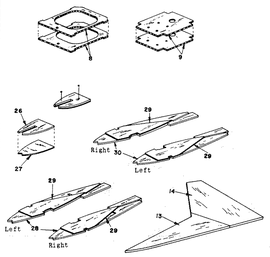
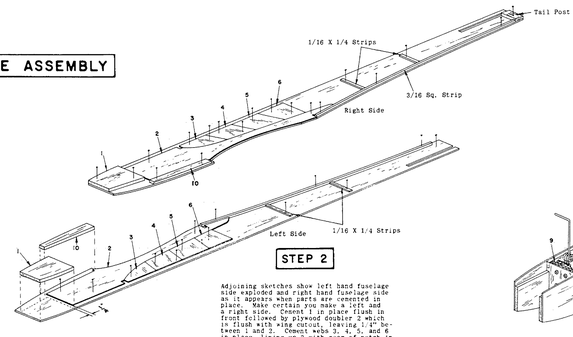


STEP 1

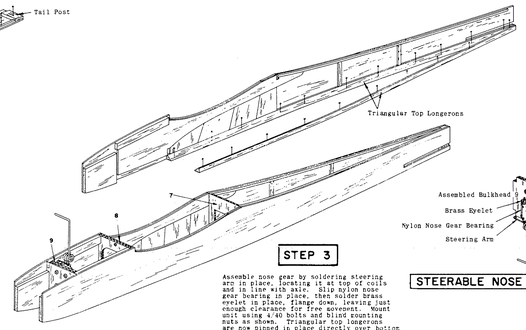
To prevent parts from sticking to plan, and still permit good drying, spread Saran Wrap or a similar kitchen film over work bench or plan. For rapid assembly, first complete the sub-assemblies shown, as follows: Cement the two bulkheads 8 together to form a double thickness and do likewise with both bulkheads 9, then drill 1/8 holes at punch marks. Make two units of 26 cemented to 27. Make two assemblies cementing 29's to 28's making one each left and right as shown in sketch. Do likewise by cementing 29's to 30's, making a left and right as shown. Cement 13 to 14 to form fin.

FUSELAGE ASSEMBLY



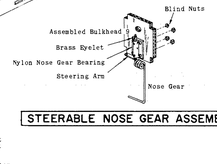
STEP 2

Adjoining sketches show left hand fuselage side exploded and right hand fuselage side as it appears when parts are cemented in place. Make certain you make a left and a right side. Cement 1 in place flush in front followed by plywood doubler 2 which is flush with wire cutout, leaving 1/8" between 1 and 2. Cement webs 3, 4, 5, and 6 in place using 1/4" strip to keep 6 back 1/8 as shown. Cement 10 with front of notch in 2. Cement 10 at bottom of 1. Cement tail post flush with rear, then pin and cement 3/16 sq. strip from 2 to front of tail post, flush with bottom. Cut two strip stiffeners to proper length (see side view) using 1/16 x 1/4 strip material provided, and cement in place.

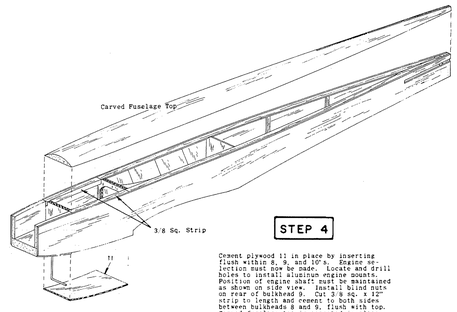


STEP 3

Assemble nose gear by soldering steering arm in place, locating it at top of coils and in line with axle. Slip nylon nose gear bearing in place, then solder brass eyelet in place, flange down, leaving just enough space for it to turn freely. Assemble using 4-40 bolts and blind mounting nuts as shown. Triangular top longerons are now placed in place directly over bottom view, flat side up as shown. Bevel rear to fit and cement together. Sides and bulkheads are now assembled at the same time. First sketch shows left hand side in place for clarity only. Apply cement then pin sides to triangular longerons and cement in place bulkheads 7, 8, and 9 (nose gear towards back) as shown in sketch. Use pins and cement generously and allow to dry thoroughly before removing from flat surface.

