Once the student masters one direction, practice in the opposite direction. Then make 5 gradual 360 degree turns going left, then 5 gradual 360 degree turns going right. Exit turn by applying opposite aileron until the plane is flying level again.
3. Practice until they can exit the turn at the same vertical attitude as entered.
4. (THE STUDENT IS FINISHED WITH THIS STEP WHEN THEY CAN KEEP THE AIRPLANE IN THE AIR FOR A WHOLE FLIGHT WITHOUT COACHING FROM THE INSTRUCTOR. THEY CAN TURN LEFT AND RIGHT EQUALLY WELL)

STEP THREE; TEACHING HOW TO SET AND HOLD HEADINGS

1. Objective is to fly the plane under complete control at all times
2. Setting a heading means they must be able to exit each turn in a predictable manner. Holding a heading means being able to keep the plane flying in the headed direction (without wandering) for as long a period as required. The student should be making the airplane react to stick movements – not them reacting to the plane.
    a. **Fly Figure 8's** – left turns on your right and right turns on left side. Use each corner of the field as the target heading to each turn – maintain each turn until desired heading is reached. Come out of the turn pointing directly toward the corner and then hold the heading for a short period of time once you master this direction reverse direction. Do not fly over pits.
    b. **Free Form Turns** – Instructor to call the turns for the student to make.
        i. Example: 45 degrees right (student veers off to the right on a new heading 45 degrees from the start.180 degrees left (student does a turn to left): Practice until they can control the plane in almost any position in the sky.
    c. **Trim settings** – To begin instructor will reach over and change trim on buddy box. The student will need to figure out what is wrong and re-trim.
    d. **Holding headings and flying with precision** – Begin with figure eight's extending the straight legs of the figure eight, holding the

heading for at shaped figure eight's with the crossover right in the middle of the flying field.

e. **Middle of runway flights** – After mastering figure eight's (in both directions) fly a pattern that takes them right down the middle of runway (still high). Fly a long oval shape with near side of the oval right on the middle of the runway and holding the heading on the runway for the entire length of the flying field. Reverse the direction of the oval to practice equally between left and right patterns.

STEP FOUR – HOW TO TAKE OFF

1. Objective is to be able to taxi and take off.
2. The Instructor makes sure the plane is tracking straight. Have student practice taxing straight up and down the middle of the field using rudder and throttle controls. In the beginning quickly goose the throttle to about half way and back to idle in short quick bursts. The student will get the plane moving slowly and stop any time the plane gets moving too quickly.
3. Once he/she can handle the plane well on the ground, head the plane into the wind and practice some high-speed takeoff runs. Don't take off – as soon as the plane builds up speed, reduce the throttle.
4. After the student is comfortable handling the plane on the ground – build up flying speed while heading into the wind. Once flying speed is reached apply small amount of up elevator. Once off the ground the nose will be pointed up slightly and release up elevator. As the plane rises make corrections to hold planes heading (aileron) and to maintain a gradual ascent (elevator). Turn away from pits. Once plane reaches safe altitude reduce throttle. (After practice with in-flight trimming the student should practice taking off with an untrimmed plane.)

STEP FIVE – HOW TO EXECUTE A VERTICAL LOOP, AXIAL ROLL, IMMELMANN AND SPLIT-S TURNS

1. Objective is to teach basic aerobatic skills to give student more confidence.
2. Doing aerobatics with a trainer is harder than doing the same maneuver with a more capable aerobatics plane. Maneuvers will be easier and look better with the second plane.
3. When doing aerobatics, always think safety. Keep the plane in a position so if the worst happens, it won't harm anyone. Never do maneuvers aimed toward the pits or toward spectators.

4. Make sure you use the following **<u>standard set-up</u>** for doing these maneuvers.
    a. **STANDARD SETUPFULL POWERPARALLEL TO RUNWAYAT LEAST ONE MISTAKE HIGH.**
5. **Always use the Standard Setup before every maneuver.** Do these maneuvers "by the numbers". Do not mix controls at this level.
    a. **Vertical Loop –** Do loops into the wind and right in front of yourself
        i. Standard Setup
        ii. up elevator
        iii. (when inverted) throttle back
        iv. release elevator at bottom of the loop
        v. increase throttle for level flight.
        vi. After the student knows his/her plane the student can use less than full up elevator. Use less on top and add it back in on the downward side
    b. **Axial Roll** – Do the roll down wind and right in front of yourself
        i. Standard Setup
        ii. Up elevator to about 20 degrees nose high and release
        iii. Full aileron (left or right) until the roll is complete and release
        iv. Up elevator to return to level flight
    c. **Immelmann -** Do the Immelmann into the wind. The student can do the Immelmann either out in front or down at the end of the field as a turnaround.
        i. Standard Setup
        ii. Up elevator to do a half loop and release
        iii. Full aileron (left or right) to roll out Rudder in addition to aileron may be needed on some planes.
    d. **Split-S** – You can use the split-S to turn around at both ends of the field.
        i. Standard Setup
        ii. Up elevator to about 30 degrees nose high, release the elevator
        iii. Aileron to roll inverted and release
        iv. Up elevator to do a partial loop to level flight going the other direction

