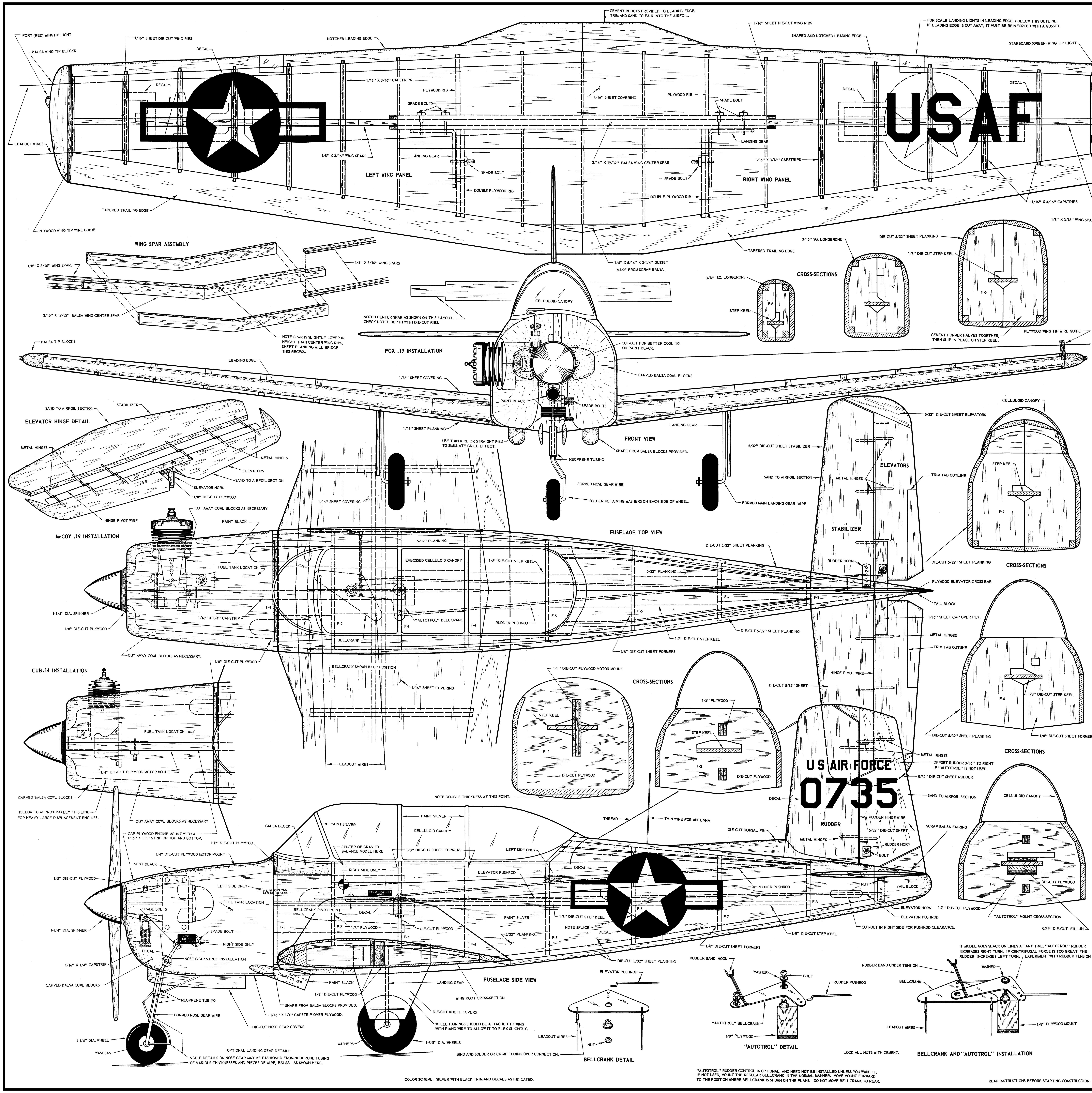
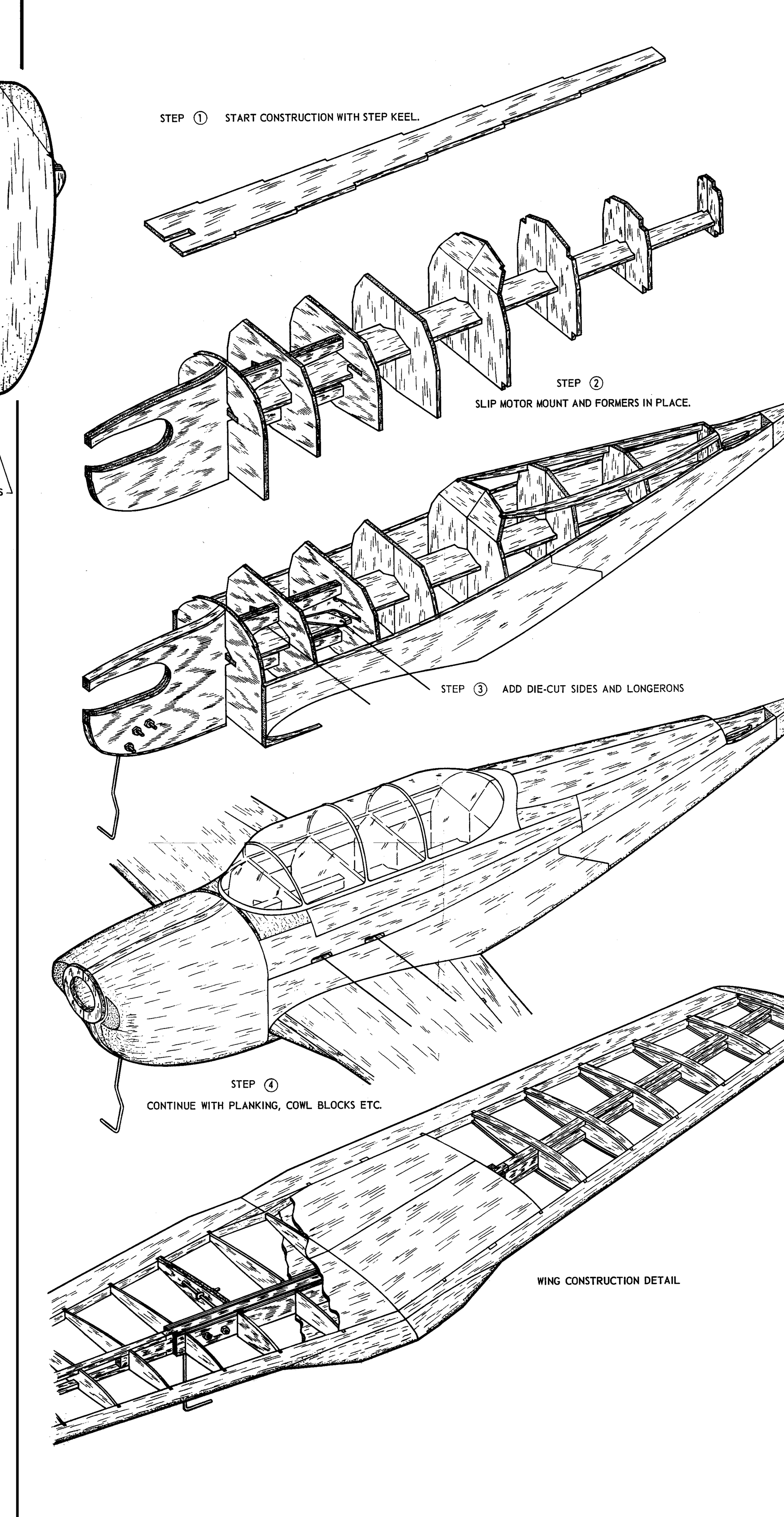


