

## FINAL ASSEMBLY

Assemble and trim all plastic parts, see detail note. Cement cowl to P1. Cement stabilizer to fuselage against P9. Cement rudder to top of L2, against rear of fuselage. Cement lower wing in place on bottom of fuselage, lining up double ribs with fuselage side. Check that both tips are same height from fin surface. Lower wing must be dry before proceeding. Trim out notches in all gussets in both wings. Make center strut assemblies as described in detail note. Securely cement bottom of outer wing struts WS's into notches in lower wing. CAUTION: Push down firmly until WS's rest on wing for proper incidence, otherwise model will not fly. When struts are dry, put top wing into position on struts, pressing down firmly until wing is seated on WS's. CAUTION: Wing must rest on WS's for proper incidence, otherwise model will not fly. Assemble center struts are cemented on each side. Top fits into notches in A & B. Bottom fits into notches in L8 & L9. Complete fuselage below lower wing by cementing F4A to rear of P4 & F5A to bottom of wing as shown in detail sketch. Cement 1/16 sq. stringers in place as shown. Cement L10's between stringers as shown behind F4, flush with surface. It is necessary to have access to rear hook to replace rubber motor. Cut out stringer immediately below side keel L5 on right side, between F8 and F9. Fit a piece of 1/16 balsa into space. Cement cloth tape to bottom (half over door and half over fuselage) to act as hinge. Cement a strip of 1/16 sq. to side keel L5 to act as stop to keep door flush with surface. Hold top with Scotch Tape. Use two generous coats of cement on all strut attachments, allowing drying time between coats. Make two landing gear strut assemblies, cementing LG to LG1. When dry, sand to streamline shape shown and groove inside of strut (ball point pen or similar pointed object) to depth of landing gear wire at exact position shown on side view. Struts are then cemented in place, wire in groove now flush with surface. All remaining landing gear struts are 3/32 x 3/16 strip balsa sanded to streamlined shape. Cut center struts to length, bevel bottom to fit against LG and cement in place. Top is cut 1/16 short of fuselage. Cut and cement short horizontal struts in place between top of LG1 & F3A. Do likewise with top diagonal struts. Rear struts are cut 1/2" over size. To fit past slots in L10 into fuselage, bevel bottom and cement securely in place. Entire landing gear moves back as one unit while rear struts move through slots in L10's for shock absorbing travel. On engine powered models, make landing gear struts from hardwood. Model is now painted; see three-view

drawing or box top. Striping, etc., as shown is painted. Use masking tape for best results. For best flight performance, use a minimum of color dope. Apply decals by dipping in water and sliding off into position shown. Cut instrument panel from plan and cement to rear of F5 in cockpit. Bend windshield as noted on pattern (see detail) and cement to front of cockpit as shown on side view. Cement pilot in cockpit. Insert bearings into wheels and assemble with wheel pants as described in Plastic Parts Detail. All installations are shown in sketch and on side view. Outlines of scale control surfaces can be drawn on with India Ink. Insert straight end of propeller shaft thru rear of nose bearing. Slip on two washers provided and insert shaft thru back of free-wheeling propeller. Bend about 1/4" of shaft at right angle as shown on side view. Make two loops of rubber. Insert rubber thru rear door and engage on dowel. Slip remainder of rubber into fuselage and shake down towards nose. Make hook on end of a piece of wire. Slip thru hole in cowl and capture rubber on hook. Pull thru cowl and engage prop shaft. Nose bearing fits into center hole in cowl. Your Great Lakes Special is now completed. See flight instructions before flying model. GOOD LUCK AND HAPPY LANDINGS!!

Install controls after Fuselage Step 4 has been completed. Fill in area between P3 to P5 from side keel L5 to stringer above it, with scrap 1/16 sheet balsa, flush with outside of frame, also area from P9 to rear between L5 and stringer above, in same manner. Cut 1/8 slot in rear for control rod as shown. Cut two 18" lengths of lead-out lines (not provided in kit) and fasten them to bell crank. Mount bell crank on plywood platform as shown in Detail Sketch. Lead-out lines come through fuselage at holes drilled for them as shown. Cover fuselage with tissue as described in detail note. Cut stabilizer in half thru wide main spar as indicated by dotted lines. Round edges and install control horn at location shown on drawing, then join together with cloth hinges shown. Cement stabilizer to fuselage against P9. Tape elevators in neutral position (in line with stabilizer, neither up nor down). Make right angle bend at rear end of control rod at precisely the location of hole in elevator horn, with bell crank in neutral position as shown. Trim off excess and insert