<u>STEP SIX – LANDING</u>

1. Objective is to make consistent approaches from both directions and land.

2. Is the student ready? If all steps to this point have been truly mastered, landing will simply be an extension of what they already know.
3. If having difficulty practice Step 3.
4. With plane at a high altitude, reduce throttle to just above idle and fly the figure eight pattern. Note how ailerons respond more sluggishly And at an idle it is impossible to keep the plane from losing altitude. If the student tries to maintain altitude by pulling back with up elevator, plane will stall. As it continues to lose altitude in figure eight pattern, kick throttle back up to regain altitude. Repeat this several times. Make sure the student can maintain control even at slow speeds. Know at what point plane will stall.
5. Repeat Step 3.5 flying right down the middle of runway in oval pattern at a high altitude and reduce throttle for each pass down the middle or runway. Hold the heading for length of field at idle. Increase throttle at end of pass. Practice from both directions.
6. Practice approaches: Start with flying right down the middle of the field from right to left, veer off to the right (at about 45 degrees) shortly after plane passes by. Hold this heading until plane has made sufficient room to make a left final approach turn. Begin a long sweeping left turn with goal being to end the turn with the plane perfectly aligned with the middle of the runway. Cut throttle to just above idle and hold heading just until plane passes by. Increase throttle and veer off to left (at about 45 degrees). Hold heading until enough room is made for a right approach turn. Begin long sweeping right turn to line up with middle of runway. Repeat over and over. Then cut throttle earlier and bring plane closer to ground. If the student has mastered setting and holding headings this stage adds increase and decrease of throttle.
7. Final approach turn – Nose of plane must maintain a slightly downward attitude throughout final approach turn (especially if throttle is cut) This causes plane to maintain airspeed as it comes to the ground. The windier it is, the more important this point is. Once the student has progressed to this point where he/she can consistently align plane with runway and bring the plane to within twenty to thirty feet from the ground they are finally ready to land.
8. The student should not have to force down elevator into the approach to get the plane to come down. It will do so naturally because of the low (idle) throttle setting. During the last twenty to thirty feet of decent keep the wing tips nice and level. The natural tendency of the plane at idle will be to descend, so if proper heading is maintained it is a relatively simple matter of waiting until the plane comes to the ground. When

plane drifts down to within about 1 -2 feet above ground gently pull back on up elevator to flare.

9. Remind the Student – Do Not Panic – If approaching from right – right is your friend, if approaching from left – left is your friend. Meaning if landing from the right use right aileron if heading towards pits and vice-versa landing from left.
10. Practice landing and taking off with touch and goes. After landing taxi back, take off and land again. When proficient reapply throttle as soon as plane touches down – true touch and go.

STEP SEVEN – DEAD STICK LANDINGS

1. Dead stick practice – Cut throttle and pretend engine is no longer running. At first have plane in a nice approach position so the student can land with ease. Continue practicing, get plane into more precarious conditions when they cut throttle.

FLIGHT CERTIFICATION DEMONSTRATIONS (SOLO FLIGHTS)

1. The whole point of RC Training is to get the beginner to the point where they no longer need help. If he/she has successfully completed the steps listed they should be ready. They are by no means an expert pilot. They have had close supervision. Now there will be no instructor to take control when things go wrong.
2. The student will complete the following tasks without assistance. Proper flight etiquette will be observed during the following exercises.
    a. Taxi to an appropriate position on the runway and have a safe successful takeoff
    b. Fly at least 2 field patterns demonstrating level flight and highly controlled turns.
    c. Successfully and safely land the aircraft and bring the aircraft to a complete stop.
    d. Execute a dead stick landing (engine at idle)
    e. Complete 1, 2, 3 and 4 at least 3 times.
    f. During the 3 flights, the student must demonstrate his/her ability to do the following aerobatic maneuvers.
        i. loopb
        ii. axial roll
        iii. immelman or split-s turn

NOTE: The student will perform the above SOLO FLIGHT CERTIFICATION in the presence of a qualified Instructor other than his/her training instructor.

<u>Instructors:</u> When student has successfully completed training, notify the Training Coordinator of student's completion date.