CONSTRUCTION DETAILS:



BUILDING AND FLYING INSTRUCTIONS:

The Beech Aircraft T-34A "Mentor" is a two place primary trainer ordered into production for the USAF. Powered by a 225 horsepower Continental engine, the service ceiling is 20,000 feet, range 785 miles and top speed is 180 miles per hour.

The three view below will give you an idea of how well its proportions are suited to controline flying. The model is designed to 1" scale from factory supplied information. The Jim Walker "U-Control" system is used for elevator control, together with the optional "Autotrol" rudder control, which is activated by varying centrifugal forces exerted on the control lines.

Before starting actual construction, study the die-cut sheets. The 1/4" plywood is the motor mount, which is installed vertically. The 1/8" ply includes formers, spar gussets, ribs, elevator cross bar and other easily identified parts. One die-cut sheet of 1/16" includes ribs and the elevator cross bar. A 1/8" die-cut Step-Keel is included on what appears to be a partial sheet. Another 1/8" die-cut sheet includes fuselage formers and landing gear covers. Parts for the tail assembly will be found on the 5/32" die-cut sheets. Remaining 5/32" die-cut sheet for the most part are used for fuselage sides and planking. Position of each may be clarified by referring to Step 4 above. Should you be confused at this point about the position of any part, proceed with the construction, and you will find a need for it as you progress.

We suggest you begin construction with the wing structure. Study the wing plan, the wing sketch above and the spar assembly detail at upper left of plan. First cement the spar assembly together as detailed, complete with plywood gussets. When dry, slip the wing ribs, starting with the center rib and working toward one wing tip, into place and align over plan. Note the use of the plywood ribs around the landing gear installation. Leading and trailing edges are now cemented to the ribs, and aligned with care once again. Repeat procedure for opposite wing panel. Note ribs are undercut 1/16" on both top and bottom cambers of the airfoil for the sheet planking and cap strips. The center section leading edge fillet blocks are now cemented in place, as well as the trailing edge gusset. Next, install the formed landing gears with the spade bolts provided. Draw nuts tight and then apply center section planking and cap strips, both top and bottom cambers of the airfoil. Add wing tip blocks and trim and sand the entire wing structure.