into horn. Solder washer on end to prevent rod from coming off. Controls are now in neutral position and must work freely and easily. Cut rudder from fin on dotted lines shown on full size drawing. Cement rudder back on fin with rear of rudder turned at angle 1/2" towards outside of circle flown as shown. Clear for elevator movement and cement vertically to top of L2 and against rear of fuselage. Assemble wings to fuselage as described in Final Assembly Detail. Make wing guide from 3/32 Balsa, drilling holes indicated. Cement securely to bottom wing against struts as shown. Reinforce holes for lines in fuselage and wing guide with washers or eyelets. Thread lines thru holes in wing guide & tie loops in end of lines at least 3" past wing tip. Lines must be of equal length when elevator is in neutral position. Control system must operate freely and easily. CAUTION: Model must balance (or slightly nose down) at point shown on side view. If necessary, add weight. Use regular 1/2A control lines & handle when flying your Great Lakes Special. GOOD LUCK!!! GOOD FLYING!!!

## CONTROL LINE INSTALLATION

Test models used and drawing, shows Citizenship MDM Receiver, SE2 Escapement, used with SPX Transmitter. This equipment and other material necessary is not provided in kit. Radio is installed after lower wing is cemented in place as described in Final Assembly. Access to R/C equipment is thru removable belly block fitted to bottom of fuselage from F3A to F4, between 1/16 sq. stringers adjoining L3. Cut out L3 and fit soft Balsa belly block as shown in sketch. Bend hooks from pins & cement to fuselage on either side of belly block as shown. Rubber band across hooks keeps block in place. Strips cemented across bulkheads keeps belly block flush with surface. Cut rudder apart at location shown by dotted lines and assemble with cloth hinges. Bend wire yoke from 1/32 wire, install on rudder with 2/56 nut & bolt. Cut escapement base from 1/16 plywood and mount escapement, then cement to front of bulkhead P6 as shown. Cut a 3/32 slot in rear of fuselage for torque rod. Using a length of 1/16 wire at least 14" long, insert thru hole, then bend U in front of wire according to R/C manufacturer's instructions & as shown above. Pull back & engage U in escapement. Bend rear at right angle as shown, to engage in yoke. Cut off wire 3/4" above yoke. Raising and lowering yoke will increase or decrease the amount of rudder movement. Wire all radio equipment together in accordance with R/C

## BELLY BLOCK DETAIL

Make belly block from soft balsa. Cut to 3-view shape shown, then fit to bottom of fuselage as described in R/C installation.