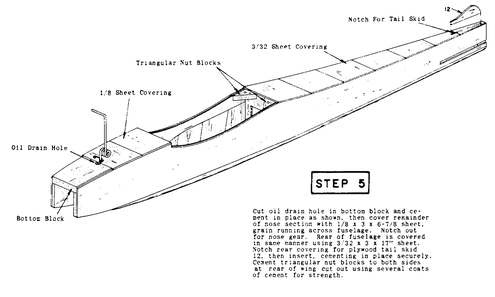


STEERABLE NOSE GEAR ASSEMBLY



STEP 4

Cement plywood 11 in place by inserting flush within 8, 9, and 10's. Engine section must now be made. Locate and drill holes to install aluminum engine mounts. Position of engine shaft must be maintained as shown on side view. Install blind nuts on rear of bulkhead 9. Cut 3/8 sq. x 12" strip to length and cement to both sides between bulkheads 8 and 9, flush with top. Carved fuselage top is cemented in place. Fuselage is wider, therefore top must be centered. Fuselage is trimmed to final shape as explained later.



STEP 5

Cut oil drain hole in bottom block and cement in place as shown, then cover remainder of nose section with 1/8 x 3 x 6-7/8 sheet, grain running across fuselage. Notch out for tail skid as shown. Tail skid is formed in same manner using 3/32 x 3 x 12" sheet. Notch rear covering for plywood tail skid 12, then insert, cementing in place securely. Cement triangular nut blocks to both sides at rear of wing cut out using several coats of cement for strength.

NOSE GEAR LINKAGE

AILERON LINKAGE

LINKAGE DETAIL

Sketches show the various typical linkage connections using the special Nylon and Steel R-C fittings provided in kit. Nose gear sketch shows how Push-rod is bent, covered with plastic tubing and engaged in steering arm. Aileron linkage sketch shows how clevis is engaged in aileron and servo arm. Opposite end shows clevis engaged in Aileron horn. Push-Rod sketch shows how 90 degree bends are made in 1/16 wire on both ends. One end is pushed into 1/4 Sq. balsa push-rod, where it is bound and cemented. The other end is inserted in Push-rod Retainer as shown in Steps A-B-C, engaging servo arm. Opposite end of push-rod (own threaded rod provided, which is cut to proper length, unthreaded end bent and both nylon keepers and clevis screwed on to threaded end which is then ready to be engaged in control horn.

