1/16" DOWEL PITOT TUBE
3/32" DOWEL CANNON
1/8" PLYWOOD LANDING GEAR SUPPORT
BEVEL LEADING EDGE COVERING
"PANCAKE" MOUNTED ON "CUB" .14" ENGINE (TOP VIEW SHOWN)
1/8" SHEET BALSA
WING
3/8" SQUARES
RED "MEATBALL"
WIRE LANDING GEAR
1/8" PLYWOOD SPAR JOINER
LEAD OUT LINE
PERFECT RECTANK NO. 4
TWIST & SOLDER
TAPER 1/4" THICK BALSA SPAR FROM 11/16" TO 1/4"
3/8"X 1/4"X 3-1/8" HARDWOOD MOUNTS IMBED INTO KEEL
LAMINATE 1/8" & 1/4" SHEET BALSA FOR SOLID WING TIP
INDIA INK AILERON OUTLINE
FUSELAGE LINE
SHEET BALSA KEEL
PLANE CENTERLINE
3/32" SHEET BALSA WING COVERING
1/8" PLYWOOD SANDWICH
SMALL SCREWEYE LINE GUIDE
1/8" SHEET BALSA RIBS
GUN
BEVEL TRAILING EDGE COVERING
1/8" PLYWOOD SPAR JOINER (MAKE IN ONE PIECE)
"HAMP" WING TIP
3/8"X 1/2"X 4-1/4" HARDWOOD ENGINE MOUNT
CUT WING TO ACCOMMODATE FUEL TANK
SCRAP BALSA SCOOP
BALSA BLOCK
TIN CAN METAL OR SHIM BRASS
"PLASTIC BALSA"
AUX. TANK
PERFECT RECTANK NO. 6
3/8"X 1/2"X 1-1/4" BELLCRANK MOUNT (HARDWOOD)
1/8" DIA. MUSIC WIRE LANDING GEAR
CARVE COWL FROM MEDIUM BALSA BLOCK OR TURN FROM PINE. 3" ALUMINUM COWL WILL FIT.
FLAP LINES
1/8" SHEET BALSA FILLET PLATFORM
1/4" SHEET BALSA VERTICAL KEEL
SOLDER WASHER TO AXLE
CUT AWAY FOR ENGINES WITH LONG CRANK-SHAFTS
ENGINE MOUNT
BUBBLE CANOPY
ROD OFFSET
3/32"X 1/4" PLANKING
1/8" SHEET BALSA
3/8" RUDDER OFFSET
KEEL
MOUNT
EXTEND MOUNT THROUGH HERE ONLY FOR LONG SHAFT ENGINES
"SCIENTIFIC" LARGE BELLCRANK
1/16" MUSIC WIRE CONTROL ROD
INSULATOR (SMALL BEAD)
BELLCRANK MOUNT
BALANCE LINE
.025" MUSIC WIRE LEAD OUT LINE (16" LG.)
GREY THREAD ANTENNAE
RED STRIPES
CUT FOR BELLCRANK
HOLLOW COWL THUSLY
JAPANESE OS ".29" ENGINE MOUNTED IN "HAMP" NOSE
CUT OUT FOR CONTROL ROD
PLASTIC TUBING FILLING & VENT LINES
HEADREST
HARDWOOD
PLANK FUSELAGE WITH 3/32" X 1/4" BALSA STRIPS
3/16" SHEET BALSA
HATCH LINE
KEEL
CUT OPENING FOR INTAKE
CUT KEEL TO CLEAR ATTACHED TANK
ENGINE MOUNTS
BELLCRANK MOUNT
BELLCRANK
15286
SLOT FUSELAGE FOR ROD
5/8" DIA. WHEEL
MOUNT
RED BALL
"SCIENTIFIC" HORN
1-1/4" ALUM. OR PLASTIC SPINNER (FILE NOSE ROUND)
SCOOP
1/16" DOWEL
STABILIZER
3/16" SHEET BALSA
CLOTH HINGES
3/16" DOWEL ELEVATOR SPAR
SCOOP ON "ZEKE" ONLY
SCOOP
SPACE FOR STABILIZER
VECO .29" ENGINE
SHEET METAL WHEEL COVER, SPOT SOLDER TO WIRE STRUT
OPTIONAL AUX. GAS TANK CUT FROM SOFT BALSA BLOCK
ALLOW AT LEAST 3/32" BETWEEN ENGINE & BALSA WOOD
1/8" SHEET BALSA
PLANKING
1-3/4" DIA. RUBBER WHEEL
ELEVATOR
FIXED PORTION