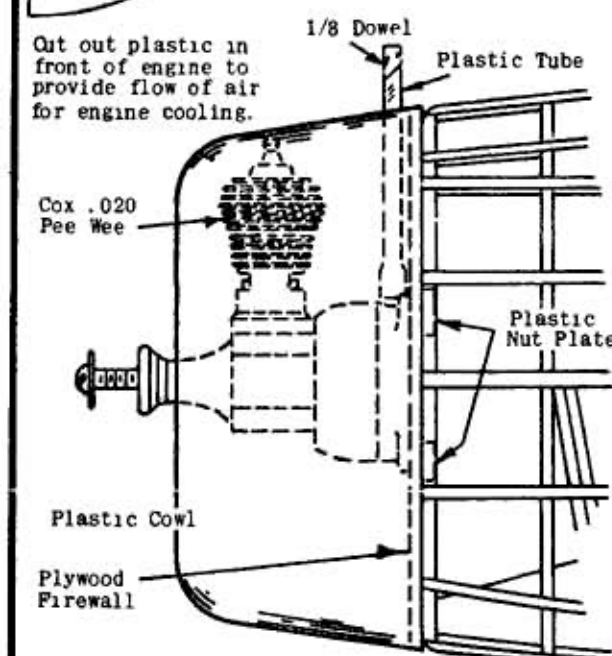
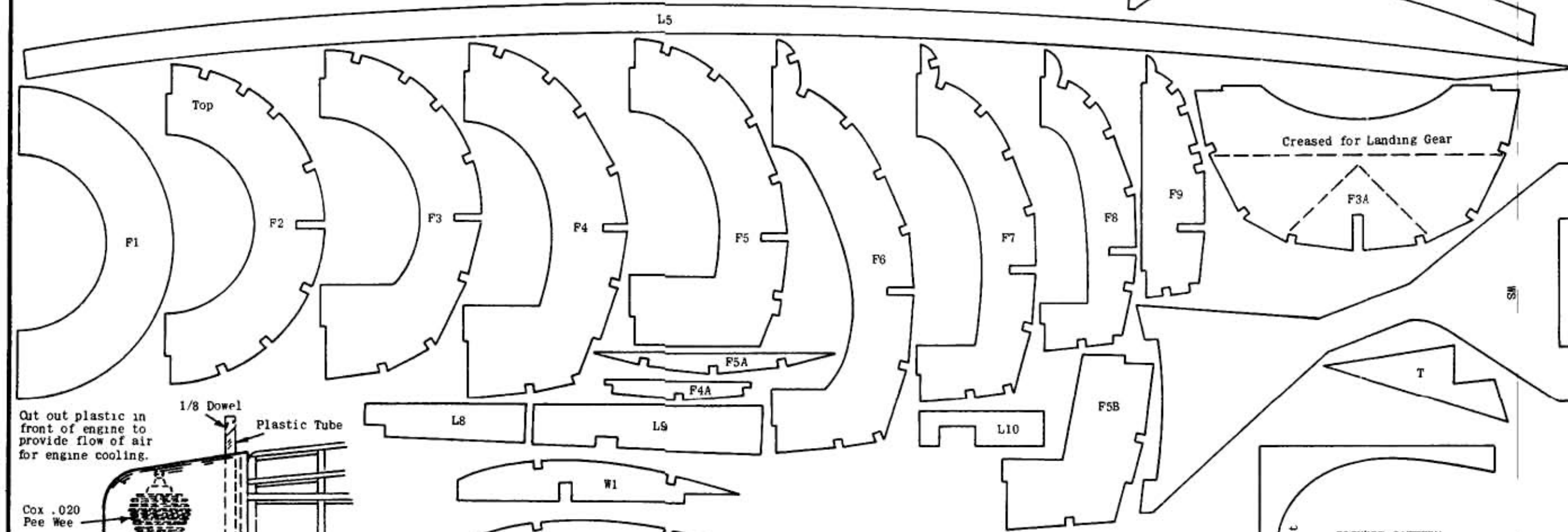
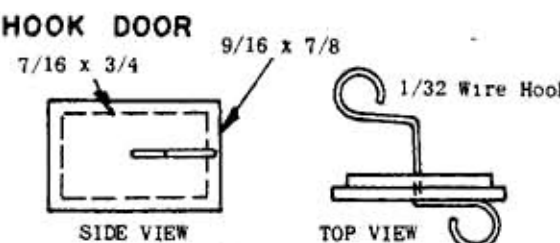
## RADIO CONTROL INSTALLATION

Test models used and drawing, shows Citizenship MDM Receiver, SE2 Escapement, used with SPX Transmitter. This equipment and other material necessary is not provided in kit. Radio is installed after lower wing is cemented in place as described in Final Assembly. Access to R/C equipment is thru removable belly block fitted to bottom of fuselage from F3A to F4, between 1/16 sq. stringers adjoining L3. Cut out L3 and fit soft Balsa belly block as shown in sketch. Bend hooks from pins & cement to fuselage on either side of belly block as shown. Rubber band across hooks keeps block in place. Strips cemented across bulkheads keeps belly block flush with surface. Cut rudder apart at location shown by dotted lines and assemble with cloth hinges. Bend wire yoke from 1/32 wire, install on rudder with 2/56 nut & bolt. Cut escapement base from 1/16 plywood and mount escapement, then cement to front of bulkhead P6 as shown. Cut a 3/32 slot in rear of fuselage for torque rod. Using a length of 1/16 wire at least 14" long, insert thru hole, then bend U in front of wire according to R/C manufacturer's instructions & as shown above. Pull back & engage U in escapement. Bend rear at right angle as shown, to engage in yoke. Cut off wire 3/4" above yoke. Raising and lowering yoke will increase or decrease the amount of rudder movement. Wire all radio equipment together in accordance with R/C