PUSHROD LINKAGE

FINAL ASSEMBLY

Install Aluminum engine mounts and then bolt engine in place with propeller and spinner. Original Lancer uses 2-1/2 diameter spinner. This may vary to suit model builder as long as it is properly balanced. Cut slot in fuselage in now rounded off and sanded smooth as shown in sketch and typical cross section. Triangular upper longerons provide necessary material so that top of fuselage may be rounded gracefully into carved top block. All corners should be rounded off to pleasing shape, and nose should flow smoothly into round spinner shape as shown. Cement stab securely into slot in fuselage followed by fin. Rudder 15 is sanded to shape, then hinged to fin and stab and mounted to fin and fuse with special poly hinges (see detail). Installation of 39's are optional as described in Stab Assembly. Locate wing mounting holes as follows: Install nylon screws completely into nut blocks. Place wing in position, inserting dowel into hole in bulkhead. Place carbon paper between wing and nylon bolts and press firmly thus leaving an impression. Remove wing and drill slightly oversized 1/4" holes (so screws pass through freely) through trailing edge at marked locations. Remove nylon screws, then re-mount wing to check trailing edge hole location. Model is now covered with material of your choice (not included in kit). For realistic appearance, area covered by canopy can be painted dark gray and treated as modeler desires, including pilot head, etc., none of which is provided in kit. Location of canopy is optional. Plans show conventional location, however moving canopy forward will create a jet-like appearance. Model is now painted to suit individual taste. Box top shows original color scheme and location of decals. Wheel pant struts are now installed by inserting spars thru hole in landing gear blocks. Secure with retainers and #4 Tap screws. Install both struts shown on Wing Step 3. Wheels and radio equipment are now installed in accordance with manufacturers instructions. Typical position of radio equipment is shown on plan as in the fuselage lickage. Linkage uses 1/4 sq. x 18 balsa strips provided, with 1/16 wire spar cemented and bound to front, and threaded clevis shaft for rear so that nylon clevis may be installed and adjusted. Fuel tank is shown to-scale and is based on 8 oz. nylon brand fuel tank, any similar size and type may be used. Battery pack is located under fuel tank as shown. Entire compartment is stuffed with foam. IT IS IMPERATIVE THAT MODEL BALANCE AT POINT SHOWN BY ARROW. Radio components may be shifted forward or aft to achieve balance at that point. IF NECESSARY, ADD WEIGHT TO FRONT OR BACK SINCE MODEL MUST NOT BE FLOWN UNTIL THIS BALANCE IS ACHIEVED. Main wheels are 2", and nose wheel is 2-1/2". This is optional, however relative sizes should be maintained. We would welcome your comments on this Lancer kit and it's flight performance. Address correspondence to Sterling Models, Inc. - Wister and Belfield Ave. - Phila., Pa. 19144 U.S.A. - Attn: Engineering Dept. Good Luck -- Much Fun -- and Happy Landings.

SIDE VIEW

TYPICAL CROSS-SECTION AT BULKHEAD 7

CLEVIS DETAIL

Break off pin and insert thru holes. Push until locking rings snap in place. Screw Clevis on threaded shaft.