Mitsubishi Zero

Most famous fighter of early Pacific warfare was the Jap Zeke

By WALTER A. MUSCIANO

■ One of the biggest surprises of World War II was the fact that the Jap Zero fighter could outclimb and outmaneuver the best of Allied fighters during the months immediately following Pearl Harbor. These clean-looking craft held their own against some of the best U.S. planes for a longer period than the American flying forces like to remember.

Much confusion existed as to the actual identity of the real Zero. At one time, during 1942, as many as three Japanese planes were called "Zero." The Mitsubishi S-OO Mark I turned out to be the real, vaunted enemy fighter. This craft was called "Zeke" and is listed as such on all identification charts. A virtual twin, Hamp, was also called the Zero. Plans for both planes are shown.

Power was a 1,200 hp Mitsubishi Kinsei, twin-row, air-cooled, radial engine which pulled the craft to a top speed of 345 mph. Range was 1,600 miles with the aid of an auxiliary detachable tank. This tank, incidentally, was made of papier maché and plywood as a material conservation measure. A 500 lb. bomb could be substituted for it. Armament consisted of two 7.7-mm machine guns in the upper cowl and two 20-mm cannon mounted in the wing.

The "Achilles Heel" of the Zero was the fragile egg-shell construction that was necessary to obtain a light wing loading for its excellent maneuvering qualities. For this reason, the craft could not outslug its adversaries but relied on its climbing ability and maneuverability to utilize hit and run tactics.

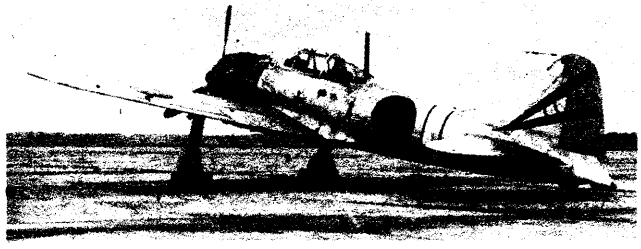
Our control line replica of this famous plane is built to the scale of ¾" = 1'-0" and will accommodate engines from .14 to .33 cubic inch displacement. A Veco .29 engine powers the prototype model. However, alternate engine installations are illustrated including upright and pancake mountings.

Construction is started by cutting the vertical keel to shape. Be certain to cut out for the wing and stabilizer as well as bellcrank mount. If a pancake engine installation is used, with a beam mount, spaces should be cut out of the keel for these mounts. Install the mounts now, if required. Cut the formers and plywood bulkhead to shape and cement to the keel. Note that the bulkhead should be cut out only to accommodate those engines with an attached tank. This bulkhead is normally left solid. Cement the bellcrank mount in place.

Attach the wire lead-out lines to the bellcrank and bolt the bellcrank to the mount. Be sure to twist and solder the ends of these lead-out lines as illustrated on the plans.

Cut the elevator and stabilizer to shape and sand smooth. Cement the elevator halves to the dowel spar and add the control horn. When thoroughly dry the elevator assembly is hinged to the stabilizer. Cloth hinges are used. Firmly cement the stabilizer into the slot in the keel and add the control rod.

Attention should now be directed to the wing. In order to attain the width required the wing covering must be butt-joined. When this joint is dry the sheet covering is cut to outline shape. Taper the balsa spars as described on the plan. Sand smooth and cement to the lower sheet covering. Saw the plywood spar joiner in one piece and firmly cement this to the balsa spars, thereby forming the correct dihedral automatically. The wing ribs are cut, sanded and then cemented to the spar and lower (*Continued on page* 70)



Captured Jap Mitsubishi fighter surprised U.S. pilots with its fine flight characteristics. See "Air Progress" 53/54 Issue for more data.