manufacturer's instructions. Batteries and receiver are stored on belly block. Line compartment with foam rubber. Bend small wire hook for antenna attachment and cement to front of rudder. Bring antenna out of cockpit & fasten to hook with rubber band as shown. When model has been completely finished, it must balance as shown on side view. If necessary, add weight, but DO NOT ATTEMPT TO FLY UNTIL BALANCE HAS BEEN ACHIEVED. Check wings and tail for warps. If any have developed, remove with steam method as described in Covering Instructions. Wait for calm weather for test flights. Field test R/C equipment before flying, as described in manufacturer's instructions. Start engine and THROTTLE DOWN TO LOW SPEED, then launch model with nose pointed slightly down at a point 50 or 60 feet in front of you and release at approximate flying speed. Model should fly in straight line and either maintain or slightly lose altitude. If model turns to either side, rudder or engine may be off to opposite side to achieve a straight flight, which is how it should glide & fly. If model glides well, but stalls under power, point front of engine down (down thrust) by placing shim under top of fuel tank. Increase engine RPM as adjustments are made, checking R/C controls before each flight. GOOD LUCK & GOOD FLYING!!!

## R.C. WINDING HOOK DOOR

Insert 1/16 Sheet in area between P8 & P9, from side keel L5 to stringer above it when dry, cut out square hole 7/16 x 3/4. Cement piece cut out to 1/16 x 9/16 x 7/8 (grain running cross-wise) as shown. To form door. Bend half of hook shown from 1/32 wire and push straight end in door - then bend hook on other end as shown in top view. Cement hook securely to door in position shown. Place loop of rubber between escapement and hook on inside of door.

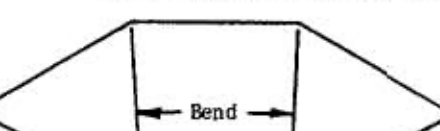


## ENGINE INSTALLATION

Engine is used if model is being built for control line, free-flight or radio. Engine & installation material not provided in kit. Drawing shows installation of Cox .020 Pee Wee Engine, however, any other similar engine may be used. Entire fuselage, or front back to F5 should be covered with 1/32 or 1/16 sheet Balsa. Engine is installed on die cut 1/16 firewall provided in kit. Carefully drill 1/8 holes at punch marks. Mount engine to firewall with #2 nuts & bolts, tightening nuts securely. Cut plastic nut plates from solder sheet & cement to back of firewall over nuts, drilling hole so that bolts can protrude. Use cement generously. Nut plate keeps nuts from turning so that engine can be removed by just unscrewing bolts. When dry, remove engine. Securely cement firewall to front of P2 as shown. When dry, replace engine. Cut molded cowl from plastic sheet as described in plastic parts detail & fit to firewall. Remove cowl then add a 1-1/4 length of 1/16 I.D. plastic tubing to each tube adjoining needle valve. Cut top of tubing at angle facing forward for easy admission of air stream. Make needle valve extension. Cut 3/4" length of 1/8 I.D. tubing and force over head of needle valve. Cut a 1-1/4" length of 1/8 dowel & insert into tubing. This should be tight fit. Needle valve can now be adjusted without removing cowl. Cowl is notched to fit, then cemented or held in place with small wood screws. If it becomes necessary to remove engine for any reason, break cement joint of cowl. Engine is then reinstalled and cowl re cemented or screwed back in position.