Tail construction is simple. Stab is one piece, and rudder and elevator tips should be cemented as shown on the plan. The elevators are joined by a 1/8" plywood cross-bar capped with a 1/16" sheet balsa layer to being it up to thickness. Sand all units to an airfoil section and install metal hinges and horns. The hinges will be almost hidden from sight when properly inserted into balsa.

Fuselage construction is pictorially illustrated above. Begin assembly with the 1/8" die-cut Step-Keel shown in Step 1. Step 2 shows formers and motor mount in position. The first three formers are 1/8" plywood. Install F-1 first, and align with care. Next insert the 1/4" motor mount, aligning with care once again. Follow this with F-2 and F-3. Join split balsa 1/8" die cut sheet balsa formers as shown in cross sections, and slip each in turn onto the steps of the Keel.

Cap the edges of the 1/4" ply with 1/16" x 1/4" provided, to cover the end grain. Splice and install die-cut fuselage sides as detailed in Step 3. Follow with 3/16" square longerons on aft fuselage. Trim them down as detailed at F-5. Add tail block and spade bolt the nose gear to the grooved area in the ply.

At this time decide on the control system you want to use. You may install the Jim Walker "U-Control" system with or without the "Autotrol" automatic rudder system. If you elect to use the "U-Control" system only, move the bellcrank mount forward to the bellcrank position shown. Mount on bearing provided. If you use the "Autotrol", pivot with bearing through bellcrank, and pivot through mount with the second bearing supplied in the kit. In operation "Autotrol" increases or decreases rudder offset as lines slacken or tighten during flight. Rubber tension must be adjustable and a hatch provided for inspection, etc. Action must be free with stops installed if found necessary.

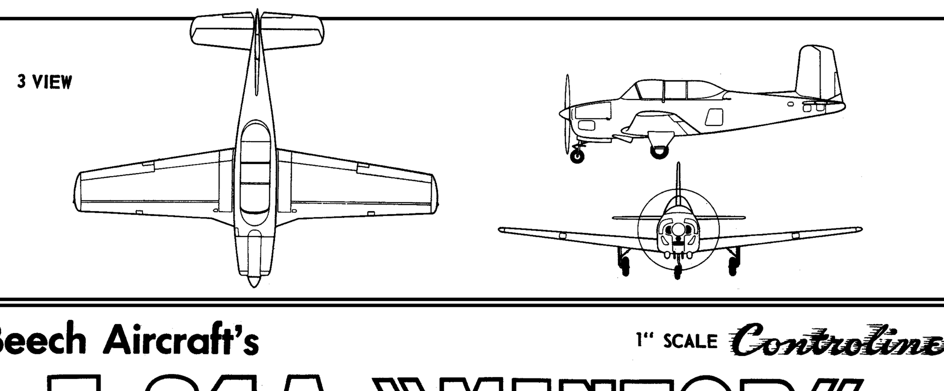
The stab and elevator are installed at this time, action of the elevator tested etc. A little more up than down movement is desirable. Rudder and control pushrod should now be cemented in position. Offset rudder 3/16" if "Autotrol" is not used. You may now continue with the planking, each part of which is die-cut. Bevel edges as necessary and trim planking to a final fit. Now carefully and thoroughly cement the wing in place, aligning front, top and side. Fillet etc. as indicated.

The cowl blocks are already carved for you. Hollow out to receive your engine. Add plywood ring, embossed canopy, etc.

Covering and finishing come after a thorough sanding all over. Only the wing need be tissue covered. Water shrink and fuel proof clear dope before painting silver. Apply wood filler to exposed balsa areas, sand smooth and follow with fuel proof clear dope, then fuel proof silver. Add details to degree you desire, and in this respect the three view below should help. Wire mount rather than cement rear wheel covers to the wing, as crabbing action on the gear might break them loose otherwise.

Check balance and trim if necessary before flying. Hold out for a calm day for the first test flights. 40' to 52' lines may be used for the initial flight. Take-off downwind from a smooth area, and hold your arm stiff at the elbow and wrist. By raising your arm, slight up elevator is achieved, while lowering your arm produces slight down elevator, thereby minimizing the risk of over controlling a new airplane. As you become familiar with the design, relax your arm accordingly. Treat your "Mentor" well, for you are its pilot. In turn it will provide you with the finest thrills of scale performance.

3 VIEW



Beech Aircraft's 1" SCALE *Controliner**

T-34A "MENTOR"

DESIGNED AND DRAWN BY: PAUL DELGATTO	SCALE: 1" EQUALS 1'	FOR .14 TO .29 ENGINES
KIT ENGINEERED BY: BILL EFFINGER	FULL SIZE PLANS	33" WINGSPAN
COPYRIGHT 1954 - REPRODUCTION FOR RESALE FORBIDDEN.	176 SQ. " WING AREA	26" LENGTH OVERALL

BERKELEY MODELS INC.,
WEST HEMPSTEAD, NEW YORK, U.S.A.