Lancer

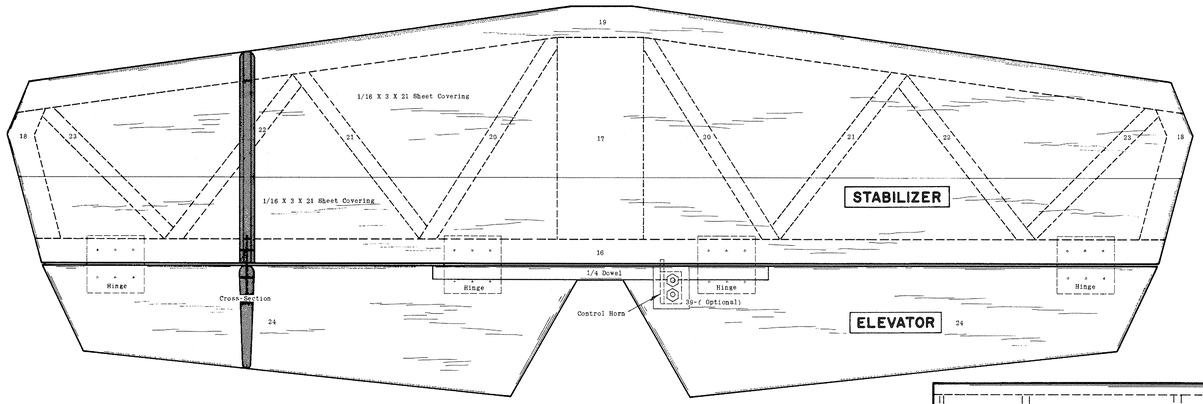
KIT FS25

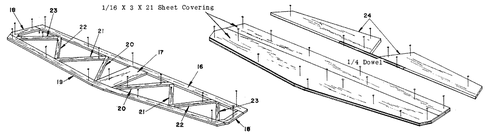
Advanced R/C Stunt Trainer

SPAN: 53½" AREA: 525 sq. in. WGT.: 3¾ lb. (less R/C) ENGINE: .35 to .51

Sterling MODELS INC. PHILA., PA. 19144, USA

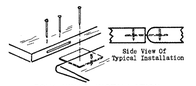
R1PAC916





STABILIZER ASSEMBLY

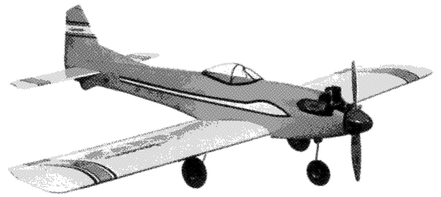
Stabilizer is built directly over plan using parts 16 to 23 as shown in sketch. Allow to dry thoroughly before removing pins, then covering top and bottom with 1/16 X 3 sheet. Joint at center should be pinned down to flat surface while sheet covering is drying, to prevent warps. Pin 24's in place then securely cement 1/4"dowel into notches and allow to dry thoroughly. When dry, regrow and add two additional coats of cement making certain sections stay aligned with each other. Sand stabilizer smooth, rounding edges and tapering elevators to cross section shown. When rounding tips, be sure to keep points sharp to maintain distinctive Lanzer shape. Join elevators to stabilizer with special poly hinges (see detail). If other than Lanzer hinges are used, drawing is approximate location. This may vary with the installation of your own radio gear. If modeler desires, plywood reinforcement plates 3/8"x say be recessed into elevator to provide a stronger mounting surface. This, however, is not really necessary with the type of horns provided in the kit.

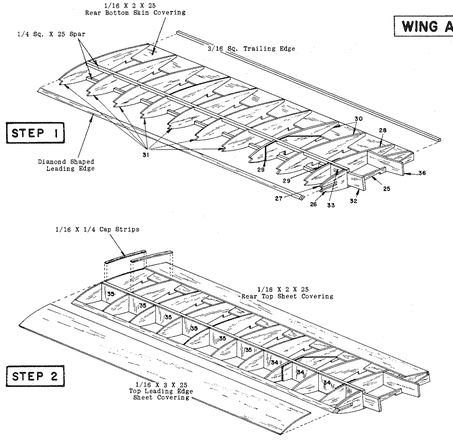


POLY HINGE INSTALLATION

The use of Polypropylene as a hinge is now wide spread commercially & industrially because this miraculous plastic actually gets stronger with each bend; yet it is so flexible, that hinged surfaces move freely & easily. Believe it or not this Poly hinge has a ten-million-bend life expectancy. You can test its fantastic life by trying to tear it on the hinge (crease) line.

TO INSTALL: Cut strip to desired hinge width (generally about 1"). Slit surfaces to be joined as shown (in center of thickness). Epoxy hinge into slits, (hinge line in center between surfaces) leaving enough space for free movement Secure hinge by pushing straight pins through wood AND HINGE as shown. Pins are clipped flush





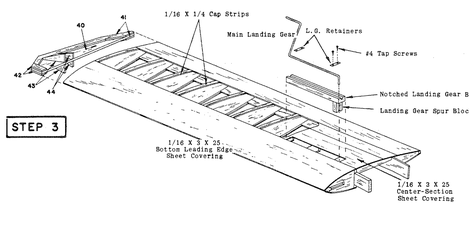
WING ASSEMBLY

STEP 1

Select a flat building surface to insure a non-warped wing. Sketch shows right wing panel. Pin 1/4 sq. x 25 bottom spar directly over plan, then cement ribs in place by the number shown, followed by top 1/4 sq. spar. Line up ribs over plan then insert 1/16 x 2 x 25 rear bottom skin covering into notches. 3/16 sq. trailing edge is overlapped by trailing edge of rib 28. Diamond shaped leading edge is cemented to front of ribs. Rib 33 is cemented to front of spars and inside of rib 28, with side marked "center" against assembled front rib 26 and 27 which is now cemented to front of spars and 33. Cement 32 (between spars) and 36, in place.