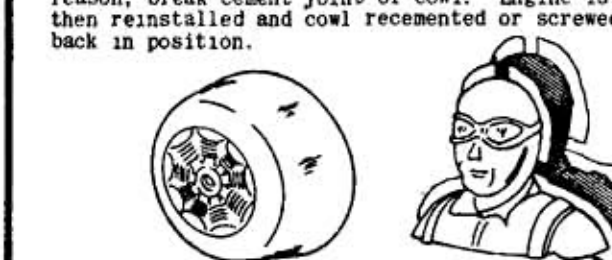
## INSTRUMENT PANEL

Cut from plan and cement to P5



## WINDSHIELD PATTERN

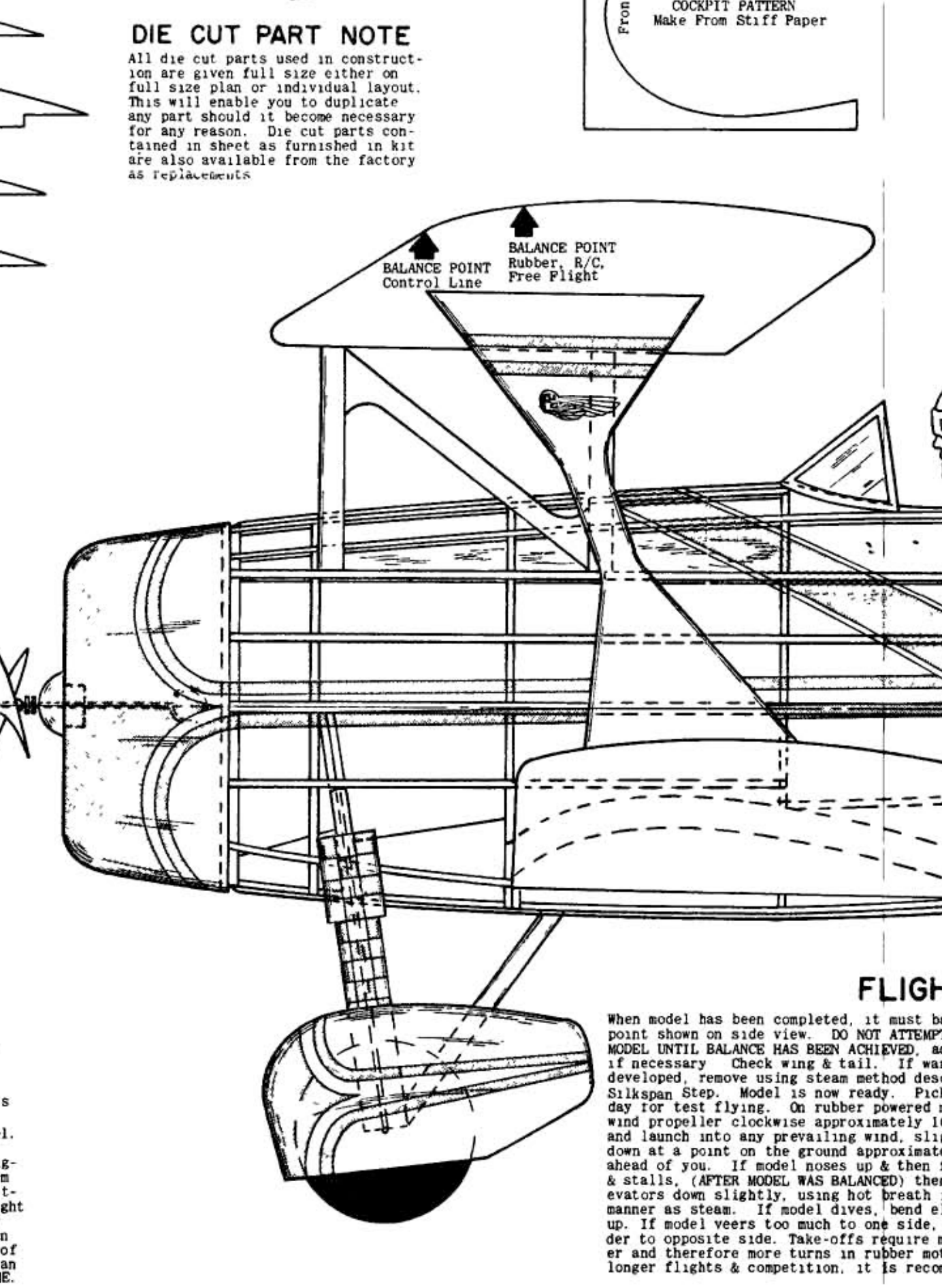
Place celluloid provided over full size drawing and score outline with razor or knife. Celluloid breaks easily on scored line. Bend on lines, then cement in place as described in Final Assembly.