Mitsubishi

(*Continued from page* 28)

covering and held in place with straight pins until dry.

Wing-mounted landing gears can present a problem if not properly installed. The method used on our model has been successfully flight-tested on dozens of models. First bend the landing gear struts to shape, being sure to make one right and one left hand strut. Sandwich each strut between two pieces of plywood using plenty of cement. Hold together with "C" clamps until dry. Slip the landing gear through a hole in the bottom covering, axle first, from the top and apply plenty of cement, attaching the landing gear assembly to the ribs, spar and lower covering.

When the landing gear is firmly installed the upper wing covering can be added. First the trailing edge of the lower covering must be beveled to fair into the curvature of the rib upper camber. Once the sheet covering is cut to outline shape, it can be cemented to the upper edge of the spar. Hold in place with straight pins until dry. Now apply cement in the ribs forward of the spar and the beveled portion of the lower covering and hold in place with pins. Repeat with the rear portion of the covering. Use a relatively slow-drying cement for all sheet covering operations.

Cut the solid sheet balsa wing tips to shape and cement to the wing. When completely dry, these can be carved to shape and the entire wing structure should be thoroughly sanded with 1/0 and 3/0 sandpaper. The wing assembly can now be cemented to the fuselage. The incidence angle should be carefully checked during this operation. This angle is zero degree.

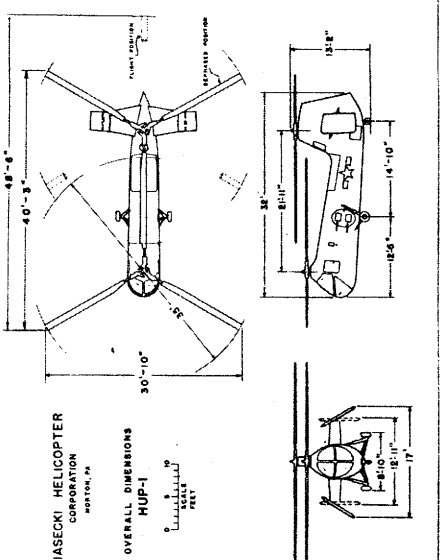
If a detached tank is required it should be installed at this time. Many commercial

fuel tanks will fit this model, such as Perfect, Maeco, Darwin, Acme, etc. Add the plastic tubing filling and vent extensions as well as the feed line extension. When installing the tank, much care should be taken to insure a very firm and steady attachment with the fuselage structure. Many model airplanes fail to operate properly because the tank is loose in the fuselage and the resulting vibration causes the fuel to foam, causing an uneven feed.

The fuselage is planked now. Start by cementing one planking strip to each side of the fuselage, holding these to the formers with straight pins until dry. Repeat this for the top and bottom. Cement another strip to each side of the four strips already in place. Care should be taken to cement these strips to each other as well as to the formers. Strips should be beveled and tapered in order to fit the fuselage perfectly. Do not, however, worry about hairline spaces between these strips. The spaces are filled in, when planking is through, with Plastic Balsa. When thoroughly dried, the entire fuselage should be well sanded and any

PIASECKI HUP-1

Tandem rotor Navy helicopter. Powered by 525 hp Continental. Later models HUP-2 and Army H-25 have automatic pilots, no vertical stabs.



remaining cracks should be filled with Plastic Balsa. Sand again.

The moderate-size wing fillet is easily made by first cutting the ⅛" sheet fillet platform and cementing both halves to the fuselage and wing trailing edge. When this is dry, several applications of Plastic Balsa can be smoothed on with the fingers. Four or five applications should complete the fillet. When quite well set (about 30 minutes) the fillet can be sanded smooth to fair into the fuselage and wing.

Complete building details are available on the full-size plans.