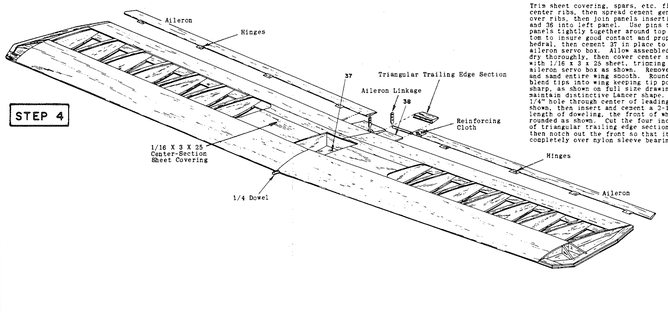
STEP 2

Cement 1/16 x 2 x 25 rear top sheet in place, then cement vertical webs 34's and 35's in place, followed by 1/16 x 3 x 25 leading edge sheet. Bear of leading edge sheet comes to center of spar to allow gluing surface for 1/16 x 1/4 cap strips (takes from strip sheet) which are now cut to length and cemented to top of ribs between front and rear sheeting. ALL CEMENT JOINTS MUST BE THOROUGHLY DRY BEFORE WING IS REMOVED FROM FLAT SURFACE TO INSURE A WARP FREE WING.



STEP 3

Cement botton leading edge sheet and cap strips in place. Securely cement landing gear spur block into corner formed by spars and rib 28/29. Notched landing gear block is now securely cemented into notches across ribs. Be certain hole in landing gear block lines up with slot in spur block. Check by inserting landing gear wire. Reverse, add coats of cement to center section in area covered with 1/16 x 3 x 25 sheet as shown in sketch and full size view, notching out for landing gear block which is flush with covering. Landing gear strut installation is shown for clarity and will be referred back to this sketch when this installation is made in Final Assembly step. Assemble wing tip by cementing 43's and 42's to top and bottom of 40 as shown in sketch and full size plan. Form triple layer of 44's this is accomplished by cementing one and two 44's are added to top and bottom as shown, locating so that they are flush with rib. Opposite wing panel is constructed in the same manner except 32 and 36 are obviously omited.



STEP 4

Trim sheet covering, spars, etc. flush with center ribs, then spread cement generously over ribs, then join panels inserting 32 and 36 into left panel. Use pins to hold panels tightly together around top and bottom to insure good contact and proper dihedral, then cement 37 in place to complete aileron servo box. Allow assembled wing to dry thoroughly, then cover center section with 1/16 x 3 x 25 sheet. Trimming out for landing gear block. Round off leading edges and trailing edges of wing keeping tip points sharp, as shown on full size drawing, to maintain distinctive Lanzer shape. Drill 1/4" hole through center of leading edge as shown, then insert and cement a 2-1/4" length of doweling, the front of which is rounded as shown. Cut the four inch length of triangular trailing edge section in half, then notch out the front so that it fits completely over nylon sleeve bearing on aileron linkage as shown. Trailing edges are then cemented securely in place capturing aileron linkage. Plywood bottom plate 38 is now cemented to bottom of wing in position shown on full size plan, so that rear is flush with rear of trailing edge sections. Use cement generously on this installation. When dry, check that aileron linkage moves freely. Round off front of triangular 24" long aileron stock. Locate and drill 1/16" for linkage spur, and cut slot for hinges. Hinge with 3 poly-pleze hinges as shown and described in sketch and detail note. Cut a length of cloth tape provided and insert through space between aileron and wing, and cement securely around aileron to strengthen linkage spur area. Cloth tape is now wrapped completely around top and bottom of center joint using cement generously. Work cement into cloth and when dry apply a second coat of cement which is then sanded smooth.