## PLASTIC PARTS DETAIL

For best results, follow instructions carefully. COWL: Cut from sheet leaving about 1/16 of material for trim. Excess material may be trimmed with knife or razor blade and then sanded with fine sandpaper. Engine cowl is placed on bulkhead F-1 for support while sanding PILOT: Leave about 1/8 excess material on halves. Cut from sheet. Carefully trim out slots about 1/8 wide on top, bottom and sides. Right to the edge of the Pilot as shown. This will permit accurate assembly. Cement halves together, lining up carefully at slots. Use cement sparingly, however, since excessive use may distort plastic. After assembly, allow to dry thoroughly then trim and sand off smooth. NUT PLATES: Cut from sheet right along trim line and install as described in Engine Installation. WHEEL PANTS: Cut halves from plastic sheet in same manner as pilot. Leaving excess material and making slots for assembly. Make pin hole for axle, then place wheel pants (after inserting wheel bearings) and insert axle through wheel pants engaging wheel at same time. Wheel pants is securely cemented to bottom of struts and to axle protruding on outside of wheel pants. PAINTING: Use regular plastic model paint or enamel. Model airplane dope can be used ONLY IF APPLIED IN LIGHT SPRAY COATS, allowing paint to dry thoroughly between coats. Excessive use of dope may deform plastic. Parts may be used red. If painting light color apply a coat of silver, followed by a light coat of white before painting final color. Darker colors may be applied directly to red plastic. When cementing parts in place on model, use light coats of cement applied sparingly. If necessary use more than one coat, but DO NOT APPLY A THICK COAT AT ANY TIME.

When model has been completed, it must balance at point shown on side view. DO NOT ATTEMPT TO FLY UNTIL BALANCE HAS BEEN ACHIEVED. Add weight if necessary. Check wing & tail. If warps have developed, remove using steam method described in Silkspan Step. Model is now ready. Pick a calm day for test flying. On rubber powered models, wind propeller clockwise approximately 100 turns and launch into any prevailing wind, slightly nose down at a point on the ground approximately 50 ft. ahead of you. If model noses up & then falls off & stalls, (AFTER MODEL WAS BALANCED) then bend elevators down slightly, using hot breath in same manner as steam. If model dives, bend elevators up. If model veers too much to one side, bend rudder to opposite side. Take-offs require more power and therefore more turns in rubber motor. For longer flights & competition, it is recommended



## CONTROL ASSEMBLY

Drill 1/8 hole thru plywood platform. Insert bolt thru bell crank and run up nut bolt till bell crank has just enough room to swing freely. Closed face of nut down. Insert thru platform and install bottom nut closed face up. Tighten nut towards each other leaving bell crank to pivot freely. Secure nuts with solder or glue.

## SPECIFICATIONS AND COLOR SCHEME

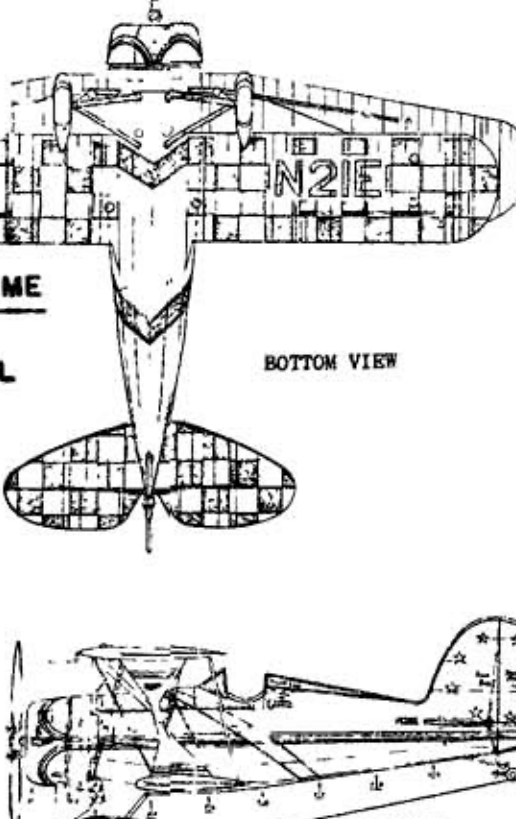
### HAL KRIER'S GREAT LAKES SPECIAL

Detailed performance and other specifications unavailable. Engine used is 185 HP Warner Radial, which necessitated building up fuselage to fit round contour of engine and cowl. Kit is of Krier's airplane, which was painted white, all trim bright red. Kit decals are authentic, as is the color scheme shown on the box lid.

### ORIGINAL GREAT LAKES TRAINER

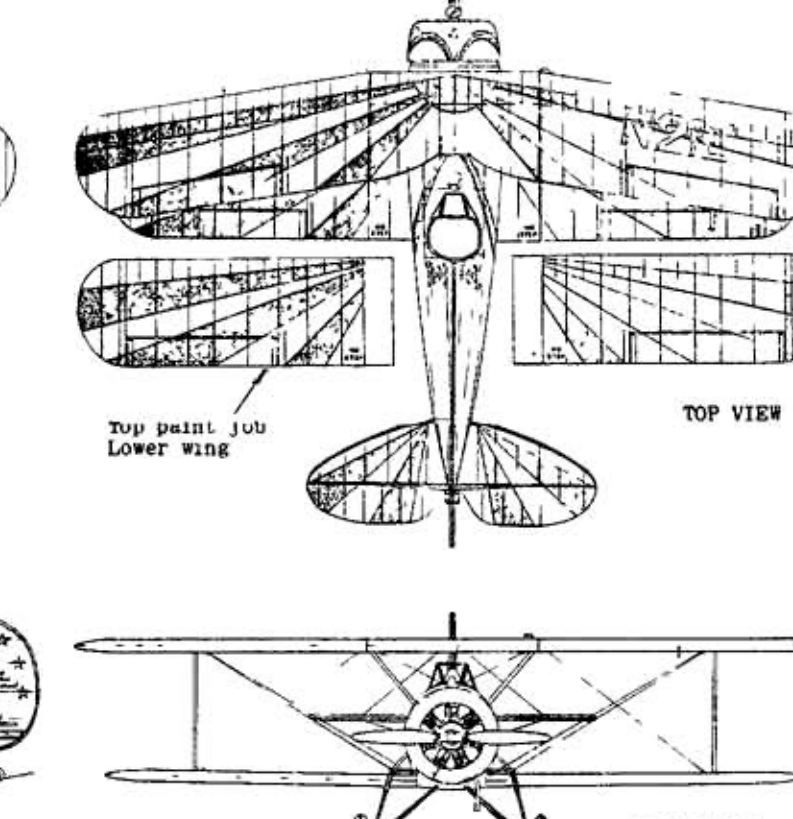
Wing Span - 28 Ft. 6 in.  
Length - 20 Ft. 3-13/16 in.  
Height - 9 Ft. 7 in.  
Engines - 95 HP, Inverted A.C.E. Cyls (Also upright 95 HP, Inverted Menasco Pirate B-4  
Fuel Tank - 26 Gallons

COLOR SCHEME:  
Color used was optional with each owner. Fuselage, vertical tail & struts were background color; with contrast on trim, horizontal tail & wings. Some were solid color throughout, with contrast on trim only.



## CAUTION:

Do not fly control line models in the vicinity of electric power lines!



KIT A24  
WING SPAN 24"

HAL KRIER'S  
GREAT LAKES SPECIAL

## FLIGHT INSTRUCTIONS

When model has been completed, it must balance at point shown on side view. DO NOT ATTEMPT TO FLY UNTIL BALANCE HAS BEEN ACHIEVED. Add weight if necessary. Check wing & tail. If warps have developed, remove using steam method described in Silkspan Step. Model is now ready. Pick a calm day for test flying. On rubber powered models, wind propeller clockwise approximately 100 turns and launch into any prevailing wind, slightly nose down at a point on the ground approximately 50 ft. ahead of you. If model noses up & then falls off & stalls, (AFTER MODEL WAS BALANCED) then bend elevators down slightly, using hot breath in same manner as steam. If model dives, bend elevators up. If model veers too much to one side, bend rudder to opposite side. Take-offs require more power and therefore more turns in rubber motor. For longer flights & competition, it is recommended

that the loops of rubber be lubricated with model lubricant (available at most Hobby Shops) or Castor Oil. Apply sparingly and KEEP OFF KNOT OR IT WILL COME UN-KNOT! Use water which you can make by tightening hook into hand drill. To store winds in motor, stretch rubber out 3 to 5 times original length, then proceed to wind, moving slowly back to model. Feeling rubber from time to time to be certain it does not get so taut that it breaks. Upon reaching the nose, motor should be completely wound. When replacing rubber motor, purchase contest grade T56 from rubber at your favorite hobby shop. Engine powered free-flight models are tested & flown in same basic manner as above and is described in Flight Instructions at end of Radio Control Installation Note. GOOD LUCK AND GOOD FLYING!!!





